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**Datasheet for the decision  
of 23 October 2012**

**Case Number:** T 2132/08 - 3.5.04

**Application Number:** 03100485.6

**Publication Number:** 1341385

**IPC:** H04N7/30, H03M7/40

**Language of the proceedings:** EN

**Title of invention:**

System and method for using pattern vectors for video and image coding and decoding

**Applicant:**

AT&T Corp.

**Headword:**

**Relevant legal provisions:**

EPC Art. 123(2), 111(1)

EPC 1973 Art. 84

RPBA Art. 13(1)

**Keyword:**

Added subject-matter (no - after amendments)

Clarity (yes - after amendments)

Remittal (yes)

**Decisions cited:**

**Catchword:**



**Beschwerdekammern  
Boards of Appeal  
Chambres de recours**

European Patent Office  
D-80298 MUNICH  
GERMANY  
Tel. +49 (0) 89 2399-0  
Fax +49 (0) 89 2399-4465

Case Number: T 2132/08 - 3.5.04

**D E C I S I O N**  
**of the Technical Board of Appeal 3.5.04**  
**of 23 October 2012**

**Appellant:** AT&T Corp.  
(Applicant) 32 Avenue of the Americas  
New York, NY 10013-2412 (US)

**Representative:** Suckling, Andrew Michael  
Marks & Clerk LLP  
Fletcher House  
Heatley Road  
The Oxford Science Park  
Oxford OX4 4GE (GB)

**Decision under appeal:** **Decision of the Examining Division of the  
European Patent Office posted 18 April 2008  
refusing European patent application No.  
03100485.6 pursuant to Article 97(2) EPC.**

**Composition of the Board:**

**Chairman:** F. Edlinger  
**Members:** M. Paci  
C. Vallet

## **Summary of Facts and Submissions**

- I. The appeal is against the decision of the examining division refusing European patent application No. 03 100 485.6 published as EP 1 341 385 A1.
- II. The decision under appeal was based on the grounds that independent claim 1 according to a main request and a first auxiliary request was unclear (Article 84 EPC 1973) and that claim 1 according to second and third auxiliary requests contained subject-matter extending beyond the content of the application as filed (Article 123(2) EPC).
- III. With the statement of grounds of appeal the appellant filed a set of amended claims according to a main request, replacing all previous claims, and stated that the first to third auxiliary requests were no longer maintained.
- IV. With a letter dated 26 March 2009 the appellant filed a set of claims according to a new main request replacing the claims of the main request filed with the statement of grounds of appeal.
- V. In respective letters dated 21 July 2007 and 14 March 2012 the appellant informed the board that he had become aware of the existence of a first document, published before the priority date, and a second document, published between the priority date and the filing date.
- VI. In a communication annexed to the summons to oral proceedings, the board stated as its provisional opinion

- that the admissibility of the claims according to the new main request was in doubt;
  - that, if the claims were admitted, objections under Article 84 EPC 1973 and Article 123(2) EPC would have to be discussed; and
  - that the board regarded the first and second documents filed by the appellant with letters of 21 July 2007 and 14 March 2012 as relevant and, should the claims be admitted, the appellant should be prepared to discuss the international patent application WO 00/01113 A2 (referred to as D5) - a pre-published patent family member of said first document - and the second document (Yang, W. et al., "Coefficient Rate and Significance Maps in Transform Coding", IEEE, 1998, DOI: 10.1109/ACSSC.1997.679128; referred to as D6), as well as prior-art documents D1 to D4 (cited in the proceedings before the examining division), during the oral proceedings before the board.
- VII. With a letter dated 21 September 2012, the appellant filed sets of claims according to a main request and an auxiliary request, replacing all previous claims.
- VIII. Oral proceedings were held before the board on 23 October 2012. During the oral proceedings the appellant filed a set of claims 1 to 10 according to a single request, replacing all previous claims on file.
- IX. The appellant's final requests are that the decision under appeal be set aside and that the case be remitted to the first instance for further prosecution on the basis of the claims submitted in the oral proceedings.
- X. Independent claims 1, 6 and 10 read as follows:

"1. A method of coding image data, the method comprising:

converting (602) a block of image data into transform coefficients; and

quantizing (604) the transform coefficients such that all, some or none of the transform coefficients become zero;

the method being characterised in that it comprises the further steps of:

constructing (606) a single entity (706) from the quantized transform coefficients, wherein the constructing comprises:

mapping the quantized transform coefficients (702) into a one-dimensional list (704) of quantized transform coefficients in any fixed order; and

generating the single entity (706) to indicate which quantized transform coefficients in the one-dimensional list (704) are non-zero, the single entity being a bit vector and each bit of the bit vector representing a corresponding quantised transform coefficient in the one-dimensional list;

coding (608) the bit vector using an arithmetic coder; and

coding (610, 804) values of the non-zero quantized transform coefficients in any fixed order."

"6. An apparatus for coding image data, the apparatus comprising:

means for converting (602) a block of image data into transform coefficients;

means for quantizing (604) the transform coefficients such that all, some, or none of the transform coefficients become zero;

means for constructing (606) a single entity (706) from the quantized transform coefficients by:

mapping the quantized transform coefficients (702) into a one-dimensional list (704) of quantized transform coefficients in any fixed order; and

generating the single entity (706) to indicate which quantized transform coefficients in the one-dimensional list (704) are non-zero, the single entity being a bit vector and each bit of the bit vector representing a corresponding quantised transform coefficient in the one-dimensional list;

means for coding (608) the bit vector using an arithmetic coder; and

means for coding (610, 804) values of the non-zero quantised transform coefficients in any fixed order."

"10. A computer-readable medium that stores instructions for controlling the operation of a computer device to perform data coding according to a method as defined in any one of claims 1 to 5."

Claims 2 to 5 are dependent on claim 1 and claims 7 to 9 are dependent on claim 6.

XI. The examining division's reasoning in the decision under appeal regarding the claims then on file can be summarised as follows:

*Main request and first auxiliary request*

The expressions "reinterpreting the bit vector as an integer" and "coding the bit vector as an integer" used in claim 1 according to the main request and first auxiliary request, respectively, are unclear because neither the description nor the figures explain how and to what technical effect the bit vector is reinterpreted/coded as an integer. Hence claim 1

according to each of these requests does not meet the requirement of clarity of Article 84 EPC 1973.

*Second and third auxiliary requests*

The decoding method of claim 1 according to each of the second and third auxiliary requests comprises a dequantizing step reading "dequantizing the transform coefficients". However, the dequantizing step in the decoding method of original claim 25 and the disclosure throughout the application as filed was more specific in that it read "dequantizing the transform coefficients to determine whether all, some or none of the coefficients are zero". There is no basis in the application as filed for such a generalisation of the dequantizing step. Hence the subject-matter of claim 1 according to the second and third auxiliary requests extends beyond the content of the application as filed, contrary to the requirements of Article 123(2) EPC.

- XII. The appellant's arguments relevant to the present decision can be summarised as follows:

*Admissibility of the amended claims*

The amended claims filed during the oral proceedings before the board overcome all the objections of lack of clarity raised by the board for the first time during the oral proceedings or in the annex to the summons to oral proceedings, as well as all the objections based on Article 84 EPC 1973 or Article 123(2) EPC raised in the decision under appeal. The board should thus admit the amended claims into the proceedings.



*Article 123(2) EPC*

The deletion of the feature in independent claims 1 and 6 that the bit vector is coded as an integer is based on the disclosure of the application as filed, in particular on page 8, line 22, to page 9, line 4, and on claims 23 and 24.

The additional feature in claims 1 and 6 that the quantised transform coefficients are mapped into a one-dimension list (704) is directly and unambiguously derivable from figure 7 in conjunction with page 9, lines 12 and 13, of the application as filed. The feature that the single entity can be a bit vector as defined in claims 1 and 6 is disclosed on page 9, lines 3, 4 and 18 to 22, of the application as filed.

The objections under Article 123(2) EPC, regarding the broadening of some features, raised by the board in the communication annexed to the summons to oral proceedings, have been overcome by reintroducing into claims 1 and 6 some of the original wording used in claims 1 and 8 of the application as filed.

*Article 84 EPC 1973 - Clarity*

The claims have been amended to remove all references to an integer. Since these references were the cause of the examining division's objections of lack of clarity in the decision under appeal, these objections have now been overcome.

*Remittal to the first instance*

The decision under appeal was based solely on the grounds of lack of clarity and added subject-matter.

Hence, not only inventive step was not a ground for the refusal, but also D5 and D6 were not considered during the proceedings leading to the refusal. According to well-established case law of the boards of appeal, under these circumstances a remittal to the department of first instance for further prosecution would be appropriate.

### **Reasons for the Decision**

1. The appeal is admissible.

#### *Admissibility of the amended claims*

2. According to Article 13(1) RPBA (Rules of Procedure of the Boards of Appeal, OJ EPO 2007, 536), any amendment to a party's case after it has filed its grounds of appeal may be admitted and considered at the board's discretion. The discretion shall be exercised in view of *inter alia* the complexity of the new subject-matter submitted, the current state of the proceedings and the need for procedural economy.

In the present appeal, the amended claims according to the appellant's final main request were filed during the oral proceedings before the board. However, these amendments were made in reaction to the board's objections raised in the communication annexed to the summons to oral proceedings or during the oral proceedings. Moreover, it was apparent that the amendments would overcome all outstanding objections under Article 123(2) EPC and Article 84 EPC 1973, would not increase the complexity of the claimed subject-matter and could be dealt with by the board without adjournment of the oral proceedings.

For the above reasons, the board decided to exercise its discretion under Article 13(1) RPBA to admit the amended claims into the proceedings.

*Article 123(2) EPC*

3. The objections under Article 123(2) EPC raised in the reasons for the appealed decision concerned claims for a decoding method. They do not apply to the present claims which do not contain any decoding method.

Present claim 1 (a method of coding image data) substantially differs from claim 1 of the application as filed by the addition of several features and the deletion of one feature.

The additional features may be summarised as follows:  
(a) the step of constructing a single entity comprises a step of mapping the quantized transform coefficients into a one-dimensional list of quantized transform coefficients in any fixed order;  
(b) the single entity is a bit vector; and  
(c) each bit of the bit vector represents a corresponding quantized transform coefficient in the one-dimensional list.

The feature which has been deleted is that the single entity is coded "as an integer".

The board concurs with the appellant that feature (a) is directly and unambiguously derivable from figure 7 in conjunction with page 9, lines 12 and 13, of the application as filed. As to features (b) and (c), they are disclosed, for example, on page 9, lines 3, 4 and 18 to 22, of the application as filed.

The board also agrees with the appellant that the deletion of the feature in independent claims 1 and 6 that the bit vector is coded "as an integer" does not delete an essential feature. This is derivable from page 8, line 22, to page 9, line 4, and claims 23 and 24, of the application as filed. Moreover, as pointed out by the examining division under point 3.2 of the reasons for the decision, there is no technical effect associated with the coding "as an integer" rather than as another binary representation. Thus, for the skilled person it was directly and unambiguously derivable from the whole application as filed that the coding of the single entity "as an integer" was merely optional.

The same reasons apply *mutatis mutandis* to the amendments of claim 6 and claim 10. The dependent claims, which are based *inter alia* on original claims 2 to 5, also meet these requirements.

For the above reasons, the board considers that the amendments made to the claims meet the requirements of Article 123(2) EPC.

*Article 84 EPC 1973 - Clarity and support*

4. In the reasons for the appealed decision the examining division held that the expressions "reinterpreting the bit vector as an integer" (main request) and "coding the bit vector as an integer" (first auxiliary request) rendered claim 1 unclear.

The claims according to the present request no longer contain any reference to an integer. Moreover, the bit vector has been further defined in independent claims 1 and 6 by specifying that "each bit of the bit vector

representing a corresponding quantised transform coefficient in the one-dimensional list". The board is therefore satisfied that the bit vector and its role in the generating and coding steps are clear in the context of claims 1 and 6 and that all the claims meet the requirements of Article 84 EPC 1973.

*Remittal*

5. As stated by the Enlarged Board of Appeal in its decision G 10/93, OJ EPO 1995, 172 (see point 4 of the Reasons), the power of a board of appeal to include new grounds in *ex parte* proceedings does not however mean that boards of appeal carry out a full examination of the application as to patentability requirements. This is the task of the examining division. Proceedings before the boards of appeal in *ex parte* cases are primarily concerned with examining the contested decision.
  
6. In the present case, independent claims 1 and 6 have been amended during the appeal proceedings to such an extent that the reasons in the appealed decision for refusing the application no longer apply. The other conditions for patentability, in particular novelty and inventive step, have not yet been examined by the examining division.
  - 6.1 Under these circumstances, the board considers it appropriate to exercise the power conferred upon it by Article 111(1) EPC and to remit the case to the department of first instance for further prosecution, as requested by the appellant.

**Order**

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

1. The decision under appeal is set aside.
2. The case is remitted to the department of first instance for further prosecution.

The Registrar:

The Chairman:



K. Boelicke

F. Edlinger

Decision electronically authenticated