
AMPMODU* Mass Terminated (MT) Interconnection System

1. SCOPE

1.1. Content

This specification covers the performance, tests and quality requirements for the shielding accessories used with AMPMODU* Mass Terminated (MT) Interconnection System. These accessories consist of add-on metal shells and ferrules for both bulkhead and printed wiring board application.

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 Specifications

- A. 108-25015: Connector, AMPMODU Mass Terminated, Standard Pressure
- B. 109-1: General Requirements for Test Specifications
- C. 109 Series: Test Specifications as indicated in Figure 1.
(Comply with MIL-STD-202, MIL-STD 1344 and EIA RS-364)

2.2. Federal Specifications

- A. QQ-B-613: Brass, Leaded and Non-Leaded
- B. QQ-B-750: Phosphor Bronze
- C. QQ-C-576: Copper Flat Products with Slit, Slit and Edge-Rolled, Sheared, Sawed or Machined Edges

3. REQUIREMENTS

3.1. Design and Construction

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

3.2. Materials

- A. Shield shells: Copper alloy
- B. Ferrule: Copper

3.3. Ratings

- A. Current: 3 amperes maximum
- B. Operating Temperature: -65° to 105°C

3.4. Performance and Test Description

Shielding accessories 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												
Dielectric Withstanding Voltage	<table border="0" style="width: 100%;"> <tr> <td style="text-align: center;">Test Voltage</td> <td style="text-align: center;">Altitude</td> </tr> <tr> <td style="text-align: center;">D.C.</td> <td style="text-align: center;">Feet</td> </tr> <tr> <td style="text-align: center;">750</td> <td style="text-align: center;">Sea Level</td> </tr> <tr> <td style="text-align: center;">300</td> <td style="text-align: center;">50,000</td> </tr> <tr> <td style="text-align: center;">275</td> <td style="text-align: center;">70,000</td> </tr> </table> No breakdown or flashover.	Test Voltage	Altitude	D.C.	Feet	750	Sea Level	300	50,000	275	70,000	Test between shielding hardware and current carrying contacts of mated connector assemblies; AMP Spec 109-29-1.
Test Voltage	Altitude											
D.C.	Feet											
750	Sea Level											
300	50,000											
275	70,000											
Shielding Effectiveness	Right angle connectors, 25 dB minimum between 30 M Hz - 300 M Hz; bulkhead connectors, 30 dB minimum between 30 M Hz - 1000 M Hz.	Measure shielding effectiveness of double ended single braid cable; AMP Spec 109-90.										

Figure 1 (cont)

Test Description	Requirement	Procedure
MECHANICAL		
Vibration (b)	No discontinuities greater than 1 microsecond.	Subject mated connectors to 15 G's, 10-2000 Hz with 100 ma current applied; AMP Spec 109-21-3.
Physical Shock	No discontinuities greater than 1 microsecond.	Subject mated connectors to 100 G's sawtooth in 6 milliseconds; 3 shocks in each direction applied along the 3 mutually perpendicular planes total 18 shocks; AMP Spec 109-26-9.
Mating Force	1.0 pound maximum per position for right angle connector; 1.1 pounds maximum per position for bulkhead connector.	Measure force necessary to mate connector assembly on fourth mating at a rate of 0.5 inch/minute; AMP Spec 109-42, cond A, calculate force per position.
Unmating Force	.3 pound minimum per position for right angle and bulkhead connectors.	Measure force necessary to unmate connector assembly at a rate of 0.5 inch/minute; AMP Spec 109-42, cond A, calculate force per position.
Durability	No physical damage.	Mate and unmate connector assemblies for 200 cycles; AMP Spec 109-27.
ENVIRONMENTAL		
Thermal Shock (b)	Dielectric withstanding voltage; shielding effectiveness.	Subject mated connectors to 5 cycles between -65° and 105°C; AMP Spec 109-22.
Humidity-Temperature Cycling	Shielding effectiveness.	Subject mated connectors to 10 humidity-temperature cycles between 25° and 65°C at 95% RH; AMP Spec 109-23, method III, cond B, with cold shock at -10°C, less step 7b.

Figure 1 (cont)

Test Description	Requirement	Procedure
Industrial Mixed Flowing Gas	Shielding effectiveness.	Subject mated connectors to environmental class II for 10 days; AMP Spec 109-85-2.
Temperature Life (b)	Shielding effectiveness.	Subject mated connectors to temperature life, AMP Spec 109-43, test level 9, test duration I.

- (a) The continuous current rating for individual contacts cannot be applied directly to the number of contacts as they are dependent on the thermal and physical properties of the materials. System design shall assure that continuous current rating does not create internal hot spots that exceed the temperature designated by the connector specification, during steady-state or transient conditions.
- (b) Shall remain mated and show no evidence of damage, cracking or chipping.

Figure 1 (end)

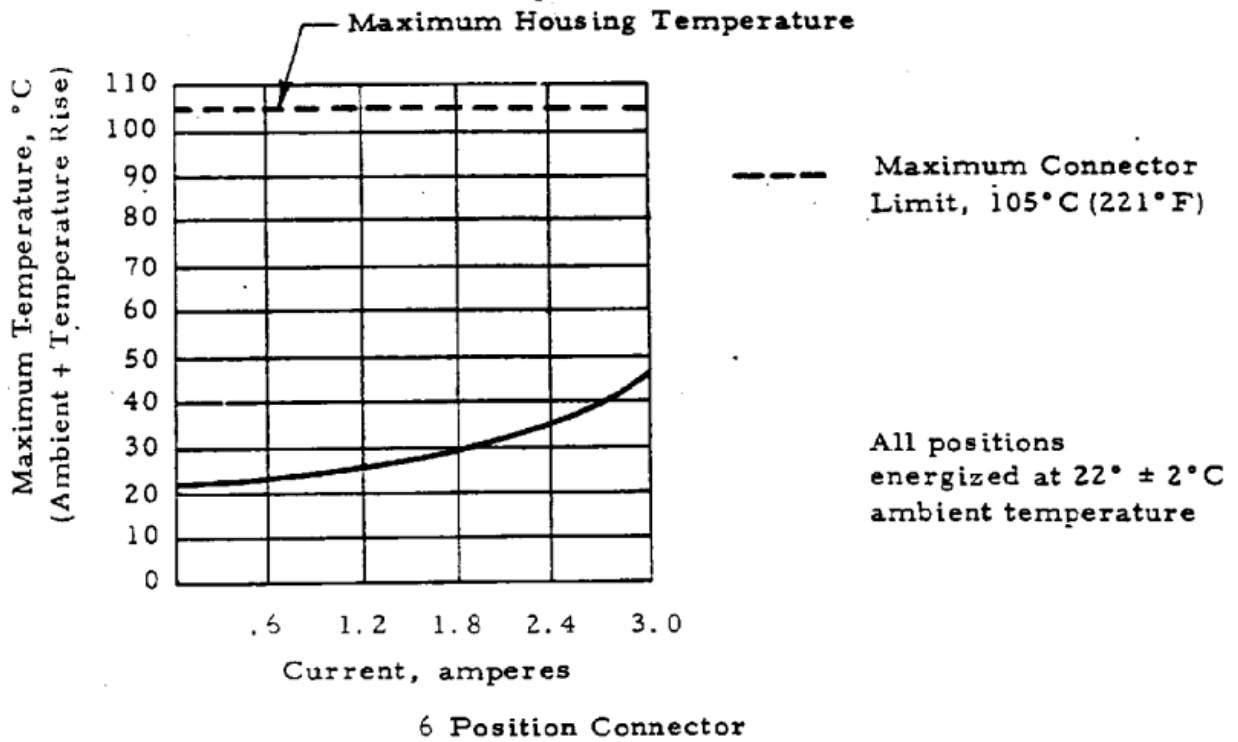
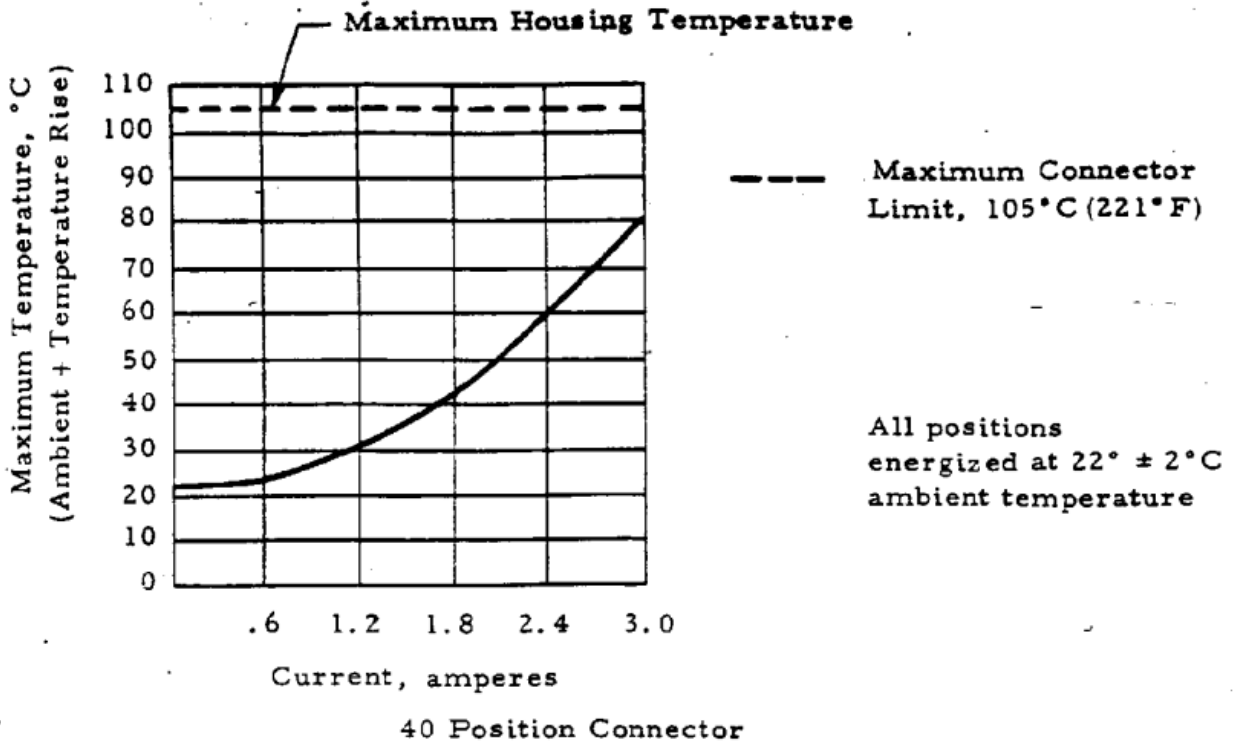


Figure 2

3.6. Shielding Accessories Tests and Sequences

Test or Examination	Test Group (a)			
	1	2	3	4
	Test Sequence (b)			
Examination of Product	1	1	1	1
Dielectric Withstanding Voltage	2,8			
Shielding Effectiveness	9	2,5,7	2,4	
Vibration	5~			
Physical Shock	6			
Mating Force	3			2,6
Unmating Force	4			3,5
Durability		3		4
Thermal Shock	7			
Humidity-Temperature Cycling		4		
Industrial Mixed Flowing Gas		6		
Temperature Life			3	

(a) See Para 4.1.A.

(b) Numbers indicate sequence in which tests are performed.

Figure 3

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Sample Selection

Connector housings and contacts shall be prepared in accordance with applicable Instruction Sheets. They shall be selected at random from current production. Test groups 1, 2 and 3 shall consist of 4 six foot cables having #24 AWG wire with single braid shielding and shielded connectors, complete with shielding hardware, on each end. Two cables in each group shall be terminated on both ends with 40 position or greater bulkhead connectors and the other 2 cables with 20 position or less right angle connectors. All contacts shall be 30 microinch gold plated and mated with 30 microinch gold plated header assemblies. Test group 4 shall consist of 4 connector and header assemblies without cable, 2 each of the right angle and bulkhead.

B. Test Sequence

Qualification inspection shall be verified by testing samples as specified in Figure 3.

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 and samples resubmitted for qualification.

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.