
Test Report Number: 123456 Issue 1

Customer Name & Address: Company Name Ltd
Industrial Estate
Cambridge
WY1 2YZ

Customer Order Number: PO987654-1

Test Item(s) Description: Electronic Control Unit

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8th August 2010

*The results detailed herein relate only to the test item(s) submitted for testing.
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.*

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1 Introduction

This report details the environmental testing carried out on two Electronic Control Units, as supplied by Company Name Ltd.

The test items were subjected to the environmental tests detailed in Section 4 of this report, following the guidelines of the defined environmental test standards.

The testing was performed between 1st and 7th August 2010.

2 Equipment List

Description:	Serial No:	Calibration Due:
VT 7012 S2 Thermal Shock Chamber	524/79175	1 st May 2010
G&W V2644 Shaker	03_A6Q_17443	20 th March 2010
G&W D5A4-24K Amplifier	03_A6Q_17444	n/a
Data Physics Vibration Controller	5148	15 th February 2010
352B10 Accelerometer	44487	17 th April 2010

Table 1: Equipment List**3 Test Item Serial Numbers**

Description:	Part Nos:	Serial Nos:
Electronic Control Unit	ABC123	Test001
Electronic Control Unit	ABC123	Test002

Table 2: Test Item Serial Numbers

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4 Test Plan

Table 3 and Table 4 define the environmental test profiles to which the test items were subjected.

4.1 Thermal Shock

Reference Standard:	BS EN 60068-2-14: 2009: Test Na: Change of Temperature
Severities:	-40°C to +120°C
Dwell Times:	60 minutes
Transition Time:	< 10 seconds
Duration:	50 cycles

Table 3: Thermal Shock

4.2 Random Vibration

Reference Standard:	RTCA DO-160E: Section 8.7.2
Profile:	Robust Vibration Test Procedure: Fixed Wing Aircraft
Severities:	Profile E1
	10Hz 0.040g ² /Hz
	28Hz 0.040g ² /Hz
	40Hz 0.080g ² /Hz
	100Hz 0.080g ² /Hz
	200Hz 0.160g ² /Hz
	500Hz 0.160g ² /Hz
	2000Hz 0.011g ² /Hz
Duration:	3 hours in each of three mutually perpendicular axes

Table 4: Random Vibration

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5 Test Results

5.1 Thermal Shock

Figure 1 presents the results of the Thermal Shock test.

The test items were subjected to a total of 50 cycles of the defined test profile, but for clarity, only 5 cycle are shown.

The chamber enables the work zones to be pre-conditioned at a level above/below the defined Hot/Cold severities to reduce the effects of the test item cage thermal inertia as it enters the work zone. In this instance, the pre-conditioning levels were $\pm 10^{\circ}\text{C}$.

Functional verification testing was the responsibility of the customer, the results of which do not form part of this test report.

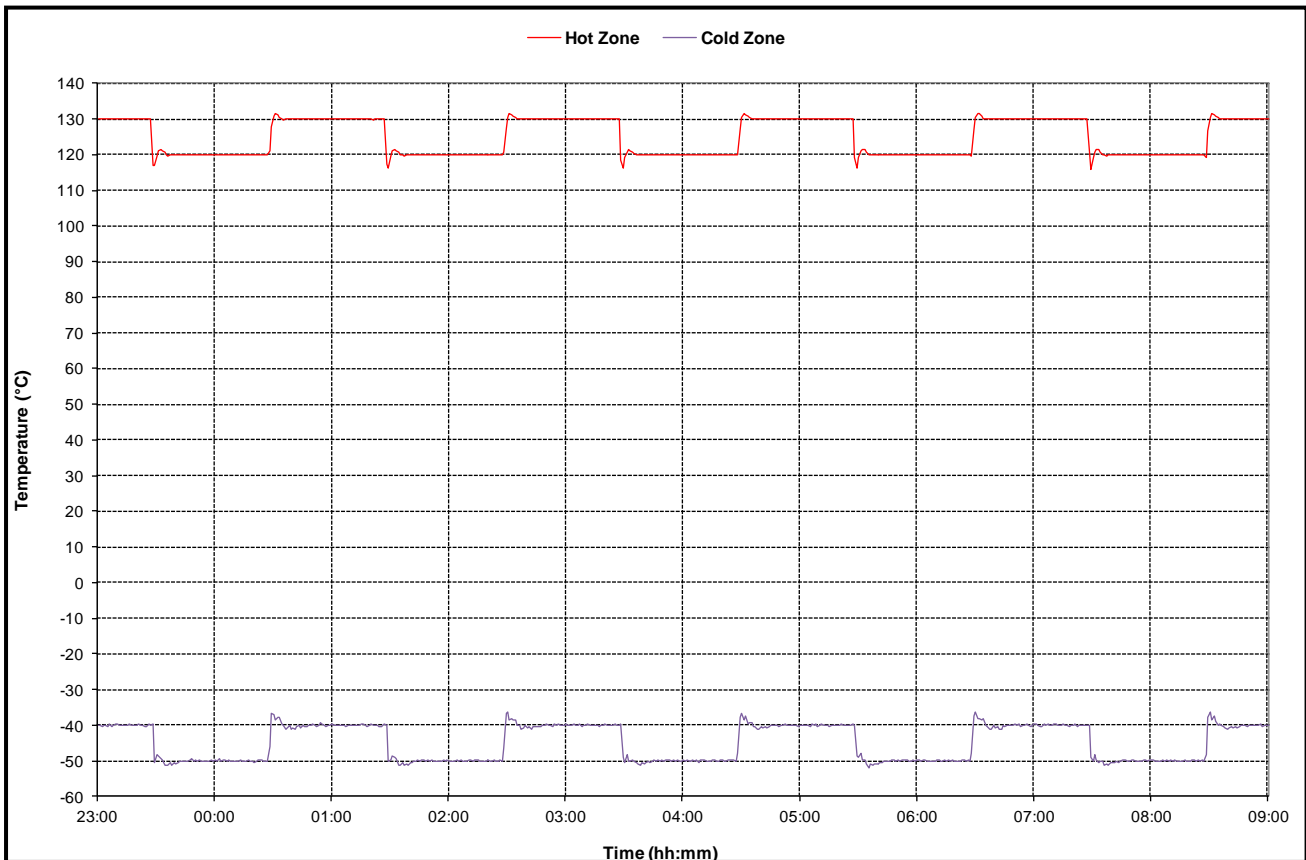


Figure 1: Thermal Shock Profile

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5.2 Random Vibration

Figure 2 presents the results of the Random Vibration test.

The test items were subjected to the defined test profile for 3 hours in each of three mutually perpendicular axes.

Functional verification testing was the responsibility of the customer, the results of which do not form part of this test report.

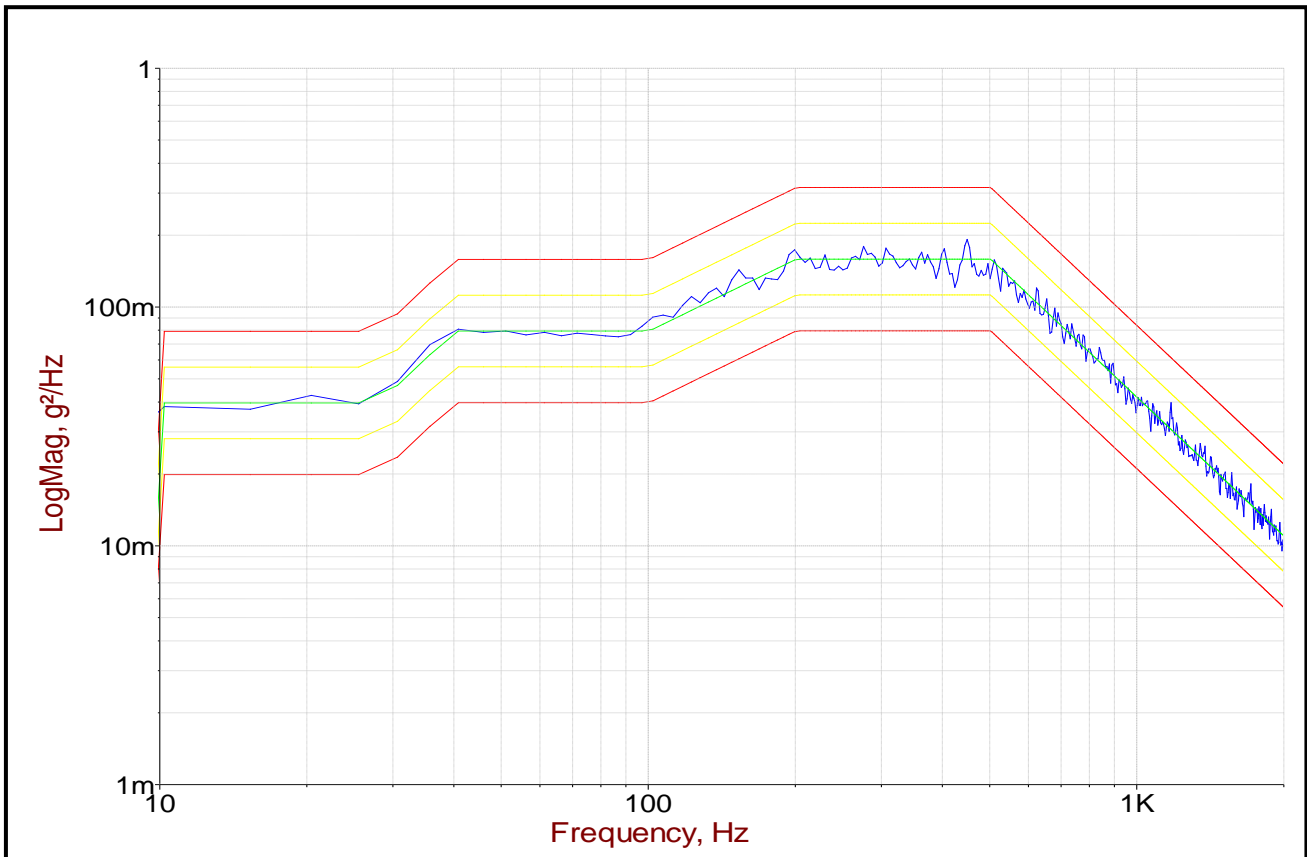


Figure 2: Vibration Profile

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5.3 Test Item Mounting

Figure 3 and Figure 4 depict the mounting of the test items during the applied tests.

The test items were positioned on a chamber shelf for the Thermal Shock test and mounted via their in-service mounting holes for the Random Vibration test.

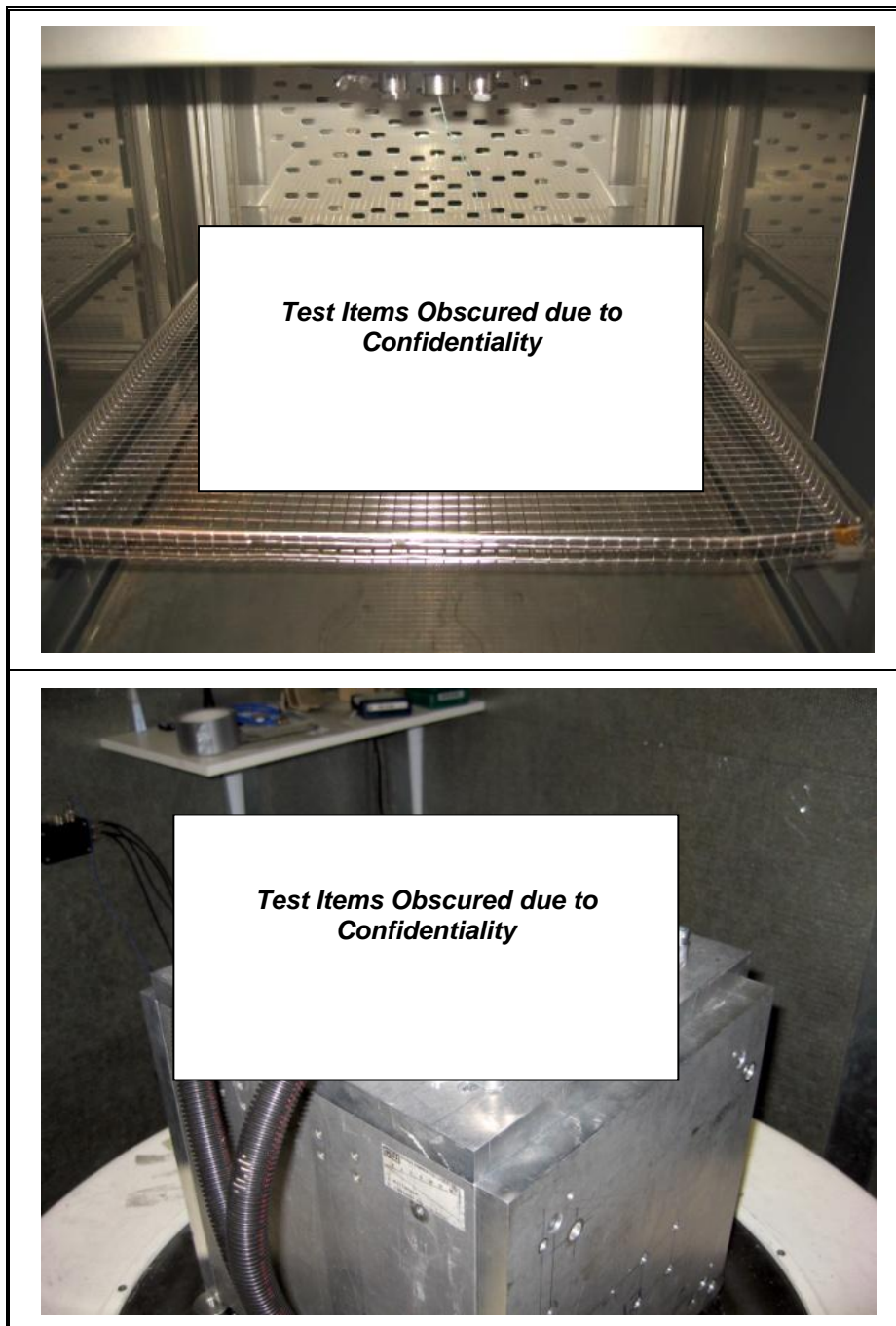


Figure 3: Test Item Mounting: Thermal Shock and Random Vibration Z Axis

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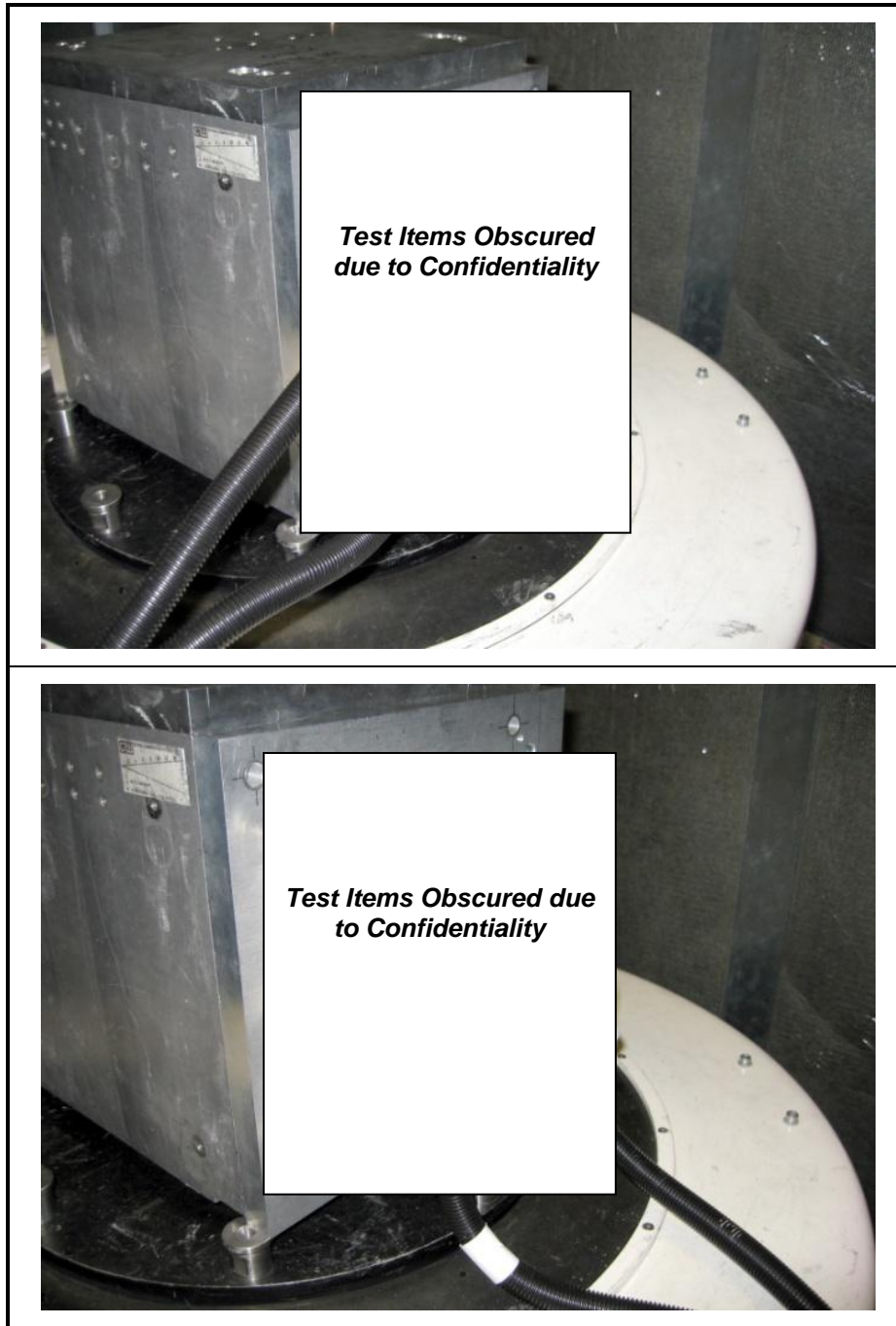


Figure 4: Test Item Mounting: Random Vibration X & Y Axes

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6 Conclusions

The detailed tests were performed in accordance with the requirements of the defined environmental test standards.

Functional verification testing was the responsibility of the customer, the results of which do not form part of this test report.

7 Document Revision History

Revision Level	Summary of Changes
1	Initial Release

Table 5: Revision History

END OF REPORT