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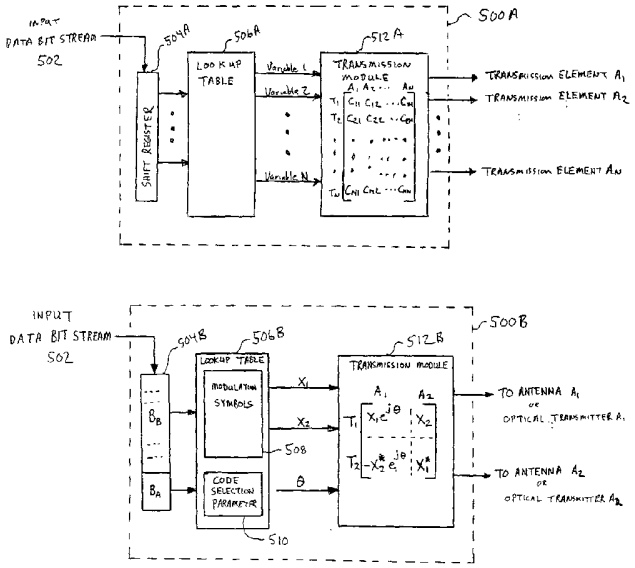
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(54) Title: SUPER-ORTHOGONAL SPACE-TIME TRELLIS CODES, AND APPLICATIONS THEREOF



(57) Abstract: A super set of space-time block codes is combined with set partitioning to form super-orthogonal space-time trellis codes having full diversity, enhanced coding gains, and improved rates. In communications systems, these codes are implemented by an encoder of a diverse transmitter to send an information signal to a receiver having one or more receiver elements. A decoder in the receiver decodes the encoded signal to reproduce the information signal. A method of the invention is used to generate set partitioning structures and trellis structures that enable code designers to systematically design the codes of the invention.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L1/06

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 H03M

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, PAJ, INSPEC, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	TAROKH ET AL: "Space-time block codes from orthogonal designs" IEEE TRANSACTIONS ON INFORMATION THEORY, IEEE INC. NEW YORK, US, vol. 45, no. 5, July 1999 (1999-07), pages 1456-1467, XP002161393 ISSN: 0018-9448 cited in the application the whole document --- -/--	1-48

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

[ ] Patent family members are listed in annex.

° Special categories of cited documents :

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

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Date of the actual completion of the international search	Date of mailing of the international search report
28 June 2002	08/07/2002

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	Ghigliotti, L

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	ALAMOUTI S M ET AL: "Trellis-coded modulation and transmit diversity: design criteria and performance evaluation" UNIVERSAL PERSONAL COMMUNICATIONS, 1998. ICUPC '98. IEEE 1998 INTERNATIONAL CONFERENCE ON FLORENCE, ITALY 5-9 OCT. 1998, NEW YORK, NY, USA,IEEE, US, 5 October 1998 (1998-10-05), pages 703-707, XP010314906 ISBN: 0-7803-5106-1 cited in the application section 3 ---	1-48
A	WYK VAN D J ET AL: "ON THE CONSTRUCTION OF LAYERED SPACE-TIME CODED MODULATION (STCM) CODES EMPLOYING MTCM CODE DESIGN TECHNIQUES" VTC 1999-FALL. IEEE VTS 50TH. VEHICULAR TECHNOLOGY CONFERENCE. GATEWAY TO THE 21ST. CENTURY COMMUNICATIONS VILLAGE. AMSTERDAM, SEPT. 19 - 22, 1999, IEEE VEHICULAR TECHNOLGY CONFERENCE, NEW YORK, NY: IEEE, US, vol. 5 CONF. 50, 19 September 1999 (1999-09-19), pages 2969-2973, XP000922301 ISBN: 0-7803-5436-2 section III -----	1-48