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10/809,538 24 March 2004 (24.03.2004) US(71) Applicant (for all designated States except US): **QUALCOMM INCORPORATED** [US/US]; 5775 Morehouse Drive, San Diego, CA 92121 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **SUTIVONG, Arak** [TH/US]; 6586 Ambrosia Drive, #5307, Carlsbad, CA 92124 (US). **NAGUIB, Ayman, Fawzy** [EG/US]; 991 Cranberry Drive, Cupertino, CA 95014 (US). **AGRAWAL, Avneesh** [IN/US]; 7891 Doug Hill, #29, San Diego, CA 92127 (US).(74) Agents: **WADSWORTH, Philip R.** et al.; 5775 Morehouse Drive, San Diego, CA 92121 (US).

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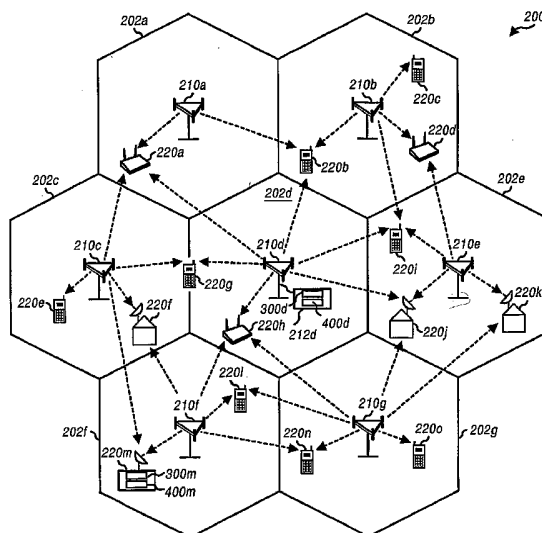
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— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM,

[Continued on next page]

(54) Title: INTERFERENCE AND NOISE ESTIMATION IN AN OFDM SYSTEM



(57) Abstract: Noise and interference can be independently measured in a multiple user Orthogonal Frequency Division Multiplexing (OFDM) system (200). Co-channel interference is measured in a frequency hopping, multiple user, OFDM system by tracking the sub-carriers assigned to all users in a particular service area or cell (202). The composite noise plus interference can be determined by measuring the amount of received power in a sub-carrier whenever it is not assigned to any user in the cell. A value is stored for each sub-carrier in the system and the value of noise plus interference can be a weighted average of the present value with previously stored values. The noise component can be independently determined in a synchronous system. In the synchronous system, all users in a system may periodically be prohibited from broadcasting over a sub-carrier and the received power in the sub-carrier measured during the period having no broadcasts.



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A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H04J 11/00

US CL : 370/210, 203, 328, 329, 330, 343, 344

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. : 370/210, 203, 328, 329, 330, 343, 344

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)
EAST

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2003/0039317 A1 (TAYLOR et al) 27 February 2003 (27.02.2003), see entire document.	1, 8, 15, 20
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Y		2-7, 9, 12-14, 16-19
Y	US 6,563,885 B1 (MAGEE et al) 13 May 2003 (13.05.2003), see entire document.	2-3, 6, 12-14, 16-17, 19
Y	US 2003/0081538 A1 (WALTON et al) 01 May 2003 (01.05.2003), see entire document.	12-13
Y	US 2003/0087651 A1 (RAUSCHMAYER) 08 May 2003 (08.05.2003), see entire document.	4, 14
Y	US 2002/0191677 A1 (CHEN et al) 19 December 2002 (19.12.2002), see entire document.	5
Y	US 2003/0058953 A1 (LEE et al) 27 March 2003 (27.03.2003), see entire document.	7, 18
Y	US 2003/0072392 A1 (BEADLE et al) 17 April 2003 (17.04.2003), see entire document.	9

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

☐ See patent family annex.

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"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

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Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

Brian Nguyen

Telephone No. (571) 272-3084