Connectors, UHF, Miniature Type

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for the AMP* miniature UHF type connectors. This connector is designed to accommodate RG 58 c/u cable.

1.2. Definitions

For the purpose of this specification, the following definitions shall apply:

A. Connector Assembly: Mated plug and receptacle terminated to suitable coaxial plug.

B. Plug: The portion of the connector assembly which houses the male inner contact.

C. Receptacle: The portion of the connector assembly which houses the female inner contact which is loose piece prior to assembly.

D. Outer Shell: The shield or braid circuit of the connector.

1.3. Qualification

When tests are performed on the subject product line, procedures specified in AMP 109 series specifications shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the latest edition of the document applies. In the event of conflict between requirements of this specification and product drawing, the product drawing shall take precedence. In the event of conflict between requirements of this specification and the referenced documents, this specification shall take precedence.

2.1. AMP Documents

A. 109-1: General Requirements for Test Specifications
B. 109 Series: Test Specifications as indicated in Figure 1. (Comply with MIL-STD-202, MIL-STD-1344 and EIA RS-364)
C. Corporate Bulletin 401-76: Cross-reference between AMP Test Specifications and Military or Commercial Documents

3. REQUIREMENTS

3.1. Design and Construction

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

3.2. Materials

The materials used in the manufacture of this product shall be as specified on the applicable product drawing.

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3.3. Ratings

A. Voltage: 335 vac rms
B. Operating Temperature: -55 to 85°C
C. Frequency Range: 0 to 2.0 GHz

3.4. Performance and Test Description

Connectors shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1.

3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Examination of product.	Meets requirements of product drawing.	Visual, dimensional and functional per applicable inspection plan.
	ELECTRICAL	
Insulation resistance.	5000 megohms minimum initial.	AMP Spec 109-28-4. Test between center and outer contacts of mated samples.
Dielectric withstanding voltage.	1000 vac rms dielectric withstanding voltage, 1 minute hold. No breakdown or flashover.	AMP Spec 109-29-1. Test between center and outer contacts of mated samples.
Permeability.	2 Mu maximum.	AMP Spec 109-88. Measure magnetic permeability.
Low level conductivity.	Contacts shall conduct 50 milliamperes minimum current at 50 millivolts. See Note (c).	Both center and outer contacts shall be energized with 50 millivolts and current flow observed. The voltage polarity shall be reversed and current flow again observed.
Voltage standing wave ratio.	RG-58: 1.25 maximum. RG-188: 1.45 maximum.	Measure VSWR of mated pair using the Swept Interference Technique between .11 and 2 GHz.
	MECHANICAL	
Crimp tensile.	40 pounds minimum for RG 58/U cable. 20 pounds minimum for RG 188/U cable.	AMP Spec 109-16. Determine crimp tensile at rate of 1 inch per minute.
Vibration.	No discontinuities of 10 microseconds or longer duration. See Note (a).	AMP Spec 109-21-2. Subject mated samples mounted by their normal means with cable supported 8 inches from connector external to vibration table to 10-500-10 Hz traversed in 15 minutes at 10 G's peak. 3 hours in each of 3 mutually perpendicular planes.

Figure 1 (cont)

Test Description	Requirement	Procedure
Physical shock.	No discontinuities of 10 microseconds or longer duration. See Note (a).	AMP Spec 109-26-9. Subject mated samples mounted as for vibration to 100 G's sawtooth shock pulses of 6 milliseconds duration. 8 shocks applied along 2 mutually perpendicular planes, 16 total shocks.
Durability.	See Notes (a) and (b).	AMP Spec 109-27. Mate and unmate samples for 500 cycles.
ENVIRONMENTAL		
Thermal shock.	See Note (a).	AMP Spec 109-22. Subject mated samples to 5 cycles between -55 and 85°C.
Humidity-temperature cycling.	200 megohms minimum insulation resistance within 5 minutes after removal from chamber. See Note (a).	AMP Spec 109-23-4, Condition B. Subject mated samples to 10 cycles between 25 and 65°C at 95% RH with -10°C cold shock.
Corrosion, salt spray.	No base metal exposure on any mating or interface surface of the connectors.	AMP Spec 109-24, Condition B. Subject mated samples to 5% salt concentration for 48 hours. Clean connectors thoroughly in distilled water after test.

NOTE

(a) Shall show no evidence of damage, cracking or chipping.

(b) Black connectors may show evidence of scratching or flaking of black finish after durability. Nickel underplate shall meet conditions of Note (a).

(c) Requirement applies only to nickel and black nickel plated connectors. Black chromate connectors are not subject to this requirement.

Figure 1 (end)

3.6. Connector Tests and Sequences

Test or Examination	Test Group (a)	
	1	2
	Test Sequence (b)	
Examination of product	1	1
Insulation resistance	3,13	4
Dielectric withstanding voltage	4,14(c)	5
Permeability	2	2
Low level conductivity	5,7,9	6,9
Voltage standing wave ratio		3
Crimp tensile	15	
Vibration	10	
Physical shock	11	
Durability	8	7
Thermal shock	6	
Humidity-temperature cycling	12	
Corrosion, salt spray		8

NOTE

(a) See Para 4.1.A.
(b) Numbers indicate sequence in which tests are performed.
(c) After 24 hour drying period.

Figure 2

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Sample Selection

Samples shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. Test group 1 shall consist of 10 connector pairs which shall each be crimped to a 12 inch length of cable. Test group 2 shall consist of 3 connector pairs which shall be crimped during the Voltage Standing Wave Ratio Test.

B. Test Sequence

Qualification inspection shall be verified by testing samples as specified in Figure 2.

C. Acceptance

(1) All samples tested in accordance with this specification shall meet the stated requirements.

(2) Failures attributed to equipment, test setup or operator deficiencies shall not disqualify the product. When product failure occurs, corrective action shall be taken.

4.2. Quality Conformance Inspection

The applicable AMP inspection plan will specify the sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification.

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