Connector, Round Conductor Cable, Paddleboard & Plug, AMP-LATCH*

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for the AMP-LATCH* plug and paddleboard, round conductor cable connector assembly.

1.2. Connector Assembly Definitions

- Plug: Pin contacts in housings crimped to .050 inch centerline ribbon cable with 30, 28 or 26 solid or 28 or 26 stranded AWG conductors. Complete assemblies can be plugged or soldered into .100 by .300 or .100 by .600 inch centerline DIP sockets or printed circuit boards.

- Paddleboard: Pin contacts in housings crimped to .050 inch centerline ribbon cable with 30, 28 or 26 solid or 28 or 26 stranded AWG conductors. Complete assemblies can be soldered to printed circuit boards.

1.3. Qualification

When tests are performed on the subject product line, 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. 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. TE Connectivity (TE) Documents

- 109-1: General Requirements for Test Specifications
- 109 Series: Test Specifications as indicated in Figure 1
- 114-40005: Application Specification
- 501-332: 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. Materials

- Contact: Copper alloy
- Cover: Black thermoplastic, UL94V-0
- Housing: Black thermoplastic, UL94V-0

3.3. Ratings

- Current: 1 ampere maximum per contact
- Temperature: -65 to 105°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 Test Specification 109-1.

3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Examination of product.	Meets requirements of product drawing and Application Specification 114-40005.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
Termination resistance.	15 milliohms maximum initial.	TE 109-6-1. Subject samples to 50 mv maximum open circuit at 100 ma maximum. See Figure 3.
Insulation resistance.	5000 megohms minimum.	TE Spec 109-28-4. Test between adjacent contacts of samples.
Dielectric withstanding voltage.	500 vac at sea level.	TE Spec 109-29-1. Test between adjacent contacts of samples.
MECHANICAL		
Solderability.	Contact tabs shall have minimum of 95% solder coverage.	TE Spec 109-11-1. Subject contacts to solderability.
Vibration, random.	No discontinuities of 1 microsecond or longer duration. See Note.	TE Spec 109-21-7. Subject mated samples to 4.41 G's rms between 5 to 500 Hz. 15 minutes in each of 3 mutually perpendicular planes.
Physical shock.	No discontinuities of 1 microsecond or longer duration. See Note.	TE Spec 109-26-1. Subject mated samples 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.
ENVIRONMENTAL		
Thermal shock.	See Note.	TE Spec 109-22. Subject samples to 5 cycles between -65 and 105°C.

Figure 1 (continued)

Test Description	Requirement	Procedure
Humidity-temperature cycling.	See Note.	TE Spec 109-23-3, Condition B. Subject samples to 10 cycles between 25 and 65°C at 95% RH.
Temperature life.	See Note.	TE Spec 109-43. Subject samples to temperature life at 105°C for 1000 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	5
	Test Sequence (b)				
Examination of product	1,6	1,5	1,5	1,8	1,3
Termination resistance	2,5	2,4	2,4		
Insulation resistance				2,6	
Dielectric withstanding voltage				3,7	
Solderability					2
Vibration	3				
Physical shock	4				
Thermal shock				4	
Humidity-temperature cycling			3	5	
Temperature life		3			

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

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. Test group 1 shall consist of 6, 15 position and 6, 60 position connectors. Test groups 2, 3, 4, and 5 shall each consist of 6, 60 position connectors.

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

The applicable 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.

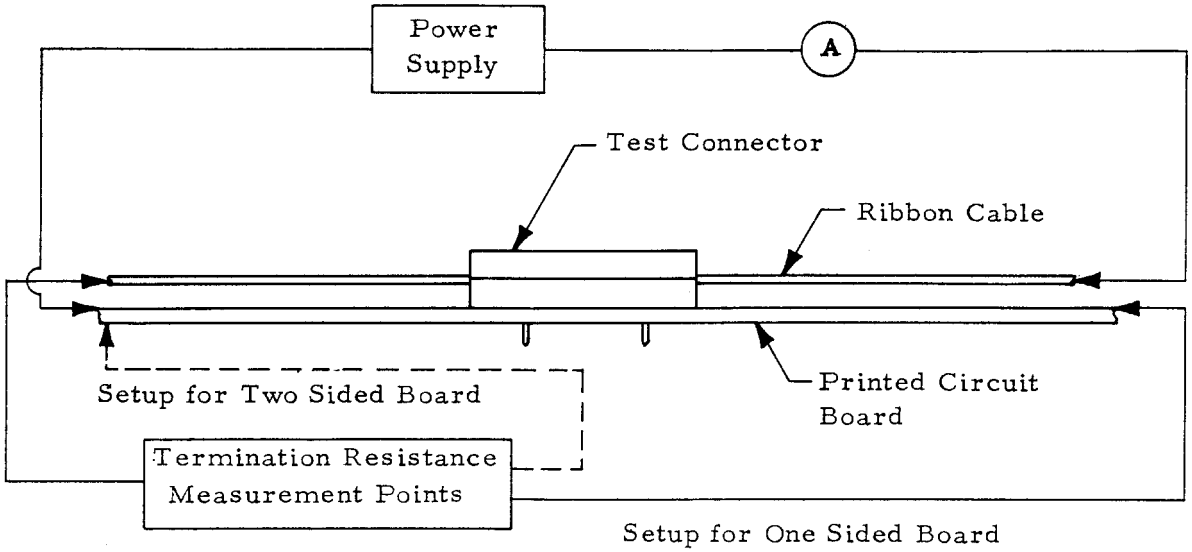

Figure 3
Termination Resistance Measurement Points