(19) World Intellectual Property Organization

International Bureau





(10) International Publication Number

(43) International Publication Date 30 November 2006 (30.11.2006)

WO 2006/127445 A3 (51) International Patent Classification:

H04L 12/56 (2006.01) (21) International Application Number:

PCT/US2006/019408

18 May 2006 (18.05.2006) (22) International Filing Date:

(25) Filing Language: English

English (26) Publication Language:

(30) Priority Data:

60/683,992 24 May 2005 (24.05.2005) US 11/159,606 23 June 2005 (23.06.2005)

- (71) Applicant (for all designated States except US): CINGU-LAR WIRELESS LLC [US/US]; 5565 Glenridge Connector, Atlanta, GA 30342 (US).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): BONNER, Thomas W. [US/US]; 3480 Shawnee Trail, Smyrna, GA 30080
- (74) Agents: AMIN, Himanshu S. et al.; Amin & Turocy, LLP, 1900 E. 9th Street, 24th Floor, National City Center, Cleveland, OH 44114 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): 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, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

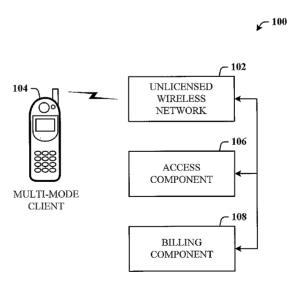
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report: 22 November 2007

[Continued on next page]

(54) Title: DYNAMIC DUAL-MODE SERVICE ACCESS CONTROL, LOCATION-BASED BILLING, AND E911 MECHA-**NISMS**



(57) Abstract: Architecture that facilitates the validation and authentication of the physical location of the dual-mode handset in a VoWLAN solution (e.g., UMA (Unlicensed Mobile Access)) system and a cellular wireless service, thereby restricting the handset from gaining access from unauthorized locations. Thus, access to dual-mode service (e.g., UMA), for example, at a particular location (e.g., in a subscriber's home, or in a hot spot that is controlled by carrier) can now be managed to allow or deny service at a certain location. Another aspect of the invention is the capability to perform location-based billing. For example, if the subscriber is at home, the call may be free. Alternatively, if the subscriber is at a remote location (e.g., a retail establishment), it is now possible to charge for that connection at a different fee. Additionally, a location can now be assigned; for example, to assign a location for E911 compliance.



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No. PCT/US 06/19408

later document published after the international filing date or priority

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8): H04B 7/00 (2007.01)

USPC: 370/230

According to International Patent Classification (IPC) or to both national classification and IPC

FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC(8): H04B 7/00 (2007.01) USPC: 370/230

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched USPC: 370/310, 395.52 (text search - see terms below)

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

PubWEST (USPT, PGPB, EPAB, JPAB); Wiley Interscience; CrossRef; Google; Google Scholar Search Terms: uma gan ims voip billing unlicensed mobile access analog terminal adapter pppoe pani ani psap e.164

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	US 2004/0192211 A1 (GALLAGHER et al.) 30 September 2004 (30.09.2004) entire document, especially para [0007], [0029], [0032], [0033], [0047], [0049], [0050], [0074], [0078], [0084], [0088],	1-10, 12, 15-17, 19, 40-44
t	[0088], [0098]; Fig. 2	11, 13, 14, 18, 20-34, 37-39
Υ	US 2005/0026650 A1 (RUSSELL) 03 February 2005 (03.02.2005) entire document, especially para [0014], [0042], [0053]	11, 35-39, 45-48
Y	US 2002/0126701 A1 (REQUENA) 12 September 2002 (12.09.2002) entire document, especially para [0018], [0021], [0026], [0036], [0061], [0109], [0192]	13, 18, 20-39
Υ	US 6,240,285 B1 (BLUM et al.) 29 May 2001 (29.05.2001) entire document, especially col 3, ln 14-37	14, 32
Υ	US 6,677,894 B1 (SHEYNBLAT et al.) 13 January 2004 (13.01.2004) entire document, especially col 21, in 45col 22, in 14	45-48
	· .	
Furth	er documents are listed in the continuation of Box C.	1

1 ^	to be of particular relevance		the principle or theory underlying the invention		
"E"	"E" earlier application or patent but published on or after the international filing date		document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone		
"L"	"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)				
į			document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is		
"O"	document referring to an oral disclosure, use, exhibition or other means	considered to involve an inventive step when the document combined with one or more other such documents, such combinatibeing obvious to a person skilled in the art			
"P"	document published prior to the international filing date but later than the priority date claimed	"&"	document member of the same patent family		
Date of the actual completion of the international search			Date of mailing of the international search report		
19 July 2007 (19.07.2007)		2 0 SEP 2007			
	,		Z V 3EP 2001		
Name and mailing address of the ISA/US		Authorized officer:			
Mail Stop PCT, Attn: ISA/US, Commissioner for Patents			Lee W. Young		
P.O. Box 1450, Alexandria, Virginia 22313-1450		PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774			
Facsimile No. 571-273-3201					

Special categories of cited documents: