

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
19 April 2007 (19.04.2007)

PCT

(10) International Publication Number
WO 2007/042108 A1

(51) International Patent Classification:

G10L 19/00 (2006.01) **H04S 3/00** (2006.01)

(21) International Application Number:

PCT/EP2006/008534

(22) International Filing Date: 31 August 2006 (31.08.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/726,389 12 October 2005 (12.10.2005) US

11/363,985 27 February 2006 (27.02.2006) US

(71) Applicants (for all designated States except US): **FRAUNHOFER-GESELLSCHAFT ZUR FÖRDERUNG DER ANGEWANDTEN FORSCHUNG E.V.** [DE/DE]; Hansastrasse 27c, 80686 München (DE). **KONINKLIJKE PHILIPS ELECTRONICS N.V.** [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **DISCH, Sascha** [DE/DE]; Turnstrasse 7, 90763 Fürth (DE). **HERRE, Jürgen** [DE/DE]; Hallerstrasse 24, 91054 Buckenhof (DE). **NEUSINGER, Matthias** [DE/DE]; Bergstrasse 10, 91189 Rohr (DE). **BREEBAART, Jeroen** [NL/NL]; C/o Koninklijke Philips Electronics N.V., Groenewoudseweg

1, NL-5621 BA Eindhoven (NL). **HOTH, Gerard** [NL/NL]; c/o Koninklijke Philips Electronics N.V., Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

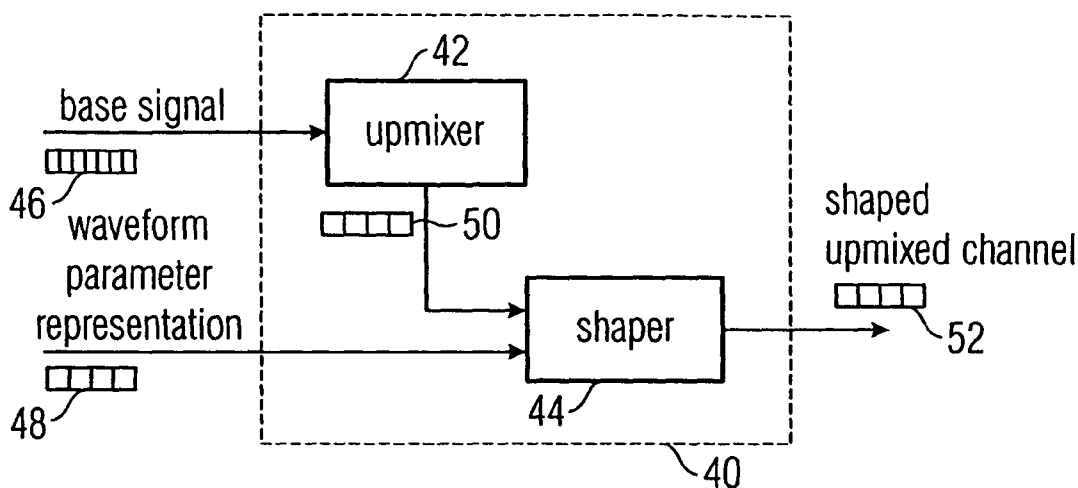
(74) Agents: **STÖCKELER, Ferdinand** et al.; Schoppe, Zimmermann, Stöckeler & Zinkler, Postfach 246, 82043 Pullach bei München (DE).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: TEMPORAL AND SPATIAL SHAPING OF MULTI-CHANNEL AUDIO SIGNALS



(57) Abstract: A selected channel of a multi-channel signal which is represented by frames composed from sampling values having a high time resolution can be encoded with higher quality when a wave form parameter representation representing a wave form of an intermediate resolution representation of the selected channel is derived, the wave form parameter representation including a sequence of intermediate wave form parameters having a time resolution lower than the high time resolution of the sampling values and higher than a time resolution defined by a frame repetition rate. The wave form parameter representation with the intermediate resolution can be used to shape a reconstructed channel to retrieve a channel having a signal envelope close to that one of the selected original channel. The time scale on which the shaping is performed is shorter than the time scale of a framewise processing, thus enhancing the quality of the reconstructed channel. On the other hand, the shaping time scale is larger than the time scale of the sampling values, significantly reducing the amount of data needed by the wave form parameter representation.

WO 2007/042108 A1



Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.