

2009 BEACON MANUFACTURERS WORKSHOP

St Petersburg, FL - 8 May 2009

Testing Cospas-Sarsat Beacons at Testing Centre Omega, Ukrai

SEDAM Communication Limited (UK) and The Public Enterprise Testing Centre “Omega” (Ukraine) sign co-operation agreement

16 October 2008

SEDAM Communications Limited, a London based provider of Research and Development (R&D) services to the high tech industry and The Public Enterprise Testing Centre “Omega” from Sevastopol, Ukraine, who conduct testing of Telecommunication equipment, have signed a co-operation agreement to work together in supplying services in Testing of Marine equipment.

The Public Enterprise Testing Centre Omega has been in the business of testing marine equipment for over 40 years. From 1968, Omega performs testing of different type of marine radio communication equipment with particular experience in Type Approval testing of the Cospas-Sarsat beacons, EPIRBs, ELT and PLBs. Testing Centre “Omega” has conducted tests of 23 radio beacon models and dozens of other types of ship-borne and shore-borne radio equipment.

SEDAM’s employees have long-time experience in the testing of different types of Marine radio equipment: traditional (MF, HF, UHF), Inmarsat, Cospas-Sarsat, including direct involvement in Type Approval of dozens of Cospas-Sarsat beacons from almost every manufacturer around the world. Most International and National standards in this area were prepared with their direct involvement.

TESTING CENTRE



Ukraine, Crimea, Sevastopol



Europe



Crimea



Sevastopol

Where we are

Administrative building



Laboratory building No.1



Laboratory building No.2



Laboratory building No.3





About TC Omega

Public enterprise "OMEGA" State Testing Centre is one of the most innovative organizations in Ukraine. The main activity is conducting tests of various radio electronic equipment with emphasis on certification.

The "Omega" Centre has tested and certified a number of products from world leading manufacturers from Europe, Asia and USA. We deal with companies such as: Ericsson, Huawei, JVC, LG, Matsushita, Meridian Group, Motorola, Nokia, Philips, SAGEM, Samsung etc.

The quality management system of STC "Omega" is certified for compliance with standard **ISO 9001-2000**

The Test Centre “Omega” is equipped with state-of-the-art testing facilities for conducting performance tests, electromagnetic compatibility tests (EMC), electrical safety tests and environmental tests in accordance with national, regional and international regulations.

The certification body «UkrCERTRADIO» specializes in certification of telecommunication equipment, radio communication devices, consumer electro technology and radio electronic equipment, informational technology devices and power supply systems.

The certification body is accredited in the National Certification System of Ukraine for compliance with requirements of the international standard **EN 45011**

The Test Centre "Omega" is accredited by national agencies of Ukraine and Russia for compliance with requirements of **ISO/IEC 17025:2005** and authorized to conduct work in certification systems of Ukraine and Russia. It is recognized by International Satellite System for Search and Rescue Programme (COSPAS-SARSAT) as one of five laboratories available worldwide.

The Test Centre is also recognized by the Russian Maritime Register of Shipping and the Shipping Register of Ukrainian, and many other national bodies responsible for conformity assessment, e.g.:

- BABT (United Kingdom),
- NEMKO (Norway),
- Telefication (The Netherlands),
- USCG (Coast Guard of USA),
- FCC (Federal Communications Commission, USA)



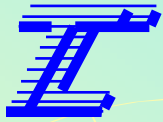
STC “Omega” recognitions (Ukraine)



Recognition certificates of the Testing laboratory and the Certification body «Omega» in UkrSEPRO

Accreditation certificates of the Testing laboratory and the Certification body «Omega» issued by the National Agency of Accreditation of Ukraine

Recognition certificates of the Testing laboratory and the Certification body «Omega» in the System of Special Register, the Sipping Register of Ukraine



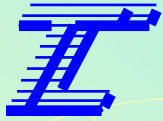
STC “Omega” recognitions (Russia)



Russian Maritime Register of Shipping

Gost R System
(reaccredited in August, 2008, valid till 2011)

Ministry of Transport of Russia
(authorized body - FSUE
“Morsvyazputnik”)



STC “Omega” recognitions (Europe, USA, International)



USCG
United States Coast
Guard



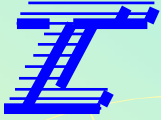
FCC
Federal Communications
commission



BABT
British Approvals Board for
telecommunications

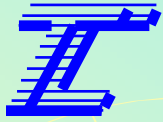


COSPAS-SARSAT
International Satellite System for
Search and Rescue



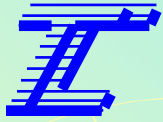
Accreditation scope of TC Omega

- Radio and television broadcasting devices
- Computer and office equipment
- Wired and wireless telecommunications (base and terminal equipment)
- Custom electro and radio electronic equipment
- Power supply systems and chemical sources of electric energy

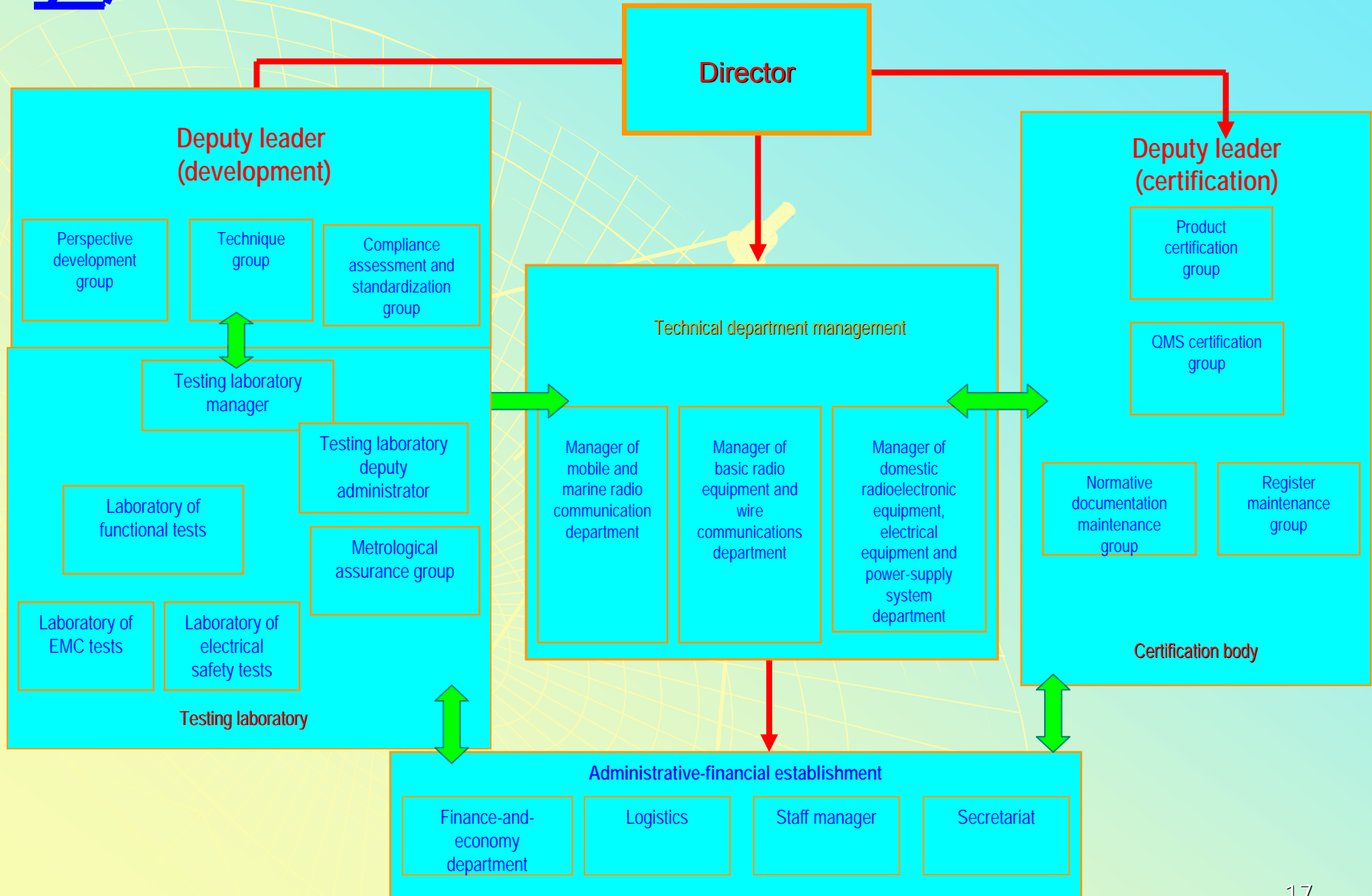


Typical standards from scope of accreditation of TC Omega

Measurements for Conformity Assessment	Standards
Functional tests (including environmental tests)	<u>Radio standards:</u> <ul style="list-style-type: none">•WLAN ETSI EN 300 328 ETSI EN 301 893•Land Mobile ETSI EN 300 086 ETSI EN 300 113•GSM ETSI EN 301 502 ETSI EN 301 511•SDR ETSI EN 300 220 ETSI EN 300 330 ETSI EN 300 422 ETSI EN 301 357 etc.
Electromagnetic Compatibility tests (immunity, emission)	<u>EMC standards:</u> <ul style="list-style-type: none">•Radio, telecommunications equipment ETSI EN 300 386 ETSI EN 301 489•Generic and basic ENs EN 55022 (CISPR 22) EN 55024 (CISPR 24)
Safety tests	<u>Safety standards:</u> <ul style="list-style-type: none">EN 60065 (IEC 60065)EN 60950-1(IEC 60950-1)



TC "Omega" structure



“Omega” Scope of Testing

The Testing Center “Omega” performs testing of the following marine radio communication equipment:

COSPAS-SARSAT radio beacons;
HF, MF, MW radio transmitters with output power up to 1500 W;
Shipborne land stations Inmarsat A and Inmarsat C;
9 GHz search and rescue radar transponders;
Shipborne VHF radio stations with output power up to 50 W;
LW, MW, HF, VHF shipborne radio receiver;
VHF radio beacons of rescue equipment;
VHF-antennas;

Testing Center “Omega” performs the following tests and measurements:

Performance tests;
Electric and radio measurements;
Climatic tests;
Mechanical tests;
Special tests (watertightness, dustproofness, salt fog resistance, etc.);
Acoustical tests;
Electromagnetic compatibility tests;
Reliability tests of radio communication equipment;
Safety tests

Summary of testing performed by “Omega”

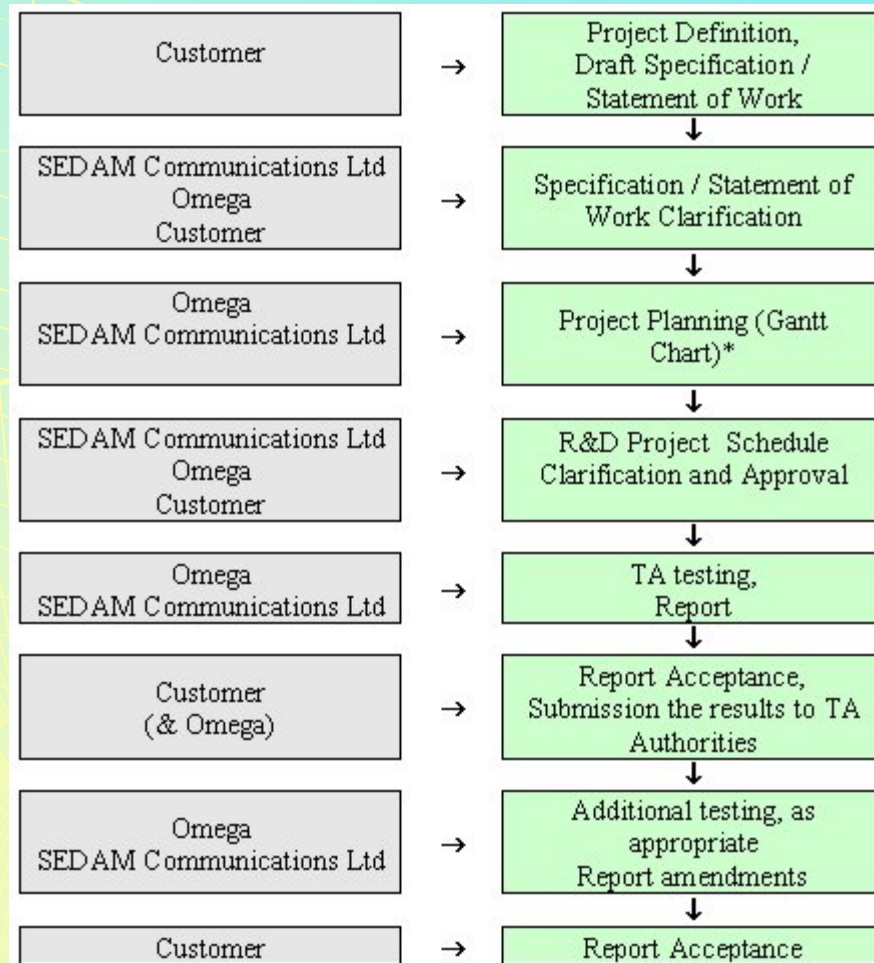
Testing Center “Omega” has conducted more than 1000 tests of various types of radio communication equipment, including tests of 23 radio beacon models, manufactured by 15 manufacturers from 6 countries in 4 world regions (Europe, North America, the Near East and South-East Asia).

During 2006 - 2008 “Omega” tested 12 radio beacon models manufactured by 8 manufacturers (Ukraine, Russia, Israel, Germany, Korea), and performed the test of a new model of high-stability reference oscillator from a leading manufacturer

**Personnel of Testing Laboratory of
Public Enterprise Testing Center
“Omega” involved in testing of
EPIRBs, ELTs and PLBs**

Team of 8 professionals, each of them has a University degree in a relevant field with a relevant work experience ranging from 4 years to 34 years

TA Project Development Chart



* Example of Gantt Chart can be provided upon request

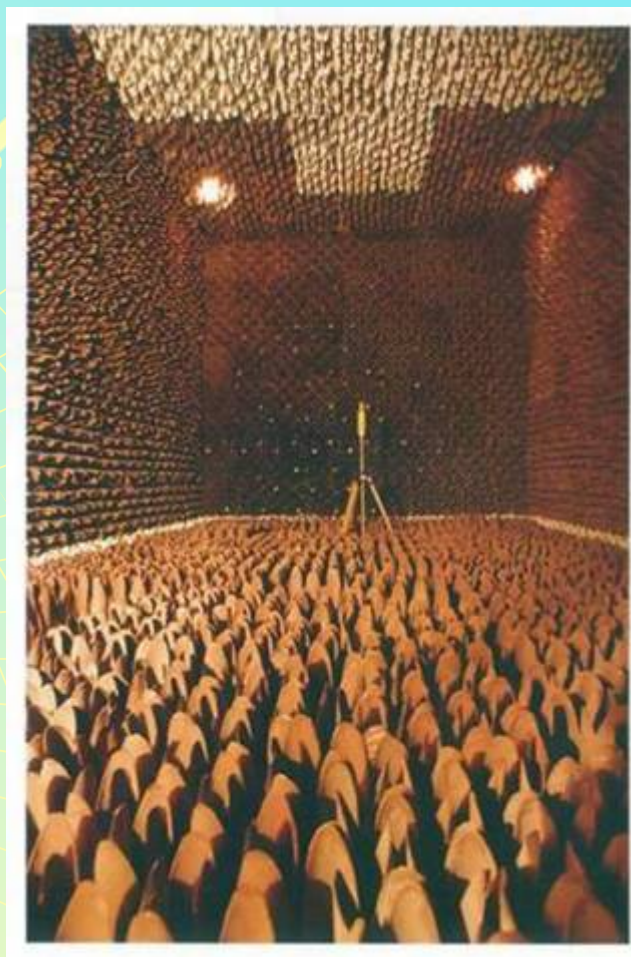
Laboratory of Radio Measurements



Safety testing laboratory



Shielded chamber «BAMBUK»



Semi-anechoic shielded chamber «Don»



RF absorber-lined metal chamber with wall, ceiling and door, covered with ferrite absorber. Interior effective dimensions : 9.85 x 4.95 x 6 m.. Floor (Ground plane) - steel sheets or RF absorber. Turntable with remote control. frequency range of 30 MHz to 1000 MHz at 3 meters measuring distance

Open Area Test Site (OATS)



OATS is designed to perform radiated emissions measurements in the frequency range of 9 kHz to 1000 MHz at measuring distances 3 and 10 meters. Floor (Ground plane) - steel sheets, dimensions: 15 x 6 m. Turntable with remote control

Environmental testing



Environmental chamber to 8 m.cub.



Environmental chamber to -70 C°

Mechanical test room



Battery test laboratory



Test laboratory of interference resistance



Special effects test equipment



Dust chamber



Solar radiation chamber



Salt fog chamber

General view of the testing equipments at the maritime test area (tests of the maritime radio communications equipment, PLB and ELT)



Internal view of the climatic chamber KPK-400.V (RTCM A2.0, A3.0)



External view of the Vibration table G-0227 (RTCM A5.0)



External view of the Shock table TIRA shock 4110 with the control and monitoring cabinet (RTCM A6.0)



External view of the Shock table TIRA shock 4110 with 406 MHz
COSPASSARSAT EPIRB



Board for drop test at a height of 1 meter (hard surface -
hard wood 150 mm thickness) (RTCM A8.1)



External view of equipment for drop test (into water) at a height of 20 meters. (RTCM A8.2)



External view of open water tank for EPIRB leakage and immersion test at a depth of 100 mm during 48 hours (RTCM A9.0 item 1)



External view of the installation to provide hydrostatic pressure 15 atm.(tech) simulating the submergence to depth from 1 to 150 meters for leakage and immersion test (RTCM A14.0, A15.0 – the submergence with depth of 10 meters)



Internal view of the Low-temperature climatic chamber NZ350/75 (RTCM A13.1)



External view of the hydrostatic tank for test of the automatic realize mechanism and the buoyancy (RTCM A14.0, A15.0).



An aerial photograph of Sevastopol, Crimea, showing a mix of urban buildings, green parks, and a large harbor. A prominent yellow banner with a ribbon-like border is centered over the image. The banner contains the text 'WELCOME to SEVASTOPOL' in red, bold, sans-serif capital letters. The background shows a dense cityscape with various buildings, a large green park area with a circular road, and a harbor with several boats and a large white structure on the right side. The sky is clear and blue.

WELCOME to SEVASTOPOL

Contracts

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SEDAM-OMEGA tandem is ready to test Cospas-Sarsat EPIRBs, ELT and PLBs to requirements of most International and National standards

THANK YOU FOR YOUR ATTENTION!

Questions?

Further information can be found at:

http://www.most-bridge.com/English/Home/Website_News