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Published:

— *with international search report (Art. 21(3))*

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(88) Date of publication of the international search report:
11 November 2010

(54) Title: ADJUSTING DYNAMIC RANGE FOR AUDIO REPRODUCTION

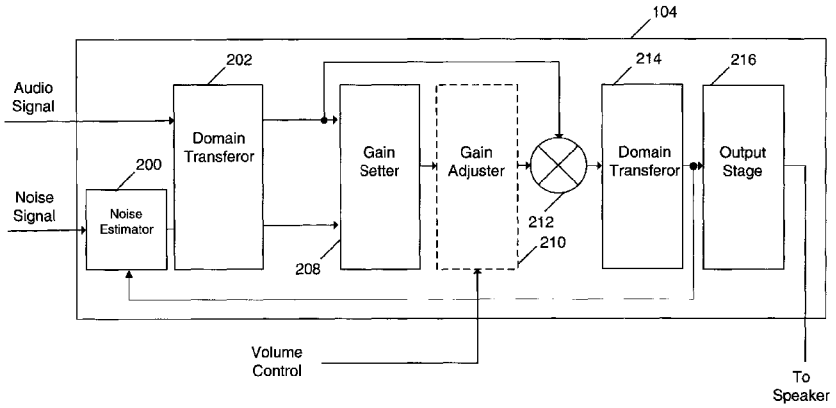


FIG. 2

(57) Abstract: An audio reproduction system substantially fits the dynamic range of recorded and broadcast music (or other type of audio content) into a desired output dynamic range, bounded by the available dynamic range of the listening environment. In some scenarios the output dynamic range may be defined as a function of the ambient noise level present in the environment and the maximum output capabilities of audio system. A listener may adjust the desired prominence of the program with a user control, with foreground (louder and more dynamic) as one extreme and background (quieter and less dynamic) as the other extreme. A control to adjust prominence, when used to provide background reproduction, may reduce the average volume of a reproduced signal and fit the input signal dynamic range into a suitably smaller but desired output signal dynamic range.

WO 2010/090851 A3

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2010/021571

A. CLASSIFICATION OF SUBJECT MATTER
INV. H03G3/32 H03G7/00
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
H03G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01/39370 A2 (SYFX [US]) 31 May 2001 (2001-05-31) page 136, line 13 - page 138, line 6; figures 2,22,24C,24G,26A,48,51,53B,55C,61A,61D,64-76 page 141, lines 10-14 page 14, lines 7-31	1-6, 10-14
X Y	US 5 907 622 A (DOUGHERTY A MICHAEL [US]) 25 May 1999 (1999-05-25) column 6, line 56 - column 9, line 7; figures 1,3,4,5,6,7 column 14, line 2 - column 15, line 29	1,5-8, 10,12,14 9

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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
9 September 2010	17/09/2010

Name and mailing address of the ISA/	Authorized officer
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INTERNATIONAL SEARCH REPORT

International application No
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99/22366 A2 (KONINKL PHILIPS ELECTRONICS NV [NL]; PHILIPS SVENSKA AB [SE]) 6 May 1999 (1999-05-06) page 1, lines 9-14; claims 1,6,9; figures 1,4,5,6	1,10,12, 14
X	WO 2006/125061 A1 (BOSE CORP [US]; GAUGER DANIEL M JR [US]; ICKLER CHRISTOPHER B [US]; HA) 23 November 2006 (2006-11-23) * abstract; figures 1-4	1,10,12, 14
X	EP 1 720 249 A1 (HARMAN BECKER AUTOMOTIVE SYS [DE]) 8 November 2006 (2006-11-08) paragraphs [0002], [0007], [0054] - [0071]; figures 1,9-17	1,5-8, 10,12,14
A	US 4 054 849 A (YAMADA TAKAAKI) 18 October 1977 (1977-10-18) * abstract; figures 3,4	1,5,6
Y	US 2005/226444 A1 (COATS ELON R [US] COATS ELON RAY [US]) 13 October 2005 (2005-10-13)	9
A	paragraph [0038] - paragraph [0043]; figures 1,2	1,5,10, 12,14

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2010/021571

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-5, 10-14

a method of adjusting a dynamic range of an audio signal with user specified inputs

1.1. claim: 4

a method of adjusting a dynamic range of an audio signal, the minimum level is based on the level of ambient noise

1.2. claim: 5

a method of adjusting a dynamic range of an audio signal, the input signal is split into frequency bands

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2. claims: 6-9

a method of adjusting a dynamic range of an audio signal, the input signal is split into frequency bands; the gain applied to a frequency band is adjusted by a feedback signal

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2010/021571

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