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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
18 June 2009 (18.06.2009)

PCT

(10) International Publication Number
WO 2009/075899 A1

(51) International Patent Classification:
H04L 1/18 (2006.01)

(21) International Application Number:
PCT/US2008/052722

(22) International Filing Date: 31 January 2008 (31.01.2008)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
11/955,645 13 December 2007 (13.12.2007) US

(71) Applicant *(for all designated States except US)*: **QUALCOMM Incorporated** [US/US]; Attn: International IP Administration, 5775 Morehouse Drive, San Diego, California 92121 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **PARK, Jong Hyeon** [KR/US]; 5775 Morehouse Drive, San Diego, California 92121 (US). **SIM, Bok Tae** [KR/US]; 5775 Morehouse Drive, San Diego, California 92121 (US). **KIM, Je Woo** [KR/US]; 5775 Morehouse Drive, San Diego, California 92121 (US). **HURT, James Y.** [US/US]; 5775 Morehouse Drive, San Diego, California 92121 (US). **GLAZKO, Serguei A.** [RU/US]; 5775 Morehouse Drive, San Diego, California 92121 (US). **NANAVATI, Sameer** [US/US]; 5775 Morehouse Drive, San Diego, California 92121 (US).

(74) Agents: **BACHAND, Richard A.** et al.; Attn: International IP Administration, 5775 Morehouse Drive, San Diego, Califonia 92121 (US).

(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, BR, BW, BY, BZ, CA, CH, 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, IS, JP, KE, KG, KM, 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, 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, UZ, 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, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL,

[Continued on next page]

(54) Title: CODING BLOCK BASED HARQ COMBINING FOR OFDMA SYSTEMS

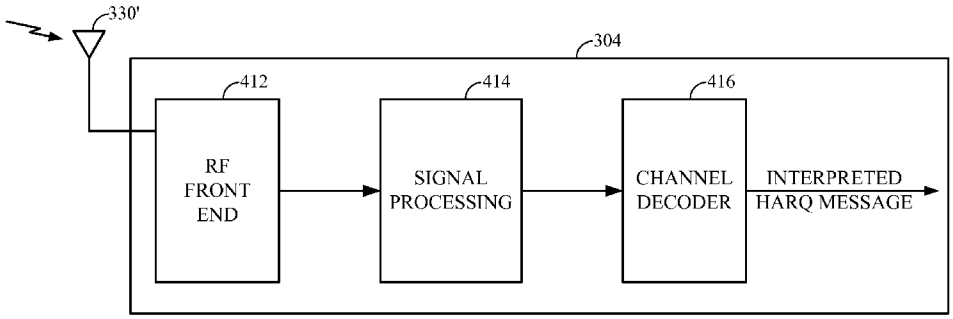

FIG. 4B

(57) Abstract: A method and apparatus for combining retransmitted hybrid automatic repeat-request (HARQ) messages divided into coding blocks in an orthogonal frequency-division multiplexing (OFDM)/orthogonal frequency-division multiple access (OFDMA) receiver are provided. According to such a coding-block-based HARQ combining scheme, the quality of each coding block may be compared to a threshold to determine whether the decoded bits or the HARQ combined signal should be saved for each coding block for subsequent HARQ iterations. In addition to reducing the required HARQ buffer size while preserving the combining gain, coding-block-based HARQ combining may also provide fast decoding and reduced power consumption when compared to conventional HARQ combining techniques.

WO 2009/075899 A1

NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

— *with international search report*