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**Datasheet for the decision
of 23 January 2007**

Case Number: T 0243/04 - 3.5.03

Application Number: 01304722.0

Publication Number: 1207645

IPC: H04L 1/00

Language of the proceedings: EN

Title of invention:

Feedback technique for wireless systems with multiple transmit
and receive antennas

Applicant:

LUCENT TECHNOLOGIES INC.

Opponent:

-

Headword:

Feedback technique for wireless systems/LUCENT

Relevant legal provisions:

EPC Art. 84, 113(1), 123(2)

EPC R. 71(2)

Keyword:

"Clarity - no (main request)"

"Added subject-matter - yes (main request)"

"Auxiliary requests - not admitted"

"Oral proceedings held in absence of appellant"

Decisions cited:

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Catchword:

-



Case Number: T 0243/04 - 3.5.03

D E C I S I O N
of the Technical Board of Appeal 3.5.03
of 23 January 2007

Appellant:

LUCENT TECHNOLOGIES INC.
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Representative:

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Decision under appeal:

Decision of the Examining Division of the
European Patent Office posted 21 October 2003
refusing European application No. 01304722.0
pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: A. S. Clelland
Members: F. van der Voort
R. Menapace

Summary of Facts and Submissions

- I. This appeal is against the decision of the examining division refusing European patent application No. 01 304 722.0 (publication number EP 1 207 645 A).
- II. With the statement of grounds of appeal the appellant filed a new set of claims. The appellant also submitted arguments in support of the appeal.
- III. In a communication accompanying a summons to oral proceedings the board gave a preliminary opinion in which objections under Articles 84 and 123(2) EPC were raised. Further, it was noted that when interpreted in the light of the description and drawings as originally filed the subject-matter of claim 1 did not appear to involve an inventive step having regard to the available prior art documents.
- IV. In response to the board's communication, the appellant filed a set of claims of a main request, which replaced the previous set of claims on file, together with sets of claims of first and second auxiliary requests. Arguments were submitted in support of these requests. The appellant made no explicit requests but the board understands the appellant to be implicitly requesting that the impugned decision be set aside and a patent be granted on the basis of the claims of the main request or, failing that, on the basis of the claims of either the first or the second auxiliary request. The appellant also informed the board that it did not intend to attend the oral proceedings and requested that they be cancelled and that the procedure be continued in writing.

V. In a subsequent communication the board informed the appellant that the request to cancel the oral proceedings could not be granted and that the date fixed for the oral proceedings was maintained. Reasons were given.

VI. Oral proceedings were held on 23 January 2007 in the absence of the appellant. After deliberation, the board's decision was announced at the end of the oral proceedings.

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

"A transmitter of a multiple-input multiple-output "MIMO" system Characterized by:

means for developing (119, 121) a rate and a power for each data substream of a plurality of data substreams derived from a data stream, said means for developing being adapted to develop said rate and said power based on feedback of an indicator of said rate and said power received from a receiver (103) of said MIMO system; and

means for applying (107, 111, 113) to each respective data substream a rate control and a power control corresponding to said rate and power for said data substream;

wherein said indicator of said rate and power for each data substream was derived based on received versions of signals previously transmitted from said transmitter, said received versions having been received at said receiver and being such that each said output receives and processes a signal from each said input."

Claim 1 of the first auxiliary request reads as follows:

"A multiple-input multiple-output "MIMO" system comprising a transmitter (101) adapted to cooperate with a receiver (103), said MIMO system being characterized in that said transmitter is characterized by:

means for receiving as feedback an indicator of a rate and a power for each data substream of a plurality of data substreams derived from a data stream;

means for developing (119, 121) said rate and said power for each of said data substreams, said means for developing being adapted to develop each said rate and said power based on said indicator of said rate and said power received by said means for receiving which were derived at said receiver based on versions of signals previously transmitted from said transmitter such that the information received at said receiver in response to those previously transmitted versions is a function of all the transmission paths in said MIMO system from said transmitter to said receiver, said transmission paths all sharing a common medium; and

means for applying (107, 111, 113) a rate control and a power control to each respective data substream, in response to said rate and power, respectively, for said data substream."

Claim 1 of the second auxiliary request reads as follows:

"A multiple-input multiple-output "MIMO" system comprising a transmitter (101) having N transmit

antennas that is adapted to cooperate with a receiver (103) having M receive antennas so as to form NxM channels that make up an overall channel between said transmitter and said receiver, said MIMO system being characterized in that said transmitter is characterized by:

means for receiving as feedback an indicator of a rate and a power for each data substream of a plurality of data substreams derived from a data stream;

means for developing (119, 121) said rate and said power for each of said data substreams, said means for developing being adapted to develop each said rate and said power based on said indicator of said rate and said power received by said means for receiving which were derived at said receiver based on versions of signals previously transmitted from said transmitter such that the information received at said receiver in response to those previously transmitted versions is a function of said NxM channels from said transmitter to said receiver; and

means for applying (107, 111, 113) a rate control and a power control to each respective data substream, in response to said rate and power, respectively, for said data substream."

Reasons for the Decision

1. *Procedural matters*

1.1 The board considered it to be expedient to hold oral proceedings for reasons of procedural economy (Article 116(1) EPC). Since the appellant did not give any reasons in support of its request to cancel the

scheduled oral proceedings and the board did not see any reason for cancelling them, the request to cancel the oral proceedings and, consequently, the request to continue in writing were refused and the oral proceedings were held in the absence of the appellant pursuant to Rule 71(2) EPC.

- 1.2 In the communication accompanying the summons, objections under Articles 84 and 123(2) EPC were raised in respect of claim 1 then on file. The appellant was thereby informed that at the oral proceedings it would be necessary to address these issues. Further, having been informed that its request to cancel the oral proceedings could not be allowed, the appellant could have been expected to appreciate that, despite the filing of new sets of claims, objections were still outstanding and needed to be discussed at the oral proceedings. In particular, given that the board had already raised objections under Articles 84 and 123(2) EPC in the communication accompanying the summons, the appellant could reasonably have expected the board to consider at the oral proceedings whether the present claims complied with the requirements of Articles 84 and 123(2) EPC. In deciding not to attend the oral proceedings the appellant chose not to make use of the opportunity to comment at the oral proceedings on any of these objections but, instead, chose to rely on the arguments as set out in the written submissions, which the board duly considered below.

Under these circumstances the board is satisfied that Article 113(1) EPC has been complied with.

2. *Article 84 EPC - main request*

2.1 Claim 1 of the main request does not meet the requirements of Article 84 EPC for the following reasons:

2.2 The wording "A transmitter of a multiple-input multiple-output "MIMO" system" does not clearly define the matter for which protection is sought. It may define a transmitter *per se*, i.e. a transmitter suitable for use in a MIMO-system, or a transmitter as part of a MIMO-system, thereby actually claiming a MIMO-system which includes, *inter alia*, the transmitter and a receiver (see claim 1, "a receiver (103) of said MIMO system"). Hence, claim 1 is not clear.

2.3 The appellant argued that claim 1 clearly defined a transmitter and that the transmitter as defined in the claim was merely "placed in its environment by the references to non-transmitter elements", for example the receiver. The technical functions of the transmitter were defined in terms of the elements with which it cooperated and such definitions would still define a transmitter.

2.4 The board does not find these arguments convincing. If, for the sake of argument, it were assumed that the above wording must be understood such that claim 1 is directed to the transmitter only, doubts would remain about the matter for which protection is sought, since the claim explicitly includes features which define a receiver which is not part of the transmitter. In particular, the features "wherein said indicator of said rate and power for each data substream was derived

based on received versions of signals previously transmitted from said transmitter" and "said received versions having been received at said receiver and being such that each said output receives and processes a signal from each said input" define, either explicitly or implicitly, constructional features of the receiver.

Features which seek to define an entity other than that which is the subject of the claim can only be taken into account insofar as they impose limitations on the claimed entity in terms of its constructional features. If this is not the case, the features defining the other entity must either be ignored or the claim must be considered in a wider sense as embracing that entity also, i.e. it must be considered as part of the actual matter for which protection is sought.

In the present case, the above-quoted features of the receiver do not imply any constructional features of the transmitter, since the way the indicator is derived or the question of whether or not the outputs of the receiver receive and process a signal from each input of the transmitter does not affect the technical features of the transmitter; the transmitter must merely be capable of receiving the indicator, which is independent of the way in which the indicator is derived by the receiver. For the same reason, the features defining the receiver cannot be understood as implicitly defining the transmitter in terms of functions which imply specific constructional features. Consequently, it is unclear whether or not the receiver is part of the matter for which protection is sought.

2.5 Claim 1 of the main request does not therefore comply with the requirements of Article 84 EPC.

3. *Article 123(2) EPC - main request*

3.1 Claim 1 includes the feature "means for developing (119, 121) a rate and a power for each data substream ...".

3.2 The appellant argued that the description as originally filed provided a basis for this feature. More specifically, Fig. 1 showed a transmitter which included a rate controller 119 and a gain controller 121 which respectively derived the code rate and the gain for each substream from the received indicator, see paragraphs [0016] and [0017] of the application as published.

3.3 However, in the board's view, the expression "developing" in "means for developing a rate and a power" implies that these means cover, *inter alia*, means which merely provide an intermediate result relating to the rate and the power and, hence, do not necessarily constitute means for actually providing the rate and the power, of which the described rate and gain controllers 119, 121 are examples. According to the description as originally filed, these controllers determine the rate and power using, for example, a lookup table or a mapping function (see col. 3, lines 49 to 54, and col. 4, lines 52 to 55, of the application as published). Nor do the claims as originally filed include means for "developing" a rate and a power at the transmitter, original claims 12 and 17 merely referring to rate and gain controllers for supplying a rate and a power. In the description as

originally filed, the expression "developing" is only used in the context of a development of channel estimates, which is however carried out by a channel estimator 135 which is part of the receiver (see Fig. 1, paragraph [0020] and original claim 19).

3.4 The subject-matter of claim 1 of the main request therefore extends beyond the content of the application as filed. The claim thereby violates Article 123(2) EPC.

4. For the reasons set out above the main request is not allowable.

5. *First and second auxiliary requests*

5.1 In accordance with Article 10b of the Rules of Procedure of the Boards of Appeal (OJ EPO 3/2003, pages 89 to 98) any amendment to a party's case after it has filed its grounds of appeal may be admitted and considered at the board's discretion. In the board's view, and in line with the established case law of the Boards of Appeal, one of the criteria for admitting further amendments to the claims is whether or not the claims are clearly allowable. In the present case, in the board's judgement, claim 1 of each of the two auxiliary requests is not clearly allowable for the following reasons:

5.2 Claim 1 of each request includes the feature "means for developing (119, 121)" a rate and a power for each data substream, which does not *prima facie* comply with the requirements of Article 123(2) EPC for the same reasons as set out above at point 3 in respect of claim 1 of the main request.

5.3 Further, claim 1 of each request is directed to "A multiple-input multiple-output "MIMO" system ...". The appellant argued that the claim is thereby clearly directed to a MIMO system including the transmitter and the receiver. The board notes however that the receiver as originally disclosed and claimed included means for estimating channel characteristics on the basis of which the indicator is derived, see Fig. 1 (channel estimator 135) and claims 5, 6, 19, 20 and 26 as originally filed. Since claim 1 does not specify these features of the receiver accordingly, it is based on a generalisation of the originally disclosed and claimed subject-matter and thus includes, at least *prima facie*, subject-matter which is not directly and unambiguously derivable from the content of the application as filed.

5.4 For the reasons set out above, claim 1 of the first and second auxiliary requests does not appear to comply with Article 123(2) EPC and, hence, is not clearly allowable.

5.5 In view of the above, the board exercised its discretion pursuant to Article 10b RPBA not to admit the first and second auxiliary requests to the appeal proceedings.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

D. Magliano

A. S. Clelland