Suitable for Inspection on Production Applications of Integrated Services Digital Broadcasting-Terrestrial (ISDB-T) Tuner and TV

**GENERAL**

The LG 3802(S1 version) ISDB-T Signal Generator with the OFDM capability conforms to Integrated Services Digital Broadcasting-Terrestrial (ISDB-T) standards for digital terrestrial TV system in Japan. This instrument features a channel coding/modulation, C/N generator, and up converter in a single package. Consequently, the modulated signal covering VHF and UHF channels can be output. Since a pseudo random signal source (PN) and BER counter are provided, the BER measurement of a TV set and tuner can be performed with this model only. In addition to the internal TS signal, the MPEG-2 TS can be externally applied. Therefore, the receiver can be checked visually and acoustically by using the existing TS. With such versatile capabilities, overall functions of the reception system can be tested.

**FEATURES**

- **All-in-one**
  This instrument features the signal generator capability and BER measurement capability in a single package. The BER function is used to measure the front-end section, the MPEG-2 TS function is used to visually check entire system. In addition to the digital terrestrial TV broadcasting, this instrument can also be used for the connected segment transmission of 1, 3, and 8 segments in digital terrestrial audio broadcasting.

- **Arbitrary transmission parameter settings**
  The transmission parameter can be arbitrary set via the front panel controls. The QVGA LCD graphically displays the setting conditions.

- **MPEG-2 TS encoding/modulation in realtime**
  The MPEG-2 TS applied from the DVB-ASI or DVB-SPI connector can be encoded/modulated in realtime. In addition to the MPEG-2 TS, broadcasting TS prescribed in the ARIB standards can also be used.

- **100 preset conditions**
  Up to 100 preset conditions can be stored in the memory. Since the stored contents can be categorized into 10 groups, the preset mode is convenient for inspection applications.

**OPTION**

Various factory options (LG 3802 S1 version only)

The following factory options are available:
- OP 71: USB STORAGE Option (factory option)
  The TS can be played back from the HDD drive connected via the USB, or internal HDD drive.
- OP72A: Fading Option (factory option)
  The Fading noise can be added to a mobile and portable receivers to check a ghost and multipass.
### SPECIFICATIONS

**LG 3802 (S1 version)**

#### Channel Coding Section

**Broadcasting System**
- Digital Terrestrial TV: ARIB STD-B31
- Digital Terrestrial Audio: ARIB STD-B29

**Transmission Parameter**
- **Hierarchical layer:** TV: 3 layers max.
  - Audio 3 segment: 2 layers max.
  - Audio 1 segment: 1 layer only
- **Mode:** MODE 1, MODE 2, MODE 3
- **Guard Interval:** 1/4, 1/8, 1/16, 1/32
- **Carrier Modulation:** DQPSK, QPSK, 16QAM, 64QAM
- **Convolution Coding Rate:** 1/2, 2/3, 3/4, 5/6, 7/8
- **Time Interleave Length:** 0 to 32 (depends on broadcasting system and MODE)
- **Number of Segments:** TV: 13, each layer can arbitrary be set.
  - Audio 3 segment: 3, each layer can arbitrary be set.
  - Audio 1 segment: 1
- **Connected Segment Transmission:** Settable
- **Partial Reception:** Settable (*1)
- **Reed-Solomon Code:** ON/OFF, selectable

*1: For the TS not independent of PCR packet, the PCR of partial reception section cannot be updated.

#### RF Signal Generator Section

**Frequency**
- Range: 50 to 860 MHz

**Output**
- Range: -100 to +13 dBm (into 50Ω)
- **Resolution:** 0.1 dB
- **Impedance:** 50 Ω

#### Input/Output Signal Sources

**Internal Signal**
- **Pseudo Random Signal:** PN23
- **Still Picture Pattern:**
  - Pattern: Color bar, ramp, monoscope (*2)
  - Screen Size: 16:9 1920 x 1080i, 1440 x 1080i, 720 x 480i (*2)
  - 4:3 720 x 480i (*2)
- **Sound (Tone):** 1 kHz (LR), 400 Hz (LR), 1 kHz (L) + 400 Hz (R) (*2)

*2: Specifications are subject to change without notice.

**DVB-ASI Signal Input**
- **Input Connector:** BNC
- **Input Impedance:** 75 Ω
- **Input Level:** 0.8 Vp-p
- **Baud Rate:** 270 Mbps

**DVB-SPI Signal Input**
- **Input Connector:** 25-pin D-sub
- **Input Impedance:** 100 Ω differential input
- **Input Level:** LVDS
- **Input Format:** MPEG-2 TS or BER count input, selectable

**ASI, SPI Input Specifications**
- **Input Packet Format:** 188, 204 bytes
- **Applicable Stream:** MPEG-2 TS (ISO/IEC 13818-1)
- **Input Data Rate:** TV: 23.2347 Mbps max. (*3)
  - Audio 3 segment: 5.3618 Mbps max. (*3)
  - Audio 1 segment: 1.7872 Mbps max. (*3)
- **Update Parameter:**
  - **PCR (8 max.)**

*3: Maximum number of segments is obtained under the conditions below:
- Guard interval 1/32
- Carrier modulation 64QAM
- Coding rate 7/8
- The Maximum number of input data rate depends on the modulation parameter.

#### External Interface

**Memory Card Interface**
- **Memory Card:** Compact flash card (CFA TYPE-I, TYPE-II)

**ETHER Interface**
- **Specifications:** 10BASE-T/100BASE-TX

**USB Interface**
- **Specifications:** USB1.1

**GPIB**
- **Connector:** 24-pin square connector
- **Specifications:** Conforms to ANSI/IEEE Std. 488.1-1987.

**Remote Control**
- **Connector:** 24-pin square connector
- **Specifications:** 57LE-30240 (Amphenol)

**Remote Mode:** Recalling preset memory (INC/DEC)

**Input Level:** TTL

#### Display
- **LCD:**
  - 5.7" QVGA (320 x 240) TFT color

#### Environmental Conditions
- **Operating Temperature:** 0 to 40 °C
- **Operating Humidity:** ≤ 85 % RH (without condensation)
- **Spec-Guaranteed Temperature:** 10 to 35 °C
- **Spec-Guaranteed Humidity:** ≤ 85 % RH (without condensation)
- **Operating Environment:** Indoor use
- **Operating Altitude:** Up to 2000 m
- **Overvoltage Category:** II
- **Pollution Degree:** 2

#### Power Requirements
- **90 to 250 VAC universal, 50/60 Hz**
- **140 Wmax.**

#### Dimensions, Weight
- **426 (W) X 150 (H) X 450 (D) mm**
- **(excluding projections), 14 kg**

#### Accessories
- **Power cord.....................................................1**
- **Instruction manual..................................1**

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**LG 3802-01 (Sold Separately)**

**SERIAL PARALLEL CONVERTER**

Converts the TS serial data output into parallel output.
**ISDB-T SIGNAL GENERATOR**

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**USB STORAGE Option**

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<table>
<thead>
<tr>
<th>HDD Capacity</th>
<th>80 GB</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB Specification</td>
<td>USB2.0</td>
</tr>
<tr>
<td>Function</td>
<td>To connect an external HDD applicable to USB2.0, or internal HDD drive</td>
</tr>
<tr>
<td>Play Back</td>
<td>Possible (not applicable to seamless)</td>
</tr>
<tr>
<td>Loop Playback</td>
<td>Possible (ON/OFF Selectable)</td>
</tr>
<tr>
<td>Memory Playback</td>
<td>Possible (settable in time)</td>
</tr>
</tbody>
</table>

**Fading Option**

The Fading noise can be added to a mobile and portable receivers to check a ghost and multipass.

- **Path State:** Each path can be respectively set on/off.
- **Modulated Fading Type:** Rayleigh fading, Rician fading, Frequency Shift, Phase shift.
- **Relative Delay Time:** 0 to 800 μs, in ~ 0.1 μs
- **Relative Path Loss:** -30.0 to 0 dB

**Option**

Various factory options

- LG 3802 (S1 version) only

**OP72A Low Phase Noise**

<table>
<thead>
<tr>
<th>Fading Generator</th>
<th>Settable Fading Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed of Mobile Object</td>
<td>Settable in the range converted from output frequency and maximum Doppler frequency in 0.01 km/h steps (common to each path)</td>
</tr>
<tr>
<td>Maximum Doppler Frequency (Doppler)</td>
<td>0.1 to 200 Hz, in 0.1 Hz resolution (common to each path)</td>
</tr>
</tbody>
</table>

**Shown with Option 71**

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