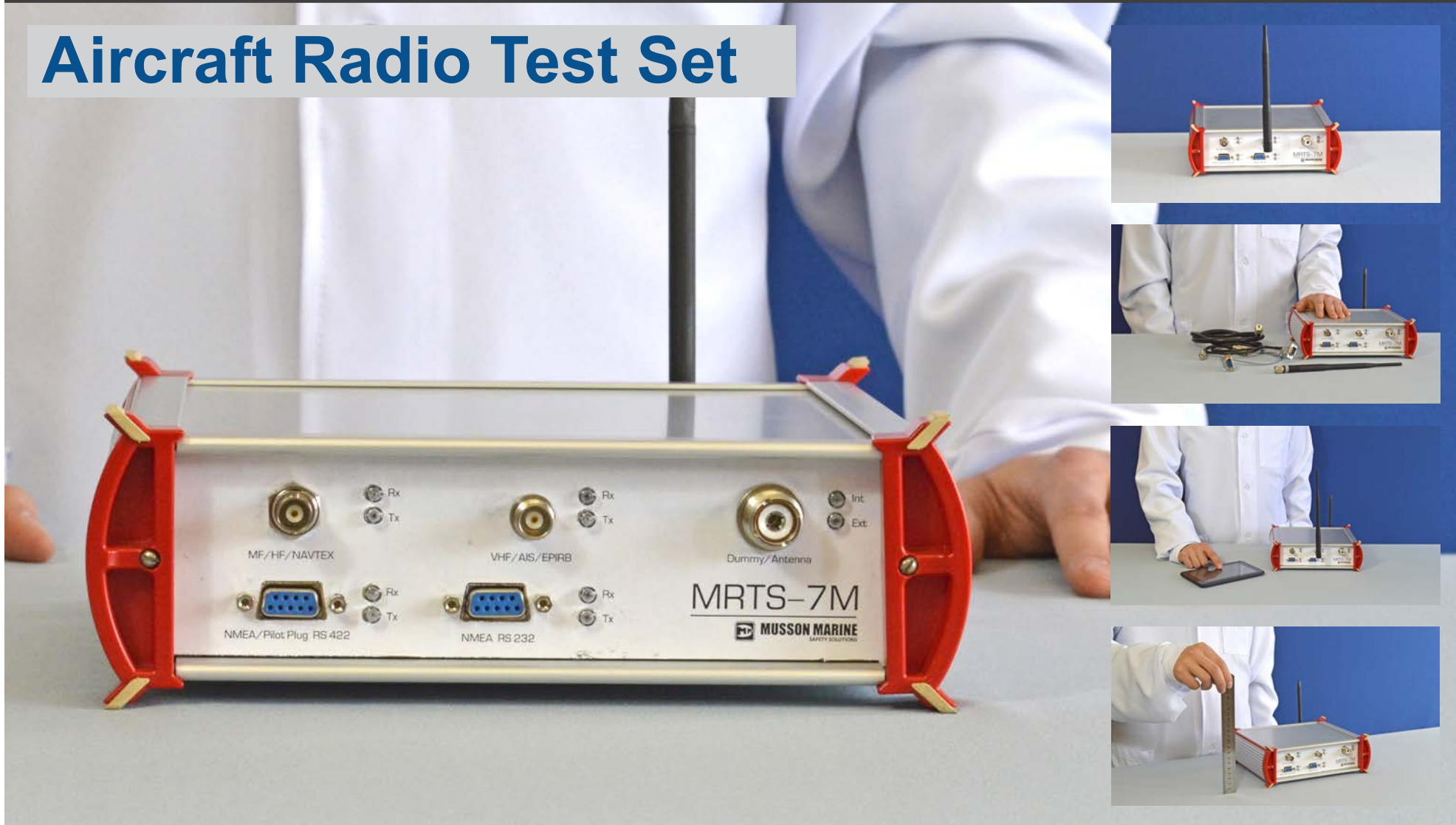


# Aircraft Radio Test Set



### General description

The Aircraft Radio Test Set enables functional and verification testing of MF/HF/VHF airborne radio equipment, emergency locator transmitters as well as airborne AIS stations.

Set ensures high performance during testing and the availability of up-to-date test software.

Aircraft Radio Test Set is be used to diagnose faulty radio communications equipment while installed in the aircraft.

Set fulfills the specific requirements for on-site maintenance, repair and overhaul and device verification after SKD production.

The device is capable of testing the pertinent radio frequency (RF) performance characteristics of a variety of aircraft communications equipment. The primary purpose of the test set is to determine if the Unit Under Test needs to be transported to a central maintenance depot for further testing and/or possible repair.

### Operation / Features

The device is compact, rugged, lightweight (i.e., on-man carry), self-contained, and user-friendly.

The types of communications equipment the ARTS is capable of testing include:

- UHF Transceivers,
- VHF Transceivers,
- HF Transceivers,
- 406MHz ELTs,
- Airborne AIS stations.

### Connection to PC or laptop

The device can be easily connected to any PC, laptop, Tablet PC, smartphone by means of Wi-Fi.

### Technical description

Aircraft Radio Test Set consists of two RF-channel:

- MF/HF-channel & VHF/UHF-channel
- MF/HF-channel operation modes: MF/HF-SSB, MF/HF-DSC, MF/HF-NAVTEX.
- VHF/ UHF-channel operation modes: VHF-FM, VHF-DSC, VHF-AIS, 406 MHz-COSPAS & AM-AVIA
- Generation of test measurement signals in MF / HF-channel with using DDS.
- Generation of test measurement signals in VHF/ UHF-channel with using CSP & quadrature modulator-IQ – method. For VHF-DSC & VHF-AIS LF modes - quadrature signal modulator with using IC CMX 910.

#### Operation modes

##### VHF-FM Mode

- Frequency range : 100-475\* MHz divided into sub-ranges
- 137 – 174 MHz; \*(TA0395A: 156.3 – 162.025)
  - 225 – 337\* MHz; \*(river: 300.025-300.500 и 336.025-336.500)
  - 337\* – 400 MHz;
  - 400 – 475 MHz; \*(MA07479: 400.5 – 416.5)

##### VHF-DSC Mode

- Frequency modulation with a pre-emphasis of 6 dB/octave (phase modulation) with frequency-shift of the modulating sub-carrier for use on VHF channels:
- frequency-shift between 1300 and 2100 Hz; the sub-carrier being at 1700 Hz;
  - the frequency tolerance of the 1300 and 2100 Hz tones is  $\pm 10$  Hz;
  - the modulation rate is 1200 Bd;
  - the index of modulation is  $2.0 \pm 10\%$

#### Features

1. Demodulated signal in real time, except DSC\*
2. Signal frequency (beat frequency)
3. Received signal strength (RSSI)

4. Frequency deviation
5. For DSC: demodulate details (step-2\*)

#### VHF-AIS Mode

- Supported

#### 406 MHz COSPAS/Sarsat Mode

Frequency range : 406,020 – 406,080 MHz

- Modulation: FM with frequency deviation:  $\pm 1,1$  radian
- Frequency band:  $2*\Delta f$ : 2,5 – 15 kHz depending on the rate of rise of the modulating signal

#### Features:

1. Demodulated signal (not in real time);
2. Signal frequency (beat frequency);
3. Received signal strength (RSSI);
4. Total transmission time -406Mhz (TTT);
5. Unmodulated carrier time -406MГц (UCT);
6. Phase deviation;
7. Decode details.

#### 121,5 MHz mode:

1. Demodulated sweep-tone for auditory monitoring;
2. Signal frequency measurement;
3. Received signal strength (RSSI);
4. Min & max frequency sweep-tone (\*);
5. Repetition frequency sweep-tone(\*);
6. Morse-code decoding, which is used to modulate instead sweep-tone in the U.S. (\*).

#### AM-AVIA Mode

- Frequency range : 108 – 137 MHz
- Frequency spacing 8,33 kHz
- Modulation: AM, modulation percentage 0-99%.
- Frequency band:  $2*\Delta f$ : 2,5 – 15 kHz

#### Features

1. Demodulated signal in real time)
2. Signal frequency (beat frequency)

3. Received signal strength (RSSI)
4. Modulation percentage

#### MF/HF-SSB Mode

- Frequency range : 0,4 – 30\*(60) MHz
- Frequency spacing 100\* Hz
- Modulation: SSB choice LSB-USB
- Frequency band:  $2*\Delta f$ : 3,4 kHz

#### MF/HF-DSC Mode

Supported

#### MF/HF-NAVTEX Mode

- Frequency NAVTEX: 518 kHz, 490 kHz и 4209,5 kHz.
- The device should generate as much as three test messages

#### Features

1. Demodulated signal in real time
2. Signal frequency
3. Received signal strength (RSS)
4. For DSC & NAVTEX: demodulation & decoded details

### Complete set of the Aircraft AIS Test Set

- Aircraft Radio Test Set - main unit
- PC Cable
- Power supply unit
- Software
- User manual (English)
- Package