Patch Panel, Modular Jack To RJ21 CHAMP* Connector

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for the modular jack to RJ21 CHAMP* connector patch panel used to connect building wiring for data and voice networking systems.

1.2. Qualification

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

1.3. Qualification Test Results

Successful qualification testing on the subject product line was completed on 06Dec96. The test file number for this testing is ACL 0500-012, 013. This documentation is on file at and available from the Americas Regional Laboratory.

2. APPLICABLE DOCUMENTS

The following 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.

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 Government or Commercial Documents
D. 108-1163: Product Specification
E. 108-1576: Product Specification
F. 108-6019: Product Specification
G. 408-3269: Instruction Sheet
H. 501-379-1: Qualification Test Report

2.2. Commercial Specification

EIA/TIA-568-A, Annex A: Reliability of Connecting Hardware Used For 100 Ohm UTP Cabling

3. REQUIREMENTS

3.1. Design and Construction

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

3.2. Materials

Materials shall be as specified on the applicable product drawing.

3.3. Ratings

A. Voltage: 150 vac
B. Current: Signal application only
C. Temperature: -40 to 70°C

3.4. Performance and Test Description

Product is designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1. Unless otherwise specified, all tests shall be performed at ambient environmental conditions per AMP Specification 109-1.

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 quality inspection plan.
ELECTRICAL		
Termination resistance.	20 milliohms maximum increase.	AMP 109-6-6. Subject mated contacts assembled in housing to 20 mv maximum open circuit at 100 ma maximum. See Figure 3.
Insulation resistance.	100 megohms minimum.	AMP Spec 109-28-4. Test between adjacent contacts of mated samples.
MECHANICAL		
Vibration, sinusoidal.	No discontinuities of 1 microsecond or longer duration. See Note.	AMP Spec 109-21-1. Subject mated samples to 10-55-10 Hz traversed in 5 minutes. 1 hour and 45 minutes in each of 3 mutually perpendicular planes. See Figure 4.
Physical shock.	No discontinuities of 1 microsecond or longer duration. See Note.	AMP Spec 109-26-1, except 30 G's. Subject mated samples to 30 G's half-sine shock pulses of 11 milliseconds duration. 3 shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks. See Figure 4.

Figure 1 (cont)

Test Description	Requirement	Procedure
Durability.	See Note.	AMP Spec 109-27. Mate and unmate samples for 200 cycles at maximum rate of 10 cycles per minute. Modular jack/plug meet 750 mating and unmating cycles per AMP Specification 108-1163.
ENVIRONMENTAL		
Thermal shock.	See Note.	AMP Spec 109-22. Subject mated samples to 100 cycles between -40 and 70°C with 30 minutes at each temperature extreme.
Humidity-temperature cycling.	See Note.	AMP Spec 109-23-4, Condition B. Subject mated samples to 21 cycles between 25 and 65°C at 95% RH with cold shock.
Temperature life.	See Note.	AMP Spec 109-43. Subject mated samples to temperature life at 70°C for 500 hours.

NOTE *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	1,6	1,5	1,8	1,6
Termination resistance	2,5	2,4	2,7	
Insulation resistance				2,5
Vibration	3			
Physical shock	4			
Durability			3,6(c)	
Thermal shock			4	3
Humidity-temperature cycling			5	4
Temperature life		3		

NOTE

(a) See Para 4.1.A.
(b) Numbers indicate sequence in which tests are performed.
(c) Perform 100 cycles before thermal shock, 33 cycles after 50 cycles of thermal shock, 33 cycles after 7 days of humidity-temperature cycling, and 34 cycles after 21 days.

Figure 2

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Sample Selection

Samples shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. All test groups shall each consist of a minimum of 5 samples.

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 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

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.

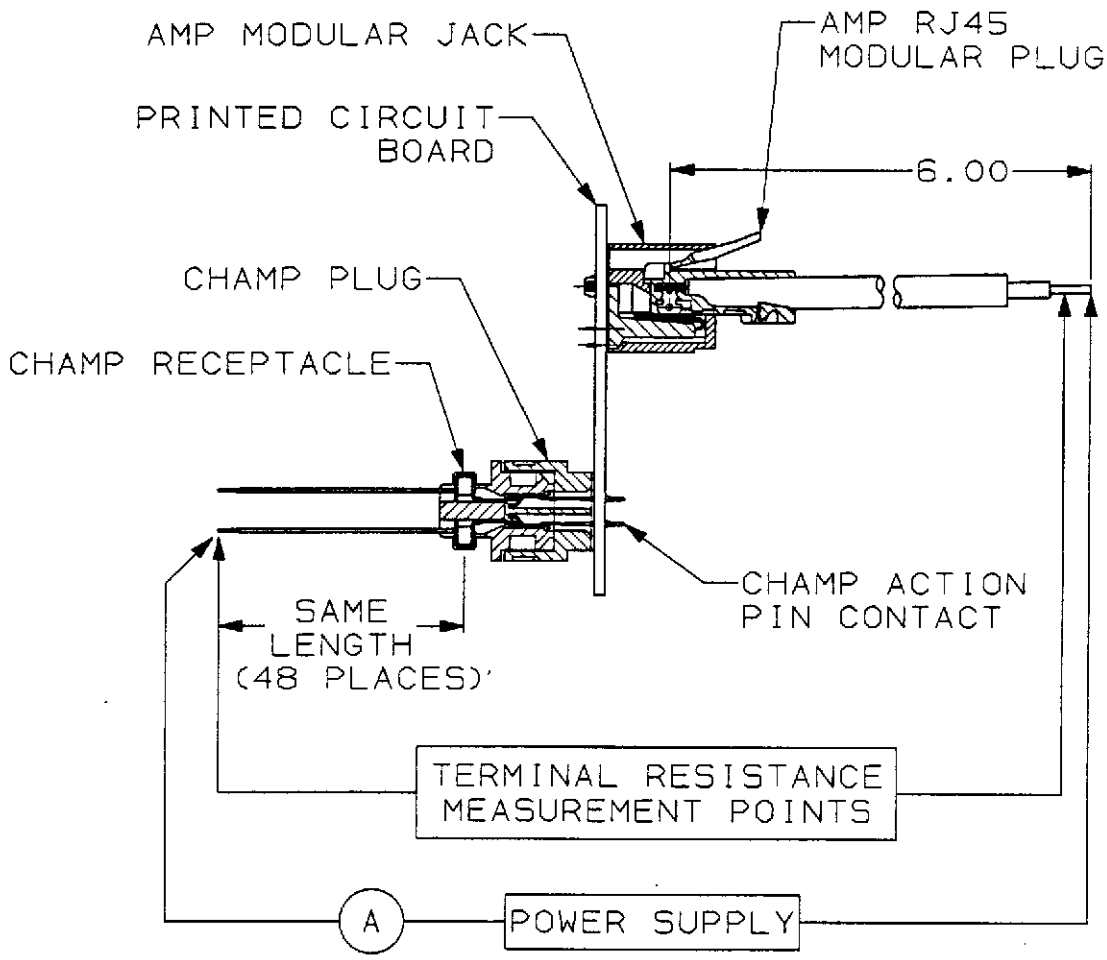
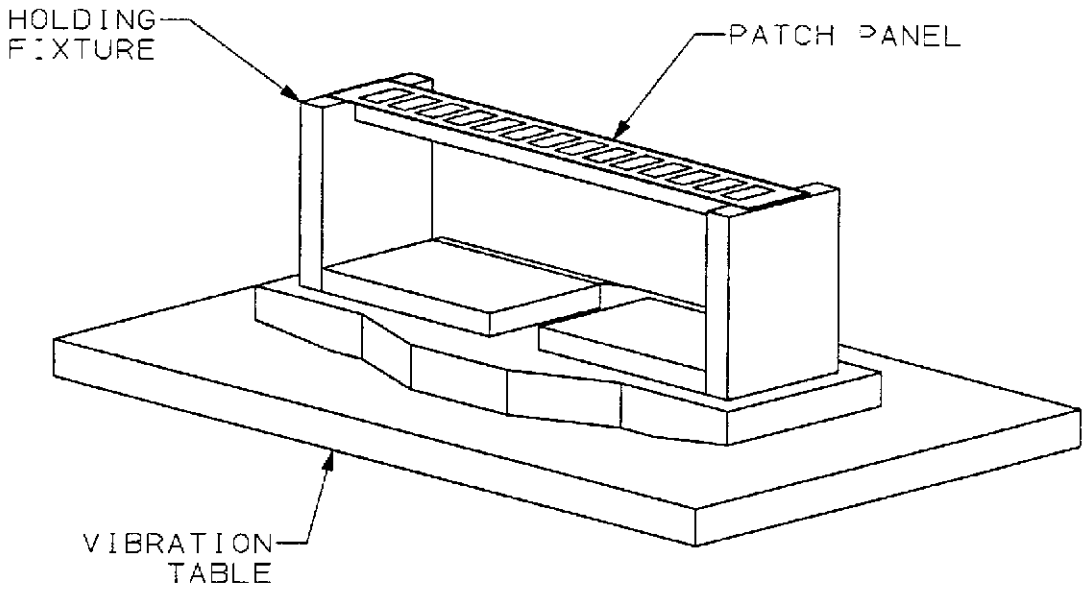


Figure 3
Termination Resistance Measurement Points



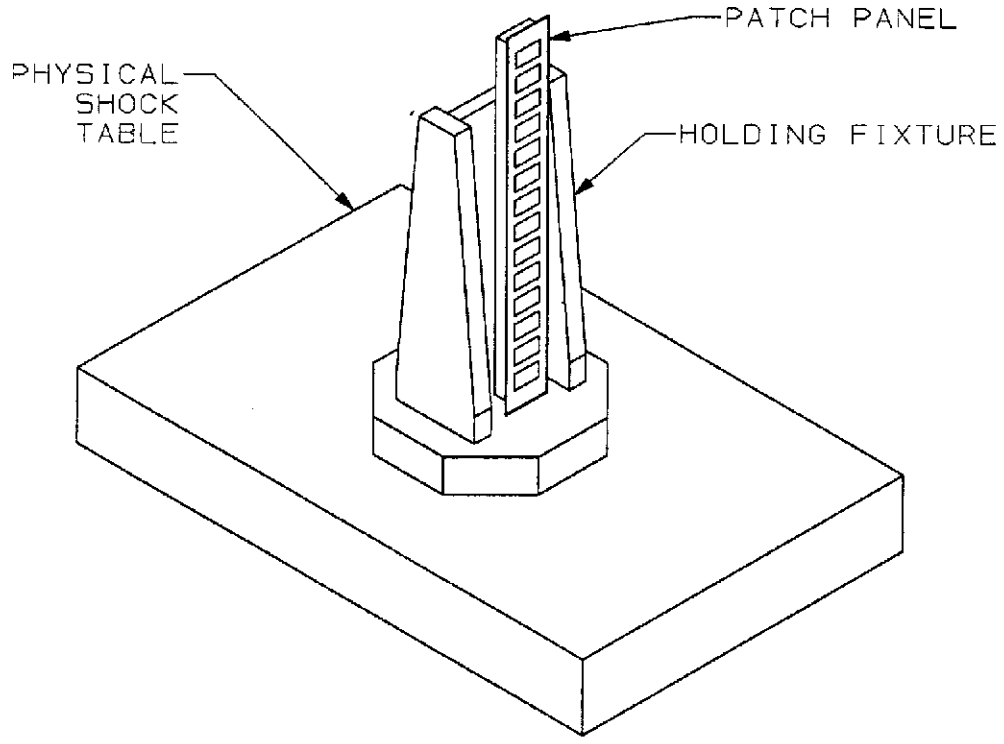


Figure 4
Vibration & Physical Shock Mounting Fixture