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**Datasheet for the decision
of 13 September 2018**

Case Number: T 0982/13 - 3.5.04

Application Number: 08861393.0

Publication Number: 2235956

IPC: H04N13/00

Language of the proceedings: EN

Title of invention:

TRANSPORT OF STEREOSCOPIC IMAGE DATA OVER A DISPLAY INTERFACE

Applicant:

Koninklijke Philips N.V.

Headword:

Relevant legal provisions:

EPC Art. 84, 123(2)

RPBA Art. 13(1)

Keyword:

Claims - clarity - main request (no)

Amendments - added subject-matter - main request (yes)

Late-filed auxiliary request - admitted (no)

Decisions cited:

Catchword:



Beschwerdekammern

Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 0982/13 - 3.5.04

D E C I S I O N
of Technical Board of Appeal 3.5.04
of 13 September 2018

Appellant:
(Applicant)

Koninklijke Philips N.V.
High Tech Campus 5
5656 AE Eindhoven (NL)

Representative:

Kroeze, Johannes Antonius
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
12 December 2012 refusing European patent
application No. 08861393.0 pursuant to
Article 97(2) EPC**

Composition of the Board:

Chairman B. Müller
Members: B. Willems
R. Gerdes

Summary of Facts and Submissions

- I. The appeal is against the decision of the examining division dated 12 December 2012 refusing European patent application No. 08861393.0, which was published as international application WO 2009/077969 A2.
- II. The documents cited in the decision under appeal included the following:

D4: CN 101 076 130 A;

D4*: US 2007/296859 A1;

D5: WO 2006/137000 A1.
- III. The application was refused on the grounds that the subject-matter of claim 1 of the main and auxiliary request lacked inventive step over the combined disclosures of documents D4 and D5 (Article 56 EPC) and claim 2 of the main request defined "*not searched subject-matter contrary to the requirements set out in Rule 137(5) EPC*".
- IV. The applicant filed notice of appeal requesting that the examining division's decision be set aside. In the statement of grounds of appeal, the now appellant provided arguments as to why the claims of the requests on file met the requirements of Article 56 EPC and Rule 137(5) EPC.
- V. The board issued a summons to oral proceedings. In a communication under Article 15(1) RPBA (Rules of Procedure of the Boards of Appeal, OJ EPO 2007, 536) annexed to the summons, the board indicated that its examination of the case was based on the main request

filed during the oral proceedings before the examining division and the auxiliary request filed on 22 October 2012, and asked the appellant to clarify its requests. The board gave its provisional opinion that:

- (a) the phrase "*information with respect to a multiplexing scheme*" was ambiguous and the claims did not clearly specify which signalling information was carried in the Data Island Packets (Article 84 EPC);
- (b) the application as filed did not provide a clear and unambiguous basis for the claimed transmission of signalling information "*with respect to a multiplexing scheme*" via Data Island Packets (Article 123(2) EPC);
- (c) an assessment of whether the main request met the requirements of Rule 137(5) EPC could only be made on the basis of a clear set of claims; and
- (d) the subject-matter of claim 1 of the main and auxiliary request lacked inventive step over the combined disclosures of documents D4 and D5 (Article 56 EPC).

VI. With a reply dated 13 August 2018, the appellant filed amended claims according to the auxiliary request, put forward arguments as to why the claims met the requirements of Articles 56, 84 and 123(2) EPC and submitted pages "*from HDMI standard version 1.0 march 2003 as proof of common general knowledge*" (see last paragraph of page 4 of the reply).

VII. The board held oral proceedings on 13 September 2018. The appellant was represented.

The appellant's final requests were that:

- the decision under appeal be set aside and that
- a European patent be granted on the basis of the claims of the main request or the auxiliary request,
- both requests filed during the oral proceedings of 13 September 2018 at 14:10 hours.

The board notes that the claims of the main request filed during the oral proceedings are identical to the claims of the main request underlying the decision under appeal.

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

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

"A digital display interface part, for use in a first audio-visual device for supporting a digital display interface between the first audio-visual device and a second audio-visual device, the digital display interface for transmitting uncompressed pixel information, the interface part comprising:
an input for receiving image data;
a formatter arranged to format the data for transport over the interface, wherein the formatter is operable in:

a first mode in which the formatter generates a stream of first data elements which carry pixel data of a 2D image; and,

a second mode in which the formatter generates a stream of second data elements which carry a multiplexed combination of components of a stereoscopic image, the stereoscopic image having a plurality of possible formats

wherein the formatter is arranged to generate a stream of data elements comprising either the first or second data elements and auxiliary data carrying data elements at intervals in the stream,

wherein the interface part is arranged to send signaling information across the interface, the signaling information identifying which mode the formatter is using,

the signaling information comprises information with respect to a multiplexing scheme used in a second mode for enabling the second audio-visual device to determine a decoding scheme to be used to decode a stereoscopic image format being used in the second mode

the signaling information being carried in the auxiliary data elements

wherein the interface is a High Definition Multimedia Interface (HDMI) and the signaling information is sent in a Data Island Packet between image data."

IX. Claim 1 of the auxiliary request reads as follows:

"A digital display interface part, for use in a first audio-visual device for supporting a digital display interface between the first audio-visual device and a second audio-visual device, the digital display interface for transmitting uncompressed pixel information, the interface part comprising:

an input for receiving image data;

a formatter arranged to format the data for transport over the interface, wherein the formatter is operable in:

a first mode in which the formatter generates a stream of first data elements which carry pixel data of a 2D image; and,

a second mode in which the formatter generates a stream of second data elements which carry a multiplexed combination of components of a stereoscopic image, the stereoscopic image having a plurality of possible formats,

wherein the formatter is arranged to generate a stream of data elements comprising either the first or second data elements and auxiliary data carrying data elements at intervals in the stream,

wherein the interface part is arranged to send signaling information across the interface, the signaling information identifying which mode the formatter is using,

the signaling information comprises information, defining how the data of the stereoscopic image is allocated to the data elements in the second mode for enabling the second audio-visual device to determine a decoding scheme to be used to decode a stereoscopic image format being used in the second mode

the signaling information being carried in the auxiliary data elements,

wherein the interface is a High Definition Multimedia Interface and the information defining how the data of the stereoscopic image is allocated to the data elements is send *[sic]* in a Data Island Period between image data."

X. The appellant's arguments, where relevant to the present decision, may be summarised as follows:

(a) The concept of multiplexing was well known in the art, as demonstrated by, for instance, <https://en.wikipedia.org/wiki/Multiplexing>. The claim clearly related to digital multiplexing. The description, page 11, second paragraph, disclosed that it was the purpose of the information to allow the receiver to determine how the stereo information was allocated to data elements. This was clarified in the claim by stating: "*for enabling a second audio-visual device to determine a decoding scheme to be used to decode a stereoscopic image format being used in the second mode*" (see letter dated 13 August 2018, page 2, second paragraph).

(b) In HDMI, the signalling could be carried in vertical or horizontal blanking periods, "*which*

[was] an embodiment [of] how the signaling [could] be implemented" (see statement of grounds of appeal, page 8). Carrying signalling in vertical or horizontal blanking intervals was also known from the *"HDMI standard version 1.0 march 2003"* (see letter dated 13 August 2018, page 4, last paragraph, and the figures shown on pages 5 and 6).

- (c) Page 11, second paragraph, provided a clear and unambiguous basis for transmitting signalling information *"with respect to a multiplexing scheme"* via Data Island Packets. The appellant underlined certain parts of this paragraph as follows:

"Interface part 12 sends signaling 42 which indicates the format of the image data, e.g. indicating whether the image data is 2D, stereo (L+R) or stereo (2D+depth). The signaling can also indicate further details of the multiplexing scheme, such as which color depth mode is being used to carry the multiplexed data, the number of bits per data element that are allocated to 2D data and the number of bits per data element that are allocated to depth data. This signaling allows flexibility in how the stereo data is allocated to data carrying elements sent across the interface 40 and allows for the amount of Depth information to be changed dynamically, according to the requirements of the content which is to be displayed. In HDMI, Data Island Packets are sent in horizontal and vertical line blanking periods. The signaling information can conveniently be carried within a Data Island Packet. Figure 6 shows the layout of an HDMI video frame, showing [...]"

- (d) Further passages of the application as filed disclosed that the signalling information indicated "*what*" was transmitted and "*where*":
- (i) according to page 11, lines 29 to 33, the signalling indicated where the colour depth data could be found, and hence the amount of depth data and the location of the depth data could be varied on a dynamic basis;
 - (ii) page 12, lines 8 to 17;
 - (iii) page 13, lines 1 to 3, disclosed that the signalling information in the Data Island Packets indicated "*what the image data*" corresponded to.
- (e) It was apparent to the skilled person that the signalling information could be transmitted via Data Island Packets, via an additional line or partly via Data Island Packets and partly via the additional line. The engineer designing the system would have had no difficulties deciding which data to send over which channel. This needed not be defined in the application.
- (f) Regarding the admissibility of the auxiliary request, the objections raised by the board under Articles 84 and 123 EPC were of a complex nature and the appellant had only understood these objections during the discussion at the oral proceedings. The amendments made to claim 1 of the auxiliary request were a fair reaction to these objections. Therefore, the auxiliary request should be admitted into the proceedings.

(g) The wording of amended claim 1 of the auxiliary request was clearly based on page 11, lines 18 to 20.

Reasons for the Decision

1. The appeal is admissible.

2. *Clarity (Article 84 EPC) - main request*

2.1 Claim 1 of the main request specifies:

"a first mode in which the formatter generates a stream of first data [...] of a 2D image [...]

a second mode in which the formatter generates [...] components of a stereoscopic image, the stereoscopic image having a plurality of possible formats ...

wherein the interface part is arranged to send signaling [...] identifying which mode the formatter is using,

the signaling information comprises information with respect to a multiplexing scheme used in a second mode for enabling the second audio-visual device to determine a decoding scheme to be used [...] in the second mode [...]

wherein the interface is a High Definition Multimedia Interface (HDMI) and the signaling information is sent in a Data Island Packet between image data".

2.2 The board is not persuaded that the purpose of the signalling information defined in claim 1 allows a person skilled in the art to determine which signalling

information is carried in the Data Island Packets, even though multiplexing as such is well known and Data Island Packets are defined in the HDMI standard (see points X(a) and X(b) above). Further, the board has not been convinced that the broad, general reference to "*information with respect to a multiplexing scheme*" does not affect the clarity of claim 1 (see point X(e) above). Although the clarity of a claim is not diminished by the mere breadth of terms in it, upon proper interpretation, the meaning of those terms has to be unambiguous.

- 2.3 According to claim 1 of the main request, signalling information identifying which mode the formatter is using (2D or stereoscopic) and signalling information "*with respect to a multiplexing scheme used*" in the second mode is transmitted in Data Island Packets.

Claim 1 does not specify any details of the signalling information "*with respect to a multiplexing scheme used*" and is inconsistent with the description, page 11, second paragraph, which discloses that the signalling information identifying which mode the formatter is using is sent via a separate link.

- 2.4 The second sentence of the paragraph quoted by the appellant (see point X(c) above) lists some details of the multiplexing scheme without giving a precise definition. It appears, from reading this sentence in conjunction with the preceding one ("*Interface part 12 sends signaling 42 which indicates the format of the image data, e.g. indicating whether the image data is 2D, stereo (L+R) or stereo (2D+depth)*"), that signalling 42 indicates the format and the listed details.

Figure 7 shows signalling 42 on a bidirectional link 50 between the source device and the sink device, separate from the colour components transmitted on TMDS channels 41 (see page 10, lines 18 to 20: "*In HDMI, the three color components (R,G,B or Y,Cr,Cb) are sent simultaneously on three Transition Minimised Differential Signaling (TMDS) channels 41*").

Figure 6 shows "*the layout of an HDMI video frame, showing a region 61 where pixel data is sent across TMDS channels, a horizontal blanking period 63 and a vertical blanking period. Data Island Packets 64 are sent within Data Island periods positioned within the horizontal and vertical blanking periods 62, 63*" (page 11, lines 23 to 25). Hence, any signalling transmitted in Data Island Packets is transmitted via the TMDS channels 41.

Thus, it appears from Figures 6 and 7 and the corresponding parts of the description that some signalling information is transmitted in Data Island Packets and some signalling information is transmitted via a separate link. It is, however, not apparent which information is transmitted in the Data Island Packets and which information is transmitted via the separate link.

- 2.5 None of the additional passages cited by the appellant (see point X(d) above) specify which signalling information is transmitted via Data Island Packets and which signalling information is transmitted via a separate control line. They merely support the appellant's argument that some signalling information may be sent via Data Island Packets and some signalling information may be sent via an additional line (see point X(e) above).

2.6 Summarising, the term "multiplexing scheme" has not been clearly defined, and the description does not provide any guidance for deciding which information is to be transmitted via the Data Island Packets. Therefore, the phrase "*information with respect to a multiplexing scheme*" is ambiguous and the claims do not clearly specify which signalling information is carried in the Data Island Packets.

2.7 In view of the above, the board concludes that claim 1 of the main request does not meet the requirements of Article 84 EPC.

3. *Added subject-matter (Article 123(2) EPC) - main request*

3.1 For the reasons set out in section 2, the board is of the opinion that the description as filed, and in particular the passage referred to by the appellant (see point X(c) above), does not provide a clear and unambiguous basis for the claimed transmission of signalling information "*with respect to a multiplexing scheme*" via Data Island Packets.

3.2 Moreover, none of the originally filed claims mentioned signalling information indicating the "multiplexing scheme".

Original claims 10 and 12 read in conjunction specify that the interface part is arranged to send signalling information across the interface identifying which mode the formatter is using, wherein the interface is an HDMI interface and the signalling information is sent in a Data Island Packet between image data.

Claims 28 to 34 specify that the signalling information carried in the Data Island Packets (claim 34) in the horizontal or vertical blanking periods (claim 33) indicates what data elements carry the left eye image data and what data elements carry the right eye image data (claim 29), the transmission location and quantity of the depth information if the stereoscopic image data comprises 2D image data and depth information (claim 30) or the format of the stereoscopic image (claim 31).

The board finds no indication in the application documents that this specific teaching may be generalised such that the Data Island Packets contain signalling information with respect to a multiplexing scheme.

3.3 In view of the above, the board concludes that claim 1 of the main request does not meet the requirements of Article 123(2) EPC.

4. *Auxiliary request - admission into the appeal proceedings (Article 13(1) RPBA)*

4.1 Under Article 13(1) RPBA any amendment to a party's case after it has filed its statement of grounds of appeal may be admitted and considered at the board's discretion. This discretion is to be exercised in view of *inter alia* the complexity of the new subject-matter submitted, the current state of the proceedings and the need for procedural economy.

In accordance with their case law, the boards refuse to consider late-filed auxiliary requests, on the ground that they are inadmissible, where they are directed to subject-matter which *prima facie* is not allowable. It

must be immediately apparent to the board, with little investigative effort on its part, that the amendments made successfully address the issue raised, without giving rise to new ones. There must be no doubt that the late-filed request constitutes a promising attempt to counter all outstanding objections (see Case Law of the Boards of Appeal of the EPO, 8th Edition 2016, IV.E.4.4.2).

- 4.2 The present auxiliary request was filed for the first time during the oral proceedings. Hence, it was filed at a very late stage of the appeal proceedings.
- 4.3 The board's communication contained a detailed explanation of the objections raised under Articles 84 and 123(2) EPC. During the oral proceedings, the board repeated this reasoning and rebutted the arguments based on the further passages cited by the appellant (see point X(d) above). Therefore, the discussion at the oral proceedings cannot be considered to have caused the submission of the auxiliary request (see point X(f) above). The perceived complexity of the objection raised by the board in its communication results from the inconsistent disclosure of a plurality of examples in the description and cannot be taken as a justification for the submission of the new request at such a very late stage (see point X(f) above).
- 4.4 At first glance, the passage cited by the appellant (see point X(g) above) does not provide a clear and unambiguous basis for the amendment made to claim 1.
- 4.5 Page 11, lines 14 to 20, reads:

"The signaling can also indicate further details of the multiplexing scheme, such as which color depth mode is

being used to carry the multiplexed data, the number of bits per data element that are allocated to 2D data and the number of bits per data element that are allocated to depth data. This signaling allows flexibility in how the stereo data is allocated to data carrying elements sent across the interface 40 and allows for the amount of Depth information to be changed dynamically, according to the requirements of the content which is to be displayed."

The quoted sentences disclose an example in which the signalling of the colour depth mode and the number of bits allocated to 2D and depth allows for a dynamic change of depth information. Claim 1 of the auxiliary request refers in general to "*information, defining how the data of the stereoscopic image is allocated to the data elements in the second mode*", without specifying whether stereo is transmitted as (L+R) or (2D+depth). It is not immediately apparent how the specific example given on page 11 would be applicable to the stereo (L+R) scenario.

- 4.6 As set out in point 2.4 above, the description does not provide a clear and unambiguous basis for transmitting the information detailed on page 11 via the Data Island Packets.
- 4.7 Summarising, it is not immediately apparent to the board that the amendments successfully address the issues raised without giving rise to new ones.
- 4.8 In view of the above, the board exercised its discretion under Article 13(1) RPBA and did not admit the auxiliary request into the proceedings.

5. Since none of the appellant's requests can be granted, the appeal is to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



K. Boelicke

B. Müller

Decision electronically authenticated