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Datasheet for the decision
of 12 April 2018

Case Number: T 0179/12 - 3.5.04

Application Number: 03799117.1

Publication Number: 1549077

IPC: H04N7/36

Language of the proceedings: EN

Title of invention:
IMAGE ENCODING DEVICE, IMAGE DECODING DEVICE AND THEIR METHODS

Applicant:
Godo Kaisha IP Bridge 1

Headword:

Relevant legal provisions:
EPC 1973 Art. 84
EPC Art. 123(2)

Keyword:
Claims - clarity - main and first auxiliary request (no)
Amendments - extension beyond the content of the application
as filed - second auxiliary request (yes)

Decisions cited:

Catchword:

Case Number: **T 0179/12 - 3.5.04**

D E C I S I O N
of Technical Board of Appeal 3.5.04
of 12 April 2018

Appellant: Godo Kaisha IP Bridge 1
(Applicant)   c/o Sakura Sogo Jimusho,
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Decision under appeal: Decision of the Examining Division of the
                                  European Patent Office posted on 26 October 2011
                                  refusing European patent application
                                  No. 03799117.1 pursuant to Article 97(2) EPC

Composition of the Board:

Chairman   C. Kunzelmann
Members: B. Willems
                      B. Müller

Summary of Facts and Submissions

I.   The appeal is against the decision of the examining
          division dated 26 October 2011 refusing European patent
          application No. 03799117.1 (publication number
          EP 1 549 077 A1), which was filed as international
          application PCT/JP2003/012053, published as
          WO 2004/032521 A1.

II.   The application was refused on the ground that the
          subject-matter of claims 1 and 2 extended beyond the
          disclosure of the application as filed (Article 123(2)
          EPC).

III.   With a letter dated 5 January 2012, the applicant filed
          notice of appeal and a statement of grounds of appeal,
          requesting that the examining division's decision be
          set aside and that a European patent be granted on the
          basis of the claims of the main request, or
          alternatively of either the first or second auxiliary
          request, all requests submitted with the letter dated
          5 January 2012. The appellant submitted a third
          auxiliary request for the case to be remitted "*to the
          Examining Division for further substantive examination*"
          if the board agreed with the appellant "*on issues as
          discussed*" in the statement of grounds of appeal but
          was "*nevertheless not willing to grant a patent for
          other reasons*" (see page 23 of the letter).

IV.   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 2007, 536) which
          was annexed to the summons, the board gave its
          provisional opinion that the subject-matter of claim 1
          of the main and first and second auxiliary requests
          extended beyond the disclosure of the application as

filed (Article 123(2) EPC) and that claim 1 of the main
and first auxiliary requests did not meet the
requirements of Article 84 EPC 1973. The board
introduced document

D2: "Text of Committee Draft of Joint Video
Specification (ITU-T Rec. H.264 ISO/IEC 14496-10 AVC)",
ISO/IEC JTC1/SC29/WG11 MPEG02/N4810, Fairfax, US,
May 2002, pages i-x, 1, XP001074690,

which had been cited in the supplementary European
search report, into the proceedings and indicated that
if the claims were found to meet the requirements of
Article 84 EPC 1973 and Article 123(2) EPC, the
appellant should be prepared to discuss inventive step
in view of the disclosures of documents D1
(XP030005364) and D2 during the oral proceedings
(Article 56 EPC 1973).

V.   With its reply dated 12 March 2018, the appellant filed
        a corrected description page 27 for all requests and
        submitted arguments as to why the claims of the
        requests on file met the requirements of Article 84
        EPC 1973 and Article 123(2) EPC.

VI.   The board held oral proceedings on 12 April 2018. The
        appellant was represented and requested that the
        decision under appeal be set aside and that a European
        patent be granted on the basis of the claims according
        to the main request or, in the alternative, the first
        or second auxiliary request. As a further auxiliary
        request, the appellant requested that the case be
        remitted to the examining division for further
        substantive examination if the board agreed with the
        appellant on the issues discussed in the statement of

grounds of appeal but was nevertheless not willing to grant a patent for other reasons.

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

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

"A picture decoding apparatus which decodes, on a block-by-block basis, a coded signal obtained by coding, on a block-by-block basis, a picture having a frame structure or a field structure, said apparatus comprising:

a block decoding unit:
operable to decode a coded difference image which is included in the coded signal and is obtained by coding a difference image between an input image and a predictive image, and
operable to generate a decoded difference image of the block;

a predictive image generation unit:
operable to generate a predictive image using a frame weighting factor and pixel values of a reference frame, in the case where the block is coded in a frame coding, and
operable to generate a predictive image using a field weighting factor and pixel values of a reference field, in the case where the block is coded in a field coding; and

a reproduced image generation unit operable to generate a reproduced image of the block based on the decoded difference image of the block and the generated predictive image,

wherein said predictive image generation unit is
further:
operable to extract a weighting factor from the coded
signal,
operable to generate the predictive image using the
extracted weighting factor as a frame weighting factor,
in the case where the picture has a frame structure and
all of the blocks included in the picture are coded in
a frame coding,
operable to generate the predictive image using the
extracted weighting factor as a field weighting factor,
in the case where the picture has a field structure and
all of the blocks included in the picture are coded in
a field coding,
operable to generate the predictive image using the
extracted weighting factor which is a frame weighting
factor, in the case where the picture has a frame
structure and each block included in the picture is
coded adaptively in a field coding or a frame coding,
and said block is coded in a frame coding, and
operable to generate a field weighting factor based on
the extracted weighting factor which is the frame
weighting factor, and generate the predictive image
using the generated field weighting factor, in the case
where the picture has a frame structure, and each block
included in the picture is coded adaptively in a field
coding or a frame coding, and said block is coded in a
field coding."

VIII.   The wording of claim 1 of the first auxiliary request
        corresponds to the wording of claim 1 of the main
        request, with the last "operable" clause specifying
        that the predictive image generation unit is

        "operable to generate a field weighting factor using
        the extracted weighting factor which is the frame

weighting factor, and generate the predictive image using the generated field weighting factor, in the case where the picture has a frame structure, and each block included in the picture is coded adaptively in a field coding or a frame coding, and said block is coded in a field coding."

IX.   The wording of claim 1 of the second auxiliary request corresponds to the wording of claim 1 of the main request, with the last "operable" clause specifying that the predictive image generation unit is

"operable to generate a field weighting factor using the extracted weighting factor which is the frame weighting factor as the field weighting factor, and generate the predictive image using the generated field weighting factor, in the case where the picture has a frame structure, and each block included in the picture is coded adaptively in a field coding or a frame coding, and said block is coded in a field coding."

X.   The examining division's objections where relevant to the present decision may be summarised as follows:

(a) Claim 1 specified

"*a block decoding unit [...] operable to generate a field weighting factor using the frame weighting factor extracted from the coded signal as the field weighting factor*".

This phrase could be construed as meaning that the decoder set the field weighting factor equal to the frame weighting factor. The passages and figures referred to by the applicant did not provide a direct and unambiguous basis for the field

weighting factor being equal to the frame weighting
factor. It was not clear whether the equations
shown on drawing sheet 17 referred to the
generation of a field weighting factor in the
encoder (Figure 17A) or in the decoder
(Figure 17B). It would be plausible though that
they referred to the generation in the encoder.
Furthermore, Figure 18, step 36, suggested that the
field weighting factor was not equal to the frame
weighting factor, because additional information
indicating the generation of the field weighting
factor had to be coded (as opposed to the field
factor presence/absence information in Figure 17B).
The need to transmit "*information indicating
generation of field weighting factor*" suggested
that the field weighting factor was not to be
equated with the frame weighting factor (see
decision, page 4, first full paragraph).

(b) The description, page 29, lines 21 to 25, implied
that generating the field weighting factor was only
possible in certain circumstances, none of which
had been disclosed in the application (see annex to
the examining division's summons to oral
proceedings, page 2, last paragraph).

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

(a) The feature "*operable to generate a field weighting
factor based on the extracted weighting factor
which is the frame weighting factor*" was defined
for the case in which "AFF" was equal to "1" and
the "*block was coded in a field coding*" (see
statement of grounds of appeal, page 11,
point (iv)).

(b) Claim 1 of the main request "*reads on a picture decoding apparatus*" of the first embodiment described with respect to Figure 16, steps S21, S23 and S24, and page 24, lines 16 to 21 (see statement of grounds of appeal, pages 11 and 12, point (iv)). Claim 1 of the main request "*also reads on a picture decoding apparatus [...] of the second embodiment, provided that the additional 'Field factor presence/absence information' indicates that the field weighting factor is not transmitted in the 'header' structure (cf. Figs. 17B, 17C, 18, and 19 and the corresponding passages of the description)*" (see reply dated 12 March 2018, page 5, point 1.2 c)). It was apparent from the structure of the application and a comparison of the data structures and flow charts for the first embodiment, the variation of the first embodiment and the second embodiment that the second embodiment combined the first embodiment with the variation of the first embodiment. Thus, details of the generation of the field weighting factor based on the extracted (frame) weighting factor described for the second embodiment would also apply to the generation of the field weighting factor in the variation of the first embodiment.

(c) Page 27, lines 24 to 30, disclosed generating a field weighting factor by "*appropriating a frame weighting factor*". Although "*'appropriating' may not be a very typical term in the technical context*" of generating field weighting factors, the person skilled in the art would understand that "*appropriating a frame weighting factor*" meant setting the field weighting factor equal to the decoded weighting factor (see statement of grounds of appeal, pages 12 and 13, point 2.2 a)).

According to the "dict.cc" website, to appropriate
meant "sich etwas aneignen", "sich etwas zu eigen
machen". This implied that the field weighting
factor was set equal to the frame weighting factor.
This was also apparent from the fact that the
variable names used in the equations below
Figure 17C corresponded to the variable names used
in equations (1) to (6) in the description of the
conventional picture method (see statement of
grounds of appeal, page 15, first full paragraph).

(d) According to corrected page 27, lines 18 to 23, the
flow chart shown in Figure 16 "*corresponds to the
sequence of coding processing described in
Fig. 15*" (see reply dated 12 March 2018, page 3,
second full paragraph). Thus, Figure 15 showed the
coding sequence that corresponded to the decoding
sequence of Figure 16, and the first embodiment
provided a direct and unambiguous basis for the
subject-matter of claim 1 of the main request (see
reply dated 12 March 2018, page 3, fifth and sixth
paragraphs).

(e) If the "picture frame coding information" and "AFF"
were equal to "1", either the frame weighting
factor and the field weighting factor were coded
(as in Figures 12A and 17A), or only the frame
weighting factor was coded (as in Figures 14A and
17B). The "field factor presence/absence
information" indicated whether the header included
a field weighting factor (Figure 17A) or not
(Figure 17B), i.e. whether the field weighting
factor was "abbreviated" or not (see page 28,
lines 26 to 32). Figures 12C, 14C and 17C
illustrated the case where "picture frame coding
information" equal to "1" and "AFF" equal to "0"

indicated the absence of field/frame switching on a
block-by-block basis and, consequently, only the
frame weighting factor was coded. Thus, it was
clear that, only in Figure 17B, the field weighting
factor had to be generated at the decoder, and the
equations below Figure 17C related to the
generation of the field weighting factor at the
decoder. Whether the encoder also generated the
field weighting factor based on the frame weighting
factor was irrelevant, because the claims specified
a decoder. However, an interpretation whereby the
equations related only to the encoder would not
make sense and would be inconsistent with Figure 18
(see statement of grounds of appeal, pages 13 and
14, point 2.2 b), and page 20, first and second
full paragraphs, and the reply dated 12 March 2018,
point 1.3 a)).

(f) Figure 18 described a coding sequence and Figure 19
a decoding sequence of the "header" structures
shown in Figures 17A, 17B and 17C. It was clear
that Figure 18, steps S10, S11, S31, S32, S33, S36
and S37, corresponded to the case of block-by-block
field/frame switching and only coding the frame
weighting factor. The "*fact that the field
weighting factor is not generated based on the
frame weighting factor [...] is signaled by an
additional information that is coded at the encoder
in step 36 ('Code information indicating generation
of field weighting factor')*" (see reply dated
12 March 2018, page 10, middle paragraph). Since
the coding necessarily corresponded to the
decoding, both steps S33 and S36 must code the
additional "field factor presence/absence
information". Any interpretation whereby "*either
the field weighting factor or information*

*establishing how the field weighting factor depends
on the frame weighting factor*" may be coded in step
S36 would not be consistent with Figure 17B or 19
(see reply dated 12 March 2018, point 1.3 b)).

(g) If the encoder was able to generate the field
    weighting factor from the frame weighting factor,
    "*a corresponding [decoder] should be able to do the
    same [thus] there is no need to code the field
    weighting factor*" (see reply dated 12 March 2018,
    page 12, first paragraph). If the "field weighting
    factor" was not transmitted but generated on the
    basis of the decoded "frame weighting factor", the
    relationship between these two factors must be the
    same in picture coding and decoding, and "one
    possible way of generating" the field weighting
    factor would be to set it equal to the "frame
    weighting factor" (see statement of grounds of
    appeal, page 16, last full paragraph, and the
    paragraph bridging pages 16 and 17).

(h) The phrase "*to generate a field weighting factor
    based on the extracted weighting factor*" might be
    broad but was nevertheless clear. It encompassed
    the possibility that the field weighting factor
    could be set equal to the frame weighting factor.

(i) Step S32 in Figure 18 related to the coder and did
    not have any effect on the generation of the field
    weighting factor in the decoder.

Reasons for the Decision

1.   The appeal is admissible.

2.   *Clarity (Article 84 EPC 1973) - main request*

2.1   According to Article 84 EPC 1973 the claims must be
        clear and concise and supported by the description.
        Vague terms can create a lack of clarity if they result
        in different but equally valid interpretations of the
        claims (see Case Law of the Boards of Appeal of the
        European Patent Office, 8th edition 2016,
        section II.A.3).

2.2   Claim 1 of the main request specifies that the
        predictive image generation unit is "*operable to
        generate a field weighting factor based on the
        extracted weighting factor which is the frame weighting
        factor*" (emphasis added).

2.3   The board agrees with the examining division's
        assessment in the annex to the summons, page 2,
        penultimate paragraph, that "*Generating a field
        weighting factor based on a frame weighting factor is
        clearly an essential feature of claim 1. However, [...]
        the description does not disclose, in a sufficient
        clear and detailed manner, how the field weighting
        factor is generated. The description only contains
        vague and unclear statements to this effect, and the
        equations in figure 17 are presented without a
        context*".

2.4   The phrase "*to generate [...] based on*" is vague and
        does not specify how the field weighting factor is
        generated.

2.5   Claim 1 specifies generating the field weighting factor
        if AFF=1 and is based on the "variation" of the first
        embodiment described with respect to Figures 14A, 14B,
        14C, 15 and 16.

2.6   According to the variation of the first embodiment,
        "*the 'field weighting factor' appropriates the 'frame
        weighting factor' to the coding processing*" (see
        page 26, lines 17 and 18), or the field weighting
        factor is generated by, for instance, "*appropriating a
        frame weighting factor*" (see page 27, lines 24 to 30).

        The board is not persuaded that a person skilled in the
        art would understand that "*appropriating a frame
        weighting factor*" means setting the field weighting
        factor equal to the decoded weighting factor (see
        point XI(c) above). The application does not explain
        the meaning of "to appropriate". The definitions of
        this verb given in the Oxford English Dictionary are to
        make (a thing) the private property of anyone, to take
        possession of or to make appropriate. Hence, in a
        normal understanding of the verb "to appropriate",
        either the (de)coding would use (take possession of)
        the frame weighting factor or the field weighting
        factor would change (make appropriate) the frame
        weighting factor for use in (de)coding. Neither of
        these interpretations hints at setting one factor equal
        to the other. The German translation of "to
        appropriate" quoted by the appellant (see point XI(c)
        above) corresponds to a definition given in the Oxford
        English Dictionary and does not clarify the meaning of
        "to appropriate" in the context of the description of
        the "variation" of the first embodiment.

2.7   The board has not been convinced that the phrase quoted
        in point 2.2 above was broad but nevertheless clear
        (see point XI(h) above).

        As set out by the appellant (see point XI(g) above), if
        the "field weighting factor" was generated on the basis
        of the "frame weighting factor", the relationship
        between these two factors must be the same in picture
        coding and decoding. One possible way of generating the
        field weighting factor would be to use a fixed
        algorithm known to both the encoder and decoder, e.g.
        to set it equal to the "frame weighting factor".
        However, the wording "based on" also encompasses
        varying the way of generating the field weighting
        factor from block to block. Either this variation would
        have to depend on factors known to both the coder and
        the decoder, or the coder would have to signal to the
        decoder how the coder generated the field weighting
        factor based on the frame weighting factor (see also
        point X(a) above). Hence, the different but equally
        valid interpretations of claim 1 of the main request
        result in fundamentally different approaches to
        generating the field weighting factor based on the
        extracted weighting factor. It would not be apparent to
        the person skilled in the art which of these
        interpretations is correct.

2.8   In view of the above, the board concludes that claim 1
        of the main request does not meet the requirements of
        Article 84 EPC 1973.

3.   *Clarity (Article 84 EPC 1973) – first auxiliary request*

3.1   Claim 1 of the first auxiliary request specifies "*to
        generate a field weighting factor <u>using</u> the extracted
        weighting factor*" rather than "*to generate a field*

weighting factor <u>based on</u> the extracted weighting factor" (emphasis added). Both "*using the frame weighting factor*" and "*based on the frame weighting factor*" are vague and do not clearly specify the relationship between the field weighting factor and the frame weighting factor. The board is of the opinion that replacing "based on" with "using" does not address the objections set out in section 2 above.

3.2   The appellant did not provide any additional arguments in comparison with the main request.

3.3   In view of the above, the board comes to the conclusion that claim 1 of the first auxiliary request does not meet the requirements of Article 84 EPC 1973.

4.   *Added subject-matter - second auxiliary request (Article 123(2) EPC)*

4.1   According to Article 123(2) EPC, the European patent application may not be amended in such a way that it contains subject-matter which extends beyond the content of the application as filed. This means that the amendments must be directly and unambiguously derivable from the application as filed.

4.2   Claim 1 of the second auxiliary request specifies that the predictive image generation unit is "*operable to generate a field weighting factor <u>using the extracted weighting factor</u> which is the frame weighting factor <u>as the field weighting factor</u>*" (emphasis added).

4.3   The board shares the examining division's view that in the application as filed "*there are ambiguities as to how the decoder generates the field weighting factor*

based on the frame weighting factor" (see point X(a) above).

4.4   According to claim 1, the field weighting factor is generated without first verifying whether or not the field weighting factor has been transmitted. Thus, claim 1 is based on the "variation" of the first embodiment described with respect to Figures 14A, 14B, 14C, 15 and 16. The board has not been convinced that claim 1 also "reads on a picture decoding apparatus" of the second embodiment, verifying whether or not the picture weighting factor has been transmitted (see point X(b) above).

4.5   There is no explicit statement in the application that in the "variation" of the first embodiment the field weighting factor would be generated based on the frame weighting factor in accordance with the equations set out below Figure 17C.

4.6   The board has not been convinced that it would be directly and unambiguously derivable from the structure of the application and the similarities between the data structures and organigrams shown in the figures of the different embodiments and variations that the equations set out at the bottom of drawing sheet 17 would also specify the generation of the field weighting factor in the variation of the first embodiment (see point XI(b) above).

        The appellant did not indicate any basis in the application for the assertion that the second embodiment was a combination of the first embodiment and the variation of the first embodiment (see point XI(b) above). On the contrary, page 28, lines 15 to 17, discloses that the second embodiment "*describes*

*an example of a case in which a data structure of a
picture area is <u>different</u> from the one illustrated in
the first embodiment*" (emphasis added).

The passage on page 29, lines 21 to 25, discloses that
in the second embodiment "*the variable length coding
unit VLC determines <u>whether or not</u> a field weighting
factor <u>can be</u> generated based on a frame weighting
factor (S32)*" (emphasis added). If the equations below
Figure 17c related to the generation of the field
weighting factor, the test in S32 would limit the
validity of the equations to those cases in which the
field weighting factor can be generated according to
undefined criteria. Hence, the equations would not be
generally applicable to generating field weighting
factors at the decoder (see point XI(i) above). In the
variation of the first embodiment, the field weighting
factor is generated if AFF=1 without previously
verifying whether it can be generated. Therefore, the
board doubts whether the equations would be applicable
to generating the field weighting factors in the
variation of the first embodiment.

4.7   The equations listed at the bottom of drawing sheet 17
         illustrate a method for generating a "field factor".
         Assuming the method is for generating a field weighting
         factor, then only Figure 17A shows field weighting
         factors. The description of Figures 17A, 17B and 17C on
         pages 28 and 29 is succinct and refers to "*an example
         of a structure of the 'header' from which a field
         weighting factor can be abbreviated [sic]*" when the
         "*field factor presence/absence information*" is set to
         "0". Pages 28 and 29 do not describe the generation of
         field weighting factors. It is therefore plausible that
         the examining division assumed that the "*equations may*

*well refer to the field weighting factors in
figure 17A"* (see point X(a) above).

4.8   The board is not convinced that from Figures 18 and 19
       and the corresponding parts of the description it can
       be concluded that in the second embodiment, only in the
       case shown in Figure 17B, a field weighting factor is
       generated based on the frame weighting factor (see
       point X(e) above). In the flow chart of Figure 18,
       "*information indicating presence/absence of field
       weighting factor*" is coded if the field weighting
       factor cannot be generated based on the frame weighting
       factor, and "*information indicating generation of field
       weighting factor*" is coded if the field weighting
       factor can be generated based on the frame weighting
       factor. Thus, in steps S33 and S36 different
       information is generated rather than different values
       (1/0) for the same flag. The description related to
       Figure 18 does not further specify the information
       generated in step S36, and the pure semantics of
       steps S32 and S36 (e.g. generation of field weighting
       factor) imply that the field weighting factor is
       generated at the encoder, and either the field
       weighting factor or information establishing how the
       field weighting factor depends on the frame weighting
       factor is coded in step S36. In step S41 of Figure 19,
       the information indicating the presence/absence of the
       field weighting factor is decoded. However, there is no
       indication that the decoded information is used in
       step S42 when searching for the field weighting factor.
       If no field weighting factor is found in step S42, a
       field weighting factor is generated based on the frame
       weighting factor. Since the "*information indicating
       generation of field weighting factor*" encoded in
       step S36 of Figure 18 is not decoded in the flow chart
       of Figure 19, it is not clear whether this information

is considered when generating the field weighting factor in the decoder. The board has not been convinced that, due to the necessary correspondence between the encoding and decoding sequences of Figures 18 and 19, both steps S33 and S36 must code the additional "*field factor presence/absence information*" (see point XI(f) above). Any inconsistency between coding step S36 and Figure 19 does not imply there is an error in Figure 18 (see point XI(f) above). A step of decoding information establishing how the field weighting factor depends on the frame weighting factor might just as well have been erroneously omitted from Figure 19.

4.9   Summarising, the board is of the opinion that it is not directly and unambiguously derivable from the application as filed that the equations below Figure 17C relate to "appropriating a frame weighting factor" at the decoder (see description page 27, line 29).

4.10   In view of the above, the board comes to the conclusion that the subject-matter of claim 1 of the second auxiliary request extends beyond the disclosure of the application as filed (Article 123(2) EPC).

5.   *Third auxiliary request - remittal (Article 111 EPC)*

        Since the board did not agree "*with the appellant on the issues discussed in the statement of grounds of appea*l" (see section VI above), this request serves no purpose and therefore need not be considered by the board.

6.   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 Chairman:

C. Spira   C. Kunzelmann

Decision electronically authenticated