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QUALIFICATION TEST REPORT ABSTRACT FOR GLENAIR EL OCHITO VIBRATION AT TEMPERATURE

REPORT NO. GT-22-003 ABSTRACT

El Ochito White

El Ochito Blue

PREPARED BY: _____ DATE: 02/07/2022

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1.0 Product Description/Application

High speed, harsh environment El Ochito octaxial contacts and pre-wired assemblies save size and weight. Suitable for aircraft avionics, weapons systems, satellites, radars, communications equipment, and other aerospace/defense gear. El Ochito® contacts and cables are optimized for 10G Ethernet, SuperSpeed USB and other multi-gigabit datalink protocols including HDMI, DisplayPort, and SATA.

1.1 Purpose

Testing was performed on 858-003, 858-004, 858-028, and 858-029 El Ochitos to determine their ability to pass the vibration at non-ambient temperatures per MIL-DTL-38999.

1.2 Scope

This report summarizes mechanical and electrical qualification testing and results thereof in accordance with QTP-1081. The information in this report was obtained from tests conducted by Vertical Laboratories LLC and Glenair Inc. The documents listed below are on file at Glenair and available upon request.

Applicable Test Reports		
Test Report Number	Provider	Date Tested
21216MCR1V2	Vertical Labs	12/01/2021
GT-22-003	Glenair Inc.	01/10/2022

1.3 Conclusion

Glenair El Ochito White, and El Ochito Blue have been shown to survive vibration at non-ambient temperatures. El Ochito Red use the same materials as El Ochito Blue, extending this rating to El Ochito Red as well.

1.4 Test Specimen

Test Sample Description	
Description	Part Number
El Ochito Contact, Pin, 100 Ohms, MIL-DTL-38999, Series III	858-003-02F
El Ochito Contact, Socket, 100 Ohms, MIL-DTL-38999, Series III	858-004-02F
El Ochito, “Blue” Contact, Pin, 90 Ohms, MIL-DTL-38999, Series III	858-028-02F
El Ochito, “Blue” Contact, Socket, 90 Ohms, MIL-DTL-38999, Series III	858-029-02F

1.4.1 Test Specimen Preparation

For testing, each El Ochito White was installed into cavity A, and each El Ochito Blue was installed into cavity B of SuperNine 17-75 connectors. El Ochito White was terminated onto Ethernet cable per 8571-0004. El Ochito Blue contacts were terminated onto USB 3.0 cable per 8572-0024.

Each cable assembly was secured to their connector with a 620HS090ME17 strain relief backshell.

1.5 Inspection Procedure

All tests were performed with the test specimens 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	Pass
Sine Vibration, 60g, -55°C, +175°C	3.2	Pass
Random Vibration, $1g^2$ – 43.92g rms, +175°C	3.3	Pass
Electrical Performance (after each test) 10GBASE-T for White USB 3.0 for Blue	3.4	Pass

3.0 Qualification Testing Details

3.1 **Visual and mechanical examination**

Specimen submitted for testing was representative of standard production lots. Specimen was assembled at Glenair and accepted by Glenair Quality Assurance prior to submittal for testing.

3.2 **Sine Vibration, 60g**

3.2.1 Test Method

One sample of each configuration shall be subjected to a simple harmonic motion from 10 to 2,000 Hz in each of three mutually perpendicular axes. The level of vibration shall be a velocity of 254 mm/sec from 10-50 Hz; 1.5 mm double amplitude from 50-140 Hz, and 60 G from 140- 2,000 Hz. The entire frequency range from 10-2,000 Hz and back shall be traversed in 20 minutes. The vibration shall be applied for a duration of 4 hours in each of the three mutually perpendicular axes for a total of 12 hours.
A test current of 100 milliamperes maximum shall be applied and the mated pair continuously monitored for microsecond discontinuities.
Vibration shall be conducted at -55°C, and +175°C.

3.2.2 Requirement

No disengagement of the mated connectors, backing off, the coupling mechanism, evidence of cracking, breaking, or loosening of parts.

3.2.3 Results

PASS. Assemblies SN 002 and 007 did not exhibit physical degradation.

3.2.4 Test Anomalies/Deviations

N/A

3.3 Random Vibration, $1g^2$ – 43.92g rms

3.3.1 Test Method
EIA-364-28, Condition VI, Letter J.
Vibration shall be conducted at +175°C

3.3.2 Requirement
No disengagement of the mated connectors, backing off, the coupling mechanism, evidence of cracking, breaking, or loosening of parts.

3.3.3 Results
PASS. Cable assembly SN 006 did not exhibit physical degradation.

3.3.4 Test Anomalies/Deviations
N/A

3.4 Electrical Performance (After Each Test)

3.4.1 10GBASE-T, El Ochito White

3.4.1.1 Test Method
After each test, mated pairs shall be tested using a Fluke Networks Cable Analyzer

3.4.1.2 Requirement
Samples shall pass 10GBASE-T

3.4.1.3 Results
PASS. PN 858-003-02F + 858-004-02F (SN 001 and 002), and 858-005-04 + 858-006-04 (SN 005 and 006) maintained their performance.

3.4.1.4 Test Anomalies/Deviations
N/A

3.4.2 USB 3.0, El Ochito Blue

3.4.2.5 Test Method
After each test, mated pairs shall be tested using a Total Phase Cable Tester

3.4.2.6 Requirement
Samples shall pass USB 3.0

3.4.2.7 Results
PASS. PN 858-028-02F + 858-029-02F (SN 003 and 004) maintained their performance

3.4.2.8 Test Anomalies/Deviations
N/A