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Datasheet for the decision of 27 October 2021

Case Number: T 0668/17 - 3.5.04

Application Number: 07826674.9

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Title of invention:
CREATING THREE DIMENSIONAL GRAPHICS DATA

Applicant:
Koninklijke Philips N.V.

Headword:

Relevant legal provisions:
RPBA 2020 Art. 11
EPC 1973 Art. 54, 56, 84

Keyword:
Remittal to the department of first instance - (no)
Main request - novelty - (no)
Auxiliary requests 1 and 2 - inventive step - (no)
Other auxiliary requests - clarity (no)

Catchword:

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Case Number: T 0668/17 - 3.5.04

D E C I S I O N
of Technical Board of Appeal 3.5.04
of 27 October 2021

llant: (Applicant)	Koninklijke Philips N.V. High Tech Campus 52 5656 AG Eindhoven (NL)
Representative:	Philips Intellectual Property & Standards High Tech Campus 5 5656 AE Eindhoven (NL)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 3 November 2016 refusing European patent application No. 07826674.9 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chair	G. Decker
Members:	A. Seeger
	B. Le Guen

Summary of Facts and Submissions

I. The appeal is against the examining division's decision to refuse European patent application No. 07 826 674.9, published as international patent application WO 2008/044191 A2.

II. The following prior-art documents were cited in the decision under appeal:

D1: O. Schreer *et al.*: "*3D Videocommunication: Algorithms, Concepts and Real-time Systems in Human Centred Communication*", 28 July 2005, Chapter 2, pp. 1-17, Wiley, XP002550171

D2: "*Application Definition Blu-ray Disc Format, BD-J Baseline Application and Logical Model Definition for BD-ROM*", Online, March 2005, pp. 1-45, XP007904998, retrieved from the internet: http// www.blurayjukebox.com/pdfs/ bdj_gem_application_definition_0503 07-13404 [retrieved on 18 June 2008]

D3: WO 2005/006747 A1

D4: "*Preliminary Requirements for 3D Video support in MPEG*", 59. MPEG Meeting, 11-15 March 2002, Jeju, Motion Picture Expert Group or ISO/IEC JTC1/SC29/ WG11, no. N4679, 22 April 2002, XP030012195

III. The decision under appeal was based on the following grounds.

(a) The subject-matter of claims 1 and 5 according to the then main request did not involve an inventive

step in view of the disclosure of document D2 combined with the common general knowledge of the skilled person (Article 56 EPC).

(b) The subject-matter of claim 1 according to the then first auxiliary request and the then second auxiliary request did not involve an inventive step in view of the disclosure of document D2 combined with the common general knowledge of the skilled person (Article 56 EPC).

(c) The amendments in the second auxiliary request introduced subject-matter which extended beyond the content of the application as filed (Article 123(2) EPC).

IV. The applicant (appellant) filed notice of appeal. With the statement of grounds of appeal, the appellant filed claims according to a main request and first and second auxiliary requests. The appellant submitted that document D2 could not be the closest prior art for the subject-matter of the claims in these requests. Instead, document D1 might be considered the closest prior art.

V. A summons to oral proceedings was issued. In a communication under Article 15(1) of the Rules of Procedure of the Boards of Appeal in the 2020 version (RPBA 2020, see OJ EPO 2019, A63), the board gave the following preliminary opinion.

The board was not convinced that either document D2 or document D1 was a suitable starting point for the assessment of inventive step. Rather, it *ex officio* introduced the following documents into the proceedings on the basis of Article 114(1) EPC 1973:

D5: JP 2004-274125

D5T: machine translation of document D5

The board took the following preliminary view.

(a) The subject-matter of claims 1, 2 and 4 of the main request lacked novelty over the disclosure of document D5.

(b) The subject-matter of independent claims 1, 5, 8, 9 and 10 of the first auxiliary request lacked inventive step in view of the disclosure of document D5 combined with the disclosure of document D3.

(c) The subject-matter of independent claim 1 of the second auxiliary request lacked inventive step in view of the disclosure of document D5 combined with the disclosure of document D3 and the subject-matter of independent claims 5 and 10 of the second auxiliary request lacked inventive step in view of the disclosure of document D5 combined with the disclosure of document D3 and the common general knowledge of the skilled person.

The board also raised objections under Articles 84 and 83 EPC 1973 against claim 3 of the main request and an objection under Article 84 EPC 1973 against independent claims 1 and 5 of the second auxiliary request.

VI. By letter of reply dated 24 September 2021, the appellant filed amended claims according to a new main request and new auxiliary requests 1 to 5. It indicated that the former main request and the former first and

second auxiliary requests were withdrawn, provided their replacement requests were admitted into the proceedings. In light of the new document D5 introduced into the proceedings by the board, the appellant requested remittal of the case to the examining division for further prosecution.

VII. On 27 October 2021, oral proceedings took place before the board.

During the oral proceedings, the appellant withdrew the main request and the first and second auxiliary requests filed with the statement of grounds of appeal. It also filed a new auxiliary request labelled "AUX2a".

The appellant's final requests were that the decision under appeal be set aside and the case remitted to the examining division for further prosecution. As an alternative, it requested that a European patent be granted on the basis of the claims of the main request or, alternatively, on the basis of the claims of one of the following auxiliary requests in the following order of preference: auxiliary requests 1 and 2 filed with letter dated 24 September 2021, auxiliary request labelled "AUX2a" filed at the oral proceedings before the board on 27 October 2021, auxiliary requests 3 to 5 filed with the letter dated 24 September 2021.

At the end of the oral proceedings, the Chair announced the board's decision.

VIII. Claim 1 of the main request reads as follows:

"A method in a three-dimensional video system for creating a data stream comprising a video stream of a three-dimensional image,

characterized in that the data stream comprises a graphics data stream allowing to form three-dimensional graphics data, the graphics data stream consisting of segments,

and the method comprises:

- forming the graphics data stream comprising at least a first object definition segment and a second object definition segment, the first object definition segment comprising a two-dimensional graphics object and the second object definition segment comprising information so related to the two-dimensional graphics object that it allows to obtain the three-dimensional graphics data for overlaying on the three-dimensional image by combining at least first and second data sequences obtained and separately outputted by a decoder from the first and second object definition segments, respectively."

IX. Claim 1 of auxiliary request 1 reads as follows (amendments relative to claim 1 of the main request are underlined):

"A method in a three-dimensional video system for creating a data stream comprising a video stream of a three-dimensional image,

characterized in that the data stream comprises a graphics data stream allowing to form three-dimensional graphics data, the graphics data stream consisting of graphics data in segments of the following segment types

- a presentation composition segment for composing a screen that can be synchronised with a moving image and defining appearance of a graphics display on a graphics plane;

- a window definition segment for defining an area on the graphics plane;

- a palette definition segment for defining a palette used for colour conversion;

- an object definition segment for defining a graphics object; and

- an end of display segment indicating that transmission of the graphics data is complete,

and the method comprises:

- forming the graphics data stream comprising at least a first object definition segment and a second object definition segment, the first object definition segment comprising a two-dimensional graphics object and the second object definition segment comprising information so related to the two-dimensional graphics object that it allows to obtain the three-dimensional graphics data for overlaying on the three-dimensional image by combining at least first and second data sequences obtained and separately outputted by a decoder from the first and second object definition segments, respectively."

X. Claim 1 of auxiliary request 2 differs from claim 1 of auxiliary request 1 in that the following text is appended before the full stop:

", and the first data sequence colour converted to full colour and transparency according to a first colour lookup table by a first colour clut block (313) and the second data sequence colour converted to full colour and transparency according to a second colour lookup table by a second colour clut block (319)"

XI. Claim 1 of the auxiliary request labelled "AUX2a" reads as follows:

"A method in a three-dimensional video system for decoding a data stream comprising a video stream of a three-dimensional image,

characterized in that the data stream comprises a graphics data stream allowing to form three-dimensional graphics data, the graphics data stream consisting of graphics data in segments of the following segment types

- a presentation composition segment for composing a screen that can be synchronised with a moving image and defining appearance of a graphics display on a graphics plane;

- a window definition segment for defining an area on the graphics plane;

- a palette definition segment for defining a palette used for colour conversion;

- an object definition segment for defining a graphics object; and

- an end of display segment indicating that transmission of the graphics data is complete,

the graphics data stream comprising at least a first object definition segment and a second object definition segment, the first object definition segment comprising two-dimensional graphics data and the second object definition segment comprising information so related to the two-dimensional graphics object that it allows to obtain the three-dimensional graphics data, the method comprising:

- receiving the data stream;

- forming a first decoded data sequence from the first object definition segment and a second decoded data sequence from the second object definition segment;

- colour converting to full colour and transparency the first decoded data sequence according to a first colour lookup table by a first colour clut block (313) and colour converting to full colour and transparency the second decoded data sequence according to a second colour lookup table by a second colour clut block (319) and

- outputting the first decoded data sequence and the second decoded data sequence separately to a display unit for overlaying three-dimensional graphics data on the three-dimensional image by combining the first decoded data sequence and the second decoded data sequence."

XII. Claim 1 of auxiliary request 3 reads as follows (features added to or deleted from claim 1 of the auxiliary request labelled "AUX2a" are underlined or struck-through, respectively):

"A method in a three-dimensional video system for decoding a data stream comprising a video stream of a three-dimensional image, wherein the three-dimensional video system comprises a processor (303), a first buffer (307), a second buffer (315), a third buffer (305), a first memory (311) and a second memory (317), characterized in that the data stream comprises a graphics data stream allowing to form three-dimensional graphics data, the graphics data stream consisting of graphics data in segments of the following segment types

- a presentation composition segment for composing a screen that can be synchronised with a moving image and defining appearance of a graphics display on a graphics plane;

- a window definition segment for defining an area on the graphics plane;

- a palette definition segment for defining a palette used for colour conversion;

- an object definition segment for defining a graphics object; and

- an end of display segment indicating that transmission of the graphics data is complete,

the graphics data stream comprising at least a first object definition segment and a second object definition segment, the first object definition segment comprising two-dimensional graphics ~~data~~ object and the second object definition segment comprising ~~information so related to the two-dimensional graphics object~~ a

depth map for the two-dimensional graphics object that allows to obtain the three-dimensional graphics data, the method comprising:

- receiving the data stream;

- decoding a window definition segment (503), a presentation composition segment (501) and a palette definition segment to the third buffer (305) by the processor (303),

- forming a first decoded data sequence from the first object definition segment and a second decoded data sequence from the second object definition segment;

- transferring the first data sequence from the processor (303) to the first memory (311) through the first buffer (307) and transferring the second data sequence from the processor (303) to the second memory (317) through the second buffer (315);

- colour converting to full colour and transparency the first decoded data sequence according to a first colour lookup table by a first colour clut block (313) and colour converting to full colour and transparency the second decoded data sequence according to a second colour lookup table by a second colour clut block (319) and

- outputting the first decoded data sequence and the second decoded data sequence separately to a display unit for overlaying three-dimensional graphics data on the three-dimensional image by

combining the first decoded data sequence and the second decoded data sequence."

XIII. Claim 1 of auxiliary request 4 differs from claim 1 of auxiliary request 3 in that the following text is appended before the full stop:

", wherein the three-dimensional video system comprises a graphics controller (309), the method comprising

- transferring data in the third buffer (305) to the graphics controller (309),

- instructing by the graphics controller 309, based on the information decoded from the presentation composition segment (PCS) and window definition segment (WDS), the first buffer 307 (OB) and the first memory (311) (GP) to form a graphics display on the first memory (311), and the second buffer (315) (DMB) and the second memory (317) (DP) to form a depth display on the second memory (317), the information provided by the graphics controller (309) comprising information related to cropping and positioning the graphics or depth display on the first memory or second memory"

XIV. Claim 1 of auxiliary request 5 differs from claim 1 of auxiliary request 4 in that the following text is appended before the full stop:

", wherein the three-dimensional video system implements a pipelined decoding model such that the graphics displays and the depth displays can be assembled on the first memory and on the second memory, respectively while, at the same time, new graphics data

and depth map data are decoded into the first buffer 307 and second buffer 317, respectively"

XV. The appellant's arguments, as far as relevant to the present decision, may be summarised as follows.

Remittal to the department of first instance

(a) The case should be remitted to the examining division because the assessment of inventive step hinged on the disclosure of the newly introduced document D5 which was not clear. In particular, its machine translation was opaque. Only a remittal of the case to the first-instance department would provide the appellant with sufficient opportunity to tackle this situation. Thus, there were special reasons within the meaning of Article 11 RPBA 2020.

Main request

(b) Document D5 disclosed a format in which the subtitle data D and the distance parameter E were arranged next to each other and in which the distance parameter E was represented by a special code. In contrast, claim 1 required a graphics data stream consisting of segments. A first object definition segment comprised a two-dimensional graphics object. A second object definition segment comprised information so related to the two-dimensional graphics object that it allowed obtaining three-dimensional graphics data for overlaying on the three-dimensional image. The format disclosed in document D5 including parts for the subtitle data D and the distance parameter E did not anticipate a separation of these data elements into segments. The capacity of a segment

was much larger than what was provided with the special code specified in document D5. This meant that a depth map could be used instead of a mere distance parameter (see arguments submitted by the appellant in section 2.1.2.1 of its letter of reply dated 24 September 2021, further elaborated on during the oral proceedings).

Auxiliary requests 1 and 2

(c) The skilled person would have recognised the list of segment types specified in claim 1 as the list of segment types in the 2D Blu-ray standard. This meant that all the properties of these segments were implied in the claim and applied in particular to the first and second object definition segments. Therefore, these object definition segments also had to be regarded as distinguishing features.

(d) The skilled person starting from document D5 would not have consulted documents addressing two-dimensional graphics processing such as document D3 to resolve a problem with the organisation of a three-dimensional graphics stream (see the appellant's reply dated 24 September 2021, page 7, fourth paragraph).

(e) Even if the skilled person were to have consulted document D3, they would not have found any incentive to adopt segments because document D3 did not instruct using segments to increase depth data while keeping backward compatibility (see the appellant's reply dated 24 September 2021, page 7, fourth paragraph).

(f) Even if the skilled person had adopted segments, this would have not resulted in the full set of features of claim 1.

Auxiliary request labelled "AUX2a" and auxiliary requests 3 to 5

(g) The feature specifying that a "*first decoded data sequence*" and a "*second decoded data sequence*" were converted to full colour and transparency had to be interpreted in that the "*first decoded data sequence*" was a left eye image and the "*second decoded data sequence*" was a right eye image. Both the left eye image and the right eye image were generated from both a two-dimensional graphics object ("*the first object definition segment*") and a depth map ("*the second object definition segment*").

(h) Blocks 425 and 429 in Figure 4-II of the application meant that the depth display was first transformed into a graphic, namely a left or right eye image, and then converted to full colour and transparency.

Reasons for the Decision

1. The appeal is admissible.

2. Request for remittal of the case to the examining division for further prosecution (Article 11 RPBA 2020)

2.1 Article 11 RPBA 2020 prescribes that the board "*shall not remit the case to the department whose decision was appealed for further prosecution, unless special reasons present themselves for doing so*".

2.2 The appellant argued that the case should be remitted to the examining division because the assessment of inventive step hinged on the disclosure of the newly introduced document D5 which was not clear. In particular, its machine translation was opaque. Only a remittal of the case to the first-instance department would provide the appellant with sufficient opportunity to tackle this situation. Thus, there were special reasons within the meaning of Article 11 RPBA 2020 (see point XV(a) above).

2.3 The board is not convinced by the appellant's arguments because the only passage cited by the appellant as being allegedly unclear in documents D5 and D5T was paragraph [0028]. However, this paragraph only sets out a further option for specifying a distance parameter E. This further option does not invalidate the remaining disclosure of documents D5 and D5T on how the distance parameter E is set, transmitted and received. Hence, the particulars of this further option cannot be decisive for the assessment of novelty and inventive step.

Therefore, the board finds that the relevant parts of documents D5 and D5T are clear enough for the board to examine novelty and inventive step.

2.4 Additionally, the board notes that the application is already in its fourteenth year after filing. It is in the interest of the public to avoid any further delays and bring the proceedings to a close.

2.5 In view of the above, the board does not remit the case to the examining division for further prosecution.

3. Admittance of the main request and auxiliary requests 1 to 5 into the proceedings (Article 13(2) RPBA 2020)

The main request and auxiliary requests 1 to 5 were filed by the appellant after notification of a summons to oral proceedings. The board accepts that the filing of these requests was a legitimate reaction to new prior-art document D5 introduced by the board in its communication under Article 15(1) RPBA 2020. The board is satisfied that this constituted exceptional circumstances within the meaning of Article 13(2) RPBA 2020 and so decided to admit these requests into the proceedings. The same reasoning is true for the auxiliary request labelled "AUX2a" filed by the appellant during oral proceedings. Consequently, the board also admitted this request into the proceedings under Article 13(2) RPBA 2020.

4. Main request - novelty (Article 54 EPC 1973)

4.1 Document D5 discloses, using the wording of claim 1 of the main request, a method in a three-dimensional video system for creating a data stream comprising a video stream of three-dimensional image (see Figure 2: "*C*"; Figure 3: "*MPEG*"; see also paragraph [0030] of document D5T: "*encoding image data C supplied from the stereo encoding part 23*"),

the data stream comprises a graphics data stream allowing to form three-dimensional graphics data, the graphics data stream consisting of segments (see Figure 3: dashed parts),

and the method comprises:

forming the graphics data stream comprising at least a first object definition segment and a second object definition segment (see Figure 3: first and second dashed parts; see also paragraph [0030] of D5T: "*the subtitles data D supplied from the subtitles generating part 24, and the distance parameter E*"; further reference is made to paragraph [0031] of D5T: "*The subtitles data D and the distance parameter E are arranged at the next*"),

the first object definition segment comprising a two-dimensional graphics object (see Figure 2: "*D*") and

the second object definition segment comprising information (see Figure 2: "*E*") so related to the two-dimensional graphics object that it allows to obtain the three-dimensional graphics data (see D5T, paragraph [0034]: "*The subtitles data D are deform¦transformed into the right channel way-to-use-characters curtain data D1 and the left channel way-to-use-characters curtain data D2*"; paragraph [0046]: "*the subtitles deformation¦transformation part 43 performs deformation¦transformation processing which gives appropriate parallax with respect to the subtitles data D so that the subtitles data D may position at (Distance set with distance parameter E) predetermined distance with respect to a user within the display screen of the three-dimensional-display apparatus 45*") for overlaying on the three-dimensional image (see Figure 6: 62; Figure 7: 62; see also paragraph [0035] of D5T: "*The three-dimensional-display apparatus 45 acquires the superimposition data of a stereo moving image and the right channel way-to-use-characters curtain data D1, and the left channel way-to-use-characters curtain data D2 from a display control part 44, It displays on the display screen*")

by combining at least first and second data sequences (see Figure 4: 43; see also paragraph [0045] of D5T: "*The subtitles data D and the distance parameter E which were isolate¦separated are supplied to the subtitles deformation¦transformation part 43*"; paragraph [0034]: "*The subtitles deformation¦transformation part 43 performs a predetermined image conversion process with respect to the subtitles data D based on the distance parameter E supplied from demultiplexer 41*") obtained and separately outputted by a decoder (see Figure 4: 41) from the first and second object definition segments, respectively (see paragraph [0033] of D5T: "*Demultiplexer 41 ... separates the data stream F supplied from the encoding system 11 (FIG. 2) in encoding image data C, and the subtitles data D and the distance parameter E. ... The subtitles data D and the distance parameter E which were isolate¦separated are supplied to the subtitles deformation¦transformation part 43").*

4.2 The appellant argued that document D5 disclosed a format in which the subtitle data D and the distance parameter E were arranged next to each other and in which the distance parameter E was represented by a special code.

In contrast, claim 1 required a graphics data stream consisting of segments. A first object definition segment comprised a two-dimensional graphics object. A second object definition segment comprised information so related to the two-dimensional graphics object that it allowed obtaining three-dimensional graphics data for overlaying on the three-dimensional image.

The format disclosed in document D5 including parts for the subtitle data D and the distance parameter E did not anticipate a separation of these data elements into segments. The capacity of a segment was much larger than what was provided with the special code specified in document D5. This meant that a depth map could be used instead of a mere distance parameter (see point XV(b) above).

4.3 The board does not find these arguments persuasive. It interprets the term "*segment*" in a broad manner as a part of a data stream. Without specific context, for example, the mention of a video coding or video transmission standard, the board sees no reason to interpret this term more narrowly, for example, to imply a specific data structure or size. The board is thus of the opinion that the two shaded parts of the data stream depicted in Figure 3 of document D5 can be regarded as two segments. Since these parts represent the subtitle data and the distance parameter E, respectively, as set out in paragraph [0031] of document D5T, they can be regarded as "*object definition segments*".

4.4 In view of the above, the board finds that the subject-matter of claim 1 lacks novelty over the disclosure of document D5 (Article 54 EPC 1973).

5. Auxiliary request 1 - inventive step
(Article 56 EPC 1973)

5.1 Claim 1 of auxiliary request 1 differs from claim 1 of the main request in that it further specifies that the graphics data stream consists of graphics data in segments of the following segment types:

- presentation composition segment for composing a screen that can be synchronised with a moving image and defining appearance of a graphics display on a graphics plane
- window definition segment for defining an area on the graphics plane
- palette definition segment for defining a palette used for colour conversion
- object definition segment for defining a graphics object
- end of display segment indicating that transmission of the graphics data is complete

5.2 It is common ground that document D5 may be considered the closest prior art for the assessment of inventive step of the subject-matter of claim 1.

5.3 It is also common ground that document D5 does not disclose segments of all the types identified under point 5.1 above.

5.4 The appellant argued that, in view of these features, the expression "*object definition segment*" could no longer be interpreted as merely referring to a part of a data stream defining an object. The skilled person would have recognised the list of segment types specified in claim 1 as the list of segment types defined in the 2D Blu-ray standard. This meant that all the properties of these segments were implied in the claim and applied in particular to the first and second object definition segments. Therefore, these object definition segments also had to be regarded as distinguishing features (see point XV(c) above).

5.5 The board is not convinced that the expression "*object definition segment*" is to be interpreted as an object

definition segment within the meaning of the 2D Blu-ray standard. It is common ground that Figure 7A of document D3 shows the content of an object definition segment according to the Blu-ray standard. According to this figure, an object definition segment contains an object identifier and an object data fragment. This object identifier maps to a location in an object buffer in which the graphics objects are stored (see D3, Figure 13 and Figure 28: 15). However, according to the application at issue, data of the second object definition segment is not decoded into an object buffer feeding a graphics plane but into a depth map buffer feeding a depth plane (see Figure 3 of the application). Hence, the expression "*object definition segment*" cannot have the same meaning in the context of claim 1 as in the context of the 2D Blu-ray standard. Therefore, the board sees no reason to interpret the expression "*object definition segment*" more narrowly in the context of claim 1 of the first auxiliary request than in the context of claim 1 of the main request. Thus, it follows from section 4 above that document D5 discloses the first and second object definition segments specified in claim 1 of the first auxiliary request and that the first object definition segment disclosed in D5 is an "*object definition segment for defining a graphics object*". Therefore, the board finds that the method defined in claim 1 differs from the method disclosed in document D5 solely in that the graphics data stream also consists of graphics data in segments of the other types identified under point 5.1 above.

5.6 These features, which are not disclosed in document D5, have no interaction with the remaining features of claim 1. For example, claim 1 does not specify any composition or rendering steps using the information

contained in these segments. Therefore, in the context of claim 1, these features merely have the effect of specifying an alternative format for the graphics data stream.

5.7 Thus, the objective technical problem may be formulated as specifying an alternative format for the graphics data stream.

5.8 Faced with this objective technical problem, the skilled person would have considered a document disclosing a particular format for transmitting graphics data such as the subtitles of document D5.

5.9 A format for subtitles is disclosed in document D3, Figures 5 to 8 and the corresponding passage of the description from page 17, line 5 to page 26, line 21.

5.10 The appellant argued that the skilled person starting from document D5 would not have consulted documents addressing two-dimensional graphics processing such as document D3 to resolve a problem with the organisation of a three-dimensional graphics stream (see point XV(d) above).

5.11 The board is not convinced by this argument. The skilled person would have realised that the graphics stream disclosed in document D5 only differs from a two-dimensional graphics stream in that it additionally contains a distance parameter. Thus, the skilled person faced with the objective technical problem would have expected to find useful teachings in documents disclosing formats of two-dimensional graphics, even if some adaptation of these teachings was required to take into account the presence of the additional depth parameter.

5.12 Therefore, the board finds that starting from document D5 and faced with the objective technical problem formulated under point 5.7 above, the skilled person would have considered document D3.

5.13 It is undisputed that document D3 discloses a graphics data stream consisting of graphics data in segments of the types identified under point 5.1 above.

5.14 The appellant argued that even if the skilled person were to have consulted document D3, they would not have found any incentive to adopt segments because D3 did not instruct using segments to increase depth data while keeping backward compatibility (see point XV(e) above). More specifically, the skilled person would not have had any incentive to transmit the distance parameter E of document D5 in one of the object definition segments specified in document D3 because such segments were only meant to transmit two-dimensional graphics objects.

The board does not find these arguments persuasive. The skilled person would have recognised the advantages of the format of the graphics data stream disclosed in document D5 and would have made the necessary adjustments to incorporate the distance parameter E in that format.

5.15 The appellant further argued that even if the skilled person had adopted segments, they would not have arrived at the full set of features of claim 1 (see point XV(f) above). The skilled person would have realised that the depth parameter of document D5 needed only a few bits to encode. The skilled person would thus have had an incentive to include these few

additional bits in the same segment as the one containing the 2D graphics. This was in line with the teaching of document D5 according to which the subtitle data D and the distance parameter E were arranged next to each other. The skilled person would not have put these few additional bits into a separate segment.

The board agrees with the appellant that an obvious option for the skilled person would have been to include the few additional bits representing the depth parameter into the same segment as the one containing the 2D graphics. However, unlike the appellant, the board finds that by doing so, the skilled person would have arrived at the full set of features of the claimed method. Indeed, as set out in points 4.3 and 5.5 above, the board interprets the term "*segment*" merely as a part of a data stream. By including the depth parameter in the same segment as the one containing the 2D graphics, the skilled person would have arrived at a data stream comprising two separate object definition segments as specified in claim 1.

Additionally, the board finds that another obvious option for the skilled person would have been to place the 2D subtitle data D and the parameter E in different segments. When applying the data format of document D3 to the graphics data according to document D5, the skilled person would have realised that one object definition segment of document D3 included a 2D graphics object. Since this matches with the 2D subtitle data D, it would have been obvious to include this subtitle data D in an object definition segment. Furthermore, the parameter E had to be placed somewhere in the data stream. Thus, it would have been obvious to place it in another segment. By choosing this other

obvious option, the skilled person would also have arrived at the full set of features of claim 1.

5.16 Therefore, the board concludes that the subject-matter of claim 1 lacks inventive step in view of the disclosure of document D5 combined with the disclosure of document D3 and the common general knowledge of the skilled person.

6. Auxiliary request 2 - inventive step (Article 56 EPC 1973)

6.1 Claim 1 of auxiliary request 2 differs from claim 1 of auxiliary request 1 in that it further specifies that the first data sequence is colour converted to full colour and transparency according to a first colour lookup table "*by a first colour clut block (313)*" and that the second data sequence is colour converted to full colour and transparency according to a second colour lookup table "*by a second colour clut block (319)*".

6.2 Claim 1 specifies a method for creating a data stream comprising a video stream and a graphics stream.

An operation of receiving and processing this data stream, namely by the first and second clut blocks, is not part of the claimed method.

6.3 Hence, the features quoted under point 6.1 above do not limit the method of claim 1.

The appellant had no counter-arguments.

6.4 As a consequence, the subject-matter of claim 1 of auxiliary request 2 lacks inventive step for the same reasons as set out under section 5 above.

7. Auxiliary request labelled "AUX2a" - clarity (Article 84 EPC 1973)

7.1 According to Article 84 EPC 1973, the claims "*shall be clear*".

To be clear, the claims per se must be free of contradiction (see Case Law of the Boards of Appeal of the European Patent Office, 9th edition 2019, II.A.3.1).

7.2 Claim 1 of the auxiliary request labelled "AUX2a" specifies:

"*forming a first decoded data sequence from the first object definition segment and a second decoded data sequence from the second object definition segment*"

7.3 Furthermore, claim 1 of the auxiliary request labelled "AUX2a" specifies:

"*colour converting to full colour and transparency the first decoded data sequence according to a first colour lookup table by a first colour clut block (313) and colour converting to full colour and transparency the second decoded data sequence according to a second colour lookup table by a second colour clut block (319)*"

7.4 The board holds that the skilled person reading the feature quoted under point 7.2 above would understand that the first decoded data sequence is formed from the

first object definition segment and that the second decoded data sequence is formed from the second object definition segment.

7.5 Since the first object definition segment comprises two-dimensional graphics data, the first decoded data sequence comprises a two-dimensional graphics object.

7.6 According to claim 1 of the auxiliary request labelled "AUX2a", the second object definition segment comprises "*information so related to the two-dimensional graphics object that it allows to obtain the three-dimensional graphics data*". According to the description, one example of such information is a depth map for the two-dimensional graphics object (see description, page 6, lines 5 to 7). Hence, the second decoded data sequence may comprise a depth map for the two-dimensional graphics object.

7.7 However, it is common general knowledge of the skilled person in the field of three-dimensional images that a depth map is a grey level image. Hence, it is contradictory that such a depth map is converted to "*full colour*" as specified by the features quoted under point 7.3 above.

This view was shared by the appellant.

7.8 The appellant argued that the feature quoted under point 7.3 above had to be interpreted in that a "*first decoded data sequence*" was a left eye image and a "*second decoded data sequence*" was a right eye image, both the left eye image and the right eye image being generated from both a two-dimensional graphics object ("*the first object definition segment*") and a depth map

("*the second object definition segment*") (see point XV(g) above).

7.9 However, this interpretation is not supported by the description and drawings.

Figure 3 shows that the input of colour clut block 319 is a depth plane, not a left or right eye image. Correspondingly, the output of colour clut block is depth map data.

Furthermore, Figures 4-I and 4-II disclose "*Transforming the depth display to full colour and transparency*" (see step 425) when a segment is an object definition segment containing a depth map (see steps 405 and 409).

This is further explained in the description, page 8, lines 16 to 22: "*the depth display is transformed to full colour and transparency in the colour clut 319 ... Then in step 429 the depth display from the colour clut 319 is transformed to the television 105 for overlaying the depth display on the associated video image.*"

Hence, according to the description and drawings, it is a depth map that is transformed to full colour via a clut block, not a left or right eye image. There is thus no support in the description and drawings for a conversion from two-dimensional graphics and a depth map to a left and right eye image before the transformation via the colour clut blocks.

7.10 The appellant argued that blocks 425 and 429 in Figure 4-II meant that the depth display was first transformed into a graphic, namely a left or right eye

image, and then converted to full colour and transparency (see point XV(h) above).

The board is not convinced by this argument because the corresponding passage of the description on page 8, lines 16 to 22 sets out that the depth display is transformed to full colour in step 425, and in step 429 the "*depth display from colour clut 319 is transformed to the television 105 for overlaying the depth display on the associated video image*". This makes it clear that the input and output of the colour clut 319 is depth data.

7.11 In view of the above, the board concludes that the second decoded data sequence specified in claim 1 is to be interpreted as encompassing a representation of a depth map, which is contradictory to a conversion to full colour and transparency. Thus, claim 1 is not free of contradiction and, as a consequence, lacks clarity (see point 7.1 above).

8. Auxiliary requests 3 to 5 - clarity
(Article 84 EPC 1973)

8.1 Claim 1 of auxiliary requests 3 to 5 contains the same features as quoted under points 7.2 and 7.3 above.

8.2 Hence, claim 1 of auxiliary requests 3 to 5 lacks clarity for the same reasons as provided with respect to claim 1 of the auxiliary request labelled "AUX2a" (see section 7 above).

9. Conclusion

The main request is not allowable because the subject-matter of claim 1 is not new over the disclosure of document D5 (Article 54 EPC 1973).

Auxiliary requests 1 and 2 are not allowable because the subject-matter of claim 1 in both requests does not involve an inventive step in view of the disclosure of document D5 combined with the disclosure of document D3 and the common general knowledge of the skilled person (Article 56 EPC 1973).

The auxiliary request labelled "AUX2a" and auxiliary requests 3 to 5 are not allowable because claim 1 of all these requests lacks clarity (Article 84 EPC 1973).

Since none of the appellant's requests is allowable, the appeal must be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chair:

K. Boelicke G. Decker

Decision electronically authenticated