SEPTEMBER 11, 2009

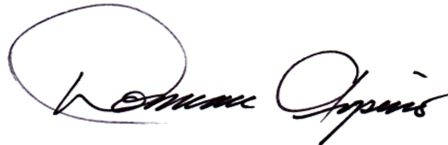
TEST REPORT #209238 REV. 1.2
& 209394B

QUALIFICATION TESTING

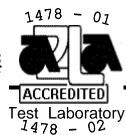
PART NUMBERS

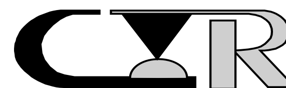
QRF8-052-05.0-L-D-A
QRM8-052-05.0-L-D-A

SAMTEC, INC.



APPROVED BY: DOMINIC ARPINO
PROGRAM MANAGER
CONTECH RESEARCH, INC.





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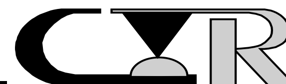
REVISION HISTORY

DATE	REV. NO.	DESCRIPTION	ENG.
6/4/2009	1.0	Initial Issue	DA
9/9/2009	1.1	Replaced 209238 sequence “B” data with sequence “B” data from 209394B.	DA
1/26/2018	1.2	Corrected typo in regards to the vibration “Power Spectral Density, from 0.01 G^2/Hz to 0.04 G^2/Hz.	DA



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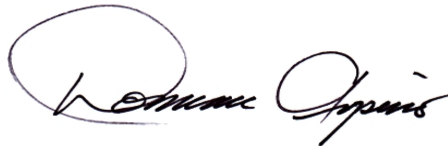
CERTIFICATION

This is to certify that the evaluation described herein was designed and executed by personnel of Contech Research, Inc. It was performed with the concurrence of Samtec, Inc. of New Albany, IN who was the test sponsor.

All equipment and measuring instruments used during testing were calibrated and traceable to NIST according to ISO 10012-1 and ANSI/NCSL Z540-1 and MIL-STD-45662 as applicable.

All data, raw and summarized, analysis and conclusions presented herein are the property of the test sponsor. No copy of this report, except in full, shall be forwarded to any agency, customer, etc., without the written approval of the test sponsor and Contech Research.



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PROGRAM MANAGER
CONTECH RESEARCH, INC.

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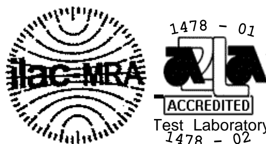

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SCOPE

To perform Qualification testing on QRF8/QRM8 connectors as manufactured and submitted by the test sponsor Samtec, Inc.

APPLICABLE DOCUMENTS

1. Unless otherwise specified, the following documents of issue in effect at the time of testing performed form a part of this report to the extent as specified herein. The requirements of sub-tier specifications and/or standards apply only when specifically referenced in this report.

2. Samtec test plan: 0915-2399 (QRX8)

3. Standards: EIA Publication 364

TEST SAMPLES AND PREPARATION

1. The following test samples were submitted by the test sponsor, Samtec, Inc., for the evaluation to be performed by Contech Research, Inc.

   Part Number

   a) QRF8-052-05.0-L-D-A
   b) QRM8-052-05.0-L-D-A

2. Test samples were supplied assembled and terminated to test boards by the test sponsor.

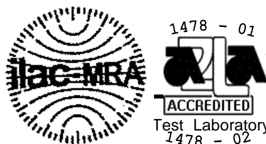
3. The test samples were tested mounted to printed circuit boards.

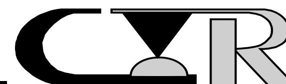
4 Test leads were attached to the appropriate measurement areas of the test samples and applicable mating elements.

5. The test samples were tested in their 'as received' condition.

6. Unless otherwise specified in the test procedures used, no further preparation was used.

7. The mated test samples were secured via a stabilizing medium to maintain mechanical stability during test.





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TEST SELECTION

1. See Test Plan Flow Diagram, Figure #1, for test sequences used.

2. Test set ups and/or procedures which are standard or common are not detailed or documented herein provided they are certified as being performed in accordance with the applicable (industry or military) test methods, standards and/or drawings as specified in the detail specification.

SAMPLE CODING

1. All samples were coded. Mated test samples remained with each other throughout the test group/sequences for which they were designated. Coding was performed in a manner which remained legible for the test duration.

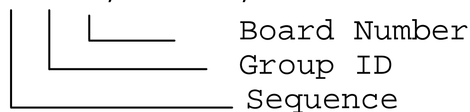
2. The test samples were coded in the following manner:

Group A: Group A - A-A-1, A-A-2
Group B1 - A-B1-B, A-B1-2
Group B2 - A-B2-1, A-B2-2
Group B3 - A-B3-1, A-B3-2

Group B: Group A - B-A-1, B-A-2, B-A-3, B-A-4
B-A-5, B-A-6, B-A-7, B-A-8, B-A-9,

Group C: Group A - C-A-1, C-A-2, C-A-3, C-A-4
C-A-5, C-A-6, C-A-7, C-A-8

Group D: Group A - D-A-1, D-A-2, D-A-3



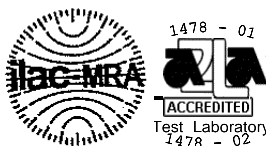


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FIGURE #1

TEST PLAN FLOW DIAGRAM

SAMPLE PREPARATION

SEQUENCE A

- IR → THERMAL SHOCK → IR → CYCLIC HUMDITY → IR (GROUP A)
- DWV (GROUP B1)
- THERMAL SHOCK → DWV (GROUP B2)
- CYCLIC HUMIDITY → DWV (GROUP B3)

SEQUENCE B

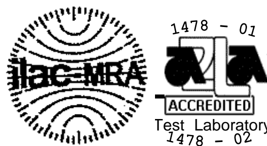
LLCR → DURABILITY → LLCR → THERMAL SHOCK → LLCR → CYCLIC HUMIDITY → LLCR (GROUP A)

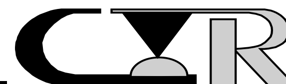
SEQUENCE C

LLCR → MECHANICAL SHOCK → LLCR → RANDOM VIBRATION → LLCR (GROUP A)

SEQUENCE D

MECHANICAL SHOCK → RANDOM VIBRATION (GROUP A)





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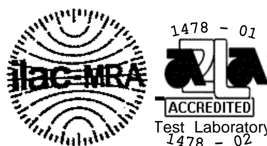
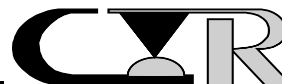
DATA SUMMARY

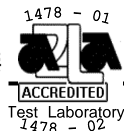
TEST	REQUIREMENTS	RESULTS
SEQUENCE A		
GROUP A		
INSULATION RESISTANCE	1000 MEGOHMS MIN.	>30,000 MEGOHMS
THERMAL SHOCK	NO DAMAGE	PASSED
INSULATION RESISTANCE	1000 MEGOHMS MIN.	>30,000 MEGOHMS
CYCLIC HUMIDITY	NO DAMAGE	PASSED
INSULATION RESISTANCE	1000 MEGOHMS MIN.	>30,000 MEGOHMS
GROUP B1		
DWV	NO BREAKDOWN, ETC.	PASSED
GROUP B2		
THERMAL SHOCK	NO DAMAGE	PASSED
DWV	NO BREAKDOWN, ETC.	PASSED
GROUP B3		
CYCLIC HUMIDITY	NO DAMAGE	PASSED
DWV	NO BREAKDOWN, ETC.	PASSED
SEQUENCE B		
GROUP A		
LLCR	RECORD	21.2 mΩ MAX.
DURABILITY	NO DAMAGE	PASSED
LLCR	+10.0 mΩ MAX.CHG.	+1.8 mΩ MAX.CHG.
THERMAL SHOCK	NO DAMAGE	PASSED
LLCR	+10.0 mΩ MAX.CHG.	+5.4 mΩ MAX.CHG.
CYCLIC HUMIDITY	NO DAMAGE	PASSED
LLCR	+10.0 mΩ MAX.CHG.	+8.0 mΩ MAX.CHG.

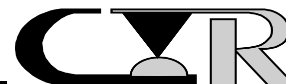




DATA SUMMARY -continued

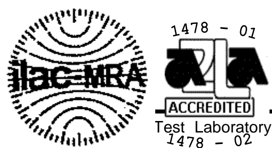
TEST	REQUIREMENTS	RESULTS
SEQUENCE C		
GROUP A		
LLCR	RECORD	29.7 mΩ MAX.
MECHANICAL SHOCK	NO DAMAGE	PASSED
LLCR	+10.0 mΩ MAX.CHG.	+2.3 mΩ MAX.CHG.
RANDOM VIBRATION	NO DAMAGE	PASSED
LLCR	+10.0 mΩ MAX.CHG.	+6.2 mΩ MAX.CHG.
SEQUENCE D		
GROUP A		
MECHANICAL SHOCK	NO DAMAGE	PASSED
	1.0 MICROSECOND	PASSED
	50 NANOSECOND	PASSED
RANDOM VIBRATION	NO DAMAGE	PASSED
	1.0 MICROSECOND	PASSED
	50 NANOSECOND	PASSED

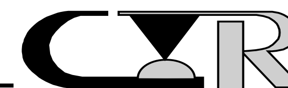




EQUIPMENT LIST

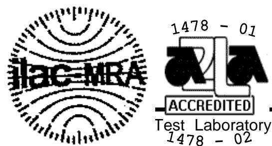
ID#	Next Cal	Last Cal	Equipment Name	Manufacturer	Model #	Serial #	Accuracy	Freq.Cal
27			Temp. Humid Chamber	Blue M Co.	FR-256PC-1	F2-249	See Cal Cert	Ea Test
34			Shock Machine	Avco	SM110-3	1047	See ID# 14 & 117	Ea Test
117	7/7/2009	7/7/2008	Digitizing Scope	Hewlett Packard	54200	2445A 00127	See Cal Cert	12mon.
150			Drill Press Stand	Craftsman	25921	N/A	N/A	N/A
207	12/9/2009	12/9/2008	Micro-Ohm Meter	Keithley Co.	580	438208	See Cal Cert	12mon
244	9/22/2009	9/22/2008	Micro-Ohm Meter	Keithley Instr.	580-1	467496	See Cal Cert	12mon
297	11/13/2009	11/13/2008	Micr-Ohm Meter	Keithley Instr.	580	485414	See Cal Cert	12mon
315			X-Y Table	NE Affiliated Tech.	XY-6060	N/A	N/A	N/A
323			Computer	Legatech	286-12	N/A	N/A	N/A
321	3/19/2010	3/19/2009	AC-DC Hipot/Megometer	Hipotronics Co.	H300B	DS16-201	See Cal Cert	12 mon.
466	8/12/2009	8/12/2008	Precision Resistor	Victoreen Co.	50,000 mego	N/A	± 1 %	12 mon.
553	3/13/2010	3/13/2009	12 channel Power Unit	PCB Co.	483A	1303	See Cal Cert	12mon
568	5/27/2010	5/27/2009	Temp Humid Chamber	Cincinnati Sub-Zero	ZH-8-1-1 H	2F9522194	See Cal Cert	12mon
570	12/31/2009	12/31/2008	PCB Power Supply	Piezotronics Co.	482A	5260	See Manual	12mon
614			Computer/Monitor	Hewlett Packard	6170'S	N/A	N/A	N/A
630	11/10/2009	11/10/2008	Digital Multimeter	Fluke Co.	75II	67320304	See Cal Cert	12mon
1010			Plotter	Hewlett Packard	7225B	2160A2293	N/A	N/A
1028	2/4/2010	2/4/2009	Event Detector	Analysis Tech	32 EHD	981019	See Cal.Cert.	12mon
1116			Computer	ARC. Co.	P111-450		N/A	N/A
1156	3/16/2010	3/16/2009	High Voltage Probe	Fluke	80k-6	885967	See Cal Cert	12mon
1166	7/17/2009	7/17/2008	Sine/Rndm Vib Control Digitizer	Hewlett Packard	E1432A	US39342279	See Cal Cert	12mon
1167			Interface	Hewlett Packard	E8491B	US390100753	N/A	N/A
1168			Mainframe	Hewlett Packard	E8408A	US39000357	N/A	N/A
1271			Amplifier	Unholtz Dickie	SA15	3483	N/A	N/A
1272			Shaker Table	Unholtz Dickie	S202PB	263	N/A	N/A
1276			Computer	ARC.Co.	Pent-450	N/A	N/A	N/A
1315	1/21/2010	1/21/2009	Data Aquisition Multimeter	Keithley Co.	2700	0862680	See CERT	12mon

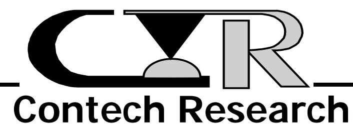




EQUIPMENT LIST-continued

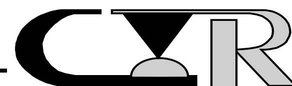
ID#	Next Cal	Last Cal	Equipment Name	Manufacturer	Model #	Serial #	Accuracy	Freq.Cal
1457	1/9/2010	1/9/2009	Precision Resistor	Victorine	5KMOHM	465	See Cal Cert	12mon
1521	4/20/2010	4/20/2009	Accelerometer	PCB	353B04	118492	See Cal Cert	12mon
1533			Computer	Systemax	Venture	105248475	N/A	N/A
1549	1/30/2010	1/30/2009	Multiplexer Card	Keithley	7708	171629	See Cert	12mon
1550	1/21/2010	1/21/2009	Multiplexer Card	Keithley	7708	171626	See Cert	12mon
1609	5/27/2010	5/27/2009	Vert Thermal Shock Chamber	C.S.Z.	VTS-1.0-2-2-H/AC	08-VT14810	See Manual	12mon
1620	2/11/2010	2/11/2009	Accelerometer	PCB	353B04	132590	See Cal Cert	12mon





TEST RESULTS

SEQUENCE A
GROUP A



PROJECT NO.: 209238 SPECIFICATION: QRX8 Test Plan

PART NO.: See page 4 PART DESCRIPTION: QRF8/QRM8 Conn.

SAMPLE SIZE: 2 Samples TECHNICIAN: AJP

START DATE: 5/4/09 COMPLETE DATE: 5/4/09

ROOM AMBIENT: 21°C RELATIVE HUMIDITY: 41%

EQUIPMENT ID#: 321, 466, 1457

INSULATION RESISTANCE(IR)

PURPOSE:

To determine the resistance of insulation materials to leakage of current through or on the surface of these materials when a DC potential is applied.

PROCEDURE:

1. The test was performed in accordance with EIA 364, Test Procedure 21.

2. Test Conditions:

   a) Between Adjacent Contacts : Yes
   b) Between Rows : Yes
   c) Mated Condition : Mated or Unmated
   d) Mounting Condition : Mounted or Unmounted
   e) Test Voltage : 500 DC

3. The test voltage was applied to specific test points on the test board.

REQUIREMENTS:

When the specified test voltage is applied, the insulation resistance shall not be less than 1,000 megohms.

RESULTS:

The insulation resistance exceeded 30,000 megohms.

PROJECT NO.: 209238 SPECIFICATION: QRX8 Test Plan

PART NO.: See page 4 PART DESCRIPTION: QRF8/QRM8 Conn.

SAMPLE SIZE: 2 Samples TECHNICIAN: AJP

START DATE: 5/7/09 COMPLETE DATE: 5/11/09

ROOM AMBIENT: 21°C RELATIVE HUMIDITY: 41%

EQUIPMENT ID#: 1315, 1549, 1550, 1609

THERMAL SHOCK

PURPOSE:

To determine the resistance of a given electrical connector to exposure at extremes of high and low temperatures and the shock of alternate exposures to these extremes, simulating the worst probable conditions of storage, transportation and application.

PROCEDURE:

1. The test environment was performed in accordance with EIA 364, Test Procedure 32, with the following conditions.

2. Test Conditions:

   a) Number of Cycles : 100 Cycles
   b) Hot Extreme : +85°C +3°C/-0°C
   c) Cold Extreme : -55°C +0°C/-3°C
   d) Time at Temperature : 30 Minutes
   e) Mating Conditions : Mated
   f) Mounting Conditions : Mounted
   g) Transfer Time : Within 1.0 minute

3. The total number of cycles was performed continuously.

4. All subsequent variable testing was performed in accordance with the procedures as previously indicated.

5. Prior to performing variable measurements, the test samples were allowed to recover to room ambient conditions.

REQUIREMENTS: See Next Page.

REQUIREMENTS:

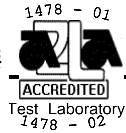
1. There shall be no evidence of physical damage to the test samples as tested.

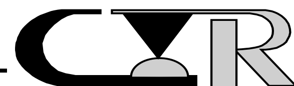
2. The insulation resistance shall not be less than 1,000 megohms.

RESULTS:

1. There was no evidence of physical damage to the test samples as tested.

2. The insulation resistance exceeded 30,000 megohms.





PROJECT NO.: 209238 SPECIFICATION: QRX8 Test Plan

PART NO.: See page 4 PART DESCRIPTION: QRF8/QRM8 Conn.

SAMPLE SIZE: 2 Samples TECHNICIAN: AJP

START DATE: 5/19/09 COMPLETE DATE: 5/27/09

ROOM AMBIENT: 21°C RELATIVE HUMIDITY: 36%

EQUIPMENT ID#: 568, 1315, 1549, 1550

HUMIDITY (THERMAL CYCLING)

PURPOSE:

The purpose of this test is to permit evaluation of the properties of materials used in connectors as they are influenced or deteriorated by the effects of high humidity and heat conditions. Measurements made under high humidity conditions may reflect the peculiar conditions under which the readings were made, and should be compared only to initial readings when careful analysis indicates that such a comparison is valid and applicable.

PROCEDURE:

1. The test environment was performed in accordance with EIA 364, Test Procedure 31, with the following conditions.

2. Test Conditions:

   a) Preconditioning (24 hours) : 50°C ± 5°C
   b) Relative Humidity : 90% to 95%
   c) Temperature Conditions : 25°C to 65°C
   d) Cold Cycle : No
   e) Polarizing Voltage : No
   f) Mating Conditions : Mated
   g) Mounting Conditions : Mounted
   h) Duration : 240 hours

3. Prior to performing variable measurements, the test samples were allowed to recover to room ambient conditions.

-continued on next page.

PROCEDURE:-continued

4. All subsequent variable testing was performed in accordance with the procedures previously indicated.

REQUIREMENTS:

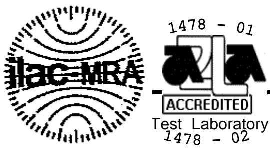
1. There shall be no evidence of physical deterioration of the test samples as tested.

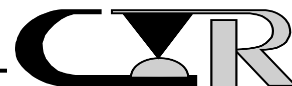
2. The final insulation resistance shall not be less than 1,000 megohms.

RESULTS:

1. The test samples as tested showed no evidence of physical deterioration.

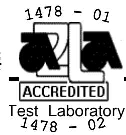
2. The final insulation resistance exceeded 30,000 megohms after air dry of 2 hours.

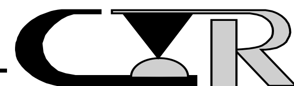




TEST RESULTS

SEQUENCE A
GROUP B1





PROJECT NO.: 209238	SPECIFICATION: QRX8 Test Plan
PART NO.: See page 4	PART DESCRIPTION: QRF8/QRM8 Conn.
SAMPLE SIZE: 2 Samples	TECHNICIAN: AJP
START DATE: 5/6/09	COMPLETE DATE: 5/6/09
ROOM AMBIENT: 21°C	RELATIVE HUMIDITY: 40%

EQUIPMENT ID#: 321, 466, 630, 1156, 1457

DIELECTRIC WITHSTANDING VOLTAGE (SEA LEVEL)

PURPOSE:

To determine if the mated connectors can operate at its rated voltage and withstand momentary overpotentials due to switching, surges and other similar phenomenon.

PROCEDURE:

1. The test was performed in accordance with EIA 364, Test Procedure 20.

   Test Conditions:

   a) Between Adjacent Contacts : Yes
   b) Between Rows : Yes
   c) Mated Condition : Mated or Unmated
   d) Mounting Condition : Mounted or Unmounted
   e) Hold Time : 60 seconds
   f) Rate of Application : 500 volts/sec.
   g) Test Voltage : 75% of Breakdown voltage
   h) Row to Row : 600 VAC (applied voltage)
   i) Contact to Contact : 500 VAC (applied voltage)

2. Per the customer’s request the Dielectric Withstanding Voltage (DWV) was determined by applying AC voltage to the specified test points until breakdown. Seventy-five percent (75%) of the breakdouwn voltage was used to perform all of the DWV testing. An extra sample was provided to determine the breakdown voltage.

3. The test voltage was applied to specific test points on the test board.

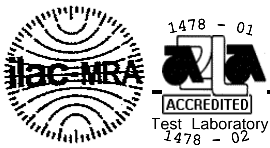
REQUIREMENTS: See Next Page.

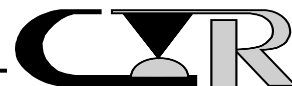
REQUIREMENTS:

When the specified test voltage is applied, there shall be no evidence of breakdown, arcing, etc.

RESULTS:

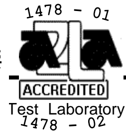
All test samples as tested met the requirements as specified.

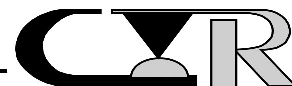




TEST RESULTS

SEQUENCE A
GROUP B2





PROJECT NO.: 209238 SPECIFICATION: QRX8 Test Plan

PART NO.: See page 4 PART DESCRIPTION: QRF8/QRM8 Conn.

SAMPLE SIZE: 2 Samples TECHNICIAN: AJP

START DATE: 5/7/09 COMPLETE DATE: 5/11/09

ROOM AMBIENT: 21°C RELATIVE HUMIDITY: 41%

EQUIPMENT ID#: 1315, 1549, 1550, 1609

THERMAL SHOCK

PURPOSE:

To determine the resistance of a given electrical connector to exposure at extremes of high and low temperatures and the shock of alternate exposures to these extremes, simulating the worst probable conditions of storage, transportation and application.

PROCEDURE:

1. The test environment was performed in accordance with EIA 364, Test Procedure 32, with the following conditions.

2. Test Conditions:

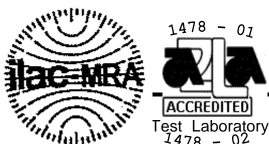
   a) Number of Cycles : 100 Cycles
   b) Hot Extreme : +85°C +3°C/-0°C
   c) Cold Extreme : -55°C +0°C/-3°C
   d) Time at Temperature : 30 Minutes
   e) Mating Conditions : Mated
   f) Mounting Conditions : Mounted
   g) Transfer Time : Within 1.0 minute

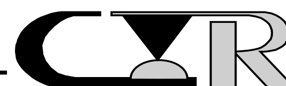
3. The total number of cycles was performed continuously.

4. All subsequent variable testing was performed in accordance with the procedures as previously indicated.

5. Prior to performing variable measurements, the test samples were allowed to recover to room ambient conditions.

REQUIREMENTS: See Next Page.





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REQUIREMENTS:

1. There shall be no evidence of physical damage to the test samples as tested.

2. When 500/600 AC test voltage is applied, there shall be no evidence of arcing, breakdown, etc.

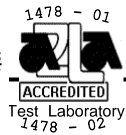
RESULTS:

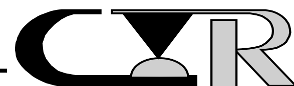
1. There was no evidence of physical damage to the test samples as tested.

2. There was no evidence of arcing, breakdown, etc., when a 500/600 AC test voltage was applied.

TEST RESULTS

SEQUENCE A
GROUP B3





PROJECT NO.: 209238	SPECIFICATION: QRX8 Test Plan
PART NO.: See page 4	PART DESCRIPTION: QRF8/QRM8 Conn.
SAMPLE SIZE: 2 Samples	TECHNICIAN: AJP
START DATE: 5/19/09	COMPLETE DATE: 5/27/09
ROOM AMBIENT: 21°C	RELATIVE HUMIDITY: 36%
EQUIPMENT ID#: 568, 1315, 1549, 1550	

HUMIDITY (THERMAL CYCLING)

PURPOSE:

The purpose of this test is to permit evaluation of the properties of materials used in connectors as they are influenced or deteriorated by the effects of high humidity and heat conditions. Measurements made under high humidity conditions may reflect the peculiar conditions under which the readings were made, and should be compared only to initial readings when careful analysis indicates that such a comparison is valid and applicable.

PROCEDURE:

1. The test environment was performed in accordance with EIA 364, Test Procedure 31, with the following conditions.

2. Test Conditions:

a) Preconditioning (24 hours)	:	50°C ± 5°C
b) Relative Humidity	:	90% to 95%
c) Temperature Conditions	:	25°C to 65°C
d) Cold Cycle	:	No
e) Polarizing Voltage	:	No
f) Mating Conditions	:	Mated
g) Mounting Conditions	:	Mounted
h) Duration	:	240 hours

3. Prior to performing variable measurements, the test samples were allowed to recover to room ambient conditions.

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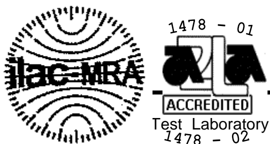
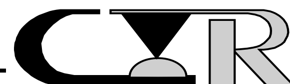




PROCEDURE:-continued

4. All subsequent variable testing was performed in accordance with the procedures previously indicated.

REQUIREMENTS:

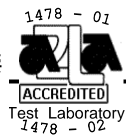
1. There shall be no evidence of physical deterioration of the test samples as tested.

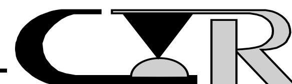
2. There shall be no evidence of arcing or breakdown when a 500/600 AC test voltage is applied.

RESULTS:

1. The test samples as tested showed no evidence of physical deterioration.

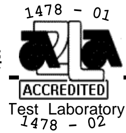
2. There was no evidence of breakdown, arcing, etc., when a 500/600 AC test voltage was applied.

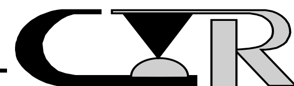




TEST RESULTS

SEQUENCE B
GROUP A





PROJECT NO.: 209394B SPECIFICATION: QRX8 Test Plan

PART NO.: See page 4 PART DESCRIPTION: QRF8/QRM8 Conn.

SAMPLE SIZE: 9 Samples TECHNICIAN: DAM

START DATE: 9/10/09 COMPLETE DATE: 9/10/09

ROOM AMBIENT: 22°C RELATIVE HUMIDITY: 46%

EQUIPMENT ID#: 297, 323

LOW LEVEL CIRCUIT RESISTANCE (LLCR)

PURPOSE:

1. To evaluate contact resistance characteristics of the contact systems under conditions were applied voltages and currents do not alter the physical contact interface and will detect oxides and films which degrade electrical stability. It is also sensitive to and may detect the presence of fretting corrosion induced by mechanical or thermal environments as well as any significant loss of contact pressure.

2. This attribute was monitored after each preconditioning and/or test exposure in order to determine said stability of the contact systems as they progress through the applicable test sequences.

3. The electrical stability of the system is determined by comparing the initial resistance value to that observed after a given test exposure. The difference is the change in resistance occurring whose magnitude establishes the stability of the interface being evaluated.

PROCEDURE:

1. The test was performed in accordance with EIA 364, Test Procedure 23 with the following conditions.

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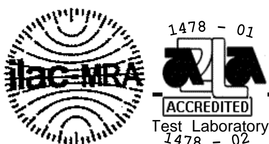
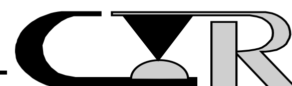




PROCEDURE:-continued

2. Test Conditions:

a) Test Current : 10 milliamps maximum
b) Open Circuit Voltage : 20 millivolts
c) No. of Positions Tested : 25 per test sample

REQUIREMENTS:

Low level circuit resistance shall be measured and recorded.

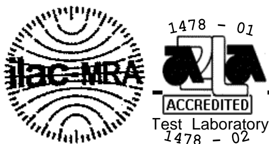
RESULTS:

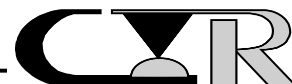
1. The following is a summary of the data observed:

LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg.	Max.	Min.
B-A-1	15.9	18.5	2.4
B-A-2	16.4	20.5	2.3
B-A-3	16.9	19.1	3.1
B-A-4	17.0	21.0	2.7
B-A-5	16.6	19.3	2.5
B-A-6	16.2	18.9	2.6
B-A-7	16.8	21.2	2.5
B-A-8	16.4	20.4	2.6
B-A-9	16.7	19.6	3.0

2. See data files 209394B01 through 209394B09 for individual data points.





PROJECT NO.: 209238B | SPECIFICATION: QRX8 Test Plan

PART NO.: See page 4 | PART DESCRIPTION: QRF8/QRM8 Conn.

SAMPLE SIZE: 9 Samples | TECHNICIAN: DAM

START DATE: 8/11/09 | COMPLETE DATE: 8/11/09

ROOM AMBIENT: 22°C | RELATIVE HUMIDITY: 50%

EQUIPMENT ID#: 150, 315

DURABILITY

PURPOSE:

1. This is a conditioning sequence which is used to induce the type of wear on the contacting surfaces which may occur under normal service conditions. The connectors are mated and unmated a predetermined number of cycles. Upon completion, the units being evaluated are exposed to the environments as specified to assess any impact on electrical stability resulting from wear or other wear dependent phenomenon.

2. This type of conditioning sequence is also used to mechanically stress the connector system as would normally occur in actual service. This sequence in conjunction with other tests is used to determine if a significant loss of contact pressure occurs from said stresses which in turn, may result in an unstable electrical condition to exist.

PROCEDURE:

1. The test was performed in accordance with EIA 364, Test Procedure 09.

2. Test Conditions:

   a) No. of Cycles : 100
   b) Rate : 1.0 inch per minute

3. The plug side was assembled to special holding devices, the receptacle side was attached to an X-Y table. Speed is approximate.

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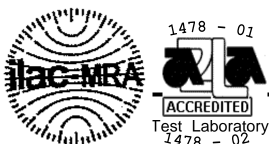
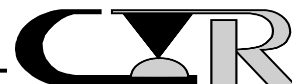




PROCEDURE:-continued

4. The test samples were axially aligned to accomplish the mating and unmating function allowing for self-centering movement.

5. Care was taken to prevent the mating faces of the test samples from contacting each other.

6. All subsequent variable testing was performed in accordance with the procedures previously indicated.

REQUIREMENTS:

1. There shall be no evidence of physical damage to the test samples so tested.

2. The change in low level circuit resistance shall not exceed +10.0 milliohms.

RESULTS:

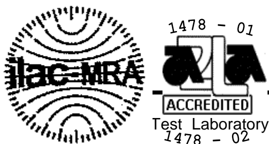
1. There was no evidence of physical damage to the test samples as tested.

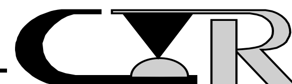
2. The following is a summary of the data observed:

CHANGE IN
LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg. Change	Max. Change
B-A-1	+0.5	+1.8
B-A-2	+0.1	+1.7
B-A-3	-0.1	+1.3
B-A-4	-0.2	+1.3
B-A-5	-0.2	+1.0
B-A-6	-0.2	+1.1
B-A-7	-0.7	+0.4
B-A-8	-0.1	+1.3
B-A-9	-0.3	+1.6

3. See data files 209394B01 through 209394B09 for individual data points.





PROJECT NO.: 209238B SPECIFICATION: QRX8 Test Plan

PART NO.: See page 4 PART DESCRIPTION: QRF8/QRM8 Conn.

SAMPLE SIZE: 9 Samples TECHNICIAN: DAM

START DATE: 8/12/09 COMPLETE DATE: 8/16/09

ROOM AMBIENT: 21°C RELATIVE HUMIDITY: 49%

EQUIPMENT ID#: 1315, 1549, 1550, 1609

THERMAL SHOCK

PURPOSE:

To determine the resistance of a given electrical connector to exposure at extremes of high and low temperatures and the shock of alternate exposures to these extremes, simulating the worst probable conditions of storage, transportation and application.

PROCEDURE:

1. The test environment was performed in accordance with EIA 364, Test Procedure 32, with the following conditions.

2. Test Conditions:

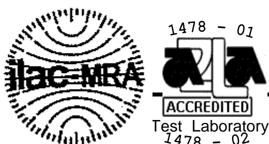
   a) Number of Cycles : 100 Cycles
   b) Hot Extreme : +85°C +3°C/-0°C
   c) Cold Extreme : -55°C +0°C/-3°C
   d) Time at Temperature : 30 Minutes
   e) Mating Conditions : Mated
   f) Mounting Conditions : Mounted
   h) Transfer Time : Within 1.0 minute

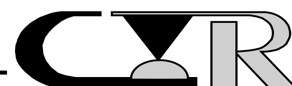
3. The total number of cycles was performed continuously.

4. All subsequent variable testing was performed in accordance with the procedures as previously indicated.

5. Prior to performing variable measurements, the test samples were allowed to recover to room ambient conditions.

REQUIREMENTS: See Next Page.





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REQUIREMENTS:

1. There shall be no evidence of physical damage to the test samples as tested.

2. The change in low level circuit resistance shall not exceed +10.0 milliohms.

RESULTS:

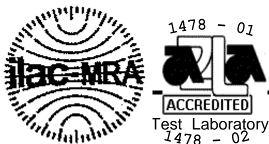
1. There was no evidence of physical damage to the test samples as tested.

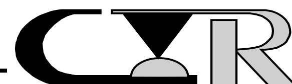
2. The following is a summary of the observed data:

CHANGE IN
LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg. Change	Max. Change
B-A-1	+1.0	+3.3
B-A-2	+1.3	+4.0
B-A-3	+0.3	+3.2
B-A-4	+1.2	+5.4
B-A-5	+0.2	+2.8
B-A-6	+1.0	+3.8
B-A-7	+0.4	+4.8
B-A-8	+0.7	+2.2
B-A-9	+0.1	+1.7

3. See data files 209394B01 through 209394B09 for individual data points.





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PROJECT NO.: 209238B | SPECIFICATION: QRX8 Test Plan

PART NO.: See page 4 | PART DESCRIPTION: QRF8/QRM8 Conn.

SAMPLE SIZE: 9 Samples | TECHNICIAN: DAM

START DATE: 8/17/09 | COMPLETE DATE: 8/28/09

ROOM AMBIENT: 22°C | RELATIVE HUMIDITY: 48%

EQUIPMENT ID#: 27, 614, 1315, 1549, 1550

HUMIDITY (THERMAL CYCLING)

PURPOSE:

To evaluate the impact on electrical stability of the contact system when exposed to any environment which may generate thermal/moisture type failure mechanisms such as:

a) Fretting corrosion due to wear resulting from micromotion, induced by thermal cycling. Humidity accelerates the oxidation process.

b) Oxidation of wear debris or from particulates from the surrounding atmosphere which may have become entrapped between the contacting surfaces.

c) Failure mechanisms resulting from a wet oxidation process.

PROCEDURE:

1. The test environment was performed in accordance with EIA 364, Test Procedure 31, with the following conditions.

2. Test Conditions:

a) Preconditioning (24 hours)	:	50°C ± 5°C
b) Relative Humidity	:	90% to 95%
c) Temperature Conditions	:	25°C to 65°C
d) Cold Cycle	:	No
e) Polarizing Voltage	:	No
f) Mating Conditions	:	Mated
g) Mounting Conditions	:	Mounted
h) Duration	:	240 hours

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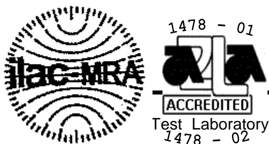
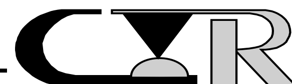




PROCEDURE:-continued

3. Prior to performing variable measurements, the test samples were allowed to recover to room ambient conditions.

4. All subsequent variable testing was performed in accordance with the procedures previously indicated.

REQUIREMENTS:

1. There shall be no evidence of physical deterioration of the test samples as tested.

2. The change in low level circuit resistance shall not exceed +10.0 milliohms.

RESULTS:

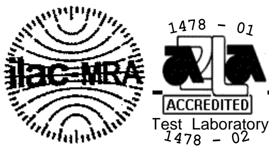
1. The test samples as tested showed no evidence of physical deterioration.

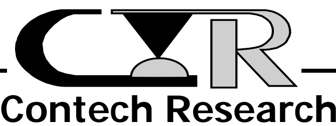
2. The following is a summary of the data observed:

CHANGE IN
LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg. Change	Max. Change
B-A-1	+1.6	+7.8
B-A-2	+1.7	+8.0
B-A-3	+0.4	+7.6
B-A-4	+1.6	+5.3
B-A-5	+0.4	+3.0
B-A-6	+0.9	+4.2
B-A-7	+1.5	+5.7
B-A-8	+1.3	+7.3
B-A-9	+1.5	+7.8

3. See data files 209394B01 through 209394B09 for individual data points.



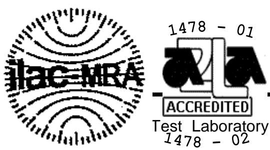


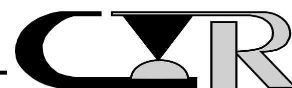
SEQUENCE B

LLCR DATA FILES

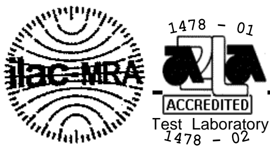
FILE NUMBERS

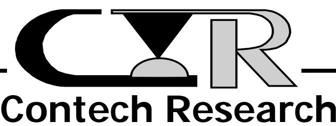
209394B01
209394B02
209394B03
209394B04
209394B05
209394B06
209394B07
209394B08
209394B09



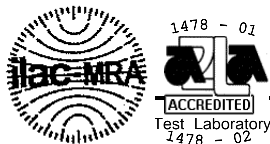


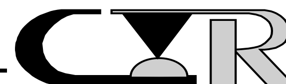
Low Level Circuit Resistance - Delta Values						
Project: 209394B					Spec: EIA 364 TP 23	
Customer: Samtec					Subgroup: Seq B	
Product: Series QRX8 Connector					File No: 209394B01	
Description: ID# B-A-1					Tech: DAM	
Open circuit voltage: 20mv					Current:	10ma
Units: milliohms						
Temp ºC	22	22	22	21		
R.H. %	46	50	48	46		
Date:	10Aug09	11Aug09	17Aug09	28Aug09		
Pos. ID	Initial	100X	T.Shock	Humidity		
1	17.9	1.4	-0.2	1.8		
2	18.0	-0.5	0.1	2.0		
3	17.4	-0.9	0.2	2.9		
4	18.5	0.4	1.3	1.3		
5	17.3	-1.0	-0.5	-0.8		
6	15.9	0.5	0.4	0.9		
7	16.0	0.8	0.6	1.0		
8	16.2	1.8	1.1	1.8		
9	17.0	1.4	1.4	1.5		
10	16.7	1.4	1.7	7.8		
11	16.8	1.5	1.9	2.4		
12	17.4	1.6	2.5	3.9		
13	16.4	1.6	3.3	3.2		
14	17.8	0.9	0.8	1.8		
15	17.2	1.0	1.9	3.1		
16	18.0	-0.7	0.7	-0.7		
17	16.3	0.9	1.8	1.1		
18	16.1	0.2	1.0	-0.1		
19	16.7	-0.2	1.0	0.0		
20	18.3	1.4	2.6	2.3		
21	16.9	0.9	1.6	0.7		
22	16.9	-0.3	0.8	1.6		
23	17.4	-1.0	-0.7	-0.4		
MAX	18.5	1.8	3.3	7.8		
MIN	15.9	-1.0	-0.7	-0.8		
AVG	17.1	0.6	1.1	1.7		
STD	0.8	0.9	1.0	1.8		
Open	0	0	0	0		
Tech	DAM	DAM	DAM	DAM		
Equip ID	323	323	323	323		
	297	297	297	297		





Low Level Circuit Resistance - Delta Values						
Project: 209394B					Spec: EIA 364 TP 23	
Customer: Samtec					Subgroup: Seq B	
Product: Series QRX8 Connector					File No: 209394B02	
Description: ID# B-A-2					Tech: DAM	
Open circuit voltage: 20mv					Current:	10ma
Units: milliohms						
Temp ºC	22	22	22	21		
R.H. %	46	50	48	46		
Date:	10Aug09	11Aug09	17Aug09	28Aug09		
Pos. ID	Initial	100X	T.Shock	Humidity		
1	17.6	1.7	4.0	6.9		
2	18.2	-0.1	1.5	2.8		
3	18.1	0.6	0.1	8.0		
4	19.0	-1.6	-0.5	3.0		
5	16.8	-0.1	0.4	0.6		
6	16.7	0.1	1.0	1.0		
7	17.1	-0.6	1.9	1.1		
8	18.5	-0.4	0.9	2.1		
9	18.7	1.1	1.9	1.6		
10	20.5	-1.0	2.7	-0.5		
11	18.5	0.3	1.6	0.9		
12	18.0	0.7	2.6	1.8		
13	17.2	0.4	0.8	1.1		
14	18.9	0.5	0.6	1.4		
15	17.3	0.2	0.8	1.2		
16	17.0	0.7	1.4	1.3		
17	16.1	0.0	2.6	1.4		
18	15.7	0.1	0.9	0.6		
19	16.2	0.1	2.2	2.1		
20	17.4	0.0	1.8	0.4		
21	16.6	0.5	1.4	0.9		
22	17.4	0.5	2.4	2.2		
23	17.2	-0.8	0.0	-0.4		
MAX	20.5	1.7	4.0	8.0		
MIN	15.7	-1.6	-0.5	-0.5		
AVG	17.6	0.1	1.4	1.8		
STD	1.1	0.7	1.0	2.0		
Open	0	0	0	0		
Tech	DAM	DAM	DAM	DAM		
Equip ID	323	323	323	323		
	297	297	297	297		





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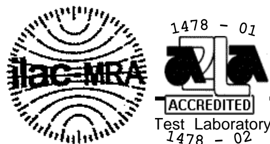
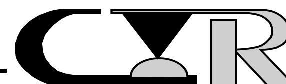
Low Level Circuit Resistance - Delta Values						
Project: 209394B					Spec: EIA 364 TP 23	
Customer: Samtec					Subgroup: Seq B	
Product: Series QRX8 Connector					File No: 209394B03	
Description: ID# B-A-3					Tech: DAM	
Open circuit voltage:		20mv			Current:	10ma
Units: milliohms						
Temp ºC	22	22	22	21		
R.H. %	46	50	48	46		
Date:	10Aug09	11Aug09	17Aug09	28Aug09		
Pos. ID	Initial	100X	T.Shock	Humidity		
1	18.6	-1.0	1.8	-0.6		
2	18.1	-0.5	1.4	-0.1		
3	17.3	-0.2	2.9	0.4		
4	17.7	0.9	1.3	1.1		
5	17.1	0.4	0.6	0.4		
6	17.7	-0.8	-0.7	-1.2		
7	17.1	0.4	0.5	1.1		
8	17.5	1.2	3.2	1.1		
9	18.9	-0.7	-0.2	-0.7		
10	18.4	0.8	0.3	-0.6		
11	18.8	-0.4	0.4	-0.1		
12	19.1	-0.3	0.8	-0.5		
13	19.0	1.3	0.4	-0.1		
14	18.7	-0.2	-0.9	-1.2		
15	18.6	-0.8	-1.3	-1.3		
16	18.2	-0.1	-0.4	-0.2		
17	17.8	0.2	-0.9	-0.8		
18	16.9	0.4	0.0	0.2		
19	17.3	-0.2	-0.5	-0.4		
20	17.9	-0.3	-0.4	7.6		
21	18.8	-0.9	-0.6	2.6		
22	18.5	-1.1	-0.8	3.7		
23	17.8	-0.1	-0.2	-0.6		
MAX	19.1	1.3	3.2	7.6		
MIN	16.9	-1.1	-1.3	-1.3		
AVG	18.1	-0.1	0.3	0.4		
STD	0.7	0.7	1.2	2.0		
Open	0	0	0	0		
Tech	DAM	DAM	DAM	DAM		
Equip ID	323	323	323	323		
	297	297	297	297		

Low Level Circuit Resistance - Delta Values						
Project: 209394B					Spec: EIA 364 TP 23	
Customer: Samtec					Subgroup: Seq B	
Product: Series QRX8 Connector					File No: 209394B04	
Description: ID# B-A-4					Tech: DAM	
Open circuit voltage:		20mv			Current:	10ma
Units: milliohms						
Temp ºC	22	22	22	21		
R.H. %	46	50	48	46		
Date:	10Aug09	11Aug09	17Aug09	28Aug09		
Pos. ID	Initial	100X	T.Shock	Humidity		
1	18.3	0.2	5.4	5.3		
2	18.4	0.3	1.6	2.3		
3	17.5	0.3	2.3	1.9		
4	17.8	0.4	2.9	3.3		
5	17.3	-0.9	-0.1	0.1		
6	17.4	-0.6	0.9	0.6		
7	17.4	0.3	0.5	-0.1		
8	17.7	0.3	1.0	0.4		
9	18.5	-0.2	0.1	-0.4		
10	18.5	0.0	-0.5	0.1		
11	18.9	1.3	1.6	2.5		
12	19.1	0.5	1.8	2.2		
13	18.3	0.3	2.0	5.3		
14	21.0	-0.7	1.3	0.9		
15	18.5	0.3	0.6	1.9		
16	17.9	-0.3	0.2	2.1		
17	16.6	0.0	0.1	2.1		
18	17.6	-0.2	0.3	-0.4		
19	18.1	0.1	1.2	0.8		
20	19.0	-1.2	4.1	4.4		
21	17.7	-0.2	1.3	4.2		
22	19.7	-0.7	1.9	1.3		
23	17.6	-1.1	0.5	0.3		
MAX	21.0	1.3	5.4	5.3		
MIN	16.6	-1.2	-0.5	-0.4		
AVG	18.2	-0.1	1.3	1.8		
STD	0.9	0.6	1.4	1.7		
Open	0	0	0	0		
Tech	DAM	DAM	DAM	DAM		
Equip ID	323	323	323	323		
	297	297	297	297		





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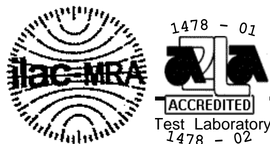
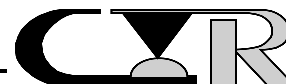
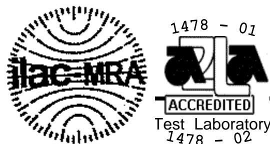
Low Level Circuit Resistance - Delta Values						
Project: 209394B					Spec: EIA 364 TP 23	
Customer: Samtec					Subgroup: Seq B	
Product: Series QRX8 Connector					File No: 209394B05	
Description: ID# B-A-5					Tech: DAM	
Open circuit voltage:		20mv			Current:	10ma
Units: milliohms						
Temp ºC	22	22	22	21		
R.H. %	46	50	48	46		
Date:	10Aug09	11Aug09	17Aug09	28Aug09		
Pos. ID	Initial	100X	T.Shock	Humidity		
1	19.2	-0.3	-1.2	-0.4		
2	19.3	0.4	-1.2	0.0		
3	16.4	0.5	0.9	1.3		
4	16.6	1.0	2.5	3.0		
5	18.2	-0.4	-1.8	-1.9		
6	16.2	0.7	0.3	0.2		
7	17.0	-0.1	0.5	0.9		
8	18.3	-0.4	2.8	2.6		
9	18.3	-1.1	-0.3	-0.5		
10	17.8	0.3	1.9	1.8		
11	17.0	-0.3	0.9	1.1		
12	18.3	0.3	0.9	0.9		
13	18.6	-0.7	-0.4	0.1		
14	18.5	-0.4	0.3	0.1		
15	17.2	0.6	0.3	0.1		
16	18.6	-2.0	-1.4	-0.1		
17	17.8	-1.5	-1.1	0.0		
18	16.8	-0.3	-0.6	1.5		
19	17.3	-0.2	0.6	0.0		
20	18.1	-0.8	0.5	0.2		
21	18.1	-0.8	0.3	-0.5		
22	16.8	0.6	0.6	1.6		
23	18.5	-0.1	-0.9	-0.6		
MAX	19.3	1.0	2.8	3.0		
MIN	16.2	-2.0	-1.8	-1.9		
AVG	17.8	-0.2	0.2	0.5		
STD	0.9	0.7	1.2	1.1		
Open	0	0	0	0		
Tech	DAM	DAM	DAM	DAM		
Equip ID	323	323	323	323		
	297	297	297	297		

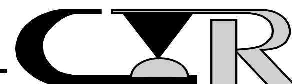
Low Level Circuit Resistance - Delta Values						
Project: 209394BB					Spec: EIA 364 TP 23	
Customer: Samtec					Subgroup: Seq B	
Product: Series QRX8 Connector					File No: 209394B06	
Description: ID# B-A-6					Tech: DAM	
Open circuit voltage:		20mv			Current:	10ma
Units: milliohms						
Temp ºC	22	22	22	21		
R.H. %	46	50	48	46		
Date:	10Aug09	11Aug09	17Aug09	28Aug09		
Pos. ID	Initial	100X	T.Shock	Humidity		
1	17.1	-0.4	1.0	0.5		
2	17.9	-0.3	2.8	3.9		
3	17.6	-0.6	1.9	-0.3		
4	17.9	0.4	2.2	1.1		
5	16.3	-0.3	0.4	4.2		
6	16.3	-0.2	1.0	1.2		
7	16.6	-0.5	0.3	0.5		
8	18.9	-1.1	0.3	0.3		
9	17.0	0.1	0.3	1.5		
10	18.8	0.3	2.6	2.8		
11	18.7	-0.2	1.0	0.9		
12	17.5	-0.3	2.4	3.2		
13	17.4	0.1	1.1	2.5		
14	18.4	-1.3	0.5	-0.7		
15	18.5	-1.2	0.2	-1.0		
16	17.4	-0.6	-0.2	-0.5		
17	16.5	-0.4	-0.5	-0.8		
18	16.1	1.1	1.0	0.2		
19	16.4	0.3	0.8	0.0		
20	17.9	1.1	3.8	3.7		
21	17.1	-0.3	1.6	0.3		
22	16.9	-0.2	0.3	-0.2		
23	16.8	-0.6	-0.4	-0.4		
MAX	18.9	1.1	3.8	4.2		
MIN	16.1	-1.3	-0.5	-1.0		
AVG	17.4	-0.2	1.1	1.0		
STD	0.9	0.6	1.1	1.6		
Open	0	0	0	0		
Tech	DAM	DAM	DAM	DAM		
Equip ID	323	323	323	323		
	297	297	297	297		



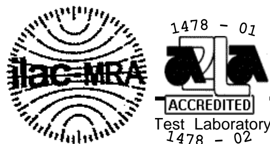


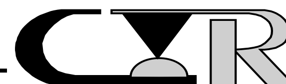
Low Level Circuit Resistance - Delta Values						
Project: 209394B					Spec: EIA 364 TP 23	
Customer: Samtec					Subgroup: Seq B	
Product: Series QRX8 Connector					File No: 209394B07	
Description: ID# B-A-7					Tech: DAM	
Open circuit voltage:		20mv			Current:	10ma
Units: milliohms						
Temp ºC	22	22	22	21		
R.H. %	46	50	48	46		
Date:	10Aug09	11Aug09	17Aug09	28Aug09		
Pos. ID	Initial	100X	T.Shock	Hum		
1	19.0	-1.4	-1.1	4.3		
2	17.1	0.4	0.6	1.7		
3	17.6	-0.4	2.6	4.8		
4	17.1	-0.9	0.0	2.8		
5	16.7	-0.8	0.1	2.1		
6	17.0	-0.4	-0.4	0.5		
7	17.1	-1.0	0.3	0.5		
8	18.0	-1.2	-0.3	-0.2		
9	18.2	-1.0	-0.1	0.0		
10	21.2	-0.9	0.6	0.4		
11	18.1	0.0	0.2	0.8		
12	19.1	-0.3	2.1	0.2		
13	17.5	-0.2	4.8	5.7		
14	20.8	-1.7	-0.9	0.1		
15	19.0	-1.4	0.6	0.4		
16	19.0	-0.6	0.3	1.1		
17	17.0	-0.6	-0.7	0.6		
18	16.5	-0.6	-0.1	3.7		
19	18.0	-0.7	-0.6	0.5		
20	18.1	-1.1	-0.2	0.5		
21	17.5	-0.8	1.0	4.8		
22	17.4	-0.1	1.6	0.8		
23	16.9	-0.2	0.1	0.3		
MAX	21.2	0.4	4.8	5.7		
MIN	16.5	-1.7	-1.1	-0.2		
AVG	18.0	-0.7	0.5	1.6		
STD	1.2	0.5	1.3	1.8		
Open	0	0	0	0		
Tech	DAM	DAM	DAM	DAM		
Equip ID	323	323	323	323		
	297	297	297	297		



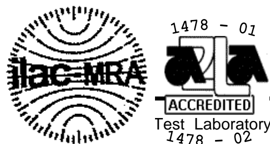


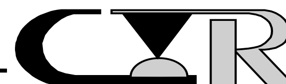
Low Level Circuit Resistance - Delta Values						
Project: 209394B					Spec: EIA 364 TP 23	
Customer: Samtec					Subgroup: Seq B	
Product: Series QRX8 Connector					File No: 209394B08	
Description: ID# B-A-8					Tech: DAM	
Open circuit voltage:		20mv			Current:	10ma
Units: milliohms						
Temp ºC	22	22	22	21		
R.H. %	46	50	48	46		
Date:	10Aug09	11Aug09	17Aug09	28Aug09		
Pos. ID	Initial	100X	T.Shock	Humidity		
1	17.7	-0.6	0.1	0.4		
2	16.9	0.1	1.4	1.2		
3	16.9	1.3	1.2	1.6		
4	17.7	-0.2	1.2	1.7		
5	16.8	-0.5	-0.2	-0.6		
6	16.4	-0.2	0.6	0.1		
7	16.7	0.5	0.4	7.3		
8	18.3	0.1	1.4	2.1		
9	17.7	-0.4	1.0	0.3		
10	20.4	0.1	1.2	0.6		
11	18.6	-0.3	0.9	1.2		
12	17.6	-0.1	0.8	4.2		
13	18.1	0.1	1.5	2.1		
14	17.4	0.2	1.1	1.2		
15	18.2	-0.1	-0.1	1.4		
16	18.2	-0.7	0.4	1.7		
17	16.8	0.2	0.2	0.3		
18	16.6	-0.1	0.9	0.6		
19	16.8	-0.2	0.6	1.2		
20	18.9	-0.9	-0.3	-1.1		
21	18.2	-0.9	2.2	1.6		
22	18.7	0.0	2.2	1.0		
23	16.7	0.5	0.0	1.3		
MAX	20.4	1.3	2.2	7.3		
MIN	16.4	-0.9	-0.3	-1.1		
AVG	17.6	-0.1	0.8	1.4		
STD	1.0	0.5	0.7	1.7		
Open	0	0	0	0		
Tech	DAM	DAM	DAM	DAM		
Equip ID	323	323	323	323		
	297	297	297	297		





Low Level Circuit Resistance - Delta Values						
Project: 209394B					Spec: EIA 364 TP 23	
Customer: Samtec					Subgroup: Seq B	
Product: Series QRX8 Connector					File No: 209394B09	
Description: ID# B-A-9					Tech: DAM	
Open circuit voltage:		20mv			Current:	10ma
Units: milliohms						
Temp ºC	22	22	22	21		
R.H. %	46	50	48	46		
Date:	10Aug09	11Aug09	17Aug09	28Aug09		
Pos. ID	Initial	100X	T.Shock	Humidity		
1	19.6	-1.1	0.4	1.4		
2	17.9	-0.6	0.2	4.7		
3	17.7	0.0	0.7	7.8		
4	18.3	-0.2	0.9	0.6		
5	17.9	-0.6	-0.5	-0.4		
6	17.4	-0.3	-0.8	4.8		
7	17.8	-0.1	0.3	0.0		
8	18.2	-0.8	0.1	0.0		
9	17.6	-0.5	0.9	4.5		
10	18.3	1.6	0.6	0.8		
11	18.7	-0.4	-0.3	3.8		
12	18.8	0.2	-0.6	-0.5		
13	18.0	-0.2	1.7	1.5		
14	17.6	0.5	1.1	0.9		
15	17.6	-0.8	0.5	0.6		
16	17.5	-0.3	-0.6	0.1		
17	16.4	-0.1	0.2	0.1		
18	16.8	-0.5	-0.7	-0.4		
19	17.5	-1.1	-0.1	2.4		
20	17.7	-0.6	-0.3	-0.2		
21	17.9	-0.2	0.9	0.6		
22	19.0	-1.3	-0.8	3.8		
23	17.2	-0.2	-0.6	-0.5		
MAX	19.6	1.6	1.7	7.8		
MIN	16.4	-1.3	-0.8	-0.5		
AVG	17.9	-0.3	0.1	1.6		
STD	0.7	0.6	0.7	2.2		
Open	0	0	0	0		
Tech	DAM	DAM	DAM	DAM		
Equip ID	323	323	323	323		
	297	297	297	297		





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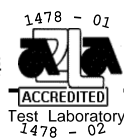
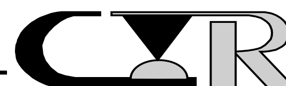
TEST RESULTS

SEQUENCE C
GROUP A





PROJECT NO.: 209238	SPECIFICATION: QRX8 Test Plan
PART NO.: See page 4	PART DESCRIPTION: QRF8/QRM8 Conn.
SAMPLE SIZE: 10 Samples	TECHNICIAN: AJP, MHB
START DATE: 5/4/09	COMPLETE DATE: 5/4/09
ROOM AMBIENT: 21°C	RELATIVE HUMIDITY: 40%
EQUIPMENT ID#: 207, 244, 1116, 1276	

LOW LEVEL CIRCUIT RESISTANCE (LLCR)

PURPOSE:

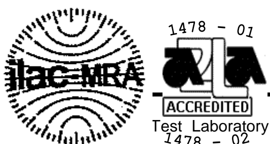
1. To evaluate contact resistance characteristics of the contact systems under conditions were applied voltages and currents do not alter the physical contact interface and will detect oxides and films which degrade electrical stability. It is also sensitive to and may detect the presence of fretting corrosion induced by mechanical or thermal environments as well as any significant loss of contact pressure.
2. This attribute was monitored after each preconditioning and/or test exposure in order to determine said stability of the contact systems as they progress through the applicable test sequences.
3. The electrical stability of the system is determined by comparing the initial resistance value to that observed after a given test exposure. The difference is the change in resistance occurring whose magnitude establishes the stability of the interface being evaluated.

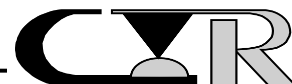
PROCEDURE:

1. The test was performed in accordance with EIA 364, Test Procedure 23 with the following conditions.
2. Test Conditions:

   a) Test Current : 10 milliamps maximum
   b) Open Circuit Voltage : 20 minutes
   c) No. of Positions Tested : 25 per test sample

-continued on next page.





PROCEDURE: -continued

3. The points of application are shown in Figure #3.

REQUIREMENTS:

Low level circuit resistance shall be measured and recorded.

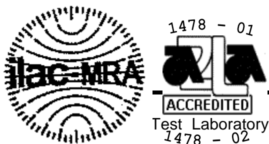
RESULTS:

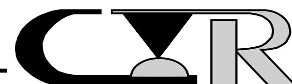
1. The following is a summary of the data observed:

LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg.	Max.	Min.
C-A-1	17.2	20.7	2.8
C-A-2	16.5	20.4	2.4
C-A-3	16.8	20.1	2.8
C-A-6	17.2	25.3	2.9
C-A-7	17.2	21.9	2.7
C-A-8	17.1	21.5	2.6
C-A-9	16.7	21.4	2.6
C-A-10	17.6	24.3	2.8
C-A-11	22.4	29.7	2.4
C-A-12	18.0	19.7	2.5

2. See data files 20923811 through 20923813, 20923816 through 20923821 and 20923823 for individual data points.





PROJECT NO.: 209238 SPECIFICATION: QRX8 Test Plan

PART NO.: See page 4 PART DESCRIPTION: QRF8/QRM8 Conn.

SAMPLE SIZE: 10 Samples TECHNICIAN: AJP

START DATE: 5/8/09 COMPLETE DATE: 5/8/09

ROOM AMBIENT: 21°C RELATIVE HUMIDITY: 41%

EQUIPMENT ID#: 34, 117, 570, 1010, 1620

MECHANICAL SHOCK (SPECIFIED PULSE)

PURPOSE:

To determine the mechanical and electrical integrity of connectors for use with electronic equipment subjected to shocks such as those expected from handling, transportation, etc.

PROCEDURE:

1. The test was performed in accordance EIA 364, Test Procedure 27.

2. Test Conditions:

   a) Peak Value : 100 G
   b) Duration : 6 Milliseconds
   c) Wave Form : Half-Sine
   d) Velocity : 9.7 feet Per Second
   e) No. of Shocks : 3 Shocks/Direction, 3 Axis (18 Total)

3. A stabilizing medium was used such that the mated test samples did not separate during the test.

4. Figure #2 illustrates the test sample fixturing utilized during the test.

5. All subsequent variable testing was performed in accordance with the procedures previously indicated.

REQUIREMENTS: See Next Page.

REQUIREMENTS:

1. There shall be no evidence of physical damage to the test samples as tested.

2. The change in low level circuit resistance shall not exceed +10.0 milliohms.

RESULTS:

1. There was no evidence of physical damage to the test samples as tested.

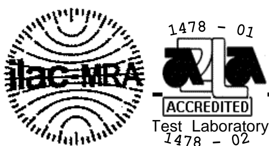
2. The following is a summary of the data observed:

CHANGE IN
LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg. Change	Max. Change
C-A-1	-0.5	+0.5
C-A-2	-0.1	+2.2
C-A-3	-0.6	+1.8
C-A-6	-0.5	+0.6
C-A-7	-0.3	+1.0
C-A-8	-0.7	+0.2
C-A-9	-0.2	+1.1
C-A-10	-0.9	+0.9
C-A-11	+0.0	+2.3
C-A-12	-0.2	+1.3

3. See data files 20923811 through 20923813, 20923816 through 20923821 and 20923823 for individual data points.

4. The Mechanical Shock characteristics are shown in Figures #3 (Calibration Pulse) and #4 (Test Pulse). Each figure displays the shock pulse contained within the upper and lower limits as defined by the appropriate test specification.



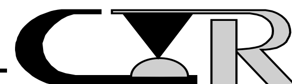
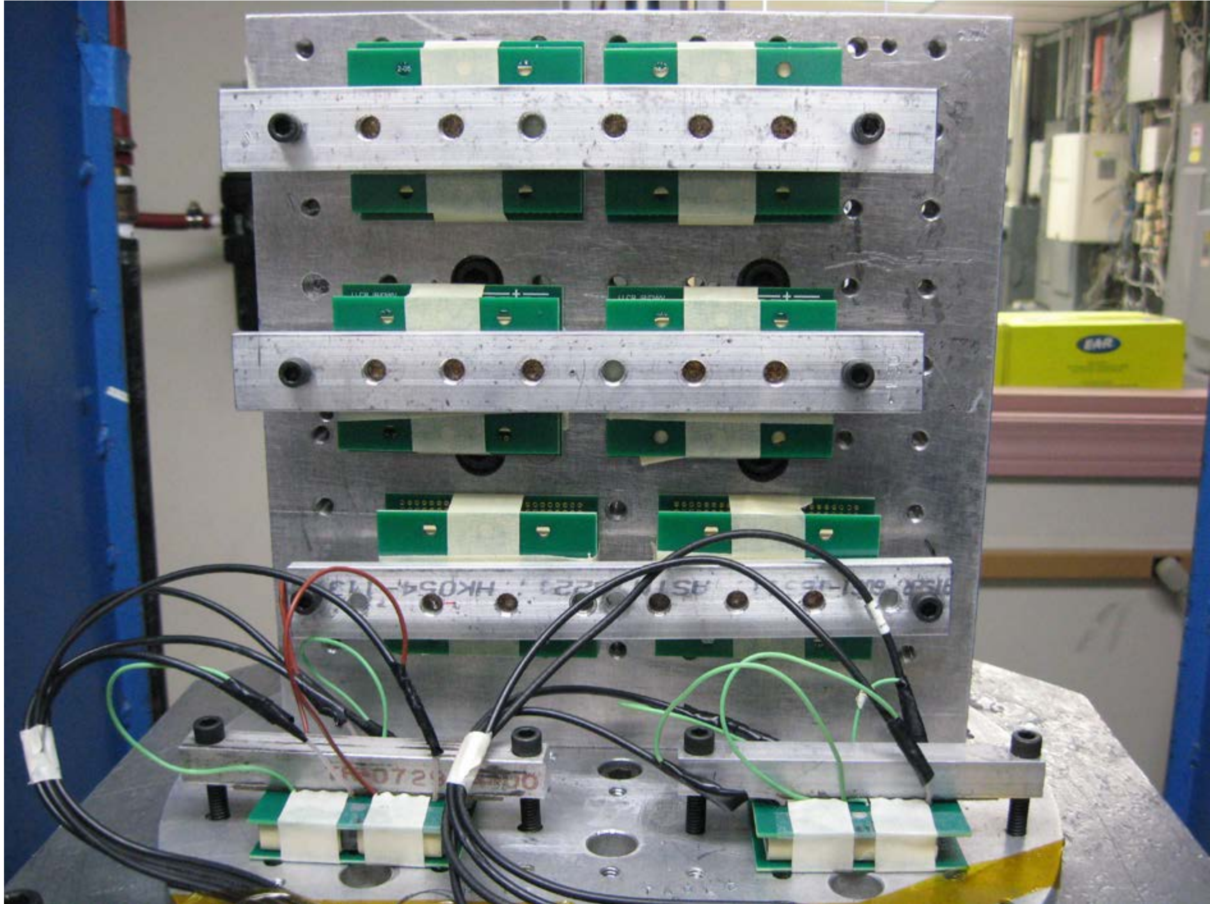


FIGURE #2

TYPICAL FIXTURING - MECHANICAL SHOCK



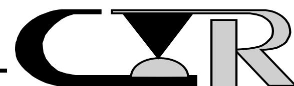


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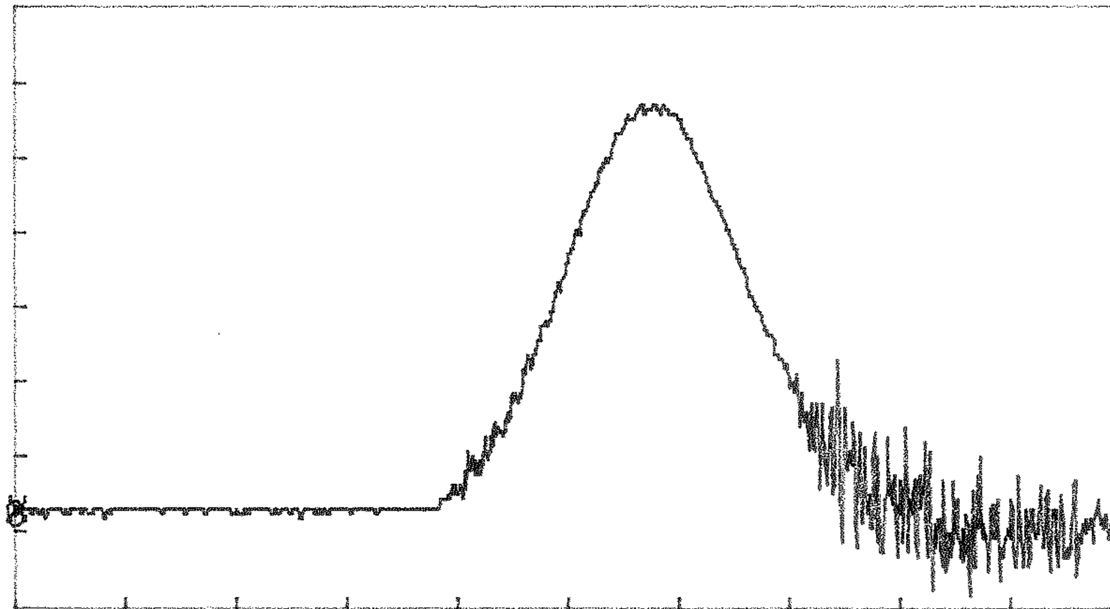
FIGURE #3

Status: Waiting for Trigger
TALK ONLY

Delay 1 to 1 = 5.765 ms   V ampl 1 = 1.02 V

Graph [1]   188 mV/div   500 mV   2.00 ms/div   -8.000 ms

1: [Mem 0]
209238CAL1



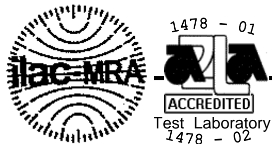


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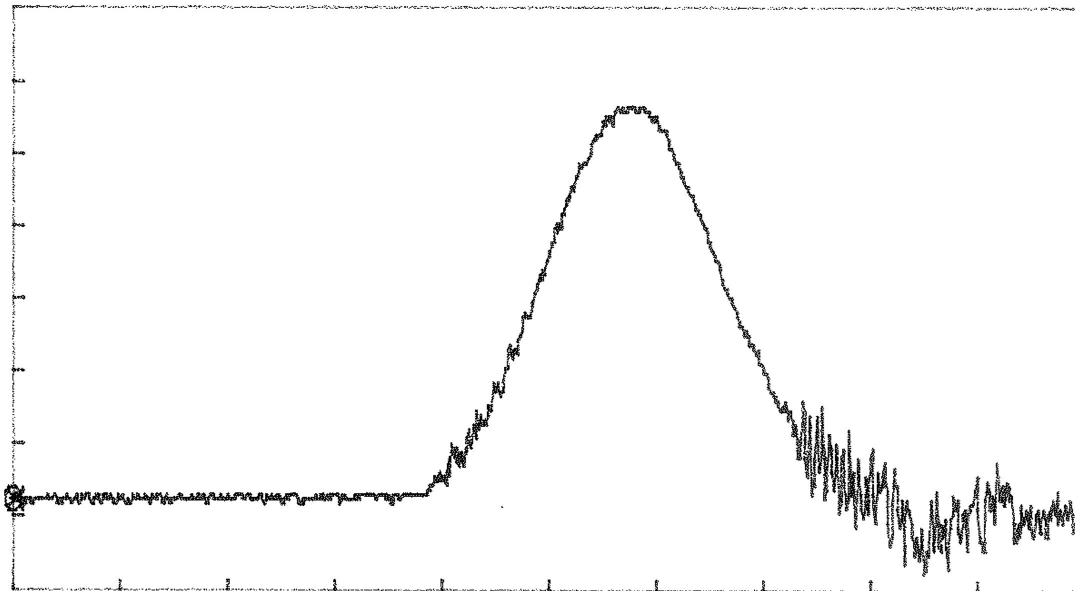
FIGURE #4

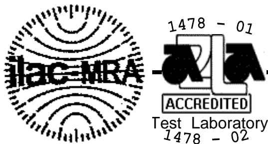
Status: Acquisition Complete
TALK ONLY

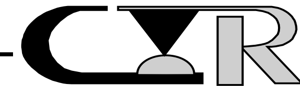
Delay 1 to 1 = 6.091 ms V ampl 1 = 1.02 V

Graph [1] 188 mV/div 500 mV 2.00 ms/div -8.000 ms

1: [Mem 3]
209238ACT







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PROJECT NO.: 209238 SPECIFICATION: QRX8 Test Plan

PART NO.: See page 4 PART DESCRIPTION: QRF8/QRM8 Conn.

SAMPLE SIZE: 10 Samples TECHNICIAN: MHB

START DATE: 5/15/09 COMPLETE DATE: 5/15/09

ROOM AMBIENT: 21°C RELATIVE HUMIDITY: 42%

EQUIPMENT ID#: 553, 1166, 1167, 1168, 1271, 1272, 1521, 1533

VIBRATION, RANDOM

PURPOSE:

1. To establish the mechanical integrity of the test samples exposed to external mechanical stresses.

2. To determine if the contact system is susceptible to fretting corrosion.

3. To determine if the electrical stability of the system has degraded when exposed to a vibratory environment.

PROCEDURE:

1. The test was performed in accordance with EIA 364, Test Procedure 28.

2. Test Conditions:

   a) Power Spectral Density : 0.04 G^2/Hz
   b) G 'RMS' : 7.56
   c) Frequency : 50 to 2000 Hz
   d) Duration : 2.0 hour per axis (3 axis total)

3. A stabilizing medium was used such that the mated test samples did not separate during the test.

4. Figure #5 illustrates the test sample fixturing utilized during the test.

-continued on next page.

PROCEDURE: -continued

5. All subsequent variable testing was performed in accordance with procedures previously indicated.

REQUIREMENTS:

1. There shall be no evidence of physical damage to the test samples as tested.

2. The change in low level circuit resistance shall not exceed +10.0 milliohms.

RESULTS:

1. There was no evidence of physical damage to the test samples as tested.

2. The following is a summary of the observed data:

CHANGE IN
LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg. Change	Max. Change
C-A-1	-0.1	+2.5
C-A-2	-0.4	+6.2
C-A-3	+0.7	+3.4
C-A-5	-0.9	+4.0
C-A-6	-0.8	+4.2
C-A-7	-0.4	+3.4
C-A-8	-0.1	+3.5
C-A-9	+1.1	+1.9
C-A-10	-0.3	+1.8
C-A-11	-0.7	+2.6

3. See data files 20923811 through 20923813, 20923816 through 20923821 and 20923823 for individual data points.

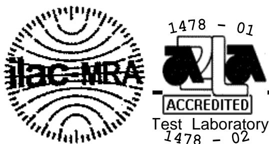


FIGURE #5

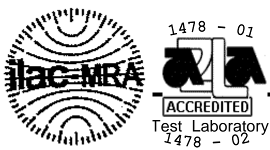
TYPICAL FIXTURING RANDOM VIBRATION

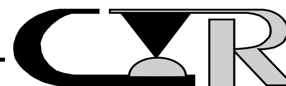
SEQUENCE C

LLCR DATA FILES

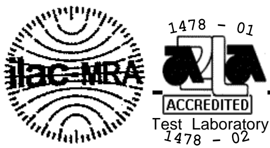
FILE NUMBERS

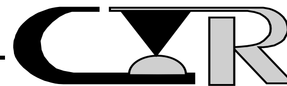
20923811
20923812
20923813
20923816
20923817
20923818
20923819
20923820
20923821
20923823





Low Level Circuit Resistance - Delta Values						
Project:	209238				Spec:	EIA 364, TP 23
Customer:	Samtec				Subgroup:	Sequence C
Product: Series QDF8 / QDM8 Connector					File No:	20923811
Description:	ID# C-A-1				Tech:	AJP
Open circuit voltage:		20mV			Current:	100mA
Units: milliohms						
Temp ºC	21	21	21			
R.H. %	40	36	36			
Date:	04May09	11May09	19May09			
Pos. ID	Initial	M. Shock	Vibration			
1	20.7	0.1	2.5			
2	20.5	-2.0	-1.5			
3	19.2	-1.1	1.3			
4	19.1	-1.2	-1.0			
5	17.9	-1.1	-0.4			
6	16.9	-0.5	0.3			
7	18.2	-1.0	-0.4			
8	19.7	-0.8	-0.4			
9	19.4	-1.2	0.5			
10	18.7	-0.5	0.7			
11	18.9	-0.5	-1.0			
12	18.7	-0.4	-1.1			
13	20.2	-1.0	-1.1			
14	2.9	-0.1	0.0			
15	2.8	-0.1	-0.1			
16	19.4	-0.4	-0.7			
17	17.0	-0.4	-0.4			
18	18.3	-0.3	-1.4			
19	17.0	-0.6	-0.6			
20	15.8	0.0	-0.3			
21	18.3	0.0	-0.3			
22	17.5	0.0	0.0			
23	18.0	0.1	1.3			
24	18.6	0.5	1.6			
25	17.0	0.0	-0.5			
MAX	20.7	0.5	2.5			
MIN	2.8	-2.0	-1.5			
AVG	17.2	-0.5	-0.1			
STD	4.5	0.6	1.0			
Open	0	0	0			
Tech	AJP	AJP	MHB			
Equip ID	244	244	1276			
	1116	1116	207			





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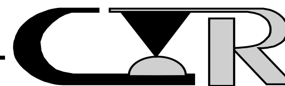
Low Level Circuit Resistance - Delta Values						
Project:	209238				Spec:	EIA 364, TP 23
Customer:	Samtec				Subgroup:	Sequence C
Product: Series QDF8 / QDM8 Connector					File No:	20923812
Description:	ID# C-A-2				Tech:	AJP
Open circuit voltage:		20mV			Current:	100mA
Units: milliohms						
Temp ºC	21	21	21			
R.H. %	40	36	36			
Date:	04May09	11May09	19May09			
Pos. ID	Initial	M. Shock	Vibration			
1	17.8	0.4	2.2			
2	17.8	-0.1	6.2			
3	18.6	-0.2	0.8			
4	17.9	-1.4	-0.6			
5	17.5	-1.2	-1.2			
6	16.4	0.0	-0.9			
7	16.5	0.2	-0.5			
8	17.5	0.1	0.2			
9	18.4	1.1	-1.9			
10	17.5	0.2	-0.3			
11	18.1	0.9	-2.0			
12	18.1	2.2	-0.7			
13	17.9	0.4	-0.5			
14	2.4	0.1	0.2			
15	2.5	0.0	0.2			
16	20.4	-1.3	-3.2			
17	16.8	0.7	-0.9			
18	17.3	-1.2	-0.6			
19	16.5	-0.2	-1.1			
20	16.7	-0.1	-0.8			
21	19.0	-0.2	-1.6			
22	17.7	-0.4	0.9			
23	20.3	-0.2	-1.5			
24	17.2	-0.2	-0.5			
25	16.8	-1.0	-0.9			
MAX	20.4	2.2	6.2			
MIN	2.4	-1.4	-3.2			
AVG	16.5	-0.1	-0.4			
STD	4.4	0.8	1.7			
Open	0	0	0			
Tech	AJP	AJP	MHB			
Equip ID	244	244	1276			
	1116	1116	207			



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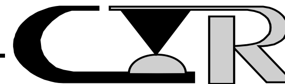
Low Level Circuit Resistance - Delta Values						
Project:	209238				Spec:	EIA 364, TP 23
Customer:	Samtec				Subgroup:	Sequence C
Product: Series QDF8 / QDM8 Connector					File No:	20923813
Description:	ID# C-A-3				Tech:	AJP
Open circuit voltage:		20mV			Current:	100mA
Units: milliohms						
Temp ºC	21	21	21			
R.H. %	40	36	36			
Date:	04May09	11May09	19May09			
Pos. ID	Initial	M. Shock	Vibration			
1	18.8	-0.5	2.4			
2	17.6	1.8	2.0			
3	19.7	-1.5	3.0			
4	19.6	-2.3	-2.1			
5	16.6	-0.6	3.4			
6	16.5	-0.2	-1.0			
7	16.7	-0.6	-0.3			
8	17.1	-0.4	1.1			
9	18.7	-1.3	-0.8			
10	19.5	-1.6	0.9			
11	18.6	-0.3	-0.2			
12	18.2	0.3	1.8			
13	18.2	-0.3	-1.1			
14	2.8	0.0	1.0			
15	2.8	0.0	1.9			
16	17.9	-0.5	-0.7			
17	20.1	-1.7	1.2			
18	17.4	-0.4	0.7			
19	16.5	-0.9	-0.3			
20	16.8	-0.8	0.2			
21	18.1	-1.1	2.7			
22	17.6	-0.7	2.8			
23	19.3	-1.6	-0.9			
24	18.7	1.0	1.7			
25	16.7	0.0	-0.5			
MAX	20.1	1.8	3.4			
MIN	2.8	-2.3	-2.1			
AVG	16.8	-0.6	0.7			
STD	4.4	0.9	1.5			
Open	0	0	0			
Tech	AJP	AJP	MHB			
Equip ID	244	244	1276			
	1116	1116	207			



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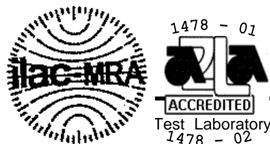
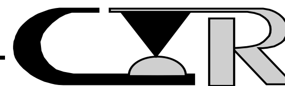
Low Level Circuit Resistance - Delta Values						
Project:	209238				Spec:	EIA 364, TP 23
Customer:	Samtec				Subgroup:	Sequence C
Product: Series QDF8 / QDM8 Connector					File No:	20923816
Description: ID# C-A-6					Tech:	AJP
Open circuit voltage:		20mV			Current:	100mA
Units: milliohms						
Temp ºC	21	21	21			
R.H. %	40	36	36			
Date:	04May09	11May09	19May09			
Pos. ID	Initial	M. Shock	Vibration			
1	21.3	-0.6	-2.3			
2	25.3	-6.5	-8.6			
3	19.0	-0.4	-0.9			
4	18.1	-1.6	-2.1			
5	16.9	0.4	-0.2			
6	17.0	0.5	0.2			
7	17.8	-1.1	-1.5			
8	18.0	0.5	-0.5			
9	18.1	0.5	-0.8			
10	17.7	0.6	-0.6			
11	19.9	0.2	-0.7			
12	18.8	-0.1	-0.4			
13	18.1	-0.4	0.3			
14	2.9	-0.1	-0.2			
15	3.1	-0.2	0.1			
16	18.2	0.0	-0.6			
17	18.2	-0.7	-0.3			
18	18.1	-0.8	-1.0			
19	16.6	-0.3	4.0			
20	15.8	-0.2	-0.5			
21	17.7	-0.4	-0.9			
22	18.8	0.1	-1.6			
23	19.1	-1.5	-1.7			
24	18.8	-1.3	-1.3			
25	16.5	-0.3	-0.5			
MAX	25.3	0.6	4.0			
MIN	2.9	-6.5	-8.6			
AVG	17.2	-0.5	-0.9			
STD	4.6	1.4	2.0			
Open	0	0	0			
Tech	AJP	AJP	MHB			
Equip ID	244	244	1276			
	1116	1116	207			





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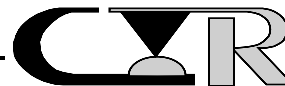
Low Level Circuit Resistance - Delta Values						
Project:	209238				Spec:	EIA 364, TP 23
Customer:	Samtec				Subgroup:	Sequence C
Product: Series QDF8 / QDM8 Connector					File No:	20923817
Description:	ID# C-A-7				Tech:	AJP
Open circuit voltage:		20mV			Current:	100mA
Units: milliohms						
Temp ºC	21	21	21			
R.H. %	40	36	36			
Date:	04May09	11May09	19May09			
Pos. ID	Initial	M. Shock	Vibration			
1	21.5	0.0	-3.4			
2	19.5	0.5	4.2			
3	18.1	-0.9	0.3			
4	17.2	-0.2	-0.4			
5	16.1	0.1	0.4			
6	16.8	-0.4	-1.1			
7	16.8	-0.1	-0.9			
8	18.7	-0.7	-1.8			
9	19.3	-0.8	-1.7			
10	21.9	-2.4	-4.5			
11	20.8	-1.0	-3.7			
12	21.3	-1.5	-1.0			
13	18.8	-0.5	-2.0			
14	2.7	0.1	0.6			
15	2.7	-0.1	0.0			
16	19.0	-0.6	-1.1			
17	19.0	-0.6	-1.8			
18	17.8	0.1	0.7			
19	16.1	0.1	-0.6			
20	16.1	-0.3	-0.4			
21	17.7	-0.2	-1.5			
22	18.3	1.0	0.8			
23	17.9	0.1	-0.1			
24	18.6	0.0	-0.9			
25	16.2	-0.3	-0.8			
MAX	21.9	1.0	4.2			
MIN	2.7	-2.4	-4.5			
AVG	17.2	-0.3	-0.8			
STD	4.7	0.7	1.7			
Open	0	0	0			
Tech	AJP	AJP	MHB			
Equip ID	244	244	1276			
	1116	1116	207			



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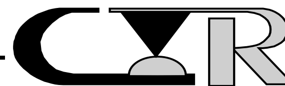
Low Level Circuit Resistance - Delta Values						
Project:	209238				Spec:	EIA 364, TP 23
Customer:	Samtec				Subgroup:	Sequence C
Product: Series QDF8 / QDM8 Connector					File No:	20923818
Description:	ID# C-A-8				Tech:	AJP
Open circuit voltage:		20mV			Current:	100mA
Units: milliohms						
Temp ºC	21	21	21			
R.H. %	40	36	36			
Date:	04May09	11May09	19May09			
Pos. ID	Initial	M. Shock	Vibration			
1	21.5	-0.8	-0.1			
2	18.5	-0.4	-0.2			
3	17.7	-0.7	-0.9			
4	20.9	-1.8	-4.1			
5	16.4	-0.1	0.1			
6	16.5	-0.2	-0.9			
7	17.1	-0.5	-0.7			
8	17.0	-0.6	-0.5			
9	18.9	-1.6	-1.5			
10	19.1	-0.6	0.6			
11	17.2	-0.1	1.7			
12	18.8	-0.6	0.6			
13	18.9	-0.8	-1.4			
14	2.6	-0.1	0.0			
15	2.6	-0.1	0.4			
16	20.6	-1.5	0.6			
17	20.6	-2.0	-1.3			
18	18.8	-1.8	-0.2			
19	16.4	-0.4	-0.2			
20	16.8	0.2	-0.9			
21	17.8	-0.9	-1.1			
22	18.4	-0.3	3.4			
23	19.2	-0.6	-0.7			
24	17.7	-0.9	0.1			
25	17.0	-0.6	-1.5			
MAX	21.5	0.2	3.4			
MIN	2.6	-2.0	-4.1			
AVG	17.1	-0.7	-0.4			
STD	4.6	0.6	1.3			
Open	0	0	0			
Tech	AJP	AJP	MHB			
Equip ID	244	244	1276			
	1116	1116	207			



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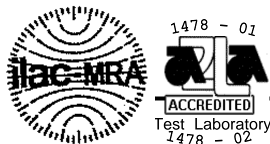
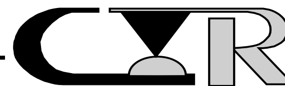
Low Level Circuit Resistance - Delta Values						
Project:	209238				Spec:	EIA 364, TP 23
Customer:	Samtec				Subgroup:	Sequence C
Product:	Series QDF8 / QDM8 Connector				File No:	20923819
Description:	ID# C-A-9				Tech:	AJP
Open circuit voltage:		20mV			Current:	100mA
Units: milliohms						
Temp ºC	21	21	21			
R.H. %	40	36	36			
Date:	04May09	11May09	19May09			
Pos. ID	Initial	M. Shock	Vibration			
1	20.9	-0.1	-0.9			
2	21.4	-2.2	-4.1			
3	18.7	-0.2	-0.8			
4	17.7	-0.3	-0.6			
5	17.2	-0.4	0.0			
6	16.9	-0.1	0.0			
7	16.9	-0.7	-1.0			
8	16.9	-0.2	-0.4			
9	17.6	-0.3	-1.0			
10	19.0	-1.4	-1.4			
11	17.9	0.1	0.0			
12	19.0	1.0	2.2			
13	18.5	-0.1	0.1			
14	2.6	-0.1	-0.1			
15	2.6	0.0	0.1			
16	19.9	1.1	2.1			
17	18.1	0.0	-1.3			
18	17.3	-0.3	0.2			
19	15.8	0.2	0.0			
20	16.3	-0.1	-0.1			
21	17.5	-0.3	-1.2			
22	17.1	0.1	3.5			
23	18.1	-0.2	0.5			
24	16.6	0.1	1.2			
25	16.2	0.2	-0.3			
MAX	21.4	1.1	3.5			
MIN	2.6	-2.2	-4.1			
AVG	16.7	-0.2	-0.1			
STD	4.5	0.6	1.4			
Open	0	0	0			
Tech	AJP	AJP	MHB			
Equip ID	244	244	1276			
	1116	1116	207			





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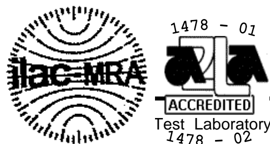
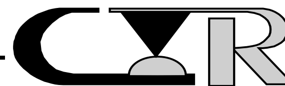
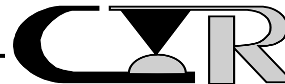
Low Level Circuit Resistance - Delta Values						
Project:	209238				Spec:	EIA 364, TP 23
Customer:	Samtec				Subgroup:	Sequence C
Product:	Series QDF8 / QDM8 Connector				File No:	20923820
Description:	ID# C-A-10				Tech:	AJP
Open circuit voltage:		20mV			Current:	100mA
Units: milliohms						
Temp ºC	21	21	21			
R.H. %	40	36	36			
Date:	04May09	11May09	19May09			
Pos. ID	Initial	M. Shock	Vibration			
1	20.7	-1.0	-2.5			
2	19.9	-0.9	0.2			
3	18.9	-1.8	1.9			
4	18.4	-0.3	-0.7			
5	16.3	-0.2	0.1			
6	17.0	-0.6	-0.1			
7	16.8	0.1	-0.7			
8	18.2	0.3	-1.1			
9	17.8	-0.7	-1.4			
10	18.0	0.5	1.4			
11	18.3	0.0	-0.1			
12	18.6	0.9	0.3			
13	19.7	0.2	-3.0			
14	2.8	0.0	0.1			
15	2.8	0.0	0.0			
16	21.1	-2.5	-2.8			
17	24.3	-6.7	-7.4			
18	19.3	-1.7	-1.5			
19	18.9	-2.3	-1.8			
20	17.3	-1.2	-0.7			
21	18.2	-0.4	-0.3			
22	19.7	-1.2	-1.8			
23	18.2	0.5	-0.1			
24	22.1	-3.3	-3.6			
25	17.8	-0.9	-1.7			
MAX	24.3	0.9	1.9			
MIN	2.8	-6.7	-7.4			
AVG	17.6	-0.9	-1.1			
STD	4.8	1.6	1.9			
Open	0	0	0			
Tech	AJP	AJP	MHB			
Equip ID	244	244	1276			
	1116	1116	207			





Low Level Circuit Resistance - Delta Values						
Project:	209238				Spec:	EIA 364, TP 23
Customer:	Samtec				Subgroup:	Sequence C
Product:	Series QDF8 / QDM8 Connector				File No:	20923821
Description:	ID# C-A-11				Tech:	AJP
Open circuit voltage:		20mV			Current:	100mA
Units: milliohms						
Temp ºC	21	21	21			
R.H. %	40	36	36			
Date:	05May09	11May09	19May09			
Pos. ID	Initial	M. Shock	Vibration			
1	27.1	0.0	-0.5			
2	26.8	-0.5	-1.1			
3	29.7	0.2	-2.0			
4	26.9	0.6	-0.5			
5	27.8	0.1	-0.6			
6	29.5	-0.2	-0.6			
7	29.7	0.6	-0.1			
8	28.3	0.2	0.6			
9	28.1	1.3	0.9			
10	29.1	2.3	0.2			
11	27.7	0.9	1.8			
12	28.0	0.1	-0.2			
13	27.6	-0.5	-0.5			
14	11.6	0.0	-0.1			
15	2.4	0.1	-0.2			
16	19.6	-1.0	-0.4			
17	17.5	-0.5	0.3			
18	18.2	-0.4	0.2			
19	16.2	-0.7	-0.2			
20	16.4	-0.7	-0.8			
21	17.7	-0.8	-0.7			
22	18.6	-0.2	-1.2			
23	17.5	-0.3	-0.2			
24	18.9	-0.9	-1.2			
25	19.2	-0.3	0.3			
MAX	29.7	2.3	1.8			
MIN	2.4	-1.0	-2.0			
AVG	22.4	0.0	-0.3			
STD	7.0	0.8	0.8			
Open	0	0	0			
Tech	AJP	AJP	MHB			
Equip ID	244	244	1276			
	1116	1116	207			



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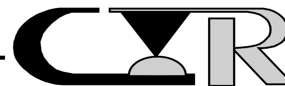
Low Level Circuit Resistance - Delta Values						
Project:	209238				Spec:	EIA 364, TP 23
Customer:	Samtec				Subgroup:	Sequence C
Product:	Series QDF8 / QDM8 Connector				File No:	20923823
Description:	ID# C-A-12				Tech:	AJP
Open circuit voltage:		20mV			Current:	100mA
Units: milliohms						
Temp ºC	21	21	21			
R.H. %	38	38	36			
Date:	12May09	12May09	19May09			
Pos. ID	Initial	Shock	Vibration			
1	20.0	-1.7	-1.3			
2	17.4	0.8	2.6			
3	18.9	0.0	-1.3			
4	17.2	0.2	0.4			
5	17.0	0.5	-0.1			
6	16.3	0.0	-1.2			
7	17.3	-0.4	-1.2			
8	17.3	0.4	-0.5			
9	17.1	-0.4	-0.6			
10	18.8	-0.9	-1.3			
11	19.4	-0.7	-3.0			
12	18.6	0.3	-0.3			
13	18.0	0.5	-0.2			
14	2.5	0.2	0.4			
15	2.8	0.1	-0.3			
16	18.6	0.3	0.0			
17	17.8	-1.4	-1.9			
18	18.5	-1.1	-1.3			
19	17.1	-0.8	-1.4			
20	17.1	-1.4	-1.3			
21	17.7	-0.7	-1.2			
22	17.7	1.3	1.4			
23	18.7	0.5	-1.2			
24	17.7	0.2	-0.8			
25	16.6	0.1	-0.8			
MAX	20.0	1.3	2.6			
MIN	2.5	-1.7	-3.0			
AVG	16.6	-0.2	-0.7			
STD	4.3	0.8	1.1			
Open	0	0	0			
Tech	AJP	AJP	MHB			
Equip ID	244	244	1276			
	1116	1116	207			



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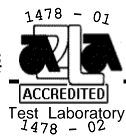
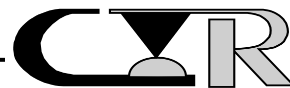
TEST RESULTS

SEQUENCE D
GROUP A





PROJECT NO.: 209238 SPECIFICATION: QRX8 Test Plan

PART NO.: See page 4 PART DESCRIPTION: QRF8/QRM8 Conn.

SAMPLE SIZE: 3 Samples TECHNICIAN: AJP

START DATE: 5/8/09 COMPLETE DATE: 5/8/09

ROOM AMBIENT: 21°C RELATIVE HUMIDITY: 41%

EQUIPMENT ID#: 34, 117, 570, 1010, 1028, 1620

MECHANICAL SHOCK (SPECIFIED PULSE)

PURPOSE:

To determine the mechanical and electrical integrity of connectors for use with electronic equipment subjected to shocks such as those expected from handling, transportation, etc.

PROCEDURE:

1. The test was performed in accordance with EIA 364, Test Procedure 27, Test Condition C.

2. Test Conditions:

   a) Peak Value : 100 G
   b) Duration : 6 Milliseconds
   c) Wave Form : Sawtooth
   d) Velocity : 9.7 feet Per Second
   e) No. of Shocks : 3 Shocks/Direction, 3 Axis (18 Total)

3. Figure #2 illustrates the test sample fixturing utilized during the test.

4. The samples were characterized to assure that the low nanosecond event being monitored will trigger the detector.

5. After characterization, it was determined the samples could be monitored for a 50 nanosecond event.

6. The low nanosecond monitoring was performed in accordance with EIA 364, Test Procedure 87.

REQUIREMENTS: See Next Page.

REQUIREMENTS:

1. There shall be no evidence of axial movement of the test samples relative to each other.

2. There shall be no low nanosecond event detected greater than 50 nanoseconds.

RESULTS:

1. There was no evidence of physical damage to the test samples as tested.

2. There was no low nanosecond event detected greater than 50 nanoseconds.

3. The Mechanical Shock characteristics are shown in Figures #6 (Calibration Pulse) and #7 (Test Pulse). Each figure displays the shock pulse contained within the upper and lower limits as defined by the appropriate test specification.

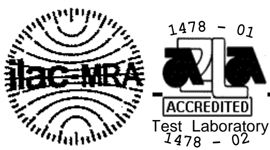


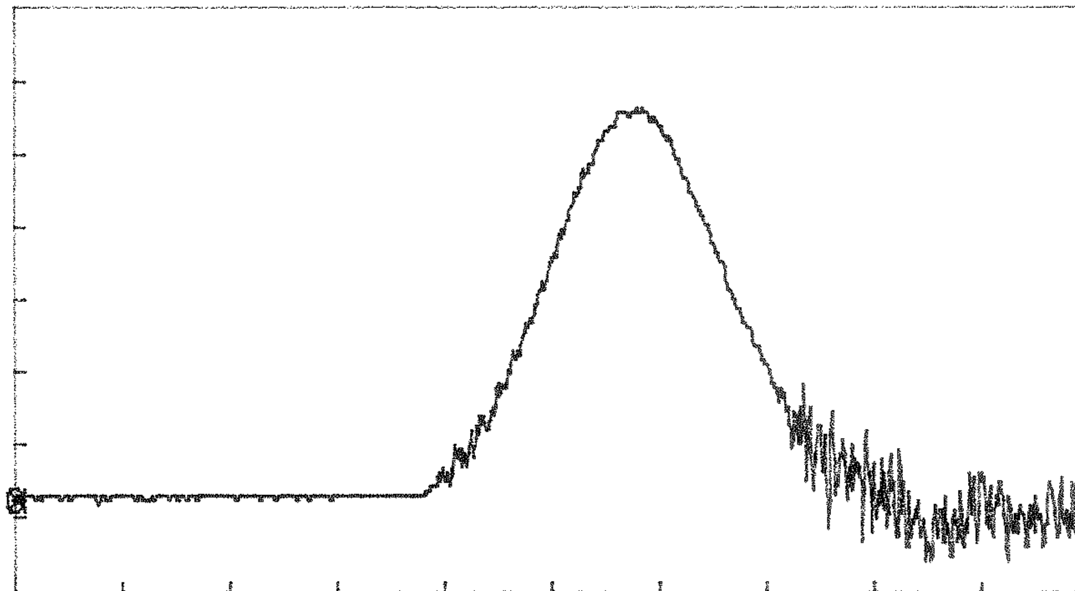
FIGURE #6

Status: Waiting for Trigger
TALK ONLY

Delay 1 to 1 = 5.892 ms   V ampl 1 = 992 mV

Graph [1]   188 mV/div   500 mV   2.00 ms/div   -8.000 ms

1: [Mem 1]
209238CAL2



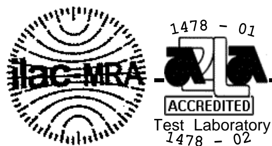


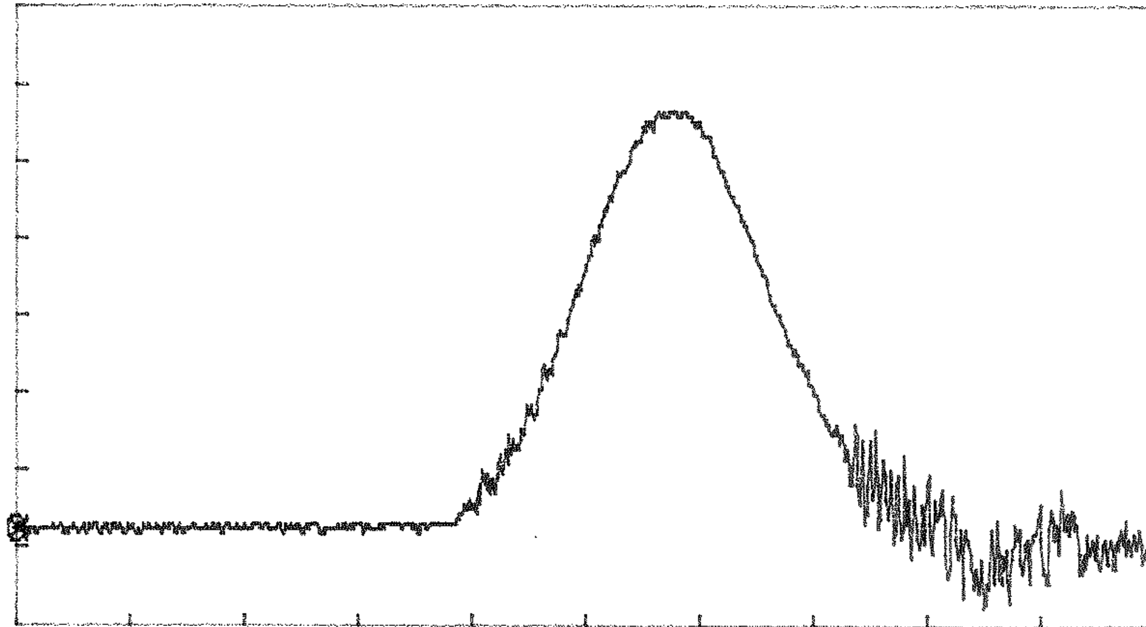
FIGURE #7

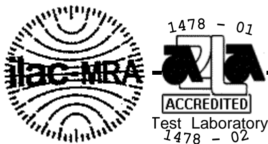
Status: Acquisition Complete
TALK ONLY

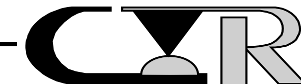
Delay 1 to 1 = 6.Ø91 ms V ampl 1 = 1.Ø2 V

Graph [1] 188 mV/div 5ØØ mV 2.ØØ ms/div -8.ØØØ ms

1: [Mem 3]
2Ø9238ACT







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PROJECT NO.: 209238 SPECIFICATION: QRX8 Test Plan

PART NO.: See page 4 PART DESCRIPTION: QRF8/QRM8 Conn.

SAMPLE SIZE: 3 Samples TECHNICIAN: AJP

START DATE: 5/15/09 COMPLETE DATE: 5/18/09

ROOM AMBIENT: 21°C RELATIVE HUMIDITY: 42%

EQUIPMENT ID#: 553, 1028, 1166, 1167, 1168, 1271, 1272, 1521, 1533

VIBRATION, RANDOM

PURPOSE:

1. To determine if electrical discontinuities at the level specified exist.

2. To determine if the contact system is susceptible to fretting corrosion.

3. To determine if the electrical stability of the system has degraded when exposed to a vibratory environment.

PROCEDURE:

1. The test was performed in accordance with EIA 364, Test Procedure 28, Test Condition V, Test Letter B.

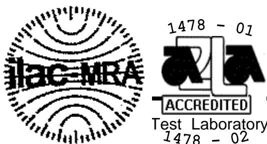
2. Test Conditions:

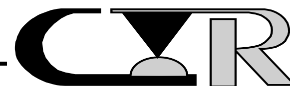
   a) Power Spectral Density : 0.01 G^2/Hz
   b) G 'RMS' : 7.56
   c) Frequency : 50 to 2000 Hz
   d) Duration : 2.0 hours per axis (3 axis total)

3. Figure #5 illustrates the test sample fixturing utilized during the test.

4. Prior to testing, the connectors were characterized to assure that the desired event being monitored were capable of being detected.

-continued on next page.





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PROCEDURE:-continued

5. After characterization, it was determined the samples could be monitored for a 50 nanosecond event.

6. The low nanosecond event detection was performed in accordance with EIA 364, Test Procedure 87.

7. Due to the design of the PCB only the signal contacts were monitored for the 50 nanosecond detection.

REQUIREMENTS:

1. There shall be no evidence of physical damage to the test samples as tested.

2. There shall be no events detected greater than 50 nanoseconds.

RESULTS:

1. There was no evidence of physical damage to the test samples as tested.

2. There was no evidence of low nanosecond events in excess of 50 nanoseconds.