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Datasheet for the decision of 30 September 2010

Case Number: T 0169/07 - 3.5.02

Application Number: 00918918.4

Publication Number: 1095461

IPC: H03M 13/05

Language of the proceedings: EN

Title of invention:
Segmentation Mechanism for a Block Encoder

Applicant:
Nokia Siemens Networks Oy

Headword:
-

Relevant legal provisions:
EPC Art. 84, 123(2)

Relevant legal provisions (EPC 1973):
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Keyword:
"Added subject-matter - (no) - after amendment"
"Claims - clarity and support by description - (yes) - after amendment"
"Remittal for further prosecution (yes)"

Decisions cited:
-

Catchword:
see point 4. of the reasons

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Case Number: T 0169/07 **-** 3.5.02

D E C I S I O N
of the Technical Board of Appeal 3.5.02
of 30 September 2010

Appellant: Nokia Siemens Networks Oy
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FI-02022 Nokia Siemens Networks (FI)

Representative: Borgström, Markus
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 17 August 2006 refusing European application No. 00918918.4 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. 00 918 918.4.

II. The reason given for the refusal was that the subject-matter of claim 1 according to each of the main request, filed as auxiliary request with letter of 6 September 2005, and the first and second auxiliary requests, filed during the oral proceedings of 10 July 2006, did not involve an inventive step.

In the statement of grounds of appeal dated 14 December 2006 the appellant requested ***inter alia*** the grant of a patent on the basis of the set of claims filed with his letter dated 24 November 2004.

In a communication under Article 15(1) RPBA accompanying the summons to oral proceedings of 7 May 2010 the board ***inter alia*** expressed doubts as to the clarity of the expression "substantially equal size" in the independent claims filed with the letter of 24 November 2004.

In a reply dated 30 August 2010 the appellant as his main request reverted to the set of claims filed as an auxiliary request with his letter of 6 September 2005 (i.e. the claims which formed the main request addressed in the decision under appeal). With that reply he also filed sets of claims according to five auxiliary requests.

Oral proceedings before the board took place on 30 September 2010, during which the board argued ***inter alia*** that the independent claims of the main request defined subject-matter extending beyond the content of the application as filed, that these claims were not supported by the description, and furthermore that these claims lacked clarity for the reason indicated in the communication under Article 15(1) RPBA. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of claims 1 to 3 filed as main request during the oral proceedings. All other requests filed with letter dated 30 August 2010 were withdrawn.

III. Claim 1 according to the appellant's request reads as follows:

"A method for segmenting an input data block (IDB) with a segmentation device, to process the input data block with a block encoder (TE), said block encoder being capable of processing consecutive coding blocks (CB) whose size has an upper limit (L_{CB}) which is smaller than the size of the input data block (IDB);
wherein the method comprises the following steps performed by the segmentation device:

- determining the length of the input data block (IDB) before encoding any of its data with said block encoder (TE);
- calculating the size for a plurality of segments (S_1 ... S_N), wherein no segment is larger than said upper limit (L_{CB});
- dividing the input data block (IDB) to the plurality of segments (S_1 ... S_N); and

- applying each segment (S_1 ... S_N) to said block encoder (TE);
- wherein the calculation of the size uses the following inputs:

  R_{DATA} = user data rate in bits per second;

  T_{DELAY} = encoding user data block length in seconds;

  N_{EXTRA} = extra data bits to be appended to the user data block before encoding;

  N_{TAIL} = number of tail bits to be appended to the encoding blocks
- and wherein the calculation of the size produces the following outputs:

  N_S = number of segments;

  N_{TB} = number of bits in each segment;

  N_{FILL} = number of fill bits for padding the input data block or the last segment;
- and wherein the relation of the outputs to the inputs is:

  N_S = round_up((R_{DATA} * T_{DELAY} + N_{EXTRA}) / (L_{CB} - N_{TAIL}));

  N_{TB} = round_up((R_{DATA} * T_{DELAY} + N_{EXTRA}) / N_S) + N_{TAIL};

  N_{FILL} = (N_S - N_{REM}) if $N_{REM} \neq 0$; else $N_{FILL} = 0$, wherein N_{REM} = remainder of (R_{DATA} * T_{DELAY} + N_{EXTRA}) / N_S."

Claim 2 reads as follows:

"A segmentation device for segmenting an input data block (IDB) for processing with a block encoder (TE), said block encoder being capable of processing consecutive coding blocks (CB) whose size has an upper limit (L_{CB}) which is smaller than the size of the input data block (IDB);

characterized in that the segmentation device is arranged to:

- determine the length of the input data block (IDB) before applying any of its data to said block encoder (TE);
- calculate the size for a plurality of segments (S_1 ... S_N), wherein no segment is larger than said upper limit (L_{CB});
- divide the input data block (IDB) to the plurality of segments (S_1 ... S_N); and to
- apply each segment (S_1 ... S_N) to said block encoder (TE);
- wherein the calculation of the size uses the following inputs:

  R_{DATA} = user data rate in bits per second;

  T_{DELAY} = encoding user data block length in seconds;

  N_{EXTRA} = extra data bits to be appended to the user data block before encoding;

  N_{TAIL} = number of tail bits to be appended to the encoding blocks
- and wherein the calculation of the size produces the following outputs:

  N_S = number of segments;

  N_{TB} = number of bits in each segment;

  N_{FILL} = number of fill bits for padding the input data block or the last segment;
- and wherein the relation of the outputs to the inputs is:

  $N_S = \text{round\_up}((R_{DATA} * T_{DELAY} + N_{EXTRA}) / (L_{CB} - N_{TAIL}))$;

  $N_{TB} = \text{round\_up}((R_{DATA} * T_{DELAY} + N_{EXTRA}) / N_S) + N_{TAIL}$;

  $N_{FILL} = (N_S - N_{REM})$ if $N_{REM} \neq 0$; else $N_{FILL} = 0$,

wherein N_{REM} = remainder of (R_{DATA} * T_{DELAY} + N_{EXTRA}) / N_S."

Claim 3 is dependent on claim 2.

IV. The appellant essentially argued as follows:

The replacement of the previous definitions in the independent claims of the calculation of the size of the segments with the definition of the "Algorithm B" taken from the original description, page 4, line 19 to page 5, line 2 overcame the objection under Article 123(2) EPC raised by the board, and also addressed the objection of lack of support in the description (Article 84 EPC) raised by the board with respect to that definition.

That replacement also resulted in the expression "substantially equal size", which the board had argued was not clear (Article 84 EPC), no longer appearing in the claim.

The amendment of the definitions in claims 1 and 2 of the parameter N_{TB} compared to that of the original description, page 4, line 27, was introduced merely to ensure consistency of terminology throughout the claims.

The amendment of the definitions in claims 1 and 2 of the parameter N_{FILL} compared to that of the original description, page 4, line 28, was based on page 2, lines 18 and 19.

The examining division had indicated in their communication of 28 February 2005 that a claim

including the algorithm B would meet the requirements of the EPC for novelty and inventive step, but had then in their communication of 14 December 2005 revised that opinion, indicating that this algorithm did not involve an inventive step. It was thus apparent that the examining division had already considered the subject-matter of the present independent claims in detail, so that a remittal of the case to the department of first instance was not necessary.

Reasons for the Decision

1. The appeal is admissible.

2. *Amendments*

Independent claims 1 and 2 of the appellant's sole request are based on a combination of the original claims 1 and 5 respectively with the definition of the calculation of the number and size of the segments referred to in the original description as "Algorithm B", as detailed in the passage from page 4, line 19 to page 5, line 2. Within that algorithm, two further amendments have been carried out in each independent claim. Firstly, the definition of the parameter N_{TB} has been amended by replacing the expression "***the turbo encoder input blocks***" with the words "***each segment***", which is merely a matter of ensuring consistency of terminology throughout the claims. Secondly, the definition of the parameter N_{FILL} has been clarified by replacing the expression "***in the last turbo encoder input block***" with wording taken from page 2, lines 18 and 19 of the original description. Additionally the

opening paragraph of claim 1 has been clarified on the basis of the corresponding passage in original claim 5.

Thus, the amendments to the independent claims 1 and 2 do not contravene Article 123(2) EPC.

3. *Clarity and support in the description*

The definition in the independent claims of the calculation of the number and size of the segments corresponds directly (subject to the clarifications of the definitions of the parameters N_{TB} and N_{FILL} noted above) to that of algorithm B in the description, and thus overcomes the objection raised to the previous main request of lack of support in the description. The incorporation of this definition also avoids the use of the expression "substantially equal size", and thus overcomes the objection of lack of clarity raised with respect to that expression. Furthermore, the dependent claims rendered superfluous by the incorporation of this definition have been deleted.

Thus, the independent claims 1 and 2 meet the requirements of Article 84 EPC.

4. *Further procedure*

The amendment to the independent claims by incorporation of the entirety of the algorithm B into those claims results in the board being confronted with a new situation, in particular since that algorithm was previously disclosed only in the description, not in the claims, having been introduced into the claims for the first time in the fifth auxiliary request filed

with the appellant's letter of 30 August 2010. The board therefore considers it appropriate to remit the case to the department of first instance for further prosecution in order that a detailed substantive examination, and further search if necessary, can be carried out by that instance.

The appellant has argued that remittal is not necessary because the examining division has already considered the subject-matter of the present independent claims. In this respect the appellant is correct in observing that the examining division did refer to Algorithm B twice, firstly in the communication dated 28 February 2005, in which in paragraph 5 they remarked that this algorithm would be suitable to form the basis of a claim the subject-matter of which would be new and involve an inventive step, and secondly in the communication of 14 December 2005, in which in the introductory paragraph of section II they stated that they were no longer of the opinion that this subject-matter would involve an inventive step.

However, the latter of these two communications does not provide a complete indication of why the examining division considered that the inclusion of algorithm B in the claim would not result in the presence of an inventive step, because the arguments in the remainder of section II of that communication concern not such a restricted claim, but instead concern the claims of the auxiliary request which was then on file (i.e. the claims which formed the basis of the main request addressed in the decision under appeal and the main request of the appellant's letter of 30 August 2010). Although those arguments are of some relevance to

algorithm B, the board considers that they do not represent a complete argumentation with respect to that algorithm. Indeed, at the time when the examining division presented those arguments a complete consideration of that algorithm was not appropriate, since despite the suggestion in the communication of 28 February 2005, the appellant (then applicant) had not presented a claim defining that algorithm. Thus the examining division has not yet presented full reasoning as to why the subject-matter as now claimed would not involve an inventive step, so that the appellant has not had an opportunity to challenge that reasoning and the board is not in a position to review this aspect of the case.

The board therefore considers it appropriate to remit the case to the department of first instance for further prosecution.

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:

U. Bultmann M. Ruggiu