

# GMDSS Multi Tester

## MRTS-7M

for Maritime Radio Surveys

Handheld device for full-scale  
GMDSS and AIS inspection



SMART  
RADIO  
TECH



AEROMARINE SRT  
Smart Radio Technologies



[gmdsstesters.com/gmdss-tester-mrts-7m.html](http://gmdsstesters.com/gmdss-tester-mrts-7m.html)

## Surveyor's favorite tool

MRTS-7M is a professional multifunctional tool for maritime radio surveyors. It provides operational testing of all types of GMDSS equipment, as well as AIS. Any manufacturer's equipment can be checked by this tester.

The production of this Multi Tester is based on the company's 21-year experience in GMDSS testers development, and overall 23 years of engineering in search and rescue technologies.

To make MRTS-7M technologically advanced and user-friendly, we have applied modern solutions in this field. Its functionality is constantly being brought in line with the changing international requirements. We make sure that the device allows conducting periodic inspections of GMDSS and AIS equipment, in accordance with the latest IMO standards and the requirements of classification societies.

Get an overview of the main features and capabilities of MRTS-7M.



**AIS-SART**



**AIS EPIRB**



**MF/HF Radio**



**GMDSS/DSC**



**Radar SART**



**PLB**



**AIS**



**NBPD**



**NAVTEX**



**VHF Radio**



**Extensive scope of supported equipment can be tested**

Use MRTS-7M to carry out the periodic surveys of GMDSS and AIS equipment in accordance with all the IMO standards and the classification societies requirements:

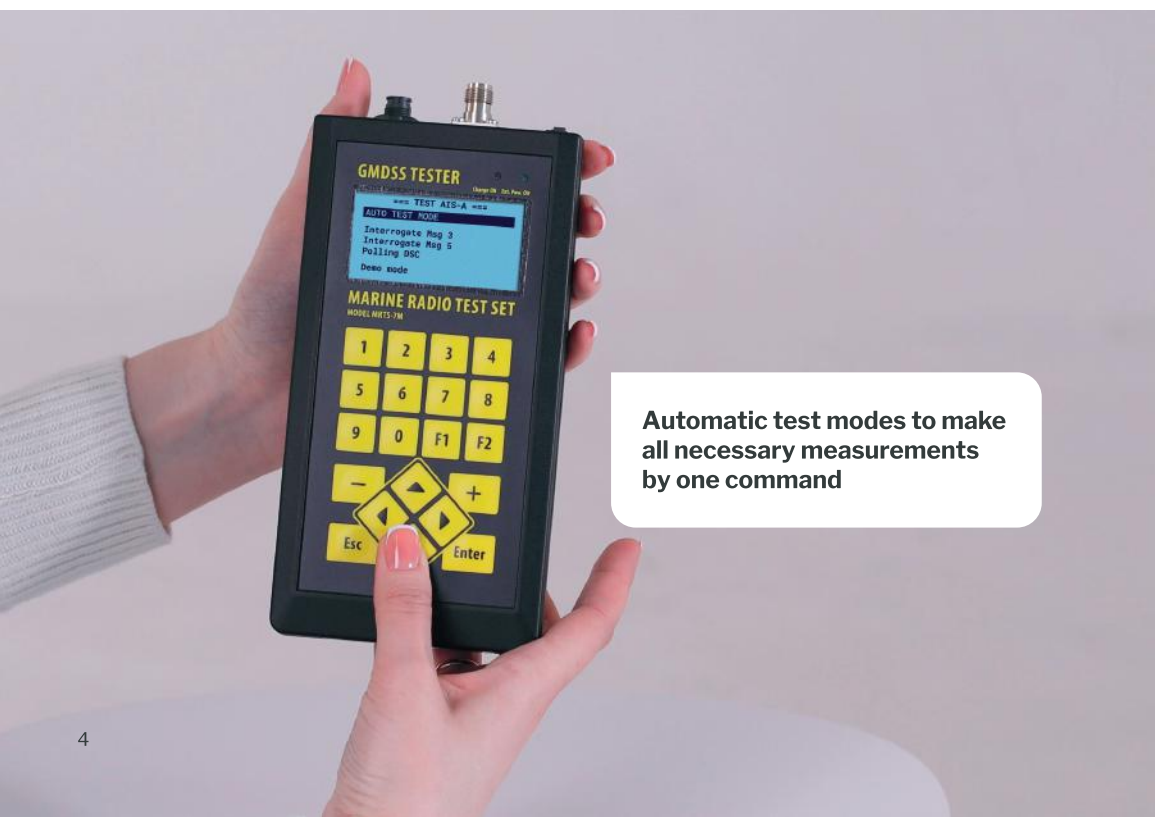
- IMO Resolutions A.948 (23) or A.997(25), A.1020(26) (for marine radio stations)
- IMO Circular letter MSC.1/Circ.1252 (for AIS stations)
- IMO Circular MSC.1/Circ.1039 (Rev.1), 1040 (Rev.2) (for C/S beacons)
- IMO Resolution A.802(19) and SOLAS - 74/88 (for SARTs)



Small size and light weight - no bulky testers onboard!



Comes in crushproof and watertight case



Automatic test modes to make all necessary measurements by one command



Fits in the cabin baggage during the travels

**AEROMARINE SRT**  
Smart Radio Technologies

**GMDSS Test Equipment**  
Testers for Marine Radios, EPIRBs, SARTs and AIS

**Test Results**  
Database of all saved measurements during radio surveys

<input type="checkbox"/>	PID*	Survey Date	Equipment	Channels	MMSI Code	
<input type="checkbox"/>	51	Sep 03, 2023	Sep 03, 2023	DSC	972009999	details >>
<input type="checkbox"/>	50	Sep 02, 2023	Sep 02, 2023	DSC	972339999	details >>
<input type="checkbox"/>	49	Sep 02, 2023	Sep 02, 2023	DSC, A, B	201232405	details >>
<input type="checkbox"/>	48	Sep 02, 2023	Sep 02, 2023	DSC, A, B	201232405	details >>
<input type="checkbox"/>	47	Sep 02, 2023	Sep 02, 2023	A, B	272129000	details >>
<input type="checkbox"/>	46	Sep 02, 2023	Sep 02, 2023	DSC, A, B	D201232405	details >>
<input type="checkbox"/>	45	Sep 02, 2023	Sep 02, 2023			
<input type="checkbox"/>	44	Sep 02, 2023	Sep 02, 2023			
<input type="checkbox"/>	43	Sep 02, 2023	Sep 02, 2023			
<input type="checkbox"/>	42	Sep 02, 2023	Sep 02, 2023			
<input type="checkbox"/>	41	Sep 02, 2023	Sep 02, 2023	406, 121	323555555	details >>
<input type="checkbox"/>	16	May 26, 2023	May 26, 2023	406, 121	66220	details >>

**Advanced software for Windows and macOS with cloud storage of the data**

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Email: info@aeromarinestech.com  
Web: www.gmdstesters.com

**AUTOMATIC IDENTIFICATION SYSTEM (AIS) TEST REPORT**

Name of ship/call sign  
MMSI number  
Port of registry  
IMO Number  
Gross tonnage  
Date of keel

Dimitry Kiantemir  
272129000  
Ukraine  
7329924

**1. Installation details**

- 1.1 AIS transponder type
- 1.2 Type approval certificate
- 1.3 Initial installation certificate
- 1.4 Drawings configuration report on board?
- 1.5 Main source of electrical power
- 1.6 Emergency source of electrical power
- 1.7 Capacity to be verified if the AIS is connected to a battery
- 1.8 Pilot plug near pilots operating position?
- 1.9 120VAC provided near pilot plug? (Panama and St. Lawrence routes)

**2. AIS programming - Static information**

- 2.1 MMSI number
- 2.2 IMO Number
- 2.3 Radio call sign
- 2.4 Name of ship
- 2.5 Type of ship

Status  
272129000

**Automatic generation of test reports in IMO-compliant format - paperwork is reduced to a minimum**

**GMDSS TESTER**  
Charge ON Est. Pow. ON

MAIN MENU  
TEST UHF radio  
TEST MF/HF radio  
TEST AIS  
TEST EPIRB  
TEST NAVTEX  
TEST NMEA

**MARINE RADIO TEST SET**  
MODEL MRTS-7M

1 2 3 4  
5 6 7 8  
9 0 F1 F2  
- +  
Esc Enter

**LCD with backlight for work in any light conditions**

**20-button keypad, for comfortable operation**

## The MRTS-7M standard set can be expanded by adding optional units

## 2. The SART testing tool STU-1



### 1. MF/HF Power Sensor and VSWR Meter PS-2

- enables power measuring of MF/HF stations up to 500W
- attenuates the signal sent from the MF/HF radio station so that it replaces the attenuator used previously for MF/HF tests
- allows to test not only the radio station's parameters, but also to check the antenna feeder by measuring the VSWR which is a fully new function

### The tandem of MRTS-7M & PS-2 measures:

- carrier frequency of the signal
- frequency deviation
- forward and reflected power level
- the VSWR of the antenna

The set of MRTS-7M with VHF Power Sensor PS-1 and MF/HF Power Sensor PS-2 enables detailed and accurate testing of all types of maritime radios.



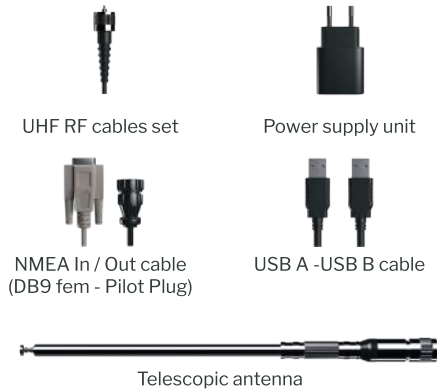
- enables easy and fast testing of any 9GHz SART
- can be ordered as a separate device, or added to the kit of GMDSS Multi Tester MRTS-7M as a part of the extended set
- fits compactly in a watertight & crushproof MRTS-7M case
- the test procedure is managed in the GMDSS Multi Software, the results are instantly displayed on the computer screen
- after testing, all results can be saved or automatically converted to test report made in IMO-compliant format



## MRTS-7M

# GMDSS Multi tester

Get on board with a lightweight case – bulky testers are in the past!



### Complete Set

- GMDSS Tester MRTS-7M – main unit
- VHF Power Sensor & VSWR meter, PS-1 (60W)
- Telescopic antenna
- UHF RF cables set
- NMEA In / Out cable (DB9 fem - Pilot Plug)
- USB A - USB B cable
- Power supply unit
- Crushproof & watertight case

### Options:

- SART testing unit STU-1
- MF/HF Power Sensor & VSWR Meter, PS-2 (500W)



VHF Power Sensor & VSWR Meter, PS-1

### Options:



MF/HF Power Sensor & VSWR Meter, PS-2

## Technical specifications

### Technical specifications in transmitting mode:

- Operational frequencies range:
- MF/HF channel 0.4 – 30 MHz
  - VHF channel 118 – 275 MHz

- Frequency step:
- MF/HF channel 0.001 kHz
  - VHF channel 1 kHz

Frequency accuracy at +20°C and during two years after calibration:  $< \pm 0.3 \cdot 10^{-6}$

Frequency accuracy in operational temperature range:  $< \pm 1 \cdot 10^{-6}$

Max output level: 0 dBm  $\pm$  1 dB

Min output level: -93 dBm  $\pm$  3 dB

Output level step: 1.0 dB  $\pm$  0.3 dB

Output level in Test AIS mode: 0 dBm  $\pm$  1 dB (on the RF IN/OUT connector).

### Technical specifications of measuring receiver

Max signal level on RF IN/OUT: not more than 20 dBm or 100 mW;

Attenuation range of input signal by internal attenuator: 93 dB;

Input signal operational range on RF IN/OUT: from -90 dBm to -20 dBm

- Operational frequencies range:
- MF/HF band 0.4 – 30 MHz
  - VHF band 118 – 275 MHz

- Frequency step:
- MF/HF band 0.1 kHz
  - VHF band 1.0 kHz

- Frequency bandwidth on BW-3dB, dB:
- MF/HF Receive DSC and NAVTEX 300  $\pm$  50 Hz
  - MF/HF Receiver 3000  $\pm$  70 Hz
  - VHF band (all modes) 12.0  $\pm$  0.3 kHz

### Technical specifications of VHF Power sensor and VSWR meter PS-1

Max allowed input power level: 60 W

Operational frequency range: 30 – 410 MHz

Insertion attenuation between RF-In and MRTS-Output: 63 dB.

### Technical specifications of MF/HF Power Sensor and VSWR Meter PS-2

Maximum input power: 500 W

Operating frequency range: 0.49 - 30 MHz

The attenuation from the Power Sensor input and VSWR to the Tester Input/Output is 81.4 dB.

It is automatically considered in conducted measurements of transmitter output power and receiver sensitivity.

The transmission of DSC messages to the antenna can be checked by using the message in format Individual Call, Test or Routine.

### Dimensions

Main unit dimensions: **100 x 200 x 45 mm** Main unit weight: **0.44 kg**

Total dimensions with case: **385 x 290 x 160 mm** Total weight with case: **3.7 kg**

## **GMDSS Multi Tester MRTS-7M enables testing of the following types of equipment:**

### **— VHF receiver-transmitters:**

- operation tests on any simplex channel including 6, 9, 13 and 16 channels;
- measurement of frequency and frequency deviation;
- measurement of antenna feeder VSWR and reflected power.

### **— VHF receiver-transceivers with DSC(DSC Controllers, Watch Receivers):**

- test of correct transmission/reception of DSC messages by means of transmission/reception, routine or test calls to particular MMSI number and Distress (to all ships) messages;
- check the MMSI code programmed in equipment without any broadcast emission;
- measurement of frequency and frequency deviation;
- measurement of output and reflected power.

### **— VHF equipment of duplex radiotelephony (portable):**

- operation tests on channels 6, 9, 13, 16 (at least);
- measurement of output power, carrier frequency and frequency deviation

### **— VHF radiotelephone stations operating in range(300 - 337) MHz (intended for rever-sea vessels):**

- measurement of output power;
- measurement of carrier frequency;
- measurement of frequency deviation.

### **— AIS class A, AIS class B, AtoN, AIS Base stations:**

- measure AIS frequencies (on channels 1, 2);
- measure or estimate the AIS transmitted power (on channels 1, 2);
- receive and decode the AIS messages;
- send the data to AIS stations;
- pass the DSC polling information (channel 70);
- check AIS answer to so called “virtual vessel”;
- simulate NMEA data transmissions;
- simulate AIS data transmissions, such as ship’s name, position, length, course, speed, power and beam;
- transmit and receive the DSC messages of different types for VHF stations;
- receive the data from pilot plug or external sensors.

### **— AIS-SARTs:**

- measure AIS-SART frequencies;
- measure or estimate the AIS-SART transmitted power;
- receive and decode the AIS-SART message.

### **— MF/HF DSC Controllers:**

- check the MMSI code programmed in equipment;
- check receipt of DISTRESS signal by MF/HF equipment with DSC by means of transmitof selective DISTRESS message.

### **— MF/HF radio telephone equipment:**

- measurement of frequency in range 1600 – 30000 kHz;
- operation tests in frequency range 1600 – 30000 kHz;
- measurement of output power up to 500W\*;
- measurement of antenna feeder VSWR and reflected power (when tested using optional power sensor PS-2).

### **— MF/HF radiotelephone equipment with DSC:**

- test of correct transmission/reception of DSC messages by means of transmission/reception of Selective Test call to particular MMSI number and Distress (to all ships) messages on any of 6 distress channels.

### **— NAVTEX equipment:**

- operation tests by means of sending one of two available test message on any of three frequencies: 490 kHz, 518 kHz or 4209.5 kHz.

### **— All COSPAS-SARSAT radio beacons:**

- reception, demodulation and decoding of the emergency information transmitted on channel 406 MHz;
- frequency measurement of 406 MHz and 121.5 MHz signals;
- audio-control of the sweep 121.5 MHz signal presence;
- power level measurement on 406MHz and 121.5 MHz channels;
- measurement of total transmission time of 406 MHz signal;
- measurement of unmodulated carrier duration of 406 MHz signal;

- estimation of the equivalent radiated power of 406 MHz signal through broadcast;
- measurement of power on AIS homing channel;
- measurement of frequency on AIS homing channel;
- demodulation of AIS message.

### **— 9GHz Radar SART (extended set option):**

- fast check to make sure 9 GHz Radar SART will operate in emergency To in 50 ±150 µs range;
- fast passed/not passed test;
- audio-control of the sweep signal presence;
- signal level measurement;
- measurement of the signal in frequency range of 9140...9560 MHz;
- number of sweeps in view of graph;
- respond signal duration.

### **MRTS-7M allows to:**

- generate the RF signals in range of 0.4 – 30 MHz and 118 – 512 MHz, including those with tonal amplitude and frequency modulation;
- measure the signal frequency and power level of narrow-band radio signals in the range of 0.4 – 30 MHz, 118 – 137.5 MHz and 156 – 512 MHz.

### **The tester is capable to transmit and receive the signals by:**

- broadcast antenna;
- direct connection to radiofrequency In/Out;
- direct connection by means of cables (conductive measurements);
- and through Power Sensor & VSWR Meter.

# GMDSS Multi Software

for managing test results and generating test reports

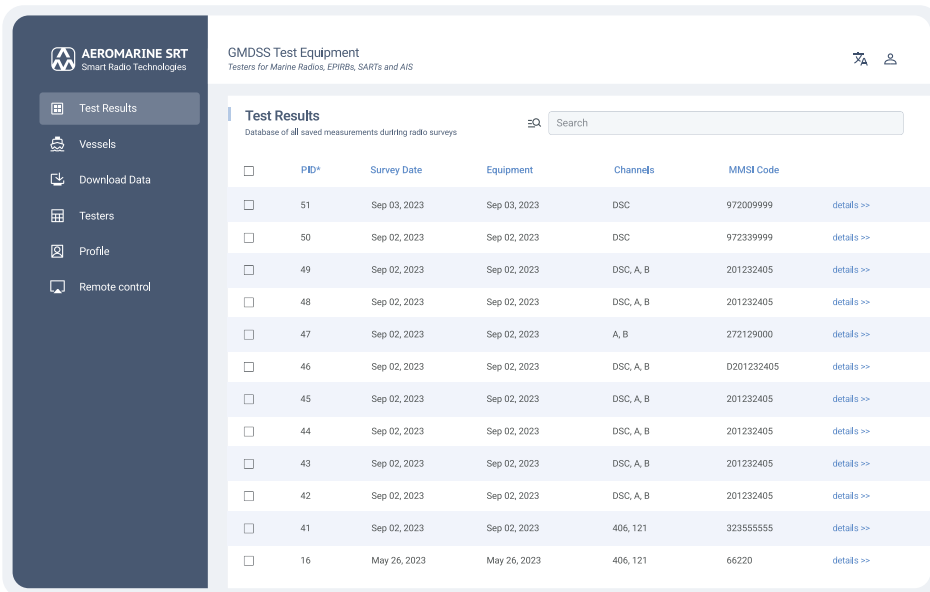
One more advantage of MRTS-7M usage is the specialized GMDSS Multi Software, which allows the surveyor to monitor, download and process test results.

Managing test results is now easier than ever. The Software checks all measured data, decodes the contents of digital messages received during measurements, and automatically generates test reports that meet IMO requirements.

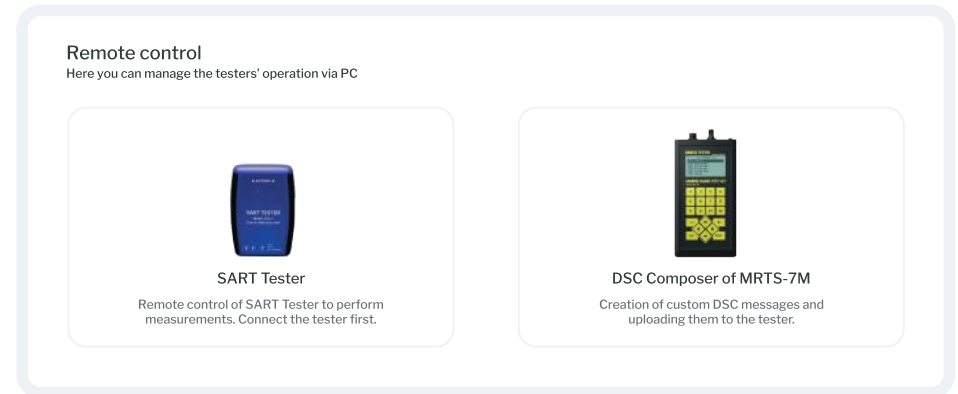
The software features include saving information and contacts of the surveying company, uploading its logo.

So, when generating a test report, you can use your company's header selected in several available templates. Thus, your company's logo and contacts will be automatically included in the reports.

All test results are grouped by vessels or MMSI codes – an easy way to view surveys' history and compare test results over time. There are a number of convenient filters such as equipment type or date, for easier finding previous surveys and processing the measurements results.



The software interface



The Remote Control menu provides access to SART Tester and DSC Coposer

The connection between the Tester and the Software is made via USB. The software data can be automatically uploaded to the cloud for backup and synchronization between different workplaces.

The software checks the tester's calibration status and automatically adds this information to reports as required by the classification authorities. Additional features allow creation of custom DSC messages for special DSC tests.

A greater convenience is provided by several languages of the interface.

## Features of GMDSS Multi Software:

- one convenient database of surveys
- compatible with macOS, Windows OS
- IMO-approved automatic reports
- test results grouped by vessel, history analysis
- company profile, reports with company contacts and logo
- custom DSC composer
- cloud uploading for backup and workplaces sync
- one for all Aeromarine SRT GMDSS testers
- available in 6 languages



[gmdsstesters.com/downloads.html](https://gmdsstesters.com/downloads.html)



# About us

## Company structure

**SRT Group** includes three companies united by the common purpose - supplying the best testing solutions on the global market:

**Aeromarine SRT Ltd (Ukraine)** is the manufacturing company which produces and technically supports all the supplied testers. Expert in Cospas-Sarsat solutions with 20+ years of specialization in this field, the company combines the time-tested solutions with modern innovations in its products.

**Smart Radio Tech d.o.o. (Serbia)** is an exclusive global supplier of Aeromarine SRT products. It runs all sales, marketing and shipment operations.

**Smart Radio Tech Srl (Romania)** is a branch supplying Aeromarine SRT products within the European Union only.

## Achievements and goals

We produce the entire line of testing equipment for maritime radio surveyors: single-purpose testers, as well as a universal GMDSS Multi Tester.

The key features of Aeromarine SRT devices are user-friendly interface, compact size and advanced software that allows inspectors to save time by generating reports automatically and printing them in IMO-compliant format.

We are proud of the reliability of our equipment. According to user surveys that we periodically conduct, our customers highly appreciate this property of Aeromarine SRT testers. However, our engineers are not going to stop at what has been achieved and are constantly working to further improve this characteristic.

Today, SRT Group is the only one on the global market whose main specification is developing, producing, supplying and supporting the GMDSS and AIS testers.

## Some of the industry leading companies that use our equipment in their work



## Simply Use It

MRTS-7M has a very friendly interface and works with up-to-date PC software



## Get It Delivered

The orders are delivered for free of charge to any location globally



## Make The Best Benefits

We adhere to a well-balanced pricing policy and support for the testers, so you can get the best ROI for equipment of this type



## Minimize Your Risks

We provide a standard 2-year warranty against manufacture and firmware faults



Request the GMDSS Multi Tester MRTS-7M



Website [gmdsstesters.com](http://gmdsstesters.com)



Video tutorials on MRTS-7M