

PRODUCT SPECIFICATION

1. SCOPE

1.1. Content

This specification covers the performance requirements and qualification test procedures for the AMP\* Low Profile Coaxial taps.

1.2. Qualification

When tests are performed on the subject product line, the 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. 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.

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. IS-6814 : Instruction Sheet
- E. 501-106 : 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.

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Product Code: 3363

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0	Release per ECN AJ-4784	<i>PK</i>	<i>2/16/90</i>	PAGE	TITLE	TAP, COAXIAL LOW PROFILE			
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### 3.2. Material

- A. Braid terminator: Brass, selected gold plating.
- B. Signal: Beryllium copper, gold plating
- C. Clamp assembly: Zinc die cast
- D. Body: Polyester thermoplastic

### 3.3. Ratings

- A. Operating temperature: 0° to 50°C
- B. Storage temperature: -30° to 80°C.
- C. Operating cable voltage: 50 vdc or rms maximum at sea level.
- D. Operating tap voltage: 600 vdc or rms maximum at sea level.

### 3.4. Performance and Test Description

The 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
1 Examination of Product	Meets requirements of product drawing.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
2 Termination Resistance, Dry Circuit	50 milliohms maximum for both center contact and shield contact.	Subject tap contacts to 50 mv open circuit at 50 ma maximum, see Figure 3; AMP Spec 109-6-3.
3 Dielectric Withstanding Voltage	500 or 1800 vac or vdc dielectric withstanding, voltage, one minute hold. No breakdown or flashover.	Test between center conductor and shield at 500 volts rms and between all other metal parts and shield at 1800 volts rms; AMP Spec 109-29-1.
4 Insulation Resistance	5000 megohms minimum.	Test between center conductor and shield, between center conductor and tap screw, and between shield and tap screw; AMP Spec 109-28-3.

Figure 1 (cont)

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Test Description	Requirement	Procedure
5 Capacitance	2 picofarads maximum with drilled cable 1.0 picofarad maximum average based on average of 5 measurements from tests group 3.	With a suitable quick disconnect coaxial connector applied to each end of the cable, measure cable capacitance at 1 MHz, then while still attached to the capacitance bridge apply the tap and record the difference between the 2 measurements; AMP Spec 109-47, cond. E.
MECHANICAL		
6 Vibration (a)	No discontinuities greater than 1 microsecond.	Subject taps to random vibration for 15 minutes at 10.2 overall rms G. Mount tap securely to table with cable supported at 4 inches from tap on vibration table at both ends; AMP Spec 109-21-6, test level C. Monitor center and outer contact circuits for discontinuity.
7 Physical Shock (a)	No discontinuities greater than 1 microsecond.	Subject taps mounted as for vibration to 100 G's half-sine to 6 milliseconds; 3 shocks in each direction applied along the 3 mutually perpendicular planes total 18 shocks; AMP Spec 109-26-3.
8 Cable Retention (a)	No discontinuities greater than 1 microsecond.	A force of 50 pounds shall be applied between cable and tap and held for 1 minute in each direction followed by a torque of 20 inch ounces applied to the cable on each side in each direction for 1 minute. Monitor during and after for discontinuities on braid and center contact. Length of cable is 6 inches from top.

Figure 1 (cont)

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Test Description	Requirement	Procedure
ENVIRONMENTAL		
9 Thermal Shock (a)	No physical damage.	Subject taps to 5 cycles between -55° and 85°C; AMP Spec 109-22.
10 Humidity-Temperature Cycling (a)	No physical damage.	Subject taps to 10 humidity-temperature cycles between 25° and 65°C at 95% RH; AMP Spec 109-23, Method III, cond B, less steps 7a & 7b.
11 Industrial Mixed Flowing Gas	No physical damage.	Subject mated connectors to environmental class II for 20 days; AMP Spec 109-85-2.
12 Temperature Life (a)	No physical damage.	Subject mated connectors to temperature life at 85°C for 33 days; AMP Spec 109-43, test level 3, test duration I.

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

Figure 1 (end)

### 3.6. Product Qualification, Requalification and Retention Tests and Sequence

Test or Examination	Test Group (a) (d)					
	1	2	3	4	5	6
	Test Sequence (b)					
1 Examination of Product	1,7	1,5	1,12	1,5	1,8	1,5
2 Termination Resistance, Dry Circuit	2,5	2,4	3,8	2,4		2,4
3 Dielectric Withstanding Voltage			5,11		3,7	
4 Insulation Resistance			4,10		2,6	
5 Capacitance			2,9			
6 Vibration	3					
7 Physical Shock	4					
8 Cable Retention	6					
9 Thermal Shock (c)			6		4	
10 Humidity-Temperature Cycling (c)			7		5	3
11 Industrial Mixed Flowing Gas (c)				3		
12 Temperature Life		3				

(a) See Para 4.1.A

(b) Numbers indicate sequence in which tests are performed

(c) To protect ends of cables from moisture absorption, the test specimens shall be prepared for the environment by sealing the ends with electrical tape or an equivalent sealing method.

(d) Test groups 5 and 6 are for retention of qualification only.

Figure 2

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#### 4. QUALITY ASSURANCE PROVISIONS

##### 4.1. Qualification Testing

###### A. Sample Selection

Taps shall be applied in accordance with applicable Instruction Sheets. They shall be selected at random from current production. Each test group shall consist of 5 taps. Taps shall be applied to the center of 1-foot length of cable during capacitance testing. Cables shall be capable of withstanding 118°C minimum.

###### B. Test Sequence

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

##### 4.2. Retention of Qualification

If, in a five-year period, no changes to the product or process occur, the product shall be subjected to the two groups of the testing described in the test sequence, see Figure 2. Each test group shall consist of 5 tap assemblies. Justification for exceeding this time limit must be documented and approved by the division manager.

##### 4.3. Requalification Testing

If changes significantly affecting form, fit, or function are made to the product or to 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.

##### 4.4. 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.

##### 4.5. 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.

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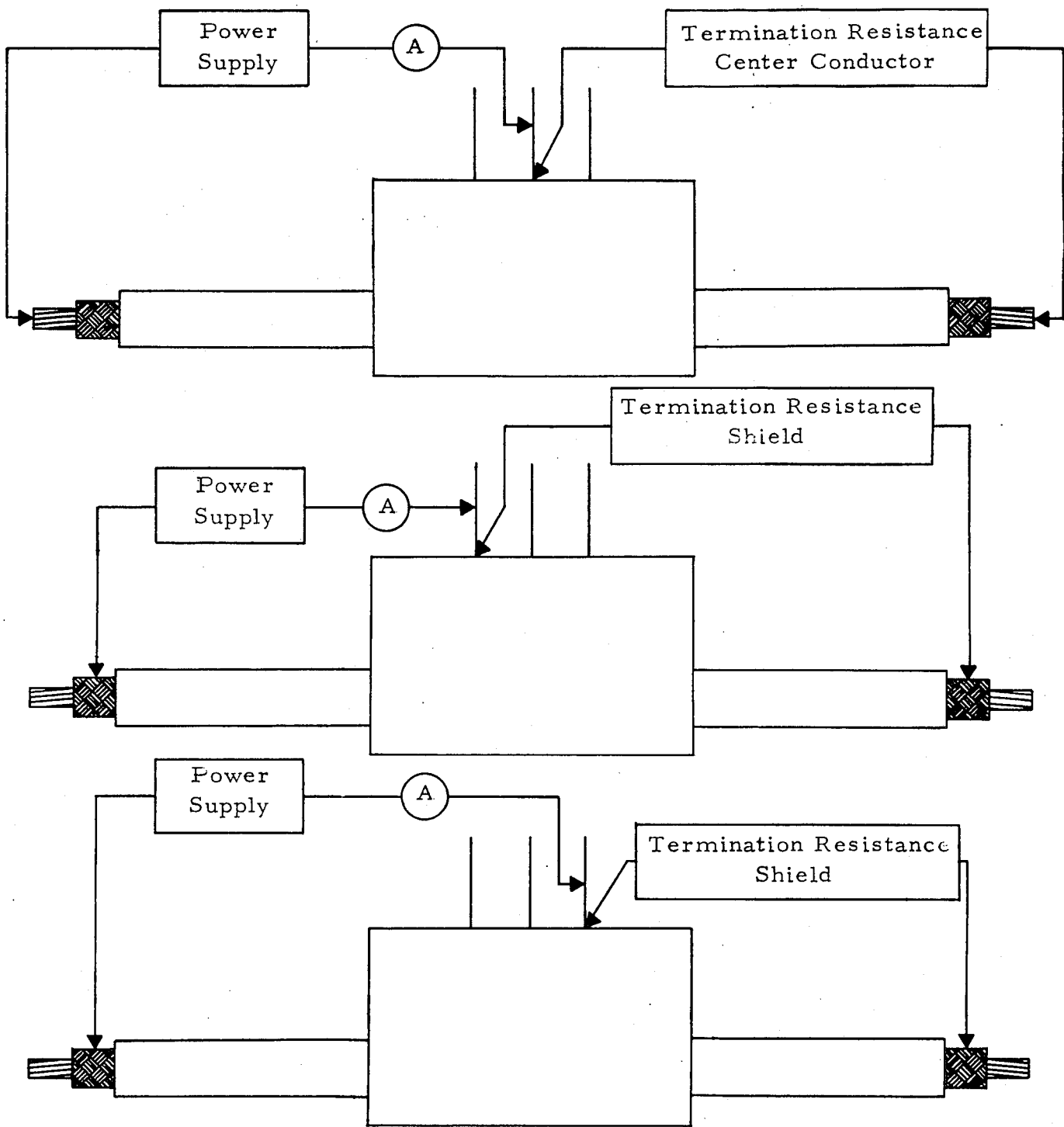


Figure 3  
Resistance Measurement Points

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