AMP

QUALIFICATION TEST REPORT

Low Profile Coaxial Tap

501-106 Rev. A

Product Specification:	108-12073, Rev. 0
CTL No.:	CTL3363-003-015
Date:	January 18, 1990
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Corporate Test Laboratory Harrisburg, Pennsylvania

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AMP

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CORPORATE TEST LABORATORY

Qualification Test Report
Low Profile Coaxial Tap

1. Introduction

1.1 Purpose

Testing was performed on AMP* Low Profile Coaxial Tap to determine if it meets the requirements of AMP Product Specification 108-12073, Rev. 0.

1.2 Scope

This report covers the electrical, mechanical, and environmental performance of the Low Profile Coaxial Tap, manufactured by the Signal Transmissions System Division of the Signal Transmission Products Group. The testing was performed between May 31, 1889 and November 30, 1989.

1.3 Conclusion

The Low Profile Coaxial Tap meets the electrical, mechanical, and environmental performance requirements of AMP Product Specification 108-12073, Rev. 0.

* Trademark

1.4 Product Description

The AMP Low Profile Coaxial Tap is designed for low profile, end mount, printed circuit board installation in a transceiver and will mate with an optional AMPMODU receptacle assembly. The Low Profile Coaxial Tap will accept cables from 0.370 to 0.410 inch diameter, with solid center conductors in the AWG 10 to AWG 14 range.

1.5 Test Samples

The test samples were randomly selected from current production, and the following part numbers were used for test:

Test Group	Quantity	Part Number	Description
1,2,3,4	20	228752-1	Low Profile Tap

1.6 Qualification Test Sequence

	Test Groups			
Test or Examination	1	2	3	4
Examination of Product	1,7	1,5	1,12	1,5
Termination Resistance, Dry Circuit	2,5	2,4	3,8	2,4
Dielectric Withstanding Voltage			5,11	
Insulation Resistance			4,10	
Capacitance			2,9	
Vibration	3			
Physical Shock	4			
Cable Retention	6			
Thermal Shock			6	
Humidity-Temperature Cycling			7	
Mixed Flowing Gas				3
Temperature Life		3		

The numbers indicate sequence in which tests were performed.

2. Summary of Testing

2.1 Examination of Product - All Groups

All samples submitted for testing were selected from normal production lots. They were inspected and accepted by the Product Assurance Department of the Signal Transmission Products Group.

2.2 Termination Resistance, Dry Circuit - All Groups

All termination resistance measurements, taken at 50 milliamperes dc. and 50 millivolts open circuit voltage, were less than the specification requirement of 50 milliohms.

Test Group	No. of Samples	Condition	Min.	Max.	Mean
1	5	Initial	3.2	5.8	3.65
		After Mechanical Testing	2.5	7.9	3.19
2	5	Initial	3.0	3.8	3.47
		After Temperature Life	2.7	3.3	3.09
3	5	Initial	2.9	3.7	3.32
		After Humidity Testing	2.9	4.0	3.29
4	5	Initial	3.0	3.5	3.13
		After Industrial Gas	2.9	3.7	3.31

All values in milliohms

2.3 Dielectric Withstanding Voltage - Group 3

There was no dielectric breakdown or flashover between the center conductor and shield, or between the shield and all other metal parts.

2.4 Insulation Resistance - Group 3

All insulation resistance measurements were greater than the specification requirement of 5000 megohms.

2.5 Capacitance - Group 3

All capacitance measurements were less than the 2.0 picofarad specification maximum with drilled cable and 1.0 picofarad maximum, based on an average of 5 measurements.

2.6 Vibration - Group 1

There were no discontinuities greater than one microsecond during vibration. Following vibration, there were no cracks, breaks or loose parts on the connector assemblies.

2.7 Physical Shock - Group 1

There were no discontinuities greater than one microsecond during physical shock. Following physical shock testing, there were no cracks, breaks or loose parts on the connector assemblies.

2.8 Cable Retention - Group 1

There were no discontinuities greater than one microsecond during cable retention testing. Following testing, there were no cracks, breaks or loose parts on the connector assemblies.

2.9 Thermal Shock - Group 3

There was no evidence of physical damage to either the contacts or the connector, as a result of thermal shock.

2.10 Humidity-Temperature Cycling - Group 3

There was no evidence of physical damage to either the contacts or the connector, as a result of exposure to humidity-temperature cycling.

2.11 Mixed Flowing Gas - Group 4

There was no evidence of physical damage to either the contacts or the connector, as a result of exposure to the pollutants of mixed flowing gas.

2.12 Temperature Life - Group 2

There was no evidence of physical damage to either the contacts or the connector, as a result of exposure to a temperature of 85°C for 33 days.

3. Test Methods

3.1 Examination of Product

The product drawings and inspection plans were used to examine the samples. They were examined visually and functionally.

3.2 Termination Resistance, Low Level

Termination resistance measurements at low level current were made, using a four terminal measuring technique (Figure 1). The test current was maintained at 100 milliamperes dc, with an open circuit voltage of 50 millivolts dc.

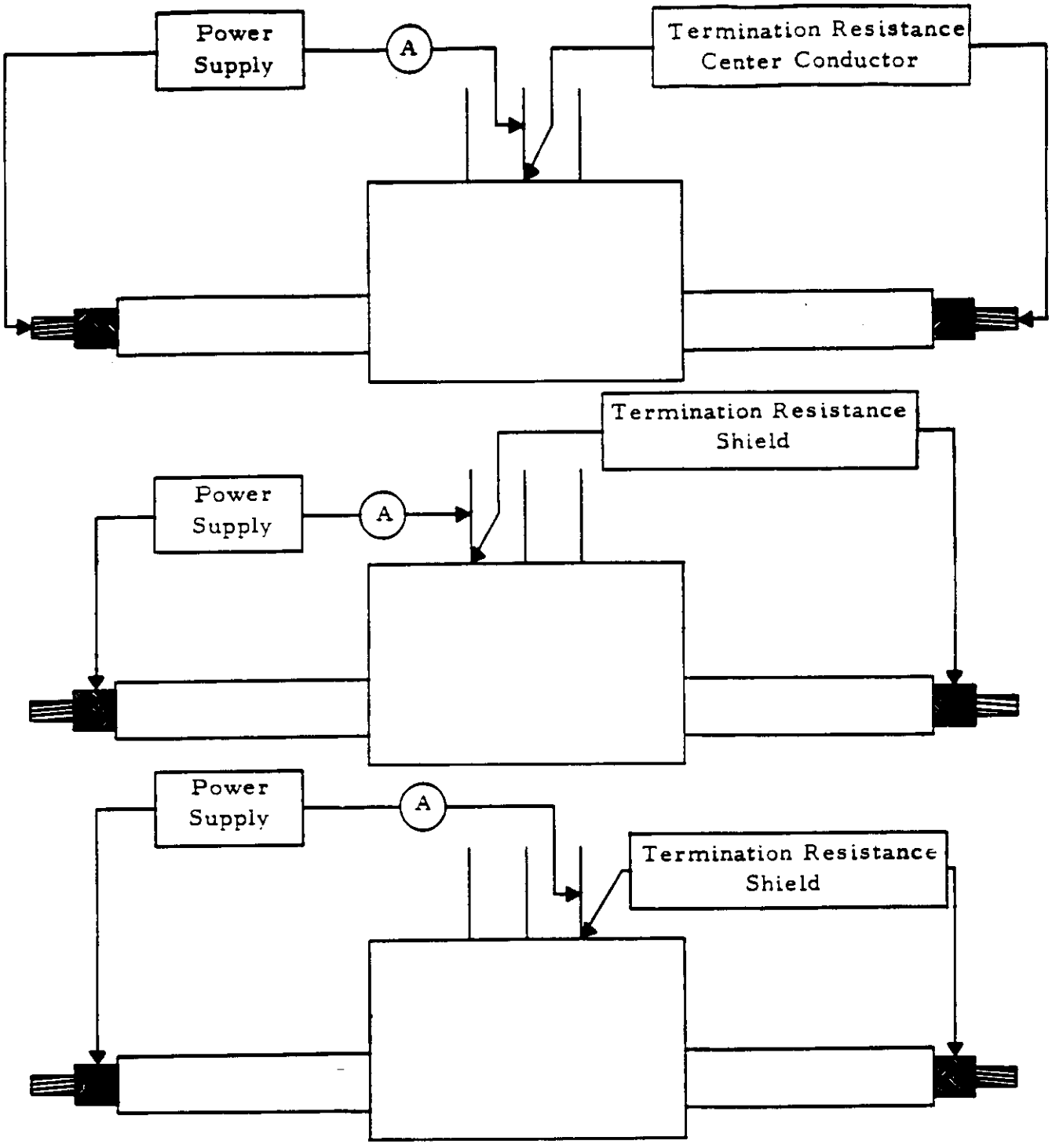

Figure 1
Typical Termination Resistance Measurement Points

3.3 Dielectric Withstanding Voltage

A test potential of 500 vac was applied between the center conductor and the shield, and a test potential of 1800 vac was applied between all other metal parts and the shield. These potentials were applied for one minute and then returned to zero.

3.4 Insulation Resistance

Insulation resistance was measured between the center conductor and shield, between the center conductor and tap screw, and between the shield and tap screw, using a test voltage of 100 volts dc. This voltage was applied for one minute before the resistance was measured.

3.5 Capacitance

With quick disconnect coaxial connectors applied to each end of the cable, capacitance measurements were made at 1 MHz. While still attached to the bridge, the tap was applied and the difference was recorded.

3.6 Vibration, Random

Mated connectors were subjected to a random vibration test. The parameters of this test condition are specified by a random vibration spectrum, with excitation frequency bounds of 50 and 2000 hertz. The power spectral density at 50 hz is 0.1 G^2/Hz. The spectrum slopes up at 6 dB per octave to a PSD of .4 G^2/Hz at 100 Hz. The spectrum is flat at .4 G^2/Hz from 100 to 1000 Hz. The spectrum slopes down at 6 dB per octave to the upper bound frequency of 2000 Hz, at which the PSD is 0.1 G^2/Hz. The root-mean square amplitude of the excitation was 10.2 GRMS.

3.7 Physical Shock

Mated connectors were subjected to a physical shock test, having a half-sine waveform of 100 gravity units (g peak), and a duration of 6 milliseconds. Three shocks in each direction were applied along the three mutually perpendicular planes, for a total of 18 shocks. The connectors were monitored for discontinuities greater than one microsecond, using a current of 100 milliamperes in the monitoring circuit.

3.8 Cable Retention

A force of 50 pounds was applied between the cable and the tap and held for one minute in each direction, followed by a torque of 20 inch ounces applied to the cable on each side in each direction for one minute.

3.9 Thermal Shock

Mated connectors were subjected to five cycles of temperature extremes, with each cycle consisting of 30 minutes at each temperature. The temperature extremes were -55°C and 85°C. The transition between temperatures was less than one minute.

3.10 Humidity-Temperature Cycling

Mated connectors were exposed to 10 cycles of humidity-temperature cycling. Each cycle lasted 24 hours and consisted of cycling the temperature between 25°C and 65°C twice, while the relative humidity was held at 95%.

3.11 Mixed Flowing Gas, Class II

Mated connectors were exposed for 20 days to Class II exposure in the mixed flowing gas chamber. Class II exposure is defined as an environment with a temperature of 30°C and a relative humidity of 70%. The pollutants and their concentrations were Cl_2 at 10 ppb, NO_2 at 200 ppb, and H_2S at 10 ppb.

3.12 Temperature Life

Mated samples were subjected to 33 days at an elevated temperature of 85°C.

4. Validation

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