PRODUCT SPECIFICATION

1. SCOPE

1.1. Content

This specification covers the performance, tests and quality requirements for the AMP* commercial SMB series solder receptacle coaxial connectors. These connectors consist of a jack containing the male inner contact.

1.2. Definitions

A. Connector assembly: Consists of a mated plug and jack, terminated to their respective cable

B. Jack: Contains the male inner contact

1.3. 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 Specifications

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.)

*Trademark of AMP Incorporated.

LTR	REVISION RECORD	APP	DATE
0	Release per ECN AJ-303		3/27/84

DIST 12

DR [signature] 3/27/84
CHK [signature] 3/27/84
APP [signature] 3/27/84

AMP | AMP INCORPORATED Harrisburg, Pa. 17105

LOC B | NO 108-12071 | REV 0

SHEET 1 OF 7

TITLE CONNECTOR, COAXIAL, SMB SERIES SOLDER RECEPTACLE, COMMERCIAL

2.2. Military Specification

MIL-C-17: Cables, Radio Frequency, Flexible and Semi-Rigid, General Specifications for

3. REQUIREMENTS

3.1. Design and Construction

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

3.2. Materials

A. Inner Contact: Jack, brass
B. Outer Contact (shell): Jack, brass
C. Insulation, dielectric: Fluoropolymer, TFE

3.3. Ratings

A. Operating Voltage:

(1) 335 volts (rms) sea level
(2) 85 volts (rms) 70,000 feet

B. Operating Temperature: -65° to 125°C for cabled connectors
C. Nominal Impedance: 50 ohms

3.4. Performance and Test Description

Connectors shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1.

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 inspection plan.
ELECTRICAL		
Termination Resistance, Specified Current	Type Contact: Center — Resistance, milliohms maximum: Initial 6.0, Final 8.0; Outer — Initial 2.0, Final 2.5	Measure potential drop of mated contacts at 1 ampere maximum, see Figure 3; AMP Spec 109-25, calculate resistance.
Dielectric Withstanding Voltage	1000 vac (rms) dielectric withstanding voltage, one minute hold. No breakdown or flashover.	Test between center contact and outer shell of unmated connector; AMP Spec 109-29-1.
Insulation Resistance	1000 megohms minimum.	Test between center contact and outer shell of unmated connector; AMP Spec 109-28-4.
Permeability	Shall not exceed 2 mu.	Measure magnetic permeability using 2 mu pellet; AMP Spec 109-88.
RF High Potential	700 volts (rms) at 5 MHz; no breakdown or flashover; 1 minute hold.	Subject mated connectors to 700 volts instantaneously applied between center contacts and outer shells; AMP Spec 109-29-1, except at 5 MHz.
Corona/Altitude	250 volts rms minimum at 5 picocoulombs.	Subject connector assemblies to corona at 70,000 feet altitude; AMP Spec 109-40.
MECHANICAL		
Vibration (a)	No discontinuities greater than 1 microsecond.	Subject mated connectors to 20 G's, 10-2000 Hz with 100 ma current applied; AMP Spec 109-21-4.

Figure 1 (cont)

Test Description	Requirement	Procedure
Physical Shock (a)	No discontinuities greater than 1 microsecond.	Subject mated connectors to 75 G's sawtooth in 6 milliseconds; 3 shocks in each direction applied along the 3 mutually perpendicular planes; total 18 shocks; AMP Spec 109-26-8.
Mating Force	14 pounds maximum.	Measure force necessary to mate connector assembly, incorporating free floating fixture at a rate of .5 inch/ minute; AMP Spec 109-42, cond A.
Unmating Force	2-16 pounds initially. 2-14 pounds after environments or durability.	Measure force necessary to unmate connector assembly at a rate of .5 inch/minute; AMP Spec 109-42, cond A.
Torque (a)	No physical damage.	Apply 3 inch-ounce torque slowly to solder cup and hold 5 seconds in each direction.
Durability (a)	Mating-unmating force; contact engaging and separating force.	Mate and unmate connectors for 500 cycles at a maximum rate of 12 cycles per minute; AMP Spec 109-27.
Resistance to Soldering Heat	No physical damage or melting of dielectric.	Subject connectors to solder bath at 260° ± 5°C for 10 ± 1 second; AMP Spec 109-63-3
ENVIRONMENTAL		
Thermal Shock (a)	No physical damage.	Subject unmated connectors to 5 cycles between -65° and 85°C; AMP Spec 109-22.

Figure 1 (cont)

Test Description	Requirement	Procedure
Corrosion, Salt Spray	No base metal visible on interface or mating surface.	Subject mated connectors to 5% salt concentration for 48 hours; AMP Spec 109-24, cond B.

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

Figure 1 (end)

3.6. Connector Tests and Sequences

Test or Examination	Test Group (a)			
	1	2	3	4
	Test Sequence (b)			
Examination of Product	1	1	1	1
Termination Resistance, Specified Current			6,9,11,14	
Dielectric Withstanding Voltage			7,13	
Insulation Resistance	5	5	5	6
Permeability	2	2	2	2
RF High Potential			16	
Corona/Altitude			15	
Vibration			8	
Physical Shock			10	
Mating Force	3	3,7	3,17	4
Unmating Force	4	4,8	4,18	5
Torque				3
Durability		6		
Resistance to Soldering Heat				7
Thermal Shock			12	
Corrosion, Salt Spray	6			

(a) See Para 4.1.A.
(b) Numbers indicate sequence in which tests are performed.

Figure 2

4. QUALITY ASSURANCE PROVISION

4.1. Qualification Testing

A. Sample Selection

Connector assembly and contacts shall be prepared in accordance with applicable Instruction Sheets. They shall be selected at random from current production. All test groups shall consist of 3 connectors. Mating connectors shall be crimped to 12 inch lengths of cable. Free ends shall be stripped, see Figure 3, and equalizers applied to center conductors and shields. A 3 foot length of cable shall also be prepared to determine resistance of 1 inch of cable for both center conductor and shield. All mating connectors shall be crimped to appropriate coaxial cable RG-316 manufactured in accordance with MIL-C-17.

B. Test Sequence

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

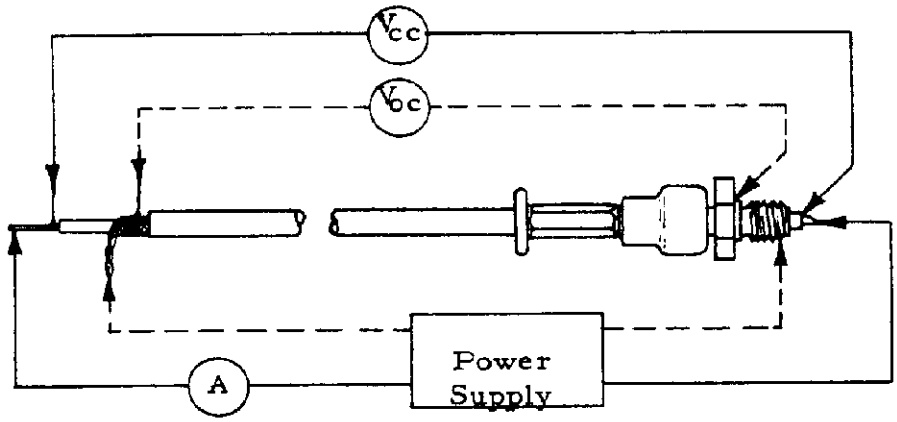
C. Acceptance

(1) All samples tested in accordance with this specification shall meet the stated tolerance limit.

(2) Failures attributed to equipment, test setup, or operator deficiencies shall not disqualify the product. When product failure occurs, corrective action shall be taken.

4.2. Quality Conformance Inspection

The applicable AMP 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.



V_{cc} is center contact

V_{oc} is outer contact

Measure distance between probes and subtract an equal wire length of resistance to obtain actual contact resistance.

Figure 3

Termination Resistance Measurement Points