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**PCB Decoupled BNC Straight & Right Angle Jacks**

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**1. SCOPE**

## 1.1. Content

This specification covers the performance, tests and quality requirements for the AMP\* printed circuit board decoupled BNC straight and right angle jacks. These jacks are designed for printed circuit board and panel mount application for right angle and vertical mount installation, and plastic body material, with mounting posts, and with plated center contacts. The style is used depending on the applicable requirements.

## 1.2. Qualification

When tests are performed on the subject product line, the procedures specified in Figure 1 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

**2. APPLICABLE DOCUMENTS**

The following AMP 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 the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

- A. 109-1: General Requirements for Test Specifications
- B. 109 Series: Test Specifications as indicated in Figure 1
- C. Corporate Bulletin 401-76: Cross-reference between AMP Test Specifications and Government or Commercial Documents
- D. 501-126: Qualification Test Report

**3. REQUIREMENTS**

## 3.1. Design and Construction

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

## 3.2. Material

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

## 3.3. Ratings

- A. Voltage: 500 volts AC
- B. Temperature: -55 to 85°C
- C. Characteristic impedance: 50 or 75 ohms nominal
- D. Frequency range: 0 to 1 GHz

3.4. Performance and Test Description

Product is designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1. All tests are performed at ambient temperature 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.
<b>ELECTRICAL</b>		
Termination resistance.	12 milliohms maximum for center contact. 4 milliohms maximum for outer contact.	AMP Spec 109-25. Measure potential drop of mated contacts assembled in housing. Calculate resistance. See Figure 3.
Insulation resistance.	5000 megohms minimum initial.	AMP Spec 109-28-4. Test between center contact and outer shell of unmated samples.
Dielectric withstanding voltage.	1500 volts AC dielectric withstanding voltage, 1 minute hold. 10 milliampere maximum leakage current.	AMP Spec 109-29-1. Test between adjacent contacts of unmated samples.
Capacitance.	± 10%. See applicable product drawing.	AMP Spec 109-47, Condition A. Test between adjacent circuits of unmated samples.
Permeability.	2 M $\mu$ maximum.	AMP Spec 109-88. Measure permeability using 2 M $\mu$ pellet.
R.F. high potential.	No evidence of dielectric breakdown or flashover.	Apply a frequency stabilized R.F. potential of 1000 volts (rms) and 5 MHz between center contact and body of mated sample, hold for 1 minute. Sine wave shall have minimum harmonic content.
<b>MECHANICAL</b>		
Solderability.	Solderable area shall have a solder coverage of 95% minimum.	AMP Spec 109-11-2. Subject contacts to solderability.
Vibration, sinusoidal, low frequency.	See Note.	AMP Spec 109-21-1. Subject mated samples to 10-55-10-Hz traversed in 1 minute at 0.06 inch total excursion. 2 hours in each of 3 mutually perpendicular planes. See Figure 4.

Figure 1 (cont)

Test Description	Requirement	Procedure
Physical shock.	See Note.	AMP Spec 109-26-9. Subject mated samples to 100 G's sawtooth shock pulses of 6 millisecond duration; 3 shocks in each direction applied along the 3 mutually perpendicular planes. Total 18 shocks. See Figure 4.
Durability.	Mating unmating forces; milliohms maximum termination resistance, dry circuit.	AMP Spec 109-27. Mate and unmate samples for 500 cycles at a maximum rate of 720 cycles per hour.
Contact engaging force.	32 ounces maximum.	AMP Spec 109-35. Measure force necessary to engage Gage 1 to a depth of 0.125 inch. See Figure 5.
Contact separating force.	2 ounces minimum.	AMP Spec 109-35. Size 3 times using Gage 1, insert Gage 2 and measure force necessary to separate from a depth of 0.125 inch.
Connector to board retention.	No evidence of mechanical failure, breaking or loosening of parts or electrical discontinuities.	Apply an axial force of 50 pounds to sample in a direction away from the board and hold for 30 seconds. Test for electrical continuity using simple low voltage lamp circuit.
ENVIRONMENTAL		
Thermal shock.	See Note.	AMP Spec 109-22. Subject unmated samples to 5 cycles between -55 and 85°C.
Humidity-temperature cycling.	See Note.	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.
Temperature life.	See Note.	AMP Spec 109-43. Subject mated samples to temperature life at 55°C for 96 hours duration.
Mixed flowing gas.	See Note.	AMP Spec 109-85-3. Subject mated samples to environmental class III for 20 days.

**NOTE**

*Shall meet visual requirements, show no physical damage and shall meet requirements of additional tests as specified in the test sequence in Figure 2.*

Figure 1 (end)

3.6. Product Qualification and Requalification Tests

Test or Examination	Test Group (a)				
	1	2	3	4	5
	Test Sequence (b)				
Examination of product	1,9	1,5	1,6	1,9	1
Termination resistance	3,7	2,4	2,5		
Insulation resistance				3,7	
Dielectric withstanding voltage				4,8	
Capacitance				2	
Permeability			3		
RF high potential				5	
Solderability					3
Vibration	5				
Physical shock	6				
Durability	4				
Contact engaging force	2				
Contact separating force	8				
Connector to board retention					2
Thermal shock				6	
Humidity-temperature cycling			4(d)		
Temperature life		3			
Mixed flowing gas			4(d)		

- NOTE**
- (a) See paragraph 4.1.A.
  - (b) Discontinuities shall not be measured for this test group.
  - (c) Numbers indicate sequence in which tests are performed.
  - (d) Tin plated center contact, test for humidity-temperature cycling. Gold or silver plated, test for mixed flowing gas.

Figure 2

**4. QUALITY ASSURANCE PROVISIONS**

4.1. Qualification Testing

A. Sample Selection

Samples shall be prepared in accordance with applicable Instruction Sheets and selected at random from current production. All test groups shall consist of 10 jacks and 10 plugs. The jacks, except test group 4, shall be mounted on .125 inch thick printed circuit boards. The plugs shall be crimped to 12 inch length of RG-58 C/U coaxial cable with equalizers placed on the center conductor and braid as shown in Figure 5. All coaxial cable 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 the product or the manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of the original testing sequence as determined by development/product, quality, and reliability engineering.

#### 4.3. Acceptance

Acceptance is based on verification that the product meets the requirements of Figure 1. Failures attributed to equipment, test setup, or operator deficiencies shall not disqualify the 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

The applicable AMP quality 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.

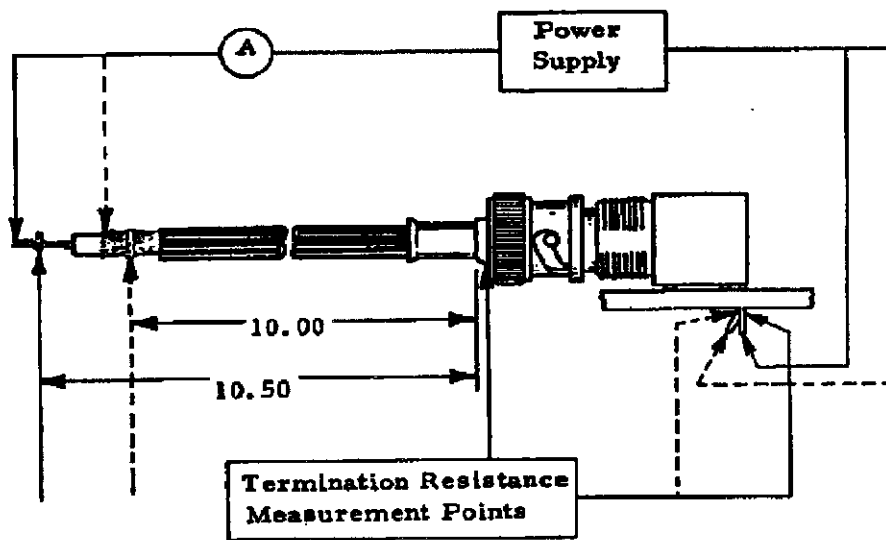
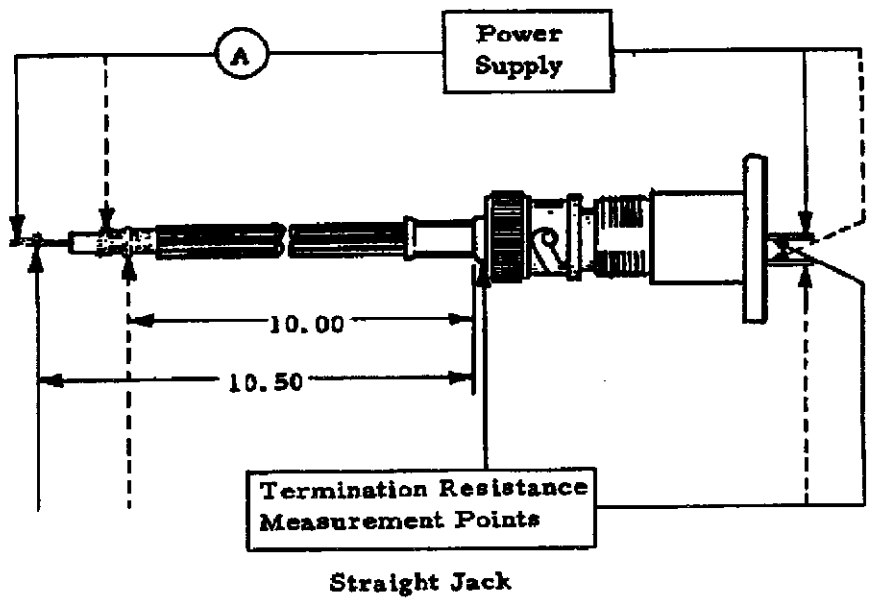


Figure 3  
Termination Resistance Measurement Points

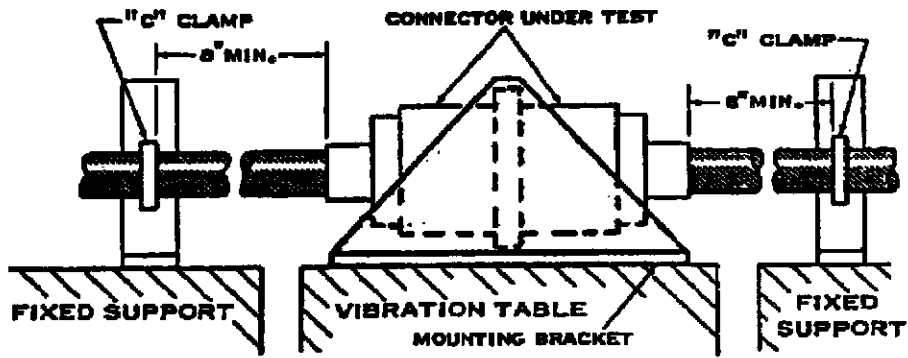
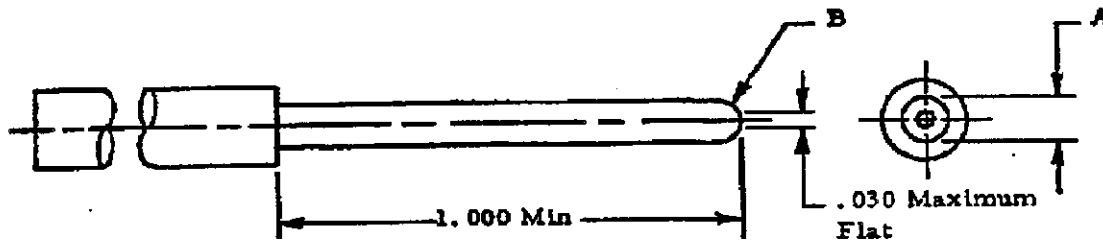


Figure 4  
Vibration & Physical Shock Mounting Fixture



Gage Number	"A" Dimension
1	.0540 +.0000/-.0001
2	.0520 +.0001/-.0000

Figure 5  
Engaging & Separating Gages