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Datasheet for the decision of 5 October 2006

Case Number: T 0960/04 - 3.5.02

Application Number: 95910122.1

Publication Number: 0744091

IPC: H01T 4/12

Language of the proceedings: EN

Title of invention:
Coaxial transmission line surge arrestor

Patentee:
TII Industries, Inc.

Opponents:
CITEL
Siemens AG

Headword:
-

Relevant legal provisions:
EPC Art. 56
EPC R. 71a

Keyword:
"Main and first auxiliary requests filed in opposition proceedings after the final date fixed under Rule 71a EPC - combination of granted claims which had been attacked- admissible"
"Inventive step - main and first auxiliary requests - no"
"Second and third auxiliary requests filed in opposition proceedings after the final date fixed under Rule 71a EPC - include features taken from the description - discretion to refuse to admit confirmed"

Decisions cited:
G 0004/92, T 1048/99, T 0463/95, T 0755/96

Catchword:
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Case Number: T 0960/04 **-** 3.5.02

D E C I S I O N
of the Technical Board of Appeal 3.5.02
of 5 October 2006

Appellant: (Patent Proprietor)	TII INDUSTRIES, INC. 1385 Akron Street Copiage, NY 11726 (US)
Representative:	Hellbom, Lars Olof Albihns Stockholm AB Box 5581 S-114 85 Stockholm (SE)
Respondent: (Opponent 01)	CITEL 8, Av. Jean Jaurès F-92132 Issy-les-Moulineaux (FR)
Representative:	Peuscet, Jacques Cabinet PEUSCET 161, rue de Courcelles F-75017 Paris (FR)
Former opponent 02:	Siemens AG Postfach 22 16 34 D-80506 München (DE)
Representative:	-
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted 2 June 2004 revoking European patent No. 0744091 pursuant to Article 102(1) EPC.**

Composition of the Board:

Chairman: W. J. L. Wheeler
Members: J.-M. Cannard
P. Mühlens

Summary of Facts and Submissions

I. The proprietor appealed against the decision of the opposition division revoking European patent No. 0 744 091.

II. In oral proceedings held on 29 April 2004 in the absence of the parties, the opposition division did not admit into the proceedings the submissions filed per fax with the letter dated 1 April 2004, concerning a new main request and first, second and third auxiliary requests, because these requests were filed after the final date fixed under Rule 71a EPC and *prima facie* did not comply with the requirements of the EPC. The reason given for the revocation was that the subject-matter of the extant claim 1, filed with the letter dated 21 March 2000, was not novel.

III. The following documents:

D1: US-A-4 616 155, and

D11: US-A-4 578 733,

considered during the proceedings before the opposition division, remain relevant to the present appeal.

IV. Claim 1 of the main request and the first, second and third auxiliary requests on appeal are respectively identical to claim 1 of the main request and the first, second and third auxiliary requests filed with the faxed letter dated 1 April 2004.

Claim 1 of the main request reads as follows:

"A miniature gas discharge tube suitable for use in coaxial transmission line surge arrestors and adapted for connection in series with a transmission line such that signal flow is through said gas discharge tube (200); the gas discharge tube (200) having a hollow conductive housing (202) having an inside diameter D; a pair of insulating ends (204) for sealing the housing (202); an inert gas sealed in the housing (202); a center conductor (206) extending through insulated from the housing (202), the center conductor (206) having an outside diameter d and a longitudinal axis which is oriented in a direction parallel to the direction of signal transmission, the conductive housing (202) having an interior surface (214) which is symmetric with respect to the longitudinal axis, the center conductor (206) having an exterior surface (216) which is symmetric with respect to the longitudinal axis, the ratio D to d varying within the interior of the hollow housing (202) and the housing thereby being divided into an active discharge region (G) and an impedance matching region (I), the relative proportions of the regions matching the impedance of said discharge tube (200) to that of the coaxial transmission line, **characterized in that**

- said insulating ends (204) are formed from a ceramic material, and in that

- the portions of the ceramic insulating ends (204) that contact the conductive housing (202) are metalized."

Claim 1 according to the first auxiliary request differs from claim 1 of the main request in that the wording "a center conductor (206) extending through insulated from the housing (202)" has been replaced by "a center conductor (206) extending through the insulating ends (204) such that it is insulated from the housing (202)" and the words "and in that the portions of the insulating ends (204) that contact the center conductor (206) are metalized" have been added at the end of the claim.

Claim 1 according to the second auxiliary request differs from claim 1 of the main request in that the wording "a center conductor (206) extending through insulated from the housing (202)" has been replaced by "a center conductor (206) extending through the insulating ends (204) such that it is insulated from the housing (202), each of said insulating ends having an outer surface and an inner surface, said inner surface facing the interior of said housing" and the following words have been added at the end of the claim:

"in that

- the portions of the insulating ends (204) that contact the center conductor (206) are metalized, in that

- the outer surface face of each insulating end (204) has an annular recess (212) in the region where the center conductor (206) projects through the insulating end (204), in that said annular recess is metalized and in that

- the center conductor (204) is metalized in the region of the annular recess, but is insulated peripheral to that."

Claim 1 of the third auxiliary request reads as follows:

" A method of manufacturing a gas discharge tube suitable for use in coaxial transmission line surge arrestors and adapted for connection in series with a transmission line such that signal flow is through said gas discharge tube (200); the gas discharge tube (200) having a hollow conductive housing (202) having an inside diameter D; a pair of insulating ends (204) for sealing the housing (202), each of said insulating ends having an outer surface and an inner surface, said inner surface facing the interior of said housing; an inert gas sealed in the housing (202); a center conductor (206) extending through the insulating ends (204) such that it is insulated from the housing (202), the center conductor (206) having an outside diameter d and a longitudinal axis which is oriented in a direction parallel to the direction of signal transmission, the conductive housing (202) having an interior surface (214) which is symmetric with respect to the longitudinal axis, the center conductor (206) having an exterior surface (216) which is symmetric with respect to the longitudinal axis, the ratio D to d varying within the interior of the hollow housing (202) and the housing thereby being divided into an active discharge region (G) and an impedance matching region (I), the relative proportions of the regions matching the impedance of said discharge tube (200) to that of the coaxial transmission line, **characterized by**

- forming said insulating ends (204) from a ceramic material,

- forming an annular recess (212) in the outer surface of said insulating ends in the region where the center conductor (206) projects through the insulating end (204),

- metalizing the outer surface of the insulating ends such that the complete insulating end is metalized, including said annular recess and that at least the ceramic insulating ends (204) that contact the conductive housing (202) are metalized,

- removing the metalization on the insulating end, peripheral to the annular recess."

V. As announced beforehand, the parties did not attend the oral proceedings, which had been requested by the proprietor and were held on 5 October 2006.

VI. The written arguments of the appellant proprietor can be summarized as follows:

Claim 1 according to the main and first auxiliary requests should have been admitted into the proceedings by the opposition division because, as appeared from decision T 1048/99, it was possible as late as during oral proceedings to perform amendments consisting of combinations of granted claims.

Regarding the second auxiliary request, it was sufficient for apparatus claim 1 to define the region where the central conductor of the discharge tube was

metallised. Regarding the third auxiliary request, the metallisation step according to claim 1 was supported by the second paragraph of column 8 of the published patent specification, which disclosed that the insulating ends are preferably metallised in the regions where the ends contact the center conductor. These claims did not contravene Article 123(2) EPC.

The subject-matter of claim 1 according to the main request was novel and involved an inventive step: a gas discharge tube which had a varying ratio of the inside diameter of the housing to the outside diameter of the center conductor was neither disclosed nor suggested in the prior art.

The opposition division had not raised any objection of lack of novelty or inventive step against the auxiliary requests. The metallisation of the ceramic insulating ends provided a hermetic seal of the tube and the annular recess facilitated the metallisation step in the manufacturing of the tube.

VII. No written submission was received from opponent 01.

VIII. Former opponent 02 had withdrawn its opposition during the opposition proceedings (letter dated 22 December 2003).

IX. The appellant proprietor requested in writing that the decision under appeal be set aside and the patent be maintained in the form according to the main request or to any one of the three auxiliary requests.

Reasons for the Decision

1. The appeal is admissible.

Admissibility of the main and first auxiliary requests filed on the 1 April 2004

2. Claim 1 of the main request corresponds in substance to a combination of granted claims 1, 7 and 8, or a combination of claim 1 filed with the letter dated 21 March 2000 and claims 7 an 8 filed with the letter dated 18 May 1999. Claim 1 of the first auxiliary request corresponds to the same combination with the additional features taken from granted claim 9, i.e. claim 9 filed with the letter of 18 May 1999.

2.1 In the provisional opinion of the opposition division given in the communication annexed to the summons to oral proceedings, the subject-matter of claim 1 then on file was considered as not novel and in combination with the features of the dependent claims as not involving an inventive step. In this situation, the patent proprietor had the right to file amended claims. The versions of claim 1 according to the main and first auxiliary requests were however filed three days after the final date fixed under Rule 71a EPC with the summons to attend oral proceedings. No justification for the late submission was provided.

2.2 With a fax dated 21 April 2004, opponent 01 argued that the submissions filed on the 1 April 2004 were late-filed, requested that they be disregarded by the opposition division and that the oral proceedings be postponed with an apportionment of costs. It was also

argued that the subject-matter of claim 1 of the main and first auxiliary requests was obvious.

3. In the case T 463/95 (decision not published), a main request was not allowed by the opposition division because the request had been submitted after the time limit set, merely one week prior to the oral proceedings, and its subject-matter was not clearly inventive. On appeal it was decided that, if an independent claim results from a combination of features taken from granted claims which have been specifically opposed, the opposition division should have considered this claim in the oral proceedings, because there was no need for searching for further prior art and the opponents should already have been familiar with its subject-matter. The present case is distinguishable from the situation in the above mentioned case in which an explanation was provided for the late submission of the request and **Rule 71a was not yet in force**.

4. According to decision T 755/96 (OJ 2000, 174), which the Board regards as more relevant to the present case than the decision T 1048/99 cited by the appellant, Rule 71a EPC introduced into the law the existing practice (applied in case T 463/95) of requiring a deadline to be set for any written submissions filed in preparation for oral proceedings. Rule 71a(2) EPC, more specifically, gave the EPO a discretionary power to refuse new requests to prevent opponents being unfairly confronted with new amendments shortly before or in oral proceedings and to avoid delaying the procedure by postponing oral proceedings (see point "3. Purpose of Rule 71a EPC"). Having regard to these considerations, it was concluded that the discretion under Rule 71a EPC

to refuse new requests, particularly those raising no new issue, should not be exercised in a purely formalistic way, without any examination. Such an approach would result in a lack of procedural efficiency, if the same request would then need to be admitted on appeal. It was further observed that at the opposition stage there could be good reasons to refuse material filed after the final date fixed in the summons, or to postpone oral proceedings because the other parties should not be taken by surprise and would need to consult their clients (see reasons 4.3).

5. In the present case, the opponent would not have been taken by surprise and had enough time to consider the new requests because the features taken from the dependent granted claims had already been considered in the notice of opposition (part F, points 6 and 7), as observed in the opponent's fax dated 21 April 2004 and in the provisional opinion annexed to the summons to oral proceedings. The present Board thus judges that the considerations given in decision T 755/96 (reasons 4.) apply by analogy in the present case and concludes that the discretionary power conferred by Rule 71a (2) EPC should not be exercised in such an over formalistic way as to refuse to consider in substance the new main and first auxiliary requests on the sole ground that they had been filed three days after the final date fixed under Rule 71a EPC, particularly in a case where the new claims raise no new issues.

6. The combination of features according to claim 1 of the main and first auxiliary requests had been attacked as not involving an inventive step in the written submissions of opponent 01 and in the opposition

division's communication annexed to the summons to oral proceedings. The patent proprietor, although not appearing at the oral proceedings, would not have been taken by surprise by the reasons for a decision refusing the main and first auxiliary requests on the ground of a lack of inventive step which was put forward in writing before the oral proceedings (see decision G 4/92 of the Enlarged Board of appeal).

7. Therefore, in the judgement of the Board, the opposition division did not exercise its discretion correctly when refusing to admit the main and first auxiliary requests filed on the 1 April 2004 into the proceedings. The Board therefore decided to admit claim 1 according to the main and first auxiliary requests into the appeal proceedings. In the communication annexed to the summons to oral proceedings, the parties were informed that, if any of the sets of claims filed on the 1 April 2004 were admitted into the proceedings after hearing their arguments, the question of whether the patent, amended in accordance with one of the requests, meets the requirements of the EPC would be discussed in the oral proceedings. In accordance with Article 11 RPBA, the Board thus decided not to delay its decision by reason only of the absence at oral proceedings of the duly summoned parties who should be treated as relying only on their written cases.

Main and first auxiliary request

8. The novelty of the subject-matter of claim 1 of the main request was not in dispute. Nor was it disputed that document D1 represents the closest prior art.

9. The subject-matter of claim 1 according to the main request differs from the gas discharge tube described in D1 by the second feature of the characterising part of the claim.

9.1 D1 relates to a gas discharge tube suitable for use in a coaxial transmission line surge arrestors and adapted for connection in series with a transmission line such that a signal passes through said tube (D1, column 1, lines 6 to 14; column 5, line 40 to column 6, line 21; figure 1). More specifically, the gas discharge tube according to the embodiment shown in figure 1 comprises a hollow conductive housing (metallic tubular element 7), a pair of insulating ends (13) for sealing the housing, an inert gas sealed in the housing (column 6, line 8), and a center conductor (2, 10) extending through the insulating ends and insulated from the housing. In the tube of D1 the ratio of the inside diameter of the housing to the diameter of the center conductor, which comprises a conductive core (2) and an internal electrode (10), varies within the interior of the housing. The region comprising the internal electrode forms an active discharge region (column 7, lines 59 to 61). It appears from the whole content of D1 that the tube has relative proportions which match the impedance of the tube to that of a coaxial cable (column 2, lines 26 to 31; column 3, lines 19 to 25; column 6, lines 15 to 21), as recited in the last feature of the preamble of the claim.

9.2 D1 thus discloses all the features of the preamble of claim 1.

9.3 Although the tube shown in figure 1 comprises insulating ends made of glass, it appears from the content of D1 as a whole that insulating ends made of a ceramic material may be used as an alternative to glass because ceramic can be fused to metallic rings (column 2, lines 55 to 63; column 4, lines 4 to 9; column 5, lines 15 to 18; claims 2 and 9). The first feature of the characterising part of claim 1 is thus disclosed in D1 in combination with the features of the preamble.

9.4 D1 does not disclose that the portions of the ceramic insulating ends that contact the conductive housing are metallised, as recited in the second feature of the characterising part of claim 1 of the main request.

10. According to D1, each insulating end is positioned in a ring (14) of an alloy (Kovar) which is disposed in a recess (9) of the housing. The tube is then sealed to be gas-tight by fusing the ceramic insulating ends to the rings and by joining the rings to the housing by a brazed joint (15) (column 2, lines 60 to 63; column 5, lines 59 to 66).

11. Starting from document D1 and having regard to the effect provided by the claimed invention, the objective technical problem can be seen in improving the sealing operation of the prior art gas discharge tube.

12. In the judgement of the Board, the subject-matter of claim 1 according to the main request does not involve an inventive step having regard to the teaching of document D1 taken in combination with the method for sealing a gas discharge tube disclosed in document D11.

12.1 D11 (figures 1 and 2; column 3, lines 61 to 68; column 4, lines 35 to 43); column 6, lines 17 to 33; claims 1, 10 to 12) discloses a gas discharge tube which comprises a hollow cylinder made of ceramic whose open ends are fitted in a gas-tight manner with the flanges (2B, 3B) of a pair of main electrodes (2, 3). A metallised layer deposited on the ceramic hollow cylinder is formed of a brazing material adapted for bonding the hollow cylinder to the main electrodes. The skilled person would consider the teaching of D11, which also belongs to the field of gas discharge tubes, for hermetically sealing the ceramic insulating ends to the conductive housing in the gas discharge tube according to D1. Since D11 teaches the use of metallised portions of a ceramic body for bonding it with conductive portions of the tube casing, it would be obvious to the skilled person to metallise the portions of the ceramic insulating ends that contact the conductive housing for closing in a gas-tight manner the gas discharge tube of D1. Such a tube would comprise all the features of the gas discharge tube according to claim 1 of the main request. Therefore the subject-matter of claim 1 of the main request does not involve an inventive step.

13. Claim 1 of the first auxiliary request differs in substance from claim 1 of the main request only by the additional feature: "the portions of the insulating ends (204) that contact the center conductor (206) are metalized". In the gas discharge tube disclosed in D1 the insulating ends are soldered around an inner ring (26), also made of Kevlar, into which an extremity of the center conductor is introduced and fixed in position by a brazing bead (27) to ensure a gas-tight seal of the center conductor (column 7, lines 33 to 41). The skilled

person starting from the tube described in D1 and wishing to improve the sealing process of the tube would consider the process for sealing in a gas-tight manner a tube comprising a ceramic hollow cylinder and end electrodes described in D11. Following the teaching of D11, it would be obvious to the skilled person to metallise the portions of the ceramic insulating ends that contact the conductor housing and the center conductor. The subject-matter of claim 1 of the first auxiliary request therefore does not involve an inventive step.

Claim 1 of the second and third auxiliary requests filed on the 1 April 2004

14. The amended claims 1 according to the second and third auxiliary requests were submitted after the final date fixed under Rule 71a EPC. This has not been disputed by the patent proprietor who provided no justification for this late submission. These amended claims differ from the subject-matter identified in the granted claims or in the claims considered in the communication annexed to the summons to oral proceedings before the opposition division by additional features taken from the description (for instance: an annular metallised recess and the step for making such a recess). Moreover, these claims do not *prima facie* seem to be directly allowable since they contain other additional features (such as the center conductor metallised in the region of the annular recess, as specified in the last feature of claim 1 according to the second auxiliary request; and a method step in which the complete insulating end is metallised, as specified in claim 1 according to the third auxiliary request) which appear to have no support

in the application as filed, in contravention of Article 123(2) EPC (see published application WO95/21481, page 11, lines 8 to 22, for the most relevant passage cited by the appellant). Accordingly, the Board comes to the conclusion that the opposition division had exercised its discretionary power correctly when rejecting as inadmissible the second and third auxiliary requests.

15. The Board concludes therefore that the patent cannot be maintained in any of the amended forms requested by the proprietor.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

U. Bultmann W.J.L. Wheeler