QUALIFICATION TEST REPORT

CONNECTOR, FLAT CABLE, ROUND CONDUCTOR,
AMP-LATCH* NOVO & NOVO STACKABLE RECEPTACLES

501-45-1 Rev O

Product Specification:	108-40000 Rev. B
Test No.:	CGL5730-139
Date:	September 8, 1993
Classification:	Unrestricted
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Revised per ECN:	0020-1212-93

*Trademark

Corporate Test Laboratory Harrisburg, Pennsylvania

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(R5730TS)

AMP

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CORPORATE TEST LABORATORY

Qualification Test Report
AMPLATCH NOVO Receptacle

1. Introduction

1.1 Purpose

Testing was performed on AMPLATCH NOVO Receptacle with a modified configuration for the wide Insulation Displacing Contact (IDC) to determine its conformance to the requirements of AMP Product Specification 108-40000 Rev. B

1.2 Scope

This report covers the electrical, mechanical, and environmental performance of the AMPLATCH NOVO Receptacle manufactured by the Interconnection Components & Assemblies Products Division of the Capital Goods Business Unit. The testing was performed at the Capital Goods Business Unit Test Engineering Laboratory between May 3, 1993 and August 18, 1993.

1.3 Conclusion

The AMPLATCH NOVO Receptacle meets the electrical, mechanical, and environmental performance requirements as stated in this report.

1.4 Product Description

The AMP-LATCH Novo receptacle contacts are crimped to .050 inch centerline ribbon cable (conductors AWG28 and AWG26 solid and stranded wire). Complete assemblies mate to .025 inch square posts on .100 inch centerline. The contacts are copper alloy. The housings are black thermoplastic UL94V-0.

1.5 Test Samples

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

Test Group	Quantity	Part Nbr	Description
1,2,3,4	6 ea.	1-111779-0	Receptacle (modified IDC)
1,2,3,4	6 ea.	1-499160-0	Header

1.6 Qualification Test Sequence

	Test Groups			
Test or Examination	1	2	3	4
Examination of Product	1,7	1,5	1,5	1,8
Termination Resistance, Dry Circuit	2,6	2,4	2,4	2,4
Durability	3			
Vibration	4			
Physical Shock	5			
Thermal Shock		3		
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 current production lots. They were inspected and accepted by the Product Assurance Department of the Capital Goods Business Unit.

2.2 Termination Resistance, Dry Circuit - Groups 1,2,3,4

All termination resistance measurements, taken at 100 milliamperes DC and 50 millivolts open circuit voltage were less than 15 milliohms.

Test Group	Nbr of Samples	Condition	Min	Max	Mean
1	300	Initial	4.24	7.42	4.92
		After Mechanical	4.36	10.00	5.61
2	300	Initial	4.28	5.54	4.94
		After Thermal Shock	4.34	5.78	5.00
3	300	Initial	4.25	6.13	4.90
		After Mixed Gas	4.34	11.91	5.02
4	300	Initial	4.32	5.58	4.94
		After Temp Life	4.26	8.49	5.04

All values in milliohms

2.3 Vibration - Group 1

No discontinuities of the contacts were detected during vibration. Following vibration, no cracks, breaks, or loose parts on the connector assemblies were visible.

2.4 Physical Shock - Group 1

No discontinuities of the contacts were detected during physical shock. Following physical shock testing, no cracks, breaks, or loose parts on the connector assemblies were visible.

2.5 Durability - Group 1

No physical damage occurred to the samples as a result of mating and unmating the connector 150 times.

2.6 Thermal Shock - Group 3

No evidence of physical damage to either the contacts or the connector was visible as a result of thermal shock.

2.7 Mixed Flowing Gas - Group 2

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

2.8 Temperature Life - Group 4

No evidence of physical damage to either the contacts or the connector was visible as a result of exposure to an elevated temperature.

3. Test Methods

3.1 Examination of Product

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.

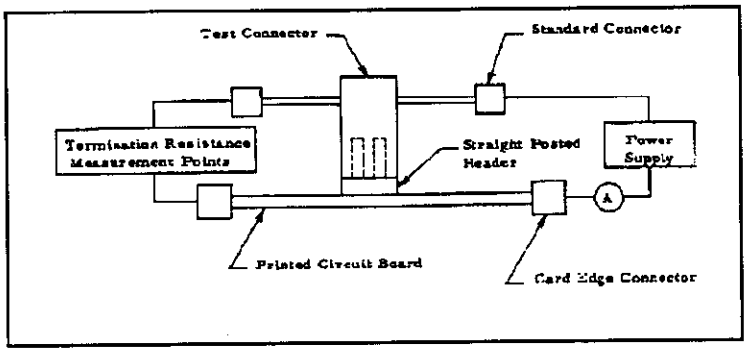

Figure 1
Typical Termination Resistance Measurement Points

3.3 Vibration, Random

Mated connectors were subjected to a random vibration test, 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 0.4 G^2/Hz at 100 Hz. The spectrum is flat at 0.4 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 23.91 GRMS. Test time was 20 minutes in each of three mutually perpendicular planes. The connectors were monitored for discontinuities greater than one microsecond, using a current of 100 milliamperes in the monitoring circuit.

3.4 Physical Shock

Mated connectors were subjected to a physical shock test, having a sawtooth 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.

3.5 Durability

Connectors were mated and unmated 150 times at a rate not exceeding 150 per hour.

3.6 Thermal Shock

Mated connectors were subjected to 5 cycles of temperature extremes with each cycle consisting of 30 minutes at each temperature. The temperature extremes were -65°C and 105°C. The transition between temperatures was less than one minute.

3.7 Mixed Flowing Gas, Class III

Mated connectors were exposed for 20 days to a mixed flowing gas Class III exposure. Class III exposure is defined as a temperature of 30°C and a relative humidity of 75% with the pollutants of $C1_2$ at 20 ppb, NO_2 at 200 ppb, and H_2S at 100 ppb.

3.8 Temperature Life

Mated samples were exposed to a temperature of 105°C for 500 hours.

4. Validation

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