

EN

***Case No COMP/M.7297 - DOLBY/ DOREMI/
HIGHLANDS***

Only the English text is available and authentic.

**REGULATION (EC) No 139/2004
MERGER PROCEDURE**

Article 6(1)(b) NON-OPPOSITION
Date: 27/10/2014

***In electronic form on the EUR-Lex website under
document number 32014M7297***



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 Where possible the information omitted has been replaced by ranges of figures or a general description.

Brussels, 27.10.2014
C(2014) 8095 final

PUBLIC VERSION

MERGER PROCEDURE

To the notifying party

Dear Sir/Madam,

**Subject: Case M.7297 – DOLBY/ DOREMI/ HIGHLANDS
Commission decision pursuant to Article 6(1)(b) of Council Regulation
No 139/2004¹**

- (1) On 25 September 2014, the European Commission received a notification of a proposed concentration pursuant to Article 4 of Council Regulation (EC) No 139/2004 by which the undertaking Dolby Laboratories, Inc. ("Dolby", the United States) acquires within the meaning of Article 3(1)(b) of the Merger Regulation control of the whole of the undertakings Doremi Technologies LLC and Doremi Labs, Inc (together, "Doremi", the United States) and Highlands Technologies Solutions S.A.S. ("Highlands", France) by way of purchase of shares and assets. Dolby is hereby referred to as the "Notifying Party" and Dolby, Doremi and Highlands are collectively referred to as "Parties".

1. THE PARTIES

- (2) Dolby designs and manufactures audio, video and voice technologies. It specialises in digital signal processing, compression technology, noise reduction systems and multichannel sound programming for home, work, cinema and mobile applications, including the manufacture and supply of digital cinema servers ("DCS") and

¹ OJ L 24, 29.1.2004, p. 1 ('the Merger Regulation'). With effect from 1 December 2009, the Treaty on the Functioning of the European Union ('TFEU') has introduced certain changes, such as the replacement of 'Community' by 'Union' and 'common market' by 'internal market'. The terminology of the TFEU will be used throughout this decision.

theatre management systems ("TMS"). During fiscal year 2013, around 89% of Dolby's revenues came from licensing its technology to third parties, 9% from products and 2% from services. Dolby can be described as a licensing company with a strong foothold in audio technology.

- (3) Doremi is specialised in the field of digital video, in particular in the design and manufacture of DCS and TMS.
- (4) Highlands acts as a re-seller of Doremi products in the EMEA region. [Most][BUSINESS SECRET] of Highland's revenues are achieved via the sale of Doremi DCS and related accessories.

2. THE OPERATION

- (5) The proposed transaction involves the acquisition of sole control of Doremi and Highlands by Dolby.
- (6) According to a Membership Interest Purchase Agreement of 23 February 2014 between Dolby and Doremi, Dolby will acquire [Doremi's USA and French businesses] [BUSINESS SECRET] Through a separate agreement, governed by an Asset Purchase Agreement executed on 23 February 2014, Dolby France S.A.S. ("Dolby France", France), a subsidiary of Dolby, will acquire the assets of Highlands.
- (7) Dolby France and Doremi will enter into a Successor Agreement [BUSINESS SECRET]. This Successor Agreement is a condition to the closing of acquisition of Doremi.
- (8) The transactions contemplated in the Membership Interest Purchase Agreement, the Asset Purchase Agreement and the Successor Agreement involve the same buyer, namely Dolby, and are conditional upon each other.² Therefore these transactions qualify as interrelated transactions pursuant to paragraphs 38 and 43 of the Commission Consolidated Jurisdictional Notice.³ As a result, the proposed transaction can be considered a single concentration within the meaning of Article 3 of the Merger Regulation.
- (9) The value of the transaction is USD 92.5 million plus a potential earn-out of USD 20 million over a four-year period.
- (10) Therefore, the proposed transaction constitutes a concentration within the meaning of Article 3(1)(b) of the Merger Regulation.

3. EU DIMENSION

- (11) The proposed transaction does not have a Union dimension within the meaning of Article 1 of the Merger Regulation.

² See clause 7.2 (k) of Membership Interest Purchase Agreement entered into between Dolby and Doremi on 23 February 2014 and clause 9.2.11 of the Asset Purchase Agreement entered into between Dolby France and Highlands on 23 February 2014.

³ Commission Consolidated Jurisdictional Notice under Council Regulation (EC) No 139/2004 on the control of concentrations between undertakings (OJ C 95, 16.04.2008, p.1.)

- (12) On 9 July 2014, the competent Competition Authority of Spain requested the Commission to examine the case, pursuant to Article 22(1) of the Merger Regulation. The request was made within the legal deadline of 15 working days following the national notification. The referral request was joined by the competent Competition Authority of the UK on 1 August 2014. On 14 August 2014, the Commission decided to accept the referral request and to examine the concentration.

4. MARKET DEFINITION

- (13) A digital cinema system comprises a number of components, including a projector, a DCS, a cinema audio processor and Theatre Management System ("TMS") software. TMS is the software that enables a cinema manager to control several cinema screens from a single computer, so that there is no need to have a projector operator for each auditorium.
- (14) The Parties' activities overlap in the manufacture and supply of DCS as well as the supply of TMS software. The market for TMS is, however, not affected, as the Parties' combined market share is below 20% in the EEA.⁴ Finally, only Dolby is active in the manufacture and supply of digital cinema audio processors.

4.1. Digital Cinema Servers

- (15) This is the first time that the Commission has been called upon to analyse the market for the manufacture and supply of DCS.
- (16) DCS are used to load, store, decrypt, decode and re-encrypt digital film files for presentation on a projector. There are two parts to the DCS: (i) the storage server, which contains the movie file, and (ii) the media block, which decrypts and decodes, then watermarks and passes the video stream to the digital projector.

4.1.1. Product market

- (17) DCS could be differentiated according to the image projection technology and/or product generations.
- (18) A first distinction can be made between the two established technologies for image projection: (i) the Digital Light Processing technology ("DLP"), developed and licensed by Texas Instruments; and (ii) the Silicon X-tal Reflective Display ("SXRD") technology, developed and sold by Sony. Sony SXRD projectors are only compatible – and are integrated and bundled – with the Sony DCS. DLP

⁴ Based on information provided by the Notifying Party, the Parties' market shares are likely to be lower worldwide than they are in the EEA. Respondents to the market investigation generally considered that the geographic scope of this market is global or at least EEA-wide, given the need for regional or local maintenance support (See replies to Commission questionnaire Q2 to Customers of 25 September 2014, questions 14 and 15). In any case, as the proposed transaction does not give rise to any serious doubts as to its compatibility with the internal market under any plausible geographic market definition, the Commission considers that the exact geographic definition of this market can be left open. Moreover, the respondents to the market investigation did not raise any concerns with respect to the Parties' horizontal overlap in the TMS market. Therefore, in light of the above and the Parties' activities limited overlap, the market for TMS will not be discussed further.

projectors, mainly supplied by Barco, Christie and NEC, are generally compatible with DCS supplied by a number of different providers.

- (19) Second, there are three product "generations". As for the first generation, both the media block and the storage server are external to the digital projector, and are connected via a secure HD-SDI link. As for second generation DCS (the Integrated Media Block or "IMB"), the media block is placed inside the projector while the storage server is still located outside the projector. The latest third generation (the Integrated Media Server or "IMS") builds the storage server into the media block and the block is then completely housed within the projector.
- (20) While all three generations of servers generally offer similar functionality, later generations have improved features and performance. For instance, first generation DCS only support 2K playback, whereas IMB and IMS generally support 4K⁵ or high-frame rate playback.⁶
- (21) Regardless of the various distinctions, all DCS need to be compliant with the specifications developed by the six major Hollywood studios within the Digital Cinema Initiative ("DCI") as from 2002 if they want to play back the movie studios' encrypted content. DCI's primary purpose is to establish and document voluntary specifications for an open architecture for digital cinema that ensures a uniform and high level of technical performance, reliability and quality control, and protect content against piracy. While voluntary and not a "formal" standard – technical standards for digital cinema are typically adopted within the Society of Motion Picture & Television Engineers ("SMPTE") – DCS specifications are *de facto* functional requirements for equipment manufacturers, as Hollywood studios release their content only for DCI-compatible equipment. Given the open architecture, DCI specifications also have had the effect to promote interoperability between different components of digital cinema equipment to the extent that these components (such as the projector and the DCS) are not physically integrated.⁷
- (22) First generation (also called Series-1) projectors only support first generation DCS. Series-2 projectors generally allow exhibitors to choose among any of the three DCS generations.

4.1.1.1. Views of the Notifying Party

- (23) The Notifying Party submits that the relevant product market is the market for the manufacture and sale of DCS, without further distinguishing by DCS generation or projection technology. All models have the same intended use, the same characteristics and similar prices.

⁵ 2K and 4K refer to different resolutions of the projected image.

⁶ Frame rate, also known as frame frequency or "frames per second" (FPS), is the frequency at which an imaging device produces unique consecutive images called frames. High Frame Rate refers to higher frame rates than typical prior practice.

⁷ For instance, Sony has always physically integrated its projector with the DCS in an all-in-one solution so that exhibitors having purchased Sony's projectors are not able to physically substitute Sony's DCS with a third-party product without incurring the cost of a new projector.

4.1.1.2. Results of the market investigation and Commission's assessment

- (24) The results of the market investigation generally support the Notifying Party's claim.
- (25) On the demand side, all of the respondents to the market investigation considered that DCS are a separate product from digital projectors,⁸ with the exception of Sony's DCS, which constitutes an integrated solution along with the projector. In fact, customers that took part in the market investigation indicated that projectors and DCS have different life cycles and different needs in terms of upgrade. Finally, according to those customers, maintenance would be easier if the projector and DCS were separate components.
- (26) As regards the difference between the second (IMB) and the third generation (IMS) DCS, a number of customers responded that, performance-wise, the two product generations are similar.⁹ Even if some differences could be drawn between the two product generations in terms of cost (IMS are generally cheaper) and of functionalities (for example, High Frame Rate or storage capacity), a number of exhibitors confirmed that it would not make sense to upgrade IMB with IMS outside of the normal replacement cycle.
- (27) Finally, the majority of customers and competitors that responded to the market investigation indicated that, despite some slight differences in price and functionality, Sony's SXR-compatible and DLP-compatible DCS are similar products that compete against each other.¹⁰
- (28) On the supply side, the majority of DCS suppliers that responded to the market investigation considered that DCS are a different and separate product from projectors, TMS and audio processors (although some suppliers noted that with the advent of more integrated solutions, the distinction between projectors and DCS is becoming more blurred).¹¹ As regards different generations of DCS, the majority of suppliers that responded to the market investigation explained that they equally produce both IMBs and IMSs¹². Moreover, IMS are usually significantly cheaper than IMB, but that IMB usually come with a greater storage capacity (since storage is external to the projector so that more space is available).¹³
- (29) In light of the results of the market investigation, and on the basis of the evidence available to it, the Commission concludes for the purposes of assessing the proposed transaction that there is a product market for the manufacture and supply of DCS, comprising both Sony's SXR and DPL image projection technology and all DCS product generations.

8 See replies to Commission questionnaire Q2 to Customers of 25 September 2014, question 3.

9 See replies to Commission questionnaire Q2 to Customers of 25 September 2014, question 4.

10 See replies to Commission questionnaires Q2 to Customers of 25 September 2014, question 5 and Q1 to Competitors of 25 September 2014, question 6.

11 See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, question 4.

12 See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, question 3.

13 See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, question 5.

4.1.2. *Geographic market*

4.1.2.1. *Views of the Notifying Party*

- (30) The Notifying Party submits that the relevant geographic market for the production and supply of DCS is global or at least EEA-wide. First, the DCI-standard is applicable worldwide. Second, the main standalone producers of DCS and the four main digital projector manufacturers (Barco, Christie, NEC and Sony, all of whom are important customers of standalone DCS manufacturers) are active globally and offer the same products across all regions of the world. Third, product specifications are identical in all regions of the world. Fourth, prices are broadly similar across geographic regions.

4.1.2.2. *Results of the market investigation and Commission's assessment*

- (31) On the demand side, the majority of customers that took part in the market investigation responded that they purchase DCS at a worldwide level.¹⁴ A majority of customers also confirmed that a local presence is not required for direct sales or after sales support. However, results were mixed as to whether manufacturers need a local presence for maintenance services to compete effectively.¹⁵ Some customers noted that maintenance should be located at least in the same time zone to ensure a proper service to exhibitors. Other customers explained that, as long as a third-party maintenance company is located in the same territory / time zone, there is no need for the DCS manufacturer to have a local presence.
- (32) On the supply side, all the DCS manufacturers who took part in the market investigation supported the Notifying Party's submission that there are no differences between DCS models across the world.¹⁶ First, all DCS models need to be DCI-compliant in order to be able to play content released by the major Hollywood studios and thus to compete effectively at a global level. This results in similar if not identical technical specifications worldwide. Second, the majority of DCS producers responding to the market investigation supply their products at a worldwide level. However, the market investigation gave mixed results as regards price differences at worldwide level or across different regions.¹⁷ Third, DCS producers that took part in the market investigation indicated that DCS transport cost is negligible compared to the cost of the product and that it does not substantially vary according to the product destination.¹⁸ Fourth, respondents to the market investigation gave indications that a certain local presence is necessary, especially for after sales support and maintenance services. Replies were mixed as regards a local presence for direct sales.¹⁹ On the one hand, DCS suppliers confirmed that maintenance support has to be present at least in the same time zone. On the other hand, different suppliers explained that maintenance can be

14 See replies to Commission questionnaire Q2 to Customers of 25 September 2014, question 11.

15 See replies to Commission questionnaire Q2 to Customers of 25 September 2014, question 10.

16 See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, question 11.

17 See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, question 12.

18 See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, question 13.

19 See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, question 14.

administrated remotely and that third-party companies can be used to make up for the absence of a local branch. In conclusion, the Commission notes that the results of the market investigation were mixed as regards the geographic scope of the market for the manufacture and supply of DCS.

- (33) In any event, it is not necessary to conclude on the exact geographic scope, namely worldwide or EEA-wide, as the proposed concentration does not give rise to serious doubts as to its compatibility with the internal market under any alternative geographic market definition.

4.2. Digital cinema audio

- (34) This is the first time that the Commission has been called upon to analyse the market for the manufacture and supply of digital cinema audio.
- (35) Cinema audio processors receive audio from multiple digital audio sources, including from the DCS, and then route each sound layer to the corresponding speaker in sync with the playback of the images.
- (36) Along with the more traditional 5.1 and 7.1 audio formats²⁰ (which are based on an open, non-proprietary format), in recent years companies like Dolby and Barco/Auro have started developing a new, more immersive, audio format known as “immersive sound” or “3D audio”²¹ that supports many more audio channels and/or so-called “object-based” audio. 3D audio adds an additional overhead dimension to the classic 5.1 or 7.1 audio formats, thus rendering the spectator's experience more realistic.
- (37) The installation of a new 3D audio system by an exhibitor requires significant investment in both equipment (including a dedicated digital cinema audio processor and additional loudspeakers) and room retrofitting (the number of loudspeakers utilised are significantly higher than traditional 5.1/7.1 sound systems).

4.2.1. Product market

4.2.1.1. Views of the Notifying Party

- (38) The Notifying Party submits that given the differences in audio playback features and price, there is a market for digital cinema audio processors supporting only the traditional 5.1/7.1 audio formats (but not immersive sound) that is separate from the market for audio processors capable of supporting immersive or 3D audio on top of the 5.1/7.1 audio formats. As regards price, the Notifying Party submits that the cost for audio processors supporting 5.1/7.1 audio formats is modest (about USD 3000). On the contrary, Dolby's new Atmos-compatible CP850 audio

20 In Surround Sound 5.1, the soundtrack to the movie is broadcast or emitted from six sources in the theatre: from three speakers located just behind the screen (one middle, one left and one right), one speaker each to the left and the right of the auditorium and a subwoofer. The only difference between Surround Sound 5.1 and 7.1 is that in the latter the existing left surround and right surround channels are split into four zones, resulting in 8 separate audio channels.

21 Both terms are used interchangeably in this decision, along with the technical term “Object-based Audio Essence format” used by SMPTE and DCI.

processor is currently sold for a price approximately 10 times higher (USD 33 000).

4.2.1.2. Results of the market investigation and Commission's assessment

- (39) On the demand side, a vast majority of the respondents to the market investigation considered that audio processors are a separate product from the DCS or the projector.²² Furthermore, the majority of the respondents supported the Notifying Party's argument that audio processors that only support the 5.1/7.1 audio formats are different products from processors supporting immersive sound. Important differences arise when considering price (3D audio-processors are much more expensive, and require significant additional investment in retrofitting the theatre with additional loudspeakers and other equipment) and features (3D audio processors require advanced processing power).²³
- (40) On the supply side, the majority of the suppliers responding to the market investigation stated that audio processors are separate products from the projector or the DCS.²⁴ When asked about the differences between audio processors supporting the 5.1/7.1 formats and those compatible with the 3D audio format, the majority of the respondents were of the opinion that these two products would not be comparable.²⁵
- (41) Finally, movie studios responding to the market investigation generally agreed that audio processors are a separate product from the DCS and projectors.²⁶ Secondly, they claimed that audio processors supporting 5.1/7.1 format and those supporting 3D audio format are not comparable in terms of functionality.²⁷ In light of the results of the market investigation, and on the basis of the evidence available to it, the Commission concludes, for the purpose of assessing the proposed transaction, that there is a product market for the manufacture and supply of digital cinema audio processors supporting 3D audio or immersive sound that is separate from the market for the manufacture and supply of digital cinema audio processors supporting only 5.1 and 7.1 audio formats.

4.2.2. Geographic market

4.2.2.1. Views of the Notifying Party

- (42) The Notifying Party submits that the market for audio processors is worldwide in scope as the existing 5.1/7.1 audio formats and the possibly forthcoming standard for immersive audio apply globally. Moreover, audio processor manufacturers are active at a worldwide level, where they offer the same products across different regions.

22 See replies to Commission questionnaire Q2 to Customers of 25 September 2014, question 6.

23 See replies to Commission questionnaire Q2 to Customers of 25 September 2014, question 7.

24 See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, question 7.

25 See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, question 8.

26 See replies to Commission questionnaire Q3 to Movie Studios of 25 September 2014, question 2.

27 See replies to Commission questionnaire Q3 to Movie Studios of 25 September 2014, question 3.

4.2.2.2. *Results of the market investigation and Commission's assessment*

- (43) On the demand side, most respondents to the market investigation indicated that they procure audio processors at the national level and, to a limited extent, at a worldwide or EEA-wide level.²⁸ The majority of customers indicated that a local presence of the manufacturer is not necessary for direct sales. The market investigation provided mixed results as to whether a local presence for after-sales support is needed. Finally, respondents indicated that a local presence is necessary for product maintenance services.²⁹ Respondents explained that local maintenance support should be at least in the same time zone or available within 24 hours. Other respondents noted, however, that manufacturers could use third-party maintenance companies.
- (44) On the supply side, the majority of the respondents to the market investigation indicated that they do not supply different versions of their audio processors to target different geographic regions.³⁰ Responses to the market investigation were mixed as regards the possible price differences of audio processors across the world.³¹ In conclusion, the Commission notes that the results of the market investigation were mixed as regards the geographic scope of the market for the manufacture and supply of digital cinema audio processors. While on the supply side, respondents support a worldwide market, on the demand side, customers highlight the importance of the manufacturer having a local presence.
- (45) In any event, it is not necessary to conclude on the exact geographic scope, namely worldwide or EEA-wide, as the proposed concentration does not raise any competition concerns under any alternative geographic market definition.

5. **COMPETITIVE ASSESSMENT**

5.1. **Horizontal effects as regards Digital Cinema Servers ("DCS")**

- (46) The activities of the Parties overlap with respect to the manufacture and supply of DCS. Dolby produces only first³² and second (IMB)³³ generation DCS, whereas Doremi currently offers first, second (IMB) and third (IMS) generation DCS.³⁴
- (47) As regards the sale of DCS in 2013, the combined market share of the Parties amounted to [40-50]% worldwide (Dolby: [10-20]%; Doremi: [30-40]%) and [70-

28 See replies to Commission questionnaire Q2 to Customers of 25 September 2014, question 12.

29 See replies to Commission questionnaire Q2 to Customers of 25 September 2014, question 13.

30 See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, question 15.

31 See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, question 16.

32 In terms of first generation server, Dolby supplies the Dolby Screen Server DSS200, which supports 2K resolution for both 2D and 3D.

33 In terms of IMB, Dolby supplies the Dolby Integrated Media Block and Screen Server DSS220, where the IMB is installed directly in the cinema projectors. The DSS220 is a DCI-compliant system with built-in support for HFR, 2K, 4K, 2D and HFR 3D playback as an option.

34 Doremi's second generation product is marketed under the name "IMB Showvault" and third generation product under the name "IMS 1000".

80]% at the EEA- level (Dolby: [10-20]%; Doremi: [50-60]%). The tables below give an overview of the Parties' and their main competitors' market shares between 2009 and the first trimester of 2014.

Table 1: DCS Sales worldwide 2009-H1 2014, market shares (in units)

| | Market share 2009 | Market share 2010 | Market share 2011 | Market share 2012 | Market share 2013 | Market share H1 2014 |
|--------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-----------------------------|
| Dolby | [0-5]% | [10-20]% | [10-20]% | [10-20]% | [10-20]% | [10-20]% |
| Doremi | [50-60]% | [30-40]% | [40-50]% | [40-50]% | [30-40]% | [30-40]% |
| Sony | [10-20]% | [20-30]% | [10-20]% | [10-20]% | [5-10]% | [5-10]% |
| Christie | [0-5]% | [0-5]% | [0-5]% | [0-5]% | [10-20]% | [5-10]% |
| GDC | [10-20]% | [10-20]% | [20-30]% | [30-40]% | [30-40]% | [40-50]% |
| Qube | [0-5]% | [0-5]% | [0-5]% | [0-5]% | [0-5]% | [0-5]% |
| Others (incl. USL) | [10-20]% | [0-5]% | [0-5]% | [0-5]% | [0-5]% | [0-5]% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% |

Source: IHS data.

Table 2: DCS sales in the EEA* 2009-H1 2014, market shares (in units)

| | Share 2009 | Share 2010 | Share 2011 | Share 2012 | Share 2013 | Share H1 2014 |
|--------------------|-------------------|-------------------|-------------------|-------------------|-------------------|----------------------|
| Dolby | [20-30]% | [10-20]% | [10-20]% | [20-30]% | [10-20]% | [10-20]% |
| Doremi | [60-70]% | [60-70]% | [70-80]% | [50-60]% | [50-60]% | [50-60]% |
| Sony | [0-5]% | [0-5]% | [5-10]% | [5-10]% | [10-20]% | [10-20]% |
| Christie | [0-5]% | [0-5]% | [0-5]% | [0-5]% | [5-10]% | [10-20]% |
| GDC | [0-5]% | [0-5]% | [5-10]% | [5-10]% | [5-10]% | [5-10]% |
| Qube | [0-5]% | [0-5]% | [0-5]% | [0-5]% | [0-5]% | [0-5]% |
| Others (incl. USL) | [0-5]% | [5-10]% | [0-5]% | [0-5]% | [0-5]% | [0-5]% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% |

*Source: IHS data. * Except for Liechtenstein and Malta which are not tracked by IHS*

- (48) In terms of installed base – the number of DCS installed in cinemas between 2009 and June 2014 – the Parties' combined share is higher, amounting to [50-60]% worldwide (Dolby: [10-20]%; Doremi: [40-50]%) and to [80-90]% at EEA-level (Dolby: [10-20]%; Doremi: [60-70]%).

5.1.1. Views of the Notifying Party

- (49) The Notifying Party submits that the proposed transaction will not lead to any impediment to effective competition on the market for DCS.

- (50) First, the Parties' considerable market position in terms of installed base is due to their first mover advantage as they were the only companies able to offer DCI-compatible DCS at the beginning of the exhibitors' conversion to digital cinema systems. Moreover, the Parties' market shares have been declining since, with competitors such as GDC rapidly taking share ([30-40]% worldwide and [5-10]% in the EEA in 2013).
- (51) Second, Dolby and Doremi are not close competitors, since Doremi's products offer additional functionalities over Dolby's IMB. Moreover, Dolby does not yet offer a third generation DCS whereas competitors such as GDC and Qube do.
- (52) Third, the merged entity will continue to face fierce competition, not only from stand-alone DCS manufacturers such as GDC or Qube, but also from the major global projector manufacturers, three of whom now market their own DCS product (Christie, Barco and Sony).
- (53) Fourth, the Notifying Party submits that barriers to entry and expansion on the DCS market are low. With third generation DCS completely integrated into projectors, projector manufacturers such as Christie and most recently Barco entered the DCS market. Christie – the second-largest projector manufacturer - has followed Sony's all-in-one solution strategy in rendering its new projector incompatible with non-Christie DCS and has captured [10-20]% of worldwide sales ([5-10]% in the EEA) in 2013, the first full year of sales.
- (54) Fifth, the conversion from analogue to digital cinema is essentially completed and new sales will essentially be replacements. Demand is therefore lumpy and cyclical: given the DCS life cycle of seven to ten years, the next surge in demand is to be expected in 2016 at the earliest, when customers start to replace their DCS.
- (55) Finally, given DCI interoperability requirements, switching DCS provider is easy and does not come at a significant cost.

5.1.2. Results of the market investigation

- (56) In general, most respondents to the market investigation did not raise concerns as to potential anticompetitive effects of the proposed transaction on the market for the manufacture and supply of DCS.
- (57) First, all customers that responded to the market investigation indicated that switching from one DCS provider to another is a real option. Some customers even consider that switching is relatively easy: it would take a limited number of hours per cinema screen to make the necessary technical reconfiguration.³⁵ In addition, many customers that replied to the market investigation have already replaced DCS in the past, a portion of which indicated that they have also changed DCS supplier. Few customers pointed out that they have more than one supplier for DCS. To the extent customers do multisource, these are usually cinema chains: for smaller

³⁵ See replies to Commission questionnaire Q2 to Customers of 25 September 2014, question 27.

screens, Sony's integrated projector/ DCS are often used, while DLP technology compatible DCS are used for bigger screens.³⁶

- (58) Second, respondents to the market investigation indicated that they do not expect a large number of DCS to be replaced in the EEA before 2016.³⁷
- (59) Third, the life span of digital projectors and of DCS is different: respondents estimated that DCS life cycle is 8-10 years, while in the case of projectors it is usually over 10 years. While, for this reason, a number of customers expect to replace the two products at different stages³⁸ the large majority of respondents confirmed that most purchases of DCS in the foreseeable future will be linked to all-in-one solutions, combining a projector and an IMS (board) integrated into the projector.³⁹
- (60) Fourth, both competitors and customers generally perceive Dolby's second generation DCS (IMB) and Doremi's IMB to be each other's closest substitutes.⁴⁰ However, the majority of customers that answered to the market investigation also indicated that Doremi's DCS are of premium quality in terms of reliability and performance, and that Doremi is an innovative competitor in DCS, while this is not the case for Dolby.⁴¹ As regards the third generation DCS, respondents do not consider Dolby and Doremi to be close competitors, the closest competitors to Doremi's IMS being GDC, followed by USL and Christie.⁴²
- (61) Fifth, as regards the impact of the proposed transaction, most respondents do not expect changes in the level of competition on the DCS market or as regards the price of DCS post-transaction. Some respondents indicated that for a number of

36 See replies to Commission questionnaire Q2 to Customers of 25 September 2014, question 25.

37 See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, question 29 and replies to Commission questionnaire Q2 to Customers of 25 September 2014, question 23. Respondents also indicated that Series 1 projectors in use in the EEA, which are likely to be replaced earlier than Series 2 projectors, would certainly represent less than 20% of the total number of projectors in use. (See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, question 23 and replies to Commission questionnaire Q2 to Customers of 25 September 2014, question 17).

38 See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, questions 24, 26 and 27 and replies to Commission questionnaire Q2 to Customers of 25 September 2014, questions 18, 20 and 21.

39 See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, question 30 and replies to Commission questionnaire Q2 to Customers of 25 September 2014, question 24.

40 See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, questions 35 and 37 and replies to Commission questionnaire Q2 to Customers of 25 September 2014, questions 29 and 31.

41 See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, questions 40, 42 and replies to Commission questionnaire Q2 to Customers of 25 September 2014, questions 34, 35, 36 and 37.

42 See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, question 37 and replies to Commission questionnaire Q2 to Customers of 25 September 2014, question 31.

years the price for DCS has been decreasing in the EEA.⁴³ Moreover, in case the merged entity decided to limit the supply of DCS, all competitors consider that they could easily increase their production capacity and cover customer demand.⁴⁴

- (62) Sixth, two out of 15 customers responding to the market investigation raised concerns that post-transaction customer choice in terms of DCS may be reduced. However, they also pointed out that there would still be some viable options in the market, pointing to new entrants such as Christie or Barco.⁴⁵
- (63) Finally, all respondents indicated that greenfield entry on the market for DCS requires compliance with high standards, R&D investment, evolving requirements in terms of DCS features and technology. Nevertheless, expansion from a neighbouring market is feasible: some respondents pointed to the recent entry into the DCS market by projector manufacturers such as Christie and Barco and Cinemeccanica.⁴⁶

5.1.3. *Commission's assessment*

- (64) In light of the results of the market investigation, and on the basis of the evidence available to it, the Commission considers that the proposed transaction will not give rise to serious doubts as to its compatibility with the internal market as regards the market for the supply of DCS.
- (65) First, the Commission notes that while Dolby and Doremi have a high share of the installed base both worldwide and at EEA level, this can be considered to be mainly the reflection of a first-mover advantage, rather than a reflection of their current market power. A number of market participants pointed out that Dolby and Doremi were indeed the first DCI-compliant suppliers on the DCS market. Moreover, as it can be seen from the tables 1 and 2 above, the Parties' market share have been constantly decreasing from 2009 to 2014 both at worldwide as well as EEA-level.
- (66) Second, a number of other DCS suppliers such as Sony, GDC, Christie and Qube are active on the DCS market both at the worldwide and the EEA-wide level. Some of these competitors, such as Christie, are new entrants in this market, offering all-in-one solutions (integrating IMS and projector) that are closed to other DCS manufacturers. Christie's all-in-one solution, since it [...] the DCS market in 2012, has managed to gain rapidly market share (up to around 10% in the first trimester of 2014 both at worldwide and EEA-level). Moreover, the responses to the market investigation indicate that there is a trend towards integrated solutions. Some of the respondents point out that in the future standalone DCS manufacturers could have potentially a weaker position in the market and that they would either have to

43 See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, questions 44, 45 and replies to Commission questionnaire Q2 to Customers of 25 September 2014, questions 38, 39.

44 See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, question 46.

45 See replies to Commission questionnaire Q2 to Customers of 25 September 2014, question 40.

46 See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, questions 47, 48 and 49 and replies to Commission questionnaire Q2 to Customers of 25 September 2014, question 41.

* Should read "entered".

partner with projector companies or strongly differentiate their stand-alone DCS in order to compete successfully in the market.⁴⁷

- (67) Third, the Commission also notes that despite possibly high barriers to entry on the DCS market due to a number of factors such as R&D costs and necessity for DCI-compliance, there has been recent entry of projector manufacturers such as Christie, Barco, and Cinemeccanica.
- (68) Fourth, the Commission notes that, unlike Doremi, Dolby does not supply a third generation DCS. In terms of second generation product, while respondents to the market investigation consider that Dolby and Doremi are close competitors, the Commission notes that Dolby's DCS does not support some of the features which market participants indicated as important from a demand-side perspective such as dual projector support, support for 3D audio, support of 3G SDI port and support of HDMI 3D port.⁴⁸ Among these features, Dolby's IMB only supports 3D audio, while Doremi's IMB supports all these features, and so do the IMBs of other competitors. Moreover, the market investigation gave indications that Doremi's IMB, unlike Dolby's, could be considered of premium quality. Furthermore, the fact that Dolby's IMB is not a close substitute to Doremi's is also supported by internal documents of the Notifying Party.⁴⁹ Finally, in terms of the newest DCS products (IMS), a number of other competitors such as GDC, Qube, USL and Barco are offering third generation DCSs incorporating the features which customers indicated as important. Thus, Doremi is not the only manufacturer supplying third generation DCS to the market. For these reasons, the Commission takes the view that Dolby and Doremi's IMB are not necessarily each other's closest substitutes even for second generation DCS, and that they are not close competitors for third generation DCS.
- (69) Fifth, the Commission considers, based on the responses to the market investigation, that customer switching to another supplier of DLP compatible DCS is a real option and does not incur considerable difficulties in terms of time and costs of switching.
- (70) Finally, the large majority of customers and competitors consider that the transaction is unlikely to have an influence on the level of [...] and price of for DCS. Given the presence of other well-placed competitors and the evidence of spare capacity in the market, the Commission considers that it is unlikely that the merged entity will be in a position to raise prices for DCS post-transaction.
- (71) For completeness, the Commission notes that a third party submitted that the proposed transaction could result in the merged entity's DCS products dropping

47 See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, question 30.2.

48 See replies to Commission questionnaire Q2 to Customers of 25 September 2014, question 32, and to Commission questionnaire Q1 to Competitors of 25 September 2014, question 38.

49 The Notifying Party's internal documents indicate [BUSINESS SECRET] Annex no. 05.019 to the Form CO.

* Should read "competition".

support for the additional frame rate ("AFR") standard.⁵⁰ DCI specifications require support for 24 and 48 frames per second ("fps"), which are the speeds that Hollywood film makers typically use. Certain frame rates within AFR, such as 25 fps, are important to certain non-Hollywood film makers mainly due to technical considerations,⁵¹ but DCS support for AFR is not required for DCI compliance. The third party submits that, in contrast to Doremi products that have rapidly supported all standardised frame rates, Dolby has been slow to support AFR in their DCS, presumably due to cost considerations related to product development and testing.

- (72) The Commission notes that, according to the third party, Dolby's more recent DCS – the IMB – does support most AFR speeds.⁵² Second, the third party itself notes that a number of competitors also support AFR including Qube, USL, Barco and Sony (while information on GDC and Christie was not available to the third party). Therefore, the merged entity would risk losing sales to competitors if it did not support AFR in its new products. Third, the merged entity does not seem to have anything to gain by dropping support for AFR on its installed DCS that currently support certain AFR, but instead would risk reputational damage with exhibitors who wish to play back films running in AFR speeds.⁵³ Fourth, in any event, film makers and their distributors can provide a transcoded/ re-mastered version of a film in DCI-required speeds (24 or 48 fps) to exhibitors who run DCS that do not support AFR. While this puts some additional cost on the film makers and/or its distributors, the third party notes that this practice can currently be observed in the market.
- (73) In light of the above, and on the basis of the evidence available to it, the Commission concludes that the proposed transaction will not give rise to serious doubts as to its compatibility with the internal market as regards the market for DCS both at worldwide and EEA-level.

50 This is the voluntary ISO standard 26428-11 (see <https://www.iso.org/obp/ui/#iso:std:iso:26428:-11:ed-1:v1:en>). It had been published originally by SMPTE in 2009 (ST428-11-2009). SMPTE revised its voluntary standard in 2013 (ST428-11-2013) to include high frame rates that allow 3D projection (48, 50 and 60 fps/eye, requiring the equipment to run at 96, 100 or 120 fps).

51 Notably, local frequency of alternating current that impacts filming equipment. Note, however, that – according to the third party – additional equipment can be used to shoot films at 24 or 48 fps even where the local current frequency is unfavourable to these speeds.

52 The third party submits that Dolby's IMB does not support 50 fps/ eye HFR 3D and 100 fps 2D. However, Dolby product catalogue states that 50 fps/eye 3D is supported and that 100 fps 2D is subject to availability (See "Dolby Cinema Products Catalog", Annex A.013 to the Form CO). In any case, it seems few films currently use 50 fps/eye 3D as the third party notes itself that this frame rate was used by one film only.

53 This is in case the merged entity were to release updates that withdraw support for AFR and that exhibitors choose to install. The third party itself notes the prospect that in France, cinemas may soon legally be required to play films in 25 fps due to a recently adopted AFNOR standard. Such standards are typically rendered mandatory by law.

5.2. Conglomerate effects

- (74) Dolby (but not Doremi) is active in digital audio processors. DCS and audio processors are closely related neighbouring markets, as both components are in practice necessary in a Digital Cinema system.⁵⁴
- (75) In 2012, Dolby brought to market its new audio processor supporting immersive sound for cinema, Dolby Atmos. The Belgian companies Barco (the leading projector manufacturer) and Auro jointly market a competing 3D audio technology called Auro 11.1. Potential entrants include US-based DTS, which is already marketing a 3D audio solution for home theatres, but not for cinema theatres.
- (76) 3D audio in cinemas is a nascent business. By the end of 2014, less than 1% of cinema theatres in the world will support any kind of 3D audio system. Dolby's internal commercial goal is to have installed [BUSINESS SECRET] Atmos screens worldwide by the end of 2014.⁵⁵ Barco states on its website that, by the end of 2014, Auro will be deployed in about 450 auditoriums worldwide. This translates into a worldwide market share (in terms of installed base) of [60-70]% for Dolby Atmos and [30-40]% for Barco/Auro, but with a much larger unaddressed market potential. Internal Dolby documents of February 2013 set a commercial goal of Atmos being used with [BUSINESS SECRET] of digital screens within 10 years.
- (77) The merged entity's installed base of DCS sold between 2009 and June 2014 is significant, representing [50-60]% of DCS devices worldwide and [80-90]% in the EEA.

Table 3: Installed base of the Parties' and main competitors (in units)

| Company | Installed base (2009 – June 2014) | |
|-----------------|-----------------------------------|-----------------|
| | Worldwide | EEA* |
| Dolby | [10-20]% | [10-20]% |
| Doremi | [40-50]% | [60-70]% |
| Combined | [50-60]% | [80-90]% |
| Sony | [10-20]% | [5-10]% |
| Christie | [0-5]% | [0-5]% |
| GDC | [20-30]% | [0-5]% |
| Qube | [0-5]% | [0-5]% |
| Others | [0-5]% | [0-5]% |

Source: The Notifying Party, based on IHS data

* Except for Liechtenstein and Malta which are not tracked by IHS

- (78) Currently, several manufacturers' DCS – including Doremi's DCS – support Barco/Auro 11.1. Moreover, Dolby has granted Atmos licenses to other DCS manufacturers including Barco.

⁵⁴ The Notifying Party submits that technically, exhibitors do not absolutely need a sound processor to be able to play back a movie. However, in order to manage the levelling of the audio, EQ and audio conditioning, in practice every cinema theatre is equipped with both a DCS and an audio processor.

⁵⁵ 104 Atmos systems have been installed in the EEA and a further [BUSINESS SECRET] are scheduled to be installed until the end of 2014.

- (79) The Commission has therefore examined, first, whether the merger could lead to a foreclosure of 3D audio providers competing with Dolby through a leverage of the merged entity's strong installed base in DCS into the nascent market for 3D audio processors. Second, the Commission has investigated the reverse scenario whereby the merged entity could use its position in the emerging market for 3D audio processors to strengthen further its current position in DCS.

5.2.1. Leveraging the merged entity's position in DCS into 3D audio

5.2.1.1. *Views of the Notifying Party*

- (80) According to Dolby, the rationale for the proposed concentration is to integrate Doremi's superior DCS with Dolby's Atmos technology to drive down cost and to create a product that is differentiated from the products integrating projectors and DCS (provided by Christie and Sony) or integrating projector, DCS and 3D audio (Barco).
- (81) The Notifying Party submits that the merged entity will not have the ability to foreclose competing 3D audio systems from its DCS installed base or newly sold DCS because, first, an open industry standard for immersive sound is expected to be published before the end of 2015. The Notifying Party points to the statement by the Chair of the SMPTE Working Group on Immersive Sound, Mr Peter Ludé, in the newsletter "SMPTE Newswatch" of 7 August 2014, according to which "he is hopeful a standard will be ready or close to ready for publishing before late 2015." Furthermore, it submits that Dolby does not control, or cannot block, the adoption of an open industry standard for an *Object-based Audio Essence format*, as immersive sound is technically called by SMPTE. Dolby submits that it has publicly and repeatedly declared its intent to support the open standard and that it is actively working with SMPTE to develop a standard.
- (82) Second, the Notifying Party submits that a forthcoming – voluntary – SMPTE standard on immersive sound would need to be respected by DCS manufacturers in order to be compliant with Hollywood movie studios' DCI specifications. It points to a public DCI statement of 9 July 2014 that "*DCI expects industry adherence to the upcoming SMPTE common Object-based Audio Essence format standard when published*". In September 2013, DCI had published an addendum to the Digital Cinema System Specification ("DCSS") regarding digital cinema object-based audio.⁵⁶ The addendum establishes five requirements for object-based audio that must be satisfied "to assure interoperability with and continued compliance to the DCSS". The requirements include that the object-based audio essence shall "be represented in a common format standardised by SMPTE that is interoperable with the DCSS architecture."⁵⁷ Therefore, the Notifying Party submits that if a DCS blocks or otherwise hinders the playback of any part of a DCI-compliant movie (including the immersive sound track), then that DCS would cease to be DCI-compliant and thereby lose access to the DCS market.

56 Object-based audio addendum dated 9 September 2013, available at: http://dcimovies.com/specification/DCI_Object-Based_Audio_Addendum_2013-0909.pdf.

57 See paragraph 3.1.

- (83) Even if an open SMPTE standard for immersive sound that is endorsed by DCI did not come forward, the Notifying Party submits that the merged entity would not have the ability or incentive to render Dolby/ Doremi servers incompatible with 3D audio solutions that compete with Atmos.
- (84) First, it submits that the merged entity does not have market power in the market for DCS for the reasons set out in section 5.1.1 above.
- (85) Second, a potential foreclosure strategy would result in increasing exhibitors' cost for a 3D audio system by the cost of a DCS, which represents approximately an 8% increase compared to the total estimated investment necessary for upgrading a theatre auditorium to 3D audio equipment. This is because a DCS trades for about USD 8 000, while the theatre refit for an Atmos installation currently costs approximately a total of USD 100 000 (USD 70 000 for additional loudspeakers and amplifiers that are not sold by the merged entity; and approximately USD 30 000 for the Dolby Atmos audio processor). If the merged entity were to foreclose third party DCS and an exhibitor (currently using a Doremi DCS) wanted to install a 3D audio solution competing with Atmos, the exhibitor's cost would increase by the cost of a new DCS (approximately USD 8 000 or 8% of the total installation cost, assuming that the total installation cost of the competing 3D audio solution is the same as for Atmos). Given this cost structure where the cost of switching DCS is marginal compared to the cost of retrofitting an auditorium with a 3D audio installation, the Notifying Party submits that the hypothetical foreclosure strategy would not guarantee that customers choose Atmos over competing 3D audio solutions. For instance, Barco/Auro could absorb some or all of the additional cost of buying a new DCS. Furthermore, the merged entity would lose share in the DCS market to competitors, making the strategy unprofitable, and cause Dolby reputational harm with exhibitors.
- (86) Third, the Notifying Party submits that Barco could retaliate by, for instance, shutting out Atmos of its new integrated projector and server line, or making it difficult for the merged entity's servers to function with Barco projectors, which represent more than 40% of new installations in the EEA in 2013.
- (87) Fourth, the Notifying Party submits that the existence of the non-proprietary 5.1 and 7.1 open standards for digital surround sound will serve a *de facto* competitive constraint on the merged business, given that 3D audio is not, and will not become in the foreseeable future, a "must have" for exhibitors.

5.2.1.2. *Results of the market investigation*

- (88) In general, the vast majority of respondents to the market investigation do not expect the proposed transaction to have any adverse impact of a conglomerate nature.⁵⁸ However, a minority of respondents submit that the merged entity could leverage its strengthened DCS installed base into the nascent 3D audio market in order to foreclose actual or potential 3D audio competitors and establish Atmos as the *de facto* standard for 3D audio.

⁵⁸ See in particular replies to Commission questionnaire Q1 to Competitors of 25 September 2014, questions 68 and 78, and to Commission questionnaire Q3 to Movie Studios of 25 September 2014, question 28.

- (89) First, with respect to the merged entity's ability to render Dolby/ Doremi's significant installed base of DCS incompatible with non-Dolby 3D audio solutions, the results of the market investigation support the Notifying Party's submission that a voluntary, open standard for 3D audio – endorsed by the movie studios – is likely to be published in the course of 2015. Most competitors with knowledge of the standard discussions within SMPTE as well as all movie studios responding to the market investigation find it a realistic timeline for SMPTE to publish, or be close to publishing, a voluntary 3D audio standard before late 2015.⁵⁹ The vast majority of competitors expressing an opinion also believe that the agreement on such a standard by late 2015 will be sufficiently ahead of when most exhibitors expect to decide whether to invest in immersive sound systems.⁶⁰ All respondents expressing an opinion expect the 3D audio format standard to be open and to support various implementations.⁶¹
- (90) Second, most competitors expressing an opinion consider that the movie studios will be equally effective as in the past in ensuring that DCS manufacturers respect a possible forthcoming open SMPTE standard for immersive sound, in order to be DCI-compliant and be able to play back their movies.⁶² Moreover, a number of movie studios indicate that they support an open 3D audio standard and that they would consider measures to help adherence to such a standard by DCS manufacturers, for instance by making their content only available to theatres with compliant equipment, or mixing it exclusively in the open 3D audio format.⁶³
- (91) While agreeing that DCI may be effective in ensuring compliance with DCS, one respondent submits that another possible outcome is that Dolby would not support the forthcoming SMPTE open standard on the merged entity's installed base of DCS. In this case, the movie studios would need to decide whether their movies would be available for playback on the merged entity's DCS, which would involve a significant financial risk for the studios given the merged entity's large installed base. Therefore, the respondent believes that Dolby has, post-transaction, countervailing power to negotiate DCI rules recognising Dolby Atmos as a *de facto* standard.
- (92) Third, a majority of customers expressing a view indicated that if Dolby were to withdraw support for non-Dolby 3D audio solutions on Doremi's DCS, they would either replace the DCS or abandon the plan to invest into 3D audio.⁶⁴

59 See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, question 64, and to Commission questionnaire Q3 to Movie Studios of 25 September 2014, question 25. One respondent contends, however, that Dolby is trying to slow down the process as much as possible, presumably in order to gain time and establish Atmos as a *de facto* standard. Another respondent submits that the standard setting process moves forward at a relatively slow pace.

60 See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, question 65.

61 See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, question 66, and to Commission questionnaire Q3 to Movie Studios of 25 September 2014, question 26.

62 See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, question 67.

63 See replies to Commission questionnaire Q3 to Movie Studios of 25 September 2014, question 27.

64 See replies to Commission questionnaire Q2 to Customers of 25 September 2014, questions 54-55.

- (93) Fourth, respondents to the market investigation indicated that 3D audio is not, and is unlikely to become, a "must have" for cinemas in the next three years. The vast majority of customers indicate that the likely uptake will be limited to less than 10% of screens in the EEA in the next 3 years due to the very high retrofitting cost.⁶⁵ While 3D audio can be one of several differentiating features of cinemas and in particular of premium auditoriums in a multiplex cinema,⁶⁶ a large majority of customers and a majority of competitors that responded to the market investigation consider it unlikely that 3D audio will become a must-have.⁶⁷

5.2.1.3. Commission's assessment

- (94) First, the results of the market investigation support the Notifying Party's argument that an open, non-proprietary standard for immersive sound is likely to be published before the end of 2015.
- (95) Second, in light of the responses to the market investigation, the Commission considers that Dolby would likely need to respect such an open standard in order to be compliant with DCI's specifications. Movie studios have indicated that since they control the content, they would have ways to encourage compliance with DCSS specifications. As to the scenario submitted by one respondent whereby the merged entity could *de facto* veto DCI specifications due its large combined installed base of DCS, the Commission considers this to be implausible. Rather than not making available its movies on every installed DCS of the merged entity – which would indeed be financially risky for movie studios– the studios could pursue options that have none or very limited financial risks for them but would be a major risk for the merged entity. For instance, the studios could refuse to make their content available in auditoriums that run Dolby's new, non-compliant DCS model and/or that install DCS updates with Dolby software rendering the existing DCS incompatible with the open standard, on the grounds that this model or software update, respectively, does not implement the open standard. Given that exhibitors would run the risk of losing access to premium content by the major Hollywood studios, these measures would presumably suffice to incentivise exhibitors not to purchase non-DCI compliant DCS devices or not to run non-DCI compliant software updates on the DCS that they own.⁶⁸ This would affect Dolby's capacity both to sell new DCS devices and to successfully update its installed base, and harm Dolby's reputation with its customers.

⁶⁵ See replies to Commission questionnaire Q2 to Customers of 25 September 2014, question 43. Competitors are more optimistic, with the majority of competition indicating an uptake up to 20% of auditoriums, and a minority believing uptake would be higher. See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, question 50.

⁶⁶ See replies to Commission questionnaire Q2 to Customers of 25 September 2014, questions 44-45.

⁶⁷ See replies to Commission questionnaire Q2 to Customers of 25 September 2014, question 46, and to Commission questionnaire Q1 to Competitors of 25 September 2014, question 53.

⁶⁸ Respondents to the market investigation generally indicated that either exhibitors, or the third-party integrators with which they contract, perform updates of their DCS, not the manufacturer of the DCS. Therefore, Dolby does not have direct control over its DCS installed base. See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, question 25.

- (96) Even if a standard did not come forward, the Commission considers that, in the light of the market investigation results, the merged entity would likely lack the ability and incentive to pursue a foreclosure strategy.
- (97) The Commission considers, for the reasons set out in section 5.1.3 above (including that customers have a sufficient choice of viable options for purchasing a new DCS, and can swap out a DCS in their digital cinema system with sufficient ease), that the merged entity does not have market power with respect to new DCS sales, given in particular, the range of competitors and new entrants and relative ease of replacing a DCS in the digital cinema system. For the conglomerate concern investigated here, it is also relevant, however, to enquire whether the merged entity can exercise market power with respect to the Parties' existing installed base, that is, before the end of a DCS' life cycle. Thus, some respondents to the market investigation submit that the merged entity could foreclose competing 3D audio solutions from the existing installed Doremi DCS. For instance, Dolby could seek to persuade exhibitors using the merged entity's DCS to allow the installation of software / firmware updates on their DCS that would result (amongst others) in hampering interoperability with non-Dolby 3D audio solutions such as Auro 11.1 (which is currently supported by Doremi's DCS).
- (98) First, in light of the results of the market investigation, the Commission considers that such a foreclosure strategy would likely not be successful in driving customers to Dolby's 3D audio product. Customers indicated they would pursue other options, notably to replace the merged entity's DCS with a non-Dolby product, or abandon altogether the plan to invest in 3D audio. Also some competitors, who submit that foreclosure would be likely, still concur with the customers' view.⁶⁹ One states "[t]o replace the Doremi server would be the most reasonable for cost and effort but would require faith that a competing immersive audio system will be successful." Moreover, those competitors who consider that exhibitors would likely convert to Dolby Atmos give reasons that are not merger-specific, such as the possibility that Dolby may subsidise part of the cost of installations or that the alternative 3D audio solution has less content available in its format (partly because Dolby invests more into sponsoring movie studios to create 3D audio sound tracks⁷⁰). In any event, the merged entity's competitors could also deploy these tactics as a counter-strategy.
- (99) Second, the Commission notes that the total cost of both purchasing a new, non-Dolby DCS and installing Auro 11.1 – Dolby's only current competitor in 3D audio – would seem to be less than the total cost of installing Dolby's 3D audio solution. Auro itself states that the total cost of upgrading an auditorium from an existing 7.1 system to Auro 11.1 is about double the price of the 7.1 system, while Dolby Atmos currently costs almost the triple.⁷¹ This is because Atmos – depending on the auditorium size and setup – typically uses more speakers⁷² than Auro 11.1 and

⁶⁹ See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, question 69 and 70.

⁷⁰ Today, Dolby pays for the Atmos-related post-production costs (mixing, sub-titling, dubbing) and distribution costs of most movies that are made available in Atmos.

⁷¹ See reply by Auro to Commission questionnaire Q1 to Competitors of 25 September 2014, question 56.

⁷² Dolby Atmos supports up to 64 unique speaker feeds.

requires separate amplifiers for each speaker while Auro 11.1 uses speaker arrays that need fewer amplifiers. Estimates by customers and competitors of the total cost of installing Atmos in an auditorium from a 7.1 system range widely between EUR 60 000 and EUR 150 000 or even more, depending on the size of the auditorium and the suitability of the building structure (due to the need to suspend speakers from the ceilings).⁷³ Assuming the Notifying Party's submission that the total cost of installation of Atmos is USD 100 000 and Auro's submission that an upgrade to Auro costs approximately two thirds of an upgrade to Atmos, the total cost of installing Auro 11.1 and replacing the DCS would likely be considerably less expensive than installing Dolby Atmos.⁷⁴ Therefore, a foreclosure strategy would likely not be successful in driving customers to Dolby's 3D audio product as it would be still more economical for an exhibitor with a preference for Auro 11.1 to purchase that solution and a new DCS.

- (100) Third, in light of the results of the market investigation, the Commission considers that 3D audio is not, and is unlikely to become in the foreseeable future, a "must have" feature for exhibitors to be able to compete for cinema-goers.
- (101) In light of the above, and on the basis of the evidence available to it, the Commission concludes that the proposed transaction would not result in conglomerate effects whereby the merged entity could use its installed base in the market for DCS to foreclose competing 3D audio system and therefore does not give rise to serious doubts as to its compatibility with the internal market as regards the nascent market for 3D audio processors.

5.2.2. Leveraging the merged entity's position in 3D audio into DCS

- (102) Dolby has granted licenses to competing DCS manufacturers allowing them to access information about security, packaging and the streaming protocol for Atmos. Today, the DCS of GDC, Christie, Doremi and Qube are already compatible with the Dolby Atmos format, and Sony and USL are on the path to being Atmos-compatible. The Commission has investigated a scenario whereby the merged entity could use its position in the emerging market for 3D audio processors to further strengthen its position in DCS, for instance by withdrawing licenses to competing DCS manufacturers.

5.2.2.1. Views of the Notifying Party

- (103) The Notifying Party submits that it has no ability to leverage its position into the DCS market because Dolby Atmos has not, and will not have, any significant degree of market power in relation to 3D audio processors. First, every movie will still be available in the 5.1 open-format, which has been the industry standard for approximately twenty years and will continue to be the norm. 3D audio is a nice-to-have technology but merely optional.

⁷³ See replies to Commission questionnaire Q2 to Customers of 25 September 2014, question 48, and to Commission questionnaire Q1 to Competitors of 25 September 2014, question 56.

⁷⁴ If Auro 11.1 costs two thirds of the total installation cost of Atmos ($2/3 * \text{USD } 100\,000 = \text{USD } 66\,666$), $\text{USD } 66\,666 + \text{USD } 8\,000$ for a new DCS is $\text{USD } 74\,666$, which is well below the assumed Atmos cost of $\text{USD } 100\,000$. This would continue to be true as long as the total cost for Atmos would not decrease by more than 25% provided the total cost for Auro 11.1 would remain the same.

- (104) Second, conversion cost of a theatre auditorium is expensive and difficult to recover via cinema ticket prices, which also acts as a constraint on exercising any market power.
- (105) Moreover, the Notifying Party submits that it does not have the incentive to foreclose. First, it is in Dolby's commercial interest to render Atmos compatible with as many servers as possible, so that when the filmmakers and the studios produce and distribute a movie with Atmos format, they can be confident that the movie will be played back in the highest number of Atmos-compatible cinemas. Dolby already had the possibility, pre-merger, to deny licenses to third-party DCS manufacturers. However, instead it has chosen to license six DCS suppliers (including Doremi) to render their servers compatible with Atmos. Refusing to support third party immersive audio products would alienate the Hollywood movie studios and may lead them not to mix their movies in the Atmos format, fearing that their movies would only be played in the limited number of cinemas equipped with Atmos.
- (106) Second, a foreclosure strategy would not be economically rational since the Atmos processor is considerably more expensive than a typical DCS.⁷⁵ Foregoing sales of Atmos processors by preventing third-party DCS from being compatible with the Atmos technology would drive the broader adoption of the competing Auro technology at the expense of Atmos. Profits realised on the sale of an Atmos system are likely to be higher than on the sale of a DCS.
- (107) Third, the forthcoming standard for immersive audio will allow theatres that select one rendering solution to be able to play all movies that include immersive sound without needing multiple rendering solutions.
- (108) Finally, the Notifying Party submits that a large part of the DCS market would remain unaffected by a foreclosure strategy, since 3D audio will not be taken up by many theatres.⁷⁶ Given that less than 1% of all screens globally have adopted 3D audio technology at this point in time, and allowing for some growth in the share of cinema adopting Atmos in the coming years, a foreclosure strategy could only affect a small share of the DCS market and would therefore not prevent other DCS providers from effectively competing in the DCS market.

5.2.2.2. *Results of the market investigation*

- (109) In general, the vast majority of respondents to the market investigation do not expect the proposed transaction to have any adverse impact of a conglomerate

⁷⁵ According to the Notifying Party, the current *list* price of a Dolby 3D audio processor (CP850) is about USD 33 000, as compared with the typical list price of a DCS of around USD 8 500. The list price of the CP850 includes room commissioning, design and review, and the set-up of the room by a Dolby engineer. The *actual* price paid today for a Dolby CP850 will be closer to [BUSINESS SECRET] The negotiated street price for a digital server varies, depending, for instance, on the number of DCS that are ordered by the exhibitor. Where the server is being sold on its own, Dolby would estimate the average street price to be somewhere between [BUSINESS SECRET]

⁷⁶ Dolby estimates that Atmos will contribute no more than [BUSINESS SECRET] per year of share growth for Dolby DCS for the period 2016-2023.

nature whereby the merged entity could use its position in 3D audio to foreclose DCS competitors.⁷⁷

- (110) First, respondents to the market investigation unanimously indicated that movies will continue to be supplied, for the foreseeable future, in the traditional, non-proprietary 5.1 and 7.1 digital audio formats.⁷⁸
- (111) Second, while respondents to the market investigation consider that entry is difficult due to significant investments in R&D and relations with content creators to work in and support the format, they nevertheless indicated that new companies – some with a track record in audio solutions – may enter that market in the foreseeable future.⁷⁹
- (112) Third, the results of the market investigation support the Parties' submission that the cost of retrofitting theatres with 3D audio systems is high. Estimates by customers and competitors of the total cost of installing Atmos in an auditorium from a 7.1 system range widely between EUR 60 000 and EUR 150 000 or even more, depending on the size of the auditorium, the building structure (due to the need to suspend speakers from the ceilings).⁸⁰ Moreover, respondents converge in their assessment that it is more difficult to persuade cinema-goers to pay a higher ticket fee for a movie shown in 3D audio than for a movie shown in 3D video.⁸¹
- (113) Fourth, the vast majority of customers, competitors and movie studios expressing a view consider that a strategy to limit Dolby's 3D audio solution to the merged entity's DCS would not make business sense. Dolby would lose potential customers of its 3D audio solution that have installed or prefer buying a third party DCS, thereby likely slowing down the take-up of its 3D audio solution in the marketplace.⁸²

5.2.2.3. *Commission's assessment*

- (114) The Commission considers that the merged entity does not have the ability to foreclose competing manufacturers from the DCS market by using its current leading position in the nascent market for 3D audio processors. First, the

⁷⁷ See in particular replies to Commission questionnaire Q1 to Competitors of 25 September 2014, questions 72 and 78, replies to Commission questionnaire Q2 to Customers of 25 September 2014, questions 56 and 62, and to Commission questionnaire Q3 to Movie Studios of 25 September 2014, questions 29 and 31.

⁷⁸ See replies to Commission questionnaire Q2 to Customers of 25 September 2014, question 47, and to Commission questionnaire Q1 to Competitors of 25 September 2014, question 54.

⁷⁹ See replies to Commission questionnaire Q1 to Competitors of 25 September 2014, questions 59 to 62, and to Commission questionnaire Q3 to Movie Studios of 25 September 2014, question 20-23.

⁸⁰ See replies to Commission questionnaire Q2 to Customers of 25 September 2014, question 48, and to Commission questionnaire Q1 to Competitors of 25 September 2014, question 56.

⁸¹ See replies to Commission questionnaire Q2 to Customers of 25 September 2014, question 49, and to Commission questionnaire Q1 to Competitors of 25 September 2014, question 57.

⁸² See replies to Commission questionnaire Q2 to Customers of 25 September 2014, question 56, to Commission questionnaire Q1 to Competitors of 25 September 2014, question 72, and to Commission questionnaire Q3 to Movie Studios of 25 September 2014, question 29.

Commission considers that given that 5.1 and 7.1 formats for digital surround sound are based on open, non-proprietary standards and that content providers will continue to make available movies in these audio formats in the foreseeable future, these traditional formats that do not require any new investments will be a *de facto* competitive constraint on the market for 3D audio processors.

- (115) Second, one other competitor, Barco / Auro, is already active in the 3D audio processor market with considerable initial success and will hold approximately [30-40%] of the worldwide market (measured by number of converted screens) by the end of 2014. Moreover, the response to the market investigation gave concrete indications that other companies may enter the 3D cinema audio processor market.
- (116) Third, if an open standard for immersive audio is adopted and successfully implemented, theatres would be able to play all movies that include immersive sound with any rendering solution (3D audio processor and related audio equipment). In other words, if third party DCS do not support Atmos because Dolby no longer licences the technology to them, this could create a market opportunity for competing 3D audio solutions that could be supported by third party DCS.
- (117) As regards incentives to foreclose, the Commission considers that, in light of the results of the market investigation, it is unlikely that a foreclosure strategy would be economically rational. First, prices for 3D audio processors are considerably higher than for DCS. Second, absent an open standard, the Atmos format's success partly depends on movie studios being willing to provide their content in that format. A broad base of Atmos-equipped auditoriums is therefore important, but the foreclosure strategy would necessarily lead to fewer Atmos-auditoriums.
- (118) As to the likely impact, the Commission considers that, in light of the results of the market investigation, such a foreclosure strategy would likely affect only a small part of the DCS market. While internal documents by Dolby identify a commercial goal of equipping [BUSINESS SECRET] of theatre screens within 10 years, the vast majority of customers indicated that they expect an uptake limited to less than 10% of screens in the EEA in the next 3 years (see also paragraph (93) above). Therefore, if Dolby had the ability and incentive to foreclose rival DCS manufacturers from Atmos, the strategy would not prevent DCS providers from competing in a substantial part of the DCS market.
- (119) In light of the above, the Commission concludes that the proposed transaction would not result in conglomerate effects whereby the merged entity could use its leading position in the (emerging) market for 3D audio processors to foreclose competing DCS manufacturers and therefore does not give rise to serious doubts as to its compatibility with the internal market as regards the market for DCS.

6. CONCLUSION

- (120) For the above reasons, the European Commission has decided not to oppose the notified operation and to declare it compatible with the internal market and with the EEA Agreement. This decision is adopted in application of Article 6(1)(b) of the Merger Regulation and Article 57 of the EEA Agreement.

*For the Commission
(signed)
Joaquín ALMUNIA
Vice-President*