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(54) Title: A SYSTEM AND METHOD FOR INCREASING BANDWIDTH EFFICIENCY AND THROUGHPUT OF A DATA TRANSMISSION NETWORK

(57) Abstract: A system and method for increasing bandwidth efficiency and data transmission performance of radio frequency wireless, optical wireless and fiber-optic digital communication links without requiring an increase in signal power. The system utilizes bandwidth efficient space-time coding to correct transmission errors and bandwidth efficient space-time modulation to dramatically increase data throughput without requiring additional signal bandwidth or power. Radio frequency wireless, optical wireless WDM and fiber-optic applications are achieved by utilizing space-time encoders, radio frequency sources, bandwidth efficient space-time modulators and power amplifiers combined with transmission devices such as one or more antennas, multifeed antennas, multimode antennas or for transmission by a suitable cable. At the receiver, the method is reversed.



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INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H04B 10/08
 US CL : 398/79,53,141,24;370/276;385/24;370/465,478,359/494

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. : 398/79,53,141,24;370/276;385/24;370/465,478,359/494

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 practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US5136666A (ANDERSON et al), 04 August 1992, col.6,lines38-64,col.3,lines41-46,col.10,lines8-20	1,4-10,12-14,16,18,20,22-24,26-28
X	US2002/0080436A1 (HAIT), 27 June 2002, paragraph 0183	1,4,5,6-10,12,13,14,16,17,18,20,22-25,26,27and28
X	US2001/0095997A1 (AGAZZI), 01 November 2001, paragraph 0004	1,4,5,6,7-10,12-14,16,17,18,20,22-25,26,27and28
Y,P	2003/0002099A1 (SAYYAH et al), 02 January 2003, paragraph 0004-0006	7-10,12,13,22-24
Y	US5528582A (BODEEP et al), 18 June 1996, col.4,lines 20-30and col.8,lines40-60	2,3,15,19and 21

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