



- **High frequency resolution (in steps of 1 Hz)**
- **High MER**
- **Multi-path channel simulator**
- **C/N generator**

General description of the ISDB-T/T_B modulator MO-370

The **MO-370** is a general purpose ISDB-T/T_B modulator contained in a 19" 1U chassis. The unit has two serial MPEG TS-ASI inputs. Either of these inputs can be used to modulate the COFDM signal.

The MO-370 inputs are configured as I / F (1), point of interface 1, or I / F (2) point of interface 2.

In the first case a TS composed by packets of 188 bytes is expected. An additional test signal can be internally generated. This fact allows inserting signals that are compatible with the ISDB-T/TB standard, even in the absence of a valid TS input. The bit rate must be always strictly lower than the value specified by the ISDB-T/TB standard. Internally, this rate is adapted (bit rate adaptation) to the useful rate required by the ISDB-T/TB signal by means of filling aTS with NULL packets. This stuffing process alters the sequence of PCR values embedded in the TS. These values will be re-stamped so that the resulting PCR will remain within the limits specified by the ISDB-T/TB.

In the second case the TS input comprises 204 bytes packets where are included, in addition to the information to transmit, parameters for setting up and operating the modulator (BTS).

For uses in SFN (Single Multifrequency Networks) refer to the **MO-380** modulator.

The modulator can be configured to generate any of the transmission modes listed in the DTMB specification. Several test modes are available in the **MO-370** (single tone output and test TS generation). The **MO-370** has been designed to work in Multi Frequency Networks (MFN). Single Frequency Network (SFN) operation is not currently supported.

The **MO-370** can add white Gaussian noise to the COFDM signal with a given Carrier-to-Noise Ratio (C/N). The noise bandwidth is more than twice the bandwidth of the ISDB-T/T_B signal.

The channel simulator implemented in the **MO-370** allows the user to simulate both dynamic and static multipath scenarios. Up to 6 echoes (including the main path) of variable amplitude, delay, phase and Doppler frequency can be selected.

The operation of the **MO-370** is done via the front panel LCD display and controls. The modulator can be easily configured by navigating through a rather intuitive set of menus.

SPECIFICATIONS	MO-370
INPUTS MPEG-TS input Operating modes	Two ASI inputs, 75 Ω female BNC TS packets of length 188 or 204 bytes Support for burst and continuous packet mode Input TS bit rate strictly below the value given in the ISDB-T/T _B specification Packet stuffing for bit rate adaptation and PCR re-stamping are carried out automatically
IF OUTPUT Type Frequency range Spectrum polarity Power level (average) In-band amplitude ripple In-band group delay ripple Frequency stability MER	50 Ω BNC female connector Variable between 31 and 36 MHz in steps of 1 Hz; fixed at 36 MHz when RF output is off Selectable via front panel controls 0 dBm (107 dB μ V) fixed < 0.5 dB < 10 ns 20 ppm > 43 dB
RF OUTPUT Type Frequency range Spectrum polarity Power level (average) Frequency stability MER SSB phase noise	50 Ω N-type female connector Adjustable between 45 and 875 MHz in 1 Hz steps Selectable via front panel controls Approximately 80 dB μ V with no attenuation. Variable attenuation of 0 to 60 dB in steps of 1 dB 20 ppm > 38 dB ≤ -87 dBc/Hz @ 2 kHz
ISDB-T/TB PARAMETERS Carrier Mode Guard interval Code rate Constellations	Mode 1 (2k), Mode 2 (4k), Mode 3 (8k) 1/4, 1/8, 1/16, 1/32 1/2, 2/3, 3/4, 4/5, 7/8 DQPSK, QPSK, 16-QAM, 64-QAM
NOISE GENERATOR	Fully digital complex baseband generation. Both signal and/or noise can be switched off.
CHANNEL SIMULATOR	Fully digital complex baseband generation
TEST MODES Single carrier (R.M.S. Tone) TS packet generation	Generate a single carrier at the channel central frequency whose level equals the average ISDB-T/T _B output power. This is intended for signal level alignment Internal generation of test TS using PRBS sequences of length 15 or 23 embedded within NULL packets
ECHOES GENERATOR Amplitude Phase Doppler	From 0 down to -40 dBc in 0.1 steps From 0° to 359.9° in 0.1 steps Static (0 Hz) / Dynamic (from \pm 830 Hz). Delay Variable in 100 ns steps
POWER SUPPLY	90 - 250 VAC @ 50 - 60 Hz. Consumption 20 W
MECHANICAL FEATURES Dimensions Weight	19" (W.) x 1.75" (H.) x 15" (D.) 6.3 kg