

DTV SIGNAL GENERATOR

(Corresponded to ISDB-T & ISDB-T_{SB}, ISDB-S / BRAZIL)

3532B

General

This unit is signal generator corresponded to terrestrial digital television broadcasting (ISDB-T) and terrestrial digital audio broadcasting (ISDB-T_{SB}) in Japan, and terrestrial digital television broadcasting in Brazil. TS signal generator and all channel up-converter are equipped, so that this unit is all-round equipment possible to correspond to from development to factory facilities corresponding to operating confirmation of receiver and contents confirmation for digital television broadcasting now in operation, digital audio (radio) broadcasting expected rapid tackle from now on, and also for Brazilian system starting shortly. Connection with Eiden's Fading Simulator (4409A) is possible and more developmental interfaces, such as generating system of fading signal occurred in multi-path, mobile reception, reception of mobile telephone and etc., are equipped. Furthermore, as an option, built-in of ISDB-S system is possible. For ISDB-S system, output is IF signal (1GHz band) of BS and ND (110 ° CS) channel, so that direct connection with receiver is possible.

TS signal generator of HDD type with optical disk drive for TS data reading is equipped. This TS generator can output 2 routes independently (Contents and TS output), so that generation of 2 routes of TS output for terrestrial digital or each 1 route of signal for terrestrial digital and satellite digital (When option is equipped) simultaneously is possible.

Output with RF for 1 route of terrestrial digital and 1 route of satellite digital simultaneously is possible.



This unit is 3532B-001.

| | |
|-----------------------|---|
| Main Unit | 1 |
| | 425 (W) × 150 (H) × 580 (D) mm |
| Weight | 20kg |
| Accessories | Power Cable (including 3pin 2pin converter) 1 |
| | Instruction Manual 1 |
| Power Source | Input Voltage Allowable Range |
| | : AC90V ~ AC250V (50Hz/60Hz) |
| | Power Consumption : Approx. 180VA |
| Operating Environment | : +5 ~ +35 |
| Temperature | : 10%RH ~ 85%RH (No dew generation) |

Features

• Output frequency

For ISDB-T system, output of OFDM signal to VHF/UHF (J1 ~ J62 channel and CATV MID/SHB band (C13 ~ C63 channel) is possible. (93MHz ~ 767MHz / Min. resolution : 1Hz)

For Brazil system, output to VHF (2 ~ 13 channel) and UHF (14 ~ 69 channel) is possible (54MHz ~ 806MHz / Min. resolution : 1Hz)

For ISDB-S system, output of PSK signal to IF band (1GHz) of BS (Odd channel of BS1 ~ BS23) and CS110 ° (ND1 ~ ND24 channel) is possible. (950.00 ~ 2150.00MHz / Min. resolution : 10kHz) (ISDB-S system is option).

For setting method, selection can be made for either channel pre-set or frequency setting in each system.

• Output level

For terrestrial digital system, it is -110.0dBm ~ +17dB, Min. resolution is 0.1dB.

For satellite digital system (When option is equipped), setting of range in -65dBm ~ +10dBm is possible. Min. resolution is 1dB.

50 output from rear panel and 75 output from front panel is possible as impedance converter is equipped in unit.

• Input TS

(TS input of terrestrial digital system)

Digital television broadcasting

Input of broadcasting TS and MPEG2-TS is possible.

2 routes are provided for TS input, so that allocation of layer by 2 TS inputs, allocation of layer by PID and etc., various layer configuration can be realized.

Digital radio broadcasting

In case of 3 segments 2 layers transmission of coupling transmission, individual TS can be input to A layer and B layer.

In 8 segments transmission, output of same frequencies with trial of practical use being broadcasted now in Tokyo and Osaka is possible, and receiving of all segments is possible by receiver. For parameters, MUX function is equipped as same in ISDB-T.

(TS input of satellite digital system) When option is equipped.

Input is framed TS with TMCC. Transmission mode, relative TS number, slot allocation of frame configuration and etc., parameters are set automatically from information of TMCC. Input packet format is 204 bytes.

• TS generator is equipped

2 routes of TS generating part are built-in as the standard, and contents recorded in internal HDD or internal flash memory can be reproduced. Capacity is 250 Gbyte for HDD and flash memory (Both HDD and memory are common use for 2 routes).

• Output of TS clock is possible

: TS clock is output for synchronization to external TS generator.

• Synchronization with 10MHz from external.

• Noise signal generator is equipped.

Setting of ON/OFF of noise signal and C/N value is possible. Setting range of C/N is possible to set in the range of

terrestrial digital system : 0 ~ 40dB / Satellite digital system : 0 ~ 30dB. Min. resolution is 0.1dB.

• Generation of PRBS is possible.

For transmission parameters, generation of test signal possible to set mode, guard interval rate, independent modulation scheme of each layer, coding rate and interleave length, is possible. For terrestrial digital system, output of PRBS signal under each parameter is possible ¥.

For satellite digital system, all transmission made of TS 48 slots configuration can be selected.

• Remote control

Remote control by GP-IB (IEEE-488.2) and ETHERNET (10Base-T/100Base-TX) is possible.

• Color TFT touch panel is equipped.

Type List

| Type | System Built-in | Output level |
|-----------|---|---|
| 3532B-001 | ISDB-T & ISDB-T _{SB} Brazil | Terrestrial : -110 ~ +17dBm |
| 3532B-002 | ISDB-T & ISDB-T _{SB} Brazil ISDB-S | Terrestrial : -110 ~ +17dBm Satellite : -65 ~ +10dBm |

Operating Display



Color TFT touch panel is applied for indicating panel, and improvement of visual recognition and operation eliminated complicated cursor operation are realized.

Performance

1, ISDB-T·ISDB-T_{SB}, BRAZIL System

Output Frequency Accuracy : Within ± 2 ppm
 Output Level Accuracy : Within ± 1.0 dB
 (Deviation against setting value at 0dBm output at 25)
 Output Level Stability : Within ± 1.0 dB
 Spurious : Less than -60dB
 (90MHz ~ 770MHz)
 (Regulated with non-harmonics level referenced to average power at 0dBm output at 25)

2, ISDB-S System When option is equipped

Output Frequency Accuracy : Within ± 25 KHz
 Output Level Accuracy : Within ± 2.0 dB
 (Deviation against setting value at 0dBm output at 25)
 Output Level Stability : Within ± 2 dB
 Spurious : Less than -40dB
 (1000MHz ~ 2100MHz)
 (Regulated with non-harmonics level referenced to average power at 0dBm output at 25)

Peripherals

4409A Fading Simulator



This unit is inexpensive fading simulator specialized to broadcasting by using with combination of DTV signal generator (3532A). Number of path is 40 paths and this unit corresponds to profile of 20 paths model of 3 GPP regulation and number of path more than that. Also, noise generator is built-in and noise can be added to signal after fading process.

~ Features ~

Absolute delay amount of each path is ± 1 ms (Min. delay resolution 1ns), phase setting is $\pm 180^\circ$ (Min. resolution 1°), attenuation amount is 0 ~ 50dB (Min. resolution 0.1dB).
 Rayleigh wave is realized in all 40 paths. Also, Doppler frequency can be set in 1Hz ~ 2000Hz (Min. resolution 0.1Hz).

| Type | Number of path |
|-----------------|----------------|
| 4409A-201/ -202 | 20 paths |
| 4409A-401/ -402 | 40 paths |

7708A-001 BER Measuring Device



This unit is the device possible to measure BER in format of TS packet signal. BER measurement of 1+12 segments of terrestrial digital broadcasting and of framed in satellite broadcasting is possible.

~ Features ~

Serial interface of 2 lines ~ 3 lines and SPI interface are equipped as the standard.
 Judgment for GO/NO GO by threshold setting is possible.
 Setting for polarity reverse of clock and MSB/LSB of leading bit of serial data is possible.
 Corresponding to 188BYTE/204BYTE input (Automatic judgment)).
 Compact design easy to carry.
 Corresponding to remote control.