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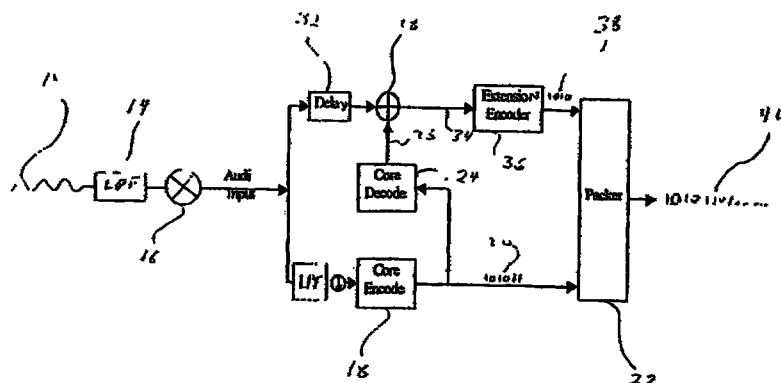
(43) International Publication Date
28 December 2000 (28.12.2000)

PCT

(10) International Publication Number
WO 00/79520 A1

- (51) International Patent Classification⁷: G10L 21/04 (74) Agents: JOHNSON, William, L. et al.; 555 St. Charles Drive, Suite 107, Thousand Oaks, CA 91360 (US).
- (21) International Application Number: PCT/US00/16681
- (22) International Filing Date: 19 June 2000 (19.06.2000)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
09/337,405 21 June 1999 (21.06.1999) US
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- (81) Designated States (*national*): AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, 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, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
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- 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.

(54) Title: IMPROVING SOUND QUALITY OF ESTABLISHED LOW BIT-RATE AUDIO CODING SYSTEMS WITHOUT LOSS OF DECODER COMPATIBILITY



(57) Abstract: A multi-channel audio compression technology is presented that extends the range of sampling frequencies compared to existing technologies and/or lowers the noise floor while remaining compatible with those earlier generation technologies. The high-sampling frequency multi-channel audio (12) is decomposed into core audio up to the existing sampling frequencies and a difference signal up to the sampling frequencies of the next generation technologies. The core audio is encoded (18) using the first generation technology such as DTS, DOLBY AC-3 or MPEG I or MPEG II such that the encoded core bit stream (20) is fully compatible with a comparable decoder in the market. The difference signal (34) is encoded (36) using technologies that extend the sampling frequency and/or improve the quality of the core audio. The compressed difference signal (38) is attached as an extension to the core bit stream (20). The extension data will be ignored by the first generation decoders but can be decoded by the second generation decoders. By summing the decoded core and extension audio signals together (28), a second generation decoder can effectively extend the audio signal bandwidth and/or improve the signal to noise ratio beyond that available through the core decoder alone.