AMP

QUALIFICATION TEST REPORT

AMPLIMITE* HDE-20 & HDP-20
Shielding Hardware

501-83 Rev. 0

Product Specification:	108-40030 Rev.0
CTL No.:	CTL5888-018-011
Date:	November 1, 1988
Classification:	Unrestricted
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Corporate Test Laboratory Harrisburg, Pennsylvania

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AMP

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CORPORATE TEST LABORATORY

Qualification Test Report
AMPLIMITE HDE-20 & HDP-20
Shielding Hardware

1. Introduction

1.1 Purpose

Testing was performed on the AMP*AMPLIMITE HDE-20 & HDP-20 Shielding Hardware to determine if it meets the requirements of AMP Specification 108-40030, Rev. 0.

1.2 Scope

This report covers the electrical, mechanical and environmental performance requirements of the AMPLIMITE HDE-20 & HDP-20 Shielding Hardware made by Interconnection Components Division. The qualification testing was performed between January 28, 1988 and September 8, 1988.

1.3 Conclusion

The AMPLIMITE HDE-20 & HDP Shielding Hardware meets the electrical, mechanical and environmental performance requirements of Product Specification 108-40030, Rev. 0.

1.4 Product Description

The AMPLIMITE Shielding Hardware was designed to satisfy overmolding requirements and also provide shielding from electromagnetic interference. The product features UL rated 94V-0, glass filled nylon housings and tin-plated steel inner and outer shields. The Shielding Hardware housings are compatible with preloaded AMPLIMITE HDE-20, insulation displacement style contact or with AMPLIMITE HDP-20, crimp/snap-in style contacts.

1.5 Test Samples

Samples were taken randomly from current production. The following samples were used:

Test Groups	Quantity	Part Number	Description
1,2,3	12	747547-5	HDE-20 Shielding Hardware
	12	1-747579-1	Crimp Ferrule
	12	747554-1	HDP-20 Shielding Hardware
	12	1-747579-1	Crimp Ferrule

1.6 Qualification Test Sequence

Test or Examination	Test Groups 1	2	3
	Test Sequence (a)		
Examination of Product	1	1	1
Dielectric Withstanding Voltage	2,8		
Shielding Effectiveness	3,9	2,4	2,4
Vibration	4		
Physical Shock	5		
Cable Pullout	6		
Circular Jacket Cable Flex	7		
Thermal Shock			3
Industrial Mixed Flowing Gas		3	

(a) Numbers indicate sequence in which tests were performed

2. Summary of Testing

2.1 Examination of Product - Groups 1, 2, and 3

All connector assemblies submitted for testing were selected from normal production lots. They were inspected and accepted by the Product Assurance Department of the Interconnection Components Division.

2.2 Dielectric Withstanding Voltage - Group 1

There was no dielectric breakdown or flashover, when 1000 vac potential was applied between all contacts and the shield of the mated connector assembly.

2.3 Shielding Effectiveness - Groups 1, 2, and 3

All connector assemblies met the shielding effectiveness requirements of 35 db minimum over a frequency range from 30 to 216 MHz, and 15 db minimum over a frequency range from 216 to 1,000 MHz., initially and after each environment.

2.4 Vibration - Group 1

During vibration testing, there were no discontinuities of the shield circuits greater than one microsecond. Following vibration, there were no cracks, breaks or loose parts on the connector assemblies.

2.5 Physical Shock - Group 1

During physical shock testing, there were no discontinuities of the shield circuits greater than one microsecond. Following physical shock testing, there were no cracks, breaks or loose parts on the connector assemblies.

2.6 Cable Pullout - Group 1

During cable pullout testing, there were no electrical discontinuities of the shield circuits greater than one microsecond, and no physical damage occurred.

2.7 Circular Jacket Cable Flexing - Group 1

After circular jacket cable flexing testing, there was no evidence of cracking, chipping or physical damage.

2.8 Thermal Shock - Group 3

After thermal shock, there was no evidence of physical damage.

2.9 Industrial Mixed Flowing Gas - Group 2

After Industrial Mixed Flowing Gas testing, there was no evidence of physical damage.

3. Test Methods

3.1 Examination of Product

The product drawings and inspection plans were used to examine the connector assemblies. They were examined visually, dimensionally and functionally.

3.2 Dielectric Withstanding Voltage

A test potential of 1000 VAC was applied between all the contacts and the connector shield.

3.3 Shielding Effectiveness

The shielding effectiveness of the double ended cable assemblies was measured, in accordance with AMP Specification 109-90. The emission attenuation was measured from 30 to 216 Mhz and 216 to 1000 Mhz, with requirements of 35 and 15 db, respectively.

3.4 Vibration, Low Frequency

The connector assemblies were subjected to a simple harmonic motion, with an amplitude of 0.06 inch, double amplitude. The vibration frequency was varied uniformly between the limits of 10 and 55 Hz, and returned to 10 Hz in one minute. This motion was performed for two hours in each of three mutually perpendicular planes. The connector shields were monitored for discontinuities greater than one microsecond, using a current of 100 milliamperes in the monitoring circuit.

3.5 Physical Shock

The connector assemblies were subjected to a half-sine waveform of 50 gravity units for a duration of 6 milliseconds. Six shocks in each direction were applied along the three mutually perpendicular planes for a total of 18 shocks. The connector shields were monitored for discontinuities greater than one microsecond, using a current of 100 milliamperes in the monitoring circuit.

3.6 Cable Pullout

The connector assemblies were subjected to a cable pullout test, in accordance with AMP Specification 109-46, Condition A. A 50 pound weight was gradually applied between the cable ends of each connector. The cable was allowed to hang free, and the force was applied for a duration of one hour, during which the cable shield was monitored for discontinuities using a current of 100 milliamperes.

3.7 Circular Jacket Cable Flexing

The connector assemblies were subjected to 100 cycles of cable flexing at a rate of 12 to 14 cycles per minute. The connector assembly was placed in a fixture, which allowed the cable to be flexed in a plane, thru 180° of arc, alternately from a position of 90° from vertical on one side to 90° from vertical on the other side. The cable was clamped by a fixed cable holding fixture, approximately 14 inches below the crimp ferrule, and no weight was applied to the opposite end of the cable assembly during flex testing. This test was performed with the connector being flexed in one plane.

3.8 Thermal Shock

The connector assemblies were subjected to five cycles of thermal shock. The temperature extremes were -55°C and 105°C. Each cycle consisted of 30 minutes at each temperature. The transition between temperatures was less than two minutes.

3.9 Industrial Mixed Flowing Gas, Class III

The connector assemblies were exposed for 10 days in the industrial mixed flowing gas chamber. Class II exposure is defined as a temperature of 30°C and a relative humidity of 75%. Pollutants are Cl_2 at 20 ppb, NO_2 at 200 ppb and H_2S at 100 ppb.

4. Validation

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