(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
4 May 2006 (04.05.2006)

PCT

(10) International Publication Number
WO 2006/045371 A1

(51) International Patent Classification:
G10L 19/02 (2006.01) *G10L 19/00* (2006.01)

(21) International Application Number:
PCT/EP2005/009618

(22) International Filing Date:
7 September 2005 (07.09.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/620,480	20 October 2004 (20.10.2004)	US
11/006,482	7 December 2004 (07.12.2004)	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). **AGERE SYSTEMS INC.** [US/US]; 1110 American Parkway NE, Allentown, Pennsylvania 18109 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **ALLAMANCHE, Eric** [DE/DE]; Grossreutherstrasse 130, 90425 Nuernberg (DE). **DISCH, Sascha** [DE/DE]; Turnstrasse 7, 90763 Fuerth (DE). **FALLER, Christof** [CH/CH]; Guetrain 1, CH-8274 Taegerwilen (CH). **HERRE, Juergen** [DE/DE]; Hallerstrasse 24, 91054 Buckenhof (DE).

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

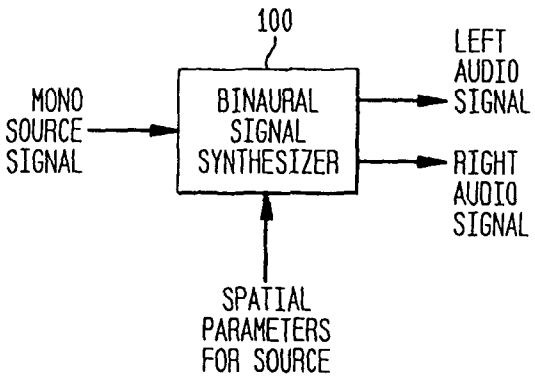
(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK,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

Published:
— *with international search report*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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.

(54) Title: INDIVIDUAL CHANNEL TEMPORAL ENVELOPE SHAPING FOR BINAURAL CUE CODING SCHEMES AND THE LIKE



(57) Abstract: At an audio encoder, cue codes are generated for one or more audio channels, wherein an envelope cue code is generated by characterizing a temporal envelope in an audio channel. At an audio decoder, E transmitted audio channel(s) are decoded to generate C playback audio channels, where C>=Eo1. Received cue codes include an envelope cue code corresponding to a characterized temporal envelope of an audio channel corresponding to the transmitted channel(s). One or more transmitted channel(s) are upmixed to generate one or more upmixed channels. One or more playback channels are synthesized by applying the cue codes to the one or more upmixedchannels, wherein the envelope cue code is applied to an upmixed channel or a synthesized signal to adjust a temporal envelope of the synthesized signal based on the characterized temporal envelope such that the adjusted temporal envelope substantially matches the characterized temporal envelope.

WO 2006/045371 A1