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**Datasheet for the decision
of 20 January 2023**

Case Number: T 2299/18 - 3.5.04

Application Number: 13772509.9

Publication Number: 2835970

IPC: H04N19/117, H04N19/174,
H04N19/82, H04N19/55

Language of the proceedings: EN

Title of invention:

DECODER AND DECODING METHOD, AS WELL AS ENCODER AND ENCODING
METHOD

Applicant:

Sony Group Corporation

Headword:

Relevant legal provisions:

EPC Art. 54
RPBA 2020 Art. 13(1)

Keyword:

Main request - novelty (no)
First auxiliary request - admittance under Article 13(1) RPBA
2020 (no)

Decisions cited:

Catchword:



Beschwerdekammern
Boards of Appeal
Chambres de recours

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Case Number: T 2299/18 - 3.5.04

D E C I S I O N
of Technical Board of Appeal 3.5.04
of 20 January 2023

Appellant: Sony Group Corporation
(Applicant) 1-7-1 Konan
Minato-ku
Tokyo 108-0075 (JP)

Representative: D Young & Co LLP
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 4 April 2018
refusing European patent application No.
13772509.9 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chair B. Willems
Members: F. Sanahuja
B. Müller

Summary of Facts and Submissions

- I. The appeal is against the examining division's decision to refuse European patent application No. 13 772 509.9.
- II. The documents cited in the decision under appeal include the following:
- D1 "Annex R: Independent Segment Decoding Mode",
ITU-T Recommendation H.263, Video coding for low
bit rate communication, January 2005, pages 143
and 144, XP055215154
- D5 US 2010/0111193 A1
- III. The application was refused on the following grounds.
- (a) Claims 1 and 4 of the main request and claims 1
and 3 of the first auxiliary request were not clear
(Article 84 EPC).
- (b) The subject-matter of claims 1 and 4 of the main
request and claims 1 and 3 of the first auxiliary
request was not new (Article 54 EPC).
- IV. The applicant ("appellant") filed a notice of appeal. With the statement of grounds of appeal, the appellant submitted arguments to support its opinion that the claims were clear, and that their subject-matter was new and involved an inventive step.
- V. The appellant requested that the decision under appeal be set aside and a patent be granted on the basis of the claims of the main request or the first auxiliary request, both requests as refused by the examining

division (see statement of grounds of appeal, first paragraph in each of the sections entitled "Main Request" and "1st Auxiliary Request"). The appellant also requested oral proceedings in the event that the board was minded not to allow its main request (see the section "Oral Proceedings" on page 5 of the statement of grounds).

VI. The board issued summons to oral proceedings and a communication under Article 15(1) RPBA 2020 (the "board's communication"). In this communication, the board introduced the following documents *ex officio* into the appeal proceedings on the basis of Article 114(1) EPC:

- D9 Thomas Wiegand et al. "Overview of the H.264/AVC Video Coding Standard", IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, vol. 13, no. 7, pp. 560 to 576, July 2003, ISSN: 1051-8215, DOI: 10.1109/TCSVT.2003.815165
- D10 Atul Puri et al., "Video coding using the H.264/MPEG-4 AVC compression standard", Signal Processing: Image Communication, Volume 19, Issue 9, October 2004, pp. 793-849, ISSN: 0923-5965, DOI: 10.1016/j.image.2004.06.003
- D11 Yves Dhondt et al., "Flexible macroblock ordering as a content adaptation tool in H.264/AVC," Proc. SPIE 6015, Multimedia Systems and Applications VIII, 601506, 24 October 2005, DOI: 10.1117/12.630759

The board gave the following preliminary opinion.

- (a) For the sake of argument, the board accepted that the feature "*each tile always comprises a slice*

header, and may comprise a plurality of slices" should be interpreted as each tile being capable of both comprising a single slice or comprising a plurality of slices.

- (b) The subject-matter of claims 1 and 4 of the main request was not new over the disclosure of document D5 (Article 54 EPC).
- (c) If, during the oral proceedings, the board concluded that the image content of the tiles did not define limiting features of the claimed decoding device and method, then it appeared that the subject-matter of claims 1 and 3 of the first auxiliary request would not be new (Article 54(1) EPC).
- (d) If the appellant could convince the board that the image content of the tiles had a technical bearing on the claimed invention, the question of inventive step would need to be discussed. The board tended to share the examining division's opinion that the two views of a 3D image represented a special case of the two views disclosed in the multi-view coding of D5. The person skilled in the art would have found it obvious to apply the advantages of coding two views using slice groups to coding left and right views of 3D images.

VII. With a letter dated 29 September 2022, the appellant filed a replacement main request and a replacement first auxiliary request and submitted that the replacement main request was the previous first auxiliary request. The appellant provided reasons why the first auxiliary request should be admitted into the proceedings, and claim 1 of both requests met the

requirements of Articles 54 and 56 EPC.

- VIII. On 20 January 2023, the board held oral proceedings using videoconferencing technology, as requested by the appellant.
- IX. 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, alternatively, on the basis of the claims of the first auxiliary request, both requests filed with the letter dated 29 September 2022.
- X. At the end of the oral proceedings, the chair announced the board's decision.
- XI. Claim 1 of the **main request** reads as follows:

A decoding device, comprising:

- a motion compensation unit generating a prediction image by performing, for each of tiles, motion compensation with a reference image within a co-located tile, the co-located tile being positioned at the same place in the images, and motion vector information representing a motion vector used for generating encoded data of a decoding target current image when a picture of the current image is split into the tiles and decoded; and

- a decoding unit decoding the encoded data using the prediction image generated by the motion compensation unit; wherein each tile always comprises a slice header, and may comprise a plurality of slices; and wherein the image is split into two of the tiles and decoded, the image of one of the tiles is an image for

left eye constituting a 3D image, and the image of the other tile is an image for right eye constituting a 3D image.

XII. Claim 1 of the **first auxiliary request** differs from claim 1 of the main request in that the decoding device further includes:

- a screen rearrangement buffer configured to synthesize the decoded data;

XIII. The appellant's arguments, where relevant to the present decision, can be summarised as follows.

(a) Main request

- (i) Document D5 did not disclose that each view was "capable of both comprising a single slice or comprising a plurality of slices" because each view could only ever contain a group (i.e. a plurality) of slices (see sixth and seventh paragraphs in the section entitled "Novelty" on page 2 of the statement of grounds of appeal).
- (ii) Images for left and right eyes constituting a 3D image had a particular technical meaning that should be considered when assessing the patentability of the claims (see the appellant's letter dated 29 September 2022, first paragraph on page 2 to second full paragraph on page 3).
- (iii) Defining left and right eye images constituting a 3D image in claim 1 implied that the decoding device did at least some

of the specific processing to allow a final 3D image to be generated. For instance, the decoder device implicitly identified images for the left and right eyes for synthesising a 3D image.

(b) First auxiliary request

The first auxiliary request should be admitted into the appeal proceedings because the screen rearrangement buffer in claim 1 exhibited characteristics specific to the processing of the left and right eye images of a 3D image. The decoding of 3D images in document D5 required a different buffer. The amendments overcame the issues raised in the board's communication.

Reasons for the Decision

1. The appeal is admissible.

2. *The invention*

The invention relates to decoding image data. An image is divided into a plurality of tiles (i.e. rectangular regions). By performing, for each of a plurality of tiles, motion compensation with a reference image within a co-located tile, tiles can be decoded independently in the time direction.

3. *Main request - novelty (Article 54(1) EPC)*

3.1 An invention is to be considered new if it does not form part of the state of the art (Article 54(1) EPC).

3.2 The board agrees with the examining division's view that document D5 discloses the independent encoding and decoding of plural tiles, each tile consisting of a slice group comprising one or more slices, a slice including a slice header (see decision under appeal, point 8, fifth paragraph). Document D5 also discloses a corresponding decoder (see paragraphs [0048] to [0051]) for decoding two tiled views of multi-view content, wherein each tiled view is a separate slice group (see paragraphs [0010], [0056]).

3.3 The appellant's argument that each view in document D5 necessarily contained more than one slice (see point XIII.(a)(i) above) did not persuade the board.

Each "view" in document D5 was coded as a separate slice group. According to the appellant, a group necessarily contained more than one object. Thus, a slice group could only contain multiple slices and document D5 did not disclose a "view" containing a single slice.

3.3.1 Terms used in patent documents should be given their normal meaning in the relevant art, unless the description gives them a special meaning (see Case Law of the Boards of Appeal of the EPO, 10th edition 2022, I.C.4.1). In the board's view, the same principle applies to technical standards relied on in patent documents.

3.3.2 The board agrees with the appellant that from a purely semantic point of view a "group" includes more than one object.

However, document D5 refers to "slice groups compatible" with the H.264/MPEG-4 AVC standard (see D5,

paragraphs [0003] and [0055]). Therefore, the term "slice group" should be given the meaning defined in this standard.

The examining division's interpretation of a slice group as comprising one or more slices (see decision under appeal, point 8, fifth paragraph) conforms to the meaning given in the standard. This is corroborated by the following overviews of the H.264/MPEG-4 AVC standard:

- *"Each slice group can be partitioned into one or more slices"* (see document D9, page 566, left column, first paragraph).
- *"Further, slices can be bundled into groups, appropriately called, slice groups. Thus, a slice group may have one or more slices"* (see, document D10, page 839, left column, second full paragraph).
- *"In H.264/AVC each picture can be divided in up to eight different slice groups each consisting out of one or more slices"* (see document D11, page 2, last paragraph).

3.4 In view of the above, claim 1 of the main request differs from the disclosure of document D5 in that:

- (i) the image of one of the tiles is an image for left eye constituting a 3D image, and
- (ii) the image of the other tile is an image for right eye constituting a 3D image.

3.5 The board is not convinced of the alleged technical character of images for left and right eyes

constituting a 3D image (see point XIII.(a)(ii) above).

3.5.1 The appellant submitted "*that left eye and right eye images constituting a 3D image [were] ... distinguished from other images ... in terms of technical considerations associated with their content*" since they were images of one and the same object taken from specific positions. The images for left and right eyes had a "*particular technical characteristic*" because "*they exhibited a suitable left / right eye parallax*". This made it possible to realise the "*particular technical phenomenon*" of generating a 3D stereoscopic image (see the second and third paragraphs on page 2 of the appellant's letter dated 29 September 2022). Thus, the claimed subject-matter had a technical difference over the teachings of document D5.

3.5.2 The board agrees with the examining division's finding that the content of the images, as specified in points (i) and (ii), did not define limiting features of the claimed decoding device (see decision under appeal, point 9).

In the board's view, the alleged technical considerations when taking the images, the alleged technical characteristics of the images, or the possibility of generating a 3D stereoscopic image from the images, do not have an effect on the manner in which the decoding device of claim 1 operates. In particular, the board cannot identify any distinct behaviour of the decoding device which depends on the content of the images, and that, therefore, would mean the claimed decoding device and the decoding device of document D5 are configured to decode the data in a different manner. Each of the decoding devices' operations for decoding the images for the left and

right eyes constituting a 3D image of claim 1 and for decoding two views in D5 are the same.

3.6 The appellant's argument that the decoding device did at least some of the specific processing to allow a final 3D image to be generated (e.g. identifying images for the left and right eyes) did not persuade the board (see point XIII.(a)(iii) above).

3.6.1 In the board's view, the decoding device of claim 1 does not specify or imply any specific processing for generating a final 3D image which goes beyond decoding the two tiles. Furthermore, whether these tiles (i.e. images for the left and right eyes) need to be identified at all is neither implied in claim 1 nor described in the application.

It follows that the alleged specific processing which allows the generation of a final 3D image, in particular the identification of images for each eye, is speculative and should not be considered in the analysis of novelty.

3.7 In view of the above, the subject-matter of claim 1 of the main request is not new over the disclosure of document D5 (Article 54(1) EPC).

4. *First auxiliary request - admittance into the appeal proceedings (Article 13(1) RPBA 2020)*

4.1 Under Article 13(1) RPBA 2020, the board must exercise its discretion in deciding on whether or not to admit amendments to a patent application in view of, *inter alia*, whether the party has demonstrated that any such amendment, *prima facie*, overcomes the issues raised by the board.

The board is of the opinion that this is not the case for the following reasons.

- 4.2 The appellant has not demonstrated that the addition in claim 1 of "*a screen rearrangement buffer configured to synthesize the decoded data*" overcomes, *prima facie*, the issues with the patentability of claim 1 of the first auxiliary request on which the decision was based. Those issues were raised in points 6.5 to 6.7 of the board's communication.
- 4.2.1 The appellant indicated paragraph [0135] of the description as the basis for the amendment. According to this paragraph, the screen rearrangement buffer synthesises the decoded images of the respective tiles by arranging and storing the respective decoded images based on tile split information, and rearranging the stored images in the order of the original display for output.
- 4.2.2 In the board's view, the screen rearrangement buffer operates as dictated by the functionality of an MPEG-4 AVC decoder.

Both document D9 (see page 561, right column, the bullet point entitled "Decoupling of referencing order from display order" and page 562, right column, the bullet point entitled "Arbitrary slice ordering (ASO)") and document D10 (see page 796, left column, starting at the phrase "Unlike previous standards" and page 839, left column, first full paragraph) disclose a picture (image) coding order different to the display order and receiving slices in an arbitrary order. Both require a buffer to arrange and store slices and to rearrange the images.

Hence, a common MPEG-4 AVC decoder arranges and stores decoded slices of slice groups (tiles or views in D5), and rearranges images according to their display order.

4.3 The appellant's argument that the screen rearrangement buffer exhibited characteristics specific to the processing of tiles representing the left and the right eye images constituting a 3D image (see point XIII.(b) above) has not convinced the board. Moreover, the argument that the field or frame format for coding stereoscopic 3D images referred to in document D5, paragraph [0004] required a different buffer has not persuaded the board.

4.3.1 There is no indication that the claimed screen rearrangement buffer interacts with the images for the left and right eyes constituting a 3D image in a different manner from a buffer in a decoder for decoding two views, each view coded as a slice group as in document D5. Thus, the argument that the screen rearrangement buffer exhibited specific characteristics is irrelevant. Moreover, the board did not equate the two views with the two views arranged in field format or frame format described in paragraph [0004] of document D5.

Thus, the appellant has not been able to demonstrate that the amendments, *prima facie*, overcome the issues with the patentability of claim 1 of the first auxiliary request on which the decision was based and which were raised in the board's communication.

4.4 For the above reasons, the board has exercised its discretion in not admitting the first auxiliary request

into the proceedings pursuant to Article 13(1)
RPBA 2020.

5. *Conclusion*

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

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chair:



K. Boelicke

B. Willems

Decision electronically authenticated