

Exhibit 7



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Nishio et al.

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(54) **RADIO COMMUNICATION APPARATUS AND RADIO COMMUNICATION METHOD**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 160 days.

This patent is subject to a terminal disclaimer.

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H04W 4/00 (2009.01)

(52) **U.S. Cl.** **370/332**; 455/452.1; 455/452.2;
455/453; 370/329; 370/330; 370/331

(58) **Field of Classification Search** 455/522,
455/452, 453, 512, 513

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,726,978	A *	3/1998	Frodigh et al.	370/252
6,130,882	A *	10/2000	Levin	370/252
6,330,429	B1 *	12/2001	He	455/67.11
6,400,699	B1 *	6/2002	Airy et al.	370/329
6,587,510	B1 *	7/2003	Minami et al.	375/285
6,654,431	B1 *	11/2003	Barton et al.	375/346
6,721,569	B1 *	4/2004	Hashem et al.	455/450

(Continued)

FOREIGN PATENT DOCUMENTS

EP 1052821 11/2000

(Continued)

OTHER PUBLICATIONS

Japanese Office Action dated Jul. 27, 2006 with English translation.

(Continued)

Primary Examiner — Lester Kincaid

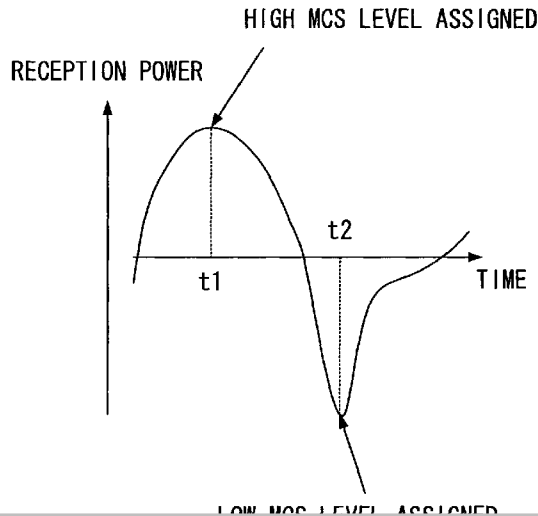
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(57) **ABSTRACT**

A CIR measuring section 307 measures CIRs of all blocks received and a block selection section 308 makes a threshold decision based on the CIR measurement result and threshold information according to an amount of traffic in the own cell and neighboring cells. As a result of the threshold decision, blocks whose CIRs exceed the threshold are regarded as usable blocks. A CIR averaging section 309 averages the CIRs of the usable blocks and a CQI generation section 310 generates a CQI based on the CIR average value. The CQI generated and selected block numbers are reported to a base station apparatus. This allows the throughput of the own cell and neighboring cells to be improved.

2 Claims, 20 Drawing Sheets



U.S. PATENT DOCUMENTS

6,748,222	B1 *	6/2004	Hashem et al.	455/453
6,836,484	B2	12/2004	Suzuki	
7,372,836	B2	5/2008	Hwang	
7,471,745	B2 *	12/2008	Anim-Appiah et al.	375/324
2002/0147017	A1	10/2002	Li et al.	
2002/0159422	A1	10/2002	Li et al.	
2002/0163879	A1	11/2002	Li et al.	
2003/0060165	A1 *	3/2003	Horisaki	455/67.4
2003/0072395	A1 *	4/2003	Jia et al.	375/341
2004/0009786	A1 *	1/2004	Terry	455/522
2004/0125743	A1 *	7/2004	Hashem et al.	370/208
2004/0203476	A1 *	10/2004	Liu	455/69
2004/0203991	A1 *	10/2004	Chen et al.	455/522
2005/0135320	A1 *	6/2005	Tiedemann et al.	370/338
2005/0289256	A1 *	12/2005	Cudak et al.	710/62
2006/0040697	A1 *	2/2006	Komatsu	455/522
2006/0056283	A1 *	3/2006	Anikhindi et al.	370/208
2006/0088007	A1 *	4/2006	Jalali et al.	370/334
2006/0089102	A1 *	4/2006	Nishio et al.	455/67.11
2006/0126493	A1 *	6/2006	Hashem et al.	370/208
2008/0317158	A1 *	12/2008	Ketchum et al.	375/267
2009/0104877	A1 *	4/2009	Nishio et al.	455/67.7
2009/0279498	A1 *	11/2009	Li et al.	370/329
2010/0080267	A1 *	4/2010	Gerakoulis	375/144
2011/0080923	A1 *	4/2011	McCloud et al.	370/479

FOREIGN PATENT DOCUMENTS

EP	1065818	1/2001
JP	7-322219	12/1995

JP	11508417	7/1999
JP	11215095	8/1999
JP	2000224140	8/2000
JP	2000324081	11/2000
JP	2001/103034	4/2001
JP	2001/238269	8/2001
JP	2002/217825	8/2002
JP	2002-369258	12/2002
WO	9701256	1/1997
WO	0036776	6/2000
WO	02/37872	5/2002
WO	02/49305	6/2002
WO	02/101951	12/2002

OTHER PUBLICATIONS

PCT International Search Report dated Mar. 9, 2004.
 3GPP TSG-RAN-1 Meeting #28 bis, Espoo, Finland, Oct. 8-9, 2002, pp. 5-12.
 3GPP TSG-WG1#29: "Comments on frequency scheduling and joint power and rate optimization for OFDM," Lucent technologies, Nov. 5-8, 2002. Shanghai, China, pp. 1-4.
 Japanese Office Action Dated Mar. 4, 2008 with English Translation.
 Japanese Office Action dated Jul. 15, 2008 with English translation thereof.
 Supplementary European Search Report dated Dec. 6, 2011, for corresponding EP Application No. 03774072.7, 4 pages.
 Japanese Notice of the Reasons for Rejection dated Aug. 24, 2010.

* cited by examiner

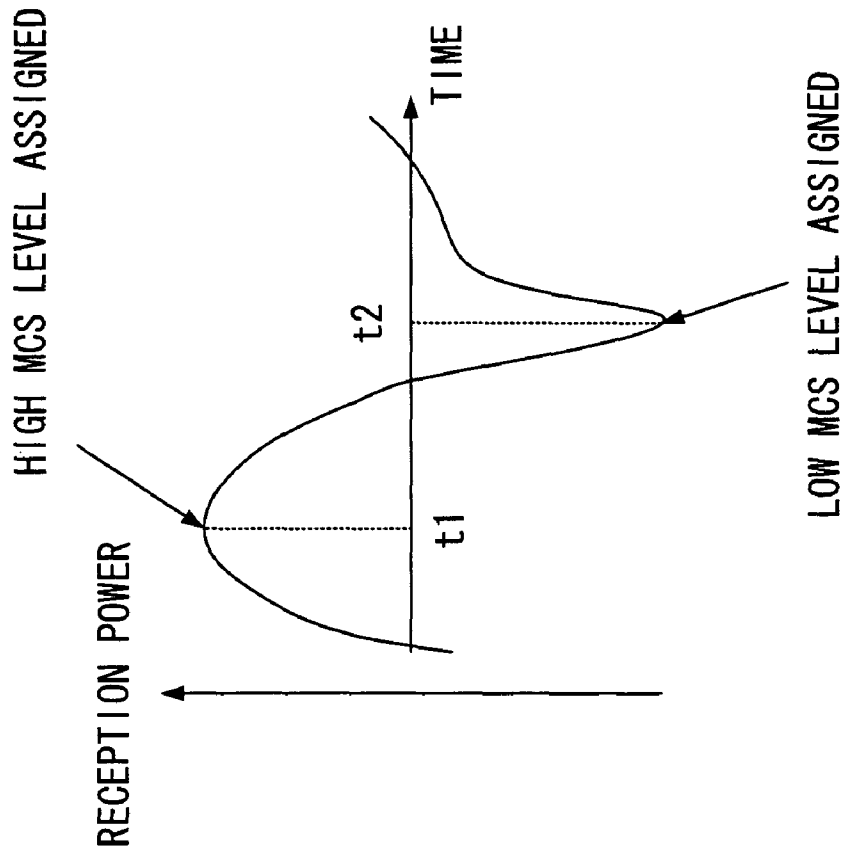


FIG.1

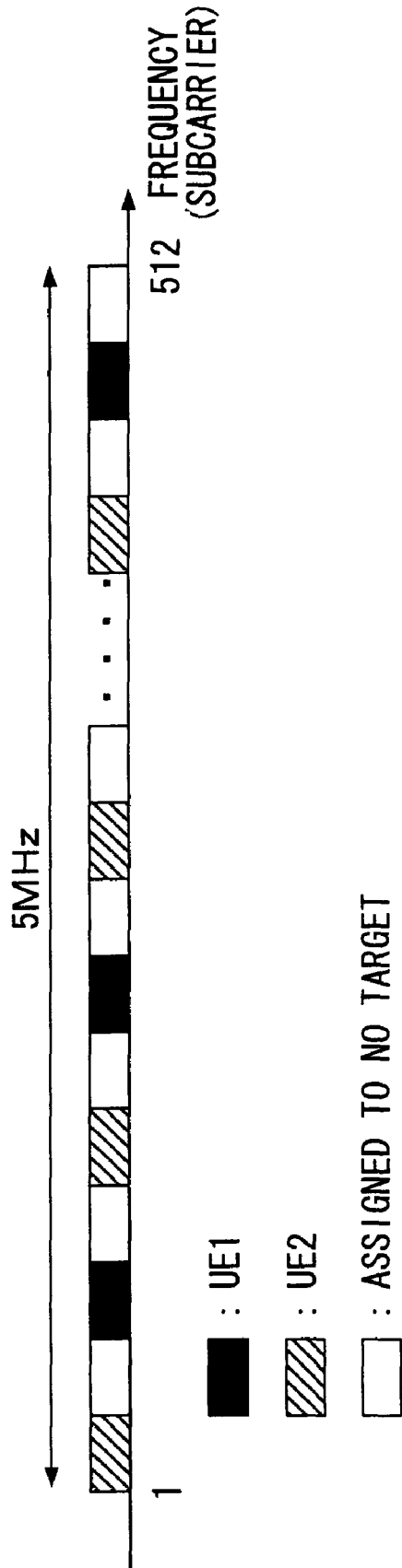


FIG.2

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