(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
10 May 2002 (10.05.2002)

PCT

(10) International Publication Number
WO 02/037754 A3

(51) International Patent Classification[7]: H04L 12/56, 29/06

(21) International Application Number: PCT/US01/27798

(22) International Filing Date:
2 November 2001 (02.11.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/245,186	3 November 2000 (03.11.2000)	US
60/249,254	17 November 2000 (17.11.2000)	US
60/254,544	12 December 2000 (12.12.2000)	US
60/256,337	19 December 2000 (19.12.2000)	US
60/257,983	27 December 2000 (27.12.2000)	US
60/278,744	27 March 2001 (27.03.2001)	US

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(81) Designated States *(national)*: CA, JP, MX.

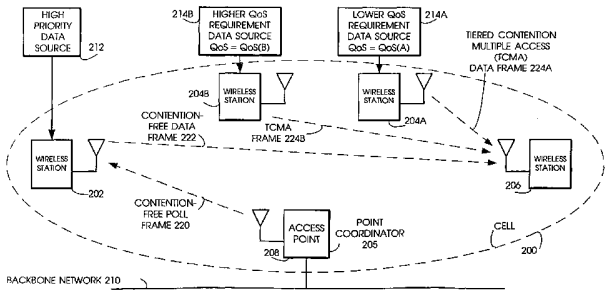
(84) Designated States *(regional)*: European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR).

Published:
— *with international search report*

(88) Date of publication of the international search report:
1 May 2003

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.

(54) Title: TIERED CONTENTION MULTIPLE ACCESS (TCMA): A METHOD FOR PRIORITY-BASED SHARED CHANNEL ACCESS



(57) Abstract: Quality of Service (QoS) support is provided by means of a Tiered Contention Multiple Access (TCMA) distributed medium access protocol that schedules transmission of different types of traffic based on their service quality specifications. In one embodiment, a wireless station is supplied with data from a source having a lower QoS priority QoS(A), such as file transfer data. Another wireless station is supplied with data from a source having a higher QoS priority QoS(B), such as voice and video data. Each wireless station can determine the urgency class of its pending packets according to a scheduling algorithm. For example file transfer data is assigned lower urgency class and voice and video data is assigned higher urgency class. There are several urgency classes which indicate the desired ordering. Pending packets in a given urgency class are transmitted before transmitting packets of a lower urgency class by relying on class-differentiated urgency arbitration times (UATs), which are the idle time intervals required before the random backoff counter is decreased. In another embodiment packets are reclassified in real time with a scheduling algorithm that adjusts the class assigned to packets based on observed performance parameters and according to negotiated QoS-based requirements. Further, for packets assigned the same arbitration time, additional differentiation into more urgency classes is achieved in terms of the contention resolution mechanism employed, thus yielding hybrid packet prioritization methods. An Enhanced DCF Parameter Set is contained in a control packet sent by the AP to the associated stations, which contains class differentiated parameter values necessary to support the TCMA. These parameters can be changed based on different algorithms to support call admission and flow control functions and to meet the requirements of service level agreements.

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 01/27798

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L12/56 H04L29/06

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)
IPC 7 H04L

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, PAJ, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DENG D-J ET AL: "A PRIORITY SCHEME FOR IEEE 802.11 DCF ACCESS METHOD" IEICE TRANSACTIONS ON COMMUNICATIONS, INSTITUTE OF ELECTRONICS INFORMATION AND COMM. ENG. TOKYO, JP, vol. E82-B, no. 1, January 1999 (1999-01), pages 96-102, XP000927880 ISSN: 0916-8516	1-8, 23-28, 31-38, 63,64, 66-73, 96,97, 100-106
Y	the whole document	9-22, 39-54, 57-62, 65, 76-79, 84-89,99

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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"A" document defining the general state of the art which is not considered to be of particular relevance

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"P" document published prior to the international filing date but later than the priority date claimed

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"&" 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 December 2002	15/01/2003

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Pereira, M

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Internat[redacted] Application No
PCT/US 01/27798

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 636 223 A (FRASER BUD ET AL) 3 June 1997 (1997-06-03)	1-8, 23-28, 31-38, 63,64, 66-73, 96,97, 100-106
Y	abstract	9-22, 39-54, 57-62, 65, 76-79, 84-89,99
	column 1, line 41 -column 1, line 63 column 2, line 33 -column 2, line 65 column 3, line 20 -column 3, line 23 column 3, line 62 -column 4, line 14 column 5, line 21 -column 5, line 56 column 6, line 23 -column 6, line 30 column 6, line 50 -column 7, line 31 column 7, line 59 -column 8, line 29 claims 1-3	

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Y	abstract	9-22, 39-54, 57-62, 65, 76-79, 84-89,99
	column 3, line 30 -column 3, line 58	
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INTERNATIONAL SEARCH REPORT

Information on patent family members

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