

PRODUCT SPECIFICATION

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for AMP* Commercial and Dual Crimp types 75 ohm BNC Coaxial connectors.

1.2. Definitions

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

- A. Connector assembly: A connector assembly consists of a mated plug and jack, terminated to their respective cable.
- B. Connector: A connector may be either a plug or jack as described below.
 - (1) Plug (Male): Contains male inner contact and a rotating collar for locking purposes.
 - (2) Jack (Female): Contains female inner contact and may be either cable, panel or bulkhead mounted types.
 - (3) Feed thru adapter: Contains female inner contact either end.

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
- D. 501-194: Test Report

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Product Code: 3486

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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 <i>Brenda Beckley 1/25/93</i>	AMP AMP Incorporated Harrisburg, PA 17105-3608		
				CHK <i>Myr Phillips 1/21/93</i>			
				APP <i>Linda Loria 1/24/93</i>	NO 108-12095	REV 0	LOC B
0	Release per EC 0130-0150-92	<i>BJP</i>	<i>8/5/93</i>	PAGE	TITLE CONNECTOR, COAXIAL, 75 OHM BNC SERIES, COMMERCIAL AND DUAL CRIMP TYPES		
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2.2. Military Specifications

- A. MIL-C-17: Cable, Coaxial, Radio Frequency
- B. MIL-C-39012: Connectors, Coaxial, RF, General Specification For

3. REQUIREMENTS

3.1. Design and Construction

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

3.2. Materials

- A. Body: Brass, zinc or copper alloy, nickel plating
- B. Contact: Beryllium copper or brass, gold over nickel plating
- C. Dielectric: Polypropylene, polytetrafluorethylene or polymethylpentene
- D. Ferrule: Copper, tin/lead plating

3.3. Ratings

- A. Voltage: 500 volts (rms) at sea level
- B. Temperature: -65 to 85°C
- C. Nominal Impedance: 75 ohm
- D. Frequency Range: 0 to 2 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, dry circuit.	<table border="1"><thead><tr><th>Type</th><th>ΔR milliohms maximum</th></tr></thead><tbody><tr><td>Contact</td><td></td></tr><tr><td> Inner</td><td>1.5</td></tr><tr><td> Outer</td><td>3.0</td></tr></tbody></table>	Type	ΔR milliohms maximum	Contact		Inner	1.5	Outer	3.0	Subject mated connectors to 50 mv open circuit at 10 ma. See Figure 3. AMP Spec 109-6-4.
Type	ΔR milliohms maximum									
Contact										
Inner	1.5									
Outer	3.0									

Figure 1 (cont)

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Test Description	Requirement	Procedure
Dielectric withstanding voltage.	1.5 kvac dielectric withstanding voltage at sea level. 1 minute hold. Measure after drying for 24 hours at ambient temperature after removal from humidity-temperature chamber.	Test between center and outer contacts of mated connector assemblies. AMP Spec 109-29-1.
Insulation resistance.	5000 megohms minimum. Measure within 5 minutes of removal from humidity-temperature chamber.	Test between center and outer contacts of mated connector assemblies. AMP Spec 109-28-4.
RF high potential.	1000 volts (rms) 5 MHz for 1 minute. No dielectric breakdown or flashover.	Test between center and outer contacts of mated connector assemblies. AMP Spec 109-29-4.
Shielding effectiveness.	40 dB minimum up to 1.5 GHz. 20 dB minimum 1.5 to 2 GHz.	Measure shielding effectiveness of mated pair between 1 and 2 GHz. AMP Spec 109-90.
RF insertion loss.	.15 dB maximum.	Measure RF insertion loss at 2 GHz. AMP Spec 109-174-2.
Voltage standing wave ratio. (VSWR)	1.30 maximum.	Measure VSWR of mated pair between .1 and 2.0 GHz. AMP Spec 109-181.
Corona.	375 volts (rms) minimum at 5 picocoulombs maximum discharge.	Test corona at 70000 feet simulated altitude. AMP Spec 109-40.
MECHANICAL		
Vibration, sinusoidal.	No discontinuities greater than 10 microseconds. See Note (a).	Subject mated connectors to 15 G's between 10 to 2000 Hz traversed in 20 minutes. 3 hours in each of 3 mutually perpendicular planes. AMP Spec 109-21-3.
Physical shock.	No discontinuities greater than 10 microseconds. See Note (a).	Subject mated connectors to 100 G's sawtooth shock pulses of 6 milliseconds duration. 3 shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks. AMP Spec 109-26-9.

Figure 1 (cont)

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Test Description	Requirement	Procedure
Mating/unmating force.	6 pounds maximum longitudinal. 6 inch pounds maximum torque.	Measure longitudinal and rotational force necessary to mate connectors. Connectors are fully mated when the bayonet lugs pass the detents in the coupling mechanism. AMP Spec 109-42. Conditions A and B.
Cable retention.	60 pounds minimum. No loss of electrical continuity. See Note (a).	Apply 60 pound tensile load between cable and connector at rate of 1 inch per minute. Hold for 30 seconds and check electrical continuity using low voltage test light.
Coupling nut retention.	Coupling nut shall not loosen or dislodge from plug body. See Note (a).	Apply 60 pound tensile load between coupling nut and plug body at rate of 1 inch per minute. Hold for 1 minute. During hold rotate coupling nut 2 revolutions in each direction.
Durability.	See Note (a).	Mate and unmate connector assemblies for 500 cycles at maximum rate of 12 cycles per minute. AMP Spec 109-27.
ENVIRONMENTAL		
Thermal shock.	See Note (a).	Subject mated connectors to 5 cycles between -55 and 85°C. AMP Spec 109-22.
Humidity-temperature cycling.	200 megohms final insulation resistance. 1500 vac (rms) dielectric withstanding voltage. See Note (a).	Subject mated connectors to 10 humidity/temperature cycles between 25 and 65°C at 95% RH. AMP Spec 109-23-4, Condition B, with cold shock at -10°C, less step 7b.
Mixed flowing gas.	See Note (a).	Subject mated connectors to environmental class II for 20 days. AMP Spec 109-85-2.

Figure 1 (cont)

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Test Description	Requirement	Procedure
Temperature life.	See Note (a).	Subject mated connectors to temperature life at 85°C for 96 hours duration. AMP Spec 109-43.

(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	4	5	6
	Test Sequence (b)					
Examination of product	1,13	1,5	1,5	1,8	1,5	1,4
Termination resistance, dry circuit	4,8	2,4	2,4			
Dielectric withstanding voltage				3,7		
Insulation resistance				2,6		
RF high potential						3
Shielding effectiveness					3	
RF insertion loss					2	
Voltage standing wave ratio					4	
Corona						2
Vibration	6					
Physical shock	7					
Mating force	2,9					
Unmating force	3,10					
Cable retention	11					
Coupling nut retention	12					
Durability	5					
Thermal shock				4		
Humidity-temperature cycling				5		
Mixed flowing gas			3(c)			
Temperature life		3				

(a) See Para 4.1.A.

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

(c) Precondition samples with 10 cycles durability.

Figure 2

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4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Sample selection.

Connector housings and contacts shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. All test groups shall consist of 3 connector pairs with each connector crimped to a 12 inch length of RG59B/U cable. 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.

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.

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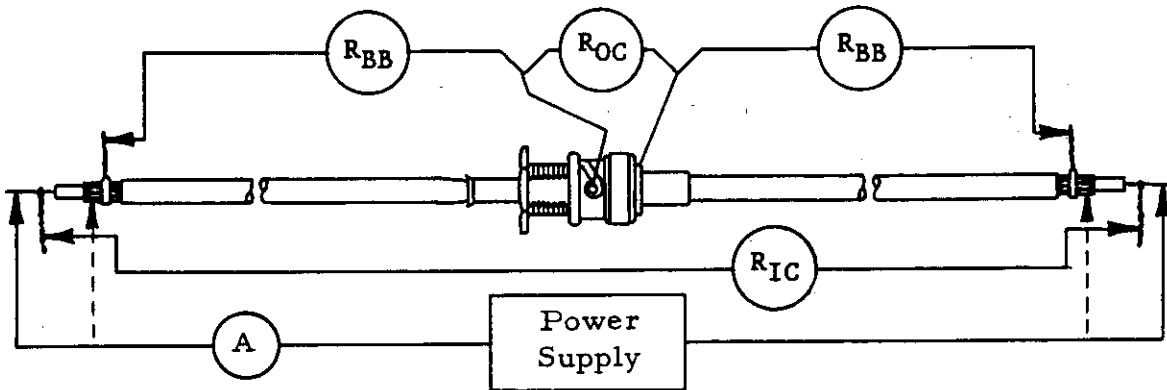
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- Note: (a) R_{OC} is outer contact measurement.
 R_{IC} is inner contact measurement.
 R_{BB} is braid to body measurement.
- (b) Measure 3 feet of cable and calculate milliohms per inch. Measure distance between probes on specimens and subtract and equal distance of cable resistance to obtain actual contact resistance.
- (c) Establish base resistance measurements. Measure ΔR after test sequence.

Figure 3
 Resistance Measurement Points