

SMB Header Coaxial Connector

1. SCOPE

1.1. Content

This specification covers electrical, mechanical, environment performances requirements and test methods for TE Connectivity HD camera coaxial connector.

1.2. Qualification

When tests are performed on the subject product line, procedures specified in below Figures shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

2. APPLICABLE DOCUMENTS

See drawings and other sections of this specification for the relevant reference documents. In Cases where the specification differs from the drawings, the drawings take precedence.

Standards and Specifications:

- A. ISO20860-1
- B. SAE/USCAR-2 Rev 6
- C. SAE/USCAR-17 Rev 4
- D. GMW3191-2012
- E. GB/T2423.17-2008
- F. TEC-109-201

Electrical Connector Test Procedures including Environmental Classifications.

3. Requirements

3.1 Design and Construction:

Product shall be of the design, construction and physical dimensions specified on applicable product drawing.

3.2 Material:

- A. Shell: Zinc Alloy
- B. Center Pin: Brass
- C. Dielectric: PA

3.3 Ratings:

- A. Operating Temperature: - 40°C to + 105°C
- B. Operating Humidity Limit: 95% R.H max.
- C. Characteristic Impedance: 50Ω
- D. Frequency Range: 0 to 6 GHz

3.4 Performance Requirements and Test Descriptions:

The product shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Table 1. All tests shall be performed in the room temperature, unless otherwise specified

4. Performance Requirements and Test Description:

The product shall be designed to meet the electrical, mechanical and environmental performance require. Requirements specified in Table.1. All tests shall be specified performed in the room temperature, unless otherwise

4.1 Test Requirement and Procedures Summary:

Para.	Test Items	Requirements	Procedures
4.1.1	Examination of Product	Meets requirements of product drawing and application specification	SAE/USCAR-2 Rev 6, 5.1.8.3
4.1.2	Final Examination of Product	Meets visual requirements.	SAE/USCAR-2 Rev 6, 5.1.8.3
Electrical Requirements			
4.1.3	Insulation Resistance	≥ 500 MΩ	SAE/USCAR-2 Rev 6, 5.5.1
4.1.4	Contact Resistance	40mΩ maximum for signal and ground contacts.	SAE/USCAR-17 Rev 5, 4.3.1.2
4.1.5	Circuit Continuity Monitoring	No loss of electrical continuity for > 1μs	SAE/USCAR-2 Rev 6, 5.1.9.3
4.1.6	Dielectric Withstanding Voltage	≥ 800VAC	SAE/USCAR-17 Rev 5, 4.3.2.2
4.1.7	Voltage Standing Wave Ratio (VSWR) (full mating)	≤ 1.40, 0 to 2 GHz ≤ 1.50, 2 to 3 GHz ≤ 1.60, 3 to 6 GHz	SAE/USCAR17 Rev 5, 4.4.2.2
4.1.8	Insert Loss (full mating)	≤ 0.3 dB, 0 to 3 GHz ≤ 0.45 dB, 3 to 6 GHz	SAE/USCAR17 Rev 5, 4.4.2.2
4.1.9	Return Loss (full mating)	≥ 15.56 dB, 0 to 2 GHz ≥ 13.98 dB, 2 to 3 GHz ≥ 12.74 dB, 3 to 6 GHz	SAE/USCAR17 Rev 5, 4.4.2.2
Mechanical Requirements			
4.1.10	Heat Resistance to Reflow Soldering	<p>Condition B – Peak Reflow -260°C Subject the specimens to three (3) cycles of the following reflow profile: Average ramp rate: 3°C per second maximum Preheat temperature (min.): 150°C Preheat temperature (max.): 200°C Preheat time: 60 to 180 seconds Ramp to peak: 3°C per second maximum Time over liquidus (217°C): 60 to 150 seconds Peak temperature: 260 +0/-5°C Time within 5°C of peak: 20 to 40 seconds Ramp – cool down: 6°C per second maximum Time 25°C to peak: 8 minutes maximum</p> <p>Circumferential on primary side: > 270° Vertical fill: > 75% solder area</p>	TEC-109-201 3.3. C. 2. b
4.1.11	Pin Retention Force	≥ 15 N	GMW3191-2012 4.2.5
4.1.12	Connector to Connector Engagement Force	≤ 40 N (SMB Side)	GMW3191-2012 4.2.8
4.1.13	Unlocked Connector Disengagement Force	≤ 40 N (SMB Side)	GMW3191-2012 4.2.19
4.1.14	Durability	≥ 25 mating cycles	ISO 20860-1, 6
4.1.15	Vibration	Vibration Class: V1	SAE/USCAR-2 Rev 6, 5.4.6.3
4.1.16	Mechanical Shock	Mechanical Shock: V1	SAE/USCAR-2 Rev 6, 5.4.6.3
Environment Requirements			
4.1.17	Thermal Shock	Cycle from -40°C to +105°C, 100 cycles (100 hours)	SAE/USCAR-17 Rev 5, 5.6.1.3

4.1.18	Humid /Heat Cycling	Cycle from -40°C to +105°C, 40 cycles (320 hours)	SAE/USCAR-2 Rev 6, 5.6.2.3
4.1.19	High Temperature Exposure	Hold at +105°C, 1008 Hours	SAE/USCAR-2 Rev 6, 5.6.3.3
4.1.20	Salt Spray	GB/T 2323.17-2008. 3.1 requirement: The concentration of the salt solution : (5±1)% Temperature: 35°C±2°C PH value: 6.5~7.2 Time: 96 hours	GB/T 2423.17-2008

Table.1 (END)

5. Product Qualification Test Sequence

Test Examination	Test Group										
	A	B	C	D ^(c)	E ^(c)	F ^(c)	G ^(c)	H ^(c)	I	J	K
	(a)										
4.1.1 Examination of Product	1	1	1	1	1	1	1	1	1	1	1
4.1.2 Final Examination of Product	3	3	3	11	15	13	14	13	3	4	
4.1.3 Insulation Resistance					12	10	5,12	10			
4.1.4 Contact Resistance				5,10	5,14	5,12	6,13	5,12			
4.1.5 Circuit Continuity Monitoring					8						
4.1.6 Dielectric Withstanding Voltage					13	11	11	11			2,4
4.1.7 Voltage Standing Wave Ratio				2,7	2,9	2,7	2,8	2,7			
4.1.8 Insert Loss				3,8	3,10	3,8	3,9	3,8			
4.1.9 Return Loss				4,9	4,11	4,9	4,10	4,9			
4.1.10 Heat Resistance to Reflow Soldering									2	3	
4.1.11 Pin Retention Force	2										
4.1.12 Connector to Connector Engagement Force		2									
4.1.13 Unlocked Connector Disengagement Force			2								
4.1.14 Durability				6							
4.1.15 Vibration					6						

4.1.16 Mechanical Shock					7						
4.1.17 Thermal Shock						6					
4.1.18 Humid /Heat Cycling							7			2	
4.1.19 High Temperature Exposure								6			
4.1.20 Salt Spray											3
Samples size	10	10	10	10	15	10	10	10	5	5	5

Note

- (a) Connector housings and contacts shall be prepared in accordance with applicable instruction sheets and shall be selected at random from current production. Test groups A-D and F-H shall have 10 samples, group E shall have 15 samples, group I-K shall have 5 samples.
- (b) Numbers indicate sequence in which tests are performed.
- (c) For Group D-H, contact resistance and RF test split the test group in two with 5 samples going to contact resistance and the others to RF test.