FT-TEC Electronics GmbH
Werner von Siemens-Straße 5
A-7343 Neutal

Gültigkeit: 1/05/2016
N° 1373-QM-02-001

Test Report

Report Number:
DFT15161014

Equipment under Test (EUT):
AIS Search and Rescue Transmitter SEAANGEL SA14

Supervised by:

PHOENIX TESTLAB GmbH
Königswinkel 10
32525 Blomberg
Germany

accredited by
Deutsche Akkreditierungsstelle GmbH (DAkkS)
in compliance with DIN EN ISO/IEC 17025
under the Reg. No. D-PL-17186-01-03

REFERENCES

[1] IEC 60945: 2002 Maritime navigation and radio communication equipment and systems – General requirements – Methods of testing and required test results

TEST RESULT

The requirements of the tests performed as shown in the overview (clause 3) were fulfilled by the equipment under test.
The complete test results are presented in the following.

Test engineer: (FT-TEC)	Martin FRANK		21.11.2014
	Name	Signature	Date
Test engineer (FT-TEC)	Andreas KREJCI		21.11.2014
	Name	Signature	Date
Supervisor (PHOENIX TESTLAB)	Thomas KÜHN		21.11.2014
	Name	Signature	Date

RESERVATION

This testreport is only valid in its original form.

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The test results herein refer only to the tested sample. FT-TEC Electronics GmbH is not responsible for any generalisations or conclusions drawn from these test results concerning further samples. Any modification of the tested samples is prohibited and leads to the invalidity of this test report. Each page necessarily contains the FT-TEC Electronics Logo and the TEST REPORT NUMBER.

I Content

1 Identification

1.1 Manufacturer and publisher

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Manufacturer / publisher represented during the test by the following person:	Mr. Andreas KREJCI and Mr. Martin FRNAK

1.2 Test engineers

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1.3 Supervisor

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Fax:	+49 52 35 95 00 - 10
eMail Address:	kuehn.thomas@phoenix-testlab.de

1.4 Test locations

The tests were carried out at:

1.) Falkensteinwand, Coordinates: 47.759521 (lat), 13.391223 (lon)
5360 St. Wolfgang
Austria

2.) FT-TEC Company Area
Werner von Siemens Straße 5
7343 Neutal
Austria

1.5 EUT (Equipment under Test)

Type:*	AIS Search and Rescue Transmitter (AIS-SART)		
Type designation:	SEAANGEL SA14		
Serial No.:	Refer table beow		
Alignment range:	161.975 to 162.025 MHz		
Switching range:	161.975 to 162.025 MHz		
Channel separation:	50 kHz (Channel bandwidth: 25 kHz)		
Rated RF output power:	1.0 W / 30 dBm		
Supply Voltage:	U_{nom} = 9.0 V DC	U_{min} = 5.0 V	U_{max} = 9.2V DC
Temperature range:	-20 °C to +55°C		
Printed circuit designation:	5400013V03		
Software Version:	SA14V1.1		
Hardware Version:	V03		

Port / Connectors

Identification	Connector		Lenght
	EUT	Ancillary	
-	No external lines are connectable to the EUT		-
-			-

Used test samples

Serial number	Used for test
10000000000000000310575	Drop into water (8.6.2 [1])
10000000000000000310606	Drop on hard surface (8.6.1 [1])
10000000000000000310610	Immersion (8.9.2 [1])

1.6 Dates

Start of Test	15. October 2014
Finish of Test	16. October 2014

2 Additional information

All tests were carried out on AIS1 (161.975 MHz) and AIS2 (162.025MHz).

During the tests the EUT was supplied by the internal battery. For all tests the EUT was configured as it will be placed on the market.

After each single test a performance check was carried out with the help of a AIS class B transceiver. Additionally the test samples, which were used for the "Drop into water" test (8.6.2 [1]) and the "immersion" test (8.9.2 [1]) were weighted before and after the test.

3 Test overview

Subclause	Test parameter	Remark	Test result	Refer page
8.6[1]	Drop (portable equipment)			
8.6.1[1]	Drop on hard surface	Applicable	Passed	8
8.6.2[1]	Drop into water	Applicable	Passed	9
8.9[1]	Immersion			
8.9.2[1]	Portable equipment	Applicable	Passed	10

4 Drop (portable equipment)

4.1 Drop on hard surface subclause 8.6.1 [1]

Environmental Conditions:	Temperature:	19.5°C
	Relative humidity:	91%

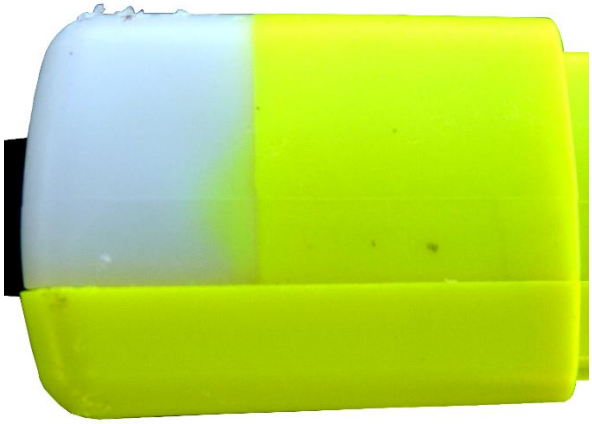
This test was carried out on test location 2.).

From a height of one meter the EUT was dropped down six times (each side of the EUT) on asphalt.

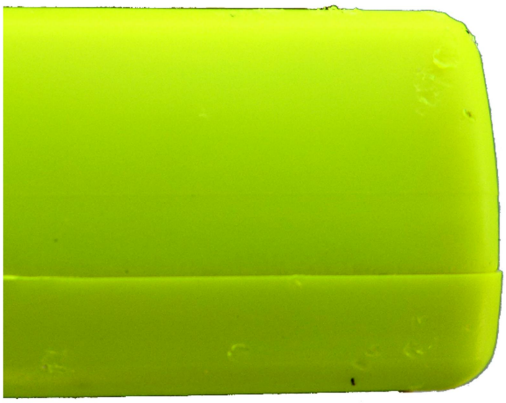
The height was measured with the help of the laser distance meter.

The outside of the EUT was superficial scratched at exposed sites like edges or corners. No broken sites on the EUT could be found.

A performance check after the test was finished positive.



top side of the EUT



bottom side oft he EUT

Test equipment used (refer clause 6):

1, 2

4.2 Drop into water subclause 8.6.2 [1]

Environmental Conditions:	Temperature:	17.4°C
	Relative humidity:	89%

This test was carried out on test location 1.).

From a height of 27 m (requirement = 20 m) the EUT was dropped down three times on the water surface.

The height was measured with the help of the laser distance meter.

The EUT was weighed before and after the test. The weight comparison after the test has shown the same weight as before. No damages of the EUT were recognizable.

A performance check after the test was finished positive.

Weight before the test: 153,67g

Weight after the test: 153,67g

Test equipment used (refer clause 6):

1, 2, 3

5 Immersion

5.1 Immersion (portable equipment) subclause 8.9.2 [1]

Environmental Conditions:	Temperature:	17.4°C
	Relative humidity:	89%

This test was carried out on test location 1.).

The EUT was weighed before the test started. The EUT was sunk 11 m (requirement 10.2 m) under water for 5 minutes. This depth corresponds to a hydraulic pressure of more than 1 bar (as specified in 8.9.2[1]).

For this test the EUT was fixed on a weight at one end of a cord. The other length of the cord was fixed on the boat. The length between the fixing and the weight was measured with the help of the laser distance meter before.

The EUT was weighed before and after the test. The weight comparison after the test has shown the same weight as before. No damages of the EUT were recognizable. The performance check after the test was finished positive.

Weight before the test: 153,28g

Weight after the test: 153,28g

Test equipment used (refer clause 6):

1, 2, 3

6 Test equipment and ancillaries used for tests

No.	Test equipment	Type	Manufacturer	Serial No.
1 *1	Laser distance meter	DISTO X310	Leica Geosystems	835030742
2 *1	Marine AIS CSTDMA Class B Transceiver	COBALT	SRT Marine Technology	41300020640001
3 *2	Scale	PFB 1200-2	Kern & Sohn GmbH	WF123503

*1: Equipment of PHOENIX TESTLAB GmbH

*2: Equipment of FT-TEC Technology GmbH

7 Report History

Report Number	Date	Comment
DFT15161014	21 November 2014	Document created
DFT15161014	21 November 2014	Reviewed
DFT15161014	21 November 2014	Signed

8 Annex

8.1 Test equipment and ancillaries

8.1.1 Laser Rangefinder

8.1.2 AIS Class B Transceiver

8.1.3 Scale


KERN
PFB 1200-2
Max 1200 g
DC 12V 500mA
Ser.No.:WF123503
d = 0.01 g
Kern & Sohn GmbH, D-72336 Balingen,Germany
www.kern-sohn.com
CE

8.2 Test setups

8.2.1 Falkensteinwand

8.2.2 Test setup drop test on hard surfacer