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# Datasheet for the decision of 26 November 2007

**Case Number:** T 0030/06 - 3.5.03

**Application Number:** 01400956.7

**Publication Number:** 1249942

**IPC:** H04B 1/12

**Language of the proceedings:** EN

**Title of invention:**
Ingress noise reduction in a digital receiver

**Applicant:**
Juniper Networks, Inc.

**Opponent:**
-

**Headword:**
Ingress noise reduction/JUNIPER

**Relevant legal provisions:**
EPC Art. 109(1), 111(1)

**Keyword:**
"Interlocutory revision - appropriate"
"Remittal - yes"

**Decisions cited:**
-

**Catchword:**
-

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**Case Number:** T 0030/06 - 3.5.03

# D E C I S I O N
**of the Technical Board of Appeal 3.5.03**
**of 26 November 2007**

**Appellant:** Juniper Networks, Inc.
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**Representative:** Joly, Jean-Jacques
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**Decision under appeal:** **Decision of the examining division of the European Patent Office posted 13 June 2005 refusing European application No. 01400956.7 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. 01400956.7 (publication number EP 1 249 942 A) on the ground that the subject-matter of independent claims 1 and 12 of both a main and an auxiliary request lacked an inventive step (Article 56 EPC) having regard to the disclosure of:

D1: US 5 453 797 A.

II. With the statement of grounds of appeal the appellant filed an amended set of claims to replace the claims of the main request. The appellant requested that the impugned decision be set aside and that the examination of the application be resumed, and particularly argued that taking into account the amendments made and the arguments presented in support of the amended claims the requirements for interlocutory revision were met.

III. The examining division however did not rectify their decision and, hence, referred the appeal to the boards of appeal pursuant to Article 109(2) EPC.

IV. The amended set of claims filed with the statement of grounds of appeal includes two independent claims, claims 1 and 10.

Claim 1 reads as follows:

"A device (Dl) for reducing noise in digital data, comprising:

a linear noise predictor (210) configured to predict an amount of predicted noise ($\hat{u}_n$) in the digital data using coefficients;

a first subtractor (21) configured to subtract the amount of predicted noise ($\hat{u}_n$) from a sample ($s_n$) of the digital data to produce subtracted data ($s_n - \hat{u}_n$),

characterized in that the sample ($s_n$) comprises a useful data sample ($x_n$) and an actual noise sample ($u_n$) and in that said device further comprises

a decision circuit (23) configured to compare the subtracted data ($s_n - \hat{u}_n$) with a set of predetermined thresholds to produce a decided symbol ($d_n$) representative of the useful data sample ($x_n$) in the sample ($s_n$);

a second subtractor (22) configured to subtract the decided symbol ($d_n$) from the sample ($s_n$) to produce the actual noise sample ($u_n$);

a storage unit (200) configured to receive and store past actual noise samples ($u_{n-i}$) from the second subtractor (22), wherein $i$ designates past sample cycles; and

an adaptation circuit (24) configured to minimize the mean square error ($|\hat{u}_n - u_n|^2$) of the actual noise sample ($u_n$) subtracted from the predicted noise ($\hat{u}_n$) when determining the coefficients of the linear noise predictor (210)."

Claim 10 reads as follows:

"A method for reducing noise in digital data comprising the steps of:

predicting an amount of predicted noise ($\hat{u}_n$) in the digital data; and

subtracting the amount of predicted noise ($\hat{u}_n$) from a sample ($s_n$) of the digital data to produce subtracted data ($s_n - \hat{u}_n$),

characterized in that the sample ($s_n$) comprises a useful data sample ($x_n$) and an actual noise sample ($u_n$) and in that said method further comprises the steps of:

comparing the subtracted data ($s_n - \hat{u}_n$) with a set of predetermined thresholds to produce a decided symbol ($d_n$) representative of the useful data ($x_n$) in the sample ($s_n$);

subtracting the decided symbol ($d_n$) from the sample ($s_n$) to produce the actual noise sample ($u_n$);

storing past actual noise samples ($u_{n-i}$), wherein $i$ designates a past sample cycle; and

minimizing the mean square error ($|\hat{u}_n - u_n|^2$) of the actual noise sample ($u_n$) subtracted from the predicted noise ($\hat{u}_n$) when determining predictor coefficients used in predicting the amount *[sic]* predicted noise ($\hat{u}_n$)."

## Reasons for the Decision

1. The appeal meets the requirements referred to in Rule 65(1) EPC and is therefore admissible.

2. *Amendments*

2.1 Independent claim 1 corresponds to a combination of the features of claims 1 to 3 of the main request as referred to in the impugned decision, in which a further feature has been added from the description (see paragraphs [0072] and [0074] of the application as published).

In particular, the following three features have been added to claim 1 of the main request decided on by the examining division, respectively taken from claim 2, claim 3, and the description:

"a second subtractor (22) configured to subtract the decided symbol ($d_n$) from the sample ($s_n$) to produce the actual noise sample ($u_n$);

a storage unit (200) configured to receive and store past actual noise samples ($u_{n-i}$) from the second subtractor (22), wherein $i$ designates past sample cycles; and

an adaptation circuit (24) configured to minimize the mean square error ($|\hat{u}_n - u_n|^2$) of the actual noise sample ($u_n$) subtracted from the predicted noise ($\hat{u}_n$) when determining the coefficients of the linear noise predictor (210)"

2.2 Independent claim 10 corresponds to a combination of the features of claims 12 to 14 of the main request as referred to in the impugned decision, in which a further feature has been added from the description, paragraphs [0072] and [0074].

In particular, the following three features have been added to claim 12 of the main request decided on by the examining division, respectively taken from claim 13, claim 14, and the description:

"subtracting the decided symbol ($d_n$) from the sample ($s_n$) to produce the actual noise sample ($u_n$);

storing past actual noise samples ($u_{n-i}$), wherein $i$ designates a past sample cycle; and

minimizing the mean square error ($|\hat{u}_n - u_n|^2$) of the actual noise sample ($u_n$) subtracted from the predicted noise ($\hat{u}_n$) when determining predictor coefficients used in predicting the amount *[sic]* predicted noise ($\hat{u}_n$)"

3. *Interlocutory revision*

3.1 Pursuant to Article 109(1) EPC, if the department whose decision is contested considers the appeal to be admissible and well founded, it shall rectify its decision.

3.2 In the present case, the examining division did not discuss in the impugned decision the question of whether or not the subject-matter of a claim based on claim 1 of the main request and further including the above-mentioned additional features would involve an inventive step. Nor was this combination of features, in particular the feature relating to the minimization of the mean square error, discussed in any of the three communications which preceded the refusal. Hence, it is unclear whether or not the subject-matter of present claim 1 has been sufficiently investigated by the examining division. Further, since the feature relating to the minimization of the mean square error was taken from the description, this raises the question of whether or not this feature was covered by the search. The above considerations apply *mutatis mutandis* to the subject-matter of present claim 10.

3.3 Consequently, the impugned decision can no longer be seen as applicable to the application in its present form. The decision must therefore be set aside. The

appeal thus being admissible and well-founded, the examining division should have rectified its decision pursuant to Article 109(1) EPC.

4. *Remittal*

4.1 In order to be able to examine an appeal, the board must be in a position to assess on the basis of the reasoning given in the impugned decision whether the conclusion drawn by the department of first instance was justified or not. In the present case, in the absence of an adequate reasoning concerning the subject-matter of present claim 1 or 10, see point 3.2 above, this requirement is not met. In effect, the amendments filed with the statement of grounds of appeal have created a "fresh case" which has not yet, at least not noticeably, been examined by the department of first instance. The board considers it therefore appropriate to remit the case pursuant to Article 111(1) EPC to the department of first instance for further prosecution. This will also give the applicant/appellant the opportunity to argue its case before two instances, if necessary.

4.2 In relation to the further prosecution, the board notes that it may be necessary to clarify whether or not the appellant maintains the auxiliary request referred to in the impugned decision. Further, the board notes, in accordance with the established case law, that in order for a decision to be reasoned (Rule 68(2) EPC), it must expressly set out the logical chain of argument which justifies the tenor. In case of an assessment of inventive step, this would normally require that the "problem-and-solution approach" is applied, which also serves the purpose of making the assessment in an

objective and comprehensible manner, see the Guidelines C-IV, 9.8, and 9.8.1 to 9.8.3 (June 2005 edition).

## 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 for further prosecution.

The Registrar: The Chairman:

D. Magliano A. S. Clelland