AMP*

QUALIFICATION TEST REPORT

LAN-LINE* Tap Adapter
N and BNC Series

501-113 Rev. 0

Product Specification:	108-12100, Rev. 0
CTL No.:	CTL3580-003-001
Date:	May 2, 1990
Classification:	Unrestricted
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AMP

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CORPORATE TEST LABORATORY

Qualification Test Report
LAN-LINE Tap Adapter, N and BNC Series

1. Introduction

1.1 Purpose

Testing was performed on AMP's LAN-LINE Tap Adapter to determine if it meets the requirements of AMP Product Specification 108-12100, Rev. 0.

1.2 Scope

This report covers the electrical, mechanical, and environmental performance of the LAN-LINE Tap Adapter, manufactured by the Signal Transmission and Premise Products Division of the Capital Goods Business Sector. The testing was performed between February 15, 1990 and April 3, 1990.

1.3 Conclusion

The LAN-LINE Tap Adapter meets the electrical, mechanical, and environmental performance requirements of AMP Product Specification 108-12100, Rev. 0.

1.4 Product Description

The LAN-LINE Tap Adapter is intended for use in connecting appropriate coaxial plugs in a data network line and accepting a suitably configured transceiver device with its mating receptacle.

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	5 each	221914-1	Tap N Series
1,2,3,4	5 each	221918-1	Tap BNC Series
1,2,3,4	5 each	222455-1	Tap BNC Series Vertical

1.6 Qualification Test Sequence

	Test Groups			
Test or Examination	1	2	3	4
Examination of Product	1,8	1,5	1,10	1,5
Termination Resistance, Dry Circuit	2,6	2,4		2,4
Dielectric Withstanding Voltage			4,9	
Insulation Resistance			3,8	
Capacitance			2,7	
Vibration, Discontinuity	3			
Physical Shock	4			
Durability	5			
Assembly Strength	7			
Thermal Shock			5	
Humidity-Temperature Cycling			6	
Industrial 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 Capital Goods Business Sector.

2.2 Termination Resistance, Dry Circuit - Group 1, 2, 4

All termination resistance measurements, taken at 100 milliamperes dc. and 50 millivolts open circuit voltage, were less than the specification requirements.

Test Group	No. of Samples	Condition	Conf.*	Max.	Spec. Max.
1	15	Initial	(A to B)	6.13	10.00
	15		(C to D)	1.70	10.00
	10		(A to F)	10.36	20.00
	10		(C to E)	2.42	20.00
1	15	After Mechanical	(A to B)	6.55	20.00
	15		(C to D)	1.79	20.00
	10		(C to F)	10.78	50.00
	10		(A to E)	2.49	50.00
2	15	Initial	(A to B)	5.58	10.00
	15		(C to D)	3.48	10.00
	10		(C to F)	9.84	20.00
	10		(A to E)	2.55	20.00
2	15	After Temp. Life	(A to B)	6.01	20.00
	15		(C to D)	2.98	20.00
	10		(C to F)	10.74	50.00
	10		(A to E)	2.40	50.00
4	15	Initial	(A to B)	5.48	10.00
	15		(C to D)	1.89	10.00
	10		(C to F)	9.77	20.00
	10		(A to E)	4.77	20.00
4	15	After Industrial Gas	(A to B)	5.65	20.00
	15		(C to D)	2.81	20.00
	10		(C to F)	9.87	50.00
	10		(A to E)	5.08	50.00

All values in milliohms
*See Figure #1

2.3 Dielectric Withstanding Voltage - Group 3

There was no dielectric breakdown or flashover between center contact and shell, when a test voltage of 2500 Vac was applied for one minute.

2.4 Insulation Resistance - Group 3

All insulation resistance measurements were greater than the specification requirement of 5000 megohms for the initial measurement and 200 megohms for measurement taken 5 minutes after humidity temperature cycling.

2.5 Capacitance - Group 3

All capacitance measurements were less than the 8.0 picofarad specification maximum.

2.6 Vibration, Discontinuity - Group 1

There were no discontinuities of the contacts 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 of the contacts 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 Durability - Group 1

There was no physical damage to the samples, as a result of mating and unmating the connector 100 times.

2.9 Assembly Strength - Group 1

There was no relative movement between the plastic housings and the connectors.

2.10 Thermal Shock - Group 3

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

2.11 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.

2.12 Industrial 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 industrial mixed flowing gas.

2.13 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 65°C for 96 hours.

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.

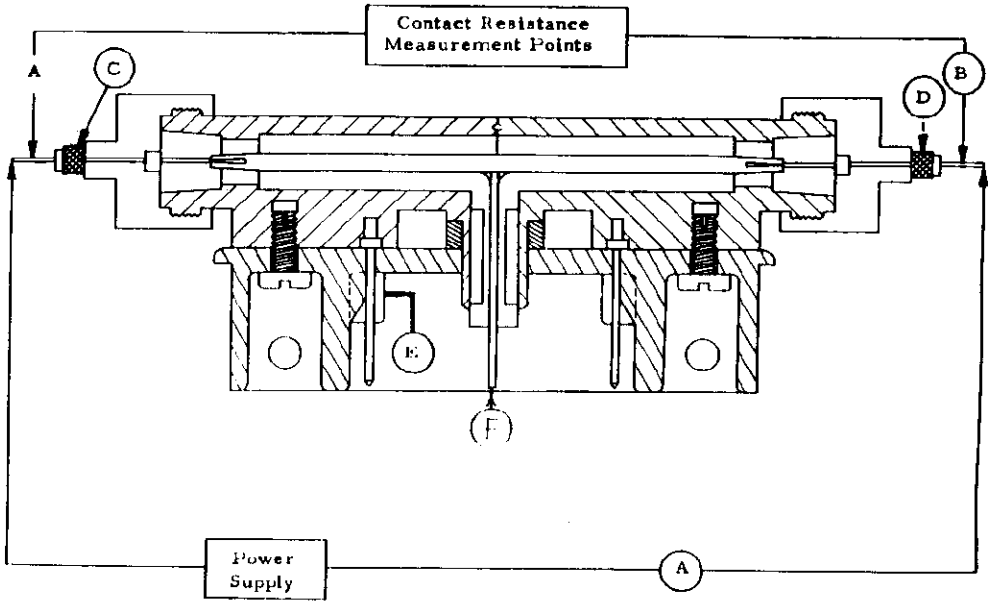

Figure 1
Typical Termination Resistance Measurement Points

3.3 Dielectric Withstanding Voltage

A test potential of 2500 vac was applied between the center contact and the shell. This potential was applied for one minute and then returned to zero.

3.4 Insulation Resistance

Insulation resistance was measured between adjacent contacts, using a test voltage of 500 vdc. This voltage was applied for one minute, before the resistance was measured.

3.5 Capacitance

The capacitance was measured between the center contact and the shell of mated connectors. A test frequency of one megahertz was applied between the adjacent circuits.

3.6 Vibration, Discontinuity, 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 0.15 G^2/Hz. The spectrum slopes up at 6 dB per octave to a PSD of .06 G^2/Hz at 100 Hz. The spectrum is flat at .06 G^2/Hz from 100 to 2000 Hz. The root-mean square amplitude of the excitation was 10.76 GRMS. Connectors were monitored for discontinuities greater than one microsecond, using a current of 100 milliamperes in the monitoring circuit.

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 Durability

Connectors were mated and unmated 100 times, at a rate not exceeding 600 per hour.

3.9 Assembly Strength

An axial load of 20 pounds was applied to each connector and maintained for one minute.

3.10 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 -65°C and 85°C. The transition between temperatures was less than one minute.

3.11 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%. During five of the first nine cycles, the connectors were exposed to a cold shock at -10°C for 3 hours.

3.12 Industrial Mixed Flowing Gas, Class II

Mated connectors were exposed for 20 days in the industrial mixed flowing gas chamber. Class II exposure is defined as a temperature of 30°C, and a relative humidity of 70%. Pollutants are Cl_2 at 10 ppb, NO_2 at 200 ppb, and H_2S at 10 ppb.

3.13 Temperature Life

Mated samples were subjected to 96 hours at an elevated temperature of 65°C.

4. Validation

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