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**QUALIFICATION TEST REPORT ABSTRACT
FOR
GLENAIR SERIES 806
VERSALINK™**

REPORT NO. GT-22-187 ABSTRACT



Series 806 w/ VersaLink™ contacts

PREPARED BY:  _____ DATE: 11/10/2022
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QUALIFICATION TEST REPORT
Series 806 VersaLink™
PN 806-044 / 806-045

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1.0 Product Description/Application

VersaLink™ delivers outstanding impedance matching and crosstalk isolation at both the cable-to-connector interface, as well as between connector and board. VersaLink is a highly engineered differential Twinax contact module that may be packaged in a wide range of both circular and rectangular connector formats such as the Series 806, which provide advanced electrical, mechanical, and environmental performance with reduced size and weight savings compared to D38999.

1.1 Purpose

Testing was performed on PN 806-044 and 806-045 connectors populated with VersaLink™ contacts, PN 853-045 and 853-046 to determine their ability to meet to the requirements of MIL-DTL-38999.

1.2 Scope

This report summarizes the mechanical and electrical qualification testing of Series 806 plug and receptacle connectors, PN 806-044 and 806-045, with 853-045 and 853-046 VersaLink™ pin and socket contacts. The connector assemblies were terminated with five feet of PN 963-043-26 cables and secured with 620VS090 series backshells. The information in this report was obtained from tests conducted by Glenair Inc. and Vertical Labs, 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-22-187	Glenair	September 28, 2022
21306R1Kfv2	Vertical Labs, LLC	September 30, 2022

1.3 Conclusion

The Series 806 connector with VersaLink contacts has been shown to be capable of meeting performance requirements of MIL-DTL-38999.

1.4 Test Specimen

Test Sample Description	
Description	Part Number
Connector, Plug, VersaLink™, Series 806	806-044-ME16-10V4SMA
Connector, Receptable, VersaLink™, Series 806	806-045-ME16-10V4PMTA
Cable Assembly, VersaLink™	8574-0001-AA-1-24
Cable Assembly, VersaLink™	8574-0001-BN-1-60

1.5 Inspection Procedure

Unless otherwise specified, all tests were performed with the test specimen at standard laboratory conditions and within procedural parameters as defined below.

1. Ambient room temperature: 25°C ± 10°C (77°F ± 18°F)
2. Relative humidity: Room ambient up to 90% relative
3. Barometric pressure: Prevailing room conditions



2.0 Qualification Test Summary

Qualification Test Summary		
Test Description	Abstract Reference	Results
Examination of Product	3.1	Passed
Insulation Resistance, Ambient Temperature	3.2	Passed
Dielectric Withstanding Voltage, Ambient Temperature	3.3	Passed
Temperature Cycling, -65°C to +200°C	3.4	Passed
Coupling and Uncoupling, Torque	3.5	Passed
Insulation Resistance, +200°C	3.6	Passed
Mating Durability, 500 cycles	3.7	Passed
Sine Vibration, 60g	3.8	Passed
Random Vibration, 5g ²	3.9	Passed
Mechanical Shock, 300g	3.10	Passed
Humidity, 240 hours	3.11	Passed

3.0 Qualification Testing Details

3.1 **Examination of Test Samples**

The test samples submitted for testing were inspected to ensure all Series 806 VersaLink™ connector and cable assemblies were secure, assembled correctly, and representative of standard production lots. The samples were accepted by Glenair Quality Assurance prior to submittal to testing.

3.2 **Insulation Resistance, Ambient Temperature**

3.2.1 Test Method

EIA-364-21 @ 500 V_{DC}

3.2.2 Requirement

While unmated, resistance between any pair of contacts, the contacts and their shield, and any shield and the shell may be 5,000 megaohms minimum.

3.2.3 Results

PASS. PN 806-044 and 806-045 met passing criteria.

3.2.4 Test Anomalies/Deviations

N/A

3.3 **Dielectric Withstanding Voltage, Ambient Temperature**

3.3.1 Test Method

EIA-364-20, Method C, 500 Vac for 2 seconds minimum

3.3.2 Requirement

DWV tested between each inner contact per pair, between each inner contact and the shield, and between the shield and the shell must meet a max current leakage of 2 milliamperes.

3.3.3 Results

PASS. PN 806-044 and 806-045 met passing criteria.



3.3.4 Test Anomalies/Deviations
N/A

3.4 **Temperature Cycling, -65°C to +200°C**

3.4.1 Test Method
EIA-364-32, Method A, Condition VI (adjustments to steps 2 and 4 - 2 minutes maximum duration)

3.4.2 Requirement
After testing, the connector must not exhibit blistering, peeling, flaking, or separation of plating or other damage detrimental to the operation of the connector.

3.4.3 Results
PASS. PN 806-044 and 806-045 did not exhibit any damage or performance degradation.

3.4.4 Test Anomalies/Deviations
N/A

3.5 **Coupling and Uncoupling, Torque**

3.5.1 Test Method
EIA-364-114, mated pairs fully coupled within 5 seconds maximum and uncoupled within 5 seconds minimum

3.5.2 Requirement
The test sample must meet the values listed in table below:

Coupling Torque Criteria		
Shell Size	Max Engagement (in-lb)	Min Disengagement (in-lb)
16	20	3

3.5.3 Results
PASS. PN 806-044 and 806-045 met passing criteria for coupling torque.

3.5.4 Test Anomalies/Deviations
N/A

3.6 **Insulation Resistance, +200°C**

3.6.1 Test Method
EIA-364-21

3.6.2 Requirement
While unmated, resistance between any pair of contacts, the contacts and their shield, and any shield and the shell may be 200 megaohms minimum.

3.6.3 Results
PASS. PN 806-044 and 806-045 met passing criteria.

3.6.4 Test Anomalies/Deviations
N/A

3.7 Mating Durability, 500 cycles

3.7.1 Test Method

500 mating cycles not exceeding 300 cycles per hour.

3.7.2 Requirement

Test samples must not show any signs of damage detrimental to operation.

3.7.3 Results

PASS. The test samples performed within specification for the duration of testing.

3.7.4 Test Anomalies/Deviations

N/A

3.8 Sine Vibration, 60g

3.8.1 Test Method

EIA-364-46 with continuous monitoring. Simple harmonic motion from 10 to 2,000 Hz on each of three mutually perpendicular axes. Vibration level may not exceed a velocity of 254mm/sec from 10-50 Hz, 1.5 mm double amplitude from 50-140 Hz, and 60 G from 140-2,000 Hz.

3.8.2 Requirement

The test sample must operate without discontinuity, evidence of damage, or have the contact resistance increase my more than 100 mΩ.

3.8.3 Results

PASS. PN 806-044 and 806-045 met passing criteria.

3.8.4 Test Anomalies/Deviations

Initial testing of the Z axis was paused to investigate a possible discontinuity. Test engineers found the backshell was loose. The test sample was re-torqued, and testing continued and completed without discontinuity.

3.9 Random Vibration, 5g²

3.9.1 Test Method

EIA-364-46 with continuous monitoring and per vibration envelope provided by MIL-DTL-38999 figure 25.

3.9.2 Requirement

The test sample must operate without discontinuity, evidence of damage, or have the contact resistance increase my more than 100 mΩ.

3.9.3 Results

PASS. PN 806-044 and 806-045 met passing criteria.

3.9.4 Test Anomalies/Deviations

N/A

3.10 Mechanical Shock, 300g

3.10.1 Test Method

EIA-364-46 with continuous monitoring and EIA-364-27 with a pulse of 300 G ±15% magnitude for 3 ±1 milliseconds.



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3.10.2 Requirement

The test sample must operate without discontinuity, or evidence of damage during testing.

3.10.3 Results

PASS. PN 806-044 and 806-045 met passing criteria.

3.10.4 Test Anomalies/Deviations

N/A

3.11 **Humidity, 240 Hours**

3.11.1 Test Method

EIA-364-31, Method IV, Duration B (10 24-hr cycles)

3.11.2 Requirement

During final cycle and whole test samples are still subjected to high humidity, insulation resistance shall be measured per 7.2.1 when the chamber reaches 20°C ±5°C and condensation is observed on the connector. Resistance must be 100 megaohms or greater.

3.11.3 Results

PASS. PN 806-044 and 806-045 met passing criteria.

3.11.4 Test Anomalies/Deviations

N/A