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**Datasheet for the decision
of 12 June 2012**

Case Number: T 0943/09 - 3.5.05
Application Number: 00307622.1
Publication Number: 1087585
IPC: H04L 27/26, H04H 1/00
Language of the proceedings: EN

Title of invention:

Identification of a terrestrial repeater using inactive subcarriers of a multicarrier signal

Applicant:

LUCENT TECHNOLOGIES INC.

Headword:

Identification of a terrestrial repeater/LUCENT

Relevant legal provisions:

EPC Art. 123(2)

Relevant legal provisions (EPC 1973):

EPC Art. 84

Keyword:

Clarity and support by the description - (yes, after amendment)"
"Extension of subject-matter - (no, after amendment)"
"Remittal to the department of first instance for further prosecution"

Decisions cited:

-

Catchword:

-



Case Number: T 0943/09 - 3.5.05

D E C I S I O N
of the Technical Board of Appeal 3.5.05
of 12 June 2012

Appellant:
(Applicant)

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Decision under appeal:

Decision of the Examining Division of the
European Patent Office posted 7 November 2008
refusing European application No. 00307622.1
pursuant to Article 97(2) EPC.

Composition of the Board:

Chair: A. Ritzka
Members: P. Corcoran
G. Weiss

Summary of Facts and Submissions

- I. This appeal is against the decision of the examining division to refuse the European patent application no. 00 307 622.1, publication no. EP 1 087 585. The decision was dispatched on 7 November 2008.
- II. The decision under appeal was based on a request comprising a set of claims 1 to 30 filed with the letter of 8 August 2006. According to the decision, the claims of the request did not comply with the requirements of Article 123(2) EPC.
- III. Notice of appeal was received at the EPO on 30 December 2008 with the appropriate fee being paid on the same date. A written statement setting out the grounds of appeal was received at the EPO on 16 March 2009. In said written statement, the appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of a request comprising claims 1-30 filed with the letter of 8 August 2006.
- IV. Claim 1 of said request reads as follows:
"A method of transmitting an identifying signal in an orthogonal frequency division multiplexing (OFDM) system (200, 400), characterized by the steps of:
modulating said signal;
transforming said modulated signal to create an OFDM signal having a plurality of sub-carriers wherein a first subset of said plurality of sub-carriers are allocated pursuant to a standard for transmission of information and a second subset of said plurality of sub-carriers are allocated pursuant

to said standard as inactive subcarriers that do not carry information; and

transmitting said identifying signal on one or more of said inactive sub-carriers for at least a portion of time, wherein said identifying signal identifies a transmitter (200)."

Claim 9 of said request is a further independent claim directed to a corresponding orthogonal frequency division multiplexing (OFDM) transmitter.

Claims 17 and 24 are further independent claims directed respectively towards a corresponding method of receiving an identifying signal and a corresponding OFDM receiver.

- V. In a communication accompanying a summons to oral proceedings, the board expressed the preliminary opinion that the appellant's request did not comply with the requirements of Articles 84 EPC 1973 and 123(2) EPC. Subject to its objections in this regard being overcome, the board indicated that it was minded to remit the case to the department of first instance for further prosecution in relation to all other outstanding matters.
- VI. Concerning Article 84 EPC 1973, the board noted *inter alia* that the specification in claim 1 of modulating an "identifying signal" and transforming the modulated signal to create an OFDM signal having a plurality of sub-carriers did not appear to be consistent with the description.
- VII. Concerning Article 123(2) EPC, the board noted *inter alia* that the application as originally filed did not

appear to provide a direct and unambiguous disclosure for the specification in claim 1 pertaining to the allocation of sub-carriers "pursuant to a standard for transmission of information".

VIII. With a letter of reply dated 11 May 2012, the appellant filed three auxiliary requests and made submissions in support of its requests.

IX. In response to the board's objections under Articles 84 EPC 1973 and 123(2) EPC (cf. items V. to VII. above), the appellant made submissions which are summarised as follows:

(i) Concerning the claim specification of modulating an identifying signal and transforming the modulated signal to create an OFDM signal having a plurality of sub-carriers, the appellant referred to the passage of the description which disclosed that "in a TII mode, additional sub-carriers will be turned on/off in accordance with a predefined TII value" (cf. Summary of the Invention) and additionally referred to the disclosure concerning the mapping of TII values onto complex symbols on p.10, lines 3-16. On this basis, it was argued that the turning on and off of sub-carriers in accordance with a predefined TII value was a type of modulation and that the mapping of TII values onto complex symbols was a type of transformation.

(ii) A person of ordinary skill in the art would recognize that embodiments disclosed in the description conformed to one or more of the "standards for transmission of information" described in the Background of the Invention section

of the description. For example, the embodiment disclosed on pages 6-10 was consistent with the DAB and DVB standards and a person of ordinary skill in the art would recognize that the structure of the signal described in the equation on p.5 l.23 of the originally filed application was consistent with the DAB standard. It was evident from the disclosure that the inactive sub-carriers were defined in the context of the aforementioned "standards" as explicitly required by the limitation of allocating sub-carriers "pursuant to a standard for transmission of information".

X. At the oral proceedings held as scheduled on 12 June 2012, the appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of claims 1 to 30 submitted with the letter of 8 August 2006 as main request or, in the alternative, on the basis of claims 1 to 26 submitted as a new auxiliary request at the oral proceedings. The auxiliary requests filed with the letter of 11 May 2012 were withdrawn.

XI. Claim 1 of the appellant's auxiliary request reads as follows:

"A method of transmitting identifying information in an orthogonal frequency division multiplexing (OFDM) system (200, 400), characterized by the steps of:

generating a signal;

transforming the signal using oversampling to create an OFDM signal having a plurality of sub-carriers;
and

transmitting the transformed signal,

wherein transforming the signal comprises mapping data to sub-carriers of the plurality of sub-carriers in a normal mode of operation and in a transmitter identifier mode of operation;

wherein transforming the signal comprises in the normal mode of operation providing some sub-carriers of the plurality of sub-carriers as inactive sub-carriers unused in the normal mode of operation;

wherein transforming the signal comprises in the transmitter identifier mode of operation mapping the identifying information to the some inactive sub-carriers unused in the normal mode; and

wherein the method comprises operating in the normal mode of operation and the transmitter identifier mode of operation."

Claim 8 of the request is a further independent claim directed to a corresponding OFDM transmitter.

Claims 15 and 21 are further independent claims directed respectively towards a method of receiving identifying information and a corresponding OFDM receiver.

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

Reasons for the Decision

1. The appeal is admissible (cf. Facts and Submissions, item III. above).

Main request

2. *Article 84 EPC 1973*

- 2.1 Claim 1 specifies that an "identifying signal" is modulated and that the modulated signal is transformed to create an OFDM signal having a plurality of sub-carriers.

- 2.2 In the board's judgement, the term "identifying signal" is to be interpreted in the given context as being substantially conterminous with the expression transmitter identifier information (TII) used in the description (cf. for example, published application: [0005], [0008], [0027], [0030]). This interpretation is consistent with the specification at the end of claim 1 to the effect that the identifying signal "identifies a transmitter" and was not disputed by the appellant.

- 2.3 According to the description, an OFDM transmitter which generates an OFDM signal having a plurality of sub-carriers operates in two modes, namely, a normal mode and a transmitter identifier information (TII) mode. In the normal mode, a subset of the OFDM sub-carriers are "inactive", i.e. they are not used to transmit data (cf. published application: [0008]). In the TII mode, the OFDM transmitter uses at least some of the unused or inactive sub-carriers to transmit the transmitter identifier information (TII) such that additional sub-

carriers are turned on/off in accordance with a predefined TII value (cf. published application: [0008] and [0009]).

2.4 Insofar as the turning on and off of sub-carriers in accordance with a predefined TII value may be considered a type of modulation as argued by the appellant (cf. Facts and Submissions, item IX.(i) above), the description merely discloses that a TII value is used to modulate a predetermined subset of subcarriers of an OFDM signal and not that an "identifying signal" (i.e. the TII value) is modulated and transformed to create an OFDM signal as recited in claim 1.

2.5 In view of the foregoing, the board judges that the aforementioned specification of claim 1 lacks support by the description contrary to the requirements of Article 84 EPC 1973.

3. *Article 123(2) EPC*

3.1 With respect to the specification of claim 1 according to which sub-carriers of the OFDM signal are allocated "pursuant to a standard for transmission of information", it is noted that the only identifiable reference to a "standard" in the application as originally filed is to the European Digital Audio Broadcasting (DAB) standard which is mentioned in the part of the description relating to the background art (cf. [0005] of the published application) in which it is briefly disclosed how a TII signal is transmitted under the DAB standard.

- 3.2 The appellant submitted that the skilled person would recognize that embodiments disclosed in the description conformed to one or more of the "standards for transmission of information" described in the application and would recognize that the structure of the signal described in the equation on p.5 l.23 of the originally filed application (cf. published application [0017]) was consistent with the DAB standard (cf. Facts and Submissions, item IX.(ii) above).
- 3.3 The board does not, however, concur with the appellant's submissions in this respect. In particular it is noted that the application does not describe one or more "standards for transmission of information" but merely makes a cursory reference to a single standard, viz. the DAB standard. In the board's judgement, it does not follow directly and unambiguously from the above-cited passage of the description relating to the background art that the subcarriers of an OFDM signal according to the claimed invention are allocated pursuant to the DAB standard or any other "standard for transmission of information".
- 3.4 It may be that, as asserted by the appellant, the structure of the OFDM signal according to the equation on p.5 l.23 of the originally filed application corresponds to that of the DAB standard. However, the illustrative embodiment to which this equation relates makes no explicit mention of the DAB standard and an implicit basis in the originally filed application documents which would support the claim specification to the effect that the sub-carriers of the OFDM signal are allocated "pursuant to a standard for transmission of information" cannot be established.

- 3.5 The board therefore concludes that there is no direct and unambiguous basis in the originally filed application documents for the aforementioned specification of claim 1 and that, consequently, said claim has been amended in a manner which infringes Article 123(2) EPC.
4. In view of the foregoing, the board judges that claim 1 of the main request does not comply with the requirements of Articles 84 EPC 1973 and 123(2) EPC. This finding applies *mutatis mutandis* to the further independent claims of the request, *viz.* claims 9, 17 and 24. Therefore, the main request is not allowable.

Auxiliary request

5. *Article 84 EPC 1973*
- 5.1 The board is satisfied that claim 1 of the auxiliary request defines the matter for which protection is sought clearly and in a manner which is supported by the description.
- 5.2 The specification in said claim 1 of generating a signal and transforming the signal using oversampling to create an OFDM signal having a plurality of sub-carriers is supported by the following passages of the description: [0021] and [0029].
- 5.3 The specification to the effect that there are two modes of operation, *viz.* a normal mode and a transmitter identifier mode, is supported by the

- following passages of the description: [0008], [0015] and [0027].
- 5.4 Support for the specification to the effect that some sub-carriers of the plurality of subcarriers are provided as inactive subcarriers unused in the normal mode of operation is to be found in the following passages of the description: [0009] and [0027].
- 5.5 Support for the specification to the effect that, in a transmitter identifier mode of operation, the identifying information is mapped to the some inactive subcarriers unused in the normal mode is to be found in the following passages of the description: [0009],[0015] and [0027].
- 5.6 The concluding feature of the claim, *viz.* that the method comprises operating in the normal mode and in the transmitter identifier mode of operation, is supported by the following passages of the description: [0008] and [0027].
- 5.7 In view of the foregoing, the board judges that claim 1 of the auxiliary request complies with the clarity and support requirements of Article 84 EPC 1973. This finding likewise applies to the further independent claims of the request, *viz.* claims 8, 15 and 21.
6. *Article 123(2) EPC*
- 6.1 The independent claims of the auxiliary request omit a specification that the sub-carriers of the OFDM signal are allocated "pursuant to a standard for transmission of information". Consequently, the objection noted

against the independent claims of the main request under Article 123(2) EPC is no longer applicable (cf. 3. above).

- 6.2 Insofar as the passages of the description which provide support for the independent claims of the auxiliary request form part of the originally filed application documents, the board is satisfied that the independent claims of the auxiliary request have been amended in a manner which complies with the requirements of Article 123(2) EPC.

Conclusions

7. *Remittal to the department of first instance*

7.1 The decision under appeal was based solely on a finding of non-compliance with the requirements of Article 123(2) EPC.

7.2 As the claims of the appellant's auxiliary request are found to have been amended in a manner which complies with the requirements of Article 123(2) EPC, the board judges that under the given circumstances the most appropriate course of action is to remit the case to the department of first instance for further prosecution in relation to all other outstanding matters.

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 claims 1 to 26 submitted at the oral proceedings as a new auxiliary request.

The Registrar:

The Chair:

K. Götz

A. Ritzka