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**Datasheet for the decision
of 20 April 2012**

Case Number: T 1609/09 - 3.5.03

Application Number: 00944551.1

Publication Number: 1232671

IPC: H04S 1/00

Language of the proceedings: EN

Title of invention:

Two methods and two devices for processing an input audio stereo signal, and an audio stereo signal reproduction system

Applicant:

Embracing Sound Experience AB

Headword:

Stereo signal reproduction system/EMBRACING SOUND EXPERIENCE

Relevant legal provisions:

EPC Art. 56

Relevant legal provisions (EPC 1973):

-

Keyword:

"Inventive step (no) "

Decisions cited:

-

Catchword:

-



Case Number: T 1609/09 - 3.5.03

D E C I S I O N
of the Technical Board of Appeal 3.5.03
of 20 April 2012

Appellant: Embracing Sound Experience AB
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Decision under appeal: **Decision of the examining division of the
European Patent Office posted 31 March 2009
refusing European patent application
No. 00944551.1 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman: A. S. Clelland
Members: F. van der Voort
R. Moufang

Summary of Facts and Submissions

I. This appeal is against the decision of the examining division refusing European patent application No. 00944551.1 which was published as international application PCT/SE00/01301 with publication number WO 01/39548 A.

II. One of the reasons given for the refusal was that the subject-matter of each one of the independent claims then on file lacked an inventive step, Articles 52(1) and 56 EPC, having regard to the disclosure of:

D2: "The Use of MS Techniques and MS Signals in Swedish Television", Hans Evers, Proceedings of the 9th International AES Conference, 1 February 1991, pages 127 to 132,

and taking into account the teaching of:

D3: US 5 553 147 A.

Another reason given for the refusal was that the subject-matter of two of the independent claims did not fulfil the requirements of Article 84 EPC in combination with Rule 43(2) EPC.

III. The following documents which were referred to by the appellant, as well as in the decision and/or in the international search report, are also relevant to the present decision:

D4: DE 1147 983 A; and

D5: US 4 596 034 A.

- IV. With the statement of grounds of appeal the appellant filed new sets of claims. By way of a main request the appellant requested that the decision under appeal be set aside, the appeal fee be refunded, and the case be remitted to the examining division for further processing. By way of first and second auxiliary requests, respectively, the appellant requested that the decision under appeal be set aside and a patent be granted on the basis of a set of claims labelled "First auxiliary request", or, in the alternative, a set of claims labelled "Second auxiliary request", both sets as filed with the statement of grounds. Oral proceedings were conditionally requested.
- V. The appellant was summoned to oral proceedings to be held on 3 February 2012. In a communication accompanying the summons and without prejudice to its final decision, the board informed the appellant that the main request did not appear allowable and reasons were given. Further, the board raised objections under, *inter alia*, Article 52(1) EPC in combination with Article 56 EPC (lack of inventive step) against each one of the independent claims of the first and second auxiliary requests and the appellant's attention was drawn to Article 13 RPBA relating to amendment to a party's case; the board stated, *inter alia*, that if amended claims were filed, it would be necessary at the oral proceedings to discuss, if the claims were held admissible, the question of whether the claimed subject-matter complied with the requirements of the EPC, in particular Article 52(1) EPC in combination with Article 56 EPC.

- VI. At the request of the appellant the oral proceedings were postponed to 20 March 2012.
- VII. In preparation for the oral proceedings, the appellant filed with a letter dated 20 February 2012 claims of a third auxiliary request. Arguments in support of this request as well as further arguments in support of the main request were presented.
- VIII. In a further letter the appellant informed the board that it would not be able to attend the oral proceedings and requested that, if the board were to find any of the requests on file allowable with some further amendments being made to the application, the appellant be contacted before the scheduled oral proceedings such that it could give consent to such further amendments.
- IX. In a subsequent communication the board informed the appellant that, in view of the appellant's announcement that it would not attend the oral proceedings scheduled for 20th March 2012, the oral proceedings were cancelled and the procedure would be terminated by written decision.
- X. From the appellant's written submissions the board understood the appellant to be requesting by way of a main request that the decision under appeal be set aside, the appeal fee be refunded, and the case be remitted to the examining division for further processing, and, by way of auxiliary requests, that the decision under appeal be set aside and a patent be granted on the basis of claims of any one of first to

third auxiliary requests, the first and second auxiliary requests as filed with the statement of grounds of appeal and the third auxiliary request as filed with the letter dated 20 February 2012. Further, it requested that, if the board were to find any of the requests on file allowable with some further amendments being made to the application, the appellant be contacted before the scheduled oral proceedings such that it could give consent to such further amendments.

XI. Independent system claim 5 of the third auxiliary request reads as follows:

"An audio stereo signal reproduction system, comprising at least one pair of loudspeaker elements (3'a, 3''a; 3'b, 3''b), the loudspeaker elements being positioned on a baffle with separated resonating volumes, the resonating volumes being acoustically isolated from each other, the elements of said pair being identical to each other and symmetrically positioned on opposite sides of a dividing plane, the loudspeaker elements of said pair of elements being positioned with a distance between the centres of the elements of less than one quarter of the shortest wavelength to be emitted by the elements, or, if the shortest wavelength to be emitted by the elements is less than 68 cm, less than 17 cm, characterised in that

- a left loudspeaker element is arranged to reproduce a signal, which is the sum of a

mid input signal (M) attenuated by a factor α and a side input signal (S),

- a right loudspeaker element is arranged to reproduce a signal, which is the sum of the mid input signal (M) attenuated by the factor α and the side signal (S) phase shifted 180° ,
- said mid input signal (M) being the sum of a left (L) and a right (R) input stereo signal, and said side input signal (S) being the difference between said left (L) and said right (R) input stereo signals,

wherein the system further comprises a device for processing an input audio stereo signal, said device being arranged:

- to produce a left output signal for transmission to the left loudspeaker of said pair, which is equal to the sum of the mid input signal (M) attenuated by a factor α and the side input signal (S), and
- to produce a right output signal for transmission to the right loudspeaker of said pair, which is equal to the sum of the mid input signal (M) attenuated by the factor α and the side signal (S) phase shifted 180°
 - wherein the attenuation factor α is in the range -3 dB to -10 dB."

Independent system claim 15 of the second auxiliary request differs from claim 5 of the third auxiliary request in that:

i) in the preamble the wording ", the loudspeaker elements being positioned on a baffle with separated resonating volumes, the resonating volumes" is deleted and twice between "shortest wavelength" and "emitted", the wording "to be" is deleted; and in that

ii) in the characterising portion the wording

"- a left loudspeaker element is arranged to reproduce a signal, which is the sum of a mid input signal (M) attenuated by a factor α and a side input signal (S),

- a right loudspeaker element is arranged to reproduce a signal, which is the sum of the mid input signal (M) attenuated by the factor α and the side signal (S) phase shifted 180° ,

- said mid input signal (M) being the sum of a left (L) and a right (R) input stereo signal, and said side input signal (S) being the difference between said left (L) and said right (R) input stereo signals, wherein"

is deleted.

Independent system claim 19 of the first auxiliary request differs from claim 15 of the second auxiliary

request in that the wording "wherein the attenuation factor α is in the range -3 dB to -10 dB" is deleted.

In view of the board's conclusion in respect of the above-mentioned system claims, it is not necessary to give details of the remaining independent claims of each one of the first to third auxiliary requests.

Reasons for the Decision

1. *Procedural matters*

1.1 In the communication accompanying the summons, objections under, *inter alia*, Article 52(1) EPC in combination with Article 56 EPC were raised in respect of the subject-matter of each one of the independent claims of the auxiliary requests. The appellant was informed that at the oral proceedings these objections would be discussed and, if necessary also in respect of any possible amended claims. In deciding not to attend the scheduled oral proceedings the appellant chose not to make use of the opportunity to comment at the oral proceedings on any of these objections but, instead, chose to rely on the arguments as presented in the written submissions, which the board duly considered below. No further submissions were made in response to the board's communication in which the appellant was informed that the oral proceedings were cancelled and the procedure would be terminated by written decision.

1.2 In view of the above, the board was in a position, for the reasons set out below, to reach a decision which complied with the requirements of Article 113(1) EPC.

2. *Main request*

2.1 The appellant argued that, whilst it regularly requested oral proceedings in responses to communications under Article 94(3) EPC, in the present case, since the examining division included the following passage in the communication dated 18 July 2008 (point 7):

"The applicants are informed that they will be probably summoned to attend Oral Proceedings under Art. 116 (1) EPC in the next action of the Examining Division, if the above objections are not overcome."

the applicant was led to believe that a summons to oral proceeding would be received if the examining division were of the opinion that the claims filed in response to the communication did not overcome the objections raised in the communication and, hence, that the filing of a request for oral proceedings was not necessary. If the next step were either grant of a patent or a refusal of the application, the above-mentioned passage should not have been present in the communication. Had it not been for this passage, a request for oral proceedings would not have been omitted in the present case. The passage in question was therefore truly misleading and its presence highly questionable. Further, the applicant's response included the following request: "In the event that any further objections may arise, it is highly appreciated if the Examiner calls the undersigned representative for a telephone conference."

2.2 The board notes however that from the above-mentioned passage it merely follows that the applicant would probably be summoned to attend oral proceedings in the next action of the examining division, if the objections were not overcome. Further, the board notes that in the communication it is also stated that:

"In the further prosecution of the application, failure to file an amended set of claims which complies with Rule 43(2) EPC, or to submit convincing arguments as to why the current set of claims does in fact comply with these provisions, may lead to refusal of the application under Article 97(2) EPC." (point 8.2 (board's underlining)).

In the board's view, if the applicant wanted to be sure that oral proceedings would be scheduled if the examining division, after having considered the applicant's reply, were to conclude that a patent could not be granted, it should have made a request to that effect (Article 116(1) EPC). Since the examining division apparently remained of the view that Rule 43(2) EPC was not complied with for reasons set out in the communication, a refusal of the application as the next action should not have taken the applicant by surprise. Further, the board notes that it is well-established case law that a request for a telephone conference does not constitute a request for oral proceedings according to Article 116 EPC.

2.3 For a refund of the appeal fee it would be necessary that the refund is equitable by reason of a substantial

procedural violation and that the appeal is allowable (Rule 103(1) (a) EPC). Since, for the reasons set out above, the board does not see any reason to conclude that the examining division committed a substantial procedural violation, the request that the appeal be refunded is refused.

2.4 The main request, which includes the request that the appeal fee be refunded (see point X above), is therefore not allowable.

3. *Auxiliary requests - inventive step*

3.1 The examining division considered that document D2 represented the most relevant prior art.

The appellant submitted that D2 disclosed a method of processing an audio stereo signal, in which the method included the step of directing a processed signal to a pair of loudspeaker elements which were acoustically isolated from each other, and the steps of producing a left output signal for transmission to the left loudspeaker, which was equal to the sum of a mid input signal attenuated by factor α and a side input signal, and producing a right output signal for transmission to the right loudspeaker, which was equal to the sum of the mid input signal attenuated by the factor α and the side signal phase shifted 180° . It argued that these features were however disclosed in a completely different context. More specifically, D2 related to the recording of stereo signals in connection with TV systems and addressed a completely different problem, namely providing a sound picture which in the best possible way corresponded to a displayed TV picture,

whereas the present invention aimed at a reproduction that as closely as possible resembled the actual sound at the recording location. Further, the signal processed according to D2 was for reproduction by a conventional audio stereo reproduction system having spaced apart speakers. If the signal were to be reproduced by a system according to the present invention it would have to be processed again. D2 was therefore completely irrelevant with regard to the present invention.

The board does not find these arguments convincing in connection with the claimed subject-matter, since system claim 19 of the first auxiliary request, system claim 15 of the second auxiliary request and system claim 5 of the third auxiliary request are each directed to an audio stereo signal reproduction system *per se*. Hence, the way in which the system is used, e.g. in connection with a TV system, is irrelevant. Further, the board notes that D2, Fig. 3, discloses an audio stereo signal reproduction system using so-called mid and side input signals, and further notes that the appellant did not provide evidence in support of the argument that the system of D2 was (only) for reproduction by a conventional audio stereo system having spaced apart speakers. In the board's view, the system of Fig. 3, which is a general schematic diagram, does not exclude the use of non-conventional stereo reproduction systems. In view of the above, the board concludes that D2 constitutes a fair starting point for the examination of inventive step.

3.2 Before further considering the disclosure of D2 in more detail, the board notes that all features of claim 19

of the first auxiliary request and claim 15 of the second auxiliary request are part of claim 5 of the third auxiliary request. In the present case, the board has considered the question of inventive step by starting with claim 5 of the third auxiliary request.

3.3 D2 (page 128, right-hand column, Fig. 3) discloses, using the language of claim 5 of the third auxiliary request, an audio stereo signal reproduction system which includes right and left loudspeaker elements and a device for processing an input audio stereo signal (Fig. 3, "L", "R" at "Stereo"), the device being capable of producing a left output signal, referred to here as L_{out} , for transmission to the left loudspeaker and which is equal to the sum of a mid input signal attenuated by an attenuation factor (Fig. 3, faders at "M"), referred to here as " α ", and a side input signal (Fig. 3, left-hand fader at "Width"), and of producing a right output signal, referred to here as R_{out} , for transmission to the right loudspeaker and which is equal to the sum of the mid input signal attenuated by the attenuation factor and the side signal phase shifted by 180° (Fig. 3, right-hand fader at "Width" in series with a phase shifter). The mid and side input signals are, by definition, the sum of the left and right input stereo signals L , R , and the difference between the left and right input stereo signals L , R , respectively. Hence, $L_{out} = \alpha(L+R) + (L-R) = \alpha M + S$ and $R_{out} = \alpha(L+R) - (L-R) = \alpha M - S$. Further, the left and right loudspeaker elements are arranged to reproduce the left and right output signals (Fig. 3).

3.4 The subject-matter of claim 5 of the third auxiliary request differs from the system disclosed in D2 in that:

i) the loudspeaker elements are positioned on a baffle with separated resonating volumes, the resonating volumes being acoustically isolated from each other;

ii) the loudspeaker elements are identical to each other and symmetrically positioned on opposite sides of a dividing plane;

iii) the loudspeaker elements are positioned with a distance between the centres of the elements of less than one quarter of the shortest wavelength to be emitted by the elements, or, if the shortest wavelength to be emitted by the elements is less than 68 cm, less than 17 cm; and

iv) the attenuation factor is in the range of -3 dB to -10 dB.

3.5 Features i) to iii) relate to the implementation of the loudspeaker elements. Since D2 does not give any details of the implementation of the loudspeaker elements shown in Fig. 3, a person skilled in the art, faced with the problem of implementing the system, in particular its loudspeaker elements, would consider document D3, since this document is concerned with constructional features of loudspeakers for stereophonic reproduction (D3, title, abstract, and col. 4, lines 45 to 64).

More specifically, according to one embodiment as shown in D3, Fig. 4, a loudspeaker assembly includes two identical loudspeakers 30, 31 (col. 7, lines 33 to 36)

mounted back to back and energized in a complementary manner from a stereo amplifier 12 (Fig. 4) which outputs left and right stereo signals, thereby simulating a point source transducer (col. 7, lines 23 to 32). In order to achieve an effective stereophonic reproduction, the distance ("A" in Fig. 6) between the centres of the two loudspeakers must be less than the wavelength of the highest frequency to be reproduced by the speakers, for example 9,5 kHz for conventional speakers (col. 7, lines 50 to 65). Hence, in the common case of the highest frequency to be reproduced being 9,5 kHz, which corresponds to a shortest wavelength of about 3,61 cm, the distance between the centres of the speakers must be less than about 3,61 cm.

Hence, when implementing the pair of loudspeaker elements of D2, Fig. 3, the skilled person would, without the exercise of inventive skill, namely by merely following the teaching of D3, arrive at a system in which the loudspeaker elements are identical to each other and symmetrically positioned on opposite sides of a dividing plane (feature ii)), in which the distance between the centres of the speaker elements is less than 17 cm, namely less than about 3,61 cm, if the shortest wavelength to be emitted by the elements is conventionally chosen to be about 3,61 cm, i.e. less than 68 cm (feature iii), second alternative).

Further, choosing the attenuation factor α equal to $1/2$, i.e. -3 dB, which is within the range -3 dB to -10 dB, would be an obvious choice, since it would result in L_{out} and R_{out} being proportional to L and R, respectively (see point 3.3 above), which corresponds to the stereo output of the amplifier 12 in the above-

mentioned embodiment of D3. In the system of D2 the attenuation may be further increased by correspondingly selecting the value of α in order to make the stereo image wider (page 128, left-hand column, last line, together with right-hand col., lines 11 and 12). Similarly, in D3 it is explicitly stated that "the relative phase, amplitude and delay of the stereophonic signals may be controlled in order to "move" sound around listeners, regardless of their listening position. Thus, the source of complementary stereophonic signals may include a processing arrangement to control the phase, amplitude and delay of the respective signals for this purpose." (D3, col. 10, lines 27 to 34). In view of the above, selecting an attenuation factor from within the range - 3 dB to - 10 dB (feature iv)) does not contribute to an inventive step.

Regarding feature i), in the context of the claim, the term "baffle" is interpreted by the board as any shielding device or structure (cf. Oxford English Dictionary, second edition, 1989). Hence, in the present case, the loudspeaker elements are positioned on the shielding device or structure, in which the shielding device or structure provides separated resonating volumes for the loudspeaker elements, thereby acoustically isolating the loudspeaker elements from each other.

The board notes that D3 is silent on the constructional details of the exemplary loudspeaker boxes as shown in Figs 8 to 14, in which each one of the boxes includes two loudspeaker elements. However, at the priority date it was common general knowledge that, if more than one

loudspeaker were to be accommodated in a common enclosure, a shielding device or shielding structure should be used in order to acoustically isolate the loudspeaker elements, thereby avoiding undesirable interferences within the common enclosure between the speakers, see, e.g., D4 (published in 1963, col. 2, lines 36 to 49, and Figs 1 and 2 ("Trennwand 11", "Trennwandanordnung 12")) and D5 (col. 5, lines 19 to 38, and Figs 4A-C (midwall partition 62, 76, 78, and baffle boards 80a, 80b, 80c)).

The appellant argued that D3 merely disclosed loudspeaker elements located on separate baffles which pointed away from each other, or at least at an angle, whereas in the present system the loudspeaker elements were located on one baffle and, hence, pointed in the same direction. Further, from D4 and D5 it was apparent that, if any, the loudspeaker elements were preferably located as far as possible from each other, whereas in the present system the closeness was required. Each one of D3 to D5 therefore taught away from the present invention.

The board does not find these arguments convincing, since claim 5 does not require that the loudspeaker elements are positioned on one baffle. In any case, since a baffle does not have a prescribed form (see above), positioning the loudspeaker elements on a single baffle would not imply that the loudspeaker elements point in the same direction. Further, no evidence in support of the argument that in D4 and D5 the loudspeaker elements were preferably located as far as possible from each other was submitted. In the board's view, neither D4 nor D5 discloses or even

suggests such preference, since, otherwise, the loudspeaker elements would not be accommodated in a common enclosure in the first place.

The board therefore concludes that feature i) does not contribute to an inventive step either.

3.6 In view of the above the board concludes that the subject-matter of claim 5 of the third auxiliary request does not involve an inventive step (Articles 52(1) and 56 EPC).

3.7 Regarding the subject-matter of claim 19 of the first auxiliary request and claim 15 of the second auxiliary request, since these claims do not define features other than features already included in claim 5 of the third auxiliary request, in the present case, the reasoning set out above in respect of the subject-matter of claim 5 of the third auxiliary request applies, *mutatis mutandis*, to the subject-matter of claim 19 of the first auxiliary request and claim 15 of the second auxiliary request.

Consequently, the subject-matter of claim 19 of the first auxiliary request and claim 15 of the second auxiliary request does not involve an inventive step (Articles 52(1) and 56 EPC).

4. In view of the foregoing, it has not proved necessary to consider any of the further objections set out in the board's communication annexed to the summons to oral proceedings.

5. In accordance with Article 113(2) EPC, since the board shall examine and decide on the application only in the text submitted to it, the further request by the appellant that, if the board were to find any of the requests on file allowable with some further amendments being made to the application, the appellant be contacted before the scheduled oral proceedings such that it could give consent to such further amendments, is refused.

6. There being no allowable request, it follows that the appeal must be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

L. Fernández Gómez

A. S. Clelland