EN

Case No COMP/M.5173 - STM / NXP / JV

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REGULATION (EC) No 139/2004
MERGER PROCEDURE

Article 6(1)(b) NON-OPPOSITION
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COMMISSION OF THE EUROPEAN COMMUNITIES

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In the published version of this decision, some information has been omitted pursuant to Article 17(2) of Council Regulation (EC) No 139/2004 concerning non-disclosure of business secrets and other confidential information. The omissions are shown thus […]. Where possible the information omitted has been replaced by ranges of figures or a general description.

PUBLIC VERSION

MERGER PROCEDURE
ARTICLE 6(1)(b) DECISION

To the notifying party

Dear Sir/Madam,

Subject: Case No COMP/M.5173 – STM/ NXP/ JV
Notification of 23 May 2008 pursuant to Article 4 of Council Regulation No 139/2004[1]

1. On 23/05/2008, the Commission received a notification of a proposed concentration pursuant to Article 4 of Council Regulation (EC) No 139/2004 by which the undertakings STMicroelectronics N.V. ("STM", The Netherlands) and NXP B.V. ("NXP", The Netherlands) acquire within the meaning of Article 3(1)(b) of the Council Regulation joint control in a newly formed joint venture company incorporated under the laws of Netherlands, by way of purchase of shares. STM and NXP are together referred to below as "the parties" or "the notifying parties".

I. THE PARTIES

2. **STM** is active in the semiconductor industry. In particular, STM produces one of the industry's broadest ranges of semiconductor products, from discrete diodes and transistors through complex System-on-Chip (SoC) devices, to complete platform solutions[2].

3. **NXP** is controlled by a consortium of private equity investment funds which operates in the semiconductor industry. In particular, NXP creates semiconductors, system solutions and software

1 OJ L 24, 29.1.2004 p. 1.

2 On 30 March 2008, STM transferred its non volatile NOR and NAND memory business into a new joint venture formed with Intel and named Numonyx. This transaction was approved by the Commission on 10 August 2007, see Commission decision, COMP/M.4751 - STM/Intel.

used for mobile phones, personal media players, TVs, set-top boxes, identifications, cars and a wide range of other electronic devices.

4. **The joint venture** will operate worldwide in the area of semiconductors for mobile telecommunications.

II. THE CONCENTRATION

5. The joint venture will be created through a newly constituted company under the laws of the Netherlands to which both the parties will confer their wireless communication and multimedia semiconductors businesses[3]. Pursuant to the Shareholders' Agreement, following the concentration, STM and NXP will hold respectively 80% and 20% of the shares of the joint venture. The Board of Directors will be composed by five members, three of which (one to act as chairman) shall be appointed by STM and two by NXP. The key strategic commercial decisions (business plan, the budget and major investments) will require affirmative vote of at least one member of the board nominated by each party.

6. The joint venture - as many other players in the market - will be a fabless[4] entity, but will have its own back-end operations (assembly and test), sales and marketing and product R&D development teams. As a consequence, it will, on a lasting basis, perform all the functions of an autonomous economic entity and operate on the market as a full-function joint venture.

7. Thus, the transaction constitutes a concentration within in the meaning of Article 3(1)(b) of the Merger Regulation.

III. COMMUNITY DIMENSION

8. The undertakings concerned have a combined aggregate world-wide turnover for the year 2007 of more than EUR 5 billion[5] (STM: EUR […] million, NXP: EUR […] million). Each of STM and NXP has a Community-wide turnover in excess of EUR 250 million (STM: EUR […] million, NXP: EUR […] million), without achieving more than two-thirds of their aggregate Community-wide turnover within one and the same Member State.

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[3] In particular, STM will contribute to the joint venture the following business: Digital Baseband, RF, Power Management Unit and Analog Baseband Multimedia Application Processor, Bluetooth, FM Radio, and Wifi. NXP, on the other hand, will contribute those parts of its Mobile Unit and Analogue Baseband, Multimedia Co-processor and Audio processors, Bluetooth, FM Radio, GPS, USB and UWB.

[4] A "fab" is a foundry which produces silicon wafers, the main raw material used in the manufacturing of semiconductors. Silicon wafers represent the major cost for the manufacturing of a fully packaged Integrated Circuits IC, amounting to approximately 85% of its cost. Many fully-fledged semiconductors companies do not produce their own silicon wafers, which are sourced from specialized manufacturers. In the present case, the parent companies will have the first option to supply the joint venture with wafers as long as terms and conditions offered by them are competitive with market. In addition, the joint venture will commit to source for a period of three years an agreed minimum percentage declining annually - […] in the first year, […] in the second year, and […] in third year.

[5] Turnover calculated in accordance with Article 5(1) of the Merger Regulation and the Commission Consolidated Jurisdictional Notice of 10 July 2007.

9. The notified operation therefore has a Community dimension within the meaning of Article 1(2) of the EC Merger Regulation.

IV. RELEVANT MARKETS

10. The joint venture will be active worldwide in the research and development, design, manufacture, marketing and sale of wireless handsets semiconductors. STM and NXP will confer to the joint venture their entire business in the area of semiconductors for mobile communications, with the exception of manufacturing of silicon wafers. Wireless handsets semiconductors are predominantly supplied directly to large original equipment manufacturers (OEMs) and to a lesser extent to original design manufacturers (ODMs).

Product market

11. Semiconductor devices are made out of solid-state substances which are halfway between electricity conductors and insulators. By combining conductive material, semiconductor material and insulators in a pre-determined pattern, the movement of electricity through a device can be precisely controlled. Transistors are the basic element used in building semiconductor devices and more complex semiconductor devices, Integrated Circuits (ICs) are built combining multiple transistors and conductive interconnect material.

12. Semiconductors are used in number of sectors within the electronic equipment industry, ranging from computing/data processing and communications, to consumer and industrial electronics. As concerns the communications sector, the most relevant applications for semiconductors are mobile handsets, networking equipment, telecom and wireless infrastructure, and voice and data access equipment.

13. Semiconductor devices can be manufactured on an application-standard basis or can be designed for a specific customer or platform. In the first case, these standard devices are known as ASSPs (application specific standard products) while custom-specific devices are referred to as ASICSs (application specific integrated circuits). A further distinction can also be made between stand-alone circuits and circuits sold as a kit, where the product is not integrated at the physical chip level, but at the system solution level and will include other circuits performing different functions realized in separate chips in often different technologies.

14. In previous decisions[6], the Commission has segmented the market either based on functions and features of semiconductors, or based on end-use applications. Given that the joint venture will relate to semiconductors for handsets application only, it is relevant to envisage the end-use application segmentation. A segmentation of semiconductors for (wireless handsets) application can be identified: (i) Analogue Basebands (ABB) combined with Power Management (PMU); (ii) Digital Basebands (DBB); (iii) Application Processors (APE) and co-Processors; (iv) Radio Frequency (RF/IF); and (v) Connectivity/Bluetooth.

15. The notifying parties argue that there would be an increasing tendency to integrate circuits into chipsets and compete on solutions/platforms. They, therefore, also submit an alternative market segmentation - that in their view would better reflect this tendency and better capture the competitive dynamics of the market - based on the function wireless handsets semiconductors

6 See Commission's decisions Case COMP/M.2820, STM/Alcatel and Case COMP 2439 Hitachi/STM/JV.

perform: (i) cellular modems, (ABB+PMU, DBB and RF); (ii) connectivity and broadcast, (Bluetooth, FM Radio, WLAN, GPS, USB and TV-mobile; and (iii) multimedia (APE and co-processors). However, for the purpose of the present transaction, the parties based their assessment on the traditional segmentation of semiconductors.

(i) Analog Basebands and Power Management (ABB+PMU)

16. Analogue circuits are used to process real-world signals using electronic voltage patterns that represent the original signal to the highest level. These circuits can deal with complex input from the real world in the form of electric signals, including sound light, video, radio waves, temperature and other physical, chemical or biological properties. ABBs are generally combined with power management application and process real world signals while controlling, manipulating and optimizing the use and delivery of battery power to handsets components and applications.

17. According to the notifying parties, within the category of ABBs, the market can also be further segmented depending on whether both products are standard (ASSP) or custom-specific (ASIC) and whether they are sold as stand alone circuits, or integrated into chipsets containing the digital baseband. However, for the purpose of the present transaction, this further segmentation can be left open as the transaction does not give raise any competition concern under any alternative market definition.

(ii) Digital Basebands (DBB)

18. Digital basebands are devices which are employed to encode and decode voice data signals in and out of the transmission protocol, implementing the encoding technique supported by the handset, such as inter alia GSM, GPRS, EDGE and WCDMA (UMTS). A segmentation following these different technologies could therefore be considered. Similarly to ABBs, DBBs are often used in handsets as a stand-alone DSP or as an ASSP with an embedded DSP. Some semiconductors manufacturers do not implement DSP ICs in digital baseband chips, but rather use digital logic devices. According to the semiconductors' industry, the DBB market can therefore be further segmented depending on the type of devices actually equipped on the chipsets[7]. However, regardless of how the product market is ultimately defined, the transaction does not give rise to any competition concerns.

(iii) Application Processors (APE)

19. The main function of the application processor is to run the mobile handset operating system and other installed software, while controlling the overall handset functionality. They are increasingly used to implement graphic, still image, video or digital audio functions. Moreover, APSs can also be configured as standalone devices when high multimedia is required in the handset or as integrated APE and DBB for mid-range handsets.

(iv) Radio Frequency (RF)

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7 For instance, according to the parties, while both Texas Instruments and Qualcomm manufacture digital baseband chips for wireless handsets, TI's devices are considered as DSPs while Qualcomm's are considered special purpose logic devices. The difference rests on how the devices are designed.

20. The Radio Frequency constitute the block, which controls the radio wave generation and reception, translating between low-frequency analogue signals used in the handset and high-frequency RF signals used in radio communications. The RF subsystem is composed of (i) the power amplifier, (ii) the RF front end, and (iii) the IF transceiver/synthesizer. RF transceivers constitute the most dynamic components in the handsets bill-of-materials and design, process and geometry improvements are constantly being introduced into this market. As concerns the handset RF segment, the market investigation revealed that a further segmentation could also be considered when different technologies, such as GPRS (2.5G), the transitory EDGE (2.75G), and the growing UMTS (3G), are employed in wireless handsets models. However, for the purpose of the present transaction, this further segmentation can be left open since the transaction will not raise serious doubts as to its compatibility with the common market under any alternative market definition.

(v) Connectivity

21. Connectivity ICs, also referred to as chipsets, are used in wireless handsets to implement short range connectivity capabilities that can then support various applications. A connectivity IC typically contains an RF part, for short range air interface implementation, and a digital part that runs the related software stack to implement and control the communication protocol. As concerns the wireless connectivity applications there is a strong market tendency to combine a number of different and complementary technologies into "combo" devices.

22. According to the information submitted by the parties, the Connectivity segment can be further divided in sub-segments depending on the function performed by the ICs such as Bluetooth, FM, UWB, GPS, USB, WLAN etc.

23. In particular, both STM and NXP are active in the connectivity/Bluetooth semiconductors segment. Bluetooth is the most popular short range connectivity standard and most of the newly manufactured handsets have the Bluetooth incorporated[8]. This new trend can be explained mainly by the rapidly declining prices for Bluetooth chipsets in mobile devices, the increased availability of Bluetooth handsets and the increased consumer awareness of Bluetooth.

24. In any event, regardless of how broadly or narrowly the product markets are defined, the transaction does not give rise to any competition concerns.

Relevant Geographic market

25. With regards to the geographic market, in previous decisions dealing with semiconductors, the Commission has considered those markets as worldwide. However, the precise scope of the geographic market was left open[9].

26. The notifying parties contend that the relevant geographic market for semiconductors for wireless application is worldwide in scope. This would be borne out by the fact that clients have plants located all around the world, there are no quotas, tariffs or technical specifications, there is no

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8 iSupply estimates that […] of wireless handsets shipments in 2007 had Bluetooth incorporated, which is a […] growth compared to 2006.

9 See Commission's decisions in Case COMP/M.4751, STM/Intel; COMP/M.2820, STM/Alcatel; and COMP/M.2439, Hitachi/STM/JV.

price difference between countries and transport costs are very low. Moreover, suppliers in those markets are international firms established worldwide and the costs of establishing a local presence would not appear significant since there is no need to produce or sell locally.

27. The market investigation gave indications that the geographic scope of semiconductor for wireless application is indeed world-wide. Supply patterns are global, while also demand follows dynamics, which do not seem to be linked or dictated by regional patterns of customer behaviour. Moreover, no significant price differences exist across regions or countries in which customers or suppliers are located.

28. Therefore, it can be concluded that the relevant geographic market for the purpose of the present case can be considered to be at least EEA-wide or wider but its precise delineation can be left open since the proposed transaction does not lead to any competition concerns.

V. COMPETITIVE ASSESSMENT

29. According to the information submitted by the notifying parties, considering the market for mobile wireless semiconductors as a whole or on the basis of the parties' alternative market definition, there would be no affected markets as the new entity would have a market share below 15% worldwide, well behind Qualcomm [20-30%] and Texas Instruments [10-20%].

30. Based on the conventional market segmentation, the proposed transaction would give rise to the following affected markets: (i) ABB+PMU; (ii) RF; and (iii) Connectivity/Bluetooth.

(i) ABB+PMU

31. Considering the market for ABB+PMU, post-merger, the new entity would be the market leader with a [30-40%] (STM [30-40%]; NXP [5-10%]) worldwide market share, followed by Texas Instruments and Qualcomm with approximately [20-30%] and [10-20%] respectively. The transaction does not result in a true market share increment given that STM and NXP are not close substitutes: NXP manufactures ABB as standard solutions (ASSPs) either to be sold in kit or directly integrated as single ABB-DBB chips, while STM offers mostly stand-alone and specific (ASICs) ABB. Both parties also address different customers, with STM supplying stand-alone analogue baseband (ASICs) […][10] and NXP supplying standard solutions ABB (ASSPs) to […], […] and […]. Therefore STM and NXP offerings for wireless are complementing each other rather than competing with each other.

32. Furthermore, Qualcomm and Texas Instruments would remain in the market with significant market shares. The fourth largest player post-merger (Freescale Semiconductor – with a [5-10%] market share) is comparable in terms of market position to the pre-merger NXP.

33. Finally, the market investigation confirmed that integrated circuits have been traditionally manufactured as stand-alone products. However, there is an increasing tendency in integrating circuits into chipsets and competing on solutions/platforms. One of the integrated solution concerns the ABB/DBB/RF combination. According to the market investigation, Qualcomm, Texas Instruments and other competitors such as Mediatek, Freescale Semiconductor, Infineon,

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[10] [30-40%] market share of STM for the ABB segment almost completely derives from […], which is also supplied by […].

which are strong in the neighbouring DBB segment[11], are or will able to supply or design this type of single-chip solution[12] and will therefore exercise a certain competitive constraint on the new entity.

(ii) RF

34. As regards the handset RF segment, Qualcomm will remain the market leader with a [30-40%] worldwide market share. The new company would become a number 2, with a worldwide market share of approximately [10-20%] (STM [10-20%]; NXP [5-10%]), followed by Infineon with [10-20%] and Mediatek [5-10%], each of which have been considered by the market investigation as credible competitors to the new entity.

35. This statement about the credibility of competitors remains valid when considering new technological developments such as the transitory EDGE or the rolling out of the 3G communication protocol: some significant players that are active on the 2G standard are also already active on the EDGE technology (Infineon, RFMD, Renesas[13]), or the 3G technology (Qualcomm, Infineon, Freescale) and therefore have the ability to maintain competitive pressure on the merged entity. […][14].

(iii) Connectivity/Bluetooth

36. With respect to the connectivity/Bluetooth semiconductors segment, post-merger the new entity would reach approximately [10-20%] market share (STM [5-10%]; NXP [10-20%]), behind Broadcom [20-30%] and well behind the market leader Cambridge Silicon Radio [40-50%]. Texas Instruments would be the fourth player with a [5-10%] market share in this segment[15]. Therefore, post-merger, competition in the connectivity/Bluetooth semiconductors segment will still remain very intense.

Position of the customers

37. In addition to the reasons above, overall, it cannot be ignored that the handset market is fairly consolidated, with five customers representing approximately 80% of the demand for chips for wireless handsets; and these customers of the new entity and its competitors generally apply a multi-sourcing policy.

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11 The DBB segment is forecast to grow at a 20% yearly rate whereas standalone ABB market is forecast to decline by [0-5%] per year (source iSuppli 2007). On this DBB segment, Qualcomm would achieve [30-40%] market share, TI [20-30%], NXP and STM together less than [0-5%].

12 This has been confirmed by all the competitors and customers that have replied to the market investigation.

13 These players have respectively around [20-30%], [30-40%] and [0-5%] market share, compared to the new joint venture which would represent a [30-40%] market share (iSuppli, Competitors and market shares in 2.75G (EDGE) RF – 2006/2007).

14 […].

15 It can be noted that on hypothetic connectivity sub-segments such as WLAN or FM radio, there is no overlap (or only temporary overlap due to the foreseen exit of NXP's current WLAN business).

38. Finally, all activities in the relevant markets have been contributed by STM and NXP to the joint venture with the exception of manufacturing silicon wafers. In particular, for the sourcing of silicon wafers, the joint venture will be supported by long-term supply agreements with its parents companies, which will also allow the sourcing of wafers from third parties. In any event, there will not be any effects to be considered under Article 2(4) in any neighbouring markets for STM and NXP.

VI. CONCLUSION

39. For the above reasons, the Commission has decided not to oppose the notified operation and to declare it compatible with the common market and with the EEA Agreement. This decision is adopted in application of Article 6(1)(b) of Council Regulation (EC) No 139/2004.

For the Commission,
(*Signed by)*
Neelie KROES
Member of the Commission