

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
6 March 2003 (06.03.2003)

PCT

(10) International Publication Number
WO 03/019376 A1

(51) International Patent Classification⁷: G06F 11/00, H03M 13/00, 13/03, 13/29, 13/35, H04L 5/12

(21) International Application Number: PCT/US02/24404

(22) International Filing Date: 1 August 2002 (01.08.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/939,410 24 August 2001 (24.08.2001) US
10/084,414 27 February 2002 (27.02.2002) US

(71) Applicant: INTERDIGITAL TECHNOLOGY CORPORATION [US/US]; Suite 527, 300 Delaware Avenue, Wilmington, DE 19801 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, 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, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

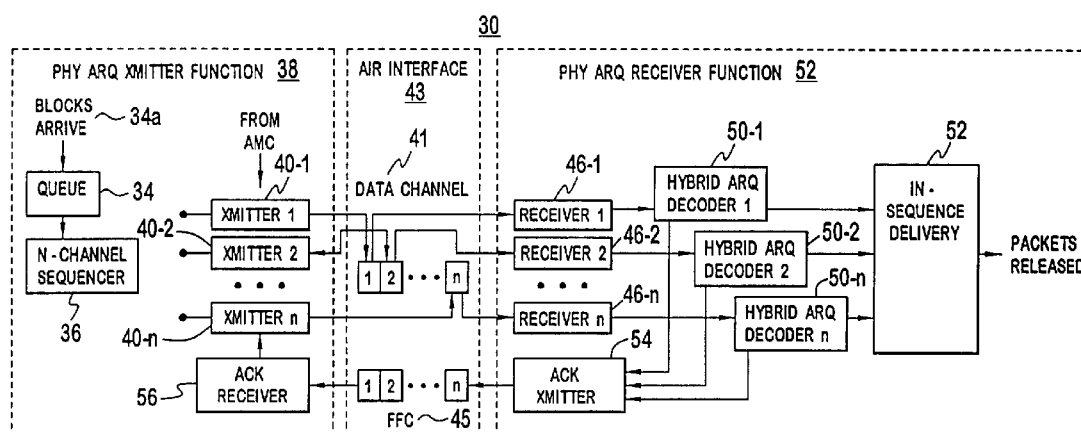
— with international search report

(72) Inventor: KWAK, Joseph, A.; 482 Degas Road, Bolingbrook, IL 60440 (US).

(74) Agents: VOLPE, Anthony, S. et al.; Volpe and Koenig, P.C., Suite 400, One Penn Center, 1617 John F. Kennedy Boulevard, Philadelphia, PA 19103 (US).

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: BASE STATION IMPLEMENTING A PHYSICAL LAYER AUTOMATIC REPEAT REQUEST



(57) Abstract: A base station implementing physical layer automatic repeat request includes a transmitter (38) and a receiver (52). The transmitter has a physical layer transmitter for receiving data, format the received data into packets transmitting the packets and retransmitting packets in response to failure to receive a corresponding acknowledgment for a given packet; an acknowledgment receiver (56) for receiving the corresponding acknowledgment; and an adaptive modulation and coding controller for collecting retransmission statistics and adjusting the particular data encoding/modulation using the collected statistics. The receiver (52) has a physical layer receiver for demodulating the packets; a combiner/decoder (50-1-50-n) for buffering, decoding and detecting packet errors; and an acknowledgment generator for generating an acknowledgment for each packet if that packet has an acceptable error rate.

WO 03/019376 A1