Title (en)
Method and device for reducing the feedback in acoustic systems

Title (de)
Verfahren und Vorrichtung zur Reduktion von Rückkopplungen bei einem Akustiksystem

Title (fr)
Procédé et dispositif pour réduire les rétroactions dans un système acoustique

Publication
EP 1648197 B2 20150107 (DE)

Application
EP 05109366 A 20051007

Priority
DE 102004050304 A 20041014

Abstract (en)
[origin: EP1648197A2] A feedback signal (RS) is detected in an incoming signal (ES), which is processed by relying on a detected feedback signal in an outgoing signal (AS), which is modulated (MO) so that the feedback signal is also modulated correspondingly. This modulation detects the feedback signal and has to be unheard by hearing-aid wearers. An independent claim is also included for a signal-processing device for an acoustic system.

IPC 8 full level
H04R 25/00 (2006.01)

CPC (source: EP)
H04R 3/02 (2013.01); **H04R 25/453** (2013.01); H04R 2430/03 (2013.01)

Citation (opposition)
  Opponent :
- US 5412734 A 19950502 - THOMASSON SAMUEL L [US]
- US 5748751 A 19980505 - JANSE CORNELIS P [NL], et al
- EP 1191814 A1 20020327 - TOEPHOLM & WESTERMANN [DK]
- US 5259033 A 19931102 - GOODINGS RUPERT L A [GB], et al
- US 4783818 A 19881108 - GRAUPE DAN [US], et al
- WO 0044113 A1 20000727 - ACOUSTIC TECH INC [US]
- US 7092532 B2 20060815 - LUO HENRY [CA], et al
- GÉZA KOLUMBAN: "PLL Applications"
- GUAN-CHYUN HSIEH ET AL.: "Phase-locked loop techniques. A surevy.", IEEE TRANSACTIONS ON INDUSTRIAL ELECTRONICS, vol. 43, no. 6, 1 December 1996 (1996-12-01), IEEE SERVICE CENTER PISCATAWAY, NJ, USA, pages 609 - 615, DOI: 10.1109/41.544547
- T.J.F. BUUNEN: "On the perception of phase differences in acoustic signals.", DELFT 1976

Cited by
    CN104575520A; DE102006023723A1; DE102009016845B3; EP2239962A3; US8280088B2; US8259974B2

Designated contracting state (EPC)
    AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

DOCDB simple family (publication)
    EP 1648197 A2 20060419; **EP 1648197 A3 20080123**; **EP 1648197 B1 20110914**; **EP 1648197 B2 20150107**; AT E524937 T1 20110915; AU 2005220246 A1 20060504; AU 2005220246 B2 20070927; CN 1774144 A 20060517; CN 1774144 B 20131218; DE 102004050304 B3 20060614; DK 1648197 T3 20111219; DK 1648197 T4 20150413; JP 2006115509 A 20060427; JP 4309390 B2 20090805

DOCDB simple family (application)
    EP 05109366 A 20051007; AT 05109366 T 20051007; AU 2005220246 A 20051007; CN 200510113725 A 20051014; DE 102004050304 A 20041014; DK 05109366 T 20051007; JP 2005297209 A 20051012