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**Datasheet for the decision
of 3 March 2026**

Case Number: T 1791/23 - 3.4.01

Application Number: 15813925.3

Publication Number: 3222121

IPC: H05H1/24, A61B18/14, A61B18/18,
A61B18/22

Language of the proceedings: EN

Title of invention:
COLD PLASMA GENERATING SYSTEM

Patent Proprietor:
Technion Research & Development Foundation Ltd.
Rambam Med-Tech Ltd.

Opponent:
U.S. Patent Innovations, LLC

Headword:
Cold Plasma Generating System / Technion

Relevant legal provisions:
EPC Art. 100(c), 104(1), 123(2)
EPC R. 99(2), 101(1)
RPBA 2020 Art. 12(6)

Keyword:

Grounds for opposition - main request - added subject-matter
(yes)

Amendments - auxiliary request 1 - allowable (no)

Late-filed request - auxiliary requests 2 and 3 - should have
been submitted in first-instance proceedings (yes)

Apportionment of costs - (no)



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Case Number: T 1791/23 - 3.4.01

D E C I S I O N
of Technical Board of Appeal 3.4.01
of 3 March 2026

Appellant: Technion Research & Development Foundation Ltd.
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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 10 July 2023
revoking European patent No. 3222121 pursuant to
Article 101(3) (b) EPC.**

Composition of the Board:

Chairman P. Scriven
Members: T. Zinke
 D. Rogers

Summary of Facts and Submissions

- I. The Opposition Division revoked the patent.

- II. The proprietor appealed and requests, as a main request, that the decision be set aside in respect of the ground of opposition under Article 100(c) EPC and that the opposition be referred back to the Opposition Division for consideration of the remaining grounds of opposition under Article 100(a) EPC, which were not part of the decision, in relation to the patent as granted. In the alternative, the proprietor requests that the opposition be referred back to the Opposition Division for consideration of the remaining grounds of opposition under Article 100(a) EPC, which were not part of the decision under appeal, in relation to one of auxiliary requests 1 to 3, filed together with the statement of grounds of appeal. Auxiliary request 1 is identical to auxiliary request 1 dealt with in the decision under appeal. Auxiliary requests 2 and 3 are new in appeal.

- III. In the event that the Board considered not granting the main request, the proprietor requested oral proceedings (statement of grounds, page 1, third paragraph).

- IV. With the statement of grounds, the proprietor submitted a declaration from the previous representative and requested that it not be included in the public file.

V. The opponent requested that the appeal be dismissed, i.e. that the revocation of the patent stand. Further, the opponent requests a decision on apportionment of costs under Article 104 EPC. The opponent did not request oral proceedings.

VI. Claim 1 of the main request (patent as granted) reads as follows:

A system for generating cold plasma, the system comprising:

a control unit (50) and an elongated member (26), wherein the control unit (50) is connectable to a first proximal end of the elongated member (26);

wherein said elongated member (26) comprises:

a plasma generating unit (28) at a second distal end thereof,

a gas transmission channel (24) and an electricity transmission channel (25), each extending from said first proximal end towards said plasma generating unit (28); wherein the control unit comprises:

a gas supply unit (23) configured to provide a selected gas composition through said gas transmission channel (24), and

a power supply unit (22) configured to generate a selected sequence of high-frequency electrical pulses directed

through said electricity transmission channel (25), thereby providing power and gas of said selected composition to the plasma generating unit (28) for generating cold plasma,

said power supply unit (22) comprises a resonance circuit (233) configured for generating the high-frequency electrical pulses,

said electricity transmission channel (25) is a coaxial cable having a predetermined impedance (25'), characterized in that

the predetermined impedance (25') of the coaxial cable is configured to be part of an impedance of the resonance circuit (233) and capable to tune the resonance circuit (233) to generate a carrier frequency of the high-frequency electrical pulses.

VII. In claim 1 of auxiliary request 1, as compared to the main request, the power supply unit is further defined by the introduction of an RF generator circuit, the corresponding features read (amendments emphasized by the Board):

*[... cold plasma,]
said power supply unit (22) comprises an RF generator circuit (130) comprising a resonance circuit (233), and configured for generating the high-frequency electrical pulses,*

said electricity transmission channel (25) is a coaxial cable having a predetermined impedance (25')_τ; characterized in that the predetermined impedance (25') of the coaxial cable is configured to be part of an impedance of the resonance circuit (233) and capable to tune the resonance circuit (233) to generate a carrier frequency of the high-frequency electrical pulses generated by the RF generator circuit (130).

VIII. In claim 1 of auxiliary request 2, instead of an RF generator circuit, a power controller is introduced as a part of the power supply unit, the resonance circuit is further specified and its reference sign is changed. The amended features read (amendments as compared to claim 1 of the main request emphasized by the Board):

[... cold plasma,]
said power supply unit (22) comprises power controller (120) for controlling and determining the pulse sequence and a resonance circuit (233130) configured for generating the high-frequency electrical pulses,
said electricity transmission channel (25) is a coaxial cable having a predetermined impedance (25'),
characterized in that the coaxial cable and electrodes of the plasma generating unit are part of the resonance circuit (130) and the predetermined impedance (25') of the coaxial cable and impedance of the electrodes of the plasma

generating unit (28) is configured to be part of an impedance of the resonance circuit (233)130) and capable to tune the resonance circuit (233)130) to generate a carrier frequency of the high-frequency electrical pulses.

IX. Claim 1 of auxiliary request 3 is a combination of claims 1 of auxiliary request 1 and 2 with additional amendments. The amended features read (amendments as compared to claim 1 of the main request emphasized by the Board):

*[... cold plasma,]
said power supply unit (22) comprises a power controller (120) for controlling and determining the pulse sequence and a RF generator resonance circuit (130) resonance circuit (233) configured for generating the high-frequency electrical pulses,
said electricity transmission channel (25) is a coaxial cable having a predetermined impedance (25'),
characterized in that
the coaxial cable and electrodes of the plasma generating unit are part of the RF generator resonance circuit 130 and the predetermined impedance (25') and impedance of electrodes of the plasma generating unit (28) of the coaxial cable is configured to be part of an impedance of the resonance circuit (233) RF generator resonance circuit (130) and capable to tune the resonance circuit (233) RF generator resonance circuit*

(130) to generate a carrier frequency of the high-frequency electrical pulses wherein the RF generator resonance circuit (130) comprises:
an amplifying element (231);
a resonance circuit (233) with effective capacitance (25') and resistance (29') determined in accordance with the capacitance and resistance of the coaxial cable and of the plasma generating unit; and
a step-up RF transformer (234) having a primary coil (246) connected to the amplifying element (231), a first secondary coil (247) having more turns than the primary coil (246) and being part of the resonance circuit (233), and a second secondary coil (248) having less turns than the primary coil (246) and configured to provide signals to a positive feedback route (232) connected to the amplifying element (231).

- X. The Board summoned the parties to oral proceedings. In a communication sent with the summons, the Board expressed its preliminary opinion (Article 15(1) and 17(2) RPBA) that, inter alia, the appeal was admissible, that the main request and auxiliary request 1 were unallowable due to added matter, that it was unlikely that auxiliary requests 2 and 3 would be admitted, that each party should bear its own costs and that the appeal was likely to be dismissed.

XI. The relevant parts of the preliminary opinion stated:

...

Admissibility of Appeal - Full case

1. *The opponent raised the issue (reply, paragraph bridging pages 7 and 8) that the proprietor had not provided its full case. The Board understands this as an argument that the Board should consider the appeal inadmissible.*
2. *Under Rule 99 (2) EPC, in the statement of grounds of appeal, the appellant shall indicate the reasons for setting aside the decision impugned, or the extent to which it is to be amended, and the facts and evidence on which the appeal is based.*
3. *With the decision, the patent was revoked, because the ground of opposition of Articles 100(c) EPC prejudiced the maintenance of the patent as granted (grounds, point 2.3.1) and because auxiliary request 1 (filed as auxiliary request 2 on 5 April 2023) did not comply with Article 123(2) EPC (grounds, point 2.4.3). Auxiliary requests 2 and 3 (filed during oral proceedings) were not admitted (grounds, points 2.5.2 and 2.6.2).*
4. *The main request and auxiliary request 1, on appeal, are identical to the*

respective requests in the decision under appeal. With the statement of grounds, the proprietor provided arguments as to why they considered the decision to be wrong with regard to the Opposition Division's reasoning concerning Articles 100(c) and 123(2) (statement of grounds, under subsections "Main request" and "First auxiliary request (AR1)").

5. *Since the decision does not address other objections, the statement of grounds is complete and, hence, the appeal is admissible (Rules 99(2) and 101(1) EPC).*

Main request and auxiliary request 1 -
Consideration

6. *It is undisputed that the main request and the auxiliary request 1 in appeal are identical to the main request and auxiliary request 1 (filed as 2nd Auxiliary request on 5 April 2023) during oral proceedings before the Opposition Division. These requests were - at first - withdrawn by the proprietor during these oral proceedings, when a new main request was filed (at 14:10, see minutes of the oral proceedings).*
7. *Prior to closure of the oral proceedings before the Opposition Division, the proprietor requested - contrary to this withdrawal - that the patent be maintained according to this main request*

and this auxiliary request 1. The proprietor explained that they had "never intended to withdraw the requests on which the OD reached a conclusion, but only that they did not intend to further discuss them after the negative outcome from the OD" (minutes, page 8, 5th paragraph).

8. The Opposition Division interpreted this statement as a request for reinstatement of these requests. This request was allowed (minutes, page 9, penultimate paragraph).
9. In the grounds of the decision (decision, grounds, section 2.2), the Opposition Division held, *inter alia*, that the request for reinstatement of these requests was made before the announcement of the decision and, thus, there was a right to file such a request (decision, page 5, subsection ii)), that due to the withdrawal and the later explanation that a withdrawal was not intended, there was at least doubt about the withdrawal (subsection iii) at the middle of page 5), and that reinstating these requests was not against procedural economy (page 6, subsection vi)).
10. The Board agrees with the Opposition Division that the reinstatement of these requests fell within their discretion and that they used their discretion appropriately.

11. *It is well-established case law that the Opposition Division has discretion to admit or not admit amendments (see Case Law of the Boards of Appeal (CLBA), 11th edition, section IV.C.5.1.5).*

12. *According to the settled jurisprudence of the Boards of Appeal, a board should only overrule the way in which a department of first instance has exercised its discretion if it concludes that the department has done so according to the wrong principles, or without taking into account the right principles, or in an unreasonable way (CLBA, 11th edition, section IV.C.5.1.8).*

13. *The case law of the boards of appeal has confirmed the following criteria that the Opposition Division should take into account when properly exercising its discretion: prima facie allowability, procedural expediency, abuse of procedure, and the question as to whether the opponents could be expected to familiarise themselves with the amendments in the time available (CLBA, 11th edition, section IV.C.5.1.7.a)).*

14. *In the decision under appeal, the Opposition Division explained at length, why they considered that admitting this request for reinstating the main request and auxiliary request 1 was not against procedural economy (decision, grounds,*

point 2.2, in particular point vi) on page 6), since they had already discussed with the parties and concluded upon them. For that reason, it is also evident that the opponents had already familiarised themselves with these requests.

15. The Opposition Division, however, apparently did not consider prima facie allowability of these requests, since they already concluded that they were not allowable. On the other hand, the Opposition Division explained that there were at least doubts, whether the proprietor really intended to withdraw these requests or not (decision, grounds, point 2.2 iii) in the middle of page 5).

16. Under these circumstances the Board currently considers that the Opposition Division was within its rights in exercising its discretion to admit and reinstate the main and auxiliary requests.

Main request - Article 100(c) EPC

17. In the decision, the Opposition Division held that there was no basis for the characterizing portion of claim 1 of the patent (decision, Grounds, section 2.3.1). As they pointed out, the passages of the description on page 16, line 28 to page 17, line 9; page 17 lines 24-33; page 18, line 23 - page 19, line 30 as

filed; claim 7 as filed and Figures 2A/2D as filed, did not provide a basis for the wording of the characterizing portion of claim 1 (grounds, point 2.3.1, first paragraph).

18. Taking into account the reasoning of the Opposition Division (decision, grounds, point 2.3.1), the arguments of the proprietor (statement of grounds, under the sub-title: "Main request", pages 1 to 4) and the opponent (reply, under the sub-title: "Objection of undue extension based on A123(2)", pages 6 to 7), the Board preliminarily agrees that there was no basis for the wording of the characterising portion of the main request.

19. The characterizing portion of claim 1 reads:

... characterized in that the predetermined impedance (25') of the coaxial cable is configured to be part of the impedance of the resonance circuit (233) and capable to tune the resonance circuit (233) to generate a carrier frequency of the high-frequency electrical pulses.

20. Original claim 7, which was given, inter alia, as a basis for the amendment, reads:

The system of any of claims 1 and 6, wherein said electricity transmission channel being characterized by predetermined impedance, said power supply unit comprising a resonance circuit configured for generating said high frequency pulses, resonant frequency of said resonance circuit being determined in accordance with said predetermined impedance of the electricity transmission channel.

21. *Whereas in the wording of claim 1 the predetermined impedance is part of the impedance of the resonance circuit, in original claim 7 it is not.*
22. *That the predetermined impedance of the coaxial cable is part of the impedance of the resonant circuit is originally disclosed on page 17, lines 6 to 9, and page 19, lines 11 to 16. In these passages, however, it is not only the impedance of the coaxial cable that is a part of the resonant circuit, but the impedance of the plasma generating unit as well. Hence, also these passages do not provide a basis for only considering the impedance of the coaxial cable in the impedance of the resonant circuit for tuning it.*
23. *Further, the cited passages refer to a particular embodiment depicted in Figures 2A to 2E and the corresponding parts of the description on page 16, line 18 to*

page 20, line 31. This embodiment, inter alia, also includes a power filtering and isolation circuit 110, an RF power controller 120 and positive feedback 232. That the impedance of the coaxial cable is part of the impedance of the resonant circuit seems only to be disclosed in combination with these parts of the circuit depicted in Figures 2A and 2D. Leaving them out results in an unallowable intermediate generalization.

24. With the statement of grounds, the proprietor argued that the application as filed disclosed that the impedance of the coaxial cable is part of the impedance of the resonant circuit of the power supply in abstraction from the detailed embodiment disclosed in the specific description of the application as filed (statement of grounds, page 2 to 3, under the sub-title: "Disclosure of the application as filed").

25. They cite a sentence starting line 9 on page 6 of the application as filed

The use of a coaxial cable for electricity transmission channel, while serving a part of the pulses generating circuit of the power supply unit, eliminates leakage of electromagnetic radiation.

26. Whereas this sentence only refers to the coaxial cable, in the Board's

understanding it does not exclude other components (for instance, the plasma generation unit) being part of the resonant circuit. And this sentence does not refer to the impedance of the coaxial cable.

27. They also cite originally filed pages 8 and 9 reciting the claims as filed, and in particular original claim 7. Contrary to the proprietor's position, however, the Board does not agree that the wording used implies that the impedance of the coaxial cable is part of the resonant circuit. As cited above, original claim 7 defines only that the resonant frequency of the resonant circuit is determined in accordance with the predetermined impedance of the electricity transmission channel. This could be done without the impedance of the coaxial cable being part of the impedance of the resonant circuit, for instance, by using an impedance matching circuit between the resonant circuit and the electricity transmission channel.

28. The proprietor also refers to the paragraph starting at line 3 on page 17, wherein it is mentioned that (only) in some configurations are the electrodes of the plasma generating unit 28 part of the resonant circuit. However, no such configurations without the electrodes of the plasma generating unit are disclosed

in the following paragraphs or in the Figures.

29. The passage on page 18, paragraph starting at line 16, discloses that where the system is operated by one or more batteries, filtering circuit 10 and power control circuit 120 may be omitted. But directly afterwards it is disclosed that in this case other components are needed, as a controlled high voltage DC to DC power supply and a low voltage DC to DC supply. This battery-power supplied version of the system, however, is also not defined in the claim.

30. Consequently, the proprietor's arguments are not persuasive.

31. Hence, the main request of the patent proprietor is not allowable, since the patent as granted extends beyond the content of the application as filed (Article 100(c) EPC).

Auxiliary request 1 - Article 123(2) EPC

32. Auxiliary request 1 is amended as compared to the main request by introducing an RF generator circuit.

33. The introduction of an RF generator circuit does not solve the issues mentioned above with regard to an unallowable amendment with regard to the

lack of the impedance of the plasma generating unit, and the lack of a power filtering and isolation circuit 110, an RF power controller 120 and positive feedback 232.

34. Hence, auxiliary request 1 is not allowable under Article 123(2) EPC.

Auxiliary requests 2 and 3 - Consideration

35. Auxiliary requests 2 and 3 are new on appeal. They were submitted with the statement of grounds of appeal. Under Article 12(2) and (4) RPBA a party's appeal case shall be directed to the requests, facts, objections, arguments and evidence on the which the decision under appeal was based. Since these requests were not submitted and maintained in the proceedings leading to the decision under appeal, they are an amendment, which may be admitted only at the discretion of the Board (Article 12(4), second sentence RPBA). The Board shall exercise its discretion in view of, inter alia, the complexity of the amendment, the suitability of the amendment to address the issues which led to the decision under appeal, and the need for procedural economy (Article 12(4), last sentence RPBA). A further aspect under Article 12(6), second sentence RPBA is that the Board should not admit requests which should have been

submitted in the proceedings leading to the decision under appeal, unless the circumstances of the appeal justify it.

36. *With their reply, the opponent argued that auxiliary requests 2 and 3 should have been filed earlier, already during proceedings before the Opposition Division (reply, page 16, second paragraph). In any case, the Opposition Division did not raise any new issues at their oral hearings, which had not been raised previously, the intermediate generalization was already pointed out by the opponent in the notice of opposition (reply, page 16, third paragraph). The opponent also pointed out that (then) auxiliary requests 2 and 3 were not convergent with auxiliary request 1 (reply, page 16, first paragraph).*
37. *Auxiliary request 2 is amended as compared to the main request by introducing a power controller and by introducing the plasma generating unit and its impedance as part of the resonant circuit.*
38. *The amendments to auxiliary request 2 address some, but not all of the above objections under Articles 100(c) EPC to the main request. For instance, the power filtering and isolation circuit 110 and positive feedback 232 are still not included in the system of claim 1.*

39. *Since the amendments to auxiliary request 2 are not suitable to address all the issues raised, the Board currently intends to not admit auxiliary request 2 in the appeal proceedings (Article 12(6), second sentence RPBA).*
40. *In auxiliary requests 3 further amendments were made. However, from the objections above, the power filtering and isolation circuit 110 is still missing. For that reason, the Board currently intends not to admit auxiliary request 3 into the appeal proceedings, since the amendments are not suited to overcome all objections to the main request (Article 12(6), second sentence RPBA).*
41. *Further, the Board tends to agree with the opponent that the amendments should have been filed earlier. The objection of a lack of basis for the intermediate generalizations in the characterizing portion of claim 1 was present from the start of the opposition proceedings and was also addressed in detail in the summons to attend oral proceedings before the Opposition Division (summons, point 2.3.3). There is no evidence on file that the position of the Opposition Division changed during oral proceedings. Hence, the proper time for submitting these amendments would have been the time limit given together with the summons to attend oral proceedings before the Opposition Division under Rule 116(1) EPC. This was*

the proper time, and not during oral proceedings. The proprietor has made submissions concerning the admissibility of this request (these requests) that are not in the public file. They do not seem germane. The proprietor is requested to explain what, in their view, the consequences of these submissions are, but should note that the Board may not take a decision on any matter on which the opponent has had no opportunity to comment.

42. *Hence, these amendments should have been submitted already in the proceedings leading to the decision under appeal.*
43. *There are also no circumstances in the appeal case that justify their admittance.*
44. *To the contrary, as also pointed out by the opponent (reply, pages 16 to 20, under the sub-titles: "Auxiliary request 2" and "Auxiliary request 3"), the amendments to auxiliary requests 2 and 3 prima facie give rise to new objections, and hence, their consideration would be against procedural economy.*
45. *These new objections to auxiliary request 2 include lack of clarity (Article 84 EPC)*
- (i) "a selected sequence of high-frequency electrical pulses" vs. "the pulse sequence"*

(ii) method features in the definition of the controller

(iii) no definition of electrodes of the plasma generating unit

46. *New objections to auxiliary request 3 include*

(a) lack of clarity (Article 84 EPC)

(i) same objections as to auxiliary request 2

(ii) details of the connection between the elements are missing, thereby lacking explanation on how the impedance can be determined

(iii) What are the signals sent by the resonant circuit to the feedback route? Do these signals affect the sequence of the high-frequency pulses and how?

(b) Article 123(3) EPC

It is not required anymore that the resonant circuit generates a carrier frequency of the high-frequency electrical pulses. The scope of the claim has been shifted and extended beyond the scope of the claims of the patent.

(c) Article 123(2) EPC

Due to the missing connections of the elements, the claim does not define (as originally disclosed) that the pulses are generated by a dimmer, then amplified and transmitted to the resonant circuit which comprises the coaxial cable, and the positive feedback circuit.

47. Hence, the Board intends also not to admit auxiliary requests 2 and 3, since they should have been submitted in the proceedings leading to the decision under appeal and there are no circumstances of the appeal case that justify their admittance (Article 12(6), second sentence RPBA).

Apportionment of costs - Article 104 EPC

48. With the reply, the opponent requested a decision on apportionment of costs under Article 104 EPC, since "the opponent now bears the costs for an appeal case in which all requests need to be addressed, even if not valid, to have a full case, instead of an appeal case of the patent proprietor which should have been only against the last rejected late-filed request filed at 15:40" (reply, page 5, 6th paragraph).

49. As discussed above, the Board currently agrees that the Opposition Division acted within their discretion when reinstating the main request and auxiliary request 1. Hence, there is no reason of equity that would allow ordering a different apportionment of costs than that each party to the opposition proceedings shall bear the costs it has occurred (Article 104 EPC).

Summary

50. The appeal is admissible.

51. The main request and auxiliary request 1 are unallowable due to added matter.

52. The Board is unlikely to admit auxiliary requests 2 and 3.

53. Each party should bear its own costs.

54. The appeal is likely to be dismissed.

XII. After notification of this preliminary opinion, the appellant (proprietor) informed the Board that they would not be represented during oral proceedings.

XIII. Since the respondent (opponent) had not requested oral proceedings, the oral proceedings were cancelled.

XIV. Neither the appellant nor the respondent submitted a response in substance to the Board's preliminary opinion.

XV. The parties' final requests were, therefore, the same as their initial requests as set out above.

Reasons for the Decision

1. Both parties had the opportunity to reply, in writing, to the Board's preliminary opinion under Article 15(1) RPBA. No responses were submitted.

2. The Board sees no reason to deviate from the preliminary opinion. As a consequence, and for the reasons reproduced above, the Board finds as follows:

the appeal is admissible;
the main request and auxiliary request 1 are unallowable due to added matter;
auxiliary requests 2 and 3 are not admitted into the proceedings; and
each party bears its own costs.

3. Thus, none of appellant's requests can be allowed and the appeal is to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



D. Meyfarth

P. Scriven

Decision electronically authenticated