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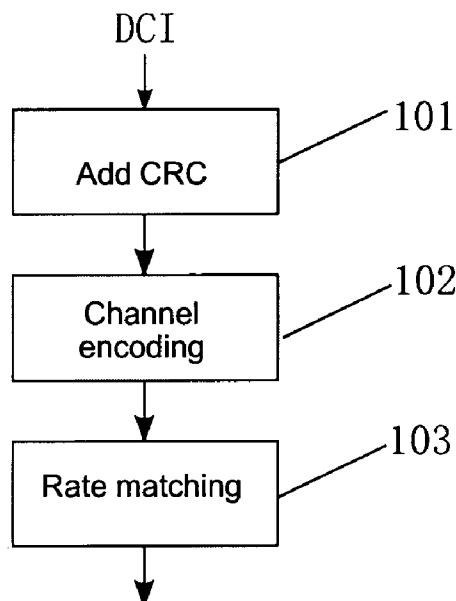
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[Continued on next page]

(54) Title: APPARATUS FOR APPENDING CYCLIC REDUNDANCY CHECK IN COMMUNICATION SYSTEM

Figure 1



(57) Abstract: The apparatus for appending CRC to the data or signaling to be transmitted in the communication systems is proposed in present invention. If the length of the CRC-bit sequence is 16, one of the CRC generation polynomials listed in present invention can be adopted. If the length of the CRC bit sequence is 18, one of the CRC generation polynomials listed in present invention can be adopted. If the length of the CRC bit sequence is 20, one of the CRC generation polynomials listed in present invention can be adopted. With the optimized CRC generation polynomials proposed in present invention, mistakes in signaling detection can be effectively reduced so that system spectrum utility can be improved.



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INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2009/000052**A. CLASSIFICATION OF SUBJECT MATTER*****H03M 13/09(2006.01)i, H03M 13/00(2006.01)i, H03M 7/48(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, H04L

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: CRC, UE ID, scrambling, coding

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CASTAGNOLI, G. et al., 'Optimization of cyclic redundancy check codes with 24 and 32 parity bits,' IEEE Trans. on Comm. Vol. 41, Jun. 1993.	1
Y		2-10
Y	KR 10-2005-0027679 A (SAMSUNG ELECTRONICS) 21 Mar. 2005. See abstract, pages 7-10, figure 5.	2-10
Y	US 2004-0028020 A1 (Frederikson F. et al.) 12 Feb. 2004. See abstract, figure 6.	10
A	US 2003-0189918 A1 (DAS, ARNAB et al.) 09 Oct. 2003. See abstract, figures 4,5.	1-10

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
KR 10-2005-0027679 A	21.03.2005	EP 1517499 A2 JP 2005-102210 A	23.03.2005. 14.04.2005.
US 2004-0028020 A1	12.02.2004	NONE.	
US 2003-0189918 A1	09.10.2003	EP 1351538 A1 JP 2003-318781 A US 07508804 B2 KR 10-2003-0080202 A	08.10.2003. 07.11.2003. 24.03.2009. 11.10.2003.