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**Datasheet for the decision
of 13 December 2012**

Case Number: T 0459/09 - 3.4.01

Application Number: 99953985.1

Publication Number: 1227545

IPC: H01Q 21/30, H01Q 21/06,
H01Q 5/00

Language of the proceedings: EN

Title of invention:
Interlaced multiband antenna arrays

Patentee:
Fractus, S.A.

Opponent:
Katherein-Werke KG

Headword:
-

Relevant legal provisions:
EPC Art. 101(3)

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

Keyword:
"Clarity (no, all requests)"
"Referral to the Enlarged Board of Appeal (no)"

Decisions cited:
T 0301/89, T 0472/88, T 0367/96, T 0420/00, T 0681/00,
T 0362/02, T 0381/02, T 1459/05, T 1855/07, T 1440/08

Headnote:

- I. An amendment consisting of the incorporation of a technically meaningful feature in an independent claim of a granted patent does indeed represent an attempt to overcome an objection within the framework of Article 100 EPC against the patent as granted, the amendment having to be occasioned by a ground for opposition (Rule 80 EPC). It follows that such an amendment is of a substantial nature and will normally have an effect on the substantive examination, such as for example on the assessment of novelty and inventive step.

- II. Any amendment that can be qualified as being of a substantial nature in the above sense would in principle justify an unrestricted exercise of the examination power derivable from Article 101(3) EPC, irrespective of the kind of amendment performed. Specifically, it is immaterial whether the amendment arises from the combination of a feature from the description with an independent claim, or from the literal combination of claims of the granted patent.

- III. The amended patent would thus normally be examined pursuant to Article 101(3) EPC so as to establish whether it meets all the requirements of the EPC. A deviation from this rule may, however, not be excluded in particular cases. This has to be judged on a case-by-case basis (see Reasons, 4.1.7).



Case Number: T 0459/09 - 3.4.01

D E C I S I O N
of the Technical Board of Appeal 3.4.01
of 13 December 2012

Appellant: Fractus, S.A.
(Patent Proprietor) Alcalde Barnils, s/n,
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 13 October 2008
revoking European patent No. 1227545 pursuant
to Article 101(3)(b) EPC.

Composition of the Board:

Chairman: G. Assi
Members: H. Wolfrum
M. J. Vogel

Summary of Facts and Submissions

I. The contested European patent No. 1 227 545 arises from European patent application EP 99 953 985.1, which was published as international application WO-A-01/031747.

II. The opponent based its opposition on the grounds of Articles 100(a) (lack of novelty and inventive step) and 100(c) EPC 1973.

By decision dispatched on 13 October 2008 the opposition division revoked the patent for the reasons of lack of novelty (Articles 52(1) and 54(3) EPC), added subject-matter (Article 123(2) EPC), extension of protection conferred (Article 123(3) EPC), and lack of clarity (Article 84 EPC 1973) of the main request and four auxiliary requests then on file.

III. The appellant (patent proprietor) lodged an appeal against this decision. The notice of appeal in the language of the proceedings was received on 9 December 2008. The prescribed fee was paid on 5 December 2008. On 19 February 2009 a statement of grounds of appeal was filed. The appellant requested that the decision under appeal be set aside and the patent be maintained in amended form according to a new main request or new auxiliary requests 1 to 3.

In reply, by letter of 23 June 2009, the respondent (opponent) requested that the appeal be dismissed.

IV. Both parties filed an auxiliary request for oral proceedings.

V. On 31 July 2012 the parties were summonsed to oral proceedings to take place on 13 December 2012. In an annex to the summons pursuant to Article 15(1) RPBA, the Board noted that the appellant's requests then on file were incomplete because they lacked the dependent claims which the appellant had announced would be filed later in the proceedings and an adapted description. With regard to the new claims on file the Board addressed *inter alia* issues of added subject-matter, clarity, conciseness and novelty.

Without prejudice to the Board's discretion to admit further amendments sought to be made (Article 13 RPBA), the Board set a time limit of 15 October 2012 for the filing of complete requests by the appellant and a time limit of 13 November 2012 for any reply of the respondent.

VI. On 11 October 2012 the appellant filed an amended set of claims 1 to 14 and a correspondingly amended description according to a main request, an amended set of claims 1 to 5 and a correspondingly amended description according to a first auxiliary request, an amended set of claims 1 to 21 and a correspondingly amended description according to a second auxiliary request, and an amended set of claims 1 to 14 and a correspondingly amended description according to a third auxiliary request.

VII. In the oral proceedings before the Board the admissibility of the appellant's requests filed on 11 October 2012 and questions of clarity and support by the description (Article 84 EPC 1973) as well as

sufficiency of disclosure (Article 83 EPC 1973) of the claimed subject-matter were addressed.

The appellant requested that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of the main request or first, second or third auxiliary requests, all filed by letter of 11 October 2012, or on the basis of a fourth auxiliary request, filed in the oral proceedings. Moreover, the appellant requested the referral of the following question of law to the Enlarged Board of Appeal:

"When amending a claim during appeal proceedings, can the Board of Appeal introduce a fresh ground of opposition under Art. 100(b) EPC even though that Art. 100(b) EPC states that it is the European patent which needs to provide a sufficient disclosure, and therefore the amendment has not caused this new ground ?"

The respondent requested that the appellant's second and fourth auxiliary requests not be admitted into the proceedings and that the appeal be dismissed.

VIII. Claim 1 of the appellant's **main request** and **first auxiliary request** reads as follows :

"1. Interlaced multiband antenna array which works simultaneously on various frequencies the position of the elements in the array being obtained from the juxtaposition of as many mono-band arrays as there are working frequencies required, characterized in that

- a) a single multiband antenna, capable of covering the different working frequencies, is provided in those positions of the array in which the positions of two or more elements of the mono-band arrays coincide, and
- b) the operating bands are situated around 900 MHz, 1800 MHz and 2100 MHz in order to provide service simultaneously for the GSM 900, GSM 1800 and UTMS [sic!] cellular mobile telephony systems."

Claims 2 to 14 of the main request and claims 2 to 5 of the first auxiliary request are dependent claims.

Claim 1 of the appellant's **second auxiliary request** reads :

"1. Interlaced multiband antenna array which works simultaneously on various frequencies the position of the elements in the array being obtained from the juxtaposition of as many mono-band arrays as there are working frequencies required,

characterized in that

- a) a single multiband antenna, capable of covering the different working frequencies, is provided in those positions of the array in which the positions of two or more elements of the mono-band arrays coincide,
- b) the spacing relative to the wavelength of the working frequency between adjacent elements of one mono-band array is substantially the same as the spacing relative to the wavelength of the working frequency between adjacent elements of another mono-band array, and
- c) in those positions in which the elements of two or more mono-band arrays do not coincide the same

multiband antenna is employed as in the common positions."

Claims 2 to 21 are dependent claims.

Claim 1 of the appellant's **third auxiliary request** corresponds to claim 1 of the second auxiliary request, wherein feature c) is replaced by feature b) of the main request.

Claims 2 to 14 are dependent claims.

Claim 1 of the **fourth auxiliary request** reads :

"1. Interlaced multiband antenna array which works simultaneously on various frequencies the position of the elements in the array being obtained from the juxtaposition of as many mono-band arrays as there are working frequencies required, characterized in that

a) a single multiband antenna, capable of covering the different working frequencies, is provided in those positions of the array in which the positions of two or more elements of the mono-band arrays coincide, and

b) is provided in those positions in which an element displaced from its position of the mono-band array that works at the lowest frequency coincides with the nearest element of the mono-band array that works at the highest frequency, and

c) the operating bands are situated around 900 MHz, 1800 MHz and 2100 MHz in order to provide service simultaneously for the GSM 900, GSM 1800 and UMTS cellular mobile telephony systems."

Claims 2 to 14 are dependent claims.

Reasons for the Decision

1. In the following reference is made to the provisions of the EPC 2000, which entered into force as of 13 December 2007, unless the former provisions of the EPC 1973 still apply.
2. The appeal complies with the requirements of Articles 106 to 108 EPC and Rule 99 EPC and is, therefore, admissible.
3. *Admissibility of the appellant's requests*
 - 3.1 Claim 1 of the main request and the first auxiliary request on file is based on claim 1 of the third auxiliary request that was filed with the statement of grounds of appeal and from which feature b) has been deleted. Claim 1 of the third auxiliary request on file adds a further feature to claim 1 of the main request on file. These three requests constitute an attempt to overcome objections raised by the respondent and discussed in the Board's annex to the summons to the oral proceedings and form a group of convergent requests, with claim 1 of each request including features a) and b) of claim 1 of the main request.

In view of these circumstances, the Board, exercising its discretion under Article 13 RPBA, admitted the main request, first auxiliary request and third auxiliary request into the proceedings.

3.2 In contrast, claim 1 of the appellant's second auxiliary request does not comprise feature b) of claim 1 of the main request and is therefore not convergent with the aforementioned group of requests. For this reason and given that it was not considered clearly allowable, the second auxiliary request was not admitted into the proceedings.

3.3 The fourth auxiliary request was filed at a very late stage of the proceedings. The Board decided not to admit this request into the proceedings, given the fact that it does not address and overcome the deficiencies identified for the requests that had been admitted into the proceedings.

4. Allowability of the admitted requests - clarity and support by the description (Article 84 EPC 1973)

4.1 Competence of the Board to decide the issue

4.1.1 The appellant disputed that clarity issues could be dealt with in opposition appeal proceedings in cases such as the present one, in which the changes made to the claims of the main request and the first auxiliary request only consisted in the combination of claims 1 and 14 of the patent as granted.

In particular, the appellant argued that since the requirement of clarity was not a ground of opposition, none of the claims of a patent as granted could be attacked under Article 84 EPC with the notice of opposition. For this reason, non-compliance with Article 84 EPC could not be objected to either in later

stages of the proceedings with respect to a combination of claims of the patent as granted.

4.1.2 It is generally accepted that the list of grounds for opposition according to Article 100 EPC is exhaustive. This means that objections under Article 84 EPC cannot be raised against a granted patent even though they are manifest.

4.1.3 The situation is different in case of the maintenance of a patent in amended form.

Article 101(3) EPC requires that if an Opposition Division (or a Board of appeal (Article 111(1) EPC, second sentence, first alternative)) is of the opinion that, taking into consideration the amendments made by the proprietor of the European patent during opposition proceedings, "*the patent and the invention to which it relates meet the requirements of the EPC*", it shall decide to maintain the patent as amended, provided that the conditions laid down in the Implementing Regulations are fulfilled. If the patent and the invention to which it relates do not meet the requirements of the EPC, it shall revoke the patent.

This Article apparently establishes a deviation from the framework of Article 100 EPC in that the power to examine a patent in amended form is not restricted to the grounds for opposition.

In decision G 9/91 (OJ EPO 1993, 408; Reasons, 19), the Enlarged Board of Appeal confirmed that in case of amendments of the claims or other parts of a patent in the course of opposition or appeal proceedings, "*such*

amendments are to be fully examined as to their compatibility with the requirements of the EPC".

- 4.1.4 However, according to the jurisprudence of the boards of appeal, there are limits to the competence accorded by Article 101(3) EPC as regards the examination of an amended patent.

For example, Article 101(3) EPC would not justify objections to be based upon Article 84 EPC, if such objections did not arise out of the amendments made (see T 301/87, OJ EPO 1990, 335; Headnote, 1; Reasons, 3.7). Along this line, an objection of lack of clarity should not be raised for instance with respect to an unclear feature comprised in an independent claim of a patent as granted, if this claim is amended by way of addition of a new, clear feature, provided that both features are unrelated.

Boards of appeal have also perceived a limit in the particular case in which an independent claim of a granted patent is amended simply by combining it with an associated dependent claim.

In particular, in T 1855/07 (unpublished; Reasons, 2), referring to existing jurisprudence (see T 367/96, unpublished; T 301/87, OJ EPO 1990, 335; T 472/88, unpublished; T 362/02, unpublished; T 381/02, unpublished), the board held that the power to examine clarity under Article 84 EPC failed when the amendment merely consisted in the literal inclusion of dependent claims into the associated independent claim of a patent as granted ("*satzbauliche Eingliederung*"). The board noted that the jurisprudence to which it referred

made a distinction between substantial amendments, which under Article 101(3) EPC (Article 102(3) EPC 1973) were to be fully examined as to their compatibility with the requirements of the EPC, and merely formal amendments arising from simple linguistic combinations of granted claims, for which the framework of Article 100 EPC applied.

- 4.1.5 However, the jurisprudence of the boards of appeal comprises also examples in which combinations of claims of a granted patent were considered to constitute substantial amendments, which justified an examination under Article 84 EPC.

In T 1459/05 (unpublished; Reasons, 4.3) the board decided not to adopt the existing jurisprudence, according to which there was no power to examine matters of clarity under Article 84 EPC when the amendment consisted of a combination of claims as granted. The board found that an exception had to be made in the case before it because the assessment of the resulting claimed subject-matter decisively depended on the technical significance of the sole added feature in that any difference from the prior art could only be defined on the basis of that feature. However, its technical significance was so unclear for the skilled person that any such difference was not apparent or at least could not be identified with a reasonable degree of certainty. The board held that it had to be able to exercise its discretion and to deviate, exceptionally and on a case-by-case basis, from the practice of ruling out any power of examination under Article 84 EPC in the case of amendments consisting of a combination of claims as

granted. In particular, such discretion had to be exercised where a strict application of the approach which excluded the raising of an objection on the grounds of lack of clarity would lead to a situation in which a further examination of the amended patent, e.g. in relation to novelty and inventive step, would be impeded or might not even lead to a meaningful result.

In T 1440/08 (unpublished; Reasons, 4) the board also held that it had the power to examine an amendment under Article 84 EPC in line with other decisions of the existing jurisprudence (see T 472/88, unpublished; T 420/00, unpublished; T 681/00, unpublished), in particular when the combination of granted claims led to an inconsistency between two features of the amended claim 1. Irrespective of the fact that the clarity problem had already affected the claims of the patent as granted, it was the change of perspective on the invention due to the amendment by which the clarity problem became apparent.

- 4.1.6 In view of the foregoing, the present Board holds that clarity of an amended independent claim should, in principle, be examined, even if the amendment only consists in a mere literal combination of claims of the patent as granted. Any other approach would indeed entail the risk of unduly restricting the mandate for examination of an amended patent which Article 101(3) EPC imposes on an opposition division having to deal with an amended patent.

In fact, the wording of Article 101(3) EPC qualifies neither the nature nor the scope of the amendments. After amendment of any kind, the opposition division

may no longer decide to reject the opposition, as would have been possible, had, for example, a clarity objection been raised as the sole ground for opposition. Instead, the opposition division may only decide either to maintain the patent in amended form or to revoke the patent. Their decision is taken on the basis of whether the patent and the invention to which it relates meet the requirements of the EPC.

Article 101(3) EPC indeed defines in absolute terms that the requirements of the EPC shall be considered when amendments are made by the proprietor of the patent during opposition proceedings. Therefore, the term "*amendments*" in Article 101(3) EPC should not be construed narrowly and, irrespective of the manner in which the patent is modified, the amended patent should be subjected to an examination to ensure compliance with all requirements of the EPC. This approach is in agreement with G 9/91 (see above).

- 4.1.7 In this context, the Board notes that an amendment consisting of the incorporation of a technically meaningful feature in an independent claim of a granted patent does indeed represent an attempt to overcome an objection within the framework of Article 100 EPC against the patent as granted, the amendment having to be occasioned by a ground for opposition (Rule 80 EPC). It follows that such an amendment is of a substantial nature and will normally have an effect on the substantive examination, such as for example on the assessment of novelty and inventive step.

In the Board's opinion, any amendment that can be qualified as being of a substantial nature in the above sense would in principle justify an unrestricted

exercise of the examination power derivable from Article 101(3) EPC, irrespective of the kind of amendment performed. Specifically, it is immaterial whether the amendment arises from the combination of a feature from the description with an independent claim, or from the literal combination of claims of the granted patent.

The amended patent would thus normally be examined pursuant to Article 101(3) EPC so as to establish whether it meets all the requirements of the EPC. A deviation from this rule may, however, not be excluded in particular cases. This has to be judged on a case-by-case basis.

- 4.1.8 In the present case, with regard to the appellant's main request, first auxiliary request and third auxiliary request, the introduction of the additional feature of dependent claim 14 into claim 1 of the patent as granted highlights the significance of a specific technical concept, *ie* the capability of the interlaced antenna array for operation in three specific bands. This amendment is of a substantial nature.

In view of the foregoing, the Boards holds that it has the power to examine whether the amended patent meets the requirements of Article 84 EPC 1973.

- 4.2 Examination of the amended patent according to the appellant's main request, first auxiliary request and third auxiliary request

4.2.1 Claim 1 of each of the main request and the first auxiliary request on file combines the features of claims 1 and 14 of the patent as granted. Claim 1 of the third auxiliary request also comprises this combination of features.

4.2.2 The respondent held that amended claim 1 of each of the requests on file did not provide an understandable definition of an interlaced multiband antenna array formed of single multiband antennas and questioned whether the patent description addressed such an antenna and its elements.

According to the appellant, the now claimed invention found sufficient explanation and support in Figure 5 of the patent and the corresponding passages of the description. In this context, it had to be kept in mind that the present invention was not about details of the structure of a single multiband antenna, with which the skilled person was familiar anyway. Instead, the invention was concerned with the specific arrangement and repositioning of the elements of separate mono-band arrays into a common array capable of multi-band operation so as reduce the necessary number of individual antennas and to arrive at a more compact array structure. In particular, Figures 5d and 5e gave concrete examples of how to combine three mono-band arrays, the working frequencies of which were not related by an integer divisor of the highest frequency.

4.2.3 Claim 1 of each of the requests on file is directed to a scheme for the interlacing of mono-band antenna arrays to form a multiband antenna array according to the preamble and feature a) arising from claim 1 of the

patent as granted, which array is capable of operating in three specific frequency bands, this feature arising from claim 14 of the patent as granted.

The claimed scheme for interlacing consists of a juxtaposition of the antennas of separate mono-band arrays in such a manner that in those locations where antennas from different mono-band arrays happen to coincide, a single multiband antenna is provided, which has then to be capable of operating in the corresponding bands. In order to be make any sense, this scheme implies that the spacing of the individual elements in each of the mono-band arrays to be juxtaposed has the same relation to the operating frequency or wavelength and that the respective operating frequencies of the mono-band arrays are related by an integer divisor of the highest operating frequency. Only then will elements of different mono-band arrays coincide at common positions where multiband antennas can then be provided to form a compact multiband array.

4.2.4 A problem arises, however, for this scheme when it is combined with the claimed requirement for triple-band operation at 900 MHz, 1800 MHz and 2100 MHz.

Due to the fact that the specified operating frequencies are not related by an integer divisor of the highest frequency (taking the highest frequency as " f " the corresponding frequencies of the other bands are " $f/1.166$ " and " $f/2.333$ ", respectively) it is not clear how a realistic juxtaposition of the three mono-band arrays could be conceived so as to arrive at

coinciding positions for the provision of single triple-band antennas.

The appellant argued that for mono-band arrays having a mutually common spacing of the elements relative to the respective operating frequency, at least one coinciding position for all three frequency bands could be obtained. Apart from that, there was no requirement in the patent specification for the mono-band arrays to be juxtaposed so as to have such a mutually common spacing relative to the operating frequency or wavelength. Thus, the skilled person was free to start from suitably arranged mono-band arrays when implementing an array as defined in amended claim 1. In this context, Figures 5d and 5e provided concrete examples for the juxtaposition of three mono-band arrays of a non-integer frequency ratio.

This argumentation did not convince the Board. First of all, an arrangement, in which only one single theoretically possible position of coincidence of three mono-band antennas would exist, could not be considered to constitute an interlaced triple-band antenna array. Moreover, if it were indeed possible to choose the relative antenna spacing at random for the various mono-band antenna arrays, the scheme outlined in claim 1 of the patent as granted would become entirely arbitrary and thus meaningless. Finally, as correctly pointed out by the respondent, Figure 5 and corresponding paragraph [0026] of the description of the patent refer to an example of three operating bands the relative relationship " f ", " $f/2$ " and " $f/2.33$ " of which is different from that of the claimed frequency bands. This embodiment thus does not represent an

embodiment of an interlaced multiband antenna array according to the claimed invention. Nor does the remainder of the patent specification illustrate an embodiment of an antenna array according to claim 1 of any of the requests under consideration.

- 4.2.5 A still further aspect of lack of clarity and support lies in the fact that the patent specification does not provide one concrete example of a "*single triple-band antenna*" as an element of the claimed array. The only concrete antenna structure is shown by Figure 10 and concerns a stacked antenna patch operating in two bands.

The appellant argued that multiband antennas were well-known in the art and that, in addition, the skilled person was readily able to devise triple-band antennas for operation in the claimed frequency bands.

However, UMTS licences were sold by auction throughout Europe only as from the year 2000 and the first UMTS network was installed in 2001. Therefore, in 1999, *ie* at the filing date of the present patent, UMTS equipment and in particular a respective 2100 MHz antenna was not part of any operational telecommunication network and thus cannot be considered common technology in the field at issue. The Board does not dispute that a skilled person could in principle devise an antenna consisting of an assembly of individual mono-band antennas each respectively operating in one of the three frequency bands listed in claim 1 under consideration. Nevertheless, this circumstance does not change the fact that the patent specification fails to provide a description of a

single embodiment of the claimed interlaced triple-band antenna array.

In this context it is noted that the appellant claimed repeatedly throughout the opposition and appeal proceedings that the term "*single multiband antenna*" meant something other than a mere juxtaposition of mono-band antennas, and referred in particular to an indissociable structure with a specific electromagnetic coupling between the individual mono-band elements (see for instance page 3, sixth paragraph of the letter of 2 November 2004 filed in opposition; page 7, third paragraph and page 8, third paragraph of the statement of grounds of appeal; or chapter (4) "*interpretation of 'single multiband antenna'*" on pages 6 to 8 of the letter of 11 October 2012). However, how exactly the term "*single multiband antenna*" should be understood in terms of structure, in particular in the case of a triple-band array, remains unclear from claim 1 and the patent specification.

- 4.3 In conclusion, claim 1 of each of the appellant's requests that were admitted into the proceedings lacks clarity and support by the description within the meaning of Article 84 EPC 1973.

The appellant's main request, first auxiliary request and third auxiliary request are therefore not allowable.

5. *Request for referral*

The question which the appellant submitted for referral to the Enlarged Board of Appeal concerns the power of a

board of appeal to introduce a fresh ground of opposition (in the present case that of Article 100(b) EPC) after amendment to the claims of a patent during appeal proceedings.

The legal provision of Article 100(b) EPC with which the appellant's question is specifically concerned is, however, irrelevant for the present decision.

Thus, already for this reason, the appellant's request for referral of a question to the Enlarged Board of Appeal is refused.

Order

For these reasons it is decided that:

1. The appellant's request for referral to the Enlarged Board of Appeal is refused.
2. The appeal is dismissed.

The Registrar

The Chairman

R. Schumacher

G. Assi