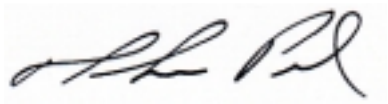
MAY 24, 2002

TEST REPORT #202176, REV.1.1

QUALIFICATION TESTING
MECT-RA CONNECTORS

PART NUMBER
MECT-150-01-M-D-RA1

SAMTEC, INC.



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

1478 - 01
ACCREDITED
1478 - 02

Contech Research

REVISION HISTORY

DATE	REV. NO.	DESCRIPTION	ENG.
05/24/2002	1.0	Initial Issue	TP
07/9/2002	1.1	Changed connector series from MEC8 to MECT per the test sponsor.	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:gbjs

SCOPE

To perform Qualification testing on the MECT-RA Connector Series as manufactured and submitted by the test sponsor Samtec, Inc.

APPLICABLE DOCUMENTS

1. Samtec Specifications: Contechflowchart031401 (TC0211-0635)

2. 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	Mounted Unmounted	Samtec Board Number
a)	MECT-RA Connector	Mounted	PCB0311
b)	MECT-RA Connector	Mounted	PCB0333

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

3. Applicable qualified mating boards were supplied by the test sponsor. The mating boards were supplied in two thicknesses and used as indicated below:

Test Sequence	Board Thickness
2	0.035 inch
3	0.035 inch (Group 1, 2a)
3	0.043 inch (Group 2b)

4. Figure #1 illustrates the configuration of a typical test sample.

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.

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 test samples were coded in the following manner:

Sequence 1	: Group 1	-	1-1-2,1-1-2
	: Group 2a	-	1-2a-1,1-2a-2,1-2a-3*
	: Group 2b	-	1-2b-1,1-2b-2,1-2b-3*
	: Group 2c	-	1-2c-1,1-2c-2,1-2c-3*
Sequence 2	: Group 1	-	2-1-1,2-1-2,2-1-3,2-1-4
Sequence 3	: Group 1	-	3-1-1,3-1-2
	: Group 2a	-	3-2a-1,3-2a-2
	: Group 2b	-	3-2b-1,3-2b-2

* These samples were used to determine the dielectric breakdown voltage.

FIGURE #1

Typical Mated Test Sample

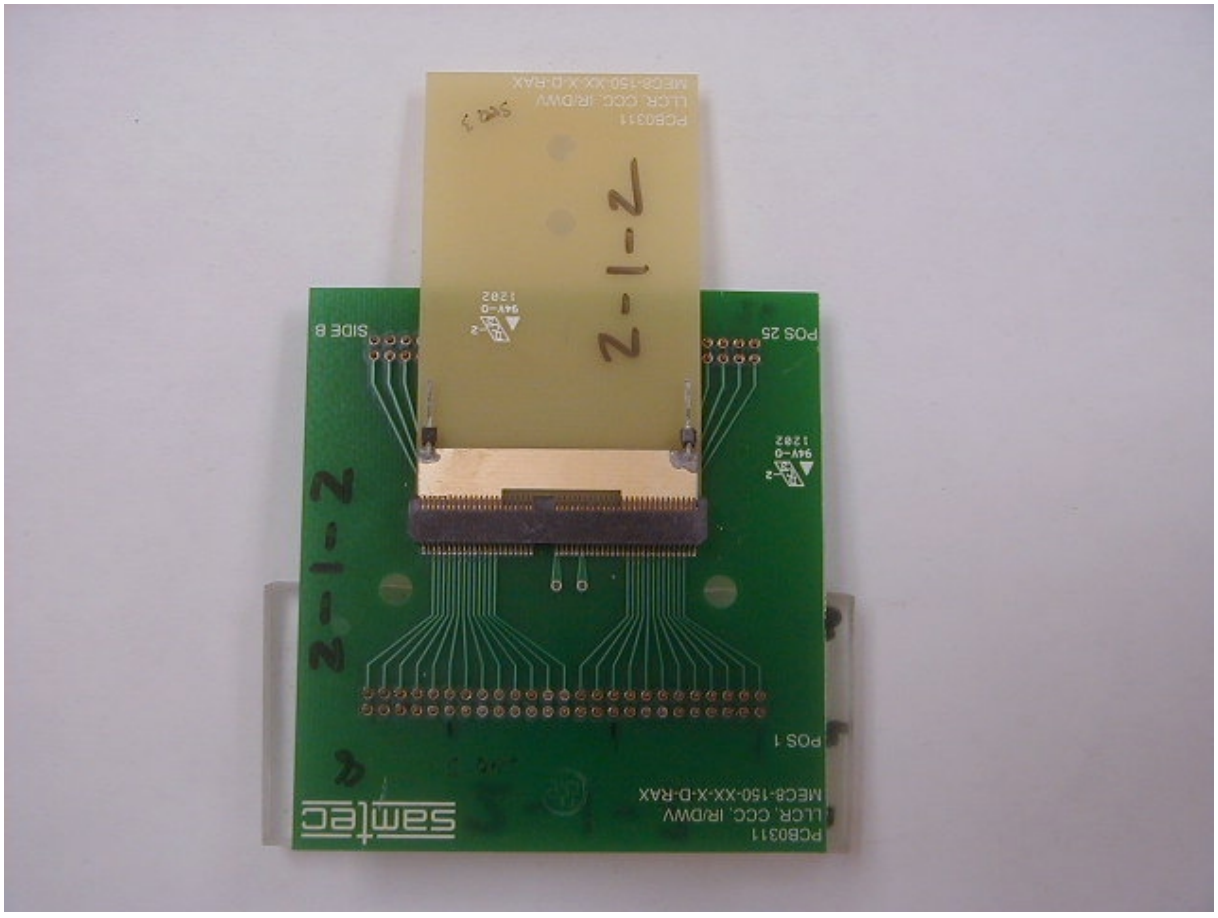
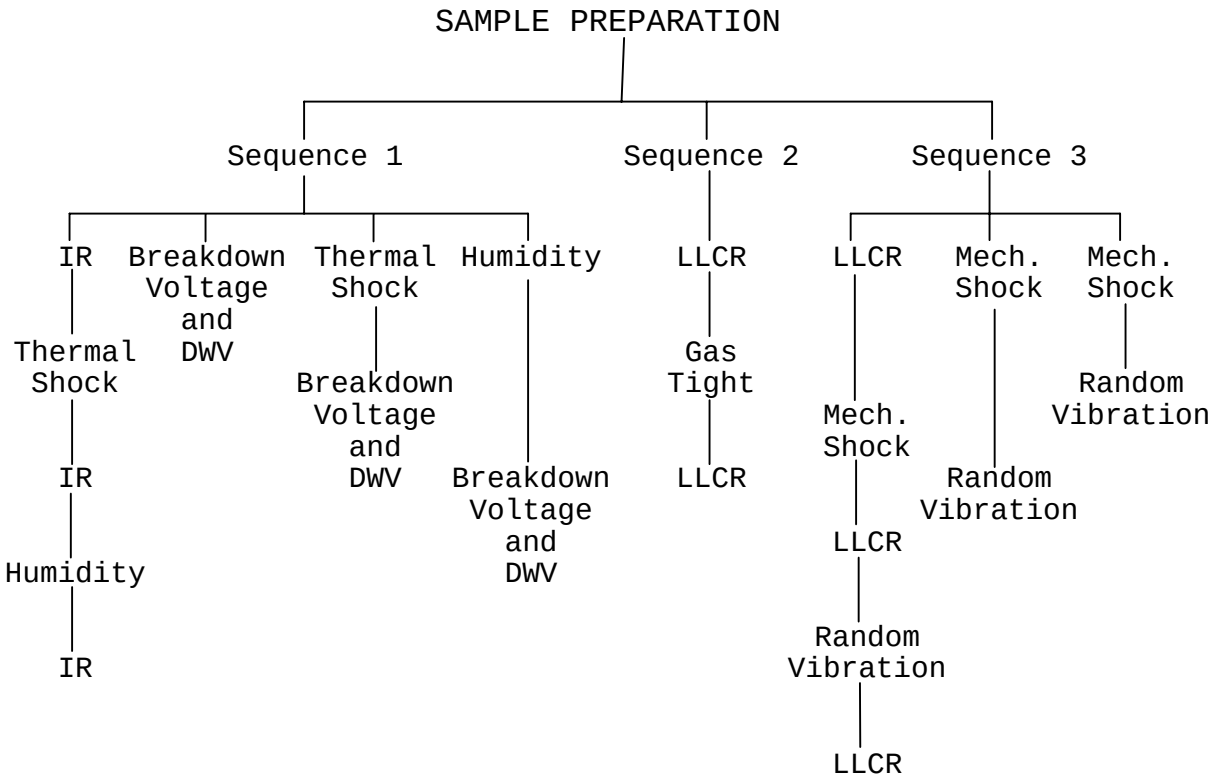


FIGURE #2

TEST PLAN FLOW DIAGRAM



Group 1	Group 2a	Group 2b	Group 2c	Group 1	Group 1	Group 2a	Group 2b

IR : Insulation Resistance
DWV : Dielectric Withstanding Voltage
LLCR : Low Level Circuit Resistance

DATA SUMMARY

TEST	REQUIREMENT	RESULTS
SEQUENCE 1		
Group 1		
Insulation Resistance	1000 Megohms Min.	>50000 Megohms
Thermal Shock	No Damage	Passed
Insulation Resistance	1000 Megohms Min.	>50000 Megohms
Humidity	No Damage	Passed
Insulation Resistance	1000 Megohms Min.	>50000 Megohms
Group 2A		
Breakdown Voltage	Record Voltage	1100 VAC
DWV @ Breakdown Voltage	825 VAC	Passed
Group 2B		
Thermal Shock	No Damage	Passed
Breakdown Voltage	Record Voltage	1100 VAC
DWV @ Breakdown Voltage	825 VAC	Passed
Group 2C		
Humidity	No Damage	Passed
Breakdown Voltage	Record Voltage	1100 VAC
DWV @ Breakdown Voltage	825 VAC	Passed
SEQUENCE 2		
Group 1		
LLCR	Record	14.9 mΩ Max.
Gas Tight	No Damage	Passed
LLCR	+10.0 mΩ Max.Chg.	+2.9 mΩ Max.Chg.
SEQUENCE 3		
Group 1		
LLCR	Record	14.3 mΩ Max.
Mechanical Shock	No Damage	Passed
LLCR	+10.0 mΩ Max.Chg.	+2.3 mΩ Max.Chg.
Random Vibration	No Damage	Passed
LLCR	+10.0 mΩ Max.Chg.	+2.2 mΩ Max.Chg.

DATA SUMMARY – Continued:

TEST	REQUIREMENT	RESULTS
SEQUENCE 3		
Group 2a (0.043 Brd)		
Mechanical Shock	No Damage	Passed
	1.0 Microsecond	Passed
Random Vibration	No Damage	Passed
	1.0 Microsecond	Passed
Group 2b (0.035 Brd)		
Mechanical Shock	No Damage	Passed
	1.0 Microsecond	Passed
Random Vibration	No Damage	Passed
	1.0 Microsecond	Passed

EQUIPMENT LIST

ID#	Next Cal	Last Cal	Equipment Name	Manufacturer	Model #	Serial #	Accuracy	Freq.Cal
20			Bench Oven	Hot Pack	1303	30364	N/A	Each Test
27			Temp. Humid. Chamber	Blue M Co.	FR-256PC-1	F2-249	See Cal Cert	Each Test
34			Shock Machine	Avco	SM110-3	1047	See ID# 14 & 117	Each Test
54			Air Fume Hood	Labconco	47701	39286	N/A	N/A
95	6/27/02	6/27/01	AC Hypot	Peschell Instr.	P10*	5570	±3%Full Scale	12 mon.
117	6/12/02	6/12/01	Digitizing Scope	Hewlett Packard	54200	2445A 00127	See Cal Cert	12mon.
192			Vertical Thermal Shock	Cincinnati Sub-Zero	VTS-1-5-3	88-11094	See Cal Cert	Each Test
244	8/29/02	8/29/01	Micro-Ohm Meter	Keithley Instr.	580-1	467496	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
421	3/27/03	3/27/02	Megohmeter	Hipotronics Co.	HM3A	031423-00	See Cal Cert	12 mon.
465	6/21/02	6/21/01	Precision Resistor	Victoreen Co.	5000 Megohm	N/A	± 1 %	12 mon.
466	6/21/02	6/21/01	Precision Resistor	Victoreen Co.	50,000 mego	N/A	± 1 %	12 mon.
553	11/28/02	11/28/01	12 channel Power Unit	PCB Co.	483A	1303	See Cal Cert	12mon
559	4/24/03	4/24/02	Torque Screwdriver	Seekonk Mfg.	SL-25	N/A	±3% Full Scale	6 mon.
594			Computer	Sensible P/C	586-133	DX-133	N/A	N/A
683			Plotter	Hewlett Packard	7470A	2308A85161	N/A	N/A
684	6/11/02	6/11/01	Accelerometer	PCB. Co.	353B04	47648	See Cal Cert.	12mon
874			Computer	M&P	Vectra		N/A	N/A
1028	11/2/02	11/2/01	Event Detector	Analysis Tech	32 EHD	981019	See Cal.Cert.	12mon
1117	11/7/02	11/7/01	Digital Thermometer	Omega	DP116-J	8050887	±1.1DegC	12mon
1121	3/6/03	3/6/02	Accelerometer	PCB	353B04	57715	See Cal. Cert.	12mon
1136	5/30/02	5/30/01	Signal Condt.	PCB	480EO9	23397	See Cal. Cert.	12mon
1175	12/5/02	12/5/01	Discontinuity Monitor	Metronics	DM3000-10	6-2K-1	See Cal Cert	12mon
1176	6/27/02	6/27/01	Digital Thermometer	Omega	DP119	020829	See Cal Cert	12mon
1301	8/13/03	8/13/01	Sine/Rndm Vib Control	Hewlett Packard	35650B	3151A00164	See Manual	12mon
1314	8/25/02	2/25/02	Multiplexer card	Keithley Co.	7708	0862544	N/A	6 mon.
1315	8/25/02	2/25/02	Data Aquisition Multimeter	Keithley Co.	2700	0862680	See Manual	6 mon.

TEST RESULTS

SEQUENCE 1

Group 1

PROJECT NO.: 202176	SPECIFICATION: TC0211-0635
PART NO.: MECT-150-01-M-D-RA1	PART DESCRIPTION: MECT-RA Connectors
SAMPLE SIZE: ID# 1-1-1,1-1-2	TECHNICIAN: SR
START DATE: 4/17/02	COMPLETE DATE: 4/17/02
ROOM AMBIENT: 24°C	RELATIVE HUMIDITY: 48%
EQUIPMENT ID#: 421, 465, 466	

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 : Unmated
    d) Mounting Condition : Mounted
    e) Electrification Time : 2.0 Minutes
    f) Test Voltage : 500 VDC

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

REQUIREMENTS:

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

RESULTS:

The insulation resistance exceeded 50000 megohms.

PROJECT NO.: 202176	SPECIFICATION: TC0211-0635
PART NO.: MECT-150-01-M-D-RA1	PART DESCRIPTION: MECT-RA Connectors
SAMPLE SIZE: ID# 1-1-1,1-1-2	TECHNICIAN: SR
START DATE: 4/18/02	COMPLETE DATE: 4/22/02
ROOM AMBIENT: 23°C	RELATIVE HUMIDITY: 28%
EQUIPMENT ID#: 192, 421, 465, 466, 1176, 1314, 1315	

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

4. 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 1000 megohms.

RESULTS:

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

2. The insulation resistance exceeded 50000 megohms.

PROJECT NO.: 202176	SPECIFICATION: TC0211-0635
PART NO.: MECT-150-01-M-D-RA1	PART DESCRIPTION: MECT-RA Connectors
SAMPLE SIZE: ID# 1-1-1,1-1-2	TECHNICIAN: SR
START DATE: 4/22/02	COMPLETE DATE: 5/2/02
ROOM AMBIENT: 24°C	RELATIVE HUMIDITY: 48%
EQUIPMENT ID#: 27, 421, 465, 466	

HUMIDITY (THERMAL CYCLING)

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:

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	: Unmated
g) Mounting Conditions	: Mounted
h) Duration	: 240 hours

PROCEDURE – Continued

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

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

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.

RESULTS:

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

2. The final insulation resistance exceeded 50000 megohms after air dry of 2 hours.

TEST RESULTS

SEQUENCE 1

Group 2a

PROJECT NO.: 202176	SPECIFICATION: TC0211-0635
PART NO.: MECT-150-01-M-D-RA1	PART DESCRIPTION: MECT-RA Connectors
SAMPLE SIZE: ID#1-2a-1,1-2a-2, 1-2a-3,	TECHNICIAN: SR
START DATE: 4/22/02	COMPLETE DATE: 4/22/02
ROOM AMBIENT: 24°C	RELATIVE HUMIDITY: 48%
EQUIPMENT ID#: 95	

DIELECTRIC WITHSTANDING VOLTAGE (SEA LEVEL)

PURPOSE:

To determine the voltage at which dielectric breakdown occurs and if the separate samples maintain their dielectric integrity when tested at 75% of the breakdown voltage.

PROCEDURE:

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

2. Test Conditions:

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

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

4. Sample ID# 1-2a-3 was used to determine the breakdown voltage. Sample ID#'s 1-2a-1 and 1-2a-2 were subsequently tested at 75% of the breakdown voltage.

REQUIREMENTS: See next page.

REQUIREMENTS:

1. The voltage at which dielectric breakdown occurs shall be measured and recorded.

2. When 75% of breakdown voltage is applied to previously untested samples, there shall be no evidence of breakdown, arcing, etc.

RESULTS:

1. The voltage at which dielectric breakdown occurred was 1100 VAC.

2. No dielectric breakdown occurred on separate test samples when tested at 75% of the breakdown voltage (825 VAC).

TEST RESULTS

SEQUENCE 1

Group 2b

PROJECT NO.: 202176	SPECIFICATION: TC0211-0635
PART NO.: MECT-150-01-M-D-RA1	PART DESCRIPTION: MECT-RA Connectors
SAMPLE SIZE: ID#1-2b-1,1-2b-2, 1-2b-3,	TECHNICIAN: SR
START DATE: 4/18/02	COMPLETE DATE: 4/22/02
ROOM AMBIENT: 23°C	RELATIVE HUMIDITY: 28%
EQUIPMENT ID#: 95, 192, 1176, 1314, 1315	

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.

2. Test Conditions:

   a) Number of Cycles : 100 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. The final dielectric breakdown test and dielectric withstanding voltage test was performed in accordance with EIA 364, Test Procedure 20 and the procedures as previously indicated.

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

PROCEDURE: Continued

6. Sample ID# 1-2b-3 was used to determine the breakdown voltage. Sample ID#'s 1-2b-1 and 1-2b-2 were subsequently tested at 75% of the breakdown voltage.

REQUIREMENTS:

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

2. The voltage at which dielectric breakdown occurs shall be measured and recorded.

3. There was no evidence of arcing, breakdown, etc., when 75% of the breakdown voltage is applied to separate samples.

RESULTS:

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

2. The voltage at which dielectric breakdown occurred was 1100 VAC.

3. No dielectric breakdown occurred on separate test samples when tested at 75% of the breakdown voltage (825 VAC).

TEST RESULTS

SEQUENCE 1

Group 2c

PROJECT NO.: 202176	SPECIFICATION: TC0211-0635
PART NO.: MECT-150-01-M-D-RA1	PART DESCRIPTION: MECT-RA Connectors
SAMPLE SIZE: ID#1-2c-1,1-2c-2, 1-2c-3,	TECHNICIAN: SR
START DATE: 4/22/02	COMPLETE DATE: 5/2/02
ROOM AMBIENT: 22°C	RELATIVE HUMIDITY: 30%
EQUIPMENT ID#: 27, 95	

HUMIDITY (THERMAL CYCLING)

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:

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

PROCEDURE: Continued

3. The final dielectric breakdown test and dielectric withstanding voltage test was performed in accordance with EIA 364, Test Procedure 20 and the procedures as previously indicated.

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

5. Sample ID# 1-2b-3 was used to determine the breakdown voltage. Sample ID#'s 1-2b-1 and 1-2b-2 were subsequently tested at 75% of the breakdown voltage.

REQUIREMENTS:

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

2. The voltage at which dielectric breakdown occurs shall be measured and recorded.

3. There was no evidence of arcing, breakdown, etc., when 75% of the breakdown voltage is applied to separate samples.

RESULTS:

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

2. The voltage at which dielectric breakdown occurred was 1100 VAC.

3. No dielectric breakdown occurred on separate test samples when tested at 75% of the breakdown voltage (825 VAC).

TEST RESULTS

SEQUENCE 2

Group 1

PROJECT NO.: 202176 SPECIFICATION: TC0211-0635

PART NO.: MECT-150-01-M-D-RA1 PART DESCRIPTION: MECT-RA Connectors

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

START DATE: 4/29/02 COMPLETE DATE: 4/29/02

ROOM AMBIENT: 23°C RELATIVE HUMIDITY: 43%

EQUIPMENT ID#: 244, 594

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

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:

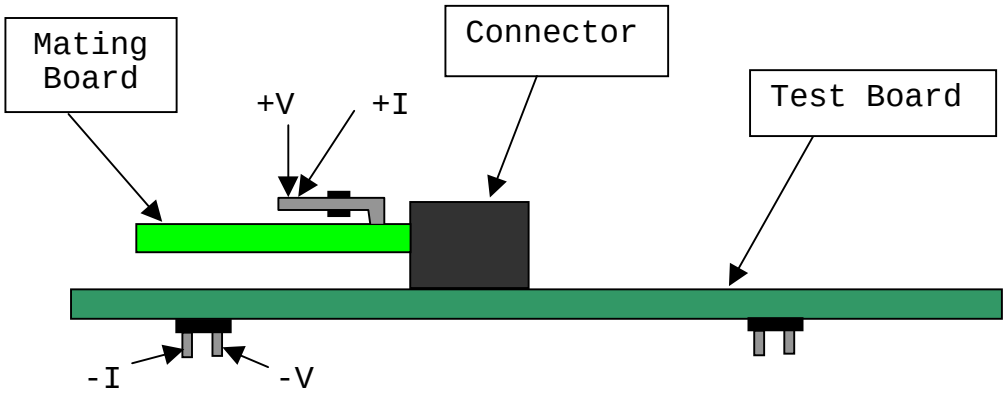
LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg.	Max.	Min.
2-1-1	12.5	14.9	10.5
2-1-2	12.3	14.2	10.3
2-1-3	12.2	14.1	10.6
2-1-4	12.9	14.9	11.0

2. See data files 20217601 through 20217604 for individual data points.

FIGURE #3

Typical LLCR Set Up



Note: There are 2 pins on each mating board for V and I test probes.

PROJECT NO.: 202176	SPECIFICATION: TC0211-0635
PART NO.: MECT-150-01-M-D-RA1	PART DESCRIPTION: MECT-RA Connectors
SAMPLE SIZE: ID#2-1-1,2-1-2, 2-1-3,2-1-4	TECHNICIAN: SR
START DATE: 4/30/02	COMPLETE DATE: 4/30/02
ROOM AMBIENT: 22°C	RELATIVE HUMIDITY: 30%
EQUIPMENT ID#: 20, 54, 244, 594, 1117	

GAS TIGHT

PURPOSE:

To evaluate the integrity of the contact interface by assessment of the gas tight characteristics of the contacting surfaces. The gas tight characteristic is the ability of contacting surfaces to prevent harsh environment from penetrating between them and forming oxides and/or films which will degrade electrical performance.

PROCEDURE:

1. The test environment was performed in accordance with EIA 364, Test Procedure 36.

2. Nitric acid was placed in the test chamber of a sufficient volume to result in saturation of the test chamber. The conditions were room ambient.

3. The solution was allowed to saturate the test chamber for a minimum of 15 minutes.

4. The test samples were placed in the test chamber and exposed for one hour ± 5.0 minutes.

5. The test samples were placed in such a manner as not to be closer than 1" (25mm) from the wall of the test chamber and not closer than 3" (76mm) from the solution surfaces.

6. After exposure, the samples were removed from the test chamber and oven dried at 50°C for a minimum of one hour.

PROCEDURE – Continued

7. Within 60 minutes of drying, the final low level circuit resistance was measured and recorded. Measurements were performed with the test sample at room ambient.

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

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

REQUIREMENTS:

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

RESULTS:

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

CHANGE IN LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg. Change	Max. Change
2-1-1	+0.2	+1.4
2-1-2	+0.5	+2.0
2-1-3	+0.5	+2.9
2-1-4	-0.1	+0.9

2. See data files 20217601 through 20217604 for individual data points.

LLCR DATA FILES

DATA FILE NUMBERS

20217601
20217602
20217603
20217604

			Low Level Contact Resistance					
	Project:	202176				Spec:	EIA 364, TP 23	
	Customer:	Samtec				Subgroup:	Seq. 2: (ID# 2-1-1)	
	Product:	Series MECT connector				File #:	**20217601**	
	Description: PN: MECT-RA							
	Open circuit voltage:		20mv			Current:	10 ma	
				Delta values				
				units: milliohms				
	Temp ºC	23	22					
	R.H. %	43	30					
	Date:	29Apr02	30Apr02					
	Pos. ID	Initial	Gas Tight					
	1	14.3	0.1					
	2	13.9	1.4					
	3	14.1	0.3					
	4	14.5	0.3					
	5	14.5	0.4					
	6	13.9	0.9					
	7	14.0	-0.1					
	8	14.9	0.4					
	9	14.8	0.0					
	10	14.3	0.4					
	11	14.0	0.5					
	12	14.0	0.3					
	13	14.1	0.1					
	14	14.2	0.2					
	15	13.8	0.1					
	16	14.5	-0.2					
	17	14.3	0.4					
	18	14.3	-0.1					
	19	14.3	1.3					
	20	14.0	0.6					
	21	14.0	0.1					
	22	13.7	0.4					
	23	14.2	0.4					
	24	13.8	0.1					
	25	14.0	0.7					
	26	11.3	-0.2					
	27	10.9	0.0					
	28	11.0	0.3					
	29	10.9	0.0					
	30	10.8	-0.1					
	31	10.7	0.0					
	32	10.8	0.3					
	33	11.0	-0.1					
	34	11.0	0.0					

	Temp ºC	23	22					
	R.H. %	43	30					
	Date:	29Apr02	30Apr02					
	Pos. ID	Initial	Gas Tight					
	35	11.5	-0.3					
	36	11.0	0.0					
	37	10.9	-0.1					
	38	11.0	0.2					
	39	10.7	0.0					
	40	10.8	0.0					
	41	10.7	0.0					
	42	10.5	0.0					
	43	10.7	-0.1					
	44	10.8	-0.1					
	45	10.8	-0.1					
	46	10.8	0.0					
	47	10.7	0.0					
	48	10.8	-0.2					
	49	10.5	0.0					
	50	10.9	0.0					
	MAX	14.9	1.4					
	MIN	10.5	-0.3					
	AVG	12.5	0.2					
	STD	1.7	0.3					
	Open	0	0					
	Tech	S-R	S-R					
	Equip ID	594	594					
		244	244					

			Low Level Contact Resistance					
	Project:	202176				Spec:	EIA 364, TP 23	
	Customer:	Samtec				Subgroup:	Seq. 2: (ID# 2-1-2)	
	Product:	Series MECT connector				File #:	**20217602**	
	Description: PN: MECT-RA							
	Open circuit voltage:		20mv			Current:	10 ma	
				Delta values				
				units: milliohms				
	Temp ºC	23	22					
	R.H. %	43	30					
	Date:	29Apr02	30Apr02					
	Pos. ID	Initial	Gas Tight					
	1	13.8	0.7					
	2	14.0	1.3					
	3	13.9	2.0					
	4	13.5	0.9					
	5	13.8	0.3					
	6	14.1	0.7					
	7	13.6	0.2					
	8	13.7	0.7					
	9	13.8	0.4					
	10	14.2	0.6					
	11	13.8	1.7					
	12	13.4	2.0					
	13	13.8	1.2					
	14	13.6	0.9					
	15	13.9	0.7					
	16	13.4	1.5					
	17	14.1	1.2					
	18	13.7	1.3					
	19	13.8	0.9					
	20	13.9	0.6					
	21	13.4	0.7					
	22	13.2	0.3					
	23	13.4	0.3					
	24	13.6	0.2					
	25	13.7	0.0					
	26	11.1	0.3					
	27	11.1	0.1					
	28	11.1	0.0					
	29	10.9	-0.1					
	30	10.6	0.2					
	31	10.7	0.3					
	32	11.1	-0.2					
	33	10.5	0.4					
	34	10.8	0.3					

	Temp ºC	23	22					
	R.H. %	43	30					
	Date:	29Apr02	30Apr02					
	Pos. ID	Initial	Gas Tight					
	35	11.0	0.1					
	36	11.1	0.0					
	37	11.0	-0.1					
	38	10.4	0.5					
	39	10.8	0.4					
	40	11.0	0.7					
	41	10.9	0.2					
	42	10.6	0.4					
	43	10.9	0.2					
	44	11.1	0.1					
	45	10.4	0.7					
	46	10.3	0.0					
	47	10.5	0.2					
	48	11.7	-0.1					
	49	11.1	0.1					
	50	11.0	0.3					
	MAX	14.2	2.0					
	MIN	10.3	-0.2					
	AVG	12.3	0.5					
	STD	1.5	0.5					
	Open	0	0					
	Tech	S-R	S-R					
	Equip ID	594	594					
		244	244					

			Low Level Contact Resistance					
	Project:	202176				Spec:	EIA 364, TP 23	
	Customer:	Samtec				Subgroup:	Seq. 2: (ID# 2-1-3)	
	Product:	Series MECT connector				File #:	**20217603**	
	Description: PN: MECT-RA							
	Open circuit voltage:		20mv			Current:	10 ma	
				Delta values				
				units: milliohms				
	Temp ºC	22	22					
	R.H. %	30	30					
	Date:	30Apr02	30Apr02					
	Pos. ID	INITIAL	Gas Tight					
	1	13.1	1.5					
	2	13.2	0.0					
	3	13.7	2.7					
	4	13.7	1.1					
	5	13.6	0.2					
	6	13.5	1.0					
	7	14.1	0.7					
	8	13.5	0.4					
	9	13.6	0.2					
	10	13.6	0.6					
	11	13.7	0.1					
	12	13.5	0.2					
	13	13.7	0.1					
	14	13.6	2.3					
	15	13.6	0.2					
	16	13.8	-0.3					
	17	13.1	0.1					
	18	13.3	0.1					
	19	13.4	0.3					
	20	13.5	0.3					
	21	12.7	2.9					
	22	12.5	0.8					
	23	13.5	0.8					
	24	13.5	0.3					
	25	13.4	0.2					
	26	11.8	0.0					
	27	11.0	1.2					
	28	11.3	1.0					
	29	10.9	0.5					
	30	10.8	0.6					
	31	10.8	0.2					
	32	11.1	-0.2					
	33	11.1	-0.1					
	34	11.2	0.0					

	Temp ºC	22	22					
	R.H. %	30	30					
	Date:	30Apr02	30Apr02					
	Pos. ID	INITIAL	Gas Tight					
	35	11.5	-0.1					
	36	11.1	0.3					
	37	11.2	0.0					
	38	10.9	0.2					
	39	10.7	0.1					
	40	11.2	0.4					
	41	11.0	0.2					
	42	10.6	0.1					
	43	10.8	0.2					
	44	11.0	0.0					
	45	10.8	0.2					
	46	10.8	0.1					
	47	11.0	0.2					
	48	10.9	0.4					
	49	11.0	0.1					
	50	11.2	0.4					
	MAX	14.1	2.9					
	MIN	10.6	-0.3					
	AVG	12.2	0.5					
	STD	1.3	0.7					
	Open	0	0					
	Tech	S-R	S-R					
	Equip ID	594	594					
		244	244					

			Low Level Contact Resistance					
	Project:	202176				Spec:	EIA 364, TP 23	
	Customer:	Samtec				Subgroup:	Seq. 2: (ID# 2-1-4)	
	Product:	Series MECT connector				File #:	**20217604**	
	Description: PN: MECT-RA							
	Open circuit voltage:		20mv			Current:	10 ma	
				Delta values				
				units: milliohms				
	Temp ºC	22	22					
	R.H. %	30	30					
	Date:	30Apr02	30Apr02					
	Pos. ID	INITIAL	Gas Tight					
	1	14.2	0.1					
	2	14.9	-0.5					
	3	14.3	0.2					
	4	14.4	-0.3					
	5	14.3	-0.1					
	6	14.3	-0.2					
	7	14.4	0.0					
	8	14.3	-0.1					
	9	14.5	-0.1					
	10	14.8	-0.3					
	11	14.5	0.0					
	12	14.9	-0.3					
	13	14.5	0.0					
	14	14.6	-0.2					
	15	14.8	-0.7					
	16	14.5	-0.4					
	17	14.6	-0.5					
	18	14.4	-0.4					
	19	14.0	-0.1					
	20	14.6	-0.8					
	21	14.3	0.9					
	22	14.3	-0.2					
	23	14.3	-0.3					
	24	14.4	0.4					
	25	14.4	-0.3					
	26	12.2	0.1					
	27	11.5	0.1					
	28	11.6	-0.4					
	29	11.3	0.3					
	30	11.4	0.0					
	31	11.3	0.2					
	32	12.3	-0.3					
	33	11.7	-0.5					
	34	11.5	-0.1					

	Temp ºC	22	22					
	R.H. %	30	30					
	Date:	30Apr02	30Apr02					
	Pos. ID	INITIAL	Gas Tight					
	35	11.5	0.1					
	36	11.3	0.1					
	37	11.5	-0.1					
	38	11.0	0.3					
	39	11.1	0.0					
	40	11.2	0.3					
	41	11.5	0.0					
	42	11.4	0.5					
	43	11.4	0.0					
	44	11.8	-0.2					
	45	11.1	0.0					
	46	11.0	0.1					
	47	11.3	-0.1					
	48	11.0	0.2					
	49	11.2	0.2					
	50	11.1	0.0					
	MAX	14.9	0.9					
	MIN	11.0	-0.8					
	AVG	12.9	-0.1					
	STD	1.6	0.3					
	Open	0	0					
	Tech	S-R	S-R					
	Equip ID	594	594					
		244	244					

TEST RESULTS

SEQUENCE 3

Group 1

PROJECT NO.: 202176	SPECIFICATION: TC0211-0635
PART NO.: MECT-150-01-M-D-RA1	PART DESCRIPTION: MECT-RA Connectors
SAMPLE SIZE: ID# 3-2a-1,3-2a-2	TECHNICIAN: SR
START DATE: 4/23/02	COMPLETE DATE: 4/23/02
ROOM AMBIENT: 23°C	RELATIVE HUMIDITY: 28%
EQUIPMENT ID#: 244, 594	

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

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.
3-1-1	11.8	14.3	10.3
3-1-2	12.4	13.9	10.8

2. See data files 20217605 and 20217606 for individual data points.

PROJECT NO.: 202176	SPECIFICATION: TC0211-0635
PART NO.: MECT-150-01-M-D-RA1	PART DESCRIPTION: MECT-RA Connectors
SAMPLE SIZE: ID# 3-1-1,3-1-2	TECHNICIAN: SR
START DATE: 4/24/02	COMPLETE DATE: 4/24/02
ROOM AMBIENT: 23°C	RELATIVE HUMIDITY: 26%
EQUIPMENT ID#: 34, 117, 244, 594, 683, 684, 1028, 1136	

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

4. 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 as tested.

REQUIREMENTS – Continued:

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

RESULTS:

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

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

CHANGE IN LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

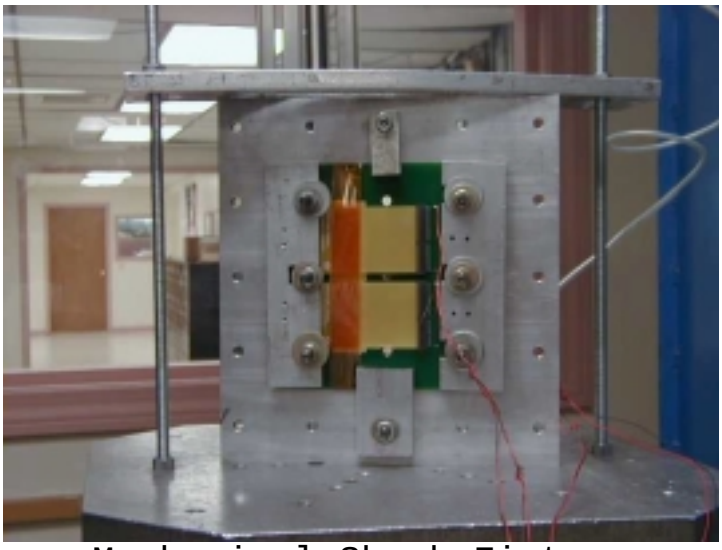
Sample ID#	Avg. Change	Max. Change
3-1-1	+0.0	+2.3
3-1-2	-0.3	+0.3

3. See data files 20217605 and 20217606 for individual data points.

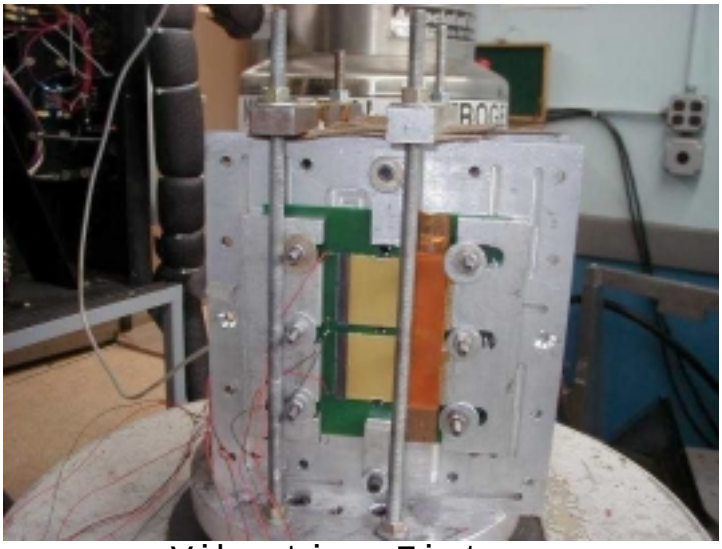
4. The Mechanical Shock characteristics are shown in Figures #5 (Calibration Pulse) and #6 (Test Pulse). Each figure displays the shock pulse contained within the upper and lower limits as defined by the appropriate test specification.

FIGURE #4

TYPICAL MECHANICAL SHOCK/RANDOM VIBRATION FIXTURING



Mechanical Shock Fixture



Vibration Fixture

FIGURE #5

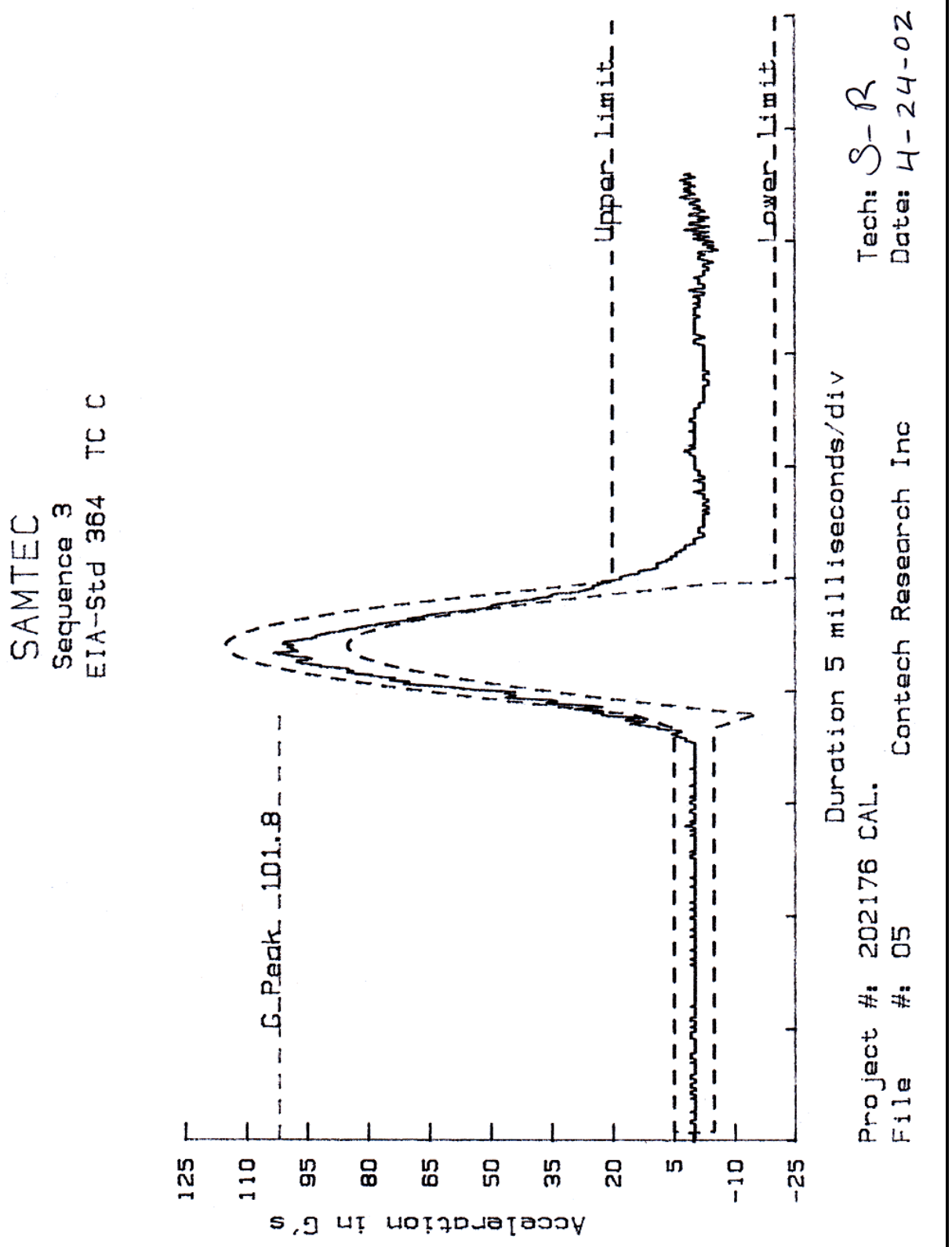
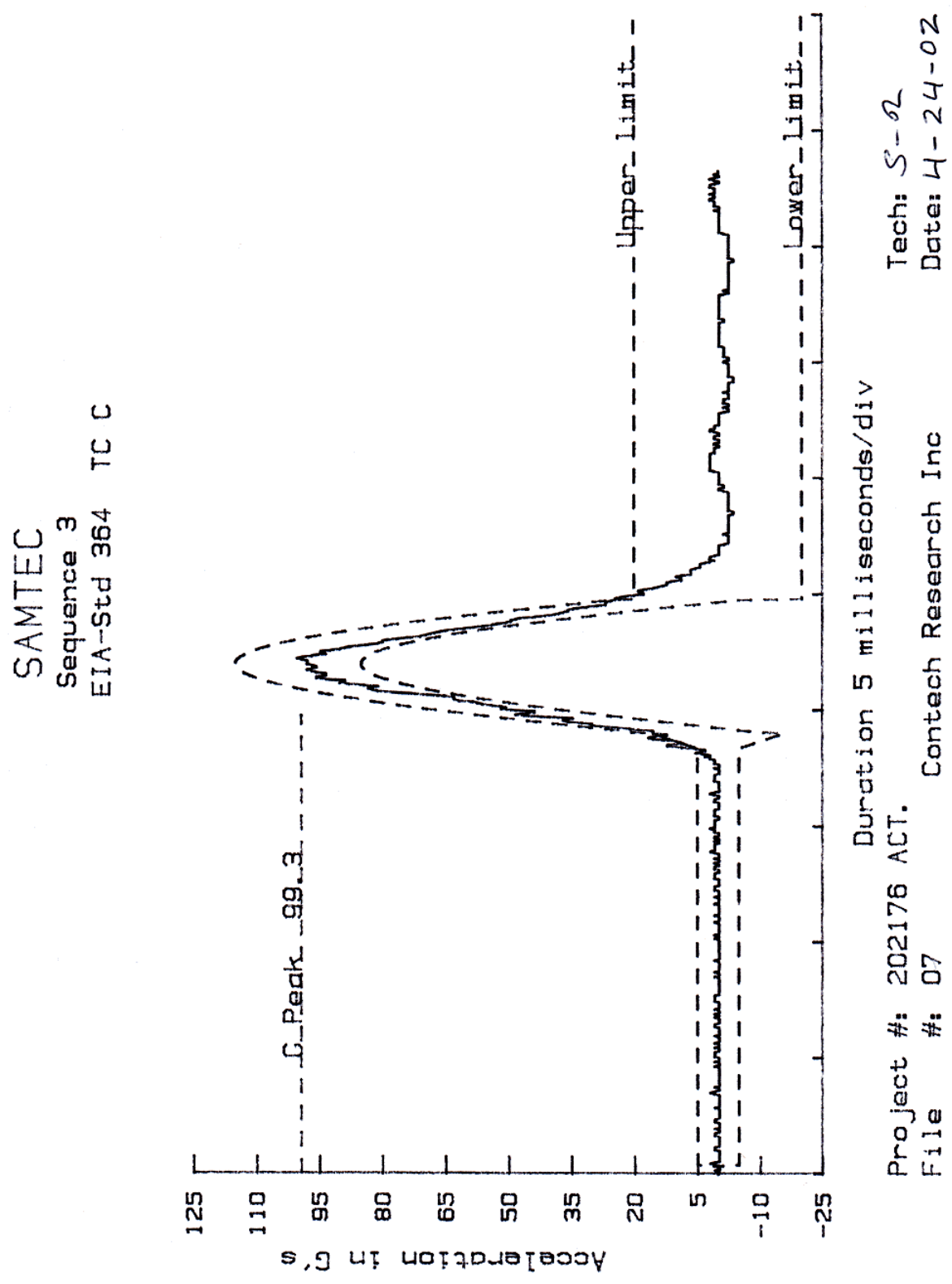

SAMTEC
Sequence 3
EIA-Std 364 TC C
G_Peak 101.8
Upper_Limit
Lower_Limit
Acceleration in G's
125
110
95
80
65
50
35
20
5
-10
-25
Duration 5 milliseconds/div
Project #: 202176 CAL.
File #: 05
Contech Research Inc
Tech: S-R
Date: 4-24-02

FIGURE #6


SAMTEC
Sequence 3
EIA-Std 364 TC C
C_Peak 99.3
Upper_limit
Lower_limit
Acceleration in G's
125
110
95
80
65
50
35
20
5
-10
-25
Duration 5 milliseconds/div
Project #: 202176 ACT.
File #: 07
Contech Research Inc
Tech: S-G
Date: 4-24-02

PROJECT NO.: 202176	SPECIFICATION: TC0211-0635
PART NO.: MECT-150-01-M-D-RA1	PART DESCRIPTION: MECT-RA Connectors
SAMPLE SIZE: ID# 3-1-1,3-1-2	TECHNICIAN: SR
START DATE: 4/24/02	COMPLETE DATE: 4/29/02
ROOM AMBIENT: 24°C	RELATIVE HUMIDITY: 28%
EQUIPMENT ID#: 244, 281, 282, 553, 559, 594, 874, 1121, 1175, 1301	

VIBRATION, RANDOM

PURPOSE:

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

2. 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 VB.

2. Test Conditions:

    a) G 'RMS' : 7.56
    b) Frequency : 50 to 2000 HZ
    c) Duration : 2.0 Hours 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 #4 illustrates the test sample fixturing utilized during the test.

5. All subsequent variable testing was performed in accordance with 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 observed data:

CHANGE IN LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Max. Change	Std. Dev.
3-1-1	+0.0	+2.2
3-1-2	-0.3	+0.2

3. See data files 20217605 and 20217606 for individual data points.

LLCR DATA FILES

DATA FILE NUMBERS

20217605
20217606

			Low Level Contact Resistance					
	Project:	202176				Spec:	EIA 364, TP 23	
	Customer:	Samtec				Subgroup:	Seq. 3: (ID# 3-1-1)	
	Product:	Series MECT connector				File #:	**20217605**	
	Description: PN: MECT-RA							
	Open circuit voltage:		20mv			Current:	10 ma	
				Delta values				
				units: milliohms				
	Temp ºC	23	23	24				
	R.H. %	28	26	28				
	Date:	23Apr02	24Apr02	29Apr02				
	Pos. ID	INITAIL	M-Shock	VIB.				
	1	12.9	0.7	0.4				
	2	12.8	-0.2	-0.2				
	3	12.9	-0.1	-0.2				
	4	13.0	0.5	0.1				
	5	13.3	-0.5	-0.6				
	6	12.9	0.1	-0.1				
	7	13.3	-0.2	-0.3				
	8	10.6	2.3	2.2				
	9	13.0	-0.1	-0.2				
	10	13.0	-0.2	-0.2				
	11	11.9	1.3	1.2				
	12	13.1	0.0	-0.1				
	13	13.1	0.1	0.0				
	14	14.3	-0.8	-1.1				
	15	13.3	0.3	-0.2				
	16	13.4	0.0	0.0				
	17	12.8	0.6	0.2				
	18	13.2	-0.1	-0.2				
	19	13.4	0.0	-0.1				
	20	12.9	0.2	0.1				
	21	12.9	0.3	0.2				
	22	13.2	0.1	0.1				
	23	12.6	0.7	0.6				
	24	13.0	-0.4	-0.1				
	25	12.9	0.1	-0.5				
	26	10.8	-0.4	-0.4				
	27	10.6	-0.3	-0.2				
	28	10.7	-0.2	-0.2				
	29	11.0	-0.5	-0.4				
	30	10.7	-0.4	-0.3				
	31	10.5	-0.4	-0.1				
	32	10.8	-0.2	-0.3				
	33	10.8	-0.7	-0.3				
	34	10.7	-0.2	-0.2				

	Temp ºC	23	23	24				
	R.H. %	28	26	28				
	Date:	23Apr02	24Apr02	29Apr02				
	Pos. ID	INITAIL	M-Shock	VIB.				
	35	10.9	-0.3	-0.3				
	36	10.5	-0.3	0.0				
	37	10.8	-0.2	-0.2				
	38	10.3	0.2	0.0				
	39	10.4	-0.1	-0.1				
	40	10.5	0.1	0.0				
	41	10.6	0.0	-0.1				
	42	10.4	0.1	0.0				
	43	10.5	0.1	0.1				
	44	10.6	0.0	-0.1				
	45	10.5	-0.1	-0.1				
	46	10.6	-0.2	-0.1				
	47	10.7	-0.3	-0.1				
	48	10.6	0.1	0.1				
	49	10.6	-0.1	0.1				
	50	10.8	0.3	0.2				
	MAX	14.3	2.3	2.2				
	MIN	10.3	-0.8	-1.1				
	AVG	11.8	0.0	0.0				
	STD	1.2	0.5	0.5				
	Open	0	0	0				
	Tech	S-R	S-R	S-R				
	Equip ID	594	594	594				
		244	244	244				

			Low Level Contact Resistance					
	Project:	202176				Spec:	EIA 364, TP 23	
	Customer:	Samtec				Subgroup:	Seq. 3: (ID# 3-1-2)	
	Product:	Series MECT connector				File #:	**20217606**	
	Description: PN: MECT-RA							
	Open circuit voltage:		20mv			Current:	10 ma	
				Delta values				
				units: milliohms				
	Temp ºC	23	23	24				
	R.H. %	28	26	28				
	Date:	23Apr02	24Apr02	29Apr02				
	Pos. ID	INITIAL	M-Shock	VIB.				
	1	13.4	0.1	-0.2				
	2	13.2	0.3	-0.2				
	3	13.2	0.1	-0.1				
	4	13.7	-0.3	-0.4				
	5	13.5	-0.2	-0.4				
	6	13.4	-0.3	-0.3				
	7	13.7	0.1	-0.3				
	8	13.4	-0.6	-0.3				
	9	13.5	-0.1	-0.4				
	10	13.6	-0.1	-0.5				
	11	13.6	-0.2	-0.4				
	12	13.9	-0.2	-0.7				
	13	13.5	-0.3	-0.4				
	14	13.4	-0.3	-0.3				
	15	13.5	-0.2	0.0				
	16	13.7	-0.1	-0.3				
	17	13.5	-0.2	-0.3				
	18	13.4	-0.1	-0.2				
	19	13.5	0.0	-0.1				
	20	13.3	-0.6	-0.1				
	21	13.3	-0.1	0.0				
	22	13.3	-0.1	0.1				
	23	13.5	-0.1	-0.3				
	24	13.5	-0.4	-0.5				
	25	13.4	-0.1	-0.1				
	26	12.1	-0.9	-0.5				
	27	11.8	-0.6	-0.9				
	28	11.1	-0.4	0.0				
	29	11.9	-1.2	-0.8				
	30	11.5	-0.3	-0.6				
	31	11.1	-0.6	-0.4				
	32	11.3	-0.4	-0.4				
	33	11.4	-0.9	-0.5				
	34	11.4	-0.4	-0.4				

	Temp ºC	23	23	24				
	R.H. %	28	26	28				
	Date:	23Apr02	24Apr02	29Apr02				
	Pos. ID	INITIAL	M-Shock	VIB.				
	35	11.6	-0.4	-0.5				
	36	10.9	0.0	-0.1				
	37	11.3	-0.5	-0.3				
	38	11.1	-0.5	-0.2				
	39	10.8	-0.5	0.0				
	40	11.6	-0.8	-0.3				
	41	11.4	-0.6	-0.2				
	42	10.8	-0.1	0.2				
	43	11.1	-0.3	-0.1				
	44	11.2	-0.6	-0.3				
	45	11.2	-0.2	-0.2				
	46	11.2	-1.0	-0.2				
	47	10.9	-0.4	-0.2				
	48	11.3	-0.5	-0.3				
	49	11.0	-0.4	-0.2				
	50	11.3	-0.1	-0.1				
	MAX	13.9	0.3	0.2				
	MIN	10.8	-1.2	-0.9				
	AVG	12.4	-0.3	-0.3				
	STD	1.1	0.3	0.2				
	Open	0	0	0				
	Tech	S-R	S-R	S-R				
	Equip ID	594	594	594				
		244	244	244				

TEST RESULTS

SEQUENCE 3

Group 2a

Testing was performed with a 0.043 inch thick test board mated to the connector.

PROJECT NO.: 202176	SPECIFICATION: TC0211-0635
PART NO.: MECT-150-01-M-D-RA1	PART DESCRIPTION: MECT-RA Connectors
SAMPLE SIZE: ID# 3-2a-1,3-2a-2	TECHNICIAN: SR
START DATE: 4/24/02	COMPLETE DATE: 4/24/02
ROOM AMBIENT: 23°C	RELATIVE HUMIDITY: 26%
EQUIPMENT ID#: 34, 117, 683, 684, 1028, 1136	

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

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.

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.

PROJECT NO.: 202176 SPECIFICATION: TC0211-0635

PART NO.: MECT-150-01-M-D-RA1 PART DESCRIPTION: MECT-RA Connectors

SAMPLE SIZE: ID# 3-2a-1,3-2a-2 TECHNICIAN: SR

START DATE: 4/24/02 COMPLETE DATE: 4/26/02

ROOM AMBIENT: 22°C RELATIVE HUMIDITY: 26%

EQUIPMENT ID#: 281, 282, 553, 559, 874, 1121, 1175, 1301

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.

PROCEDURE:

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

2. Test Conditions:

a) G 'RMS'	:	7.56
b) Frequency	:	50 to 2000 HZ
c) Duration	:	2.0 Hours Per Axis, 3 Axis Total

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

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.

RESULTS: See next page.

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.

TEST RESULTS

SEQUENCE 3

Group 2b

Testing was performed with a 0.035 inch thick test board mated to the connector.

PROJECT NO.: 202176	SPECIFICATION: TC0211-0635
PART NO.: MECT-150-01-M-D-RA1	PART DESCRIPTION: MECT-RA Connectors
SAMPLE SIZE: ID# 3-2b-1,3-2b-2	TECHNICIAN: SR
START DATE: 4/24/02	COMPLETE DATE: 4/24/02
ROOM AMBIENT: 23°C	RELATIVE HUMIDITY: 26%
EQUIPMENT ID#: 34, 117, 683, 684, 1028, 1136	

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

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.

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.

PROJECT NO.: 202176 SPECIFICATION: TC0211-0635

PART NO.: MECT-150-01-M-D-RA1 PART DESCRIPTION: MECT-RA Connectors

SAMPLE SIZE: ID# 3-2b-1,3-2b-2 TECHNICIAN: SR

START DATE: 4/24/02 COMPLETE DATE: 4/26/02

ROOM AMBIENT: 21°C RELATIVE HUMIDITY: 26%

EQUIPMENT ID#: 281, 282, 553, 559, 874, 1121, 1175, 1301

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.

PROCEDURE:

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

2. Test Conditions:

a) G 'RMS'	:	7.56
b) Frequency	:	50 to 2000 HZ
c) Duration	:	2.0 Hours Per Axis, 3 Axis Total

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

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.

RESULTS: See next page.

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.