DESIGN OBJECTIVES

APR 07 1994

The product described in this document has not been fully tested to ensure conformance to the requirements outlined below. Therefore AMP Incorporated makes no representation or warranty, express or implied, that the product will comply with these requirements. Further, AMP Incorporated may change these requirements based on the results of additional testing and evaluation. Contact AMP Engineering for further details.

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for AMP* F series, RF coaxial plug single crimp connectors.

1.2. Definitions

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

A. Connector assembly: Connector assembly consists of mated plug and jack terminated to their respective cable.
B. Connector: Connector may be either a plug or jack as described below.
C. Plug (Male): Contains male inner contact and a threaded rotating collar for locking purposes.
D. Jack (Female): Contains female inner contact and may be either cable, panel or bulkhead mounted types.

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 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)

*Trademark

Product Code: 3037

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	AMP Incorporated Harrisburg, PA 17105-3608	
	CHK		
	APP	NO 108-1518	REV 0 / LOC B
LTR / REVISION RECORD / APP / DATE	PAGE 1 OF 5	TITLE: CONNECTOR, COAXIAL, F SERIES, RF, SINGLE CRIMP, PLUG	

C. Corporate Bulletin 401-76: Cross-reference between AMP Test Specifications and Military or Commercial Documents

D. 501- : Test Report

2.2. Military Standards

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

Body: Brass, nickel 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 1 GHz

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 3 milliohms maximum for outer contact.	Subject mated connectors to 50 mv open circuit at 100 ma. See Figure 3. AMP Spec 109-6-4.
Shielding effectiveness.	40 dB minimum up to 1 GHz.	Measure shielding effectiveness of mated pair between 0 and 1 GHz. AMP Spec 109-90.

Figure 1 (cont)

Test Description	Requirement	Procedure
Voltage standing wave ratio. (VSWR)	1.30 maximum.	Measure VSWR of mated pair between .03 and 1 GHz. AMP Spec 109-181.
MECHANICAL		
Vibration, sinusoidal low frequency.	No discontinuities greater than 1 microsecond. See Note (a).	Subject mated connectors to 10 to 55 Hz traversed in 1 minute at .06 inch total excursion. 2 hours in each of 3 mutually perpendicular planes. AMP Spec 109-21-1.
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.
Durability.	See Note (a).	Mate and unmate connector assemblies for 10 cycles at maximum rate of 600 cycles per hour. AMP Spec 109-27.
ENVIRONMENTAL		
Humidity-temperature cycling.	See Note (a).	Subject mated connectors to 10 humidity-temperature cycles between 25 and 65°C at 95% RH. AMP Spec 109-23-4, Condition B.
Temperature life.	See Note (a).	Subject mated connectors to temperature life at 85°C for 96 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)

3.6. Product Qualification and Requalification Test Sequence

Test or Examination	Test Group (a)			
	1	2	3	4
	Test Sequence (b)			
Examination of product	1,7	1,5	1,5	1,4
Termination resistance, dry circuit	2,6	2,4	2,4	
Shielding effectiveness				3
Voltage standing wave ratio				2
Vibration	4			
Physical shock	5			
Durability	3			
Humidity-temperature cycling			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 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 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 prior to 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