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**Datasheet for the decision
of 7 December 2020**

Case Number: T 1107/16 - 3.5.04

Application Number: 09764076.7

Publication Number: 2368370

IPC: H04N13/00, G06F3/14, G09G5/00

Language of the proceedings: EN

Title of invention:

3D VIDEO REPRODUCTION MATCHING THE OUTPUT FORMAT TO THE 3D
PROCESSING ABILITY OF A DISPLAY

Applicant:

Koninklijke Philips N.V.

Headword:

Relevant legal provisions:

RPBA 2020 Art. 13(2)
EPC Art. 56, 84

Keyword:

Main request - inventive step (no)
First and second auxiliary requests - inventive step (no)
Third auxiliary request - admitted (no)
Fourth to eighth auxiliary requests - clarity (no)

Decisions cited:

T 0954/17, T 0989/15

Catchword:



Beschwerdekammern
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Case Number: T 1107/16 - 3.5.04

D E C I S I O N
of Technical Board of Appeal 3.5.04
of 7 December 2020

Appellant: Koninklijke Philips N.V.
(Applicant) High Tech Campus 52
5656 AG Eindhoven (NL)

Representative: Kroeze, Johannes Antonius
Philips Intellectual Property & Standards
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 15 December
2015 refusing European patent application
No. 09764076.7 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman M. Paci
Members: A. Seeger
G. Decker

Summary of Facts and Submissions

- I. The appeal is against the decision of the examining division refusing European patent application No. 09764076.7, published as international patent application WO 2010/058354 A1.
- II. The prior-art documents cited in the decision under appeal included the following:

D2: US 2006/0062490 A1
- III. The decision under appeal was based on the grounds that the subject-matter of claim 1 according to each of the then main request and the then first and second auxiliary requests did not involve an inventive step in view of prior-art document D2.
- IV. With the statement of grounds of appeal, the appellant filed five sets of amended claims according to a main request and first to fourth auxiliary requests, replacing all the previous claims on file.
- V. The board issued a summons to oral proceedings and a communication pursuant to Article 15(1) of the Rules of Procedure of the Boards of Appeal in the version of 2020 (RPBA 2020, OJ EPO 2019, A63). In that communication, the board expressed the preliminary opinion that the claims of the main request did not meet the requirements of Article 123(2) EPC and that the claims of the main request and first to fourth auxiliary requests did not meet the requirement of clarity of Article 84 EPC and their subject-matter did not involve an inventive step in view of prior-art document D2.

VI. By letter of reply dated 6 November 2020, the appellant filed amended claims according to a new main request and new first to third auxiliary requests. As a precaution, the previous main request and first to fourth auxiliary requests filed with the statement of grounds of appeal were maintained as fourth to eighth auxiliary requests.

VII. The board held oral proceedings on 7 December 2020.

The appellant's final requests were that the decision under appeal be set aside and that a patent be granted on the basis of the claims of the main request or first to third auxiliary requests filed with the letter dated 6 November 2020 or, alternatively, on the basis of the claims of the main or first to fourth auxiliary requests filed with the statement of grounds of appeal and renumbered as fourth to eighth auxiliary requests.

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

VIII. Claim 1 according to the appellant's **main request** reads as follows:

"A method of transmitting three dimensional video information over an interface (12,14) from a playback device (10) to a displaying device (13) having processable video formats being three dimensional video formats which the displaying device is able to process, the displaying device and the interface such that the properties of the displaying device can be queried over the interface, the method comprising, by the playback device,

- determining an input video format in which a compressed three dimensional video information is available to an input of the playback device, the three dimensional video information available either as stored on a record medium or received via a data transmission system;
 - querying the displaying device over the interface with respect to the processable video formats;
 - determining an output video format different from the input video format based on the input video format and the processable video formats,
 - processing the compressed three dimensional video information such that the three dimensional video information is transmitted over the interface in the output video format,
- characterized in that in the method said determining comprises
- selecting the processable video formats having stereo as the format type,
 - reading respective horizontal and vertical frequencies reachable by the selected processable video formats, and,
 - if the horizontal and vertical frequency in a processable video format of the selected processable video formats are high enough to accommodate resolution and frame rate of the three dimensional video information when transmitted according to a time-sequential transmission method, selecting the processable video format as the output video format and the time-sequential transmission method for transmitting the three dimensional video information in the output video format."

IX. Claim 1 according to the appellant's **first auxiliary request** reads as follows:

"A method of transmitting three dimensional video information over an interface (12,14) from a playback device (10) to a displaying device (13) having processable video formats being three dimensional video formats which the displaying device is able to process, the processable video formats having different resolutions or frame rates, the displaying device and the interface such that the properties of the displaying device can be queried over the interface, the method comprising, by the playback device,

- determining an input video format in which a compressed three dimensional video information is available to an input of the playback device, the three dimensional video information available either as stored on a record medium or received via a data transmission system;

- querying the displaying device over the interface with respect to the processable video formats;

- determining an output video format different from the input video format based on the input video format and the processable video formats,

- processing the compressed three dimensional video information such that the three dimensional video information is transmitted over the interface in the output video format,

characterized in that in the method said determining comprises

- selecting the processable video formats having stereo as the format type,

- reading respective horizontal and vertical frequencies reachable by the selected processable video formats, and,

- if the horizontal and vertical frequency in a processable video format of the selected processable video formats are high enough to accommodate resolution

and frame rate of the three dimensional video information when transmitted according to a time-sequential transmission method, selecting the processable video format as the output video format and the time-sequential transmission method for transmitting the three dimensional video information in the output video format."

- X. Claim 1 according to the appellant's **second auxiliary request** reads as follows:

"A method of transmitting three dimensional video information over an interface (12,14) from a playback device (10) to a displaying device (13) having processable video formats being three dimensional video formats which the displaying device is able to process, wherein the interface is a HDMI interface, the processable video formats having different resolutions or frame rates, the displaying device and the interface such that the properties of the displaying device can be queried over the interface, the method comprising, by the playback device,

- determining an input video format in which a compressed three dimensional video information is available to an input of the playback device, the three dimensional video information available either as stored on a record medium or received via a data transmission system;
- querying the displaying device over the interface with respect to the processable video formats;
- determining an output video format different from the input video format based on the input video format and the processable video formats,
- processing the compressed three dimensional video information such that the three dimensional video

information is transmitted over the interface in the output video format, characterized in that in the method said determining comprises

- selecting the processable video formats having stereo as the format type,
- reading respective horizontal and vertical frequencies reachable by the selected processable video formats, and,
- if the horizontal and vertical frequency in a processable video format of the selected processable video formats are high enough to accommodate resolution and frame rate of the three dimensional video information when transmitted according to a time-sequential transmission method, selecting the processable video format as the output video format and the time-sequential transmission method for transmitting the three dimensional video information in the output video format,

and the method further comprises, if it is not possible to send the three dimensional video information in the processable video format without exceeding HDMI limits, choosing a next processable video format for determining the output video format."

XI. Claim 1 according to the appellant's **third auxiliary request** reads as follows:

"A method of transmitting three dimensional video information over an interface (12,14) from a playback device (10) to a displaying device (13) having processable video formats being three dimensional video formats which the displaying device is able to process, wherein the interface is a HDMI interface, the processable video formats having different resolutions or frame rates,

the displaying device and the interface such that the properties of the displaying device can be queried over the interface, the method comprising, by the playback device,

- determining an input video format in which a compressed three dimensional video information is available to an input of the playback device, the three dimensional video information available either as stored on a record medium or received via a data transmission system;

- querying the displaying device over the interface with respect to the processable video formats;

- determining an output video format different from the input video format based on the input video format and the processable video formats,

- processing the compressed three dimensional video information such that the three dimensional video information is transmitted over the interface in the output video format,

characterized in that in the method said determining comprises

- selecting the processable video formats having stereo as the format type,

- reading respective horizontal and vertical frequencies reachable by the selected processable video formats, and,

- if the horizontal and vertical frequency in a processable video format of the selected processable video formats are high enough to accommodate resolution and frame rate of the three dimensional video information when transmitted according to a time-sequential transmission method, selecting the processable video format as the output video format and the time-sequential transmission method for transmitting the three dimensional video information in the output video format, and otherwise:

- if the content colour depth in the processable video format is high enough to accommodate the three dimensional video information when transmitted according to a colour depth transmission method, selecting the processable video format as the output video format and the colour depth transmission method for transmitting the three dimensional video information in the output video format, or alternatively,
- if the content resolution in the processable video format is high enough to accommodate the three dimensional video information when transmitted according to a line-interleaved transmission method, selecting the processable video format as the output video format and the line-interleaved transmission method for transmitting the three dimensional video information in the output video format, and the method further comprises, if it is not possible to send the three dimensional video information in the processable video format without exceeding HDMI limits, choosing a next processable video format for determining the output video format."

XII. Claim 1 according to the appellant's **fourth auxiliary request** reads as follows:

"A method of transmitting three dimensional video information over an interface (12,14) from a playback device (10) to a displaying device (13), the displaying device and the interface such that the properties of the displaying device can be queried over the interface, the method comprising, by the playback device,

- determining an input video format in which a compressed three dimensional video information is available to an input of the playback device, the three

dimensional video information available either as stored on a record medium or received via a data transmission system;

- querying the displaying device over the interface with respect to three dimensional video formats which the displaying device is able to process;
- determining an output video format different from the input video format based on the input video format and the processable video formats,
- processing the compressed three dimensional video information such that the three dimensional video information is transmitted over the interface in the output video format,

characterized in that in the method said determining comprises

- selecting a format type from the processable video formats, which determining further comprises, when the selected format type is stereo,
- reading respective horizontal and vertical frequencies reachable by respective processable video formats having stereo as the format type, and,
- if the horizontal and vertical frequency in a time-sequential processable video format are high enough to accommodate resolution and frame rate of the three dimensional video information, selecting the time-sequential processable video format as the output video format."

XIII. Claim 1 according to the appellant's **fifth auxiliary request** reads as follows:

"A method of transmitting three dimensional video information over an interface (12,14) from a playback device (10) to a displaying device (13) having processable video formats being three dimensional video formats which the displaying device is able to process,

the displaying device and the interface such that the properties of the displaying device can be queried over the interface, the method comprising, by the playback device,

- determining an input video format in which a compressed three dimensional video information is available to an input of the playback device, the three dimensional video information available either as stored on a record medium or received via a data transmission system;

- querying the displaying device over the interface with respect to the processable video formats;

- determining an output video format different from the input video format based on the input video format and the processable video formats,

- processing the compressed three dimensional video information such that the three dimensional video information is transmitted over the interface in the output video format,

characterized in that in the method said determining comprises

- selecting the processable video formats having stereo as the format type,

- reading respective horizontal and vertical frequencies reachable by the selected processable video formats, and,

- if the horizontal and vertical frequency in a time-sequential processable video format of the selected processable video formats are high enough to accommodate resolution and frame rate of the three dimensional video information, selecting the time-sequential processable video format as the output video format."

XIV. Claim 1 according to the appellant's **sixth auxiliary request** reads as follows:

"A method of transmitting three dimensional video information over an interface (12,14) from a playback device (10) to a displaying device (13) having processable video formats being three dimensional video formats which the displaying device is able to process, the processable video formats having different resolutions or frame rates, the displaying device and the interface such that the properties of the displaying device can be queried over the interface, the method comprising, by the playback device,

- determining an input video format in which a compressed three dimensional video information is available to an input of the playback device, the three dimensional video information available either as stored on a record medium or received via a data transmission system;
 - querying the displaying device over the interface with respect to the processable video formats;
 - determining an output video format different from the input video format based on the input video format and the processable video formats,
 - processing the compressed three dimensional video information such that the three dimensional video information is transmitted over the interface in the output video format,
- characterized in that in the method said determining comprises
- selecting the processable video formats having stereo as the format type,
 - reading respective horizontal and vertical frequencies reachable by the selected processable video formats, and,
 - if the horizontal and vertical frequency in a time-sequential processable video format of the

selected processable video formats are high enough to accommodate resolution and frame rate of the three dimensional video information, selecting the time-sequential processable video format as the output video format."

XV. Claim 1 according to the appellant's **seventh auxiliary request** reads as follows:

"A method of transmitting three dimensional video information over an interface (12,14) from a playback device (10) to a displaying device (13) having processable video formats being three dimensional video formats which the displaying device is able to process, the processable video formats having different resolutions or frame rates, the displaying device and the interface such that the properties of the displaying device can be queried over the interface, the method comprising, by the playback device,

- determining an input video format in which a compressed three dimensional video information is available to an input of the playback device, the three dimensional video information available either as stored on a record medium or received via a data transmission system;
- querying the displaying device over the interface with respect to the processable video formats;
- determining an output video format different from the input video format based on the input video format and the processable video formats,
- processing the compressed three dimensional video information such that the three dimensional video information is transmitted over the interface in the output video format,

characterized in that in the method said determining comprises

- selecting the processable video formats having stereo as the format type,
- reading respective horizontal and vertical frequencies reachable by the selected processable video formats,
- determining a selected input video format from a multitude of input video formats for determining the best matching output video format and,
- if the horizontal and vertical frequency in a time-sequential processable video format of the selected processable video formats are high enough to accommodate resolution and frame rate of the three dimensional video information of the selected input format, selecting the time-sequential processable video format as the output video format."

XVI. Claim 1 according to the appellant's **eighth auxiliary request** reads as follows:

"A method of transmitting three dimensional video information over an interface (12,14) from a playback device (10) to a displaying device (13) having processable video formats being three dimensional video formats which the displaying device is able to process, the processable video formats having different resolutions or frame rates, the displaying device and the interface such that the properties of the displaying device can be queried over the interface, the method comprising, by the playback device,

- determining an input video format in which a compressed three dimensional video information is available to an input of the playback device, the three dimensional video information available either as

stored on a record medium or received via a data transmission system;

- querying the displaying device over the interface with respect to the processable video formats;
- determining an output video format different from the input video format based on the input video format and the processable video formats,
- processing the compressed three dimensional video information such that the three dimensional video information is transmitted over the interface in the output video format,

characterized in that in the method said determining comprises

- selecting the processable video formats having stereo as the format type,
- reading respective horizontal and vertical frequencies reachable by the selected processable video formats, and,
- if the horizontal and vertical frequency in a time-sequential processable video format of the selected processable video formats are high enough to accommodate resolution and frame rate of the three dimensional video information, selecting the time-sequential processable video format as the output video format,

wherein if it is not possible to send the video information in the selected video format without exceeding HDMI limits, choosing a next supported format, wherein the next supported format is a format with an immediately lower resolution and frame rate than the selected format."

Reasons for the Decision

1. The appeal is admissible.

Main request

2. *Main request - admittance (Article 13(2) RPBA 2020)*

- 2.1 In the present case, the summons to oral proceedings was notified after the date on which RPBA 2020 entered into force, i.e. 1 January 2020 (Article 24(1) RPBA 2020). Thus, in accordance with Article 25(1) and (3) RPBA 2020, Article 13(2) RPBA 2020 applies to the question of whether to admit the amended claims according to the appellant's main request, which were filed after the summons to oral proceedings was notified, and are therefore amendments within the meaning of Article 13(2) RPBA 2020.

- 2.2 Article 13(2) RPBA 2020 implements the third level of the convergent approach applicable in appeal proceedings (see document CA/3/19, section VI, explanatory remarks on Article 13(2), first paragraph, first sentence; see also Supplementary publication 2, OJ EPO 2020). Article 13(2) RPBA 2020 imposes the most stringent limitations on appeal submissions which are made at an advanced stage of the proceedings, namely after expiry of a period set by the board of appeal in a communication under Rule 100(2) EPC or, where no such communication is issued, after notification of a summons to oral proceedings (see document CA/3/19, section VI, explanatory remarks on Article 13(2), first paragraph, second sentence). Where an amendment is made to a party's appeal case at this advanced stage of the proceedings, Article 13(2) RPBA 2020 provides that it will, in principle, no longer be taken into account

unless the party concerned has shown compelling reasons why the circumstances are exceptional. If such circumstances are shown to exist, the board of appeal may, in exercising its discretion, decide to admit an amendment made to the appeal case at this advanced stage of the proceedings (see document CA/3/19, section VI, explanatory remarks on Article 13(2), third paragraph, last sentence).

- 2.3 The explanatory remarks on Article 13(2) RPBA 2020 also contain the following guidance: "*At the third level of the convergent approach, the Board may also rely on criteria applicable at the second level of the convergent approach, i.e. as set out in proposed new paragraph 1 of Article 13*" (Document CA/3/19, section VI, explanatory remarks on Article 13(2), fourth paragraph). The board takes the view that, at the third level of the convergent approach, the boards of appeal are free to use the criteria set out in Article 13(1) RPBA 2020 when deciding, in exercising their discretion in accordance with Article 13(2) RPBA 2020, whether to admit an amendment made at this stage of the proceedings (see also decisions T 989/15, point 16.2 of the Reasons, and T 954/17, point 3.10 of the Reasons).

According to the explanatory remarks on Article 13(1) RPBA 2020, the onus is on the appellant to demonstrate both why the amendment overcomes the issues raised by the board and why the amendment, *prima facie*, does not give rise to new objections.

- 2.4 The board accepts the appellant's argument that the board's objection raised for the first time under point 9 of its communication under Article 15(1) RPBA 2020, according to which the expression "*the*

time-sequential processable video format" in claim 1 of all the requests then on file was unclear (Article 84 EPC), presents exceptional circumstances within the meaning of Article 13(2) RPBA 2020.

However, it is still within the board's discretion whether to admit the main request into the appeal proceedings.

- 2.5 Claim 1 of the present main request is based on claim 1 of the first auxiliary request filed with the statement of grounds of appeal, from which it differs by the following amendments (deletions are indicated in strikethrough, additions underlined):

"if the horizontal and vertical frequency in a ~~time-sequential~~ processable video format of the selected processable video formats are high enough to accommodate resolution and frame rate of the three dimensional video information when transmitted according to a time-sequential transmission method, selecting the ~~time-sequential~~ processable video format as the output video format and the time-sequential transmission method for transmitting the three dimensional video information in the output video format."

- 2.6 The appellant argued that these amendments overcame the board's objection under Article 84 EPC because the expression "time-sequential transmission method" in the context of a stereo format was known to mean that the left and right views were sent one after the other (see point 1.2.1 of the letter of 6 November 2020).

- 2.7 The board is satisfied that the above amendments, *prima facie*, overcome the objection under Article 84 EPC

raised by the board under point 9 of its communication under Article 15(1) RPBA 2020 and do not give rise to new objections (Article 13(1) RPBA 2020).

2.8 In view of the above, the board exercised its discretion under Article 13(2) RPBA 2020 to admit the appellant's main request into the appeal proceedings.

3. *Main request - inventive step (Article 56 EPC)*

3.1 Closest prior art and distinguishing features

It is common ground that document D2 represents the closest prior art and that it discloses a method having all the features of claim 1, except the following distinguishing features (see letter of 6 November 2020, point 1.2.4, first paragraph):

*"- reading respective horizontal and vertical frequencies reachable by the selected processable video formats, and,
- if the horizontal and vertical frequency in a processable video format of the selected processable video formats are high enough to accommodate resolution and frame rate of the three dimensional video information when transmitted according to a time-sequential transmission method, selecting the processable video format as the output video format and the time-sequential transmission method for transmitting the three dimensional video information in the output video format"*

3.2 Objective technical problem

3.2.1 In section 14.3 of its communication pursuant to Article 15(1) RPBA 2020, the board explained why it

considered that the objective technical problem should be formulated as "how to make a selection among multiple available processable video formats for certain types of three-dimensional video information under certain circumstances so that the output signal has optimal quality".

3.2.2 During the oral proceedings, the appellant stated that it agreed with the board's formulation of the objective technical problem (see also the almost identical formulation proposed by the appellant in the fourth paragraph of page 10 of its letter of 6 November 2020).

3.3 Obviousness

3.3.1 The distinguishing features of claim 1 essentially state that if the display device is compatible with a stereo video format which can transmit the left and right views of the images in the video sequence one after the other at a frequency which is sufficiently high so as not to cause a reduction of frame rate or resolution, then this format should be used.

3.3.2 In the board's view, this would have been obvious to the skilled person starting from D2, because one of the most straightforward ways of transmitting left and right views of a stereo image was to transmit the left and right views one after the other. Of course, this was only possible without reduction of the frame rate and/or resolution if the display device and the interface allowed such a transmission at a sufficiently high frequency so that the intended frame rate and resolution could be accommodated. However, provided that these conditions were met, it was an obvious optimal solution which the skilled person would have wanted to use in D2. The implementation of this

solution in the device of D2 would have posed no problem to the skilled person because D2 disclosed that the 3D video information could be stereo video information (see figure 1) and the playback device received from the display device information on the resolution, frequency and format that the display device could accept as input (see paragraph [0010]). The skilled person would thus have arrived at the distinguishing features without inventive activity.

3.4 The appellant's arguments

3.4.1 The appellant argued that the method of D2 arrived at a suitable output format in a different way because it performed a scaling step for adapting the resolution of the received video to the display resolution, whereas the present invention did not require a scaling step.

3.4.2 The board does not find this argument persuasive for the following reasons:

The wording of claim 1 does not exclude that scaling of the stereo video information may be performed before the steps of the distinguishing features. Indeed, according to the application, such scaling may be performed (see page 8, lines 14 to 18, of the description, the "match format" step in figure 2 and present dependent claim 4).

Moreover, the scaling in D2 is performed because of a mismatch between a resolution accepted by the display and the resolution of the 3D video information to be transmitted (see "to conform to the resolution of the display device" in paragraph [0024]). If there is no mismatch, it is obvious that no scaling need be performed.

3.4.3 The appellant also argued that the inventors had seen specific advantages in the distinguishing features (see statement of grounds of appeal, page 3, third and fourth paragraphs).

3.4.4 The board notes that these specific advantages were not disclosed in the application as filed. Indeed, the distinguishing features are based solely on four lines of the description of the application as filed, on page 8, lines 18 to 21, which do not mention any advantage.

The assertion that specific advantages were seen by the inventors is thus speculative and not supported by the application as filed.

As a consequence, the alleged advantages cannot render the claimed subject-matter inventive because either they were obvious to the skilled person or they should have been disclosed in the application as filed.

3.4.5 Finally, the appellant argued that a time-sequential transmission method was only one of several known methods for transmitting the additional information of stereo video images compared to non-stereo images listed in Table 1 on page 3 of the description of the application as filed. Hence, it would not have been obvious for the skilled person starting from D2 to use **only** the horizontal and vertical frequencies of a video format processable by the displaying device to select a time-sequential format method.

3.4.6 The board does not find this argument persuasive for the following reasons:

The board is not convinced that in the present invention **only** the horizontal and vertical frequencies are known to the playback device when selecting the time-sequential transmission method. Indeed, the resolution of the displaying device is also known to the playback device, as can be derived from the resolution matching step being performed before the process format matching step according to figure 2 and page 8, lines 12 to 21, of the description of the application as filed. Moreover, the expression "to accommodate the resolution" in claim 1 implies that the resolution of the displaying device is known and taken into consideration in addition to the horizontal and vertical frequencies because information on the resolution is necessary for the playback device to know whether the horizontal resolution can be accommodated.

Moreover, in D2 the playback device receives information on a resolution, a frequency and a format of the display device (see paragraph [0010]). It would thus be obvious to the skilled person to first use the resolution and frequency (which is a synonym for "frame rate" here) to first assess whether the left and right images can be transmitted one after the other and, only if that does not work, to then consider whether other aspects of the format, such as colour depth or audio, could contain spare bandwidth for transmission of stereo information.

3.5 Conclusion on inventive step

For the above reasons, the subject-matter of claim 1 of the main request does not involve an inventive step in view of prior-art document D2.

4. Conclusion on the main request

Since claim 1 does not meet the requirements of Article 56 EPC, the main request is not allowable.

First auxiliary request

5. *First auxiliary request - admittance (Article 13(2) RPBA 2020)*

5.1 Claim 1 of the first auxiliary request is based on claim 1 of the second auxiliary request filed with the statement of grounds of appeal, from which it differs by the same amendment as claim 1 of the main request relative to claim 1 of the first auxiliary request filed with the statement of grounds of appeal (see point 2.5 *supra*).

6. Hence, for the same reasons as for the main request (see section 2 *supra*), the board exercised its discretion under Article 13(2) RPBA 2020 to admit the appellant's first auxiliary request into the appeal proceedings.

7. *First auxiliary request - inventive step (Article 56 EPC)*

7.1 Claim 1 according to the first auxiliary request differs from claim 1 of the main request by the following additional feature in the preamble of claim 1:

"the processable video formats having different resolutions or frame rates"

- 7.2 The appellant submitted that document D2 did not consider a display that can support different resolutions or frame rates (see letter of 6 November 2020, page 11, second paragraph).
- 7.3 The board notes that, as acknowledged on page 2, lines 29 to 31, of the application as filed, display devices supporting several formats having different resolutions or frame rates were well-known in the art. In the board's view, it would thus have been obvious for the skilled person to apply the method of D2 to such a display device and to use the display format providing the most bandwidth.

7.4 Conclusion on inventive step

For the above reasons, the subject-matter of claim 1 of the first auxiliary request does not involve an inventive step in view of prior-art document D2.

8. Conclusion on the first auxiliary request

Since claim 1 does not meet the requirements of Article 56 EPC, the first auxiliary request is not allowable.

Second auxiliary request

9. *Second auxiliary request - admittance (Article 13(2) RPBA 2020)*

- 9.1 Claim 1 of the second auxiliary request is based on claim 1 of the fourth auxiliary request filed with the statement of grounds of appeal, from which it differs by the same amendment as claim 1 of the main request relative to claim 1 of the first auxiliary request

filed with the statement of grounds of appeal (see point 2.5 *supra*) and by a redrafting of the last four lines of the claim because they were misunderstood by the board in its communication pursuant to Article 15(1) RPBA 2020, thereby hinting at a lack of clarity.

9.2 For essentially the same reasons as for the main request (see section 2 *supra*), the board exercised its discretion under Article 13(2) RPBA 2020 to admit the appellant's second auxiliary request into the appeal proceedings.

10. *Second auxiliary request - inventive step (Article 56 EPC)*

10.1 Claim 1 according to the second auxiliary request differs from claim 1 of the first auxiliary request by the following additional features:

"wherein the interface is a HDMI interface"

and

"and the method further comprises, if it is not possible to send the three dimensional video information in the processable video format without exceeding HDMI limits, choosing a next processable video format for determining the output video format"

10.2 In the board's view, the skilled person was aware of the problem that any interface, such as the well-known HDMI interface, between the playback device and the display device had a maximum bandwidth limit which could not be exceeded and thus video formats exceeding this limit could not be transmitted. In the case of a

display device supporting several formats, the skilled person would have wanted the playback device in D2 to use the best format supported by the display device that did not exceed the (e.g. HDMI) interface limit. Hence, it would have been straightforward for the skilled person to make the playback device check whether the HDMI limits were exceeded by the best supported display format and, if it was the case, to then consider the next best supported display format, and so on until a supported display format met the HDMI limits. In this way, the skilled person would have arrived at the above features without any inventive activity when starting from D2.

10.3 The appellant argued that the skilled person could have made the playback device find a supported display format not exceeding the HDMI limits in other ways than iteratively, for instance by creating a matrix of all possible video formats and then eliminating the ones exceeding the HDMI limits.

10.4 The board concurs with the appellant that there were several obvious ways for the skilled person to find a supported display format that did not exceed the HDMI limits; however, the fact that the claimed solution was one of several obvious solutions, all having predictable pros and cons, does not render the selected solution inventive. Moreover, the board regards the iterative solution starting from the best display format as claimed to be the one that the skilled person would have chosen first because they had a keen interest in finding the best display format within the HDMI limits, rather than just any display format within the HDMI limits.

10.5 Conclusion on inventive step

For the above reasons, the subject-matter of claim 1 of the second auxiliary request does not involve an inventive step in view of prior-art document D2.

11. Conclusion on the second auxiliary request

Since claim 1 does not meet the requirements of Article 56 EPC, the second auxiliary request is not allowable.

Third auxiliary request

12. *Third auxiliary request - admittance (Article 13(2) RPBA 2020)*

12.1 Reference is made to the board's observations on Article 13(2) RPBA 2020 under points 2.1 to 2.3 *supra*, which also apply to the third auxiliary request.

12.2 Claim 1 according to the third auxiliary request differs from claim 1 according to the second auxiliary request by the following additional features:

"and otherwise:

- if the content colour depth in the processable video format is high enough to accommodate the three dimensional video information when transmitted according to a colour depth transmission method, selecting the processable video format as the output video format and the colour depth transmission method for transmitting the three dimensional video information in the output video format, or alternatively,

- if the content resolution in the processable video format is high enough to accommodate the three dimensional video information when transmitted according to a line-interleaved transmission method, selecting the processable video format as the output video format and the line-interleaved transmission method for transmitting the three dimensional video information in the output video format,"

12.3 The appellant justified the above amendments with the same reasons as for the redrafting of the last four lines of claim 1 of the second auxiliary request, i.e. in order to overcome a lack of clarity hinted at by the board in its communication pursuant to Article 15(1) RPBA 2020 (see point 9.1 *supra*).

12.4 In the board's view, however, in contrast to the second auxiliary request, this justification is not convincing for the third auxiliary request for the following reasons:

(1) While the amendments made in claim 1 of the second auxiliary request were a direct attempt to clarify unclear wording by rephrasing it, the amendments made in claim 1 of the third auxiliary request, which add several technical features, are more akin to an attempt to overcome an objection of lack of inventive step than to clarify unclear wording.

(2) The decision under appeal was based on the grounds that the subject-matter of claim 1 according to all the then existing requests did not involve an inventive step in view of prior-art document D2. If the appellant considered that the technical features added in the present third auxiliary request were necessary to render the subject-matter of claim 1 inventive, it

should have filed an auxiliary request with such a claim before the examining division so that it could be examined at two levels of instances. At the third level of the convergent approach, such amendments are only very exceptionally admitted into the proceedings.

(3) Admitting the claims of the third auxiliary request into the appeal proceedings would be detrimental to procedural economy, one of the criteria of Article 13(1) RPBA 2020, because the board might have to remit the case to the department of first instance in order for the claimed subject-matter to be examined at two levels of instances.

- 12.5 For the above reasons, the board exercised its discretion under Article 13(2) RPBA 2020 not to admit the appellant's third auxiliary request into the appeal proceedings.

Fourth to eighth auxiliary requests - clarity (Article 84 EPC)

13. The appellant's main request and first to fourth auxiliary requests filed with the statement of grounds of appeal were renumbered as fourth to eighth auxiliary requests, respectively.
14. In its communication pursuant to Article 15(1) RPBA 2020, the board expressed the preliminary opinion that the expression "time-sequential processable video format" was defined neither in claim 1 nor in the description of the application and did not have a well-established meaning in the art (see point 9 of the communication).

15. The appellant did not submit any argument as to why this expression would be clear, neither in its letter dated 6 November 2020, nor during the oral proceedings.
16. The board thus affirms its preliminary opinion that the expression "time-sequential processable video format" has no clear meaning. Since this expression is present in claim 1 of each of the fourth to eighth auxiliary requests, these claims do not meet the requirement of clarity of Article 84 EPC.
17. Since claim 1 of the fourth to eighth auxiliary requests does not meet the requirements of Article 84 EPC, these requests are not allowable.

Conclusion

18. 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 Chairman:



K. Boelicke

M. Paci

Decision electronically authenticated