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Datasheet for the decision of 14 April 2026

Case Number: T 1155/24 - 3.5.05

Application Number: 17210257.6

Publication Number: 3343955

IPC: H04R25/00

Language of the proceedings: EN

Title of invention:
Assembly for hearing aid

Patent Proprietor:
Oticon A/S

Opponent:
Sivantos Pte. Ltd.

Headword:
Antenna trap for a hearing aid/OTICON

Relevant legal provisions:
EPC Art. 56
RPBA 2020 Art. 13(2)

Keyword:

Inventive step - (no): juxtaposition of routine features and no hindsight bias

Admittance of claim request filed after Art. 15(1) RPBA communication - (no): no "exceptional circumstances" + "fresh case"

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Case Number: T 1155/24 - 3.5.05

D E C I S I O N
of Technical Board of Appeal 3.5.05
of 14 April 2026

Appellant: (Opponent)	Sivantos Pte. Ltd. 18 Tai Seng Street No. 08-08 18 Tai Seng Singapore 539775 (SG)
Representative:	FDST Patentanwälte Nordostpark 16 90411 Nürnberg (DE)
Respondent: (Patent Proprietor)	Oticon A/S Kongebakken 9 2765 Smørum (DK)
Representative:	Cohausz & Florack Patent- & Rechtsanwälte Partnerschaftsgesellschaft mbB Postfach 10 18 30 40009 Düsseldorf (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted/electronically transmitted on 5 July 2024 concerning maintenance of the European Patent No. 3343955 in amended form.**

Composition of the Board:

Chair	K. Bengi-Akyürek
Members:	P. Tabery
	F. Bostedt

Summary of Facts and Submissions

I. The appeal is directed against the decision of the opposition division to maintain the patent as amended in accordance with **auxiliary request 12** filed during the first-instance oral proceedings.

The opposition division found that the opposed patent as granted (then main request) as well as auxiliary requests 1, 2, 6 and 7 did not comply with Article 54 EPC, that auxiliary requests 1 to 8, 10 and 11 did not comply with Article 123(2) EPC and that the main request as well as auxiliary requests 1 to 3 and 6 to 9 did not comply with Article 56 EPC.

II. The prior-art documents referred to by the opposition division included:

D1: US 2010/321269 A1
D3: EP 1496530 B1
D4: WO 2015127972 A1.

III. Oral proceedings before the board were held on 14 April 2026. The final requests of the parties were as follows:

- The appellant-opponent ("the opponent") requested that the decision under appeal be set aside and that the European patent be revoked.

- The respondent-proprietor ("the proprietor") requested that the appeal of the opponent be dismissed so that the patent be maintained in amended form on the basis of **auxiliary request 12** (main request). Alternatively, it requested that

the patent be maintained in amended form in accordance with one of **auxiliary requests 13 to 15**.

At the end of the oral proceedings, the board's decision was announced.

IV. Claim 1 of **auxiliary request 12** reads as follows (board's labelling):

F1 "A hearing aid (322) comprising:
F1.1 - a first part (324) configured to be positioned at or behind the ear of a user and
F1.2 - an assembly (10, 300) comprising
F1.2.1 a second part (12, 340) configured to be positioned at or at least partly in the ear canal of the user and
F1.2.2 a third part (16, 328) configured to mechanically connect the first part (324) and the second part (12, 340),
F1.3 - the second part (12, 340) comprising an output transducer (34, 326) configured to provide an acoustic signal to be provide *[sic]* to the user's ear canal,
F1.4 the third part (12, 328) comprising a transmission path configured to provide electrical connection between the first part (324) and the second part (12, 340),
F1.4.1 the transmission path being at least partially established via or on a flexible substrate which is a flexible circuit board (102, 108, 114, 120, 126, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 251, 252, 253, 256, 280, 290, 338) having a plurality of electrically conductive paths,

F1.5 - wherein the third part further comprises a protective member (24, 90) mounted along the length of the flexible substrate (102, 108, 114, 120, 126, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 251, 252, 253, 256, 280, 290, 338),

F1.6 - wherein the hearing aid (322) further comprises a wireless interface and an antenna, and

F1.6.1 wherein at least part of the antenna is formed along the flexible substrate (102, 108, 114, 120, 126, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 251, 252, 253, 256, 280, 290, 338) by a conductor in the flexible substrate, wherein the antenna extends at least in part of the length of the flexible substrate (102, 108, 114, 120, 126, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 251, 252, 253, 256, 280, 290, 338),

F1.7 - wherein the antenna includes an antenna trap that divides the length of the part of the flexible substrate where the antenna is formed such that the antenna is configured to operate at least at two different wavelengths."

Claim 1 of **auxiliary request 13** differs from claim 1 of auxiliary request 12 in that the term "*by a conductor in the flexible substrate*" of feature F1.6.1 has been deleted, such that this feature now reads as follows:

F1.8 "wherein at least part of the antenna is formed along the flexible substrate (102, 108, 114, 120, 126, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 251, 252,

253, 256, 280, 290, 338), wherein the antenna extends at least in part of the length of the flexible substrate (102, 108, 114, 120, 126, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 251, 252, 253, 256, 280, 290, 338)",

and in that feature F1.7 has been replaced by the following feature:

F1.9 "wherein the flexible substrate is a multi-layer flexible circuit board where at least part of the plurality of transmission paths are formed on respective opposite sides of the flexible substrate (102, 108, 114, 120, 126, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 251, 252, 253, 256, 280, 290, 338)."

Claim 1 of **auxiliary request 14** differs from claim 1 of auxiliary request 12 in that feature F1.7 now reads as follows (amendment underlined by the board):

F1.10 "wherein the antenna includes an antenna trap that divides the length of a part of the flexible substrate where the antenna is formed such that the antenna is configured to operate at least at two different wavelength."

Claim 1 of **auxiliary request 15** reads as follows (amendments vis-à-vis auxiliary request 12 underlined by the board, deletions not shown):

"A kit for a hearing aid (322) comprising:

- a first part (324) configured to be positioned at or behind the ear of a user and
- an assembly (10, 300) comprising a second part (12, 340) configured to be positioned at or at least partly in the ear canal of the user, a third part (16, 328) configured to mechanically connect the first part (324) and the second part (12, 340), and a fourth part (16, 328) configured to mechanically connect the first part (324) and the second part (12, 340),
- the second part (12, 340) comprising an output transducer (34, 326) configured to provide an acoustic signal to be provide *[sic]* to the user's ear canal,
- the third part (12, 328) forming a first connector and comprising a transmission path configured to provide electrical connection between the first part (324) and the second part (12, 340), the transmission path of the first connector and being at least partially established via or on a flexible substrate which is a flexible circuit board (102, 108, 114, 120, 126, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 251, 252, 253, 256, 280, 290, 338) having a plurality of electrically conductive paths,
- wherein the third part further comprises a protective member (24, 90) mounted along the length of the flexible substrate (102, 108, 114, 120, 126, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 251, 252, 253, 256, 280, 290, 338),
- the fourth part (12, 328) forming a second connector and comprising a transmission path configured to provide electrical connection between the first part (324) and the second part (12, 340), the transmission path of the second connector and being at least partially established via or on a

flexible substrate which is a flexible circuit board (102, 108, 114, 120, 126, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 251, 252, 253, 256, 280, 290, 338) having a plurality of electrically conductive paths,

- wherein the fourth part further comprises a protective member (24, 90) mounted along the length of the flexible substrate (102, 108, 114, 120, 126, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 251, 252, 253, 256, 280, 290, 338),
- wherein the first connector has a different overall length than the second connector to allow adaptation of the mounted hearing aid to user ears of different size,
- wherein the hearing aid (322) further comprises a wireless interface and an antenna, and
- wherein the first connector is configured such that, in a mounted state with the first connector providing the electrical connection between the first part (324) and the second part (12, 340), at least part of the antenna is formed along the flexible substrate (102, 108, 114, 120, 126, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 251, 252, 253, 256, 280, 290, 338) by a conductor in the flexible substrate of the first connector, wherein the antenna extends at least in part of the length of the flexible substrate (102, 108, 114, 120, 126, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 251, 252, 253, 256, 280, 290, 338) of the first connector,
- wherein the second connector is configured such that, in a mounted state with the second connector providing the electrical connection between the first part (324) and the second part (12, 340), at least part of the antenna is formed along the flexible substrate (102, 108, 114, 120, 126, 130,

140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 251, 252, 253, 256, 280, 290, 338) by a conductor in the flexible substrate of the second connector, wherein the antenna extends at least in part of the length of the flexible substrate (102, 108, 114, 120, 126, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 251, 252, 253, 256, 280, 290, 338) of the second connector,

- wherein the antenna of the first connector includes an antenna trap that divides the length of a part of the flexible substrate where the antenna is formed such that the antenna is configured to operate at least at two different wavelengths, the at least two different wavelengths of the antenna of the first connector comprising a first wavelength,
- wherein the antenna of the second connector includes an antenna trap that divides the length of a part of the flexible substrate where the antenna is formed such that the antenna is configured to operate at least at two different wavelengths, the at least two different wavelengths of the antenna of the second connector comprising the first wavelength."

Reasons for the Decision

1. The opposed patent concerns a hearing aid where a flexible element (i.e. a flexible printed circuit board), which is mechanically connecting a behind-the-ear device (BTE) to an in-the-ear (ITE) device, may additionally be the host of an antenna element.

2. Auxiliary request 12 (main request)

2.1 Inventive step (Article 56 EPC)

2.1.1 It is common ground that document **D4** does not disclose features F1.4.1, F1.5, F1.6.1 and F1.7 of claim 1. They therefore constitute the claim's distinguishing features over D4.

2.1.2 The board concurs with the opponent that the **first difference** (i.e. features F1.4.1 and F1.6.1) yields the technical effect of establishing a simple and cost-effective physical connection between the first and the second part of the underlying hearing aid.

2.1.3 The **second difference** (i.e. feature F1.5) yields the technical effect of protecting the electrical connection between the first and second part of the hearing aid.

2.1.4 The **third difference** (i.e. feature F1.7) yields the technical effect of enabling wireless communication with other devices where a radio transceiver in the hearing aid could be operated at two frequencies at any given time (see also the patent specification, column 5, lines 10-16).

2.1.5 These three differences relate to distinct technical effects. Therefore, they constitute an aggregation of features (i.e. a juxtaposition) rather than a synergistic combination of them. It is thus sufficient to assess the obviousness of each distinguishing feature separately in order to prove that the aggregation of features does not involve an inventive step.

2.1.6 The objective technical problem associated with the **first difference** lies in *how to provide a simple and cost-effective way of connecting the first and second part of the hearing aid of document D4*.

Document **D3** discloses (see Fig. 11 and accompanying paragraph [0073]), a "flexible connector 1030" implementing a "control panel 1000". The latter comprises, according to claim 1 of D3, a "*layered structure comprising an electrically non-conducting substrate*" and an "*electrically conducting path*". Since this control panel is presented in paragraph [0008] as already solving the objective technical problem, the skilled person would have readily implemented it in the hearing aid known from document D4. In doing so, the skilled person would also have used the printed circuit board's conductive paths as an RF antenna, since document D4 discloses, at page 5, lines 7 to 12, to use the wire connections as an RF antenna. This way, the skilled person would have arrived at features F1.4.1 and F1.6.1 of claim 1 without employing any inventive skill.

2.1.7 As to the **second difference** (i.e. feature F1.5), when implementing the "flexible connector 1030" of document D3 into the system known from document D4, the skilled person would have necessarily also implemented the "surface layer" of document D3. By doing so, the skilled person would have arrived at feature F1.5 of claim 1 without employing any inventive skill. In that context, it is noted that the wording of feature F1.5 is to be interpreted broadly, as the term "protective member" is unspecific as to the type of protection it is supposed to provide.

2.1.8 Lastly, the objective technical problem associated with the **third difference** lies in *how to enable wireless communication with external devices where a radio transceiver in the hearing aid could be operated at two frequencies at any given time in the system of D4*.

The board holds that it was commonly known to the skilled person at the relevant date that radio technologies employing two frequencies, such as e.g. in wireless LANs, were commonly known at the relevant date and that an "antenna trap" typically allows an antenna to operate at (at least) two different frequencies or wavelengths, thereby inherently avoiding the use of a distinct antenna for each frequency/wavelength available in the underlying hearing-aid system. Therefore, to solve this objective technical problem, the skilled person would have evidently added such an "antenna trap" to the system of document D4 depending on the practical circumstances. Thus, the skilled person would have arrived at feature F1.7 without employing any inventive skill.

2.1.9 The proprietor argued that the objective problem formulated for the third difference contained elements of the solution and was thus not properly formulated.

2.1.10 The board disagrees. The technical effect recited in feature F1.7 ("*such that the antenna is configured to operate at least at two different wavelengths*") is the commonly known effect of an "antenna trap". A claim is supposed to indicate a technical solution to a technical problem. This problem is generally based on a technical effect. Contrary to the conclusion drawn in the appealed decision (cf. page 27, first paragraph), if the technical solution mentioned in a claim expressly refers to the intended technical effect (as

is the case here), this effect may be legitimately used in the formulation of the objective technical problem without the influence of hindsight bias.

2.1.11 In addition, the proprietor argued that the problem associated with the **first and third differences** was "*how to improve the hearing aid's communication capabilities*". Since there were many options for solving this problem, the skilled person would not have arrived at the first and third differences without using inventive skill.

The board is not convinced by the problem presented by the proprietor for the first and third differences. Notably, this problem is broader than appropriate for the "narrow" solution relating to the third difference. In particular, this difference is not concerned with "*improving the communication capabilities of the hearing aid*" on a general level; it only concerns a rather specialised and thus limited aspect of it. Thus, this problem could not be credibly solved over the whole scope of claim 1. On the other hand, the first difference does not even relate to a solution to the problem presented by the proprietor. The first difference addresses an implementation aspect of the RF antenna, which does however not necessarily affect the hearing aid's particular communication capabilities. Therefore, the problem presented by the proprietor is not a valid problem for assessing the first and third differences by means of the problem-solution approach.

2.1.12 As to the **second difference**, the proprietor argued that document D3 dissuaded the skilled person from foreseeing a "protective member". A "protective member" would cover the buttons on the flexible circuit board of document D3, rendering them inaccessible and thus

deprive them of their very function.

2.1.13 The board is not convinced. In fact, the board agrees with the opponent that the "surface layer" of document D3 also constitutes a "protective member". That is, document D3 even discloses the use of a "protective member" - and does not discourage it. In addition, claim 1 does not specify that the "protective member" wraps around the "flexible circuit board" entirely, contrary to what the proprietor implied.

2.1.14 For these reasons, the subject-matter of claim 1 does not involve an inventive step over the disclosure of document D4 in combination with document D3 and the skilled person's common general knowledge.

2.2 In view of the above, auxiliary request 12 (main request) is not allowable under Article 56 EPC.

3. Auxiliary request 13

3.1 Claim construction

3.1.1 As to **feature F1.8** (which corresponds to feature F1.6.1 of claim 1 of auxiliary request 12), the board understands the formulation "*wherein the antenna extends at least in part of the length of the flexible substrate*" as meaning "*wherein the antenna extends, at least in part, along the length of the flexible substrate*". This is also in line with the preceding portion of feature F1.8 which defines that "*at least part of the antenna is formed **along** the flexible substrate*" (board's emphases).

3.1.2 The board disagrees with the interpretation of the proprietor that the formulation "*wherein the antenna*

extends at least in part of the length of the flexible substrate" necessarily implies that "*the antenna extends in the flexible substrate*" (proprietor's emphasis). Rather, the preposition "in" is tied to the term "part" and the phrase "in part" is to be considered a synonym for "partly". Consequently, the formulation that "*the antenna extends at least in part of the length of the flexible substrate*" does not contain any information as to whether the antenna is embedded in the substrate or merely attached to it.

3.2 Inventive step (Article 56 EPC)

3.2.1 It is common ground that document **D3** does not directly and unambiguously disclose features F1.6, F1.8 and F1.9 of claim 1, which therefore constitute its distinguishing features over this document.

3.2.2 The technical effect caused by **distinguishing features F1.6 and F1.8** lies in that wireless communication with external devices is enabled (see also the patent specification, column 4, lines 31-34). The corresponding objective technical problem may thus be formulated as "*how to enable communication with external devices in the system of document D3*".

Since a wireless interface constitutes a commonly known feature of many hearing aids, e.g. of those disclosed in documents D1 and D4, the skilled person would have realistically considered the above objective technical problem. In addition, the skilled person would have contemplated using the communication wires of document D3 as an RF antenna. This would have constituted, for the skilled person, a routine measure at the relevant date for efficiently implementing an RF antenna (see e.g. document D4, Fig. 3 and page 5,

lines 6 to 8). Hence, by implementing this commonly known measure to achieve a well-known advantage, the skilled person would have indeed arrived at distinguishing features F1.6 and F1.8 without employing any inventive skill.

3.2.3 As to **distinguishing feature F1.9**, the board concurs with the opponent that it constitutes a usual feature of typical flexible printed circuit boards. Since document D3 already discloses a "flexible printed circuit board" (e.g. in paragraphs [0035] and [0050]), the skilled person would have readily envisaged incorporating that feature into the system of document D3, depending on the practical circumstances, without employing any inventive skill.

3.2.4 For these reasons, the subject-matter of claim 1 does not involve an inventive step over the disclosure of document D3 in combination with the skilled person's common general knowledge.

3.3 In view of the above, auxiliary request 13 is not allowable under Article 56 EPC, either.

4. Auxiliary request 14

As the amendments to claim 1 of **auxiliary request 14** vis-à-vis claim 1 of auxiliary request 12 concern a minor correction only, this claim request is not allowable under Article 56 EPC for the same reasons as for auxiliary request 12.

5. Auxiliary request 15

5.1 The proprietor submits that late-filed **auxiliary request 15** included the feature of an additional

"second connector", which was not rendered obvious by the cited prior art.

5.2 The opponent countered that this amendment was taken from the patent description and was not related to any of the issues that had been discussed during the opposition and appeal proceedings. It therefore constituted a "fresh case" and should not be admitted into the proceedings.

5.3 The board found that, despite the substantial amount of claim amendments taken from the patent description leading to a "fresh case", the proprietor did not present "cogent reasons" justifying "exceptional circumstances" in favour of admitting auxiliary request 15 at this late stage of the proceedings.

5.4 Therefore, the board decided that, in the absence of "exceptional circumstances", auxiliary request 15 is not admitted into the proceedings (Article 13(2) RPBA).

6. With no allowable claim request on file, the patent must be revoked.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chair:

B. Brückner K. Bengi-Akyürek

Decision electronically authenticated