

Internal distribution code:

- (A) Publication in OJ
(B) To Chairmen and Members
(C) To Chairmen
(D) No distribution

**Datasheet for the decision
of 2 August 2011**

Case Number: T 0429/08 - 3.5.05

Application Number: 05251768.7

Publication Number: 1587254

IPC: H04L 12/28

Language of the proceedings: EN

Title of invention:

The allocation of channels to wireless LANs

Applicant:

LUCENT TECHNOLOGIES INC.

Headword:

Allocation of channels/LUCENT

Relevant legal provisions:

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

EPC R. 115(2)

RPBA Art. 15(3), 15(6)

Relevant legal provisions (EPC 1973):

EPC Art. 106, 107, 108

Keyword:

"Non-attendance at oral proceedings"

"Clarity and support by the description (no)"

Decisions cited:

J 0010/07

Catchword:

-



Case Number: T 0429/08 - 3.5.05

D E C I S I O N
of the Technical Board of Appeal 3.5.05
of 2 August 2011

Appellant: LUCENT TECHNOLOGIES INC.
600 Mountain Avenue
Murray Hill
NJ 07974-0636 (US)

Representative: Sarup, David Alexander
Alcatel-Lucent Telecom Limited
Unit 18, Core 3, Workzone
Innova Business Park
Electric Avenue
Enfield EN3 7XU (GB)

Decision under appeal: Decision of the Examining Division of the
European Patent Office posted 24 October 2007
refusing European patent application
No. 05251768.7 pursuant to Article 97(1) EPC
1973.

Composition of the Board:

Chair: A. Ritzka
Members: P. Corcoran
D. Prietzel-Funk

Summary of Facts and Submissions

- I. This appeal is against the decision of the examining division to refuse the European patent application no. 05 251 768.7, publication no. EP 1 587 254. The decision was dispatched on 24 October 2007.
- II. The decision under appeal was based on a request comprising a set of claims 1 to 10 filed with the letter dated 18 July 2006. The examining division found that independent claims 1 and 9 of said request lacked an inventive step in the light of following document:
D1: US 6 031 863 A.
The examining division additionally noted objections under Article 84 EPC due to the alleged vagueness and lack of clarity of certain terms used in the claims, *inter alia*, the term "allocation vector".
- III. Notice of appeal was received at the EPO on 6 December 2007 with the appropriate fee being paid on the same date. A statement setting out the grounds of appeal was received at the EPO on 12 February 2008. With the statement setting out the grounds of appeal the appellant filed a set of claims 1 to 10 as a new main and sole request.
- IV. In a communication accompanying a summons to oral proceedings to be held on 2 August 2011, the board gave its preliminary opinion that the appellant's request was not allowable. In particular, objections were noted under Articles 83 and 84 EPC and under Article 52(1) EPC with respect to the question of inventive step.

- V. With respect to Article 84 EPC, the board objected *inter alia* to the use of the term "allocation vector" in claim 1 of the request and expressed the opinion that the meaning of said term was not evident from the wording of the claim.
- VI. With respect to Article 83 EPC, the board noted that the constraint specified in "Equation (4)" in [0033] of the published application appeared to require the determination of an estimate of the external interference during a given frame and likewise the determination of an estimate of the cross-interference between cells. The application did not appear to contain any enabling disclosure in relation to the determination of these parameters and the board therefore had reservations as to whether the claimed invention had been disclosed with sufficient completeness for the skilled person to put it into practice.
- The disclosure could only be regarded as sufficient in this regard if it were to be assumed that the skilled person would be in a position to rely on his common general knowledge to supplement the information contained in the application. The board noted that the onus was on the appellant to submit appropriate evidence of the relevant common general knowledge at the claimed priority date of the application.
- VII. The board also expressed the preliminary opinion that D1 was prejudicial to the inventive step of the claimed subject-matter for substantially the same reasons as those given in the decision under appeal.

- VIII. The appellant was further advised that if amendments were filed it would be necessary to discuss their admissibility and their compliance with the requirements of the EPC, including Articles 123(2), 84 and 52(1) thereof, at the scheduled oral proceedings. The board noted that in the light of Article 15(3) RPBA, it might consider these issues and announce a decision based on new objections arising from any such amendments even if the appellant chose not to attend the oral proceedings.
- IX. With a first letter dated 1 July 2011 and received at the EPO by telefax at 16:01 on that date, the appellant filed a further set of claims 1 to 5 as an auxiliary request. The set of claims 1 to 10 on file was maintained as a main request. It was additionally stated in said letter that it was unlikely that a representative of the appellant would attend the scheduled oral proceedings.
- X. With a second letter dated 1 July 2011 and received at the EPO by telefax at 17:36 on that date, the main request, i.e. the aforementioned set of claims 1 to 10, was withdrawn. The set of claims 1 to 5 as filed with the first letter of the same date was maintained.
- XI. With a letter dated 21 July 2011, the appellant made submissions in response to the board's observations concerning Article 83 EPC and filed a document entitled "MiFi: A Framework for fairness and QoS Assurance in Current IEEE 802.11 Networks with Multiple Access Points" by Yigal Bejerano and Randeep Bhatia. According to the appellant said document provided evidence that the determination of external interference and cross

interference between cells was within the common knowledge of the person skilled in the art.

XII. The appellant has requested that the decision under appeal be set aside and that a patent be granted on the basis of claims 1 to 5 which were initially filed as an auxiliary request with the first letter of 1 July 2011.

XIII. 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, 3-11 as originally filed;

2 as originally filed and amended in accordance with the applicant's request by insertion of page 2A filed with the letter dated 22 February 2006.

Drawings, sheets:

1/2-2/2 as originally filed.

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

"A method for dynamically allocating channels among a group of available channels, to one or more cells (1,2,3...L_n) within a wireless LAN (100), in the following referred to as WLAN, that satisfies a maximum allowed cross interference to avoid unacceptable interference CHARACTERIZED BY:

dividing a time period into frames, each frame of a short period of time;

allocating a channel, for each frame and to each one of one or more WLAN cells, from among a group of available channels such that a maximum allowed cross interference value is less than, or equal to, a cross

interference from an amount of external interference within a channel n to a cell l and the product of a binary, L -dimensional allocation vector and cross interference from cell k to cell l when both cells k and l operate over the same channel;

 permitting the WLAN cells that have been allocated a channel, during a given frame, to transmit; and

 preventing WLAN cells, that are not allocated a channel during a given frame, from transmitting during the given frame.

Claim 5 of the request seeks protection for substantially the same subject-matter in the form of a further independent claim directed towards a controller for dynamically allocating channels.

XV. On 1 August 2011, the board was informed by telephone that the appellant would not be represented at the oral proceedings as subsequently confirmed in writing by means of a telefax received at the EPO on the same day.

XVI. Oral proceedings were held on 2 August 2011. Nobody attended on behalf of the appellant. The board decided to hold the oral proceedings in the absence of the appellant. The chairperson summarised the relevant facts as appearing from the file. After the board had deliberated on the basis of the appellant's request and written submissions, the chairperson proceeded to announce the decision.

Reasons for the Decision

1. *Admissibility of the appeal*

1.1 The appeal complies with the provisions of Articles 106 to 108 EPC 1973 which are applicable according to J 0010/07 (cf. Facts and Submissions, item III. above) and is therefore admissible. However, the appeal is not allowable for the reasons which follow.

2. *Non-attendance at oral proceedings*

2.1 In the present case, the board decided in the interests of procedural economy to hold the oral proceedings as scheduled in the absence of the appellant as foreseen by Rule 115(2) EPC.

2.2 In the communication annexed to the summons to oral proceedings, the appellant was advised that any amendments to its case would have to be examined for compliance with the requirements of the EPC, including *inter alia* Article 84 EPC. In the board's judgement, the present decision may be based on this ground because it should have been apparent to the appellant that any new request might be subject to an objection in this regard in which case the scheduled oral proceedings would provide an opportunity to present comments in response thereto (Article 113 (1) EPC). By not attending the proceedings the appellant effectively chose not to avail of the opportunity to present comments orally before the board but instead to rely on its written case (cf. Article 15(3) RPBA) which corresponds to that presented in the written statement

setting out the grounds of appeal and in the letters dated 1 July 2011 and 21 July 2011.

2.3 In view of the foregoing, the board was in a position to announce a decision at the conclusion of the oral proceedings as foreseen by Article 15(6) RPBA. The reasons on which this decision are based do not constitute a departure from grounds or evidence previously put forward which would require that the appellant be given a further opportunity to comment.

3. *Article 84 EPC*

3.1 Claim 1 of the appellant's request is directed towards a method for dynamically allocating channels among a group of available channels to one or more cells within a wireless LAN.

3.2 The characterising part of the claim includes an allocating step which is formulated as follows:

"allocating a channel, for each frame and to each one of one or more WLAN cells, from among a group of available channels such that a maximum allowed cross interference value is less than, or equal to, a cross interference from an amount of external interference within a channel n to a cell l and the product of a binary, L -dimensional allocation vector and cross interference from cell k to cell l when both cells k and l operate over the same channel".

In the board's judgement, this formulation lacks clarity and support by the description for the reasons which follow.

3.3 In its communication the board raised objections to the term "allocation vector". The claim wording has been amended to refer to "a binary, L-dimensional allocation vector". The board is not, however, satisfied that this amendment results in a definition of the disputed claim feature which complies with the requirements of Article 84 EPC.

3.4 According to the description, the term "allocation vector" (represented by the symbol A^f) denotes a non-binary L-dimensional vector which expresses allocation decisions relating to all available channels (from $n = 1$ to N) during a specific frame (f) whereas the term "channel allocation vector" (represented by the symbol A^{nf}) denotes a binary L-dimensional vector which expresses allocation decisions relating to a specific channel (n) during a specific frame (f) (cf. [0026] to [0028]).

An "allocation vector" (A^f) thus contains non-binary entries (a_l^f) that have a non-zero value (n) when a given channel (n) has been allocated to the corresponding WLAN cell (l) during the frame (f) and a zero value when no channel has been allocated to the corresponding WLAN cell (cf. [0026]). A "channel allocation vector" (A^{nf}) contains binary entries (a_l^{nf}) that have the value 1 when the channel (n) has been allocated to the corresponding WLAN cell (l) during the frame (f) and the value 0 when the channel has not been allocated to the corresponding WLAN cell (cf. [0027]).

3.5 The board judges that the specification in claim 1 of "a binary, L-dimensional allocation vector" is not

fully consistent with the description which only discloses binary L-dimensional channel allocation vectors.

Moreover, even if the term were to be interpreted as referring to "a channel allocation vector" such as disclosed in [0027] and [0028], it would amount to an unacceptably broad generalisation not supported by the description because it would encompass any arbitrary channel allocation vector (i.e. "a channel allocation vector") whereas according to the description (cf. [0027], [0032] and [0033]) the given context requires the use of a channel allocation vector which is associated with a specific channel (n) and a specific frame (f).

- 3.6 Even if, for the sake of argument, the aforementioned specification of "a binary, L-dimensional allocation vector" were not considered to be objectionable under Article 84 EPC, the formulation of the allocating step cited in 3.2 above gives rise to further objections concerning lack of clarity and support by the description.
- 3.7 The board understands the aforementioned formulation as being intended to express the allocation of channels in accordance with the inequality constraint which is designated as "Equation (4)" in [0033] of the application. In this regard it is noted that "Equation (4)" relates to the allocation of a given channel (n) from among the group of available channels to a WLAN cell (l) in the context of a given frame (f) and it specifies that an estimated value of cross interference

to the channel for said WLAN cell must be less than or equal to a maximum allowed cross interference value.

The maximum allowed cross interference value of "Equation (4)" represents the maximum allowed cross interference to the WLAN cell (l) from all sources (cf. [0024], first sentence, and [0031]) and it is denoted by I_l^{\max} .

The estimated value of cross interference as defined in "Equation (4)" includes a first term, i.e. $I_{o,l}^n$, representing the estimated external interference to said channel (n) which affects said WLAN cell (l) (cf. [0031], first sentence), and a second term, i.e.

$\sum_{k=1}^L a_k^n \cdot I_{k,l}$, which is the sum of the cross interference from all other WLAN cells to said WLAN cell (l) when the other WLAN cells operate over the same channel (n) as said WLAN cell (l) (cf. [0024], second sentence).

- 3.8 The claim formulation referred to in 3.2 above specifies that a maximum allowed cross interference value is less than, or equal to, an estimated cross interference value, wherein the claim wording defines the estimated cross interference value in the following terms "a cross interference from an amount of external interference within a channel n to a cell l and the product of a binary, L-dimensional allocation vector and cross interference from cell k to cell l when both cells k and l operate over the same channel".

The board finds that the wording of claim 1 in this respect effectively reverses the disclosed inequality relationship between the maximum allowed cross

interference value and the estimated cross interference value thereby resulting in a definition of the matter for which protection is sought which is not supported by the description.

3.9 The definition of the estimated cross interference value in claim 1, viz. "a cross interference from an amount of external interference within a channel n to a cell l and the product of a binary, L -dimensional allocation vector and cross interference from cell k to cell l when both cells k and l operate over the same channel", gives rise to a number of further objections as explained below.

3.10 A lack of clarity arises, in particular, from the use of the indices k , l and n , e.g. the references to "an amount of external interference within a channel n to a cell l " and "cross interference from cell k to cell l when both cells k and l operate over the same channel". Due to having been abstracted from the context in which they appear in the description, i.e. in the mathematical expressions of "Equation (4)", the intended significance of these indices is no longer apparent in the context of the claim wording. In particular, the relationship of "a channel n " to the antecedent "a channel" (i.e. the channel which is being allocated) and the relationship of "cells k and l " to the antecedent "each one of one or more WLAN cells" cannot be determined from the claim wording.

3.11 A further objection is found to arise with regard to the expression "the product of a binary, L -dimensional allocation vector and cross interference from cell k to cell l ".

The second term of the cross-interference estimate of "Equation (4)", i.e. $\sum_{k=1}^L a_k^n \cdot I_{k,l}$, represents the sum of the cross interference from all other WLAN cells to a specific cell (l) when the other cells operate over the same channel (n) as said cell (l). In the board's judgement, this term is not "the product of a binary, L-dimensional allocation vector and cross interference from cell k to cell l" but rather the sum of a plurality of elements comprising the product of a binary L-dimensional channel allocation vector entry (i.e. a_k^n) and a cross interference value (i.e. $I_{k,l}$). It is particularly noted in this regard that the claim wording omits a specification of the summation operation contained in the term $\sum_{k=1}^L a_k^n \cdot I_{k,l}$ which the board judges to be essential to a definition of the cross-interference estimate.

3.12 In view of the foregoing, the board concludes that claim 1 of the appellant's request fails to comply with the requirements of Article 84 EPC. A similar finding applies to claim 5 of the request. As independent claims 1 and 5 of the request do not comply with the requirements of Article 84 EPC, the request is not allowable.

Conclusions

4. Pursuant to Article 113(2) EPC the board can only base its decision concerning the present application on the text submitted to it, or agreed, by the applicant (i.e. the present appellant). Due to the fact that the

appellant was not represented at the oral proceedings before the board, there was no opportunity to discuss the possibility of remedying the above-noted deficiencies with the appellant's representative.

5. The sole request on file is not allowable (cf. 3.12 above) and therefore the appeal must be dismissed.
6. Having regard to the above findings, it is not necessary to give further consideration to the additional issues raised in the board's communication.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chair:

K. Götz

A. Ritzka