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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
21 September 2006 (21.09.2006)

PCT

(10) International Publication Number
WO 2006/099222 A1

(51) International Patent Classification:
H04L 27/26 (2006.01) *H04L 25/02* (2006.01)

(21) International Application Number:
PCT/US2006/008762

(22) International Filing Date: 10 March 2006 (10.03.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/660,720 10 March 2005 (10.03.2005) US

(71) Applicant *(for all designated States except US)*: **QUALCOMM Incorporated** [US/US]; 5775 Morehouse Drive, San Diego, California 92121 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **VRCELJ, Bojan** [YU/US]; 7532 Charmant Drive, #335, San Diego, CA 92122 (US). **MANTRADAVI, Ashok** [IN/US]; 8730 Costa Verde Boulevard, #2351, San Diego, CA 92122 (US). **LING, Fuyun** [US/US]; 17264 Sangallo Lane, San Diego, CA 92127 (US). **MUKKAVILLI, Krishna Kiran** [IN/US]; 7164 Schilling Avenue #43, San Diego, CA 92126 (US). **KRISHNAMOORTHI, Raghuraman** [IN/US]; 7360 Calle Cristobal, #112, San Diego, CA 92126 (US). **WANG, Michael, Mao** [US/US]; 8514 Rumex Lane, San Diego, CA 92129 (US).

(74) Agents: **WADSWORTH, Philip R.** et al.; Qualcomm Incorporated, 5775 Morehouse Drive, San Diego, California 92121 (US).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

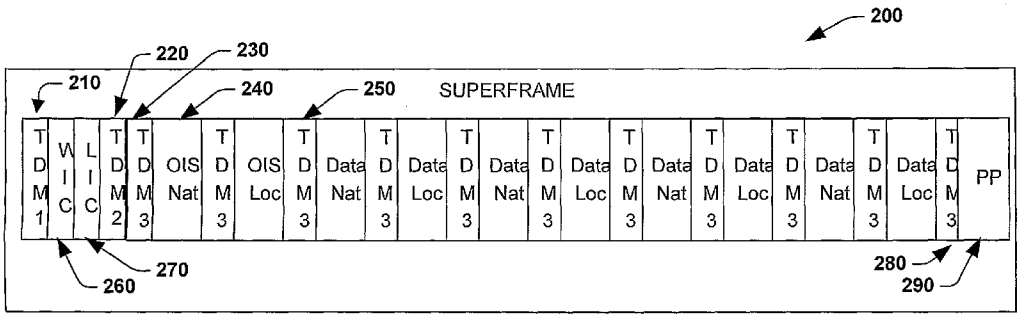
(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:
— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:
— *with international search report*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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:** TIMING SYNCHRONIZATION AND CHANNEL ESTIMATION AT A TRANSITION BETWEEN LOCAL AND WIDE AREA WAVEFORMS USING A DESIGNATED TDM PILOT



(57) **Abstract:** Systems and methods are provided for channel estimation and timing synchronization in a wireless network. In an embodiment, a method is provided for time synchronization at a wireless receiver. The method includes decoding at least one TDM pilot symbol located at a transition between wide and local waveforms and processing the TDM pilot symbol to perform time synchronization for a wireless receiver. Methods for channel estimation at a wireless receiver are also provided. This includes decoding at least one TDM pilot symbol and receiving the TDM pilot symbol from an OFDM broadcast to facilitate channel estimation for a wireless receiver.

WO 2006/099222 A1