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(54) **Encoder, decoder, methods of encoding and decoding**

(57) An information sequence having a code length of N (N=K+M), where K is information length and M is parity length, is encoded into a code sequence by using an LDPC code. The LDPC code is generated based on a matrix H, with M rows and N columns. The matrix H includes a check matrix H_2 and a check matrix H_1. The check matrix H_2 has M rows and M columns, it is a cyclic permutation matrix, and an inverse matrix exists for the check matrix H_2, and its column weight is 3. The check matrix H_1 has M rows and K columns.

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PARTIAL EUROPEAN SEARCH REPORT

which under Rule 63 of the European Patent Convention shall be considered, for the purposes of subsequent proceedings, as the European search report

Application Number EP 07 10 6217

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	YU YI ET AL: "The semi-algebra low-density parity-check codes" COMMUNICATIONS, 2004 IEEE INTERNATIONAL CONFERENCE ON PARIS, FRANCE 20-24 JUNE 2004, PISCATAWAY, NJ, USA,IEEE, vol. 1, 20 June 2004 (2004-06-20), pages 440-443, XP010710384 ISBN: 978-0-7803-8533-7 * the whole document * -----	1-20	INV. H03M13/11
A	HALEY D ET AL: "Iterative encoding of low-density parity-check codes" GLOBECOM'02. 2002 - IEEE GLOBAL TELECOMMUNICATIONS CONFERENCE. CONFERENCE PROCEEDINGS. TAIPEI, TAIWAN, NOV. 17 - 21, 2002; [IEEE GLOBAL TELECOMMUNICATIONS CONFERENCE], NEW YORK, NY : IEEE, US, vol. 2, 17 November 2002 (2002-11-17), pages 1289-1293, XP010636353 ISBN: 978-0-7803-7632-8 * the whole document * -----	1-20	

TECHNICAL FIELDS SEARCHED (IPC)

H03M

INCOMPLETE SEARCH

The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC to such an extent that a meaningful search into the state of the art cannot be carried out, or can only be carried out partially, for these claims.

Claims searched completely :

Claims searched incompletely :

Claims not searched :

Reason for the limitation of the search:

see sheet C

Place of search	Date of completion of the search	Examiner
The Hague	12 June 2009	Rydyger, Kay

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

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INCOMPLETE SEARCH
SHEET C

Application Number
EP 07 10 6217

Claim(s) searched incompletely:
1-20

Reason for the limitation of the search:

The present application does not disclose which information is stored in the "storing unit" (11) and which operations the "matrix generating unit" (12) carried out.

Indeed, the description merely discloses that "the 'matrix generating unit' (12) of the encoder generates information concerning a generator matrix". This is done, according to the next sentence, by "calculating a product (..)".

Thus, no disclosure is present which information the "matrix generating unit" generates and passes on to the first (13) and second (14) matrix arithmetic unit.

The same holds for the "storing unit".

A search pertaining to the encoder as depicted in Fig. 4, therefore, cannot be carried out. A search, however, has been performed with respect to matrix generation methods such as disclosed in the application.