PATENTAMTS

DES EUROPÄISCHEN THE EUROPEAN PATENT OFFICE

BESCHWERDEKAMMERN BOARDS OF APPEAL OF CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS

Internal distribution code:

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

DECISION of 15 January 2001

Case Number: T 0895/99 - 3.5.1

Application Number: 88302294.9

Publication Number: 0284286

IPC: H04R 5/02

Language of the proceedings: EN

Title of invention:

Stereo electroacoustical transducing

Patentee:

BOSE CORPORATION

Opponent:

Grundig AG

Interessengemeinschaft für Rundfunkschutzrechte E.V. CANTON Elektronik GmbH & Co.

J B L Inc.

Headword:

Stereo electroacoustical transducing/BOSE CORPORATION

Relevant legal provisions:

EPC Art. 56, 114(2), 123(2)(3) EPC R. 57a

Keyword:

"Inventive step - (no)"

Decisions cited:

Catchword:



Europäisches **Patentamt**

European **Patent Office** Office européen des brevets

Beschwerdekammern

Boards of Appeal

Chambres de recours

Case Number: T 0895/99 - 3.5.1

DECISION of the Technical Board of Appeal 3.5.1 of 15 January 2001

Appellant: BOSE CORPORATION (Proprietor of the patent) 100 The Mountain Road

Framingham

Massachusetts 01701 (US)

Representative: Brunner, Michael John

GILL JENNINGS & EVERY

Boardgate House 7 Eldon Street

London EC2M 7LH (GB)

Respondent: Grundig AG

(Opponent) Kurgartenstrasse 37

D-90762 Fürth (DE)

Representative:

(Opponent) Interessengemeinschaft

für Rundfunkschutzrechte E.V.

Bahnstrasse 62

D-40210 Düsseldorf (DE)

Eichstädt, Alfred, Dipl.-Ing. Representative:

> Maryniok & Eichstädt Kuhbergstrasse 23 D-96317 Kronach

(Opponent) CANTON Elektronik GmbH & Co.

Neugasse 21-23

D-61276 Weilrod (DE)

Representative: KEIL & SCHAAFHAUSEN

Patentanwälte

Cronstettenstrasse 66

D-60322 Frankfurt am Main (DE) (Opponent) J B L Inc.

8500 Balboa Boulevard

Northbridge CAL 91329 (US)

Representative: Vogeser, Werner, Dipl.-Ing.

Patent- und Rechtsanwälte Hansmann, Vogeser, Dr. Boecker Alber, Dr. Strych, Liedl

Albert-Rosshaupter-Strasse 65

D-81369 München (DE)

Decision under appeal: Decision of the Opposition Division of the

European Patent Office posted 26 July 1999

revoking European patent No. 0 284 286 pursuant

to Article 102(1) EPC.

Composition of the Board:

P. K. J. van den Berg Chairman:

Members: R. Randes

S. C. Perryman

- 1 - T 0895/99

Summary of Facts and Submissions

- I. This appeal is against the decision of the Opposition Division revoking European patent 0 284 286.
- II. The patent was granted with a single independent claim.
 Claims 1 and 2 as granted read:
 - "1. Stereo electroacoustical transducing apparatus comprising:

a woofer enclosure (11) having left and right inputs (31L, 31R) for receiving left and right input audio electrical signals respectively, and left and right outputs (32L, 32R), the woofer enclosure (11) supporting woofer driver means (21L/R) for radiating spectral components of the left and right input signals below a predetermined frequency;

left (13) and right (12) satellite means for radiating sound signals substantially above the predetermined frequency, representative of the left and right output signals respectively; the left and right outputs (32L/R, 33L/R) of the woofer enclosure coupling left and right electrical signals output from the woofer enclosure to the left (13) and right (12) satellite means respectively;

characterised in that:

the woofer driver means (21L, 21R) is mounted on a baffle which divides the woofer enclosure (11) into first and second subchambers tuned to different frequencies below the predetermined frequency, the woofer enclosure summing bass spectral components of the left and right input audio electrical signals in phase to provide a summed bass acoustical signal for radiation by port means (11A, 11B) as a listener non-localisable bass output signal, the port means (11A,

- 2 - T 0895/99

11B) providing the sole acoustic output from the woofer enclosure (11), the woofer enclosure having an acoustic response that falls off above the predetermined frequency so that sound radiated by the woofer enclosure is not usable by a listener for localising said sound in a listening environment."

- "2. Apparatus according to claim 1, wherein the woofer driver means comprises left (21L) and right (21R) woofers energized by the left and right input signals respectively."
- III. The Opposition Division revoked the patent on the grounds that the subject matter of claim 1 as granted did not involve an inventive step having regard to the disclosure of the following documents:

E1: EP-A-0 015 186, corresponding to

 $E1_E$: US-A-4 326 099, and

E7: FR-A-2 387 562.

- IV. In its decision the Opposition Division concluded that:
 - the subject-matter of claim 1 differed from the disclosure of E1 in not disclosing:
 - (a) that the woofer enclosure has left and right outputs, and
 - (b) that the left and right outputs of the woofer enclosure couple left and right electrical signals output from the woofer enclosure to the left and right satellite

- 3 - T 0895/99

means respectively;

- the objective problem to be solved was to reduce the size of the satellites;
- according to the patent the woofer separated out low frequency signals, the satellites being driven from outputs from the woofer: this allowed the satellites to be free of circuitry for suppressing low frequency components, and thus to be relatively small in size;
- the problem of reducing the size of satellites was however already known from E7 and solved in the same way; see page 3, lines 7 to 11;
- E7 disclosed a woofer enclosure (5) (the table in the figure; see also page 2, lines 8 and 9) having left and right outputs (page 2, lines 26 to 31) coupling left and right electrical signals output from the woofer enclosure to the left and right satellite means (9,11) respectively;
- it would have been obvious to the skilled person to apply these features with corresponding effect to the apparatus according to E1 to achieve the same result, i.e. to direct the left and right signals for the satellites through the subwoofer, thus arriving at a stereo electroacoustical transducing apparatus according to claim 1.
- V. The Appellant (Patentee) appealed against this decision, duly filing a Notice of Appeal, paying the appeal fee and filing a Statement of Grounds. Initially he requested that the contested decision be set aside

- 4 - T 0895/99

and a patent be granted on the basis of claim 1 as granted. The Appellant also made an auxiliary request for oral proceedings.

- VI. The Respondents (Opponents 01, 02 and 03) made submissions, requested that the appeal be dismissed and each made an auxiliary request for oral proceedings. The Respondents (Opponents 04) made no submissions in writing.
- VII. In an annex to a summons to oral proceedings dated 19 October 2000 the Rapporteur expressed the preliminary opinion that the contested decision appeared to be well founded.
- VIII. By facsimile the Appellant filed on 14 December 2000 two sets of claims, and corresponding amendments to the description, by way of auxiliary requests I and II.

In the auxiliary request I, claim 1 was essentially a combination of claims 1 and 2 as granted.

In the auxiliary request II, claim 1 differed from claim 1 as granted solely by the addition at the end of the claim of the words "wherein the predetermined frequency is substantially 150 Hz".

- IX. During the oral proceedings held before the Board on 15 January 2001 the Appellant made an amended form of the auxiliary request I filed with letter of 14 December 2000 his main request with a claim 1 reading as follows:
 - "1. Stereo electroacoustical transducing apparatus

- 5 - T 0895/99

comprising:

a woofer enclosure (11) having left and right inputs (31L, 31R) for receiving left and right input audio electrical signals respectively, and left and right outputs (32L, 32R), the woofer enclosure (11) supporting woofer driver means (21L/R) comprising left (21L) and right (21R) woofers energized by the left and right input signals respectively, and mounted on a baffle for radiating spectral components of the left and right input signals below a predetermined frequency; and

left (13) and right (12) satellite means for radiating sound signals substantially above the predetermined frequency, representative of the left and right output audio signals respectively;

characterised in that the woofer enclosure has left and right outputs (32L, 32R) and the left and right outputs (32L/R, 33L/R) of the woofer enclosure coupling left and right electrical signals output from the woofer enclosure to the left (13) and right (12) satellite means respectively; and characterised in that:

the woofer driver means (21L, 21R) is mounted on a baffle which divides the woofer enclosure (11) into first and second subchambers tuned to different frequencies below the predetermined frequency, the woofer enclosure summing bass spectral components of the left and right input audio electrical signals in phase to provide a summed bass acoustical signal for radiation by **respective** port means (11A, 11B) as a listener non-localisable bass output signal, the port means (11A, 11B) providing the sole acoustic output

- 6 - T 0895/99

from the woofer enclosure (11), the woofer enclosure having an acoustic response that falls off above the predetermined frequency so that sound radiated by the woofer enclosure is not usable by a listener for localising said sound in a listening environment."

(For ease of comparison with claim 1 as granted, words omitted compared to this claim are shown crossed through, and words added are shown in bold.)

X. The Appellant's arguments made during the proceedings relevant to the requests finally maintained by him can be summarized as follows:

Main request

Admission into the proceedings and fair basis

- the request could not be treated as belated because the subject matter of claim 1 had, subject to some clarifying amendments, remained the same as that of claim 1 of the first auxiliary request filed on 14 December 2000;
- clarifying amendments had been required to this claim 1 since it had inadvertently been incorrectly delimited against E1;
- the amendment to claim 1 did not involve adding subject matter since the application as originally filed (see column 3, lines 22 to 27 of the Apublication) referred to "a baffle which divides the internal volume substantially in a 3:1 ratio, each volume ported such that the port tuned frequencies have substantially a 2:1 ratio as

- 7 - T 0895/99

described in the aforementioned U.S. Patent No. 4,549,631", which latter forms document $\rm E4_E$ in the opposition proceedings;

Inventive step

- the E1 system, which merely acoustically filtered the woofer output would produce harmonics, and thus become localisable, at high drive levels;
- El did not disclose either a woofer enclosure having outputs for the satellite loudspeakers or, the requirement of present claim 1 of "the woofer enclosure summing bass spectral components of the left and right input audio electrical signals in phase to provide a summed bass acoustical signal";
- the Opposition Division had also erred in concluding from E1, page 8, lines 27 to 33 that in Figure 3 the subchamber cavity 15 and sub-chambers 10D/10G were tuned to different frequencies below the predetermined frequency, as required by claim 1: the figures of E1 showed sub-chambers 15 and 10D/10G having substantially the same volume;
- the Opposition Division was also wrong in concluding that E7 disclosed a woofer enclosure with outputs for satellite loudspeakers;
- E7 did not do so since the component 6 was described as a "pressure control assembly with a loud speaker 7" so that component 6 corresponded to the woofer enclosure of claim 1, but since the left and right output did not come from component 6, but from the table and there being no

- 8 - T 0895/99

disclosure that the table formed part of the woofer characteristic, E7 did not disclose a woofer enclosure having left and right outputs;

- also E7 stated (page 3, line 13) that the pressure control assembly was mounted under the table and not in the table ("l'ensemble d'asservissement est logé sous une table basse");
- moreover E7 concerned electrical summing of left and right bass signals to drive one woofer, whilst claim 1 mentioned the acoustic outputs from two woofers being summed;

Auxiliary request

Inventive step

- the 150 Hz feature cannot be taken from any of the citations, E7 mentions 150 Hz only in connection with electrical filtering, E1 mentions only 200 Hz;
- the importance of the 150 Hz does not appear from the prior art.
- XI. The Respondents' arguments made during the proceedings relevant to the requests finally maintained by the Appellant can be summarized as follows:

Main request

Admission into the proceedings and fair basis

- 9 - T 0895/99

- the new main request should not be admitted into the proceedings since:
 - (a) the addition of the term "respective" in claim 1 implied that two ports were present, which was not disclosed in the original application documents, so the amendment contravened Article 123(2) EPC;
 - (b) such complex amendments were difficult to understand and should be refused as belated when only filed at the oral proceedings themselves;
 - (c) even if it was conceded that the amendment centred on taking up the features of granted claim 2 relating to there being two woofers (as in the previous first auxiliary request), two woofers were known from E1 and thus belonged in the preamble of the claim, so the amendment was not appropriate to overcome an objection of lack of inventive step;

Inventive step

- the subject matter of claim 1 lacked inventive step having regard to E1 and E7, on the reasoning given by the Opposition Division;
- the subject matter of claim 1 also lacked inventive step having regard to E7 and

E4: DE-A-3 410 134,

- 10 - T 0895/99

(cited in opposition proceedings and equivalent to ${\rm E4}_{\rm E}$, cited in the patent specification, cf. also point X above), the features of the preamble being known from E7, whilst those of the characterising part were known from E4;

- E4 concerned a loudspeaker with improved bass performance, showing in Figure 1 a casing (16) with an internal baffle (17) which divided the casing into two chambers (16a,16b); according to claim 7, the ratio of the resonant frequencies of the two chambers could be of the order of 2:1; according to claim 4, the ratio of the volumes of the two chambers lay in the range 2:1 to 4:1; hence, even if the Board should conclude that the subdivision of a loudspeaker into chambers of different volume was not known from E1, these features were known from E4;
- regarding the summing of audio signals in E1, this document showed (Figures 2 and 3) that left and right input signals were fed to the subwoofer, the same being the case for the patent in suit (Figure 2; inputs 31L, 31R): it followed that also in E1 a summation of bass components occurred in the woofer enclosure leading to radiation of a summed non-localisable bass signal;
- the delimitation of claim 1 against E1 was incorrect, since E1 disclosed two chambers tuned to different frequencies and, in view of page 9, lines 6 to 7, disclosed summing of acoustical signals in phase;
- in essence the subject matter of claim 1 only

- 11 - T 0895/99

differed from the disclosure of E1 in that in E1 the cross-over network was outside the woofer enclosure, whilst according to claim 1 it was inside the woofer enclosure;

 also woofers having two chambers of differing size were known from E4;

Auxiliary request

Inventive step

- claim 1 of the first auxiliary request lacked inventive step for the same reasons as the main request, the 150 Hz feature made no difference to the argument;
- it was common general knowledge in the art that woofers operating below 150 Hz could not be localised, and this was in any case acknowledged in the patent (column 3, lines 34 to 36);
- E7 (page 2, lines 32 to 38) also showed that it was common general knowledge that woofers operating below 150 Hz could not be localised;
- although E7 only referred explicitly to the value of 150 Hz for the cross-over network of E7 for splitting the amplifier output signals between the woofer and the satellites, claim 1 of the auxiliary request did not exclude electrical filtering. The fact that acoustical rather than electrical filtering was carried out in specific embodiments of the patent was not to be taken into account when assessing claim 1;

- 12 - T 0895/99

- in any case it would not make sense to make the woofer capable of radiating at frequencies which were not fed to it;
- although E1 disclosed a value of 200 Hz to avoid the woofer being localised, the skilled person knew that by selecting an even lower value of 150 Hz, it would be even more certain that the woofer could not be localised, there being no sharp limit at which the woofer became non-localisable: the 150 Hz feature had no critical significance.
- XII. At the end of the oral proceedings on 15 January 2001, at which all parties were represented, the requests were as follows:

The Appellant (Patentee) requested that the decision under appeal be set aside and that the patent be maintained on the basis of the main request submitted at the oral proceedings on 15 January 2001 or of auxiliary request II submitted on 14 December 2000.

The Respondents requested that the appeal be dismissed.

Reasons for the Decision

- 1. The appeal is admissible.
- 2. Main request admission into proceedings
- 2.1 Belatedness
- 2.1.1 The main request, though filed only at the oral

- 13 - T 0895/99

proceedings before the Board, corresponds substantially to the auxiliary request I submitted one month before the oral proceedings (filed on 14 December 2000), which in turn was essentially a combination of claims 1 and 2 as granted. While such late submission is to be deprecated, it is not by itself considered a sufficient reason to refuse to allow the request into the proceedings.

2.2 Rule 57a EPC

2.2.1 This rule allows amendments occasioned by a ground of opposition. The argument of some Respondents that an amendment by which features are only added to the preamble of claim 1 is automatically inappropriate to overcome an objection of obviousness, takes too narrow a view of the effect of such an amendment. By restricting the preamble, the subject matter of the claim as a whole can be further distanced from the prior art, and this may enable an objection of obviousness to be met. The amendments here meet the requirements of Rule 57a EPC.

2.3 Article 123(2)(3) EPC

- 2.3.1 The added term in claim 1 "respective" restricts claim 1 to the case of two port means, which was disclosed in the published patent application (column 3, line 24) and so does not constitute added subject matter. The amendments adding the features of claim 2 as granted to claim 1 restricts its scope, and has a basis in claim 2 in the application as filed.
- 2.3.2 The amended claim thus meets the requirements of Article 123(2) and (3) EPC.

- 14 - T 0895/99

- 2.4 In the exercise of its discretion under Article 114(2) EPC, the Board thus allows the main request into the proceedings.
- 3. Main request inventive step
- 3.1 Closest prior art
- 3.1.1 The Board shares the view of the Opposition Division that E1 represents the closest prior art and relates to triphonic loudspeaker systems (see paragraph bridging pages 1 to 2), these comprising left and right "satellites" for the medium/high frequency ranges and a common "woofer" for the bass frequency range. E1 is concerned with the problem (page 2, lines 16 to 22) that occurred in known speakers when the low frequency components of the left and right amplifier outputs were separated out using respective filters, combined and fed to the common woofer, that such filters had to withstand the high amplifier output currents, leading to problems of high cost and low reliability.
- 3.1.2 El seeks to overcome this problem (page 2, lines 23 to 30) by feeding the left and right woofers directly from the amplifier outputs and controlling the level of bass by tailoring the frequency response of the woofer enclosure.
- 3.1.3 $\mathrm{E1}_\mathrm{E}$ (column 4, lines 36 to 41) states that "Just as in the case of FIG. 2, by changing the volume of enclosures 10D and 10G, it is possible to modify the low frequency resonance of the loudspeaker in its enclosure which can be closed or bass reflex and by modifying the volume of cavity 15 it is possible to change the low frequency cut-off of the low frequency

cabinet". The Appellant is of the opinion that the Opposition Division, having regard to this passage, has erred in concluding that, in Figure 3, of document E1, the sub-chamber 15 and sub-chambers 10D/10G are "tuned to different frequencies below the predetermined frequency" (cf. point X above). According to the Appellant, this passage relates to Figure 2 and not to Figure 3. Moreover, the Appellant is of the opinion that the volumes of the sub-chambers (15 and 10D/10G) in Figure 3 are substantially the same and that it is therefore incorrect to assume that they are tuned to different frequencies. The Board, however, notes that this passage appears in the section of E1 relating to Figure 3. The fact that the cited statement also applies to Figure 2 does not diminish its applicability to Figure 3. The Board also understands the passage as suggested by the Opposition Division and finds that its teaching is quite clear. Hence, by changing the volume of cavity 15 in relation to that of cavities 10D/10G in the woofer enclosure of Figure 3, the cut-off frequency of the woofer can be influenced. Thus the Appellant has not been able to convince the Board that the Opposition Division erred on this point.

3.1.4 Although the left and right bass signals may be identical in E1, the Board can see no basis for the Appellant's conclusion that no summing occurs. On the contrary, the fact that the two drivers (11D, 11G) shown in Figure 3 vibrate in phase (page 9, line 7) means that their acoustic outputs must sum. Thus, again in contradiction to the opinion of the Appellant, the woofer enclosure in E1 sums low-frequency spectral components of the left and right audio electrical input signals to provide a summed bass acoustical signal, as required by claim 1.

- 16 - T 0895/99

- 3.1.5 The subject-matter of claim 1 therefore differs from the disclosure of E1 in the following features:
 - (a) that the woofer enclosure has left and right outputs,
 - (b) that the left and right outputs of the woofer enclosure couple left and right electrical signals output from the woofer enclosure to the left and right satellite means respectively, and
 - (c) both subchambers have a respective port means.

Difference features (a) and (b) are identical to those derived by the Opposition Division from the difference between granted claim 1 and the closest prior art disclosed in El (cf. point IV above); feature (c) has been introduced into claim 1 of the main request during the appeal proceedings (cf. point 2.3.1 above).

- 3.2 Problem to be solved
- 3.2.1 Having regard to features (a) and (b), a problem to be solved can be seen in
 - connecting the woofer and the satellites to the audio electrical signals in an appropriate way,

and, having regard to the new feature (c), a problem can be seen in

(2) avoiding the woofer becoming localisable at high drive levels.

These two subproblems and the solutions thereto

- 17 - T 0895/99

provided in the patent have no visible connection, nor has it been argued that they are in some way interconnected. Accordingly if the claimed solution to each subproblem is obvious, so will the claimed subject matter as a whole be obvious.

- 3.3 Solution to subproblem (1)
- 3.3.1 El does not teach in detail how the cables lead from the "stereophonic source 1" to the different parts of the triphonic network disclosed, since the figures are rather schematic and are mainly concerned with the design of the enclosure of the low frequency loudspeaker. Strictly following the schematic circuit of Figure 3 in El might lead to a separate junction connecting the cable from the stereophonic source and amplifier (1,2) with the cables from the woofer and the two satellites, the separate junction having several inputs/outputs and being located somewhere in a room with many cables coupled thereto.
- 3.3.2 The skilled person faced with subproblem (1) would however be aware of E7 which also relates to triphonic networks. As shown in the single figure, left and right output signals from a stereo system (2) are fed directly to circuitry fitted in a table, comprising high-pass filters (10,12), having a cut-off frequency of 150 Hz (page 2, lines 26 to 31), which feed left and right high-frequency loudspeakers (9,11) situated external to the table. Said circuitry also includes means for electrically combining (8) the left and right inputs and feeding a "pressure control assembly" ("ensemble d'asservissement de pression") (6) which drives a single low-frequency loudspeaker (7) associated with the table.

- 3.3.3 Thus the Board is of the opinion that E7 clearly discloses that the woofer enclosure in the shape of Table 5 has left and right outputs in the sense of the invention. It is true that the output terminals have not been explicitly disclosed in the single Figure of E7, the figure only shows connecting lines from the high frequency filters 10 and 12 within the Table 5 (woofer) to the satellites 9 and 11 and from the Table 5 to the amplifier 4 without any junctions. It is however apparent for the skilled person that Table 5, after the high-frequency filters 10 and 12 must have output terminals (in correspondence to 32L and 32R of the present patent, Figure 2), since it is self-evident for him that the cables between Table 5 and the satellites 9 and 11 (and the amplifier 2) must be detachably connected to the devices to provide the necessary flexibility to position them in, for example, a living room.
- 3.3.4 The Appellant disputes that the table could be regarded as a "woofer enclosure" on the grounds that the pressure control assembly (6) formed the woofer enclosure instead and that E7 stated (page 3, line 13) that the pressure control assembly was mounted under the table and not in the table (emphasis added by the Board) ("l'ensemble d'asservissement est logé sous une table basse"). However the Board agrees with the Opposition Division's interpretation of E7 that the pressure control circuit 6 of E7 cannot be a woofer enclosure since the figure shows parts of the woofer 7 being outside the pressure control circuit 6. The reference to "under the table" means that the woofer is mounted on the underside of the table, as suggested by the figure. The table encloses the woofer (7) and thus constitutes a "woofer enclosure". The fact that E7 does

not explicitly mention the table forming part of the woofer characteristic does not contradict this interpretation. Since the table forms a woofer enclosure, it follows that the outputs of the high-frequency filters (10,12) form outputs from the woofer enclosure for driving "satellite" loudspeakers (9,11).

- 3.3.5 Thus the skilled person would be led by E7 to modify E1 by incorporating features (a) and (b) as set out in point 3.1.5 when seeking to arrange appropriate connections for the satellites.
- 3.4 Solution to subproblem (2)
- 3.4.1 The skilled person faced with subproblem (2) of avoiding the woofer becoming localisable at high drive levels would be aware of E4 which suggests providing each subchamber with a port for this very purpose, see Figure 1 which shows subchambers 16a, 16b of different volume with ports 19, 20. By applying the teaching of E4 to E1 in this way the skilled person would in an obvious manner arrive at a system having feature (c).
- 3.5 Since a skilled person faced with the problem to be solved, would, starting from E1, be led in an obvious manner to add features (a), (b) and (c), and thus to arrive at the subject matter of claim 1, inventive step cannot be acknowledged for this claim, and the main request must be refused.

- 20 - T 0895/99

- 4. The auxiliary request II
- 4.1 Article 123(2)(3) EPC
- 4.1.1 Claim 1 has been restricted with respect to claim 1 as granted by the addition at the end of the claim of the words taken "wherein the predetermined frequency is substantially 150 Hz". This corresponds to the incorporation of claim 4 as granted, and the words have a basis in claim 5 as originally filed. Hence claim 1 satisfies the requirements of Article 123(2) and (3) EPC.
- 4.2 Novelty
- 4.2.1 As with the main request, this has not been disputed.
- 4.3 Inventive step
- 4.3.1 The analysis given above in respect of claim 1 of the main request, necessarily also leads to the conclusion that claim 1 as granted would lack inventive step, as this claim wholly encompasses the subject matter of claim 1 of the main request.
- 4.3.2 The only difference of claim 1 of this request from that obvious subject matter of claim 1 as granted is the feature that the predetermined frequency is substantially 150 Hz. The Board accepts that it is part of the common general knowledge of the skilled person in the art of electroacoustic transducing apparatus that a cut-off of 150 Hz would be a suitable selection for a woofer. Thus limiting claim 1 as granted to this feature cannot make any difference when applying a problem/solution analysis for inventive step, and the

- 21 - T 0895/99

conclusion must be that claim 1 of the auxiliary request II also lacks inventive step and this request must be refused.

- 5. Conclusion
- 5.1 Since the subject matter of claim 1 according to each of the Appellant's requests does not involve an inventive step, (Article 56 EPC), neither request is allowable and the appeal must be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: For the Chairman:

M. Kiehl R. Randes