Title (en)

Noise reducing sound reproduction

Title (de)

Rauschmindernde Tonwiedergabe

Title (fr)

Reproduction de sons réduisant le bruit

Publication

EP 2551845 A1 20130130 (EN)

Application

EP 11175344 A 20110726

Priority

EP 11175344 A 20110726

Abstract (en)

A noise reducing sound reproduction system and method is disclosed, in which: an input signal is supplied to a loudspeaker by which it is acoustically radiated; the signal radiated by the loudspeaker is received by a microphone that is acoustically coupled to the loudspeaker via a secondary path and that provides a microphone output signal; from the microphone output signal a useful-signal is subtracted to generate a filter input signal; the filter input signal is filtered in an active noise reduction filter to generate an error signal; and the useful-signal is subtracted from the error signal to generate the loudspeaker input signal; and the useful-signal is filtered by one or more spectrum shaping filters prior to subtraction from the microphone output signal or the loudspeaker input signal or both.

IPC 8 full level

G10K 11/178 (2006.01); **H04R 3/00** (2006.01); H04R 1/10 (2006.01)

CPC (source: CN EP US)

G10K 11/17817 (2017.12 - EP US); **G10K 11/17827** (2017.12 - EP US); **G10K 11/17854** (2017.12 - EP US); **G10K 11/17875** (2017.12 - EP US); **G10K 11/17885** (2017.12 - EP US); **H04R 3/00** (2013.01 - EP US); **H04R 3/02** (2013.01 - CN); **H04S 7/30** (2013.01 - EP); H04R 1/1083 (2013.01 - EP)

Citation (search report)

- [A] US 2010329473 A1 20101230 - RAUHALA JUKKA VESA TAPANI [FI]
- [A] EP 1947642 A1 20080723 - HARMAN BECKER AUTOMOTIVE SYS [DE]
- [XI] GAN W S ET AL: "AN INTEGRATED AUDIO AND ACTIVE NOISE CONTROL HEADSETS", IEEE TRANSACTIONS ON CONSUMER ELECTRONICS, IEEE SERVICE CENTER, NEW YORK, NY, US, vol. 48, no. 2, 1 May 2002 (2002-05-01), pages 242 - 247, XP001200450, ISSN: 0098-3063, DOI: 10.1109/TCE.2002.1010128
- [A] KUO S M ET AL: "ACTIVE NOISE CONTROL: A TUTORIAL REVIEW", PROCEEDINGS OF THE IEEE, IEEE. NEW YORK, US, vol. 87, no. 6, 1 June 1999 (1999-06-01), pages 943 - 973, XP011044219, ISSN: 0018-9219, DOI: 10.1109/5.763310

Cited by

EP3182406A1; CN113409755A; CN106063292A; CN108156551A; US10026388B2; US9666176B2; US9955250B2; US10206032B2; US10468048B2; US10382864B2; US10013966B2; WO2015088651A1; US9620101B1; US9704472B2; US9711130B2; US10181315B2; US10219071B2; US9633646B2; US9773493B1; US9773490B2; US9646595B2; US11679677B2; US9721556B2; US9824677B2; US10249284B2; US10453437B2

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

EP 2551845 A1 20130130; **EP 2551845 B1 20200401**; CA 2783382 A1 20130126; CA 2783382 C 20160223; CN 102905208 A 20130130; CN 106060715 A 20161026; CN 109600698 A 20190409; CN 109600698 B 20210730; JP 2013029834 A 20130207; JP 2016218456 A 20161222

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