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**Datasheet for the decision  
of 24 February 2010**

**Case Number:** T 1597/07 - 3.5.05

**Application Number:** 02257819.9

**Publication Number:** 1389859

**IPC:** H04L 25/06

**Language of the proceedings:** EN

**Title of invention:**

Soft quantisation for optical transmission

**Applicant:**

Agere Systems Inc.

**Headword:**

Plurality of slicing levels/AGERE

**Relevant legal provisions:**

EPC Art. 54(3)

RPBA Art. 15(3)

**Relevant legal provisions (EPC 1973):**

EPC Art. 54(4), 113(1)

EPC R. 23a

**Keyword:**

"Lack of novelty"

**Decisions cited:**

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**Catchword:**

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Case Number: T 1597/07 - 3.5.05

**D E C I S I O N**  
of the Technical Board of Appeal 3.5.05  
of 24 February 2010

**Appellant:** Agere Systems Inc.  
555 Union Boulevard  
Allentown, PA 18109 (US)

**Representative:** Williams, David John  
Page White & Farrer  
Bedford House  
John Sreet  
London WC1N 2BF (GB)

**Decision under appeal:** Decision of the Examining Division of the  
European Patent Office posted 26 April 2007  
refusing European patent application  
No. 02257819.9 pursuant to Article 97(1) EPC  
1973.

**Composition of the Board:**

**Chairman:** D. H. Rees  
**Members:** M. Höhn  
G. Weiss

## Summary of Facts and Submissions

I. On 12 November 2002, the appellant filed European patent application No. 02257819.9, claiming priority from an US-patent application filed on 15 August 2002. The application was published on 18 February 2004. This appeal is against the decision of the examining division dispatched 26 April 2007, refusing the European patent application for lack of an inventive step according to Article 56 EPC 1973, based on prior art documents (following the numbering in the first instance):

D1: US2002/0007257 A1, and

D3: EP 0 840 483 A2.

The decision also mentioned document

D4: EP 1 292 078 A1.

D4 was filed on 10 September 2001 without claiming priority and published on 12 March 2003. Thus, D4 qualifies as prior art only under Article 54(3) EPC and Article 54(4) EPC 1973 and is therefore only relevant to the question of novelty.

II. The notice of appeal was received on 27 June 2007. The appeal fee was paid on the same day. In the statement setting out the grounds of appeal received on 6 September 2007 it was requested that the decision to refuse be set aside.

III. A summons to oral proceedings to be held on 24 February 2010 was issued on 24 November 2009. In an annex accompanying the summons the board expressed the

preliminary opinion that the wording of claim 1 lacked clarity (Article 84 EPC 1973) and that the subject-matters of the independent claims 1 and 5 lacked novelty (Article 54(3) EPC) over the disclosure of D4, or were considered obvious in the light of the disclosure of D1 when combined with D3 or in the light of the disclosure of D3 when combined with the skilled person's common general knowledge (Article 56 EPC 1973). The board gave its reasons for these objections and why the appellant's arguments were not found convincing.

IV. With a letter dated 25 January 2010 the appellant filed an amended set of claims 1 to 10 as its sole request together with arguments that this request was novel and involved an inventive step.

V. By facsimile dated 23 February 2010 the board was informed that the appellant would not be present at the oral proceedings and was asked to take the written submission filed on 25 January 2010 into consideration.

VI. As announced, nobody appeared to represent the appellant at the oral proceedings on 24 February 2010, which were then held in the appellant's absence.

VII. The appellant had requested in writing that the decision under appeal be set aside and that a patent be granted on the basis of claims 1 to 10 received with the letter dated 25 January 2010.

VIII. Independent claim 1 reads as follows:

"1. A method for receiving an optical signal (140) over a fiber channel and converting said optical signal to

an analogue signal level, said method characterized by the steps of:  
assigning a digital value to said analogue signal level based on a plurality of slicing levels (610, 620, 630), wherein at least two slicing levels (710, 720) are provided between two adjacent signal levels; and assigning a reliability value based on said at least two slicing levels."

Independent claim 5 is directed to a corresponding system for receiving an optical signal.

The further text of the application on file is

description

page 1 filed with telefax on 13 July 2006,  
pages 2 and 2a filed with telefax on 27 May 2005,  
pages 3 to 10 as originally filed, and

drawing sheets 1/5 to 5/5 as originally filed.

IX. After deliberation the board announced its decision.

### **Reasons for the Decision**

1. The appeal is admissible.
2. The appellant was duly summoned, but did not appear in the oral proceedings. According to Article 15(3) RPBA the board shall not be obliged to delay any step in the proceedings, including its decision, by reason only of the absence at the oral proceedings of any party duly summoned who may then be treated as relying only on its

written case. Further the appellant was informed in the board's communication that if amendments to the appellant's case were filed, it would be necessary at the oral proceedings to discuss their admissibility and their compliance with the EPC, including Articles 123(2), 84 and 52(1). In the light of Article 15(3) RPBA, the board may consider these issues and announce a decision based on new objections arising from such newly submitted amendments even if the appellant chooses not to attend. There can be no question of the appellant being taken by surprise and the appellant's right to have an opportunity to be heard has been observed (Article 113(1) EPC 1973).

3. Novelty - Article 54(3) EPC and Article 54(4) EPC 1973

3.1 Document D4 is prior art under Article 54(3) EPC for all designated contracting states of the present application, i.e. DE, FR and GB (Article 54(4) and Rule 23a EPC 1973).

3.2 In contrast to the examining division's analysis in section III of the appealed decision, the board considers that document D4 discloses more than one slicing level between two adjacent signalling levels, since for a one bit signal D0 with two signal levels (see paragraph 16, only the most significant bit is used for the restored data signal D0) three thresholds according to deciders D1, D2 and D3 are used (see in particular paragraphs 15 to 16 and figure 1). The board does not agree with the appellant's point of view expressed in paragraph 3 on page 3 of the letter dated 20 March 2007, that "only comparator D2 determines the data output D0". This relates only to the second

embodiment shown in figure 2 and described from paragraph 17 onwards. However, as can be seen from the first embodiment in figure 1 of document D4, the input signal DI is fed to all three deciders D1, D2 and D3, of whose outputs the data signal is formed using a 2:1 multiplexer. The description in column 3, lines 7 to 21 of document D4 discloses that all three thresholds are involved when determining the restored data signal. Therefore, all three thresholds are used for assigning a digital value to the received input signal.

- 3.3 Since there are only two signal levels (i.e. a plurality of signal levels) for data signal D0, these are by definition adjacent, and the board judges that the skilled person would understand all the thresholds D1 to D3 to be located between these two signal levels, because a slicing level outside the space between the two adjacent signal levels would not make sense from a technical point of view. The board does not follow the appellant's argument set out in its letter dated 25 January 2010 that a threshold outside the space between the two adjacent signal levels would be valuable in determining if a signal is located in a very reliable region, when assigning a one bit digital value to the incoming signal DI as is the case in document D4. In addition, given that the low signal level is zero, the lowest threshold would then have to be negative; this is not considered to be a reasonable interpretation by an ordinarily skilled person of the embodiment according to figure 1 of D4. Thus even if the board were to assume that the upper threshold was located outside the space between the two adjacent signal levels, there would still be two slicing levels provided between the two adjacent signal levels, namely

levels D2 and D3. Therefore, the board is not convinced by the appellant's argument that D4 does not disclose plural slicing levels between two adjacent signal levels.

The least significant bit represents the reliability signal DR (see paragraph 16) which is therefore based on at least two thresholds, i.e. slicing levels according to independent claims 1 and 5.

- 3.4 Document D4 further discloses receiving optical binary signals which are subject to dispersion on the transmission path and which are converted from optical to electrical signals and then electrically restored (see paragraph 2). This process involves the optical signal being converted to an analogue signal to which a digital value is assigned (see e.g. paragraph 14 in which it is described that the deciders can be clocked signal amplitude comparators, thus requiring the use of an electrical analogue signal). D4 also discloses a corresponding system (see figure 1 with paragraphs 14 to 16). A combination of all these features is disclosed in a single embodiment of document D4 (see figure 1).

D4, which is relevant for the assessment of novelty only, therefore anticipates the subject-matter of independent claims 1 and 5.

- 3.5 Thus the appellant's sole request is not allowable. The appeal must therefore be dismissed.
4. The board however further notes that the amendments submitted on 25 January 2010 only addressed the board's



objection under Article 84 EPC 1973. The board was not convinced by the appellant's arguments, submitted with these amendments, that D3 does not disclose a "reliability value", so that there would appear to be no reason to revise the board's preliminary opinion that the claimed subject-matter lacks an inventive step at least in the light of the teachings of D1 and D3.

**Order**

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

The appeal is dismissed.

The Registrar

The Chairman

K. Götz

D. H. Rees