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Datasheet for the decision of 20 January 2010

Case Number: T 1933/07 - 3.4.01

Application Number: 04396079.8

Publication Number: 1544943

IPC: H01Q 1/24

Language of the proceedings: EN

Title of invention:
Tunable multiband planar antenna

Applicant:
Pulse Finland Oy

Opponent:
-

Headword:
-

Relevant legal provisions:
RPBA Art. 13(1)

Relevant legal provisions (EPC 1973):
EPC Art. 84

Keyword:
"Clarity: no"
"Auxiliary request: inadmissible"

Decisions cited:
-

Catchword:
-

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Case Number: T 1933/07 - 3.4.01

D E C I S I O N
of the Technical Board of Appeal 3.4.01
of 20 January 2010

Appellant: Pulse Finland Oy
Takatie 6
FI-90440 Kempele (FI)

Representative: Tanhua, Pekka Vilhelm
Berggren Oy Ab
Kirkkokatu 9
FI-90100 Oulu (FI)

Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 24 July 2007 refusing European application No. 04396079.8 pursuant to Article 97(1) EPC 1973.**

Composition of the Board:

Chairman: B. Schachenmann
Members: H. Wolfrum
G. Assi

Summary of Facts and Submissions

I. European patent application 04 396 079.8 (publication No. EP 1 544 943) was refused by a decision of the examining division dispatched on 24 July 2007 on the ground of lack of inventive step (Articles 52(1) and 56 EPC 1973) of the subject-matter of claim 1 of the request then on file.

II. The applicant lodged an appeal against the decision on 19 September 2007 and paid the prescribed fee on the same day. A statement of grounds of appeal was filed on 19 November 2007. Grant of a patent was requested on the basis of two sets of claims according to a main request and an auxiliary request.

III. On 18 March 2009 the appellant was summoned to oral proceedings to take place on 14 July 2009.

In an annex accompanying the summons pursuant to Article 15(1) RPBA the board addressed a number of issues to be discussed concerning, in addition to the question of inventive step, added subject-matter (Article 123(2) EPC) and clarity of wording (Article 84 EPC 1973). The board introduced a document into the proceedings which had been cited in the proceedings of the parallel US family application:

D6 : WO-A-02/078124.

IV. By facsimile of 8 June 2009 the appellant filed a new, sole request under the misnomer "auxiliary request 2" and informed the board that it would not attend the oral proceedings.

V. On 14 July 2009 oral proceedings were held in the absence of the appellant.

Basis for the deliberation of the board was the appellant's sole request. No final decision was taken on the appeal. Instead, after discussion of the matters at issue, the board considered it appropriate to continue the proceedings in writing. The discussion revealed several aspects concerning the matter of inventive step and clarity of wording of a dependent claim which the board regarded crucial for it's final decision but which, from the viewpoint of the right to being heard (Article 113(1) EPC), had not been sufficiently addressed in the board's previous communication.

For this reason and, in particular, given the fact that the oral proceedings had been arranged at the board's initiative and not at the appellant's request, the board issued a further communication dated 21 July 2009 so as to give the appellant another opportunity to address the board on observations concerning clarity and inventive step.

VI. The appellant responded to the board's observations by letter of 16 September 2009.

VII. The appellant has requested in writing that the decision under appeal be set aside and a patent be granted on the basis of claims 1 to 10 filed by letter of 8 June 2009. Alternatively, the appellant has proposed to replace dependent claims 6 and 7 by an amended claim 6, as formulated in its letter of 16 September 2009.

VIII. Independent claim 1 of the appellant's request reads as follows:

"*1. An adjustable multi-band antenna comprising a ground plane (910), a radiating plane (920) with a dielectric support part (980), and an adjusting circuit having a parasitic element (930) of the radiating plane and a controllable part connected to the parasitic element, by which controllable part a coupling between the parasitic element and the ground plane can be changed to displace an operation band of the antenna,* ***characterized*** *in that said controllable part (350; 450; 550; 950) is a reactive matching circuit constituting at least one parallel circuit (451, 452; 550), first branch of which comprises a reactive element and second branch of which comprises a capacitive (C41; C42; CD2, C52) and inductive (L42; L44; L51) element in series to optimize an impedance matching and efficiency of the antenna, circuit values of which controllable part being arranged to be chosen from at least two alternatives to implement said change in the coupling.*"

Independent claim 10 is directed to the use of an antenna having the structure defined in claim 1. Claims 2 to 9 are dependent claims, claim 6 of which reads:

"*6. An antenna according to claim 1 having at least a lower operation band and an upper operation band,* ***characterized*** *in that said operation band to be displaced is the upper operation band.*"

The proposed alternative wording of dependent claim 6 reads as follows:

"*6. An antenna according to claim 1, having at least a lower operation band and an upper operation band,* ***characterized*** *in that the matching circuit has a parallel resonance and thus a high impedance in range of the lower operation band, to limit influence of a change in said circuit values to the upper operation band, in which case said operation band to be displaced is the upper operation band.*"

Reasons for the Decision

1. In the light of the entry into force of the EPC 2000, reference is made to Article 7(1), 2nd sentence of the Revision Act of 29 November 2000 ("Act revising the Convention on the Grant of European Patents (European Patent Convention) of 5 October 1973, last revised on 17 December 1991") and the transitional provisions for the amended and new provisions of the EPC (Decision of the Administrative Council of 28 June 2001), from which it may be derived which Articles of the EPC 1973 are still applicable and which Articles of the EPC 2000 shall apply.

2. The appeal complies with the requirements of Articles 106 to 108 and Rule 64 EPC 1973 and is, therefore, admissible.

3. The board considers the set of claims 1 to 10 filed by letter of 8 June 2009 as the appellant's main request and the amended wording of claim 6 proposed to replace dependent claims 6 and 7 of the main request to constitute an auxiliary request.

4. *Amendments (Article 123(2) EPC), main request*

Independent claims 1 and 10 are based on originally-filed claims 1 and 10, respectively, in which the feature that "*each alternative set of the circuit values comprises values of at least two reactive elements*" has been replaced by the more specific definition of the reactive matching circuit as "*constituting at least one parallel circuit, first branch of which comprises a reactive element and second branch of which comprises a capacitive and inductive element in series*".

Although there is no literal basis of this definition in the application documents as originally filed, the board considers a skilled reader of these documents to readily recognise it as an abstract structural concept that is common to the two more detailed embodiments of a reactive matching circuit which are shown by Figures 4 and 5.

Thus, for the purpose of this decision, the Board considers the amendments made to claim 1 to comply with the requirements of Article 123(2) EPC.

5. *Clarity (Article 84 EPC 1973), main request*

5.1 Dependent claim 6 of the appellant's main request defines in its characterizing portion "*that said operation band to be displaced is the upper operation band*". This feature constitutes the mere statement of a desire but fails to provide any indication as to the necessary technical measures which have to be taken, in particular as regards the antenna structure or the circuit structure of the controllable part, in order to achieve the desired result.

As stated in Rule 29 EPC 1973, which is implementing Article 84 EPC 1973, the claims shall define the matter for which protection is sought in terms of the technical features of the invention, *ie* in the present case technical features of the antenna. This condition is not met by present claim 6.

Therefore, claim 6 does not comply with the requirement of Article 84 EPC 1973 having regard to clarity.

5.2 The appellant did not submit any argument in support of clarity of the claim wording but instead suggested by letter of 16 September 2009 an amendment to claim 6 as auxiliary request.

5.3 In conclusion, the appellant's main request is not allowable already because of this deficiency.

6. Observations as to the issue of inventive step (Articles 52(1) and 56 EPC 1973), main request

Notwithstanding the above conclusion, given the fact that the debate in the examination and appeal proceedings gave a certain attention to the issue of inventive step, the board wishes to additionally express, by way of an *obiter dictum*, its doubts that claim 1 of the appellant's request would define inventive subject-matter and, in particular, is not convinced by the appellant's arguments brought forward in this respect.

6.1 According to the appellant, the subject-matter of independent claims 1 and 10 on file differed from the adjustable multi-band antenna and use thereof as known from document D6 in three aspects, namely

(i) in that one of the branches of the parallel circuit which constitutes the controllable part comprised, in at least one selectable alternative, a capacitive and an inductive element in series;

(ii) in that the circuit values of the reactive matching circuit could be changed without a change of the circuit structure; and

(iii) in that element HB2 in the antenna known from document D6 was arranged and designed to function as a radiating element which resonated at the higher operating band and thus did not constitute a parasitic element within the meaning of the present invention.

6.2 In the board's view, alleged differences (ii) and (iii) cannot be attributed to a concrete feature of the claimed subject-matter for the following reasons:

Concerning the second aspect (ii) referred to by the appellant, it is to be considered that the application description on file (see page 5, lines 26 to 28) expressly foresees a change in the circuit structure in that it refers in the context of the embodiment of Figure 4 of the application to the possibility that the reactive matching circuit can include only one reactive circuit, in which case the choice between the two alternatives of circuit values means that the said reactive circuit "or nothing" is connected to ground. This fact renders the alleged difference at least doubtful.

Concerning the third aspect (iii) referred to by the appellant, it is observed that in the field of PIFA structures the term "parasitic element" conventionally refers to antenna elements which are not in direct ohmic connection with the antenna's feed line but nevertheless have a significant electromagnetic coupling to the radiating plane of the PIFA, as confirmed *eg* by the application description (page 9, lines 7 to 11). Therefore, the appellant's allegation that a parasitic element according to the present application differed in structure and function from element HB2 of document D6 which is capacitively coupled to the directly fed radiating element HB1, is not convincing. Differences in structure, arrangement and use of the parasitic element are simply not the subject of the claim definitions under consideration.

6.3 Thus it would appear that aforementioned feature (i) constitutes the sole clear difference between the subject-matter of claim 1 under consideration and the multi-band antenna known from document D6 (Figures 1, 2 and 4 to 7 with the corresponding description).

As regards the question which technical effect would be achieved by the said difference, the appellant argued that a reactive circuit with three components (together with the particular location of the parasitic element) made it possible to shift only one operating band and to keep the other band at its place. Furthermore, the claimed solution offered better possibilities for antenna impedance matching, due to the presence of an increased number of variables, when designing the reactive matching circuit.

However, a comparison of the specific embodiments of Figures 6 and 7 of the present application and those according to Figures 6 and 7 of document D6 reveals that the respective reactive matching circuits operate in a qualitatively equivalent manner, in particular as regards the effect of limiting shifts in the operating bands to the high frequency bands. The appellant's explanation according to which this conformance in operation was due to differences in the arrangement and operation of the parasitic element cannot convince for the reason that such differences have no basis in the claimed subject-matter, as explained above.

This leaves an increase in the degree of freedom of design of the impedance matching as the only plausible technical effect of (and thus the objective problem behind) the difference which exists between the subject-matter of claims 1 and 10 under consideration and the teaching of document D6.

However, both, the objective problem referred to above and the solution of that problem as claimed are obvious for the skilled person in the technical field at issue in view of the fact that both could be considered to be already hinted at in document D6 (page 8, lines 24 to 27, and page 9, line 5 to 10).

7. Admissibility, auxiliary request

7.1 With the letter dated 16 September 2009 the appellant proposed to replace dependent claims 6 and 7 of its main request by an amended claim 6. This proposal is considered by the board as an auxiliary request made by the appellant.

7.2 According to Article 13(1) RPBA "*Any amendment to a party's case after it has filed its grounds of appeal or reply may be admitted and considered at the Board's discretion. The discretion shall be exercised in view of inter alia the complexity of the new subject-matter submitted, the current state of the proceedings and the need for procedural economy.*"

Generally, such discretion is exercised in favour of the party concerned if the amendments which are requested at a late stage of appeal proceedings remove the objections raised and are clearly allowable. However, late-filed amended requests of an appellant/applicant need not be admitted into the proceedings if they show clear deficiencies or raise new problems so that their introduction into the proceedings would require further examination and prevent the board from issuing an immediate decision.

7.3 In the present case, the requested amendments introduce subject-matter which extends beyond the content of the application as filed and thus would be clearly unallowable.

According to the appellant, the proposed alternative wording of claim 6 was disclosed by Figures 4 to 7 and their description in the application documents as originally filed.

However, there is no original disclosure of a matching circuit which has an arbitrary reactive element (*ie* either a capacitance or an inductance) in its first branch and has at the same time "*a parallel resonance and*

thus a high impedance in range of the lower operation band". As a matter of fact, Figure 4 of the application as originally filed shows a specific example of a matching circuit, the first branch of which consists specifically of an inductive element (*ie* coil 41 or 43). The circuit is described to have "*a parallel resonance*" (and thus a high impedance) "*in the lower boundary of an intermediate* [frequency] *range*" (emphasis added). No information is given, whether a similar circuit in which the said inductive element would be replaced by a capacitive element would possess the same resonance behaviour. On the contrary, the alternative example of Figure 5 (the first branch of which consists indeed of a capacitive element) is described to have "*a serial resonance*" (and thus a low impedance) "*in the lower boundary of the intermediate* [frequency] *range*" (emphasis added).

Furthermore, it is noted that dependent claims 6 and 7 as originally filed do not provide a valid basis of disclosure for amended claim 6 either. Although the additional features according to the amended wording of claim 6 formally arise from a combination of the definitions of original claims 6 and 7, the originally-filed claims do not refer to a reactive matching circuit which constitutes at least one parallel circuit as defined in present claim 1.

In consequence, the proposed alternative to claim 6 introduces added subject-matter, contrary to the requirement of Article 123(2) EPC. In view of this apparent deficiency, the appellant's auxiliary request is deemed inadmissible.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar | The Chairman

R. Schumacher | B. Schachenmann