MARCH 13, 2003

TEST REPORT #203024A-1

MEC8-EM CONNECTOR TESTING

PART NUMBER

MEC8-130-01-L-D-EM2

SAMTEC, INC.

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

1478 - 01
ACCREDITED
1478 - 02

Contech Research

REVISION HISTORY

DATE	REV. NO.	DESCRIPTION	ENG.
3/13/2003	1.0	Initial Issue	TP

CERTIFICATION

This is to certify that the MEC8-EM 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
President and
Director of Test Program Development
Contech Research, Inc.

TP:js

SCOPE

To perform qualification testing on the MEC8-EM connector as manufactured and submitted by the test sponsor Samtec, Inc.

APPLICABLE DOCUMENTS

1. Samtec Specifications: TC033-0078

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	Part Number
a)	MEC8-EM Connectors	MEC8-130-01-L-D-EM2

2. A “stabilizing medium” was assembled between the mating board and mother board as shown in Figure #1.

3. Applicable qualified mating boards were supplied by the test sponsor.

4. The test samples were tested in their ‘as received’ condition.

5. 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 A	: Group A	-	A-A-1,A-A-2
	: Group B1	-	A-B1-1,A-B1-2
	: Group B2	-	A-B2-1,A-B2-2
	: Group B3	-	A-B3-1,A-B3-2
Sequence B	: Group A	-	B-A-1,B-A-2,B-A-3,B-A-4, B-A-5,B-A-6,B-A-7,B-A-8
Sequence C	: Group A	-	C-A-1,C-A-2,C-A-3
Sequence D	: Group A	-	D-A-1,D-A-2,D-A-3,D-A-4,D-A-5, D-A-6,D-A-7,D-A-8

Sample ID Key

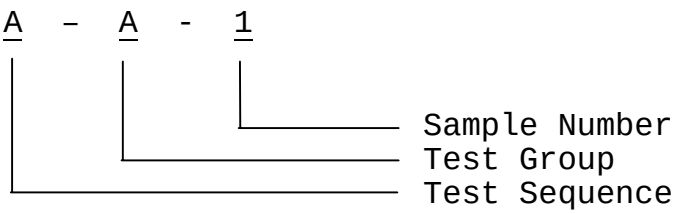


FIGURE #1

TYPICAL TEST SAMPLE/TEST BOARD

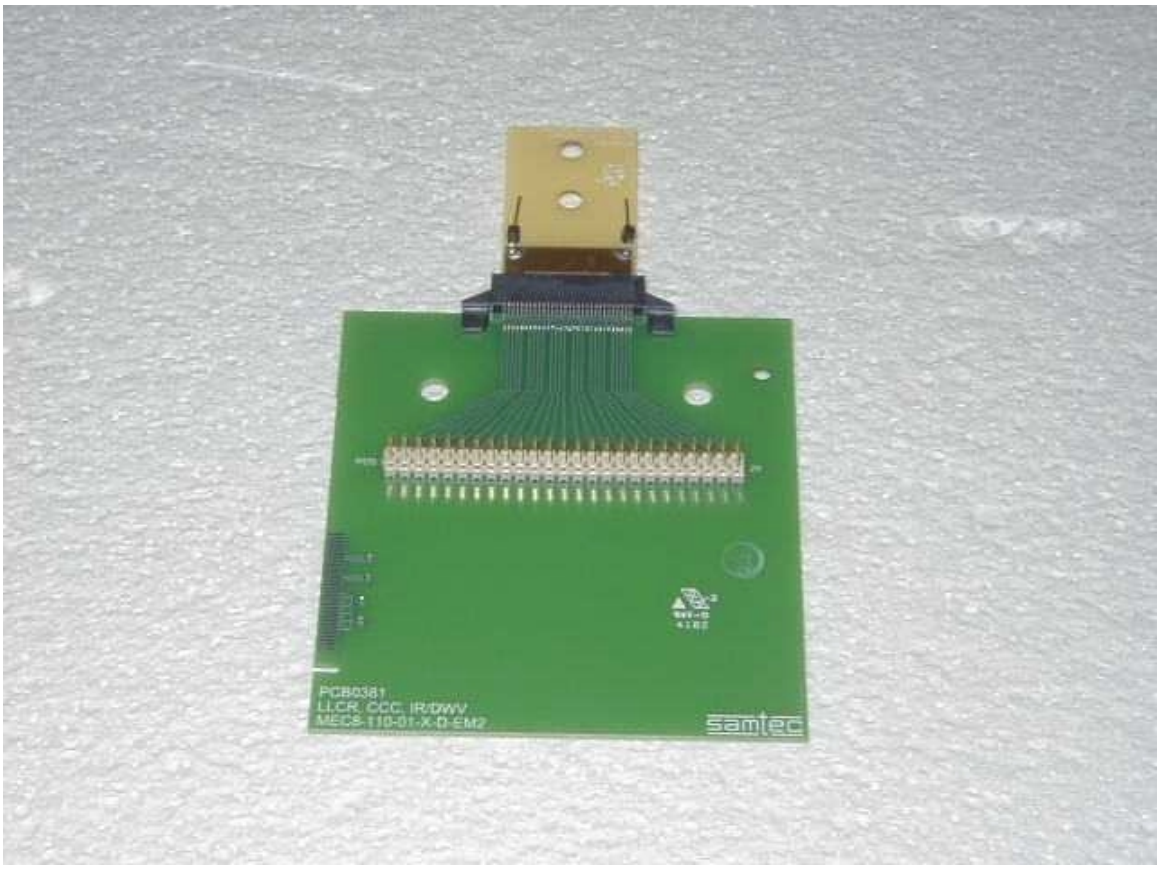
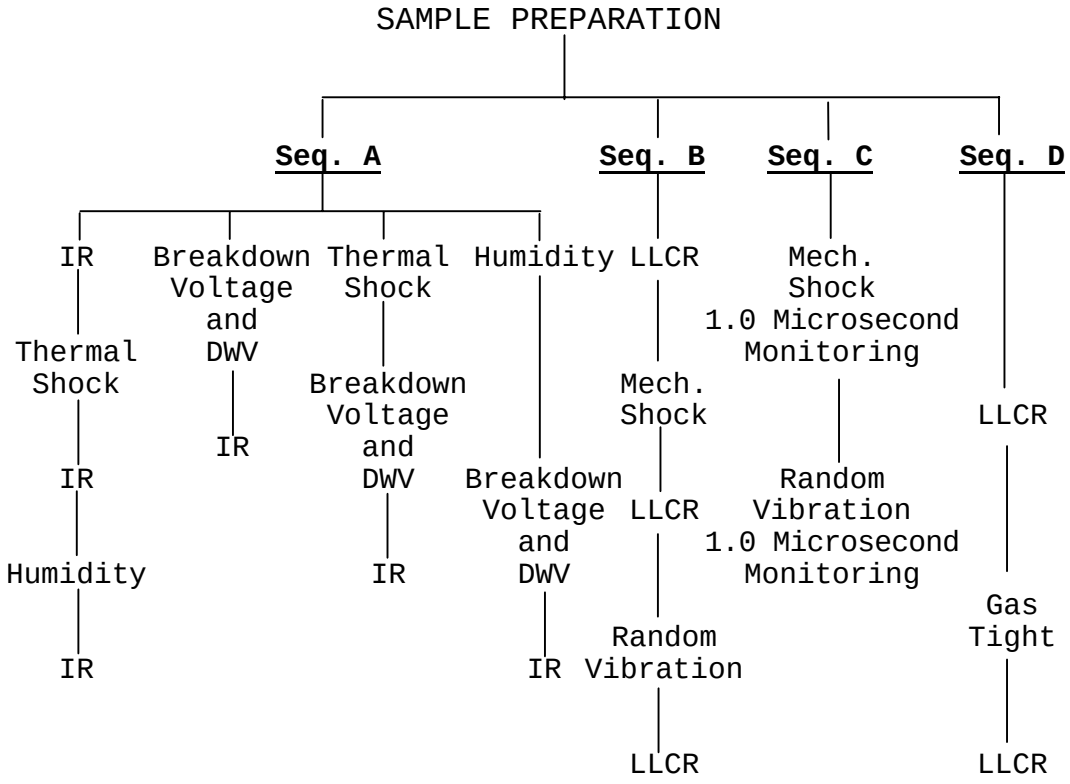


FIGURE #2

TEST PLAN FLOW DIAGRAM



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

DATA SUMMARY

TEST	REQUIREMENT	RESULTS
SEQUENCE A		
Group A		
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 B1		
Breakdown Voltage	Record Voltage	800 VAC
DWV @ 75% of Breakdown Voltage	75% of VAC	600 VAC
Group B2		
Thermal Shock	No Damage	Passed
Breakdown Voltage	Record Voltage	780 VAC Min.
DWV @ 75% of Breakdown Voltage	75% of VAC	585 VAC Min.
Insulation Resistance	1000 Megohms Min.	>50000 Megohms
Group B3		
Humidity	No Damage	Passed
Breakdown Voltage	Record Voltage	860 VAC Min.
DWV @ 75% of Breakdown Voltage	75% of VAC	645 VAC Min.
Insulation Resistance	1000 Megohms Min.	>50000 Megohms
SEQUENCE B		
Group A		
LLCR	Record	71.8 mΩ Max.
Mechanical Shock	No Damage	Passed
LLCR	+10.0 mΩ Max.Chg.	+1.4 mΩ Max.Chg.
Random Vibration	No Damage	Passed
LLCR	+10.0 mΩ Max.Chg.	+1.2 mΩ Max.Chg.

DATA SUMMARY – Continued:

TEST	REQUIREMENT	RESULTS
SEQUENCE C		
Group A		
Mechanical Shock	No Damage	Passed
	1.0 Microsecond	Passed
Random Vibration	No Damage	Passed
	1.0 Microsecond	Passed
SEQUENCE D		
Group A		
LLCR	Record	68.4 mΩ Max.
Gas Tight	No Damage	Passed
LLCR	+10.0 mΩ Max.Chg.	+8.4 mΩ Max.Chg.

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
192			Vertical Thermal Shock	Cincinnati Sub-Zero	VTS-1-5-3	88-11094	See Cal Cert	Each Test
213	11/12/03	11/12/02	Temp/Humidity Gage	Cole Palmer Co.	3310-40	1	± 1 %	12 mon.
321	1/29/04	1/29/03	AC-DC Hipot/Megometer	Hipotronics Co.	H300B	DS16-201	See Cal Cert	12 mon.
465	6/21/03	6/21/02	Precision Resistor	Victoreen Co.	5000 Megohm	N/A	± 1 %	12 mon.
466	6/21/03	6/21/02	Precision Resistor	Victoreen Co.	50,000 mego	N/A	± 1 %	12 mon.
529			Computer	ARC Elect.	486-40	N/A	N/A	N/A
553	12/6/03	12/6/02	12 channel Power Unit	PCB Co.	483A	1303	See Cal Cert	12mon
558			Computer	ARC Elect.	P111-450	274B031586	N/A	N/A
673	7/3/03	7/3/02	Microohm Meter	Keithley Co.	580	0681911	See Cal Cert	12 mon.
677	8/15/03	8/15/02	Microohm Meter	Keithley Co.	580	0685122	See Cal Cert	12 mon
681			Computer	ARC Co.	P166	N/A	N/A	N/A
684	6/14/03	6/14/02	Accelerometer	PCB. Co.	353B04	47648	See Cal Cert.	12mon
1045	6/14/03	6/14/02	Microohm Meter	Keithley	580	708216	See Cal Cert	12mon
1166	3/7/03	3/7/02	Sine/Rndm Vib Control Digitizer	Hewlett Packard	E1432A	US39342279	See Cal Cert	12mon
1167			Interface	Hewlett Packard	E8491B	US390100753	N/A	N/A
1168			Mainframe	Hewlett Packard	E8408A	US39000357	N/A	N/A
1169			Computer	ARC	PC133	none	N/A	N/A
1175	12/11/03	12/11/02	Discontinuity Monitor	Metronics	DM3000-10	6-2K-1	See Cal Cert	12mon
1271			Amplifier	Unholtz Dickie	SA15	3483	See Manual	N/A
1272			Shaker Table	Unholtz Dickie	S202PB	263	N/A	N/A
1360	4/8/03	10/8/02	Data Aquisition Multimeter	Keithley	2700	0914136	See Cal Cert	6mon
1361	4/8/03	10/8/02	Multiplexer Card	Keithley	7708		See Cal Cert	6mon

TEST RESULTS

SEQUENCE A

Group A

PROJECT NO.: 203024A-1	SPECIFICATION: TC033-0078
PART NO.: MEC8-130-01-L-D-EM2	PART DESCRIPTION: MEC8-EM Connectors
SAMPLE SIZE: ID# A-A-1,A-A-2	TECHNICIAN: MHB
START DATE: 2/5/03	COMPLETE DATE: 2/5/03
ROOM AMBIENT: 20°C	RELATIVE HUMIDITY: 34%
EQUIPMENT ID#: 321, 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 : Mated
    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.: 203024A-1	SPECIFICATION: TC033-0078
PART NO.: MEC8-130-01-L-D-EM2	PART DESCRIPTION: MEC8-EM Connectors
SAMPLE SIZE: ID# A-A-1,A-A-2	TECHNICIAN: MHB
START DATE: 2/6/03	COMPLETE DATE: 2/10/03
ROOM AMBIENT: 20°C	RELATIVE HUMIDITY: 30%
EQUIPMENT ID#: 192, 321, 465, 466, 1360, 1361	

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 : Mated
    f) Mounting Conditions : Mounted
    g) Transfer Time : Instantaneous

3. The total number of cycles was 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 previously indicated.

REQUIREMENTS: See next page.

REQUIREMENTS:

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

2. The insulation resistance shall exceed 1000 megohms.

RESULTS:

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

2. The insulation resistance was in excess of 50,000 megohms.

PROJECT NO.: 203024A-1	SPECIFICATION: TC033-0078
PART NO.: MEC8-130-01-L-D-EM2	PART DESCRIPTION: MEC8-EM Connectors
SAMPLE SIZE: ID# A-A-1,A-A-2	TECHNICIAN: MHB
START DATE: 2/11/03	COMPLETE DATE: 2/24/03
ROOM AMBIENT: 20°C	RELATIVE HUMIDITY: 32%
EQUIPMENT ID#: 27, 321, 465, 466, 1360, 1361	

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, Method III (omit Step 7a, 7b) 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. 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.

TEST RESULTS

SEQUENCE A

Group B1

PROJECT NO.: 203024A-1 SPECIFICATION: TC033-0078

PART NO.: MEC8-130-01-L-D-EM2 PART DESCRIPTION: MEC8-EM Connectors

SAMPLE SIZE: ID# A-B1-1,A-B1-2 TECHNICIAN: MHB

START DATE: 2/5/03 COMPLETE DATE: 2/5/03

ROOM AMBIENT: 20°C RELATIVE HUMIDITY: 34%

EQUIPMENT ID#: 321

DIELECTRIC WITHSTANDING VOLTAGE (SEA LEVEL)

PURPOSE:

To determine the voltage at which dielectric breakdown occurs.

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	: Mated
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.

REQUIREMENTS:

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

RESULTS:

The voltage at which dielectric breakdown occurred was 800 VAC.

TEST RESULTS

SEQUENCE A

Group B2

PROJECT NO.: 203024A-1	SPECIFICATION: TC033-0078
PART NO.: MEC8-130-01-L-D-EM2	PART DESCRIPTION: MEC8-EM Connectors
SAMPLE SIZE: ID# A-B1-1,A-B1-2	TECHNICIAN: MHB
START DATE: 2/6/03	COMPLETE DATE: 2/10/03
ROOM AMBIENT: 20°C	RELATIVE HUMIDITY: 30%
EQUIPMENT ID#: 192, 321, 1360, 1361	

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	:	Mated
f) Mounting Conditions	:	Mounted
g) Transfer Time	:	Instantaneous

3. The total number of cycles was performed continuously.

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

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

REQUIREMENTS: See next page.

REQUIREMENTS:

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

2. The dielectric breakdown voltage shall be measured and recorded.

3. 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.

3. The voltage at which dielectric breakdown occurred is summarized below:

Sample ID#	DIELECTRIC BREAKDOWN Voltage (VAC)
A-B1-1	780
A-B1-2	840

TEST RESULTS

SEQUENCE A

Group B3

PROJECT NO.: 203024A-1	SPECIFICATION: TC033-0078
PART NO.: MEC8-130-01-L-D-EM2	PART DESCRIPTION: MEC8-EM Connectors
SAMPLE SIZE: ID# A-B3-1,A-B3-2	TECHNICIAN: MHB
START DATE: 2/11/03	COMPLETE DATE: 2/24/03
ROOM AMBIENT: 20°C	RELATIVE HUMIDITY: 32%
EQUIPMENT ID#: 27, 321, 1360, 1361	

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 Method III (omit Step 7a,7b), with the following conditions:

PROCEDURE: Continued

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

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.

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. 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 voltage at which dielectric breakdown occurred is summarized below:

Sample ID#	DIELECTRIC BREAKDOWN Voltage (VAC)
A-B3-1	880
A-B3-2	860

3. The final insulation resistance exceeded 50000 megohms when measured at high humidity.

TEST RESULTS

SEQUENCE B

Group A

PROJECT NO.: 203024A-1	SPECIFICATION: TC033-0078
PART NO.: MEC8-130-01-L-D-EM2	PART DESCRIPTION: MEC8-EM Connectors
SAMPLE SIZE: ID# B-A-1, B-A-2, B-A-3, B-A-4, B-A-5, B-A-6, B-A-7, B-A-8	TECHNICIAN: JEL
START DATE: 2/6/03	COMPLETE DATE: 2/6/03
ROOM AMBIENT: 20°C	RELATIVE HUMIDITY: 29%
EQUIPMENT ID#: 529, 677	

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:

PROCEDURE – Continued:

2. Test Conditions:

    a) Test Current : 10 milliamps
    b) Open Circuit Voltage : 20 millivolts

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:

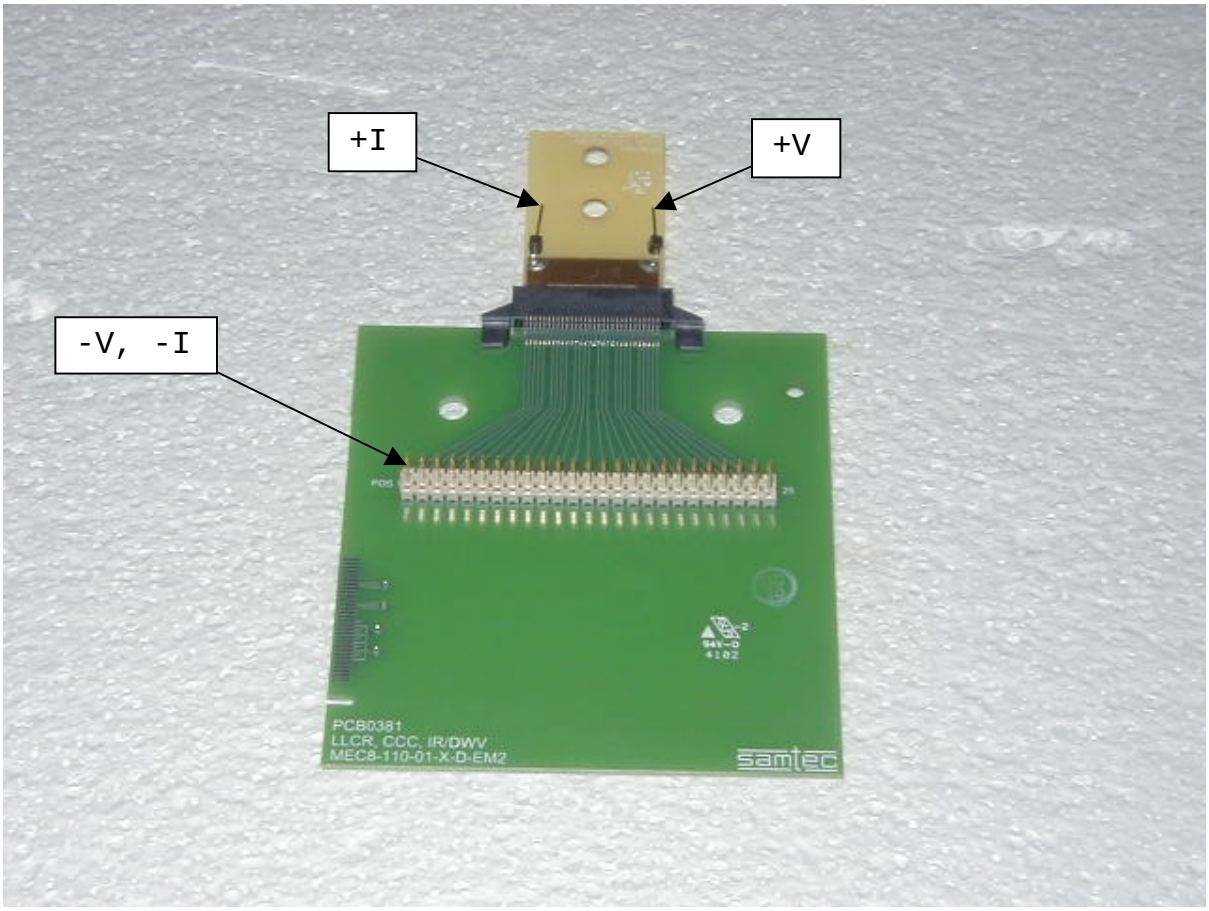
LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg.	Max.	Min.
B-A-1	55.5	67.0	50.4
B-A-2	60.4	71.8	54.3
B-A-3	55.6	68.3	45.8
B-A-4	58.1	69.8	51.3
B-A-5	54.1	64.7	47.3
B-A-6	60.6	69.8	53.5
B-A-7	56.2	65.5	48.3
B-A-8	53.3	65.0	44.3

2. See data files 203024A01 through 203024A08 for individual data points.

FIGURE #3

TYPICAL LLCR SET UP



PROJECT NO.: 203024A-1	SPECIFICATION: TC033-0078
PART NO.: MEC8-130-01-L-D-EM2	PART DESCRIPTION: MEC8-EM Connectors
SAMPLE SIZE: ID# B-A-1, B-A-2, B-A-3, B-A-4, B-A-5, B-A-6, B-A-7, B-A-8	TECHNICIAN: MHB
START DATE: 2/19/03	COMPLETE DATE: 2/19/03
ROOM AMBIENT: 21°C	RELATIVE HUMIDITY: 29%
EQUIPMENT ID#: 553, 681, 684, 1045, 1166, 1167, 1168, 1169, 1271, 1272,	

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 : 6 Milliseconds
   c) Wave Form : Sawtooth
   d) Velocity : 11.3 feet per second
   e) No. of Shocks : 3 Shocks/Direction, 3 Axis (18 Total)

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

4. Figure #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.

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
B-A-1	-0.6	+1.4
B-A-2	+0.1	+1.0
B-A-3	-2.9	+0.0
B-A-4	-3.5	-0.1
B-A-5	-1.4	+1.1
B-A-6	-3.4	+0.4
B-A-7	-2.4	+0.2
B-A-8	-1.9	-0.2

3. See data files 203024A01 through 203024A08 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

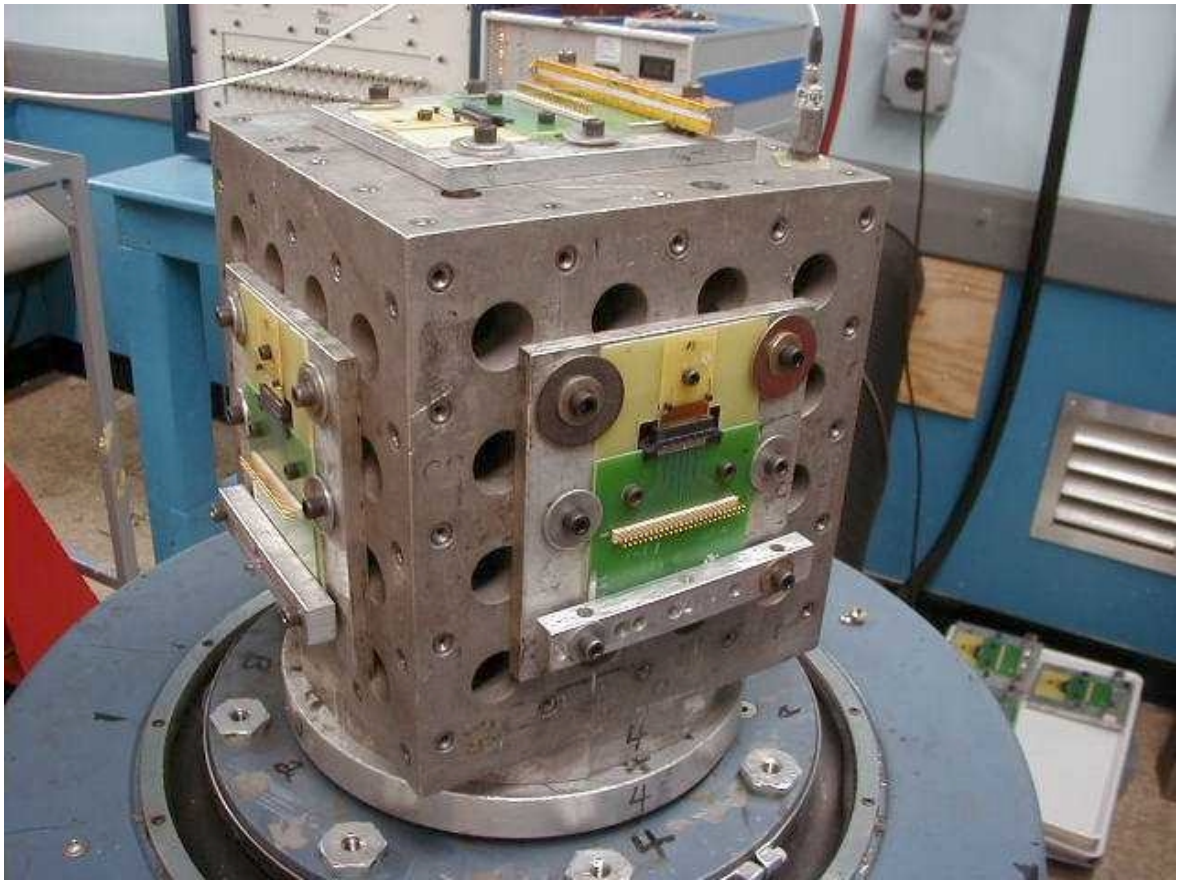
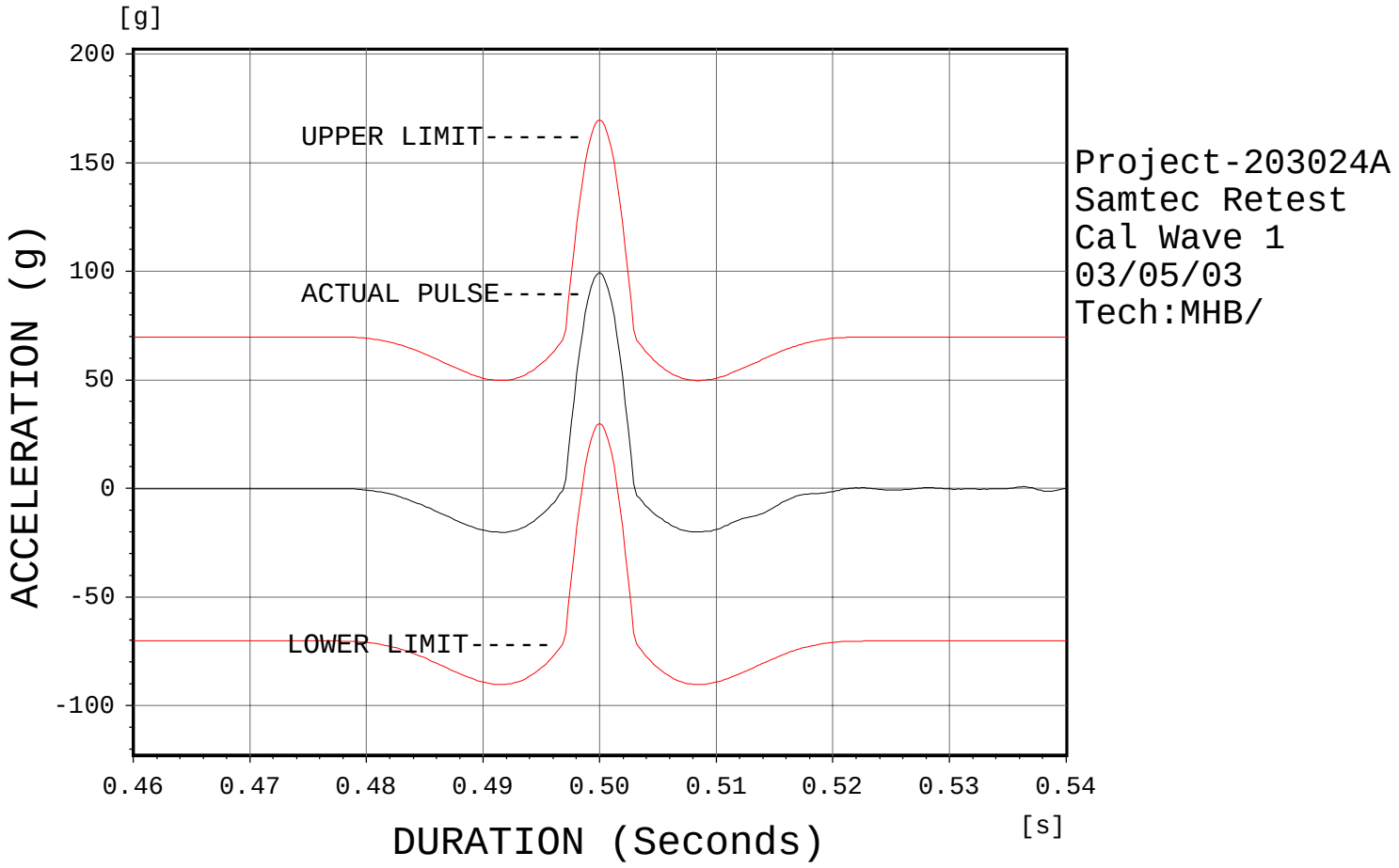


FIGURE #5

Classical Shock

Channel 1



Project-203024A
Samtec Retest
Cal Wave 1
03/05/03
Tech:MHB/

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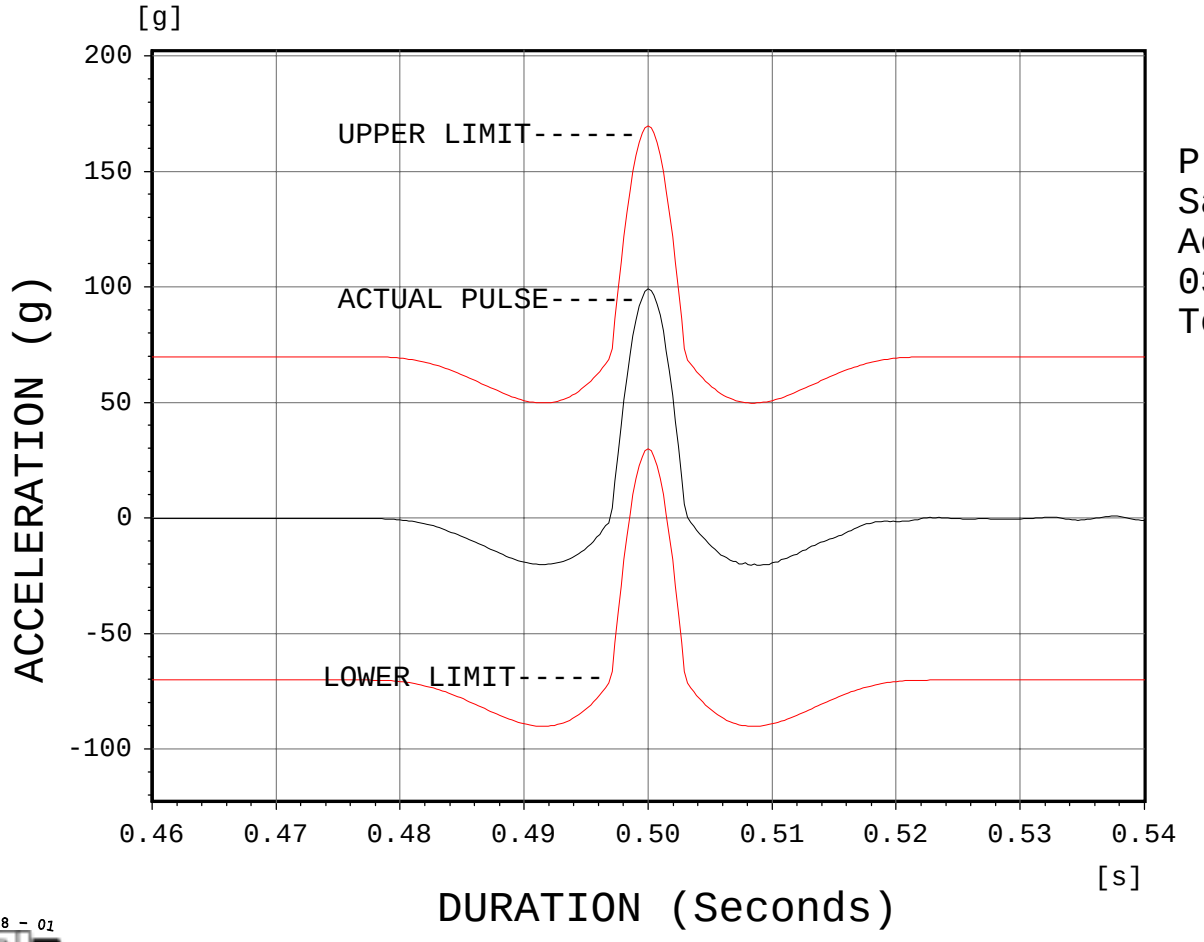
FIGURE #6

Classical Shock **Channel 1**



Project-203024A
Samtec Retest
Actual Wave 1
03/05/03
Tech:MHB/

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PROJECT NO.: 203024A-1	SPECIFICATION: TC033-0078
PART NO.: MEC8-130-01-L-D-EM2	PART DESCRIPTION: MEC8-EM Connectors
SAMPLE SIZE: ID# B-A-1, B-A-2, B-A-3, B-A-4, B-A-5, B-A-6, B-A-7, B-A-8	TECHNICIAN: MHB
START DATE: 2/20/03	COMPLETE DATE: 2/24/03
ROOM AMBIENT: 20°C	RELATIVE HUMIDITY: 32%
EQUIPMENT ID#: 553, 681, 684, 1045, 1166, 1167, 1168, 1169, 1271, 1272,	

VIBRATION, RANDOM

PURPOSE:

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

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

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

PROCEDURE:

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

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:

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

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

RESULTS:

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

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

CHANGE IN
LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg. Change	Max. Change
B-A-1	-0.6	+0.7
B-A-2	+0.0	+1.0
B-A-3	-2.8	+0.2
B-A-4	-3.3	+0.1
B-A-5	-1.3	+1.2
B-A-6	-3.4	+0.6
B-A-7	-2.5	-0.1
B-A-8	-2.0	+0.3

3. See data files 203024A01 through 203024A08 for individual data points.

LLCR DATA FILES

DATA FILE NUMBERS

203024A01
203024A02
203024A03
203024A04
203024A05
203024A06
203024A07
203024A08

			Low Level Contact Resistance					
	Project:	203024A-1				Spec:	EIA 364 TP 23	
	Customer:	Samtec				Subgroup:	Seq B	
	Product:	Series MEC8-EM connector				File #:	203024A01	
	Description: Sample ID# B-A-1							
	Open circuit voltage:		20mv			Current:	100ma	
				Delta values				
				units: milliohms				
	Temp ºC	20	21	20				
	R.H. %	29	29	32				
	Date:	06Feb03	19Feb03	24Feb03				
	Pos. ID	Initial	M.Shock	Vibration				
	1	55.9	0.6	0.2				
	3	54.6	0.4	-0.2				
	5	53.1	0.6	0.1				
	7	52.2	0.5	0.2				
	9	54.2	-2.7	-2.7				
	11	50.6	-0.2	0.4				
	13	50.4	0.1	0.4				
	15	51.4	0.4	0.4				
	17	52.3	-2.0	0.3				
	19	54.3	0.9	0.5				
	21	55.9	0.5	0.4				
	23	59.8	-0.7	-1.0				
	25	60.7	0.5	0.2				
	27	56.7	0.4	0.7				
	29	59.4	-3.0	-3.0				
	31	55.3	-2.0	-1.8				
	33	54.8	-3.1	-2.3				
	35	55.1	-3.2	-3.5				
	37	51.1	1.4	0.7				
	39	54.7	-2.4	-2.3				
	41	53.3	0.1	0.3				
	43	55.1	0.3	0.3				
	45	57.7	-0.1	0.1				
	47	61.8	-0.1	0.2				
	49	67.0	-2.8	-3.0				
	MAX	67.0	1.4	0.7				
	MIN	50.4	-3.2	-3.5				
	AVG	55.5	-0.6	-0.6				
	STD	3.9	1.5	1.4				
	Open	0	0	0				
	Tech	JEL	MHB	MHB				
	Equip ID	529	681	681				
		677	1045	1045				

			Low Level Contact Resistance					
	Project:	203024A-1				Spec:	EIA 364 TP 23	
	Customer:	Samtec				Subgroup:	Seq B	
	Product:	Series MEC8-EM connector				File #:	203024A02	
	Description: Sample ID# B-A-2							
	Open circuit voltage:		20mv			Current:	100ma	
				Delta values				
				units: milliohms				
	Temp ºC	20	21	20				
	R.H. %	29	29	32				
	Date:	06Feb03	19Feb03	24Feb03				
	Pos. ID	Initial	M.Shock	Vibration				
	1	66.0	0.7	0.8				
	3	62.7	-0.9	0.3				
	5	60.0	1.0	0.5				
	7	58.7	0.4	0.6				
	9	56.7	0.6	0.5				
	11	55.5	0.3	0.3				
	13	54.3	0.9	0.7				
	15	55.0	0.6	0.5				
	17	55.3	0.6	0.6				
	19	57.1	0.6	0.4				
	21	57.6	0.5	0.5				
	23	59.9	0.4	0.5				
	25	61.6	0.8	0.5				
	27	71.8	-0.3	-0.3				
	29	68.2	0.0	-0.1				
	31	64.0	-0.5	-0.1				
	33	61.6	-0.4	-0.5				
	35	59.4	-0.2	-0.1				
	37	57.0	0.3	0.6				
	39	56.9	0.4	0.9				
	41	57.6	0.5	1.0				
	43	62.6	-4.2	-3.7				
	45	60.0	0.2	0.6				
	47	63.8	-0.1	0.2				
	49	66.1	-0.4	-0.3				
	MAX	71.8	1.0	1.0				
	MIN	54.3	-4.2	-3.7				
	AVG	60.4	0.1	0.2				
	STD	4.5	1.0	0.9				
	Open	0	0	0				
	Tech	JEL	MHB	MHB				
	Equip ID	529	681	681				
		677	1045	1045				

			Low Level Contact Resistance					
	Project:	203024A-1				Spec:	EIA 364 TP 23	
	Customer:	Samtec				Subgroup:	Seq B	
	Product:	Series MEC8-EM connector				File #:	203024A03	
	Description: Sample ID# B-A-3							
	Open circuit voltage:		20mv			Current:	100ma	
				Delta values				
				units: milliohms				
	Temp ºC	20	21	20				
	R.H. %	29	29	32				
	Date:	06Feb03	19Feb03	24Feb03				
	Pos. ID	Initial	M.Shock	Vibration				
	1	57.9	-7.1	-7.2				
	3	53.3	-3.9	-3.9				
	5	51.8	-4.8	-5.0				
	7	48.4	-1.3	-1.1				
	9	48.6	-3.1	-3.2				
	11	49.2	-4.0	-3.8				
	13	49.3	-4.4	-4.5				
	15	45.8	0.0	0.2				
	17	47.3	-0.8	-0.8				
	19	50.7	-2.4	-2.1				
	21	49.9	-0.7	-0.7				
	23	52.2	-1.1	-1.6				
	25	53.5	-1.5	-1.7				
	27	65.8	-4.8	-4.6				
	29	59.9	-0.8	-0.7				
	31	59.9	-3.5	-3.2				
	33	59.1	-4.3	-3.8				
	35	58.4	-4.1	-3.8				
	37	55.2	-1.2	-0.8				
	39	57.7	-3.2	-2.8				
	41	60.8	-5.3	-4.7				
	43	59.1	-2.0	-1.4				
	45	64.1	-4.3	-4.1				
	47	64.3	-0.9	-2.3				
	49	68.3	-2.0	-1.9				
	MAX	68.3	0.0	0.2				
	MIN	45.8	-7.1	-7.2				
	AVG	55.6	-2.9	-2.8				
	STD	6.3	1.8	1.8				
	Open	0	0	0				
	Tech	JEL	MHB	MHB				
	Equip ID	529	681	681				
		677	1045	1045				

			Low Level Contact Resistance					
	Project:	203024A-1				Spec:	EIA 364 TP 23	
	Customer:	Samtec				Subgroup:	Seq B	
	Product:	Series MEC8-EM connector				File #:	203024A04	
	Description: Sample ID# B-A-4							
	Open circuit voltage:		20mv			Current:	100ma	
				Delta values				
				units: milliohms				
	Temp ºC	20	21	20				
	R.H. %	29	29	32				
	Date:	06Feb03	19Feb03	24Feb03				
	Pos. ID	Initial	M.Shock	Vibration				
	1	58.8	-1.1	-1.3				
	3	60.2	-4.0	-4.0				
	5	55.6	-1.4	-1.0				
	7	54.4	-0.6	-1.0				
	9	52.0	-0.3	0.0				
	11	54.8	-3.3	-3.2				
	13	51.3	-0.6	-0.4				
	15	52.7	-1.6	-1.2				
	17	52.1	-0.6	-0.1				
	19	53.6	-0.1	0.1				
	21	55.1	-0.4	0.0				
	23	58.1	-1.9	-1.6				
	25	60.7	-1.6	-1.5				
	27	66.4	-5.3	-5.2				
	29	69.8	-10.6	-10.4				
	31	61.7	-5.5	-5.4				
	33	62.6	-8.3	-8.2				
	35	60.1	-7.2	-6.9				
	37	60.1	-8.9	-8.6				
	39	62.6	-10.8	-10.6				
	41	59.3	-7.5	-7.5				
	43	56.5	-3.5	-3.4				
	45	56.2	-1.3	-1.1				
	47	59.0	-1.1	-0.8				
	49	60.0	-0.2	-0.3				
	MAX	69.8	-0.1	0.1				
	MIN	51.3	-10.8	-10.6				
	AVG	58.1	-3.5	-3.3				
	STD	4.6	3.5	3.5				
	Open	0	0	0				
	Tech	JEL	MHB	MHB				
	Equip ID	529	681	681				
		677	1045	1045				

			Low Level Contact Resistance					
	Project:	203024A-1				Spec:	EIA 364 TP 23	
	Customer:	Samtec				Subgroup:	Seq B	
	Product:	Series MEC8-EM connector				File #:	203024A05	
	Description: Sample ID# B-A-5							
	Open circuit voltage:		20mv			Current:	100ma	
				Delta values				
				units: milliohms				
	Temp ºC	20	21	20				
	R.H. %	29	29	32				
	Date:	06Feb03	19Feb03	24Feb03				
	Pos. ID	Initial	M.Shock	Vibration				
	1	50.9	1.1	1.2				
	3	50.0	0.8	0.5				
	5	48.0	0.4	0.7				
	7	48.5	0.1	0.4				
	9	47.6	-0.5	-0.3				
	11	56.6	-9.7	-9.9				
	13	50.4	-4.5	-4.5				
	15	51.1	-4.8	-4.7				
	17	50.7	-4.4	-4.3				
	19	50.2	-1.8	-1.8				
	21	47.3	0.3	0.2				
	23	49.0	0.5	0.4				
	25	55.6	-4.7	-4.7				
	27	64.7	0.9	0.5				
	29	61.9	0.5	0.6				
	31	59.2	0.5	0.8				
	33	59.4	-2.1	-2.0				
	35	55.5	0.0	-0.1				
	37	54.5	-0.3	-0.2				
	39	53.9	0.2	-0.1				
	41	54.4	-0.9	-0.7				
	43	56.2	-1.5	-1.4				
	45	55.5	-0.3	0.7				
	47	57.9	-0.7	0.1				
	49	62.7	-3.7	-3.5				
	MAX	64.7	1.1	1.2				
	MIN	47.3	-9.7	-9.9				
	AVG	54.1	-1.4	-1.3				
	STD	5.0	2.6	2.6				
	Open	0	0	0				
	Tech	JEL	MHB	MHB				
	Equip ID	529	681	681				
		677	1045	1045				

			Low Level Contact Resistance					
	Project:	203024A-1				Spec:	EIA 364 TP 23	
	Customer:	Samtec				Subgroup:	Seq B	
	Product:	Series MEC8-EM connector				File #:	203024A06	
	Description: Sample ID# B-A-6							
	Open circuit voltage:		20mv			Current:	100ma	
				Delta values				
				units: milliohms				
	Temp ºC	20	21	20				
	R.H. %	29	29	32				
	Date:	06Feb03	19Feb03	24Feb03				
	Pos. ID	Initial	M.Shock	Vibration				
	1	62.0	-2.6	-2.8				
	3	58.9	-1.3	-2.0				
	5	58.8	-2.8	-3.2				
	7	56.7	-1.6	-1.7				
	9	53.5	-1.0	-1.0				
	11	54.3	-2.1	-2.1				
	13	63.3	-11.8	-11.9				
	15	54.1	-1.4	-1.4				
	17	55.3	-2.7	-2.5				
	19	57.8	-2.8	-2.7				
	21	59.1	-2.4	-3.0				
	23	61.1	-2.2	-2.8				
	25	63.4	-4.2	-4.4				
	27	65.9	0.4	0.6				
	29	69.8	-5.6	-5.4				
	31	69.6	-9.0	-9.2				
	33	66.0	-7.6	-7.4				
	35	63.1	-6.4	-6.1				
	37	55.7	-0.7	-0.2				
	39	56.2	-0.7	-0.6				
	41	57.7	-2.1	-1.8				
	43	58.7	-2.4	-2.0				
	45	61.8	-3.6	-3.6				
	47	67.6	-5.5	-5.6				
	49	65.9	-2.2	-2.4				
	MAX	69.8	0.4	0.6				
	MIN	53.5	-11.8	-11.9				
	AVG	60.6	-3.4	-3.4				
	STD	4.9	2.8	2.9				
	Open	0	0	0				
	Tech	JEL	MHB	MHB				
	Equip ID	529	681	681				
		677	1045	1045				

			Low Level Contact Resistance					
	Project:	203024A-1				Spec:	EIA 364 TP 23	
	Customer:	Samtec				Subgroup:	Seq B	
	Product:	Series MEC8-EM connector				File #:	203024A07	
	Description: Sample ID# B-A-7							
	Open circuit voltage:		20mv			Current:	100ma	
				Delta values				
				units: milliohms				
	Temp ºC	20	21	20				
	R.H. %	29	29	32				
	Date:	06Feb03	19Feb03	24Feb03				
	Pos. ID	Initial	M.Shock	Vibration				
	1	59.7	-5.7	-6.2				
	3	57.3	-4.5	-4.7				
	5	53.0	-2.0	-2.2				
	7	52.7	-2.1	-2.3				
	9	52.1	-3.2	-3.7				
	11	50.4	-1.6	-1.8				
	13	48.3	-0.3	-0.5				
	15	48.3	-0.1	-0.1				
	17	48.8	-0.5	-0.5				
	19	50.1	0.2	-0.1				
	21	52.9	-2.5	-2.6				
	23	54.1	-1.9	-2.1				
	25	55.6	-2.4	-2.6				
	27	64.9	-3.6	-3.8				
	29	60.4	-1.0	-0.7				
	31	60.8	-4.2	-4.4				
	33	58.9	-4.2	-4.1				
	35	60.8	-7.0	-7.2				
	37	54.5	-1.0	-0.9				
	39	57.4	-4.1	-4.0				
	41	56.1	-1.1	-1.1				
	43	58.3	-1.7	-2.1				
	45	59.2	-0.7	-1.0				
	47	64.5	-2.6	-2.7				
	49	65.5	-1.7	-1.5				
	MAX	65.5	0.2	-0.1				
	MIN	48.3	-7.0	-7.2				
	AVG	56.2	-2.4	-2.5				
	STD	5.1	1.8	1.9				
	Open	0	0	0				
	Tech	JEL	MHB	MHB				
	Equip ID	529	681	681				
		677	1045	1045				

			Low Level Contact Resistance					
	Project:	203024A-1				Spec:	EIA 364 TP 23	
	Customer:	Samtec				Subgroup:	Seq B	
	Product:	Series MEC8-EM connector				File #:	203024A08	
	Description: Sample ID# B-A-8							
	Open circuit voltage:		20mv			Current:	100ma	
				Delta values				
				units: milliohms				
	Temp ºC	20	21	20				
	R.H. %	29	29	32				
	Date:	06Feb03	19Feb03	24Feb03				
	Pos. ID	Initial	M.Shock	Vibration				
	1	53.4	-1.8	-2.5				
	3	48.4	-0.2	0.3				
	5	47.4	-0.6	-0.6				
	7	47.3	-1.0	-1.1				
	9	45.3	-0.5	-0.5				
	11	45.0	-0.7	-0.9				
	13	44.3	-1.0	-1.0				
	15	47.4	-3.9	-4.0				
	17	45.4	-1.5	-1.6				
	19	45.7	-0.9	-0.8				
	21	46.0	-0.3	-0.8				
	23	48.9	-3.0	-3.4				
	25	46.2	-0.5	-0.8				
	27	65.0	-3.2	-3.1				
	29	62.4	-1.9	-2.1				
	31	59.6	-2.2	-2.2				
	33	61.6	-6.6	-6.5				
	35	59.2	-4.6	-5.0				
	37	56.4	-2.6	-2.4				
	39	59.0	-4.3	-4.5				
	41	57.0	-1.8	-2.0				
	43	57.1	-0.8	-0.9				
	45	58.4	-0.8	-0.5				
	47	62.3	-1.6	-1.5				
	49	63.5	-1.2	-1.8				
	MAX	65.0	-0.2	0.3				
	MIN	44.3	-6.6	-6.5				
	AVG	53.3	-1.9	-2.0				
	STD	7.2	1.6	1.6				
	Open	0	0	0				
	Tech	JEL	MHB	MHB				
	Equip ID	529	681	681				
		677	1045	1045				

TEST RESULTS

SEQUENCE C

Group A

PROJECT NO.: 203024A-1 SPECIFICATION: TC033-0078

PART NO.: MEC8-130-01-L-D-EM2 PART DESCRIPTION: MEC8-EM Connectors

SAMPLE SIZE:ID# C-A-1,C-A-2,C-A-3 TECHNICIAN: MHB

START DATE: 2/20/03 COMPLETE DATE: 2/20/03

ROOM AMBIENT: 20°C RELATIVE HUMIDITY: 30%

EQUIPMENT ID#: 553, 684, 1166, 1167, 1168, 1169, 1175, 1271, 1272,

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 : Half-Sine
   d) Velocity : 12.3 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.: 203024A-1 SPECIFICATION: TC033-0078

PART NO.: MEC8-130-01-L-D-EM2 PART DESCRIPTION: MEC8-EM Connectors

SAMPLE SIZE:ID# C-A-1,C-A-2,C-A-3 TECHNICIAN: MHB

START DATE: 2/20/03 COMPLETE DATE: 2/22/03

ROOM AMBIENT: 20°C RELATIVE HUMIDITY: 32%

EQUIPMENT ID#: 553, 684, 1166, 1167, 1168, 1169, 1175, 1271, 1272,

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, Letter B.

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 D

Group A

PROJECT NO.: 203024A-1	SPECIFICATION: TC033-0078
PART NO.: MEC8-130-01-L-D-EM2	PART DESCRIPTION: MEC8-EM Connectors
SAMPLE SIZE: ID# D-A-1, D-A-2, D-A-3, D-A-4, D-A-5, D-A-6, D-A-7, D-A-8	TECHNICIAN: MHB
START DATE: 2/26/03	COMPLETE DATE: 2/26/03
ROOM AMBIENT: 20°C	RELATIVE HUMIDITY: 28%
EQUIPMENT ID#: 681, 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:

PROCEDURE – Continued:

2. Test Conditions:

    a) Test Current : 10 milliamps
    b) Open Circuit Voltage : 20 millivolts

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.
D-A-1	52.5	63.3	45.1
D-A-2	56.9	67.7	52.1
D-A-3	56.3	63.3	52.8
D-A-4	51.4	58.8	46.8
D-A-5	58.9	68.4	54.2
D-A-6	54.2	64.4	48.3
D-A-7	51.2	55.9	48.3
D-A-8	51.8	58.6	48.1

2. See data files 203024A09 through 203024A16 for individual data points.

PROJECT NO.: 203024A-1	SPECIFICATION: TC033-0078
PART NO.: MEC8-130-01-L-D-EM2	PART DESCRIPTION: MEC8-EM Connectors
SAMPLE SIZE: ID# D-A-1, D-A-2, D-A-3, D-A-4, D-A-5, D-A-6, D-A-7, D-A-8	TECHNICIAN: MHB/MAG
START DATE: 2/27/03	COMPLETE DATE: 2/27/03
ROOM AMBIENT: 20°C	RELATIVE HUMIDITY: 28%
EQUIPMENT ID#: 20, 213, 558, 673	

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 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. 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
D-A-1	+1.0	+3.0
D-A-2	+2.5	+8.4
D-A-3	+0.7	+2.0
D-A-4	+0.9	+1.4
D-A-5	+1.0	+1.5
D-A-6	+1.0	+1.5
D-A-7	+0.7	+1.9
D-A-8	+0.7	+1.5

2. See data files 203024A09 through 203024A16 for individual data points.

LLCR DATA FILES

DATA FILE NUMBERS

203024A09
203024A10
203024A11
203024A12
203024A13
203024A14
203024A15
203024A16

			Low Level Contact Resistance					
	Project:	203024A-1				Spec:	EIA 364 TP 23	
	Customer:	Samtec				Subgroup:	Seq D	
	Product:	Series MEC8-EM connector				File #:	203024A09	
	Description: Sample ID# D-A-1							
	Open circuit voltage:		20mv			Current:	100ma	
				Delta values				
				units: milliohms				
	Temp ºC	20	20					
	R.H. %	28	28					
	Date:	26Feb03	27Feb03					
	Pos. ID	Initial	Gas Tight					
	1	48.3	3.0					
	3	49.0	1.0					
	5	47.7	0.8					
	7	48.0	0.4					
	9	45.9	0.7					
	11	46.0	0.5					
	13	45.1	0.8					
	15	45.9	1.1					
	17	46.2	0.3					
	19	48.0	1.1					
	21	48.3	0.9					
	23	51.3	0.3					
	25	52.8	0.9					
	27	63.3	1.4					
	29	61.3	2.1					
	31	58.5	0.6					
	33	56.4	1.1					
	35	55.2	0.7					
	37	53.3	1.3					
	39	54.1	0.5					
	41	54.5	1.2					
	43	54.9	0.8					
	45	56.7	1.0					
	47	59.3	2.0					
	49	61.6	1.4					
	MAX	63.3	3.0					
	MIN	45.1	0.3					
	AVG	52.5	1.0					
	STD	5.6	0.6					
	Open	0	0					
	Tech	MHB	MAG					
	Equip ID	681	673					
		1045	558					

			Low Level Contact Resistance					
	Project:	203024A-1				Spec:	EIA 364 TP 23	
	Customer:	Samtec				Subgroup:	Seq D	
	Product:	Series MEC8-EM connector				File #:	203024A10	
	Description: Sample ID# D-A-2							
	Open circuit voltage:		20mv			Current:	100ma	
				Delta values				
				units: milliohms				
	Temp ºC	20	20					
	R.H. %	28	28					
	Date:	26Feb03	27Feb03					
	Pos. ID	Initial	Gas Tight					
	1	58.2	1.7					
	3	56.4	1.9					
	5	54.9	2.0					
	7	54.4	0.9					
	9	52.2	1.4					
	11	52.1	0.8					
	13	52.1	0.6					
	15	52.2	4.6					
	17	53.3	0.7					
	19	54.6	5.8					
	21	54.8	1.4					
	23	56.8	1.4					
	25	58.6	1.1					
	27	67.7	6.3					
	29	63.6	2.9					
	31	60.0	1.4					
	33	58.1	1.0					
	35	56.6	1.4					
	37	55.0	1.3					
	39	54.9	1.3					
	41	55.3	7.1					
	43	56.2	1.6					
	45	58.4	1.5					
	47	61.6	8.4					
	49	64.0	2.8					
	MAX	67.7	8.4					
	MIN	52.1	0.6					
	AVG	56.9	2.5					
	STD	4.0	2.2					
	Open	0	0					
	Tech	MHB	MAG					
	Equip ID	681	673					
		1045	558					

			Low Level Contact Resistance					
	Project:	203024A-1				Spec:	EIA 364 TP 23	
	Customer:	Samtec				Subgroup:	Seq D	
	Product:	Series MEC8-EM connector				File #:	203024A11	
	Description: Sample ID# D-A-3							
	Open circuit voltage:		20mv			Current:	100ma	
				Delta values				
				units: milliohms				
	Temp ºC	20	20					
	R.H. %	28	28					
	Date:	26Feb03	27Feb03					
	Pos. ID	Initial	Gas Tight					
	1	62.0	0.5					
	3	59.7	0.5					
	5	56.7	0.5					
	7	55.7	-3.7					
	9	53.1	0.7					
	11	52.8	0.6					
	13	53.8	-0.3					
	15	53.0	0.5					
	17	53.3	0.7					
	19	54.8	1.0					
	21	55.7	1.1					
	23	57.7	1.4					
	25	59.0	1.0					
	27	63.3	1.1					
	29	60.8	0.9					
	31	57.3	1.2					
	33	54.6	2.0					
	35	54.6	0.8					
	37	53.0	0.7					
	39	53.7	0.7					
	41	53.5	1.1					
	43	54.5	0.9					
	45	56.4	0.7					
	47	58.9	1.2					
	49	60.6	1.5					
	MAX	63.3	2.0					
	MIN	52.8	-3.7					
	AVG	56.3	0.7					
	STD	3.1	1.0					
	Open	0	0					
	Tech	MHB	MAG					
	Equip ID	681	673					
		1045	558					

			Low Level Contact Resistance					
	Project:	203024A-1				Spec:	EIA 364 TP 23	
	Customer:	Samtec				Subgroup:	Seq D	
	Product:	Series MEC8-EM connector				File #:	203024A12	
	Description: Sample ID# D-A-4							
	Open circuit voltage:		20mv			Current:	100ma	
				Delta values				
				units: milliohms				
	Temp ºC	20	20					
	R.H. %	28	28					
	Date:	26Feb03	27Feb03					
	Pos. ID	Initial	Gas Tight					
	1	52.6	0.9					
	3	51.3	0.8					
	5	51.3	0.0					
	7	50.0	0.3					
	9	47.5	0.8					
	11	47.4	0.6					
	13	46.8	0.7					
	15	47.2	0.7					
	17	47.6	0.6					
	19	48.9	0.8					
	21	50.0	0.6					
	23	51.3	0.6					
	25	52.7	0.9					
	27	58.8	1.4					
	29	57.4	1.0					
	31	54.4	1.0					
	33	52.4	1.2					
	35	51.6	0.9					
	37	50.0	1.2					
	39	50.0	1.3					
	41	50.4	1.3					
	43	51.1	1.1					
	45	52.1	1.2					
	47	55.1	1.2					
	49	56.1	1.3					
	MAX	58.8	1.4					
	MIN	46.8	0.0					
	AVG	51.4	0.9					
	STD	3.2	0.3					
	Open	0	0					
	Tech	MHB	MAG					
	Equip ID	681	673					
		1045	558					

			Low Level Contact Resistance					
	Project:	203024A-1				Spec:	EIA 364 TP 23	
	Customer:	Samtec				Subgroup:	Seq D	
	Product:	Series MEC8-EM connector				File #:	203024A13	
	Description: Sample ID# D-A-5							
	Open circuit voltage:		20mv			Current:	100ma	
				Delta values				
				units: milliohms				
	Temp ºC	20	20					
	R.H. %	28	28					
	Date:	26Feb03	27Feb03					
	Pos. ID	Initial	Gas Tight					
	1	65.3	1.1					
	3	63.7	0.8					
	5	60.7	0.8					
	7	59.6	0.6					
	9	55.9	0.9					
	11	55.4	0.8					
	13	54.2	0.9					
	15	54.8	0.8					
	17	55.2	0.6					
	19	57.1	0.8					
	21	57.7	0.8					
	23	59.2	1.5					
	25	60.6	1.0					
	27	68.4	1.5					
	29	65.3	1.2					
	31	61.1	1.2					
	33	58.8	0.9					
	35	56.9	1.0					
	37	55.1	1.1					
	39	55.3	0.9					
	41	55.4	1.1					
	43	56.2	1.1					
	45	57.3	1.2					
	47	60.8	1.4					
	49	62.3	1.5					
	MAX	68.4	1.5					
	MIN	54.2	0.6					
	AVG	58.9	1.0					
	STD	3.8	0.3					
	Open	0	0					
	Tech	MHB	MAG					
	Equip ID	681	673					
		1045	558					

			Low Level Contact Resistance					
	Project:	203024A-1				Spec:	EIA 364 TP 23	
	Customer:	Samtec				Subgroup:	Seq D	
	Product:	Series MEC8-EM connector				File #:	203024A14	
	Description: Sample ID# D-A-6							
	Open circuit voltage:		20mv			Current:	100ma	
				Delta values				
				units: milliohms				
	Temp ºC	20	20					
	R.H. %	28	28					
	Date:	26Feb03	27Feb03					
	Pos. ID	Initial	Gas Tight					
	1	53.7	1.5					
	3	52.9	0.9					
	5	51.9	0.6					
	7	51.1	0.3					
	9	49.4	0.4					
	11	48.6	0.7					
	13	48.9	0.2					
	15	48.3	1.5					
	17	49.0	1.1					
	19	51.0	0.9					
	21	52.2	1.2					
	23	53.7	0.8					
	25	55.2	1.1					
	27	61.3	1.2					
	29	59.5	1.1					
	31	56.5	0.6					
	33	54.6	0.8					
	35	53.5	1.3					
	37	53.5	0.9					
	39	54.4	0.7					
	41	55.5	1.1					
	43	56.1	1.5					
	45	58.3	1.1					
	47	62.2	1.2					
	49	64.4	1.3					
	MAX	64.4	1.5					
	MIN	48.3	0.2					
	AVG	54.2	1.0					
	STD	4.3	0.4					
	Open	0	0					
	Tech	MHB	MAG					
	Equip ID	681	673					
		1045	558					

			Low Level Contact Resistance					
	Project:	203024A-1				Spec:	EIA 364 TP 23	
	Customer:	Samtec				Subgroup:	Seq D	
	Product:	Series MEC8-EM connector				File #:	203024A15	
	Description: Sample ID# D-A-7							
	Open circuit voltage:		20mv			Current:	100ma	
				Delta values				
				units: milliohms				
	Temp ºC	20	20					
	R.H. %	28	28					
	Date:	26Feb03	27Feb03					
	Pos. ID	Initial	Gas Tight					
	1	54.7	0.6					
	3	53.5	0.7					
	5	51.8	1.9					
	7	51.1	0.5					
	9	49.5	0.5					
	11	49.3	0.5					
	13	50.7	-1.5					
	15	49.4	-0.1					
	17	48.9	1.5					
	19	50.4	0.6					
	21	50.8	0.7					
	23	52.2	1.0					
	25	53.4	0.9					
	27	54.2	1.0					
	29	53.2	0.8					
	31	50.6	0.9					
	33	48.9	0.4					
	35	48.5	0.5					
	37	48.6	-0.1					
	39	48.3	0.9					
	41	49.1	1.0					
	43	50.2	1.0					
	45	51.3	1.5					
	47	54.7	0.8					
	49	55.9	1.6					
	MAX	55.9	1.9					
	MIN	48.3	-1.5					
	AVG	51.2	0.7					
	STD	2.2	0.7					
	Open	0	0					
	Tech	MHB	MAG					
	Equip ID	681	673					
		1045	558					

			Low Level Contact Resistance					
	Project:	203024A-1				Spec:	EIA 364 TP 23	
	Customer:	Samtec				Subgroup:	Seq D	
	Product:	Series MEC8-EM connector				File #:	203024A16	
	Description: Sample ID# D-A-8							
	Open circuit voltage:		20mv			Current:	100ma	
				Delta values				
				units: milliohms				
	Temp ºC	20	20					
	R.H. %	28	28					
	Date:	26Feb03	27Feb03					
	Pos. ID	Initial	Gas Tight					
	1	54.0	0.7					
	3	53.0	0.3					
	5	51.8	0.4					
	7	50.6	0.7					
	9	49.0	0.5					
	11	48.7	0.4					
	13	48.1	0.2					
	15	48.7	0.9					
	17	48.5	0.8					
	19	50.7	0.6					
	21	51.3	0.7					
	23	53.3	0.5					
	25	53.7	1.5					
	27	55.9	1.1					
	29	54.6	1.2					
	31	52.1	0.9					
	33	50.5	0.9					
	35	49.8	1.0					
	37	49.4	1.2					
	39	51.2	-0.4					
	41	50.5	0.7					
	43	51.6	1.0					
	45	53.4	0.7					
	47	56.6	1.0					
	49	58.6	0.7					
	MAX	58.6	1.5					
	MIN	48.1	-0.4					
	AVG	51.8	0.7					
	STD	2.7	0.4					
	Open	0	0					
	Tech	MHB	MAG					
	Equip ID	681	673					
		1045	558					