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**D E C I S I O N**  
**of 6 April 2005**

**Case Number:** T 0659/04 - 3.5.2

**Application Number:** 99113783.7

**Publication Number:** 0971355

**IPC:** H03M 7/14

**Language of the proceedings:** EN

**Title of invention:**  
Record medium storing a signal

**Applicant:**  
SONY CORPORATION

**Opponent:**

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**Headword:**

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**Relevant legal provisions:**

EPC Art. 54, 84

**Keyword:**

"Claim to a record defined by a new modulation method  
resulting in a new data format"  
"Clarity - (yes, in principle)"  
"Novelty - (yes, in principle)"

**Decisions cited:**

T 1194/97, T 0163/85, T 0378/88

**Catchword:**

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Case Number: T 0659/04 - 3.5.2

**D E C I S I O N**  
of the Technical Board of Appeal 3.5.2  
of 6 April 2005

**Appellant:**

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**Representative:**

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**Decision under appeal:**

Decision of the Examining Division of the  
European Patent Office posted 26 January 2004  
refusing European application No. 99113783.7  
pursuant to Article 97(1) EPC.

**Composition of the Board:**

**Chairman:** W. J. L. Wheeler  
**Members:** R. G. O'Connell  
P. Mühlens

## Summary of Facts and Submissions

- I. This is an appeal from the refusal by the examining division of European patent application No. 99 113 783.7 on the grounds of lack of clarity of claim 1 (Article 84 EPC) and lack of novelty of its subject-matter (Article 54(1) and (2) EPC).
- II. Claim 1, the sole independent claim, is worded as follows:
- "A record medium having recorded thereon a signal comprising
- an N-bit code string converted from M-bit data string, where M and N are integers having a relation of  $M < N$ ;
  - said M-bit data is converted into the N-bit code in accordance with a conversion table; wherein the conversion table comprises a plurality of first and second code word sub-tables (Ta, Tb) each of said first and second code word sub-tables being arranged in plural code groups (T1, T2, T3, T4), said code groups of said first and second sub-tables each respectively containing binary values which all have a pattern of at least some binary digits associated with the respective group;
  - said first code word sub-tables containing code word tables containing code words in one-to-one correspondence with a plurality of available data words and arranged at least generally in a progression of DSV values from at least substantially a relative maximum DSV associated with a minimum data word toward a relative minimum DSV associated with a maximum data word;

said second code word sub-table containing code words corresponding only with a portion of the available data words and wherein code words from said second sub-table have DSV values which are arranged at least generally in a progression of DSV values from at least substantially a relative minimum DSV toward relative maximum DSV and wherein the code words in the second sub-table correspond with a portion of the data words from at least substantially a minimum data word toward a maximum value."

III. According to point 2 of the reasons given for refusal in the decision under appeal, "Claim 1 defines a record medium storing a signal comprising an N-bit code string converted from M-bit data string, and further attempts to define the medium by features of the conversion method instead of features relating to the medium itself (Article 84 EPC)". While according to point 3, penultimate sentence, "...a record medium comprising such a data structure was already well-known before the priority date of the application (eg a conventional CD recorded by using EFM). Thus the subject-matter of claim 1 is not new in the sense of Article 54(1) and (2) EPC."

IV. The applicant appellant's arguments can be summarised as follows:

The examining division had not contended that the coding or modulating method would result in a signal format known *per se*, but argued rather that such a data format, albeit new, did not define a new physical entity. In this respect the decision under appeal had not followed decision T 1194/97 Data structure product

OJ EPO 2000, 525 according to the headnote of which "a record carrier characterised by having functional data recorded thereon...is not excluded from patentability. In this context functional data includes a data structure defined in terms which inherently comprise the features of the system in which the record carrier is operative.". Points 2.2, 2.4, 2.5, 3.1 to 3.4, 3.7 of this decision were of special relevance. In the present case the data format produced by the modulation method constituted functional features which related to the system in which the record medium was operative.

Contrary to the view expressed by the examining division the definition of the subject-matter of claim 1 as the product of the steps of the new and inventive modulation method resulted in a clear and concise definition of a new physical entity. Nor had there been any suggestion on the part of the examining division that this entity could be described clearly in any other way.

- V. The applicant appellant requests that the decision under appeal be set aside and that (main request) a patent be granted on the basis of:

**Claims:** 2-16 as originally filed,  
1, as received on 12 June 2002;  
**Description:** pages 1 to 35, as originally filed;  
**Drawings:** sheets 1 to 14, as originally filed.

Failing that, that the case be remitted to the examining division for further examination (first auxiliary request).

## Reasons for the Decision

1. The appeal is admissible.
2. *Lack of clarity (Article 84 EPC)*

The board interprets the reasoning in the decision under appeal as implying that the details of the conversion table are something to be ignored as a matter of principle in interpreting claim 1. It is apparently not alleged that these details are not clear in themselves, merely that they contribute nothing to the definition of the record medium that it would be appropriate to take into account. If this reasoning were followed, it would leave a claim to a record medium having recorded thereon a signal comprising any N-bit code string. Such a claim would be clear; very broad, but none the less clear. In the decision under appeal it is not alleged that this residual subject-matter is not clearly defined; indeed it is stated subsequently in the decision under appeal to be "already well known before the priority date of the application (e.g. a conventional CD recorded by using EFM)". The board concludes that the refusal ground of lack of clarity of claim 1 within the meaning of Article 84 EPC has not been substantiated.

3. *Lack of novelty (Article 54(1) and (2) EPC)*

The decision under appeal purports to distinguish the present case from that considered (by EPO Board of Appeal 3.5.2 in a different composition) in T 1194/97

Data structure product OJ EPO 2000, 525, on the facts. The latter decision concerned a data carrier having a data structure recorded on it, whereas the present record medium has a signal recorded by a new modulation method. This board concurs with the finding of the examining division that the recorded signal produced by the new modulation method defined in claim 1 does not define a data structure in the sense of T 1194/97. It is more aptly and conventionally described as a data signal format: cf the reference to the signal format of the conventional compact disc based on the prior art eight-to-fourteen (EFM) modulation method at paragraph [0004] of the present application. However, the board notes that T 1194/97 applied and extended the *ratio decidendi* of decisions T 163/85, Colour television signal/BBC, OJ EPO 1990, 379 and T 378/88 dated 22 March 1990 which related to signal formats and recorded signal formats respectively. Hence if, following T 1194/97, data structure features of a record are not excluded from consideration in assessing novelty the *ratio decidendi* of the latter decision implies that *a fortiori* data format features are also not excluded.

4. As shown in Fig. 12 of the application, described at paragraph [0090]ff, a record medium having recorded thereon a signal as taught in the patent application has a data format whose Fourier spectrum (curve A) has a low frequency component level close to that of the prior art EFM record medium with the conventional three merging bits for controlling digital sum value (DSV) (curve B), while having a data density 17/16 times as great. It is notorious in the art that with the conventional "non return to zero invert on one" (NRZI)

recording system used in the art that low error rate demodulation, ie reading, of a data record would be prejudiced by excessive low frequency components - with the concomitant lack of high frequency components - resulting in the servo control of the read-out gating signal not being able to locate stably the centre of a data bit. Deleterious low frequency components arise from excessive runs of the same data level without a transition. In the art this is expressed in the requirement for compliance with the 3T~11T rule, referred to at paragraphs [0011] and [0012] of the patent application, which limits in particular long runs of consecutive zeroes.

5. The examining division does not dispute the novelty and inventive step of the modulation method taught in the patent application. Indeed the parent application of this present divisional application, the subject of this appeal, has resulted in a granted and unopposed patent, which includes claims to modulating apparatus giving effect to this method. Neither has the board any reason to cast doubt on novelty and inventive step of the modulation method.
  
6. Despite the above, the examining division has found that a record medium having a signal recorded thereon in accordance with the admittedly new method is nevertheless not new. One reason it gives for this finding at point 4 of the decision under appeal is the fact that the record medium is defined as a product-by-process (modulation method) and that "such claims are only admissible if the products themselves fulfil the requirements for patentability and there is no other information available which would have enabled the



applicant to define the product satisfactorily by reference to its composition, structure or some other testable parameter." The board regards this as an accurate statement of the established jurisprudence of the EPO Boards of Appeal. However, the examining division then applies this statement of the applicable law to claim 1 to conclude that "The use of a different modulation method for defining a known medium does not confer novelty on the medium". The board regards this conclusion as erroneously broad because it fails to recognise that whereas a new modulation method does not **necessarily** confer novelty on the medium, it **may** do so. One could, for example, imagine a modulation method which laid down a known data format in a different temporal sequence so as to produce the old result by a new method, but, in the view of the board, this is rather the exception than the rule. Generally a new modulation method produces a record with a new data format and the board considers it to be so in the present case.

7. The examining division's conclusion that a record medium having a data format arrived at by converting M-bit data to N-bit data in accordance with the conversion table of figure 4 of the patent application is not new over a prior art EFM CD is possibly based on the view that N-bit data is information and that such a record medium is "defined solely by the content of the information" in the sense of the Guidelines for Examination C IV 2.3.7. This board in a different composition was critical of the treatment of this subject in this section of the guidelines in its decision T 1194/97 at points 3.2 to 3.7.4 and although since then a reference to that decision has been added

the surrounding text seems to relate instead to T 1173/97, Computer program product/IBM, OJ EPO 1999, 609. If this is indeed the basis for the examining division's view, then the board can only refer to T 1194/97 points 2.2, 2.4, 2.5, 3.1 to 3.4, 3.7, as the appellant applicant has already done so, in an attempt to dispel what the board views as a misinterpretation of such claims and the applicable law.

8. The board would add that claim interpretation is not an exercise in artefact hermeneutics of the kind that archaeologists dealing with objects of unknown provenance are sometimes obliged to engage in. It is unacceptably disingenuous to view a record having data recorded thereon in a specific format or pattern as indistinguishable from a record having arbitrary data recorded thereon. The claim has to be given a purposive construction at least to the extent of acknowledging what the subject-matter of the claim purports to be having regard to at least the subjective problem addressed in the description. The chances of a record bearing arbitrary data satisfying the coding rules set out in the conversion tables of figure 4 of the application so as to yield an intelligible result when demodulated by these rules applied inversely are vanishingly small and can surely be neglected.
  
9. In the judgement of the board, defining a record medium as having data recorded thereon by the undisputedly new and inventive modulation method taught in the application results in a new and inventive record medium. It is distinguishable from prior art records by the pattern or format of the data on it and by the technical effect this format achieves in terms of

enhanced recording density without impairment of the stability of the readout process.

10. *Clarity and support by the description (Article 84 EPC)*

As noted at point 2 above, the examining division has taken the view that the details of the modulation method steps specified in the last three paragraphs of claim 1 should not be taken into account in examining the claim for compliance with the requirements of the EPC.

In the above reasoning the board has deliberately avoided addressing the issues of clarity and support in relation to the manner in which the code conversion is specified. It has decided the issues on appeal only at the same level of generality as the decision under appeal. In the light of the board's conclusions above it appears appropriate to remit the case to the examining division to examine *inter alia* the rest of the claim in accordance with the appellant applicant's first auxiliary request. In this way the appellant applicant will have the benefit of consideration at two levels of jurisdiction on the outstanding issues. Excessive delay is not involved since the board has taken the case out of turn to decide on the grounds for refusal.

**Order**

**For these reasons it is decided that:**

1. The decision under appeal is set aside.
2. The application is remitted to the examining division for further prosecution.

The Registrar:

The Chairman:

D. Sauter

W. J. L. Wheeler