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Datasheet for the decision of 15 January 2014

Case Number: T 2263/09 - 3.5.02

Application Number: 99912146.0

Publication Number: 998789

IPC: H03M1/00

Language of the proceedings: EN

Title of invention:
Channel Encoding/Decoding Device and Method

Applicant:
Samsung Electronics Co., Ltd.

Relevant legal provisions:
EPC Art. 54
RPBA Art. 13(1)

Keyword:
Novelty - main request (no)
Late-filed auxiliary requests - admitted (no)

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Case Number: T 2263/09 - 3.5.02

D E C I S I O N
of Technical Board of Appeal 3.5.02
of 15 January 2014

Appellant: (Applicant)	Samsung Electronics Co., Ltd. 129, Samsung-ro Yeongtong-gu Suwon-si, Gyeonggi-do, 443-742 (KR)
Representative:	Grünecker, Kinkeldey, Stockmair & Schwanhäusser Leopoldstrasse 4 80802 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 2 July 2009 refusing European patent application No. 99912146.0 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman: M. Ruggiu
Members: R. Lord
W. Ungler

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. 99 912 146.0. The reason given for the refusal was that the subject-matter of claim 1 according to the main request and auxiliary request then on file lacked novelty.

II. The following document of the prior art cited during the procedure before the examining division is relevant for this decision:

D4: T. Hindelang et al, "Using Powerful "Turbo" Codes For 14.4 kbit/s Data Service in GSM or PCS Systems", IEEE 1997, pages 649 to 653.

III. Oral proceedings before the board took place on 15th January 2014. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of claims 1, 8, 13 and 22 of the main request filed with letter dated 13 December 2013, or alternatively on the basis of claims 1, 8, 13 and 22 of a first, second or third auxiliary request, all filed with letter dated 13 December 2013.

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

"A channel encoding method in a mobile communication system, comprising the steps of:

adaptively selecting one of a convolutional encoding scheme and a turbo encoding scheme according to a service type of data to be transmitted;

encoding a data utilizing said selected encoding scheme; and

transmitting the encoded data on a transmission channel."

Claim 1 according to the appellant's first auxiliary request reads as follows:

"A channel encoding method in a mobile communication system including a controller, a convolutional encoder, and a turbo encoder, comprising the steps of:

receiving, by the controller, an information message representing a service type of data from a message transmitter;

reading, by the controller, from a memory a control command corresponding to the received information message, the control command including a coding mode depending on the service type of data;

adaptively selecting, by the controller, one of a convolutional encoding scheme and a turbo encoding scheme according to the coding mode included in the read control command for selection of an encoding scheme depending on the service type of data to be transmitted;

encoding, by the convolutional encoder or the turbo encoder based on said selected encoding scheme, a data utilizing said selected encoding scheme; and

transmitting the encoded data on a transmitting channel."

Claim 1 according to the appellant's second auxiliary request differs from that of the first auxiliary request in that the expression "a service type of data" in the second paragraph of the claim is replaced by "data rate of a data frame", and that in the next two paragraphs the expression "the service type of data" is replaced by "the data rate of the data frame".

Claim 1 according to the appellant's third auxiliary request differs from that of the first auxiliary request in a similar manner except that the corresponding replacement passages are "both of a service type of data and data rate of a data frame" and "both of the service type of data and the data rate of the data frame".

Each of the requests also includes further independent claims defining the channel decoding method, the channel encoding device and the channel decoding device corresponding to the channel encoding method of the respective claim 1.

V. The appellant essentially argued as follows:

D4 did not disclose methods of channel encoding or decoding in a mobile communication system or channel encoding or decoding devices in such systems as claimed, but instead described only test assemblies and simulations comparing different coding techniques, as was apparent from Figs. 4 and 5 of that document and the text referring to those figures.

D4 did not disclose the claimed adaptive selection of the coding scheme, but instead described arrangements in which the coding circuits were hard-wired for the coding scheme to be tested. It also did not disclose selection on the basis of service type because the references in the document to "data" covered all types of service, including voice, image and and other data.

The disclosure of the left-hand paragraph of page 653 of D4 implied that the system did not include two different types of encoder and decoder.

The auxiliary requests filed with the letter of 13 December 2013 had not been filed earlier because the appellant believed that the arguments presented relating to the teaching of D4 were convincing, so that a restriction of the claimed subject-matter had not been necessary during the first instance proceedings or at the stage of filing the appeal grounds.

Reasons for the Decision

1. The appeal is admissible.

2. Main Request - Novelty (Article 54 EPC)

2.1 The document D4 describes (see in particular the Abstract on page 649 and the first paragraph of section 4 on page 651) the concept of adding to the known GSM mobile communication system a data service making use of turbo coding. A block diagram representing the proposed system is shown in Fig. 4 of D4. Since the GSM system includes a voice service making use of convolutional coding, it follows directly that this proposal implies a channel encoding method in a mobile communication system comprising the steps of:

- adaptively selecting one of a convolutional encoding scheme and a turbo encoding scheme according to the service type of data to be transmitted (i.e. selecting the conventional convolutional encoding scheme if the signal to be transmitted is a voice signal, and selecting the turbo encoding scheme if the signal to be transmitted is a data signal);

- encoding the data utilising the selected encoding scheme; and
- transmitting the encoded data on a transmission channel.

D4 thus discloses a channel encoding method comprising all of the technical features of claim 1 of the appellant's main request, so that the subject-matter of that claim is not new within the meaning of Article 54 EPC.

2.2 The appellant's counter-arguments all concerned the disclosure of document D4, and are not found convincing for the following reasons.

2.2.1 The appellant's main argument (as far as it relates to claim 1 of the main request) was that D4 did not disclose a channel encoding method in a communication system, but rather described only test assemblies and simulations. Insofar as the passages on pages 652 and 653 of D4 relating to Figs. 4 and 5 in that document, to which the appellant referred in that context, those statements are indeed justified. However, this argument does not take into account the disclosure of the first three pages of the document, in particular the abstract on page 649, the first three paragraphs of page 650 and the first paragraph of section 4 on page 651. The board is of the opinion that it would be clear to the skilled reader from all of these passages that the main proposal of D4 is to provide a system which supplements the voice and data transmission of the standard GSM mobile communication system with an improved data channel based on turbo codes. There is thus a clear teaching to implement a method as defined in the present claim 1. It is indeed stated explicitly in the second sentence of the paragraph on page 651 cited

above that such a system has been implemented. It thus follows that the simulation results presented in Fig. 5 of D4 which, as the appellant has argued, represent a comparison of different coding schemes, are included in the document in order to indicate the advantages of the development proposed in that document compared to the use of other coding schemes for the data.

2.2.2 The appellant has also argued that D4 did not disclose an adaptive selection of coding scheme based on service type, arguing in particular that D4 did not distinguish between voice and data services in the manner of the application, because within the meaning of D4 the expression "data" covered all types of information, whether voice, image or other data. The board does not find this argument convincing, because the skilled person, being familiar with the GSM standard, would understand the expression "data service", which is used consistently in D4, as being chosen to distinguish that service from other services such as the voice service which forms an integral part of the GSM standard. This is most particularly apparent from the last sentence of the second paragraph in the right-hand column of page 649 of D4, which notes the suitability of turbo coding for data transmission "where the delay is less critical". In the opinion of the board, this is a clear indication of a distinction between data transmission (for which delay is not critical), and voice transmission (for which it is). That a selection of the encoding scheme is then necessary depending on whether the signal to be encoded is voice or data then follows directly from this teaching, even if such a selection is not explicitly mentioned. The term "adaptively" included in the present claim adds nothing beyond this inherently disclosed selection. As a consequence, the board considers that the appellant's argument that

according to D4 the individual encoders and decoders were hard-wired and thus not selectable is not consistent with the teaching of the document when considered in its entirety.

2.2.3 The appellant has further argued that D4 did not disclose a system having two different encoders, since the left-hand column of page 653 of that document contains several references to "the encoder". The board does not find this argument convincing, because it is apparent from the title of that section of D4 that it relates to the turbo coded service only, so says nothing about the part of the system using convolutional coding. The statement in that section that "the implementation of the decoder can be determined by the manufacturers" is entirely consistent with that interpretation. Thus this section relates only to the part of the system using turbo coding, and it is clear from the remainder of the document that the system also includes the conventional convolutional encoder and decoder.

3. Auxiliary Requests - Admissibility (Article 13(1) RPBA)

3.1 The amendments introduced in the independent claims of each of the three auxiliary requests filed with letter dated 13 December 2013 all relate to the receipt by the controller of an "information message" representing the service type and/or data rate, the reading by the controller from a memory of a "control command" corresponding to that message and including a "coding mode" depending on the service type and/or data rate, and the use of that coding mode in the selection of the encoding or decoding scheme. These added features were not present in the claims as originally filed, or in the claims of any of the previously filed requests

(with the sole exception that original dependent claim 17 did specify a "received information message" in the context of a decoding method). Moreover, they concern the details of the manner in which the selection of the coding scheme is implemented, an issue which had not previously been discussed during the procedure before the examining division or in the appeal procedure. These new requests thus represent a change to the appellant's case after the filing of the grounds of appeal, so that Article 13(1) of the Rules of Procedure of the Boards of Appeal, which states that such amendments may be admitted and considered at the board's discretion, is applicable. Given these circumstances, the late stage in the procedure at which the amendments were filed (approximately one month in advance of the oral proceedings before the board), and that they are not occasioned by any changes in the substance of the case (the objection raised against the main request remaining essentially the same as that forming the basis of the decision under appeal), the board considers it to be appropriate to exercise that discretion to not admit these requests into the proceedings.

3.2 The appellant's statements concerning the reasons why these amendments were not filed earlier are in essence that they did not wish to restrict the claims in this manner at an earlier stage in the proceedings, because they believed their arguments concerning the teaching of document D4 to be convincing. This cannot however represent a valid justification for delaying the filing of such requests, since it implies purely tactical considerations, not substantive reasons.

4. Since the independent claim 1 of the only request of the appellant which has been admitted into the proceedings defines subject-matter which does not meet the requirement for novelty of Article 54 EPC, the appeal has to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

U. Bultmann M. Ruggiu

Decision electronically authenticated