ELECTRICAL WIRING COMPONENT APPLICATION PARTNERSHIP

11/01/2022 Version 2 released 1/11/24 (all Version 2 changes are in RED)

Subject: Change to SAE/USCAR-49, Initial release, Letter #2

Changes have been made to the USCAR-49 specification. Comments and questions can be sent to EWCAP@uscar.org.

Situation:

USCAR-49 was released before all configurations and use cases were understood. Based on recent results, the criteria for mechanical side load in Section 4.8 was updated.

Resolution:

The following sections are rewritten as shown:

4.8.2 Procedure

1. Prepare Connector Under Test (CUT) to allow for continuity monitoring during force application ~~and return loss testing after the force application~~. The same sample is used for all steps in the test.

2. Attach a continuity tester to check continuity through both the center contact and shield of the mated connector pair under test. Perform all force tests while monitoring for continuity on both conductor and shield.

3. Apply a force in Direction "A" per Figure 14 at a uniform rate not to exceed 50 mm/min until the force reaches 110N or the applicable value in the table, whichever is smaller. Hold the ~~110N~~ force for 5 seconds then release. ~~Since samples are prepared for return loss measurement, it is acceptable to wrap the cable around a 2-inch diameter mandrel, securing the cable to the mandrel with electrical tape or other suitable means.~~ Board mount connectors may have the circuit board end rigidly attached to a fixture.

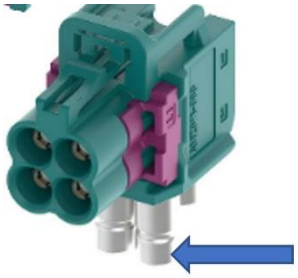
Braid Equiv. Cross Section (mm^2)	Minimum pull-out Force (N)
0.13 to 0.50	50
> 0.50 to 0.75	70
> 0.75 to 1.0	80
> 1.0 to 1.5	110
> 1.5 to 2.0	130
> 2.0 to 2.5	155
> 2.5	180

Note: Table aligns to USCAR-17 Table 4.2.6.5-B

4. For board and panel mount samples only: Pull in the directions listed at a uniform rate not to exceed 50mm/min until the force reaches 75N. Hold the 75N force for 5 seconds then release. Test in the following directions 1C, 3C, 5C, 7C, and 8C per Figure 14. The test order is at the lab's discretion. Note that Direction C in Figure 14 revolves 360° perpendicular to the connector axis.

5. For board and panel mount samples with right angled plug connector only: Apply a force perpendicular

to the end of the ferrule (as shown) at a uniform rate not to exceed 50mm/min until the force reaches 55N. Hold the 55N force for 5 seconds.



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~~6. Perform Return Loss on the sample per 4.2~~

7. Disassemble each sample and visually check for damage that could affect the performance of the connection system.

4.8.3 Acceptance Criteria

1. No separation of connector parts shall be noted as a result of force testing

2. No interruptions in center or outer conductor continuity shall be noted during the force tests.

~~. The Return Loss taken after the force testing shall fulfil **Error! Reference source not found.**.~~

3. No visual damage to the connection system, including connector body, metal terminals or cable attachment shall be noted.