

Internal distribution code:

- (A) [-] Publication in OJ
(B) [-] To Chairmen and Members
(C) [-] To Chairmen
(D) [X] No distribution

**Datasheet for the decision
of 21 February 2020**

Case Number: T 1627/16 - 3.5.03

Application Number: 09172644.8

Publication Number: 2178315

IPC: H04R25/00

Language of the proceedings: EN

Title of invention:

A listening system comprising a charging station with a data memory

Patent Proprietor:

Oticon A/S

Opponent:

Sivantos Pte. Ltd.

Headword:

Volatile memory in hearing aids/OTICON

Relevant legal provisions:

EPC Art. 54

RPBA Art. 13(1)

Keyword:

Novelty - main request (no)

Admission of late-filed auxiliary requests - (no): not
convergent and/or not clearly allowable

Admission of auxiliary request filed during oral proceedings -
(no): returning to previous claims and not clearly allowable

Decisions cited:

T 0681/01



Beschwerdekammern

Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 1627/16 - 3.5.03

D E C I S I O N
of Technical Board of Appeal 3.5.03
of 21 February 2020

Appellant: Sivantos Pte. Ltd.
(Opponent) 18 Tai Seng Street
No. 08-08
18 Tai Seng
Singapore 539775 (SG)

Representative: FDST Patentanwälte
Nordostpark 16
90411 Nürnberg (DE)

Respondent: Oticon A/S
(Patent Proprietor) Kongebakken 9
2765 Smørum (DK)

Representative: TBK
Bavariaring 4-6
80336 München (DE)

Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 9 May 2016
rejecting the opposition filed against European
patent No. 2178315 pursuant to Article 101(2)
EPC.**

Composition of the Board:

Chair K. Bengi-Akyürek
Members: K. Peirs
R. Romandini

Summary of Facts and Submissions

- I. This appeal is against the decision of the opposition division to reject the opposition. The grounds for opposition invoked by the opponent were those pursuant to Article 100(a) and (b) EPC.
- II. In the impugned decision, the opposition division held that the invention as claimed in claim 13 of the patent as granted was disclosed in a manner sufficiently clear and complete for a skilled person to carry it out (Article 83 EPC). It also held that the subject-matter of claim 1 was new with respect to, *inter alia*, the disclosure of **D1** (= WO 2007/097892 A2). The opposition division regarded D1 as the closest prior art and acknowledged an inventive step.
- III. In the statement of grounds of appeal, the appellant (opponent) requested that the decision under appeal be set aside and that the patent be revoked in its entirety. It argued that the subject-matter of claim 1 was not new, *inter alia*, with respect to document **B1** (= D1 of the opposition proceedings), and did not involve an inventive step starting from B1 as closest prior art. The ground for opposition under Article 100(b) EPC was not addressed.
- IV. In response to the statement of grounds of appeal, the respondent (proprietor) requested as a main request that the appeal be rejected. In the alternative, maintenance of the patent in amended form according to a first to a sixth auxiliary request was requested, all auxiliary requests being filed in response to the board's communication under Article 15(1) RPBA 2007. A seventh auxiliary request to maintain the patent in amended form was filed during the oral proceedings

before the board.

V. At the end of the oral proceedings held on 21 February 2020, the board's decision was announced.

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

"A hearing aid system (1) comprising

a) a hearing instrument (10) comprising a rechargeable battery (5) for energizing the hearing instrument, and

b) a charging station (20), adapted for allowing a hearing instrument (10) to be mounted and the battery (5) to be recharged without removing the battery from the hearing instrument (10), wherein the hearing instrument (10) further comprises a volatile data memory (8), wherein basic data for the configuration of the hearing instrument are stored during normal operation, and wherein the charging station comprises a data memory (22), wherein the basic data for the configuration of the hearing instrument can be stored, and wherein the system further comprises

c) a connection (30) allowing communication between the charging station (20) and the hearing instrument (10), to allow the basic data for the configuration of the hearing instrument to be transferred from the data memory (22) of the charging station to the data memory (8) of the hearing instrument, when the hearing instrument is mounted in the charging station (20)."

VII. Claim 1 of the **first auxiliary request** reads as follows (amendments underlined):

"A hearing aid system (1) comprising

a) a hearing instrument (10) comprising a rechargeable battery (5) for energizing the hearing instrument, and

b) a charging station (20), adapted for allowing a hearing instrument (10) to be mounted and the battery (5) to be recharged without removing the battery from the hearing instrument (10), wherein the hearing instrument (10) further comprises a volatile data memory (8), wherein basic data for the configuration of the hearing instrument are stored during normal operation, and an input transducer for picking up an input sound in the environment and converting it to an electric input signal and an output transducer for converting an electric output signal to an output sound adapted for being presented to a user wearing the hearing instrument and a signal processor electrically connected to the input and output transducers and adapted to perform signal processing on the electric input signal using at least some of the basic data for the configuration of the hearing instrument read from the volatile memory of the hearing instrument, and wherein the charging station comprises a data memory (22), wherein the basic data for the configuration of the hearing instrument can be stored, and wherein the system further comprises

c) a connection (30) allowing communication between the charging station (20) and the hearing instrument (10), to allow the basic data for the configuration of the hearing instrument to be transferred from the data memory (22) of the charging station to the data memory (8) of the

hearing instrument, when the hearing instrument is mounted in the charging station (20)."

- VIII. Claim 1 of the **second auxiliary request** comprises all the features of claim 1 of the main request and adds at the end:

"wherein the hearing aid system is adapted to provide that the connection (30) allowing communication between the hearing instrument (10) and the charging station (20) is wireless based on electromagnetic RF communication between charging station and hearing instrument."

- IX. Claim 1 of the **third auxiliary request** comprises all the features of claim 1 of the second auxiliary request and adds at the end:

"wherein the hearing aid system is adapted to transfer data from the hearing instrument to the data memory (22) of the charging station (20)."

- X. Claim 1 of the **fourth auxiliary request** comprises all the features of claim 1 of the third auxiliary request and adds at the end:

"wherein said data includes data related to the hearing instrument status and/or operation, e.g. a form of log of the user's inputs, or data concerning the acoustic environments, which the hearing instrument has encountered, or data concerning the battery status."

- XI. Claim 1 of the **fifth auxiliary request** corresponds to claim 1 of the first auxiliary request combined with the additional features of the second to fourth

auxiliary requests (see points VIII to X above).

- XII. Claim 1 of the **sixth auxiliary request** comprises all the features of claim 1 of the fifth auxiliary request and adds at the end:

"wherein the hearing aid system is adapted to transfer the basic data for the configuration of the hearing instrument (10) from the data memory (22) of the charging station (20) to the volatile data memory (8) of the hearing instrument (10), when a predefined recharging time has elapsed."

- XIII. Claim 1 of the **seventh auxiliary request** comprises all the features of claim 1 of the fifth auxiliary request and adds at the end:

"wherein the hearing aid system is adapted to transfer the basic data for the configuration of the hearing instrument (10) from the data memory (22) of the charging station (20) to the volatile data memory (8) of the hearing instrument (10), when the battery voltage of the hearing instrument (10) is above a predefined threshold voltage, for which the hearing instrument (10) is functionally operational."

Reasons for the Decision

1. *Patent in suit*

The opposed patent relates to a hearing aid with a rechargeable battery in which a non-volatile memory is dispensed with. This non-volatile memory is conventionally used to store basic data which the hearing aid needs to operate. According to the patent,

it is replaced by a volatile memory that receives the basic data via a charger which has this data stored in a non-volatile memory.

2. *Main request: claim 1 as granted - novelty*

- 2.1 Prior-art document **B1** discloses a hearing aid system (Figure 1, hearing aids inserted into charger 20; page 4, line 28 - page 6, line 25) comprising
- (a) a hearing instrument (Figure 1) comprising a rechargeable battery (page 5, line 2: "rechargeable battery 16") for energising the hearing instrument, and
 - (b) a charging station (Figure 1, "charger 20"), adapted for allowing a hearing instrument to be mounted and the battery to be recharged without removing the battery from the hearing instrument (Figure 1), wherein the hearing instrument further comprises a volatile data memory (implicit from the microprocessor described on page 5, lines 1-2 and 16-19, which commonly requires volatile data memories such as a register and a cache to properly operate), wherein basic data for the configuration of the hearing instrument are stored during normal operation (implicit: the cache or register of the microprocessor must contain all the required data for processing the input signal such that it at least partially alleviates the user's hearing loss), and wherein the charging station comprises a data memory (Figure 1, the register and cache of microprocessor 36), wherein the basic data for the configuration of the hearing instrument can be stored (page 5, lines 13-19: programming the hearing aid via acoustic tones emitted by the speaker of charger 20 implies a transfer of programming data, i.e. all data required for a

proper functioning of the hearing aid, from the charger to the hearing aids; page 6, lines 20-25; from Figure 1 it is apparent that the microprocessor 36 controls the speakers and microphones which provide the acoustic connection with the hearing aids),

(c) a connection (page 5, lines 13-24; page 6, lines 20-25: "acoustic coupling") allowing communication between the charging station and the hearing instrument, to allow the basic data for the configuration of the hearing instrument to be transferred from the data memory of the charging station to the data memory of the hearing instrument, when the hearing instrument is mounted in the charging station (Figure 1; page 5, lines 13-24; page 6, lines 20-25).

2.2 Hence, B1 discloses all the limiting features of present claim 1. Consequently, the subject-matter of claim 1 is not new (Article 54 EPC).

2.3 The respondent argued that B1 did not anticipate the subject-matter of claim 1 because of essentially three reasons:

2.3.1 *First*, as to feature (b), the respondent argued that B1 did not disclose a volatile memory as a distinct, separate component compared to the processor of the hearing instrument. In particular, according to the structure of claim 1, the processor and the data memory of the hearing instrument were placed on the same hierarchical level. Therefore, the volatile data memory was not included in another constituent. It was argued that the claim was unclear in this respect and that the skilled person would therefore have consulted the

present description as filed. There, the skilled person would have found confirmation in paragraphs [0004], [0012], [0014] and [0038] that the volatile memory was to be seen as a *distinct* component which was meant to replace the *non-volatile* memory that was conventionally present and that was able to store the *complete* set of basic data. The respondent further argued that the skilled person would have expected another wording in the claim if the volatile memory were meant to encompass a "cache" memory.

The board notes that a claim must be read giving the words the meaning and scope which they normally have in the relevant art (see e.g. T 681/01, Reasons 2.1.1). An approach, such as adopted by the opposition division in the decision under appeal, relying on the description to interpret the claims artificially in a too narrow way, is not endorsed. Rather, the skilled person would understand the term "volatile data memory" to cover *any* kind of computer memory that requires power to maintain the stored information, wherein, when the power is interrupted, the stored data is quickly lost. A register or a cache for a microprocessor are examples of such a memory. Likewise, the term "data memory" can comprise any kind of volatile or non-volatile data memory. In addition, the claim wording does not preclude that the data memory could indeed be a sub-component of the respective processor. Furthermore, as brought forward by the appellant, the storing of basic data in those memories according to feature (b) can be a *sequential* storing of those data.

Also, the term "basic data" is broad: it can be interpreted as "the data that are necessary for the hearing instrument to work properly, such as identification data, configuration data, program data,

etc." (see page 2, line 10-12 of the description as filed), but, as highlighted by the appellant, the storing of the basic data of feature (b) should take place "during normal operation". From this, in combination with the indication on page 3, lines 25-32 of the description as filed that the signal processor of the hearing instrument may not need *all* of the basic data but merely "at least some", it follows that the skilled person would readily understand that the basic data of feature (b) that are stored "during normal operation" may refer to a particular parameter set that is relevant for the current listening situation. The cache memory of B1's microprocessors is unequivocally dimensioned to indeed comprise such a parameter set, otherwise the hearing aids would not be functional.

2.3.2 *Second*, the respondent argued that the charging station of B1 did not comprise a data memory as in feature (b). In particular, the interface as mentioned in line 18 of page 5 of B1 did not imply an *intermediate* storing of all basic data. At most, it implied a buffering of some of the data.

Given that the interface of line 18 of page 5 is intended for programming the hearing aid's microprocessor, it must be suitable for transmitting all the necessary programming data at least sequentially, which implies a data memory falling under feature (b), e.g. for buffering.

2.3.3 *Third*, the respondent argued that the connection according to feature (c) was not disclosed, because this connection required that *all* of the basic data were stored in the charging station.

As set out above, the board is not convinced that the

claim requires that all of the basic data be stored at the same time in the charging station.

3. *First auxiliary request: admissibility*

3.1 Claim 1 of this request differs from claim 1 of the main request in that it further specifies that the hearing instrument also comprises (board's underlining)

(d) an input transducer for picking up an input sound in the environment and converting it to an electric input signal and an output transducer for converting an electric output signal to an output sound adapted for being presented to a user wearing the hearing instrument and a signal processor electrically connected to the input and output transducers and adapted to perform signal processing on the electric input signal using at least some of the basic data for the configuration of the hearing instrument read from the volatile memory of the hearing instrument.

3.2 Based on Article 13(1) RPBA 2007 (see transitional provisions pursuant to Article 25(3) RPBA 2020), this request is not admitted into the appeal proceedings because claim 1 is not clearly allowable under Article 54 EPC over B1 or is at least not clearly allowable for lack of inventive step, Article 56 EPC, starting from B1 as the closest prior art.

Contrary to the respondent's opinion that the skilled person would have understood from feature (d) that the volatile memory and the data memory of feature (b) were not comprised by the signal processor, all characteristics of feature (d) are implicitly present in a hearing aid as shown in B1. In particular,

concerning the terms "signal processor", "volatile memory" and "data memory", the microprocessor of the hearing aids and of the charging station are interpreted to be composed of a processor core (representing the claimed "signal processor"), a cache memory (representing the claimed "volatile memory" for the hearing aid's microprocessor and the claimed "data memory" for the charging station's microprocessor) and a housing encapsulating the processor core and the cache memory. Therefore, the board cannot share the respondent's opinion that the first auxiliary request constitutes an appropriate reaction to the board's interpretation that the volatile memory could have been part of the microprocessor of B1. For the sake of argument, even if one were to assume that the microprocessors of B1 does not imply a cache memory, it would be a matter of routine design for the skilled person, based on their common general knowledge, to provide the hearing aids and charging station of B2 with a RAM to promote a faster data flow and signal processing.

4. *Second auxiliary request: admissibility*

4.1 Claim 1 of this request differs from claim 1 of the main request in that it further specifies that (board's underlining)

(e) the hearing aid system is adapted to provide that the connection allowing communication between the hearing instrument and the charging station is wireless based on electromagnetic RF communication between charging station and hearing instrument.

4.2 Pursuant to Article 13(1) RPBA 2007, this request is not admitted into the appeal proceedings on the grounds

that it is not convergent with the first auxiliary request and that claim 1 is not clearly allowable for lack of inventive step, Article 56 EPC, starting from B1 as the closest prior art.

It is acknowledged that the RF communication of feature (e) is not shown in B1, where on page 6, lines 22-25, it is mentioned that an *acoustic* coupling is preferred for the two-way communication that is used for programming the hearing aid as set out in lines 13-24 of page 5. The board highlights that B1 uses the wording "preferred", which implies that other ways to implement the coupling can be envisaged. As such, the acoustic way of implementing the coupling cannot be essential in B1, contrary to what was stated by the respondent. Instead, as brought forward by the appellant, an RF communication in the form of a Bluetooth connection is arguably more reliable than the noise-prone acoustic coupling of B1. Based on their common general knowledge, the skilled person would replace the acoustic coupling of B1 by a Bluetooth coupling when confronted with the objective technical problem of "how to render the coupling of B1 more reliable".

5. *Third auxiliary request: admissibility*

5.1 Claim 1 of this request differs from claim 1 of the second auxiliary request in that it further specifies that the hearing aid system is adapted to (board's underlining)

(f) transfer data from the hearing instrument to the data memory of the charging station.

5.2 By virtue of Article 13(1) RPBA 2007, this request is not admitted into the appeal proceedings on the grounds that it is not convergent with the first auxiliary request and that claim 1 is not clearly allowable for lack of inventive step, Article 56 EPC, starting from B1 as the closest prior art.

In particular, B1 (see page 5, lines 13-24; page 6, lines 20-25) discloses that the communication between the charging station and the hearing aids is a two-way communication, where the passage on page 5, lines 13-24 not only shows that the charging station programs the hearing aid, but also that the hearing aid can request the charging station to reduce the current through inductor 23 to reduce the rate of charge in order to prevent overheating. This request represents a data transfer from the hearing instrument to the charging station. As visible in Figure 1, *all* communication between the charging station and the hearing aids is relayed over I/O interface 37. Consequently, the *same* buffer memory as for programming the hearing aid must be used for the reverse data transfer from the hearing aid to the charging station. Therefore, the board does not share the respondent's conclusion that B1 did not provide any details on the two-way connection, in particular that it did not show that the *same* data memory as for the programming was used in the charging station.

6. *Fourth auxiliary request: admissibility*

6.1 Claim 1 of this request differs from claim 1 of the third auxiliary request in that it further specifies that (board's underlining)

(g) the data includes data related to the hearing instrument status and/or operation [, e.g. a form of log of the user's inputs, or data concerning the acoustic environments, which the hearing instrument has encountered, or data concerning the battery status].

6.2 Based on Article 13(1) RPBA 2007, this request is not admitted into the appeal proceedings on the grounds that it is not convergent with the first auxiliary request and that claim 1 is not clearly allowable for lack of inventive step, Article 56 EPC, starting from B1 as the closest prior art.

In particular, the fact that the hearing aid of B1 is at risk of overheating due to an excessive rate of charge as addressed in lines 19-24 of page 5 of B1 (see the board's argumentation for the third auxiliary request) is considered to be a *status* of the hearing aid. The request of the hearing aid to reduce the charging rate reflects such a status and represents therefore data related to the hearing-instrument status. The board understands the respondent's argument that the data of feature (g) might be useful for a hearing-aid acoustician to fine-tune the hearing aid based on, for instance, the data concerning the acoustic environments which were encountered when using the hearing aid, but cannot see how that would lead to the acknowledgement of an inventive step.

7. *Fifth auxiliary request: admissibility*

Claim 1 of this request corresponds to a combination of the features of claim 1 of the first to fourth auxiliary requests and thus inherits their deficiencies. Based on Article 13(1) RPBA 2007, this

request is not admitted into the appeal proceedings because claim 1 is not clearly allowable for lack of inventive step, Article 56 EPC, starting from B1.

8. *Sixth auxiliary request: admissibility*

8.1 Claim 1 of this request differs from claim 1 of the fifth auxiliary request in that it further specifies that the hearing aid system is adapted to (board's underlining)

(h) transfer the basic data for the configuration of the hearing instrument from the data memory of the charging station to the volatile data memory of the hearing instrument, when a predefined recharging time has elapsed.

8.2 Pursuant to Article 13(1) RPBA 2007, this request is not admitted into the appeal proceedings because claim 1 is not clearly allowable under Article 123(2) EPC. The respondent referred to page 10, lines 26 to 34 (in particular lines 33 to 34) of the description as filed, but this passage includes only the wording "data exchange is not commenced until a predefined threshold voltage on the rechargeable battery has been reached". Feature (h) does not imply that there is no data transfer when the threshold has not been reached. Consequently, it is not technically equivalent to the second option set out in lines 32-34 of page 10, contrary to what has been asserted by the respondent.

9. *Seventh auxiliary request: admissibility*

9.1 Claim 1 of this request differs from claim 1 of the fifth auxiliary request in that here it is specified that the hearing aid system is adapted to (board's

underlining)

(i) transfer the basic data for the configuration of the hearing instrument from the data memory of the charging station to the volatile data memory of the hearing instrument, when the battery voltage of the hearing instrument is above a predefined threshold voltage, for which the hearing instrument is functionally operational.

9.2 The respondent submitted the present request as a "last chance". However, given that the subject-matter of feature (i) had already been considered by the board in its communication under Article 15(1) RPBA 2007 with respect to an earlier auxiliary request, there is no proper justification for the submission of this claim request. Furthermore, claim 1 of the request at issue is not clearly allowable for lack of inventive step, Article 56 EPC, starting from B1 as the closest prior art.

In particular, B1 presupposes a functionally operational hearing aid, which implies that the battery voltage is *above* a certain minimum level, otherwise the programming of B1 could not take place. The board does not share the respondent's point of view that a hearing aid cannot be programmed when its battery is not fully charged: rather, it is sufficient when there is enough battery power to receive and store the programming data. The board emphasises that feature (i) does not require an *active* test or control: the mere fact that the hearing aid is functionally operational is sufficient for feature (i). Contrary to the respondent's opinion, feature (i) guarantees that the hearing aid was operational before it was being programmed in the same way as in B1. Against this

background, the seventh auxiliary request is not admitted into the appeal proceedings under Article 13(1) RPBA 2007.

10. *Conclusion*

Given that claim 1 of the patent as granted is not allowable under Article 54 EPC and that none of the present auxiliary requests can be admitted into the proceedings, the decision under appeal must be set aside and the patent 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