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(81) Designated States (unless otherwise indicated, for every

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JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS,

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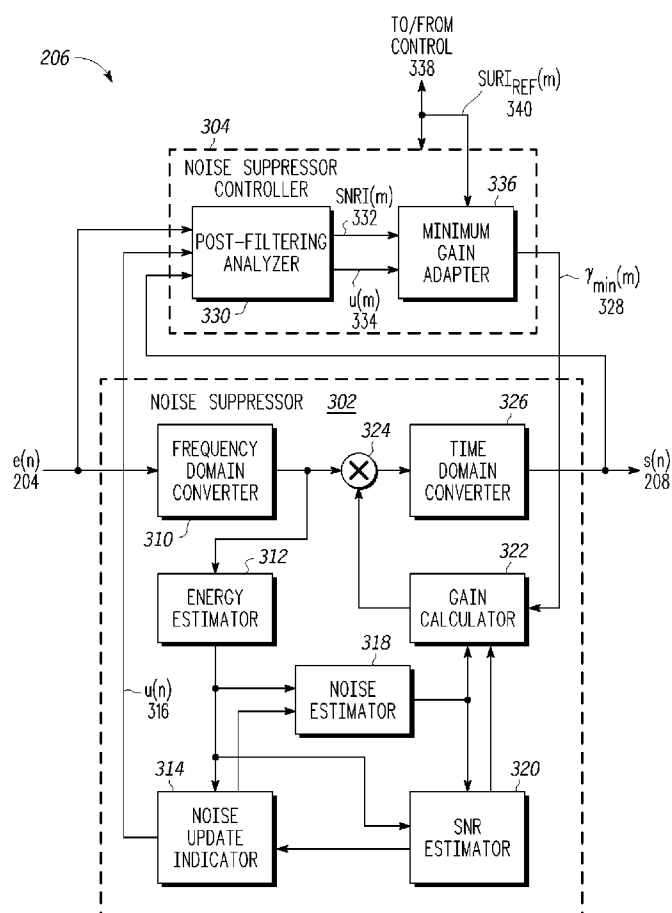
FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL,

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GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: ADJUSTABLE NOISE SUPPRESSION SYSTEM



(57) Abstract: Methods and corresponding systems for suppressing noise in an input signal (204) include setting a minimum overall gain in a noise reduction processor (206) for processing a first frame of data associated with the input signal (204). In response to a new minimum overall gain being set, the minimum overall gain in the noise reduction processor (206) is replaced with the new minimum overall gain, and a second frame of data associated with the input signal (204) is processed to suppress noise using the new minimum overall gain. The new minimum overall gain can be a function of the input signal (204) or an output signal (208) of the noise reduction processor (206). The new minimum overall gain can correspond to a difference between an estimated signal-to-noise ratio (SNR) improvement that is calculated using time-domain data and a target SNR improvement.



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8 May 2008

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/63044

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - H04B 15/00 (2008.01)

USPC - 381/94.1

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)

IPC(8) - H03D 1/04; H03D 1/06; H03K 5/01; H03K 6/04; H04B 1/10; H04L 1/00; H04L 25/08; G10L 21/00; G10L 21/02; G10L 19/14; G10L 11/00; H04B 15/00; H03G 3/20; H04R 3/00; H04B 1/06; H04B 7/00; H04B 1/38; H04M 1/00; H04M 9/00 (2008.01)
USPC - 375/346; 704/228, 225, 226, 270; 381/94.3, 94, 110, 94.1; 455/232.1, 570; 379/392.01

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 practicable, search terms used)

Database: PatBase

Search Terms: noise suppression, noise suppressor, minimum overall gain, noise, signal to noise ratio

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,862,567 B1 (GAO) 01 March 2005 (01.03.2005) entire document	1-7
A	US 5,659,622 A (ASHLEY) 19 August 1997 (19.08.1997) entire document	1-7
A	US 6,366,880 B1 (ASHLEY) 02 April 2002 (02.04.2002) entire document	1-7
A	US 2004/0052384 A1 (ASHLEY et al) 18 March 2004 (18.03.2004) entire document	1-7



Further documents are listed in the continuation of Box C.



* Special categories of cited documents:

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

"E" earlier application or patent but published on or after the international filing date

"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

07 January 2008

Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/63044

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 Extra Sheet (Page 10)

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 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.:
1-7

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.