

DTMB(DMB-TH) Signal Generator

DMG500 >



Overview

DTMB(DMB-TH) & ADTB-T are Digital TV Broadcast Standard [Framing structure, channel coding and modulation for digital television terrestrial broadcasting system, Standard No. GB20600-2006] developed in China which offers high-quality digital TV with excellent performance for mobile and portable reception.

DMG500 is the **all-in-one DTMB(DMB-TH) & ADTB-T signal generator** which is fully compliant with Terrestrial TV standard in China. Besides, It can cover all DTV standard in one unit including DVB-T, DVB-C, DVB-S/S2, ATSC and OpenCable. The RF output is generated by a high performance RF upconverter which covers the frequency range from 50MHz to 870MHz in steps of 1Hz. The user can set the polarity of the spectrum to inverted or Non-inverted as required.

Features

General Characteristics

- China National Digital TV Signal Generator
- Modulator : Multi Standard
(Option : DTMB(DMB-TH), ADTB-T, DVB-T, ATSC, DVB-C, OpenCable , DVB-S/S2, DVB-T/H)
- RF Upconverter : Multi RF System (50 ~870MHz), Max.2
- TDS-OFDM Modulation
- NIT Auto setting
- MPEG2 TS Output : DVB ASI/LVDS Multi Interface (Optional)
- Error Injection (TR 101 290 Level Error)
- PID Analysis Information
- Decoding View
- Control each Input/Output Interface independently
- Memory Play on RAM Cache memory
- Automatic Bitrate and Play Time Calculation
- User-defined Output Bitrate Setting
- Inserting Null Packets
- Play List (Each Output)
- Sequential Play
- Support C/N Generation
 - C/N Range : 0 ~ +45dB (Resolution : 0.1dB)
 - Noise BW : 0 ~ 10MHz according from Signal CH BW (Spec.)

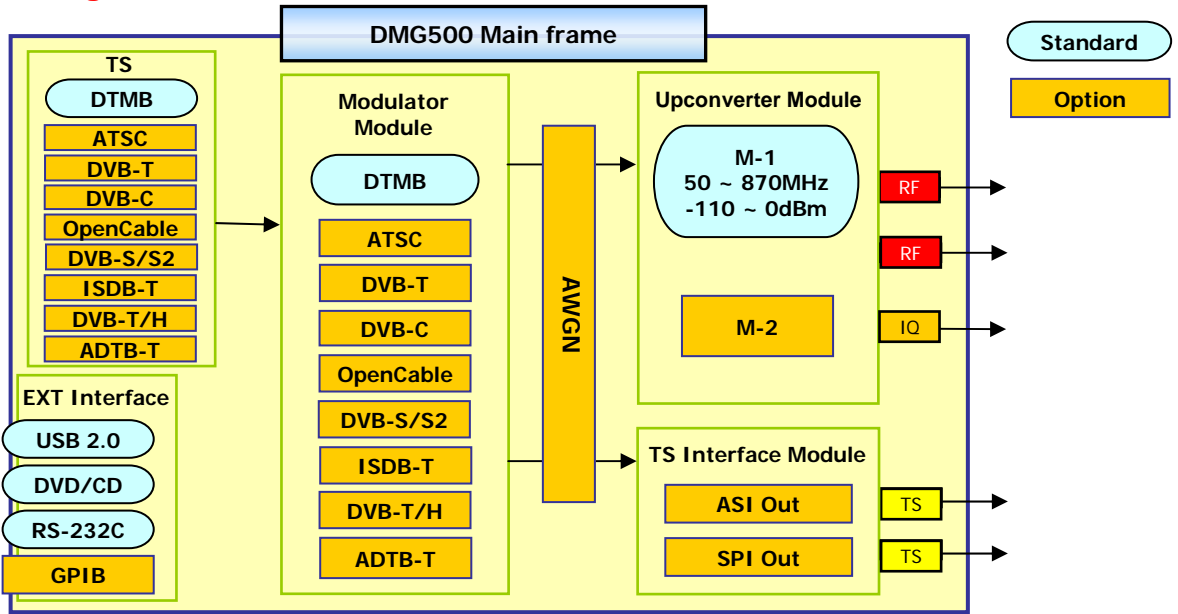
PRBS Pattern Test

- Pseudo random signal (PRBS-9)
- Pseudo random signal (PRBS-15)
- Pseudo random signal (PRBS-23)

Intended Application

- DTMB receiver Design and Manufacturing Test
 - DTMB Set-top Box / DTV(LCD, PDP) Manufacturing
 - DTMB Set-top Box / DTV Development & Performance Verification
- Applications
 - Simulation of DTMB Broadcasting
- Broadcasting Transmission
 - DTMB Chip Development (Tuner/MPEG)
 - DTMB Demonstration & Sales

System Diagram



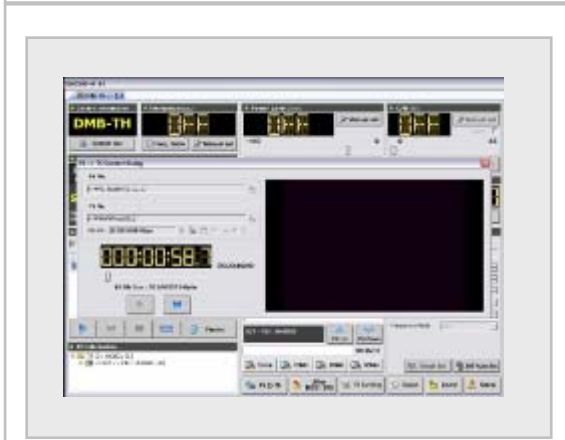
User Interface



Analysis of PID, Decoding View and etc



Modulation Setting



PS to TS Convert (PS Play)



Error Injection (ETR 290 Priority I, II)

Specifications

RF Specifications

- Output Connector : N Type
- RF Output Frequency : 50~870 MHz (VHF/UHF)
* DVB-S/S2 RF Output Frequency: 950 ~ 2150MHz
- RF Frequency Resolution : 1Hz
- Frequency Accuracy : $3 \times 10^{-6} / 25 \text{ }^\circ\text{C}$
- RF Power Level : -110 ~ 0dBm
- RF Level Resolution : 0.1dB steps
- RF Level Accuracy : $\pm 0.5\text{dB}$ relative to the level at 18-33 $^\circ\text{C}$
- RF Impedance : 50 Ω

General Specifications

- Power supply : AC 100 to 240V, 50/60Hz
- Power consumption : Less than 400W
- Operating temperature : 10 to 40 $^\circ\text{C}$
- Operating humidity : 20 to 85% RH (No Condensation)
- Guaranteed temperature : 15 to 35 $^\circ\text{C}$
- Guaranteed humidity : 20 to 85% RH (No Condensation)
- Storage temperature : -40 to +70 $^\circ\text{C} / 20 \sim 85\% \text{ RH}$
- Operating environment : Indoor
- Operating altitude : Around 2000m
- Over-voltage category : II
- Pollution degree : 2
- Dimensions : 435(W) x 231.8(H) x 519.7(D) mm
- Weight : Approx.17Kg (Not including options)

OS system

- Embedded OS

User interface system

- 10.4 inch TFT color LCD (1024 x 768)
- Touch Screen

External Interface system

- USB Interface : USB HDD, USB Stick
- Remote Control : RS-232C, GPIB (Optional)

Modulator Options

- DVB-T Module (MM-501)
Broadcasting system
- Digital Terrestrial TV : DVB-T
Transmission Parameter
- Hierarchical mode : Fully supported
- Modulation : COFDM
- IFFT : 2K, 8K
- Guard Interval : 1/4, 1/8, 1/16, 1/32
- Modulation Modes : QPSK, 16, 64QAM
- Coding Rate : 1/2, 2/3, 3/4, 5/6, 7/8
- ATSC Module (MM-502)
Broadcasting system
- Digital Terrestrial TV : ATSC
Transmission Parameter
- Modulation : 8VSB
- DVB-C Module (MM-503)
Broadcasting system
- Digital Cable TV : DVB-C
Transmission Parameter
- Modulation : QAM (Annex - A/C)
- Modulation Modes : 32, 64, 128, 256QAM

- OpenCable Module (MM-504)

- Broadcasting system
- Digital Cable TV : OpenCable
- Transmission Parameter
- Modulation : QAM (Annex - B)
- Modulation Modes : 64, 256QAM

- DVB-S/S2 Module (MM-505)

- Broadcasting system
- Digital Satellite TV : DVB-S/S2
- Transmission Parameter
- Modulation : DVB-S (QPSK)
DVB-S2 (QPSK, 8PSK)
- Modulation Modes : 32, 64, 128, 256QAM
- Integrated L-Band Upconverter with on-board

- DTMB(DMB-TH) Module (MM-506)

- Broadcasting system
- Digital Terrestrial TV : DTMB(DMB-TH)
- Transmission Parameter
- Modulation : TDS-OFDM
- Modulation Modes : 4QAM(QPSK), 16, 64QAM
- IFFT : 4K
- Guard Interval : 1/4, 1/9
- Coding Rate : 0.4, 0.6, 0.8

- ISDB-T Module (MM-507)

- Broadcasting system
- Digital Terrestrial TV : ISDB-T
- Transmission Parameter
- Modulation : BTS-OFDM
- Modulation Modes : DQPSK, QPSK, 16QAM, 64QAM
- Guard Interval : 1/4, 1/8, 1/16, 1/32
(Frame Header)
- Coding Rate : 1/2, 2/3, 3/4, 5/6, 7/8
- Time Interleaver : 0, 4, 8, 16

- 1 Seg., Full Seg. supported

- ADTB-T Module (MM-509)

- Broadcasting system
- Digital Terrestrial TV : ADTB-T
- Transmission Parameter
- Modulation Modes : 4QAM NR, 4QAM, 16QAM, 32QAM
- Guard Interval : PN420, PN595, PN945
(Frame Header)
- Bandwidth : 5, 6, 7, 8
- Time Interleaver : 240, 720

Function Options

- ASI Out Module(FM-200)
- Output bit rate : 0 ~ 214Mbps
- Packet Size : 188/214Byte
- Null Packet Insertion form H/W
- SPI(LVDS) Out Module(FM-201)
- Output bit rate : ~ 108Mbps
- DVB/SPI Connector : D-sub 25-pin(Female)
- Packet Size : 130, 188, 192, 204Byte
- GPIB Module (FM-202)
- IEEE 488.2
- AWGN Module(FM-203)
- C/N range : 0 ~ +45dB
- C/N resolution : 0.1 dB Steps
- Noise Band Width : 0 ~ 10MHz

DTMB(DMB-TH) Signal Generator



Ordering Information

Base Model	Description	Notes
DMG500	DTMB(DMB-TH) Signal Generator – Built-in RF Upconverter * RF Output Frequency : 50MHz ~ 870 MHz (VHF/UHF) * Frequency Resolution : 1Hz * RF Level Resolution : 0.1dB steps	* Single RF (Base) : Max. 2 Modulators * Multi RF (Dual RF)
DMG500S	DTMB(DMB-TH) Signal Generator - DVB-S/S2 Built-in RF Upconverter * RF Output Frequency : 950MHz ~ 2150 MHz * Frequency Resolution : 200KHz * RF Level Resolution : 1dB steps	

Options	Description	Notes	
Modulator Option	MM-501	DVB-T Module	MM-506 should be selected basically
	MM-502	ATSC Module	
	MM-503	DVB-C (Annex-A/C) Module	
	MM-504	OpenCable Module	
	MM-505	DVB-S/S2 Module * Frequency: 950 ~ 2150MHz	
	MM-506	DTMB(DMB-TH) Module	
	MM-507	ISDB-T Module	
	MM-508	DVB-T/H Module	
	MM-509	ADTB-T Module	
RF Option	RM-600	Second Upconverter Module *Note1 - RF Output Frequency : 50 ~ 870MHz (VHF/UHF) - Frequency Resolution : 1Hz - RF Level Resolution : 0.1 dB steps	*Note1 : Requires two DMG500 MM-50X Modulator options *Note2 : Requires MM-505 option
	RM-600L	Second Upconverter Module – Lite Model *Note1 - RF Output Frequency : 50 ~ 870MHz (VHF/UHF) - Frequency Resolution : 1KHz - RF Level Resolution : 1 dB steps	
	RM-600S	Second Upconverter Module – DVB-S/S2 Model *Note2 - RF Output Frequency : 950 ~ 2150MHz - Frequency Resolution : 200KHz - RF Level Resolution : 1 dB steps	
Level Option	LE-603	Level Extension Module (-110 ~ + 20dBm)	* Except DVB-S/S2
Function Option	FM-200	ASI Out Module	* Max. 2 functions can be added
	FM-201	SPI Out Module	
	FM-202	GPIB Module	
	FM-203	AWGN Module (0 ~ +45dBm) – DVB-S/S2 is not available	
	FM-204	Fading Module	
ETC Option	EF-301-300	HDD – 300G	* When a client selects additional option after purchasing product, all units should be returned to the factory.
	EF-301-600	HDD – 600G	
	EF-303	Option Upgrade	

* All Specifications and Features are subject to be changed without notice



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