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**Datasheet for the decision
of 16 October 2017**

Case Number: T 0169/14 - 3.5.03

Application Number: 01942480.3

Publication Number: 1247350

IPC: H04B11/00, H04R25/00,
G10K15/02, B06B1/02, B06B1/06

Language of the proceedings: EN

Title of invention:
Parametric audio system

Patent Proprietor:
Pompei, Frank Joseph

Opponent:
A-Volute SAS

Headword:
Parametric audio system/POMPEI

Relevant legal provisions:
EPC Art. 104(1)
EPC 1973 Art. 100(c), 116(1)
RPBA Art. 16(1)

Keyword:

Amendments - extension beyond the content of the application
as filed (yes)

Apportionment of costs - (no)

Decisions cited:

T 0091/99, T 0383/05

Catchword:



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Case Number: T 0169/14 - 3.5.03

D E C I S I O N
of Technical Board of Appeal 3.5.03
of 16 October 2017

Appellant: Pompei, Frank Joseph
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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 25 November
2013 revoking European patent No. 1247350
pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman F. van der Voort
Members: K. Schenkel
T. Karamanli

Summary of Facts and Submissions

- I. This case concerns an appeal filed by the patent proprietor (henceforth, the appellant) against the decision of the opposition division to revoke European patent No. 1 247 350, which was based on an international application published as WO 01/52437 A1.
- II. The opposition was based on the grounds for opposition pursuant to Article 100(a) to (c) EPC.
- III. The opposition division held that the ground for opposition pursuant to Article 100(c) EPC prejudiced the maintenance of the patent as granted. Further, an auxiliary request, filed during the oral proceedings, was held to be late-filed and prima facie not allowable and was therefore not admitted to the opposition proceedings.
- IV. In the statement of grounds of appeal, the appellant essentially requested that the decision under appeal be set aside and that the case be remitted to the opposition division for continuation of the opposition proceedings with respect to the grounds for opposition pursuant to Article 100(a) and (b) EPC on the basis of the claims of the main request, i.e. the claims as granted. Further, oral proceedings were conditionally requested.
- V. In its reply, the opponent (henceforth, the respondent) essentially requested that the appeal be dismissed. Further, oral proceedings were conditionally requested.
- VI. In a communication dated 8 December 2014, the board informed the parties that the European patent had meanwhile lapsed in all designated Contracting States

and that, applying Rule 84(1) EPC *mutatis mutandis*, the appeal proceedings would be continued, provided that the appellant (patent proprietor) filed a request to that effect within two months as from notification of said communication.

- VII. By letter dated 9 February 2015, the appellant requested continuation of the present appeal proceedings.
- VIII. In a communication accompanying a summons to oral proceedings dated 27 May 2016, the board gave its preliminary opinion that, as regards claim 1 as granted, the application as filed did not provide a basis for use of the term "effective area" in connection with a single transducer.
- IX. In a letter dated 10 November 2016, in response to the board's communication, the appellant provided further arguments, informed the EPO that he would not be attending the oral proceedings and withdrew his request for oral proceedings. The last line on page 3 of this letter reads as follows: "cc: Regimbau (Lyon office), Attn. Damien Macé, Ref: OB0011 (by email)".
- X. In a communication from the board dated 11 November 2016 and faxed to the parties the same day, the parties were informed that the oral proceedings scheduled for 16 November 2016 had been cancelled and that the proceedings would be continued in writing.
- XI. In its letter dated 15 November 2016, the respondent submitted that it had incurred costs due to the late cancellation of the oral proceedings and requested that, pursuant to Article 16 RPBA, its representative's fees for preparing the oral proceedings before the

board and his non-refundable travel expenses for the flight ticket be fully borne by the appellant.

- XII. In a communication dated 2 January 2017, the board gave reasons for its preliminary view that the respondent's request for a different apportionment of costs was to be refused.

The board also addressed the respondent's auxiliary request for oral proceedings, which had been filed with the reply to the grounds of appeal. The parties were informed that the board assumed that the respondent's auxiliary request did not apply if its request for a different apportionment of costs was going to be refused, because the respondent had requested oral proceedings only if the board intended to allow the appellant's main request. The board informed the parties that it therefore intended to rule without oral proceedings on the appeal and the respondent's request for a different apportionment of costs, unless one of the parties requested oral proceedings within a period of two months from notification of the communication.

- XIII. Neither of the parties responded to the communication dated 2 January 2017.

- XIV. Claim 1 of the main request, i.e. claim 1 as granted, reads as follows:

"A parametric audio system (100) for generating at least one airborne audio beam, comprising:
at least one audio signal source (102, 104) configured to provide at least one audio signal;
at least one signal conditioner (106, 108) configured for receiving the at least one audio signal and for

nonlinearly processing the audio signal to provide at least one pre-distorted signal;
a modulator (112) configured to receive the pre-distorted signal and to convert the pre-distorted signal into ultrasonic frequencies; and
an acoustic transducer array (122) including at least one acoustic transducer, the array being configured to receive the converted signal and to project the converted signal through the air along a selected path, thereby inverting distortion in the projected signal and regenerating the audio signal along at least a portion of the selected path with reduced net distortion,
wherein the acoustic transducer array has a bandwidth greater than or equal to 5 kHz,
wherein each acoustic transducer is a membrane-type transducer,
wherein the membrane-type transducer has a loudness figure of merit, "l", defined according to the expression:

$$l = [\text{Area}] \cdot [\text{Amplitude}]^2,$$

"Area" being the effective surface area of the membrane-type transducer, and "Amplitude" being the amplitude of the modulated carrier signal, and wherein the loudness figure of merit "l" of the membrane-type transducer is greater than $[2.0 \times 10^4] \text{ pa}^2\text{in}^2$."

Reasons for the Decision

1. *Procedural matters - right to be heard*

In accordance with Article 116 EPC 1973, oral proceedings in appeal cases are held either *ex officio* by the board of appeal, if it considers this to be expedient, or at the request of a party to the appeal proceedings.

In the present case, both parties conditionally requested oral proceedings with the statement of grounds of appeal and the reply thereto, respectively, the respondent's request being subject to the proviso that the board intended to allow the appellant's main request.

In response to the board's communication which was annexed to the summons, the appellant filed new submissions and withdrew his request for oral proceedings. In view of this withdrawal and the respondent's still pending conditional request for oral proceedings, the board considered whether there was still a need to hold them in order to hear the respondent. If the board took the view that the appeal was allowable, oral proceedings would have had to take place in view of the respondent's conditional request. However, the board considered that the appellant's appeal was not allowable and that it was therefore in a position to take a decision on the appeal without holding oral proceedings. The oral proceedings scheduled for 16 November 2016 were therefore cancelled.

The respondent thereupon filed a request for a different apportionment of costs. The board assumed, however, that the respondent's conditional request for oral proceedings, filed with its reply, did not apply to the issue of apportionment of costs, since the respondent had requested oral proceedings only if the

board intended to allow the appellant's main request. The board therefore informed the parties that based on that assumption it intended to rule without oral proceedings on the appeal and the respondent's request for a different apportionment of costs, unless one of the parties requested them within a period of two months from notification of the communication. Since neither of the parties disputed the board's assumption or filed a request for oral proceedings within that period, the board is in a position to decide on the appeal and the respondent's request without holding any (Articles 113(1) and 116(1) EPC 1973 and Article 12(3) RPBA).

2. *Allowability of the appeal - claim 1 of the patent as granted - added subject-matter*

2.1 Claim 1 comprises an expression defining a loudness figure of merit, "l", based on the values "Area" and "Amplitude", the value "Area" being defined as the effective surface area of a membrane-type transducer.

This loudness figure of merit expression is only partly based on claim 12 as originally filed, which defines the value "Area" as being the area of the membrane-type transducer. The description of the application as originally filed defines the loudness figure of merit and the value "Area" in the same way as in claim 12 as filed, cf. page 8, line 30, to page 9, line 4, reference being made to the international application as published. Apart from this passage on pages 8 and 9 of the description and claim 12 as filed, there is no further disclosure of the loudness figure of merit expression or the definition of the value "Area" in the application documents as filed.

The board further notes that the expression "effective surface area" is used in the application as filed, but only in connection with a transducer array, cf. page 2, lines 16 to 20 ("Further, because the level of the audible sound generated by such parametric audio systems is proportional to the surface area of the acoustic transducer, it is generally desirable to maximize the effective surface area of the acoustic transducer array."), and page 8, lines 2 to 5 ("Further, to increase the level of the audible sound, the acoustic transducer array 122 is preferably configured to maximize the effective surface area of the plurality of acoustic transducers.").

Hence, there is no literal basis in the application as filed for a loudness figure of merit based on the "effective surface area" of a membrane-type transducer. Nor did the appellant argue otherwise.

2.2 Before considering the appellant's arguments, the board makes the following observations with respect to the terms "area" and "effective area" in the context of a transducer and a transducer array, respectively.

If an array is formed by arranging multiple transducers together and gaps are left between them, these gaps are not covered by a transducer and, hence, cannot contribute to the generation of sound, i.e. are ineffective. In such a case, the terms "surface area" and "effective surface area" respectively of the array would thus correspond to the surface covered by transducers and the total surface of the array including the gaps. The board notes that the application as filed only discloses transducer arrays with gaps between the individual transducers, see page 2, lines 20 to 26, regarding circular transducers,

implying gaps in between, and in Figs. 2a, 2b and 7 together with the corresponding description from page 8, line 17, to page 10, line 9, regarding rectangular transducers formed by grooves with fillets in between.

- 2.3 The appellant argued that the application provided a basis for the disclosure of the term "surface area" without the term "effective" in relation to an array of transducers on page 2, lines 11 to 26, which reads as follows:

"One drawback of the above-described conventional parametric audio system is that the piezoelectric transducers used therewith typically have a narrow bandwidth, e.g., 2-5 kHz. As a result, it is difficult to minimize distortion in the regenerated audio signals. Further, because the level of the audible sound generated by such parametric audio systems is proportional to the surface area of the acoustic transducer, it is generally desirable to maximize the effective surface area of the acoustic transducer array. However, because the typical piezoelectric transducer has a diameter of only about 0.25 inches, it is often necessary to include hundreds or thousands of such piezoelectric transducers in the acoustic transducer array to achieve an optimal acoustic transducer surface area, thereby significantly increasing the cost of manufacture."

It was argued that the last sentence discussed the provision of a surface area of an array and related to the diameter of a single transducer, which diameter had a direct relationship with the surface area of a single transducer. The term "surface area" was therefore used not only in relation to an individual transducer, but also in relation to a transducer array. Moreover, the

term "surface area" was used in the context of the area being proportional to the generated level of audible sound in relation to both an individual transducer and an array.

Moreover, the term "effective" did not introduce any further technical feature with regard to the relationship between the surface area of a transducer, or an array of transducers, and the generated level of audible sound. It was implicit to the skilled person that, both for the individual transceiver and for the array, the surface area which contributed to the generated level of audible sound, which was characterised by the term "effective" in the context of the original disclosure, was the material parameter for determining the level of audible sound. For the individual transceiver this was expressed in the loudness of merit parameter. The term "effective" did not therefore add any technical information to the original disclosure of the term "surface area", beyond what was already implicit to the skilled reader.

2.4 The board is not convinced by these arguments.

The third sentence of the above-cited passage on page 2, lines 11 to 26, refers to sound generated by a parametric audio system which includes one or more acoustic transducers (cf. page 1, line 31, to page 2, line 5) and links the level of generated audible sound to "the surface area of the acoustic transducer". In the case of a sound system with more than one transducer, the surface area of "the acoustic transducer" is, in the board's view, to be understood as the total surface area of all transducers in the sound system. This understanding is in line with the subsequent wording in this sentence, namely that in

respect of the level of generated audible sound "it is generally desirable to maximize the effective surface area of the acoustic transducer array", since this takes into account the fact that an array, besides the areas covered by transducers, may comprise areas which are not covered by transducers and which therefore cannot be effective for the generation of sound. The board notes that, in the case of an array of transducers which includes ineffective parts of the surface area, i.e. parts not covered by a transducer, the total surface area and the surface covered by transducers are different.

Hence, for an array of transducers, the term "effective" does add further technical information with regard to the relationship between the surface area and the generated level of sound, namely the limitation of the surface area to that part of the surface which is actually covered by the transducers.

Further, the loudness figure of merit expression in claim 1 refers to each single transducer in an array of at least one transducer, the total number of transducers in the array being left open. The loudness figure of merit of each transducer is therefore independent of the total sound generated by the array of transducers. It follows that a possible link between the effective surface area of a transducer array, i.e. the surface area actually covered by the transducers, and the level of sound generated by the array is independent of the question of whether or not, in the loudness figure of merit expression for a single transducer, the surface area of a transducer is to be understood as effective surface area.

As noted above, the passage on page 8, lines 2 to 5 ("Further, to increase the level of the audible sound, the acoustic transducer array 122 is preferably configured to maximize the effective surface area of the plurality of acoustic transducers."), only makes reference to the effective surface area of a plurality of transducers, i.e. an array. This is line with the above conclusion that in the case of an array of multiple transducers only the surface area actually covered by the transducers can contribute to the generated sound and may therefore be understood as being the effective surface area of the array. In the case of the transducers disclosed in the application as filed, which have gaps in between, the term "effective" thus has a technical meaning in that it excludes the surface area not covered by the transducers.

The board concludes that the disclosure on pages 2 and 8 does not provide a basis for an effective surface area of an individual transducer or for understanding the surface area of an individual transducer to be equal to its effective surface area.

- 2.5 The appellant further argued that claim 1 as filed covered the case in which the array comprised only one transducer, in which case the properties of the single transducer became those of the array. Accordingly, the loudness figure of merit defined in claim 1 as granted referred to a single transducer if there was only one, or to a plurality of transducers in an array if there were more than one transducer.

If there was only one transducer, the passage on page 2, lines 16 to 20, thus meant maximising the effective surface area of the single transducer. Accordingly, the term "effective" at page 2, lines 16

to 20, implicitly applied to both one array and one single transducer.

Further, the loudness figure of merit of the transducer represented its ability to produce audible sound, and therefore had a direct relationship with the ability of the transducer to produce a level of audible sound. In respect of both the terms "area" and "effective area", the skilled person implicitly knew that the area of interest was the area which produced audible sound. It was not the case that in the formula the "area" was to produce one effect (e.g. light) and the "effective surface area" was to produce another effect (e.g. sound). Both "area" and "effective surface area" were implicitly disclosed to the skilled person as being the area which produced audible sound. In other words, the fact that the "effective surface area" was explicitly disclosed in sentences concerning the level of audible sound and the "area" was explicitly disclosed in the formula of the loudness figure of merit did not introduce any technical difference between these terms, because it was explicitly disclosed that the array could comprise a single transducer and so it was implicit to the skilled person that both of these areas of the transducer(s) contributed to the same technical effect, namely the production of audible sound.

If there was only one transducer, it was thus implicit to the skilled person that the effective surface area of the array was the same as the area of the transducer that contributes to the calculation of the loudness figure of merit.

It was further noted that the terms "surface area" and "effective surface area" were disclosed in an identical

context, namely in order to maximise the surface area to increase the level of audible sound.

2.6 The board is not convinced by these arguments either.

If the array includes only one transducer, following the appellant's argument its surface becomes the effective surface area of the array. However, even in such a case the array may still comprise a surface area not covered by the transducer and which needs to be excluded due to the use of the term "effective". Therefore, the skilled person would not disregard the term "effective" in the above-cited passage on page 2, lines 16 to 20, even if there was only one transducer in the array.

2.7 The board concludes that the ground for opposition pursuant to Article 100(c) EPC 1973 prejudices the maintenance of the patent as granted and, consequently, sees no reason to remit the case to the opposition division for further prosecution.

2.8 It follows that the appellant's main request is not allowable and, consequently, that the appeal is to be dismissed.

3. *Apportionment of costs*

3.1 After cancellation of the oral proceedings appointed for 16 November 2016, the respondent requested that, pursuant to Article 16 RPBA, its representative's fees for preparing them and his non-refundable travel expenses for the flight ticket, be fully borne by the appellant.

3.2 The respondent argued that these costs had been incurred due the fact that it was only by letter dated 10 November 2016 that the appellant informed the EPO that he would not be attending the oral proceedings and was withdrawing his request for them. Moreover, since Friday 11 November 2016 was a public holiday in France, only on 14 November 2016 had the respondent become aware of the appellant's withdrawal of that request. In addition, the respondent argued that the appellant's representative could have known this, since he had his place of business in the United Kingdom where Friday 11 November 2016 was also a public holiday. By the time the respondent was informed of the cancellation, however, its representative had already started the preparatory work for the oral proceedings and his non-refundable flight ticket had already been paid for.

In the respondent's view, the appellant had unduly delayed his decision not to attend the oral proceedings, the withdrawal of his request for them and his communication to the board, since the appellant had acknowledged receipt of the summons to oral proceedings already on 2 June 2016 and had informed the board accordingly only a few days before the scheduled date. The respondent also argued that there had been several earlier opportunities for the appellant to respond, e.g. by withdrawing his appeal in response to the board's communication stating that the patent had lapsed in all Contracting States or by taking a position on the rather negative preliminary opinion set out in the board's communication attached to the summons. The respondent took the view that an apportionment of costs in its favour was justified as the above-mentioned costs were directly caused by the fact that the appellant's notice had not been filed in due time before the oral proceedings.

3.3 Article 104(1) EPC provides that as a rule each party to the opposition proceedings bears its own costs. Departing from this principle requires special circumstances, such as improper behaviour, which make it equitable to award costs against one of the parties.

This provision applies equally to opposition appeal proceedings, by virtue of Article 111(1) EPC. Article 16(1) RPBA provides that, subject to Article 104(1) EPC, the board may on request order a party to pay some or all of another party's costs which without limiting the board's discretion include those incurred by any

- (a) amendment pursuant to Article 13 RPBA to a party's case as filed pursuant to Article 12(1) RPBA;
- (b) extension of a time limit;
- (c) acts or omissions prejudicing the timely and efficient conduct of oral proceedings;
- (d) failure to comply with a direction of the board;
- (e) abuse of procedure.

3.4 According to Article 116(1) EPC 1973 and established jurisprudence, any party has a right to request oral proceedings. Nothing in the European Patent Convention prevents a party from withdrawing its request for oral proceedings at any stage of the proceedings. Therefore, the fact that an appellant withdraws its request for oral proceedings is not culpable conduct in itself, and cannot be a factor in assessing equity under Article 104(1) EPC (see also decisions T 91/99, point 8 of the reasons, and T 383/05, point 8 of the reasons).

3.5 However, the fact that the appellant filed notice of his intention that he would not to be attending the oral proceedings, and was withdrawing his request for them only one week before the scheduled date could

possibly be seen as negligent or wilful conduct which has to be considered under Article 104(1) EPC.

3.6 In the board's view, there is an equitable obligation on every party summoned to oral proceedings to inform the EPO and the other party as soon as possible, once it has decided that it will not be attending or is withdrawing its request for them. Consequently, in cases where a party unduly delays its decision not to attend the oral proceedings, or the withdrawal of its request for them, or its communication of this to the board, an apportionment of costs in favour of the other party could be justified if the costs were directly caused by the fact that the notice was not filed in due time.

3.7 However, in the present case, the board does not see anything in the timing of the appellant's notice which amounts to culpable conduct which justifying a different apportionment of costs.

By the board's communication dated 11 November 2016 and faxed on the same day, the parties were informed that the oral proceedings appointed for 16 November 2016 had been cancelled. Thus this information was provided to the parties several working days before the scheduled date of oral proceedings.

The respondent submitted that, because 11 November 2016 was a public holiday in France, it was not until 14 November 2016 that it became aware of the appellant's withdrawal of his request for oral proceedings. However, in the board's view, it is doubtful whether the appellant can be held responsible for the fact that there was a public holiday in the EPO Contracting State where the respondent's representative

has his place of business. Moreover, it appears from the appellant's letter dated 10 November 2016 (last line on page 3) that the respondent's representative had received a copy of that letter by e-mail on the same day (see point IX above) and was therefore aware of it before the public holiday (which was not contested by the respondent). In view of the foregoing, it appears irrelevant whether or not the appellant's representative could have known about the public holiday in France.

The board further notes that, in his letter dated 10 November 2016, the appellant submitted observations in reply to the board's preliminary opinion and requested that they be taken into consideration by the board in reaching its decision. It is clear from these submissions that the appellant sought a decision on the merits of the case. The respondent's argument that withdrawal of the appeal was a reaction to be expected from the appellant at an earlier stage is therefore not convincing.

If the board had found the appellant's new submissions admissible and convincing, oral proceedings would have had to take place in view of the respondent's conditional request for them. The board therefore considered whether there was a need to hear the respondent and whether the oral proceedings could be cancelled. As a result, the late cancellation of the oral proceedings did not result from the appellant's allegedly late-filed notice of his intention not to attend them and of withdrawal of his request for them, but from the board's opinion about the need to hear the respondent, which was reached only at that stage.

Additionally, there seem to be no facts on file indicating that the appellant unduly delayed his notice or conducted himself in clearly improper or irresponsible manner.

- 3.8 Under these specific circumstances, the board considers that there was no culpable conduct on the part of the appellant which could justify a different apportionment of costs under Article 104(1) EPC. Therefore, the respondent's request for a different apportionment of costs must be refused.

Order

For these reasons it is decided that:

1. The appeal is dismissed.
2. The request of the respondent for a different apportionment of costs is refused.

The Registrar:

The Chairman:



G. Rauh

F. van der Voort

Decision electronically authenticated