EUROPEAN COMMISSION
Competition DG

CASE AT.39711 – Qualcomm (predation)

(Only the English text is authentic)

ANTITRUST PROCEDURE

Council Regulation (EC) 1/2003

Article 7 Regulation (EC) 1/2003

Date: 18/7/2019

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EUROPEAN
COMMISSION

Brussels, 18.7.2019
C(2019) 5361 final

COMMISSION DECISION

of 18.7.2019

relating to a proceeding under Article 102 of the Treaty on the Functioning of the European Union and Article 54 of the EEA Agreement

Case AT.39711 – Qualcomm (predation)

(Text with EEA relevance)

(Only the English text is authentic)

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COMMISSION DECISION

of 18.7.2019

relating to a proceeding under Article 102 of the Treaty on the Functioning of the European Union and Article 54 of the EEA Agreement

Case AT.39711 – Qualcomm (predation)

(Text with EEA relevance)

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THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union ("Treaty"),[1]

Having regard to the Agreement on the European Economic Area ("EEA Agreement"),

Having regard to Council Regulation (EC) No 1/2003 of 16 December 2002 on the implementation of the rules on competition laid down in Articles 81 and 82 of the Treaty,[2] and in particular Article 7 and Article 23(2) thereof,

Having regard to the complaint lodged by Icera Inc. on 30 June 2009, as updated and revised on 8 April 2010 and supplemented by submissions of Nvidia Inc. of 1 May, 17 May and 31 July 2012, alleging infringements of Article 102 of the Treaty and Article 54 of the EEA Agreement by Qualcomm Inc. and requesting the Commission to put an end to those infringements,

Having regard to the Commission decision of 16 July 2015 to initiate proceedings in this case,

Having given the undertaking concerned the opportunity to make known its views on the objections raised by the Commission pursuant to Article 27(1) of Council Regulation No 1/2003 and Article 12 of Commission Regulation (EC) No 773/2004 of 7 April 2004 relating to the conduct of proceedings by the Commission pursuant to Articles 81 and 82 of the Treaty,[3]

After consulting the Advisory Committee on Restrictive Practices and Dominant Positions,

Having regard to the final report of the Hearing Officer in this case,

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[1] OJ C 115, 9.5.2008, page 47.

[2] OJ L 1, 4.1.2003, page 1 ("Council Regulation No 1/2003"). With effect from 1 December 2009, Articles 81 and 82 of the EC Treaty have become Articles 101 and 102, respectively, of the Treaty on the Functioning of the European Union. The two sets of provisions are, in substance, identical. For the purposes of this Decision, references to Articles 101 and 102 of the Treaty should be understood as references to Articles 81 and 82, respectively, of the EC Treaty where appropriate. The Treaty also introduced certain changes in terminology, such as the replacement of "Community" by "Union" and "common market" by "internal market". Where the meaning remains unchanged, the terminology of the Treaty will be used throughout this Decision.

[3] OJ L 123, 27.4.2004, page 18 ("Commission Regulation No 773/2004").

Whereas:

1. INTRODUCTION

(1) This Decision establishes that Qualcomm Inc. ("Qualcomm") infringed Article 102 of the Treaty and Article 54 of the Agreement on the European Economic Area by supplying, between 1 July 2009 until 30 June 2011, certain quantities of three of its UMTS compliant chipsets (the MDM8200, MDM6200 and MDM8200A based chipsets) to two of its key customers, Huawei and ZTE, below cost, with the intention of eliminating Icera, its main competitor at that point in time in the market segment offering advanced data rate performance ("leading edge segment"). By containing Icera's growth at the two key customers in this segment, which consisted at the time almost exclusively of chipsets used in mobile broadband devices, Qualcomm intended to prevent Icera, a small and financially constrained start-up, from gaining the reputation and scale necessary to challenge Qualcomm's dominance in the market for UMTS baseband chipsets, in particular in view of the expected growth potential of the leading edge segment due to the global take-up of smart mobile devices, thus depriving original equipment manufacturers in this segment from access to an alternative source of chipsets for their mobile phones and reducing consumer choice.

2. THE PARTIES CONCERNED

2.1. Qualcomm

(2) The addressee of this Decision is Qualcomm, a leading developer of wireless technology products and services headquartered in San Diego, California (USA). Qualcomm holds essential intellectual property rights ("IPRs") in a number of mobile telephony standards including the third generation UMTS and the fourth generation LTE standards. It is the leading supplier of chips and chipsets used in mobile handsets and other mobile devices.

(3) Qualcomm has a number of wholly-owned subsidiaries worldwide, among which two are of particular relevance for the conduct under investigation, since they were also involved in discussions with Huawei and ZTE: Qualcomm Europe Inc., ("Qualcomm Europe") and Qualcomm China Inc. ("Qualcomm China").

(4) Qualcomm conducts business primarily through its business units Qualcomm CDMA Technologies ("QCT") and Qualcomm Technology Licensing ("QTL"), which are operated by Qualcomm and its direct and indirect subsidiaries.[4]

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[4] At the beginning of fiscal year 2013, Qualcomm completed a corporate reorganization in which certain of its assets as well as the stock of certain of its direct and indirect subsidiaries were contributed to its wholly-owned subsidiary Qualcomm Technologies, Inc. ("QTI"). QTL continues to be operated directly by Qualcomm, which continues to own the vast majority of Qualcomm's patent portfolio. Substantially all of Qualcomm's products and services businesses, including QCT, and substantially all of Qualcomm's engineering, research and development functions, are operated by QTI and its subsidiaries. For more information on Qualcomm's corporate structure, see Form 10-K for the fiscal year ended September 28, 2014, […].

2.2. The complainant

(5) Icera Inc. ("Icera") was the initial complainant in this case. Founded in 2002 by four European semiconductor executives, Icera was established as a Delaware corporation but with its headquarters in Bristol, UK. Icera developed chipsets for devices providing mobile communications based on the UMTS standard, including data-cards (for example, USB sticks), laptops, netbooks, tablets and e-book readers.

(6) In May 2011, Icera was acquired by Nvidia Inc. ("Nvidia") and became a wholly owned subsidiary of Nvidia. Nvidia consequently assumed Icera's position as a complainant.[5]

(7) Nvidia is a technology company based in Santa Clara, California. Nvidia's core business focus is on graphics processing units. More recently, Nvidia has moved into the mobile computing market, where it produces Tegra processors used in phones and tablets, as well as auto infotainment systems.[6]

(8) In September 2012, Nvidia took the decision to cease supplying chipsets for USB sticks.[7] In May 2015, Nvidia announced that it would wind down its modem operations (*i.e.* Icera's baseband chipset business).[8]

2.3. Interested Third Persons

(9) On 22 April 2016, […] requested to be admitted to the proceedings as an interested third person.[9] […] is a multi-national telecommunications company providing mobile and fixed telecommunication services to consumers and businesses.

(10) On 24 May 2016, the Hearing Officer admitted […] to the proceedings as an interested third party pursuant to Article 27(3) of Council Regulation No 1/2003 and Article 13 of Commission Regulation No 773/2004. On 8 July 2016, in accordance with Article 13(1) of Commission Regulation No 773/2004, […] was informed in writing of the nature and subject matter of the proceedings by means of a summary version of the Statement of Objections adopted on 8 December 2015.[10] On 9 August 2016, […] confirmed that it did not have any comments on the document.[11] Since then, […] has not exercised any of its rights as an interested third person.

3. PROCEDURE

(11) On 30 June 2009, the Commission received a complaint under Article 7 of Council Regulation No 1/2003, lodged by Icera against Qualcomm ("initial Complaint"). On 8 April 2010, an updated and revised version of the initial Complaint was lodged ("Complaint"), specifying that it replaced the initial Complaint. The Commission started its investigation in this case on the basis of the allegations made in that updated and revised version of the initial complaint.

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5 See, *e.g.*, minutes of meeting between representatives of the Commission's Directorate General for Competition and Nvidia of 15 June 2011, […].

6 Auto infotainment or "*in-car entertainment*" is a collection of devices installed into automobiles, or other forms of transportation, to provide audio and/or audio/visual entertainment, as well as automotive navigation systems (SatNav).

7 Nvidia's letter of 18 September 2012, […].

8 Nvidia press release of 5 May 2015, printed on 22 July 2015, […].

9 […] e-mail of 22 April 2016, […].

10 Commission's e-mail of 8 July 2016, […].

11 […] e-mail of 9 August 2016, […].

(12) On 26 July 2010, Qualcomm submitted its observations with respect to the Complaint.

(13) By submissions of 1 May, 17 May and 31 July 2012, Nvidia, which had acquired Icera in May 2011, supplied further information, supplementing and bringing to the fore allegations concerning predatory pricing.

(14) On 16 July 2015, the Commission decided to initiate proceedings within the meaning of Article 2(1) of Commission Regulation No 773/2004.

(15) On 3 September 2015, a State of Play meeting with Qualcomm was held.

(16) On 8 December 2015, the Commission adopted a Statement of Objections ("SO") addressed to Qualcomm.[12]

(17) On 21 December 2015, Qualcomm was granted access to the file.

(18) On 15 August 2016, Qualcomm submitted a response to the SO ("SO Response") contesting the Commission's preliminary findings.[13]

(19) On 10 November 2016, an Oral Hearing took place.

(20) On 13 June 2017, Qualcomm lodged an application for the annulment of a Commission decision of 31 March 2017 requesting information from Qualcomm pursuant to Article 18(3) of Council Regulation No 1/2003 ("Article 18(3) Decision") with the General Court.[14] On the same date, Qualcomm also introduced an application under Articles 278 and 279 of the Treaty, seeking the suspension of the Article 18(3) Decision of 31 March 2017 or, in the alternative, the adoption of interim measures in this respect. By order of 12 July 2017, the President of the General Court dismissed the application for interim measures.[15] By judgment of 9 April 2019, the General Court dismissed the application for the annulment of the Article 18(3) Decision of 31 March 2017.[16] On 18 June 2019, Qualcomm lodged an appeal for the annulment of the General Court's judgment of 9 April 2019.[17]

(21) On 18 July 2018, a State of Play meeting with Qualcomm was held.

(22) On 19 July 2018, the Commission adopted a Supplementary Statement of Objections ("SSO") addressed to Qualcomm.[18]

(23) On 31 July 2018, Qualcomm was granted access to the documents registered on the Commission's file after the adoption of the SO on 8 December 2015.

(24) On 22 October 2018, Qualcomm submitted a response to the SSO ("SSO Response") contesting the Commission's preliminary findings as set out in the SO and supplemented by the SSO.

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12 A detailed overview of the investigative steps taken by the Commission until the adoption of the SO is set out in section 3 of the SO.

13 […].

14 The Article 18(3) Decision of 31 March 2017 was adopted following Qualcomm's failure to provide a reply to the questions set out in an information request of 30 January 2017 pursuant to Article 18(2) of Council Regulation No 1/2003, […].

15 Case T-371/17 R, *Qualcomm and Qualcomm Europe* v *Commission,* ECLI:EU:T:2017:485.

16 Case T-371/17, *Qualcomm and Qualcomm Europe* v *Commission,* ECLI:EU:T:2019:232.

17 Case C-466/19 P, *Qualcomm and Qualcomm Europe* v *Commission*.

18 A detailed overview of the investigative steps taken by the Commission between the adoption of the SO and the adoption of the SSO is set out in section 2 of the SSO.

(25) On 10 January 2019, an Oral Hearing took place.

(26) On 5 February 2019, the Commission sent a request for information pursuant to Article 18(2) of Council Regulation No 1/2003 to Qualcomm.[19]

(27) On 8 February 2019, the Commission sent an Article 18(2) request for information to ZTE.[20]

(28) On 19 February 2019, the services of the Directorate General of Competition met with Qualcomm in order to provide it with an update on the status of the Commission's assessment of the arguments raised by Qualcomm in its SSO Response and at the Oral Hearing.

(29) On 22 February 2019, the Commission sent Qualcomm a letter ("Letter of Facts") to (i) provide it with clarifications regarding certain elements set out in the SSO with which Qualcomm had taken issue in its SSO Response; (ii) inform it about pre-existing evidence that was not expressly relied on in the SO and SSO but which, on further analysis of the file, might have been relevant to support the preliminary conclusions reached in the SO as supplemented by the SSO; and (iii) bring to its attention limited updates to the SSO's price-cost analysis, which did not have an appreciable impact on the results.[21]

(30) On 24 March 2019, Qualcomm submitted its comments on the Letter of Facts ("Comments on the Letter of Facts").[22]

(31) On 25 April 2019, Qualcomm provided the Commission with a follow-up submission to the Oral Hearing of 10 January 2019.[23] The arguments contained in the submission mirror to a large extent those already made in Qualcomm's SO Response and SSO Response.[24]

(32) On 3 July 2019, a State of Play meeting with Qualcomm was held.

4. QUALCOMM'S CLAIMS OF PROCEDURAL IRREGULARITIES

(33) Qualcomm claims that the Commission has infringed Qualcomm's rights of defence due to a number of elements that it considers to constitute procedural irregularities.

(34) First, Qualcomm claims that the Commission failed to conduct a proper and timely investigation, which affected Qualcomm's ability to exercise its rights of defence.[25] Relatedly, Qualcomm claims that the passage of time has also affected Huawei's and ZTE's ability to respond to the Commission's questions, resulting in the

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19 […].

20 […].

21 […].

22 […].

23 […].

24 In this Decision, references to Qualcomm's follow-up submission to the Oral Hearing of 10 January 2019 are therefore limited to instances in which the arguments raised therein go beyond Qualcomm's SO Response and SSO Response.

25 Qualcomm's SSO Response, […], paragraphs (43)-(50); Qualcomm's Comments on the Letter of Facts, […], paragraph (9).

Commission's analysis relying on partial and selective information.[26] These claims are incorrect for the following reasons.

(35) In the first place, the Commission has made at all times utmost efforts to proceed with the investigation as swiftly as possible, while duly complying with its obligation to carefully and impartially examine all relevant evidence,[27] including the arguments raised by Qualcomm in the course of the investigation.[28]

(36) In the second place, the duration of the investigation reflects the complexity of the predatory pricing allegations made by Icera/Nvidia, which the Commission has been actively investigating only as of 2012 following additional submissions made by Nvidia (see recital (13) above).[29] In particular, the assessment that the Commission had to carry out in this case included, in addition to a comprehensive qualitative analysis of the contemporaneous evidence on the file, a particularly cumbersome analysis of a large amount of quantitative evidence for the purpose of establishing the prices effectively paid by Huawei and ZTE, as well as an appropriate cost measure for the application of the price-cost test. The fact that the investigation in this case concerns composite products made the required analyses of large amounts of data, most of which can be accessed only by the investigated party, particularly complex.[30]

(37) In the third place, the duration of the investigation reflects the extent to which Qualcomm has been willing to cooperate with the Commission. In fact, throughout the investigation, Qualcomm has shown a certain reluctance to provide the Commission with the information that the Commission considered necessary, notably for establishing an appropriate cost measure in relation to the products under investigation. In particular, when requested to provide specific information on cost items incremental to the products under investigation, Qualcomm failed to provide meaningful information in this respect, limiting itself instead to criticising the Commission's efforts to establish a sound cost measure.[31] This made it necessary for the Commission to engage in a time-consuming exploration of potential alternative approaches. As a result, in the SO adopted in December 2015 (*i.e.* after three and a half years of investigating Icera's predatory pricing related allegations, see recital (36) above), the Commission relied on Qualcomm's average yearly expenditure on R&D as a proxy for the purposes of its price-cost test.[32] This cost measure was

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26 Qualcomm's SSO Response, […], paragraphs (51)-(64); Qualcomm's Comments on the Letter of Facts, […], paragraph (85).

27 Case C-269/90, *Technische Universität München*, ECLI:EU:C:1991:438, paragraph 14; Case T-44/90, *La Cinq v Commission*, ECLI:EU:T:1992:5, paragraph 86; and Joined Cases T-191/98, T-212/98 to T-214/98 *Atlantic Container Line and Others v Commission*, ECLI:EU:T:2003:245, paragraph 404.

28 This has been confirmed by the General Court in its judgment in Case T-371/17 R, *Qualcomm and Qualcomm Europe* v *Commission,* ECLI:EU:T:2017:485, paragraph 101, where it stated in relation to the Commission's Article 18(3) Decision of 31 March 2017 that *"the Commission has thus complied with its duty to examine, carefully and impartially, all the relevant evidence, including the arguments put forward by the applicants"*.

29 The Complaint had primarily focused on allegations other than predatory pricing, such as Qualcomm's licencing and rebate practices.

30 Case T-371/17, *Qualcomm and Qualcomm Europe* v *Commission,* ECLI:EU:T:2019:232, paragraph 125.

31 See, in particular, Qualcomm's reply of 12 January 2015 to question 9 of Article 18(3) Decision of 13 October 2014, […], paragraphs (41)-(92). See also SO, paragraph (362).

32 See SO, paragraphs (360)-(361).

revised in the SSO issued in July 2018 in reaction to the arguments made by Qualcomm in its SO Response and at the Oral Hearing.

(38) Moreover, when the Commission requested on 30 January 2017 certain data and information necessary to assess some of the arguments raised by Qualcomm in its SO Response and at the Oral Hearing, Qualcomm failed to provide the requested information, thereby requiring the Commission to seek that data and information by means of an Article 18(3) Decision adopted on 31 March 2017.[33] After having sought an extension of the time limit to respond to that information request until 28 July 2017[34] and later until 31 August 2017,[35] Qualcomm submitted its reply on 16 and 30 June 2017, following limited deadline extensions granted by the case team[36] and by the Hearing Officer,[37] *i.e.* around 3 months after the adoption of the Article 18(3) Decision and around 5 months after the Commission's Article 18(2) information request of 30 January 2017. The appropriateness of the time period granted to Qualcomm for providing the requested information was confirmed by the General Court.[38]

(39) In the fourth place, the duration of the investigation was impacted by the choices made by Qualcomm in the context of its defence strategy against the preliminary objections raised by the Commission in the SO. For example, following the adoption of the SO, Qualcomm chose to engage in an extensive exchange of correspondence[39] with the Commission with regard to a total of 449 alleged access to file related issues[40] and a number of alleged *"referencing issues in the SO"*.[41] The time needed to clarify these issues resulted in Qualcomm's SO Response eventually reaching the Commission only on 15 August 2016, *i.e.* more than eight months after the adoption of the SO.

(40) In the fifth place, the duration of the investigation cannot have impacted Qualcomm's rights of defence since Qualcomm has been aware of the Commission's investigation

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33 The Article 18(3) Decision of 31 March 2017 set the following time limits for Qualcomm to reply to the information request: 12 May 2017 for questions 3, 4, 5, 7, 11-27 and 26 May 2017 for questions 1, 2, 6, 8, 9, 10.

34 See Qualcomm's letter of 10 April 2017, […].

35 See Qualcomm's letter to the Hearing Officer of 8 May 2017, […].

36 See Commission's letter of 26 April 2017, […], by which the Commission accepted, as a matter of courtesy, a two-week extension of the time limits for Qualcomm to respond to the Article 18(3) Decision of 31 March 2017.

37 See the Hearing Officer's letter of 15 May 2017, […], by which the Hearing Officer extended the time limits for Qualcomm to respond to the Article 18(3) Decision of 31 March 2017 until 16 June 2017 (for questions 3, 4, 5, 7, 11-27) and 30 June 2017 (for questions 1, 2, 6, 8, 9, 10). In its letter, the Hearing Officer noted, amongst other, that *"*[t]*he difficulties depicted* [by Qualcomm] *of responding to the Questions appear to be generally overstated"* (see page 4 of the letter).

38 See Case T-371/17, *Qualcomm and Qualcomm Europe* v *Commission,* ECLI:EU:T:2019:232, paragraph 165.

39 See, in particular, Qualcomm's letter of 5 February 2016, […]; Commission's letter of 7 March 2016, […]; Qualcomm's letter of 16 March 2016, […]; Qualcomm's letter of 24 March 2016, […]; Commission's letter of 8 April 2016, […]; Qualcomm's letter to the Hearing Officer of 18 April 2016, […]; Hearing Officer's e-mail of 29 April 2016, […]; Hearing Officer's letter of 13 July 2016, […].

40 See, in particular, Annex to Qualcomm's letter of 16 March 2016, […]. The list of alleged *"access to file issues"* provided in that annex spans 193 pages.

41 See, in particular, Qualcomm's letter of 5 February 2016, […], pages 5-6, 36-46. *E.g.*, Qualcomm complained about alleged inconsistent page referencing in the SO, claiming that *"*[o]*n a number of occasions, the Commission refers in the footnote to the page number of the 'PDF' file rather than to the page number of the underlying document."*

since at least June 2010[42] and was therefore under a duty, at least as from that date, to act with greater diligence and to take all appropriate measures in order to preserve evidence relevant to the investigation.[43] Given that exculpatory evidence (*i.e.* Qualcomm internal documents disproving the existence of a predatory strategy) can only stem from Qualcomm itself, the inability of third parties to provide information on their perception of Qualcomm's intentions due to the relevant employees having since left the company or relevant documents having been deleted or lost cannot affect Qualcomm's rights of defence.

(41) Second, Qualcomm claims that it has not been given sufficient time to respond to the SO and to the SSO.[44] Both claims are unfounded.

(42) As regards the SO, the time period of four months initially granted to Qualcomm for responding to the Commission's objections was, despite the limited length of the SO (119 pages), already longer than usual[45] to take account of the size of the file and the nature of the objections as well as of the fact that the Commission had addressed a second Statement of Objections to Qualcomm in another case on the same day.[46] This time period was subsequently extended upon Qualcomm's request to an overall period of around 8 months. Considering notably the length of Qualcomm's SO Response (335 pages excluding annexes, as compared to the SO of 119 pages), there are no indications that the time period eventually available to Qualcomm was insufficient for it to be able to exercise its rights of defence in relation to the SO.

(43) As regards the SSO, the Commission notes that the objections set out in the SSO were (except for the reduced duration of the conduct) identical to the objections set out in the SO. The SSO essentially consisted of a revised price-cost test and a more extensive analysis of the documentary evidence in the file in reaction to the arguments made by Qualcomm in its SO Response and at the Oral Hearing. Despite Qualcomm therefore already having been familiar with subject matter of the SSO, the time limit of eight weeks initially granted to Qualcomm for responding to the SSO was extended twice to almost 12 weeks, *i.e.* almost three times the minimum period and almost five weeks more than the time period normally granted in more complex cases.[47] Considering notably the length of Qualcomm's SSO Response (379 pages excluding annexes, as compared to the SSO of 287 pages), there are no indications that the time period eventually available to Qualcomm was insufficient for it to exercise its rights of defence in relation to the SSO.

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42 See Commission's letter of 7 June 2010, […], by which the Commission provided Qualcomm with a non-confidential version of the Complaint.

43 Case T-371/17, *Qualcomm and Qualcomm Europe* v *Commission,* ECLI:EU:T:2019:232, paragraph 137.

44 Qualcomm's SO Response, […], paragraph (909); Qualcomm's SSO Response, […], paragraphs (70), (195)-(204).

45 See Commission notice on best practices for the conduct of proceedings concerning Articles 101 and 102 of the Treaty, OJ C 308, 20.10.2011, pages 6-32. Paragraph 100 refers to a minimum period of four weeks and a longer period of normally two months in more complex cases to be granted to addressees of a Statement of Objections to submit their response to the latter.

46 Case AT.40220 *Qualcomm (exclusivity payments)*.

47 See footnote 45 above.

(44) Third, Qualcomm claims that it has not been granted adequate access to the file following the adoption of both the SO and the SSO.[48] These claims are unfounded.

(45) As regards the SO, Qualcomm itself acknowledged that any access to file related issues it had raised were resolved well before it submitted its SO Response.[49] Any such issues cannot therefore have affected its rights of defence in relation to the SO.

(46) As regards the SSO, Qualcomm was granted access to the file on 31 July 2018.[50] Upon request and as a matter of courtesy, on 6 August 2018, Qualcomm was provided with the working spreadsheets underlying the price-cost test carried out in the SSO.[51] The Commission also promptly reacted to Qualcomm's subsequent access to file related requests,[52] amongst other by providing revised non-confidential versions of a total of 18 documents[53] as well as certain explanations and clarifications on other issues raised by Qualcomm in this context.[54] The absence of any prejudice to Qualcomm's rights of defence from the access to the file granted to Qualcomm following the adoption of the SSO is corroborated by the fact that Qualcomm did not make use of the opportunity offered by the Commission to complement its SSO Response after having been provided with revised non-confidential versions of certain documents[55] which Qualcomm had previously labelled as *"most relevant to Qualcomm's defence"*.[56]

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48 Qualcomm's SO Response, […], paragraphs (902)-(908); Qualcomm's SSO Response, […], paragraphs (205)-(216).

49 See Qualcomm's SO Response, […], paragraph (908), which, by stating that *"these issues could and should have been resolved prior to the issuance of the SO, and it is regrettable that Qualcomm, the Hearing Officer and his staff had to dedicate so much time and resources to resolving them"*, implicitly recognises that the access to file related issues had been resolved.

50 In accordance with its request of 30 July 2018, on 31 July 2018 Qualcomm was provided with a CD-ROM containing the documents accessible to Qualcomm that had been registered on the Commission's file after the adoption of the SO. See Explanatory Note on the CD-ROM containing documents on the Commission's file handed over to Qualcomm on 31 July 2018, […].

51 The Commission notes that these spreadsheets did not contain any additional information that would be necessary to replicate the price-cost test carried out in the SSO. See Commission's letter of 9 August 2018, […], pages 1-2.

52 See, in particular, Qualcomm's letter of 8 August 2018, […]; Qualcomm's letter to the Hearing Officer of 19 September 2018, […]; Qualcomm's letter of 4 October 2018, […]; Qualcomm's letter to the Hearing Officer of 12 October 2018, […].

53 These include five documents made available to Qualcomm in revised non-confidential versions following Qualcomm's request of 8 August 2018 (see Qualcomm's letter of 8 August 2018, […]) and 13 documents made available to Qualcomm in revised non-confidential versions following Qualcomm's request, which was for the first time made in a substantiated manner in Qualcomm's letter to the Hearing Officer of 19 September 2018 ([…]).

54 See, in particular, the Commission's letter of 14 August 2018, […]; the Commission's letter of 28 September 2018, […]; the Commission's letter of 9 October 2018, […]; the Hearing Officer's letter of 7 November 2018, […]; the Commission's letter of 8 November 2018, […].

55 See the Commission's e-mail of 5 November 2018, […]. The documents provided consisted in a total of five files containing quotations for and purchase orders by ZTE during 2013.

56 See Qualcomm's letter to the Hearing Officer of 12 October 2018, […], page 8.

5. STANDARDS, STANDARD-SETTING ORGANISATIONS AND STANDARD ESSENTIAL PATENTS

5.1. Standards

(47) Standards ensure compatibility and interoperability between related products. This has many benefits.[57] Standards can encourage innovation and lower costs by increasing the volume of manufactured products. Standards can strengthen competition by enabling consumers to switch more easily between products from different manufacturers. Standards may also further the Treaty objective of achieving the integration of national markets through the establishment of an internal market. The European Union has accordingly promoted standardisation as a tool for European competitiveness.[58]

5.2. Standard-setting organisations

(48) Standard-setting organisations are organisations whose primary activity is to develop and maintain standards by bringing together industry participants and interested stakeholders to evaluate competing technologies for inclusion in standards.

(49) Standard-setting organisations also seek to ensure that participants contribute technology that will create valuable standards and that these standards are widely adopted. The broader the implementation of a standard, the greater the interoperability benefits.

(50) Participants in a standard-setting process can obtain significant benefits if their technology becomes part of a standard. These include potential royalties from licensees, a large base of licensees, increased demand for their products and improved compatibility with other products using the standard.

(51) The European Union and the European Free Trade Association (EFTA) have recognised three standard-setting organisations as official European standardisation bodies:[59] the European Committee for Standardisation (CEN), the European Committee for Electrotechnical Standardisation (CENELEC) and the European Telecommunications Standards Institute (ETSI).[60]

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57 Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements ("Horizontal Guidelines"), OJ C 11, 14.1.2011, page 1, paragraph 263.

58 See Communication from the Commission of 11 March 2008 to the Council, the European Parliament and the European Economic and Social Committee, *"Towards an increased contribution from standardisation to innovation in Europe"*, COM(2008) 133 final; Communication from the Commission of 1 June 2011 to the European Parliament and the European Economic and Social Committee: *"A strategic vision for European standards: Moving forward to enhance and accelerate the sustainable growth of the European economy by 2020"*, COM(2011) 311 final; and Communication of 19 April 2016 to the European Parliament the Council, the European Economic and Social Committee and the Committee of the Regions *"ICT Standardisation Priorities for the Digital Single Market"*, COM(2016) 176 final. See also Regulation (EU) No 1025/2012 of the European Parliament and of the Council of 25 October 2012 on European standardisation, amending Council Directives 89/686/EEC and 93/15/EEC and Directives No 94/9/EC, 94/25/EC, 95/16/EC, 97/23/EC, 98/34/EC, 2004/22/EC, 2007/23/EC, 2009/23/EC and 2009/105/EC of the European Parliament and of the Council and repealing Council Decision 87/95/EEC and Decision No 1673/2006/EC of the European Parliament and of the Council, OJ L 316, 14.11.2012, page 12.

59 See Annex I of Regulation (EU) No 1025/2012, OJ L 316, 14.11.2012, page 12.

60 The European Telecommunications Standards Institute produces globally-applicable standards for Information and Communications Technologies (ICT), including fixed, mobile, radio, converged,

5.3. Standard essential patents

(52) Standards frequently make reference to technologies that are protected by patents, especially in industries such as telecommunications. Hundreds or even thousands of patents may read on a single standard. Thus, when a user of a standard (also known as an "implementer") manufactures standard-compliant products, it cannot avoid that its products use technologies that are covered by such patents.

(53) Patents that are essential to a standard are those that cover technology to which a standard makes reference and that implementers of the standard cannot avoid using in standard-compliant products. These patents are known as standard-essential patents ("SEPs"). SEPs are different from patents that are not essential to a standard ("non-SEPs"). This is because it is generally technically possible for an implementer to design around a non-SEP to comply with a standard. By contrast, an implementer has to use the technology protected by a SEP when manufacturing a standard-compliant product.

(54) The major standard-setting organisations in the field of wireless communications, namely ETSI, the Institute of Electrical and Electronics Engineers ("IEEE") and the International Telecommunications Union ("ITU") require their members to license their SEPs on (fair,) reasonable and non-discriminatory ("(F)RAND") terms.

6. THE TECHNOLOGY AND PRODUCTS CONCERNED BY THE DECISION

(55) This Decision concerns baseband chipsets that implement and comply with the UMTS standard of cellular communication technology.

(56) Cellular communication technology allows communication by means of a cellular network, which is a radio network distributed over land through cells, where each cell includes a fixed location transceiver known as a base station. These cells together provide radio coverage over larger geographical areas. Cellular user equipment, such as mobile phones, is therefore able to communicate even if the equipment is moving through those cells during transmission.

(57) In this Decision, the following definitions apply:

(a) "UMTS(-compliant) chipsets" means baseband chipsets that implement and comply with the UMTS cellular communications standard;

(b) "GSM chipsets" means baseband chipsets that comply with the GSM standard but not with the UMTS and LTE standards.

6.1. The evolution of cellular communication standards

6.1.1. GSM

(58) Global System for Mobile Communications ("GSM") is a standard developed by ETSI to describe technologies for second generation ("2G") digital cellular networks. Developed as a replacement for first generation ("1G") analogue cellular networks, the GSM standard originally described a network optimized for voice telephony. The standard was expanded over time to include packet data transport via General Packet

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broadcast and Internet technologies. It includes more than 850 member organizations worldwide, drawn from over 60 countries and five continents.

Radio Services ("GPRS") and Enhanced Data rates for GSM Evolution ("EDGE"). Later technology generations build on the principles established by this standard.

(59) In this Decision, references to GSM include GPRS and EDGE.

6.1.2. UMTS

(60) Universal Mobile Telecommunications System ("UMTS") is a third generation ("3G") wireless and mobile communications standard capable of supporting multimedia services beyond the capability of 2G systems such as GSM.

(61) The beginning of the UMTS standard setting process dates back to the early 1990s when the concept of UMTS emerged from European research programmes. In 1992, ETSI established a technical working group[61] specifically to investigate the UMTS concept. By January 1998, the decision was made to adopt two alternative technologies, Wideband-Code Division Multiple Access ("W-CDMA") and Time Division-(Synchronous) Code Division Multiple Access ("TD-(S)CDMA")[62] as options for the radio part of the UMTS standard.

(62) In December 1998, following a decision of the ETSI General Assembly, the work on UMTS was moved to a new group which included delegations from the US, South Korea and Japan as full members. It became known as the 3rd Generation Partnership Project or "3GPP". The aim of 3GPP was to create a globally applicable 3G mobile phone system standard.

(63) In December 1999, 3GPP completed what was known as "Release 99". This marked the first iteration of the UMTS standard. Release 99 was then transposed by ETSI into formal European standards throughout 2000. In line with the requirements of Decision 128/1999/EC,[63] the UMTS standard was implemented in most Member States during the following years.

(64) 3GPP has further evolved the W-CDMA variant of UMTS in order to provide improved characteristics, including higher data rates. Notable evolutions of W-CDMA include High Speed Packet Access ("HSPA"),[64] Evolved High Speed Packet Access ("HSPA+")[65] and Dual Carrier HSPA ("DC-HSPA").[66] These evolutions formed part of subsequent 3GPP Releases (see section 6.2.2 below).

(65) In this Decision the term UMTS will be used to describe only the W-CDMA variant of the radio interface as well as its evolutions, *i.e.* HS(D/U)PA, HSPA+, DC-HSPA. These technologies are also known as UMTS Frequency Division Duplexing ("UMTS-FDD"), as opposed to the alternative technology UMTS-TDD (see recital (61) above and section 10.2.5. below).

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61 Technical Committee Special Mobile Group (TC SMG).

62 The two variants (TD-CDMA and TD-SCDMA) are collectively also known as UMTS Time Division Duplexing ("UMTS-TDD").

63 Decision No 128/1999/EC of the European Parliament and of the Council of 14 December 1998 on the coordinated introduction of a third-generation mobile and wireless communications system (UMTS) in the Community, OJ L 17, 22.1.1999, pages 1-7.

64 HSPA is a technology that provides enhanced data rates in UMTS (W-CDMA) networks. It is the combination of High Speed Downlink Packet Access ("HSDPA") and High Speed Uplink Packet Access ("HSUPA") technologies.

65 HSPA+ is an evolution of HSPA that provides data rates up to 28 Mbps (Megabit per second).

66 DC-HSPA is a technology that combines data transmissions from two carriers (cells). The concept is enhanced further in M(ulti)C(arrier)-HSPA.

6.1.3. LTE

(66) Long Term Evolution ("LTE") is based on the GSM and UMTS standards, increasing the capacity and speed using a different radio interface together with core network improvements. This standard was also developed by 3GPP.

(67) LTE is commonly referred to as a fourth generation ("4G") standard, although strictly speaking the requirements set for 4G are satisfied only by its later iterations (known as LTE-Advanced or LTE-A).

(68) In this Decision, the term LTE will be used to refer to LTE, LTE-A, and further iterations of the LTE technology.

6.1.4. Other cellular and wireless communication standards

(69) In addition to GSM, UMTS and LTE, there are other cellular communication standards such as Code Division Multiple Access ("CDMA").[67] Moreover, there are standards for wireless communication which do not make use of cellular technology, such as Worldwide Interoperability for Microwave Access ("WiMAX") and Wireless Local Area Network ("WLAN"), also commonly called WiFi.

(70) These standards are standardised by standard-setting organisations like the Third Generation Partnership Project 2 ("3GPP2")[68] and the IEEE.

6.2. Baseband chipsets

6.2.1. Functions

(71) Mobile devices such as smartphones, tablets, portable PCs and e-book readers require mobile broadband[69] connectivity to the internet through cellular mobile telecommunication networks ("mobile networks"; see recital (56) above).

(72) The core component providing mobile connectivity in a device is the baseband processor. Its main task is to perform the signal processing functionality according to communication protocols described by cellular standards. Baseband processors can be embedded directly in mobile devices, or in external modules (*e.g.* a USB stick), which are in turn plugged into a device.

(73) A baseband processor typically consists of both hardware and software. It is made of semiconductor material ("silicon die") and packaged into a chip using ceramic or plastic material. That chip is referred to as a "baseband chip".

(74) In addition to the baseband processor, certain types of mobile devices require an application processor, used for running the operating system and applications (like messaging, internet browsing, imaging and games). This application processor can be provided as a standalone product, packaged into a separate chip or can be integrated

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67 In this Decision the term CDMA will be used to describe only the CDMA2000 standard (a 3G mobile technology standard competing with UMTS) and the cdmaOne or IS-95 standard (a 2G mobile technology standard) (see also footnote 168 below).

68 3GPP2 is the standardization group for CDMA2000, a CDMA based technology alternative to UMTS for 3G networks. The organisation is unrelated, but similar to 3GPP.

69 According to the Commission's Digital Agenda Glossary, mobile broadband is the name used to describe various types of wireless high-speed internet access through a portable modem, telephone or other device. See https://ec.europa.eu/digital-agenda/en/broadband-glossary#S, printed on 4 December 2015, […].

with the baseband processor into the same silicon die and packaged into the same chip.

(75) Based on the above distinction, baseband chips can be divided into two categories:

(a) Standalone baseband chips, where no application processor is included; and

(b) Integrated baseband chips, where the baseband processor has been integrated with an application processor, usually into a single silicon die, and is packaged in the same chip.

(76) Regardless of the presence of an application processor, a baseband processor is typically paired with two additional components to complete its functionality, namely the Radio Frequency ("RF") integrated circuit, also known as RF transceiver,[70] and the Power Management ("PM") integrated circuit.[71] All three functionalities (baseband processor, RF transceiver and PM circuitry) are necessary for mobile connectivity and their resulting combination is called a "baseband chipset".[72] The three components of baseband chipsets are usually purchased from the same supplier, either as a bundle or separately.[73]

(77) In this Decision, the term "integrated baseband chipset(s)" or simply "integrated chipset(s)" will be used for chipsets that include an integrated baseband chip. The term "standalone baseband chipset(s)", "slim baseband chipset(s)" or "slim modem(s)" will be used for chipsets that include a baseband chip but not an application processor.

(78) Baseband chipsets, whether standalone or integrated, implement one or multiple wireless standards, from the same or from different technology families and generations. For example, a baseband chipset might implement only the GSM standard, or it might implement a combination of the GSM, UMTS and LTE standards.

6.2.2. Technological evolution of UMTS compliant chipsets[74]

(79) The UMTS compliant chipset technology evolution is driven to a significant extent by the UMTS standardisation process. New market requirements trigger the development of new iterations of UMTS and other standards from the same family, namely GSM and LTE.[75]

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70 RF integrated circuits contain analogue circuitry which allows the operation of the device at the frequencies allocated to mobile communications.

71 PM integrated circuits manage the power requirements of the mobile device.

72 Typically the three components (baseband, RF, PM) are implemented on separate pieces of silicon and reside in different chips. In a few cases, either the RF transceiver, or the PM component, or both, may be packaged into the same chip as the baseband processor.

73 Icera's Complaint, […], paragraph (62), page 39.

74 This section is based on information published by 3GPP on its website, printed on 7 October 2015, […] and […].

75 3GPP is developing all three generations (GSM/UMTS/LTE) of standards in parallel. In order to facilitate coordination of the different network functions, the iterations of these standards are grouped into the so-called 3GPP Releases that are made of sets of detailed technical specifications. Manufacturers of mobile network infrastructure and mobile devices use these specifications for the development of their products. Typically, they declare the compliance of these products to certain 3GPP Releases, or to certain specifications within those Releases.

(80) In turn, the adoption of new standards spurs product development, both for mobile network infrastructure and for mobile devices. Since the baseband chipset is the device component responsible for connectivity to the mobile network, the compliance with standards is a key feature of baseband chipsets. Developments of both network infrastructure and devices are appropriately coordinated, with all suppliers engaging in extensive testing to ensure interoperability. For technical reasons, readiness of mobile infrastructure usually precedes readiness of devices.

(81) The standardisation process is driven by contributions from the industry. These contributions are typically based on research and development activities undertaken by the companies involved well before a standard is discussed and adopted. It follows that companies which have significantly contributed to a standard are better placed to develop products compliant with that standard, enjoying a head-start compared to their competitors.

(82) The major breakthroughs in the evolution of UMTS compliant chipsets are related to the support of increasingly high data rates of mobile broadband connectivity: before HSPA technology, UMTS was supporting data rates up to 0.384 Mbps. These data rates were inadequate to support typical broadband applications like full internet browsing and video streaming. HSPA technology (3GPP Release 4 and 3GPP Release 5) enabled data rates up to 14 Mbps providing true broadband connectivity. Subsequent iterations of HSPA+ in 3GPP Releases 7 and 8 increased the data rates even further to 28 Mbps and 42 Mbps, respectively (see also recitals (340) and (352) below).

(83) UMTS compliant chipsets typically also provide support for GSM/EDGE (2G).[76] This support is indispensable in the case of mobile phones, as for most mobile network operators ("MNOs") GSM is still important for voice in terms of coverage and capacity. GSM/EDGE may also be useful for mobile broadband ("MBB") devices (see section 6.2.4 below), although it does not provide broadband connectivity. Via its basic connectivity support, however, GSM can ensure service continuity in case of gaps in UMTS network coverage.

(84) With the development of the LTE standard (first release adopted in December 2008), LTE baseband chipsets started to emerge. The initial LTE chipsets were compliant exclusively with LTE (so-called "single-mode" LTE chipsets), which limited their practical use due to the limited deployment of LTE networks. Gradually, the major baseband suppliers developed chipsets supporting both UMTS and LTE, with the first such products becoming commercially available in 2011-2012. The UMTS and LTE technologies were developed in parallel by 3GPP, for improved performance and interoperability.

6.2.3. UMTS chipset development and production

(85) Baseband chipset suppliers typically design and develop their products themselves.[77] The majority however do not fabricate them in their own facilities. Instead, they

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[76] The Commission's investigation has not identified any UMTS chipset that was not compliant also with GSM/EDGE.

[77] In a few cases, the RF and/or the PM components of the chipset have been developed by third parties. For example, the majority of Icera's chipsets typically used a third party PM component; see Nvidia's submission of 31 July 2012 titled *"Supplementary Evidence on Qualcomm's Abusive Conduct*", […] page 17.

outsource fabrication to specialised manufacturers called foundries which aggregate demand from multiple semiconductor suppliers. The baseband chipset suppliers that outsource the production of chipsets are called "fabless suppliers".[78]

(86) A further development for UMTS compliant chipsets has been the introduction of slim modems (see recital (77) above). As further explained at recitals (374)-(375) below, Icera entered the UMTS chipset market with sales of the first slim modem in 2006, targeting the MBB segment (see section 6.2.4 below). Shortly thereafter, Qualcomm followed Icera in the development and launch of slim modems. Other companies like Intel/Infineon, Mediatek and HiSilicon have later also developed slim modems, in parallel to their integrated chipsets.

(87) Slim modems have eventually prevailed in MBB devices such as data cards (see recitals (102)-(104) below). They are however also widely used in smartphones and tablets, when an OEM prefers to have the baseband processor and the application processor residing in different chips (a concept known as "two-chip" architecture; see recital (99) below).

6.2.4. Customers and applications

(88) Baseband chipsets are typically sold to original equipment manufacturers ("OEMs"), which incorporate them into devices that make use of mobile connectivity. OEMs include Apple, HTC Corporation ("HTC"), Huawei Technologies Co. Ltd. ("Huawei"), LG Corp ("LG"), Nokia Corporation ("Nokia"),[79] Samsung Group ("Samsung"), and ZTE Corporation ("ZTE").

(89) OEMs incorporate baseband chipsets into a variety of mobile devices, which could be grouped in two broad categories during the period from 2009 to 2011 ("Relevant Period"):

(a) Mobile phones (also called handsets), usually further classified into:

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[78] See […] reply of 18 May 2015 to questions 9, 10 and 11 of Article 18(2) request for information of 30 April 2015, […], page 4; […] reply of 26 May 2015 to questions 9, 10 and 11 of Article 18(2) request for information of 30 April 2015, […], page 5; […] reply of 25 May 2015 to questions 9, 10 and 11 of Article 18(2) request for information of 30 April 2015 to baseband chipset suppliers, […] page 5; […] reply of 25 May 2015 to questions 9, 10 and 11 of Article 18(2) request for information of 30 April 2015 to baseband chipset suppliers, […], page 7; […] reply of 27 May 2015 to questions 9, 10 and 11 of Article 18(2) request for information of 30 April 2015, […] page 4; […] reply of 29 May 2015 to questions 9, 10 and 11 of Article 18(2) request for information of 30 April 2015, […], pages 4-5; […] reply of 5 May 2015 to questions 9, 10 and 11 of Article 18(2) request for information of 30 April 2015, […], pages 7-8; […] reply of 27 May 2015 to questions 9, 10 and 11 of Article 18(2) request for information of 30 April 2015, […], page 5; […] reply of 31 May 2015 to question 10 of Article 18(2) request for information of 30 April 2015, […] page 6; […] reply of 26 May 2015 to questions 10 and 11 of Article 18(2) request for information of 30 April 2015, […], page 6; […] reply of 16 May 2015 to questions 9, 10 and 11 of Article 18(2) request for information of 30 April 2015, […] pages 4-5; […] reply of 29 May 2015 to questions 9, 10 and 11 of Article 18(2) request for information of 30 April 2015, […] pages 4-5. In particular, […] and Qualcomm indicated that they have been using external suppliers (foundries), whereas […] have stated that they operate own production facilities.

[79] In April 2014, Microsoft Corporation has completed the acquisition of the Nokia Devices and Services business from Nokia. See Microsoft press release of 25 April 2014, printed from Microsoft's website at https://news microsoft.com/2014/04/25/microsoft-officially-welcomes-the-nokia-devices-and-services-business/ on 4 December 2015, […]. In May 2016, Microsoft sold its feature phone business to FIH Mobile Ltd. And HMD Global, Oy. See Microsoft press release of 18 May 2016, printed from Microsoft's website at https://news microsoft.com/2016/05/18/microsoft-selling-feature-phone-business-to-fih-mobile-ltd-and-hmd-global-oy/ on 27 May 2019, […].

(1) Basic phones (phones providing only basic functionality like voice and messaging);

(2) Feature phones (phones providing more advanced functionality, like multimedia applications and internet connectivity);

(3) Smartphones (phones providing advanced functionality, comparable to the functionality provided by a personal computer).

(b) MBB devices,[80] which cover devices with mobile connectivity, other than mobile phones, and include in particular:

(1) Tablets with cellular access;[81]

(2) Data cards with cellular access, typically in the form of USB sticks (also called "dongles");

(3) Wireless routers that rely on cellular networks to act as WiFi hotspots (also called "MiFi" devices);

(4) Other devices (*e.g.* laptops) using embedded modules with cellular access.

(90) The main purpose of cellular access in MBB devices is broadband data connectivity, based on UMTS or LTE technology.[82] Typically, these devices do not provide traditional voice telephony (also called "circuit switched"[83] voice), or do so only exceptionally.[84]

(91) By contrast, for mobile phones, voice telephony is an absolute requirement. Mobile phones typically use a number of interoperable technologies, in order to provide a seamless voice experience to users. During the Relevant Period, this refers for most European mobile networks to the capability to use both GSM and UMTS technologies for traditional voice telephony.[85]

(92) The mobile phone market is considerably bigger than the MBB device market (in particular for UMTS enabled devices). It has also been growing considerably faster. The Commission has estimated the size of these markets (in terms of volume) as follows:

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80 Icera's Complaint, […], page 5; […].

81 The distinction between smartphones and tablets is not clear-cut: devices with full voice capabilities and increased screen size are commonly called "phablets", combining the characteristics of both. Smartphones, tablets and phablets are also collectively referred to as "smart mobile devices".

82 GSM/EDGE is not considered a mobile broadband technology (see also recital (83) above) as the data rates achieved in practice are insufficient for many data intensive applications (*e.g.* video streaming).

83 Circuit switching is a technique by which two network nodes establish a dedicated communications channel (circuit) through the network before the nodes may communicate. The circuit guarantees the full bandwidth of the channel and remains connected for the duration of the communication session. The circuit functions as if the nodes were physically connected as with an electrical circuit.

84 Qualcomm's reply of 27 March 2014 to question 9(b) of Article 18(2) request for information of 13 February 2014, […], states, at paragraph (37): *"Despite cellular voice not being their* [MBB devices'] *primary functionality, Qualcomm understands that certain 'MBB devices', including data cards, USB modems, embedded modules or routers, may nonetheless require cellular voice functionality for a variety of reasons."* However, according to paragraph 56 of Nvidia's submission of 6 August 2013, […], *"*[v]*oice functionality is not a requirement for MBB devices"*.

85 Voice over LTE was far less common, with limited support from mobile networks and devices. A gradual take-up started in 2014 only.

Table 1: UMTS mobile phones and UMTS MBB devices produced worldwide between 2009 and 2013 (thousands of units)[86]

	2009	2010	2011	2012	2013
UMTS Mobile Phones	342,416	520,629	669,766	870,544	1,066,260
UMTS MBB devices	52,441	79,830	115,189	73,303	72,527
Total UMTS devices	394,857	600,459	784,955	943,847	1,138,787

(93) From 2009 to 2011, the main OEMs of mobile phones were Nokia, Samsung, LG, Apple, Motorola, RIM, Sony Ericsson and HTC.

(94) In the same period, the main OEMs of MBB devices were Huawei and ZTE, followed by Option BV, Sierra Wireless, Novatel Wireless, Samsung and LG. This segment was highly concentrated, with Huawei and ZTE consistently maintaining a combined share of more than 70%. The concentration was particularly high in USB sticks providing cellular access (92.9% in 2012), which accounted for approximately 75% of all MBB devices.[87]

(95) Mobile devices are sold to end-users either by retailers of electronic consumer products, or by MNOs together with a subscription to their networks. During the Relevant Period, the latter was particularly the case for USB sticks providing cellular access.[88] Mobile devices sold by MNOs may carry the brand of the OEM of the device or the brand of the MNO.

(96) Where the MNO sales channel accounts for a significant share of baseband chipset sales, chipset suppliers will typically also market their products to MNOs[89] and may offer them financial incentives if they commit to purchase from OEMs end devices incorporating a specific chipset.[90] In fact, although the ultimate decision about both

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86 The estimation of the total of UMTS devices produced is based on […] reply of 9 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 12 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 28 April 2015 to Article 18(2) request for information of 14 April 2015, […]; […] reply of 18 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 19 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 19 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 19 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 19 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 9 January 2015 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 29 January 2015 to question 1 of Article 18(2) request for information of 7 January 2015, […]; […] reply of 11 February 2015 to question 1 of Article 18(2) request for information of 8 January 2015, […]; Annex 56.1 to Qualcomm's reply of 21 February 2015 to Article 18(2) request for information of 14 January 2015, […]. The number of UMTS MBB devices produced is based on estimates by […]. The estimation of UMTS mobile phones is based on the difference between total UMTS devices and MBB devices.

87 Data from […].

88 See, *e.g.*, Qualcomm internal e-mail of 16 February 2009 from […] (Senior Manager, Marketing) to […] ([Qualcomm management member]) and […] (Director, Marketing), […], page 2.

89 […] reply of 13 January 2017 to question 6 of Article 18(2) request for information of 13 December 2016, […], paragraph (37).

90 See paragraph (513) and footnote 811 below on incentives offered by Qualcomm to […]. See also paragraph (660) below on the treatment of such incentives for the purposes of the price-cost test in this case.

the design of a particular device and the selection of the appropriate chipset ordinarily resides with the OEM, the needs of MNOs heavily influence this decision.[91]

6.2.5. Baseband chipset selection by OEMs

(97) OEMs typically judge the combination of a baseband chip, RF transceiver and PM circuitry as proposed by the chipset supplier as a whole chipset package[92] in order to choose the chipset that best suits their requirements among the various competing solutions offered by chipset suppliers.[93] Therefore, even though chipset suppliers typically sell each of the components of a chipset individually[94] and customers are free to *"mix-and-match"* as they see fit,[95] competition between chipset suppliers takes place at the chipset level.

(98) The choice of the most appropriate baseband chipset by an OEM is driven by the desired technical characteristics of the device, including supported standards, features and targeted price segment. In fact, in their responses to Article 18(2) requests for information,[96] OEMs have mentioned *inter alia* the following characteristics as most important for their baseband chipset selection: supported architecture (slim/integrated), price, supported standards and performance, size, power consumption, the supplier's reliability, the supplier's ability to offer and provide support, certainty of supply, IPR coverage and protection against IPR related legal risks. Sections 6.2.5.1 to 6.2.5.3 below provide an overview of some of the

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91 Qualcomm's reply of 26 July 2010 to question 18 of Article 18(2) request for information of 7 June 2010, […], paragraph (57).

92 […] reply of 13 January 2017 to question 7c) of Article 18(2) request for information of 13 December 2016, […], paragraph (54).

93 Qualcomm's reply of 2 December 2013 to question 46 of Article 18(3) Decision of 10 July 2013, […], paragraph (194).

94 Qualcomm's reply of 30 June 2017 to question 2 of Article 18(3) Decision of 31 March 2017, […], paragraph (37).

95 Qualcomm's reply of 15 June 2018 to question 6 of the questions for discussion of 16 May 2018, […], paragraphs (43), (45).

96 […] reply of 5 December 2014 to question 4 of Article 18(2) request for information of 4 November 2014, […], page 2; […] reply of 8 December 2014 to question 4 of Article 18(2) request for information of 4 November 2014, […], page 2; […] reply of 4 December 2014 to question 4 of Article 18(2) request for information of 4 November 2014, […], page 4; […] reply of 8 December 2014 to question 4 of Article 18(2) request for information of 4 November 2014, […], page 2; […] reply of 8 December 2014 to question 4 of Article 18(2) request for information of 4 November 2014, […], page 3; […] reply of 12 December 2014 to question 4 of Article 18(2) request for information of 4 November 2014, […], page 4; […] reply of 17 December 2014 to question 4 of Article 18(2) request for information of 4 November 2014, […], pages 2-3; […] reply of 12 December 2014 to question 4 of Article 18(2) request for information of 4 November 2014, […], page 3; […] reply of 8 December 2014 to question 4 of Article 18(2) request for information of 4 November 2014, […], page 3; […] reply of 15 December 2014 to question 4 of Article 18(2) request for information of 4 November 2014, […], page 4; […] reply of 17 December 2014 to question 4 of Article 18(2) request for information of 4 November 2014, […], page 2; […] reply of 8 January 2015 to question 4 of Article 18(2) request for information of 4 November 2014, […], page 3; […] reply of 19 December 2014 to question 4 of Article 18(2) request for information of 4 November 2014, […], page 4; […] reply of 12 January 2015 to question 4 of Article 18(2) request for information of 4 November 2014, […], page 3; […] reply of 9 January 2015 to question 4 of Article 18(2) request for information of 4 November 2014, […], pages 3-4; […] reply of 29 January 2015 to question 4 of Article 18(2) request for information of 4 November 2014, […], page 2.

most important considerations OEMs undertake when choosing the most appropriate baseband chipset for a certain device.

6.2.5.1. The choice between integrated and standalone baseband chipsets

(99) Devices that interact with users (such as mobile phones and tablets) require both a baseband processing and an application processing functionality. For such devices manufacturers face two choices:

(a) to use an integrated chipset (see recital (77) above) providing both functionalities. This is referred to as "one chip (or one chipset) architecture"; or

(b) to combine a separate baseband processor (see recital (77) above) with a separate application processor. This is referred to as a "two chip (or two chipset) architecture".

(100) As explained by a number of OEMs, the use of an integrated chipset is preferred for devices that require both baseband and application processing due to:[97]

(a) The savings in time and effort for the integration of the two functionalities by the OEM, as they come pre-integrated;

(b) The reduced space used by the integrated chipset in the device;

(c) The reduced cost of the integrated chipset compared to the price of the two separate products.

(101) However, if the desired characteristics (either on the application processing or on the baseband processing side) cannot be met by any available integrated chipset, the OEM may opt for a two chip architecture combining separate components, possibly from different suppliers. This also applies if the OEM is vertically integrated (*i.e.* is a supplier of either application processors or baseband chipsets)[98] and may therefore prefer its own supply over the merchant market supply for one of the two components.

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97 […] reply of 5 December 2014 to questions 32-34 of Article 18(2) request for information of 4 November 2014, […], pages 9-10; […] reply of 8 December 2014 to questions 32-34 of Article 18(2) request for information of 4 November 2014, […], page 9; […] reply of 4 December 2014 to questions 32-34 of Article 18(2) request for information of 4 November 2014, […], pages 14-15; […] reply of 8 December 2014 to questions 32-34 of Article 18(2) request for information of 4 November 2014, […], page 12; […] reply of 12 December 2014 to questions 32-34 of Article 18(2) request for information of 4 November 2014 to baseband chipset customers, […], pages 16-17; […] reply of 17 December 2014 to questions 32-34 of Article 18(2) request for information of 4 November 2014, […], page 12; […] reply of 12 December 2014 to questions 32-34 of Article 18(2) request for information of 4 November 2014, […], page 10; […] reply of 8 December 2014 to questions 32-34 of Article 18(2) request for information of 4 November 2014 to baseband chipset customers, […], pages 11-12; […] reply of 15 December 2014 to questions 32-34 of Article 18(2) request for information of 4 November 2014, […], pages 16-17; […] reply of 17 December 2014 to questions 32-34 of Article 18(2) request for information of 4 November 2014, […], page 9; […] reply of 8 January 2015 to questions 32-34 of Article 18(2) request for information of 4 November 2014, […], pages 14-15; […] reply of 19 December 2014 to question 32-34 of Article 18(2) request for information of 4 November 2014, […], pages 13-14; […] reply of 12 January 2015 to questions 32-34 of Article 18(2) request for information of 4 November 2014, […], pages 11-12; […] reply of 9 January 2015 to questions 32-34 of Article 18(2) request for information of 4 November 2014, […], pages 13-14; […] reply of 29 January 2015 to questions 32-34 of Article 18(2) request for information of 4 November 2014, […], page 7.

98 Notable examples are […] for application processors and […] for baseband chipsets.

(102) There are also mobile devices that do not require any application processing functionality because this is provided to the user by another device. A number of MBB devices require only connectivity and thus fall into this category,[99] with data cards (such as USB sticks) being the most typical example.[100]

(103) Therefore, in cases where either a two chip architecture has been chosen, or only connectivity is required, the preferred type of baseband chipset is the standalone baseband chipset (slim modem). This is primarily for reasons of cost optimisation, as slim modems use less silicon and are therefore less expensive than integrated chipsets with equivalent baseband characteristics (see also recital (382) below).[101] Other reasons include reduced size and power consumption.

(104) However, there have also been devices where an integrated chipset was used to provide only connectivity, without making any use of its application processing capabilities.[102] This choice was made either before the introduction of slim modems or due to specific desired characteristics that were not available in slim modems at the time. In some of these implementations, the application processing functionality of the baseband chipset was technically disabled. In other implementations, there was no technical disabling, but there was a contractual provision or a commercial incentive restricting the use of the application processor.[103]

6.2.5.2. The choice on the basis of performance considerations

(105) Certain OEMs have different performance requirements for baseband chipsets, depending on the device and its target market. Therefore, different device groups or even different tiers within the same device group might require different baseband chipsets.

(106) […] for example has stated that *"*[c]*ompared with handset product, BCs* [baseband chipsets] *for MBB product must provide better performance (i.e. they must keep up with the wireless standard's development, and high communication rate)."*[104]

(107) For […], *"customers' request plays a critical role in our company's determination on BCs* [baseband chipsets]. *Some customer/operator requests device supporting*

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99 Referring to USB sticks providing cellular access (dongles), […] has stated that *"*[d]*ongles use the model of Standalone BP (without AP). Previously, some dongles used the model of Integrated Chipset"* ([…] reply of 15 December 2014 to question 32.1 of Article 18(2) request for information of 4 November 2014, […], page 16).

100 In the case of data cards, application processing is typically provided by the Central Processing Unit ("CPU") of the portable PC to which the data card is attached.

101 […], *e.g.*, has stated that *"for MBB and Module products, as they do not need AP function,* […] *will not consider purchasing Integrated Chipset Architecture, as it is more expensive than Standalone BP"* ([…] reply of 12 December 2014 to question 34.1 of Article 18(2) request for information of 4 November 2014 to baseband chipset customers, […], page 16).

102 This has been the case both for devices using a two chip architecture, as well as for devices which do not require an application processor at all. An example of the first category would be certain […] phones (*e.g.* […]), where an integrated baseband chipset from […] has been combined with a separate application processor provided by another supplier (*e.g.* […]). Examples of the second category would be most data cards produced before 2009 when slim modems became widespread.

103 See, *e.g.*, Qualcomm's reply of 2 December 2013 to question 52 of Article 18(3) Decision of 10 July 2013, […], paragraph (31).

104 […] reply of 12 December 2014 to question 4 of Article 18(2) request for information of 4 November 2014 to baseband chipset customers, […], page 4.

advanced standards regardless the higher price; some requests device supporting less advanced standards with lower cost."[105]

6.2.5.3. Intellectual Property Rights considerations

(108) A number of OEMs have stressed the importance of IPR in their chipset sourcing decisions. In particular, they stated a preference for chipset suppliers that (in addition to products) can provide the widest possible coverage of IPR related to the chipset technology, including patent licenses, non-assertion provisions and indemnification.[106]

7. QUALCOMM'S BASEBAND CHIPSET BUSINESS

7.1. Qualcomm's products

(109) Qualcomm has a broad product portfolio ranging from low and mid-cost baseband chipsets for the mass-market to leading edge baseband chipsets implementing the latest standards.[107] Being active also in the development of application processors, it offers both standalone and integrated chipsets.

(110) Qualcomm has marketed its baseband chips (and by extension chipsets) mainly under the following product family names:[108]

(a) The MDM (Mobile Data Modem) product family, which includes standalone baseband chips, namely chips that mainly provide baseband processing (connectivity);

(b) The MSM (Mobile Station Modem) product family, which includes integrated baseband chips, namely chips that provide both application processing and baseband processing (connectivity);

(c) The QSC (Qualcomm Single Chip) product family, which includes integrated baseband chips. QSC products incorporate the RF and PM functionalities in the same chip, in addition to the baseband and application processors;[109] and

(d) The QSD (Qualcomm SnapDragon) product family, which includes a specific range of integrated chips, featuring a "Snapdragon" application processor. The QSD designation was withdrawn in 2010 and replaced by MSM.

7.2. Qualcomm's patent portfolio

(111) Qualcomm is the largest IPR holder active in the supply of baseband chipsets. As of 6 August 2015, it owned more than 100,000 distinct patents.[110] Between 1 January

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105 […] reply of 12 January 2015 to question 26 of Article 18(2) request for information of 4 November 2014, […], page 10.

106 For more information on how OEMs value IPR coverage of the sourced chipsets, see section 11.4 below.

107 Qualcomm's reply of 9 March 2015 to question 2 of Article 18(2) request for information of 14 January 2015, […], paragraphs (30)-(33).

108 Qualcomm's reply of 9 March 2015 to question 2 of Article 18(2) request for information of 14 January 2015, […], paragraphs (31)-(32).

109 In this Decision the term "baseband chipset" (as defined in recital (76) above) should be understood to include also the QSC type of products, even if all functionality is provided in a single chip, rather than in separate chips (together forming a chipset).

110 See list under "Comprehensive Patent List", printed from Qualcomm's website at https://www.qualcomm.com/invention/licensing/qualcomm-patent-lists on 4 December 2015, […].

2008 and 27 February 2014, Qualcomm made disclosures with respect to approximately 500 amended patent families as potentially essential to UMTS and 809 amended patent families as potentially essential to LTE.[111]

7.3. Qualcomm's product creation process

(112) The process for creating Qualcomm's chips involves four main phases: (i) […]; (ii) […]; (iii) […]; and (iv) […]. So-called […] take place between the […] and […] stages (*i.e.* the […], which generally corresponds to the […] and between the […] and […] stages (*i.e.* the […], which generally corresponds to the […]).[112]

(113) […][113]

(114) […][114] […][115] […][116]

(115) […][117] […][118] […][119]

(116) […][120] […][121]

(117) […][122] […][123]

(118) […][124]

(119) The following figure provides an overview of Qualcomm's product creation process.

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111 Qualcomm's reply of 27 March 2014 to question 5 of Article 18(2) request for information of 13 February 2014, […], paragraph (14).

112 Qualcomm's reply of 12 January 2015 to question 3 of Article 18(3) Decision of 13 October 2014, […], paragraph (9).

113 Qualcomm's reply of 12 January 2015 to question 4 of Article 18(3) Decision of 13 October 2014, […], paragraph (16).

114 Qualcomm internal presentation of February 2013 titled […], page 3.

115 Qualcomm's reply of 12 January 2015 to question 3 of Article 18(3) Decision of 13 October 2014, […], paragraph (9).

116 Qualcomm's reply of 12 January 2015 to question 3 of Article 18(3) Decision of 13 October 2014, […], paragraph (9).

117 Qualcomm's reply of 12 January 2015 to question 4 of Article 18(3) Decision of 13 October 2014, […], paragraph (16).

118 Qualcomm's reply of 12 January 2015 to question 4 of Article 18(3) Decision of 13 October 2014, […], paragraph (17).

119 Qualcomm's reply of 12 January 2015 to question 3 of Article 18(3) Decision of 13 October 2014, […], paragraph (9).

120 Qualcomm's reply of 12 January 2015 to question 4 of Article 18(3) Decision of 13 October 2014, […], paragraph (18).

121 Qualcomm's reply of 12 January 2015 to question 4 of Article 18(3) Decision of 13 October 2014, […], paragraph (18).

122 Qualcomm's reply of 12 January 2015 to question 4 of Article 18(3) Decision of 13 October 2014, […], paragraph (19).

123 Qualcomm's reply of 12 January 2015 to question 3 of Article 18(3) Decision of 13 October 2014, […], footnote 16; Qualcomm presentation of June 2013 titled […], page 93.

124 Qualcomm's reply of 12 January 2015 to question 3 of Article 18(3) Decision of 13 October 2014, […], footnote 10.

Figure 1: "[…]"[125]

[…]

7.4. Qualcomm's price setting process

(120) Qualcomm typically sells […]. […], when communicating its prices and price proposals (so-called "price indications") to its customers and comparing the competitiveness of its products *vis-à-vis* other chipset suppliers, Qualcomm […].[126] The pricing of the […].[127]

(121) Qualcomm sells chips pursuant to negotiated terms and conditions […]. The terms and conditions applicable to Qualcomm's sales are governed by […] between Qualcomm and each of its customers. Qualcomm's […].[128]

(122) Qualcomm's pricing decisions, including any price reductions or other financial incentives, have to be approved by Qualcomm's […].[129] […][130] […].[131]

(123) […].[132] […].[133] […].[134] […].[135] […].[136] The flow of Qualcomm's decision making process for chip and chipset related pricing is illustrated in Figure 2 below.

Figure 2: Qualcomm's pricing decision making process[137]

[…]

(124) […].[138]

(125) […].[139] […].[140]

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125 […].

126 See, *e.g.*, Qualcomm internal e-mail of 4 May 2011 from […] (Manager, Finance) to […] (Senior Director, QCT Product Management), […] (Regional Sales Manager) and […] (Senior Product Manager), copying […] ([Qualcomm management member]), […] (Senior Director, Finance), […] (Director, Sales), […] (QCT Product Manager, Staff) and […] (Director of MBB Market Analysis), […].

127 See, *e.g.*, Qualcomm internal e-mail of 2 June 2011 from […] (Manager, Finance) to […] (Regional Sales Manager) and […] ([Qualcomm management member]), copying […] (Director, Finance) and […] (Senior Director, Finance), […], where it is stated […].

128 Qualcomm's reply of 19 July 2010 to question 12 of Article 18(2) request for information of 7 June 2010, […], paragraph (58).

129 Qualcomm's reply of 16 June 2017 to question 14 of Article 18(3) Decision of 31 March 2017, […], page 40.

130 […].

131 Qualcomm's reply of 16 June 2017 to question 14 of Article 18(3) Decision of 31 March 2017, […], paragraph (127).

132 Qualcomm's reply of 16 June 2017 to question 14 of Article 18(3) Decision of 31 March 2017, […], paragraph (122).

133 Qualcomm's reply of 16 June 2017 to question 14 of Article 18(3) Decision of 31 March 2017, […], paragraph (123).

134 Qualcomm's reply of 16 June 2017 to question 14 of Article 18(3) Decision of 31 March 2017, […], paragraph (124).

135 Qualcomm's reply of 16 June 2017 to question 14 of Article 18(3) Decision of 31 March 2017, […], paragraph (125).

136 Qualcomm's reply of 16 June 2017 to question 14 of Article 18(3) Decision of 31 March 2017, […], page 42.

137 Annex 14.1.b.i to Qualcomm's reply of 16 June 2017 to 18(3) Decision of 31 March 2017, […], page 3.

138 Qualcomm's reply of 16 June 2017 to question 14 of Article 18(3) Decision of 31 March 2017, […], paragraph (129), page 43.

139 Qualcomm's reply of 16 June 2017 to question 14 of Article 18(3) Decision of 31 March 2017, […], paragraph (121), page 41.

(126) Subsequently, […] price approvals are reflected in a formal agreement setting forth the terms and conditions of the approved incentive, signed by both parties.[141] During the Relevant Period, such formal agreements were […].[142] In fact, as explained by Qualcomm, it is not uncommon that agreements are […].[143]

8. PRODUCTS CONCERNED BY THE INVESTIGATION

(127) The investigation concerns Qualcomm's UMTS chipsets that are based on Qualcomm's MDM8200, MDM6200 and MDM8200A baseband chips ("the MDM8200/6200/8200A based chipsets") which competed with Icera's UMTS chipsets that are based on Icera's ICE8040, ICE8042 and ICE8060 baseband chips ("the ICE8040/8042/8060 based chipsets") during the Relevant Period. These Qualcomm and Icera products are standalone baseband chipsets[144] supporting data connectivity at maximum downlink data rates[145] of 7.2[146]/14.4 Mbps[147] up to 28 Mbps during the Relevant Period. These chipsets are compliant with the W-CDMA variant of UMTS (so-called UMTS-FDD; see recital (65) above) and support GSM/EDGE. A more detailed description of each of Qualcomm's and Icera's chipsets is provided in sections 8.1.1 to 8.1.3 and sections 8.2.1 to 8.2.3 respectively.

(128) In the following, any references that do not explicitly mention the chipset (*e.g.* "the MDM8200") are to be understood as references to the relevant baseband chip, as defined in recital (73) above.

8.1. Qualcomm's chipset offering in the leading edge segment during the Relevant Period

8.1.1. Qualcomm's MDM8200 based chipset

(129) The MDM8200 based chipset was Qualcomm's first standalone chipset conceived and designed as a modem-centric chipset suitable for use in MBB devices.[148] It

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140 Qualcomm's reply of 16 January 2012 to question 4 of Article 18(3) Decision of 3 November 2011, […], paragraph (41), page 17.

141 Qualcomm's reply of 16 January 2012 to question 4 of Article 18(3) Decision of 3 November 2011, […], page 17.

142 […].

143 Qualcomm's reply of 6 October 2017 to question 1(b) of the clarification questions of 19 September 2017, […], paragraph (11).

144 Standalone baseband chipsets (slim modems) contain a standalone baseband chip without an application processor (see recitals (74)-(77) above).

145 The maximum downlink data rate (also called "data rate" or "speed") defines the so-called downlink throughput capability of a chip or chipset, *i.e.* the maximum speed of downloading data in Megabits per second (Mbps) achieved by that chip or chipset. See recitals (340)-(341) below for the throughput capability of chipsets during the Relevant Period.

146 This applies to Icera's ICE8040 based chipset whose downlink speed during the first months following its commercial release was 7.2 Mbps (see section 8.2.1 below).

147 The 14.4 Mbps data rate refers to the so-called "channel rate". The user data rate, *i.e.* the speed perceived by the user is slightly below 14 Mbps. Therefore, the reference to data rates of 14.4 Mbps and 14 Mbps is often used interchangeably in the market while referring to the same technology.

148 Qualcomm's reply of 2 December 2013 to question 5 of Article 18(3) Decision of 10 July 2013, […], paragraph (35). Qualcomm's earlier MDM chipsets were essentially de-featured (*i.e.* with certain functionalities disabled) and re-named versions of integrated baseband chips belonging to Qualcomm's MSM or QSC product families (see section 7.1 above for a description of Qualcomm's main baseband chip product families).

combined Qualcomm's MDM8200, its RTR6285 RF chip and its PM7540 PM chip.[149] It supported *HSPA+*[150] and downlink rates of up to 28 Mbps.[151]

(130) The product development started on 6 June 2007 […][152] to launch the development phase of the MDM8200[153] which was meant to *"deliver HSPA+ Technology for early 2009 commercial deployment"* and to *"*[m]*aintain* [m]*odem* [l]*eadership"* for Qualcomm.[154] The commercial release[155] of the MDM8200 took place in May 2009 and the first end devices incorporating the MDM8200 based chipset were launched on the market at the beginning of June 2009.[156] In 2010, sales of the MDM8200 were gradually replaced by sales of the MDM8200A, an improved version of the MDM8200. Nevertheless, sales of the MDM8200 continued into 2011, with the MDM8200 eventually being moved into the End of Life stage on 30 March 2011.[157]

(131) The MDM8200 was developed in cooperation with the […] network carrier […] who wanted to become the first carrier in the world to deploy infrastructure and devices implementing the HSPA+ protocol.[158] To help […] achieve this goal, Qualcomm also collaborated closely with […].[159]

(132) The commercial launch of an HSPA+ device achieving data rates of 21 Mbps was, at the time, a technological *"leapfrog"*.[160] In order to allow […] to be *"first to market"*, the MDM8200 was initially launched without handover capability from GSM infrastructure to W-CDMA infrastructure, and inferior power consumption and thermal performance than one might expect in a cutting-edge chip.[161] […] first end

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149 Qualcomm's reply of 2 December 2013 to question 93 of Article 18(3) Decision of 10 July 2013, […], paragraph (387).

150 See footnotes 64 and 65 above for a description of the HSPA and HSPA+ technologies.

151 Qualcomm presentation of June 2009 titled […], page 5.

152 For a description of Qualcomm's product creation process see section 7.3 above.

153 Qualcomm's reply of 12 January 2015 to question 3 of Article 18(3) Decision of 13 October 2014, […], paragraph (13), Table 1.

154 Qualcomm internal presentation of June 2007 titled […], page 5.

155 In this document, any reference to the date of the commercial release or first commercial availability of a product is meant to refer to the moment of commercial sampling, *i.e.* the point in time at which hardware and software are shipped to customers for use in end device testing and approval activities (see recital (116) above).

156 Qualcomm's reply of 2 December 2013 to question 19 of Article 18(3) Decision of 10 July 2013, […], paragraph (88). As explained in footnote 64 of the same reply, in order to enable […] to make an early launch of end devices incorporating the MDM8200 based chipset at the Mobile World Conference in Barcelona in February 2009, Qualcomm had already provided early samples to […] before the official release of the MDM8200.

157 Qualcomm's reply of 12 January 2015 to question 3 of Article 18(3) Decision of 13 October 2014, […], paragraph (13), Table 1. The time of withdrawal from the market corresponds to the End of Life date, *i.e.* the date of the last shipment programmed according to the last time buy order (see recital (117) above).

158 Qualcomm's reply of 2 December 2013 to question 5 of Article 18(3) Decision of 10 July 2013, […], paragraph (38).

159 Qualcomm's reply of 12 January 2015 to question 6 of Article 18(3) Decision of 13 October 2014, […], paragraph (28). See also Qualcomm's reply of 26 July 2010 to question 18 of Article 18(2) request for information of 7 June 2010, […], paragraph (68); Qualcomm's reply of 2 December 2013 to question 5 of Article 18(3) Decision of 10 July 2013, […], paragraph (38).

160 Qualcomm's reply of 26 July 2010 to question 18 of Article 18(2) request for information of 7 June 2010, […], paragraph (69).

161 Qualcomm's reply of 12 January 2015 to question 6 of Article 18(3) Decision of 13 October 2014, […], paragraphs (29)-(30); Qualcomm's reply of 26 July 2010 to question 18 of Article 18(2) request for information of 7 June 2010, […], paragraph (70).

device incorporating the MDM8200 based chipset (the […]) was launched at the Mobile World Conference in Barcelona in February 2009.[162]

(133) […], Qualcomm advertised the MDM8200 based chipset as its *"New Leading Edge Data Card Chipset"* with "[s]*ignificant modem performance improvement over all known commercial and pre-commercial chipsets"*.[163] However, the commercial success of the MDM8200 based chipset was limited. On the one hand, the MDM8200's power and heat issues (as well as the missing support for wireless voice functionality) made the MDM8200 ill-suited for use in mobile phones,[164] restricting its target market to MBB devices like data cards.[165] On the other hand, the slow uptake of demand for chipsets supporting HSPA+ exposed the MDM8200 based chipset to competition from Icera. Although Icera's ICE8040 based chipset did not initially support downlink speeds as high as the MDM8200 based chipset, it was able to better capture the market demand at the time due to its ability to software upgrade to higher downlink speeds and its lower price (see recital (410) below).

8.1.2. Qualcomm's MDM6200 based chipset

(134) The MDM6200 is a standalone baseband chip featuring an integrated RF circuit in the same chip, which was combined with Qualcomm's PM8028 or PM8015 PM chip during the Relevant Period to form the MDM6200 based chipset.[166] It supports downlink speeds of up to 14.4 Mbps and voice functionality without modification.[167] It was developed in tandem with the MDM6600, from which it distinguishes itself mainly due to the fact that it is only compatible with the UMTS (HSPA+) standard, whereas the MDM6600 is both compatible with CDMA2000[168] and UMTS (HSPA+).[169] Like the MDM8200 and the MDM8200A, the MDM6200 was also intended primarily for data-only applications.[170]

(135) The MDM6200 is a derivative of the QSC6295 integrated baseband chip (similarly, the MDM6600 is a variation of the QSC6695).[171] The launch of its development phase was approved […].[172] The originally envisaged date for the commercial launch

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162 Qualcomm's reply of 26 July 2010 to question 18 of Article 18(2) request for information of 7 June 2010, […], paragraphs (68), (71); Qualcomm's reply of 2 December 2013 to question 19 of Article 18(3) Decision of 10 July 2013, […], footnote 64.

163 Qualcomm presentation of June 2009 titled […], page 5.

164 Qualcomm's reply of 2 December 2013 to question 5 of Article 18(3) Decision of 10 July 2013, […], paragraph (40).

165 Qualcomm's reply of 2 December 2013 to questions 4 and 5 of Article 18(3) Decision of 10 July 2013, […], footnotes 17, 29.

166 Qualcomm's reply of 2 December 2013 to question 93 of Article 18(3) Decision of 10 July 2013, […], paragraph (387).

167 Qualcomm's reply of 2 December 2013 to question 15 of Article 18(3) Decision of 10 July 2013, […], paragraph (77).

168 CDMA2000 refers to the 3G standard (see also footnote 68 above), while cdmaOne or IS-95 refers to the 2G standard (both included in the notion of CDMA).

169 Qualcomm's reply of 2 December 2013 to question 11 of Article 18(3) Decision of 10 July 2013, […], footnote 56; Qualcomm's reply of 30 June 2017 to question 8.1 of Article 18(3) Decision of 31 March 2017, […], paragraph (76).

170 Qualcomm's reply of 26 July 2010 to question 15 of Article 18(2) request for information of 7 June 2010, […], paragraph (50).

171 Qualcomm internal presentation of 30 March 2009 titled […], page 4; Qualcomm's reply of 2 December 2013 to question 16 of Article 18(3) Decision of 10 July 2013, […], paragraph (80); Qualcomm's reply of 30 June 2017 to question 8.1 of Article 18(3) Decision of 31 March 2017, […], paragraph (76).

172 See section 7.3. above for the description of Qualcomm's product creation process.

of the MDM6200 was December 2009, but the development of the MDM6200 […].[173] Therefore, only limited quantities of the MDM6200 were shipped to customers as of the second quarter of 2010 […]. Only as of 2011 was the MDM6200 sold in higher quantities.[174] […].[175]

(136) The MDM6200 based chipset was intended to be Qualcomm's response to the growing competitive pressure it was experiencing in particular from Icera, which was addressing the market demand for chipsets supporting data rates of up to 14.4 Mbps with its ICE8040 based chipset during 2009 (see, *e.g.*, recital (466) below). However, as towards the end of 2009 Icera's ICE8040 based chipset was reported to be able to *"be software upgraded to support 21 Mbps"* with a *"single chipset pricing for all data rates (3.6 HDPA to 31M) at around $10 starting from Jan. 2010"*,[176] the market attention for the MDM6200 based chipset faded. This limited the commercial success of the MDM6200 based chipset during the Relevant Period (see, *e.g.*, recital (535) below).

8.1.3. Qualcomm's MDM8200A based chipset

(137) The MDM8200A baseband chip was a *"shrinked"* (from 65 to 45 nanometres)[177] […] which supported HSPA+[178] and downlink speeds of up to 28 Mbps.[179] It relied on the same processor technology as the MDM8200.[180] Like the MDM8200, it was primarily intended for data-only applications,[181] but capable of supporting wireless voice functionality, subject to a minor software and hardware amendment.[182] It was typically combined with Qualcomm's RTR6285 RF chip and the PM8028 or PM8015 PM chip to form the MDM8200A based chipset.[183]

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173 Qualcomm internal presentation of 30 March 2009 titled […], page 12.

174 Qualcomm's reply of 2 December 2013 to questions 5 and 15 of Article 18(3) Decision of 10 July 2013, […], paragraphs (40), (77).

175 See Qualcomm's reply of 27 November 2017 to question 2 of Article 18(2) request for information of 10 November 2017, […], paragraph (7), and Annexes 2.1 and 2.2 to Qualcomm's reply of 27 November 2017 to Article 18(2) request for information of 10 November 2017, […] and […].

176 Qualcomm internal e-mail of 14 November 2009 from […] ([Qualcomm management member]) to […] (Director, QCT Product Management), […] (Manager, Finance), […] (Director, Sales) and […] (Financial Analyst, Staff), copying […] ([QCT top management member]), […] ([Qualcomm management member]) and […] ([Qualcomm management member]), […], page 2.

177 Qualcomm internal presentation titled […], page 6. Although undated, the presentation appears to be from April 2009, given that […], carrying a Qualcomm internal presentation of 9 July 2009 titled […], contains, as of page 36, the presentation for […], which took place on 14 April 2009. The content of that presentation is identical to that of the presentation titled […], […]. Another Qualcomm internal presentation of 21 April 2009 titled […], also contains, as of page 35, that same presentation.

178 Qualcomm's reply of 12 January 2015 to question 9 of Article 18(3) Decision of 13 October 2014, […], paragraph (65).

179 Qualcomm's reply of 2 December 2013 to question 28 of Article 18(3) Decision of 10 July 2013, […], footnote 97.

180 Qualcomm's reply of 12 January 2015 to question 9 of Article 18(3) Decision of 13 October 2014, […], footnote 72.

181 Qualcomm's reply of 26 July 2010 to question 15 of Article 18(2) request for information of 7 June 2010, […], paragraph (50).

182 Qualcomm's reply of 2 December 2013 to questions 5 and 15 of Article 18(3) Decision of 10 July 2013, […], paragraph (77) and footnote 25.

183 Qualcomm's reply of 2 December 2013 to question 93 of Article 18(3) Decision of 10 July 2013, […], paragraph (387).

(138) The product development started on 21 April 2009.[184] Although the originally envisaged date for the commercial launch of the MDM8200A was March 2010,[185] it was first made commercially available only in May 2010.[186] Shipments of significant numbers of the MDM8200A to Huawei and ZTE took place as of the third quarter of 2010.[187]

(139) Qualcomm's decision to start the development of the MDM8200A was, amongst other things, taken in view of the fact that Qualcomm was anticipating *"strong price competition"* in the HSPA+ data card market at the time.[188] Whereas Qualcomm considered that the MDM8200 was *"not cost competitive"*, it expected the cost structure of the MDM8200A to be around […] USD lower, thus allowing *"Qualcomm to maintain margin and share at key accounts"*.[189] The […] for the MDM8200A which provided the basis for Qualcomm's decision to launch the product development shows Qualcomm's intention of *"*[a]*ggressively* [p]*rotecting the* [d]*ata* [c]*ard* [m]*arket"*, a market which Qualcomm considered as *"rapidly growing"* and *"easier to enter"*. The MDM8200A was therefore meant to *"*[d]*eny beach-head entry to new players"* by preventing them from having the *"opportunity to prove their technology before going after higher volume hand-set market"*.[190]

8.2. Icera's chipset offering competing with Qualcomm's chipset offering in the leading edge segment during the Relevant Period

8.2.1. Icera's ICE8040 based chipset

(140) The ICE8040 based chipset, also referred to as Espresso-300 ("E300") chipset,[191] was Icera's second generation UMTS chipset.[192] The chipset consisted of an ICE8040 standalone baseband chip, combined with an ICE8215 RF chip and an ICE8145 PM chip.[193] The commercial launch of the ICE8040 based chipset took place in October 2008.[194]

(141) The ICE8040 based chipset initially supported a maximum downlink speed of 10 Mbps.[195] It was a so-called "soft" modem chipset, meaning that most of its baseband processing functionality was implemented in software running on a custom processor, as opposed to the conventional approach of designing and implementing these functions in silicon using a series of fixed function silicon blocks.[196] Icera

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184 Qualcomm's reply of 12 January 2015 to question 3 of Article 18(3) Decision of 13 October 2014, […], paragraph (13), Table 1. See also Qualcomm internal presentation of 9 July 2009 titled […], page 4.

185 Qualcomm internal presentation of April 2009 (see footnote 177 above) titled […], page 6.

186 Qualcomm's reply of 2 December 2013 to question 15 of Article 18(3) Decision of 10 July 2013, […], paragraph (77).

187 See worksheet "[…]" included in Annex 10 to the SO Response, […].

188 Qualcomm internal presentation of 9 July 2009 titled […], page 7.

189 Qualcomm internal presentation of 9 July 2009 titled […], page 7.

190 Qualcomm internal presentation of April 2009 (see footnote 177 above) titled […], page 2.

191 Icera's Complaint, […], paragraph (39), Table 1.

192 Icera's first chipset was the ICE8020 based chipset, launched in May 2006. See Icera's Complaint, […], paragraph (42).

193 Icera's Complaint, […], paragraph (39), Table 1.

194 Nvidia's reply of 13 January 2017 to questions 2 and 3 of Article 18(2) request for information of 13 December 2016, […], paragraphs (3), (4).

195 Nvidia's reply of 13 January 2017 to question 3 of Article 18(2) request for information of 13 December 2016, […], paragraph (4).

196 Icera's Complaint, […], paragraph (22).

advertised this soft-modem architecture as one of the main distinctive characteristics of the ICE8040 based chipset, as it would enable the chipset to benefit from further performance upgrades and enhancements delivered in the form of software upgrades.[197] This meant that the ICE8040 based chipset could be enabled to support higher data rates by simple software update and therefore adapt to the future rollout of HSPA+ networks (see notably evidence quoted in recital (382) below). Chipset customers were attracted by this possibility and therefore started viewing the ICE8040 based chipset as an alternative to Qualcomm's higher-priced MDM8200 based chipset, despite the fact that the initial throughput capability of Icera's chipset was inferior to 14.4 Mbps and only gradually increased to 21 Mbps during the Relevant Period.[198]

(142) Apart from the ability to scale up its capability in terms of support for higher downlink speeds, the ICE8040 based chipset also benefited from efficiencies achieved by a reduction of the size of the silicon die required for the baseband chip. With a die size of 18.2 mm^2, compared to the size of 109 mm^2 of Qualcomm's MDM8200 based chipset, Icera's ICE8040 based chipset had a lower bill of materials (*i.e.* list of components required to manufacture a product) than Qualcomm's MDM8200 based chipset.[199] This allowed Icera to offer the ICE8040 based chipset at particularly competitive prices (see recital (382) below).

8.2.2. Icera's ICE8042 based chipset

(143) The ICE8042 based chipset, also referred to as Espresso-302 ("E302") chipset,[200] was a variant of the ICE8040 based chipset which benefited from certain improvements with regard to power consumption and radio performance.[201] The chipset consisted of an ICE8042 standalone baseband chip, combined with an ICE8260 RF chip and an ICE8145 PM chip.[202] The commercial launch of the ICE8042 based chipset took place in December 2009.[203]

(144) At the time of its commercial launch, the ICE8042 based chipset supported downlink speeds of up to 14.4 Mbps. In March 2010, software updates increased the downlink

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197 See, *e.g.,* Icera press release of 2 May 2008, printed from Nvidia's website at http://www.Nvidia.com/content/PDF/icera-pr/2008/037-Espresso-300-2-May-2008.pdf on 27 February 2018, […].

198 Nvidia's reply of 13 January 2017 to question 3 of Article 18(2) request for information of 13 December 2016, […], paragraph (4).

199 Icera's Complaint, […], paragraph (40) and Table 3. Qualcomm notes in this regard that the advantage in terms of die area which Icera had over Qualcomm may have been partly due to the circumstance that Icera's chipsets required external hardware for certain functionalities, while Qualcomm's chipsets already included hardware needed to provide such functionalities (see Qualcomm's SO Response, […], paragraph (159); Qualcomm's SSO Response, […], paragraph (307); Supplementary report of […], submitted as Annex 4 to Qualcomm's SSO Response, […], paragraphs (125)-(132)). However, the advantage in terms of die area which Icera had over Qualcomm was generally recognised in the industry, as evidenced, *e.g.*, by a Qualcomm internal e-mail of February 2009, referenced in footnote 537 below. In any case, as noted in recital (427) below, the retrospective assessment of the characteristics of Icera's chipsets is irrelevant for the legal assessment in this case, as it is the market's perception about Icera's products during the Relevant Period which drove the competitive dynamics and thus Qualcomm's strategy *vis-à-vis* Icera at the time.

200 Icera's Complaint, […], paragraph (39), Table 1.

201 Icera's Complaint, […], paragraph (40), page 25.

202 Icera's Complaint, […], paragraph (39), Table 1.

203 Nvidia's reply of 13 January 2017 to questions 2 and 3 of Article 18(2) request for information of 13 December 2016, […], paragraphs (3), (4).

speed supported by the ICE8042 based chipset to 21 Mbps.[204] Icera also launched a variant of the Espresso-302 chipset called Espresso-302-1 ("E302-1") chipset in a design that was exclusive to ZTE, incorporating a fuse to ensure it could not deliver downlink speeds greater than 7.2 Mbps. The Espresso-302-1 chipset was therefore a downgraded version of the ICE8042 based chipset which was not able to compete with Qualcomm's leading edge chipsets during the Relevant Period.[205]

8.2.3. Icera's ICE8060 based chipset

(145) The ICE8060 based chipset, also referred to as Espresso-400 ("E400") chipset,[206] was Icera's new generation chipset announced in October 2010.[207] The chipset consisted of an ICE8060 standalone baseband chip, combined with an IC8260 RF chip and a third party PM chip. Like the ICE8040 and ICE8042 based chipsets, also the ICE8060 based chipset was a soft modem chipset, thus benefitting from Icera's software-defined modem architecture. It supported downlink speeds of up to 28 Mbps.[208] Compared with the ICE8040 and ICE8042 based chipsets, the ICE8060 based chipset offered improvements with regard to power consumption and benefited from bill of materials savings.[209] Similarly to the E302-1 chipset, the E400 based chipset was also offered in a downgraded variant called E400-1 chipset, which was capable of reaching a maximum downlink speed of 7.2 Mbps and therefore not able to compete with Qualcomm's leading edge chipsets during the Relevant Period.[210]

9. OTHER SUPPLIERS OF UMTS COMPLIANT CHIPSETS

(146) A number of other baseband chipset suppliers were also supplying UMTS compliant chipsets during the Relevant Period. The following recitals provide a brief description of the main market players during that period.

9.1. Infineon/Intel

(147) Infineon Technologies AG ("Infineon"), is a Germany based company active in a broad range of semiconductor solutions.

(148) […].[211] […]. However, in terms of data rates, Infineon's products did not have the same performance compared to the UMTS chipset offerings of Qualcomm and Icera during the Relevant Period. Its first chipset supporting data rates of 21 Mbps was the

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204 Nvidia's reply of 13 January 2017 to question 3 of Article 18(2) request for information of 13 December 2016, […], paragraph (4).

205 Nvidia's submission of May 23 2017 titled *"NVidia Submission on Calculation of Contested Volumes",* […], page 10.

206 Icera's Complaint, […], paragraph (39), Table 1.

207 Icera press release of 19 October 2010, printed from Nvidia's website at http://www.Nvidia.com/content/PDF/icera-pr/2010/055-E400-E410-platforms-191010.pdf on 27 February 2018, […].

208 Icera's Complaint, […], paragraph (39), Table 1.

209 Icera presentation of 10 July 2010 titled […], pages 3-4.

210 Nvidia's submission of May 23 2017 titled […], page 10.

211 […] reply of 9 January 2015 to question 7 of Article 18(2) request for information of 4 November 2014, […], pages 5-6.

XMM6260 based standalone chipset, which was first shipped to key customers only in February 2011.[212] […].[213]

(149) As of 2011 Qualcomm became […] supplier of UMTS compliant chipsets,[214] but Infineon continued to supply other smartphone manufacturers like […]. Its presence in the MBB segment was marginal.[215]

(150) On 29 August 2010, Intel Corporation ("Intel"), a U.S. based multinational, announced the acquisition of the Wireless Solution business of Infineon,[216] which included its baseband chipsets.[217] The acquisition was completed on 31 January 2011. Since then, Intel has taken over and developed the business of Infineon in the baseband chipset space.

9.2. ST-Ericsson

(151) ST-Ericsson NV ("ST-Ericsson") was a multinational manufacturer of wireless products and semiconductors headquartered in Geneva, Switzerland, and established on 3 February 2009 as a 50/50 joint venture between Ericsson ("Ericsson") and ST Microelectronics N.V. ("ST Microelectronics"). ST-Ericsson supplied its baseband chipsets to OEMs such as […], […], […] and […].

(152) ST-Ericsson was supplying both integrated and standalone UMTS compliant chipsets. With its M570 chipset supporting data rates of up to 21 Mbps,[218] ST-Ericsson intended to offer […][219] and thus to potentially address the same market demand as Qualcomm's and Icera's chipsets described in section 8 above. However, during the Relevant Period this chipset did not appear to have gained significant market traction, […] (see evidence quoted in recital (387) below).

(153) The ST-Ericsson Joint Venture was dissolved on 2 August 2013,[220] with its baseband assets being transferred to Ericsson. Eventually, on 14 September 2014, Ericsson decided to exit the baseband chipset market completely.[221]

9.3. MediaTek

(154) MediaTek Inc. ("MediaTek") is a fabless semiconductor company for wireless communications and digital multimedia solutions headquartered in Taiwan.

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212 Intel press release of 14 February 2011, printed from Intel's website at https://newsroom.intel.com/news-releases/intel-mobile-communications-ships-worlds-smallest-hspa-solution-for-3g-smart-phones/ on 27 February 2018, […].

213 Infineon's reply of 21 January 2011 to question 1 of Article 18(2) request for information of 20 December 2010, […], page 2.

214 […].

215 Infineon's reply of 21 January 2011 to question 3 of Article 18(2) request for information of 20 December 2010, […], page 3.

216 Intel press release of 30 August 2010, printed from Intel's website at http://newsroom.intel.com/docs/DOC-1173 on 4 December 2015, […].

217 Intel press release of 31 January 2011, printed from Intel's website at http://newsroom.intel.com/community/intel_newsroom/blog/2011/01/31/intel-completes-acquisition-of-infineon-s-wireless-solutions-business on 4 December 2015, […].

218 Qualcomm internal presentation of April 2009 (see footnote 177 above) titled […], page 11.

219 ST-Ericsson's reply of 23 February 2011 to question 5 of Article 18(2) request for information of 20 December 2010, […], page 1.

220 Ericsson press release of 5 August 2013, printed from Ericsson's website at http://www.ericsson.com/thecompany/press/releases/2013/08/1721084 on 4 December 2015, […].

221 Ericsson press release of 18 September 2014, printed from http://mb.cision.com/Main/15448/2245507/661566.pdf on 22 July 2015, […].

(155) During the Relevant Period, […].[222] It started to produce UMTS-compliant baseband chipsets in 2010. Due to their lower speed performance and architecture characteristics, MediaTek's initial UMTS compliant chipsets were much more successful in the low and mid-range smartphone segment than in MBB devices.

9.4. Marvell

(156) Marvell Technology Group, Ltd. ("Marvell") is a U.S. based fabless semiconductor supplier. Its product portfolio has been mostly comprised of integrated baseband chipsets, including UMTS compliant chipsets. During the Relevant Period, the company […], without however providing leading edge UMTS compliant chipsets.

9.5. HiSilicon

(157) HiSilicon Technologies Co. Ltd ("HiSilicon") is a China based fabless semiconductor supplier[223] and a subsidiary of the Chinese device manufacturer Huawei. […] during the Relevant Period.[224]

(158) HiSilicon started production of UMTS compliant chipsets in 2009, for use in Huawei's MBB devices (mainly USB sticks) with low to mid-level performance (see evidence quoted in recital (387) below).[225] […].

9.6. Nokia

(159) Nokia Corporation ("Nokia"), a multinational company based in Finland, […].

(160) Gradually, however, Nokia moved away from self-supply and relied on merchant market chipsets.[226]

(161) In July 2010, Nokia stopped completely the development of new UMTS compliant chipsets, selling its baseband assets to Renesas.[227] […].

9.7. Renesas

(162) Renesas Mobile Corporation was a wholly-owned subsidiary of Renesas Electronics Corporation ("Renesas"), headquartered in Japan. It was active in the design and development of platforms for mobile phones and other mobile devices. It mainly supplied Japanese phone manufacturers such as Fujitsu, Sharp, NEC, Sony and Panasonic.[228]

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222 See also news article printed from http://technews.co/2015/03/03/no-showdown-between-qualcomm-and-mediatek-in-2015/ on 4 December 2015, […].

223 […] reply of 25 May 2015 to question 9 of Article 18(2) request for information of 30 April 2015 to baseband chipset suppliers, […], page 6.

224 […] reply of 12 December 2014 to question 3 of Article 18(2) request for information of 4 November 2014 to baseband chipset customers, […], pages 3-4.

225 See also […] reply of 12 December 2014 to question 3 of Article 18(2) request for information of 4 November 2014 to baseband chipset customers, […], pages 3-4.

226 See, *e.g.,* Nokia press release of 17 February 2009, printed from Nokia's website at https://www.nokia.com/en_int/news/releases/2009/02/17/nokia-and-qualcomm-plan-to-develop-advanced-mobile-devices on 22 July 2015, […].

227 Renesas press release of 6 July 2010, printed from Renesas' website at http://www renesas.com/press/news/2010/news20100706.jsp on 23 July 2015, […].

228 Strategy Analytics article of 6 July 2010, printed from Strategy Analytics' website at https://www.strategyanalytics.com/strategy-analytics/blogs/components/handset-components/handset-components/2010/07/06/nokia-partnership-could-help-renesas-expand-outside-japan#.Vbot-f4w9fw on 4 December 2015, […].

(163) In 2010, Renesas expanded its activities in baseband chipsets by acquiring Nokia's baseband assets.[229]

(164) The company never succeeded in gaining significant market traction outside Japan and eventually exited the market in 2013, transferring its baseband assets to Broadcom.[230]

9.8. Broadcom

(165) Broadcom Corporation ("Broadcom") was a U.S. based fabless semiconductor company that designed solutions for a broad range of wired and wireless communications markets. The company developed a number of integrated UMTS compliant chipsets, […].[231]

(166) In 2013, Broadcom acquired the baseband assets of Renesas.

(167) In July 2014, the company announced the wind-down of its baseband business.[232]

(168) In February 2016, Broadcom was acquired by the semiconductor company Avago Technologies Ltd. The new merged entity is called Broadcom Limited.

9.9. Samsung/LSI

(169) Samsung Systems LSI ("LSI") is a South Korean-based foundry semiconductor company that designs and manufactures baseband chipsets to be incorporated in mobile devices such as smartphones and tablets.

(170) LSI is a […].[233]

10. MARKET DEFINITION

10.1. Principles

(171) The definition of the relevant market is carried out, in the context of the application of Article 102 of the Treaty, in order to define the boundaries within which it must be assessed whether a given undertaking is able to behave to an appreciable extent independently of its competitors and its customers.[234]

(172) The concept of the relevant market implies that there can be effective competition between the products or services which form part of it and this presupposes that there is a sufficient degree of interchangeability between all the products or services

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229 ElectronicsWeekly.com article of 6 July 2010, printed from http://www.electronicsweekly.com/news/design/communications/renesas-to-buy-nokias-baseband-chip-business-2010-07/ on 4 December 2015, […].

230 Renesas press release of 4 September 2013, printed from Renesas' website at http://www renesas.com/_print_this_page_/press/news/2000/news20130904.jsp on 23 July 2015, […].

231 Broadcom's reply of 3 March 2015 to question 2 of Article 18(2) request for information of 17 December 2014, […], pages 4-5, where it has stated that […].

232 Broadcom press release of 2 June 2014, printed on 12 October 2015, […].

233 Samsung's reply of 16 February 2015 to questions 1 and 2 of Article 18(2) request for information of 8 January 2015 to baseband chipset suppliers, […], pages 2-3.

234 Case C-457/10 P *AstraZeneca* v *Commission*, ECLI:EU:T:2012:770, paragraph 175; Case C-549/10 P *Tomra v Commission*, ECLI:EU:C:2012:221, paragraph 38.

forming part of the same market in so far as a specific use of such products or services is concerned.[235]

(173) An examination to that end cannot be limited solely to the objective characteristics of the relevant products and services, but the competitive conditions and the structure of supply and demand on the market must also be taken into consideration.[236]

(174) The definition of the relevant market does not require the Commission to follow a rigid hierarchy of different sources of information or types of evidence. Rather, the Commission must make an overall assessment and can take account of a range of tools for the purposes of that assessment.[237]

10.2. Relevant Product Market

10.2.1. Principles relating to product market definition

(175) The identification of the relevant product market by the Commission derives from the existence of competitive constraints. Undertakings are subject to three main sources of competitive constraints, namely demand-side substitution, supply-side substitution and potential competition.[238] From an economic point of view, for the definition of the relevant market, demand-side substitution constitutes the most immediate and effective disciplinary force on the suppliers of a given product.[239]

(176) Supply-side substitution may also be taken into account when defining markets in those situations in which its effects are equivalent to those of demand-side substitution in terms of effectiveness and immediacy. There is supply-side substitution when suppliers are able to switch production to the relevant products and market them in the short term without incurring significant additional costs or risks in response to small and permanent changes in relative prices. When these conditions are met, the additional production that is put on the market will have a disciplinary effect on the competitive behaviour of the companies involved.[240]

(177) Supply-side substitution is, however, not taken into account for the definition of a relevant market each time it would entail the need to adjust significantly existing tangible and intangible assets, additional investments, strategic decisions or time delays.[241]

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235 Case 85/76 *Hoffmann-La Roche* v *Commission*, ECLI:EU:C:1979:36, paragraph 28; Case C-1/12 *Ordem dos Técnicos Oficiais de Contas*, ECLI:EU:C:2013:127, paragraph 77. See also the Commission's Notice on the definition of relevant market for the purposes of Community competition law ("Notice on market definition"), OJ C 372, 9.12.1997, page 5.

236 Case 322/81 *Michelin v Commission*, ECLI:EU:C:1983:313, paragraph 37; Case T-556/08 *Slovenská pošta v Commission*, ECLI:EU:T:2015:189, paragraph 112.

237 Case T-210/01 *General Electric v Commission*, ECLI:EU:T:2005:456 paragraph 519; Case T-343/06 *Shell Petroleum and Others v Commission*, ECLI:EU:T:2012:478, paragraph 171; Case T-342/07 *Ryanair v Commission*, ECLI:EU:T:2010:280, paragraph 136; Case T-175/12 *Deutsche Börse v Commission*, ECLI:EU:T:2015:148, paragraph 133; Case T-699/14 *Topps Europe v Commission*, ECLI:EU:T:2017:2, paragraph 82.

238 However, potential competition is normally not taken into account when defining markets for the purpose of enforcing EU competition law, since the conditions under which potential competition will actually represent an effective competitive constraint depend on the analysis of specific factors and circumstances related to the conditions of entry (see Notice on market definition, paragraph 24).

239 Notice on market definition, paragraph 13.

240 Notice on market definition, paragraph 20.

241 Notice on market definition, paragraph 23.

10.2.2. Application to this case

(178) The Commission concludes that the relevant product market in this case is comprised of slim and integrated chipsets that are compliant with different iterations of the UMTS standard and limited to the merchant market. It will be referred to as the UMTS (baseband) chipset market in the following.[242]

(179) The Commission has reached this conclusion based on the following factors:

(a) Baseband chipsets that comply with any technology other than UMTS, such as GSM, CDMA, TD-SCDMA (UMTS-TDD), WiFi and WiMAX do not exert a competitive constraint on UMTS chipsets (see sections 10.2.3 to 10.2.6 below);

(b) Baseband chipsets that comply with certain iterations of UMTS exert a competitive constraint on chipsets compliant with other iterations of UMTS (see section 10.2.7 below);

(c) Integrated baseband chipsets exert a competitive constraint on standalone baseband chipsets (slim modems) (see section 10.2.8 below); and

(d) Captive production of baseband chipsets does not exert a competitive constraint on merchant market sales of UMTS chipsets (see section 10.2.9 below).

(180) Contrary to Qualcomm's claims,[243] the Commission is able to reach these conclusions without having to carry out a SSNIP (small but significant non-transitory increase in price) test (see section 9.2.10 below).

10.2.3. The substitutability of GSM chipsets and UMTS chipsets

(181) During the Relevant Period, GSM chipsets represented a relatively large proportion of total sales of baseband chipsets. For example, in 2010, GSM chipsets represented more than half of worldwide shipments of all baseband chipsets.[244]

(182) The Commission concludes that GSM chipsets that are not compliant with UMTS are not substitutable for UMTS chipsets. This is for the following reasons:

(183) First, data rates achieved by GSM chipsets are inadequate for data-transfer intensive applications like video streaming. For an operator or mobile OEM wishing to enable these services, GSM chipsets with a data rate limit of approximately 100 kbps are not a viable alternative. This is confirmed by several replies of baseband chipset customers to requests for information, for example:

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242 Chipsets implementing the nascent LTE technology started appearing in the market towards the end of the Relevant Period. The quantity and value of these chipsets were minimal in comparison to the total number of UMTS compliant chipsets (see […]), at least until 2011. In this case, the Commission does not find it necessary to take a view as to whether LTE chipsets are in the same market as UMTS chipsets. This is because Qualcomm’s market share in such a possible broader market would be higher than in a UMTS chipset market which excludes LTE chipsets due to Qualcomm's strong position in relation to the supply of LTE baseband chipsets (see […]). In any case, given that the definition of a narrower market for UMTS chipsets is favourable to Qualcomm, the analysis of Qualcomm's market position will be carried out on the basis of this more conservative approach.

243 Qualcomm's SO Response, […], paragraphs (605), (651); Qualcomm’s SSO Response, […], paragraphs (223), (231) and footnote 332.

244 […].

(a) According to […], *"*[i]*n most markets with widespread 3G adoption (including the EEA), neither MNOs* [Mobile Network Operators] *nor end consumers would be likely to accept devices limited to GSM as alternatives to devices supporting more modern mobile standards. In addition, OEMs (including* […]*) tend to market the smallest number of devices possible which could serve the majority of the markets in which they are present."*[245]

(b) According to […], *"*[a]*s for technology, GSM does not offer the same data rates as UMTS, and hence the theoretical user of a GSM-only device cannot use as many applications that depend on higher data rates. Some would argue that EDGE, which is an evolution of GSM, provides for higher data rates. However, these EDGE rates are not as high as UMTS and its evolution."*[246]

(184) Second, UMTS chipsets are more efficient in the use of spectrum, both for data and for voice.[247] According to […], *"UMTS provides higher user capacity than GSM. This enables operators using UMTS over GSM to serve more customers in a given area with fewer base stations or cells and at a higher data rate."*[248]

(185) Third, suppliers of GSM chipsets are unable to switch to the supply of UMTS chipsets in a short time frame and without incurring significant additional investments or risks.[249] For example:

(a) According to […], *"GSM chipsets do not allow easy transition to UMTS. Indeed, a number of BC* [baseband chipset] *suppliers have attempted unsuccessfully to make this switch - for example,* […]*".*[250]

(b) According to […], *"*[i]*n order to switch from supplying GSM chipsets to chipsets supporting GSM/UMTS, a supplier must undertake significant additional investments, because little of the original GSM investment can be leveraged into UMTS development. As much as* […] *of the GSM/UMTS chipset*

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245 […] reply of 26 May 2015 to question 2 of Article 18(2) request for information of 30 April 2015, […], page 3.

246 […] reply of 27 May 2015 to question 2 of Article 18(2) request for information of 30 April 2015, […], pages 2-3. The Article 18(2) request for information of 30 April 2015 required its addressees to answer to the questions contained therein *"in relation to the time period 2010-2014"*.

247 See, *e.g.*, a White Paper from the UMTS Forum of December 2006 titled *"3G/UMTS Evolution: towards a new generation of broadband mobile services"*, […].

248 […] reply of 27 May 2015 to question 2 of Article 18(2) request for information of 30 April 2015, […], pages 2-3.

249 See […] reply of 5 May 2015 to question 2 of Article 18(2) request for information of 30 April 2015, […], pages 4-5; […] reply of 18 May 2015 to question 2 of Article 18(2) request for information of 30 April 2015, […], page 2; […] reply of 26 May 2015 to question 2 of Article 18(2) request for information of 30 April 2015, […], pages 2-3; […] reply of 25 May 2015 to question 2 of Article 18(2) request for information of 30 April 2015 to baseband chipset suppliers, […], page 2; […] reply of 25 May 2015 to question 2 of Article 18(2) request for information of 30 April 2015 to baseband chipset suppliers, […], page 2; […] reply of 27 May 2015 to question 2 of Article 18(2) request for information of 30 April 2015, […], page 2; […] reply of 29 May 2015 to question 2 of Article 18(2) request for information of 30 April 2015, […], page 2; […] reply of 27 May 2015 to question 2 of Article 18(2) request for information of 30 April 2015, […], pages 2-3; […] reply of 31 May 2015 to question 2 of Article 18(2) request for information of 30 April 2015, […], page 2; […] reply of 26 May 2015 to question 2 of Article 18(2) request for information of 30 April 2015, […], page 2; […] reply of 16 May 2015 to question 2 of Article 18(2) request for information of 30 April 2015, […], page 2; […] reply of 29 May 2015 to question 2 of Article 18(2) request for information of 30 April 2015, […], page 2.

250 […] reply of 27 May 2015 to question 2 of Article 18(2) request for information of 30 April 2015, […], page 2.

is specific to UMTS, […]. *Further, the UMTS standard also requires the use of many additional components as compared to GSM hardware. Accordingly,* […] *estimates the total time needed for such a switch as approximately between three and five years."*[251]

(186) The Commission's conclusion is not put into question by Qualcomm's argument that chipsets supporting late iterations of the GSM standard (such as EDGE) were substitutable for chipsets supporting early iterations of UMTS.[252] This is for the following reasons.

(187) First, to the Commission's best knowledge the data rates allegedly achieved by EDGE according to Qualcomm (1.3 Mbps) have never been supported by networks or commercial products. Qualcomm has not provided any evidence to the contrary.

(188) Second, in the same reply to an information request by […] adduced by Qualcomm in support of its claims, […] itself noted that […]. Moreover, […] referred to other factors due to which GSM chipsets do not represent a viable substitute for UMTS chipsets, such as carrier requirements, coverage and power as well as capacity restrictions.[253]

(189) Third, barriers for chipset suppliers to switching between different standards (such as from GSM/EDGE to an early iteration of UMTS) are higher than barriers for chip suppliers to switching between different iterations of a certain standard (see recital (207) below).

(190) Fourth, in any case, even if there were a limited overlap in terms of performance between chipsets at the edge of the transition from one standard to another, this would not be sufficient to conclude on the overall substitutability between chipsets implementing different standards (see recitals (182)-(185) above).

10.2.4. The substitutability of chipsets supporting UMTS and chipsets that support CDMA but not UMTS

(191) The Commission concludes that CDMA chipsets that do not support UMTS are not substitutable for UMTS chipsets.

(192) First, a large number of replies of UMTS chipset customers to requests for information indicated that they would not find it technically or commercially feasible to switch to CDMA chipsets that do not support UMTS.[254] This is because the

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251 […] reply of 31 May 2015 to question 2 of Article 18(2) request for information of 30 April 2015, […], page 2.

252 Qualcomm's SO Response, […], paragraphs 624-630; Qualcomm's SSO Response, […], paragraphs (224)-(228).

253 […] reply of 27 May 2015 to question 2 of Article 18(2) request for information of 30 April 2015, […], pages 2-3.

254 […] reply of 5 December 2014 to questions 12 and 13 of Article 18(2) request for information of 4 November 2014, […], pages 4-5; […] reply of 8 December 2014 to question 12 of Article 18(2) request for information of 4 November 2014, […], page 4; […] reply of 4 December 2014 to questions 12 and 13 of Article 18(2) request for information of 4 November 2014, […], pages 7-8; […] reply of 8 December 2014 to questions 12 and 13 of Article 18(2) request for information of 4 November 2014, […], pages 5-6; […] reply of 12 December 2014 to questions 12 and 13 of Article 18(2) request for information of 4 November 2014 to baseband chipset customers, […], pages 8-9; […] reply of 17 December 2014 to questions 12 and 13 of Article 18(2) request for information of 4 November 2014, […], page 5-6; […] reply of 12 December 2014 to questions 12 and 13 of Article 18(2) request for information of 4 November 2014, […], pages 5-6; […] reply of 15 December 2014 to questions 12 and

majority of mobile networks and 3G-enabled devices in the EEA use UMTS technology and CDMA compliant devices are not compatible with UMTS networks. For example:

(a) According to […], *"*[t]*he requirement for which standard is supported by the product is driven by the individual carrier".* Moreover, *"CDMA is only used by a limited number of carriers in the world".*[255]

(b) According to […], it *"does not consider CDMA BCs* [baseband chipsets] *to be technically and commercially potential substitutes for UMTS/LTE BCs* [baseband chipsets]. *Technically, CDMA BCs* [baseband chipsets] *cannot operate on the UMTS/LTE network.* […] *The cellular networks (operated by the regional telecom operators) define what wireless standard is required and in most regions (except* […]*) the CDMA standard is not supported by the networks."*[256]

(c) According to […], *"*[c]*ustomers want products that support UMTS/LTE. If* […] *were to switch to using chipsets supporting only CDMA or other non-3GPP wireless standards (e.g. WiMax, WiFi, etc), its devices would no longer match customers' requirements."*[257]

(193) Second, suppliers of CDMA baseband chipsets that do not support UMTS cannot switch or expand their supply to UMTS baseband chipsets in a short time frame and without incurring significant additional investments or risks.[258]

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13 of Article 18(2) request for information of 4 November 2014, […], pages 8-9; […] reply of 17 December 2014 to questions 12 and 13 of Article 18(2) request for information of 4 November 2014, […], page 4; […] reply of 8 January 2015 to questions 12 and 13 of Article 18(2) request for information of 4 November 2014, […], pages 6-7; […] reply of 19 December 2014 to questions 12 and 13 of Article 18(2) request for information of 4 November 2014, […], pages 7-8; […] reply of 12 January 2015 to questions 12 and 13 of Article 18(2) request for information of 4 November 2014, […], pages 5-6; […] reply of 9 January 2015 to questions 12 and 13 of Article 18(2) request for information of 4 November 2014, […], page 8; […] reply of 29 January 2015 to questions 12 and 13 of Article 18(2) request for information of 4 November 2014, […], page 3.

255 […] reply of 8 January 2015 to question 12 of Article 18(2) request for information of 4 November 2014, […], page 5.

256 […] reply of 8 December 2014 to question 13 of Article 18(2) request for information of 4 November 2014, […], page 6.

257 […] reply of 12 December 2014 to question 13 Article 18(2) request for information of 4 November 2014, […] page 8.

258 […] reply of 28 January 2015 to questions 13 and 14 of Article 18(2) request for information of 17 December 2014, […], page 4 and […], page 1; […] reply of 30 January 2015 to questions 13 and 14 of Article 18(2) request for information of 17 December 2014, […], page 4; […] reply of 30 January 2015 to questions 13 and 14 of Article 18(2) request for information of 17 December 2014, […], pages 4-5 and […], page 1; […] reply of 5 February 2015 to questions 13 and 14 of Article 18(2) request for information of 17 December 2014, […], pages 4-5; […] reply of 16 February 2015 to questions 13 and 14 of Article 18(2) request for information of 8 January 2015 to baseband chipset suppliers, […], page 6; […] reply of 3 March 2015 to questions 13 and 14 of Article 18(2) request for information of 17 December 2014, […], page 9; […] reply of 30 January 2015 to questions 13 and 14 of Article 18(2) request for information of 17 December 2014, […], pages 7-9; […] reply of 23 March 2015 to questions 13 and 14 of Article 18(2) request for information of 17 December 2014, […], page 8; […] reply of 16 February 2015 to questions 13 and 14 of Article 18(2) request for information of 17 December 2014, […], page 4; […] reply of 9 February 2015 to questions 13 and 14 of Article 18(2) request for information of 17 December 2014, […], page 5; […] reply of 13 February 2015 to questions 13 and 14 of Article 18(2) request for information of 8 January 2015, […], pages 4-5; […] reply of 16 February 2015 to questions 13 and 14 of Article 18(2) request for information of 8 January 2015, […], pages 4-5;

(194) While Qualcomm appears to claim that CDMA chipsets that do not support UMTS and chipsets that support UMTS form part of the same market,[259] it has not submitted any evidence to support this claim.

10.2.5. The substitutability of chipsets supporting UMTS-FDD and chipsets supporting UMTS-TDD but not UMTS-FDD

(195) The Commission concludes that UMTS-TDD chipsets that do not support UMTS-FDD are not substitutable for chipsets that support UMTS-FDD.

(196) First, a large number of replies of baseband chipset customers to requests for information indicated that the majority of mobile networks and 3G enabled devices in the EEA use UMTS-FDD technology.[260] Only limited frequencies have been assigned in some Member States to UMTS-TDD technology[261] and UMTS-TDD compliant devices are not compatible with UMTS-FDD networks. For example:

(a) According to […], *"UMTS-TDD is only used in* […]. *UMTS-FDD is required by Telecom Operators outside of* […]. *Chipsets supporting only UMTS-TDD, therefore, would not satisfy the requirements of Telecom Operators outside of* […]*, making them commercially unfeasible."*[262]

(b) According to […], *"UMTS-TDD is only used in* […]. […] *It is not commercially feasible for our company to replace the BCs* [baseband chipsets] *supporting UMTS-FDD with BCs* [baseband chipsets] *supporting UMTS-TDD if UMTS-TDD is not supported by local carrier."*[263]

(197) Second, a majority of the replies of baseband chipset suppliers to requests for information indicated that suppliers of UMTS-TDD baseband chipsets that do not support UMTS-FDD cannot switch or expand their supply to UMTS-FDD baseband

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[…] reply of 29 January 2015 to questions 13 and 14 of Article 18(2) request for information of 17 December 2014, […], pages 5-6.

259 Qualcomm's SO Response, […], paragraph (606).

260 […] reply of 5 December 2014 to questions 15 and 16 of Article 18(2) request for information of 4 November 2014, […], pages 5-6; […] reply of 8 December 2014 to question 15 of Article 18(2) request for information of 4 November 2014, […], pages 4-5; […] reply of 4 December 2014 to questions 15 and 16 of Article 18(2) request for information of 4 November 2014, […], pages 8-9; […] reply of 8 December 2014 to questions 15 and 16 of Article 18(2) request for information of 4 November 2014, […], page 6-7; […] reply of 12 December 2014 to questions 15 and 16 of Article 18(2) request for information of 4 November 2014 to baseband chipset customers, […], pages 9-10; […] reply of 17 December 2014 to questions 15 and 16 of Article 18(2) request for information of 4 November 2014, […], pages 6-7; […] reply of 12 December 2014 to questions 15 and 16 of Article 18(2) request for information of 4 November 2014, […], page 6; […] reply of 15 December 2014 to questions 15 and 16 of Article 18(2) request for information of 4 November 2014, […], pages 9-10; […] reply of 17 December 2014 to question 15 and 16 of Article 18(2) request for information of 4 November 2014, […], page 5; […] reply of 8 January 2015 to questions 15 and 16 of Article 18(2) request for information of 4 November 2014, […], pages 7-8; […] reply of 19 December 2014 to questions 15 and 16 of Article 18(2) request for information of 4 November 2014, […], page 8; […] reply of 12 January 2015 to questions 15 and 16 of Article 18(2) request for information of 4 November 2014, […], pages 6-7; […] reply of 9 January 2015 to questions 15 and 16 of Article 18(2) request for information of 4 November 2014, […], page 9; […] reply of 29 January 2015 to questions 15 and 16 of Article 18(2) request for information of 4 November 2014, […], page 4.

261 See the spectrum page on http://www.spectrummonitoring.com, printed on 12 October 2015, […].

262 […] reply of 12 December 2014 to question 16 Article 18(2) request for information of 4 November 2014, […], page 9.

263 […] reply of 12 January 2015 to Article 18(2) request for information of 4 November 2014, […], page 7.

chipsets in a short time frame and without incurring significant additional investments or risks.[264] For example:

(a) According to […], "[a] *switch from the supply of UMTS-TDD chipsets to chipsets supporting UMTS-FDD requires the development of technology under the new standard. This requires a very significant investment in R&D, including* […]. *Such switch will require a multi-year development phase."*[265]

(b) According to […], "[a]*lthough the actual time and expense involved will vary, we believe that it is extremely unlikely that a supplier of a chipset supporting one standard could switch to the supply of a chipset supporting another standard in less than two years (in fact, we believe that two years would be an unusually rapid development timeframe), and for a total expenditure of* […]"[266]

(198) While Qualcomm appears to suggest that UMTS-TDD chipsets that do not support UMTS-FDD and UMTS chipsets that support UMTS-FDD form part of the same market,[267] it has submitted no evidence to support this claim.

10.2.6. The substitutability of UMTS baseband chipsets and baseband chipsets supporting WiFi and WiMAX but not UMTS

(199) For the reasons set out below, the Commission concludes that chipsets supporting WLAN (commonly known as WiFi) but not UMTS and chipsets supporting WiMAX but not UMTS are not substitutable for UMTS chipsets.

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264 […] reply of 28 January 2015 to questions 16-18 of Article 18(2) request for information of 17 December 2014, […], page 5; […] reply of 30 January 2015 to questions 16-18 of Article 18(2) request for information of 17 December 2014, […], pages 4-5; […] reply of 30 January 2015 to questions 16-18 of Article 18(2) request for information of 17 December 2014, […], page 4-5 and […], page 1; […] reply of 5 February 2015 to questions 16-18 of Article 18(2) request for information of 17 December 2014, […], pages 5-6; […] reply of 16 February 2015 to questions 16-18 of Article 18(2) request for information of 8 January 2015 to baseband chipset suppliers, […], page 7; […] reply of 30 January 2015 to questions 16-18 of Article 18(2) request for information of 17 December 2014, […], pages 9-10; […] reply of 23 March 2015 to questions 16-18 of Article 18(2) request for information of 17 December 2014, […], pages 8-9; […] reply of 16 February 2015 to questions 16-18 of Article 18(2) request for information of 17 December 2014, […], pages 4-5; […] reply of 9 February 2015 to questions 16-18 of Article 18(2) request for information of 17 December 2014, […], pages 5-6; […] reply of 13 February 2015 to questions 16-18 of Article 18(2) request for information of 8 January 2015, […], pages 5-6; […] reply of 16 February 2015 to questions 16-18 of Article 18(2) request for information of 8 January 2015, […], page 5; […] reply of 29 January 2015 to questions 16-18 of Article 18(2) request for information of 17 December 2014, […], pages 6-7. The Commission notes that in its reply of 5 February 2015 to question 16 of Article 18(2) request for information of 17 December 2014, […], page 5, […] answered that a switch would be possible. […], however, appears to have interpreted the question as if it were related to a switch from UMTS-FDD to UMTS-TDD, whereas the question was referring to a switch from UMTS-TDD to UMTS-FDD. In any event, […] stated that "[i]*f a supplier has a commercial UMTS-FDD solution on market then the time-frame required to introduce and commercialize a UMT-TDD would require at least 2.5-3 years of development from design start to available on market"*. Therefore, the time horizon considered by […] is not short enough for the purposes of the assessment of supply side substitutability in the context of product market definition.

265 […] reply of 16 February 2015 to question 18 of Article 18(2) request for information of 8 January 2015 to baseband chipset suppliers, […], page 7.

266 […] reply of 13 February 2015 to question 17 of Article 18(2) request for information of 8 January 2015, […], page 6.

267 Qualcomm's SSO Response, […], footnote 293.

(200) First, neither WiFi nor WiMAX offers mobile connectivity like UMTS. This is because user access is restricted to a limited number of venues, typically including their home, place of work and selected public venues.

(201) This conclusion is not put into question by Qualcomm's claim that end users consider WiFi and mobile connectivity in certain circumstances as substitutes.[268] In the first place, WiFi access is not comparable to mobile connectivity in terms of availability. In the second place, mobile connectivity constitutes an important requirement for smart mobile devices,[269] regardless of the fact that users may in some cases switch to data connectivity via WiFi, for example in order to reduce their mobile data use, notably in cases where the user subscription includes a volume cap.

(202) Second, in contrast to WiFi, the deployment of WiMAX in the EEA has been minimal. The Commission estimates that at the end of 2010 there were 1.3 million subscribers in all EU countries, with half of them in the Czech Republic.[270]

(203) Third, a large majority of the replies of baseband chipset customers to requests for information stated that chipsets incorporating WiMAX and WiFi are not substitutable for UMTS chipsets.[271] For example, according to […] *"*[c]*ustomers want products that support UMTS/LTE. If* […] *were to switch to using chipsets supporting only* […] *non-3GPP wireless standards (e.g. WiMax, WiFi, etc), its devices would no longer match customers' requirements*."[272]

(204) Fourth, suppliers of baseband chipsets supporting WiFi and WiMAX cannot switch or expand their supply to baseband chipsets compliant with UMTS in a short time frame because the addition of cellular communication standards would entail

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268 Qualcomm's SO Response, […], paragraphs (663)-(666).

269 See replies to question 13 of Article 18(2) request for information of 4 November 2014 to baseband chipset customers.

270 See Report of the European Commission of December 2011 titled *"Broadband Coverage in Europe, Final Report 2011 Survey"*, printed from the European Commission's website at https://ec.europa.eu/digital-agenda/sites/digital-agenda/files/broadband_coverage_2010.pdf on 12 October 2015, […].

271 […] reply of 5 December 2014 to questions 12 and 13 of Article 18(2) request for information of 4 November 2014, […], page 4-5; […] reply of 8 December 2014 to question 12 of Article 18(2) request for information of 4 November 2014, […], page 4; […] reply of 4 December 2014 to questions 12 and 13 of Article 18(2) request for information of 4 November 2014, […], pages 7-8; […] reply of 8 December 2014 to questions 12 and 13 of Article 18(2) request for information of 4 November 2014, […], pages 5-6; […] reply of 12 December 2014 to questions 12 and 13 of Article 18(2) request for information of 4 November 2014 to baseband chipset customers, […], pages 8-9; […] reply of 17 December 2014 to questions 12 and 13 of Article 18(2) request for information of 4 November 2014, […], pages 5-6; […] reply of 12 December 2014 to questions 12 and 13 of Article 18(2) request for information of 4 November 2014, […], pages 5-6; […] reply of 15 December 2014 to questions 12-13 of Article 18(2) request for information of 4 November 2014, […], pages 8-9; […] reply of 17 December 2014 to questions 12 and 13 of Article 18(2) request for information of 4 November 2014, […], page 4; […] reply of 8 January 2015 to questions 12 and 13 of Article 18(2) request for information of 4 November 2014, […], page 6-7; […] reply of 19 December 2014 to questions 12 and 13 of Article 18(2) request for information of 4 November 2014, […], pages 7-8; […] reply of 12 January 2015 to questions 12 and 13 of Article 18(2) request for information of 4 November 2014, […], pages 4-5; […] reply of 9 January 2015 to questions 12 and 13 of Article 18(2) request for information of 4 November 2014, […], page 8; […] reply of 29 January 2015 to questions 12 and 13 of Article 18(2) request for information of 4 November 2014, […], page 3.

272 […] reply of 12 December 2014 to question 13 of Article 18(2) request for information of 4 November 2014, […], page 8.

significant time and costs. This has been confirmed by a majority of the replies of baseband chipset suppliers to requests for information.[273] For example:

(a) According to […], "[o]*rganically, such an important switch* [*i.e.* a switch from producing chipsets for wireless technologies such as WiMax or Wifi to producing UMTS chipsets] *in 10 to 12 months seems impossible because of the need for offering a firmware with the chipset. The development, testing and approval of such firmware take years. Of course by merger, acquisitions, financial injections, etc. one could try to achieve the impossible.*"[274]

(b) According to […], "[established chipset suppliers who manufacture chipsets for other wireless technologies such as WiMax or Wifi] *may be capable* [to switch production to UMTS baseband chipsets] *but probably in a longer time frame* [than 10-12 months]. *We would likely not believe one who told us they could to* [sic] *our quality expectations in developing new technology chipsets in 12 months.*"[275]

(c) According to […], "[m]*igration from WiMAX to LTE is possible due to commonalities (OFDMA), but will require significant development & testing effort (~2 years). Migration from WiFi or WiMax to UMTS will require new development (> 2 years).*"[276]

10.2.7. The substitutability of chipsets that comply with different iterations of UMTS technology

(205) For the reasons set out below, the Commission concludes that baseband chipsets that comply with certain iterations of UMTS technology are substitutable for chipsets compliant with other iterations of that technology.

(206) First, higher speed UMTS chipsets can be substituted to a certain extent by UMTS chipsets of lower performance. For example:

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[273] […] reply of 28 January 2015 to questions 12 and 13 of Article 18(2) request for information of 17 December 2014, […], page 4; […] reply of 30 January 2015 to questions 12 and 13 of Article 18(2) request for information of 17 December 2014, […], pages 3-4; […] reply of 30 January 2015 to questions 12 and 13 of Article 18(2) request for information of 17 December 2014, […], pages 4-5 and […], page 1; […] reply of 5 February 2015 to questions 12 and 13 of Article 18(2) request for information of 17 December 2014, […], pages 4-5; […] reply of 16 February 2015 to questions 12 and 13 of Article 18(2) request for information of 8 January 2015 to baseband chipset suppliers, […], page 6; […] reply of 3 March 2015 to questions 13 and 14 of Article 18(2) request for information of 17 December 2014, […], pages 7-8; […] reply of 30 January 2015 to questions 12 and 13 of Article 18(2) request for information of 17 December 2014, […], pages 7-8; […] reply of 23 March 2015 to questions 12 and 13 of Article 18(2) request for information of 17 December 2014, […], pages 7-8; […] reply of 16 February 2015 to questions 12 and 13 of Article 18(2) request for information of 17 December 2014, […], page 4; […] reply of 9 February 2015 to questions 12 and 13 of Article 18(2) request for information of 17 December 2014, […], pages 4-5; […] reply of 13 February 2015 to questions 12 and 13 of Article 18(2) request for information of 8 January 2015, […], pages 4-5; […] reply of 16 February 2015 to questions 12 and 13 of Article 18(2) request for information of 8 January 2015, […], pages 4-5; […] reply of 29 January 2015 to questions 12 and 13 of Article 18(2) request for information of 17 December 2014, […], pages 5-6.

[274] […] reply of 20 September 2010 to question 16 of Article 18(2) request for information of 1 September 2010, […], page 7.

[275] […] reply of 21 September 2010 to question 16 of Article 18(2) request for information of 1 September 2010, […], page 5.

[276] […] reply of 24 September 2010 to question 12 of Article 18(2) request for information of 1 September 2010, […], page 5.

(a) According to […], *"*[i]*t takes time for advanced standards to substitute less advanced standards in the market. Telecom Operators take into account the operation cost and maturity of the standard when choosing a standard. When MAS* [Most Advanced Standard] *is not mature enough, Telecom Operator would choose the less advanced but mature standard for their wireless network. Thus, products with chipsets supporting less advanced standards, which are mature, could be a good alternative as long as Telecom Operators require (only) the mature standard (which is also less expensive for the Telecom Operators). However, once a standard has matured, and it has been adopted by Telecom Operators, products with BCs* [baseband chipsets] *supporting the less advanced standard would not be a good alternative. At that point, these BCs* [baseband chipsets] *would not match customers' requirements."*[277]

(b) According to […], *"chipsets that enable end-devices to implement one or more evolutions of the UMTS standard, including W-CDMA, HSDPA, HSUPA, HSPA, and HSPA+, constrain the pricing of chips or chipsets that support all other versions of that standard"*. [278]

(207) Second, barriers to switching between different iterations of standards are lower than barriers to switching between different generations. This is because new iterations of standards within a certain technology generation are to a large extent based on previous iterations. For instance, HSPA+ is based on HSPA.

(208) During the administrative procedure, Qualcomm has not sought to contest the Commission's conclusion in this respect.

10.2.8. The substitutability of slim and integrated baseband chipsets

(209) The Commission concludes that integrated chipsets are substitutable for slim modems (i.e. standalone chipsets).

(210) First, responses to the Commission's market investigation indicate that customers often buy both integrated chipsets and slim modems[279] because they consider that an

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277 […] reply of 12 December 2014 to question 26 of Article 18(2) request for information of 4 November 2014, […], page 13.

278 Qualcomm's reply of 2 December 2013 to Article 18(3) Decision of 10 July 2013, […], paragraph 16.

279 […] reply of 5 December 2014 to question 32 of Article 18(2) request for information of 4 November 2014, […], pages 9-10; […] reply of 4 December 2014 to question 32 of Article 18(2) request for information of 4 November 2014, […], page 14; […] reply of 8 December 2014 to question 32 of Article 18(2) request for information of 4 November 2014, […], page 12; […] reply of 12 December 2014 to question 32 of Article 18(2) request for information of 4 November 2014 to baseband chipset customers, […], page 16; […] reply of 17 December 2014 to question 32 of Article 18(2) request for information of 4 November 2014, […], page 12; […] reply of 12 December 2014 to question 32 of Article 18(2) request for information of 4 November 2014, […], page 10; […] reply of 15 December 2014 to questions 32 of Article 18(2) request for information of 4 November 2014, […], page 16; […] reply of 17 December 2014 to question 32 of Article 18(2) request for information of 4 November 2014, […], page 9; […] reply of 8 January 2015 to question 32 of Article 18(2) request for information of 4 November 2014, […], page 14; […] reply of 19 December 2014 to question 32 of Article 18(2) request for information of 4 November 2014, […], page 13; […] reply of 12 January 2015 to question 32 of Article 18(2) request for information of 4 November 2014, […], pages 11-12; […] reply of 9 January 2015 to question 32 of Article 18(2) request for information of 4 November 2014, […], page 13; […] reply of 29 January 2015 to question 32 of Article 18(2) request for information of 4 November 2014, […], page 7.

architecture based on an integrated chipset is in many cases an alternative to an architecture based on a slim modem combined with an application processor (and vice-versa).[280]

(211) Second, relatively few requirements would need to be met in order for a hypothetical supplier of only integrated baseband chipsets to start supplying slim modems. For example, Qualcomm indicated that it does not consider that the requirements would generally be any greater than for a supplier of integrated chipsets to add another chipset to its portfolio.[281] A number of suppliers responding to the Commission's requests for information also stated that switching from the supply of integrated chipsets to the supply of slim modems would be relatively straightforward. For example:

(a) According to […], "[t]*his seems to us mostly a cut-out exercise. If the more complex product exists, it should be fairly straightforward to design a feature-reduced version. The question is what sort time and low investment means. For sure both is an order of magnitude smaller/shorter than developing a new modem.*"[282]

(b) According to […], "[t]*his exercise is relatively simple, and would not consume considerable resources or time.*"[283]

(212) Third, chipset suppliers have the ability to (technically or contractually) de-feature the application processor of integrated chipsets and offer them as chipsets providing only connectivity. De-featuring is a common practice, […],[284] […].

(213) During the administrative procedure, Qualcomm has not sought to contest the Commission's conclusion in this respect.

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280 […] reply of 5 December 2014 to question 34 of Article 18(2) request for information of 4 November 2014, […], page 10; […] reply of 4 December 2014 to question 34 of Article 18(2) request for information of 4 November 2014, […], page 15; […] reply of 8 December 2014 to question 34 of Article 18(2) request for information of 4 November 2014, […], page 12; […] reply of 12 December 2014 to question 34 of Article 18(2) request for information of 4 November 2014 to baseband chipset customers, […], page 17; […] reply of 17 December 2014 to question 34 of Article 18(2) request for information of 4 November 2014, […], page 12; […] reply of 12 December 2014 to question 34 of Article 18(2) request for information of 4 November 2014, […], page 10; […] reply of 8 December 2014 to question 34 of Article 18(2) request for information of 4 November 2014 to baseband chipset customers, […], page 12; […] reply of 15 December 2014 to questions 34 of Article 18(2) request for information of 4 November 2014, […], page 17; […] reply of 17 December 2014 to question 34 of Article 18(2) request for information of 4 November 2014, […], page 9; […] reply of 8 January 2015 to question 34 of Article 18(2) request for information of 4 November 2014, […], pages 14-15; […] reply of 19 December 2014 to question 34 of Article 18(2) request for information of 4 November 2014, […], page 14; […] reply of 12 January 2015 to question 34 of Article 18(2) request for information of 4 November 2014, […], page 12; […] reply of 9 January 2015 to question 34 of Article 18(2) request for information of 4 November 2014, […], page 14; […] reply of 29 January 2015 to question 34 of Article 18(2) request for information of 4 November 2014, […], page 7.

281 Qualcomm's reply of 20 March 2015 to question 37 of Article 18(2) request for information of 14 January 2015, […], paragraph (146).

282 […] reply of 30 January 2015 to question 39 of Article 18(2) request for information of 17 December 2014, […], page 10.

283 […] reply of 28 January 2015 to question 40 of Article 18(2) request for information of 17 December 2014, […], page 10.

284 Qualcomm's reply of 2 December 2013 to Article 18(3) Decision of 10 July 2013, […], paragraphs (30)-(32).

10.2.9. The competitive constraint exerted by captive production of baseband chipsets on merchant market sales of UMTS chipsets

(214) For the reasons set out below, the Commission concludes that the captive production of baseband chipsets, *i.e.* the production of baseband chipsets by vertically integrated undertakings for integration into their own end devices, did not exert either a direct (see section 10.2.9.1 below) or an indirect (see section 10.2.9.2 below) competitive constraint on merchant market sales of UMTS chipsets during the Relevant Period.

(215) During the Relevant Period, all OEMs relied on chipsets from the merchant market, with the exception of three vertically integrated undertakings that satisfied all or part of their UMTS chipset needs through captive production. These were […]. However, […] captive production of UMTS chipsets during the Relevant Period was minimal and will therefore not be taken into account for the analysis in this case.[285]

10.2.9.1. Direct constraints from captive production on the merchant market

(216) For the reasons set out below, the Commission concludes that the captive production of baseband chipsets did not exert a direct competitive constraint on merchant market sales of UMTS chipsets during the Relevant Period.

(217) First, the volumes produced for captive consumption by […] and […] were generally not available for purchase by third party customers. In fact, except for very limited quantities, no portion of […] and […] captive production was sold on the merchant market for UMTS chipsets during the Relevant Period.

(218) As regards […], this was confirmed by […].[286] […][287] […].

(219) As regards […], this was acknowledged by […].[288] […][289]

(220) Second, the captive production of […] and […] during the Relevant Period was meant for self-supply only since neither of the two companies had any intention of selling parts of their captive production to the merchant market. This is supported by the following evidence:

(a) In a reply to a request for information in January 2011 […] stated: […][290]

(b) In a reply to a request for information in January 2015 […] stated: […]. Against this background, […] explained that […][291]

(c) As explained in recital (161) above, […].

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285 The volumes of […] first own UMTS chipset […] amounted to less than […] of the total UMTS chipset sales in the merchant market in both 2010 and 2011. See […] reply of 16 February 2015 to Article 18(2) request for information of 8 January 2015 to baseband chipset suppliers, […].

286 […] reply of 29 January 2015 to question 2 of Article 18(2) request for information of 17 December 2014, […], pages 2-3.

287 […] reply of 19 December 2014 to question 7.2 of Article 18(2) request for information of 19 November 2014, […], page 2.

288 […] reply of 12 December 2014 to question 3 of Article 18(2) request for information of 4 November 2014 to baseband chipset customers, […], pages 3-4.

289 Qualcomm's reply of 2 December 2013 to question 52 of Article 18(3) Decision of 10 July 2013, […], paragraph (238).

290 […] reply of 21 January 2011 to question 14 of Article 18(2) request for information of 20 December 2010, […], page 6.

291 […] reply of 29 January 2015 to question 2 of Article 18(2) request for information of 17 December 2014, […], pages 2-3.

(221) Third, during the Relevant Period, even OEMs with captive production still relied to a significant extent on external suppliers.[292] This suggests a distinct demand for merchant market UMTS chipsets. The Commission notes that this is unlikely to be the result of capacity constraints where the supplier is "fabless" and therefore outsources the manufacturing to a foundry, as was the case for […].

(222) Fourth, […] and […] were not in a position to make parts of their captive production available on the merchant market without a significant impact on their own operations. The Commission notes that this is in particular the case for […][293] […].[294]

(223) The Commission's conclusion is not put into question by Qualcomm's arguments in this respect.

(224) First, Qualcomm claims that OEMs with captive production, in particular […] and/or […], may have entered or may have had the ability to enter the merchant market and start supplying UMTS chipsets to third parties.[295] Qualcomm's claim is speculative and unfounded for the following reasons.

(225) In the first place, none of the relevant OEMs with captive production had any intention of selling parts of their captive production to the merchant market during the Relevant Period (see recital (220) above). This is corroborated by the fact that (i) […] did not sell any of its captive production on the merchant market […] (see recital (219) above) and (ii) […] used its captive production exclusively or almost exclusively for internal purposes and did not supply third party OEMs […].[296]

(226) In the second place, in Case COMP/M.8306 *Qualcomm/NXP Semiconductors*, […] indicated the existence of significant entry barriers and obstacles for an OEM already manufacturing baseband chipsets for its internal demand to start selling them on the merchant market.[297]

(227) Second, Qualcomm claims that OEMs with captive production, in particular […] and/or […], are unwilling to pay more for third-party UMTS chipsets than the cost at which they are able to produce those chipsets themselves.[298]

(228) Qualcomm's claim is unfounded since OEMs with captive production, in fact, relied to a significant extent on external suppliers during the Relevant Period (see recital (221) above). This corroborates the existence of distinct demand for merchant market

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292 See, *e.g.*, […].

293 […] reply of 19 December 2014 to question 7.2 of Article 18(2) request for information of 19 November 2014, […], page 2.

294 […] reply of 29 January 2015 to question 2 of Article 18(2) request for information of 17 December 2014, […], pages 2-3.

295 Qualcomm's SO Response, […], paragraphs 651, page 242; Qualcomm's SSO Response, […], paragraphs (235).

296 See Commission Decision of 18 January 2018 (Case COMP/M.8306 *Qualcomm/NXP Semiconductors*), recital 92.

297 See Commission Decision of 18 January 2018 (Case COMP/M.8306 *Qualcomm/NXP Semiconductors*), recital 92.

298 Qualcomm's SO Response, […], paragraphs (651), page 242-243; Qualcomm's SSO Response, […], paragraphs (232)-(233).

chipsets, which was also confirmed in Case COMP/M.8306 *Qualcomm/NXP Semiconductors*.[299]

10.2.9.2. Indirect constraints stemming from competition at the downstream level

(229) The Commission concludes that, during the Relevant Period, captive sales did not exert a competitive constraint on the merchant market for UMTS chipsets *via* competition at the downstream level between devices incorporating UMTS chipsets. This means that if the price of Qualcomm's UMTS chipsets were to increase, then the resulting demand reaction downstream (i) would not be sufficient to induce those buyers who are currently not self-supplying to build their own production capacities, and (ii) would not incite those buyers who already produce UMTS chipsets in-house to fully rely on their own production instead, or enter the merchant market with their own chipsets. This is for the following reasons.

(230) First, a competitive constraint from self-supply of UMTS chipsets could only have been present for mobile phones since self-supply of UMTS chipsets for devices other than mobile phones was of negligible size during the Relevant Period: […].[300] […].[301] Therefore, possible indirect constraints on the merchant market for UMTS chipsets could only originate from mobile phones sold by these two partly self-supplying companies on the downstream market, where they competed against mobile phones incorporating Qualcomm's UMTS chipsets.

(231) The Commission considers […] and […] supply share in the smartphone segment to provide a good proxy for their position on the UMTS mobile phone market.[302] This is because smartphones require mobile broadband capability, which was typically provided by UMTS technology at the time.[303] During the Relevant Period, […] market share was well below […] and therefore negligible. In contrast, […] market share was significant, albeit sharply decreasing from […] in 2009 to less than […] in 2011.[304] […] downstream activity in the market for UMTS mobile phones was thus the only possible (even though declining) source of indirect constraints during the Relevant Period.

(232) Second, even for this possible source of indirect constraints, a low dilution factor and a high differentiation of mobile phones at the downstream level indicate that captive sales of UMTS chipsets did not exert an appreciable indirect constraint on the

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299 See Commission Decision of 18 January 2018 (Case COMP/M.8306 *Qualcomm/NXP Semiconductors*), recital 92.

300 Icera's Complaint, […], paragraph 14. The Commission also notes that […] position in this market segment was negligible during the Relevant Period since it held a market share of well below […] (see […]).

301 […] reply of 3 January 2012 to question 11 of Article 18(3) Decision of 19 October 2011, […], paragraphs (35)-(37).

302 See, *e.g.*, Counterpoint Technology Market Research article titled *"Recap of the smartphone market in 2011"* of 3 February 2012, printed from Counterpoint Technology Market Research's website at http://www.counterpointresearch.com/recap-of-the-smartphone-market-in-2011 on 27 July 2015, […].

303 See sections 10.2.3 to 10.2.6 above for an explanation of alternative wireless technologies available during the Relevant Period, notably GSM (which, however, did not offer the same data rates as UMTS), WiFi, and WiMAX. In circumstances where UMTS coverage was not available, or WiFi or WiMAX coverage provided cheaper data connections, UMTS compatible handheld devices would occasionally switch to one of these alternative technologies, but this was rather an exception than the rule.

304 […].

merchant market for UMTS chipsets through competition between UMTS mobile phones at the downstream level during the Relevant Period.

(233) To assess the effect of potential indirect constraints stemming from competition by […] mobile phones at the downstream level (and potentially also […] mobile phones, though to a much lesser extent due to its lower market share), the Commission considered two elements, namely (i) the dilution factor, *i.e.* the ratio between the upstream price of the UMTS chipsets and the downstream price of the mobile phones incorporating these chipsets (see recitals (234)-(235) below) and (ii) the level of demand substitution in the downstream market for mobile phones (see recitals (236)-(237) below).[305]

(234) As a first step, the Commission assessed the impact of a hypothetical price increase in the upstream market for UMTS chipsets on prices in the downstream market for mobile phones incorporating such chipsets on the basis of the dilution factor, *i.e.* the ratio of upstream prices to downstream prices. The higher the dilution factor, the higher the impact of an upstream price increase on the downstream price. The stronger the reaction of the downstream price, the more likely are downstream customers to switch away from the now more expensive product towards an alternative, cheaper product (incorporating a self-supplied input whose price did not change), thus defeating the price increase on the upstream product (the upstream profits may remain unchanged or even fall, provided that the drop in sold volumes is strong enough to outweigh the increase in prices on the remaining units sold).

(235) In this regard, the Commission notes that UMTS chipsets represented a relatively small share of the price of UMTS mobile phones. During the Relevant Period, the average selling price ("ASP") of a UMTS enabled mobile phone was approximately USD 190.[306] By contrast, the ASP of a UMTS chipset was approximately USD 12 during the same period.[307] Consequently, the upstream/downstream price ratio was approximately 6% during the Relevant Period. Therefore, the Commission finds that, regardless of the level of demand substitution at the downstream level, a hypothetical price increase of 5% to 10% in the upstream merchant market for UMTS chipsets would have had a negligible impact on prices in the downstream market for devices incorporating such chipsets.

(236) As a second step, the Commission assessed the level of demand substitution at the downstream level for different brands of mobile phones, some of which incorporate UMTS chipsets sourced on the merchant market, while others contain UMTS chipsets from captive supply. The more intense demand substitution at the downstream level, the more sensitive consumers are to price variations across different brands. This means that if the retail price of one mobile phone brand increased as a result of a hypothetical increase in the input price, a larger share of consumers would switch to those mobile phone producers who can rely on captive supply and who would therefore not be affected by the increase in the price of the UMTS chipsets on the merchant market. This, in turn, would imply that an upstream price increase on the merchant market would be less profitable for the supplier of the

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305 No such assessment is carried out for devices other than mobile phones, *e.g.* MBB devices, because self-supply was negligible in this segment of the UMTS chipset market during the Relevant Period (see recital (230) above).

306 See, *e.g.*, […]

307 […].

input (*i.e.* the UMTS chipsets) since it would be followed by a sharper drop in demand for the input.

(237) In this regard, the Commission notes that UMTS mobile phones can be regarded as highly differentiated products since their performance, design, brand prestige, functionality or supported applications vary significantly.[308] Therefore, switching is typically less intense under these conditions than in the case of markets with homogeneous or less differentiated products.[309] This means that even if the price of one mobile phone brand increased as a result of the increase in the baseband chipset price, consumers would be unlikely to switch to competing mobile phone brands relying on captive supply whose retail price would remain unaffected. Therefore, the Commission concludes that a hypothetical price increase for baseband chipsets would not lead to a sharp drop in demand for chipsets on the merchant market and would thus be more likely to be profitable for the chipset supplier than in a situation where the downstream products are less differentiated.

(238) The Commission's conclusion is not put into question by Qualcomm's claims in this regard.

(239) First, Qualcomm points out that while the baseband chipset price represents a relatively small share of the price of UMTS mobile phones, it may represent a much higher share of the price of MBB devices.[310]

(240) Qualcomm's claim is irrelevant for the assessment of indirect constraints in the relevant market in this case. This is because, as explained at recital (230) above, self-supply of UMTS chipsets during the Relevant Period almost exclusively concerned mobile phones, whereas other products such as MBB devices were […] or only to a negligible extent […]. The question whether an indirect constraints analysis focusing on MBB devices would have led to a different outcome is therefore purely hypothetical.[311]

(241) Second, Qualcomm argues that OEMs without captive production may consider turning to self-supply in the event of an increase in the price of chipsets sold in the merchant market.[312]

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308 See, *e.g.*, Business History article of Claudio Giachetti & Gianluca Marchi titled *"Evolution of firms' product strategy over the lifecycle of technology-based industries: A case study of the global mobile phone industry, 1980–2009"* of 21 December 2010, printed from https://www.tandfonline.com/doi/full/10.1080/00076791.2010.523464?src=recsys on 8 May 2018, […].

309 See, *e.g.*, Roman Inderst & Tommaso Valletti (2009), *"Indirect versus Direct Constraints in Markets with Vertical Integration"*, Scandinavian Journal of Economics 111(3), pages 527–546, printed from https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1467-9442.2009.01575 x on 18 June 2018, […].

310 Qualcomm's SO Response, […], paragraph (651), page 244; Qualcomm's SSO Response, […], paragraphs (240)-(242).

311 In any event, even if […] entire captive supply of UMTS baseband chipsets (*i.e.* for both MBB and smartphones) were to be included in the relevant market, Qualcomm's volume based market shares during the Relevant Period would remain unchanged in 2009 and only fall marginally in 2010 and 2011, namely by […] (in 2010) and […] (in 2011), resulting in market shares of […] (2009), […] (2010) and […] (2011) (see Annex I to the Letter of Facts, […], paragraphs (37)-(38)). […] captive supply was disregarded for the purpose of establishing this hypothetical scenario because […] (see recital (230) above) […] (see recital (220)(b) above). For Qualcomm's market shares in the relevant market as defined by the Commission in this case, see recital (274) below.

312 Qualcomm's SO Response, […], paragraph (710); Qualcomm's SSO Response, […], paragraph (243).

(242) Qualcomm's claim is incorrect. Due to the existence of high barriers to entry, as set out in section 11.4 below, OEMs without captive production would be unable to turn to self-supply within a short time period.

(243) Third, Qualcomm claims that the Commission's conclusion is inconsistent with its assessment of a statement from a Qualcomm internal e-mail according to which Qualcomm's initial plan was to *"not giv*e *Icera any opportunity in Huawei strategically"* and in case Icera was to make inroads at ZTE, to *"push ZTE back by working with Huawei in the market place"*.[313]

(244) Qualcomm's claim is incorrect since there is no such inconsistency. The quoted statement relates to chipsets to be incorporated into MBB devices for which, as explained at recital (230) above, there was no significant captive production during the Relevant Period. There was therefore no reason for the Commission to include the MBB segment in the analysis of potential indirect constraints stemming from competition at the downstream level.

10.2.10. The need to carry out a SSNIP test

(245) Contrary to Qualcomm's claim,[314] in order to reach the conclusions set out in sections 10.2.3 to 10.2.9 above, the Commission was not required to carry out a SSNIP test.

(246) First, the SSNIP test is not the only method available to the Commission when defining the relevant product market.[315]

(247) Second, the Commission is required to make an overall assessment of all the evidence and there is no hierarchy between the types of evidence that the Commission can rely upon.[316]

(248) Third, the SSNIP test is unlikely to have been an appropriate tool in this case given that, due to Qualcomm's position in the worldwide market for UMTS chipsets during the Relevant Period (see section 11 below), prices of UMTS chipsets may already have been set at a supra-competitive level.[317]

10.3. Relevant geographic market

10.3.1. Principles relating to geographic market definition

(249) The relevant geographic market comprises an area in which the undertakings concerned are involved in the supply and demand of the relevant products or services, in which area the conditions of competition are similar or sufficiently homogeneous and which can be distinguished from neighbouring areas in which the prevailing conditions of competition are appreciably different.[318]

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313 Qualcomm's SSO Response, […], paragraph (244), with reference to Qualcomm internal e-mail of 23 December 2008 from […] ([Qualcomm management member]) to […] ([Qualcomm top management member]), […] ([QCT top management member]) and others, […], page 2.

314 Qualcomm's SO Response, […], paragraph (605); Qualcomm's SSO Response, […], paragraph (223).

315 Case T-699/14, *Topps Europe* v *Commission*, ECLI:EU:T:2017:2, paragraph 82.

316 Case T-210/01, *General Electric* v *Commission*, ECLI:EU:T:2005:456, paragraph 519; Case T-343/06, *Shell Petroleum and Others* v *Commission*, ECLI:EU:T:2012:478, paragraph 171; Case T-342/07, *Ryanair* v *Commission*, ECLI:EU:T:2010:280, paragraph 136; Case T-175/12, *Deutsche Börse* v *Commission*, ECLI:EU:T:2015:148, paragraph 133.

317 Case T-699/14, *Topps Europe* v *Commission*, ECLI:EU:T:2017:2, paragraph 82.

318 See Commission Decisions of 21 May 2003 (Cases COMP/37.451, 37.578, 37.579 *Deutsche Telekom AG*), recitals 92-93; and Commission Decision of 16 July 2003 (Case COMP/38.233 *Wanadoo*

(250) The definition of the geographic market does not require the conditions of competition between traders or providers of services to be perfectly homogeneous. It is sufficient that they are similar or sufficiently homogeneous, and accordingly, only those areas in which the conditions of competition are heterogeneous may not be considered to constitute a uniform market.[319]

10.3.2. Application to this case

(251) The Commission concludes that the market for UMTS chipsets is worldwide in scope. This is for the following reasons.

(252) First, with few exceptions, UMTS chipset suppliers and OEMs all offer their products throughout the world.

(253) Second, UMTS chipset supply agreements are typically global in scope.

(254) Third, given the physical characteristics of UMTS chipsets, transport costs are negligible in comparison to the value of the products.[320]

(255) During the administrative procedure, Qualcomm has not sought to contest the Commission's conclusion in this respect.

11. DOMINANCE

11.1. Principles

(256) Dominance is *"a position of economic strength enjoyed by an undertaking, which enables it to prevent effective competition being maintained on the relevant market by affording it the power to behave to an appreciable extent independently of its competitors, its customers and ultimately of consumers."*[321]

(257) The existence of a dominant position derives from a combination of several factors which, taken separately, are not necessarily determinative.[322]

(258) One important factor is the existence of very large market shares, which are in themselves, save in exceptional circumstances, evidence of the existence of a dominant position.[323] An undertaking which has a very large market share and holds it for some time is in a position of economic strength which makes it an unavoidable trading partner and which, because of this alone, secures for it, at the very least during relatively long periods, that freedom of action which is the special feature of a dominant position.[324] A market share of 50% constitutes in itself, save in exceptional

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Interactive), recital 205. See also Case C-27/76, *United Brands* v *Commission*, ECLI:EU:C:1978:22, paragraph 44; Case C-322/81, *Michelin* v *Commision*, ECLI:EU:C:1983:313, paragraph 26; Case C-247/86, *Alsatel* v *Novasam*, ECLI:EU:C:1988:469 paragraph 15.

319 See, *e.g.*, Case C-27/76, *United Brands* v *Commission*, ECLI:EU:C:1978:22, paragraphs 11 and 53.

320 The dimensions of baseband chips are typically less than 15mm x 15mm (see, *e.g.*, news article printed from http://www.anandtech.com/show/6541/the-state-of-qualcomms-modems-wtr1605-and-mdm9x25/3) on 12 October 2015, […]), while their average selling price is above USD 10 (see […]).

321 Case C-27/76, *United Brands*, ECLI:EU:C:1978:22, paragraph 65.

322 Case C-27/76 *United Brands*, ECLI:EU:C:1978:22, paragraph 66; and Case C-85/76, *Hoffmann-La Roche*, ECLI:EU:C:1979:36, paragraph 39.

323 Case C-85/76, *Hoffmann-La Roche*, ECLI:EU:C:1979:36, paragraphs 39 and 41; and Case T-65/98, *Van den Bergh Foods v Commission*, ECLI:EU:T:2003:281, paragraph 154.

324 Joined Cases C-395/96 P and C-396/96 P, *Compagnie maritime belge transports and Others* v *Commission*, ECLI:EU:C:2000:132, paragraph 132; Case T-336/07, *Telefónica and Telefónica de*

circumstances, evidence of the existence of a dominant position.[325] Likewise, a market share of between 70% and 80% is in itself a clear indication of the existence of a dominant position in a relevant market.[326] The ratio between the market share held by the dominant undertaking and that of its nearest rivals is also a highly significant indicator.[327]

(259) A decline in market shares which are still very large cannot in itself constitute proof of the absence of a dominant position, particularly when the market shares are still in fact very high at the end of the infringement period.[328] In the same vein, whilst the retention of market share may show the existence of a dominant position, a decline in market shares that are still very large cannot in itself constitute proof of the absence of a dominant position.[329]

(260) While in recent and fast-growing sectors characterised by short innovation cycles, large market shares may sometimes turn out to be ephemeral and not necessarily indicative of a dominant position,[330] the fact that an undertaking may enjoy high market shares in a fast-growing market cannot preclude the application of Article 102 of the Treaty.[331]

(261) Even the existence of lively competition on a particular market does not rule out the possibility that there is a dominant position on that market, since the predominant feature of such a position is the ability of the undertaking concerned to act without being materially constrained by this competition in its market strategy and without for that reason suffering detrimental effects from such behaviour. Thus, the fact that there may be competition on the market is a relevant factor for the purpose of ascertaining whether a dominant position exists, but it is not in itself a decisive factor in that regard.[332]

España v *Commission*, ECLI:EU:T:2012:172, paragraph 149; Case C-23/14, *Post Danmark A/S* v *Konkurrencerådet*, ECLI:EU:C:2015:651, paragraph 40.

325 Case C-62/86, *Akzo* v *Commission*, ECLI:EU:C:1991:286, paragraph 60; Case T-340/03, *France Télécom* v *Commission*, ECLI:EU:T:2007:22, paragraph 100; and Case T-336/07, *Telefónica and Telefónica de España* v *Commission*, ECLI:EU:T:2012:172, paragraph 150. See also Case T-30/89, *Hilti* v *Commission*, ECLI:EU:T:1991:70, paragraph 92; Case T-212/98 (Joined Cases T-191/98, T-212/98, T-213/98, T-214/98), *Atlantic Container Line and Others* v *Commission*, ECLI:EU:T:2003:245, paragraph 907; Case T-66/01, *Imperial Chemical Industries* v *Commission*, ECLI:EU:T:2010:255, paragraph 257; Case T-336/07, *Telefónica*, ECLI:EU:T:2012:172, paragraph 150.

326 Case C-62/86, *Akzo* v *Commission*, ECLI:EU:C:1991:286, paragraph 60; and Case T-336/07, *Telefónica and Telefónica de España* v *Commission*, ECLI:EU:T:2012:172, paragraph 150.

327 Case T-219/99, *British Airways* v *Commission*, ECLI:EU:T:2003:343, paragraph 210.

328 Case T-219/99, *British Airways* v *Commission*, ECLI:EU:T:2003:343, paragraphs 223-224; Case T-340/03, *France Télécom* v *Commission*, ECLI:EU:T:2007:22, paragraph 104.

329 Joined Cases T-24/93 to T-26/93 and T-28/93, *Compagnie maritime belge transports and Others* v *Commission*, ECLI:EU:T:1996:139, paragraph 77.

330 Case T-79/12, *Cisco Systems, Inc. and Messagenet SpA* v *Commission*, ECLI:EU:T:2013:635, paragraph 69.

331 Case T-340/03, *France Télécom v Commission*, ECLI:EU:T:2007:22, paragraphs 107-109.

332 Case 27/76, *United Brands v Commission*, ECLI:EU:C:1978:22, paragraphs 108 to 129; Case 85/76, Hoffmann-La Roche *v Commission*, ECLI:EU:C:1979:36, paragraph 70; Case T-340/03, *France Télécom v Commission*, ECLI:EU:T:2007:22, paragraph 101.

(262) Another important factor for assessing dominance is the existence of barriers preventing potential competitors from having access to the market and actual competitors from expanding their activities on the market.[333]

(263) Barriers to entry or expansion can take various forms, and can be created by the dominant undertaking's own conduct, for example where it has made significant investments which entrants or competitors would have to match.[334]

(264) Although the mere possession of IPR cannot be considered to confer a dominant position,[335] their possession is nonetheless capable, in certain circumstances, of creating a dominant position, in particular by enabling an undertaking to prevent effective competition on the market.[336]

(265) Where a holder of the IPR is regarded as enjoying a dominant position, the requirement that the use of those IPR be non-abusive cannot be regarded as insufficient reward in the light of the incentives for innovation.[337]

(266) Regarding countervailing buyer power, in a situation where a supplier holds a dominant position, the presence of one or more large customers is not capable of affecting the dominant position of the supplier where the demand side is composed of a number of customers that are not equally strong and which cannot be aggregated.[338] It is also possible both for a seller and for a purchaser to hold a dominant position within the meaning of Article 102 of the Treaty and Article 54 of the EEA Agreement.[339]

11.2. Application to this case

(267) For the reasons set out in sections 11.3 to 11.5 below, the Commission concludes that Qualcomm held a dominant position in the worldwide market for UMTS chipsets at least from 1 January 2009 to 31 December 2011.

11.3. Market shares

(268) The Commission concludes that Qualcomm enjoyed large shares in the worldwide market for UMTS chipsets from 2008 to 2012. This provides a good indication of Qualcomm's competitive strength in that market at the time.

(269) For the purpose of calculating market shares in the market for UMTS chipsets, the Commission used two datasets. The first dataset is from an independent industry analyst, […]. It refers to sales revenues (value) and covers the years from 2008 to 2012.[340] The second dataset was prepared by the Commission on the basis of data provided by Qualcomm and its competitors (for 2009 to 2012), as well as data from

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333 Case C-27/76 *United Brands*, ECLI:EU:C:1978:22, paragraphs 91 and 122; and Case C-85/76 *Hoffmann-La Roche*, ECLI:EU:C:1979:36, paragraph 48.

334 Case 27/76 *United Brands* v *Commission*, ECLI:EU:C:1978:22, paragraph 91.

335 Joined Cases C-241/91 P and C-242/91 P, *RTE and ITP* v *Commission*, ECLI:EU:C:1995:98, paragraph 46.

336 Case T-321/05, *AstraZeneca* v *Commission*, ECLI:EU:T:2010:266, paragraph 270.

337 Case T-321/05, *AstraZeneca* v *Commission*, ECLI:EU:T:2010:266, paragraph 273.

338 Case T-228/97, *Irish Sugar* v *Commission*, ECLI:EU:T:1999:246, paragraphs 97-98.

339 Case T-219/99, *British Airways v Commission*, ECLI:EU:T:2003:343, paragraph 102.

340 […] also reports relevant revenues for […]. However, as set out in section 10.2.9 above, these sales are not part of the relevant market. Therefore, these suppliers have been excluded for the purposes of this analysis.

[…] (for 2008). It is based on shipments (volume). The market shares obtained from both datasets are similar.[341]

11.3.1. Value-based market shares

(270) The annual revenues of Qualcomm and its main competitors in the worldwide market for UMTS chipsets from 2008 to 2012 are estimated by […] as follows:[342]

Table 2: Estimated revenues in the worldwide market for UMTS chipsets (2008 to 2012)[343]

UMTS Baseband Revenues (USD million)	2008	2009	2010	2011	2012
Qualcomm	1,328	1,888	2,666	4,083	4,138
MediaTek	-	-	38	172	910
Intel	161	388	843	1,244	1,278
ST-Ericsson	517	466	396	267	581
Broadcom	71	53	75	288	793
Marvell	32	70	177	224	115
Freescale	75	42	27	19	9
Icera/NVidia	14	32	68	89	48
Renesas Mobile	157	143	175	142	44
Others	1	1	2	3	3
Total Revenues	2,356	3,083	4,468	6,530	7,918

(271) Based on the above table, the shares by value in the worldwide market for UMTS chipsets are as follows:

Table 3: Estimated value-based market shares in the worldwide market for UMTS chipsets (2008 to 2012)

UMTS Baseband Revenues (USD million)	2008	2009	2010	2011	2012
Qualcomm	56.4%	61.2%	59.7%	62.5%	52.3%
MediaTek	0.0%	0.0%	0.9%	2.6%	11.5%
Intel	6.8%	12.6%	18.9%	19.1%	16.1%
ST-Ericsson	21.9%	15.1%	8.9%	4.1%	7.3%
Broadcom	3.0%	1.7%	1.7%	4.4%	10.0%
Marvell	1.4%	2.3%	4.0%	3.4%	1.5%
Freescale	3.2%	1.4%	0.6%	0.3%	0.1%
Icera/NVidia	0.6%	1.0%	1.5%	1.4%	0.6%
Renesas Mobile	6.7%	4.6%	3.9%	2.2%	0.6%
Others	0.0%	0.0%	0.0%	0.0%	0.0%
Total	100%	100%	100%	100%	100%

341 The listed revenues/volumes and corresponding market shares do not include chipsets that support both the UMTS and LTE standards since these chipsets started shipping in significant quantities only from 2012 onwards (see footnote 242 above).

342 […].

343 Intel includes Infineon. ST-Ericsson includes STmicro, NXP and EMP. Renesas Mobile includes Renesas and NEC.

(272) The value-based market share of Qualcomm was between 59.7% and 62.5% between 2009 and 2011. Moreover, during that period, all of Qualcomm's competitors had a market share of less than one third of Qualcomm's market share, with no competitor exceeding 20%.

11.3.2. Volume-based market shares

(273) For the purpose of calculating Qualcomm's volume-based market shares, the Commission obtained data from the major UMTS chipset suppliers regarding their UMTS baseband chipset units shipped from 2009 to 2012.[344] These data were complemented with […] UMTS chipset volume estimations for 2008. Based on these data the shipped volumes are as follows:[345]

Table 4: Volumes shipped in the worldwide market for UMTS chipsets (2008 to 2012)

UMTS Baseband Volumes (million units)	2008	2009	2010	2011	2012
Qualcomm	82	146.4	212.3	390.8	371.5
MediaTek	-	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]
Intel	17.5	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]
ST-Ericsson	36.6	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]
Broadcom	5.8	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]
Marvell	2.8	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]
Freescale	3.8	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]
Icera/NVidia	0.9	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]
Renesas Mobile	8.1	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]
Total	157.5	248.6	367.0	598.9	696.0

(274) Based on the above table, the shares by volume (units shipped) in the worldwide market for UMTS chipsets are as follows:

344 […] reply of 9 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 12 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 28 April 2015 to Article 18(2) request for information of 14 April 2015, […]; […] reply of 18 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 19 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 19 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 19 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 19 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 9 January 2015 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 29 January 2015 to question 1 of Article 18(2) request for information of 7 January 2015, […]; […] reply of 11 February 2015 to question 1 of Article 18(2) request for information of 8 January 2015, […]; Annex 56.1 to Qualcomm's reply of 21 February 2015 to Article 18(2) request for information of 14 January 2015, […].

345 As for the calculation of Qualcomm's value-based market shares, captive sales are not included in the calculation of Qualcomm's volume-based market shares for the reasons set out in section 10.2.9 above.

Table 5: Estimated volume-based market shares in the worldwide market for UMTS chipsets (2008 to 2012)

UMTS Baseband Market Shares (by volume)	2008	2009	2010	2011	2012
Qualcomm	52.1%	58.9%	57.8%	65.3%	53.4%
MediaTek	-	[0-5]%	[0-5]%	[0-5]%	[5-10]%
Intel	11.1%	[10-20]%	[10-20]%	[20-30]%	[10-20]%
ST-Ericsson	23.2%	[20-30]%	[5-10]%	[0-5]%	[5-10]%
Broadcom	3.7%	[0-5]%	[0-5]%	[0-5]%	[10-20]%
Marvell	1.8%	[0-5]%	[5-10]%	[5-10]%	[5-10]%
Freescale	2.4%	[0-5]%	[0-5]%	[0-5]%	[0-5]%
Icera/NVidia	0.6%	[0-5]%	[0-5]%	[0-5]%	[0-5]%
Renesas Mobile	5.1%	[5-10]%	[0-5]%	[0-5]%	[0-5]%
Total	100%	100%	100%	100%	100%

(275) The volume-based market share of Qualcomm was between 57.8% and 65.3% between 2009 and 2011. Moreover, during that period, all Qualcomm's competitors had a market share of less than one third of Qualcomm's market share, with no competitor substantially exceeding 20%.

11.3.3. Qualcomm's arguments and their assessment by the Commission

(276) The Commission's conclusion that Qualcomm's market shares provide a good indication of its competitive strength in the worldwide market for UMTS chipsets is not put into question by Qualcomm's claims that the Commission failed to take proper account of the fact that the baseband chipset industry is fast-moving and characterised by short innovation cycles and that Qualcomm's shares in the UMTS chipset market declined significantly after 2011.[346] This is for the following reasons.

(277) First, the baseband chipset industry is not characterised by short innovation cycles. In fact, since the introduction of 1G analogue cellular networks in the 1980s, subsequent new cellular communication standards have been introduced roughly every 10 years.[347]

(278) Second, market shares in this industry are not ephemeral. In fact, Qualcomm held market shares well above 50% at least from 2008 to 2012 (see Tables 3 and 5 at recitals (271) and (274) above).[348] Moreover, as regards the period after 2012, it is illustrative to consider Qualcomm's position as a supplier of chipsets also implementing the LTE standard, which started shipping in significant quantities from 2012 onwards. In fact, between 2011 and (at least) 2016, Qualcomm was found to be dominant in the worldwide market for chipsets that comply with each of the GSM,

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346 Qualcomm's SO Response, […], paragraphs (690)-(691), (714)-(729), (733)-(740); Qualcomm's SSO Response, […], paragraphs (328), (333).

347 See, *e.g.*, Qualcomm presentation of June 2014 titled *"The Evolution of Mobile Technologies: 1G→2G→3G→4GLTE"*, printed from Qualcomm's website at https://www.qualcomm.com/documents/evolution-mobile-technologies-1g-2g-3g-4g-lte on 3 April 2019, […], page 28.

348 The Commission notes that the revenues and corresponding market shares listed in Tables 2 and 3 at recitals (270) and (271) above do not include chipsets that support both the UMTS and LTE standards, which started shipping in significant quantities from 2012 onwards (see footnote 341 above).

UMTS and LTE standards, with market shares by revenue between 66.7% and 99.9% and market shares by volume between 62.1% and 99.2%.[349]

11.4. Barriers to entry and expansion

(279) The Commission concludes that the worldwide market for UMTS chipsets is characterised by the existence of a number of barriers to entry and expansion, for the reasons set out in sections 11.4.1 to 11.4.5 below.

11.4.1. Research and development (R&D) activities related to the design of UMTS chipsets

(280) A new supplier of UMTS chipsets needs to undertake significant initial investments in R&D activities related to the design of UTMS chipsets before it can launch its first product on the market. This is confirmed by the following elements.

(281) First, during the period 2009-2011, Qualcomm spent a total of USD […] on R&D.[350]

(282) Second, a number of suppliers of UMTS chipsets indicated that they have invested hundreds of millions of dollars in R&D:

(a) […], which […], stated that: *"*[o]*ur company invested billions of dollars in organic R&D* […]*, as well as making several acquisitions, in an effort to develop a cellular baseband business.* [...] *We ultimately determined that the* [baseband chipset] *market did not offer economic returns sufficient to justify the large investment required to continue to develop* [baseband chipsets]. […] *Currently, Qualcomm dominates the market particularly at the high end, with Intel maintaining a small share due to a very large investment, and Mediatek and smaller China players having a presence in the China market".*[351]

(b) According to […], *"more than* […] *of the company's total* [baseband chipset] *investment goes to R&D, design and physical infrastructure costs."*[352]

(c) According to […], *"*[t]*he current operating cost of the* […] *modem business is approximately* […] *a year. Approximately* […] *of that sum is spent on R&D related to UMTS and LTE BC* [baseband chipset] *production."*[353]

(283) This conclusion is not put into question by Qualcomm's claim that it had to make similar investments when entering the worldwide market for UTMS chipsets.[354] This is because while Qualcomm was already active in that market, potential entrants may have been dissuaded from entering due to the magnitude and nature of the investments required.

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349 See Commission Decision of 24 January 2018 (Case COMP/AT.40220 *Qualcomm (exclusivity payments)*), recitals 306-324.

350 Qualcomm's SO Response, […], page 271, Table 12.

351 […] reply of 3 March 2015 to question 2 of Article 18(2) request for information of 17 December 2014, […], pages 4-5.

352 […] reply of 16 May 2015 to question 11 of Article 18(2) request for information of 30 April 2015, […], page 5.

353 […] reply of 27 May 2015 to question 12 of Article 18(2) request for information of 30 April 2015, […], page 5.

354 Qualcomm's SO Response, […], paragraphs (785)-(787); Qualcomm's SSO Response, […], paragraph (337).

11.4.2. The Qualcomm grant-back network

(284) Qualcomm holds a large portfolio of patents.[355] When Qualcomm agrees […] with other holders of IPR in the UMTS and LTE standards, Qualcomm […] requests and obtains the right of pass-through of the other party's IPR to Qualcomm's chipset customers. This can be either in the form of […] or by […], whereby the licensee agrees […].

(285) The existence of such a network of contractual clauses, known as the *"grant-back network"* and its value to Qualcomm's baseband chipset customers was outlined by Qualcomm's President and Vice Chairman Steve Altman in his speech at a conference in 2005. He stated that *"over 100 companies have provided us with some set of pass-through rights. That means that when I sell my chips and software to a company, they get access to Qualcomm's IP, and they get access to more than 100 companies' IP as a result of that. That eliminates a great deal of potential royalty stacking, because otherwise, if they were to acquire chips from another company or didn't have these pass-through rights, they would be in a position where they'd have to individually negotiate with each of these other companies and potentially have to pay royalties to each of these other companies"*.[356]

(286) The grant-back network constitutes a barrier to entry and expansion because competing UMTS chipset suppliers are unable to offer a similar level of pass-through rights for the following reasons.

(287) First, the […] in the grant-back network are effective only for products that incorporate a Qualcomm chipset. This means that if a customer were to buy a baseband chipset from a different supplier, it would have to pay royalties to some or all of these third party IPR holders (to fill the so called "IPR gap").

(288) Second, even if competing UMTS chipset suppliers were able to enter into the same amount of cross-licence agreements with holders of IPR in the UMTS standard as

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355 See, *e.g.*, Qualcomm's Form 10-K of fiscal year 2011, printed from http://investor.qualcomm.com/secfiling.cfm?filingid=1234452-11-360&cik on 4 December 2015, […], page 10 (section "Patents, Trademarks and Trade Secrets"). In addition, the majority of the respondents to the Commission's market investigation stated that Qualcomm's IPRs constitute a competitive advantage over its competitors (see […] reply of 5 May 2015 to question 28 of Article 18(2) request for information of 30 April 2015, […], page 13; […] reply of 18 May 2015 to question 28 of Article 18(2) request for information of 30 April 2015, […], page 7; […] reply of 26 May 2015 to question 28 of Article 18(2) request for information of 30 April 2015, […], page 13; […] reply of 25 May 2015 to question 28 of Article 18(2) request for information of 30 April 2015 to baseband chipset suppliers, […], page 9; […] reply of 27 May 2015 to question 28 of Article 18(2) request for information of 30 April 2015, […], page 12; […] reply of 25 May 2015 to question 28 of Article 18(2) request for information of 30 April 2015 to baseband chipset suppliers, […], page 12; […] reply of 27 May 2015 to question 28 of Article 18(2) request for information of 30 April 2015, […], page 8; […] reply of 29 May 2015 to question 28 of Article 18(2) request for information of 30 April 2015, […], pages 7; […] reply of 31 May 2015 to question 28 of Article 18(2) request for information of 30 April 2015, […], page 14; […] reply of 26 May 2015 to question 28 of Article 18(2) request for information of 30 April 2015, […], page 10; […] reply of 25 May 2015 to question 28 of Article 18(2) request for information of 30 April 2015, […], page 8; […] reply of 29 May 2015 to question 28 of Article 18(2) request for information of 30 April 2015, […], page 8).

356 Transcript of Qualcomm London Investor Day Presentation of 8 November 2005, page 15, provided by […] as Annex 2 to its reply of 31 May 2015 to Article 18(2) request for information of 30 April 2015, […]. This is also quoted by […] in the main text of its reply of 31 May 2015 to Article 18(2) request for information of 30 April 2015, […], page 7.

Qualcomm, they would still be unable to replicate Qualcomm's grant-back network as they do not have access to Qualcomm's IPR portfolio. This is because, since 2008, Qualcomm has refused to enter into licence agreements with competing chipset suppliers relating to CDMA, UMTS/W-CDMA and LTE standards that would allow those suppliers to pass-through rights under Qualcomm's patents to their customers.[357]

(289) […].[358] […].[359]

(290) Fourth, the Commission's conclusion that the grant-back network constitutes a barrier to entry and expansion is confirmed by replies of UMTS chipset suppliers and customers to requests for information:[360]

(a) According to […], *"Qualcomm has many agreements in place with third parties (*[…]*) that permit Qualcomm to grant (pass through) certain IP rights of these third parties to Qualcomm customers that incorporate Qualcomm chipsets. This obviously reduces substantially the royalty burden for* […] *and therefore the price of* […] *products. In addition it gives comfort and certainty to* […] *and its customers (*[…] *does not need to negotiate separately with these third parties and they cannot refuse to license or make it very difficult)."*[361]

(b) According to […], *"*[c]*hipset suppliers holding essential UMTS IPR and having secured such third party pass through rights are able to provide additional IPR protection for* […]*. Chipset suppliers without essential IPR and/or third party pass through IPR agreements cannot provide this protection, and may thus be disadvantaged from an overall product cost perspective."*[362]

(c) According to […], *"Qualcomm is the only chipset/platform company having extensive cross-license agreements with standard essential patent holders leading to a unique advantage to all end customers which do not have cross-licence agreements on their own* […]*. Other than technological capabilities* […]*, IPR indemnification capabilities for non-handset customers, which do not have extensive cross-license agreements which* [sic] *major standard essential patent holder in place, are the biggest barrier of entry which can hardly be*

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357 See Qualcomm's 2008 Form 10–K, printed from https://www.qualcomm.com/documents/investor-2008-annual-report on 4 December 2015, […], page 10.

358 […] reply of 25 May 2015 to questions 19 and 22 of Article 18(2) request for information of 30 April 2015 to baseband chipset suppliers, […], page 9; […] reply of 31 May 2015 to question 20 of Article 18(2) request for information of 30 April 2015, […], page 9; […] reply of 25 May 2015 to question 19 of Article 18(2) request for information of 30 April 2015, […], page 6; […] reply of 27 May 2015 to question 20 of Article 18(2) request for information of 30 April 2015, […], pages 8-9, and […] reply of 5 May 2015 to question 19 of Article 18(2) request for information of 30 April 2015, […], page 9.

359 See Qualcomm's 2008 Form 10–K, printed from https://www.qualcomm.com/documents/investor-2008-annual-report on 4 December 2015, […], page 10, and Qualcomm presentation of 20 February 2013 titled […].

360 See replies to questions 29 and 33 of Article 18(2) request for information of 30 April 2015 to baseband chipset suppliers; replies to questions 18 and 20 of Article 18(2) request for information of 30 April 2015 to baseband chipset customers.

361 […] reply of 30 July 2010 to question 26 of Article 18(2) request for information of 1 June 2010, […], page 11.

362 […] reply of 2 July 2010 to question 13 of Article 18(2) request for information of 30 June 2010, […], pages 4-5.

overcome. Without this IPR indemnification non-handset customers would have to pay a significant amount of royalties to standard essential patent holders (potentially in the range of […] *of the ASP) which would not yield to a viable business case."*[363]

(d) According to […], the value of the grant-back network is estimated to be USD […] per baseband chipset by aggregating the royalties claimed by major SEP holders.[364]

(e) According to what […] *"understands from customers"* the grant-back value (including patent royalties of a number of licensors) is USD […] per baseband chipset.[365]

(f) According to […], *"*[i]*f other conditions are similar, customer will surely give up rival BC* [baseband chipset] *suppliers' products as it is much safer from IPR perspective to choose Qualcomm BC* [baseband chipset]*."*[366]

(g) According to […], *"Qualcomm does not grant licenses to its competitors. Instead, it requests end device manufacturers to take licenses which, according to Qualcomm, are necessary even when device manufacturers use another supplier's BCs* [baseband chipsets]. […] *Qualcomm's licensing strategy, therefore, takes away a considerable competitive advantage of other BC suppliers."*[367] *"Qualcomm has created this grant-back network in order to bind its BC customers to it and obtain several competitive advantages vis-à-vis its BC competitors and raise revenue. First, Qualcomm's ability to offer its customers protection from IP attack from most of Qualcomm's roughly* […] *licensees constitutes a substantial competitive advantage compared to its BC competitors, as it renders the purchase of BCs from Qualcomm's competitors substantially more expensive for end device manufacturers. It therefore binds the end device manufacturers to the purchase of Qualcomm BCs. Second, it reduces the value of its competitors' IPR which also places them at a competitive disadvantage and limits the customers' choice."*[368] *"*[The grant-back network] *increases the costs of end device manufacturers purchasing BC's from Qualcomm's competitors. The benefit of Qualcomm's grant-back network only applies to Qualcomm's products. If a customer were to buy BCs from a different supplier, it would be open to any member of Qualcomm's grant-back network to initiate infringement actions against that customer. If the customer wanted to avoid this risk, it would have to take a license from each IPR owner concerned. This is a significant added cost that, in practice, exceeds any price advantage or quality improvement that can be offered by*

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363 […] reply of 21 January 2011 to questions 7 and 8 of Article 18(2) request for information of 20 December 2010, […], pages 4-5.

364 […] reply of 25 May 2015 to question 19 of Article 18(2) request for information of 30 April 2015, […], page 8.

365 […] reply of 16 May 2015 to question 31 of Article 18(2) request for information of 30 April 2015, […], page 8.

366 […] reply of 25 May 2015 to question 18 of Article 18(2) request for information of 30 April 2015, […], page 9.

367 […] reply of 25 May 2015 to question 19 of Article 18(2) request for information of 30 April 2015 to baseband chipset suppliers, […], page 9.

368 […] reply of 1 June 2015 to question 15 of Article 18(2) request for information of 30 April 2015 to baseband chipset customers, […], page 10.

Qualcomm's competitors."[369] *"*[…] *estimates that in order to compensate the MBB device manufacture for the benefit received from Qualcomm's pass through rights, Icera or competing suppliers would need to have* [Confidential] *price discount for each MBB chipset they sell."*[370]

(h) According to […], *"*[p]*otential purchasers of BCs* [baseband chipsets] *from alternative suppliers would have to take into account this potential added exposure from using non-Qualcomm BCs."*[371]

(i) According to […], *"*[…]*understands that Qualcomm's grant-back network enhances the perceived attractiveness of Qualcomm's BCs* [baseband chipsets] *to certain customers in markets in which Qualcomm faces competition from alternative BC providers. Arguably, Qualcomm's network of royalty–free grant-back licenses to SEPs and non-SEPs give Qualcomm a competitive advantage in relation to some BC customers because those customers get a better deal in comparison to buyers of non-Qualcomm BCs by getting access to Qualcomm's grant-back network."*[372]

(j) According to […], *"*[w]*hile it is very difficult to quantify the precise impact, the grantback network would pose a significant barrier to entry. In addition, we would often times be requested by customers to cut prices to compensate for the lack of a grant-back network. Finally, we would lose many designs due to our lack of a grant-back network."*[373]

(k) According to […], *"*[i]*n some instances, customers including* [MAJOR OEM] *have cited the greater patent protection that they believe that Qualcomm offers as a basis for demanding a lower price from* […] *to compensate for the perceived disparity in patent protection."*[374] *"During these negotiations,* [MAJOR OEM] *sought indemnity from* […] *from claims that* […] *BCs* [baseband chipsets]*, alone or as used in* [MAJOR OEM]*'s products, infringed on a third party's IPRs.* [MAJOR OEM] *claimed that Qualcomm offered significant pass-through rights because of its grant-back network, and indicated that* […] *proposal was at a disadvantage relative to Qualcomm's unless* […] *offered to indemnify* [MAJOR OEM] *against claims from which* [MAJOR OEM] *would have been protected by using Qualcomm BCs."* [375]

(l) According to […], *"Qualcomm uses its grant-back network as a marketing tool for its BC* [baseband chipsets]*, and a competitive advantage over other BC*

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369 […] reply of 25 May 2015 to question 26 of Article 18(2) request for information of 30 April 2015 to baseband chipset suppliers, […], page 13.

370 […] reply of 3 January 2012 to question 14(h) of Article 18(3) Decision of 19 October 2011, […], paragraph (69).

371 […] reply of 27 May 2015 to question 14 of Article 18(2) request for information of 30 April 2015, […], page 8.

372 […] reply of 26 May 2015 to question 15 of Article 18(2) request for information of 30 April 2015, […], page 12.

373 […] reply of 27 May 2015 to question 31 of Article 18(2) request for information of 30 April 2015, Question 31, […], page 13.

374 […] reply of 31 May 2015 to question 28 of Article 18(2) request for information of 30 April 2015, […], page 14.

375 […] reply of 31 May 2015 to question 31 of Article 18(2) request for information of 30 April 2015, […], page 15.

suppliers."[376] *"Qualcomm seeks to leverage the existence of this network in its commercial negotiations for chip supply to justify its (higher) component pricing and to differentiate its component offering from other would-be suppliers (such as* […]*) who have not been able to secure (and therefore offer) such third party rights as a benefit for choosing to engage with Qualcomm in a commercial relationship for its BCs* [baseband chipsets]*."*[377]

(m) According to […], *"pursuant to Qualcomm's grant-back network, Qualcomm's customers are shielded from patent infringement claims from Qualcomm and other Qualcomm customers at no extra cost but only insofar as they use Qualcomm BCs* [baseband chipsets]*. This is a feature which no rival chipset manufacturer can replicate. Accordingly, Qualcomm's grant-back network represents an important competitive advantage over its competitors."*[378]

(291) The Commission's conclusion that Qualcomm's grant-back network constitutes a barrier to entry and expansion is not affected by Qualcomm's arguments in this respect.

(292) First, Qualcomm claims that market participants do not view the grant-back network as a barrier to entry and expansion, as only a small number of chipset suppliers mentioned the grant-back network in their replies to requests for information as a significant barrier to entry.[379] This claim is unfounded since the replies to the Commission's information requests do not contain any indications suggesting that the grant-back network would not constitute a barrier to entry. In the same vein, no such conclusions can be drawn from responses of market participants who did not mention the grant-back network as a barrier to entry.

(293) Second, Qualcomm claims that the Commission has overlooked Qualcomm's investments in R&D, resulting in a valuable patent portfolio,[380] and that its ability to charge a higher price for its chipsets reflects its investment in R&D and IPR, including the grant-back network.[381] This claim is misplaced since it is irrelevant for the purpose of establishing whether the grant-back network constitutes a barrier to entry to the relevant market whether or not Qualcomm invested significantly in R&D and may have therefore been able to charge a higher price for its chipsets.

(294) Third, Qualcomm claims that the grant-back network is neither an absolute protection nor a one-stop shop.[382] This claim is irrelevant since even if Qualcomm's grant-back network may not cover all relevant IPR needed to commercialise a certain device, the evidence in the Commission's file clearly shows that no other competing UMTS chipset supplier could offer its customers a similar level of pass-through rights.

(295) Fourth, Qualcomm claims that, to compete with the grant-back network, other chipset suppliers could offer an indemnity or other benefits that Qualcomm cannot

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376 […] reply of 1 June 2015 to question 18 of Article 18(2) request of 30 April 2015, […], page 11.

377 […] reply of 1 June 2015 to question 15 of Article 18(2) request of 30 April 2015, […], page 10.

378 […] reply of 25 May 2015 to question 29 of Article 18(2) request for information of 30 April 2015 to baseband chipset suppliers, […], page 9.

379 Qualcomm's SO Response, […], paragraphs (813)-(815).

380 Qualcomm's SO Response, […], paragraphs (802)-(803).

381 Qualcomm's SO Response, […], paragraphs (810)-(811).

382 Qualcomm's SO Response, […], paragraphs (806)-(809).

offer.[383] This claim is irrelevant since the fact that competing chipset suppliers had to offer a compensation to customers in order to be able to compete with Qualcomm's grant-back network ultimately confirms that the latter is a barrier to entry and expansion.

(296) Fifth, Qualcomm claims that licensing at the end device level as opposed to the chipset level is consistent with Qualcomm's FRAND commitments and likely to lead to efficiency enhancements.[384] This claim is irrelevant since the Commission does not take any position on this question in this Decision. In fact, whether licensing at the end device level is consistent with Qualcomm's FRAND commitments or might lead to efficiency enhancements does not have any bearing on the Commission's conclusion that the grant-back network constitutes a barrier to entry.

11.4.3. OEM and MNO certification

(297) Baseband chipsets need to be certified by MNOs on their networks and by OEMs for their devices. The certification process of a new baseband chipset typically takes about 6 to 12 months.[385]

(298) The process of certification constitutes a barrier to entry and expansion because established suppliers of baseband chipsets benefit from time savings due to: (i) similarities between older and newer chipset models of the same supplier; (ii) supplier-specific investments made by OEMs; and (iii) existing relationships with MNOs.

(299) First, qualifying a new feature on an existing reference design takes a few months, whereas the certification of a genuinely new baseband chipset design takes up to a year or two.[386]

(300) Second, previous supplier-specific investments lead to time savings because of the use of established technical and testing processes, established trust, and accumulated know-how. This was confirmed by a number of baseband chipset suppliers:

(a) According to […], "[p]*rospective customers have made major investments over the years in designing devices using BCs* [baseband chipsets] *of established chipset providers, creating an incumbent's advantage, making it difficult to displace.*"[387]

(b) According to […], "[a] *BC* [baseband chipset] *customer undertakes significant capital investments when it adopts a given BC* [baseband chipset] *supplier's chipset kit, as a result of technical enabling requirements and testing processes*

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383 Qualcomm's SO Response, […], paragraphs (804), (812).

384 Qualcomm's SO Response, […], paragraphs (791)-(795).

385 […] reply of 31 May 2015 to question 34 of Article 18(2) request for information of 30 April 2015, […], pages 16-17; […] reply of 22 May 2015 to question 21 of Article 18(2) request for information of 30 April 2015, […], page 7; […] reply of 1 June 2015 to question 21 of Article 18(2) request for information of 30 April 2015 to baseband chipset customers, […], page 12; […] reply of 18 May 2015 to question 21 of Article 18(2) request for information of 30 April 2015, […], page 6; […] reply of 25 May 2015 to question 21 of Article 18(2) request for information of 30 April 2015, […], page 10.

386 […] reply of 27 May 2015 to question 34 of Article 18(2) request for information of 30 April 2015, […], page 14; […] reply of 18 May 2015 to question 34 of Article 18(2) request for information of 30 April 2015, […], page 1.

387 […] reply of 5 May 2015 to question 8 of Article 18(2) request for information of 30 April 2015, […], page 7.

that are specific to that BC supplier. Therefore, a BC [baseband chipset] *customer must undertake additional investment and risk if it switches BC* [baseband chipset] *suppliers."*[388] *"*[M]*any companies have exited the market because they have not been able to develop the relationships with OEMs and MNOs needed to gain market acceptance and operate profitability - a fact that, in turn, makes it more difficult for new entrants to raise the necessary funds."*[389]

(c) According to […], *"*[g]*enerally, certification by an OEM is shortened when the OEM has previously bought BCs* [baseband chipsets] *from the same supplier as there is greater trust and the leverage of past performance and testing."*[390]

(d) According to […], *"BC* [baseband chipset] *suppliers must gain customers' trust in order to compete against established players in the market. Switching to a new BC supplier carries significant risks for OEMs; it requires developing new mobile devices compatible with the supplier's platform. If the new BCs prove to be unstable, the OEM's entire product line and reputation would be damaged. As a result, OEMs prefer to place their orders with established players with a track record for producing stable BCs. It can take many years for a new BC supplier to gain customers' trust and, therefore, to be able to compete effectively in the market."*[391]

(e) According to […], *"OEMs can shorten certification process since they can use the same test environment or they can accumulate know-how about* [baseband chipsets] *of a* [baseband chipset] *supplier."*[392]

(f) According to […], *"*[w]*ith respect to device certification, however, in principle, because the* [baseband chipsets] *of a given* [baseband chipset] *supplier are likely to exhibit certain similarities to one another, including across technology generations, reusing a vendor is likely to shorten the design process* […]. *Specifically, the time required for the conformance testing which is required for the certification process could be shortened if the BC* [baseband chipset] *supplier was used and certified in a previous design."*[393]

(g) According to […], *"*[t]*here will be some similarity in* [baseband chipset] *solution of the same* [baseband chipset] *vender. And some designs and experiences we got in previous* [baseband chipsets] *can help us to shorten the certification process of a new* [baseband chipset] *reference design."*[394]

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388 […] reply of 31 May 2015 to question 33 of Article 18(2) request for information of 30 April 2015, […], page 16.

389 […] reply of 31 May 2015 to question 8 of Article 18(2) request for information of 30 April 2015, […], pages 5-6.

390 […] reply of 25 May 2015 to question 35 of Article 18(2) request for information of 30 April 2015, […], page 9.

391 […] reply of 25 May 2015 to question 8 of Article 18(2) request for information of 30 April 2015 to baseband chipset suppliers, […], pages 5-6.

392 […] reply of 18 May 2015 to question 35 of Article 18(2) request for information of 30 April 2015, […], page 8.

393 […] reply of 26 May 2015 to question 22 of Article 18(2) request for information of 30 April 2015, […], page 14.

394 […] reply of 25 May 2015 to question 22 of Article 18(2) request for information of 30 April 2015, […], page 10.

(301) Third, building a relationship with MNOs provides an advantage to baseband chipset suppliers in commercial relationships with OEMs,[395] *e.g.* in terms of stability and interoperability of suppliers' chips on the MNO's network, past experience, adaptation of development plans, facilitating of testing and certification. This was confirmed by a number of baseband chipset suppliers and customers:

(a) According to […], *"*[a] *good relationship with mobile network operators can be very helpful to* [baseband chipset] *suppliers in their commercial relationship with OEMs and for the general marketing of their products. OEMs will only place orders from* [baseband chipsets] *suppliers whose* [baseband chipsets] *have proven to be interoperable and stable in MNO networks. Similarly, if a MNO were to question the performance of an end device on its networks, it would render marketing the device very difficult.* [Baseband chipsets] *suppliers must, therefore, test the performance and interoperability of its* [baseband chipsets] *in real networks, which requires the cooperation of MNOs. A good relationship with MNOs can be very helpful in achieving this."*[396]

(b) According to […], *"*[a] *significant portion of OEMs' products are sold through the operator channel as subsidised devices, and this is especially true for the larger OEMs' products. Therefore, OEMs are incentivised to use a BC* [baseband chipset] *supplier that already has a strong relationship with a given MNO, because it will provide an easier path of entry into that channel. In addition, in the context of its relationship with a given MNO, a BC supplier may develop and deploy features specific to that MNO, which in turn provides the supplier with a technical advantage over other BC suppliers that do not have such a relationship."*[397]

(c) According to […], *"it is desirable for a BC* [baseband chipset] *supplier to build a good relationship with MNOs: (a) to ensure that the technical development plan for its modem meets the long term needs of the carrier; (b) to facilitate testing/validating/certifying of any new modem generation, since an OEM may leverage some of the BC supplier's modem testing and thus avoid re-doing in the final end-product testing phase."*[398] *"*[…] *generally understands that Qualcomm makes effort to build relationships with MNOs, helping them drive adoption of new features in their networks."*[399]

(d) According to […], *"BC* [baseband chipset] *suppliers take advantage of relationships with MNOs to gather information about the functions MNOs want to incorporate in the future or they can get certification from MNOs smoothly*

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395 See answers to question 37 of the Article 18(2) request for information of 30 April 2015 to baseband chipset suppliers.

396 […] reply of 25 May 2015 to question 37 of Article 18(2) request for information of 30 April 2015 to baseband chipset suppliers, […], page 14.

397 […] reply of 31 May 2015 to question 37 of Article 18(2) request for information of 30 April 2015, […], page 18.

398 […] reply of 25 May 2015 to question 37 of Article 18(2) request for information of 30 April 2015, […], page 10.

399 […] reply of 25 May 2015 to question 38 of Article 18(2) request for information of 30 April 2015, […], page 10.

by having a good relationship. Such suppliers will advantageous [sic] *in business talks."*[400]

(e) According to […], *"baseband chipset suppliers will need to get their products accepted by the network operators before any handset maker will consider their use. In this respect* […] *believes that building a collaborative relationship with the network operators provides a substantial advantage to a baseband chipset supplier in its commercial relationship with the handset manufacturers. Indeed, through this relationship the supplier of baseband chipsets can get an early access to the network operators' requirements and tailor the characteristics of its baseband chipsets accordingly to have them accepted by the network operator. The baseband chipset supplier which manages to be the first to be accepted by the network operator gains an important competitive edge."*[401] *"To the best of* […] *knowledge, in light of the fact that Qualcomm is effectively the only supplier of CDMA baseband chipsets and that* […] *and* […] *request CDMA compatibility, Qualcomm* [is well placed]*."*[402]

(f) According to […], *"*[h]*ealthy MNO relationships, and MNO certification experience and favorable results are vital to a BC* [baseband chipset] *supplier having credibility with OEMs."*[403] *"Qualcomm's resource scale has allowed it to maintain strong relationships with many operators."*[404]

(g) According to […], *"there is an important financial investment required for changing or taking on a new chipset supplier.* […] *building up the knowledge, in-house team and the relationship with the supplier takes time. Finally, bringing on board another supplier may jeopardize relationships with other suppliers due to external reasons (viewed as less strategic by the supplier) and internal reasons (de-focus of development team on more chipsets and accompanying firmware)."*[405] *"The longer one has worked with a certain supplier, the lower the development costs for a new product, since one can keep on building on experience from previous products. To start with a new supplier a minimum learning effort of up to 20 man years is required."*[406]

(302) The Commission's conclusion is not put into question by Qualcomm's claim that it incurred costs relating to certification when entering the worldwide market for UMTS chipsets.[407] This is because while Qualcomm was already active in that

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400 […] reply of 18 May 2015 to question 37 of Article 18(2) request for information of 30 April 2015, […], pages 8-9.

401 […] reply of 25 May 2015 to question 37 of Article 18(2) request for information of 30 April 2015 to baseband chipset suppliers, […], pages 11-12.

402 […] reply of 25 May 2015 to question 38 of Article 18(2) request for information of 30 April 2015 to baseband chipset suppliers, […], page 12.

403 […] reply of 5 May 2015 to question 37 of Article 18(2) request for information of 30 April 2015, […], page 8.

404 […] reply of 5 May 2015 to question 38 of Article 18(2) request for information of 30 April 2015, […], page 8.

405 […] reply of 20 September 2010 to question 15 of Article 18(2) request for information of 1 September 2010, […], page 7.

406 […] reply of 30 July 2010 to question 19 of Article 18(2) request for information of 1 June 2010, […], page 9.

407 Qualcomm's SO Response, […], paragraph (818).

market, potential entrants could have been dissuaded from entering due to the need to obtain OEM and MNO certification.

11.4.4. Qualcomm's brand image, reputation and strong business relationships

(303) Qualcomm's brand image, reputation and strong business relationships constitute a barrier to entry and expansion. This is because recent entrants or smaller players may find it challenging to enter or expand in the worldwide market for UMTS chipsets for the following reasons.

(304) First, recent entrants or smaller players may need to compensate their customers for their less well-known brand, for instance by offering price discounts. This was confirmed by both […] and […]:

(a) According to […], *"BC* [baseband chipset] *customers are very hesitant to adopt untested platforms, given both the resources required to adopt a new chipset* […] *and the attendant risk due the large volume of distribution of many mobile telephony SKUs* [stock keeping units[408]]. *Accordingly, when negotiating with a BC* [baseband chipset] *customer that is comparing* […] *against its incumbent BC supplier,* […] *must provide the customer with a strong incentive, in terms of both price and features, to make the switch to* […]*."*[409]

(b) According to […], *"Qualcomm has powered* […] *devices for several years. Because* […] *mobile devices are perceived as being truly global and innovative products, Qualcomm's reputation as the dominant BC* [baseband chipset] *supplier in the industry has undoubtedly been helped by its relationship with* […]. *It has helped Qualcomm to create an extensive customer list,* […] *Although* […] *has tended to favor its own BCs, it typically turns to Qualcomm for wireless modems. Like* […] *are considered state-of-the-art* […] *that are sold all around the world. This allows Qualcomm to position itself as a supplier of global BCs, capable of satisfying requirements worldwide."*[410]

(305) Second, the reputation of a baseband chipset supplier is important for its success with customers. Qualcomm explained that *"device manufacturers consider the reputation of the chipset supplier in terms of quality and reliability. The reputation that Qualcomm has built, over the course of more than 20 years, for supplying top-quality reliable chipset and associated software products represents significant value to device manufacturers who are sensitive to the risks associated with a supplier whose reputation is unknown or less well-established. A chipset supplier's reputation is also important to mobile network operators, so the choice of a reliable chipset supplier can make manufacturers' devices more attractive to those operators."*[411]

(306) This was also confirmed by the majority of respondents to requests for information.[412] For example, […] indicated that *"to be considered by larger OEMs, a*

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408 A stock keeping unit is a separate item in an inventory.

409 […] reply of 31 May 2015 to question 32 of Article 18(2) request for information of 30 April 2015, […], page 16.

410 […] reply of 25 May 2015 to question 41 of Article 18(2) request for information of 30 April 2015 to baseband chipset suppliers, […], page 17.

411 Qualcomm's reply of 19 July 2010 to question 9 of Article 18(2) request for information of 7 June 2010, […], paragraph (42).

412 See […] reply of 18 May 2015 to question 37 of Article 18(2) request for information of 30 April 2015, […], page 8; […] reply of 26 May 2015 to question 37 of Article 18(2) request for information of 30

[baseband chipset] *supplier needs to have proven records, shipment records, or formal approvals from major carriers worldwide."*[413]

(307) Third, Qualcomm has built strong business relationships with a number of MNOs globally.[414] This was confirmed by a majority of the replies by baseband chipset suppliers to requests for information:

(a) According to […], *"Qualcomm makes effort to build relationships with MNOs, helping them drive adoption of new features in their networks. To the best of* […] *understanding, Qualcomm Engineering Services ('QES'), a former (and possibly current) division of Qualcomm Technology Licensing ('QTL'), may have offered engineering services to MNOs."*[415]

(b) According to […], it *"has observed that when an operator issues an RFI/RFQ,*[416] *the entire process may be skewed in Qualcomm's favour such that the operators and OEM would not be likely to choose a competitor of Qualcomm."*[417]

(c) According to […], *"Qualcomm often dictates or influences the carriers' choices, and thus Qualcomm has a significant advantage in having its BCs* [baseband chipset] *certified by the carriers."*[418]

(308) The Commission's conclusion is not put into question by Qualcomm's claims that it does not have a strong reputation with end-users[419] and that it also had to make investments in order to achieve its reputation.[420] These claims are irrelevant for the following reasons.

April 2015, […], page 5; […] reply of 25 May 2015 to question 37 of Article 18(2) request for information of 30 April 2015 to baseband chipset suppliers, […], page 11; […] reply of 5 May 2015 to question 37 of Article 18(2) request for information of 30 April 2015, […], page 16; […] reply of 25 May 2015 to question 37 of Article 18(2) request for information of 30 April 2015 to baseband chipset suppliers, […], page 16; […] reply of 27 May 2015 to question 37 of Article 18(2) request for information of 30 April 2015, […], page 10; […] reply of 29 May 2015 to question 37 of Article 18(2) request for information of 30 April 2015, […], page 9; […] reply of 27 May 2015 to question 37 of Article 18(2) request for information of 30 April 2015, […], page 15; […] reply of 31 May 2015 to question 37 of Article 18(2) request for information of 30 April 2015, […], page 18; […] reply of 26 May 2015 to question 37 of Article 18(2) request for information of 30 April 2015, […], pages 12-13; […] reply of 16 May 2015 to question 37 of Article 18(2) request for information of 30 April 2015, […], page 10; […] reply of 29 May 2015 to question 37 of Article 18(2) request for information of 30 April 2015, […], page 10.

413 […] reply of 25 May 2015 to question 8 of Article 18(2) request for information of 30 April 2015, […], page 4.

414 See answers to question 38 of Article 18(2) request for information of 30 April 2015 to baseband chipset suppliers.

415 […] reply of 25 May 2015 to question 38 of Article 18(2) request for information of 30 April 2015, […], page 10.

416 Telecommunication operators who sell phones normally issue a RFI (Request for Information) and a RFQ (Request for Quotation) to select suppliers.

417 […] reply of 26 May 2015 to question 37 of Article 18(2) request for information of 30 April 2015, […], pages 12-13.

418 […] reply of 27 May 2015 to question 20 of Article 18(2) request for information of 30 April 2015, […], page 13.

419 Qualcomm's SO Response, […], paragraph 820; Qualcomm’s SSO Response, […], paragraph (345).

420 Qualcomm's SO Response, […], paragraph 819; Qualcomm’s SSO Response, […], paragraph (344).

(309) First, the Commission's conclusions are based on the brand image, reputation and strong business relationships of Qualcomm *vis-à-vis* OEMs and MNOs, and not *vis-à-vis* end users.

(310) Second, while Qualcomm was already active in that market, potential entrants could have been dissuaded from entering due to the magnitude and nature of the investments required to establish a reputation as a reliable baseband chipset supplier.

11.4.5. Importance for suppliers to supply chipsets supporting a variety of standards

(311) OEMs often sell the same devices throughout the world and they therefore expect that suppliers are able to provide baseband chipsets supporting a variety of standards used across all geographic areas. In particular, two of the largest carriers […] as well as several […] carriers own mobile networks based on the CDMA standard. Accordingly, it is important that a supplier is able to supply chipsets that are compliant with CDMA.[421]

(312) The need for suppliers to supply chipsets supporting a variety of standards, including CDMA, constitutes a barrier to entry and expansion for the following reasons.

(313) First, while baseband chipset customers multisource, they consider it important that a baseband chipset supplier is able to supply chipsets that are compliant with CDMA. This was confirmed by a number of replies of baseband chipset customers to requests for information:[422]

(a) According to […], *"*[t]*he availability of CDMA BCs* [baseband chipsets] *in a BC supplier's portfolio is a must."*[423]

(b) […] stated: *"Let's take China as an example,* […] *If CDMA BCs* [baseband chipsets] *will be provided by different BC suppliers, it will very difficult to support so many networks. Therefore it is very important for a BC supplier to be able to supply including but not limited to CDMA BCs."*[424]

(314) Second, the inability to provide a uniform product globally may deter OEMs from sourcing (large) volumes of baseband chipsets from multiple suppliers. According to […]*, "some major OEMs, such as* […]*, have required the same multimode chipset with LTE plus 3G for both CDMA networks and UMTS networks in the same country, so as to maintain the identical LTE performance on the same handset models across different carriers."*[425]

(315) The Commission's conclusion is not put into question by Qualcomm's claim that the Commission's approach is inconsistent with its definition of a worldwide market for

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421 See replies to question 31 of Article 18(2) request for information of 30 April 2015 to baseband chipset customers; replies to question 45 of Article 18(2) request for information of 30 April 2015 to baseband chipset suppliers.

422 See replies to question 31 of Article 18(2) request for information of 30 April 2015 to baseband chipset customers.

423 […] reply of 25 May 2015 to question 31 of Article 18(2) request for information of 30 April 2015, […], page 9.

424 […] reply of 25 May 2015 to question 31 of Article 18(2) request for information of 30 April 2015, […], page 13.

425 […] reply of 31 May 2015 to question 42 of Article 18(2) request for information of 30 April 2015, […], page 20.

UMTS chipsets.[426] This claim is incorrect. In fact, the Commission's conclusion that CDMA chipsets that do not support UMTS are not substitutable for UMTS chipsets (see section 10.2.4 above) rather supports the Commission's conclusion that it is important for baseband chipset suppliers to supply chipsets supporting a variety of standards, including CDMA. Given that chipsets which only support CDMA cannot be used as a substitute for UMTS chipsets, the potential customer base available to a supplier of such chipsets is limited compared to the customer base available to a supplier of chipsets supporting a variety of standards.

11.5. Countervailing buyer power

(316) The Commission concludes that the potential commercial strength of Qualcomm's baseband chipset customers was not capable of affecting Qualcomm's dominant position during the Relevant Period. This is for the following reasons.

(317) First, a majority of the replies of baseband chipset customers to requests for information indicated that, when negotiating with Qualcomm, customers are unable to exercise significant pressure regarding price and other key elements.[427] For example:

(a) According to […], *"*[t]*he negotiations between* […] *and Qualcomm are heavily influenced by Qualcomm's position in the market as an unavoidable supplier for* […] *handset business."*[428]

(b) According to […], *"*[…] *(and* […] *when it had direct relationship with Qualcomm) has* [made] *concessions to Qualcomm that it* [has not made to] *other component suppliers (such as agreeing to pay* [very high] *royalties, the technology grant-back and the free provision of R&D services, all of which have been described above).* [Confidential] *therefore,* [Confidential] *Qualcomm can exercise more leverage in negotiations than other manufacturers."*[429] *"While Qualcomm might make minor concessions on the price of particular components in certain instances, as a general rule it can still dictate both price and non-price terms and conditions to its customers. This includes the ability to dictate terms down the stream of distribution, such as by imposing restrictions* […]*"*[430]

(c) According to […], *"Qualcomm's dominant market positions in BCs* [baseband chipsets] *and SEPs make it extremely difficult to exert pressure on the company concerning price and other key elements during negotiations."*[431]

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426 Qualcomm's SO Response, […], paragraphs (821)-(822); Qualcomm's SSO Response, […], paragraph (346).

427 See replies to question 27 of Article 18(2) request for information of 30 April 2015 to baseband chipset customers.

428 […] reply of 25 May 2015 to question 24 of Article 18(2) request for information of 30 April 2015 to baseband chipset customers, […], page 9.

429 […] reply of 26 May 2015 to question 28 of Article 18(2) request for information of 30 April 2015, […], page 17.

430 […] reply of 26 May 2015 to question 27 of Article 18(2) request for information of 30 April 2015, […], page 17.

431 […] reply of 1 June 2015 to question 27 of Article 18(2) request of 30 April 2015, […], page 14.

(318) Moreover, according to […], *"*[c]*ompared to other BC* [baseband chipset] *suppliers who provide a lower proportion of* […] *BCs, Qualcomm's negotiating position is correspondingly much stronger."*[432]

(319) Second, replies of baseband chipset customers to requests for information also indicated that customers typically had no choice but to accept the standard terms proposed by Qualcomm in its template agreements, including those in relation to price and the right of its licensees to assert their IP against Qualcomm and Qualcomm's baseband chipset customers. For example:

(a) […] stated that *"*[…] *and Qualcomm are currently negotiating an agreement where Qualcomm refuses to utilize the* […] *template that other competitors have utilized without objection."*[433]

(b) According to […], *"Qualcomm primarily operates using standard terms and only rarely deviates from them, and even then only after extensive negotiation."*[434]

(320) The Commission's conclusion is not put into question by Qualcomm's arguments in this respect.

(321) First, Qualcomm claims that the responses of baseband chipset customers to requests for information on which the Commission relies to reject the existence of countervailing buyer power are *"speculative"*.[435] This claim is unfounded since the responses to the requests for information relied on in recitals (317)-(319) above are precise and consistent regarding the lack of countervailing buyer power *vis-a-vis* Qualcomm.

(322) Second, Qualcomm claims that several baseband chipset customers exert significant pressure on Qualcomm,[436] and that the multi-/dual-sourcing and ability to self-supply of some chipset customers are clear *indicia* of significant countervailing buyer power.[437] This claim is unfounded since even if some baseband chipset customers were to have some buyer power *vis-à-vis* Qualcomm, this would only ensure that those customers are shielded from the dominant position of Qualcomm and not the market as such. In any way, it appears unlikely that the commercial strength of any of the baseband chipset customers mentioned by Qualcomm as exerting significant buyer power was indeed capable of affecting Qualcomm's dominant position during the Relevant Period, as of the baseband chipset customers referred to by Qualcomm only […] market share was above 10%.[438]

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432 […] reply of 1 June 2015 to question 24 of Article 18(2) request for information of 30 April 2015 to baseband chipset customers, […], page 16.

433 […] reply of 28 May 2015 to question 28 of Article 18(2) request for information of 30 April 2015, […], page 10.

434 […] reply of 26 May 2015 to question 24 of Article 18(2) request for information of 30 April 2015, […], pages 15-16.

435 Qualcomm's SO Response, […], paragraph (751).

436 Qualcomm's SO Response, […], paragraphs (754)-(758), (767)-(768), (778)-(780); Qualcomm’s SSO Response, […], paragraphs (347)-(348).

437 Qualcomm's SO Response, […], paragraphs (760), (769)-(777).

438 In this respect, the Commission relied on the following available market share data for worldwide sales of 3G mobile phones in the years 2009-2011: […]. The Commission considers that these shares, although including only mobile phones, represent a good proxy for market shares in the overall UMTS device market, given that the mobile phones market is considerably bigger than the MBB device market

12. ABUSE

12.1. Principles

(323) The concept of abuse is an objective concept relating to the behaviour of an undertaking in a dominant position which is such as to influence the structure of a market where, as a result of the very presence of the undertaking in question, the degree of competition is weakened and which, through recourse to methods different from those which condition normal competition in products or services on the basis of the transactions of commercial operators, has the effect of hindering the maintenance of the degree of competition still existing in the market or the growth of that competition.[439]

(324) A dominant undertaking has a special responsibility not to impair, by conduct falling outside the scope of competition on the merits, genuine undistorted competition in the internal market.[440] It follows from the nature of the obligations imposed by Article 102 of the Treaty that, in specific circumstances, an undertaking in a dominant position may be deprived of the right to adopt a course of conduct or take measures which are not in themselves abuses and which would even be unobjectionable if adopted or taken by non-dominant undertakings.[441]

(325) Article 102 of the Treaty and Article 54 of the EEA Agreement prohibit abusive practices which may cause damage to consumers directly, but also those which cause consumers harm through their impact on competition.[442] Article 102 of the Treaty and Article 54 of the EEA Agreement apply, in particular, to the conduct of a dominant undertaking that, through recourse to methods different from those governing normal competition on the basis of the performance of commercial operators, has the effect, to the detriment of consumers, of hindering the maintenance of the degree of competition existing in the market or the growth of that competition.[443]

(see recital (92) above). Moreover, the above market shares are unlikely to underestimate […] market share in the overall UMTS device market, as […] was not a major chipset customer for MBB devices during the Relevant Period (see recitals (94) and (403) referring to Huawei and ZTE as the main chipset customers for MBB devices during the Relevant Period).

439 Case C-549/10, *Tomra* v *Commission*, ECLI:EU:C:2012:221, paragraph 17; C-457/10, Case *AstraZeneca* v *Commission*, ECLI:EU:C:2012:770, paragraph 74.

440 Case 322/81, *Michelin* v *Commission,* ECLI:EU:C:1983:313, paragraph 57; Case C-209/10 *Post Danmark A/S* v *Konkurrencerådet*, ECLI :EU:C:2012:172, paragraph 23; Case C-457/10, *AstraZeneca* v *Commission*, ECLI:EU:C:2012:770, paragraph 134.

441 Case 322/81, *Michelin* v *Commission*, ECLI:EU: C:1983:313, paragraph 57; Case T-111/96 *ITT Promedia* v *Commission*, ECLI:EU:T:1998:183, paragraph 139; Case C-413/14 P *Intel Corp.* v *Commission*, ECLI :EU:C:2017:632, paragraph 135.

442 See, *e.g.*, Case C-202/07 P *France Télécom* v *Commission*, ECLI :EU:C:2009:214, paragraph 105; Joined Cases C-501/06 P, C-513/06 P, C-515/06 P and C-519/06 P, *GlaxoSmithKline Services and Others* v *Commission and Others*, ECLI :EU:C:2009:610, paragraph 63; Case C-52/09 *Konkurrensverket* v *TeliaSonera Sverige AB*, ECLI :EU:C:2011:83, paragraph 24; Case C-209/10 *Post Danmark A/S* v *Konkurrencerådet*, ECLI :EU:C:2012:172, paragraph 20; Case C-286/13 P *Dole Food and Dole Fresh Fruit Europe* v *Commission*, ECLI :EU:C:2015:184, paragraph 125.

443 Case 85/76 *Hoffmann-La Roche* v *Commission*, ECLI :EU:C:1979:36, paragraph 91; Case C-62/86 *Akzo* v *Commission*, ECLI :EU:C:1991:286, paragraph 69; Case C-552/03 P *Unilever Bestfoods* v *Commission*, ECLI :EU:C:2006:607, paragraph 129; Case C-95/04 P *British Airways*, ECLI :EU:C:2007:166, paragraph 66; Case C-171/05 P *Piau* v *Commission*, ECLI :EU:C:2006:149, paragraph 37; Case C-52/07 *Kanal 5 and TV 4*, ECLI :EU:C:2008:703, paragraph 25; Case C-202/07 P

(326) Article 102 of the Treaty prohibits a dominant undertaking from, among other things, adopting low or selective pricing practices that have an exclusionary effect on competitors and strengthening its dominant position by using methods other than those that are part of competition on the merits. Accordingly, the Union Courts have held that not all competition by means of price may be regarded as legitimate.[444]

(327) Such conduct can also take the form of a low pricing practice in relation to one or more selected products that are part of a wider market, with the intention of increasing the attractiveness of the dominant undertaking's overall product portfolio in that market.[445] This kind of selective price-cutting, which needs to be distinguished from a general policy of favourable prices, allows the dominant undertaking to, at least partly, set off losses resulting from the sale of these selected products against profits made on the sales of the other products in its portfolio which are not affected by the selective price-cutting.[446]

(328) In particular, an undertaking abuses its dominant position where, in a market the competition structure of which is already weakened by reason precisely of the presence of that undertaking, it operates a pricing policy the sole economic objective of which is to eliminate its competitors with a view, subsequently, to profiting from the reduction of the degree of competition still existing in the market.[447] Where an undertaking in a dominant position actually implements a practice whose object is to oust a competitor, the fact that the result hoped for is not achieved is not sufficient to prevent that being an abuse of a dominant position within the meaning of Article 102 of the Treaty.[448] The Court does not require any demonstration of the actual effects of the practice in question.[449]

(329) In order to assess the lawfulness of a low-price policy practised by a dominant undertaking, the Union Courts have made use of criteria based on comparisons of the prices concerned and certain costs incurred by the dominant undertaking, as well as on the latter's strategy.[450] In this regard, the Union Courts have set out two different scenarios with regard to which the analysis is carried out for determining whether an undertaking has practised predatory pricing.

France Télécom v *Commission*, ECLI :EU:C:2009:214, paragraph 104; Case C-280/08 P *Deutsche Telekom* v *Commission*, ECLI :EU:C:2010:603, paragraph 174; Case C-52/09 *TeliaSonera Sverige*, ECLI :EU:C:2011:83, paragraph 27; Case C-457/10 P *AstraZeneca* v *Commission*, ECLI :EU:C:2012:770, paragraph 74; Case C-549/10 P *Tomra Systems and Others* v *Commission*, ECLI :EU:C:2012:221, paragraph 17; Case C-209/10 *Post Danmark*, ECLI :EU:C:2012:172, paragraph 24; Case C-170/13 *Huawei Technologies*, ECLI :EU:C:2015:477, paragraph 45; Case C-23/14 *Post Danmark A/S* v *Konkurrencerådet*, ECLI :EU:C:2015:651, paragraph 26.

444 Case C-62/86, *AKZO* v *Commission*, ECLI:EU:C:1991:286, paragraph 70 and Case C-202/07, *France Télécom* v *Commission*, ECLI:EU:C:2009:214, paragraph 106.

445 Case C-62/86, *AKZO* v *Commission*, ECLI:EU:C:1991:286, paragraph 126.

446 Case C-62/86, *AKZO* v *Commission*, ECLI:EU:C:1991:286, paragraphs 43, 115.

447 Case C-202/07, *France Télécom* v *Commission*, ECLI:EU:C:2009:214, paragraph 107.

448 Case T-340/03, *France Télécom SA* v *Commission*, ECLI:EU:T:2007:22, paragraph 196; Cases T-24/93 to T-26/93 and T-28/93, *Compagnie maritime belge* v *Commission*, ECLI:EU:T:1996:139, paragraph 149.

449 Case C-333/94 P, *Tetra Pak* v *Commission*, ECLI:EU:C:1996:436, paragraph 44; Case T-340/03, *France Télécom SA* v *Commission*, ECLI:EU:T:2007:22, paragraph 195.

450 Case C-62/86, *AKZO* v *Commission*, ECLI:EU:C:1991:286, paragraph 74; Case C-202/07 P *France Télécom* v *Commission*, ECLI:EU:C:2009:214, paragraph 108.

(330) In the first place, the Union Courts have held that prices below the average of variable costs (those that vary depending on the quantities produced) must, in principle, be regarded as abusive as such and, in charging those prices, a dominant undertaking is deemed to pursue no economic purpose other than that of driving its competitors out of the market.[451]

(331) In the second place, the Union Courts have acknowledged that prices below average total costs ("ATC"), but above average variable costs ("AVC"), must be regarded as abusive, if they are part of a plan for eliminating a competitor.[452] Such prices can drive from the market undertakings which are perhaps as efficient as the dominant undertaking but which, because of their smaller financial resources, are incapable of withstanding the competition waged against them.[453] The evidence the Commission may rely on in order to demonstrate the existence of an eliminatory intent may be direct or indirect. Direct evidence includes objective factors such as the dominant undertaking's internal documents,[454] whereas indirect evidence may take the form of a series of important and convergent factors, such as, *e.g.*, the duration, continuity and scale of below-cost sales.[455]

(332) With respect to the choice of method of calculation as to the rate of recovery of costs, the Union Courts have afforded the Commission a broad discretion, noting that this exercise entails a complex economic assessment.[456]

(333) Exclusionary conduct may escape the prohibition of Article 102 of the Treaty if the dominant undertaking can provide an objective justification for its behaviour or it can demonstrate that its conduct produces efficiencies which outweigh the negative effects on competition. The burden of proof for such an objective justification or efficiency defence is on the dominant undertaking.[457]

12.2. Application in this case

(334) For the reasons set out in this section, the Commission has reached the conclusion that from 1 July 2009 until 30 June 2011, Qualcomm supplied certain quantities of three of its UMTS chipsets (the MDM8200, MDM6200 and MDM8200A based chipsets) to two of its key customers, Huawei and ZTE, below cost, with the intention of eliminating Icera, its main competitor at the time in the market segment of UMTS chipsets offering advanced data rate performance (so-called leading edge segment). By containing Icera's growth at the two key customers in this segment, which consisted at the time almost exclusively of chipsets used in MBB devices (see recital (357) below), Qualcomm intended to prevent Icera, a small and financially constrained start-up, from gaining the reputation and scale necessary to challenge Qualcomm's dominance in the UMTS chipset market, in particular in view of the expected growth potential of the leading edge segment due to the global take-up of

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451 Case C-62/86, *AKZO* v *Commission*, ECLI:EU:C:1991:286, paragraph 71.

452 Case C-62/86, *AKZO* v *Commission*, ECLI:EU:C:1991:286, paragraph 72; Case C-333/94, *Tetra Pak* v *Commission*, ECLI:EU:C:1996:436, paragraph 41; Case C-202/07 P, *France Télécom* v *Commission*, ECLI:EU:C:2009:214, paragraph 109.

453 Case C-62/86, *AKZO* v *Commission*, ECLI:EU:C:1991:286, paragraph 72.

454 Case C-202/07 P *France Télécom* v *Commission*, ECLI:EU:C:2009:214, paragraph 98.

455 Case T-83/91, *Tetra Pak* v *Commission*, ECLI:EU:T:1994:246, paragraph 151.

456 Case T-340/03 *France Télécom SA* v *Commission*, ECLI:EU:T:2007:22, paragraph 129.

457 Case T-203/01, *Michelin* v *Commission*, ECLI:EU:T:2003:250, paragraphs 107-109; Case C-549/10, *Tomra* v *Commission*, ECLI:EU:C:2012:221, paragraph 75.

smart mobile devices,[458] thus depriving OEMs in this segment from access to an alternative source of chipsets for their mobile phones and reducing consumer choice. In view of the absence of a valid objective justification or efficiency argument, the Commission has reached the conclusion that Qualcomm's conduct constitutes an abuse of a dominant position held by Qualcomm during the same time period, in breach of Article 102 of the Treaty and Article 54 of the EEA Agreement.

(335) This conclusion is based on the following elements. Qualcomm's pricing practices took place in the context of Icera increasing its market traction as a viable supplier of leading edge UMTS chipsets which posed a growing threat to Qualcomm's chipset business (see section 12.3 below). Qualcomm reacted to that threat by pursuing an aggressive pricing strategy towards its two main customers for MBB devices, Huawei and ZTE, with regard to the MDM8200, MDM6200 and MDM8200A based chipsets (see section 12.4 below). The analysis of the prices charged by Qualcomm to Huawei and ZTE (see section 12.5 below) and Qualcomm's costs for the manufacturing of these three chipsets (see section 12.6 below) demonstrates that Qualcomm sold certain amounts of these chipsets below long-run average incremental costs (LRAIC), and, in any case, below ATC, as well as a limited amount of MDM6200 based chipsets below AVC (see section 12.7 below), with the intention of eliminating Icera (see section 12.8 below). The Commission rejects the objective justification and efficiency defence raised by Qualcomm for its conduct (see section 12.9 below). The Commission concludes that Qualcomm's predatory sales towards Huawei and ZTE form, taken together, a single and continuous infringement (see section 12.11 below).

12.3. The competitive threat from Icera in the leading edge segment of the UMTS chipset market during the Relevant Period

(336) Qualcomm's pricing practices took place in the leading edge segment of the UMTS chipset market in the context of Icera increasing its market traction as a viable supplier of leading edge UMTS chipsets, which posed a growing threat to Qualcomm's chipset business. Section 12.3.1 below explains which Qualcomm and Icera chipsets competed in the leading edge segment of the UMTS chipset market during the Relevant Period. Section 12.3.2 below sets out the reasons for the strategic importance of the leading edge segment of the UMTS chipset market for chipset suppliers. Section 12.3.3 below explains how Qualcomm's established position in the leading edge segment of the UMTS market was increasingly coming under attack from Icera during the Relevant Period.

12.3.1. The leading edge segment of the UMTS chipset market during the Relevant Period

(337) The leading edge segment of the UMTS chipset market consists of chips and chipsets which are supporting the latest, or close to the latest available standard according to the UMTS chipset evolution and which therefore represent the forefront of technical innovation. The term "leading edge" is also used by Qualcomm in its internal

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[458] See, *e.g.*, Qualcomm internal presentation of April 2009 titled […], page 2, which shows that Qualcomm was afraid of a *"beach-head entry"* by new players in the *"*[e]*asier to enter data card market"* which would provide them with the *"opportunity to prove their technology before going after higher volume hand-set market"* (see recital (385) below); and Qualcomm internal presentation of 7 May 2010 titled […], page 3, which identified under *"Risk of No Action"* that Icera *"Continues to Expand and Builds Market Presence, Supply Base, and Customer Support"* and *"Becomes a Formidable Handset Modem Player (Thin Modem + AP)"* (see recital (385) below).

documents,[459] in alternation with other terms such as "high tier",[460] "top tier",[461] "high end"[462] or "cutting edge",[463] to describe products *"which are, relatively speaking, technologically more advanced, with higher performance and more advanced features"*.[464]

(338) As explained in section 12.3.1.1 below, the main criteria for defining leading edge chipsets during the Relevant Period was their throughput capability. The data rates achieved by leading edge chipsets during the Relevant Period are set out in section 12.3.1.2 below.

12.3.1.1. The importance of the throughput capability (data rate)

(339) Whether or not a chip or chipset can be considered as leading edge depends on its throughput capability, which indicates the speed of downloading or uploading data (also called "data rate" or "speed") in Megabits per second (Mbps). This is for the reasons outlined below.

(340) First, the different iterations of the UMTS standard are defined by reference to the relevant 3GPP releases and the corresponding throughput capability (see Figure 3 below; see also recitals (82) above and (352) below).[465] The data rate indication for devices compliant with a particular release typically refers to the achievable maximum downlink data rate.[466] All following references to data rates in this document should therefore be understood as a reference to the achievable maximum downlink data rate.

Figure 3: *"3GPP roadmap: UMTS Roadmap with LTE"*[467]

[…]

(341) Moreover, the UMTS 3GPP Standard classifies data rates into an escalating set of speed and modulation categories. Most notably, Category 10 refers to 14.4 Mbps and

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459 See, *e.g.*, Qualcomm presentation of April 2008 titled […] page 5 […] and Qualcomm's reply of 2 December 2013 to question 46 of Article 18(3) Decision of 10 July 2013, […], paragraph (196) (*"At the leading edge, for a given period of time (generally short), there may only be one chip solution commercially available"*).

460 See, *e.g.*, Qualcomm internal report of meetings with Huawei contained in an e-mail of 14 August 2011 from […] (Senior Manager, Marketing) to […] (Senior Account Manager), […] (Senior Director, Sales), […] (Product Manager, Staff), […] (Senior Product Manager), […] (Senior Director, QCT Product Management) and others, copying […] ([Qualcomm management member]), […] (Regional Sales Manager) and others, […], page 11.

461 See, *e.g.*, Qualcomm internal e-mail of 15 November 2009 from […] (Director, QCT Product Management) to […] ([Qualcomm management member]), […] (Manager, Finance), […] (Director, Sales) and […] (Financial Analyst, Staff), copying […] ([QCT top management member]), […] ([Qualcomm management member]), […] ([Qualcomm management member]) and […] (QCT Product Manager, Staff), […], page 1.

462 See, *e.g.*, Qualcomm internal presentation of 27 September 2011 titled […].

463 See, *e.g.*, Qualcomm's reply of 2 December 2013 to question 5 of Article 18(3) Decision of 10 July 2013, […], paragraph (39), and Qualcomm's reply of 12 January 2015 to question 6 of Article 18(3) Decision of 13 October 2014, […], paragraphs (23), (30)-(31).

464 See, *e.g.*, Qualcomm's reply of 2 December 2013 to question 4 of Article 18(3) Decision of 10 July 2013, […], footnote 21.

465 Qualcomm's reply of 2 December 2013 to question 35 of Article 18(3) Decision of 10 July 2013, […], paragraph (149).

466 See, *e.g.*, Qualcomm's reply of 2 December 2013 to question 27 of Article 18(3) Decision of 10 July 2013, […], paragraph (126).

467 Qualcomm presentation of June 2009 titled […], page 2.

Category 14 refers to 21 Mbps. The achievable maximum data rate of a chipset or device is thus often also indicated by reference to the corresponding category.[468] The following table provides an overview of the speed categories corresponding to data rates between 3.6 Mbps and 21 Mbps.

Table 6: Data rates corresponding to speed categories

Speed Category	Downlink Data Transmission Speed (in Megabits per second)
Cat 6	3.6 Mbps
Cat 8	7.2 Mbps
Cat 10	14.4 Mbps
Cat 14	21 Mbps

(342) Second, the use by Qualcomm of the term *"leading edge"* or other interchangeable terms (see recital (337) above) is directly linked to the throughput capability of the chip or chipset concerned. For example, the MDM8200 based chipset, which Qualcomm referred to as *"QCT's New Leading Edge Data Card Chipset"*, was Qualcomm's *"First HSPA+ chip-set, for up to 28 Mbps peak rates"*.[469] Also other Qualcomm internal documents refer to the throughput capability as the distinguishing feature between the different tiers of the market (*i.e.* low, mid and high tier).[470]

(343) Third, in particular for chips or chipsets used in MBB devices such as the products under investigation, the throughput capability is one of the most important performance criteria that distinguishes innovative products from those that have been available in the market for some time. This is corroborated by several pieces of evidence on the file.

(344) In the first place, Qualcomm itself *"refers to speed* [*i.e.* throughput capability] *when describing its chips (for example, in the* […] […]*)* […].[471] This is reflected in the contemporaneous evidence set out in section 12.3.3 below.

(345) In the second place, the report of […], which Qualcomm submitted in its SO Response, explains that *"*[d]*ata throughput is a* <u>*critical characteristic*</u> *of a modem that provides an indication of the rate at which the modem can process data. Higher data throughput benefits users and network providers in various ways. For example, with high data throughput a user is able to download data faster. In addition, a*

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468 See, *e.g.*, Qualcomm internal e-mail of 18 January 2010 at 11:03 AM from […] (Director, QCT Product Management) to […] ([Qualcomm management member]), […] ([Qualcomm management member]), […] ([QCT top management member]) and other Qualcomm employees, […], page 8, in which […] explained to other senior staff at Qualcomm that *"the real threat is at Cat 10. (14.4) and 21."*

469 Qualcomm presentation of June 2009 titled […], page 5.

470 See, *e.g.*, Qualcomm internal report of meetings with Huawei contained in an e-mail of 14 August 2011 from […] (Senior Manager, Marketing) to […] (Senior Account Manager), […] (Senior Director, Sales), […] (Product Manager, Staff), […] (Senior Product Manager), […] (Senior Director, QCT Product Management) and others, copying […] ([Qualcomm management member]), […] (Regional Sales Manager) and others, […], page 11 […].

471 Qualcomm's reply of 2 December 2013 to question 25 of Article 18(3) Decision of 10 July 2013, […], paragraph (117).

network operator benefits because devices with higher data throughput spend less time occupying network bandwidth. One common way data throughput performance is evaluated is by measuring the rate at which a modem downloads data."[472] (emphasis added)

(346) In the third place, while Qualcomm noted in its reply to the Commission's Article 18(3) Decision of 10 July 2013 that the throughput capability of a baseband chip is only one of numerous important considerations for Qualcomm's customers,[473] it pointed out that *"customers using chipsets for certain data-only 'MBB devices', such as dongles,* […] *are likely to be more focused on modem speed."*[474] This is corroborated by the contemporaneous evidence in section 12.3.3 below which shows that the throughput capability was indeed one of the main performance characteristics taken into consideration by Huawei and ZTE, Qualcomm's main customers during the Relevant Period.

(347) The same applies to MNOs, which are situated at the next level of the supply chain as customers of OEMs. Chipset suppliers such as Qualcomm and Icera compete indirectly for orders of MNOs through the MBB devices of OEMs that incorporate their respective chipsets (*e.g.* a Qualcomm based Huawei dongle can compete with an Icera based ZTE dongle offered to […]).[475] The throughput capability of the chipset on which an MBB device is based is therefore also one of the main performance characteristics for MNOs when evaluating OEM offers. This is corroborated by a Qualcomm internal e-mail of 19 January 2010 which states that […][476]

(348) Also the […] report of 19 Mach 2008 indicates that *"for a number of end-market applications, we would argue that the throughput capability of the chipset is the most important criteria* [sic]*."*[477]

(349) In the fourth place, the throughout capability of a chipset is directly linked to the price at which it can be sold in the market. The higher the throughout capability of a chipset, the higher the price that can be charged to customers. This is corroborated by the contemporaneous evidence set out in section 12.3.3 below.[478]

12.3.1.2. Leading edge data rates during the Relevant Period

(350) As shown by Figure 3 at recital (340) above, the chips and chipsets at the leading edge cannot be defined in a static way since achievable data rates are constantly evolving, in line with progress in technical standardisation. Consequently, as

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472 Report of […], submitted as Annex 2 to the SO Response, […], paragraph (21). See also […] report of 19 March 2008, Volume 4, No. 20, […], page 5 of the document/page 4 of the report.

473 Qualcomm's reply of 2 December 2013 to questions 25, 26 and 27 of Article 18(3) Decision of 10 July 2013, […], paragraphs (117), (124), (127).

474 Qualcomm's reply of 2 December 2013 to question 20 of Article 18(3) Decision of 10 July 2013, […], paragraph (99).

475 Qualcomm's reply of 26 July 2010 to question 18 of Article 18(2) request for information of 7 June 2010, […], paragraphs (56)-(60).

476 Qualcomm internal e-mail of 19 January 2010 from […] (QCT Product Manager, Staff) to […] (Director, QCT Product Management) and […] (position unknown), copying […] ([Qualcomm management member]), […], page 2.

477 […], page 5 of the document/page 4 of the report.

478 See, *e.g.*, Qualcomm internal presentation of April 2009 (see footnote 177 above) titled […] page 12, which contains a […] tiered by throughput capability with chipsets with lower data rates commanding lower prices.

explained by Qualcomm in its reply to the Commission's Article 18(3) Decision of 10 July 2013, *"a chip or a chipset which in one year may be thought of as 'high-tier' may later be thought of as 'low-tier'"*.[479]

(351) During the Relevant Period, the leading edge segment of the UMTS chipset market consisted of chips and chipsets achieving maximum data rates of 14.4 Mbps and above (see Figure 3 at recital (340) above), thus corresponding to Category 10 and above within the UMTS 3GPP Standard classification (see recital (341) above). This is for the following reasons.

(352) First, the chips and chipsets achieving most advanced data rates that were commercially released during the Relevant Period corresponded predominantly to Release 6 (HSPA), Release 7 (HSPA+) and Release 8 (HSPA+) with a maximum downlink data rate of 14.4 Mbps, 28 Mbps and 42 Mbps, respectively (see recitals (82) and (340) above). However, the most broadly used leading edge chipsets at the time were providing data rates between 14.4 Mbps and 21 Mbps since the network support for higher data rates was still limited (see Figure 6 at recital (362) and footnote 744 below). During this period, Qualcomm and Icera were the main suppliers of leading edge UMTS chipsets supporting these data rates.[480]

(353) By the end of 2008, MNOs had commercially deployed infrastructure theoretically capable of supporting Category 9 (10.2 Mbps) and Category 10 (14.4 Mbps) downlink speeds, but devices had not yet caught up to these speeds.[481] The most advanced commercial devices available in the market at that time therefore corresponded to Category 8 (7.2 Mbps).[482] The adoption of more advanced standards during that period did not have an immediate impact on the market since there is typically a gap of approximately 18 months to 2 years between the adoption of a given standard and the commercialisation of the first chipsets used in devices implementing that standard.[483]

(354) At the beginning of 2009, devices achieving data rates of 10.2 Mbps became available in the market (*e.g.* based on Icera's ICE8040 for which commercial

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479 Qualcomm's reply of 2 December 2013 to question 4 of Article 18(3) Decision of 10 July 2013, […], footnote 21.

480 […] reply of 9 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 12 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 28 April 2015 to Article 18(2) request for information of 14 April 2015, […]; […] reply of 18 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 19 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 19 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 19 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 19 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 9 January 2015 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 29 January 2015 to question 1 of Article 18(2) request for information of 7 January 2015, […]; […] reply of 11 February 2015 to question 1 of Article 18(2) request for information of 8 January 2015, […]; Annex 56.1 to Qualcomm's reply of 21 February 2015 to Article 18(2) request for information of 14 January 2015, […].

481 Qualcomm's reply of 2 December 2013 to question 5 of Article 18(3) Decision of 10 July 2013, […], paragraph (38).

482 Qualcomm's reply of 2 December 2013 to question 5 of Article 18(3) Decision of 10 July 2013, […], footnote 27.

483 Qualcomm's reply of 2 December 2013 to question 19 of Article 18(3) Decision of 10 July 2013, […], paragraph (87).

shipments started in October 2008).[484] Soon thereafter, in May 2009, Qualcomm commercially released the MDM8200 which was the first baseband chip implementing the HSPA+ protocol which supported downlink speeds of 21 Mbps and above. The MDM8200 had been designed by Qualcomm in close cooperation with […] and […] with the objective of technologically leapfrogging the market from 7.2/10.2 Mbps to 21 Mbps. However, in the interest of being *"first to market"*, the MDM8200 was launched with certain shortcomings (*e.g.* with regard to power consumption and thermal performance) which limited its commercial success.[485] In view of customer requests for a Qualcomm baseband chip supporting Category 9/10 (10.2/14.4 Mbps) that could compete in particular against Icera's ICE8040 based chipset at 10.2 Mbps,[486] Qualcomm also started offering a rebated version of the MDM8200 for use at 14.4 Mbps.[487] In November 2009, Icera launched the commercial shipment of its ICE8040 at 14.4 Mbps. In December 2009, Icera's ICE8042, which was an improved version of the ICE8040, became available at 14.4 Mbps.[488]

(355) In 2010 and 2011, the market moved only gradually towards data rates of 21 Mbps and above, partly due to the slow deployment of HSPA+ network infrastructure by MNOs.[489] In March and April 2010, Icera launched upgraded versions of its ICE8040 and ICE8042 achieving data rates of 21 Mbps on the market.[490] In May 2010, the MDM8200A, […] achieving data rates of 28 Mbps became commercially available.[491] Towards the end of 2010, Icera launched its ICE8060 achieving data rates of 28 Mbps.[492] In 2010/2011, Qualcomm and Icera also launched their first baseband chips achieving data rates of 42 Mbps.[493]

(356) Second, Qualcomm itself identified chips and chipsets achieving data rates of 14.4 Mbps and above in contemporaneous internal documents as belonging to the high tier and thus the leading edge of the market. For example, Qualcomm's […] of April 2009 (see Figure 4 below) made a distinction between the *"high-tier segment"* which covered HSPA+/LTE compliant chips and chipsets as of a maximum downlink data rate of 14.4 Mbps and the *"mid-low tier"* corresponding to chips and chipsets with a maximum downlink data rate of 7.2 Mbps. The term *"mid-high"* used for the

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484 […] reply of 13 January 2017 to questions 2 and 3 of Article 18(2) request for information of 13 December 2016, […], paragraphs (3)-(4).

485 Qualcomm's reply of 2 December 2013 to questions 5 and 19 of Article 18(3) Decision of 10 July 2013, […], paragraphs (38)-(40), (87)-(88). For a more detailed description of the development process of Qualcomm's MDM8200 based chipset, see section 8.1.1 above.

486 See, *e.g.*, Qualcomm internal presentation of December 2008 titled […], pages 2, 10.

487 See, *e.g.*, Qualcomm internal presentation titled […].

488 […] reply of 13 January 2017 to questions 2 and 3 of Article 18(2) request for information of 13 December 2016, […], paragraphs (3)-(4).

489 See, *e.g.*, Qualcomm internal presentation of April 2009 titled […] page 36; Qualcomm internal e-mail of 19 January 2010 from […] (QCT Product Manager, Staff) to […] (Director, QCT Product Management) and […] (position unknown), copying […] ([Qualcomm management member]), […], page 1.

490 […] reply of 13 January 2017 to questions 2 and 3 of Article 18(2) request for information of 13 December 2016, […], paragraphs (3)-(4).

491 Qualcomm's reply of 2 December 2013 to question 15 of Article 18(3) Decision of 10 July 2013, […], paragraph (77).

492 Icera's Complaint, […], paragraph (39), Table 1.

493 Qualcomm's reply of 2 December 2013 to question 28 of Article 18(3) Decision of 10 July 2013, […], paragraph (129) and footnote 98; Icera's Complaint, […], paragraph (39), Table 1.

MDM6200 indicates that although this baseband chip did not achieve the most advanced data rates at the time and thus represented the *"middle of the market"*,[494] it was used by Qualcomm during the Relevant Period to compete in the leading edge segment, together with the MDM8200 and the MDM8200A, as also corroborated by other contemporaneous evidence on the file.[495] The situation remained unchanged until 2011, with Qualcomm continuing to compete in the leading edge segment of the market with chips and chipsets achieving data rates of 14.4 Mbps and above.[496]

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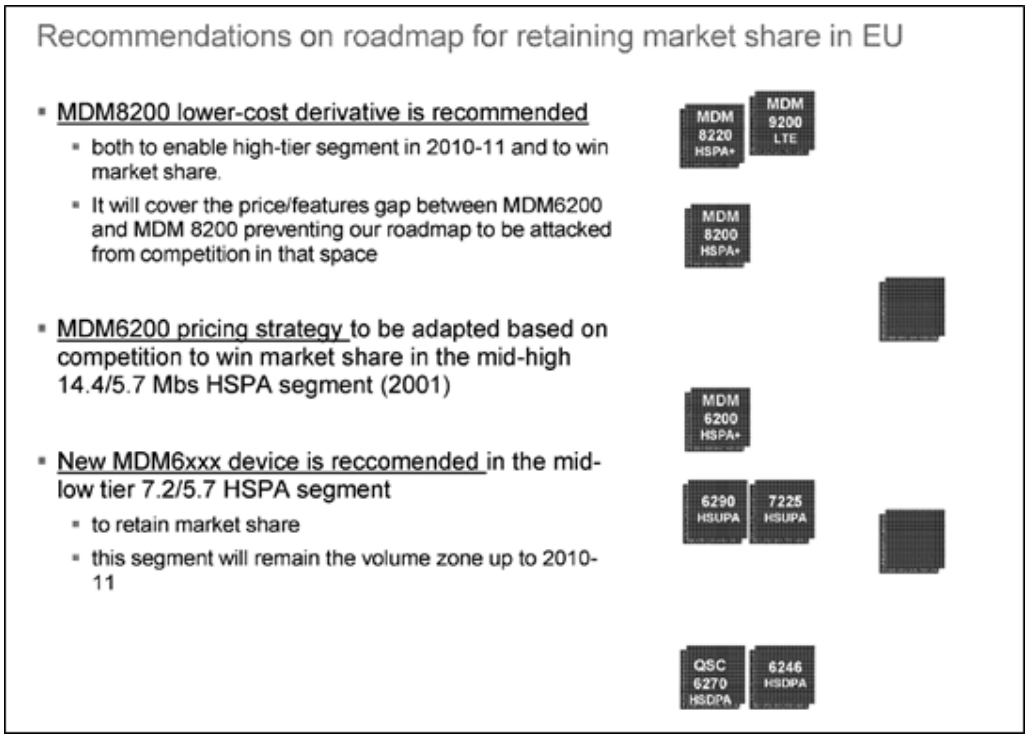
494 Qualcomm internal e-mail of 15 November 2009 from […] (Director, QCT Product Management) to […] ([Qualcomm management member]), […] (Manager, Finance), […] (Director, Sales) and […] (Financial Analyst, Staff), copying […] ([QCT top management member]), […] ([Qualcomm management member]), […] ([Qualcomm management member]) and […] (QCT Product Manager, Staff), […], page 1.

495 See, *e.g.*, Qualcomm internal presentation of November 2009 titled […] which mentioned the MDM6200 together with the MDM8200 and the MDM8200A as one of the chipsets with which Qualcomm considered to show *"modem technology leadership"*, […], page 13 (see footnote 736 below); Qualcomm internal e-mail of 18 January 2010 at 11:03 AM from […] (Director, QCT Product Management) to […] ([Qualcomm management member]), […] ([Qualcomm management member]), […] ([QCT top management member]) and other Qualcomm employees, […], page 8, in which […] explained to other senior staff at Qualcomm that *"the real threat is at Cat 10. (14.4) and 21. we need both 6200 and 8200A to hit their schedules (both are a month late) to defend"*; and Qualcomm internal presentation (without date and title), […], page 16, attached to a Qualcomm internal e-mail of 28 May 2010 from […] (Manager, Finance) to […] ([Qualcomm management member]) and others, copying […] (Director, QCT Product Management) and another Qualcomm employee, […], which shows that the […].

496 See, *e.g.*, Qualcomm internal presentation (without date and title), […], page 16, attached to a Qualcomm internal e-mail of 28 May 2010 from […] (Manager, Finance) to […] ([Qualcomm management member]) and others, copying […] (Director, QCT Product Management) and another Qualcomm employee, […]; and Qualcomm internal presentation of August 2011 titled […], page 29 (*"HSPA/+ segment (42M, 21M, 14M) as the key growth engine for CY11.* […] *Legacy low segment (3.6M/7.2M) start to decline")*. It should be noted that Qualcomm considers its […] to be unique in terms of coverage (*i.e.* content, scope and, usually, length) for a single region report and, generally, the most comprehensive; see Qualcomm's reply of 2 December 2013 to question 55 of Article 18(3) Decision of 10 July 2013, […], paragraph (244).

Figure 4: […][497]



(357) During the Relevant Period, the leading edge segment of the UMTS market consisted almost exclusively of standalone chipsets, *i.e.* baseband chips without application processor (see Table 7 below). Such standalone chipsets were particularly attractive for MBB device manufacturers (*i.e.* OEMs producing MBB devices) who sought for their devices high speed connectivity without the need for application processor functionalities.

497 Qualcomm internal presentation of April 2009 (see footnote 177 above) titled […], page 37. See also page 35: *"Currently, market primarily segmented in low-tier 3.6 Mbps HSDPA devices, and 7.2 Mbps HSDPA devices with or w/o HSUPA capability. Market will become increasingly segmented by introduction of higher tier 14.4/5.76 Mbps HSDPA/HSUPA devices, HSPA+ Rel-7 devices, and later HSDPA+/LTE Rel-8 devices."*; and page 36 which explains that the *"mid-tier market"* is *"split between 7.2/5.7 Mbps and 14.4/5.76 Mbps"*.

Table 7: Leading edge segment based on chipset units sold in the merchant market (2009-2013)[498]

Year	min Mbps	Standalone Chipsets	Integrated Chipsets	Total UMTS chipsets
2009	14.4	3,251,140	2,455	3,253,595
2010	21.0	10,074,375	0	10,074,375
2011	42.0	20,562,475	117,763	20,680,238
2012	50.0	132,616,024	37,158,012	169,774,036
2013	100.0	231,168,118	105,619,948	336,788,066

12.3.2. The strategic importance of the leading edge segment of the UMTS chipset market

(358) During the Relevant Period, the leading edge segment was initially more of a niche segment of the UMTS chipset market. It was, however, of strategic importance for chipset suppliers due to its anticipated growth potential.

(359) The niche character of the leading edge segment is mainly due to the following reasons.

(360) First, the number of leading edge chips and chipsets commercially available in the market at a particular moment in time tends to be limited in view of the high R&D investment required to manufacture chips and chipsets implementing more advanced standards. Qualcomm explained in this regard that *"at the very early stages of the most recent iterations of a given standard (e.g., in terms of a particular feature or faster download and upload speed) or of a new standard (e.g., LTE), chip choice may be limited to a relatively small number of pioneering chips. At the leading edge, for a given period of time (generally short), there may only be one chip solution commercially available. This is to be expected given the amount of R&D investment involved and the competitive race between chip suppliers to be first to commercialise a particular solution. However, as with any novel solution in technology-driven industries, within a short timeframe the number of competitors offering similar solutions increases."*[499] (emphasis added)

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498 Commission's compilation based on […] reply of 9 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 12 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 28 April 2015 to Article 18(2) request for information of 14 April 2015, […]; […] reply of 18 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 19 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 19 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 19 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 19 December 2014 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 9 January 2015 to question 1 of Article 18(2) request for information of 19 November 2014, […]; […] reply of 29 January 2015 to question 1 of Article 18(2) request for information of 7 January 2015, […]; […] reply of 11 February 2015 to question 1 of Article 18(2) request for information of 8 January 2015, […]; Annex 56.1 to Qualcomm's reply of 21 February 2015 to Article 18(2) request for information of 14 January 2015, […].

499 Qualcomm's reply of 2 December 2013 to question 46 of Article 18(3) Decision of 10 July 2013, […], paragraph (196).

(361) This is corroborated by the fact that at the beginning of the Relevant Period, Qualcomm only had one leading edge chipset (the MDM8200 based chipset) it could rely on to compete against Icera's ICE8040 based chipset. The ICE8040 based chipset initially achieved data rates of up to 10.2 Mbps, but could be software upgraded to more advanced data rates and was therefore considered by the market as an alternative to Qualcomm's MDM8200 based chipset.[500] Between the second half of 2010 and the first half of 2011, competition in the leading edge was focused, on the one hand, on Qualcomm's MDM6200 and MDM8200A and, on the other hand, on Icera's ICE8042 and ICE8060, as reflected in the contemporaneous evidence set out in section 12.3.3 below.

(362) Second, the volumes of leading edge chipsets sold during the launch period are typically low when compared to the sales of mid-tier and low-tier chipsets. This is corroborated by Qualcomm's internal forecasts for the development of the *"EU Data Card market"* during the Relevant Period (see Figure 5 below) which projects single digit percentages during the launch period of a new data tier. In contrast, the mid-tier and low-tier of the market, which represented the most prevalent downlink speeds at the time,[501] were expected to account for 98% (2009), 79-89% (2010) and 50-65% (2011) of the projected volumes.

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500 Qualcomm internal presentation of April 2009 titled […], page 7.

501 Qualcomm's reply of 2 December 2013 to question 45 of Article 18(3) Decision of 10 July 2013, […], paragraph (193).

Figure 5: […][502]

EU Data Card market segmentation forecast – vs current PoR

HSPA+ volume ~ 50% by 2011

	2008	2009	2010	2011	
42/11.6 HSPA+ Rel-8 100/50 LTE	-	-	1%	3% - 5%	MDM 8220 HSPA+, MDM 9200 LTE
28/11.6 HSPA+ Rel-7	-	1%	3% - 5%	10% - 20%	MDM 8200 HSPA+
14.4/5.76 HSPA Rel-6 & HSPA+ Rel-7	-	1%	5% - 15%	20% - 30%	MDM 6200 HSPA+
7.2/5.7 HSPA Rel-6	50%	64%	55% - 65%	40% - 50%	6290 HSUPA, 7225 HSUPA
3.6 HSDPA Rel-5/6	50%	34%	24%	10% - 15%	QSC 6270 HSDPA, 6246 HSDPA

(363) At the same time, Figure 5 above shows the significant growth potential of the leading edge segment, with chipsets offering data rates of 14.4 Mbps and 21 Mbps expected to achieve together a similar or even higher volume in 2011 than the mid-tier of the market. Qualcomm's projections of May 2010 (see Figure 6 below) show a similar trend. They identify 21 Mbps as the most demanded data rate tier which would drive significant sales volumes over the years to follow and make up the highest share of the UMTS market by 2012. Figure 6 shows that the addressable market at 21 Mbps was expected to increase tenfold between 2010 and 2014, experiencing annual growth rates of around 230% (from 2010 to 2011), 110% (from 2011 to 2012), 40% (from 2012 to 2013) and 5% (from 2013 to 2014). In light of the forecasted volume growth, Qualcomm identified the speed tier of 21 Mbps in 2010 as *"Key Tier 2012"*[503] and predicted in 2011 that who would *"win"* the 21 Mbps tier in 2012 (*i.e.* get the most technical approvals by MNOs) *"will be able to lead the market in CY13"*.[504]

Figure 6: *"Total Addressable Market 2010-2014"* (May 2010)[505]

[…]

(364) The expected growth potential of the leading edge segment not only stemmed from MBB devices, which constituted until 2010 the predominant use for leading edge

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502 Qualcomm internal presentation of April 2009 titled […], page 35. […] a Qualcomm internal presentation of April 2010 titled […], page 21, contains similar forecast figures concerning the *"data card market split in CY10"*: *"3.6Mbps 35%, 7.2Mbps 45% (up to 60% late 2010), 14.4Mbps 15%, 21Mbps 5%"*.

503 Qualcomm internal presentation of 7 May 2010 titled […], page 6.

504 Qualcomm internal e-mail of 25 August 2011 from […] (Regional Sales Manager) to […] ([Qualcomm management member]), […], page 1.

505 Qualcomm internal presentation of 7 May 2010 titled […], page 6.

chipsets, but also from smart mobile devices (*i.e.* smartphones and tablets) which were initially lacking the capabilities to take advantage of their high performance. However, the global take-up of smart mobile devices with enhanced application processing capabilities was expected to give a significant boost to the leading edge segment.[506]

(365) Apart from the estimated volume growth during the Relevant Period, the leading edge segment offered additional advantages to chipset suppliers.

(366) First, being able to establish a commercial relationship with customers for the supply of a particular chipset at an early stage of the product lifecycle can provide a chipset supplier with a first mover advantage. This is because […].[507] […].[508]

(367) Second, leading edge chips and chipsets carry a significant price premium compared to lower tiered chips and chipsets,[509] thus allowing chipset suppliers to achieve higher margins.

(368) Third, by being able to address the demand for leading edge chipsets, chipset suppliers are able to gain a status as innovator and present themselves to their potential customers as preferred partners for the development of new devices, thus boosting their brand image. Qualcomm explained in this regard that it *"believes that its chip customers value Qualcomm's status as innovator. They look to Qualcomm for cutting edge technology that they can harness and exploit in their own devices."*[510] Qualcomm therefore endeavoured […].[511]

(369) The Commission's conclusion that the leading edge segment was of strategic importance for chipset suppliers during the Relevant Period is not put into question by Qualcomm's arguments in this respect.

(370) Qualcomm argues that by 2009, the overwhelming majority of Qualcomm chipsets used in MBB devices, including by Huawei and ZTE, were integrated MSM chipsets, with lower download speeds than the chipsets under investigation.[512] Moreover,

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506 See, *e.g.*, The Guardian article titled *"How the smartphone is killing the PC"* of 5 June 2011, printed from The Guardian's website at http:/www.theguardian.com/technology/2011/jun/05/smartphones-killing-pc on 22 July 2015, […].

507 See, *e.g.*, […] reply of 30 July 2010 to question 7 of Article 18(2) request for information of 1 June 2010, […], page 4. See also SO, paragraphs 201-202, which refer to […] reply of 5 May 2015 to question 8 of Article 18(2) request for information of 30 April 2015, […], page 7, and […] reply of 31 May 2015 to questions 8 and 33 of Article 18(2) request for information of 30 April 2015, […], pages 5-6, 16.

508 See, *e.g.*, […] reply of 21 September 2010 to question 15 of Article 18(2) request for information of 1 September 2010, […], page 5.

509 […] reply of 9 January 2015 to question 5.1.1 of Article 18(2) request for information of 4 November 2014, […], page 5 (*"BCs* [baseband chipsets] *implementing the latest and more advanced air interfaces* […] *are often higher priced"*); […] reply of 8 January 2015 to question 5.1.1 of Article 18(2) request for information of 4 November 2014, […], page 4 (*"BCs* [baseband chipsets] *that incorporate latest wireless standards* […] *are in a higher price tier"*); and […] reply of 29 January 2015 to question 5.1.1 of Article 18(2) request for information of 4 November 2014, […], page 2 (*"Products with cutting edge technology are to our experience more expensive than others"*).

510 Qualcomm's reply of 2 December 2013 to question 20 of Article 18(3) Decision of 10 July 2013, […], paragraph (102), and Qualcomm's reply of 12 January 2015 to question 6 of Article 18(3) Decision of 13 October 2014, […], paragraph (23).

511 Qualcomm's reply of 2 December 2013 to question 12 of Article 18(3) Decision of 10 July 2013, […], paragraph (66).

512 Qualcomm's SSO Response, […], paragraph (281).

Qualcomm argues that with the exception of […], handset suppliers did not use slim chipsets such as those comprising the leading edge segment, and demand from suppliers of mobile devices did not gravitate toward slim baseband chipsets.[513] Both claims are misplaced for the following reasons.

(371) First, the definition of the leading edge segment of the UMTS chipset market set out in recitals (337) and (351) above is not based on a distinction between slim and integrated chipsets nor on the level of market penetration achieved by leading edge chipsets during the Relevant Period. In fact, during the Relevant Period, the leading edge segment did not include any of Qualcomm's integrated MSM chipsets since, as Qualcomm stated itself,[514] the download speeds supported by these chipsets were inferior to those supported by Qualcomm's slim MDM chipsets. Moreover, as explained in recitals (358)-(362) above, during the Relevant Period the leading edge segment was initially more of a niche segment of the UMTS chipset market, whose strategic importance did not stem from the actual volume of sales at that time but from its anticipated growth potential (see recitals (363)-(365) above).

(372) Second, during the Relevant Period high speed data connectivity was more important for MBB devices than for mobile phones (see recital (357) above). Consequently, demand for leading edge chipsets came mostly from MBB device manufacturers such as Huawei and ZTE, which were two of Qualcomm's main customers of UMTS chipsets at the time.

(373) Third, the question whether Qualcomm's integrated chipset solutions were also used in MBB devices and whether demand from suppliers of mobile devices gravitated towards slim chipsets does not provide any indication of whether or not the leading edge segment of the UMTS chipset market was of strategic importance for chipset suppliers.

12.3.3. The threat of Icera faced by Qualcomm in the leading edge segment of the UMTS chipset market

(374) In 2006, when Icera introduced its first chipset to the market, Qualcomm was a leading supplier of UMTS chipsets who served most of the demand of leading MBB device manufacturers.[515] […] sourced […] of their requirements from Qualcomm.[516]

(375) Icera's standalone chipsets were particularly attractive for MBB device manufacturers who sought for their devices high speed connectivity without the need for application processor functionalities. Nonetheless, like other entrants, Icera faced a reputational barrier during the first years in order to be considered as a viable alternative to established companies such as Qualcomm. This is because OEMs give paramount importance to the reliability of their chipset suppliers. New entrants

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513 Qualcomm's SSO Response, […], paragraph (281).

514 Qualcomm's SSO Response, […], paragraph (281).

515 See, *e.g.*, Qualcomm internal presentation of May 2008 titled […], page 2, which contains the following quote from a press article on Icera: *"Currently, the vast majority of these* [*i.e.* 3G] *data cards from leading suppliers like Huawei, Sierra, Novatel and Option are based on Qualcomm chips."*

516 […] reply of 3 January 2012 to question 11 of Article 18(3) Decision of 19 October 2011, […], paragraph (37) (for 2008) and […] reply of 12 July 2010 to question 1 of Article 18(2) request for information of 1 June 2010, […], page 6 (for 2008). See also Qualcomm internal presentation of December 2008 titled […], page 4, which mentioned that […].

therefore need to build up a good reputation before being able to become established players in the market.[517]

(376) Despite being impacted by the financial crisis at the end of 2008, Icera managed to stay afloat after having obtained USD 70 million in venture capital and continued building up market presence.[518] At the same time, Icera managed to overcome the reputational barrier by achieving technical approval at […] for the ICE8040 based chipset, together with […], an MBB device manufacturer, in November 2008. Qualcomm internal correspondence shows that […] chose Icera as chipset supplier also because of its competitive price, allowing it to keep up with the competition in the market.[519] Qualcomm discussed this achievement and the […] in an internal e-mail of 25 November 2008 which noted that […]. *The result is OK. So now all operators know Icera chipset can work."*[520] A follow-up e-mail by another Qualcomm employee stated that *"the EU opcos* [operating companies] *were initially not very keen on Icera because of lack of track record, but as* […] *states, now that they passed* […] *I am sure perceptions have changed. Talking to* […] *last week, I heard the Chinese team is very concerned about Icera making inroads at ZTE."*[521] This shows that towards the end of 2008, it was known in the market that Icera could provide a viable alternative and that Qualcomm started being seriously concerned about Icera getting traction in the market.

(377) These developments were compounded by the fact that Icera's chipsets were increasingly perceived by the market as an attractive alternative to Qualcomm's chipset solutions from a performance perspective, as demonstrated by the following evidence.

(378) First, Icera's chipsets achieved a number of positive reviews in sector specific publications at the time. For example, […], a widely read research newsletter for the wireless telecommunications industry prepared by […], gave Icera a positive review on advanced receiver performance in 2008. It concluded that *"*[f]*or the second time in a row an Icera-based solution more than holds its own against a comparable solution from Qualcomm. In fact, of the 24 fading test cases* […] *the Icera reference design is the top-performing solution for 16 of the test cases."*[522] This report was relied on by Qualcomm's customers when comparing the performance of Qualcomm's and Icera's chipset solutions, as evidenced by an e-mail of […] of 22

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517 See *e.g.* Icera internal e-mail of 12 June 2008, […], page 1 (*"ZTE thinks Icera will have some difficulties to get into* […]*"*); Qualcomm internal e-mail of 27 November 2008 from […] (Regional Senior Sales Manager) to […] ([QCT top management member]) and […] ([Qualcomm management member]), […], page 1 […]; and Qualcomm's […] concerning a meeting on 3 February 2010 between Qualcomm and […], page 3, which mentioned […].

518 Qualcomm internal e-mail of 27 December 2008 from […] (Senior Manager, Marketing), […], pages 2-3 in which he circulated a recent press article about Icera, triggering an internal debate about Qualcomm's strategy *vis-à-vis* Icera.

519 Qualcomm internal e-mail of 15 March 2009 from […] ([QCT top management member]) who reported that […], page 1.

520 Qualcomm internal e-mail of 25 November 2008 from […] (Director, Sales) to […] ([Qualcomm management member]), […] ([Qualcomm management member]), […] ([Qualcomm management member]), […] (Director, Marketing), […] (Senior Manager, Marketing) and […] ([QCT top management member]), […], page 2.

521 Qualcomm internal e-mail of 27 November 2008 from […] (Regional Senior Sales Manager) to […] ([QCT top management member]) and […] ([Qualcomm management member]), […], page 1.

522 […].

May 2008 which stated: […][523] Qualcomm seriously engaged with these comments and the report as such, as demonstrated by the ensuing internal discussions at Qualcomm, the preparation of a specific rebuttal presentation to be provided to Qualcomm's customers[524] and training sessions for Qualcomm's sales staff.[525] At the same time, Qualcomm also produced *"Talking Points"* to address a press article of 19 May 2008 which, according to Qualcomm, was *"Promoting Icera Design Momentum"*.[526]

(379) Some months later, in February 2009, a […] report on vendor-independent performance testing of chipsets from Qualcomm, InterDigital, Ericsson, Nokia, Infineon and Icera gave Icera another positive review.[527] In November 2009, a testing study conducted by the […] ranked Icera's UMTS chipsets first among other UMTS chipsets in several throughput tests.[528]

(380) In January 2010, the GSM Association nominated Icera's IceClear Type 3i interference cancellation technology, which is used in Icera's chipsets to minimize power consumption, as a finalist for the GSMA's award for Best Mobile Technology Breakthrough.[529]

(381) Second, Qualcomm customers and MNOs considered the performance of Icera's chipsets to be satisfactory, and comparable to or even better than the performance of Qualcomm's chipsets. For example:

(a) In May 2008, […] (Senior Director, Sales, at Qualcomm) followed up on a discussion with […] concerning Icera's ICE8040 in which the customer had […][530]

(b) A Qualcomm internal presentation of April 2009 reported with regard to Icera's ICE8040 about […].[531]

(c) A Qualcomm internal e-mail of 4 December 2009 reports on a discussion with […] who had *"just tested* [Icera's] *ICE8042 and found it can support 14.4M with better performance than 8200"*.[532]

(d) The […] of December 2009 mentioned that *"Ice8042 is an* [sic] *useable solution and recognized by both* […] *and more resources will be allocated"*.[533]

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523 E-mail of 22 May 2008 from […] to […] (Senior Director, Sales, at Qualcomm), […], page 3.

524 Qualcomm presentation of April 2008 titled […].

525 Qualcomm internal follow-up of May 2008 to e-mail exchange between […] (Senior Director, Sales, at Qualcomm), copying […] ([Qualcomm top management member]) and other senior management, […], pages 1-2 where it is mentioned, amongst other things, that *"the modem product and systems team helped prepare a response a soon as the* […] *report broke, this was forwarded to all regions and we followed up with a training session (we covered SD and Asia, and* […] *helped prep the EU team)"*.

526 Qualcomm internal presentation of May 2008 titled […].

527 Icera's Complaint, […], paragraph (23).

528 See Nicolas Mokhoff, *"Test study finds 3G reliability faults"*, in EE Times 2 November 2009, printed on 22 July 2015, […].

529 Icera's Complaint, […], paragraph (23).

530 E-mail of 20 May 2008 from […] (Senior Director, Sales, at Qualcomm) to […], pages 3-4.

531 Qualcomm internal presentation of April 2009 (see footnote 177 above) titled […], page 10.

532 Qualcomm internal e-mail of 4 December 2009 from […] (Director, Sales) to […] ([QCT top management member]), […] ([Qualcomm management member]), […] ([Qualcomm management member]), […] ([Qualcomm management member]), […] (Director, QCT Product Management), […] ([Qualcomm management member]) and […] ([Qualcomm management member]), […], page 2.

(e) In February 2010, […] mentioned in a meeting with Qualcomm that it *"*[…]. *Although Icera products were problematic initially, they are good enough now.* […] *data card based on Icera chipsets are available in Hong Kong, and test results indicate they are pretty close to QCT products in terms of performance"*.[534]

(f) In February 2010, an internal […] comparison analysis between Qualcomm and Icera chipsets based on the throughput capability concluded that *"there are no relevant differences between Icera and Qualcomm in terms of performances"* and that *"under critical conditions* […], *Icera seems to achieve better downlink throughputs than Qualcomm"*.[535]

(g) […] also confirmed in reply to a request for information that *"the Icera chipset is very innovative with a similar performance compared to Qualcomm solutions"*.[536]

(382) A key element that contributed to Icera's growing success in the market consisted in two main technical advantages of Icera's chipset solutions compared to Qualcomm's leading edge offering which allowed Icera to price them competitively in the market. Icera's chipsets were (i) smaller,[537] thus requiring less silicon and being cheaper to produce, and (ii) easily upgradable through a software update (instead of a hardware re-design required for Qualcomm's chipsets), thus allowing for uniform pricing across all data rates.[538] These advantages were recognised by both Qualcomm and OEMs, as corroborated by the contemporaneous evidence in the file. For example:

(a) A Qualcomm internal e-mail of 25 November 2008 noted that *"*[t]*he threaten* [sic] *is that it* [Icera's chipset] *can support 10.2Mb/s at Q1 and 14.4Mb/s at Q2 of 09'. While QCT's* [Qualcomm's] *corresponding QSC6295 and 7230 will not be ready by 2nd half of 09'."*[539]

(b) A Qualcomm internal presentation of April 2009 mentioned under *"ICERA ICE8040 Market Feedback"* that Icera would be *"*[o]*ffering ICE8040 as a chips-set that scales from 3.6 Mbps HSDPA to 17.6 Mbps HSPA+ with software only upgrades"*. It also included a price comparison between Qualcomm's and Icera's products, showing a price of USD 15.5 (for 14.4 Mbps) and USD 17 (for 17.6 Mbps) for Icera's chipsets, which would be roughly […] of Qualcomm's price of USD […] (for 14.4 Mbps) and […] (for 21 Mbps).[540]

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533 Qualcomm internal presentation of December 2009 titled […], page 15.

534 Qualcomm's […] concerning a meeting on 3 February 2010 between Qualcomm and […], page 3.

535 […] internal presentation of 8 February 2010, […], page 2.

536 […] reply of 30 June 2010 to question 18 of Article 18(2) request for information of 1 June 2010, […], page 1.

537 See, *e.g.*, Qualcomm internal e-mail of 15 February 2009 which mentions that Icera's *"die size is 30%-40% (TBC) smaller than MSM6290 and even QSC6295 (CS in 09Q4), the recent version of 'signal ahead' and UMTS competition report from Liat confirmed the message"*, […], page 1.

538 […] reply of 13 January 2017 to question 5 of Article 18(2) request for information of 13 December 2016, […], paragraphs (27)-(35).

539 Qualcomm internal e-mail of 25 November 2008 from […] (Director, Sales) to […] ([Qualcomm management member]), […] ([Qualcomm management member]), […] ([Qualcomm management member]), […] (Director, Marketing), […] (Senior Manager, Marketing) and […] ([QCT top management member]), […], page 2.

540 Qualcomm internal presentation of April 2009 (see footnote 177 above) titled […], pages 10, 12.

(c) Qualcomm internal meeting notes of 15 April 2009 mentioned under *"UMTS data card competitive threat"* that *"Icera is likely to offer HSPA+ (14.4Mbps DL) capabilities through SW* [software] *upgrade for 8040 in the near future"* and that *"Icera priced its HSUPA and HSPA+ solutions very competitively"*.[541]

(d) A Qualcomm presentation of November 2009 described under *"Competition at* […] *– Icera"* Icera's ICE8042 as *"one platform support*[ing] *multiple data rates via SW* [software] *load at production line"*.[542]

(e) A Qualcomm internal e-mail of 3 December 2009 mentioned that *"*[t]*he threat is 'I'* [Icera] *chipset can SW* [software] *upgrade from 3.6Mb/s to 21Mb/s. So our MDM6200/8200 is facing big pressure because our BOM* [bill of material] *is much higher than 'I'. 'I' based device has shipped 150K as 10.2Mb/s HSDPA now, but they claimed can be upgraded to 21M by SW* [software] *later. They quoted Euro35 to* […] *and got* […] *starong* [sic] *support. Now many OEMs is using 'I' solution for bidding just because of the BOM cost is lower."*[543]

(f) A Qualcomm internal e-mail of 4 December 2009 reported on a discussion with […] who had *"just tested* [Icera's] *ICE8042 and found it can support 14.4M with better performance than 8200"* and informed Qualcomm that […] had *"quoted* […] *based 14.4M dongle to* […], *and claimed that can be SW* [software] *upgrade* [sic] *to 21M later"*.[544]

(g) The Qualcomm internal […] of January 2010 mentioned with regard to the […] *14.4 Mbps data card w/ ICE8042"* that it would *"SW* [software] *upgrade to 21Mbps in early July"*.[545]

(h) A Qualcomm internal e-mail of 18 January 2010 mentioned that *"ICERA's value lies in a cheap common platform that tiers from 3.6 thru 21Mbps"*.[546]

(i) […] emphasised in an e-mail to Qualcomm of 2 February 2010 that *"*[p]*rice of ICE8042 (suit)* [Icera chipset] *is less than 10$, which can upgrade to 21M by simple software upgrade"*.[547]

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541 Qualcomm internal e-mail of 15 April 2009 from […] (Director, Sales) to […] (Senior Director, Sales), […] ([Qualcomm management member]), […] ([Qualcomm management member]), […] (Director, Marketing), […] (Senior Manager, Marketing), […] (Regional Sales Manager), […] (position unknown), […] (Senior Manager, Product Management), […] (position unknown), […] (position unknown), […] (position unknown), […] (Staff Manager, Product Management), […] (Senior Director, Business Development), […] (Director, QCT Product Management), […], page 1.

542 Qualcomm internal presentation of November 2009 titled […], page 20 (see footnote 736 below for further background on this document).

543 Qualcomm internal e-mail of 3 December 2009 from […] (Director, Sales) to […] ([QCT top management member]), […] ([Qualcomm management member]), […] ([Qualcomm management member]), […] (([Qualcomm management member]), […] (Director, QCT Product Management), […] ([Qualcomm management member]) and […] ([Qualcomm management member]), titled […], page 1.

544 Qualcomm internal e-mail of 4 December 2009 from […] (Director, Sales) to […] ([QCT top management member]), […] ([Qualcomm management member]), […] ([Qualcomm management member]), […] ([Qualcomm management member]), […] (Director, QCT Product Management), […] ([Qualcomm management member]) and […] ([Qualcomm management member]), […], page 2.

545 Qualcomm internal presentation of January 2010 titled […], page 17.

546 Qualcomm internal e-mail of 18 January 2010 at 11:03 AM from […] (Director, QCT Product Management) to […] ([Qualcomm management member]), […] ([Qualcomm management member]), […] ([QCT top management member]) and other Qualcomm employees, […], pages 6-8.

(j) A Qualcomm internal e-mail of 29 March 2010 reporting on a call with […] explained that […] *"big concern is Carriers like Icera much because they can SW* [software] *upgrade to 21M."*[548]

(383) In light of the above, Icera's offers were increasingly perceived by OEMs as more attractive than Qualcomm's offers.[549] As a result, a growing number of MBB device manufacturers started sourcing part of their requirements from Icera. By January 2010, Qualcomm concluded that *"*[c]*learly Icera has built up momentum among Chinese OEMs/ODMs. The latest intelligence indicates that 'all' major data card vendors are using Icera platforms. We know* […] *are ready to launch in Feb./Mar. for 14.4Mbps at* […] *in May/June (upgradable later to 21Mbps).* […] *has a team working on an Icera-based project as well."*[550]

(384) In light of the above-mentioned developments, as of the end of 2008,[551] Qualcomm perceived Icera as a *"real threat"*[552] to its chipset business which became particularly *"critical"*[553] at the beginning of 2010, as demonstrated by the evidence set out in this section 12.3.3. Qualcomm feared that once Icera would reach significant sales volumes, *"the current data card market structure may undergo drastic changes and the price war will be unavoidable"*.[554] Therefore, Qualcomm did not *"want to see any break through of Icera in any of our major OEMs"* since it would *"be a bad example*

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547 Huawei requests to Qualcomm of 2 February 2010, […]. See also Qualcomm internal e-mail of 15 April 2009, which contains meeting notes of a meeting between Qualcomm and China UMTS Core. One of the reasons given to explain why Icera has become a big competitive threat is that *"Icera is likely to offer HSPA+ (14.4Mbps DL) capabilities through SW* [software] *upgrade for 8040 in the near future"*, […], page 2.

548 Qualcomm internal e-mail of 29 March 2010 from […] (Director, Sales) to […] ([Qualcomm management member]), […] (Director, Sales), […] (Director, QCT Product Management), […] (Staff Manager, Marketing), […] (Director, Marketing), […] ([Qualcomm management member]) and others, copying […] (Financial Analyst, Staff), […], page 1.

549 See, *e.g.*, Huawei e-mail to Qualcomm of 17 January 2009 pointing out that […], page 1. Also […] ([QCT top management member]) reported in an e-mail of 15 March 2009 that […], page 1.

550 Qualcomm internal e-mail of 6 January 2010 from […] ([Qualcomm management member]) to […] ([Qualcomm management member]), […] (Director, QCT Product Management), […] ([QCT top management member]), […] (Senior Director, Finance), […] (Manager, Finance), […] (Director, Sales), […] (Director, Sales), […] (position unknown), […] ([Qualcomm management member]), […] (QCT Product Manager, Staff) and […] (Manager, Finance), copying […] (Staff Manager, Marketing), […] (Director, Marketing) and […] ([Qualcomm management member]), […].

551 At the time when Icera had managed to achieve, together with […], the technical approval at […] for the ICE8040 based chipset, […] (Director, Sales) recognised in a Qualcomm internal e-mail of 25 November 2008 to […] ([Qualcomm management member]), […] ([Qualcomm management member]), […] ([Qualcomm management member]), […] (Director, Marketing), […] (Senior Manager, Marketing) and […] ([QCT top management member]), […], page 2, that this constituted an important step for Icera, noting that *"*[t]*he threaten* [sic] *is that it can support 10.2Mb/s at Q1 and 14.4Mb/s at Q2 of 09'. While QCT's* [Qualcomm's] *corresponding QSC6295 and 7230 will not be ready by 2nd half of 09'"*.

552 Qualcomm internal e-mail of 6 February 2009 from […] (Senior Manager, Marketing) to […] (Director, Marketing), copying […] ([Qualcomm management member]), […], page 2.

553 Qualcomm internal e-mail of 6 January 2010 from […] (Director, QCT Product Management) to […] (QCT Product Manager, Staff), […] (Senior Director, Engineering) and another Qualcomm employee, […], page 1.

554 Qualcomm internal e-mail of 6 February 2009 from […] (Senior Manager, Marketing) to […] ([Qualcomm management member]) and […] (Director, Marketing), […], page 1.

for other OEMs if it happens".[555] To avoid this from happening, Qualcomm could not *"let Icera gain a lot of business, which will help them get stronger"*[556] and had to *"contain volume growth at Icera"*.[557]

(385) Qualcomm's concerns about Icera's growing success in the market not only related to chipsets for use in data cards, on which Icera's product portfolio was focusing at the time, but also to Icera's longer term development prospects in the UMTS market and more specifically its potential to provide chipsets for use in smartphone devices. A Qualcomm internal presentation of April 2009 shows that Qualcomm was afraid of a *"beach-head entry"* by new players in the *"*[e]*asier to enter data card market"* which would provide them with the *"opportunity to prove their technology before going after higher volume hand-set market"*. Qualcomm was well aware that this corresponded to how Icera perceived its development prospects in the market, as demonstrated by its close monitoring of Icera's *"Modem Roadmap"*.[558] In order to prevent this from happening, Qualcomm planned to *"Aggressively Protect the Data Card Market"* and to *"deny new players"* the opportunity to prove their technology for data cards and expand their market presence.[559] This is reflected in Qualcomm's *"Icera Strategy"* as set out in a Qualcomm internal presentation of 7 May 2010 which identifies under *"Risk of No Action"* that Icera *"Continues to Expand and Builds Market Presence, Supply Base, and Customer Support"* and *"Becomes a Formidable Handset Modem Player (Thin Modem + AP)"*.[560]

(386) The competitive pressure exerted by Icera as viewed by Qualcomm in 2009 is illustrated by the following graph from a Qualcomm internal presentation of April 2009 (see Figure 7 below). The graph shows that Icera was attacking Qualcomm's portfolio *"from the bottom"*, referring to its ICE8040 as a baseband chip which could be used across data tiers up until 17.6/21 Mbps and which was therefore directly competing with Qualcomm's leading edge chipsets during the Relevant Period (*i.e.* the MDM8200 in 2009/2010 and the MDM8200A/MDM6200 in 2010/2011). It also demonstrates the significant cost advantage that Qualcomm understood Icera's ICE8040 to benefit from, with its average unit cost ("AUC") being estimated at […] Qualcomm's MDM8200 and […] of Qualcomm's MDM8200A.

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555 Qualcomm internal e-mail of 18 February 2009 from […] ([Qualcomm management member]) to […] ([Qualcomm management member]), […] (Director, QCT Product Management), […] (Senior Director, Sales) and […] ([QCT top management member]), copying […] (Director, Marketing) and […] (Senior Manager, Marketing), […], page 1.

556 Qualcomm internal e-mail of 7 December 2009 at 4:39 PM from […] (Financial Analyst, Staff) to […] ([Qualcomm management member]), […], page 1.

557 Qualcomm internal e-mail of 6 January 2010 from […] ([Qualcomm management member]) to […] ([Qualcomm management member]), […] (Director, QCT Product Management), […] ([QCT top management member]), […] (Senior Director, Finance), […] (Director, Sales), […] (QCT Product Manager, Staff) and others, copying […] (Staff Manager, Marketing), […] (Director, Marketing) and […] ([Qualcomm management member]), […], page 1.

558 See, *e.g.*, Qualcomm internal presentation of May 2008 titled […], page 2, which contained the following statement from a press article quoting Nigel Toon, Icera's co-founder: *"Toon is quietly confident that once Icera chips start making their appearance inside 3G data cards and dongles, this will "waterfall" design wins down into the bigger market which is, of course, 3G capable smartphones."*

559 Qualcomm internal presentation of April 2009 (see footnote 177 above) titled […], page 2.

560 Qualcomm internal presentation of 7 May 2010 titled […], page 3.

Figure 7: *"Competitive Pressure on Portfolio"*[561]

[…]

(387) While some Qualcomm internal documents from the Relevant Period such as Figure 7 above also refer to other chipset suppliers, the contemporaneous evidence in the file (see, in particular, recitals (376)-(386) above) shows that it was Icera that Qualcomm perceived as its main competitor in the leading edge segment at the time, whereas other chipset suppliers are referred to only sporadically in this regard. This is exemplified by the following evidence in the file:

(a) A Qualcomm internal presentation of April 2009 stated with regard to […] chipset supporting data rates of up to 21 Mbps: *"China data card OEMs indicating that* […] *is about 6 months behind MDM8200; Similar comments received from* […]*"*.[562]

(b) A Qualcomm internal presentation of June 2009 contained, on a slide relating to the MDM8200 based chipset as well as to *"Icera threats"*, references to chipsets from […]. However, according to that presentation, none of these chipsets, which were listed under the heading *"Others"*, was supporting leading edge data rates at the time.[563]

(c) A presentation attached to Qualcomm internal e-mail of 1 December 2009, which described […] market positioning as *"*[l]*ow end data card"* and listed the following item under *"Release Plan"*, with regard to […]: *"7.2/5.76* [Mbps] *in 10Q1"*. The same presentation contains considerations about the *"*[l]*ong term threat"* posed by Icera's progress in […] and […].[564] This demonstrates that Qualcomm did not consider that […] could compete with Qualcomm's leading edge chipset offering at that time.

(d) A Qualcomm internal e-mail of 1 January 2010, where it is stated: *"*[…] *HSPA chip is not competitive in CY10* [commercial year 2010]*."* In the same e-mail, as regards […], it was mentioned that *"*[…] *will become a big threat in CY11* [commercial year 2011]*"*, while Icera's ICE8042 based chipset was referred to as *"the top threat to QCT now."*[565]

(e) A Qualcomm internal presentation titled […], presumably dated April 2012, stating the following with regards to […]. *Focus on 7.2M dongles and Mifi* […]*."*[566]

(f) A reply by […] to an information request, where it is stated that *"*[…] *has traditionally provided chipsets for lower end devices mainly."*[567]

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561 Qualcomm internal presentation of April 2009 (see footnote 177 above) titled […], page 7.

562 Qualcomm internal presentation of April 2009 (see footnote 177 above) titled […], page 11.

563 Qualcomm internal presentation of June 2009 titled […], page 16.

564 Qualcomm presentation titled […], attached to Qualcomm internal e-mail of 1 December 2009, […], pages 5, 12.

565 Qualcomm internal e-mail of 1 January 2010 from […] (Staff Manager, Marketing) to […] (Director, QCT Product Management), copying […] ([Qualcomm management member]), […] (Director, Marketing), […] ([Qualcomm management member]) and […] ([Qualcomm management member]), […], page 1. See also […] which contains part of the e-mail thread.

566 Qualcomm internal presentation titled […], page 14. Given that pages 2 and 3 of the presentation contain an […], it is assumed that the entire presentation dates April 2012.

(g) A reply by […] to an information request, where it has stated: *"*[…] *has historically focused on supplying BCs* [baseband chipsets] *for use in low-end/ mid-market mobile devices."*[568]

(388) The Commission's conclusion that Icera posed a threat to Qualcomm's business in the leading edge segment of the UMTS chipset market is not put into question by Qualcomm's arguments in this respect.

(389) First, Qualcomm argues that Icera was always poorly placed to transition from catering only to the demand for chipsets for use in MBB devices to catering to the broader demand for chipsets for use in smartphones,[569] that Icera's products were suffering from shortcomings and technical issues and were significantly less attractive to customers than Qualcomm's chipsets,[570] and that Icera's chipsets were unable to be software-upgraded to support higher data rates.[571] These claims are unfounded for the following reasons.

(390) In the first place, the retrospective (*i.e. ex-post*) assessment of Icera's ability to cater to the demand for chipsets for use in smartphones as well as of the actual characteristics of Icera's chipsets is irrelevant for the legal assessment in this case, as it does not reflect the knowledge on the basis of which Qualcomm and other market actors took commercial decisions at the time.

(391) In the second place, the contemporaneous evidence in the file clearly shows that Qualcomm considered Icera as a threat to its business in the leading edge segment of the UMTS chipset market during the Relevant Period:

(a) As demonstrated by the contemporaneous evidence referred to in recital (385) above, during the Relevant period Qualcomm regarded Icera as a potential entrant into the smartphone segment;

(b) As demonstrated by the contemporaneous evidence referred to in recitals (377)-(383) above, during the Relevant Period chipset customers and MNOs considered the performance of Icera's chipsets to be satisfactory, and comparable to or even better than the performance of Qualcomm's chipsets;

(c) As demonstrated by the contemporaneous evidence referred to in recital (382) above, the ability of Icera's chipsets to be software-upgraded to support higher data rates was recognised by both Qualcomm and OEMs during the Relevant Period.

(392) Second, Qualcomm argues that its biggest competitive threat for sales to Huawei was not Icera, but […].[572] This claim is unconvincing for the following reasons.

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567 […] reply of 8 December 2014 to question 3 of Article 18(2) request for information of 4 November 2014 to baseband chipset customers, […], page 3.

568 […] reply of 13 February 2015 to question 2 of Article 18(2) request for information of 8 January 2015, […], page 15.

569 Qualcomm's SSO Response, […], paragraphs (287), (309).

570 Qualcomm's SSO Response, […], paragraphs (291)-(294), (305); Qualcomm's SO Response, […], paragraphs (33)-(39).

571 Qualcomm's SSO Response, […], paragraphs (266), (308(v)).

572 Qualcomm's SO Response, […], paragraphs (40)-(42); Qualcomm's SSO Response, […], paragraph (314).

(393) In the first place, the contemporaneous evidence set out in sections 12.4.2.1 to 12.4.2.12 below corroborates that Qualcomm considered Icera as the biggest competitive threat to its chipset business in the leading edge segment of the UMTS chipset market at least until mid-2011, whereas other chipset suppliers are referred to only sporadically in Qualcomm internal documents.

(394) In the second place, as regards […], the evidence in the file shows that at least until mid-2011 […] was competing with Qualcomm only in the mid- and low-tier of the UMTS chipset market (see recital (387) above).

(395) In fact, by the beginning of August 2011, Qualcomm was still unsure about […] capabilities in the leading edge segment and whether […] was actually providing leading edge chipsets to Huawei, but pointed to indications that this might recently have started happening (*i.e.* a recent Huawei MDM8200A forecast drop). This can be inferred from a Qualcomm internal e-mail of 5 August 2011 which states that […][573] Around that time, however, […] was still at the early stages of deploying its leading edge chipset solutions, as evidenced by a Qualcomm internal e-mail of 4 August 2011, which states that *"*[…] *is only certified in a few regions but their 6290 is certified at over 100 countries. They also can still sell 21M at better ASP than they sell 7.2M.* […] *told us that* […] *is now pushing the 21M ASP down aggressively and believes that* […] *will drive the replacement market with 21M. Our strategy should be go aggressive with 21M to take* […] *incentive away from using* […] *before they get carrier certification in more regions."*[574]

(396) It is only by the end of August 2011 that Qualcomm assumed that […] chipset solutions were competing against its own leading edge chipset offering. This can be inferred from an e-mail of 11 August 2011 which states: […].[575] This is in line with what Qualcomm had already anticipated in a […] of March 2011, where it had concluded that *"*[c]*ompetition* [would] *mainly be"* with Icera's E302 and E400 platforms *"now"*, and with *"*[…]*and* [Icera's] *E450 in 2H'11".*[576]

(397) The Commission notes in this respect that, contrary to Qualcomm's claims,[577] the evidence in the file does not show that the expected and anticipated threat posed by […] constituted a triggering factor for any of the pricing concessions granted by Qualcomm on the chipsets under investigation sold to Huawei and ZTE until at least until mid-2011.

12.4. Qualcomm's strategy to counter the threat by Icera in the leading edge segment of the UMTS chipset market

(398) This section is structured as follows. Section 12.4.1 below describes the main elements characterising the strategy implemented by Qualcomm to counter the threat posed by Icera to its baseband chipset business. Section 12.4.2 below contains a summary of how Qualcomm implemented its multi-chipset strategy, followed by a

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573 Qualcomm internal e-mail of 5 August 2011 from […] ([Qualcomm management member]) to […] (Senior Director, QCT Product Management), copying […], page 2.

574 Qualcomm internal e-mail of 4 August 2011 from […] ([Qualcomm management member]) to […] (Senior Director, QCT Product Management), […] (Financial Analyst, Staff), […] (Regional Sales Manager), […] and […] (Director, Sales), […], page 1.

575 Qualcomm internal e-mail of 11 August 2011 from […] ([Qualcomm management member]) to […] (Senior Director, Sales) and […] (Regional Sales Manager), […], page 1.

576 Qualcomm internal presentation of March 2011 titled […], page 31.

577 Qualcomm's Comments on the Letter of Facts, […], paragraph (67).

detailed description of the price moves implemented by Qualcomm and the developments leading thereto (sections 12.4.2.1 to 12.4.2.12 below). Finally, section 12.4.2.13 below contains summary tables providing a chronological overview of all […] approvals made in the period between January 2009 and July 2011 concerning the MDM8200, the MDM6200 and the MDM8200A based chipsets for Huawei and ZTE.

12.4.1. The targeted and selective nature of Qualcomm's pricing conduct

(399) In order to ensure that Icera's business would not reach a size critical to Qualcomm's market position, Qualcomm took *"preventive actions"*[578] in the form of pricing concessions (as described in detail in sections 12.4.2.1 to 12.4.2.12 below) targeted at two strategically important customers, Huawei and ZTE, in the leading edge segment of the UMTS market to prevent Icera from getting a solid foothold in the market and becoming a *"formidable handset modem player"*.[579] Qualcomm's pricing strategy was thus selective, both in terms of the market segment (see recitals (400) and (401) below) and customers (see recitals (402)-(406) below), while aimed at protecting Qualcomm's dominance in the UMTS chipset market, and in particular its strong position in the high-volume segment of baseband chipsets for use in mobile phones. This is for the following reasons.

(400) First, Qualcomm's strategy focussed on the leading edge segment of the UMTS chipset market in which Icera had started to gain traction in 2008/2009 due to the software upgradability of its chipsets to leading edge data rates and its competitive pricing. As demonstrated by Figure 7 at recital (386) above and the contemporaneous evidence set out in section 12.4.2.1 below, Qualcomm could initially only rely on its MDM8200 based chipset to address the Icera threat in that segment, a chipset that was known to suffer from technical shortcomings and high manufacturing costs and that was therefore perceived by OEMs and MNOs as less price competitive. In 2010, with significant delay, Qualcomm managed to address the *"Cat9/10 competitive gap"* at 10/14 Mbps *vis-à-vis* Icera[580] by adding the MDM6200 and the MDM8200A based chipset to its portfolio in order to address the *"*[t]*he real threat* […] *at Cat 10 (14.4) and 21* [Mbps]*"*. According to Qualcomm, it *"need*[ed] *both 6200 and 8200A to hit their* [Icera's] *schedules* […] *to help defend."*[581]

(401) In contrast, Qualcomm was confident about its leadership in the low-tier and mid-tier of the UMTS chipset market where Icera was also present. Indeed, Qualcomm considered that its own product offering in these speed segments was competitive, as evidenced in a Qualcomm internal discussion of January 2010: *"For the lower data rates at 3.6M and 7.2M, we have more space in MSM6246/6290/6270 and we should stay competitive."*[582] This is further confirmed by an e-mail of 17 October 2010 from

578 Qualcomm internal e-mail of 6 February 2009 from […] (Senior Manager, Marketing) to […] ([Qualcomm management member]) and […] (Director, Marketing), […], page 1.

579 Qualcomm internal presentation of 7 May 2010 titled […], page 3.

580 Qualcomm internal presentation of December 2008 titled […], page 2.

581 Qualcomm internal e-mail of 18 January 2010 at 11:03 AM from […] (Director, QCT Product Management) to […] ([Qualcomm management member]), […] ([Qualcomm management member]), […] ([QCT top management member]) and other Qualcomm employees, […], pages 6-8.

582 Qualcomm internal e-mail of 6 January 2010 from […] ([Qualcomm management member]) to […] ([Qualcomm management member]), […] (Director, QCT Product Management), […] ([QCT top management member]), […] (Senior Director, Finance), […] (Manager, Finance), […] (Director, Sales), […] (Director, Sales), […] (position unknown), […] ([Qualcomm management member]), […]

[…] (Senior Director, QCT Product Management) to […] ([Qualcomm top management member]), where it is noted that Qualcomm has *"clear cost leadership in the 3.6 and 7.2 tiers and as a result have price leadership as well."*[583]

(402) Second, Qualcomm's strategy focussed on Huawei and ZTE, the two strategically most important customers for leading edge UMTS chipsets during the Relevant Period.

(403) In 2008/2009, Huawei and ZTE accounted for the vast majority of all chipsets sales for use in MBB devices. According to an internal Icera meeting report of June 2008, Huawei accounted for more than half and ZTE for roughly a quarter of the demand for UMTS chipsets used in data cards in 2008 (with 10 million units and 5-6 million units, respectively, out of a total market of 20 million units). The total market for chipsets for use in MBB devices was expected to account for 40 million units in 2009 and to reach 200 million units in 2013.[584]

(404) Both Huawei and ZTE were customers of strategic importance for Qualcomm's UMTS chipset business. According to a Qualcomm internal presentation titled […], presumably from the second half of November 2009, Huawei was *"the undisputed king of data card with >50% market share worldwide"* and *"very important to QCT as it has driven incredible volume growth* […] *over the last six years".*[585] In the course of 2010, ZTE was gaining importance, as evidenced by a Qualcomm internal e-mail of 13 September 2010 from […] ([Qualcomm management member]), which stated: *"While Huawei is still our number one customer in China in chipset shipment and revenue, QCT's business at ZTE and at the emerging accounts represent the fastest growths in the region. The emerging accounts will become the new growth engine for QCT China."*[586] […] *"Icera found a very strong partner in* […] *which has the capability to take Icera to new heights."*[587] A Qualcomm internal e-mail from 21 December 2010 stressed the strategic importance of both Huawei and ZTE for Qualcomm's business: […][588] […][589]

(QCT Product Manager, Staff) and […] (Manager, Finance), copying […] (Staff Manager, Marketing), […] (Director, Marketing) and […] ([Qualcomm management member]), […], page 1.

583 Qualcomm internal e-mail of 17 October 2010 from […] (Senior Director, QCT Product Management) to […] ([Qualcomm top management member]) and […] ([Qualcomm management member]), copying […] ([Qualcomm management member]), […] ([QCT top management member]), […] ([QCT top management member]), […], page 2.

584 Icera internal e-mail of 12 June 2008 from […] to "marketing" and "exec", […], pages 1-2.

585 Qualcomm internal presentation titled […], pages 10, 21. The presentation is undated, but appears to be from the second half of November 2009 (see also Qualcomm internal presentation of November 2009 titled […], referenced in footnote 736 below). The importance of Qualcomm's business relationship with Huawei is also confirmed by Qualcomm's reply of 2 December 2013 to question 96 of Article 18(3) Decision of 10 July 2013, […], paragraph (401), where it is stated: *"Huawei, a major supplier of wireless devices, is an important customer for QCT."*

586 Qualcomm internal e-mail of 13 September 2010 from […] ([Qualcomm management member]) to […] ([QCT top management member]), copying […] ([Qualcomm management member]), […] (Director, Sales), […] (position unknown), […], page 1.

587 Huawei meeting notes of 3 February 2010, […], page 3.

588 Qualcomm internal e-mail of 21 December 2010 from […] (Regional Sales Manager) to […] ([Qualcomm management member]), […] page 1.

589 Qualcomm internal presentation of May 2011 titled […], page 28.

(405) According to Qualcomm, Icera's development prospects were dependent on its ability to establish a business relationship with either Huawei or ZTE.[590] This is reflected in a Qualcomm internal e-mail of 15 February 2009 which states that *"*[a]*s data card is more an operator market than an open market, the market share will be concentrated more and more on Huawei and ZTE, others will losing* [sic] *share compared with the top 2 guys. As a data card chipset vendor, Icera has to win either of the two or else it cannot survive"*.[591] Qualcomm was aware that *"*[p]*enetration in HW* [Huawei] *and ZTE would bring ICE* [Icera] *stable and sustainable business"* and that *"ICE would get other small players onboard with turn key solution in China"*.[592] Given Qualcomm's strategic partnership with Huawei, Qualcomm's initial plan was to *"not giv*e *Icera any opportunity in Huawei strategically"* and in case Icera was to make inroads at ZTE, to *"push ZTE back by working with Huawei in the market place"*.[593] The latter refers to competition at the next level of the supply chain where chipset suppliers such as Qualcomm and Icera compete indirectly for orders of MNOs through the MBB devices of OEMs that incorporate their respective chipsets (see recital (347) above). In 2010, Qualcomm's attention shifted to ZTE […][594] A Qualcomm internal e-mail of 6 January 2010 stated that *"*[w]*e have to protect our sockets at major accounts. ZTE and Huawei are the top priorities and the China team is working on issues at these accounts"*.[595] For this purpose, Qualcomm monitored closely Icera's progress with regard to Huawei and ZTE during the Relevant Period, analysing in particular the volumes that Icera could potentially reach with either of the two.[596]

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590 This is also reflected in Icera's business strategy, see, *e.g.*, Icera board meeting presentation of 24 April 2009, which states that *"Icera should target the China domestic market; ZTE (and Huawei) should be treated like Western customers, with direct support from Europe"*, […], page 31.

591 Qualcomm internal e-mail of 15 February 2009 from […] (Senior Manager, Marketing) to […] ([Qualcomm management member]) and […] (Director, Marketing), […], page 1.

592 Qualcomm internal presentation, […], page 15. The presentation is not dated, but likely to have been prepared between July and September 2009 given that it refers to a technical approval obtained in June 2009 (page 8) and to meetings to take place in *"early September"* (page 4).

593 Qualcomm internal e-mail of 23 December 2008 from […] ([Qualcomm management member]) to […] ([Qualcomm top management member]), […] ([QCT top management member]) and others, […], page 2.

594 Qualcomm internal correspondence of December 2009 states in this regard that *"the other part of our* [Qualcomm's] *strategy is to win back ZTE"*. See Qualcomm internal e-mail of 4 December 2009 from […] ([Qualcomm management member]) to […] ([QCT top management member]), […] (Director, Sales), […] ([Qualcomm management member]), […] ([Qualcomm management member]), […] (Director, QCT Product Management), […] ([Qualcomm management member]), […] ([Qualcomm management member]), […] (Financial Analyst, Staff), […] (Senior Director, Finance) and […] ([QCT top management member]), titled […], page 1.

595 Qualcomm internal e-mail of 6 January 2010 from […] ([Qualcomm management member]) to ([Qualcomm management member]), […] (Director, QCT Product Management), […] ([QCT top management member]), […] (Senior Director, Finance), […] (Manager, Finance), […] (Director, Sales), […] (Director, Sales), […] (position unknown), […] ([Qualcomm management member]), […] (QCT Product Manager, Staff) and […] (Manager, Finance), copying […] (Staff Manager, Marketing), […] (Director, Marketing) and […] ([Qualcomm management member]), […], page 1.

596 See, *e.g.*, Qualcomm internal e-mail of 21 January 2009, […] (*"Agree with you and the team will continue to monitor the situation at both Huawei and ZTE.* […]*"*); Qualcomm internal e-mail of 6 January 2010, […], page 2 (*"*[…] *said if Icera sells over 5M chipsets this year, it would become a problem to QCT/Huawei, and ZTE has the market capability of making it happen"*); Qualcomm internal presentation of 23 August 2011 titled […]; and Qualcomm internal presentation of 27 September 2011 titled […] (*"sales target" vis-à-vis* ZTE is inter alia that Icera should get less than 5.5 million units).

(406) The importance Qualcomm attributed to Huawei and ZTE for the purpose of implementing its pricing strategy against Icera is evidenced by the fact that all significant Icera related strategic discussions within Qualcomm during the Relevant Period almost exclusively referred to these two customers. For example:

(a) Following the introduction of the MDM8200 Lite on 19 January 2009 to *"put the Icera threat at Huawei under control, at least for 2009"*,[597] a Qualcomm internal e-mail noted that *"the team will continue to monitor the situation at both Huawei and ZTE. We have the customer relationships with both customers who will tell us what need to be done in order to keep the competitive edge so we have time to react."*[598]

(b) In a Qualcomm internal e-mail discussion of December 2009 concerning the […] and requests from Huawei for support from Qualcomm in the form of pricing concessions, it was noted that *"other part of our strategy is to win back ZTE."*[599]

(c) A draft presentation of December 2009 which identified Icera's "[p]*enetration in HW* [Huawei] *and ZTE"* as *"*[l]*ong term threat"* contained *"Proposals for Brainstorming"* to help *"QCT strengthen ties with HW/ZTE* [Huawei and ZTE]*"*, including offering *"attractive pricing and product portfolio to stop HW/ZTE work on competitions"*.[600]

(d) In a Qualcomm internal e-mail of January 2010 reporting on an *"Icera Discussion"* it was concluded that *"*[w]*e have to protect our sockets at major accounts. ZTE and Huawei are the top priorities."*[601]

(e) In a Qualcomm internal e-mail of January 2010 it was stated that *"we need to provide additional adjustment on MDM6200 to show the strength of our competitiveness and to keep ZTE and Huawei in our camp for 14.4Mbps. The*

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597 Qualcomm internal e-mail of 21 January 2009 from […] ([Qualcomm management member]) to […] ([QCT top management member]), […] ([QCT top management member]), […] ([Qualcomm top management member]), […] ([Qualcomm management member]), […] ([Qualcomm management member]), […] ([Qualcomm management member]), […] (Director, Sales), […], page 1.

598 Qualcomm internal e-mail of 21 January 2009 from […] ([Qualcomm management member]) to […] ([Qualcomm management member]), copying […] ([QCT top management member]), […] ([QCT top management member]), […] ([Qualcomm management member]) and […] ([Qualcomm top management member]), […], page 1.

599 Qualcomm internal e-mail of 4 December 2009 from […] ([Qualcomm management member]) to […] ([QCT top management member]), […] (Director, Sales), […] ([Qualcomm management member]), […] ([Qualcomm management member]), […] (Director, QCT Product Management), […] ([Qualcomm management member]), […] ([Qualcomm management member]), […] (Financial Analyst, Staff), […] (Senior Director, Finance) and […] ([QCT top management member]), titled […], page 1.

600 Qualcomm presentation titled […], attached to Qualcomm internal e-mail of 1 December 2009, […], pages 12-13.

601 Qualcomm internal e-mail of 6 January 2010 from […] ([Qualcomm management member]) to […] ([Qualcomm management member]), […] (Director, QCT Product Management), […] ([QCT top management member]), […] (Senior Director, Finance), […] (Manager, Finance), […] (Director, Sales), […] (Director, Sales), […] (position unknown), […] ([Qualcomm management member]), […] (QCT Product Manager, Staff) and […] (Manager, Finance), copying […] (Staff Manager, Marketing), […] (Director, Marketing) and […] ([Qualcomm management member]), […], page 1.

timing is in our hands. The sooner the better from a damage control perspective."[602]

(f) In a Qualcomm internal presentation of June 2010 it was noted that *"Ice8042 is losing momentum in Huawei and ZTE. The strategy of squeezing Ice8042 w/ both MDM6200 and MDM8200A made effect."*[603]

(g) In a Qualcomm internal e-mail of October 2010 […] ([Qualcomm top management member]) enquired about the *"latest thinking on how we handle Icera in Huawei and ZTE? How big of a threat is this now?"*[604]

12.4.2. Qualcomm's multi-chipset strategy

(407) Qualcomm's preventive actions *vis-à-vis* Icera were based on a multi-chipset strategy covering the three chipsets with which it competed in the leading edge segment of the UMTS chipset market during the Relevant Period, namely the MDM8200, MDM6200 and MDM8200A based chipsets (see Figure 7 at recital (386) above).[605] The pricing concessions concerning these three chipsets which Qualcomm granted to Huawei and ZTE (as described in detail in sections 12.4.2.1 to 12.4.2.12 below) were complementary to each other, both chronologically (in particular with regard to the MDM8200 and MDM8200A based chipsets) and in in relation to technical specifications (*i.e.* the maximum achievable data rate, in particular with regard to the MDM8200A and MDM6200 based chipsets). The competition between Qualcomm's and Icera's leading edge chipsets during the Relevant Period is illustrated by the graph in Figure 8 below:

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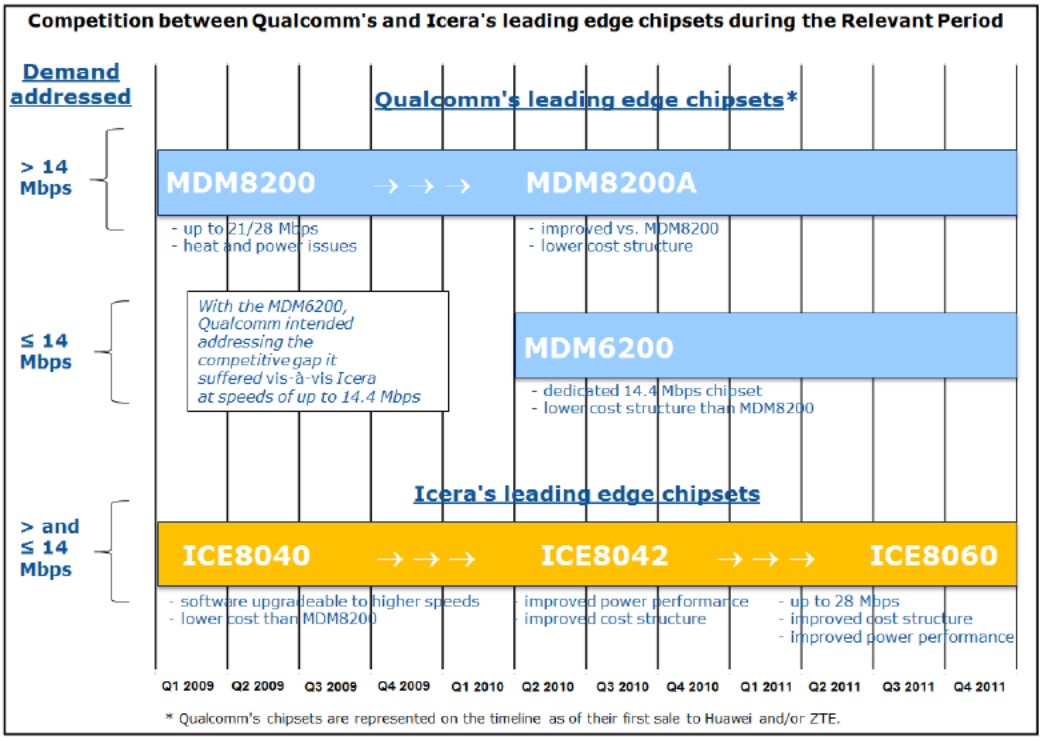
602 Qualcomm internal e-mail of 27 January 2010 from […] ([Qualcomm management member]) to […] (Director, QCT Product Management), […] ([Qualcomm management member]), […] (Director, Sales) and […] ([Qualcomm management member]), […], page 2. See also […], which contains part of the e-mail thread.

603 Qualcomm internal presentation of June 2010 titled […], page 22.

604 Qualcomm internal e-mail of 17 October 2010 from […] ([Qualcomm top management member]) to […] (Senior Director, QCT Product Management) and […] ([Qualcomm management member]), copying […] ([Qualcomm management member]), […] ([QCT top management member]) and […] ([QCT top management member]), […], pages 1-2. See also […], which contains part of the e-mail thread.

605 See section 8.1 above for a detailed description of Qualcomm's chipsets under investigation.

Figure 8: Competition between Qualcomm's and Icera's leading edge chipsets during the Relevant Period[606]



(408) The following recitals describe the interconnection between Qualcomm's pricing moves on the MDM8200, the MDM8200A and the MDM6200 based chipsets and Qualcomm's strategy of eliminating Icera.

(409) As described in section 8.1.1 above, the MDM8200 based chipset was Qualcomm's […] and its only baseband chipset at that time that supported HSPA+ data rates up to 28 Mbps. With the MDM8200 based chipset, Qualcomm aimed at *"setting the new bar in modem performance"*.[607] Following the presentation of the first devices using the MDM8200 based chipset at the Mobile World Conference in Barcelona in February 2009, Qualcomm had registered *"*[s]*trong market excitement* […]*, and the operator interest had transferred thru to the OEMs"*.[608] However, […] eventually delayed the effective commercial launch of the MDM8200 based chipset, postponing it by several months from the originally envisaged target date in February 2009 to *"after the official May CS* [Commercial Sampling]*"*.[609] […].[610]

606 Figure prepared by the Commission based on information and evidence made available by Qualcomm and Icera/Nvidia.

607 Qualcomm presentation of June 2009 titled […], page 16.

608 Qualcomm internal e-mail of 19 January 2010 from […] (QCT Product Manager, Staff) to […] (Director, QCT Product Management) and […] (position unknown), copying […] ([Qualcomm management member]), […], page 1.

609 Qualcomm internal e-mail of 19 January 2010 from […] (QCT Product Manager, Staff) to […] (Director, QCT Product Management) and […] (position unknown), copying […] ([Qualcomm management member]), […], page 1.

610 Qualcomm internal e-mail of 19 January 2010 from […] (QCT Product Manager, Staff) to […] (Director, QCT Product Management) and […] (position unknown), copying […] ([Qualcomm management member]), […], page 1.

(410) Qualcomm's delays in commercialising its MDM8200 based chipset, the shortcomings affecting that chipset as well as the slow rollout of commercial networks supporting the HSPA+ standard in 2009[611] were factors favourable to Icera, which had commercially launched its ICE8040 based chipset in October 2008 (see section 8.2.1 above). Although at that time Icera's ICE8040 based chipset did not support downlink speeds as high as the MDM8200 based chipset, it was perceived by market actors as an attractive alternative to Qualcomm's offering and managed to better address the market demand due to its advertised ability to software upgrade to higher downlink speeds and its lower price (see recitals (377)-(383) above). Consequently, Icera increasingly captured the demand for leading edge chipsets with its ICE8040 based chipset, against which Qualcomm's MDM8200 based chipset was not well placed due to its bigger size and therefore higher manufacturing costs (see recital (382) above).

(411) In light of these developments, Qualcomm identified a *"competitive gap"* it expected to suffer *vis-à-vis* Icera until the launch of a dedicated, more competitive chipset solution at 14.4 Mbps (by then identified in the QSC6295 based chipset) at the beginning of 2010. In order to fill this gap and to address the market demand for chipsets supporting data rates of up to 14.4 Mbps, Qualcomm started marketing, as of January 2009, a speed-down version of the MDM8200 based chipset for data rates of up to 14.4 Mbps ("MDM8200 Lite"). The MDM8200 Lite was supposed to be offered at particularly low prices and to serve as a *"stop-gap solution"*[612] for *"a limited time of 6 months"*.[613]

(412) Consequently, in expectation of the commercial launch of its new and more competitive MDM6200 and MDM8200A based chipsets […]; see sections 8.1.2 and 8.1.3 above), Qualcomm gradually decreased the prices effectively paid by Huawei and ZTE for the MDM8200 Lite and the MDM8200 based chipsets. The measures taken by Qualcomm in this regard (as well as the developments leading thereto) are described in detail in sections 12.4.2.1 and 12.4.2.2 below.

(413) Towards the end of 2009, market rumours about Icera's ICE8040 based chipset being able to *"be software upgraded to support 21 Mbps"* and Icera offering a *"single chipset pricing for all data rates (3.6 HDPA to 31M) at around $10 starting from Jan. 2010"*[614] raised concerns at Qualcomm. At that point in time, it became clear to

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611 Qualcomm internal e-mail of 19 January 2010 from […] (QCT Product Manager, Staff) to […] (Director, QCT Product Management) and […] (position unknown), copying […] ([Qualcomm management member]), […], page 1.

612 Qualcomm internal e-mail of 19 January 2010 from [...] (Director, QCT Product Management) to [...] [QTC top management member], [...] ([Qualcomm management member]), [...] ([Qualcomm management member]) and others, [...], page 1.

613 Qualcomm internal e-mail of 17 January 2009 from [...] ([Qualcomm management member]) to [...] (Senior Director, Sales) to [...] [QTC top management member], [...] ([Qualcomm top management member]) and others, [...], page 1. See also [...] which covers part of the e-mail thread.

614 Qualcomm internal e-mail of 14 November 2009 from [...] ([Qualcomm management member]) to [...] (Director, QCT Product Management), [...] (Manager, Finance), [...] (Director, Sales) and [...] (Financial Analyst, Staff), copying [...] ([QCT top management member]), [...] ([Qualcomm management member]) and [...] ([Qualcomm management member]), [...], page 2.

Qualcomm that the *"8200* [had] *lost its TTM* [Time to Market] *edge and ha*[d] *to compete with Icera on pricing for 21 Mbps."*[615]

(414) […] during part of 2010 Qualcomm had to continue to predominantly rely on its MDM8200 based chipset (including its Lite version) to counter the competitive threat posed by Icera. In doing so, Qualcomm had to *"make price a non-issue to let MDM8200 fill the void"*.[616]

(415) Qualcomm's strategy of using the MDM8200 based chipset *"to close the gap until 8200A and 6200 go commercial"*[617] implied a twofold action. On the one hand, with regard to the demand for chipsets supporting data rates of up to 14 Mbps, Qualcomm's MDM8200 based chipset had to be *"driven harder and recalibrated to* [Qualcomm's] *recent moves on 6200 (Cat 10)",*[618] *i.e.* the price of the MDM8200 Lite had to be brought in line with the considerably lower price Qualcomm envisaged applying to the MDM6200 based chipset (which had been disclosed to OEMs in the form of a price indication in September 2009; see recital (473) below). On the other hand, with regard to the demand for chipsets supporting data rates of up to 21 and 28 Mbps, Qualcomm aimed at *"do*[ing] *a bridge on 8200 to 8200A"*,[619] *i.e.* the price of the MDM8200 based chipset supporting data rates higher than 14 Mbps had to be brought in line with the considerably lower price Qualcomm envisaged applying to the MDM8200A once it would become commercially available. The measures taken by Qualcomm in order to promote its MDM8200 based chipset against the competition from Icera (as well as the developments leading thereto) are described in detail in sections 12.4.2.3, 12.4.2.4 and 12.4.2.5 below.

(416) As the launch dates of Qualcomm's more competitive MDM6200 (supporting data rates of up to 14.4 Mbps) and MDM8200A (supporting data rates of up to 28 Mbps) based chipsets were eventually approaching, Icera had already *"won* [a] *solid position in ZTE and penetrated in Huawei"*.[620] At the same time, Icera's new and improved ICE8042 based chipset which benefited from an even lower cost structure

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615 Qualcomm internal e-mail of 14 November 2009 from [...] ([Qualcomm management member]) to [...] (Director, QCT Product Management), [...] (Manager, Finance), [...] (Director, Sales) and [...] (Financial Analyst, Staff), copying [...] ([QCT top management member]), [...] ([Qualcomm management member]) and [...] ([Qualcomm management member]), [...], page 2.

616 Qualcomm internal e-mail of 16 December 2009 from [...] ([Qualcomm management member]) to [...] (Director, QCT Product Management), [...] ([Qualcomm management member]), [...] (Staff Manager, Marketing), [...] (Director, Sales), [...] (Director, Sales), copying [...] (Director, Marketing) and [...] (QCT Product Manager, Staff), [...], page 1.

617 Qualcomm internal e-mail of 26 January 2010 from [...] ([Qualcomm management member]) to [...] (Director, Sales), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), copying [...] (Director, QCT Product Management), [...], page 2. See also [...] which covers part of the e-mail thread.

618 Qualcomm internal e-mail of 15 November 2009 from [...] (Director, QCT Product Management) to [...] ([Qualcomm management member]), [...] (Manager, Finance), [...] (Director, Sales) and [...] (Financial Analyst, Staff), copying [...] ([QCT top management member]), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]) and [...] (QCT Product Manager, Staff), [...], page 1.

619 Qualcomm internal e-mail of 15 November 2009 from [...] (Director, QCT Product Management) to [...] ([Qualcomm management member]), [...] (Manager, Finance), [...] (Director, Sales) and [...] (Financial Analyst, Staff), copying [...] ([QCT top management member]), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]) and [...] (QCT Product Manager, Staff), [...], page 1.

620 Qualcomm internal presentation of January 2010 titled [...], page 17.

was further threatening Qualcomm's established position at Huawei and ZTE. Under these circumstances, Qualcomm concluded that it had to be *"aggressive"* in its pricing for the MDM6200 and MDM8200A based chipsets *"for a year or so"* until the launch of a new chipset against which Icera would not be able to compete *"in die size (costs), performance, and multi-mode integration, etc."*[621]

(417) At the time of the commercial launch of the MDM6200 based chipset, however Qualcomm's initial expectations about the MDM6200 based chipset being able to fill the *"competitive gap"* which Qualcomm had identified *vis-à-vis* Icera with regard to chipsets supporting data rates of up to 14.4 Mbps had faded. Indeed, with Icera's chipset solutions meanwhile capable of supporting data rates higher than 14.4 Mbps and in light of Icera applying a *"single chipset pricing for all data rates (3.6 HDPA to 31M) at around $10 starting from Jan. 2010"*,[622] the interest for the MDM6200 based chipset in the market was initially very low.

(418) In light of these circumstances, the MDM6200 based chipset lost part of the significance it had initially been assigned within Qualcomm's pricing strategy against Icera. Qualcomm therefore had to adapt its approach *vis-à-vis* Huawei and ZTE accordingly.

(419) With regard to Huawei, Qualcomm's pricing strategy focussed on the MDM8200A based chipset after Huawei had become […].[623] This was mainly due to the delay of the commercial launch of the MDM6200 based chipset and the *"few attention from Carriers"* in view of the ability of Icera's competing chipset solutions to reach data rates of 21 Mbps by means of a software update.[624] […][625], […][626].Despite Qualcomm's initial intention of "[w]*ork*[ing] *with Huawei to beat Icera with MDM6200, burn*[ing] *out Icera's limited funds from VC* [venture capital], *squeeze*[ing] *ICE8042/ZTE market space"*,[627] its efforts to promote the MDM6200 based chipset for use in Huawei's devices during 2010 were thus ultimately

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621 Qualcomm internal e-mail of 24 March 2010 from [...] ([Qualcomm management member]) to [...] (Director, Sales), [...] (Director, Sales), [...] (Director, QCT Product Management), [...] (Staff Manager, Marketing), [...] (Director, Marketing), [...] ([Qualcomm management member]) and others, copying [...] (Financial Analyst, Staff), [...], page 1.

622 Qualcomm internal e-mail of 14 November 2009 from [...] ([Qualcomm management member]) to [...] Director, QCT Product Management), [...] (Manager, Finance), [...] (Director, Sales) and [...] (Financial Analyst, Staff), copying [...] ([QCT top management member]), [...] ([Qualcomm management member]) and [...] ([Qualcomm management member]), [...], page 2.

623 Qualcomm internal e-mail of 23 December 2009 from [...] (QCT Technical Account Management) to [...] (QCT Product Manager, Staff), [...] (Director, QCT Product Management) and others, copying amongst others [...] (Staff Manager, Marketing), [...], pages 2-3.

624 Qualcomm internal e-mail of 29 March 2010 from [...] (Director, Sales) to [...] ([Qualcomm management member]), [...] (Director, Sales), [...] (Director, QCT Product Management), [...] (Staff Manager, Marketing), [...] (Director, Marketing), [...] ([Qualcomm management member]) and others, copying [...] (Financial Analyst, Staff), [...], page 1.

625 Qualcomm internal e-mail of 29 March 2010 from [...] (Director, Sales) to [...] ([Qualcomm management member]), [...] (Director, Sales), [...] (Director, QCT Product Management), [...] (Staff Manager, Marketing), [...] (Director, Marketing), [...] ([Qualcomm management member]) and others, copying [...] (Financial Analyst, Staff), [...], page 1.

626 Qualcomm internal presentation of 7 May 2010 titled [...], pages 7-8.

627 Qualcomm internal e-mail of 1 January 2010 from [...] (Staff Manager, Marketing) to [...] (Director, QCT Product Management), copying [...] ([Qualcomm management member]), [...] (Director, Marketing), [...] ([Qualcomm management member]) and [...] ([Qualcomm management member]), [...], page 1.

unsuccessful.[628] Qualcomm's revised strategy therefore aimed at *"*[e]*nabling* [Huawei] *as Lead Horse on MDM8200A to Drive 21 Mbps Against Competition"*.[629] In order to achieve that goal, also coined as the *"Maintain Share"* strategy by Qualcomm, Qualcomm made price concessions on the MDM8200A which are described in detail in sections 12.4.2.6 to 12.4.2.12 below, together with the developments leading thereto.

(420) With regard to ZTE, in contrast, Qualcomm nevertheless relied on its MDM6200 based chipset next to the MDM8200A based chipset in pursuit of its strategic aim of *"enabl*[ing] *ZTE to early adopt MDM6200 and launch MDM6200 product ASAP to shrink market space of ICE8042 based product inside ZTE"*.[630] In order to impede *"Icera* [from] *gain*[ing] *a lot of business, which will help them get stronger"*,[631] Qualcomm provided special support to ZTE in December 2009 in the form of a so-called […] incentive, which was intended to lower the effective price of each unit of the MDM6200 based chipset sold to ZTE during 2010. As the MDM6200 appeared to be *"in serious trouble among Tier 1 operators in EU",*[632] Qualcomm concluded in February 2010 that *"the full court press"* was *"now required to push back ICERA"*.[633] Subsequently, Qualcomm further lowered the prices of the MDM6200 based chipset for ZTE. Nevertheless, market traction for chipsets supporting data rates of up to 14 Mbps remained *"poor"*[634] in 2010, with shipments of the MDM6200 to ZTE eventually only reaching less than 100,000 units, corresponding to only roughly 7% of the originally forecasted number of sales of the MDM6200 to ZTE in 2010.[635] Also with regard to ZTE, the MDM8200A based chipset therefore became the crucial product on which Qualcomm relied to implement its pricing strategy in 2010/2011. The measures taken by Qualcomm *vis-à-vis* ZTE with respect to the MDM6200 and the MDM8200A based chipsets, as well as the developments leading thereto, are described in detail in sections 12.4.2.6 to 12.4.2.12.

(421) The contemporaneous evidence in the file does not allow for a precise identification of a specific moment in time as of which Qualcomm's pricing decisions were no longer driven by a predatory strategy against Icera. This is because Icera continued being mentioned in contemporaneous documents as a key competitor throughout

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628 See Qualcomm's reply of 2 December 2013 to question 85 of Article 18(3) Decision of 10 July 2013, [...], paragraph (365), were it is stated: *"Qualcomm's efforts to promote the MDM6200 chip for use in Huawei's devices that would operate on* [...] *network in Europe. These efforts were, however, ultimately unsuccessful."*

629 Qualcomm internal presentation of 7 May 2010 titled [...], pages 7-8.

630 Qualcomm internal e-mail of 2 December 2009 from [...] (Staff Manager, Marketing) to [...] (position unknown), [...] (position unknown) and [...] (position unknown), [...], page 3.

631 Qualcomm internal presentation of September 2009 titled [...], page 16.

632 Qualcomm internal e-mail of 2 February 2010 from [...] (Director, QCT Product Management) to [...] ([Qualcomm management member]) and [...] (Senior Director, Technical Marketing), [...], pages 4-5.

633 Qualcomm internal e-mail of 9 February 2010 from [...] (Senior Director Product Management) to [...] (Senior Director, Technical Marketing), [...] (Senior Director, Business Development), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Senior Director, QCT Product Management) and [...] [QTC top management member], [...], page 2.

634 Qualcomm internal e-mail of 18 October 2010 from [...] (Senior Director, QCT Product Management) to [...] ([Qualcomm management member]), [...], page 1.

635 Presentation attached to Qualcomm internal e-mail of 10 December 2009 from [...] (Financial Analyst, Staff) to [...] ([QCT top management member]) and [...] (Senior Director, Finance) [...], page 3, which refers to a *"ZTE CY10 Volume Forecast"* for the MDM6200 of 1.25 million units. Computation based on worksheet [...] included in Annex 10 to the SO Response, [...].

2011,[636] with most of the relevant evidence however concentrating on the first months of 2011.

(422) Around May 2011, however, Qualcomm started being hesitant about granting any further price reductions for the MDM8200A in view of Icera's difficult financial situation and the possibility of it being acquired during the following weeks. This is evidenced by a Qualcomm internal e-mail of 4 May 2011, in which […] (Senior Director, QCT Product Management) noted that *"*[g]*iven what we here* [sic] *about ICERAs fincnaical* [sic] *problems, I am reluctant to make a price move right now but am open to the discussion.* […]*"*[637] In a Qualcomm internal e-mail of 5 May 2011 […] also noted that the *"real question for Huawei / zte is what they do with ICERA based designs if ICERA gets acquired and drops support…ICERA being on the selling block is widely known… What is the certainty of supply worth to Huawei/ZTE?"*[638] Nevertheless, Qualcomm considered it necessary to continue granting further price reductions to address competition from Icera also beyond that date and after the public announcement of the acquisition of Icera by Nvidia on 9 May 2011. The measures taken by Qualcomm *vis-à-vis* both ZTE and Huawei with respect to the MDM6200 and the MDM8200A based chipsets, as well as the developments leading thereto, are described in section 12.4.2.12 below.

(423) Even after the price reduction approved by the […] on 7 June 2011 uncertainty within Qualcomm persisted about the extent of the competitive threat that Icera still represented for its chipset business. This uncertainty is reflected in the […] of June

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636 For example: (i) in an e-mail of 11 August 2011 from [...] ([Qualcomm management member]) to [...] ([Qualcomm management member]) it is stated: *"There are signs that Huawei is driving replacement market with aggressive 21M devices with low ASP. We also know that Icera's AUC for 21M is lower than ours as well. So time has come to bite the bullet to keep market share until 8x15/9x15 commercial launch."* ([...], page 1); (ii) in a Qualcomm internal report of meetings with Huawei contained in an e-mail of 14 August 2011 from [...] (Senior Manager, Marketing) to [...] (Senior Account Manager), [...] (Senior Director, Sales), [...] (Product Manager, Staff), [...] (Senior Product Manager), [...] (Senior Director, QCT Product Management) and others, copying [...] ([Qualcomm management member]), [...] (Regional Sales Manager) and others, it is stated: *"Icera is making kamikaze moves on pricing recently from 7.2M all the way to 42M, igniting fierce MBB chipset and product price war. Most needed price help by Huawei is in 7.2M and 21M space."*; *"For 21M, now everyone is showing pricing aggressiveness. But among I FX, Hisilicon, Icera and QC, Icera is certainly the most aggressive guy. Icera i400-1 is quoted now lower than 6290. 8200A needs a $2 price down."*; *"Nvidia+lcera is much more dangerous than ST-E. ZTE is teaming up with N+I strategically, and N+I is desperate to crack into Huawei now."*; *"Key pricing challenge is now on 7.2M (6290) and 21M (8200A). Need QC's help right away. Or Icera/ZTE might taking* [sic] *socket and ramp volume very quickly in 2HI1."* ([...], pages 1, 9, 10); (iii) in a Qualcomm internal presentation of November 2011 titled [...] it is stated: *"Designs pipeline and resource (3.6/7.2M to 21M) started to be occupied by these 2 competitors* [Icera and HiSilicon] *at Huawei and ZTE, which is critical a situation to reverse, or it will translate to competitor's strong volume ramp in 3-6 months."* ([...], page 27).

637 Qualcomm internal e-mail of 4 May 2011 from [...] (Senior Director, QCT Product Management) to [...] (Regional Sales Manager) and [...] (Senior Product Manager), copying [...] ([Qualcomm management member]), [...] (Senior Director, Finance), [...] (Manager, Finance) and [...] (Director, Sales), [...], page 2.

638 Qualcomm internal e-mail of 5 May 2011 from [...] (Senior Director, QCT Product Management) to [...] (Director of MBB Market Analysis), [...] (Manager, Finance), [...] (Regional Sales Manager) and [...] (Senior Product Manager), copying [...] ([Qualcomm management member]), [...] (Senior Director, Finance), [...] (Director, Sales) and [...] (QCT Product Manager, Staff), [...], page 1.

2011, which stated that *"*[w]*hether Nvidia acquisition leads to MBB defocus is still not clear"*.[639]

(424) However, it appears that in the months following the acquisition of Icera by Nvidia, the threat posed by Icera as perceived by Qualcomm ultimately visibly decreased. This can be inferred from the fact that, as of the second half of 2011, competition from Icera figured less prominently in Qualcomm's contemporaneous documents concerning pricing decisions in the leading edge segment of the UMTS chipset market. The apparent change in Qualcomm's perception of the threat posed by Icera to its chipset business is in line with the sudden drop in Icera's sales shares of leading edge UMTS chipsets, which had fallen from […] (2010) to […] (2011) at ZTE and from […] (2010) to […] (2011) at Huawei (see Table 63 at recital (1037) below).[640]

(425) The Commission's conclusions regarding the competitive interaction between Qualcomm's and Icera's product offerings in the leading edge segment of the UMTS chipset market are not put into question by Qualcomm's arguments in this respect.

(426) First, Qualcomm argues that Icera's ICE8040 chipset was not able to support leading edge download speeds due to the fact that its ability to software upgrade to higher data rates remains unproven.[641] This claim is unfounded for the following reasons.

(427) In the first place, as set out in recital (390) above, the retrospective assessment of the characteristics of Icera's chipsets is irrelevant for the legal assessment in this case. It is the perception of Qualcomm and chipset customers about Icera's performance during the Relevant Period which drove the competitive dynamics and thus Qualcomm's strategy *vis-à-vis* Icera in the leading edge segment of the UMTS chipset market at the time.

(428) In the second place, as demonstrated by the contemporaneous evidence referred to in recital (382) above, the ability of Icera's chipsets to be software-upgraded to support higher data rates was recognised by both Qualcomm and OEMs during the Relevant Period. The Commission also refers to recitals (141) and (410) above, where the capability of Icera's ICE8040 chipset to address the demand for leading edge chipsets is described in more detail.

(429) Second, Qualcomm argues that Icera's ICE8060 chipset became commercially available only after the first half of 2011 and should therefore not have been considered when describing the competition between Qualcomm's and Icera's leading edge chipsets during the Relevant Period.[642]

(430) This claim is misplaced since the date of first commercial availability of Icera's ICE8060 chipset is not decisive for the competitive assessment in this case. The documents in the file show that Qualcomm's commercial strategy in relation to a particular product is typically shaped before its commercial launch, taking into account its competitive prospects in the market. This is corroborated by contemporaneous Qualcomm internal documents which demonstrate that Icera's ICE8060 chipset was considered by Qualcomm as early as of November 2010 as a

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639 Qualcomm internal presentation of June 2011 titled [...], page 45.

640 Regarding Qualcomm's arguments in relation to developments in the second half of 2011, see recitals (984)-(987) below.

641 Qualcomm's SSO Response, [...], paragraph (266).

642 Qualcomm's SSO Response, [...], paragraphs (259), (263), and Qualcomm's follow-up submission to the Oral Hearing of 10 January 2019, [...], paragraph (153).

chipset competing with its leading edge chipset offering and which thus represented a factor influencing Qualcomm's pricing strategy (see, *e.g.*, recitals (568) and (579) below).

(431) Third, Qualcomm argues that other Qualcomm chips (notably the MDM8220, the MDM9200, the MDM9600 and the MSM6290) should have been also included in the leading edge segment and the Commission's analysis.[643] These claims are unfounded for the following reasons.

(432) In the first place, the MSM6290 only supported maximum download speeds of 7.2 Mbps and did therefore not constitute an alternative to Icera's leading edge chipsets in terms of supported data rates. This is corroborated by the evidence in the file, which shows that Qualcomm did not consider the MSM6290 as part of its leading edge chipset offering but rather belonging to its lower-tier offering at the time (see, *e.g.*, recital (401) above).

(433) In the second place, the Commission did not exclude the MDM8220, MDM9200 and MDM9600 chips from the leading edge segment, nor from its analysis. As explained in recital (351) above, during the Relevant Period the leading edge segment of the UMTS chipset market consisted of chips and chipsets achieving maximum data rates of 14.4 Mbps and above. While these chips, which according to Qualcomm achieved data rates of up to 100 Mbps, could therefore be qualified as leading edge chips during the Relevant Period, they did not play a significant role in Qualcomm's strategy to counter the threat by Icera in the leading edge segment of the UMTS chipset market during the Relevant Period (presumably due to the network limitations at the time, see recital (352) above), as shown by the contemporaneous evidence in the file (see sections 12.4.2.1 to 12.4.2.12 below).

(434) The Commission's conclusions regarding the rationale behind the action taken by Qualcomm to counter the threat by Icera in the leading edge segment of the UMTS chipset market during the Relevant Period are not put into question by Qualcomm's arguments in this respect.

(435) First, Qualcomm claims that the Commission pursues a theory of harm positing financial predation. In particular, Qualcomm argues that such theory of harm is unconvincing in light of the fact that the Commission contends that Qualcomm viewed Icera's financial situation as a reason not to lower its prices and does not invoke the acquisition of Icera by Nvidia as a reason for Qualcomm ceasing its predatory strategy in light of the supposed availability to Icera of fresh financial resources provided by Nvidia.[644] This claim unfounded for the following reasons.

(436) In the first place, while the concept of *"financial predation"* referred to by Qualcomm is discussed in economic and legal literature as one possible rationale for predatory conduct by a dominant company,[645] the Union Courts' case law does not limit the finding of an abuse in cases of below-cost pricing by a dominant undertaking in the presence of a strategy to eliminate a competitor to situations

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643 Qualcomm's SSO Response, [...], paragraphs (265), (267), (278).

644 Qualcomm's SSO Response, [...], paragraphs (393), (397), (398), (403), (541); Qualcomm's Comments on the Letter of Facts, [...], paragraph (35).

645 Others being, *e.g.*, the distortion of market signals about profitability to lower the expectations of potential entrants; or building a reputation for aggressive conduct if the latter is observed on multiple markets and/or in successive periods of possible entry.

corresponding to one of these concepts. It rather requires an analysis of the strategy of the dominant undertaking itself in light of the circumstances of the specific case as reflected in concordant evidence.[646]

(437) In the second place, while certain evidence in the file exhibits elements of financial predation (see, *e.g.*, evidence referred to in recital (419) above) and shows that Qualcomm perceived the resulting weakening of Icera's financial situation as having reduced the threat posed by Icera to its business (see recital (422) above), the evidence set out in detail in the remainder of this section (sections 12.4.2.1 to 12.4.2.12 below) demonstrates that the rationale of Qualcomm's below cost sales of leading edge UMTS chipsets to Huawei and ZTE was to impede Icera from getting a solid foothold in the market and becoming a *"formidable handset modem player"*, thereby weakening competition in the market. In fact, Qualcomm closely monitored the developments concerning Icera's business after its acquisition by Nvidia (as evidenced in recital (423) above), [...].[647] This is why Qualcomm granted further price reductions *vis-à-vis* both ZTE and Huawei with respect to the MDM6200 and the MDM8200A based chipsets following the acquisition by Nvidia, as described in section 12.4.2.12 below.

(438) Second, Qualcomm claims that the Commission contradicts itself where it contends, on the one hand, that for Icera to prosper it would be sufficient for it to *"establish a business relationship with either Huawei or ZTE"* and, on the other hand, that it would not be sufficient for Icera to *"establish a business relationship with* […] *ZTE"* because Qualcomm would *"push ZTE back by working with Huawei"*.[648]

(439) This claim is unfounded since there is, in fact, no contradiction between these two statements. It is precisely because Qualcomm had concluded that for Icera to prosper it would be sufficient for it to *"establish a business relationship with either Huawei or ZTE"* (see recital (405) above) that it took action to prevent Icera from establishing a business relationship with ZTE where Icera had started making inroads at the time by supplying ZTE with a small share of its leading edge chipset requirements (see recitals (458)-(460) below). Huawei, in contrast, was Qualcomm's established strategic customer who was being supplied with leading edge chipsets only by Qualcomm at the time (see, *e.g.*, recital (452) below). Qualcomm intended to address the *"Icera threat"*, first, by providing Huawei with chipsets at prices below cost so that Huawei could prevail at MNO level with its Qualcomm-based devices against ZTE's Icera-based offering (see recitals (448) and (449) below) and, later, by extending its below-cost pricing strategy to ZTE (see recital (459) below).

(440) The following sections provide an overview of Qualcomm internal discussions, market developments and other factors concerning Qualcomm's pricing strategy *vis-à-vis* Huawei and ZTE concerning the MDM8200, the MDM8200A and the MDM6200 based chipsets. They demonstrate in particular the close links between the pricing concessions which Qualcomm granted to Huawei and ZTE on the chipsets under investigation and Qualcomm's strategy to eliminate Icera, its main competitor in the leading edge segment of the UMTS chipset market at the time. The

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646 Case C-62/86, *AKZO* v *Commission*, ECLI:EU:C:1991:286, paragraphs 74, 82.

647 See minutes of meeting between representatives of the Commission's Directorate General for Competition and Nvidia of 15 June 2011, [...].

648 Qualcomm's SSO Response, [...], paragraph (423).

overview is structured chronologically and by reference to the relevant approvals of Qualcomm's [...].[649]

12.4.2.1. Developments leading to the [...] approval of 19 January 2009: launch of the MDM8200 Lite in order to close the competitive gap *vis-à-vis* Icera

(441) As of April 2008, Qualcomm started to refer to Icera in its internal documents as a *"threat"* to its data card business since important chipset customers were turning or considering turning to Icera for the supply of chipsets to be incorporated in their devices. According to the [...] in a Qualcomm internal presentation of June 2008, (i) [...] was *"in at* [...] *with an Icera based USB datacard capable of 7.2M speeds"*, with prices for that device said to be *"very inexpensive"* and first volume shipments to take place in the first quarter of 2009; (ii) Huawei had *"threatened to launch a device based on Icera"*, with Icera being *"in Huawei's labs for R+D investigation"*; (iii) ZTE was *"said to have quoted Icera based devices for Q3* [2009] *delivery"*, with Icera being *"in the lab for development"* and *"said to have quoted 20euros to many EU and Latam carriers"* and (iv) [...] was *"in Discussions with Icera"*.[650]

(442) In light of these developments, Qualcomm concluded that its data roadmap *"face*[d] *a threat from Icera"* in the form of a time *"*[...]*"* between June 2009 and January 2010 when it expected to have launched a more competitive chipset based on the QSC6295,[651] which eventually became commercially available as the MDM6200 in 2010.[652] During the gap period, Icera was expected to be competing with its ICE8040 which it had quoted at around USD [...] to Huawei and which would be capable of reaching 10.2 Mbps by then. It was therefore expected to outperform Qualcomm's mid-range chips MSM7225 and MSM6290 in terms of speed (both achieved data rates of 7.2 Mbps only) and Qualcomm's leading edge MDM8200 in terms of price (which was being quoted at USD [...] at the time), as illustrated by the following Qualcomm internal slide.

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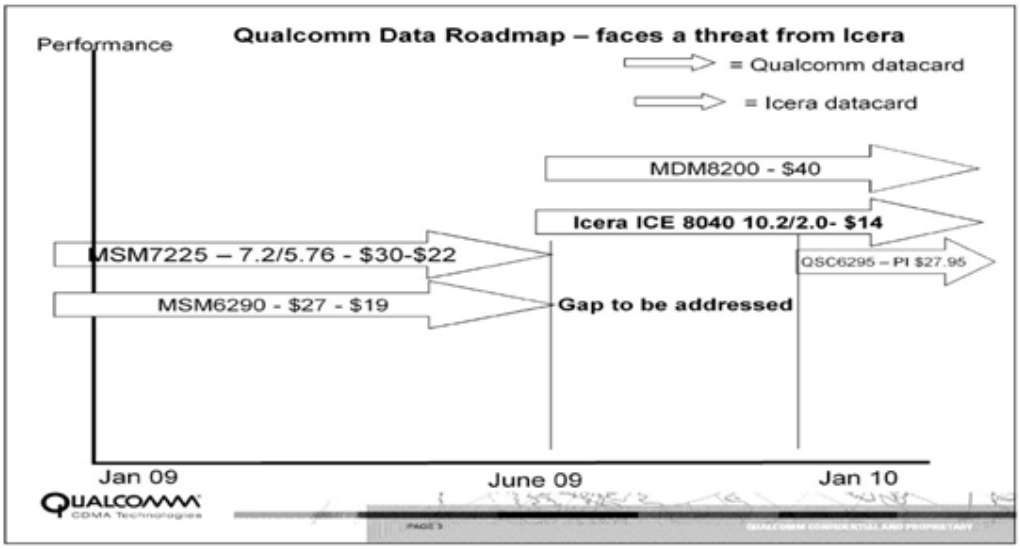
649 For an explanation of Qualcomm's price setting process, see section 7.4 above.

650 Qualcomm internal presentation of 4 June 2008 titled [...], page 2. Another version of this slide which does not mention […] is included in an earlier draft of that same presentation (see [...], page 2).

651 Qualcomm internal presentation of 4 June 2008 titled [...], page 3. The same slide is included in an earlier draft of that same presentation (see [...], page 3).

652 Qualcomm's reply of 2 December 2013 to questions 15 and 16 of Article 18(3) Decision of 10 July 2013, [...], paragraphs (77), (80). See also Qualcomm internal e-mail of 3 March 2009 from [...] (QCT Product Manager, Staff) to [...] (Senior Director, Engineering), [...] (Director, QCT Product Management) and [...] (QCT Product Manager, Staff), [...], page 1.

Figure 9: "Qualcomm Data Roadmap – faces a threat from Icera"[653]



(443) As a means to address the competitive gap, the presentation proposed a *"MDM8200 Bridge proposal – For Cat 10* [14.4 Mbps] *only"* which foresaw the introduction of a rebated version of the MDM8200 based chipset at 14.4 Mbps.[654] This proposal referred to a possible de-featuring of the MDM8200, a practice [...] in order to limit the functionality of a baseband chip (by way of a physical alteration of the chip's hardware or by way of a contractual agreement) for the purpose of adapting it to the specific needs of its customers.[655]

(444) Qualcomm's fear of Icera being able to take advantage of the competitive gap in Qualcomm's chipsets offering materialised in November 2008, when Icera managed to achieve, together with [...], the technical approval at [...] for the ICE8040 based chipset. In a Qualcomm internal e-mail of 25 November 2008, [...] (Director, Sales, at Qualcomm, [...]) recognised that this constituted an important step for Icera, as from this point onwards *"all operators* [knew that] *Icera chipset can work"*. With regard to the possibility to increase the data rates of Icera's ICE8040 based chipset by software update, [...] noted that *"*[t]*he threaten* [sic] *is that it can support 10.2Mb/s at Q1 and 14.4Mb/s at Q2 of 09'"*, while Qualcomm's dedicated solution at 14.4 Mbps would not be ready by the second half of 2009.[656]

(445) This development caused particular concern within Qualcomm's sales teams responsible for ZTE and Huawei. In an internal e-mail of 14 November 2008, [...] (Director, Sales, at Qualcomm, [...]) mentioned that Qualcomm is *"facing a big*

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653 Qualcomm internal presentation of 4 June 2008 titled [...], page 3. The same slide is included in an earlier draft of that same presentation (see [...], page 3). Moreover, a later version of this slide, mentioning also the MDM8200 Lite [...], is included in a Qualcomm internal presentation titled [...].

654 Qualcomm internal presentation of 4 June 2008 titled [...], page 6. Another version of this slide is included in an earlier draft of that same presentation (see [...], page 2).

655 Qualcomm's reply of 2 December 2013 to question 4 of Article 18(3) Decision of 10 July 2013, [...], paragraph (31).

656 Qualcomm internal e-mail of 25 November 2008 from [...] (Director, Sales) to [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Director, Marketing), [...] (Senior Manager, Marketing) and [...] [QTC top management member], [...], page 2.

challenge in ZTE for 2009" in view of the fact that *"*[...] *and Icera set ZTE as their strategic target for UMTS design win in 2009"* and quoted *"below $14 for 7.2M HSDPA* [High Speed Downlink Packet Access] *solution without any ASP* [Average Selling Price] *limitations"*. He proposed to *"kick them out and keep our UMTS share in ZTE"* by giving *"more bullets to sales"* in case it was decided to continue without any financial incentive programme for ZTE in 2009.[657]

(446) In the same vein, [...] (Director, Sales, at Qualcomm, [...]) stated in an internal e-mail of 25 November 2008 that *"Huawei is facing big challenge on several big EU WCDMA carriers supply"* and that *"*[...]*."*[658] In the same e-mail thread, a Qualcomm employee explained in reply to a question from [...] ([QCT top management member]) about the situation in Europe that the QSC6295, Qualcomm's dedicated solution at 14.4 Mbps, was *"far away from $14 and the timelines are not in line. The alternative is to explore a spechd-down/rebated* [sic] *version of 8200, and judging from a few emails I have seen this is the direction we are heading."*[659]

(447) The possible introduction of a rebated version of the MDM8200 based chipset at 14.4 Mbps to compete with Icera's ICE8040 was discussed again in a Qualcomm internal presentation of December 2008 concerning [...]. The summary slide of the presentation referred to *"multiple customer requesting on CAT 9/10 (10/14 Mbps) support"*, including [...], in view of the fact that *"*[...] [was] *driving CAT 9/10 into their networks"* and *"*[a]*ggressively talking to device manufacturers"*.[660] Given that *"Icera and* [...] *are pushing Cat9/10"*, the same slide concluded that *"MDM8200 Cat 9/10 is needed to fill the Cat9/10 competitive gap"* and that Qualcomm *"will need to provide special pricing to address MDM8200".* The presentation also mentioned that commercial samples of the MDM8200 at 14.4 Mbps were expected to be available in February 2009.[661] The proposed average sales price ("ASP") for 2009 was USD [...] as compared to USD [...] for the MDM8200 versions supporting 21 and 28 Mbps, whereas the estimated AVC (referred to by Qualcomm as *"average unit cost"*) for all versions was the same (approximately USD [...]).[662]

(448) In an e-mail of 21 December 2008, [...] asked [...] ([Qualcomm top management member]) for a downwards adjustment of Qualcomm's prices *vis-à-vis* Huawei, highlighting that Huawei's competitor (which Qualcomm believed to be ZTE[663]) was [...].[664] Huawei was concerned about ZTE's nascent cooperation with Icera due to the

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657 Qualcomm internal e-mail of 14 November 2008 from [...] (Director, Sales) to [...] ([QCT top management member]), [...] (Senior Director, Sales), [...] ([Qualcomm management member]) and others, [...], page 2.

658 Qualcomm internal e-mail of 25 November 2008 from [...] (Director, Sales) to [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Director, Marketing), [...] (Senior Manager, Marketing) and [...] [QTC top management member], [...], page 2.

659 Qualcomm internal e-mail of 27 November 2008 from [...] (Regional Senior Sales Manager) to [...] [QTC top management member] and [...] ([Qualcomm management member]), [...], page 1.

660 Qualcomm internal presentation of December 2008 titled [...], page 2.

661 Qualcomm internal presentation of December 2008 titled [...], pages 2, 10.

662 Qualcomm internal presentation of December 2008 titled [...], page 3.

663 Qualcomm internal e-mail of 22 December 2008 from [...] [QTC top management member] to […] ([Qualcomm top management member]), [...] ([Qualcomm management member]) and others, […], page 4.

664 E-mail of 21 December 2008 from […] to […] ([Qualcomm top management member]), […], page 5.

"very low cost"[665] of Icera's chipsets and their highly competitive pricing which Qualcomm estimated to be *"lower than $15"*.[666] This allowed ZTE to make aggressive quotations to MNOs and in particular [...] which caused discussion within Qualcomm.[667]

(449) Huawei's request for a price reduction on the MDM8200 based chipset ignited a more general debate on Qualcomm's strategy *vis-à-vis* Icera within Qualcomm. In the ensuing discussion among Qualcomm's senior management and [...] ([Qualcomm top management member]) who had internally enquired about the background and any messages he should send in reply,[668] [...] ([QCT top management member]) pointed out that this situation had been discussed *"at* [...] *and agreed to make an incremental move, however not to the tune he* [...] *is requesting"*.[669] In the same e-mail thread, [...] ([Qualcomm management member]) emphasised the risks of Icera's uniform pricing for the handset space once data cards become a commodity and suggested not to *"give Icera any opportunity in Huawei strategically. In the case Icera gets ZTE, we can push ZTE back by working with Huawei in the market place. Please consider to give another 2-3% to make sure we have 100% share in Huawei."*[670] Also [...] (Senior Director, Sales, at Qualcomm) made [...] ([Qualcomm top management member]) aware that *"*[t]*his is a very difficult situation and Huawei is not satisfied with our recent moves (pricing and rebate adjustments) in dealing with it."* He suggested a short acknowledgement at high level in reply and to *"let the team work it out with Huawei over time"*.[671]

(450) Clearly disappointed about […] ([Qualcomm top management member]) reply of 25 December 2008,[672] Huawei insisted on Qualcomm finding a solution that would allow Huawei to successfully compete against Icera based devices in the market.

(451) Two days later, when forwarding to Qualcomm a recent press article about Icera having raised USD 70 million and reorganising its business to sharpen its focus on

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665 E-mail of 27 December 2008 from […] (position unknown, Huawei) to [...] (Senior Manager, Marketing), copying [...] (Director, Sales), […], pages 2-3.

666 Qualcomm internal e-mail of 5 January 2009 from [...] (Senior Director, Sales) to [...] (Director, Sales) and [...] ([Qualcomm management member]), [...], page 1.

667 Qualcomm internal e-mail of 8 January 2009 from [...] (Senior Director, Sales) to [...] (Director, Sales) and [...] ([Qualcomm management member]), [...], page 1.

668 Qualcomm internal e-mail of 22 December 2008 from [...] ([Qualcomm top management member]) to [...] (position unknown), [...] [QTC top management member], [...] ([Qualcomm management member]) and [...] ([Qualcomm management member]), copying [...] ([QCT top management member]), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Senior Director, Sales) and [...] (Director, Sales), [...].

669 Qualcomm internal e-mail of 22 December 2008 from [...] [QTC top management member] to [...] ([Qualcomm top management member]) and others, [...], page 3. See also [...] which covers part of the e-mail thread.

670 Qualcomm internal e-mail of 23 December 2008 from [...] ([Qualcomm management member]) to [...] ([Qualcomm top management member]), [...] [QTC top management member] and others, [...], page 1. See also [...] which covers part of the e-mail thread.

671 Qualcomm internal e-mail of 24 December 2008 from [...] (Senior Director, Sales) to [...] ([Qualcomm top management member]) and others, [...], page 1. See also [...] which covers part of the e-mail thread.

672 E-mail of 17 January 2009 from [...] to [...] ([Qualcomm top management member]), copying [...] ([QCT top management member]), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Senior Director, Sales), [...] (Director, Sales) and a number of [...] employees, [...], pages 1-2. See also [...] which covers part of the e-mail thread.

customer programmes, Huawei reiterated the need for an […].[673] In the following internal discussion on Qualcomm's *"strategy for Icera competition"*, […] (Senior Director, Sales, at Qualcomm) brought up again the rebated version of the MDM8200 at 14.4 Mbps, but showed concern that *"there is still going to be a big price gap"* to Icera.[674]

(452) On 17 January 2009, […] directly followed up with [...] ([Qualcomm top management member]) to further push for a quick solution to bridge the gap until Qualcomm's dedicated chip at 14.4 Mbps would be launched on the market. He emphasised that […].[675] […] (Senior Director, Sales, at Qualcomm) immediately reacted internally, confirming that *"*[o]*n the Icera threat side, the 10.2Mbps DPA* [Downlink Packet Access] *data modem is real and we need MDM8200 at lower prices to compete. I need the approval of quoting $30 dollars for the limited data rate and limited period for Huawei till QSC6295 is launched."*[676] […] ([QCT top management member]) replied that *"a package deal to enable the MDM8200 to be utilized at lower speeds. i.e. our $30 vs a 10.2MBs from Icera"* had been discussed at a previous […] meeting. The key question discussed after the meeting was whether this would *"prevent anything that Huawei will do with Icera"* which he deferred to the judgment of […] ([QCT top management member]) who eventually agreed to the proposal.[677] In the same e-mail, […] also pointed out that the *"*[c]*ost is ~$6M in the calendar year, but, as we remove the bottom tier I'm expecting we'll be about neutral on the* […] *this year given our accrual obligation."*[678]

(453) In parallel, [...] ([Qualcomm management member]) followed up on [...] (Senior Director, Sales, at Qualcomm) request with a bilateral e-mail to [...] ([Qualcomm top management member]) in order to provide him with more detailed background. As regards Icera, he mentioned that *"*[w]*e have been anticipating Icera promoting 10.2 for a while now. Since there is an approximate 6 month gap between our QSC6295 and Icera based products being in the market, we are proposing to fill that with a lite version of MDM8200, that can later be SW* [software] *upgraded to 21Mbps without doing another design. Essentially leap frogging 10.2, into HSPA+. We will be using*

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673 E-mails of 27 and 28 December 2008 from Huawei to [...] (Senior Manager, Marketing) and [...] (Director, Sales), [...], pages 2-3. See also [...] which covers part of the e-mail thread.

674 Qualcomm internal e-mail of 30 December 2008 from [...] (Senior Director, Sales) to [...] (Director, Sales) and [...] (Senior Manager, Marketing), [...], page 2. See also [...] which covers part of the e-mail thread.

675 E-mail of 17 January 2009 from [...] to [...] ([Qualcomm top management member]), copying [...] ([QCT top management member]), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Senior Director, Sales), [...] (Director, Sales) and a number of Huawei employees, [...], pages 1-2. See also [...] which covers part of the e-mail thread.

676 Qualcomm internal e-mail of 17 January 2009 from [...] (Senior Director, Sales) to [...] [QTC top management member], [...] ([Qualcomm top management member]), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]) and [...] ([QCT top management member]), [...], page 1. See also [...] which covers part of the e-mail thread.

677 Qualcomm internal e-mail of 17 January 2009 from [...] ([QCT top management member]) to [...] (Senior Director, Sales), [...] [QTC top management member], [...] ([Qualcomm top management member]), [...] ([Qualcomm management member]) and [...] ([Qualcomm management member]), [...], page 2.

678 Qualcomm internal e-mail of 17 January 2009 from [...] ([QCT top management member]) to [...] (Senior Director, Sales), [...] [QTC top management member], [...] ([Qualcomm top management member]), [...] ([Qualcomm management member]) and others, [...], page 3.

the price downs proposed and the [...] *as a trade for using the MDM8200 Lite for a limited time of 6 months, and then bridging into QSC6295."*[679]

(454) The proposal for a rebated version of the MDM8200 at 14.4 Mbps (so-called "MDM8200 Lite") to compete with Icera was eventually brought before the [...] on 19 January 2009 on the basis of an updated presentation of the [...] of June 2008.[680] The pricing recommendation made to the [...] for the MDM8200 Lite was [...]. The recommendation applied to the chipset configuration MDM8200/RTR6285/PM7540 purchased from Qualcomm between 1 January 2009 and 31 December 2009 (purchase period) and sold in an end device to MNOs between 1 January 2009 and 31 March 2010 (sales period).[681] In addition, the presentation contained an *"MDM8200 Bridge proposal – For Cat 10 only"* with a rebate table for the MDM8200 based chipset and two other chipsets which was tiered according to the sales price of the end device.[682]

(455) Except for the rebate table for the MDM8200 based chipset, the [...] eventually approved the recommendation as proposed on 19 January 2009[683] in response to *"Icera* […] *threatening our UMTS datacard by offering a < $15 UMTS (10Mbps) chipset to Huawei and others"*:[684]

(a) As regards Huawei, the net ASP of the MDM8200 Lite was set at [...].

(b) As regards ZTE, the net ASP of the MDM8200 Lite was set at [...].[685]

(c) For both rebates a purchase period from Qualcomm from 1 January 2009 to 31 December 2009 and a sales period to MNOs from 1 January 2009 to 31 March 2010 was defined. Moreover, both rebates were conditional on Huawei and ZTE purchasing the [...] by 31 December 2009. By introducing this condition, Qualcomm intended to ensure that Huawei and ZTE would commit to designing datacard modules based on the QSC6295 based chipset, Qualcomm's dedicated solution at 14.4 Mbps, in 2010.[686]

(456) [...] (Senior Director, Sales, at Qualcomm) considered this [...] approval to *"put the Icera threat at Huawei under control, at least for 2009. Huawei will continue to use*

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679 Qualcomm internal e-mail of 17 January 2009 from [...] ([Qualcomm management member]) to [...] (Senior Director, Sales) to [...] [QTC top management member], [...] ([Qualcomm top management member]) and others, [...], page 1. See also [...] which covers part of the e-mail thread.

680 Qualcomm internal presentation titled [...], pages 75-91. For the presentation of June 2008, see footnote 650 above.

681 Qualcomm internal presentation titled [...], page 78. As described in recital (590), [...].

682 Qualcomm internal presentation titled [...], page 81.

683 Qualcomm internal presentation titled [...], pages 92-93, as well as [...] submitted by Qualcomm in Annex 6 to its reply of 16 January 2012 to Article 18(3) Decision of 3 November 2011, [...], pages 161-162.

684 Qualcomm internal e-mail of 22 January 2009 from [...] (Director, Finance) to [...] (Senior Director, Product Management) and [...] (Senior Director, Wireless Connectivity), copying [...] ([Qualcomm management member]), [...], page 1.

685 While the terms of this [...] approval were eventually never executed with regard to ZTE (see Qualcomm's reply of 2 December 2013 to question 59 of Article 18(3) Decision of 10 July 2013, [...], paragraph (256), they were formalised with regard to Huawei in the [...] of 26 January 2010 [...]. For a description of the implementation process of the pricing decisions of Qualcomm's [...], see recital (126) above.

686 Qualcomm internal e-mail of 22 January 2009 from [...] (Director, Finance) to [...] (Senior Director, Product Management) and [...] (Senior Director, Wireless Connectivity), copying [...] ([Qualcomm management member]), [...], where it is stated: "[...]."

QCT solutions for their 3G terminal devices."[687] [...] ([Qualcomm management member]) was however less optimistic and worried that *"this will hold us only for a while and once icera or others get traction in the market we will have to revisit. Lets* [sic] *stay vigilant."*[688] [...] agreed and promised that *"the team will continue to monitor the situation at both Huawei and ZTE. We have the customer relationships with both customers who will tell us what need to be done in order to keep the competitive edge so we have time to react."*[689]

12.4.2.2. Developments leading to the [...] approval of 8 June 2009: further price reductions on the MDM8200 based chipset to bridge Qualcomm's competitive gap until the launch of the MDM6200 based chipset

(457) Already in the weeks immediately following the approval of the rebated Lite version of the MDM8200 for Huawei and ZTE on 19 January 2009, it became clear to Qualcomm that this move would not significantly impact Icera's increasing traction in the market.

(458) On 6 February 2009, [...] (Senior Manager, Marketing, at Qualcomm) reported internally about his visit to the ZTE data card team on the previous day whose purpose was amongst other things *"to investigate the progress of Icera platform"*. Based on his discussions with *"multiple key persons of the team including* [...], [...] proposed to *"*[d]*iscuss the Icera strategy for ZTE* [...]*"*.[690] In a follow-up e-mail to his superior [...] (Director, Marketing, at Qualcomm)[691] shortly afterwards, [...] also mentioned rumours about Huawei being in discussions with Icera and concluded that *"Icera seems to be real threat we need to look at"*.[692] [...] ([Qualcomm management member]) replied on 14 February 2009, adding [...] (Director, Sales, at Qualcomm, [...]) to the e-mail thread, that *"*[w]*e need to take Icera very seriously"*, thus agreeing with [...] conclusion.[693]

(459) Against this backdrop and in view of the fact that it was *"clear that Icera has become the biggest competition of QCT on data card market"*, [...] (Senior Manager, Marketing, at Qualcomm) suggested on 15 February 2009 to [...] ([Qualcomm

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687 Qualcomm internal e-mail of 21 January 2009 from [...] (Senior Director, Sales) to [...] [QTC top management member], [...] ([QCT top management member]), [...] ([Qualcomm top management member]), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Director, Sales), [...], page 1.

688 Qualcomm internal e-mail of 21 January 2009 from [...] ([Qualcomm management member]) to [...] (Senior Director, Sales), copying [...] [QTC top management member], [...] ([QCT top management member]), [...] ([Qualcomm management member]) and [...] ([Qualcomm top management member]), [...], page 1. See also [...] which covers part of the e-mail thread.

689 Qualcomm internal e-mail of 21 January 2009 from [...] (Senior Director, Sales) to [...] ([Qualcomm management member]), copying [...] [QTC top management member], [...] ([QCT top management member]), [...] ([Qualcomm management member]) and [...] ([Qualcomm top management member]), [...], page 1.

690 Qualcomm internal e-mail of 6 February 2009 from [...] (Senior Manager, Marketing) to [...] (Director, Sales) and [...] (Senior Manager, Marketing), copying [...] ([Qualcomm management member]) and [...] (Director, Marketing), [...], page 3.

691 Qualcomm's reply of 16 June 2017 to question 17 of Article 18(3) Decision of 31 March 2017, [...], paragraph (167).

692 Qualcomm internal e-mail of 6 February 2009 from [...] (Senior Manager, Marketing) to [...] (Director, Marketing), copying [...] ([Qualcomm management member]), [...], page 2.

693 Qualcomm internal e-mail of 14 February 2009 from [...] ([Qualcomm management member]) to [...] (Senior Manager, Marketing), [...] (Director, Marketing) and [...] (Director, Sales), [...], page 1.

management member]) *"to offer something to ZTE to stop their efforts with Icera."* He explained that once Icera was able to offer a turn-key solution and achieve sufficient volume, the *"current data card market structure may undergo drastic changes and the price war will be unavoidable* […] *As it is so dangerous for us, I would suggest we take some preventive actions to make it no chance to come true."*[694] In its reply of the same day, [...] shared [...] view (*"Good analysis. and I agree."*) and asked [...] (Director, Sales, at Qualcomm, [...]) to *"closely monitor the development"*.[695]

(460) On 18 February 2009, [...] ([Qualcomm management member]) forwarded [...] (Senior Manager, Marketing, at Qualcomm) *"analysis on Icera threat"* internally to members of Qualcomm's senior management, notably to [...] ([Qualcomm management member]), [...] (Director, QCT Product Management, at Qualcomm), [...] (Senior Director, Sales, at Qualcomm) and [...] ([QCT top management member]) . He expressed his *"concerns for the near term"* and emphasised that *"*[w]*e don't want to see any break through* [sic] *of Icera in any of our major OEMs. It'll be a bad example for other OEMs if it happens."*[696] [...] forwarded this e-mail to senior Qualcomm managers from the Product and Engineering team, which prompted [...] (Senior Director, Engineering, at Qualcomm) to enquire about what the Product Management was doing *"to crush Icera at ZTE"*.[697] In his reply, [...] (QCT Product Manager, Staff) reported about a recent meeting with ZTE which appears to have covered the MDM8200 Lite *"*[f]*or near term"* and long term solutions such as the *"MDM6200 (QSC6295 data card version) for HSPA+/Cat10"* with which ZTE wanted to start [...][698] This corresponds to what Qualcomm had already anticipated in April 2008 when it had become clear that it needed a product offering at 14.4 Mbps to be able to successfully compete against Icera in the leading edge segment of the UMTS market (see recital (443) above).

(461) In spring 2009, the quality issues and the uncompetitive pricing of the MDM8200 based chipset (see, in particular, recitals (133) and (442) above) again became an issue when Qualcomm/Huawei started losing deals to Icera.

(462) On 13 March 2009, [...] (Director, Sales, at Qualcomm, [...]) reported internally to Qualcomm's senior management that Huawei had just informed that *"*[...] *has*

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694 Qualcomm internal e-mail of 15 February 2009 from [...] (Senior Manager, Marketing) to [...] ([Qualcomm management member]) and [...] (Director, Marketing), [...], page 1. It is noteworthy that there exists another e-mail thread which also contains that e-mail from [...] sent to the same recipients ([...], pages 1-2) and where that e-mail is marked *"confidential"* (whereas [...] does not include such a sensitivity marking). This suggests that there was awareness within Qualcomm that *"taking preventive actions"* against Icera could be problematic, and that related discussions should therefore remain restricted to a limited circle of Qualcomm personnel.

695 Qualcomm internal e-mail of 15 February 2009 from [...] ([Qualcomm management member]) to [...] (Senior Manager, Marketing) and [...] (Director, Marketing), copying [...] (Director, Sales), [...], page 1.

696 Qualcomm internal e-mail of 18 February 2009 from [...] ([Qualcomm management member]) to [...] ([Qualcomm management member]), [...] (Director, QCT Product Management), [...] (Senior Director, Sales) and [...] ([QCT top management member]), copying [...] (Director, Marketing) and [...] (Senior Manager, Marketing), [...], page 1.

697 Qualcomm internal e-mail of 1 March 2009 from [...] (Senior Director, Engineering) to [...] (Director, QCT Product Management), [...] (QCT Product Manager, Staff) and [...] (QCT Product Manager, Staff), [...], page 1.

698 Qualcomm internal e-mail of 3 March 2009 from [...] (QCT Product Manager, Staff) to [...] (Senior Director, Engineering), [...] (Director, QCT Product Management), and [...] (QCT Product Manager, Staff), [...], page 1.

terminated the negotiation with Huawei for MDM8200 based modem, the reason is [...] *has decided to buy* [...]*/Icera 10.2M USB modem and the price is about Euro50. Besides,* [...] *told Huawei that* [...] *is testing Icera 14.4M modem, and the result is pretty good."*[699] In the ensuing discussion about whether or not Qualcomm could still *"rescue the deal"*, it became clear that not only pricing but also timing was an issue since *"*[...]*/Icera can deliver from April".*[700] This information was confirmed in a follow-up discussion in Qualcomm's sales team responsible for Huawei.[701] In a bilateral discussion during the following days, [...] ([QCT top management member]) explained to [...] ([QCT top management member]) that *"work on 3 layers"* was necessary *"to keep Icera out of the* [...] *account"* of which the second layer was *"mid term – 8200 pricing to compete with Icera HSPA+ solution".*[702]

(463) Following these developments, Qualcomm started adapting its product development planning with a view to being able to add a dedicated solution at 14.4 Mbps (*i.e.* the MDM6200 based chipset) and an improved version of the MDM8200 based chipset (*i.e.* the MDM8200A based chipset) to its product portfolio as soon as possible in order to become more competitive *vis-à-vis* Icera.

(464) On [...], Qualcomm's UMTS Core Team and Executive Management Team approved the launch of the [...] of the MDM6200, a de-featured chip supporting speeds up to 14.4 Mbps developed on the basis of Qualcomm's integrated QSC6295 chip. Compared with the QSC6295, the MDM6200 was intended to *"enable smaller form factors for data cards".*[703] With an average sales price expected to be [...], Qualcomm's goal was to *"*[p]*rovide a more competitive system footprint in data card space against Icera, Ifx".*[704] The date for the release of the commercial sample of the MDM6200 was, *"as requested by Marketing"*, December 2009.[705]

(465) On 14 April 2009, the [...][706] for the MDM8200A took place during which the business case for the MDM8200A was presented and eventually approved.[707] The MDM8200A was a *"shrinked"* version of the MDM8200 (from 65 to 45 nanometres). The presentation for the [...] mentions under *"ICERA ICE8040 Market Feedback"* that *"10 Mbps and 14 Mbps trials with EU operators are on-going. Huawei/MDM8200 lost out to* [...]*/Icera at* [...] *for 10 Mbps device (200k parts) due*

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699 Qualcomm internal e-mail of 13 March 2009 from [...] (Director, Sales) to [...] ([Qualcomm management member]), [...] [QTC top management member], [...] (Senior Director, Sales), [...] ([Qualcomm management member]), [...] ([QCT top management member]) and [...] ([Qualcomm management member]), copying [...] (Director, Marketing) and [...] (Senior Manager, Marketing), [...], page 2.

700 Qualcomm internal e-mail thread of 13-15 March 2009 including [...] [QTC top management member], [...] (Director, Sales), [...] (Senior Director, Sales), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), copying [...] (Director, Marketing), [...] (Senior Manager, Marketing), [...] (Director, QCT Product Management) and [...] (Director, QCT Product Management), [...], page 1.

701 Qualcomm internal e-mail of 18 March 2009 from [...] (Account Manager) to [...] (Director, Sales) and [...] (Senior Director, Sales), copying [...] (Senior Manager, Marketing), [...], page 1, as well as the preceding e-mail thread.

702 Qualcomm internal e-mails of 15 and 16 March 2009 between [...] [QTC top management member] and [...] ([QCT top management member]), [...], page 1.

703 Qualcomm internal presentation of 30 March 2009 titled [...], page 4.

704 Qualcomm internal presentation of 30 March 2009 titled [...], pages 4-6.

705 Qualcomm internal presentation of 30 March 2009 titled [...], page 12.

706 See section 7.3 above for a description of Qualcomm's product creation process.

707 Qualcomm internal presentation of 9 July 2009 titled [...], page 4.

to immaturity of MDM8200 design. [...] *saying they are happy with performance of Icera devices."*[708] The MDM8200A was intended to serve the purpose of *"*[a]*ggressively* [p]*rotecting the* [d]*ata* [c]*ard* [m]*arket"*. In view of the fact that this was a *"rapidly growing market"* and *"easier to enter"*, Qualcomm considered that this would *"*[d]*eny entry to new players"* by taking away the *"opportunity to prove their technology before going after higher volume hand-set market"*.[709] The presentation also contained *"*[r]*ecommendations on roadmap for retaining market share in EU"*. One of these recommendations was a *"MDM8200 lower-cost derivative* […] *both to enable high-tier segment in 2010/11 and to win market share. It will cover the price/features gap between MDM6200 and MDM8200 preventing our roadmap to be attacked from competition in that space"*. Another recommendation referred to the *"MDM6200 pricing strategy to be adapted based on competition to win market share in the mid-high 14.4/5.7 HSPA segment"*.[710] The envisaged date for the release of the commercial sample of the MDM8200A was March 2010, with *"Product Launch in 2Q 10"*.[711]

(466) At the same time, a number of Qualcomm internal documents reported on the growing competitive threat that Icera was representing for Qualcomm. For example:

(a) The [...] of 15 April 2009 referred to Icera as having *"become a big competitive threat"*, explaining that *"*[c]*arriers such as* [...] *and* [...] *are actively supporting Icera"*, *"Icera is likely to offer HSPA+ (14.4Mbps DL) capabilities through SW* [software] *upgrade for 8040 in the near future"* and *"Icera priced its HSUPA and HSPA+ solutions very competitively"*.[712]

(b) The [...] of April 2009 reported under *"Icera threats"* that the rumour about the [...] being based on Icera's ICE8040 was confirmed, that the *"10.2/5.76 is stable in ZTE lab"* and that *"major operators including* [...] *request them* [Huawei and ZTE] *to propose Icera based data cards by offering non-QCT chipset based RFI/RFQ* [Request For Quotation]*"*.[713] On the same slide, the presentation mentions a *"SW* [software] *quality issue"* for the MDM8200 based chipset, which made *"Huawei and ZTE deeply concerned too many issues on Rel1300 released on Apr.15 and worried about the CS* [Commercial Sample] *release on May.15 cannot be used for commercial launch"*.[714]

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708 Qualcomm internal presentation of 9 July 2009 titled [...], page 45. This presentation, although relating to the [...] of 9 July 2009, contains, as of page 36, the presentation for the [...], which took place on 14 April 2009. That same presentation also exists in another, non-dated version, titled [...]; see footnote 177 above).

709 Qualcomm internal presentation of 9 July 2009 titled [...], page 37.

710 Qualcomm internal presentation of 9 July 2009 [...], page 72.

711 Qualcomm internal presentation of 9 July 2009 titled [...], page 41.

712 Qualcomm internal e-mail of 15 April 2009 from [...] (Director, Sales) to [...] (Senior Director, Sales), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Director, Marketing), [...] (Senior Manager, Marketing), [...] (Regional Sales Manager), [...] (position unknown), [...] (Senior Product Management), [...] (position unknown), [...] (position unknown), [...] (position unknown), [...] (Staff Manager, Product management), [...] (Senior Director, Business Development), [...] (Director, QCT Product Management), [...], page 1.

713 Qualcomm internal presentation of April 2009 titled [...], page 16.

714 Qualcomm internal presentation of April 2009 titled [...], page 16.

(c) The [...] of May 2009 noted that Huawei reported about Icera having *"claimed ICE8040 would be able to support 21Mbps in* [...] *in late May"* and the Icera based [...] *"competing with Huawei E1820 in* [...] *at much lower ASP"*.[715]

(467) As a result of these developments, Qualcomm's [...] approved a second price reduction on 8 June 2009 for the *"MDM8200/RTR6285/PM7540 'Lite' Program"* as a *"bridge program to the MDM6200"*.[716]

(a) For both Huawei and ZTE, the price of the MDM8200 Lite was set at USD [...] net ASP with a volume restriction of max. [...] units and a [...][717] of EUR [...] for a purchase period from Qualcomm from 1 July 2009 to 31 March 2010 and a sales period to MNOs from 1 July 2009 to 30 June 2010.[718]

(b) In addition, for Huawei, [...] were mentioned on the [...] approval slide.

(c) Also these rebates were conditional on Huawei and ZTE purchasing a [...] for Qualcomm's successor chipsets by 31 December 2009 (see recital (455) above).[719]

12.4.2.3. Developments leading to the [...] approval of 25 November 2009: further price reductions for Huawei on the MDM8200 based chipset, including a one-off [...] payment for Huawei's inventory and backlog, as well as on the MDM6200 based chipset

(468) According to the [...] of June 2009 demand for the MDM8200 was slowly picking up at the time. The report noted that *"Huawei had raised MDM8200 forecast from 1M to 2M in CY09, about 1.5M is firm demand"*, pointing out that Huawei was confident about being able to address the heat issue and trying to convince [...] that *"the extreme condition will not happen in real use case"*.[720]

(469) Despite these developments, a Qualcomm internal presentation of 9 July 2009 mentioned that Qualcomm was *"anticipating strong price competition"*, as the *"*[c]*urrent 8200 (65nm) is not cost competitive"*.[721] The presentation, which concerned [...] for the MDM8200A based chipset, therefore identified the envisaged launch schedule and the lower target average unit cost ("AUC") of the MDM8200A as *"the main project focus"* in order to *"combat competitive threats recently identified in the HSPA+ data card market"* and *"to maintain margin and share at key accounts"*. The presentation indicated that the initial release date for the first commercial samples of the MDM8200A (see recital (465) above) had been postponed by 2 months to May 2010 and highlighted the importance of avoiding any further delays: *"For every month after May that this is late, the margin loss to the company is* [...]*; this gets significantly worse in* [sic] *Dec 2010 DC launches can not*

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715 Qualcomm internal presentation of May 2009 titled [...], page 14.

716 Qualcomm internal presentation titled [...], as well as [...] slides submitted by Qualcomm in [...] to its reply to Article 18(3) Decision of 3 November 2011, [...], pages 212, 214.

717 [...]

718 The terms of this [...] approval were eventually formalised, [...].

719 [...] submitted by Qualcomm in Annex 6 to its reply of 16 January 2012 to Article 18(3) Decision of 3 November 2011, [...], pages 212, 214.

720 Qualcomm internal presentation of June 2009 titled [...], page 16.

721 Qualcomm internal presentation of 9 July 2009 titled [...], page 7.

be attained. Original Request from Product Management is CS [commercial samples] *in March 2010, this is near impossible to achieve."*[722]

(470) The main threat to Qualcomm's business at the time continued to be Icera, as evidenced by contemporaneous Qualcomm internal documents. The [...] of June 2009 noted under *"Icera threats"* that ZTE had been approaching [...] with an Icera based data card offering and that Qualcomm's sales department was *"talking with ZTE for resolution"*.[723] However, these talks turned out to be unsuccessful, as shown by the [...] of August 2009 which reported that *"ZTE made a deal for 14.4 data card for* [...] *with ICE8042, Target to launch in 10Q1, Target 1m+ shipment in Cy10"* and that Qualcomm was concerned that *"Huawei may follow if the ZTE project goes smoothly".* At the same time, it noted that Huawei's MDM8200 based projects with [...] and [...] were on track, but with reduced volume forecasts for 2009.[724]

(471) As of September 2009, it became clear to Qualcomm that only the launch of an improved version of the MDM8200 would ultimately be able to close Qualcomm's competitive gap *vis-à-vis* Icera, as shown by the [...] for September 2009. The report mentioned that *"Huawei saw big momentum for 21Mbps data card from the carriers in early Q2. However, the SW* [software] *stability and heat issue delayed the product launch and missed the hot season. Huawei see many carriers are waiting and seeing how others perform on the 21Mbps launch. Huawei see transferring to MDM8200A might be the final solution to solve the power consumption issue."*[725]

(472) In the meantime, a quick launch of the MDM6200 based chipset became all the more important for Qualcomm, in particular in view of the forthcoming launch of Icera's improved ICE8042 based chipset. The [...] for September 2009 mentioned in this regard that Huawei was happy to work closely with Qualcomm in order to [...]. It also highlighted that there was a *"*[n]*eed to enable ZTE to early adopt MDM6200 and launch MDM6200 product ASAP to shrink market space of ICE8042 based product inside ZTE"*.[726]

(473) On 21 September 2009, Qualcomm's [...] approved a price indication for the MDM6200 based chipset (with the PM8028) for calendar year 2010:

(a) As regards Huawei, the price indication for the chipset was USD [...] (without any customer price restriction) and USD [...] (for devices sold below USD [...]).

(b) As regards ZTE, the price indication for the chipset was USD [...] and USD [...] (for devices sold below USD [...]).[727]

(474) While Qualcomm was positioning its new – but not yet commercially available – MDM6200 based chipset as a competitive alternative to Icera's ICE8040 and ICE8042 based chipsets, Huawei already requested Qualcomm to lower the price indication for the MDM6200 based chipset and to further adjust downwards the pricing of the MDM8200 and MDM8200 Lite based chipsets.

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722 Qualcomm internal presentation of 9 July 2009 titled [...], pages 7, 17.

723 Qualcomm internal presentation of June 2009 titled [...], page 16.

724 Qualcomm internal presentation of August 2009 titled [...], page 16.

725 Qualcomm internal presentation of September 2009 titled [...], page 16.

726 Qualcomm internal presentation of September 2009 titled [...], page 16.

727 [...] submitted by Qualcomm in Annex 6 to its reply of 16 January 2012 to Article 18(3) Decision of 3 November 2011, [...], pages 249-250.

(475) A *"2010 Price Request from Huawei"* of 23 September 2009 emphasised with regard to the MDM8200 based chipset that the *"delay of solving the issue of Heat, Crashes, Performance result in our delay of shipment".* Huawei's concerns were further exacerbated by the fact that ZTE was quoting an Icera based data card at 14.4 Mbps *"in* [...] *Kick off"* and that *"*[o]*perator declared that ZTE's 14.4M Datacard (based on ICERA 8040) will be launched firstly."* Against this backdrop, Huawei requested that *"*[t]*o compete with ICERA/ZTE, price of 14.4M chipset should be down to* [...] *(8200 suit, and 6200)."* Huawei also explained that the total cost of the full feature version of the MDM8200 based chipset accounted for 40% of the sales price of its devices which meant that *"Huawei can only make a very small profit on the high-end product"* and therefore *"the price of 8200/21M suit need to be down to* [...]*."*[728] Both price requests were based on a purchase forecast of 2 million units for each chipset in 2010.[729] In addition, the presentation mentioned under *"Supply Issue"* a request by Huawei to postpone the delivery of 350,000 units of the MDM8200, for which orders had already been placed with Qualcomm, to the first quarter of 2010.[730]

(476) By November 2009, it became clear that also the commercial launch of the MDM6200, which had originally been envisaged for December 2009, would be delayed (see recital (477) below). At the same time, Huawei became increasingly concerned about the impact of the imminent launch of Icera's ICE8042 based chipset on its ability to compete with Qualcomm's MDM8200 based chipset against Icera based solutions. Huawei was in particular concerned that it would no longer be able to sell the MDM8200 based chipset once Icera's ICE8042 based chipset had been launched on the market. Huawei therefore requested significant price reductions for its inventory (*i.e.* chips ordered and already delivered) and backlog (*i.e.* chips not yet delivered, but subject to binding purchase orders) of the MDM8200 based chipset which would allow it to sell these units off before the Icera launch (see recitals (477)-(478) below).

(477) During a meeting between Huawei and Qualcomm on 4 November 2009, the MDM8200 inventory issue was discussed as the first topic. The presentation for this meeting shows that Huawei requested a price reduction for the MDM8200 Lite to [...] *"to compete with ICERA and offset the effect of the delay on MDM6200"*. Huawei mentioned in this regard that *"all 14.4M products are based on ICERA solution with a competitive price except for Huawei. Now the acceptable price of 14.4M Datacard is around 45$."*[731] Huawei also requested a price reduction for the MDM8200 based chipset at 21 Mbps to [...] since *"operators can only accept 5-8 price difference between 14.4M products and 21M products. On the other hand, price of 8200/21M should be competitive compared with 8200A and ICERA. It's the same problem as 8200/14.4M encountered."*[732] Huawei's underlying concern was that

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728 Huawei presentation for Qualcomm of 23 September 2009 titled [...], page 7.

729 Huawei presentation for Qualcomm of 23 September 2009 titled [...], page 11.

730 Huawei presentation for Qualcomm of 23 September 2009 titled [...], page 13.

731 Huawei presentation of November 2009 for Qualcomm & Huawei Business Meeting, [...], page 5. The fact that the price requests reported in this presentation are identical to the one reflected in the Huawei e-mail of 8 November 2009 (see footnote 734 below), which explicitly follows up on what was *"discussed on 4th,Nov."*, suggests that the presentation relates to that meeting of 4 November 2009.

732 Huawei presentation of November 2009 for Qualcomm & Huawei Business Meeting, [...], page 5.

"[i]*f Qualcomm can't make a timely and competitive strategy, we'll lose 14.4M market to Icera, and be placed in a passive position on 21M market."*[733]

(478) Further background to Huawei's request is provided in an e-mail of 8 November 2009 from Huawei's [...] to [...] ([Qualcomm management member]) and [...] (Director, Sales, at Qualcomm, [...]), copying [...] (Account Manager at Qualcomm, [...]) and other Huawei employees. The e-mail shows that Huawei's request concerned a total quantity of [...] units, of which [...] units were already in Huawei's inventory, whereas the remaining [...] were in Huawei's backlog.[734]

(479) [...] ([Qualcomm management member]) replied to Huawei on 11 November 2009 that "*this is a very tough one, we need time to discuss internally"*. However, he already noted his reluctance to grant any price reductions for the MDM8200 Lite in order to incentivise demand at 14.4 Mbps. He pointed out that *"only selling at higher data rate can help raise the ASP* [average selling price] *and gross margin of our products. So, it is very important to Huawei and QCT to continue to drive demand on higher data rate products."*[735]

(480) A Qualcomm presentation for the [...] from the second half of November[736] underlines the urgency of Huawei's request in view of the imminent launch of Icera's ICE8042. Under *"Huawei Urgent Issues"*, it explained that *"MDM8200 916K inventory + backlog may become dead inventory"* and that *"*[b]*oth Huawei and QCT needs to drop the price to clean inventory asap".*[737] In view of the advantages of Icera's ICE8042 (*i.e.* upgradeability by software update, better power consumption than the MDM8200 and low pricing) and shipments to ZTE being expected to start as of the end of 2009, the presentation highlighted under *"Implication to QCT"* that *"MDM6200 schedule and support to Huawei are critical. ZTE launch with Icera will put huge pressure on Huawei if market share changes as a result. Huawei request QCT take action ASAP. Huawei request exclusivity of MDM supply. Icera may eat big share from QCT."*[738] This shows that Huawei was deeply concerned about the

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733 Huawei presentation of November 2009 for Qualcomm & Huawei Business Meeting, [...], page 5.

734 E-mail of 8 November 2009 from [...] at Huawei to [...] ([Qualcomm management member]) and [...] (Director, Sales), copying [...] (Account Manager) and other Huawei employees, [...], pages 4-5. The understanding of the terms "inventory" and "backlog" was confirmed by Qualcomm in its SO Response, [...], paragraph (344).

735 E-mail of 11 November 2009 from [...] ([Qualcomm management member]) to [...] at Huawei and [...] (Director, Sales), copying [...] (Account Manager) and other Huawei employees, [...], page 4.

736 Qualcomm internal presentation titled [...], page 22. The presentation is undated, but appears to be from the second half of November 2009 in view of the fact that it reports on the same pricing requests by Huawei of 4 November 2009 and a supposedly earlier version of this presentation was attached to a Qualcomm internal e-mail thread of 16-17 November 2009, [...] and [...]. This version of the presentation appears to be the most advanced draft since it contains [...] ([Qualcomm management member]) as the presenter, while this field is left blank in the other versions of the presentation (see [...]).

737 Qualcomm internal presentation of November 2009 titled [...], page 22 (see footnote 736 above). In other, supposedly earlier versions of the presentation it was added that *"shift in market trends made it difficult for Huawei to consume these parts as originally planned"*, together with the question whether Qualcomm should *"offer special financial incentives to move these parts"*, see [...] and [...], page 15.

738 Qualcomm internal presentation of November 2009 titled [...], page 20 (see footnote 736 above). In other, supposedly earlier versions of the presentation it was mentioned that it was important to *"*[e]*nsure the competitiveness of MSM6290 and MDM6200 as these two chipsets carry a lot of data card volume at Huawei"* and that Qualcomm needed *"to launch MDM6200 ASAP, and price needs to be dynamically adjusted based on market feedbacks"*, see [...] and [...], page 15.

impact that the launch of Icera's ICE8042 based chipset would have on Qualcomm's and its own competitive position in the leading edge segment of the market and that it considered the discounted sale of its inventory and backlog of the MDM8200 based chipset before Icera's ICE8042 would hit the market as the only way to prevent Icera from gaining market share at the expense of Qualcomm. Against this backdrop, Qualcomm concluded that part of its strategy *vis-à-vis* Huawei, who was *"very important to QCT as it has driven incredible volume growth for us over the last six years"*,[739] was to *"Block/Limit Competitors to keep QCT Market share – Block STE, IFX, VIA, Icera"* and to *"Drive Huawei volume to growth QCT volume – Expand data card market* […] *Must competitive* [sic] *to Icera to keep QCT HSPA+ Data Card share"*.[740]

(481) In a Qualcomm internal e-mail thread of mid-November 2009, [...] (Director, QCT Product Management) noted that *"Huawei is ready to take his remaining 1M units of 8200 and sell it as 14.4 (Cat 10) instead of 21Mbps"*.[741] In line with [...] ([Qualcomm management member]) reaction of 11 November 2009 (see recital (479) above), [...] was reluctant to accede to Huawei's request since *"*[t]*his would be bad as the cost structure wouldn't allow it, but more importantly, it would further slow the growth of the 21Mbps segment"*. Given that Qualcomm had made *"significant moves on MDM6200 pricing for Huawei and ZTE recently"*, he urged instead to *"quickly recalibrate the 8200/A prices to close the gap between 14.4 and 21, and most importantly reignite interest in the 21Mbps tier."*[742]

(482) However, in a follow-up e-mail of 14 November 2009, [...] ([Qualcomm management member]) pointed out that the situation had become even more acute since there were *"rumors that Icera intend to drive modem sales growth aggressively in 2010 and come up with a single chipset pricing for all data rates (3.6M HDPA to 21M) at around $10 starting from Jan.2010. This is going to cause panic among our customers once being verified."*[743] He also mentioned that according to Huawei *"Icera's 8040 can now be software upgraded to support 21Mbps (by Q1~Q2,* [...]*). This is new to us as previously we believed it runs out of gas at 17 Mbps."* Against this backdrop, he concluded that *"8200 lost its TTM* [time to market] *edge and has to compete with Icera on pricing for 21Mbps."* He therefore saw a need *"to review urgently"* Qualcomm's data card pricing for 2010 and referred again to *"Huawei request to sell their inventory/backlog of MDM8200 at 14.4M at a panic speed to*

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739 Qualcomm internal presentation titled [...], page 21.

740 Qualcomm internal presentation of November 2009 titled [...], page 24 (see footnote 736 above). In another, supposedly earlier version of the presentation it was added to the first point *"How to react to Icera <$10 chipset (ICE8042 3.6M-21M)"*, see [...], page 22.

741 Qualcomm internal e-mail of 14 November 2009 from [...] (Director, QCT Product Management) to [...] (Manager, Finance), [...] (Director, Sales) and [...] ([Qualcomm management member]), copying [...] ([QCT top management member]) and [...] ([Qualcomm management member]), [...], pages 2-3. See also [...] and [...] which contain part of the e-mail thread.

742 Qualcomm internal e-mail of 14 November 2009 from [...] (Director, QCT Product Management) to [...] (Manager, Finance), [...] (Director, Sales) and [...] ([Qualcomm management member]), copying [...] ([QCT top management member]) and [...] ([Qualcomm management member]), [...], pages 2-3. See also [...] and [...] which contain part of the e-mail thread.

743 Qualcomm internal e-mail of 14 November 2009 from [...] ([Qualcomm management member]) to [...] (Director, QCT Product Management), [...] (Manager, Finance), [...] (Director, Sales) and [...] (Financial Analyst, Staff), copying [...] ([QCT top management member]), [...] ([Qualcomm management member]) and [...] ([Qualcomm management member]), [...], page 2.

avoid major loss due to 'dead inventory'". More specifically, *"Huawei want to sell 8200-based dongles at 14Mbps immediately and at 21Mbps with limited quantities ASAP to avoid the collision with Icera's 21M solution and the more cost effective 8200A from QCT. We are requested to re-price the backlog of* [...] *and provide rebate for the existing inventory of* [...] *to the requested levels ($*[...] *and $*[...]*)."*[744]

(483) At the same time, [...] ([Qualcomm management member]) showed awareness of the difficulties Qualcomm was facing in providing further price reductions for the MDM8200 Lite by pointing out that *"*[a]*t the moment Huawei has our approval of a rebate to $*[...] *for 14.4Mbps for MDM8200. We already emphasised that we cannot sell under cost."*[745] This concern was shared in his reply by [...] (Director, QCT Product Management) who was *"worried about huawei's request to price 8200 at 14.4 since we may not cost structure* [sic] *to support such a decision even if we wanted it".*[746]

(484) In light of these considerations, [...] (Director, QCT Product Management) enquired about the possibility of doing *"a bridge on 8200 to 8200A that comes close to what Huawei is looking for on 21Mbps (but not quite)"* instead of *"redirecting the market to 14.4 as the new top tier"* for which *"6200 is well placed"*,[747] thus suggesting to reduce the price of the MDM8200 based chipset in order to apply to it a price similar to the (lower) price that Qualcomm was planning to apply to the MDM8200A. In a bilateral follow-up discussion with [...] (Manager, Finance, at Qualcomm), [...] suggested to *"basically forward price 8200A onto 8200 to clear out inventories"*, considering that *"the ICE8042 is rumoured to way cheaper* [sic] *and better on power than 8200. 8200A should beat it but that is 2H'10 discussion. 8200 is now looking at feature disadvantage relative to ICE, in addition we decommitted GPS on that device because GPS guys couldn't deliver."*[748]

(485) At another *"Qualcomm & Huawei Business Meeting"* in November 2009, Huawei left again no doubt that its request for further price reductions was *"due to*

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744 Qualcomm internal e-mail of 14 November 2009 from [...] ([Qualcomm management member]) to [...] (Director, QCT Product Management), [...] (Manager, Finance), [...] (Director, Sales) and [...] Financial Analyst, Staff), copying [...] ([QCT top management member]), [...] ([Qualcomm management member]) and [...] ([Qualcomm management member]), [...], page 2. As regards the MDM8200 based chipset at 21 Mbps, [...] had mentioned earlier in his e-mail that according to Huawei *"only 10% can be sold at 21Mbps due to limited carrier interest and network readiness".*

745 Qualcomm internal e-mail of 14 November 2009 from [...] ([Qualcomm management member]) to [...] (Director, QCT Product Management), [...] (Manager, Finance), [...] (Director, Sales) and [...] (Financial Analyst, Staff), copying [...] ([QCT top management member]), [...] ([Qualcomm management member]) and [...] ([Qualcomm management member]), [...], page 2. According to Qualcomm's reply of 16 June 2017 to question 16 of Article 18(3) Decision of 31 March 2017, [...], paragraph (141), [...] was not referring to a *specific* cost benchmark in his e-mail. Nevertheless, similar concerns about the limited scope for further price reductions on the MDM8200 based chipset had already been raised in a [...] meeting presentation of 13 July 2009, where it was pointed out that *"MDM8200 C/S cost structure does not support* [...] *range for full feature* [*i.e.* 21/28Mbps]*"* (Qualcomm internal presentation titled [...]).

746 Qualcomm internal e-mail of 21 November 2009 from [...] (Director, QCT Product Management) to [...] (Manager, Finance), [...], page 2.

747 Qualcomm internal e-mail of 21 November 2009 from [...] (Director, QCT Product Management) to [...] (Manager, Finance), [...], page 2.

748 Qualcomm internal e-mail of 21 November 2009 from [...] (Director, QCT Product Management) to [...] (Manager, Finance), [...], page 1.

competition from ICERA".[749] With regard to the MDM8200, the meeting presentation reiterated that *"*[a]*s we discussed on 4th Nov. meeting, about 1M units MDM8200 need price protect"*. In order to be able to compete with Icera's lowest quotations to [...] of USD 41.5 for devices supporting data rates up to both 14.4 Mbps and 21 Mbps, *"Huawei request price of MDM8200/14.4M need to be adjusted"* to [...]. According to the presentation, even with a price of [...] for the MDM8200A Lite, Huawei would achieve *"0 profit"* if it matched the price of Icera based devices quoted to [...]. In light of this situation, the presentation concluded that *"Huawei need QCT's reply before 5th Dec. 2009, or else we have to cancel orders. The sooner QCT making decision, more MDM8200 can be sold out. After 1/3/2010, it's more difficult to sell out 8200 even if at price of* [...]*."*[750]

(486) Qualcomm eventually acceded to Huawei's request, as evidenced by the [...] requests of 23 November 2009 which contained two proposals leading to further price reductions for the MDM8200.[751] The reasons for these proposals reported under *"Background"* confirmed that the proposed price reductions were aimed at pre-empting the launch of Icera's more competitive ICE8042: *"Huawei needs to compete ICERA8042 supporting 3.6M – 21M same platform with flat price $10. QCT MDM6200 late and carrier HSPA+ timing passed. Huawei has to clear excess inventory and backlog before ICERA 21M hitting market. In a recent biding* [sic] *for 14.4M&21M Datacard in Europe, 25 OEMs used ICERA solution with a competitive price $42."*[752]

(a) The first proposal provided for a [...] in form of a retroactive price adjustment to USD [...] for shipments of the MDM8200 Lite after 23 November 2009, thus addressing Huawei's backlog. Given that the proposal resulted in a per unit rebate of USD [...] for a backlog of [...] units, its financial impact was estimated at USD [...] million. In addition, the price for all new orders for the MDM8200 based chipset at 21 Mbps was proposed to be reduced from the then applicable price of USD [...] to USD [...]. Based on a forecasted volume of [...] units for 2010 and a resulting per unit rebate of USD [...], the financial impact was estimated at USD [...] million.[753]

(b) The second proposal consisted of a *"*[...]", *i.e.* a payment formally intended to cover [...] incurred in connection with the certification by a network carrier of a specific end device incorporating the MDM8200A based chipset, with a [...] to *"*[a]*ddress MDM8200 Inventory"*, thus amounting to USD [...] million in total.[754] The explicit link between the [...] incentive and Huawei's MDM8200

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749 Huawei presentation of November 2009 for Qualcomm & Huawei Business Meeting, [...], page 6. This presentation (with file name: [...]) was sent by e-mail of 20 November 2009 ([...]) from [...] (part of Huawei's Commercial Expert Group, [...]) to [...] ([Qualcomm management member]) and [...] (Director, Sales).

750 Huawei presentation of November 2009 for Qualcomm & Huawei Business Meeting, [...], page 6.

751 Qualcomm internal presentation of 23 November 2009 titled [...]. The inventory of [...] units as compared to the [...] units mentioned in the Qualcomm internal e-mail of 14 November 2009 (see recital (482) above) corresponds to a decrease of the backlog from [...] units to [...] units, which means that [...] units of the MDM8200 based chipset had in the meantime been shipped by Qualcomm to Huawei ([...]).

752 Qualcomm internal presentation of 23 November 2009 titled [...].

753 Qualcomm internal presentation of 23 November 2009 titled [...].

754 Qualcomm internal presentation of 23 November 2009 titled [...].

inventory shows that the [...] payment was, in fact, not intended for the MDM8200A, but meant to provide a per unit rebate for the MDM8200.

(487) Both proposals (regarding only Huawei) were adopted in the [...] meeting on 25 November 2009, albeit with slight amendments, together with a [...] incentive for the MDM6200 based chipset:[755]

(a) The price reset for the backlog to USD [...] was agreed to become effective retroactively with regard to all shipments after 15 November 2009 (instead of 23 November 2009) and all purchases until 31 March 2010, with a sales period to MNOs from 15 November 2009 to 30 June 2010. It was extended to the MDM8200 based chipset at 21 Mbps (instead of covering only new orders) for which a net ASP of USD [...] was fixed in order to make sure that part of Huawei's backlog would be sold at 21 Mbps.[756] This was in line with what [...] ([Qualcomm management member]) and [...] (Director, QCT Product Management) had suggested during the internal discussions prior to the [...] in order to allow Qualcomm to *"make more margin than if they* [Huawei] *sold all at 14.4 mbps"* and to *"push 21mbps in the 4 month window until Icera has 21mbps"*.[757]

(b) For new orders of the MDM8200 based chipset after 23 November 2009, a price of USD [...] was fixed.

(c) The MDM8200A [...] incentive[758] to address the MDM8200 inventory was increased to USD [...] million, consisting of a rebate of USD [...] for the [...] units in Huawei's inventory at the time.[759]

(d) The [...] approved a [...] incentive for Huawei for the MDM6200 based chipset purchased between 1 January 2010 and 31 December 2010 and sold to MNOs between 1 January 2010 and 31 March 2011 (see Table 9 under section 12.4.2.13 below for the details of this volume incentive).

12.4.2.4. Developments leading to the [...] approvals of 21 December 2009 and 4 January 2010: price reductions on the MDM6200 based chipset for Huawei and ZTE (including a one-off [...] payment for ZTE), as well as on the MDM8200 based chipset for ZTE

(488) A Huawei communication of 30 November 2009 shows that Huawei did not consider the price reductions approved by the [...] on 25 November 2009 to be sufficient, as

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755 [...] submitted by Qualcomm in Annex 6 to its reply of 16 January 2012 to Article 18(3) Decision of 3 November 2011, [...], pages 280-285.

756 This [...] approval was eventually formalised in the [...].

757 See explanations contained in document of 30 November 2009 titled [...]. It should be noted that there is an inconsistency between Qualcomm's proposal in this document to *"provide a $*[...] *net asp rebate for 21mbps data-cards starting with shipments on* [...]*"* to allow *"Huawei to sell the backlog* [...] *at either 14.4 mbps ($*[...]*) or 21 mbps ($*[...]*)"* (page 3, see also the summary provided on [...]) and the fact that this rebate had already been approved a couple of days before at the [...] meeting of 25 November 2009.

758 This [...] approval was eventually formalised in the [...].

759 Document of 30 November 2009 titled [...]. This corresponds to what is mentioned in an e-mail of 21 January 2010 from [...] Director, Sales) to [...] at Huawei and [...] ([Qualcomm management member]) of 11 November 2009, copying [...] (Account Manager) and other Huawei employees, [...], page 2. The e-mail states: *"*[...]*."*

they would not allow Huawei to successfully compete with Icera based devices. [...][760]

(489) In reaction to Huawei's remarks, a Qualcomm employee named [...] ([...] Financial Analyst, Staff) pointed out that Qualcomm had *"done all we can do on the MDM8200 14.4 rebate ($*[...]*) as our cost structure does not support any further reductions".* As regards the MDM6200 based chipset (14.4 Mbps) and the MDM8200A based chipset (21 Mbps), he emphasised that Qualcomm's pricing offer would be competitive, but conceded that *"*[i]*f Icera proves it ability to have 21mbps in March 2010, it will most likely be necessary to move on MDM8200A price to compete with Icera."*[761]

(490) Shortly afterwards, the discussions within Qualcomm on the need for additional action to address Icera's growing success in the market reignited when [...] (Director, Sales, at Qualcomm, [...]) reported that Icera had just quoted a price close to USD [...] to Huawei and that *"*[...] *have all accepted 'I'* [Icera] *solution devices. 'H'* [Huawei] *company is very nervous, they are afraid to lose those markets. They urged QCT to take action asap, otherwise it may be too late."*[762] In reply to the query of [...] [[QCT top management member]] about the nature of the threat and possible solutions, [...] identified the software upgradeability of Icera's chipsets from 3.6 Mbps to 21 Mbps and the higher cost of the competing MDM8200 and MDM6200 based chipsets as the main issue. He explained that Qualcomm's *"MDM6200/8200 is facing big pressure because our BOM* [bill of material, *i.e.* manufacturing cost] *is much higher than 'I'* [Icera]. *'I' based device has shipped 150K as 10.2Mb/s HSDPA now, but they claimed can be upgraded to 21M by SW* [software] *later. They quoted Euro35 to* [...] *and got* [...] *starong* [sic] *support. Now many OEMs is using 'I' solution for bidding just because of the BOM cost is lower. 'H'* [Huawei] *company claimed they are the only OEM that has not quoted 'I' devices. However, they may forced* [sic] *to use 'I' solution if we can't help them to compete."* In view of these developments, [...] was very concerned about the consequences on Qualcomm which he summarised as follows: *"*[I]*f we don't react immediately, we'll lose share to 'I', not small share but big share.* […] *I met with* [...] *today, he hold long con. calls with Huawei Europe team last night, but could not find ways to compete with 'I''s attacking. The situation is very tough. We are both facing real challenge this time."* To address the situation and ensure Qualcomm's success going forward, he proposed *"to provide aggressive rebate for MDM8200/6200 and MSM6290 now to ensure OEM and Carriers stay with us."*[763]

(491) In early December 2009 Huawei's [...] informed [...] (Director, Sales, at Qualcomm, [...]) that it had *"just tested* [Icera's] *ICE8042 and found it can support 14.4M with better performance than 8200".* Huawei also informed Qualcomm that ZTE had

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760 Document of 30 November 2009 titled [...], page 1.

761 Document of 30 November 2009 titled [...], page 2.

762 Qualcomm internal e-mail of 2 December 2009 from [...] (Director, Sales) to [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Director, QCT Product Management), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]) and [...] ([QCT top management member]), titled [...], page 1.

763 Qualcomm internal e-mail of 3 December 2009 from [...] (Director, Sales) to [...] ([QCT top management member]), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Director, QCT Product Management), [...] ([Qualcomm management member]) and [...] ([Qualcomm management member]), titled [...], page 1.

"quoted Euro35 ICE8042 based 14.4M dongle to [...]*, and claimed that can be SW* [software] *upgrade* [sic] *to 21M later"*. According to Huawei, this device was scheduled to receive the technical approval at [...] by the end of January 2010 and to be shipped to [...] by March 2010.[764] The practical implications of these developments were described by Huawei as follows: *"Before Z/I* [ZTE/Icera] *Euro35 offer come out, Huawei MDM8200 dongle sell at $80. With Z/I's* [ZTE/Icera's] *new offer, no carrier want MDM8200 product.*" Moreover, *"*[g]*iven ICE8042 is so cheaper* [sic]*, Huawei predicted that Z/I* [ZTE/Icera] *company has big room to drop the price further to around USD35 if they wants* [sic] *to compete by pricing in the market."*[765]Against this backdrop, Huawei requested that the recent price reduction for the MDM8200 Lite should also apply to backlog and future sales of the MDM8200 at 21 Mbps: *"*[a]*pply the $20 after rebate price to all backlog (571K in QCT warehouse) and inventory (300K+ in Huawei warehouse) to support Huawei to capture the market before Z/I launch its product. If Huawei can win more market, provide $20 price to all new orders. Huawei has sent $55 MDM8200 dongle new offer to Carriers and waiting for their feedback."*[766]

(492) In addition, Huawei did not exclude the need for further drastic price reductions for the MDM8200 and MDM6200 based chipsets, as reported internally by [...] (Director, Sales, at Qualcomm, [...]) on the same day: *"Given that ICE 8042 is so cheaper* [sic]*, Huawei predicted that Z/I company has big room to drop the price further to around USD35 if they wants* [sic] *to compete by pricing in the market."* Huawei therefore requested that *"QCT should prepare for the pricing war. If it happen* [sic]*, MDM8200 or MDM6200 has to drop to $*[...]*."*[767]

(493) Huawei's disappointment with Qualcomm's support was discussed at senior management level at Qualcomm. The conclusions of the discussion between [...] ([QCT top management member]), [...] ([Qualcomm management member]), [...] (Financial Analyst, Staff, at Qualcomm), [...] (Senior Director, Finance, at Qualcomm) and [...] (Director, QCT Product Management) were summarised in an e-

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764 Qualcomm internal e-mail of 4 December 2009 from [...] (Director, Sales) to [...] ([QCT top management member]), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Director, QCT Product Management), [...] ([Qualcomm management member]) and [...] ([Qualcomm management member]), [...], page 2.

765 Qualcomm internal e-mail of 4 December 2009 from [...] (Director, Sales) to [...] ([QCT top management member]), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Director, QCT Product Management), [...] ([Qualcomm management member]) and [...] ([Qualcomm management member]), [...], page 2.

766 Qualcomm internal e-mail of 4 December 2009 from [...] (Director, Sales) to [...] ([QCT top management member]), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Director, QCT Product Management), [...] ([Qualcomm management member]) and [...] ([Qualcomm management member]), titled [...], page 2 and [...], page 1, page 2. In a later e-mail of the same day, [...] (Director, Sales, at Qualcomm) reported internally that *"in the quarterly supply chain review meeting on Dec. 2nd, Huawei strongly asked to push out* [...] *MDM8200 backlog to next March. They told* [...] *and* [...] *that their* [...] *inventory need 3 month* [sic] *to consume."*

767 Qualcomm internal e-mail of 4 December 2009 from [...] (Director, Sales) to [...] ([QCT top management member]), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Director, QCT Product Management), [...] ([Qualcomm management member]) and [...] ([Qualcomm management member]), titled [...], page 2 and [...], page 1, page 2.

mail of 4 December 2009.[768] They included a *"*[s]*weetener to existing offer for existing 8200s"*, pointing out that Qualcomm had already moved commercially to address Huawei's inventory and backlog issue in the [...] approval of 25 November 2009 (see recital (487) above). As regards the MDM6200 based chipset, it was mentioned that the *"price points they asked for will now be there"*.[769] It was further highlighted that the *"*[s]*ales team will also meet with snr* [senior] *execs and note the very significant amount of monies this represents that QCT is putting on the table"*, and that a second offer covering these and other points was to be communicated to Huawei the following week.[770]

(494) [...] ([Qualcomm management member]) added in a follow-up e-mail of the same day that *"Huawei is in panic mode after receiving Icera quotes, and after losing a couple of deals to ZTE/Icera. We will do our best"*. Moreover, he pointed out that further action would not only cover Huawei but also focus increasingly on ZTE: *"The other part of our strategy is to win back ZTE. We need your approval of a package ASAP. The ZTE* [...] *is in Europe and will meet* [...] *next Monday.* [...] *and I are scheduling a con call with him prior to his* [...] *meeting."*[771] Qualcomm's marketing team therefore started working on a strategy to counter the *"long term threat"* that Icera's progress at ZTE presented to Qualcomm.

(495) A draft presentation on the *"UMTS Modem Competitive Landscape in China"*, which was circulated by [...] (Staff Manager, Marketing, at Qualcomm) to [...] (Director, Marketing, at Qualcomm) and [...] ([Qualcomm management member]) for comments,[772] described the *"Icera Progress in ZTE and Huawei"* as follows: *"ZTE verified that ICE 8040 can work at 14.4Mbps for commercial but Carriers interests move to 8042 due to disadvantages of 8040 on PCB* [printed circuit board] *Size and Current consumption. ZTE made a deal with* [...] *for 14.4Mbps data card, Based on ICE8042, PCB back in late Nov.09, Enter carrier lab in Jan.10, MP in later*

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768 Qualcomm internal e-mail of 4 December 2009 from [...] ([QCT top management member]) to [...] (Director, Sales), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Director, QCT Product Management), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Financial Analyst, Staff), [...] (Senior Director, Finance) and [...] ([QCT top management member]), titled [...], pages 1-2.

769 See Qualcomm internal e-mail of 2 December 2009 from [...] (Financial Analyst, Staff) to [...] (Director, QCT Product Management), copying [...] ([Qualcomm management member]) and others, [...]. The e-mail explained the pricing proposal applicable to Huawei at the time, which was based on a rebated price of USD [...] for devices sold below USD [...] (declining over time) approved at the [...] of 21 September 2009, a [...] and a [...] incentive reduction approved at the [...] of 25 November 2009, thus resulting in a price of USD [...] (after incentives) in the second half of 2010.

770 Qualcomm internal e-mail of 4 December 2009 from [...] ([QCT top management member]) to [...] (Director, Sales), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Director, QCT Product Management), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Financial Analyst, Staff), [...] (Senior Director, Finance) and [...] ([QCT top management member]), titled [...], pages 1-2.

771 Qualcomm internal e-mail of 4 December 2009 from [...] ([Qualcomm management member]) to [...] ([QCT top management member]), [...] (Director, Sales), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Director, QCT Product Management), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Financial Analyst, Staff), [...] (Senior Director, Finance) and [...] ([QCT top management member]), titled [...], page 1.

772 Qualcomm internal e-mail of 1 December 2009 from [...] (Staff Manager, Marketing) to [...] (Director, Marketing) and [...] ([Qualcomm management member]), [...].

10Q1/early Q2. Impact on Huawei: Huawei closely monitor [...]*"*[773] This shows that, in view of Icera's successful partnership with ZTE, also Huawei was increasingly interested in working with Icera. Qualcomm feared that Icera's *"*[p]*enetration in HW* [Huawei] *and ZTE would bring ICE stable and sustainable business. HW/ZTE would help ICE optimise HW/SW solution, HW/ZTE team on ICE platform would fight for their own future roadmap, ICE would get other small players onboard with turn key solution in China."*[774] To address this *"long term threat"*, the draft presentation made a number of *"Proposals for Brainstorming"* to help *"QCT strengthen ties with HW/ZTE"*, including offering *"attractive pricing and product portfolio to stop HW/ZTE work on competitions"*. More specifically, with regard to both the MDM6200 and the MDM8200A based chipset, it proposed to accelerate the launch schedule and to *"early engage with HW and ZTE"*, as well as to provide aggressive pricing to both customers.[775]

(496) During the following days, a Qualcomm internal discussion about further price reductions for the MDM6200 with a particular focus on ZTE took place. The discussion was kicked off by an e-mail from [...] ([Qualcomm management member]) to [...] (Financial Analyst, Staff, at Qualcomm) of 2 December 2009 in which [...] enquired whether Qualcomm could *"support MDM6200 at $*[…] *for ZTE (as PI* [price indication] *for the time it can launch)? Please talk to* [...] *as he knows the pressure as well. I need both QSC6270 at low data rata and MDM6200 at 14.4M to win."*[776] [...] forwarded this request to [...] (Director, QCT Product Management), mentioning that the product launch of the MDM6200 was envisaged for the end of the first quarter of 2010 and that Icera's price was assumed to be around USD [...]. He also pointed to the difficulty of not being able to quote a lower price to ZTE than the one quoted to Huawei, given that ZTE was not sourcing the same volumes from Qualcomm.[777]

(497) In his reply, [...] (Director, QCT Product Management) expressed concerns about a further price reduction for the MDM6200 since the product had not yet been commercially launched. He explained that [...][778]

(498) [...] (Director, QCT Product Management) further explained his worries in a follow-up e-mail to [...] ([Qualcomm management member]) who had argued in favour of further pricing moves since *"*[p]*rotecting sockets now is critical and is most cost*

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773 Qualcomm presentation titled [...], attached to Qualcomm internal e-mail of 1 December 2009, [...], page 12.

774 Qualcomm presentation titled [...], attached to Qualcomm internal e-mail of 1 December 2009, [...], page 12.

775 Qualcomm presentation titled [...], attached to Qualcomm internal e-mail of 1 December 2009, [...], page 13.

776 Qualcomm internal e-mail of 2 December 2009 from [...] ([Qualcomm management member]) to [...] (Financial Analyst, Staff), [...], page 3.

777 Qualcomm internal e-mail of 2 December 2009 from [...] (Financial Analyst, Staff) to [...] (Director, QCT Product Management), copying [...] (Manager, Finance), [...] ([Qualcomm management member]) and [...] (Director, Sales), [...], pages 2-3.

778 Qualcomm internal e-mail of 2 December 2009 from [...] (Director, QCT Product Management) to [...] (Financial Analyst, Staff), copying [...] (Manager, Finance), [...] ([Qualcomm management member]), [...] (Director, Sales) and [...] (QCT Product Manager, Staff), [...], page 2. According to a later e-mail of [...] in the same e-mail chain, [...]. [...] also mentioned that *"it seems that Icera will launch at 14.4M before end of March."*

effective than having to win back later".[779] [...] asked *"what does cost effective mean for us? I am worried that price is the only topic of discussion with ZTE.* [...] *At what point can we no longer sell the product without incurring a loss? I am open to suggestions on how to keep ZTE in our camp, but concerned that this price move will be followed by several more all coming very quickly."*[780]

(499) On 7 December 2009, [...] (Financial Analyst, Staff, at Qualcomm) sent an e-mail to [...] ([QCT top management member]) , copying [...] ([Qualcomm management member]), stating that the *"other item which needs to be addressed moving forward* [...] *is MDM6200. however, I believe we have discussed tackling this via a* [...]. *Based on* [...] *feedback we need to move forward with this soon."*[781]

(500) Later on the same day, the discussion reignited when [...] ([Qualcomm management member]) discovered that the slide deck for the [...] meeting circulated by [...] (Financial Analyst, Staff, at Qualcomm) did not include the *"the MDM6200 proposal for ZTE at $*[...]*".*[782] [...] explained to [...] that [...] ([QCT top management member]) wanted to [...] and that [...] (Director, QCT Product Management) *"was not in favor of making big price moves on ZTE MDM6200"*. He also mentioned the need to keep a certain difference between the prices quoted to ZTE and Huawei given the difference in volumes sourced from Qualcomm.[783] [...] was surprised about [...] position, pointing to the fact that *"*[...] *is suffering from MDM8200 already. I am sure he will suffer the loss of MDM6200 when ZTE launches with Icera in March (and Huawei is entertaining Icera offer as well in concerns of our competitiveness). You should know product marketing folks better…they will tell you the values of their products, etc. but data card is already commoditized, and even with the additional values, how much customers really value them is entirely up to the customers."*[784]

(501) In view of [...] (Director, QCT Product Management) reluctance to directly intervene on the pricing of the MDM6200, [...] ([Qualcomm management member]) made an alternative proposal to address the pricing issue affecting the MDM6200 in the form of a *"one time* [...] *tired* [sic] *to MDM6600 or MDM8200A".*[785] In addition, [...] asked [...] (Financial Analyst, Staff, at Qualcomm) to *"push for the* [...]*, we are damn late".*[786] [...] agreed with [...] reasoning, adding that *"*[i]*t's a difficult situation, we cant* [sic] *just lower our prices to nothing based on Icera quoting these companies unsustainable pricing, but at the same time we cant* [sic] *let Icera gain a lot of*

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779 Qualcomm internal e-mail of 2 December 2009 at 2:50 PM from [...] ([Qualcomm management member]) to [...] (Director, QCT Product Management) and [...] (Financial Analyst, Staff), copying [...] (Manager, Finance), [...] (Director, Sales) and [...] (QCT Product Manager, Staff), [...], page 1.

780 Qualcomm internal e-mail of 2 December 2009 at 22:16:02 from [...] (Director, QCT Product Management) to [...] ([Qualcomm management member]) and [...] (Financial Analyst, Staff), copying [...] (Manager, Finance), [...] (Director, Sales) and [...] (QCT Product Manager, Staff), [...], page 1.

781 Qualcomm internal e-mail of 7 December 2009 from [...] (Financial Analyst, Staff) to [...] ([QCT top management member]), copying [...] ([Qualcomm management member]), titled [...], page 1.

782 Qualcomm internal e-mail of 7 December 2009 from [...] ([Qualcomm management member]) to [...] (Financial Analyst, Staff), [...], page 2.

783 Qualcomm internal e-mail of 7 December 2009 from [...] (Financial Analyst, Staff) to [...] ([Qualcomm management member]), [...], pages 1-2.

784 Qualcomm internal e-mail of 7 December 2009 from [...] ([Qualcomm management member]) to [...] (Financial Analyst, Staff), [...], page 1.

785 See section 9.5.3.2.5 below on Qualcomm's payments for [...].

786 Qualcomm internal e-mail of 7 December 2009 from [...] ([Qualcomm management member]) to [...] (Financial Analyst, Staff), [...], page 1.

business, which will help them get stronger." As regard the implementation of the pricing proposal, he enquired whether [...] was *"looking for like $*[…]*? That would basically be $*[…] *per unit on* […] *current 2010 forecast. What do you want to tie the incentive to? I think tying the* [...] *to MDM8200A might be the best scenario here. Let me know."*[787] [...] agreed: *"Exactly. MDM8200A, $*[…]*/unit."*[788] This shows that, similar to the [...] payment granted to Huawei for its inventory of the MDM8200 in November 2009 (see recital (487) above), also the [...] payment for ZTE was planned to be formally linked to the MDM8200A, while it was actually meant to reduce the per unit price of another chipset (here the MDM6200 for ZTE).

(502) The proposal to address the MDM6200 pricing issue through an [...] incentive on the MDM8200A was taken up in the *"ZTE* [...] *& MDM6200* [...] *Price Proposal Analysis"* sent by [...] (Financial Analyst, Staff, at Quaclomm) to [...] ([QCT top management member]) and [...] (Senior Director, Finance, at Qualcomm) on 10 December 2009. The [...] consisted of an [...] payment of USD […] tied to the carrier qualification of the MDM8200A as well as the purchase of […] units of the MDM6200 in 2010. The payment was to be provided upon execution of the agreement, but a [...] provision was envisaged in case *"ZTE Does Not Carrier Qualify MDM8200A or If Does Not Purchase* […] *Units of MDM6200's in CY2010".*[789] This [...] provision was considered to be in Qualcomm's *"best interest to have some teeth in this if possible to ensure ZTE does do significant volume on MDM6200".*[790] This again confirms that the purpose of the [...] payment was not to incentivise the take-up of the MDM8200A, but to provide a rebate for ZTE's purchases of the MDM6200 in 2010.

(503) At the same time, Qualcomm's marketing team was considering strategy proposals similar to the ones discussed between by [...] ([Qualcomm management member]) and [...] (Financial Analyst, Staff, at Qualcomm) a couple of days before (see recital (496) above). In a revised version of the draft presentation on the [...] sent by [...] (Staff Manager, Marketing, at Qualcomm) on 15 December 2009 to [...] (Director, Marketing, at Qualcomm) and [...] ([Qualcomm management member]) for comments,[791] the *"Proposed Strategy"* included a price reduction of the MDM6200 to USD [...] (*"Lower down tier1 pricing by $*[...] *to $*[...]*"*) as well as [...] funding for the MDM6200 [...].[792]

(504) In parallel to the discussion on possible price reductions for the MDM6200, Qualcomm decided to prioritise the product development of the MDM6200 to ensure that the launch of MDM6200 based devices would coincide with the launch of devices incorporating Icera's ICE8042 based chipset. [...] (Staff Manager, Marketing,

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787 Qualcomm internal e-mail of 7 December 2009 from [...] (Financial Analyst, Staff) to [...] ([Qualcomm management member]), [...], page 1.

788 Qualcomm internal e-mail of 8 December 2009 from [...] ([Qualcomm management member]) to [...] (Financial Analyst, Staff), [...], page 1.

789 Qualcomm internal e-mail of 10 December 2009 from [...] (Financial Analyst, Staff) to [...] ([QCT top management member]) and [...] (Senior Director, Finance), [...] and attached presentation, [...], page 3.

790 Qualcomm internal e-mail of 21 December 2009 from [...] ([QCT top management member]) to [...] (Financial Analyst, Staff), [...], page 1.

791 Qualcomm internal e-mail of 15 December 2009 from [...] (Staff Manager, Marketing) to [...] (Director, Marketing) and [...] ([Qualcomm management member]), [...].

792 Qualcomm presentation titled [...], attached to Qualcomm internal e-mail of 1 December 2009, [...], page 13.

at Qualcomm) explained the situation in an internal e-mail of 11 December 2009 as follows: *"We are having a big fight with Icera in China, ICE8042 can demo stable 14.4Mbps data rate now.* [...] *is pushing ZTE hard to have the ICE8042 device enter their lab end of Dec and launch in early Feb. In parallel, ZTE is promoting their ICE8042 device to* [...] *and* [...]. *We need to support Huawei launch MDM6200 device ASAP to react. I would suggest put the* [...]."[793] [...] suggestion was fully supported by [...] ([Qualcomm management member]) and [...] (Director, QCT Product Management), to which [...] (Director, Sales, at Qualcomm, [...]) added in an e-mail of 14 December 2009: *"Thanks for all of your support to* [...]. *It's strategically important for QCT to compete with Icera leveraging Huawei's cooperative support."*[794]

(505) However, by that time it had already become clear that the commercial sampling of the MDM6200 was delayed by 1 month until the end of March 2010. [...] (Director, QCT Product Management) explained in an e-mail of 16 December 2009 that [...].[795]

(506) This development was of great concern to Qualcomm's sales department since *"*[t]*his thing does to the opposite direction as we desperately need it for the Icera competition."* [...] ([Qualcomm management member]) noted that this would require Qualcomm to make further price concessions on the MDM8200, emphasising that *"*[i]*n the meantime, we have to make price a non-issue to let MDM8200 fill the void."*[796] [...] (Director, QCT Product Management) explicitly agreed to this suggestion (*"sure"*), adding that this was *"not good news."*[797]

(507) This concern was reiterated in a call between [...] (Technical Account Management at Qualcomm) and [...] on 23 December 2009. [...] reported in a Qualcomm internal e-mail of the same day that Huawei's [...] had [...]. He also mentioned that it seemed that [...].[798] At that point in time, [...] was not yet aware of the delay for the

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793 Qualcomm internal e-mail of 11 December 2009 from [...] (Staff Manager, Marketing) to a number of Qualcomm employees, copying amongst others [...] (Director, Marketing), [...] (Director, Sales), [...] (QCT Product Manager, Staff), [...] (Director, QCT Product Management), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...], page 2. See also the Qualcomm internal discussion about the justification for this request, [...].

794 Qualcomm internal e-mail of 14 December 2009 from [...] (Director, Sales) to [...] (Director, QCT Product Management), [...] ([Qualcomm management member]), [...] (Staff Manager, Marketing) and others, copying [...] (Director, Marketing), [...] (QCT Product Manager, Staff) and others, [...], page 1.

795 Qualcomm internal e-mail of 16 December 2009 from [...] (Director, QCT Product Management) to [...] ([Qualcomm management member]), [...] (Staff Manager, Marketing), [...] (Director, Sales), [...] (Director, Sales), copying [...] (Director, Marketing), [...] ([Qualcomm management member]) and [...] (QCT Product Manager, Staff), [...], page 2. This corresponds to the updates and the schedule set out in the Qualcomm internal presentation of 10 December 2009 titled [...], pages 2-3.

796 Qualcomm internal e-mail of 16 December 2009 from [...] ([Qualcomm management member]) to [...] (Director, QCT Product Management), [...] ([Qualcomm management member]), [...] (Staff Manager, Marketing), [...] (Director, Sales), [...] (Director, Sales), copying [...] (Director, Marketing) and [...] (QCT Product Manager, Staff), [...], page 1.

797 Qualcomm internal e-mail of 17 December 2009 from [...] (Director, QCT Product Management) to [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Staff Manager, Marketing), [...] (Director, Sales), [...] (Director, Sales), copying [...] (Director, Marketing) and [...] (QCT Product Manager, Staff), [...], page 1.

798 Qualcomm internal e-mail of 23 December 2009 from [...] (QCT Technical Account Management) to [...] (QCT Product Manager, Staff), [...] (Director, QCT Product Management) and others, copying amongst others [...] (Staff Manager, Marketing), [...], pages 2-3.

MDM6200 and reiterated in a follow-up e-mail of 28 December 2009 that [...].[799] [...] (QCT Product Manager, Staff) confirmed the delay of the MDM6200 based chipset to March 2010, mentioning that this had already been communicated to Huawei.[800] He also explained that Qualcomm was [...][801]

(508) The delay of the MDM6200 only added to Huawei's disappointment about the fact that *"QCT didn't show us any competition strategy to compete with ICERA"*. Huawei was in particular concerned that some operators had started requiring advance quotations for a longer time period of up to one year: *"For example* [...] *requested a quotation for* [...] *units and* [...] *(Huawei lost this project). So we also need QCT give Huawei an advanced competition strategy to compete with ICERA."* The main problem according to Huawei was that *"ICERA based Datacard are participating in the 2010 biding* [sic] *worldwide actively with two advantages compared with QC based Datacard: upgrading to 14.4M/21M and competitive price. How can Huawei deal with such situation? I've told you* [...] *chose ICERA based Datacard at price* [...]*; Of course, that is 2010 deal, but we lost it now."*[802]

(509) Against this backdrop, in the [...] meeting of 21 December 2009, Qualcomm approved for both Huawei and ZTE further price reductions for the MDM6200 baseband chip (without voice functionality) and a [...] incentive scheme for the MDM6200 baseband chip in combination with the PM8028:[803]

(a) The rebated price of the MDM6200 (baseband chip only) was fixed at USD [...] net ASP for Huawei and USD [...] net ASP for ZTE for a purchase period from 1 January 2010 to 31 December 2010 and a sales period from 1 January 2010 to 31 March 2011, for chips without voice functionality.[804] On the same day, the [...] also approved the net ASP for the MDM6200 (baseband chip only) without restriction to non-voice applications, which was USD [...] for Huawei and USD [...] for ZTE.

(b) In addition, the [...] approved a price indication of USD [...] for the MDM8200A for both Huawei and ZTE, as well as a [...] including USD [...] million for the MDM8200A under the condition that ZTE achieved carrier qualification prior to 31 December 2010 (the [...] erroneously states 2009 instead of 2010). USD [...] million were due upon execution but could be clawed back by Qualcomm if the carrier qualification deadline was not met.[805] As shown by the contemporaneous evidence referred to in recitals (500)-(502)

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799 Qualcomm internal e-mail of 28 December 2009 from [...] (QCT Technical Account Management) to [...] (QCT Product Manager, Staff), [...] (Director, QCT Product Management) and others, copying amongst others [...] (Staff Manager, Marketing), [...], pages 2-3.

800 See also Qualcomm internal e-mail of 30 December 2009 from [...] (Staff Manager, Marketing), [...], in which he stated that he had [...].

801 Qualcomm internal e-mail of 29 December 2009 from [...] (QCT Product Manager, Staff) to [...] (QCT Technical Account Management), [...] (Director, QCT Product Management) and others, copying amongst others [...] (Staff Manager, Marketing), [...], page 1.

802 Document of 16 December 2009 titled [...].

803 [...] submitted by Qualcomm in Annex 6 to its reply of 16 January 2012 to Article 18(3) Decision of 3 November 2011, [...], pages 297-300, 295, 306.

804 The terms of this [...] approval were eventually formalised, [...].

805 The [...] approval of this [...] incentive for ZTE was eventually superseded by the [...] approval, on 24 May 2010, of an [...] payment of USD [...] million for the carrier qualification at [...] of an MDM6200 and an MDM8200A based device (*i.e.* USD [...] million for each model); see recital (554) below.

above, despite being formally linked to the MDM8200A, this [...] incentive was in reality intended to offer ZTE a price cut on the MDM6200, equivalent to a rebate of USD […] for each of the […] units of the MDM6200 which Qualcomm forecasted selling to ZTE in 2010.

(510) Moreover, in the [...] meeting of 4 January 2010, Qualcomm approved price reductions for ZTE corresponding to the price reductions for the MDM8200 based chipset for Huawei agreed in the [...] meeting of 25 November 2009 (see recital (487) above). It also fixed the price for the PM8028 chip:

(a) The price of the MDM8200 for ZTE was reduced to USD [...] net ASP for shipments to ZTE after 1 January 2010 (*i.e.* chipsets in ZTE's backlog) as well as to USD [...] for the chipset (and USD [...] for the baseband chip) for new orders of the MDM8200 in the first quarter of 2010. The corresponding purchase period was from 1 January 2010 to 31 March 2010 and the sales period from 1 January 2010 to 30 June 2010.[806]

(b) The price for the PM8028 in combination with the MDM6200 was set at USD [...] for both Huawei and ZTE in 2010.

12.4.2.5. Developments leading to the [...] approvals of 1 and 22 March 2010: further price reductions on the MDM8200 based chipset for Huawei and ZTE, including a one-time credit for Huawei's remaining backlog

(511) The [...] of December 2009 showed that the pricing concessions on the MDM6200 and the MDM8200A were unlikely to be sufficient to address the *"Icera threat"* which seemed *"inevitable"* to Qualcomm in view of the fact that *"Ice8042 is an* [sic] *useable solution and recognized by both HW* [Huawei] *and ZTE and more resources will be allocated".* More specifically, it noted that Huawei had [...] and was [...], while the lab testing for the ZTE/[...] 14.4 Mbps data card based on Icera's ICE8042 had been finished in November 2009, with technical approval being targeted for 8 February 2010 and the launch being expected to take place in March 2010. Finally, with regard to Icera's product offering, it noted that *"*[c]*arriers want 8042 instead of 8040 due to BOM* [bill of material] *cost and power disadvantages".*[807]

(512) On 1 January 2010, [...] (Staff Manager, Marketing, at Qualcomm) summarised the [...] in an internal e-mail to Qualcomm's senior management as follows: *"Icera 8042 is the top threat to QCT now,* [...]*."* The actions proposed by [...] to address the situation clearly show that the Icera threat concerned the leading edge segment of the market (*i.e.* MDM8200 and MDM6200 at 14 Mbps and above): *"a. Speed up MDM6200 and 8200A CS* [commercial sample] *release; b. Work with Huawei to beat Icera with MDM6200, burn out Icera's limited funds from VC* [venture capital]*, squeeze ICE8042/ZTE market space".* He also reported that he had heard that *"*[...] *didn't accept ZTE's proposal for 14.4 data card with MDM6200 even with better ASP* [average selling price] *than Icera8042 device,* [...] *simply wanted a non-QCT solution."*[808] This shows that Qualcomm continued to believe that it needed to move

806 [...] submitted by Qualcomm in Annex 6 to its reply of 16 January 2012 to Article 18(3) Decision of 3 November 2011, [...], pages 311-312.

807 Qualcomm internal presentation of December 2009 titled [...], page 15.

808 Qualcomm internal e-mail of 1 January 2010 from [...] (Staff Manager, Marketing) to [...] (Director, QCT Product Management), copying [...] ([Qualcomm management member]), [...] (Director,

quickly to the launch of the improved version of the MDM8200 (*i.e.* the MDM8200A) in order to become competitive *vis-à-vis* Icera and that, in the meantime, all efforts should be focused on the earlier launch of the MDM6200 with a view to eliminating Icera's further development prospects.

(513) [...] (Director, QCT Product Management, at Qualcomm) replied to [...] on 3 January 2010, thanking him for his recommendation and suggesting a meeting among the addressees of [...] e-mail to discuss this further. More specifically on [...] proposals, he was of the view that *"we are close on 6200. 6290 proposal seems workable."* However, he also mentioned that [...],[809] hinting to the delays that Qualcomm was facing with regard to the envisaged market launch of the products. On 4 January 2010, [...] ([Qualcomm management member]) forwarded [...] e-mail to [...] ([QCT top management member]), [...] (Senior Director, Business Development, at Qualcomm) and [...] ([QCT top management member]), with the comment *"*[n]*ot good…"*,[810] referring to the report about Icera' progress in the market. [...] agreed, but expressed doubt that [...] solution.[811] He also agreed with [...] proposals, noting that Qualcomm needed in addition *"to work to get the MDM6200 early acceptance at* [...]*, so that accepting 6200 based commercial products can be very straightforward when they come."*[812]

(514) The meeting suggested by [...] (Director, QCT Product Management) was initially scheduled by [...] ([Qualcomm management member]) for 4 January 2010 who had indicated as the only topic of the meeting an *"Icera Discussion"*, adding that *"*[w]*e are going to discuss the threat of Icera at our key accounts"*.[813] The discussion was eventually rescheduled to 6 January 2010,[814] the day on which [...] reported to the senior management originally invited (except for [...], position unkown) as well as [...] (QCT Product Manager, Staff) and [...] (Manager, Finance, at Qualcomm) that *"*[t]*oday we discussed the latest market intelligence about Icera"*. He started his debrief about the discussion by emphasising Icera's momentum among Chinese device manufacturers, pointing to the fact that *"the latest intelligence indicates that*

Marketing), [...] ([Qualcomm management member]) and [...] ([Qualcomm management member]), [...], page 1. See also [...] which contains part of the e-mail thread.

809 Qualcomm internal e-mail of 3 January 2010 from [...] Director, QCT Product Management) to [...] (Staff Manager, Marketing), copying [...] ([Qualcomm management member]), [...] (Director, Marketing), [...] ([Qualcomm management member]) and [...] (Senior Director, Sales), [...].

810 Qualcomm internal e-mail of 1 January 2010 from [...] ([Qualcomm management member]), [...], page 1. See also [...] which contains part of the e-mail thread.

811 Qualcomm internal e-mail of 19 January 2010 from [...] [QTC top management member] to [...] (Director, QCT Product Management), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]) and others, [...], page 1. The e-mail also mentioned that in the EU visit it had been [...].

812 Qualcomm internal e-mail of 4 January 2010 from [...] (Senior Director, Business Development) to [...] ([Qualcomm management member]), [...] [QTC top management member] and [...] ([QCT top management member]), [...], page 1. See also [...] which contains part of the e-mail thread.

813 Qualcomm internal meeting invitation of 4 January 2010 by [...] ([Qualcomm management member]) to [...] ([Qualcomm management member]), [...] (Director, QCT Product Management), [...] ([QCT top management member]), [...] (Senior Director, Finance), [...] (Manager, Finance), [...] (Director, Sales), [...] (Director, Sales), [...] (position unknown), [...] ([Qualcomm management member]), [...] (position unknown), [...] (Director, Marketing), [...] (Staff Manager, Marketing) and [...] ([Qualcomm management member]) for a meeting in the afternoon of the same day, [...].

814 Qualcomm's reply of 16 June 2017 to question 21 of Article 18(3) Decision of 31 March 2017, [...], paragraphs (201)-(202).

'all' major data card vendors are using Icera platforms. [...]*."* He added that *"Icera has grown its operations in China recently, they've been busy in our backyard.* […] *Since most of their features are implemented in software, the reference hardware platform rarely changes for products with different data rates or features. With many customers and design wins, the ~260-person company is optimistic about its revenue outlook in 2010 and is looking to go IPO sometime this year."* As regards the performance of Icera chipsets, he noted that [...] This shows that, at the time, despite still being a small start-up, Icera had gained an increasingly solid position in the data card market and was confident about its development prospects. Against this backdrop, [...] concluded that further action was needed to protect Qualcomm's position at Huawei and ZTE: *"We have to protect our sockets at major accounts. ZTE and Huawei are the top priorities and the China team is working on issues at these accounts. For the short term, adjusting MDM6200 and MDM8200a pricing has to be done to contain volume growth at Icera in 2010, and to buy time for new platform development (28nm by 2012)."* However, he also pointed to the fact that in recent negotiations with ZTE, [...] had already rejected an MDM6200 dongle quoted at USD [...] less than Icera,[815] implying that customers might no longer be willing to pay a price premium for Qualcomm's products as compared to Icera's products[816] and that therefore more significant price reductions might be necessary to contain Icera's growth.

(515) In his debrief, [...] ([Qualcomm management member]) also pointed out that the presentation attached to his e-mail had been prepared by [...] (Staff Manager, Marketing, at Qualcomm) and that it had been used in the discussion with senior management. The presentation was a further revised version of the draft presentation on [...] which had been discussed between [...], [...] (Director, Marketing, at Qualcomm) and [...] ([Qualcomm management member]) during the month of December 2009 (see recital (495) above). The presentation can therefore be considered the result of a thorough reflection within Qualcomm. The slide on the *"Icera Progress in ZTE and Huawei"* had been updated with information from the [...] of December 2009, concluding that *"*[o]*verall, Ice8042 is an* [sic] *useable solution and recognized by both HW and ZTE"* (see recital (511) above)*."*[817] The slide setting out the *"Proposed Strategy"* had also been further revised. In addition to the price reduction for the MDM6200 to USD [...] and a revised funding proposal for the MDM6200 device promotion for Huawei at USD [...]/unit for up to [...] million

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815 Qualcomm internal e-mail of 6 January 2010 from [...] ([Qualcomm management member]) to [...] ([Qualcomm management member]), [...] (Director, QCT Product Management), [...] ([QCT top management member]), [...] (Senior Director, Finance), [...] (Manager, Finance), [...] (Director, Sales), [...] (Director, Sales), [...] (position unknown), [...] ([Qualcomm management member]), [...] (QCT Product Manager, Staff) and [...] (Manager, Finance), copying [...] (Staff Manager, Marketing), [...] (Director, Marketing) and [...] ([Qualcomm management member]), [...].

816 See, *e.g.*, Qualcomm internal e-mail of 2 February 2010 from [...] (Director, QCT Product Management) in which he explains with regard to the MDM6200: *"I think we should be able to argue for the $*[...] *QC premium given our support / supply and performance track record, and that features like the most advanced GPS are included"* ([...], page 5); Qualcomm internal presentation of 7 May 2010 which refers to Icera's *"Improved Features/Support"* that *"Reduces QCT Premium"* ([...], pages 4-5); and Qualcomm internal e-mail of 27 May 2010 from [...] (Manager, Finance) to [...] (Senior Director, Finance) and others, [...], stating that *"proposal is based on theory overall data-card market has become commodity market and our pricing strategy becomes competition + small QCT premium"*.

817 Qualcomm presentation titled [...], attached to Qualcomm internal e-mail of 6 January 2010, [...], page 9.

units (as compared to the previously envisaged USD [...]/unit for up to [...] million units), it included a proposal to *"*[s]*peed up MDM6200 and 8200A CS release"*. Moreover, it suggested *"*[s]*queezing Icera for ~6 months to burn out their very limited funds from VC"*, noting that Icera had *"260 employees, average cost $200k/person/year"* and that the *"$70M from VC in Dce.08* […] *can support Icera for only 16 months to Apr.2010"*.[818] These strategy proposals corresponded to the suggestions already made by [...] in his e-mail to Qualcomm's senior management of 1 January 2010 (see recital (512) above).

(516) In an e-mail of 6 January 2010, [...] (QCT Technical Account Management) reported internally on an earlier meeting with Huawei during which the launch date for the MDM6200 based chipset was discussed. He explained that *"*[...]*."* Against this backdrop, he agreed with the proposal of [...] (Staff Manager, Marketing, at Qualcomm) of 30 December 2009 to add certain features step by step *"to make sure to push Huawei's MDM6200 devices on marketing more sooner"*.[819]

(517) [...] (Staff Manager, Marketing, at Qualcomm) added in a follow-up e-mail of the same day to [...] (Director, QCT Product Management) and [...] (QCT Product Manager, Staff), copying [...] (Director, Marketing, at Qualcomm) and [...] ([Qualcomm management member]), that the delays in the launch of the MDM6200, its higher cost compared to Icera's ICE8042 and [...] increasing preference for Icera's chipsets were causing problems for Qualcomm, with the serious risk of Huawei and ZTE moving resources to Icera. He explained that the *"MDM6200 is at risk of being marginalized in Huawei and ZTE given the disadvantages vs ICE8042 as below: 1. Schedule: 2 months behind; 2. BOM* [bill of [...]] *cost: $*[...] *higher of EBOM* [Engineering Bill of Materials][820]*; 3. Carrier pull:* [...] *specify ICE8042 for 14.4 data cards."* In view of this situation, he was concerned that *"Huawei and ZTE may put major resources on ICE8042 instead of MDM6200 and launch product on 8042. Once the resources were moved away, it would be hard to get them back. Even we want to fight by then, we will face tougher cost game."* He therefore emphasised that *"*[w]*e need serious damage control under the current wartime"*. With regard to the delayed schedule for the MDM6200, he enquired whether they could not *"put all resources on implementing pure cat.10 data rate* [14.4 Mbps] *and* [...]*"*.[821]

(518) In its reply to [...] (Staff Manager, Marketing, at Qualcomm) e-mail of 6 January 2010, [...] (QCT Product Manager, Staff) shared [...] analysis of the situation, confirming that *"*[t]*he team here is also very concerned about the overall Icera threat"*. He explained that the *"*[...]*."* As regards the carrier pull mentioned by [...], he noted that *"*[...]*."*[822] In his reply of 7 January 2010, [...] asked [...] to *"aggressively*

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818 Qualcomm presentation titled [...], attached to Qualcomm internal e-mail of 6 January 2010, [...], page 7.

819 Qualcomm internal e-mail of 6 January 2010 from [...] (QCT Technical Account Management) to [...] (Staff Manager, Marketing), [...] (QCT Product Manager, Staff), [...] (Director, QCT Product Management) and others, [...], pages 2-3.

820 An Engineering Bill of Materials is a type of bill of materials listing the components required to manufacture a product as designed by engineering.

821 Qualcomm internal e-mail of 6 January 2010 from [...] (Staff Manager, Marketing), [...], page 2.

822 Qualcomm internal e-mail of 6 January 2010 from [...] (QCT Product Manager, Staff) to [...] (Staff Manager, Marketing) and [...] (Director, QCT Product Management), copying [...] (Director, Marketing) and [...] ([Qualcomm management member]), [...], pages 1-2.

drive the execution" in order to *"support Huawei launch cat. 10 data card ASAP".*[823] [...] had in parallel forwarded the e-mail exchange to [...] (Senior Director, Engineering at Qualcomm) who initially expressed doubts about the Icera threat and Huawei being critical for Qualcomm.[824] [...] (Director, QCT Product Management) however confirmed on the same day that *"the icera threat is critical"* and offered to *"*[...] *to relate to* [...] *the budgetary hit we are taking due to price downs to hold sockets".*[825]

(519) [...] (Director, QCT Product Management) view found support in the growing appreciation of the industry for Icera's products. For example, in January 2010, the GSM Association nominated Icera's IceClear Type 3i interference cancellation technology, which is used in Icera's chipsets to minimize power consumption, as a finalist for the GSMA's award for Best Mobile Technology Breakthrough.[826] In February 2010, an internal [...].[827]

(520) On 18 January 2010, the MDM8200 based chipset was brought back to the centre of attention when [...] ([Qualcomm management member]) informed *inter alia* [...] (Director, QCT Product Management) and [...] ([QCT top management member]), copying [...] ([Qualcomm management member]), in an e-mail titled *"*[u]*rgent"* that the *"latest forecast is showing a significant weakness on MDM8200 volumes".*[828] In his reply of the same day and in reaction to [...] request to *"understand the story on this to identify if opportunities exist for recovery"*,[829] [...] noted with reference to an earlier analysis made by [...] a *"couple of major points, which I explained to* […] ([Qualcomm top management member]) *last week: 1. Heat issues delaying launches, 2. 8200A coming this May, 3. Price high on 8200".*[830] [...] (position at Qualcomm unknown) added that *"we have also ZTE proposing Icera based solutions for HSPA+ (due to pricing I'm told) and away from MDM8200. This is confirmed at* [...] *and at EU operators."*[831]

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823 Qualcomm internal e-mail of 7 January 2010 from [...] (Staff Manager, Marketing) to [...] (QCT Product Manager, Staff) and [...] (Director, QCT Product Management), copying [...] (Director, Marketing) and [...] ([Qualcomm management member]), [...], page 1.

824 Qualcomm internal e-mail of 6 January 2010 from [...] (Senior Director, Engineering) to [...] (QCT Product Manager, Staff) and another Qualcomm employee, copying [...] (Director, QCT Product Management), [...], page 1.

825 Qualcomm internal e-mail of 6 January 2010 from [...] (Director, QCT Product Management) to [...] (QCT Product Manager, Staff), [...] (Senior Director, Engineering) and another Qualcomm employee, [...], page 1.

826 Icera's Complaint, [...], paragraph (23).

827 [...] internal presentation of 8 February 2010, [...], page 2.

828 Qualcomm internal e-mail of 18 January 2010 from [...] ([Qualcomm management member]) to [...] (position unknown), [...] (Director, QCT Product Management) and [...] [QTC top management member], copying [...] ([Qualcomm management member]), [...], page 9.

829 Qualcomm internal e-mail of 18 January 2010 from [...] ([Qualcomm management member]) to [...] (position unknown), [...] (Director, QCT Product Management) and [...] [QTC top management member], copying [...] ([Qualcomm management member]), [...], page 9.

830 Qualcomm internal e-mail of 18 January 2010 from [...] ([Qualcomm management member]) to [...] ([Qualcomm management member]), [...] (Director, QCT Product Management), [...] [QTC top management member] and other Qualcomm employees, [...], pages 8-9.

831 Qualcomm internal e-mail of 18 January 2010 from [...] (position unknown) to [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Director, QCT Product Management), [...] [QTC top management member] and another Qualcomm employee, [...], page 8.

(521) In a follow-up e-mail of the same day, [...] (Director, QCT Product Management) confirmed that *"we've been working the 8200 sell thru situation for a few weeks now. The comments below are consistent with a few updates. 8200 volume forecast were strong coming out of* [the GSMA Mobile World Congress in] *Barcelona.* […] *This demand was based on our plan to CS1* [commercial sampling based on first software release][832] *in Feb'09. The actual CS1 slipped to May '09. The slip in addition to the heating issues experienced by Huawei and ZTE helped stall launches by 2 months, causing the market window to be missed for 2H'09.* […] *ICERA is no better on power relative to 8200 but their disruptive pricing and the strong desire on the part of operators to diversify their supplychain* [sic] *has created an opening for them."*[833] This confirms once again that the lack of success of Qualcomm's MDM8200 based chipset was the result of Icera's competitive pricing, combined with Qualcomm having missed the window of opportunity for the market launch of the product due to its technical shortcomings (see also recitals (409) and (410) above).

(522) With reference to Huawei's backlog issue (see section 12.4.2.3 above), [...] (Director, QCT Product Management) explained in the same e-mail that there were *"*[...] *of volume of Huawei was trying to push back on. Huawei is agreeing to take* [...] *but finance position is that Huawei must take it all."* He also referred to the price of USD [...] for new orders of the MDM8200 that the [...] had approved on 25 November 2009 (see recital (487) above) which Huawei had rejected and with regard to which he was *"now taking another look with* [...]*".* As regards the action being taken by Qualcomm he pointed out that *"we are also messaging the 6200 and 8200A hard as blunts to ICERA's pricing"*, explaining that he mentioned the MDM6200 *"because ICERA's value lies in a cheap common platform that tiers from 3.6 thru 21Mbps. The real threat is at Cat 10 (14.4) and 21. we need both 6200 and 8200A to hit their schedules (both are a month late) to help defend."* However, he also pointed to the weakness of this strategy, explaining that *"ICERA also supports voice which we have discussed at length as a limitation on 8200A"* and *"the fundamental problem to be addressed is the perception in the market that all modems are equal. we are being commoditized by operator procurement teams who are looking at data rate and low price."*[834] He added in another e-mail a couple of minutes later that *"ICERA's competitive price point is ~$*[...] *for any modem rate 3.6 thru 21Mbps.* […] *ICERA's price for the 21Mbps tier is hard to compete with until the 8200A, and even then our margins will be very tight".*[835]

(523) In a bilateral follow-up e-mail of the same day to [...] (Director, QCT Product Management), [...] (QCT Product Manager, Staff) provided some more background on the market situation and Qualcomm's actions. Under a newly added heading

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832 The MDM8200 based chipset was enabled by two major software releases, the first being of 15 May 2009 and the second being of 15 January 2010. See, *e.g.*, Qualcomm internal presentation of November 2010 titled [...], pages 24-25.

833 Qualcomm internal e-mail of 18 January 2010 at 11:03 AM from [...] (Director, QCT Product Management) to [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] [QTC top management member] and other Qualcomm employees, [...], pages 6-8.

834 Qualcomm internal e-mail of 18 January 2010 at 11:03 AM from [...] (Director, QCT Product Management) to [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] [QTC top management member] and other Qualcomm employees, [...], pages 6-8.

835 Qualcomm internal e-mail of 18 January 2010 at 11:08 AM from [...] (Director, QCT Product Management) to [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] [QTC top management member] and other Qualcomm employees, [...], page 6.

"What we are doing" immediately following the heading *"Competitive Pressure from Icera"* he listed amongst other items *"Aggressive new 8200 pricing"* as well as the *"*[n]*eed to hold May10 8200A CS* [commercial sampling] *date (currently trending one month late)"* and the *"*[n]*eed to hold March10 6200 CS date"*.[836] This reflects the multi-chipset nature of Qualcomm's strategy to counter the Icera threat, which comprised all three chipsets under investigation, namely the MDM8200, the MDM6200 and the MDM8200A based chipset.

(524) At the end of same day, [...] (Director, QCT Product Management) sent the finalised summary to [...] ([Qualcomm top management member]) and [...] ([QCT top management member]) *"to provide some background on the 8200 volume drop seen recently".* Under the heading *"summary"* it had been added that *"OEMs now look past 8200 to 8200A. It is critical to hold 8200A May '10 CS* [commercial sampling]. […] *Currently sitting on* [...] *units of 8200 E&O* [excess & obsolete] *with additional risk of* [...] *decommit from Huawei. New pricing has been offered to all OEMs to move 8200 inventory asap. We are now waiting for feedback"*.[837] Also the information under the heading *"What are we doing?"* had been updated and now showed that not only Huawei but also ZTE had rejected the recently approved price for new orders of the MDM8200 of USD [...], and that not only the commercial launch date of the MDM8200A but also of the MDM6200 was one month late.

(525) Towards the end of January 2010, discussions between Qualcomm and Huawei with regard to the MDM8200 resurfaced.

(526) On 20 January 2010, Huawei's [...] wrote to [...] ([Qualcomm management member]) and [...] (Director, Sales, at Qualcomm, [...]), asking for further price reductions for its remaining inventory since [...]. According to Huawei's calculations, it was still holding around [...] units of the MDM8200 in its inventory that were not covered by the price reductions approved by the [...] on 25 November 2009 (see recital (487) above). Huawei therefore requested that Qualcomm [...] in order to extend the price reductions approved by the [...] on 25 November 2009 to these remaining units [...].[838]

(527) Huawei's request was received with little enthusiasm by [...] ([Qualcomm management member]) who believed that Qualcomm *"had addressed all the MDM8200 rebated issues based on Huawei's request back in Oct./Nov. time frame"* and therefore asked to *"review the history of discussions"*.[839] Huawei's [...] explained in a follow-up e-mail of 21 January 2010 that during the discussions with Qualcomm on the inventory issue in November 2009, *"*[w]*e just talked about the* [...] *inventory but we were careless to double check* [...] *and I apologize for finding this problem so late.* […] *Now new problem was found, we need your support to solve the MDM8200*

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836 Qualcomm internal e-mail of 18 January 2010 from [...] (QCT Product Manager, Staff) to [...] (Director, QCT Product Management), copying [...] ([Qualcomm management member]) and another Qualcomm employee, [...], pages 4-6.

837 Qualcomm internal e-mail of 18 January 2010 from [...] (Director, QCT Product Management) to [...] ([Qualcomm top management member]) and [...] ([QCT top management member]), [...], pages 3-5.

838 E-mail of 20 January 2010 from [...] at Huawei to [...] ([Qualcomm management member]) and [...] (Director, Sales), copying [...] (Account Manager) and other Huawei employees, [...], pages 3-4.

839 E-mail of 20 January 2010 from [...] ([Qualcomm management member]) to [...] at Huawei and [...] (Director, Sales), copying [...] (Account Manager) and other Huawei employees, [...], page 3.

inventory problem thoroughly."[840] [...] (Director, Sales, at Qualcomm, [...]) however disagreed with Huawei's position, pointing to the [...] payment of USD [...] million which had been approved at the [...] on 25 November 2009 to cover the inventory accumulated until 15 November 2009: *"*[...]*."*[841]

(528) During the following days, Huawei kept insisting on its request since according to Huawei's [...], *"*[...]*."*[842] This request was reiterated in an e-mail from Huawei's [...] (position at Huawei unknown) to [...] (Director, Sales, at Qualcomm, [...]) and [...] ([Qualcomm management member]): *"*[...]*."*[843]

(529) In a Qualcomm internal e-mail of 26 January 2010, [...] (Director, Sales, at Qualcomm, [...]) explained Huawei's insistence with the fact that *"Huawei is very worried about their big inventory and backlog which may become dead inventory.* [...] *has urged for quick selling. Commercial team push* [...] *and me hardly* [sic] *for financial support."*[844] [...] ([Qualcomm management member]) replied, pointing to the need for pricing adjustments for the MDM8200 until the launch of the MDM6200 and MDM8200A (see recital (506) above): *"Let us know what we can do to help. We need to close the gap until 8200A and 6200 go commercial."*[845] [...] (Director, QCT Product Management) added however that he recalled *"huawei's president saying he is willing to take low margins to compete with zte/icera. our 8200 inventory at $*[...] *is also at low margin. Now that both sides are being as aggressive as possible, what is standing in the way of Huawei hitting the* [...] *EUR target",* suggesting that Huawei should lower its own margins by offering a more price competitive end device at EUR [...].[846] In a follow-up e-mail of 27 January 2010, he therefore enquired whether *"Huawei is waiting for further price down on the POs* [...]? *I think* [...] *has already been thru this.* [...] *it feels like we are stuck so we need to figure out how to move forward."* He again referred to the *"cost structure problem on 8200 that won't allow matching ICErA pricing"* (see also, in this regard,

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840 E-mail of 21 January 2010 from [...] at Huawei to [...] ([Qualcomm management member]) and [...] (Director, Sales,), copying [...] (Account Manager) and other Huawei employees, [...], page 2.

841 E-mail of 21 January 2010 from [...] (Director, Sales) to [...] at Huawei and [...] ([Qualcomm management member]), copying [...] (Account Manager) and other Huawei employees, [...], page 2.

842 E-mail of 21 January 2010 from [...] at Huawei to [...] ([Qualcomm management member]) and [...] (Director, Sales), copying [...] (Account Manager) and other Huawei employees, [...], page 1.

843 E-mail of 22 January 2010 from [...] at Huawei to [...] (Director, Sales,) and [...] ([Qualcomm management member]), copying [...] (Account Manager), [...] and other Huawei employees, [...], page 1.

844 Qualcomm internal e-mail of 26 January 2010 from [...] (Director, Sales) to [...] ([Qualcomm management member]), [...] ([Qualcomm management member]) and [...] ([Qualcomm management member]), copying [...] (Director, QCT Product Management), [...], pages 3-4. See also [...], which contains part of the e-mail thread.

845 Qualcomm internal e-mail of 26 January 2010 from [...] ([Qualcomm management member]) to [...] (Director, Sales), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), copying [...] (Director, QCT Product Management), [...], page 3. The details of Huawei's request are explained in this follow-up e-mail of 27 January 2010 which is part of the same e-mail thread, pages 1-2. See also [...], which contains part of the e-mail thread.

846 Qualcomm internal e-mail of 28 January 2010 from [...] (Director, QCT Product Management) to [...] ([Qualcomm management member]), [...] (Director, Sales), [...] ([Qualcomm management member]) and [...] ([Qualcomm management member]), [...], page 3. See also [...], which contains part of the e-mail thread.

recitals (482) and (489) above), adding that *"this is a challenge until 6200 kicks in for 2H'10"*.[847]

(530) [...] ([Qualcomm management member]) disagreed with any further price reductions for Huawei's MDM8200 inventory, explaining that *"Huawei had made some mistakes with their inventory and how our rebate terms should be applied. Our position is that we had done what Huawei requested at the time, there will be no more, and Huawei should take consequence of their own."* At the same time, he pointed to the need for further price reductions on the MDM6200 in order to keep both Huawei and ZTE with Qualcomm. He explained that *"we need to provide additional adjustment on MDM6200 to show the strength of our competitiveness and to keep ZTE and Huawei in our camp for 14.4Mbps. The timing is in our hands. The sooner the better from a damage control perspective."*[848] [...] (Director, QCT Product Management) was fine with this proposal, even though he anticipated objections from Finance in view of the recent price reductions for the MDM6200 for Huawei (see recital (509) above), and from Huawei who was focused on solving the MDM8200 inventory issue: *"understand* [...]. *let me know what more we can do on 6200. I am willing to help. I know we've already made moves so I am anticipating resistance from* [...] ([QCT top management member]) . *key think is for Huawei to lock in sockets using 8200 E&O* [excess & obsolete] *for 14.4. they need to win these back and we can work our longer term deals to compensate them on 8200A and 6200."*[849]

(531) [...] (Director, Sales, at Qualcomm, [...]) provided further background on Huawei's difficult situation at the time, highlighting in particular the possibility of Huawei moving to Icera to stay competitive *vis-à-vis* ZTE and Huawei's decreasing interest in the MDM6200 as a result of this: [...][850][...] *They might use Icera after ZTE when they find even MDM6200 can't compete."*[851] This shows that already before the launch of the MDM6200 Qualcomm was having doubts about its ultimate successfulness in competing with Icera in the leading edge segment of the market.

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847 Qualcomm internal e-mail of 27 January 2010 from [...] (Director, QCT Product Management) to [...] ([Qualcomm management member]), [...] (Director, Sales), [...] ([Qualcomm management member]) and [...] ([Qualcomm management member]), [...], page 2. See also [...], which contains part of the e-mail thread.

848 Qualcomm internal e-mail of 27 January 2010 from [...] ([Qualcomm management member]) to [...] (Director, QCT Product Management), [...] ([Qualcomm management member]), [...] (Director, Sales) and [...] ([Qualcomm management member]), [...], page 2. See also [...], which contains part of the e-mail thread.

849 Qualcomm internal e-mail of 28 January 2010 from [...] (Director, QCT Product Management) to [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Director, Sales) and [...] ([Qualcomm management member]), [...], page 2. See also [...], which contains part of the e-mail thread.

850 An ODM typically manufactures products of its own design which are then sold under the brand name of an OEM. According to Qualcomm, in the referenced e-mail the term is used in discussing the possibility that Huawei may purchase dongles from an ODM, which has developed dongles using an Icera chipset and then Huawei would sell the dongles under the Huawei brand name. See Qualcomm's reply of 2 December 2013 to question 101 of Article 18(3) Decision of 10 July 2013, [...], paragraph 434.

851 Qualcomm internal e-mail of 27 January 2010 at 6:09 PM from [...] (Director, Sales) to [...] (Director, QCT Product Management), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]) and [...] ([Qualcomm management member]), [...], page 1.

(532) A follow-up e-mail of the same day shows that the main problem for Huawei was the unwillingness of [...], to use Qualcomm's MDM6200. [...] (Director, Sales, at Qualcomm, [...]) explained that *"*[...][852] [...] ([Qualcomm management member]) forwarded the e-mail thread to [...] ([Qualcomm top management member]), explaining that this was an e-mail *"about* [...] *pushing Huawei for Icera based dongle at 14.4 data rate and not wanting MDM6200. Again the carrier is against us."*[853]

(533) In parallel, [...] (Director, QCT Product Management) verified with [...] (Director, Marketing, at Qualcomm) which price ZTE/Icera were offering at that time in the market. [...] informed him about the [...].[854] He further explained that [...][855] *was impressed by Huawei mdm6200 based design and likely to range it but it is coming d… late! So until june icera will dominate…"*[856] [...] replied: *"understand but the goal is now to use 8200 at 14.4 to block".*[857] This shows that Qualcomm continued to rely on the MDM8200 until the launch of the MDM6200 which was about to miss the time-to-market window in view of its delayed launch (as already anticipated in November 2009, see recital (486) above) and Icera's increasing traction in the market.

(534) Also the [...] of January 2010 reflected Icera's growing success in the market, pointing to the development progress of the ZTE/[...]/Icera data card which was expected to start volume shipment in late March 2010 and to be upgradable to 21 Mbps in early June 2010, as well as the set-up of a Huawei team working on Icera's ICE8042. The presentation concluded that *"*[o]*verall, Icera has won solid position in ZTE and penetrated in Huawei".*[858]

(535) A Qualcomm internal e-mail from [...] (Director, QCT Product Management) of 2 February 2010 confirmed the lack of market interest that the MDM6200 was experiencing: *"It appears that 6200 is in serious trouble among Tier 1 operators in EU,* [...][859] More specifically as regards [...], [...] (Senior Director, Business Development, at Qualcomm) reported in an e-mail of 9 February 2010 that *"they reviewed all their dongle proposals with ZTE and Huawei today and yesterday and that the MDM 6200 proposals were still 'several Euros' more expensive than the Icera ones. The* [...] *helps to bridge the gap, but does not do it completely."*[860] In a follow-up e-mail he added that *"*[t]*hey do btw place some value on the 'flexibility'*

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852 Qualcomm internal e-mail of 27 January 2010 at 21:55:03 from [...] (Director, Sales) to [...] (Director, QCT Product Management), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]) and [...] ([Qualcomm management member]), [...], page 1.

853 Qualcomm internal e-mail of 28 January 2010 from [...] ([Qualcomm management member]) to [...] ([QCT top management member]), [...], page 1.

854 Qualcomm internal e-mail of 27 January 2010 from [...] (Director, Marketing) to [...] (Director, QCT Product Management), [...], page 1.

855 See, *e.g.*, Qualcomm internal report of December 2009/January 2010 titled [...], page 5.

856 Qualcomm internal e-mail of 28 January 2010 from [...] (Director, Marketing) to [...] (Director, QCT Product Management), [...], page 1.

857 Qualcomm internal e-mail from [...] (Director, QCT Product Management) of 28 January 2010 to [...] (Director, Marketing), [...], page 1.

858 Qualcomm internal presentation of January 2010 titled [...], page 17.

859 Qualcomm internal e-mail of 2 February 2010 from [...] (Director, QCT Product Management) to [...] ([Qualcomm management member]) and [...] (Senior Director, Technical Marketing), [...], pages 4-5.

860 Qualcomm internal e-mail of 9 February 2010 from [...] (Senior Director, Business Development) to [...] (Senior Director, Technical Marketing), [...] (Director, QCT Product Management) and [...] ([Qualcomm management member]), [...], pages 3-4.

promoted by Icera".[861] In reaction to the ensuing discussion about how to improve the presentation of value proposition for the MDM6200, [...] took a rather rejective attitude, highlighting the need for more aggressive action against Icera instead: *"It appears that we are looking for silver bullets in the form of a deck in order to promote the 6200 heavily with EU operators. The 6200 value prop has been laid out since prior to sample mid of 2009. There are no new features or spec changes since then. We can play with the optics of the deck but this should not preclude the full court press that is now required to push back on ICERA.* […] *We also made significant price moves (which may or may not be getting to the Carriers but we have still made them). By the way, I am sure Operators will play the same game with us on 8200A when ICERA pushes their 21Mbps product. Will be go through the same iterations then too? We have a new deck for 8200A but again, there are no silver bullets."*[862]

(536) More specifically as regards the MDM8200A, [...] (Director, QCT Product Management) added later in the discussion that price competition with Icera would be even more challenging than for the MDM6200 in view of the MDM8200A's slightly higher costs as compared to Icera's ICE8042: *"ICERA threat appears to be pan-European* [...]. *6200 does not have* [...]. *It's fair to expect that operators will push back on the 8200A relative to ICERA's 8042 HSPA+ offering in the same way as 6200, i.e. using low-ball pricing to dismiss our benefits. Our challenge will be greater since 6200 at least has cost parity with ICERA for Cat 10, but the 8200A is still slightly higher on cost based on our estimates of the 8042. We will definitely have to win based on our performance value, but also everything else that QC brings in our relationships with major operators.* […] *One clear trigger will be* [...]. *I don't want to rely on pricing as our savior though. We presented* […] ([Qualcomm top management member]) *slides this week which showed that* […] *have come off the budget since Nov'10* [sic, supposedly Nov'09] *due to competitive repricing across the UMTS portfolio…much of it due to ICERA."*[863] This demonstrates the significant order of magnitude of the price reductions granted by Qualcomm since November 2009 to address the Icera threat.

(537) In a meeting on 3 February 2010 between Huawei, represented *inter alia* by […], and Qualcomm, represented *inter alia* by [...] ([QCT top management member]) , […] ([Qualcomm management member]) and [...] (Director, Sales, at Qualcomm, [...]), Huawei again insisted on price reductions for the remaining MDM8200 inventory (see recital (528) above). Huawei highlighted again Icera's growing traction at MNO level and Huawei's lack of competitiveness with Qualcomm based end devices to justify its request: *"Icera is rapidly becoming a threat to both Qualcomm and Huawei. At one of the carriers, 26 out of 27 data cards proposals submitted are*

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861 Qualcomm internal e-mail of 9 February 2010 from [...] (Senior Director, Business Development) to [...] (Senior Director, Technical Marketing), [...] (Director, QCT Product Management) and [...] ([Qualcomm management member]), [...], page 3.

862 Qualcomm internal e-mail of 9 February 2010 from [...] (Director, QCT Product Management) to [...] (Senior Director, Technical Marketing), [...] (Senior Director, Business Development), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Senior Director, QCT Product Management) and [...] [QTC top management member], [...], page 2.

863 Qualcomm internal e-mail of 10 February 2010 from [...] (Director, QCT Product Management) to [...] (Senior Director, Technical Marketing), [...] (Senior Director, Business Development), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Senior Director, QCT Product Management) and [...] [QTC top management member], [...], page 1.

based on Icera chipsets. Huawei was the only company that used a QCT based design."[864] Huawei also emphasised the decreasing interest of MNOs in Qualcomm's chipsets and in particular [...] unwillingness to work with Huawei on the basis of an MDM8200 or MDM6200 based design: [...]

(538) Qualcomm's meeting notes of the same meeting contain some more background on Huawei's MDM8200 inventory issue. Under the heading [...], Qualcomm noted that *"Huawei purchased total* [...] *MDM8200, only* [...] *with rebate,* [...] *without rebate.* [...] *seriously requested QCT to settle down this issue because of 2 reasons. A). Missed best market time window because of several months development schedule push out and delivery delay. B). Operators refused to issue TA* [technical approval] *by reason of too many technical crash problems. According to* [...] *comments, price protection is basic and comment* [sic] *rules exercised by industry.* [...] *explained QCT's finance activities* [...]*, so QCT would not be able to put any further subsidy for completed delivery."*[865]

(539) During the meeting on 3 February 2010, Huawei also showed appreciation for the quality of Icera's chipsets, noting that *"*[a]*lthough Icera products were problematic initially, they are good enough now.* [...] *data card based on Icera chipsets are available in Hong Kong, and test results indicate they are pretty close to QCT products in terms of performance."*[866] Huawei also noted that Icera's cooperation with ZTE and [...] had significantly increased its development prospects and in particular its ability to capture more demand in 2010: [...]. *Therefore, the* [...]*+Icera+ZTE combo is a huge threat to Huawei and Qualcomm. Although Icera only shipped around 1M chipsets to its customers last year, it does have the capability to scale this year. Icera recently* [...]*"*[867] Against this backdrop, Huawei stressed the need for urgent action to prevent this from happening, pointing out that *"this month (February) is the last chance for Huawei and Qualcomm to stop Icera's action at* [...]*."*[868]

(540) At the beginning of February 2010, it also became clear that the launch of the MDM8200A was further delayed and that this would have consequences for Qualcomm's competitiveness in the leading edge segment of the market. In a Qualcomm internal e-mail of 11 February 2010, [...] (Director, QCT Product Management) noted that a postponement to 10 September 2010 *"would take us out of our 2H'10 launches. We have no alternative product to offer OEMS like Huawei / zte in 2010 as 8200 is DOA* [dead on arrival] *in the eyes of major operators (heat). there is* [...] *gap between 8200 and ICERA8042 and a $*[...] *gap with the 8200A. with this gap, even a major desire to push 8200 to mainstream OEMs/Operators becomes impossible since to offer at a competitive price, we would be at negative margins on 8200…which is illegal…the scrap E&O* [excess & obsolete] *we are sitting on is ~*[...]*, which would not address the original volume forecast in the budget for 2010 ~*[...]*…we simply cannot sell new 8200 parts to address the additional volume at negative margin."* He further noted that *"8200A may not be ideal but operators and OEMs have clearly accepted it as an incremental improvement over 8200"* and the

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864 Huawei meeting notes of 3 February 2010, [...], page 2.

865 Qualcomm's [...] concerning a meeting on 3 February 2010 between Qualcomm and [...], page 6.

866 Huawei meeting notes of 3 February 2010, [...], page 3.

867 Huawei meeting notes of 3 February 2010, [...], pages 3-4.

868 Huawei meeting notes of 3 February 2010, [...], page 4.

cost *"allows for competitive pricing even at reduced margin (but still positive)."* Against this backdrop, he concluded that *"competitively, not having the 8200A and knowing in all truth that 8200 is not going anywhere, we would ceded* [sic] *all HSPA+ 21Mbps volume to our competitors in 2010.* […] *Then when we do try to launch 8200A in 2011, who will switch away from ICERA back to 8200A??? as we agreed, the financial impact and the competitive considerations of an 8200A move out will be reviewed at this afternoons meeting with* […] ([Qualcomm top management member])*"*.[869]

(541) Despite having indicated at different occasions that Qualcomm's cost structure would not allow further reducing the price for the MDM8200 based chipset, the […] approved yet another price reduction for the MDM8200 based chipset in its meeting of 1 March 2010:[870]

(a) The net ASP for the fourth quarter of 2010 for Huawei was fixed at USD […] and for ZTE at USD […].

(b) Moreover, the […] approved a new volume counter scheme for new orders of the MDM8200 for both customers.[871]

(c) Finally, the […] approved a reduced price indication for the MDM8200A/RTR6285/PM7540 chipset without voice functionality for the fourth quarter of 2011 which was set at USD […] for Huawei and USD […] for ZTE.

(542) Given that the […] approval of 1 March 2010 did not address Huawei's request for further price reductions on its MDM8200 inventory (see recital (537) above), this issue was further discussed within Qualcomm and between Qualcomm and Huawei during the following days.

(543) In an e-mail of 4 March 2010, […] (Director, Sales, at Qualcomm, […]) explained again to [...] ([Qualcomm management member]) and […] ([Qualcomm management member]) the history of the inventory issue, emphasising that it had resulted from a mistake on Huawei's side: *"1. Huawei made a mistake on the inventory quanty* [sic]*, last Nov. they told us the inventory is* […]*, so we give them* […] *to cover,*[872] *however, this year they find the inventory should be* […]*. That's* […] *and* […] *mistake. 2. We offered rebate to Huawei last Nov.,* […]*"*[873]

(544) On 5 March 2010, the inventory issue was discussed again in a meeting between Huawei and Qualcomm. The discussion was summarised in the attachment to an e-

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869 Qualcomm internal e-mail of 11 February 2010 from [...] (Director, QCT Product Management) to [...] (position unknown), [...] (position unknown) and [...] (position unknown), copying [...] ([Qualcomm management member]), [...], page 1.

870 [...] submitted by Qualcomm in Annex 6 to its reply of 16 January 2012 to Article 18(3) Decision of 3 November 2011, [...], pages 359-360.

871 See recital (662) below on Qualcomm's counter-based volume schemes and Table 8 under 12.4.2.13 below for the details of this volume scheme.

872 The Commission notes that the reference to an *inventory* of [...] units is inconsistent with the information provided by Huawei to Qualcomm in November 2009 which suggests that these units rather belonged to Huawei's *backlog* (see recital (478) above). Moreover, according to the evidence referenced in recital (486) above, the [...] incentive granted to Huawei by [...] approval of 25 November 2009 (see recital (487) above) had already addressed Huawei's inventory.

873 Qualcomm internal e-mail of 4 March 2010 from [...] (Director, Sales) to [...] ([Qualcomm management member]) and [...] ([Qualcomm management member]), [...], page 1.

mail of 17 March 2010 from Huawei,[874] which also contained a rebate history for the MDM8200 as well as an overview of the inventory accumulated during 2009.[875] The section with the heading *"Competition status"* again pointed to the increasing adoption of Icera based end devices by MNOs in Europe and the disadvantages of the MDM8200 as compared to Icera's products, notably with regard to pricing: *"*[…] *3. ICERA development in 2010 – If QCT keeps negative attitude, shipment of ICERA based devices is estimated to be* […] *million units in Europe. 70% of them are 3.6M/7.2, 30% of them are 14.4M/21M. 4. Price competition – Quotation of* […]*. And compare with ICERA, MDM8200 has some disadvantages such as overheating, wasting resource, etc. So the operator's acceptable price of QC* [Qualcomm] *based data card is lower than or at least the same as the same spec ICERA based data card. We expect the price of 14.4M data card will be less than* […] *Euro in 2010 H2."* Against this backdrop, Huawei requested amongst other things to *"*[t]*ake the opportunity of MDM8200 inventory clearing, focus on* […]*, quote aggressive price, and pursue big volume, to pull back ICERA's volume, win the TTM* [time-to-market] *of MDM6200/MDM8200A"* and, at the same time, to *"decrease quotation of UPA* [7.2 Mbps] *data card. Squeeze the "living space" of ICERA"*, referring to price reductions of Qualcomm based end devices at MNO level. More specifically with regard to the MDM8200, Huawei requested *"QCT to give Huawei* […] *for MDM8200".*[876]

(545) [...] ([Qualcomm management member]) was receptive to this request and asked […] (Financial Analyst, Staff, at Qualcomm) on 16 March 2010 to *"bring up the Huawei 8200 request to* […]*. They want to receive some* […] *to push their 8200 based dongles into the* […] *for which ZTE is proposing Icera products. Huawei believes that they can and should take* […] *out of the total with aggressive pricing. They asked for about $*[…] *dollars ($*[…] *dollar each). This is for inventory and backlog."*[877] […] confirmed in an e-mail of 19 March 2010 that he and […] had *"worked through this last night. We have put together a proposal,* […]*. In essence our pitch is to offer the previously approved* […] *price for new orders as a rebated price for all shipments Huawei takes from* […]*. Ideally by providing this support they will take and find homes for* […] *backlog and purchase even more to deplenish our E&O* [excess & obsolete inventory]*."*[878]

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874 E-mail from Huawei of 17 March 2010 to [...] ([Qualcomm management member]) and [...] (Director, Sales), [...], page 3.

875 Huawei document of 16 March 2010 titled [...], attached to an e-mail of 17 March 2010 from Huawei to [...] ([Qualcomm management member]) and [...] (Director, Sales), [...], page 1.

876 Huawei document of 16 March 2010 titled [...], attached to an e-mail of 17 March 2010 from Huawei to [...] ([Qualcomm management member]) and [...] (Director, Sales), [...], page 2. The document also noted that the [...], which according to an e-mail of [...] (Director, QCT Product Management) of 19 March 2010, would put Qualcomm [...], see Qualcomm internal e-mail of 19 March 2010 from [...] (Director, QCT Product Management), [...], page 1. The document does not indicate the addressees of this e-mail. Presumably, however, the e-mail was addressed to [...] ([Qualcomm management member]), [...] ([QCT top management member]) and [...] (Financial Analyst, Staff), as these are the people involved in the e-mails preceding and following the referenced e-mail.

877 Qualcomm internal e-mail of 16 March 2010 from [...] ([Qualcomm management member]) to [...] (Financial Analyst, Staff), [...]. See also e-mail from [...] of 18 March 2010 to Huawei in which he noted that [...].

878 Qualcomm internal e-mail of 19 March 2010 from [...] Financial Analyst, Staff) to [...] (Director, QCT Product Management), [...] ([Qualcomm management member]) and [...] ([QCT top management member]), [...], page 1.

(546) On 22 March 2010, the […] agreed to accede to Huawei's request, albeit in the form of a […].[879] This credit (to be calculated based on the following formula: […] effectively reduced the price of […] units in Huawei's backlog to USD […] per unit. Qualcomm considered this *"an important approval that is worth more than* […] *This is a great deal, we hope Huawei will never come back with any more request on MDM8200, and will continue to use QCT's MDM6200 and MDM8200A, etc."*[880]

12.4.2.6. Developments leading to the […] approval of 17 May 2010: implementation of a […] strategy by means of price reductions on the MDM6200 to ZTE and on the MDM8200A for Huawei

(547) Despite Qualcomm's significant pricing moves on the MDM8200 based chipset during the preceding months, Huawei continued to be concerned about […]. This was again mentioned by Huawei in a meeting with Qualcomm towards the end of March 2010 in view of the fact that […].[881]

(548) Considering the uncertainty regarding the commercial success of its MDM8200 based devices, Huawei made clear to Qualcomm in the same meeting that its […], signalling to Qualcomm more generally "[…]."[882] In reaction to Huawei's concerns, Qualcomm's "[…] ([Qualcomm management member]) *acknowledged* [*vis-à-vis* Huawei] *that we have to be aggressive in pricing in the short term (with 8200A/6200) for a year or so, and when our next modem chips at 28nm come up, Icera has no competition in die size (costs), performance, and multi-mode integration, etc."*[883] Also within Qualcomm, the need to emphasise the temporary nature of the problem was stressed by [...] ([Qualcomm management member]) who explained that Qualcomm *"need*[s] *to convince* [Huawei] *that the current problem with Icera is temporary and Huawei is better off staying with QCT for the long run."*[884]

(549) Huawei's concerns about the competitiveness of its Qualcomm based devices not only related to the MDM8200, but also to the MDM6200. In an e-mail of 29 March 2010, […] (Director, Sales, at Qualcomm, […]) reported on a call with Huawei,

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879 [...] submitted by Qualcomm in Annex 6 to its reply of 16 January 2012 to Article 18(3) Decision of 3 November 2011, [...], page 379.

880 Qualcomm internal e-mail of 27 March 2010 from [...] ([Qualcomm management member]) to [...] (Director, Sales) and [...] ([Qualcomm management member]), [...].

881 The content of that meeting was reflected in a Qualcomm internal e-mail of 24 March 2010 from [...] ([Qualcomm management member]) to [...] (Director, Sales), [...] (Director, Sales), [...] (Director, QCT Product Management), [...] (Staff Manager, Marketing), [...] (Director, Marketing), [...] ([Qualcomm management member]) and others, copying [...] (Financial Analyst, Staff), [...], page 1.

882 Qualcomm internal e-mail of 24 March 2010 from [...] ([Qualcomm management member]) to [...] (Director, Sales), [...] (Director, Sales), [...] (Director, QCT Product Management), [...] (Staff Manager, Marketing), [...] (Director, Marketing), [...] ([Qualcomm management member]) and others, copying [...] (Financial Analyst, Staff), [...], page 1.

883 Qualcomm internal e-mail of 24 March 2010 from [...] ([Qualcomm management member]) to [...] (Director, Sales), [...] (Director, Sales), [...] (Director, QCT Product Management), [...] (Staff Manager, Marketing), [...] (Director, Marketing), [...] ([Qualcomm management member]) and others, copying [...] (Financial Analyst, Staff), [...], page 1.

884 Qualcomm internal e-mail of 24 March 2010 from [...] ([Qualcomm management member]) to [...] (Director, Sales), [...] (Director, Sales), [...] (Director, QCT Product Management), [...] (Staff Manager, Marketing), [...] (Director, Marketing), [...] ([Qualcomm management member]) and others, copying [...] (Financial Analyst, Staff), [...], page 1.

explaining that Huawei's "[…]."[885] Huawei therefore informed Qualcomm about its intention of […] Huawei conveyed its hope that Qualcomm "[…]."[886] Against this backdrop, […] concluded: *"We must work out a MDM8200A pricing strategy plan to keep Huawei stay with us."*[887] This demonstrates that the focus of Qualcomm's strategy to contain Icera's growth at Huawei eventually shifted from the MDM6200 to the MDM8200A. The […] of April 2010 confirmed Huawei's (as well as ZTE's) commitment to work on an MDM8200A design during the following months: […].[888]

(550) A Qualcomm internal presentation of 7 May 2010 titled […] demonstrates that Qualcomm anticipated a need for further price reductions on the MDM8200A (for Huawei) and the MDM6200 (for ZTE) in the context of its *"Icera strategy"* with a view to preventing Icera from further increasing its market presence and ultimately becoming a *"Formidable Handset Modem Player"*:

Figure 10: "Icera Strategy – Qualcomm Strategy"[889]

(551) The presentation shows that in 2011 Qualcomm envisaged competing at 14.4 Mbps with the MDM6200 (ASP USD […], AUC USD […]) and at 21 Mbps with the MDM8200A (ASP USD […], AUC USD […]), whereas Icera was expected to rely on a more cost competitive and lower priced common platform across data rates (ASP USD […], AUC USD […]).[890] Under *"UMTS Data-Card Tactical Pricing Proposal"*, the presentation suggested to *"Defend QCT Market Share in 2011 against Icera – Awaiting Arrival of MDM8215 in 2H2012"*, a chipset which Qualcomm expected to have a similar ASP and AUC as Icera's leading edge offerings.[891]

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885 Qualcomm internal e-mail of 29 March 2010 from [...] (Director, Sales) to [...] ([Qualcomm management member]), [...] (Director, Sales), [...] (Director, QCT Product Management), [...] (Staff Manager, Marketing), [...] (Director, Marketing), [...] ([Qualcomm management member]) and others, copying [...] (Financial Analyst, Staff), [...], page 1.

886 Qualcomm internal e-mail of 29 March 2010 from [...] (Director, Sales) o to [...] ([Qualcomm management member]), [...] (Director, Sales), [...] (Director, QCT Product Management), [...] (Staff Manager, Marketing), [...] (Director, Marketing), [...] ([Qualcomm management member]) and others, copying [...] (Financial Analyst, Staff), [...], page 1.

887 Qualcomm internal e-mail of 29 March 2010 from [...] (Director, Sales) to [...] ([Qualcomm management member]), [...] (Director, Sales), [...] (Director, QCT Product Management), [...] (Staff Manager, Marketing), [...] (Director, Marketing), [...] ([Qualcomm management member]) and others, copying [...] (Financial Analyst, Staff), [...], page 1.

888 Qualcomm internal presentation of April 2010 titled [...], page 21: [...].

889 Qualcomm internal presentation of 7 May 2010 titled [...], page 3.

890 Qualcomm internal presentation of 7 May 2010 titled [...], page 4.

891 Qualcomm internal presentation of 7 May 2010 titled [...], page 5.

(552) In order to implement that strategy, the presentation proposed taking differentiated action *vis-à-vis* ZTE and Huawei. In the 14.4 Mbps segment, prices for ZTE for the MDM6200 should be lowered to USD […] as of 1 October 2010 and ZTE should be provided with a price indication of USD […] for Q2'11. In the 21 Mbps segment, Huawei should be enabled *"as Lead Horse on MDM8200A to Drive 21 Mbps Against Competition"*, confirming that […]. For that purpose, Huawei should benefit from a price reduction for the MDM8200A to USD […] as of 1 October 2010 and be provided with a price indication of USD […] for Q2'11.[892]

(553) The proposed […] strategy was approved by the […] on 17 May 2010 in the form of significantly revised price reductions for the MDM6200 with regard to ZTE and for the MDM8200A with regard to Huawei:[893]

(a) As regards the MDM6200 for ZTE, the […] confirmed the net ASP of USD […] for baseband chips purchased between 1 January 2010 and 30 September 2010, and approved a reduced net ASP of USD […] for baseband chips purchased between 1 October 2010 and 31 December 2010, provided that they were incorporated into end devices sold to MNOs between 1 January 2010 and 31 March 2011.

(b) In addition, the […] approved a rebated price indication of USD […] net ASP for ZTE for the fourth quarter of 2011 for the MDM6200 used together with the PM8015, which was expected to be *"pin for pin compatible to PM8028, and when available, will be used to support price down of MDM6200 chipset used in 'data only' devices in CY11".* This price indication was meant *"to achieve a $* […] *net chipset ASP"* even after the replacement of the PM8028 with the more cost-efficient and therefore cheaper PM8015, which was expected to be available at around mid-2011 and to account for *"most if not all of the price down* […] *in CY11."*[894]

(c) As regards the MDM8200A, the […] approved a significantly reduced price indication for Huawei for the MDM8200A/RTR6285/PM7540 without voice functionality which was set at USD […] for the fourth quarter of 2010 and USD […] for the fourth quarter of 2011.

(554) Finally, on 24 May 2010, the […] approved a revision of the […] approval of 21 December 2009 with regard to the […] payment providing a price reduction on the MDM6200 for ZTE (see recital (509) above). Instead of the initial payment of USD […] which was formally linked to the MDM8200A, the […] payment was reduced to USD […] and formally split between the MDM6200 and the MDM8200A (*i.e.* USD […] for each model).[895] There are, however, no indications that the initial purpose of the payment (*i.e.* incentivising purchases by ZTE of the MDM6200 during 2010) had changed in the meantime.

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892 Qualcomm internal presentation of 7 May 2010 titled [...], pages 7-8.

893 [...] submitted by Qualcomm in Annex 6 to its reply of 16 January 2012 to Article 18(3) Decision of 3 November 2011, [...], pages 416-418.

894 Qualcomm internal e-mail of 20 May 2010 from [...] (Senior Manager, Finance) to [...] ([QCT top management member]), [...] (Senior Manager, Finance) and [...] (Manager, Finance), [...].

895 [...] submitted by Qualcomm in Annex 6 to its reply of 16 January 2012 to Article 18(3) Decision of 3 November 2011, [...], page 421. The terms of this approval were eventually formalised in the [...].

12.4.2.7. Developments leading to the […] approval of 28 May 2010 and 5 August 2010: further price adjustments on the MDM8200, MDM6200 and MDM8200A for Huawei and ZTE

(555) Towards the end of May 2010, further price reductions for the MDM6200 and the MDM8200A appeared necessary for Qualcomm to maintain its share at Huawei and ZTE.

(556) Based on new pricing requests from Huawei and ZTE, additional price reductions for both chipsets were proposed to the […] on 28 May 2010. Page 1 of a Qualcomm presentation circulated internally in preparation of the […] meeting showed pricing requests for the MDM6200 of USD […] (Huawei) and USD […] (ZTE), and for the MDM8200A of USD […] (Huawei and ZTE). The slide concluded that *"*[n]*ow is time to close pricing gaps with competition to protect market share, and to flatten pricing tiers to fragment the market"*, referring to Qualcomm's price differentiation between its largest and most powerful customers OEMs, *i.e.* those OEMs generating the largest volume of purchases (Tier 1),[896] and other customers (Tier 2).[897] The […] made reference to the previously approved scenario of maintaining Qualcomm's current market share. Under the heading *"Position MDM6200 for Growth in 2011 – (Reduce Tier 1 Premium to Drive Fragmentation in New Market"*, it mentioned the already approved price indication for Q4'11 of USD […] for ZTE and a proposal of USD […] for Huawei. Under the heading *"Position MDM8200A Against Competition – (Reduce Tier 1 Premium to Drive Fragmentation in New Market"*, it mentioned the already approved price indication for the fourth quarter of 2011 of USD […] for Huawei and a proposal of USD […] for ZTE.[898]

(557) Based on these proposals, the […] approved on 28 May 2010 a number of price adjustments, overall reducing the price of the MDM6200 for Huawei and the price of the MDM8200A for ZTE to incentivise both operators to purchase the baseband chip that they were not primarily interested in:[899]

(a) As regards Huawei, the […] introduced a second purchase period (from 1 October 2010 until 31 December 2010) with a significantly reduced net ASP of USD […] for the MDM6200,[900] as well as a rebated price indication of USD […] net ASP for the MDM6200/PM8015 for the fourth quarter of 2011.[901] This is to be seen against the background that, as noted in […] of June 2010, *"Huawei's involvement in driving MDM6200 volume is very important given its marketing capability and industry influence"*.[902] Moreover, for the

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896 Qualcomm's reply of 16 June 2017 to Article 18(3) Decision of 31 March 2017, [...], question 20.3, paragraph (192).

897 Qualcomm internal presentation (without date and title), [...], page 1, attached to a Qualcomm internal e-mail of 28 May 2010 from [...] (Manager, Finance) to [...] ([Qualcomm management member]) and others, copying [...] (Director, QCT Product Management) and another Qualcomm employee, [...].

898 Qualcomm internal presentation (without date and title), [...], page 2, attached to a Qualcomm internal e-mail of 28 May 2010 from [...] (Manager, Finance) to [...] ([Qualcomm management member]) and others, copying [...] (Director, QCT Product Management) and another Qualcomm employee, [...].

899 [...] submitted by Qualcomm in Annex 6 to its reply of 16 January 2012 to Article 18(3) Decision of 3 November 2011, [...], pages 427-429, 435-437.

900 The terms of this [...] approval were eventually formalised in the [...].

901 The price of USD [...] does not correspond to the price reported in an e-mail from [...] (Manager, Finance) of 4 June 2010 where USD [...] are mentioned instead, [...], page 3.

902 Qualcomm internal presentation of June 2010 titled [...], page 22.

MDM8200A, the […] approved an increased price indication to USD […] for the fourth quarter of 2010 and USD […] for the fourth quarter of 2011.

(b) As regards ZTE, the […] slightly increased the price for the MDM6200[903] for the second purchase period to USD […], as well as the price indication for the MDM6200/8015 for the fourth quarter of 2011 to USD […].[904] For the MDM8200A, the price indications were significantly revised downwards to USD […] for the fourth quarter of 2010 and USD […] for the fourth quarter of 2011.

(558) Towards the end of the first half of 2010, Qualcomm observed that its pricing strategy *vis-à-vis* Icera appeared to bear fruits. The […] of June 2010 noted under the heading *"MDM8200A and MDM8220"* that *"Ice8042 is losing momentum in Huawei and ZTE. The strategy of squeezing Ice8042 w/ both MDM6200 and MDM8200A made effect."* At the same time, the report also mentioned that ZTE and Huawei were marketing or about to launch Icera based end devices: *"*[…]*."*[905]

(559) On 5 August 2010, the […] approved a price increase for new orders of the MDM8200 based chipset due to the use of new semiconductor material and revised the price indications for the MDM8200A based chipset.[906]

(a) The price for the MDM8200 was increased by USD […] for new orders with immediate effect for both Huawei and ZTE, bringing the floor price up to USD […] and USD […] respectively. As a reason for this price increase [...] ([Qualcomm management member]) mentioned in an e-mail of 6 August 2010 the *"start of new wafers"*.[907]

(b) The price indications for the first quarter of 2011 for the MDM8200A/RTR6285 in combination with the PM8028 were revised downwards to USD […] (Huawei) and USD […] (ZTE), whereas the price indications for the fourth quarter of 2011 for the MDM8200A/RTR6285 in combination with the PM8015 were set at USD […] (Huawei) and USD […] (ZTE). These price indications were limited to chipsets without voice functionality.

12.4.2.8. Developments leading to the […] approvals of 25 October and 15 November 2010: further price reductions on the MDM8200A and the MDM6200

(560) On 17 October 2010, [...] ([Qualcomm top management member]) triggered a new discussion on Qualcomm's *"latest thinking on how we handle Icera in Huawei and*

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903 This price increase was likely motivated by the imminent introduction of the PM8015 chip, which Qualcomm was able to offer at prices which were considerably lower than those of the its predecessor power management chip, the PM8028 (see section 12.5.3.4.4. below). [...].

904 The price of USD [...] does not correspond to the price reported in an e-mail from [...] (Manager, Finance) of 4 June 2010 where USD [...] are mentioned instead, [...], page 3.

905 Qualcomm internal presentation of June 2010 titled [...].

906 [...] submitted by Qualcomm in Annex 6 to its reply of 16 January 2012 to Article 18(3) Decision of 3 November 2011, [...], pages 494-497.

907 Qualcomm internal e-mail of 6 August 2010 from [...] ([Qualcomm management member]) to [...] (Director, Sales) and [...] ([Qualcomm management member]), [...]. As explained in Qualcomm's SSO Response, paragraph (497), the *"start of new wafers"* mentioned in that e-mail refers to the fabrication of new units of the MDM8200, which had not happened since early December 2009.

ZTE? How big of a threat is this now? The local team seemed confused when we asked."[908]

(561) […] ([QCT top management member]) explained in his reply that Qualcomm's situation had improved since it had *"extremely competitive 8200A product/pricing that have been quoted as well as other MDM devices"*.[909] In a follow-up discussion between [...] ([QCT top management member]) and [...] (Senior Director, Finance, at Qualcomm) on 18 October 2010 Qualcomm's strategy with regard to the leading edge segment was summarised as follows: *"3) give ZTE aggressive 6200: Hua* [Huawei] [...]*, ZTE $* [...] […]*, 4) give Huawei 8200A aggressive pricing. Hua* [...]*, ZTE $*[...]*"*.[910] [...] who had completed [...] e-mail with the pricing figures added that *"*[...]*."*[911] He also mentioned that the [...].[912] This reflects Qualcomm's differentiated approach with regard to Huawei and ZTE, with the focus lying on the MDM8200A and the MDM6200 respectively (see recital (552) above), which had however become less pronounced over time (see recital (557) above).

(562) In his reply to [...] ([Qualcomm top management member]) of 17 October 2010, [...] (Senior Director, QCT Product Management) explained that Qualcomm's *"approach to icera has a couple of dimensions"*, among which he listed *"Broad Product Portfolio"* and *"Cost/Price"*.[913]

(563) With regard to the product portfolio, [...] (Senior Director, QCT Product Management) noted that *"icera claims to cover modem tiers from 3.6 thru 21 commercially"* and that *"icera claims that new products are coming 1H11 to cover 42 and in 2H11 to cover LTE"*. Qualcomm would however *"cover each of these tiers with cost and power optimized solutions"*.[914]

(564) Whereas Qualcomm would have *"a slight cost advantage on 6200 when* [...] and Qualcomm's MDM6200 pricing would be [...], Qualcomm would *"have a slight cost disadvantage on 8200a (~$*[...]*) but have decided to trade some margin to make a compelling offer to huawei/zte/etc."* As a result, *"for huawei,* [Qualcomm would]

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908 Qualcomm internal e-mail of 17 October 2010 from [...] ([Qualcomm top management member]) to [...] (Senior Director, QCT Product Management) and [...] ([Qualcomm management member]), copying [...] ([Qualcomm management member]), [...] ([QCT top management member]) and [...] ([QCT top management member]), [...], page 1-2. See also [...], which contains part of the e-mail thread.

909 Qualcomm internal e-mail of 17 October 2010 from [...] ([QCT top management member]) to [...] ([Qualcomm top management member]), [...] (Senior Director, QCT Product Management) and [...] ([Qualcomm management member]), copying [...] ([Qualcomm management member]), [...] ([QCT top management member]) and [...] ([QCT top management member]), [...], page 1. See also [...], which contains part of the e-mail thread.

910 Qualcomm internal e-mail of 18 October 2010 from [...] ([QCT top management member]) to [...] (Manager, Finance), [...], page 1. See also [...], which contains part of the e-mail thread.

911 Qualcomm internal e-mail of 18 October 2010 at 9:35 AM from [...] (Senior Director, Finance) to [...] ([QCT top management member]) and [...] (Manager, Finance), [...], page 1.

912 Qualcomm internal e-mail of 18 October 2010 at 4:45:07 PM from [...] (Sr Director, Finance) to [...] ([QCT top management member]) and [...] (Manager, Finance), [...], page 1.

913 Qualcomm internal e-mail of 17 October 2010 from [...] (Senior Director, QCT Product Management) to [...] ([Qualcomm top management member]) and [...] ([Qualcomm management member]), copying [...] ([Qualcomm management member]), [...] ([QCT top management member]) and [...] ([QCT top management member]), [...], pages 1-2.

914 Qualcomm internal e-mail of 17 October 2010 from [...] (Senior Director, QCT Product Management) to [...] ([Qualcomm top management member]) and [...] ([Qualcomm management member]), copying [...] ([Qualcomm management member]), [...] ([QCT top management member]) and [...] ([QCT top management member]), [...], pages 1-2.

have 6200 and 8200a at essentially the same price so huawei can push 8200a aggressively into EU and NA operators who are also evaluating 21."[915]

(565) In a bilateral follow-up e-mail exchange with [...] ([Qualcomm management member]), [...] (Senior Director, QCT Product Management) offers some insights as regards [...] ([Qualcomm top management member]) comment on the *"confusion"* of the China team: *"its* [sic] *no surprise to me that the china team (in china) is confused. As I said before, on* [supposedly "only"] [...] *had a clue and was engaged. Everyone else under* […] ([Qualcomm management member]) *was clueless and checked out.* [...] *should clean house.* […] *The strategy has been simple, ie hold the market in 2010 and 2011 with what we have and then offer 9615/8215 in 2012 to sweep across all tiers in a cost competitive and power efficient way. If any confusion exists its about 14 v 21 given poor market traction for 14. My message is clear, forget 14 and drive 21 in mid tier. 42/lte have TTM* [time-to-market] *lead despite cost problem."*[916] This demonstrates that, contrary to Qualcomm's statements,[917] [...] (Senior Manager, Marketing/Staff Manager, Marketing, at Qualcomm) who had been heavily involved in shaping Qualcomm's pricing strategy *vis-à-vis* Icera during 2009/2010 (see *e.g.* recital (512) above) was appreciated by Qualcomm's senior management as a knowledgeable and committed person.

(566) On 25 October 2010, the [...] approved further price reductions on the MDM6200 and the MDM8200A for Huawei:[918]

(a) The purchase period during which the reduced price of USD [...] net ASP for the MDM6200 (see recital (557) above) would apply was extended by one year until 31 December 2011, accompanied by a one-year extension of the period during which devices have to be sold on to the MNOs until 31 March 2012.

(b) The price of the MDM8200A to be incorporated in devices without voice functionality was brought down to USD [...] net ASP for purchases between 1 October 2010 and 31 December 2010 (first purchase period), USD [...] net ASP for purchases between 1 January 2011 and 30 June 2011 (second purchase period) and USD [...] net ASP for purchases between 1 July 2011 and 31 December 2011 (third purchase period), provided that the devices were sold on to the MNOs between 1 October 2010 and 31 March 2012.[919]

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915 Qualcomm internal e-mail of 17 October 2010 from [...] (Senior Director, QCT Product Management) to [...] ([Qualcomm top management member]) and [...] ([Qualcomm management member]), copying [...] ([Qualcomm management member]), [...] ([QCT top management member]) and [...] ([QCT top management member]), [...], pages 1-2.

916 Qualcomm internal e-mail of 18 October 2010 from [...] (Senior Director, QCT Product Management) to [...] ([Qualcomm management member]), [...], page 1.

917 See Qualcomm's reply of 16 June 2017 to question 17.4 of Article 18(3) Decision of 31 March 2017, [...], paragraphs (166)-(171), stating in particular that [...] did not have any power to influence management's decisions as regards chipset pricing.

918 [...] submitted by Qualcomm in Annex 6 to its reply of 16 January 2012 to Article 18(3) Decision of 3 November 2011, [...], pages 522, 524.

919 The terms of this [...] approval were eventually formalised in the [...].

(567) On 15 November 2010, the [...] agreed to similar price reductions for ZTE for the same time periods as those approved for Huawei on 25 October 2010 (see recital (566) above):[920]

(a) As regards the MDM8200A, the [...] approved a net ASP of USD [...] (first purchase period), USD [...] (second purchase period) and USD [...] (third purchase period).

(b) As regards the MDM6200, the price reduction for ZTE was fixed at USD [...] net ASP.

12.4.2.9. Developments leading to the [...] approval of 23 November 2010: [...] Incentive Agreement for the MDM8200A for Huawei

(568) In the course of November 2010, the reported cost competitiveness of Icera's new ICE8060 based chipset threatened to re-open the pricing gap between Qualcomm and Icera. In an e-mail of 12 November 2010, [...] (Manager, Finance, at Qualcomm) informed [...] (Senior Director, QCT Product Management) and [...] (QCT Product Manager, Staff) that *"Huawei was in town this week for 2011 price negotiation and MDM8200A pricing is a huge point of contention for 2011. Huawei sales team* [...]. *Do you guys have an ebom comparing Icera E400* [based on Icera's ICE8060] *vs MDM8200A."*[921] In a follow-up e-mail of 16 November 2010, [...] reported on further information received from Huawei via [...] (Senior Director, Sales, at Qualcomm, [...]): [...][922]

(569) Against this background, on 23 November 2010, the [...] approved a [...] Incentive Agreement for the MDM8200A for Huawei for purchases between 1 January 2011 and 31 December 2011, provided that the devices were sold between 1 January 2011 and 31 March 2012. According to this agreement, Huawei would benefit from an incentive of USD [...] for the purchase of each additional unit after the initial purchase of [...] million units, which would increase to USD [...] for each additional unit after [...] million and to USD [...] for each additional unit after [...] million of units purchased. These rebates were conditional on the use of the purchased units of the MDM8200A for non-voice applications.[923]

12.4.2.10. Developments leading to the [...] approval of 13 January 2011: revised [...] Incentive Agreement for Huawei for the MDM8200A and new [...] Incentive Agreement for ZTE for the MDM8200A

(570) On 21 December 2010, [...] (Director, Sales, at Qualcomm, [...]) reported to [...] ([Qualcomm management member]) and [...] ([Qualcomm management member]) about a significant forecast drop at ZTE due to fierce competition by Huawei in the low- and mid-tier of the market (speeds of 3.6/7.2 Mbps) and Qualcomm not having

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920 [...] submitted by Qualcomm in Annex 6 to its reply of 16 January 2012 to Article 18(3) Decision of 3 November 2011, [...], pages 563-564.

921 Qualcomm internal e-mail of 12 November 2010 from [...] (Manager, Finance) to [...] (Senior Director, QCT Product Management) and [...] (QCT Product Manager, Staff), copying [...] (Director, Sales), [...] ([Qualcomm management member]) and [...] (Senior Director, Finance), [...], page 4.

922 Qualcomm internal e-mail of 16 November 2010 from [...] (Manager, Finance) to [...] (Senior Director, QCT Product Management) and [...] (QCT Product Manager, Staff), copying [...] (Director, Sales), [...] ([Qualcomm management member]) and [...] (Senior Director, Finance), [...], pages 3-4.

923 [...] submitted by Qualcomm in Annex 6 to its reply of 16 January 2012 to Article 18(3) Decision of 3 November 2011, [...], pages 573-574.

been able to offer competitive pricing. This was opening a window of opportunity for Icera who was reported to be *"very excited to talking with ZTE"* and offering to quote its ICE8042 based [...] [Uplink Packet Access] […] [...] if it were to get a volume commitment for 5 million units at 7.2 Mbps and 2 million units at 21 Mbps for 2011 from ZTE. He concluded that *"QCT is facing serious challenge for our dongle modem business in ZTE, and also we are under a big risk to lose the trust from ZTE executives about the words of QCT should be competitive and should be a strategic partner for them."* [924] [...] replied on the same day, thanking him for the update and pointing out that *"*[w]*e've approached the competitive threat very seriously and will continue evaluate/adjust our strategies. Will call you later today."*[925]

(571) According to a [...] request of 21 December 2010 concerning Qualcomm's [...], also Huawei had requested further price reductions for the MDM8200A, initially to USD [...] for the chipset to achieve a volume of [...] million units and, following a meeting on 3 December 2010, a weighted average rebate of USD [...] per unit assuming a volume of [...] million units. The recommendation from Qualcomm's Sales and Finance teams was to grant a rebate of USD [...] per unit for a volume between [...] million and [...] million units.[926] As regards ZTE, the presentation noted as a takeaway that *"*[o]*n 21M HSPA+, assuming we do nothing and not provide special support to ZTE than normal pricing adjustment, and Icera provides very competitive price 21M to ZTE, ZTE/Icera shipment volume in CY11 is projected to be* [...]*."*[927] This shows that Qualcomm anticipated the need of targeted action beyond normal price adjustments to contain Icera's growth at ZTE in 2011. Qualcomm's volume estimate for Icera based end devices during 2011 significantly increased during the following weeks, as shown by a Qualcomm internal presentation of 31 January 2011 which mentioned [...].[928]

(572) Against this backdrop, the [...] approved the following incentive schemes for Huawei and ZTE with regard to the MDM8200A during its meeting of 13 January 2011:

(a) As regards Huawei, the [...] approved a revised [...] Incentive Agreement for the MDM8200A which superseded the [...] Incentive Agreement approved on 23 November 2010 (see recital (569) above). The new agreement provided for a rebate of USD [...] for the purchase of each additional unit after the initial purchase of [...] million units, which would increase to USD [...] for each additional unit after [...] million and to USD [...] for each additional unit after

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924 Qualcomm internal e-mail of 21 December 2010 from [...] (Director, Sales) to [...] ([Qualcomm management member]) and [...] ([Qualcomm management member]), copying [...] ([Qualcomm top management member]), [...] ([QCT top management member]), [...] ([Qualcomm management member]), [...] ([QCT top management member]), [...] ([QCT top management member]), [...] ([Qualcomm management member]), [...] (Director, QCT Product Management), [...] (Senior Director, Finance) and others, [...], pages 1-2.

925 Qualcomm internal e-mail of 21 December 2010 from [...] ([Qualcomm management member]) to [...] (Director, Sales) and [...] ([Qualcomm management member]), copying [...] ([Qualcomm top management member]), [...], [...] ([Qualcomm management member]), [...] ([QCT top management member]), [...] ([QCT top management member]), [...] ([Qualcomm management member]), [...] (Senior Director, QCT Product Management), [...] (Senior Director, Finance) and others, [...], page 1.

926 Qualcomm internal presentation of 21 December 2010 titled [...], page 2.

927 Qualcomm internal presentation of 21 December 2010 titled [...], page 4.

928 Qualcomm internal presentation of 31 January 2011 titled [...], page 3.

[...] million of units purchased. The applicable purchase and sales periods as defined in the [...] approval of 23 November 2010 remained unchanged.[929]

(b) As regards ZTE, the [...] approved a similar [...] Incentive Agreement for the MDM8200A with slightly lower thresholds, *i.e.* USD [...]/unit for [...]-[...] million, USD [...]/unit for [...]-[...] million and USD [...]/unit for more than [...] million units purchased. The purchase and sales periods as defined in the [...] approval of 23 November 2010 with regard to Huawei also applied to this approval.[930]

12.4.2.11. Developments leading to the [...] approval of 15 February 2011: the extension of the qualification deadline for the MDM8200A regarding the [...] to ZTE

(573) As explained in recital (509) above, on 21 December 2009 the [...] approved the payment of a [...], which, even though it was formally linked to the MDM8200A, was in reality intended to offer ZTE a price reduction on the MDM6200. This [...] approval was later revised through the [...] approval of 24 May 2010 (see recital (554) above).

(574) A Qualcomm internal presentation for the [...] of the [...] meeting on 31 January 2011 reported on a request by ZTE for adjustments to the [...]. ZTE specifically requested that [...], which had already expired on [...] (see recital (509) above), [...] and to add [...] into the [...]. As background, the presentation explained that [...] and was [...]. It was therefore recommended to [...].[931]

(575) Against this backdrop, the [...] during its meeting on 15 February 2011 approved the requested extension of the qualification deadline for the MDM8200A until [...] as eligible carrier alongside [...], but none of the other carriers proposed by ZTE.[932] Given that ZTE obtained carrier approval for one of its MDM8200A devices from [...] on the very same day of the [...] of the [...] meeting on 31 January 2011 (see recital (574) above), this *ex post* adjustment appears to be have been tailor-made to reflect these latest developments with a view to allowing ZTE to benefit from the [...] payment.[933]

(576) The [...] amount for the MDM8200A based chipset of USD [...] million, for which a reserve of USD [...] million in Qualcomm's accounting was created [...] (see recital (686) below), was paid out by Qualcomm to ZTE [...]. No payment was made for the MDM6200 based chipset.[934]

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929 [...] submitted by Qualcomm in Annex 6 to its reply of 16 January 2012 to Article 18(3) Decision of 3 November 2011, [...], pages 603-604.

930 [...] submitted by Qualcomm in Annex 6 to its reply of 16 January 2012 to Article 18(3) Decision of 3 November 2011, [...], pages 605-606.

931 Qualcomm internal presentation of 31 January 2011 titled [...], page 21.

932 [...] submitted by Qualcomm in Annex 6 to its reply of 16 January 2012 to Article 18(3) Decision of 3 November 2011, [...], page 637. The terms of this approval were eventually formalised in the [...].

933 [...] to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...], covering the [...].

934 Qualcomm's reply of 2 December 2013 to question 99 of Article 18(3) Decision of 10 July 2013, [...], paragraph (419).

12.4.2.12. Developments leading to [...] approvals of 16 and 25 May 2011, as well as of 7 June 2011: significantly lower thresholds for the [...] Incentive Agreement for the MDM8200A and further price reductions for the MDM6200

(577) Qualcomm's [...] of May 2011, prepared by [...] (Director, Sales, at Qualcomm, [...]) and [...] (Regional Sales Manager at Qualcomm who [...]),[935] showed that Qualcomm's pricing strategy towards ZTE had eventually been successful since it helped Qualcomm recover *"from a big forecast drop"* for 2011. ZTE's UMTS volume had initially been estimated at [...] units and had plummeted to [...], but later recovered to [...] units for 2011.[936] The presentation identified Icera as the *"*[f]*uture Major competitor"* for HSPA data devices.[937] It also noted under the heading *"Potential Risks"* that *"QCT may lose data card share to Icera,* [...]*".*[938] Against this backdrop, the presentation noted under *"MBB/dongle business challenges"* with regard to HSPA *"VERY URGENT on 8200a at 21MB* --[...] *GAP to Icera".*[939] This shows that Qualcomm saw an urgent need to address the price gap between its MDM8200A and Icera's competing offering in order to avoid losing market share to Icera and consequently contain Icera's growth.

(578) A Qualcomm internal e-mail of 2 May 2011 from [...] (Regional Sales Manager at Qualcomm who [...])[940] provided [...] (Senior Director, QCT Product Management) and [...] (Senior Product Manager, at Qualcomm) with a *"Heads up:* [...] *want to set up a meeting* […] *this week to sync up on the latest info on MDM8200A competition.* [...]*."* More specifically, [...] highlighted that *"ICE E400 Ready for commercial launch in June'11"*, pointing to a price delta between the E400 (USD [...]) and the 8200A (USD [...]) of USD [...] for Q4'2011.[941] This issue had already been flagged to Qualcomm by Huawei in November 2010 (see recital (568) above).

(579) Despite the apparently critical situation for Qualcomm, [...] (Senior Director, QCT Product Management) was hesitant to grant any further price reductions for the MDM8200A in view of Icera's difficult financial situation and the possibility of it getting acquired during the following weeks. This confirms that Qualcomm's preceding pricing moves were targeted at containing Icera's growth in the market and that Qualcomm would consider such action to be no longer necessary once Icera's development prospects had been significantly weakened. [...] noted in this regard that *"*[g]*iven what we here* [sic] *about ICERAs fincnaical* [sic] *problems, I am reluctant to make a price move right now but am open to the discussion.* [...]*"*[942] [...] (Manager,

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935 Qualcomm's reply of 2 December 2013 to question 98 of Article 18(3) Decision of 10 July 2013, [...], paragraph (411).

936 Qualcomm internal presentation of May 2011 titled [...], page 5.

937 Qualcomm internal presentation of May 2011 titled [...], page 20.

938 Qualcomm internal presentation of May 2011 titled [...], page 29.

939 Qualcomm internal presentation of May 2011 titled [...], page 14.

940 Qualcomm's reply of 2 December 2013 to question 98 of Article 18(3) Decision of 10 July 2013, [...], paragraph (413).

941 Qualcomm internal e-mail of 2 May 2011 from [...] (Regional Sales Manager) to [...] (Senior Director, QCT Product Management) and [...] (Senior Product Manager), copying [...] ([Qualcomm management member]), [...] (Senior Director, Finance), [...] (Manager, Finance) and [...] (Director, Sales), [...], pages 2-3.

942 Qualcomm internal e-mail of 4 May 2011 from [...] (Senior Director, QCT Product Management) to [...] (Regional Sales Manager) and [...] (Senior Product Manager), copying [...] ([Qualcomm management member]), [...] (Senior Director, Finance), [...] (Manager, Finance) and [...] (Director, Sales), [...], page 2.

Finance, at Qualcomm) explained in a follow-up e-mail that [...][943] [...] (position at Qualcomm unknown) added that they had [...][944] [...] was still reluctant to agree to any price adjustments, pointing to the *"real question for Huawei / zte is what they do with ICERA based designs if ICERA gets acquired and drops support…ICERA being on the selling block is widely know… What is the certainty of supply worth to Huawei/ZTE?"*[945]

(580) Nevertheless, following the public announcement of the acquisition of Icera by Nvidia on 9 May 2011, Qualcomm granted further price reductions on the MDM8200A and the MDM6200 for both Huawei and ZTE. This is demonstrated by the following [...] approvals.

(581) On 16 May 2011, the [...] approved significantly lower thresholds for the [...] Incentive Agreement for the MDM8200A for both Huawei and ZTE, with a purchase period from 1 January 2011 until 31 December 2011 and a sales period from 1 January 2011 until 31 March 2012:[946]

(a) As regards ZTE, USD [...]/unit were approved for [...] million, USD [...]/unit for [...] million and USD [...]/unit for more than [...] million units purchased.

(b) As regards Huawei, USD [...]/unit were approved for [...] million, USD [...]/unit for [...] million and USD [...]/unit for more than [...] million units purchased.

(582) On 25 May 2011, the [...] further lowered the thresholds for Huawei to [...] million (USD [...]/unit), [...] million (USD [...]/unit) and more than [...] million units purchased (USD [...]).[947]

(583) On 7 June 2011, the [...] approved further price reductions for the MDM6200 for both Huawei and ZTE.[948]

(a) As regards ZTE, a net ASP of USD [...] for the MDM6200 was fixed for the purchase period between 1 January 2011 and 31 December 2011 and of USD [...] (revision 1.3 only) for the purchase period between 1 July 2011 and 31 December 2011, provided that devices were sold to MNOs between 1 January 2011 and 31 March 2012.

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943 Qualcomm internal e-mail of 4 May 2011 from [...] (Manager, Finance) to [...] (Senior Director, QCT Product Management), [...] (Regional Sales Manager) and [...] (Senior Product Manager), copying [...] ([Qualcomm management member]), [...] (Senior Director, Finance), [...] (Director, Sales), [...] (QCT Product Manager, Staff) and [...] (Director of MBB Market Analysis), [...], page 1.

944 Qualcomm internal e-mail of 4 May 2011 from [...] (Director of MBB Market Analysis) to [...] (Manager, Finance), [...] (Senior Director, QCT Product Management), [...] (Regional Sales Manager) and [...] (Senior Product Manager), copying [...] ([Qualcomm management member]), [...] (Senior Director, Finance), [...] (Director, Sales) and [...] (QCT Product Manager, Staff), [...], page 1.

945 Qualcomm internal e-mail of 5 May 2011 from [...] (Senior Director, QCT Product Management) to [...] (Director of MBB Market Analysis), [...] (Manager, Finance), [...] (Regional Sales Manager) and [...] (Senior Product Manager), copying [...] ([Qualcomm management member]), [...] (Senior Director, Finance), [...] (Director, Sales) and [...] (QCT Product Manager, Staff), [...], page 1.

946 [...] submitted by Qualcomm in Annex 6 to its reply of 16 January 2012 to Article 18(3) Decision of 3 November 2011, [...], pages 699-702.

947 [...] submitted by Qualcomm in Annex 6 to its reply of 16 January 2012 to Article 18(3) Decision of 3 November 2011, [...], pages 706-707.

948 [...] submitted by Qualcomm in Annex 6 to its reply of 16 January 2012 to Article 18(3) Decision of 3 November 2011, [...], pages 714-715.

(b) As regards Huawei, a net ASP of USD [...] for the MDM6200 was fixed for the purchase period between 1 October 2010 and 31 December 2011 and of USD [...] (revision 1.3 only) for the purchase period between 1 July 2011 and 31 December 2011, provided that devices were sold to MNOs between 1 October 2010 and 31 March 2012.

(584) Even after the price reductions approved by the [...] on 7 June 2011 uncertainty within Qualcomm persisted about the extent of the competitive threat that Icera still represented for its chipset business. This uncertainty is reflected in the [...] of June 2011, which stated that [...].[949] Contrary to Qualcomm's claims,[950] this indicates that Qualcomm was doubtful as regards Icera's future market positioning and the strategy Nvidia would pursue for Icera's baseband chipset business.

(585) However, as of the second half of 2011, competition from Icera figured less prominently in Qualcomm's contemporaneous documents concerning pricing decisions in the leading edge segment of the UMTS chipset market. This is because, as explained in recital (421)-(424) above, in the months following the acquisition of Icera by Nvidia, the threat posed by Icera as perceived by Qualcomm ultimately visibly decreased.

12.4.2.13. Summary of [...] approvals relating to the MDM8200, MDM6200 and MDM8200A based chipsets during the Relevant Period

(586) The following tables provide a chronological overview of all [...] approvals made in the period between January 2009 and July 2011 concerning the MDM8200 (see Table 8), the MDM6200 (see Table 9) and the MDM8200A (see Table 10) for Huawei and ZTE.

Table 8: [...] approvals for the MDM8200 during the Relevant Period

[...] date	Customer	Price(s) approved by [...]	Sales period (SP) and purchase period (PP)[951]	Feature Restrictions [952]
19/01/2009	Huawei	Chipset pricing flat ASP [Average Selling Price]: $[...]) *) Huawei to purchase AMSS6295 S/W [Software] license by 31/12/09 in order to participate in this bridge program.	SP: 1/1/09-31/3/10 PP:1/1/09-31/12/09	[...]

949 Qualcomm internal presentation of June 2011 titled [...], page 45.
950 Qualcomm's Comments on the Letter of Facts, [...], paragraph (36).
951 "n.a." means that no sales or purchase periods apply to this particular approval.
952 "n.a." means that no feature restrictions apply to this particular approval.

19/01/2009	ZTE	Chipset pricing flat ASP: $[...]) *) ZTE to purchase AMSS6295 S/W license by 31/12/09 in order to participate in this bridge program.	SP: 1/1/09-31/3/10 PP:1/1/09-31/12/09	[...]
08/06/2009	Huawei	Chipset pricing flat ASP: $[...] *) Huawei to purchase AMSS6295 or AMSS6200 S/W license by 31/12/09 in order to participate in this bridge program. **) ADDITIONAL $[...] TO $[...] per unit to be paid via strategic fund	SP: 1/7/09-30/6/10 PP:1/7/09-31/3/10	[...]
08/06/2009	ZTE	Chipset pricing flat ASP: $[...] *) ZTE to purchase AMSS6295 or MDM6200 S/W license by 31/12/09 in order to participate in this bridge program.	SP: 1/7/09-30/6/10 PP:1/7/09-31/3/10	[...]
25/11/2009	Huawei	Chipset pricing flat ASP: $[...] (max. 14.4 mbps) Chipset pricing flat ASP: $[...] (max 21 mbps)	SP: 15/11/09-30/6/10 PP:15/11/09-31/3/10	[...]
		For new orders CY 2010 Q1: $[...] (chipset) and $[...] (for the baseband chip)	n.a.	n.a.
		MDM 8200A [...] development agreement Total amount. $[...] Million [...] due upon execution of agreement [...] due upon evidence for carrier certification	03/05/2011: For drafting purposes the carrier certification deadline for this [...] is 30/06/2011	n.a.
04/01/2010	ZTE	Chipset pricing flat ASP for chipsets in ZTE's backlog shipped after 1/1/10: $[...]	SP: 1/1/10-30/6/10 PP:1/1/10-31/3/10	[...]
		For new orders CY 2010 Q1: $[...] (chipset) and $[...] (for the baseband chip)	n.a.	n.a.
01/03/2010	Huawei	Q4'2010 Pricing (chipset): $[...] New orders only:	n.a.	n.a.

		<table><tr><th></th><th>0-10M</th><th>10-20M</th><th>20-30M</th><th>30-40M</th><th>40-50M</th><th>50-60M</th><th>60-70M</th><th>70M+</th></tr><tr><td>MDM8200-0-65</td><td>18.66</td><td>11.12</td><td>11.12</td><td>11.12</td><td>11.12</td><td>11.12</td><td>11.12</td><td>11.12</td></tr><tr><td>RTR6285</td><td>3.93</td><td>3.89</td><td>3.84</td><td>3.78</td><td>3.72</td><td>3.64</td><td>3.56</td><td>3.45</td></tr><tr><td>PM7540</td><td>2.41</td><td>2.37</td><td>2.32</td><td>2.26</td><td>2.20</td><td>2.12</td><td>2.04</td><td>1.93</td></tr><tr><td>Chipset</td><td>25.00</td><td>17.38</td><td>17.28</td><td>17.17</td><td>17.04</td><td>16.89</td><td>16.71</td><td>16.50</td></tr></table>		
01/03/ 2010	ZTE	Q4'2010 Pricing (chipset): $[...] New orders only: <table><tr><th></th><th>0-7M</th><th>7-14M</th><th>14-21M</th><th>21-28M</th><th>28-35M</th><th>35-42M</th><th>42-49M</th><th>49M+</th></tr><tr><td>MDM8200-0-65</td><td>18.39</td><td>11.20</td><td>11.20</td><td>11.20</td><td>11.20</td><td>11.20</td><td>11.20</td><td>11.20</td></tr><tr><td>RTR6285</td><td>4.05</td><td>4.01</td><td>3.96</td><td>3.90</td><td>3.83</td><td>3.76</td><td>3.67</td><td>3.56</td></tr><tr><td>PM7540</td><td>2.56</td><td>2.51</td><td>2.45</td><td>2.38</td><td>2.31</td><td>2.22</td><td>2.11</td><td>1.99</td></tr><tr><td>Chipset</td><td>25.00</td><td>17.73</td><td>17.62</td><td>17.49</td><td>17.35</td><td>17.18</td><td>16.98</td><td>16.75</td></tr></table>	n.a.	n.a.
22/03/ 2010	Huawei	QCT will issue a one-time credit note to Huawei once Huawei has taken delivery of [...] MDM 8200s currently in backlog as of 22/3/10 Credit will be calculated based on the following formula: (ASP 8200 + ASP 6285 + ASP 7540 for shipments in CY10Q2-[...]	Backlog must be taken by 30/06/2010 credit will be issued by 31/07/2010	n.a.
05/08/ 2010	Huawei	Current floor price: $[...] Floor price for new orders=$[...] (prices refer to the baseband chip only)	Effective immediately for all new orders starting 08/05/2010	n.a.
05/08/ 2010	ZTE	Current floor price: $[...] Floor price for new orders=$[...] (prices refer to the baseband chip only)	Effective immediately for all new orders starting 08/05/2010:	n.a.
27/06/ 2011	Huawei	Sales has approval to offer a $[...] open credit memo to address MDM 8200 ISM issue @ Huawei[953] Plan is to offer the credit towards replacement units of MDM8200A Note: Sales should work with finance with respect to the "net ASP" of MDM8200A in demonstrating the rough # of replacement units the $[...] represent	n.a.	n.a.

953 Given that from Qualcomm internal discussions preceding the approval of 27 June 2011 and 25 July 2011 (in particular Qualcomm internal e-mail thread of June, July and August 2011, [...]) it clearly emerges that this compensation payment relates to a specific quality issue of the MDM8200, it is not being taken into account for the purposes of the Commission's price cost-test.

25/07/2011	Huawei	Supersedes approval from 27/06/2011: Sales has approval to offer a $[...] open credit memo to address MDM 8200 ISM issue @ Huawei[954] The credit is to be used towards replacement units of MDM8200A Note: Sales should work with finance with respect to the "net ASP" of MDM8200A in demonstrating the rough # of replacement units the $[...] represent	n.a.	n.a.

Table 9: [...] approvals for the MDM6200 during the Relevant Period

[...] date	Customer	Price(s) approved by [...]	Sales period (SP) and purchase period (PP)	Feature Restrictions
25/11/2009	Huawei	W-CDMA Modem Cards [...] Incentive Approval Eligible devices: MSM6246/MSM6290/PM6658/PM6653/QSC6270/PM8028/MDM6200/RTR6285 [...] No additional incentive [...] [...] [...] [...] [...] [...] Rebate is earned on incremental units. Rebates are incremental to existing MSM6290/6246/QSC6270 and MDM6200 agreements	SP: 1/1/10-31/3/11 PP: 1/1/10-31/12/10	[...]
21/12/2009	Huawei	Supersedes 21/09/2009 approval MDM6200 chip (not PM 8028): $[...] net ASP	SP: 1/1/10 - 31/3/11 PP: 1/1/10-31/12/10	[...]
		MDM6200 no restrictions: [illegible]	n.a.	n.a.
21/12/2009	ZTE	Supersedes 21/9/2009 approval MDM6200 chip (not PM 8028):	SP: 1/1/10 - 31/3/11 PP: 1/1/10-	[...]

	0-10M	10-20M	20-30M	30-40M	40-50M	50-60M	60-70M	70M+
MDM6200-0-45	14.55	14.55	14.55	14.55	14.55	14.55	14.55	14.55
PM8028	3.20	3.18	3.15	3.12	3.09	3.05	3.01	2.95
Chipset	17.75	17.73	17.70	17.67	17.64	17.60	17.56	17.50

954 See footnote 953 above.

		$[...] net ASP	31/12/10	
		MDM6200 no restrictions: 		0-7M	7-14M	14-21M	21-28M	28-35M	35-42M	42-49M	49M+
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MDM6200-0-45	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80
PM8028	3.20	3.18	3.15	3.12	3.09	3.05	3.01	2.95
Chipset	18.00	17.98	17.95	17.92	17.89	17.85	17.81	17.75		n.a.	n.a.
21/12/2009	"ZTE 2010 Strategic [...]"	[...] MDM8200 A DC's: [...] Due Upon Execution [...] Due Upon Carrier Qualification of MDM8200A	ZTE Must Carrier Qualify MDM8200A Prior to 31/12/09 [sic: should read 31/12/10]	[...]
04/01/2010	Huawei	PM8028 (for MDM6200): $[...] flat in CY2010	n.a.	n.a.
04/01/2010	ZTE	PM8028 (for MDM6200): $[...] flat in CY2010	n.a.	n.a.
17/05/2010	ZTE	Supersedes 21/12/2009 approval MDM6200 (not PM 8028): Net ASP: [...] (1st PP) [...] (2nd PP)	SP: 1/1/10 - 31/3/11 1st PP: 1/1/10-30/09/10 2nd PP: 1/10/10-31/12/10	[...]
		Rebated Price Indication for Q4'11 for MDM6200/8015*): $[...] *)PM 8015 will be pin for pin compatible to PM8028 and, when available, will be used to support price down of MDM 6200 chipset used in "data only" devices in CY 11	n.a.	n.a.
24/05/2010	ZTE	Supersedes 21/12/2009 approval [...] MDM6200/8200A DC's [...] due upon carrier Qualification (at [...]) of MDM8200A and MDM6200 prior to 31/12/2010 $[...] million in total ($[...] for each model qualified by Deadline)	Carrier qualification prior to 31/12/2010	n.a.
28/05/2010	Huawei	Supersedes 21/12/2009 approval Net ASP: $[...] (1st PP) $[...] (2nd PP) Contingent upon agreement by Huawei to eliminate W-CDMA	SP: 1/1/10 - 31/3/11 1st PP: 1/1/10-30/09/10 2nd PP:	[...]

		DC [...] Incentive Table Approval see 25/11/2009 [...]	1/10/10-31/12/10	
		Rebated Price Indication (Price Indication) for Q4'11 for MDM6200/8015*) : $[...] *) PM 8015 will be pin for pin compatible to PM8028 and, when available, will be used to support price down of MDM 6200 chipset used in "data only" devices in CY 11	n.a.	[...]
28/05/2010	ZTE	Supersedes 17/05/2010 approval Net ASP: $[...] (1stPP) $[...] (2nd PP)	SP: 1/1/10 - 31/3/11 1st PP: 1/1/10-30/09/10 2nd PP: 1/10/10-31/12/10	[...]
		Supersedes 17/05/2010 approval Rebated Price Indication (Price Indication) for Q4'11 for MDM6200/8015*): $[...] *) PM 8015 will be pin for pin compatible to PM8028 and, when available, will be used to support price down of MDM 6200 chipset used in "data only" devices in CY 11	n.a.	[...]
25/10/2010	Huawei	Supersedes 28/05/2010 approval Does not include (PM8015/8028) Net ASP: $[...]	SP: 1/10/10 - 31/3/12 PP: 1/10/10-31/12/11	[...]
15/11/2010	ZTE	MDM6200 (does not include 8028/8015) $[...] net ASP	SP: 1/1/11-31/3/12 PP: 1/1/11-31/12/11	[...]
15/02/2011	ZTE	Supersedes 24/05/2010 approval: $[...] MDM6200/8200A DC's: $[...] due upon carrier qualification (at [...]) of MDM 8200A $[...] due upon carrier qualification (at [...]) of MDM6200 $[...] in total ($[...] for each model qualified by deadline)	MDM 6200 Qualification deadline: 31/12/10 (no change) MDM 8200A Qualification deadline: 30/6/11 (new approval)	[...]

07/06/2011	Huawei	Supersedes 25/10/2010 approval MDM6200 (does not include 8028/8015) $[...] net ASP (1st PP-any review of MDM6200) $[...] net ASP (2nd PP- MDM6200 rev 1.3 only)	SP: 1/10/10-31/3/12 1st PP: 1/10/10/-31/12/11 2nd PP: 1/7/11-31/12/11	[...]
07/06/2011	ZTE	Supersedes 15/11/2010 approval MDM6200 (does not include 8028/8015) $[...] net ASP (1st PP-any review of MDM6200) $[...] net ASP (2nd PP- MDM6200 rev 1.3 only)	SP: 1/1/11-31/3/12 1st PP: 1/1/11/-31/12/11 2nd PP: 1/7/11-31/12/11	[...]

Table 10: [...] approvals for the MDM8200A during the Relevant Period

[...] date	Customer	Price(s) approved by [...]	Sales period (SP) and purchase period (PP)	Feature Restrictions
21/12/2009	"ZTE 2010 Strategic [...]"	[...] MDM8200 A DC's [datacards]: [...] Due Upon Execution [...] Due Upon Carrier Qualification of MDM8200A	ZTE Must Carrier Qualify MDM8200A Prior to 31/12/09 [sic: should read 31/12/10]	[...]
21/12/2009	Huawei	Q4 2010 (Price Indication)=$ [...] (chipset) no restriction	n.a.	n.a.
21/12/2009	ZTE	Q4 2010 (Price Indication)=$ [...] (chipset) no restriction	n.a.	n.a.
01/03/2010	Huawei	Q4 2010 (Price Indication)=$ [...] chipset	n.a.	[...]
01/03/2010	ZTE	Q4 2010 (Price Indication)=$ [...] chipset	n.a.	[...]
17/05/2010	Huawei	Supersedes 01/03/2010 approval MDM8200A/6285/7540*) CY Q4'10 Price Indication=$[...] CY Q4'11=$[...] [*)Note that the MDM8200A was eventually not designed in this configuration, but with the PM8028 and 8015 instead]	n.a.	[...]

24/05/2010	ZTE	Supersedes 21/12/2009 approval [...] MDM6200/8200A DC's [datacards] [...] due upon carrier Qualification (at [...]) of MDM8200A and MDM6200 prior to 31/12/2010 $[...] million in total ($[...] for each model qualified by Deadline)	Carrier qualification prior to 31/12/2010	n.a.
28/05/2010	Huawei	Supersedes 17/05/2010 approval MDM8200A/6285/7540: CY Q4'10 Price Indication=$[...] CY Q4'11 Price Indication=$[...]	n.a.	[...]
28/05/2010	ZTE	Supersedes 01/03/2010 approval MDM8200A/6285/7540: CY Q4'10 Price Indication=$[...] CY Q4'11 Price Indication=$[...]	n.a.	[...]
05/08/2010	Huawei	MDM8200A/ 6285 /8028: CY11'Q1 Price Indication=$[...] MDM8200A/6285/8015: CY11'Q4 Price Indication=$[...]	n.a.	[...]
05/08/2010	ZTE	MDM8200A 6285 /8028: CY11'Q1 Price Indication=$[...] MDM8200A/6285/8015: CY11'Q4 Price Indication=$[...]	n.a.	[...]
25/10/2010	Huawei	Supersedes rebated Price Indications approved 28/05/2010 and 05/08/2010: Baseband chip only! Net ASP $[...] (1st PP) $[...] (2nd PP) $[...] (3rd PP) for device n°1 Net ASP $[...] (1st PP) $[...] (2nd PP) $[...] (3rd PP) for device 2	SP: 1/10/10-31/3/12 1st PP: 1/10/10-31/12/10 2nd PP: 1/1/11-30/6/11 3rd PP: 1/7/11-31/12/11	[...]

15/11/2010	ZTE	Baseband chip only! Net Asp: $[...] (1st PP) $[...] (2nd PP) $[...] (3rd PP)	SP: 1/10/10-31/3/12 1st PP: 1/10/10-31/12/10 2nd PP: 1/1/11-30/6/11 3rd PP: 1/7/11-31/12/11	[...]
23/11/2010	Huawei	The [...] incentive is incremental to "no-voice" incentive /see above : Data-only- [...] incentive per unit [...] 0 [...] $[...] [...] $[...] [...] $[...] (applicable to the incremental units only)	SP:1/1/11-31/3/12 PP: 1/1/11-31/12/11	[...]
13/01/2011	Huawei	Supersedes 23/11/2010 Approval: The [...] incentive is incremental to "no-voice" incentive /see above : Data-only [...] incentive per unit [...] 0 [...] $[...] [...] $[...] [...] $[...] (applicable to the incremental units only)	SP: 1/1/11-31/3/12 PP: 1/1/11-31/12/11	[...]
13/01/2011	ZTE	The [...] incentive is incremental to "no-voice" incentive /see above : Data-only [...] incentive per unit [...] 0 [...] $[...] [...] $[...] [...] $[...] (applicable to the incremental units only)	SP:1/1/11-31/3/12 PP: 1/1/11-31/12/11	[...]

15/02/2011	ZTE	Supersedes 24/05/2010 approval: [...] MDM6200/8200A DC's [datacards]: [...] due upon carrier qualification (at [...]) of MDM 8200A $[...] due upon carrier qualification (at [...]) of MDM6200 $[...] in total ($[...] for each model qualified by deadline)	MDM 6200 Qualification deadline: 31/12/10 (no change) MDM 8200A Qualification deadline: 30/6/11 (new approval)	[...]
16/05/2011	Huawei	Supersedes 13/01/2011 approval Incremental in addition to non-voice incentives Data-only [...] incentive per unit [...] 0 [...] $[...] [...] $[...] [...] $[...] (applicable to the incremental units only)	SP: 1/1/11-31/3/12 PP: 1/1/11-31/12/11	[...]
16/05/2011	ZTE	Supersedes 13/01/2011 approval Incremental in addition to non-voice incentives Data-only [...] incentive per unit [...] 0 [...] $[...] [...] $[...] [...] $[...] (applicable to the incremental units only)	SP: 1/1/11-31/3/12 PP: 1/1/11-31/12/11	[...]
25/05/2011	Huawei	Supersedes 16/05/2011 approval Incremental in addition to non-voice incentives Data-only [...] incentive per unit [...] 0 [...] $[...] [...] $[...] [...] $[...] (applicable to the incremental units only)	SP: 1/1/11-31/3/12 PP: 1/1/11-31/12/11	[...]

12.5. Qualcomm's prices for the chipsets under investigation during the Relevant Period

(587) This section deals with the prices charged by Qualcomm to Huawei and ZTE for the MDM8200, MDM8200A and MDM6200 based chipsets during the Relevant Period.

(588) Qualcomm's pricing decisions, including any price reductions or other financial incentives, are approved by Qualcomm's [...] (see recitals (122)-(125) above). [...]. During the Relevant Period, such [...] (see recital (126) above). Section 12.5.1 describes how such financial incentives are treated in Qualcomm's accounting system.

(589) For the purposes of the price-cost test in this case, the Commission carried out a reconstruction of the net average selling prices ("Net ASPs")[955] effectively paid to Qualcomm by Huawei and ZTE for each of the chipsets under investigation during the Relevant Period. Section 12.5.2 explains the reasons that led to the Commission's price reconstruction. Section 12.5.3 contains the methodology followed by the Commission for the purposes of the price reconstruction and presents the results.

12.5.1. The treatment of financial incentives in Qualcomm's accounting system

(590) [...]

(591) With regard to the treatment of such financial incentives in Qualcomm's accounting system, it is important to highlight the following two elements:

(592) First, Qualcomm uses fiscal years for its accounting which run roughly from the fourth calendar quarter of a year to the third calendar quarter of the following year.[956] For example, Qualcomm's fiscal year 2010 covered the period 28 September 2009 to 26 September 2010.[957]

(593) Second, Qualcomm recognises revenues in accordance with U.S. Generally Accepted Accounting Principles ("GAAP")[958] which only allow for the recognition of realised revenues. This means that revenues are only recorded when they have been earned and the amount of revenue is measurable. This has an impact on how price reductions and other financial incentives are recognised in Qualcomm's accounting system, as explained in the following recitals.

(594) When Qualcomm receives and dispatches a purchase order from one of its chipset customers, there is uncertainty as to the number of chipsets that will eventually qualify for the applicable financial incentives, and hence what the final price net of all incentives will be. According to the GAAP, Qualcomm has to form reserves (so-called "accruals") to cover these future incentive claims by its customers. During the Relevant Period, Qualcomm assumed at the moment in time when the accruals were created that [...].[959] [...].[960] Qualcomm calculated the accruals according to the following formula:

Total accrual = [...] *x Maximum incentive per unit of the respective incentive program*

(595) [...] since they will only benefit from the incentives once all the underlying requirements are met. For this purpose, Qualcomm's customers submit a detailed

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955 For the purposes of this Decision, net average selling prices are quarterly average net prices per unit, calculated as the total net revenues divided by the total number of units shipped in a given quarter.

956 Qualcomm's SO Response, [...], paragraph (296).

957 Qualcomm's Form 10-K of fiscal years 2009 and 2010, printed from http://investor.qualcomm.com/annuals-proxies.cfm on 21 February 2018, Form 10-K 2009, [...], page 2; Form 10-K 2010, [...], page 2. A Form 10-K is an annual report required by the U.S. Securities and Exchange Commission that gives a comprehensive summary of a company's financial performance.

958 Qualcomm's SO Response, [...], paragraph (303).

959 [...]

960 [...]

incentive claim to Qualcomm, identifying the units that qualified for a given incentive ("qualifying units") and the units that did not qualify for a given incentive ("non-qualifying units") (see red circles in Figure 11 below).

Figure 11: Example of [...][961]

[...]

(596) Customers typically attach a sales list to the incentive claim which includes [...] (see red circles in Figure 12 below).

Figure 12: Example of a [...][962]

[...]

(597) When a customer submits an incentive claim, Qualcomm issues a [...] which summarises the rebate payments for a given customer for a given fiscal month. [...] (see red circles in Figure 13 below).

Figure 13: Example of a [...][963]

[...]

(598) [...].[964] [...] if part of the units shipped to a customer eventually does not qualify for any incentive [...]. The incentive that the customer is not entitled to is therefore "released" back into Qualcomm's accounts (so-called "accrual release").

(599) According to Qualcomm,[965] the amount of an accrual release arising from non-qualifying ("NQ") units is determined by multiplying the number of NQ units by the [...] as provided for by the respective incentive program,[966] as expressed by the following formula:[967]

Total release = Number of NQ units x [...] *of the respective incentive program*

12.5.2. Reasons for the Commission's reconstruction of the prices effectively paid by Huawei and ZTE during the Relevant Period

(600) The Commission's reconstruction of the quarterly prices effectively paid by Huawei and ZTE during the Relevant Period was carried out to address the arguments raised by Qualcomm in its SO Response and at the Oral Hearing following the adoption of the SO.

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961 Annex 7(b) to Qualcomm's reply of 18 August 2017 to question 7(b) of the clarification questions of 18 July 2017, [...].

962 Annex 7(b) to Qualcomm's reply of 18 August 2017 to question 7(b) of the clarification questions of 18 July 2017, [...], page 5.

963 Annex 7(b) to Qualcomm's reply of 18 August 2017 to question 7(b) of the clarification questions of 18 July 2017, [...], page 1.

964 Qualcomm's SO Response, [...], paragraphs (303), (306).

965 Qualcomm's reply of 18 August 2017 to question 8(c)(ii) of the clarification questions of 18 July 2017, [...], paragraph (53).

966 The term 'incentive program' is used by Qualcomm in general to refer to a specific incentive scheme and the underlying conditions for a customer to qualify for the given rebate which are usually [...]. For example, the incentive program 'MDM8200A DC Rebate – CY11 Q1 (2010-11)' refers to a scheme in which an incentive is foreseen for the MDM8200A to Huawei for a specific sales period and three different [...]. See Annex 7(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...].

967 Qualcomm's reply of 18 August 2017 to question 8(c)(ii) of the clarification questions of 18 July 2017, [...], paragraph (53).

(601) First, Qualcomm criticised the fact that the Commission's price-cost test in the SO mixed Qualcomm's pricing data with third party data to address certain price peaks.[968] Qualcomm argued that this would lead to inconsistencies in the overall revenue accounted for in the SO's price-cost test since it recognises the full revenues only in the period after a particular sale took place.[969] According to Qualcomm, this is because, on the one hand, the Commission took into account a lower total revenue by disregarding certain amounts of revenues that Qualcomm recognised in its accounting system only in the period after a particular sale took place.[970] On the other hand, relying on customers' actual sales data would mean that certain revenues booked in Qualcomm's accounting system are replaced by revenues from actual sales as provided by Qualcomm's customers which relate to units sold in different periods.

(602) Qualcomm further explained in this regard that the fiscal period during which certain units are purchased from Qualcomm only rarely coincides with the period during which customers submit the related incentive claim(s) and report non-qualifying units for which corresponding accruals have to be released back into Qualcomm's accounting.[971] [...],[972] [...].[973] In such instances, a time lag exists between the date of the chip purchase and the moment in time when the related incentive claim is submitted to Qualcomm.[974] Moreover, there are situations in which customers submit all claims pertaining to several preceding quarters at once, and therefore a release associated with certain claimed units may in fact pertain to shipments during different earlier quarters.[975]

(603) The Commission notes that the price fluctuations resulting from the application of the revenue recognition principles make the Net ASPs recorded in Qualcomm's accounting system unsuitable for the purposes of the price-cost test in this case. In fact, the accrual releases triggered by the reporting of non-qualifying units inflate Qualcomm's revenue in the quarter where the accrual release is recorded. This is because the revenue generated by these accrual releases originates in units shipped several months or even quarters earlier, and is hence unrelated to the units shipped in

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968 In the SO (see paragraphs (332)-(339)), the Commission relied on the accounting data provided by Qualcomm, with the exception of one instance in which the Commission used customer data instead and one instance in which the Commission disregarded the pricing data provided by Qualcomm. First, for the sales of the MDM8200 based chipset to Huawei in the second and third quarter of 2010 the Commission relied on pricing data from Huawei since the pricing data provided by Qualcomm for that period displayed significant price peaks which did not appear to be consistent with the negotiated pricing terms in the period preceding these sales. Second, the Commission disregarded the sale of [...] units of the MDM8200 based chipset to ZTE in the summer of 2010 for which the data provided by Qualcomm reported a net price of USD [...]. In view of the substantially lower price level during the adjacent time periods, the Commission assumed that this figure was the result of a reporting error and did therefore not include these sales in the price-cost test carried out in the SO (see SO, footnote 433).

969 Qualcomm's SO Response, [...], paragraphs (301)-(303).

970 Qualcomm's SO Response, [...], paragraphs (309)-(314).

971 Qualcomm's reply of 18 August 2017 to question 7(a) of the clarification questions of 18 July 2017, [...], paragraph (33).

972 Qualcomm's reply of 18 August 2017 of the clarification questions of 18 July 2017, [...], section I., paragraph (7).

973 Qualcomm's reply of 18 August 2017 to question 7(a) of the clarification questions of 18 July 2017, [...], paragraph (34).

974 Qualcomm's reply of 18 August 2017 of the clarification questions of 18 July 2017, [...], section I., paragraph (7).

975 Qualcomm's reply of 16 June 2017 to Article 18(3) Decision of 31 March 2017, [...], question 1, paragraph (60).

the quarter in which the release is recorded. Therefore, when calculating the Net ASPs based on such accounting revenue, such deferred revenue recognition leads to an artificial increase in the Net ASP of all units in the quarter when the accrual release takes place, while understating the effective Net ASP in the quarter where the shipment was made and the incentives accrued.[976]

(604) These conclusions are consistent with Qualcomm's SO Response[977] according to which, when accruals are released back into its accounts, Qualcomm *"does not make ex post adjustments to past sales. Instead, the income is 'released' into the current quarter rather than the relevant (previous) quarter, resulting in an increase of the net price relative to the gross price of all units in the quarter in which the release occurs"*. Although Qualcomm pointed out in its follow-up submission to the Oral Hearing of 10 January 2019 that *"certain apparent anomalies resulting from the mandatory application of the US GAAP principles in Qualcomm's accounting data do not lead to 'artificial increase[s]' or 'understat[e]' the prices paid by customers"*,[978] it ultimately does not put into question that, in some instances, the application of the GAAP may indeed lead to artificial price increase or understatement. In addition, in the same document, Qualcomm adds that *"any effects on its prices arising from delayed revenue recognition are offset if one analyses the accounting data over a longer and more meaningful period of time"*, which, in turn, confirms that the revenue recognition principles do have an effect on prices analysed at a quarterly level.

(605) The Commission further notes that, in its reply to the Article 18(3) Decision of 31 March 2017, Qualcomm did not provide any alternative proposal that would have allowed the Commission to determine the prices effectively paid by Huawei and ZTE during the Relevant Period. *"*[T]*o assist the Commission in its investigation"*, Qualcomm however submitted *"*[...] *in which Qualcomm has sought to track, to the extent possible, accrual releases pertaining to sales of the MDM6200, MDM8200 and MDM8200A chipsets that occurred during the relevant period on the basis of information available* [...]*"*.[979] The information contained [...] was not sufficiently disaggregated though to allow for a recalculation of effectively paid prices. This is because some entries in the [...] captured incentive payments in an aggregated way,[980] making it impossible to know whether an entry contains one payment or more (and if so, how many), and, in case of an aggregated number, which would be the applicable incentives per unit. Moreover, [...] only captured the payments in the quarters in which they were paid but there was no information as to when the underlying units were shipped.

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976 Annex 43.3 to Qualcomm's reply of 2 December 2013 to the Commission's Article 18(3) Decision of 10 July 2013, [...].

977 Qualcomm's SO Response, [...], paragraph (308).

978 Qualcomm's follow-up submission to the Oral Hearing of 10 January 2019, [...], paragraph (62).

979 Qualcomm's reply of 30 June 2017 to question 1 of Article 18(3) Decision of 31 March 2017, [...], paragraph (30); and Annex 1.4.a to Qualcomm's reply of 30 June 2017 to Article 18(3) Decision of 31 March 2017, [...].

980 For instance, in the fourth quarter of 2011, there were two incentive payments, one amounting to USD [...] and another one amounting to USD [...], which corresponded to different per unit incentives of USD [...] and USD [...], respectively, as evidenced by the [...]. In contrast, the [...] only contains the sum of these payments (USD [...]).

(606) In light of the above, the Commission had to proceed with a reconstruction of the prices effectively paid by Qualcomm's customers Huawei and ZTE during the Relevant Period by reversing relevant accrual releases in order to identify the actual gross revenue in the quarters in which the relevant sales took place. This corresponds to what Qualcomm considers necessary to be able to reconcile the results from the application of the GAAP with a quarterly reference period.[981]

(607) Second, Qualcomm took issue with the granularity at which the SO's price-cost test was carried out. Qualcomm explained that conducting such a test at shipment level would (i) be inconsistent with the use of long-run cost such as LRAIC, thus *de facto* resulting in the imposition of a minimum price for each shipment, and (ii) not reflect business reality, because actual price setting and competition for a particular customer would not take place on a shipment-by-shipment basis, but in longer intervals. Qualcomm therefore argued that the Commission should have conducted the price-cost test at a yearly or even multi-yearly level in order to capture a sufficiently large amount of sales to determine whether Qualcomm's prices were effectively capable of foreclosing an as-efficient competitor from the market.[982]

(608) To address Qualcomm's concerns, the Commission reconstructed the prices effectively paid to Qualcomm by Huawei and ZTE during the Relevant Period for the chipsets under investigation at a quarterly level, which the Commission considers to be the appropriate reference period for a price-cost test in this case for the following reasons.

(609) In the first place, [...],[983] [...],[984] [...]. As is visible from Tables 28, 29, 30, 44 and 45 at recitals (744) and (776) below, [...] (see Figure 11 at recital (595) above).

(610) In the second place, a [...] (see section 12.6.2.1 below).

(611) The Commission's price reconstruction is not put into question by the arguments raised by Qualcomm in this regard.

(612) First, Qualcomm puts forward that the price reconstruction is *"unnecessary and incorrect"*, arguing that *"Qualcomm's pricing accounting data is the best and most appropriate method for calculating average selling prices."*[985] Qualcomm makes reference to the Commission's decision in Case COMP/AT.39523 *Slovak Telekom a.s. v Commission*[986] ("ST case") in support of the latter argument, pointing to the fact that in that case *"the Commission took the view that it was preferable with a view to legal certainty to perform the margin squeeze tests* […] *on the basis of the same*

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981 Qualcomm explained in this regard that *"there are certain limitations to the adjustments performed. A hypothetical predation period may not coincide with a fiscal year, or may relate to specific quarters of a fiscal year, and therefore, in principle, these adjustments should be applied on a fiscal quarter basis. However, Compass Lexecon* [Qualcomm's external economic advisors] *was unable to reverse the releases of revenue as reflected in the data submitted by Qualcomm to the Commission to attribute such releases to the specific fiscal quarter in which the associated sales took place"* (emphasis added), see Qualcomm's SO Response, [...], paragraph (410). This shows that with the data available to the Commission at the time of the SO, this exercise could not be carried out, which is why Qualcomm's external economic advisors did not account for the delays in revenue recognition in their own *"alternative test"*, but instead relied on the SO's pricing adjustments.

982 Qualcomm's SO Response, [...], section IV.B.

983 [...]

984 [...]

985 Qualcomm's SSO Response, paragraphs (600)-(609).

986 Commission Decision of 15 October 2014 (Case COMP/AT.39523 *Slovak Telekom*) ("ST Decision").

cost data as the one used by ST rather than on the basis of data resulting from complex ex post adjustments and calculations performed by the Commission."[987] The Commission rejects these claims for the following reasons.

(613) In the first place, Qualcomm's claim that the price reconstruction was unnecessary is incorrect since its purpose was precisely to address the arguments raised by Qualcomm in its SO Response and at the Oral Hearing (see recitals (600)-(603) above). As the Net ASPs recorded in Qualcomm's accounting system display certain price fluctuations resulting from the application of accounting rules, the accounting prices submitted by Qualcomm are unsuitable for the purposes of the price-cost test in this case as they do not reflect the prices effectively paid by Qualcomm's customers. This is because in Qualcomm's accounting system, revenues stemming from rebates for which customers ultimately did not qualify are definitively recorded only once it becomes certain that the customer will not claim these rebates anymore. As a consequence, the revenues recorded in Qualcomm's accounting are partly unrelated to the quantities shipped in a given quarter.

(614) This conclusion is not put into question by Qualcomm's claim in its follow-up submission to the Oral Hearing that *"the SSO's restatement of ASPs* […] *is wholly unnecessary: when viewed over time, any differences between the SSO's ASPs and the ASPs recorded in Qualcomm's accounting data are minimal".*[988] The fact that the difference between Qualcomm's accounting prices and the reconstructed prices may be small does not render the price reconstruction unnecessary for the reasons explained in recital (613) above.

(615) In the second place, Qualcomm's claim that the price reconstruction is incorrect has remained unsubstantiated. In its SSO Response, Qualcomm focused on the methodology used by the Commission for the price reconstruction and took issue with the underlying assumptions, but did not identify any specific calculation errors.[989] As explained in recitals (643)-(644) below, the Commission relied on a methodology that is in line with both international and Qualcomm's own accounting practices. Moreover, Qualcomm did not present any alternative methodology that would have been suitable to apply in this case.

(616) The Commission notes that Qualcomm also submitted a workbook prepared by its external economic advisors in response to the SSO ("ASP Workbook").[990] The ASP Workbook is merely the numerical reflection of Qualcomm's criticism of the Commission's price reconstruction and limits itself to *"investigat*[ing] *the implications of correcting certain identified flaws in that methodology".* In particular, the ASP Workbook ignores information that is relevant for the determination of the prices effectively paid by Huawei and ZTE during the Relevant Period stemming from contemporaneous documentation on incentive claims ([...]) (see recital (640)

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987 Qualcomm's SSO Response, footnote 1114.

988 Qualcomm's follow-up submission to the Oral Hearing of 10 January 2019, [...], paragraph (64).

989 In Annex 5.a of the SSO Response (ASP Workbook), in the tab 'ASP (component)', two values were highlighted with yellow without however providing any comments in this regard. The review of those two values has resulted in a few updates which were brought to Qualcomm's attention by the Letter of Facts of 22 February 2019, [...], and Annex I, [...]. The updates did not have an appreciable impact on the results of the price-cost test carried out in the SSO.

990 Annex 5.a to Qualcomm's SSO Response, ASP Workbook, [...].

below),[991] contemporaneous documents showing the real intention behind certain one-off payments[992] and Qualcomm's own submission concerning specific incentive payments.[993]

(617) In the third place, Qualcomm's reference to the ST case[994] is misplaced since it is quoted out of context. While the Commission did indeed carry out its margin squeeze test *"on the basis of the same cost data as the one used by ST"*,[995] Qualcomm fails to mention that the Commission considered it necessary to undertake *"adjustments to the costs allocated to ST's broadband services which it considered necessary with a view to determining service-specific costs"*.[996] In addition, ST itself had contested the suitability of the accounting costs for the margin squeeze test and submitted therefore its own margin squeeze calculation.[997] As a result, in the prohibition decision, the Commission accepted some of ST's proposals for cost adjustments and rejected others.[998] Qualcomm's reference to the ST case is therefore actually not in its favour. It rather proves that, when necessary, the Commission can and should undertake adjustments of the available accounting data it relies on in a competition case, so as to ensure that those figures reflect in an appropriate way the effective prices paid and costs incurred.

(618) As explained in detail in section 12.5.3.1, and, in particular, in recital (649) below, the Commission did partially rely on Qualcomm's accounting data for the price reconstruction. However, for the reasons set out in recital (603) above, the Net ASPs recorded in Qualcomm's accounting system are unsuitable for the purposes of the price-cost test in this case so that the Commission had to proceed to the reconstruction of the effectively paid prices by also relying on other sources of pricing information, such as the [...]. This demonstrates that the Commission took a very similar approach in both the ST case and this case by relying on data provided by the respective companies after undertaking the necessary adjustments.

(619) Second, Qualcomm asserts that the Commission's price reconstruction erroneously uses hindsight, in the sense that it reverses accruals or accrual releases *"based on the assumption that incentive claims could have been forecasted by Qualcomm with perfect certainty at the time of sale"*.[999]

(620) This claim is unfounded since it is irrelevant whether or not Qualcomm was able to forecast precisely how many units of each chipset would be sold and qualify for a

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991 E.g. volume differences in July-September 2011 and October-December 2011 for the MDM8200A for Huawei (see footnotes 1093 and 1094).

992 See recitals (677)-(693) which show that one-off payments made to Huawei and ZTE during the Relevant Period were intended to incentivise the purchase of chipsets other than those these payments were formally booked for.

993 In its reply of 16 June 2017 to question 3 of Article 18(3) Decision of 31 March 2017 Qualcomm provided information on certain [...] incentives accrued for the MDM8200 to ZTE for 17 July 2009 and 22 January. [...], paragraphs (68)-(70), and Annex 3 ([...]). See recital (749) for additional details.

994 The decision was addressed to Slovak Telekom ("ST") and Deutsche Telekom ("DT"), its parent company, and imposed a fine on ST and DT for infringing Article 102 TFEU and Article 54 of the EEA Agreement. The Decision concerned ST's exclusionary conduct (refusal to supply and margin squeeze) concerning its legacy broadband infrastructure.

995 ST Decision, recital (876).

996 ST Decision, recital (877).

997 ST Decision, recital (881).

998 See *e.g.* recitals (910), (920) and (963) of the ST Decision.

999 Qualcomm's SSO Response, paragraph (594).

given rebate. What matters is that Qualcomm was willing and ready to incentivise all units falling within the scope of certain agreements providing for incentives (see recital (586) above). Qualcomm itself explained that *"at the time that chipset orders are received and dispatched, Qualcomm assumes that the chipset units will qualify for each incentive that is potentially applicable to such units."*[1000] This implies that Qualcomm accepted at the time when the rebates were communicated to Huawei and ZTE that *all* eligible units could qualify for a given rebate.

(621) The Commission notes that in many instances, Huawei and ZTE indeed qualified for rebates for the total volume of the chips purchased, as shown by the Commission's price reconstruction (see *e.g.* sections 12.5.3.3.2 and 12.5.3.4.2 below). Moreover, in those instances in which not all units qualified for a rebate, the Commission's reallocation is in Qualcomm's favour as it only takes account of rebates effectively earned by customers. This results in an increase of the prices in the period concerned as compared to Qualcomm's lower price expectations (based on the *ex ante* assumption that all units would qualify) and thus in a reduced likelihood of finding predation in the periods concerned.

(622) Third, Qualcomm claims that the [...] on which the Commission partially relied for the purposes of the price reconstruction (see recital (640) below) are unfit for conducting a sound price-cost analysis. Qualcomm notably argues that the [...] comprise mostly information provided or prepared by Qualcomm's customers, which would be partly incomplete and/or unreliable.[1001] Qualcomm further contests the suitability of the information contained in those [...] for the price reconstruction, notably because *"it would not be possible to match specific Qualcomm sales to specific claims submitted by the customer in question to Qualcomm"*[1002] in view of the partly significant delay between the purchase and claims period (see recital (602) above). Qualcomm also claims that tracing back Net ASPs to [...] would be difficult, if at all possible, for the same reason and in view of the fact that Qualcomm's [...][1003] [...].[1004] The Commission rejects these claims for the following reasons.

(623) In the first place, Qualcomm's claim that the submitted [...] are incomplete has remained unsubstantiated. Qualcomm has not explained which information would be missing from the [...] and how this would affect the soundness of the Commission's price reconstruction. In fact, the Commission has not been able to identify any gaps in the [...]. The lack of such gaps was acknowledged by Qualcomm at the Oral Hearing where Qualcomm explained in reply to a clarification question by the Commission that it was actually not concerned about the existence of gaps in the [...][1005], but rather about the use of assumptions by the Commission in the price

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1000 Qualcomm’s SSO Response, paragraph (612).

1001 Qualcomm’s SSO Response, paragraphs (623)-(632).

1002 Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...], section I., paragraph (8).

1003 The [...] tracks shipment information, gross revenue and various incentives on a fiscal quarter basis, [...], paragraph 15.

1004 Qualcomm's reply of 18 August 2017 to question 10 of the clarification questions of 18 July 2017, [...], paragraphs (78), (82). During a given fiscal period, both Huawei and ZTE typically had in place several parallel agreements with Qualcomm providing for incentive schemes which affect the accrual, releases and payments made during that period (see Qualcomm's reply of 16 June 2017 to question 1 of Article 18(3) Decision of 31 March 2017, [...], paragraph (59)).

1005 Recording of the Oral Hearing of 10 January 2019, Questions & Answers, answer given by [...] as of 14:38 o'clock. The Commission notes that Qualcomm mentioned that there seemed to have been *"one*

reconstruction (the *"assumption based issue"*)[1006] as the rebate [...] did not always contain sufficiently detailed information. In any event, even if such gaps existed, these would be in Qualcomm's favour since the reconstructed prices would not reflect all rebates granted during the Relevant Period. This means that the actual prices during that period would have actually been lower than the reconstructed prices, which would have increased the likelihood of finding predation.

(624) In the second place, Qualcomm's claim concerning the reliability of the [...] used by the Commission in its price reconstruction is incorrect. While comprising information provided by Qualcomm's customers (*i.e.* rebate claims which by definition cannot originate from Qualcomm), the [...] submitted by Qualcomm also include a sheet prepared by Qualcomm containing its verification of the submitted customer claims. Any corrections done by Qualcomm as a result of the verification of the incentive claims are therefore taken account of in the Commission's price reconstruction.[1007]

(625) Moreover, Qualcomm itself relied on these [...] for accounting purposes, as demonstrated by its reply to an information request in which it stated that *"relevant QCT manual accounting entries, consisting of* [...] [can be] […] *link*[ed] […] *to Qualcomm's accounting records. Qualcomm reiterates that all of this work has already been undertaken for the purpose of compiling Qualcomm's financial statements which have been rigorously audited by independent controllers."*[1008]

(626) Fourth, Qualcomm claims that *"the SSO's methodology results in prices which, in certain instances, are, most demonstrably, not the prices actually paid by Qualcomm's customers concerned. The latter prices – which are well known to the parties and documented in relevant correspondence and accompanying* [...] *– differ significantly from the SSO's restated ASPs."*[1009] This claim is incorrect for the following reasons.

(627) In the first place, Qualcomm itself confirmed in its SSO Response that *"one should not infer that an appropriate methodology to derive ASPs would be to examine systematically the* [...]*"*.[1010]

(628) In the second place, the prices approved by the [...] do not reflect the fact that certain volumes purchased by Qualcomm's customers may qualify for more than one rebate and that some rebates depend on the purchased volumes which are only known *ex*

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mysterious document nobody managed to find" without, however, giving further explanation as to its content or relevance, neither at the Oral Hearing, nor in its follow-up submission to the Oral Hearing of 10 January 2019.

1006 Recording of the Oral Hearing of 10 January 2019, Questions & Answers, answer given by [...] as of 14:38 o'clock.

1007 In paragraphs (628) and (629) of the SSO Response, Qualcomm put forward some examples of instances in which the incentive claims submitted by customers contained inconsistencies or errors. For example, in the *"claims submitted by Huawei pertaining to sales of MDM8200A chipsets in the fourth quarter of 2011 and the first quarter of 2012,* […] *Huawei had incorrectly claimed a rebate over devices that did not have voice capability."* Qualcomm, however, clarified that *"this issue was identified and subsequently corrected"* and that *"the SSO has taken this correction into account in its analysis at ¶ 458"* (see footnote 1164 of Qualcomm's SSO Response).

1008 Qualcomm's reply of 16 June 2017 to Article 18(3) Decision of 31 March 2017, [...], question 1.2.3, paragraph (44).

1009 Qualcomm's SSO Response, paragraph (608).

1010 Qualcomm's SSO Response, footnote 1116.

post (*e.g.* the [...] incentive is determined by [...] and the [...] by the gross revenues, see sections 12.5.3.2.1 and 12.5.3.2.4). In those instances, the prices approved by the [...] do not allow to determine the prices effectively paid by Qualcomm's customers (see Tables 28, 29, 30, 44 and 45 at recitals (744) and (776) below).

(629) Fifth, Qualcomm claims that its *"pricing accounting data is the best and most appropriate* […] *for calculating average selling prices, especially when assessed over a sufficiently relevant period of time (i.e., over a six-month period or longer)"*.[1011] Qualcomm also argues that *"the Commission appears to concede that it is more appropriate to analyse ASPs over a longer period, e.g., a year, and not per-quarter as it does in the SSO."*[1012] This claim is incorrect for the following reasons.

(630) In the first place, a reference period of six months or more would be inconsistent with the reference period used by Qualcomm for pricing decisions and cost data recording (see recitals (609)-(610) above).

(631) In the second place, a price-cost test carried out on the basis of a reference period of six or more months would not address the issues arising from the application of the revenue recognition principles. A longer (or a shorter) reference period would not eliminate the possibility that there can be a time gap between the quarters when provisional accruals and earned revenues relating to the same units are booked (see recital (593) above) due to which prices could be artificially increased or understated (see recital (603) above). A price reconstruction such as that carried out by the Commission in the SSO would therefore remain necessary in order to obtain the prices effectively paid by Qualcomm's customers during the Relevant Period.

(632) In the third place, aggregating revenues over longer periods implies that periods of low prices are pooled together with periods of high prices, where the latter may fall into a period of recoupment, so that such a price-cost test based on a multi-period assessment is more likely to yield so-called "false negatives", *i.e.* it would fail to detect periods of predatory pricing because these low prices are averaged out in the aggregation. For this reason, the price-cost test has to be carried out on the basis of a reference period that is consistent with the timing of the competitive interaction and the price setting intervals between Qualcomm and its customers (*i.e.* calendar quarters in this case).

(633) In any event, as explained in section 12.7.3 below, the Commission complemented its quarterly price-cost analysis by an analysis of the life-time profitability of the two [...] products under investigation (*i.e.* MDM8200 and MDM8200A), thus aggregating revenues and costs over the entire lifecycle of both products.[1013] As explained in recitals (1013) and (1024) below, the results of this analysis are consistent with the conclusions of the Commission's quarterly price-cost analysis.

1011 Qualcomm's SSO Response, paragraph (607).

1012 Qualcomm refers in particular to paragraph (9) of the LoF which states that *"price reductions are not necessarily reviewed at the end of each individual quarter, but may apply for longer time periods spanning multiple quarters"*. Qualcomm's Comments on the Letter of Facts, [...], paragraphs (126)-(129).

1013 The Commission did not carry out a lifetime profitability analysis for the MDM6200 (see recital (891) and footnote 1283 below).

12.5.3. The Commission's price reconstruction for the chipsets under investigation

(634) This section explains how the Commission reconstructed the prices effectively paid to Qualcomm by Huawei and ZTE during the Relevant Period for the chipsets under investigation.

(635) Section 12.5.3.1 describes the methodology used for the reallocation of all relevant financial incentives granted by Qualcomm to Huawei and ZTE during the Relevant Period to the [...] in which the units qualifying for those incentives were shipped. Section 12.5.3.2 explains the characteristics of the relevant financial incentives and how the Commission established their effective amounts for the Relevant Period. Section 12.5.3.3 explains the price reconstruction for Huawei for each of the chipsets under investigation during the Relevant Period and presents the results. Section 12.5.3.4 explains the price reconstruction for ZTE for each of the chipsets under investigation during the Relevant Period and presents the results.

(636) The Commission notes that the chipsets under investigation are composed of up to three individual components (*i.e.* baseband, PM and RF chip, see recital (76) above) which had to be assessed separately for this purpose. The reconstructed chipset price depends on the configuration in which the chipset was sold during the Relevant Period. While there was only one configuration for the MDM8200 based chipset, the MDM6200 and MDM8200A based chipsets were sold in two configurations during part of the Relevant Period, as illustrated by the following table.

Table 11: Chipset configurations[1014]

Baseband chip	RF chip	PM chip
MDM8200	RTR6285	PM7540
MDM6200	n/a	PM8028
MDM6200	n/a	PM8015
MDM8200A	RTR6285	PM8028
MDM8200A	RTR6285	PM8015

(637) In light of the above, the Commission computed the effectively paid price of each chipset, on a quarterly basis, as the sum of the reconstructed prices for each of three components making up any given chipset configuration (see Tables 27 and 43 at recitals (739) and (774) below). Similarly, the Commission reconstructed the relevant costs of each chipset, on a quarterly basis, as the sum of the reconstructed prices for each of three components making up any given chipset configuration.

(638) Contrary to Qualcomm's claims, this approach has not *"altered the scope of the investigation from three individual products to five product combinations"*.[1015] In fact, the Commission's investigation encompassed from the outset the entirety of Qualcomm's MDM8200, MDM6200 and MDM8200A based chipsets. While the Commission's price-cost test in the SO did not differentiate between the two configurations of the MDM6200 and the MDM8200A due to the absence of separate

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1014 Qualcomm's reply of 2 December 2013 to question 93 of Article 18(3) Decision of 10 July 2013, [...], paragraph (387) and Qualcomm's reply of 16 June 2017 to question 5 of Article 18(3) Decision of 31 March 2017, [...], paragraph (78).

1015 Qualcomm's SSO Response, [...], paragraph (78).

pricing data,[1016] the [...] submitted by Qualcomm used for the price reconstruction in the SSO allowed the Commission to distinguish between those configurations and therefore to carry out a more granular price-cost analysis. In its judgment of 9 April 2019, the General Court confirmed that *"the scope of the investigation as defined in the statement of objections, at the state-of-play meeting of 3 September 2015 and at the hearing on 10 November 2016 has not been extended in the present case"*.[1017]

12.5.3.1. Methodology used for the reallocation of financial incentives

(639) The Commission calculated the prices effectively paid by Huawei and ZTE during the Relevant Period by shifting effectively granted incentives from the quarters when they were recorded in Qualcomm's accounting system to the quarters when the qualifying units were shipped by Qualcomm to the customer. As a result, any accrual releases which were recorded in Qualcomm's accounting system during the Relevant Period disappear.

(640) The Commission's reallocation of the financial incentives paid by Qualcomm to Huawei and ZTE during the Relevant Period is based on the [...] which Qualcomm had identified as containing documentation responsive to the Commission's Article 18(3) Decision of 31 March 2017.[1018]

(641) As a first step, the Commission reallocated all qualifying units for the chipsets under investigation to the quarters when they were shipped to Qualcomm's customers on the basis of the rebate calculation attached to each [...] (see Figure 14 below).

Figure 14: Example of a rebate calculation[1019]

[...]

(642) The first and second section of the table in Figure 14 above set out in detail, for a given agreement, (i) the amounts of units shipped [...], (ii) any releases corresponding to the number of non-qualifying units, (iii) the amount of qualifying units for which the incentive is claimed, (iv) the relevant purchase and sales periods as established in the underlying agreement, (v) the relevant target prices[1020] underlying the incentive calculation (denominated as 'net ASP'), (vi) any applicable restrictions (*e.g.* whether or not the qualifying units have voice functionality), and

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1016 In its reply to the Article 18(3) Decision of 13 October 2014 ([...]) Qualcomm had provided the Commission with cost data in respect of the MDM8200, MDM6200 and MDM8200A based chipsets in different configurations which are identical to the ones displayed in Table 11 at recital (636) above, without, however, specifying the configurations of the chipsets sold. For the SO's price-cost test, the Commission therefore used the configuration with the lowest AUC in each quarter, which was in Qualcomm's favour.

1017 Case T-371/17, *Qualcomm and Qualcomm Europe* v *Commission,* ECLI:EU:T:2019:232, paragraph (81).

1018 [...]. Three samples of such [...] had already been provided in Annex 1.1 to Qualcomm's reply of 30 June 2017 to Article 18(3) Decision of 31 March 2017, [...]. These [...] typically contain (i) the relevant [...] (see recital (597) above), (ii) one or more signed [...] forms (see recital (595) above), (iii) [...] (see recital (596) above), (iv) Qualcomm internal calculations and documents prepared for [...] and (v) the relevant agreements, see Qualcomm's reply of 30 June 2017 to question 1 of Article 18(3) Decision of 31 March 2017, [...], paragraph (27).

1019 [...]

1020 The Commission notes that Qualcomm does not refer to these amounts as target prices. As can be seen in Figure 14 above, these prices are referred to by Qualcomm as Net ASPs, [...]. However, for the sake of clarity, the Commission will use the term "target prices" throughout this Decision to distinguish them from the Net ASPs representing the net average selling prices as reconstructed by the Commission.

(vii) the relevant geographical region. The second section of the table also allows to link the respective claims to the underlying [...] approval (the date of which is stated along with the target price and all relevant restrictions as shown in the example above). The third section of the table contains two types of records which are relevant for the rebate reallocation, namely releases and payments expressed in USD.

(643) Where the documentation provided by Qualcomm contained sufficient information to allow the Commission to identify with certainty the quarter in which the units related to a specific rebate claim were shipped, the Commission allocated the individual volume of qualifying units to one single quarter. This was, *e.g.*, possible in cases where the volume of qualifying units was equal to the number of units shipped[1021] or the applicable rebates per unit pointed to specific quarters.[1022]

(644) Where the documentation provided by Qualcomm did not contain sufficient information to allow the Commission to identify with certainty the quarter in which the units related to a specific rebate claim were shipped, the Commission applied the "First-in, First-out" ("FIFO") method and allocated the volume of qualifying units to multiple quarters. The FIFO method is based on the assumption that the order of departure from the stock is the same as the order of arrival to the stock. This assumption is appropriate in the case of sufficiently homogenous products such as the products under investigation, where the buyer typically incorporates purchased products on a rolling basis into the final product. This approach is also consistent with the method used by the Commission in the reconstruction of the variable cost of the chipsets under investigation, in conformity with Qualcomm's practice in the ordinary course of business (see recital (812) below).

(645) The application of the FIFO method in this case implies that the units which were claimed by Huawei and ZTE first were also (i) purchased from Qualcomm and shipped by Qualcomm to Huawei and ZTE first and (ii) incorporated into end devices and sold through to end customers first.

(646) By way of example, the application of the FIFO method to the [...] and [...] units shipped by Qualcomm to Huawei in the first and second fiscal quarter of 2012 (see Figure 14 at recital (641) above and relevant extract in Table 12 below) leads to the following results.

Table 12: Example of reallocation (based on fiscal quarters, "FYQ")

	FYQ1	FYQ2	FYQ3
Shipped	[...]	[...]	
Claimed		[...]	[...]

(647) The total amount of units shipped in FYQ1 and FYQ2 corresponds to the total amount of units claimed in FYQ2 and FYQ3 (*i.e.* [...] units). According to the FIFO method, the units claimed in FYQ2 were shipped in FYQ1 and therefore have to be reallocated to that quarter. It follows that the units claimed in FYQ3 were shipped in two different quarters: [...] units were shipped in FYQ1 (which exhausts the number of units shipped in this quarter) and the remaining [...] units were shipped in FYQ2. These units therefore have to be reallocated to both quarters accordingly.

1021 See, *e.g.*, the claim of [...] units made by Huawei for the MDM8200 chip. The entire amount was shipped in the quarter April-June 2010. [...].

1022 See, *e.g.*, the claims of [...] and [...] units made by Huawei for the MDM8200A chip at a rebate per unit of USD [...].

(648) As a second step, the Commission reallocated the incentive payments according to the reallocation of the qualifying units. Whenever the number of qualifying units is split between two quarters (see units claimed in FYQ3 in the aforementioned example), the incentive payments are split in the same ratio. For this step, the Commission relied on the amounts of incentive payments as indicated in the [...] in order to reflect effective payments during the Relevant Period.

(649) As a third step, the Commission deducted the sum of all incentives in a given quarter from the gross revenue to obtain net revenue. The Commission then divided the net revenue by the number of units shipped in the corresponding quarter to obtain the effective Net ASP per quarter. For the gross revenue and the number of units shipped the Commission relied on Qualcomm's accounting data.

(650) The Commission's approach is not put into question by Qualcomm's claim that *"it is impossible to know with certainty from the document* [...] *the date, or even the fiscal quarter, when certain chip units were purchased from Qualcomm".*[1023] This claim is incorrect. In fact, in most instances the [...] allowed the Commission to unambiguously determine the quarter in which a given number of units were purchased from Qualcomm and delivered to Huawei or ZTE (*e.g.* for the incentive reallocation for the MDM8200 to Huawei, see section 12.5.3.3 below). In the few remaining instances, the Commission relied on established methods such as the FIFO method (*e.g.* in one instance for the MDM8200A sold to Huawei), in conformity with Qualcomm's practice in the ordinary course of business (see recital (812) below).

12.5.3.2. Financial incentives granted to Huawei and ZTE during the Relevant Period

(651) The Commission's reconstruction of effectively paid prices by Huawei and ZTE during the Relevant Period is based on the number of units sold and the gross revenues for Huawei and ZTE for the MDM8200, the MDM6200 and the MDM8200A baseband chips and the related components (*i.e.* the PM8028, the PM8015, the PM7540 and the RTR6285) as recorded in Annex 10.1 to Qualcomm's reply of 18 August 2017 to the Commission's clarification question of 18 July 2017.[1024] The number of units sold was, however, double-checked against the corresponding [...] and corrected where necessary.[1025] The relevant rebate information was drawn from the [...].[1026]

(652) More specifically with regard to the different financial incentives granted to Huawei and ZTE during the Relevant Period as reported in Annex 10.1 to Qualcomm's reply of 18 August 2017 (*"Incentives* – [...]*", "Incentives* – [...]*", "Incentives* – [...]*", "Incentives* – [...]*"* and *"Incentives* – [...]*"*) the Commission proceeded as follows.

1023 Qualcomm's SSO Response, [...], paragraphs (635) and (648).

1024 Annex 10.1 to Qualcomm's reply of 18 August 2017 to the Commission's clarification question of 18 July 2017, [...]. The exact timeframe of the data provided differs between the chipset components concerned.

1025 In some instances, the [...] contain information that makes the correction of Qualcomm's accounting data necessary. For example, the volumes of the MDM8200A units sold to Huawei in the quarters July-September 2011 and October-December 2011 were adjusted based on additional information contained in the relevant [...] (see section 12.5.3.3.3 below).

1026 Except for the [...] which were calculated by the Commission based on both sources of data (see section 12.5.3.2.4. below).

(653) First, the [...] incentives recorded in this Annex are the values of accruals booked by Qualcomm when it received and dispatched purchase orders from Huawei and ZTE (see recital (594) above), which do not, however, reflect the prices effectively paid by both customers. The Commission therefore relied on the [...] incentives reported in the [...], reallocating releases to the quarters in which the corresponding sales had occurred and the accruals had been formed according to the methodology explained in section 12.5.3.1 above.

(654) Second, for the [...] the Commission carried out a recalculation of the relevant amounts. The underlying reasons are explained in section 12.5.3.2.4 below.

(655) Third, no corporate incentives were granted by Qualcomm to Huawei and ZTE during the Relevant Period for any of the products under investigation. This category is therefore irrelevant for the Commission's price reconstruction.

(656) Fourth, the payments for [...] were reallocated by the Commission to the products and periods they were intended for according to Qualcomm's internal documents, as explained in section 12.5.3.2.5 below.

(657) Fifth, the [...] incentives reported in Annex 10.1 to Qualcomm's reply of 18 August 2017 correspond to accrual releases in relation to [...] incentives[1027] which form part of the Commission's recalculation of effectively paid prices according to the methodology explained in section 12.5.3.1 above.

(658) In addition to the categories of financial incentives recorded in Annex 10.1 to Qualcomm's reply of 18 August 2017, the Commission identified, based on the [...], two other categories of financial incentives which are relevant for the price reconstruction, namely [...] incentives and volume incentives. The Commission treated both categories similar to the product incentives and reallocated them to the relevant quarters when the units qualifying for these incentives were shipped.

(659) In order to calculate the Net ASPs for each chipset under investigation, the Commission deducted all incentives from the gross revenues and divided the resulting net revenues by the number of units shipped in each quarter.

Net ASP = (Gross revenue – All incentives) / Number of units shipped

(660) The Commission notes that, in addition to the above-mentioned financial incentives granted to Huawei and ZTE, Qualcomm also engaged in direct marketing by means of financial incentives to MNOs (see, *e.g.*, recital (513) above). Any such payments at MNO level are not taken into account in the Commission's price reconstruction. This is in Qualcomm’s favour because considering any such additional incentives for the purposes of the price reconstruction would lead to lower prices and a higher likelihood of finding predation. [...] (see recitals (96) and (347) above).

(661) The following sections provide a description of the different financial incentives taken into account in the Commission's price reconstruction, namely [...] incentives (section 12.5.3.2.1), [...] incentives (section 12.5.3.2.2), [...] incentives (section 12.5.3.2.3), [...] (section 12.5.3.2.4) and [...] (section 12.5.3.2.5).

12.5.3.2.1. [...] incentives

[1027] Qualcomm's reply of 30 June 2017 to question 1 of Article 18(3) Decision of 31 March 2017, [...], paragraph (32), Annex 1.4.a, in which accruals are shown under the columns with the heading "[...]", whilst releases are shown under the columns with the heading "[...]".

(662) Prices are typically offered and provided under a [...] structure. Each baseband chip model has a specific price depending on the [...] it is in, [...]. Once the customer's aggregate baseband chip purchases equal a given [...], units purchased in excess of the [...] are subject to a lower price [...]. The lower price only applies to the units purchased in excess of the [...], *i.e.* they apply only to the [...].[1028]

(663) In the Commission's price reconstruction, volume incentives were taken into account based on the information contained in the [...] for quarters when the units qualifying for the incentive were shipped.

12.5.3.2.2. [...] incentives

(664) [...] incentives (also called [...] incentives) are one-time rebates for W-CDMA[1029] modem cards. The exact amount of the [...] incentives granted is usually not specified in advance but defined as the difference [...] and the target price.

(665) For the purposes of the price reconstruction, the Commission relied on the [...] incentives reported in the [...] which it reallocated to the quarters when the units qualifying for the incentive were shipped.

12.5.3.2.3. [...] incentives

(666) [...] incentives are granted for baseband chips which are incorporated into [...]. [...] are [...] devices that (i) incorporate a W-CDMA Modem Card and are (ii) used in notebook computers or other personal devices and (iii) manufactured by or on behalf of the given customer. During the Relevant Period, [...] incentives were granted *e.g.* to Huawei for the MDM8200A.

(667) The [...] incentive is defined as the difference between [...] and the target price.

(668) For the purposes of the price reconstruction, the Commission relied on the [...] incentives reported in the [...] which it reallocated to the quarters when the units qualifying for the incentive were shipped.

12.5.3.2.4. [...]

(669) Qualcomm enters into Strategic Incentive agreements with some of its customers which provide for a so-called [...].

(670) During the Relevant Period, Qualcomm had a [...] Incentive agreement in place with Huawei which resulted in a [...] reduction on the chip revenue for each quarter. [...].

(671) [...][1030]

[...]

(672) [...].

1028 Qualcomm's reply of 19 July 2010 to question 12 of Article 18(2) request for information of 7 June 2010, [...], paragraph (61), and Qualcomm's reply of 16 June 2017 to question 13 of Article 18(3) Decision of 31 March 2017, [...], paragraph (116).

1029 This Decision only concerns the W-CDMA variant of UMTS (see recital (65) above).

1030 Qualcomm's reply of 6 October 2017 to question 4 of the clarification questions of 19 September 2017, [...], paragraphs (19), (21)-(22).

Figure 15: Qualcomm's example for allocation of the [...][1031]

[...]

(673) [...]. This has an impact on the Net ASP calculated by Qualcomm for each product.

(674) In the example in Figure 15 above, [...].

(675) From the customer's perspective, the relevant figure is [...] the amount that it will eventually receive. In contrast, [...].[1032]

(676) In light of the above, the Commission considers a flat [...] for each product under investigation when determining the effectively paid price. [...].

12.5.3.2.5. Payments for [...]

(677) During the Relevant Period, Qualcomm made two one-off payments, which Qualcomm formally classified as Payments for [...], *i.e.* payments to cover [...].[1033] The first instance concerns a payment of USD [...] to Huawei, which was approved by Qualcomm's [...] on 25 November 2009 as part of the [...] for the MDM8200A based chipset. The second instance concerns a payment of USD […] to ZTE as provided for in the [...] which was approved by Qualcomm's [...] on 15 February 2011.

(678) According to the contemporaneous evidence on the file, neither payment was intended to cover [...] of the MDM8200A based chipset which was mentioned in the [...] and for which they were formally booked in Qualcomm's accounting system. The purpose of these payments was, in reality, to decrease the purchase price of a different chipset, namely the MDM8200 based chipset in the case of the [...] payment to Huawei, and the MDM6200 based chipset in the case of the [...] payment to ZTE. Therefore, in both instances, the Commission reallocated the [...] to the chipset for which the financial incentive was actually intended in order to recalculate the prices effectively paid by Huawei and ZTE. This is explained in detail in the following sections.

12.5.3.2.5.1. [...] to Huawei

(679) With regard to the one-off payment to Huawei, Qualcomm's internal documents demonstrate that the payment was intended as a rebate for [...] units of unsold inventory of the MDM8200 based chipset shipped to Huawei during the second half of 2009. A Qualcomm internal presentation prepared for the [...] meeting of 25 November 2009 refers to the *"MDM8200A* [...]*"* with a [...] *"*[a]*ddress MDM8200 Inventory"*.[1034] A document titled [...] of 30 November 2009 explains further that Qualcomm *"addressed the inventory on hand Huawei purchased by providing them the value of $*[...] *per unit on* [...] *units = $*[...] *in the form of MDM8200A* [...]*."*[1035]

1031 Figure 15 is extracted unchanged from Annex 4.1 to Qualcomm's reply of 6 October 2017 to the clarification questions of 19 September 2017, [...].

1032 The [...] of 6 August 2008 between Huawei and Qualcomm provides that Huawei will earn a [...] rebate on its purchases of UMTS chipsets if it increases (i) the value of those purchases by [...]; or (ii) the number of units purchased by 25% as compared to the preceding calendar year. [...]. See Qualcomm's reply of 26 July 2010 to the Icera complaint, [...], footnote 174.

1033 Qualcomm's reply of 2 December 2013 to question 44 of Article 18(3) Decision of 10 July 2013, [...], paragraph (190).

1034 Qualcomm internal presentation titled [...] of 23 November 2009, [...], page 4.

1035 Document of 30 November 2009 titled [...], page 3.

Moreover, Qualcomm itself explained in its SO Response that *"the* [...] *payment of November 2009"* was meant to provide price reductions on Huawei's MDM8200 inventory.[1036] Other evidence relating to this [...] incentive, as well as the developments leading to its approval on 25 November 2009 are described in detail in recitals (486)-(487) above.

(680) The Commission's conclusions are not called into question by Qualcomm's claim that the Commission has ignored exculpatory evidence from Huawei. More specifically, Qualcomm points to Huawei's reply to an information request concerning the [...] payment and to the fact that *"Huawei was also able to inform the Commission that according to its records, it booked the* [...] *payment against the MDM8200A, as per the agreement."*[1037]

(681) This claim is incorrect since Huawei has in fact not provided any information that would disprove the Commission's finding that the [...] payment was actually intended as a rebate for the unsold inventory of the MDM8200 based chipset. In its reply to the Commission's information request of 21 September 2017, Huawei limited itself to re-stating the terms of the agreement, which, however, do not correspond to the real intention behind this payment as demonstrated by contemporaneous evidence from both Qualcomm and Huawei itself (see recital (679) above). In any case, the way in which Huawei treated the payment in its own accountings cannot disprove the real purpose of Qualcomm's payment as reflected in the aforementioned contemporaneous evidence.

12.5.3.2.5.2. [...] to ZTE

(682) With regard to the one-off payment to ZTE, Qualcomm's internal documents demonstrate that the purpose of the payment was to grant ZTE a per unit rebate on the MDM6200 based chipset for the volumes that Qualcomm expected to be purchased by ZTE during 2010, as explained below. The developments leading to the approval of this [...] incentive on 21 December 2009 are described in detail in recitals (496)-(502) above.

(683) Qualcomm internal e-mails of December 2009 show that Qualcomm was concerned about [...], but reluctant to make [...]. It was therefore agreed to grant ZTE a payment of USD […], which was equivalent to a rebate of USD […] per unit based on a sales forecast of […] units for the MDM6200 based chipset (see evidence presented in recitals (500)-(502) above). On 24 May 2010, the [...] reduced the total amount of [...] from USD […] to USD […] and split the amount across two products (the MDM8200A and the MDM6200).[1038] After having submitted the required documentation, ZTE received on 26 July 2012 a pay-out of USD […] from

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1036 Qualcomm's SO Response, [...], paragraph (366), which erroneously identifies [...] units as Huawei's inventory (see footnote 872 above).

1037 Qualcomm's SSO Response, [...], paragraph (67), footnote 32.

1038 [...] submitted by Qualcomm in Annex 6 of its reply of 16 January 2012 to Article 18(3) Decision of 3 November 2011, [...], page 421.

Qualcomm under the [...] agreement for the MDM8200A based chipset.[1039] No payment was made for the MDM6200 under the [...] Agreement.[1040]

(684) Despite the [...] being formally tied to the MDM8200A based chipset, Qualcomm's intention was to provide a per unit rebate for the MDM6200 based chipset. This is demonstrated by a Qualcomm internal e-mail exchange of 7 and 8 December 2009 in which [...] ([Qualcomm management member]) enquired about the *"MDM6200 proposal for ZTE"* and proposed to address [...] by providing price concessions for the MDM6200 based chipset in the form of a *"one time* [...] *tied to MDM6600 or MDM8200A".* [...] (Financial Analyst, Staff, at Qualcomm) agreed with [...] reasoning, adding that *"*[i]*t's a difficult situation,* [...]*."* As regards the implementation of the pricing proposal, he enquired whether [...] was *"looking for like $*[…]*? That would basically be $*[…] *per unit on* […] *current 2010 forecast. What do you want to tie the incentive to? I think tying the* [...] *to MDM8200A might be the best scenario here. Let me know."* [...] agreed: *"Exactly. MDM8200A, $*[…]*/unit."*

(685) The Qualcomm internal e-mail exchange of December 2009 demonstrates that the purpose of the [...] was to incentivise ZTE's purchases of the MDM6200 based chipset in 2010. The Commission therefore considers that the units which eventually benefited from the [...] include all shipments of the MDM6200 based chipset to ZTE in calendar year 2010, as well as the shipments made during [...] which, based on [...],[1041] should be considered to have been ordered in 2010.

(686) The contemporaneous evidence also shows that the approval process was tailored by Qualcomm to fit the facts. Qualcomm considered ZTE to have met the [...] payment conditions in the first quarter of 2011, as demonstrated by the creation of a reserve of USD [...] in Qualcomm's accounting system in the first quarter of 2011 with the following justification: [...][1042] [...],[1043] [...].[1044]

(687) The Commission's conclusions are not called into question by Qualcomm's claims in this regard.

(688) First, Qualcomm argues that *"this* [...] *payment:* [...] *MDM8200A; (ii) did not create any incentive for ZTE to purchase MDM6200-based chipset during the relevant period (or at any point before or after); (iii) did incentivise ZTE to purchase MDM8200A-based chipsets for an indefinite period* […]*; and (iv) was confirmed and paid to ZTE in July 2012 (i.e., over a year after the end of the alleged predation)".*[1045]

1039 Annex 7(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...], covering the [...]. The Commission notes that Qualcomm's [...] are identified by [...]. Since there is no other page numbering, the Commission refers to the […] with both the [...] and the corresponding [...].

1040 Qualcomm's reply of 2 December 2013 to question 99 of Article 18(3) Decision of 10 July 2013, [...], paragraph (419).

1041 See, *e.g.*, Quotation No. [...] to ZTE of [...].

1042 Annex 7(b) to Qualcomm's reply to the clarification questions of 18 July 2017, [...].

1043 [...] submitted by Qualcomm in Annex 6 of its reply of 16 January 2012 to Article 18(3) Decision of 3 November 2011, [...], page 637. The terms of this approval were eventually formalised in the [...], which superseded the [...].

1044 Annex 7(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...].

1045 Qualcomm's SSO Response, [...], paragraph (432).

(689) This claim is incorrect since the contemporaneous Qualcomm internal documents (notably the e-mail exchange of December 2009) demonstrate that the [...] payment was in reality aimed at promoting the MDM6200 rather than the MDM8200A (see recitals (683)-(684) above). Like for the [...] payment to Huawei, the [...] do not therefore reflect the real intention behind this payment. Moreover, the point in time when Qualcomm paid out the money to ZTE is not informative about the time period it relates to, as compared to the contemporaneous documents on the file which clearly demonstrate that the payment was intended to incentivise ZTE's purchases of the MDM6200 based chipset in 2010.

(690) Second, Qualcomm claims that the internal discussion of December 2009 were *"to the best of Qualcomm's knowledge, never translated into discussions with ZTE, they were never formalised, and, in any event, they would have been superseded by the terms approved in the* [...] *meeting of 14 May 2010 (which, in turn, were discussed and* [...]*)".*[1046]

(691) This claim is unfounded. While the contemporaneous documents on the file do not clearly indicate why the initially foreseen amount of USD […] was eventually reduced and split across two products (the MDM8200A and the MDM6200) instead of following on with the initial plan to formally put the entire amount on the MDM8200A, there are no indications that Qualcomm's initial intention behind the payment to incentive purchases of the MDM6200 had changed between the [...] approval on 21 December 2009 and the [...] approval on 24 May 2010. In fact, Qualcomm has neither claimed that this was the case, nor has it provided any evidence that would disprove the Commission's findings.[1047]

(692) Third, Qualcomm argues that the SSO erroneously considered the payment in question as a variable unit rebate and spread it *"over a limited number of MDM6200 chipset units"*. As a result, *"the SSO vastly inflates the hypothetical rebate to reach approximately USD 7 per unit, even though the SSO simultaneously contends that Qualcomm intended the* [...] *payment in question to represent a rebate of USD 2 per unit".*

(693) This claim is unfounded since the contemporaneous evidence on the file demonstrates that the payment was intended as a per unit rebate on purchases of the MDM6200 during 2010. Given that less than 100,000 units of the MDM6200 were eventually shipped to ZTE during this period (corresponding to only roughly 7% of the originally forecasted number of sales of the MDM6200 to ZTE in 2010[1048]), the resulting per unit rebate was however eventually higher than initially foreseen by Qualcomm. The lower than expected demand by ZTE for the MDM6200 may have actually been one of the reasons why the [...] reduced on 24 May 2010 the initially

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1046 Qualcomm's SSO Response, [...], paragraph (434).

1047 Although it is for Qualcomm to disprove that the payment was aimed at incentivising purchases of the MDM6200 as reflected in contemporaneous Qualcomm internal documents, following the Oral Hearing, the Commission requested ZTE for further information concerning the [...] payment. ZTE was, however, not able to provide any information on this payment since the relevant employees have meanwhile left the company (see ZTE's reply of 18 February 2019 to question 1 of Article 18(2) request for information of 8 February 2019, [...], page 3). See also recital (40) above.

1048 See presentation attached to Qualcomm internal e-mail of 10 December 2009 from [...] (Financial Analyst, Staff) to [...] ([QCT top management member]) and [...] (Senior Director, Finance) [...], page 3, which refers to a [...] for the MDM6200 of […] units. Computation based on worksheet [...] included in Annex 10 to the SO Response, [...].

foreseen payment from USD […] to USD […] and split it across two chipsets, with the result that eventually only USD […] were paid out to ZTE. Had Qualcomm wanted to reduce the resulting per unit rebate even further in order to adapt it to the actual demand development during that period, it could have further adjusted the overall payment amount in a subsequent [...] meeting, which it did not do.

12.5.3.3. Reallocation of financial incentives to Huawei

(694) This section explains how the Commission reallocated the financial incentives granted by Qualcomm to Huawei during the Relevant Period to the MDM8200 (see section 12.5.3.3.1 below), the MDM6200 (see section 12.5.3.3.2 below), the MDM8200A (see section 12.5.3.3.3 below), the PM7540, PM8028 and PM8015 (see section 12.5.3.3.4 below), and the RTR6285 (see section 12.5.3.3.5 below). It concludes with a summary table of the reconstructed prices for all chipset configurations, a figure with an overview of how the reconstructed prices relate to the accounting prices used in the SO, as well as an overview showing how the [...] approvals map into the purchases made by Huawei and how the effectively paid prices compare to the target prices stated by the [...] approvals (see section 12.5.3.3.6 below).

12.5.3.3.1. MDM8200

(695) Qualcomm submitted three [...] concerning payments made to Huawei for the MDM8200 baseband chip.[1049] Two of these [...] are relevant for the Relevant Period.[1050] The third [...] concerns 'Claimed ISM Quality Issues' rather than incentives and is therefore not taken into account in the price reconstruction.[1051]

(696) The Commission's reallocation of the qualifying units for the MDM8200 is illustrated by the following table.

Table 13: Reallocation of the qualifying units for the MDM8200 (Huawei) per calendar quarter[1052]

		Jul-Sep/2009	Oct-Dec/2009	Jan-Mar/2010	Apr-Jun/2010
Units		[...]	[...][1053]	[...]	[...]
UNITS					
[...] incentives	Shipped	[...]			
	Qualified ([...])	[...]			
	Leftover	[...]			
	Previous leftover/Shipped	[...]			

1049 Annex 7(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...] and [...].

1050 Annex 7(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...] and [...].

1051 Annex 7(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...].

1052 In the tables containing the reallocation of the qualifying units and the reallocation of the incentive payments for each chip and customer in sections 12.5.3.3 and 12.5.3.4 below, the relevant [...] are identified by the [...] number of the first pages.

1053 [...] units were shipped by 15 November 2009 and [...] units were shipped after this date.

	NQ units ([...])	[...]			
	Leftover	[...]			
	Previous leftover/Shipped	[...]			
	NQ units ([...])	[...]			
	Leftover	[...]			
	Previous leftover/Shipped	[...]			
	Qualified ([...])	[...][1054]			
	Leftover	-			
	Shipped		[...]		
	Qualified ([...]) by 15/11/2009		[...]		
	Qualified ([...]) by 15/11/2009		[...]		
	Allocated to the previous quarter		[...]		
	Total qualified by 15/11/2009		[...]		
	Leftover		-		
	Shipped		[...]		
	Qualified ([...]) after 15/11/2009		[...]		
	Leftover		[...]		
	Previous leftover/Shipped			[...]	
	Qualified ([...])			[...]	
	Leftover			[...]	
	Previous leftover/Shipped after 15/11/2009		[...]	[...]	
	Qualified ([...]) after 15/11/2009		[...]		
	Reallocation between periods		[...]	[...]	
	Qualified ([...]) after 15/11/2009		[...]		
	Reallocation between periods		[...]	[...]	
	Leftover		-	-	
	Shipped				[...]
	Qualified ([...])				[...]
	Leftover				-

(697) The [...] provided by Qualcomm for this chip did not enable the Commission to identify the quarters in which the claimed units were shipped in an unequivocal

1054 There was no specific claim made amounting to [...] units. This is part of the two claims recorded for the next quarter ([...] + [...]) as the sum of the two exceeds the number of units shipped in the next quarter ([...]). Both amounts were eligible for the same incentive.

manner. For the purpose of reallocating these units, the Commission therefore proceeded as follows.

(698) It is clear from the table on page [...],[1055] which displays the volumes accrued at USD [...], that all non-qualifying units ([...] units + [...] units) must have been shipped between July and 15 November 2009. The amount of units shipped in this period was [...] (the sum of [...] and [...]). The claim of [...] units was allocated to the quarter July-September 2009.[1056] Two claims amounting to [...] and [...] units were allocated to the period from October to 15 November 2009.[1057] However, in that period only [...] units were shipped so that some of the units related to these claims (*i.e.* [...]) are likely to have been shipped in the previous quarter, in line with the FIFO principle. This means that all non-qualifying units can be attributed to the shipment of [...] units as all [...] units shipped in the next period qualified.

(699) The Commission then proceeded to allocate the claims amounting to [...][1058] and [...][1059] units as the corresponding quarters when they were shipped could be identified based on the associated rebate per unit (USD [...]). Two claims amounting to [...] and [...][1060] were attributed to the quarter January-March 2010. However, the total amount claimed for this quarter (including the [...] units) exceed the number of units shipped (*i.e.* [...]). Therefore, some of the units related to these claims (*i.e.* [...] and [...]; in total [...]) are likely to have been shipped in the previous quarter. The two claims were treated separately because the applicable rates per unit are different. Given that it is not possible to determine the units that were shipped first, the reallocation is done between the two quarters. The units relating to these two claims are split and allocated to the two quarters based on their respective weight in the sum of the number of units claimed ([...]). This means that the number of units shipped in the two quarters are attributed to the two claims in the same ratio.

(700) The last claim of [...] units could be allocated unambiguously to the quarter April-June 2010.

(701) The incentive payments resulting from this reallocation are reflected in the following table.

Table 14: Reallocation of the incentive payments for the MDM8200 (Huawei) per calendar quarter

		Jul-Sep/2009	Oct-Dec/2009	Jan-Mar/2010	Apr-Jun/2010
Gross revenue ($)		[...]	[...]	[...]	[...]
PAYMENTS					
[...] incentives ($)	Rebate credit memo ([...])	[...]			
	Rebate per unit	[...]			

1055 [...]
1056 [...]
1057 [...]
1058 [...]
1059 [...]
1060 [...]

	Rebate credit memo ([...])	[...][1061]			
	Rebate per unit	[...]			
	Rebate credit memo ([...])		[...]		
	Rebate per unit		[...]		
	Rebate credit memo ([...])		[...]		
	Rebate per unit		[...]		
	Allocated to the previous quarter		[...]		
	Total rebate credit by 15/11/2009		[...]		
	Rebate credit memo ([...])		[...]		
	Rebate per unit		[...]		
	Rebate credit memo ([...])			[...]	
	Rebate per unit			[...]	
	Rebate credit memo ([...])		[...]		
	Rebate per unit		[...]		
	Reallocation between periods		[...]	[...]	
	Rebate credit memo ([...])		[...]		
	Rebate per unit		[...]		
	Reallocation between periods		[...]	[...]	
	Rebate credit memo ([...])				[...]
	Rebate per unit				[...]
[...][1062][...]		[...]	[...]		

(702) As explained in recitals (677)-(679) above, the Commission also allocated an [...] payment of USD [...] to [...] units of the MDM8200 shipped in the third and fourth calendar quarter of 2009.

(703) The Net ASPs resulting from the Commission's price reconstruction are provided in the following table.

1061 Number of units multiplied by USD [...].

1062 According to [...], the [...] covered [...] units which were split between two quarters and covered [...] and [...] units respectively. The total [...] is split corresponding to the ratio of these amounts.

Table 15: Net ASPs for the MDM8200 (Huawei) per calendar quarter

	Jan-Mar/2009	Apr-Jun/2009	Jul-Sep/2009	Oct-Dec/2009	Jan-Mar/2010	Apr-Jun/2010	Jul-Sep/2010	Oct-Dec/2010	Jan-Mar/2011	Apr-Jun/2011
Units shipped	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Of which qualifying for [ ] incentives	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Gross revenue ($)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Net revenue ($)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Net ASP ($)	*35.10*	*35.10*	*27.12*	*16.46*	*17.17*	*9.86*	*11.09*	*11.18*	*12.46*	*12.46*
*) no more [ ] incentives approved for the MDM8200 for sales to Huawei after June 2010										

12.5.3.3.2 MDM6200

(704) Qualcomm submitted 10 [...] concerning payments made to Huawei for the MDM6200 baseband chip.[1063] Three of these [...] are relevant for the Relevant Period.[1064]

(705) One of these three [...], namely [...], concerns corrections due to accumulated production failures related to the same period.[1065] The information contained therein is, however, not sufficiently detailed to enable the Commission to integrate such adjustments into its price reconstruction. Given that the amounts concerned are small, disregarding them for the purposes of the price reconstruction is unlikely to have a material impact on the results.

(706) The Commission's reallocation of the qualifying units for the MDM6200 is illustrated by the following table.

Table 16: Reallocation of the qualifying units for the MDM6200 (Huawei) per calendar quarter

		Jan-Mar/2011	Apr-Jun/2011	Jul-Sep/2011	Oct-Dec/2011
Units		[...]	[...]	[...]	[...]
UNITS					
[...] incentives	Shipped	[...]			
	Qualified ([...])	[...]			
	Leftover	-			
	Shipped		[...]		
	Qualified ([...])		[...]		
	Leftover		-		
	Shipped			[...]	

1063 Annex 7(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...] and [...].

1064 Annex 7(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...] and [...].

1065 Annex 7(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...].

	Qualified ([...])			[...]	
	Leftover			[...]	
	Shipped/Leftover			[...]	
	Qualified ([...])			[...]	
	Leftover			[...]	
	Shipped/Leftover			[...]	
	Qualified ([...])			[...]	
	Leftover			-	
	Shipped				[...]
	Qualified ([...])				[...]
	Leftover				[...]
	Shipped/Leftover				[...]
	Qualified ([...])				[...]
	Leftover				[...]
	Shipped/Leftover				[...]
	Qualified ([...])				[...]
	Leftover				[...]
	Shipped/Leftover				[...]
	Qualified ([...])				[...]
	Leftover				-

(707) Due to the reallocation of the qualifying units, the claim for the incentive in [...][1066] is only taken into account for a certain number of units ([...]) because the remaining units ([...]) were shipped in the next quarter which is outside the Relevant Period.

(708) The incentive payments resulting from this reallocation are reflected in the following table.

Table 17: Reallocation of the incentive payments for the MDM6200 (Huawei) per calendar quarter

		Jan-Mar/2011	Apr-Jun/2011	Jul-Sep/2011	Oct-Dec/2011
Gross revenue ($)		[...]	[...]	[...]	[...]
PAYMENTS					
[...] incentives ($)	Rebate credit memo ([...])	[...]			

1066 Annex 7(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...].

	Rebate per unit	[...]			
	Rebate credit memo ([...])		[...]		
	Rebate per unit		[...]		
	Rebate credit memo ([...])			[...]	
	Rebate per unit			[...]	
	Rebate credit memo ([...])			[...]	
	Rebate per unit			[...]	
	Rebate credit memo ([...])			[...]	
	Rebate per unit			[...]	
	Rebate credit memo ([...])				[...]
	Rebate per unit				[...]
	Rebate credit memo ([...])				[...]
	Rebate per unit				[...]
	Rebate credit memo ([...])				[...]
	Rebate per unit				[...]
	Rebate credit memo ([...])				[...]
	Rebate per unit				[...]

(709) The Commission notes that Qualcomm has not provided [...] for the four preceding quarters of calendar year 2010 and has only recorded an [...] for these quarters in Annex 10.1 to Qualcomm's reply of 18 August 2017. The Commission considers that for that period no [...] incentives were granted and calculated an [...] amounting to [...] of the gross revenue to obtain the net revenue (see recital (671) above).

(710) The Net ASPs resulting from the Commission's price reconstruction are provided in the following table.

Table 18: Net ASPs for the MDM6200 (Huawei) per calendar quarter

	Jan-Mar/2010	Apr-Jun/2010	Jul-Sep/2010	Oct-Dec/2010	Jan-Mar/2011	Apr-Jun/2011	Jul-Sep/2011	Oct-Dec/2011
Units shipped	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
Gross revenue ($)	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
Net revenue ($)	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
Net ASP ($)	*15.48*	*13.82*	*13.82*	*13.82*	*10.52*	*10.50*	*9.68*	*8.14*

12.5.3.3.3 MDM8200A

(711) Qualcomm submitted 16 [...] concerning payments made to Huawei for the MDM8200A baseband chip.[1067] Eight of these [...] are relevant for the Relevant Period.[1068]

(712) The Commission's reallocation of the qualifying units for the MDM8200A is illustrated by the following table.

Table 19: Reallocation of the qualifying units for the MDM8200A (Huawei) per calendar quarter

		Oct-Dec/2010	Jan-Mar/2011	Apr-Jun/2011	Jul-Sep/2011	Oct-Dec/2011
Units		[...]	[...]	[...]	[...][1069]	[...][1070]
UNITS						
[...] incentives	Shipped	[...]				
	Qualified ([...]) [DC 11 pur. per. 1]	[...]				
	Leftover	[...]				
	Shipped		[...]			
	Leftover from previous period		[...]			
	New balance		[...]			
	Qualified ([...]) [DC 11 pur. per. 1]		[...]			
	Leftover		-			
	Shipped		[...]			
	Qualified ([...]) [DC 11 pur. per. 2]		[...]			
	Leftover		[...]			
	Previous leftover/Shipped		[...]	[...]		
	Qualified ([...]) [DC 11 pur. per. 2]		[...]			

1067 Annex 7(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...] and [...].

1068 Annex 7(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...] and [...]. The remaining [...] relate to shipments outside the Relevant Period. As explained in recitals (677)-(679) above, the [...] payment of USD [...] is taken into account in the price reconstruction for the MDM8200 chip.

1069 The number of units shipped was corrected based on [...].

1070 For the correction of this cell by [...] units see [...] and [...].

	Reallocation between periods		[...]	[...]		
	Leftover		-	[...]		
	Previous leftover			[...]		
	Qualified ([...]) [DC 11 pur. per. 2]			[...]		
	Leftover			-		
	Shipped				[...]	
	Qualified ([...]) [DC 11 pur. per. 3]				[...]	
	Leftover				[...]	
	Previous leftover				[...]	
	Qualified ([...]) [DC 11-12 pur. per. 1]				[...]	
	Leftover				-	
	Shipped					[...]
	Qualified ([...]) [DC 11-12 pur. per. 1]					[...][1071]
	Leftover					[...]
	Shipped					[...]
	NQ units ([...])					[...]
	Leftover					[...]
	Previous leftover					[...]
	Qualified ([...]) [DC 11-12 pur. per. 1]					[...]
	Leftover					[...]
	Previous leftover/Shipped					[...]
	Qualified ([...]) [DC 11-12 pur. per. 1]					[...]

1071 The correction of [...] units as indicated in the [...] has been included in this entry. The original claim amounted to [...] units.

	Reallocation between periods					[...]
[...] incentives	[...] [DC Vol 11]				[...][1072]	
	[...] [DC Vol 11]				[...]	
[...] incentives	Qualified ([...])				[...]	
	Qualified ([...])				[...]	[...]
	Qualified ([...])					[...]
	Reallocation between periods					[...]

(713) As to the claims of [...] incentives contained in the [...],[1073] the relevant [...] units were split into two parts ([...]/USD [...] and [...]/USD [...]) since two different incentives apply. According to the sales list, the [...] units were delivered in the quarter October-December 2011, and the [...] units in the quarters October-December 2011 and January-March 2012. Based on the FIFO method, it is assumed that the [...] units were shipped first.

(714) As to the claim made in [...],[1074] Qualcomm explained that Huawei had originally included in its claim units which did not have voice capability and which, for that reason, would have benefited from a higher rebate. However, in the subsequent quarter, *i.e.*, when the claim for January-March 2012 was submitted, this error was corrected by a USD [...] "payment" from Huawei to Qualcomm.[1075] The error concerned [...] units which were claimed for a rebate of USD [...] while they only qualified for a rebate of USD [...]. The corrections are reflected in the Commission's calculation marked with yellow. The erroneously claimed [...] units are shown in a separate entry while they are deducted from the original claimed amount in the [...] ([...] instead of [...]).

(715) The number of units qualifying for an [...] incentive of USD [...] claimed in the [...][1076] was divided between two quarters (namely October-December 2011 and January-March 2012) following the FIFO method.[1077] The [...] incentive claimed in the same [...] relates to the same units (as the [...] incentive is associated with the [...] incentive of USD [...] in the sales list attached to the same [...]). The number of units qualifying for the [...] incentive [...] is therefore split in proportion of the units qualifying for an [...] incentive allocated to these quarters.[1078]

1072 The entire [...] incentive relates only to the last quarter of this period as [...] to qualify for this rebate.

1073 Annex 7(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...]. This [...] contains several incentives claims, but the ones that would be entirely reallocated to January-March 2012 are not displayed as they are outside the Relevant Period.

1074 Annex 7(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...].

1075 Qualcomm's reply of 18 August 2017 to question 9(e) of the clarification questions of 18 July 2017, [...], paragraph (68); Qualcomm's reply of 6 October 2017 to question 5(c) of the clarification questions of 19 September 2017, [...], paragraphs (28)-(30).

1076 Annex 7(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...].

1077 Out of [...] units qualifying for [...] incentives [...] units are allocated to the quarter October-December 2011 and [...] units to the quarter January-March 2012.

1078 Out of [...] units qualifying for [...] incentives [...] units are allocated to the quarter October-December 2011 and [...] units to the quarter January-March 2012. In footnote 1206 of its SSO Response

(716) This approach is not put into question by Qualcomm's claim that *"on the occasions when the document* [...] *do not provide sufficient information to verify the quarter in which units qualifying for* [...] *incentives were shipped, the Commission has 'split [the number of claimed units] in proportion of the units qualifying for an* [...] *incentive allocated to [the relevant] quarters.' In these instances, the Commission no longer applies the FIFO method but, rather, chooses to use an entirely different methodology, this time a 'weighted proportion' based on the number of units qualifying for a different type of incentive (i.e., a* [...]*, or an* [...] *incentive) set out in a separate underlying agreement (pertaining to the product in question, rather than to the applicable* [...] *incentive)."*[1079]

(717) This claim is incorrect since there is only one instance in which the Commission applied a weighted distribution in the context of a [...] incentive, which concerned [...] units that benefitted from both [...] and [...] incentives (see recital (715) above). Contrary to Qualcomm's claims, the Commission's reallocation, in fact, followed the logic of the FIFO method since, this [...] incentive was clearly associated with the relevant [...] incentive according to the [...] submitted by Qualcomm. However, given that it was not possible to determine with certainty in which quarter the units benefitting from both incentives were shipped (the number of such units was smaller than the total number of units qualifying for a [...] incentive, *i.e.* [...] units), the Commission used a weighted distribution for the units benefitting from both incentives. Such reallocation assumes that the number of units benefitting from the [...] incentive are split between the two quarters in the same ratio as the number of units benefitting from the [...] incentive. Therefore, rather than allocating all units to the first period, the allocation of the [...] incentive achieves a balanced allocation between the two quarters.

(718) The incentive payments resulting from this reallocation are reflected in the following table.

Table 20: Reallocation of the incentive payments for the MDM8200A (Huawei) per calendar quarter

		Oct-Dec/2010	Jan-Mar/2011	Apr-Jun/2011	Jul-Sep/2011	Oct-Dec/2011
Gross revenue ($)		[...]	[...]	[...]	[...]	[...]
PAYMENTS						
[...] incentives ($)	Rebate credit memo ([...])	[...]				
	Rebate per unit	[...]				
	Rebate credit memo ([...])		[...]			
	Rebate per unit		[...]			

Qualcomm claimed that the Commissioned failed to *"provide any explanation regarding this* [...] *incentive"*. This is incorrect, as in paragraph (459) of the SSO the Commission provided the exact same explanation. [...].

1079 Qualcomm's SSO Response, [...], paragraph (649).

	Rebate credit memo ([...])		[...]			
	Rebate per unit		[...]			
	Rebate credit memo ([...])		[...]			
	Rebate after allocation		[...]	[...]		
	Rebate per unit			[...]		
	Rebate credit memo ([...])			[...]		
	Rebate per unit			[...]		
	Rebate credit memo ([...])				[...]	
	Rebate per unit				[...]	
	Rebate credit memo ([...])				[...]	
	Rebate per unit				[...]	
	Rebate credit memo ([...])					[...][1080]
	Rebate per unit					[...]
	Correction of previous ([...])					[...][1081]
	Rebate per unit					[...]
	Rebate credit memo ([...])					[...]
	Rebate per unit					[...]
	Rebate credit memo ([...])					[...]
	Reallocation between periods					[...]
	Rebate per unit					[...]

1080 This entry includes the correction by USD [...] due to [...] non-qualifying units. The original rebate amounting to USD [...] was reduced to USD [...].

1081 This entry is shown in the table for the sake of completeness. The corresponding amount is taken into account in the previous entry.

[...] incentives ($)	Rebate credit memo ([...])				[...]	
	Unit rate				[...]	
	Rebate credit memo ([...])				[...]	
	Unit rate				[...]	
[...] incentives ($)	Rebate credit memo ([...])				[...]	
	Rebate credit memo ([...])				[...]	[...]
	Reallocation between periods					[...]

(719) The Commission notes that Qualcomm has not provided [...] for the two quarters preceding the time period covered by Tables 19 and 20 at recitals (712) and (718) above, namely April-June 2010 and July-September 2010, and has not recorded any financial incentives for these quarters in Annex 10.1 to Qualcomm's reply of 18 August 2017, except for the [...] in July-September 2010. Therefore, for July-September 2010, the Commission calculated an [...] amounting to [...] of the gross revenue to obtain the net revenue. For April-June 2010, the gross revenue equals the net revenue.

(720) The Net ASPs resulting from the Commission's price reconstruction are provided in Table 21 below.

Table 21: Net ASPs for the MDM8200A (Huawei) per calendar quarter

	Apr-Jun/2010	Jul-Sep/2010	Oct-Dec/2010	Jan-Mar/2011	Apr-Jun/2011	Jul-Sep/2011	Oct-Dec/2011
Units shipped	[...]	[...]	[...]	[...]	[...]	[...]	[...]
Gross revenue ($)	[...]	[...]	[...]	[...]	[...]	[...]	[...]
Net revenue ($)	[...]	[...]	[...]	[...]	[...]	[...]	[...]
Net ASP ($)	***19.57***	***18.59***	***8.72***	***8.01***	***8.03***	***5.73***	***5.71***

12.5.3.3.4 PM7540, PM8028 and PM8015

(721) For the purposes of the price reconstruction of these three power management chips, the Commission did not consider any incentives, with the exception of the [...]. This is for the following reasons.

(722) Qualcomm submitted two [...] with regard to the PM7540.[1082] Both [...] concern price adjustments which are, however, not sufficiently detailed to allow the Commission to include such adjustments in the price reconstruction. Given that the amounts concerned are very small, disregarding them for the purposes of the price reconstruction is unlikely to have a material impact on the results.

1082 Annex 8(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...] and [...].

(723) Qualcomm submitted two [...] with regard to the PM8028.[1083] One was issued for the purposes of a price adjustment, which seems to address orders that were placed in 2013, thus falling outside the Relevant Period, and the other one due to unused material return, where the PM8028 seems to be [...]. Therefore, the Commission does not take these [...] into account for the price reconstruction.

(724) There were two instances, in the quarters January-March and April-June 2011, when Qualcomm recorded [...] incentives for the PM8028 for Huawei. However, in the following quarter, July-September 2011, these amounts were offset in Qualcomm's accounting system by a [...] incentive equal to the sum of the two [...] incentives. Given that the [...] incentive corresponds to a release, it cancels out the two accruals, so that none of the incentives recorded in the first two quarters of 2011 were ever paid out.

(725) The Net ASPs resulting from the Commission's price reconstruction are provided in the table below.

Table 22: Net ASPs for the PM7540, PM8028 and PM8015 (Huawei) per calendar quarter

(in $)	Jan-Mar/09	Apr-Jun/09	Jul-Sep/09	Oct-Dec/09	Jan-Mar/10	Apr-Jun/10	Jul-Sep/10	Oct-Dec/10	Jan-Mar/11	Apr-Jun/11	Jul-Sep/11	Oct-Dec/11
PM7540	2.54	2.50	2.50	2 36	2.27	2.18	2.09	1.96	1.76	1.66	1 51	1.42
PM8028	-	-	-	-	2.83	2.80	2.80	2.80	2.71	2.68	2 24	2.04
PM8015	-	-	-	-	-	-	-	-	1.36	1.32	1 28	0.90

12.5.3.3.5 RTR6285

(726) Qualcomm submitted 11 [...] relating to the RTR6285.[1084] However, some of these [...] were excluded from the Commission's price reconstruction for the following reasons.

(727) First, some [...] relate to quarters which do not fall within the Relevant Period. For example, the [...] relates to fiscal month 2013/04 and the order and shipment dates fall into March 2013.[1085]

(728) Second, some [...] were not sufficiently detailed in order to consider them in the rebate reallocation. For example, the [...] concerns [...].[1086] Since the [...] in question does not contain any reference to a specific agreement on incentives, nor does it contain any incentive calculations or other relevant information, the Commission does not consider it for the purposes of its price reconstruction.

(729) Third, some [...] were not relevant for the rebate allocation. For example, the [...] was issued to correct prices which had not been based on the relevant price quotation.[1087]

(730) Fourth, based on the sales lists attached to the [...], it appears that only a part of the incentive payments are relevant for the price reconstruction. This is because Huawei also claimed and received incentives for RTR6285 units which were sold together with baseband chips that fall outside of the scope of the current investigation. The Commission's understanding was confirmed by Qualcomm which explained that *"a*

1083 Annex 8(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...] and [...].

1084 The eleven […] are as follows: [...] and [...]. Annex 8(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017.

1085 Annex 8(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...].

1086 Annex 8(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...].

1087 Annex 8(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...].

fraction of the incentives pertaining to sales of the RTR6285 [...] *could be allocated to the MDM8200A, i. e., the chip covered by the extant investigations".*[1088]

(731) While Qualcomm's reply related to a specific claim detail contained in the [...],[1089] there are in total five [...] where the sales lists include RTR6285 chips sold together with the MDM8200 and/or the MDM8200A: [...],[1090] [...],[1091] [...],[1092] [...],[1093] and [...].[1094] For the price reconstruction, the Commission took into account only these [...] and only to the extent the claims related to the chipsets under investigation.

(732) From the relevant [...], the Commission extracted the number of RTR6285 chips which were sold together with the MDM8200 and the MDM8200A. Following the FIFO method, the Commission assumed that the RTR6285 chips were shipped one quarter before the claim was made. The Commission also assumed that these RTR6285 chips were assembled with MDM8200 or MDM8200A chips which were equally shipped to Huawei in the quarter prior to the incentive claim for the RTR6285 chip.

(733) The Commission's reallocation of the qualifying units for the RTR6285 is illustrated by the following table.

Table 23: Reallocation of the qualifying units for the RTR6285 (Huawei) per calendar quarter

MDM8200	Oct-Dec/2010	Jan-Mar/2011	Apr-Jun/2011	Jul-Sep/2011	Oct-Dec/2011
Shipped (MDM)	[...]	[...]	[...]		
[...] (RTR)		[...]			
Qualifying units		[...] [1095]			
ASP ($)		[...]			
Rebate ($)		[...]			
Target price ($)		[...]			
Total Q		[...]			
Weighted average price ($)		***3.19***			
MDM8200A	**Oct-Dec/2010**	**Jan-Mar/2011**	**Apr-Jun/2011**	**Jul-Sep/2011**	**Oct-Dec/2011**

1088 Qualcomm's reply of 15 June 2018 to question 6 of the questions for discussion of 16 May 2018, [...], paragraph (49).

1089 Annex 8(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...].

1090 Annex 8(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...].

1091 Annex 8(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...].

1092 Annex 8(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...].

1093 Annex 8(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...].

1094 Annex 8(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...].

1095 With regard to this amount of claimed units, the Commission notes the following. First, it was allocated to Q3/2011 because the applicable rebate was determined based on the ASP of that quarter. However, there were only [...] units of the MDM8200 shipped to Huawei in this quarter so that the claim can at most be partially relating to this quarter. In the [...] (page [...]) two shipments are indicated, one in January-March 2011, and another one in April-June 2011. Given that, according to the sales list, the chipsets were sold during the months April-June 2011, it is reasonable to assume that the chips were sold by Qualcomm to Huawei at least a quarter earlier. Therefore, in the calculation the qualifying amount of RTRs which were combined with the MDM8200 is taken into account in the quarter January-March 2011. Second, there was an overclaim in the [...]. Huawei claimed [...] units but only [...] were accepted by Qualcomm. Therefore, the original number of RTRs combined with the MDM8200 is adjusted based on the ratio of the two figures.

Shipped (MDM)	[...]	[...]	[...]	[...]	[...]
[...] (RTR)	[...]	[...]	[...]	[...]	[...]
Qualifying units	[...] [1096]	[...]	[...]	[...]	[...]
ASP ($)	[...]	[...]	[...]	[...]	[...]
Rebate ($)	[...]	[...]	[...]	[...]	[...]
Target price ($)	[...]	[...]	[...]	[...]	[...]
[...] (RTR)		[...]	[...]	[...]	[...]
Qualifying units		[...]	[...]	[...]	[...] [1097]
ASP ($)		[...]	[...]	[...]	[...]
Rebate ($)		[...]	[...]	[...]	[...]
Target price ($)		[...]	[...]	[...]	[...]
[...] (RTR)		[...]			
Qualifying units		[...]			
ASP ($)		[...]			
Rebate ($)		[...]			
Target price ($)		[...]			
Total Q	[...]	[...]	[...]	[...]	[...] [1098]
Weighted average price ($) [1099]	***3.00***	***3.00***	***3.00***	***3.00***	***3.00***

(734) The following table shows the final Net ASPs for the RTR6285 assembled with the MDM8200 and the MDM8200A, respectively. The net revenue generated by these RTR6285 units corresponds to the weighted average price as calculated in Table 23 above, multiplied by the number of units sold at that price. As set out in recital (676) above, the Net ASP is then calculated by subtracting [...] of [...] from the net revenue, and dividing by the number of units sold.

Table 24: Net ASPs for the RTR6285 assembled with MDM8200 (Huawei) per calendar quarter

Net ASP ($)	Oct-Dec/2010	Jan-Mar/2011	Apr-Jun/2011	Jul-Sep/2011	Oct-Dec/2011
MDM 8200		3 11			
MDM8200A	2.85	2.85	2.85	2.85	2.85

(735) In the quarters for which no [...] were available, the Commission calculated the Net ASPs for the RTR6285 on the basis of Qualcomm's accounting figures. From the gross revenues recorded in Qualcomm's accounts, the Commission deducted [...] to obtain the net revenues. The Net ASPs resulting from the Commission's price reconstruction are provided in Tables 25 and 26 at recitals (736) and (737) below.

1096 The sum of the qualifying units is [...]. The claimed amount of qualifying RTRs was shipped in two quarters so that the amount of MDM8200A could, in theory, be split in ratio of the two shipments ([...] in 2010 October-December and [...] in 2011 January-March): [...] in 2011 January-March and [...] in 2010 October-December. However, [...] units would have exceeded the number of units of the MDM8200A shipped in the same quarter. In addition, following the FIFO principle, the maximum amount possible has to be allocated to the first relevant quarter and the remainder to the second relevant quarter. The split is therefore [...] (equal to the number of units shipped) and [...] units, respectively.

1097 The sales list contains [...] chipsets based on the MDM8200A. However, the amount of eligible units is capped (the total claimed units amounted to [...] but the cap was at [...]). The number of MDM8200A based chipsets is multiplied with the ratio of the two.

1098 The number of units claimed is higher than the number of units shipped in this quarter.

1099 Since all units shipped in these quarters qualified for a rebate, the price equals to the target price.

(736) For the quarters October-December 2010 and April-June 2011, for the MDM8200, the Net ASPs are as follows:

Table 25: Net ASPs for the RTR6285 for the MDM8200, October 2010 to June 2011 per calendar quarter

	Oct-Dec 2010	Jan-Mar 2011	Apr-Jun 2011
Net ASP ($)	3.42		3.13

(737) The Net ASPs based on Qualcomm's accounting figures, which apply to both the MDM8200 and the MDM8200A, are as follows:

Table 26: Net ASPs for the RTR6285 applying to the MDM8200 and the MDM8200A based chipsets (Huawei), January 2009 to September 2010 per calendar quarter

	Jan-Mar/2009	Apr-Jun/2009	Jul-Sep/2009	Oct-Dec/2009	Jan-Mar/2010	Apr-Jun/2010	Jul-Sep/2010
Units shipped	[...]	[...]	[...]	[...]	[...]	[...]	[...]
Gross revenue ($)	[...]	[...]	[...]	[...]	[...]	[...]	[...]
[...] ($)	[...]	[...]	[...]	[...]	[...]	[...]	[...]
Net revenue ($)	[...]	[...]	[...]	[...]	[...]	[...]	[...]
Net ASP ($)	*4.35*	*4.23*	*3.93*	*3.79*	*3.72*	*3.63*	*3.54*

12.5.3.3.6 Summary of Net ASPs effectively paid by Huawei for the chipsets under investigation

(738) The Commission computed the effectively paid price of each chipset as the sum of the reconstructed prices for each of three components making up any given chipset configuration, where the component prices were rounded to the USD cent before adding them up.

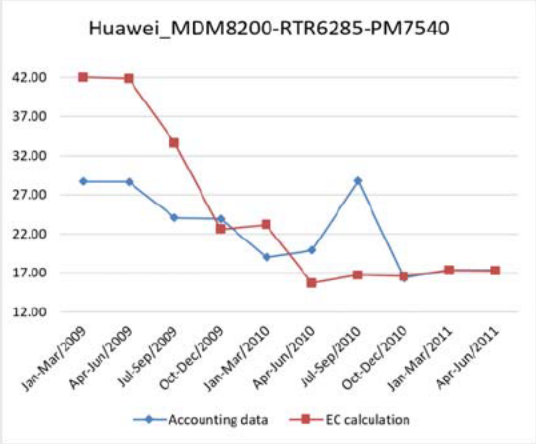
(739) The following table shows the Net ASPs effectively paid by Huawei for the chipsets under investigation during the Relevant Period as compared to the accounting prices.

Table 27: Chipset Net ASPs paid by Huawei during the Relevant Period per calendar quarter

	Jan-Mar/09	Apr-Jun/09	Jul-Sep/09	Oct-Dec/09	Jan-Mar/10	Apr-Jun/10	Jul-Sep/10	Oct-Dec/10	Jan-Mar/11	Apr-Jun/11	Jul-Sep/11	Oct-Dec/11
MDM8200-RTR6285-PM7540												
Accounting prices ($)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]		
EC prices ($)	*41.99*	*41.83*	*33.55*	*22.61*	*23.16*	*15.67*	*16.72*	*16.56*	*17.33*	*17.25*		
MDM6200-PM8028												
Accounting prices ($)					[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
EC prices ($)					*18.31*	*16.62*	*16.62*	*16.62*	*13.23*	*13.18*	*11.92*	*10.18*
MDM6200-PM8015[1100]												
Accounting prices ($)									[ ]	[ ]	[ ]	[ ]
EC prices ($)									*11.88*	*11.82*	*10.96*	*9.04*
MDM8200A-RTR6285-PM8028												
Accounting prices ($)						[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
EC prices ($)						*26.00*	*24.93*	*14.37*	*13.57*	*13.56*	*10.82*	*10.60*
MDM8200A-RTR6285-PM8015[1101]												
Accounting prices ($)									[ ]	[ ]	[ ]	[ ]
EC prices ($)									*12.22*	*12.20*	*9.86*	*9.46*

(740) The following graphs show the results of the Commission's price reconstruction for each chipset configuration.

Figure 16: MDM8200 chipset (only available in one configuration)



1100 Configuration 2 of the MDM6200 and the MDM8200A only started selling in January-March 2011, which is why there are no price values available for these two products for any quarter before January-March 2011 in which Configuration 1 of the same product was already available.

1101 Configuration 2 of the MDM6200 and the MDM8200A only started selling in January-March 2011, which is why there are no price values available for these two products for any quarter before January-March 2011 in which Configuration 1 of the same product was already available.

Figure 17A: MDM6200 – Config. 1

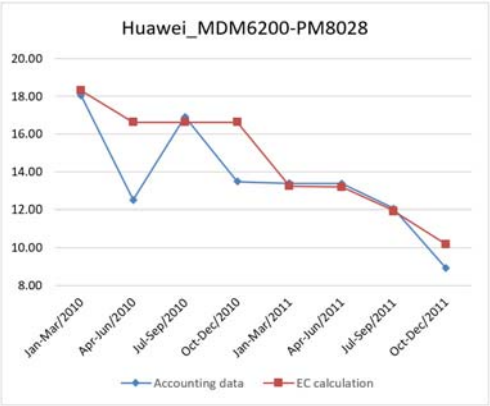


Figure 17B: MDM6200 – Config. 2

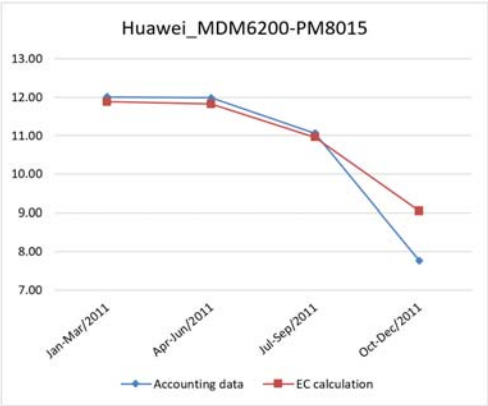


Figure 18A: MDM8200A – Config. 1

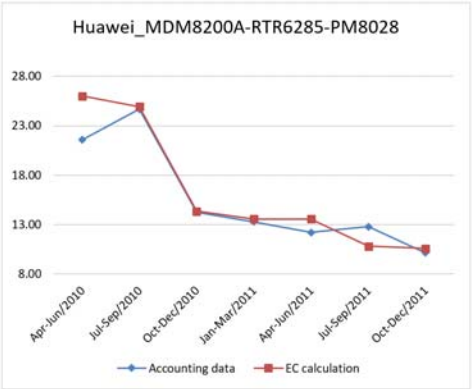
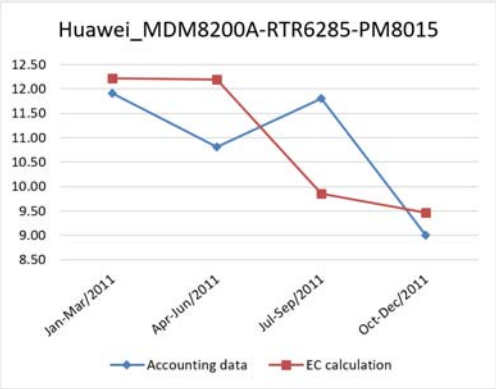


Figure 18B: MDM8200A – Config. 2



(741) Tables 28 to 30 at recital (744) below show how the [...] approvals set out in section 12.4.2 above map into the purchases made by Huawei under these approvals for the three chipsets under investigation, and how the effectively paid prices compare to the target prices stated by the [...] approvals. The tables demonstrate that all major [...] approvals were in fact implemented by Qualcomm's sales team, and that with the exception of [...] units of the MDM8200 sold in 2009,[1102] all units purchased by Huawei of the three chipsets under investigation during the Relevant Period qualified for the rebates approved by the [...].

(742) The price reconstructed by the Commission ("EC reconstr. price" in the last column of the following tables) corresponds to the quarterly average Net ASPs as reconstructed by the Commission in the preceding sections (see sections 12.5.3.3.1 to 12.5.3.3.5 above). It may differ from the "Effectively paid price per deal" whenever sales belonging to two or more "deals" (or to different product characteristics covered by the same deal, *e.g.* speed tiers) were made in the same quarter, so that the price reconstructed by the Commission represents a weighted average of these different effectively paid prices relating to subsets of the total volumes shipped in that quarter.

1102 The total number of non-qualifying units can be obtained from Table 15 at recital (703) above as the difference of the total number of units sold, and the total number of qualifying units, from Q1/2009 to Q2/2010 (after which no more [...] incentives were offered).

(743) The Commission notes that the effectively paid price for the qualifying units (and those units sold after Qualcomm stopped offering [...] incentives for the MDM8200 altogether) is always lower than the target price stated in the [...] approval for the following reasons. First, the target price generally refers to the price net of [...] incentives, while the effectively paid price as reconstructed by the Commission also covers all other applicable incentives, notably the [...] (*i.e.* [...] for all three chipsets and all quarters), the [...] and [...] Incentives for the 8200A, as well as the USD [...] allocated to the MDM8200 (the latter two only in those quarters indicated in the table). Second, there are small fluctuations over time in the gross prices ("Gross ASP", calculated as "Gross Revenue" divided by the number of units shipped per quarter), on which Qualcomm based its calculation of the [...] incentives, leading to small variations in the exact amount of [...] incentives granted by Qualcomm. The latter are calculated based on the Gross ASP of the quarter preceding the customer's claim, which typically does not coincide with the quarter in which the units were shipped according to the Commission's reconstruction because claims are often not made in the quarter immediately following the shipment, but several quarters later (see recital (602) above). Third, the target price for the MDM8200 refers to the chipset price (not the chip price), so that subsequent movements in the component prices (RTR6285/PM7540) which are unrelated to the [...] approvals for the MDM8200 chipset lead to variations in the effective chipset price although the price for the baseband chip itself remained at the level implied by the respective [...] approval. This does not affect the MDM6200 and the MDM8200A since the [...] approvals for both chips only refer to the chip price.

(744) The "Purchase Period (effective)" stated in the tables below is not the originally envisaged Purchase Period as stated on the first [...] approval for any given deal, but the *ex post* corrected Purchase Period once a new [...] approval superseded an old one. Typically, new [...] approvals were made before the original Purchase Period had elapsed, so that new [...] approvals shortened the Purchase Period applying to previous approvals.

Table 28: Linking [...] approvals to sales and effectively paid prices for the MDM8200-RTR6285-PM7540 chipset, HUAWEI

[...] slide	[...] approval date	Target price (chipset)	Purchase period (effective)	Volumes shipped	Volumes qualified	[...]	Effectively paid price per "deal" (chipset)	EC reconstr. price (chipset, quarterly average)
161	19/01/09	***USD*** [...] for <14.4Mbps	01/01/09 – 30/06/09	Jan-Mar 2009: [...]	***0 (0%) – all*** [...] ***units < 21Mbps***	[...]	***USD*** [...]	Jan-Mar 2009: ***USD 41.99***
				Apr-Jun 2009: [...]			***USD*** [...]	Apr-Jun 2009: ***USD 41.83***
212	08/06/09	***USD*** [...] for <14.4Mbps and < [...] euro price cap	01/07/09 – 14/11/09	Jul-Sep 2009: [...]	[...] ***(15%)***	[...]	Qualifying*): ***USD*** [...] Non-qualif.**): ***USD*** [...]	Jul-Sep 2009: ***USD 33.55***
				13 Nov 2009: [...]	[...] ***(100%)***		Qualifying*): ***USD*** [...]	Average Oct-Dec 2009: ***USD 22.61***
280/282	25/11/09	***USD*** [...] for <14.4Mbps (no price cap) ***USD*** [...] for <21Mbps	15/11/09 – 31/03/10	15 Nov–Dec 2009: [...]	[...] ***(100%)***	[...]	Qualifying <14.4Mbps*): ***USD*** [...] Qualifying <21Mbps*): ***USD*** [...]	
				Jan-Mar 2010: [...]	[...] ***(100%)***		Qualifying <14.4Mbps*): ***USD*** [...] Qualifying <21Mbps*): ***USD*** [...]	Jan-Mar 2010: ***USD 23.16***
379	22/03/10	***USD*** [...] for [...] backlog units	22/03/10 – 30/06/10	Apr-June 2010: [...]	[...] ***(100%)***	[...]	***USD*** [...]	Apr-June 2010: ***USD 15.67***

*) See section 12.7.5.1 for details on how the prices for the various speed tiers, and for the qualifying vs. non-qualifying units were calculated

**) Including the [...] of USD [...] million granted for the MDM8200A on 25 November 2009, as allocated to the MDM8200 by the Commission

359	01/03/10	From July 2010 onwards: ***USD*** [...] for chip (***USD*** [...] - [...] for chipset),	01/07/10 – 04/08/10:	Jul-Sep 2010: [...]	NA (no [...] incentives offered anymore)	NA	***USD*** [...] chip, ***USD*** [...] chipset	Jul-Sep 2010: ***USD 11.09*** chip, ***USD 16.72*** chipset

				Oct-Dec 2010: [...]			***USD*** [...] chip, ***USD*** [...] chipset	Oct-Dec 2010: ***USD 11.18*** chip, ***USD 16.56*** chipset
495	05/08/10	***USD*** [...] for chip, no [...] incentives	05/08/10 – EOL	Jan-Mar 2011: [...]	NA (no [...] incentives offered anymore)	NA	***USD*** [...] chip, ***USD*** [...] chipset	Jan-Mar 2011: ***USD 12.46*** chip, ***USD 17.33*** chipset
				Apr-Jun 2011: [...]			***USD*** [...] chip, ***USD*** [...] chipset	Apr-Jun 2011: ***USD 12.46*** chip, ***USD 17.25*** chipset

Table 29: Linking [...] approvals to sales and effectively paid prices for the MDM6200 (baseband chip only), HUAWEI

[...] slide	[...] approval date	Target price (chip only)	Purchase period (effective)	Volumes shipped	Volumes qualified	[...]	Effectively paid price per "deal"	EC reconstr. price (chip only)
524	25/10/10	USD [...]	01/01/11-31/11/11	Jan-Mar 2011 [...]	[...] (100%)	[...]	***USD*** [...]	Jan-Mar 2011 ***USD 10.52***
				Apr-Jun 2011 [...]	[...] (100%)	[...]	***USD*** [...]	Apr-Jun 2011 ***USD 10.50***
				Jul-Sep 2011 [...]	[...] (100%)	[...]	***USD*** [...]	Jul-Sep 2011 ***USD 9.64***
715	07/06/11	USD [...] (rev 1.3 only)	01/07/11-31/12/11	Jul-Sep 2011 [...]	[...] (100%)	[...]	***USD*** [...]	
				Oct-Dec 2011 [...]	[...] (100%)	[...]	***USD*** [...]	Oct-Dec 2011 ***USD 8.14***
208/2013	21/11/11	USD [...]	01/10/11-31/12/12	Oct-Dec 2011	[...] (100%)	[...]	***USD*** [...]	

		(rev 1.3 only)		[...]				

Table 30: Linking [...] approvals to sales and effectively paid prices for the MDM8200A (baseband chip only), HUAWEI

[...] slide	[...] approval date	Target price (chip only)	Purchase period (effective)	Volumes shipped	Volumes qualified	[...]	Effectively paid price per "deal"	EC reconstr. price (chip only)
522	25/10/10	USD [...]	1/10/10-31/12/10	Oct-Dec 2010 [...]	[...] (100%)	[...]	***USD*** [...]	Oct-Dec 2010 ***USD 8.72***
				Jan-Mar 2011 [...]	[...] (100%)	[...]	***USD*** [...]	Jan-Mar 2011 ***USD 8.01***
		USD [...]	1/1/11-30/6/11	Jan-Mar 2011 [...]	[...] (100%)	[...]	***USD*** [...]	
				Apr-Jun 2011 [...]	[...] (100%)	[...]	***USD*** [...]	Apr-Jun 2011 ***USD 8.03***
		USD [...]	1/7/11-31/12/11	Jul-Sep 2011 [...]	[...] (100%)	[...]	***USD*** [...]*)	Jul-Sep 2011 ***USD 5.73*****)
29/2013	21/11/11	USD [...] (no voice)	1/10/11-31/12/12	Oct-Dec 2011 [...]	[...] (100%)	[...]	***USD*** [...]*)	Oct-Dec 2011 ***USD 5.71*****)
*) excl. [...] and [...] incentives **) incl. [...] and [...] incentives according to customer's claims								

12.5.3.4. Reallocation of financial incentives to ZTE

(745) This section explains how the Commission reallocated the financial incentives granted by Qualcomm to ZTE during the Relevant Period to the MDM8200 (see section 12.5.3.4.1 below), the MDM6200 (see section 12.5.3.4.2 below), the MDM8200A (see section 12.5.3.4.3 below), the PM7540, PM8028 and PM8015 (see section 12.5.3.4.4 below), and the RTR6285 (see section 12.5.3.4.5 below). It concludes with a summary table of the prices reconstructed by the Commission for all chipset configurations, an overview of how the prices reconstructed by the Commission relate to the accounting prices used in the SO, as well as an overview showing how the [...] approvals map into the purchases made by ZTE and how the effectively paid prices compare to the target prices stated by the [...] approvals (see section 12.5.3.4.6 below).

12.5.3.4.1 MDM8200

(746) Qualcomm has not provided [...] or any other documentation relating to the sale of the MDM8200 baseband chip to ZTE. Contrary to what Qualcomm suggests in its SSO

Response,[1103] this is a factual observation that cannot be interpreted as an acknowledgment by the Commission that *"the SSO's revised price-cost test relie*[d] *upon incomplete data"*. Moreover, as stated by Qualcomm itself, Qualcomm was actually not concerned about the potential incompleteness of the data used by the Commission but rather the assumptions the Commission relied on for the purposes of the price reconstruction (see recital (623) above).

(747) The information submitted in Annex 10.1 to Qualcomm's reply of 18 August 2017 does not contain any records on financial incentives for this baseband chip during the Relevant Period.[1104] ZTE did not receive any [...] during the Relevant Period either.

(748) However, given the extensive [...] incentives granted to ZTE in the [...] approvals of 19 January 2009, 8 June 2009, 4 January 2010, 1 March 2010, and 5 August 2010, which mirror the ones granted to Huawei on the same dates[1105] (see Table 8 at recital (586) above) in their structure, albeit with slightly higher target prices, it is surprising that Annex 10.1 does not record any accruals. In fact, such accruals should have been booked in relation to all sales to ZTE which could have potentially benefited from these [...] incentives (*i.e.* all sales made to ZTE between 1 January 2009 to at least 31 March 2010[1106]), irrespective of whether or not ZTE eventually claimed such rebates (which was apparently not the case).

(749) Based on the information provided by Qualcomm,[1107] the Commission was able to recover at least part of these missing accruals. [...] According to the information submitted by Qualcomm, it accrued incentives for the MDM8200 to ZTE in the following three quarters:

Table 31: [...] incentives accrued for MDM8200 (ZTE) from 17 July 2009 and 22 January 2010, aggregated at the quarterly level

	Units	**Incentives – [...] (in $)**
July-September 2009	[...]	([...])
October-December 2009	[...]	([...])
January-March 2010	[...]	([...])
Total	[...]	**([...])**

(750) In addition, Qualcomm recorded an [...] incentive amounting to USD [...] in the quarter April-June 2010, so that overall USD [...] of incentives had accrued. Since these incentives were apparently never claimed by ZTE, Qualcomm released the corresponding amount in July-September 2010, but this time against the MDM8200 (not the MSM6280), which lead to an inflated net revenue on the MDM8200 in this quarter. The information provided by Qualcomm allowed the Commission to correct the revenue figures for the MDM8200 as reported in Annex 10.1 [...]. The [...] incentive (which corresponds to a release) amounting to USD [...] booked in the

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1103 SSO Response, [...], paragraph (627).

1104 Annex 10.1 to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017 [...].

1105 With the exception of the [...] approval to ZTE of 4 January 2010, which mirrors the USD [...] for the <14.4 speed tier granted to Huawei already on 25 November 2009.

1106 31 March 2010 is [...].

1107 Qualcomm's reply of 16 June 2017 to question 3 of Article 18(3) Decision of 31 March 2017, [...], paragraphs (68)-(70), and Annex 3 ([...]). In paragraph (637) of its SSO Response, Qualcomm criticised the Commission for relying on this information and for introducing *"yet another source of data for purposes of restating the* [accounting] *ASPs"* ([...]). The Commission notes that the document was provided to the Commission by Qualcomm itself and that it is the Commission's duty to take into consideration in its assessment all relevant elements brought to its attention.

quarter July-September 2010 reverses the entirety of [...] incentives which accrued in the four quarters prior to this release (the sum of USD [...] and USD [...]).[1108] This means that effectively no [...] incentives were earned by ZTE. The Commission therefore set the accrued incentives and related accrual releases to zero in its price recalculation.

(751) The Net ASPs resulting from the Commission's price reconstruction are provided in the following table. The yellow shaded cells correspond to the accruals in Table 31 at recital (749) above (which were not present in Annex 10.1), while the blue shaded cells show the figures present in Annex 10.1.

Table 32: Net ASPs for the MDM8200 (ZTE) per calendar quarter

Calendar	Jan-Mar/2009	Apr-Jun/2009	Jul-Sep/2009	Oct-Dec/2009	Jan-Mar/2010	Apr-Jun/2010	Jul-Sep/2010	Oct-Dec/2010	Jan-Mar/2011	Apr-Jun/2011	Jul-Sep/2011
Units	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Gross revenue ($)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
[ ] incentives ($)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Incentives-[ ] ($)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Incentives-[ ] ($)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Incentives-[ ] ($)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Incentives-[ ] ($)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Rebate effectively realised ($)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Net revenue ($)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Net ASP ($)	34 35	33 43	32 91	32 85	32 84	19 25	11 20	12 82	13 20	13 20	13 20

12.5.3.4.2 MDM6200

(752) Qualcomm submitted 15 [...] concerning payments made to ZTE for the MDM6200 baseband chip.[1109] Three of these [...] are relevant as the remaining [...] relate to quarters that fall outside the Relevant Period.[1110]

(753) The [...] concerns price adjustments in relation to the same period.[1111] However, the information contained therein is not sufficiently detailed to enable the Commission to integrate such adjustments into its price reconstruction. Given that the amounts concerned are very small, disregarding them for the purposes of the price reconstruction is unlikely to have a material impact on the results.

(754) The Commission's reallocation of the qualifying units for the MDM6200 is illustrated by the following table.

1108 Annex 10.1 to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...].

1109 Annex 7(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...] and [...].

1110 Annex 7(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...] and [...].

1111 Annex 7(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...].

Table 33: Reallocation of the qualifying units for the MDM6200 (ZTE) per calendar quarter

		Jan-Mar/2010	Apr-Jun/2010	Jul-Sep/2010	Oct-Dec/2010	Jan-Mar/2011	Apr-Jun/2011	Jul-Sep/2011	Oct-Dec/2011
Units		[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
UNITS									
[ ] incentives (qualifying units)	Shipped				[...]				
	Qualified ([...])				[...]				
	Shipped					[...]			
	Qualified ([...])					[...]			
	Leftover					[...]			
	Shipped/Leftover					[...]	[...]		
	Qualified ([...])					[...]	[...]		
	Leftover					-	[...]		
	Shipped/Leftover						[...]	[...]	
	Qualified ([...])						[...]	[...]	
	Shipped							[...]	
	Qualified ([...])							[...]	
	Shipped								[...]
	Qualified ([ ])								[...]

(755) The incentive payments resulting from this reallocation are reflected in the following table.

Table 34: Reallocation of the incentive payments for the MDM6200 (ZTE) per calendar quarter

		Jan-Mar/2010	Apr-Jun/2010	Jul-Sep/2010	Oct-Dec/2010	Jan-Mar/2011	Apr-Jun/2011	Jul-Sep/2011	Oct-Dec/2011
Gross revenue		[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
PAYMENTS									
[...] incentives (payments) ($)	Rebate				[...]				
	Rebate credit memo ([...])				[...]				
	Rebate					[...]			
	Rebate credit memo ([...])					[...]			
	Rebate					[...]			

	Rebate credit memo ([...])					[...]	[...]		
	Rebate						[...]		
	Rebate credit memo ([...])						[...]	[...]	
	Rebate							[...]	
	Rebate credit memo ([...])							[...]	
	Rebate								[...]
	Rebate credit memo ([...])								[...]
[...] ($)		[...]	[...]	[...]	[...]	[...]			

(756) As explained in recitals (501)-(502) and (682)-(693) above, the contemporaneous evidence in the file demonstrates that the [...] payment by Qualcomm to ZTE amounting to USD […] approved by the [...] on 21 December 2009 was actually aimed at decreasing the price of the MDM6200 chipset and not of the MDM8200A for which it was formally booked in Qualcomm's accounting system. When recalculating the prices effectively paid by ZTE, the Commission therefore reallocated this payment to shipments and orders of the MDM6200 made during calendar 2010, consisting of a total of [...] units ([...] units shipped in 2010 and [...] units shipped between 1 January and 4 March 2011) (see recital (685) above). The corresponding distribution of the [...] payments is as follows:

Table 35: [...] payments for the MDM6200 (ZTE) per calendar quarter

	Jan-Mar/2010	Apr-Jun/2010	Jul-Sep/2010	Oct-Dec/2010	Jan-Mar/2011
Units shipped	[...]	[...]	[...]	[...]	[...]
[...] *($)*	[...]	[...]	[...]	[...]	[...]

(757) According to the information available to the Commission, ZTE did not receive any [...] for this product during the Relevant Period.

(758) The Commission also notes that Qualcomm has not provided [...] for the three preceding quarters of calendar year 2010 and has not recorded any financial incentives for these quarters in Annex 10.1 to Qualcomm's reply of 18 August 2017.

(759) The Net ASPs resulting from the Commission's price reconstruction are provided in the following table.

Table 36: Net ASPs for the MDM6200 (ZTE) per calendar quarter

	Jan-Mar/2010	Apr-Jun/2010	Jul-Sep/2010	Oct-Dec/2010	Jan-Mar/2011	Apr-Jun/2011	Jul-Sep/2011	Oct-Dec/2011
Units shipped	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
Gross revenue ($)	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
Net revenue ($)	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
Net ASP ($)	*7.94*	*7.94*	*7.94*	*4.26*	*3.48*	*10.32*	*9.64*	*8.05*

12.5.3.4.3 MDM8200A

(760) Qualcomm submitted 17 [...] concerning payments made to ZTE for the MDM8200A baseband chip.[1112] Seven of these [...] are relevant as the remaining [...] relate to quarters that fall outside the Relevant Period.[1113]

(761) The Commission's reallocation of the qualifying units for the MDM8200A is illustrated by the following table.

[1112] Annex 7(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...] and [...].

[1113] Annex 7(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...] and [...].

Table 37: Reallocation of the qualifying units for the MDM8200A (ZTE) per calendar quarter

		Oct-Dec/2010	Jan-Mar/2011	Apr-Jun/2011	Jul-Sep/2011	Oct-Dec/2011
Units		[...]	[...]	[...]	[...]	[...]
UNITS						
[...] incentives (qualifying units)	Shipped	[...]				
	Qualified ([...])	[...]				
	Shipped		[...]			
	Qualified ([...])		[...]			
	Shipped		[...]			
	Qualified ([...])		[...]			
	Leftover		[...]			
	Shipped/Leftover		[...]			
	Qualified ([...])		[...]			
	Leftover		[...]			
	Shipped/Leftover		[...]	[...]	[...]	
	Qualified ([...])		[...]	[...]	[...]	
	Shipped				[...]	
	Qualified ([...])				[...]	
	Leftover				[...]	
	Shipped/Leftover				[...]	[...]
	Qualified ([...])				[...]	[...]
	Shipped					[...]
	Qualified ([...])					[...]
	Qualified ([...])					[...]
	Leftover					[...]
	Shipped/Leftover					[...]
	Qualified ([...])					[...]
	Leftover					-
[...] incentives	[...]		-	-	[...]	[...]

(762) The number of units claimed in the [...][1114] was divided between two quarters (namely October-December 2011 and January-March 2012) following the FIFO method.[1115] The cells highlighted in blue indicate the numbers of units which are left from the total shipment in a given quarter after the number of units previously claimed are deducted.

(763) As to the [...], the [...][1116] indicates four quarters (covering the calendar year 2011) which are relevant for the incentive calculation. The relevant shipments are as follows:

Table 38: Number of units of MDM 8200A shipped to ZTE in 2011 per calendar quarter

	Jan-Mar/2011	Apr-Jun/2011	Jul-Sep/2011	Oct-Dec/2011
Number of units shipped	[...]	[...]	[...]	[...]

(764) According to the same [...], for [...] up to [...] units purchased, the [...] incentive equals [...] and between [...] and [...] units purchased the [...] incentive equals USD [...]. The [...] units threshold was reached in July-September 2011. In that quarter, [...] units did not qualify for the incentive, whereas the remaining [...] units did qualify. In October-December 2011, [...] units qualified.

(765) The incentive payments resulting from this reallocation are reflected in the following table.

Table 39: Reallocation of the incentive payments for the MDM8200A (ZTE) per calendar quarter

		Oct-Dec/2010	Jan-Mar/2011	Apr-Jun/2011	Jul-Sep/2011	Oct-Dec/2011
Gross revenue ($)		[...]	[...]	[...]	[...]	[...]
PAYMENTS						
[...] incentives (payments) ($)	Rebate	[...]				
	Rebate credit memo ([...])	[...]				
	Rebate		[...]			
	Rebate credit memo ([...])		[...]			
	Rebate		[...]			
	Rebate credit memo ([...])		[...]			
	Rebate		[...]			
	Rebate credit memo		[...]			

1114 Annex 7(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...].

1115 Out of [...] units qualifying for [...] incentives [...] units are allocated to the quarter October-December 2011 and [...] units to the quarter January-March 2012.

1116 Annex 7(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...].

	([...])					
	Rebate		[...]			
	Qualified ([...])		[...]	[...]	[...]	
	Rebate				[...]	
	Rebate credit memo ([...])				[...]	
	Rebate				[...]	
	Rebate credit memo ([...])				[...]	[...]
	Rebate					[...]
	Rebate credit memo ([...])					[...]
	Rebate					[...]
	Rebate credit memo ([...])					[...]
	Rebate					[...]
	Rebate credit memo ([...])					[...]
[...] incentives ($)	Rebate credit memo [...]		-	-	[...]	[...]

(766) The Commission notes that Qualcomm has not provided [...] for the two quarters preceding the time period covered by Tables 37 and 39 at recitals (761) and (765) above, namely April-June 2010 and July-September 2010, and has not recorded any financial incentives for these quarters in Annex 10.1 to Qualcomm's reply of 18 August 2017, except the [...] in July-September 2010. For July-September 2010, the Commission calculated an [...] amounting to [...] of the gross revenue to obtain the net revenue.

(767) The Net ASPs resulting from the Commission's price reconstruction are provided in the table below.

Table 40: Net ASPs for the MDM8200A (ZTE) per calendar quarter

	Apr-Jun/2010	Jul-Sep/2010	Oct-Dec/2010	Jan-Mar/2011	Apr-Jun/2011	Jul-Sep/2011	Oct-Dec/2011
Units shipped	[...]	[...]	[...]	[...]	[...]	[...]	[...]
Gross revenue ($)	[...]	[...]	[...]	[...]	[...]	[...]	[...]
Net revenue ($)	[...]	[...]	[...]	[...]	[...]	[...]	[...]
Net ASP ($)	***19,57***	***18,84***	***8.30***	***8.10***	***8.04***	***7.17***	***5.68***

12.5.3.4.4 PM7540, PM8028 and PM8015

(768) During the Relevant Period, ZTE has not received any incentives relating to the three power management chips since Qualcomm has neither submitted any [...] concerning these chips, nor recorded any relevant incentives in its accounting system.

(769) The Net ASPs therefore equal the gross revenues captured by Qualcomm's accountings divided by the number of units shipped in each quarter. The resulting Net ASPs are provided in the following table.

Table 41: Net ASPs for the PM7540, PM8028 and PM8015 (ZTE) per calendar quarter

in $	Jan-Mar/09	Apr-Jun/09	Jul-Sep/09	Oct-Dec/09	Jan-Mar/10	Apr-Jun/10	Jul-Sep/10	Oct-Dec/10	Jan-Mar/11	Apr-Jun/11	Jul-Sep/11	Oct-Dec/11
PM7540	2.84	2.77	2.76	2.65	2.53	2.39	2.21	2.11	1.91	1.87	1.77	1.69
PM8028	-	-	-	-	2.95	2.95	2.95	2.95	2.85	2.76	2.63	2.42
PM8015	-	-	-	-	-	-	-	-	1.49	1.49	1 14	0.95

12.5.3.4.5 RTR6285

(770) Qualcomm submitted 7 [...] concerning payments made to ZTE for the RTR6285 chip.[1117]

(771) Unlike the rebate claims submitted by Huawei for the RTR6285 (see recitals (730) and (731) above), the rebate claims submitted by ZTE for the RTR6285 are not sufficiently detailed so as to allow the Commission to determine with certainty whether or not the RTR6285 was combined with the baseband chips under investigation. This is because, as Qualcomm explained, *"customers do not necessarily report to Qualcomm the manner in which they have combined the various components purchased from Qualcomm."*[1118] The Commission therefore disregards all incentives contained in the [...] submitted by Qualcomm.

(772) In light of the above, the Net ASPs are identical with the gross accounting prices as shown in the following table.

1117 Annex 8(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...] and [...].

1118 Qualcomm's reply of 15 June 2018 to question 6 of the questions for discussion of 16 May 2018, [...], paragraph (45).

Table 42: Net ASPs for the RTR6285 (ZTE) per calendar quarter

	Jan-Mar/09	Apr-Jun/09	Jul-Sep/09	Oct-Dec/09	Jan-Mar/10	Apr-Jun/10	Jul-Sep/10	Oct-Dec/10	Jan-Mar/11	Apr-Jun/11	Jul-Sep/11	Oct-Dec/11
Units shipped	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Gross revenue ($)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Gross ASP ($)	*4.83*	*4.65*	*4.54*	*4.25*	*4.05*	*3.93*	*3.84*	*3.70*	*3.54*	*3.46*	*3.40*	*3.32*

12.5.3.4.6 Summary of Net ASPs effectively paid by ZTE for the chipsets under investigation

(773) The Commission computed the effectively paid price of each chipset as the sum of the Commission reconstructed prices for each of three components making up any given chipset configuration, where the component prices were rounded to the USD cent before adding them up.

(774) The following table shows the Net ASPs effectively paid by ZTE for the chipsets under investigation during the Relevant Period as compared to the accounting prices used in the SO.

Table 43: Chipset Net ASPs paid by ZTE during the Relevant Period per calendar quarter

	Jan-Mar/09	Apr-Jun/09	Jul-Sep/09	Oct-Dec/09	Jan-Mar/10	Apr-Jun/10	Jul-Sep/10	Oct-Dec/10	Jan-Mar/11	Apr-Jun/11	Jul-Sep/11	Oct-Dec/11
MDM8200-RTR6285-PM7540												
Accounting prices ($)	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	
EC prices ($)	*42.02*	*40.85*	*40.21*	*39.75*	*39.42*	*25.57*	*17.25*	*18.63*	*18.65*	*18.53*	*18.37*	
MDM6200-PM8028												
Accounting prices ($)					[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
EC prices ($)					*10.89*	*10.89*	*10.89*	*7.21*	*6.33*	*13.08*	*12.27*	*10.47*
MDM6200-PM8015[1119]												
Accounting prices ($)									[ ]	[ ]	[ ]	[ ]
EC prices ($)									*4.97*	*11.81*	*10.78*	*9.00*
MDM8200A-RTR6285-PM8028												
Accounting prices ($)						[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
EC prices ($)						*26.45*	*25.63*	*14.95*	*14.49*	*14.26*	*13.20*	*11.42*
MDM8200A-RTR6285-PM8015[1120]												
Accounting prices ($)									[ ]	[ ]	[ ]	[ ]
EC prices ($)									*13.13*	*12.99*	*11.71*	*9.95*

(775) The following graphs illustrate the results of the Commission's price reconstruction for each chipset configuration.

1119 Configuration 2 of the MDM6200 and the MDM8200A only started selling in January-March 2011, which is why there are no price values available for these two products for any quarter before January-March 2011 in which Configuration 1 of the same product was already available.

1120 Configuration 2 of the MDM6200 and the MDM8200A only started selling in January-March 2011, which is why there are no price values available for these two products for any quarter before January-March 2011 in which Configuration 1 of the same product was already available.

Figure 19: MDM8200 chipset (only available in one configuration)

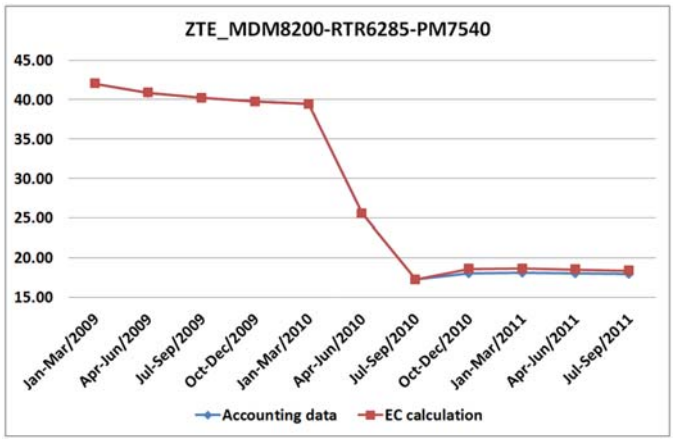


Figure 20A: MDM6200 – Config. 1

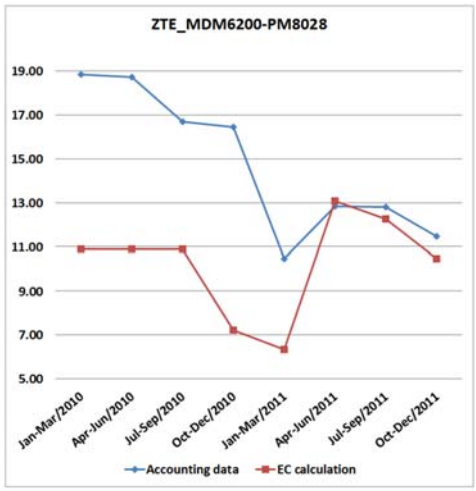


Figure 20B: MDM6200 – Config. 2

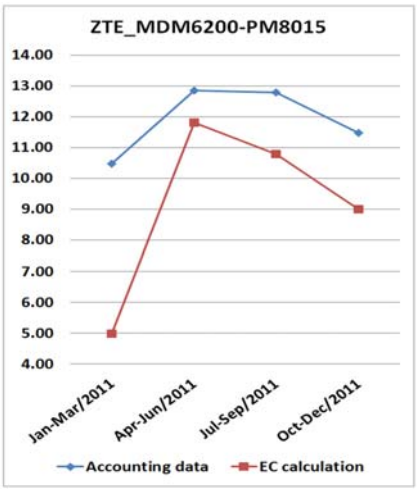


Figure 21A: MDM8200A – Config. 1

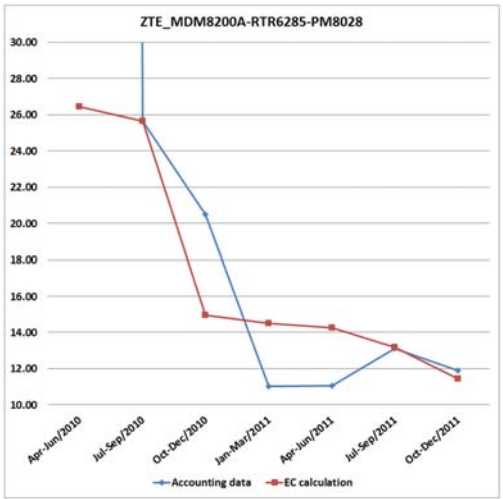
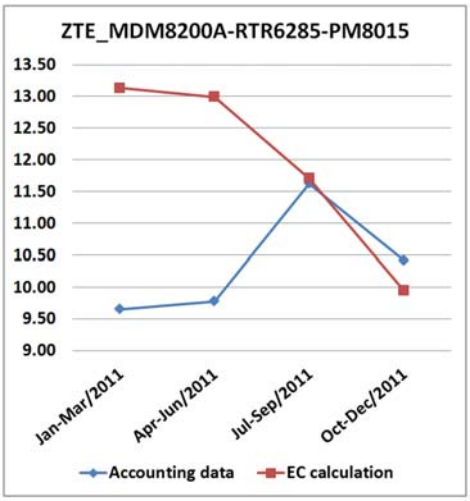


Figure 21B: MDM8200A – Config. 2



(776) The following tables show how the [...] approvals regarding the target prices for ZTE for the MDM6200 and the MDM8200A were implemented for sales to ZTE during the Relevant Period. The structure of these tables mirrors the corresponding tables for Huawei presented in section 12.5.3.3.6 above. The tables show that, for both the

MDM6200 and the MDM8200A, all major [...] approvals were implemented and almost all units purchased by ZTE also qualified for these [...] incentives. Unlike Huawei, ZTE did not receive a [...], so that the discrepancies between the "Target price" as expressed in the [...] approvals and the "Effectively paid price per deal" as calculated by the Commission are entirely due to (i) fluctuations in the Gross ASP prevailing at the time when the customer claimed the rebates for any given volumes, as opposed to the Gross ASP prevailing when these volumes were shipped, and (ii) the "Target price" only refering to the price net of [...] incentives, so that other incentives (such as [...] incentives, or [...]) applying in addition to the [...] Incentives further lower the price reconstructed by the Commission ("EC reconstr. price" in the tables) compared to the "Target price" (where indicated in the table). As explained in recital (742) above, the price reconstructed by the Commission ("EC reconstr. price") is the weighted average over all effectively paid prices per deal across all volumes shipped in any given quarter, which can differ from the "Effectively paid price per deal" if sales belonging to two or more deals were made in the same quarter.

Table 44: Linking [...] approvals to sales and effectively paid prices for the MDM6200 (baseband chip only), ZTE

[...] slide	[...] approval date	Target price	Purchase period (effective)	Volumes shipped	Volumes qualified	[...]	Effectively paid price per deal	EC reconstr. price (chip only)
564	15/11/10	***USD*** [...] (chip only, no voice)	01/10/10 – 31/12/11	Oct-Dec 2010: [...]	[...] (82%)	[...]	Qualifying: ***USD*** [...] Non-qualifying: ***USD*** [...]	Oct-Dec 2010: ***USD 4.26****)
				Jan-Mar 2011: [...]	[...] (100%)	[...]	***USD*** [...]	Jan-Mar 2011: ***USD 3.48****)
				Apr-Jun 2011: [...]	[...] (100%)	[...]	***USD*** [...]	Apr-Jun 2011: ***USD 10.32***
				Jul-Sep 2011: [...]	[...] (100%)	[...]	***USD*** [...]	Jul-Sep 2011: ***USD 9.64***
34 (end of 2011)	21/11/11	***USD*** [...] rev 1.3 only	Rev 1.3 only: 01/07/11-30/09/11	Jul-Sep 2011: [...]	[...] (100%)	[...]	***USD*** [...]	
191 (of 2012)	16/04/12	***USD*** [...] (chip only, no voice)	01/10/11-31/12/11	Oct-Dec 2011: [...]	[...] (100%)	[...]	***USD*** [...]	Oct-Dec 2011: ***USD 8.05***

*) including the corresponding share of the USD [...] allocated to the MDM6200 across January 2010 to March 2011

Table 45: Linking [...] approvals to sales and effectively paid prices for the MDM8200A (baseband chip only), ZTE

[...] slide	[...] approval date	Target price	Purchase period (effective)	Volumes shipped	Volumes qualified	[...]	Effectively paid price per deal	EC reconstr. price
563	15/11/10	***USD*** [...]	01/10/10-31/12/10	Oct-Dec 2010 [...]	[...] (100%)	[...]	***USD*** [...]	Oct-Dec 2010: ***USD 8.30***
				Jan-Mar 2011 [...]	[...] (100%)	[...]	***USD*** [...]	Jan-Mar 2011: ***USD 8.10***
563	15/11/10	USD [...]	01/01/11-30/06/11	Jan-Mar 2011 [...]	[...] (99.94%)	[...]	***USD*** [...]	
				Apr-Jun 2011 [...]	[...] (100%)	[...]	***USD*** [...]	Apr-Jun 2011: ***USD 8.04***
				Jul-Sep 2011 [...]	[...] (100%)	[...]	***USD*** [...]	Jul-Sep 2011: ***USD 7.17*)***
798	14/10/11	USD [...]	01/07/11-30/9/11	Jul-Sep 2011 [...]	[...] (100%)	[...]	***USD*** [...]	
				Oct-Dec 2011 [...]	[...] (100%)	[...]	***USD*** [...]	Oct-Dec 2011: ***USD 5.68*)***
2013/36	01/03/2012	USD [...] (no voice)	01/10/11-31/12/11	Oct-Dec 2011 [...]	[...] (100%)	[...]	***USD*** [...]	
*) including [...] incentives								

(777) According to the information provided by Qualcomm,[1121] ZTE did not receive any financial incentives for the MDM8200 during the Relevant Period (see recitals (746)-(751) above). The gross price thus coincides with the effectively paid price for this product and customer, so that a comparison between the latter and the target prices of the [...] approvals is not meaningful.

12.6. Costs incurred by Qualcomm for the chipsets under investigation during the Relevant Period

(778) This section deals with the costs incurred by Qualcomm for the MDM8200, MDM8200A and MDM6200 based chipsets during the Relevant Period.

(779) Section 12.6.1 explains why the Commission considers long-run average incremental costs ("LRAIC") to be the most appropriate cost benchmark for the purposes of the

[1121] Annex 10.1 to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...].

price-cost test in this case. In calculating the LRAIC measure for this case, the Commission considered (i) the manufacturing costs, which vary with the output level of a given chipset, thus representing the relevant variable component of LRAIC (see section 12.6.2 below), and (ii) Qualcomm's R&D costs as recorded in the [...], capturing the most important fixed portion of the incremental production cost of a given chipset (see section 12.6.3 below). Other types of fixed costs, such as commercialization costs, are not included. The LRAIC computed by the Commission (see section 12.6.4 below) is therefore below Qualcomm's average total costs ("ATC") (see section 12.7.5.2 below).

12.6.1. LRAIC as the most appropriate cost benchmark in this case

(780) According to settled case law, prices above AVC but below ATC are considered abusive where they are determined as part of a plan to eliminate a competitor.[1122] While ATC has therefore been established by the Union Courts as the upper cost benchmark for the price-cost test in a predation case, the Commission considers LRAIC to be the most appropriate cost benchmark in this case in order to calculate the minimum required rate of recovery of costs by Qualcomm for the products under investigation. This is because Qualcomm is a multi-product undertaking which benefits from economies of scope, *i.e.* some of its business operations do not have to be replicated for each individual product, but can be shared by all products supplied by Qualcomm (see sections 7.1 and 7.2 above). The costs incurred for such operations do not vary with the number of different products supplied ("common costs"), and are therefore not taken into account in LRAIC because the latter only comprises the production costs specific to the products under investigation. Therefore, the average of all variable and fixed costs that Qualcomm incurs to produce a particular product (*i.e.* LRAIC) is below ATC for each individual product.

(781) This conclusion is not called into question by Qualcomm's claim that *"LRAIC is not the appropriate cost measure to assess alleged predation"* in R&D-intensive industries such as the semiconductors industry,[1123] instead advocating the use of *"AUC as the relevant cost measure, which in the present case would be equivalent to AVC, and applying it in a common sense manner"*.[1124] This is for the following reasons.

(782) First, Qualcomm argues that *"R&D-intensive industries* […] *typically exhibit significant intertemporal and contemporaneous cross-product R&D spillovers that are difficult to identify and measure."*[1125]

(783) However, Qualcomm has not provided any information that would have allowed the Commission to quantify the R&D spill-overs generated by, or received by, the baseband chips under investigation. In the absence of any specific information regarding the amount of R&D spill-overs likely generated by a particular chip for future chips, or likely received by any particular chip from previously developed chips, the Commission considered it to be the most reasonable approach to assume

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1122 Case C-62/86, *AKZO v Commission*, ECLI:EU:C:1991:286, paragraph 72; Case C-202/07, *France Télécom v Commission*, ECLI:EU:C:2009:214, paragraph 8 and 9; and Case C-333/94 P, *Tetra Pak v Commission*, ECLI:EU:C:1996:436, paragraph 41.

1123 Qualcomm's SO Response, [...], paragraph (224), Qualcomm's SSO Response, [...], paragraph (798).

1124 Qualcomm's SO Response, [...], paragraph (237).

1125 Qualcomm's SO Response, [...], paragraph (226).

that the spill-overs from which a particular chip benefitted are roughly balanced by the spill-overs generated by that particular chip for other chips. As a result of this approach, the development costs incurred for this chip were not discounted by any spill-overs likely generated by this chip. However, with regard to the MDM8200 and MDM8200A, the Commission adjusted its allocation of development costs to account for the fact that the contemporaneous evidence in the file indicated that the MDM8200 generated substantially more spill-overs for the MDM8200A than it received (see section 12.6.3.2 below).

(784) Second, Qualcomm argues that *"charging prices below LRAIC in the short term is a rational, profit-maximising strategy, for rational firms will choose to recover at least some rather than none of their non-variable costs.* […] *Provided that such short-term pricing is driven by profit-maximising incentives, and is not part of a plan to exclude rivals in the longer term, the same rationale applies equally to the pricing decisions made by dominant firms."*[1126] Qualcomm refers to the inherently risky nature of R&D investments, and the spill-overs they generate for future (potentially more profitable) products. All of these factors may lead firms to set prices below LRAIC without exclusionary intentions, but simply in an attempt to maximise short-run profits.[1127] Qualcomm further argues that requiring any dominant firm *"to charge prices above LRAIC and hence lose business to lower-priced competitors subject to no such regulatory constraints"* will in the long run lead to *"procompetitive R&D investment decisions made in good faith* [being] *deterred to the detriment of consumer welfare"*.[1128]

(785) These claims are irrelevant since the Commission has shown in this case that Qualcomm had the intention of eliminating a competitor (see sections 12.3 and 12.4 above and section 12.8 below). The Union Courts' case law has confirmed that, in such a scenario, pricing above AVC but below ATC by a dominant company infringes Article 102 of the Treaty (see recital (331) above). This is notably the case since such conduct of the dominant company might deter pro-competitive R&D investment on the side of potential competitors.

(786) Third, Qualcomm argues that LRAIC should not include any sunk costs,[1129] which in this case would concern almost all (if not all) R&D costs considered in the Commission's price-cost test since most of the R&D costs are incurred before the chipsets are commercialised (see recital (894) and associated figures 25-27 below). Moreover, Qualcomm argues that *"any ongoing R&D expenditure related to software upgrades of existing products is not incremental to additional sales made, as such cost would be necessary to upgrade chipsets already delivered to customers and thus it would be incurred in any event."*[1130]

1126 Qualcomm's SO Response, [...], paragraph (228), emphasis by Qualcomm, footnote omitted, and Qualcomm's SSO Response, [...], paragraphs (799), (816)-(817), (923).

1127 Qualcomm's SO Response, [...], paragraphs (229) and (231), and Qualcomm's SSO Response, [...], paragraphs (800) and (803), and similarly in Qualcomm's follow-up submission to the Oral Hearing of 10 January 2019, [...], paragraph (122).

1128 Qualcomm's SO Response, [...], paragraph (231).

1129 Qualcomm's SO Response, [...], paragraph (230), and Qualcomm's SSO Response, [...], paragraphs (800)-(802).

1130 Qualcomm's SSO Response, [...], paragraph (801).

(787) This claim is incorrect because LRAIC encompasses product-specific costs incurred both before and during the period in which the abusive conduct took place (hence the "long-run" in "long-run average incremental costs"). In fact, failure to cover LRAIC indicates that the dominant undertaking is not recovering all of the (attributable) variable and fixed costs of producing the good or service in question, and hence that an equally efficient competitor could be foreclosed from the market. In an industry like the semiconductor industry, which is characterised by low variable costs and high fixed costs that are mostly sunk by the time the products are commercialised, failure to include the product-specific sunk costs in the LRAIC measure would make it very difficult, if not impossible, to detect any such foreclosure of an equally efficient competitor in a price-cost test. Indeed, academic literature, as discussed in a book co-authored by Qualcomm's main economic advisor, proposes LRAIC as a solution *"to offer a more realistic assessment of the long-term costs of entering the market and remaining on it.* […] *LRAIC is thought by certain commentators to be superior to short-run cost measures, since it* […] *includes all product-specific costs incurred in the research, development, and marketing of the allegedly predatory output, even if they were sunk."* [1131] While Qualcomm claims that the examples cited in that book only consider industries characterised by near zero marginal costs,[1132] the section's heading clearly refers to the more general case of *"Situations Involving High Fixed And Low Variable Costs"*,[1133] which corresponds to the characteristics of the semiconductor industry.

(788) Fourth, Qualcomm argues that its R&D cost database overstates the actual development costs of any given product because the latter also bears some R&D costs of unobserved (*i.e.* abandoned) products. [1134]

(789) However, Qualcomm has not claimed (let alone demonstrated) that the R&D costs of some unobserved products would overstate the costs in the R&D cost database of the products under investigation. In this regard, the Commission refers to the only example provided by Qualcomm for such an abandoned R&D project, namely *"* [...]*."*[1135] The Commission notes that this example refers to the LTE telecommunications standard, while this case concerns the market for chipsets compatible with the UMTS standard, so that the example is unrelated to the products under investigation. Moreover, from Qualcomm's vague assertion that *"*[s]*ome portions of R&D carried out in respect of* [...] *may be relevant to LTE"* it is not possible to infer whether any of the costs incurred for the development of [...] were partly or fully reallocated to products implementing LTE. In any event, Qualcomm admits that research carried out for [...] may have facilitated the development of certain LTE-based products. In this case, by accounting also for some of the cost incurred for [...], the [...] would, in fact, not overstate the development cost of these LTE-based products, but rather correctly reflect their full development cost.

1131 Jorge Padilla and Robert O'Donoghue: *The Law and Economics of Article 102 TFEU*, Second edition, Oxford, United Kingdom: Hart Publishing, 2013, p. 328 (Chapter 6: "Predatory Pricing").

1132 Qualcomm's follow-up submission to the Oral Hearing of 10 January 2019, [...], paragraph (94).

1133 Jorge Padilla and Robert O'Donoghue: *The Law and Economics of Article 102 TFEU*, Second edition, Oxford, United Kingdom: Hart Publishing, 2013, p. 328.

1134 Qualcomm's SO Response, [...], paragraph (232), and Qualcomm's SSO Response, [...], paragraph (682).

1135 Qualcomm's SO Response, [...], footnote 349.

(790) Fifth, Qualcomm wrongly claims that *"requiring a firm like Qualcomm to price above its LRAIC in all instances would subject the firm to considerable legal and regulatory uncertainty"* because *"*[d]*ifferent conclusions about the proper assumptions and modelling could lead to findings of below-cost pricing when the firm believed, on the basis of its own analysis, that its pricing was both necessary to meet competition and lawful."*[1136]

(791) In the first place, Qualcomm's claim is based on the premise that Qualcomm carried out some *"own analysis"* of whether or not its prices were lawful, and shared this analysis with the Commission. If this had been the case, the Commission would have taken due account of any such analysis in its assessment of the compatibility of Qualcomm's conduct with EU competition law. In this case, however, Qualcomm did not provide any such evidence or internal calculations of incremental costs, which is why the Commission had to resort to its own reconstruction of the relevant costs (see section 12.6.3 below).

(792) In the second place, it follows from the Union Courts' case law that pricing above AVC is only problematic in the presence of a proven intent to eliminate a competitor. Companies which set their pricing without any such intention, therefore, do not have to worry about compliance with cost benchmarks above AVC to avoid allegations of predatory pricing.

(793) Sixth, Qualcomm points out that, in identifying Qualcomm's incremental costs, the Commission relies *"on ex post hindsight that was not available to Qualcomm at the time it made its ex ante decisions to develop the chipsets in question"*,[1137] and therefore *"disregards entirely the possibility that the firm's ex ante assessment was erroneous"*.[1138]

(794) This claim is unfounded. The Commission had to reconstruct LRAIC on the basis of realised revenue figures because Qualcomm did not provide any *ex ante* internal assessments of LRAIC. In this case, the Commission's LRAIC reconstruction was therefore the only way to carry out a meaningful price-cost test. In a scenario where (i) there is evidence on intent to eliminate a competitor (see section 12.8 below), and (ii) Qualcomm did not provide any information on its internal LRAIC measures, the foreseeability of the Commission's methodology for Qualcomm is irrelevant because the Commission could not have relied on any other figures for LRAIC.

(795) Seventh, Qualcomm argues that *"comparing prices to LRAIC – or any cost measure that allocates non-variable costs – is meaningful only if the prices of the investigated firm are kept low for a sustained and non-transitory period of time* [which] *must be sufficiently long to lead to the exit of an as-efficient competitor from the relevant market"*.[1139]

(796) This claim is erroneous because the Commission's findings of below-cost prices are not limited to *"only one or two calendar quarters"* as suggested by Qualcomm,[1140] but show a consistent and continuous pattern of below-cost pricing during the Relevant Period. The time horizon of the Commission's price-cost test is sufficiently

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[1136] Qualcomm's SO Response, [...], paragraph (233).
[1137] Qualcomm's SSO Response, [...], paragraph (745).
[1138] Qualcomm's SO Response, [...], paragraph (234).
[1139] Qualcomm's SO Response, [...], paragraph (236).
[1140] Qualcomm's SO Response, [...], paragraph (236).

long to allow for a finding that failure to recover incremental costs over a substantial part (or the entirety) of this time horizon is capable of foreclosing an equally efficient competitor. In any case, the Commission carried out both a quarter-by-quarter comparison of prices and costs for all three products under investigation (see section 12.7.1 below), as well as a lifetime profitability analysis of the two products under investigation whose lifecycle had been completed during the investigation (see section 12.7.3 below).

12.6.2. The variable costs incurred by Qualcomm for the chipsets under investigation during the Relevant Period

(797) For the purposes of the price-cost test in this case, the Commission carried out a reconstruction of the variable cost measure for the chipsets under investigation during the Relevant Period. Section 12.6.2.1 explains the reasons that led to the Commission's reconstruction. Section 12.6.2.2 explains the methodology followed by the Commission for the purposes of the variable cost reconstruction. Section 12.6.2.3 presents the results of the Commission's variable cost reconstruction and compares these results to Qualcomm's accounting figures.

12.6.2.1. Reasons for the Commission's reconstruction of the variable cost measure for the Relevant Period

(798) The Commission's reconstruction of the average variable cost measure ("AVC measure") for the chipsets under investigation during the Relevant Period was carried out to address the arguments raised by Qualcomm in its SO Response and at the Oral Hearing following the adoption of the SO.

(799) The AVC measure used in the SO was based on data provided by Qualcomm. This data tracks the evolution of a variable cost metric called Average Unit Cost ("AUC") which Qualcomm uses for internal purposes. Qualcomm provided two different data sets for the AUC of the three chipsets under investigation: *"One set of cost data ties in to Qualcomm's financial statements (the '*[...] *cost data') and reflects the AUC of chips sold in a given quarter.* […] *The other set of cost data is derived from Qualcomm's expenditures each quarter* [...] *(the '*[...] *cost data').*"[1141]

(800) In the SO, the Commission used the [...] cost data for the purposes of the price-cost test in this case since Qualcomm had indicated that it considered this data set as more appropriate for that purpose for the following reasons: *"First, the* [...] *cost data reflect the cost of chips sold in a given quarter, it is more readily comparable to the price of chips sold in that quarter. By contrast, comparing the* [...] *cost data (which reflect the cost of chips acquired in a given quarter) to the price of chips sold in the same quarter would create timing anomalies* [...]*. The* [...] *cost data include* [...]*; those costs are not included in the* [...] *cost data. Third,* [...]*.*"[1142]

[1141] Qualcomm's reply of 2 December 2013 to question 93 of Article 18(3) Decision of 10 July 2013, [...], paragraph (388), emphasis added. Qualcomm further explained in paragraphs (386)-(391) that the [...] cost data is only available at the chipset level, while [...] Cost data is available for each of the three chipset components (*i.e.* the baseband chip, the PM, and the RTR). The [...] cost data were submitted as Annex 2a.1 of Qualcomm's reply of 5 December 2014 to the Article 18(3) Decision of 13 October 2014, [...], while the [...] Cost data were submitted as Annex 2a.2 of the same reply, [...].

[1142] Qualcomm's reply of 2 December 2013 to question 93 of Article 18(3) Decision of 10 July 2013, [...], paragraph (389), emphasis added. [...] (see Qualcomm's reply of 15 June 2018 to question 3 of the questions for discussion of 16 May 2018, [...], paragraph (32)).

(801) In its SO Response, Qualcomm claimed that the predatory sales found in the SO for the MDM6200 based chipset for the period from July to September 2010 on the basis of Qualcomm's [...] cost data were the result of an AUC which was "[...]."[1143] Qualcomm explained that this was due to [...] taking place at the end of each fiscal quarter since "[...]."[1144] Qualcomm further noted that [...],[1145] and is normally balanced by a lower AUC recorded in the subsequent quarter. These claims suggested that the [...] cost data did not reflect the economic cost effectively incurred by Qualcomm in the production of the chipsets under investigation sold during the Relevant Period.

(802) Given that, prior to the SO, Qualcomm had claimed that its [...] cost data were more appropriate for a comparison of prices and costs in this case than its [...] Cost data (see recital (800) above), the Commission sought to clean the [...] data set of the fluctuations induced by inventory revaluations, so that only the relevant manufacturing costs and [...] would be captured by the resulting variable cost measure. However, in its reply to the Commission's Article 18(3) Decision of 31 March 2017, Qualcomm stated that it was not able to provide the necessary breakdown of the [...] cost data for that purpose,[1146] and that it was able "[...]."[1147]

(803) In light of the above, to address the concerns expressed by Qualcomm regarding the fluctuations in the AVC measure, the Commission reconstructed the manufacturing cost of the chipsets sold in each quarter of the Relevant Period on the basis of common assumptions with regard to the use of inventory by Qualcomm. This reconstruction was carried out on the basis of Qualcomm's [...] Cost data which, however, had to be adjusted to address the shortcomings of the data set identified by Qualcomm prior to the SO (see recital (800) above). In particular, the Commission had to resolve the [...] between the [...] Cost data and the prices charged by Qualcomm for its chipsets in any given quarter (see section 12.6.2.2 below). To evaluate Qualcomm's inventory of the three chipsets at the end of any given quarter, the Commission relied on the "First-in, First-Out" (FIFO) approach, which is consistent with the Commission's price reconstruction described in recital (644) above.

(804) As regards the two variable cost components which are included in the [...] cost data but not in the [...] Cost data, namely [...] costs (see recital (800) above), the Commission takes the view that only [...] should be included in the AVC measure, whereas [...] should be disregarded because they are not relevant in establishing the economic variable cost for the purposes of a price-cost test. As pointed out by Qualcomm,[1148] the fluctuations induced by [...] made it more likely to find predation in periods when the [...] AUC were [...], such as July to September 2010 for the MDM6200 based chipset. By the same token, predation was less likely to be found in periods where the [...] AUC were artificially low because of these [...] cost adjustments, such as April to June 2010 for the MDM6200 based chipset. Thus,

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1143 Qualcomm's SO Response, [...], paragraphs (333) and (573).

1144 Qualcomm's SO Response, [...], paragraph (334).

1145 Qualcomm's SO Response, [...], paragraph (335).

1146 Qualcomm's reply of 16 June 2017 to question 7 of Article 18(3) Decision of 31 March 2017, [...], paragraph (83).

1147 Qualcomm's reply of 30 June 2017 to question 6 of Article 18(3) Decision of 31 March 2017, [...], paragraph (71).

1148 Qualcomm's SO Response, [...], paragraphs (333) and (573).

contrary to Qualcomm's assertion in this regard,[1149] the Commission does not claim that its approach, which removes the impact of all [...] (*i.e.* both upward and downward adjustments) on the AVC measure, is conservative.

(805) The Commission's approach is not called into question by Qualcomm's claim that the reconstruction of the AVC is *"entirely unnecessary"*[1150] and that the Commission should *"merely have analysed Qualcomm's* [...] *AUC data over a number of quarters, or in the specific case of newly launched chipsets that had not yet achieved high volume manufacturing (e.g. the MDM6200 in 2010), looking ahead to forthcoming quarters when high volume manufacturing would be achieved and AUCs are likely to be more meaningful"*.[1151] To support its claim, Qualcomm also submitted a workbook prepared by its external economic advisors, the *"AVC Workbook"*,[1152] which is summarised and discussed in a report titled *"Icera: SSO price-cost test"* (the "Compass Lexecon Report" or "CL Report").[1153] The AVC Workbook compares the price-cost test results when (i) applying the Commission's reconstructed AVC instead of Qualcomm's AUC (while keeping the Commission's reconstructed prices) and (ii) replacing both Qualcomm's [...] AUC and its accountings ASPs as recorded in the [...][1154] by the respective reconstructed measures. For some customer-product pairs, the CL Report concludes that *"*[t]*he ASP and AVC restatements made in the SSO do not result in test margins that are significantly different from those computed using the* [...] *and* [...] *data"*.[1155] In other cases, where the data source for the prices and AVCs does have an impact on the test margins, the CL Report claims that the issues underlying the differences in test results *"could have been addressed without the general restatement of all ASPs undertaken in the SSO."*[1156] The Commission rejects this claim for the following reasons.

(806) First, Qualcomm had argued itself in its SO Response that the [...] costs were prone to accounting-induced fluctuations that had no economic significance (see recital (801) above). The AVC reconstruction was therefore necessary to address Qualcomm's concern with regard to these accounting-induced fluctuations. Qualcomm's vague assertion in its SSO Response that its own claims in the SO Response were *"exaggerated"*[1157] does not explain why the problems with the [...] cost data identified by Qualcomm in its SO Response would now suddenly be resolved.

(807) Second, there is no alternative way to address the concerns raised by Qualcomm in its SO Response.

(808) In the first place, aggregating Qualcomm's [...] AUC data over a number of quarters, as Qualcomm seems to suggest, would be inconsistent with the quarterly reference period over which the price-cost test is carried out (see recitals (608)-(610) above).

1149 Annex 5 to Qualcomm's SSO Response, *Icera: SSO price-cost test*, [...], paragraph C.4.
1150 Qualcomm's SSO Response, [...], paragraph (677).
1151 Qualcomm's SSO Response, [...], paragraph (676).
1152 Annex 5.b to Qualcomm's SSO Response, AVC Workbook, [...].
1153 Annex 5 to Qualcomm's SSO Response, *Icera: SSO price-cost test*, [...].
1154 See worksheet "[...]" included in Annex 10 to the SO Response, [...].
1155 Annex 5 to Qualcomm's SSO Response, *Icera: SSO price-cost test*, [...], paragraph B.36.
1156 Annex 5 to Qualcomm's SSO Response, *Icera: SSO price-cost test*, [...], paragraph B.37.
1157 Qualcomm's SSO Response, [...], paragraph (669).

(809) In the second place, as Qualcomm itself admits, [...].[1158] Qualcomm [...].[1159] For these [...], the Commission's reconstructed AVC is substantially lower than the corresponding [...] AUC value reported by Qualcomm, so that the use of the reconstructed AVC values is in Qualcomm's favour.

(810) Third, the alleged *"false positive"* identified by Qualcomm [...][1160] [...] cannot therefore be disregarded in the Commission's price-cost test for the reasons set out in section 12.7.1.1 below.

12.6.2.2. The inventory valuation method applied by the Commission

(811) To reconstruct the AVC for the chipsets under investigation, the Commission first reconstructed the evolution of Qualcomm's inventory of the respective baseband chip. For this purpose, the Commission relied on information provided by Qualcomm about the monthly inflow of units to its inventory for the MDM8200, MDM8200A, and MDM6200 baseband chips in the period between February 2009 and August 2013, based on [...].[1161] This inventory reconstruction was necessary to resolve the [...] between the acquisition of the chipsets and their sale.[1162] [...]. Whenever such inventory stocks exist, any given order may be fulfilled by a mix of chips on stock and chips acquired contemporaneously to the order. [...], the question arises which of the acquisition costs (*i.e.* historic or contemporaneous or a mix thereof) to assign to the units sold in any given quarter, so as to allow for a meaningful comparison of the acquisition cost to the price charged for these chips by Qualcomm in that quarter.

(812) To resolve this ambiguity, the Commission relied on the "First-In, First-Out" (FIFO) method to calculate the so-called "Cost of Goods Sold" ("COGS") of the three chipsets under investigation. The Commission relies on the FIFO principle for two reasons. First, FIFO is the valuation method recommended by the IFRS (International Financial Reporting Standards) *"for items that are ordinarily interchangeable (generally large quantities of individually insignificant items)"*.[1163] Second, in Qualcomm's own financial statements, *"*[i]*nventories are valued at the lower of cost or market (replacement cost, not to exceed net realizable value) using the first-in, first-out method"*.[1164] The Commission notes that unlike the IFRS, the US

1158 This is also confirmed by Qualcomm in its Annex 5 to Qualcomm's SSO Response, *Icera: SSO price-cost test*, [...], Tables 44 to 49 at paragraphs B.28 to B.32. According to Qualcomm's financial statements (see recital (812)), Qualcomm uses FIFO for its inventory evaluation, the same method used by the Commission in reconstructing AVC, which explains why the figures largely coincide. The main difference between Qualcomm's and the Commission's approach lies in the treatment of inventory depreciations, which Qualcomm writes down in a single quarter, while the Commission spreads them out over those quarters in which the chipsets affected by the devaluation were sold through to the OEMs (see recital (813)).

1159 Qualcomm's SSO Response, [...], paragraphs (672) and (674).

1160 See Qualcomm's SO Response, [...], paragraphs (333)-(336).

1161 Annex 10.2 to Qualcomm's reply of 30 June 2017 to the Article 18(3) Decision of 31 March 2017, [...], and Qualcomm's reply of 27 November 2017 to question 1 of Article 18(2) request for information of 10 November 2017, [...], paragraph (4).

1162 See Qualcomm's explanations in this regard in Qualcomm's reply of 2 December 2013 to question 93 of Article 18(3) Decision of 10 July 2013, [...], paragraph (389), reproduced above in recital (800).

1163 See http://www.ifrs.org/issued-standards/list-of-standards/ias-2-inventories/, printed on 28 February 2018, [...].

1164 Qualcomm's Form 10-K of fiscal years 2009, 2010 and 2011 printed from http://investor.qualcomm.com/annuals-proxies.cfm on 21 February 2018, Form 10-K 2009: [...], page 9; Form 10-K 2010: [...], page 9; Form 10-K 2011: [...], page 7.

GAAP allow companies to use an alternative valuation method for *"ordinarily interchangeable items"*, namely "Last-in, First-out" ("LIFO"), whereby the most recent inventory is assumed to be sold first.[1165] The Commission has carried out the reconstruction of AVC under both FIFO and LIFO for all three chipsets (see recitals (829)-(831) below for the corresponding results).

(813) However, while using the same inventory valuation method as Qualcomm (namely FIFO), the Commission's reconstruction of the quarterly AVC differs from Qualcomm's accounting figures in one important aspect, namely that, unlike Qualcomm, [...],[1166] as this could lead to the same spikes as are observed in Qualcomm's [...] figures for its AUC. [...], the Commission's reconstructed AVC measure will be *lower* than Qualcomm's AUC in some quarters, and *higher* in others (see also recitals (804) and (809) above, and Table 46 at recital (829) below for a full comparison of the Commission's reconstructed values with Qualcomm's [...] AUC).

12.6.2.3. The Commission's reconstruction of AVC for the chipsets under investigation

(814) On the basis of the inventory data and Qualcomm's [...] Cost data, the Commission computed the quarterly AVC for the three chipsets under investigation, by performing the following computational steps:

(815) As a first step, on the basis of the information provided by Qualcomm on the monthly inflow of baseband chips to its inventory, which the Commission aggregated at the quarterly level, and on the quarterly outflow of baseband chips (*i.e.* Qualcomm's aggregate sales across all its customers in a given quarter),[1167] the Commission reconstructed the quarterly stock of each of the three baseband chips under investigation according to the following formula:

Stock in period t = stock in period t-1 + inflow in period t – outflow in period t

(816) The stock in period zero (*i.e.* in the quarter before the first arrivals of chips at the distribution centre are observed) is set to zero for the MDM6200 and the MDM8200A based chipset. For the MDM8200 based chipset, it is set to [...] units for the period October-December 2008 for the following reason: Qualcomm's records of sales start two to three quarters earlier (in April-June 2008) than its records on its inventory (in February 2009). Qualcomm explained this discrepancy as follows: "[...]."[1168] However, ignoring the existence of these engineering samples for the MDM8200 by setting the starting value of the inventory in December 2008 to [...] would lead to a negative stock value of [...] in April-June 2010. Such a negative value has no admissible interpretation because a stock value for physical goods such as chips cannot fall below zero.

1165 See *"The Death of LIFO? Changing inventory method requires managing the accounting-tax differences"* by Robert Bloom and William J. Cenker, *Journal of Accountancy*, January 1, 2009, [...], printed on 9 March 2017.

1166 See recitals (801), (804), and (812) above, and (831) below. Qualcomm also recognises that the Commission's approach *"includes the full inventory acquisition cost"* and hence *"also the cost that would have been treated as a write-off in Qualcomm's accounts"* (see Annex 5 to Qualcomm's SSO Response, Icera: SSO price-cost test, [...], paragraph C.4., as well as Qualcomm's SSO Response, [...], paragraph (675)).

1167 Based on the column "[...]" of the worksheet "[...]" included in Annex 10 to the SO Response, [...].

1168 Qualcomm's reply of 27 November 2017 to question 1 of Article 18(2) request for information of 10 November 2017, [...], paragraph (6).

(817) The starting value for the stock of the MDM8200 of [...] is a rounded correction for the discrepancy between the grand total of all recorded arrivals into the distribution centre ([...] units) and the total sales ([...] units) of the MDM8200 over the product's lifecycle, *i.e.* from April 2008 to December 2011.[1169] The existence of an excess sales amount of [...] units means that these units must relate to acquisitions which have remained unaccounted for in the data since it is impossible for a fabless chip supplier like Qualcomm to sell any product which was not acquired beforehand. The rounding of the excess sales amount does not affect the results regarding the level of variable costs because it is of much smaller magnitude than the average quarterly stock of the MDM8200 over the Relevant Period (which amounts to [...] units). This means that alternative starting values of the same magnitude as the one chosen by the Commission would lead to the same results in terms of AVC measure.

(818) As a second step, the Commission notes that, for some of the products, the [...] Cost data report two different values in the same quarter, namely one for each of the foundries from which these chips are sourced. Such dual-sourcing by Qualcomm is present in the case of the following products: the MDM8200 baseband chip (sourced from [...]), the MDM6200 baseband chip (sourced from [...]), the PM8015 chip (sourced from [...]) and the PM8028 chip (sourced from [...]).[1170] For these four chips, there is one [...] Cost value per foundry available in each of those quarters where dual sourcing occurred. The difference in [...] Costs between the two foundries is of the order of magnitude of [...] to [...] of the [...] Cost of the more expensive foundry. For these four chips, the Commission computed a single [...] Cost value in each quarter, by taking, for those quarters in which products were sourced at two foundries, the conservative approach of always using the lowest cost among the two available figures. This assumption is favourable to Qualcomm, because it represents a lower bound on the actual [...] Costs incurred by Qualcomm.[1171] This implies that the AVC reconstructed by the Commission on the basis of this minimum of the two available [...] Cost values will also be conservative for the four chips affected by dual sourcing.

(819) The conservativeness of the Commission's approach is not called into question by Qualcomm's argument that the differences between the minimum and the maximum [...] Cost value *"are too insignificant to influence the result of the SSO's price-cost test."*[1172] Irrespective of whether or not the results of the Commission's price-cost test would change if the AVC measure were to be constructed from the maximum [...] Cost value instead of the minimum [...] Cost value, in any event, the Commission's AVC measure based on the minimum [...] Cost value is the lowest of all AVC measures that could be constructed from the available [...] Cost data, and is therefore in Qualcomm's favour.

1169 See also Table 73 at recital (1183) below. [...].

1170 Annex 2a.2 to Qualcomm's reply of 5 December 2014 to the Article 18(3) of 13 October 2014, [...].

1171 Whenever Qualcomm also sourced some volumes from the more expensive foundry, its actual [...] Cost in this quarter would be higher than the minimum of the two foundry [...] Costs, as it would be a weighted average of the two values, with the weights given by the relative volumes sourced from each foundry.

1172 Annex 5 to Qualcomm's SSO Response, *Icera: SSO price-cost test*, [...], paragraphs C.19, C.22 and C.23, and worksheet "Price-cost test (min, max RC)" of Annex 5.b to Qualcomm's SSO Response, AVC Workbook, [...].

(820) As a third step, the Commission calculated the cost of the baseband chips sold (COGS) in each quarter according to the following formula:

COGS = Value of stock in period t-1 + value of inflow in period t - Value of stock in period t

(821) The *"value of inflow in period t"* refers to the number of units delivered to Qualcomm by its foundries in a given quarter, multiplied by the [...] Costs in that same quarter where a unique [...] Cost value is available, and by the minimum of the [...] Costs where dual sourcing occurred (see recital (818) above).

(822) The *"value of stock in period t"*, *i.e.* the dollar value attached to the *"stock in period t"* as defined in recital (815) above, depends on the inventory valuation method used. Under the standard "First-in, First-out" (FIFO) method used for the Commission's AVC reconstruction, it is assumed that the order of departure from the stock is the same as the order of arrival to the stock. This means that the oldest inventory, *i.e.* the units that were shipped from the foundry earlier in time, is sold first. Thus, whenever the remaining stock of goods in period t is smaller than the inflow to the stock in that same period, it follows from the FIFO principle that the units remaining on stock are all part of the latest arrivals, and should hence be evaluated at the [...] Cost value of the same period t.[1173]

(823) As a fourth step, for each of the chipsets under investigation, the Commission reconstructed the relevant costs at chipset level by adding, on a quarter by quarter basis, the cost of the baseband chip, the cost of the corresponding RTR and the cost of the corresponding PM. For chipsets that existed in two configurations (*i.e.* the MDM6200 and the MDM8200A based chipset), the Commission reconstructed the costs for both configurations (see Table 11 at recital (636) above).

(824) To calculate the COGS for the PM and RTR chips, the Commission substituted the values for the inventory inflows and outflows of the PM and RTR chips by the inflow and outflow values of each of the baseband chips with which these components are compatible. This substitution was necessary because the PM and RTR components can be used for many other chipset models as well and, hence, are bought by Qualcomm's customers in much larger quantities than any given baseband chip, without "earmarking" these component purchases for any particular baseband chip. The Commission has thus relied on the approximation of using the inflow and outflow volumes of any given baseband chip also for the calculation of the COGS of all compatible PM and RTR components. This method ensures that the resulting COGS of any given chipset will trace the evolution of manufacturing costs over time in the same way for all three components of the chipset. Regarding the [...] Cost value attached to these volumes, the Commission proceeded in the same way for the components as for the baseband chip, *i.e.* using the minimum of the [...] Costs for the PM or RTR chips wherever two such values were available (namely for the PM8028 and PM8015).

1173 This is the case for all but two data points of the MDM8200, and for all data points of the MDM6200 and MDM8200A. If the stock in period t exceeds the inflow in period t (as is the case for the last two data points of the MDM8200), then the excess quantity is assumed to have been purchased in period t-1, provided inflows in period t-1 where high enough; otherwise, one turns to period t-2, until the entire stock in period t is exhausted.

(825) As a fifth and final step, the average [...] cost of USD [...] per unit was added to the cost of each of the three chipsets.[1174]

(826) On the basis of the computational steps described above, the Commission has obtained for each of the chipsets under investigation a revised measure of the AVC cost for the following periods: (i) for the MDM8200: January-March 2009 to October-December 2011; (ii) for the MDM6200: July-September 2010 to October-December 2011; and (iii) for the MDM8200A: October-December 2010 to October-December 2011.

(827) For the following chipsets and quarters, the Commission disregarded these time periods in its AVC reconstruction in view of the fact that only very limited quantities were sold: (i) the initial sales of the MDM8200, which totalled [...] chips during April to December 2008 (outside of the reporting window of Table 46 at recital (829) below); (ii) for the MDM6200 – Configuration 1 in October-December 2009 and January-March 2010, reporting a total volume of [...] units sold across all customers (marked "NA" in Table 46 at recital (829) below); and (iii) for the MDM8200A – Configuration 1 in January-March 2010, with total sales of [...] chips (marked "NA" in Table 46 at recital (829) below).

(828) The Commission was not able to reconstruct the AVC for the following periods: (i) for the MDM6200 – Configuration 1: April-June 2010; and (ii) for the MDM8200A – Configuration 1: April-June 2010 and July-September 2010.[1175] This is partly due to the lack of inventory information for the beginning of the product cycle,[1176] and partly due to the lack of [...] Cost data[1177] for the respective baseband chip. In these instances, the Commission substituted the missing values either by the corresponding [...] cost data values (for the MDM8200A – Configuration 1, see red figures in Table 46 at recital (829) below) or by the first available [...] Cost value (for the MDM6200 – Configuration 1, see green figures in Table 46 at recital (829) below). The same was done also for the PM8028 to obtain a consistent proxy for the overall chipset AVC. Given the strong downward trend in the variable costs, in particular at the beginning of the lifecycle of a product, substituting any such value by the value in the subsequent quarter likely understates the real value of the AVC in the quarter where the observation is missing, and is thus favourable to Qualcomm.

(829) The table below shows the quarterly evolution of the reconstructed AVC for the MDM8200, MDM6200 and MDM8200A based chipsets (per configuration where applicable), both under FIFO and LIFO, and compares them to the AUC stemming from the [...] cost data which was used in the SO. For the purposes of the price-cost test, the Commission relied on the FIFO method (columns titled "EC - FIFO" in Table 46 below), but notes that the difference in AVC values obtained from the two methods is minimal, and does not affect the result of the price-cost test for those quarters found to be predatory under FIFO for either of the two customers (Huawei or ZTE), as explained in footnote 1319 below.

1174 According to Qualcomm's reply of 30 June 2017 to question 6 of Article 18(3) Decision of 31 March 2017, [...], paragraph (71), [...]

1175 Configuration 2 of the MDM6200 and the MDM8200A only started selling in January-March 2011.

1176 This concerns the MDM8200A for April-June 2010.

1177 This concerns (i) the MDM6200: April-June 2010, and (ii) the MDM8200A: July-September 2010.

Table 46: Evolution of the AVC for the MDM8200, MDM6200 and MDM8200A based chipsets in the Relevant Period as reconstructed by the Commission ("EC – FIFO" and "EC – LIFO") and comparison to the AUC data from Qualcomm's [...] cost database ([...])

Calendar Quarter	MDM8200 chipset			MDM6200 chipset					
				Configuration 1			Configuration 2[1178]		
	EC - FIFO	EC - LIFO	[...]	EC - FIFO	EC - LIFO	[...]	EC - FIFO	EC - LIFO	[...]
Jan-Mar/2009	$24.65	$25.72	$[...]						
Apr-Jun/2009	$21.91	$20.86	$[...]						
Jul-Sep/2009	$20.74	$20.73	$[...]						
Oct-Dec/2009	$18.31	$16.64	$[...]	NA	NA				
Jan-Mar/2010	$16.57	$17.40	$[...]	NA	NA	$[...]			
Apr-Jun/2010	$14.64	$15.62	$[...]	*$12.50*	*$12.50*	$[...]			
Jul-Sep/2010	$13.93	$13.93	$[...]	$12.50	$12.50	$[...]			
Oct-Dec/2010	$12.92	$12.86	$[...]	$10.79	$9.65	$[...]			
Jan-Mar/2011	$12.28	$12.24	$[...]	$6.65	$6.31	$[...]	$6.47	$6.15	$[...]
Apr-Jun/2011	$12.11	$12.28	$[...]	$6.26	$6.16	$[...]	$6.10	$6.00	$[...]
Jul-Sep/2011	$12.10	$13.05	$[...]	$5.92	$5.81	$[...]	$5.78	$5.68	$[...]
Oct-Dec/2011	$12.25	$13.93	$[...]	$5.62	$5.56	$[...]	$5.50	$5.44	$[...]

Calendar Quarter	MDM8200A chipset					
	Configuration 1			Configuration 2[1179]		
	EC - FIFO	EC - LIFO	[...]	EC - FIFO	EC - LIFO	[...]
Jan-Mar/2009						
Apr-Jun/2009						
Jul-Sep/2009						
Oct-Dec/2009						
Jan-Mar/2010	NA	NA	$[...]			
Apr-Jun/2010	*$11.86*	*$11.86*	$[...]			
Jul-Sep/2010	*$10.58*	*$10.58*	$[...]			
Oct-Dec/2010	$9.19	$9.44	$[...]			
Jan-Mar/2011	$7.80	$7.54	$[...]	$7.84	$7.84	$[...]
Apr-Jun/2011	$7.36	$7.30	$[...]	$6.98	$7.14	$[...]
Jul-Sep/2011	$7.09	$6.96	$[...]	$6.95	$6.83	$[...]
Oct-Dec/2011	$6.83	$6.76	$[...]	$6.71	$6.64	$[...]

"NA" = data not available

Orange figures: peaks in [...] cost data values induced by accounting adjustments

Red figures: Missing values substituted by the EC-FIFO or EC-LIFO value in the following quarter (boxed value)

Green figures: Missing values substituted by contemporaneous [...] cost data values (*i.e.* boxed values)

1178 Configuration 2 of the MDM6200 and the MDM8200A only started selling in January-March 2011, which is why there are no cost values available for these two products for any quarter before January-March 2011 in which Configuration 1 of the same product was already available.

1179 Configuration 2 of the MDM6200 and the MDM8200A only started selling in January-March 2011, which is why there are no cost values available for these two products for any quarter before January-March 2011 in which Configuration 1 of the same product was already available.

(830) The following charts provide a visual comparison of the reconstructed AVC under both FIFO and LIFO with the [...] cost data submitted by Qualcomm as used in the SO.

Figure 22: MDM8200 chipset (MDM8200 only available in one configuration)

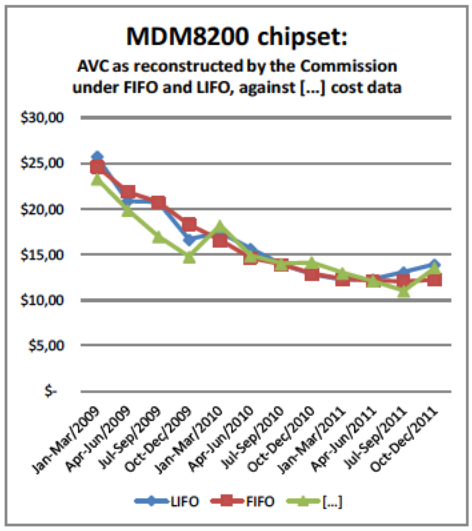


Figure 23A: MDM6200 – Config. 1

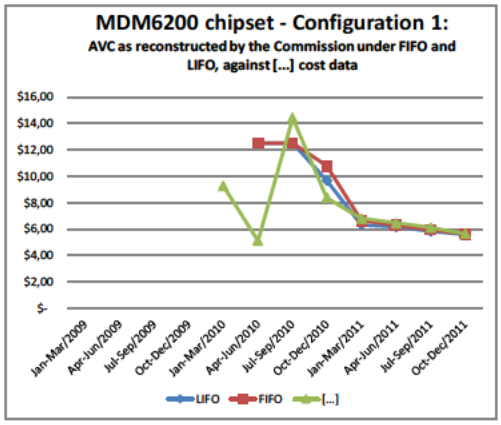


Figure 23B: MDM6200 – Config. 2

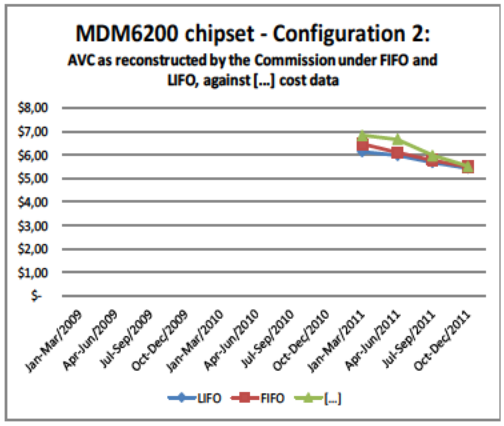


Figure 24A: MDM8200A – Config. 1

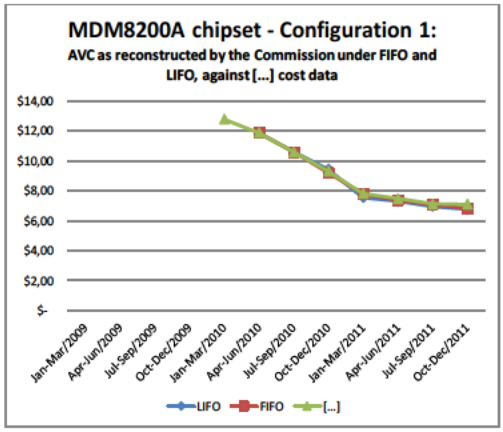
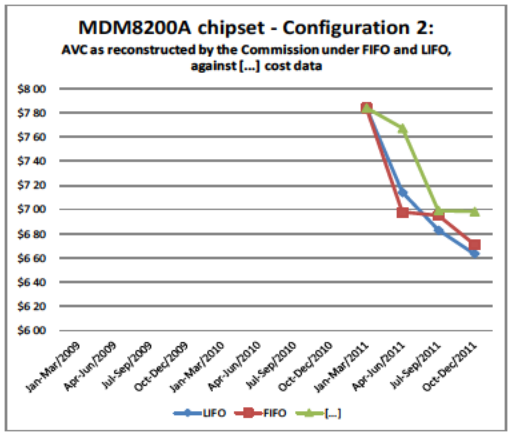


Figure 24B: MDM8200A – Config. 2



(831) The difference between the Commission's reconstructed values of AVC and Qualcomm's AUC stemming from the [...] cost data is particularly pronounced for the MDM8200 and the MDM6200 (Config. 1) based chipset. This is because in the [...] cost data for these two chipsets, the inventory adjustments explained in recital (801) above induced a large spike in the AUC, namely in January-March 2010 for the MDM8200 based chipset, and in July-September 2010 for the MDM6200 (Config. 1) based chipset (see also the orange figures in Table 46 at recital (829) above). For both chipsets, the Commission's reconstruction was able to smooth out the spikes caused by these inventory adjustments. For the other three chipsets, the Commission's reconstructed AVC is similar to the [...] cost data, with the reconstruction yielding slightly lower, and hence more conservative, values than the [...] cost data provided by Qualcomm.

12.6.3. The incremental development costs incurred by Qualcomm for the chipsets under investigation during the Relevant Period

(832) For the purpose of calculating the LRAIC measure to be used as cost benchmark in the price-cost test in this case, the Commission devised a measure of the fixed part of the costs that Qualcomm incurred to produce the chipsets under investigation during the Relevant Period. Section 12.6.3.1 explains which cost elements in the [...] are identified as "Incremental R&D Costs" by Qualcomm for each of the three baseband chips underlying the chipsets under investigation. Section 12.6.3.2 explains how the Commission accommodated the spill-overs generated by the development efforts incurred for the MDM8200 on its successor product, the MDM8200A, in its construction of LRAIC for both products. Section 12.6.3.3 shows Huawei's and ZTE's sales shares in the overall sales of the three chipsets under investigation. Section 12.6.3.4 sets out how the incremental development costs were allocated to the sales in the individual quarters of the Relevant Period for the three chipsets under investigation.

(833) [...] [1180]

12.6.3.1. Incremental R&D Costs in the [...]

(834) For the purposes of the price-cost test in this case, the Commission devised a measure of the fixed part of the costs that Qualcomm incurred to produce the chipsets under investigation during the Relevant Period based on the development expenditure linked by Qualcomm to the specific baseband chips underlying the chipsets under investigation in the [...]. In this database, Qualcomm (QCT) records and allocates certain fixed costs to particular chips for internal management and accounting purposes, using a process driven by engineers' time and activity records.[1181]

(835) The cost data contained in the [...] is recorded by Qualcomm in the ordinary course of business [...]. The data reports separate entries for the following components: [...]. Qualcomm submitted disaggregated information on the evolution over time, on a quarter-by-quarter basis, of all these cost components for the MDM8200, MDM6200

1180 [...]. See Qualcomm's reply of 12 January 2015 to question 2(b) of Article 18(3) Decision of 13 October 2014, [...], paragraphs (6)-(7), and Qualcomm's reply of 30 June 2017 to question 9 of Article 18(3) Decision of 31 March 2017, [...], paragraphs (81)-(83).

1181 Qualcomm's reply of 12 January 2015 to question 9 of Article 18(3) Decision of 13 October 2014, [...], paragraph (68).

and MDM8200A from fiscal year 2002/Q3 to 2014/Q4. The sum of items (i), (ii) and (iii) is identified in the [...] as Total R&D Costs.[1182]

(836) In its choice of those development cost components recorded in the [...] that can be considered incremental to the products under investigation, the Commission was guided by the use of the term *"Incremental R&D"* in one of Qualcomm's own business cases, namely the business case for the [...],[1183] and Qualcomm's explanations about the categories of costs it considered to fall under this concept.[1184] Despite Qualcomm's claim that the [...] *"is not, and cannot be, used by Qualcomm to assess the profitability of particular products"*,[1185] the business case for the [...] contains a detailed profitability analysis based on both *"Fully Burdened R&D"* and *"Incremental R&D"* costs which were extracted from the [...].[1186]

(837) The Commission requested the same cost categories identified by Qualcomm as [...] in the [...][1187] for the chipsets under investigation (in the following "Incremental R&D Costs"). These Incremental R&D Costs are computed for each chip and quarter as the sum of [...] and [...],[1188] *i.e.* they include all the cost components tracked in the [...] except for those recorded under [...].[1189]

(838) The following table shows the cumulative Incremental R&D Costs reported by Qualcomm in the [...] for the three baseband chips underlying the chipsets under investigation, aggregating over the period of fiscal years 2002 to 2014.

Table 47: Cumulative Incremental R&D Costs ([...]) for the MDM8200, MDM6200, and MDM8200A chips (in USD)

	MDM8200	MDM6200/6600	MDM8200A
Cumulative Incremental R&D Costs FY 2002 - 2014	[...]	[...]	[...]

(839) As regards the MDM6200, the Commission only considers a fraction of the recorded development expenses of USD [...] million as incremental to the MDM6200. This is because this chipset was part of a single development project with the MDM6600, [...] (see Table 47 at recital (838) above).[1190]

1182 Annex 8.1 to Qualcomm's reply of 30 June 2017 to Article 18(3) Decision of 31 March 2017, [...].

1183 Annex 5.1 of Qualcomm's reply of 12 January 2015 to question 5 of Article 18(3) Decision of 13 October 2014, [...] (the [...] for [...], dated [...]), pages 3 and 22.

1184 Qualcomm's reply of 30 June 2017 to question 8.3 of Article 18(3) Decision of 31 March 2017, [...], paragraph (80).

1185 Qualcomm's reply of 12 January 2015 to question 9 of Article 18(3) Decision of 13 October 2014, [...], paragraph (69).

1186 Annex 5.1 of Qualcomm's reply of 12 January 2015 to question 5 of Article 18(3) Decision of 13 October 2014, [...], dated [...]), pages 3 and 22. On slide 3 of the document, figures are presented for "[...]" and "[...]" used in the calculation of [...]. Furthermore, [...].

1187 Annex 5.1 of Qualcomm's reply of 12 January 2015 to question 5 of Article 18(3) Decision of 13 October 2014, [...] (the [...] for [...], dated [...]).

1188 Annex 8.1 to Qualcomm's reply of 30 June 2017 to Article 18(3) Decision of 31 March 2017, [...].

1189 Qualcomm's reply of 30 June 2017 to question 8.3 of Article 18(3) Decision of 31 March 2017, [...], paragraph (80).

1190 Qualcomm's reply of 2 December 2013 to question 19 of Article 18(3) Decision of 10 July 2013, [...], footnote 65; and Qualcomm's reply of 12 January 2015 to question 9 of Article 18(3) Decision of 13

(840) In order to compute the share of incremental development costs to be allocated to the MDM6200, the Commission relied on the revenue generated by the sales of the two chips,[1191] computed on the basis of data on the volume sold of the two chipsets in the period 2009 to 2013[1192] and on the relative prices of the two chips as approved by the [...]. With regard to the latter, the Commission used the sales prices of the MDM6200 and the MDM6600 for ZTE, as discussed in the [...] meetings of 21 December 2009 and 22 February 2010, for the MDM6200 and MDM6600 baseband chip, respectively.[1193] The [...] approval for the MDM6200, which was valid for a purchase period between 1 January 2010 and 31 December 2010, reports a price quote of USD [...] for all the volume counters, while the one for the MDM6600, which was valid for a purchase period between 1 April 2010 and 31 December 2010, reports a price quote of USD [...] for the first volume counter ([...] units), and a price of USD [...] for the subsequent volume counters ([...] units).

(841) The above prices approved for the MDM6200 and MDM6600 for ZTE refer to the full list price for the respective chips (without restrictions of any kind). During the same two [...] meetings, the [...] also approved rebated prices for both products for ZTE, namely USD [...] for the MDM6200 without voice functionality, and USD [...] for the MDM6600 without voice functionality (together with limitations regarding the purchase and sales period).[1194] As regards the price to be used for the computation of the revenues generated by both products, the Commission takes the view that the full list price is a better proxy for the relative value of the MDM6600 and the MDM6200 chips than the rebated price for chips without voice functionality purchased within a short time window. This is because the rebated price is more likely to be influenced by the particular contractual relationship with a specific customer, in this case ZTE, and the specific commercialisation strategy in the time period for which these rebates were granted. Finally, for the MDM6600, two different full list prices were approved by the [...] on 22 February 2010, depending on whether the customer bought more or less than [...] units overall. The Commission used the [...] (*i.e.* the sales bracket running from [...] units), at which a unit price of USD [...] applied, which is conservative and therefore favourable to Qualcomm compared to using the lower price of USD [...] applicable to the subsequent volume counters.[1195]

October 2014, [...], footnote 79; and Qualcomm's reply of 30 June 2017 to question 8.1 of Article 18(3) Decision of 31 March 2017, [...], paragraph (76).

1191 This is consistent with the approach taken in the allocation of incremental development costs to the relevant sales (see section 12.6.3.4. below).

1192 Qualcomm's reply of 21 February 2015 to question 56 of Article 18(2) request for information of 14 January 2015, Annex 56.1, [...].

1193 [...] submitted by Qualcomm in Annex 6 of its reply of 16 January 2012 to Article 18(3) Decision of 3 November 2011, [...], pages 299, 349.

1194 [...] submitted by Qualcomm in Annex 6 of its reply of 16 January 2012 to Article 18(3) Decision of 3 November 2011, [...], pages 300, 350.

1195 The Commission notes that there is only one other instance where both the MDM6200 and the MDM6600 are sold to the same customer, thus allowing for a direct comparison of the prices for the two products. This concerns sales to Huawei for the purchase period between 1 April 2011 and 31 December 2011 for the MDM6600 and between 1 October 2010 and 31 December 2011 for the MDM6200. As no price quote is reported for these sales, and the [...] concerning the MDM6600 refers to very specific sales for the inclusion in [...], the Commission considers the comparison of these two prices not suitable for the allocation of the Incremental R&D Costs to the MDM6200. See [...]

(842) The Commission computed the share of the revenue generated by the MDM6200 in the joint revenue of the MDM6200 and the MDM6600 as follows. First, the price of USD [...] for the MDM6600 and USD [...] for the MDM6200 was multiplied by the total volume of sales of the respective chips.[1196] Second, the resulting amount for the MDM6200 chip revenue was divided by the total revenue of the two chips. The result amounts to [...]. Applying this percentage to the Incremental R&D Costs of USD [...] recorded for the [...], one obtains the amount allocated by the Commission to the MDM6200, namely USD [...].

(843) The use by the Commission of the Incremental R&D Costs as submitted by Qualcomm, and as adjusted for the MDM6200 set out in recitals (839)-(842), in the reconstruction of LRAIC is not called into question by Qualcomm's arguments in this regard.

(844) First, Qualcomm claims that the Commission failed to *"explain why, in the Commission's view, the cost categories found in the* [...] *can be considered to constitute 'incremental R&D,' i.e. 'non-variable, product-specific costs'"*.[1197]

(845) This claim is unfounded because the Commission's assessment of what constitutes non-variable, product-specific costs was guided by [...]. In reply to information requests, Qualcomm submitted a quantification of the costs involved in developing the MDM8200,[1198] as well as the MSM6290, MDM8200A, MDM6200 and updated figures for the MDM8200,[1199] which it had extracted from the [...]. As part of its second submission, Qualcomm also provided its internal profitability assessment for the [...], which refers to certain cost categories in the [...] as [...] for the purpose of calculating the [...] of this product.[1200] As already indicated in the SSO,[1201] the Commission therefore relied on information provided by Qualcomm itself in identifying the cost categories in the [...] that can be considered non-variable, product-specific R&D costs.

(846) Second, Qualcomm claims that the [...] business case is the only Qualcomm internal document on the file that contains a reference to [...], so that it has no relevance for the products under investigation.[1202] This claim is incorrect for the following reasons.

(847) In the first place, being a business case created in April 2011, this document is informative of the concept of [...] as viewed by Qualcomm's management at the time.[1203] This document is therefore directly relevant for the identification of LRAIC

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submitted by Qualcomm in Annex 6 of its reply of 16 January 2012 to Article 18(3) Decision of 3 November 2011, [...], pages 524, 554.

1196 The total sales amount to [...] units of MDM6200 chips and [...] units of MDM6600 chips. See Qualcomm's reply of 21 February 2015 to question 56 of Article 18(2) request for information of 14 January 2015, Annex 56.1, [...].

1197 Qualcomm's SSO Response, [...], paragraph (690), footnote omitted.

1198 Qualcomm's reply of 2 December 2013 to question 19 of Article 18(3) Decision of 10 July 2013, [...].

1199 Qualcomm's reply of 12 January 2015 to question 2(b) of Article 18(3) Decision of 13 October 2014, [...].

1200 Annex 5.1 of Qualcomm's reply of 12 January 2015 to question 5 of Article 18(3) Decision of 13 October 2014, [...] (the [...] for [...], dated [...]), pages 3 and 22.

1201 SSO, paragraphs 563 and 570.

1202 Qualcomm's SSO Response, [...], paragraphs (687)-(689).

1203 Annex 5.1 of Qualcomm's reply of 12 January 2015 to question 5 of Article 18(3) Decision of 13 October 2014, [...] (the [...] for [...], dated [...]), page 22. This document presents calculations of the product's [...] depending on whether the cost measure considered in this calculation is [...] or [...] costs.

for the purposes of the price-cost test for the three chipsets under investigation during the Relevant Period. Contrary to Qualcomm's claims that the Commission should have asked for clarifications of the meaning of the term [...] mentioned in the same document (and quantified at [...])[1204], this was not relevant for the understanding of the term [...] on which the Commission's investigation was focused. In any event, if Qualcomm saw the need for any clarifications of the term [...], it could have provided them in its SSO Response, which, however, did not contain any such clarifications.

(848) In the second place, Qualcomm confirmed at the Oral Hearing in reply to a clarification question by the Commission that the term [...] was not specific to the particular chipset dealt with in the business case ([...]), while maintaining however that there was *"no company glossary of* [...] *"*.[1205]

(849) Third, with respect to the MDM8200, Qualcomm claims that in preparation of its response to the SSO, it *"has ascertained that of the* [...] *recorded in the* [...] *and* [...] *cost categories, approximately* [...] *relates to the development of* [...] *(the* [...]*) which is clearly not incremental to* <u>*any*</u> *chips or chipsets."*[1206] To substantiate this claim, Qualcomm essentially relies on the following two elements.

(850) The first such element is a reference to a [...] for the successor product (the MDM8200A), which contains a footnote stating [...].[1207] The Commission considers that this document does not support Qualcomm's claim for the following reasons.

(851) In the first place, the wording of the document does not suggest that the exclusion of the [...] item from the financial analysis performed in the slide was the result of a *"misallocation of costs"*.[1208] In fact, the slide provides a table which compares [...][1209] [...]. Therefore, the wording of the document suggests that the cost item was excluded from the analysis to facilitate a like-for-like comparison with the corresponding cost line for the MDM8200A.

(852) In the second place, and in any case, Qualcomm's interpretation of this document lacks credibility since, prior to its SSO Response, Qualcomm had submitted on two different occasions in reply to information requests by the Commission data extracted from the [...] for the MDM8200 based chipset, which in fact included the [...] item.[1210] On none of these occasions did Qualcomm mention that this cost item

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The figures indicate that [...] exceed [...] costs (as one would expect), and that the resulting [...] is higher than if the calculation is based on [...] (again in line with the common notion of incremental costs).

1204 Qualcomm's follow-up submission to the Oral Hearing of 10 January 2019, [...], paragraph (109).

1205 Recording of the Oral Hearing of 10 January 2019, Questions & Answers – Closed Session, answer given by [...] as of 15:25 o'clock.

1206 Qualcomm's SSO Response, [...], paragraph (708).

1207 [...], 9 July 2009, [...], page 20.

1208 Qualcomm's SSO Response, [...], footnote 1309.

1209 The figures indicated for the MDM8200A are presumably forecasted (not realised) values, since the document dates from [...], and the development of the MDM8200A had only started on 21 April 2009, with first sales of this product starting only in February 2010.

1210 Qualcomm's reply of 2 December 2013 to question 19 of Article 18(3) Decision of 10 July 2013, [...], paragraph (95), Table 2, according to which the MDM8200's Incremental R&D Costs amounted to [...]. Qualcomm subsequently provided a lower figure for the same product (namely USD [...]) in Table 3 of its reply of 12 January 2015 to question 9 of Article 18(3) Decision of 13 October 2014, [...], explaining the discrepancy by a reallocation of some of the MDM8200's [...] costs to the MDM8200A, see also recital (880)(b)below. Yet, the issue of reallocated [...] costs seems to be unrelated to the one of the USD [...] of [...] development costs brought up by Qualcomm in its SSO Response, [...], paragraph (708).

was the subject of an alleged misallocation and should have therefore been disregarded for the purposes of the price-cost test in this case. Moreover, at the Oral Hearing Qualcomm was not able to shed further light on the reasons for excluding the [...] item from the analysis presented in the slide, and for not having corrected Qualcomm's database accordingly,[1211] even though the issue must have been known within Qualcomm since at least [...], given that the internal document to which Qualcomm refers in support of its claim[1212] is dated [...]. Qualcomm was also unable to provide further information on the exact nature of the alleged misallocation and where the costs concerned should have been recorded instead.[1213] In a more recent submission, Qualcomm even stated that *"*[f]*rom a computational point of view, there is nothing improper with Qualcomm's allocation of the* [...] *costs to contemporaneous activities ultimately mapped to the MDM8200"*,[1214] which suggests that this amount was, in fact, not misallocated at all.

(853) The second element referred to by Qualcomm to substantiate its claim regarding the misallocation of the [...] costs is that the alleged misallocation was uncovered because Qualcomm's economic advisors *"noticed that* [...]. *So that suggested to us that there was something wrong with the data, so we went back to Qualcomm to get an understanding of why that might be. Whoever deals with that in Qualcomm went back in – you know – do their thing, dig through the files, and they tell us, well, that is because, there are costs in there, that as a matter of allocation you can put in there, but that are not actually specific to the 8200."*[1215] The Commission considers this claim to be unconvincing for the following reasons.

(854) In the first place, the allegedly misallocated costs cannot be responsible for these [...] of the MDM8200, because the former are of a very different order of magnitude to the latter. In fact, [...] (see also Figure 25 at recital (894) below). The cumulative Total R&D Costs [...] amounted to USD [...],[1216] which corresponds to [...] of the MDM8200's lifetime Total R&D Cost of USD [...], and to [...] of the allegedly misallocated amount of USD [...] of [...] Development. [...], R&D expenses recorded under the MDM8200 jumped to USD [...].

(855) In the second place, Qualcomm's claim implies that most, if not all, of the "proper" development costs for the MDM8200 were incurred [...], which cannot possibly be true. In fact, the cumulative Total R&D Cost of the MDM8200 as recorded [...] exceeded USD [...] (the amount allegedly misallocated for the [...] Development)[1217]

1211 Recording of the Oral Hearing of 10 January 2019, Questions & Answers – Closed Session, answer given by [...] as of 15:18 o'clock: *"'I don't know' is the answer. I don't know why it was not corrected."*

1212 [...], 9 July 2009, [...], page 20.

1213 Recording of the Oral Hearing of 10 January 2019, Questions & Answers – Closed Session, answer given by [...] as of 15:08 o'clock: *"I do not know how these costs ended up in that bucket* […] *even if you say, well, it's a perfectly sensible place to park these costs, because ultimately, in the end, the 8200 would benefit from it, fine, but that does not make it incremental for the purpose of this analysis, and that's why they're taken out."*

1214 Qualcomm's follow-up submission to the Oral Hearing of 10 January 2019, [...], paragraph (104).

1215 Recording of the Oral Hearing of 10 January 2019, Questions & Answers – Closed Session, answer given by [...] as of 15:08 o'clock.

1216 Almost all of which were recorded under line entries [...].

1217 See Worksheet [...] in Annex 5.c to Qualcomm's SSO Response, [...].

[...]. The cost category "[...]" exceeded its share of the allegedly misallocated [...] Development, namely USD [...],[1218] as late as [...].

(856) In the third place, Qualcomm has consistently maintained that the line entries [...], and [...] only contain cost categories recorded directly against a specific chip,[1219] *i.e.* cost items which are *not* the result of an allocation. At the same time, Qualcomm claims that out of the *"USD* [...] *in mobile core development costs which are not specific to the MDM8200 but were* <u>*incorrectly allocated to it*</u> *in the* [...] […], *USD* [...] *of such costs are captured in the* [...] *categories."*[1220] It is unclear how this amount of USD [...] could be *"allocated"* (incorrectly or not) to cost categories which should, by definition, only contain directly recorded costs, but not any costs that result from an allocation.

(857) In the fourth place, Qualcomm submitted in response to the SSO two workbooks prepared by its external economic advisors, the *"*[...]*"*[1221] and the *"*[...]*"*,[1222] which are summarised and discussed in a report titled *"Icera: SSO price-cost test"* (the "CL Report").[1223] While in its [...], Qualcomm did subtract the USD [...] allegedly contained in line entries [...], and [...] of the MDM8200 from the R&D cost base it considers attributable to the MDM8200,[1224] the amount was not subtracted in Qualcomm's other economic submission, the [...],[1225] which claims to *"adjust"* for the same *"errors"* in the Commission's calculations as the [...].[1226] Qualcomm has not provided any explanation for this inconsistency in its economic submissions.

(858) Fourth, Qualcomm argues that cost items that are the result of an allocation cannot be included in any measure of incremental costs.[1227] According to Qualcomm, this would apply to a significant part of the Incremental R&D Costs, namely up to [...], notably for entries "[...]" and "[...]" contributing to the "[...]" line, and for the vast majority of the costs recorded under the "[...]" line.[1228] The Commission rejects this claim for the following reasons.

(859) In the first place, the fact that a certain cost component is the result of an allocation does not in itself preclude its inclusion in the calculation of LRAIC. The Commission notes that [...] reflect the company's own assessment of [...].[1229]

(860) In the second place, [...][1230] Qualcomm's assessment in this regard is therefore a solid basis for the determination of the amount of R&D costs in relation to [...] to be attributed to a specific chip.

1218 See Worksheet [...] in Annex 5.c to Qualcomm's SSO Response, [...].

1219 See *e.g.* Qualcomm's SSO Response, [...], paragraph (693).

1220 Annex 5 to Qualcomm's SSO Response, *Icera: SSO price-cost test*, [...], paragraph 3.62, emphasis added.

1221 Annex 5.c to Qualcomm's SSO Response, [...].

1222 Annex 5.d to Qualcomm's SSO Response, [...].

1223 Annex 5 to Qualcomm's SSO Response, *Icera: SSO price-cost test*, [...].

1224 See Worksheet [...] in Annex 5.c to Qualcomm's SSO Response, [...].

1225 Annex 5.d to Qualcomm's SSO Response, [...].

1226 Annex 5 to Qualcomm's SSO Response, *Icera: SSO price-cost test*, [...], paragraphs 4.28 and C.26.

1227 Qualcomm's SSO Response, [...], paragraph (707), and Qualcomm's follow-up submission to the Oral Hearing of 10 January 2019, [...], paragraph (111).

1228 Qualcomm's SSO Response, [...], paragraphs (682); (693)-(697).

1229 See the example regarding "[...]" for the MDM8200 and MDM8200A, which [...], Qualcomm's reply of 12 January 2015 to question 9 of Article 18(3) Decision of 13 October 2014, [...], footnote 78.

(861) Fifth, Qualcomm claims that the Commission is inconsistent in its construction of incremental development costs by including a number of cost lines from the [...] which are the result of allocations, while excluding [...], which are also allocated and not directly recorded against the chip.[1231] However, the Commission's LRAIC measure includes those cost components that Qualcomm itself has identified as falling under the concept of [...] used in the business case for the [...].[1232] In any event, the Commission notes that the exclusion of [...] leads to a lower LRAIC measure and is therefore in Qualcomm's favour.

(862) Sixth, Qualcomm argues that a significant number of so-called [...] associated with the three chipsets under investigation were developed for customers other than Huawei and ZTE.[1233] This claim is irrelevant since the Commission's price-cost test is based on the development costs that can be considered incremental to the *products* under investigation during the Relevant Period, and not to specific sales of these products to particular customers. Moreover, as shown in Section 12.6.3.3 below, sales to Huawei and ZTE were fundamental for the recovery of Qualcomm's development costs, as the forecasted sales to these customers accounted for a substantial part of the expected demand in the profitability assessment for the three products during their development phase.

(863) Seventh, Qualcomm claims that not even those components of the [...] which are directly recorded against a specific chip can be considered incremental to this chip, because Qualcomm's engineers *"utilise and build upon all the knowledge and experience accumulated over time as a result of previous and continuing investments in R&D"*.[1234] This claim is incorrect for the following reasons.

(864) In the first place, as explained in recital (783) above, in the absence of specific information about the amount of spill-overs generated or received by a particular chip, the Commission considered it to be the most reasonable approach to assume that the spill-overs received by a particular chip are roughly balanced by the spill-overs generated by this chip for other chips, so that there is no need to discount the development costs for the spill-overs generated or received by this chip. Where instead there was clear documentary evidence that one chip generated more spill-overs than it received, as was the case for the MDM8200, the Commission accounted for this imbalance in spill-overs by discounting the development costs appropriately in order to identify those costs which were incremental to the MDM8200 (see section 12.6.3.2 below).

1230 See Qualcomm's reply of 12 January 2015 to question 9 of Article 18(3) Decision of 13 October 2014, [...], paragraph (76), Qualcomm's reply of 30 June 2017 to question 8 of Article 18(3) Decision of 31 March 2017, [...], paragraph (77), and Qualcomm's follow-up submission to the Oral Hearing of 10 January 2019, [...], paragraph (112).

1231 Qualcomm's SSO Response, [...], paragraph (706).

1232 Qualcomm's reply of 30 June 2017 to question 8.3 of Article 18(3) Decision of 31 March 2017, [...], paragraph (80).

1233 Qualcomm's SSO Response, [...], paragraphs (699)-(703), and (748).

1234 Qualcomm's SSO Response, [...], paragraph (705).

(865) In the second place, Qualcomm's claim is inconsistent with the inclusion of these directly recorded costs in the cost measure named [...] in its [...] and its [...] submitted in response to the SSO.[1235]

(866) Eighth, regarding Qualcomm's argument that the Commission's LRAIC measure disregards the revenues generated by Qualcomm [...],[1236] the Commission notes the following.

(867) In the first place, the [...], on which the reconstructed LRAIC measure is based, includes expenses incurred specifically for the development of a given product and does not therefore include any investment in general research. This was confirmed by Qualcomm itself in its SSO Response, stating that the figures recorded in the [...] for the three chipsets under investigation do not contain *"general investment in R&D for technologies"* as understood by the Commission, except for instances of *"misallocations",* of which Qualcomm identified only one, namely for the MDM8200, which the Commission rejects for the reasons set out in recitals (849)-(857) above.[1237] Unlike Qualcomm's general investment in R&D for technologies, like a new mobile communications standard such as LTE, or a new mobile phone functionality such as "flight mode", such product-specific development expenses (*e.g.* on bug fixing of a particular Qualcomm chip) are less likely to lead to innovations which are licensable to third parties, and are hence less likely to generate revenue also through licensing (in addition to the revenues generated through the sale of Qualcomm's chips).

(868) In the second place, even if the incremental development costs incurred in relation to the chipsets under investigation were to lead to licensable innovations, it would be unlikely for such additional IP to have a measurable incremental impact on the revenues generated through Qualcomm's technology licensing business. This is because [...],[1238] [...]. Qualcomm's royalty rate is thus unlikely to increase as a result of an increase in the overall number of patents included in Qualcomm's portfolio, or its exact composition, which evolves dynamically over time as old patents expire and new patents are added to the portfolio, [...].[1239]

(869) Ninth, Qualcomm claims that it has identified more than [...] patents and patent applications which were [...] and another [...] which were [...].[1240] This claim is irrelevant for the following reasons.

(870) In the first place, this claim is unsubstantiated since Qualcomm does not explain the contribution of each cost component in the [...] to these patents and patent applications.

1235 See Worksheet [...] in Annex 5.c to Qualcomm's SSO Response, [...], and Worksheet [...] in Annex 5.d to Qualcomm's SSO Response, [...]. The abbreviation [...] in column title [...] presumably means [...], although the column then contains precisely those cost figures which cannot be considered "incremental" according to the CL Report summarising the [...] (see Annex 5 to Qualcomm's SSO Response, Icera: SSO price-cost test, [...], paragraph 4.31. and recital (1000) below).

1236 Qualcomm's SSO Response, [...], paragraph (709).

1237 Qualcomm's SSO Response, [...], paragraph (708).

1238 [...], see Qualcomm's SSO Response, [...], paragraph (731). However, [...].

1239 Qualcomm's reply of 26 July 2010 to question 10 of Article 18(2) request for information of 7 June 2010, [...], paragraphs (13)-(18).

1240 Qualcomm's SSO Response, [...], paragraphs (722) and (724).

(871) In the second place, this claim is unconvincing since the number of patents Qualcomm claims to have generated from development efforts on the three chipsets under investigation appears [...].[1241]

(872) In the third place, even if these patents could be directly linked to the development costs reported for the three chipsets under investigation, they would not have generated incremental licensing income for Qualcomm [...].[1242]

(873) Tenth, Qualcomm points to alleged inconsistencies in the Commission's reasoning with decisions taken in other cases involving Qualcomm.

(874) In the first place, Qualcomm sees an inconsistency of the Commission's reasoning in this case that *"Qualcomm's royalty rate is* […] *unlikely to increase as a result of an increase in the overall number of patents included in Qualcomm's portfolio, or its exact composition"* (see recital (868) above) with the Commission's findings in the merger case COMP/M.8306 *Qualcomm/NXP Semiconductors*, according to which *"QTL's constant standard royalty rate* […] *relies on licensing a patent portfolio that is both growing and diversifying"*, and that *"Qualcomm's standard royalty rate for its patent portfolio is likely to decrease unless new patents are constantly added."*[1243]

(875) This claim is incorrect. The Commission's findings in both cases are consistent since they refer to different time periods and thus different sets of relevant facts. The Commission's findings in COMP/M.8306 *Qualcomm/NXP Semiconductors* were based on a forward-looking assessment regarding the likely evolution of the value of Qualcomm's patent portfolio from 2018 onwards, notably the likely loss in its value due to the age of Qualcomm's CDMA patents[1244] and Qualcomm's weaker IP position in the more recent LTE technology (compared to its stronger position in the previous CDMA technology).[1245] This assessment was supported by evidence on the mounting pressure on Qualcomm [...].[1246] In contrast, the Commission's assessment in recital (868) above refers to the years 2009 to 2011, during which Qualcomm's CDMA patents were still far from expiry, and the first LTE compatible chipsets were just about to be brought to the market, while UMTS was the prevailing technology.

1241 According to Qualcomm, its sales of chipsets in the leading edge segment as defined by the Commission in this case represent only [...] of the worldwide UMTS baseband chipset market, see Qualcomm's SSO Response, [...], paragraphs (808), (810), (950) and (957). Instead, the more than [...] patents and patent applications Qualcomm claims to have identified as related to the R&D efforts on the MDM8200 and MDM8200A would account for about [...] of its total patent portfolio at the time.

1242 See Commission Decision of 18 January 2018 (Case COMP/M.8306 *Qualcomm/NXP Semiconductors*), recital (902).

1243 Qualcomm's SSO Response, [...], paragraph (736) with verbatim quotes from Commission Decision of 18 January 2018 (Case COMP/M.8306 *Qualcomm/NXP Semiconductors*), recitals (912) and (914).

1244 *"The bulk of Qualcomm's oldest patents are likely CDMA patents given that technology's earlier development. It therefore follows that, under the current composition of Qualcomm's portfolio, Qualcomm's CDMA SEPs portfolio is aging and will significantly decrease in the next five years"*, see Commission Decision of 18 January 2018 (Case COMP/M.8306 *Qualcomm/NXP Semiconductors*), recital (913).

1245 See Commission Decision of 18 January 2018 (Case COMP/M.8306 *Qualcomm/NXP Semiconductors*), recitals (905) – (907).

1246 [...], see Qualcomm's SSO Response, [...], paragraph (731), and footnote 1238 above.

(876) In the second place, Qualcomm points to an alleged inconsistency with Case COMP/AT.40220 *Qualcomm (exclusivity payments)*, where the Commission held that *"*[...]*."*[1247]

(877) The Commission notes that this statement relates to its assessment [...]. This question is irrelevant in the context of establishing LRAIC in this case, which aims at identifying the R&D costs that are product-specific (not customer-specific) in the long run.

12.6.3.2. Spill-overs from the MDM8200 to its successor product, the MDM8200A

(878) For the calculation of LRAIC in this case, the Commission has adapted Qualcomm's [...] to take account of potential spill-overs of the expenses recorded against the MDM8200 on the subsequently launched MDM8200A. This is because, when there is product-specific evidence that such spill-overs are present to a relevant degree, a metric for LRAIC which does not account for them will overestimate the LRAIC of a chipset which generated large spill-overs on others. At the same time, it will underestimate the LRAIC of a chipset which mainly benefited from the development costs recorded against other chipsets, without generating such spill-overs to the same extent.

(879) To take account of such potential spill-overs, the Commission treats the development costs incurred for the MDM8200 as incremental to both the MDM8200 and the MDM8200A, while the development cost incurred for the MDM8200A is considered incremental only to the MDM8200A.[1248] This is because the MDM8200A [...][1249] and its development therefore likely [...] the development costs incurred for the MDM8200, its predecessor model.[1250] This is consistent with Qualcomm's claim that [...].[1251]

(880) While there were numerous chipsets developed in the aftermath of the MDM8200 which also supported the HSPA+ standard,[1252] the Commission limits the reallocation of development costs from the MDM8200 to the MDM8200A. This is because the relationship between the MDM8200 and the MDM8200A was unique and cannot be compared to that of the MDM8200 with any other subsequent chipset supporting the HSPA+ standard. This is demonstrated by the following evidence:

(a) As Qualcomm stated in response to a request for information, [...] (emphasis added). A footnote to that statement further points to *"a period of seventeen months between start of development and first sale for the MDM8200,*

1247 Qualcomm's SSO Response, [...], paragraph (739), with reference to Commission Decision of 24 January 2018 (Case COMP/AT.40220 *Qualcomm (exclusivity payments)*), recital (522), emphasis added.

1248 This implies that the total amount of Incremental R&D Costs reported in the [...] for the MDM8200 is spread, in an equal manner, over the sales of MDM8200 and MDM8200A based chipsets.

1249 While Qualcomm characterised this statement as *"inapposite and manifestly inadequate"* in its SSO Response, [...], paragraph (761), Qualcomm's follow-up submission to the Oral Hearing of 10 January 2019 suggests that it actually agrees with the statement as such, contesting only the Commission's reallocation of development costs from the MDM8200 to the MDM8200A which was motivated by the special relationship between the two products ([...], paragraph (117.i.)).

1250 See section 8.1.3 above and Qualcomm's SO Response, [...], paragraph (270).

1251 Qualcomm's reply of 12 January 2015 to question 9 of Article 18(3) Decision of 13 October 2014, [...], paragraph (73).

1252 Qualcomm's SSO Response, [...], paragraph (759).

compared to just ten months for the [technically superior] *MDM8200A."*[1253] These figures are confirmed by *"Table 1: Overview of 'timing of development and commercialization' of relevant chips"* submitted by Qualcomm in response to a request for information:[1254]

Chip	Starting date of development	Announcement date	Date of the first sale	Date of the withdrawal from the market
MDM8200	6 June 2007	12 February 2007	13 November 2008	30 March 2011
MDM8200A	21 April 2009	23 March 2010	28 February 2010	Not applicable
MDM6200	30 March 2009	23 March 2010	14 October 2009	Not applicable

(b) According to Qualcomm, until at least December 2013 (*i.e.* 5 years after the first sales of the MDM8200, and almost 4 years after the first sales of the MDM8200A) [...][1255] [...].[1256]

(c) Furthermore, Qualcomm explained that *"*[a]*s is evident from Qualcomm's* [...] *submitted as Annex 12.1* [...] *to Qualcomm's Response to the RFI of 10 July 2013* [...], *many Qualcomm chips share common or similar technological features, which are the result of applied research. See, for example, the* [...] *from June 2013* [...] *pp. 25-47. This section shows, for example, that* [...][1257] (emphasis added).

(d) Information contained in the various [...] referred to in letter (c) above shows that the MDM8200 and MDM8200A [...], while the other HSPA+ compatible data modems discussed in the same documents, [...].[1258] These documents also show that the MDM8200 and MDM8200A had [...], while the other HSPA+ compatible data modems discussed in the same documents each had their own [...].[1259]

(e) Time-to-market was much shorter for the MDM8200A than for any other MDM chipset in the portfolio at the time, as shown by the following two internal documents. First, according to the [...] of December 2009, the

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1253 Qualcomm's reply of 12 January 2015 to question 9 of Article 18(3) Decision of 13 October 2014, [...], paragraph (65) and footnote 73. These statements were repeated in Qualcomm's SO Response, [...], paragraph (270) and footnotes 394, 396.

1254 Qualcomm's reply of 12 January 2015 to question 3 of Article 18(3) Decision of 13 October 2014, [...], paragraph (13).

1255 Qualcomm's reply of 12 January 2015 to question 9 of Article 18(3) Decision of 13 October 2014, [...], footnote 78.

1256 Qualcomm's SSO Response, [...], paragraph (755).

1257 Qualcomm's reply of 12 January 2015 to question 9 of Article 18(3) Decision of 13 October 2014, [...], footnote 72.

1258 Qualcomm presentation of December 2009 titled [...], page 12; Qualcomm presentation of December 2010 titled [...], pages 16 and 17; Qualcomm presentation of December 2011 titled [...], pages 34 and 35; Qualcomm presentation of December 2012 titled [...], pages 42 and 43; Qualcomm presentation of June 2013 titled [...], pages 43 and 44.

1259 Qualcomm presentation of December 2009 titled [...], pages 39 and 40; Qualcomm presentation of December 2010 titled [...], pages 43 and 44; Qualcomm presentation of December 2011 titled [...], pages 94 and 95.

MDM8200A was scheduled to reach the [...]. By comparison, for the [...].[1260] Second, according to a Qualcomm presentation of December 2010 titled ″[...]″, the MDM8200A had been in [...],[1261] [...].[1262]

(881) The Commission's conclusions are not called into question by Qualcomm's arguments in this regard.

(882) First, Qualcomm claims that this *"one-directional"* reallocation leads to an unduly high apportionment of R&D costs to the MDM8200A.[1263] According to Qualcomm, if *"backward spill-overs"* from the MDM8200A to the predecessor product were considered, then part of the development cost of the MDM8200A should in turn be allocated to the MDM8200, thus reducing the amount of R&D born by the MDM8200A. The Commission rejects this claim, because Qualcomm itself stated previously that [...].[1264] In any event, in carrying out the lifetime profitability assessment in Section 12.7.3 below, the Commission pooled the revenues and the variable and development costs for the MDM8200 and MDM8200A into one single project, thus implicitly allowing for the R&D on each of the two products to have benefitted the other product equally.

(883) Second, Qualcomm claims that *"as a technical matter,* [...]″.[1265] In support of this claim, Qualcomm submits that *"Qualcomm software development involves the development of* [...]″ and that there are no such [...].[1266] Therefore, while Qualcomm admits that *"it has not been possible to ascertain the reasons for the issue in the* [...]″, as explained in recital (880)(b) above, Qualcomm maintains that to the best of its knowledge, *"it would have resulted from a simple clerical error"*.[1267] The Commission rejects this claim, because it is contradicted by Qualcomm's contemporaneous submissions, which do not refer to any clerical error, but rather explain that [...].[1268] It is also contradicted by Qualcomm's submissions in its Response to the SSO, according to which ″ [...].″[1269]

(884) Third, Qualcomm claims that the Commission is inconsistent in treating some of the MDM8200's development costs as incremental to the MDM8200A, while it *"recognises that costs associated with the development of the QSC6295/QSC6695 cannot be considered to be incremental to the MDM6200 (or the MDM6600)."*[1270] This claim is factually incorrect since the Commission never concluded that the development costs of the QSC6295/6695 are not incremental to the MDM6200/6600.

1260 Qualcomm presentation of December 2009 titled [...], page 3.

1261 Qualcomm presentation of December 2010 titled [...], page 25.

1262 Qualcomm presentation of December 2010 titled [...], page 21.

1263 Qualcomm's SSO Response, [...], paragraphs (749)-(755), (762).

1264 Qualcomm's reply of 15 June 2018 to question 1 of the questions for discussion of 16 May 2018, [...], paragraph (21).

1265 Qualcomm's Comments on the Letter of Facts, [...], paragraph (107).

1266 Qualcomm's Comments on the Letter of Facts, [...], paragraph (108).

1267 Qualcomm's Comments on the Letter of Facts, [...], paragraph (109).

1268 Qualcomm's reply of 12 January 2015 to question 9 of Article 18(3) Decision of 13 October 2014, [...], footnote 78 (emphasis added).

1269 Qualcomm's SSO Response, [...], paragraph (701), and again in Qualcomm's Comments on the Letter of Facts, [...], paragraph (113) and in Qualcomm's follow-up submission to the Oral Hearing of 10 January 2019, [...], paragraph (112).

1270 Qualcomm's Comments on the Letter of Facts, [...], paragraph (103).

(885) Fourth, Qualcomm claims that the *"Commission is not consistent in its treatment of different Qualcomm datasets"* because it *"reject*[ed] *Qualcomm's AUC data as unreliable"* due to *"a couple of apparent anomalies"* in this data, while considering the [...] as *"suitable to identify and quantify allegedly incremental R&D costs"* despite the many *"issues"* with this dataset to which Qualcomm pointed in its SSO Response.[1271] This claim is incorrect. As explained in section 12.6.2.1 above, the Commission first sought to correct Qualcomm's AUC data for the anomalies it had identified, but then had to resort to a full reconstruction of the variable costs incurred for the three chipsets under investigation, once it became apparent that such a correction of Qualcomm's data would not be feasible. In contrast, as far as the [...] is concerned, the Commission was able to perform the necessary adjustments to the original data itself, so that this data could be used for the purposes of the price-cost test in this case.

(886) Fifth, Qualcomm claims that the Commission's reference to a [...] in a Qualcomm [...] for the MDM8200 and MDM8200A is *"irrelevant"* because *"*[...]*"* which *"*[...]*."*[1272] However, this claim rests on the erroneous assumption that the evidence listed in recital (880) above only aims at showing the *technological* closeness of the two chipsets, while it is actually meant to show the *"uniqueness of the relationship between the MDM8200 and the MDM8200A"*.[1273] As shown by the evidence listed in recital (880) above, this uniqueness has both a technological and a commercial dimension. This commercial closeness of the two chipsets is confirmed by Qualcomm's very same comment on the Letter of Facts, with regard to which it observes that *"the reference to* [...] *relates to* [...]*, and it is normal and rational that Qualcomm would encourage customers to transition from the MDM8200 to a chip that is* [...]*"*.[1274]

(887) Sixth, Qualcomm claims that the Commission *"does not attempt to link specific costs in the* [...] *for the MDM8200 to the MDM8200A"*.[1275] However, Qualcomm has not provided any information that would allow the Commission to identify which cost components recorded in the [...] under the MDM8200 were likely to exert stronger spill-overs on the MDM8200A than others, but rather seems to sustain that neither the [...] nor the [...] cost components exerted any spill-overs.[1276] In the absence of such information, the Commission considered it to be the most reasonable approach to assume that all cost components contributed equally to the spill-overs to the successor product.

12.6.3.3. Huawei's and ZTE's shares in the overall sales of the three chipsets under investigation

(888) The Commission considers that the sales made to Huawei and ZTE for the chipsets under investigation were fundamental for the recovery of the incremental costs incurred in the development of these three products, as the forecasted sales to these customers accounted for a substantial part of the expected demand in the profitability

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1271 Qualcomm's Comments on the Letter of Facts, [...], paragraph (111).
1272 Qualcomm's Comments on the Letter of Facts, [...], paragraph (123).
1273 See also Annex I to the Letter of Facts of 22 February 2019, [...], paragraph (16).
1274 Qualcomm's Comments on the Letter of Facts, [...], paragraph (123).
1275 Qualcomm's follow-up submission to the Oral Hearing of 10 January 2019, [...], paragraph (123).
1276 Qualcomm's Comments on the Letter of Facts, [...], paragraph (107), and Qualcomm's SSO Response, [...], paragraph (761)(i).

assessment for the three products during their development phase.[1277] Therefore, while the limited sales of MDM8200, MDM6200, and MDM8200A based chipsets to other customers also contributed to the recovery of the incremental development costs, these sales were of an order of magnitude which would not have justified developing these products in the first place.[1278] As a consequence, the development cost of these products must be considered incremental to the sales to Huawei and ZTE.[1279] The presence of sales to smaller customers (which on their own would not have made these product developments commercially viable) cannot justify disregarding the non-variable costs incurred in the development of these products when defining the scope of the incremental costs for the large buyers, in this case Huawei and ZTE.

(889) The following tables illustrate the individual share of Huawei and ZTE, as well as the share of both customers taken together, in Qualcomm's overall sales volumes and revenues of the three products under investigation, based on the volume and ASP information provided in the [...].[1280] For the purpose of determining the exact amount of incremental costs to be considered in the price-cost test for the sales under investigation (see section 12.6.3.4 below), the Commission relied on the total revenue of each product, thus taking into account also the level of sales to buyers other than Huawei and ZTE. The resulting LRAIC figure is thus to be interpreted as the amount that each unit sold in a given quarter has to contribute to the recovery of the product development cost incurred for this chip, and this amount is identical for all buyers (including buyers other than Huawei and ZTE).

(890) As for the MDM8200, Table 48 below shows that Huawei and ZTE accounted for roughly two thirds of the sales, both in terms of volumes and in revenues. As explained in section 8.1.1 above, the MDM8200 was originally developed in collaboration with [...] who was another important buyer of the MDM8200. However, sales to [...] over the entire lifetime of the MDM8200 totalled [...] units (or USD [...]), *i.e.* they accounted for only [...] of the total sales of the MDM8200. The remaining [...] of volumes and revenues were spread among much smaller customers, namely [...]. Given the overall Incremental R&D Costs of almost USD [...] recorded against the MDM8200 (see Table 47 at recital (838) above), the sales to [...] and these small buyers alone, which generated about USD [...] of revenue in total, could not have justified the development of this product.

1277 See, *e.g.*, Qualcomm internal presentation of April 2009 titled [...], in particular pages 40, 45, and demand forecasts for the MDM8200 by customer on page 49; and [...], included in Annex 18 to the SO Response, [...], with demand forecasts for the MDM6200 by customer on page 18.

1278 For the MDM6200, this statement only applies in terms of the *expected* sales to Huawei and ZTE, which formed the basis of the business case for this product. The realised sales to these two buyers in the initial period after the product launch remained below expectations, so that the contribution of other buyers to the recovery of the development cost of the MDM6200 ended up being much more important than for the MDM8200 and the MDM8200A. For the latter two products, the expectations of high sales to Huawei and ZTE were borne out in the realised sales, so that an *ex ante* and *ex post* approach would lead to the same result regarding the pivotality of these two buyers for the development of the two products.

1279 Qualcomm's claim that these incremental R&D costs would have been incurred regardless of the sales to Huawei and ZTE, so that these R&D costs should not be included in the cost benchmark for the purposes of a price-cost test, is therefore irrelevant. See Qualcomm’s follow-up submission to the Oral Hearing of 10 January 2019, [...], paragraph (92).

1280 See worksheet "[...]" included in Annex 10 to the SO Response, [...].

Table 48: MDM8200 – Huawei's and ZTE's shares in Total Volume and Revenue

Calendar quarter	Total		Huawei's shares		ZTE's shares		Huawei + ZTE' shares	
	Volumes	Revenues	in Volume	in Revenue	in Volume	in Revenue	in Volume	in Revenue
2008 Q2	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2008 Q3	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2008 Q4	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2009 Q1	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2009 Q2	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2009 Q3	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2009 Q4	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2010 Q1	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2010 Q2	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2010 Q3	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2010 Q4	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2011 Q1	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2011 Q2	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2011 Q3	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2011 Q4	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]

(891) As for the MDM6200, Table 49 below shows that Huawei and ZTE together accounted for about [...] of the sales of this product in terms of volumes, and only [...] of the revenues. The sales figures for this chip to Huawei and ZTE were [...] in the early period of the chip's lifecycle, as explained in recitals (417)-(420) above. The role of Huawei and ZTE as buyers of the MDM6200 is therefore [...] than for the other two products under investigation. In addition, the MDM6200 was a slightly repackaged and de-featured variation of another chip, namely the QSC6295,[1281] and therefore had lower Incremental R&D Costs than a chip which had to be developed from scratch. Moreover, since the development of the MDM6200 was part of a single development project with the MDM6600, the latter mostly on demand from [...],[1282] the Commission allocated only a small share (namely [...], corresponding to USD [...], see recital (842) above) of the development cost of this single project to the MDM6200. In any event, the only predatory sales found by the Commission for the MDM6200 concern certain quarters of sales to ZTE, in which the prices are found to be below AVC, so that the exact allocation of the incremental costs to this chipset

1281 Qualcomm's reply of 15 June 2018 to question 2 of the questions for discussion of 16 May 2018, [...], paragraph (26).

1282 Annex 5.1 of Qualcomm's reply of 12 January 2015 to Article 18(3) Decision of 13 October 2014, business case of 25 June 2009 titled [...], page 6. See also Qualcomm's reply of 15 June 2018 to question 2 of the questions for discussion of 16 May 2018, [...], paragraphs (24)-(25).

does not alter the overall outcome of the price-cost test (see section 12.7.1.3 below).[1283]

Table 49: MDM6200 – Huawei's and ZTE's shares in Total Volume and Revenue

Calendar quarter	Total		Huawei's shares		ZTE's shares		Huawei + ZTE' shares	
	Volumes	Revenues	in Volume	in Revenue	in Volume	in Revenue	in Volume	in Revenue
2009 Q4	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2010 Q1	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2010 Q2	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2010 Q3	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2010 Q4	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2011 Q1	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2011 Q2	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2011 Q3	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2011 Q4	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2012 Q1	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2012 Q2	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2012 Q3	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2012 Q4	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2013 Q1	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2013 Q2	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]

(892) As for the MDM8200A, Table 50 below shows Huawei's and ZTE's share in the sales of the MDM8200A, which together exceeded [...] both in terms of volume and in terms of revenue. For the second quarter of 2010, the Commission deducted USD [...] from the revenue figure since this amount corresponds to the release of a reserve made for the [...] which offset the same amount accrued in the last calendar quarter of 2009 and therefore does not relate to the economically relevant sales figures of this product at the beginning of its lifecycle.[1284] This deduction results in a revenue of USD [...] for that quarter. Moreover, it should be noted that for the fourth quarter of 2011, Huawei's and ZTE's joint share in volume and revenue exceed [...]. This is explained by the fact that in this quarter, [...] returned [...] units of the MDM8200A to Qualcomm, which were recorded as negative sales volumes (and the corresponding reimbursement as negative revenue).[1285]

1283 For this reason, the Commission did not carry out a lifetime profitability analysis for the MDM6200, as it did for the MDM8200 and MDM8200A (see section 12.7.3).

1284 See the [...] dealing with the [...] to ZTE on the MDM8200A, [...], page 2.

1285 The total sales of the MDM8200A in Q4/2011 are thus composed of: [...] to Huawei, [...] to ZTE, [...] to other buyers, and [...] to [...]. It follows that the sum of Huawei's and ZTE's sales volumes ([...]) is [...] the total volume figure in this quarter ([...]), with the difference between the two (amounting to [...] units) resulting from the [...] units accounted for by sales to other buyers and [...]. As a result, the joint sales to Huawei and ZTE, expressed as a percentage of total sales, [...].

Table 50: MDM8200A – Huawei's and ZTE's shares in Total Volume and Revenue

Calendar quarter	Total		Huawei's shares		ZTE's shares		Huawei + ZTE' shares	
	Volumes	Revenues	in Volume	in Revenue	in Volume	in Revenue	in Volume	in Revenue
2010 Q1	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2010 Q2	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2010 Q3	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2010 Q4	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2011 Q1	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2011 Q2	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2011 Q3	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2011 Q4	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2012 Q1	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2012 Q2	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2012 Q3	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2012 Q4	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2013 Q1	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2013 Q2	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]

12.6.3.4. Allocation of Qualcomm's incremental development cost to Qualcomm's sales for the chipsets under investigation and computation of the measure of LRAIC for the price-cost test in this case

(893) The Commission allocated the total amounts of the incremental development costs for each of the chipsets under investigation to the corresponding sales in each quarter on the basis of the proportion of these revenues in each chipset's overall revenues. This is for the following reasons.

(894) First, the development cost profile of any given product over time does not coincide with the revenue profile of the same product. Rather, the two appear to be staggered, with the development cost peaking before sales, and falling to zero before the end of the product's lifecycle is reached and the product is taken off the market. In fact, according to the quarterly development cost information provided by Qualcomm for the fiscal years 2002 to 2014, a certain portion of the Incremental R&D Costs included in the [...] for a specific chip are incurred in the period prior to the commercial launch of the product, while the majority of these costs are incurred while the product is on the market. This is particularly the case for the cost category [...], which represents a substantial part of the aggregate incremental costs.[1286] The

[1286] With respect to this portion of costs, Qualcomm explained that, as of 2010, they are the result of allocations made on the basis of the assumed complexity of the software. See Qualcomm's reply of 12 January 2015 to question 9 of Article 18(3) Decision of 13 October 2014, [...], paragraph (76), Qualcomm's reply of 30 June 2017 to question 8 of Article 18(3) Decision of 31 March 2017, [...], paragraph (77), and Qualcomm's follow-up submission to the Oral Hearing of 10 January 2019, [...], paragraph (112).

following charts illustrate the development of R&D costs and sales over time for the three products under investigation:

Figure 25: R&D costs and sales - MDM8200

[...]

Figure 26: R&D costs and sales – MDM6200

[...]

Figure 27: R&D costs and sales – MDM8200A

[...]

(895) In light of the above, while both the development cost data and the revenue data for the products under investigation are available on a quarterly basis, it would be incorrect to simply match the development expenses incurred in any given quarter to the sales revenues generated in that same quarter for the following reasons. In the first place, following this approach would not allow allocating to any sales all the upfront development cost incurred before the product launch, which is nonetheless incremental, in a long-run perspective, to the sales of the associated chipsets generated from this development cost. In the second place, it would lead to inflated LRAIC values in the early sales periods of a product (where volumes, and hence revenues, are still rather low, whereas the development cost typically peaks at this stage of the product lifecycle), while it would underestimate LRAIC for the later sales periods.

(896) Second, an allocation based on quarterly total revenue at the chip level is the most appropriate method to allocate the incremental development costs for each of the chipsets under investigation to the sales of those chipsets. This is for the following reasons.

(897) In the first place, a revenue-based allocation method distributes the amount of development expenses on the basis of a metric that conveys information on the innovative value of the product in each relevant period, which is a good proxy for the expected contribution of the different sales to the recoupment of the fixed cost. This method is consistent with the R&D intensive, innovative nature of the chipset industry, where a product holding a highly innovative potential manages to command higher prices in the early stages of its product lifetime, whereas prices and margins decrease as time passes and more innovative products are introduced to the market. This is corroborated by the development of the prices (i) for the chipsets under investigation sold to Huawei and ZTE (see recital (899) below), (ii) for the chipsets under investigation sold to other customers (see recital (900) below), and (iii) for other Qualcomm chipsets sold during the Relevant Period (see recital (901) below), as well as by Qualcomm internal documents from the Relevant Period (see recital (902) below).

(898) Firstly, for the chipsets under investigation sold to Huawei and ZTE during the Relevant Period, a general decline in the price can be observed in Figures 16-18B and Figures 19-21B at recitals (740) and (775) above respectively. This decline is particularly pronounced for the MDM8200 for which a substantial part of the product lifetime coincides with the Relevant Period. The Commission further notes that the

decline in price is generally associated with a [...]. This implies that the [...][1287] [...], and with it also [...].

(899) Figures 28 to 30B below plot, for each of the three products under investigation, the reconstructed chipset prices for Huawei and ZTE as presented in Table 27 (Huawei) at recital (739) above and Table 43 (ZTE) at recital (774) above, against the reconstructed chipset AVC as presented in Table 46 (FIFO method) at recital (829) above. The difference between the respective price line and the AVC line corresponds to the gross margin (in USD per chipset) earned on this particular customer in any given quarter. Figures 28 to 30B below show that this gross margin was positive in all quarters, [...], for all product-customer pairs under investigation, except for the MDM6200 to ZTE. For the latter, the allocation of the [...] to the sales of 2010 and the first quarter of 2011 reduces net prices in 2010 and the first quarter of 2011 far below the level in later quarters of 2011 (and, in fact, also below AVC), which explains the upward price jump in the second quarter of 2011, and hence the atypical increase in gross margin at a later stage in the product lifecycle.

Figure 28: MDM8200 – gross margins for Huawei and ZTE

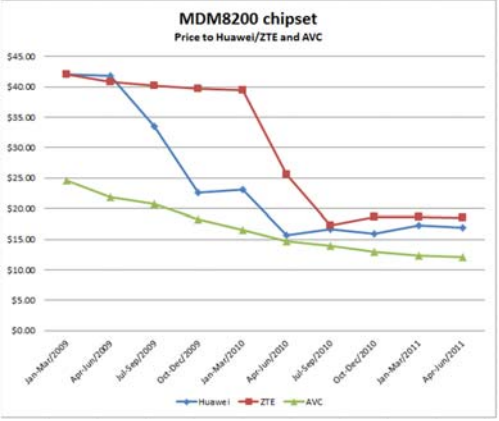


Figure 29A: MDM6200 – Config. 1 – gross margins for Huawei and ZTE

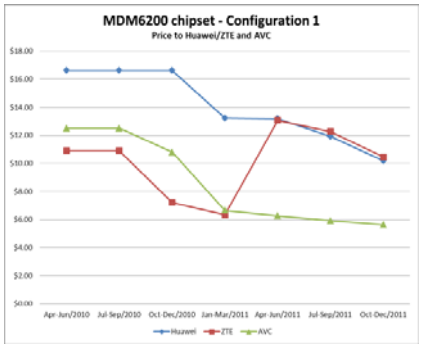
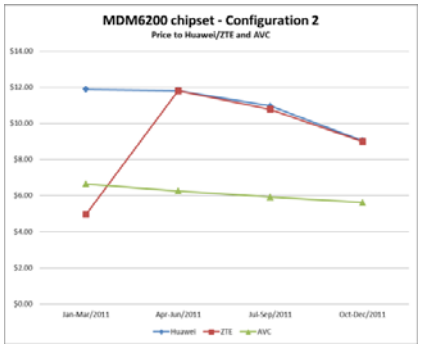


Figure 29B: MDM6200 – Config. 2 – gross margins for Huawei and ZTE



1287 The "gross margin per unit" (or "unit margin") is obtained by dividing the gross profit by the number of units sold, or equivalently, by subtracting the AVC from the ASP. Where the gross margin is expressed as a percentage, it is calculated as the difference between AVC and ASP as a share of the ASP.

Figure 30A: MDM8200A – Config. 1 – Gross margins for Huawei and ZTE

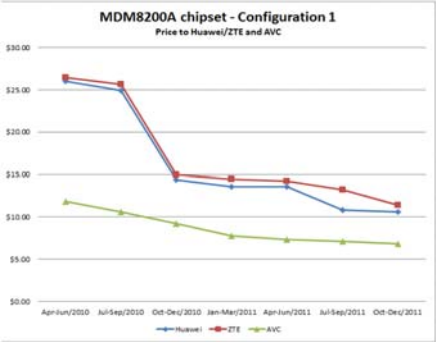
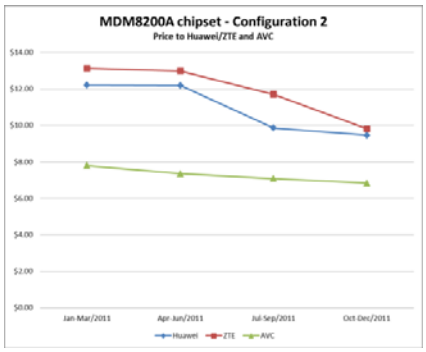


Figure 30B: MDM8200A – Config. 2 – Gross margins for Huawei and ZTE



(900) Secondly, this general trend also applies to the sales of the same chipsets to other customers during the Relevant Period. By way of example, the following graph shows the evolution of prices and costs for the sales of MDM8200 based chipsets to Qualcomm's customers [...] and [...], which were the third and fourth most important customers in terms of total volume purchased during the Relevant Period (see recital (890) above).

Figure 31: MDM8200 – Gross margins for [...] and [...][1288]

[...]

(901) Thirdly, the same pattern is observed also for the sales of other Qualcomm chipsets. The graph below shows the evolution of the price charged to Huawei and ZTE for the MSM6290 based chipsets and the AVC of the same chipsets in the period between January 2009 and December 2011.

Figure 32: MSM6290 (MSM6290+RTR6285+PM6658) – Gross margins for Huawei and ZTE[1289]

[...]

(902) Fourthly, several Qualcomm internal documents confirm that expected prices and margins vary significantly over the product lifetime of specific chipsets. A declining trend over time in the envisaged prices for the MSM6290, MDM6200 and MDM8200A based chipsets in the period 2010-2011 is visible in [...] of 7 May 2010.[1290] A Qualcomm internal e-mail of 2 December 2009 indicates that the same declining trend is applicable to the expected margins.[1291] Furthermore, several

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1288 The AVC line is based on the reconstructed AVC for the MDM8200 based chipset (FIFO method) as described in section 12.6.2 above. The chipset price is computed on the basis of the average selling price for the single components presented in the worksheet [...] included in Annex 10 to the SO Response, [...].

1289 The AVC line is based on [...] cost data submitted by Qualcomm, see [...] of Qualcomm's reply of 5 December 2014 to the Article 18(3) Decision of 13 October 2014, [...] . The chipset price is computed on the basis of the average selling price for the single components presented in the worksheet [...] included in [...].

1290 Qualcomm internal presentation of 7 May 2010 titled [...], page 10.

1291 See Qualcomm internal e-mail of 2 December 2009 at 22:16:02 from [...] (Director, QCT Product Management) to [...] ([Qualcomm management member]) and [...] (Financial Analyst, Staff), copying [...] (Manager, Finance), [...] (Director, Sales) and [...] (QCT Product Manager, Staff), [...], page 1, in which [...] (Director, QCT Product Management) raised the following questions: [...].

internal Qualcomm documents refer explicitly to a [...].[1292] This confirms that the recoupment of the initial investment associated with specific products is not expected to be constant over the lifetime of a given product, but is rather expected to [...].

(903) In the second place, a revenue-based allocation method is commonly used in a context where different economic entities contribute to a joint research project or other joint projects. The costs incurred in these joint projects are typically attributed across the different participants in the project on the basis of the income generated by the co-developed product for each party respectively.[1293] By analogy, whenever a given R&D project benefits only a single entity, but generates revenues over multiple periods of time (which corresponds to the situation of the chipsets under investigation), applying this principle would call for the R&D cost to be allocated across the relevant periods in proportion to the per-period revenue earned as a result of this R&D investment.

(904) In the third place, other allocation methods would not be appropriate in this case for the following reasons.

(905) Firstly, a uniform, pro-rata allocation of the costs, which is obtained by dividing the total costs to be allocated by the total number of units sold of the relevant product over the entire lifecycle, or a "straight-line" allocation, which allocates a fixed portion of the total cost to each year over the expected commercial life of the product in question, would fail to capture the dynamic, innovation-driven nature of the chipset industry as explained in recital (897) above. By assuming an equal contribution of each unit sold to the recoupment of the total costs regardless of the moment in time in which the sales take place, and of the revenue it generates, a pro-rata allocation method would disregard the fact that the commercial value of a chipset and the pattern of benefits stemming from the underlying investment vary significantly throughout the product lifetime of a given chipset. Such a uniform allocation method is therefore not able to capture the expected contribution of each sale of a given chipset to the recoupment of the incremental development costs for that chipset.

(906) Secondly, using revenue as the basis for the allocation of non-variable costs to a given chip in each quarter, rather than other comparable metrics such as operating profit or margin, has the advantage of being easily available to the company and less

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1292 See Qualcomm internal presentation of November 2009 titled [...] page 12, which stated that data cards became [...] and suggests that Qualcomm should [...]. On page 13 of the same presentation, it was proposed under the heading [...] as one of the suggestions to [...] to [...], which clearly indicates that Qualcomm expected to [...]. See also Qualcomm internal e-mail of 7 January 2010 from [...] (Staff Manager, Marketing) to [...] (position unknown), [...] (position unknown) and [...] (QCT Technical Account Management) and others, [...], page 1, where it is stated that the data card market is fast moving and that [...]. See also Qualcomm's internal e-mail of 2 May 2009 from [...] (Senior Director, Sales) to [...] (Director, Sales), [...] ([Qualcomm management member]), [...] (position unknown), [...] (position unknown), [...] (position unknown), [...] (position unknown), [...] (Senior Product Management), [...] (position unknown), [...] (Director, Marketing), [...] (Senior Manager, Marketing), [...] (Senior Director of Business Development), [...] ([Qualcomm management member]), [...] (position unknown), [...] (position unknown), [...] (Staff Manager, Product management) and others, [...], page 1, where it is stated in the context of a [...].

1293 See paragraph 8.19 of the *OECD Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations 2017*, printed from https://doi.org/10.1787/tpg-2017-en on 10 July 2018, [...].

controversial in terms of its computation, and therefore preferable from a legal certainty point of view.[1294]

(907) For the computation of the revenue weights to apply to each quarter during the Relevant Period, the Commission used quarterly data on the total units sold and average selling price as extracted from the [...], which covers the period from the fourth calendar quarter of 2009 to the second calendar quarter of 2013 ("Total period in sample" in Tables 51 to 53 at recital (911) below).[1295] This information was complemented by the information provided by Qualcomm on total lifetime sales, both in terms of volume and value, of the three baseband chips under investigation, including a partial forecast for the MDM6200 which was still on sale as of 27 November 2017, the date of Qualcomm's reply to the corresponding information request by the Commission.[1296]

(908) In order to compute the relevant weight for each quarter during the Relevant Period, the Commission proceeded as follows.

(909) In a first step, the Commission divided the total revenues achieved in a given quarter with each of the baseband chips under investigation by the total lifetime revenues of the corresponding baseband chips. Unlike the MDM8200 and MDM8200A, the MDM6200 chip was still on sale as of 27 November 2017, the date of Qualcomm's reply to the corresponding information request regarding the lifetime revenues, so that the lifetime revenue of this chip was not yet known. The Commission therefore estimated the total lifetime revenue of the MDM6200 by adding the cumulative revenue realised up to the third calendar quarter of 2017 to the revenue forecasted by Qualcomm for the fourth calendar quarter of 2017 to the third calendar quarter of 2018. For the computation of the weights for the allocation of the incremental development costs for the MDM8200 chip, the Commission used the joint revenues from the sales of the MDM8200 and MDM8200A for each quarter to account for the spill-overs from the MDM8200 to the MDM8200A (see recital (913) below).

(910) In a second step, the Commission divided the R&D costs allocated to any given quarter by the total number of units sold of this product in the same quarter in order to arrive at the "Allocated cost per unit sold". This includes units sold to customers other than Huawei and ZTE, so that all units are assumed to contribute equally to the recovery of fixed costs, independently of the buyer's identity (see also recital (862) above).[1297]

1294 See by analogy Case C-52/09, *TeliaSonera*, EU:C:2011:83, paragraph 44.

1295 See worksheet [...] included in Annex 10 to the SO Response, [...]. Consistently with the fact that development costs for the RTR and PM components are excluded from the LRAIC measure, the Commission has taken into account only revenues from the baseband chips, rather than from the entire chipsets, in the computation of the relevant weights. However, the chip revenue includes all sales made in a given quarter across all buyers of the product, not just Huawei and ZTE.

1296 Qualcomm's reply of 27 November 2017 to question 2 of Article 18(2) request for information of 10 November 2017, [...], paragraphs (7)-(13). The MDM8200 and MDM8200A had both reached the end of their respective lifecycles by November 2017, so that their lifetime revenues were already known at that time. Qualcomm reported an estimated forecast of 7,907,550 units for the MDM6200 for the period of Q4'2017 to Q3'2018.

1297 Qualcomm is therefore factually wrong in claiming that the Commission *"disregards the contribution to R&D recovery made by sales to customers other than Huawei or ZTE"*, Qualcomm's SSO Response, [...], paragraph (742).

(911) The tables below show for each of the chipsets under investigation the incremental development costs allocated for each quarter.

Table 51: Incremental development cost allocation for the MDM8200 based chipset

Calendar Quarter	Units sold	Revenue on baseband chip	Weight	Allocated cost (excluding spill-over to MDM8200A)	Allocated cost per unit sold
Apr-Jun/2008	[...]	[...]	[...]	[...]	$19.96
Jul-Sep/2008	[...]	[...]	[...]	[...]	$19.96
Oct-Dec/2008	[...]	[...]	[...]	[...]	$21.00
Jan-Mar/2009	[...]	[...]	[...]	[...]	$19.65
Apr-Jun/2009	[...]	[...]	[...]	[...]	$19.32
Jul-Sep/2009	[...]	[...]	[...]	[...]	$14.53
Oct-Dec/2009	[...]	[...]	[...]	[...]	$15.26
Jan-Mar/2010	[...]	[...]	[...]	[...]	$18.26
Apr-Jun/2010	[...]	[...]	[...]	[...]	$9.28
Jul-Sep/2010	[...]	[...]	[...]	[...]	$16.54
Oct-Dec/2010	[...]	[...]	[...]	[...]	$7.34
Jan-Mar/2011	[...]	[...]	[...]	[...]	$7.91
Apr-Jun/2011	[...]	[...]	[...]	[...]	$6.06
Jul-Sep/2011	[...]	[...]	[...]	[...]	$8.43
Oct-Dec/2011	[...]	[...]	[...]	[...]	$7.53
Total period in sample	[...]	[...]	[...]	[...]	
Total realised up to CQ3'2017	[...]	[...]	[...]	[...]	
Forecast CQ4'2017 to CQ3'2018	[...]				
Total expected	[...]	[...]			

Table 52: Incremental development cost allocation for the MDM6200 based chipset

Calendar Quarter	Units sold	Revenue on baseband chip	Weight	Allocated cost (17.7% of R&D on MDM6200/6600)	Allocated cost per unit sold
Oct-Dec/2009	[...]	[...]	[...]	[...]	$1.36
Jan-Mar/2010	[...]	[...]	[...]	[...]	$1.09
Apr-Jun/2010	[...]	[...]	[...]	[...]	$1.08
Jul-Sep/2010	[...]	[...]	[...]	[...]	$0.96
Oct-Dec/2010	[...]	[...]	[...]	[...]	$0.85
Jan-Mar/2011	[...]	[...]	[...]	[...]	$0.95
Apr-Jun/2011	[...]	[...]	[...]	[...]	$0.90
Jul-Sep/2011	[...]	[...]	[...]	[...]	$0.79
Oct-Dec/2011	[...]	[...]	[...]	[...]	$0.67
Jan-Mar/2012	[...]	[...]	[...]	[...]	$0.97
Apr-Jun/2012	[...]	[...]	[...]	[...]	$0.67
Jul-Sep/2012	[...]	[...]	[...]	[...]	$0.82
Oct-Dec/2012	[...]	[...]	[...]	[...]	$0.58
Jan-Mar/2013	[...]	[...]	[...]	[...]	$0.56
Apr-Jun/2013	[...]	[...]	[...]	[...]	$0.60
Total period in sample	[...]	[...]	[...]	[...]	
Total realised up to CQ3'2017	[...]	[...]	[...]	[...]	
Forecast CQ4'2017 to CQ3'2018	[...]	[...]	[...]	[...]	
Total expected	[...]	[...]	[...]	[...]	

Table 53: Incremental development cost allocation for the MDM8200A based chipset

Calendar Quarter	Units sold	Revenue on baseband chip	Weight	Allocated cost for R&D spend on MDM8200A (1)	Allocated cost for spill-over from MDM8200 (2)	Allocated cost TOTAL (sum of (1) and (2))	Allocated cost TOTAL per unit sold
Jan-Mar/2010	[...]	[...]	[...]	[...]	[...]	[...]	$14.65
Apr-Jun/2010	[...]	[...]	[...]	[...]	[...]	[...]	$24.05
Jul-Sep/2010	[...]	[...]	[...]	[...]	[...]	[...]	$21.03
Oct-Dec/2010	[...]	[...]	[...]	[...]	[...]	[...]	$11.05
Jan-Mar/2011	[...]	[...]	[...]	[...]	[...]	[...]	$7.91
Apr-Jun/2011	[...]	[...]	[...]	[...]	[...]	[...]	$7.16
Jul-Sep/2011	[...]	[...]	[...]	[...]	[...]	[...]	$8.46
Oct-Dec/2011	[...]	[...]	[...]	[...]	[...]	[...]	$5.94
Jan-Mar/2012	[...]	[...]	[...]	[...]	[...]	[...]	$7.91
Apr-Jun/2012	[...]	[...]	[...]	[...]	[...]	[...]	$4.60
Jul-Sep/2012	[...]	[...]	[...]	[...]	[...]	[...]	$5.74
Oct-Dec/2012	[...]	[...]	[...]	[...]	[...]	[...]	$3.68
Jan-Mar/2013	[...]	[...]	[...]	[...]	[...]	[...]	$4.28
Apr-Jun/2013	[...]	[...]	[...]	[...]	[...]	[...]	$4.54
Total period in sample	[...]	[...]	[...]	[...]	[...]		
Total realised up to CQ3'2017	[...]	[...]	[...]	[...]	[...]		
Forecast CQ4'2017 to CQ3'2018	[...]						
Total expected	[...]	[...]					

(912) For the reasons set out in recital (892) above, for the second calendar quarter of 2010, the Commission deducted USD [...] from the original amount of revenue included in the [...] for the MDM8200A for this quarter, resulting in the figure of USD [...] included in Table 53 at recital (911) above. This is because the release of this cancelled [...] does not relate to the economically relevant sales figures of this product at the beginning of its lifecycle.

(913) As explained in Section 12.6.3.2 above, in its calculation of LRAIC, the Commission took into account spill-overs of the development costs recorded in the [...] under the MDM8200 with regard to the MDM8200A. More specifically, the Commission distributed the Incremental R&D Costs recorded under the MDM8200 (*i.e.* USD [...]) across both products, allocating to each product a fraction of this R&D cost in proportion to the respective lifetime revenue. The MDM8200, which generated USD [...] of lifetime revenue (*i.e.* [...] of the USD [...] joint lifetime revenue of the MDM8200 and the MDM8200A), therefore bears [...] of the USD [...] of Incremental R&D Costs recorded under the MDM8200 (*i.e.* USD [...]), while the remainder (*i.e.* USD [...]) was allocated to the MDM8200A. The Incremental R&D Costs of USD [...] recorded under the MDM8200A is allocated to the MDM8200A in its entirety, as the MDM8200A is the follow-up product to the MDM8200.

12.6.4. Calculation of LRAIC on the basis of the reconstructed AVC and the allocated incremental development costs

(914) This section calculates the LRAIC for the three products under investigation as the sum of the Commission's reconstructed AVC and the allocated development costs in each quarter of the Relevant Period, and presents the results.

(915) The following table shows, for each of the three chipsets under investigation, the Commission's measure of LRAIC used in the price-cost test based on the reconstruction of AVC as carried out in section 12.6.2.3 above and on the allocation of product-specific non-variable development costs as carried out in section 12.6.3.4 above. The resulting measure of LRAIC is the sum of AVC and development cost for each product and quarter of the Relevant Period, as set out below.

Table 54: LRAIC for the three chipsets under investigation

	MDM8200 chipset			MDM6200 (config.1)			MDM6200 (config.2)[1298]		
Calendar Quarter	**AVC**	**R&D**	**LRAIC = AVC + R&D**	**AVC**	**R&D**	**LRAIC = AVC + R&D**	**AVC**	**R&D**	**LRAIC = AVC + R&D**
Jan-Mar/2009	$24.65	$19.65	$44.30						
Apr-Jun/2009	$21.91	$19.32	$41.23						
Jul-Sep/2009	$20.74	$14.53	$35.27						
Oct-Dec/2009	$18.31	$15.26	$33.57		$1.36			$1.36	
Jan-Mar/2010	$16.57	$18.26	$34.83		$1.09			$1.09	
Apr-Jun/2010	$14.64	$9.28	$23.92	$12.50	$1.08	$13.59		$1.08	
Jul-Sep/2010	$13.93	$16.54	$30.48	$12.50	$0.96	$13.46		$0.96	
Oct-Dec/2010	$12.92	$7.34	$20.26	$10.79	$0.85	$11.64		$0.85	
Jan-Mar/2011	$12.28	$7.91	$20.19	$6.65	$0.95	$7.60	$6.47	$0.95	$7.42
Apr-Jun/2011	$12.11	$6.06	$18.17	$6.26	$0.90	$7.16	$6.10	$0.90	$7.00
Jul-Sep/2011				$5.92	$0.79	$6.71	$5.78	$0.79	$6.57
Oct-Dec/2011				$5.62	$0.67	$6.29	$5.50	$0.67	$6.17
				MDM8200A (config.1)			**MDM8200A (config.2)[1299]**		
Calendar Quarter				**AVC**	**R&D**	**LRAIC = AVC + R&D**	**AVC**	**R&D**	**LRAIC = AVC + R&D**
Jan-Mar/2009									
Apr-Jun/2009									
Jul-Sep/2009									
Oct-Dec/2009									
Jan-Mar/2010					$14.65			$14.65	
Apr-Jun/2010				$11.86	$24.05	$35.91		$24.05	
Jul-Sep/2010				$10.58	$21.03	$31.61		$21.03	
Oct-Dec/2010				$9.19	$11.05	$20.25		$11.05	
Jan-Mar/2011				$7.80	$7.91	$15.71	$7.84	$7.91	$15.75
Apr-Jun/2011				$7.36	$7.16	$14.51	$6.98	$7.16	$14.14
Jul-Sep/2011				$7.09	$8.46	$15.55	$6.95	$8.46	$15.41
Oct-Dec/2011				$6.83	$5.94	$12.77	$6.71	$5.94	$12.65

1298 Configuration 2 of the MDM6200 and the MDM8200A only started selling in January-March 2011, which is why there are no cost values available for these two products for any quarter before January-March 2011 in which Configuration 1 of the same product was already available.

1299 See footnote 1298.

(916) The Commission's calculation of LRAIC is not called into question by Qualcomm's arguments in this regard.

(917) First, Qualcomm claims that *"*[t]*he impact of the SSO's inappropriate reliance on a revenue-based allocation of R&D costs over time for the SSO's price-cost analysis is significant. Correcting for this error alone by applying a volume-based approach whilst retaining all other assumptions made in the SSO, the SSO's test would identify only one quarter of prices below costs for the MDM8200A and only for Configuration 2 during the period in which the SSO alleges predation for this chipset"*.[1300] For the reasons set out in recital (905) above, the Commission does not consider a volume-based method to be suitable in this case, in particular because it would shift a large part of the development costs towards the end of the products' lifecycle, where prices and margins tend to be low, thus generating a large number of false positives in the price-cost test. In any event, the volume-based approach presents the same alleged weaknesses as the revenue-based approach (notably the reliance on hindsight, and the imperfect relation of sales volumes to the ability to recover R&D costs, see also recital (935) below),[1301] while not reflecting the specificities of the semiconductor industry, notably its characteristic gross-margin profile over the product lifecycle (see recitals (897)-(902) above).

(918) Second, Qualcomm argues that the construction of the revenue weights in Tables 51 to 53 at recital (911) above is based on *"Qualcomm's reported revenue, as recorded in its audited accounts. However, the SSO contends that it was necessary to restate Qualcomm's prices precisely because the SSO considers Qualcomm's reported prices, from which this revenue data is derived, to be unreliable. The SSO thus relies on data for allocating R&D costs that it dismisses as allegedly unreliable at another stage of its analysis. This is a serious internal inconsistency"*.[1302] This claim is unfounded for the following reasons.

(919) In the first place, both the price reconstruction set out in section 12.5.3 above and the R&D allocation in this section are based on information retrieved from Qualcomm's accountings. The Commission therefore never *"dismissed as allegedly unreliable"* Qualcomm's accounting data, but relied on additional information stemming from the incentive documentation ([...]) that is relevant for the determination of the prices effectively paid by Huawei and ZTE during the Relevant Period. As explained in recital (651) above, for the purposes of the price-cost test in this case, the Commission relied on both Qualcomm's accounting data and the so-called [...] containing sales related information provided by Qualcomm's customers and its verification by Qualcomm. The Commission's price reconstruction is based on gross revenues and the number of units shipped as recorded in Qualcomm's accountings, while relying on rebate information contained in the [...]. For quarters for which no [...] were available, the Commission relied on Qualcomm's accounting data in order to determine the prices effectively paid by Huawei and ZTE during that period (see *e.g.* recitals (766) and (767) above), together with additional pricing related information from Qualcomm where available (see *e.g.* recitals (747)-(749) above).

1300 Annex 5 to the SSO Response, [...], paragraph (3.104), and Qualcomm's SSO Response, [...], paragraph (773).

1301 Qualcomm's SSO Response, [...], paragraph (772).

1302 Qualcomm's SSO Response, [...], paragraph (775).

(920) In the second place, whenever the accounting prices are *lower* than the Commission's reconstructed prices in a given quarter, the accounting-revenue based weights are in Qualcomm's favour, because lower accounting prices imply a lower accounting revenue in this quarter, and hence a lower amount of R&D costs allocated to this quarter compared to revenue weights based on reconstructed prices. Allocating lower R&D costs will in turn increase the chances that the price-cost test will be passed in this quarter.

(921) In the third place, there are only a few instances in which accounting-data based weights might be to Qualcomm's disadvantage. This is because relying on Qualcomm's accounting revenue (instead of the prices reconstructed by the Commission) for the purposes of the R&D allocation can be to Qualcomm's disadvantage only (i) for the MDM8200 and MDM8200A,[1303] and (ii) in those quarters where the accounting prices are appreciably *higher* than the Commission's reconstructed prices.[1304] Only in those instances will accounting-data based weights allocate *more* R&D costs than weights based on reconstructed prices.

(922) The Commission could identify only three instances where accounting prices for Huawei or ZTE are appreciably higher than the Commission's reconstructed prices (see Table 27 (Huawei) at recital (739) above and Table 43 (ZTE) at recital (774) above, showing Qualcomm's accounting prices as well as the Commission's reconstructed prices for customers Huawei and ZTE (the only two customers for which reconstructed prices are available)). However, the outcome of the price-cost test does not change in these instances if instead weights based on reconstructed prices were to be applied in the allocation of development costs over time.

(923) The first instance concerns the MDM8200 sold to Huawei during the [...]. These two quarters are characterised by the lowest gross margins ([...] and [...], respectively, see Table 55 at recital (953) below) and the highest price-cost shortfall ([...] USD and [...] USD, respectively, see Table 55 at recital (953) below) over the entire Relevant Period, so that a slightly different R&D cost allocation would not materially affect these results.

(924) The second instance concerns the MDM8200A sold to Huawei (Configurations 1 and 2) during the [...], which falls outside the Relevant Period.

(925) The third instance concerns the MDM8200A sold to ZTE (Configuration 1) during the [...] in which ZTE only bought [...] units of this chipset, with the gross margin being the lowest observed over the entire Relevant Period for this product ([...], see Table 57 at recital (975) below), and the shortfall found by the Commission being the third largest for this product ([...] USD). Also in this instance a slightly different

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1303 For the MDM6200, the Commission's findings do not depend on the exact allocation of development costs because the price-cost test indicates pricing below AVC for customer ZTE, and prices above LRAIC for customer Huawei, see recital (891) above.

1304 The Commission notes that such reconstructed prices are only available for customers Huawei and ZTE, but not for any of the other customers who purchased the MDM8200 and/or MDM8200A during the Relevant Period. An allocation of R&D costs based entirely on reconstructed prices would have to encompass also the reconstructed prices for such other buyers. However, given the low purchase shares of such other buyers ([...] in total product revenue for the MDM8200, and [...] for the MDM8200A, see Table 48 at recital (890) and Table 50 at recital (892) above), it is unlikely that the difference between accounting prices and reconstructed prices for these other buyers would change the amount of R&D allocated to any given quarter by an appreciable amount.

R&D cost allocation would not materially affect these results, and would in any case only concern a tiny quantity of units.[1305]

(926) Third, further to Tables 51 to 53 at recital (911) above, Qualcomm takes issue with the fact that the Commission's allocation generates very different R&D levels per unit across the three chipsets under investigation. In particular, Qualcomm points out that *"in order to avoid the allegation of below-cost sales in respect of the MDM8200A, Qualcomm would have needed to achieve a margin orders of magnitude higher than for the MDM6200"*[1306] and that *"counterintuitively, the* […] *'required margin' for the MDM8200A is consistently and significantly higher than that for the MDM8200."*[1307] The Commission rejects this claim since the required margins for the MDM8200A are not out of range compared to the other two chipsets under investigation for the following reasons.

(927) In the first place, the MDM6200 presents certain specificities, in particular with regard to the following elements.

(928) Firstly, the MDM6200 shared its development expenses with the MDM6600, which falls outside the scope of this investigation. The MDM6600 absorbed however a large part of the USD [...] joint Incremental R&D Costs because it generated more than [...] of the joint revenue of the two chipsets. As a result, only about USD [...] Incremental R&D Costs were apportioned to the MDM6200.

(929) Secondly, of the USD [...] Incremental R&D Costs allocated to the MDM6200, only about [...] fall inside the Relevant Period, because sales of this product slacked at the beginning, and revenues peaked much later than they did for the MDM8200A. Therefore, a considerable amount ([...], *i.e.* more than half) of the MDM6200's development costs is apportioned outside the Relevant Period.

(930) Thirdly, contrary to the MDM6200, the MDM8200 earned almost all and the MDM8200A still [...] of their lifetime revenue during the Relevant Period, so that only a small fraction of the USD 201 million of joint Incremental R&D Costs (*i.e.* about USD [...], or [...]) is apportioned to units sold after June 2011.

(931) In the second place, the fact that the *"'required margin' for the MDM8200A is consistently and significantly higher than that for the MDM8200"* is a direct consequence of the revenue-based allocation method, and is favourable to Qualcomm in so far as it allocates more R&D costs to the high-volume, high-margin product, while reducing the R&D costs borne by the unsuccessful, low-margin product.[1308]

1305 For ZTE/8200A (Config. 1), the accounting price is larger than the reconstructed price also in April-June 2010, where the accounting revenue is inflated by the release of a cancelled [...] of USD [...], so that the accounting price rises to USD [...]. However, the Commission corrected for this release in its construction of the revenue weights (see recital (912)), so that the revenue weights used for this quarter are not unfavourable to Qualcomm.

1306 Qualcomm's SSO Response, [...], paragraph (767). Qualcomm in particular compares the "Allocated cost TOTAL per unit sold" in the four quarters of 2010 for the MDM6200, ranging between USD [...] and USD [...], to those for the MDM8200A, ranging between USD [...] and USD [...] within the same year.

1307 Qualcomm's SSO Response, [...], paragraph (768).

1308 This feature of the Commission's R&D allocation methodology is also acknowledged by Qualcomm itself, who states that *"*[i]*llogically, one way to 'pass' the SSO's test within the period of alleged predation would be to increase prices outside of the period of alleged predation such that less R&D would be allocated to the allegedly predatory sales.* […] *According to this methodology, the greater the*

(932) Fourth, regarding the Commission's reallocation of part of the MDM8200's development costs to the MDM8200A, Qualcomm claims that the Commission *"treats R&D costs inconsistently in every step of its calculation of Spill-Over R&D from the MDM8200 to the MDM8200A."*[1309] To support its claim, Qualcomm submitted a workbook prepared by its external economic advisors,[1310] which attempts to identify the amount of *"Spillover R&D costs"* that is incremental to the allegedly predatory sales of the MDM8200A to Huawei and ZTE. These calculations yield different results (either USD [...] or USD [...]) depending on the stage of the Commission's allocation procedure at which the incremental sales are subtracted from the product's lifetime sales. Qualcomm's claim is unfounded because the Commission's objective was to identify the costs that can be considered incremental *to the product* (but not to any individual sales of this product) in the long run (see also recital (862) above). The Commission's methodology can therefore not be criticised for failing to serve a purpose for which it was never designed.

(933) Fifth, Qualcomm claims that the Commission's revenue-based R&D allocation *"moves the goal posts"* of its price-cost test[1311] in a way that makes it difficult for a firm to comply with the Commission's cost benchmark. To support this claim, Qualcomm submitted calculations[1312] showing that *"even if Qualcomm had increased its prices* [for the MDM8200, for the four quarters of 2010] *by the amounts of the alleged shortfalls identified by the SSO, the SSO's test would still indicate shortfalls in each quarter."*[1313] This is so because higher prices give rise to higher revenues (holding volumes constant), which in turn means that more R&D costs will be allocated to those quarters where revenues increased. Qualcomm also points out that *"the MDM8200A passes the SSO's test if R&D is allocated based on volumes and assuming no other changes to the SSO's approach."*[1314] Qualcomm's arguments are irrelevant for the following reasons.

(934) In the first place, as explained in recital (794) above, the need to reconstruct LRAIC arose because Qualcomm did not provide any internal assessment of LRAIC as expected *ex ante* by the company. In this case, the Commission's LRAIC reconstruction was therefore the only way to carry out a meaningful price-cost test. In a scenario where (i) there is evidence on intent to eliminate a competitor (see section 12.8 below), and (ii) Qualcomm did not provide any information on its internal LRAIC measures, the foreseeability of the Commission's methodology for

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impact on competition, the greater the recoupment, the less chance of a finding of below cost sales." See Annex 1 to Qualcomm's Follow Up Submission of 25 April 2019, "Compass Lexecon Second Report", [...], paragraph 3.8.

1309 See Annex 1 to Qualcomm's Follow Up Submission of 25 April 2019, "Compass Lexecon Second Report", [...], paragraph 2.15.

1310 Qualcomm's Follow Up Submission of 25 April 2019, [...] (amended for Follow Up Submission)", [...], tab [...].

1311 See Annex 1 to Qualcomm's Follow Up Submission of 25 April 2019, "Compass Lexecon Second Report", [...], paragraph 3.1.

1312 Qualcomm's Follow Up Submission of 25 April 2019, [...] (amended for Follow Up Submission)", [...], tab "8200 (2)".

1313 See Annex 1 to Qualcomm's Follow Up Submission of 25 April 2019, "Compass Lexecon Second Report", [...], paragraph 3.4.

1314 See Annex 1 to Qualcomm's Follow Up Submission of 25 April 2019, "Compass Lexecon Second Report", [...], paragraph 3.7.

Qualcomm is irrelevant because the Commission could not have relied on any other figures for LRAIC.

(935) In the second place, the volume-based allocation method proposed by Qualcomm would suffer from the same problem of *"moving the goal posts"* as the revenue-based allocation. Whenever prices increase in some or all quarters of the product's lifecycle, the volumes sold of this product would drop, so that each unit sold would have to bear a larger share of the product's fixed development cost. Thus, it may well happen that the higher prices would still not be sufficiently high to exceed the cost benchmark obtained through a volume-based allocation of development costs.

(936) In the third place, Qualcomm's claim that the Commission's methodology would *"move the goal posts"* is a reflection of the conservativeness of the Commission's approach, which benefits Qualcomm. In fact, the rationale for a revenue-based allocation method is to proxy for the price evolution of a chipset from the time when it is first introduced to the market (attracting a higher price) to the time when it becomes commoditised (hence attracting a lower price). It is therefore appropriate to allocate product-specific R&D costs according to the profile of prices over time, so that periods in which chipsets are assumed to attract higher revenues also bear a higher share of costs. For this reason (see also recitals (897) and (905) above), this method is more appropriate in this case than the alternative volume-based approach proposed by Qualcomm. Moreover, in an ideal scenario, a revenue based allocation would be based on a set of hypothetical prices unaffected by Qualcomm's conduct. These hypothetical prices would, by definition, be higher than Qualcomm's actual prices during the period of the conduct, and hence lead to a higher cost allocation to that period. Therefore, by understating costs, the Commission's allocation methodology provides a conservative measure of Qualcomm's LRAIC during the period of the conduct.

(937) Sixth, Qualcomm claims that *"in most instances, the SSO's price-cost analysis results in significantly higher required margins compared to those required under the SO's test."*[1315] However, the only product for which the required margin increased significantly is the MDM8200A. For this product (as for the other two products), the required margin in the SO was between [...] and [...], while [...] on the figures of Table 54 at recital (915) above it is in the range of [...] to [...], and reaches a peak of [...] in the first two quarters of its lifecycle (*i.e.* April-June and July-September 2010). In contrast, for the MDM8200, the required margin only increased moderately compared to the SO, while the required margin for the MDM6200 dropped significantly to only [...] to [...]. This difference in required margins is mainly due to the Commission's revised calculation of LRAIC based on each product's incremental development costs rather than on a QCT-wide average R&D cost, which Qualcomm had criticised in its SO Response as *"arbitrary and incorrect"*.[1316] The revised calculation raises the required margins for the MDM8200 and MDM8200A above the average level of [...] to [...] in the Relevant Period because these two products were disproportionately expensive in their development, which is a crucial factor to take into account in a price-cost test seeking to determine whether these two products recovered their product-specific costs in the long run.

1315 Qualcomm's SSO Response, [...], paragraph (790).

1316 Qualcomm's SO Response, [...], paragraph (718).

12.7. Assessment of Qualcomm's pricing for the chipsets under investigation during the Relevant Period on the basis of the revised measure of LRAIC

(938) This section presents the Commission's findings regarding Qualcomm's pricing of the MDM8200, MDM6200 and MDM8200A based chipsets *vis-à-vis* Huawei and ZTE during the Relevant Period, and relates these findings to Icera's development during the same period. Section 12.7.1 shows the results of the Commission's price-cost test for each of the three chipsets at the quarterly level. Section 12.7.2 presents the Commission's findings regarding the extent and duration of Qualcomm's predatory sales as resulting from the Commission's quarterly price-cost test. Section 12.7.3 carries out a lifetime profitability analysis of the two high-volume products under investigation, namely the MDM8200 and MDM8200A, as well as the "Joint Project" which considers the two products, MDM8200 and MDM8200A, as a single product. The lifetime profitability analysis shows that the Commission's results of Section 12.7.1 do not depend on the reference period for which the Commission's price-cost test is carried out, nor on the precise allocation method for the incremental development costs. Section 12.7.4 shows the extent of the potential impact that Qualcomm's predatory pricing had on Icera's sales volumes and revenues throughout the Relevant Period. Section 12.7.5 explains why the approach taken by the Commission in its price-cost test is conservative and therefore favourable to Qualcomm.

12.7.1. Results of the Commission's price-cost test per chipset

(939) The Commission assessed, on a quarterly basis during the Relevant Period, whether Qualcomm's prices for the three chipsets under investigation covered the measure of LRAIC applicable to that quarter. Section 12.7.1.1 explains how the Commission identified the first quarter in the product's lifecycle which was considered for the assessment of the results of the price-cost test. Sections 12.7.1.2, 12.7.1.3, and 12.7.1.4 present the results of the price-cost test for each chipset. For the MDM6200 and MDM8200A based chipset, a separate test was conducted for each of the configurations in which these chipsets were sold to Huawei and ZTE during the Relevant Period.[1317]

12.7.1.1. The starting period for the price-cost test in this case

(940) For the purposes of the price-cost test in this case, the Commission excludes those quarters at the beginning of a product's lifecycle in which the product had not yet reached a sufficient scale of production and the average variable cost was therefore unusually high, thus not providing a meaningful cost benchmark for a price-cost test. This is favourable to Qualcomm, because it discards a number of quarters for the products under investigation that display below-cost pricing. The Commission relies on the following evidence to establish the point in time at which large-scale production of the three chipsets under investigation started.

(941) First, the MDM8200 reached the stage of [...] for the technical specifications 64QAM HSDPA (21Mbps) and 5.76Mbps HSUPA in the second quarter of 2009.[1318] Sales and new acquisitions by Qualcomm of this chipset reached a first peak in the

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[1317] For the MDM6200 baseband chip, these are MDM6200-PM8028 ("Configuration 1") and MDM6200-PM8015 ("Configuration 2"). For the MDM8200A baseband chip, these are MDM8200A-RTR6285-PM8028 ("Configuration 1") and MDM8200A-RTR6285-PM8015 ("Configuration 2").

[1318] Qualcomm presentation of December 2009 titled [...], page 3.

third quarter of 2009 (see Table 73 at recital (1183)) so that large-scale production had clearly started in this quarter at the latest. The Commission therefore disregards the first and second quarter of 2009 in its assessment of the results of the price-cost test.[1319]

(942) Second, the MDM6200 was scheduled to reach the stage of [...] for the technical specifications 14Mbps HSDPA and 5.76Mbps HSUPA in the first quarter of 2010.[1320] The sales evolution for this chipset remained below expectations for most of 2010, as explained in recitals (417)-(420) above. However, Qualcomm had started stocking large amounts of the MDM6200 at the latest by the third quarter of 2010,[1321] although sales would only pick up as of the fourth quarter of 2010.[1322] The Commission therefore considers that large-scale production of the MDM6200 started in the third quarter of 2010. This coincides with the point in time as of which the Commission has information about the exact level of the variable costs of the MDM6200.[1323] The Commission therefore disregards the first and second quarter of 2010 for the purposes of the price-cost test, which is in line with the treatment of the MDM8200.

(943) Third, the MDM8200A was scheduled to reach [...] by May 2010, *i.e.* in the second quarter of 2010.[1324] Production of this chipset at a large scale started in the third quarter of 2010, with [...] and [...] units shipped to Qualcomm in August and September 2010, respectively.[1325] Sales also reached large-scale values in the third quarter of 2010, jumping from just below [...] units in the second quarter of 2010 to [...] units in the third quarter of 2010.[1326] In line with the treatment of the MDM8200 and MDM6200, the Commission therefore disregards the sales of the second quarter of 2010 for the purposes of the price-cost test.[1327]

1319 As for the sales of the MDM8200 to ZTE in the second quarter of 2009, it should be noted that this is the only instance in which performing the price-cost test on the AVC obtained from LIFO instead of FIFO turns a negative result into a positive one: the test reports a negative result of USD [...] if the AVC is reconstructed under the FIFO method, and a positive result of USD [...] if it is reconstructed under the LIFO method. However, the Commission disregards the first and second quarter of 2009 in its assessment precisely because AVC values in these early quarters do not provide a reliable benchmark for a price-cost test.

1320 Qualcomm presentation of December 2009 titled [...], page 3.

1321 Inflow to stock in Q2'2010: [...] units, in Q3'2010: [...] units, see Annex 1 of Qualcomm's reply of 27 November 2017 to Article 18(2) request for information of 10 November 2017, [...].

1322 From about [...] in Q3'2010 to about [...] in Q4'2010, see [...] included in Annex 10 to Qualcomm's SO Response, [...].

1323 For the first quarter of 2010, no "[...] Cost Data" for the MDM6200 were available, so that it was not possible to reconstruct the AVC value for this quarter. Hence, the Commission does not report the sales and price information for the MDM6200 in Q1'2010 in Table 56 at recital (967) below. The available figures for this quarter are with regard to Huawei: volume [...], R&D component USD [...], EC Reconstructed Price (Config. 1) USD [...]; and with regard to ZTE: volume [...], R&D component USD [...], EC Reconstructed Price (Config. 1) USD [...]. For the second quarter of 2010, the Commission had to replace the missing value by the reconstructed AVC value of the third quarter of 2010, see recital (828) above.

1324 Qualcomm presentation of December 2009 titled [...], page 3.

1325 See Annex 1 of Qualcomm's reply of 27 November 2017 to Article 18(2) request for information of 10 November 2017, [...].

1326 See [...] included in Annex 10 to Qualcomm's SO Response, [...].

1327 The MDM8200A reached large-scale production faster than the other two chipsets as it was essentially [...] (see recital (880) above).

(944) The Commission's approach is not called into question by Qualcomm's arguments in this regard.

(945) First, Qualcomm claims that the Commission *"does not even define 'large-scale production', and adopts an arbitrary and unsubstantiated position as regards the calendar quarters that it chooses to disregard from its price-cost analysis"*.[1328] According to Qualcomm, *"*[t]*he correct approach is to consider the notion of large-scale production as being relative to a chipset's AVC, meaning that large-scale production and the concomitant economies of scale can be deemed to have been achieved only as of the point in time at which a significant, long-lasting decrease in AVC is observed. It is only in this way that it can be verified at what level of production AVC ceases being 'unusually high.'"*[1329] The Commission rejects this claim for the following reasons.

(946) In the first place, Qualcomm has not provided any evidence showing that there was no large-scale production in any of the quarters considered by the Commission in the assessment of the results of the price-cost test.

(947) In the second place, it is not possible to identify an absolute threshold at which large-scale production started, because the chipsets under investigation differ in their overall scale of production (*e.g.* the MDM8200 sold about [...] units overall, and the MDM8200A about [...] units, while the MDM6200 was expected to sell more than [...] units) and so do the production profiles at the beginning of each product's lifecycle. The Commission's assessment of the starting point for large-scale production for each of the three chipsets under investigation is therefore the result of a comprehensive appraisal of both the documentary evidence on the product development cycle (in particular the point in time at which a product reaches the stage of [...]) and the quantitative information available on sales volumes and inventory movements in each quarter.

(948) In the third place, the approach proposed by Qualcomm, namely to identify *"the point in time at which a significant, long-lasting decrease in AVC is observed"*, is prone to an arbitrary and subjective assessment as to what constitutes a *"significant, long-lasting decrease"*. Moreover, the development of AVC over time is not just driven by economies of scale, but also by other factors such as the foundry's capacity constraints, price changes in raw materials and other inputs, as well as unobserved fluctuations in Qualcomm's bargaining power *vis-à-vis* its foundries. These other factors make the AVC curve inherently unsuitable to identify with any degree of precision the point in time at which large-scale production started. The direct assessment of production levels is therefore the only reliable method to identify this point in a product's lifecycle.

(949) Second, with respect to the Commission's findings for the MDM6200 for the third quarter of 2010, Qualcomm claims that the Commission's approach *"contradicts the 'first-in-first-out' ('FIFO') inventory accounting approach used in the SSO"*, since *"under the FIFO approach, lower costs associated with high production volumes will be reflected in lower AVC only when these units are assumed to have been sold, not*

1328 Qualcomm's Comments on the Letter of Facts, [...], paragraph (146).

1329 Qualcomm's Comments on the Letter of Facts, [...], paragraph (147).

when they are produced".[1330] The Commission notes that Qualcomm's argument has no impact on the AVC for the quarter and product under consideration. In the third quarter of 2010, the AVC as reconstructed by the Commission using the FIFO method coincides with the [...] Cost in that quarter. The economies of scale afforded by the increase in production at the foundry level are therefore immediately visible in the Commission's reconstructed AVC values for the third quarter of 2010, and not with a lag, as claimed by Qualcomm.[1331]

12.7.1.2. The MDM8200 based chipset

(950) Table 55 at recital (953) below shows the results of the Commission's price-cost test with regard to the sales of the MDM8200 based chipset to Huawei and ZTE during the period considered in the assessment of the price-cost test for the MDM8200, namely July 2009 to June 2011.

(951) With regard to Huawei, the table shows that Qualcomm consistently failed to cover its LRAIC (*i.e.* the sum of AVC and allocated development costs) in its sales of the MDM8200 based chipset as of July 2009 until June 2011 when the last shipments of MDM8200 based chipsets to Huawei took place. In the period in which below-cost pricing is found, gross margins (*i.e.* the difference between price and AVC for the quarter, divided by the price) ranged between [...] and [...]. Thus, the prices effectively paid by Huawei always covered the cost of manufacturing the units sold to this customer. However, the resulting gross margin earned on each of these units was not sufficient to also cover the relevant share of the development costs of this product, as allocated by the Commission.

(952) With regard to ZTE, the table shows that Qualcomm failed to cover its LRAIC in its sales of the MDM8200 based chipset as of July 2010 until March 2011. In the period in which below-cost pricing is found, gross margins ranged between [...] and [...], as compared to the [...] to [...] during the previous period. For these periods, the same observations as for Huawei apply, namely that effectively paid prices by ZTE covered AVC, but not the relevant part of the development costs included in LRAIC as calculated by the Commission.

(953) The following table shows the results of the Commission's price-cost test for the MDM8200 based chipset (results in bold for those quarters where prices are below costs):

1330 Qualcomm’s Comments on the Letter of Facts, [...], paragraphs (149) and (158), and relatedly, for the MDM8200, in footnote 184.

1331 Regarding Qualcomm's observations in footnote 184 of its Comments on the Letter of Facts, [...], the Commission observes that its reconstructed AVC values for the MDM8200 chipset in the first and second quarter of 2010 are USD 16.57 and USD 14.64, which are both considerably lower than Qualcomm's own [...] values of USD [...] and USD [...], respectively, and roughly correspond to the contemporaneous [...] Costs, which were USD [...] and USD [...]. The Commission's approach is thus better suited to reflect economies of scale in a timely manner than Qualcomm's own method for calculating its AUC.

Table 55: MDM8200 - Results of the revised price-cost test

1) Huawei – MDM8200

Calendar Quarter	Volume	Price	AVC	R&D	LRAIC = AVC + R&D	TEST = Price - LRAIC	GROSS MARGIN = 1 - AVC/Price
Jul-Sep/2009	[...]	$33.55	$20.74	$14.53	$35.27	**-$1.72**	38.19%
Oct-Dec/2009	[...]	$22.61	$18.31	$15.26	$33.57	**-$10.97**	19.01%
Jan-Mar/2010	[...]	$23.16	$16.57	$18.26	$34.83	**-$11.67**	28.47%
Apr-Jun/2010	[...]	$15.67	$14.64	$9.28	$23.92	**-$8.25**	6.60%
Jul-Sep/2010	[...]	$16.72	$13.93	$16.54	$30.48	**-$13.76**	16.68%
Oct-Dec/2010	[...]	$16.56	$12.92	$7.34	$20.26	**-$3.70**	21.99%
Jan-Mar/2011	[...]	$17.33	$12.28	$7.91	$20.19	**-$2.86**	29.13%
Apr-Jun/2011	[...]	$17.25	$12.11	$6.06	$18.17	**-$0.92**	29.83%

2) ZTE – MDM8200

Calendar Quarter	Volume	Price	AVC	R&D	LRAIC = AVC + R&D	TEST = Price - LRAIC	GROSS MARGIN = 1 - AVC/Price
Jul-Sep/2009	[...]	$40.21	$20.74	$14.53	$35.27	$4.94	48.43%
Oct-Dec/2009	[...]	$39.75	$18.31	$15.26	$33.57	$6.18	53.95%
Jan-Mar/2010	[...]	$39.42	$16.57	$18.26	$34.83	$4.60	57.98%
Apr-Jun/2010	[...]	$25.57	$14.64	$9.28	$23.92	$1.65	42.75%
Jul-Sep/2010	[...]	$17.25	$13.93	$16.54	$30.48	**-$13.22**	19.26%
Oct-Dec/2010	[...]	$18.63	$12.92	$7.34	$20.26	**-$1.63**	30.67%
Jan-Mar/2011	[...]	$18.65	$12.28	$7.91	$20.19	**-$1.54**	34.13%
Apr-Jun/2011	[...]	$18.53	$12.11	$6.06	$18.17	$0.36	34.66%

(954) With regard to Huawei, the first instances of below-cost sales in the third quarter of 2009 followed the launch of the MDM8200 Lite, a low-speed version of the MDM8200 based chipset, admitting data rates of up to 14.4 Mbps, approved by the [...] on 19 January 2009 (see recital (455) above). With this variant of the MDM8200 based chipset, Qualcomm aimed at reacting to the increasing traction of Icera's ICE8040 based chipset which, although it was not supporting downlink speeds as high as the MDM8200 based chipset, was effectively perceived by market participants as an attractive alternative to Qualcomm's offering and managed to better address the market demand due to its advertised ability to software upgrade to higher downlink speeds and its lower price. The MDM8200 Lite was thus intended to fill the *"competitive gap"* that Qualcomm had identified *vis-à-vis* Icera and to address the market demand for chipsets supporting data rates of up to 14.4 Mbps until a dedicated, more competitive chipset solution at 14.4 Mbps (at the time identified in the QSC6295 based chipset, and later in the MDM6200 based chipset) would be launched (see section 12.4.2.1 above). Following the approval of further price

reductions as a *"bridge program to the MDM6200"*[1332] by the [...] on 8 June 2009 (see recital (467) above), the first large-scale shipments of the MDM8200 to Huawei, which occurred in the third quarter of 2009, were already priced below cost. A significant part of the units shipped to Huawei until the second quarter of 2010 were also concerned by the pricing concessions granted by Qualcomm on units in Huawei's backlog and inventory, approved by the [...] on 25 November 2009 (see recital (487) above) and 22 March 2010 (see recital (546) above). These pricing concessions were intended to allow Huawei to sell off the units in its backlog and inventory[1333] before Icera's chipset solutions would be capable of reaching data rates of up to 21 Mbps and thus entering in direct competition with Qualcomm also in this speed segment.

(955) The most severe instances of below-cost pricing to Huawei are found in the second, third and fourth quarter of 2010, when Qualcomm's gross margin ranged between [...] and [...]. During this period, Qualcomm suffered delays in the commercial launch of its new MDM6200 and MDM8200A based chipsets, originally envisaged for December 2009 and March 2010, respectively. Qualcomm therefore had to continue relying on the MDM8200 based chipset to compete with Icera, which was said to start offering a *"single chipset pricing for all data rates (3.6 HDPA to 31M) at around $10 starting from Jan. 2010"*.[1334] The below-cost sales during that period express Qualcomm's determination to *"make price a non-issue to let MDM8200 fill the void"*[1335] and reflect Qualcomm's strategy of using the MDM8200 based chipset *"to close the gap until 8200A and 6200 go commercial"*.[1336] This strategy was implemented by further price reductions approved by the [...] on 25 November 2009 and 1 March 2010 (see recitals (487) and (541) above).

(956) With regard to ZTE, below-cost sales of the MDM8200 based chipset occurred as of the third quarter of 2010. These below-cost sales followed the emergence of ZTE as a serious contender of Huawei's business with leading edge devices incorporating Qualcomm's chipset solutions, and reflected the need to prevent Icera's *"*[p]*enetration in HW and ZTE"* as a *"*[l]*ong term threat"*[1337] (see recital (405) above). The price reductions approved by the [...] on 4 January 2010 (see recital (510) above) and 1 March 2010 (see recital (541) above) reflect Qualcomm's intention of

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1332 Qualcomm internal presentation titled [...], as well as [...] submitted by Qualcomm in [...] 6 of its reply of 16 January 2012 to Article 18(3) Decision of 3 November 2011, [...].

1333 See also section 12.9 below on Qualcomm's objective justification claims for these rebates.

1334 Qualcomm internal e-mail of 14 November 2009 from [...] ([Qualcomm management member]) to [...] (Director, QCT Product Management), [...] (Manager, Finance), [...] (Director, Sales) and [...] (Financial Analyst, Staff), copying [...] ([QCT top management member]), [...] ([Qualcomm management member]) and [...] ([Qualcomm management member]), [...], page 2.

1335 Qualcomm internal e-mail of 16 December 2009 from [...] ([Qualcomm management member]) to [...] (Director, QCT Product Management), [...] ([Qualcomm management member]), [...] (Staff Manager, Marketing), [...] (Director, Sales), [...] (Director, Sales), copying [...] (Director, Marketing) and [...] (QCT Product Manager, Staff), [...], page 1.

1336 Qualcomm internal e-mail of 26 January 2010 from [...] ([Qualcomm management member]) to [...] (Director, Sales), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), copying [...] (Director, QCT Product Management), [...], page 2. See also [...] which covers part of the e-mail thread.

1337 Qualcomm presentation titled [...], attached to Qualcomm internal e-mail of 1 December 2009, [...], page 12.

offering *"attractive pricing and product portfolio to stop HW/ZTE work on competitions"*.[1338]

(957) These findings are not called into question by Qualcomm's arguments in this regard.

(958) First, Qualcomm claims that *"by May 2010 the MDM8200 had been superseded by the MDM8200A and lost any competitive significance it previously had, therefore any alleged predation finding in the fourth quarter of 2010 and all quarters of 2011 could not have produced any anticompetitive foreclosure effects and is thus immaterial."*[1339] This claim is incorrect for the following reasons.

(959) In the first place, the contemporaneous evidence on the file shows that the MDM8200 based chipset maintained its competitive significance even after the MDM8200A had become commercially available. This is evidenced, for example, by an [...] for additional MDM8200 units by Huawei of 8 August 2010, in relation to which Huawei stressed that this supply would be [...]. Huawei noted in this respect that [...].[1340]

(960) In the second place, Qualcomm's claim contradicts the evolution of sales volumes of the two products across all buyers. Although the Net ASP of the MDM8200A for both Huawei and ZTE fell below that of the MDM8200 for the first time in the fourth quarter of 2010, the first quarter of 2011 was the third strongest quarter of the MDM8200's entire lifecycle, with [...] units sold overall (of which more than [...] to Huawei and ZTE). The commercially relevant part of the lifecycles of the two products therefore briefly overlapped, before the MDM8200 reached the end of its lifecycle in the second quarter of 2011 (see recital (130) above).

(961) Second, regarding the period late-2009 to mid-2010, when the MDM8200A had not yet been launched, Qualcomm argues that *"the price reductions related to unsold units of the soon-to-be superseded MDM8200 that were accumulating in Huawei's 'inventory' (i.e., chipsets ordered and delivered) and 'backlog' (i.e., chipsets ordered but not yet delivered), and which Huawei had difficulties consuming and hence were surplus to requirements"*,[1341] could not have had any anticompetitive effects, since *"Icera could never have sold the units in Huawei's inventory and backlog instead of Qualcomm"*.[1342] These claims are unfounded for the following reasons.

(962) In the first place, the price reductions on the MDM8200 to Huawei cannot be regarded as fire sales, as set out in section 12.9 below, notably because Huawei had already committed to taking these volumes at the previously agreed price, and because the contemporaneous evidence on the file demonstrates that Qualcomm's price reductions in late 2009 and March 2010 for Huawei's inventory and backlog were in reality a reaction to the growing threat from Icera as perceived by Qualcomm and thus part of Qualcomm's strategy to eliminate Icera.

(963) In the second place, Qualcomm's predatory prices to Huawei had the potential to harm competitors through their negative impact at the next level of the supply chain where chipset suppliers such as Qualcomm and Icera competed indirectly for orders

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1338 Qualcomm presentation titled [...], attached to Qualcomm internal e-mail of 1 December 2009, [...], pages 12-13.

1339 Qualcomm's SSO Response, [...], paragraphs (841), (852) and (853), and relatedly, (912), (927).

1340 E-mail of 5 August 2010 from Huawei's [...] to Qualcomm's [...] (position unknown), [...], pages 40-41.

1341 Qualcomm's SSO Response, [...], paragraph (843).

1342 Qualcomm's SSO Response, [...], paragraph (847).

of MNOs through the MBB devices of OEMs that incorporated their respective chipsets (see recital (405) above). Qualcomm's price reductions on the backlog and inventory units were in part motivated by:

(a) Huawei's concerns that ZTE was quoting an Icera based data card at 14.4 Mbps [...] and that *"[o]perator declared that ZTE's 14.4M Datacard (based on ICERA 8040) will be launched firstly."* Against this backdrop, Huawei requested that [...][1343] (see recital (475) above); and

(b) Huawei's concerns that [...][1344] (see recital (477) above).

12.7.1.3. The MDM6200 based chipset

(964) Table 56 at recital (967) below shows the results of the Commission's price-cost test with regard to the sales of the MDM6200 based chipsets to Huawei and ZTE during the period considered in the assessment of the price-cost test for the MDM6200, namely July 2010 to June 2011.

(965) The MDM6200 based chipsets were sold to Huawei and ZTE in two different configurations which were either equipped with the PM8028 ("Configuration 1") or with the PM8015 ("Configuration 2"). As explained in sections 12.5.3 and 12.6.2 above, the Commission was able to reconstruct the price and AVC for each of the two configurations separately, allowing the Commission to carry out its price-cost test for each of the two configurations individually.[1345] [...].[1346] [...]. However, as shown in Table 56 at recital (967) below, in all of the quarters for which the price-cost test was conducted for the MDM6200, the results show below-cost pricing either for both or for neither of the two configurations. [...].[1347]

(966) With regard to Huawei, the table shows that no below-cost sales took place during the period of July 2010 to June 2011.

(967) With regard to ZTE, the table shows that Qualcomm consistently failed to cover its LRAIC for its sales of the MDM6200 based chipset to ZTE between July 2010 and March 2011 (figures in bold). In the period from July 2010 to March 2011, the prices charged to ZTE were not sufficient to cover the AVC incurred by Qualcomm for the production of the MDM6200 based chipset. Consequently, negative gross margins are found, ranging between [...] and [...], as compared to those between [...] and [...] achieved in the subsequent period.

Table 56: MDM6200 - Results of the revised price-cost test

1) Huawei – MDM6200 – Configuration 1

Calendar Quarter	Volume (aggregate over both configs.)	Configuration 1					
		Price	AVC	R&D	LRAIC = AVC + R&D	TEST = Price - LRAIC	GROSS MARGIN = 1 - AVC/Price
Jul-Sep/2010	[...]	$16.62	$12.50	$0.96	$13.46	$3.16	24.77%

1343 Huawei presentation for Qualcomm of 23 September 2009 titled [...], page 7.
1344 Huawei presentation of November 2009 for Qualcomm & Huawei Business Meeting, [...], page 5.
1345 [...]
1346 Qualcomm's reply of 30 June 2017 to question 2 of Article 18(3) Decision of 31 March 2017, [...].
1347 See worksheet [...] included in Annex 10 to the SO Response, [...].

Oct-Dec/2010	[...]	$16.62	$10.79	$0.85	$11.64	$4.98	35.06%
Jan-Mar/2011	[...]	$13.23	$6.65	$0.95	$7.60	$5.63	49.74%
Apr-Jun/2011	[...]	$13.18	$6.26	$0.90	$7.16	$6.02	52.49%

2) Huawei – MDM6200 – Configuration 2[1348]

Calendar Quarter	Volume (aggregate over both configs.)	Configuration 2					
		Price	AVC	R&D	LRAIC = AVC + R&D	TEST = Price - LRAIC	GROSS MARGIN = 1 - AVC/Price
Jul-Sep/2010	[...]			$0.96			
Oct-Dec/2010	[...]			$0.85			
Jan-Mar/2011	[...]	$11.88	$6.47	$0.95	$7.42	$4.46	45.51%
Apr-Jun/2011	[...]	$11.82	$6.10	$0.90	$7.00	$4.82	48.37%

3) ZTE – MDM6200 – Configuration 1

Calendar Quarter	Volume (aggregate over both configs.)	Configuration 1					
		Price	AVC	R&D	LRAIC = AVC + R&D	TEST = Price - LRAIC	GROSS MARGIN = 1 - AVC/Price
Jul-Sep/2010	[...]	$10.89	$12.50	$0.96	$13.46	**-$2.57**	-14.81%
Oct-Dec/2010	[...]	$7.21	$10.79	$0.85	$11.64	**-$4.43**	-49.71%
Jan-Mar/2011	[...]	$6.33	$6.65	$0.95	$7.60	**-$1.27**	-5.05%
Apr-Jun/2011	[...]	$13.08	$6.26	$0.90	$7.16	$5.92	52.13%

4) ZTE – MDM6200 – Configuration 2[1349]

Calendar Quarter	Volume (aggregate over both configs.)	Configuration 2					
		Price	AVC	R&D	LRAIC = AVC + R&D	TEST = Price - LRAIC	GROSS MARGIN = 1 - AVC/Price
Jul-Sep/2010	[...]			$0.96			
Oct-Dec/2010	[...]			$0.85			
Jan-Mar/2011	[...]	$4.97	$6.47	$0.95	$7.42	**-$2.45**	-30.24%
Apr-Jun/2011	[...]	$11.81	$6.10	$0.90	$7.00	$4.81	48.33%

(968) As shown by Table 56 at recital (967) above, the volumes of the MDM6200 based chipset sold during the first year of sales to both Huawei and ZTE were particularly low. This was due to the fact that the MDM6200 based chipset did not manage to

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1348 Configuration 2 of the MDM6200 only started selling in January-March 2011, which is why there are no values available for prices and AVC of this configuration in July-September 2010 and October-December 2010.

1349 Configuration 2 of the MDM6200 only started selling in January-March 2011, which is why there are no values available for prices and AVC of this configuration in July-September 2010 and October-December 2010.

attract significant market interest in the early stages of its commercial life as a result of delays in its development and, more importantly, the capability of Icera's chipset solutions to support data rates higher than 14.4 Mbps. In light of these circumstances, the MDM6200 based chipset had lost part of the significance it had initially been assigned in Qualcomm's predatory strategy against Icera (see recitals (417)-(420) above).

(969) Qualcomm's pricing strategy against Icera with regard to the MDM6200 based chipset was limited to ZTE [...],[1350] [...].

(970) The below-cost sales of the MDM6200 to ZTE are the result of the [...] approved by the [...] on 21 December 2009 (see recital (509) above), as well as the subsequent gradual price reductions, in particular those approved by the [...] on 17 May 2010 (see recital (553) above) and 15 November 2010 (see recital (567) above). Nevertheless, despite Qualcomm's pricing concessions on the MDM6200 based chipset, market traction for chipsets supporting data rates of up to 14 Mbps remained *"poor"*[1351] in 2010, with shipments of the MDM6200 to ZTE eventually only reaching less than 100,000 units, corresponding to 7% of the originally forecasted number of sales of the MDM6200 to ZTE in calendar year 2010.[1352]

(971) Towards the beginning of 2011, Qualcomm eventually started shipping the MDM8200A based chipset to Huawei and ZTE in significant quantities (see section 12.7.1.4 below). Due to its ability to support speeds of up to 28 Mbps and in light of the fact that competition in the leading edge segment had by then shifted to speeds higher than 14.4 Mbps, the MDM8200A based chipset was better placed to counter the threat posed by Icera than the MDM6200 based chipset (see recitals (417)-(420) above). Consequently, the MDM6200 based chipset definitively lost its importance for the implementation of Qualcomm's predatory strategy against Icera, as reflected in the absence of any below-cost sales of the MDM6200 based chipset to Huawei and ZTE after March 2011.

12.7.1.4. The MDM8200A based chipset

(972) Table 57 at recital (975) below shows the results of the Commission's price-cost test with regard to the sales of the MDM8200A based chipset to Huawei and ZTE during the period considered in the assessment of the price-cost test for the MDM8200A, namely July 2010 to June 2011.

(973) Like the MDM6200 based chipsets, the MDM8200A based chipsets were sold to Huawei and ZTE in two different configurations which were either equipped with the PM8028 ("Configuration 1") or with the PM8015 ("Configuration 2"). As for the MDM6200 based chipset, it was possible to reconstruct a separate price and a separate AVC for each of the two configurations, [...]. Similarly to the MDM6200 based chipset, the Commission notes that, as shown in Table 57 at recital (975) below, in none of the quarters for which the price-cost test was conducted for the

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1350 Qualcomm internal presentation of 7 May 2010 titled [...], pages 7-8.

1351 Qualcomm internal e-mail of 18 October 2010 from [...] (Senior Director, QCT Product Management) to [...] ([Qualcomm management member]), [...], page 1.

1352 See presentation attached to Qualcomm internal e-mail of 10 December 2009 from [...] (Financial Analyst, Staff) to [...] ([QCT top management member]) and [...] (Senior Director, Finance) [...], page 3, which refers to a [...] for the MDM6200 of [...] units. Computation based on worksheet [...] included in Annex 10 to the SO Response, [...].

MDM8200A, did the test report below-cost pricing for one configuration and above-cost for the other. For this reason, for the purpose of computing the total sales made at a price below cost for either configuration, the Commission relied on the aggregate volume information at the generic chip level included in the [...].[1353]

(974) With regard to both Huawei and ZTE, the table shows that Qualcomm consistently failed to cover its LRAIC for its sales of the MDM8200A based chipset in all quarters between July 2010 and June 2011.

(975) The following table shows the results of the Commission's price-cost test for the MDM8200A based chipsets from July 2010 to June 2011 (results in bold for those quarters where prices are below costs).

Table 57: MDM8200A - Results of the revised price-cost test

1) Huawei – MDM8200A – Configuration 1

Calendar Quarter	Volume (aggregate over both configs.)	Configuration 1					
		Price	AVC	R&D	LRAIC = AVC + R&D	TEST = Price - LRAIC	GROSS MARGIN = 1 - AVC/Price
Jul-Sep/2010	[...]	$24.93	$10.58	$21.03	$31.61	**-$6.68**	57.56%
Oct-Dec/2010	[...]	$14.37	$9.19	$11.05	$20.25	**-$5.88**	36.01%
Jan-Mar/2011	[...]	$13.57	$7.80	$7.91	$15.71	**-$2.14**	42.52%
Apr-Jun/2011	[...]	$13.56	$7.36	$7.16	$14.51	**-$0.95**	45.74%

2) Huawei – MDM8200A – Configuration 2[1354]

Calendar Quarter	Volume (aggregate over both configs.)	Configuration 2					
		Price	AVC	R&D	LRAIC = AVC + R&D	TEST = Price - LRAIC	GROSS MARGIN = 1 - AVC/Price
Jul-Sep/2010	[...]			$21.03			
Oct-Dec/2010	[...]			$11.05			
Jan-Mar/2011	[...]	$12.22	$7.84	$7.91	$15.75	**-$3.53**	35.84%
Apr-Jun/2011	[...]	$12.20	$6.98	$7.16	$14.14	**-$1.94**	42.80%

3) ZTE – MDM8200A – Configuration 1

Calendar Quarter	Volume (aggregate over both configs.)	Configuration 1					
		Price	AVC	R&D	LRAIC = AVC + R&D	TEST = Price - LRAIC	GROSS MARGIN = 1 - AVC/Price

1353 See worksheet [...] included in Annex 10 to the SO Response, [...].

1354 Configuration 2 of the MDM8200A only started selling in January-March 2011, which is why there are no values available for prices and AVC of this configuration in July-September 2010 and October-December 2010.

Jul-Sep/2010	[...]	$25.63	$10.58	$21.03	$31.61	**-$5.98**	58.72%
Oct-Dec/2010	[...]	$14.95	$9.19	$11.05	$20.25	**-$5.30**	38.50%
Jan-Mar/2011	[...]	$14.49	$7.80	$7.91	$15.71	**-$1.22**	46.17%
Apr-Jun/2011	[...]	$14.26	$7.36	$7.16	$14.51	**-$0.25**	48.40%

4) ZTE – MDM8200A – Configuration 2[1355]

Calendar Quarter	Volume (aggregate over both configs.)	Configuration 2					
		Price	AVC	R&D	LRAIC = AVC + R&D	TEST = Price - LRAIC	GROSS MARGIN = 1 - AVC/Price
Jul-Sep/2010	[...]			$21.03			
Oct-Dec/2010	[...]			$11.05			
Jan-Mar/2011	[...]	$13.13	$7.84	$7.91	$15.75	**-$2.62**	40.28%
Apr-Jun/2011	[...]	$12.99	$6.98	$7.16	$14.14	**-$1.15**	46.27%

(976) In the case of Huawei, gross margins ranged from [...]% to [...]% across both configurations. In the case of ZTE, gross margins were between [...]% and [...]% across both configurations. Margins above 50% are only observed in the first quarter considered for the assessment (*i.e.* July-September 2010) for both buyers, during which the sales volumes were still low. Margins for Configuration 1 immediately dropped to [...]% for Huawei and [...]% for ZTE in October-December 2010, and increased to [...]% and [...]% respectively in the subsequent two quarters. Margins for Configuration 2 ranged between [...]% and [...]% for Huawei, and [...]% to [...]% for ZTE.

(977) The significant volumes of below-cost sales of the MDM8200A based chipset to both Huawei and ZTE, as listed in Table 57 at recital (975) above, confirm the crucial importance of this chipset for the purpose of implementing Qualcomm's strategy to eliminate Icera. Due to the limited initial commercial success of the MDM6200 based chipset, the MDM8200A based chipset (which constitutes an improved version of the MDM8200 based chipset, see section 12.6.3.2) effectively represented the only new chipset model Qualcomm could rely on from January 2011 onwards to prevent Icera from further expanding its market presence in the leading edge segment of the UMTS chipset market (see recitals (417)-(420) above). The below-cost sales of the MDM8200A reflect Qualcomm's determination to be *"aggressive"* in its pricing *"for a year or so"*, until the launch of a new chipset against which Icera would not be able to compete *"in die size (costs), performance, and multi-mode integration, etc."*[1356]

1355 Configuration 2 of the MDM8200A only started selling in January-March 2011, which is why there are no values available for prices and AVC of this configuration in July-September 2010 and October-December 2010.

1356 Qualcomm internal e-mail of 24 March 2010 from [...] ([Qualcomm management member]) to [...] (Director, Sales), [...] (Director, Sales), [...] (Director, QCT Product Management), [...] (Staff Manager, Marketing), [...] (Director, Marketing), [...] ([Qualcomm management member]) and others, copying [...] (Financial Analyst, Staff), [...], page 1.

(978) As evidenced in sections 12.4.2.6 to 12.4.2.11 above, the price reductions granted on the MDM8200A to Huawei and ZTE as approved by the [...] on 17 May 2010 (see recital (553) above), 28 May 2010 (see recital (557) above), 25 October 2010 (see recital (566) above), 23 November 2010 (see recital (569) above), 13 January 2011 (see recital (572) above) and 16 and 25 May 2011 (see recitals (580) and (582) above) were clearly intended to implement Qualcomm's below-cost pricing strategy aimed at eliminating Icera. As of the second half of 2011, competition from Icera figured less prominently in Qualcomm's contemporaneous documents concerning pricing decisions in the leading edge segment of the UMTS chipset market. This is because, as explained in recitals (431)-(434) above, in the months following the acquisition of Icera by Nvidia, the threat posed by Icera, as perceived by Qualcomm, ultimately visibly decreased. The Commission therefore does not make any finding as of the second half of 2011.

(979) The Commission notes that margins in the range of [...]% to [...]%, as prevailed for the MDM8200A (Config. 1) during the first half of 2011 when the majority of predatory sales of the MDM8200A occurred, are very close to the QCT-wide average margins observed during the period 2009 to 2011, which were at 51% in 2009 and 2010, and fell to 45% in 2011, as shown in Table 58 below.[1357]

Table 58: QCT Average Gross Margin 2009 - 2011[1358]

Fiscal Year	2009	2010	2011
Revenues			
Qualcomm CDMA Technologies (QCT)	$6,135.00	$6,695.00	$8,859.00
Cost Of Goods Sold	$3,025.00	$3,301.00	$4,877.00
Gross Profit	**$3,110.00**	**$3,394.00**	**$3,982.00**
Gross Margin	**51%**	**51%**	**45%**

(980) This shows that in the first half of 2011, the MDM8200A only generated about the same margin as Qualcomm's entire baseband chip business generated on average in fiscal year 2011. This does not correspond to the typical margin development of a premium chip at the height of its profitability (*i.e.* one year after its launch, and still several quarters or even years away from commoditisation).[1359] The QCT-wide gross margin is an average figure across many different chip qualities, from leading edge to mass market chips, and across chips at different points in their lifecycle. A leading edge chip as the MDM8200A was in the Relevant Period would, under normal conditions, be expected to have a higher than average gross margin among Qualcomm's chipsets.

1357 Margins for the MDM8200 were much lower than those of the MDM8200A for all predatory sales of the MDM8200, and were negative for those sales of the MDM6200 identified as predatory by the price-cost test.

1358 Qualcomm's Form 10-K of fiscal years 2009, 2010 and 2011 printed from http://investor.qualcomm.com/annuals-proxies.cfm on 21 February 2018 (Form 10-K 2009: [...]; Form 10-K 2010: [...]; Form 10-K 2011: [...]).

1359 Qualcomm claims that in light of the phenomenon of *"commoditisation"*, the Commission's *"required margin analysis, especially for the MDM8200A, is clearly prone to Type 1 errors, otherwise known as 'false positives'"*, see Qualcomm's SSO Response, [...], paragraph (776). The Commission notes that commoditisation can clearly not explain low margins in a leading edge chipset that is at the very beginning of its lifecycle, such as the MDM8200A during the period relevant for the price-cost test.

(981) These findings are not called into question by Qualcomm's arguments in this regard.

(982) First, Qualcomm claims with respect to the Commission's reasoning in recital (980) above that the Commission *"provides no evidence to support this assertion"*.[1360] This is incorrect since the Commission has provided an analysis of the gross margins for the MDM6290, a product not under investigation (Figure 32 at recital (901) above), and the gross margins Qualcomm earned on buyers other than Huawei and ZTE for the MDM8200 (Figure 31 at recital (900) above). Both graphs show that Qualcomm's margins for these commercially well performing chipsets consistently exceeded 50% or even 60% for at least five, and up to eight, quarters at the beginning of their lifecycle. In contrast, the margins earned on Huawei and ZTE for the MDM8200A exceeded 50% only in the first quarter considered in the assessment, and immediately dropped to below 40% in the third quarter after its launch.

(983) Second, Qualcomm claims that the Commission's finding that the MDM8200A only generated about the same margin as Qualcomm's entire baseband chip business generated on average in fiscal year 2011 *"confirms that the prices charged for the MDM8200A were not predatory."*[1361] This claim misinterprets the price-cost test carried out by the Commission in this case. In fact, the Commission's price-cost test is not based on a comparison between Qualcomm's average gross margins and its average R&D costs, but between the MDM8200A's gross margin (which coincides with Qualcomm's average gross margin) with its product-specific development costs (which largely exceed Qualcomm's average R&D costs).

(984) Third, Qualcomm wrongly claims that there is *"no difference in pricing between periods of alleged predation and periods in which no predation is alleged"*,[1362] with reference to the last two quarters of 2011.[1363]

(985) In the first place, the pricing in the last two quarters of 2011 is irrelevant as the Commission makes no finding about such period.

(986) In the second place, the fact that, beyond the period assessed by the Commission, the price-cost test would find below-cost sales and margin reductions also in the second half of 2011 could be explained by various reasons, including the following: (i) [...];[1364] (ii) the tendency of falling prices and shrinking margins during a chipset's lifecycle (see recitals (898)-(902) above) and the resulting difficulty to implement sudden price increases;[1365] as well as (iii) the fact that it cannot be excluded that further price reductions granted during the second half of 2011 were addressed at [...] (see recital (396) above).

(987) In the third place, contemporaneous documents on the file (see, *e.g.*, recitals (518), (536) and (564) above) show that Qualcomm's strategy consisted in sacrificing

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1360 Qualcomm's SSO Response, [...], paragraphs (878), (888).

1361 Qualcomm's SSO Response, [...], paragraph (888).

1362 Qualcomm's SSO Response, [...], paragraphs (885)-(887).

1363 If the price-cost test for the MDM8200A was also carried out for the last two quarters of 2011, the results would show continued below-cost pricing for this chipset to both buyers also for July-September 2011 and October-December 2011, see SSO, Table 53 at recital (624).

1364 See *e.g.*, [...]. See summary of [...] approvals provided in section 12.4.2.13 above.

1365 Given that the price of a baseband chip would have to naturally decrease over its lifecycle, keeping the price of a baseband chip constant towards the middle and end of a chipset's lifecycle is equivalent to a price increase in a different industry, which, unlike the baseband chipset industry, is characterised by stable cost and demand structures over time.

margins for leading edge UMTS chipsets for incorporation in MBB devices in order to protect its dominance in the entire UMTS chipset market, and in particular its strong position in the high-volume segment of baseband chipsets for use in smartphones, which was being threatened by Icera when Qualcomm's predatory pricing started. The success of this strategy did therefore not depend on an increase in the price for the MDM8200A after the second quarter of 2011. In any event, such recoupment through higher prices on this chipset at that point in time would have been difficult to implement, considering the natural tendency of chipset margins to decrease over the lifecycle (see recitals (898)-(902) above), driven by the commoditisation of chipsets as the technological frontier moves on over time (see recitals (500) and (522) as well as footnote 1292 above).

(988) Fourth, Qualcomm claims that without the reallocation of spill-overs from the MDM8200 to the MDM8200A, the Commission would not have found a single instance of below-cost sales of the MDM8200A.[1366] However, the Commission's reallocation of spill-overs was necessary in view of the unique relationship between these two products (see section 12.6.3.2 above). In any event, the price-cost test would indicate below-cost pricing for the MDM8200A for a broad range of possible reallocations of spill-overs from the MDM8200 to its successor product, as demonstrated by the fact that the lifetime profitability assessment pooling both the revenues and the manufacturing and development costs of the two products together shows that the joint project had a negative lifetime net margin (see section 12.7.3 below).

12.7.2. Extent and duration of Qualcomm's predatory sales

(989) In light of the results of the price-cost test presented in section 12.7.1 above, the Commission concludes that between 1 July 2009 and 30 June 2011 ("infringement period") Qualcomm engaged in below-cost sales with regard to [...] units of the MDM8200, MDM6200 and MDM8200A based chipsets to Huawei and ZTE.

(990) This total amount of predatory units consists of [...] units (Huawei) and [...] units (ZTE) of the MDM8200 based chipset, [...] units (ZTE) of the MDM6200 based chipset, and [...] units (Huawei) and [...] units (ZTE) of the MDM8200A based chipset. This corresponds, for each of the chipsets under investigation, to the following percentage of total sales of each chipset to Huawei and ZTE (separately and combined).

Table 59: Percentage of predatory sales to Huawei and ZTE in the leading edge segment (1 July 2009 to 30 June 2011)

	MDM8200	MDM6200	MDM8200A	Total
Sales to Huawei	100%	0%	100%	99%
Sales to ZTE	43%	91%	100%	68%
Sales to Huawei and ZTE	85%	64%	100%	92%

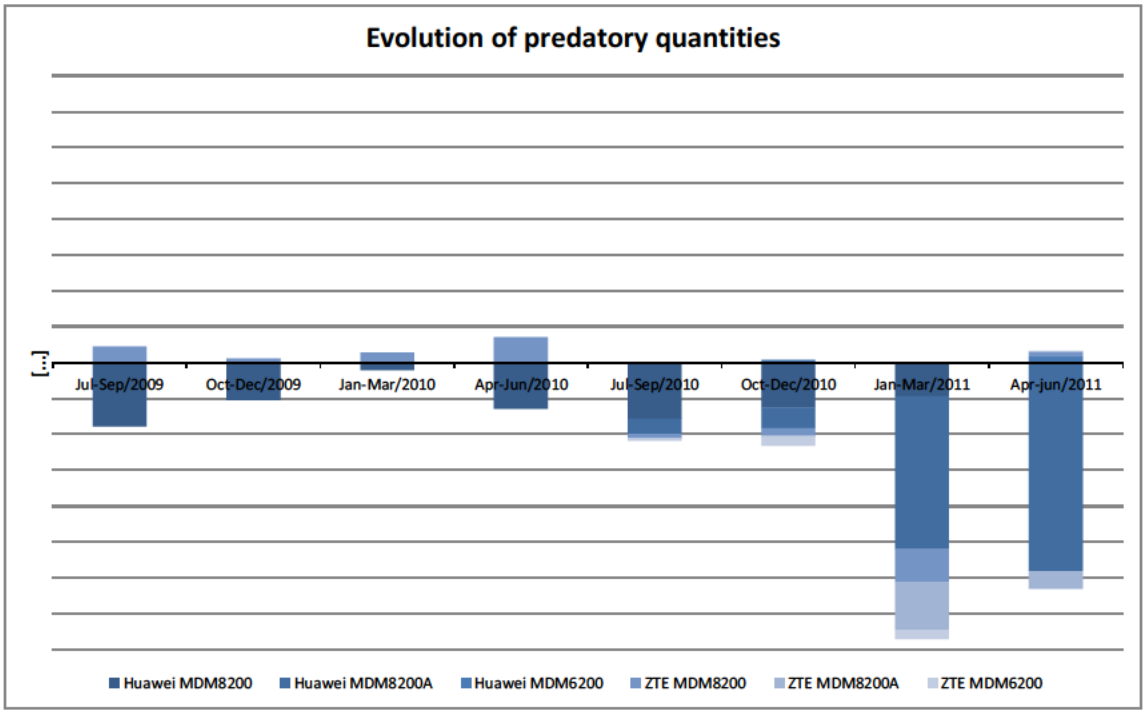
(991) The Commission's finding with regard to the total of predatory sales for both customers (*i.e.* 92% in Table 59 above) is not called into question by Qualcomm's claim that it is *"based on the wrong denominator"*, because it *"excludes not only the*

[1366] Qualcomm's SSO Response, [...], paragraph (750), and Qualcomm's follow-up submission to the Oral Hearing of 10 January 2019, [...], paragraph (115).

volume of all other UMTS baseband chipsets sold to those two customers but also to other customers during the relevant period."[1367] This argument is incorrect, because the denominator should not encompass more units than those over which the Commission carried out the price-cost test, namely UMTS baseband chipsets in the leading edge segment offered to customers Huawei and ZTE. The Commission focussed its investigation on this subset of Qualcomm's sales of UMTS baseband chipsets because it had identified them as the ones affected by Qualcomm's strategy, as explained in section 12.4 above.

(992) Figure 33 below shows the evolution over time of Qualcomm's sales of the three chipsets under investigation to Huawei and ZTE in the infringement period. For each quarter, the graph reports the total units of the three chipsets under investigation sold to both Huawei and ZTE. When the units are sold at a price covering the measure of LRAIC for that quarter, they are reported in the upper portion of the graph (*i.e.* above the horizontal axis). When they are made at a price below the LRAIC for that quarter, they are reported in the lower portion of the graph (*i.e.* below the horizontal axis). Below-LRAIC sales include below-AVC sales of the MDM6200 based chipset to ZTE (see recital (967) above).

Figure 33: Evolution of Qualcomm's sales to Huawei and ZTE made below and above cost during the infringement period



(993) The graph above shows a continuous pattern of below-cost pricing for the three chipsets under investigation, which is consistent with Qualcomm's overall strategy aimed at containing the market traction of Icera (see section 12.4 above). This overall strategy was accomplished first on the MDM8200 based chipset with the aim of migrating its customers Huawei and ZTE from this chipset to the more advanced MDM6200 and MDM8200A. Once the limited initial success of the MDM6200

1367 Qualcomm's SSO Response, [...], paragraph (809).

based chipset became clear, Qualcomm's pricing strategy focused on the MDM8200A based chipsets whose price failed to cover costs in each quarter of the infringement period.

(994) The Commission's results of its price-cost test are not put into question by the analysis presented by Qualcomm in the [...],[1368] which *"applied the SSO's adopted price-cost test to the adjusted, correct data"* to purportedly demonstrate that *"even the SSO's price-cost test, as adjusted, shows that Qualcomm did not engage in predatory pricing"*.[1369] The *"adjustments"* carried out in the [...] are the following:[1370]

(a) The [...] payments granted to Huawei for the MDM8200, and to ZTE for the MDM6200, are excluded from the calculation of the respective unit prices and instead added to the MDM8200A cost base.

(b) Qualcomm excluded two line entries (namely [...] and [...]) from the development costs attributable to the MDM8200 and MDM8200A. For the MDM8200, Qualcomm also subtracted USD [...] of [...] (see recital (849) above).

(c) No R&D costs from the MDM8200 were reallocated to the MDM8200A.

(d) The allocation of the remaining fixed costs over time was performed based on the volume of units sold in each quarter, rather than based on revenues.

(995) All of these *"adjustments"* lead to either higher prices, or lower costs, of the respective products, and thus yield radically different results of the price-cost test.[1371] In particular:

(a) For the MDM8200 and customer Huawei, prices are below cost in only three quarters throughout the infringement period, namely the second, third, and fourth quarter of 2010. For the MDM8200 and customer ZTE, prices are below cost in only one quarter, namely the third quarter of 2010.

(b) For the MDM6200 and MDM8200A, prices are always above cost for both configurations and both customers throughout all eight quarters of the infringement period.

(996) The Commission rejects the adjustments made by Qualcomm in the [...] for the following reasons.

(997) First, Qualcomm's reallocation of the two [...] payments towards the cost base of the MDM8200A disregards the documentary evidence set out in recitals (677)-(686) above, which shows that Qualcomm's intention behind these two [...] payments was to grant further price discounts to Huawei for its purchases of the MDM8200 in the last two quarters of 2009, and to ZTE for its purchases of the MDM6200 throughout 2010.

(998) Second, Qualcomm's exclusion of the two line entries [...] and [...] from the incremental development costs of the MDM8200 and MDM8200A is inconsistent

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1368 Annex 5.c to Qualcomm's SSO Response, [...].

1369 Qualcomm's SSO Response, [...], paragraph (919).

1370 Qualcomm's SSO Response, [...], paragraphs (920)-(923), and Annex 5 to Qualcomm's SSO Response, *Icera: SSO price-cost test*, [...], paragraphs 4.28-4.35.

1371 Qualcomm's SSO Response, [...], paragraphs (925)-(939), and Annex 5 to Qualcomm's SSO Response, *Icera: SSO price-cost test*, [...], paragraphs 4.42-4.50.

with Qualcomm's own assessment as expressed in the business case for the [...],[1372] according to which these two cost components are part of Qualcomm's Incremental R&D costs.

(999) Third, with regard to the exclusion of specific overhead allocations, the Commission notes the following.

(1000) In the first place, Qualcomm motivates the exclusion of the two line entries [...] and [...] in the [...] from the LRAIC measure for the MDM8200 and MDM8200A with reference to the fact that these cost components contain overhead allocations (rather than being directly recorded against the relevant chips), which Qualcomm considers incompatible with the concept of incremental cost. Yet, Qualcomm then submits that *"this does not mean that the resulting cost measure includes only incremental costs (as it should) given the presence of spill-over effects to future chipsets and to potential licensing and given that, as explained above, R&D costs are not incremental to individual customers."*[1373] Thus, while the [...] purports to correct for the Commission's errors in constructing the appropriate cost measure,[1374] it does not provide any insight as to how Qualcomm would define incremental costs of any of its chipsets in this case.

(1001) In the second place, adjusting the cost measure for the MDM8200 and the MDM8200A is inconsistent with retaining the [...] costs in the cost base of the MDM6200. [1375] Thus, while Qualcomm disputes that [...] costs are incremental to the product to which the [...] attributes these costs, Qualcomm seems to accept that the [...] costs reported for the MDM6200/6600 are, at least partly, incremental to the MDM6200.

(1002) In the third place, the exclusion of the [...] costs cannot be considered a misallocation to the MDM8200 for the reasons set out in recitals (850)-(857) above.

(1003) In the fourth place, Qualcomm claims that the motivation for the exclusion of line entries [...], and [...] was that these cost categories *"result from the allocation of common costs"*, which *"are not incremental to the chipsets in question,* [and hence] *they are not part of LRAIC"*.[1376] However, Qualcomm included in its alternative cost measure the cost category [...], which, as Qualcomm explained, *"are also the result of allocations, i.e., they are not recorded directly against any chip"*.[1377] The inclusion of the line entry [...] is thus inconsistent with Qualcomm's exclusion of cost categories based on the criterion that those entries are the result of allocations.

(1004) Fourth, as set out in section 12.6.3.2 above, not accounting for the spill-overs generated by the MDM8200 for the MDM8200A would lead to an overestimation of the incremental development costs for the former, and an underestimation of those costs for the latter.

1372 Annex 5.1 of Qualcomm's reply of 12 January 2015 to question 5 of Article 18(3) Decision of 13 October 2014, [...] (the [...] for [...], dated [...]), pages 3 and 22.

1373 Qualcomm's SSO Response, [...], paragraphs (921)-(705), and Annex 5 to Qualcomm's SSO Response, *Icera: SSO price-cost test*, [...], paragraph 4.31.

1374 Qualcomm's SSO Response, [...], paragraph (919).

1375 In Annex 5.c to Qualcomm's SSO Response, [...] then allocates the full [...] considered by the Commission as relevant lifetime incremental development cost to the sales of the MDM6200 [...].

1376 Annex 5 to Qualcomm's SSO Response, *Icera: SSO price-cost test*, [...], paragraph 4.30.

1377 Qualcomm's SSO Response, [...], paragraph (693(vi)).

(1005) Fifth, as set out in recital (905) above, a volume-based approach to allocating the incremental development costs over time is inappropriate in this case given the characteristics of the baseband chipset industry, notably its tendency of diminishing margins towards the mid and end of a product's lifecycle. Given such a margin profile, a volume-based allocation method allocates relatively more costs towards the end of the product lifecycle, when volumes are high but margins are low. Such a volume-based allocation method is therefore not able to capture the expected contribution of each sale of a given chipset to the recoupment of the incremental R&D costs for that chipset.

(1006) Sixth, the adjustments performed by Qualcomm bring the required margin during the infringement period down to levels of [...] to [...] for the MDM8200, [...] to [...] for the MDM6200, and [...] to [...] for the MDM8200A. These figures are much lower than those observed in the baseband chipset industry among fabless chipset suppliers that were active during the Relevant Period, of which many eventually left the industry (see section 9 above and recital (1069) below).[1378]

12.7.3. Analysis of Lifetime Profitability of the MDM8200, the MDM8200A, and the Joint Project

(1007) As is clear from the foregoing, the Commission's conclusion that Qualcomm engaged in below-cost pricing during for the Relevant Period is based on the comparison of the relevant prices as established in section 12.5 above to the LRAIC for the chipsets under investigation as laid out in section 12.6 above. For the reasons set out above, the Commission considers this methodology to be the most appropriate in this case.

(1008) In light of Qualcomm's arguments regarding the Commission's treatment of spill-overs and its allocation of incremental development costs to specific sales (see recitals (881)-(887) and (916)-(936)), however, and as a robustness check to verify the correctness of the Commission's findings, the Commission has also performed the following lifetime profitability analysis. This analysis shows that the Commission's finding of a consistent pattern of below-cost pricing of the MDM8200 and MDM8200A based chipsets during the infringement period, as set out in section 12.7.1 above, does not depend on the reference period for which the Commission's price-cost test is carried out (*i.e.* quarterly, see recitals (608)-(610) above), nor on the precise allocation method for the incremental development costs (see section 12.6.3.4 above). This is because the joint-project lifetime revenues of the MDM8200 and the MDM8200A based chipsets were not sufficient to cover their manufacturing costs and the Incremental R&D Costs incurred in their development, even under the broadest possible definition of revenues, *i.e.* including revenues generated by the two chipsets from all customers (not just Huawei and ZTE), and including all revenues earned after the second calendar quarter of 2011, *i.e.* after the end of the period being considered in this case.[1379] This disproves Qualcomm's claim that the inclusion of all

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1378 According to Nvidia's Final Slide Deck for the Oral Hearing of 10 November 2016, [...], pages 61 and 62, the median gross margin among specialised fabless semiconductor suppliers ranged between [...] and [...] during the Relevant Period (figures based on S&P's Capital IQ database), and values in the much lower range of [...] to [...] are only observed for one such supplier [...].

1379 The Commission notes that no such lifetime profitability analysis was carried out for the MDM6200. This is because, as explained in recital (891) above, the only predatory sales found by the Commission for sales of the MDM6200 to ZTE concern quarters in which the prices are found to be below AVC, so

buyers of the relevant chipsets (instead of only Huawei and ZTE) and a broader time horizon would show that Qualcomm's sales during the infringement period were not predatory.[1380]

(1009) Section 12.7.3.1 presents the Commission's analysis of the sum of lifetime revenues, and the sum of lifetime manufacturing and development costs, for each of the MDM8200 and MDM8200A based chipsets, as well as for the joint project pooling these two chipsets together. Section 12.7.3.2 presents the analogous results when the same revenues and costs are discounted over the chipsets' lifetime [...] (see recital (894) and Table 60 below), so that the comparison of undiscounted revenues and costs could overstate the chipsets' actual profitability.

12.7.3.1. Analysis of Lifetime Net Margins

(1010) The following table shows the quarterly values of revenue and variable costs [...], and of development costs [...], for the MDM8200 and MDM8200A, as well as the lifetime aggregates of these three metrics for both chipsets.

Table 60: Quarterly Aggregate Accounting Revenue, [...] Variable Costs, and Incremental R&D Costs for the MDM8200 and MDM8200A chipsets, CQ1/2005 to CQ3/2014, in USD

	MDM8200 chipset			MDM8200A chipset		
Calendar Quarter	Revenue	Variable Costs	Incremental R&D Costs	Revenue	Variable Costs	Incremental R&D Costs
2005-Q1			[...]			
2005-Q2			[...]			
2005-Q3			[...]			
2005-Q4			[...]			
2006-Q1			[...]			
2006-Q2			[...]			
2006-Q3			[...]			
2006-Q4			[...]			
2007-Q1			[...]			
2007-Q2			[...]			
2007-Q3			[...]			
2007-Q4			[...]			
2008-Q1			[...]			
2008-Q2	[...]*)	[...]**)	[...]			
2008-Q3	[...]	[...]**)	[...]			
2008-Q4	[...]	[...]**)	[...]			
2009-Q1	[...]	[...]	[...]			
2009-Q2	[...]	[...]	[...]			

that the exact allocation of the incremental costs to this chipset does not alter the overall outcome of the price-cost test.

1380 Annex 10 to the SO Response, [...].

2009-Q3	[...]	[...]	[...]			[...]
2009-Q4	[...]	[...]	[...]			[...]
2010-Q1	[...]	[...]	[...]	[...]	[...]	[...]
2010-Q2	[...]	[...]	[...]	[...]	[...]	[...]
2010-Q3	[...]	[...]	[...]	[...]	[...]	[...]
2010-Q4	[...]	[...]	[...]	[...]	[...]	[...]
2011-Q1	[...]	[...]	[...]	[...]	[...]	[...]
2011-Q2	[...]	[...]	[...]	[...]	[...]	[...]
2011-Q3	[...]	[...]	[...]	[...]	[...]	[...]
2011-Q4	[...]	[...]	[...]	[...]	[...]	[...]
2012-Q1			[...]	[...]	[...]	[...]
2012-Q2			[...]	[...]	[...]	[...]
2012-Q3			[...]	[...]	[...]	[...]
2012-Q4			[...]	[...]	[...]	[...]
2013-Q1			[...]	[...]	[...]	[...]
2013-Q2			[...]	[...]	[...]	[...]
2013-Q3			[...]	[...]***)	[...]****)	[...]
2013-Q4			[...]			[...]
2014-Q1			[...]			[...]
2014-Q2			[...]			[...]
2014-Q3			[...]			[...]
TOTAL	[...]	[...]	[...]	[...]	[...]	[...]
Volumes			[...]			[...]

*) [...]
**) no information available on variable costs in this quarter because it falls into the period prior to commercial launch of the chipset
***) [...]
****) [...]

(1011) For the computation of the chipset revenue, the Commission relied on Qualcomm's accounting information as provided by Qualcomm for the MDM8200 and the MDM8200A.[1381] The chipset revenue was calculated [...][1382] [...] across all customers who bought any of the two chipsets in any given quarter. To quantify the variable costs of the two chipsets, the Commission relied on Qualcomm's [...] cost data and multiplied the AUC value for the chipset[1383] in a given quarter by the sales volume of the respective baseband chip across all buyers recorded in that quarter. Finally, the development cost level corresponds to the quarterly Incremental R&D costs recorded in the [...].

1381 See worksheet [...] included in Annex 10 to the SO Response, [...].
1382 [...]
1383 [...]

(1012) The Commission then calculated the average revenue, average variable cost, and average Incremental R&D Costs for each of the two chipsets over the entire lifetime of these chipsets by dividing the respective lifetime aggregates calculated in Table 60 at recital (1010) above by the chipset's lifetime volumes, namely [...] units of the MDM8200 and [...] units of the MDM8200A. The same computation was replicated for the two chipsets considered as a joint project, summing up horizontally the lifetime revenues, variable costs, and Incremental R&D Costs for the two chipsets, and dividing these figures by the joint lifetime sales of [...] units. Finally, the Commission calculated the "Lifetime Net Margin" of the two chipsets and the joint project by subtracting the lifetime pro-rata Incremental R&D Costs and the lifetime AVC from the lifetime ASP. The results are shown in Table 61 below.

Table 61: Lifetime ASP, lifetime pro-rata Incremental R&D Costs, lifetime AVC, and resulting net average lifetime margin, for the MDM8200 and MDM8200A, and for the joint project, in USD

	MDM8200	MDM8200A	Joint project
Lifetime ASP	[...]	[...]	[...]
Lifetime Incremental R&D Costs pro rata	[...]	[...]	[...]
Lifetime AVC	[...]	[...]	[...]
Lifetime Net Margin	[...]	[...]	[...]

(1013) Table 61 above shows that the MDM8200 earned a negative Lifetime Net Margin of USD [...], while the MDM8200A earned a positive Lifetime Net Margin of USD [...], over their respective lifetime. For the reasons explained in section 12.6.3.4 above, the lifetime pro-rata Incremental R&D Costs of the MDM8200A of USD [...] likely underestimate the true level, because most of the R&D that benefitted the MDM8200A was recorded against the predecessor model, the MDM8200. Once the two chipsets are considered as a joint project, the resulting Lifetime Net Margin is a weighted average of the strongly negative Lifetime Net Margin of the MDM8200, and the slightly positive Lifetime Net Margin of the MDM8200A, resulting in an overall negative Lifetime Net Margin of USD [...].

(1014) These findings confirm the significance of Qualcomm's below-cost pricing for both chipsets also from a product lifetime perspective, and show that the results of the price-cost test as presented in section 12.7.1 above do not depend on the particular reference period (*e.g.* quarterly) for which this test is conducted. They also show that any allocation method chosen to allocate the Incremental R&D Costs to individual quarters (and across the two chipsets) will lead to below-cost pricing in at least some of the quarters, and that the losses incurred in these quarters cannot be compensated by any profits earned in the remaining above-cost quarters.

(1015) These findings are not called into question by Qualcomm's claims in this regard.

(1016) First, Qualcomm claims that the Commission's *"theory of harm and/or cost measure for these chipsets must be wrong"* because *"all sales of the MDM8200 and MDM8200A to all customers were insufficient to recover the alleged LRAIC of these chipsets"*.[1384] However, the Commission's theory of harm holds that Qualcomm's predatory strategy focussed on a subset of its products, namely certain chipsets for

[1384] Qualcomm's SSO Response, [...], paragraph (742).

MBB devices in the leading edge segment of the UMTS chipset market, with respect to two key customers, namely Huawei and ZTE, during the infringement period, in order to protect its dominant position on the entirety of the UMTS baseband chipset market. This theory of harm does not allege that Qualcomm intended to recover the losses incurred on sales of the three chipsets under investigation to Huawei and ZTE by charging higher prices for the very same three chipsets to other customers, or in other periods outside of the infringement period (see also recital (987) above). A finding that the revenue earned on these other customers and in the aftermath of the infringement period would have been insufficient to cover the three chipsets' LRAIC, therefore, does not contradict the Commission's theory of harm.

(1017) Second, Qualcomm claims that a negative lifetime net margin on these two chipsets (*i.e.* MDM8200 and MDM8200A) implies that the Commission's cost measure is not correctly specified. This claim is unfounded, because the purpose of the Commission's lifetime analysis is precisely to test the robustness of the Commission's construction of its cost measure, both with respect to the allocation of cost over time, and across the two chipsets. The Commission's findings of Table 61 at recital (1012) above demonstrate that the lifetime net margin is negative even for a very generic measure of LRAIC, which does not pin down the exact allocation of the chips' LRAIC over time, nor the allocation across the two chips. This finding gives comfort that the Commission's results of the price-cost test are robust to a broad range of specifications of the cost measure.

(1018) Third, Qualcomm claims that the Commission's lifetime profitability analysis *"implies that Qualcomm engaged in below-cost pricing to other purchasers of the MDM8200 and the MDM8200A within and after the alleged predation period. However, the SSO does not allege any predation in relation to those sales."*[1385] This claim is incorrect. The Commission's results of the lifetime profitability analysis imply that Qualcomm engaged in below-cost pricing to at least some of its customers in at least part of the two chipsets' lifecycles, and that any above-cost prices potentially charged to other customers and/or in other periods during these lifecycles were not sufficient to compensate the losses incurred in those periods where prices were below cost for some customers. Since the lifetime profitability analysis pools the chipsets' revenues across all customers and all periods, this test cannot be used to identify specific periods in which below-cost pricing occurred, nor the customers who were charged such below-cost prices, and therefore cannot have any such implications for *"other purchasers"* or specific periods *"within and after the alleged predation period"*. In any event, the claim is irrelevant since the Commission only finds predation as regards customers Huawei and ZTE within the infringement period.

(1019) Fourth, Qualcomm claims that the Commission's finding *"that the MDM8200A increased Qualcomm's overall profitability provides further illustration that the SSO's reallocation to the MDM8200A of R&D costs associated in the* [...] *with the MDM8200 is inconsistent with the concept of incremental costs."*[1386] This claim misinterprets the Commission's lifetime profitability analysis. This analysis shows that, when considered in isolation (and without accounting for any spill-overs

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1385 Qualcomm's follow-up submission to the Oral Hearing of 10 January 2019, [...], paragraph (142), and footnote 193.

1386 Qualcomm's follow-up submission to the Oral Hearing of 10 January 2019, [...], paragraph (141).

between the two chipsets), the MDM8200 had a large negative lifetime net margin, while the MDM8200A had a small positive lifetime net margin. However, when considering the two chipsets as one single project, so that the exact delineation of development costs that are incremental to either one or the other chipset becomes irrelevant, it becomes apparent that not even the positive net margin earned on the MDM8200A over its entire lifetime could have compensated the large development costs incurred for both chipsets in the aggregate. This finding does not contradict Qualcomm's observation that Qualcomm's losses would have been even larger if the MDM8200A had never been developed.

12.7.3.2. Analysis of Discounted Revenues and Costs over the Lifetime of the MDM8200, MDM8200A, and the Joint Project

(1020) The failure of the MDM8200 and MDM8200A chipsets, both individually (for the MDM8200), and jointly, to recover their development and manufacturing cost over their lifetime becomes even more pronounced once the timing of expenditures and revenues is taken into account. A direct comparison of the aggregate development and manufacturing costs of the MDM8200 with its aggregate revenue as presented in Table 60 at recital (1012) above (*i.e.* USD [...] of incremental development costs and USD [...] of manufacturing costs against USD [...] of revenues) ignores the fact that more than USD [...] of development costs were incurred [...]. Such a comparison could thus overestimate the real profitability of the chipset, because each dollar of revenues is given the same weight (no matter if it was earned in 2008, 2009, or as late as 2011), and likewise each dollar spent on development costs is given the same weight, although some of these costs were incurred [...], implying a considerable waiting cost in which the capital used to finance the R&D could not be used otherwise.

(1021) To account for the time value of money of both expenditures and revenues in this case, the Commission has calculated the "Net Discounted Surplus" (NDS) based on the sum of discounted lifetime revenues, variable costs, and incremental development costs of the two chipsets, according to the following formula:[1387]

$$NDS = \sum_{t=1}^{T} (R_t - VC_t - DC_t)(1 + r)^{-t}$$

(1022) In this formula, the term R_t represents revenue generated by the chipset in quarter t; VC_t are the variable costs of the chipset in quarter t; and DC_t represents the chip's quarterly incremental development costs. The time index t runs from the first quarter in which a positive value for DC_t is recorded for the given chipset (with the first recorded expenditure on development cost marking the beginning of the chipset's lifecycle), to the end period T, which coincides with the third quarter of 2014 (the last quarter for which observations in the [...] were available).[1388] Finally, the net

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1387 This formula corresponds to the standard formula of the Net Present Value (NPV) as routinely calculated in corporate finance to decide on the implementation of investment projects, based on their expected lifetime revenues and costs. In contrast to a standard NPV analysis, the Commission calculated in this case the discounted value of realised revenues and realised costs, *i.e.* the *ex post* realised NPV, rather than the *ex ante* expected NPV. Moreover, the calculation is based on accounting values for revenues and costs, rather than actual cash-flows and expenditures, which is why the term "Net Discounted Surplus" is used.

1388 [...]

surplus in any given quarter, $R_t - VC_t - DC_t$, is weighted by the discount factor, $(1+r)^{-t}$, thus giving a higher weight to revenues earned, and costs incurred, early on in the chipset lifecycle, while giving a lower weight to those in the later phase of the lifecycle. In this expression, r (the quarterly interest rate) is approximated by Qualcomm's Weighted Average Cost of Capital (WACC) of 8% per annum, which translates into a quarterly WACC rate of 1.9427% (assuming compounding of interest also at the quarterly level).[1389]

(1023) Based on this formula, the Commission used the quarterly data given in Table 60 at recital (1012) above to compute the NDS by subtracting the sum of discounted variable costs and incremental development costs from the discounted lifetime revenues: (i) for the MDM8200 over the time horizon from Q1/2005 to Q3/2014; (ii) for the MDM8200A over the time horizon from Q3/2009 to Q3/2014; and (iii) for the two chipsets considered as a joint project (*i.e.* adding up the two values for revenue, variable cost, and development cost, quarter by quarter) over the time horizon from Q1/2005 to Q3/2014. The results are presented in the following table:

Table 62: Discounted lifetime revenues, variable costs, and incremental development costs for MDM8200 and MDM8200A chipsets, and joint project, CQ1/2005 to CQ3/2014

	(a) MDM8200 (CQ1/2005 - CQ3/2014)	**(b) MDM8200A (CQ3/2009 - CQ3/2014)**	**(c)[1390] Joint project (CQ1/2005 - CQ3/2014)**
Sum of Total discounted Revenue:	[...]	[...]	[...]
Sum of Total discounted Variable Costs:	[...]	[...]	[...]
Sum of Total discounted R&D:	[...]	[...]	[...]
"Net Discounted Surplus"	[...]	[...]	[...]

(1024) The results show that both the MDM8200 as a standalone chipset, and the joint project composed of the MDM8200 and the MDM8200A, display a negative NDS. The NDS of the MDM8200 is a negative USD [...], while the joint project benefits from the addition of the more profitable MDM8200A, which reduces the NDS to minus USD [...]. Only the MDM8200A considered in isolation had a positive NDS of about USD [...]. However, this figure most likely overstates the actual NDS of this chipset, [...], but none of this cost was allocated to the MDM8200A for the NDS analysis carried out in Table 62 at recital (1023) above.

(1025) The aforementioned NDS calculations are conservative for the following reasons.

(1026) First, the revenue data contained in the [...] ends in Q2/2013, while the MDM8200A had additional sales even after Q2/2013 of which only the aggregate amount is known to the Commission, namely USD [...]. The Commission allocated the entire revenue stream earned between Q3/2013 and Q4/2017 to the beginning of this period, namely Q3/2013, thus applying the lowest possible discount factor to this end-of-lifecycle stream of revenue.

1389 WACC for Qualcomm according to S&P Capital IQ 09-2016, [...].

1390 The Commission notes that the values in column (c) are not derived as the sums of columns (a) and (b), because the standalone NDS of the MDM8200A calculated in column (b) refers to the starting point in Q3/2009, while all revenue and cost figures underlying the NDS calculation for the joint project in column (c) were discounted to the starting point of Q1/2005.

(1027) Second, there are no observations available on the [...] cost data for the MDM8200 in Q2 to Q4/2008, and for the MDM8200A after Q3/2013. In these instances, the Commission set the variable cost equal to zero, thus overstating the net surplus earned in these quarters.

(1028) Third, the observations on R&D expenditure for the MDM8200A end in Q3/2014. Any further such expenses incurred after Q3/2014 are not accounted for in the above Net Discounted Surplus figures, thus potentially overstating both the actual Net Discounted Surplus of the MDM8200A, and the Net Discounted Surplus of the two chipsets as a joint project.

(1029) Fourth, the MDM8200A was sold in two possible configurations, [...]. The chipset revenue figures in Table 60 at recital (1012) above therefore represent an upper bound on the actual revenue figures for the MDM8200A. Conversely, as far as the calculation of the variable costs for the MDM8200A are concerned, the Commission evaluated these at the minimum of the two [...] AUCs reported for the two configurations, so that the variable costs reported above for the MDM8200A represent a lower bound on the actual variable costs. The resulting NPV figure computed for the MDM8200A thus overstates the actual NDS of this chipset, as well as the NDS of the joint project.

(1030) These findings are not called into question by Qualcomm's claims in this regard.

(1031) First, Qualcomm argues that the first and second element above are *"erroneous claims of conservatism"*, because the Commission *"does not allege predation for any part of the period affected by this assumption"*.[1391] This claim is incorrect since the Commission's findings are based on lifetime profitability indicators with regard to which any assumption increasing the lifetime surplus, including for quarters outside of the infringement period, is in favour of Qualcomm. If any such assumption were to turn the lifetime surplus into a positive figure, this would support Qualcomm's claim that its pricing patterns could not have foreclosed Icera because Qualcomm's margin on all other buyers and in later periods was *"sufficient for an as-efficient competitor to profitably compete on the market"*.[1392] However, as shown by Table 62 at recital (1023) above, the Lifetime Net Discounted Surplus is negative for both the MDM8200 in isolation, and for the common "project" covering both the MDM8200 and the MDM8200A, despite the Commission's conservative assumptions.

(1032) Second, Qualcomm submitted a workbook ("the [...]")[1393] which replicates the Commission's lifetime profitability analyses of Table 61 at recital (1012) and Table 62 at recital (1023) above on the basis of Qualcomm's *"adjusted"* R&D costs from the [...] for the MDM8200 and MDM8200A[1394] (see recital (994) above) except for the [...] of USD [...] which are included in the attributable R&D costs for the MDM8200 in the [...]. The *"adjusted"* R&D costs for the MDM8200 presented in the [...] therefore amount to USD [...] (instead of the USD [...] in the [...], the difference consisting of the USD [...] of [...] allegedly contained in line entries [...], and [...]). For the MDM8200A, the [...] proposes the same amount as the [...], namely [...] (instead of the USD [...] in the Commission's analysis). The [...] concludes on the

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1391 Annex 5 to Qualcomm's SSO Response, *Icera: SSO price-cost test*, [...], paragraphs C.15 and C.18.

1392 Qualcomm's SO Response, [...], paragraph (428).

1393 Annex 5.d to Qualcomm's SSO Response, [...].

1394 Annex 5.c to Qualcomm's SSO Response, [...].

basis of these radically lower attributable R&D figures that the lifetime margins of both chipsets separately, and of the joint project, are positive, and that the same applies to the Net Discounted Surplus for all three "products" when either an [...] or a [...] discount rate are applied.[1395]

(1033) As set out in recitals (996)-(1006) above, Qualcomm's *"adjustments"* to the attributable R&D costs of the two chipsets are unfounded both from a factual and from an economic perspective. Moreover, the inclusion of the [...] for the MDM8200 is inconsistent with the exclusion of the same cost item in the [...].[1396] Notably this difference in treatment for which Qualcomm does not provide any explanation strongly suggests that the calculations in the [...] were not meant to provide an alternative to the Commission's calculations on the basis of economically sound principles but rather to reduce the attributable R&D costs to a level at which the undiscounted lifetime margin would turn positive.

12.7.4. Development of Icera's sales and revenues throughout the Relevant Period

(1034) In light of the results of the price-cost test set out above, the Commission concludes that the implementation of Qualcomm's predatory pricing strategy *vis-à-vis* Huawei and ZTE, as described in detail in sections 12.4.2.1 to 12.4.2.12 above, was capable of preventing Icera at a crucial stage of its development from gaining access to either of these two customers on which Icera's development prospects in the leading edge segment of the UMTS chipset market were dependent (see, *e.g.*, recital (405) above).

(1035) Despite not being legally obliged to do so, the Commission further illustrates the potential impact that Qualcomm's predatory pricing had on Icera by the fact that the total value of Qualcomm's below-cost sales, which were in the range of USD [...],[1397] was significantly higher than Icera's yearly turnover of USD [...] for 2011.[1398] These figures need to be seen against the background that, as a start-up, Icera was mostly relying on venture capital to cover its financial needs, a fact also recognised by Qualcomm itself (see recital (512) above). By damaging Icera's profit prospects, Qualcomm's practice had the potential of preventing Icera from attracting the additional financial resources that were necessary for its development in the market.

(1036) The Commission notes that, according to Qualcomm's own, contemporaneous assessment, its predatory strategy against Icera had an impact. This is evidenced by a Qualcomm internal presentation of June 2010, which reports that *"Ice8042 is losing momentum in Huawei and ZTE"* and draws the following conclusion: *"The strategy of squeezing Ice8042 w/both MDM6200 and MDM8200A made effect"* (see recital (558) above).

(1037) Qualcomm's own assessment is supported by the volume figures for sales to Huawei and ZTE in the leading edge segment by both Qualcomm and Icera during the Relevant Period, as shown in the following table:

1395 Annex 5 to Qualcomm's SSO Response, *Icera: SSO price-cost test*, [...], paragraph C.26.

1396 Qualcomm's SSO Response, [...], paragraph (921).

1397 [...]

1398 Nvidia's submission of 31 July 2012 titled *"Supplementary evidence on Qualcomm's abusive conduct"*, [...], page 7, table 4.

Table 63: Sales Volumes by supplier and customer in the leading edge segment (2009 – 2011)

		Icera forecasted sales		Icera actual sales		Qualcomm actual sales		Total sales	
		in units	in % of total sales	in units	in % of total sales	in units	in % of total sales	in units	% growth over previous year
2009	Huawei	[...]	[...]	[...]	[...]	[...]	[...]	[...]	-
	ZTE	[...]	[...]	[...]	[...]	[...]	[...]	[...]	-
2010	Huawei	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
	ZTE 1399	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
2011	Huawei	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
	ZTE	[...]	[...]	[...]	[...]	[...]	[...]	[...]	[...]
Total		[...]		[...]		[...]		[...]	

(1038) In the table above, the column *"Icera actual sales"* reports all MBB chipsets sales made by Icera to Huawei and ZTE in the leading edge segment. These sales comprise the [...],[1400] [...] (see sections 8.2.2 and 8.2.3 above). [...].[1401] [...].[1402] When compiling the column *"Icera forecasted sales"*, the Commission consistently relied on the latest available revision of each forecast since it incorporates the full amount of information that became available to Icera throughout the business year [...]. *"Qualcomm actual sales"* are calculated as the sum of all MDM8200, MDM8200A, and MDM6200 baseband chips sold to either Huawei or ZTE in the years 2009 to 2011.[1403] Finally, *"Total sales"* is the sum of Icera's and Qualcomm's actual sales per customer and year, [...].[1404]

(1039) Table 63 at recital (1037) above shows that [...] (Icera's forecasted sales to ZTE are close to [...] in each year), and a [...] (ranging from [...] in each year). As for Icera's realised sales, the table shows that at the time when demand in the leading edge segment was growing fast (namely [...], and more than [...], from 2009 to 2010), Icera was gaining momentum at both buyers, with Icera's share in *"Total sales"* growing from [...] to [...] at ZTE, and from [...] to [...] at Huawei. In 2011, however, when the growth trend was still strong, in particular at Huawei, Icera started losing sales shares at both buyers, dropping to [...] at ZTE, and to [...] at Huawei. The figures show that Icera managed to gain considerable traction at both customers between 2009 and 2010, and [...]. Late 2009 coincides with the period in which Qualcomm identified Icera as the main competitive threat, and in which the first instances of pricing below LRAIC occurred on the MDM8200 (from July 2009 onwards for Huawei). Predatory sales peaked in July 2010, with all three chipsets under investigation exhibiting below-cost pricing (until March 2011 on the

1399 [...], page 5.

1400 In 2009, Icera had two projects with ZTE based on [...] of 23 May 2017, [...], and Annex I – [...]. Analogously, Icera's sales forecasts for 2009 were adjusted to reflect only sales in the leading edge segment, see paragraph (20) of Annex I to the Letter of Facts of 22 February 2019, [...].

1401 [...]

1402 [...] of 23 May 2017, [...].

1403 See worksheet [...] included in Annex 10 to the SO Response, [...].

1404 [...]

MDM6200 for ZTE, and until July 2011 for the MDM8200 and MDM8200A on both buyers). This coincides with Icera quickly losing momentum and being crowded out by Qualcomm in 2011 at both buyers, which was the declared goal of Qualcomm's pricing strategy over this period.

(1040) As a consequence, Icera's revenues from the MBB business were in steady decline [...], as shown by Figure 34 below. This downwards trend was only briefly reversed [...], but quarterly revenues eventually settled at about USD [...], *i.e.* just [...] of the level they had reached in the second quarter of 2010.[1405]

Figure 34: Icera's Quarterly Revenues from the MBB business, in USD, from Q1/2009 to Q2/2012

[...]

(1041) With revenues from MBB sales falling below Icera's targets, Icera was forced to scale back its R&D in voice functionality/LTE, which was crucial for Icera to be able to enter the LTE smartphone segment by the end of 2011. Instead, Icera's entry into the LTE smartphone segment was delayed to February 2013, when it finally launched the Tegra 41 and i500 modem. However, by that time, Icera had already lost the commercial opportunity of being the first entrant in this segment, and its acquirer, Nvidia, eventually wound down Icera's modem operations in May 2015.[1406]

(1042) The Commission's findings are not put into question by Qualcomm's arguments in this respect.

(1043) First, Qualcomm claims that the numerical comparison of the value of Qualcomm's below-cost sales to Icera's yearly turnover is *"misleading"* and *"irrelevant"* for the following reasons.[1407]

(1044) In the first place, Qualcomm argues that *"the overwhelming majority of the allegedly predatory units were sold at a price that exceeded AVC/AAC, and thus contributed to the recovery of Qualcomm's fixed costs."*[1408] This claim is unfounded since pricing above AVC but below ATC cannot be considered pro-competitive in the presence of a plan to eliminate a competitor, as set out in recital (331) above.

(1045) In the second place, Qualcomm argues that *"the statement disregards the fact that the majority of chipsets sold by Qualcomm to Huawei and ZTE during the period under investigation are not alleged to be predatory, i.e.,* [...] *of all units"*.[1409] This claim is irrelevant since sales of chipsets other than the MDM8200, MDM6200 and MDM8200A (*i.e.* chipsets which did not belong to the leading edge segment during the Relevant Period on which Qualcomm's predatory strategy was concentrated) are not covered by this investigation (see also recital (991) above and (1058) below).

(1046) In the third place, Qualcomm wrongly argues that *"in assessing the likely effects of alleged predatory pricing, the revenue generated by the sales is irrelevant, as explained in the Compass Lexecon Report (paragraph 3.99). What matters is the cumulative revenue relative to the cumulative relevant costs, and the extent of the*

1405 [...] Final Slide Deck for the Oral Hearing of 10 November 2016, [...], page 23, and [...] submission dated 18 June 2018, [...].

1406 Nvidia's Final Slide Deck for the Oral Hearing of 10 November 2016, [...], page 25.

1407 Qualcomm's SSO Response, [...], paragraph (956).

1408 Qualcomm's SSO Response, [...], paragraph (956).

1409 Qualcomm's SSO Response, [...], paragraph (956).

resulting shortfall between the two, if any."[1410] In fact, the shortfall between cumulative revenue and cumulative costs, which Qualcomm quantified at USD [...], still amounts to [...] of Icera's total yearly turnover. While this figure may seem small compared to Qualcomm's revenue on the predatory sales, and even smaller considering Qualcomm's overall sales in the UMTS chipset market, it was certainly very significant for a small and financially constrained start-up trying to gain a foothold in the leading edge segment of this market.

(1047) Second, Qualcomm claims that Table 63 at recital (1037) above does not explain *"the specific Icera chipsets to which the project names* [...] *refer"* so that it is not possible *"to understand whether such chipsets could be characterised by the Commission as 'leading-edge'."*[1411] This claim is incorrect since the Nvidia submission on which the figures in Table 63 are based (see footnote 1400 above) provides the following explanations in this regard: "[...]."[1412] This clearly shows that [...] was a Category 10 product (corresponding to a downlink speed of 14.4 Mbps), while [...] was a Category 8 product (corresponding to a downlink speed of 7.2 Mbps). It is therefore clear that [...] was part of Icera's leading edge offering, while [...] was not, as reflected in the Commission's calculations of Icera's sales in the leading edge segment in Table 63 at recital (1037).

(1048) Third, Qualcomm claims that Table 63 at recital (1037) above and the "[...]."[1413] However, as explained in recital (405) above, in late 2009 and early 2010, Qualcomm's strategy was to enable Huawei to compete aggressively at the network carrier level to undermine the success of Icera-based ZTE solutions. Thus, Qualcomm's predatory prices to Huawei still had the potential to harm competitors through their negative impact at the next level of the supply chain where chipset suppliers such as Qualcomm and Icera competed indirectly for orders of MNOs through the MBB devices of OEMs that incorporated their respective chipsets (see recital (963)).

(1049) Fourth, Qualcomm claims that Icera's board presentations explain that [...],[1414] pointing to other factors listed in one of the board presentation,[1415] namely [...]. Relatedly, Qualcomm claims that Icera's sales shortfall against its 2010 forecasts of [...] units across all chipsets "[...]."[1416] The Commission rejects this argument for the following reasons.

(1050) In the first place, Qualcomm's citation from this Icera board presentation is selective and thus misleading. Below the reference to the [...], the presentation explains that this was a [...]. Instead of supporting Qualcomm's argument, this shows that Qualcomm's predatory strategy vis-à-vis Icera had an additional effect by crowding out demand for final products from OEMs other than Huawei and ZTE who could no longer match Huawei's and ZTE's prices. Thus, Qualcomm's conduct further reduced

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1410 Qualcomm's SSO Response, [...], paragraph (956).

1411 Qualcomm's Comments on the Letter of Facts, [...], paragraph (137).

1412 Nvidia's [...] of 23 May 2017, [...], page 10, footnotes omitted. This submission was referenced in Annex I to the Letter of Facts of 22 February 2019, [...], footnote 36.

1413 Qualcomm's SSO Response, [...], paragraphs (838) and (948).

1414 Qualcomm's SSO Response, [...], paragraph (896); Qualcomm's Comments on the Letter of Facts, [...], paragraph (142).

1415 Icera Board Presentation of 1 December 2010, [...], p. 5.

1416 Qualcomm's SSO Response, [...], paragraphs (907)-(909), similarly in (417) and (954), and in Qualcomm's Comments on the Letter of Facts, [...], paragraph (143).

Icera's potential customer base, in addition to its direct effect on demand for Icera products from Huawei and ZTE.

(1051) In the second place, at the time Icera may not have been fully aware of all relevant factors affecting demand for its products. As explained by Nvidia at the Oral Hearing, following the collapse of the [...] business [...], Icera's forecasts, which were *"*[...]*."*[1417] This also explains why some of Icera's forecasts changed significantly over time, as pointed out by Qualcomm.[1418]

(1052) Fifth, Qualcomm claims that *"a theory of financial predation is* […] *hard to reconcile with the SSO's claims that Icera managed to gain 'traction in the market' during, at least, 2009 and 2010"*, as purportedly demonstrated by Figure 34 above, *"*[...]*."*[1419] In a similar vein, Qualcomm claims that *"Icera thrived during the time period that the SSO considers* […] *as being the 'peak' of the alleged predation"*,[1420] achieving *"significant sales of 'leading-edge' chipsets to ZTE in the three-year period under investigation (*[...]*) and, in 2010 in particular,* [satisfying] *the vast majority of ZTE's requirements of 'leading-edge' chipsets (*[...]*)."*[1421] This claim is erroneous for the following reasons.

(1053) In the first place, Icera's realised revenues were [...], given that Icera had forecasted to sell [...] units [...] during 2010 (see recital (1049) above). Therefore, [...], this cannot be classified as *"thriving",* considering the counterfactual in which Icera's expectations at the beginning of 2010 would have fully materialised.

(1054) In the second place, Icera's revenue is composed of orders from a number of customers, so that one cannot immediately infer Icera's success (or lack thereof) at Huawei and ZTE from its aggregate quarterly revenue. This point is illustrated by the following slide in Icera's board presentation of 1 December 2010[1422], which shows the evolution of orders received by Icera in each month throughout the year 2010 (see Figure 35 below).

Figure 35: Monthly orders received by Icera from each of its customers from November 2009 to November 2010 (in [...] units)[1423]

[...]

(1055) Figure 35 shows that Icera's relatively strong revenue performance in the second quarter of 2010 emphasised by Qualcomm was due to strong demand from customers other than Huawei and ZTE. [...]

(1056) In the third place, given that Icera was a relatively small supplier, a single lumpy order by one of its larger customers could cause strong fluctuations in Icera's quarterly revenues. Examples of such outliers are the months of July and September 2010, [...],[1424] [...], without which the general downward trend in orders received by

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1417 Recording of the Oral Hearing of 10 January 2019, Last Session – Icera/Nvidia, presentation by [...] as of 16:26 o'clock.

1418 Qualcomm's SSO Response, [...], paragraph (900).

1419 Qualcomm's SSO Response, [...], paragraph (396), and similarly in (562).

1420 Qualcomm's SSO Response, [...], paragraph (854), and similarly in paragraphs (869), (902), (916), and (952), Qualcomm's Comments on the Letter of Facts, [...], paragraph (141).

1421 Qualcomm's SSO Response, [...], paragraph (949).

1422 This Icera board Presentation of 1 December 2010 is referenced in Qualcomm's SSO Response, [...], in paragraphs (417), (897), and (899).

1423 Icera Board Presentation of 1 December 2010, [...], p. 4.

1424 Qualcomm's SSO Response, [...], paragraph (418).

Icera in the second half of 2010 would become much more apparent. This confirms that Icera's quarterly revenue is not a reliable metric for Icera's success or failure in the market in a given quarter and that it is rather the evolution of this revenue over the entire Relevant Period which is informative of the impact of Qualcomm's predatory strategy over time.

(1057) In the fourth place, demand for legacy devices creates certain inertia in demand for the chipsets on which the reference design for these legacy devices is based.[1425] This means that Icera may well have been able to maintain a certain level of sales for some time, despite the fact that Qualcomm had already successfully undermined Icera's growth potential for the future.

(1058) Sixth, Qualcomm claims that the Commission's theory of harm *"is even more incongruous when one takes into account the fact that at the time Qualcomm was also by far the leading supplier of baseband chipsets to ZTE"*, supplying *"*[...] *of ZTE's baseband chipset requirements in 2009 and* [...] *of its requirements in the first half of 2010"*.[1426] However, these numbers refer to ZTE's entire chipset demand across all standards (including CDMA, on which Qualcomm had a monopoly at the time) and across all speed tiers (including the mass market of mid- and low-tier products, which are high in volumes but low in margins). These figures do therefore not contradict the sales shares in Table 63 at recital (1037), which show that Qualcomm was rapidly losing ground at ZTE in 2009 and 2010 in the leading edge segment for UMTS chipsets, which was of crucial importance for Icera's plans to enter the smartphone segment (see recital (1041) above).

(1059) Seventh, Qualcomm claims that *"the predation theory advanced in the SSO is not credible"* because *"Qualcomm's sales of chipsets in the alleged 'leading-edge' segment represent only* [...] *of the alleged worldwide UMTS baseband chipset market.* […] [S]*ales to Huawei and ZTE represent only* [...] [and] *the volumes of Qualcomm chipsets allegedly offered at prices lower than the SSO's adopted cost measure* […] *represent* […] *a mere* [...] *of all UMTS baseband chipsets sold during the period of alleged infringement."*[1427] This claim is unfounded for the following reasons.

(1060) In the first place, as explained in section 12.4.1 above, Qualcomm's pricing concessions were targeted at two strategically important customers, Huawei and ZTE, in the leading edge segment of the UMTS market to prevent Icera from getting a solid foothold in the market and becoming a *"formidable handset modem player"*.[1428] Qualcomm's pricing strategy was thus selective, both in terms of the market segment and customers, while aimed at protecting Qualcomm's dominance in the entire UMTS chipset market, and in particular its strong position in the high-volume segment of baseband chipsets for use in mobile phones. Thus, while such a selective and targeted predatory strategy will impact the entirety of the market it is intended to foreclose, only a small part of it will be affected by below-cost pricing.

1425 See, for instance, the case of [...], which had announced that it would introduce "merchant" chip supply in [...], yet retained [...] as a "captive" supplier [...]. [...] reply of 29 January 2015 to question 2 of Article 18(2) request for information of 17 December 2014, [...], pages 2-3.

1426 Qualcomm's SSO Response, [...], paragraphs (421) and (949), and footnote 793.

1427 Qualcomm's SSO Response, [...], paragraphs (808), (810), (950), and (957).

1428 Qualcomm internal presentation of 7 May 2010 titled [...], page 3.

(1061) In the second place, as explained in sections 11.4 and 12.3.3 above, Icera could only contest a small share of the UMTS baseband chipset market, namely chipsets for MBB devices, while the much higher volumes of chipsets for smartphones were not accessible to Icera during the Relevant Period. This is because OEMs give paramount importance to the reliability of their chipset suppliers. New entrants therefore need to build up a good reputation before being able to become established players in the market (see recitals (375) and (385) above). According to Commission estimates, chipsets for smartphones and feature phones accounted for about 80% of the entire UMTS baseband chipset market during the Relevant Period, so that only 20% were accounted for by MBB devices.[1429]

(1062) In the third place, as explained in section 12.3.2 above, within the segment of UMTS chipsets for MBB devices, the leading edge segment was of particular strategic importance as an entry point for Icera into the broader UMTS segment for smartphones.[1430] It was precisely this broader smartphone segment which Qualcomm's strategy sought to protect from Icera by thwarting its attempts at building a reputation for its products in the MBB segment first.

(1063) In the fourth place, Qualcomm's sales of UMTS chipsets in the leading edge segment during the infringement period (about [...] units[1431]) were clearly of a very relevant dimension for a small and resource constrained entrant like Icera, whose aggregate sales of MBB chipsets only amounted to [...] units over the three-year period of 2009 to 2011.[1432] Icera's sales forecasts as given in Table 63 at recital (1037) show that Icera did not expect, even in the most optimistic scenario, to be able to contest more than [...] units at customers Huawei and ZTE, and eventually only sold [...] units to these two customers, over the same three years. Nonetheless, contemporaneous documents show that Qualcomm considered Icera to be a competitive threat (see section 12.3.3 above) and devised its *"preventive actions"*[1433] accordingly. Thus, the predatory volumes were sufficiently large to be capable of excluding an equally efficient competitor who could only contest this segment, as shown by the results of the price-cost test and the contemporaneous evidence set out in section 12.4 above.

(1064) Eighth, Qualcomm claims that the Commission's analysis *"should consider such a competitor's ability to profitably replicate the dominant firm's <u>entire product offering</u> within the relevant market and not, as the SSO erroneously does in the present case, merely a tiny sliver of that product offering in an alleged 'segment.'"*[1434] In support of this claim, Qualcomm refers to the Commission's prohibition decision in *Slovak Telekom*. This reference is misleading, and the claim itself is incorrect. In

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1429 According to Qualcomm's first reply of 15 May 2019 to the clarification questions of 14 May 2019, [...], estimated total worldwide sales of MBB devices amounted to [...] in FY2009, FY2010, and FY2011, respectively, of which Qualcomm supplied [...], respectively. Based on the figures in Table 4 at recital (273), these worldwide MBB volumes correspond to [...], of the respective yearly Grand Total of UMTS chipsets shipped worldwide.

1430 See Qualcomm internal presentation of April 2009 titled [...], page 2, stating as strategic objective to *"*[d]*eny beach-head entry to new players"* by preventing them from having the *"opportunity to prove their technology before going after higher volume hand-set market"*.

1431 Qualcomm's SSO Response, [...], footnote 1399.

1432 Part II of Nvidia's reply of 19 June 2013 to question 17 of Article 18(2) request for information of 7 May 2013, [...], Tables 3 and 4 at paragraph 21.

1433 Qualcomm internal e-mail of 6 February 2009 from [...] (Senior Manager, Marketing) to [...] ([Qualcomm management member]) and [...] (Director, Marketing), [...], page 1.

1434 Qualcomm's SSO Response, [...], paragraph (806), footnote omitted.

fact, *Slovak Telekom* was, *inter alia*, a margin squeeze case, in which the Commission conducted the price-cost test *"on the basis of an aggregated approach, that is to say on the basis of the mix of services marketed by ST on the relevant retail market"*[1435] instead of carrying out an analysis at the level of each individual offer. The ability of a competitor in the telecoms market to replicate the incumbent's retail offer once given access to the unbundled local loops cannot be compared to the ability of a chipset maker to contest the incumbent supplier on all possible products, in a setting where such contestability may be severely limited because entrants would first have to *"prove their technology before going after higher volume hand-set market"*.[1436]

(1065) Ninth, while disputing that Icera's chipsets were smaller in die size and software upgradable, thus giving Icera a cost advantage over Qualcomm's products in the same performance category,[1437] Qualcomm claims that the Commission's *"price-cost test is inconsistent with such a theory and fails to assess whether pricing below the SSO's adopted cost measure would have resulted in financial loss for Icera"*.[1438] This claim is incorrect because die size and software upgradability are only two out of a number of product characteristics that determine a baseband supplier's efficiency. Other relevant aspects are supply security, reputation, and the IP protection afforded by Qualcomm's grant-back network, which in turn conveyed Qualcomm an advantage over Icera and allowed it to charge a premium for its products compared to its competitors' prices for similar products.[1439] Whether the ensuing advantages for Qualcomm outweighed its disadvantages with respect to other factors such as die size and upgrading technology is irrelevant for the purpose of assessing whether Qualcomm's prices were predatory or not. The Commission's price-cost test is instead designed to verify if Qualcomm's pricing would have allowed an equally efficient competitor to recover its long-run production costs for those sales that were contestable to such competitor. While it is still possible that Qualcomm's pricing was also capable of excluding a *more* efficient competitor, this question is irrelevant for the Commission's findings in this case and was therefore not assessed.

(1066) Tenth, Qualcomm argues that the Commission *"fails to consider that engaging in the alleged predation would not have been rational for Qualcomm, as there was no scope for recoupment resulting from a significant increase in, or retention of, market*

1435 See Commission Decision of 15 October 2014 (Case COMP/AT.39523 *Slovak Telekom*), recital 832.

1436 Qualcomm internal presentation of 9 July 2009 titled [...], page 37.

1437 Qualcomm's SSO Response, [...], paragraphs (815) and (816).

1438 Qualcomm's SSO Response, [...], paragraph (814). According to Qualcomm, this claim has a number of implications, namely that *"Qualcomm would have had to compensate for its alleged inferior product performance by undercutting the prices of Icera's chipsets"* (paragraph (815)), that *"to foreclose Icera, Qualcomm would have needed to set its prices at a level that was lower than Icera's costs, which, under the SSO's logic, are assumed to be lower than Qualcomm's costs"* (paragraph (818)), and that *"Qualcomm's gross margins should have been lower than the gross margins achieved by Icera"* (paragraph (819)).

1439 See, e.g., Qualcomm internal e-mail of 2 February 2010 from [...] (Director, QCT Product Management) in which he explains with regard to the MDM6200: *"I think we should be able to argue for the* [...] *QC premium given our support / supply and performance track record, and that features like the most advanced GPS are included"* ([...], page 5); Qualcomm internal presentation of 7 May 2010 which refers to Icera's *"Improved Features/Support"* that *"Reduces QCT Premium"* ([...], pages 4-5); and Qualcomm internal e-mail of 27 May 2010 from [...] (Manager, Finance) to [...] (Senior Director, Finance) and others, [...], stating that *"proposal is based on theory overall data-card market has become commodity market and our pricing strategy becomes competition + small QCT premium"*.

power".[1440] This claim is unfounded since, as set out in section 12.4 above, Qualcomm's declared strategy was to prevent Icera from gaining a foothold in the leading edge segment for MBB chipsets in order to protect its dominance in the entire UMTS chipset market, and in particular its strong position in the higher volume smartphone segment (which, together with the feature phone segment, accounted for roughly 80% of the entire UMTS chipset market, according to Commission estimates, see footnote 1429 above). This means that the predatory strategy identified by the Commission was indeed rational, to the extent that it would have allowed Qualcomm to recoup any losses incurred in the predatory attack through its supra-competitive profits in the smartphone segment, which Qualcomm stood to lose once Icera had further developed its technology and reputation to also allow it to enter the smartphone segment.

(1067) Eleventh, Qualcomm argues that *"Icera's technology and knowhow were transferable, as proved by NVidia's acquisition of Icera"* so that the alleged predation *"could not have removed, and, in fact, did not remove the alleged competitive pressure exerted by Icera's technology."*[1441] This claim is unfounded. As set out in recital (584) above, the period following Nvidia's acquisition of Icera was characterised by considerable uncertainty about the extent of the competitive threat that Icera would still represent for Qualcomm's chipset business. This explains why Qualcomm considered it necessary to continue granting further price reductions to address competition from Icera also beyond that date and after the public announcement of the acquisition of Icera by Nvidia on 9 May 2011.

(1068) Twelfth, Qualcomm claims that *"if a* [...] *share of overall sales in the purported 'leading-edge' segment was not sufficient for Icera to remain and expand in the alleged UMTS baseband chipset market, that would mean that there was not enough space in the market for even three suppliers. However, that is contradicted by the presence of several other suppliers in the alleged UMTS baseband chipset market identified in the SSO."*[1442] According to Qualcomm, this *"confirms once more that the alleged 'leading-edge' segment was not critical for future market participation or expansion"*.[1443] The Commission rejects this claim for the following reasons.

(1069) In the first place, a number of suppliers listed in Tables 2 to 5 at recitals (270)-(274) above to whom Qualcomm refers as proof of *"space in the market"*, left the baseband chipset industry around the same time as Icera/Nvidia, namely [...] (see section 9 above). Thus, the market has become much more concentrated than Tables 2 to 5 at recitals (270)-(274) above suggest.

(1070) In the second place, those competitors who survived in the industry (namely Intel, MediaTek, Huawei/HiSilicon, Samsung/LSI, and Spreadtrum) have a very different business model compared to Icera. Some have positioned themselves differently in the product space (with the Chinese suppliers mainly focussing on the low- and mid-range segments, and [...] in the IoT/automotive space), while others have benefitted from vertical links with powerful OEMs ([...]). Moreover, all of them differ from Icera in terms of size and financial prowess. This is acknowledged by Qualcomm itself who explained that *"*[b]*y the time Icera launched its first LTE baseband*

1440 Qualcomm's SSO Response, [...], paragraphs (820)-(827).
1441 Qualcomm's SSO Response, [...], paragraph (825).
1442 Qualcomm's SSO Response, [...], paragraph (905).
1443 Qualcomm's SSO Response, [...], paragraph (906).

chipset, many other chipset suppliers whose financial means, R&D expenditure, technical expertise, and reputation were vastly superior to those of Icera had already introduced LTE baseband chipsets."[1444] (emphasis added). The presence of these other chipset suppliers does therefore not contradict the critical role of the leading edge segment for Icera's survival and expansion in the UMTS chipset market.

(1071) Thirteenth, Qualcomm argues that *"*[i]*f, as the SSO asserts, 'Qualcomm's practice had the potential of preventing Icera from attracting the additional financial resources that were necessary for its development in the market,' Icera's acquisition by NVidia undermines the SO's* [sic] *provisional finding regarding the existence of any exclusionary effect or consumer harm after 9 May 2011."*[1445] This claim is unfounded. While certain evidence in the file exhibits elements of financial predation (see, *e.g.*, evidence referred to in recital (419) above) and shows that Qualcomm perceived the resulting weakening of Icera's financial situation as having reduced the threat posed by Icera to its business (see recital (422) above), the evidence in the file also shows that Qualcomm closely monitored the developments concerning Icera's business after its acquisition by Nvidia (as evidenced in recital (423) above), [...].[1446] This is why Qualcomm granted further price reductions vis-à-vis both ZTE and Huawei with respect to the MDM6200 and the MDM8200A based chipsets following the acquisition by Nvidia, as described in section 12.4.2.12 above.

(1072) Fourteenth, Qualcomm claims that *"the SSO fails to prove actual, likely or even possible anticompetitive foreclosure or consumer harm"*.[1447] This claim is incorrect since the results of the price-cost test, together with the contemporaneous evidence demonstrating Qualcomm's plan to eliminate Icera, demonstrate that Qualcomm's conduct was capable of having anti-competitive effects. In particular, the contemporaneous evidence shows that the implementation of Qualcomm's predatory pricing strategy *vis-à-vis* Huawei and ZTE was capable of preventing Icera at a crucial stage of its development from gaining access to either of these two customers on which its development prospects in the leading edge segment of the UMTS chipset market were dependent, thus depriving original equipment manufacturers in this segment from access to an alternative source of chipsets for their mobile phones, and reducing consumer choice.

(1073) Fifteenth, Qualcomm claims that the Commission *"adduces no evidence to support the claim that Icera was low on funds and unable to obtain further external financing, or that Qualcomm believed that this would be the case. To the contrary, during the period of alleged predation, Icera did, in fact, attract very significant external financing, as it was acquired by NVidia, a substantial and well-financed company.* […] *Moreover, Icera remained active in the supply of baseband chipsets long after the alleged predation ended – until at least 2015."*[1448] This claim is unfounded. As set out in section 12.3.3 above, Icera was a start-up which, during the Relevant Period, did not generate the profits necessary to sustain the high R&D cost necessary to gain a foothold in the market, and was thus dependent on venture

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1444 Qualcomm's SSO Response, [...], paragraph (959).

1445 Qualcomm's SSO Response, [...], paragraph (915), footnote omitted, and similarly in paragraphs (947) and (961).

1446 See minutes of meeting between representatives of the Commission's Directorate General for Competition and Nvidia of 15 June 2011, [...].

1447 Qualcomm's SSO Response, [...], paragraph (941).

1448 Qualcomm's SSO Response, [...], paragraph (947).

capital. Qualcomm was well aware of this fact, as confirmed by Qualcomm's internal documents expressing its intention of *"burn*[ing] *out Icera's limited funds from VC* [venture capital]*"*.[1449] Moreover, Qualcomm closely monitored the developments concerning Icera's business after its acquisition by Nvidia (as evidenced in recital (422) above), [...] (see also recitals (435)-(437) above). Finally, the fact that a predatory strategy did not eventually lead to the exit of the target company does not prove that the predatory conduct had no effect on the market, nor that is should not be pursued.[1450]

(1074) Sixteenth, Qualcomm claims that *"as already shown in paragraphs 50 to 53 of the SO* […] *RFI responses from* [...] [confirm] *that Qualcomm's pricing did not result in their purchasing fewer chipsets from Icera."*[1451] This claim is unfounded for the following reasons.

(1075) In the first place, the responses referred to in the SO only concern [...], but not [...]. Moreover, [...]'s replies relate to the question whether certain incentives offered by Qualcomm to [...] influenced *"the number of eligible devices* [...] *purchased from Qualcomm"*,[1452] *i.e.* they do not refer in any way to the impact of [...]'s demand for devices purchased by Icera.

(1076) In the second place, only paragraph (52) of the SO concerns [...]'s demand for Icera chipsets in relation to incentives granted by Qualcomm. However, the information request referred to concerned [...]'s agreement with Icera of April 2011 (*i.e.* just a few weeks before Icera's acquisition by Nvidia) to purchase [...] chipsets in 2011 from Icera, and whether Qualcomm's *"rebate schemes* [played] *a role in the circumstances that made it impossible for* [...] *to fulfil its commitment"*.[1453] While [...] answered in the negative, this answer therefore only refers to a very specific part of [...]'s demand for Icera chips, namely the demand covered by the aforementioned agreement concerning [...]'s forward-looking demand for the period after April 2011. This document does not, therefore, say anything about the impact of Qualcomm's conduct on [...]'s demand for Icera chipsets in the period preceding this agreement. In this regard, Qualcomm's own assessment of the *"threat"* posed by Icera, as expressed in numerous contemporaneous documents, is more informative than a customer's *ex post* statements which may have been influenced by other considerations such as its ongoing business relationship with Qualcomm.

(1077) Seventeenth, Qualcomm claims that the Commission *"fails to establish any causal link between the ultimate winding down of Icera's modem operations in May 2015 and the alleged predation strategy in the 2009 to 2011 period"*.[1454] This claim is irrelevant since the Commission's theory of harm in this case is not linked to the acquisition of Icera by Nvidia (see recital (399) above). Nevertheless, Qualcomm's specific arguments in this regard are addressed in turn below.

1449 Qualcomm internal e-mail of 1 January 2010 from [...] (Staff Manager, Marketing) to [...] (Director, QCT Product Management), copying [...] ([Qualcomm management member]), [...] (Director, Marketing), [...] ([Qualcomm management member]) and [...] ([Qualcomm management member]), [...], page 1.

1450 Case C-333/94 P, *Tetra Pak* v *Commission*, ECLI:EU:C:1996:436, paragraph 44.

1451 Qualcomm's SSO Response, [...], paragraph (953), emphasis added.

1452 [...] Response to Question 25 of the Art. 18(2) Decision of 19 July 2013, [...], emphasis added.

1453 [...] Response to Question 30 of the Art. 18(2) Decision of 19 July 2013, [...].

1454 Qualcomm's SSO Response, [...], paragraph (958).

(1078) In the first place, Qualcomm claims that *"Icera would never have been able to enter the LTE market at the same time as Qualcomm, let alone before Qualcomm. Qualcomm essentially created LTE."* This claim is irrelevant since it is not the exact timing of the launch of Qualcomm's first LTE chipset but Icera's potential as a competitor on the LTE market which is relevant for the theory of harm in this case. Qualcomm itself acknowledged in this regard that *"if Icera had not been exposed to the rigours of competition, it might have competed with Qualcomm in the supply of LTE baseband chipsets for use in smartphones."*[1455]

(1079) In the second place, Qualcomm claims that the Commission *"provides no evidence that Icera would have been able to begin supplying LTE baseband chipsets for use in smartphones earlier than it did but for the supposed loss of revenue incurred in the alleged 'leading-edge' segment as a result of Qualcomm's alleged conduct."* This claim is incorrect since the Commission does not make any such finding. The Commission's conclusions are limited to the fact that the implementation of Qualcomm's predatory pricing strategy *vis-à-vis* Huawei and ZTE was capable of preventing Icera at a crucial stage of its development from gaining access to either of these two customers on which Icera's development prospects in the leading edge segment of the UMTS chipset market were dependent (see recital (1034) above). In a dynamic and innovative industry such as the baseband chipset industry, success in the current frontier technology (UMTS in this case) is fundamental to be able to invest into the next frontier technology (LTE in this case), in particular for a small and financially constrained start-up like Icera (see recital (1041) above).

(1080) In the third place, Qualcomm claims that *"it is undisputed that during the period of alleged predation, Icera did, in fact, attract very significant external financing, as it was acquired by NVidia."*[1456] This claim is irrelevant. [...] (see recitals (435)-(437) above), the acquisition did therefore not automatically remove all financial constraints from Icera, as Qualcomm seems to suggest.

12.7.5. Conservativeness of the Commission's price-cost test

(1081) The Commission's price-cost test as presented above is conservative, in so far as alternative approaches taken either in the reconstruction of the prices, or in the choice of the cost benchmark, would be less favourable to Qualcomm. The following sections set out in detail, for the prices (see section 12.7.5.1 below) and for the cost benchmark (see section 12.7.5.2 below) what these alternative approaches would have been, and how the results of the price-cost test would be affected in such alternative scenarios.

12.7.5.1. The Commission's conservative approach in its price reconstruction

(1082) The Commission's price reconstruction is based on a conservative approach with regard to several elements. It is therefore favourable to Qualcomm, which means that the results of the price reconstruction are likely to overestimate prices during the Relevant Period.

(1083) First, the Commission relied on average quarterly prices effectively paid by Qualcomm's customers (*i.e. ex post* prices) rather than the prices Qualcomm approved (*i.e. ex ante* prices)**.** As a matter of principle, the latter should be used to

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[1455] Qualcomm's SSO Response, [...], paragraph (963).

[1456] Qualcomm's SSO Response, [...], paragraphs (959)-(961).

assess whether pricing conduct is to be considered predatory for the application of Article 102 of the Treaty since these are the prices that determined the buyer's supplier choice.

(1084) In this case, given that the financial incentives granted by Qualcomm were tied to certain future conditions ([...]) for which compliance was difficult to predict, the Commission conservatively relied on average quarterly prices effectively paid by customers based on the exact amount of units that eventually qualified for the applicable financial incentives. In instances in which the customer eventually did not qualify for the maximum amount of incentives granted by Qualcomm for a particular sale, the *ex ante* approach would yield a lower price than the *ex post* approach, so that the latter is favourable to Qualcomm.

(1085) This conclusion is not called into question by Qualcomm's claim that *"*[s]*uch an* [ex ante] *approach could find predation based on the subjective expectations of buyers rather than the actual conduct of the seller. Predation would then not be an objective standard. This assumption is therefore not conservative."*[1457] This claim is incorrect. The *ex ante* approach referred to by the Commission is based on the seller's conduct just as much as the *ex post* approach: In the *ex ante* approach, the relevant benchmark is the price net of incentives as approved by the seller (which coincides with the price received by the seller, provided all conditions tied to the incentives were met). By contrast, the *ex post* approach relies on the prices received by the seller after learning whether or not the buyer complied with all the conditions to which the incentives were tied.

(1086) Second, the Commission relied on average quarterly prices across speed tiers for the MDM8200 based chipset which was sold at different prices for the use at 14.4 Mbps and 21 Mbps respectively. This approach disregards that during the initial period (*i.e.* 2009 and early 2010), Qualcomm tried to contain the competitive threat exerted by Icera in the first place through the commercialisation of a rebated *"Lite"* version of the MDM8200 based chipset at 14.4 Mbps, a speed tier for which it had no dedicated alternative available at the time (section 12.4.2.1 above). Moreover, the reconstructed prices are average prices including both units that qualified and units that did not qualify for a particular rebate, which matters in particular in the early quarters of the MDM8200 lifecycle (namely from July to mid-November 2009) where only a fraction of all volumes sold to Huawei qualified for any of the [...] incentives.

(1087) The Commission's approach of averaging across speed tiers is favourable to Qualcomm since a differentiation of prices by speed tiers would have resulted in a substantially lower price for the *"Lite"* version of the MDM8200 based chipset at 14.4 Mbps during the period July-September 2009 and January-March 2010 than the average price resulting from the Commission’s price reconstruction in section 12.5.3 above.

(1088) The following table compares prices and margins for the qualifying units at different speed tiers, as well as for the non-qualifying units, and compares the results with those obtained from average prices as reflected in section 12.7.1 above.

[1457] Annex 5 to Qualcomm’s SSO Response, *Icera: SSO price-cost test*, [...], paragraph C.11.

Table 64: Huawei – MDM8200-RTR6285-PM7540 – Net ASPs for qualifying units at different speed tiers, and non-qualifying units, including gross margins and price-cost test for the various price metrics

HUAWEI MDM8200 chipset			Jan-Mar/ 2009	Apr-Jun/ 2009	Jul-Sep/ 2009	Oct-14nov / 2009	15nov-Dec/ 2009	Jan-Mar/ 2010
Volumes			[...]	[...]	[...]	[...]	[...]	[...]
EC reconstructed prices MDM8200 chipset	Average prices		$41.99	$41.83	$33.55	$22.61	$22.61	$23.16
	Qualifying <14.4							
	Units qualif		-	-	[...]	[...]	[...]	[...]
	net ASP qualif units				$24.69	$18.67	$19.22	$19.00
	Qualifying <21							
	Units qualif		-	-	-	-	[...]	[...]
	net ASP qualif units						$23.93	$23.75
	% Units qualif		0%	0%	15%	100%	100%	100%
	Non-qualifying							
	Units non-qualif		[...]	[...]	[...]	-	-	-
	net ASP non-qu.		$41.99	$41.83	$35.13			
COGS			$24.65	$21.91	$20.74	$18.31	$18.31	$16.57
R&D			$19.65	$19.32	$14.53	$15.26	$15.26	$18.26
LRAIC = COGS +R&D			$44.30	$41.23	$35.27	$33.57	$33.57	$34.83
Gross margin (p - AVC)	Average prices		$17.34	$19.93	$12.81	$4.29	$4.29	$6.59
	Qualifying	<14.4			$3.95	$0.37	$0.91	$2.44
		<21					$5.63	$7.19
	Non-qualifying		$17.34	$19.93	$14.39			
Price-cost test (p - LRAIC)	Average prices		**$-2.31**	$0.61	**$-1.72**	**$-10.97**	**$-10.97**	**$-11.67**
	Qualifying	<14.4			**$-10.58**	**$-14.90**	**$-14.35**	**$-15.83**
		<21					**$-9.64**	**$-11.08**
	Non-qualifying		**$-2.31**	$0.61	**$-0.15**			

(1089) To calculate separate prices for the different speed tiers, as well as for the non-qualifying units, the Commission first extracted the number of units qualifying for rebates at each of the speed tiers from the [...] submitted by Qualcomm for sales of the MDM8200 to Huawei.[1458] The Commission then calculated the quarterly gross revenue (*i.e.* the gross ASP multiplied by the quantity of qualifying units) for each of these subsets of sales, and subtracted the [...] incentives applying to either of the speed tiers in the relevant quarter (as identified from the [...]) to obtain the net revenue per speed tier. Finally, the Commission subtracted the [...], and divided the

1458 As regards the allocation of these qualifying units to the specific quarters, the Commission followed its allocation as presented above for the MDM8200/Huawei. See [...] to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017, [...].

resulting amount by the total number of qualifying units sold at the given speed tier to obtain the Net ASP of the MDM8200. To arrive at the chipset price, the Commission added the reconstructed Net ASPs of the PM7540 and the RTR6285 as calculated in section 12.5.3.3 above to the Net ASP of the qualifying units of the MDM8200 for each speed tier.

(1090) The number of non-qualifying units was calculated as the difference between the total volume sold in any given quarter, and (i) the number of qualifying units at 14.4 Mbps (for 1 July to 14 November 2009), or (ii) the number of qualifying units at both 14.4 Mbps and 21 Mbps (15 November to 31 March 2010). For these units, no [...] incentives had to be subtracted from the gross revenue, except for the [...] and the [...] of USD [...] for the MDM8200A which the Commission allocated to the sales of the MDM8200 in July-September 2009 and October-14 November 2009.[1459] The final Net ASP was obtained by dividing the gross revenue, net of the [...], and the [...] by the total number of non-qualifying units. To arrive at the chipset price, the Commission added the reconstructed Net ASPs of the PM7540 and the RTR6285 as calculated in section 12.5.3.3 above to the Net ASP of the non-qualifying units of the MDM8200.

(1091) The Commission notes that the quarter October-December 2009 is split into two in order to accommodate the regime shift which occurred on 15 November 2009, *i.e.* in the middle of the quarter. Before 15 November 2009, only units sold by Huawei at a maximum speed of 14.4 Mbps could qualify for [...] incentives, while after this date, both units at 14.4 Mbps and at 21.1 Mbps could qualify.[1460] Averaging across qualifying and non-qualifying units therefore conceals significant price differentials between these two categories: For the two time periods where this comparison is possible (Jul-Sept 2009 and Oct-14 Nov 2009), there is a price difference of USD 9.49 and USD 8.75, respectively, between qualifying and non-qualifying units, corresponding to 36% to 38% of the Net ASP of the qualifying units. For the subsequent two time periods (15 Nov-Dec 2009 and Jan-Mar 2010), all units qualified for some [...] incentives, with the vast majority of units qualifying at 21 Mbps.

(1092) In the same period, the lower speed tier was consistently priced below the higher speed tier, with a price difference of USD 4.72 between the two speed tiers. This finding is in line with the Commission's finding that the lower speed version of the MDM8200 based chipset was particularly instrumental in Qualcomm's predatory strategy. The units which benefited from the large discount at 14.4 Mbps were

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1459 The [...] appears to have been granted specifically for the units sold before 15 November 2009 at the 21 Mbps speed tier, *i.e.* units that did not qualify for any [...] incentives in this particular period. According to the Huawei document of 16 March 2010 titled [...], attached to an e-mail from Huawei of 17 March 2010 to [...] ([Qualcomm management member]) and [...] (Director, Sales), [...], page 1, the rebate would result in a [...] USD price reduction on the [...] units sold at 21Mbps, which correspond to [...] of the [...] + [...] + [...] = [...] units bought between July and 14 November 2009. The Commission thus allocated the [...] of USD [...] million to the non-qualifying units in proportion to these amounts, *i.e.* [...] to July-Sept 2009, and the remainder to the [...] units shipped in Oct-14 November 2009 under the same deal (all of which qualified).

1460 After 31 March 2010, the distinction between different speed tiers was abandoned altogether. Moreover, in April-June 2010, all units qualified, and after June 2010, no incentive scheme was in place anymore between Huawei and Qualcomm for the MDM8200, see Summary Table of [...] approvals for the MDM8200, Table 8 at recital (586).

mainly sold to [...] during the second half of 2009 and the first quarter of 2010,[1461] when devices containing Qualcomm's products were in direct competition with those of Icera/ZTE. Moreover, for units bought between 1 July and 14 November 2009, the rebates offered by Qualcomm were not only tied to the speed tier, but also to the sales price of the end devices containing the MDM8200. In particular, to qualify for the rebate at 14.4 Mbps, the end device had to be sold by Huawei below a price cap of EUR [...], which ensured that the low prices granted by Qualcomm would also be passed on by Huawei to the MNOs.

(1093) The low price on the lower speed version of the MDM8200 based chipset may also have cannibalised some demand for the higher speed version, thus implying an additional, indirect cost of Qualcomm's below-cost pricing strategy through lost sales in the 21 Mbps segment, in addition to the direct loss of margin on the 14.4 Mbps segment. This finding seems to be confirmed by an e-mail of [...] (Director, QCT Product Management) of 14 November 2009 stating that a further price reduction on the 14.4 Mbps to Huawei *"would be bad as the cost structure wouldn't allow it, but more importantly, it would further slow the growth of the 21Mbps segment"*, and advising to *"quickly recalibrate the 8200/A prices to close the gap between 14.4 and 21, and most importantly reignite interest in the 21Mbps tier."*[1462] This indirect cost of Qualcomm's below-cost pricing strategy in terms of lost sales on high-margin units of a neighbouring product is not captured in the Commission's price-cost test, which represents another element of conservativeness of the Commission's approach.

(1094) The Commission takes the view that the differentiation between speed tiers does not affect the manufacturing cost (nor development expenditure) on chips of different speed tiers in any way, because the 14.4 Mbps chip is a de-featured version of the 21 Mbps chip (see recital (443) above). The same AVC figure can therefore be applied to both speed tiers to calculate gross margins.[1463] Gross margins drop dramatically for the low speed tier compared to the gross margins obtained from the average prices considered in section 12.7.1 above, reaching values of as low as USD 0.37 (see Table 64 at recital (1088) above, boxed value for the period 1 October - 15 November 2009), while gross margins of non-qualifying units are substantially higher than the average margins. However, the Commission notes that the price-cost test is failed even for the non-qualifying units in those two periods where they co-exist with qualifying units, and that the price-cost test is also failed for all qualifying high-speed units in the subsequent two periods where the latter coexist with low-speed units.

(1095) This conclusion is not called into question by Qualcomm's claims in this regard.

(1096) First, Qualcomm claims that the Commission *"assumes that R&D costs also would be incremental to the 14 Mbps version of the MDM8200"*,[1464] for which there would

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[1461] See sales lists contained in the [...] dealing with rebates granted for the MDM8200 at different speed tiers, [...].

[1462] Qualcomm internal e-mail of 14 November 2009 from [...] (Director, QCT Product Management) to [...] (Manager, Finance), [...] (Director, Sales) and [...] ([Qualcomm management member]), copying [...] ([QCT top management member]) and [...] ([Qualcomm management member]), [...], pages 2-3. See also [...] and [...] which contain part of the e-mail thread.

[1463] This approach is confirmed by a Qualcomm internal presentation titled [...], which discusses different price points for the two speed tiers, while using the same AUC of USD [...] in the calculation of gross margins for both speed tiers.

[1464] Annex 5 to Qualcomm's SSO Response, *Icera: SSO price-cost test*, [...], paragraph C.12.

be no evidence according to Qualcomm. Further, Qualcomm claims that *"prices for the 21 Mbps version of the MDM8200 were relatively high and* […] *Qualcomm had a legitimate commercial incentive to offer a discount to make incremental sales of the 14 Mbps version, as long as these sales would cover AUC"*,[1465] which the Commission fails to reflect in its price-cost test by grouping the 14 Mbps and 21 Mbps versions together. This claim is incorrect for the following reasons.

(1097) In the first place, if the price of the 14 Mbps version were to be compared to AVC rather than LRAIC, this test would be passed by a whisker in October-December 2009, and by a small margin in all other quarters for which this version was available (see Table 64 at recital (1088) above). Thus, even if only a tiny share of R&D costs were found to be incremental to the 14 Mbps version, the price-cost test would be failed for this version.

(1098) In the second place, allocating less R&D to the 14 Mbps version would tighten the test for the 21 Mbps version of the MDM8200. The latter version would then have to bear a significantly larger share of the R&D incurred for the MDM8200, because the R&D allocation is driven by the average price charged in any given quarter, which is much higher for the 21 Mbps version than the average price across the two versions. Considering that the 21 Mbps version fails the Commission's price-cost test even under the LRAIC allocation based on average prices, it would fail the test even more so under a LRAIC allocation based on the higher of the two prices charged in the respective quarters.

(1099) Second, Qualcomm claims that *"any revenue cannibalisation between the 14 Mbps and 21 Mbps versions of the MDM8200 is actually included in the SSO's analysis given that the analysis includes both versions."*[1466] This claim is incorrect. Although the Commission's price-cost test accounts for the revenue generated by the low-speed version of the MDM8200 chipset, it does not account for the revenue lost to Qualcomm had it not offered the 14 Mbps version in the first place, so that customers would have had to turn to the higher priced 21 Mbps version instead. The difference in margins between the 14 Mbps and the 21 Mbps version, multiplied by the sales lost on the 21 Mbps version because of the existence of the cheaper alternative, would represent another incremental cost component (in addition to the manufacturing and R&D costs) which the Commission's price-cost test does not account for.

12.7.5.2. The Commission's conservative approach in calculating the cost benchmark

(1100) As explained in section 12.6.3 above, the approach taken by the Commission in the computation of the portion of fixed costs to be included in the LRAIC measure is conservative along several dimensions.

(1101) The conservativeness of the Commission’s approach is further confirmed by the fact that Qualcomm’s prices during the Relevant Period were consistently below ATC which is the cost benchmark defined by the Union Courts for the purpose of identifying predatory sales in the presence of a plan to eliminate a competitor (see recital (331) above).

1465 Annex 5 to Qualcomm’s SSO Response, *Icera: SSO price-cost test*, [...], paragraph C.13.

1466 Annex 5 to Qualcomm’s SSO Response, *Icera: SSO price-cost test*, [...], paragraph C.14.

(1102) To calculate the ATC attributable to the chipset sales under investigation, the Commission relied on the figures provided by Qualcomm in its *"Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934"* which is part of its *"Form 10-K"* for the fiscal years 2009 to 2011.[1467] For each fiscal year, the Form 10-K reports Qualcomm's total operating expenses at the corporation level (of which QCT is only a part), broken down into the following cost categories: (i) Cost of equipment and services revenues, (ii) Research and development, (iii) Selling, general and administrative (SGA), and (iv) Other. The table below shows the corresponding data as extracted from Qualcomm's Form 10-K for the fiscal years 2009 to 2011.

Table 65: Qualcomm's operating expenses and revenue according to Form 10-K (in million USD)

Fiscal Year	2009	2010	2011
Operating expenses - Qualcomm Total			
Cost of equipment and services revenues	3,181	3,301	4,877
Research and development	2,440	2,451	2,995
Selling, general and administrative (SGA)	1,556	1,503	1,945
Other - Litigation settlement, patent license and other related items (Note 9)	783	0	0
Other - KFTC fine (Note 9)	230	0	0
Other	0	0	114
Total operating expenses	8,190	7,255	9,931
Total operating expenses excl. Other	**7,177**	**7,255**	**9,817**
Total revenues - Qualcomm Total	**10,416**	**10,982**	**14,957**
QCT share in Qualcomm Total revenues	**59%**	**61%**	**59%**

(1103) As regards the "Cost of equipment and services revenues", this cost category corresponds to the costs of goods sold (COGS), *i.e.* aggregate variable costs, which can be directly quantified for the chipsets under investigation. The Commission therefore does not allocate the COGS figures reported in the Form 10-K to these chipsets, but relies instead on its own reconstruction of each chipset's AVC as presented in section 12.6.2 above.

(1104) As regards the operating expenses incurred for "Research and development", the Commission relies on the more granular and [...] data on development costs provided by Qualcomm in the [...], which reflects Qualcomm's internal allocation of this cost category to the individual chips. [...]. For the purpose of calculating LRAIC, the Commission only took Incremental R&D Costs into account. For the calculation of ATC, instead, the Commission included the entire amount of R&D costs for each

[1467] Qualcomm's Form 10-K of fiscal years 2009, 2010 and 2011 printed from http://investor.qualcomm.com/annuals-proxies.cfm on 21 February 2018 (Form 10-K 2009: [...]; Form 10-K 2010: [...]; Form 10-K 2011: [...]).

baseband chip as reported in the [...], *i.e.* it also included the "non-incremental", or common cost, component of the development expenses, namely [...],[1468] [...].

Table 66: Total R&D Costs [...] for MDM8200, MDM6200/6600, and MDM8200A chips (in USD)

	MDM8200	MDM6200/6600 (single project)	MDM8200A
Cumulative Total R&D Costs FY 2002 - 2014	[...]	[...]	[...]

(1105) [...].[1469] Regarding the allocation of the aggregate development costs to the relevant fiscal quarters, and the treatment of product-specific spill-overs across chipsets, the Commission follows the same approach as for the calculation of LRAIC, as set out in section 12.6.3 above.

(1106) As regards the "Selling, general and administrative (SGA)" costs ("SGA costs"), [...][1470] [...], the Commission takes the view that these are an unavoidable cost component which should therefore be included in the measure for ATC.

(1107) [...], the Commission had to devise its own method of allocation which it carried out as follows:

(1108) First, the Commission allocated the SGA costs pertaining to each chipset in each fiscal quarter during the Relevant Period in proportion to the net revenue of this particular chipset in the corresponding fiscal quarter over QCT's overall annual revenue in the corresponding fiscal year.

(1109) Second, the Commission divided the resulting chipset-level SGA costs by the number of units sold in the corresponding quarter to arrive at a pro-rata figure for SGA costs.

(1110) The following formula illustrates this calculation for the MDM8200. The calculations for the other two chipsets under investigation follow the same approach.

SGA pro-rata for MDM8200 in quarter t =
*SGA annual total * (Total quarterly revenue of MDM8200 chipset/ Total QCT annual revenue) / units of MDM sold in quarter t*

(1111) As regards "Other" costs reported in Qualcomm's Form 10-K, this appears to be a residual category accommodating unusual and bulky cost items which do not fit into any of the other three categories. During the Relevant Period, there are only three positive entries in this category: Qualcomm reported for fiscal year 2009, USD 783 million related to a Settlement and Patent License and Non-Assert Agreement with Broadcom Corporation and USD 230 million under "KFTC fine (Note 9)",[1471] as

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1468 Qualcomm's reply of 30 June 2017 to question 9 of Article 18(3) decision of 31 March 2017, [...], paragraph (82).

1469 Since the MDM6200 was developed jointly with the MDM6600, [...], the Commission allocated [...] of the total expenditure of USD [...] to the MDM6200 (see recitals (839)-(842) above).

1470 Qualcomm's reply of 30 June 2017 to question 9 of Article 18(3) decision of 31 March 2017, [...], paragraph (82).

1471 Qualcomm's Form 10-K of fiscal year 2009, [...], page 42, explains this entry as follows: *"In July 2009, the Korea Fair Trade Commission (KFTC) announced (although a written decision has not yet been issued) that it found us to be in violation of South Korean law by offering certain discounts and rebates for purchases of our CDMA chips and that it would levy a fine, as well as order us to cease the*

well as for fiscal year 2011, USD 114 million for a *"goodwill impairment charge related to our Firethorn division due to the operating performance of a new product application falling significantly short of expectations in fiscal 2011".*[1472] The Commission takes the view that, for the purpose of calculating the ATC of the chipset sales under investigation, operating expenses reported under "Other" in Qualcomm's Form 10-K can be disregarded, as this appears to include very specific cost items with no direct relationship with the development, production and commercialisation of the chipsets under investigation.

(1112) Based on the aforementioned allocation of Total R&D Costs and SGA costs, the Commission calculated the quarterly ATC for each of the three baseband chips under investigation as the sum of variable costs (COGS), Total pro-rata R&D, and pro-rata SGA, as shown in the tables below.

Table 67: Total ATC – Allocation for MDM8200

Calendar Quarter	*MDM8200*			
	COGS	R&D	SGA	Total ATC
Jan-Mar/2009	$24.65	$23.93	$4.61	**$53.20**
Apr-Jun/2009	$21.91	$23.53	$4.54	**$49.98**
Jul-Sep/2009	$20.74	$17.70	$3.41	**$41.85**
Oct-Dec/2009	$18.31	$18.59	$3.28	**$40.18**
Jan-Mar/2010	$16.57	$22.25	$3.93	**$42.74**
Apr-Jun/2010	$14.64	$11.30	$2.00	**$27.94**
Jul-Sep/2010	$13.93	$20.15	$3.56	**$37.64**
Oct-Dec/2010	$12.92	$8.94	$1.50	**$23.36**
Jan-Mar/2011	$12.28	$9.64	$1.62	**$23.54**
Apr-Jun/2011	$12.11	$7.39	$1.24	**$20.73**
Jul-Sep/2011	$12.10	$10.27	$1.72	**$24.10**
Oct-Dec/2011	$12.25	$9.18	$1.44	**$22.87**

Table 68: Total ATC – Allocation for MDM6200

Calendar Quarter	*MDM6200*							
	Configuration 1				*Configuration 2*[1473]			
	COGS	R&D	SGA	Total ATC	COGS	R&D	SGA	Total ATC
Apr-Jun/2010	$12.50	$1.08	$2.35	**$15.94**		$1.08	$2.35	
Jul-Sep/2010	$12.50	$0.96	$2.09	**$15.55**		$0.96	$2.09	

practices at issue. We intend to appeal the written decision once issued. As a result of this announcement, we recorded a $230 million charge."

1472 Qualcomm's Form 10-K of fiscal year 2011, [...], page 36.

1473 Configuration 2 of the MDM6200 only started selling in January-March 2011, which is why there are no values available for prices and variable costs of this chipset in the three preceding quarters.

Oct-Dec/2010	$10.79	$0.85	$1.74	**$13.38**		$0.85	$1.74	
Jan-Mar/2011	$6.65	$0.95	$1.96	**$9.57**	$6.47	$0.95	$1.96	**$9.39**
Apr-Jun/2011	$6.26	$0.90	$1.85	**$9.01**	$6.10	$0.90	$1.85	**$8.85**
Jul-Sep/2011	$5.92	$0.79	$1.63	**$8.34**	$5.78	$0.79	$1.63	**$8.20**
Oct-Dec/2011	$5.62	$0.67	$1.29	**$7.58**	$5.50	$0.67	$1.29	**$7.45**

Table 69: Total ATC – Allocation for MDM8200A

Calendar Quarter	***MDM8200A***							
	Configuration 1				***Configuration 2***[1474]			
	COGS	**R&D**	**SGA**	**Total ATC**	**COGS**	**R&D**	**SGA**	**Total ATC**
Apr-Jun/2010	$11.86	$30.00	$2.98	**$44.85**		$30.00	$2.98	
Jul-Sep/2010	$10.58	$26.24	$2.61	**$39.43**		$26.24	$2.61	
Oct-Dec/2010	$9.19	$13.79	$1.30	**$24.29**		$13.79	$1.30	
Jan-Mar/2011	$7.80	$9.87	$0.93	**$18.60**	$7.84	$9.87	$0.93	**$18.64**
Apr-Jun/2011	$7.36	$8.93	$0.84	**$17.13**	$6.98	$8.93	$0.84	**$16.75**
Jul-Sep/2011	$7.09	$10.56	$1.00	**$18.64**	$6.95	$10.56	$1.00	**$18.51**
Oct-Dec/2011	$6.83	$7.41	$0.65	**$14.90**	$6.71	$7.41	$0.65	**$14.78**

(1113) Based on these calculations of Total ATC, the Commission performed a price-cost test for the three chipsets under investigation, the results of which are shown below (results in bold for those quarters where prices are below costs).

[1474] Configuration 2 of the MDM8200A only started selling in January-March 2011, which is why there are no values available for prices and variable costs of this chipset in the three preceding quarters.

Table 70: MDM8200 - Results of the price-cost test when using ATC instead of LRAIC

HUAWEI					
Calendar Quarter	**Volume**	**Price**	**AVC**	**Total ATC**	**TEST (price - ATC)**
Jul-Sep/2009	[...]	$33.55	$20.74	$41.85	**-$8.30**
Oct-Dec/2009	[...]	$22.61	$18.31	$40.18	**-$17.58**
Jan-Mar/2010	[...]	$23.16	$16.57	$42.74	**-$19.58**
Apr-Jun/2010	[...]	$15.67	$14.64	$27.94	**-$12.27**
Jul-Sep/2010	[...]	$16.72	$13.93	$37.64	**-$20.92**
Oct-Dec/2010	[...]	$16.56	$12.92	$23.36	**-$6.80**
Jan-Mar/2011	[...]	$17.33	$12.28	$23.54	**-$6.20**
Apr-Jun/2011	[...]	$17.25	$12.11	$20.73	**-$3.48**

ZTE					
Calendar Quarter	**Volume**	**Price**	**AVC**	**Total ATC**	**TEST (price - ATC)**
Jul-Sep/2009	[...]	$40.21	$20.74	$41.85	**-$1.64**
Oct-Dec/2009	[...]	$39.75	$18.31	$40.18	**-$0.43**
Jan-Mar/2010	[...]	$39.42	$16.57	$42.74	**-$3.32**
Apr-Jun/2010	[...]	$25.57	$14.64	$27.94	**-$2.37**
Jul-Sep/2010	[...]	$17.25	$13.93	$37.64	**-$20.39**
Oct-Dec/2010	[...]	$18.63	$12.92	$23.36	**-$4.73**
Jan-Mar/2011	[...]	$18.65	$12.28	$23.54	**-$4.89**
Apr-Jun/2011	[...]	$18.53	$12.11	$20.73	**-$2.20**

Table 71: MDM6200 - Results of the price-cost test when using ATC instead of LRAIC

HUAWEI									
Calendar Quarter	Volume	Configuration 1				Configuration 2[1475]			
		NET Price	AVC	Total ATC	TEST (price - ATC)	NET Price	AVC	Total ATC	TEST (price - ATC)
Jul-Sep/2010	[...]	$16.62	$12.50	$15.55	$1.07				
Oct-Dec/2010	[...]	$16.62	$10.79	$13.38	$3.24				
Jan-Mar/2011	[...]	$13.23	$6.65	$9.57	$3.66	$11.88	$6.47	$9.39	$2.49
Apr-Jun/2011	[...]	$13.18	$6.26	$9.01	$4.17	$11.82	$6.10	$8.85	$2.97

ZTE									
Calendar Quarter	Volume	Configuration 1				Configuration 2[1476]			
		NET Price	AVC	Total ATC	TEST (price - ATC)	NET Price	AVC	Total ATC	TEST (price - ATC)
Jul-Sep/2010	[...]	$10.89	$12.50	$15.55	**-$4.66**				
Oct-Dec/2010	[...]	$7.21	$10.79	$13.38	**-$6.17**				
Jan-Mar/2011	[...]	$6.33	$6.65	$9.57	**-$3.24**	$4.97	$6.47	$9.39	**-$4.42**
Apr-Jun/2011	[...]	$13.08	$6.26	$9.01	$4.07	$11.81	$6.10	$8.85	$2.96

1475 Configuration 2 of the MDM6200 only started selling in January-March 2011, which is why there are no values available for prices and variable costs of this chipset in the three preceding quarters.

1476 Configuration 2 of the MDM6200 only started selling in January-March 2011, which is why there are no values available for prices and variable costs of this chipset in the three preceding quarters.

Table 72: MDM8200A - Results of the price-cost test when using ATC instead of LRAIC

HUAWEI									
Calendar Quarter	Volume	Configuration 1				Configuration 2[1477]			
		NET Price	AVC	Total ATC	TEST (price - ATC)	NET Price	AVC	Total ATC	TEST (price - ATC)
Jul-Sep/2010	[...]	$24.93	$10.58	$39.43	**-$14.50**				
Oct-Dec/2010	[...]	$14.37	$9.19	$24.29	**-$9.92**				
Jan-Mar/2011	[...]	$13.57	$7.80	$18.60	**-$5.03**	$12.22	$7.84	$18.64	**-$6.42**
Apr-Jun/2011	[...]	$13.56	$7.36	$17.13	**-$3.57**	$12.20	$6.98	$16.75	**-$4.55**

ZTE									
Calendar Quarter	Volume	Configuration 1				Configuration 2[1478]			
		NET Price	AVC	Total ATC	TEST (price - ATC)	NET Price	AVC	Total ATC	TEST (price - ATC)
Jul-Sep/2010	[...]	$25.63	$10.58	$39.43	**-$13.79**				
Oct-Dec/2010	[...]	$14.95	$9.19	$24.29	**-$9.34**				
Jan-Mar/2011	[...]	$14.49	$7.80	$18.60	**-$4.11**	$13.13	$7.84	$18.64	**-$5.51**
Apr-Jun/2011	[...]	$14.26	$7.36	$17.13	**-$2.87**	$12.99	$6.98	$16.75	**-$3.76**

(1114) As shown by Tables 70 to 72 at recital (1113) above, Qualcomm failed to cover its ATC for all of its sales of the MDM8200 and MDM8200A (both configurations) based chipsets to Huawei and ZTE for the entire infringement period, and failed to cover its ATC for its sales of the MDM6200 based chipset (Configuration 1) to ZTE for the first three quarters considered, as well as for its sales of the MDM6200 based chipset (Configuration 2) to ZTE for January-March 2011.

(1115) In light of the above, while the Commission reached the conclusion that, for the chipsets under investigation, Qualcomm engaged between 1 July 2009 and 30 June 2011 in sales below its LRAIC, as a subsidiary argument, the Commission concludes that, in the same period, Qualcomm sold the chipsets under investigation below its ATC which, pursuant to the case law of the Union Courts, is sufficient to find predatory prices in the presence of a plan to eliminate a competitor (see recital (331) above).

(1116) This subsidiary conclusion cannot be called into question by Qualcomm's arguments according to which ATC would be an inappropriate cost benchmark in this case and the reference to such cost benchmark would be inconsistent with the Guidance on Enforcement Priorities.[1479] In fact, the Court of Justice clearly held that, without any distinction based on the economic sectors concerned, prices below average total costs

1477 Configuration 2 of the MDM8200A only started selling in January-March 2011, which is why there are no values available for prices and variable costs of this chipset in the three preceding quarters.

1478 Configuration 2 of the MDM8200A only started selling in January-March 2011, which is why there are no values available for prices and variable costs of this chipset in the three preceding quarters.

1479 See paragraphs 3.108-3.121 of Compass Lexecon Report annexed to the SSO Response, to which para 667 of the SSO Response makes reference.

but above average variable costs charged by a dominant undertaking are to be considered abusive where they are fixed in the context of a plan having the purpose of eliminating a competitor.[1480] Moreover, as set out recital (1188) below, the Guidance on Enforcement Priorities does not constitute the legal standard to assess the compatibility of Qualcomm's behaviour with Article 102 of the Treaty.

12.8. Intention of eliminating a competitor

(1117) Apart from the predatory sales of the MDM6200 based chipset to ZTE, which have been made at prices below AVC (see section 12.7.1.3 above), all other sales identified as predatory have been made at prices that are below Qualcomm's LRAIC (see section 12.7.2 above).[1481] Therefore, in accordance with the case law (see section 12.1 above), the Commission has assessed Qualcomm's strategic motivations on the basis of documentary evidence.

(1118) The documentary evidence made available to the Commission throughout this investigation has revealed a sound and consistent body of evidence embedding Qualcomm's predatory pricing moves (including those leading to sales made at prices below AVC) into a coherent picture of intentional exclusionary conduct targeted at Icera. This body of evidence is laid out in detail in section 12.4.2 above and its links to the results of the Commission's price-cost test are set out in recitals (954)-(956) above for the MDM8200 based chipset, in recitals (968)-(971) above for the MDM6200 based chipset and in recitals (977)-(978) above for the MDM8200A based chipset. The Commission considers the aforementioned sections and recitals as an integral part of its analysis regarding the existence of an eliminatory intent underlying Qualcomm's pricing behaviour during the infringement period.

(1119) The existence of an exclusionary intent underlying Qualcomm's below-cost sales of the MDM8200, MDM6200 and MDM8200A based chipsets to Huawei and ZTE between 1 July 2009 and 30 June 2011 is demonstrated by both direct (section 12.8.1 below) and indirect (section 12.8.2 below) evidence.

12.8.1. Direct evidence of exclusionary intent

(1120) From the body of evidence summarised in section 12.4.2 above demonstrating the strategy defined and implemented by Qualcomm in order to respond to the threat from Icera, the Commission considers the following pieces of evidence as particularly illustrative of Qualcomm's elaboration of a plan to eliminate Icera and of its awareness at senior management level that its below-cost strategy was not economically sustainable for Icera. The Commission notes that this evidence has to be read in conjunction with the evidence consistently demonstrating that Icera was viewed by Qualcomm as the main threat to Qualcomm's UMTS chipset business during the infringement period (see section 12.3.3 above), as well as with the evidence establishing a clear link between Qualcomm's business decisions (including pricing decisions or product development decisions) with regard to the three chipsets under investigation during the infringement period and competition from Icera (see section 12.4.2 above).

[1480] Case C-62/86, *AKZO* v *Commission*, EU:C:1991:286, paragraph 72; Case C-333/94, *Tetra Pak* v *Commission*, EU:C:1996:436, paragraph 41; Case C-202/07 P, *France Télécom* v *Commission*, EU:C:2009:214, paragraph 109.

[1481] As explained in section 12.7.1.3 above, these sales were also below Qualcomm's ATC.

(1121) First, the Commission refers to a Qualcomm internal exchange of e-mails at senior management level of December 2008, triggered by a Huawei request for price reductions of 21 December 2008. In that exchange, [...] ([Qualcomm management member]) noted, first, that *"*[t]*he competition will happen to handset space very soon when data card becomes commodities. We need more discussions on our strategy against competitions."* He then added later, explicitly addressing himself to [...] ([Qualcomm top management member]) and [...] ([QCT top management member]) : *"I think* *we should not give Icera any opportunity in Huawei strategically*. *In the case Icera gets ZTE, we can push ZTE back by working with Huawei in the market place. Please consider to give another 2-3% to make sure we have l00% share in Huawei."* (emphasis added) To [...] further comment that Qualcomm *"should not allow any market share loss* [at Huawei] *in 2009"*, [...] replied: *"Completely agree."*[1482] (emphasis added)

(1122) Second, the Commission refers to Qualcomm internal correspondence of February 2009 following up on an e-mail summary by [...] (Senior Manager, Marketing, at Qualcomm) of a visit to ZTE, in which he explained to [...] ([Qualcomm management member]) that once Icera was able to offer a turn-key solution and achieve sufficient volume, the *"current data card market structure may undergo drastic changes and the price war will be unavoidable* […] *As it is so dangerous for us, I would suggest we take some preventive actions to make it no chance to come true."* (emphasis added) In its reply of the same day, [...] shared [...] view (*"Good analysis. and I agree."*) and asked [...] (Director, Sales, at Qualcomm, [...]) to *"closely monitor the development".*[1483] On 18 February 2009, [...] forwarded [...] *"analysis on Icera threat"* internally to members of Qualcomm's senior management, notably to [...] ([Qualcomm management member]), [...] (Director, QCT Product Management), [...] (Senior Director, Sales, at Qualcomm) and [...] ([QCT top management member]). He expressed his *"concerns for the near term"* and emphasised that *"*[w]*e don't want to see any break through of Icera in any of our major OEMs. It'll be a bad example for other OEMs if it happens."*[1484] (emphasis added) [...] forwarded this e-mail to senior Qualcomm managers from the Product and Engineering team, which prompted [...] (Senior Director, Engineering, at Qualcomm) to enquire about what the Product Management was doing *"to crush Icera at ZTE"*.[1485] (emphasis added)

(1123) The statements from Qualcomm internal e-mails referred to in recitals (1121) and (1122) above date back to the period in which Icera experienced a steady increase in its market traction and thus emerged as a serious competitor to Qualcomm in the

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1482 Qualcomm internal e-mail exchange of 22-26 December 2008, involving [...] ([Qualcomm top management member]), [...] ([QTC top management member]), [...] ([Qualcomm management member]), [...] (Director, Sales), [...] (Manager, Finance), [...] (Senior Director, Sales), [...] ([Qualcomm management member]) and others, [...], pages 1-3.

1483 Qualcomm internal e-mail of 15 February 2009 from [...] ([Qualcomm management member]) to [...] (Senior Manager, Marketing) and [...] (Director, Marketing), copying [...] (Director, Sales), [...], page 1.

1484 Qualcomm internal e-mail of 18 February 2009 from [...] ([Qualcomm management member]) to [...] ([Qualcomm management member]), [...] (Director, QCT Product Management), [...] (Senior Director, Sales) and [...] ([QCT top management member]), copying [...] (Director, Marketing) and [...] (Senior Manager, Marketing), [...], page 1.

1485 Qualcomm internal e-mail of 1 March 2009 from [...] (Senior Director, Engineering) to [...] (Director, QCT Product Management), [...] (QCT Product Manager, Staff) and [...] (QCT Product Manager, Staff), [...], page 1.

leading edge segment of the UMTS chipset market. In particular consideration of the expected change in the market environment at the time (*"*[t]*he competition will happen to handset space very soon when data card becomes commodities")*, Qualcomm identified in Icera's growing success a serious threat to its chipset business (*"it is so dangerous for us")*, to which it considered reacting in a strategic (*"not give Icera any opportunity in Huawei strategically"*) and preventive (*"take some preventive actions")* manner, so as to impede Icera from further establishing its position as a viable and recognised supplier of UMTS chipsets (*"*[w]*e don't want to see any break through"*). Qualcomm was aware that this required action both *vis-à-vis* Huawei and ZTE. The subsequent price moves implemented by Qualcomm (see, in particular, [...] approval of 19 January 2009, recital (455) above; and [...] approval of 8 June 2009, recital (467) above) led to the first predatory sales of the MDM8200 based chipset to Huawei in the third quarter of 2009.

(1124) Third, the Commission refers to e-mail correspondence of December 2009 between [...] (Financial Analyst, Staff, at Qualcomm) and [...] ([Qualcomm management member]). In that correspondence, [...] observed in relation to a possible price reduction to USD [...] for the MDM6200 for ZTE: *"It's a difficult situation, we cant* [sic] *just lower our prices to nothing based on Icera quoting these companies unsustainable pricing, but at the same time we cant* [sic] *let Icera gain a lot of business, which will help them get stronger."*[1486] (emphasis added)

(1125) Fourth, the Commission refers to a Qualcomm internal exchange of e-mails between [...] (Staff Manager, Marketing), [...] ([Qualcomm management member]), [...] (Director, QCT Product Management), [...] ([Qualcomm management member]) and [...] (QCT Product Manager, Staff) of December 2009. In that exchange, [...] gave the following indication in light of the delay in the commercial launch of the MDM6200: *"In the meantime, we have to make price a non-issue to let MDM8200 fill the void."*[1487] (emphasis added) [...] replied to this as follows: *"sure. not good news."*[1488]

(1126) The statements from Qualcomm internal e-mails referred to in recitals (1124) and (1125) above are to be read in conjunction with other contemporaneous evidence from the end of 2009, which shows how ZTE moved more and more into the focus of Qualcomm's attention after Huawei had lost a number of bids with Qualcomm based chipset solutions against ZTE's Icera based product offering. At that same time, due to delays in the commercial launch of its new MDM6200, Qualcomm had to continue to predominantly rely on its MDM8200 based chipset (including its Lite version) to counter the competitive threat posed by Icera (see section 12.4.2.4 above). The statements demonstrate that Qualcomm was determined to address this situation by means of aggressive pricing moves (*"we have to make price a non-*

1486 Qualcomm internal e-mail of 7 December 2009 at 4:39 PM from [...] (Financial Analyst, Staff) to [...] ([Qualcomm management member]), [...], page 1.

1487 Qualcomm internal e-mail of 16 December 2009 from [...] ([Qualcomm management member]) to [...] (Director, QCT Product Management), [...] ([Qualcomm management member]), [...] (Staff Manager, Marketing), [...] (Director, Sales), [...] (Director, Sales), copying [...] (Director, Marketing) and [...] (QCT Product Manager, Staff), [...], page 1.

1488 Qualcomm internal e-mail of 17 December 2009 from [...] (Director, QCT Product Management) to [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Staff Manager, Marketing), [...] (Director, Sales), [...] (Director, Sales), copying [...] (Director, Marketing) and [...] (QCT Product Manager, Staff), [...], page 1.

issue"). The strategic motivation behind Qualcomm's subsequent price moves (see, in particular, [...] approval of 21 December 2009, recital (509) above; and [...] approval of 4 January 2010, recital (510) above) was to avoid that Icera's business would reach a critical size (*"we cant* [sic] *let Icera gain a lot of business, which will help them get stronger"*) and thus that Icera would become a more effective competitor in the broader UMTS market.

(1127) Fifth, the Commission refers to an e-mail of 1 January 2010 in which [...] (Staff Manager, Marketing, at Qualcomm) summarised the [...] to Qualcomm's senior management as follows: *"Icera 8042 is the top threat to QCT now,* [...]*."* In the same e-mail, he proposed the following actions to address the situation: *"a. Speed up MDM6200 and 8200A CS release; b. Work with Huawei to beat Icera with MDM6200, burn out Icera's limited funds from VC* [venture capital]*, squeeze ICE8042/ZTE market space"*.[1489] (emphasis added).

(1128) Sixth, the Commission refers to a debrief for Qualcomm's senior management about a Qualcomm internal *"Icera Discussion"* which took place on 6 January 2010. The debrief prepared by [...] ([Qualcomm management member]) emphasised Icera's momentum among Chinese device manufacturers (*"With many customers and design wins, the ~260-person company is optimistic about its revenue outlook in 2010 and is looking to go IPO sometime this year."*) and concluded: *"We have to protect our sockets at major accounts. ZTE and Huawei are the top priorities and the China team is working on issues at these accounts. For the short term, adjusting MDM6200 and MDM8200a pricing has to be done to contain volume growth at Icera in 2010, and to buy time for new platform development (28nm by 2012)."*[1490] (emphasis added) In his debrief, [...] ([Qualcomm management member]) also pointed out that the presentation attached to his e-mail had been prepared by [...] (Staff Manager, Marketing, at Qualcomm) and used in the discussion. That presentation suggested *"*[s]*queezing Icera for ~6 months to burn out their very limited funds from VC"*, nothing that Icera had *"260 employees, average cost $200k/person/year"* and that the *"$70M from VC in Dce.08* […] *can support Icera for only 16 months to Apr.2010"*.[1491] (emphasis added) These suggestions correspond to the action proposed by [...] in his e-mail of 1 January 2010 (see recital (1127) above).

(1129) The statements referred to in recitals (1127) and (1128) above demonstrate that the threat posed by Icera was a pressing issue for Qualcomm, which was discussed extensively and thoroughly at senior management level. These discussions date back to a period in which Icera was at the edge of evolving from a start-up company into an established corporation (*"With many customers and design wins, the ~260-person company is optimistic about its revenue outlook in 2010 and is looking to go IPO sometime this year."*), suffering, however, from financial constraints *("very limited*

1489 Qualcomm internal e-mail of 1 January 2010 from [...] (Staff Manager, Marketing) to [...] (Director, QCT Product Management), copying [...] ([Qualcomm management member]), [...] (Director, Marketing), [...] ([Qualcomm management member]) and [...] (Senior Director, Sales), [...], page 1.

1490 Qualcomm internal e-mail of 6 January 2010 from [...] ([Qualcomm management member]) to [...] ([Qualcomm management member]), [...] (Director, QCT Product Management), [...] ([QCT top management member]), [...] (Senior Director, Finance), [...] (Director, Sales), [...] (QCT Product Manager, Staff) and others, copying [...] (Staff Manager, Marketing), [...] (Director, Marketing) and [...] ([Qualcomm management member]), [...], page 1.

1491 Qualcomm presentation titled [...], attached to Qualcomm internal e-mail of 6 January 2010, [...], page 7.

funds from VC") in the wake of the global financial crisis of 2008. Qualcomm intended to address the *"top threat"* Icera represented by taking advantage of Icera's relatively weak financial position in order to impede Icera from generating the amount of revenues essential for its survival *("Squeezing Icera for ~6 months to burn out their very limited funds from VC")*.

(1130) The statements in recitals (1127) and (1128) above also clearly show that the action Qualcomm envisaged taking was unequivocally targeted at Icera *("MDM6200 and MDM8200a pricing has to be done to contain volume growth at Icera in 2010"*) and weighted against its ability to threaten the financial viability of Icera's business, and thus the survival of Icera as a chipset supplier in competition with Qualcomm. In this regard, Qualcomm had precise plans of how to achieve that goal *("Speed up MDM6200 and 8200A CS release; b. Work with Huawei to beat Icera with MDM6200"; "MDM6200 and MDM8200a pricing"*). The subsequent price moves implemented by Qualcomm (see, in particular, [...] approval of 17 May 2010, recital (553) above; and [...] approval of 28 May 2010, recital (557) above) reflect the proposed action.

(1131) With regard to the presentation referred to in recital (1128) above, the Commission notes that the slide eventually carrying the strategy proposal of *"*[s]*queezing Icera for ~6 months to burn out their very limited funds from VC"* was the final product of multiple internal reviews.[1492] In fact, already on 15 December 2009, [...] (Staff Manager, Marketing, at Qualcomm) had sent an earlier version of the presentation to [...] (Director, Marketing, at Qualcomm), copying [...] ([Qualcomm management member]), asking them to *"review the updated deck"*.[1493] This presentation did not yet contain the strategy proposal of *"*[s]*queezing Icera for ~6 months to burn out their very limited funds from VC".*[1494] This suggests that the statements included in the final presentation (including the strategy proposal of *"*[s]*queezing Icera for ~6 months to burn out their very limited funds from VC",* the information on Icera having *"260 employees, average cost $200k/person/year"* and the note that *"$70M from VC in Dce.08* […] *can support Icera for only 16 months to Apr.2010"* had been carefully considered and discussed by several key actors and were considered sufficiently correct to be presented to Qualcomm's senior management. Such statements cannot, therefore, reasonably be categorised as *"back-of-the-envelope 'calculation' carried out without any particular thought as to the correctness or relevance of the underlying assumptions"* as claimed by Qualcomm.[1495]

(1132) Seventh, the Commission refers to the Qualcomm internal [...] of June 2010, which stated that *"Ice8042 is losing momentum in Huawei and ZTE. <u>The strategy of squeezing Ice8042 w/ both MDM6200 and MDM8200A made effect.</u>"*[1496] (emphasis added)

1492 Qualcomm's reply of 16 June 2017 to question 21.2 of Article 18(3) Decision of 31 March 2017, [...], paragraphs (197)-(200).

1493 Qualcomm internal e-mail of 15 December 2009 from [...] (Staff Manager, Marketing) to [...] (Director, Marketing), copying [...] ([Qualcomm management member]), [...]. The presentation titled [...], was attached to this e-mail.

1494 Qualcomm internal presentation titled [...], page 13, Qualcomm internal e-mail of 15 December 2009 from [...] (Staff Manager, Marketing) to [...] (Director, Marketing), copying [...] ([Qualcomm management member]), [...].

1495 As argued in the SO Response, paragraph (565).

1496 Qualcomm internal presentation of June 2010 titled [...], page 22.

(1133) This statement demonstrates that the strategy to counter the competition from Icera devised and shaped in concrete terms by Qualcomm at the beginning of January 2010 (see recitals (1127) and (1128) above) started bearing fruits. It also demonstrates that there was an evaluation of the implementation of the strategy proposal of *"*[s]*queezing Icera for ~6 months to burn out their very limited funds from VC"* referred to in recitals (1128) and (1131) above, which therefore constitutes anything but a *"back-of-the-envelope calculation"*. Nevertheless, in the context of [...],[1497] Qualcomm's predatory pricing behaviour continued after the end of the period (*"~6 months"*) originally envisaged as necessary to *"burn out* [Icera's] *very limited funds from VC".*

(1134) Eighth, the Commission refers to a [...] request of 21 December 2010 concerning *"Huawei And ZTE MDM8200A Strategy"*, in which it is noted that *"*[o]*n 21M HSPA+, assuming we do nothing and not provide special support to ZTE than normal pricing adjustment, and Icera provides very competitive price 21M to ZTE, ZTE/Icera shipment volume in CY11 is projected to be* [...]*."*[1498] (emphasis added)

(1135) This statement shows how Qualcomm's pricing decisions were driven by the aim of not allowing Icera to gain a foothold in the market rather than by a profit-maximising commercial strategy on the part of Qualcomm with regard to the chipsets concerned. This is also reflected in Qualcomm's [...] strategy formalised in May 2010 (see section 12.4.2.6 above). The subsequent price moves implemented by Qualcomm (see, in particular, [...] approval of 16 May 2011, recital (581) above; and [...] approval of 7 June 2011, recital (583) above) reflect this objective.

(1136) Ninth, the Commission refers to a Qualcomm internal e-mail of 4 May 2011, in which [...] (Senior Director, QCT Product Management) expressed his hesitation to grant further price reductions for the MDM8200A in view of Icera's difficult financial situation: *"Given what we here* [sic] *about ICERAs fincnaical* [sic] *problems, I am relunctant* [sic] *to make a price move right now but am open to the discussion.* [...]*"*[1499]

(1137) This statement not only confirms that competition from Icera was the most important aspect taken into account by Qualcomm when taking its pricing decisions, but also shows that the effect of Qualcomm's pricing moves on the viability of Icera's business was the essential triggering factor for the price reductions granted by Qualcomm.

12.8.2. Indirect evidence of exclusionary intent

(1138) The existence of an exclusionary intent on the part of Qualcomm which was targeted at Icera is also demonstrated by the following indirect evidence, which, even on its own, is sufficient to establish that Qualcomm's below-cost sales of the MDM8200, MDM6200 and MDM8200A based chipsets between 1 July 2009 and 30 June 2011 were predatory.[1500]

1497 Qualcomm internal presentation of June 2010 titled [...], page 22.

1498 Qualcomm internal presentation of 21 December 2010 titled [...], page 4.

1499 Qualcomm internal e-mail of 4 May 2011 from [...] (Senior Director, QCT Product Management) to [...] (Regional Sales Manager) and [...] (Senior Product Manager), copying [...] ([Qualcomm management member]), [...] (Senior Director, Finance), [...] (Manager, Finance) and [...] (Director, Sales), [...], page 2.

1500 Case T-83/91, *Tetra Pak* v *Commission*, ECLI:EU:T:1994:246, paragraph 152.

(1139) First, Qualcomm's pricing conduct is characterised by its highly targeted nature. As described in detail in section 12.4 above, Qualcomm's pricing strategy was selective both in terms of the market segment as well as the customers targeted by it, as it focussed on (i) the leading edge segment of the UMTS chipset market in which Icera had started to gain traction in 2008/2009, as well as on (ii) Huawei and ZTE, the two most important customers in the leading edge segment during the Relevant Period. In light of the strategic importance of the leading edge segment of the UMTS chipset market (see section 12.3.2 above), and of Huawei and ZTE as the key customers in this segment (see recitals (404) and (405) above), the targeted nature of the its pricing conduct allowed Qualcomm to maximise its negative impact on Icera's business, while minimising the effect of Qualcomm's price reductions on its overall revenues from the sale of UMTS chipsets, thus reflecting the exclusionary intent *vis-à-vis* Icera underlying Qualcomm's pricing behaviour.

(1140) Second, the scale[1501] of Qualcomm's below-cost sales of its MDM8200, MDM6200 and MDM8200A based chipsets to Huawei and ZTE in the strategically important leading edge segment of the UMTS chipset market was significant. As set out in Table 59 at recital (990) above, between 1 July 2009 and 30 June 2011, [...] and [...] of all relevant units sold to Huawei and ZTE respectively were sold below cost. The importance of this element is corroborated by the fact that Qualcomm internal evidence shows that Qualcomm was of the view that Icera's development prospects were dependent on its ability to establish a business relationship with either Huawei or ZTE (see recital (405) above).

(1141) Third, Qualcomm's pricing practices continued[1502] without interruption between 1 July 2009 and 30 June 2011 (see Figure 33 at recital (992) above). As described in section 12.4.2 above, Qualcomm's preventive actions *vis-à-vis* Icera were based on pricing concessions for the sale of its leading edge chipsets to Huawei and ZTE which were complementary both chronologically (in particular with regard to the MDM8200 and MDM8200A based chipsets) and in relation to technical specifications (*i.e.* the maximum achievable data rate, in particular with regard to the MDM8200A and MDM6200 based chipsets). The continuity of Qualcomm's pricing practices is consistent with evidence of Qualcomm's intention of bridging the *"competitive gap" vis-à-vis* Icera in order *"not give Icera any opportunity in Huawei strategically"* (see section 12.4.2 and recital (1121) above).

(1142) Fourth, Qualcomm made two one-off payments of a significant order of magnitude to Huawei and ZTE, respectively, which were intended to provide a price reduction for the MDM8200 and the MDM6200, respectively, but were formally recorded as an [...] payment against the MDM8200A (see recitals (486) and (509) above). This made the price effectively paid by the respective customer for the chipset for which the payment was intended appear higher than it actually was. This has to be seen in the context of several Qualcomm internal documents showing that Qualcomm was aware that it *"cannot sell under cost"*, and thus of the legal limitations applying to the pricing of its chipsets (see recitals (481), (483) and (540) above).

1501 Case T-83/91, *Tetra Pak* v *Commission*, ECLI:EU:T:1994:246, paragraph 151.

1502 Case T-83/91, *Tetra Pak* v *Commission*, ECLI:EU:T:1994:246, paragraph 151.

(1143) Fifth, Qualcomm made major financial sacrifices in the area of prices and supply terms[1503] in order to address the competitive threat by Icera. This is demonstrated by the following pieces of evidence.

(1144) In the first place, the Commission refers to a statement from [...] (Director, QCT Product Management) contained in a Qualcomm internal e-mail of 6 January 2010, in which the risk of the MDM6200 being marginalised at Huawei and ZTE given its disadvantages compared to Icera's ICE8042 based chipset was discussed. [...] noted, in this regard, that *"the icera threat is critical"* and offered to *"bring* [...] *into any discussion to relate to a* [...] *the budgetary hit we are taking due to price downs to hold sockets".*[1504] (emphasis added)

(1145) In the second place, the Commission refers to a thread of e-mails[1505] starting on 2 February 2010 with the announcement that the *"latest 6200 deck"* is available which contained promotional material for the MDM6200 based chipset. Reference is made to the MDM6200 based chipset being in serious trouble with *"Tier 1"*[1506] network operators in the EU and its pricing being within USD [...] of Icera pricing. In an e-mail on 10 February 2010 [...] (Director, QCT Product Management) reported that *"*[w]*e presented* […] ([Qualcomm top management member]) *slides this week which showed that USD* […] *have come off the budget since Nov'10 due to competitive repricing across the UMTS portfolio ... much of it due to ICERA."*[1507] (emphasis added)

(1146) In the third place, the Commission refers to a reply by […] (Senior Director, QCT Product Management) to an enquiry by [...] ([Qualcomm top management member]) of 17 October 2010 about the *"latest thinking on how we handle Icera in Huawei and ZTE"* (emphasis added). In that reply it is stated that while Qualcomm has *"clear cost leadership in the 3.6 and 7.2 tiers and as a result have price leadership as well",* Qualcomm would *"have a slight cost disadvantage on 8200a* […] [*i.e.* in the leading edge segment] *but have decided to trade some margin to make a compelling offer to huawei/zte/etc"*[1508] (emphasis added).

12.8.3. Qualcomm's arguments and their assessment by the Commission

(1147) The Commission's conclusions regarding the existence of an exclusionary intent underlying Qualcomm's below-cost sales of the MDM8200, MDM6200 and MDM8200A based chipsets to Huawei and ZTE between 1 July 2009 and 30 June 2011 is not put into question by Qualcomm's arguments in this respect.

(1148) First, Qualcomm claims that the Commission's analysis relies on selective and misleading quotations of sometimes imprecise, blustering language, taken out of

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1503 Case T-83/91, *Tetra Pak* v *Commission*, ECLI:EU:T:1994:246, paragraph 151.

1504 Qualcomm internal e-mail of 6 January 2010 from [...] (Director, QCT Product Management) to [...] (QCT Product Manager, Staff), [...] (Senior Director, Engineering) and another Qualcomm employee, [...], page 1.

1505 Qualcomm internal e-mails of February 2010, [...].

1506 Suppliers of MNOs usually segment the market in "tiers" corresponding to customers of different magnitudes and therefore importance. In Europe, Tier 1 would typically include operators such as [...].

1507 Qualcomm internal e-mails of February 2010, [...], page 1.

1508 Qualcomm internal e-mail of 17 October 2010 from [...] (Senior Director, QCT Product Management) to [...] ([Qualcomm top management member]) and [...] ([Qualcomm management member]), copying [...] ([Qualcomm management member]), [...] ([QCT top management member]) and [...] ([QCT top management member]), [...], pages 1-2.

their proper context, and ignores Qualcomm's explanations as to why they are either irrelevant or exculpatory.[1509] This claim is unfounded for the following reasons.

(1149) In the first place, while individual documents or quotes may be interpreted in different ways when being looked at in isolation, this is not the case when they are put into context with the overall evidence in the Commission's file as set out in sections 12.4.2 and 12.8.1 to 12.8.2 above. As explained in recital (1118) above, this evidence embeds Qualcomm's below-cost pricing (including sales made at prices below AVC) during the infringement period into a coherent picture of intentional exclusionary conduct targeted at Icera. In light of Qualcomm's overarching strategy as reflected in this evidence, the alternative interpretations of specific parts of contemporaneous documents proposed by Qualcomm are neither credible nor convincing, as evidenced by the following examples.

(a) While Qualcomm argues that the word *"squeeze"* does not imply anything suspicious,[1510] this term was consistently used in the Qualcomm internal documents set out in this Decision in the description of the measures by which Qualcomm intended to implement its predatory strategy against Icera. In fact, as explained in recitals (512) and recitals (1128)-(1131) above, *"squeeze*[ing] *ICE8042/ZTE market space"* was one of the action items summarising Qualcomm's strategy against the threat posed by Icera, other action items being *"*[s]*peed*[ing] *up MDM6200 and 8200A CS release"* and *"*[w]*ork*[ing] *with Huawei to beat Icera with MDM6200, burn out Icera's limited funds from VC* [venture capital]*"*. A presentation containing these action items under the heading *"Proposed Strategy"* was used in discussions involving Qualcomm's senior management on the *"threat of Icera at* [Qualcomm's] *key accounts"* (see recitals (514) and (515) above), leading Qualcomm to conclude that further action was needed to protect Qualcomm's position at Huawei and ZTE, in particular by way of *"adjusting MDM6200 and MDM8200a pricing* […] *to contain volume growth at Icera in 2010, and to buy time for new platform development (28nm by 2012)"* (see recital (514) above). The statement about the *"strategy of squeezing Ice8042 w/ both MDM6200 and MDM8200A* [having] *made effect"* contained in a presentation of June 2010 (and referred to in recitals (558) and (1132)-(1133) above) needs to be read against that background and in consideration of the below-cost prices applied by Qualcomm in relation to these chipsets during the preceding period.

(b) While Qualcomm claims that the question from […] (Senior Director, Engineering, at Qualcomm) about what the Product Management was doing *"to crush Icera at ZTE"* (see recital (460) above) was unrelated to any of the chipsets concerned by the investigation,[1511] that statement was, in reality and as explained in recitals (458)-(460) and recital (1122) above, embedded into a Qualcomm internal e-mail thread starting with a report drafted by […] (Senior Manager, Marketing, at Qualcomm) containing an *"analysis on Icera threat"* and including an e-mail by [...] ([Qualcomm management member])

1509 Qualcomm's SSO Response, [...], paragraphs (355), (378), (511)-(522), (526), (529), (543)-(546); Qualcomm's SO Response, [...], paragraphs (574), (577).

1510 Qualcomm's SSO Response, [...], paragraph (516).

1511 Qualcomm's SSO Response, [...], paragraph (529); Qualcomm's SO Response, [...], paragraphs (97), (564).

emphasising that *"*[w]*e don't want to see any break through* [sic] *of Icera in any of our major OEMs. It'll be a bad example for other OEMs if it happens".* The last e-mail of this thread sent by […] (QCT Product Manager, Staff) in reply to […] question mentioned, amongst other, that ZTE intended to use both the MDM6200 and the MDM8200 based chipsets.[1512]

(c) While Qualcomm argues that a comment from […] (*"Not good…"*) (see recital (513) above) was not made in reaction to a report about Icera's progress in the market but rather in reaction to […] wanting *"a non-QCT solution"*,[1513] as explained in recitals (512)-(513) above, this comment was, in reality, made in reply to an e-mail by […] (Staff Manager, Marketing, at Qualcomm) with the subject *"UMTS modem competition landscape in China"* which contained a *"a brief summary of the UMTS modem competition landscape in China"* referring, in the first place, to *"Icera 8042* [being] *the top threat to QCT now".* The reference to […] included in the last paragraph of the […] e-mail was meant to be merely incidental, as demonstrated by the use of the acronym *"BTW* [by the way]*"* at the beginning of that paragraph.[1514]

(1150) Second, Qualcomm claims that the evidence relied upon by the Commission originates from a small number of Qualcomm employees without any authority to determine Qualcomm's pricing. In particular, Qualcomm claims that […] was a low-ranking employee not entrusted with any responsibilities regarding the relationship with specific customers, whose command of the English language was poor and whose employment with Qualcomm was terminated in August 2010.[1515] These claims are unfounded for the following reasons.

(1151) In the first place, most of the Qualcomm personnel involved in the internal discussions concerning Qualcomm's predatory strategy *vis-à-vis* Icera during the Relevant Period were either part of Qualcomm's senior management[1516] or belonged to Qualcomm's Finance, Sales or Product Management departments[1517] which played a key role in shaping Qualcomm's pricing (see explanations based on Qualcomm's reply to an information request contained in recital (122) above) and thus also Qualcomm's strategy in dealing with the competition from Icera, as demonstrated by contemporaneous Qualcomm internal evidence.[1518]

1512 See Qualcomm internal e-mail thread included in [...].

1513 Qualcomm's SSO Response, [...], paragraph (544).

1514 See Qualcomm internal e-mail thread included in [...].

1515 Qualcomm's SSO Response, [...], paragraphs (355), (515), (533), (549); Qualcomm's Comments on the Letter of Facts, [...], paragraph (77).

1516 In particular, in alphabetical order: [...]. See lists of Qualcomm employees and their functions provided in Annexes 17 and 18 to Qualcomm's reply of 30 June 2017 to questions 17.2 and 18 of Article 18(3) Decision of 31 March 2017, [...] and [...].

1517 In particular, in alphabetical order: [...]. See lists of Qualcomm employees and their functions provided in Annexes 17 and 18 to Qualcomm's reply of 30 June 2017 to questions 17.2 and 18 of Article 18(3) Decision of 31 March 2017, [...] and [...].

1518 See Qualcomm's SSO Response, [...], paragraph (550(v)), with reference to a Qualcomm internal e-mail of 6 January 2010 from [...] ([Qualcomm management member]) to [...] ([Qualcomm management member]), [...] (Director, QCT Product Management), [...] ([QCT top management member]), [...] (Senior Director, Finance), [...] (Manager, Finance), [...] (Director, Sales), [...] (Director, Sales), [...] (position unknown), [...] ([Qualcomm management member]), [...] (QCT Product Manager, Staff) and [...] (Manager, Finance), copying [...] (Staff Manager, Marketing), [...] (Director, Marketing) and [...] ([Qualcomm management member]) [...], containing the following statement: *"Huawei has asked this*

(1152) In the second place, […] played a key role in providing Qualcomm's senior management with crucial elements and suggestions in relation to Qualcomm's strategy against Icera, as evidenced, *e.g.*, in recitals (1122), (1125), (1127), (1128) and (1131) above. This was explicitly recognised by his superiors, in particular by […] (Senior Director, QCT Product Management), who stated in an e-mail of October 2010: *"*[…] *had a clue and was engaged. Everyone else under* [...] ([Qualcomm management member]) *was clueless and checked out"* (see recital (565) above).

(1153) In the third place, while [...] employment with Qualcomm was indeed terminated on 31 August 2010 pursuant to his resignation, he re-joined the company on 1 July 2013 as a Director, Product Marketing, *i.e.* at a higher level than previously, when he was a Staff Manager, Marketing.[1519] This indicates that Qualcomm, in fact, appreciated [...] previous work for the company and considered him to be a valuable employee with management capacity who, by definition, needs to have a good command of English.

(1154) In the fourth place, contrary to Qualcomm's claim, [...] was entrusted with responsibilities regarding the relationship with specific customers, as evidenced by the response by Huawei to a request for information, in which it stated: *"Key contact persons from Qualcomm are* [...] *(Sales director),* [...] *(Sales manager),* [...] *(UMTS/LTE Product manager, planning) and* [...] ([Qualcomm management member])*."*[1520]

(1155) Third, Qualcomm claims, in relation to the presentation referred to in recital (1128) above, that *"*[...] *'back-of-the-envelope' calculation is wrong. For example, it assumes zero revenue source for Icera, either from chipset sales or from further investment".*[1521] Apart from irrelevant, this claim is incorrect for the following reasons.

(1156) In the first place, the assumption that Icera's chipset sales would not generate any markup that could be used to finance R&D is fully consistent with [...] proposal to *"squeeze Icera"*, *i.e.* to force Icera to lower its prices to a level that would barely cover the manufacturing costs of its chipsets. As a result of this *"squeeze"*, all non-variable costs and notably Icera's R&D expenses, had to be financed by other funds, *i.e.* by the venture capital Icera managed to attract. The calculations are therefore fully correct in assuming that only Icera's venture capital would be available to cover Icera's engineering costs.

(1157) In the second place, regarding the assumption of *"zero revenue source for Icera* […] *from further investment"*, the fact that Icera attracted additional venture capital of USD 45 million in May 2010[1522] is perfectly consistent with [...] calculations, according to which Icera would have run out of funds by April 2010, *i.e.* the month

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question: 'what is QCT's strategy in dealing with Icera?'.I look forward to working with the teams [...] *to come up with a convincing package to answer this question."*.

1519 See Annex 17.4 to Qualcomm's reply of 16 June 2017 to question 17.4 of Article 18(3) Decision of 31 March 2017, [...].

1520 Huawei's reply of 3 January 2012 to question 16 of Article 18(3) Decision of 19 October 2011, [...], paragraph (77).

1521 Qualcomm's follow-up submission to the Oral Hearing of 10 January 2019, [...], paragraph (39).

1522 Qualcomm's follow-up submission to the Oral Hearing of 10 January 2019, [...], paragraph (52) and footnote 50.

prior to Icera raising the additional funds. [...] assessment also coincides with Icera's own forecasts in March 2010 of the point in time at which it would have reached a situation of *"cash out"*.[1523] Qualcomm is therefore wrong in characterising [...] calculations as *"rough, highly stylized and imprecise"*,[1524] since they were, in fact, numerically very precise and fully consistent with the predatory strategy envisaged by the same document that contains these calculations.

(1158) Fourth, Qualcomm claims that its pricing conduct was not targeted and selective as described by the Commission and that it competed with Icera with regard to various chipsets offering different data rates and not limited to the leading edge segment, and with regard to various customers and not limited to Huawei and ZTE.[1525] This claim is unfounded for the following reasons.

(1159) In the first place, the Commission does not claim that Qualcomm did not compete with Icera in other segments of the UMTS chipset market. Competition from Icera with regard to chipsets which did not belong to the leading edge segment was however not perceived as a threat by Qualcomm, as Qualcomm was confident about its leadership in low-tier and mid-tier of the UMTS chipset market and considered that its own product offering in these segments was competitive (see recital (401) above).

(1160) In the second place, as set out in section 12.4.2 above, the price reductions granted by Qualcomm leading to below-cost sales specifically related to the MDM8200, the MDM6200 and the MDM8200A based chipsets, which competed with Icera's leading edge UMTS chipsets during the Relevant Period.

(1161) In the third place, while Qualcomm's predatory strategy focussed on Huawei and ZTE, its two strategically most important customers in the leading edge segment during the Relevant Period, also the prices of other customers were adjusted over time (see recital (900) above). This is because Qualcomm had to maintain a certain symmetry between the prices granted to key (*"tier 1"*) customers such as Huawei and ZTE and other customers in order to ensure that the gap between the different price levels did not become too significant over time.[1526]

(1162) Fifth, Qualcomm claims that it never knowingly undercut Icera's prices, and that its pricing was reactive and not proactive in light of prices applied by Icera.[1527] This claim is misplaced for the following reasons.

1523 Icera Board Presentation of 23 March 2010, [...], page 22, slide entitled [...]. According to these projections, Icera would have run out of cash either at the end of May 2010, or in mid-June 2010.

1524 Qualcomm's follow-up submission to the Oral Hearing of 10 January 2019, [...], paragraph (42).

1525 Qualcomm's SSO Response, [...], paragraphs (355), (404)-(410).

1526 See, *e.g.*, Qualcomm internal e-mail of 20 May 2010 from [...] (Senior Manager, Finance) to [...] ([QCT top management member]), [...] (Senior Manager, Finance) and [...] (Manager, Finance), [...], page 1, where it is stated: [...]; Qualcomm internal e-mail of 14 November 2008 from [...] (position unknown) to [...] (Manager, Finance) and [...] (Director, Sales), copying [...] (Senior Director, Sales), [...] (Director, Sales), [...] (position unknown) and [...] (position unknown), [...], pages 2-3, where reference is made to [...] pointing to a certain parallelism between prices; Qualcomm internal presentation (without date and title), [...], page 1, where it is stated: *"Now is time to close pricing gaps with competition to protect market share and to flatten pricing tiers to fragment the market"* (see recital (556) above).

1527 Qualcomm's SSO Response, [...], paragraph (385).

(1163) In the first place, according to the Union Courts' case law (see recital (329) above), the benchmark for assessing whether a dominant company is engaging in predatory pricing is not pricing and cost data of the company against which such predatory behaviour is put in place, but the dominant company's own prices and costs.

(1164) In the second place, even if it were correct that Qualcomm never undercut Icera's prices, this does not imply that Icera's offer was automatically more attractive to customers from a price point of view, given the significant value of Qualcomm's so-called grant-back network, the benefits of which only apply to Qualcomm's products (see section 11.4.2 above), and other advantages which Qualcomm could offer to customers and which it considered itself to justify a price premium on its products, *e.g.* its *"support / supply and performance track record"*.[1528]

(1165) Sixth, Qualcomm claims that the evidence relied on by the Commission demonstrates that Qualcomm did not intentionally price below cost, but intended to comply with applicable laws, including EU competition law.[1529]

(1166) This claim is unfounded since the statements in Qualcomm internal documents suggesting that certain Qualcomm employees were aware of the legal limitations applying to the pricing of its chipsets and concerned that Qualcomm could infringe these limitations predate subsequent price reductions granted by Qualcomm on the relevant chipsets.[1530] Rather than demonstrating any intention of complying with applicable laws, this shows that any concerns about possible non-compliance eventually did not prevent the implementation of Qualcomm's predatory strategy *vis-à-vis* Icera.

(1167) Seventh, Qualcomm claims that in consideration of the fact that the statement about *"*[t]*he strategy of squeezing Ice8042 w/ both MDM6200 and MDM8200A* [having] *made effect"* (see recital (1132) above) is dated June 2010, at which point Qualcomm had received orders for only negligible quantities of MDM6200 and MDM8200A based chipsets[1531] and shipped no more than [...] units of the MDM8200A to Huawei and ZTE, the Commission's claim that Qualcomm's strategy had an effect is not credible. Relatedly, Qualcomm claims that because the Commission does not allege that Qualcomm has made any predatory sales of the MDM6200 at that point in time, the reference to *"squeezing"* in the quote referred to in recital (1132) above cannot refer to predatory sales of the MDM6200.[1532]

(1168) This claim is unfounded since there is a significant delay between the orders placed by customers and the delivery of the finished products, with the average lead time amounting to [...] (see recital (1183) below). Moreover, Qualcomm's customers regularly [...] covering even longer periods (see, *e.g.*, recitals (468) and (501) above). It is therefore reasonable to assume that at the time when the statement was made Qualcomm was already able to assess the impact of the pricing moves made in the

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1528 Qualcomm's SSO Response, [...], footnote 607.

1529 Qualcomm's SSO Response, [...], paragraphs (388)-(389).

1530 Indeed, said statements date November 2009 (see evidence referred to in recitals (481), (483) and (489) above), December 2009 (see evidence referred to in recital (498) above), January 2010 (see evidence referred to in recital (529) above) and February 2010 (see evidence referred to in recitals (538) and (540) above).

1531 Qualcomm's follow-up submission to the Oral Hearing of 10 January 2019, [...], paragraph (49).

1532 Qualcomm's SSO Response, [...], paragraphs (511)-(512), (560); Qualcomm's Comments on the Letter of Facts, [...], paragraphs (17), (38).

preceding months, despite the fact that the products concerned were not yet definitely ordered or shipped to customers in significant volumes.

(1169) Eighth, Qualcomm claims that the Commission's reasoning regarding the moment in time as of which Qualcomm's pricing decisions were no longer driven by a predatory strategy against Icera (see recital (421) above) is conceptually incorrect, as it would allege that mere references to Icera or to perceived competition from Icera in internal Qualcomm documents represent evidence that Qualcomm formulated or implemented a plan to foreclose Icera.[1533]

(1170) This claim is unfounded since the evidence set out in sections 12.4.2, 12.8.1 and 12.8.2 above not only clearly demonstrates the existence of a predatory strategy on the part of Qualcomm to respond to the perceived threat from Icera in the leading edge segment of the UMTS chipset market, but also how this strategy was implemented by way of targeted pricing concessions to Huawei and ZTE for the chipsets under investigation during the Relevant Period. In contrast, this Decision does not contain any such finding for the period as of 1 July 2011 (see recitals (422)-(424) above). Contrary to Qualcomm's claims,[1534] therefore, the Commission's observation that Icera continued to be mentioned in contemporaneous documents as a key competitor throughout 2011 does therefore not establish a *"presumption of guilt"*.[1535]

12.9. Objective justification or efficiencies

(1171) Predatory conduct by a dominant undertaking may escape the prohibition of Article 102 of the Treaty if the dominant undertaking can provide an objective justification for its behaviour or if it can demonstrate that its conduct produces efficiencies which outweigh the negative effect on competition. The burden of proof for such an objective justification or efficiency defence is on the dominant company.[1536] It is for the company invoking the benefit of a defence against a finding of an infringement to demonstrate to the required legal standard of proof that the conditions for applying such defence are satisfied.[1537]

(1172) The Commission concludes that notwithstanding Qualcomm's claims, Qualcomm has not demonstrated that there was an objective justification for its behaviour or that its conduct produced efficiencies which outweighed the negative effect on competition.

(1173) First, Qualcomm argues that its pricing practices were both rational and profit-maximising, as every unit sold at a price above AVC was sold at a profit and thus contributed towards the recovery of Qualcomm's fixed costs. Qualcomm concludes

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1533 Qualcomm’s Comments on the Letter of Facts, [...], paragraph (32).

1534 Qualcomm’s Comments on the Letter of Facts, [...], paragraph (32).

1535 See, by analogy, Case T-419/18, *Crédit agricole and Crédit agricole Corporate and Investment Bank* v Commission, ECLI:EU:T:2018:726, paragraphs 63-65; Case C-4/19 P(R), *Crédit agricole and Crédit agricole Corporate and Investment Bank,* ECLI:EU:C:2019:229, paragraph 39.

1536 Case T-203/01, *Michelin* v *Commission*, ECLI:EU:T:2003:250, paragraphs 107-109; Case C-95/04 P, *British Airways* v *Commission*, ECLI:EU:C:2007:166, paragraph 86; Case C-52/09, *Konkurrensverket v TeliaSonera Sverige AB*, ECLI:EU:C:2011:83, paragraph 76; C-209/10, *Post Danmark A/S v Konkurrencerådet,* ECLI:EU:C:2012:172, paragraphs 40-42; Case C-23/14, *Post Danmark A/S* v *Konkurrencerådet,* ECLI:EU:C:2015:651, see in particular paragraphs 47-49.

1537 See recital 5 and Article 2 of Council Regulation No 1/2003.

that it would therefore not be required to justify behaviour that would appear *prima facie* rational.[1538]

(1174) This claim is unfounded since the fact that prices charged by Qualcomm were above AVC cannot exclude the abusive character of Qualcomm's pricing. This is because, in line with settled case law and as acknowledged by Qualcomm,[1539] prices above AVC and below ATC must be regarded as abusive if they are determined as part of a plan to eliminate a competitor (see recital (331) above). In this case, the contemporaneous evidence on the file shows that Qualcomm's pricing was part of a predatory strategy with the intent to eliminate Icera, its main competitor at the time in the leading edge segment of the UMTS chipset market (see section 12.8 above).

(1175) Second, Qualcomm claims that the price reductions granted to Huawei in late 2009 and March 2010 for the MDM8200 based chipsets which were accumulating in Huawei's inventory (*i.e.* chipsets ordered and delivered) and backlog (*i.e.* chipsets ordered but not yet delivered) and which Huawei had difficulties selling were objectively justified. Qualcomm argues that Huawei's accumulated inventory and backlog was the result of a number of factors, including lower than expected sales of end devices due to (i) technical difficulties and delivery delays experienced with the MDM8200 based chipset, (ii) the slower than anticipated roll-out of HSPA+ networks and (iii) the expected imminent availability of the MDM6200 and the MDM8200A based chipsets. These circumstances, combined with Huawei's recurrent threats to cancel the purchase orders for the units of the MDM8200 in its backlog and the fact that Huawei had placed its purchase orders in early 2009, when the purchase price was higher, would have created a *"commercial imperative"* for Qualcomm to provide Huawei with improved pricing.[1540]

(1176) The Commission concludes that such considerations cannot constitute a valid objective justification for Qualcomm's conduct for the reasons set out below.

(1177) In the first place, Qualcomm's claim that Huawei faced difficulties disposing of its inventory of MDM8200, notably between November 2009 and March 2010, is inconsistent with the fact that there was continued demand for the MDM8200 and devices incorporating the latter, as evidenced by the fact that [...].[1541] Moreover, it is implausible that Huawei was unable to foresee its demand for the MDM8200 over such a limited period, given that Qualcomm's customers, including Huawei, [...], as demonstrated by the contemporaneous evidence on the file.[1542]

(1178) In the second place, the contemporaneous evidence on the file demonstrates that Qualcomm's price reductions in late 2009 and March 2010 for Huawei's inventory and backlog were in reality a reaction to the growing threat from Icera as perceived by Qualcomm and thus part of Qualcomm's strategy to eliminate Icera. These price reductions were therefore abusive and ran counter to the special responsibility of a

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1538 Qualcomm’s SO Response, [...], paragraphs (595)-(596); Qualcomm’s SSO Response, [...], paragraph (799).

1539 Qualcomm’s SSO Response, [...], paragraph (799).

1540 Qualcomm’s SO Response, [...], paragraphs (344), (352); Qualcomm’s SSO Response, [...], paragraphs (485)-(489), (491)-(496), (980).

1541 This is evidenced by Annex 2 to Huawei's reply of 3 August 2017 to Article 18(2) request for information of 7 July 2017, [...]. This [...], see Qualcomm’s SO Response, paragraph (360).

1542 See, *e.g.*, e-mail of 12 August 2010 from [...] Huawei to [...] (position unknown), [...] (position unknown) and [...] (Account Manager), [...].

dominant undertaking not to impair, by conduct falling outside the scope of competition on the merits, genuine undistorted competition in the internal market (see recital (324) above).

(1179) As described in section 12.4.2.4 above and [...],[1543] at the time, Huawei was losing tenders to ZTE, which was, *inter alia*, offering end devices based on Icera chipsets at much lower prices than Huawei's MDM8200 based end devices.[1544] This is, in particular, evidenced by a [...].[1545] According to Qualcomm internal correspondence of December 2009 "[...]."[1546] Huawei's underlying concern at the time was that "[i]*f Qualcomm can't make a timely and competitive strategy, we'll lose 14.4M market to Icera, and be placed in a passive position on 21M market.*"[1547] The price reductions made by Qualcomm for Huawei's backlog and inventory were therefore aimed at helping Huawei to compete more successfully in subsequent tenders against Icera. This is, in particular, evidenced by a Qualcomm internal e-mail from [...] (Director, QCT Product Management) stating that *"key think* [sic] *is for Huawei to lock in sockets* [*i.e.* win tenders] *using 8200 E&O* [excess & obsolete] *for 14.4. they need to win these back"*.[1548] A detailed description of the developments leading to the price reductions granted on Huawei's backlog and inventory is set out in sections 12.4.2.3 and 12.4.2.5 above.

(1180) Moreover, being able to sell off its inventory and backlog as soon as possible was of crucial importance for Huawei since Icera was rumoured to be shortly offering a chipset capable of reaching 21 Mbps at a much lower price than Qualcomm's MDM8200 based chipset, which would have further reduced the demand for Qualcomm's MDM8200 based chipset. This is, for example, demonstrated by a Qualcomm internal presentation prepared for the [...] meeting on 23 November 2009 which mentioned that *"Huawei needs to compete ICERA8042 supporting 3.6M – 21M same platform with flat price $10. QCT MDM6200 late and carrier HSPA+ timing passed. Huawei has to clear excess inventory and backlog before ICERA 21M hitting market.*"[1549] Also a Qualcomm internal e-mail of December 2009 mentioned that Huawei had requested to "[a]*pply the* [...] *to all backlog* [...] *and inventory* [...] *to support Huawei to capture the market before Z/I launch its product.*"[1550]

1543 Qualcomm's SO Response, [...], paragraph (355).

1544 See, *e.g.,* Qualcomm's internal e-mail dated 4 December 2009 from [...] ([Qualcomm management member]) to [...] ([QCT top management member]), [...] (Director, Sales) [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Director, QCT Product Management), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Financial Analyst, Staff), [...] (Senior Director, Finance) and [...] [QTC top management member] titled [...] stated the following: [...].

1545 Huawei presentation of November 2009 for Qualcomm & Huawei Business Meeting, [...], page 7.

1546 Qualcomm internal e-mail of 2 December 2009 from [...] (Director, Sales) to [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Director, QCT Product Management), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]) and [...] [QTC top management member], titled [...], page 1.

1547 Huawei presentation of November 2009 for Qualcomm & Huawei Business Meeting, [...], page 5.

1548 Qualcomm internal e-mail of 28 January 2010 from [...] (Director, QCT Product Management) to [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Director, Sales) and [...] ([Qualcomm management member]), [...], page 2. See also [...], which contains part of the e-mail thread and states in particular [...].

1549 Qualcomm internal presentation of 23 November 2009 titled [...].

1550 Qualcomm internal e-mail of 4 December 2009 from [...] (Director, Sales) to [...] ([QCT top management member]), [...] ([Qualcomm management member]), [...] ([Qualcomm management

(1181) In the third place, the price reductions made by Qualcomm for Huawei's inventory and backlog of the MDM8200 based chipset were of a retroactive nature, *i.e.* they concerned units that had already been delivered to the customer (*i.e.* units in Huawei's inventory) or that were subject to binding orders by Huawei at a previously agreed price (*i.e.* units in Huawei's backlog). This means that, contrary to Qualcomm's unsubstantiated allusion to Huawei being able to *"cancel its backlog* […] *invoking contractual terms"*,[1551] Huawei was contractually bound to pay for the MDM8200 based chipsets in its inventory and backlog and could no longer cancel or change the pricing terms relating to these units.[1552] Qualcomm was therefore under no legal obligation to incur the cost represented by the additional price reductions granted to Huawei on the units in its inventory and backlog. This is corroborated by a Qualcomm internal document of 3 February 2010 according to which Qualcomm considered itself barred from providing *"any further subsidy for completed delivery"*, given that [...][1553] (see recital (538) above). Qualcomm was therefore initially not willing to make any further price concessions to Huawei. Moreover, Qualcomm considered the issue to be Huawei's own mistake for which Huawei should take the consequences. This is supported by the contemporaneous evidence on the file, such as Qualcomm's internal correspondence of 27 January 2010, which noted that *"Huawei had made some mistakes with their inventory and how our rebate terms should be applied. Our position is that we had done what Huawei requested at the time, there will be no more, and Huawei should take consequence of their own"*[1554] (emphasis added). Yet, on 22 March 2010 Qualcomm effectively reduced the price of the MDM8200 units in Huawei's backlog by way of a one-time credit, as described in recital (546) above.

(1182) Third, Qualcomm argues that the price reductions for Huawei's inventory and backlog were aimed at depleting its own MDM8200 inventory before the MDM8200 became obsolete due to the launch of its successor chipsets (notably the MDM8200A, but also the MDM6200), initially expected to be launched in the first and second quarter of 2010.[1555]

(1183) This claim is unconvincing since it is in contradiction with the data on the inventory evolution of the MDM8200 provided by Qualcomm to the Commission.[1556] In fact, Qualcomm claims that in March 2010, its inventory consisted of [...] units of the MDM8200, specifying that these units were *"manufactured MDM8200 units waiting to be delivered/sold"*.[1557] However, the inventory figures submitted by Qualcomm during the administrative proceedings show that at no point during the entire lifetime

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member]), [...] ([Qualcomm management member]), [...] (Director, QCT Product Management), [...] ([Qualcomm management member]) and [...] ([Qualcomm management member]), titled [...], page 2 and [...], page 1, page 2.

1551 Qualcomm's SSO Response, [...], paragraph (491).

1552 Qualcomm's SO Response, [...], paragraph (374).

1553 Qualcomm's [...] concerning a meeting on 3 February 2010 between Qualcomm and [...], page 6.

1554 Qualcomm internal e-mail of 27 January 2010 from [...] ([Qualcomm management member]) to [...] (Director, QCT Product Management), [...] ([Qualcomm management member]), [...] (Director, Sales) and [...] ([Qualcomm management member]), [...], page 2. See also [...], which contains part of the e-mail thread.

1555 Qualcomm's SO Response, [...], paragraphs (344), (352), (357), (369), (370); Qualcomm's SSO Response, [...], paragraphs (470)-(484), (490).

1556 Annex 10.2 of Qualcomm's reply of 30 June 2017 to Article 18(3) Decision of 31 March 2017, [...].

1557 Qualcomm's SO Response, [...], paragraph (367).

of the MDM8200 Qualcomm had more than [...] units of the MDM8200 in its own inventory (see Table 73 below). Moreover, the average lead time between a purchase order ("PO") submitted by Qualcomm and the delivery of finished goods at Qualcomm's distribution centre [...],[1558] so that Qualcomm was committed *vis-à-vis* its foundries to the incoming shipments of the [...] at most. Thus, even when adding the shipments of April-June 2010 of [...] units to the stock in March 2010, namely [...] units, the resulting [...] units would only amount to one third of the claimed [...] units of inventory.

Table 73: Evolution of Qualcomm's inventory of MDM8200

[...]	[...]	[...]	[...]
[...]	[...]	[...]	[...]
[...]	[...]	[...]	[...]
[...]	[...]	[...]	[...]
[...]	[...]	[...]	[...]
[...]	[...]	[...]	[...]
[...]	[...]	[...]	[...]
[...]	[...]	[...]	[...]
[...]	[...]	[...]	[...]
[...]	[...]	[...]	[...]
[...]	[...]	[...]	[...]
[...]	[...]	[...]	[...]
[...]	[...]	[...]	[...]
[...]	[...]	[...]	[...]
[...]	[...]	[...]	[...]
[...]	[...]	[...]	[...]
[...]	[...]	[...]	[...]
[...]	[...]	[...]	
[...]			

(1184) Even if Qualcomm had indeed accumulated the alleged numbers of MDM8200 in its own inventory (*quod non*), its claim that the price concessions granted to Huawei on its inventory and backlog would have had the purpose of allowing Qualcomm to sell off and clear its internal inventory of MDM8200 based chipsets before they came obsolete is unfounded for the following reasons.

[1558] Qualcomm's reply of 15 June 2018 to question 7 of the questions for discussion of 16 May 2018, [...], paragraph (56).

(1185) In the first place, the demand for MDM8200 continued throughout 2010 and early 2011. [...],[1559] [...].[1560] Moreover, as Qualcomm acknowledged in its SO Response, the End of Life stage ("EOL") for the MDM8200 was reached much later on [...].[1561]

(1186) In the second place, had there been indeed a need to deplete Qualcomm's inventory of the MDM8200 and had this been the genuine intention behind Qualcomm's price reductions, Qualcomm would have lowered the price of the MDM8200 for all its customers at the same time and to the same extent. However, this did not occur since Qualcomm only granted special pricing conditions to Huawei, whereas all other customers who bought relevant volumes of the MDM8200 at the time were charged higher prices. This is evidenced by a comparison of the average net ASP charged by Qualcomm to its four biggest customers for the MDM8200 baseband chip during the first quarter of 2010, as set out in Table 74 below. The Commission notes that Qualcomm has not contested the prices represented in that table.

Table 74: Average net ASP charged by Qualcomm to its four biggest customers for the MDM8200 baseband chip (not chipset) during the first quarter of 2010[1562]

[...]	[...]	[...]
[...]	[...]	[...]
[...]	[...]	[...]
[...]	[...]	[...]
[...]	[...]	[...]

12.10. The Guidance on Enforcement Priorities

(1187) The Commission's conclusion that Qualcomm infringed Article 102 of the Treaty and Article 54 of the the EEA Agreement by supplying, between 1 July 2009 until 30 June 2011, certain quantities of three of its UMTS compliant chipsets (the MDM8200, MDM6200 and MDM8200A based chipsets) to two of its key customers, Huawei and ZTE, below cost, with the intention of eliminating Icera, its main competitor at that point in the leading edge segment of the UMTS chipset market, is not affected by Qualcomm's claim that the Commission has breached the principle of legal certainty by failing to apply the Commission's Guidance on the

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1559 This is evidenced by Annex 2 to Huawei's reply of 3 August 2017 to Article 18(2) request for information of 7 July 2017, [...].

1560 See also e-mail exchange between Huawei's [...] and Qualcomm's [...] (position unknown) of 5 and 6 August 2010, [...], pages 40-41, which shows that on 20 July 2010 Qualcomm had made a supply commitment over [...] units of the MDM8200 to Huawei and that Qualcomm was doing *"all we can to expedite the supply"* of an additional [...] units of the MDM8200.

1561 Qualcomm's reply of 12 January 2015 to question 3 of Article 18(3) Decision of 13 October 2014, [...], paragraph (13), Table 1. [...] (see Qualcomm's reply of 12 January 2015 to question 3 of Article 18(3) Decision of 13 October 2014, [...], footnote 16; Qualcomm presentation of June 2013 titled [...], page 93).

1562 Average net ASPs extracted from the worksheet [...] included in Annex 10 to the SO Response, [...], for the period of January-March 2010. [...].

Commission's enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings[1563] ("Guidance on Enforcement Priorities").[1564]

(1188) This is because, contrary to Qualcomm's claims, the Guidance on Enforcement Priorities does not constitute the legal standard to assess the compatibility of Qualcomm's behaviour with Article 102 of the Treaty. The Guidance on Enforcement Priorities merely sets out the Commission's approach as to the choice of cases that it intends to pursue as a matter of priority and is without prejudice to the interpretation of Article 102 TFEU by the Union Courts.[1565]

(1189) In any event, the Commission's analysis set out in this Decision complies with the requirements of the Guidance on Enforcement Priorities in relation to predatory pricing. First, the Decision demonstrates the existence of a profit sacrifice on the part of Qualcomm on the basis of Qualcomm internal documents clearly showing a predatory strategy *vis-à-vis* Icera, including that Qualcomm made major financial sacrifices in the area of prices and supply terms in order to address the competitive threat by Icera (see recitals (1143)-(1146) above).[1566] Second, the Decision demonstrates that Qualcomm's conduct was capable of harming consumers by applying an equally efficient competitor analysis on the basis of LRAIC during the Relevant Period (see section 12.7 above).[1567] The evidence on the file also shows that Qualcomm selectively targeted Huawei and ZTE, Qualcomm's main customers in the leading edge segment of the UMTS chipset market during the Relevant Period (see recitals (402)-(406) above).[1568] Third, while it is in general considered unlikely that predatory pricing will create efficiencies, the Commission has thoroughly analysed the efficiency claims raised by Qualcomm but come to the conclusion that they are unsubstantiated or in any case unfounded (see section 12.9 above).[1569]

(1190) Finally, and contrary to Qualcomm's claims,[1570] the Commission's analysis is also consistent with the approach set out in footnote 3 at paragraph (65) of the Guidance on Enforcement Priorities, which holds that *"undertakings should not be penalised for incurring ex post losses where the ex ante decision to engage in the conduct was taken in good faith, <u>that is to say, if they can provide conclusive evidence that they could reasonably expect that the activity would be profitable.</u>"*[1571] This is because Qualcomm has not provided the Commission with any such evidence and the Qualcomm internal documents quoted in section 12.4 above show that Qualcomm

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1563 Communication from the Commission - Guidance on the Commission's enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings, OJ C 45, 24.2.2009, pages 7–20.

1564 Qualcomm's SO Response, [...], section V.C. and Qualcomm's SSO Response, [...], paragraphs (161)-(177).

1565 See paragraph 3 of the Guidance on Enforcement Priorities and Case C-23/14 *Post Danmark A/S v Konkurrencerådet* ECLI:EU:C:2015:651, paragraph 52; Case T-712/14 *CEAHR v Commission*, ECLI:EU:T:2017:748, paragraph 115; Case T-827/14 *Deutsche Telekom* v *Commission*, ECLI:EU:T:2018:930, paragraph 114.

1566 See recital 66 of the Guidance on Enforcement Priorities.

1567 See recital 67 of the Guidance on Enforcement Priorities.

1568 See recital 72 of the Guidance on Enforcement Priorities.

1569 See recital 74 of the Guidance on Enforcement Priorities.

1570 Qualcomm's SSO Response, [...], paragraphs (1011)-(1013).

1571 The emphasised part of the citation is contained in the Guidance on Enforcement Priorities, but not in Qualcomm's quote of it in paragraph (1013) of the SSO Response.

was well aware of the adverse consequences of its price cuts on its profit margins at the time it devised its predatory strategy *vis-à-vis* Icera.

12.11. Single and continuous infringement

12.11.1. Principles

(1191) The concept of a single and continuous infringement relates to a series of actions which form part of an overall plan because their identical object distorts competition within the common market. For the purpose of characterising various instances of conduct as a single and continuous infringement, it is necessary to establish whether they complement each other inasmuch as each of them is intended to deal with one or more consequences of the normal pattern of competition and, by interacting, contribute to the realisation of the objectives intended within the framework of that overall plan. In that regard, it will be necessary to take into account any circumstance capable of establishing or casting doubt on that complementary link, such as the period of application, the content (including the methods used) and, correlatively, the objective of the various actions in question.[1572]

(1192) The validity of assessing a complex of practices as one single infringement is not affected by the possibility that one or more elements of a series of actions or of a continuous course of conduct can also constitute in itself a separate violation of Article 102 of the Treaty. But it would be artificial to split up such continuous conduct characterised by a single purpose, by treating it as consisting of several separate infringements, when what was involved was a single infringement that served a single overall aim.[1573]

12.11.2. Application to this case

(1193) The Commission has come to the conclusion that each of the following constitutes an infringement of Article 102 of the Treaty:

(a) Qualcomm's predatory sales to Huawei between 1 July 2009 and 30 June 2011 with the aim of eliminating Icera.

(b) Qualcomm's predatory sales to ZTE between 1 July 2010 and 30 June 2011 with the aim of eliminating Icera.

(1194) However, the predatory sales to Huawei and ZTE, taken together, constitute a single and continuous infringement in pursuit of a single anti-competitive economic aim.[1574] This is because, in Qualcomm's own assessment, developing a relationship with Huawei or ZTE was crucial to Icera's survival in the market (see, *e.g.*, recital (405) above). Qualcomm's predatory sales to Huawei and ZTE therefore complement each other as part of an overall plan by Qualcomm to eliminate Icera, as described in sections 12.4.1 and 12.4.2 above and corroborated by the evidence outlined in sections 12.4.2.1 to 12.4.2.12 and section 12.8 above.

12.12. Duration of the infringement

(1195) For the reasons set out below, the Commission concludes that the duration of the infringement is 2 years.

[1572] Case T-321/05, *AstraZeneca* v *Commission*, ECLI:EU:T:2010:266, paragraph 892.

[1573] Case T-7/89, *Hercules Chemicals* v *Commission*, ECLI:EU:T:1991:75, paragraphs 262-263; Case C-49/92P *Commission* v *Anic Partecipazioni*, ECLI:EU:C:1999:356, paragraph 82.

[1574] Case T-286/09, *Intel Corp.* v *Commission*, ECLI:EU:T:2014:547, paragraph 1562.

(1196) The Commission takes 1 July 2009 as the starting date for the infringement as this is the first day of the calendar quarter considered for the purposes of the price-cost test in this case during which the first predatory sales occurred (see recitals (940), (941) and (951) above).

(1197) The Commission takes 30 June 2011 as the point at which the infringement came to an end, as this is the last day of the last calendar quarter considered for the purposes of the price-cost test in this case during which predatory sales to Huawei and ZTE can be linked with sufficient certainty to competition from Icera (see recitals (424), (585) and (991) above).

13. JURISDICTION

13.1. Principles

(1198) Article 102 of the Treaty is intended to prevent unilateral conduct of undertakings limiting competition within the internal market. In particular, Article 102 of the Treaty prohibits the abuse of a dominant position *"within the internal market or in a substantial part of it"*.[1575]

(1199) In order to justify the Commission's jurisdiction, it is sufficient that a conduct is either implemented in the EEA ("implementation test") or is liable to have immediate, substantial and foreseeable effects in the EEA ("qualified effects test").[1576] These two approaches for establishing the Commission's jurisdiction are alternative.[1577]

(1200) The implementation test is satisfied by mere sale within the EEA, irrespective of the location of sources of supply or of production plants.[1578] It follows that direct sales of the products covered by the conduct to customers in the EEA are not the only means of implementation. For instance, a conduct is also considered to be implemented in the territory of the EEA if a customer that is present and makes sales in the internal market is in fact selling devices that incorporate products covered by the conduct.

(1201) The qualified effects test allows the application of Article 102 of the Treaty to be justified under public international law when it is foreseeable that the conduct in question will have an immediate and substantial effect in the European Union.[1579] In this regard, it is sufficient to take account of the probable effects of conduct on competition in order for the foreseeability criterion to be satisfied.[1580]

13.2. Application to this case

(1202) The Commission concludes that it has jurisdiction to apply Article 102 of the Treaty and Article 54 of the EEA Agreement to Qualcomm's abusive conduct described in

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1575 Case C-413/14 P *Intel Corp.* v *Commission*, EU:C:2017:632, paragraph 42.

1576 Joined Cases 89/85, 104/85, 114/85, 116/85, 117/85 and 125/85 to 129/85 *Ahlström Osakeyhtiö and Others* v *Commission*, EU:C:1988:447, paragraphs 11-18; Case T-102/96 *Gencor* v *Commission* EU:T:1999:65, paragraphs 89-101.

1577 Case C-413/14 P *Intel Corp.* v *Commission*, EU:C:2017:632, paragraphs 40-46.

1578 Joined Cases 89/85, 104/85, 114/85, 116/85, 117/85 and 125/85 to 129/85 *Ahlström Osakeyhtiö and Others (Wood Pulp)* v *Commission*, EU:C:1988:447, paragraph 17; Case T-102/96 *Gencor* v *Commission* EU:T:1999:65, paragraph 87.

1579 Case C-413/14 P *Intel Corp.* v *Commission*, EU:C:2017:632, paragraph 42.

1580 Case C-413/14 P *Intel Corp.* v *Commission*, EU:C:2017:632, paragraph 51.

section 12 above, since that conduct was both implemented and capable of having substantial, immediate and foreseeable effects in the EEA.

13.2.1. The implementation of Qualcomm's abusive conduct in the EEA

(1203) Qualcomm's conduct was implemented in the EEA because Qualcomm knew or could not have been unaware that devices assembled by Huawei and ZTE which incorporated Qualcomm's baseband chipsets would be also sold in the EEA. Contemporaneous evidence indicates that Qualcomm knew that at least part of the UMTS chipsets it sold to Huawei and ZTE during the Relevant Period would be incorporated in devices destined to the EEA. This is in particular supported by:

(a) The [...] provided as Annex 7(b) to Qualcomm's reply of 18 August 2017 to the clarification questions of 18 July 2017. [...].

(b) A Qualcomm internal document titled [...] which provided, amongst other, an update on [...] and states in particular *"*[s]*o far selling about* [...] *per month of MDM8200 dongles to post paid customers*.*"*[1581]

(c) A Qualcomm internal e-mail of 17 May 2010 from [...] (Director, Sales, at Qualcomm, [...]) which stated: [...][1582]

13.2.2. The substantial, immediate and foreseeable effects of Qualcomm's abusive conduct in the EEA

(1204) For the reasons set out below, Qualcomm's conduct was capable of having substantial, immediate and foreseeable effects in the EEA.

(1205) First, the potential effects of Qualcomm's conduct are substantial for the following reasons.

(1206) In the first place, the EEA constitutes an important part of the worldwide markets for UMTS chipsets. In this respect, Qualcomm internal documents and correspondence with customers frequently refer to the EEA or parts thereof as a geographic area relevant to Qualcomm's business in relation to the chipsets under investigation, or to specific MNOs in the EEA to which devices incorporating the chipsets under investigation would be shipped. In particular:

(a) A Qualcomm internal presentation of April 2009 titled [...] mentioned the MDM6200 and the MDM8200 on the slides titled [...].[1583]

(b) A Qualcomm internal presentation titled [...] referred, amongst other, to Huawei's and ZTE's business in Europe, as well as the MDM8200 and the MDM6200.[1584]

(c) A Qualcomm internal e-mail of 10 February 2010 from [...] (Director, QCT Product Management) stated: *"ICERA threat appears to be pan-European so in the end we will need a* [...]*.*"[1585]

1581 Qualcomm internal document titled [...], page 3.

1582 Qualcomm internal e-mail of 17 May 2010 from [...] (Director, Sales), to [...] ([Qualcomm management member]), [...] (Director, QCT Product Management) and [...] (QCT Product Manager, Staff), [...], page 1.

1583 Qualcomm internal presentation of April 2009 (see footnote 177 above) titled [...], pages 35-37.

1584 Qualcomm internal presentation titled [...], pages 13-14.

(d) A letter from Huawei to Qualcomm of [...].[1586]

(e) A Qualcomm internal presentation of April 2010 titled [...] stated: [...][1587]

(f) A Qualcomm internal e-mail of 17 October 2010 from [...] (Senior Director, QCT Product Management) noted: [...][1588]

(g) A Qualcomm internal presentation of November 2011 titled [...] listed, on a slide titled [...], among other, devices of ZTE and Huawei incorporating the MDM6200 or MDM8200A based chipsets and destined to carriers operating in the EEA.[1589]

(h) The presentation for the [...] for the MDM8200A of 14 April 2009 mentioned under [...] that [...][1590]

(i) The [...] May 2009 noted that Huawei reported about [...].[1591]

(j) A Huawei communication of 30 November 2009 noted: [...][1592]

(k) In a Qualcomm internal e-mail [...] (Director, Sales, at Qualcomm, [...]) reported: [...][1593]

(1207) In the second place, a number of MBB devices sold in the EEA during the Relevant Period incorporated Qualcomm's UMTS chipsets that were sold at predatory prices (see recital (1203) above).

(1208) In the third place, Qualcomm's conduct was capable of foreclosing competing suppliers of UMTS chipsets and of eliminating the threat that Icera, an innovative European start-up, could have become a significant market player in the EEA (see recitals (1034)-(1041) above).

(1209) Second, Qualcomm's conduct was capable of producing, and intended to produce, an immediate effect in the EEA. Qualcomm's conduct took place in the context of Icera gaining technical approvals including at European carriers and increasing its market

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1585 Qualcomm internal e-mail of 10 February 2010 from [...] (Director, QCT Product Management) to [...] (Senior Director, Technical Marketing), [...] (Senior Director, Business Development), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Senior Director, QCT Product Management) and [...] [QTC top management member], [...], page 1.

1586 Huawei document of 16 March 2010 titled [...], attached to an e-mail of 17 March 2010 from Huawei to [...] ([Qualcomm management member]) and [...] (Director, Sales,), [...], page 2.

1587 Qualcomm internal presentation of April 2010 titled [...], page 21.

1588 Qualcomm internal e-mail of 17 October 2010 from [...] (Senior Director, QCT Product Management) to [...] ([Qualcomm top management member]) and [...] ([Qualcomm management member]), copying [...] ([Qualcomm management member]), [...] ([QCT top management member]) and [...] ([QCT top management member]), [...], pages 1-2.

1589 Qualcomm internal presentation of November 2011 titled [...], page 37. See also Qualcomm internal presentation of November 2011 titled [...], page 33.

1590 Qualcomm internal presentation of 9 July 2009 titled [...], page 45. This presentation, although relating to the [...] of 9 July, contains, as of page 36, the presentation for the [...], which took place on 14 April 2009. That same presentation also exists in another, non-dated version, titled [...]; see footnote 177 above).

1591 Qualcomm internal presentation of May 2009 titled [...], page 14.

1592 Document of 30 November 2009 titled [...], page 1.

1593 Qualcomm internal e-mail of 2 December 2009 from [...] (Director, Sales) to [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]), [...] (Director, QCT Product Management), [...] ([Qualcomm management member]), [...] ([Qualcomm management member]) and [...] ([QCT top management member]), titled [...], page 1.

traction as a viable supplier of UMTS chipsets, which posed a growing threat to Qualcomm in the crucial segment of leading edge UMTS chipsets (see section 12.3.3 above). Qualcomm's conduct was intended to ensure, and was capable of having, the immediate effect that, during the Relevant Period, Icera was prevented from gaining a strong foothold in the market. Qualcomm's behaviour was therefore liable to affect the competitive structure in the EEA.[1594]

(1210) Third, Qualcomm knew, or could reasonably have foreseen, that the effect of its conduct would be that:

(a) only few, if any, devices assembled by Huawei and ZTE and subsequently sold anywhere in the world, including in the EEA, would incorporate a UMTS chipset of Icera; and

(b) as a result, Icera could have been foreclosed from the worldwide UMTS baseband chipset market, and its market traction in the crucial segment of leading edge UMTS chipsets could have been affected.

14. EFFECT ON TRADE BETWEEN MEMBER STATES

14.1. Principles

(1211) Article 102 of the Treaty prohibits as incompatible with the internal market an abuse of a dominant position *"in so far as it may affect trade between Member States"*. Article 54 of the EEA Agreement contains a similar prohibition with respect to trade between Contracting Parties to the EEA Agreement.

(1212) The effect on trade criterion consists of three elements.

(1213) First, *"trade"* must be potentially affected. The concept of trade is not limited to traditional exchanges of goods and services across borders, but covers all crossborder economic activity and the competitive structure of the internal market .[1595]

(1214) Second, the practice does not necessarily need to reduce trade.[1596] It is sufficient to show that the abuse *"may affect trade between Member States"*. In other words, it must be foreseeable with a sufficient degree of probability on the basis of a set of objective factors of law or fact that the practice in question has an influence, direct or indirect, actual or potential, on the pattern of trade between Member States.[1597] Where a dominant undertaking engages in exclusionary conduct in more than one

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1594 Changes to the structure of the market must be taken into consideration when it comes to determining whether there are substantial effects within the EEA. See for example Joined Cases 6/73 and 7/73, *Instituto Chemioterapico Italiano and Commercial Solvents* v *Commission*, EU:C:1974:18, paragraph 33; and Case T-102/96 *Gencor* v *Commission* EU:T:1999:65, paragraphs 94-96.

1595 Joined Cases 6/73 and 7/73, *Istituto Chemioterapico Italiano S.p.A. and Commercial Solvents Corporation* v *Commission*, ECLI:EU:C:1974:18, paragraphs 32-33; Joined Cases T-24/93, T-25/93, T-26/93 and T-28/93, *Compagnie Maritime Belge* v *Commission*, ECLI:EU:T:1996:139, paragraph 203.

1596 Case T-141/89, *Tréfileurope* v *Commission*, ECLI:EU:T:1995:62, paragraphs 57 and 122.

1597 Case 5/69, *Franz Völk* v *Établissement J. Vervaecke*, ECLI:EU:C:1969:35, paragraph 5/7; Case 322/81, *NV Nederlandsche Banden Industrie Michelin* v *Commission*, ECLI:EU:C:1983:313, paragraph 104; Case C41/90, *Höfner and Elsner* v *Macrotron*, ECLI:EU:C:1991:161, paragraph 32; Case T-228/97, *Irish Sugar* v *Commission*, ECLI:EU:T:1999:246, paragraph 170.

Member State, such conduct is presumed, by its very nature, to be capable of affecting trade between Member States.[1598]

(1215) Third, the effect on trade between Member States must be *"appreciable"*. This element requires that effect on trade between Member States must not be insignificant and is assessed primarily with reference to the position of the undertaking concerned on the relevant product market.[1599] The stronger the position of an undertaking, the more likely it is that the effect of a practice on trade between Member States will be appreciable.[1600]

14.2. Application to this case

(1216) The Commission concludes that the conduct covered by this Decision had an appreciable effect on trade between Member States within the meaning of Article 102 of the Treaty and between the Contracting Parties within the meaning of Article 54 of the EEA Agreement. This is for the following reasons.

(1217) First, Icera was a trading partner with a number of OEMs and MNOs that exported to or sold within the EEA products incorporating Icera's chipsets. Indeed, the products concerned by this Decision (baseband chipsets compliant with the UMTS standard) were intended for use in consumer electronics devices, including devices to be sold in the EEA. The fact that Icera was prevented from gaining a strong foothold in the market was capable of having an appreciable effect on trade between Member States and within the EEA.

(1218) Second, Qualcomm committed the abuse of predatory pricing with regard to chipsets belonging to the strategically important leading edge segment of the UMTS chipset market and sold to Huawei and ZTE, the two strategically most important customers in the leading edge segment during the Relevant Period, which in turn distribute their products in several Member States. By constraining Icera's growth at the two key customers in this segment, which consisted at the time almost exclusively of chipsets used in MBB devices, Qualcomm's practice was capable of preventing Icera at a crucial stage of its development from gaining access to either of these two customers on which Icera's development prospects in the leading edge segment of the UMTS chipset market were dependent (see section 12.7.4 above). As such, Qualcomm's conduct is capable of affecting the competitive structure of the internal market and thus of affecting trade between Member States.[1601]

15. REMEDIES AND FINES

15.1. Remedies

(1219) Article 7(1) of Council Regulation No 1/2003 provides that where the Commission finds that there is an infringement of Article 102 of the Treaty and Article 54 of the EEA Agreement, it may require by decision that the undertaking concerned brings

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1598 Guidelines on the effect on trade concept contained in Articles 81 and 82 of the Treaty, OJ C 101, 27.4.2004, page 81, paragraph 75; Joined Cases 6/73 and 7/73, *Istituto Chemioterapico Italiano S.p.A. and Commercial Solvents Corporation* v *Commission*, ECLI:EU:C:1974:18, paragraph 35.

1599 Case 5/69, *Franz Völk* v *Établissement J. Vervaecke*, ECLI:EU:C:1969:35, paragraph 5/7.

1600 Case T-65/89, *BPB Industries and British Gypsum* v *Commission*, ECLI:EU:T:1993:31, paragraph 138.

1601 Regarding the implementation and effect of Qualcomm's abusive conduct in the EEA, see also sections 13.2.1 and 13.2.2 above.

such infringement to an end in accordance with Article 3 of that Regulation. For this purpose, it may also impose on the undertaking concerned any behavioural or structural remedies which are proportionate to the infringement committed and necessary to bring the infringement effectively to an end.

(1220) The infringement lasted until 30 June 2011, which is the last day of the last calendar quarter considered for the purposes of the price-cost test in this case during which predatory sales to Huawei and ZTE can be linked with sufficient certainty to competition from Icera (see recital (1197) above).

(1221) Qualcomm should, however, be required to refrain from repeating the conduct described in this Decision and from any act or conduct that would have the same or an equivalent object or effect as the conduct described in this Decision.

15.2. Fines

(1222) Pursuant to Article 23(2)(a) of Council Regulation No 1/2003 and Article 5 of Council Regulation (EC) No 2894/94[1602] the Commission may by decision impose fines on undertakings, where they infringe Article 102 of the Treaty and Article 54 of the EEA Agreement either intentionally or negligently.

(1223) The Commission concludes that by abusing the dominant position it held in the UMTS chipset market during the infringement period through below cost pricing with the intention of eliminating a competitor, Qualcomm intentionally or, at the very least, negligently infringed Article 102 of the Treaty and Article 54 of the EEA Agreement.[1603]

(1224) The imposition of a fine in this case is not put into question by Qualcomm's arguments in this regard.

(1225) First, Qualcomm alleges that the case is novel, and that the Commission's theory of harm and analysis have undergone fundamental changes since the adoption of SO, so that the imposition of a fine would not be appropriate.[1604] These claims are unfounded for the following reasons.

(1226) In the first place, the theory of harm in this case is not novel. The Commission's conclusions as set out in this Decision are in line with the Union Courts' case law regarding the application of Article 102 of the Treaty and Article 54 of the EEA Agreement to predatory pricing by a dominant undertaking (see section 12.1 above).

(1227) In the second place, the theory of harm pursued by the Commission since the adoption of the SO concerns predatory pricing in the form of below cost sales by Qualcomm of three of its baseband chipsets (the MDM8200, the MDM6200 and the MDM8200A) to two of its key customers, Huawei and ZTE, with the intention of eliminating Icera, its main competitor in the leading edge segment of the UMTS chipset market.[1605] The nature of the objections set out in the SO and the SSO are

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1602 OJ L 305, 30.11.1994, page 6.

1603 This is corroborated by the contemporaneous evidence set out in sections 12.4 and 12.8 above.

1604 Qualcomm's SO Response, [...], paragraphs (872)-(874); Qualcomm’s SSO Response, [...], paragraphs (1007)-(1010).

1605 SO, paragraphs (229) and (452), and SSO, paragraph (146).

therefore identical, with the duration of the conduct having been slightly reduced in the SSO as compared to the SO.[1606]

(1228) Second, Qualcomm claims that the Commission failed to apply its Guidance on Enforcement Priorities on which Qualcomm relied in good faith in order to ensure compliance of its pricing with EU competition law, thereby making the imposition of a fine unjustified.[1607] This claim is equally unfounded, as explained in section 12.10 above. The Commission also notes that despite Qualcomm's claim at the Oral Hearing following the adoption of the SO that it had relied on the Commission's Guidance on Enforcement Priorities when making its pricing decisions,[1608] it has not provided any evidence to support this claim.[1609]

15.3. Calculation of the fines

(1229) Pursuant to Article 23(3) of Council Regulation No 1/2003, in fixing the amount of the fine, the Commission must have regard to all relevant circumstances and particularly to the gravity and to the duration of the infringement. In doing so, the Commission will set the fine at a level sufficient to ensure deterrence. The Commission will reflect any aggravating or mitigating circumstances in the fine imposed.

(1230) In setting the fine, the Commission refers to the principles laid down in its Guidelines on the method of setting fines imposed pursuant to Article 23(2)(a) of Council Regulation No 1/2003 ("Fining Guidelines").[1610]

(1231) The Commission first defines the basic amount of the fine (see sections 15.3.1 to 15.3.4 below).[1611] Second, where applicable, the Commission adjusts the basic amount upwards or downwards (see section 15.3.5 below).[1612]

(1232) The basic amount of the fine is to be set by reference to the value of sales,[1613] *i.e.* the value of the undertaking's sales of goods or services to which the infringement directly or indirectly relates in the relevant geographic area in the EEA (see section 15.3.1 below). The Commission will normally take into account the sales made by the undertaking during the last full business year of the infringement.[1614]

(1233) In determining the value of sales by an undertaking, the Commission will take the undertaking's best available figures.[1615] Where the figures made available by an undertaking are incomplete or not reliable, the Commission may determine the value of its sales on the basis of the partial figures it has obtained and/or any other information which it regards as relevant and appropriate.[1616]

1606 SO, paragraphs (433) and (434), and SSO, paragraph (737).

1607 Qualcomm's SO Response, [...], paragraphs (870)-(871); Qualcomm's SSO Response, [...], paragraphs (1011)-(1013).

1608 Qualcomm's Final Slide Deck for the Oral Hearing of 10 November 2016, [...], page 54.

1609 Qualcomm's reply of 16 June 2017 to question 27 of Article 18(3) Decision of 31 March 2017, [...], paragraphs (228)-(233).

1610 OJ C 210, 1.9.2006, page 2.

1611 Fining Guidelines, paragraph 10.

1612 Fining Guidelines, paragraph 11.

1613 Fining Guidelines, paragraph 13.

1614 Fining Guidelines, paragraph 13.

1615 Fining Guidelines, paragraph 15.

1616 Fining Guidelines, paragraph 16.

(1234) The amount of the value of sales taken into account will correspond to a percentage which is set at a level of up to 30% of the value of sales.[1617] The choice of a given percentage will depend on the gravity of the infringement (see section 15.3.2 below). Where the value of sales is determined on an annual basis, the proportion of the value of sales resulting from that percentage will then be multiplied by the duration of the infringement (see section 15.3.3 below).[1618] The Commission may also include in the basic amount an additional amount irrespective of duration (see section 15.3.4 below).[1619] The Commission may then adjust the basic amount up or down to take into account aggravating or mitigating circumstances (see section 15.3.5 below).[1620] Those circumstances are listed in a non-exhaustive way in paragraphs 28 and 29 of the Fining Guidelines. The Commission may depart from the methodology set out in the Fining Guidelines where it is justified by the particularities of a given case or the need to achieve deterrence in a particular case.[1621]

(1235) Pursuant to Article 23(2) of Council Regulation No 1/2003, the fine for an infringement shall not exceed 10% of the undertaking's total turnover in the preceding business year (see section 15.3.6 below).

15.3.1. Value of Sales

(1236) While Qualcomm's predatory pricing practices took place in respect of its leading edge UMTS chipsets (*i.e.* the MDM8200, MDM6200, and MDM8200A chipsets), the Commission concludes that Qualcomm's EEA sales of all UMTS chipsets should be taken into account for the purpose of calculating the fine in this case. This is because, by containing Icera's growth at Huawei and ZTE, the two key customers in the leading edge segment of the UMTS chipset market at the time, Qualcomm intended to prevent Icera from gaining the reputation and scale necessary to challenge Qualcomm's dominance in the entire UMTS chipset market, in particular in view of the expected growth potential of the leading edge segment due to the global take-up of smart mobile devices (see recital (334) above).

(1237) Qualcomm's UMTS chipsets reached the EEA through two different channels. Some UMTS chipsets were delivered by Qualcomm to a customer located in the EEA ("direct sales"). Other UMTS chipsets were sold by Qualcomm to customers located outside the EEA, who incorporated them into end devices which were delivered to distributors located in the EEA ("indirect sales").

(1238) To assess the value of an undertaking's sales of goods or services to which the infringement relates, the Commission typically relies on the undertaking's direct sales in the relevant geographic area in the EEA. Qualcomm's direct sales in this case, however, would not properly reflect the value of sales to which the infringement relates, since Qualcomm only had very limited direct sales to the EEA during its business years 2009 to 2011,[1622] with the vast majority of Qualcomm's UMTS chipsets entering the EEA through end devices assembled outside the EEA. The

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1617 Fining Guidelines, paragraph 21.
1618 Fining Guidelines, paragraph 19.
1619 Fining Guidelines, paragraph 25.
1620 Fining Guidelines, paragraph 27.
1621 Fining Guidelines, paragraph 37.
1622 The estimated value of Qualcomm's direct EEA sales were only about EUR [...] in business year 2009, EUR [...] in business year 2010 and EUR [...] in business year 2011. See Annex III to Qualcomm's reply of 28 February 2019 to Article 18(2) request for information of 5 February 2019, [...].

Commission therefore concludes that both Qualcomm's direct and indirect sales should be taken into account for the calculation of the value of sales in this case.[1623]

(1239) In response to the Commission's request to provide the revenues and average sales prices of Qualcomm's direct and indirect sales of UMTS chipsets in the EEA for its business years 2009 to 2011, Qualcomm explained that [...][1624] Qualcomm therefore provided estimates of its indirect EEA sales relying on third-party data tracking the sales of mobile phones (both feature phones and smartphones) in certain geographical areas, which it submitted in reply to the Commission's information request of 5 February 2019 ([…]).[1625]

(1240) Qualcomm also explained that *"as a result of the reliance on* […] *data, estimates of Qualcomm's 'indirect EEA sales' can be expected to include 'direct EEA sales'"*, without however identifying the reason for which direct sales would be covered by information on indirect sales.[1626] On that basis, Qualcomm took the view that the figures provided for its indirect EEA sales based on the […] data *"represent an estimate of Qualcomm's total direct and indirect sales of UMTS chipsets in the EEA during the period concerned."*[1627] The Commission accepts that figures relating to indirect EEA sales are likely to capture both (i) sales of UMTS baseband chipsets to customers located outside the EEA; and (ii) direct sales of baseband chipsets to customers located in the EEA, but which are sent outside of the EEA for incorporation into mobile devices, and then re-imported into the EEA as part of the transformed product (i.e. the mobile device containing Qualcomm's UMTS baseband chipset). The Commission agrees, therefore, that sales falling within category (ii) should not be included as part of Qualcomm's direct sales so as to avoid doublecounting. Any remaining direct sales should, however, be taken into account for the purpose of calculating Qualcomm's value of sales. Since the exact amount of any such sales, to the extent that they existed, is unknown, the Commission did not take them into account in its calculation of Qualcomm's value of sales, which is in Qualcomm's favour.

(1241) The Commission, however, notes that the […] data submitted by Qualcomm, taken either in isolation or in combination with the additional data provided by Qualcomm in reply to follow-up questions by the Commission, suffers from a number of shortcomings in terms of verifiability, and is liable to underestimate Qualcomm's value of sales. This is for the following reasons.

(1242) First, the […] data taken in isolation substantially underestimate Qualcomm's indirect sales of UMTS chipsets in the EEA for the following reasons.

1623 This approach corresponds to the one taken by the Commission in Case COMP/AT.40220 *Qualcomm (exclusivity payments)* of 24 January 2018, website publication, recital (584).

1624 Qualcomm's reply of 28 February 2019 to question 1.a) of Article 18(2) request for information of 5 February 2019, [...], paragraph 10.

1625 Annex III to Qualcomm's reply of 28 February 2019 to the Art 18(1) and (2) request for information of 5 February 2019, [...].

1626 Qualcomm's reply of 28 February 2019 to question 1.a) of Article 18(2) request for information of 5 February 2019, [...], paragraph 14.

1627 Qualcomm's reply of 28 February 2019 to question 1.a) of Article 18(2) request for information of 5 February 2019, [...], paragraph 14. The Commission assumes that such an overlap could exist for chipsets delivered directly into the EEA where they receive some transformation and are then sold on as intermediary products to OEMs located outside the EEA, who incorporate them into end devices delivered in the EEA.

(1243) In the first place, as confirmed by Qualcomm,[1628] the […] data only cover sales of mobile phones, but not of other devices containing a baseband chipset such as mobile broadband devices.

(1244) In the second place, as confirmed by Qualcomm,[1629] the […] data only track the baseband supplier for smartphones as of the first quarter of 2010, but not for feature phones, and not for any kind of device for the second half of 2009.

(1245) Both limitations have a material impact on the quantification of the value of sales in this case because (i) devices other than mobile phones still accounted for a substantial amount of baseband chipset demand,[1630] and (ii) Qualcomm's share of supply in smartphones during the infringement period was considerably lower than its overall share in the UMTS baseband chipset market.[1631]

(1246) Second, the data provided by Qualcomm in reply to follow-up questions by the Commission seeking to fill the gaps of the […] data identified in recitals (1243) and (1244) above are unreliable. This was acknowledged by Qualcomm itself when emphasising on several occasions that [...].[1632]

(1247) In light of the above, for the purpose of calculating the value of Qualcomm's indirect EEA sales during the infringement period, the Commission considered it more appropriate to rely on Qualcomm's worldwide sales of UMTS chipsets as the starting point for calculating the relevant value of sales. This approach requires estimating the share of Qualcomm's worldwide sales of UMTS chipsets that entered the EEA through transformed products (*i.e.* end devices containing a Qualcomm UMTS chipset) on the basis of the proportion of smartphones sold in the EEA containing a Qualcomm chip.

(1248) The Commission notes that this approach is not called into question by Qualcomm's argument that relying on its chipsets sales instead of sales of transformed products as reported in the […] data *"operates to Qualcomm's material detriment"*. Qualcomm argues that *"the use of chipset sales made during a given period will tend to overstate materially the sales of the 'transformed product' during the same time period"* due to the material time lag between the two.[1633] While both the sales of UMTS chipsets and the sales of transformed products were steadily growing between 2009 and 2011, the sales of transformed products always lag behind the sales of UMTS chipsets

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1628 Qualcomm's reply of 10 May 2019 to the clarification questions of 29 April 2019, [...], paragraph 1.

1629 Qualcomm's reply of 10 May 2019 to the clarification questions of 29 April 2019, [...], paragraph 5.

1630 Namely about 20% of total worldwide UMTS chipset sales, see footnote 1429.

1631 This emerges from a comparison of the […] data ([...]) with the volume data obtained by the Commission for the purposes of the market reconstruction (see footnote 338 above). The importance of mobile broadband devices, and the disparity in Qualcomm's supply share across different end devices (*i.e.* smartphones, feature phones and mobile broadband devices) is also confirmed by Qualcomm's internal estimates as provided in Qualcomm's reply of 15 May 2019 to the clarification questions of 14 May 2019, [...].

1632 See *e.g.* Qualcomm's reply of 10 May 2019 to the clarification questions of 29 April 2019, [...], paragraph 7; Qualcomm's reply of 15 May 2019 to the clarification questions of 14 May 2019, [...], and Qualcomm's second reply of 17 May 2019 to the clarification questions of 14 May 2019, [...], paragraph 6.

1633 Qualcomm's second reply of 17 May 2019 to the clarification questions of 14 May 2019, [...], paragraph 4, and Corrigendum of 21 June 2019 to Qualcomm's reply of 18 June 2019 to the Request for Comments of 13 June 2019, [...], paragraph 15.

because it takes time to incorporate these chipsets into end devices and sell them on to final consumers.[1634]

(1249) The Commission rejects this claim since the conclusion Qualcomm draws from the claim's factual description is incorrect. In fact, Qualcomm's explanations demonstrate that, in view of the time lag evoked by Qualcomm, relying on Qualcomm's indirect sales through the sales of end devices in this case would unjustifiably underestimate the value of sales to which the infringement relates. This is because many of the UMTS chipsets sold by Qualcomm until June 2011 on the worldwide UMTS chipset market had not yet been sold on through end devices delivered to the EEA and hence are not captured by the […] data for the same period (i.e. Qualcomm's sales volumes of UMTS baseband chipsets will only be reflected in later periods (including after the infringement period), once those volumes enter the EEA as transformed products). Consequently, while calculating Qualcomm's value of sales by reference to the share of its worldwide sales of UMTS baseband chipsets that entered the EEA through transformed products during the infringement period results in a higher value of sales, such difference simply reflects the fact that such methodology constitutes a closer proxy for Qualcomm's UMTS chipset sales during the relevant period and that reliance on the […] data would unjustifiably underestimate Qualcomm's UMTS chipset sales during the infringement period.

(1250) The Commission takes the view that the estimates provided by Qualcomm based on Qualcomm's worldwide sales of UMTS chipsets ("Table 1") as an alternative to the […] data in reply to the Commission's follow-up questions[1635] do not provide a reliable basis for the purpose of calculating the value of Qualcomm's sales in the EEA. This is for the following reasons.

(1251) In the first place, Qualcomm did not provide any information about the nature and source of the *"estimates"* provided in Table 1 so that it was not possible for the Commission to verify their accuracy.

(1252) In the second place, the figures in Table 1 diverge significantly from the figures submitted by Qualcomm in February 2015 for calendar years 2009 to 2011 for the purposes of the market reconstruction in this case ("market reconstruction data").[1636] In reply to the Commission's clarification questions, Qualcomm detected several *"clerical errors"* in Table 1, which led to multiple revisions of the data in said table.[1637] While the gap between the data in Table 1 and the market reconstruction data narrowed with each revision, the differences remained substantial. Moreover, it is unclear whether, as claimed by Qualcomm in its reply of 18 June 2019,[1638] these

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1634 Qualcomm stated, however, that it [...], see Corrigendum of 21 June 2019 to Qualcomm's reply of 18 June 2019 to the Request for Comments of 13 June 2019, [...], paragraph 15.

1635 Qualcomm's reply of 10 May 2019 to the clarification questions of 29 April 2019, Table 1 at paragraph 4.

1636 Annex 56.1 to Qualcomm's reply of 21 February 2015 to question 56 of Article 18(2) Request for Information of 14 January 2015, [...].

1637 Qualcomm's first reply of 15 May 2019 to the clarification questions of 14 May 2019, [...], Qualcomm's second reply of 17 May 2019 to the clarification questions of 14 May 2019, [...], Qualcomm's reply of 18 June 2019 to the Request for Comments of 13 June 2019, [...], and Corrigendum of 21 June 2019 to Qualcomm's reply of 18 June 2019 to the Request for Comments of 13 June 2019, [...].

1638 Qualcomm's reply of 18 June 2019 to the Request for Comments of 13 June 2019, [...], and Corrigendum of 21 June 2019 to Qualcomm's reply of 18 June 2019 to the Request for Comments of 13 June 2019, [...], paragraph 9.

differences can indeed be fully explained by the different time horizon covered (*i.e.* fiscal years in Table 1 and calendar years for the market reconstruction data).

(1253) In light of the above, for the purpose of calculating the value of Qualcomm's indirect sales in the EEA in this case, the Commission had to rely on the market reconstruction data submitted by Qualcomm during the administrative procedure as the only alternative data source that was readily available in this case.[1639] The Commission notes, however, that the market reconstruction data provide annual sales figures based on calendar years, which do not coincide with Qualcomm's business years, notably the last full business year of the infringement that spanned the period from 28 September 2009 to 26 September 2010. The Commission, therefore, could not base its calculations on Qualcomm's indirect sales in the EEA during the last full business year of the infringement and had to rely on Qualcomm's indirect EEA sales during the entire infringement period ("actual sales") instead.

(1254) The Commission notes that it relied on the market reconstruction data as submitted by Qualcomm in February 2015, without taking account of *"certain clerical errors"* that Qualcomm alleges to have become aware of in preparation of its reply of 18 June 2019 to follow-up questions by the Commission.[1640] This is for the following reasons.

(1255) First, Qualcomm's claim has remained unsubstantiated since Qualcomm has neither quantified the number of units allegedly affected by these clerical errors, nor provided any supporting evidence in this regard.

(1256) Second, Qualcomm's claim lacks credibility since the market reconstruction data were provided by Qualcomm itself in February 2015 and used by the Commission for the purposes of the dominance assessment carried out in the SO of December 2015.[1641] The Commission, therefore, would have expected Qualcomm to identify and correct any such clerical errors when preparing its SO Response and not more than three years later.

(1257) Moreover, Qualcomm has been aware since 14 May 2019 that the Commission intended to use the market reconstruction data to verify the reliability of the figures resulting from the combination of the […] data with Qualcomm's estimates for end devices not covered by the […] data.[1642] However, Qualcomm's claim that the market reconstruction data contained "*certain clerical errors*" was raised for the first time only on 18 June 2019 in reply to an e-mail of 13 June 2019 in which the Commission informed Qualcomm that it intended to rely on the market reconstruction data instead of the data submitted by Qualcomm on 28 February 2017 (and subsequently revised). No such claim was made in Qualcomm's earlier correspondence such as Qualcomm's e-mail of 15 May 2019,[1643] Qualcomm's

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1639 Despite not being legally obliged to do so, the Commission granted Qualcomm by e-mail of 13 June 2019 ([...]) the possibility to provide comments in this regard going beyond the initial comments provided in paragraph 4 of its second reply of 17 May 2019 to the clarification questions of 14 May 2019 ([...]).

1640 Qualcomm's reply of 18 June 2019 to the Request for Comments of 13 June 2019, [...], and Corrigendum of 21 June 2019 to Qualcomm's reply of 18 June 2019 to the Request for Comments of 13 June 2019, [...].

1641 SO, paragraph (179), footnote 166 ([...]).

1642 Clarification questions by the Commission of 14 May 2019, [...].

1643 Qualcomm's reply of 15 May 2019 to the clarification questions of 14 May 2019, [...].

submission of 17 May 2019,[1644] Qualcomm's subsequent e-mail of 17 May 2019[1645] and Qualcomm's related submission of 21 May 2019,[1646] by which Qualcomm corrected other clerical errors identified in the data previously submitted to the Commission.

(1258) For the purpose of calculating the value of Qualcomm's indirect sales in the EEA on the basis of the market reconstruction data, therefore, the Commission proceeded as follows.

(1259) As a first step, in order to calculate the volumes of Qualcomm's UMTS baseband chipsets sold into the EEA, the Commission multiplied Qualcomm's worldwide sales volumes during the infringement period by the share of Qualcomm's sales into the EEA in its worldwide sales as tracked in the […] data for smartphones containing Qualcomm chips.[1647] This calculation assumes that the share of Qualcomm's production that went into the EEA was the same for smartphones and all other end devices incorporating a Qualcomm baseband chip (notably feature phones and mobile broadband devices) and corresponds to the methodology proposed by Qualcomm in its submission of 10 May 2019.[1648] For the reasons set out in recital (1240), the Commission accepts that the […] data capture at least part of Qualcomm's direct sales to the EEA. The remaining direct sales, if any, are not taken into account, since they cannot be quantified. This approach is in Qualcomm's favour.

(1260) To arrive at the share of Qualcomm's EEA sales in its worldwide sales as tracked in the […] data, the Commission first extracted the worldwide sales of 3G smartphones containing a Qualcomm baseband chipset from the […] database for each quarter of calendar year 2010 and the first two quarters of calendar year 2011.[1649] Then, as suggested by Qualcomm,[1650] the Commission calculated the sales of 3G smartphones containing a Qualcomm baseband chipset that went to the EEA by summing up the sales in […]-defined regions "Western Europe", "Poland", and 40% of "Central and Eastern Europe" as extracted from the […] database. Since the […] database tracks the baseband supplier for smartphones only as of the first quarter of calendar year 2010 (see recital (1244) above), the Commission followed Qualcomm's approach of using […] estimate of sales of 3G smartphones containing a Qualcomm baseband

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1644 Qualcomm's second reply of 17 May 2019 to the clarification questions of 14 May 2019, [...].

1645 Qualcomm's e-mail of 17 May 2019, [...].

1646 Qualcomm's submission of 21 May 2019, [...].

1647 That is, rather than relying on the number of mobile phones incorporating Qualcomm UMTS baseband chipsets as reported in the […] data for the purposes of calculating Qualcomm's value of sales (which, for the reasons set out at recitals (1243) to (1245) above, is liable to underestimate Qualcomm's chipset sales during the infringement period), the Commission used the sales reported in the [...] data to calculate the *percentage share* that these sales represented in terms of Qualcomm's worldwide UMTS chipset sales.

1648 Qualcomm's reply of 10 May 2019 to the clarification questions of 29 April 2019, [...], paragraph 10. Qualcomm stated in this regard that the *"use of such proxy would require fewer assumptions and manipulations of the* […] *data"* than the alternative proposed by the Commission at the time.

1649 These figures also include […] estimates of [...] in Annex III to Qualcomm's reply of 28 February 2019 to Article 18(2) request for information of 5 February 2019, [...]. [...], their inclusion in the calculation of the share of Qualcomm's EEA sales in its worldwide sales is in Qualcomm's favour as it increases the denominator of this share, while leaving the numerator unchanged.

1650 Qualcomm's reply of 28 February 2019 to question 1 of Article 18(2) request for information of 5 February 2019, [...], paragraph 12, and subsequent clarifications in Qualcomm's reply of 18 March 2018 to question 2 of the clarification questions of 11 March 2019, [...], paragraphs 8-10.

chipset in the first quarter of calendar year 2010 as proxy for each of the last two quarters of calendar year 2009.[1651] Finally, the Commission added up the EEA sales of smartphones containing a Qualcomm baseband chipset for the last two quarters of calendar year 2009, for the four quarters of calendar year 2010, and for the first two quarters of calendar year 2011, and divided the three resulting amounts by the corresponding sums of the worldwide sales of smartphones containing a Qualcomm baseband chipset. The resulting shares of EEA sales in Qualcomm's total sales are given in Table 75 at recital (1266) below.

(1261) This methodology results from the nature of the market reconstruction data, which, therefore, necessarily diverges from the approach set out by the Commission in the SO as one possible way of establishing a proxy for the value of Qualcomm's indirect sales in the EEA during the infringement period.[1652] Contrary to Qualcomm's claim that it should be granted *"the opportunity to comment on a full description of the methodology and data that the Commission intends to employ"*,[1653] Qualcomm has been aware at least since 10 May 2019 of the methodology the Commission intended to use to calculate the value of Qualcomm's indirect sales into the EEA on the basis of Qualcomm's worldwide sales of UMTS chipsets. This is corroborated by the data submitted by Qualcomm in Table 1 of its submission of 10 May 2019,[1654] which applies exactly the same methodology as used by the Commission in this case, albeit to a different dataset. This was confirmed by Qualcomm in its submission of 10 May 2019, which stated that Qualcomm employed *"the basic methodology suggested by the Commission* […]*, but use*[d] […] *estimates of Qualcomm's share of sales of UMTS baseband chipsets into the EEA relative to Qualcomm's worldwide sales of UMTS baseband chipsets".*[1655] Moreover, despite the fact that Qualcomm had already commented on 17 May 2019 on the possibility of the Commission relying on Qualcomm's worldwide sales of UMTS baseband chipset, either based on Qualcomm's Table 1 or the market reconstruction data,[1656] the Commission informed Qualcomm on 13 June 2019 that it intended to rely on the market reconstruction data and granted Qualcomm the possibility to provide further comments in this regard.[1657]

(1262) The Commission notes that the EEA sales share figures in Table 75 at recital (1266) diverge from those provided by Qualcomm in Table 1. This discrepancy is likely due to the timing mismatch between the two tables, since Table 1 refers to Qualcomm's business year, while Table 75 at recital (1266) reports all figures with respect to the calendar year. The Commission was, however, not able to fully clarify these discrepancies, because Qualcomm did not explain how it arrived at the figures it

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1651 Qualcomm's reply of 28 February 2019 to question 1 of Article 18(2) request for information of 5 February 2019, [...], footnote 18.

1652 SO, paragraph (463).

1653 Qualcomm's reply of 18 June 2019 to the Request for Comments of 13 June 2019, [...], paragraph 8.

1654 Qualcomm's reply of 10 May 2019 to the clarification questions of 29 April 2019, [...], Table 1 at paragraph 4.

1655 Qualcomm's reply of 10 May 2019 to the clarification questions of 29 April 2019, [...], paragraph 4.

1656 Qualcomm's second reply of 17 May 2019 to the clarification questions of 14 May 2019, [...], paragraph 4.

1657 Commission e-mail of 13 June 2019, [...].

provided in Table 1 in its reply to the Commission's clarification question pointing Qualcomm to the discrepancies between the two sets of sales share figures.[1658]

(1263) As a second step, the Commission multiplied the resulting EEA sales volume figures by Qualcomm's worldwide ASP for UMTS chipsets during the infringement period to obtain Qualcomm's annual EEA revenues for calendar years 2009, 2010 and 2011.

(1264) To translate the ASPs provided by Qualcomm at the level of business years and business quarters[1659] into ASPs at the calendar-year and calendar-half-year level, the Commission averaged the quarterly ASPs provided by Qualcomm (i) across the four relevant quarters of 2010 to obtain the annual worldwide ASP for calendar year 2010, and (ii) across the two relevant quarters of 2009 and 2011 respectively (*i.e.* the last two calendar quarters of 2009 and the first two calendar quarters of 2011) to obtain the half-yearly worldwide ASPs for the second half of calendar year 2009 and the first half of calendar year 2011.[1660]

(1265) As a third step, in order to calculate the actual EEA value of sales during the infringement period, the Commission divided the annual EEA revenues for 2009 and 2011 by two to obtain the half-yearly value of sales for the second half of 2009 and the first half of 2010, and added the resulting figures to the annual EEA sales value for 2010, yielding an actual EEA value of sales during the infringement period of EUR [...].

(1266) The table below shows Qualcomm's worldwide UMTS chipset sales according to the market reconstruction data, the share of Qualcomm's sales into the EEA in its worldwide sales, Qualcomm's average ASPs as calculated by the Commission, and the resulting yearly and half-yeary values of EEA sales. The sum of the three values given in column " Qualcomm's UMTS value of EEA sales (in EUR) – for H2'2009, CY2010, and H1'2011" yields the actual EEA value of sales during the infringement period.

1658 Qualcomm's second reply of 17 May 2019 to the clarification questions of 14 May 2019, [...], paragraphs 10-11.

1659 Revised Table III of Annex III of 18 June 2019 supplementing Qualcomm's reply of 28 February 2019 to the Art 18(1) and (2) request for information of 5 February 2019, [...].

1660 The Commission thus took account of the time mismatch between the volume data based on calendar years, and the ASP data provided by Qualcomm on a fiscal year basis, as pointed out by Qualcomm in the Corrigendum of 21 June 2019 to Qualcomm’s reply of 18 June 2019 to the Request for Comments of 13 June 2019, [...], paragraph 14.

Table 75: Calculation of Qualcomm's actual EEA value of sales during the infringement period

Calendar Year	Qualcomm's annual worldwide UMTS chipset sales (in units) - Market Reconstruction Data	Share of EEA sales in total sales (3G smartphones containing Qualcomm chip - […] database) for H2'2009, CY2010, and H1'2011	Average selling price worldwide (in EUR) - for H2'2009, CY2010, and H1'2011	Share of calendar year overlapping with infringement period	Qualcomm's UMTS value of EEA sales (in EUR) – for H2'2009, CY2010, and H1'2011
2009	[...]	[...]	[...]	[...]	[...]
2010	[...]	[...]	[...]	[...]	[...]
2011	[...]	[...]	[...]	[...]	[...]
Qualcomm's actual EEA value of sales during the infringement period:					[...]

15.3.2. Gravity

(1267) The Commission concludes that the proportion of the value of sales to be used to establish the basic amount of the fine should be [...].

(1268) In reaching this conclusion, the Commission takes into account the following factors.

(1269) First, Qualcomm's conduct took place in a market of significant economic importance. Consumers increasingly access the internet through mobile devices (*e.g.* smartphones, tablets and other mobile broadband devices), which have become important tools in everyday life. Effective competition for the supply of one of the key components of such devices, namely for baseband chipsets, is therefore a precondition for ensuring choice and affordable prices for consumers with regard to mobile devices incorporating baseband chipsets.

(1270) Second, predatory pricing practices by undertakings in a dominant position have already been repeatedly condemned by the Commission and the Court of Justice of the European Union.[1661]

(1271) Third, Qualcomm's conduct targeted Icera as the only competitor who was able to challenge Qualcomm in the leading edge segment at that time. In view of the barriers to entry to the relevant UMTS chipset market (see section 11.4 above), Qualcomm's conduct is likely to have also had a dissuasive effect on potential entrants to the market.

(1272) Fourth, Qualcomm's conduct was worldwide in scope. This means that the whole EEA was covered by Qualcomm's conduct.

1661 See, *e.g.*, Case C-62/86, *AKZO* v *Commission*, ECLI:EU:C:1991:286, paragraphs 70-72 and Case C-202/07, *France Télécom* v *Commission*, ECLI:EU:C:2009:214, paragraphs 106-107.

15.3.3. Duration

(1273) Following the methodology described in section 15.3.1, the figure set out at recital (1265) reflects Qualcomm's relevant value of sales for the entirety of the infringement period. It is not, therefore, necessary to apply a separate duration multiplier for the purposes of calculating the basic amount of the fine.

15.3.4. Additional amount

(1274) The Commission concludes that the basic amount should include an additional amount in order to deter undertakings of a similar size and with similar resources from entering into the same type of infringement as Qualcomm.[1662] This additional amount should be [...] of Qualcomm's average annual EEA sales value during the infringement period, which is obtained by dividing Qualcomm's actual EEA sales value during the infringement period given in recital (1265) by the duration of the infringement (*i.e.* 2 years, see section 12.11 above), yielding an additional amount of EUR [...].

(1275) In reaching this conclusion, the Commission took into account the following factors.

(1276) First, Qualcomm's conduct took place in a market of significant economic importance (see recital (1269) above).

(1277) Second, the relatively short duration of the infringement (*i.e.* 2 years, see section 12.11 above) does not properly reflect its potential to impact not only competition in the market for chipsets compliant with the UMTS standard but also with subsequent communication technology standards.

(1278) The implementation of Qualcomm's predatory pricing strategy *vis-à-vis* Huawei and ZTE was capable of preventing Icera at a crucial stage of its development from gaining access to either of these two customers on which Icera's development prospects in the leading edge segment of the UMTS chipset market were dependent. Through its conduct, Qualcomm prevented Icera from gaining the reputation and scale necessary to challenge Qualcomm's dominance in the market for UMTS baseband chipsets, in particular in view of the expected growth potential of the leading edge segment due to the global take-up of smart mobile devices. In particular, by damaging Icera's profit prospects, Qualcomm forced Icera to scale back its R&D in voice functionality/LTE, which was crucial for Icera to be able to enter the smartphone segment supporting the LTE standard, which superseded UMTS as the leading mobile communications technology soon after the end of the infringement period (see recitals (1034) and (1045) above). As a consequence, Qualcomm deprived original equipment manufacturers from access to an alternative potential source of chipsets for their mobile phones and reduced consumer choice (see recitals (1), (334), and (1045) above).

15.3.5. Aggravating and mitigating circumstances

(1279) The Commission considers that there are no aggravating or mitigating circumstances in this case that should result in an increase or decrease in the basic amount of the fine.

[1662] Fining Guidelines, paragraph 25.

15.3.6. Conclusion: final amount of the fine

(1280) The final amount of the fine to be imposed on Qualcomm should be EUR 242 042 000.

(1281) Qualcomm's turnover in the last business year preceding the adoption of the Decision in this case, which ended on 30 September 2018, was EUR 19 105 million.[1663] As the amount of the fine set above is below the legal maximum of 10% of this turnover (EUR 1 910.5 million), no adaptation is necessary.

HAS ADOPTED THIS DECISION:

Article 1

Qualcomm Inc. has committed an infringement of Article 102 of the Treaty and Article 54 of the Agreement on the European Economic Area by supplying, between 1 July 2009 until 30 June 2011, certain quantities of three of its UMTS compliant chipsets (the MDM8200, MDM6200 and MDM8200A based chipsets) to two of its key customers, Huawei and ZTE, below cost, with the intention of eliminating Icera, its main competitor at that point in time in the market segment offering advanced data rate performance ("leading edge segment").

The infringement lasted from 1 July 2009 until 30 June 2011.

Article 2

For the infringement referred to in Article 1, a fine of EUR 242 042 000 is imposed on Qualcomm Inc.

The fine shall be credited, in euros, within three months of the date of notification of this Decision, to the following bank account held in the name of the European Commission:

BANQUE ET CAISSE D'EPARGNE DE L'ETAT
1-2, Place de Metz
L-1930 Luxembourg

IBAN: LU02 0019 3155 9887 1000
BIC: BCEELULL
Ref.: European Commission – BUFI/AT.39711

After the expiry of that period, interest shall automatically be payable at the interest rate applied by the European Central Bank to its main refinancing operations on the first day of the month in which this Decision is adopted, plus 3.5 percentage points.

Where Qualcomm Inc. lodges an appeal, it shall cover the fine by the due date, either by providing an acceptable financial guarantee or by making a provisional payment of the fine in accordance with Article 108 of Regulation (EU, Euratom) 2018/1046.[1664]

[1663] Annex III to Qualcomm's reply of 28 February 2019 to Article 18(2) request for information of 5 February 2019, [...]. This figure corresponds to USD 22 732 million, converted at the EUR/USD average exchange rate of the ECB for the period 25 September 2017 to 30 September 2018 of EUR 1 = USD 1.1898.

[1664] OJ L 193, 30.7.2018, page 80.

Article 3

Qualcomm Inc. shall refrain from repeating any act or conduct described in Article 1, and from any act or conduct having the same or equivalent object or effect.

Article 4

This Decision is addressed to Qualcomm Inc., 5775 Morehouse Drive, San Diego, 92121 California, United States of America.

This Decision shall be enforceable pursuant to Article 299 of the Treaty and Article 110 of the Agreement on the European Economic Area.

Done at Brussels, 18.7.2019

For the Commission

Margrethe VESTAGER
Member of the Commission