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IL, IN, IS, JP, KE, KG, KM, KN, KP, KZ, LA, LC, LK, LR,

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RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM,

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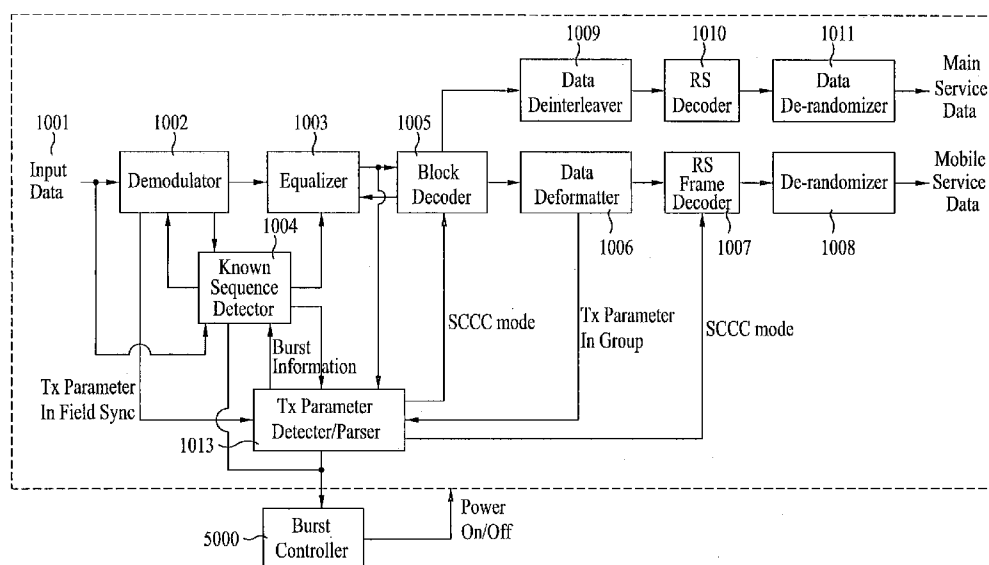
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FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL,

[Continued on next page]

(54) Title: DIGITAL BROADCASTING SYSTEM AND METHOD OF PROCESSING DATA

FIG. 66



(57) Abstract: A digital receiving system, and a method of processing data are disclosed. The digital receiving system includes a receiving unit, a known sequence detector, and a channel equalizer. The receiving unit receives a broadcast signal including mobile service data and main service data. The known sequence detector detects known data linearly inserted in a data group. The channel equalizer performs channel-equalizing on the received mobile service data using the detected known data.

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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)

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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

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

eKIPASS(KIPO internal): "DVB-H, ISDB-T, VSB, Interleaver,"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2006-0126757 A1 (Choi, In Hwan et al.) 15 June 2006 See abstract; paragraphs [27]-[29],[34],[54]-[57],[62]-[66]; figures 1 and 4-9.	1-14
A	US 6512759 B1 (Hashimoto et al.) 28 January 2003 See abstract; column 1 line 14 - column 2 line 15; figures 4-7.	1-14
A	US 6985537 B1 (Milbar et al.) 10 January 2006 See abstract; column 4 line 18 - column 5 line 17; figures 2 and 3.	1-14

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

* Special categories of cited documents:

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2006-0126757 A1	15.06.2006	AR 052653 A1	28.03.2007
		BR P10506203 A	03.04.2007
		CA 2529960 A1	15.06.2006
		CN 1791188 A	21.06.2006
		KR 10-2006-0067418 A	20.06.2006
		MX PA05013484 A	19.06.2006
US 6512759 B1	28.01.2003	CN 1248363 A	22.03.2000
		CN 1222132 C	05.10.2005
		DE 69833688 D1	27.04.2006
		EP 0963073 A1	08.12.1999
		EP 0963073 A4	10.04.2002
		EP 0963073 B1	01.03.2006
		JP 11-177537 A	02.07.1999
		WO 99-31836 A1	24.06.1999
US 6985537 B1	10.01.2006	CA 2317903 A1	15.03.2001
		CA 2317903 C	29.11.2005
		EP 1087584 A2	28.03.2001
		EP 1087584 A3	17.12.2003
		EP 1087584 B1	20.02.2008
		JP 2001-127733 A	11.05.2001