

## Title (en)

Constrained filter encoding of polyphonic signals

## Title (de)

Eingeschränkte Filtercodierung polyphoner Signale

## Title (fr)

Codage sur filtre en mode contrainte pour signaux polyphoniques

## Publication

**EP 2456236 A1 20120523 (EN)**

## Application

**EP 12154099 A 20041215**

## Priority

- EP 04809080 A 20041215
- SE 0303499 A 20031219
- SE 0400415 A 20040220

## Abstract (en)

Signals of different channels (c 1 -c N ) are combined into one mono signal (x). A set of adaptive filters, preferably one for each channel (c 1 -c N ), is derived in a respective filter adaptation unit (30:1-30:N). When an adaptive filter is applied to the mono signal (x) it reconstructs the signal of the respective channel (c 1 -c N ) under a perceptual constraint. The perceptual constraint is a gain and/or shape constraint. The gain constraint allows the preservation of the relative energy between the channels (c 1 -c N ) while the shape constraint allows more stability by avoiding unnecessary filtering of spectral nulls. The transmitted parameters are the mono signal (x), in encoded form, and the parameters (p 1 -p N ) of the adaptive filters, preferably also encoded. The receiver reconstructs the signal of the different channels by applying the adaptive filters and possibly some additional post-processing.

## IPC 8 full level

**H04S 5/02** (2006.01); **G10L 19/008** (2013.01)

## IPC 8 main group level

**H04B** (2006.01)

## CPC (source: EP SE)

**G10L 19/008** (2013.01 - SE); **H04S 5/02** (2013.01 - EP); **G10L 19/008** (2013.01 - EP)

## Citation (applicant)

- US 5285498 A 19940208 - JOHNSTON JAMES D [US]
- EP 0497413 A1 19920805 - PHILIPS NV [NL]
- US 5434948 A 19950718 - HOLT CHRISTOPHER E [GB], et al
- WO 03090206 A1 20031030 - KONINKL PHILIPS ELECTRONICS NV [NL], et al
- EP 0965123 B1 20030115 - ERICSSON TELEFON AB L M [SE]
- EP 0965123 A1 19991222 - ERICSSON TELEFON AB L M [SE]
- C. FALLER: "Binaural cue coding applied to stereo and multi-channel audio compression", 112TH AES CONVENTION, May 2002 (2002-05-01)

## Citation (search report)

- [A] EP 0559383 A1 19930908 - AMERICAN TELEPHONE & TELEGRAPH [US]
- [X] HERRE J ET AL: "INTENSITY STEREO CODING", PREPRINTS OF PAPERS PRESENTED AT THE AES CONVENTION, XX, XX, vol. 96, no. 3799, 26 February 1994 (1994-02-26), pages 1 - 10, XP009025131
- [A] FALLER C ET AL: "Efficient representation of spatial audio using perceptual parametrization", IEEE WORKSHOP ON APPLICATIONS OF SIGNAL PROCESSING TO AUDIOAND ACOUSTICS, XX, XX, 21 October 2001 (2001-10-21), pages 199 - 202, XP002245584

## 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 MC NL PL PT RO SE SI SK TR

## DOCDB simple family (publication)

**WO 2005059901 A1 20050630**; DK 1639580 T3 20140113; EP 1639580 A1 20060329; EP 1639580 B1 20131023; EP 2456236 A1 20120523; ES 2439693 T3 20140124; JP 2007527543 A 20070927; JP 4323520 B2 20090902; PL 1639580 T3 20140430; PT 1639580 E 20131119; SE 0400415 D0 20040220; SE 0400415 L 20050620; SE 527713 C2 20060523

## DOCDB simple family (application)

**SE 2004001907 W 20041215**; DK 04809080 T 20041215; EP 04809080 A 20041215; EP 12154099 A 20041215; ES 04809080 T 20041215; JP 2006518597 A 20041215; PL 04809080 T 20041215; PT 04809080 T 20041215; SE 0400415 A 20040220