

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
2 July 2009 (02.07.2009)

(10) International Publication Number
WO 2009/082147 A3

- (51) International Patent Classification:
H03M 13/27 (2006.01)
- (21) International Application Number:
PCT/KR2008/007576
- (22) International Filing Date:
22 December 2008 (22.12.2008)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
61/016,492 24 December 2007 (24.12.2007) US
61/021,337 16 January 2008 (16.01.2008) US
61/028,016 12 February 2008 (12.02.2008) US
10-2008-0074682 30 July 2008 (30.07.2008) KR

(71) Applicant (for all designated States except US): **LG ELECTRONICS INC.** [KR/KR]; 20, Yeouido-dong, Yeongdeungpo-gu, Seoul 150-721 (KR).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **ROH, Dong Wook** [KR/KR]; LG Institute, Hoge 1(il)-dong, Dongan-gu, Anyang-si, Gyeonggi-do 431-080 (KR). **KIM, Ki Jun** [KR/KR]; LG Institute, Hoge 1(il)-dong, Dongan-gu, Anyang-si, Gyeonggi-do 431-080 (KR). **AHN, Joon Kui** [KR/KR]; LG Institute, Hoge 1(il)-dong, Dongan-gu,

Anyang-si, Gyeonggi-do 431-080 (KR). **LEE, Dae Won** [KR/KR]; LG Institute, Hoge 1(il)-dong, Dongan-gu, Anyang-si, Gyeonggi-do 431-080 (KR). **CHO, Jung Hyun** [KR/KR]; LG Institute, Hoge 1(il)-dong, Dongan-gu, Anyang-si, Gyeonggi-do 431-080 (KR). **NOH, Yu Jin** [KR/KR]; LG Institute, Hoge 1(il)-dong, Dongan-gu, Anyang-si, Gyeonggi-do 431-080 (KR). **YU, Nam Yul** [KR/KR]; LG Institute, Hoge 1(il)-dong, Dongan-gu, Anyang-si, Gyeonggi-do 431-080 (KR).

(74) Agents: **KIM, Yong In** et al.; KBK & Associates, 7th Floor, Hyundai Building, 175-9, Jamsil-dong, Songpa-ku, Seoul 138-861 (KR).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH,

[Continued on next page]

(54) Title: CHANNEL CODING METHOD OF VARIABLE LENGTH INFORMATION USING BLOCK CODE

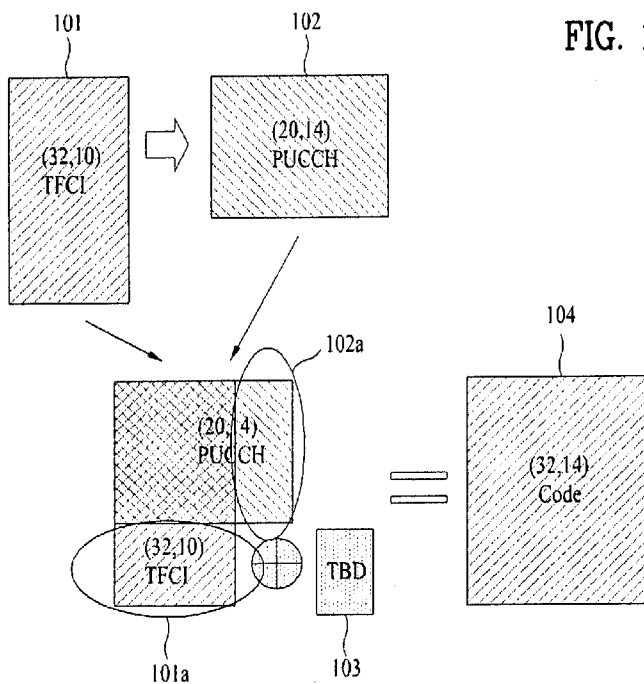


FIG. 1

(57) Abstract: A channel coding method of variable length information using block code is disclosed. A method for channel-coding information bits using a code generation matrix including 32 rows and A columns corresponding to length of the information bits includes, channel-coding the information bits having 'A' length using basis sequences having 32-bit length corresponding to columns of the code generation matrix, and outputting the channel-coded result as an output sequence. If 'A' is higher than 10, the code generation matrix is generated when (A-10) additional basis sequences were added as column-directional sequences to a first or second matrix. The first matrix is a TFCI code generation matrix composed of 32 rows and 10 columns used for TFCI coding. The second matrix is made when at least one of an inter-row location or an inter-column location of the first matrix was changed. The additional basis sequences satisfy a value 10 of a minimum Hamming distance.

WO 2009/082147 A3



GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(88) Date of publication of the international search report:
24 September 2009

Published:

— *with international search report (Art. 21(3))*

INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2008/007576**A. CLASSIFICATION OF SUBJECT MATTER****H03M 13/27(2006.01)i**

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 H03M, H04B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Utility models and applications for Utility models since 1975
Japanese Utility models and applications for Utility models since 1975

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

eKOMPASS(KIPO internal) & keywords:TFCI, Reed Muller, coding, unified

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KR 10-2001-0015268 A (SAMSUNG ELECTORNICS) 26 Feb. 2001. See abstract, figure 8, pages 4-8.	1,3,11,12
Y		9,10
Y	KR 10-2003-0068749 A (LG ELECTRONICS) 25 Aug. 2003 See abstract, pages 5-9, figures 3a,3b,6a,6b,7,8,9.	9,10
A	KR 10-2006-0051349 A (SAMSUNG ELECTRONICS) 19 May 2006. See abstract, pages 6-7,28-29, figures 4,19.	1-13
A	KR 10-2003-0041728 A (SAMSUNG ELECTRONICS) 27 May 2003. See abstract, pages 4-9, figures 11,12.	1-13

 Further documents are listed in the continuation of Box C. 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 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

30 JULY 2009 (30.07.2009)

Date of mailing of the international search report

31 JULY 2009 (31.07.2009)

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
Government Complex-Daejeon, 139 Seonsa-ro, Seo-
gu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

Kwon, Sung Lark

Telephone No. 82-42-481-5646



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/KR2008/007576

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
KR 10-2001-0015268 A	26.02.2001	AU 2000-58543 A1 CN 1367967 A US 2005-0083901 A1	06.07.2000 04.09.2002 21.04.2005
KR 10-2003-0068749 A	25.08.2003	EP 1483850 A1 GB 2385501 A GB 2412553 A WO 2003-069807 A1	08.12.2004. 20.08.2003. 28.09.2005. 21.08.2003.
KR 10-2006-0051349 A	19.05.2006	JP 2008-510423 A US 2006-0077947 A1	03.04.2008 13.04.2006
KR 10-2003-0041728 A	27.05.2003	US 2003-0095532 A1	22.05.2003.