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**Datasheet for the decision
of 16 July 2007**

Case Number: T 1417/06 - 3.5.03

Application Number: 96303621.5

Publication Number: 0746133

IPC: H04M 9/08

Language of the proceedings: EN

Title of invention:

Multistage echo canceller including time variation
compensation

Applicant:

AT&T Corp.

Opponent:

-

Headword:

Multistage echo canceller/AT&T

Relevant legal provisions:

EPC Art. 84

Keyword:

"clarity (no)"

Decisions cited:

-

Catchword:

-



Case Number: T 1417/06 - 3.5.03

D E C I S I O N
of the Technical Board of Appeal 3.5.03
of 16 July 2007

Appellant: AT&T Corp.
32 Avenue of the Americas
New York, NY 10013-2412 (US)

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

Decision under appeal: Decision of the examining division of the
European Patent Office posted 28 February 2006
refusing European application No. 96303621.5
pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: A. S. Clelland
Members: F. van der Voort
R. Moufang

Summary of Facts and Submissions

- I. This appeal is against the decision of the examining division refusing European patent application No. 96303621.5 (publication number EP 0 746 133 A).
- II. With the statement of grounds of appeal the appellant filed a new set of claims by way of replacement of the previous claims on file and implicitly requested that the impugned decision be set aside and a patent be granted on the basis of the new set of claims.
- III. In a communication pursuant to Article 110(2) EPC the board raised, without prejudice to the board's final decision, objections under Article 84 EPC as follows:
- "5. Article 84 EPC
- 5.1 There appears to be an inconsistency between claims 2 and 3 on the one hand and claim 1 on the other hand.
- 5.2 More specifically, claim 1, line 8, specifies "dynamically adjustable delay means (103, 201, 202)". The delay 201 illustrated in Fig. 2 appears to be an example of this dynamically adjustable delay means, see also col. 6, lines 25 and 39 to 41 of the description as published.
- 5.3 Claims 2 and 3, however, each refer to a "fixed delay", of which the delay 103 as shown in Fig. 1 appears to be an example, see col. 4, lines 13 and 14, of the description as published.

5.4 This inconsistency between claims 2 and 3 on the one hand and claim 1 on the other hand renders the claims as a whole unclear. The statements in the description that Fig. 1 shows an embodiment of the invention, see, e.g., col. 3, lines 39 to 43, similarly give rise to an inconsistency between the description and claim 1, thereby rendering the claims unclear.

5.5 Hence, it appears that, in order to meet the requirements of Article 84 EPC, the dependent claims and the description still need to be adapted to present claim 1."

IV. In response to the board's communication, the appellant filed an amended claim 1 and requested that the impugned decision be set aside and that a patent be granted on the basis of claim 1 as filed in response to the board's communication, claims 2 to 15 as filed with the statement of grounds of appeal, and the description pages and drawings on which the impugned decision was based.

V. Claim 1 reads as follows:

"An acoustic echo canceler arrangement comprising:
a receive path (102); and
a transmit path (112); CHARACTERIZED BY:
first echo canceler means (104), connected between the receive path and the transmit path, and having a first impulse response synthesis capability for generating a first error signal and for canceling echo signals in the transmit path;

dynamically adjustable delay means (201, 202), having an input and an output, the input being connected to the receive path for delaying incoming signals on the receive path; and

a single second echo canceler means (106), having an adaptive, second impulse response synthesis capability comparatively shorter than said first impulse response synthesis capability of said first echo canceler means for tracking time variant echo components in the first error signal, connected in series with said delay means and to the transmit path, said series connection of said delay means and said second echo canceler means being connected in parallel with said first echo canceler means between the receive path and the transmit path, said second echo canceler means being supplied with said first error signal and being adaptive to operate simultaneously with, but independent of, said first echo canceler means to cancel time varying echo components in the first error signal in said transmit path;

said delay means providing a delay for positioning the second impulse response synthesis capability of said second echo canceler means in time relative to said first impulse response synthesis capability of said first echo canceler means."

Claim 2 reads as follows:

"An acoustic echo canceler arrangement as defined in claim 1 wherein said delay means includes a fixed delay interval for positioning the adaptive, second impulse response synthesis capability of said second echo canceler means in a predetermined time position

relative the [*sic*] first impulse response synthesis of said first echo canceler means."

Reasons for the Decision

1. *Procedural matters*

1.1 The present decision is based on objections under Article 84 EPC which had already been raised in the board's communication. The appellant had the opportunity to present its comments on these objections; it filed a response and an amended claim 1.

1.2 However, claim 1 has only been amended in that a reference sign was deleted ("103" in "dynamically adjustable delay means (103, 201, 202)") and in that "but independent of" was put between commas. The second amendment does not have any bearing on the clarity objection raised and neither did the appellant argue the contrary, whilst the first amendment does not overcome the clarity objections raised in the communication, since the reasoning given therein applies in unamended form to present claim 1, see also point 2 below.

1.3 Under these circumstances, the requirements of Article 113(1) EPC are met and the board is in a position to give a decision.

2. *Article 84 EPC - clarity*

2.1 Claim 1 specifies dynamically adjustable delay means, in which the delay means provides a delay for

positioning the second impulse response synthesis capability of the second echo canceller means in time relative to the first impulse response synthesis capability of the first echo canceller means.

Claim 2, which is dependent on claim 1, specifies that the delay means includes a fixed delay interval for positioning the adaptive, second impulse response synthesis capability of the second echo canceller means in a predetermined time position relative to the first impulse response synthesis of the first echo canceller means.

The board interprets these claims such that according to claim 1 the delay is dynamically adjustable, whilst according to claim 2 the delay is fixed. Therefore, as indicated in the board's communication, there is an inconsistency between claims 1 and 2.

2.2 In the board's view, in order to comply with the requirements of Article 84 EPC, the claims should be clear in themselves, i.e. an addressee should be able to understand the claims without the need for him to refer to the description, since in accordance with Article 84 EPC the claims, rather than the combination of the claims and the description, shall define the matter for which protection is sought. In the present case, due to the above-mentioned inconsistency, the claims are not clear.

2.3 Even if, for the sake of argument, the description were taken into account in an attempt to resolve the above-mentioned inconsistency, the board notes that in the description a clear and consistent distinction is made

between embodiments which include a fixed delay and those including a dynamically adjustable delay, see, e.g., col. 2, line 57, to col. 3, line 11, of the application as published:

"This is realized by placing a "short" fixed delay in series with the receive path signal to the second echo canceler.

In other applications, the time varying component of the echo path impulse response still exists in a relatively short time interval, but the time varying component relative to the overall echo path impulse response may change with time or may not be known a priori. Under these circumstances, it is desirable to dynamically align the coefficients of the second echo canceler over the echo path impulse response. This is realized by employing a dynamically adjustable delay in series with the receive path to the second echo canceler.";

col. 3, lines 39 to 48:

"FIG. 1 shows, in simplified block diagram form, details of an audio system including first and second echo cancelers in one embodiment of the invention employing a fixed delay in series with the second echo canceler;

FIG. 2 shows, in simplified block diagram form, details of an audio system including first and second echo cancelers in an embodiment of the invention employing a dynamically adjustable delay in series with the second echo canceler;"

and Figs 1 and 2 ("fixed delay" and "adjustable delay", respectively).

The board also notes that the claims as originally filed were drafted accordingly in that claim 1 referred to "delay means" in general, whereas claims 2 and 7, each of which referring back to claim 1 only, referred to a fixed delay and a controllably adjustable delay, respectively.

Hence, both the present description, which includes the above originally disclosed passages, and the claims as originally filed make a clear distinction between adjustable and fixed delays and provide no basis for an interpretation in which, for example, both delays are present simultaneously.

2.4 As mentioned in the board's communication, a further lack of clarity results from the fact that the description includes statements according to which Fig. 1 shows an embodiment of the invention, which, following the above interpretation, is inconsistent with claim 1, see, e.g., the passage at col. 3, lines 39 to 43 (see point 2.3). More specifically, whilst claim 1 refers to the employment of a dynamically adjustable delay, which is in accordance with the embodiment of Fig. 2, cf. col. 3, lines 44 to 46, and col. 6, lines 22 to 29, the embodiment of Fig. 1 does not and uses a fixed delay instead, cf. col. 4, lines 3 to 10.

2.5 The appellant's argument submitted in response to the board's communication that the deletion of reference sign 103 in claim 1 served to clarify the claims is not

convincing, since the above-mentioned inconsistency between claims 1 and 2 due to the expressions "dynamically adjustable delay" and "fixed delay" and the inconsistency between the description and claim 1 as referred to above are not affected.

2.6 The above-mentioned inconsistencies render the claims as a whole unclear, so that they do not meet the requirements of Article 84 EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

D. Magliano

A. S. Clelland