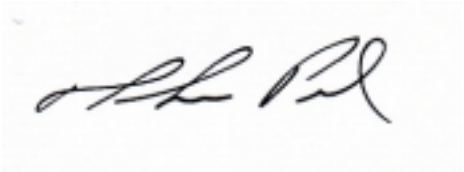
DECEMBER 4, 2001

TEST REPORT #201461B, REV.1.2

QUALIFICATION TESTING
MEC1-RA (MATED TO 0.031" BOARD
(1mm RIGHT ANGLE EDGE CONNECTOR)
P/N: MEC1-140-01-S-D-RA1-SL

SAMTEC, INC.
TC0134-105I-0502



APPROVED BY: THOMAS PEEL
VICE PRESIDENT AND
DIRECTOR OF TEST PROGRAM DEVELOPMENT
CONTECH RESEARCH, INC.

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Contech Research

REVISION HISTORY

DATE	REV. NO.	DESCRIPTION	ENG.
12/4/2001	1.0	Initial Issue	TP
1/28/2002	1.1	Removed Wear Test as instructed by Samtec and their end customer.	TP
2/15/2002	1.2	Removed Figures 8 through 15 per Samtec's request. Renamed Figures 16 through 19 to Figures 8 through 11. Added data at specific temperatures to Figures 8 through 11.	TP

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, 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.

Thomas Peel
Vice President And
Director Of Test Program Development
Contech Research, Inc.

TP:js

SCOPE

To perform qualification testing on the MEC1-RA series connector 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. Product Specifications: TC0134-105I-0502 Flow Chart

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.

	Description	Part Number
a)	1.0 mm, Right Angle Edge Conn.	MEC1-140-01-S-D-RA1-SL

2. The following additional materials were submitted by the test sponsor to assist and perform the testing of items listed in #1 above.

	Description	Board Thickness	Plating
a)	Mating Boards	0.031 inch	30 microinch gold

3. Test boards for mounting test samples were supplied by the test sponsor.

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

5. All test samples were coded and identified by (Contech Research or the test sponsor) to maintain continuity throughout the test sequences. Upon initiating testing, mated test samples remained with each other throughout the test sequences for which they were designated.

TEST SAMPLES AND PREPARATION – Continued

6. Figure #1 illustrates the test sample/test board assembly.

7. Special holding brackets were attached to the test units to prevent movement of the mating elements relative to each other due to handling. These holding brackets are so designed as not to prevent movement of the interconnecting surfaces normally expected when in an operational mode.

8. The test samples for vibration and shock were prepared by terminating all positions in series for monitoring contact interruptions during vibration and/or shock.

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

TEST SELECTION

1. See Test Plan Flow Diagram, Figure #2, for test sequences used.

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

SAMPLE CODING

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

2. The samples have been ID'd by Samtec with the Seq# and ID# as follows:

   Sequence A1 (Unmounted): A1-1, A1-2, A1-3, A1-4
   Sequence A2 (Mounted): A2-1, A2-2, A2-3, A2-4
   Sequence B (Mounted – LLCR): B-1, B-2, B-3, B-4
   (Mounted – Discontinuity): B-5, B-6, B-7, B-8
   Sequence C1 (Mounted): C1-1, C1-2, C1-3, C1-4
   Sequence C2 (Mounted): C2-1, C2-2, C2-3, C2-4
   Sequence D1 (Unmounted): D1-1, D1-2
   Sequence D2 (Mounted): D2-1, D2-2, D2-3, D2-4
   Sequence J (Mounted): J-1, J-2, J-3, J-4
   Sequence Q (Unmounted): Q-1, Q-2, Q-3, Q-4

FIGURE #1

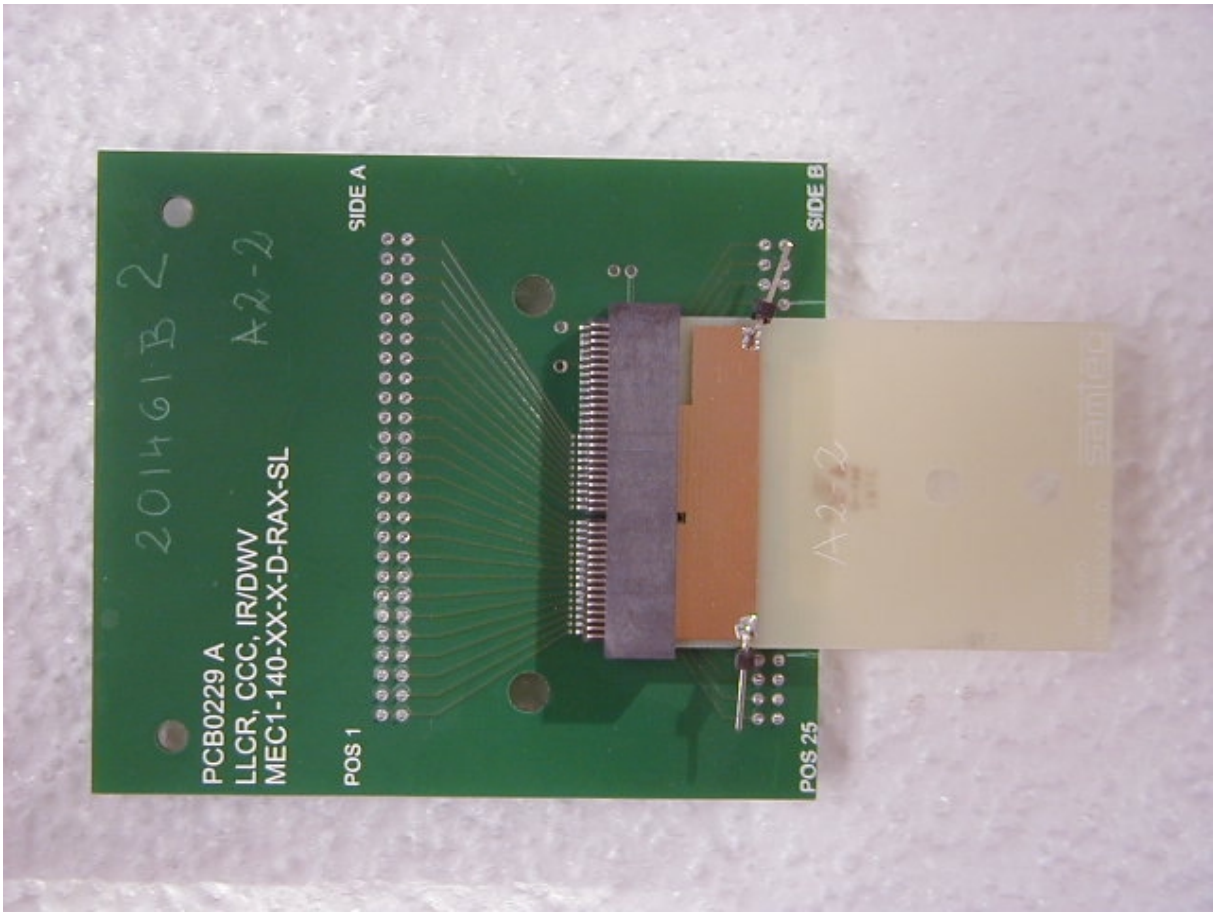
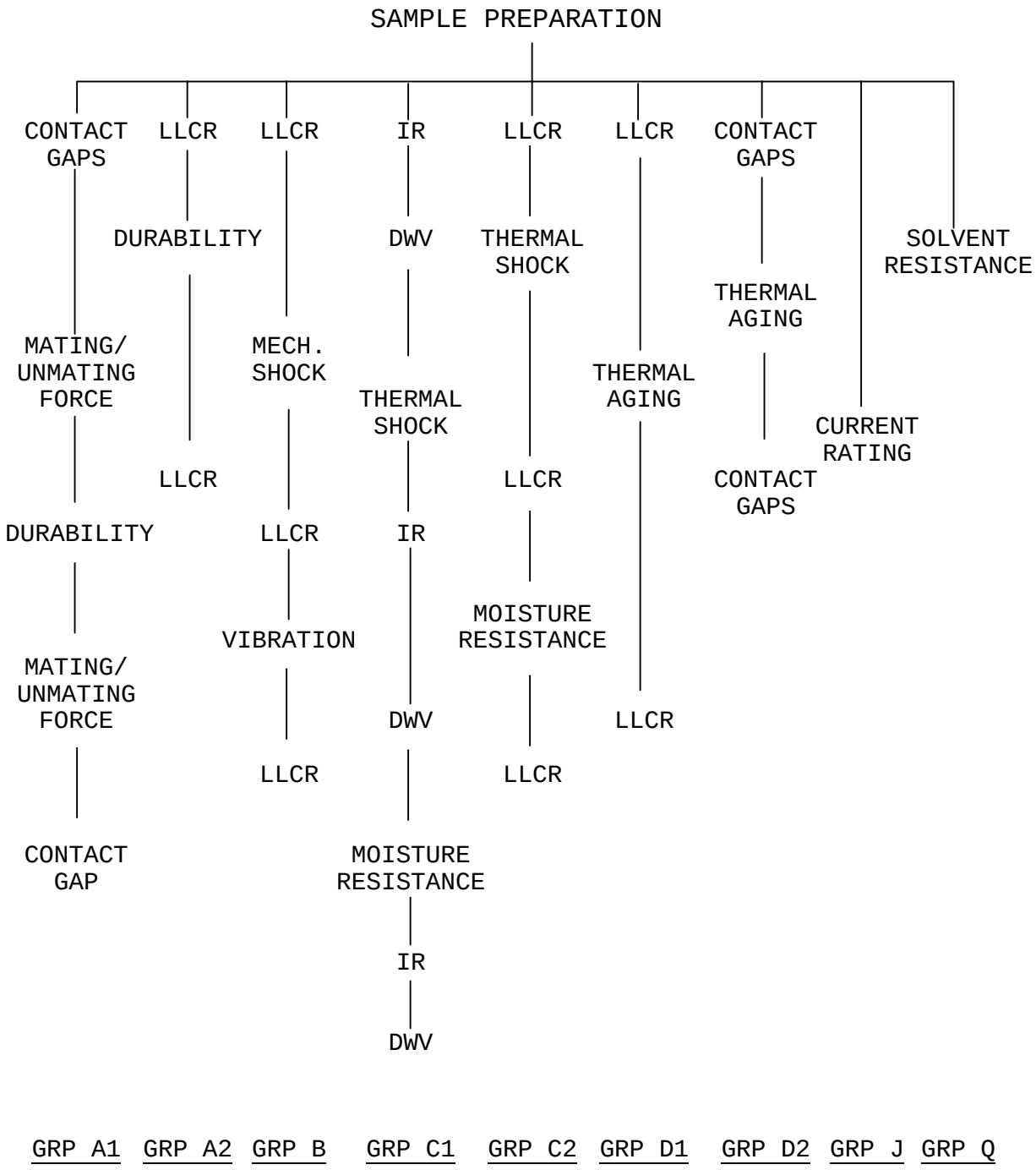

SIDE A
SIDE B
PCB0229 A
LLCR, CCC, IR/DWV
MEC1-140-XX-X-D-RAX-SL
POS 1
POS 25
201461B 2
A2-2

FIGURE #2

TEST PLAN FLOW DIAGRAM



DATA SUMMARY

TEST	REQUIREMENT	RESULTS
GROUP A1		
CONTACT GAPS	RECORD	0.0111 INCHES MAX.
MATING FORCE	RECORD	8.1 LBS MAX.
UNMATING FORCE	RECORD	4.5 LBS MAX.
DURABILITY	NO DAMAGE	PASSED
MATING FORCE	RECORD	8.0 LBS MAX.
UNMATING FORCE	RECORD	4.9 LBS MAX.
CONTACT GAPS	RECORD	0.0118 INCHES MAX.
GROUP A2		
LLCR	RECORD	34.4 mΩ MAX.
DURABILITY	NO DAMAGE	PASSED
LLCR	+10.0 mΩ MAX.CHG.	+6.6 mΩ MAX.CHG.
GROUP B		
LLCR	RECORD	34.4 Ω MAX.
MECHANICAL SHOCK	NO DAMAGE	PASSED
	1.0 MICROSECOND	PASSED
LLCR	+10.0 mΩ MAX.CHG.	+1.1 mΩ MAX.CHG.
RANDOM VIBRATION	NO DAMAGE	PASSED
	1.0 MICROSECOND	PASSED
LLCR	+10.0 mΩ MAX.CHG.	+1.0 mΩ MAX.CHG.
GROUP C1		
INSULATION RESISTANCE	1000 MEGOHMS MIN.	>50000 MEGOHMS
DWV	RECORD BREAKDOWN	1300 VAC
	TEST VOLTAGE: 975 VAC	PASSED
THERMAL SHOCK	NO DAMAGE	PASSED
INSULATION RESISTANCE	1000 MEGOHMS MIN.	>50000 MEGOHMS
DWV	975 VAC	PASSED
MOISTURE RESISTANCE	NO DAMAGE	PASSED
INSULATION RESISTANCE	1000 MEGOHMS MIN.	>50000 MEGOHMS
DWV	975 VAC	PASSED

DATA SUMMARY - Continued

TEST	REQUIREMENT	RESULTS
GROUP C2		
LLCR	RECORD	34.2 mΩ MAX.
THERMAL SHOCK	NO DAMAGE	PASSED
LLCR	+10.0 mΩ MAX.CHG.	+0.7 mΩ MAX.CHG.
MOISTURE RESISTANCE	NO DAMAGE	PASSED
LLCR	+10.0 mΩ MAX.CHG.	+0.9 mΩ MAX.CHG.
GROUP D1		
LLCR	RECORD	34.7 mΩ MAX.
THERMAL AGE	NO DAMAGE	PASSED
LLCR	+10.0 mΩ MAX.CHG.	+1.8 mΩ MAX.CHG.
GROUP D2		
CONTACT GAPS	RECORD	0.0105 INCHES MAX.
THERMAL AGE	NO DAMAGE	PASSED
CONTACT GAPS	RECORD	0.0161 INCHES MAX.
GROUP J		
CURRENT RATING		
@ 0.5 AMPS	RECORD TEMP.RISE	+4.3°C ABOVE AMB.
@ 1.0 AMPS	RECORD TEMP.RISE	+15.1°C ABOVE AMB.
@ 2.0 AMPS	RECORD TEMP.RISE	+50.1°C ABOVE AMB.
GROUP Q		
SOLVENT RESISTANCE	NO DAMAGE	PASSED

EQUIPMENT LIST

ID#	Next Cal	Last Cal	Equipment Name	Manufacturer	Model #	Serial #	Accuracy	Freq.Cal
27	5/9/02	5/9/01	Temp. Humid. Chamber	Blue M Co.	FR-256PC-1	F2-249	See Cal Cert	12 mon.
34			Shock Machine	Avco	SM110-3	1047	See ID# 14 & 117	Each Test
54			Air Fume Hood	Labconco	47701	39286	N/A	N/A
99	5/1/02	5/1/01	Toolmakers Microscope	Mitutoyo Corp.	TM111	30046	See Cal Cert	12 mon.
117	6/12/02	6/12/01	Digitizing Scope	Hewlett Packard	54200	2445A 00127	See Cal Cert	12mon.
150			Drill Press Stand	Craftsman	25921	N/A	N/A	N/A
192	6/22/02	6/22/01	Vertical Thermal Shock	Cincinnati Sub-Zero	VTS-1-5-3	88-11094	See Cal Cert	12 mon.
206	10/3/02	10/3/01	Digital Force Gage 10 lb	Chatillon Co.	DFGRS-10	2346	±.25% of full scale	12mon
236	8/1/02	8/1/01	Micro-Ohm Meter	Keithley Instr.	580	462173	See Cal Cert	12 mon
281			Vibration Power Amp	Ling Dynamics	DPA 10K	156	N/A	N/A
282			Vibration Shaker Table	Ling Dynamics	V-730	163	N/A	N/A
321	1/23/02	1/23/01	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
413			Computer	Myriad	386SX	911897	N/A	N/A
421	3/30/02	3/30/01	Megohmeter	Hipotronics Co.	HM3A	031423-00	See Cal Cert	12 mon.
440			Scanner Main Frame	Keithley Co.	706	540957	See Manual	Each Test
476			Computer	Twilight Co.	386-33	N/A	N/A	N/A
478			Computer	Twilight Co.	P111-450	N/A	N/A	N/A
527	9/11/02	9/11/01	Digital Thermometer	Omega Co.	DP116	4301400	±1.1DegC	12mon
539			Computer	ARC Elect.	486-66 Meg	8661526	N/A	N/A
553	11/23/01	5/23/01	12 channel Power Unit	PCB Co.	483A	1303	See Cal Cert	6mon
580	11/1/02	11/1/01	Digital Multimeter	Hewlett Packard Co.	3478A	2545A22620	See Cal.Cert.	12mon
604	11/24/01	5/24/01	Sine/Rndm Vib. Control	Universal Dynamics	464-1	421111-150	See Manual	6 mon.
633	11/6/02	11/6/01	Digital Thermometer	Omega Eng.	DP116-KC2	7130181	±1.1DegC	12mon
673	7/5/02	7/5/01	Microohm Meter	Keithley Co.	580	0681911	See Cal Cert	12 mon.
681			Computer	ARC Co.	P166	N/A	N/A	N/A
1012	2/27/02	2/27/01	DC Power Supply 30 Amps	Hewlett Packard	6033A	2642A-02383	See Cal.Cert.	12 mon.
1045	6/14/02	6/14/01	Microohm Meter	Keithley	580	708216	See Cal Cert	12mon
1136	5/30/02	5/30/01	Signal Condt.	PCB	480EO9	23397	See Cal. Cert.	12mon
1175	12/7/01	6/7/01	Discontinuity Monitor	Metronics	DM3000-10	6-2K-1	See Cal Cert	6mon
1236			Floor Oven	Blue M.	DC166F	DC-2242	See Manual	
1279			Computer	ARC Co.	Pent-450	030175	N/A	N/A

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TEST RESULTS

GROUP A1

PROJECT NO.: 201461B SPECIFICATION: TC0134-105I-0502

PART NO.:MEC1-140-01-S-D-RA1-SL PART DESCRIPTION: 1.0 mm Edge Conn.

SAMPLE SIZE: ID# A1-1,A1-2, A1-3,A1-4 TECHNICIAN: LL

START DATE: 11/1/01 COMPLETE DATE: 11/1/01

ROOM AMBIENT: 23°C RELATIVE HUMIDITY: 36%

EQUIPMENT ID#: 99

CONTACT GAPS

PURPOSE:

To determine the dimensional distance between opposing contacts.

PROCEDURE:

1. The test samples were fixtured to the baseplate of the test stand.

2. The dimensional distance between opposing contacts were measured.

3. Test Conditions:

    a) Mating Conditions : Unmated
    b) Mounting Conditions : Unmounted
    c) Number of Positions Tested : 10 per test sample

REQUIREMENTS:

The dimensional distance between opposing contacts shall be measured and recorded.

RESULTS: See next page.

RESULTS:

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

Sample ID#	CONTACT GAP (Inches) Avg.	Max.	Min.
A1-1	0.0097	0.0105	0.0090
A1-2	0.0099	0.0111	0.0087
A1-3	0.0099	0.0111	0.0088
A1-4	0.0095	0.0102	0.0088

2. See data file 201461BGAP1 for individual data points.

PROJECT NO.: 201461B SPECIFICATION: TC0134-105I-0502

PART NO.:MEC1-140-01-S-D-RA1-SL PART DESCRIPTION: 1.0 mm Edge Conn.

SAMPLE SIZE: ID# A1-1,A1-2, A1-3,A1-4 TECHNICIAN: LL

START DATE: 11/1/01 COMPLETE DATE: 11/1/01

ROOM AMBIENT: 23°C RELATIVE HUMIDITY: 36%

EQUIPMENT ID#: 150, 206, 340

MATING AND UNMATING FORCE

PURPOSE:

To determine the mechanical forces required to mate and unmate mating boards to a connector.

PROCEDURE:

1. The test was performed in accordance with EIA 364, Test Procedure 13.

2. The test samples were fixtured to the base plate of the test stand and applicable force gauge.

3. The fixturing was accomplished in a manner to prevent “bowing” of the test samples during the performance of the test.

4. The fixturing was accomplished to assure axial alignment and allowed self centering movement to exist.

5. Care was taken to assure that the mating faces did not contact each other to assure proper forces were measured.

6. The test rate was 0.5 inches per minute.

REQUIREMENTS: See next page.

REQUIREMENTS:

The force required to mate and unmate the test samples shall be measured and recorded.

RESULTS:

The following is a summary of the observed data:

Sample ID#	MATING FORCE (Pounds)	UNMATING FORCE (Pounds)
A1-1	8.0	4.5
A1-2	8.1	4.5
A1-3	8.0	4.3
A1-4	8.0	4.4

PROJECT NO.: 201461B	SPECIFICATION: TC0134-105I-0502
PART NO.:MEC1-140-01-S-D-RA1-SL	PART DESCRIPTION: 1.0 mm Edge Conn.
SAMPLE SIZE: ID# A1-1,A1-2, A1-3,A1-4	TECHNICIAN: LL
START DATE: 11/1/01	COMPLETE DATE: 11/2/01
ROOM AMBIENT: 23°C	RELATIVE HUMIDITY: 36%
EQUIPMENT ID#: 99, 150, 206, 340	

DURABILITY

PURPOSE:

This is a preconditioning 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.

PROCEDURE:

1. The test was performed in accordance with EIA 364, Test Procedure 9.

2. Test Conditions:

   a) No. of Cycles : 100
   b) Rate : 500 cycles per hour

3. The test samples were assembled to special holding devices and attached to the manual cycling equipment.

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.

PROCEDURE:

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 force required to mate and unmate the test samples after 100 cycles of durability shall be measured and recorded.

3. The dimensional distance between opposing contacts shall be measured and recorded after 100 cycles of durability.

RESULTS:

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

2. The following is a summary of the observed mating and unmating force data:

	MATING FORCE (Pounds)		UNMATING FORCE (Pounds)	
Sample ID#	Initial	Final	Initial	Final
A1-1	8.0	7.2	4.5	4.9
A1-2	8.1	8.0	4.5	4.4
A1-3	8.0	7.3	4.3	4.1
A1-4	8.0	7.5	4.4	4.2

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

	CONTACT GAPS (Inches)					
	Initial			Final		
Sample ID#	Avg.	Max.	Min.	Avg.	Max.	Min.
A1-1	0.0097	0.0105	0.0090	0.0101	0.0106	0.0095
A1-2	0.0099	0.0111	0.0087	0.0107	0.0118	0.0097
A1-3	0.0099	0.0111	0.0088	0.0106	0.0117	0.0098
A1-4	0.0095	0.0102	0.0088	0.0100	0.0104	0.0095

4. See data file 201461BGAP1 for individual data points.

GAP MEASUREMENTS

PROJECT : 201461B TEST : **Contact Gap Measurements** REQ. : Record
CUSTOMER: SAMTEC SPEC : PAR. : TECH : LL
START : 11/01/2001 SAMPLE I.D. # : A1-1,A1-2,A1-3 & A1-4
FINISH : 11/02/2001 TEMP :ºC 23 R.H. % 36 UNITS : inches
EQUIPMENT I.D. #: 99 SEQUENCE A1 FILE : 201461BGAP1

	A1-1		A1-2		A1-3		A1-4	
POS.	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL
1	0.0094	0.0101	0.0092	0.0103	0.0092	0.0098	0.0093	0.0095
2	0.0092	0.0099	0.0087	0.0097	0.0088	0.0100	0.0088	0.0098
3	0.0094	0.0096	0.0100	0.0102	0.0099	0.0101	0.0099	0.0101
4	0.0095	0.0098	0.0097	0.0105	0.0094	0.0102	0.0095	0.0099
5	0.0104	0.0106	0.0104	0.0105	0.0100	0.0106	0.0098	0.0102
6	0.0094	0.0101	0.0099	0.0108	0.0106	0.0112	0.0097	0.0103
7	0.0102	0.0105	0.0111	0.0111	0.0111	0.0117	0.0098	0.0100
8	0.0090	0.0095	0.0095	0.0118	0.0101	0.0107	0.0093	0.0099
9	0.0105	0.0106	0.0106	0.0105	0.0106	0.0113	0.0102	0.0104
10	0.0096	0.0103	0.0095	0.0113	0.0093	0.0101	0.0090	0.0102
MAX:	0.0105	0.0106	0.0111	0.0118	0.0111	0.0117	0.0102	0.0104
MIN:	0.0090	0.0095	0.0087	0.0097	0.0088	0.0098	0.0088	0.0095
AVG:	0.0097	0.0101	0.0099	0.0107	0.0099	0.0106	0.0095	0.0100
STD	0.0005	0.0004	0.0007	0.0006	0.0007	0.0006	0.0004	0.0003
TECH	LL	LL	LL	LL	LL	LL	LL	LL
EQUIP	99	99	99	99	99	99	99	99

TEST RESULTS

GROUP A2

PROJECT NO.: 201461B SPECIFICATION: TC0134-105I-0502

PART NO.:MEC1-140-01-S-D-RA1-SL PART DESCRIPTION: 1.0 mm Edge Conn.

SAMPLE SIZE: ID# A2-1,A2-2, A2-3,A2-4 TECHNICIAN: LL

START DATE: 10/29/01 COMPLETE DATE: 10/29/01

ROOM AMBIENT: 22°C RELATIVE HUMIDITY: 28%

EQUIPMENT ID#: 476, 1045

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
   b) Open Circuit Voltage : 20 millivolts
   c) No. of Positions Tested : 50 per test sample

PROCEDURE: Continued

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

REQUIREMENTS:

Low level circuit resistance shall be measured and recorded.

RESULTS:

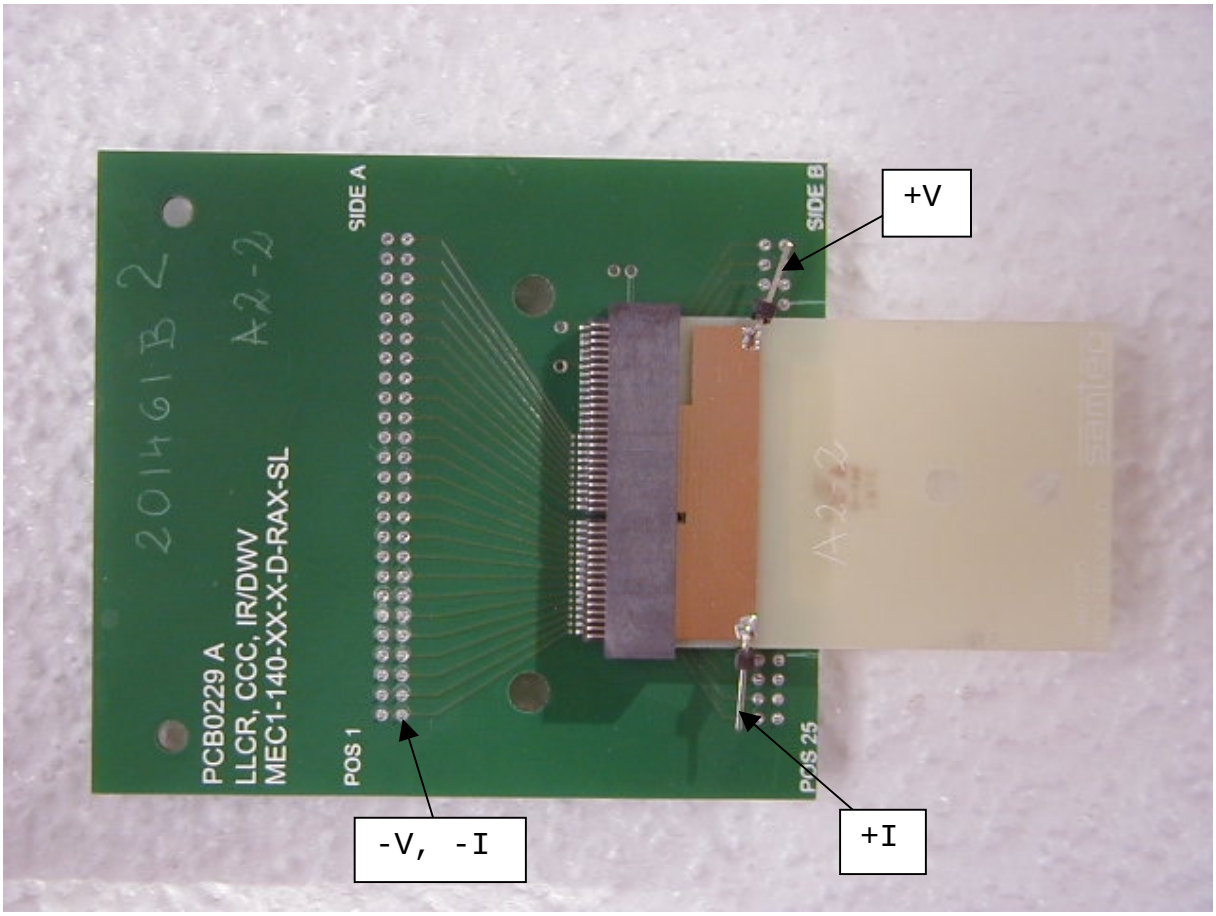
1. The following is a summary of the data observed:

LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg.	Max.	Min.
A2-1	26.1	34.0	18.4
A2-2	26.4	34.4	18.6
A2-3	26.2	34.4	18.3
A2-4	26.1	34.1	18.6

2. See data files 201461B01 through 201461B04 for individual data points.

FIGURE #3


SIDE A
SIDE B
PCB0229 A
LLCR, CCC, IR/DWV
MEC1-140-XX-X-D-RAX-SL
POS 1
POS 25
+V
-V, -I
+I

PROJECT NO.: 201461B SPECIFICATION: TC0134-105I-0502

PART NO.:MEC1-140-01-S-D-RA1-SL PART DESCRIPTION: 1.0 mm Edge Conn.

SAMPLE SIZE: ID# A2-1,A2-2, A2-3,A2-4 TECHNICIAN: LL/MS

START DATE: 11/1/01 COMPLETE DATE: 11/1/01

ROOM AMBIENT: 23°C RELATIVE HUMIDITY: 36%

EQUIPMENT ID#: 150, 340, 673, 681

DURABILITY

PURPOSE:

This is a preconditioning 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.

PROCEDURE:

1. The test was performed in accordance with EIA 364, Test Procedure 9.

2. Test Conditions:

   a) No. of Cycles : 100
   b) Rate : 500 cycles per hour

3. The test samples were assembled to special holding devices and attached to the manual cycling equipment.

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.

PROCEDURE:

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 observed low level circuit resistance data following 100 cycles of durability:

LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg. Change	Max. Change
A2-1	-0.2	+0.5
A2-2	+0.7	+6.6
A2-3	-0.1	+1.2
A2-4	-0.1	+0.9

3. See data files 201461B01 through 201461B04 for individual data points.

Low Level Contact Resistance

Project: 201461B
Customer: Samtec
Product: Series MEC1-RA w/0.031 mating bd
Description: MEC1-140-01-S-D-RA1-SL

Spec: EIA 364, TP23
Subgroup: Sequence A2
File #: 201461B01
Sample ID# A2-1

Open circuit voltage: 20 millivolts
Current: 10 milliamps

Delta values
Units: milliohms

Temp ºC	22	23
R.H. %	28	36
Date:	29-Oct-01	1-Nov-01
Pos. ID	INITIAL	Durability
1A	33.0	-0.3
2A	32.5	0.2
3A	33.0	-0.2
4A	33.4	-0.2
5A	32.7	0.2
6A	33.3	0.2
7A	32.9	0.5
8A	33.3	0.0
9A	33.1	0.1
10A	32.9	0.0
11A	32.9	0.0
12A	33.4	-0.3
13A	33.1	0.0
14A	32.9	0.1
15A	33.0	0.1
16A	33.3	0.0
17A	33.6	0.2
18A	33.5	-0.1
19A	33.9	-0.5
20A	32.9	0.1
21A	33.9	-0.3
22A	33.6	-0.1
23A	33.6	-0.5
24A	32.9	0.2
25A	34.0	-0.2
26B	19.0	-0.3
27B	18.5	-0.1

28B	19.2	-0.4
29B	18.9	-0.3
30B	18.8	-0.1
31B	18.4	-0.1
32B	18.9	-0.3
33B	19.2	-0.3
34B	19.5	-0.7
35B	19.1	-0.4
36B	19.3	-0.6
37B	19.3	-0.3
38B	19.3	-0.5
39B	19.3	-0.6
40B	18.8	0.0
41B	19.3	-0.4
42B	19.3	-0.4
43B	18.8	-0.1
44B	18.6	0.1
45B	19.0	-0.3
46B	18.8	-0.1
47B	18.8	-0.3
48B	18.9	-0.5
49B	18.8	-0.3
50B	18.8	-0.2
MAX	34.0	0.5
MIN	18.4	-0.7
AVG	26.1	-0.2
STD	7.2	0.3
Open	0	0
Tech	LL	MS
Equip ID	1045	681
	476	673

Low Level Contact Resistance

Project: 201461B
Customer: Samtec
Product: Series MEC1-RA w/0.031 mating bd
Description: MEC1-140-01-S-D-RA1-SL

Spec: EIA 364, TP23
Subgroup: Sequence A2
File #: 201461B02
Sample ID# A2-2

Open circuit voltage: 20 millivolts
Current: 10 milliamps

Delta values
Units: milliohms

Temp ºC	22	23
R.H. %	28	36
Date:	29-Oct-01	1-Nov-01
Pos. ID	INITIAL	Durability
1A	33.5	1.6
2A	34.4	0.8
3A	33.6	1.4
4A	33.7	0.8
5A	33.5	1.3
6A	33.1	1.3
7A	33.3	1.0
8A	33.4	1.6
9A	33.2	3.0
10A	33.3	0.9
11A	33.3	2.2
12A	33.2	6.6
13A	33.6	1.4
14A	33.3	1.3
15A	33.3	0.8
16A	34.1	1.1
17A	34.1	3.0
18A	33.4	3.4
19A	33.8	0.4
20A	33.3	1.5
21A	33.5	0.5
22A	33.7	1.1
23A	33.8	0.6
24A	33.3	0.1
25A	34.2	-0.3
26B	19.5	-0.1
27B	18.8	0.5

28B	19.3	0.8
29B	19.2	-0.3
30B	19.2	0.0
31B	19.0	-0.3
32B	19.1	-0.1
33B	19.6	-0.7
34B	19.8	-0.8
35B	19.7	-0.9
36B	19.4	-0.4
37B	19.4	-0.4
38B	19.5	-0.5
39B	19.3	-0.5
40B	19.3	-0.2
41B	19.6	-0.1
42B	19.0	0.5
43B	18.9	0.3
44B	19.0	0.1
45B	18.9	0.7
46B	18.8	0.9
47B	19.7	0.0
48B	18.6	0.9
49B	18.8	0.5
50B	19.0	-0.1
MAX	34.4	6.6
MIN	18.6	-0.9
AVG	26.4	0.7
STD	7.2	1.3
Open	0	0
Tech	LL	MS
Equip ID	1045	681
	476	673

Low Level Contact Resistance

Project: 201461B
Customer: Samtec
Product: Series MEC1-RA w/0.031 mating bd
Description: MEC1-140-01-S-D-RA1-SL

Spec: EIA 364, TP23
Subgroup: Sequence A2
File #: 201461B03
Sample ID# A2-3

Open circuit voltage: 20 millivolts
Current: 10 milliamps

Delta values
Units: milliohms

Temp ºC	22	23
R.H. %	28	36
Date:	29-Oct-01	1-Nov-01
Pos. ID	INITIAL	Durability
1A	33.6	-0.1
2A	32.5	-0.3
3A	33.2	0.2
4A	33.7	-0.1
5A	33.5	-0.1
6A	33.9	-0.3
7A	33.1	-0.1
8A	33.3	-0.6
9A	33.0	0.0
10A	33.2	0.0
11A	33.6	-0.5
12A	33.6	-0.4
13A	33.5	0.2
14A	33.3	0.1
15A	33.2	0.0
16A	33.4	0.0
17A	33.9	-0.3
18A	33.5	0.4
19A	33.5	0.1
20A	33.7	-0.1
21A	33.8	0.2
22A	33.6	0.1
23A	34.1	-0.8
24A	33.5	-0.4
25A	34.4	-0.5
26B	20.1	-0.4
27B	18.7	-0.3
28B	18.9	-0.6

29B	19.0	-1.2
30B	18.6	-0.5
31B	18.3	0.0
32B	18.5	-0.3
33B	19.3	-0.5
34B	19.2	-0.2
35B	19.1	-0.5
36B	19.4	-0.5
37B	18.6	0.1
38B	19.2	-0.6
39B	19.1	-0.5
40B	18.9	0.3
41B	19.2	0.3
42B	18.8	0.4
43B	18.6	0.5
44B	19.0	0.3
45B	19.3	0.7
46B	18.6	1.0
47B	19.3	0.4
48B	18.8	1.2
49B	19.0	0.4
50B	18.5	0.4
MAX	34.4	1.2
MIN	18.3	-1.2
AVG	26.2	-0.1
STD	7.4	0.5
Open	0	0
Tech	LL	MS
Equip ID	1045	681
	476	673

Low Level Contact Resistance

Project: 201461B
Customer: Samtec
Product: Series MEC1-RA w/0.031 mating bd
Description: MEC1-140-01-S-D-RA1-SL

Spec: EIA 364, TP23
Subgroup: Sequence A2
File #: 201461B04
Sample ID# A2-4

Open circuit voltage: 20 millivolts
Current: 10 milliamps

Delta values
Units: milliohms

Temp ºC	22	23
R.H. %	28	36
Date:	29-Oct-01	1-Nov-01
Pos. ID	INITIAL	Durability
1A	33.2	0.1
2A	33.0	-0.2
3A	33.6	-0.2
4A	33.5	0.6
5A	32.8	0.1
6A	33.0	0.1
7A	32.8	0.3
8A	33.3	0.0
9A	33.1	0.2
10A	33.6	-0.2
11A	33.2	-0.1
12A	32.8	-0.2
13A	32.8	0.1
14A	33.5	-0.4
15A	33.2	0.0
16A	33.4	0.9
17A	33.4	0.0
18A	32.9	0.3
19A	33.8	-0.2
20A	33.0	0.2
21A	33.5	-0.3
22A	33.5	-1.0
23A	33.9	-0.8
24A	33.1	-0.2
25A	34.1	-0.9
26B	18.7	0.5
27B	18.7	-0.3

28B	19.1	0.2
29B	18.7	0.1
30B	18.7	0.2
31B	18.6	0.4
32B	18.8	0.1
33B	18.9	-0.2
34B	19.2	-0.5
35B	19.1	-0.4
36B	18.9	-0.1
37B	19.2	-0.9
38B	19.1	-0.4
39B	18.8	-0.1
40B	19.0	-0.3
41B	19.2	0.2
42B	18.9	0.1
43B	18.7	0.1
44B	19.0	-0.3
45B	18.7	0.0
46B	18.8	-0.2
47B	18.9	0.0
48B	18.6	0.1
49B	19.5	-0.3
50B	19.2	-0.6
MAX	34.1	0.9
MIN	18.6	-1.0
AVG	26.1	-0.1
STD	7.3	0.4
Open	0	0
Tech	LL	MS
Equip ID	1045	681
	476	673

TEST RESULTS

GROUP B

PROJECT NO.: 201461B	SPECIFICATION: TC0134-105I-0502
PART NO.:MEC1-140-01-S-D-RA1-SL	PART DESCRIPTION: 1.0 mm Edge Conn.
SAMPLE SIZE: ID# B1-1,B1-2, B1-3,B1-4	TECHNICIAN: LL
START DATE: 10/25/01	COMPLETE DATE: 10/25/01
ROOM AMBIENT: 23°C	RELATIVE HUMIDITY: 54%
EQUIPMENT ID#: 476, 1045	

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
   b) Open Circuit Voltage : 20 millivolts
   c) No. of Positions Tested : 50 per test sample

PROCEDURE: Continued

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

REQUIREMENTS:

Low level circuit resistance shall be measured and recorded.

RESULTS:

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

LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg.	Max.	Min.
B-1	26.1	34.0	18.6
B-2	26.2	34.4	18.4
B-3	26.4	34.4	18.9
B-4	25.9	33.5	18.2

2. See data files 201461B05 through 201461B08 for individual data points.

PROJECT NO.: 201461B SPECIFICATION: TC0134-105I-0502

PART NO.:MEC1-140-01-S-D-RA1-SL PART DESCRIPTION: 1.0 mm Edge Conn.

SAMPLE SIZE: ID# B-1,B-2,B-3, B-4,B-5,B-6, B-7,B-8 TECHNICIAN: LL

START DATE: 10/26/01 COMPLETE DATE: 10/26/01

ROOM AMBIENT: 23°C RELATIVE HUMIDITY: 45%

EQUIPMENT ID#: 34, 117, 476, 478, 1045, 1136, 1175

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.

2. Test Conditions:

    a) Peak Value : 100 G
    b) Duration : 11 Milliseconds
    c) Wave Form : Half-sine
    d) Velocity : 11.3 feet per second
    e) No. of Shocks : 3 Shocks/Direction, 3 Axis (18 Total)

3. The samples were fixtured to the shock table as shown in Figure #4.

4. Sample ID#’s B-5, B-6, B-7 and B-8 were wired in series for discontinuity monitoring, (Low Level Circuit Resistance was not measured on these samples).

REQUIREMENTS: See next page.

REQUIREMENTS:

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

2. There shall be no contact interruption greater than 1.0 microsecond.

3. 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. There was no contact interruption greater than 1.0 microsecond.

3. The Mechanical Shock characteristics are shown in Figures #5 (Calibration Pulse) and #6 (Test Pulse). Each figure displays the shock pulse contained within the upper and lower limits as defined by the appropriate test specification.

4. The following is a summary of the observed Low Level Circuit Resistance data following Mechanical Shock:

CHANGE IN
LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg. Change	Max. Change
B-1	+0.1	+1.1
B-2	+0.0	+0.6
B-3	-0.1	+0.3
B-4	+0.0	+0.5

5. See data files 201461B05 through 201461B08 for individual data points.

FIGURE #4

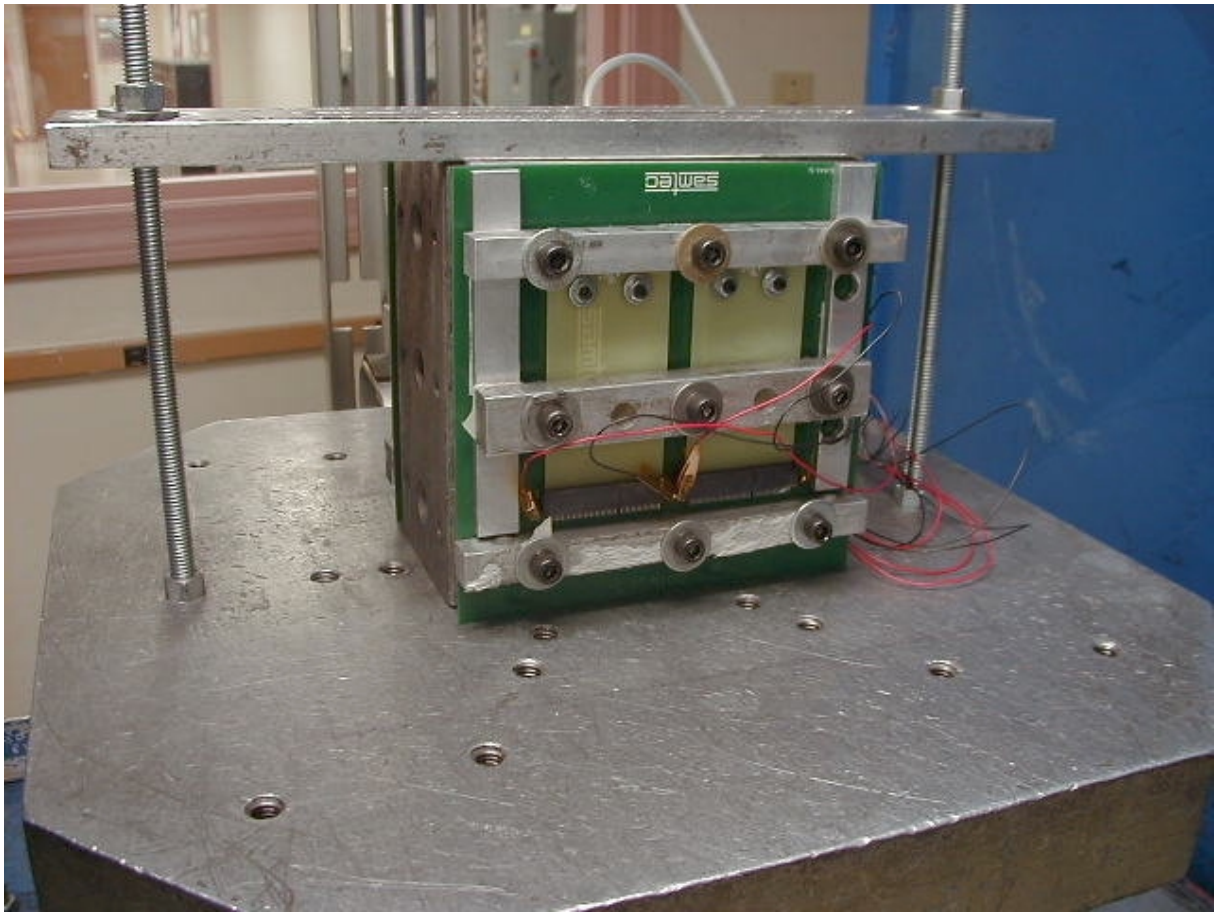


FIGURE #5

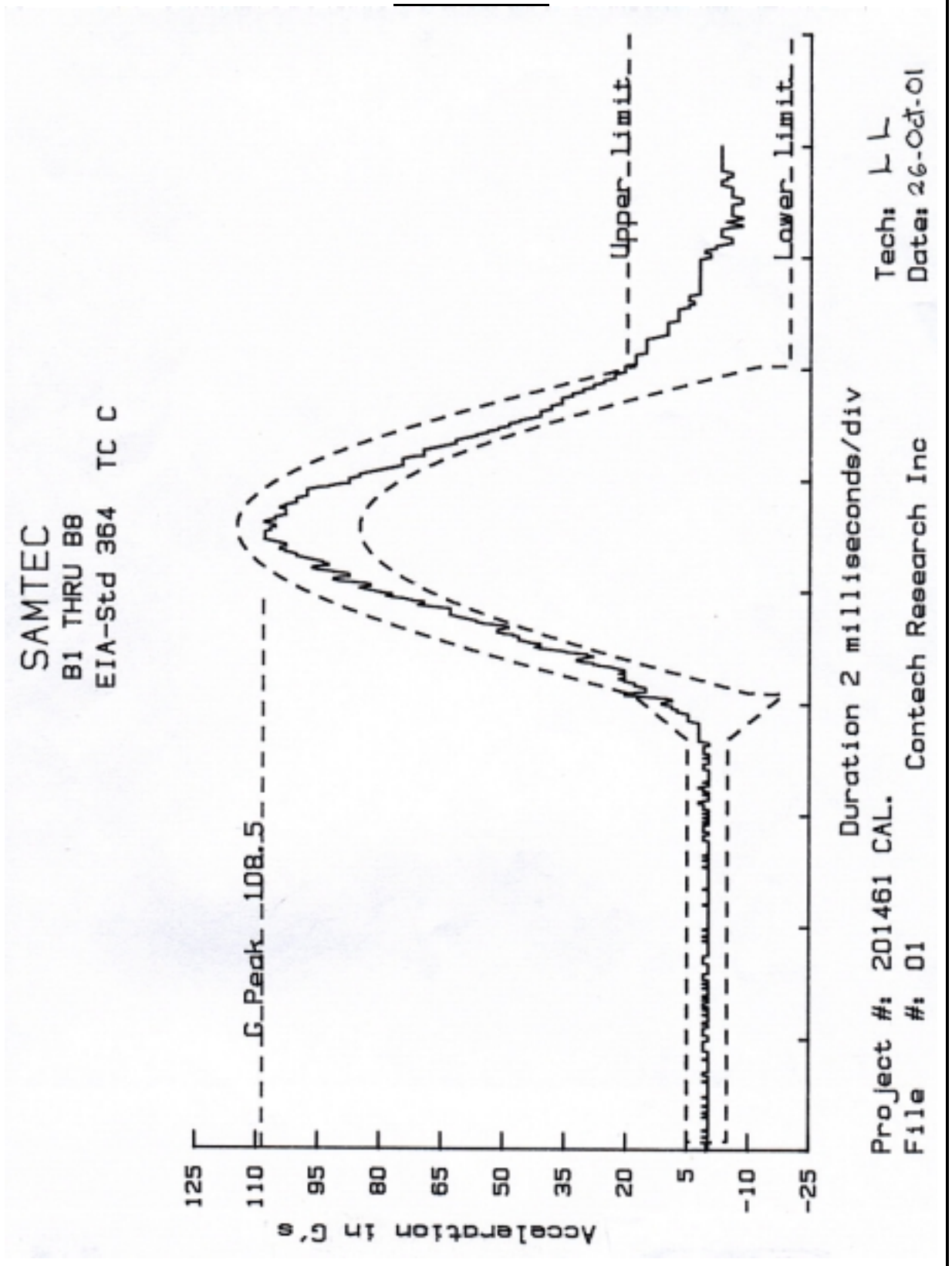
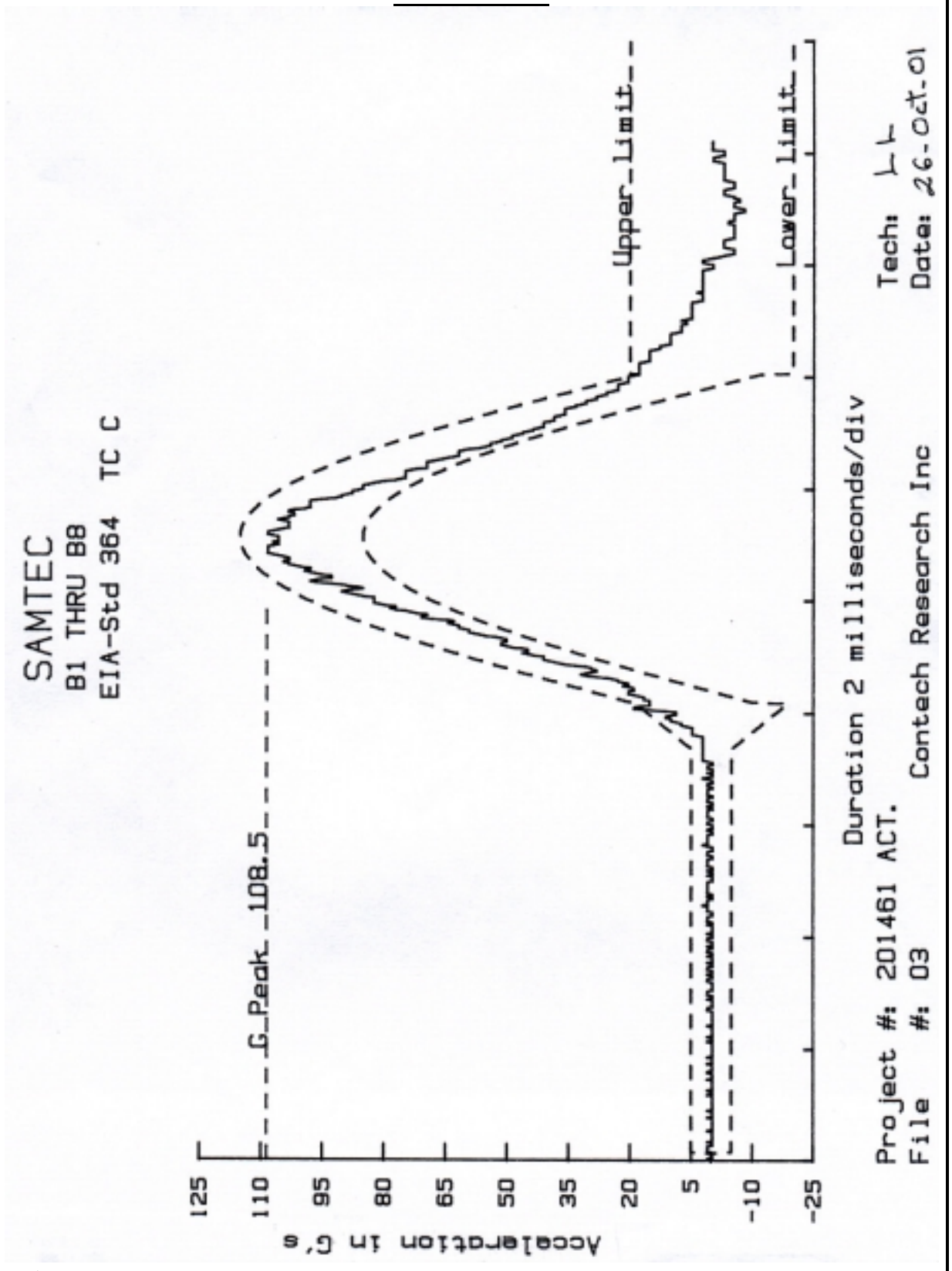

SAMTEC
B1 THRU B8
EIA-Std 364 TC C
G_Peak 108.5
Upper_Limit
Lower_Limit
Acceleration in G's
125
110
95
80
65
50
35
20
5
-10
-25
Duration 2 milliseconds/div
Project #: 201461 CAL.
File #: 01
Contech Research Inc
Tech: L L
Date: 26-Oct-01

FIGURE #6


SAMTEC
B1 THRU B8
EIA-Std 364 TC C
G_Peak 108.5
Upper_limit
Lower_limit
Acceleration in G's
125
110
95
80
65
50
35
20
5
-10
-25
Duration 2 milliseconds/div
Project #: 201461 ACT.
File #: 03
Contech Research Inc
Tech: LL
Date: 26-Oct-01

PROJECT NO.: 201461B	SPECIFICATION: TC0134-105I-0502
PART NO.:MEC1-140-01-S-D-RA1-SL	PART DESCRIPTION: 1.0 mm Edge Conn.
SAMPLE SIZE: ID# B-1,B-2,B-3, B-4,B-5,B-6, B-7,B-8	TECHNICIAN: LL/MS
START DATE: 10/29/01	COMPLETE DATE: 10/31/01
ROOM AMBIENT: 22°C	RELATIVE HUMIDITY: 22%
EQUIPMENT ID#: 236, 281, 282, 539, 553, 604, 1175	

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.

2. Test Conditions:

   a) G 'RMS' : 7.56
   b) Frequency : 50 to 2000 Hz
   c) Duration : 2 hours per axis/3 axis total
   d) Test Current : 100 milliamps

3. Figure #7 illustrates the test sample fixturing utilized during the test.

4. Sample ID# B-5, B-6, B-7 and B-8 were wired in series for discontinuity monitoring (Low Level Circuit Resistance was not measured on these samples).

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. There shall be no contact interruption greater than 1.0 microsecond.

3. 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. There was no interruption greater than 1.0 microsecond.

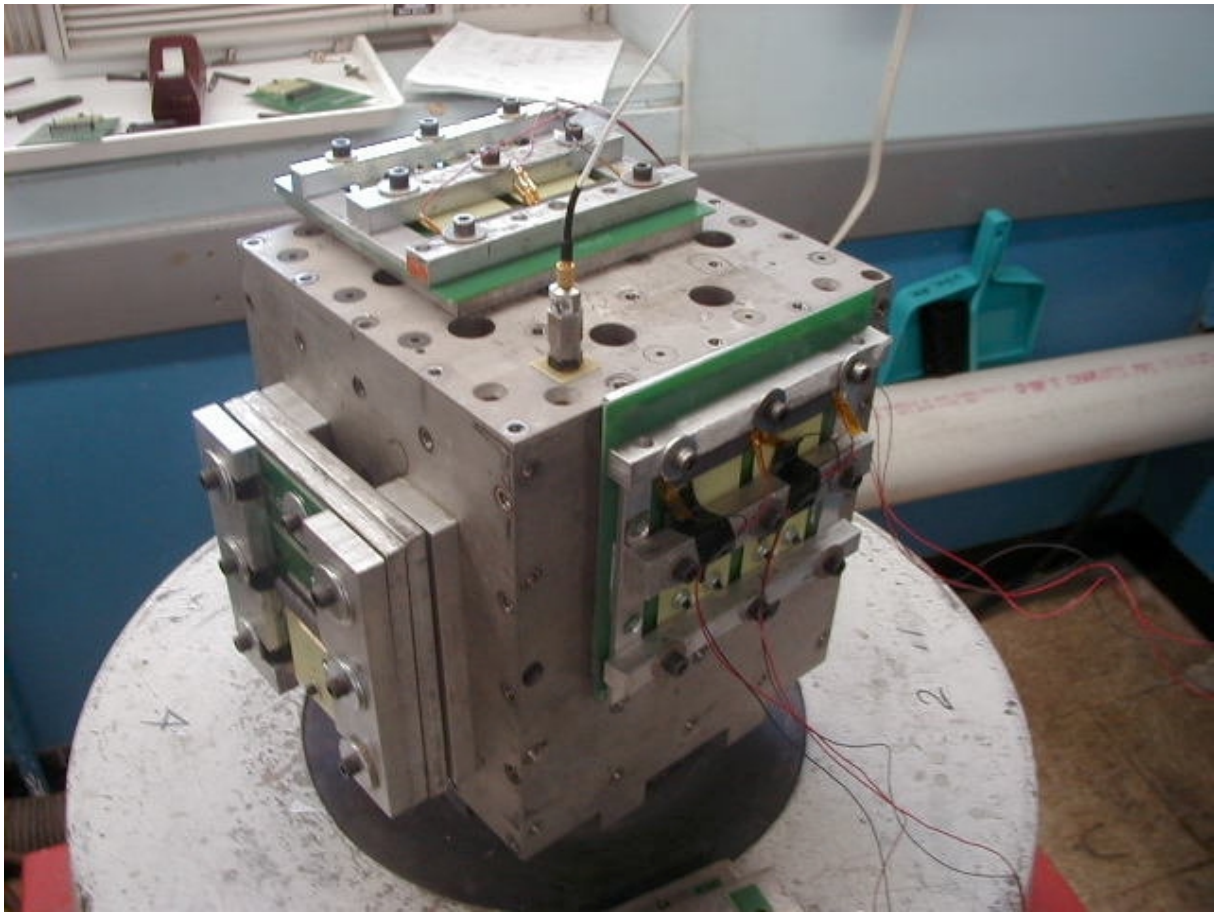
3. The following is a summary of the observed Low Level Circuit Resistance data following Random Vibration:

CHANGE IN
LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg. Change	Max. Change
B-1	-0.1	+1.0
B-2	-0.4	+0.5
B-3	-0.3	+0.1
B-4	-0.1	+0.7

4. See data files 201461B05 through 201461B08 for individual data points.

FIGURE #7



Low Level Contact Resistance

Project: 201461B
Customer: Samtec
Product: Series MEC1-RA w/0.031 mating bd
Description: MEC1-140-01-S-D-RA1-SL
Open circuit voltage: 20 millivolts

Spec: EIA 364, TP23
Subgroup: Sequence B
File #: 201461B05
Sample ID# B-1
Current: 10 milliamps

Delta values
Units: milliohms

Temp ºC	23	23	22
R.H. %	54	45	22
Date:	25-Oct-01	26-Oct-01	31-Oct-01
Pos. ID	INITIAL	M.Shock	Vibration
1A	32.9	0.1	-0.2
2A	33.0	0.2	-0.3
3A	32.7	0.0	-0.3
4A	33.5	0.1	-0.9
5A	32.7	0.0	-0.1
6A	33.2	0.1	-0.7
7A	33.0	0.0	-0.2
8A	33.2	0.1	-0.3
9A	33.2	0.1	-0.1
10A	33.0	0.1	-0.1
11A	32.8	0.0	-0.1
12A	33.0	0.1	-0.3
13A	32.8	0.3	-0.2
14A	33.3	0.2	-0.6
15A	31.9	1.1	0.8
16A	33.3	0.2	-0.2
17A	33.8	0.0	-0.4
18A	33.4	0.1	-0.3
19A	34.0	0.0	-0.6
20A	32.9	0.2	0.3
21A	33.8	0.1	-0.1
22A	33.5	0.1	0.1
23A	33.9	0.3	0.0
24A	32.9	0.1	-0.2
25A	33.9	0.1	-0.3
26B	18.9	0.0	-0.3
27B	18.9	0.2	-0.2
28B	19.4	0.2	-0.2

29B	18.9	0.1	-0.1
30B	18.7	0.3	-0.2
31B	19.1	0.1	-0.2
32B	19.2	-0.1	-0.4
33B	18.9	0.2	-0.2
34B	19.5	0.3	-0.4
35B	19.4	0.4	0.2
36B	19.0	0.1	0.2
37B	19.8	0.0	0.1
38B	19.7	0.1	-0.3
39B	19.1	0.1	0.2
40B	18.7	0.1	0.1
41B	19.2	0.0	-0.4
42B	18.8	-0.1	0.1
43B	18.8	-0.1	0.0
44B	18.8	0.5	0.3
45B	19.3	-0.1	-0.3
46B	18.7	-0.3	0.3
47B	19.8	0.1	-0.1
48B	18.6	0.1	0.9
49B	19.2	-0.1	0.0
50B	18.8	0.4	1.0
MAX	34.0	1.1	1.0
MIN	18.6	-0.3	-0.9
AVG	26.1	0.1	-0.1
STD	7.1	0.2	0.4
Open	0	0	0
Tech	LL	LL	MS
Equip ID	1045	1045	539
	476	476	236

Low Level Contact Resistance

Project: 201461B
Customer: Samtec
Product: Series MEC1-RA w/0.031 mating bd
Description: MEC1-140-01-S-D-RA1-SL

Open circuit voltage: 20 millivolts

Spec: EIA 364, TP23
Subgroup: Sequence B
File #: 201461B06
Sample ID# B-2
Current: 10 milliamps

Delta values
Units: milliohms

Temp ºC	23	23	22
R.H. %	54	45	22
Date:	25-Oct-01	26-Oct-01	31-Oct-01
Pos. ID	INITIAL	M.Shock	Vibration
1A	32.7	0.0	-0.1
2A	32.9	-0.2	-0.3
3A	32.9	-0.3	-0.4
4A	33.0	0.1	-0.4
5A	32.7	0.1	-0.1
6A	32.9	0.2	-0.4
7A	33.3	0.2	-0.6
8A	33.0	0.2	-0.3
9A	33.1	0.2	-0.2
10A	33.0	-0.3	-0.4
11A	33.1	-0.3	-0.6
12A	33.2	-0.2	-0.5
13A	33.0	0.2	-0.3
14A	33.4	-0.1	-0.3
15A	33.2	0.1	-0.1
16A	33.6	0.1	-0.4
17A	33.9	-0.2	-0.6
18A	33.1	0.1	-0.4
19A	33.9	0.0	-0.8
20A	33.5	-0.2	-0.6
21A	33.8	0.0	-0.4
22A	33.4	-0.1	-0.5
23A	33.9	0.0	-0.8
24A	33.2	-0.1	-0.1
25A	34.4	-0.4	-0.8
26B	19.2	0.1	-0.2
27B	18.6	0.2	0.1

28B	19.0	0.6	-0.1
29B	19.1	0.0	0.1
30B	18.8	-0.1	-0.2
31B	18.6	0.1	-0.2
32B	18.9	0.0	-0.4
33B	18.9	0.1	-0.4
34B	19.6	-0.5	-1.1
35B	19.3	-0.2	-0.3
36B	19.4	0.0	-0.5
37B	19.3	0.3	-0.4
38B	19.8	-0.3	-0.7
39B	19.4	-0.3	-0.5
40B	19.0	0.1	-0.5
41B	19.1	0.0	-0.5
42B	18.4	0.3	-0.1
43B	18.9	-0.2	-0.6
44B	18.9	0.0	-0.4
45B	18.9	-0.1	-0.4
46B	18.6	0.2	0.0
47B	19.4	-0.5	-0.9
48B	19.1	0.0	0.5
49B	19.4	-0.3	-0.8
50B	19.2	0.0	-0.4
MAX	34.4	0.6	0.5
MIN	18.4	-0.5	-1.1
AVG	26.2	0.0	-0.4
STD	7.2	0.2	0.3
Open	0	0	0
Tech	LL	LL	MS
Equip ID	1045	1045	539
	476	476	236

Low Level Contact Resistance

Project: 201461B
Customer: Samtec
Product: Series MEC1-RA w/0.031 mating bd
Description: MEC1-140-01-S-D-RA1-SL

Spec: EIA 364, TP23
Subgroup: Sequence B
File #: 201461B07
Sample ID# B-3

Open circuit voltage: 20 millivolts
Current: 10 milliamps

Delta values
Units: milliohms

Temp ºC	23	23	22
R.H. %	54	45	22
Date:	25-Oct-01	26-Oct-01	31-Oct-01
Pos. ID	INITIAL	M.Shock	Vibration
1A	33.3	0.0	-0.1
2A	33.0	0.0	-0.3
3A	33.2	-0.1	-0.2
4A	33.0	-0.1	-0.2
5A	33.1	0.0	-0.1
6A	33.3	0.1	-0.3
7A	33.3	0.0	-0.2
8A	33.6	-0.1	-0.3
9A	33.9	-0.1	-0.6
10A	32.9	-0.1	0.1
11A	33.0	-0.2	-0.3
12A	33.3	-0.1	-0.2
13A	33.3	0.0	-0.2
14A	33.4	-0.2	-0.4
15A	33.4	-0.2	-0.2
16A	33.5	-0.2	-0.5
17A	34.1	-0.4	-0.5
18A	33.6	-0.3	-0.2
19A	34.3	-0.3	-1.0
20A	33.9	-0.3	-0.4
21A	34.0	-0.3	-0.7
22A	33.7	-0.5	-0.8
23A	34.4	-0.4	-0.5
24A	33.4	-0.1	-0.2
25A	34.2	-0.4	-0.6
26B	19.1	0.1	0.1
27B	19.1	0.1	0.1
28B	19.8	0.2	-0.6

29B	18.9	-0.1	-0.1
30B	19.2	0.3	-0.3
31B	19.1	-0.1	-0.1
32B	19.3	-0.1	-0.4
33B	19.4	-0.4	-0.5
34B	19.9	-0.3	-0.7
35B	19.6	-0.3	-0.4
36B	19.2	0.0	-0.1
37B	19.1	0.0	-0.1
38B	19.8	-0.5	-0.4
39B	19.6	-0.3	-0.6
40B	19.1	-0.4	-0.2
41B	19.6	-0.3	-0.3
42B	18.9	-0.1	0.0
43B	19.1	-0.1	-0.2
44B	19.2	0.2	-0.3
45B	18.9	0.0	-0.2
46B	19.1	0.0	-0.4
47B	19.4	-0.2	-0.5
48B	19.0	-0.2	-0.3
49B	19.7	-0.1	-0.8
50B	19.1	0.0	-0.1
MAX	34.4	0.3	0.1
MIN	18.9	-0.5	-1.0
AVG	26.4	-0.1	-0.3
STD	7.2	0.2	0.2
Open	0	0	0
Tech	LL	LL	MS
Equip ID	1045	1045	539
	476	476	236

Low Level Contact Resistance

Project: 201461B
Customer: Samtec
Product: Series MEC1-RA w/0.031 mating bd
Description: MEC1-140-01-S-D-RA1-SL
Open circuit voltage: 20 millivolts

Spec: EIA 364, TP23
Subgroup: Sequence B
File #: 201461B08
Sample ID# B-4
Current: 10 milliamps

Delta values
Units: milliohms

Temp ºC	23	23	22
R.H. %	54	45	22
Date:	25-Oct-01	26-Oct-01	31-Oct-01
Pos. ID	INITIAL	M.Shock	Vibration
1A	32.7	0.2	0.0
2A	32.3	0.1	0.1
3A	32.3	0.0	-0.1
4A	32.9	-0.2	-0.3
5A	32.7	-0.1	-0.3
6A	32.7	0.0	-0.2
7A	32.9	0.1	-0.4
8A	33.5	0.1	-0.3
9A	32.4	0.1	0.0
10A	32.7	0.1	-0.2
11A	32.1	0.1	0.0
12A	32.7	0.1	-0.3
13A	32.7	0.0	0.0
14A	32.7	0.2	0.0
15A	33.0	0.2	0.0
16A	32.3	0.2	0.3
17A	32.8	-0.1	0.0
18A	32.3	0.2	0.1
19A	33.0	0.0	-0.2
20A	33.3	0.1	-0.1
21A	33.2	0.1	0.4
22A	32.7	0.4	0.0
23A	33.3	0.3	-0.3
24A	33.1	-0.1	-0.5
25A	33.5	0.5	0.5
26B	19.6	0.1	0.0
27B	18.8	0.2	-0.1

28B	19.0	0.3	-0.1
29B	18.6	0.1	0.0
30B	18.7	-0.2	-0.1
31B	18.7	0.0	-0.1
32B	18.7	-0.1	-0.2
33B	19.2	-0.1	-0.4
34B	19.5	0.1	-0.3
35B	18.7	0.0	0.2
36B	19.8	-0.2	-0.5
37B	19.3	-0.4	-0.3
38B	19.4	-0.1	-0.7
39B	18.2	0.4	0.7
40B	19.4	-0.4	-0.8
41B	19.0	-0.2	-0.4
42B	18.4	0.0	-0.2
43B	19.0	0.0	-0.6
44B	18.8	0.0	-0.2
45B	19.4	-0.1	-0.5
46B	18.5	0.0	0.1
47B	20.1	-0.2	-0.4
48B	18.6	0.0	0.1
49B	19.2	-0.3	-0.3
50B	18.9	-0.8	0.0
MAX	33.5	0.5	0.7
MIN	18.2	-0.8	-0.8
AVG	25.9	0.0	-0.1
STD	7.0	0.2	0.3
Open	0	0	0
Tech	LL	LL	MS
Equip ID	1045	1045	539
	476	476	236

TEST RESULTS

GROUP C1

PROJECT NO.: 201461B SPECIFICATION: TC0134-105I-0502

PART NO.:MEC1-140-01-S-D-RA1-SL PART DESCRIPTION: 1.0 mm Edge Conn.

SAMPLE SIZE: ID# C1-1,C1-2, C1-3,C1-4 TECHNICIAN: LL

START DATE: 10/19/01 COMPLETE DATE: 10/19/01

ROOM AMBIENT: 22°C RELATIVE HUMIDITY: 28%

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) Mated Condition : Unmated
    c) Mounting Condition : Mounted
    d) Electrification Time : 2.0 Minutes
    e) Test Voltage : 500 VAC

REQUIREMENTS:

When the specified test voltage is applied, the insulation resistance shall not be less than 1000 megohms.

RESULTS:

The insulation resistance exceeded 50,000 megohms.

PROJECT NO.: 201461B SPECIFICATION: TC0134-105I-0502

PART NO.:MEC1-140-01-S-D-RA1-SL PART DESCRIPTION: 1.0 mm Edge Conn.

SAMPLE SIZE: ID# C1-1,C1-2, C1-3,C1-4 TECHNICIAN: LL

START DATE: 10/19/01 COMPLETE DATE: 10/19/01

ROOM AMBIENT: 22°C RELATIVE HUMIDITY: 28%

EQUIPMENT ID#: 321

DIELECTRIC WITHSTANDING VOLTAGE (SEA LEVEL)

PURPOSE:

To determine if the connector 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.

2. Test Conditions:

   a) Between Adjacent Contacts : Yes
   b) Mated Condition : Unmated
   c) Mounting Condition : Mounted
   d) Hold Time : 60 Seconds
   e) Rate of Application : 500 volts/sec.

3. The test voltage is determined by increasing the applied voltage until breakdown occurs. The test voltage is 75% of the breakdown voltage.

REQUIREMENTS: See next page.

REQUIREMENTS:

1. The breakdown voltage shall be measured and recorded.

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

RESULTS:

1. The breakdown voltage was 1300 VAC. The test voltage was calculated to be 975 VAC.

2. All test samples tested at 975 VAC met the requirements as specified.

PROJECT NO.: 201461B	SPECIFICATION: TC0134-105I-0502
PART NO.:MEC1-140-01-S-D-RA1-SL	PART DESCRIPTION: 1.0 mm Edge Conn.
SAMPLE SIZE: ID# C1-1,C1-2, C1-3,C1-4	TECHNICIAN: LL/RO
START DATE: 10/22/01	COMPLETE DATE: 10/22/01
ROOM AMBIENT: 22°C	RELATIVE HUMIDITY: 43%
EQUIPMENT ID#: 192, 321, 421	

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 : 5 Cycles
   b) Hot Extreme : +85 +3°C/-0°C
   c) Cold Extreme : -55 +0°C/-3°C
   d) Time at Temperature : 30 Minutes
   e) Mating Conditions : Unmated
   f) Mounting Conditions : Mounted
   g) Transfer Time : Instantaneous

3. The total number of cycles were performed continuously.

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

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

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 1000 megohms.

3. When a 975 VAC test voltage is applied, there shall be no evidence of arcing, breakdown, etc.

RESULTS:

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

2. The insulation resistance exceeded 50000 megohms.

3. There was no evidence of arcing, breakdown, etc., when a 975 VAC voltage was applied.

PROJECT NO.: 201461B	SPECIFICATION: TC0134-105I-0502
PART NO.:MEC1-140-01-S-D-RA1-SL	PART DESCRIPTION: 1.0 mm Edge Conn.
SAMPLE SIZE: ID# C1-1,C1-2, C1-3,C1-4	TECHNICIAN: LL
START DATE: 10/23/01	COMPLETE DATE: 11/2/01
ROOM AMBIENT: 22°C	RELATIVE HUMIDITY: 40%
EQUIPMENT ID#: 27, 321, 421	

MOISTURE RESISTANCE

PURPOSE:

1. 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.

2. This test obtains added effectiveness in employment of temperature cycling that provides a breathing action, inducing corrosion processes, and the introduction of moisture into partially sealed test samples. This condition imposes a vapor pressure on the samples which constitutes the major force behind the moisture migration and penetration.

PROCEDURE:

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

PROCEDURE:

2. Test Conditions:

a) Relative Humidity	:	90% to 95%
b) Temperature Conditions	:	25°C to 65°C
c) Cold Cycle	:	No
d) Polarizing Voltage	:	No
e) Mating Conditions	:	Unmated
f) Mounting Conditions	:	Mounted
g) Duration	:	240 hours

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

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

REQUIREMENTS:

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

2. The final insulation resistance shall not be less than 1000 megohms.

3. There shall be no evidence of arcing or breakdown when a 975 VAC test voltage is applied.

RESULTS:

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

2. The final insulation resistance exceeded 50,000 megohms when measured at high humidity.

3. There was no evidence of breakdown, arcing, etc., when a 975 VAC test voltage was applied.

TEST RESULTS

GROUP C2

PROJECT NO.: 201461B SPECIFICATION: TC0134-105I-0502

PART NO.:MEC1-140-01-S-D-RA1-SL PART DESCRIPTION: 1.0 mm Edge Conn.

SAMPLE SIZE: ID# C2-1,C2-2, C2-3,C2-4 TECHNICIAN: LL

START DATE: 10/19/01 COMPLETE DATE: 10/19/01

ROOM AMBIENT: 22°C RELATIVE HUMIDITY: 28%

EQUIPMENT ID#: 476, 1045

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
   b) Open Circuit Voltage : 20 millivolts
   c) No. of Positions Tested : 50 per test sample

PROCEDURE: Continued

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

REQUIREMENTS:

Low level circuit resistance shall be measured and recorded.

RESULTS:

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

LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg.	Max.	Min.
C2-1	26.1	34.2	18.6
C2-2	25.9	33.6	18.3
C2-3	25.8	33.8	18.2
C2-4	26.3	34.1	18.8

2. See data files 201461B09 through 201461B12 for individual data points.

PROJECT NO.: 201461B	SPECIFICATION: TC0134-105I-0502
PART NO.:MEC1-140-01-S-D-RA1-SL	PART DESCRIPTION: 1.0 mm Edge Conn.
SAMPLE SIZE: ID# C2-1,C2-2, C2-3,C2-4	TECHNICIAN: RO
START DATE: 10/22/01	COMPLETE DATE: 10/22/01
ROOM AMBIENT: 22°C	RELATIVE HUMIDITY: 42%
EQUIPMENT ID#: 192, 236, 413	

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	:	5 Cycles
b) Hot Extreme	:	+85 +3°C/-0°C
c) Cold Extreme	:	-55 +0°C/-3°C
d) Time at Temperature	:	30 Minutes
e) Mating Conditions	:	Mated
f) Mounting Conditions	:	Mounted
G) Transfer Time	:	Instantaneous

3. The total number of cycles were performed continuously.

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

5. All subsequent variable testing was performed in accordance with the procedures as 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 observed Low Level Circuit Resistance data following Thermal Shock:

LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg. Change	Max. Change
C2-1	-0.2	+0.2
C2-2	-0.1	+0.6
C2-3	-0.1	+0.7
C2-4	-0.2	+0.4

3. See data files 201461B09 through 201461B12 for individual data points.

PROJECT NO.: 201461B	SPECIFICATION: TC0134-105I-0502
PART NO.:MEC1-140-01-S-D-RA1-SL	PART DESCRIPTION: 1.0 mm Edge Conn.
SAMPLE SIZE: ID# C2-1,C2-2, C2-3,C2-4	TECHNICIAN: LL
START DATE: 10/23/01	COMPLETE DATE: 11/2/01
ROOM AMBIENT: 23°C	RELATIVE HUMIDITY: 45%
EQUIPMENT ID#: 27, 476, 1045	

MOISTURE RESISTANCE

PURPOSE:

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

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

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

c) Failure mechanisms resulting from a wet oxidation process.

PROCEDURE:

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

2. Test Conditions:

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

PROCEDURE: Continued

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

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

REQUIREMENTS:

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

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

RESULTS:

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

2. The following is a summary of the observed Low Level Circuit Resistance data following Cyclic Humidity:

CHANGE IN
LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg. Change	Max. Change
C2-1	-0.1	+0.4
C2-2	-0.1	+0.6
C2-3	+0.0	+0.9
C2-4	-0.2	+0.4

3. See data files 201461B09 through 201461B12 for individual data points.

Low Level Contact Resistance

Project: 201461B
Customer: Samtec
Product: Series MEC1-RA w/0.031 mating bd
Description: MEC1-140-01-S-D-RA1-SL
Open circuit voltage: 20 millivolts

Spec: EIA 364, TP23
Subgroup: Sequence C2
File #: 201461B09
Sample ID# C2-1
Current: 10 milliamps

Delta values
Units: milliohms

Temp ºC	22	22	23
R.H. %	28	42	45
Date:	19-Oct-01	22-Oct-01	2-Nov-01
Pos. ID	INITIAL	T.Shock	Humidity
1A	33.0	-0.3	-0.3
2A	33.2	-0.2	-0.1
3A	33.0	-0.2	-0.2
4A	33.6	-0.2	-0.1
5A	32.9	-0.1	0.0
6A	33.7	-0.2	-0.2
7A	32.6	-0.1	0.3
8A	33.6	-0.1	0.0
9A	33.2	-0.1	-0.1
10A	33.2	0.0	0.2
11A	32.9	0.0	0.0
12A	33.4	-0.2	-0.1
13A	33.4	-0.1	-0.1
14A	33.6	-0.3	-0.3
15A	33.2	-0.2	-0.2
16A	32.9	-0.2	-0.2
17A	33.2	-0.5	-0.4
18A	33.0	-0.2	-0.2
19A	33.7	0.0	-0.3
20A	33.3	-0.1	-0.2
21A	33.8	-0.2	-0.3
22A	32.9	0.0	-0.1
23A	34.2	-0.2	-0.3
24A	33.3	-0.2	-0.2
25A	34.0	-0.5	-1.1
26B	19.9	-0.6	-0.3
27B	18.9	-0.3	-0.1
28B	19.1	0.2	0.1

29B	18.6	-0.2	0.1
30B	18.6	-0.2	0.1
31B	18.6	-0.2	-0.1
32B	18.7	-0.2	-0.1
33B	19.2	-0.1	0.2
34B	19.5	-0.2	0.1
35B	18.7	0.0	0.1
36B	18.7	-0.2	0.1
37B	19.0	-0.1	0.0
38B	19.4	-0.2	-0.1
39B	18.7	-0.2	-0.1
40B	18.9	-0.3	-0.2
41B	18.8	-0.1	0.0
42B	18.9	-0.2	0.0
43B	18.9	-0.1	0.0
44B	18.7	-0.1	0.1
45B	19.0	-0.3	-0.3
46B	19.1	-0.3	0.4
47B	18.9	-0.1	-0.1
48B	19.0	-0.2	-0.1
49B	19.0	0.1	0.0
50B	18.7	-0.2	-0.2
MAX	34.2	0.2	0.4
MIN	18.6	-0.6	-1.1
AVG	26.1	-0.2	-0.1
STD	7.3	0.1	0.2
Open	0	0	0
Tech	LL	RO	LL
Equip ID	1045	413	1045
	476	236	476

Low Level Contact Resistance

Project: 201461B
Customer: Samtec
Product: Series MEC1-RA w/0.031 mating bd
Description: MEC1-140-01-S-D-RA1-SL
Open circuit voltage: 20 millivolts

Spec: EIA 364, TP23
Subgroup: Sequence C2
File #: 201461B10
Sample ID# C2-2
Current: 10 milliamps

Delta values
Units: milliohms

Temp ºC	22	22	23
R.H. %	28	42	45
Date:	19-Oct-01	22-Oct-01	2-Nov-01
Pos. ID	INITIAL	T. Shock	Humidity
1A	33.1	-0.2	-0.1
2A	32.9	-0.2	-0.3
3A	33.1	-0.2	-0.1
4A	32.8	-0.2	-0.2
5A	33.3	-0.2	-0.1
6A	32.1	0.0	0.2
7A	32.7	-0.2	-0.1
8A	32.7	-0.2	0.1
9A	32.7	-0.1	0.0
10A	32.8	-0.2	0.0
11A	32.6	0.0	-0.1
12A	32.6	-0.1	-0.1
13A	32.4	0.0	-0.1
14A	32.8	-0.4	-0.5
15A	32.7	-0.1	-0.1
16A	32.7	0.0	0.1
17A	33.0	-0.2	-0.3
18A	33.1	-0.3	-0.6
19A	32.8	0.5	0.1
20A	33.2	0.2	-0.2
21A	33.0	0.6	0.6
22A	33.6	-0.7	-0.8
23A	32.9	0.4	0.1
24A	33.2	-0.8	-0.7
25A	32.5	0.4	0.3
26B	19.5	-0.3	-0.3
27B	19.2	-0.4	-0.8

28B	19.7	-0.2	-0.3
29B	19.0	-0.5	-0.3
30B	18.7	-0.2	-0.2
31B	18.8	0.2	0.0
32B	18.6	-0.2	-0.1
33B	19.1	-0.4	-0.3
34B	19.0	-0.1	0.0
35B	19.5	-0.8	-0.8
36B	19.2	-0.2	-0.1
37B	19.2	-0.4	-0.4
38B	19.5	-0.1	-0.1
39B	19.6	-0.4	-0.3
40B	18.8	-0.2	-0.1
41B	19.4	-0.3	-0.2
42B	18.7	-0.4	-0.3
43B	18.7	-0.1	0.0
44B	18.8	-0.2	0.0
45B	18.7	0.0	0.5
46B	18.6	-0.1	0.0
47B	19.2	0.0	0.1
48B	18.7	-0.1	-0.1
49B	18.9	0.4	0.2
50B	18.3	0.0	0.0
MAX	33.6	0.6	0.6
MIN	18.3	-0.8	-0.8
AVG	25.9	-0.1	-0.1
STD	7.0	0.3	0.3
Open	0	0	0
Tech	LL	RO	LL
Equip ID	1045	413	1045
	476	236	476

Low Level Contact Resistance

Project: 201461B
Customer: Samtec
Product: Series MEC1-RA w/0.031 mating bd
Description: MEC1-140-01-S-D-RA1-SL
Open circuit voltage: 20 millivolts

Spec: EIA 364, TP23
Subgroup: Sequence C2
File #: 201461B11
Sample ID# C2-3
Current: 10 milliamps

Delta values
Units: milliohms

Temp ºC	22	22	23
R.H. %	28	42	45
Date:	19-Oct-01	22-Oct-01	2-Nov-01
Pos. ID	INITIAL	T. Shock	Humidity
1A	32.3	0.0	-0.1
2A	32.3	-0.2	-0.1
3A	32.0	0.1	0.1
4A	32.3	0.1	0.1
5A	31.9	0.0	0.1
6A	32.6	0.1	0.2
7A	32.1	0.0	-0.1
8A	32.0	0.1	0.0
9A	32.8	0.1	0.1
10A	32.9	-0.7	0.2
11A	32.3	0.0	-0.1
12A	32.5	0.0	0.0
13A	32.7	0.1	-0.3
14A	33.1	-0.3	-0.3
15A	33.1	-0.6	-0.5
16A	32.8	0.0	-0.3
17A	33.1	-0.5	-0.3
18A	33.1	0.0	-0.6
19A	33.3	-0.6	-0.2
20A	32.8	0.7	-0.3
21A	33.8	-0.6	-0.3
22A	33.2	-0.5	-0.2
23A	33.0	-0.3	-0.2
24A	33.2	-0.4	-0.3
25A	32.9	0.0	-0.1
26B	20.1	0.2	0.1
27B	18.7	0.0	-0.1
28B	19.1	0.0	-0.4

29B	18.9	0.2	0.1
30B	19.2	-0.1	0.1
31B	18.3	0.1	-0.2
32B	18.9	-0.1	-0.2
33B	18.9	0.1	0.2
34B	18.8	0.0	0.0
35B	18.9	-0.2	0.1
36B	19.1	-0.2	0.0
37B	18.4	-0.1	0.2
38B	18.5	-0.3	-0.1
39B	18.5	-0.2	-0.1
40B	18.4	-0.3	-0.1
41B	18.8	-0.2	0.1
42B	18.2	-0.3	0.2
43B	18.7	-0.3	0.2
44B	18.5	-0.3	0.2
45B	19.2	-0.1	0.3
46B	18.7	-0.2	0.6
47B	19.0	-0.2	0.2
48B	18.6	0.0	0.9
49B	18.8	-0.1	0.1
50B	18.7	-0.2	0.0
MAX	33.8	0.7	0.9
MIN	18.2	-0.7	-0.6
AVG	25.8	-0.1	0.0
STD	7.0	0.3	0.3
Open	0	0	0
Tech	LL	RO	LL
Equip ID	1045	413	1045
	476	236	476

Low Level Contact Resistance

Project: 201461B
Customer: Samtec
Product: Series MEC1-RA w/0.031 mating bd
Description: MEC1-140-01-S-D-RA1-SL
Open circuit voltage: 20 millivolts

Spec: EIA 364, TP23
Subgroup: Sequence C2
File #: 201461B12
Sample ID# C2-4
Current: 10 milliamps

Delta values
Units: milliohms

Temp ºC	22	22	23
R.H. %	28	42	45
Date:	19-Oct-01	22-Oct-01	2-Nov-01
Pos. ID	INITIAL	T. Shock	Humidity
1A	32.7	0.0	0.2
2A	33.0	-0.1	-0.1
3A	32.5	0.1	0.2
4A	33.0	0.4	0.3
5A	32.6	0.3	0.1
6A	33.1	0.4	0.1
7A	32.5	0.1	0.0
8A	32.7	0.1	0.2
9A	33.1	0.0	0.0
10A	32.9	-0.1	0.2
11A	32.6	0.0	0.0
12A	32.6	-0.2	-0.3
13A	32.8	-0.1	-0.5
14A	32.8	-0.2	-0.4
15A	33.2	-0.3	-0.3
16A	33.4	-0.3	-0.4
17A	33.3	-0.4	-0.6
18A	33.1	-0.2	-0.5
19A	33.1	-0.2	-0.2
20A	33.2	-0.1	-0.2
21A	33.6	-0.2	-0.6
22A	33.0	-0.2	-0.2
23A	33.0	-0.2	-0.2
24A	33.2	0.0	-0.1
25A	34.1	-0.3	-1.0
26B	19.8	0.0	0.2
27B	18.8	0.0	0.4

28B	18.9	0.1	0.3
29B	19.5	-0.3	0.0
30B	19.9	-0.2	0.4
31B	19.0	0.1	0.0
32B	19.5	-0.2	-0.2
33B	20.2	-0.3	-0.5
34B	20.1	-0.2	-0.2
35B	19.4	-0.1	-0.1
36B	19.8	-0.1	-0.1
37B	19.5	-0.3	-0.2
38B	19.5	-0.4	-0.5
39B	19.4	-0.1	0.0
40B	19.4	-0.2	0.0
41B	19.7	-0.2	-0.3
42B	21.4	-2.1	-1.9
43B	19.2	-0.5	-0.3
44B	18.9	-0.4	-0.3
45B	19.2	-0.1	0.1
46B	19.1	-0.3	-0.2
47B	19.6	-0.2	-0.1
48B	19.2	0.0	-0.1
49B	19.7	-0.1	-0.1
50B	19.3	-0.3	-0.4
MAX	34.1	0.4	0.4
MIN	18.8	-2.1	-1.9
AVG	26.3	-0.2	-0.2
STD	6.8	0.3	0.4
Open	0	0	0
Tech	LL	RO	LL
Equip ID	1045	413	1045
	476	236	476

TEST RESULTS

GROUP D1

PROJECT NO.: 201461B	SPECIFICATION: TC0134-105I-0502
PART NO.:MEC1-140-01-S-D-RA1-SL	PART DESCRIPTION: 1.0 mm Edge Conn.
SAMPLE SIZE: ID# D1-1,D1-2, D1-3,D1-4	TECHNICIAN: LL
START DATE: 10/17/01	COMPLETE DATE: 10/17/01
ROOM AMBIENT: 22°C	RELATIVE HUMIDITY: 46%
EQUIPMENT ID#: 476, 1045	

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
   b) Open Circuit Voltage : 20 millivolts
   c) No. of Positions Tested : 50 per test sample

PROCEDURE: Continued

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

REQUIREMENTS:

Low level circuit resistance shall be measured and recorded.

RESULTS:

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

LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg.	Max.	Min.
D1-1	26.1	34.1	18.5
D1-2	25.7	34.7	17.8
D1-3	26.0	34.0	18.4
D1-4	26.0	33.9	18.2

2. See data files 201461B13 through 201461B16 for individual data points.

PROJECT NO.: 201461B	SPECIFICATION: TC0134-105I-0502
PART NO.:MEC1-140-01-S-D-RA1-SL	PART DESCRIPTION: 1.0 mm Edge Conn.
SAMPLE SIZE: ID# D1-1,D1-2, D1-3,D1-4	TECHNICIAN: LL
START DATE: 10/19/01	COMPLETE DATE: 10/31/01
ROOM AMBIENT: 22°C	RELATIVE HUMIDITY: 22%
EQUIPMENT ID#: 476, 633, 1045, 1236	

THERMAL AGING

PURPOSE:

1. To evaluate the impact on electrical stability of the contact system when exposed to a thermal environment. Said environment may generate temperature dependent failure mechanisms such as:

   a) Dry oxidation of base metals and/or underplates which have reached the contacting surfaces by impurity, diffusion or pore corrosion.

   b) Dry oxidation and/or film formation of particulates which may have been deposited on the contacting surfaces from the surrounding atmosphere.

   c) Reduced normal (contact) force due to stress relaxation as a result of a thermal environment.

PROCEDURE:

1. The test samples were placed in the test chamber after it had reached equilibrium at the specified temperature level. The test exposure was performed in accordance with EIA 364, Test Procedure 17, with the following conditions:

2. Test Condition:

   a) Temperature : 105°C ± 2°C
   b) Duration : 250 hours
   c) Mated Condition : Mated
   d) Mounting Condition : Mounted

PROCEDURE: Continued

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

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

REQUIREMENTS:

1. There shall be no evidence of physical damage or deterioration of the test samples so exposed.

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

RESULTS:

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

2. The following is a summary of the Low Level Circuit Resistance data observed following Thermal Aging:

CHANGE IN
LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg. Change	Max. Change
D1-1	+0.8	+2.2
D1-2	+0.0	+0.7
D1-3	+0.2	+0.6
D1-4	+0.6	+1.8

3. See data files 201461B13 through 201461B16 for individual data points.

Low Level Contact Resistance

Project: 201461B
Customer: Samtec
Product: Series MEC1-RA w/0.031 mating bd
Description: MEC1-140-01-S-D-RA1-SL
Open circuit voltage: 20 millivolts

Spec: EIA 364, TP23
Subgroup: Sequence D1
File #: 201461B13
Sample ID# D2-1
Current: 10 milliamps

Delta values
Units: milliohms

Temp ºC	22	22
R.H. %	46	22
Date:	17-Oct-01	31-Oct-01
Pos. ID	INITIAL	Th.Aging
1A	33.3	1.0
2A	32.8	1.1
3A	33.0	1.2
4A	33.1	1.3
5A	32.9	0.9
6A	33.2	0.9
7A	32.6	1.3
8A	32.9	1.2
9A	32.7	1.0
10A	33.0	1.2
11A	32.9	0.9
12A	33.1	1.1
13A	33.3	0.6
14A	33.1	0.5
15A	33.2	0.7
16A	33.2	0.5
17A	33.6	0.6
18A	33.4	0.4
19A	33.2	0.7
20A	32.9	1.1
21A	33.1	1.5
22A	33.3	2.2
23A	33.6	1.1
24A	33.1	1.3
25A	34.1	0.9
26B	19.4	-0.1
27B	19.0	0.2
28B	19.6	0.4

29B	18.8	1.9
30B	18.8	1.1
31B	18.9	1.9
32B	19.4	1.2
33B	19.2	0.6
34B	18.9	2.0
35B	19.2	0.0
36B	18.9	0.8
37B	19.4	-0.1
38B	18.9	1.1
39B	18.9	0.4
40B	19.3	0.1
41B	18.6	0.7
42B	18.9	0.3
43B	18.7	0.7
44B	18.7	0.8
45B	18.5	0.6
46B	19.4	-0.2
47B	18.6	0.1
48B	18.6	0.8
49B	18.7	0.3
50B	18.7	0.7
MAX	34.1	2.2
MIN	18.5	-0.2
AVG	26.1	0.8
STD	7.2	0.5
Open	0	0
Tech	LL	LL
Equip ID	1045	1045
	476	476

Low Level Contact Resistance

Project: 201461B
Customer: Samtec
Product: Series MEC1-RA w/0.031 mating bd
Description: MEC1-140-01-S-D-RA1-SL
Open circuit voltage: 20 millivolts

Spec: EIA 364, TP23
Subgroup: Sequence D1
File #: 201461B14
Sample ID# D2-2
Current: 10 milliamps

Delta values
Units: milliohms

Temp ºC	22	22
R.H. %	46	22
Date:	17-Oct-01	31-Oct-01
Pos. ID	INITIAL	Th.Aging
1A	32.8	-0.1
2A	32.8	-0.8
3A	31.4	0.6
4A	32.4	0.7
5A	32.4	0.6
6A	32.5	0.2
7A	32.8	0.3
8A	33.2	0.1
9A	32.7	0.3
10A	32.8	0.3
11A	32.7	0.1
12A	33.1	-0.3
13A	32.5	0.1
14A	33.0	-0.1
15A	32.8	0.1
16A	32.9	-0.1
17A	33.1	-0.3
18A	33.1	0.0
19A	33.4	-0.1
20A	32.4	0.1
21A	34.7	-0.6
22A	33.0	0.3
23A	33.7	0.1
24A	33.1	0.0
25A	34.0	0.7
26B	20.5	-0.3
27B	17.8	0.2
28B	18.4	0.5

29B	18.8	-0.1
30B	19.1	-0.5
31B	18.0	0.7
32B	18.6	0.2
33B	19.2	-0.1
34B	19.0	0.2
35B	18.8	0.0
36B	18.8	-0.3
37B	18.7	-0.2
38B	19.0	-0.2
39B	19.0	-0.3
40B	18.2	-0.1
41B	17.9	0.1
42B	18.1	-0.5
43B	17.9	0.1
44B	18.1	0.1
45B	18.2	0.3
46B	17.9	0.0
47B	18.1	0.3
48B	18.2	0.1
49B	18.6	0.1
50B	18.3	0.1
MAX	34.7	0.7
MIN	17.8	-0.8
AVG	25.7	0.0
STD	7.3	0.3
Open	0	0
Tech	LL	LL
Equip ID	1045	1045
	476	476

Low Level Contact Resistance

Project: 201461B
Customer: Samtec
Product: Series MEC1-RA w/0.031 mating bd
Description: MEC1-140-01-S-D-RA1-SL
Open circuit voltage: 20 millivolts

Spec: EIA 364, TP23
Subgroup: Sequence D1
File #: 201461B15
Sample ID# D2-3
Current: 10 milliamps

Delta values
Units: milliohms

Temp ºC	22	22
R.H. %	46	22
Date:	17-Oct-01	31-Oct-01
Pos. ID	INITIAL	Th.Aging
1A	33.0	0.1
2A	32.8	0.1
3A	32.8	0.0
4A	33.8	-0.4
5A	32.8	0.4
6A	32.8	0.5
7A	32.8	-0.1
8A	33.4	-0.2
9A	32.5	0.1
10A	33.4	-0.1
11A	32.7	-0.1
12A	33.2	0.3
13A	32.9	0.2
14A	32.9	-0.3
15A	33.1	-0.2
16A	33.2	-0.4
17A	33.1	-0.1
18A	33.1	-0.4
19A	33.7	-0.2
20A	33.6	-0.1
21A	33.2	0.3
22A	33.7	0.2
23A	34.0	0.4
24A	33.1	0.6
25A	33.0	0.6
26B	19.5	0.0
27B	18.8	0.3
28B	19.6	0.1

29B	18.7	0.3
30B	18.6	0.4
31B	18.6	0.4
32B	18.6	0.3
33B	18.5	0.5
34B	18.9	0.5
35B	18.7	0.6
36B	18.9	0.3
37B	18.8	0.6
38B	19.2	0.1
39B	19.1	0.4
40B	18.8	0.1
41B	18.9	0.2
42B	18.6	0.1
43B	18.5	0.3
44B	18.5	0.3
45B	18.7	0.4
46B	18.8	0.0
47B	18.8	0.4
48B	18.6	0.6
49B	19.1	0.3
50B	18.4	-0.1
MAX	34.0	0.6
MIN	18.4	-0.4
AVG	26.0	0.2
STD	7.3	0.3
Open	0	0
Tech	LL	LL
Equip ID	1045	1045
	476	476

Low Level Contact Resistance

Project: 201461B
Customer: Samtec
Product: Series MEC1-RA w/0.031 mating bd
Description: MEC1-140-01-S-D-RA1-SL
Open circuit voltage: 20 millivolts

Spec: EIA 364, TP23
Subgroup: Sequence D1
File #: 201461B16
Sample ID# D2-4
Current: 10 milliamps

Delta values
Units: milliohms

Temp ºC	22	22
R.H. %	46	22
Date:	17-Oct-01	31-Oct-01
Pos. ID	INITIAL	Th.Aging
1A	32.3	0.4
2A	32.3	0.5
3A	33.3	1.0
4A	33.5	0.8
5A	32.7	0.6
6A	33.5	0.5
7A	33.2	1.0
8A	33.5	0.3
9A	33.1	1.0
10A	33.0	1.1
11A	33.0	0.4
12A	33.0	0.3
13A	33.1	1.0
14A	33.5	0.9
15A	33.1	0.6
16A	33.3	0.6
17A	33.5	0.5
18A	32.9	0.4
19A	33.5	0.6
20A	33.0	0.6
21A	33.9	0.8
22A	33.1	0.5
23A	33.9	0.6
24A	32.8	1.6
25A	33.8	1.0
26B	19.4	0.2
27B	18.8	1.2
28B	18.4	0.7

29B	18.2	1.8
30B	18.7	0.5
31B	18.8	0.6
32B	18.9	0.3
33B	19.0	0.6
34B	19.4	-0.3
35B	18.7	0.8
36B	19.0	0.5
37B	19.2	0.3
38B	19.6	0.0
39B	18.9	0.2
40B	18.8	-0.1
41B	18.8	0.8
42B	18.2	0.4
43B	18.7	0.0
44B	18.6	0.4
45B	19.7	-0.5
46B	18.6	0.8
47B	18.9	0.1
48B	19.2	0.2
49B	19.0	0.2
50B	18.6	1.1
MAX	33.9	1.8
MIN	18.2	-0.5
AVG	26.0	0.6
STD	7.2	0.4
Open	0	0
Tech	LL	LL
Equip ID	1045	1045
	476	476

TEST RESULTS

GROUP D2

PROJECT NO.: 201461B SPECIFICATION: TC0134-105I-0502

PART NO.:MEC1-140-01-S-D-RA1-SL PART DESCRIPTION: 1.0 mm Edge Conn.

SAMPLE SIZE: ID# D2-1,D2-2 TECHNICIAN: LL

START DATE: 10/17/01 COMPLETE DATE: 10/17/01

ROOM AMBIENT: 22°C RELATIVE HUMIDITY: 46%

EQUIPMENT ID#: 99

CONTACT GAPS

PURPOSE:

To determine the dimensional distance between opposing contacts.

PROCEDURE:

1. The test samples were fixtured to the baseplate of the test stand.

2. The dimensional distance between opposing contacts were measured.

3. Test Conditions:

    a) Mating Conditions : Unmated
    b) Mounting Conditions : Unmounted
    c) Number of Positions Tested : 10 per test sample

REQUIREMENTS:

The dimensional distance between opposing contacts shall be measured and recorded.

RESULTS: See next page.

RESULTS:

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

Sample ID#	CONTACT GAP (Inches) Avg.	Max.	Min.
D2-1	0.0096	0.0105	0.0085
D2-2	0.0093	0.0103	0.0085

2. See data file 201461BGAP2 for individual data points.

PROJECT NO.: 201461B	SPECIFICATION: TC0134-105I-0502
PART NO.:MEC1-140-01-S-D-RA1-SL	PART DESCRIPTION: 1.0 mm Edge Conn.
SAMPLE SIZE: ID# D2-1,D2-2	TECHNICIAN: LL
START DATE: 10/19/01	COMPLETE DATE: 10/30/01
ROOM AMBIENT: 22°C	RELATIVE HUMIDITY: 28%
EQUIPMENT ID#: 99, 633, 1236	

THERMAL AGING

PURPOSE:

To evaluate the impact on mechanical stability of the contact system when exposed to a thermal environment. Said environment may generate temperature dependent failure mechanisms such as:

a) Reduced normal (contact) force due to stress relaxation as a result of a thermal environment.

PROCEDURE:

1. The test samples were placed in the test chamber after it had reached equilibrium at the specified temperature level. The test exposure was performed in accordance with EIA 364, Test Procedure 17, with the following conditions:

2. Test Condition:

   a) Temperature : 105°C ± 2°C
   b) Duration : 250 hours
   c) Mated Condition : Mated
   d) Mounting Condition : Unmounted

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

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

REQUIREMENTS: See next page.

REQUIREMENTS:

The dimensional distance between opposing contacts shall be measured and recorded.

RESULTS:

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

	CONTACT GAPS (Inches)					
	Initial			Final		
Sample ID#	Avg.	Max.	Min.	Avg.	Max.	Min.
D2-1	0.0096	0.0105	0.0085	0.0152	0.0161	0.0141
D2-2	0.0093	0.0103	0.0085	0.0143	0.0155	0.0136

2. See data file 201461BGAP2 for individual data points.

GAP MEASUREMENTS

PROJECT **201461B** TEST : Contact Gap Measurements REQ. : Record
CUSTOMER: **SAMTEC** SPEC : PAR. : TECH : LL
START : 10/17/2001 SAMPLE I.D. # : D1-1 & D1-2
FINISH : 10/30/2001 TEMP :ºC 22 R.H. % 46 UNITS : inches
EQUIPMENT I.D. #: 99 SEQUENCE D1 FILE : 201461BGAP2

	D1-1					D1-2		
POS.	**INITIAL**	**FINAL**			POS.	**INITIAL**	**FINAL**	
1	0.0101	0.0148			1	0.0090	0.0142	
2	0.0086	0.0141			2	0.0085	0.0136	
3	0.0085	0.0144			3	0.0090	0.0138	
4	0.0102	0.0153			4	0.0093	0.0139	
5	0.0101	0.0157			5	0.0095	0.0145	
6	0.0088	0.0152			6	0.0095	0.0147	
7	0.0105	0.0161			7	0.0103	0.0155	
8	0.0091	0.0152			8	0.0094	0.0143	
9	0.0100	0.0158			9	0.0094	0.0145	
10	0.0099	0.0152			10	0.0087	0.0138	
MAX:	0.0105	0.0161			MAX:	0.0103	0.0155	
MIN:	0.0085	0.0141			MIN:	0.0085	0.0136	
AVG:	0.0096	0.0152			AVG:	0.0093	0.0143	
STD	0.0007	0.0006			STD	0.0005	0.0006	
TECH	LL	LL			TECH	LL	LL	
EQUIP	99	99			EQUIP	99	99	

TEST RESULTS

GROUP J

PROJECT NO.: 201461B	SPECIFICATION: TC0134-105I-0502
PART NO.:MEC1-140-01-S-D-RA1-SL	PART DESCRIPTION: 1.0 mm Edge Conn.
SAMPLE SIZE: ID# J-1,J-2, J-3,J-4	TECHNICIAN: RO
START DATE: 11/7/01	COMPLETE DATE: 11/9/01
ROOM AMBIENT: 22°C	RELATIVE HUMIDITY: 30%
EQUIPMENT ID#: 440, 580, 1012, 1279	

CURRENT CARRYING CAPACITY

PURPOSE:

To establish the current carrying capacity of the test sample under evaluation. This is achieved by determining the temperature rise resulting at the contact interface at specified current levels. The temperature rise at a given current level plus the ambient operating temperature should not exceed the temperature rating of the test sample. Thus, the current rating of the system decreases as the operating ambient increases. This data can also be used to determine potential local “hot spot” internal to the test sample, possible degradation factors, thermal effects on adjacent areas and/or the acceptability for use of pulsing techniques.

PROCEDURE:

1. The test was performed in accordance with EIA 364, Test Procedure 70.

2. The test samples were prepared to accept thermocouples by drilling a hole in the connector housing at the center of the circuit under test.

3. An additional thermocouple was placed 2” outside of the test samples adjacent to the locations to be monitored. This is accomplished to evaluate the impact of ambient conditions.

4. The thermocouples were attached to a data acquisition/ scanner system.

PROCEDURE: Continued

5. The test specimen was placed in a chamber or room which prevents air currents and the like from influencing the observations.

6. Test Conditions:

   a) Current Levels : 0.5,1.0 and 2.0 amps
   b) No. of Contacts in Series : 6
   c) Derating Curve : Yes

7. The current level indicated was applied until temperature stabilization was reached.

8. Temperature stabilization is defined as no change in temperature rise greater than ± 1°C over a 15 minute interval.

REQUIREMENTS:

The temperature rise shall be measured and recorded and a current derating curve established.

RESULTS:

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

	TEMPERATURE RISE ABOVE AMBIENT (DEGREE C)		
Sample ID#	0.5 Amps	1.0 Amp	2.0 Amps
J-1	+4.3	+15.1	+50.1
J-2	+4.2	+14.4	+50.0
J-3	+3.8	+13.2	+48.2
J-4	+3.9	+14.0	+49.2

2. See data files 201461B13T through 201461B24T for individual data points.

RESULTS: Continued

3. The following Figure #'s are the current derating curves for connectors evaluated with maximum operating temperature of 60°C, 85°C and 105°C.

Figure #'s 8, 9, 10, 11 @ 105°C

The base curve is created by the data from Data File #'s 201461B13T through 201461B24T. The derated curve is 20% from the base curve.

FIGURE #8

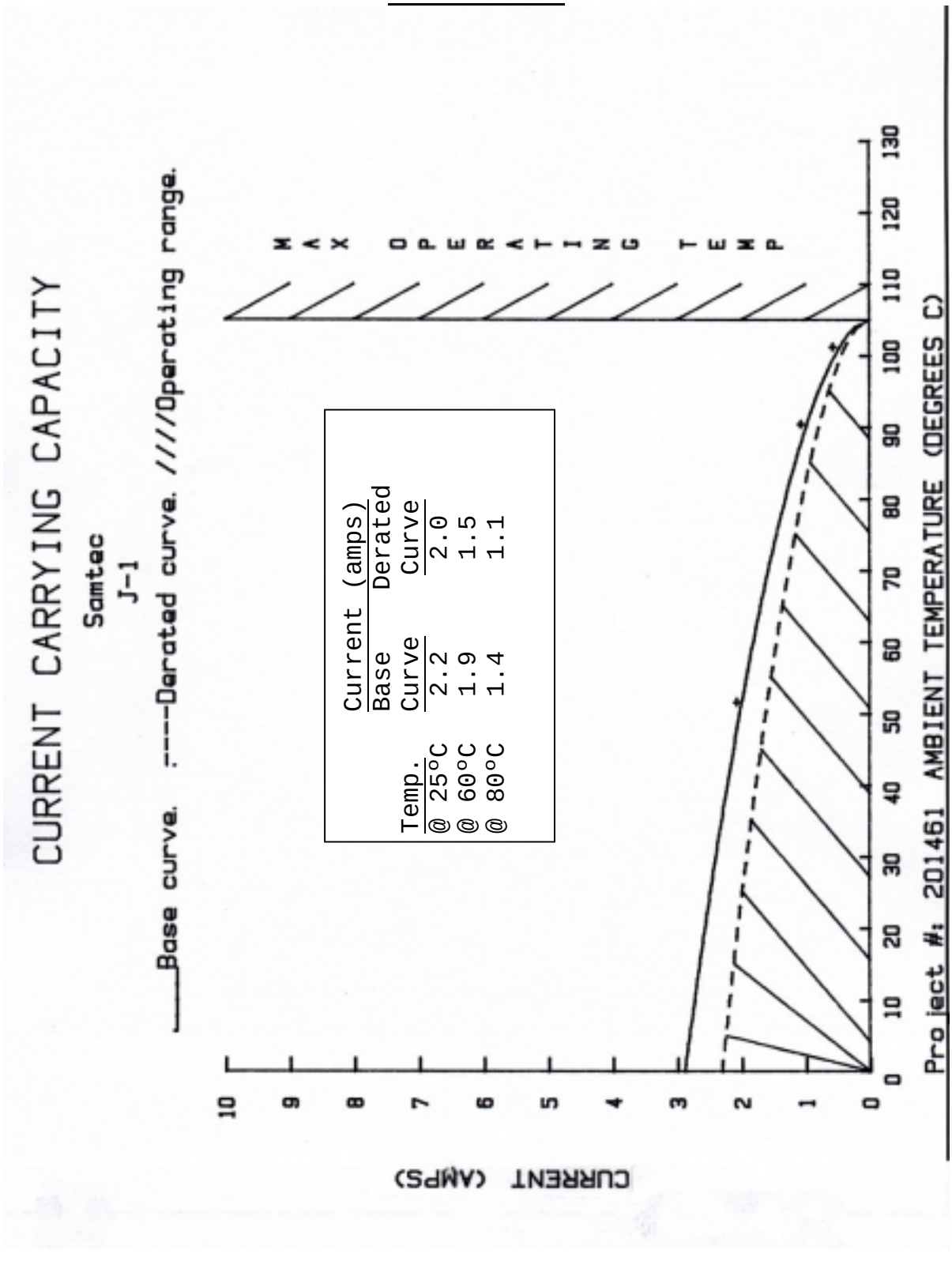

CURRENT CARRYING CAPACITY
Samtec
J-1
Base curve. ----Derated curve. ////Operating range.
MAX OPERATING TEMP
Current (amps)
Base Curve
Derated Curve
Temp.
@ 25°C 2.2 2.0
@ 60°C 1.9 1.5
@ 80°C 1.4 1.1
CURRENT (AMPS)
0 1 2 3 4 5 6 7 8 9 10
0 10 20 30 40 50 60 70 80 90 100 110 120 130
Project #: 201461 AMBIENT TEMPERATURE (DEGREES C)

FIGURE #9

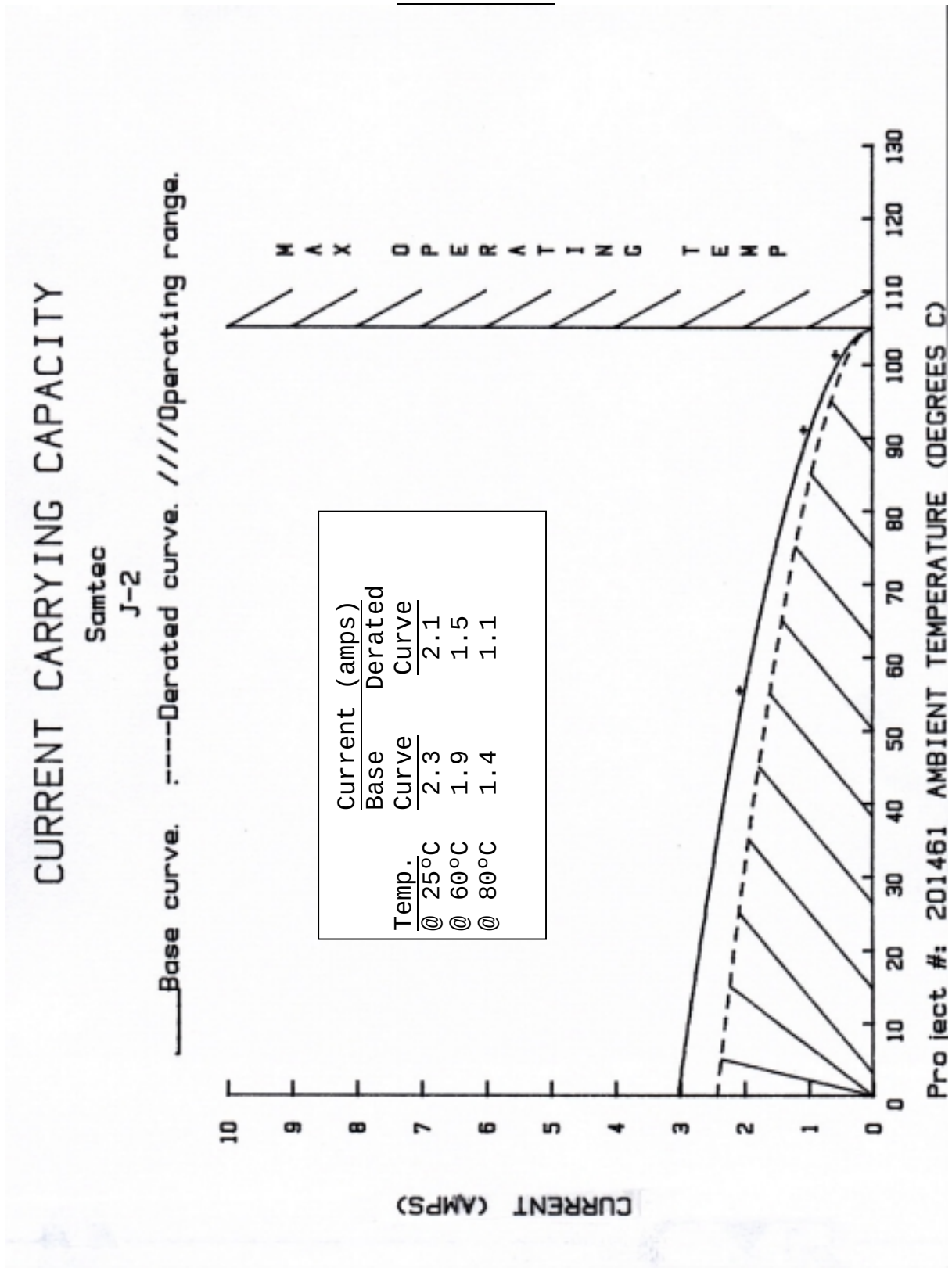

CURRENT CARRYING CAPACITY
Samtec
J-2
Base curve. ----Derated curve. ////Operating range.
Current (amps)
Base Derated
Temp. Curve Curve
@ 25°C 2.3 2.1
@ 60°C 1.9 1.5
@ 80°C 1.4 1.1
MAX OPERATING TEMP
CURRENT (AMPS)
0 1 2 3 4 5 6 7 8 9 10
0 10 20 30 40 50 60 70 80 90 100 110 120 130
Project #: 201461 AMBIENT TEMPERATURE (DEGREES C)

FIGURE #10

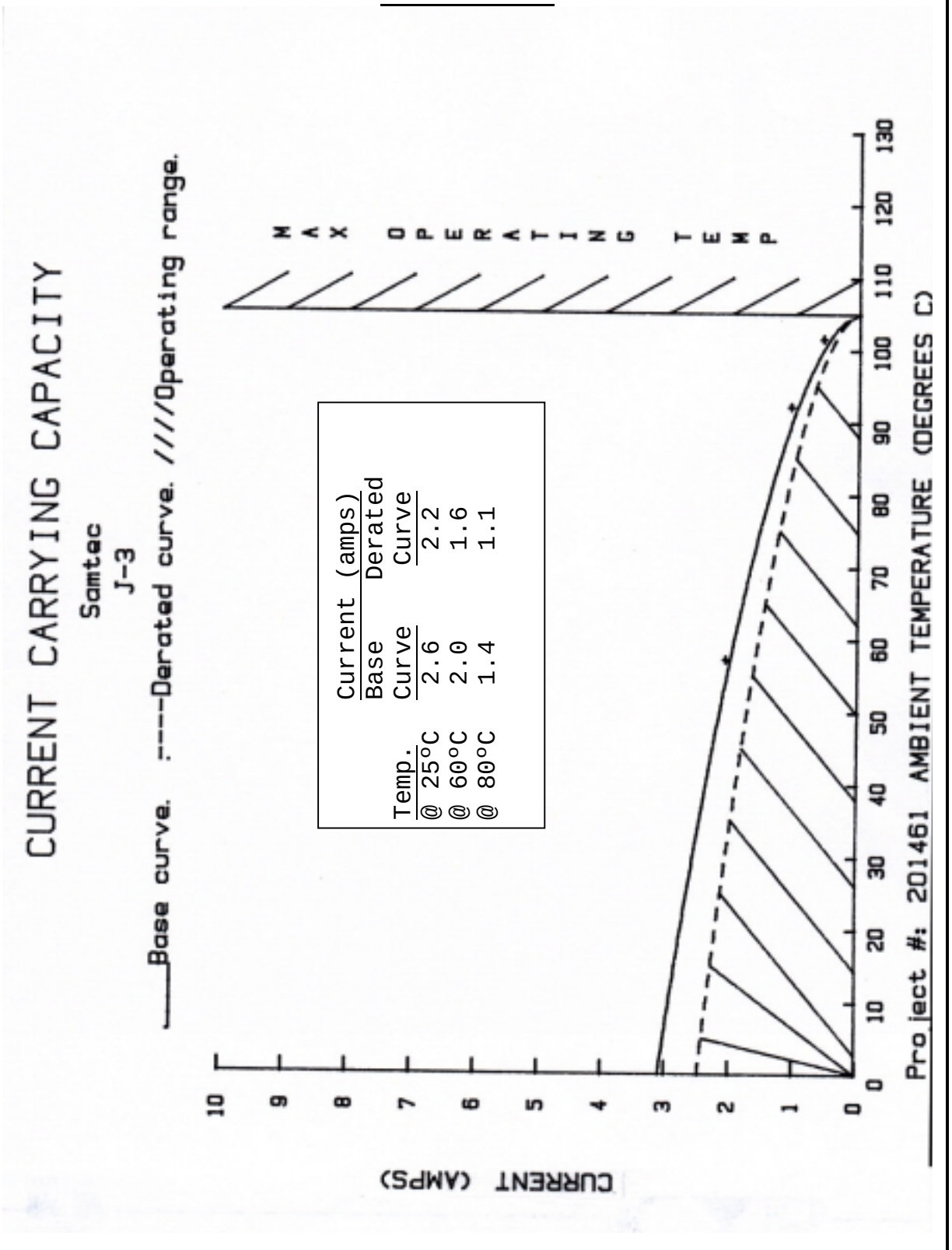
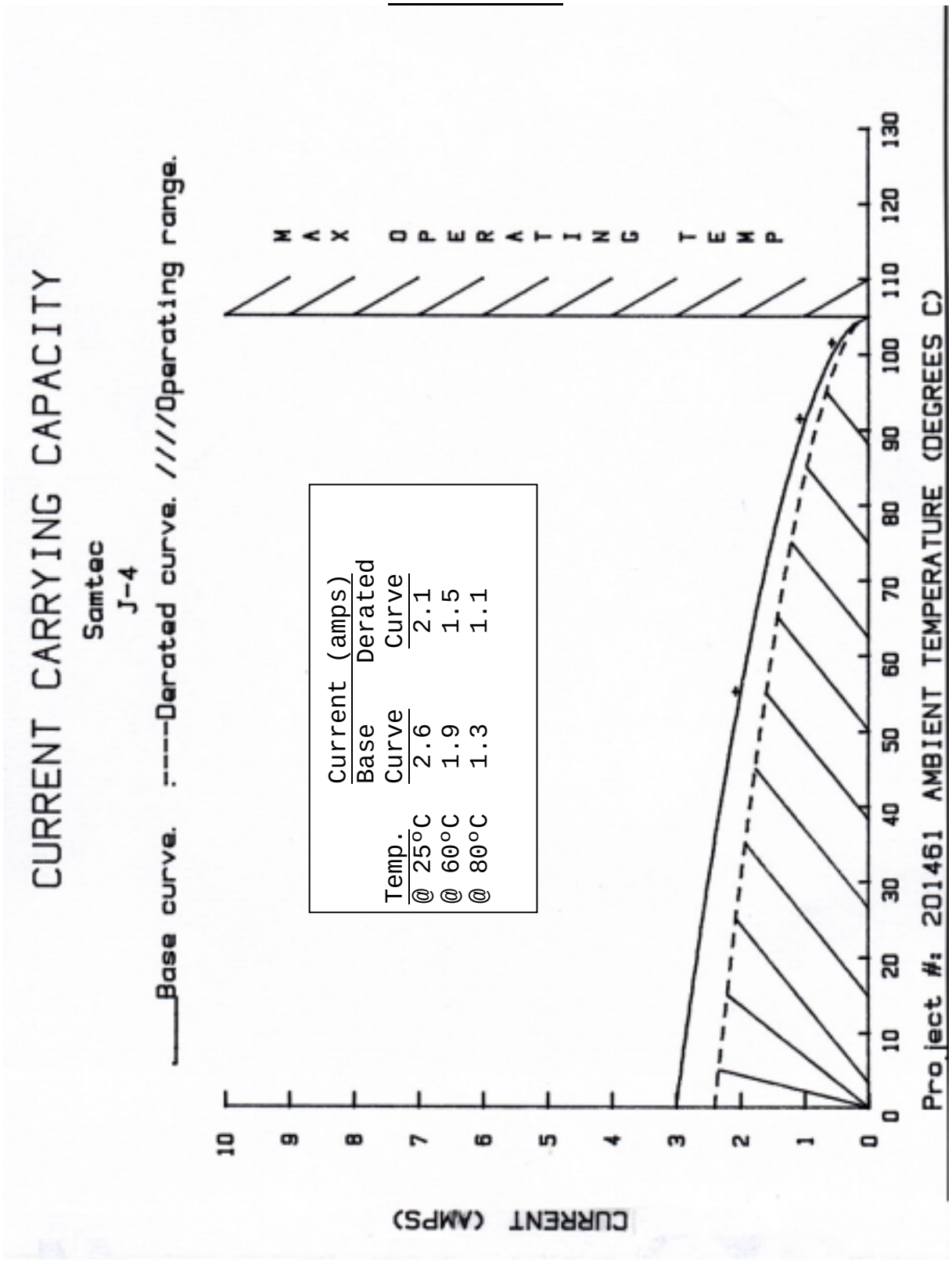

CURRENT CARRYING CAPACITY
Samtec
J-3
Base curve. ----Derated curve. ////Operating range.
MAX OPERATING TEMP
Current (amps)
Base Curve
Derated Curve
Temp.
@ 25°C 2.6 2.2
@ 60°C 2.0 1.6
@ 80°C 1.4 1.1
CURRENT (AMPS)
0 1 2 3 4 5 6 7 8 9 10
0 10 20 30 40 50 60 70 80 90 100 110 120 130
Project #: 201461 AMBIENT TEMPERATURE (DEGREES C)

FIGURE #11


CURRENT CARRYING CAPACITY
Samtec
J-4
Base curve. ----Derated curve. ////Operating range.
MAX OPERATING TEMP
Current (amps)
Base Curve
Derated Curve
Temp.
@ 25°C 2.6 2.1
@ 60°C 1.9 1.5
@ 80°C 1.3 1.1
CURRENT (AMPS)
0 1 2 3 4 5 6 7 8 9 10
0 10 20 30 40 50 60 70 80 90 100 110 120 130
Project #: 201461 AMBIENT TEMPERATURE (DEGREES C)

Temperature Rise Test

Project #: 201461
Customer: Samtec
Product: Current Rating
Description: J-1
Technician: RO

Spec: MEC1-RA
Subgroup: J
File#: 0146113.TRD
TC Type: J
Current: 0.5

Temperature Rise Data (C) above ambient

Cycle	Amb	1
1	22.7	2.2
2	22.5	2.8
3	22.5	3.2
4	22.4	3.6
5	22.4	3.7
6	22.4	3.9
7	22.5	3.9
8	22.5	3.9
9	22.6	3.8
10	22.5	4
11	22.4	4.2
12	22.5	4.1
13	22.6	4
14	22.4	4.2
15	22.6	4
16	22.4	4.2
17	22.4	4.3
18	22.5	4.2
19	22.3	4.4
20	22.4	4.2
21	22.5	4.2
22	22.5	4.2
23	22.4	4.3
24	22.5	4.2
25	22.4	4.3
26	22.4	4.3
27	22.4	4.3
28	22.5	4.2
29	22.5	4.2
30	22.4	4.3
31	22.5	4.2
32	22.4	4.3
33	22.5	4.2
34	22.4	4.3

Temperature Rise Test

Project #: 201461
Customer: Samtec
Product: Current Rating
Description: J-1
Technician: RO

Spec: MEC1-RA
Subgroup: J
File#: 0146114.TRD
TC Type: J
Current: 1

Temperature Rise Data (C) above ambient

Cycle	Amb	1
1	22.8	7.6
2	22.8	9.6
3	22.6	11.2
4	22.6	12.1
5	22.6	12.6
6	22.7	13
7	22.6	13.5
8	22.6	13.7
9	22.7	13.8
10	22.6	14.2
11	22.6	14.4
12	22.7	14.3
13	22.6	14.6
14	22.5	14.7
15	22.5	15
16	22.6	14.9
17	22.6	14.9
18	22.6	14.8
19	22.6	14.9
20	22.6	14.9
21	22.5	15
22	22.6	15
23	22.6	15.1
24	22.7	15.1
25	22.6	14.8
26	22.5	14.9
27	22.7	15
28	22.6	15.3
29	22.6	14.9
30	22.7	14.9
31	22.7	14.6
32	22.7	14.8
33	22.5	14.6
34	22.7	14.8
35	22.7	14.9

36	22.7	14.9
37	22.7	14.9
38	22.6	14.8
39	22.5	15
40	22.7	15
41	22.7	15.1
42	22.6	15
43	22.6	15
44	22.6	15.1
45	22.6	15.1

Temperature Rise Test

Project #: 201461
Customer: Samtec
Product: Current Rating
Description: J-1
Technician: RO

Spec: mec1-ra
Subgroup: J
File#: 0146115.TRD
TC Type: J
Current: 2

Temperature Rise Data (C) above ambient

Cycle	Amb	1
1	22.8	44.1
2	22.8	45.6
3	22.8	49
4	22.7	49.2
5	22.7	49.2
6	22.8	49.7
7	22.8	51.9
8	22.9	51
9	22.8	51.5
10	22.8	51.3
11	22.7	53.4
12	22.8	52.2
13	22.8	51.6
14	22.8	52.5
15	22.7	53.8
16	22.8	52
17	22.8	51.2
18	22.8	53.4
19	22.8	53.6
20	22.8	53.4
21	22.7	51.9
22	22.8	53.1
23	22.8	53.3
24	22.9	52.5
25	22.9	52.9
26	22.8	53.3
27	22.7	52.6
28	22.8	51.2
29	22.8	51
30	22.8	51.6
31	22.9	50.2
32	22.9	51.4
33	22.8	50.1
34	22.8	50.2

35	22.8	49.3
36	22.8	48.3
37	22.8	49.9
38	22.8	50.2
39	22.7	49.3
40	22.9	47.5
41	22.8	48.4
42	22.9	46.6
43	22.8	49.1
44	22.8	48.7
45	22.9	48.2
46	22.7	50.1
47	22.8	47.7
48	22.8	47.3

Temperature Rise Test

Project #: 201461
Customer: Samtec
Product: Current Rating
Description: J-2
Technician: RO

Spec: MEC1-RA
Subgroup: J
File#: 0146116.TRD
TC Type: J
Current: 0.5

Temperature Rise Data (C) above ambient

Cycle	Amb	1
1	22.9	2.7
2	23	3.1
3	22.9	3.4
4	22.8	3.8
5	22.8	3.9
6	23	3.8
7	22.9	3.9
8	22.9	3.9
9	22.8	4
10	22.8	4.1
11	22.8	4.2
12	22.9	3.9
13	22.9	4
14	22.9	4.1
15	22.8	4.1
16	22.9	4
17	22.9	4.1
18	22.7	4.2
19	22.9	3.9
20	22.8	4.1
21	22.9	4
22	22.8	4
23	22.9	4
24	23	3.9
25	22.8	4.1
26	22.8	4.1
27	22.9	3.9
28	22.9	4
29	22.8	4.1
30	22.8	4.1
31	22.7	4.2
32	22.9	3.9

Temperature Rise Test

Project #: 201461
Customer: Samtec
Product: Current Rating
Description: J-2
Technician: RO

Spec: MEC1-RA
Subgroup: J
File#: 0146117.TRD
TC Type: J
Current: 1

Temperature Rise Data (C) above ambient

Cycle	Amb	1
1	22.9	7.5
2	22.9	9.6
3	23	10.5
4	22.8	11.6
5	22.9	11.9
6	23	12.7
7	23	12.9
8	22.9	12.8
9	22.9	13.4
10	22.9	13.2
11	22.9	13.7
12	22.9	13.6
13	22.9	13.7
14	22.9	13.5
15	22.9	14
16	22.9	14.1
17	22.9	14
18	22.9	13.7
19	22.9	14
20	22.9	14.1
21	22.9	14.1
22	23.1	12.8
23	22.8	13.6
24	23	14
25	23	13.5
26	23	14.2
27	23	13.7
28	22.9	13.9
29	22.9	14
30	22.9	13.9
31	22.8	14.4
32	22.9	14
33	22.9	14
34	22.9	13.9
35	22.9	13.9

36	22.9	14.3
37	22.9	13.8
38	22.9	14.2
39	22.8	14.4
40	22.9	14.4
41	22.7	13.3
42	23	13.1
43	22.9	12.5
44	22.9	13.6
45	23	13.5

Temperature Rise Test

Project #: 201461
Customer: Samtec
Product: Current Rating
Description: J-2
Technician: RO

Spec: MEC1-RA
Subgroup: J
File#: 0146118.TRD
TC Type: J
Current: 2

Temperature Rise Data (C) above ambient

Cycle	Amb	1
1	23.1	26.2
2	22.9	35.2
3	22.9	40
4	22.9	40.8
5	22.9	44.6
6	22.9	45
7	22.9	46.9
8	23	45.3
9	23	48.2
10	22.9	48.1
11	22.8	47.2
12	23	49
13	22.9	49.4
14	22.8	47.9
15	22.8	48.4
16	22.8	48.3
17	22.9	49.2
18	22.8	47.9
19	22.9	48
20	22.9	48.5
21	22.8	49.1
22	22.9	49
23	22.8	48.2
24	22.9	49
25	22.9	48.7
26	22.9	48.9
27	22.8	48.9
28	22.8	47.8
29	22.8	49.9
30	22.8	49.5
31	22.8	48.6
32	22.9	48.7
33	22.8	49.6
34	22.9	48

35	22.8	48.5
36	22.8	48.1
37	22.8	50
38	22.7	48.4
39	22.7	49
40	22.7	49.5
41	22.7	48.9
42	22.7	47.1
43	22.8	48.1
44	22.8	49.4
45	22.8	49.5
46	22.8	50
47	22.8	48.5
48	22.8	48
49	22.7	47.1
50	22.8	46.2
51	22.8	47.4

Temperature Rise Test

Project #: 201461
Customer: Samtec
Product: Current Rating
Description: J-3
Technician: RO

Spec: MEC1-RA
Subgroup: J
File#: 0146119.TRD
TC Type: J
Current: 0.5

Temperature Rise Data (C) above ambient

Cycle	Amb	1
1	21.7	2.4
2	21.7	2.8
3	21.6	3.3
4	21.6	3.4
5	21.5	3.6
6	21.4	3.8
7	21.6	3.7
8	21.5	3.8
9	21.5	3.8
10	21.5	3.8
11	21.5	3.8
12	21.5	3.8
13	21.5	3.9
14	21.5	3.8
15	21.6	3.7
16	21.5	3.8
17	21.6	3.7
18	21.6	3.6
19	21.5	3.7
20	21.5	3.8
21	21.5	3.8
22	21.6	3.7
23	21.6	3.7
24	21.5	3.8
25	21.5	3.7
26	21.6	3.7
27	21.5	3.9
28	21.6	3.7
29	21.5	3.8
30	21.5	3.8
31	21.6	3.7
32	21.5	3.8

Temperature Rise Test

Project #: 201461
Customer: Samtec
Product: Current Rating
Description: J-3
Technician: RO

Spec: MEC1-RA
Subgroup: J
File#: 0146120.TRD
TC Type: J
Current: 1

Temperature Rise Data (C) above ambient

Cycle	Amb	1
1	21.8	6
2	21.7	8
3	21.6	9.4
4	21.7	10.1
5	21.6	10.7
6	21.7	11.1
7	21.7	11.6
8	21.6	11.7
9	21.7	11.9
10	21.6	12.1
11	21.6	12.4
12	21.6	12.6
13	21.6	12.4
14	21.6	12.9
15	21.6	12.4
16	21.6	12.8
17	21.6	12.7
18	21.6	12.7
19	21.7	12.9
20	21.6	13.1
21	21.6	12.8
22	21.6	13.2
23	21.7	12.9
24	21.6	13
25	21.7	12.9
26	21.6	13.3
27	21.6	13.2
28	21.7	13.1
29	21.7	13.2
30	21.7	13.1
31	21.7	13
32	21.8	12.7
33	21.7	12.9
34	21.7	12.9
35	21.7	13.2

36	21.7	13.1
37	21.7	13.3
38	21.8	11.2
39	21.8	12.8
40	21.8	13.1
41	21.8	12.8
42	21.7	12.8
43	21.7	13.1
44	21.7	13.2
45	21.8	13.1
46	21.8	12.9
47	21.8	13.2
48	21.8	13.2
49	21.8	13.2
50	21.8	13.2

Temperature Rise Test

Project #: 201461
Customer: Samtec
Product: Current Rating
Description: J-3
Technician: RO

Spec: MEC1-RA
Subgroup: J
File#: 0146121.TRD
TC Type: J
Current: 2

Temperature Rise Data (C) above ambient

Cycle	Amb	1
1	21.8	23.6
2	21.8	31.3
3	21.8	35.5
4	21.7	37.3
5	21.8	40.6
6	21.7	42
7	21.8	44.3
8	21.9	44.5
9	21.8	46
10	21.7	47.3
11	21.8	48.4
12	21.8	46.8
13	21.8	48.4
14	21.8	47.5
15	21.8	47.6
16	21.8	48
17	21.7	48.2
18	22	46.1
19	21.7	46.9
20	21.7	44.6
21	21.8	45.8
22	21.8	46.7
23	21.8	48.1
24	21.8	48.2
25	21.8	47
26	21.8	47.2
27	21.8	47
28	21.8	47.2
29	21.8	46.8
30	21.8	46.8
31	21.8	46.8
32	21.9	47.6
33	21.8	47.6
34	21.8	47

35	21.8	48
36	21.8	48.1
37	21.8	47.2
38	21.8	46.7
39	21.8	47.4
40	21.8	46.8
41	21.9	48.2
42	21.8	47.1
43	21.9	47.4

Temperature Rise Test

Project #: 201461
Customer: Samtec
Product: Current Rating
Description: J-4
Technician: RO

Spec: MEC1-RA
Subgroup: J
File#: 0146122.TRD
TC Type: J
Current: 0.5

Temperature Rise Data (C) above ambient

Cycle	Amb	1
1	22.2	2.9
2	22.2	3.2
3	22.2	3.5
4	22.1	3.7
5	22.2	3.7
6	22.2	3.7
7	22.3	3.6
8	22.3	3.7
9	22.1	4
10	22.2	3.8
11	22.1	4
12	22.1	3.9
13	22.1	3.9
14	22.1	4
15	22.1	3.9
16	22.2	3.9
17	22.1	4
18	22.1	3.9
19	22.1	3.9
20	22.2	3.9
21	22.3	3.7
22	22.2	3.8
23	22.1	3.9
24	22.1	3.9
25	22.2	3.8
26	22.2	3.8
27	22.2	3.9
28	22.2	3.8
29	22.1	3.9
30	22.1	3.9
31	22.1	3.9
32	22.2	3.8
33	22.2	3.8
34	22.1	3.9

35	22.2	3.9
36	22.2	3.9
37	22.2	3.9
38	22.2	3.9
39	22.3	3.8

Temperature Rise Test

Project #: 201461
Customer: Samtec
Product: Current Rating
Description: J-4
Technician: RO

Spec: MEC1-RA
Subgroup: J
File#: 0146123.TRD
TC Type: J
Current: 1

Temperature Rise Data (C) above ambient

Cycle	Amb	1
1	22.4	6.7
2	22.4	8.6
3	22.3	10
4	22.2	10.8
5	22.3	11.6
6	22.3	12
7	22.3	12.2
8	22.3	12.3
9	22.3	12.7
10	22.3	13
11	22.3	12.8
12	22.2	13.3
13	22.2	13.3
14	22.2	13.4
15	22.2	13.5
16	22.3	13.5
17	22.3	13.4
18	22.3	13.6
19	22.2	13.7
20	22.3	13.7
21	22.2	13.7
22	22.2	13.7
23	22.3	13.7
24	22.3	13.6
25	22.3	13.7
26	22.2	13.8
27	22.3	13.8
28	22.2	13.8
29	22.3	13.9
30	22.3	13.9
31	22.2	13.8
32	22.4	13.8
33	22.3	13.7
34	22.3	13.7

35	22.4	13.8
36	22.2	13.9
37	22.3	13.1
38	22.4	13.3
39	22.3	13.7
40	22.3	13.6
41	22.3	13.7
42	22.4	13.7
43	22.3	13.7
44	22.3	13.8
45	22.3	13.9
46	22.3	13.5
47	22.3	12.2
48	22.4	13.1
49	22.4	13.4
50	22.5	13.1
51	22.4	13.6
52	22.4	13.3
53	22.4	13.3
54	22.5	13.2
55	22.4	13.8
56	22.4	13.8
57	22.3	14

Temperature Rise Test

Project #: 201461
Customer: Samtec
Product: Current Rating
Description: J-4
Technician: RO

Spec: MEC1-RA
Subgroup: J
File#: 0146124.TRD
TC Type: J
Current: 2

Temperature Rise Data (C) above ambient

Cycle	Amb	1
1	22.6	24.2
2	22.7	33.1
3	22.5	37.7
4	22.4	41.5
5	22.6	41.9
6	22.6	44.6
7	22.5	45.3
8	22.5	46.3
9	22.6	47.7
10	22.6	47.8
11	22.6	48.1
12	22.5	49.6
13	22.5	48.9
14	22.6	49.8
15	22.5	48.9
16	22.6	49.4
17	22.5	49.7
18	22.5	50.2
19	22.5	49.7
20	22.6	48.9
21	22.5	50.1
22	22.5	48.9
23	22.5	48.6
24	22.5	48
25	22.6	48.6
26	22.5	49.1
27	22.5	49.1
28	22.5	49.1
29	22.5	49.7
30	22.5	48.5
31	22.5	50
32	22.7	49.2
33	22.5	48.9
34	22.5	48.8

35	22.6	49.1
36	22.6	49.2
37	22.6	50.8
38	22.6	48.9
39	22.6	50.2
40	22.6	49
41	22.6	49.9
42	22.6	48.6
43	22.6	48.8
44	22.6	50.2
45	22.5	48.6
46	22.6	48.6
47	22.6	49.1
48	22.7	48.9
49	22.6	48.9
50	22.6	48.9
51	22.6	49
52	22.6	49.4
53	22.6	49.2
54	22.6	48.7
55	22.6	48.6
56	22.6	49.1
57	22.7	48.9
58	22.6	48.8
59	22.6	49
60	22.6	48.7
61	22.7	48.1
62	22.6	48.8
63	22.6	48.9
64	22.6	49
65	22.6	49.2
66	22.6	47.7
67	22.6	47.7
68	22.6	47.8
69	22.7	48.2
70	22.6	48.8
71	22.7	48.1
72	22.6	48.1
73	22.6	47.7
74	22.6	48.3
75	22.6	48.4

TEST RESULTS

GROUP Q

PROJECT NO.: 201461B	SPECIFICATION: TC0134-105I-0502
PART NO.:MEC1-140-01-S-D-RA1-SL	PART DESCRIPTION: 1.0 mm Edge Conn.
SAMPLE SIZE: ID# Q-1,Q-2, Q-3,Q-4	TECHNICIAN: LL
START DATE: 10/8/01	COMPLETE DATE: 10/8/01
ROOM AMBIENT: 21°C	RELATIVE HUMIDITY: 24%
EQUIPMENT ID#: 54, 527	

SOLVENT RESISTANCE

PURPOSE:

To determine the ability of the plastic housing to withstand normal cleaning solvents without damage. The solvent used is considered severe. If, however, the plastic remains stable and undamaged when so exposed it is considered to be immune to all the common solutions available.

PROCEDURE:

The test was performed in accordance with EIA 364, Test Procedure 11C.

REQUIREMENTS:

There shall be no evidence of discoloration, degradation or physical damage to the plastic housing.

RESULTS:

All samples so tested met the requirements specified.