RTMP COPY + IPER

PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : H04B 7/212, 7/216 — A2

(11) International Publication Number: WO 97/38501

(43) International Publication Date: 16 October 1997 (16.10.97)

(21) International Application Number: PCT/US97/05584

(22) International Filing Date: 3 April 1997 (03.04.97)

(30) Priority Data:
08/629,497 10 April 1996 (10.04.96) US

(60) Parent Application or Grant
(63) Related by Continuation
US 08/629,497 (CON)
Filed on 10 April 1996 (10.04.96)

(71) Applicant *(for all designated States except US)*: ERICSSON INC. [US/US]; 7001 Development Drive, P.O. Box 13969, Research Triangle Park, NC 27709 (US).

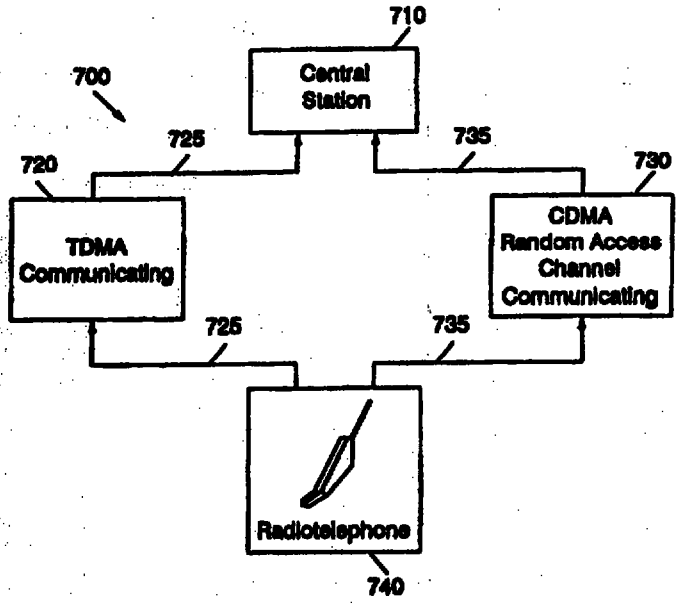
(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: WANG, Eric, Yi-Pin [US/US]; 8905 Longwood Drive, 102, Raleigh, NC 27613 (US). HASSAN, Amer [US/US]; 412 Key West Mews, Cary, NC 27513 (US). REINHOLD, Stanley, L. [US/US]; 1119 Tanglewood Drive, Cary, NC 27511 (US). MASSINGILL, Larry, W. [US/US]; 2370 NC 39N, Selma, NC 27576 (US).

(74) Agents: BIGEL, Mitchell, S. et al.; Bell, Seltzer, Park & Gibson, P.O. Drawer 34009, Charlotte, NC 28234 (US).

(81) Designated States: AL, AM, AT, AT (Utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), EE, EE (Utility model), ES, FI, FI (Utility model), GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Utility model), TJ, TM, TR, TT, UA, UG, US, UZ, VN, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).

Published
Without international search report and to be republished upon receipt of that report.

(54) Title: SPREAD SPECTRUM RANDOM ACCESS SYSTEMS AND METHODS FOR TIME DIVISION MULTIPLE ACCESS RADIOTELEPHONE COMMUNICATIONS SYSTEMS

(57) Abstract

In a time division multiple access (TDMA) radiotelephone communications system, a spread spectrum random access channel signal representing a random access message is communicated from a radiotelephone to a central station according to a spreading sequence. In response, a TDMA radiotelephone communications channel is assigned to the radiotelephone. A time division multiplexed radiotelephone communications signal is communicated between the radiotelephone and the central station on the assigned TDMA radiotelephone communications channel over a time division multiplexed carrier frequency band. Preferably, in communicating the spread spectrum random access channel signal, a random access channel signal, representing the random access channel message, is direct sequence modulated according to the spreading sequence to produce a direct sequence modulated random access channel signal. According to a two-stage detection aspect, a synchronization sequence may be associated with a plurality of spreading sequences. The synchronization sequence may be first detected from the communicated spread spectrum random access channel signal, and in response to detection of the synchronization sequence, one of the plurality of spreading sequences associated with the detected synchronization sequence may be detected. A station identification may be assigned to the radiotelephone, with the station identification preferably represented by a digital station identification word. The synchronization sequence and the spreading sequence may be identified from the station identification word, thus associating the synchronization and spreading sequences. The spreading sequence may also be randomly generated from the station identification word.