

(51) International Patent Classification:
H04W 28/06 (2009.01)

(21) International Application Number:

PCT/US2010/032072

(22) International Filing Date:

22 April 2010 (22.04.2010)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/172,499 24 April 2009 (24.04.2009) US

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(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, 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, 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,

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(54) Title: METHOD AND APPARATUS FOR GENERATING A RADIO LINK CONTROL PROTOCOL DATA UNIT FOR MULTI-CARRIER OPERATION

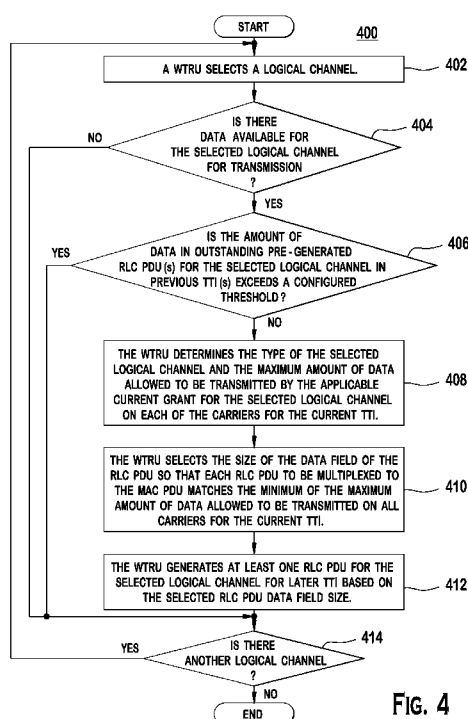


FIG. 4

(57) Abstract: Techniques and apparatus for efficiently determining the radio link control (RLC) protocol data unit (PDU) size and flexible RLC PDU creation for multi carrier operation are disclosed. An example wireless transmit/receive unit (WTRU) calculates a maximum amount of data allowed to be transmitted for a current transmission time interval (TTI) for each of a plurality of carriers, and selects an RLC PDU data field size such that each RLC PDU to be multiplexed to a medium access control (MAC) PDU matches a minimum of the maximum amount of data calculated for the carriers. The maximum amount of data may, for example, be calculated based on an applicable current grant for each carrier for the current TTI. The RLC PDU may be generated for the later TTI on a condition that an amount of data in outstanding pre-generated RLC PDUs for a particular logical channel is less than or equal to $4N$ times the minimum of the maximum amount of data allowed to be transmitted by the applicable current grant for the carriers for the current TTI, where N is a number of activated carriers. The maximum amount of data may be calculated based on a remaining power on each carrier.

WO 2010/124104 A1



TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, **Published:**
ML, MR, NE, SN, TD, TG).

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