MAY 4, 2007

TEST REPORT #207132

CLM/FTMH SERIES CONNECTOR TESTING

PART NUMBER

CLM-125-02-L-D-PA
FTMH-125-02-L-DV-A

SAMTEC, INC.

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

ilac-MRA 1478 - 01 ACCREDITED Test Laboratory 1478 - 02

Contech Research
An Independent Test and Research Laboratory

REVISION HISTORY

DATE	REV. NO.	DESCRIPTION	ENG.
5/4/07	1.0	Initial Issue	TP

CERTIFICATION

This is to certify that the CLM/FTMH 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, ANSI/NCSL Z540-1 and MIL-STD-45662 as applicable.

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

Thomas Peel
President and
Director of Test Program Development
Contech Research, Inc.

TP:cm

SCOPE

To perform qualification testing on the CLM/FTMH series connector as manufactured and submitted by the test sponsor Samtec, Inc.

APPLICABLE DOCUMENTS

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

2. Samtec Specifications: TC0625-1072

3. Standards: EIA Publication 364

TEST SAMPLES AND PREPARATION

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

	Description	Part Number
a)	Receptacle Connector	CLM-125-02-L-D-PA
b)	Plug Connector	FTMH-125-02-L-D-A

2. Test samples were supplied assembled and terminated to test boards by the test sponsor. Specific test boards were designed for the following tests:
   - IR/DWV
   - LLCR
   - Nanosecond Event Detection

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

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

5. The samples were fitted with spacers to maintain stability throughout testing.

TEST SELECTION

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

TEST SELECTION –continued

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:

Seq 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
Seq B: Group A1 - B-A-1, B-A-2, B-A-3, B-A-4, B-A-5, B-A-6, B-A-7, B-A-8
Seq C: Group A - C-A-1, C-A-2, C-A-3, C-A-4, C-A-5, C-A-6, C-A-7, C-A-8
Seq D: Group A - D-A-1, D-A-2, D-A-3

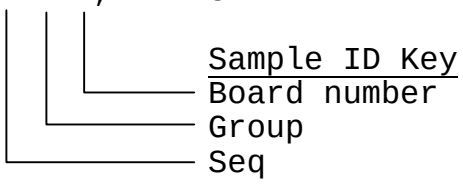
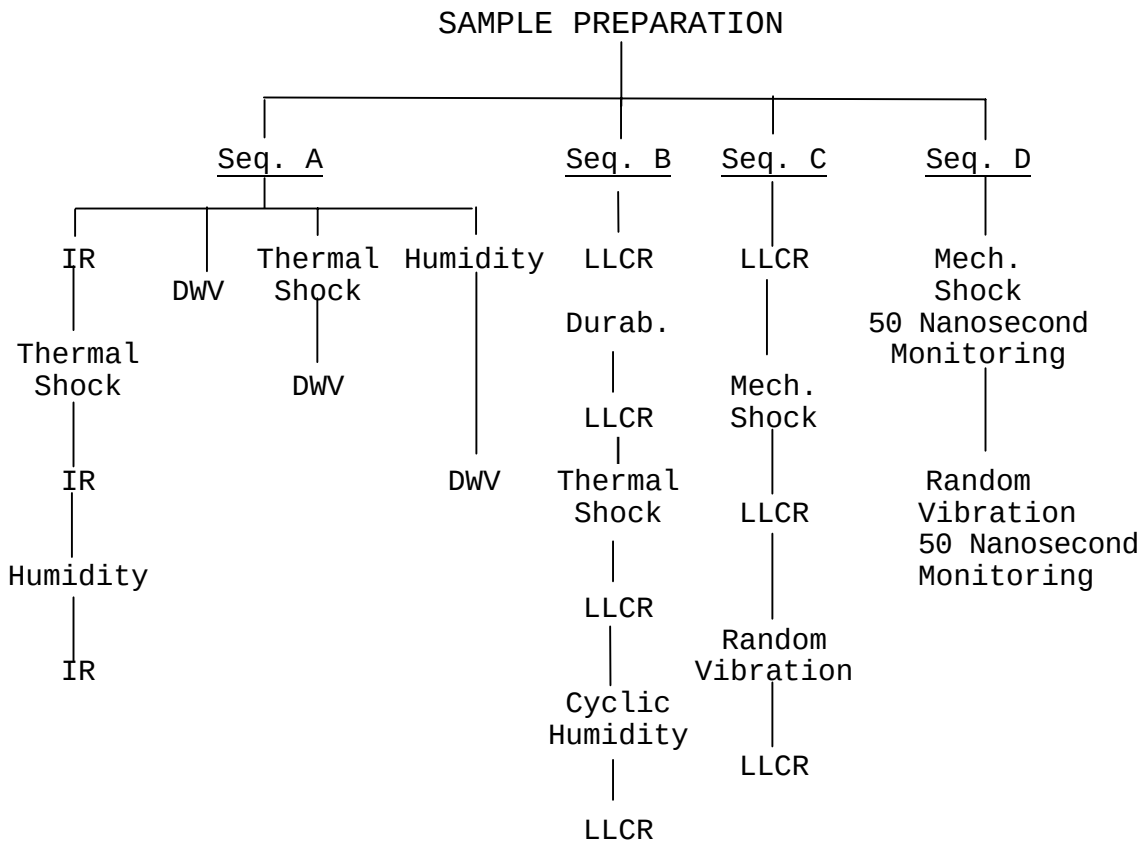


FIGURE #1

TEST PLAN FLOW DIAGRAM



Group A	Group B1	Group B2	Group B3	Group A	Group A	Group A

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.	>50,000 Megohms
Thermal Shock	No Damage	Passed
Insulation Resistance	1000 Megohms Min.	>50,000 Megohms
Humidity	No Damage	Passed
Insulation Resistance	1000 Megohms Min.	>1,400 Megohms
GROUP B1		
DWV	900 VAC	Passed
GROUP B2		
Thermal Shock	No Damage	Passed
DWV	900 VAC	Passed
GROUP B3		
Humidity	No Damage	Passed
DWV	900 VAC	Passed
SEQUENCE B		
LLCR	Record	12.0 mΩ Max.
Durability	No Damage	Passed
LLCR	+10.0 mΩ Max.Chg.	+1.7 mΩ Max.Chg.
Thermal Shock	No Damage	Passed
LLCR	+10.0 mΩ Max.Chg.	+1.5 mΩ Max.Chg.
Cyclic Humidity	No Damage	Passed
LLCR	+10.0 mΩ Max.Chg.	+2.2 mΩ Max.Chg.
SEQUENCE C		
GROUP A		
LLCR	Record	11.1 mΩ Max.
Mechanical Shock	No Damage	Passed
LLCR	+10.0 mΩ Max.Chg.	+2.1 mΩ Max.Chg.
Random Vibration	No Damage	Passed
LLCR	+10.0 mΩ Max.Chg.	+9.2 mΩ Max.Chg.

DATA SUMMARY - Continued

TEST	REQUIREMENT	RESULTS
SEQUENCE D		
Mechanical Shock	No Damage	Passed
	50 Nanosecond	Passed
Random Vibration	No Damage	Passed
	50 Nanosecond	Passed

EQUIPMENT LIST

ID#	Next Cal	Last Cal	Equipment Name	Manufacturer	Model #	Serial #	Accuracy	Freq.Cal
14	6/14/2007	6/14/2006	Accelerometer	PCB Piezotronics	302A	7040	See Cal Cert	12mon
27			Temp. Humid. Chamber	Blue M Co.	FR-256PC-1	F2-249	See Cal Cert	Ea Test
192	3/6/2008	3/6/2007	Vertical Thermal Shock	Cincinnati Sub-Zero	VTS-1-5-3	88-11094	See Cal Cert	12mon
280	2/7/2008	2/7/2007	Micro-Ohm Meter	Keithley Instr.	580	477845	See Cal Cert	12mon
282			Vibration Shaker Table	Ling Dynamics	V-730	163	N/A	N/A
321	3/7/2008	3/7/2007	AC-DC Hipot/Megometer	Hipotronics Co.	H300B	DS16-201	See Cal Cert	12 mon.
466	7/20/2007	7/20/2006	Precision Resistor	Victoreen Co.	50,000 mego	N/A	± 1 %	12 mon.
476			Computer	Twilight Co.	386-33	N/A	N/A	N/A
553	1/8/2008	1/8/2007	12 channel Power Unit	PCB Co.	483A	1303	See Cal Cert	12mon
558			Computer	ARC Elect.	P111-450	274B031586	N/A	N/A
614			Oven	Tenney Co.	TH Jr.	9712-510	See Manual	Ea Test
874			Computer	M&P	Vectra	us75203327	N/A	N/A
1028	1/10/2008	1/10/2007	Event Detector	Analysis Tech	32 EHD	981019	See Cal.Cert.	12mon
1032			Computer	Magitronic	486DX4	100VL	N/A	N/A
1045	7/10/2007	7/10/2006	Microohm Meter	Keithley	580	708216	See Cal Cert	12mon
1121	5/5/2007	5/5/2006	Accelerometer	PCB	353B04	57715	See Cal. Cert.	12mon
1166	8/10/2007	8/10/2006	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
1271			Amplifier	Unholtz Dickie	SA15	3483	See Manual	N/A
1272			Shaker Table	Unholtz Dickie	S202PB	263	N/A	N/A
1314	1/24/2008	1/24/2007	Multiplexer card	Keithley Co.	7708	0862544	See CERT	12mon
1315	1/24/2008	1/24/2007	Data Aquisition Multimeter	Keithley Co.	2700	0862680	See CERT	12mon

EQUIPMENT LIST -continued

ID#	Next Cal	Last Cal	Equipment Name	Manufacturer	Model #	Serial #	Accuracy	Freq.Cal
1317			X-Y Table	Contech Research	CR-XY	01	N/A	N/A
1324			X-Y Table	Contech Research	CR-XY	03	N/A	N/A
1345			Drill Press Stand	Milescraft	5000	N/A	N/A	N/A
1361	1/24/2008	1/24/2007	Multiplexer Card	Keithley	7708	1067661	See Cal Cert	12mon
1366			Main Frame	Aiglent H.P.	8408A		N/A	N/A
1367			Interface	Aiglent H.P.	E8491A		N/A	N/A
1368	2/27/2008	2/27/2007	Sine/Rnd Control digitizer	Aiglent H.P.	E1432A	US35470169	See Manual	12mon
1369			Force Gage Stand	Chatillon	BRO	N/A	N/A	N/A
1457	12/14/2007	12/14/2006	Precision Resistor	Victorine	5KMOHM	465	See Cal Cert	12mon
1474			Vib Pwr Amp	tira	A58312	003/06	N/A	N/A

TEST RESULTS

SEQUENCE A

Group A

PROJECT NO.: 207132	SPECIFICATION: TC0625-1072
PART NO.: CLM-125-02-L-D-PA FTMH-125-02-L-D-A	PART DESCRIPTION: CLM/FTMH
SAMPLE SIZE: 2 Samples	TECHNICIAN: RJC
START DATE: 4/3/07	COMPLETE DATE: 4/3/07
ROOM AMBIENT: 23°C	RELATIVE HUMIDITY: 32%
EQUIPMENT ID#: 321, 466, 1457	

INSULATION RESISTANCE(IR)

PURPOSE:

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

PROCEDURE:

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

2. Test Conditions:

    a) Between Adjacent Contacts : Yes
    b) Between Rows : Yes
    c) Mated Condition : Mated
    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 1,000 megohms.

RESULTS:

The insulation resistance exceeded 50,000 megohms.

PROJECT NO.: 207132	SPECIFICATION: TC0625-1072
PART NO.: CLM-125-02-L-D-PA FTMH-125-02-L-D-A	PART DESCRIPTION: CLM/FTMH
SAMPLE SIZE: 2 Samples	TECHNICIAN: RJC
START DATE: 4/12/07	COMPLETE DATE: 4/18/07
ROOM AMBIENT: 23°C	RELATIVE HUMIDITY: 31%
EQUIPMENT ID#: 192, 1314, 1315, 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 1,000 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.: 207132	SPECIFICATION: TC0625-1072
PART NO.: CLM-125-02-L-D-PA FTMH-125-02-L-D-A	PART DESCRIPTION: CLM/FTMH
SAMPLE SIZE: 2 Samples	TECHNICIAN: RJC/GL
START DATE: 4/20/07	COMPLETE DATE: 5/1/07
ROOM AMBIENT: 23°C	RELATIVE HUMIDITY: 38%
EQUIPMENT ID#: 27, 321, 466, 1314, 1315, 1361, 1457	

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 1,000 megohms.

RESULTS:

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

2. The final insulation resistance exceeded 1,400 megohms.

TEST RESULTS

SEQUENCE A

Group B1

PROJECT NO.: 207132	SPECIFICATION: TC0625-1072
PART NO.: CLM-125-02-L-D-PA FTMH-125-02-L-D-A	PART DESCRIPTION: CLM/FTMH
SAMPLE SIZE: 2 Samples	TECHNICIAN: GL
START DATE: 4/18/07	COMPLETE DATE: 4/18/07
ROOM AMBIENT: 23°C	RELATIVE HUMIDITY: 31%
EQUIPMENT ID#: 321, 466, 1457	

DIELECTRIC WITHSTANDING VOLTAGE (SEA LEVEL)

PURPOSE:

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

PROCEDURE:

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

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.
g)	Test Voltage	: 900 VAC

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

REQUIREMENTS:

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

RESULTS:

All test samples as tested met the requirements as specified.

TEST RESULTS

SEQUENCE A

Group B2

PROJECT NO.: 207132	SPECIFICATION: TC0625-1072
PART NO.: CLM-125-02-L-D-PA FTMH-125-02-L-D-A	PART DESCRIPTION: CLM/FTMH
SAMPLE SIZE: 2 Samples	TECHNICIAN: GL/RJC
START DATE: 4/12/07	COMPLETE DATE: 4/18/07
ROOM AMBIENT: 22°C	RELATIVE HUMIDITY: 38%
EQUIPMENT ID#: 192, 321, 466, 1314, 1315, 1361, 1457	

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. When a 900 VAC test voltage is applied, there shall be no evidence of arcing, breakdown, etc.

RESULTS:

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

2. There was no evidence of arcing, breakdown, etc., when a 900 Vac voltage was applied.

TEST RESULTS

SEQUENCE A

Group B3

PROJECT NO.: 207132	SPECIFICATION: TC0625-1072
PART NO.: CLM-125-02-L-D-PA FTMH-125-02-L-D-A	PART DESCRIPTION: CLM/FTMH
SAMPLE SIZE: 2 Samples	TECHNICIAN: GL/RJC
START DATE: 4/20/07	COMPLETE DATE: 5/1/07
ROOM AMBIENT: 22°C	RELATIVE HUMIDITY: 38%
EQUIPMENT ID#: 27, 321, 466, 614, 1314, 1315, 1361, 1457	

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 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. There shall be no evidence of arcing or breakdown when a 900 VAC test voltage is applied.

RESULTS:

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

2. There was no evidence of breakdown, arcing, etc., when a 900 VAC test voltage was applied.

TEST RESULTS

SEQUENCE B

Group A

PROJECT NO.: 207132	SPECIFICATION: TC0625-1072
PART NO.: CLM-125-02-L-D-PA FTMH-125-02-L-D-A	PART DESCRIPTION: CLM/FTMH
SAMPLE SIZE: 8 Samples	TECHNICIAN: RJC
START DATE: 4/4/07	COMPLETE DATE: 4/4/07
ROOM AMBIENT: 23°C	RELATIVE HUMIDITY: 30%
EQUIPMENT ID#: 280, 558	

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 #2.

REQUIREMENTS:

Low level circuit resistance shall be measured and recorded.

RESULTS:

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

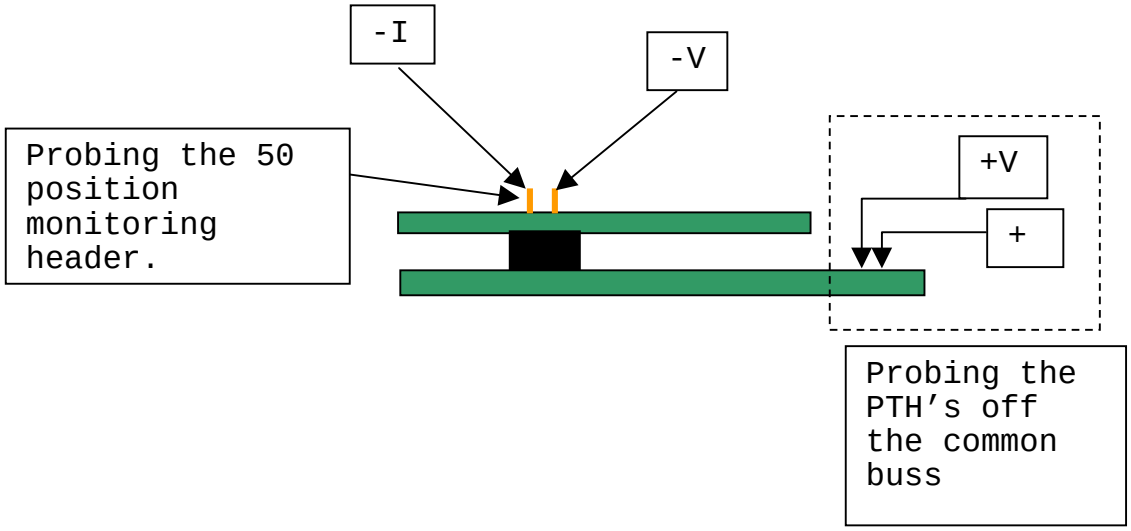
LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg.	Max.	Min.
B-A-1	10.3	11.1	8.8
B-A-2	9.3	12.0	7.4
B-A-3	8.8	9.6	7.0
B-A-4	9.1	9.7	8.1
B-A-5	8.5	9.9	6.8
B-A-6	9.9	11.0	9.0
B-A-7	9.6	11.4	7.5
B-A-8	9.3	10.1	8.8

2. See data files 20713201 through 20713208 for individual data points.

FIGURE #2

Typcial LLCR test set up



PROJECT NO.: 207132	SPECIFICATION: TC0625-1072
PART NO.: CLM-125-02-L-D-PA FTMH-125-02-L-D-A	PART DESCRIPTION: CLM/FTMH
SAMPLE SIZE: 8 Samples	TECHNICIAN: RJC
START DATE: 4/5/07	COMPLETE DATE: 4/9/07
ROOM AMBIENT: 23°C	RELATIVE HUMIDITY: 26%
EQUIPMENT ID#: 280, 558, 1317, 1324, 1345, 1369	

DURABILITY

PURPOSE:

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

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

PROCEDURE:

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

2. Test Conditions:

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

3. The test samples were assembled to special holding devices and attached to the manual cycling equipment utilizing constant speed control and counter systems.

PROCEDURE: -continued

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

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

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

REQUIREMENTS:

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

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

RESULTS:

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

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

CHANGE IN
LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg. Change	Max. Change
B-A-1	-0.9	+0.1
B-A-2	-0.9	+0.7
B-A-3	-0.5	+0.0
B-A-4	-0.8	+0.0
B-A-5	+0.1	+1.7
B-A-6	-0.9	+0.0
B-A-7	-1.0	+0.6
B-A-8	-0.4	+0.5

3. See data files 20713201 through 20713208 for individual data points.

PROJECT NO.: 207132	SPECIFICATION: TC0625-1072
PART NO.: CLM-125-02-L-D-PA FTMH-125-02-L-D-A	PART DESCRIPTION: CLM/FTMH
SAMPLE SIZE: 8 Samples	TECHNICIAN: LL
START DATE: 4/12/07	COMPLETE DATE: 4/17/07
ROOM AMBIENT: 22°C	RELATIVE HUMIDITY: 38%
EQUIPMENT ID#: 192, 476, 1045, 1314, 1315, 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 were performed continuously.

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

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

REQUIREMENTS: See next page.

REQUIREMENTS:

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

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

RESULTS:

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

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

CHANGE IN
LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg. Change	Max. Change
B-A-1	-1.0	-0.2
B-A-2	-0.7	+0.7
B-A-3	-0.4	+0.9
B-A-4	-0.8	-0.2
B-A-5	+0.1	+1.5
B-A-6	-1.1	-0.4
B-A-7	-1.0	+0.5
B-A-8	-0.4	+0.0

3. See data files 20713201 through 20713208 for individual data points.

PROJECT NO.: 207132	SPECIFICATION: TC0625-1072
PART NO.: CLM-125-02-L-D-PA FTMH-125-02-L-D-A	PART DESCRIPTION: CLM/FTMH
SAMPLE SIZE: 8 Samples	TECHNICIAN: RJC
START DATE: 4/20/07	COMPLETE DATE: 5/1/07
ROOM AMBIENT: 22°C	RELATIVE HUMIDITY: 38%
EQUIPMENT ID#: 27, 280, 558, 614, 1314, 1315, 1361	

HUMIDITY (THERMAL CYCLING)

PURPOSE:

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

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

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

c) Failure mechanisms resulting from a wet oxidation process.

PROCEDURE:

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

2. Test Conditions:

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

PROCEDURE: -continued

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

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

REQUIREMENTS:

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

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

RESULTS:

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

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

CHANGE IN
LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg. Change	Max. Change
B-A-1	-1.0	-0.2
B-A-2	-0.8	+0.7
B-A-3	-0.3	+0.9
B-A-4	-0.9	-0.3
B-A-5	+0.0	+1.7
B-A-6	-1.3	-0.4
B-A-7	-1.0	+0.8
B-A-8	+0.5	+2.2

3. See data files 20713201 through 20713208 for individual data points.

LLCR DATA FILES

DATA FILE NUMBERS

20713201
20713202
20713203
20713204
20713205
20713206
20713207
20713208

		Low Level Contact Resistance				
Project:	207132				Spec:	EIA 364, TP 23
Customer:	Samtec (1072)				Subgroup:	Seq B
Product:	Series CLP/FTSH connector				File #:	20713201
Description:	ID# B-A-1					
Open circuit voltage:		20mv			Current:	10 ma
			Delta values			
			units: milliohms			
Temp ºC	23	23	23	22		
R.H. %	30	26	32	38		
Date:	04Apr07	09Apr07	17Apr07	01May07		
Pos. ID	Initial	After 100X	Th. Shock	Cy Humid		
		Durability				
1	9.6	-0.6	-0.7	-0.6		
2	9.8	-0.7	-0.7	-0.5		
3	9.8	-0.6	-0.9	-1.0		
4	10.0	-0.9	-1.2	-1.2		
5	9.7	-0.3	-0.8	-0.8		
9	10.3	-0.2	-0.2	-0.2		
10	10.5	-0.1	-0.3	-0.2		
11	10.5	0.1	-0.3	-0.2		
12	10.6	-0.6	-0.6	-0.6		
13	11.1	-1.1	-1.1	-1.2		
14	10.7	-1.3	-1.3	-1.3		
15	11.0	-2.0	-2.0	-2.1		
16	10.4	-1.3	-1.5	-1.4		
17	10.6	-1.5	-1.6	-1.7		
18	10.4	-1.7	-1.8	-1.6		
19	9.4	-0.6	-1.0	-0.5		
20	9.2	-1.4	-1.6	-1.5		
21	11.1	-1.3	-1.4	-1.3		
22	10.8	-1.0	-1.0	-0.9		
23	10.6	-0.6	-0.8	-0.8		
24	10.8	-0.6	-0.8	-0.6		
25	8.8	-0.7	-0.8	-0.6		
MAX	11.1	0.1	-0.2	-0.2		
MIN	8.8	-2.0	-2.0	-2.1		
AVG	10.3	-0.9	-1.0	-1.0		
STD	0.6	0.5	0.5	0.5		
Open	0	0	0	0		
Tech	RJC	RJC	LL	RJC		
Equip ID	280	280	1045	280		
	558	558	476	558		

		Low Level Contact Resistance				
Project:	207132				Spec:	EIA 364, TP 23
Customer:	Samtec (1072)				Subgroup:	Seq B
Product:	Series CLP/FTSH connector				File #:	20713202
Description:	ID# B-A-2					
Open circuit voltage:		20mv			Current:	10 ma
			Delta values			
			units: milliohms			
Temp ºC	23	23	23	22		
R.H. %	30	26	32	38		
Date:	04Apr07	09Apr07	17Apr07	01May07		
Pos. ID	Initial	After 100X	Th. Shock	Cy Humid		
		Durability				
1	10.3	-1.0	-1.0	-1.0		
2	10.2	-1.0	-1.0	-1.1		
3	10.0	-0.5	-0.4	-1.1		
4	9.9	-0.6	-0.6	-0.7		
5	9.8	-0.6	-0.5	-0.5		
9	9.2	-0.6	-0.6	-0.6		
10	8.5	-0.3	-0.4	-0.4		
11	12.0	-1.3	-1.2	-1.5		
12	7.4	0.7	0.7	0.7		
13	7.6	0.6	0.4	0.4		
14	9.2	-1.5	-1.1	-1.3		
15	9.0	-2.0	-1.5	-1.4		
16	9.0	-2.3	-2.0	-1.9		
17	9.0	-2.2	-1.3	-1.4		
18	9.0	-0.8	-1.0	-1.1		
19	8.6	-0.9	-0.7	-0.7		
20	8.6	-0.9	-0.9	-0.9		
21	9.8	-0.6	-0.6	-0.6		
22	10.0	-1.0	-0.8	-0.7		
23	9.8	-0.6	-0.6	-0.5		
24	9.7	-0.6	-0.3	-0.4		
25	8.6	-1.1	-0.9	-1.0		
MAX	12.0	0.7	0.7	0.7		
MIN	7.4	-2.3	-2.0	-1.9		
AVG	9.3	-0.9	-0.7	-0.8		
STD	1.0	0.7	0.6	0.6		
Open	0	0	0	0		
Tech	RJC	RJC	LL	RJC		
Equip ID	280	280	1045	280		
	558	558	476	558		

		Low Level Contact Resistance				
Project:	207132				Spec:	EIA 364, TP 23
Customer:	Samtec (1072)				Subgroup:	Seq B
Product:	Series CLP/FTSH connector				File #:	20713203
Description:	ID# B-A-3					
Open circuit voltage:		20mv			Current:	10 ma
			Delta values			
			units: milliohms			
Temp ºC	23	23	23	22		
R.H. %	30	26	32	38		
Date:	04Apr07	09Apr07	17Apr07	01May07		
Pos. ID	Initial	After 100X	Th. Shock	Cy Humid		
		Durability				
1	8.8	-0.4	-0.3	-0.2		
2	9.1	-0.4	-0.4	-0.4		
3	8.9	-0.6	-0.5	-0.2		
4	9.5	-0.6	-0.5	-0.6		
5	8.4	-1.2	-1.0	-0.8		
9	9.1	-0.7	-0.6	-0.5		
10	9.1	-0.5	-0.5	-0.4		
11	9.4	-0.7	-0.7	-0.7		
12	9.3	-0.6	-0.5	-0.6		
13	9.3	-0.7	-0.7	-0.7		
14	9.4	-0.8	-0.8	-0.8		
15	9.0	-0.7	-0.7	-0.6		
16	9.0	-0.3	-0.5	-0.7		
17	7.1	0.0	0.3	0.9		
18	7.1	-0.2	0.3	0.4		
19	7.0	-0.1	0.8	0.5		
20	7.1	-0.1	0.9	0.6		
21	9.5	-0.5	-0.6	-0.5		
22	9.6	-0.6	-0.6	-0.5		
23	9.4	-0.4	-0.5	-0.3		
24	9.4	-0.6	-0.6	-0.6		
25	8.7	-0.5	-0.4	-0.5		
MAX	9.6	0.0	0.9	0.9		
MIN	7.0	-1.2	-1.0	-0.8		
AVG	8.8	-0.5	-0.4	-0.3		
STD	0.9	0.3	0.5	0.5		
Open	0	0	0	0		
Tech	RJC	RJC	LL	RJC		
Equip ID	280	280	1045	280		
	558	558	476	558		

		Low Level Contact Resistance				
Project:	207132				Spec:	EIA 364, TP 23
Customer:	Samtec (1072)				Subgroup:	Seq B
Product:	Series CLP/FTSH connector				File #:	20713204
Description:	ID# B-A-4					
Open circuit voltage:		20mv			Current:	10 ma
			Delta values			
			units: milliohms			
Temp ºC	23	23	23	22		
R.H. %	30	26	32	38		
Date:	04Apr07	09Apr07	17Apr07	01May07		
Pos. ID	Initial	After 100X	Th. Shock	Cy Humid		
		Durability				
1	8.3	-0.6	-0.5	-0.5		
2	9.0	-0.5	-0.6	-0.6		
3	8.1	-1.2	-0.3	-1.1		
4	8.6	-1.6	-1.1	-1.6		
5	9.3	-1.9	-1.1	-1.3		
9	9.0	-0.3	-0.4	-0.3		
10	9.1	-0.6	-0.7	-0.6		
11	9.2	-0.7	-0.9	-0.9		
12	8.8	-0.3	-0.4	-0.4		
13	9.3	-0.9	-0.9	-1.1		
14	9.3	-0.6	-0.7	-0.7		
15	9.6	-1.0	-1.0	-1.5		
16	9.6	-0.9	-0.9	-1.9		
17	9.5	-0.8	-0.9	-1.6		
18	9.7	-1.1	-1.2	-1.2		
19	9.6	-0.7	-0.9	-0.9		
20	9.3	-0.6	-0.8	-0.9		
21	9.3	-0.6	-0.9	-0.8		
22	9.2	-0.8	-0.9	-0.9		
23	8.6	-0.7	-0.5	-0.7		
24	9.0	0.0	-0.2	-0.4		
25	9.3	-0.8	-0.8	-0.8		
MAX	9.7	0.0	-0.2	-0.3		
MIN	8.1	-1.9	-1.2	-1.9		
AVG	9.1	-0.8	-0.8	-0.9		
STD	0.4	0.4	0.3	0.4		
Open	0	0	0	0		
Tech	RJC	RJC	LL	RJC		
Equip ID	280	280	1045	280		
	558	558	476	558		

		Low Level Contact Resistance				
Project:	207132				Spec:	EIA 364, TP 23
Customer:	Samtec (1072)				Subgroup:	Seq B
Product:	Series CLP/FTSH connector				File #:	20713205
Description:	ID# B-A-5					
Open circuit voltage:		20mv			Current:	10 ma
			Delta values			
			units: milliohms			
Temp ºC	23	23	23	22		
R.H. %	30	26	32	38		
Date:	04Apr07	09Apr07	17Apr07	01May07		
Pos. ID	Initial	After 100X	Th. Shock	Cy Humid		
		Durability				
1	7.8	0.4	0.2	-0.2		
2	8.3	-0.1	-0.2	-0.2		
3	8.4	-0.3	-0.4	-0.5		
4	8.6	-0.9	0.0	-0.2		
5	9.5	-0.1	-0.2	-0.3		
9	9.1	0.0	0.1	-0.1		
10	9.3	-0.2	-0.4	-0.3		
11	9.5	-0.5	-0.7	-0.8		
12	8.1	-0.6	0.4	-1.4		
13	9.7	-0.8	-0.9	-1.0		
14	6.9	1.1	1.5	1.7		
15	6.9	1.1	1.1	1.2		
16	7.1	1.7	1.4	1.7		
17	7.6	0.1	0.2	0.3		
18	7.4	0.7	0.5	0.7		
19	7.5	0.4	0.3	0.4		
20	8.2	-0.4	-0.5	-0.4		
21	9.7	-0.2	-0.3	-0.3		
22	9.8	-0.4	-0.5	-0.5		
23	9.9	0.1	-0.1	0.1		
24	9.9	-0.2	-0.5	-0.6		
25	6.8	1.5	1.0	0.9		
MAX	9.9	1.7	1.5	1.7		
MIN	6.8	-0.9	-0.9	-1.4		
AVG	8.5	0.1	0.1	0.0		
STD	1.1	0.7	0.7	0.8		
Open	0	0	0	0		
Tech	RJC	RJC	LL	RJC		
Equip ID	280	280	1045	280		
	558	558	476	558		

		Low Level Contact Resistance				
Project:	207132				Spec:	EIA 364, TP 23
Customer:	Samtec (1072)				Subgroup:	Seq B
Product:	Series CLP/FTSH connector				File #:	20713206
Description:	ID# B-A-6					
Open circuit voltage:		20mv			Current:	10 ma
			Delta values			
			units: milliohms			
Temp ºC	23	23	23	22		
R.H. %	30	26	32	38		
Date:	04Apr07	09Apr07	17Apr07	01May07		
Pos. ID	Initial	After 100X	Th. Shock	Cy Humid		
		Durability				
1	9.0	0.0	-0.5	-0.6		
2	9.8	-0.5	-1.1	-1.2		
3	9.5	-0.1	-0.5	-0.8		
4	9.9	-0.4	-1.2	-1.3		
5	10.3	-1.1	-1.6	-1.8		
9	9.6	-0.4	-0.7	-0.7		
10	10.2	-0.6	-1.2	-1.3		
11	10.2	-1.2	-1.3	-1.4		
12	10.8	-1.0	-1.8	-1.9		
13	10.3	-0.8	-1.2	-1.2		
14	11.0	-2.2	-1.5	-2.3		
15	10.1	-1.0	-1.0	-1.1		
16	10.6	-1.7	-1.7	-1.7		
17	10.3	-1.6	-1.7	-1.8		
18	10.0	-1.1	-1.4	-1.4		
19	10.1	-1.4	-1.5	-1.5		
20	9.1	-0.6	-0.6	-0.6		
21	10.1	-1.3	-1.4	-1.6		
22	10.1	-1.1	-1.4	-1.5		
23	9.5	-0.7	-0.8	-0.9		
24	9.3	-0.5	-0.6	-0.7		
25	9.0	-0.3	-0.4	-0.4		
MAX	11.0	0.0	-0.4	-0.4		
MIN	9.0	-2.2	-1.8	-2.3		
AVG	9.9	-0.9	-1.1	-1.3		
STD	0.5	0.5	0.4	0.5		
Open	0	0	0	0		
Tech	RJC	RJC	LL	RT		
Equip ID	280	280	1045	558		
	558	558	476	280		

		Low Level Contact Resistance				
Project:	207132				Spec:	EIA 364, TP 23
Customer:	Samtec (1072)				Subgroup:	Seq B
Product:	Series CLP/FTSH connector				File #:	20713207
Description:	ID# B-A-7					
Open circuit voltage:		20mv			Current:	10 ma
			Delta values			
			units: milliohms			
Temp ºC	23	23	23	22		
R.H. %	30	26	32	38		
Date:	04Apr07	09Apr07	17Apr07	01May07		
Pos. ID	Initial	After 100X	Th. Shock	Cy Humidity		
		Durability				
1	10.1	-0.8	-1.1	-1.1		
2	10.3	-0.8	-0.8	-1.1		
3	9.9	-0.7	-0.8	-0.8		
4	9.8	-0.5	-0.8	-0.7		
5	10.5	-1.1	-1.4	-1.5		
9	7.9	0.2	-0.3	0.1		
10	7.5	0.6	0.5	0.8		
11	7.9	0.0	-0.1	0.2		
12	8.7	-0.2	-0.3	0.0		
13	8.8	-0.3	-0.3	-0.1		
14	10.2	-2.3	-1.5	-1.8		
15	8.6	-1.4	-0.9	-0.8		
16	9.6	-2.2	-1.2	-1.3		
17	11.4	-3.6	-2.9	-2.9		
18	9.8	-1.3	-1.4	-1.5		
19	10.0	-1.1	-1.4	-1.3		
20	10.5	-1.5	-1.9	-1.8		
21	10.3	-1.1	-1.4	-1.4		
22	10.0	-0.9	-1.0	-1.1		
23	10.5	-1.1	-1.5	-1.6		
24	10.1	-0.9	-1.2	-1.1		
25	9.5	-0.4	-0.8	-0.8		
MAX	11.4	0.6	0.5	0.8		
MIN	7.5	-3.6	-2.9	-2.9		
AVG	9.6	-1.0	-1.0	-1.0		
STD	1.0	0.9	0.7	0.8		
Open	0	0	0	0		
Tech	RJC	RJC	LL	GL		
Equip ID	280	280	1045	207		
	558	558	476	400		

		Low Level Contact Resistance				
Project:	207132				Spec:	EIA 364, TP 23
Customer:	Samtec (1072)				Subgroup:	Seq B
Product:	Series CLP/FTSH connector				File #:	20713208
Description:	ID# B-A-8					
Open circuit voltage:		20mv			Current:	10 ma
			Delta values			
			units: milliohms			
Temp ºC	23	23	23	22		
R.H. %	30	26	32	38		
Date:	04Apr07	09Apr07	17Apr07	01May07		
Pos. ID	Initial	After 100X	Th. Shock	Cy-Humid		
		Durability				
1	9.1	-0.1	-0.3	0.0		
2	9.2	-0.3	-0.1	2.1		
3	9.2	-0.4	-0.2	0.1		
4	9.5	-0.4	-0.4	-0.2		
5	9.5	-0.4	0.0	0.2		
9	8.8	0.5	-0.1	0.1		
10	9.5	-0.5	-0.6	-0.1		
11	9.5	-0.5	-0.5	-0.3		
12	9.6	-0.7	-0.7	-0.6		
13	9.6	-0.1	-0.3	1.3		
14	9.2	-0.5	-0.3	0.3		
15	9.3	-0.5	-0.6	0.6		
16	9.0	-0.4	-0.4	0.4		
17	9.1	0.2	-0.4	1.9		
18	9.2	-0.6	-0.7	0.7		
19	9.0	-0.4	-0.4	1.6		
20	8.9	-0.5	-0.5	-0.1		
21	9.8	-0.3	-0.7	0.3		
22	10.1	-1.0	-1.0	2.2		
23	9.6	-0.5	-0.4	0.7		
24	9.3	-0.3	-0.2	0.2		
25	8.8	-0.3	-0.3	0.1		
MAX	10.1	0.5	0.0	2.2		
MIN	8.8	-1.0	-1.0	-0.6		
AVG	9.3	-0.4	-0.4	0.5		
STD	0.3	0.3	0.2	0.8		
Open	0	0	0	0		
Tech	RJC	RJC	LL	S.Rath		
Equip ID	280	280	1045	244		
	558	558	476	1032		

TEST RESULTS

SEQUENCE C

Group A

PROJECT NO.: 207132	SPECIFICATION: TC0625-1072
PART NO.: CLM-125-02-L-D-PA FTMH-125-02-L-D-A	PART DESCRIPTION: CLM/FTMH
SAMPLE SIZE: 8 Samples	TECHNICIAN: RJC
START DATE: 4/12/07	COMPLETE DATE: 4/12/07
ROOM AMBIENT: 23°C	RELATIVE HUMIDITY: 26%
EQUIPMENT ID#: 280, 558	

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 #2.

REQUIREMENTS:

Low level circuit resistance shall be measured and recorded.

RESULTS:

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

LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg.	Max.	Min.
C-A-1	9.5	10.1	8.3
C-A-2	8.7	10.0	6.4
C-A-3	8.9	9.5	7.3
C-A-4	8.7	9.4	6.9
C-A-5	9.6	10.1	8.9
C-A-6	8.4	9.5	4.7
C-A-7	9.4	11.1	7.3
C-A-8	8.6	10.1	7.0

2. See data files 20713209 through 20713216 for individual data points.

PROJECT NO.: 207132	SPECIFICATION: TC0625-1072
PART NO.: CLM-125-02-L-D-PA FTMH-125-02-L-D-A	PART DESCRIPTION: CLM/FTMH
SAMPLE SIZE: 2 Samples	TECHNICIAN: SR/RT
START DATE: 4/25/07	COMPLETE DATE: 4/25/07
ROOM AMBIENT: 22°C	RELATIVE HUMIDITY: 34%
EQUIPMENT ID#: 280, 553, 1032, 1121, 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 : Half-Sine
   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. 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
C-A-1	+0.1	+1.3
C-A-2	+0.5	+2.1
C-A-3	+0.0	+0.7
C-A-4	+0.3	+1.3
C-A-5	-0.1	+0.2
C-A-6	-0.9	+0.1
C-A-7	+0.1	+1.0
C-A-8	-0.4	+0.0

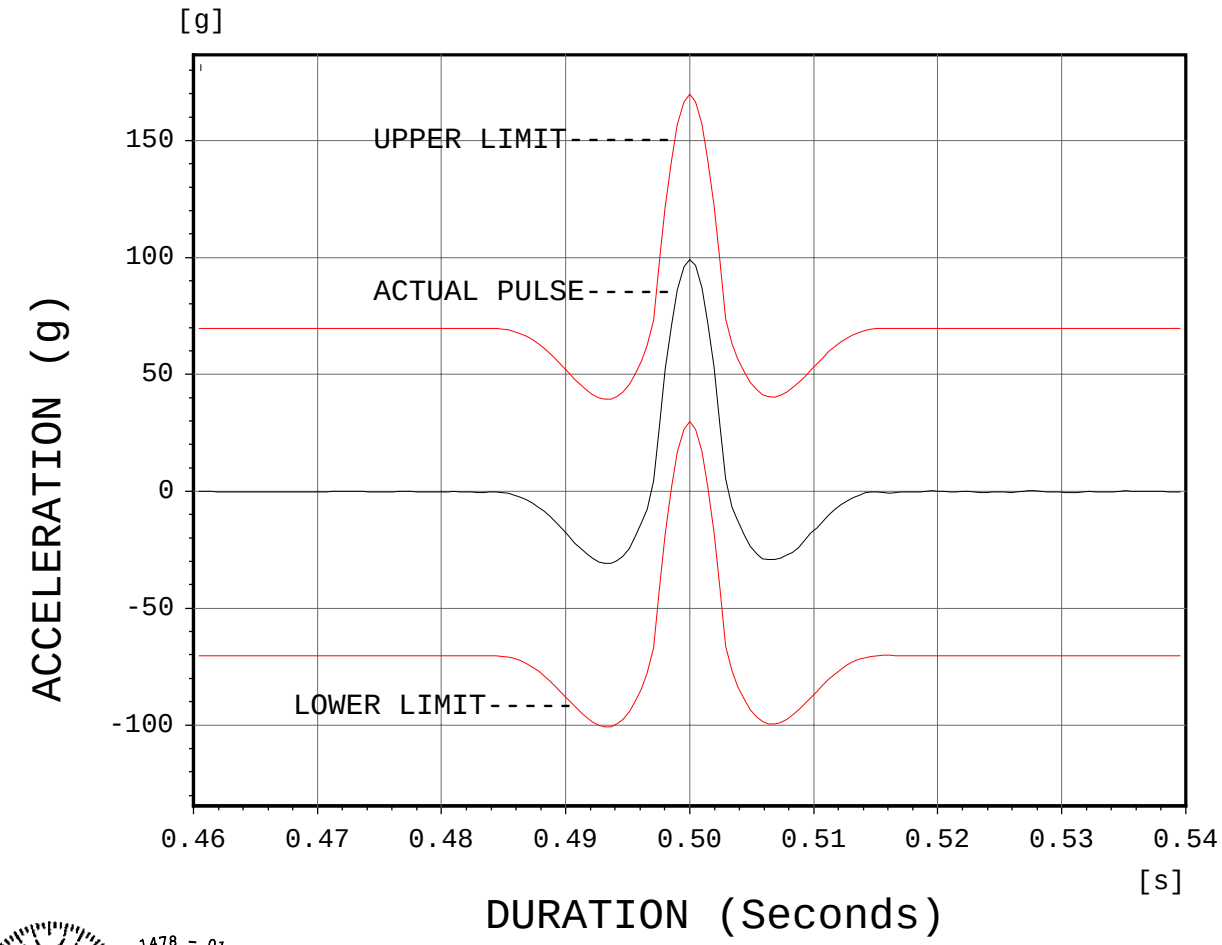
3. See data files 20713209 through 20713216 for individual data points.

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

FIGURE #3

Classical Shock

Channel 1



Project 207132
Samtec
Cal Wave 1
100G's 6ms
Halfsine
04-25-07
Tech:RT

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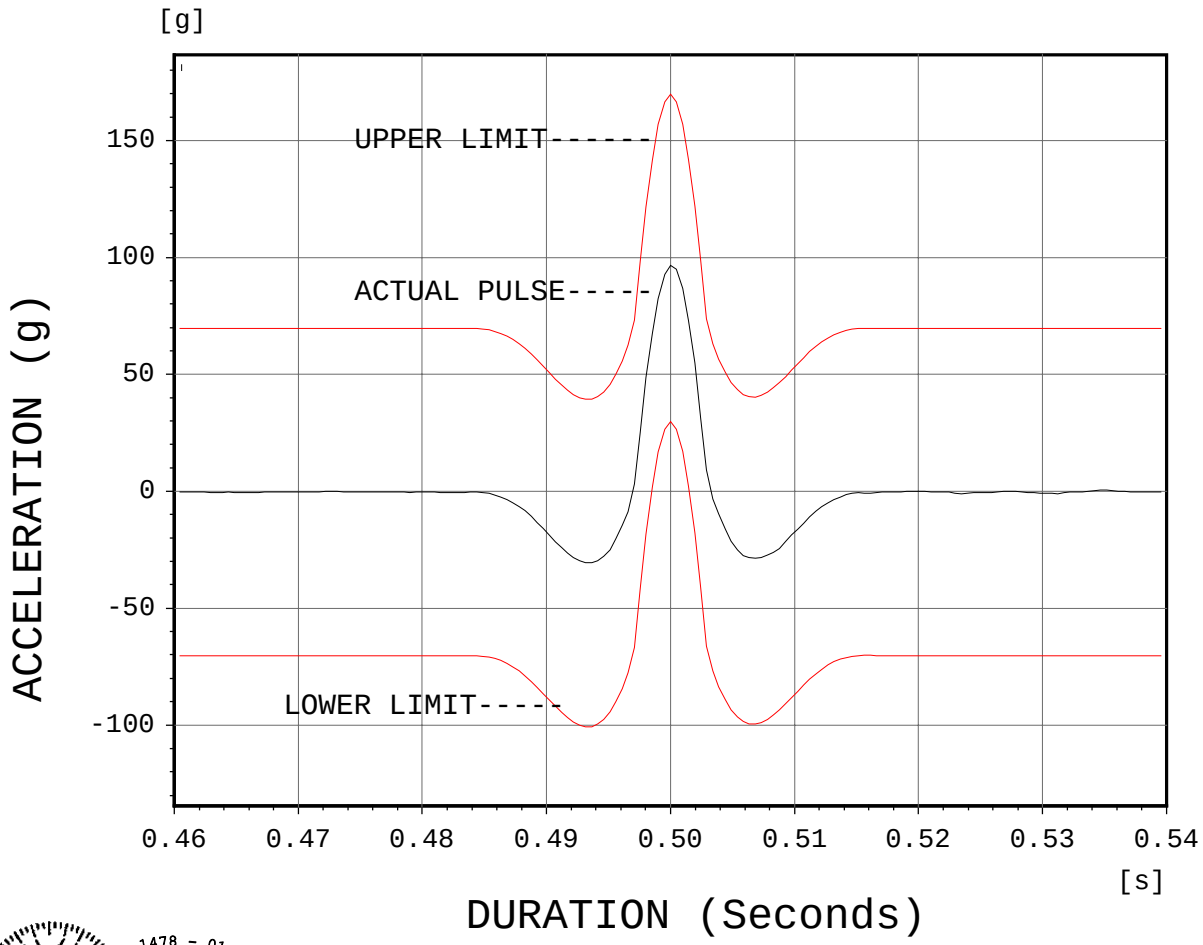
FIGURE #4

Classical Shock

Channel 1



Project 207132
Samtec
Actual Wave 1
100G's 6ms
Halfsine
04-25-07
Tech:RT

Test Laboratory
1478 - 02

PROJECT NO.: 207132	SPECIFICATION: TC0625-1072
PART NO.: CLM-125-02-L-D-PA FTMH-125-02-L-D-A	PART DESCRIPTION: CLM/FTMH
SAMPLE SIZE: 8 Samples	TECHNICIAN: RT/RJC
START DATE: 4/26/07	COMPLETE DATE: 4/30/07
ROOM AMBIENT: 20°C	RELATIVE HUMIDITY: 40%
EQUIPMENT ID#: 280, 553, 558, 1121, 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. 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#	Avg. Change	Max. Change
C-A-1	+3.2	+9.2
C-A-2	-0.1	+0.2
C-A-3	-0.1	+0.8
C-A-4	-0.3	+1.8
C-A-5	-0.3	+0.1
C-A-6	-0.2	-0.1
C-A-7	-0.3	+0.6
C-A-8	-0.2	+1.3

3. See data files 20713209 through 20713216 for individual data points.

LLCR DATA FILES

DATA FILE NUMBERS

20713209
20713210
20713211
20713212
20713213
20713214
20713215
20713216

		Low Level Contact Resistance				
Project:	207132				Spec:	EIA 364, TP 23
Customer:	Samtec (1072)				Subgroup:	Seq C
Product:	Series CLP/FTSH connector				File #:	20713209
Description:	ID# C-A-1					
Open circuit voltage:		20mv			Current:	10 ma
			Delta values			
			units: milliohms			
Temp ºC	23	22	20			
R.H. %	26	34	40			
Date:	12Apr07	25Apr07	30Apr07			
Pos. ID	Initial	M.Shock	R.Vibra			
1	9.5	0.0	-0.1			
2	9.7	0.1	0.0			
3	9.9	0.2	-0.1			
4	9.8	0.1	0.0			
5	10.0	0.2	0.0			
9	8.3	0.1	0.0			
10	8.4	0.1	-0.3			
11	8.5	0.2	0.1			
12	8.5	1.3	0.0			
13	9.8	-0.4	-0.8			
14	9.5	-0.1	4.8			
15	9.3	0.4	7.6			
16	10.0	-0.4	3.6			
17	9.6	0.1	3.8			
18	9.6	0.0	4.8			
19	9.4	0.3	3.4			
20	9.5	0.2	4.5			
21	10.0	0.1	9.2			
22	10.1	0.0	8.7			
23	10.1	0.2	5.0			
24	10.0	0.0	9.2			
25	9.7	0.0	7.6			
MAX	10.1	1.3	9.2			
MIN	8.3	-0.4	-0.8			
AVG	9.5	0.1	3.2			
STD	0.6	0.3	3.5			
Open	0	0	0			
Tech	RJC	S.Rath	RJC			
Equip ID	280	244	280			
	558	1032	558			

		Low Level Contact Resistance				
Project:	207132				Spec:	EIA 364, TP 23
Customer:	Samtec (1072)				Subgroup:	Seq C
Product:	Series CLP/FTSH connector				File #:	20713210
Description:	ID# C-A-2					
Open circuit voltage:		20mv			Current:	10 ma
			Delta values			
			units: milliohms			
Temp ºC	23	22	20			
R.H. %	26	34	40			
Date:	12Apr07	25Apr07	30Apr07			
Pos. ID	Initial	M.Shock	R.Vibra			
1	9.8	0.2	-0.1			
2	9.9	0.3	-0.1			
3	10.0	0.3	0.0			
4	9.7	0.3	0.0			
5	9.9	0.3	-0.1			
9	6.4	2.1	0.2			
10	7.7	0.1	-0.1			
11	7.8	0.2	0.0			
12	8.2	0.1	-0.3			
13	7.9	0.6	0.1			
14	8.2	0.4	-0.1			
15	7.9	0.8	-0.5			
16	8.1	0.4	-0.2			
17	8.6	0.3	0.2			
18	8.7	0.2	-0.2			
19	8.6	0.2	-0.1			
20	8.8	0.7	-0.3			
21	9.3	0.6	-0.1			
22	9.4	0.6	0.2			
23	9.2	0.5	0.1			
24	9.3	0.5	0.0			
25	8.5	0.4	0.0			
MAX	10.0	2.1	0.2			
MIN	6.4	0.1	-0.5			
AVG	8.7	0.5	-0.1			
STD	0.9	0.4	0.2			
Open	0	0	0			
Tech	RJC	S.Rath	RJC			
Equip ID	280	244	280			
	558	1032	558			

		Low Level Contact Resistance				
Project:	207132				Spec:	EIA 364, TP 23
Customer:	Samtec (1072)				Subgroup:	Seq C
Product:	Series CLP/FTSH connector				File #:	20713211
Description:	ID# C-A-3					
Open circuit voltage:		20mv			Current:	10 ma
			Delta values			
			units: milliohms			
Temp ºC	23	22	20			
R.H. %	26	34	40			
Date:	12Apr07	25Apr07	30Apr07			
Pos. ID	Initial	M.Shock	R.Vibra			
1	7.3	0.2	0.8			
2	7.6	-0.3	0.4			
3	8.0	-0.5	0.3			
4	7.8	-0.8	0.1			
5	8.4	-1.0	-0.6			
9	9.0	-0.1	-0.1			
10	9.1	-0.1	-0.2			
11	9.2	0.0	0.0			
12	9.5	0.1	0.1			
13	9.2	0.0	0.0			
14	9.2	0.1	0.0			
15	9.3	0.1	0.1			
16	9.4	0.7	0.0			
17	9.3	0.0	-0.3			
18	9.2	0.0	-0.3			
19	9.1	0.2	-0.1			
20	8.8	0.0	-0.2			
21	9.3	0.1	-0.3			
22	9.3	0.2	-0.1			
23	9.1	0.2	-0.5			
24	9.2	0.0	-0.3			
25	8.8	0.2	-0.2			
MAX	9.5	0.7	0.8			
MIN	7.3	-1.0	-0.6			
AVG	8.9	0.0	-0.1			
STD	0.6	0.4	0.3			
Open	0	0	0			
Tech	RJC	S.Rath	RJC			
Equip ID	280	244	280			
	558	1032	558			

		Low Level Contact Resistance				
Project:	207132				Spec:	EIA 364, TP 23
Customer:	Samtec (1072)				Subgroup:	Seq C
Product:	Series CLP/FTSH connector				File #:	20713212
Description:	ID# C-A-4					
Open circuit voltage:		20mv			Current:	10 ma
			Delta values			
			units: milliohms			
Temp ºC	23	22	20			
R.H. %	26	34	40			
Date:	12Apr07	25Apr07	30Apr07			
Pos. ID	Initial	M.Shock	R.Vibra			
1	8.7	0.2	1.8			
2	8.8	0.0	-0.5			
3	8.7	0.1	-0.4			
4	8.7	0.1	-0.4			
5	8.5	0.2	-0.3			
9	9.0	0.0	-0.6			
10	8.8	0.1	-0.3			
11	8.9	0.2	-0.5			
12	9.2	0.2	-0.4			
13	9.1	0.1	-0.3			
14	9.3	0.2	-0.3			
15	9.1	0.2	-0.6			
16	9.1	0.1	-0.3			
17	9.4	0.2	-0.2			
18	9.0	0.2	-0.2			
19	9.1	0.2	-0.2			
20	9.0	0.2	-0.2			
21	6.9	1.3	-0.2			
22	7.8	0.6	-1.2			
23	7.8	0.2	-1.4			
24	7.4	0.9	-0.7			
25	9.1	0.1	-0.3			
MAX	9.4	1.3	1.8			
MIN	6.9	0.0	-1.4			
AVG	8.7	0.3	-0.3			
STD	0.7	0.3	0.6			
Open	0	0	0			
Tech	RJC	S.Rath	RJC			
Equip ID	280	244	280			
	558	1032	558			

		Low Level Contact Resistance				
Project:	207132				Spec:	EIA 364, TP 23
Customer:	Samtec (1072)				Subgroup:	Seq C
Product:	Series CLP/FTSH connector				File #:	20713213
Description:	ID# C-A-5					
Open circuit voltage:		20mv			Current:	10 ma
			Delta values			
			units: milliohms			
Temp ºC	23	22	20			
R.H. %	26	34	40			
Date:	12Apr07	25Apr07	30Apr07			
Pos. ID	Initial	M.Shock	R.Vibra			
1	9.7	-0.2	-0.2			
2	9.8	0.0	-0.1			
3	9.6	0.2	0.1			
4	9.9	-0.1	-0.2			
5	9.9	-0.1	-0.4			
9	9.0	-0.2	0.0			
10	8.9	0.0	-0.1			
11	9.0	0.0	-0.1			
12	8.9	0.0	-0.3			
13	9.1	0.0	-0.4			
14	9.5	-0.2	-0.1			
15	9.8	-0.4	-0.4			
16	9.6	0.0	0.0			
17	9.6	-0.3	-0.2			
18	9.5	-0.4	-0.4			
19	10.0	-0.4	-0.4			
20	9.6	-0.2	-0.1			
21	9.7	0.0	0.1			
22	10.1	-0.2	-0.2			
23	9.9	-0.2	-0.3			
24	9.8	-0.2	-0.2			
25	9.9	-0.2	-0.4			
MAX	10.1	0.2	0.1			
MIN	8.9	-0.4	-0.4			
AVG	9.6	-0.1	-0.2			
STD	0.4	0.2	0.1			
Open	0	0	0			
Tech	RJC	S.Rath	RJC			
Equip ID	280	244	280			
	558	1032	558			

		Low Level Contact Resistance				
Project:	207132				Spec:	EIA 364, TP 23
Customer:	Samtec (1072)				Subgroup:	Seq C
Product:	Series CLP/FTSH connector				File #:	20713214
Description:	ID# C-A-6					
Open circuit voltage:		20mv			Current:	10 ma
			Delta values			
			units: milliohms			
Temp ºC	23	22	20			
R.H. %	26	34	40			
Date:	12Apr07	25Apr07	30Apr07			
Pos. ID	Initial	M.Shock	R.Vibra			
1	8.4	-0.1	-0.4			
2	8.8	0.0	-0.3			
3	8.7	0.0	-0.5			
4	9.0	-0.2	-0.7			
5	8.9	-0.2	-0.5			
9	7.6	-1.1	-1.4			
10	7.7	-1.3	-1.5			
11	8.0	-1.5	-1.6			
12	7.9	-1.2	-1.3			
13	8.7	-1.9	-2.1			
14	7.6	-0.8	-1.4			
15	7.3	-0.6	-1.1			
16	9.5	-2.6	-3.3			
17	8.4	-1.6	-2.1			
18	9.3	-1.8	-2.3			
19	9.5	-1.6	-2.1			
20	9.0	-1.9	-2.3			
21	9.0	0.0	-0.8			
22	9.2	-0.1	-1.0			
23	8.8	0.1	-0.4			
24	4.7	0.0	-0.1			
25	8.7	-0.6	-1.7			
MAX	9.5	0.1	-0.1			
MIN	4.7	-2.6	-3.3			
AVG	8.4	-0.9	-1.3			
STD	1.0	0.8	0.8			
Open	0	0	0			
Tech	RJC	S.Rath	RJC			
Equip ID	280	244	280			
	558	1032	558			

		Low Level Contact Resistance				
Project:	207132				Spec:	EIA 364, TP 23
Customer:	Samtec (1072)				Subgroup:	Seq C
Product:	Series CLP/FTSH connector				File #:	20713215
Description:	ID# C-A-7					
Open circuit voltage:		20mv			Current:	10 ma
			Delta values			
			units: milliohms			
Temp ºC	23	22	20			
R.H. %	26	34	40			
Date:	12Apr07	25Apr07	30Apr07			
Pos. ID	Initial	M.Shock	R.Vibra			
1	9.4	0.1	-0.6			
2	8.2	-0.3	-0.5			
3	9.1	-0.2	-0.4			
4	7.3	0.8	0.6			
5	9.0	-0.3	-0.4			
9	10.0	-0.2	-0.3			
10	9.9	-0.1	-0.2			
11	10.2	0.1	-0.2			
12	9.9	0.0	-0.2			
13	10.3	-0.1	-0.6			
14	10.1	0.1	-0.2			
15	9.8	0.2	-0.1			
16	9.9	0.1	-0.1			
17	9.9	0.2	-0.2			
18	11.1	0.2	-0.8			
19	10.2	0.2	-0.3			
20	10.3	0.4	-0.6			
21	7.9	-0.3	-0.2			
22	7.8	-0.2	-0.4			
23	8.8	1.0	-0.4			
24	7.5	0.8	0.3			
25	9.6	0.1	-0.2			
MAX	11.1	1.0	0.6			
MIN	7.3	-0.3	-0.8			
AVG	9.4	0.1	-0.3			
STD	1.0	0.4	0.3			
Open	0.0	0	0.0			
Tech	RJC	S.Rath	RJC			
Equip ID	280.0	244	280			
	558.0	1032	558			

		Low Level Contact Resistance				
Project:	207132				Spec:	EIA 364, TP 23
Customer:	Samtec (1072)				Subgroup:	Seq C
Product:	Series CLP/FTSH connector				File #:	20713216
Description:	ID# C-A-8					
Open circuit voltage:		20mv			Current:	10 ma
			Delta values			
			units: milliohms			
Temp ºC	23	22	20			
R.H. %	26	34	40			
Date:	12Apr07	25Apr07	30Apr07			
Pos. ID	Initial	M.Shock	R.Vibra			
1	9.2	-0.1	-0.3			
2	9.4	-0.2	-0.4			
3	9.7	-0.2	-0.4			
4	9.7	-0.1	-0.4			
5	9.5	-0.2	-0.4			
9	7.8	-0.1	-0.2			
10	7.9	-0.4	0.0			
11	8.1	-0.7	0.1			
12	8.2	-1.3	-0.9			
13	7.2	-0.2	-0.1			
14	7.3	0.0	0.5			
15	7.6	-0.4	0.4			
16	7.0	-0.5	0.4			
17	7.4	-0.2	0.1			
18	7.4	-0.4	1.3			
19	8.0	-0.9	-0.6			
20	8.5	-0.5	-0.9			
21	10.0	-0.3	-0.2			
22	10.1	-0.3	-0.3			
23	10.1	-0.4	-0.5			
24	9.9	-0.4	-0.6			
25	8.9	-0.3	-0.4			
MAX	10.1	0.0	1.3			
MIN	7.0	-1.3	-0.9			
AVG	8.6	-0.4	-0.2			
STD	1.1	0.3	0.5			
Open	0	0	0			
Tech	RJC	S.Rath	RJC			
Equip ID	280	244	280			
	558	1032	558			

TEST RESULTS

SEQUENCE D

Group A

PROJECT NO.: 207132	SPECIFICATION: TC0625-1072
PART NO.: CLM-125-02-L-D-PA FTMH-125-02-L-D-A	PART DESCRIPTION: CLM/FTMH
SAMPLE SIZE: 3 Samples	TECHNICIAN: RT
START DATE: 4/25/07	COMPLETE DATE: 4/25/07
ROOM AMBIENT: 22°C	RELATIVE HUMIDITY: 34%
EQUIPMENT ID#: 553, 1028, 1121, 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 : Half-Sine
   d) Velocity : 12.3 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. The samples were characterized to determine nanosecond event requirement. Following characterization the requirement level was established at 50 nanoseconds.

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

REQUIREMENTS: See next page.

REQUIREMENTS:

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

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

RESULTS:

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

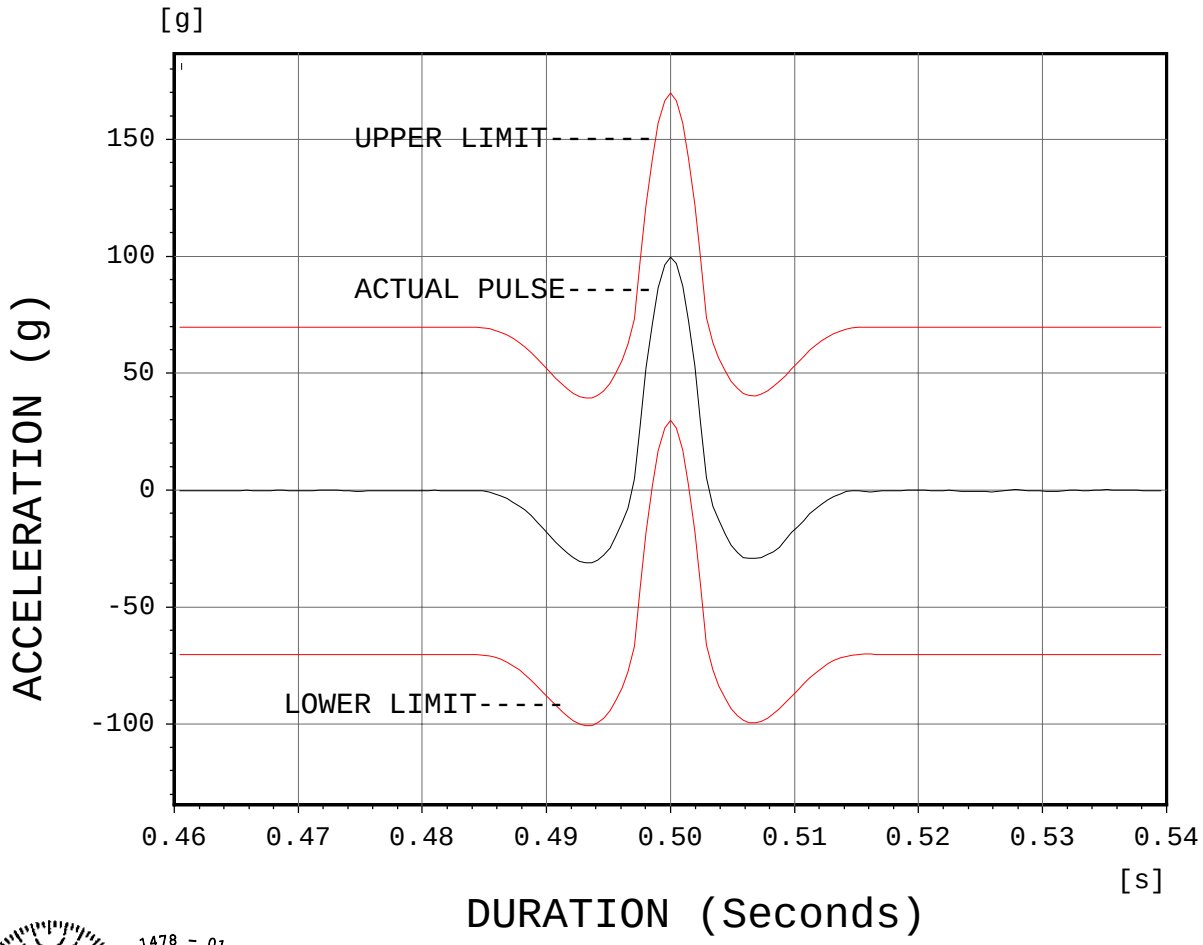
2. There was no low nanosecond event detected greater than 50 nanoseconds.

3. The Mechanical Shock characteristics are shown in Figures #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 #5

Classical Shock

Channel 1



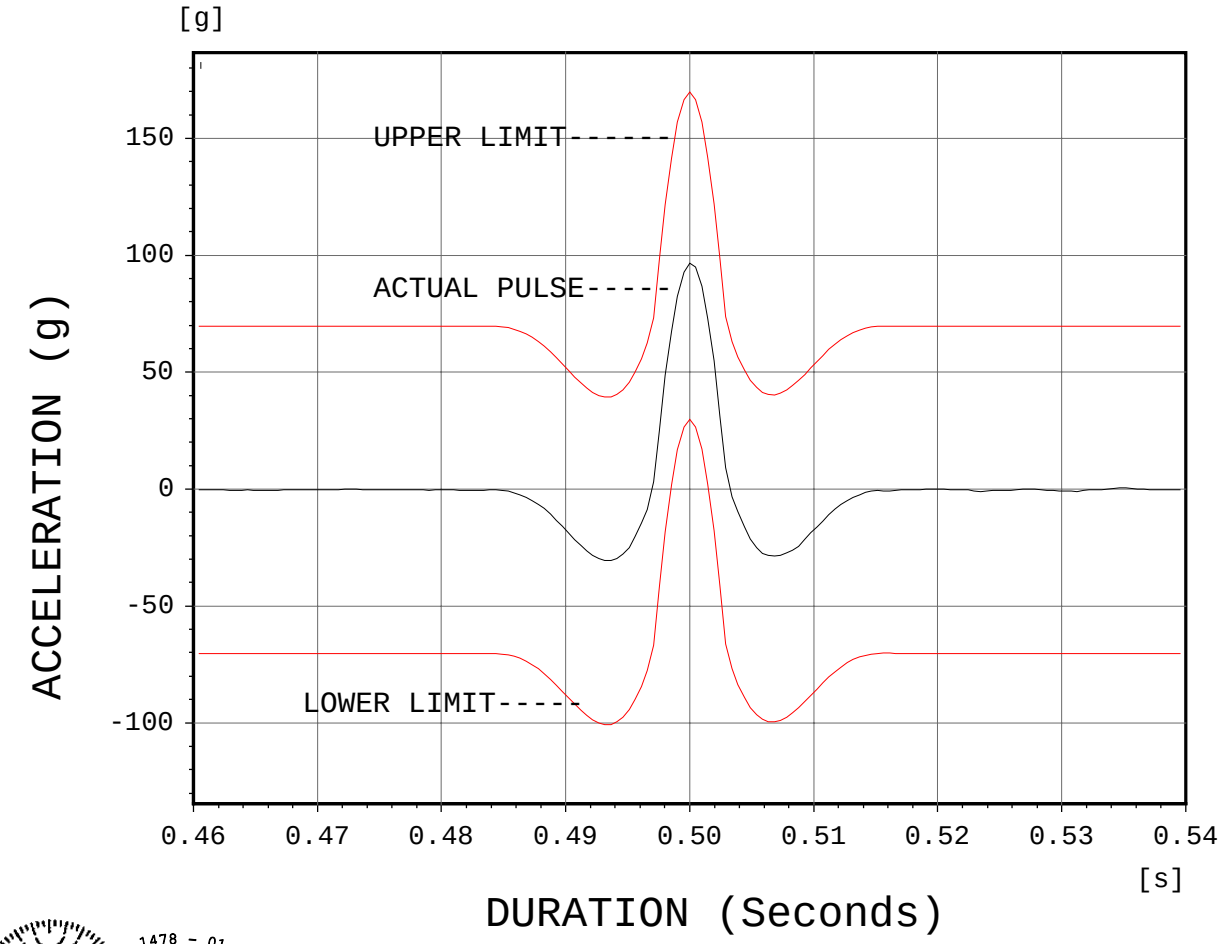
Project 207132
Samtec
Cal Wave 2
100G's 6ms
Halfsine
04-25-07
Tech:RT

1478 - 01
Test Laboratory
1478 - 02

FIGURE #6

Classical Shock

Channel 1



Project 207132
Samtec
Actual Wave 1
100G's 6ms
Halfsine
04-25-07
Tech:RT

ilac-MRA 1478 - 01 ACCREDITED Test Laboratory 1478 - 02

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An Independent Test and Research Laboratory

PROJECT NO.: 207132	SPECIFICATION: TC0625-1072
PART NO.: CLM-125-02-L-D-PA FTMH-125-02-L-D-A	PART DESCRIPTION: CLM/FTMH
SAMPLE SIZE: 3 Samples	TECHNICIAN: RT
START DATE: 4/26/07	COMPLETE DATE: 4/27/07
ROOM AMBIENT: 22°C	RELATIVE HUMIDITY: 33%
EQUIPMENT ID#: 14, 282, 553, 874, 1028, 1366, 1367, 1368, 1474	

VIBRATION, RANDOM

PURPOSE:

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

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

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

PROCEDURE:

1. The test was performed in accordance with Specification 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
   d) Test Current : 100 mA

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

4. The samples were characterized prior to test to determine nanosecond event requirement. Following characterization the requirement level was established at 50 nanoseconds.

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

REQUIREMENTS: See next page.

REQUIREMENTS:

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

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

RESULTS:

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

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