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Datasheet for the decision of 4 December 2009

Case Number: T 1261/06 - 3.5.05

Application Number: 99954417.4

Publication Number: 1043858

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Language of the proceedings: EN

Title of invention:
Transmitting/receiving device and transmitting/receiving method

Applicant:
Panasonic Corporation

Headword:
Transmitting/receiving device/PANASONIC

Relevant legal provisions:
EPC Art. 84, 123(2), 111(1)
EPC R. 43(2)

Relevant legal provisions (EPC 1973):
EPC Art. 106, 107, 108
EPC R. 88

Keyword:
"Clarity and support by the description - (after amendment - yes)"
"Added subject-matter (after amendment - no)"
"Remittal (yes)"

Decisions cited:
J 0010/07

Catchword:
-

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Case Number: T 1261/06 **-** 3.5.05

D E C I S I O N
of the Technical Board of Appeal 3.5.05
of 4 December 2009

Appellant: Panasonic Corporation
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 2 March 2006 refusing European application No. 99954417.4 pursuant to Article 97(1) EPC 1973.**

Composition of the Board:

Chair: A. Ritzka
Members: P. Corcoran
F. Blumer

Summary of Facts and Submissions

I. This is an appeal against the decision of the examining division to refuse the European patent application No. 99 954 417.4 published as No. 1 043 858. The written reasons for the decision were dispatched on 2 March 2006.

II. The decision under appeal was based on a set of claims 1-11 filed with the letter dated 17 October 2005. The examining division found that an amendment to claim 1 relating to the definition of a "converting section" infringed Article 123(2) EPC as did a similar amendment to claim 8 (cf. decision, p.3, item II.1.a of the Reasons). It was further found that the application did not meet the requirements of Article 84 EPC because the claims, in particular claims 1 and 8, lacked clarity and support by the description (cf. decision, p.3-5, items II.1.a, II.1.b and II.1.c of the Reasons).

III. Notice of appeal was received at the EPO on 11 May 2006 and the appeal fee was paid on the same date. A written statement setting out the grounds of appeal was received on 22 June 2006.

IV. With the statement setting out the grounds of appeal, the appellant filed an amended set of claims 1-11 to replace the previous claims on file. The appellant further requested oral proceedings as an auxiliary measure.

V. In a communication accompanying a summons to oral proceedings to be held on 4 December 2009 the board gave its preliminary opinion that the appellant's

request was not allowable because the application did not comply with the requirements of the EPC, in particular Articles 84 and 123(2) EPC.

VI. The communication made reference to the following document which is a textbook extract cited as evidence of general knowledge:

D1: M. Miller, B. Vucetic, L. Berry (eds.): "Satellite Communications: Mobile and Fixed Services", Chapter 1.3.2 Modulation Schemes, pp.25-28, and Chapter 1.3.3 BER Performance and Error Correction Coding, p.34-39, ISBN 0-7923-9333-3, Kluwer Academic Publishers, 1993.

In addition, the board informed the appellant of its intention to remit the file to the department of first instance for further prosecution if the objections under Articles 84 and 123(2) EPC were overcome, particularly in view of the fact that the question of compliance with the requirements of Article 52(1) EPC had not yet been considered by the department of first instance.

VII. With a letter of reply dated 4 November 2009, the appellant submitted a new set of requests comprising an amended main request and first and second auxiliary requests.

VIII. During the oral proceedings the appellant filed an amended request to replace all previous requests on file.

IX. The appellant requested that the decision under appeal be set aside, that the board confirm the claims

according to the sole request as submitted during the oral proceedings before the board to comply with the requirements of Articles 84 and 123(2) EPC and that the application be remitted to the department of first instance for further prosecution.

X. The further documents on which the appeal is based, i.e. the text of the description and the drawings, are as follows:

Description, pages:

1-4, 6, 10, 12-17, 20 as originally filed;

5, 11 as filed with the letter of 4 March 2005;

7-9, 18, 19, 21-25 as filed with the letter of 17 October 2005

Drawings, sheets:

2/5-5/5 as originally filed;

1/5 as filed with the letter of 4 March 2005.

XI. Independent claim 1 of the main request reads as follows:

"A transmission apparatus for transmitting first and second information, respectively comprising a plurality of bits, the transmission apparatus comprising:

a modulation section adapted to map the plurality of bits of the first and second information in groups of 3 or more bits to a plurality of modulation symbols according to a modulation scheme in which one modulation symbol is expressed using 3 or more bits,

wherein the modulation scheme is such that a first and a second bit position of each group of bits are less susceptible to errors than the remaining bit positions of each group of bits,

a transmission section adapted to transmit the plurality of modulation symbols as a transmission signal, and

characterized in that

the modulation section is further adapted to place bits of the first information on the first and/or the second bit position of each group of bits, and to place bits of the second information on the remaining bit positions of each group of bits."

Independent claim 9 of the request is directed towards a corresponding transmission method.

XII. Independent claim 12 of the main request is directed towards a reception apparatus and reads as follows:

"A reception apparatus for receiving first and second information, respectively comprising a plurality of bits, the reception apparatus comprising:

a receiving section adapted to receive a plurality of modulation symbols as a transmission signal,

a mapping section adapted to map the plurality of modulation symbols to groups of 3 or more bits according to a modulation scheme in which one modulation symbol is expressed using 3 or more bits,

wherein the modulation scheme is such that a first and a second bit position of each group of bits are less susceptible to errors than the remaining bit positions of each group of bits, and

characterized by

a separation section adapted to separate the first information bits on the first and/or the second bit position of each group of bits from the second information bits on the remaining bit positions of each group of bits."

Independent claim 18 of the request is directed towards a corresponding reception method.

XIII. At the end of the oral proceedings the chair announced the board's decision.

Reasons for the Decision

1. The appeal complies with the provisions of Articles 106 to 108 EPC 1973 which are applicable according to J 10/07, point 1 (cf. Facts and Submissions, item III. above). Therefore it is admissible.

2. *Claim 1 - Article 84 EPC*

2.1 Claim 1 of the main request is directed towards a transmission apparatus for transmitting first and second information, respectively comprising a plurality of bits.

The description discloses a communication apparatus which generates a transmission signal (cf. [0023] and [0028] of the published application and Fig.1) and which is therefore a "transmission apparatus".

The disclosed apparatus transmits first information (referred to as "important information" in the preferred embodiment, cf. [0025] of the published application and Fig.3) and second information (referred to as "transmission data" in the preferred embodiment, cf. [0025] of the published application and Fig.3). In view of the fact that Fig.3 shows that the first and second information are input to serial-parallel converters ("S/P" identified by ref. signs 301 and 302 in Fig.3), it may be inferred that both the first and second information are serial bit streams. It is thus implicit that they comprise a plurality of bits.

2.2 The pre-characterising part of claim 1 specifies that the transmission apparatus comprises a modulation section.

2.2.1 According to the claim wording, the modulation section is "adapted to map the plurality of bits of the first and second information in groups of 3 or more bits to a plurality of modulation symbols according to a modulation scheme in which one modulation symbol is expressed using 3 or more bits."

The preferred embodiment of the invention is based on the use of a generally known 8PSK modulation scheme in which each modulation symbol represents a group of three bits as illustrated in Fig.2 (cf. D1: Section 1.3.2, in particular the first paragraph of the section). The

description further states that higher-order modulation schemes in which each modulation symbol corresponds to a group of more than three bits can also be used (cf. [0020], [0053] and [0056]).

In the board's judgement, the mapping circuits of Fig.3 (cf. Fig.3, ref. sign 303, and [0028] of the description) constitute a modulation section adapted to map the plurality of bits of the first and second information in groups of 3 or more bits to a plurality of modulation symbols.

2.2.2 The specification to the effect that "one modulation symbol is expressed using 3 or more bits" is based on the wording used in the application as filed (cf. published application: [0016], first sentence; [0020]; claim 1). The board judges that the skilled person, relying on his general knowledge as evidenced by the above-cited passage of D1, would understand that in the given context the aforementioned specification denotes that each "symbol" of the modulation scheme represents or corresponds to a group of three or more bits.

2.2.3 The claim further specifies that "the modulation scheme is such that a first and a second bit position of each group of bits are less susceptible to errors than the remaining bit positions of each group of bits".

The board finds this specification to be consistent with the description. In particular, the preferred embodiment is based on an 8PSK modulation scheme in which the third bit of a three bit group corresponding to a modulation symbol is more susceptible to errors than the first and

second bit (cf. [0016], last sentence, and [0050]). This in turn implies, as recited in the claim, that a first and a second bit position of each group of bits are less susceptible to errors than the remaining bit positions as recited in the claim.

2.2.4 In view of the foregoing, the board is satisfied that the "modulation section" feature of the pre-characterising part of claim 1 is clear and supported by the description.

2.3 The pre-characterising part of claim 1 additionally specifies a transmission section adapted to transmit the plurality of modulation symbols as a transmission signal. Support for this feature is found, for example, in [0028] (see also Fig.3). In the board's judgement, the D/A converter 305 and the antenna referred to in this passage of the description constitute a "transmission section" within the meaning of the claim.

2.4 According to the characterising part of claim 1 the modulation section is further adapted to place bits of the first information on the first and/or the second bit position of each group of bits, and to place bits of the second information on the remaining bit positions of each group of bits.

Support for this feature can be found in particular in [0020], [0027], [0029]-[0033], [0039] and [0050]-[0051] of the description and likewise in Fig.5.

According to the preferred embodiment as illustrated in Fig.5, the bits of the first information (i.e. the "important information") are placed on the first bit

position of each group of bits in order to achieve an optimal error rate characteristic for that information (cf. [0020], [0027], [0031]-[0033] and [0039]). The description further teaches that a similar effect can be achieved by placing bits of the first information on the second bit position of each group of bits (cf. [0050]-[0051]). It is implicit from [0029]-[0030] and from Fig.5 that the bits of the second information are placed on the remaining bit positions of each group of bits.

The board is thus satisfied that the characterising part of claim 1 is clear and supported by the description.

2.5 The board notes that the definition of the matter for which protection is sought in claim 1 is somewhat broader than the preferred embodiment of the invention. In particular, the claim does not specify that the first information is "important information" as in the case of the preferred embodiment (cf. [0019], [0025]-[0026]). Likewise, the definition of the modulation scheme in the claim is not limited to the 8PSK scheme illustrated in Fig.2. However, in the present case the board judges that these generalisations of the claimed subject-matter are permissible when due account is taken of the disclosure as a whole.

2.5.1 Although the first information is designated as "important information" in the preferred embodiment of the invention (cf. [0019], [0025]-[0026]), the board judges that this is not an essential technical feature of the invention. It is noted in this regard that the description states more generally that the information to be placed on the first and/or second bit of the group of

bits is "information selected from all information to be communicated" (cf. [0020]; see also [0051]) and, likewise, that the specification "important information" does not in itself imply any particular technical limitation in respect of the first information.

Moreover, as may be inferred from the description, the recited placement of bits of the first information on bit positions which are less susceptible to errors results in an optimal error rate characteristic for the first information (cf. for example [0039]). This in turn implies an inherent prioritisation of the "first information" over the "second information". On this basis the board concludes that an explicit specification to the effect that the first information is "important information" is not necessary.

2.5.2 Concerning the definition of the modulation scheme it is noted that claim 1 specifies that a first and a second bit position of each group of bits are less susceptible to errors than the remaining bit positions and that the bits of the first information are placed on the first and/or the second bit position of each group of bits associated with a modulation symbol.

The board is satisfied that the skilled person would be able to infer from the specific example of the preferred embodiment that the invention can be practised more generally as long as the modulation scheme is such that a first and a second bit position of each group of bits are more reliable (i.e. less susceptible to errors) than the remaining bit positions. Provided that the modulation scheme fulfils this criterion, the technical effect on

which the invention is based, i.e. providing an optimal error rate characteristic for the first information, can be achieved by selectively placing the bits of the first information on the more reliable bit positions. Therefore, in the board's judgement, it is not necessary to limit the definition of the modulation scheme to the specific example of the 8PSK scheme illustrated in Fig.2.

2.6 In view of the foregoing, the board is satisfied that claim 1 now provides a definition of the matter for which protection is sought which expresses the essential technical features of the invention with adequate clarity and in a manner supported by the description. On this basis, the claim is found to comply with the requirements of Article 84 EPC.

3. *Article 123(2) EPC*

3.1 Given that the passages of the description providing support for the subject-matter of claim 1 formed part of the originally filed application documents, the board concludes that the amendments to said claim do not infringe Article 123(2) EPC.

4. *Claim 12*

4.1 Claim 12 is directed towards a reception apparatus for receiving first and second information. Having regard to the subject-matter of the application and Rule 43(2)(a) EPC, the board sees no reason to object to a second independent claim in the apparatus category.

4.2 Claim 12 seeks protection for an apparatus which processes a received signal as disclosed in the context of the preferred embodiment, in particular in [0029] and [0030]. The board is satisfied that the features of the claimed apparatus are clearly defined and that the above-cited passages of the description provide adequate support for these features such that the requirements of Article 84 EPC are complied with.

4.3 Given that the passages of the description providing support for the subject-matter of said claim formed part of the originally filed application documents, the board concludes that the amendments to said claim do not infringe Article 123(2) EPC.

5. *Claims 9 and 18*

5.1 Claims 9 and 18 are method claims corresponding to the apparatus claims 1 and 12, respectively, and include corresponding amendments. The observations made in points 2 - 4 above with respect to claims 1 and 12 apply *mutatis mutandis* to claims 9 and 18.

6. *Dependent claims*

6.1 Taking account of the appellant's submissions made with the letter dated 4 November 2009 (cf. item II.1, section entitled *Dependent Claims*, p.3 - p.4) and during oral proceedings, the board is further satisfied that, following amendment, the dependent claims also comply with the requirements of Articles 84 and 123(2) EPC.

6.2 In particular, support for the subject-matter of the dependent claims can be found in the description as follows:

Claims 2, 10, 13, 19: [0019], [0025]-[0027], [0039];

Claims 3 and 11: [0026];

Claims 4 and 5: [0035]-[0041];

Claim 6: p.5 l.15-25 of the application as filed with the letter dated 4 March 2005 (corresponding to [0016] of the published application) containing corrections to bring the description into conformity with Fig.2;

Claims 7 and 16: [0067] and [0071];

Claims 8 and 17: [0069] and [0073];

Claim 14 and 15: [0035]-[0041].

6.3 Given that the corrections to [0016] submitted with the letter dated 4 March 2005 were permissible under Rule 88 EPC 1973 and that the other passages of the description referred to in 6.2 above as providing support for the subject-matter of the dependent claims formed part of the originally filed application documents, the board concludes that said dependent claims comply with the provisions of Article 123(2) EPC.

7. *Remittal*

7.1 The decision under appeal was based solely on objections arising under Articles 84 and 123(2) EPC. The department of first instance did not give any consideration to the issue of compliance with the further requirements of the EPC, in particular Article 52(1) EPC.

7.2 In view of the fact that the amendments to the claims are found to overcome the objections arising under Articles 84 and 123(2) EPC, the board finds that it is appropriate to remit the file to the department of first instance for further prosecution pursuant to Article 111(1) EPC.

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 on the basis of the sole request as submitted during the oral proceedings before the board.

The Registrar: The Chair:

K. Götz A. Ritzka