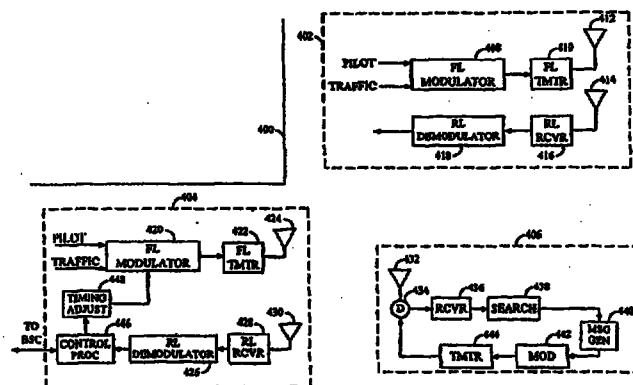




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7 : H04B 7/00	A2	(11) International Publication Number: WO 00/35117 (43) International Publication Date: 15 June 2000 (15.06.00)
(21) International Application Number: PCT/US99/28705 (22) International Filing Date: 3 December 1999 (03.12.99) (30) Priority Data: 09/206,037 4 December 1998 (04.12.98) US (71) Applicant: QUALCOMM INCORPORATED [US/US]; 5775 Morehouse Drive, San Diego, CA 92121-1714 (US). (72) Inventors: WALLACE, Mark, S.; 4 Madel Lane, Bedford, MA 01730 (US). TIEDEMANN, Edward, G., Jr.; 4350 Bromfield Avenue, San Diego, CA 92126 (US). WHEATLEY, Charles, E., III; 2208 Caminito Del Barco, Del Mar, CA 92014 (US). WALTSON, J., Rod; 7 Ledgewood Drive, Westford, MA 01886 (US). (74) Agents: MILLER, Russell, B. et al.; Qualcomm Incorporated, 5775 Morehouse Drive, San Diego, CA 92121-1714 (US).	(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, 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, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, 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), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>Without international search report and to be republished upon receipt of that report.</i>	

(54) Title: METHOD AND APPARATUS FOR PROVIDING WIRELESS COMMUNICATION SYSTEM SYNCHRONIZATION



(57) Abstract

When insufficient traffic is present in the network to maintain synchronization in this manner, other methods must be used. One approach involves making direct measurements of the timing between base stations (602, 604). This is accomplished in one of two ways. The base may interrupt its transmissions on all sectors for a short interval during which it determines the time of arrival of signals from other base stations (602, 604). Given knowledge of the other base station locations, time errors relative to all other base stations (602, 604) may be derived. Alternatively, the base may send a short signal at high power in the mobile transmit band. This time-of-arrival of this signal is measured by the surrounding base stations and the time errors between pairs of base stations are computed. In some cases, a base station (602, 604) may be isolated sufficiently from all other base stations in the network such that direct base-to-base measurement is not viable. In this case, a fixed mobile (606) is placed at a location in the handoff region between the isolated cell and another cell in the network. The fixed mobile (606) either performs measurements of base station pilots on command of the base and reports the timing information, or sends a burst transmission at a specified time and power level to be measured by the base stations.