



Glenair Advanced Band Termination System Nano Band Testing

Date 09/17/2014

RDP GT-14-74

Rev. 1

Nano Band

Glenair Part #s: 601-500, 601-501, 601-504, 601-505, 601-508, 601-509

Qualification Test Report

Conducted by:	Preston Clover
Approved by:	Deniz Armani

1. Scope

This qualification test report is to confirm the performance of Glenair Nano Bands when subjected to a full range of environmental testing.

2. Summary of Results

The table below contains a chronological summary of all testing and their results:

QUALIFICATION TEST

Nature of the test	RESULT		
	PASS	WAIVE	FAIL
Initial Shell Conductivity	X		
Thermal Shock	X		
Shell Conductivity	X		
Temperature Life	X		
Shell Conductivity	X		
Braid Retention	X		
Shell Conductivity	X		
Braid Retention to Failure	X		
Initial Shell Conductivity	X		
Vibration	X		
Shell Conductivity	X		

3. Applicable Standards / Specifications

- SAE AS85049C
- SAE AS85049C/128
- MIL-DTL-38999L
- ISO 17025:2005
- EIA-364-83
- EIA-364-28E

4. Description of Samples

- Group 1
 - 15 total test samples numbered 001-008 (Shell size 6) and 001-007(Shell size 16).
- Group 2
 - 12 total test samples numbered 001-006 (Shell size 6) and 007-012 (Shell size 16).



Glenair Advanced Band Termination System Nano Band Testing

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5. Test Item Identification

Test Item Identification Numbers	Band Type	Shell Size	Description of Item Under Test	Group Number	Test Item Qty.
001 to 008	Nano Band	6	Nano Bands (terminated to braid and installed on Receptacle P/N 801-009-07M6-4PA and mated to Plug P/N 801-007-16M6-4SA –Shell Size 6)	1	8
001 to 007	Nano Band	16	Nano Bands (terminated to braid and installed on Receptacle P/N 801-009-07M16-12SA and mated to Plug P/N 801-007-16M16-12PA –Shell Size 16)	1	7
001 to 006	Nano Band	6	Nano Bands (terminated to braid and installed on Receptacle P/N 801-009-07M6-4PA and mated to Plug P/N 801-007-16M6-4SA –Shell Size 6)	1	6
007 to 012	Nano Band	16	Nano Bands (terminated to braid and installed on Receptacle P/N 801-009-07M16-12SA and mated to Plug P/N 801-007-16M16-12PA –Shell Size 16)	1	6

6. Group Identification

Test	Test Group #1	Test Group #2	Testing Location
Initial Shell Conductivity EIA-364-83	X		NTS
Thermal Shock Mil-C-38999L, EIA-364-32	X		NTS
Shell Conductivity	X		NTS
Temperature Life Mil-C-38999L, Paragraphs 3.38.2 and 4.5.34.2	X		NTS
Shell Conductivity	X		NTS
Cable Pull-Out AS85049/128D	X		NTS
Shell Conductivity		X	Singer Labs
Random Vibration Mil-C-38999L, EIA-364-28		X	Singer Labs
Shell Conductivity		X	Singer Labs



National Technical Systems
1536 East Valencia Drive
Fullerton, California 92831

Main: 714-879-6110
Fax: 714-879-6117

REVISION 1

July 24, 2013

Glenair, Inc.
1211 Air Way
Glendale, California 91201-2497

Purchase Order Number: PC040913-2

A. TESTS: Shell Conductivity, Thermal Shock, Temperature Life, and Braid Retention

B. TEST ITEMS: Thirty (30) Nano Bands
See page 2 for Test Item Identification

C. SPECIFICATIONS:

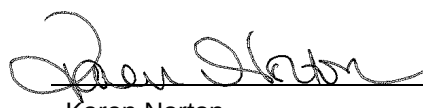
1. SAE AS85049C
2. MIL-DTL-38999L
3. E-mail dated March 28, 2013 and April 29, 2013
4. ANSI NCSL Z540-1
5. ISO 17025:2005

D. RESULTS:

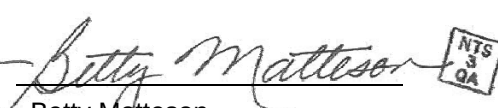
This is to certify that the Nano Bands were subjected to the Shell Conductivity, Thermal Shock, Temperature Life, and Braid Retention Tests according to the above specifications.

See Page 3 for Summary of Test Results. The Nano Bands were returned to Glenair, Inc. for post tests and final evaluation.

Test data, an equipment list, and photographs are attached.


Karen Norton,
Preparer


Scott Miller,
Program Manager


Betty Matteson,
Quality Assurance Manager





REVISIONS

Revision	Reason for Revision	Date
NR	Initial Release	7/16/13
1	Throughout report, replaced The Pilot Group with Glenair, Inc.	7/24/13



TEST ITEM IDENTIFICATION

Quantity	Description	Part Number	Serial Numbers
8	Nano Bands (terminated to small plug and receptacle connectors)	601-504	1A-S through 8A-L
7	Nano Bands (terminated to large plug and receptacle connectors)	601-504	9A-L through 15A-L
8	Nano Bands (terminated to braid and installed on Receptacle P/N 801-009-07M6-4PA and mated to Plug P/N 801-007-16M6-4SA – Shell Size 6)	601-504	001 through 008
7	Nano Bands (terminated to braid and installed on Receptacle P/N 801-009-07M16-12SA and mated to Plug P/N 801-007-16M16-12PA – Shell Size 16)	601-504	001 through 007



SUMMARY OF TEST RESULTS

Initial Shell Conductivity

The Nano Bands, Serial Numbers 1A-S through 8A-S and 9A-L through 15A-L, were subjected to the Shell Conductivity Test in accordance with SAE AS85049C and MIL-DTL-38999L. Test points and acceptance criteria were defined by Glenair, Inc. The test items met the specified requirements.

Thermal Shock

The Nano Bands, Serial Numbers 1A-S through 8A-S and 9A-L through 15A-L, were subjected to the Thermal Shock Test in accordance with SAE AS85049C, Paragraph 4.6.16. Shell Conductivity Measurements were taken during the temperature extreme of -65°C. The test items met the specified requirements at the low temperature extreme. During the high temperature extreme of 200°C, smoke was observed emitting from the test chamber. The chamber door was opened and it was noted that the black cable jackets were smoking. The test items were removed from the chamber. No shell conductivity measurements were taken. Glenair, Inc. was notified (see NOD ELE-1).

Initial Shell Conductivity - Retest

Glenair, Inc. provided new test samples. The Nano Bands, Serial Numbers 001 through 008 (Shell Size 6) and Serial Numbers 001 through 007 (Shell Size 16), were subjected to the Shell Conductivity Test in accordance with SAE AS85049C and MIL-DTL-38999L. Test points and acceptance criteria were defined by Glenair, Inc. The test items met the specified requirements.

Thermal Shock – Retest

The Nano Bands, Serial Numbers 001 through 008 (Shell Size 6) and Serial Numbers 001 through 007 (Shell Size 16), were subjected to the Thermal Shock Test in accordance with SAE AS85049C, Paragraph 4.6.16. Shell Conductivity Measurements were taken during the temperature extremes of -65°C and 200°C. The test items met the specified requirements.

Shell Conductivity

The Nano Bands, Serial Numbers Serial Numbers 001 through 008 (Shell Size 6) and Serial Numbers 001 through 007 (Shell Size 16), were subjected to the Shell Conductivity Test in accordance with SAE AS85049C and MIL-DTL-38999L. Test points and acceptance criteria were defined by Glenair, Inc. The test items met the specified requirements.

Temperature Life

The Nano Bands, Serial Numbers Serial Numbers 001 through 008 (Shell Size 6) and Serial Numbers 001 through 007 (Shell Size 16), were subjected to the Temperature Life Test in accordance with MIL-DTL-38999L, Paragraphs 3.38.2 and 4.5.34.2. There was no visible evidence of damage as a result of the 1,000-hour exposure at 200°C.



SUMMARY OF TEST RESULTS

Shell Conductivity

The Nano Bands, Serial Numbers 001 through 008 (Shell Size 6) and Serial Numbers 001 through 007 (Shell Size 16), were subjected to the Shell Conductivity Test in accordance with SAE AS85049C and MIL-DTL-38999L. Test points and acceptance criteria were defined by Glenair, Inc. The test items met the specified requirements.

Braid Retention to 50 lbs

The Nano Bands, Serial Numbers 001 through 008 (Shell Size 6) and Serial Numbers 001 through 007 (Shell Size 16), were subjected to the Braid Retention Test in accordance with SAE AS85049/128, Revision D, Notes 2a and 3a. There was no visible damage to the Nano Bands as a result of the 50 lb load.

Shell Conductivity

The Nano Bands, Serial Numbers 001 through 008 (Shell Size 6) and Serial Numbers 001 through 007 (Shell Size 16), were subjected to the Shell Conductivity Test in accordance with SAE AS85049C and MIL-DTL-38999L. Test points and acceptance criteria were defined by Glenair, Inc. The test items met the specified requirements.

Braid Retention to Destruction

The Nano Bands, Serial Numbers 001 through 008 (Shell Size 6) and Serial Numbers 001 through 007 (Shell Size 16), were subjected to the Braid Retention Test in accordance with SAE AS85049/128, Revision D, Note 2. The test items were pulled until braid failure occurred. At the point of braid failure, the Nano Bands remained intact.



Test Report No. PR021798
Revision 1, 7/24/13

GENERAL DATA SHEET

TEST:	Shell Conductivity		
CUSTOMER:	Glenair, Inc.	MJO:	PR021798
PART:	Nano Bands	P.O. NO.:	PC040913--2
PART NUMBER:	601-504	S/N:	See Below
	IAW SAE AS85049C & MIL-DTL-38999L	DATE:	4/29/13
SPECIFICATION:		PARA.	-----
GROUP:	Pre-Thermal Shock	TEMP	72 F° RH 40 %
		☒ PASSED	☐ DEVIATION

TEST ITEM SER. NO.# NOTED	APPLIED VOLTS: 1.5 VDC MAX.	TEST CURRENT: 1.0 +/- 0.1 ADC	ACTUAL VOLTAGE DROP VALUES NOTED		
1A-S	1.5 Vdc	1.0 Adc	1.70 mV		
2A-S	1.5 Vdc	1.0 Adc	2.12 mV		
3A-S	1.5 Vdc	1.0 Adc	0.21 mV		
4A-S	1.5 Vdc	1.0 Adc	3.31 mV		
5A-S	1.5 Vdc	1.0 Adc	2.52 mV		
6A-S	1.5 Vdc	1.0 Adc	4.33 mV		
7A-S	1.5 Vdc	1.0 Adc	2.98 mV		
8A-S	1.5 Vdc	1.0 Adc	0.21 mV		
9A-L	1.5 Vdc	1.0 Adc	0.53 mV		
10A-L	1.5 Vdc	1.0 Adc	1.29 mV		
11A-L	1.5 Vdc	1.0 Adc	0.64 mV		
12A-L	1.5 Vdc	1.0 Adc	0.04 mV		
13A-L	1.5 Vdc	1.0 Adc	0.55 mV		
14A-L	1.5 Vdc	1.0 Adc	0.14 mV		
15A-L	1.5 Vdc	1.0 Adc	0.82 mV		

REMARKS: The points of measurement were from the flat surface of the coupling nut of the plug, to the "lip" of the shield band termination area, on the receptacle connector.

MAXIMUM MILLIVOLT REQUIREMENT: 10 mV (Per Customer's email dated 4/29/13)

TESTED BY: K. Matz DATE: 04/29/13

ENGINEER: S. Miller *Sam* NTS QA: GOVT QAR:

PAGE 1 OF 1



NOTICE OF DEVIATION

CLIENT:	Glenair, Inc.	MJO:	PR021798	NOD NO.:	ELE-1
P.O. NO.:	PC040913-2	DATE OF DEVIATION:	4/30/13	CPAR NO.:	

NOTIFICATION MADE TO:	Preston Clover	NOTIFICATION MADE BY:	K. Matz
(CLIENT CONTACT)			
NOTIFICATION DATE:	04/30/13 @ 10:56	VIA:	E-mail
IF NOTIFICATION NOT MADE, PROVIDE JUSTIFICATION:			

TEST NAME:	Thermal Shock	TEST ITEM:	Nano Bands (terminated to connector/ cable assemblies)
SPECIFICATION:	IAW SAE AS85049C & MIL-DTL- 38999L	MODEL/PART NUMBER:	601-504
REVISION/DATE:		PARA:	
		S/N:	1A-S to 8A-S, 9A-L to 15A-L

REQUIREMENT: (Reference paragraph or section of specification)

There shall be no visible evidence of physical damage.

DESCRIPTION OF DEVIATION:

After the assemblies were exposed to the first +200 °C cycle of Thermal Shock, it was observed that the insulation of the cable had melted on all the samples, and had spread and attached itself to some of the connectors.

Test was discontinued, and Customer was notified. (Photos sent)

DISPOSITIONS/COMMENTS/RECOMMENDATIONS:(to be completed by client)

Per Customer's email dated 4/30/13, parts to be returned. New samples to be submitted to NTS.

CLIENT TEST WITNESS (if applicable)	DATE	QUALITY REPRESENTATIVE	DATE
S. Miller <i>SM</i>	4/30/13	<i>Cathy Sample</i>	4/30/13
PROJECT MANAGER	DATE	GOVERNMENT QAR (if applicable)	DATE

NOTE: IT IS THE CUSTOMER'S RESPONSIBILITY TO ANALYZE AND DISPOSITION DEVIATIONS ON CUSTOMER TEST PROGRAMS.

FOR NTS QA USE: Tracking Code: 3

1. Employee Error 3. Customer Item Problem 5. Power Failure 7. Other
2. Test Equipment Problem 4. Weather 6. Equipment Limitation



GENERAL DATA SHEET

TEST:	Shell Conductivity		
CUSTOMER:	Glenair, Inc	MJO:	PR021798
PART:	Nano Bands	P.O. NO.:	PC040913--2
PART NUMBER:	601-504	S/N:	See Below
		DATE:	4/30/13
SPECIFICATION:	IAW SAE AS85049C & MIL-DTL-38999L		
GROUP:	During Thermal Shock	PARA.	-----
	1 st Cycle @ -65°C	☒ PASSED	☐ DEVIATION
		TEMP	74 F° RH 44 %

TEST ITEM SER. NO.# NOTED	APPLIED VOLTS: 1.5 VDC MAX.	TEST CURRENT: 1.0 +/- 0.1 ADC	ACTUAL VOLTAGE DROP VALUES NOTED		
1A-S	1.5 Vdc	1.0 Adc	1.94 mV		
2A-S	1.5 Vdc	1.0 Adc	2.01 mV		
3A-S	1.5 Vdc	1.0 Adc	4.08 mV		
4A-S	1.5 Vdc	1.0 Adc	0.86 mV		
5A-S	1.5 Vdc	1.0 Adc	0.06 mV		
6A-S	1.5 Vdc	1.0 Adc	3.30 mV		
7A-S	1.5 Vdc	1.0 Adc	1.52 mV		
8A-S	1.5 Vdc	1.0 Adc	0.80 mV		
9A-L	1.5 Vdc	1.0 Adc	6.60 mV		
10A-L	1.5 Vdc	1.0 Adc	5.80 mV		
11A-L	1.5 Vdc	1.0 Adc	0.16 mV		
12A-L	1.5 Vdc	1.0 Adc	0.61 mV		
13A-L	1.5 Vdc	1.0 Adc	0.34 mV		
14A-L	1.5 Vdc	1.0 Adc	1.20 mV		
15A-L	1.5 Vdc	1.0 Adc	4.70 mV		

REMARKS: The points of measurement were from the flat surface of the coupling nut of the plug, to the "lip" of the shield band termination area, on the receptacle connector.

MAXIMUM MILLIVOLT REQUIREMENT: 10 mV (Per Customer's email dated 4/29/13)

TESTED BY: K. Matz DATE: 04/30/13

ENGINEER: S. Miller *SM* NTS QA: GOVT QAR:

PAGE 1 OF 1



GENERAL DATA SHEET

TEST:	Shell Conductivity		
CUSTOMER:	Glenair, Inc.	MJO:	PR021798
PART:	Nano Bands (Installed on Shell size 6 connectors)		
PART NUMBER:	601-504	P.O. NO.:	PC040913--2
SPECIFICATION:	IAW SAE AS85049C & MIL-DTL-38999L	S/N:	See Below
GROUP:	Pre-Thermal Shock	DATE:	5/7/13
	(Re-Test)	PARA.	TEMP 73 F° RH 35 %
		☒ PASSED	☐ DEVIATION

TEST ITEM SER. NO.# NOTED	APPLIED VOLTS: 1.5 VDC MAX.	TEST CURRENT: 1.0 +/- 0.1 ADC	ACTUAL VOLTAGE DROP VALUES NOTED		
001	1.5 Vdc	1.0 Adc	0.16 mV		
002	1.5 Vdc	1.0 Adc	0.17 mV		
003	1.5 Vdc	1.0 Adc	0.16 mV		
004	1.5 Vdc	1.0 Adc	0.19 mV		
005	1.5 Vdc	1.0 Adc	0.19 mV		
006	1.5 Vdc	1.0 Adc	0.19 mV		
007	1.5 Vdc	1.0 Adc	0.20 mV		
008	1.5 Vdc	1.0 Adc	0.17 mV		

REMARKS: The points of measurement were from the flat surface of the coupling nut of the plug, to 1.0 inch +/- 0.25, past the banding termination area of the receptacle, onto the braid. (Approved by Customer on 5/7/13)

MAXIMUM MILLIVOLT REQUIREMENT: 10 mV (Per Customer's email dated 4/29/13)

TESTED BY: K. Matz DATE: 5/7/13

ENGINEER: S. Miller *SM* NTS QA: GOVT QAR:



GENERAL DATA SHEET

TEST:	Shell Conductivity		
CUSTOMER:	Glenair, Inc.	MJO:	PR021798
PART:	Nano Bands (Installed on Shell size 16 connectors)		
PART NUMBER:	601-504	P.O. NO.:	PC040913--2
SPECIFICATION:	IAW SAE AS85049C & MIL-DTL-38999L	S/N:	See Below
GROUP:	Pre-Thermal Shock (Re-Test)	DATE:	5/7/13
		TEMP	73 F° RH 35 %
		☒ PASSED	☐ DEVIATION

TEST ITEM SER. NO.# NOTED	APPLIED VOLTS: 1.5 VDC MAX.	TEST CURRENT: 1.0 +/- 0.1 ADC	ACTUAL VOLTAGE DROP VALUES NOTED		
001	1.5 Vdc	1.0 Adc	0.16 mV		
002	1.5 Vdc	1.0 Adc	0.16 mV		
003	1.5 Vdc	1.0 Adc	0.14 mV		
004	1.5 Vdc	1.0 Adc	0.15 mV		
005	1.5 Vdc	1.0 Adc	0.13 mV		
006	1.5 Vdc	1.0 Adc	0.11 mV		
007	1.5 Vdc	1.0 Adc	0.14 mV		

REMARKS: The points of measurement were from the flat surface of the coupling nut of the plug, to 1.0 inch +/- 0.25, past the banding termination area of the receptacle, onto the braid. (Approved by Customer on 5/7/13)

MAXIMUM MILLIVOLT REQUIREMENT: 10 mV (Per Customer's email dated 4/29/13)

TESTED BY: K. Matz DATE: 5/7/13

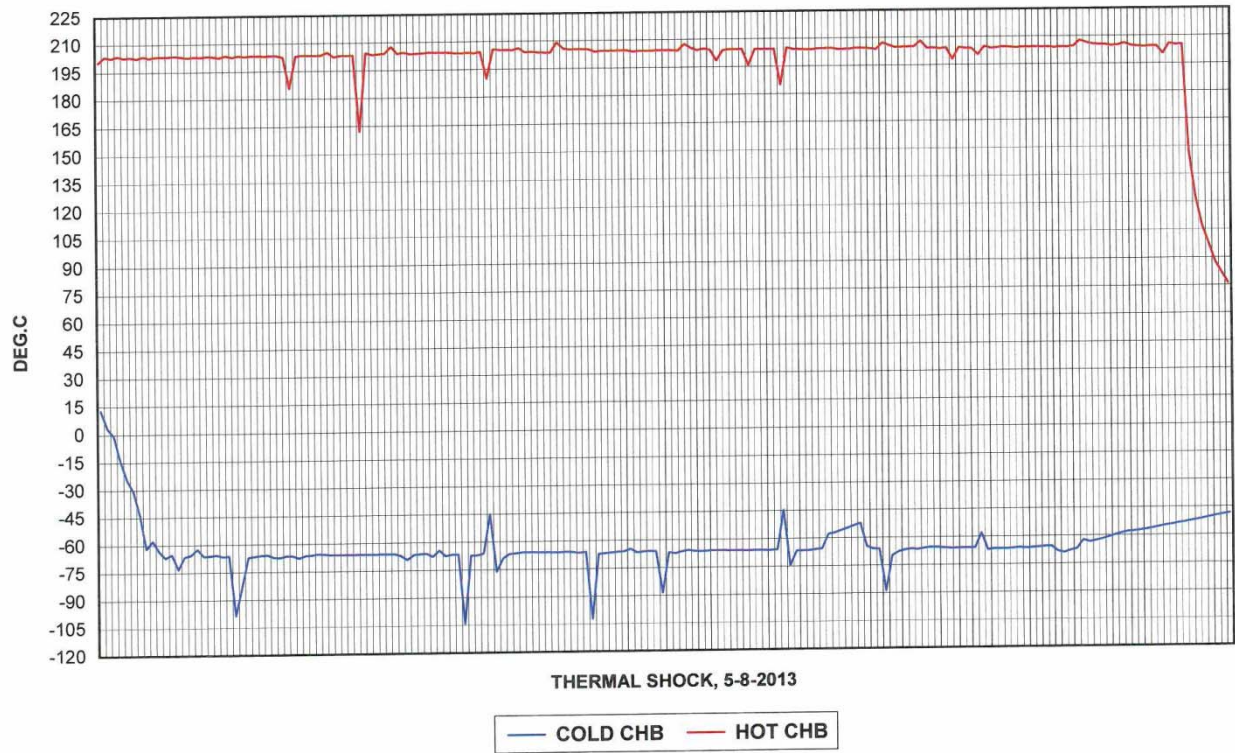
ENGINEER: S. Miller *Sam* NTS QA: GOVT QAR:

GENERAL DATA SHEET

CUSTOMER:	Glenair, Inc.	MJO:	PR021798
TEST:	Thermal Shock (Retest)	DATE:	5/8/2013
TEST ITEM:	Nano Bands		
PART NUMBER:	601-504	S/N:	See Below
SPECIFICATION:	IAW SAE AS85049C	PARA:	3.5.14 / 4.6.16
TECHNICIAN:	K. Matz	TEMP:	74°F
ENGINEER:	S. Miller <i>SM</i>	RH:	50%
		DEVIATION:	NO ☒ YES ☐

[illegible]

Glenair, Inc. - PR021798





GENERAL DATA SHEET

TEST: <u>Shell Conductivity</u>		MJO: <u>PR021798</u>	
CUSTOMER: <u>Glenair, Inc.</u>		P.O. NO.: <u>PC040913--2</u>	
PART: <u>Nano Bands</u>		S/N: <u>See Below</u> DATE: <u>5/8/13</u>	
PART NUMBER: <u>601-504</u>		TEMP <u>74</u> F° RH <u>50</u> %	
SPECIFICATION: <u>IAW SAE AS85049C & MIL-DTL-38999L</u>		PARA. <u>-----</u> ☒ PASSED ☐ DEVIATION	
GROUP: <u>During Thermal Shock</u> <u>1st Cycle @ -65°C</u>			

TEST ITEM SER. NO.# NOTED	APPLIED VOLTS: 1.5 VDC MAX.	TEST CURRENT: 1.0 +/- 0.1 ADC	ACTUAL VOLTAGE DROP VALUES NOTED		
SM001	1.5 Vdc	1.0 Adc	0.02 mV		
SM002	1.5 Vdc	1.0 Adc	0.04 mV		
SM003	1.5 Vdc	1.0 Adc	0.32 mV		
SM004	1.5 Vdc	1.0 Adc	0.04 mV		
SM005	1.5 Vdc	1.0 Adc	0.17 mV		
SM006	1.5 Vdc	1.0 Adc	0.08 mV		
SM007	1.5 Vdc	1.0 Adc	0.46 mV		
SM008	1.5 Vdc	1.0 Adc	0.47 mV		
LG001	1.5 Vdc	1.0 Adc	0.51 mV		
LG002	1.5 Vdc	1.0 Adc	0.26 mV		
LG003	1.5 Vdc	1.0 Adc	0.36mV		
LG004	1.5 Vdc	1.0 Adc	0.37 mV		
LG005	1.5 Vdc	1.0 Adc	0.11 mV		
LG006	1.5 Vdc	1.0 Adc	0.14 mV		
LG007	1.5 Vdc	1.0 Adc	0.25 mV		

REMARKS: The points of measurement were from the flat surface of the coupling nut of the plug, to the "lip" of the shield band termination area, on the receptacle connector.

Note: "SM" indicates small connector shell and "LG" indicates large connector shell.

MAXIMUM MILLIVOLT REQUIREMENT: 10 mV (Per Customer's email dated 4/29/13)

TESTED BY: K. Matz DATE: 5/8/13

ENGINEER: S. Miller *SM* NTS QA: _____ GOVT QAR: _____



GENERAL DATA SHEET

TEST:	Shell Conductivity		
CUSTOMER:	Glenair, Inc.	MJO:	PR021798
PART:	Nano Bands	P.O. NO.:	PC040913--2
PART NUMBER:	601-504	S/N:	See Below
		DATE:	5/8/13
SPECIFICATION:	IAW SAE AS85049C & MIL-DTL-38999L		
GROUP:	During Thermal Shock	PARA.	-----
	2nd Cycle @ -65°C	☒ PASSED	☐ DEVIATION
		TEMP	74 F° RH 50 %

TEST ITEM SER. NO.# NOTED	APPLIED VOLTS: 1.5 VDC MAX.	TEST CURRENT: 1.0 +/- 0.1 ADC	ACTUAL VOLTAGE DROP VALUES NOTED		
SM001	1.5 Vdc	1.0 Adc	0.42 mV		
SM002	1.5 Vdc	1.0 Adc	0.50 mV		
SM003	1.5 Vdc	1.0 Adc	0.39 mV		
SM004	1.5 Vdc	1.0 Adc	0.05 mV		
SM005	1.5 Vdc	1.0 Adc	0.40 mV		
SM006	1.5 Vdc	1.0 Adc	0.05 mV		
SM007	1.5 Vdc	1.0 Adc	0.22 mV		
SM008	1.5 Vdc	1.0 Adc	0.57 mV		
LG001	1.5 Vdc	1.0 Adc	0.14 mV		
LG002	1.5 Vdc	1.0 Adc	0.12 mV		
LG003	1.5 Vdc	1.0 Adc	0.30 mV		
LG004	1.5 Vdc	1.0 Adc	0.28 mV		
LG005	1.5 Vdc	1.0 Adc	0.57 mV		
LG006	1.5 Vdc	1.0 Adc	0.33 mV		
LG007	1.5 Vdc	1.0 Adc	0.10 mV		

REMARKS: The points of measurement were from the flat surface of the coupling nut of the plug, to the "lip" of the shield band termination area, on the receptacle connector.

Note: "SM" indicates small connector shell and "LG" indicates large connector shell.

MAXIMUM MILLIVOLT REQUIREMENT: 10 mV (Per Customer's email dated 4/29/13)

TESTED BY: K. Matz DATE: 5/8/13

ENGINEER: S. Miller *Sam* NTS QA: GOVT QAR:



GENERAL DATA SHEET

TEST:	Shell Conductivity		
CUSTOMER:	Glenair, Inc.	MJO:	PR021798
PART:	Nano Bands	P.O. NO.:	PC040913--2
PART NUMBER:	601-504	S/N:	See Below
		DATE:	5/8/13
SPECIFICATION:	IAW SAE AS85049C & MIL-DTL-38999L		
GROUP:	During Thermal Shock	PARA.	-----
	3rd Cycle @ -65°C	☒ PASSED	☐ DEVIATION
		TEMP	74 F° RH 50 %

TEST ITEM SER. NO.# NOTED	APPLIED VOLTS: 1.5 VDC MAX.	TEST CURRENT: 1.0 +/- 0.1 ADC	ACTUAL VOLTAGE DROP VALUES NOTED		
SM001	1.5 Vdc	1.0 Adc	0.03 mV		
SM002	1.5 Vdc	1.0 Adc	0.01 mV		
SM003	1.5 Vdc	1.0 Adc	0.01 mV		
SM004	1.5 Vdc	1.0 Adc	0.03 mV		
SM005	1.5 Vdc	1.0 Adc	0.06 mV		
SM006	1.5 Vdc	1.0 Adc	0.07 mV		
SM007	1.5 Vdc	1.0 Adc	0.47 mV		
SM008	1.5 Vdc	1.0 Adc	0.50 mV		
LG001	1.5 Vdc	1.0 Adc	0.31 mV		
LG002	1.5 Vdc	1.0 Adc	0.66 mV		
LG003	1.5 Vdc	1.0 Adc	0.36 mV		
LG004	1.5 Vdc	1.0 Adc	0.27 mV		
LG005	1.5 Vdc	1.0 Adc	0.16 mV		
LG006	1.5 Vdc	1.0 Adc	0.32 mV		
LG007	1.5 Vdc	1.0 Adc	0.24 mV		

REMARKS: The points of measurement were from the flat surface of the coupling nut of the plug, to the "lip" of the shield band termination area, on the receptacle connector.

Note: "SM" indicates small connector shell and "LG" indicates large connector shell.

MAXIMUM MILLIVOLT REQUIREMENT: 10 mV (Per Customer's email dated 4/29/13)

TESTED BY: K. Matz DATE: 5/8/13

ENGINEER: S. Miller *Sam* NTS QA: GOVT QAR:

PAGE 1 OF 1



GENERAL DATA SHEET

TEST:	Shell Conductivity		
CUSTOMER:	Glenair, Inc.	MJO:	PR021798
PART:	Nano Bands	P.O. NO.:	PC040913--2
PART NUMBER:	601-504	S/N:	See Below
		DATE:	5/8/13
SPECIFICATION:	IAW SAE AS85049C & MIL-DTL-38999L		
GROUP:	During Thermal Shock	PARA.	-----
	4th Cycle @ -65°C	☒ PASSED	☐ DEVIATION

TEST ITEM SER. NO.# NOTED	APPLIED VOLTS: 1.5 VDC MAX.	TEST CURRENT: 1.0 +/- 0.1 ADC	ACTUAL VOLTAGE DROP VALUES NOTED		
SM001	1.5 Vdc	1.0 Adc	0.04 mV		
SM002	1.5 Vdc	1.0 Adc	0.80 mV		
SM003	1.5 Vdc	1.0 Adc	0.60 mV		
SM004	1.5 Vdc	1.0 Adc	0.03 mV		
SM005	1.5 Vdc	1.0 Adc	0.11 mV		
SM006	1.5 Vdc	1.0 Adc	0.29 mV		
SM007	1.5 Vdc	1.0 Adc	0.06 mV		
SM008	1.5 Vdc	1.0 Adc	0.93 mV		
LG001	1.5 Vdc	1.0 Adc	0.57 mV		
LG002	1.5 Vdc	1.0 Adc	0.73 mV		
LG003	1.5 Vdc	1.0 Adc	0.70 mV		
LG004	1.5 Vdc	1.0 Adc	0.53 mV		
LG005	1.5 Vdc	1.0 Adc	0.44 mV		
LG006	1.5 Vdc	1.0 Adc	0.40 mV		
LG007	1.5 Vdc	1.0 Adc	0.41 mV		

REMARKS: The points of measurement were from the flat surface of the coupling nut of the plug, to the "lip" of the shield band termination area, on the receptacle connector.

Note: "SM" indicates small connector shell and "LG" indicates large connector shell.

MAXIMUM MILLIVOLT REQUIREMENT: 10 mV (Per Customer's email dated 4/29/13)

TESTED BY: K. Matz DATE: 5/8/13

ENGINEER: S. Miller *Sam* NTS QA: GOVT QAR:

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GENERAL DATA SHEET

TEST: Shell Conductivity		MJO: PR021798	
CUSTOMER: Glenair, Inc.		P.O. NO.: PC040913--2	
PART: Nano Bands		S/N: See Below	
PART NUMBER: 601-504		DATE: 5/8/13	
SPECIFICATION: IAW SAE AS85049C & MIL-DTL-38999L		TEMP 74 F° RH 50 %	
GROUP: During Thermal Shock 5th Cycle @ -65°C		☒ PASSED ☐ DEVIATION	

TEST ITEM SER. NO.# NOTED	APPLIED VOLTS: 1.5 VDC MAX.	TEST CURRENT: 1.0 +/- 0.1 ADC	ACTUAL VOLTAGE DROP VALUES NOTED		
SM001	1.5 Vdc	1.0 Adc	0.17 mV		
SM002	1.5 Vdc	1.0 Adc	0.70 mV		
SM003	1.5 Vdc	1.0 Adc	0.01 mV		
SM004	1.5 Vdc	1.0 Adc	0.66 mV		
SM005	1.5 Vdc	1.0 Adc	0.57 mV		
SM006	1.5 Vdc	1.0 Adc	0.26 mV		
SM007	1.5 Vdc	1.0 Adc	0.66 mV		
SM008	1.5 Vdc	1.0 Adc	0.56 mV		
LG001	1.5 Vdc	1.0 Adc	0.70 mV		
LG002	1.5 Vdc	1.0 Adc	0.50 mV		
LG003	1.5 Vdc	1.0 Adc	0.11 mV		
LG004	1.5 Vdc	1.0 Adc	0.63 mV		
LG005	1.5 Vdc	1.0 Adc	0.14 mV		
LG006	1.5 Vdc	1.0 Adc	0.61 mV		
LG007	1.5 Vdc	1.0 Adc	0.08 mV		

REMARKS: The points of measurement were from the flat surface of the coupling nut of the plug, to the "lip" of the shield band termination area, on the receptacle connector.

Note: "SM" indicates small connector shell and "LG" indicates large connector shell.

MAXIMUM MILLIVOLT REQUIREMENT: 10 mV (Per Customer's email dated 4/29/13)

TESTED BY: K. Matz DATE: 5/8/13

ENGINEER: S. Miller *S Miller* NTS QA: GOVT QAR:

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GENERAL DATA SHEET

TEST:	Shell Conductivity		
CUSTOMER:	Glenair, Inc.	MJO:	PR021798
PART:	Nano Bands	P.O. NO.:	PC040913--2
PART NUMBER:	601-504	S/N:	See Below
		DATE:	5/8/13
SPECIFICATION:	IAW SAE AS85049C & MIL-DTL-38999L		
GROUP:	During Thermal Shock	PARA.	-----
	1st Cycle @ 200°C	☒ PASSED	☐ DEVIATION
		TEMP	74 F° RH 50 %

TEST ITEM SER. NO.# NOTED	APPLIED VOLTS: 1.5 VDC MAX.	TEST CURRENT: 1.0 +/- 0.1 ADC	ACTUAL VOLTAGE DROP VALUES NOTED		
SM001	1.5 Vdc	1.0 Adc	0.03 mV		
SM002	1.5 Vdc	1.0 Adc	0.08 mV		
SM003	1.5 Vdc	1.0 Adc	0.95 mV		
SM004	1.5 Vdc	1.0 Adc	0.06 mV		
SM005	1.5 Vdc	1.0 Adc	1.25 mV		
SM006	1.5 Vdc	1.0 Adc	0.20 mV		
SM007	1.5 Vdc	1.0 Adc	0.09 mV		
SM008	1.5 Vdc	1.0 Adc	1.55 mV		
LG001	1.5 Vdc	1.0 Adc	0.89 mV		
LG002	1.5 Vdc	1.0 Adc	1.29 mV		
LG003	1.5 Vdc	1.0 Adc	0.66 mV		
LG004	1.5 Vdc	1.0 Adc	1.09 mV		
LG005	1.5 Vdc	1.0 Adc	1.10 mV		
LG006	1.5 Vdc	1.0 Adc	0.91 mV		
LG007	1.5 Vdc	1.0 Adc	0.85 mV		

REMARKS: The points of measurement were from the flat surface of the coupling nut of the plug, to the "lip" of the shield band termination area, on the receptacle connector.

Note: "SM" indicates small connector shell and "LG" indicates large connector shell.

MAXIMUM MILLIVOLT REQUIREMENT: 10 mV (Per Customer's email dated 4/29/13)

TESTED BY: K. Matz DATE: 5/8/13

ENGINEER: S. Miller *Sam* NTS QA: GOVT QAR:

PAGE 1 OF 1



GENERAL DATA SHEET

TEST:	Shell Conductivity		
CUSTOMER:	Glenair, Inc.	MJO:	PR021798
PART:	Nano Bands	P.O. NO.:	PC040913--2
PART NUMBER:	601-504	S/N:	See Below
		DATE:	5/8/13
SPECIFICATION:	IAW SAE AS85049C & MIL-DTL-38999L		
GROUP:	During Thermal Shock	PARA.	-----
	2nd Cycle @ 200°C	TEMP	74 F° RH 50 %
		☒ PASSED	☐ DEVIATION

TEST ITEM SER. NO.# NOTED	APPLIED VOLTS: 1.5 VDC MAX.	TEST CURRENT: 1.0 +/- 0.1 ADC	ACTUAL VOLTAGE DROP VALUES NOTED		
SM001	1.5 Vdc	1.0 Adc	0.52 mV		
SM002	1.5 Vdc	1.0 Adc	0.18 mV		
SM003	1.5 Vdc	1.0 Adc	1.70 mV		
SM004	1.5 Vdc	1.0 Adc	0.72 mV		
SM005	1.5 Vdc	1.0 Adc	0.08 mV		
SM006	1.5 Vdc	1.0 Adc	0.02 mV		
SM007	1.5 Vdc	1.0 Adc	0.10 mV		
SM008	1.5 Vdc	1.0 Adc	1.17 mV		
LG001	1.5 Vdc	1.0 Adc	0.90 mV		
LG002	1.5 Vdc	1.0 Adc	0.78 mV		
LG003	1.5 Vdc	1.0 Adc	0.64 mV		
LG004	1.5 Vdc	1.0 Adc	0.79 mV		
LG005	1.5 Vdc	1.0 Adc	0.96 mV		
LG006	1.5 Vdc	1.0 Adc	0.83 mV		
LG007	1.5 Vdc	1.0 Adc	0.92 mV		

REMARKS: The points of measurement were from the flat surface of the coupling nut of the plug, to the "lip" of the shield band termination area, on the receptacle connector.

Note: "SM" indicates small connector shell and "LG" indicates large connector shell.

MAXIMUM MILLIVOLT REQUIREMENT: 10 mV (Per Customer's email dated 4/29/13)

TESTED BY: K. Matz DATE: 5/8/13

ENGINEER: S. Miller *Sam* NTS QA: GOVT QAR:

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GENERAL DATA SHEET

TEST:	Shell Conductivity		
CUSTOMER:	Glenair, Inc.	MJO:	PR021798
PART:	Nano Bands	P.O. NO.:	PC040913--2
PART NUMBER:	601-504	S/N:	See Below
		DATE:	5/8/13
SPECIFICATION:	IAW SAE AS85049C & MIL-DTL-38999L		
GROUP:	During Thermal Shock	PARA.	-----
	3rd Cycle @ 200°C	☒ PASSED	☐ DEVIATION
		TEMP	74 F° RH 50 %

TEST ITEM SER. NO.# NOTED	APPLIED VOLTS: 1.5 VDC MAX.	TEST CURRENT: 1.0 +/- 0.1 ADC	ACTUAL VOLTAGE DROP VALUES NOTED		
SM001	1.5 Vdc	1.0 Adc	0.15 mV		
SM002	1.5 Vdc	1.0 Adc	0.34 mV		
SM003	1.5 Vdc	1.0 Adc	0.53 mV		
SM004	1.5 Vdc	1.0 Adc	0.15 mV		
SM005	1.5 Vdc	1.0 Adc	1.16 mV		
SM006	1.5 Vdc	1.0 Adc	0.63 mV		
SM007	1.5 Vdc	1.0 Adc	1.63 mV		
SM008	1.5 Vdc	1.0 Adc	0.97 mV		
LG001	1.5 Vdc	1.0 Adc	0.61 mV		
LG002	1.5 Vdc	1.0 Adc	0.54 mV		
LG003	1.5 Vdc	1.0 Adc	0.68 mV		
LG004	1.5 Vdc	1.0 Adc	0.66 mV		
LG005	1.5 Vdc	1.0 Adc	0.55 mV		
LG006	1.5 Vdc	1.0 Adc	0.55 mV		
LG007	1.5 Vdc	1.0 Adc	0.84 mV		

REMARKS: The points of measurement were from the flat surface of the coupling nut of the plug, to the "lip" of the shield band termination area, on the receptacle connector.

Note: "SM" indicates small connector shell and "LG" indicates large connector shell.

MAXIMUM MILLIVOLT REQUIREMENT: 10 mV (Per Customer's email dated 4/29/13)

TESTED BY: K. Matz DATE: 5/8/13

ENGINEER: S. Miller *Sam* NTS QA: GOVT QAR:

PAGE 1 OF 1



GENERAL DATA SHEET

TEST:	Shell Conductivity		
CUSTOMER:	Glenair, Inc.	MJO:	PR021798
PART:	Nano Bands	P.O. NO.:	PC040913--2
PART NUMBER:	601-504	S/N:	See Below
		DATE:	5/8/13
SPECIFICATION:	IAW SAE AS85049C & MIL-DTL-38999L		
GROUP:	During Thermal Shock	PARA.	-----
	4th Cycle @ 200°C	☒ PASSED	☐ DEVIATION
		TEMP	74 F° RH 50 %

TEST ITEM SER. NO.# NOTED	APPLIED VOLTS: 1.5 VDC MAX.	TEST CURRENT: 1.0 +/- 0.1 ADC	ACTUAL VOLTAGE DROP VALUES NOTED		
SM001	1.5 Vdc	1.0 Adc	0.49 mV		
SM002	1.5 Vdc	1.0 Adc	0.67 mV		
SM003	1.5 Vdc	1.0 Adc	0.80 mV		
SM004	1.5 Vdc	1.0 Adc	0.63 mV		
SM005	1.5 Vdc	1.0 Adc	1.73 mV		
SM006	1.5 Vdc	1.0 Adc	0.67 mV		
SM007	1.5 Vdc	1.0 Adc	0.92 mV		
SM008	1.5 Vdc	1.0 Adc	0.82 mV		
LG001	1.5 Vdc	1.0 Adc	0.19 mV		
LG002	1.5 Vdc	1.0 Adc	0.13 mV		
LG003	1.5 Vdc	1.0 Adc	0.03 mV		
LG004	1.5 Vdc	1.0 Adc	0.29 mV		
LG005	1.5 Vdc	1.0 Adc	0.19 mV		
LG006	1.5 Vdc	1.0 Adc	0.16 mV		
LG007	1.5 Vdc	1.0 Adc	0.37 mV		

REMARKS: The points of measurement were from the flat surface of the coupling nut of the plug, to the "lip" of the shield band termination area, on the receptacle connector.

Note: "SM" indicates small connector shell and "LG" indicates large connector shell.

MAXIMUM MILLIVOLT REQUIREMENT: 10 mV (Per Customer's email dated 4/29/13)

TESTED BY: K. Matz DATE: 5/8/13

ENGINEER: S. Miller *Sam* NTS QA: GOVT QAR:

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GENERAL DATA SHEET

TEST: <u>Shell Conductivity</u>	
CUSTOMER: <u>Glenair, Inc.</u>	MJO: <u>PR021798</u>
PART: <u>Nano Bands</u>	P.O. NO.: <u>PC040913--2</u>
PART NUMBER: <u>601-504</u>	S/N: <u>See Below</u> DATE: <u>5/8/13</u>
SPECIFICATION: <u>IAW SAE AS85049C & MIL-DTL-38999L</u>	
GROUP: <u>During Thermal Shock</u>	PARA. <u>-----</u> TEMP <u>74</u> F° RH <u>50</u> %
<u>5th Cycle @ 200°C</u>	☒ PASSED ☐ DEVIATION

TEST ITEM SER. NO.# NOTED	APPLIED VOLTS: 1.5 VDC MAX.	TEST CURRENT: 1.0 +/- 0.1 ADC	ACTUAL VOLTAGE DROP VALUES NOTED		
SM001	1.5 Vdc	1.0 Adc	0.61 mV		
SM002	1.5 Vdc	1.0 Adc	0.53 mV		
SM003	1.5 Vdc	1.0 Adc	0.62 mV		
SM004	1.5 Vdc	1.0 Adc	0.62 mV		
SM005	1.5 Vdc	1.0 Adc	0.59 mV		
SM006	1.5 Vdc	1.0 Adc	0.76 mV		
SM007	1.5 Vdc	1.0 Adc	0.77 mV		
SM008	1.5 Vdc	1.0 Adc	0.52 mV		
LG001	1.5 Vdc	1.0 Adc	0.78 mV		
LG002	1.5 Vdc	1.0 Adc	0.35 mV		
LG003	1.5 Vdc	1.0 Adc	0.51 mV		
LG004	1.5 Vdc	1.0 Adc	0.47 mV		
LG005	1.5 Vdc	1.0 Adc	0.56 mV		
LG006	1.5 Vdc	1.0 Adc	0.42 mV		
LG007	1.5 Vdc	1.0 Adc	0.72 mV		

REMARKS: The points of measurement were from the flat surface of the coupling nut of the plug, to the "lip" of the shield band termination area, on the receptacle connector.

Note: "SM" indicates small connector shell and "LG" indicates large connector shell.

MAXIMUM MILLIVOLT REQUIREMENT: 10 mV (Per Customer's email dated 4/29/13)

TESTED BY: K. Matz DATE: 5/8/13

ENGINEER: S. Miller *SM* NTS QA: GOVT QAR:

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GENERAL DATA SHEET

TEST:	Shell Conductivity		
CUSTOMER:	Glenair, Inc.	MJO:	PR021798
PART:	Nano Bands (Installed on Shell size 6 connectors)		
PART NUMBER:	601-504	P.O. NO.:	PC040913--2
SPECIFICATION:	IAW SAE AS85049C & MIL-DTL-38999L	S/N:	See Below
GROUP:	Post Thermal Shock (Re-Test)	DATE:	5/8/13
PARA.	-----	TEMP	73 F° RH 36 %
	☒ PASSED		☐ DEVIATION

TEST ITEM SER. NO.# NOTED	APPLIED VOLTS: 1.5 Vdc MAX.	TEST CURRENT: 1.0 +/- 0.1 Adc	ACTUAL VOLTAGE DROP VALUES NOTED		
001	1.5 Vdc	1.0 Adc	0.23 mV		
002	1.5 Vdc	1.0 Adc	0.31 mV		
003	1.5 Vdc	1.0 Adc	0.17 mV		
004	1.5 Vdc	1.0 Adc	0.24 mV		
005	1.5 Vdc	1.0 Adc	0.30 mV		
006	1.5 Vdc	1.0 Adc	0.73 mV		
007	1.5 Vdc	1.0 Adc	0.20 mV		
008	1.5 Vdc	1.0 Adc	0.32 mV		

REMARKS: The points of measurement were from the flat surface of the coupling nut of the plug, to 1.0 inch +/- 0.25, past the banding termination area of the receptacle, onto the braid. (Approved by Customer on 5/7/13)

MAXIMUM MILLIVOLT REQUIREMENT: 10 mV (Per Customer's email dated 4/29/13)

TESTED BY: K. Matz DATE: 5/8/13

ENGINEER: S. Miller *SM* NTS QA: GOVT QAR:



GENERAL DATA SHEET

TEST:	Temperature Life	MJO:	PR021798
CUSTOMER:	Glenair, Inc	DATE:	May 9 2013
TEST ITEM:	Nano Bands (Size 6 & Size 16)		
PART NUMBER:	601-504 (both sizes)	S/N:	See Below*
SPECIFICATION:	MIL-DTL-38999L	PARAGRAPH:	3.38.2/4.5.34.2
TECHNICIAN:	R. Murphy	TEMP	71 F° RH 42 %
ENGINEER:	S. Miller <i>sm</i>	DEVIATION:	☒ NO ☐ YES

DATE	TIME	TEST DESCRIPTION
2013	HR	
5-9	10:00	Adjust chamber to 200 Deg C
	10:20	Condition met start 1000 hour soak
	16:00	Chamber check
5-10	08:20	Chamber check
5-14	08:25	Chamber check
5-21	08:45	Chamber check
5-24	07:30	Chamber check
5-29	07:20	Chamber check
6-4	08:10	Chamber check
6-7	07:25	Chamber check
6-10	07:15	Chamber check
6-13	06:45	Chamber check
6-14	07:25	Chamber check
6-18	08:00	Chamber check
6-19	08:25	Chamber check
	16:20	End soak turn off chamber and place at room ambient; end of test.
		No visible damage
		* Size 6 (small) S/N 001 thru 008
		* Size 16 (large) S/N 001 thru 007



GENERAL DATA SHEET

TEST:	Shell Conductivity		
CUSTOMER:	Glenair, Inc.	MJO:	PR021798
PART:	Nano Bands (Installed on Shell size 6 connectors)		
PART NUMBER:	601-504	P.O. NO.:	PC040913--2
SPECIFICATION:	IAW SAE AS85049C & MIL-DTL-38999L	S/N:	See Below
GROUP:	Post Temperature Life	DATE:	6/20/13
PARAMETER:	-----	TEMP	75 F° RH 36 %
	☒ PASSED		☐ DEVIATION

TEST ITEM SER. NO.# NOTED	APPLIED VOLTS: 1.5 VDC MAX.	TEST CURRENT: 1.0 +/- 0.1 ADC	ACTUAL VOLTAGE DROP VALUES NOTED		
001	1.5 Vdc	1.0 Adc	0.46 mV		
002	1.5 Vdc	1.0 Adc	0.37 mV		
003	1.5 Vdc	1.0 Adc	0.43 mV		
004	1.5 Vdc	1.0 Adc	0.34 mV		
005	1.5 Vdc	1.0 Adc	1.08 mV		
006	1.5 Vdc	1.0 Adc	1.10 mV		
007	1.5 Vdc	1.0 Adc	0.39 mV		
008	1.5 Vdc	1.0 Adc	0.44 mV		

REMARKS: The points of measurement were from the flat surface of the coupling nut of the plug, to 1.0 inch +/- 0.25, past the banding termination area of the receptacle, onto the braid. (Approved by Customer on 5/7/13)

MAXIMUM MILLIVOLT REQUIREMENT: 10 mV (Per Customer's email dated 4/29/13)

TESTED BY: K. Matz DATE: 6/20/13

ENGINEER: S. Miller *SM* NTS QA: GOVT QAR:



GENERAL DATA SHEET

TEST:	Shell Conductivity		
CUSTOMER:	Glenair, Inc.	MJO:	PR021798
PART:	Nano Bands (Installed on Shell size 16 connectors)		
PART NUMBER:	601-504	P.O. NO.:	PC040913--2
SPECIFICATION:	IAW SAE AS85049C & MIL-DTL-38999L	S/N:	See Below
GROUP:	Post Temperature Life	DATE:	6/21/13
PARA.	-----	TEMP	72 F° RH 35 %
	☒ PASSED		☐ DEVIATION

TEST ITEM SER. NO.# NOTED	APPLIED VOLTS: 1.5 VDC MAX.	TEST CURRENT: 1.0 +/- 0.1 ADC	ACTUAL VOLTAGE DROP VALUES NOTED		
001	1.5 Vdc	1.0 Adc	0.56 mV		
002	1.5 Vdc	1.0 Adc	0.54 mV		
003	1.5 Vdc	1.0 Adc	1.02 mV		
004	1.5 Vdc	1.0 Adc	0.59 mV		
005	1.5 Vdc	1.0 Adc	0.86 mV		
006	1.5 Vdc	1.0 Adc	0.62 mV		
007	1.5 Vdc	1.0 Adc	0.87 mV		

REMARKS: The points of measurement were from the flat surface of the coupling nut of the plug, to 1.0 inch +/- 0.25, past the banding termination area of the receptacle, onto the braid. (Approved by Customer on 5/7/13)

MAXIMUM MILLIVOLT REQUIREMENT: 10 mV (Per Customer's email dated 4/29/13)

TESTED BY: K. Matz DATE: 6/21/13

ENGINEER: S. Miller *San* NTS QA: GOVT QAR:



GENERAL DATA SHEET

CUSTOMER:	Glenair, Inc.	MJO:	PR021798
TEST:	Braid Retention (Pre/Post Measurements)	DATE:	6/25 and 6/28/13
TEST ITEM:	Nano Bands		
PART NUMBER:	601-504	S/N:	See Below
SPECIFICATION:	SAE AS85049/128; Rev. D	PARA:	*** 2a or 3a
TECHNICIAN:	K. Matz	TEMP:	77° F
ENGINEER:	S. Miller <i>SMM</i>	RH:	38%
		DEVIATION:	NO ☒ YES ☐

Date	Time	Test Description
		Pre-Test measurements on samples noted below. (Prior to Braid Retention Test to 50 lbs.)
		Small Shell Size: Large Shell Size:
		S/N 001- 0.176" S/N 001- 0.213"
		S/N 002- 0.189" S/N 002- 0.215"
		S/N 003- 0.203" S/N 003- 0.201"
		S/N 004- 0.202" S/N 004- 0.215"
		S/N 005- 0.186" S/N 005- 0.205"
		S/N 006- 0.184" S/N 006- 0.201"
		S/N 007- 0.188" S/N 007- 0.210"
		S/N 008- 0.208"
		Post-Test measurements noted below. (After Braid Retention Test)
		Small Shell Size: Large Shell Size:
		S/N 001- 0.176" S/N 001- 0.215"
		S/N 002- 0.194" S/N 002- 0.215"
		S/N 003- 0.204" S/N 003- 0.208"
		S/N 004- 0.202" S/N 004- 0.215"
		S/N 005- 0.188" S/N 005- 0.205"
		S/N 006- 0.186" S/N 006- 0.201"
		S/N 007- 0.190" S/N 007- 0.210"
		S/N 008- 0.209"
		*** Per Note 2a or 3a- " Band slippage shall not exceed 0.025 inch when measured from a fixed point on the adapter. Braid breakage due to tensile load will not be viewed as a failure".



GENERAL DATA SHEET

CUSTOMER:	Glenair, Inc.	MJO:	PR021798
TEST:	Braid Retention Load to 50 Pounds	DATE:	6/26/2013
TEST ITEM:	see below		
PART NUMBER:	see below	S/N:	see below
SPECIFICATION:	SAE AS85049/128 Rev D	PARA:	2
TECHNICIAN:	Connor Smith, George Rocco	TEMP:	26C
ENGINEER:	Scott Miller <i>SM</i>	RH:	38%
		DEVIATION:	NO ☒ YES ☐

Date	Time	Test Description			
		Quantity	Test Item	P/N	S/N
		8	Nano bands-terminated to braid and installed on Recpt. P/N 801-009-07M6-4PA and mated to Plug P/N 801-007-16M6-4SA (Shell size 6)	601-504	001 thru 008
		7	Nano bands-same as above except installed on Recpt. P/N 801-009-07M16-12SA and Mated to Plug P/N 801-007-16M16-12PA (shell size 16)	601-504	001 thru 007
		Shell size 6 will be referred to as "Small"			
		Shell size 16 will be referred to as "Large"			
		Test items will be pulled at a rate of 1"/min until a load of 50lbs is applied. Load and displacement will be recorded continuously throughout the test.			
6/26/13	16:54	Pull, Large 001			
		No visible damage to nano band			
6/26/13	16:56	Pull, Large 002			
		No visible damage to nano band			
6/26/13	16:58	Pull, Large 003			
		No visible damage to nano band			
6/26/13	17:01	Pull, Large 004			
		No visible damage to nano band			
6/26/13	17:03	Pull, Large 005			
		No visible damage to nano band			

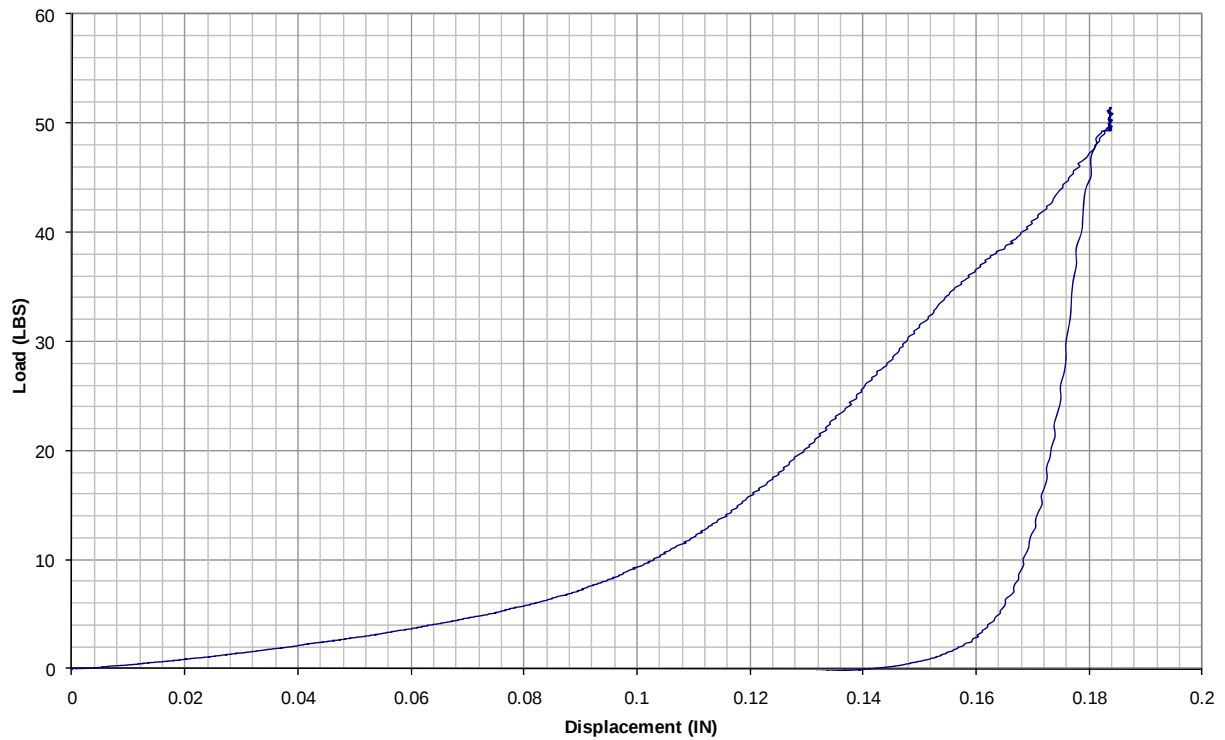


GENERAL DATA SHEET

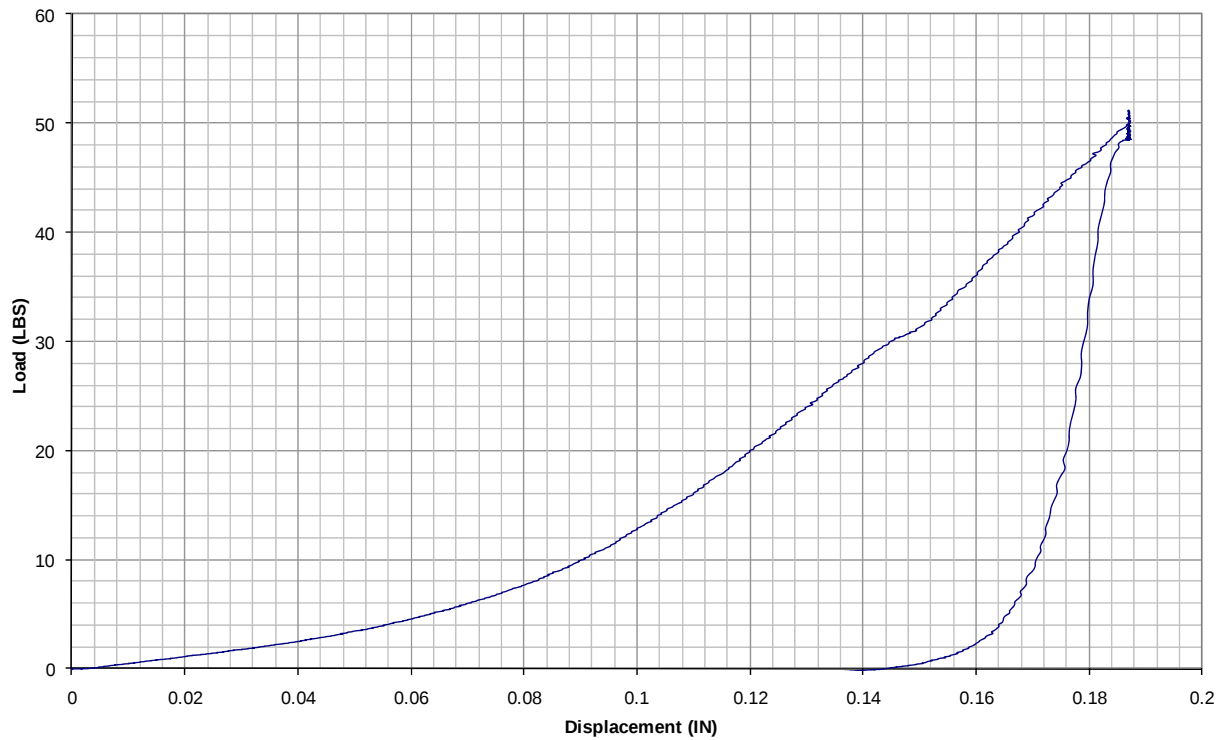
CUSTOMER:	Glenair, Inc.	MJO:	PR021798
TEST:	Braid Retention Load to 50 Pounds	DATE:	6/26/2013
TEST ITEM:	see below		
PART NUMBER:	see below	S/N:	see below
SPECIFICATION:	SAE AS85049/128 Rev D	PARA:	2
TECHNICIAN:	Connor Smith, George Rocco	TEMP:	26C
ENGINEER:	Scott Miller <i>SM</i>	RH:	38%
		DEVIATION:	NO ☒ YES ☐

Date	Time	Test Description
6/26/13	17:05	Pull, Large 007
		No visible damage to nano band
6/26/13	17:08	Pull, Large 006
		No visible damage to nano band
6/26/13	17:20	Pull, Small 001
		No visible damage to nano band
6/26/13	17:25	Pull, Small 002
		No visible damage to nano band
6/26/13	17:27	Pull, Small 003
		No visible damage to nano band
6/26/13	17:29	Pull, Small 004
		No visible damage to nano band
6/26/13	17:31	Pull, Small 005
		No visible damage to nano band
6/26/13	17:33	Pull, Small 006
		No visible damage to nano band
6/26/13	17:35	Pull, Small 007
		No visible damage to nano band
6/26/13	17:37	Pull, Small 008
		No visible damage to nano band

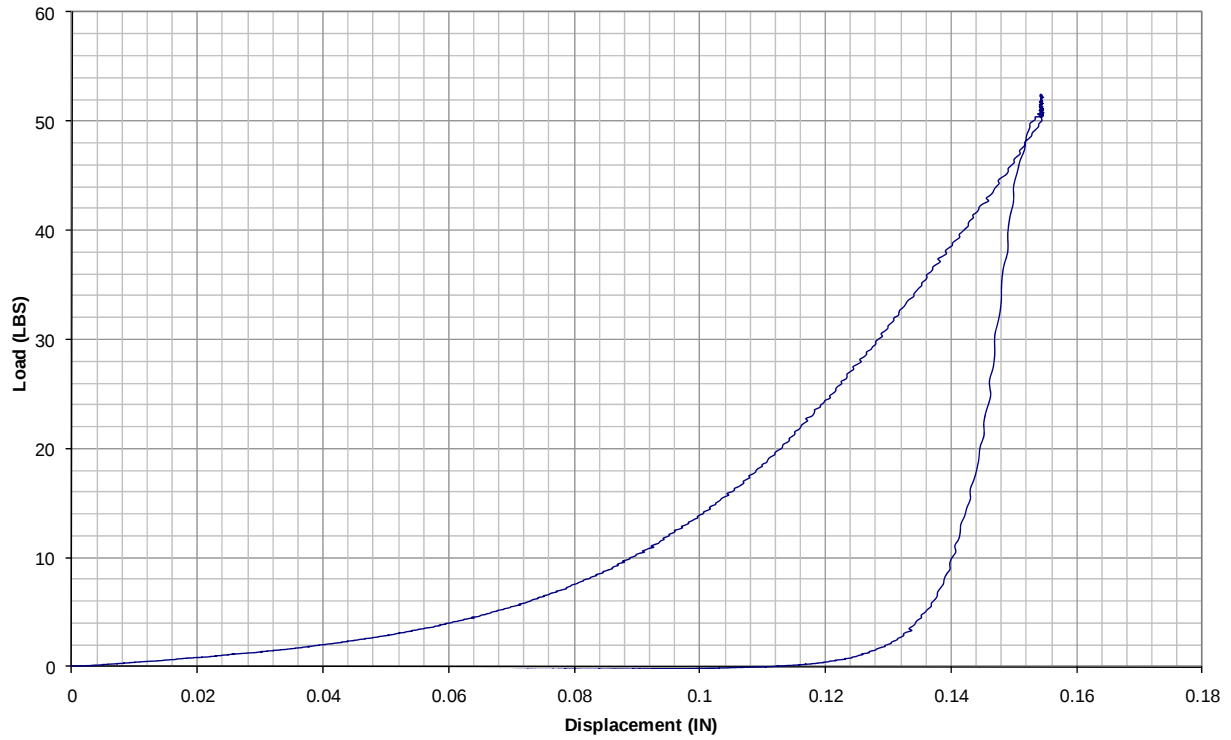
Glenair, Inc. PR021798 Braid Retention Test
P/N: 601-504 S/N: SM001
6/26/13



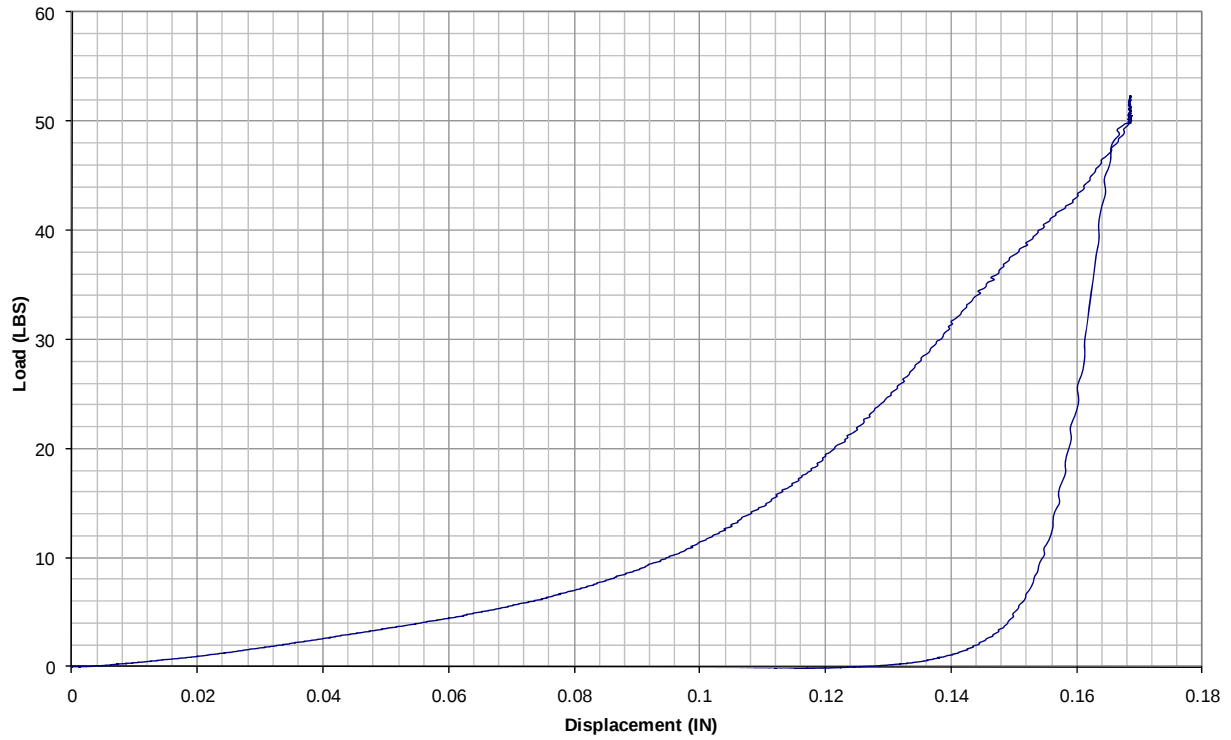
Glenair, Inc. PR021798 Braid Retention Test
P/N: 601-504 S/N: SM002
6/26/13



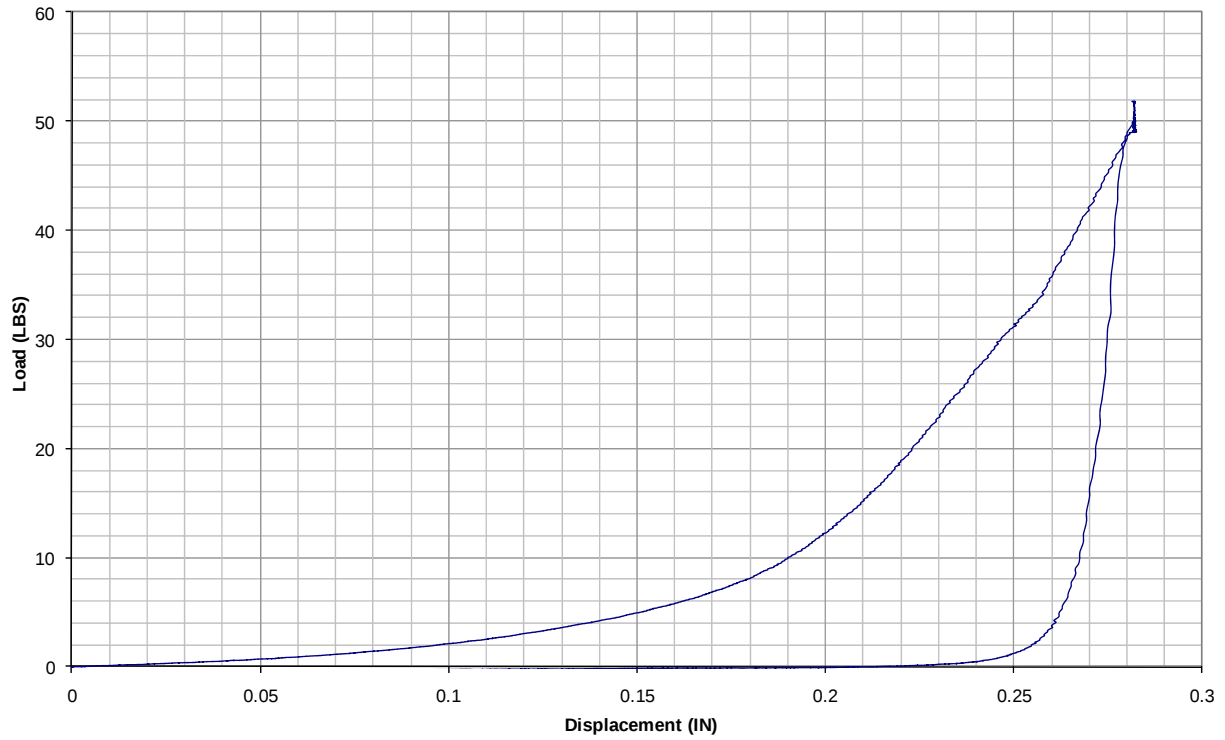
Glenair, Inc. PR021798 Braid Retention Test
P/N: 601-504 S/N: SM003
6/26/13



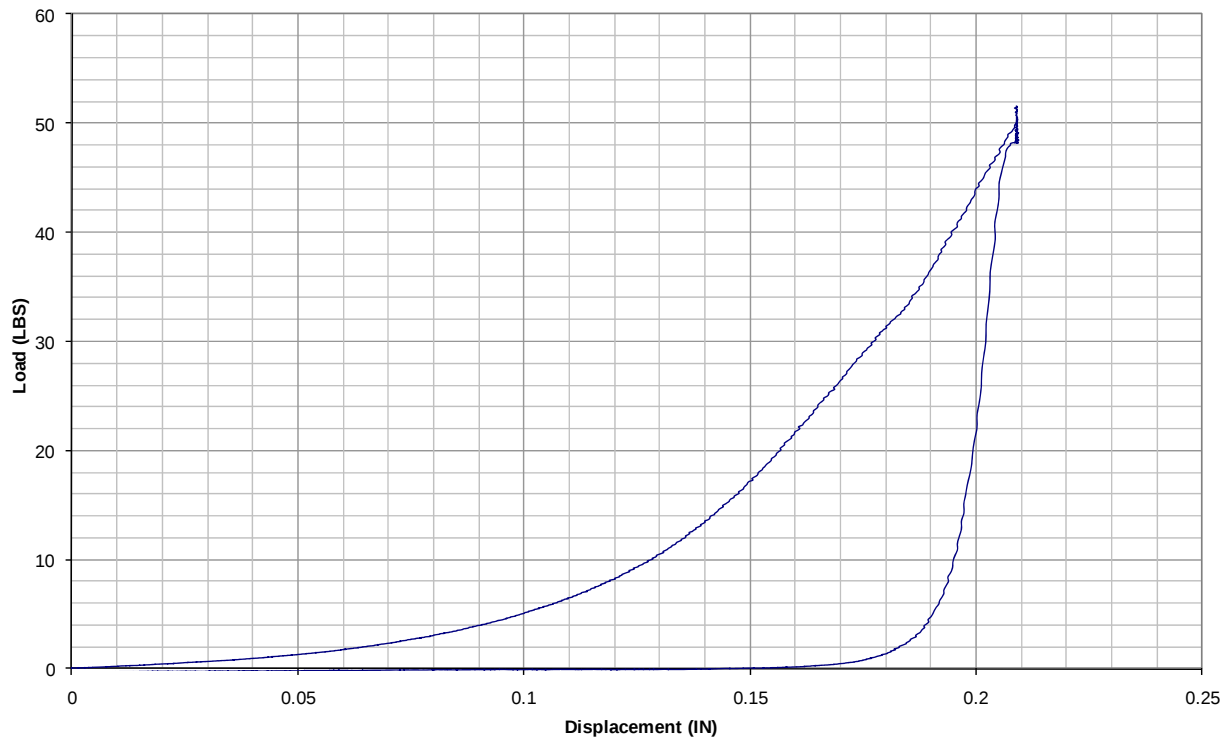
Glenair, Inc. PR021798 Braid Retention Test
P/N: 601-504 S/N: SM004
6/26/13



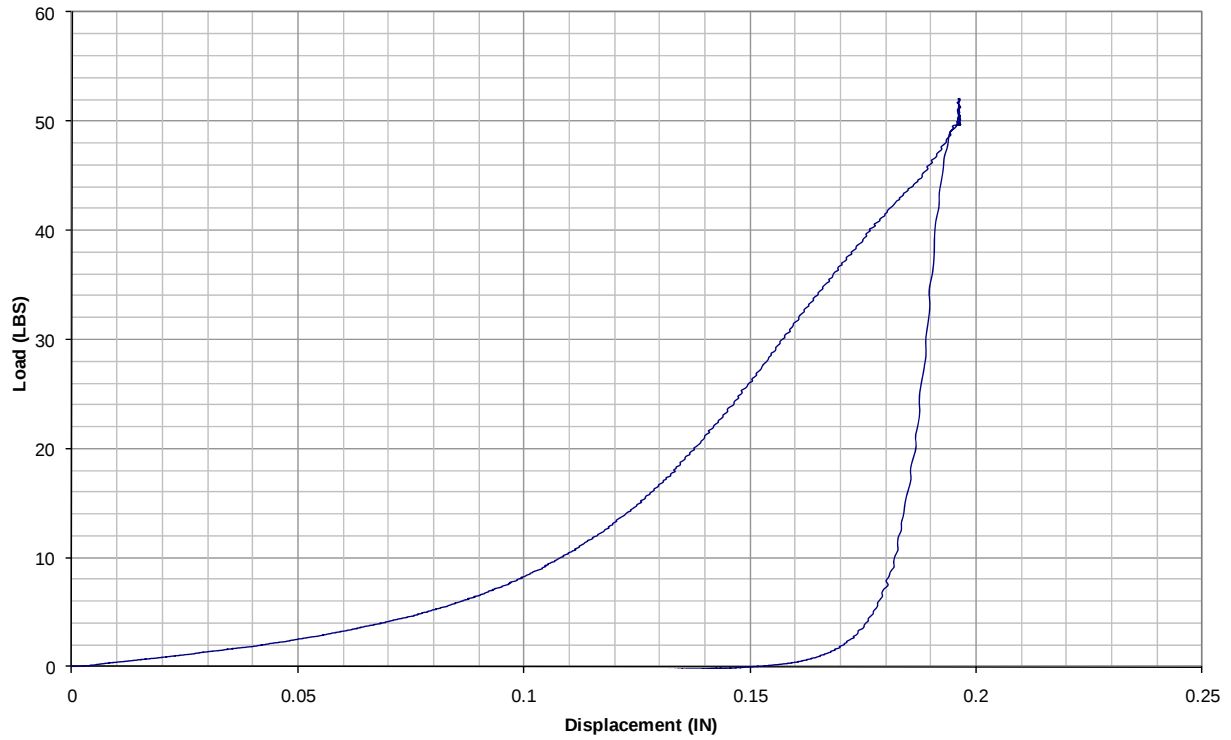
Glenair, Inc. PR021798 Braid Retention Test
P/N: 601-504 S/N: SM005
6/26/13



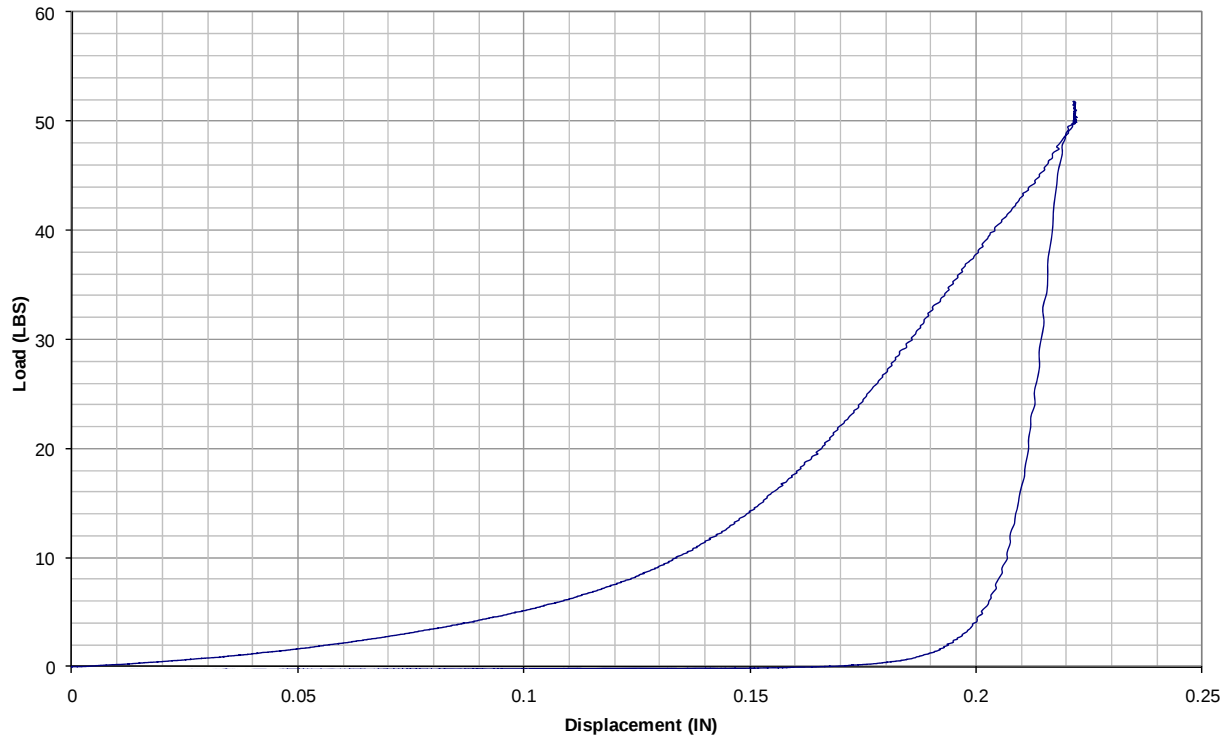
Glenair, Inc. PR021798 Braid Retention Test
P/N: 601-504 S/N: SM006
6/26/13



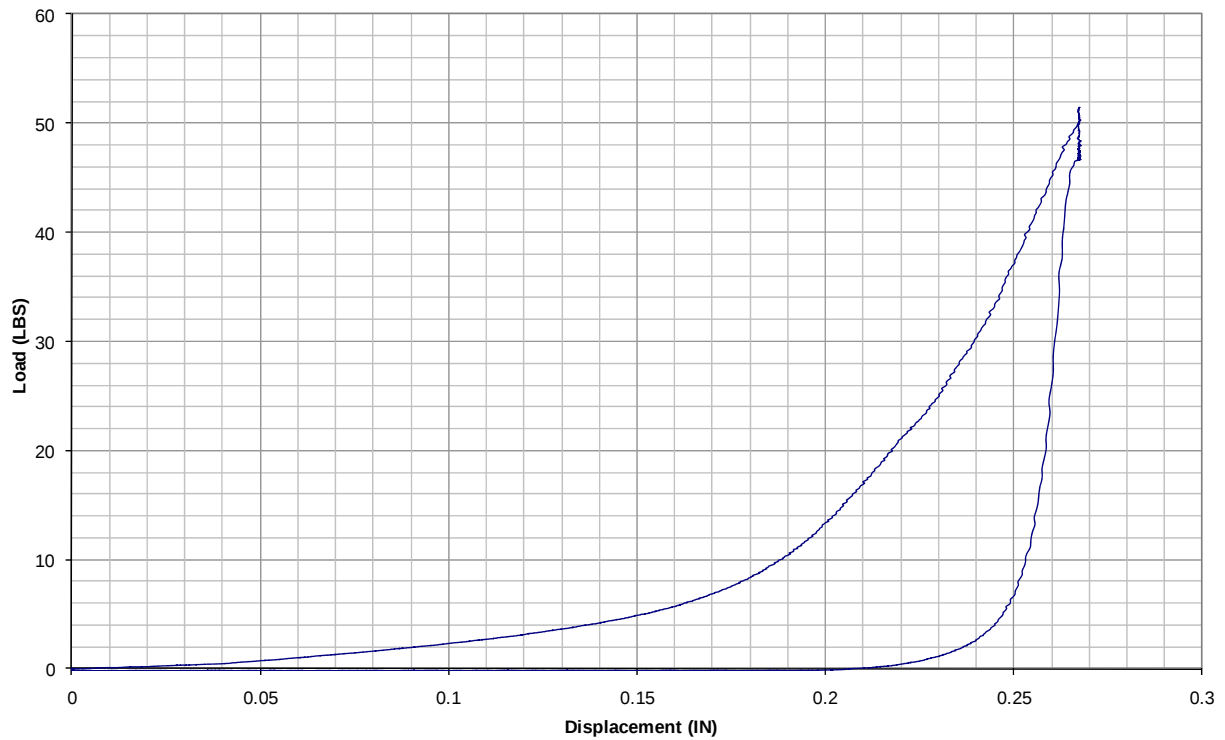
Glenair, Inc. PR021798 Braid Retention Test
P/N: 601-504 S/N: SM007
6/26/13



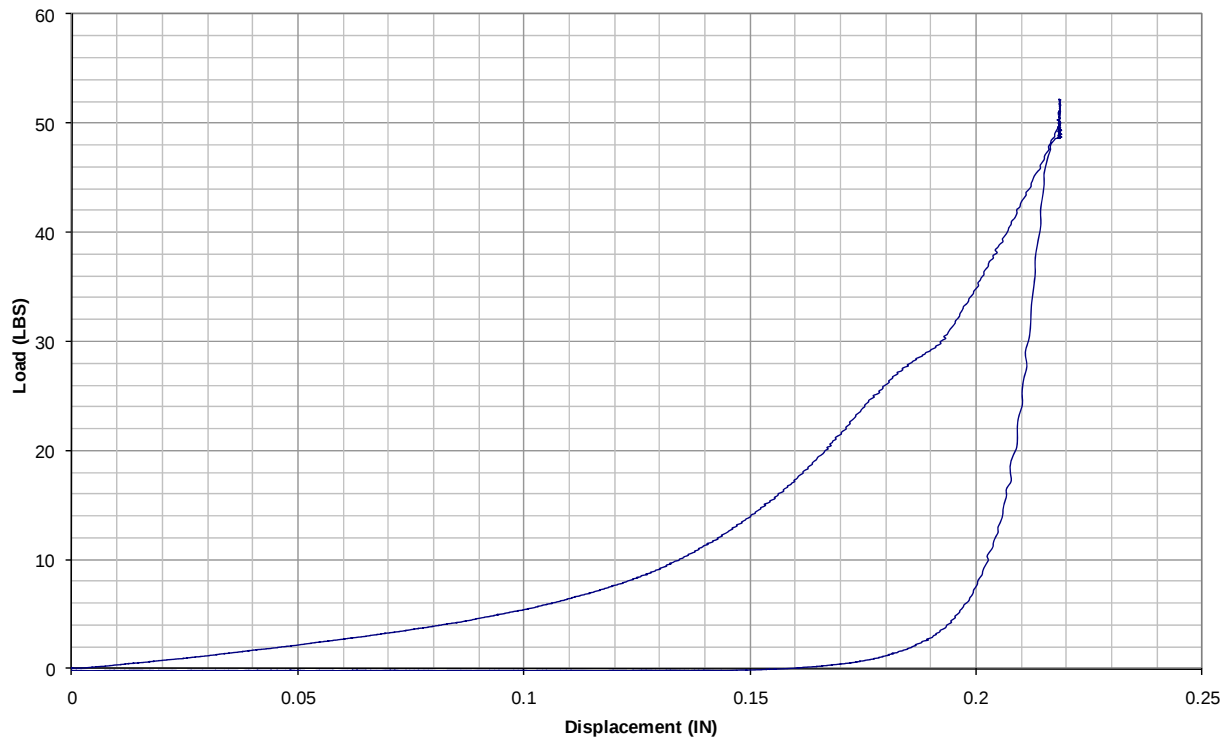
Glenair, Inc. PR021798 Braid Retention Test
P/N: 601-504 S/N: SM008
6/26/13



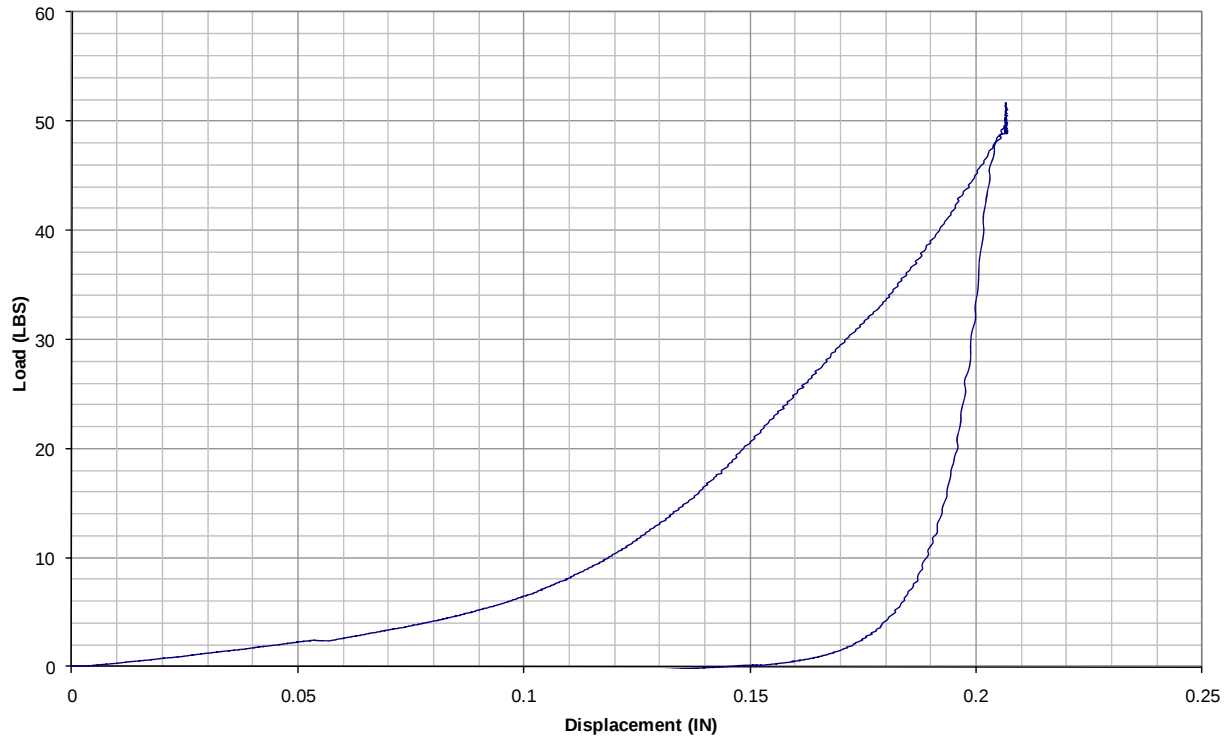
Glenair, Inc. PR021798 Braid Retention Test
P/N: 601-504 S/N: LG001
6/26/13



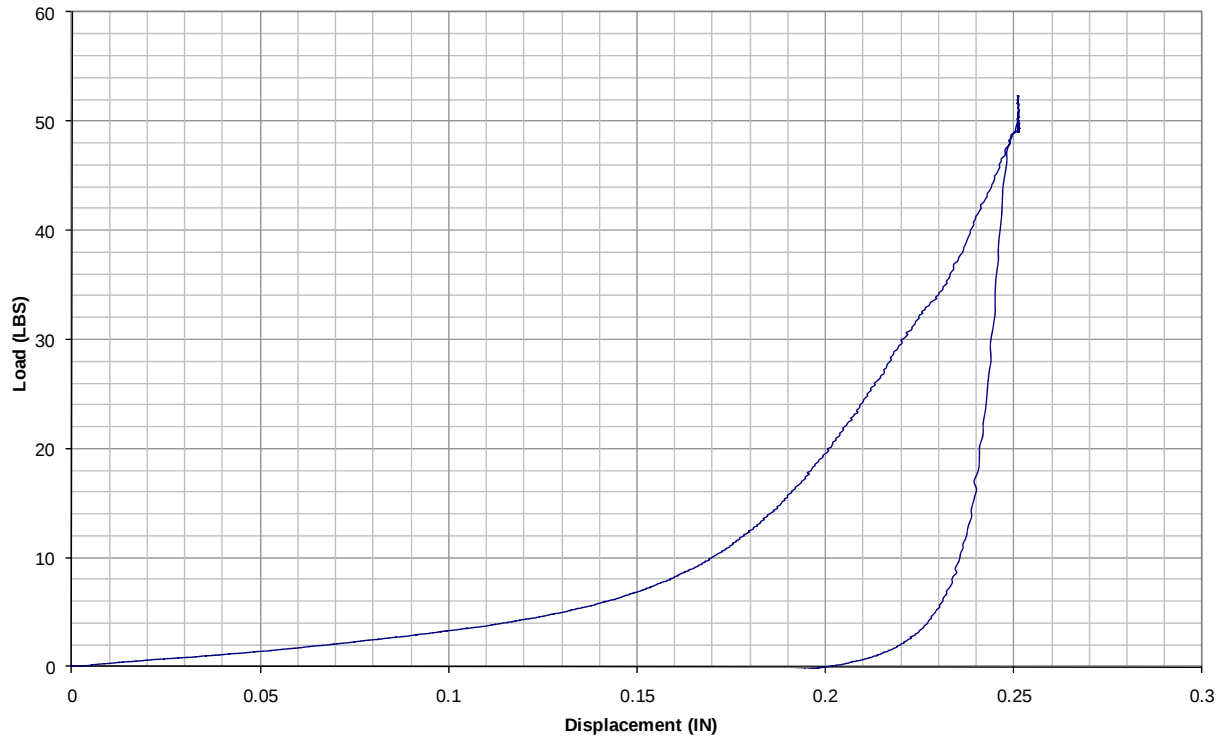
Glenair, Inc. PR021798 Braid Retention Test
P/N: 601-504 S/N: LG002
6/26/13



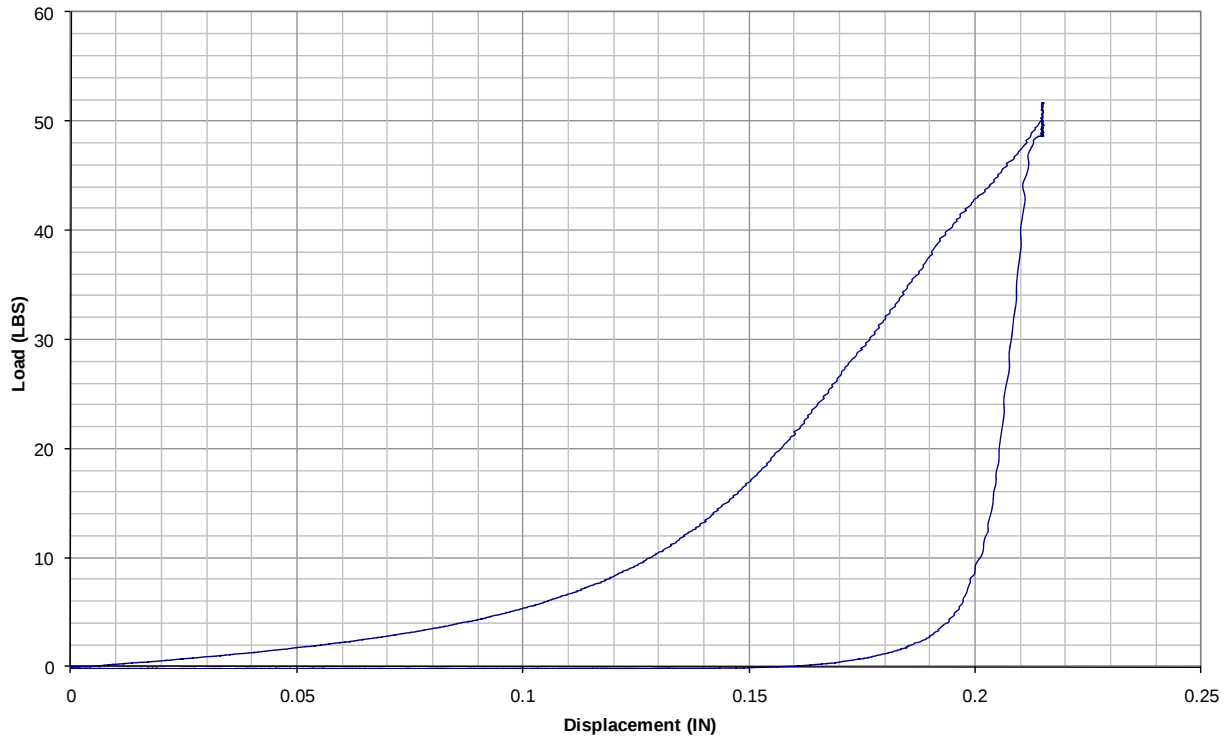
Glenair, Inc. PR021798 Braid Retention Test
P/N: 601-504 S/N: LG003
6/26/13



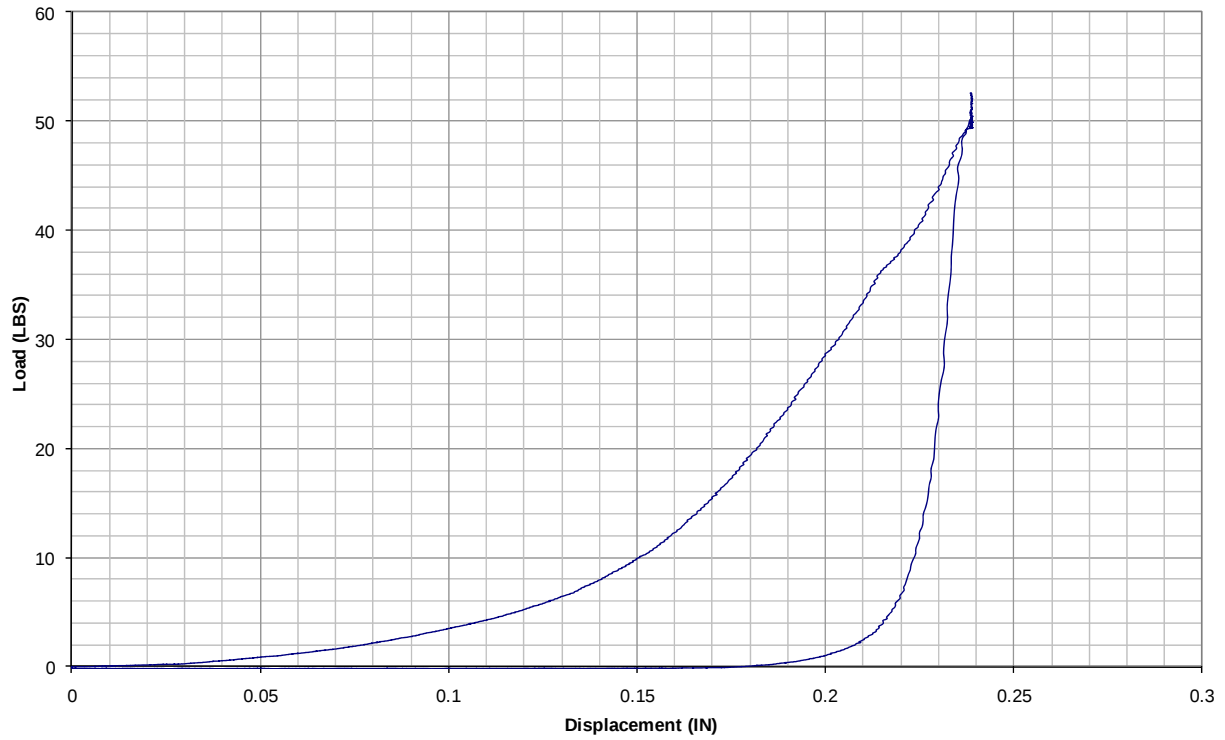
Glenair, Inc. PR021798 Braid Retention Test
P/N: 601-504 S/N: LG004
6/26/13



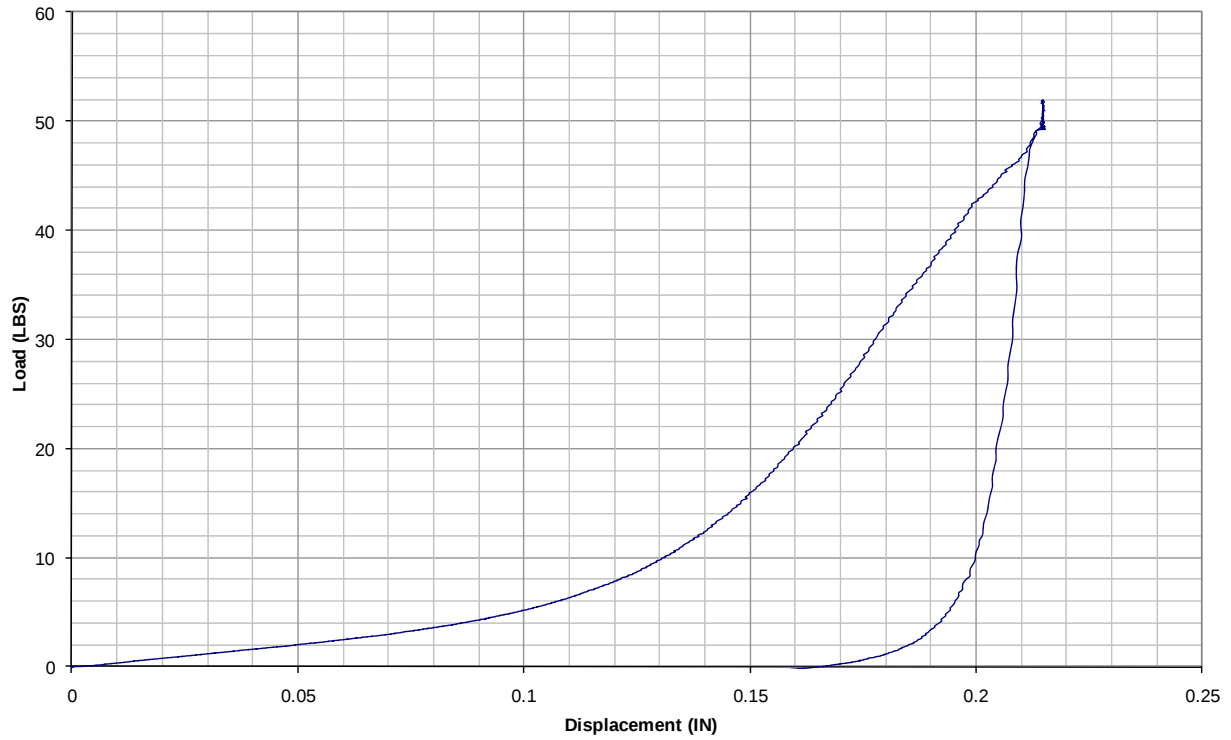
Glenair, Inc. PR021798 Braid Retention Test
P/N: 601-504 S/N: LG005
6/26/13



Glenair, Inc. PR021798 Braid Retention Test
P/N: 601-504 S/N: LG006
6/26/13



Glenair, Inc. PR021798 Braid Retention Test
P/N: 601-504 S/N: LG007
6/26/13





GENERAL DATA SHEET

TEST:	Shell Conductivity		
CUSTOMER:	Glenair, Inc.	MJO:	PR021798
PART:	Nano Bands (Installed on Shell size 6 connectors)		
PART NUMBER:	601-504	P.O. NO.:	PC040913--2
SPECIFICATION:	IAW SAE AS85049C & MIL-DTL-38999L	S/N:	See Below
GROUP:	Post Braid Retention	DATE:	7/1/13
PARA.	-----	TEMP	77 F° RH 41 %
	☒ PASSED		☐ DEVIATION

TEST ITEM SER. NO.# NOTED	APPLIED VOLTS: 1.5 VDC MAX.	TEST CURRENT: 1.0 +/- 0.1 ADC	ACTUAL VOLTAGE DROP VALUES NOTED		
001	1.5 Vdc	1.0 Adc	1.22 mV		
002	1.5 Vdc	1.0 Adc	0.46 mV		
003	1.5 Vdc	1.0 Adc	0.74 mV		
004	1.5 Vdc	1.0 Adc	0.10 mV		
005	1.5 Vdc	1.0 Adc	1.20 mV		
006	1.5 Vdc	1.0 Adc	1.53 mV		
007	1.5 Vdc	1.0 Adc	0.67 mV		
008	1.5 Vdc	1.0 Adc	0.79 mV		

REMARKS: The points of measurement were from the flat surface of the coupling nut of the plug, to 1.0 inch +/- 0.25, past the banding termination area of the receptacle, onto the braid. (Approved by Customer on 5/7/13)

MAXIMUM MILLIVOLT REQUIREMENT: 10 mV (Per Customer's email dated 4/29/13)

TESTED BY: K. Matz DATE: 7/1/13

ENGINEER: S. Miller *SM* NTS QA: GOVT QAR:

GENERAL DATA SHEET

TEST:	Shell Conductivity	
CUSTOMER:	Glenair, Inc.	MJO: PR021798
PART:	Nano Bands (Installed on Shell size 16 connectors)	P.O. NO.: PC040913--2
PART NUMBER:	601-504	S/N: See Below DATE: 7/11/13
SPECIFICATION:	IAW SAE AS85049C & MIL-DTL-38999L	PARA. TEMP 77 F° RH 41 %
GROUP:	Post Braid Retention	☒ PASSED ☐ DEVIATION

[illegible]

REMARKS: The points of measurement were from the flat surface of the coupling nut of the plug, to 1.0 inch +/- 0.25, past the banding termination area of the receptacle, onto the braid. (Approved by Customer on 5/7/13)

MAXIMUM MILLIVOLT REQUIREMENT: 10 mV (Per Customer's email dated 4/29/13)

TESTED BY: K. Matz DATE: 7/1/13

ENGINEER: S. Miller *SM* NTS QA: GOVT QAR: _____



GENERAL DATA SHEET

CUSTOMER:	Glenair, Inc.	MJO:	PR021798
TEST:	Braid Retention Load to Failure	DATE:	7/9/2013
TEST ITEM:	see below		
PART NUMBER:	see below	S/N:	see below
SPECIFICATION:	SAE AS85049/128 Rev D	PARA:	2
TECHNICIAN:	Connor Smith, George Rocco	TEMP:	21C
ENGINEER:	Scott Miller <i>SM</i>	RH:	43%
		DEVIATION:	NO ☒ YES ☐

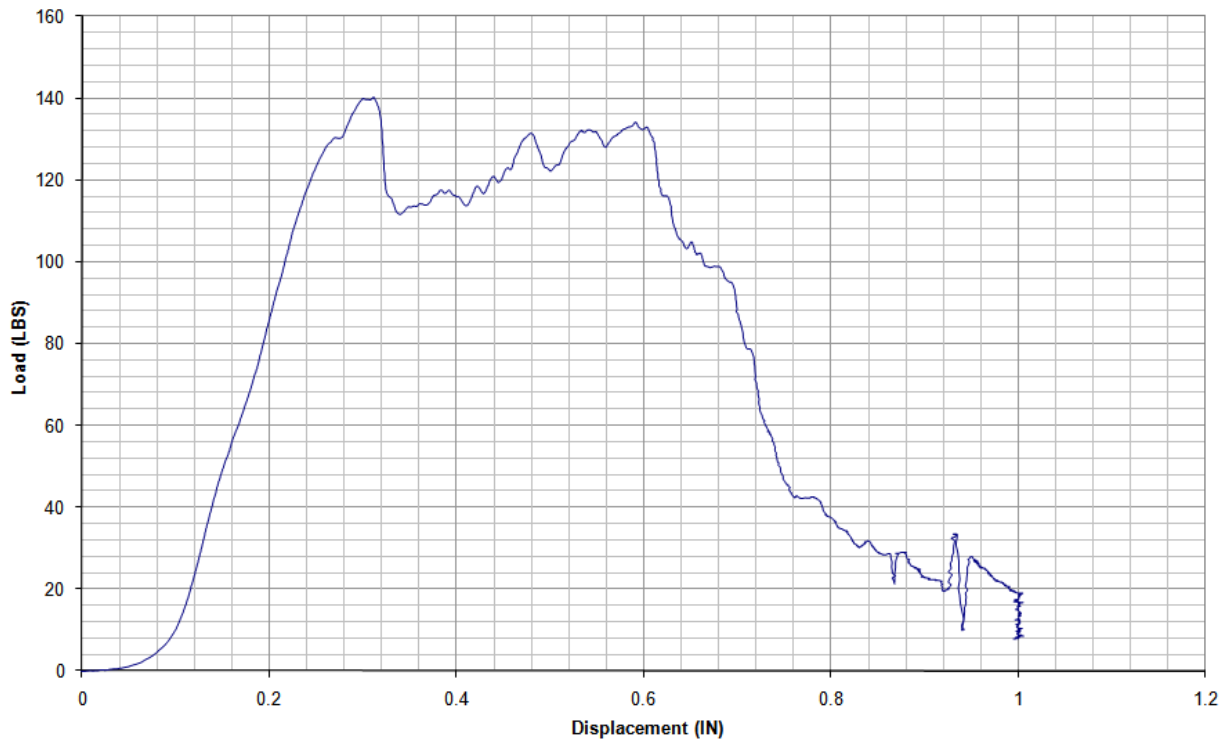
Date	Time	Test Description			
		Quantity	Test Item	P/N	S/N
		8	Nano bands-terminated to braid and installed on Recpt. P/N 801-009-07M6-4PA and mated to Plug P/N 801-007-16M6-4SA (Shell size 6)	601-504	001 thru 008
		7	Nano bands-same as above except installed on Recpt. P/N 801-009-07M16-12SA and Mated to Plug P/N 801-007-16M16-12PA (shell size 16)	601-504	001 thru 007
		Shell size 6 will be referred to as "Small"			
		Shell size 16 will be referred to as "Large"			
		Test items will be pulled at a rate of 1"/min until failure. Load and displacement will be recorded continuously throughout the test.			
7/9/13	16:55	Pull to failure, Small 001			
		Braid failure, nano band still intact			
7/9/13	17:25	Pull to failure, Small 002			
		Braid failure, nano band still intact			
7/9/13	17:33	Pull to failure, Small 003			
		Braid failure, nano band still intact			
7/9/13	17:37	Pull to failure, Small 004			
		Braid failure, nano band still intact			
7/9/13	17:40	Pull to failure, Small 005			
		Braid failure, nano band still intact			



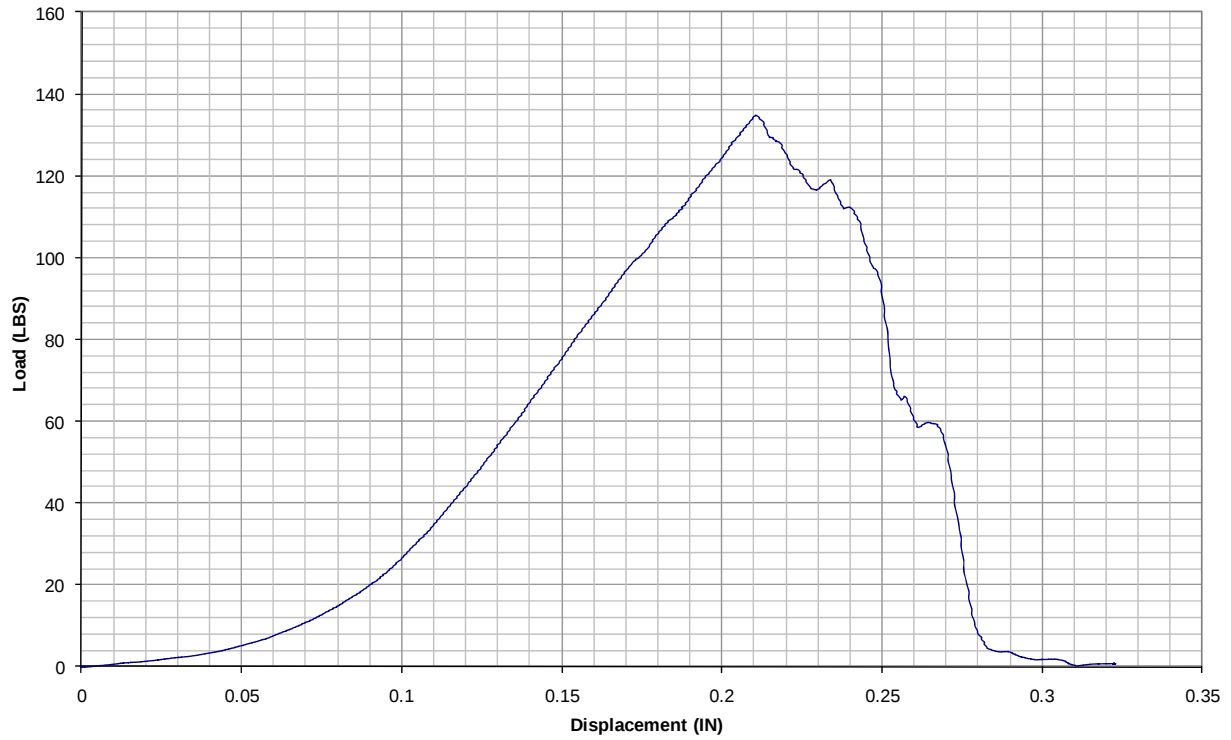
GENERAL DATA SHEET

CUSTOMER:	Glenair, Inc.	MJO:	PR021798
TEST:	Braid Retention Load to Failure	DATE:	7/9/2013
TEST ITEM:	see below		
PART NUMBER:	see below	S/N:	see below
SPECIFICATION:	SAE AS85049/128 Rev D	PARA:	2
TECHNICIAN:	Connor Smith, George Rocco	TEMP:	21C
ENGINEER:	Scott Miller <i>SM</i>	RH:	43%
		DEVIATION:	NO ☒ YES ☐

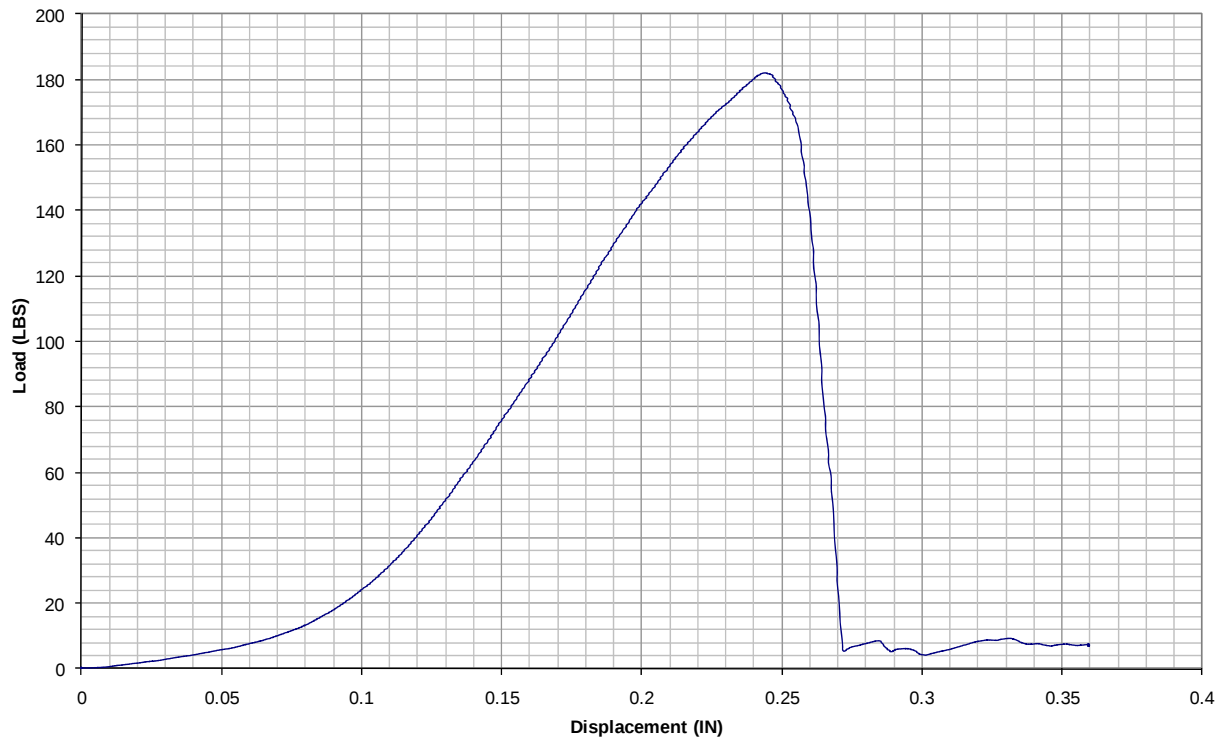
Date	Time	Test Description
7/9/13	17:42	Pull to failure, Small 006
		Braid failure, nano band still intact
7/9/13	17:44	Pull to failure, Small 007
		Braid failure, nano band still intact
7/9/13	17:47	Pull to failure, Small 008
		Braid failure, nano band still intact
7/9/13	22:07	Pull to failure, Large 001
		Braid failure, nano band still intact
7/9/13	22:10	Pull to failure, Large 002
		Braid failure, nano band still intact
7/9/13	22:15	Pull to failure, Large 003
		Braid failure, nano band still intact
7/9/13	22:17	Pull to failure, Large 004
		Braid failure, nano band still intact
7/9/13	22:19	Pull to failure, Large 005
		Braid failure, nano band still intact
7/9/13	22:22	Pull to failure, Large 006
		Braid failure, nano band still intact
7/9/13	22:28	Pull to failure, Large 007
		Braid failure, nano band still intact

Glenair, Inc. PR021798 Braid Retention To Failure Test
P/N: 601-504 S/N: SM001
07/09/13

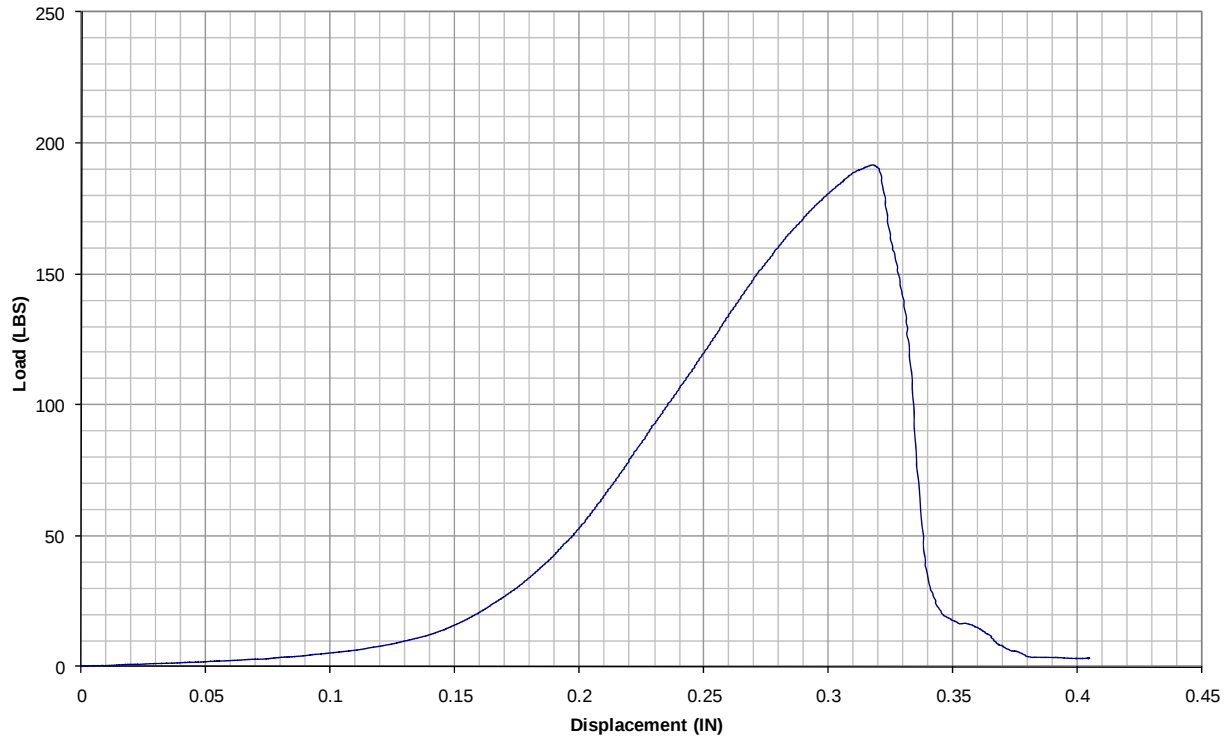
Glenair, Inc. PR021798 Braid Retention To Failure Test
P/N: 601-504 S/N: SM002
07/09/13



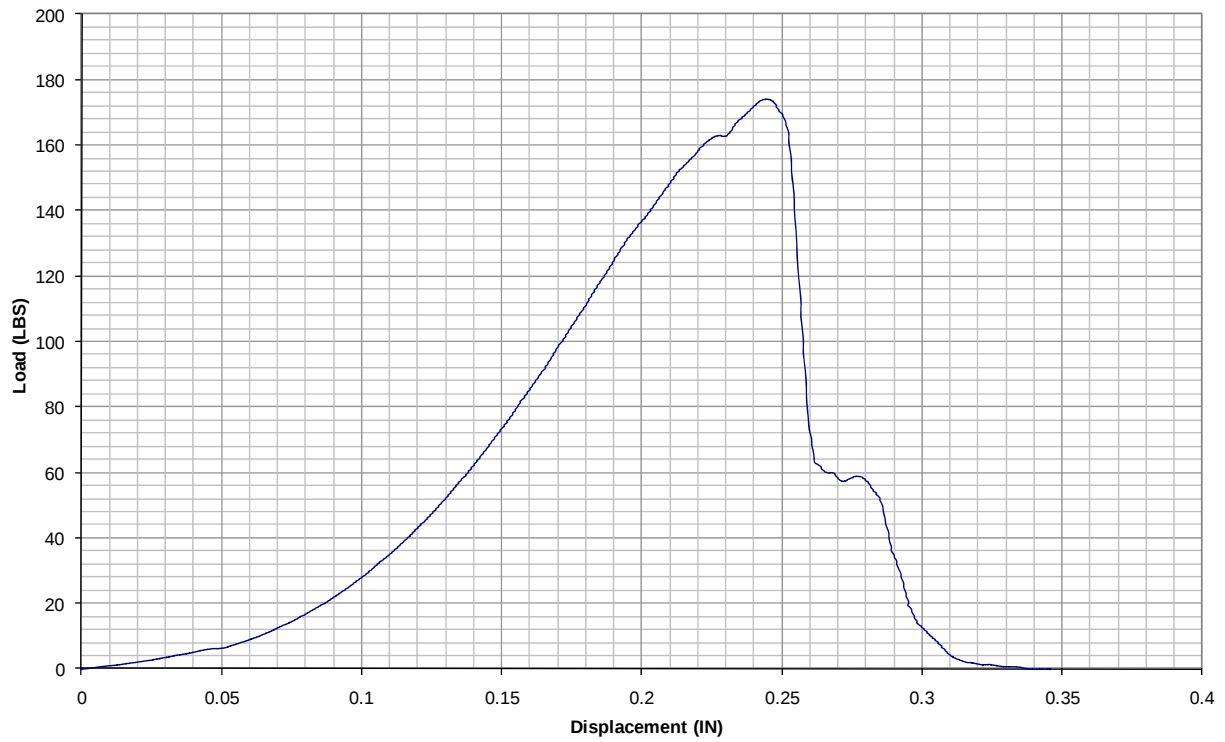
Glenair, Inc. PR021798 Braid Retention To Failure Test
P/N: 601-504 S/N: SM003
07/09/13



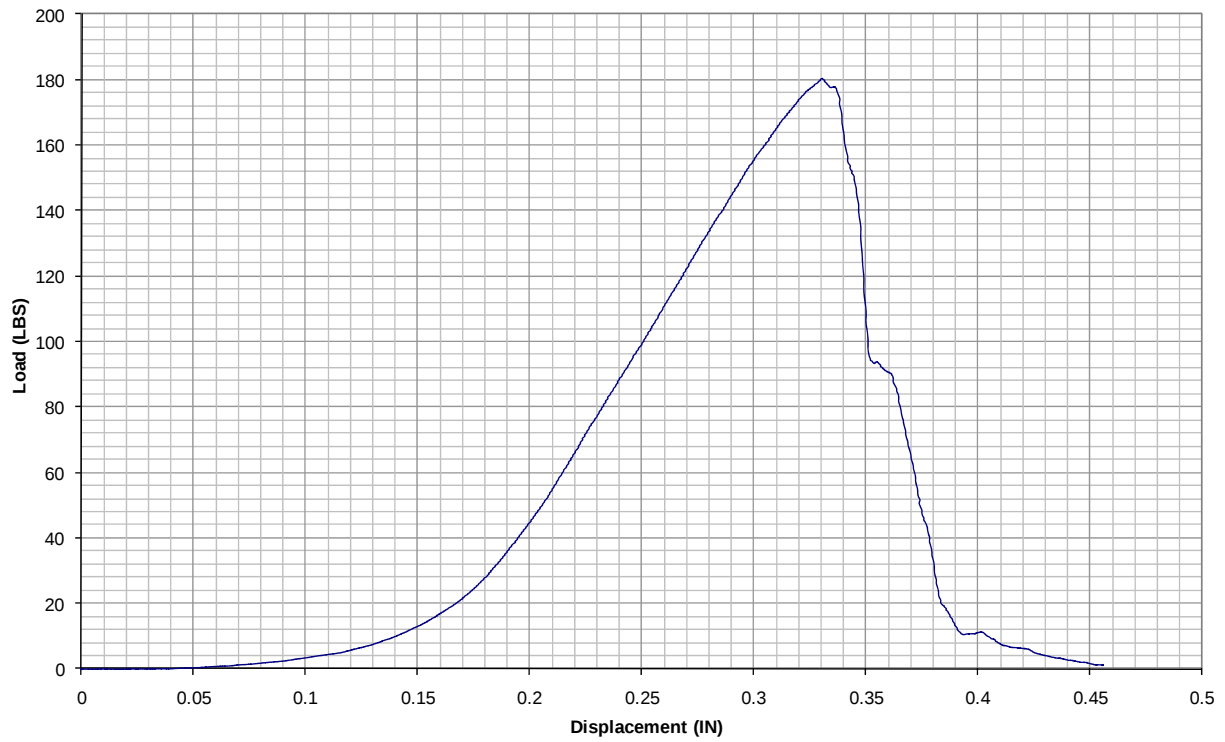
Glenair, Inc. PR021798 Braid Retention To Failure Test
P/N: 601-504 S/N: SM004
07/09/13



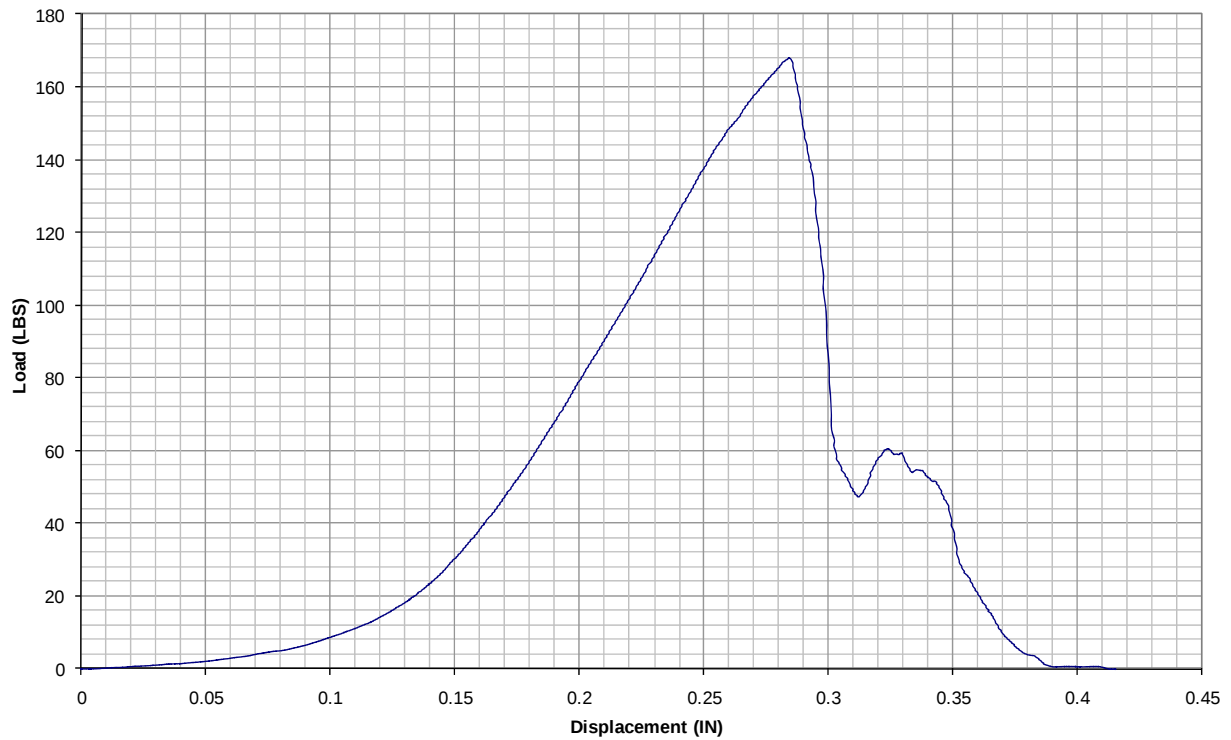
Glenair, Inc. PR021798 Braid Retention To Failure Test
P/N: 601-504 S/N: SM005
07/09/13



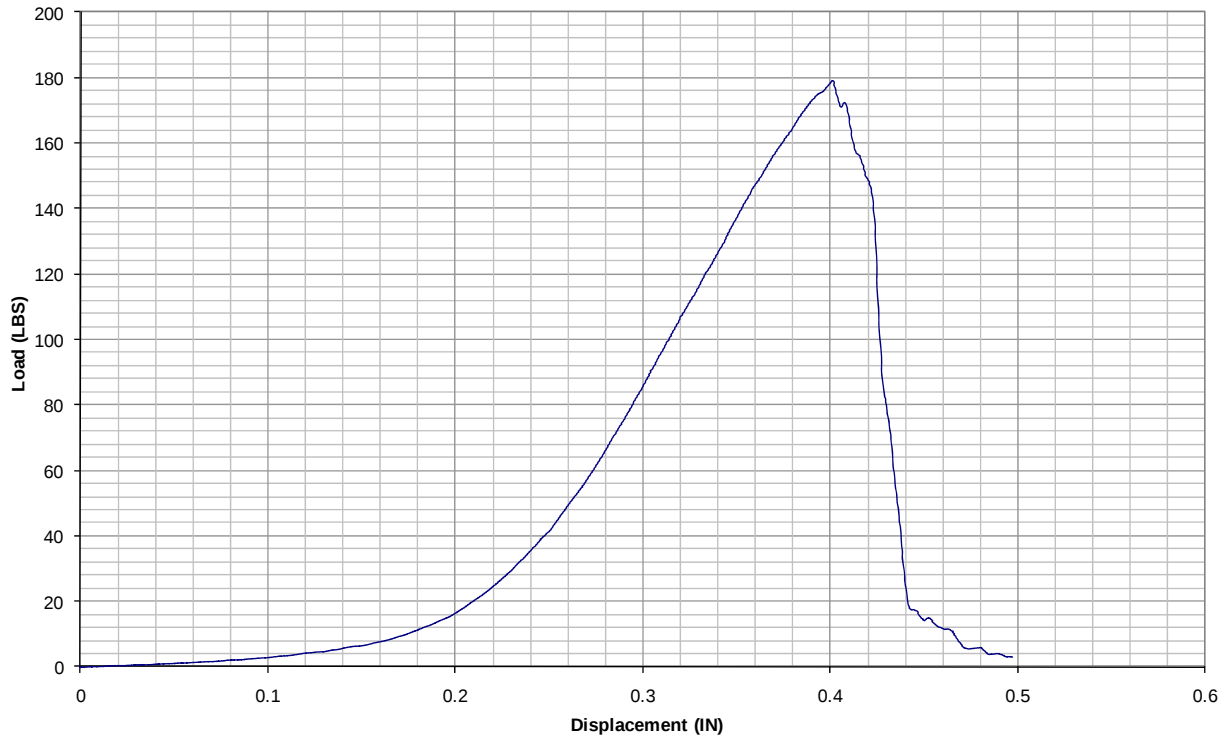
Glenair, Inc. PR021798 Braid Retention To Failure Test
P/N: 601-504 S/N: SM006
07/09/13



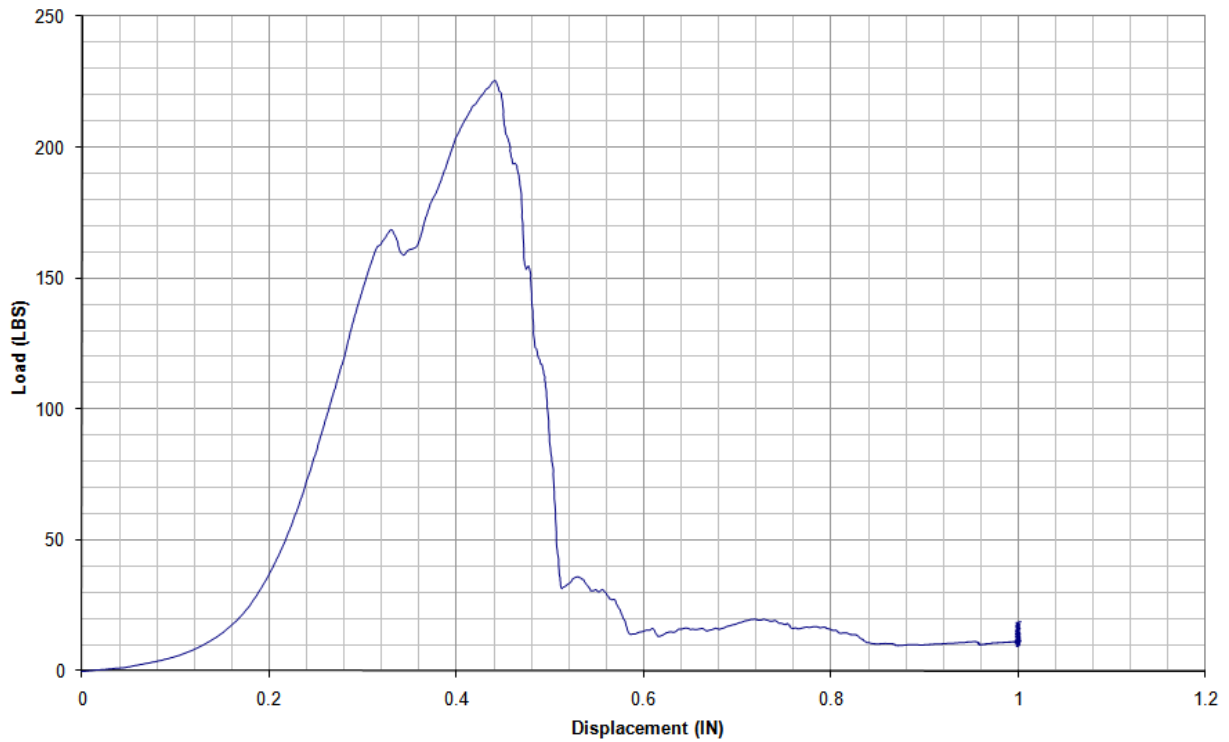
Glenair, Inc. PR021798 Braid Retention To Failure Test
P/N: 601-504 S/N: SM007
07/09/13



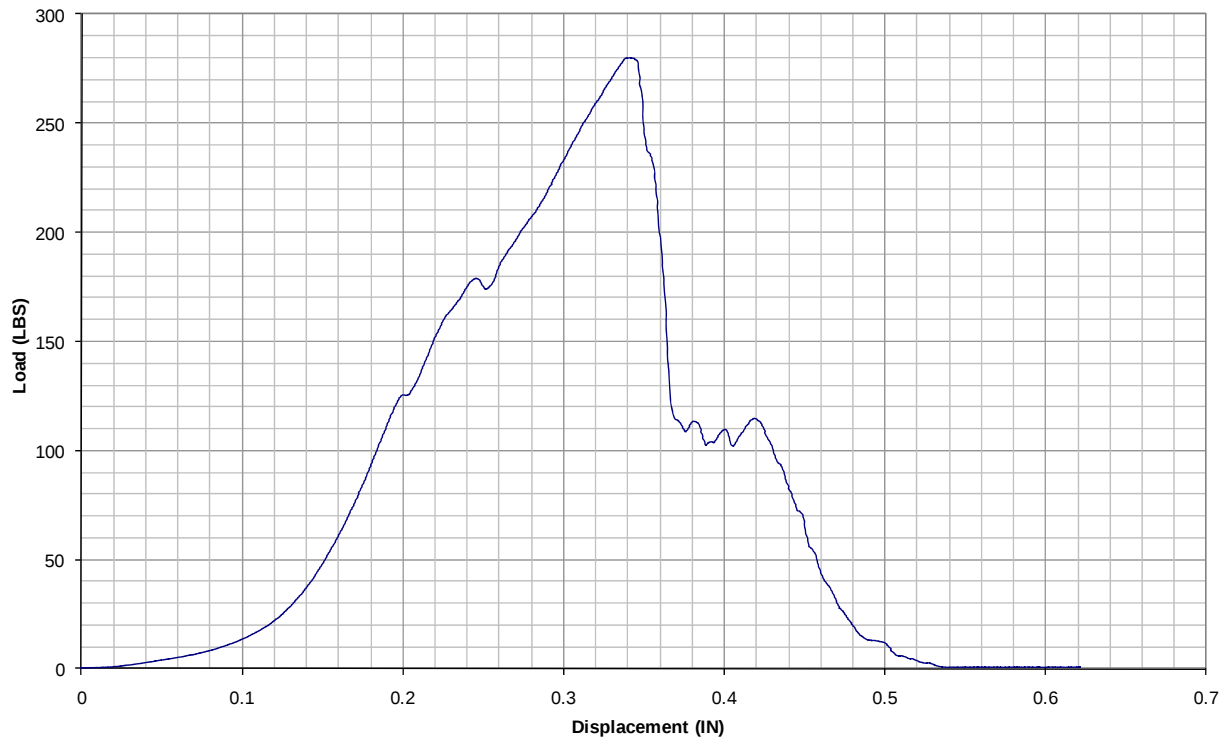
Glenair, Inc. PR021798 Braid Retention To Failure Test
P/N: 601-504 S/N: SM008
07/09/13



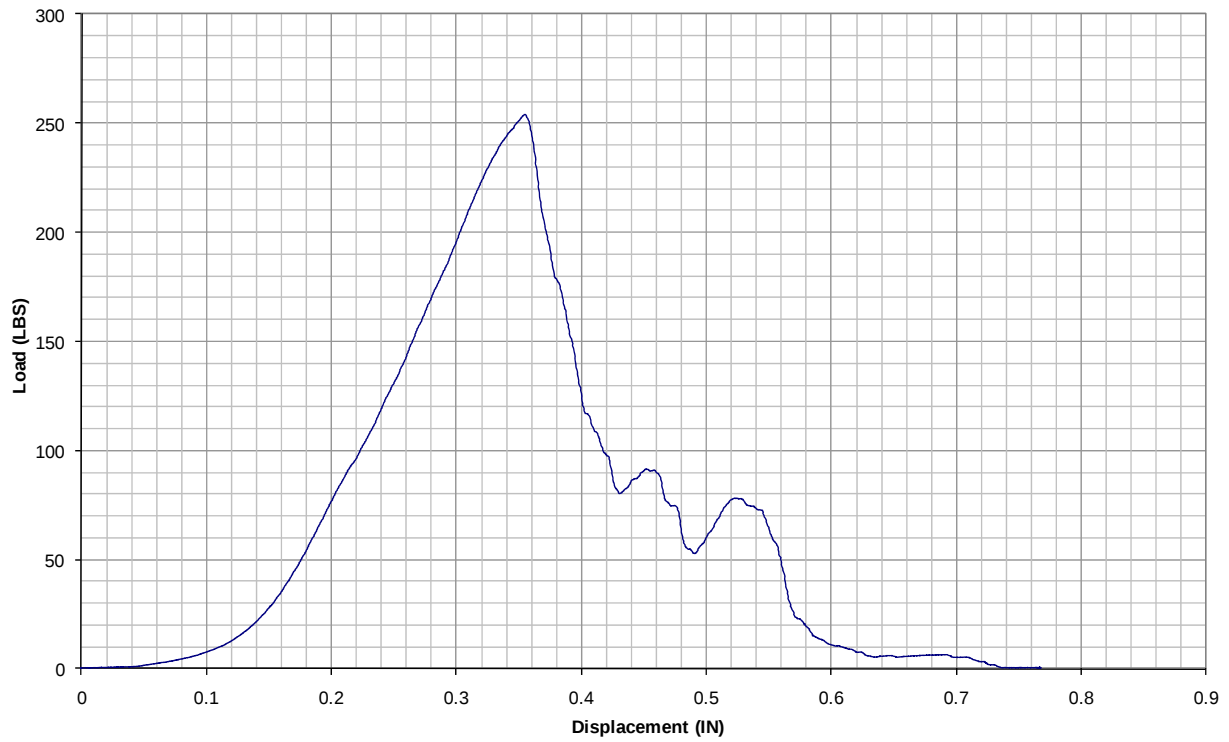
Glenair, Inc PR021798 Braid Retention To Failure Test
P/N: 601-504 S/N: LG001
07/09/13



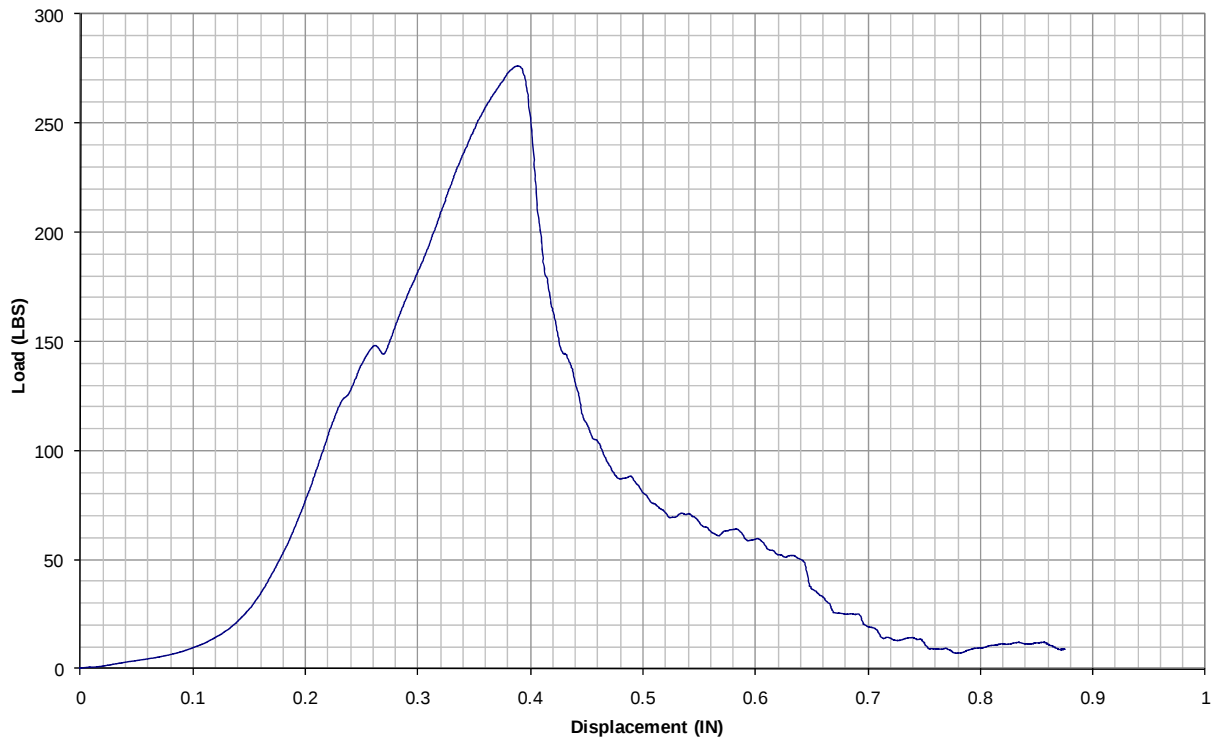
Glenair, Inc. PR021798 Braid Retention To Failure Test
P/N: 601-504 S/N: LG002
07/09/13



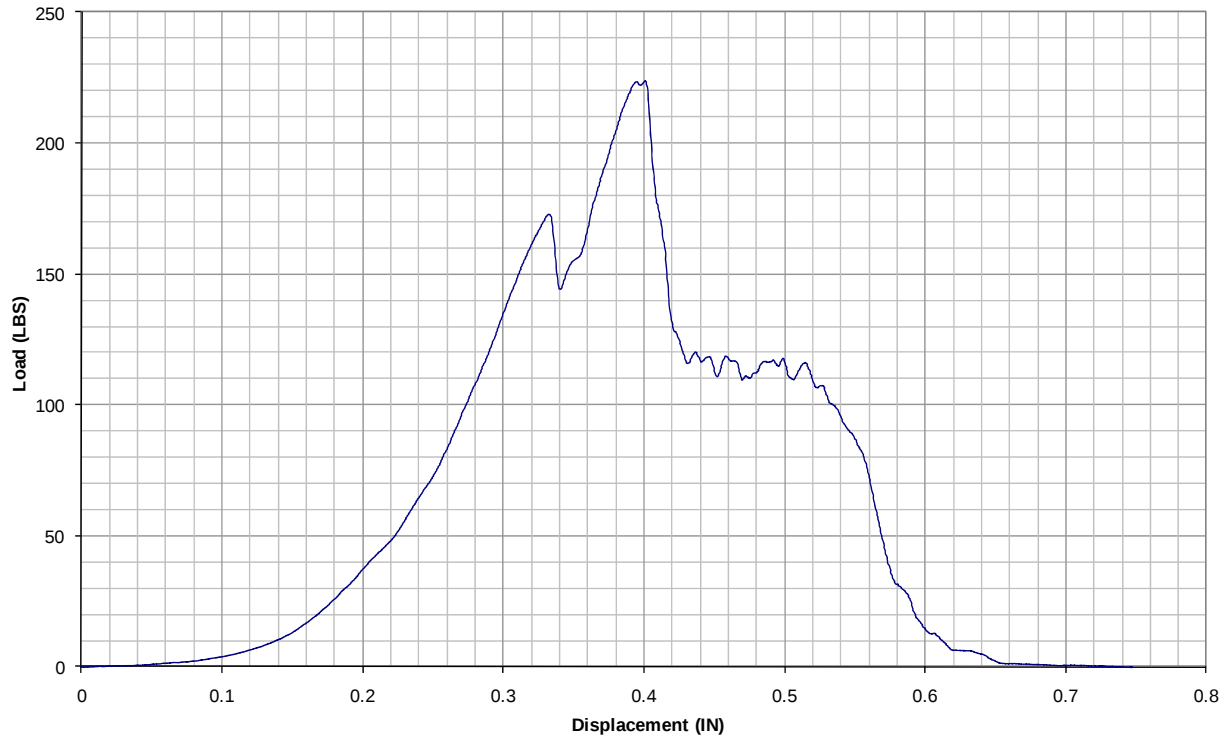
Glenair, Inc. PR021798 Braid Retention To Failure Test
P/N: 601-504 S/N: LG003
07/09/13



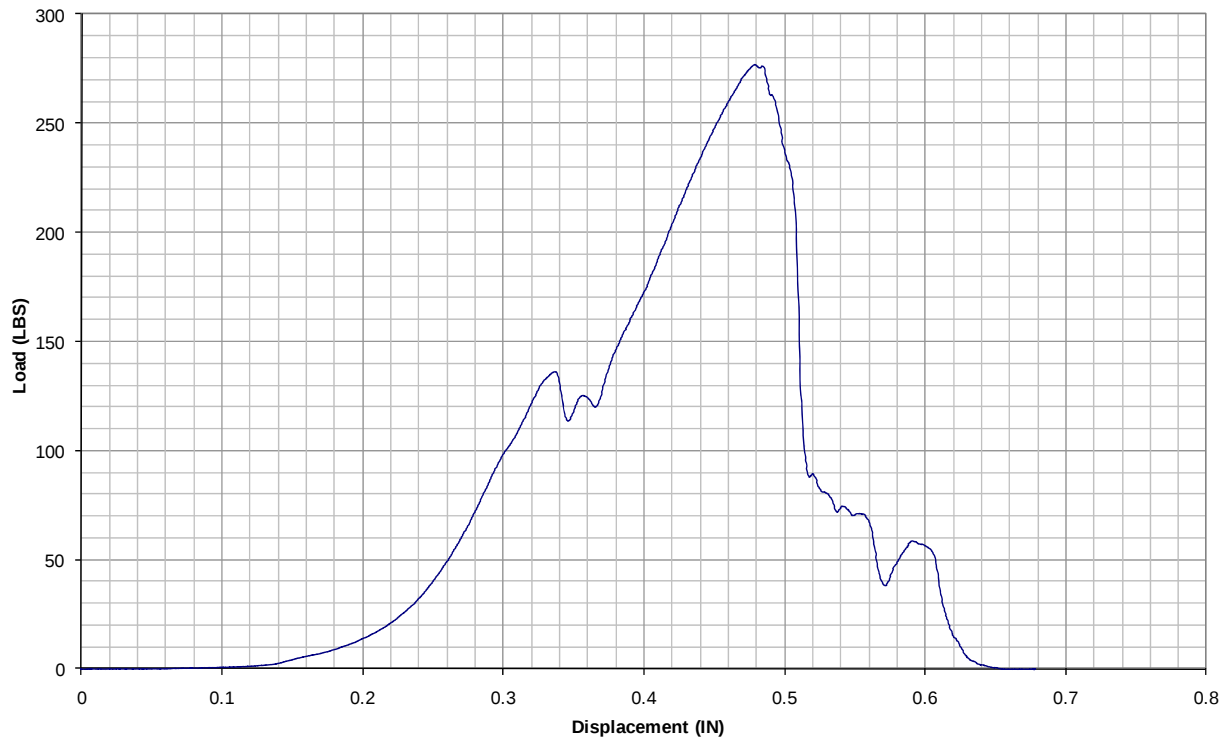
Glenair, Inc. PR021798 Braid Retention To Failure Test
P/N: 601-504 S/N: LG004
07/09/13



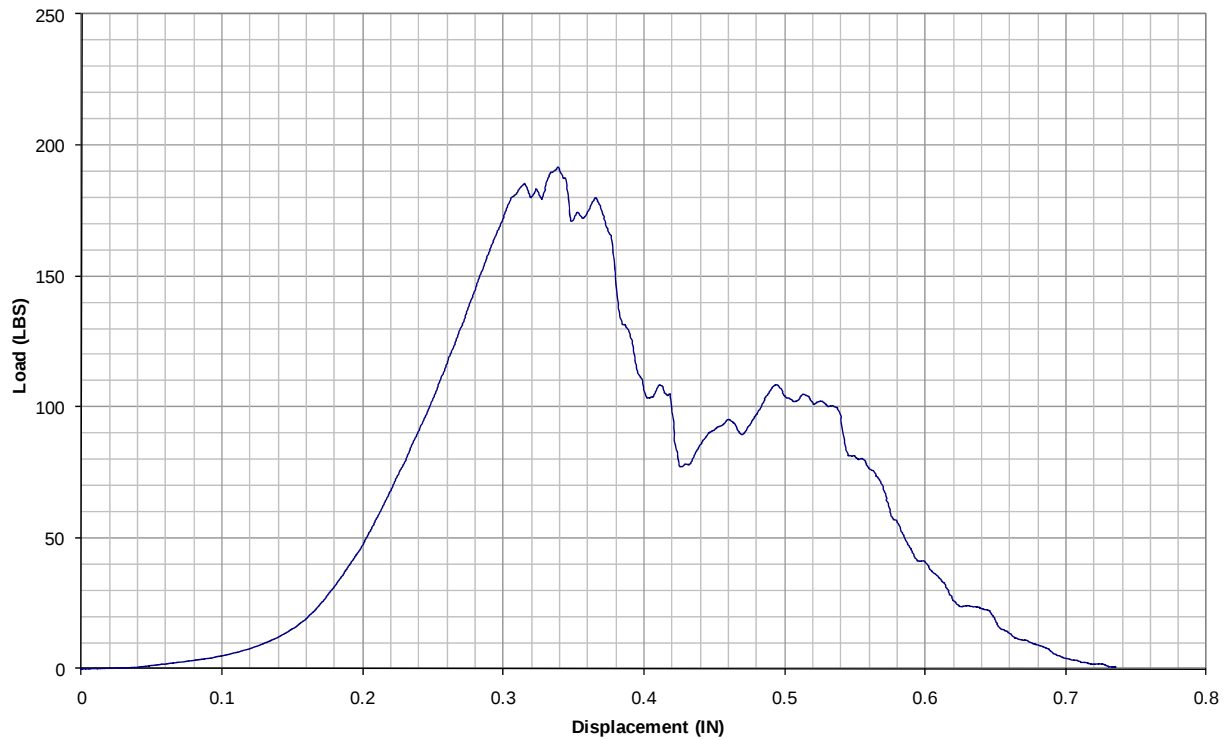
Glenair, Inc. PR021798 Braid Retention To Failure Test
P/N: 601-504 S/N: LG005
07/09/13



Glenair, Inc. PR021798 Braid Retention To Failure Test
P/N: 601-504 S/N: LG006
07/09/13



Glenair, Inc. PR021798 Braid Retention To Failure Test
P/N: 601-504 S/N: LG007
07/09/13





EQUIPMENT LIST

Description	Apparatus	Calibration
SHELL CONDUCTIVITY <u>4/29/13 – 4/30/13</u>	Hewlett Packard Power Supply Model 6282A S/N 2109A03900 Range: 10V/10A Accuracy: MFG NTS Control No. FL-1379	Not Required
	Fluke Digital Multimeter Model 8840A, S/N 4067062 Range: DCV 0 to 1000 V Accuracy: $\pm 0.1\%$ NTS Control No. FL-1411	12 months Due 8/7/13
	Fluke True RMS Multimeter Model 87V, S/N 12850182 Range: DCV and ACV 0 to 1000V DCMA and ACMA 0 to 400 ma Ohms 0 to 40 milliohms DCA and ACA 0 to 10A Frequency DC to 200 kHz Capacitance 5.0nF to 5.0uF Accuracy: DCV + 0.1% ACV + 1% (45 Hz to 1 kHz) and + 2% (1 kHz to 5 kHz) DCMA + 0.2% ACMA and ACA + 1% Ohms and DCA + 0.2% Frequency + 0.005% Capacitance + 1% NTS Control No. FL 5923	12 months Due 6/22/13
	Fluke Digital Multimeter Model 87 Series III, S/N 74790201 Range: DCV and ACV 0 to 1,000 Ohms 0 to 40 Mohms, DCMA 0 to 10A ACMA 0 to 10A, CAP 5nF to 5uF Accuracy: DCV $\pm 0.05\%$, ACV $\pm 1.0\%$ +4 CTS Ohms $\pm 0.2\%$ +1 CT, DCA $\pm 0.2\%$ +2 CTS ACA $\pm 1\%$ +2 CTS, CAP $\pm 1\%$ +3 NTS Control No. FL 0336	12 months Due 7/30/13



EQUIPMENT LIST

<u>Description</u>	<u>Apparatus</u>	<u>Calibration</u>
<u>SHELL CONDUCTIVITY</u> <u>5/7/13 – 7/1/13</u>	Hewlett Packard Power Supply Model 6282A S/N 2109A03900 Range: 10V/10A Accuracy: MFG NTS Control No. FL-1379	Not Required
	Fluke Digital Multimeter Model 8840A, S/N 4067062 Range: DCV 0 to 1000 V Accuracy: $\pm 0.1\%$ NTS Control No. FL-1411	12 months Due 8/7/13
	Fluke Digital Multimeter Model 87 Series III, S/N 74790201 Range: DCV and ACV 0 to 1,000 Ohms 0 to 40 Mohms, DCMA 0 to 10A ACMA 0 to 10A, CAP 5nF to 5uF Accuracy: DCV $\pm 0.05\%$, ACV $\pm 1.0\%$ +4 CTS Ohms $\pm 0.2\%$ +1 CT, DCA $\pm 0.2\%$ +2 CTS ACA $\pm 1\%$ +2 CTS, CAP $\pm 1\%$ +3 NTS Control No. FL 0336	12 months Due 7/30/13
<u>THERMAL SHOCK</u> <u>4/30/13</u>	Hewlett Packard Power Supply Model 6282A S/N 2109A03900 Range: 10V/10A Accuracy: MFG NTS Control No. FL-1379	Not Required
	Fluke Digital Multimeter Model 8840A, S/N 4067062 Range: DCV 0 to 1000 V Accuracy: $\pm 0.1\%$ NTS Control No. FL-1411	12 months Due 8/7/13
	Fluke Hydra Data Logger Model 2625, S/N 5145667 Range: DCV: 0 – 300V/ ACV: 0 – 300V/ OHMS: 0 – 10 MOHMS/ FREQ: 15Hz – 1MHz/ Accuracy: DCV: $\pm 0.05\%$ / ACV: $\pm 1\%$ / OHMS: $\pm 0.063\%$ / FREQ: $\pm 0.05\%$ NTS Control No. FL 0852	12 months Due 9/11/13



EQUIPMENT LIST

Description	Apparatus	Calibration
	Fluke True RMS Multimeter Model 87V, S/N 12850182 Range: DCV and ACV 0 to 1000V DCMA and ACMA 0 to 400 ma Ohms 0 to 40 milliohms DCA and ACA 0 to 10A Frequency DC to 200 kHz Capacitance 5.0nF to 5.0uF Accuracy: DCV + 0.1% ACV + 1% (45 Hz to 1 kHz) and + 2% (1 kHz to 5 kHz) DCMA + 0.2% ACMA and ACA + 1% Ohms and DCA + 0.2% Frequency + 0.005% Capacitance + 1% NTS Control No. FL 5923	12 months Due 6/22/13
	Delta Design Temperature Cycling Chamber Model 7650C, S/N 00-77-25 Range: 100°C to +250°C Accuracy: External Monitor NTS Control No. FL 3494	Not Required
	Watlow Process Controller Model F4DH, S/N 015533 Range: -100 to 250°C Accuracy: $\pm 0.14\%FS + 1LSD$ NTS Control No. FL 5705	6 months Due 4/5/14
	Blue M Electric High Temperature Chamber Model CW-6680F, S/N CW-633 Range: Ambient to 700°C Accuracy: External Monitor NTS Control No. FL 0993	Not Required External Monitor
	Watlow Temperature Controller Model 942A-1BB2-A000 Range: 0°C to 750°C Accuracy: $\pm 1^\circ C$ NTS Control No. FL 0995	12 months Due 12/5/13



EQUIPMENT LIST

Description	Apparatus	Calibration
	Sportline Digital Stopwatch Model 220, S/N none Range: 24 Hr Accuracy: ± 0.01 NTS Control No. FL 7084	24 Months Due 10/22/13
	Honeywell Chart Recorder Model DR450T-2200-00-000-0-00 S/N 9221866359019 Range: 0°F to 1600°F Accuracy: $\pm 1.2^{\circ}\text{C}$ NTS Control No. FL 0969	12 months Due 5/24/13
THERMAL SHOCK <u>5/8/13</u>	Sportline Digital Stopwatch Model 220, S/N None Range: 24 Hr Accuracy: ± 0.01 NTS Control No. FL 7084	24 Months Due 10/22/13
	Fluke Digital Multimeter Model 8840A, S/N 4067062 Range: DCV 0 to 1000 V Accuracy: $\pm 0.1\%$ NTS Control No. FL-1411	12 months Due 8/7/13
	Fluke Digital Multimeter Model 87 Series III, S/N 74790201 Range: DCV and ACV 0 to 1,000 Ohms 0 to 40 Mohms, DCMA 0 to 10A ACMA 0 to 10A, CAP 5nF to 5uF Accuracy: DCV $\pm 0.05\%$, ACV $\pm 1.0\%$ +4 CTS Ohms $\pm 0.2\%$ +1 CT, DCA $\pm 0.2\%$ +2 CTS ACA $\pm 1\%$ +2 CTS, CAP $\pm 1\%$ +3 NTS Control No. FL 0336	12 months Due 7/30/13
	Hewlett Packard Power Supply Model 6282A S/N 2109A03900 Range: 10V/10A Accuracy: MFG NTS Control No. FL-1379	Not Required
	Watlow Temperature Controller Model F4DSH-KKA0-21RG S/N 006365 Range: -100 to 250°C Accuracy: 0.14% FS + 1 LSD NTS Control No. FL 3082	12 months Due 1/8/14



EQUIPMENT LIST

<u>Description</u>	<u>Apparatus</u>	<u>Calibration</u>
	Fluke Hydra Data Logger Model 2625A, S/N 5993602 Range: DCV: 0 - 300V / ACV: 0 - 300V/ OHMS: 0 - 30MOHMS / FREQ: 15HZ -1MHZ Accuracy: DCV: $\pm 0.05\%$ / ACV: $\pm 1\%$ / OHMS: $\pm 0.063\%$ NTS Control No. FL 2897	12 months Due 9/10/13
	Research, Inc. Process Controller Model Micristar, S/N 2000 Range: 100 - 200°C Accuracy: $\pm 0.14\%$ FS +1 LSD (2°C) NTS Control No. FL 4950	12 months Due 11/30/13
	General Thermodynamics Temperature Chamber Model UCH-450B, S/N NSN 24 x 30 x 24" Range: -65°F to +200°F Accuracy: External Monitor NTS Control No. FL 0585	Not Required External Monitor
	Delta Design Temperature Chamber Model 7650CD, S/N 0-70-1 Range: -68°C to +177°C, Accuracy: MFG NTS Control No. FL 6929	Not Required
<u>TEMPERATURE LIFE</u> <u>5/9/13 – 6/19/13</u>	Blue M Electric High Temperature Chamber Model CW-6680F, S/N CW-633 Range: Ambient to 700°C Accuracy: External Monitor NTS Control No. FL 0993	Not Required External Monitor
	Watlow Temperature Controller Model 942A-1BB2-A000 Range: 0°C to 750°C Accuracy: $\pm 1^\circ\text{C}$ NTS Control No. FL 0995	12 months Due 12/5/13
	Honeywell Chart Recorder Model DR450T-2200-00-000-0-00 S/N 9221866359019 Range: 0°F to 1600°F Accuracy: $\pm 1.2^\circ\text{C}$ NTS Control No. FL 0969	12 months Due 5/9/14



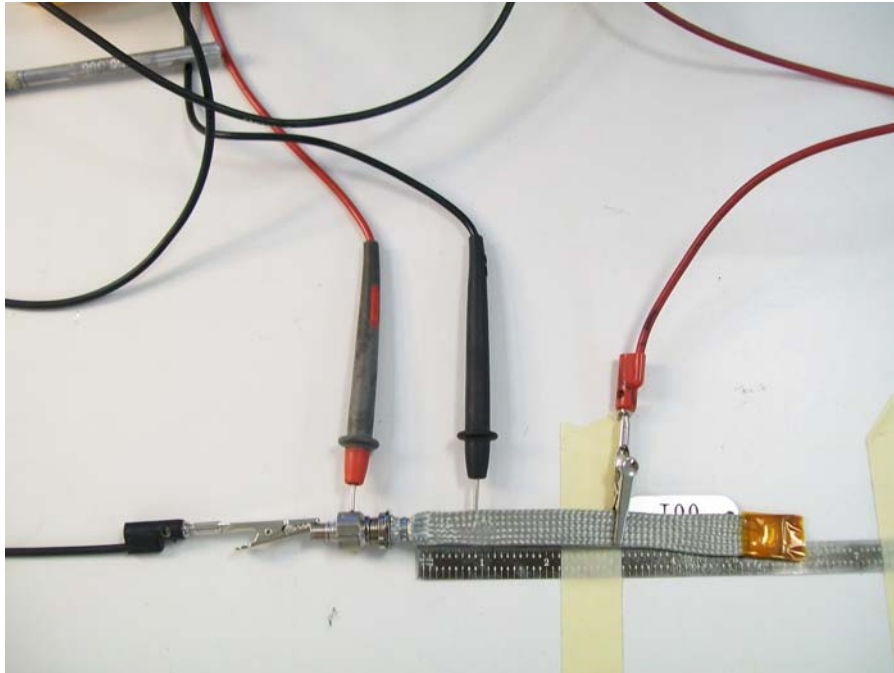
EQUIPMENT LIST

Description	Apparatus	Calibration
BRAID RETENTION 50 POUND LOAD <u>6/25/13 – 6/28/13</u>	Mitutoyo Digital Calipers Model CD-6"CSX S/N 07083853 Range: 0 to 6.0" Accuracy: ± 0.001 " NTS Control No. FL 4652	12 months Due 8/1/13
	Instron Corporation Universal Test Machine, Model 4204 S/N 3167 Range: 0-10,000 lbs Accuracy: $\pm 1\%$ NTS Control No. FL 2600	12 months Due 10/19/13
	Instron Corporation Load Cell Model 2-200, S/N 804 Range: 2 to 200 lbs Accuracy: $\pm 1\%$ NTS Control No. FL 2128	12 months Due 10/19/13
	National Instruments Data Recorder Model USB-6210, S/N 1422CD4 Range: N/A Accuracy: MFG NTS Control No. FL 5200	24 months Due 5/22/14
	Cole-Parmer Hygrometer Model 03313-86, S/N 111647589 Range: -58 - 122°F / 25 – 95% RH Accuracy: $\pm 2^\circ\text{F}$ / 3% RH NTS Control No. FL 6416	24 months Due 12/13/13
BRAID RETENTION TO FAILURE <u>7/9/13</u>	Instron Corporation Universal Test Machine, Model 4204 S/N 3167 Range: 0-10,000 lbs Accuracy: $\pm 1\%$ NTS Control No. FL 2600	12 months Due 10/19/13
	Instron Corporation Load Cell Model 2511-301, S/N 1794 0 to 1,000 lbs Range: 0 to 1,000 lbs. Accuracy: $\pm 1\%$ NTS Control No. FL 1390	12 months Due 10/19/13

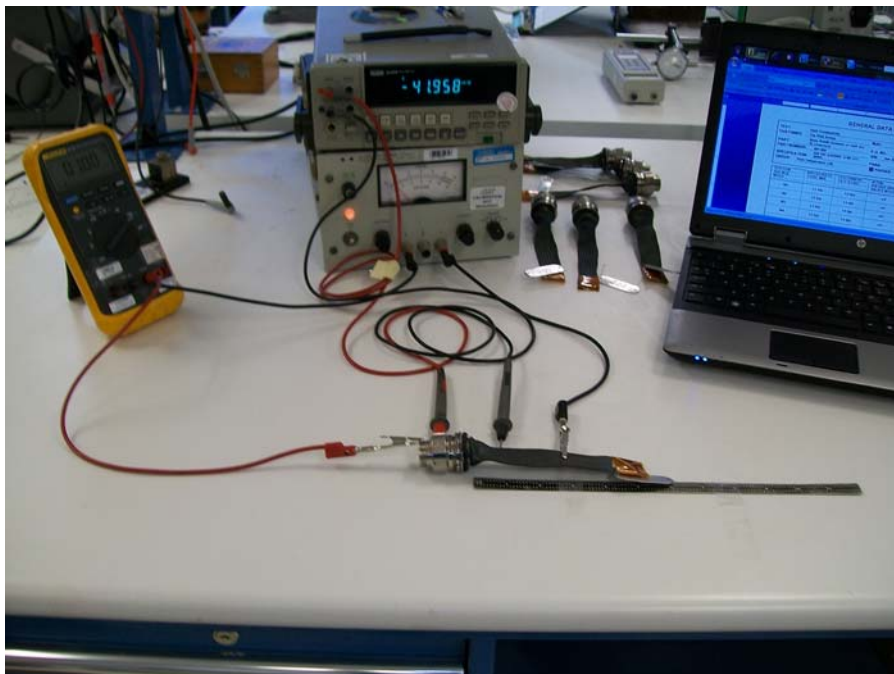


EQUIPMENT LIST

<u>Description</u>	<u>Apparatus</u>	<u>Calibration</u>
	National Instruments Data Recorder Model USB-6210, S/N 1422CD4 Range: N/A Accuracy: MFG NTS Control No. FL 5200	24 months Due 5/22/14
	Cole-Parmer Hygrometer Model 03313-86, S/N 111647589 Range: -58 - 122°F / 25 – 95% RH Accuracy: $\pm 2^{\circ}\text{F}$ / 3% RH NTS Control No. FL 6416	24 months Due 12/13/13



Shell Conductivity (Typical)



Shell Conductivity Setup (Typical)



Thermal Shock – Low Temperature



Thermal Shock – High Temperature



**Thermal Shock – Melted Jackets
Reference NOD ELE-1**



Temperature Life



Temperature Life – Post Test



Braid Retention (50 Pound Pull)



Braid Retention to Failure



Braid Retention to Failure



Braid Retention to Failure

Test Report**Laboratory Report No. GT-14-74**

Test Item(s)/Lab No(s): GT-14-74**Submitted by:** Preston Clover**Date:** 9/11/2014**Test Results Approved by:** Cece Chen, Quality Representative, 9/12/2014.**Purpose of Test**

The purpose of this testing is to confirm that the supplied Nano Termination Bands can withstand random vibration testing as defined in specification EIA-364-28E at high temperature.

Important Reference Documents

1. Qualification Test Plan "Nano Band Vibration Testing".
2. AS85049C, Connector Accessories, Electrical General Specification.
3. EIA-364-83, Shell to Shell and Shell to Bulkhead resistance test procedure for electrical connectors.
4. EIA-364-28E, Vibration test procedure for electrical connectors and sockets.

Test Criteria

The units under test shall be considered to meet the specification requirements when they have successfully completed the following test criteria:

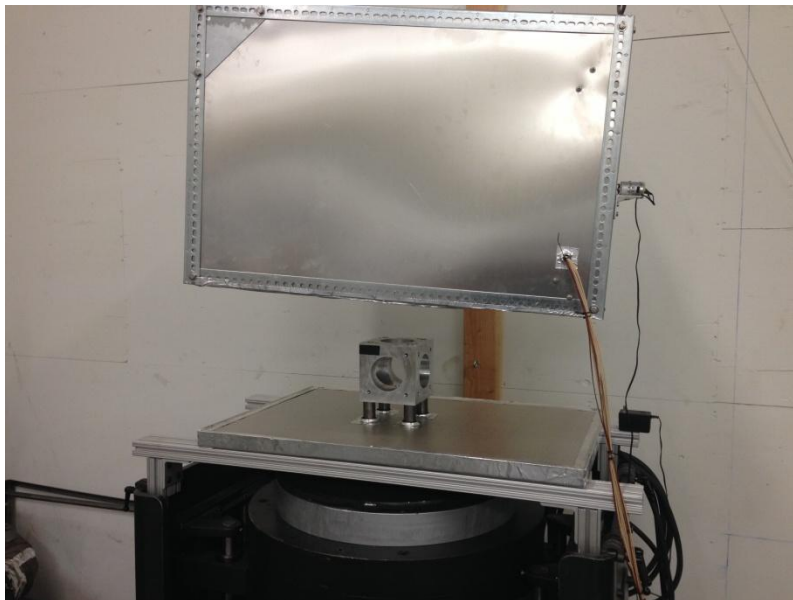
- a) No physical damage or loosening of test samples when visually inspected.
- b) Pass all shell-to-shell resistance testing before and after every run of Vibration and Mechanical Shock.

Calibrated Test Equipment

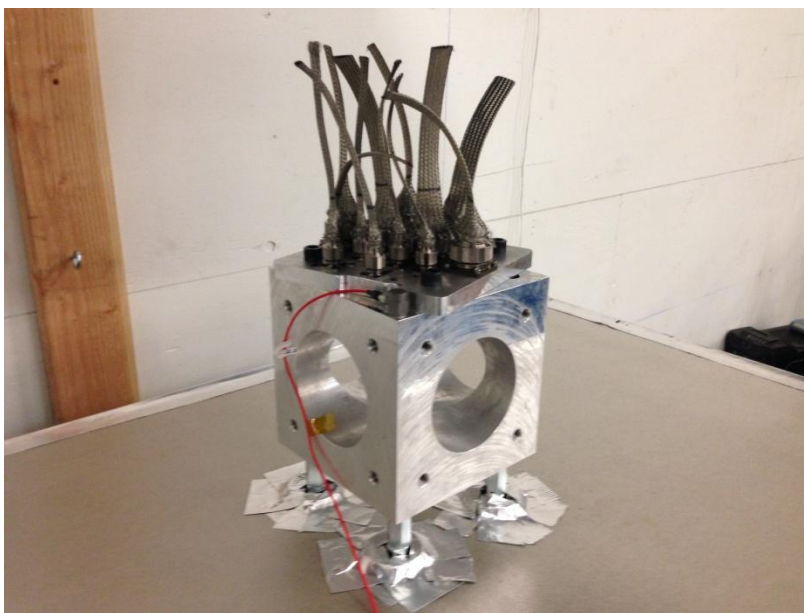
1. Dytran, Accelerometer, Model 3055B6, Serial # 19669
Calibrated: 5-5-14.
Calibration due: 5-5-15.
Singer Labs # AC00001
2. Starrett Pocket Tape, Serial # 14184866
Calibrated: 5-1-14.
Calibration due: 5-1-15.
Singer Labs # DM00001
3. Fluke, True RMS Multimeter Model 287, Serial # 23650184
Calibrated: 12-3-13.
Calibration due: 12-3-14.
Singer Labs # EM00003
4. Fluke, True RMS Multimeter Model 287, Serial # 26060019
Calibrated: 12-3-13.
Calibration due: 12-3-14.
Singer Labs # EM00004
5. Econ, Vibration Controller UCON VT-9002, Serial # 209997978
Calibrated: 2-20-14.
Calibration due: 2-19-15.
Singer Labs # CE00004
6. Glenair, Nano Band Termination Tool 601-108, Serial # 33938
Calibrated: 1-7-14.
Calibration due: 1-7-15.

Calibration certificates for all equipment attached to this report.

Test Setup

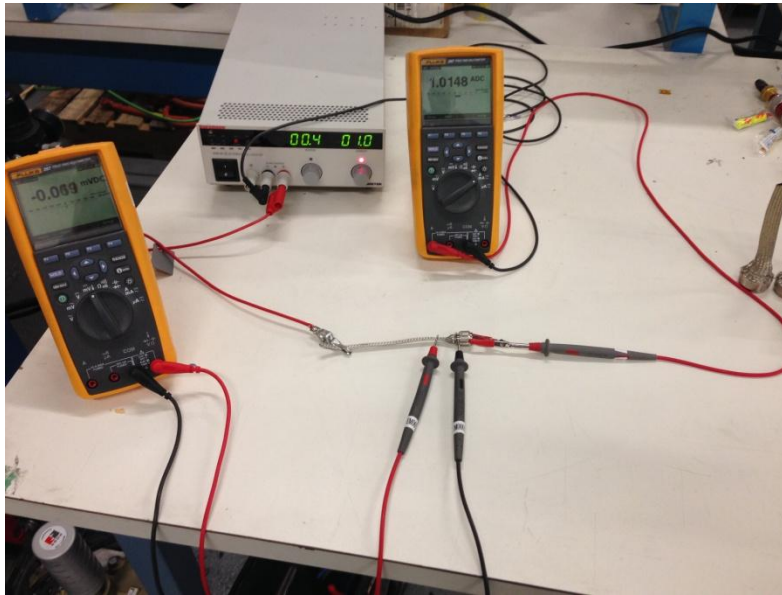


Test setup.



Test articles in place for testing.

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Voltage drop resistance measurement test setup.

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Random Vibration
Vibration Profile

The applied Random Vibration was monitored throughout testing, utilizing both computer data acquisition and calibrated vibration controller. During testing, vibration profiles were monitored to confirm that testing was performed within the specified parameters.

- Vibration Profile: Test Condition V, Figure 4, Table 1, Test Condition Letter K.
- Grms: 46.30
- Duration: 8 hours per axis
- Number of Axes: 3
- Temperature: 175°C
- Initial/Final Measurements: Resistance measured from connector mounting point to shielding at 1 inch above banding

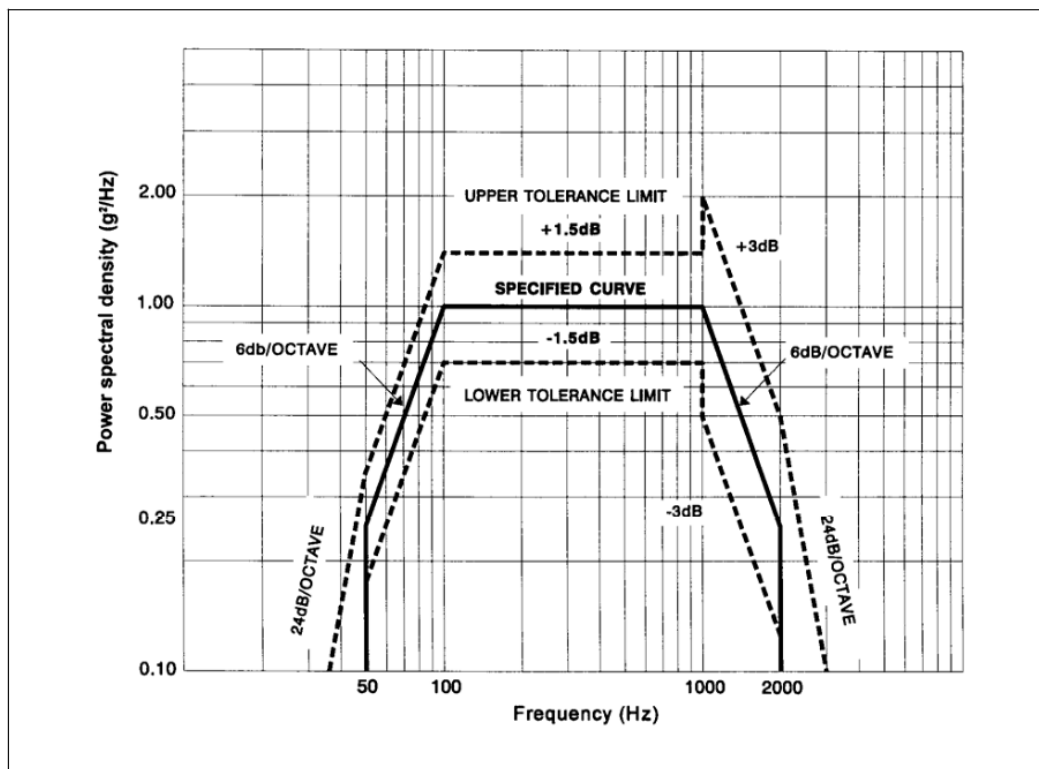


Figure 4 - Test condition V, random vibration test-curve envelope (see table 2).

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Table 2 - Values for test condition V ¹⁾

Test condition letter	Power spectral density, g ² /Hz	Overall rms g
A	0.02	5.35
B	0.04	7.56
C	0.06	9.26
D	0.1	11.95
E	0.2	16.91
F	0.3	20.71
G	0.4	23.91
H	0.6	29.28
I	Superseded by Test condition letter J	
J	1.0	37.80
K	1.5	46.30

1) For duration of test; see 4.2.2.

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Test Results**Voltage Drop Testing**

Voltage drop measurements were taken before and after every vibration session. Results are below.

Sample Number	Initial Resistance	Resistance Post Z-Axis Vibration (Milliohm)	Resistance Post Y-Axis Vibration (Milliohm)	Resistance Post X-Axis Vibration (Milliohm)
1	.281	.320	.495	.509
2	.294	.380	.552	.563
3	.304	.418	.501	.527
4	.303	.333	.546	.521
5	.299	.326	.515	.535
6	.291	.345	.571	.409
7	.121	.258	.269	.365
8	.118	.195	.262	.281
9	.121	.192	.269	.287
10	.136	.180	.161	.232
11	.129	.196	.330	.284
12	.131	.208	.226	.382

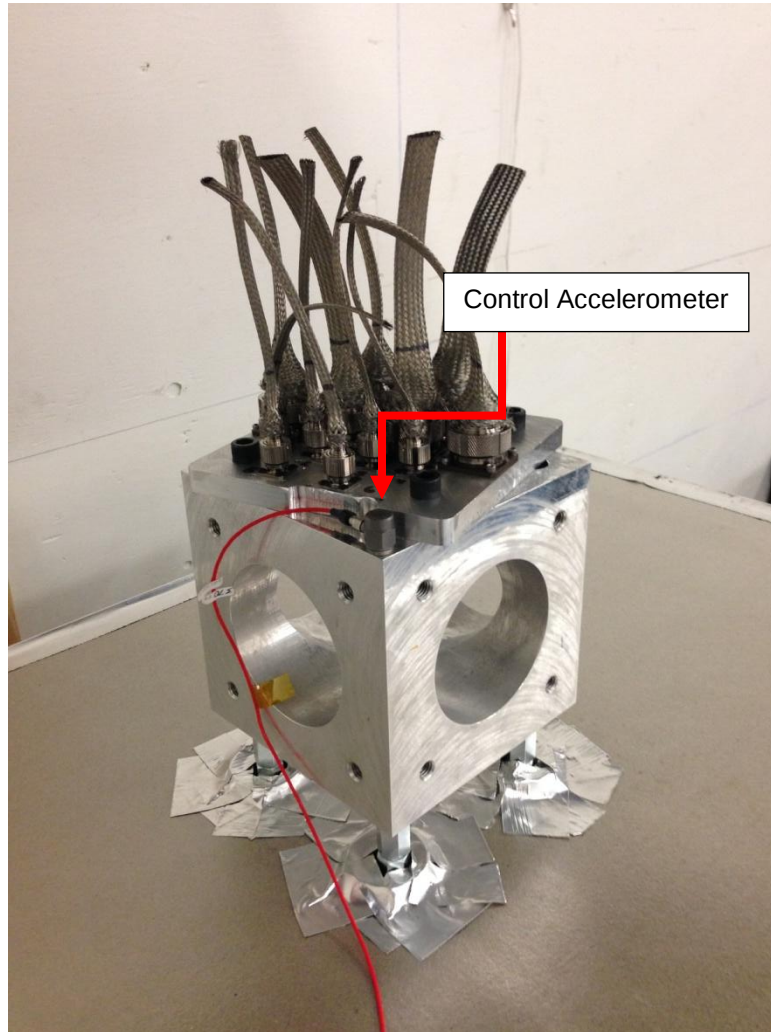
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Summary of Testing Process
Random Vibration
Summary of Events:

Time	Event
8/26/2014	
8:55 am	All test samples are bolted to vibration cube on a single fixture plate attached to vibration cube. Initial resistance measurements conducted. Environmental chamber placed over vibration shaker and temperature ramp up initiated.
9:44 am	Environmental chamber has reached temperature of 175°C. Vibration in Z-axis begins.
3:36 pm	Environmental chamber dips below allowable temperature. Vibration testing is paused. Repairs are made to chamber. Chamber is heated back up to test temperature.
4:48 pm	Chamber up to temperature, vibration in Z-axis continues.
6:56 pm	1 st eight hour session of vibration is complete. Resistance test and record all samples. Remove fixture plate and mount back on vibration cube in Y-Axis. Close up chamber and heat up to test temperature.
10:08 pm	Chamber at test temperature. Begin 2 nd eight hour session of random vibration testing. Test samples mounted in Y-Axis.
11:45 pm	Pause vibration testing for the evening. Continue testing in the morning.
8/27/2014	
8:00 am	Heat up chamber to test temperature and begin random vibration testing.
3:08 pm	2 nd eight hour session of random vibration testing complete. Remove samples, measure resistance, bolt fixture plate back on in X-axis.
4:25 pm	Heat up chamber and begin third and final eight hour session of random vibration. Test samples are mounted in X-axis for testing.
4:35 pm	Control accelerometer is found to be loose. Pause testing, remount accelerometer.
4:40 pm	Close chamber and begin heating back up to test temperature.
4:58 pm	Continue random vibration testing.
6:05 pm	Shaker pauses; loose accelerometer cable; fixed and continue testing.
8:28 pm	Shaker pauses; open control input; fixed and continue testing.
9:00 pm	Shaker pauses; open control input; fixed and continue testing.
8/28/2014	
12:15 am	Pause vibration testing for the evening.
8:18 am	Begin heating up environmental chamber.
9:05 am	Chamber at test temperature. Begin vibration testing.
11:55 am	All vibration testing complete. Perform final resistance measurement.

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Random Vibration, First 8 Hour Session



All twelve samples testing in the Z-Axis.

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Figure 1: Random Vibration, Session 1, Hour 0

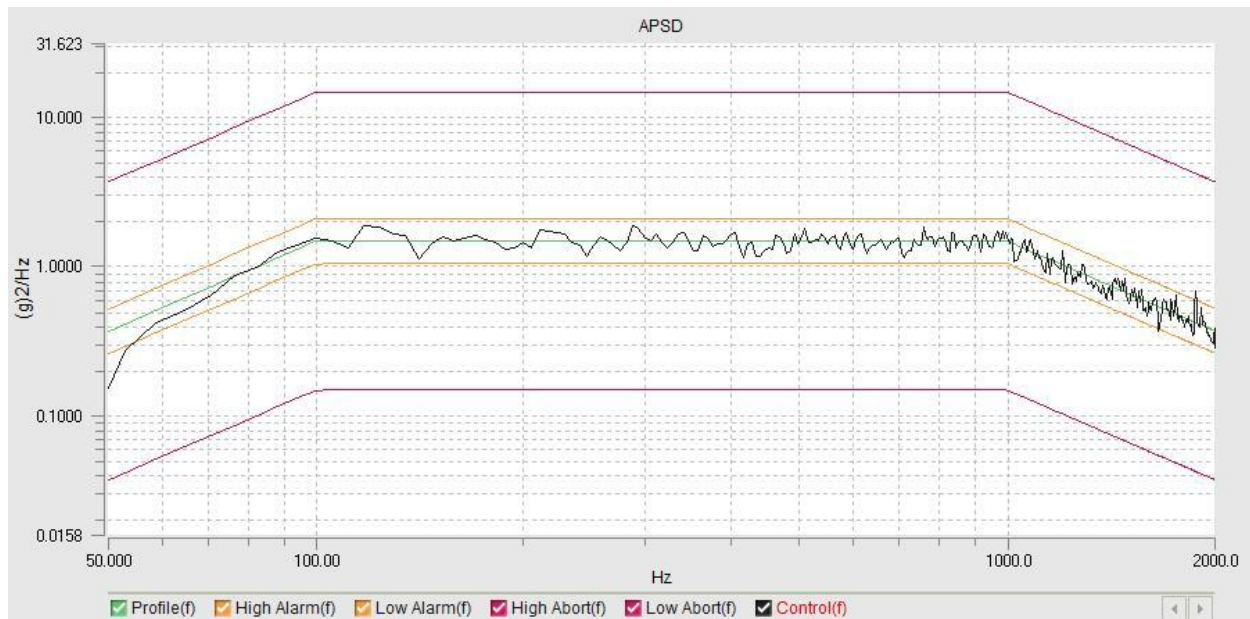


Figure 2: Random Vibration, Session 1, Hour 1

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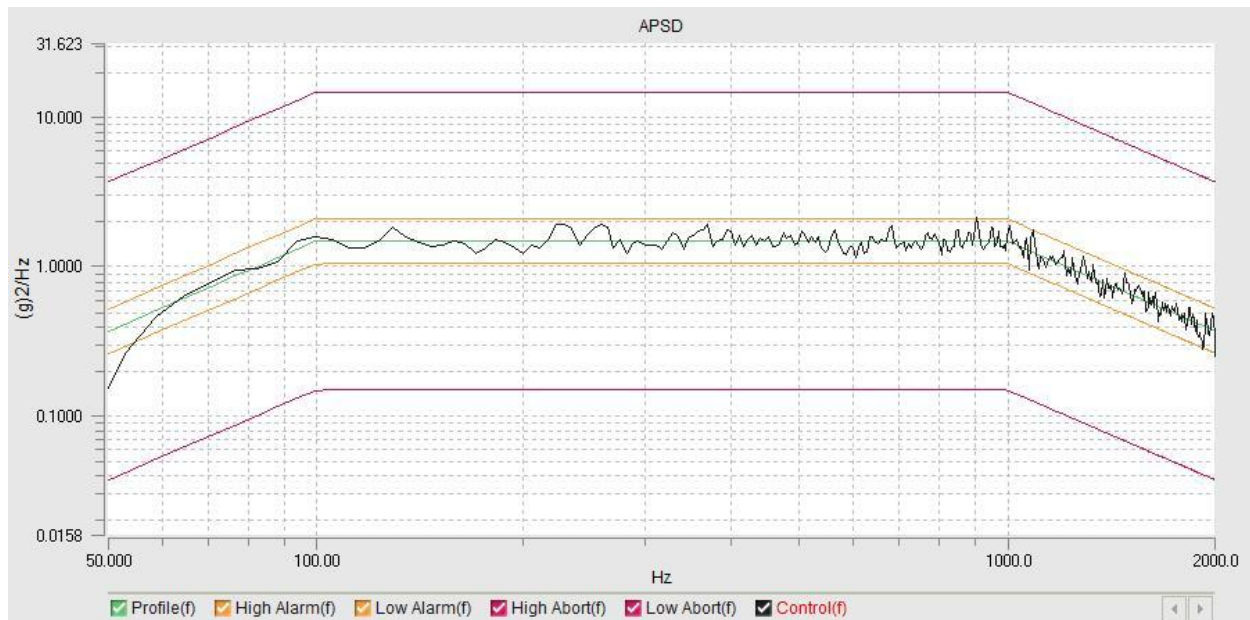


Figure 3: Random Vibration, Session 1, Hour 2

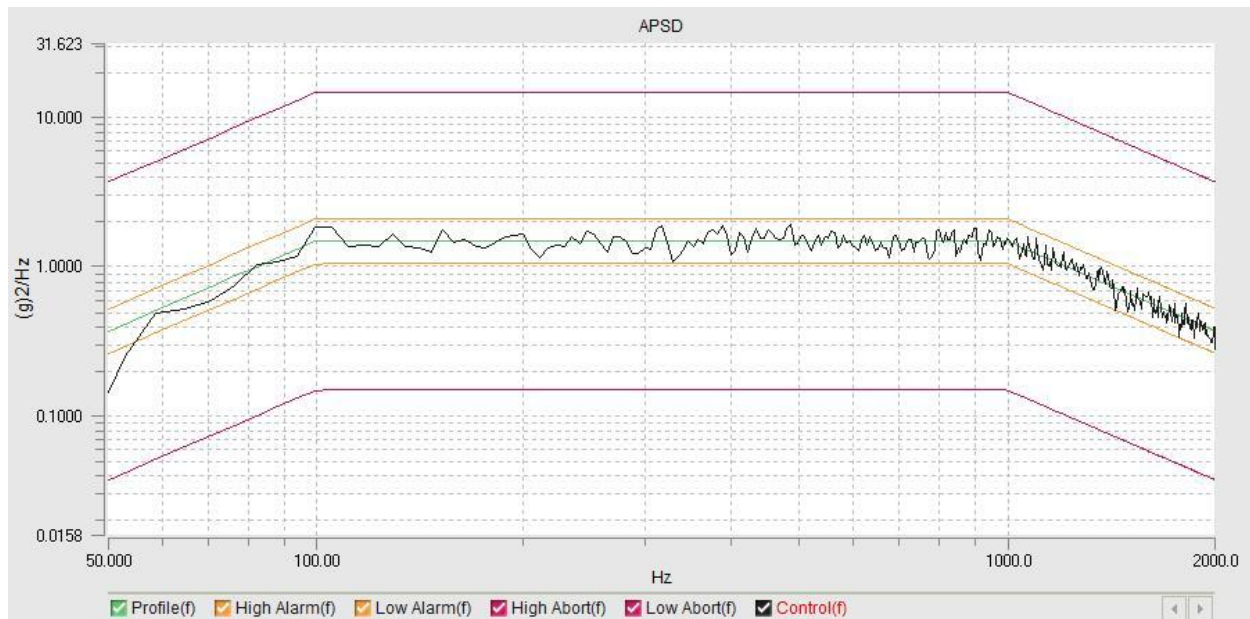


Figure 4: Random Vibration, Session 1, Hour 3

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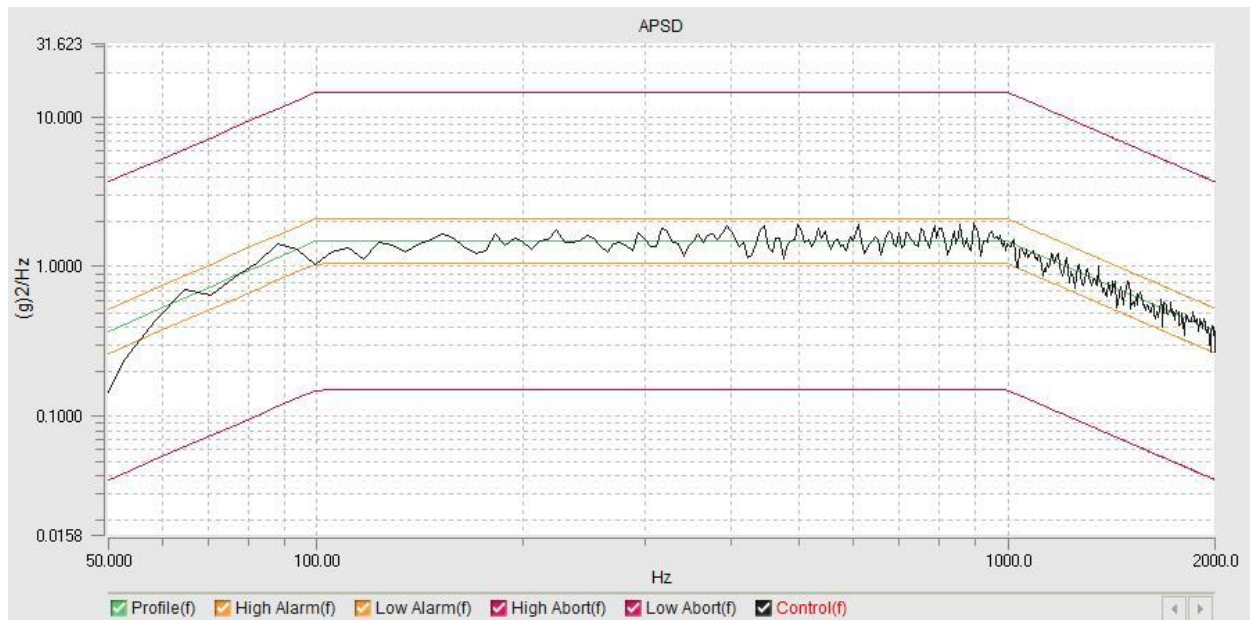


Figure 5: Random Vibration, Session 1, Hour 4



Figure 6: Random Vibration, Session 1, Hour 5

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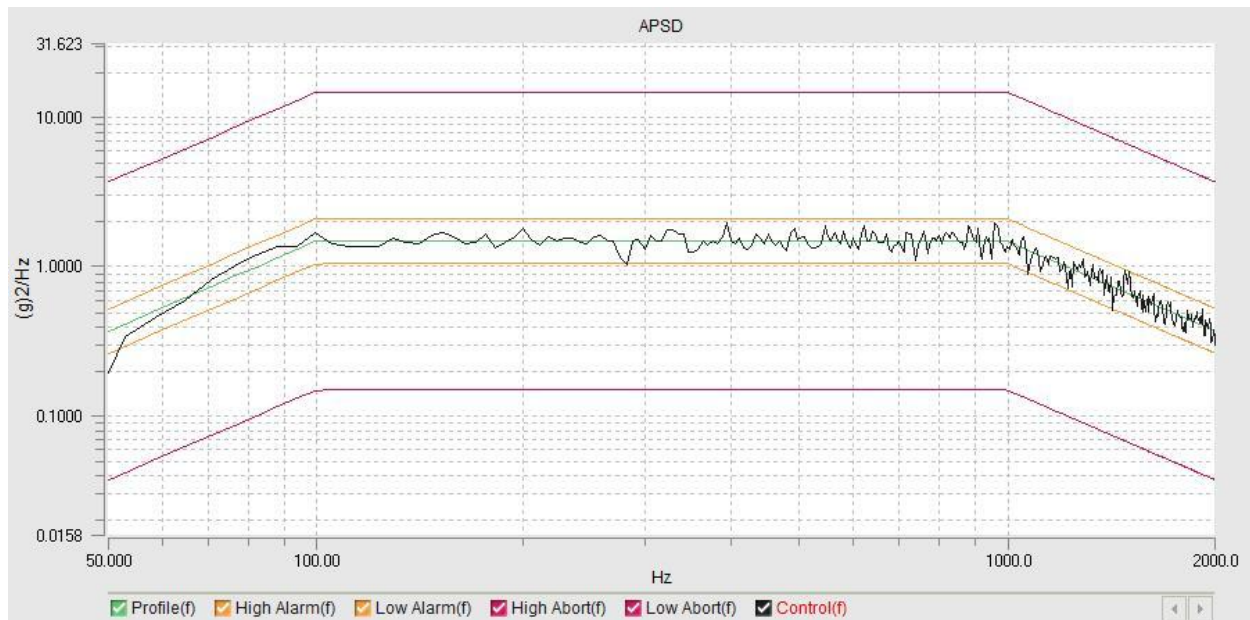


Figure 7: Random Vibration, Session 1, Hour 6



Figure 8: Random Vibration, Session 1, Hour 7

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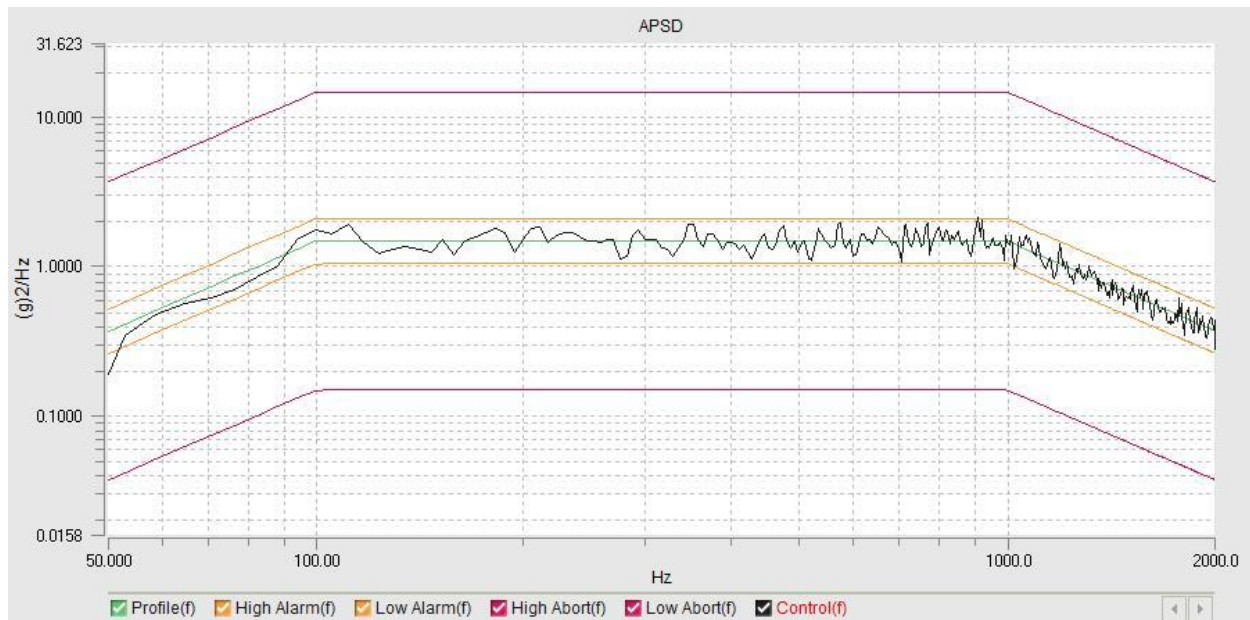
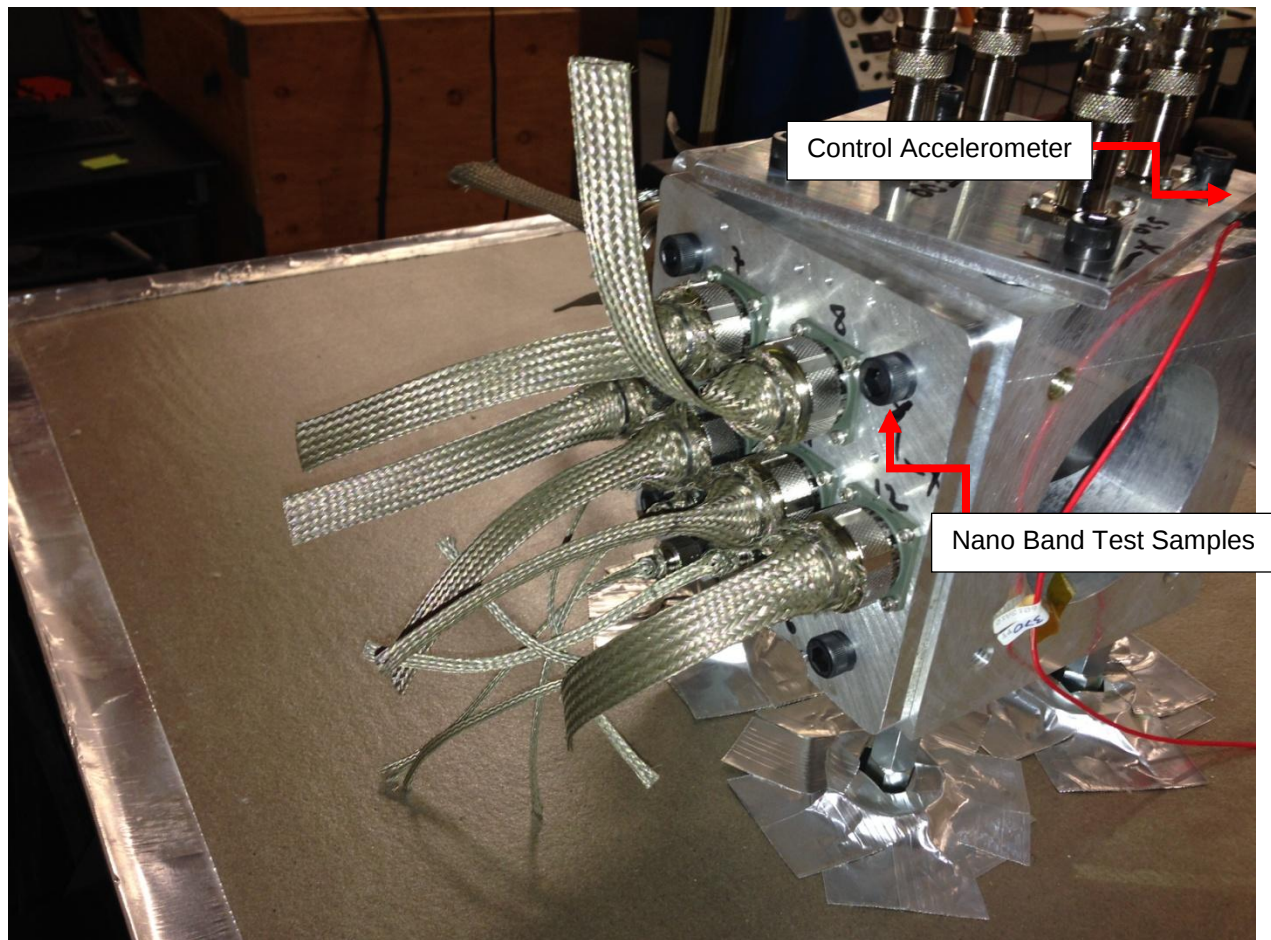


Figure 9: Random Vibration, Session 1, Hour 8

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Random Vibration, Second 8 hour session



All Nano Band Vibration Samples in Y-Axis.

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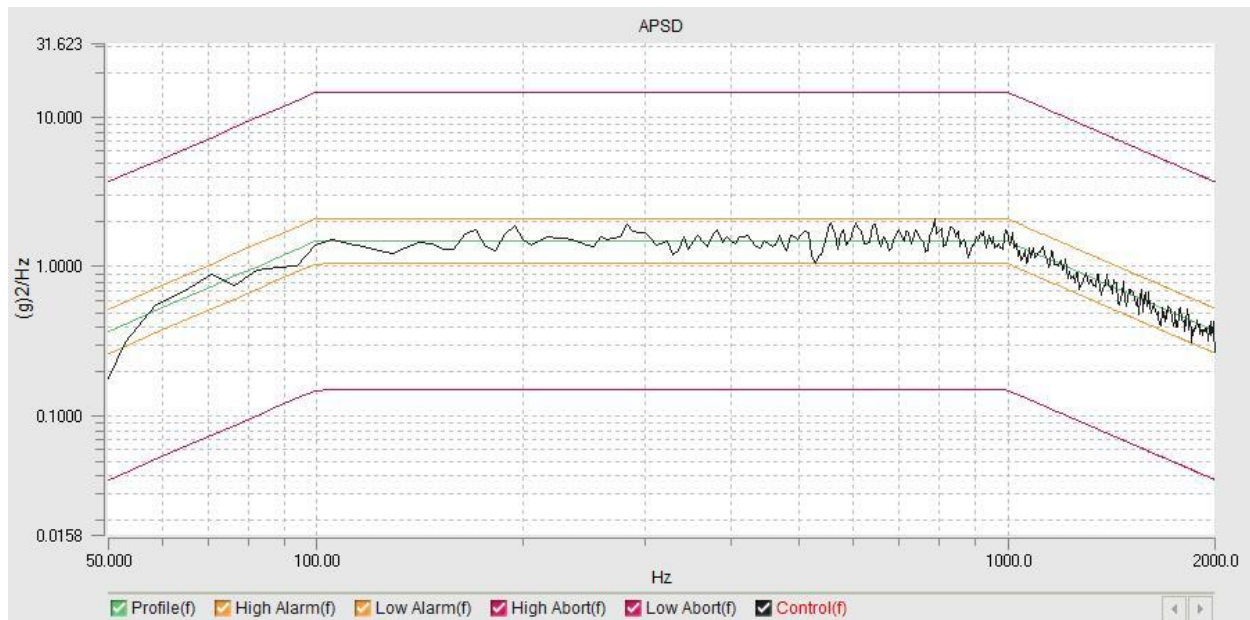


Figure 10: Random Vibration, Session 2, Hour 0



Figure 11: Random Vibration, Session 2, Hour 1

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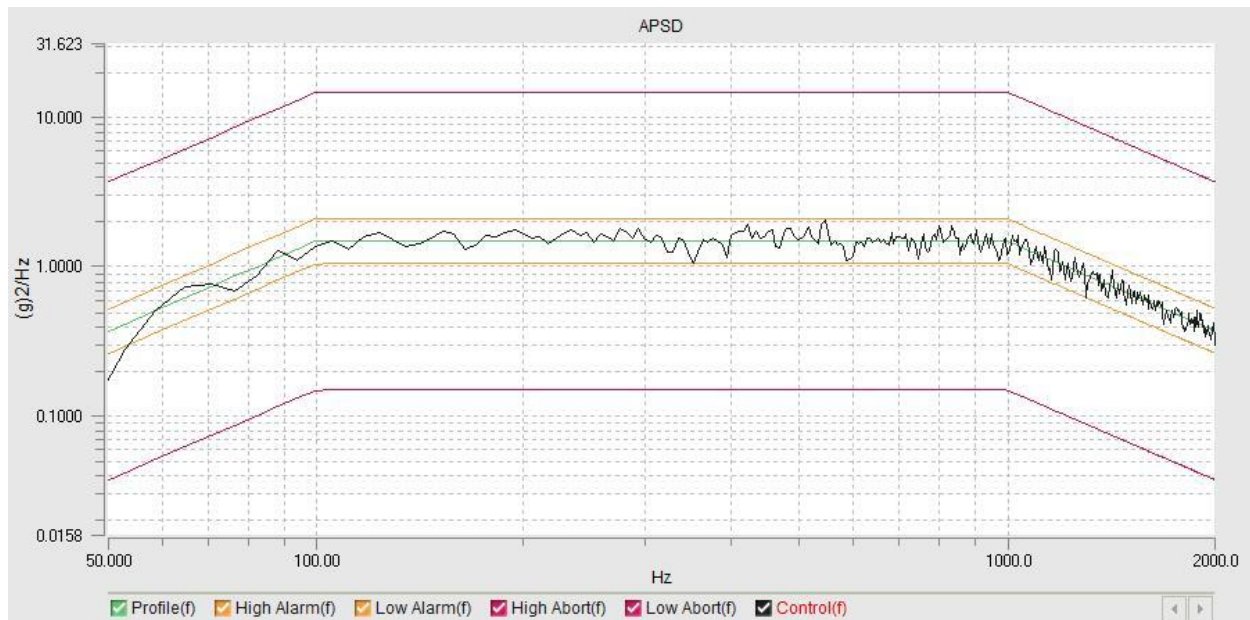


Figure 1210: Random Vibration, Session 2, Hour 2



Figure 13: Random Vibration, Session 2, Hour 3

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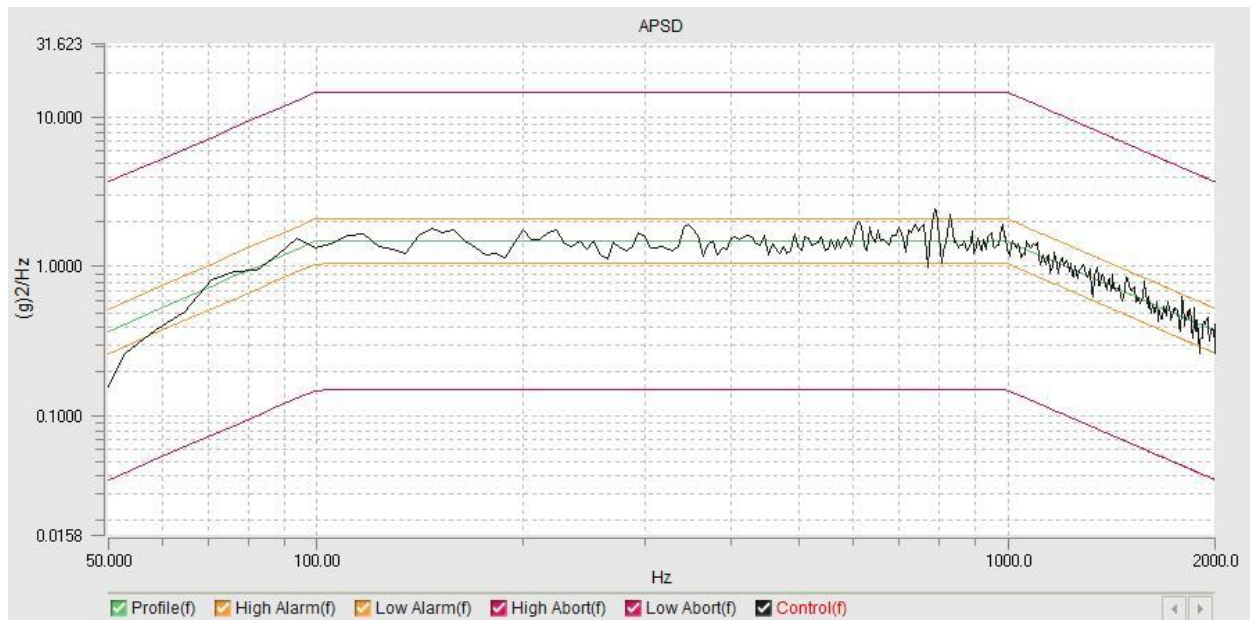


Figure 14: Random Vibration, Session 2, Hour 4

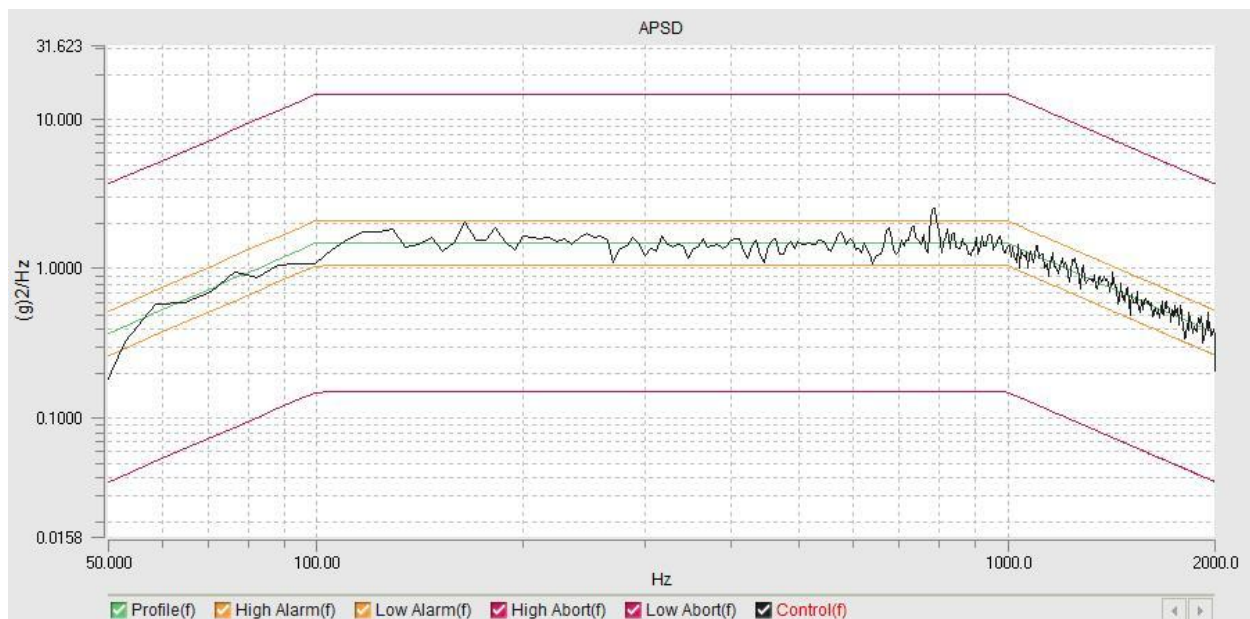


Figure 15: Random Vibration, Session 2, Hour 5

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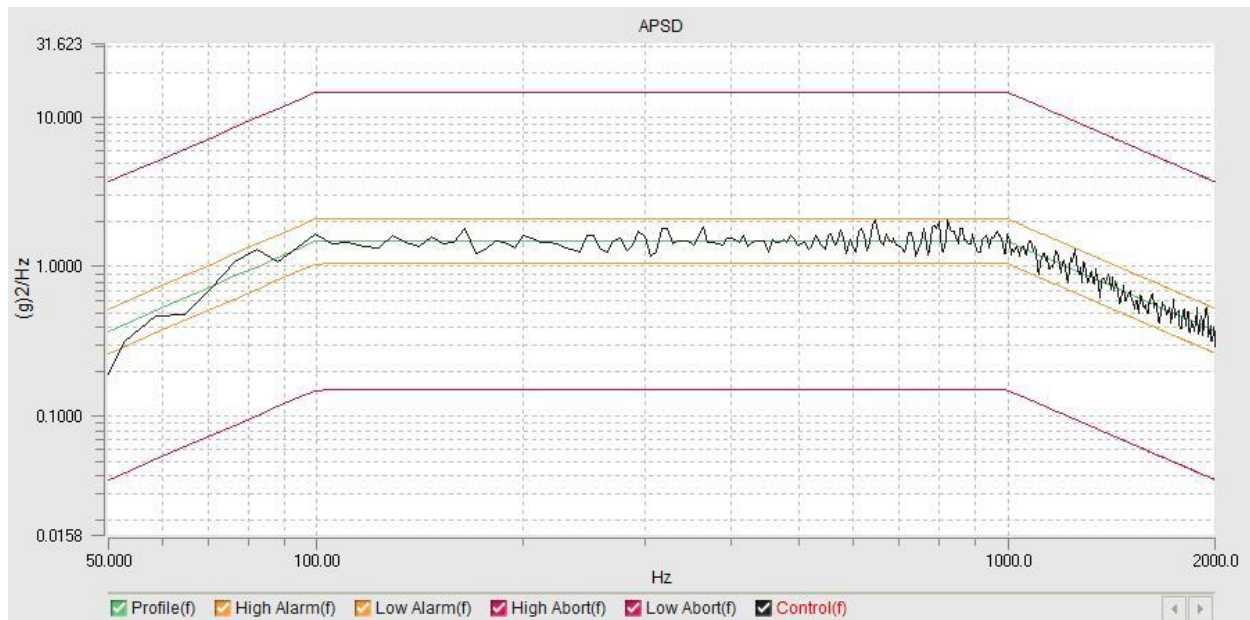


Figure 16: Random Vibration, Session 2, Hour 6

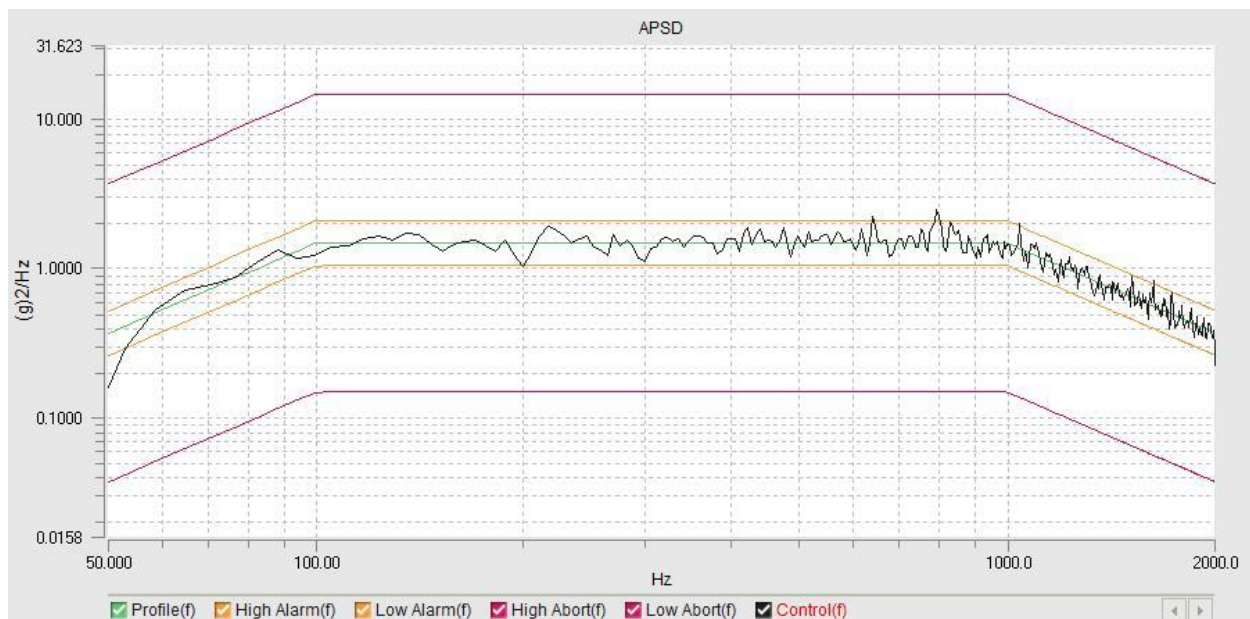


Figure 17: Random Vibration, Session 2, Hour 7

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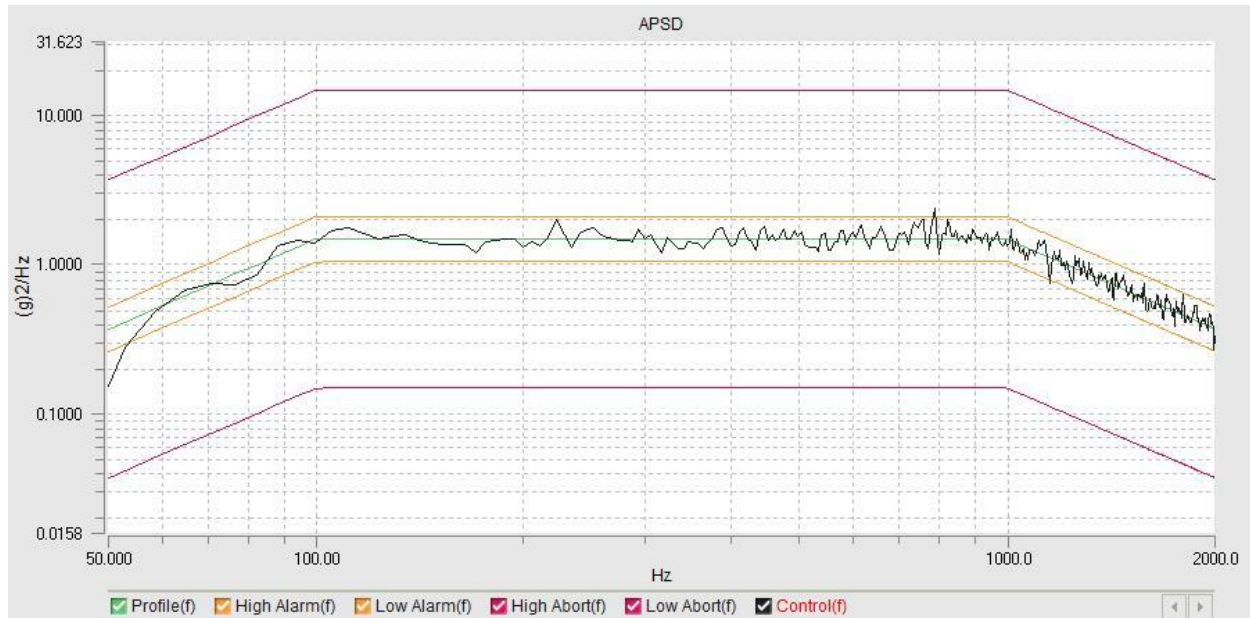
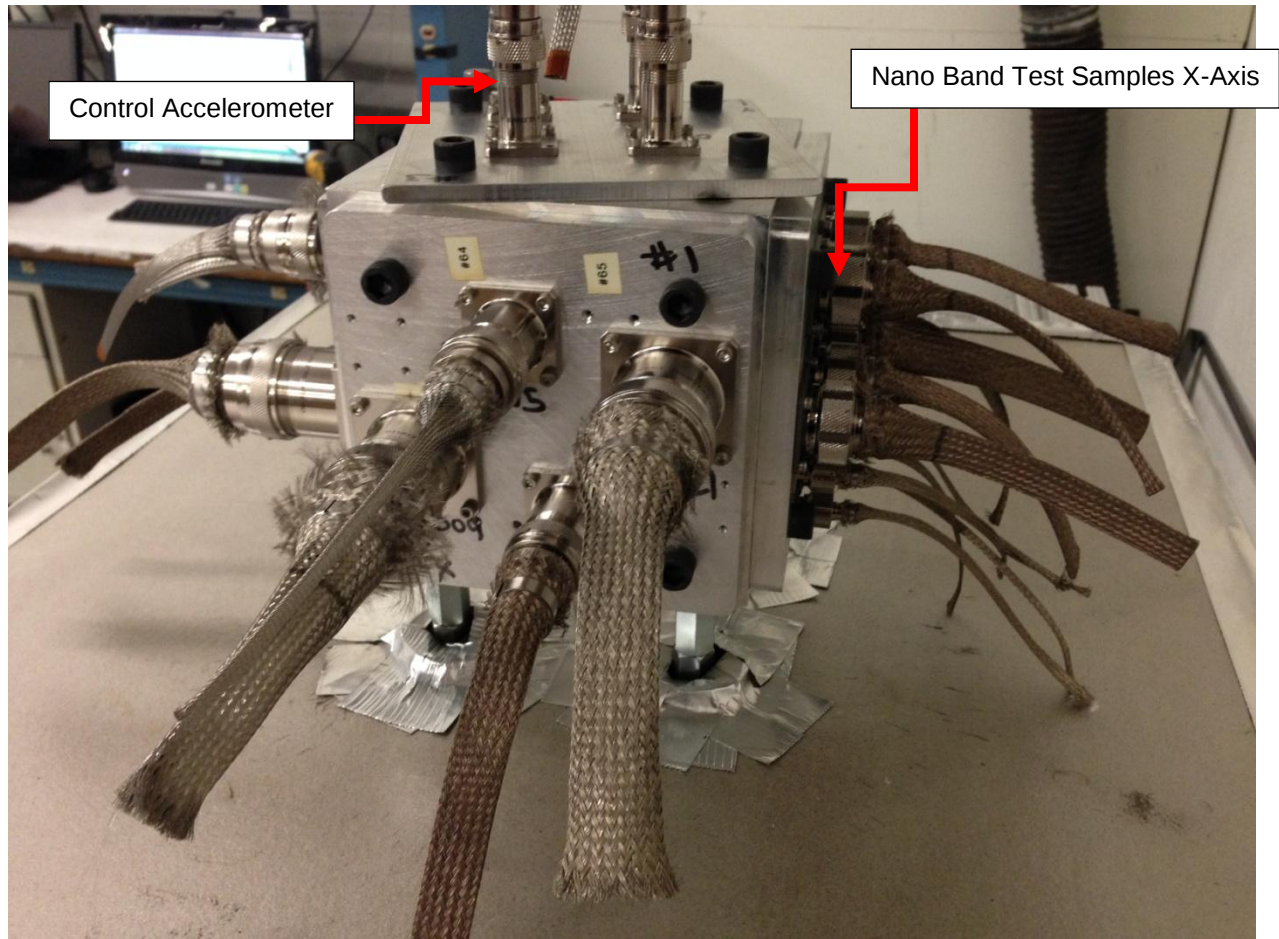


Figure 18: Random Vibration, Session 2, Hour 8

Random Vibration, Third 8 hour session

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All Nano Band Vibration Samples in X-Axis.

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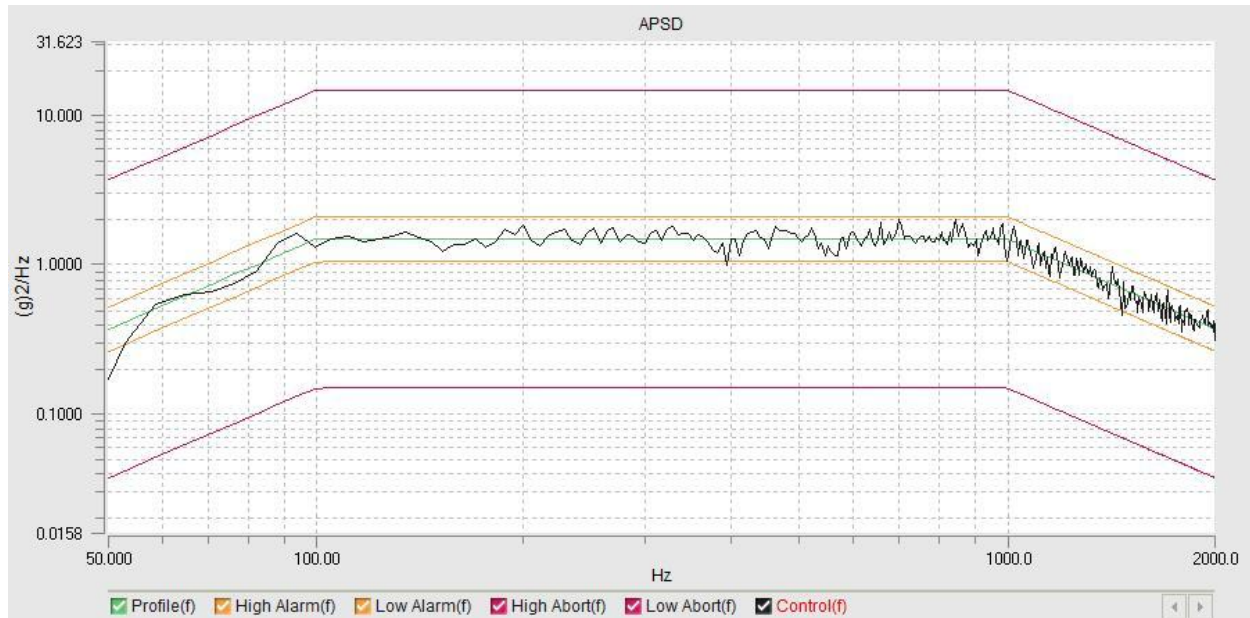


Figure 19: Random Vibration, Session 3, Hour 0



Figure 20: Random Vibration, Session 3, Hour 1

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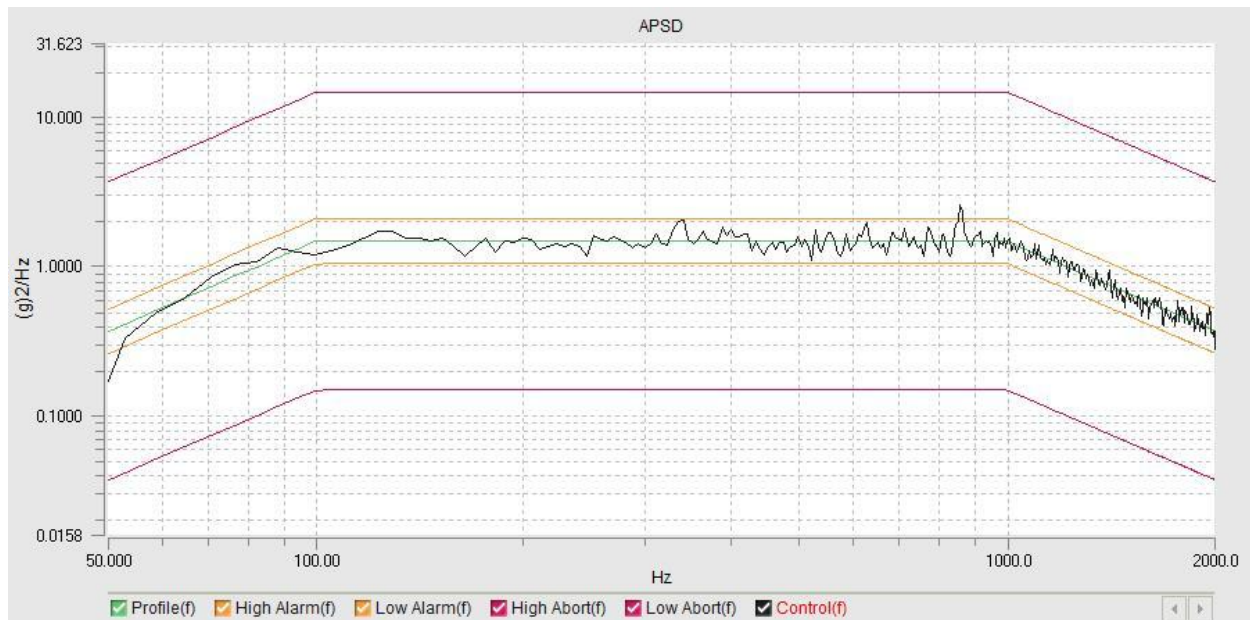


Figure 21: Random Vibration, Session 3, Hour 2



Figure 22: Random Vibration, Session 3, Hour 3

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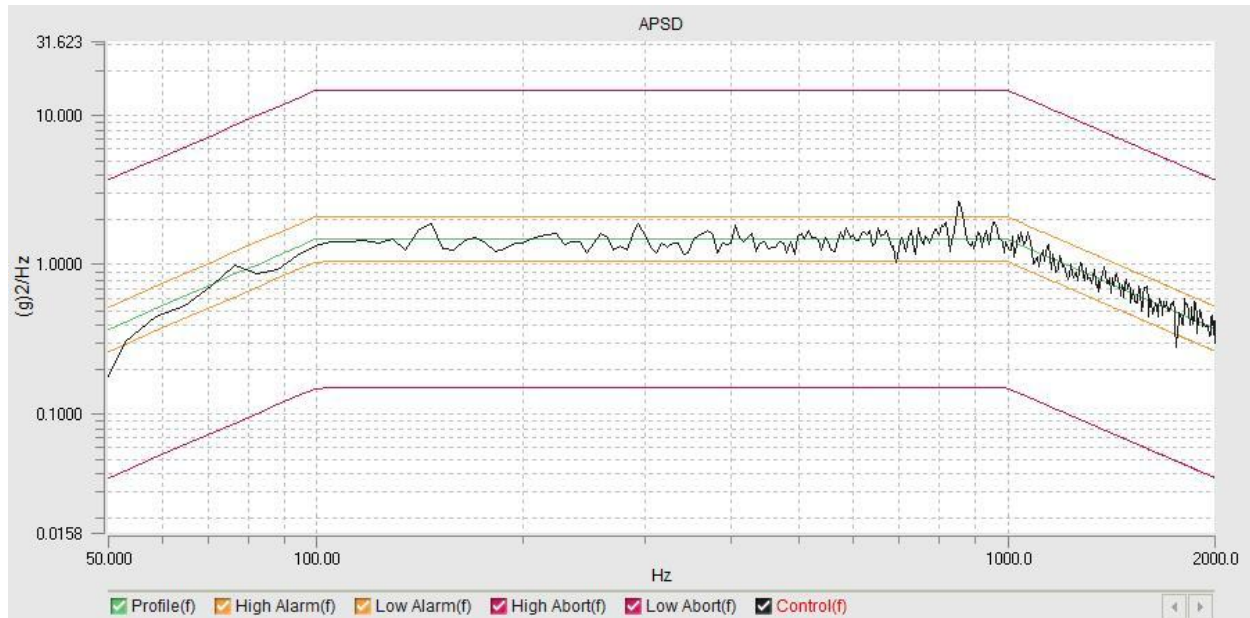


Figure 23: Random Vibration, Session 3, Hour 4



Figure 24: Random Vibration, Session 3, Hour 5

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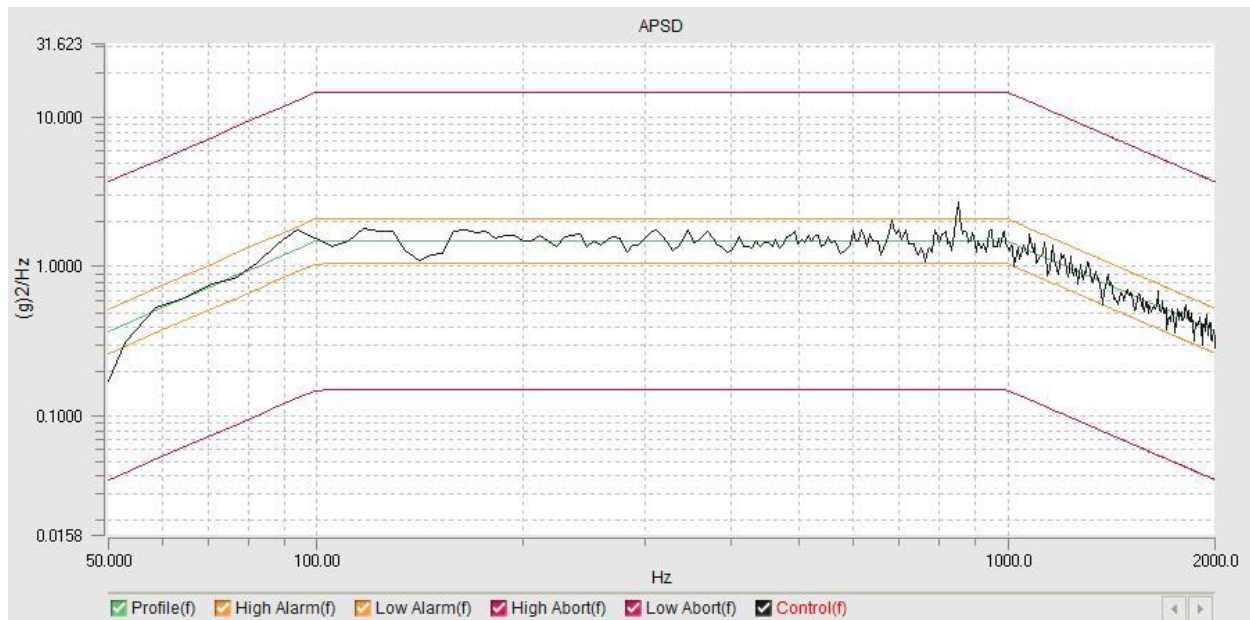


Figure 25: Random Vibration, Session 3, Hour 6

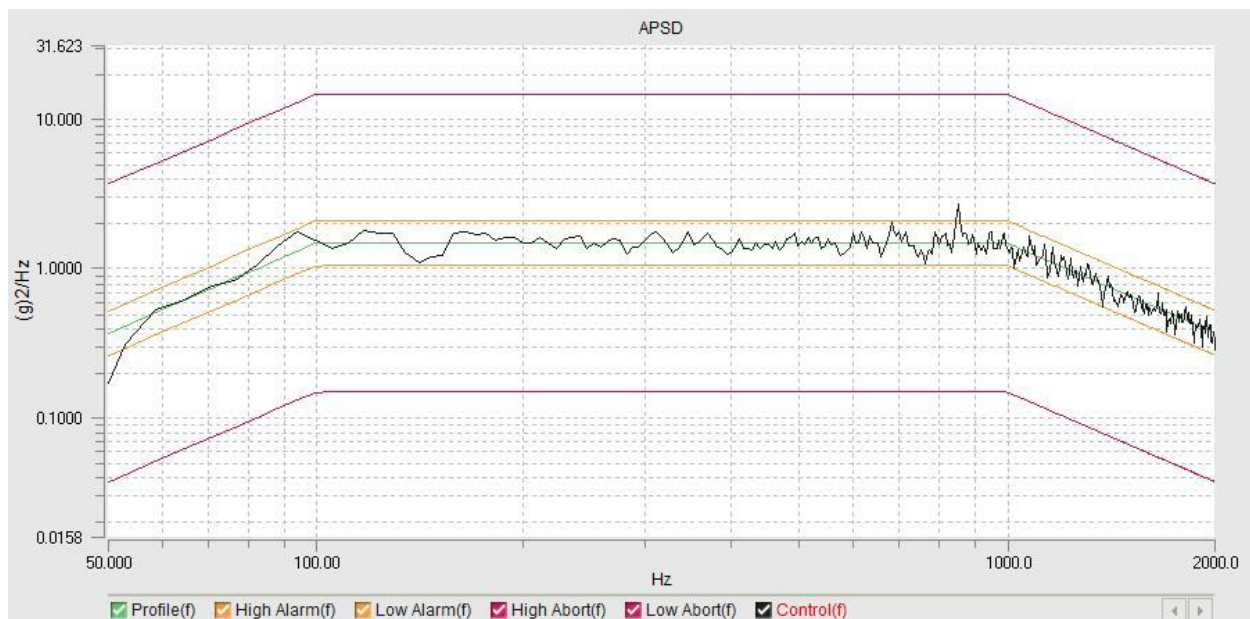


Figure 26; Random Vibration, Session 3, Hour 7

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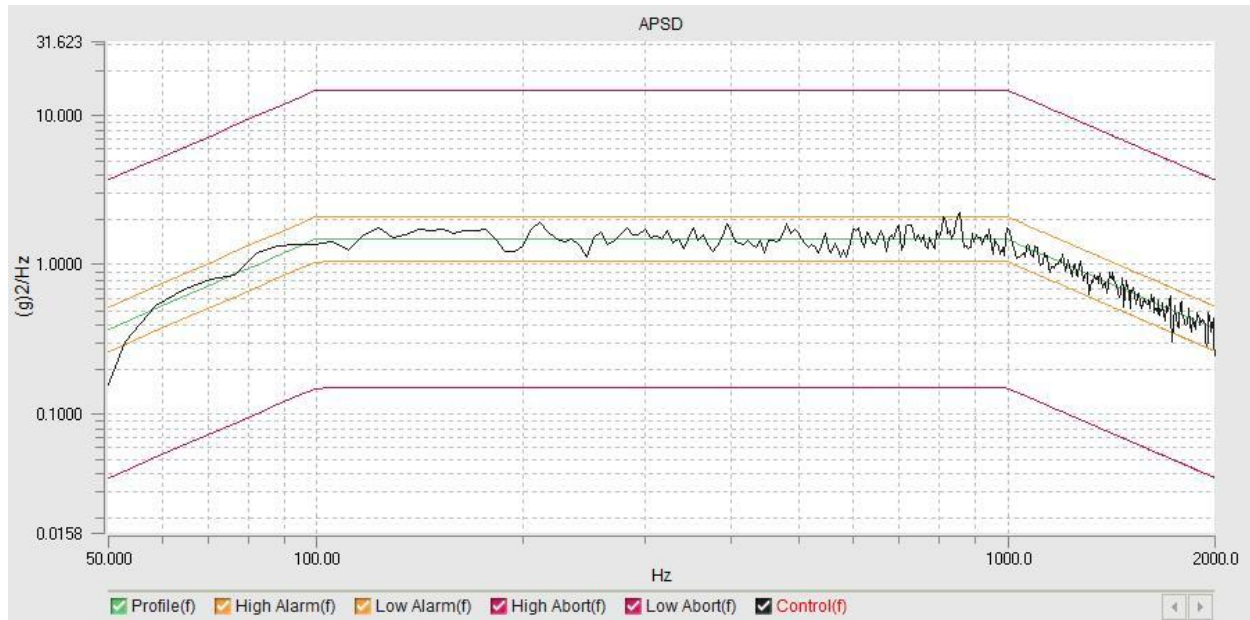


Figure 27: Random Vibration, Session 3, Hour 8

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Dytran Instruments, Inc.

21592 Marilla St. Chatsworth, CA 91311 Ph: 818-700-7818 Fax 818-700-7880
www.dytran.com email: info@dytran.com

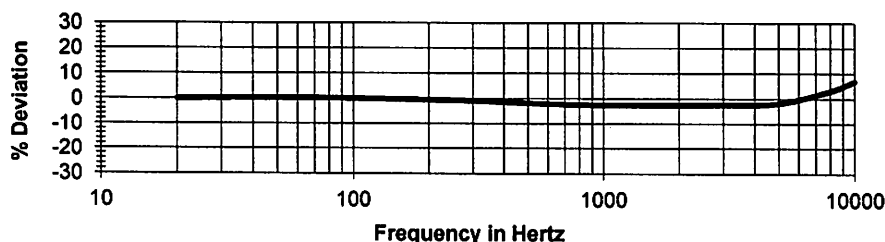
page 1 of 1

CALIBRATION CERTIFICATE ACCELEROMETER / CHARGE AMPLIFIER MEASUREMENT SYSTEM



CUSTOMER: PILOT GROUP, THE		TEST REPORT #: 19784-4646	
PURCHASE ORDER #: PC-051314-3203		SALES ORDER #: 167818	
PROCEDURE: TP3002			
ACCELEROMETER MODEL: 3055C		SERIAL #: 19784	
CHARGE AMPLIFIER MODEL: 4751B3		SERIAL #: 4616	
NEW UNIT	X	RE-CALIBRATION [1]	AS RECEIVED CODE
AS RETURNED CODE			
REF. SENSITIVITY (mV/g) [2]: 14.46		TEMP (°C): 23	
HUMIDITY (%): 45			
FREQUENCY RESPONSE [3]			
FREQUENCY (Hz)	SENSITIVITY (mV/g)	FREQUENCY (Hz)	SENSITIVITY (mV/g)
20	14.45	500	14.20
30	14.48	1000	14.09
50	14.50	3000	14.11
100	14.46	5000	14.20
300	14.33	8000	14.90
TRANSVERSE SENSITIVITY (%): 2.7		10000	15.45
DISCHARGE TIME CONSTANT (sec): 0.4		BIAS VOLTAGE (VDC): 10.9	

Amplitude Response



REMARKS: WITH 6013A10

TEST EQUIPMENT LIST - CALIBRATION STATION # 4

DII #	MANUFACTURER	MODEL	SERIAL #	DESCRIPTION	CAL DATE	DUE DATE
686	DYTRAN INST.	3010M14	1684	ACCELEROMETER	03/21/14	03/21/15
1770	NATIONAL INST.	PCI-4461	1918FCB	DATA ACQUISITION CARD	03/12/14	03/12/15

[1] AS RECEIVED / AS RETURNED CODES:

- | | | |
|----------------------------------|-----------------------------|--|
| 1 = IN TOLERANCE, NO ADJUSTMENTS | 4 = OUT OF TOLERANCE > 5% | 7 = UNIT NON-REPAIRABLE, RECOMMEND REPLACEMENT |
| 2 = IN TOLERANCE, BUT ADJUSTED | 5 = REPAIR REQUIRED | 8 = UNIT SERVICEABLE WITH CURRENT CALIBRATION DATA |
| 3 = OUT OF TOLERANCE < 5% | 6 = REPAIRED AND CALIBRATED | |

[2] THE REFERENCE SENSITIVITY IS MEASURED AT 100 Hz, 1G RMS.

[3] THIS CALIBRATION WAS PERFORMED IN ACCORDANCE WITH ANSI/NCSL Z540-1-1994, ISO 10012-1, ISO/IEC17025 USING THE BACK-TO-BACK COMPARISON METHOD PER ISA RP37.2 AND IS TRACEABLE TO THE NIST THROUGH TEST REPORT # 0663 DUE 03-21-2015.

ESTIMATED UNCERTAINTY OF CALIBRATION: 2% FROM 20-100 Hz, 1.5% FROM 100-2500 Hz, 2.8% FROM 2.5KHZ-10 kHz. APPLIES TO FREQUENCY RESPONSE ONLY.

THIS CERTIFICATE SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN PERMISSION FROM DYTRAN INSTRUMENTS, INC.

CALIBRATION TECHNICIAN:

HUNG LE

TEST DATE : 08/18/14

RECOMMENDED RECALL DATE : 08/18/15



Certificate of Calibration

Certificate No.: e14018

Instrument					
Instrument Name: <u>Vibration Controller</u>			Part Number: <u>UCON VT-9002</u>		
Manufacturer: <u>ECON Technologies Co., Ltd</u>			Serial Number: <u>209997978</u>		
Calibration Info					
Calibration Date: <u>02-20-2014</u>			Calibration Due: <u>02-19-2015</u>		
Calibration Procedures: automated run with ECON Calibration Software-90CAL					
Calibration Results: <u>Qualified</u>					
File: <u>Calib209997978.dat</u> & Report: <u>Calib209997978.doc</u>					
Calibration Institute: <u>ECON Quality Supervision Department</u>					
Calibration Technician: Webber					
Extra Equipment Used for Calibration					
Serial Number	Manufacturer	Model	Calib. Date	Due Date	Traceability Cert. No.
MY41029025	Agilent	34401A	08-30-13	08-29-14	DC-2013081271

Ambient Temperature: 22 °C (25°C ± 5°C)Ambient Humidity : 46 % (10%~80%)**Remarks/Comments**

Econ Technologies certifies that all calibration has been performed using standards whose accuracies are traceable to the National Institute of Standards and Technology. Alternatively, accuracies have been derived from accepted values of natural physical constants, or have been derived by the ratio of self-calibration techniques. This certificate applies only to the instrument identified above and shall not be reproduced, except in full, without the specific written approval by the calibration organization issuing this report.

Technician Confirm: WebberQC Inspector Confirm: Allen

Calibration Report

Serial No: 209997978

Date of Calibration: 02/20/2014

Calibrated by: Webber

Instrument/ID: Agilent

Instrument Model Number: 34401A

Number of Output Channels: 1

Number of Input Voltage Channels: 2

Number of Input Charge Channels: 2

Output Channels Initial (UnCalibrated) Data

Channel	Offsets of 10.0 Volt Range	Gain Error of 10.0 Volt Range	
DRIVE	0.016172V	2.266%	

Output Channels Final (Calibrated) Data

Channel	Offsets of 10.0 Volt Range	Gain Error of 10.0 Volt Range	Result
DRIVE	2.6e-005V	0.0039959%	Pass

Input Voltage Channels (DC Gnd Couple) Initial (UnCalibrated) Data

Channel	Offsets of 0.1 Volt Range	Gain Error of 0.1 Volt Range	Offsets of 1.0 Volt Range	Gain Error of 1.0 Volt Range	Offsets of 10.0 Volt Range	Gain Error of 10.0 Volt Range	
1	-0.00170939V	2.55617%	9.69771e-005V	2.47817%	0.012803V	2.56023%	
2	7.92731e-005V	1.67346%	0.00313913V	1.58312%	0.0309931V	1.66441%	

Input Voltage Channels (DC Gnd Couple) Final (Calibrated) Data

Channel	Offsets of 0.1 Volt Range	Gain Error of 0.1 Volt Range	Offsets of 1.0 Volt Range	Gain Error of 1.0 Volt Range	Offsets of 10.0 Volt Range	Gain Error of 10.0 Volt Range	Result
1	1.12497e-005V	0.00576973%	2.15904e-005V	0.00730753%	-1.86369e-005V	0.00321865%	Pass
2	1.80601e-005V	0.00600815%	2.34206e-005V	0.00661612%	-0.000122518V	0.00292063%	Pass

Input Voltage Channels (DC Dif Couple) Initial (UnCalibrated) Data

Channel	Offsets of 0.1 Volt Range	Gain Error of 0.1 Volt Range	Offsets of 1.0 Volt Range	Gain Error of 1.0 Volt Range	Offsets of 10.0 Volt Range	Gain Error of 10.0 Volt Range	
1	-0.00169761V	2.56552%	0.000116584V	2.48339%	0.0127663V	2.5622%	
2	9.30954e-005V	1.68258%	0.00316755V	1.58752%	0.0309402V	1.66634%	

Input Voltage Channels (DC Dif Couple) Final (Calibrated) Data

Channel	Offsets of 0.1 Volt Range	Gain Error of 0.1 Volt Range	Offsets of 1.0 Volt Range	Gain Error of 1.0 Volt Range	Offsets of 10.0 Volt Range	Gain Error of 10.0 Volt Range	Result
1	2.85166e-005V	0.00320673%	2.86042e-005V	0.00354052%	2.92482e-005V	0.00104904%	Pass
2	2.69133e-005V	0.00295639%	2.00705e-005V	0.00344515%	-1.91189e-005V	0.0015974%	Pass

Input Voltage Channels (AC Gnd Couple) Initial (UnCalibrated) Data

Channel	Offsets of 0.1 Volt Range	Gain Error of 0.1 Volt Range	Offsets of 1.0 Volt Range	Gain Error of 1.0 Volt Range	Offsets of 10.0 Volt Range	Gain Error of 10.0 Volt Range	
1	0.00012722V	2.56629%	0.00194243V	2.48963%	0.0145935V	2.56826%	
2	0.000105487V	1.68446%	0.00317096V	1.59446%	0.0309317V	1.67165%	

Input Voltage Channels (AC Gnd Couple) Final (Calibrated) Data

Channel	Offsets of 0.1 Volt Range	Gain Error of 0.1 Volt Range	Offsets of 1.0 Volt Range	Gain Error of 1.0 Volt Range	Offsets of 10.0 Volt Range	Gain Error of 10.0 Volt Range	Result
1	1.90973e-005V	0.00742674%	6.7634e-006V	-0.000762939%	-1.50393e-005V	-0.000554323%	Pass
2	1.59937e-005V	0.00687838%	5.11277e-006V	-0.000220537%	-5.10143e-005V	8.34465e-005%	Pass

Input Voltage Channels (AC Dif Couple) Initial (UnCalibrated) Data

Channel	Offsets of 0.1 Volt Range	Gain Error of 0.1 Volt Range	Offsets of 1.0 Volt Range	Gain Error of 1.0 Volt Range	Offsets of 10.0 Volt Range	Gain Error of 10.0 Volt Range	
1	0.000135027V	2.5674%	0.001937V	2.48973%	0.0146138V	2.56823%	
2	0.000109514V	1.6857%	0.0031639V	1.5949%	0.0309194V	1.67137%	

Input Voltage Channels (AC Dif Couple) Final (Calibrated) Data

Channel	Offsets of 0.1 Volt Range	Gain Error of 0.1 Volt Range	Offsets of 1.0 Volt Range	Gain Error of 1.0 Volt Range	Offsets of 10.0 Volt Range	Gain Error of 10.0 Volt Range	Result
1	-3.59305e-006V	0.00369549%	4.75919e-006V	0.0018239%	-2.75604e-005V	0.00298023%	Pass
2	-6.60783e-006V	0.00272989%	-2.71649e-006V	0.00146627%	-3.84198e-005V	0.00268221%	Pass

Input Charge Channels Initial (UnCalibrated) Data

Channel	Gain Error(%) of 1.0 mV/pC	Gain Error(%) of 10.0 mV/pC	
1	1.46241%	1.43739%	
2	-1.46055%	-2.0625%	

Input Charge Channels Final (Calibrated) Data

Channel	Gain Error(%) of 1.0 mV/pC	Gain Error(%) of 10.0 mV/pC	Result
1	0.000679493%	-0.00987649%	Pass
2	-0.0077486%	-0.0106215%	Pass

End of calibration report



ATTN: QUALITY ASSURANCE
MCMASTER-CARR SUP CO
9630 NORWALK BLVD
SANTA FE SPRINGS, CA 90670-2932

May 1, 2014

STANDARD LETTER of CERTIFICATION

THIS IS TO CERTIFY THAT THE ITEM LISTED BELOW MEETS THE REQUIREMENTS OF ACCURACY OF THE APPLICABLE SPECIFICATION ON DATE OF SHIPMENT.

STANDARDS AND EQUIPMENT USED FOR INSPECTION ARE CERTIFIED ACCURATE WITH REFERENCE TO 68 DEGREES F, TRACEABLE TO MASTER STANDARDS AT THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY, GAITHERSBURG, MD. CALIBRATION IS PERFORMED WITH TRANSFER STANDARDS WHICH ARE PROGRESSIVELY MORE ACCURATE IN THE ORDER OF 4: 1.

WE ATTEST THAT OUR MEASURING AND TEST EQUIPMENT, AND CALIBRATIONS PERFORMED ON THE ITEM (S) LISTED BELOW, ARE IN ACCORDANCE WITH ISO 17025, ISO GUIDE 25, ANSI/NCSL Z540-1, MIL-STD-45662A.

YOURS VERY TRULY,
THE L. S. STARRETT COMPANY

DEXTER J. CARLSON,
CHIEF INSPECTOR

YOUR ORDER NO.:	FA-78751580
STARRETT ORDER NO.:	2380307
CATALOG NO.:	KTX1-25-N POCKET TAPE 1" x 25'
SERIAL NO.:	14184866
N.I.S.T. TEST NO.	683/282436
SPECIFICATION:	GGG-T-106F
ACCURACY:	$\pm 1/32"$ for the first 12 Feet, $\pm 1/16"$ for the remainder

The estimated uncertainties reflect a Confidence Probability of approximately 95%.

This Certificate or Report shall not be reproduced except in full, without the written approval of the Chief Inspector of The L.S. Starrett Company.

PAGE 1 OF 1

Certificate of Calibration

Everett Service Center



ISO 9001:2008 (10100/2)

Certificate Number: 2740201-23650184:1386088552

Result Summary: PASS	Date of Calibration: 03 December 2013
Data Type: FOUND-LEFT	Recommended Due Date: 03 December 2014
Manufacturer: FLUKE	Date of Certificate: 03 December 2013
Model: 287	Received Date: 26 November 2013
Serial Number: 23650184	Temperature: 21.6 °C
Description: TRUE RMS MULTIMETER	Relative Humidity: 24 %RH
Procedure Name: FLUKE 287:(1YR) ZCAL VER RS-232 /5520	Procedure Revision: 1.6

Customer Name: DIGI-KEY
City, State: THIEF RIVER FALLS, MN
Customer Item ID:
PO Number: COC
RMA Number: COC

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes, radiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Rev 116 08/12 and Fluke Customer Support Services QAM 400 Rev. 002 03/22/2012.

The Data Type found in this certificate must be interpreted as:

- As - Found Calibration data collected before the unit is adjusted and / or repaired.
- As - Left Calibration data collected after the unit has been adjusted and / or repaired.
- Found-Left Calibration data collected without any adjustment and / or repair performed.


 Sierra Freeman
 Metrology Technician

FLUKE ®Certificate Number:
2740201-23650184:1386088552Calibration Date:
3-Dec-13**Standards Used**

Asset #	Instrument Model	Cal Date	Cal Due
10418	FLUKE 5520A CALIBRATOR	11 October 2013	11 January 2014

End of Report

Certificate of Calibration

Everett Service Center



ISO 9001:2008 (10100/2)

Certificate Number: 2740201-26060019:1386086564

Result Summary: PASS
Data Type: FOUND-LEFT

Date of Calibration: 03 December 2013
Recommended Due Date: 03 December 2014

Manufacturer: FLUKE
Model: 287
Serial Number: 26060019
Description: TRUE RMS MULTIMETER

Date of Certificate: 03 December 2013
Received Date: 26 November 2013
Temperature: 21.8 °C
Relative Humidity: 24 %RH

Procedure Name: FLUKE 287:(1YR) ZCAL VER RS-232 /5520

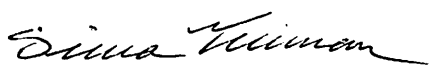
Procedure Revision: 1.6

Customer Name: DIGI-KEY
City, State: THIEF RIVER FALLS, MN
Customer Item ID:
PO Number: COC
RMA Number: COC

This calibration is traceable to the International System of Units (SI), through National Metrology Institutes, radiometric techniques, or natural physical constants. This certificate applies only to the item identified and shall not be reproduced other than in full, without the specific written approval by Fluke Corporation. Calibration certificates without signature are not valid. The calibration has been completed in accordance with Fluke Electronics Corporation Quality System Document 111.0 Rev 116 08/12 and Fluke Customer Support Services QAM 400 Rev. 002 03/22/2012.

The Data Type found in this certificate must be interpreted as:

- As - Found Calibration data collected before the unit is adjusted and / or repaired.
- As - Left Calibration data collected after the unit has been adjusted and / or repaired.
- Found-Left Calibration data collected without any adjustment and / or repair performed.


Sierra Freeman
Metrology Technician

FLUKE ®Certificate Number:
2740201-26060019:1386086564Calibration Date:
3-Dec-13**Standards Used**

Asset #	Instrument Model	Cal Date	Cal Due
10418	FLUKE 5520A CALIBRATOR	11 October 2013	11 January 2014

End of Report



Glenair Inc. 1211 Air Way, Glendale California 91201
Telephone: (818) 247-6000, Fax: (818) 543-0317
Cage Code: 06324

Certificate of Accuracy

(Banding Tool)

Scope:

This certification is issued in accordance with Glenair's calibration system, MIL-STD-45662A. All outside calibrations house are A2LA accredited I.A.W ANSI/NCSL Z 540-1994, ISO 10012-1 ISO Guide 25 & ISO/IEC 17025. The devices designated below have been compared with weights and measures traceable to the N.I.S.T. (National Institute of Standards and Technology) to insure continued accuracy; Glenair recommends this device be checked after 500 terminations using 601-200 Calibration Kit. User should further determine desired recalibration intervals. Certificate &/or Test Reports shall not be reproduced except in full without written approval of any laboratory or manufacturer as stated herein.

Designation		Calibration Data – Linear Force (Uncertainty + / - 1%)			
INSTRON® Tester Model 3366 Serial#: 3366R4614		Calibrated Date: 4/30/2014 Calibrated Due: 4/30/2015	601-200 Calibration Kit Serial#: 30314	Calibrated Date: 8/13/2013 Calibrated Due: 8/13/2014	Temperature: 68°F Humidity: 40%
Part #	Serial #	Description	Nominal	Measured	Date of Test
600-058 (601-102, 600C058)	N/A	1/4" Band Tool	150 (+/- 5)	N/A	N/A
601-100	N/A	1/4" Band Tool w/ Counter	150 (+/- 5)	N/A	N/A
600-061 (601-103, 600C061)	N/A	1/8" Band Tool	80 (+/- 5)	N/A	N/A
601-101	N/A	1/8" Band Tool w/ Counter	80 (+/- 5)	N/A	N/A
601-108	33938	NANO Band Tool w/Counter	50 (+/- 3)	50 lbs/Count: 56	5/8/2014
601-109	N/A	Slim Band Tool w/Counter	100 (+/- 3)	N/A	N/A

Before Calibration UNSERVICED Received as:

Inoperative: ☐ Functional: ☐

Measurement Reading: _____

Pat L. McGee (V.P. of Quality Management)