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**Datasheet for the decision
of 17 May 2011**

Case Number: T 1945/07 - 3.5.02

Application Number: 03729523.5

Publication Number: 1472796

IPC: H03M 13/35

Language of the proceedings: EN

Title of invention:
Robust signal coding

Applicant:
Koninklijke Philips Electronics N.V.

Headword:
-

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step - no"

Decisions cited:
-

Catchword:
-



Case Number: T 1945/07 - 3.5.02

D E C I S I O N
of the Technical Board of Appeal 3.5.02
of 17 May 2011

Appellant: Koninklijke Philips Electronics N.V.
Groenewoudseweg 1
NL-5621 BA Eindhoven (NL)

Representative: Eleveld, Koop Jan
Philips
Intellectual Property & Standards
P.O. Box 220
NL-5600 AE Eindhoven (NL)

Decision under appeal: Decision of the Examining Division of the
European Patent Office posted 30 May 2007
refusing European patent application
No. 03729523.5 pursuant to Article 97(1) EPC
1973.

Composition of the Board:

Chairman: M. Ruggiu
Members: R. Lord
E. Lachacinski

Summary of Facts and Submissions

I. This is an appeal of the applicant against the decision of the examining division to refuse European patent application No. 03 729 523.5.

II. The reasons given for the refusal were *inter alia* that the subject-matter of claims 1 and 11 lacked an inventive step according to Article 56 EPC. The following documents of the prior art are relevant for this decision:

D1: Jianfei Cai et al, "An FEC-Based Error Control Scheme for Wireless MPEG-4 Video Transmission", Proceedings of IEEE Conference on Wireless Communications and Networking, 23 September 2000, vol. 3, pages 1243-47; and

D2: M.G. Martini and M. Chiani, "Proportional Unequal Error Protection for MPEG-4 video transmission", 2001 IEEE International Conference on Communications, 11-14 June 2001, Conference Record, vol. 1, pages 1033-37.

III. The appellant requested in writing that the decision under appeal be set aside and that a patent be granted on the basis of the pending set of claims (i.e. claims 1 to 18 filed with his letter of 24 November 2006).

In a communication accompanying the summons to oral proceedings dated 23 February 2011 the board informed the appellant of the reasons why it did not find the arguments in the grounds of appeal concerning inventive step to be convincing.

Oral proceedings before the board took place on 17 May 2011, at which, as he had previously informed the board, the appellant was not represented.

IV. Claim 1 reads as follows:

"A method of coding a coded data stream, the coded data stream comprising at least one first level data packet having a first partition of data (56) requiring a first code rate (R1) and a second partition of data (62) requiring a second code rate (R2) different from the first code rate (R1) and a third partition of data (68) requiring a third code rate (R3) different from the first code rate (R1) and the second code rate (R2), the method including the step of:

- including a first partition detector (50) into the first level data packet, in order to provide guidance for coding the respective third and first partitions of data (68, 56) with the respective third and first code rates (R3, R1), the first partition detector (50) giving information regarding the third and first code rates (R3, R1) which are used for the third and first partitions of data (68, 56) and inserting (82) a second partition detector (50) between the first and second partitions of data (56, 62), in order to provide guidance for coding the respective first and second partitions of data (56, 62) with the respective first and second code rates (R1, R2), the second partition detector (50) giving information regarding the first and second code rates (R1, R2) which are used for the first and second partitions of data (56, 62) and inserting (82) a third partition detector (50) between the

second and third partitions of data (62, 68), in order to provide guidance for coding the respective second and third partitions of data (62, 68) with the respective second and third code rates (R2, R3), the third partition detector (50) giving information regarding the second and third code rates (R2, R3) which are used for the second and third partitions of data (62, 68)."

Claim 11 reads as follows:

"A method of decoding a coded data stream comprising the steps of:

- receiving (92) a coded data stream including at least one second level data packet having a first partition of data (56) coded with a first code rate (R1) and a second partition of data (62) coded with a second code rate (R2) different from the first code rate (R1) and a third partition of data (68) requiring a third code rate (R3) different from the first code rate (R1) and the second code rate (R2),
- extracting (93) information from a first partition detector (50) included in the second level data packet, the first partition detector (50) giving information regarding the third and first code rates (R3, R1) used for the third and first partitions of data (68, 56), and from a second partition detector (50) inserted between the first and second partitions of data (56, 62) in the second level packet, the second partition detector (50) giving information regarding the first and second code rates (R1, R2) used for the first and second partitions of data (56, 62), and from a

third partition detector (50) inserted between the second and third partitions of data (62, 68) in the second level data packet, the third partition detector (50) giving information regarding the second and third code rates (R2, R3) used for the second and third partitions of data (62, 68), and - decoding (94) the respective first and second and third partitions of data (56, 62, 68) with the respective first and second and third code rates (R1, R2, R3) based upon code rate information extracted, per specific partition of data (56, 62, 68), from one of the two partition detectors (50) that give information regarding the code rate (R1, R2, R3) used for this specific partition of data (56, 62, 68)."

V. The appellant essentially argued as follows:

The introductory part of D1, which formed the basis of the argumentation in the decision under appeal, did not go beyond merely suggesting the use of unequal error protection, so did not provide a solution to the problem of how to apply different error protection schemes to different classes of data.

The single occurrence of the word "label" in D1 did not represent a disclosure of partition detectors with the functionality defined in the appellant's claims.

D1 taught that the use of labels was disadvantageous, and the main part of that document described a different, preferred technique, and in particular described that this technique did not require a synchronisation code for each partition.

The document D1 did not address the problem of packet fragmentation described in the present application.

Reasons for the Decision

1. The appeal is admissible.
2. *Inventive step*
 - 2.1 The document D1 discloses in the only full paragraph of the right-hand column of page 1243 the principle of using unequal error protection (UEP) in the coding of MPEG-4 bitstreams. As described there, the bitstream comprises different data classes which require different degrees of error protection. The bitstream is thus divided into portions according to these different classes. This paragraph then continues by describing that it is necessary to provide a label to indicate each boundary between portions of different data class. Since the skilled person would recognise that the different degrees of error protection would involve different code rates, the portions of the incoming bitstream of different data class described in D1 can be considered to represent partitions of data of the first level data packet requiring different code rates within the meaning of the present claim 1. Moreover, the skilled person would also understand from the disclosure in D1 of the purpose of the "label" that this must contain, or at least contain a reference to, information identifying the change in degree of error protection, including the code rate transition. This label can therefore be considered as being a "partition

detector" within the meaning of the present claim 1, in particular one which provides guidance for coding the respective partitions of data and gives information regarding the code rates to be used for those partitions of data, as defined in the present claim 1.

2.2 The document D1 thus describes a method of coding which comprises all the technical features of the present independent claim 1 with the exception that it does not specify how many different types of partition, and hence how many different code rates, are involved. In particular, in the text below Fig. 1 on page 1244 of D1 an example is described in which there are only two classes. The method of the present claim 1 is thus distinguished from that of D1 in that it specifies three partitions of data with three different code rates together with the corresponding three different partition detectors.

2.3 It would however be obvious to the skilled person that for a data packet containing more than two classes of data, three or more partitions should be used. That this is the case for the MPEG-4 scheme (i.e. the subject of D1) would be apparent for instance from D2, in which section III on page 1034 describes that when applying UEP to MPEG-4 video, three different classes should be considered. This section also confirms that these three classes should be encoded using three different code rates. The skilled person would therefore consider it obvious when implementing the UEP scheme of D1 to do so by dividing the data stream into three partitions with three different code rates, and that it would then be necessary to provide (at least) three different types of label or partition detector

indicating the transitions between those classes. The method of coding resulting from this obvious implementation of the method of D1 would thus include all the technical features of the present claim 1. The subject-matter of that claim therefore does not involve an inventive step according to Article 56 EPC.

2.4 The appellant's counter-arguments are not found convincing, for the following reasons.

2.4.1 The appellant presents several arguments concerning the absence of specific teaching in the passage of D1 cited in the decision under appeal (in particular relating to first level data packets and to the different data classes). However, the board considers that since that document relates explicitly to the MPEG-4 standard, the skilled person would assume that the features of that standard would be implicit in what is taught by D1, so that an explicit detailed teaching in that document relating to such features would not be necessary.

2.4.2 In particular, the appellant argues that the single reference in D1 to a "label" does not represent a disclosure of the "partition detectors" according to the claims of the application. The board is of the opinion that when interpreting this term as used in D1 (i.e. *"to label the boundary of each portion of each class data"*), in the context disclosed there, in which different data classes require different code rates, and applying that teaching to the case with three repeating classes, as described in D2, the skilled person would in an obvious manner derive the functionality as defined in the present claims, as

argued on page 6 of the decision under appeal and in paragraph 2.1 above.

2.4.3 Much of the appellant's argumentation is based on the fact that D1, having described the use of labelling, as discussed above, teaches to use an alternative technique because the use of labels is disadvantageous. The board observes that it is clearly true that D1 teaches that inserting labels is disadvantageous because it requires extra information to be transmitted to the receiver. However, this disadvantage applies also to the technique of the present claims. The application merely accepts this disadvantage of the known technique, and implements it nonetheless, which cannot be considered to contribute in any way to the presence of an inventive step. The board notes in particular that the appellant refers to the comments in D1 concerning the need for synchronisation codes. However, the system of the present application also requires a synchronisation code ("Trg" in Fig. 4) as part of each partition detector.

2.4.4 The appellant also argues that the document D1 does not address the problem of packet fragmentation discussed in the present application. However, the board notes that none of the present claims addresses that problem either. Specifically, the board understands that this problem is as described in the application with reference to Fig. 3, and that the solution is as described with reference to Fig. 5, i.e. the insertion of extra CRC and header sections at the "break" in the packet. This is not defined in any of the present claims, which seem to concern only the packet structure of Fig. 4 of the application.

2.5 The argumentation of sections 2.1 to 2.4 above applies correspondingly to the complementary method of decoding applied to the data received from the coder, so that the subject-matter of the present claim 11 also does not involve an inventive step according to Article 56 EPC.

3. The appellant's sole request is therefore not allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

C. Moser

M. Ruggiu