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**Datasheet for the decision
of 18 January 2022**

Case Number: T 1160/19 - 3.5.03

Application Number: 15173289.8

Publication Number: 2983377

IPC: H04R1/06, H01R13/24

Language of the proceedings: EN

Title of invention:

Audio transducer electrical connectivity

Applicant:

Nokia Technologies Oy

Headword:

Universal gasket/NOKIA

Relevant legal provisions:

EPC Art. 123(2)

Keyword:

Added subject-matter - all claim requests (yes)



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Case Number: T 1160/19 - 3.5.03

D E C I S I O N
of Technical Board of Appeal 3.5.03
of 18 January 2022

Appellant: Nokia Technologies Oy
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 28 November
2018 refusing European patent application
No. 15173289.8 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chair K. Bengi-Akyürek
Members: K. Peirs
N. Obrovski

Summary of Facts and Submissions

- I. The appeal is against the decision of the examining division refusing the present European patent application for lack of novelty (Article 54 EPC).
- II. The appellant requests that the decision under appeal be set aside and that a patent be granted on the basis of the claims of the main request or the claims of **auxiliary requests 1 or 2**, all underlying the impugned decision, or the claims of **auxiliary request 3**, filed with the statement of grounds of appeal.
- III. A communication was issued pursuant to Article 15(1) RPBA 2020 including the board's preliminary opinion that the subject-matter of claim 1 of all claim requests contained added subject-matter (Article 123(2) EPC).
- IV. Oral proceedings before the board were held on 18 January 2022 by videoconference. At the end of them, the board's decision was announced.
- V. Claim 1 of the **main request** reads as follows (the board introduced a feature labelling and highlighted the additions with respect to original claim 1 which are relevant for the present decision by underlining and italics):
 - (a) "An apparatus comprising:
an audio transducer (40) configured to generate sound, where the audio transducer comprises a housing (12), a diaphragm (48) and a driver for moving the diaphragm (48);

- (b) the housing at least partially comprising a gasket configured to electrically interface the audio transducer (40) with circuitry of an electronic device when the audio transducer (40) is received by the electronic device,
- (c) where the gasket comprises at least one portion (58, 66) which is electrically conductive and electrically connected to the driver, and at least one dielectric portion (65), and
- (d) where the gasket is further configured to provide an acoustic sealing functionality with the electronic device when the audio transducer is connected to the electronic device".

VI. Claim 1 of **auxiliary request 1** reads as follows (amendments vis-à-vis claim 1 of the main request highlighted by the board):

"An apparatus comprising:
an audio transducer (40) configured to generate sound, where the audio transducer comprises a housing (12), a diaphragm (48) and a driver for moving the diaphragm (48);
the housing at least partially comprising a gasket configured to electrically interface the audio transducer (40) with circuitry of an electronic device when the audio transducer (40) is received by the electronic device, where the gasket comprises at least one portion (58, 66) which is electrically conductive and electrically connected to the driver, and at least one dielectric portion (65), and where the gasket is further configured to provide an acoustic sealing ~~functionality with~~ between the audio transducer (40) and the electronic device when the audio transducer is connected to the electronic device".

VII. Claim 1 of **auxiliary request 2** reads as follows (amendments vis-à-vis claim 1 of auxiliary request 1 underlined by the board):

"An apparatus comprising:
an audio transducer (40) configured to generate sound, where the audio transducer comprises a housing (12), a diaphragm (48) and a driver for moving the diaphragm (48);
the housing at least partially comprising a gasket configured to electrically interface the audio transducer (40) with circuitry of an electronic device when the audio transducer (40) is received by the electronic device, where the gasket comprises at least one portion (58, 66) which is electrically conductive and electrically connected to the driver, and at least one dielectric portion (65), and where the gasket is further configured to provide an acoustic seal between the housing of the audio transducer (40) and the electronic device when the audio transducer is connected to the electronic device".

VIII. Claim 1 of **auxiliary request 3** reads as follows (amendments vis-à-vis claim 1 of auxiliary request 2 underlined and struck through by the board):

"An apparatus comprising:
an audio transducer (40) configured to generate sound, where the audio transducer comprises a housing (12), a diaphragm (48) and a driver for moving the diaphragm (48);
a printed wiring board (21) comprising circuitry, the printed wiring board (21) including an aperture or hole (68) provided to allow air to move based upon vibrations/movement of the diaphragm (48);
~~the housing at least partially comprising a gasket~~

configured to electrically interface the audio transducer (40) with the circuitry of an electronic device when the audio transducer (40) is received by the electronic device apparatus, where the gasket comprises at least one portion (58, 66) which is electrically conductive and electrically connected to the driver, and at least one dielectric portion (65), the gasket further comprising a hole, wherein the holes of the gasket (64) and the printed wiring board (21) are aligned in front of the diaphragm (48), and where the gasket is further configured to provide an acoustic seal between the housing of the audio transducer (40) and the electronic device printed wiring board when the audio transducer is connected to the electronic device circuitry".

Reasons for the Decision

1. *Technical background*

The present application relates to a gasket 64 providing for an electrical and acoustically sealed connection between a speaker 40 and a printed wiring board 21 in a portable hand-held device such as a mobile phone (see Fig. 6 below).

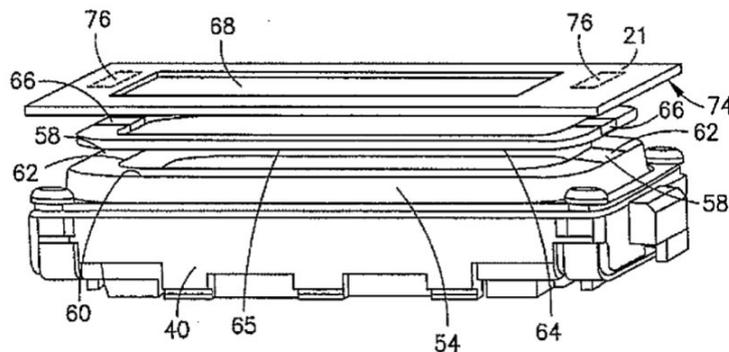


FIG. 6

2. *Main request: claim 1 - added subject-matter*

Claim 1 of the main request is related to original claim 1 but contains added subject-matter at least in **features (b) and (d)** (cf. the feature labelling introduced by the board in point V above) for the following reasons.

2.1 There is no direct and unambiguous disclosure in the application as filed for the general term "electronic device" in features (b) and (d). During the oral proceedings before the board, the appellant explained, with reference to paragraph [0017] and Figures 1 and 3 to 6 of the application as filed, that the expression "apparatus" in claim 1 was used as a shorthand for the "acoustic-transducer assembly" of the present application to distinguish it from the "electronic device" within which the acoustic-transducer assembly is mounted.

However, this explanation does not overcome the board's objection that subject-matter is indeed added due to the introduction of the general term "electronic device" in claim 1. To analyse this in more detail, the board notes that the gasket of features (b) to (d) is described in relation to

- an "apparatus" as in **feature (a)**

and

- an "electronic device" in accordance with features (b) and (d).

From lines 28 to 32 of page 6 and lines 25 to 28 of page 9 together with Figures 5 and 6 of the application

as filed, the skilled reader would immediately understand the gasket of the original application to be mounted between transducer 40 and housing 12 and/or between transducer 40 and printed wiring board 21. This means that the skilled reader would map

- the "apparatus" of feature (a) onto transducer 40 because it must include an "audio transducer"

and, consequently, would equate

- the "electronic device" of features (b) and (d) with printed wiring board 21, given that a housing *per se* cannot constitute an electronic device.

The term "electronic device" covers, however, a plurality of electronic configurations by which an audio transducer can be received in accordance with feature (b) or to which such a transducer can be connected as in feature (d). Examples of such electronic configurations range from what can be considered to constitute - by some standards - the largest machine ever built, namely the "Large Hadron Collider" at CERN, to one of the most elementary forms of electronic circuitry, namely a semiconductor-chip arrangement which can, for instance, receive a sound chip or to which such a sound chip can be connected.

Other than for the expression "printed wiring board", none of these electronic configurations have a direct and unambiguous basis in the original application. In other words, an "apparatus" including an "audio transducer" and a general "electronic device" as claimed is not disclosed in the entire application as filed.

2.2 Moreover, the phrases

- "*when the audio transducer is received by the electronic device*" of **feature (b)**

and

- "*when the audio transducer is connected to the electronic device*" of **feature (d)**

have no direct and unambiguous disclosure in the application as filed. The reasons for this are as follows:

2.2.1 In one interpretation which would readily occur to the skilled reader, these phrases imply, within the context of their respective features, that the gasket has a dual functionality, where the gasket provides for either an electrical connection or an acoustic sealing depending on whether the audio transducer is (mechanically) received by the electronic device or whether the audio transducer is (mechanically and/or electrically) connected to the electronic device.

2.2.2 During the oral proceedings before the board, the appellant stated that the electrical connection between the printed wiring board and the gasket was apparent from paragraph [0031] of the application as filed. Regarding the acoustic sealing, the appellant argued that paragraph [0026], especially the passage at lines 4 to 6 of page 7, of the original application disclosed how the gasket provided the acoustic sealing functionality. The appellant emphasised that this functionality ran through the entire application as filed and highlighted in particular paragraph [0054] of

the original application.

- 2.2.3 However, those passages of the original application do not disclose a dual functionality of the gasket, where the gasket provides for an electrical connection when the audio transducer is received by the electronic device as in **feature (b)** and for an acoustic sealing functionality when the transducer is connected to the electronic device in accordance with **feature (d)**. In fact, these passages do not express in any way how the relationship between the audio transducer and the electronic device (in terms of whether they are connected or whether one is received by the other) would affect the functionality provided by the gasket.

In particular, paragraphs [0031] and [0054] of the application as filed are utterly silent regarding the requirement that the transducer has to be received by the printed wiring board in order to make an electrical connection via the gasket. Likewise, paragraph [0054] of the original application does not even teach, at least not in a direct and unambiguous way, that an acoustic seal would be attained when the audio transducer is connected to the printed wiring board.

- 2.2.4 The board emphasises that, when amending a claim, all interpretations of the amendment that would occur to the skilled reader must have a direct and unambiguous disclosure in the application as filed for the provision of Article 123(2) EPC to be fulfilled. This is not the case here.

- 2.3 In conclusion, claim 1 encompasses subject-matter that extends beyond the content of the application as filed. Hence, the main request is not allowable under

Article 123(2) EPC.

3. *Auxiliary requests: claim 1 - added subject-matter*

3.1 For claim 1 of **auxiliary requests 1 and 2**, it is immediately apparent from the amendments highlighted in points VI and VII above that at least the same deficiencies concerning added subject-matter as mentioned in point 2 above for claim 1 of the main request apply.

3.2 Regarding claim 1 of **auxiliary request 3**, the replacement of the term "electronic device" by the expression "printed wiring board" overcomes the objection raised in point 2.1 above. However, the phrases

- *"when the audio transducer (40) is received by the apparatus"*

and

- *"when the audio transducer is connected to the circuitry"*

still imply the same deficiency of added subject-matter in respect of the dual functionality of the gasket as mentioned in point 2.2 above.

3.3 Hence, none of the auxiliary requests is allowable under Article 123(2) EPC either.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chair:



B. Brückner

K. Bengi-Akyürek

Decision electronically authenticated