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- (71) Applicant (for all designated States except US): TEXAS INSTRUMENTS INCORPORATED [US/US]; P.O. Box 655474, Mail Station 3999, Dallas, TX 75265-5474 (US).

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**Declarations under Rule 4.17:**

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

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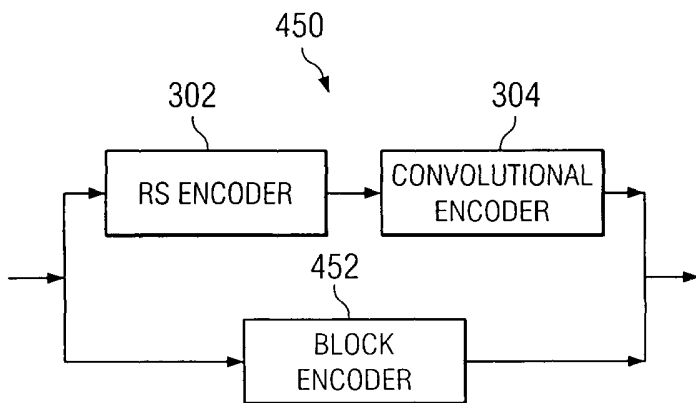
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- (72) Inventors; and
- (75) Inventors/Applicants (for US only): BALAKRISHNAN, Jaiganesh [IN/IN]; Sumangala Apartments, Apt. B1, Plot No.12, Sixty Feet Road, Hal III Stage, Bangalore 560 075, Karnataka (IN). LINGAM, Srinivas [IN/US]; 430 Buckingham Road #2121, Richardson, TX 75081 (US). GOEL, Manish [IN/US]; 4417 Helson Drive, Plano, TX 75024 (US). BATRA, Anuj [US/US]; 2510 Worthington Street, Dallas, TX 75204 (US).
- (74) Agents: FRANZ, Warren, L. et al.; Texas Instruments Incorporated, P.O. Box 655474, M/S 3999, Dallas, TX 75265-5474 (US).
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(54) Title: CONCATENATED CODING OF THE MULTI-BAND ORTHOGONAL FREQUENCY DIVISION MODULATION SYSTEM



(57) Abstract: The present disclosure is directed to a transmitter that includes a first block encoder (450) operable to block encode at least a first portion of a multi-band orthogonal frequency division modulation signal. The first block encoder (450) also includes a convolution encoder (304) operable to convolution encode the output of the first block encoder (450). A method of communicating is also disclosed. The method comprises block encoding a first portion of a message to produce a first outer code word. The method includes convolution encoding the first outer code word to produce a first inner code word. The method also includes transmitting the first inner code word as part of a multiband orthogonal frequency division modulation signal.

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## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/26876

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC(8) - H04L 23/02 (2006.01) USPC - 375/265 According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) U.S. : 370/483; 370/206, 370/210, 370/481, 370/482, 370/484, 370/204; 370/252, 370/332, 375/259, 375/308, 375/329, 375/346, 375/265; 375/260, 375/295 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) PUBWEST – PGPB, USPT, EPAB, and JPAB – searched reed solomon, block encoder, convolution, physical layer.		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6,049, 566 A (SAUNDERS et al.) 11 April 2000 (11.04.2000), see entire document	1-4 and 6-12
A	US 4,747,104 A (PIRET) 24 May 1988 (24.05.1988), see entire document.	1-4 and 6-12
A	US 5,541,955 A (JACOBSMEYER) 30 July 1996 (30.07.1996), see entire document.	1-4 and 6-12
A	US 6,263,466 B1 (HINEDI et al.) 17 July 2001 (17.07.2001), see entire document.	1-4 and 6-12
X	US 6,442,129 B1 (YONGE, III et al.) 27 August 2002 (27.08.2002), see entire document.	1-3, 6-8, and 10-12
<input type="checkbox"/> Further documents are listed in the continuation of Box C.		<input type="checkbox"/> 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 application or patent 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 "&" document member of the same patent family
Date of the actual completion of the international search 25 February 2006 (25.02.2006)		Date of mailing of the international search report <b>31 MAY 2006</b>
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201		Authorized officer: Blaine R. Copenheaver Telephone No. 571-272-7774

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US05/26876

**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.: 5  
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:

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2.  As all searchable claims could be searched without effort justifying 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.