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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
6 May 2010 (06.05.2010)

PCT

(10) International Publication Number
WO 2010/051513 A3

(51) International Patent Classification:
H04W 72/04 (2009.01)

(21) International Application Number:
PCT/US2009/062898

(22) International Filing Date:
31 October 2009 (31.10.2009)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

61/109,978	31 October 2008 (31.10.2008)	US
61/117,851	25 November 2008 (25.11.2008)	US
61/141,638	30 December 2008 (30.12.2008)	US
61/148,818	30 January 2009 (30.01.2009)	US
61/232,531	10 August 2009 (10.08.2009)	US
61/245,734	25 September 2009 (25.09.2009)	US
61/250,097	9 October 2009 (09.10.2009)	US

(71) Applicant *(for all designated States except US)*: **INTERDIGITAL PATENT HOLDINGS, INC.** [US/US]; 3411 Silverside Road, Concord Plaza, Suite 105, Hagley Building, Wilmington, Delaware 19810 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **PELLETIER, Benoit** [CA/CA]; 11-13th Street, Roxboro, Québec H8Y 1L3 (CA). **PANI, Diana** [CA/CA]; 1950 Lincoln Avenue, Apt. #1812, Montreal, Québec H3H 2N8 (CA). **MARINIER, Paul** [CA/CA]; 1805 Stravinski, Brossard, Québec J4X 2J7 (CA). **CAVE, Christopher, R.** [CA/CA]; 258 Baffin, Dollard-des-Ormeaux, Montreal, Québec H9A 3J2 (CA). **CAI, Lujing** [US/US]; 517 Imbrie Place, Morganville, New Jersey 07751 (US).

(74) Agents: **CONDO, Joseph, R.** et al.; Woodcock Washburn LLP, Cira Centre, 12th Floor, 2929 Arch Street, Philadelphia, PA 19104-2891 (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, 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, 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, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, 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, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

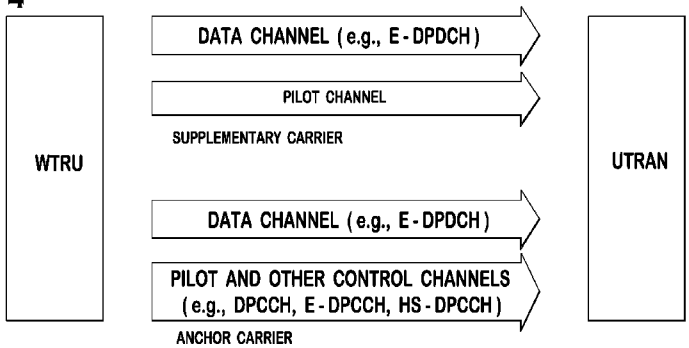
— *with international search report (Art. 21(3))*

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(88) Date of publication of the international search report:
28 October 2010

(54) Title: PROVIDING CONTROL INFORMATION FOR MULTI -CARRIER UPLINK TRANSMISSION

FIG. 4



(57) Abstract: Providing control (scheduling) information for multi-carrier uplink transmission are disclosed. A wireless transmit/receive unit (WTRU) may set a happy bit for enhanced dedicated channel (E-DCH) transmissions on each uplink carrier considering aggregated transmission capability over all uplink carriers. The happy bit is set to "unhappy" if the WTRU is transmitting as much scheduled data as allowed by a current serving grant, the WTRU has enough power available to transmit at a higher rate, and total E-DCH buffer status (TEBS) requires more than a pre-conf igured period to be transmitted with a current effective data rate aggregated over all uplink carriers. The WTRU may send scheduling information including power headroom measured on the anchor (primary) uplink carrier and/or power headroom measured on the supplementary (secondary) uplink carrier. For power headroom measurements, the WTRU may initiate a short-lived dedicated physical control channel loop on the supplementary carrier.

WO 2010/051513 A3