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**Datasheet for the decision
of 16 May 2017**

Case Number: T 0772/13 - 3.5.03

Application Number: 11153182.8

Publication Number: 2309814

IPC: H04W72/08, H04W72/12, H04B7/26,
H04J1/00, H04J3/16, H04J11/00

Language of the proceedings: EN

Title of invention:
Base station and mobile station

Applicant:
NTT DoCoMo, Inc.

Headword:
Base station and mobile station/NTT

Relevant legal provisions:
EPC Art. 123(2)

Keyword:
Added subject-matter (yes) - all requests

Decisions cited:

Catchword:



Beschwerdekammern
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Case Number: T 0772/13 - 3.5.03

D E C I S I O N
of Technical Board of Appeal 3.5.03
of 16 May 2017

Appellant: NTT DoCoMo, Inc.
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 29 October 2012
refusing European patent application
No. 11153182.8 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman F. van der Voort
Members: K. Schenkel
S. Fernández de Córdoba

Summary of Facts and Submissions

- I. This appeal is against the decision of the examining division refusing European patent application No. 11153182.8, publication number EP 2 309 814 A, which was filed as a divisional application of earlier European patent application No. 07792668.1, publication number EP 2 056 614 A. The latter application was originally filed as international application PCT/JP2007/066052 (publication number WO 2008/023647).

The refusal was based on the ground that the subject-matter of claim 1 of respectively a main request and two auxiliary requests lacked an inventive step having regard to the disclosure of document:

D1: "3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Physical layer aspects for evolved Universal Terrestrial Radio Access (UTRA) (Release 7)", 3GPP TR 25.814 V7.0.0, June 2006, pages 1-126.

- II. The appellant filed a notice of appeal against the above decision. New sets of claims of respectively a main request and an auxiliary request were filed together with the statement of grounds of appeal.

Oral proceedings were conditionally requested.

- III. In a communication accompanying a summons to oral proceedings, the board gave its preliminary opinion inter alia that claim 1 of respectively the main request and the auxiliary request did not comply with the requirements of Articles 76(1) and 123(2) EPC.

- IV. Together with a letter of response dated 10 April 2017, the appellant submitted three further sets of claims by means of second to fourth auxiliary requests.
- V. The appellant informed the board with a fax letter dated 9 May 2017 that it was planning not to attend the oral proceedings.
- VI. Oral proceedings were held on 16 May 2017 in the absence of the appellant.

On the basis of the written submissions, the appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of claims of the main request or, in the alternative, claims of the (first) auxiliary request, both requests as filed with the statement of grounds of appeal or on the basis of claims of one of second to fourth auxiliary requests as filed with the letter dated 10 April 2017.

At the end of the oral proceedings, after due deliberation, the chairman announced the board's decision.

- VII. Claim 1 of the main request reads as follows:

"A mobile station comprising:

a pilot signal generation unit (240) configured to generate a pilot channel based on information indicative of a transmission band of the pilot channel, the pilot channel to be transmitted to a base station at a cycle longer than an assignment cycle of a data channel;

a transmission data assignment unit configured to assign transmission data to a resource block assigned by the base station at an assignment cycle of the data channel, the assignment cycle comprising a predefined number of transmission slots; and

a transmission unit configured to transmit the transmission data assigned by the transmission data assignment unit,

wherein the pilot signal generation unit (240) is configured to transmit the pilot channel via the transmission unit,

the transmission data assignment unit is configured to change the assigned resource blocks for each transmission slot,

the transmission data assignment unit is configured to assign the same transmission data twice, and

the mobile station further comprises an encoding and modulation unit configured to perform encoding and modulation based on a combination of a modulation scheme and an error correction coding rate of the transmission data at a cycle longer than the assignment cycle of the data channel."

VIII. Claim 1 of the first auxiliary request differs from claim 1 of the main request in that at the beginning after "A mobile station" the following wording has been inserted:

"configured to use distributed type resource blocks and/or consecutive type resource blocks that are

assigned to the mobile station by a base station, said distributed type resource blocks define in a transmission slot discretely distributed frequency subcarriers within a system bandwidth, and said consecutive type resource blocks define in a transmission slot consecutive frequency subcarriers within said system bandwidth, said mobile station"

and in that in the third paragraph, the wording

"to assign transmission data to a resource block"

is replaced by the wording

"to assign transmission data to at least one of said resource blocks".

IX. Claim 1 of the second auxiliary request reads as follows:

"A mobile station comprising:

a pilot signal generation unit (240) configured to generate a pilot signal for measuring a reception channel state of an uplink based on information indicative of a transmission band of a pilot channel for measuring the reception channel state of the uplink transmitted from the base station, the pilot channel to be transmitted to a base station at a cycle longer than an assignment cycle of a data channel;

a transmission data assignment unit configured to assign transmission data to a resource block assigned by the base station based on the pilot channel at an assignment cycle of the data channel, the assignment

cycle comprising a predefined number of transmission slots; and

a transmission unit configured to transmit the transmission data assigned by the transmission data assignment unit,

wherein the pilot signal generation unit (240) is configured to transmit the pilot channel via the transmission unit,

the transmission data assignment unit is configured to switch the assigned resource block for different transmission slots,

the transmission data assignment unit is configured to assign the same transmission data twice, and

the mobile station further comprises an encoding and modulation unit configured to perform encoding and modulation based on a combination of a modulation scheme and an error correction coding rate of the transmission data, said combination of a modulation scheme and an error correction coding rate of the transmission data determined by the base station at a cycle longer than the assignment cycle of the data channel and signaled from the base station."

- X. Claim 1 of the third auxiliary request essentially combines claims 1 of the first and the second auxiliary requests. More specifically, it differs from claim 1 of the second auxiliary request in that at the beginning after "A mobile station" the following wording has been inserted:

"configured to use distributed type resource blocks and/or consecutive type resource blocks that are assigned to the mobile station by a base station, said distributed type resource blocks define in a transmission slot discretely distributed frequency subcarriers within a system bandwidth, and said consecutive type resource blocks define in a transmission slot consecutive frequency subcarriers within said system bandwidth, said mobile station",

in that in the second paragraph the wording

"to be transmitted to a base station"

is replaced by the wording

"to be transmitted to the base station",

and in that in the third paragraph the wording

"to assign transmission data to a resource block"

is replaced by the wording

"to assign transmission data to at least one of said resource blocks".

XI. Claim 1 of the fourth auxiliary request differs from claim 1 of the third auxiliary request in that in the third paragraph the clause

"to assign transmission data to at least one of said resource blocks assigned by the base station based on the pilot channel at the assignment cycle of the data channel"

is replaced by the clause

"to assign transmission data to a resource block assigned by the base station based on the pilot channel at a predefined assignment cycle of the data channel",

at the end of the third paragraph the following clause is inserted:

"said resource block resulting from division of a system bandwidth into blocks of consecutive frequency subcarriers",

and in that at the end of claim 1 the following clause is inserted:

"and a transmit power control unit configured to control transmission power at the assignment cycle".

Reasons for the Decision

1. Main request and first to third auxiliary requests (Article 123(2) EPC)

1.1 The mobile station of claim 1 of respectively the main request and each of the first to third auxiliary requests includes the feature:

"an encoding and modulation unit configured to perform encoding and modulation based on a combination of a modulation scheme and an error correction coding rate of the transmission data".

1.2 An encoding and modulation unit is disclosed in claim 6 as originally filed. However, this claim further

includes the feature that the mobile station comprises a transmission power control unit configured to control transmission power at the assignment cycle of the data channel. Similarly, the description as filed, page 32, lines 3 to 15, discloses a mobile station comprising an encoding and modulation unit together with a transmission power control unit.

Neither claim 6 nor any other part of the application as filed provides a direct and unambiguous disclosure of a mobile station with an encoding and modulation unit, without a transmission power control unit.

1.3 The appellant argued that it was not necessary that a combination of the encoding and modulation unit and the transmission power control unit is included in claim 1. It argued that in the description as filed, page 11, lines 12 to 14 (which in the board's view should read lines 9 to 12), it was stated that the AMC (Adaptive Modulation and Coding, see page 8, lines 1 and 2) "may be" combined with the transmission power control (abbreviated as TPC, see page 10, lines 30 and 31) and that from the wording "may be" it was evident that there was no necessity that the two be combined.

1.4 The board is not convinced by this argument. The passage referred to by the appellant reads as follows:

"For example, the AMC control with a long cycle, for example, with a cycle longer than the assignment cycle such as hundreds of microseconds, may be combined with the assignment cycle based TPC."

If anything, this passage, when read in isolation, merely discloses that a combination with a specific form of TPC, namely the assignment cycle based TPC, is

optional. It does not imply that a combination with TPC in general is optional. Further, the optional combination with an assignment cycle based TPC is disclosed in this passage only for an AMC control with a long cycle, i.e. only for cases with a specific form of modulation and coding. Claim 1, however, is not limited to a mobile station with an encoding and modulation unit for this specific form of modulation and coding. Hence, also for this reason, the above-quoted passage does not directly and unambiguously disclose that a TPC unit may be omitted in any case where encoding and modulation is applied.

The board further notes that the context of the above-quoted passage rather supports the understanding that AMC is applied together with TPC. After all, the paragraph on page 10, lines 29 to 32, discloses that AMC and TPC are applied ("Also in the mobile communication system according to this embodiment, the AMC and TPC (Transmission Power Control) are applied to satisfy a required PER (Packet Error Rate)"). The subsequent paragraph, i.e. page 10, line 33, to page 11, line 8, refers to a case in which the modulation and coding scheme being used is modified, in which required radio resources may be changed, and in which simultaneous use of the TPC may make assignment of the resource blocks unnecessary. The next paragraph is the passage referred to by the appellant. Since it starts with "For example," it is clear that what follows is an example of the case mentioned before, i.e. a case in which AMC and TPC is used.

- 1.5 The board therefore concludes that claim 1 of respectively the main request and the first to third auxiliary requests does not comply with Article 123(2) EPC.

2. *Fourth auxiliary request (Article 123(2) EPC)*

2.1 The mobile station of claim 1 of the fourth auxiliary request includes the feature:

"an encoding and modulation unit configured to perform encoding and modulation based on a combination of a modulation scheme and an error correction coding rate of the transmission data, said combination of a modulation scheme and an error correction coding rate of the transmission data determined by the base station at a cycle longer than the assignment cycle of the data channel and signaled from the base station".

2.2 Performing encoding and modulation based on a combination of a modulation scheme and an error correction coding rate of the transmission data, the combination being determined by the base station, is disclosed in claim 6 as originally filed which, however, further includes the feature that the base station sets or, in other words, determines this combination "based on an uplink reception channel state". Similarly, in the description as filed, page 32, lines 3 to 15, a mobile terminal with an encoding and modulation unit and a transmission power control unit is disclosed, in which the combination of a modulation scheme and an error correction coding rate of transmission data is determined based on an uplink reception channel state.

Neither claim 6 nor any other part of the application as filed provides a direct and unambiguous disclosure for a mobile station with an encoding and modulation unit configured to perform encoding and modulation based on a combination of a modulation scheme and an

error correction coding rate of the transmission data, the combination being determined by a base station, without the limitation that it is determined based on an uplink reception channel state.

- 2.3 In its letter dated 10 April 2017, the appellant argued that the above-cited feature was based on "the original claims 4 and 11 of the parent application and is also based on the description on page 10, line 33 to page 11, line 20 ...".

The board notes that claims 4 and 11 of the parent application are explicitly cited in paragraphs [0114] and [0121] of the application in suit as published. However, paragraph [0114] is concerned with a base station, in which a combination of a modulation scheme and an error correction coding rate for transmission data for each of the mobile stations is based on the downlink reception channel state. Further, paragraph [0121] explicitly refers to a determination of the combination being based on an uplink reception channel state, whilst the passage on page 10, line 33, to page 11, line 20, of the description states that the combination is determined "based on reception quality and/or others measured by that mobile station 200".

- 2.4 The board therefore concludes that claim 1 of the fourth auxiliary request does not comply with Article 123(2) EPC.

3. *Conclusion*

As there is no allowable request, it follows that the appeal is to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



G. Rauh

F. van der Voort

Decision electronically authenticated