AMP

QUALIFICATION TEST REPORT

CONNECTOR, ZERO ENTRY,
CAMMED RECTANGULAR SERIES

501-218 Rev. A

Product Specification:	108-10055 Rev. 0
CTL No.:	CTL5088-111-017
Date:	March 30, 1993
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Corporate Test Laboratory Harrisburg, Pennsylvania

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(R5088TS)

AMP

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CORPORATE TEST LABORATORY

Qualification Test Report
Cammed Rectangular (CR) Series Connector

1. Introduction

1.1 Purpose

Testing was performed on the AMP* CR series connectors to determine its conformance to the requirements of AMP Product Specification 108-10055 Rev.0.

1.2 Scope

This report covers the electrical, mechanical, and environmental performance of the CR series connector manufactured by Federal Systems Division of the Aerospace & Government Systems Sector. The testing was performed between January 22, 1993 and March 30, 1993.

1.3 Conclusion

The CR series connector meets the electrical, mechanical, and environmental performance requirements of AMP Product Specification 108-10055 Rev. 0.

*Trademark

1.4 Product Description

The CR Zero Insertion Force (ZIF) connectors offer a flexible interconnection system with the ability to handle large numbers of inputs and outputs. The CR ZIF connectors can provide from 40 to 1040 signal carrying contacts. The CR ZIF technique eliminates the conventional forces of friction that occur when contact surfaces are mated, thereby preventing plating degradation of those surfaces.

1.5 Qualification Test Sequence

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

The numbers indicate sequence in which tests were performed.

1.6 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 Number	Description
1	2	206527-1	120 Pos Plug Housing
1	2	206539-2	120 Pos Recpt Housing
1	2	206541-1	40 Pos Plug Contact Module
1	2	206735-3	40 Pos Plug Posted Module
1	4	206542-1	40 Pos Recpt Posted Module
1	2	206573-1	40 Pos Plug IDC Module
1	2	208498-1	40 Pos Recpt Ribbon Module
1	66	66555-2	Crimp Contacts AWG 28 str.
1	66	66750-2	Crimp Contact AWG 20 str.
1,2,3	2	206740-1	156 Pos Plug Housing
4	5	206740-1	156 Pos Plug Housing
1,2,3	2	206742-1	156 Pos Recpt Housing
4	5	206742-1	156 Pos Recpt Housing
1	2	206743-1	26 Pos Plug Contact Module
1,2,3	8	207385-1	26 Pos Plug Posted Module
4	30	207385-1	26 Pos Plug Posted Module
1	2	206745-1	26 Pos Plug IDC Module
1,2,3	6	207256-1	26 Pos Recpt Posted Module
4	30	207256-1	26 Pos Recpt Posted Module
1	4	207256-1	26 Pos Recpt Posted Module
1	2	208766-1	26 Pos Recpt Ribbon Module

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 Aerospace & Government Systems Sector.

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

All termination resistance measurements, taken at 100 milliamperes dc. and 50 millivolts open circuit voltage, were less than 25 milliohms.

Test Group	No. of Samples	Condition	Min.	Max.	Mean
1	60	Initial	7.82	11.00	9.166
		After Mechanical	7.78	12.76	9.230
2	30	Initial	11.99	12.94	12.513
		After Temp Life	12.35	18.01	13.992
3	30	Initial	12.15	13.20	12.555
		After Mixed Gas	12.05	14.02	12.641

All values in milliohms

2.3 Dielectric Withstanding Voltage - Group 4

No dielectric breakdown or flashover occurred when a test voltage was applied between adjacent contacts.

2.4 Insulation Resistance - Group 4

All insulation resistance measurements were greater than 5000 megohms initial and 1000 megohms final.

2.5 Vibration - Group 1

Following vibration, no cracks, breaks, or loose parts on the connector assemblies were visible.

2.6 Physical Shock - Group 1

Following physical shock testing, no cracks, breaks, or loose parts on the connector assemblies were visible.

2.7 Contact Retention - Group 1

No physical damage occurred to either the contacts or the housing, and no contacts dislodged from the housings as a result of applying an axial load of 5 pounds to the contacts.

2.8 Durability - Group 1

No physical damage occurred to the samples as a result of mating and unmating the connector 5000 times.

2.9 Thermal Shock - Group 4

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

2.10 Humidity-Temperature Cycling - Group 4

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

2.11 Mixed Flowing Gas - Group 3

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.

2.12 Temperature Life - Group 2

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.

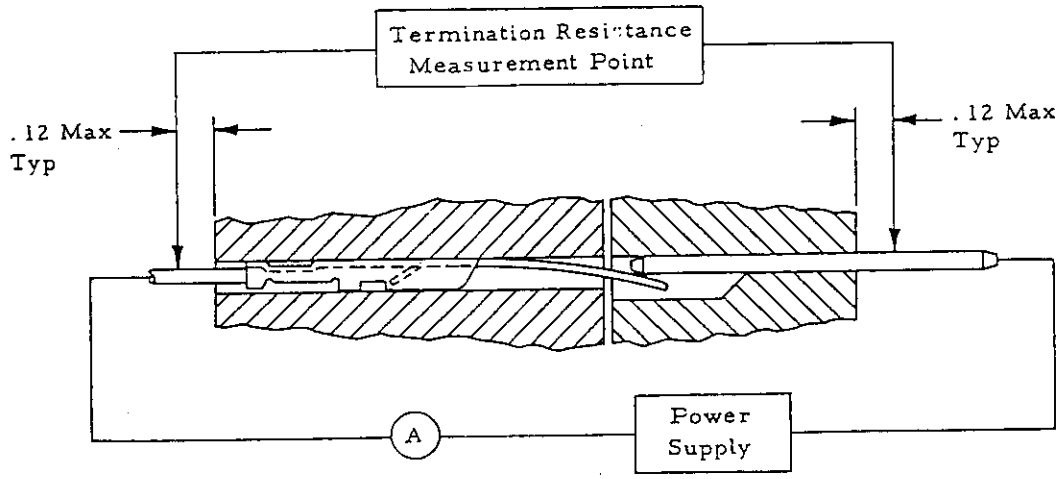

Figure 1
Typical Termination Resistance Measurement Points

3.3 Dielectric Withstanding Voltage

A test potential of 1000 vac was applied between the adjacent contacts. 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 volts dc. This voltage was applied for two minutes before the resistance was measured.

3.5 Vibration, Sine

Mated connectors were subjected to sinusoidal vibration, having 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 1 minutes. This cycle was performed 120 times in each of three mutually perpendicular planes, for a total vibration time of 6 hours.

3.6 Physical Shock

Mated connectors were subjected to a physical shock test, having a half-sine waveform of 50 gravity units (g peak) and a duration of 11 milliseconds. Three shocks in each direction were applied along the three mutually perpendicular planes, for a total of 18 shocks.

3.7 Contact Retention

An axial load of 5 pounds was applied to each contact and held for 5 seconds. The force was applied in a direction to cause removal of the contacts from the housing.

3.8 Durability

Connectors were mated and unmated 5000 times at a rate not exceeding 1000 per hour.

3.9 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 -55°C and 105°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 14 days to a mixed flowing gas Class II exposure. Class II exposure is defined as a temperature of 30°C and a relative humidity of 70%, with the pollutants of Cl_2 at 10 ppb, NO_2 at 200 ppb, and H_2S at 10 ppb.

3.12 Temperature Life

Mated samples were exposed to a temperature of 105°C for 1000 hours.

4. Validation

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