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(54) Title: METHOD OF PAGING USING HEADER

FIG. 3

In case that MS moves in the Maximum N'th small paging group, Paging Controller sends paging message to all BS within large paging group Large Paging Group Paging Controller Paging Second Location Update First Location Updat mall Paging Small Paging Small Pagin Group 2 Third Locat Update Small Paging mall Pagin Small Pagin Group S Group 4 Maximum N'th Small Pagir Small Paging mall Pagi Group N Location Undate ---- Paging Message (57) Abstract: A method for paging in a wireless access system is disclosed. A method for efficiently paging a mobile station of an idle mode comprises allocating an identifier of a large paging group and an identifier of a specific one of small paging groups included in the large paging group to a broadcast channel region and transmitting a header including the broadcast channel region to the terminal. Accordingly, the present invention enables efficient paging.

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, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, (88) Date of publication of the international search report: MR, NE, SN, TD, TG).

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A. CLASSIFICATION OF SUBJECT MATTER

H04W 68/02(2009.01)i, H04W 8/26(2009.01)i

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)

IPC H04B, H04W

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 since 1975

Japanese Utility models and applications for Utility models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) eKOMPASS(KIPOinternal), Google Scholar, The IEEE 802.16 Working Group on Broadband Wireless Access Standards & keyword: hierarchical paging

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX PA	IEEE C802.16m_08/777, JUL 2008 See whole document.	1-5,10-15,19,20 6-9,16-18
PΑ	See whole document.	0-2,10-10
A	M.SZALAY, S.IMRE, Hierarchical Paging- Efficient Location Management, In: Universal Multiservice Networks, 2007. ECUMN '07. Fourth European Conference on, IEEE, Feb. 2007, pp.301-310, ISBN: 0-7695-2768-X See Sec.4 Hierarchical Paging.	1-20
A	RAMACHANDRAN RAMJEE et al., IP Paging Service for Mobile Hosts, Wireless Networks, Sep. 2002, Vol.8, No.5, pp.427-441 See Sec.2. IP paging architecture and protocols and 3. Paging algorithms.	1-20
A	US 2005/0277429 A1 (RAJIV LAROIA et al.) 15 December 2005 See abstract; paragraphs 32-34, fig.1, claim 1.	1-20

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

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Information on patent family members

International application No.

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2005/0277429 A1	15.12.2005	AU 2005–256065 A1 PI 0511990 A CA 2570032 A1 CN 101385364 A EP 1754387 A2 JP 2008–505591 T JP 2008–505591 A KR 10–0886285 B1 PA 06014199 A N0 20070154 A W0 2005–125234 A3 W0 2005–125234 A3 W0 2005–125234 A3	09.06.2005 22.01.2008 29.12.2005 11.03.2009 21.02.2008 21.02.2008 21.02.2008 04.03.2009 12.03.2007 27.12.2007 27.12.2007 29.12.2005 29.12.2005