



- (51) **International Patent Classification:**
G10L 19/005 (2013.01) *G10L 25/90* (2013.01)
G10L 19/09 (2013.01)
- (21) **International Application Number:**
PCT/EP2014/063177
- (22) **International Filing Date:**
23 June 2014 (23.06.2014)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
13173154.9 21 June 2013 (21.06.2013) EP
14166998.6 5 May 2014 (05.05.2014) EP
- (71) **Applicant:** FRAUNHOFER-GESELLSCHAFT ZUR FÖRDERUNG DER ANGEWANDTEN FORSCHUNG E.V. [DE/DE]; Hansastraße 27c, 80686 München (DE).
- (72) **Inventors:** SCHNABEL, Michael; Schneidbergweg 4a, 95179 Geroldsgrün (DE). MARKOVIC, Goran; Aachener Straße 19, 90425 Nürnberg (DE). SPERSCHNEIDER, Ralph; Debert 75, 91320 Ebermannstadt (DE). LE-COMTE, Jérémie; Turnstraße 7, 90763 Fürth (DE). HELMRICH, Christian; Hauptstraße 68, 91054 Erlangen (DE).

(74) **Agents:** ZINKLER, Franz et al.; Hermann-Roth-Weg 1, 82049 Pullach (DE).

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

(84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) **Title:** APPARATUS AND METHOD FOR IMPROVED SIGNAL FADE OUT IN DIFFERENT DOMAINS DURING ERROR CONCEALMENT

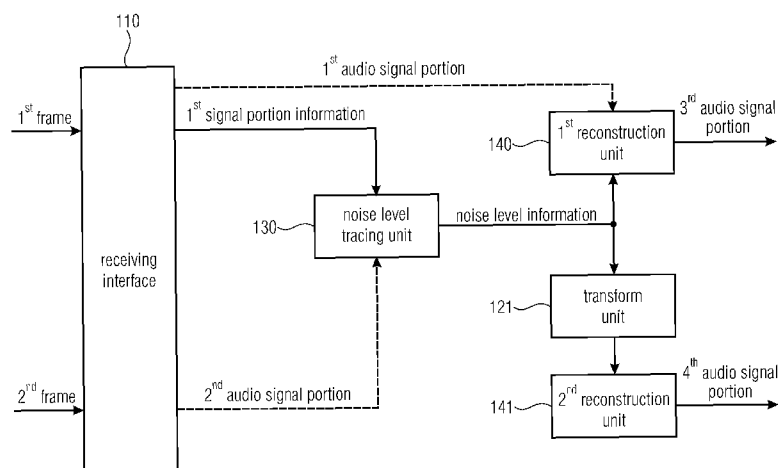


FIG 14

(57) **Abstract:** An apparatus for decoding an audio signal is provided. The apparatus comprises a receiving interface (110), wherein the receiving interface (110) is configured to receive a first frame comprising a first audio signal portion of the audio signal, and wherein the receiving interface (110) is configured to receive a second frame comprising a second audio signal portion of the audio signal. Moreover, the apparatus comprises a noise level tracing unit (130), wherein the noise level tracing unit (130) is configured to determine noise level information depending on at least one of the first audio signal portion and the second audio signal portion, wherein the noise level information is represented in a tracing domain. Furthermore, the apparatus comprises a first reconstruction unit (140) for reconstructing, in a first reconstruction domain, a third audio signal portion of the audio signal depending on the noise level information, if a third frame of the plurality of frames is not received by the receiving interface (110) or if said third frame is received by the receiving interface (110) but is corrupted, wherein the first reconstruction domain is different from or equal to the tracing domain. Moreover, the apparatus comprises a transform unit (121) for transforming the noise level information from the tracing domain to a second reconstruction domain, if a fourth frame of the plurality of frames is not received by the receiving

[Continued on next page]



Published:

— *with international search report (Art. 21(3))*

interface (110) or if said fourth frame is received by the receiving interface (110) but is corrupted, wherein the second reconstruction domain is different from the tracing domain, and wherein the second reconstruction domain is different from the first reconstruction domain. Moreover, the apparatus comprises a second reconstruction unit (141) for reconstructing, in the second reconstruction domain, a fourth audio signal portion of the audio signal depending on the noise level information being represented in the second reconstruction domain, if said fourth frame of the plurality of frames is not received by the receiving interface (110) or if said fourth frame is received by the receiving interface (110) but is corrupted.