(A1)

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

(19) World Intellectual Property Organization
International Bureau

162162

(43) International Publication Date
8 August 2002 (08.08.2002)

PCT

(10) International Publication Number
WO 02/061962 A1

(51) International Patent Classification[7]: H04B 1/69, 7/216, H04L 27/26

(21) International Application Number: PCT/SG01/00011

(22) International Filing Date: 29 January 2001 (29.01.2001)

(25) Filing Language: English

(26) Publication Language: English

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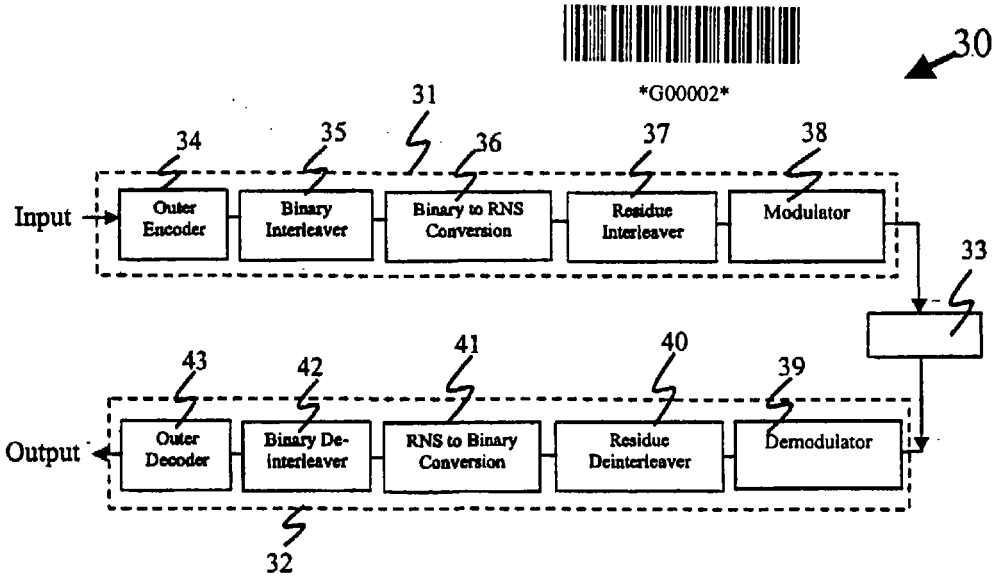
(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

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

Published:
— *with international search report*

[Continued on next page]

(54) Title: COMMUNICATION SYSTEM USING A MODULATION METHOD BASED ON RESIDUE NUMBER SYSTEMS



(57) Abstract: A communication system (30) having a transmitting section (31) and a receiving section (32) to transmit and to receive, respectively, a spread signal. The communication system (30) applies a modulation scheme using the residue number system to modulate binary information for the spread signal using a modulator (38) of the transmitting section (31). Residue sets are derived from a plurality of bits provided by the binary information. Each residue set corresponds to a residue symbol and has at least one non-redundant residue. A fixed number of least significant binary bits of each residue set are then modulated to form a modulated symbol. An orthogonal code sequence, associated with remaining bits of the binary bits of each residue set, is then selected to spread the modulated symbol on a residue channel for transmission. At the receiving section (32), a demodulator (39) demodulates the spread signal to obtain the binary information.

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