



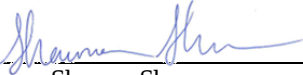
NTS Labs, LLC Test Report for Environmental Testing of the Ethernet Switch Box

Prepared For

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

Prepared By

NTS Labs, LLC | 36 Gilbert Street South | Tinton Falls, NJ 07701 | 732-936-0800 | www.nts.com


Shawna Shea
Technical Writer


Mark Betts
ENV/DYN Project Engineer


Mark Betts
Quality Management Representative

This report and the information contained herein represent the results of testing of only those articles/products identified in this document and selected by the client. The tests were performed to specifications and/or procedures approved by the client. NTS Labs, LLC makes no representations expressed or implied that such testing fully demonstrates efficiency, performance, reliability, or any other characteristic of the articles being tested, or similar products. This report should not be relied upon as an endorsement or certification by NTS Labs, LLC of the equipment tested, nor does it present any statement whatsoever as to the merchantability or fitness of the test article or similar products for a particular purpose. This document shall not be reproduced except in full without written approval from NTS Labs, LLC.

WARNING - This document contains technical data whose export is restricted by the Arms Export Control Act (Title 22, U.S.C., Sec 2751, et q.) or the Export Administration Act of 1979, as amended, Title 50, U.S.C., App. 2401 et seq. Violations of these export laws are subject to severe criminal penalties. Disseminate in accordance with provisions of DoD Directive 5230.25.

Subject to the EAR. This information is subject to the export control laws of the United States, specifically including the Export Administration Regulations (EAR), 15 C.F.R. Part 730 et seq. Transfer, retransfer, or disclosure of this data by any means to a non U.S. person (individual or company), whether in the United States or abroad, without any required export license or other approval from the U.S. Government is prohibited.

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

Table of Contents

1.0	Introduction	4
2.0	References	4
3.0	Product Selection and Description	4
3.1	Security Classification	4
4.0	General Test Requirements	4
4.1	Test Equipment	4
5.0	Test Descriptions and Results.....	5
5.1	Acceleration	6
5.1.1	Test Procedure	6
5.1.2	Test Result	6
5.1.3	Test Datasheets	6
5.1.4	Test Photographs	7
5.1.5	Test Data.....	10
5.1.6	Test Equipment List.....	11
5.2	Temperature/Altitude	12
5.2.1	Test Procedure	12
5.2.2	Test Result	12
5.2.3	Test Datasheets	12
5.2.4	Test Photographs	13
5.2.5	Test Data.....	15
5.2.6	Test Equipment List.....	16

List of Tables

Table 3.0-1: Product Identification - Equipment Under Test (EUT)	4
Table 5.0-1: Summary of Test Information & Results	5
Table 5.1-1: Acceleration Test Equipment List	11
Table 5.2-1: Temperature/Altitude Test Equipment List.....	16



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 Switch 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.

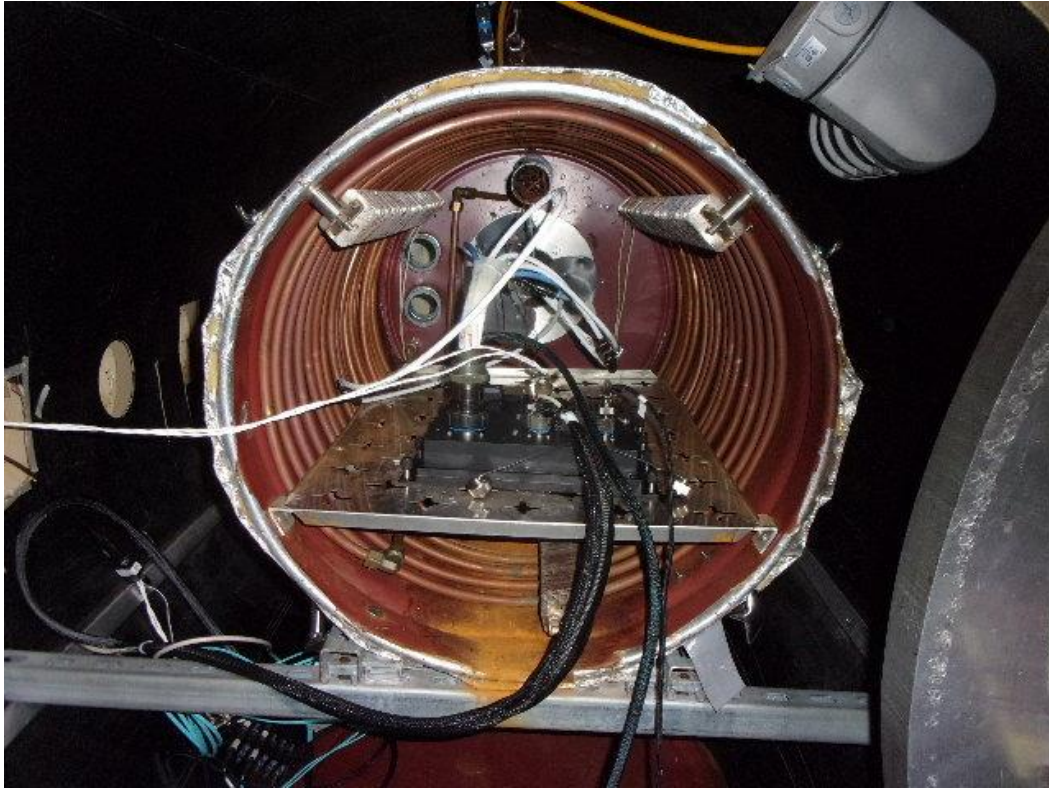
5.2.2 Test Result

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

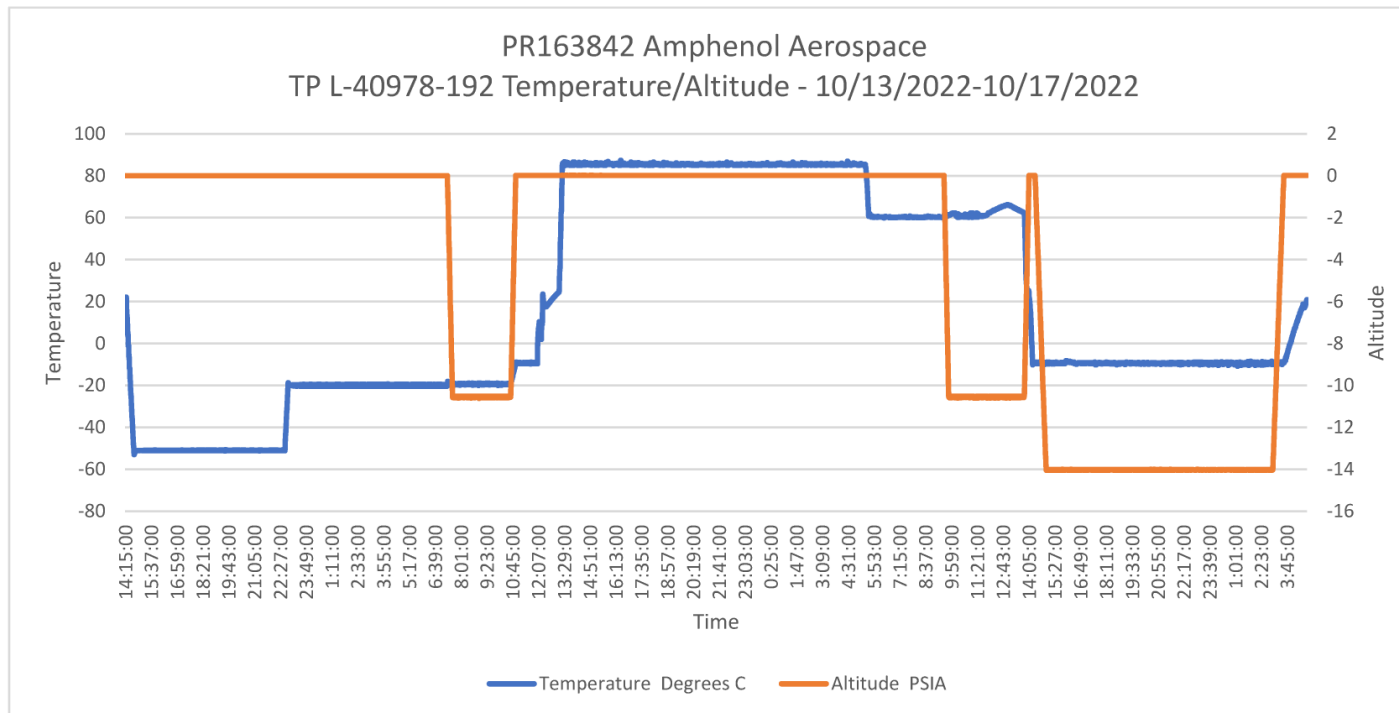


Frost



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