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Report On

Limited Environmental Approval Testing of the
em-trak Marine Electronics Ltd
Class B AIS B100
In accordance with IEC 62287-1

Document 75912008 Report 02 Issue 1 March 2011

Product Service

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REPORT ON

Limited Environmental Approval Testing of the
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Class B AIS B100
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Document 75912008 Report 02 Issue 1

March 2011

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DATED

10 Marc h2011

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SECTION 1

REPORT SUMMARY

Limited Approval Testing of the
em-trak Marine Electronics Ltd B100
in accordance with IEC 62287-1

1.1 INTRODUCTION

The information contained in this report is intended to show limited verification of the Approval Testing of the em-trak Marine Electronics Ltd B100 to the requirements of IEC 62287-1.

Objective	To perform Type Approval Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Manufacturer	em-trak Marine Electronics Ltd
Model Number(s)	B100
Serial Number(s)	Not serialised. TUV REF: 75912008-TSR0022
Number of Samples Tested	One
Test Specification/Issue/Date	IEC 62287-1: Ed 2 2010 IEC 60945: 2002
Order Number Date	1715 02 December 2010
Start of Test	09 February 2011
Finish of Test	15 February 2011
Name of Engineer(s)	S Dennison S Mooney

1.2 BRIEF SUMMARY OF RESULTS

A brief summary of the tests carried out in accordance with IEC 62287-1 is shown below.

Section	Spec Clause	Test Description	Result	Comments
2.1	9.1	Dry Heat (Storage)	Satisfactory	-
2.2	9.1	Dry Heat (Functional)	Satisfactory	-
2.3	9.1	Damp Heat	Satisfactory	-
2.4	9.2	Vibration	Satisfactory	-

1.3 DECLARATION OF BUILD STATUS

Manufacturer	em-trak Marine Electronics Ltd
Country of origin	England
UK Agent	SRT Marine Technology Ltd
Technical Description	Class B CSTDMA AIS Transponder
Model No	B100
Part No	411-0002
Serial No	01
Drawing Number	LD3566
Build Status	Mod 0
Software Issue	1295_07FEB2011
FCC ID	N/A

Signature	Nathan Emery
Date	17th February 2010

Note: This document has been prepared to enable manufacturers with no mechanism for producing their own Declaration of Build Status, to declare the build state of the equipment submitted for test.

No responsibility will be accepted by TÜV SÜD Product Service as to the accuracy of the information declared in this document by the manufacturer.

1.4 PRODUCT INFORMATION

1.4.1 Technical Description

The Equipment Under Test (EUT) was a em-trak Marine Electronics Ltd B100 as shown in the photograph below. A full technical description can be found in the manufacturer's documentation.

Equipment Under Test

1.5 DEVIATIONS FROM THE STANDARD

No deviations from the applicable test standards or test plan were made during testing.

1.6 MODIFICATION RECORD

The table below details modifications made to the EUT during the test programme. The modifications incorporated during each test are recorded on the appropriate test pages.

Modification State	Description of Modification still fitted to EUT	Modification Fitted By	Date Modification Fitted
0	As supplied by the customer	N/A	N/A
1	External connections to the serial port were permanently 'potted' by high temperature setting glue as the standard connector was not available.	SRT Marine Limited	15 February 2011

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SECTION 2

TEST RESULTS

Limited Approval Testing of the
em-trak Marine Electronics Ltd B100
in accordance with IEC 62287-1

2.1 DRY HEAT (STORAGE)

2.1.1 Specification Reference

IEC 62287-1, Clause 9 (IEC 60945 Clause 8.2.1 with variation as detailed in IEC 62287-1)

2.1.2 Equipment Under Test

Class B AIS B100: TUV ref: 75912008-TSR0022

2.1.3 Date of Test and Modification State

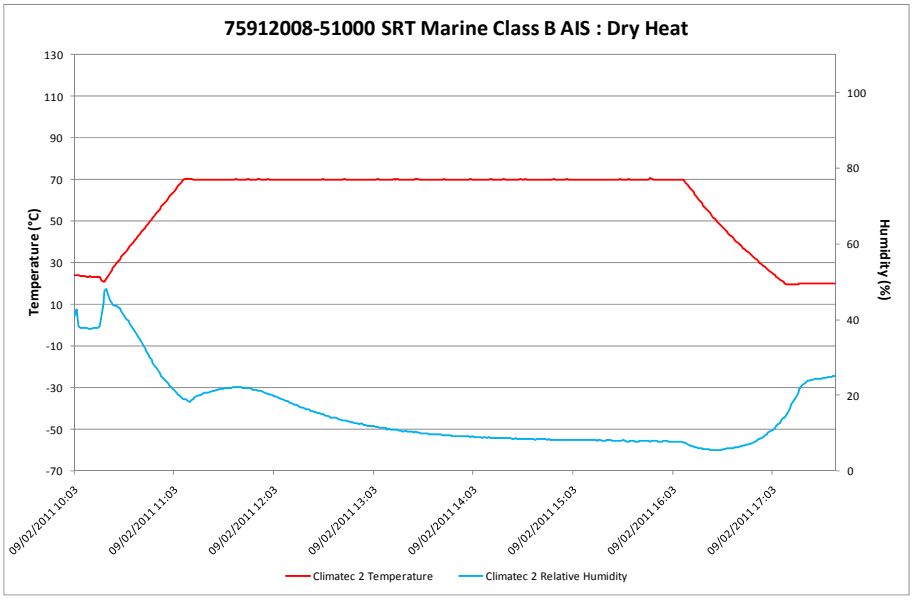
09 February 2011 - Modification State 0

2.1.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

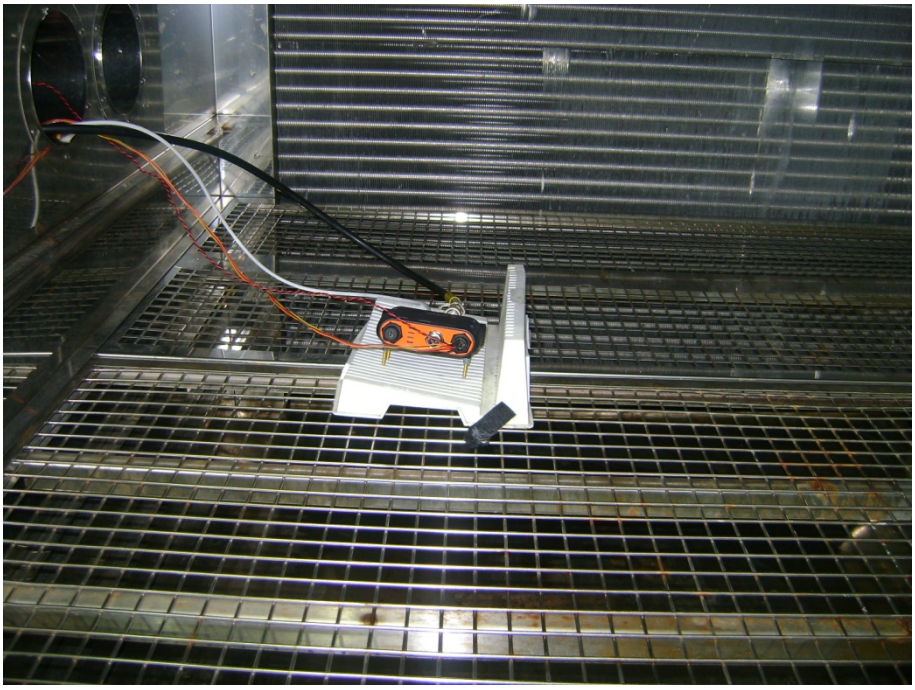
2.1.5 Test Procedure

The EUT was placed in the environmental chamber at laboratory ambient conditions. The temperature of the chamber was then raised to +70 °C. The temperature of the chamber was maintained for a period of 5 hours after which time the temperature of the chamber was returned to lab ambient. The performance check was then carried out.



2.1.6 Test Set-up and Operating Modes

The test was performed with the EUT in the following mode(s): Idle.



Test Set-up – Dry Heat (Storage)

2.1.7 Test Results

Performance Check

The customer declared that the post test performance check was carried out satisfactorily.

2.2 DRY HEAT (FUNCTIONAL)

2.2.1 Specification Reference

IEC 62287-1, Clause 9 (IEC 60945 Clause 8.2.2)

2.2.2 Equipment Under Test

Class B AIS B100: TUV ref: 75912008-TSR0022

2.2.3 Date of Test and Modification State

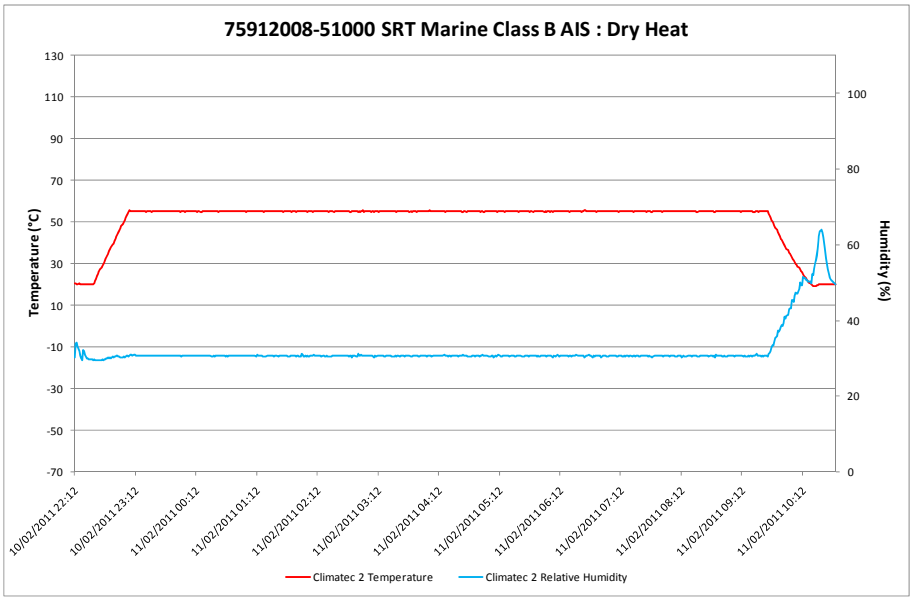
10 to 11 February 2011 - Modification State 0

2.2.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

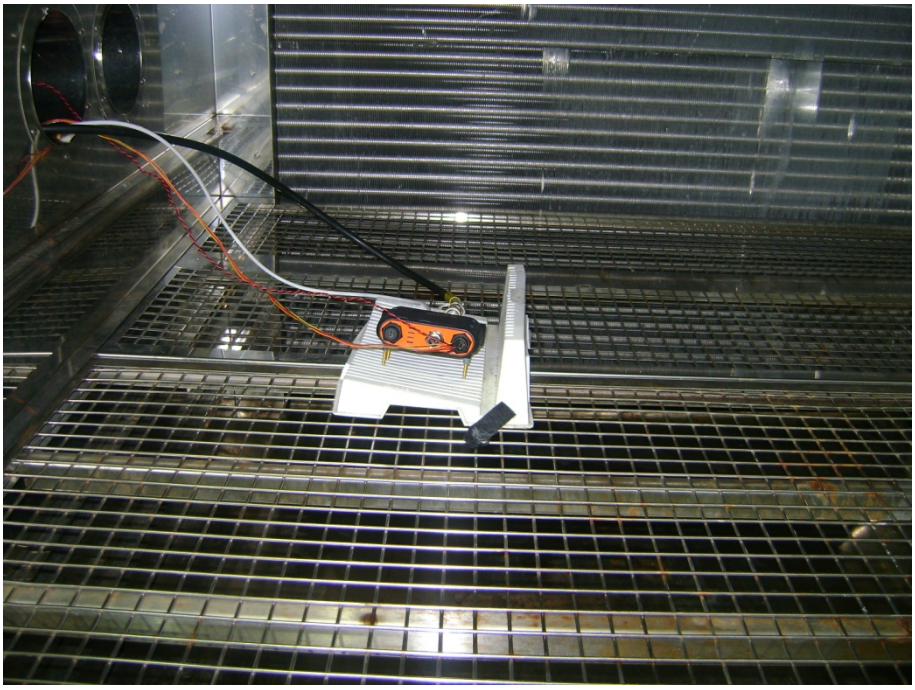
2.2.5 Test Procedure

The EUT was placed in the environmental chamber at laboratory ambient conditions and switched on. The temperature of the chamber was then raised to +55 °C for a period of 10 hours. The performance check was then carried out whilst at temperature. Following completion of the performance check the chamber conditions were returned to laboratory ambient.



2.2.6 Test Set-up and Operating Modes

The test was performed with the EUT in the following mode(s): Active.



Test Set-up – Dry Heat (Functional)

2.2.7 Test Results

Performance Check

The customer declared that the performance check was carried out satisfactorily whilst at temperature.

2.3 DAMP HEAT

2.3.1 Specification Reference

IEC 62287-1, Clause 9 (IEC 60945 Clause 8.3)

2.3.2 Equipment Under Test

Class B AIS B100: TUV ref: 75912008-TSR0022

2.3.3 Date of Test and Modification State

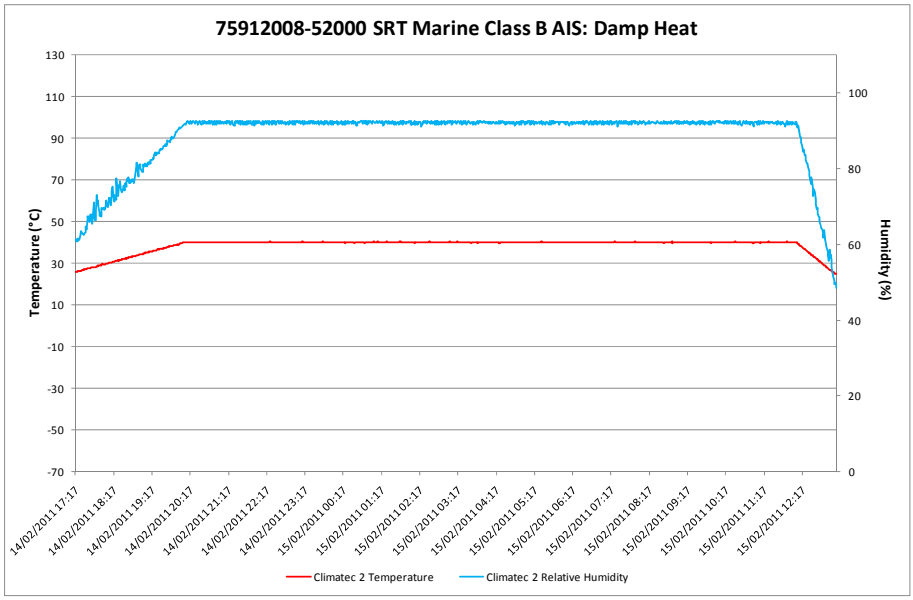
14 to 15 February 2011 - Modification State 0

2.3.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.3.5 Test Procedure

The EUT was placed in the environmental chamber at laboratory ambient conditions. The temperature of the chamber was then raised to +40 °C and the relative humidity raised to 93% over a period of 3 hours. The conditions were maintained for a period of 13.5 hours after which time the performance check was carried out. The EUT continued to operate for a period of 2 hours and 20 minutes. Once the performance check was complete the chamber conditions were returned to laboratory ambient.



2.3.6 Test Set-up and Operating Modes

The test was performed with the EUT in the following mode(s): Idle.

Test Set-up – Damp Heat

2.3.7 Test Results

Performance Check

The customer declared that the performance check was carried out satisfactorily during the operational period.

2.4 VIBRATION

2.4.1 Specification Reference

IEC 62287-1 Clause 9.2

2.4.2 Equipment Under Test

Class B AIS B100: TUV ref: 75912008-TSR0022

2.4.3 Date of Test and Modification State

11 February 2011 - Modification State 0 (vertical axis)
15 February 2011 - Modification State 1 (longitudinal and lateral axes)

2.4.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.4.5 Test Procedure

The EUT was fixed to the vibration table and was subject to the following vibration profile:

– 5 Hz and up to 13.2 Hz with an excursion of ±1 mm (7 m/s2 maximum acceleration at 13.2 Hz);
– above 13.2 Hz and up to 100 Hz with a constant maximum acceleration of 7 m/s2.

The sweep rate was 0.2 octaves / minute.

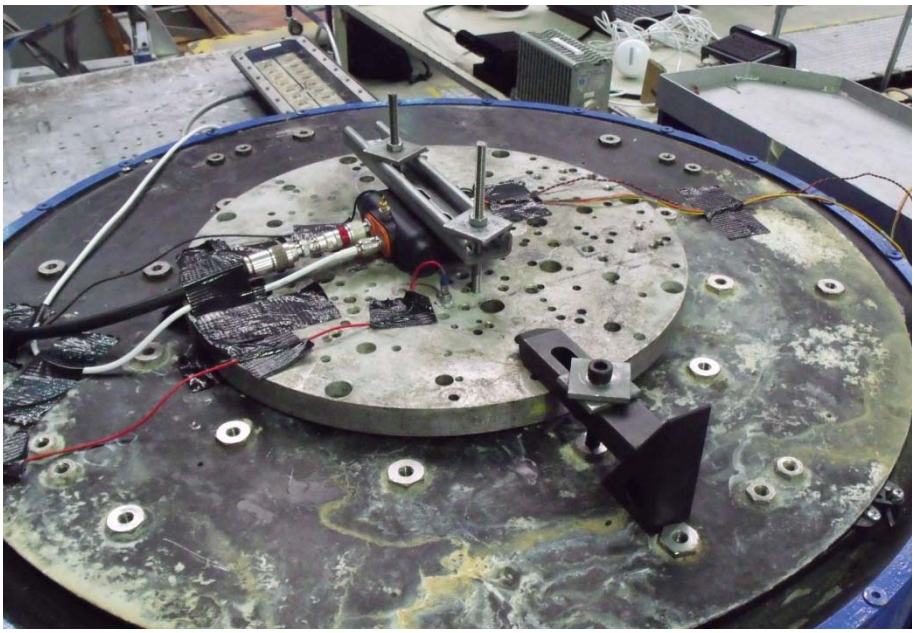
One sweep cycle was performance consisting of 2Hz to 100Hz to 2Hz.

The test above was then repeated with the EUT installed in each axis.

The equipment was operational throughout the test.

2.4.6 Test Set-up and Operating Modes

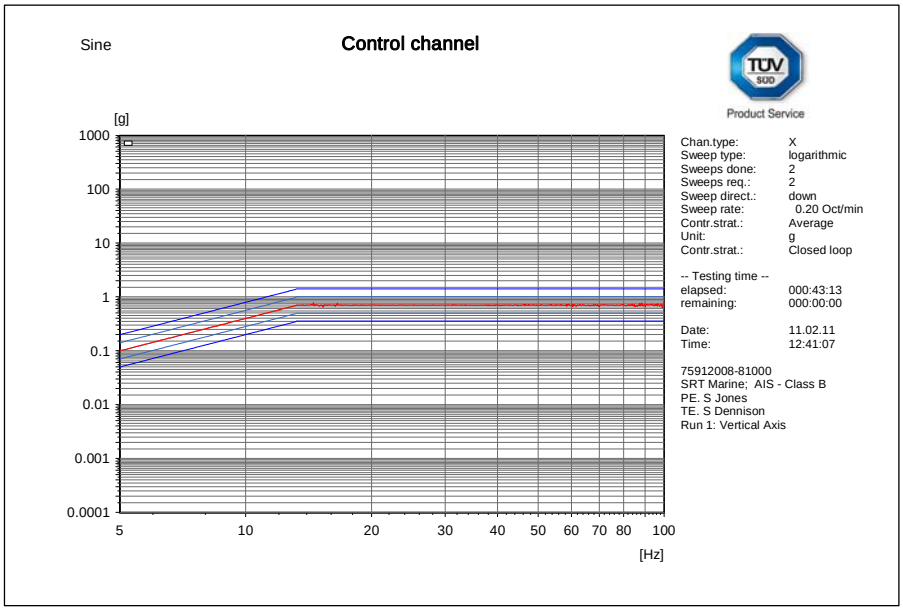
The test was performed with the EUT in the following mode(s): Powered.



Test Set-up – Vibration (vertical axis)

2.4.7 Test Results

Vertical Axis – Resonance Search



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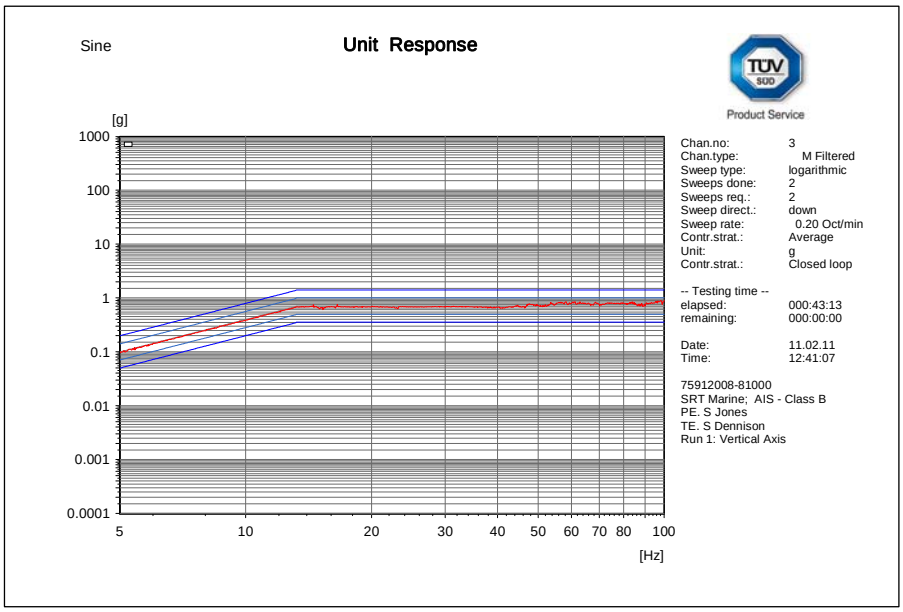

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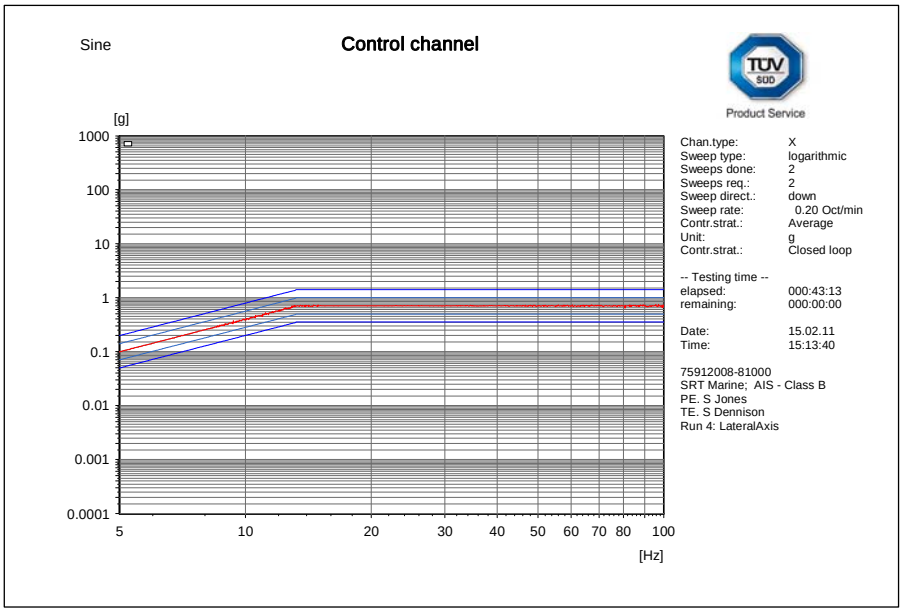
Lateral Axis – Endurance Run



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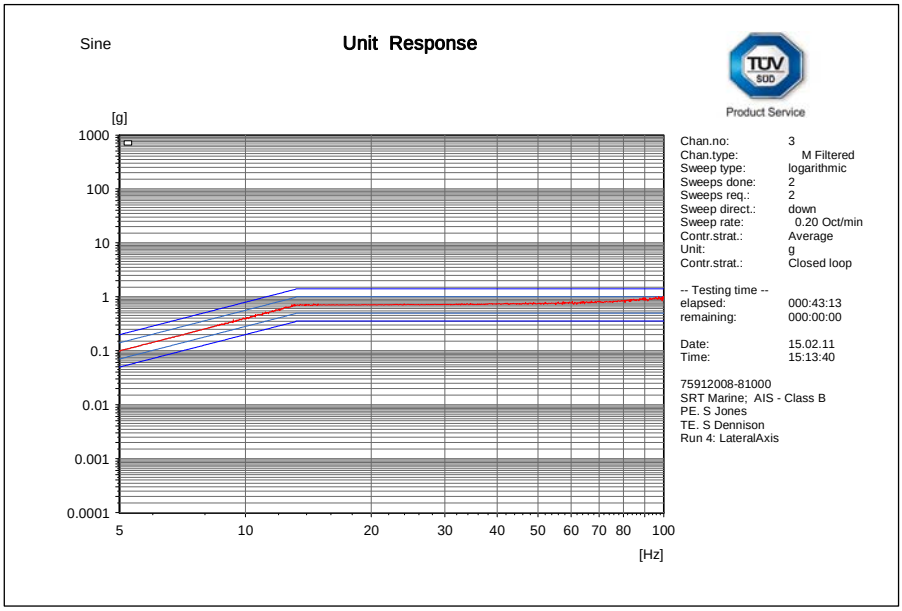

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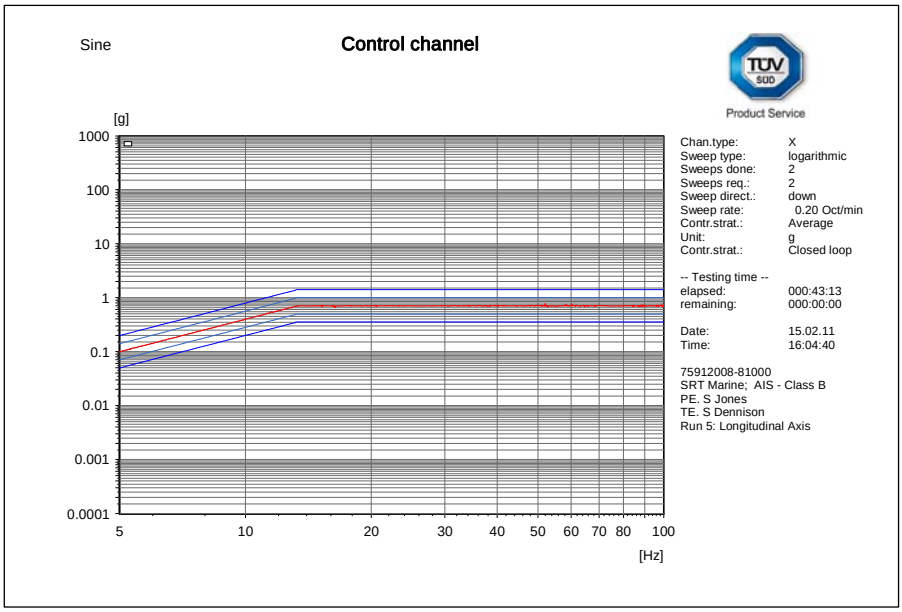
Longitudinal Axis – Resonance Search



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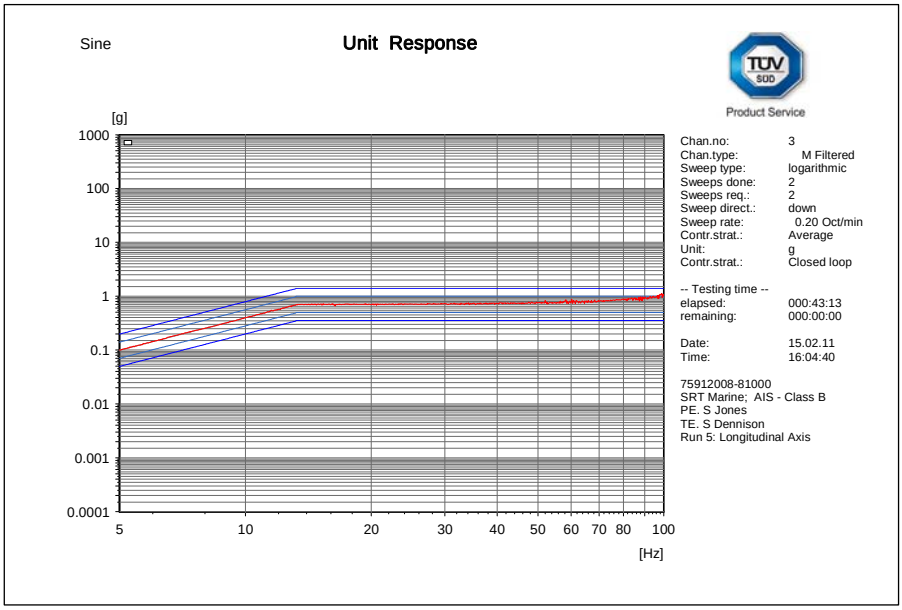

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Performance Check

The customer declared that the performance check was carried out satisfactorily during each axis.

SECTION 3

TEST EQUIPMENT USED

3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Section 2.1, 2.2, 2.3 Climatic – Dry Heat and Damp Heat					
Chamber	Climatec	CLIMATEC 2	2845	12	20-Dec-2011
Section 2.4 Vibration - Sine					
Vibrator	Derritron	VP400	2286	6	23-May-2011
Isotron Accelerometer	Endevco	256-10	3114	6	12-Jul-2011
Isotron Accelerometer	Endevco	256-10	3382	6	14-Jul-2011
Vibration & Shock Controller	Muller & Partner	VibPilot VP8	3730	12	26-Aug-2011

SECTION 4

PHOTOGRAPHS

4.1 PHOTOGRAPHS OF EQUIPMENT UNDER TEST (EUT)

Equipment under test

SECTION 5

ACCREDITATION, DISCLAIMERS AND COPYRIGHT

5.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

This report relates only to the actual item/items tested.

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation.

Results of tests not covered by our UKAS Accreditation Schedule are marked NUA (Not UKAS Accredited).

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