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Bezeichnung der Erfindung: System for the testing of telephone switching systems
Title of invention:
Titre de l'invention :

Klassifikation / Classification / Classement : H04M 3/24

ENTSCHEIDUNG / DECISION

vom / of / du 8 May 1990

Anmelder / Applicant / Demandeur :

Patentinhaber / Proprietor of the patent / Titulaire du brevet : Redcom Laboratories, Inc.

Einsprechender / Opponent / Opposant : TELENORMA Telefonbau und Normalzeit GmbH
Philips Patentverwaltung GmbH

Stichwort / Headword / Référence :

EPÜ / EPC / CBE Article 56, Article 111(1)

Schlagwort / Keyword / Mot clé : "Main request: inventive step (no)" - "Auxiliary requests: remittal to the first instance"

Leitsatz / Headnote / Sommaire

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Case Number : T 333/88 - 3.5.1

D E C I S I O N
of the Technical Board of Appeal 3.5.1
of 8 May 1990

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Decision under appeal :
Decision of the Opposition Division of the European Patent Office dated 6 April 1988 revoking European patent No. 0 057 682 pursuant to Article 102(1) EPC.

Composition of the Board :

Chairman : P.K.J. van den Berg
Members : W. Riewald
R. Persson

Summary of Facts and Submissions

I. European patent No. 0 057 682, incorporating two independent Claims 1 and 9, Claims 2 to 8 and 12 to 16 appended to Claim 1, and Claims 10 and 11, appended to Claim 9, was granted to the Appellant (Patentee) on 6 February 1985 in response to European patent application No. 81 901 442.4 filed on 1 May 1981 and claiming priority of a US application of 13 August 1980.

The independent Claims 1 and 9 read as follows:

"1. A system for generating calls in order to test telephone switching systems by simulating traffic loads thereon, having a plurality of units each for a group of lines and microprocessor control means characterized in that the calls are made independently in selected sequences which can be synchronous, simultaneous or random and in that the system comprises from one to a given plurality of independent and identical means (14) for originating a plurality of calls each independently and in selected sequence and number on command and applying said calls each to a different calling line of a group of lines of a telephone switching system (12) which is under test, separate first register means (68) in each of said originating means each having an array of memory groups which groups each have a plurality of locations in excess of the number necessary for said commands to enable access for said commands and for different input/output data associated with the testing of each of the lines of said telephone switching system under test, said microprocessor control means (16, 32) generating said commands and being connected to said originating means and said register means thereof.

9. A system for generating calls in order to test telephone switching systems by simulating traffic loads thereon, having a plurality of units each for a group of lines and microprocessor control means, characterized in that identical units can be used for originating and terminating calls independently and in selected sequence (synchronous, simultaneous or random) with or without DTMF signalling and with transmission testing compatible with the use of identical units under microprocessor control, and in that the system comprises a plurality of independent and identical line interface means (14) including means for originating a plurality of calls independently and in selected sequence and number on command and applying said calls each to a different calling line of a different group of lines of a telephone switching system (12) which is under test and means for terminating different groups of called lines of said telephone switching system each independently and providing outputs representing ringing and failure to ring thereof, said microprocessor control means (16, 32) being connected to each of said line interface means, and means (20) controlled by said microprocessor means for displaying said outputs to indicate the successful or unsuccessful completion of the originated calls, a plurality of separate DTMF originating and dial tone detecting means (24) each corresponding to a different one of said line interface means for independently and in selected sequence originating and terminating calls to different lines by DTMF signalling, each DTMF originating and dial tone detecting means comprising a plurality of DTMF tone generating means (78) and a plurality of dial tone detecting means (78) each also for a different one of said calling lines, means (26) for testing the transmission of tones through said switching system under test comprising signal tone generating means (48), signal

tone detecting means (52), means (34, 72, 80) responsive to said microprocessor commands for connecting said tone generating means and said tone detecting means selectively to different ones of said calling and called lines to which calls are originated and from which calls are terminated by said originating and terminating means, respectively, and means included in said displaying means (22) for indicating outputs from said tone detecting means as to the successful and unsuccessful transmission of said tone signals under control of said microprocessor means."

II. Notice of opposition was filed by two Opponents on 30 July 1985 and 4 November 1985, respectively:

OI: TELENORMA, Telefon und Normalzeit GmbH, 6000 Frankfurt 1,

OII: Philips Patentverwaltung GmbH, 2000 Hamburg 1.

The Opponents requested revocation of the patent and based their requests on Article 100(a) in combination with Articles 52 to 57 EPC. They challenged, in particular, the inventive step of the subject-matter of independent Claim 1.

In support of their submissions, the Opponents made reference to a plurality of prior art documents.

III. After oral proceedings, held on 1 March 1988, the Opposition Division revoked the patent. The grounds for the revocation were laid down in a written decision dated 6 April 1988, making, in particular, reference to the following prior art documents:

D4: DE-B-1 762 639 = GB-A-1 230 397
D7: DE-B-2 420 773 = US-A-3 952 172

D8: GTE Automatic Electric Technical Journal, Vol. 15, No. 3, July 1976, pages 116 to 123 (cited in column 1, lines 52 to 62 of the opposed patent).

A suggestion, made by the Opposition Division, to submit amendments to Claim 1 or to file a subsidiary request for maintenance of the patent based on independent Claim 9 was not adopted by the Patentee.

IV. On 15 June 1988, the Appellant lodged an appeal against the decision requesting to set aside the decision. The appeal fee was paid on the same day.

A Statement of Grounds was filed on 10 August 1988 more specifically requesting to dismiss the opposition. With letter of 2 September 1988, received on 5 September 1988, the Appellant requested, in addition, to refund the appeal fee since, in his view, the Opposition Division had failed to abide with the Rules and Guidelines as to the citation of document D8 which was not specified in the Notices of Opposition.

The Opponents contested the Appellant's grounds in letters dated 5 December 1988 and 23 December 1988, respectively.

In a communication, dated 29 August 1989, the Rapporteur drew the Appellant's attention to the fact that his submissions dealt, to a considerable extent, with features not claimed in Claim 1 (point 5 of the communication) and expressed the provisional view that the revocation of the patent by the Opposition Division, based on lack of inventive step of the subject-matter of Claim 1, was justified (points 6.1 to 6.4 of the communication). Furthermore, the Rapporteur could not perceive any

substantial procedural violation by the Opposition Division and regarded the request for refund of the appeal fee as likely to be refused.

With letter of 29 September 1989, the Appellant requested oral proceedings.

In a communication dated 29 November 1989 and accompanying the summons for oral proceedings, the Appellant was invited to make any possibly envisaged amendments to the patent documents available to the Board and to the other parties at least one month before the date of the oral proceedings.

V. Oral proceedings were held on 8 May 1990. At the end of the oral proceedings the Appellant requested that the decision under appeal be set aside and that the patent be maintained

- as granted (main request) or

- on the basis of a first set of Claims 1-16 filed in the oral proceedings (first auxiliary request) or

- on the basis of a second set of Claims 1-3 filed in the oral proceedings (second auxiliary request).

The request to refund the appeal fee was not maintained by the Appellant.

The Respondents (Opponents) requested that the auxiliary requests be rejected as inadmissible because of too late filing and that the appeal be dismissed.

VI. Claim 1 of the first auxiliary request reads as follows:

1. A system for generating calls in order to test telephone switching systems by simulating traffic loads thereon, having a plurality of units each for a group of lines and microprocessor control means characterized in that the calls are made independently in selected sequences which can be synchronous, simultaneous or random and in that the system comprises from one to a given plurality of independent and identical means (14) for originating a plurality of calls each independently and in selected sequence and number on command and applying said calls each to a different calling line of a group of lines of a telephone switching system (12) which is under test, separate first register means (68) in each of said originating means each having an array of memory groups which groups each have a plurality of locations in excess of the number necessary for said commands to enable access for said commands and for different input/output data associated with the testing of each of the lines of said telephone switching system under test, said microprocessor control means (16, 32) generating said commands and being connected to said originating means and said register means thereof,

said units further comprising DTMF tone generating means (24, 78), for each of said calling lines, DTMF register means (70) equal in number to the number of said originating means in said system, each having an array of memory groups and locations corresponding to the array of each of said first register means (68),

and means (24) for operating said DTMF generating means for each calling line separately in response to different ones of said DTMF commands.

VII. Claim 1 of the second auxiliary request is identical with Claim 9 of the main request.

VIII. The Appellant's submissions can be summarised as follows:

Starting from a testing system for telephone switching systems according to D8, two main points are considered as essential for the present invention:

- The test calls can be made in synchronous sequences.

- The originating means for the test calls comprise register means for the commands and the input/output data.

D8 is regarded to directly teach away from these suggestions:

Page 116, left-hand column, last paragraph, emphasises a "totally asynchronous" call generation. The reference to calls being generated "concurrently" (in the same passage) can only be understood as meaning calls which overlap each other, whereas "synchronous" means that the calls start at the same instant. The term "simultaneous calls", repeatedly used in the literature (D7-US, column 4, lïnes 23 to 26) can also only be understood in the sense of concurrent calls. The generation of synchronously starting calls is particularly useful in testing CPU-controlled telephone switching systems in which the load peaks for the CPU-load are generated at the moment of picking up a handset. The handling of simultaneous requests to one tone sender, touched upon on page 118 of D8, right-hand column, last paragraph, is handled by utilising a queuing mechanism. This too, teaches away from the concept of generating synchronous calls. Besides, the problem to simulate congestive loads is readily perceived

by the authors of D1 (page 122, right-hand column, third paragraph) but solved in a different way by directing potentially congestive loads toward specific groups of equipment only. This underlines the importance of the synchronous calls suggested by the Appellant but not mentioned in D8.

The incorporation of the register means for the commands and the input/output data in the originating means for the test calls reduces the complexity of the system. The testing system of D8 (see Figure 1) comprises between the microcomputer and memory on the one hand and the call circuit modules on the other hand a specific call circuit module interface, which is not necessary in the claimed system.

Since the test call system is particularly advantageous in connection with DTMF signalling, at least Claim 1 of the first auxiliary request should be allowable.

Claim 1 of the second auxiliary request corresponds to Claim 9 as granted, which was already regarded as allowable by the first instance.

IX. The Opponents' arguments can be summarised as follows:

The totally asynchronous call generation, emphasised in D8, page 116, left-hand column, last paragraph, is, of course, aimed at a traffic simulation as realistic as possible, since normal telephone traffic is a matter of randomly distributed events. Nevertheless, the skilled person knows the problems of handling congestive loads on telephone switching systems with a number of simultaneous calls (D8, page 122, right-hand column, third paragraph; D7-US, column 4, lines 23 to 26). He will, therefore, also

envisage the possibility of accidentally simultaneously starting calls (= synchronous calls) and contingently wish to test the system under such a condition.

In respect of the register means provided for on the test call originating means, attention is drawn to D8, page 121, left-hand column (call generation) from which can be derived that storing means must be provided in the call circuit modules.

Claim 1 of the main request is not distinct enough so as to specify a substantial difference over this prior art. In particular, a further interface as the "call circuit module interface" of D8, Figure 1, is not excluded by the wording of Claim 1. It appears not to be possible to derive more clarifying information in this respect from the description, which might lead to the acknowledgement of an inventive step.

Reasons for the Decision

1. The appeal is admissible.

2. Claim 1 of the main request

2.1 Novelty

D8 discloses a system for generating calls in order to test telephone switching systems by simulating traffic loads thereon (test load generator) according to the precharacterising part of Claim 1. This known system comprises, however, also most of the characterising features of that claim.

Totally asynchronous call generation (page 116, left-hand column, last paragraph) means that the calls are made independently. The sequences are selected by the microprocessor (page 117, section "Microcomputer"). The sequences can be random or simultaneous (in the sense of concurrent).

Independent call circuit modules A, B and C are provided for originating a plurality of calls each independently and in selected sequence and number on command and applying said calls each to a different calling line of a group of lines of a telephone switching system which is under test (pages 117, 118, section "Call Circuit Module").

Read/write addressable control points in the call circuit modules (originating means) enable access for said commands (page 118, item c). Read addressable sense points enable access for different data associated with the testing of the lines of the telephone switching system under test (page 118, item d).

The commands are generated by the microprocessor which is connected (via a "call circuit module interface") to the originating means (call circuit modules including said control and sense points) and register means in the form of a random access memory.

The differences between the subject-matter of Claim 1 according to the main request and this prior art can be specified as follows:

- Whereas D8 emphasises that the call generation is totally asynchronous, Claim 1 specifies also the possibility of a synchronous sequence of calls.

- Whereas D8 speaks of addressable control and sense points allocated in the call circuit modules (= originating means) and discloses random access memory means separately connected to the microprocessor, Claim 1 specifies "register means" allocated in the originating means and providing the plurality of memory locations necessary to enable access for said commands and for the different input/output data.

The subject-matter of Claim 1 can, therefore, be considered as being novel.

2.2 Inventive step

It is clear that a realistic generation of telephone traffic must permit "concurrent" calls which implies an overlap of calls which, however, may start and/or end at different times. The feature that the sequences of calls can be "synchronous" implies that different calls may be at least started simultaneously (cf. Appellant's letter of 10 August 1988, page 8, last sentence and page 12, second paragraph).

The Board is satisfied that the skilled person who realises the importance of congestive loads for testing the capacity and performance of a telephone switching system (D8, page 122, right-hand column, third paragraph) will readily also consider that the simultaneous start of calls cannot be excluded and may entail specific problems. The suggestion to make provisions for testing the system under such an extreme but not unrealistic condition can, therefore, not be considered inventive.

The Appellant submitted the argument that the generation of synchronously starting calls can be used in CPU-controlled switching systems as a means to artificially

increase the load on the CPU without increasing the number of simulated calls. However, this argument must be disregarded because this form of cooperation with a CPU-controlled telephone switching system is not a subject-matter of the claim. On the contrary: the possibility of the synchronous calls is only mentioned in passing as one of the conceivable sequences of calls.

Registers are absolutely common means for temporarily storing commands and data. It is clear that the system of D8 must have such register means.

According to page 121 of D8 (section "Call Generation"), the active circuits are scanned in order to identify and perform the currently scheduled sequential function. The average time for addressing each circuit in a scan cycle of 20 ms cycle is <90 microseconds. Thus, memory means must be provided for storing the addressed identification during each 20 ms cycle. It is not literally disclosed that such register means are provided in the addressable control points of the call circuit modules (= originating means). However, the Board is satisfied that such a realisation of the known teaching would be the most suitable one which readily presents itself to the skilled person.

Similar register means are also necessary in connection with the monitoring of the circuits for the responses from the switching system under test. Since this monitoring is also effected via addressable sense points on the call circuit modules (see page 118, item d) a similar provision of register means is an obvious possibility.

Other register means are, of course, necessary in connection with the test load generator software concerning the programs for the call test generation, the

call circuit monitoring and the call circuit diagnostics (see pages 120 and 121, items c and d). It is true that these register means are not allocated in the call circuit modules since, according to Figure 5, there is provided a "test subprogram area" in the separated 8K random access memory for being used in the performance of the TLG software. There is no indication in the present Claim 1 how these register means could also be incorporated in the originating means (= call circuit modules).

Therefore, the Board cannot perceive in Claim 1, according to the Appellant's main request, any feature that distinguishes its subject-matter in an inventive way over the prior art.

2.3 As a consequence, Claim 1 according to the main request cannot be allowed.

3. Claims 1 according to the first and second auxiliary requests.

In a communication of the Rapporteur (dated 29 August 1989), the Appellant was clearly informed that the appeal against the revocation of the patent on the basis of the present Claim 1 was likely to be dismissed. In a further communication, dated 29 November 1989 and accompanying the summons to the oral proceedings, the Appellant was invited to file any intended amendments to the patent documents within at least one month before the oral proceedings.

However, the Appellant filed his auxiliary requests not earlier than at the end of a discussion of the not amended Claim 1 in the oral proceedings.

The Board considered carefully the question whether it is, after all, justifiable to accept these claims because of their late submission.

It is, according to the jurisprudence of the Boards of Appeal, only in exceptional circumstances that an amendment not submitted in good time before oral proceedings will be considered on its merits by a Board of Appeal (cf. decision of the Technical Board of Appeal 3.2.1 of 9 October 1984 - OJ EPO 3/1985, 75). As follows from the decision of the Technical Board of appeal 3.3.1 of 11 December 1986 (OJ EPO 1-2/1988, 1), such exceptional circumstances may occur if the late filed claims are clearly allowable.

The Board considers the present circumstances insofar as exceptional, as the first instance seems to have regarded the subject-matter of a claim as now submitted in the form of the second auxiliary request as clearly allowable. The Board is, therefore, prepared to accept at least the claims of the second auxiliary request for further prosecution of the case.

Claim 1 of the first auxiliary request is a combination of the features of Claim 1 according to the main request and of features concerning the additional provision of DTMF tone generating means. These additional features are derived from Claim 7 as granted and appear to represent a part of the features which also establish the differences of Claim 1 of the second auxiliary request over Claim 1 of the main request. The first instance has not yet set out specified reasons for the allowability of Claim 9 (now Claim 1 of the second auxiliary request). Such reasons may, however, in the view of the Board, as well be suitable to support Claim 1 of the first auxiliary request.

The Board is, therefore, of the opinion that the case requires further prosecution on the basis of both, the first and the second auxiliary requests. The Board, applying the power given under Article 111(1) EPC, considers it appropriate to remit the case to the first instance in order to avoid the loss of one instance for the parties.

Order

For these reasons, it is decided that:

1. The Appellant's main request is rejected;

2. The decision under appeal is set aside;

3. The case is remitted to the Opposition Division for further prosecution on the basis of the first and second auxiliary requests.

The Registrar: The Chairman:

P. Martorana P.K.J. van den Berg