

# BT-611 Beacon Tester



### General description

BT-611M Beacon Tester is designed for high accuracy and resolution measurements of the full set of beacon signal parameters to check its compliance with the ones, specified in C/S doc. T.001, T.007. The tester can be successfully used for Cospas-Sarsat type approval certification process.

The BT-611M Beacon Tester is professional specified test equipment for beacon manufacturers or test laboratories, service centers.

BT-611M Tester provides visual testing of frequency and phase behavior inside the burst during CW preamble and when it is modulated, statistical frequency stability parameters and, as a useful option to COSPAS/SARSAT requirements - rms frequency variations between the bursts. All specified burst and modulation time intervals are displayed.

The Tester provides high stability results when used by laboratories, manufacturers or during field beacon tests.

The Tester integrates two independent amplitude and frequency measurement channels for 406.025 MHz and 121.5 MHz beacon transmitters. Any PC or laptop could be connected to the Tester's USB port. Measurement functions and displayed results formats (graphics or tables) are available by means of special software.

Tester covers wide frequency range 406.00 – 406.1 MHz exceeding all reserved Cospas-Sarsat frequencies.

BT-611M can be controlled directly from RS-232 port by remote terminal for programming of automatic tests. The feature allows to integrate BT-611M to complex test system.

The Tester provides continuous testing and recording of all ELT parameters which allows to analyze the real-time beacon (ELT) operation during up to 48 hours.

The Tester was completely modernized in 2011.

### Operation / Features

The BT-611M Tester is required for annual or issue inspections of beacon (ELT) after or during receiving of type approval. The precision beacon signal parameters are complicated, and could not be measured with the simplified handheld testers. The most complex task is measuring of frequency stability and phase modulation parameters important for reliable communication with satellite and accurate position calculation.

BT-611M Tester provides real time testing of distress beacons, such as ELT. The ELT Testing procedure is simple.

Simple steps are required: connect the Tester to PC, connect the beacon to tester, run the software, turn on the beacon and start the testing. All data will be displayed on PC.

#### BT-611M Tester provides:

- Real time chart of the power and frequency values;
- Real time Phase characteristic of the 406 MHz signal;
- Real time charts with the frequency instability;
- Real time charts with the phase deviation, phase asymmetry;
- Complete table of the beacon (ELT) signal parameters;
- All decoded data of the beacon (ELT);

The tester is desktop professional solution, user-friendly.

The tester can be used for testing of any COSPAS-SARSAT distress beacons such as ELT, PLB or marine EPIRBs.

### Connection to PC or laptop

The BT-611M Tester requires to be connected to any PC or laptop for proper operation. The connection is carried out by means of standard USB A-B cable and special software. The minimal requirements are Microsoft OS, such as Windows XP, Windows Vista or Windows 7, at least 1 USB port and Internet Explorer 6.0 or higher (or any other browser). No special hardware configuration is required.

Also the special FTDI driver should be installed for proper connection. It can be downloaded at our web-site as well.

It is very simple to connect the tester to PC. Connect one side of the cable to tester and other to PC. Then install the

drivers following the standard Windows wizard. After the driver is installed run the software. No installation is required. Just run the software and start testing. All measuring data will be displayed in tables and charts.

### Complete set of the BT -611M Beacon Tester

- BT-611M measuring unit
- Antenna, consisting of: Antenna rod, The trivet with cable, Supporting legs, Strip
- RF calibrated cable
- USB cable A/B
- Three prong AC power cord
- Technical description and operation manual (English)
- Device packing
- Software and software user's manual (available at our website)

### Technical description

#### Operating environment

- Operating temperature + 10°C...40°C;
- Relative humidity up to 95% at 25°C.

#### Storage conditions

- Temperature - 40°C... 50°C;
- Humidity up to 90% at 25°C (non condensing)

#### Weight

- Net 2.8 kg; (measuring unit)
- Gross 3.6 kg (antenna included)

#### Dimensions

- Measuring unit 252 x 260 x 69 mm
- Antenna (when assembled): Height 280 mm Diameter 260 mm

### BT-611M Tester provides

Measured Parameter		Measured Value	Accuracy	
			C-S T.008	BT-611 M
Frequency	406 MHz	406000...406100 kHz	±100 Hz	Δ 406 = ±20.3Hz
	121.5 MHz	121495...121505 kHz	-	Δ121 = ±21.6 Hz
Frequency stability measuring resolution		<1x10E-9	1x10E-10	δFS= +3,88x10E-11
Phase deviation		±(63±6.3)°	±2.3°	ΔΦ=±0.8°
Deviation Trise/Tfall time		150±100 μs	±25 μs	Δτ = ±10 μs
Asymmetry		< 5%	±1%	δAS= ±0.8%
Bit rate		400±4 bit/s	±0.6 bit/s	Δ = ±0.18 BR bit/s
Burst duration		(440±4,4) ms (520±5.2) ms	±1 ms	Δ = -80 BD μs
Preamble duration limiting error		(160±1,6)ms	±1 ms	Δ = -60 PD μs
Burst repetition period		47.5...54.5 s	±10ms	ΔRP = ±10 ms
Input power 406 MHz		3.1...8 W	±10%	δP406= ±10%
406 MHz power rise time		5 ms	±0.5 ms	ΔPR = ±0.5 ms
Input power 121.5 MHz		20 mW...150 mW	-	δM121= ±10%