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- Published:**
— with international search report

[Continued on next page]

(54) Title: METHOD OF COMMUNICATING WITHIN A MESH NETWORK

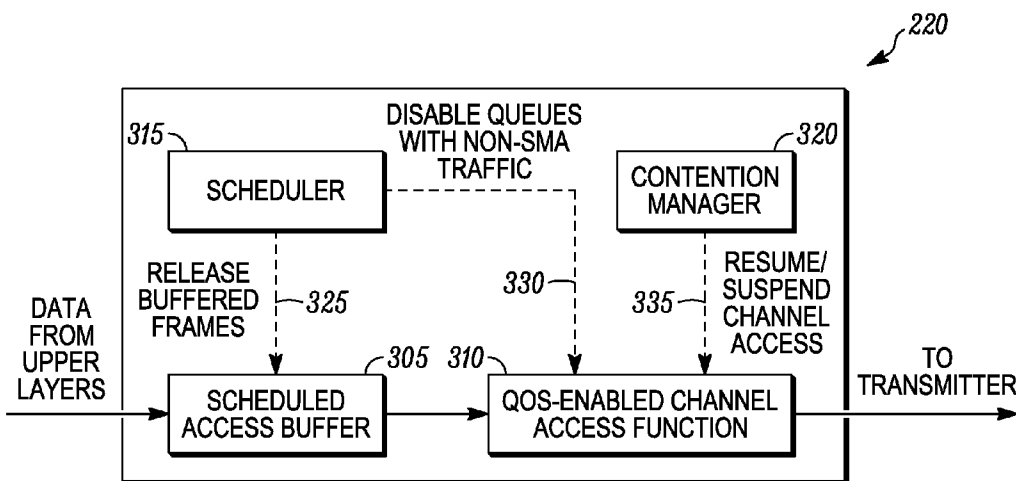


FIG. 3

(57) Abstract: A method of communicating within a mesh network comprises scheduling a mesh access reservation time period for transmission of one or more frames by the mesh device on a channel. During the scheduled mesh access reservation time period: contention for the channel is performed with one or more other mesh devices in the network; and at least one frame is transmitted when the mesh device wins the contention. After the scheduled mesh access reservation time period: when one or more frames scheduled for transmission during the scheduled mesh access reservation time period remain to be transmitted; contention for the channel continues; and the one or more frames are transmitted when the mesh device wins the contention for the channel and when another mesh device has not reserved the channel for the time period.

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— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
INV. H04W74/08 H04W84/18

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, 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.
Y	CHENXI ZHU ET AL: "A five-phase reservation protocol (FPRP) for mobile ad hoc networks" INFOCOM '98. SEVENTEENTH ANNUAL JOINT CONFERENCE OF THE IEEE COMPUTER AND COMMUNICATIONS SOCIETIES. PROCEEDINGS. IEEE SAN FRANCISCO, CA, USA 29 MARCH-2 APRIL 1998, NEW YORK, NY, USA, IEEE, US, vol. 1, 29 March 1998 (1998-03-29), pages 322-331, XP010270275 ISBN: 978-0-7803-4383-2	1-16
Y	page 323 - page 325, paragraph 2.3 page 325, paragraph 2.4 - page 326, paragraph 2.5 page 327, paragraph 3.1 - page 329, paragraph 3.2 page 330, paragraph 4.3 ----- -/--	17

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.
- *Z* document member of the same patent family

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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2008/073804

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	IEEE 802 11: "Joint SEE-Mesh/Wi-Mesh Proposal to 802.11 TGs" INTERNET CITATION, 28 February 2006 (2006-02-28), pages 1-165, XP002504090 [retrieved on 2006-02-28] page 121, paragraph 6.9 - page 125, paragraph 6.9.11 -----	1-16
P,X	YE CHEN ET AL: "MAC 15-2 - Scheduled Mesh Access Mechanism for an IEEE 802.11 Mesh Network" WIRELESS COMMUNICATIONS AND NETWORKING CONFERENCE, 2008. WCNC 2008. IEEE, IEEE, PISCATAWAY, NJ, USA, 31 March 2008 (2008-03-31), pages 1734-1739, XP031243894 ISBN: 978-1-4244-1997-5 the whole document -----	1-16
Y	WO 2005/025244 A (AVAYA TECHNOLOGY CORP [US]) 17 March 2005 (2005-03-17) page 2, line 6 - page 3, line 2 page 7, line 1 - page 8, line 5 page 11, line 3 - line 15 page 12, line 24 - page 13, line 3 figure 2 -----	17
A	US 6 570 883 B1 (WONG HSIAO-TUNG [US]) 27 May 2003 (2003-05-27) column 1, line 7 - line 11 column 3, line 22 - column 4, line 8 -----	17
A	US 6 778 536 B1 (OFEK YORAM [US] ET AL) 17 August 2004 (2004-08-17) column 4, line 14 - line 33 -----	17

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2008/073804

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.
2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-16

Group I (claims 1 - 16) relates to a method of operation of a mesh device for communicating within a mesh network comprising:

scheduling a mesh access reservation time period for transmission of one or more frames by the mesh device on a channel;

- during the scheduled mesh access reservation time period: performing contention for the channel with one or more other mesh devices in the network; and

transmitting at least one frame when the mesh device wins the contention for the channel; and

- after the scheduled mesh access reservation time period: determining whether one or more frames scheduled for transmission during the scheduled mesh access reservation time period remain to be transmitted;

continuing to perform contention for the channel with one or more other mesh devices in the network;

determining whether another mesh device has reserved the channel for a time period after the scheduled mesh access reservation time period; and

transmitting the one or more frames when the mesh device wins the contention for the channel and when another mesh device has not reserved the channel for the time period.

Dependent claims 2 - 16 further claim details of the method of operation of the mesh device.

2. claim: 17

Group II (claim 17) relates to a method of operation of a mesh device for communicating within a mesh network comprising:

receiving a schedule including a reservation of a scheduled mesh access reservation time period for each of the one or more received frames;

receiving one or more frames to forward to another destination node from at least one neighbour mesh device; buffering the received one or more frames;

releasing a buffered frame to a transmit queue of a channel access reservation function at a start of an associated scheduled mesh access reservation time for the buffered frame; and

disabling one or more queues with non scheduled mesh access traffic during each of the reserved scheduled mesh access reservation time periods.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2008/073804

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 2005025244	A	17-03-2005	NONE	
US 6570883	B1	27-05-2003	NONE	
US 6778536	B1	17-08-2004	NONE	