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D E C I S I O N
of 24 May 2006

Case Number: T 0301/03 - 3.5.04

Application Number: 96115580.1

Publication Number: 0766246

IPC: G11B 20/18

Language of the proceedings: EN

Title of invention:

Method for recording (sending)/reproducing (receiving) data,
apparatus thereof, and data recording medium

Applicant:

SONY CORPORATION

Opponent:

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Headword:

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Relevant legal provisions:

EPC Art. 84

Keyword:

"Claims - clarity (no)"

Decisions cited:

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Catchword:

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Case Number: T 0301/03 - 3.5.04

D E C I S I O N
of the Technical Board of Appeal 3.5.04
of 24 May 2006

Appellant: SONY CORPORATION
7-35, Kitashinagawa 6-chome
Shinagawa-ku
Tokyo (JP)

Representative: Melzer, Wolfgang
Patentanwälte
Mitscherlich & Partner
Sonnenstraße 33
D-80331 München (DE)

Decision under appeal: Decision of the Examining Division of the
European Patent Office posted 22 October 2002
refusing European application No. 96115580.1
pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: F. Edlinger
Members: C. Kunzelmann
J. Willems

Summary of Facts and Submissions

- I. This appeal is against the decision of the examining division to refuse European patent application No. 96 115 580.1. The examining division held that claim 1 of the main request and the auxiliary request, *inter alia*, did not comply with the requirements of Article 84 EPC.
- II. The appellant filed an appeal and submitted a new set of claims according to a second auxiliary request in preparation for the oral proceedings before the Board.
- III. Oral proceedings were held before the Board on 24 May 2006 during which the appellant filed a new claim 1 bearing the heading "Auxiliary Request II". At the end of the oral proceedings this text became claim 1 of a new main request, the previous requests being withdrawn. The appellant also expressed the readiness to adapt the remaining claims and the description (pages 1 to 27 filed with letter dated 28 November 2001, together with drawings 1/11 to 11/11) in case the Board found claim 1 to be clear.
- IV. Claim 1 of the single request reads as follows:
- "A data recording apparatus for recording groups of a predetermined number of frames on a record medium (1), each group including information data and sub-codes corresponding to the information data of the group, the data recording apparatus comprising:
- encoding means (65) for encoding at least a plurality of the groups of frames with an error encoding code,

a plurality of interleaving means, said plurality at least comprising:

- first interleaving means (67) for forming first encoded interleaved frames by interleaving the error encoding code within said plurality of groups of frames at a first interleaving length wherein the first interleaving length is slightly larger than said predetermined number; and

- second interleaving means (69) for forming second encoded interleaved frames by interleaving the error encoding code within said plurality of groups of frames at a second interleaving length which differs from said first interleaving length;

- inputting means (2, 3, 4, 12) for inputting an interleave length signal (ID) recorded at a header of each of the group of frames that indicates a desired interleaving length;

- selecting means (64) for selecting the output of the respective one of said plurality of interleaving means (67, 69) depending on whether said interleave length signal (ID) indicates the desired interleaving length is equal to the first or the second interleaving length;

- inserting means (12, 64) for inserting the desired interleave length information into frames; and

- recording means (10) for recording the selected encoded interleaved frames on the record medium;

wherein each of said frames is composed of a plurality of symbols and wherein each of said interleaving means is adapted for delaying the symbols of the frames with delay amounts which vary by a unit delay amount (D) for at least a group of symbols characterized in that

the unit delay amount (D) used by the second interleaving means (69) is such that
- the second interleaving length is slightly smaller than an integer multiple, greater than one, of the predetermined number."

- V. The reasons for refusing the application given in the decision under appeal in so far as they concern the objection under Article 84 EPC and are still applicable to the amended claim 1 can be summarised as follows:

The feature specifying the second interleaving length as slightly smaller than an integer multiple, greater than one, of the predetermined number was not clear because the claims did neither define nor imply the meaning of "slightly". The word "slightly" did not unambiguously exclude the situation that the second interleaving length was half of two times the predetermined number of frames. Thus, it encompassed the situation of the prior art and also lacked novelty.

- VI. The appellant's arguments can be summarised as follows:

The meaning of the term "slightly" was defined for instance in "Webster's New Encyclopedic Dictionary" and was clear. The teaching of the application was to increase the total interleaving length of data on a recording medium beyond the known value of 109 frames used in an audio CD, which was "slightly larger than said predetermined number" of frames of a group (or sector, usually 98 frames). The increased total interleaving length improved the correction performance against a burst error. The interleaving was performed by spacing the symbols of the frames with delay amounts

which vary by a unit delay amount. The total interleaving length was selected so that the symbol with the maximum delay was delayed to just before the end of a particular sector, but not to the beginning of the sector following the particular sector. In this way, wasteful data access was avoided. Three examples in the description showed that with suitable unit delay amounts (e.g. $D = 7, 14, 28$) a second interleaving length could be achieved which came close to the integer multiple (2, 4, 8) of the predetermined number (98) and was only smaller by nearly the unit delay amount. Thus, the term "slightly" made clear that only the unit delay amount which led to the largest interleaving length that was still shorter than the corresponding multiple of the sector length was meant.

- VII. The appellant requests that the decision under appeal be set aside and that a patent be granted on the basis of claim 1 of the new main request filed during the oral proceedings.

Reasons for the Decision

1. The appeal is admissible.
2. *Clarity (Article 84 EPC)*
 - 2.1 The word "slightly" is used twice in present claim 1. In the feature of the precharacterising portion "wherein the first interleaving length is slightly larger than said predetermined number", the word "slightly" refers to the fact that the first interleaving length is longer than the predetermined

number of frames, i.e. longer than the sector length, but that the excess length is small. This is a generalisation of the feature of a standard audio CD that the sector length is 98 frames, whereas the interleaving length is 109 frames (see page 2, line 16 to page 3, line 15 and page 21, lines 17 to 27 of the present description). Thus, in the precharacterising portion, the word "slightly" refers to a difference of about 11% "larger than said predetermined number".

2.2 In the characterising portion the word "slightly" occurs in the feature "the unit delay amount (D) used by the second interleaving means (69) is such that the second interleaving length is slightly smaller than a [sic] integer multiple, greater than one, of the predetermined number". Thus the word "slightly" aims at specifying an integer difference (between numbers of frames) which is small in amount (as defined in "Webster's New Encyclopedic Dictionary"). Moreover in combination with the term "such that" it has the function of determining suitable unit delay amounts for obtaining the specified second interleaving length in the data recording apparatus of claim 1.

2.3 On pages 19 to 21 the present application gives a number of specific examples of unit delay amounts (7, 14 and 28 frames) each corresponding to one particular integer multiple of the sector length (2, 4 and 8 times 98 frames, respectively). With these unit delay amounts the second interleaving length ("total delay amount") is identified as "slightly smaller" than an integer multiple of the predetermined number of predetermined frames (page 19, lines 21 to 27). A difference of slightly more than 3 % may be calculated for these

- examples. Many more examples would fall under the definition of claim 1 if 11 % were considered as a "slightly smaller" amount (in the meaning of "slightly" in the precharacterising portion, see point 2.1 above).
- 2.4 However, the present application neither gives a functional definition of "slightly smaller", nor a general rule for choosing suitable unit delay amounts, interleaving lengths and integer multiples. Furthermore, nothing in the application allows to clearly determine specific values of unit delay amounts that lead to a second interleaving length which is defined as "slightly smaller" than the particular integer multiple of the sector length. Thus, the application as a whole does not give a clear definition of "slightly smaller" that would permit a person skilled in the art to distinguish between data recording apparatus for which protection is sought and other data recording apparatus.
- 2.5 Therefore the appellant's argument that the term "slightly" implicitly limited the data recording apparatus of claim 1 to one having the unit delay amount which leads to the largest interleaving length shorter than the particular multiple of the sector length did not convince the Board.
3. Hence, the Board judges that claim 1 is not clear and therefore does not comply with the requirements of Article 84 EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

D. Sauter

F. Edlinger