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(12) United States Patent Hirose

(54) SATELLITE DIGITAL RADIO BROADCAST

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RECEIVER

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See application file for complete search history.

(56) References Cited

U.S. PATENT DOCUMENTS

5,095,533	A	*	3/1992	Loper et al 455/249.1
5,301,352	Α	*	4/1994	Nakagawa et al 725/71
5,319,673	A	*	6/1994	Briskman 455/13.1
5,794,138	Α	*	8/1998	Briskman 455/344
5,966,186	Α	*	10/1999	Shigihara et al 348/570
6,078,796	Α	*	6/2000	Ling 455/234.1
6,091,931	A	*	7/2000	Ben-Efraim et al 455/3.02

(10) Patent No.: US 7,317,894 B2

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Jan. 8, 2008

6,301,313 I	B1* 1	0/2001	Gevargiz et al 375/340
6,484,042 I	B1* 1	1/2002	Loke 455/234.1
6,498,927 I	B2 * 1	2/2002	Kang et al 455/245.2
6,510,317 I	B1*	1/2003	Marko et al 455/428
6,549,774 I	B1* ·	4/2003	Titlebaum et al 455/427
6,557,029 I	B2 *	4/2003	Szymansky 455/13.1
6,584,090 I	B1*	6/2003	Abdelgany et al 455/82
6,735,416 I	B1*	5/2004	Marko et al 455/3.02
2001/0022821	A1*	9/2001	Ichihara 375/345
2001/0041532 A	A1* 1	1/2001	Tomasz et al 455/3.02
2002/0025792	A1*	2/2002	Isoda 455/234.1
2004/0229583 A	A1* 1	1/2004	Ogino 455/3.01
2005/0124289	A1*	6/2005	Coffin, III 455/3.02
2007/0004351 A	A1*	1/2007	Dekker 455/127.1

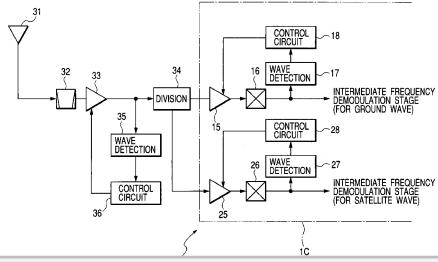
* cited by examiner

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(57) ABSTRACT

A satellite digital radio broadcast receiver has an integrated circuit including a first reception series for processing a satellite wave signal from a satellite and a second reception series for processing a ground wave signal from a repeater in order to receive both the satellite wave signal and the ground wave signal having the same broadcast contents and different modulation methods. The receiver has an automatic gain control unit for amplifying a signal from a single antenna at a variable gain amplifier, and in accordance with the level of a signal outputted from the variable gain amplifier, for controlling the gain of the variable gain amplifier; and a two-way distributor for distributing an output of the automatic control unit to two distribution outputs, wherein one distribution output of the two-way distributor is supplied to the first reception series of the integrated circuit and the other distribution output is supplied to the second reception series of the integrated circuit.

2 Claims, 8 Drawing Sheets

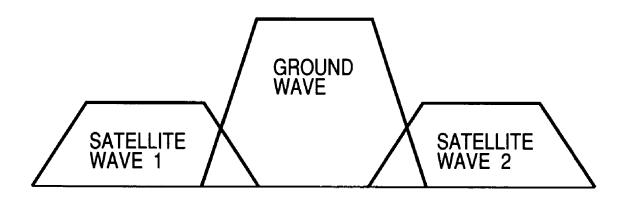




STUDIO



FIG. 2





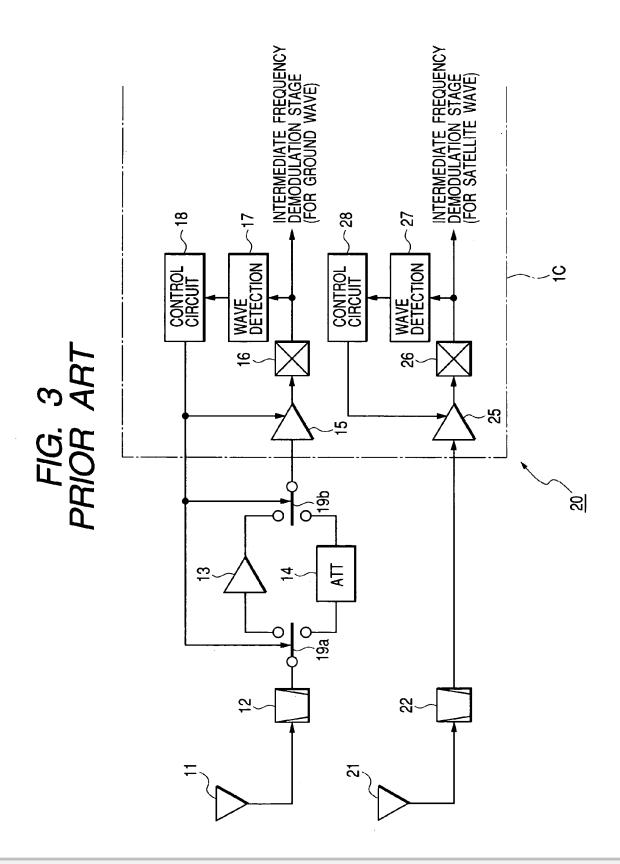
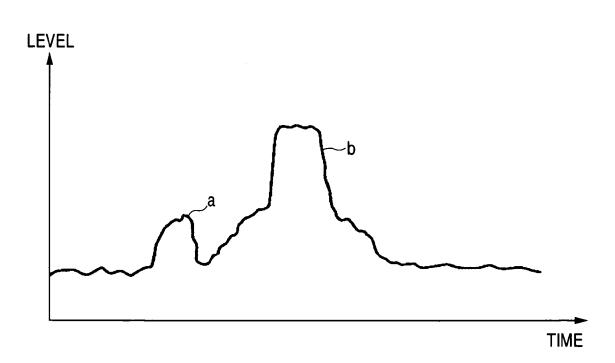




FIG. 4





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