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**D E C I S I O N**  
**of 4 October 2004**

**Case Number:** T 0239/02 - 3.5.2

**Application Number:** 99401627.7

**Publication Number:** 1067676

**IPC:** H03F 1/32

**Language of the proceedings:** EN

**Title of invention:**

Method for linearising a power amplifier over a wide frequency band

**Applicant:**

ALCATEL

**Opponent:**

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**Headword:**

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**Relevant legal provisions:**

EPC Art. 56, 84

**Keyword:**

"Inventive step - (yes), (amended)"

"Clarity - (yes), (amended)"

**Decisions cited:**

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**Catchword:**

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Case Number: T 0239/02 - 3.5.2

**D E C I S I O N**  
of the Technical Board of Appeal 3.5.2  
of 4 October 2004

**Appellant:**

ALCATEL  
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F-75008 Paris (FR)

**Representative:**

El Manouni, Josiane  
Compagnie Financière Alcatel  
Département de Propriété Industrielle  
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**Decision under appeal:**

Decision of the Examining Division of the  
European Patent Office posted 24 September 2001  
refusing European application No. 99401627.7  
pursuant to Article 97(1) EPC.

**Composition of the Board:**

**Chairman:** W. J. L. Wheeler  
**Members:** R. G. O'Connell  
E. Lachacinski

## Summary of Facts and Submissions

- I. This is an appeal against the refusal of European patent application 99 401 627.7 by decision of the examining division posted 24 September 2001 for lack of inventive step (claims 1, 9 and 13) and lack of clarity (claim 7).
- II. The examining division had in a communication dated 20 April 2001 expressed the provisional opinion that a method based on a combination of the subject-matter of claims 1 and 6 as filed would be allowable having regard to the available prior art.
- III. The following are the relevant prior art documents:
- D1: GB 2 245 115 A
- D2: EP 0 907 276 A1.
- IV. In response to a reasoned communication from the board pointing out that the claims as filed with the statement of grounds of appeal appeared to contravene Article 123(2) EPC and otherwise appeared to lack novelty, inventive step or clarity, the appellant applicant filed a new set of claims with a letter dated 13 August 2004. On 24 September 2004 the appellant faxed a request that a patent be granted on the basis of the latter claims.
- V. Claim 1, the sole independent claim, is now worded as follows:

"A method for the linearisation of a wide frequency band power amplifier (10), wherein the frequency band of operation of the amplifier is divided into at least two groups or subbands ( $\Delta F_1, \Delta F_2, \dots$ ), predistortions (26) are applied to the input signal, these predistortions depending on the frequency group, characterised in that the instantaneous frequency of each sampled input is measured (28) in order to determine the group or subband to which it belongs, and in that the input sampled signals are represented by their rectangular coordinates (I,Q) in a complex plane and the rectangular coordinates are converted (24) into polar coordinates (R, $\phi$ ), the phase being used to determine the frequency group and the amplitude being used to determine the predistortion values in the frequency group."

VI. The appellant applicant argued essentially as follows:

The new claim 1 was based on the subject-matter of claims 1 and 6 as initially filed. Claim 7 had been clarified by the addition of the words "amplitude of" before "input signal". The claim to the base transceiver, (new) claim 13, had been clarified by making it dependent only on claims on a transmitter *per se*.

VII. The appellant applicant requested grant of a patent on the basis of the following documents:

Claims:                   1 to 13 filed with the letter dated  
                                  13 August 2004;

Description: pages 2 and 2A, filed with the letter dated 10 August 2001; pages 1 and 3 to 9 of the application as filed; and

Drawings: figures 1 to 3 of the published application.

### **Reasons for the Decision**

1. The appeal is admissible.
2. Claim 1 is a combination of the features of claims 1 and 6 as filed. The examining division has expressed a provisional view that this subject-matter was neither known nor obvious having regard to the available prior art; cf point II above. The board sees no reason to disagree with the examining division's provisional finding on this point. If these claims had been filed with the appeal the examining division could have granted interlocutory revision pursuant to Article 109(1) EPC.
3. The amendments to the claims have also overcome the objections of lack of clarity mentioned by the examining division in the decision under appeal and those raised by the board in its communication.
4. The application as amended during the appeal proceedings meets the requirements of the EPC.

**Order**

**For these reasons it is decided that:**

1. The decision under appeal is set aside.
  
2. The case is remitted to the department of first instance with the order to grant a patent in the following version:

Claims: 1 to 13 filed with the letter dated  
13 August 2004;

Description: pages 2 and 2A, filed with the letter  
dated 10 August 2001; pages 1 and 3 to 9  
of the application as filed; and

Drawings: figures 1 to 3 of the published  
application.

The Registrar:

The Chairman:

D. Sauter

W. J. L. Wheeler