

FEBRUARY 5, 2009

TEST REPORT #209336
REVISION 1.2

QUALIFICATION TESTING

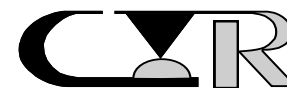
PART NUMBERS

IP5-08-01-L-S-RA1
IJ5-08-05.0-L-S-1

SAMTEC, INC.



APPROVED BY: DOMINIC ARPINO
PROJECT ENGINEERING MANAGER
CONTECH RESEARCH, INC.



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REVISION HISTORY

DATE	REV. NO.	DESCRIPTION	ENG.
9/11/2009	1.0	Initial Issue	DA
2/05/2010	1.1	Add data from retest of Sequence B, Test Program 209336-1	APH
2/08/2010		Revise part numbers, test plan Correct Seq c data summary	APH



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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.

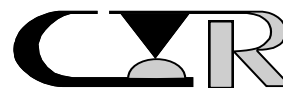
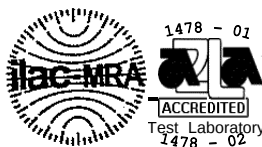
All equipment and measuring instruments used during testing were calibrated and traceable to NIST according to ISO 10012-1 and ANSI/NCSL Z540-1 and MIL-STD-45662 as applicable.

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.



APPROVED BY: DOMINIC ARPINO
PROJECT ENGINEERING MANAGER
CONTECH RESEARCH, INC.

DA:ld



SCOPE

To perform Qualification testing on IP5-RA 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: TC0920-2470Qualrev4
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 Numbers
a) IP5-08-01-L-S-RA1
b) IJ5-08-05.0-L-S-1
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.

-continued on next page.



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.

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:

┌	┌	Board Number
└	└	Group ID
		Sequence

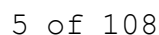
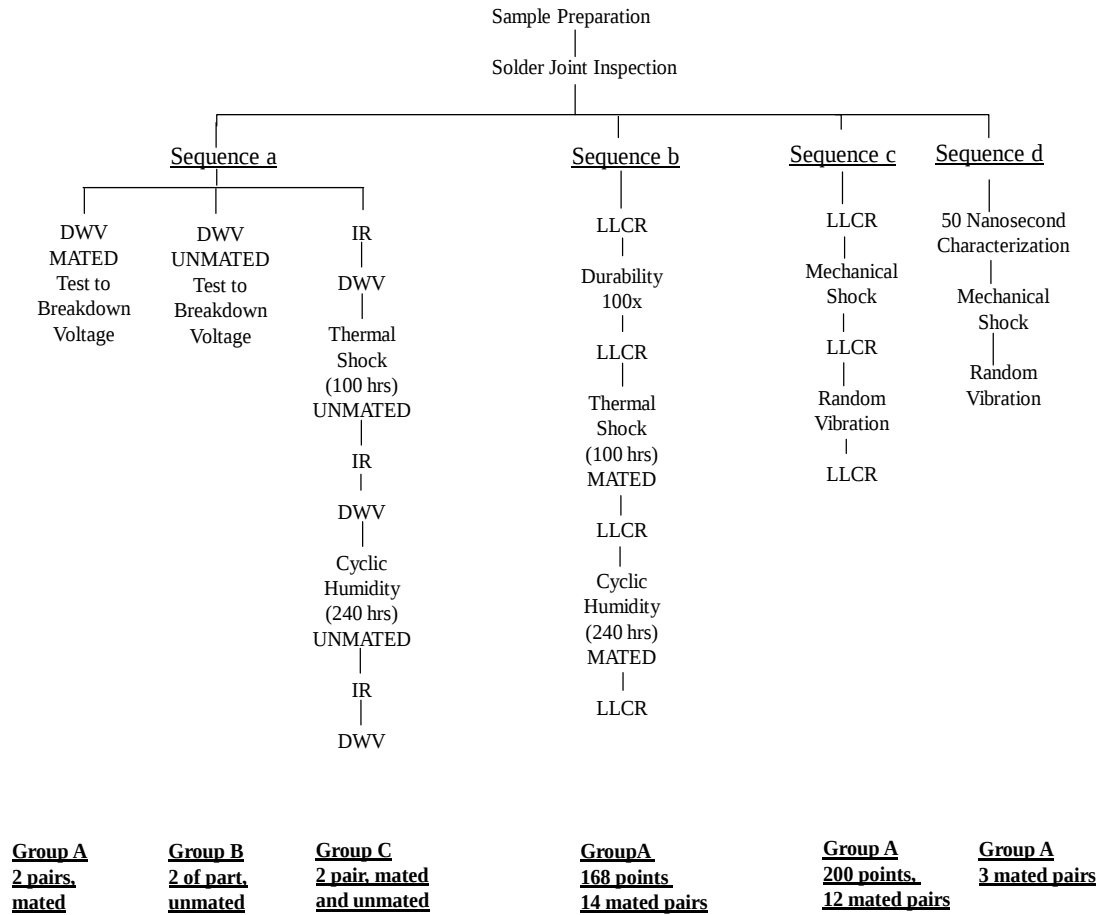


FIGURE #1

TEST PLAN FLOW DIAGRAM



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DATA SUMMARY

TEST

REQUIREMENTS

RESULTS

SEQUENCE A

GROUP C - SIGNAL AND GROUND

INSULATION RESISTANCE	1000 MEGOHMS MIN.	>50,000 MEGOHMS
DWV	750 VAC	PASSED
THERMAL SHOCK	NO DAMAGE	PASSED
INSULATION RESISTANCE	1000 MEGOHMS MIN.	>50,000 MEGOHMS
DWV	750 VAC	PASSED
CYCLIC HUMIDITY	NO DAMAGE	PASSED
INSULATION RESISTANCE	1000 MEGOHMS MIN.	>50,000 MEGOHMS
DWV	750 VAC	PASSED

SEQUENCE B

GROUP A - SIGNAL

Group A - GROUND

LLCR SIGNAL	RECORD	21.8 m Ω MAX.
LLCR GROUND	RECORD	6.1 m Ω MAX.
DURABILITY	NO DAMAGE	PASSED
LLCR SIGNAL	+10.0 m Ω MAX.CHG.	+2.3 MAX.CHG.
LLCR GROUND	+10.0 m Ω MAX.CHG.	+0.5 m Ω MAX.CHG.
THERMAL SHOCK	NO DAMAGE	PASSED
LLCR SIGNAL	+10.0 m Ω MAX.CHG.	+2.3 m Ω MAX.CHG.
LLCR GROUND	+10.0 m Ω MAX.CHG.	+2.0 m Ω MAX.CHG.
CYCLIC HUMIDITY	NO DAMAGE	PASSED
LLCR.SIGNAL	+10.0 m Ω MAX.CHG.	+3.0 m Ω MAX.CHG.
LLCR GROUND	+10.0 m Ω MAX.CHG.	+5.0 m Ω MAX.CHG.



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DATA SUMMARY-continued

TEST

REQUIREMENTS

RESULTS

SEQUENCE C

GROUP A - SIGNAL

Group A - GROUND

LLCR SIGNAL	RECORD	28.1 mΩ MAX.
LLCR GROUND	RECORD	9.5 mΩ MAX.
MECHANICAL SHOCK	NO DAMAGE	PASSED
LLCR SIGNAL	+10.0 mΩ MAX.CHG.	+2.1 mΩ MAX.CHG.
LLCR GROUND	+10.0 mΩ MAX.CHG.	+2.2 mΩ MAX.CHG.
RANDOM VIBRATION	NO DAMAGE	PASSED
LLCR SIGNAL	+10.0 mΩ MAX.CHG.	+9.9 mΩ MAX.CHG.
LLCR GROUND	+10.0 mΩ MAX.CHG.	+9.5 mΩ MAX.CHG.

SEQUENCE D

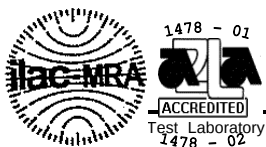
GROUP A SIGNAL & GROUND

MECHANICAL SHOCK	NO DAMAGE	PASSED
	50 NANOSECOND	PASSED
RANDOM VIBRATION	NO DAMAGE	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	N/A	Ea Test
200	1/19/2011	1/19/2010	Power Supply	PCB Piezotronics	482A	4210	N/A	12mon
207	12/10/2010	12/10/2009	Micro-Ohm Meter	Keithley Co.	580	438208	See Cal Cert	12mon
252			Computer System	Packard Bell	286	105673	N/A	OOS
321	3/19/2010	3/19/2009	AC-DC Hipot/Megometer	Hipotronics Co.	H300B	DS16-201	See Cal Cert	12 mon.
340			X-Y Table	NE Affiliated Tech	XY-6060	N/A	N/A	N/A
421	3/31/2010	3/31/2009	Megohmmeter	Hipotronics Co.	HM3A	031423-00	See Cal Cert	12 mon.
558			Computer	ARC Elect.	P111-450	274B031586	N/A	N/A
663	11/16/2010	11/16/2009	Digital Multimeter	Fluke Co.	75	68420599	See Cal Cert	12mon
874			Computer	M&P	Vectra	us75203327	N/A	N/A
1028	2/4/2010	2/4/2009	Event Detector	Analysis Tech	32 EHD	981019	See Cal. Cert.	12mon
1047	12/10/2010	12/10/2009	Microohm Meter	Keithley	580	0705731	See Cal Cert	12mon
1069			Mother Board	Intel	SE440BX-2	IUS285105583	N/A	OOS
1125	9/24/2010	9/24/2009	Microohm Meter	Keithley	580	451920	See Cal Cert	12mon
1147	12/10/2010	12/10/2009	Digital O-Scope	Tektronix	11801C	B030915	See Cal Cert.	12mon.
1156	3/16/2010	3/16/2009	High Voltage Probe	Fluke	80k-6	885967	See Cal Cert	12mon
1219			Computer	ARC Co.	350	350	±2%	N/A
1230			Temp-humid-Chamber	Blue M.	FRM-256B	FRM277	See Manual	Ea Test
1276			Computer	ARC.Co.	Pent-450	N/A	N/A	N/A
1303	7/30/2010	7/30/2009	Data Aquisition Multimeter	Keithley Co.	2700	0816531	See CERT	12mon
1314	3/5/2010	3/5/2009	Multiplexer card	Keithley Co.	7708	0862544	See CERT	12mon
1315	1/27/2011	1/27/2010	Data Aquisition Multimeter	Keithley Co.	2700	0862680	See CERT	12mon
1361	3/5/2010	3/5/2009	Multiplexer Card	Keithley	7708	1067661	See Cal Cert	12mon
1366			Main Frame	Agilent H.P.	8408A		N/A	N/A
1367			Interface	Agilent H.P.	E8491A		N/A	N/A
1368	4/22/2010	4/22/2009	Sine/Rnd Control digitizer	Agilent H.P.	E1432A	US35470169	See Manual	12mon
1382			Force Gage Stand	Chatillon	20025	N/A	N/A	N/A
1474			Vib Pwr Amp	tira	A58312	003/06	N/A	N/A



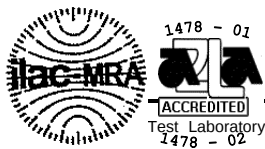
EQUIPMENT LIST-continued

ID#	Next Cal	Last Cal	Equipment Name	Manufacturer	Model #	Serial #	Accuracy	Freq.Cal
1549	2/2/2011	2/2/2010	Multiplexer Card	Keithley	7708	171629	See Cert	12mon
1550	2/2/2011	2/2/2010	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
5045R	12/10/2010	12/10/2009	TDR -Sampling Head	Tektroniks	SD-24	B0221502	See Cal Cert	12 mon



TEST RESULTS

SEQUENCE A GROUP C



PROJECT NO.: 209336

SPECIFICATION: TC0920-2470

PART NO.: See Page 4

PART DESCRIPTION: See Page 4

SAMPLE SIZE: 2 Samples pairs

TECHNICIAN: MOB

START DATE: 8/4/09

COMPLETE DATE: 8/4/09

ROOM AMBIENT: 22°C

RELATIVE HUMIDITY: 48%

EQUIPMENT ID#: 421

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:

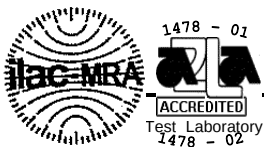
1. The test was performed in accordance with EIA 364, Test Procedure 21.
2. Test Conditions:
 - a) Between Adjacent Contacts : Yes
 - b) Between Rows : Yes
 - c) Mated Condition : Mated and Unmated
 - d) Mounting Condition : Mounted
 - e) Test Voltage : 500 DC
3. The test voltage was applied to specific 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 50,000 megohms.



PROJECT NO.: 209336

SPECIFICATION: TC0920-2470

PART NO.: See Page 4

PART DESCRIPTION: See Page 4

SAMPLE SIZE: 2 Samples pairs

TECHNICIAN: MOB

START DATE: 8/4/09

COMPLETE DATE: 8/4/09

ROOM AMBIENT: 22°C

RELATIVE HUMIDITY: 48%

EQUIPMENT ID#: 321, 663, 1156

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:

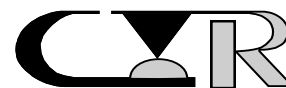
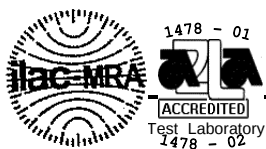
1. The test was performed in accordance with EIA 364, Test Procedure 20.

Test Conditions:

- | | | | |
|----|---------------------------|---|---------------------------|
| a) | Between Adjacent Contacts | : | Yes |
| b) | Between Rows | : | Yes |
| c) | Mated Condition | : | Mated and Unmated |
| d) | Mounting Condition | : | Mounted |
| e) | Hold Time | : | 60 seconds |
| f) | Rate of Application | : | 500 volts/sec. |
| g) | Test Voltage | : | 75% of Breakdown voltage |
| h) | Applied Voltage | : | 900 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 breakdown 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 and on unmounted connectors.

REQUIREMENTS: See Next Page.



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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.



PROJECT NO.: 209336

SPECIFICATION: TC0920-2470

PART NO.: See Page 4

PART DESCRIPTION: See Page 4

SAMPLE SIZE: 2 Sample pairs

TECHNICIAN: MOB

START DATE: 8/6/09

COMPLETE DATE: 8/10/09

ROOM AMBIENT: 22°C

RELATIVE HUMIDITY: 46%

EQUIPMENT ID#: 1069, 1315, 1549, 1550

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 and unmounted
 - 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.

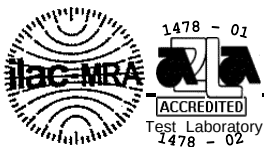


REQUIREMENTS:

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 50,000 megohms.



PROJECT NO.: 209336

SPECIFICATION: TC0920-2470

PART NO.: See Page 4

PART DESCRIPTION: See Page 4

SAMPLE SIZE: 2 Sample pairs

TECHNICIAN: MOB

START DATE: 8/13/09

COMPLETE DATE: 8/24/09

ROOM AMBIENT: 22°C

RELATIVE HUMIDITY: 48%

EQUIPMENT ID#: 27, 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:

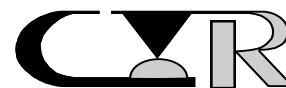
1. The test environment was performed in accordance with EIA 364, Test Procedure 32, with the following conditions.

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 and unmated |
| g) Mounting Conditions | : Mounted |
| h) Duration | : 240 hours |

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

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PROCEDURE:-continued

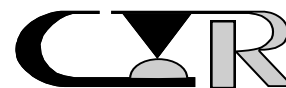
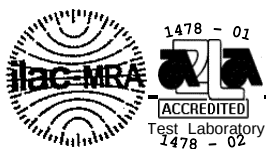
3. All subsequent variable testing was performed in accordance with the procedures previously indicated.

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.

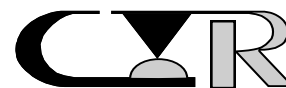
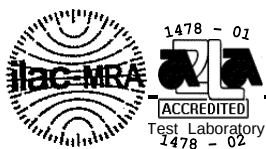
RESULTS:

1. The test samples as tested showed no evidence of physical deterioration.
2. The final insulation resistance exceeded 50,000 megohms after air dry of 2 hours.



TEST RESULTS

SEQUENCE B GROUP A



PROJECT NO.: 209336-1

SPECIFICATION: TC0920-2470

PART NO.: See Page 4

PART DESCRIPTION: See Page 4

SAMPLE SIZE: 14 Samples

TECHNICIAN: GL

START DATE: 01/04/10

COMPLETE DATE: 01/04/10

ROOM AMBIENT: 24°C

RELATIVE HUMIDITY: 28%

EQUIPMENT ID#: 207, 558, 1047, 1276

LOW LEVEL CIRCUIT RESISTANCE (LLCR)

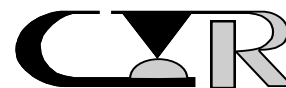
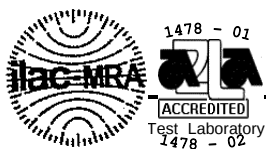
PURPOSE:

1. To evaluate contact resistance characteristics of the contact systems under conditions where 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.

-continued next page.





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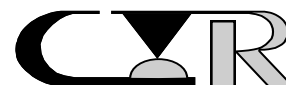
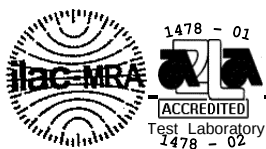
RESULTS:-continued

LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

GROUND DATA

<u>Sample ID#</u>	<u>Avg.</u>	<u>Max.</u>	<u>Min.</u>
B-A-1	4.4	5.1	4.0
B-A-2	4.5	5.5	4.1
B-A-3	3.9	4.4	3.4
B-A-4	4.2	4.5	3.8
B-A-5	3.8	4.4	3.5
B-A-6	4.4	5.4	3.6
B-A-7	4.2	6.1	3.6
B-A-8	4.0	5.1	3.2
B-A-9	4.4	5.2	3.8
B-A-10	4.4	5.4	3.9
B-A-11	3.8	4.7	3.4
B-A-12	4.2	5.0	3.9
B-A-13	4.1	4.6	3.7
B-A-14	3.9	4.9	3.3

3. See data files 209336-101 through 209336-114 for individual ground data points.



PROJECT NO.: 209336-1

SPECIFICATION: TC0920-2470

PART NO.: See Page 4

PART DESCRIPTION: See Page 4

SAMPLE SIZE: 14 Samples

TECHNICIAN: GL

START DATE: 01/05/10

COMPLETE DATE: 01/05/10

ROOM AMBIENT: 19°C

RELATIVE HUMIDITY: 27%

EQUIPMENT ID#: 340, 1382

DURABILITY

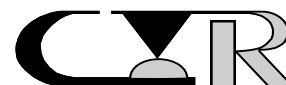
PURPOSE:

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.

-continued on next page.



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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)

SIGNAL DATA

<u>Sample ID#</u>	<u>Avg. Change</u>	<u>Max. Change</u>
B-A-1	+0.0	+0.7
B-A-2	+1.3	+2.3
B-A-3	-0.4	+0.9
B-A-4	+0.5	+1.5
B-A-5	-1.2	-0.7
B-A-6	-0.4	+0.5
B-A-7	+0.2	+1.2
B-A-8	+0.9	+2.2
B-A-9	+0.3	+1.1
B-A-10	+0.5	+1.2
B-A-11	+1.0	+2.1
B-A-12	+0.3	+1.4
B-A-13	+0.0	+0.4
B-A-14	+0.9	+1.5



RESULTS:-continued

3. See data files 209336-115 through 209336-128 for individual signal data points.

CHANGE IN
LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

GROUND DATA

<u>Sample ID#</u>	<u>Avg. Change</u>	<u>Max. Change</u>
B-A-1	+0.1	+0.3
B-A-2	+0.2	+0.4
B-A-3	+0.2	+0.3
B-A-4	+0.1	+0.2
B-A-5	+0.1	+0.2
B-A-6	+0.2	+0.3
B-A-7	+0.3	+0.5
B-A-8	+0.1	+0.2
B-A-9	+0.3	+0.5
B-A-10	+0.2	+0.3
B-A-11	+0.2	+0.4
B-A-12	+0.1	+0.3
B-A-13	+0.3	+0.5
B-A-14	+0.0	+0.5

4. See data files 209336-101 through 209336-114 for individual ground data points.



PROJECT NO.: 209336-1

SPECIFICATION: TC0920-2470

PART NO.: See Page 4

PART DESCRIPTION: See Page 4

SAMPLE SIZE: 14 Samples

TECHNICIAN: GL

START DATE: 01/06/10

COMPLETE DATE: 01/10/10

ROOM AMBIENT: 18°C

RELATIVE HUMIDITY: 26%

EQUIPMENT ID#: 1303, 1314, 1361, 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 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)

SIGNAL DATA

<u>Sample ID#</u>	<u>Avg. Change</u>	<u>Max. Change</u>
B-A-1	+0.2	+1.0
B-A-2	-0.4	+0.3
B-A-3	-0.4	+0.7
B-A-4	-0.4	+0.3
B-A-5	-1.1	-0.7
B-A-6	-0.1	+0.4
B-A-7	-0.9	+0.8
B-A-8	+1.1	+2.3
B-A-9	+0.3	+0.9
B-A-10	+0.4	+1.1
B-A-11	+0.3	+0.5
B-A-12	-0.3	+0.0
B-A-13	-0.5	+0.8
B-A-14	-0.1	+0.4

4. See data files 209336-115 through 209336-128 for individual signal data points.

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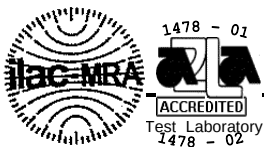
RESULTS:-continued

CHANGE IN
LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

GROUND DATA

<u>Sample ID#</u>	<u>Avg. Change</u>	<u>Max. Change</u>
B-A-1	+0.4	+0.6
B-A-2	+0.5	+0.6
B-A-3	+0.5	+0.7
B-A-4	+0.6	+1.3
B-A-5	+0.7	+0.8
B-A-6	+0.4	+0.8
B-A-7	+0.2	+1.3
B-A-8	+1.0	+2.0
B-A-9	+0.5	+0.6
B-A-10	+0.6	+1.1
B-A-11	+0.7	+1.3
B-A-12	+0.3	+0.5
B-A-13	+0.7	+0.9
B-A-14	+0.1	+0.4

4. See data files 209336-101 through 209336-114 for individual ground data points.



PROJECT NO.: 209336-1

SPECIFICATION: TC0920-2470

PART NO.: See Page 4

PART DESCRIPTION: See Page 4

SAMPLE SIZE: 14 Samples

TECHNICIAN: GL

START DATE: 01/14/10

COMPLETE DATE: 01/24/10

ROOM AMBIENT: 20°C

RELATIVE HUMIDITY: 22%

EQUIPMENT ID#: 1230, 1303, 1314, 1361

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 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)

SIGNAL DATA

<u>Sample ID#</u>	<u>Avg. Change</u>	<u>Max. Change</u>
B-A-1	-0.1	+0.2
B-A-2	-0.4	-0.2
B-A-3	+0.2	+1.9
B-A-4	-0.3	+0.3
B-A-5	-0.6	+0.2
B-A-6	+0.2	+1.2
B-A-7	+0.1	+1.4
B-A-8	+0.0	+0.9
B-A-9	-0.4	+0.1
B-A-10	+0.2	+0.4
B-A-11	+0.2	+1.3
B-A-12	+0.0	+0.6
B-A-13	-0.3	+0.3
B-A-14	+1.7	+3.0

3. See data files 209336-115 through 209336-128 for individual signal data points.

-continued on next page.



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RESULTS:-continued

CHANGE IN
LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

GROUND DATA

<u>Sample ID#</u>	<u>Avg. Change</u>	<u>Max. Change</u>
B-A-1	+2.5	+3.9
B-A-2	+1.5	+3.2
B-A-3	+0.9	+1.2
B-A-4	+1.8	+4.7
B-A-5	+1.6	+2.2
B-A-6	+2.0	+4.8
B-A-7	+2.2	+4.1
B-A-8	+1.4	+1.8
B-A-9	+1.6	+2.3
B-A-10	+1.4	+3.1
B-A-11	+2.1	+4.8
B-A-12	+1.0	+1.3
B-A-13	+2.2	+5.0
B-A-14	+1.5	+2.0

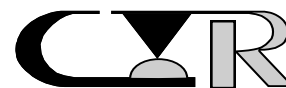
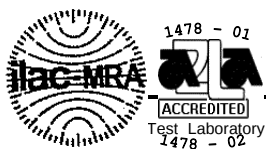
4. See data files 209336-101 through 209336-114 for individual ground data points.



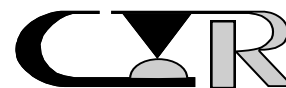
LLCR DATA FILES

FILE NUMBERS

209336-101
209336-102
209336-103
209336-104
209336-105
209336-106
209336-107
209336-108
209336-109
209336-110
209336-111
209336-112
209336-113
209336-114



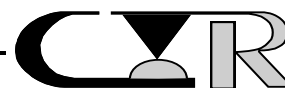
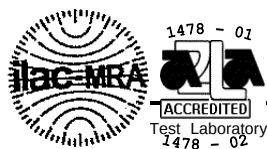
Low Level Contact Resistance						
Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connector				File #: 209336-101	
Description:	B-A-1	Ground				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	19	20	22		
R.H. %	28	27	24	32		
Date:	04Jan10	05Jan10	11Jan10	26Jan10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-1	4.2	0.2	0.6	2.1		
B-1-3	4.9	0.1	0.3	0.9		
B-1-6	5.1	0.1	0.4	3.8		
B-1-8	4.0	0.3	0.5	3.9		
B-1-10	4.1	0.2	0.6	2.6		
B-1-12	4.2	0.0	0.3	1.9		
MAX	5.1	0.3	0.6	3.9		
MIN	4.0	0.0	0.3	0.9		
AVG	4.4	0.1	0.4	2.5		
STD	0.5	0.1	0.1	1.2		
Open	0	0	0	0		
Tech	MHB	GL	GL	GL		
Equip ID	1276	1047	1047	1047		
	207	558	558	558		



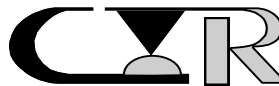
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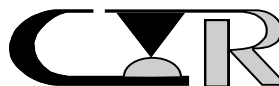
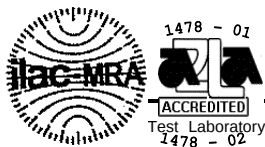
Low Level Contact Resistance						
Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connectors				File #: 209336-102	
Description:	B-A-2	Ground				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	19	20	22		
R.H. %	28	27	24	32		
Date:	04Jan10	05Jan10	11Jan10	26Jan10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-1	4.3	0.2	0.4	1.3		
B-1-3	4.6	0.1	0.5	1.1		
B-1-6	5.5	0.3	0.6	3.2		
B-1-8	4.2	0.2	0.4	1.1		
B-1-10	4.1	0.4	0.5	1.2		
B-1-12	4.1	0.2	0.3	1.0		
MAX	5.5	0.4	0.6	3.2		
MIN	4.1	0.1	0.3	1.0		
AVG	4.5	0.2	0.5	1.5		
STD	0.5	0.1	0.1	0.9		
Open	0	0	0	0		
Tech	MHB	MHB	GL	GL		
Equip ID	1276	1276	1047	1047		
	207	207	558	558		



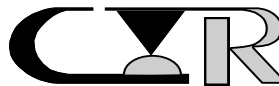
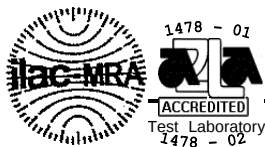
Low Level Contact Resistance						
Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connector				File #: 209336-103	
Description:	B-A-3	Ground				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	19	20	22		
R.H. %	28	27	24	32		
Date:	04Jan10	05Jan10	11Jan10	26Jan10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-1	4.0	0.2	0.5	0.8		
B-1-3	4.0	0.3	0.7	1.0		
B-1-6	4.4	0.2	0.7	1.2		
B-1-8	3.4	0.2	0.5	1.2		
B-1-10	4.0	0.1	0.2	0.5		
B-1-12	3.9	0.1	0.2	0.5		
MAX	4.4	0.3	0.7	1.2		
MIN	3.4	0.1	0.2	0.5		
AVG	3.9	0.2	0.5	0.9		
STD	0.3	0.1	0.2	0.3		
Open	0	0	0	0		
Tech	MHB	MHB	GL	GL		
Equip ID	1276	1276	1047	1047		
	207	207	558	558		



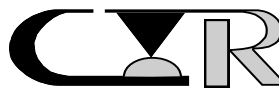
Low Level Contact Resistance						
Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connector				File #: 209336-104	
Description:	B-A-4	Ground				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	19	20	22		
R.H. %	28	27	24	32		
Date:	04Jan10	05Jan10	11Jan10	26Jan10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-1	4.2	0.1	0.2	0.7		
B-1-3	4.4	0.2	0.6	1.3		
B-1-6	4.5	0.1	1.3	4.7		
B-1-8	4.3	0.1	0.6	1.4		
B-1-10	4.2	0.0	0.4	1.8		
B-1-12	3.8	0.1	0.3	1.0		
MAX	4.5	0.2	1.3	4.7		
MIN	3.8	0.0	0.2	0.7		
AVG	4.2	0.1	0.6	1.8		
STD	0.3	0.0	0.4	1.5		
Open	0	0	0	0		
Tech	MHB	MHB	GL	GL		
Equip ID	1276	1276	1047	1047		
	207	207	558	558		



Low Level Contact Resistance						
Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connector				File #: 209336-105	
Description:	B-A-5	Ground				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	19	20	22		
R.H. %	28	27	24	32		
Date:	04Jan10	05Jan10	11Jan10	26Jan10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-1	3.8	0.2	0.8	1.4		
B-1-3	3.9	0.2	0.8	2.2		
B-1-6	4.4	0.0	0.6	2.1		
B-1-8	3.5	0.1	0.7	1.3		
B-1-10	3.6	0.1	0.5	0.8		
B-1-12	3.7	0.2	0.7	1.6		
MAX	4.4	0.2	0.8	2.2		
MIN	3.5	0.0	0.5	0.8		
AVG	3.8	0.1	0.7	1.6		
STD	0.3	0.1	0.1	0.5		
Open	0	0	0	0		
Tech	MHB	GL	GL	GL		
Equip ID	1276	1047	1047	1047		
	207	558	558	558		



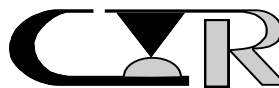
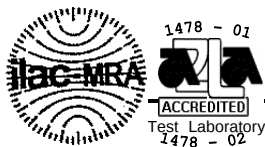
Low Level Contact Resistance						
Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connector				File #: 209336-106	
Description:	B-A-6	Ground				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	19	20	22		
R.H. %	28	27	24	32		
Date:	04Jan10	05Jan10	11Jan10	26Jan10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-1	4.6	0.0	0.2	0.6		
B-1-3	4.2	0.0	0.1	0.8		
B-1-6	5.4	0.2	0.8	4.8		
B-1-8	4.5	0.3	0.6	2.8		
B-1-10	4.3	0.2	0.3	1.2		
B-1-12	3.6	0.3	0.5	1.7		
MAX	5.4	0.3	0.8	4.8		
MIN	3.6	0.0	0.1	0.6		
AVG	4.4	0.2	0.4	2.0		
STD	0.6	0.1	0.3	1.6		
Open	0	0	0	0		
Tech	MHB	GL	GL	GL		
Equip ID	1276	1047	1047	1047		
	207	558	558	558		



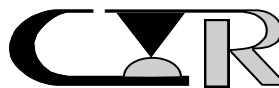
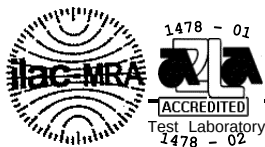
Low Level Contact Resistance						
Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connector				File #: 209336-107	
Description:	B-A-7	Ground				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	19	20	22		
R.H. %	28	27	24	32		
Date:	04Jan10	05Jan10	11Jan10	26Jan10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-1	3.8	0.1	1.3	1.2		
B-1-3	4.2	0.3	0.4	1.8		
B-1-6	6.1	0.5	-0.3	2.6		
B-1-8	3.6	0.4	0.0	4.1		
B-1-10	3.8	0.2	-0.2	1.6		
B-1-12	3.6	0.3	0.2	2.1		
MAX	6.1	0.5	1.3	4.1		
MIN	3.6	0.1	-0.3	1.2		
AVG	4.2	0.3	0.2	2.2		
STD	1.0	0.1	0.6	1.0		
Open	0	0	0	0		
Tech	MHB	GL	GL	GL		
Equip ID	1276	1047	1047	1047		
	207	558	558	558		



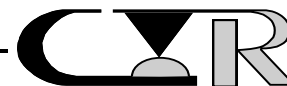
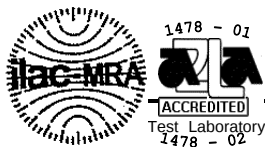
Low Level Contact Resistance						
Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connector				File #: 209336-108	
Description:	B-A-8	Ground				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	19	20	22		
R.H. %	28	27	24	32		
Date:	04Jan10	05Jan10	11Jan10	26Jan10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-1	4.7	0.1	-0.7	1.8		
B-1-3	4.2	0.1	0.6	0.7		
B-1-6	5.1	0.2	2.0	1.3		
B-1-8	3.3	0.1	1.5	1.3		
B-1-10	3.2	0.0	1.3	1.3		
B-1-12	3.3	0.2	0.9	1.6		
MAX	5.1	0.2	2.0	1.8		
MIN	3.2	0.0	-0.7	0.7		
AVG	4.0	0.1	1.0	1.4		
STD	0.8	0.1	0.9	0.4		
Open	0	0	0	0		
Tech	MHB	GL	GL	GL		
Equip ID	1276	1047	1047	1047		
	207	558	558	558		



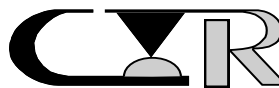
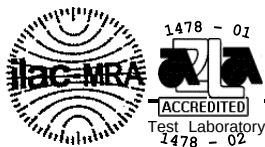
Low Level Contact Resistance						
Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connector				File #: 209336-109	
Description:	B-A-9	Ground				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	18	20	22		
R.H. %	28	26	24	32		
Date:	04Jan10	06Jan10	11Jan10	26Jan10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-1	4.5	0.3	0.5	1.8		
B-1-3	4.5	0.3	0.6	1.6		
B-1-6	5.2	0.5	0.5	2.0		
B-1-8	4.1	0.2	0.3	0.9		
B-1-10	4.0	0.3	0.4	1.3		
B-1-12	3.8	0.2	0.6	2.3		
MAX	5.2	0.5	0.6	2.3		
MIN	3.8	0.2	0.3	0.9		
AVG	4.4	0.3	0.5	1.6		
STD	0.5	0.1	0.1	0.5		
Open	0	0	0	0		
Tech	MHB	GL	GL	GL		
Equip ID	1276	1047	1047	1047		
	207	558	558	558		



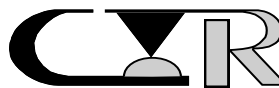
Low Level Contact Resistance						
Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connector				File #: 209336-110	
Description:	B-A-10	Ground				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	18	20	22		
R.H. %	28	26	24	32		
Date:	04Jan10	06Jan10	11Jan10	26Jan10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-1	4.8	0.0	0.4	1.0		
B-1-3	4.5	0.2	0.5	0.8		
B-1-6	5.4	0.3	1.1	3.1		
B-1-8	4.0	0.2	0.6	1.5		
B-1-10	3.9	0.2	0.6	1.1		
B-1-12	4.0	0.2	0.3	0.9		
MAX	5.4	0.3	1.1	3.1		
MIN	3.9	0.0	0.3	0.8		
AVG	4.4	0.2	0.6	1.4		
STD	0.6	0.1	0.3	0.9		
Open	0	0	0	0		
Tech	MHB	GL	GL	GL		
Equip ID	1276	1047	1047	1047		
	207	558	558	558		



Low Level Contact Resistance						
Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connector				File #: 209336-111	
Description:	B-A-11	Ground				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	18	20	22		
R.H. %	28	26	24	32		
Date:	04Jan10	06Jan10	11Jan10	26Jan10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-1	3.7	0.2	0.5	1.0		
B-1-3	4.0	0.4	0.6	2.0		
B-1-6	4.7	0.2	1.3	4.8		
B-1-8	3.6	0.2	0.7	1.4		
B-1-10	3.5	0.2	0.6	1.6		
B-1-12	3.4	0.3	0.6	1.9		
MAX	4.7	0.4	1.3	4.8		
MIN	3.4	0.2	0.5	1.0		
AVG	3.8	0.2	0.7	2.1		
STD	0.5	0.1	0.3	1.3		
Open	0	0	0	0		
Tech	MHB	GL	GL	GL		
Equip ID	1276	1047	1047	1047		
	207	558	558	558		



Low Level Contact Resistance						
Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connector				File #: 209336-112	
Description:	B-A-12	Ground				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	18	20	22		
R.H. %	28	26	24	32		
Date:	04Jan10	06Jan10	11Jan10	26Jan10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-1	3.9	0.2	0.3	0.9		
B-1-3	4.5	0.1	0.1	0.7		
B-1-6	5.0	0.1	0.5	1.3		
B-1-8	3.9	0.1	0.3	1.0		
B-1-10	4.1	0.1	0.2	0.9		
B-1-12	3.9	0.3	0.3	1.2		
MAX	5.0	0.3	0.5	1.3		
MIN	3.9	0.1	0.1	0.7		
AVG	4.2	0.1	0.3	1.0		
STD	0.4	0.1	0.1	0.2		
Open	0	0	0	0		
Tech	MHB	GL	GL	GL		
Equip ID	1276	1047	1047	1047		
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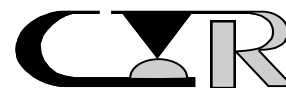
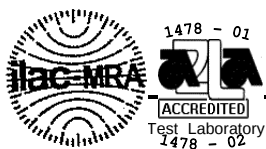
Low Level Contact Resistance						
Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connector				File #: 209336-113	
Description:	B-A-13	Ground				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	18	20	22		
R.H. %	28	26	24	32		
Date:	04Jan10	06Jan10	11Jan10	26Jan10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-1	4.4	0.2	0.7	2.4		
B-1-3	4.4	0.2	0.4	1.2		
B-1-6	4.6	0.3	0.9	5.0		
B-1-8	3.7	0.2	0.7	1.2		
B-1-10	3.9	0.5	0.9	2.0		
B-1-12	3.7	0.1	0.6	1.4		
MAX	4.6	0.5	0.9	5.0		
MIN	3.7	0.1	0.4	1.2		
AVG	4.1	0.3	0.7	2.2		
STD	0.4	0.1	0.2	1.4		
Open	0	0	0	0		
Tech	MHB	GL	GL	GL		
Equip ID	1276	1047	1047	1047		
	207	558	558	558		



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Low Level Contact Resistance						
Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connector				File #: 209336-114	
Description:	B-A-14	Ground				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	18	20	22		
R.H. %	28	26	24	32		
Date:	04Jan10	06Jan10	11Jan10	26Jan10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-1	4.4	-0.6	-0.5	1.2		
B-1-3	3.8	0.1	0.1	1.3		
B-1-6	4.9	0.0	0.4	1.8		
B-1-8	3.3	0.0	0.2	1.8		
B-1-10	3.3	0.1	0.4	2.0		
B-1-12	3.8	0.5	0.1	0.9		
MAX	4.9	0.5	0.4	2.0		
MIN	3.3	-0.6	-0.5	0.9		
AVG	3.9	0.0	0.1	1.5		
STD	0.6	0.4	0.3	0.4		
Open	0	0	0	0		
Tech	MHB	GL	GL	GL		
Equip ID	1276	1047	1047	1047		
	207	558	558	558		



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LLCR DATA FILES

FILE NUMBERS

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209336-116

209336-117

209336-118

209336-119

209336-120

209336-121

209336-122

209336-123

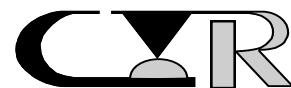
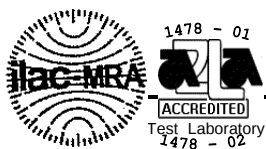
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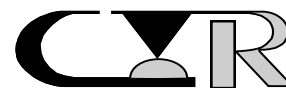
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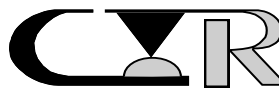
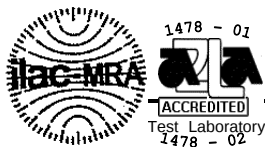
Low Level Contact Resistance						
Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connector				File #: 209336-115	
Description:	B-A-1	Signal				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	19	20	22		
R.H. %	28	27	24	32		
Date:	04Jan10	05Jan10	11Jan10	26Jan10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-2	20.30	-0.3	0.2	0.2		
B-1-4	20.10	0.1	0.8	-0.1		
B-1-5	19.70	-0.2	-0.2	0.1		
B-1-7	19.40	0.7	1.0	-0.2		
B-1-9	20.20	0.0	0.0	-0.1		
B-1-11	21.30	-0.2	-0.5	-0.2		
MAX	21.30	0.70	1.00	0.20		
MIN	19.40	-0.30	-0.50	-0.20		
AVG	20.17	0.02	0.22	-0.05		
STD	0.65	0.37	0.58	0.16		
Open	0	0.0	0	0		
Tech	MHB	GL	GL	GL		
Equip ID	1276	1047	1047	1047		
	207	558	558	558		



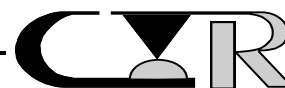
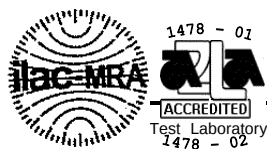
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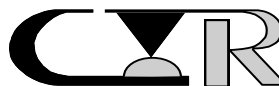
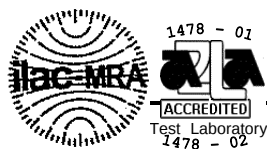
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Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connectors				File #: 209336-116	
Description:	B-A-2	Signal				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	19	20	22		
R.H. %	28	27	24	32		
Date:	04Jan10	05Jan10	11Jan10	26Jan10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-2	20.20	-0.3	-0.4	-0.5		
B-1-4	20.20	1.0	-0.5	-0.4		
B-1-5	18.80	2.0	-0.9	-0.2		
B-1-7	20.70	1.9	0.1	-0.2		
B-1-9	20.40	2.3	-0.7	-1.0		
B-1-11	20.20	1.0	0.3	-0.4		
MAX	20.7	2.3	0.3	-0.2		
MIN	18.8	-0.3	-0.9	-1.0		
AVG	20.1	1.3	-0.4	-0.4		
STD	0.7	1.0	0.5	0.3		
Open	0	0	0	0		
Tech	MHB	MHB	GL	GL		
Equip ID	1276.0	1276.0	1047.0	1047		
	207.0	207.0	558.0	558		



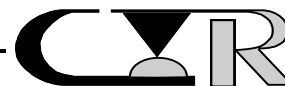
Low Level Contact Resistance						
Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connector				File #: 209336-117	
Description:	B-A-3	Signal				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	19	20	22		
R.H. %	28	27	24	32		
Date:	04Jan10	05Jan10	11Jan10	26Jan10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-2	20.4	-0.9	0.1	-0.6		
B-1-4	19.2	0.9	0.7	0.7		
B-1-5	20.0	0.1	-1.7	1.9		
B-1-7	20.4	-0.2	0.0	0.0		
B-1-9	20.7	0.0	0.2	0.5		
B-1-11	21.6	-2.5	-1.4	-1.4		
MAX	21.6	0.9	0.7	1.9		
MIN	19.2	-2.5	-1.7	-1.4		
AVG	20.4	-0.4	-0.4	0.2		
STD	0.8	1.2	1.0	1.1		
Open	0	0	0	0		
Tech	MHB	MHB	GL	GL		
Equip ID	1276	1276	1047	1047		
	207	207	558	558		



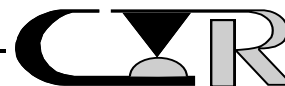
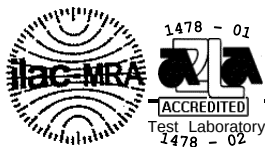
Low Level Contact Resistance						
Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connector				File #: 209336-118	
Description:	B-A-4	Signal				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	19	20	22		
R.H. %	28	27	24	32		
Date:	4-Jan-10	5-Jan-10	11-Jan-10	26-Jan-10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-2	20.1	1.5	-0.4	0.1		
B-1-4	20.1	0.3	-0.8	-0.7		
B-1-5	20.1	-0.3	-0.6	-1.0		
B-1-7	19.9	0.7	0.0	0.0		
B-1-9	21.3	1.0	0.3	0.3		
B-1-11	20.8	-0.3	-0.9	-0.4		
MAX	21.3	1.5	0.3	0.3		
MIN	19.9	-0.3	-0.9	-1.0		
AVG	20.4	0.5	-0.4	-0.3		
STD	0.5	0.7	0.5	0.5		
Open	0	0	0	0		
Tech	MHB	MHB	GL	GL		
Equip ID	1276	1276	1047	1047		
	207	207	558	558		



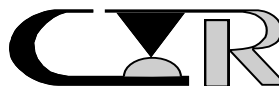
Low Level Contact Resistance						
Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connector				File #: 209336-119	
Description:	B-A-5	Signal				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	19	20	22		
R.H. %	28	27	24	32		
Date:	4-Jan-10	5-Jan-10	11-Jan-10	26-Jan-10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-2	19.9	-0.7	-0.9	-0.6		
B-1-4	19.6	-0.8	-1.0	-1.0		
B-1-5	20.9	-1.8	-1.4	0.2		
B-1-7	19.6	-1.3	-1.0	-0.8		
B-1-9	21.1	-1.4	-1.6	-1.4		
B-1-11	20.0	-1.2	-0.7	0.0		
MAX	21.1	-0.7	-0.7	0.2		
MIN	19.6	-1.8	-1.6	-1.4		
AVG	20.2	-1.2	-1.1	-0.6		
STD	0.7	0.4	0.3	0.6		
Open	0	0	0	0		
Tech	MHB	GL	GL	GL		
Equip ID	1276	1047	1047	1047		
	207	558	558	558		



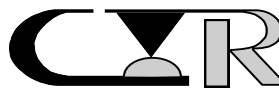
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Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connector				File #: 209336-120	
Description:	B-A-6	Signal				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	19	20	22		
R.H. %	28	27	24	32		
Date:	4-Jan-10	5-Jan-10	11-Jan-10	26-Jan-10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-2	19.9	-0.6	-0.2	-0.3		
B-1-4	19.1	0.5	0.4	1.2		
B-1-5	21.3	-0.9	-0.9	-0.3		
B-1-7	20.5	-0.1	-0.1	0.2		
B-1-9	20.2	-0.6	0.1	0.4		
B-1-11	20.7	-0.8	0.0	-0.1		
MAX	21.3	0.5	0.4	1.2		
MIN	19.1	-0.9	-0.9	-0.3		
AVG	20.3	-0.4	-0.1	0.2		
STD	0.7	0.5	0.4	0.6		
Open	0	0	0	0		
Tech	MHB	GL	GL	GL		
Equip ID	1276	1047	1047	1047		
	207	558	558	558		



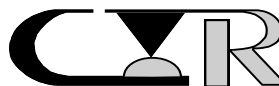
Low Level Contact Resistance						
Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connector				File #: 209336-121	
Description:	B-A-7	Signal				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	19	20	22		
R.H. %	28	27	24	32		
Date:	4-Jan-10	5-Jan-10	11-Jan-10	26-Jan-10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-2	21.0	-0.2	-0.3	0.0		
B-1-4	20.8	-0.4	-1.2	-0.1		
B-1-5	21.8	0.0	-0.9	-0.4		
B-1-7	19.8	0.1	0.8	0.1		
B-1-9	21.2	1.2	-2.6	-0.3		
B-1-11	20.6	0.6	-0.9	1.4		
MAX	21.8	1.2	0.8	1.4		
MIN	19.8	-0.4	-2.6	-0.4		
AVG	20.9	0.2	-0.9	0.1		
STD	0.7	0.6	1.1	0.7		
Open	0	0	0	0		
Tech	MHB	GL	GL	GL		
Equip ID	1276	1047	1047	1047		
	207	558	558	558		



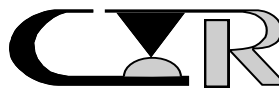
Low Level Contact Resistance						
Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connector				File #: 209336-122	
Description:	B-A-8	Signal				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	19	20	22		
R.H. %	28	27	24	32		
Date:	4-Jan-10	5-Jan-10	11-Jan-10	26-Jan-10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-2	20.6	0.4	0.8	0.0		
B-1-4	19.3	0.8	1.4	0.2		
B-1-5	19.5	1.9	2.3	0.9		
B-1-7	20.2	0.1	-0.9	-0.3		
B-1-9	19.2	-0.3	1.3	-0.8		
B-1-11	18.8	2.2	1.9	0.2		
MAX	20.6	2.2	2.3	0.9		
MIN	18.8	-0.3	-0.9	-0.8		
AVG	19.6	0.9	1.1	0.0		
STD	0.7	1.0	1.1	0.6		
Open	0	0	0	0		
Tech	MHB	GL	GL	GL		
Equip ID	1276	1047	1047	1047		
	207	558	558	558		



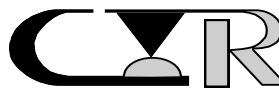
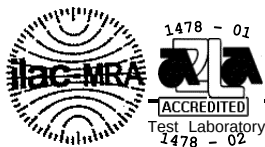
Low Level Contact Resistance						
Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connector				File #: 209336-123	
Description:	B-A-9	Signal				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	18	20	22		
R.H. %	28	26	24	32		
Date:	4-Jan-10	6-Jan-10	11-Jan-10	26-Jan-10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-2	19.2	0.7	0.3	-0.4		
B-1-4	19.3	1.1	0.9	0.1		
B-1-5	20.4	0.0	-0.5	-0.7		
B-1-7	20.2	0.4	0.7	-0.4		
B-1-9	20.7	0.1	-0.1	-0.7		
B-1-11	20.0	-0.4	0.5	-0.1		
MAX	20.7	1.1	0.9	0.1		
MIN	19.2	-0.4	-0.5	-0.7		
AVG	20.0	0.3	0.3	-0.4		
STD	0.6	0.5	0.5	0.3		
Open	0	0	0	0		
Tech	MHB	GL	GL	GL		
Equip ID	1276	1047	1047	1047		
	207	558	558	558		



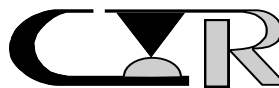
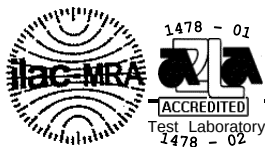
Low Level Contact Resistance						
Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connector				File #: 209336-124	
Description:	B-A-10	Signal				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	18	20	22		
R.H. %	28	26	24	32		
Date:	4-Jan-10	6-Jan-10	11-Jan-10	26-Jan-10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-2	20.8	1.2	0.2	0.4		
B-1-4	20.8	0.0	0.0	0.1		
B-1-5	20.2	0.5	0.4	0.1		
B-1-7	19.8	0.2	0.3	0.2		
B-1-9	20.6	0.8	1.1	0.4		
B-1-11	20.6	0.4	0.5	0.1		
MAX	20.8	1.2	1.1	0.4		
MIN	19.8	0.0	0.0	0.1		
AVG	20.5	0.5	0.4	0.2		
STD	0.4	0.4	0.4	0.1		
Open	0	0	0	0		
Tech	MHB	GL	GL	GL		
Equip ID	1276	1047	1047	1047		
	207	558	558	558		



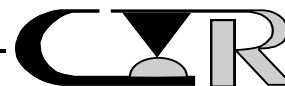
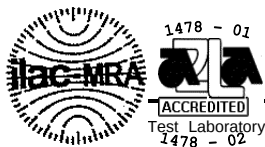
Low Level Contact Resistance						
Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connector				File #: 209336-125	
Description:	B-A-11	Signal				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	18	20	22		
R.H. %	28	26	24	32		
Date:	04Jan10	06Jan10	11Jan10	26Jan10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-2	20.0	0.1	0.2	-0.6		
B-1-4	19.7	1.0	0.5	-0.2		
B-1-5	20.0	0.7	0.5	0.8		
B-1-7	19.8	0.5	-0.3	0.0		
B-1-9	19.6	1.4	0.2	1.3		
B-1-11	19.5	2.1	0.5	0.0		
MAX	20.0	2.1	0.5	1.3		
MIN	19.5	0.1	-0.3	-0.6		
AVG	19.8	1.0	0.3	0.2		
STD	0.2	0.7	0.3	0.7		
Open	0	0	0	0		
Tech	MHB	GL	GL	GL		
Equip ID	1276	1047	1047	1047		
	207	558	558	558		



Low Level Contact Resistance						
Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connector				File #: 209336-126	
Description:	B-A-12	Signal				
Open circuit voltage:	20mv				Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	18	20	22		
R.H. %	28	26	24	32		
Date:	04Jan10	06Jan10	11Jan10	26Jan10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-2	20.8	1.2	0.0	0.4		
B-1-4	20.3	-0.1	-0.3	0.0		
B-1-5	20.8	-1.5	-1.2	-0.9		
B-1-7	21.0	1.3	-0.2	0.6		
B-1-9	20.1	1.4	-0.2	0.0		
B-1-11	20.5	-0.6	0.0	-0.3		
MAX	21.0	1.4	0.0	0.6		
MIN	20.1	-1.5	-1.2	-0.9		
AVG	20.6	0.3	-0.3	0.0		
STD	0.4	1.2	0.5	0.6		
Open	0	0	0	0		
Tech	MHB	GL	GL	GL		
Equip ID	1276	1047	1047	1047		
	207	558	558	558		



Low Level Contact Resistance						
Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connector				File #: 209336-127	
Description:	B-A-13	Signal				
Open circuit voltage:	20mv				Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	18	20	22		
R.H. %	28	26	24	32		
Date:	04Jan10	06Jan10	11Jan10	26Jan10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-2	20.8	0.4	-0.6	0.3		
B-1-4	21.1	0.1	-1.0	-0.6		
B-1-5	19.8	-0.4	0.0	0.1		
B-1-7	19.2	0.2	0.8	0.2		
B-1-9	20.6	0.3	-0.9	-0.8		
B-1-11	21.2	-0.5	-1.2	-1.0		
MAX	21.2	0.4	0.8	0.3		
MIN	19.2	-0.5	-1.2	-1.0		
AVG	20.5	0.0	-0.5	-0.3		
STD	0.8	0.4	0.7	0.6		
Open	0	0	0	0		
Tech	MHB	GL	GL	GL		
Equip ID	1276	1047	1047	1047		
	207	558	558	558		



Low Level Contact Resistance						
Project:	209336-1				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq B	
Product:	Series IP5-RA connector				File #: 209336-128	
Description:	B-A-14	Signal				
Open circuit voltage:	20mv				Current:	10ma
Delta values						
units: milliohms						
Temp °C	24	18	20	22		
R.H. %	28	26	24	32		
Date:	04Jan10	06Jan10	11Jan10	26Jan10		
Pos. ID	Initial	100X	T Shock	Humidity		
B-1-2	19.1	1.0	-0.2	2.1		
B-1-4	19.3	0.1	-0.3	2.1		
B-1-5	19.3	0.8	0.4	0.4		
B-1-7	19.1	1.5	0.2	0.3		
B-1-9	19.2	1.0	-0.2	3.0		
B-1-11	19.2	0.9	-0.5	2.4		
MAX	19.3	1.5	0.4	3.0		
MIN	19.1	0.1	-0.5	0.3		
AVG	19.2	0.9	-0.1	1.7		
STD	0.1	0.5	0.3	1.1		
Open	0	0	0	0		
Tech	MHB	GL	GL	GL		
Equip ID	1276	1047	1047	1047		
	207	558	558	558		

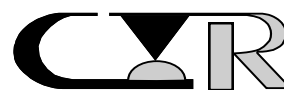
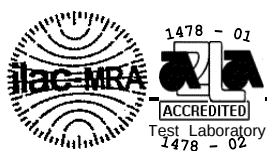


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TEST RESULTS

SEQUENCE C GROUP A



PROJECT NO.: 209336

SPECIFICATION: TC0920-2470

PART NO.: See Page 4

PART DESCRIPTION: See Page 4

SAMPLE SIZE: 12 Samples

TECHNICIAN: MOB

START DATE: 8/11/09

COMPLETE DATE: 8/12/09

ROOM AMBIENT: 22°C

RELATIVE HUMIDITY: 50%

EQUIPMENT ID#: 1125, 1219

LOW LEVEL CIRCUIT RESISTANCE (LLCR)

PURPOSE:

1. To evaluate contact resistance characteristics of the contact systems under conditions where 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 millivolts
 - c) No. of Positions Tested : 25 per test sample

REQUIREMENTS: See Next Page.



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)

SIGNAL DATA

<u>Sample ID#</u>	<u>Avg.</u>	<u>Max.</u>	<u>Min.</u>
C-A-1	25.4	26.2	24.7
C-A-2	25.0	27.1	24.1
C-A-3	26.6	27.5	25.4
C-A-4	24.5	25.1	23.8
C-A-5	24.1	26.1	23.3
C-A-6	26.2	27.5	24.9
C-A-7	25.0	26.0	24.4
C-A-8	24.7	25.2	24.2
C-A-9	25.7	26.5	24.5
C-A-10	23.3	23.9	22.6
C-A-11	23.7	24.6	22.1
C-A-12	26.7	28.1	25.6

2. See data files 20933632 through 20933643 for individual signal data points.

-continued on next page.



RESULTS:-continued

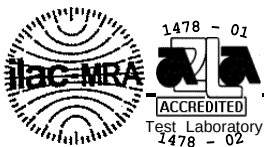
3. The following is a summary of the data observed:

LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

GROUND DATA

<u>Sample ID#</u>	<u>Avg.</u>	<u>Max.</u>	<u>Min.</u>
C-A-1	6.4	6.7	6.1
C-A-2	7.1	7.7	6.4
C-A-3	6.7	7.0	6.3
C-A-4	5.5	6.1	5.1
C-A-5	6.1	6.5	5.9
C-A-6	6.4	6.8	6.1
C-A-7	6.7	9.5	5.5
C-A-8	7.1	7.9	6.5
C-A-9	7.5	8.3	6.5
C-A-10	5.6	5.8	5.2
C-A-11	5.5	6.0	5.2
C-A-12	7.1	7.7	6.6

4. See data files 20933644 through 20933655 for individual ground data points.



PROJECT NO.: 209336

SPECIFICATION: TC0920-2470

PART NO.: See page 4

PART DESCRIPTION: See page 4

SAMPLE SIZE: 12 Samples TECHNICIAN: MOB

START DATE: 8/14/09

COMPLETE DATE: 8/18/09

ROOM AMBIENT: 21°C

RELATIVE HUMIDITY: 41%

EQUIPMENT ID#: 200, 252, 874, 1028, 1366, 1367, 1368, 1474

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.

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)
2. A stabilizing medium was used such that the mated test samples did not separate during the test.
 3. Figure #2 illustrates the test sample fixturing utilized during the test.
 4. 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:

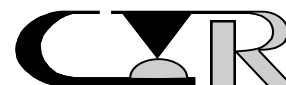
1. There was no evidence of physical damage to the test samples as tested.
2. The following is a summary of the data observed:

CHANGE IN
LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

SIGNAL DATA

<u>Sample ID#</u>	<u>Avg. Change</u>	<u>Max. Change</u>
C-A-1	+0.1	+0.7
C-A-2	-0.5	-0.2
C-A-3	-0.5	+0.3
C-A-4	-0.1	+0.3
C-A-5	-0.7	+0.0
C-A-6	-0.2	+2.1
C-A-7	-0.5	-0.3
C-A-8	-0.3	-0.1
C-A-9	-0.5	-0.1
C-A-10	+0.0	+0.4
C-A-11	+0.2	+0.8
C-A-12	-0.2	+0.5

3. See data files 20933632 through 20933643 for individual signal data points.



RESULTS:-continued

4. There was no evidence of physical damage to the test samples as tested.
5. The following is a summary of the data observed:

CHANGE IN
LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

GROUND DATA

<u>Sample ID#</u>	<u>Avg. Change</u>	<u>Max. Change</u>
C-A-1	+0.0	+0.4
C-A-2	+0.1	+0.5
C-A-3	+0.1	+0.8
C-A-4	+0.0	+0.4
C-A-5	+1.6	+2.2
C-A-6	+0.0	+0.1
C-A-7	+0.0	+0.9
C-A-8	+0.7	+1.7
C-A-9	+0.0	+1.3
C-A-10	+0.5	+1.0
C-A-11	+0.2	+0.4
C-A-12	+0.1	+0.7

6. See data files 20933644 through 20933655 for individual ground data points.
7. 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

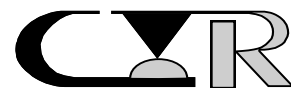
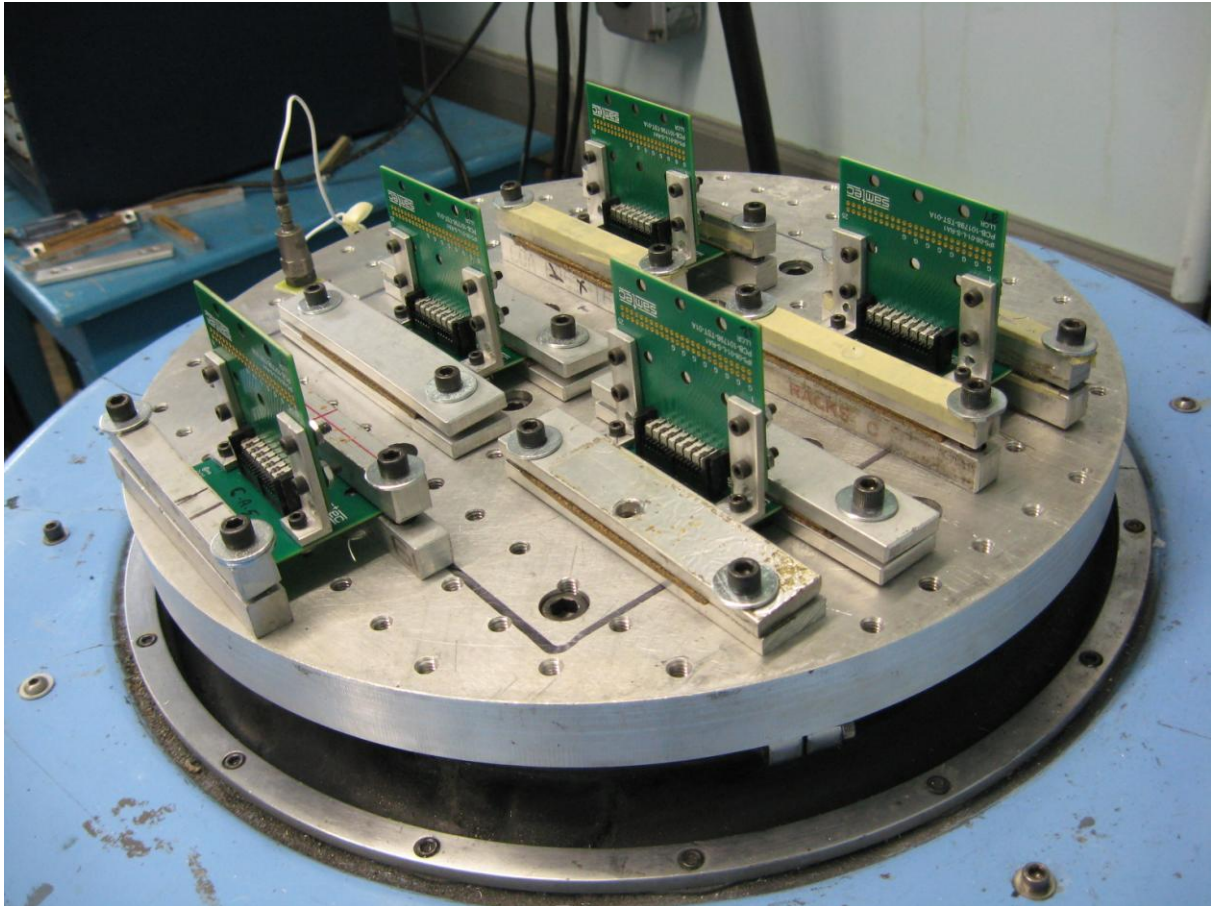
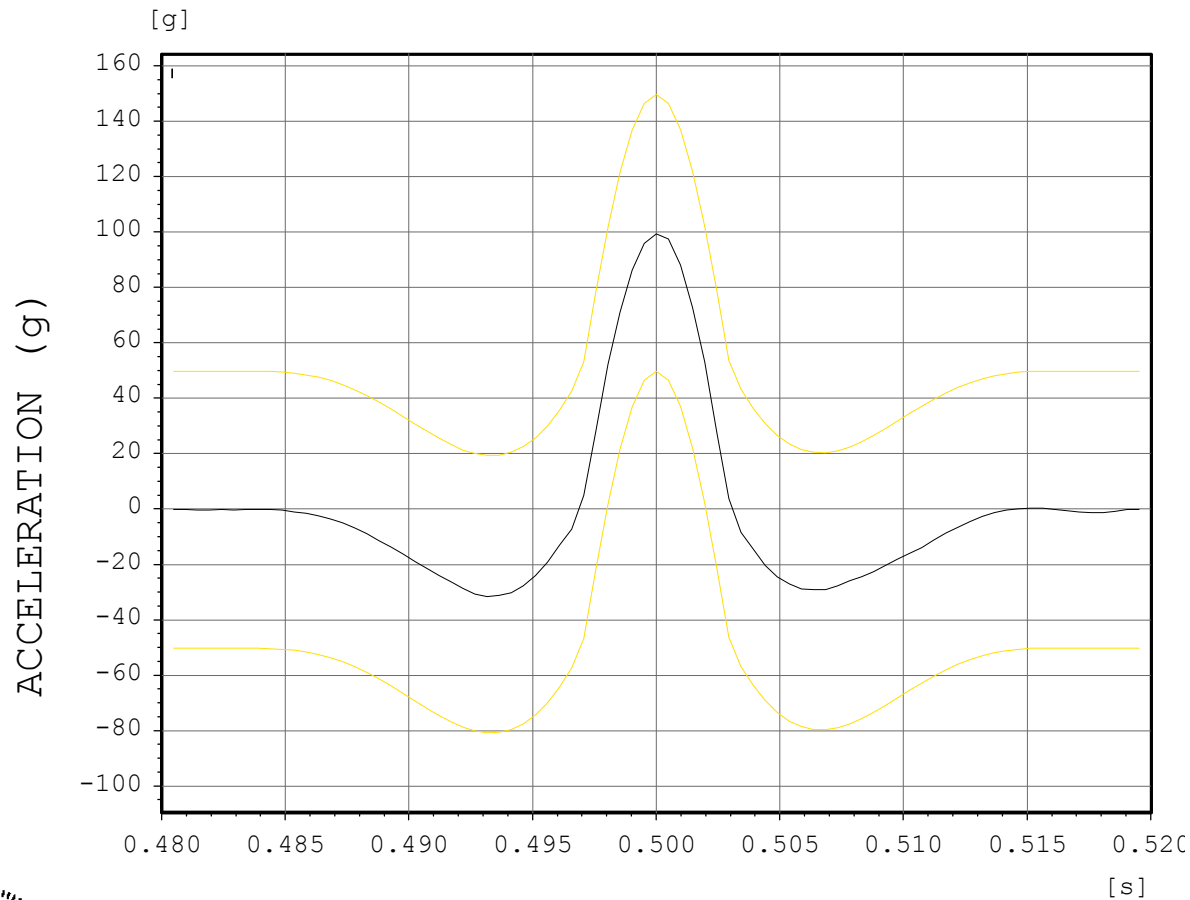


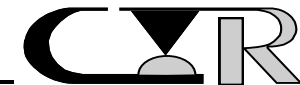
FIGURE #3

Classical Shock

Channel 1



Project 209336
Samtec
Cal Wave 1
08/14/09
Tech: /MOB
100G, 6mS

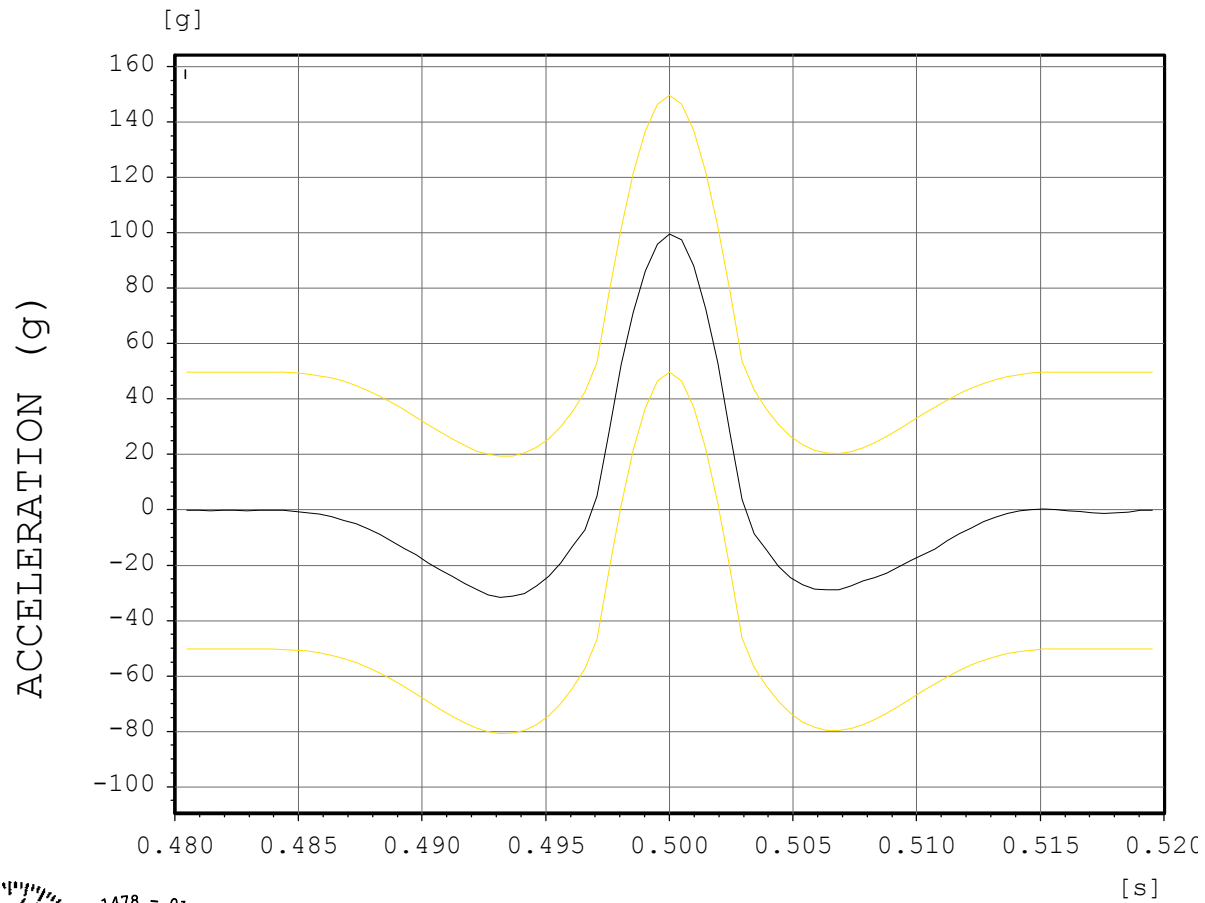


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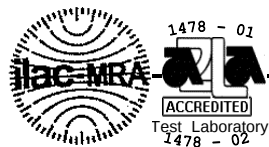
FIGURE #4

Classical Shock

Channel 1



Project 209336
Samtec
Actual Wave
08/14/09
Tech: /MOB



TR#209336, REV.1.2

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PROJECT NO.: 209336

SPECIFICATION: TC0920-2470

PART NO.: See page 4

PART DESCRIPTION: See page 4

SAMPLE SIZE: 12 Samples

TECHNICIAN: MOB

START DATE: 8/18/09

COMPLETE DATE: 8/18/09

ROOM AMBIENT: 22°C

RELATIVE HUMIDITY: 50%

EQUIPMENT ID#: 200, 252, 874, 1028, 1366, 1367, 1368, 1474

VIBRATION, RANDOM

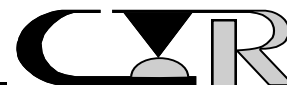
PURPOSE:

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 : 0.01 G²/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 data observed:

CHANGE IN
LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

SIGNAL DATA

<u>Sample ID#</u>	<u>Avg. Change</u>	<u>Max. Change</u>
C-A-1	-0.6	+0.1
C-A-2	-1.3	-0.7
C-A-3	-1.2	-0.4
C-A-4	+5.8	+9.9
C-A-5	+0.0	+1.8
C-A-6	-0.9	+2.3
C-A-7	-1.2	-0.5
C-A-8	-1.1	-0.9
C-A-9	-1.2	-0.7
C-A-10	-0.7	+0.0
C-A-11	+2.9	+6.8
C-A-12	-0.8	+2.9

3. See data files 20933632 through 20933643 for individual signal data points.



RESULTS:-continued

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

CHANGE IN
LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

GROUND DATA

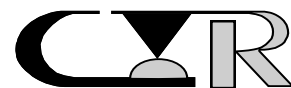
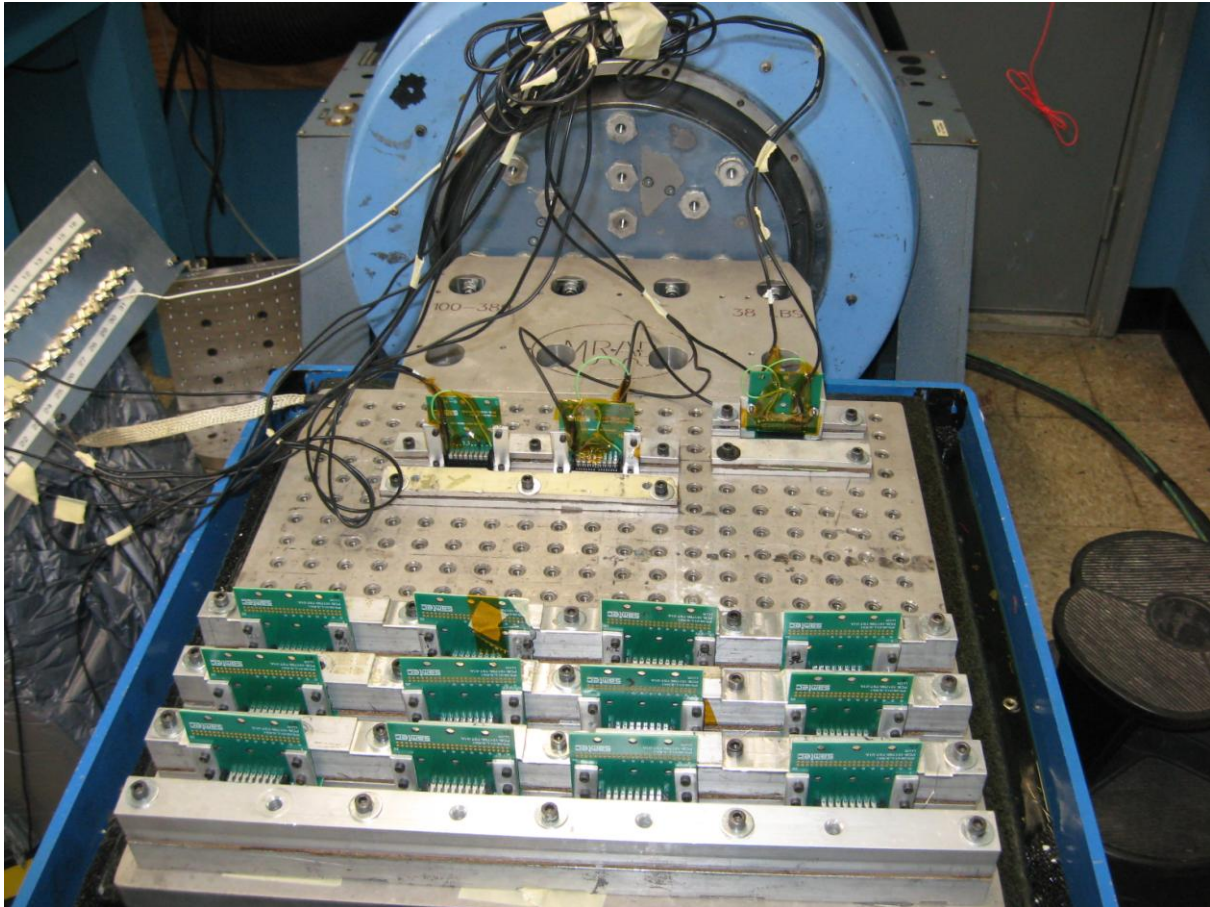
<u>Sample ID#</u>	<u>Avg. Change</u>	<u>Max. Change</u>
C-A-1	+1.0	+1.6
C-A-2	-0.1	+0.3
C-A-3	-0.1	+0.6
C-A-4	+0.6	+1.0
C-A-5	+3.8	+9.5
C-A-6	+0.7	+1.3
C-A-7	+0.3	+3.7
C-A-8	+0.3	+1.0
C-A-9	+1.2	+3.2
C-A-10	+1.1	+1.4
C-A-11	+2.0	+4.1
C-A-12	+0.1	+0.9

5. See data files 20933644 through 20933655 for individual ground data points.



FIGURE #5

TYPICAL FIXTURING RANDOM VIBRATION



LLCR DATA FILES

FILE NUMBERS

20933632

20933633

20933634

20933635

20933636

20933637

20933638

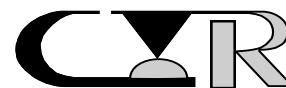
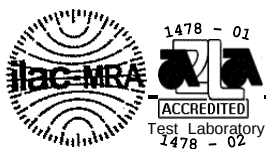
20933639

20933640

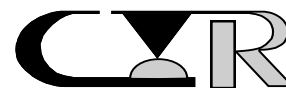
20933641

20933642

20933643



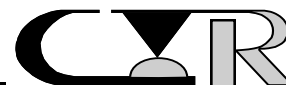
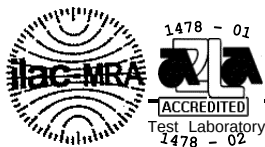
Low Level Contact Resistance						
Project:	209336				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq C	
Product:	Series IPA-RA connector				File #: 20933632	
Description:	C-A-1	Signal				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	22	22	22			
R.H. %	50	50	52			
Date:	11Aug09	18Aug09	21Aug09			
Pos. ID	Initial	M Shock	Vibration			
C-A-1-2	24.7	0.1	-0.9			
C-A-1-4	24.8	0.0	-0.8			
C-A-1-6	24.8	0.7	0.1			
C-A-1-8	25.9	-0.5	-1.0			
C-A-1-10	26.2	0.0	-0.6			
C-A-1-12	25.4	-0.3	-0.6			
C-A-1-14	26.1	0.0	-1.0			
C-A-1-16	25.4	0.4	0.0			
MAX	26.2	0.7	0.1			
MIN	24.7	-0.5	-1.0			
AVG	25.4	0.1	-0.6			
STD	0.6	0.4	0.4			
Open	0	0	0			
Tech	MOB	MOB	MOB			
Equip ID	1125	1125	1125			
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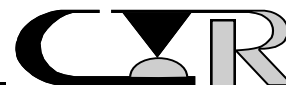
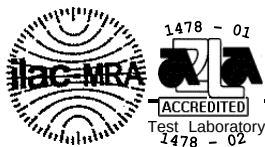
Low Level Contact Resistance						
Project:	209336				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq C	
Product:	Series IP5-RA connectors				File #: 20933633	
Description:	C-A-2	Signal				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	22	22	22			
R.H. %	50	50	52			
Date:	11Aug09	18Aug09	21Aug09			
Pos. ID	Initial	M Shock	Vibration			
C-A-2-2	24.9	-0.6	-1.1			
C-A-2-4	27.1	-0.9	-2.8			
C-A-2-6	24.7	-0.3	-0.8			
C-A-2-8	24.4	-0.5	-0.9			
C-A-2-10	24.9	-0.2	-1.2			
C-A-2-12	25.8	-1.0	-2.0			
C-A-2-14	24.3	-0.3	-0.7			
C-A-2-16	24.1	-0.3	-0.9			
MAX	27.1	-0.2	-0.7			
MIN	24.1	-1.0	-2.8			
AVG	25.0	-0.5	-1.3			
STD	1.0	0.3	0.7			
Open	0	0	0			
Tech	MOB	MOB	MOB			
Equip ID	1125	1125	1125			
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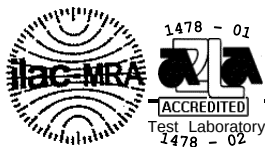
Low Level Contact Resistance						
Project:	209336				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq C	
Product:	Series IP5-RA connector				File #: 20933634	
Description:	C-A-3	Signal				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	22	22	22			
R.H. %	50	50	52			
Date:	11Aug09	18Aug09	21Aug09			
Pos. ID	Initial	M Shock	Vibration			
C-3-2	27.5	-0.5	-1.1			
C-3-4	25.4	0.3	-0.4			
C-3-6	27.0	-0.3	-1.0			
C-3-8	27.3	-0.8	-1.5			
C-3-10	27.3	-0.6	-1.3			
C-3-12	26.5	-0.9	-1.3			
C-3-14	25.7	-0.4	-1.3			
C-3-16	26.4	-0.5	-1.7			
MAX	27.5	0.3	-0.4			
MIN	25.4	-0.9	-1.7			
AVG	26.6	-0.5	-1.2			
STD	0.8	0.3	0.4			
Open	0	0	0			
Tech	MOB	MOB	MOB			
Equip ID	1125	1125	1125			
	1219	1219	1219			



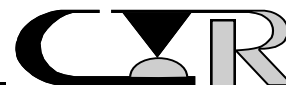
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Low Level Contact Resistance						
Project:	209336				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq C	
Product:	Series IP5-RA connector				File #: 20933635	
Description:	C-A-4	Signal				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	22	22	22			
R.H. %	50	50	52			
Date:	11Aug09	18Aug09	21Aug09			
Pos. ID	Initial	M Shock	Vibration			
C-A-4-2	24.3	0.3	1.8			
C-A-4-4	23.9	-0.2	3.7			
C-A-4-6	24.8	-0.6	4.8			
C-A-4-8	25.1	-0.2	9.9			
C-A-4-10	24.8	-0.4	7.5			
C-A-4-12	24.5	0.1	2.9			
C-A-4-14	23.8	0.3	8.4			
C-A-4-16	24.5	-0.1	7.6			
MAX	25.1	0.3	9.9			
MIN	23.8	-0.6	1.8			
AVG	24.5	-0.1	5.8			
STD	0.5	0.3	2.9			
Open	0	0	0			
Tech	MOB	MOB	MOB			
Equip ID	1125	1125	1125			
	1219	1219	1219			



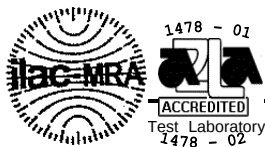
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Project:	209336				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq C	
Product:	Series IP5-RA connector				File #: 20933636	
Description:	C-A-5	Signal				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	22	22	22			
R.H. %	50	50	52			
Date:	11Aug09	18Aug09	21Aug09			
Pos. ID	Initial	M Shock	Vibration			
C-A-5-2	23.6	-0.8	1.8			
C-A-5-4	23.3	-0.5	0.4			
C-A-5-6	24.9	-1.0	-0.6			
C-A-5-8	24.2	-0.5	1.3			
C-A-5-10	23.6	-0.1	-0.9			
C-A-5-12	26.1	-2.2	-2.8			
C-A-5-14	23.9	-0.2	-0.2			
C-A-5-16	23.3	0.0	1.3			
MAX	26.1	0.0	1.8			
MIN	23.3	-2.2	-2.8			
AVG	24.1	-0.7	0.0			
STD	1.0	0.7	1.5			
Open	0	0	0			
Tech	MOB	MOB	MOB			
Equip ID	1125	1125	1125			
	1219	1219	1219			



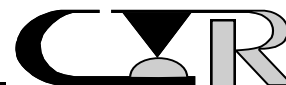
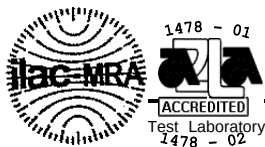
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Low Level Contact Resistance						
Project:	209336				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq C	
Product:	Series IP5-RA connector				File #: 20933637	
Description:	C-A-6	Signal				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	22	22	22			
R.H. %	50	50	52			
Date:	11Aug09	18Aug09	21Aug09			
Pos. ID	Initial	M Shock	Vibration			
C-A-6-2	26.8	-1.0	-1.9			
C-A-6-4	26.3	-0.4	-1.5			
C-A-6-6	26.0	-0.9	-1.8			
C-A-6-8	26.1	-0.8	-1.5			
C-A-6-10	26.2	-0.5	-1.2			
C-A-6-12	25.8	-0.2	-1.0			
C-A-6-14	24.9	0.0	-1.1			
C-A-6-16	27.5	2.1	2.3			
MAX	27.5	2.1	2.3			
MIN	24.9	-1.0	-1.9			
AVG	26.2	-0.2	-0.9			
STD	0.8	1.0	1.4			
Open	0	0	0			
Tech	MOB	MOB	MOB			
Equip ID	1125	1125	1125			
	1219	1219	1219			



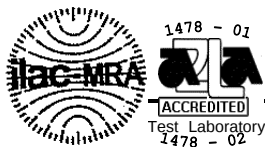
Low Level Contact Resistance						
Project:	209336				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq C	
Product:	Series IP5-RA connector				File #: 20933638	
Description:	C-A-7	Signal				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	22	22	22			
R.H. %	50	50	52			
Date:	11Aug09	18Aug09	21Aug09			
Pos. ID	Initial	M Shock	Vibration			
C-A-7-2	26.0	-0.7	-1.9			
C-A-7-4	25.8	-0.7	-2.3			
C-A-7-6	24.7	-0.4	-1.0			
C-A-7-8	24.9	-0.4	-0.9			
C-A-7-10	24.5	-0.4	-0.5			
C-A-7-12	24.8	-0.3	-0.5			
C-A-7-14	24.8	-0.4	-1.0			
C-A-7-16	24.4	-0.4	-1.3			
MAX	26.0	-0.3	-0.5			
MIN	24.4	-0.7	-2.3			
AVG	25.0	-0.5	-1.2			
STD	0.6	0.1	0.6			
Open	0	0	0			
Tech	MOB	MOB	MOB			
Equip ID	1125	1125	1125			
	1219	1219	1219			



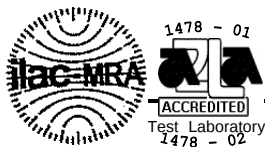
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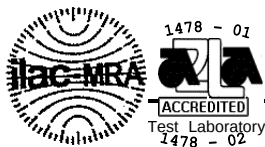
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Project:	209336				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq C	
Product:	Series IP5-RA connector				File #: 20933639	
Description:	C-A-8	Signal				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	21	22	22			
R.H. %	49	50	52			
Date:	12Aug09	18Aug09	21Aug09			
Pos. ID	Initial	M Shock	Vibration			
C-A-8-2	24.2	-0.1	-0.9			
C-A-8-4	24.4	-0.2	-1.0			
C-A-8-6	25.2	-0.2	-1.3			
C-A-8-8	24.9	-0.1	-1.1			
C-A-8-10	24.8	-0.2	-0.9			
C-A-8-12	24.9	-0.7	-1.2			
C-A-8-14	24.8	-0.5	-1.1			
C-A-8-16	24.6	-0.3	-0.9			
MAX	25.2	-0.1	-0.9			
MIN	24.2	-0.7	-1.3			
AVG	24.7	-0.3	-1.1			
STD	0.3	0.2	0.1			
Open	0	0	0			
Tech	MOB	MOB	MOB			
Equip ID	1125	1125	1125			
	1219	1219	1219			



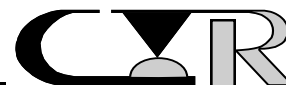
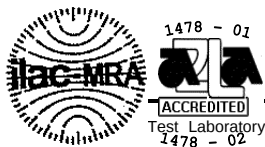
Low Level Contact Resistance						
Project:	209336				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq C	
Product:	Series IP5-RA connector				File #: 20933640	
Description:	C-A-9	Signal				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	21	22	22			
R.H. %	49	50	52			
Date:	12Aug09	18Aug09	21Aug09			
Pos. ID	Initial	M Shock	Vibration			
C-A-9-2	26.5	-0.8	-2.1			
C-A-9-4	25.2	-0.3	-1.4			
C-A-9-6	24.5	-0.1	-1.1			
C-A-9-8	25.9	-0.6	-1.0			
C-A-9-10	25.8	-0.6	-0.7			
C-A-9-12	25.9	-0.3	-0.9			
C-A-9-14	25.8	-0.9	-1.3			
C-A-9-16	25.6	-0.4	-1.1			
MAX	26.5	-0.1	-0.7			
MIN	24.5	-0.9	-2.1			
AVG	25.7	-0.5	-1.2			
STD	0.59	0.28	0.44			
Open	0	0	0			
Tech	MOB	MOB	MOB			
Equip ID	1125	1125	1125			
	1219	1219	1219			



Low Level Contact Resistance						
Project:	209336				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq C	
Product:	Series IP5-RA connector				File #: 20933641	
Description:	C-A-10	Signal				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	21	22	22			
R.H. %	49	50	52			
Date:	12Aug09	18Aug09	21Aug09			
Pos. ID	Initial	M Shock	Vibration			
C-A-10-2	22.7	-0.2	-0.7			
C-A-10-4	22.6	0.2	-0.9			
C-A-10-6	23.0	0.3	-0.8			
C-A-10-8	23.9	-0.1	-0.9			
C-A-10-10	23.9	-0.6	-0.9			
C-A-10-12	23.5	0.2	-0.4			
C-A-10-14	23.8	-0.1	-1.0			
C-A-10-16	22.6	0.4	0.0			
MAX	23.9	0.4	0.0			
MIN	22.6	-0.6	-1.0			
AVG	23.3	0.0	-0.7			
STD	0.59	0.33	0.33			
Open	0	0	0			
Tech	MOB	MOB	MOB			
Equip ID	1125	1125	1125			
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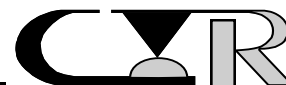
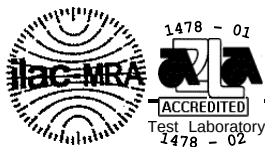
Low Level Contact Resistance						
Project:	209336				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq C	
Product:	Series IP5-RA connector				File #: 20933642	
Description:	C-A-11	Signal				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	21	22	22			
R.H. %	49	50	52			
Date:	12Aug09	18Aug09	21Aug09			
Pos. ID	Initial	M Shock	Vibration			
C-11-2	22.1	-0.3	4.0			
C-11-4	24.4	0.0	0.6			
C-11-6	23.2	0.8	1.9			
C-11-8	24.1	0.4	3.9			
C-11-10	24.6	0.1	6.8			
C-11-12	24.0	0.5	2.6			
C-11-14	24.2	0.1	2.7			
C-11-16	23.0	0.3	0.6			
MAX	24.6	0.8	6.8			
MIN	22.1	-0.3	0.6			
AVG	23.7	0.2	2.9			
STD	0.9	0.4	2.0			
Open	0	0	0			
Tech	MOB	MOB	MOB			
Equip ID	1125	1125	1125			
	1219	1219	1219			



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Low Level Contact Resistance						
Project:	209336				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq C	
Product:	Series IP5-RA connector				File #: 20933643	
Description:	C-A-12	Signal				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	21	22	22			
R.H. %	49	50	52			
Date:	12Aug09	18Aug09	21Aug09			
Pos. ID	Initial	M Shock	Vibration			
C-A-12-2	25.6	0.3	-1.1			
C-A-12-4	25.9	0.0	-1.0			
C-A-12-6	26.7	-0.4	-1.8			
C-A-12-8	26.8	-0.6	-1.1			
C-A-12-10	27.3	-0.2	-1.5			
C-A-12-12	26.1	0.1	-1.2			
C-A-12-14	28.1	-1.4	-1.9			
C-A-12-16	27.0	0.5	2.9			
MAX	28.1	0.5	2.9			
MIN	25.6	-1.4	-1.9			
AVG	26.7	-0.2	-0.8			
STD	0.8	0.6	1.5			
Open	0	0	0			
Tech	MOB	MOB	MOB			
Equip ID	1125	1125	1125			
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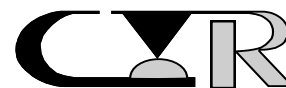
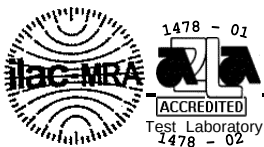
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LLCR DATA FILES

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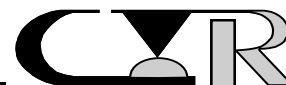
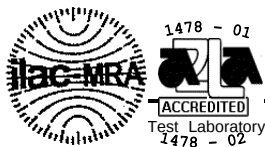
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Project:	209336				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq C	
Product:	Series IPA-RA connector				File #: 20933644	
Description:	C-A-1	Grnd				
Open circuit voltage:	20mv				Current:	10ma
Delta values						
units: milliohms						
Temp °C	22	22	22			
R.H. %	50	50	52			
Date:	11Aug09	18Aug09	21Aug09			
Pos. ID	Initial	M Shock	Vibration			
C-A-1-1	6.2	0.4	1.6			
C-A-1-3	6.4	0.1	1.0			
C-A-1-5	6.2	0.2	1.3			
C-A-1-7	6.4	-0.1	1.6			
C-A-1-9	6.7	-0.3	0.7			
C-A-1-11	6.5	0.0	1.1			
C-A-1-13	6.7	0.0	0.8			
C-A-1-15	6.1	-0.1	0.3			
MAX	6.7	0.4	1.6			
MIN	6.1	-0.3	0.3			
AVG	6.4	0.0	1.0			
STD	0.2	0.2	0.5			
Open	0	0	0			
Tech	MOB	MOB	MOB			
Equip ID	1125	1125	1125			
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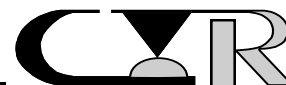
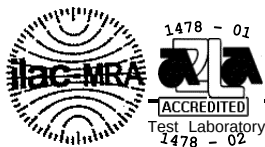
Low Level Contact Resistance						
Project:	209336				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq C	
Product:	Series IP5-RA connectors				File #: 20933645	
Description:	C-A-2	Grnd				
Open circuit voltage:	20mv				Current:	10ma
Delta values						
units: milliohms						
Temp °C	22	22	22			
R.H. %	50	50	52			
Date:	11Aug09	18Aug09	21Aug09			
Pos. ID	Initial	M Shock	Vibration			
C-A-2-1	6.6	0.1	0.1			
C-A-2-3	7.7	0.1	-0.5			
C-A-2-5	7.7	-0.1	-0.7			
C-A-2-7	7.0	0.0	-0.1			
C-A-2-9	7.3	0.1	0.2			
C-A-2-11	6.4	0.1	0.3			
C-A-2-13	6.7	0.5	0.0			
C-A-2-15	7.0	0.3	0.0			
MAX	7.7	0.5	0.3			
MIN	6.4	-0.1	-0.7			
AVG	7.1	0.1	-0.1			
STD	0.5	0.2	0.3			
Open	0	0	0			
Tech	MOB	MOB	MOB			
Equip ID	1125	1125	1125			
	1219	1219	1219			



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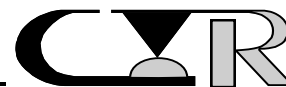
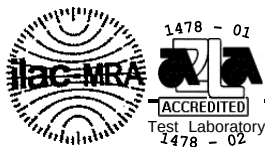
Low Level Contact Resistance						
Project:	209336				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq C	
Product:	Series IP5-RA connector				File #: 20933646	
Description:	C-A-3	Grnd				
Open circuit voltage:	20mv				Current:	10ma
Delta values						
units: milliohms						
Temp °C	22	22	22			
R.H. %	50	50	52			
Date:	11Aug09	18Aug09	21Aug09			
Pos. ID	Initial	M Shock	Vibration			
C-3-1	7.0	0.8	0.2			
C-3-3	6.9	-0.2	-0.9			
C-3-5	6.3	0.0	0.0			
C-3-7	7.0	0.0	0.6			
C-3-9	6.8	0.0	-0.3			
C-3-11	6.7	0.1	0.0			
C-3-13	7.0	0.0	-0.2			
C-3-15	6.4	0.3	0.0			
MAX	7.0	0.8	0.6			
MIN	6.3	-0.2	-0.9			
AVG	6.7	0.1	-0.1			
STD	0.3	0.3	0.4			
Open	0	0	0			
Tech	MOB	MOB	MOB			
Equip ID	1125	1125	1125			
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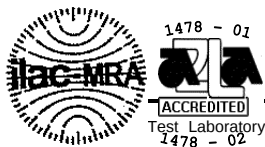
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Customer:	Samtec				Subgroup: Seq C	
Product:	Series IP5-RA connector				File #: 20933647	
Description:	C-A-4	Grnd				
Open circuit voltage:	20mv				Current:	10ma
Delta values						
units: milliohms						
Temp °C	22	22	22			
R.H. %	50	50	52			
Date:	11Aug09	18Aug09	21Aug09			
Pos. ID	Initial	M Shock	Vibration			
C-A-4-1	5.7	0.4	0.4			
C-A-4-3	5.5	-0.1	0.3			
C-A-4-5	5.2	0.0	0.5			
C-A-4-7	5.3	-0.1	0.2			
C-A-4-9	5.6	0.0	0.9			
C-A-4-11	5.3	-0.1	0.5			
C-A-4-13	6.1	-0.1	1.0			
C-A-4-15	5.1	0.1	0.7			
MAX	6.1	0.4	1.0			
MIN	5.1	-0.1	0.2			
AVG	5.5	0.0	0.6			
STD	0.3	0.2	0.3			
Open	0	0	0			
Tech	MOB	MOB	MOB			
Equip ID	1125	1125	1125			
	1219	1219	1219			



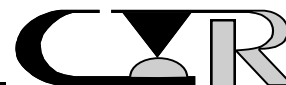
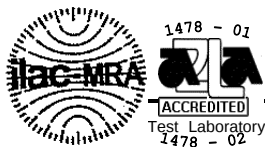
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Low Level Contact Resistance						
Project:	209336				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq C	
Product:	Series IP5-RA connector				File #: 20933648	
Description:	C-A-5	Grnd				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	22	22	22			
R.H. %	50	50	52			
Date:	11Aug09	18Aug09	21Aug09			
Pos. ID	Initial	M Shock	Vibration			
C-A-5-1	5.9	0.8	2.3			
C-A-5-3	5.9	1.7	2.9			
C-A-5-5	6.2	1.8	2.3			
C-A-5-7	6.0	2.2	2.8			
C-A-5-9	6.1	1.9	2.8			
C-A-5-11	6.0	1.2	3.6			
C-A-5-13	6.5	1.8	9.5			
C-A-5-15	6.2	1.2	4.0			
MAX	6.5	2.2	9.5			
MIN	5.9	0.8	2.3			
AVG	6.1	1.6	3.8			
STD	0.2	0.5	2.4			
Open	0	0	0			
Tech	MOB	MOB	MOB			
Equip ID	1125	1125	1125			
	1219	1219	1219			



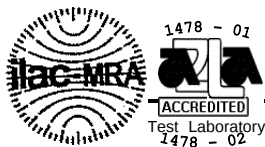
Low Level Contact Resistance						
Project:	209336				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq C	
Product:	Series IP5-RA connector				File #: 20933649	
Description:	C-A-6	Grnd				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	22	22	22			
R.H. %	50	50	52			
Date:	11Aug09	18Aug09	21Aug09			
Pos. ID	Initial	M Shock	Vibration			
C-A-6-1	6.3	0.0	0.7			
C-A-6-3	6.5	-0.1	0.4			
C-A-6-5	6.1	0.0	0.5			
C-A-6-7	6.3	-0.1	0.8			
C-A-6-9	6.8	0.1	1.3			
C-A-6-11	6.2	0.0	0.5			
C-A-6-13	6.3	-0.1	0.7			
C-A-6-15	6.2	-0.1	0.7			
MAX	6.8	0.1	1.3			
MIN	6.1	-0.1	0.4			
AVG	6.4	0.0	0.7			
STD	0.2	0.1	0.3			
Open	0	0	0			
Tech	MOB	MOB	MOB			
Equip ID	1125	1125	1125			
	1219	1219	1219			



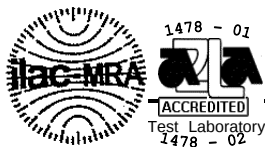
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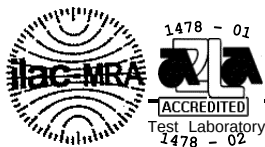
Low Level Contact Resistance						
Project:	209336				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq C	
Product:	Series IP5-RA connector				File #: 20933650	
Description:	C-A-7	Grnd				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	22	22	22			
R.H. %	50	50	52			
Date:	11Aug09	18Aug09	21Aug09			
Pos. ID	Initial	M Shock	Vibration			
C-A-7-1	8.8	0.9	-0.7			
C-A-7-3	5.9	0.0	0.2			
C-A-7-5	5.6	-0.1	0.6			
C-A-7-7	5.5	-0.1	0.5			
C-A-7-9	6.0	-0.1	0.0			
C-A-7-11	5.9	-0.1	0.2			
C-A-7-13	9.5	-0.3	-1.8			
C-A-7-15	6.2	0.0	3.7			
MAX	9.5	0.9	3.7			
MIN	5.5	-0.3	-1.8			
AVG	6.7	0.0	0.3			
STD	1.6	0.4	1.6			
Open	0	0	0			
Tech	MOB	MOB	MOB			
Equip ID	1125	1125	1125			
	1219	1219	1219			



Low Level Contact Resistance						
Project:	209336				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq C	
Product:	Series IP5-RA connector				File #: 20933651	
Description:	C-A-8	Grnd				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	21	22	22			
R.H. %	49	50	52			
Date:	12Aug09	18Aug09	21Aug09			
Pos. ID	Initial	M Shock	Vibration			
C-A-8-1	6.5	0.2	0.2			
C-A-8-3	6.5	0.2	0.5			
C-A-8-5	7.5	1.7	-0.3			
C-A-8-7	6.7	1.0	1.0			
C-A-8-9	6.9	0.5	0.5			
C-A-8-11	7.9	0.1	-0.6			
C-A-8-13	7.2	0.9	0.8			
C-A-8-15	7.7	0.7	0.5			
MAX	7.9	1.7	1.0			
MIN	6.5	0.1	-0.6			
AVG	7.1	0.7	0.3			
STD	0.5	0.5	0.5			
Open	0	0	0			
Tech	MOB	MOB	MOB			
Equip ID	1125	1125	1125			
	1219	1219	1219			



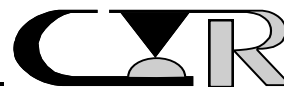
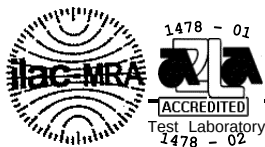
Low Level Contact Resistance						
Project:	209336				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq C	
Product:	Series IP5-RA connector				File #: 20933652	
Description:	C-A-9	Grnd				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	21	22	22			
R.H. %	49	50	52			
Date:	12Aug09	18Aug09	21Aug09			
Pos. ID	Initial	M Shock	Vibration			
C-A-9-1	8.0	-1.3	-0.1			
C-A-9-3	7.4	0.1	2.4			
C-A-9-5	8.0	-0.3	0.3			
C-A-9-7	8.3	-0.7	2.5			
C-A-9-9	7.2	0.8	3.2			
C-A-9-11	8.0	0.2	0.2			
C-A-9-13	6.6	0.0	-0.1			
C-A-9-15	6.5	1.3	1.2			
MAX	8.3	1.3	3.2			
MIN	6.5	-1.3	-0.1			
AVG	7.5	0.0	1.2			
STD	0.7	0.8	1.3			
Open	0	0	0			
Tech	MOB	MOB	MOB			
Equip ID	1125	1125	1125			
	1219	1219	1219			



Low Level Contact Resistance						
Project:	209336				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq C	
Product:	Series IP5-RA connector				File #: 20933653	
Description:	C-A-10	Grnd				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	21	22	22			
R.H. %	49	50	52			
Date:	12Aug09	18Aug09	21Aug09			
Pos. ID	Initial	M Shock	Vibration			
C-A-10-1	5.2	0.4	1.4			
C-A-10-3	5.6	0.3	0.7			
C-A-10-5	5.8	0.3	0.7			
C-A-10-7	5.6	0.4	0.7			
C-A-10-9	5.6	0.9	1.2			
C-A-10-11	5.8	0.6	1.3			
C-A-10-13	5.6	0.5	1.2			
C-A-10-15	5.5	1.0	1.2			
MAX	5.8	1.0	1.4			
MIN	5.2	0.3	0.7			
AVG	5.6	0.5	1.1			
STD	0.2	0.3	0.3			
Open	0	0	0			
Tech	MOB	MOB	MOB			
Equip ID	1125	1125	1125			
	1219	1219	1219			



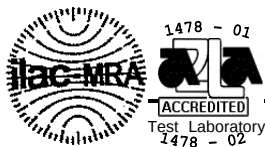
Low Level Contact Resistance						
Project:	209336				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq C	
Product:	Series IP5-RA connector				File #: 20933654	
Description:	C-A-11	Grnd				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	21	22	22			
R.H. %	49	50	52			
Date:	12Aug09	18Aug09	21Aug09			
Pos. ID	Initial	M Shock	Vibration			
C-11-1	5.7	0.1	4.1			
C-11-3	5.4	0.4	1.8			
C-11-5	5.2	0.2	1.2			
C-11-7	5.2	0.2	2.5			
C-11-9	5.5	0.2	1.2			
C-11-11	5.5	0.3	3.2			
C-11-13	6.0	-0.2	0.8			
C-11-15	5.5	0.2	1.7			
MAX	6.0	0.4	4.1			
MIN	5.2	-0.2	0.8			
AVG	5.5	0.2	2.0			
STD	0.3	0.2	1.1			
Open	0	0	0			
Tech	MOB	MOB	MOB			
Equip ID	1125	1125	1125			
	1219	1219	1219			



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Low Level Contact Resistance						
Project:	209336				Spec: EIA 364, TP23	
Customer:	Samtec				Subgroup: Seq C	
Product:	Series IP5-RA connector				File #: 20933655	
Description:	C-A-12	Grnd				
Open circuit voltage:		20mv			Current:	10ma
Delta values						
units: milliohms						
Temp °C	21	22	22			
R.H. %	49	50	52			
Date:	12Aug09	18Aug09	21Aug09			
Pos. ID	Initial	M Shock	Vibration			
C-A-12-1	6.6	0.7	0.4			
C-A-12-3	6.8	0.1	0.5			
C-A-12-5	7.1	0.0	-0.2			
C-A-12-7	7.2	0.3	0.9			
C-A-12-9	7.5	0.2	-0.3			
C-A-12-11	6.9	0.0	-0.1			
C-A-12-13	7.2	0.0	0.0			
C-A-12-15	7.7	-0.4	0.0			
MAX	7.7	0.7	0.9			
MIN	6.6	-0.4	-0.3			
AVG	7.1	0.1	0.1			
STD	0.4	0.3	0.4			
Open	0	0	0			
Tech	MOB	MOB	MOB			
Equip ID	1125	1125	1125			
	1219	1219	1219			



TEST RESULTS

SEQUENCE D GROUP A



PROJECT NO.: 209336

SPECIFICATION: TC0920-2470

PART NO.: See page 4

PART DESCRIPTION: See page 4

SAMPLE SIZE: 3 Samples

TECHNICIAN: MOB

START DATE: 8/14/09

COMPLETE DATE: 8/18/09

ROOM AMBIENT: 22°C

RELATIVE HUMIDITY: 48%

EQUIPMENT ID#: 200, 252, 874, 1028, 1147, 1366, 1367, 1368,
1474

MECHANICAL SHOCK (SPECIFIED PULSE)

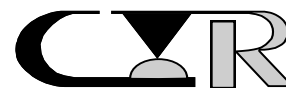
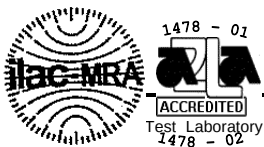
PURPOSE:

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.



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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.

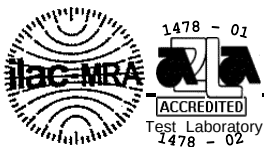
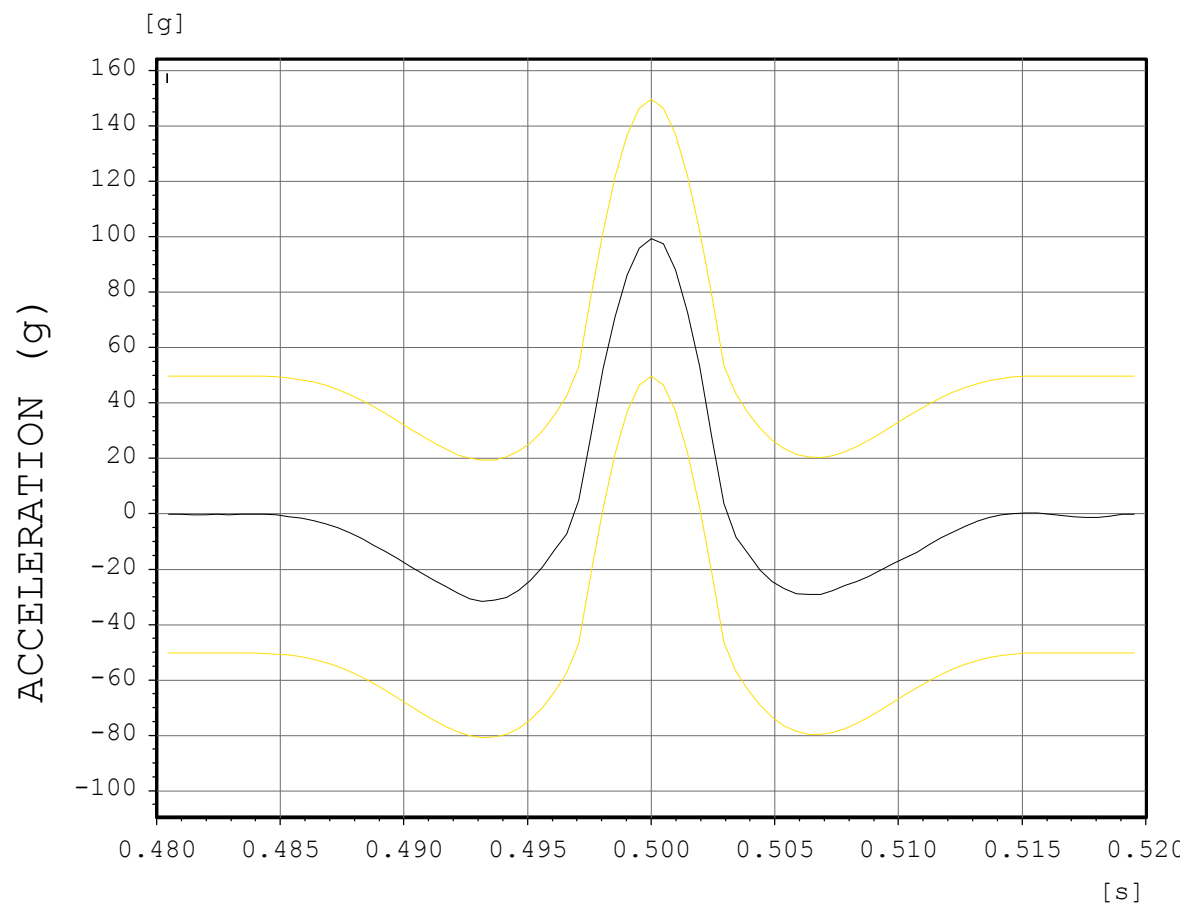


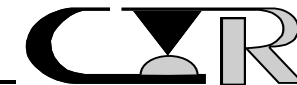
FIGURE #6

Classical Shock

Channel 1



Project 209336
Samtec
Cal Wave 1
08/14/09
Tech: /MOB
100G, 6mS

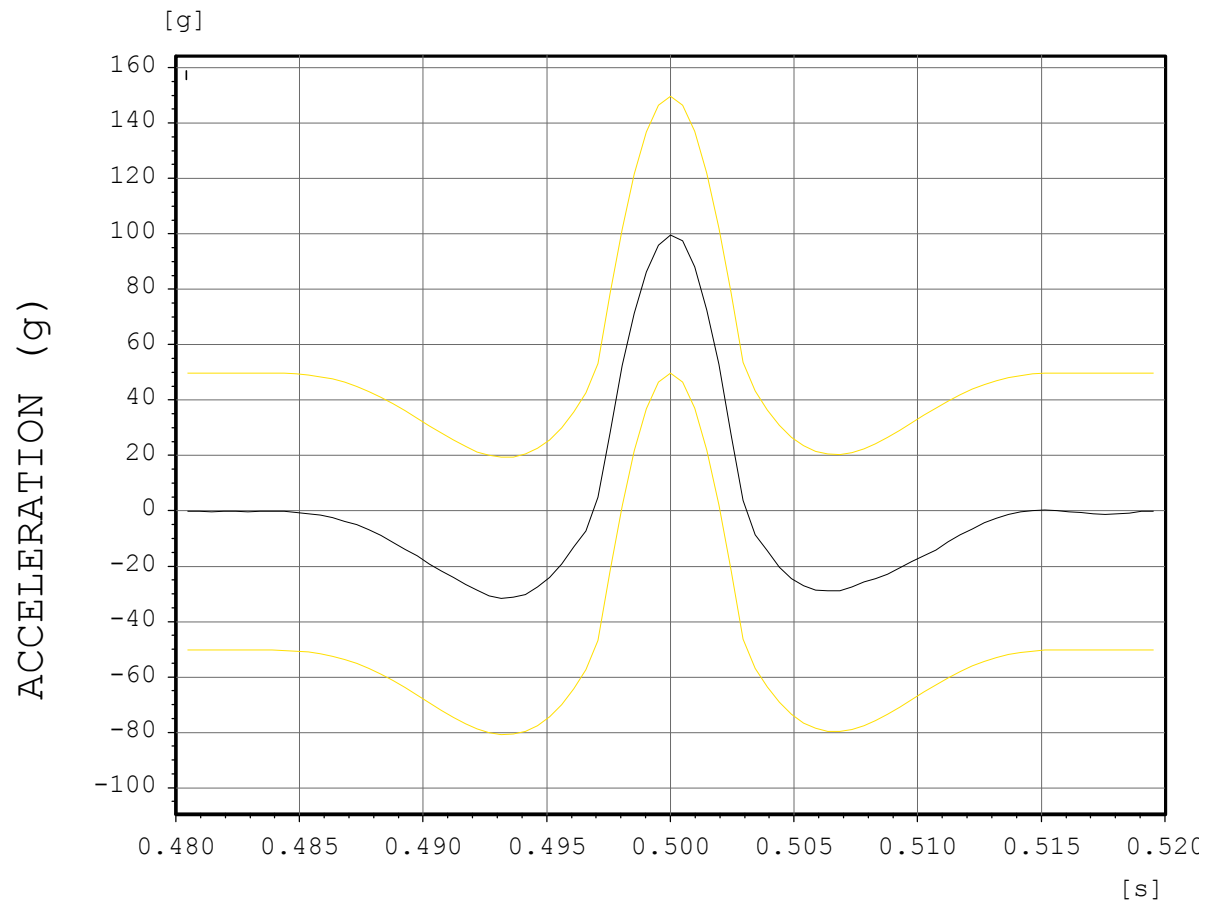


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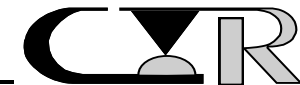
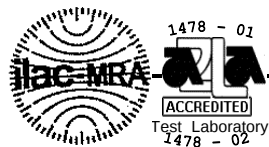
FIGURE #7

Classical Shock

Channel 1



Project 209336
Samtec
Actual Wave
08/14/09
Tech: /MOB



PROJECT NO.: 209336

SPECIFICATION: TC0920-2470

PART NO.: See page 4

PART DESCRIPTION: See page 4

SAMPLE SIZE: 3 Samples

TECHNICIAN: MOB

START DATE: 8/18/09

COMPLETE DATE: 8/29/09

ROOM AMBIENT: 22°C

RELATIVE HUMIDITY: 54%

EQUIPMENT ID#: 200, 252, 874, 1028, 1147, 1366, 1367, 1368,
1474, 5045R

VIBRATION, RANDOM

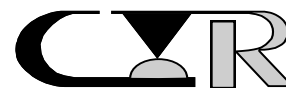
PURPOSE:

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 G²/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.



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.

