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Datasheet for the decision of 16 June 2010

Case Number: T 1263/07 - 3.5.02

Application Number: 00306917.6

Publication Number: 1079518

IPC: H03F 1/32

Language of the proceedings: EN

Title of invention:
Method and apparatus for an automatic predistortion system

Applicant:
LUCENT TECHNOLOGIES INC.

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 123(2)
EPC R. 43(1)

Relevant legal provisions (EPC 1973):
-

Keyword:
"Main and auxiliary requests - inadmissible extension (yes); correct two-part form (no)"
"Second auxiliary request - inadmissible extension (yes)"

Decisions cited:
-

Catchword:
-

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Case Number: T 1263/07 - 3.5.02

D E C I S I O N
of the Technical Board of Appeal 3.5.02
of 16 June 2010

Appellant: LUCENT TECHNOLOGIES INC.
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 3 April 2007 refusing European application No. 00306917.6 pursuant to Article 97(1) EPC 1973.**

Composition of the Board:

Chairman: M. Ruggiu
Members: J.-M. Cannard
E. Lachacinski

Summary of Facts and Submissions

I. The appellant contests the decision of the examining division to refuse European patent application No. 00 306 917.6. The reasons for the refusal were that the application in the text then on file did not meet the requirements of Articles 123(2) and 84 EPC.

II. The prior art document:

D1: EP-A-0 367 458, discussed in the first instance proceedings,

is considered in this decision.

III. According to a communication of the Board dated 25 March 2010 and annexed to summons to oral proceedings, the amended claims filed with the statement of grounds of appeal appeared to contravene Article 123(2) EPC. In reply to this communication, the appellant filed, with a letter dated 5 May 2010, sets of claims according to a main request and an auxiliary request and an amended page 2 of the description.

IV. With a communication faxed on 10 June 2010, the Board informed the appellant that the set of claims according to the main request would probably be considered as acceptable if the independent claims 1 and 13 of the main request were brought into the correct two-part form and their wording clarified, and if the new page 2 of the description was brought into conformity with original page 2.

V. With a letter faxed on 14 June 2010, the appellant filed a set of claims according to a second auxiliary request and an amended page 2 of the description.

VI. The appellant did not attend the oral proceedings before the Board held on 16 June 2010.

VII. Independent claims 1 and 13 of the set of claims according to the main request filed with the letter dated 5 May 2010 read as follows:

"1. An automatic predistortion system including

- a first circuit (108);

- at least one processing circuit (130A-130H) having at least one input and at least one output, the processing circuit being coupled to the first circuit (108);

- and a scanning circuit (138-150) coupled to the at least one processing circuit (130A-130H) and the first circuit (108), which scanning circuit is adapted to scan signals appearing at the at least one output of the at least one processing circuit (130A-130H) to obtain information and use that information to modify distortion produced by the first circuit (108), which modified distortion is applied to the at least one input of the at least one processing circuit (130A-130H) so as to substantially reduce the distortion produced by the at least one processing circuit (130A-130H)

characterized in that said scanning circuit (138-150) includes

- a first sweep receiver (146) adapted to scan signals applied to the automatic predistortion system,

- a second sweep receiver (138) adapted to scan a side band of signals appearing at the at least one output of the at least one processing circuit (130A-130H),

- a signal detector circuit (150), coupled to an output of said first sweep receiver (146), and adapted to detect said signals applied to the automatic predistortion system,

- and a timer integrator circuit (142), an input of which is coupled to an output of said second sweep receiver (138), an output of which is delivering said information,

- a sweeping oscillator (144) coupled to the first (146) and second (138) sweep receivers, to said signal detector (150) and said timer integrator (142)."

"13. A method for substantially reducing distortion produced by a processing circuit (130A-130H) that is part of a predistortion system comprising a first circuit (108) and a scanning circuit (138-150) both of which are coupled to the processing circuit, the method including the steps of:

- isolating distortion produced by the first circuit (108);

- modifying the isolated distortion based on information from the scanning circuit (138-150) and applying the modified isolated distortion to the processing circuit

(130A-130H), said information from the scanning circuit being obtained by means of said scanning circuit scanning signals appearing at the at least one output of the at least one processing circuit (130A-130H)

characterized in that said method further includes the steps of

- scanning signals applied to the automatic predistortion system by means of a first sweep receiver (146) comprised in said scanning circuit (138-150),

- scanning a side band of signals appearing at the at least one output of the at least one processing circuit (130A-130H), by means of a second sweep receiver (138) comprised in said scanning circuit (138-150), via the coupling of a sweeping oscillator (144) to the first (146) and second (138) sweep receivers, to a timer integrator (142) and to a signal detector (150) for

- detecting said signals applied to the automatic predistortion system, said signal detector circuit (150) being further coupled to an output of said first sweep receiver (146), and delivering said information by means of said timer integrator circuit (142), an input of which is coupled to an output of said second sweep receiver (138)."

Claims 2 to 12 and claims 14, 15 of the set of claims according to the main request are dependent on claims 1 and 13, respectively.

VIII. Independent claims 1 and 13 of the set of claims according to the auxiliary request filed with the letter

dated 5 May 2010 are identical with independent claims 1 and 13 of the main request, respectively.

IX. Independent claim 11 of the set of claims according to the second auxiliary request filed with the letter faxed on 14 June 2010 reads as follows:

"A method for substantially reducing distortion produced by a processing circuit (130A-130H) that is part of an automatic predistortion system comprising a first circuit (108) and a scanning circuit (138-150) both of which are coupled to the processing circuit, the method including the steps of:

- isolating distortion produced by the first circuit (108);

- modifying the isolated distortion based on information comprising distortion produced by the processing circuit (130A-130H) provided by the scanning circuit (138-150) and applying the modified isolated distortion to the processing circuit (130A-130H), said information from the scanning circuit being obtained by means of said scanning circuit including a sweeping oscillator (144) and scanning signals appearing at the at least one output of the at least one processing circuit (130A-130H)

characterized in that said method further includes the steps of

- scanning signals applied to the automatic predistortion system by means of a first sweep receiver (146) coupled to said sweeping isolator (144) and comprised in said scanning circuit (138-150),

- scanning a side band, spectrally located outside the bandwidth of the signals applied to the automatic predistortion system, of signals appearing at the at least one output of the at least one processing circuit (130A-130H), by means of a second sweep receiver (138) comprised in said scanning circuit (138-150), and coupled to said sweeping oscillator (144) and to a signal detector (150) for

- detecting said signals applied to the automatic predistortion system, said signal detector circuit (150) being further coupled to an output of said first sweep receiver (146), and to an input of a timer integrator circuit (142), an input of which is coupled to an output of said second sweep receiver (138), an output of which is delivering said information."

X. The appellant (applicant) requested in writing that the decision under appeal be set aside and that a patent be granted on the basis of claims 1 to 15 of the main request filed with letter dated 5 May 2010, or if that was not possible on the basis of claims 1 to 15 of the auxiliary request filed with letter dated 5 May 2010 or claims 1 to 12 of the second auxiliary request filed with letter dated 14 June 2010.

XI. The appellant essentially argued as follows:

Basis for claim 1 of the main request could be found in original claim 1, original claim 10 identifying the sweep receivers, original claim 12 identifying the signal detector and time integrator circuits, original

claim 14 identifying the couplings and functioning of the signal detector circuit, and in figure 1.

The feature "information about distortion produced by the at least one processing circuit" had been removed from claim 1 since this feature was part of original claim 5. This feature was not necessary to explain the structure and the functioning of the scanning circuit. The other amendments made to claim 1 were based upon the objections raised by the Board. Similar considerations applied to independent method claim 13.

Independent system claim 1 and method claim 11 of the second auxiliary request were amended to remedy the objections raised in the communication of 10 June 2010. The sweeping oscillator was now specified in the pre-characterising part of claims 1 and 11. The unclear terms "information" and "side band of the signals" had been clarified by the incorporation of the features of claims 5 and 10.

There was no need to include further details with respect to the functioning of the timer integrator and the signal detector because both terms were sufficiently clear for a person skilled in the art and the interconnections were very clearly set out.

Reasons for the Decision

1. The appeal is admissible.

Main request and auxiliary request filed with letter of 5 May 2010

2. Claim 1 of the main request contains subject-matter which extends beyond the content of the application as originally filed and contravenes Article 123(2) EPC.

2.1 Claim 1 of the main request differs from the combination of the features comprised in claims 1, 10, 12 and 14 of the application as originally filed, *inter alia*, in that it no longer contains the terms "about distortion produced by the at least one processing circuit", which, in originally filed claim 1, qualified the information obtained by scanning the signals appearing at the at least one output of the at least one processing circuit.

2.2 The function of the time integrator circuit 142 is not specified in claim 1. The information delivered by the time integrator circuit 142 coupled to a second sweep receiver 138 which scans a side band of signals appearing at the at least one output of the at least one processing circuit thus does not necessarily relate to distortion produced by the at least one processing circuit. Nor are the terms deleted in claim 1 implied by the additional features which are contained in dependent claim 5 as originally filed.

2.3 Moreover, the description (page 5, lines 23 to 26; page 6, lines 2 to 4 and line 27; page 7, lines 9 to 12; page 8, lines 1 to 4) of the application as originally filed with reference to figures 2B to 2D only supports a scanning circuit 138-150 which is adapted to obtain information "about the distortion produced by the at least one processing circuit". Therefore, the deletion

of these terms in claim 1 of the main request adds subject-matter which extends beyond the content of the originally filed application.

3. Claim 1 does not meet the requirements of Rule 43(1) EPC because it is not brought in the correct two-part form. Document D1 which is acknowledged in an amended page 1 of the description, which was filed with the statement of grounds of appeal, forms the closest prior art. In D1, the voltage controlled oscillator (VCO) 152 is controlled by the converter 220 of the controller 150 to perform a scanning operation from the low end to the high end of a prescribed frequency range (figures 1 and 2; column 5, lines 8 to 12; column 6, lines 19 to 22). Therefore, the voltage controlled oscillator comprised in the automatic predistortion system disclosed in D1 is a sweeping oscillator and the mention of the sweeping oscillator 144 in the characterising portion of claim 1 is incorrect.

4. Claims 1 of the main and auxiliary requests filed with the letter dated 5 May 2010 are identical. In view of the foregoing, these main and auxiliary requests have to be rejected.

Second auxiliary request

5. Independent claim 11 of the second auxiliary request relates to a method which differs from the method disclosed in originally filed claims 15 and 16 taken in combination at least in that it comprises an added feature according to which a second sweep receiver 138 is coupled to a signal detector 150. This added feature is not disclosed in the application as originally filed

as this appears more specifically from figure 1 and from the detailed description of the scanning circuit of the invention. Accordingly, claim 11 of the second auxiliary request contravenes Article 123(2) EPC.

6. Since the application amended according to the main, auxiliary and second auxiliary requests on file does not meet the requirements of the EPC, the appeal has to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

A. Wolinski M. Ruggiu