

Title (en)

Noise reduction method for multi-microphone audio equipment, in particular for a hands-free telephony system

Title (de)

Verfahren zur Geräuschkämpfung für Audio-Gerät mit mehreren Mikrofonen, insbesondere für eine telefonische Freisprechanlage

Title (fr)

Procédé de débruitage pour équipement audio multi-microphones, notamment pour un système de téléphonie "mains libres"

Publication

EP 2538409 B1 20130828 (FR)

Application

EP 12170874 A 20120605

Priority

FR 1155377 A 20110620

Abstract (en)

[origin: EP2538409A1] The method involves estimating (22) probability (p) of presence of speech in a noisy acoustic signal. A spectral covariance matrix (Rn) of noise picked up by microphone sensors is estimated (46). Transfer functions (H) of acoustic channels between a speech source and the sensors are estimated. An optimal linear projector giving a single de-noised combined signal is calculated (48) from the matrix and the functions. The noise is selectively reduced (50) by applying variable gain specific to each frequency band and time frame of the noisy signal based on the probability and the combined signal.

IPC 8 full level

G10L 21/0208 (2013.01); **H04R 3/00** (2006.01)

CPC (source: EP US)

G10L 21/0208 (2013.01 - EP US); **H04R 3/005** (2013.01 - EP US); **G10L 19/0204** (2013.01 - EP US); **G10L 21/0232** (2013.01 - EP US); **G10L 25/06** (2013.01 - EP US); **G10L 25/18** (2013.01 - EP US); **G10L 25/78** (2013.01 - EP US); **G10L 2021/02082** (2013.01 - EP US); **G10L 2021/02166** (2013.01 - EP US); **H04R 2201/403** (2013.01 - EP US); **H04R 2499/13** (2013.01 - EP US)

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

DOCDB simple family (publication)

EP 2538409 A1 20121226; **EP 2538409 B1 20130828**; CN 102855880 A 20130102; CN 102855880 B 20160928; FR 2976710 A1 20121221; FR 2976710 B1 20130705; US 2012322511 A1 20121220; US 8504117 B2 20130806

DOCDB simple family (application)

EP 12170874 A 20120605; CN 201210202063 A 20120619; FR 1155377 A 20110620; US 201213489214 A 20120605