

PRODUCT SPECIFICATION

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for AMP* crimp type miniature threaded coaxial connectors.

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 cable.
- B. Plug: Portion of connector assembly which houses female inner contacts.
- C. Receptacle: Portion of connector assembly which houses male inner contacts.
- D. Outer shell: Shield or braid circuit of connector.
- E. Collar: Threaded sleeve attached to plug contact to facilitate locking when plug and receptacle are mated.
- F. Ferrule: Sleeve placed over cable braid and jacket to terminate cable shield to connector shell.

1.3. Qualification

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

2. APPLICABLE DOCUMENTS

The following documents constitute a part of this specification to the extent specified herein. In the event of conflict between requirements of this specification and product drawing, product drawing shall take precedence. In the event of conflict between requirements of this specification and 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

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CONTROLLED DOCUMENT This specification is a controlled document per AMP Specification 102-21. It is subject to change and Corporate Standards should be contacted for latest revision.				DR D. Benfer 3/31/83		AMP AMP Incorporated Harrisburg, PA 17105-3608		
				CHK C. Richards 3/31/83				
				APP D. Smith 3/31/83		NO 108-12013	REV B	LOC B
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3. REQUIREMENTS

3.1. Design and Construction

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

3.2. Materials

Materials used in manufacture of this product shall be as specified on applicable product drawing.

3.3. Ratings

- A. Voltage: 335 volts alternating current
- B. Current: 2 amperes maximum
- C. Temperature: -55 to 85°C
- D. Nominal Impedance: 50 ohms
- E. Frequency Range: 0 to 1 GHz

3.4. Performance and Test Description

Product is designed to meet electrical, mechanical and environmental performance requirements specified in Figure 1. All tests performed at ambient environmental conditions per AMP Specification 109-1 unless otherwise specified.

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 quality inspection plan.
ELECTRICAL		
Termination resistance, rated current.	3 milliohms maximum for both center and outer contacts.	Measure potential drop of mated connectors using 2 amperes DC. Calculate resistance. See Figure 3. AMP Spec 109-25.
Low level conductivity.	Contacts shall conduct current at 10 μ volts.	Energize center and outer circuits with 10 μ volts and observe current flow. Reverse voltage polarity and observe current flow.
Dielectric withstanding voltage.	1000 vac or vdc. 1 minute hold. No breakdown or flashover.	Test between center and outer contacts of mated connector assemblies. AMP Spec 109-29-1.

Figure 1 (cont)

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Test Description	Requirement	Procedure						
Insulation resistance.	5000 megohms minimum.	Test between center and outer contacts of mated connector assemblies. AMP Spec 109-28-4.						
Voltage standing wave ratio. (VSWR)	1.3 maximum up to 1 GHz.	Measure VSWR of mated pair using sweep interference technique between .25 and 1 GHz.						
MECHANICAL								
Sinusoidal vibration.	No discontinuities greater than 1 microsecond. See Note (a).	Subject mated connectors mounted by normal means with cable supported 8 inches from connector and external to vibration table to 10-55-10 Hz traversed in 1 minute at .06 inch total excursion. 2 hours in each of 3 mutually perpendicular planes. AMP Spec 109-21-1.						
Physical shock.	No discontinuities greater than 1 microsecond. See Note (a).	Subject mated connectors mounted by normal means with cable supported 8 inches from connector and external to vibration table to 50 G's sawtooth shock pulses of 11 milliseconds duration. 6 shocks applied along 3 mutually perpendicular planes, 18 total shocks. AMP Spec 109-26-7.						
Crimp tensile.	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Cable Dielectric Diameter</td> <td style="width: 50%;">Crimp Tensile Minimum</td> </tr> <tr> <td>.036 max</td> <td>13 lbs</td> </tr> <tr> <td>.037 & above</td> <td>20 lbs</td> </tr> </table>	Cable Dielectric Diameter	Crimp Tensile Minimum	.036 max	13 lbs	.037 & above	20 lbs	Determine crimp tensile at rate of 1 inch per minute. AMP Spec 109-16.
Cable Dielectric Diameter	Crimp Tensile Minimum							
.036 max	13 lbs							
.037 & above	20 lbs							
Durability.	See Note (a).	Mate and unmate connector assemblies for 200 cycles. AMP Spec 109-27.						

Figure 1 (cont)

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Test Description	Requirement	Procedure
ENVIRONMENTAL		
Thermal shock.	See Note (a).	Subject mated connectors to 5 cycles between -55 and 85°C. AMP Spec 109-22.

(a) Shall meet visual requirements, show no physical damage and shall meet requirements of additional tests specified in Test Sequence in Figure 2.

Figure 1 (end)

3.6. Product Qualification And Requalification Test Sequence

Test or Examination	Test Group (a)		
	1	2	3
	Test Sequence (b)		
Examination of product	1	1	1
Termination resistance, rated current	4,6,9	5,9	
Low level continuity		4,8	
Dielectric withstanding voltage	3,11	3,10	
Insulation resistance	2,10	2	
Voltage standing wave ratio			2
Vibration	7		
Physical shock	8		
Crimp tensile	12		
Durability		7	
Thermal shock	5	6	

(a) See Para 4.1.A.

(b) Numbers indicate sequence in which tests are performed.

Figure 2

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Sample selection.

Connectors shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. Test groups 1 and 2 shall consist of 10 connector pairs each crimped to 12 inch length of cable with current equalizers soldered to braid and center conductor. Test group 3 shall consist of 3 connector pairs which shall be crimped during voltage standing wave ratio test. Cable used for testing shall conform to MIL-C-17.

B. Test sequence.

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

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4.2. Requalification Testing

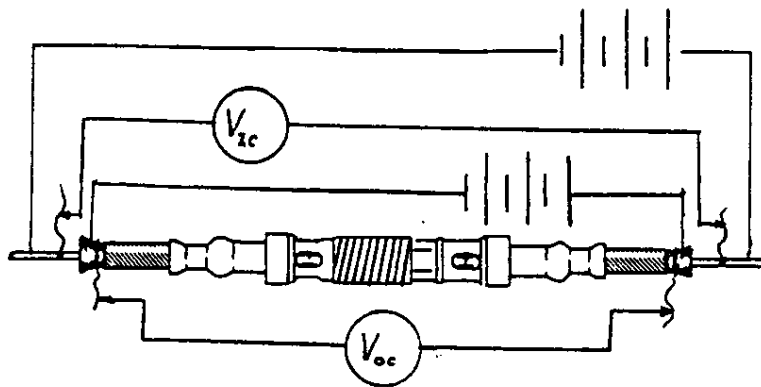
If changes significantly affecting form, fit or function are made to product or manufacturing process, product assurance shall coordinate requalification testing consisting of all or part of original testing sequence as determined by development/product, quality and reliability engineering.

4.3. Acceptance

Acceptance is based upon verification that product meets requirements of Figure 1. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify product. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification. Testing to confirm corrective action is required prior to resubmittal.

4.4. Quality Conformance Inspection

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



Note: Measure 3 foot section of cable and calculate milliohms per inch. Measure distance between probes and subtract equal distance of cable resistance to determine actual contact resistance.

Figure 3
Termination Resistance Measurement Points.