EWCAP
ELECTRICAL WIRING COMPONENT APPLICATION PARTNERSHIP

08/15/25
Subject: Change #2 to SAE/USCAR-2, Revision 9

This letter describes a change to the USCAR-2 specification. Comments and questions can be sent to EWCAP@uscar.org.

Situation:
The validation schedules in Appendix D combine both terminal and connector validation schedules; however, terminal validation and connector validation are tested separately. Validated terminals must be used during connector validation to ensure the terminal does not lead to test failures during connector validation.

Resolution
Updates will be made to Appendix D to separate terminal Validation Schedules from Connector Validation Schedules. Notes will be added to highlight that a Terminal must be validated to USCAR-2, Test Schedule per Table D1a, prior to being used in Connector Validation test schedules. Additional columns will be added to connector validation outlining the test schedule for validating additional terminals in an existing connection system.

Appendix D - Tests for New /Existing Terminal or Connector Designs

Table D1a - Test schedule for New Terminal Designs

Each terminal must be validated to the test schedules outlined in Table D1a.

Test Seq. ID	(X = tests to be performed) Sequence Name	New Terminal Design			New wire type(4)	New Cable Seal design (1)
		Initial Plating, 1st crimp/ wire gauge	Additional crimp/ wire type	Alternative Plating (3)		
A	Term. - Term. Engage/Disengage	X (2)		X		
B	Terminal Bend Resistance	X	X			
C	Maximum Current/ Current Cycling	X (2)	X	X		
	USCAR-21/ USCAR-38	X	X		X	X

NOTES:

(1) For terminals intended for sealed applications only.
(2) Applies to low and high voltage circuits only, not data transmission circuits unless requested
(3) Alternative plating includes changes to the material composition, processing, or thickness of either the plating or underplating.
(4) Any new wire/terminal combinations requested must meet USCAR-21 or USCAR-38 performance criteria.

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Table D1b - Test Schedule for New Connector Designs

Terminals used during connector validation must meet all performance criteria outlined in Table D1a.

Test Seq. ID	(X = tests to be performed) Sequence Name	New Design for…		Additional Terminal to an Existing Connector[8]		New Connector in Existing family[5]		New Connector Polarization	New Cable Seal or Plug[6]
		Sealed Conn.	Unsealed Conn.	New Terminal	New Plating [7]	Sealed	Unsealed		
D	Term.-Conn. Insertion/Retention	X	X	X		X	X		
E	Misc. Component Engage	X	X	X		X	X		
F	Audible Click	X	X			X	X		
G	Conn. Conn Mating/Unmating	X	X	X	X	X	X		
H	Polarization Effectiveness	X	X			X	X	X	
I	Drop	X	X						
J	Cavity Damage	X	X	X					
K	Header Pin Retention	X	X						
L	Mounting Feature Strength	X	X						
M	Vibration/Mechanical Shock	X	X	X	X	X	X		
N	Thermal Shock	X	X	X	X				
O	Temp/Humidity	X	X	X	X				
P	High Temp Exposure	X	X	X	X				
Q	Fluid Resistance	X							
R	Temp/Humidity - Submersion	X[4]							
S	Temp/Humidity - PV Leak	X[4]							
RSAA	Combined R+S+AA	X[4]							
T	High Temp Exp.- Submersion	X[4]							
U	High Temp Exposure - P/V Leak	X[4]							
TUAB	Combined T+U+AB	X[4]				X			X
W	Pressure/Vacuum - Standalone			X [9]					X
X	Mechanical Assist Integrity	X	X						
Y	Connector Seal Retention - Unmated Connector	X							
Z	Connector Seal Retention - Mated	X							
AA	Temp/Humidity - High Pressure Spray	X[4]							
AB	High Temp Exposure - High Pressure Spray	X[4]							
AE	Terminal/Cavity Polarization	X	X	X					
AL	Cavity Plug Pressure/Vacuum								X (plug only)

NOTES:

[1, 2,3] Deleted.

[4] It is permissible to perform submersion (see 5.6.5), pressure/vacuum leak (see 5.6.6), and high-pressure spray (see 5.6.7) in series. See test sequence RSAA when conditioning samples to temperature/humidity cycling (see 5.6.2) and test sequence TUAB when conditioning samples to high temperature exposure (see 5.6.3).

[5] Same connector family refers to a connector having the same terminal and same design concept (including lock) but having more or fewer terminal cavities than connector under test and is bounded by circuit sizes already validated.

[6] Applies to changes in applied cable seal design, the cable used in the application, and seal plugs.

[7] New plating includes changes to the material composition, processing, or thickness of either the plating or underplating.

[8] The responsibility of completing connector validation testing with a new terminal will be agreed on between the requesting party and the customer.

[9] If wire alignment to the terminal body varies between terminal suppliers, additional sealing testing may be required.

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