

# PRODUCT SPECIFICATION

## 1. SCOPE

### 1.1. Content

This specification covers performance, tests and quality requirements for AMP\* BNC coaxial connector "Y" cable assembly.

### 1.2. 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 form a part of this specification to the extent specified herein. Unless otherwise specified, latest edition of the document applies. 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. 108-12044: Product Specification
- E. 501-245: Test Report

## 3. REQUIREMENTS

### 3.1. Design and Construction

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

\* Trademark

Product Code: 3514

<b>CONTROLLED DOCUMENT</b> This specification is a controlled document per AMP Specification 102-21. It is subject to change and Global Engineering and Manufacturing Standards should be contacted for latest revision.				DR B. Beckley 14 Mar 94		<b>AMP</b> AMP Incorporated Harrisburg, PA 17105-3608	
				CHK J. Dunbar 15 Mar 94			
				APP D. Jones 15 Mar 94		NO <b>108-1384</b>	
A EC 0220-0542-94 <i>BLB</i>				PAGE 1 OF 6		TITLE CABLE ASSEMBLY, "Y", BNC COAXIAL CONNECTOR	
LTR	REVISION RECORD	APP	DATE				

### 3.2. Materials

- A. Cable:
  - (1) Outer jacket: Polyvinylchloride
  - (2) Dielectric core: Polyethylene
  - (3) Center conductor drain wire: 21 AWG copper stranded wire
- B. Contact: Brass, gold over nickel plating
- C. Cover: Polyphenylene oxide
- D. Overmold: Polyvinylchloride

### 3.3. Ratings

- A. Voltage: 30 volts maximum direct current
- B. Current: Signal applications only
- C. Temperature: -10 to 50°C
- D. Characteristic Impedance: 50 ohms
- E. Frequency Range: 0 to 30 MHz

### 3.4. Performance and Test Description

Product is designed to meet electrical, mechanical and environmental performance requirements specified in Figure 1. All tests are 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.	ΔR 15 milliohms maximum.	Subject mated contacts assembled in housing to 50 mv open circuit at 100 ma. See Figure 3. AMP Spec 109-6-1.
Dielectric withstanding voltage.	1 kvac dielectric withstanding voltage. 1 minute hold. 1 milliampere maximum leakage current.	Test between signal and ground contacts of BNC connector. AMP Spec 109-29-1.
Insulation resistance.	1000 megohms per foot minimum.	Test between adjacent contacts of mated connector assemblies. AMP Spec 109-28-2.

Figure 1 (cont)

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Test Description	Requirement	Procedure
Shielding effectiveness.	-55 dB minimum	Measure shielding effectiveness of cable assemblies between 30 MHz and 1 GHz. AMP Spec 109-90.
MECHANICAL		
Vibration, sinusoidal, high frequency.	No discontinuities greater than 1 microsecond. See Note (a).	Subject mated connectors to 10 G's between 10-500-10 Hz traversed in 15 minutes. 3 hours in each of 3 mutually perpendicular planes. AMP Spec 109-21-2.
Physical shock.	No discontinuities greater than 1 microsecond. See Note (a).	Subject mated connectors to 50 G's half-sine shock pulses of 11 milliseconds duration. 3 shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks. AMP Spec 109-26-1.
Mating force, mating torque.	4.0 pounds maximum. 2.5 inch/pounds maximum.	Measure force necessary to mate connector assemblies using free floating fixtures at rate of 1 inch per minute. AMP Spec 109-42, Conditions A and B.
Unmating force, unmating torque.	1.0 pound minimum. 2.5 inch/pounds maximum.	Measure force necessary to unmate connector assemblies with latches inactive at rate of 1 inch per minute. AMP Spec 109-42, Condition A.
Durability.	See Note (a).	Mate and unmate connector assemblies for 100 cycles at maximum rate of 600 cycles per hour. AMP Spec 109-27.
ENVIRONMENTAL		
Thermal shock.	See Note (a).	Subject mated connectors to 5 cycles between -10 and 50°C. AMP Spec 109-22.

Figure 1 (cont)

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Test Description	Requirement	Procedure
Humidity-temperature cycling.	See Note (a).	Subject mated connectors to 10 humidity-temperature cycles between 25 and 65°C at 95% RH. AMP Spec 109-23-3, Condition B.
Mixed flowing gas.	See Note (a).	Subject mated connectors to environmental class II for 14 days. AMP Spec 109-85-2.
Temperature life.	See Note (a).	Subject mated connectors to temperature life at 50°C for 1000 hours. AMP Spec 109-43.

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

Figure 1 (end)

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### 3.6. Product Qualification and Requalification Test Sequence

Test or Examination	Test Group (a)				
	1	2	3	4	5
	Test Sequence (b)				
Examination of product	1,9	1,5	1,5	1,10	1,3
Termination resistance, dry circuit	3,7	2,4	2,4	2,9	
Dielectric withstanding voltage				4,8	
Insulation resistance				3,7	
Shielding effectiveness					2
Vibration	5				
Physical shock	6				
Mating force	2				
Unmating force	8				
Durability	4				
Thermal shock				5	
Humidity-temperature cycling				6	
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

## 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 5 "Y" connector assemblies.

#### 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.

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#### 4.3. Acceptance

Acceptance is based on 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 before resubmittal.

#### 4.4. Quality Conformance Inspection

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

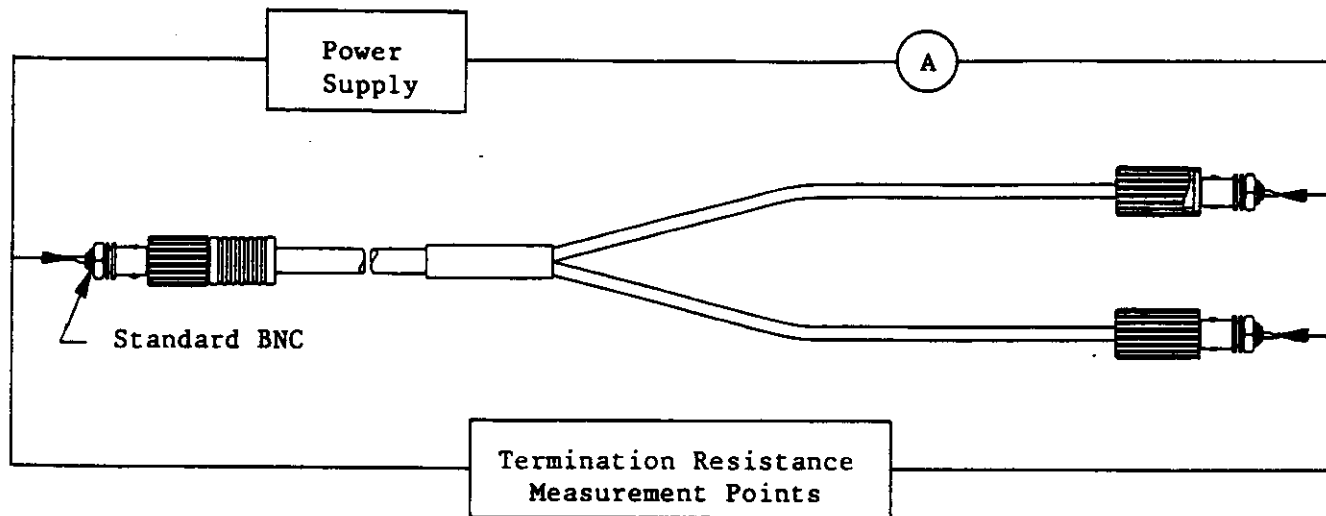


Figure 3  
Termination Resistance Measurement Points