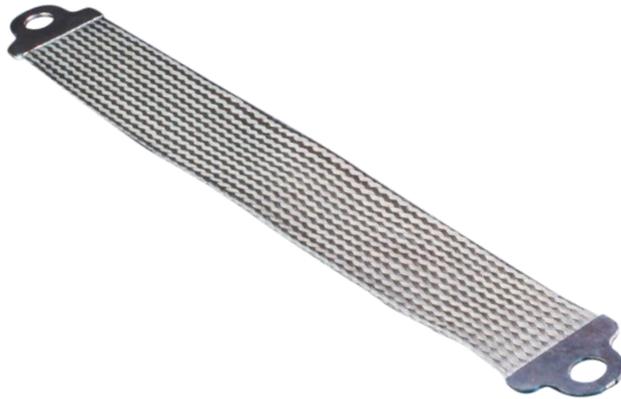




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**QUALIFICATION TEST REPORT ABSTRACT
FOR
DUAL LAYER GROUND STRAP Ni/Cu
PN 107-201 / 7827MAS
REPORT NO. GT-18-113 ABSTRACT**



**Series 107
Dual Layer Ground Strap**

Not to scale, for reference only

PREPARED BY: _____


Meghan Taylor

DATE: 6/9/2022

UPDATED BY: _____

DATE: _____

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Series 107 Dual Layer Ground Strap
PN 107-201

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1.0 Product Description/Application

Series 107 dual layer ground straps are designed for both commercial and military aerospace, as well as US Navy and mass transit applications. Ground strap technologies are exactly composed of appropriate conductive and dissipative materials for each application.

1.1 Purpose

Testing was performed on Series 107 dual layer ground straps to determine their conformance to the performance requirements of EN4199-001, EIA-364, MIL-STD-202, and DO-160.

1.2 Scope

This report summarizes the environmental qualification testing of Series 107 dual layer ground straps. The information in this report was obtained from tests conducted by Glenair, Inc and Vertical Laboratories, LLC. The documents listed below are on file at Glenair and are available upon request.

Applicable Test Reports		
Test Report Number	Provider	Date Tested
GT-18-113	Glenair, Inc.	6/15/18
17119R1DS0612V3	Vertical Labs, LLC.	6/12/18
Test Deviation Forms		
17119DV1DS0330V1	Vertical Labs, LLC.	3/27/2018
17119DV2DS0409V1	Vertical Labs, LLC.	2/15/2018

1.3 Conclusion

Series 107 dual layer ground straps have been shown to be capable of meeting performance requirements of EN4199-001, EIA 364, MIL-STD-202, and DO-160.

1.4 Test Specimen

Test Sample Description	
Description	Part Number
Dual layer ground strap	107-201-D-48-9
	107-201-D-48-16



2.0 Qualification Test Summary

Qualification Test Summary			
Test Group	Test Description	Abstract Reference	Results
1	Visual Examination	3.1	Passed
	Examination of Dimensions and Weight	3.2	Passed
	Resistance Test	3.2	Passed
2	Flexure	3.3	Passed*
	Vibration	3.4	Passed
	Resistance Test	3.4	Passed
	Tensile Strength	3.5	Passed
	Resistance Test	3.5	Passed
3	Humidity	3.6	Passed*
	Resistance Test	3.6	Passed
	Temperature Cycling	3.7	Passed
	Resistance Test	3.7	Passed
	Salt Spray	3.8	Passed
	Resistance	3.8	Passed
4	Lightning Direct Effects	3.9	Passed
	Resistance	3.9	Passed
5	Visual Examination	3.1	Passed
	Examination of Dimension and Weight	3.2	Passed
	Resistance Test	3.2	Passed
	Lightning Direct Effects	3.9	Passed
	Resistance Test	3.9	Passed

**Please see test deviation note in corresponding section*

3.0 Qualification Testing Details

3.1 **Visual and mechanical examination**

All test samples were examined, and no visual deformities were observed.

3.2 **Examination of Dimensions and Weight**

3.2.1 Test Method

Weighed and measured in accordance with QTP 964; specifications detailed below. The measurements included weight, length, width, and thickness of each test sample.

3.2.2 Requirement

Measurement requirement for PN 107-201-D-48-9 are as follows:

Length: 9.00 ± 0.03 in

Width: 1.07 ± 0.03 in

Weight: 92.1 g max

Thickness: 0.126 ± 0.015 in



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Series 107 Dual Layer Ground Strap
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Measurement requirements for PN 107-201-D-48-16 are as follows:

- Length: 16.00 ± 0.03 in
- Width: 1.07 ± 0.03 in
- Weight: 140.5 g max
- Thickness: 0.126 ± 0.015

3.2.3 Results

PASS. Measured values are recorded in Dimensions and Weight Reference Guide, below. All samples met required standards.

Dimensions and Weight Reference Guide						
Test Group	Part No.	Serial No.	Length (in)	Width (in)	Weight (in)	Thickness (in)
1	107-201-D-48-9	001	9.00	1.07	73	0.130
		002		1.08	73	0.130
		003		1.08	73	0.130
		004		1.07	74	0.132
		005		1.08	73	0.136
		006		1.08	73	0.135
		007		1.09	73	0.126
		008		1.07	74	0.136
		009		1.08	74	0.135
		010		1.07	73	0.138
		011		1.07	74	0.134
		012		1.08	74	0.132
5	107-201-D-48-16	001	16.00	1.07	111	0.134
		002		1.07	112	0.132
		003		1.07	112	0.138
		004		1.07	112	0.136

3.2.4 Test Anomalies/Deviations

N/A

3.3 Flexure Test

3.3.1 Test Method

EN4199-001, section 6.4. Duration of 25,000 cycles.

3.3.2 Requirement

Test samples must show not evidence of damage post testing and meet resistance and tensile strength requirements detailed in tables below.

3.3.3 Results

PASS. PN 107-201 exhibited no visual damage and met resistance measurement requirements.

3.3.4 Test Anomalies/Deviations

After performing the first 960 cycles on SN 001, the test setup was discovered to not be configured correctly, and the test sample was not centered with respect to the point of

rotation. The test setup was corrected thereafter, and testing continued. Vertical Report 17119DV2DS0409V1 detailing this deviation is on file at Glenair and available upon request.

3.4 Vibration Test

3.4.1 Test Method

MIL-STD-202, Method 204D, Condition D

3.4.2 Requirement

The test specimen must show no visible damage and meet post-test resistance requirements.

3.4.3 Results

PASS. PN 107-201 did not exhibit visual signs of damage and post-testing resistance measurements (per EIA 364-06) were within the specified requirements.

3.4.4 Test Anomalies/Deviations

N/A

3.5 Tensile Strength Test

3.5.1 Test Method

MIL-STD-202, Method 211A, Condition A
Test load of 814lbs maintained for 5-10 seconds

3.5.2 Requirement

Test specimen must withstand the applied axial force and meet post-test resistance requirements.

3.5.3 Results

PASS. PN 107-201, SN 002 and 004 maintained the test load of 814lbs without showing signs of damage. SN 001 and 003 failed at a peak load of 710lbf and 774lbf respectively. (After testing, the drawing was revised to reflect a 466lb design load with 700lb failure load.) Post-test resistance testing confirmed all four units were in the specified resistance requirements.

3.5.4 Test Anomalies/Deviations

N/A

3.6 Humidity Test

3.6.1 Test Method

EIA-364-31, Method IV (excluding step 7a).

3.6.2 Requirement

The test specimen must show no signs of corrosion and meet post-test resistance requirements.

3.6.3 Results

PASS. PN 107-201 exhibited no visual signs of damage and meet post-test resistance requirements.

3.6.4 Test Anomalies/Deviations

While performing the tenth cycles of the humidity test, a city-wide power outage caused the

humidity inside the chamber to drop below tolerance for approximately 25 minutes. To account for this, Step 7 of the humidity test was performed for an additional 25 minutes.

3.7 **Temperature Cycling Test**

3.7.1 Test Method

EIA 364-32, Method A, Condition I, Test Duration A3

3.7.2 Requirement

The test specimen must show no signs of corrosion and meet post-test resistance requirements.

3.7.3 Results

PASS. PN 107-201 did not exhibit visual signs of damage and all four units were within the specified resistance requirement.

3.7.4 Test Anomalies/Deviations

N/A

3.8 **Salt Spray Test**

3.8.1 Test Method

EIA-364-26, Condition C

3.8.2 Requirement

The test specimen must show no signs of corrosion and meet post-test resistance requirements.

3.8.3 Results

PASS. PN 107-201 did not exhibit signs of corrosion, had minimal salt deposit buildup along the braid, and its resistance measurements were within the acceptable range.

3.8.4 Test Anomalies/Deviations

N/A

3.9 **Lightning, Direct Effects**

3.9.1 Test Method

RTCA/DO-160, Section 23

3.9.2 Requirement

The test specimen must show no signs of melting on the base metal, discoloration of the plating, and must meet post-test resistance requirements.

3.9.3 Results

PASS. PN 107-201 were intact and showed no signs of damage after the application of the high current pulses and met post-rest resistance requirements. (Test sample 009 had more material transfer on the lugs due to the nylon fasteners failing, followed by a severe current plasma channel forming during the conduction of the component C high current pulse.)

3.9.4 Test Anomalies/Deviations

NA



3.10 **Resistance Test**

3.10.1 Test Method

EIA-364-06, Paragraph 4

3.10.2 Requirement

For PN 107-201-D-48-9 the maximum allowable resistance is 0.290 mΩ and, for the PN 107-201-D-16 test samples, the maximum allowable resistance is 1.733 mΩ.

3.10.3 Results

PASS. PN 107-201 exhibited no anomalies and met the specified resistance requirement.

3.10.4 Test Anomalies/Deviations

N/A