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Datasheet for the decision of 13 February 2014

Case Number: T 2282/10 - 3.5.04

Application Number: 03728003.9

Publication Number: 1408696

IPC: H04N7/26, H04N7/32, H04N7/46, H04N7/50, G06F1/03

Language of the proceedings: EN

Title of invention:
MOTION VECTOR DERIVING METHOD, DYNAMIC IMAGE ENCODING METHOD, AND DYNAMIC IMAGE DECODING METHOD

Applicant:
Panasonic Corporation

Headword:

Relevant legal provisions:
EPC Art. 123(2)

Keyword:
Amendments - added subject-matter (yes)

Decisions cited:
T 0331/87, T 1067/97, T 0025/03, T 1118/10, T 2311/10

Catchword:

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European Patent Office
Office européen des brevets

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Case Number: T 2282/10 - 3.5.04

D E C I S I O N
of Technical Board of Appeal 3.5.04
of 13 February 2014

Appellant: (Applicant)	Panasonic Corporation 1006, Oaza Kadoma Kadoma-shi Osaka 571-8501 (JP)
Representative:	Eisenführ Speiser Patentanwälte Rechtsanwälte PartGmbB Postfach 10 60 78 28060 Bremen (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 25 June 2010 refusing European patent application No. 03728003.9 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman: F. Edlinger
Members: R. Gerdes
T. Karamanli

Summary of Facts and Submissions

I. The appeal is directed against the decision to refuse European patent application No. 03 728 003.9, published as European application No. EP 1 408 696 A1.

II. The patent application was refused by the examining division on the grounds that the subject-matter of claims 1 and 2 of the main request and of the first auxiliary request lacked an inventive step.

III. The applicant appealed against this decision and maintained the claims on file.

IV. In a communication annexed to a summons to oral proceedings the board *inter alia* expressed doubts that the claims of both the main request and the first auxiliary request complied with Article 123(2) EPC. In reply the appellant submitted new claims with a letter of 8 January 2014 to replace all previous claims.

V. Oral proceedings were held before the board on 13 February 2014. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of claims 1 and 2 filed with letter of 8 January 2014. As an auxiliary measure it was requested that, if further examination proved necessary, then the case should be remitted to the first instance for further prosecution.

VI. Independent claim 1 reads as follows:

"A motion vector derivation method for deriving a motion vector of a block in a picture, said method comprising:

a step of obtaining a reference motion vector for deriving a motion vector of a current block;
a step of calculating a first parameter corresponding to a distance between a display order of a picture which has the reference motion vector and a display order of a reference picture which is referred to by the reference motion vector, the display order of said picture being an integer and the display order of said reference picture being an integer;
a step of calculating a second parameter corresponding to a distance between a display order of a current picture and the display order of the reference picture, wherein said current picture includes the current block and the display order of said current picture is an integer;
a judgment step of judging whether or not the first parameter is greater than a predetermined maximum value which is a positive value, or judging whether or not the first parameter is less than a predetermined minimum value which is a negative value;
a multiplier parameter obtaining step of obtaining a multiplier parameter which is a value approximate to the inverse value of the first parameter; and
a motion vector derivation step of deriving the motion vector of the current block by scaling the reference motion vector based on a multiplication of a multiplier parameter which is a value approximate to the inverse value of the predetermined maximum value or a multiplier parameter which is a value approximate to the inverse value of the predetermined minimum value and the second parameter, when the first parameter is greater than the predetermined maximum value or when the first parameter is less than the predetermined minimum value as a result of said judgment step, or by scaling the reference motion vector based on a multiplication of the multiplier parameter

corresponding to the first parameter and the second parameter, when the first parameter is less than the predetermined maximum value or when the first parameter is greater than the predetermined minimum value as a result of said judgment step, wherein,
in the case that the reference picture which is referred to by the reference motion vector is located before the picture which has the reference motion vector, said judgment step is operable to judge whether or not the first parameter is greater than a predetermined maximum value which is a positive value, and in the case that the reference picture which is referred to by the reference motion vector is located after the picture which has the reference motion vector the current picture, said judgment step is operable to judge whether or not the first parameter is less than the predetermined minimum value which is a negative value."

VII. The appellant's arguments with respect to the board's objection under Article 123(2) EPC may be summarised as follows:

According to the application as originally filed the usage of the inverse value of the first parameter was disclosed in the context of a multiplier parameter table. However, the three-point or essentiality test should be applied to determine whether the feature relating to the usage of the inverse value could be claimed separately from that of the multiplier parameter table.

The feature of a multiplier parameter table was not presented as being essential for the invention. The paragraph starting from page 7, line 10, clearly indicated that it was "preferable" to use a multiplier

parameter table. Different means other than a multiplier parameter table could be used to obtain the technical effect of a reduced amount of calculation. For example, the multiplier parameter table could be replaced by a processor or a dedicated circuit such as an analogue computer carrying out the division. Only details of the unit for providing the inverse value were omitted from the claim. Finally, the removal of this feature required no real modification of other features to compensate for the change (see T 331/87, headnote).

It was also argued that the technical problem of a reduction of computational effort was solved by the restriction of the dynamic range of the first parameter, because due to the restricted dynamic range a representation of the parameters with a limited number of bits could be employed.

Reasons for the Decision

1. The appeal is admissible.

2. 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. The relevant criterion is whether the proposed amendments are directly and unambiguously derivable from the application as filed (see Case Law of the Boards of Appeal of the European Patent Office, 7th edition, 2013, section II.E.1.7). The extraction of isolated features from embodiments disclosed in the application as filed (intermediate generalisation) is normally not allowable under Article 123(2) EPC if these features

have been disclosed in combination. Only in the absence of any clearly recognisable functional or structural relationship among these features would such amendment be justified (see Case Law of the Boards of Appeal of the European Patent Office, 7th edition, 2013, section II.E.1.2).

2.1 Claim 1 specifies "a multiplier parameter obtaining step of obtaining a multiplier parameter which is a value approximate to the inverse value of the first parameter". The appellant did not dispute that in the application as filed this feature is consistently disclosed in the context of a multiplier parameter table, indicating the relationship between the first parameter and the inverse value of the first parameter (see page 7, lines 10 to 16; page 15, lines 21 to 30; page 17, lines 8 to 14; page 18, line 31, to page 19, line 3; page 20, lines 26 to 28; page 25, lines 1 to 8 and lines 20 to 26; figures 4 and 5, 8 and 12; claim 4 as originally filed).

2.2 The extraction of isolated features from embodiments in the application as filed is considered to be an intermediate generalisation. Such an amendment is normally not allowable under Article 123(2) EPC if these features have been disclosed in combination. Only in the absence of any clearly recognisable functional or structural relationship among these features would such amendment be justified (see T 25/03, Reasons, point 3.3, and T 1067/97, Reasons, point 2.1.3).

2.3 The present application addresses the technical problem of avoiding division in order to reduce the necessary computational effort and indirectly to reduce power consumption, because "division takes more time for calculation than calculation such as addition and

multiplication. It is not preferable for a device such as a mobile phone requiring lower power consumption because a calculator with lower capability is used in such a device to meet a requirement for lower power consumption. Under these circumstances it is conceived to derive motion vectors by multiplication with reference to multiplier parameters corresponding to divisors in order to avoid division" (see page 4, line 26, to page 5, line 7). It is evident that the usage of the inverse value alone does not solve this technical problem. Calculation of the inverse value as an alternative to using a multiplier parameter table requires division and is therefore contrary to the concept of the invention. It is only by pre-computing specific values of the inverse of the first parameter, storing them and retrieving them at runtime using a multiplier parameter table that the above technical problem is solved. Hence, there is a clearly recognisable functional relationship between the usage of "the value approximate to the inverse value of the first parameter" and the "multiplier parameter table".

2.4 It follows from the above that the amendments of claim 1 do not comply with Article 123(2) EPC.

2.5 The appellant argued that the three-point or essentiality test of T 331/87 should be applied. The board notes that this approach to testing the allowability of an amendment has not been followed in several later decisions (see, for example, T 1118/10, Reasons, points 1.4 and 1.5, T 2311/10, Reasons, point 2.9). However, even if this test were applied, the board would arrive at the conclusion that the contested feature could not be isolated from its context. As set out above, the use of the multiplier parameter table is indispensable for the function of

the invention in the light of the technical problem that the application serves to solve. Hence, at least the second condition of the three-point test is not fulfilled.

The appellant argued in this context that the technical problem was already solved by the restriction of the dynamic range of the first parameter (see judgment step of claim 1) because due to the restricted dynamic range a representation of the parameters with a limited number of bits could be employed. As a further consequence the calculation of the motion vector could be simplified. It may be correct that the restriction of the dynamic range in combination with other measures like the representation of the parameters using a lower resolution may lead to a reduction of computational effort. However, the restriction of the dynamic range does not interact with the usage of the inverse of the first parameter to solve the technical problem. It is only as a consequence of the combined use of the inverse of the first parameter and a multiplier parameter table storing several pre-computed values of the inverse that division can be avoided and that computational effort can be reduced. No other technical teaching for the use of the inverse can be derived from the application as filed.

2.6 It follows from the above that the appellant's request cannot be allowed.

Remittal

3. As an auxiliary measure it was requested that, if further examination proved necessary, then the case should be remitted to the department of first instance for further prosecution. Since the need for further

examination did not arise, this request has become moot.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

K. Boelicke F. Edlinger

Decision electronically authenticated