

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

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
8 August 2002 (08.08.2002)

PCT

(10) International Publication Number  
**WO 02/062085 A3**

- (51) International Patent Classification<sup>7</sup>: **H04Q 7/20**, H04L 12/413
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- (21) International Application Number: PCT/US01/45868
- (81) Designated States (*national*): AU, CA.
- (22) International Filing Date:  
21 December 2001 (21.12.2001)
- (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).
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
09/742,093 22 December 2000 (22.12.2000) US
- Published:  
— with international search report
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- (88) Date of publication of the international search report:  
21 November 2002
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- 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: METHOD OF OPTIMIZING RANDOM ACCESS PERFORMANCE IN A MOBILE COMMUNICATIONS NETWORK USING DYNAMICALLY CONTROLLED PERSISTENCE TECHNIQUES

Comparison of Results

Congestion Control Implemented	Input Rate	Throughput	Mean Delay (ms)	Blocking Probability
NO	0.75	0.182991	2853.925636	0.756001
YES	0.75	0.534169	1013.23703	0.287466

(57) Abstract: An apparatus and method for optimizing multiple access satellite (Fig. 4) and terrestrial mobile communications network performance using random access or multiple access protocols such as frequency division multiple access (FDMA), code division multiple access (CDMA), or optimally, time division multiple access (TDMA). Performance is optimized through the use of persistence algorithms (830) in congestion control methods for random access channels in such a network, whereby mobile terminal participation (160) is eliminated from the control procedure. In one aspect, a fixed network (100, 120) dynamically directs the operation of a mobile terminal-based persistence algorithm using only locally derived information which is directly transformed into an accurate estimate of random access channel throughput.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US01/45868

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) :H04Q 7/20; H04L 12/413

US CL :370/230, 252, 330, 445

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)

U.S. : 370/230, 252, 330, 335, 337, 341, 342, 344, 347, 445

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
 NONE

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

EAST

search terms: random access channel, collision, access attempt

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6,011,978 A (AULT et al) 04 January 2000, col. 9, lines 13-49.	1-9, 11-20, 22-26, 28-33
Y,P	US 6,195,338 B1 (DECKER) 27 February 2001, col. 1, line 28-col. 2, line 58.	1-9, 11-20, 22-26, 28-33
A	US 5,434,847 A (KOU) 18 July 1995, col. 7, line 53-col. 7, line 68.	1-34

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier document published on or after the international filing date	"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
"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)	"&" document member of the same patent family
"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	

Date of the actual completion of the international search

20 MAY 2002

Date of mailing of the international search report

11 JUN 2002

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