



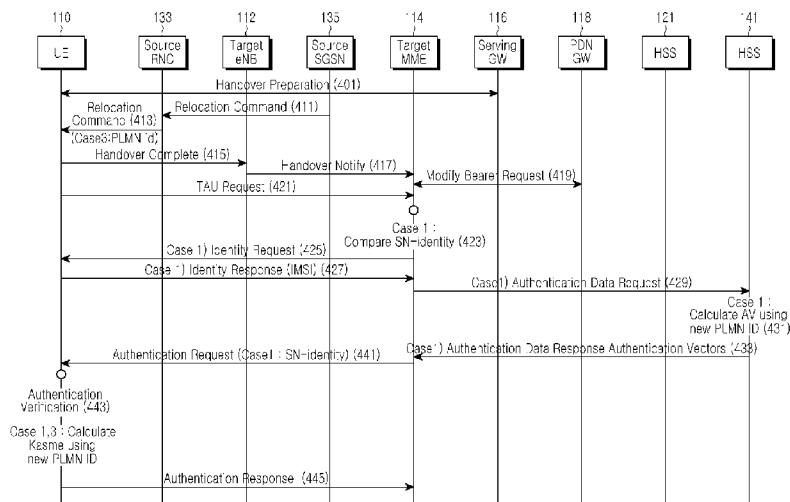
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- (71) **Applicant (for all designated States except US):** SAM-SUNG ELECTRONICS CO., LTD. [KR/KR]; 416, Maetan-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do 442-742 (KR).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** SUH, Kyung-joo [KR/KR]; #101-1102, Samsung Raemian 1-cha APT., 104-10, Samsung 1-dong, Gangnam-gu, Seoul 135-873 (KR). LIM, Chae-gwon [KR/KR]; #302, Royvill, 909-9, Daechi 4-dong, Gangnam-gu, Seoul 135-841 (KR).
- (74) **Agent:** LEE, Keon-Joo; Mihwa Bldg. 110-2, Myongryun-dong 4-ga, Chongro-gu, Seoul 110-524 (KR).

- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
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(54) Title: METHOD AND SYSTEM FOR MANAGING SECURITY IN MOBILE COMMUNICATION SYSTEM

[Fig. 4]



(57) **Abstract:** Disclosed is a method, an apparatus, and a system for solving and managing security problems, which may occur during a handover of a UE between PLMNs in a mobile communication network, by using a Non-Access Stratum (NAS) protocol. By the method, a UE can perform a security mode command and an authentication with a network. Further, the method can prevent interruption of communication due to authentication or security during a handover of a UE between PLMNs.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2010/007430**A. CLASSIFICATION OF SUBJECT MATTER***H04W 12/06(2009.01)i, H04L 9/32(2006.01)i, H04W 12/04(2009.01)i, H04W 36/12(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)

H04W 12/06; H04W 36/14; H04M 1/00; H04L 9/06; H04W 36/00

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: handover, authentication, MME

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2008-0267407 A1 (MICHAELA VANDERVEEN) 30 October 2008 See abstract; paragraphs [0007]-[0009], [0091]-[0095]; claims 1,9,17-19 and figures 2A-3C,6,8.	1-19
A	US 2009-0061878 A1 (PATRICK FISCHER) 05 March 2009 See abstract; paragraphs [0008], [0026]-[0033]; claims 1,8 and figures 1,3-4.	1-19
A	EP 2018083 A1 (NOKIA SIEMENS NETWORKS OY) 21 January 2009 See abstract; paragraphs [0042]-[0049] and figures 2-4.	1-19

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

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Authorized officer

Moon, Sung Don

Telephone No. 82-42-481-8128



INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2008-0267407 A1	30.10.2008	AU 2008-245604 A1 AU 2008-245604 B2 CA 2682813 A1 CN 101669379 A EP 2143236 A1 EP 2184933 A2 JP 2010-525764 A KR 10-2010-0007913 A WO 2008-134564 A1	06.11.2008 10.02.2011 06.11.2008 10.03.2010 13.01.2010 12.05.2010 22.07.2010 22.01.2010 06.11.2008
US 2009-0061878 A1	05.03.2009	CN 101779391 A CN 101785214 A EP 2026617 A1 EP 2026617 B1 EP 2028890 A1 EP 2091281 A1 EP 2091281 B1 US 2009-0052420 A1 US 2009-0296637 A1 US 7792130 B2 WO 2009-022795 A2 WO 2009-022795 A3 WO 2009-022796 A2 WO 2009-022796 A3	14.07.2010 21.07.2010 18.02.2009 29.07.2009 25.02.2009 19.08.2009 17.02.2010 26.02.2009 03.12.2009 07.09.2010 19.02.2009 09.04.2009 19.02.2009 16.04.2009
EP 2018083 A1	21.01.2009	None	