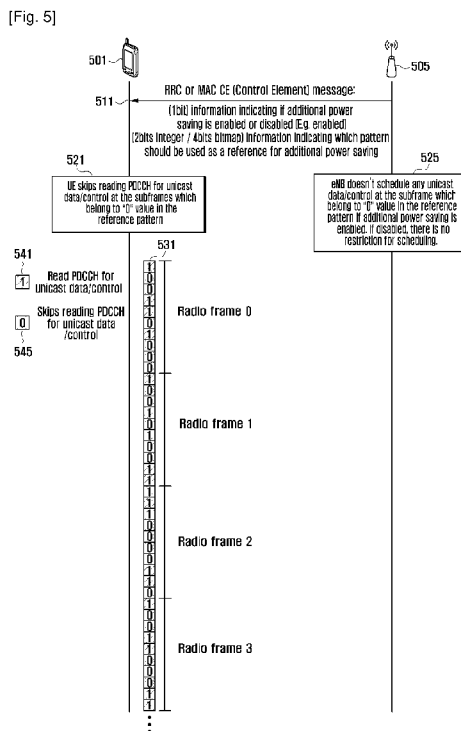




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(54) Title: METHOD AND APPARATUS FOR SAVING POWER OF USER EQUIPMENT IN WIRELESS COMMUNICATION SYSTEM



(57) Abstract: An apparatus and method for improved power saving in a User Equipment (UE) supporting enhanced Inter-Cell Interference Coordination / Time-domain ICIC (eICIC/Time-domain ICIC) are provided. The power saving method includes receiving control information including a reference pattern for a power saving mode from a base station, determining whether the terminal is configured to operate in the power saving mode, and determining, when the terminal is configured to operate in the power saving mode, whether to decode a downlink control channel according to the reference pattern.

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UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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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)

H04W 52/02; H04B 7/26; H04H 20/71; H04W 52/04; H04L 27/26

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

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: power saving mode , downlink control channel

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	KR 10-2006-0069856 A (INTERDIGITAL TECHNOLOGY CORPORATION) 22 June 2006 See claims 1-20 and figures 1-4.	1-18
A	KR 10-2006-0100363 A (QUALCOMM FLARION TECHNOLOGIES, INC.) 20 September 2006 See claims 1-60 and figures 1-10.	1-18
A	US 2009-0252077 A1 (AAMOD D. KHANDEKAR et al.) 08 October 2009 See claims 1-54 and figures 1-19.	1-18

 Further documents are listed in the continuation of Box C. See patent family annex.

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"&" document member of the same patent family

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PCT/KR2012/001266

Patent document cited in search report	Publication date	Patent family member(s)	Publication date		
KR 10-2006-0069856 A	22.06.2006	CA 2533788 A1	10.02.2005		
		CN 1833370 A0	13.09.2006		
		CN 1833370 B	12.05.2010		
		EP 1665574 A1	07.06.2006		
		EP 1665574 B1	27.08.2008		
		EP 1830480 A2	05.09.2007		
		EP 1830480 A3	03.10.2007		
		EP 1830480 B1	15.04.2009		
		EP 2076082 A2	01.07.2009		
		EP 2076082 A3	07.07.2010		
		JP 04-283309 B2	27.03.2009		
		JP 2007-500975 A	18.01.2007		
		KR 10-0691555 B1	12.03.2007		
		US 2005-0083999 A1	21.04.2005		
		US 2010-0056169 A1	04.03.2010		
		US 7616677 B2	10.11.2009		
		US 8116351 B2	14.02.2012		
		WO 2005-013507 A1	10.02.2005		
		KR 10-2006-0100363 A	20.09.2006	CA 2535555 A1	03.03.2005
				EP 1654820 A1	10.05.2006
JP 04-584835 B2	10.09.2010				
JP 2007-521685 A	02.08.2007				
WO 2005-020490 A1	03.03.2005				
US 2009-0252077 A1	08.10.2009	AU 2009-233869 A1	15.10.2009		
		CA 2715010 A1	15.10.2009		
		CN 102007807 A	06.04.2011		
		EP 2281414 A2	09.02.2011		
		JP 2011-521512 A	21.07.2011		
		KR 10-2010-0129791 A	09.12.2010		
		MX 2010010996 A	01.11.2010		
		TW 200950391 A	01.12.2009		
		WO 2009-126586 A2	15.10.2009		
		WO 2009-126586 A3	15.10.2009		