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**Datasheet for the decision
of 6 October 2020**

Case Number: T 2208/15 - 3.5.04

Application Number: 07829308.1

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H04N19/117, H04N19/17,
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H04N19/61, H04N19/136

Language of the proceedings: EN

Title of invention:

Method and apparatus for improving the interpolation accuracy
of chrominance signals

Applicant:

Nippon Telegraph and Telephone Corporation

Headword:

Relevant legal provisions:

EPC 1973 Art. 84, 113(1)
RPBA 2020 Art. 15(3)

Keyword:

Oral proceedings - held in absence of appellant
Claims - clarity (no) - missing essential features

Decisions cited:

Catchword:



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Chambres de recours

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Case Number: T 2208/15 - 3.5.04

D E C I S I O N
of Technical Board of Appeal 3.5.04
of 6 October 2020

Appellant: Nippon Telegraph and Telephone Corporation
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Chiyoda-ku
Tokyo 100-8116 (JP)

Representative: Saulais, Vincent
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 15 July 2015
refusing European patent application
No. 07829308.1 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 examining division's decision to refuse European patent application No. 07 829 308.1, published as EP 2 066 134 A1.
- II. The decision under appeal was based on the grounds that claim 1 of the then main request and the then auxiliary request did not meet the requirements of Article 123(2) EPC.
- III. The applicant (hereinafter "appellant") filed notice of appeal. With the statement of grounds of appeal, the appellant maintained the main request underlying the decision under appeal. The appellant also maintained the auxiliary request underlying the decision under appeal as the first auxiliary request. In addition, the appellant filed claims according to a second auxiliary request. The appellant requested 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, in the alternative, on the basis of the claims of either of the first and second auxiliary requests.
- IV. The board issued a summons to oral proceedings. In a communication under Article 15(1) RPBA 2020 (Rules of Procedure of the Boards of Appeal, 2020 version, Supplementary publication 2, OJ EPO 2020) annexed to the summons, the board expressed the preliminary opinion that the subject-matter of claim 1 according to both the main request and the first auxiliary request did not meet the requirements of Article 123(2) EPC. Concerning the second auxiliary request, the board expressed the preliminary opinion that claim 1 met the requirements of Article 123(2) EPC but was not clear

(Article 84 EPC 1973) because the feature "*characteristics inside a frame*" was ambiguous.

- V. With a letter dated 1 September 2020, the appellant withdrew the previous main request and the previous first auxiliary request and filed a new set of claims based on the previous second auxiliary request as the sole request. The appellant gave a basis in the application as filed for the amendments to the claims of the sole request and arguments as to why the claims of the sole request met the requirements of Article 84 EPC. The appellant also indicated that it would not be attending the oral proceedings.
- VI. On 6 October 2020 the board held oral proceedings in the absence of the appellant. The appellant's final requests were that the decision under appeal be set aside and a European patent be granted on the basis of the claims of the sole request filed with the letter dated 1 September 2020. At the end of the oral proceedings the chairman announced the board's decision.
- VII. Claim 1 of the sole request reads as follows:
- "A video decoding method characterized by decoding encoded data of a video signal targeted for encoding which is made up of two or more color space signals, the encoded data being generated by downsampling a specific color space signal inside a frame based on a downsampling ratio that is determined in accordance with the size of the amount of transition inside the frame and by performing encoding which includes an inter-frame prediction using motion compensation having a decimal fraction pixel accuracy, the video decoding method comprising:

a step (S304) of, when the motion compensation having the decimal fraction pixel accuracy is used for the inter-frame prediction, calculating the interpolation accuracy of a downsampled color space signal in a reference frame in accordance with a ratio between a downsampling ratio for the specific color space signal of a frame targeted for decoding and a downsampling ratio for the specific color space signal of the reference frame; and

a step (S305 - S309) of generating an interpolated image of the reference frame based on the calculated interpolation accuracy, wherein the step of generating the interpolated image comprises a step of, if the calculated interpolation accuracy is less than one-pixel accuracy (S305), repeating steps of:

- (a) determining (S306) whether or not the interpolation accuracy of the specific color space signal of the reference frame is lower than the calculated interpolation accuracy of the reference frame; and
- (b) if the interpolation accuracy of the specific color space signal of the reference frame is lower than the calculated interpolation accuracy of the reference frame, selecting (S307) an interpolation filter coefficient corresponding to the interpolation accuracy of the specific color space signal of the reference frame from among interpolation filter coefficients stored for a plurality of interpolation accuracies, performing (S308) interpolation using the reference frame, the interpolation accuracy of the specific color space signal of the reference frame, and the selected interpolation filter coefficient, and setting (S309), as interpolation accuracy to be used in the next interpolation, interpolation accuracy having a value obtained by increasing the value of the interpolation

accuracy of the specific color space signal of the reference frame by a predetermined rate, until it is determined in the step (a) that the interpolation accuracy of the specific color space signal of the reference frame is not lower than the calculated interpolation accuracy of the reference frame."

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

The amended feature of claim 1 reading "*size of the amount of transition inside the frame*" was based on paragraphs [0012], [0015], [0061], [0062], [0070] and [0071] of the description.

This amended feature of claim 1 corresponded to one example of the feature "*characteristics inside the frame*" mentioned in the description. This amendment clarified the feature used for determining the downsampling ratio. With this amendment the different possible interpretations of the feature "*characteristics inside the frame*" mentioned by the board in point 7.6 of the communication under Article 15(1) RPBA 2020 no longer existed for the skilled person (see letter dated 1 September 2020).

Reasons for the Decision

1. The appeal is admissible.

2. *Non-attendance of the appellant at the oral proceedings / right to be heard*
 - 2.1 According to Article 15(3) RPBA 2020: "*The board shall not be obliged to delay any step in the proceedings, including its decision, by reason only of the absence at the oral proceedings of a party duly summoned who may then be treated as relying only on its written case.*"

 - 2.2 Furthermore, it is established case law of the boards of appeal that appellants who submit amended claims shortly before the oral proceedings and subsequently do not attend these proceedings must expect a decision based on objections which might arise against such claims in their absence (see Case Law of the Boards of Appeal of the European Patent Office ("Case Law"), 9th edition 2019, V.A.4.5.3(a), first paragraph).

Such a decision does not violate the appellant's right to be heard enshrined in Article 113(1) EPC 1973 (see Case Law, III.B.2.7.3 on Article 15(3) RPBA 2007, which has essentially the same wording as Article 15(3) RPBA 2020).

 - 2.3 In the case in hand, the board raised an objection under Article 84 EPC 1973 in point 7.6 of the communication under Article 15(1) RPBA 2020 (see point IV above), which the appellant attempted to overcome by an amendment (see point V above).

Therefore, the appellant should have expected the board to examine whether the amended claims met the requirements of Article 84 EPC 1973, including whether the amendments gave rise to new objections under Article 84 EPC 1973.

3. *Sole request, clarity (Article 84 EPC 1973)*

3.1 The board agrees with the appellant that replacing the feature "*a downsampling ratio that is determined in accordance with characteristics inside the frame*" with "*a downsampling ratio that is determined in accordance with the size of the amount of transition inside the frame*" in claim 1 overcomes the objection of lack of clarity raised under point 7.6 of the communication under Article 15(1) RPBA 2020 (see point VIII above).

3.2 However, in the board's view the above-mentioned amended feature of claim 1 ("*a downsampling ratio that is determined in accordance with the size of the amount of transition inside the frame*") gives rise to a new objection under Article 84 EPC 1973 for the reasons set out below.

3.3 According to the established case law of the boards of appeal, Article 84 EPC 1973 has to be interpreted as meaning not only that a claim must be comprehensible from a technical point of view, but also that it must define the object of the invention clearly, that is to say indicate all the essential features thereof. All features which are necessary for solving the technical problem with which the application is concerned have to be regarded as essential features (see Case Law, II.A.3.2).

- 3.4 The technical problem with which the application is concerned is to reduce the code amount by downsampling a specific colour space signal, e.g. a chrominance signal, while maintaining the subjective image quality (see description, paragraphs [0007] and [0009]).
- 3.5 According to the application, the solution to the above problem is based on the observation that when the size of the amount of transition increases, the downsampling ratio can be increased without negatively affecting the subjective image quality (see description, paragraph [0012]: "*when a comparison is made between a frame in which there is a large amount of transition and a frame in which there is a small amount of transition, there is a relatively low level of visual sensitivity in the former, and thus, compared with a frame having a small amount of transition, there is no reduction in subjective image quality in a frame having a large amount of transition even if large-scale downsampling is performed*").

Corresponding disclosures are found in paragraphs [0015], [0061], [0062], [0070] and [0071] of the description, which the appellant also cited as the basis for the stated feature of claim 1 (see point VIII above).

- 3.6 The feature of claim 1 stated above using the formulation "*in accordance with the size of the amount of transition*" encompasses both the above-described case, where the downsampling ratio increases when the amount of transition increases, and the opposite case, where the downsampling ratio increases when the amount of transition decreases. However, only the former solves the problem of the invention; the latter does not maintain the subjective image quality.

3.7 In light of the above, to solve the technical problem which the application is concerned with, it is essential to increase the downsampling when the size of the amount of transition increases.

However, this feature is missing in claim 1.

3.8 As a consequence, claim 1 does not include all the essential features and thus does not meet the requirements of Article 84 EPC 1973.

4. Conclusion

For the above reasons, the appellant's sole request is not allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



K. Boelicke

M. Paci

Decision electronically authenticated