

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
11 March 2004 (11.03.2004)

PCT

(10) International Publication Number
WO 2004/021332 A1

(51) International Patent Classification⁷: **G10L 11/00**

(21) International Application Number:
PCT/US2003/025627

(22) International Filing Date: 15 August 2003 (15.08.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/233,073 30 August 2002 (30.08.2002) US

(71) Applicant: **DOLBY LABORATORIES LICENSING CORPORATION** [US/US]; 100 Potrero Avenue, San Francisco, CA 94103-4813 (US).

(72) Inventors: **VINTON, Mark, Stuart**; 100 Potrero Avenue, San Francisco, CA 94103-4813 (US). **ROBINSON, Charles, Quito**; 100 Potrero Avenue, San Francisco, CA 94103-4813 (US). **GUNDRY, Kenneth, James**; 100 Potrero Avenue, San Francisco, CA 94103-4813 (US). **VENEZIA, Steven, Joseph**; 100 Potrero Avenue, San Francisco, CA 94103-4813 (US). **RIEDMILLER, Jeffrey, Charles**; 100 Potrero Avenue, San Francisco, CA 94103-4813 (US).

(74) Agents: **LATHROP, David, N.** et al.; Gallagher & Lathrop, Suite 1111, 601 California Street, San Francisco, CA 94108-2805 (US).

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

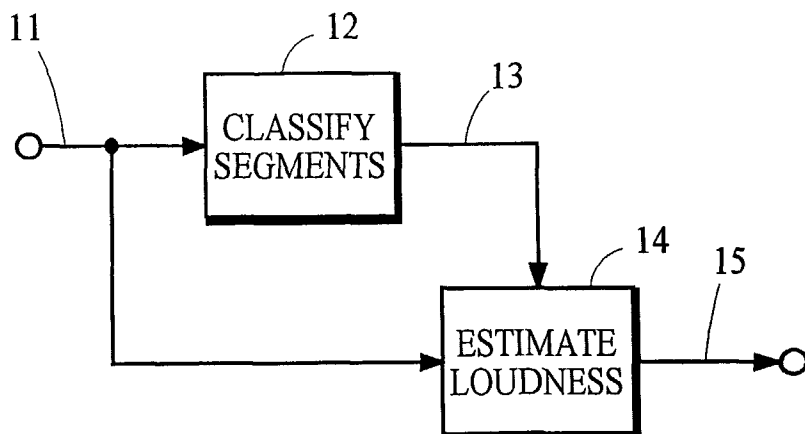
(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, 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: CONTROLLING LOUDNESS OF SPEECH IN SIGNALS THAT CONTAIN SPEECH AND OTHER TYPES OF AUDIO MATERIAL



(57) Abstract: An indication of the loudness of an audio signal containing speech and other types of audio material is obtained by classifying segments of audio information as either speech or non-speech. The loudness of the speech segments is estimated and this estimate is used to derive the indication of loudness. The indication of loudness may be used to control audio signal levels so that variations in loudness of speech between different programs is reduced. A preferred method for classifying speech segments is described.