

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
14 December 2006 (14.12.2006)

PCT

(10) International Publication Number
WO 2006/132848 A3

(51) International Patent Classification:
H04K 1/10 (2006.01)

(21) International Application Number:
PCT/US2006/020750

(22) International Filing Date: 31 May 2006 (31.05.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/687,834 6 June 2005 (06.06.2005) US
11/441,881 26 May 2006 (26.05.2006) US

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(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).

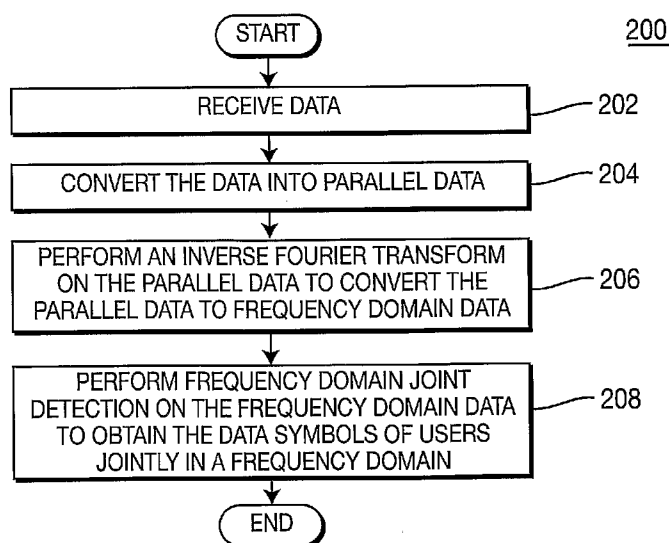
Published:

— 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:
24 May 2007

[Continued on next page]

(54) Title: FREQUENCY DOMAIN JOINT DETECTION FOR WIRELESS COMMUNICATION SYSTEMS



(57) Abstract: A method and apparatus for frequency domain joint detection for multicarrier code division multiple access (MC-CDMA) and spread orthogonal frequency division multiple access (OFDMA) systems are disclosed. The apparatus includes a receiver (150) having a frequency domain (156) joint detector (160), whereby channel distortion and data symbols are jointly equalized and detected by the frequency domain joint detector in a frequency domain. Users of the data symbols may be assigned all or a subset of subcarriers with variable spreading factor codes. Alternatively, the subset of subcarriers may be further divided into multiple partitions and the frequency domain joint detection may be performed on the subcarriers in the partition. The users are assigned a spreading code which may be a Hadamard code, a spread complex quadratic sequence (SCQS) code or any type of orthogonal spreading code.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/20750

A. CLASSIFICATION OF SUBJECT MATTER

IPC: **H04B 1/00** (2006.01)

USPC: 375/130.260.346:370/208

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)

U.S. : 375/130.260.346: 370/208

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 practicable, search terms used)
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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2004/0062317 A1 (Uesugi et al.) 1 April 2004 (01.04.2004), Fig.1 and 2, paragraphs 106 and 262	1, 4, 9-11, 14, 19 and 20
X	US 2002/0048333 A1 (Ahmed et al.) 25 September 2002(25.09.2002), Fig.2-5 and paragraphs 27 and 40	1, 10, 11 and 20
X	US 2005/0018598 (Borran et al.) 27 January 2005 (27.01.2005), Fig.4-5, paragraph 20	1, 9-11, 19 and 20



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"&"

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Date of the actual completion of the international search

04 January 2007 (04.01.2007)

Date of mailing of the international search report

22 MAR 2007

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