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**D E C I S I O N**  
**of 13 September 2001**

**Case Number:** T 0868/99 - 3.5.1

**Application Number:** 89109639.8

**Publication Number:** 0344678

**IPC:** H04L 27/04, H04L 25/03

**Language of the proceedings:** EN

**Title of invention:**

Modulating device for a digital radio communications system

**Patentee:**

NEC CORPORATION

**Opponent:**

Siemens AG

**Headword:**

Modulating device/NEC

**Relevant legal provisions:**

EPC Art. 104(1), 111(1), 114(2)

**Keyword:**

"Late-filed document-allowed"  
"Remittal to first instance - yes"  
"Opportunement of costs - no"

**Decisions cited:**

T 0633/97

**Catchword:**

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Case Number: T 0868/99 - 3.5.1

**D E C I S I O N**  
**of the Technical Board of Appeal 3.5.1**  
**of 13 September 2001**

**Appellant:** Siemens AG  
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**Representative:** Heusler, Wolfgang, Dipl.-Ing.  
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**Respondent:** NEC CORPORATION  
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Tokyo (JP)

**Representative:** VOSSIUS & PARTNER  
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**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office posted 1 July 1999  
rejecting the opposition filed against European  
patent No. 0 344 678 pursuant to Article 102(2)  
EPC.

**Composition of the Board:**

**Chairman:** S. V. Steinbrener  
**Members:** R. Randes  
S. C. Perryman

## Summary of Facts and Submissions

- I. This appeal is against the decision of the Opposition Division rejecting the opposition against the European patent No. 0 344 678.

The Opposition Division came to the conclusion that the prior art disclosed in documents D1 to D11, cited before the Opposition Division, could not affect the inventive step of the invention. Claim 1 as granted and upheld by the Opposition Division reads as follows:

"A modulating device comprising two digital-to-analog converters (12a, 12b), two filters (22a, 22b) and a quadrature modulator (16) for producing a quadrature amplitude modulated wave in response to the multi-level signals P and Q;

**characterized in that** the two filters are each comprised of digital filters (22a, 22b) each for digitally processing input parallel n-bit data streams which include m (integer equal to or smaller than n) data signals to thereby produce G (larger than m) data signal streams;

the two digital-to-analog converters (12a, 12b) are each associated with a respective one of said two digital filters (22a, 22b) and, in response to outputs of said associated digital filters, individually produce multi-level signals P and Q; and

said digital filters (22a, 22b) each comprise n-bit shift registers (SR), a group of multipliers (MX) each for multiplying B (equal to or larger than m) data

streams by a weighting coefficient each having A (larger than m) bits, and an adder (ADD) for adding outputs of said multipliers (MX) or outputs of said shift registers (SR) to produce the G data signal streams."

In its reasoning, starting from document D3 (US-A-4 404 532) considered as closest prior art, the Opposition Division stated that in order to arrive at the subject-matter defined in claim 1 of the opposed patent the skilled person would have to consider modifying the structure of the device known from D3 in the following way, thus performing 4 different steps:

- (a) use digital filtering instead of analog filtering,
- (b) associate two D/A converters with the respective digital filters in order to produce multi-level signals P and Q in response to outputs of the associated digital filters,
- (c) use filters of the type comprising n-bit shift registers, a group of multipliers each multiplying B data streams by a weighting coefficient each having A bits, and an adder for adding outputs of said multipliers or outputs of said registers to produce the G data signal streams,
- (d) use filters for digitally processing input parallel n-bit data streams which include m data signals streams.

The Opposition Division concluded that it would not be obvious for the skilled person to perform all these

four steps.

- II. The Appellants (Opponents) requested that the contested decision be set aside and the patent revoked, arguing in the grounds of appeal that the subject matter of claim 1 did not involve an inventive step. The Respondents in turn requested the dismissal of the appeal. The Appellants in a second letter, in addition to the documents already cited in the proceedings, cited document D12 (NTG-Fachberichte, 1980, pp. 81 to 88) which was said to be referred to in D1.

Both parties auxiliarily requested oral proceedings.

- III. In a communication annexed to a summons to oral proceedings the Board expressed the preliminary opinion that document D12 did not appear to be more relevant than the documents already in the proceedings.

- IV. Both parties responded within the given time limit, at least one month before the oral proceedings, to the communication from the Board. The **Respondents** also **filed** a new document **D13** (the paper "A New Way of Generating the Nyquist Spectral Shaped High-Speed and Multilevel Digital Signals", the Society of Electronic Communication Engineers of Japan, Vol. J67-B, No. 3, March 1984, pp. 265 to 272), which was written in Japanese; however, the Appellants had provided a translation into English of a couple of paragraphs on page 268 of that document. D13 was filed to demonstrate that the use of a plurality of one-bit input transversal filters (BTFs) proposed in this prior art makes the filter circuitry complicated and the filter gets large when the number of levels is high. The object of the present invention was according to the

Respondents therefore not achievable with a digital filter implemented by a plurality of BTFs.

V. In a FAX received on 10 September 2001, three days before the oral proceedings, the **Appellants filed** a new document **D14** (B. Bacetti und M. Salerno: "NEW-GENERATION MODEMS FOR HIGH CAPACITY QAM RADIO SYSTEMS", European Conference on Radio-Relay Systems ECRR, November 1986, München, pp. 344 to 351). They referred to point 3 in D14, "Channel Shaping", pages 346 and 347, and pointed out that Figure 2 disclosed a FIR-circuitry, which was made up of BTFs. It was said to be obvious for a skilled person, having regard to this prior art, to use a conventional multibit transversal filter instead of a plurality of BTFs having only single bit inputs and so arrive at the invention.

VI. Oral proceedings were held before the Board on 13 September 2001.

1. **The Appellants (Opponents) requested** that document **D14 be admitted** into the proceedings, the decision under appeal be set aside and that the European patent No. 0 344 678 be revoked, or as first auxiliary request that the oral proceedings before the Board be adjourned to a later date or as second auxiliary request that the matter be remitted to the first instance for further prosecution, and in any event that the respondent's request for an **apportionment of costs be refused**.

2. **The Respondents (Patentees) requested** that document **D14 not be admitted** into the proceedings

and as main request that the appeal be dismissed, or that the decision under appeal be set aside and the patent be maintained as first auxiliary request on the basis of the first auxiliary request submitted on 8 August 2001 or as second auxiliary request on the basis of second auxiliary request submitted on 30 October 1998, or if document **D 14** be admitted into the proceedings that the oral proceedings before the Board be adjourned to a later date or that the case be remitted to the first instance for further prosecution and in either case that **there be an apportionment of costs** of the oral proceedings before the Board on 13 September 2001 in favour of the Respondents.

3. The Respondents argued that late filed documents should only very exceptionally be admitted into the proceedings, even if they were prima facie highly relevant. In the present case D14 appeared not to be more relevant than the prior art documents already filed in the course of the proceedings before the Opposition Division and the Board, in particular document D13. Moreover, the filters disclosed therein had apparently exactly the disadvantages which were discussed in the introductory part of the present patent having regard to the possibility to make up multibit filters of BTFs.

However, the Respondents had not had the possibility to analyse the new document in detail, since this was received only three days before the oral proceedings. Although, the inventor of the invention was present at the oral proceedings,

there had not been any opportunity to discuss and analyse the new situation with the patent Proprietors in Japan. The Representative of the Respondents therefore could not make a final statement about the new prior art and neither had he the authorisation for example to file amendments to the claims.

Moreover, the Respondents pointed out that, would the Board at the end come to the result that D14 was relevant and that it should be accepted, then an apportionment of costs would be appropriate. The Respondents could for example have asked for a postponement of the oral proceedings, if the new document had been cited at an earlier date. Since the document was filed only three days before oral proceedings, the Patentees had not even had the opportunity to stop the travel of the inventor and a patent agent from the Patentee's office in Japan. Also, it was apparent that the costs in the future proceedings could, because of the new document, amount to a very high level. This was especially true if oral proceedings were again necessary in case of remittal to the first instance and also before the Board in further appeal proceedings.

4. The Appellants argued that while it was true that they had filed document D14 at a late stage, they had only come across the new document at that late stage. However, it had nevertheless been filed before the oral proceedings. Moreover, it had been filed in response to document D13 which had been late filed by the Respondents and appeared to disclose the technology in the filter field



concerned in a similar way to D13. Since D13 was written in Japanese and only a short part of it was translated into English, it was not a good basis for understanding the technology concerned. The Appellants were convinced that the teaching of D14 destroyed, if not novelty, then in any way the inventive step of the invention.

The request for apportionment of costs should be refused, because already the late filing of document D13 by the Respondents caused problems in preventing full discussion at the oral proceedings. It had not been possible to translate the document in time before the oral proceedings, although it might well be that parts of D13 could support the case of the Appellants, or even destroy novelty, and even the Respondents were relying on D13 as closer prior art than anything considered by the Opposition Division.

VII. At the end of oral proceedings, the decision of the Board was announced.

### **Reasons for the Decision**

1. The appeal complies with the provision mentioned in Rule 65 EPC and is therefore admissible.
2. Pursuant to Article 114(2) EPC, the Board may disregard evidence which is not submitted in due time by the parties concerned. In the present case, document D13 (and an English translation of a minor portion thereof) was submitted by the Respondents on 8 August 2001, and document D14 (written in English) was submitted by the

Appellants on 10 September 2001, ie both documents were filed at a very late stage of the appeal proceedings, the latter even after expiry of the one month time limit set by the Board in the communication annexed to the summons to oral proceedings.

Although in the Board's view the filing of new evidence shortly before oral proceedings should be avoided as much as possible for obvious reasons, in exercising its discretion having regard to admittance of late filed documents the Board has to take account of the specific facts of the case under consideration, in particular of the complexity of the new subject matter submitted, the current state of the proceedings, and the need for procedural economy (see, for example, decision T 633/97, not published in OJ EPO). In the present case, it appears to the Board that the content of both documents - insofar as it was available in the English language - could be understood and assessed by a skilled person in the time remaining before the oral proceedings. This has not been contested by the Appellants, who have not requested that D13 be disregarded. The Respondents for their part conceded at the oral proceedings that document D14 discloses a solution similar to that of document D13. Furthermore, the late filing of D14 may be considered to be a response to the late filing of document D13 with a view to providing more easily accessible analogous prior art. This would suggest that document D14 should be admitted into the proceedings if document D13 is to be admitted. Hence, under these circumstances both late-filed documents may exceptionally be admitted into the proceedings.

D13 has been introduced into the proceedings by the

Respondents in order to support their case. As far as can be understood in view of partial translation this document relates to filter technology mentioned in the introductory part of the patent and appears to disclose a filter arrangement which could be seen as an alternative to the one of the present invention. While the Respondents suggest that this alternative is not as good as the invention, the Appellants are of the opinion that D13 discloses almost an equivalent to the claimed device. It appears to the Board at first sight that D13 is potentially highly relevant.

Having regard to document **D14** the Board considers the teaching of this document to be even more relevant than the teaching of D13, as also suggested by the Appellants. This is because the BTFs according to D14 (Figure 2) are not restricted to the use of PROMs as is the case in D13. It appears that also a PROM could have the function of a multiplier (look-up tables) but this possibility has not been clearly disclosed, at least not in the translated paragraphs of D13. Also, as was pointed out by the Appellants, the modulating device in the arrangement disclosed in D14 could, in similarity to the one of the invention, be used with a 64 QAM system. Thus, it appears to the Board that D14 must be considered as a highly relevant document.

3. Certainly it seems likely that either of documents D13 or D14 is closer prior art than document D3 considered as such by the Opposition Division in its decision. Of the four steps (a), (b), (c), (d) considered necessary by the Opposition Division to reach the claimed invention (see point I. above), it seems that at least steps (a) and (b) would not be necessary starting from either document D13 and D14. This potentially could

lead to the question of inventive step being seen differently; certainly some different issues will need to be considered in assessing obviousness over the newly cited prior art.

The submission of the prima facie highly relevant documents D13 and D14 has substantially changed the case to be considered. The prime function of the appeal procedure inter partes is to give the losing party the possibility of challenging the decision of the Opposition Division on its merits (see G 10/91, OJ EPO 1993, 420), and not normally for the Board of Appeal to consider a new case as sole instance. In the present circumstances the Board thus considers it appropriate to exercise its discretion by remitting the case to the Opposition Division pursuant to Article 111(2) EPC which is in accordance with the auxiliary requests for remittal of both parties.

4. While it is true that documents filed at such a late stage as D14 should in principle not be accepted into the proceedings, as has been pointed out above (see point 2), each case of a late filing must however be considered in its own specific circumstances. In the present case the Respondents also filed a very relevant document (D13) at a very late stage. Moreover, only a small part of this document was translated to an official language of the EPO.

Both parties have thus contributed to it not being expedient for all the issues necessary for giving a final decision in the case from being dealt with at the oral proceedings on 13 September 2001 before the Board. In these circumstances, the Board does not consider that there are reasons of equity for ordering an

apportionment of the costs relating to these oral proceedings different from the normal situation before the EPO that each party must itself pay the costs it has incurred.

## **Order**

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

1. The decision under appeal is set aside.
2. Document D14 is admitted into the proceedings.
3. The matter is remitted to the first instance for further prosecution.
4. The request for an apportionment of costs of the oral proceedings on 13 September 2001 is refused.

The Registrar:

The Chairman:

M. Kiehl

S. V. Steinbrener