NTS Labs, LLC Test Report for Environmental Testing of the Ethernet Switch Box

Prepared For
Amphenol Aerospace | 40-60 Delaware Ave | Sidney, NY 13838

Prepared By
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Revision History

Rev.	Description	Issue Date
0	Initial Release	October 26, 2022
1	Added operational statement to page 4 (section 3) and 5 (section 5)	January 23, 2023

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List of Tables

1.0 Introduction

This document presents the test procedures used and the results obtained during the performance of an Environmental test program. The test program was conducted to assess the ability of the specified Equipment Under Test (EUT) to successfully satisfy the requirements listed in Section 2.0.

2.0 References

The following references listed below form a part of this document to the extent specified herein.

- Test Specification: Amphenol Aerospace, Document No. L-4-0978-192, Revision A, *Qualification Test Plan and Procedure for Ethernet Switch Part No. CF-020400-062,* dated 08/01/2022
- Test Specification: Amphenol Aerospace, TP 19CD0002, Revision NC, dated 03/15/2019
- Amphenol Aerospace Purchase Orders 441971, dated 09/02/2022, Signed COS, dated 08/26/2022
- NTS Labs, LLC Quote OP0622062-0, dated 07/22/2022
- ISO/IEC 17025:2017(E) *General Requirements for the Competence of Testing and Calibration Laboratories,* dated 11/1/2017

3.0 Product Selection and Description

Amphenol Aerospace selected and provided the following test sample to be used as the Equipment Under Test:

Table 3.0-1: Product Identification - Equipment Under Test (EUT)

Item	Qty.	Name/Description	Part Number	Serial Number
1	1	Ethernet Switch Box	CF-020400-06	N/A

Mode of Operation during the performance of all testing specified herein, the equipment under test (EUT) was energized and establishing and maintaining links on all ports.

3.1 Security Classification

Non-classified

4.0 General Test Requirements

4.1 Test Equipment

The instrumentation used in the performance of these tests is periodically calibrated and standardized within manufacturer's rated accuracies and are traceable to the National Institute of Standards and Technology. The calibration procedures and practices are in accordance with ISO 17025:2017. Certification of calibration is on file subject to inspection by authorized personnel.

5.0 Test Descriptions and Results

Table 5.0-1: Summary of Test Information & Results

Section	Test	Specification	Test Facility	Test Date	Part #	Serial #	Test Result
5.1	Acceleration	19CD0002, Paragraph 3.14.3	Tinton Falls	August 30, 2022	CF-020400-06	N/A	Passed
5.2	Temperature/Altitude	L-40978-192, Revision A, Paragraph 5.3.1	Tinton Falls	October 13 – 17, 2022	CF-020400-06	N/A	Passed

The decision rule for Test Results was based on the Test Information provided by the customer.

Mode of Operation during the performance of all testing specified herein, the equipment under test (EUT) was energized and establishing and maintaining links on all ports.

5.1 Acceleration

5.1.1 Test Procedure

The EUT was tested according to the requirements of customer provided test procedure TP 19CD0002, Revision NC, Paragraph 3.14.3.

5.1.2 Test Result

Test Result: The EUT passed.

5.1.3 Test Datasheets

GENERAL LOG SHEET

Job Number:	PR163842		**Date:**	8/30/22	**Page** 1 **of** 1
Client:	Amphenol Aerospace				
Test:	Acceleration		**Test Item:**	Ethernet Switch Box	
Specification:	19CD0002		**Model or P/N:**	CF-020400-06	
Para./Sect.:	Section 3.14.3		**S/N(s):**	N/A	

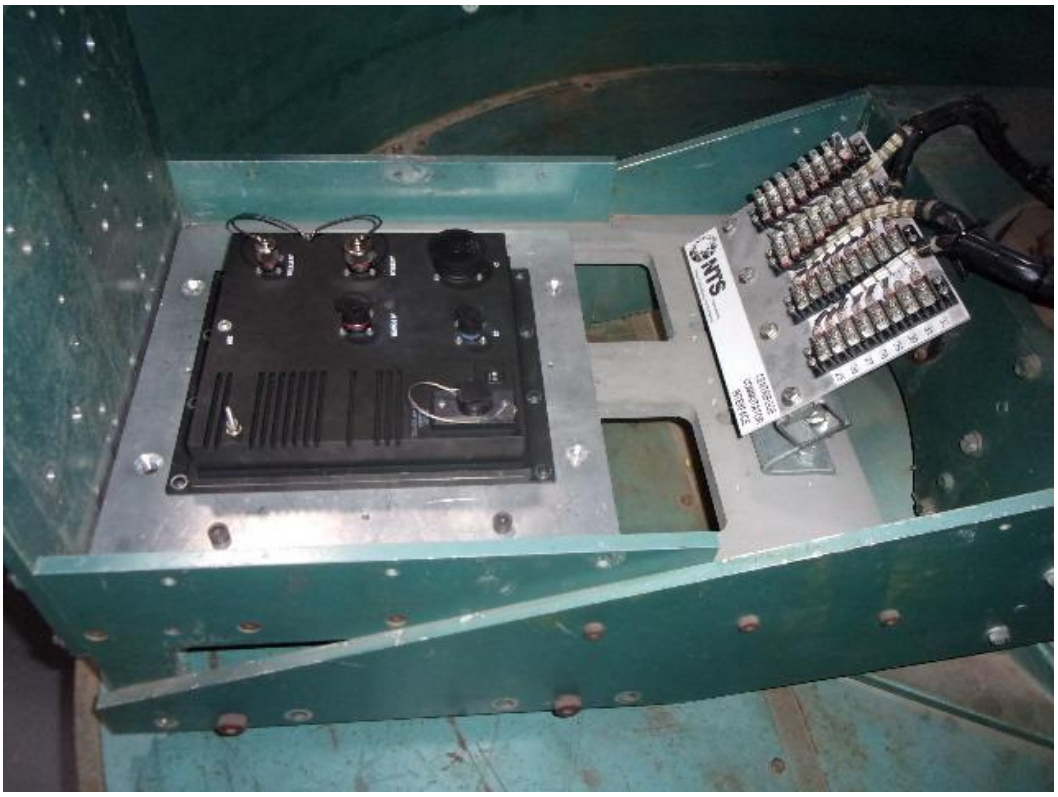
Date	Time	Log Entries	Init.
8/30	8:40	Performed Y axis + acceleration at 8g's for 3 seconds	BP
8/30	9:00	Performed Y axis - acceleration at 8g's for 3 seconds	BP
8/30	9:25	Performed X axis + acceleration at 8g's for 3 seconds	BP
8/30	9:45	Performed X axis - acceleration at 8g's for 3 seconds	BP
8/30	10:30	Performed Z axis + acceleration at 8g's for 3 seconds	BP
8/30	11:30	Performed Z axis - acceleration at 8g's for 3 seconds	BP
8/30	11:35	Completed Testing - Pass	BP

Test Performed By: Brian Pasznik

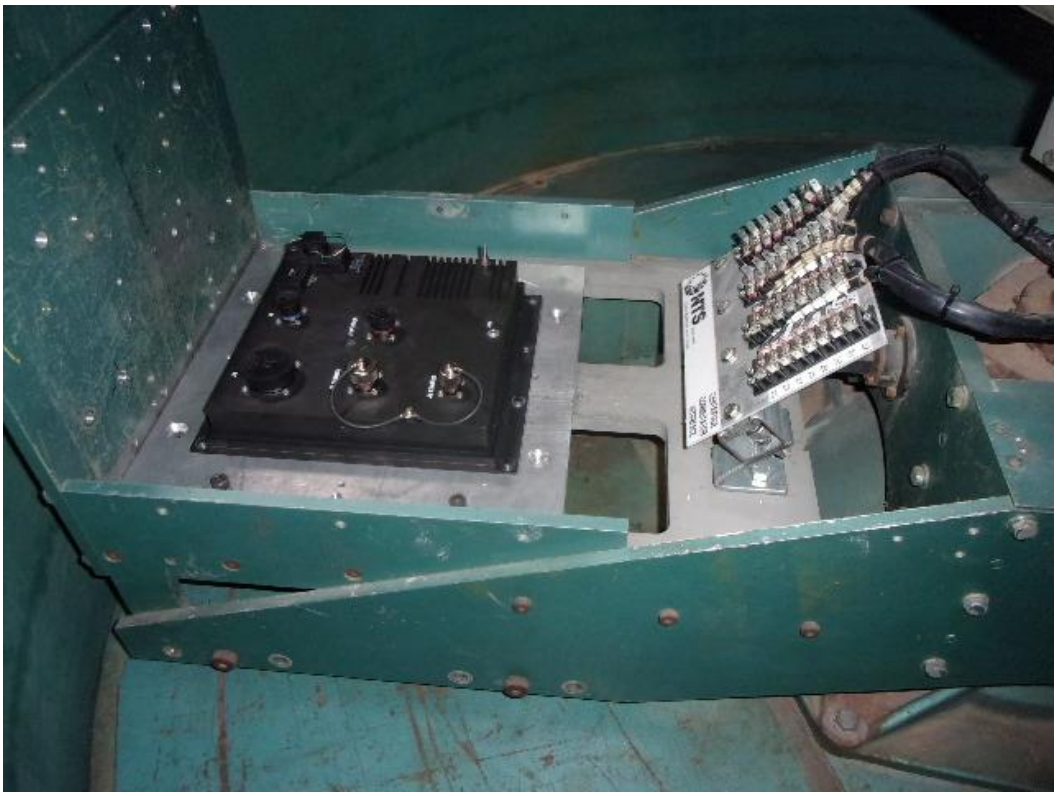
5.1.4 Test Photographs

Y Axis +

Y Axis -



X Axis +



X Axis -

Z Axis +

Z Axis -

5.1.5 Test Data

TEST PROFILE **PR- 163842**

Customer Name:	Amphenol Aerospace	Unit(s) Under Test:	Ethernet Swtich Box
Test Name:	Acceleration	Quantity:	1
Specification:	19CD0002	P/N(s):	CF-020400-06
Spec. Date	N/A	S/N(s):	N/A
Para. / Method:	Section 3.14.3		

RPM= $\sqrt{(35000 * G's) / radius}$

Direction	G Level	Radius (in)	RPM
Lateral +	8	24	110
Lateral -	8	24	110
Longitudinal +	8	24.75	108
Longitudinal -	8	24.5	109
Vertical +	8	28.75	101
Vertical -	8	30.5	98
Duration	3 Seconds		

TEST SETUP AND RESULTS

Test Started:	8/30/2022	Test Completed:	8/30/2022

Unit Under Test Information	Y	N	N/A	Comments
Tested in shipping container:		X		
Operating during test:		X		
Operated by Client:		X		
Powered during testing:		X		
Passes post-test functionals:	X			
Physical damage noted:		X		
Does unit(s) pass requirements:	X			

Test Technician:	Brian Pasznik

5.1.6 Test Equipment List

Table 5.1-1: Acceleration Test Equipment List

Asset Number	Asset Type	Manufacturer	Model	Calibrated	Due
WC005473	Centrifuge	National Technical Systems	NTS1	NCR	NCR

Calibration Abbreviations
CAL: Calibration
NCR: No Calibration Required

5.2 Temperature/Altitude

5.2.1 Test Procedure

The EUT was tested according to the requirements of the customer provided test procedure L-4-0978-192, Revision A, Paragraph 5.3.1.

5.2.2 Test Result

Test Result: The EUT passed.

5.2.3 Test Datasheets

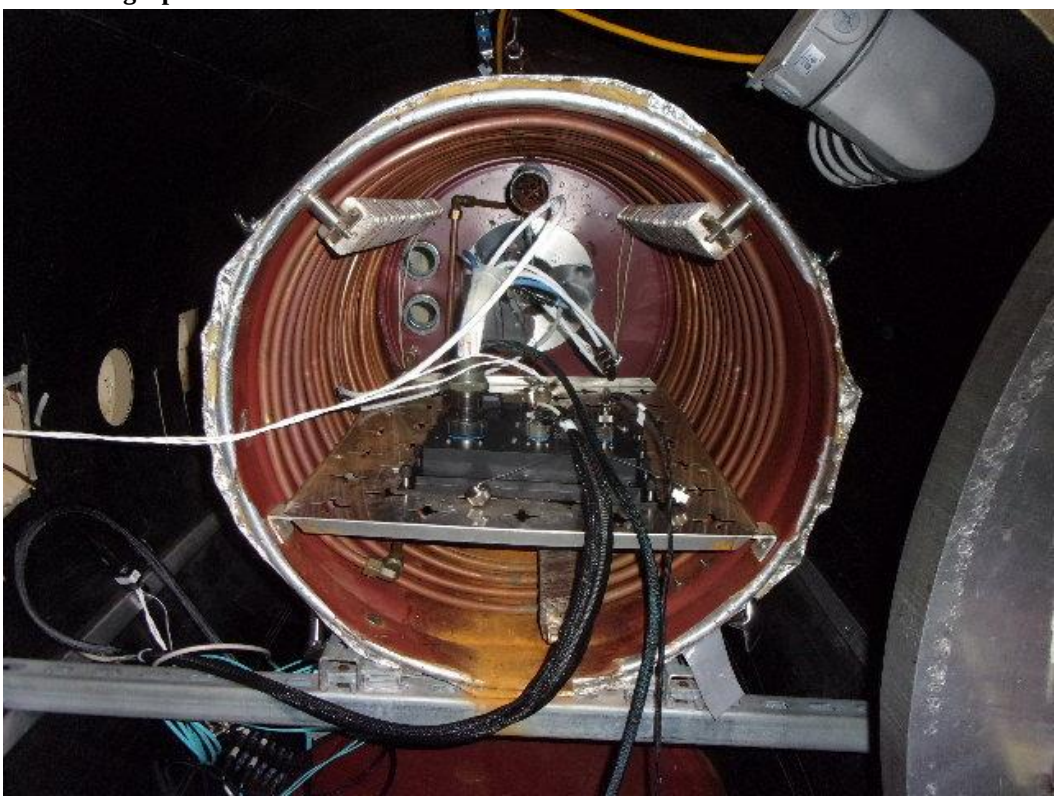
GENERAL LOG SHEET

Job Number:	PR163842		**Date:**	10/13/22-10/17/22	**Page** 1 **of** 1
Client:	Amphenol Aerospace				
Test:	Temperature/Altitude		**Test Item:**	Ethernet Switch Box	
Specification:	TP L-40978-192		**Model or P/N:**	CF-020400-06	
Para./Sect.:	Section 5.3.1		**S/N(s):**	N/A	

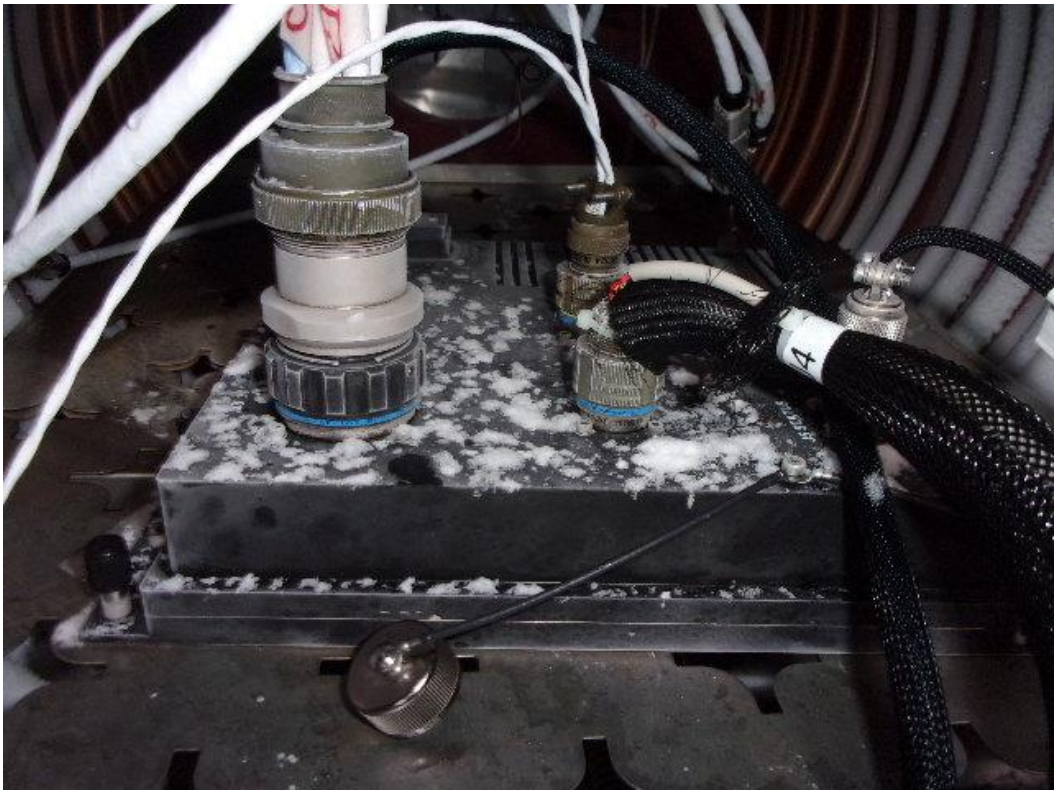
Date	Time	Log Entries	Init.
10/13	14:15	Started temperature/altitude profile	BP
10/17	4:48	Completed Testing – Pass	BP

Test Performed By: Brian Pasznik

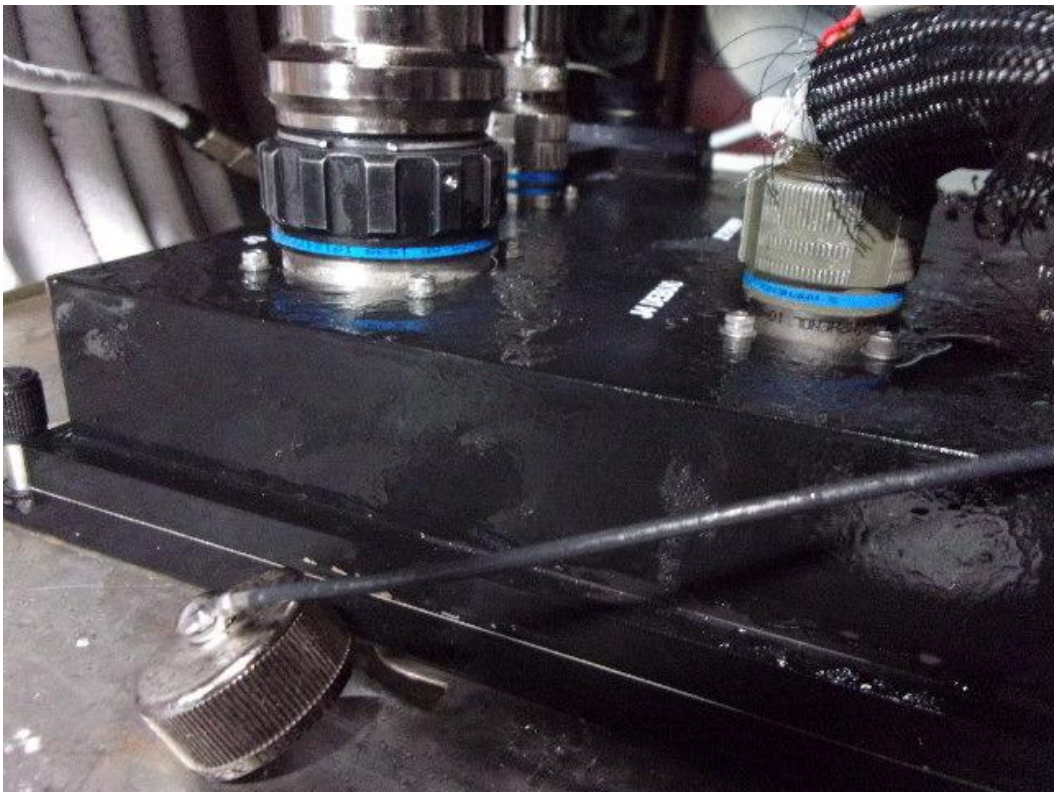
5.2.4 Test Photographs



Temperature-Altitude

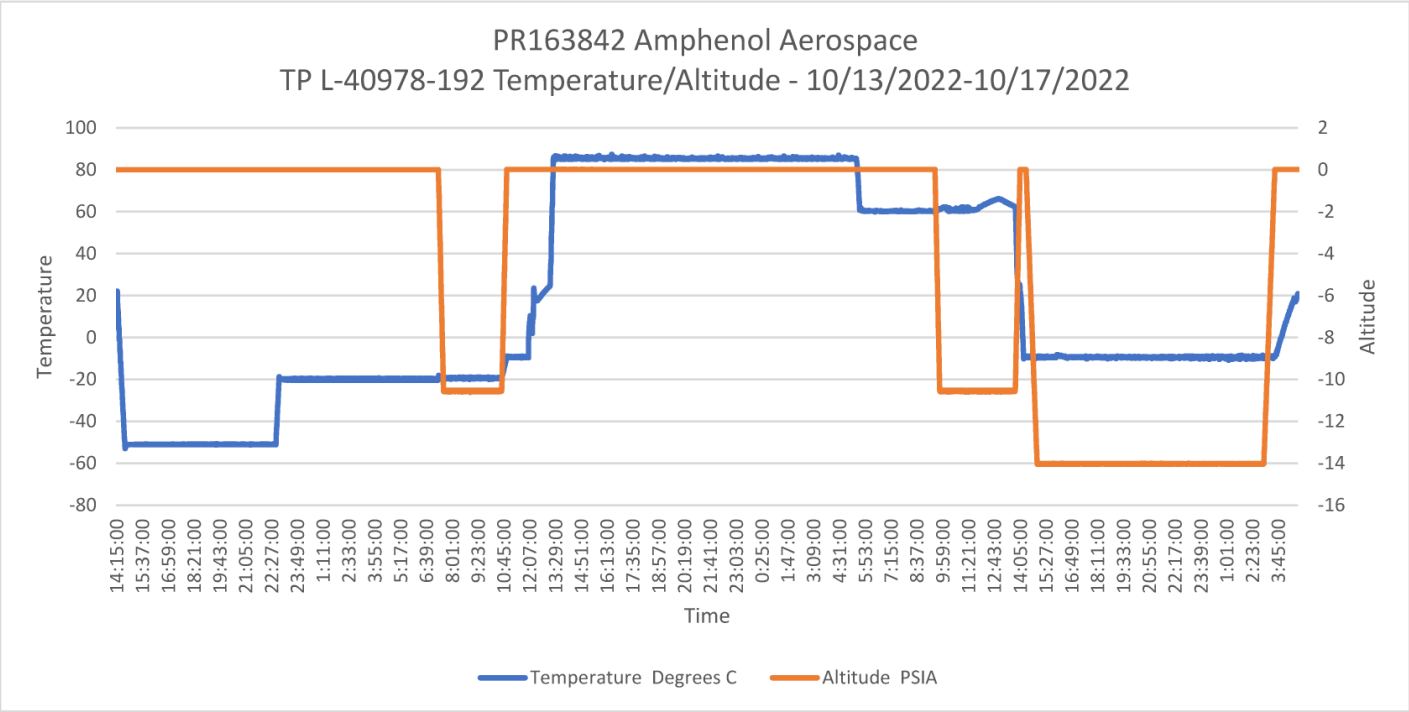


Frost



Melted Frost

5.2.5 Test Data



5.2.6 Test Equipment List

Table 5.2-1: Temperature/Altitude Test Equipment List

Asset Number	Asset Type	Manufacturer	Model	Calibrated	Due
WC005408	Chamber (Temperature/Altitude)	National Technical Systems	N/A	08/22/2022	08/22/2023
WC058537	Chamber (Temperature/Humidity)	Thermotron	SE1000-6-6	10/10/2022	10/10/2023

Calibration Abbreviations
CAL: Calibration
NCR: No Calibration Required

End of Test Report