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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
25 October 2007 (25.10.2007)

PCT

(10) International Publication Number
WO 2007/120907 A3

(51) International Patent Classification:
H04B 7/26 (2006.01) *H04L 27/26* (2006.01)

(21) International Application Number:
PCT/US2007/009372

(22) International Filing Date: 17 April 2007 (17.04.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/792,774 18 April 2006 (18.04.2006) US

(71) Applicant *(for all designated States except US)*: **INTERDIGITAL TECHNOLOGY CORPORATION** [US/US]; 3411 Silverside Road, Concord Plaza, Suite 105, Hagley Building, Wilmington, Delaware 19810 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **ZHANG, Guodong** [CN/US]; 490 Main Street, Apt. C8, Farmingdale, NY 11735 (US). **PAN, Jung-Lin** [—/US]; 43 Avalon Circle, Smithtown, NY 11787 (US). **TSAI, Yingming** [—/US]; 10 Jolie Court, Boonton, NJ 07005 (US).

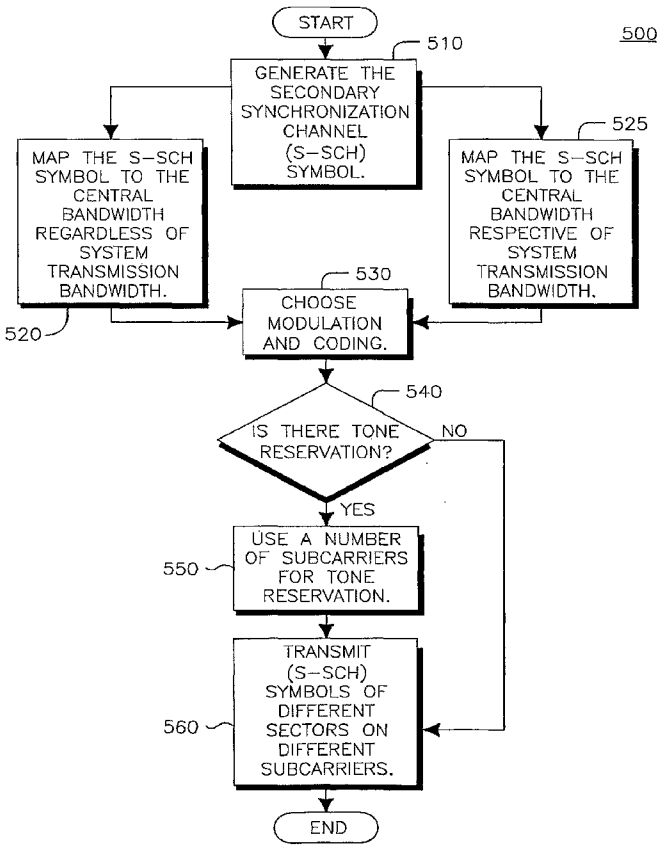
(74) Agents: **BALLARINI, Robert, J.** et al.; Volpe and Koenig, P.C., United Plaza, Suite 1600, 30 South 17th Street, Philadelphia, PA 19103 (US).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, 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, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, 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, MT, NL, PL,

[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR SYNCHRONIZATION IN AN EVOLVED-UTRA OFDMA WIRELESS COMMUNICATION SYSTEM



(57) Abstract: A method and apparatus for synchronization in an orthogonal frequency division multiple access (OFDMA) evolved universal terrestrial radio access (E-UTRA) system including at least one base station and a plurality of wireless transmit/receive units (WTRUs). A secondary synchronization channel (S-SCH) symbol is generated to include cell-specific information. The S-SCH symbol is mapped to the center of the available bandwidth of the system. In one embodiment, the S-SCH symbol is transmitted on different subcarriers at different sectors in the system. In another embodiment, the S-SCH symbol is transmitted on the same subcarriers at different sectors in the system.

WO 2007/120907 A3

PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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*

(88) Date of publication of the international search report:
13 March 2008

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2007/009372

A. CLASSIFICATION OF SUBJECT MATTER
INV. H04B7/26 H04L27/26

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
H04B H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2004/085946 A1 (MORITA MINORI [JP] ET AL) 6 May 2004 (2004-05-06) figure 2	1-42
A	US 2004/246998 A1 (MA JIANGLEI [CA] ET AL) 9 December 2004 (2004-12-09) paragraph [0098]	1-42

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier document but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
14 December 2007	28/12/2007

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Bodin, Carl-Magnus

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2007/009372

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2004085946 A1	06-05-2004	AU 2002354171 A1	17-06-2003
		CN 1496620 A	12-05-2004
		EP 1453232 A1	01-09-2004
		WO 03049344 A1	12-06-2003
		JP 3694479 B2	14-09-2005
		JP 2003179522 A	27-06-2003
US 2004246998 A1	09-12-2004	NONE	