

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
15 January 2009 (15.01.2009)

PCT

(10) International Publication Number
WO 2009/009687 A3

(51) International Patent Classification:
H04W 4/06 (2009.01)

(21) International Application Number:
PCT/US2008/069689

(22) International Filing Date: 10 July 2008 (10.07.2008)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/948,968 10 July 2007 (10.07.2007) US
12/166,634 2 July 2008 (02.07.2008) US

(71) Applicant (for all designated States except US): **QUALCOMM Incorporated** [US/US]; ATTN: International IP Administration, 5775 Morehouse Drive, San Diego, California 92121-1714 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **WU, Xinzhou**

[CN/US]; 5775 Morehouse Drive, San Diego, California 92121-1714 (US). **TAVILDAR, Saurabh** [IN/US]; 5775 Morehouse Drive, San Diego, California 92121-1714 (US). **PARK, Vincent, D.** [US/US]; 5775 Morehouse Drive, San Diego, California 92121-1714 (US). **LI, Junyi** [CN/US]; 5775 Morehouse Drive, San Diego, California 92121-1714 (US). **LAROIA, Rajiv** [IN/US]; 5775 Morehouse Drive, San Diego, California 92121-1714 (US).

(74) Agent: **ZHU, Peng**; ATTN: International IP Administration, 5775 Morehouse Drive, San Diego, California 92121-1714 (US).

(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, 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, KR, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ,

[Continued on next page]

(54) Title: METHODS AND APPARATUS FOR SUPPORTING BROADCAST COMMUNICATIONS IN A PEER TO PEER NETWORK

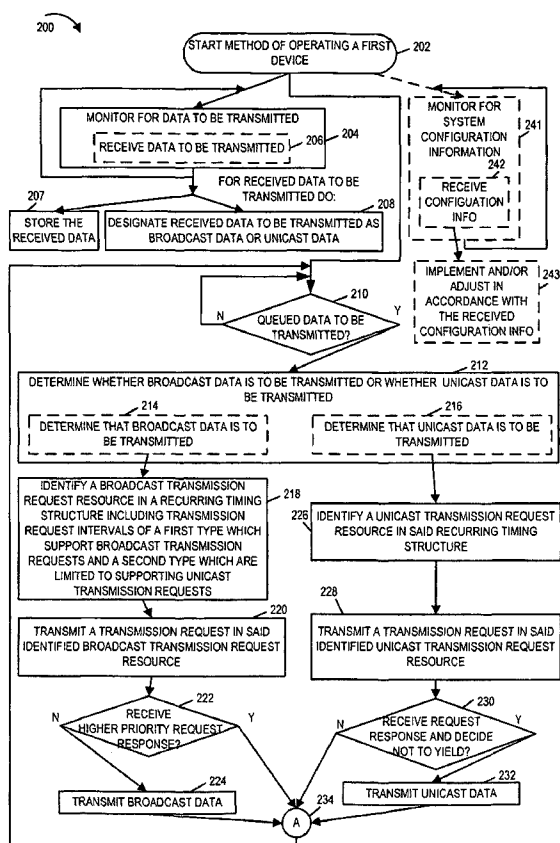


FIGURE 2

(57) Abstract: Methods and apparatus related to broadcasting data in a peer to peer wireless communications network are described. A timing structure is utilized employing slots of a first type which support broadcast traffic transmissions and unicast traffic transmissions and slots of a second type which support unicast traffic transmission but do not support broadcast traffic transmissions. In various embodiments, traffic air link resource scheduling is performed in a decentralized manner on a slot by slot basis. In some such embodiments, a wireless device prior to transmitting a broadcast data traffic signal, transmits a broadcast transmission request signal, sometimes alternatively referred to as a broadcast indicator signal; and a wireless device prior to transmitting a peer to peer unicast signal, transmits a peer to peer traffic transmission request signal. In various embodiments, for slots of the first type, broadcast transmission requests have priority over peer to peer unicast transmission requests.

WO 2009/009687 A3



TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, 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, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

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:

5 March 2009

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2008/069689

A. CLASSIFICATION OF SUBJECT MATTER
INV. H04W4/06

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)
H04Q

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

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

EPO-Internal, WPI Data, INSPEC

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 6 912 212 B1 (YOUNG C DAVID [US] ET AL) 28 June 2005 (2005-06-28) column 1, line 58 - column 2, line 8 column 4, line 12 - column 5, line 11 figure 5 ----- -/--	1,10,20, 25 2-9, 11-19, 21-24, 26,27

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *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)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* 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
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

16 December 2008

Date of mailing of the international search report

23/12/2008

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Rabe, Marcus

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2008/069689

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	YOUNG C D: "USAP multiple access: dynamic resource allocation for mobile multihop multichannel wireless networking" MILITARY COMMUNICATIONS CONFERENCE PROCEEDINGS, 1999. MILCOM 1999. IEE E. ATLANTIC CITY, NJ, USA 31 OCT.-3 NOV. 1999, PISCATAWAY, NJ, USA, IEEE, US, vol. 1, 31 October 1999 (1999-10-31), pages 271-275, XP010369668 ISBN: 978-0-7803-5538-5 paragraphs I and III figures 3 and 4	2-9, 11-19, 21-24, 26,27
A	WO 2006/075277 A (KONINKL PHILIPS ELECTRONICS NV [NL]; SHANG DAN [CN]; SUN LI [CN]; DU Y) 20 July 2006 (2006-07-20) page 2, line 32 - page 4, line 8	1-27
A	WO 2004/053940 A (XSILOGY INC [US]) 24 June 2004 (2004-06-24) paragraph [0045] - paragraph [0047] paragraph [0054] - paragraph [0055] figure 3	1-27

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2008/069689

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6912212	B1	28-06-2005	NONE	
WO 2006075277	A	20-07-2006	NONE	
WO 2004053940	A	24-06-2004	AU 2003296354 A1	30-06-2004