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Datasheet for the decision of 21 September 2020

Case Number: T 0030/17 - 3.5.03

Application Number: 08836979.8

Publication Number: 2198533

IPC: H04B7/06, H04B7/04

Language of the proceedings: EN

Title of invention:
Method and arrangements for signaling control information in a communication system

Patent Proprietor:
Telefonaktiebolaget LM Ericsson (publ)

Opponent:
Kaiser, Markus J.

Headword:
Signalling control information/ERICSSON

Relevant legal provisions:
EPC Art. 123(2), 69(1)

Keyword:

Amendments - added subject-matter (yes): feature taken with its ordinary meaning not originally disclosed (no need to invoke Art. 69(1) EPC)

Decisions cited:

T 1018/02, T 0431/03, T 1279/04, T 1404/05, T 1395/07, T 0197/10

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Case Number: T 0030/17 - 3.5.03

D E C I S I O N
of Technical Board of Appeal 3.5.03
of 21 September 2020

Appellant: (Opponent)	Kaiser, Markus J. Ickstattstrasse 15 80469 München (DE)
Representative:	Puschmann Borchert Bardehle Patentanwälte Partnerschaft mbB Bajuwarenring 21 82041 Oberhaching (DE)
Respondent: (Patent Proprietor)	Telefonaktiebolaget LM Ericsson (publ) 164 83 Stockholm (SE)
Representative:	Hoffmann Eitle Patent- und Rechtsanwälte PartmbB Arabellastraße 30 81925 München (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 4 November 2016 rejecting the opposition filed against European patent No. 2198533 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman	K. Bengi-Akyürek
Members:	J. Eraso Helguera
	R. Winkelhofer

Summary of Facts and Submissions

I. This appeal lies from the decision of the opposition division rejecting the opposition. The opposition division held that the patent as granted complied with Articles 123(2), 54 and 56 EPC and concluded that the invoked grounds for opposition under Articles 100(a) and (c) EPC did not prejudice the maintenance of the patent.

II. Oral proceedings before the board were held on 21 September 2020.

The appellant (opponent) requested that the decision under appeal be set aside and that the patent be revoked.

The respondent (proprietor) requested that the appeal be dismissed.

At the end of the oral proceedings, the board's decision was announced.

III. **Claim 1 as granted** reads as follows:

"A method in a second communication device for signalling control information associated with transmission of data over a wireless channel comprising the steps of

- receiving (S2) feedback data from a first communication device, wherein the feedback data comprises an indication of recommended precoder or precoders associated with a frequency resource that falls within the transmission of data and a

recommendation of a first transmission rank to possibly use during transmission,
- determining (S4) a second transmission rank to use for transmitting data, and **characterised in**
- transmitting (S6) a confirmation message to the first communication device comprising a confirmation that the transmission of data from the second communication device is using at least parts of each recommended precoder, wherein the parts of each recommended precoder correspond to a column subset of the associated recommended precoder, and said confirmation message further comprising an indicator of the second transmission rank to use, and also which column or number of columns of the recommended precoder column subset to use to support the second transmission rank."

Reasons for the Decision

1. Background of the patent

1.1 The opposed patent relates to high rate multi-antenna transmission systems, as used in the Evolved UTRAN (E-UTRAN) standard, also called LTE. According to the background section on pages 1 to 3 of the underlying application as published, one of the most important characteristics of the transmission channel conditions is the so-called "channel rank", which may vary from one up to the minimum number of transmit and receive antennas and that characterises how many layers the channel can support for a transmission. In conjunction with precoding, adapting the transmission to the channel rank involves using as many layers as indicated by the channel rank. This is facilitated by feedback information sent from the receiver to the transmitter.

Such feedback information may comprise not only which precoder(s) to use, but also a recommendation of the transmission rank and the result of quality assessments of the layers/codewords. In order to avoid signalling overhead for the forward signalling (e.g. in the downlink direction from the base station, i.e. eNodeB, to the user equipment, i.e. UE), it is possible for the transmitter (base station) to exploit the fact that the receiver (UE) knows what it recommended and hence, instead of explicitly signalling the recommended precoders, to confirm to the receiver that the data transmission is using the same precoders and transmission rank as those that the receiver recommended. For instance, in LTE, the UE reports a single recommended rank to the eNodeB obtained by inspecting the channel quality as seen over the maximum possible scheduling bandwidth.

1.2 However, according to the background art provided in the opposed patent, the actual bandwidth used when the UE is scheduled might be considerably smaller. In scenarios with a frequency-selective channel, this means that there is a great risk that the effective rank on the scheduled bandwidth might be entirely different from the "average" transmission rank recommended by the UE. Furthermore, as stated in the summary section of the patent, in order to improve the signalling between the UE and the base station, the basic concept proposed by the patent is "rank override". Instead of merely confirming the precoder and transmission rank recommended by the UE, the confirmation message sent by the base station comprises a confirmation that the transmission data from the base station is using at least parts of each recommended precoder associated with a frequency resource that falls within the transmission of data and an indicator

of a second transmission rank to use. That is, contrary to the first transmission rank proposed by the UE which has a speculative character on the basis of measurements carried out in the maximum possible scheduling bandwidth, the second transmission rank is determined by the base station on the basis of the frequency resource that falls within the transmission of data. This teaching (and wording) is consistent throughout the entire original description and claims.

2. *The patent as granted*

Claim 1 as granted comprises the following limiting features (outline used in opposition proceedings):

1 A method in a second communication device for signalling control information associated with transmission of data over a wireless channel comprising the steps of
2 receiving feedback data from a first communication device, wherein the feedback data comprises
2a an indication of recommended precoder or precoders associated with a frequency resource that falls within the transmission of data and
2b a recommendation of a first transmission rank to possibly use during transmission,
3 determining a second transmission rank to use for transmitting data;
4 transmitting a confirmation message to the first communication device comprising
4a a confirmation that the transmission of data from the second communication device is using at least parts of each recommended precoder,
4b wherein the parts of each recommended precoder correspond to a column subset of the associated recommended precoder,

4c said confirmation message further comprising an indicator of the second transmission rank to use, and also

4d which column or number of columns of the recommended precoder column subset to use to support the second transmission rank.

2.1 Added subject-matter (Articles 100(c) and 123(2) EPC)

2.1.1 The board agrees with the appellant in that **feature 2a** of granted claim 1, relating to step S2 of Fig. 6 of the opposed patent, is not directly and unambiguously disclosed in the underlying application as filed.

2.1.2 Both the opposition division and the respondent referred to page 2, lines 1-5 of the application as filed as a basis for this feature, which reads as follows:

> "The UE may, based on channel measurements in the forward link, transmit recommendations to the base station of a suitable precoder to use. A single precoder that is supposed to cover a large bandwidth (wideband precoding) may be fed back. It may also be beneficial to match the frequency variations of the channel and instead feed back a frequency-selective precoding report, e.g. several precoders, one per subband."

2.1.3 In view of this teaching, the opposition division came to the conclusion that (bold by the board) "... feeding back both wideband precoding or frequency selective precoding unambiguously discloses feeding back recommendations on precoders **can be used** for transmission of data, therefore supporting the wording

of this feature." (see point II.1.12(ii) of the impugned decision).

2.1.4 For the following reasons, this is not convincing:

Firstly, feature 2a does not claim an indication of recommended precoder(s) associated with a frequency resource that "***can be used*** *for transmission of data*" but rather that "***falls within*** *the transmission of data*". The expression "associated with a frequency resource that falls within the transmission of data" of feature 2a, in its original context, is linked to step S6 rather than to step S2 of Fig. 6 of the opposed patent. For instance, step S6 in claim 1 as originally filed reads (bold by the board):

> "transmitting (S6) a confirmation message to the first communication device comprising a confirmation that the **transmission of data** from the second communication device **is using** at least **parts** of each recommended precoder **associated with a frequency resource that falls within the transmission of data** and comprising an indicator of the second transmission rank to use."

It immediately follows from the above that a) "the transmission of data from the second communication device is using at least parts of each recommended precoder" and that b) the parts of each recommended precoder used are those "associated with a frequency resource that falls within the transmission of data". This conclusion is further reinforced by page 17, lines 7-17 of the underlying application as filed, which reads (bold by the board):

"In some embodiments, the step of determining second transmission rank may comprise to **take into account the band of frequency used for transmission**. The step of determining second transmission rank may also, in some embodiments, be based on scheduling of transmissions in a cell of the second communication device.

In step S6, the second communication device performs a transmission of control information comprising a confirmation message to the first communication device. The confirmation message comprises a confirmation that transmission of data from the second communication device **is using at least parts** of each recommended precoder **associated with a frequency resource that falls within the transmission of data** and an indicator of the second transmission rank to use."

2.1.5 Hence, in its original context, the expression "associated with a frequency resource that falls within the transmission of data" is, on the one hand, associated with the "confirmation message" of feature 4a, sent from the base station ("second communication device") to the UE, rather than with the "feedback data" of feature 2a sent from the "first communication device" and is, on the other hand, not to be understood as "that can be used" or "usable for" but rather as limiting the parts of each recommended precoder to be actually used by the first communication device to those associated with a specific frequency resource, those parts being determined by the second communication device.

2.1.6 There is no reason to deviate from this construction of feature 2a of claim 1 as granted. Thus, according to

present claim 1, those precoders recommended **by the first communication device** are already associated with a frequency resource **that falls within the transmission of data.** In the underlying application as published, in accordance with page 2, lines 1-5, each of the recommended precoders is associated with a frequency resource whenever a "frequency-selective precoding report, e.g. several precoders, one per subband" is used. However, **the precoding report sent by the first communication device is not said to take into account whether or not transmission of data will take place in each subband.**

2.1.7 The respondent argued that the expression "falls within" was *per se* linguistically meaningless and as such objectively indefinite. Since the expression was meaningless *per se*, its meaning could only be found by taking into consideration the claim context in which this expression appears, the description and the general knowledge of the person skilled in the art. It would not be appropriate to isolate the meaningless expression, to then assign a meaning thereto, using parts of the description that relate to a different context than the feature concerned, and then "to plug this meaning into the claim". Such an approach would not do justice to the principle that the subject-matter of a patent is defined primarily by the claims and not the description.

In particular, the respondent argued in this context as follows (see the submission dated 28 August 2020, section II.1):

> "This linguistic repair work must take into consideration in the first place the claim context. If this repair is not unambiguously possible within

the claim context alone, the description and drawings shall be used to interpret the claim. This basic provision in Art. 69 EPC implies that if linguistic repair work reaches beyond the unambiguous content of the claim, this must not be in contradiction to the description and drawings."

However, this argumentation is at odds with the established jurisprudence of the Boards of Appeal according to which Article 69(1) EPC and the *Protocol on the Interpretation of Article 69 EPC* relate to the "extent of protection" conferred by the patent or patent application, which is primarily of concern in infringement proceedings, whilst in examination and opposition proceedings the value of future legal certainty is paramount. Hence, Article 69 EPC and its Protocol do not provide a basis for excluding what is literally covered by the terms of the claims (see e.g. T 1279/04, Reasons 3 and T 1404/05, Reasons 3.6).

2.1.8 The respondent further submitted that, since the description did not support any interpretation of "falls within" to mean that the UE recommendation takes into account whether or not data transmission will take place in each subband, there was no reason to assign this meaning to features 2, 2a and 2b of present claim 1. Instead, the translation of the expression "that falls within" into proper language should be "available for" or "that can be used for".

2.1.9 The board cannot agree that "falls within" should be linguistically meaningless. This expression is *per se* not ambiguous: it conveys the meaning of "being within a range or a category". As argued by the respondent itself, when read in the context of claim 1, it has the limiting effect that the precoders recommended by the

first communication device are already "associated with a frequency resource that is within a range of frequency resources for the transmission of data", i.e. a subset of the frequency resources on which channel measurements have been performed. Moreover, the "falls within language" is used repeatedly and consistently throughout the original application - always and exclusively in connection with the "confirmation message" sent from the base station (see e.g. page 4, lines 9-12 and 22-27; page 5, lines 10-13; page 17, lines 13-17; page 18, line 35 to page 19, line 3; page 20, lines 30-34; page 22, lines 17-22 as well as claims 1, 10, 19 and 28 as originally filed).

2.1.10 It cannot be excluded that the first communication device could, under particular circumstances, such as in the event of pre-notified or permanent resource allocations, anticipate a subset of subbands to be used for the transmission of data when indicating the recommended precoders to the second communication device. Such interpretation could be consistent with the fact that features 4 to 4d of claim 1, relating to step S6, no longer refer to "a frequency resource that falls within the transmission of data", implying that such consideration might be unnecessary at the second communication device if it has already been done by the first communication device.

However, according to the established case law, a (purported) discrepancy between the claims and the description is not a valid reason to ignore the clear linguistic structure of a claim and to interpret it differently (see e.g. T 431/03, Reasons 2.2.2 and T 197/10, Reasons 2.3) or to give a different meaning to a claim feature which in itself imparts a clear

credible technical teaching to the skilled reader (see e.g. T 1018/02, Reasons 3.8; T 1395/07, Reasons 4).

2.1.11 In this context, the respondent further argued that an interpretation of the term "associated with a frequency resource that falls within the transmission of data" in feature 2a as meaning "associated with a frequency resource to be for data transmission" found a basis at e.g. page 8, lines 28-30 of the application as published, where it is stated:

> "... the user equipment 10, UE, based on channel measurements in the forward link, transmits recommendations to the base station 20 of suitable precoders to use ..."

or by step S20 described at page 15, lines 28-31 of the application as published:

> "In step S20, the UE 10 processes the received signal by, for example, performing channel measurements on the forward link and the like. The UE 10 then determines recommended precoders to use and a transmission rank to use, based on, for example the channel measurement or the like."

With respect to the omission of this expression in feature 4a of claim 1, the respondent further submitted that there was no actual frequency allocation involved in the claimed method, and that "associated with a frequency resource that falls within the transmission of data" constituted a mere *attribute* which was later confirmed by the base station with the confirmation message. The confirmation message did not contain any additional information beyond that, as could be seen in Table 2 of the application as published. For this

reason, moving this attribute to the first occurrence of "recommended precoder or precoders" did not contravene Article 123(2) EPC. Furthermore, this amendment had been suggested in the examining division's communication under Rule 71(3) EPC for reasons of clarity.

2.1.12 This argument is not persuasive, either. Neither the actual wording of feature 2a in granted claim 1 nor the consistent mentioning of "associated with a frequency resource that falls within the transmission of data" throughout the entire application as filed provide a basis for the respondent's interpretation "associated with any channel or channels on which transmission of data could possibly take place".

Even when *arguendo* following such an interpretation of feature 2a, the omission of "associated with a frequency resource that falls within the transmission of data" from feature 4a would still constitute an unallowable extension of the claimed subject-matter. This is because this would extend the claimed subject-matter to originally undisclosed scenarios in which the parts of each recommended precoder indicated with the confirmation message, i.e. the column subset, need not be associated with a frequency resource that fell within the transmission of data, but might respond to other considerations instead. Hence, if the respondent's interpretation of feature 2a as being related to the speculative recommendation of step S20 was followed, the link between the second transmission rank included in the confirmation message and the frequency resource being used for data transmission would completely disappear from claim 1 as granted, in spite of the fact that this was presented as the very

gist of the invention in the description and claims as originally filed (see point 1.2 above).

2.1.13 Finally, whether or not the amendment was proposed by the examining division in its communication under Rule 71(3) EPC is irrelevant to these appeal proceedings. If an applicant does not reject the proposed amendments, the completion of the acts set out in Rule 71(5) EPC constitutes an approval of the text containing the amendments or corrections as proposed by the examining division.

In the present case, in response to the Rule 71(3) communication, the applicant filed an amended set of claims proposed for grant including feature 2a (see the submission dated 15 May 2013) which was subsequently approved by the examining division.

2.2 In conclusion, the subject-matter of claim 1 as granted extends beyond the content of the underlying application as filed (Article 123(2) EPC).

3. Since there is no allowable claim set, the patent must be revoked.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chairman:

B. Brückner K. Bengi-Akyürek

Decision electronically authenticated