



(51) International Patent Classification:
H04W 74/08 (2009.01)

(21) International Application Number:
PCT/US2009/053687

(22) International Filing Date:
13 August 2009 (13.08.2009)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/090,531 20 August 2008 (20.08.2008) US
12/349,726 7 January 2009 (07.01.2009) US

(71) Applicant (*for all designated States except US*): **QUALCOMM INCORPORATED** [US/US]; Attn: International Ip Administration, 5775 Morehouse Drive, San Diego, CA 92121-1714 (US).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **MERLIN, Simone** [IT/IT]; 5775 Morehouse Drive, San Diego, CA 92121-1714 (US). **ABRAHAM, Santosh** [US/US]; 5775 Morehouse Drive, San Diego, CA 92121-1714 (US). **SRIDHARA, Vinay** [IN/US]; 5775 Morehouse Drive, San Diego, CA 92121-1714 (US).

(74) Agent: **JENCKES, Kenyon, S.**; Attn: International IP Administration, 5775 Morehouse Drive, San Diego, CA 92121-1714 (US).

[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR MULTIPLE CHANNEL ACCESS AND NAV RECOVERY

(57) Abstract: An apparatus and method for communications are disclosed. The apparatus may include a processing system configured to send data to a node on a first channel and receive an acknowledgement to the data from the node, the processing system being further configured to determine whether a second channel is available from information contained in the acknowledgement.

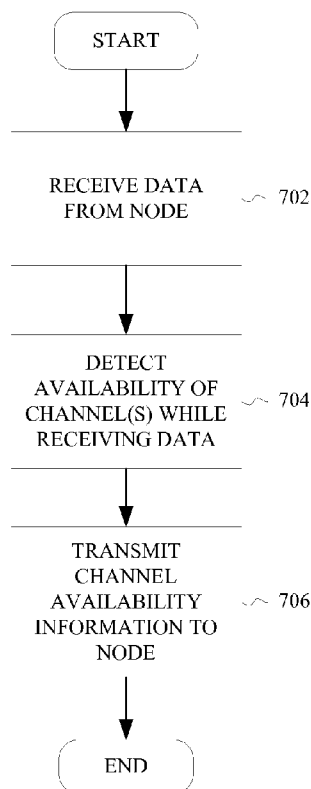


FIG. 7



(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, 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, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, 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, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(88) **Date of publication of the international search report:**

1 July 2010

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2009/053687

A. CLASSIFICATION OF SUBJECT MATTER

INV. H04W74/08
ADD.

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

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, COMPENDEX, INSPEC, IBM-TDB, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2006/000955 A1 (PHILIPS INTELLECTUAL PROPERTY [DE]; KONINKL PHILIPS ELECTRONICS NV [NL] 5 January 2006 (2006-01-05) abstract page 4, line 21 - page 7, line 20 page 9, line 8 - page 13, line 16 claims 1-25 figures 2-8 ----- -/--	1-60

☒ 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

6 May 2010

Date of mailing of the international search report

17/05/2010

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

Rosken, Wilfried

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2009/053687

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KOSE C ET AL: "WWiSE Proposal: High throughput extension to the 802.11Standard" IEEE, 18 March 2005 (2005-03-18), pages 1-105, XP040385016 PISCATAWAY, NJ, USA	7-9, 11-13, 23-25, 27-29, 39-41, 43-45, 56,58,60
A	page 31, paragraph 2 page 49, paragraph 4 * chapters 7.2.3.1-7.2.3.9, 9.14-9.14.4, 11.6.7-11.6.7.1.2 *	1-6,10, 14-22, 26, 30-38, 42, 46-55, 57,59
A	----- SHIH-LIN WU ET AL: "A new multi-channel MAC protocol with on-demand channel assignment for multi-hop mobile ad hoc networks" PARALLEL ARCHITECTURES, ALGORITHMS AND NETWORKS, 2000. I-SPAN 2000. PROCEEDINGS. INTERNATIONAL SYMPOSIUM ON DALLAS, TX, USA 7-9 DEC. 2000, LOS ALAMITOS, CA, USA, IEEE COMPUT. SOC, US LNKD-DOI:10.1109/ISPAN.2000.900290, 7 December 2000 (2000-12-07), pages 232-237, XP010530524 ISBN: 978-0-7695-0936-5 * chapter 3, paragraphs 2-3 *	6,14-16, 22, 30-32, 38, 46-48,54
A	----- RITESH MAHESHWARI ET AL: "Multichannel MAC Protocols for Wireless Networks" SENSOR AND AD HOC COMMUNICATIONS AND NETWORKS, 2006. SECON '06. 2 006 3RD ANNUAL IEEE COMMUNICATIONS SOCIETY ON, IEEE, PI, 1 January 2006 (2006-01-01), pages 393-401, XP031012201 ISBN: 978-1-4244-0626-5 * chapters III A, IV A, V A 1 *	1,7,17, 23,33, 39,49, 55-60

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2009/053687

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2006000955 A1	05-01-2006	CN 1973492 A	30-05-2007
		JP 2008503958 T	07-02-2008
		US 2008273606 A1	06-11-2008