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**Datasheet for the decision
of 9 July 2024**

Case Number: T 0107/22 - 3.5.03

Application Number: 15861266.3

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IPC: H04R5/033, H04R1/10, A61B5/024,
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Language of the proceedings: EN

Title of invention:
Earphones with activity controlled output

Applicant:
Samsung Electronics Co., Ltd.

Headword:
Earphone user's activity states/SAMSUNG

Relevant legal provisions:
EPC Art. 84, 123(2)
RPBA 2020 Art. 13(2)

Keyword:

Admittance of claim amendments filed during oral proceedings -
main request (no): no cogent reasons justifying "exceptional
circumstances"

Added subject-matter - auxiliary request 1 (yes)

Clarity - auxiliary requests 1 and 2 (no): "result to be
achieved"



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Case Number: T 0107/22 - 3.5.03

D E C I S I O N
of Technical Board of Appeal 3.5.03
of 9 July 2024

Appellant: Samsung Electronics Co., Ltd.
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Representative: Grünecker Patent- und Rechtsanwälte
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 5 November 2021
refusing European patent application
No. 15861266.3 pursuant to Article 97(2) EPC.**

Composition of the Board:

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

Summary of Facts and Submissions

- I. The appeal of the applicant (appellant) lies from the decision of the examining division to refuse the present application based on a main request and an auxiliary request. The examining division deemed the main request underlying the appealed decision not to be allowable under Articles 83 and 84 EPC. The applicant's auxiliary request was not admitted into the proceedings under Rule 137(3) EPC.

- II. The appellant was summoned to oral proceedings before the board. A communication was issued under Article 15(1) RPBA including the board's negative preliminary opinion regarding Articles 83 and 84 EPC concerning the appellant's main request and auxiliary request filed with the statement of grounds of appeal.

- III. With a letter of reply to the board's communication, the appellant filed an amended set of claims according to a "new main request". During the oral proceedings before the board, the appellant filed another "new main request".

- IV. Oral proceedings before the board were held on 9 July 2024.

The appellant's final requests were that the decision under appeal be set aside and that a patent be granted based on the claims of the **"new main request"** filed during the oral proceedings before the board. Alternatively, it requested that the patent be granted based on **auxiliary request 1** submitted as "new main request" with the appellant's letter of reply, or finally, on **auxiliary request 2** filed as main request

with the statement of grounds of appeal.

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

V. Claim 1 of the **main request** reads as follows (board's feature labelling):

- (a) "An earphone (1) for playback of an audio output from a media player (13) comprising:
- (b) at least one earpiece (2), sized and adapted to be arranged at the ear (20) of a user, and having a speaker element (24) for converting an audio output into sound waves,
- (c) a controller (120) for controlling the audio output sent from a media player (13) to the speaker element, and
- (d) a pulse rate detector being sized and adapted for detecting the heart rate of the user,
- (e) a first motion sensor for detecting movements of a user and for detecting relative motions between the earpiece and the ear to filter sensor data from the pulse detection in order to avoid disturbances resulting from the relative motions,
- (f) a remote control unit (12) comprising said controller (120) and a second motion sensor, wherein said remote control unit (12) is arranged at a distance from said earpiece (2),
- (g) wherein both said first motion sensor and said second motion sensor is an accelerometer adapted to sense motions of the user and wherein the first motion sensor and the second motion sensor are configured to be used in combination to determine the motions of the user,
- (h) wherein said controller (120) is adapted to receive sensor data from said first motion sensor and said

pulse rate detector and based on said sensor data determine a state of the user, wherein the state of the user comprises a user's physical state or activity, and

- (i) wherein said controller (120) is further adapted to adjust the audio output to said speaker element (24) based on the determined state of the user in order to adapt the audio output to an activity performed by the user such that either when the sensor data indicate a low activity state of the user, to adjust the audio output to match a low activity state and/or when sensor data indicate a high activity state of the user, and to adjust the audio output to match a high activity state,
- (j) wherein the adjustment in audio output comprises any one or combination of one or more of the following operations:

stopping/pausing/playing, increasing/decreasing volume, controlling audio output based on beat per minute, cadence or rhythm, controlling audio output based on predetermined selection, genre or predefined selection such as playlist or specific track."

VI. Claim 1 of **auxiliary request 1** differs from claim 1 of the main request in that feature (i) is replaced by the following feature (board's feature labelling; the board also struck through deletions vis-à-vis feature (i)):

- (k) "wherein said controller (120) is further adapted to adjust the audio output to said speaker element (24) based on the determined state of the user in order to adapt the audio output to an activity performed by the user ~~such that either when the sensor data indicate a low activity state~~

~~of the user, to adjust the audio output to match a low activity state and/or when sensor data indicate a high activity state of the user, and to adjust the audio output to match a high activity state,".~~

VII. Claim 1 of **auxiliary request 2** reads as follows (board's mark-up, the latter reflecting, vis-à-vis claim 1 of the main request, deletions by strike-through and additions with underlining):

"An earphone (1) for playback of an audio output from a media player (13) comprising:
at least one earpiece (2), sized and adapted to be arranged at the ear (20) of a user, and having a speaker element (24) for converting an audio output into sound waves,
a controller (120) for controlling the audio output sent from a media player (13) to the speaker element, and
a pulse rate detector being sized and adapted for detecting the heart rate of the user,
a first motion sensor for detecting movements of a user and for detecting minor relative motions between the earpiece and the ear to filter sensor data from the pulse detection in order to avoid disturbances resulting from the minor relative motions,
a remote control unit (12) comprising said controller (120) and a second motion sensor, wherein said remote control unit (12) is arranged at a distance from said earpiece (2),
wherein both said first motion sensor and said second motion sensor is an accelerometer adapted to sense motions of the user and wherein the first motion sensor and the second motion sensor are configured to be used in combination to determine the motions of the user with higher accuracy and wherein the first motion

sensor is configured to detect the minor relative motions between the earpiece and the ear with an improved result when additionally having the second motion sensor,

wherein said controller (120) is adapted to receive sensor data from said first motion sensor and said pulse rate detector and based on said sensor data determine a state of the user, ~~wherein the state of the user comprises a user's physical state or activity,~~ and wherein said controller (120) is further adapted to adjust the audio output to said speaker element (24) based on the determined state of the user in order to adapt the audio output to an activity performed by the user such that either when the sensor data indicate a low activity state of the user, to adjust the audio output to match a low activity state and/or when sensor data indicate a high activity state of the user, and to adjust the audio output to match a high activity state, wherein the adjustment in audio output comprises any one or combination of one or more of the following operations:

stopping/pausing/playing, increasing/decreasing volume, controlling audio output based on beat per minute, cadence or rhythm, controlling audio output based on predetermined selection, genre or predefined selection such as playlist or specific track."

Reasons for the Decision

1. *Technical background*

- 1.1 The application concerns an earphone that can adjust its audio output based on a user's "activity level". It addresses the issue that a typical earphone does not

adapt the audio output to the user's "state", such as sleeping, resting or exercising. This can lead, according to the application, to undesirable situations, like the user falling asleep with music playing at a high volume or not having the right music for a workout.

1.2 The solution proposed in the present application is to use an earphone with integrated sensors that can detect the user's movements and heart rate. This information is then used to determine the user's state and adjust the audio output accordingly. For example, the earphone could lower the volume of the audio being reproduced if the user is falling asleep or increase the tempo of the reproduced audio if the user starts exercising.

2. *Main request: admittance*

2.1 The **main request** was first filed only during the oral proceedings before the board and thus after notification of the board's communication under Article 15(1) RPBA (cf. point III above). Its admittance into the proceedings is therefore subject to the board's discretion (cf. Article 13(2) RPBA).

2.2 The appellant explained that the main request was filed only during the oral proceedings before the board because the board had raised, also during these oral proceedings, a "new objection" based on Article 123(2) EPC. This objection concerned the "previous main request" (now "auxiliary request 1") filed with the written reply to the board's communication. In its view, the board could have raised this objection earlier, given that the appellant had replied to the board's communication one month before the oral

proceedings.

- 2.3 The appellant is reminded that, under Article 13(2) RPBA, amendments to a party's appeal case *after* notification of a communication under Article 15(1) RPBA are, in principle, not taken into account. The board is not obliged to assess such amendments before the oral proceedings and to send a second communication. Moreover, within the Boards of Appeal, it is not the customary practice to undertake such assessments and issue subsequent communications. However, when a new claim request is filed and admitted, a board should check *ex officio* its compliance with the EPC, and in particular with Articles 84 and 123(2) EPC. Therefore, the first opportunity for the present board to express its view on the allowability of the new claim request filed with the written reply to the board's communication was during the oral proceedings before it. Filing a claim request including a deficiency under Article 123(2) EPC, making it not allowable, does not justify the filing of further claim requests.
- 2.4 The appellant conceded during the oral proceedings before the board that the new main request had the same clarity issue as the previously assessed claim requests. It further submitted that its primary reason for filing the new main request during the oral proceedings was to avoid a decision explicitly indicating non-compliance with Article 123(2) EPC regarding auxiliary request 1.
- 2.5 The board concludes that the new main request lacks *prima-facie* allowability according to the statement of the appellant itself. For this reason alone, it is not to be admitted.

On a general note, the typical purpose of filing an amended set of claims is to limit the underlying patent or application to potentially allowable subject-matter and to address any real or potential objections raised against previously filed claim requests. Its purpose, however, cannot be to dictate what the board discusses in its final written decision.

- 2.6 In view of the above, the board cannot see any "exceptional circumstances" justifying the admittance of the main request into the proceedings.
- 2.7 As a result, the main request was not admitted into the appeal proceedings (Article 13(2) RPBA).
3. *Auxiliary request 1: claim 1 - added subject-matter and clarity*
- 3.1 In relation to **auxiliary request 1**, the amendment underlying **feature (k)** implies that the "controller" of the claimed "earphone" is adapted to adjust the "audio output" to any "activity" which could be performed by the user. The way in which the "audio output" is adjusted by the controller is also not restricted.
- 3.2 There is however no direct and unambiguous disclosure in the application as filed for such an *unrestricted* adjustment of the audio input (Article 123(2) EPC). Instead, in original claim 1, the "controller" is adapted to adjust the audio output to an activity performed by the user such that the audio output matches a user's "low or high activity state". The description as filed, moreover, provides a similar teaching as original claim 1. For instance, in the paragraph bridging pages 8 and 9 as filed, it is set out how the controller is "able to perform a matching

between a user's detected pulse and a piece of music's beat per minute". The paragraph bridging pages 5 and 6 as filed illustrates this with some concrete examples of pieces of music to match certain physical activities of the user.

- 3.3 The appellant opined that there was no need to specify any match with the user's "low or high activity state", given that the "activity" as per feature (k) was already restricted by **feature (h)**, where it is stated that the "state of the user comprises a user's physical state or activity".

The board is not convinced: even if one were to acknowledge that the "state of the user" as per feature (h) could not involve any "state" beyond that of a user's physical state or activity, there still would not be any restriction as to the way in which the "audio output" is adjusted by the controller in accordance with feature (k). In particular, the matching between the audio output and a low or high activity state on the part of the user which was prominently mentioned in the application as filed is not apparent from features (h) and (k). The board can therefore only conclude that feature (k) indeed adds subject-matter which extends beyond the content of the application as filed.

- 3.4 Moreover, as correctly set out in Reasons 1.2 of the appealed decision, the phrase "in order to avoid disturbances resulting from the [~~minor~~] relative motions" of feature (e) amounts to a "result to be achieved" rather than to a clear definition of the respective "first motion sensor" and the associated detection actions. The board concurs in particular that the claimed "result to be achieved" does not provide

the skilled reader with instructions that are sufficiently clear to put this "result to be achieved" into practice. The appellant's argument that the skilled reader would not attribute any importance to this phrase amounts to mere speculation. It does not reflect how a skilled reader will normally read a claim. Moreover, its argument that the "first motion sensor" together with the expression "to filter" as mentioned in feature (e) provides the skilled reader with sufficient detail on how to proceed in this respect is a mere allegation, which could not persuade the board.

- 3.5 It is expedient to illustrate the difficulties which the skilled reader would have to face in that regard with a practical example. To do so, an "earphone" can be considered of which the housing comprises a part made from a soft and resilient material that is to be inserted in the ear canal while in use. The application as filed explicitly considers such a housing at page 15, lines 1 to 3 to ensure a "comfortable fit". Nonetheless, for such a housing, the material's inherent restoration force can evidently induce "relative motions" which can in fact be disturbing for the user. After all, these "relative motions" not only sometimes cause a disturbing audible noise, which is not necessarily removable simply by filtering "sensor data from the pulse detection" as per feature (e) or as set out at page 9, lines 18 to 20 of the application as filed, but they can eventually lead to the earphone being expelled from the user's ear canal. The user may then find it annoying to have to put the earphone back into the ear canal. It would not be apparent for the skilled reader how to avoid this "disturbance", neither based on the application as filed nor based on their common general knowledge and how to clearly define the

limitations of feature (e). This feature therefore indeed leads to a lack of clarity (Article 84 EPC).

3.6 In sum, auxiliary request 1 is not allowable under Articles 84 and 123(2) EPC.

4. *Auxiliary request 2: claim 1 - clarity*

4.1 The same objection under Article 84 EPC as raised in point 3.4 above applies regarding the phrase "in order to avoid disturbances resulting from the minor relative motions" (see point VII above) here.

4.2 Hence, auxiliary request 2 is not allowable under Article 84 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