APRIL 19, 2010

TEST REPORT #209698

S2SD CABLE ASSEMBLY QUALIFICATION TESTING

PART: S2SD-30-24-S-02.75-D-NUS
MATING PART: T2M-130-01-L-D-TH

SAMTEC, INC.

APPROVED BY: ALICE HATHAWAY
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ilac-MRA
1478 - 01
ACCREDITED
Test Laboratory
1478 - 02

Contech Research
An Independent Test and Research Laboratory

REVISION HISTORY

DATE	REV. NO.	DESCRIPTION	ENG.
4/19/2010	1.0	Initial Issue	APH

CERTIFICATION

This is to certify that the S2SD series cable assembly 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.

Alice Hathaway
Project Engineer
Contech Research, Inc.
Attleboro, MA

APH:cf

SCOPE

To perform qualification testing on the S2SD series cable assembly as manufactured and submitted by the test sponsor, Samtec, Inc.

APPLICABLE DOCUMENTS

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

2. Samtec Test Plan: TC0946-2877 (S2SD) Test Plan

3. Standard: 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)	Cable assembly	S2SD-30-24-S-02.75-D-NUS
b)	Mating part	T2M-130-01-L-D-TH

2. Mating parts were supplied assembled and terminated to test boards by the test sponsor. Specific test boards and cable assembly orientations were supplied for the following tests:
   - LLCR
   - IR and DWV
   - Shock & Vibration, nanosecond event detection

3. Test leads were attached to the appropriate measurement areas of the test samples and applicable mating elements.

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.

6. The mated test samples were secured via a stabilizing medium to maintain mechanical stability during testing, as noted in the specific test procedures.

TEST SELECTION

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

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

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 A1 - A-A1-1, A-A1-2
Group A2 – A-A2-1, A-A2-2
Group A3 – A-A3-1, A-A3-2
Group B - A-B-1, A-B-2

Seq B: Group A1 - B-A1-1, B-A1-2, B-A1-3, B-A1-4, B-A1-5, B-A1-6, B-A1-7, B-A1-8
Group A2 - B-A2-1, B-A2-2, B-A2-3, B-A2-4, B-A2-5, B-A2-6, B-A2-7, B-A2-8

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

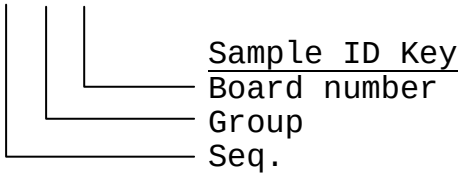
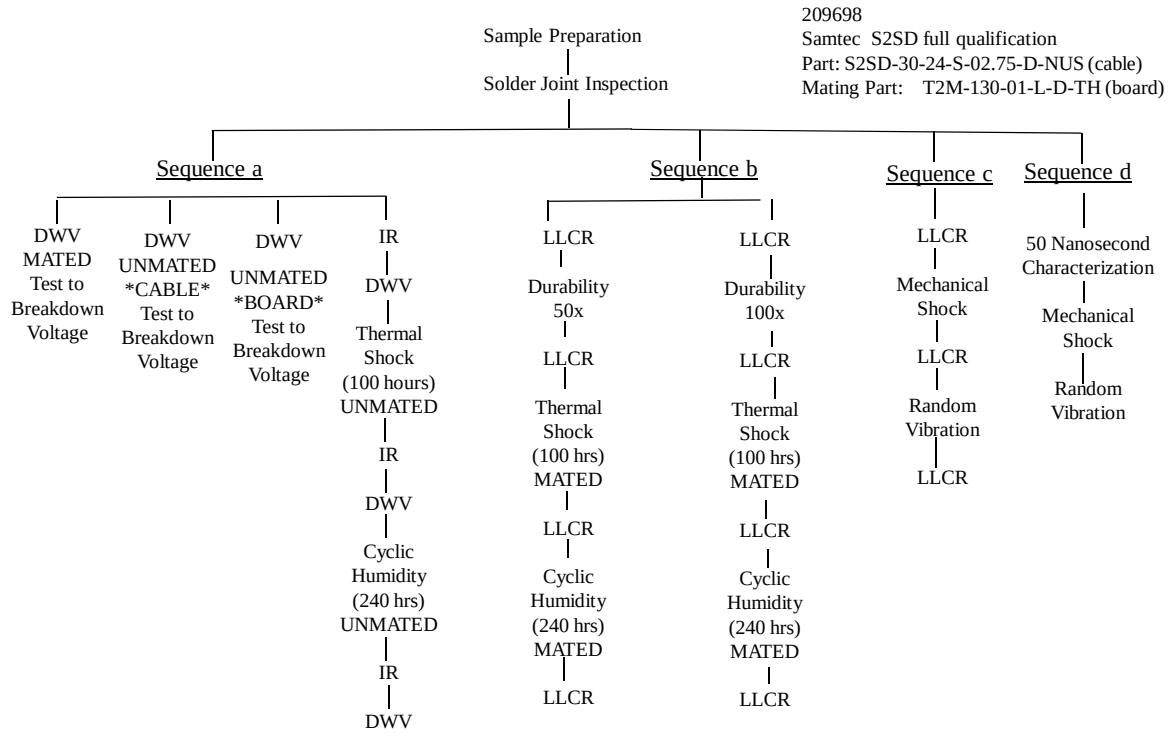


FIGURE #1

TEST PLAN FLOW DIAGRAM



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

DATA SUMMARY

TEST	REQUIREMENT	RESULTS
SEQUENCE A		
GROUP A1		
DWV, BOTH MATED PAIRS	BREAKDOWN	1200 VAC
GROUP A2		
DWV, 2 CABLES, UNMATED	BREAKDOWN	1200 VAC
GROUP A3		
DWV, 2 BOARDS, UNMATED	BREAKDOWN	2400 VAC
GROUP B		
INITIAL		
IR, MATED PAIRS	>5000 MEGOHMS	50,000 MEGOHMS
IR, UNMATED	>5000 MEGOHMS	50,000 MEGOHMS
DWV, MATED PAIRS	900 VAC	PASSED
DWV, UNMATED	900 VAC	PASSED
POST THERMAL SHOCK		
THERMAL SHOCK	NO DAMAGE	PASSED
IR, MATED PAIRS	>5000 MEGOHMS	50,000 MEGOHMS
IR, UNMATED	>5000 MEGOHMS	50,000 MEGOHMS
DWV, MATED PAIRS	900 VAC	PASSED
DWV, UNMATED	900 VAC	PASSED
POST CYCLIC HUMIDITY		
CYCLIC HUMIDITY	NO DAMAGE	PASSED
IR, MATED PAIR A-B-1	>5000 MEGOHMS	25,000 MEGOHMS
IR, UNMATED A-B-1	>5000 MEGOHMS	25,000 MEGOHMS
IR, MATED PAIR A-B-2	>5000 MEGOHMS	50,000 MEGOHMS
IR, UNMATED A-B-2	>5000 MEGOHMS	50,000 MEGOHMS
DWV, MATED PAIRS	900 VAC	PASSED
DWV, UNMATED	900 VAC	PASSED

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DATA SUMMARY -continued

TEST	REQUIREMENT	RESULTS
SEQUENCE B		
GROUP A1		
LLCR	RECORD	34.6 MΩ MAX.
DURABILITY	NO DAMAGE	PASSED
LLCR	+10.0 MΩ MAX.CHG.	+2.4 MΩ MAX.CHG.
THERMAL SHOCK	NO DAMAGE	PASSED
LLCR	+10.0 MΩ MAX.CHG.	+2.7 MΩ MAX.CHG.
CYCLIC HUMIDITY	NO DAMAGE	PASSED
LLCR	+10.0 MΩ MAX.CHG.	+3.3 MΩ MAX.CHG.
GROUP A2		
LLCR	RECORD	34.0 MΩ MAX.
DURABILITY	NO DAMAGE	PASSED
LLCR	+10.0 MΩ MAX.CHG.	+3.4 MΩ MAX.CHG.
THERMAL SHOCK	NO DAMAGE	PASSED
LLCR	+10.0 MΩ MAX.CHG.	+2.1 MΩ MAX.CHG.
CYCLIC HUMIDITY	NO DAMAGE	PASSED
LLCR	+10.0 MΩ MAX.CHG.	+4.5 MΩ MAX.CHG.
SEQUENCE C		
LLCR	RECORD	32.9 MΩ MAX.
MECHANICAL SHOCK	NO DAMAGE	PASSED
LLCR	+10.0 MΩ MAX.CHG.	+2.7 MΩ MAX.CHG.
RANDOM VIBRATION	NO DAMAGE	PASSED
LLCR	+10.0 MΩ MAX.CHG.	+2.8 MΩ MAX.CHG.
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	7/13/2010	7/13/2009	Accelerometer	PCB Piezotronics	302A	7040	See Cal Cert	12mon
34			Shock Machine	Avco	SM110-3	1047	N/A	Ea Test
95	12/1/2010	12/1/2009	AC Hypot	Peschell Instr.	P10*	5570	±3%Full Scale	12mon
150			Drill Press Stand	Craftsman	25921	N/A	N/A	N/A
192	5/27/2010	5/27/2009	Vertical Thermal Shock	Cincinnati Sub-Zero	VTS-1-5-3	88-11094	See Cal Cert	12mon
200	1/19/2011	1/19/2010	Power Supply	PCB Piezotronics	482A	4210	N/A	12mon
315			X-Y Table	NE Affiliated Tech.	XY-6060	N/A	N/A	N/A
421	4/14/2010	3/31/2009	Megohmeter	Hipotronics Co.	HM3A	031423-00	See Cal Cert	12 mon.
466	12/3/2010	12/3/2009	Precision Resistor	Victoreen Co.	50,000 mego	N/A	± 1 %	12 mon.
545	5/8/2010	5/8/2009	Event Detector	Anatech	32/64 EHD	941206	See Cal Cert	12mon
553	3/19/2011	3/19/2010	12 channel Power Unit	PCB Co.	483A	1303	See Cal Cert	12mon
585	8/28/2010	8/28/2009	Digitizing Scope	Hewlett Packard Co.	54200A	2740A-02154	±2%	12mon
614			Oven	Tenney Co.	TH Jr.	9712-510	See Manual	Ea Test
628	10/20/2010	10/20/2009	Digital Thermometer	Omega Eng.	DP 116	6210125	±1.1DegC	12mon
681			Computer	ARC Co.	P166	N/A	N/A	N/A
1010			Plotter	Hewlett Packard	7225B	2160A2293	N/A	N/A
1028	2/16/2011	2/16/2010	Event Detector	Analysis Tech	32 EHD	981019	See Cal.Cert.	12mon
1147	12/10/2010	12/10/2009	Digital O-Scope	Tektronix	11801C	B030915	See Cal Cert.	12mon.
1166	8/24/2010	8/24/2009	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
1230			Temp-humid-Chamber	Blue M.	FRM-256B	FRM277	See Manual	Ea Test
1271			Amplifier	Unholtz Dickie	SA15	3483	N/A	N/A
1272			Shaker Table	Unholtz Dickie	S202PB	263	N/A	N/A
1278	9/24/2010	9/24/2009	Microohm mtr	Keithley	580	0803947	See Manual	12mon
1360	2/2/2011	2/2/2010	Data Aquisition Multimeter	Keithley	2700	0914136	See Cal Cert	12mon

EQUIPMENT LIST –continued

ID#	Next Cal	Last Cal	Equipment Name	Manufacturer	Model #	Serial #	Accuracy	Freq.Cal
1426			Computer	E-Machines	T2341	QL235-703-00880	N/A	N/A
1457	1/19/2011	11/19/2010	Precision Resistor	Victorine	5KMOHM	465	See Cal Cert	12mon
1521	4/20/2010	4/20/2009	Accelerometer	PCB	353B04	118492	See Cal Cert	12mon
1549	2/2/2011	2/2/2010	Multiplexer Card	Keithley	7708	171629	See Cert	12mon
1550	2/2/2011	2/2/2010	Multiplexer Card	Keithley	7708	171626	See Cert	12mon
1634	9/11/2010	9/11/2009	Vibration Controller	HP Agilent	E1434A	US38090307	See Cal Cert	12 mon
5045	12/10/2010	12/10/2009	TDR -Sampling Head	Tektroniks	SD-24	B0221502	See Cal Cert	12 mon

TEST RESULTS

SEQUENCE A

Group B

PROJECT NO.: 209698	SPECIFICATION: TC0946-2877
PART NO.: S2SD-30-24-S-02.75-D-NUS	PART DESCRIPTION: S2SD series cable
SAMPLE SIZE: 2 Samples	TECHNICIAN: S-R
START DATE: 3/1/2010	COMPLETE DATE: 3/1/2010
ROOM AMBIENT: 22°C	RELATIVE HUMIDITY: 24%
EQUIPMENT ID#: 421, 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) Mated Condition : Mated and Unmated
    c) Mounting Condition : Mounted and Unmounted
    d) Electrification Time : 2.0 Minutes
    e) Test Voltage : 500 VDC

3. The test voltage was applied to specific test points on the test boards or cables.

REQUIREMENTS:

When the specified test voltage is applied, the insulation resistance shall not be less than 5,000 megohms.

RESULTS: See Next Page

RESULTS:

1. All test samples as tested met the requirements as specified.

2. Actual initial Insulation Resistance values:

TEST SAMPLE	RESULTS
IR, MATED PAIR, A-B-1	50,000 MEGOHMS
IR, UNMATED, S2SD CABLE	50,000 MEGOHMS
IR, UNMATED, T2M CONNECTOR	50,000 MEGOHMS
IR, MATED PAIR, A-B-2	50,000 MEGOHMS
IR, UNMATED, S2SD CABLE	50,000 MEGOHMS
IR, UNMATED, T2M CONNECTOR	50,000 MEGOHMS

PROJECT NO.: 209698	SPECIFICATION: TC0946-2877
PART NO.: S2SD-30-24-S-02.75-D-NUS	PART DESCRIPTION: S2SD series cable
SAMPLE SIZE: 2 Samples	TECHNICIAN: S-R
START DATE: 3/1/10	COMPLETE DATE: 3/2/10
ROOM AMBIENT: 22°C	RELATIVE HUMIDITY: 24%
EQUIPMENT ID#: 95	

DIELECTRIC WITHSTANDING VOLTAGE (SEA LEVEL)

PURPOSE:

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

2. To determine if the connectors maintain their dielectric integrity after being stressed by exposure to environmental conditioning.

PROCEDURE:

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

2. Test Conditions:

a)	Between Adjacent Contacts	: Yes
b)	Mated Condition	: Mated and Unmated
c)	Mounting Condition	: Mounted and Unmounted
d)	Hold Time	: 60 Seconds
e)	Rate of Application	: 500 volts/sec.
f)	Test Voltage	: 75% of Breakdown Voltage
g)	Applied Voltage	: 900 VAC

3. To determine the Applied Voltage as listed above, AC voltage was applied to the specified test points until breakdown. The Applied Voltage used was 75% of the minimum breakdown voltage as tested. The test samples were tested mated (Sequence a Group A1), and each S2SD cable and T2M connector was tested unmated (Sequence a Groups A2, A3)to determine the minimum breakdown voltage.

-continued on next page.

PROCEDURE:-continued

4. The voltage was applied to specific test points on each board or cable.

REQUIREMENTS:

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

RESULTS:

All test samples as tested met the requirements as specified.

PROJECT NO.: 209698	SPECIFICATION: TC0946-2877
PART NO.: S2SD-30-24-S-02.75-D-NUS	PART DESCRIPTION: S2SD series cable
SAMPLE SIZE: 2 Samples	TECHNICIAN: S-R
START DATE: 3/4/10	COMPLETE DATE: 3/8/10
ROOM AMBIENT: 22°C	RELATIVE HUMIDITY: 24%
EQUIPMENT ID#: 95, 192, 421, 466, 1360, 1457, 1549, 1550	

THERMAL SHOCK

PURPOSE:

To determine the resistance of a given electrical connector to exposure at extremes of high and low temperatures and the shock of alternate exposures to these extremes, simulating the worst probable conditions of storage, transportation and application.

PROCEDURE:

1. The test environment was performed in accordance with EIA 364, Test Procedure 32, Method A, Test Condition I.

2. Test Conditions:

a) Number of Cycles	:	100 Cycles
b) Hot Extreme	:	+85°C +3°C/-0°C
c) Cold Extreme	:	-55°C +0°C/-3°C
d) Time at Temperature	:	30 Minutes
e) Mating Conditions	:	Unmated
f) Mounting Conditions	:	Mounted and Unmounted
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.

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PROCEDURE: -continued

6. Testing was completed within 1 hour of removal of the samples from the chamber.

REQUIREMENTS:

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

2. The insulation resistance shall not be less than 5,000 megohms.

3. 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. The insulation resistance exceeded 5,000 megohms.

3. Post Thermal Shock Insulation resistance values:

TEST SAMPLE	RESULTS
IR, MATED PAIR, A-B-1	50,000 MEGOHMS
IR, UNMATED, S2SD CABLE	50,000 MEGOHMS
IR, UNMATED, T2M CONNECTOR	50,000 MEGOHMS
IR, MATED PAIR, A-B-2	50,000 MEGOHMS
IR, UNMATED, S2SD CABLE	50,000 MEGOHMS
IR, UNMATED, T2M CONNECTOR	50,000 MEGOHMS

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

PROJECT NO.: 209698	SPECIFICATION: TC0946-2877
PART NO.: S2SD-30-24-S-02.75-D-NUS	PART DESCRIPTION: S2SD series cable
SAMPLE SIZE: 2 Samples	TECHNICIAN: S-R
START DATE: 3/12/10	COMPLETE DATE: 3/22/10
ROOM AMBIENT: 22°C	RELATIVE HUMIDITY: 24%
EQUIPMENT ID#: 95, 421, 466, 614, 628, 1230, 1360, 1457, 1549, 1550	

HUMIDITY (THERMAL CYCLING)

PURPOSE:

The purpose of this test is to permit evaluation of the properties of materials used in connectors as they are influenced or deteriorated by the effects of high humidity and heat conditions. Measurements made under high humidity conditions may reflect the peculiar conditions under which the readings were made, and should be compared only to initial readings when careful analysis indicates that such a comparison is valid and applicable.

PROCEDURE:

1. The test environment was performed in accordance with EIA 364, Test Procedure 31, Test Condition B, Method III (omitting steps 7a and 7b).

2. Test Conditions:

a) Preconditioning (24 hours)	:	50°C ± 5°C
b) Relative Humidity	:	90% to 98%
c) Temperature Conditions	:	25°C to 65°C
d) Cold Cycle	:	No
e) Polarizing Voltage	:	No
f) Mating Conditions	:	Unmated
g) Mounting Conditions	:	Mounted and Unmounted
h) Duration	:	240 hours

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

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PROCEDURE:-continued

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

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

6. Testing was completed within 1 hour of removal of the samples from the chamber.

REQUIREMENTS:

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

2. The insulation resistance shall not be less than 5,000 megohms.

3. 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. The insulation resistance exceeded 5000 megohms.

3. Post Cyclic Humidity Insulation Resistance values:

TEST SAMPLE	RESULTS
IR, MATED PAIR, A-B-1	25,000 MEGOHMS
IR, UNMATED, S2SD CABLE	25,000 MEGOHMS
IR, UNMATED, T2M CONNECTOR	25,000 MEGOHMS
IR, MATED PAIR, A-B-2	50,000 MEGOHMS
IR, UNMATED, S2SD CABLE	50,000 MEGOHMS
IR, UNMATED, T2M CONNECTOR	50,000 MEGOHMS

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

TEST RESULTS

SEQUENCE B

Group A1
Group A2

PROJECT NO.: 209698	SPECIFICATION: TC0946-2877
PART NO.: S2SD-30-24-S-02.75-D-NUS	PART DESCRIPTION: S2SD series cable
SAMPLE SIZE: 16 Samples	TECHNICIAN: S-R
START DATE: 2/24/10	COMPLETE DATE: 2/24/10
ROOM AMBIENT: 22°C	RELATIVE HUMIDITY: 24%
EQUIPMENT ID#: 681, 1278	

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.

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PROCEDURE: -continued

2. Test Conditions:

a) Test Current : 10 milliamps maximum
b) Open Circuit Voltage : 20 millivolts
c) No. of Positions Tested : 22 per test sample

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-A1-1	29.5	30.1	29.0
B-A1-2	29.6	32.6	29.1
B-A1-3	29.6	32.3	28.9
B-A1-4	29.7	32.6	28.9
B-A1-5	29.4	31.3	28.5
B-A1-6	29.7	32.0	28.4
B-A1-7	30.0	34.6	29.0
B-A1-8	30.0	31.6	29.8
B-A2-1	29.7	33.7	29.1
B-A2-2	30.1	34.0	29.1
B-A2-3	29.6	33.0	29.0
B-A2-4	29.4	29.8	28.9
B-A2-5	29.6	30.3	29.2
B-A2-6	29.7	31.3	29.3
B-A2-7	29.6	29.9	29.1
B-A2-8	29.6	30.7	29.0

2. See data files 20969801 through 20969816 for individual data points.

PROJECT NO.: 209698	SPECIFICATION: TC0946-2877
PART NO.: S2SD-30-24-S-02.75-D-NUS	PART DESCRIPTION: S2SD series cable
SAMPLE SIZE: 16 Samples	TECHNICIAN: S-R
START DATE: 2/25/10	COMPLETE DATE: 2/26/10
ROOM AMBIENT: 21°C	RELATIVE HUMIDITY: 28%
EQUIPMENT ID#: 150, 315, 681, 1278	

DURABILITY

PURPOSE:

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

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

PROCEDURE:

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

2. Test Conditions:

   a) No. of Cycles : 50 – Group A1; 100 – Group A2
   b) Rate : 1.0 inch per minute

3. The part (cable) was assembled to special holding devices; the mating part (LLCR board) was attached to an X-Y table. Speed is approximate.

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PROCEDURE:–continued

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

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

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

REQUIREMENTS:

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

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

RESULTS:

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

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

CHANGE IN
LOW LEVEL CIRCUIT RESISTANCE
(milliohms)

Sample ID#	Avg. Change	Max. Change
B-A1-1	-0.1	+0.3
B-A1-2	+0.1	+0.8
B-A1-3	-0.1	+0.3
B-A1-4	+0.3	+2.4
B-A1-5	+0.2	+0.8
B-A1-6	+0.1	+1.1
B-A1-7	-0.0	+0.6
B-A1-8	-0.4	+1.2

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RESULTS:–continued

CHANGE IN
LOW LEVEL CIRCUIT RESISTANCE
(milliohms)

Sample ID#	Avg. Change	Max. Change
B-A2-1	-0.1	+3.4
B-A2-2	-0.1	+0.5
B-A2-3	-0.1	+0.7
B-A2-4	-0.0	+0.3
B-A2-5	-0.1	+0.4
B-A2-6	-0.2	+1.7
B-A2-7	-0.1	+0.2
B-A2-8	+0.0	+1.2

3. See data files 20969801 through 20969816 for individual data points.

PROJECT NO.: 209698	SPECIFICATION: TC0946-2877
PART NO.: S2SD-30-24-S-02.75-D-NUS	PART DESCRIPTION: S2SD series cable
SAMPLE SIZE: 16 Samples	TECHNICIAN: S-R
START DATE: 3/4/10	COMPLETE DATE: 3/8/10
ROOM AMBIENT: 22°C	RELATIVE HUMIDITY: 24%
EQUIPMENT ID#: 192, 681, 1278, 1360, 1549, 1550	

THERMAL SHOCK

PURPOSE:

To determine the resistance of a given electrical connector to exposure at extremes of high and low temperatures and the shock of alternate exposures to these extremes, simulating the worst probable conditions of storage, transportation and application.

PROCEDURE:

1. The test environment was performed in accordance with EIA 364, Test Procedure 32, Method A, Test Condition I.

2. Test Conditions:
   - a) Number of Cycles : 100 Cycles
   - b) Hot Extreme : +85°C +3°C/-0°C
   - c) Cold Extreme : -55°C +0°C/-3°C
   - d) Time at Temperature : 30 Minutes
   - e) Mating Conditions : Mated
   - f) Mounting Conditions : Mounted
   - g) Transfer Time : 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-A1-1	+0.4	+0.7
B-A1-2	+0.5	+2.7
B-A1-3	+0.1	+0.4
B-A1-4	+0.2	+1.1
B-A1-5	+0.3	+1.5
B-A1-6	+0.1	+1.1
B-A1-7	-0.4	+0.7
B-A1-8	-0.2	+2.2
B-A2-1	-0.4	+0.3
B-A2-2	-0.2	+0.8
B-A2-3	+0.1	+0.7
B-A2-4	+0.0	+0.3
B-A2-5	-0.0	+0.4
B-A2-6	+0.3	+1.7
B-A2-7	+0.0	+0.3
B-A2-8	+0.2	+2.1

3. See data files 20969801 through 20969816 for individual data points.

PROJECT NO.: 209698	SPECIFICATION: TC0946-2877
PART NO.: S2SD-30-24-S-02.75-D-NUS	PART DESCRIPTION: S2SD series cable
SAMPLE SIZE: 16 Samples	TECHNICIAN: S-R
START DATE: 3/12/10	COMPLETE DATE: 3/22/10
ROOM AMBIENT: 22°C	RELATIVE HUMIDITY: 24%
EQUIPMENT ID#: 614, 628, 681, 1230, 1278, 1360, 1549, 1550	

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, Test Condition B, Method III (omitting steps 7a and 7b) with the following conditions.

-continued on next page.

PROCEDURE:–continued

2. Test Conditions:

a) Preconditioning (24 hours)	:	50°C ± 5°C
b) Relative Humidity	:	90% to 98%
c) Temperature Conditions	:	25°C to 65°C
d) Cold Cycle	:	No
e) Polarizing Voltage	:	No
f) Mating Conditions	:	Mated
g) Mounting Conditions	:	Mounted
h) Duration	:	240 hours

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

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-A1-1	+0.2	+2.2
B-A1-2	+0.5	+2.7
B-A1-3	+0.8	+2.9
B-A1-4	+0.6	+3.3
B-A1-5	+1.2	+2.7

-continued on next page.

RESULTS -continued

CHANGE IN
LOW LEVEL CIRCUIT RESISTANCE
(milliohms)

Sample ID#	Avg. Change	Max. Change
B-A1-6	+0.3	+1.2
B-A1-7	-0.5	+0.3
B-A1-8	+0.6	+2.8
B-A2-1	-0.2	+0.5
B-A2-2	+0.2	+1.7
B-A2-3	+0.4	+2.9
B-A2-4	+0.2	+0.6
B-A2-5	+0.6	+4.5
B-A2-6	+1.1	+3.8
B-A2-7	+0.4	+2.1
B-A2-8	+0.5	+3.4

3. See data files 20969801 through 20969816 for individual data points.

LLCR DATA FILES

FILE NUMBERS

20969801
20969802
20969803
20969804
20969805
20969806
20969807
20969808
20969809
20969810
20969811
20969812
20969813
20969814
20969815
20969816

Low Level Circuit Resistance - Delta Values				
Project:	209698		Spec:	EIA 364 TP 23
Customer:	Samtec		Subgroup:	Sequence "b"
Product:	S2SD series cable		File No:	20969801
Description:	ID# B-A1-1		Tech:	S-R
Open circuit voltage:		20mV	Current:	10ma
Units: milliohms				
Temp ºC	22	22	22	20
R.H. %	24	24	23	33
Date:	24Feb10	01Mar10	08Mar10	22Mar10
Pos. ID	Initial	Dura 50 X	T.Shock	Humidity
1	29.4	-1.4	0.4	1.2
2	29.2	-0.1	0.2	0.1
3	30.1	-0.7	-0.4	-0.7
4	29.2	0.2	0.6	0.0
5	29.2	0.2	0.5	0.0
7	29.2	0.3	0.4	0.0
8	29.9	-0.2	0.1	0.4
9	29.6	0.2	0.5	0.1
10	29.0	0.0	0.5	0.1
11	29.2	0.1	0.5	0.4
12	29.3	0.2	0.4	0.0
13	29.4	0.2	0.4	-0.1
14	29.4	0.0	0.3	0.0
15	29.6	-0.1	0.4	0.1
16	29.5	0.2	0.5	0.0
17	29.5	-1.0	0.6	0.3
18	29.6	0.1	0.2	0.3
19	29.4	0.0	0.6	0.0
20	29.7	0.0	0.7	0.4
21	29.9	-0.3	0.5	0.4
23	29.8	0.3	0.5	2.2
24	29.3	0.0	0.5	-0.1
MAX	30.1	0.3	0.7	2.2
MIN	29.0	-1.4	-0.4	-0.7
AVG	29.5	-0.1	0.4	0.2
STD	0.3	0.4	0.2	0.6
Open	0	0	0	0
Tech	S-R	S-R	S-R	S-R
Equip ID	681	681	681	681
	1278	1278	1278	1278

Low Level Circuit Resistance - Delta Values				
Project:	209698		Spec:	EIA 364 TP 23
Customer:	Samtec		Subgroup:	Sequence "b"
Product:	S2SD series cable		File No:	20969802
Description:	ID# B-A1-2		Tech:	S-R
Open circuit voltage:		20mV	Current:	10ma
Units: milliohms				
Temp ºC	22	22	22	20
R.H. %	24	24	23	33
Date:	24Feb10	01Mar10	08Mar10	22Mar10
Pos. ID	Initial	Dura 50 X	T.Shock	Humidity
1	29.2	0.0	0.3	0.4
2	29.2	-0.1	0.2	0.4
3	30.1	0.2	0.3	1.2
4	29.7	-0.2	0.2	0.2
5	29.4	0.0	0.4	0.4
7	29.6	0.1	0.8	0.9
8	29.6	0.1	0.9	0.7
9	29.2	0.2	0.5	1.0
10	29.6	-0.2	0.2	0.0
11	29.5	0.0	0.4	0.1
12	29.1	0.0	0.3	0.0
13	30.7	0.2	0.4	2.7
14	29.4	0.0	0.4	0.1
15	29.5	-0.2	0.2	0.0
16	29.4	0.6	0.7	0.4
17	29.3	0.0	0.3	-0.1
18	29.3	-0.1	0.4	0.0
19	29.4	-0.2	0.3	-0.1
20	29.6	-0.1	0.3	0.1
21	32.6	0.8	2.7	2.6
23	29.2	0.0	0.7	0.2
24	29.3	0.0	0.5	0.1
MAX	32.6	0.8	2.7	2.7
MIN	29.1	-0.2	0.2	-0.1
AVG	29.6	0.1	0.5	0.5
STD	0.8	0.2	0.5	0.8
Open	0	0	0	0
Tech	S-R	S-R	S-R	S-R
Equip ID	681	681	681	681
	1278	1279	1280	1281

Low Level Circuit Resistance - Delta Values				
Project:	209698		Spec:	EIA 364 TP 23
Customer:	Samtec		Subgroup:	Sequence "b"
Product:	S2SD series cable		File No:	20969803
Description:	ID# B-A1-3		Tech:	S-R
Open circuit voltage:		20mV	Current:	10ma
Units: milliohms				
Temp ºC	22	22	22	20
R.H. %	24	24	23	33
Date:	24Feb10	01Mar10	08Mar10	22Mar10
Pos. ID	Initial	Dura 50X	T.Shock	Humidity
1	29.4	0.0	0.2	0.6
2	30.0	0.3	-0.2	1.0
3	29.3	0.0	0.1	-0.1
4	29.5	-0.2	0.4	1.7
5	29.4	0.0	0.3	0.2
7	29.5	-0.2	0.3	0.5
8	32.3	0.0	-1.0	2.3
9	29.5	0.0	0.2	0.2
10	30.2	0.3	0.1	1.3
11	29.2	0.1	0.1	0.5
12	29.4	-0.1	0.3	1.4
13	29.3	0.0	0.3	0.6
14	29.4	-0.1	0.3	0.3
15	29.1	0.0	0.2	1.3
16	29.2	0.0	0.3	0.1
17	29.5	-0.2	0.2	0.0
18	29.5	-0.1	0.2	0.8
19	29.5	-0.3	0.1	-0.1
20	29.2	-0.3	0.2	2.9
21	28.9	-0.1	0.3	0.7
23	29.5	-0.2	0.1	0.2
24	29.4	-0.1	0.3	1.8
MAX	32.3	0.3	0.4	2.9
MIN	28.9	-0.3	-1.0	-0.1
AVG	29.6	-0.1	0.1	0.8
STD	0.7	0.2	0.3	0.8
Open	0	0	0	0
Tech	S-R	S-R	S-R	S-R
Equip ID	681	681	681	681
	1278	1278	1278	1278

Low Level Circuit Resistance - Delta Values				
Project:	209698		Spec:	EIA 364 TP 23
Customer:	Samtec		Subgroup:	Sequence "b"
Product:	S2SD series cable		File No:	20969804
Description:	ID# B-A1-4		Tech:	S-R
Open circuit voltage:		20mV	Current:	10ma
Units: milliohms				
Temp ºC	22	22	21	20
R.H. %	24	24	24	33
Date:	24Feb10	01Mar10	09Mar10	22Mar10
Pos. ID	Initial	Dura 50X	T.Shock	Humidity
1	29.3	-0.1	0.2	0.1
2	29.4	-0.1	0.2	0.5
3	29.1	0.0	0.2	0.4
4	29.4	-0.1	0.0	0.1
5	29.0	-0.1	-0.1	0.0
7	29.6	0.5	0.2	0.9
8	29.4	-0.1	0.2	0.4
9	29.4	0.0	-0.1	0.9
10	29.3	0.3	0.0	0.8
11	29.6	0.0	0.1	0.4
12	29.9	-0.2	-0.3	-0.1
13	29.3	-0.1	-0.1	0.2
14	29.6	0.2	0.0	1.1
15	29.4	0.0	0.1	0.3
16	30.4	0.6	0.0	0.2
17	32.6	2.1	0.9	1.6
18	29.4	0.0	0.0	0.1
19	29.2	0.4	0.6	0.6
20	31.4	2.4	1.1	3.3
21	28.9	0.6	0.7	0.8
23	29.4	0.1	0.2	0.6
24	29.4	0.1	0.0	0.6
MAX	32.6	2.4	1.1	3.3
MIN	28.9	-0.2	-0.3	-0.1
AVG	29.7	0.3	0.2	0.6
STD	0.8	0.7	0.3	0.7
Open	0	0	0	0.0
Tech	S-R	S-R	S-R	S-R
Equip ID	681	681	681	681
	1278	1278	1278	1278

Low Level Circuit Resistance - Delta Values				
Project:	209698		Spec:	EIA 364 TP 23
Customer:	Samtec		Subgroup:	Sequence "b"
Product:	S2SD series cable		File No:	20969805
Description:	ID# B-A1-5		Tech:	S-R
Open circuit voltage:		20mV	Current:	10ma
Units: milliohms				
Temp ºC	22	22	21	20
R.H. %	24	24	24	33
Date:	24Feb10	01Mar10	09Mar10	22Mar10
Pos. ID	Initial	Dura 50X	T.Shock	Humidity
1	29.3	0.1	0.6	1.1
2	29.2	0.1	0.3	0.3
3	31.3	0.2	1.4	2.7
4	28.9	0.0	0.1	2.6
5	29.9	0.0	0.2	1.1
7	29.4	0.2	0.0	2.2
8	29.4	0.2	0.3	0.5
9	29.3	0.1	0.3	0.6
10	29.8	-0.2	-0.3	1.4
11	30.7	0.8	1.5	2.1
12	29.1	0.1	0.3	1.7
13	29.4	0.3	1.4	2.4
14	29.4	0.0	0.1	0.3
15	29.3	0.1	0.1	0.8
16	29.4	0.1	0.2	0.6
17	29.1	0.2	0.3	1.3
18	29.3	0.1	-0.4	0.0
19	29.4	-0.1	-0.6	-0.1
20	28.5	0.8	0.4	2.3
21	29.0	0.0	0.2	0.8
23	29.2	0.1	0.2	0.6
24	29.1	0.3	0.3	0.6
MAX	31.3	0.8	1.5	2.7
MIN	28.5	-0.2	-0.6	-0.1
AVG	29.4	0.2	0.3	1.2
STD	0.6	0.2	0.5	0.9
Open	0	0	0	0
Tech	S-R	S-R	S-R	S-R
Equip ID	681	681	681	681
	1278	1278	1278	1278

Low Level Circuit Resistance - Delta Values				
Project:	209698		Spec:	EIA 364 TP 23
Customer:	Samtec		Subgroup:	Sequence "b"
Product:	S2SD series cable		File No:	20969806
Description:	ID# B-A1-6		Tech:	S-R
Open circuit voltage:		20mV	Current:	10ma
Units: milliohms				
Temp ºC	22	22	21	20
R.H. %	24	24	24	33
Date:	24Feb10	01Mar10	09Mar10	22Mar10
Pos. ID	Initial	Dura 50X	T.Shock	Humidity
1	29.4	0.3	0.1	0.5
2	29.3	-0.1	-0.1	0.2
3	29.2	0.0	0.0	0.2
4	31.9	-1.1	-0.8	-0.1
5	29.6	-0.1	0.0	0.2
7	29.6	0.1	0.1	0.4
8	30.1	0.9	-0.1	0.8
9	29.8	-0.4	-0.3	-0.1
10	29.4	0.1	0.1	0.4
11	29.5	-0.1	0.0	0.3
12	29.2	0.0	0.0	0.1
13	29.2	0.2	0.0	0.2
14	30.1	-0.3	1.0	1.0
15	28.4	-0.4	0.2	-0.5
16	30.0	0.1	0.1	0.4
17	29.2	0.0	0.0	0.1
18	29.2	0.0	0.0	0.3
19	29.7	0.2	0.6	1.0
20	29.4	-0.1	-0.1	0.1
21	30.0	1.1	1.1	1.2
23	32.0	0.7	-0.4	-0.7
24	29.1	0.0	0.0	0.1
MAX	32.0	1.1	1.1	1.2
MIN	28.4	-1.1	-0.8	-0.7
AVG	29.7	0.1	0.1	0.3
STD	0.8	0.4	0.4	0.4
Open	0	0	0	0
Tech	S-R	S-R	S-R	S-R
Equip ID	681	681	681	681
	1278	1278	1278	1278

Low Level Circuit Resistance - Delta Values				
Project:	209698		Spec:	EIA 364 TP 23
Customer:	Samtec		Subgroup:	Sequence "b"
Product:	S2SD series cable		File No:	20969807
Description:	ID# B-A1-7		Tech:	S-R
Open circuit voltage:		20mV	Current:	10ma
Units: milliohms				
Temp ºC	22	22	21	20
R.H. %	24	24	24	33
Date:	24Feb10	01Mar10	09Mar10	22Mar10
Pos. ID	Initial	Dura 50X	T.Shock	Humidity
1	29.6	0.0	-0.5	-0.2
2	29.2	0.0	0.0	-0.4
3	29.8	-0.2	-0.2	0.3
4	32.8	0.6	-0.2	-3.1
5	30.5	-0.1	-1.1	-1.0
7	31.2	0.4	-1.8	-1.3
8	34.6	-0.8	-2.2	-3.4
9	30.2	-0.5	-1.0	-0.3
10	29.3	-0.1	-0.4	-0.4
11	29.9	-0.4	-0.8	-1.3
12	29.0	0.1	0.1	0.1
13	29.2	0.0	0.0	0.0
14	29.2	0.0	-0.1	0.3
15	29.1	0.1	0.1	0.2
16	30.0	0.5	-0.2	-0.2
17	29.4	0.1	0.0	0.0
18	29.5	0.1	0.7	0.0
19	29.8	0.1	-0.2	0.0
20	29.4	0.1	-0.3	0.0
21	29.3	0.1	0.2	-0.2
23	29.5	0.1	-0.1	-0.1
24	29.7	0.1	-0.1	0.1
MAX	34.6	0.6	0.7	0.3
MIN	29.0	-0.8	-2.2	-3.4
AVG	30.0	0.0	-0.4	-0.5
STD	1.3	0.3	0.7	1.0
Open	0	0	0	0.0
Tech	S-R	S-R	S-R	S-R
Equip ID	681	681	681	681
	1278	1278	1278	1278

Low Level Circuit Resistance - Delta Values				
Project:	209698		Spec:	EIA 364 TP 23
Customer:	Samtec		Subgroup:	Sequence "b"
Product:	S2SD series cable		File No:	20969808
Description:	ID# B-A1-8		Tech:	S-R
Open circuit voltage:		20mV	Current:	10ma
Units: milliohms				
Temp ºC	22	22	21	20
R.H. %	24	24	24	33
Date:	24Feb10	01Mar10	09Mar10	22Mar10
Pos. ID	Initial	Dura 50X	T.Shock	Humidity
1	29.9	-0.6	-0.4	-0.3
2	29.8	-0.5	-0.6	1.6
3	29.9	-0.3	-0.3	2.0
4	30.2	-0.3	0.1	1.8
5	29.9	-0.4	-0.1	0.6
7	30.1	-0.7	-0.4	2.8
8	30.1	-0.5	-0.5	0.5
9	29.9	-0.3	2.2	0.4
10	31.6	1.2	-2.1	2.4
11	29.9	-0.6	0.2	-0.2
12	30.3	-0.2	-0.9	0.1
13	29.9	-0.6	-0.1	1.7
14	30.1	-0.6	-0.5	-0.1
15	29.9	-0.4	-0.3	0.1
16	30.0	-0.6	-0.4	-0.2
17	29.8	-0.4	-0.2	1.1
18	29.9	-0.4	-0.2	0.0
19	30.0	-0.5	0.0	-0.1
20	30.0	-0.5	-0.5	-0.1
21	29.8	-0.3	0.1	0.0
23	29.8	-0.4	-0.2	0.2
24	29.8	-0.4	-0.1	0.0
MAX	31.6	1.2	2.2	2.8
MIN	29.8	-0.7	-2.1	-0.3
AVG	30.0	-0.4	-0.2	0.6
STD	0.4	0.4	0.7	1.0
Open	0	0	0	0
Tech	S-R	S-R	S-R	S-R
Equip ID	681	681	681	681
	1278	1278	1278	1278

Low Level Circuit Resistance - Delta Values				
Project:	209698		Spec:	EIA 364 TP 23
Customer:	Samtec		Subgroup:	Sequence "b"
Product:	S2SD series cable		File No:	20969809
Description:	ID# B-A2-1		Tech:	S-R
Open circuit voltage:		20mV	Current:	10ma
Units: milliohms				
Temp ºC	22	22	21	20
R.H. %	24	24	24	33
Date:	24Feb10	01Mar10	09Mar10	22Mar10
Pos. ID	Initial	Dura 100X	T.Shock	Humidity
1	29.5	-0.3	-0.4	-0.4
2	29.5	-0.3	-0.3	-0.1
3	29.5	-0.2	-0.1	-0.1
4	29.6	-0.2	-0.4	0.2
5	29.5	1.2	-0.1	0.5
7	29.4	-0.3	-0.2	0.4
8	29.3	-0.1	0.0	0.0
9	29.5	-0.5	-0.5	0.2
10	29.1	-0.2	-0.1	0.3
11	29.1	0.2	0.3	0.4
12	29.5	-0.3	-0.5	-0.4
13	29.3	0.2	-0.1	0.1
14	29.4	3.4	0.2	0.2
15	33.7	-4.1	-4.3	-4.2
16	29.7	-0.1	-0.4	-0.3
17	29.5	0.1	0.0	0.0
18	29.7	0.0	-0.3	-0.3
19	29.8	-0.3	-0.4	-0.4
20	29.4	0.3	0.0	0.2
21	29.8	0.0	-0.2	-0.5
23	29.8	-0.1	-0.1	-0.2
24	30.0	-0.5	-0.7	-0.7
MAX	33.7	3.4	0.3	0.5
MIN	29.1	-4.1	-4.3	-4.2
AVG	29.7	-0.1	-0.4	-0.2
STD	0.9	1.2	0.9	1.0
Open	0	0	0	0
Tech	S-R	S-R	S-R	S-R
Equip ID	681	681	681	681
	1278	1278	1278	1278

Low Level Circuit Resistance - Delta Values				
Project:	209698		Spec:	EIA 364 TP 23
Customer:	Samtec		Subgroup:	Sequence "b"
Product:	S2SD series cable		File No:	20969810
Description:	ID# B-A2-2		Tech:	S-R
Open circuit voltage:		20mV	Current:	10ma
Units: milliohms				
Temp ºC	22	22	21	20
R.H. %	24	24	24	33
Date:	24Feb10	01Mar10	09Mar10	22Mar10
Pos. ID	Initial	Dura 100X	T.Shock	Humidity
1	29.5	-0.1	0.1	0.0
2	33.6	0.5	-2.1	-1.2
3	29.5	-0.1	0.0	0.0
4	29.6	0.1	0.2	0.5
5	34.0	-0.6	0.8	0.8
7	29.7	-0.2	0.1	0.2
8	29.3	-0.2	0.1	0.3
9	29.6	-0.4	-0.1	0.1
10	31.9	-0.1	-1.2	-1.2
11	31.1	-1.0	-1.7	-1.0
12	29.5	0.0	-0.1	0.2
13	29.6	-0.1	-0.2	0.7
14	29.4	0.0	-0.2	0.1
15	29.4	-0.1	-0.1	0.5
16	29.4	-0.2	-0.2	0.1
17	29.1	0.1	0.1	0.3
18	29.4	-0.1	-0.1	0.2
19	29.3	0.2	0.1	0.5
20	29.6	-0.1	-0.1	0.5
21	29.6	0.5	0.5	1.4
23	30.2	-0.7	-0.5	0.0
24	29.5	-0.1	0.1	1.7
MAX	34.0	0.5	0.8	1.7
MIN	29.1	-1.0	-2.1	-1.2
AVG	30.1	-0.1	-0.2	0.2
STD	1.4	0.3	0.7	0.7
Open	0	0	0	0
Tech	S-R	S-R	S-R	S-R
Equip ID	681	681	681	681
	1278	1278	1278	1278

Low Level Circuit Resistance - Delta Values				
Project:	209698		Spec:	EIA 364 TP 23
Customer:	Samtec		Subgroup:	Sequence "b"
Product:	S2SD series cable		File No:	20969811
Description:	ID# B-A2-3		Tech:	S-R
Open circuit voltage:		20mV	Current:	10ma
Units: milliohms				
Temp ºC	22	22	21	20
R.H. %	24	24	24	33
Date:	24Feb10	01Mar10	09Mar10	22Mar10
Pos. ID	Initial	Dura 100X	T.Shock	Humidity
1	29.5	-0.1	-0.1	0.0
2	29.3	-0.1	0.1	0.3
3	29.3	-0.2	0.0	0.3
4	29.5	-0.3	0.0	0.4
5	29.9	-0.3	0.2	0.6
7	29.5	-0.2	-0.1	0.0
8	29.6	-0.4	-0.2	-0.2
9	29.4	-0.2	-0.1	0.2
10	29.5	-0.1	0.0	0.1
11	29.2	0.0	0.1	0.6
12	29.4	0.0	0.1	0.5
13	29.6	-0.2	0.0	0.3
14	29.5	-0.2	-0.1	0.2
15	29.7	-0.2	-0.1	0.1
16	29.4	-0.1	0.0	0.2
17	29.5	-0.1	0.1	0.1
18	29.8	-0.1	0.1	0.2
19	29.0	0.7	0.7	0.5
20	29.9	-0.2	0.0	0.4
21	29.3	0.0	0.4	-0.1
23	33.0	-0.8	0.1	2.9
24	29.3	0.0	0.1	0.4
MAX	33.0	0.7	0.7	2.9
MIN	29.0	-0.8	-0.2	-0.2
AVG	29.6	-0.1	0.1	0.4
STD	0.8	0.2	0.2	0.6
Open	0	0	0	0
Tech	S-R	S-R	S-R	S-R
Equip ID	681	681	681	681
	1278	1278	1278	1278

Low Level Circuit Resistance - Delta Values				
Project:	209698		Spec:	EIA 364 TP 23
Customer:	Samtec		Subgroup:	Sequence "b"
Product:	S2SD series cable		File No:	209698012
Description:	ID# B-A2-4		Tech:	S-R
Open circuit voltage:		20mV	Current:	10ma
Units: milliohms				
Temp ºC	22	22	21	20
R.H. %	24	24	24	33
Date:	24Feb10	01Mar10	09Mar10	22Mar10
Pos. ID	Initial	Dura 100X	T.Shock	Humidity
1	29.4	0.1	0.1	0.3
2	29.2	0.2	0.0	0.1
3	29.4	0.1	-0.1	0.1
4	29.4	0.0	0.0	0.1
5	29.6	0.0	0.1	0.6
7	29.5	-0.1	-0.1	0.2
8	28.9	0.3	0.1	0.3
9	29.2	-0.2	-0.1	0.2
10	29.2	-0.1	-0.1	0.2
11	29.1	0.0	0.1	0.1
12	29.4	-0.1	-0.1	0.1
13	29.1	0.0	-0.1	0.1
14	29.4	-0.2	0.1	0.1
15	29.4	-0.2	-0.1	0.1
16	29.1	0.1	0.0	0.2
17	29.5	-0.1	0.0	0.1
18	29.3	0.0	0.1	0.2
19	29.4	-0.1	-0.1	0.0
20	29.4	0.0	0.2	0.2
21	29.5	0.0	0.0	0.0
23	29.6	-0.1	0.3	0.3
24	29.8	0.0	0.1	0.3
MAX	29.8	0.3	0.3	0.6
MIN	28.9	-0.2	-0.1	0.0
AVG	29.4	0.0	0.0	0.2
STD	0.2	0.1	0.1	0.1
Open	0	0	0	0
Tech	S-R	S-R	S-R	S-R
Equip ID	681	681	681	681
	1278	1278	1278	1278

Low Level Circuit Resistance - Delta Values				
Project:	209698		Spec:	EIA 364 TP 23
Customer:	Samtec		Subgroup:	Sequence "b"
Product:	S2SD series cable		File No:	209698013
Description:	ID# B-A2-5		Tech:	S-R
Open circuit voltage:		20mV	Current:	10ma
Units: milliohms				
Temp ºC	22	22	21	20
R.H. %	24	24	24	33
Date:	24Feb10	01Mar10	09Mar10	22Mar10
Pos. ID	Initial	Dura 100X	T.Shock	Humidity
1	29.7	-0.4	-0.4	-0.3
2	29.6	-0.5	-0.4	-0.4
3	30.3	-0.1	-0.3	-0.1
4	29.5	-0.2	0.0	0.5
5	29.5	0.2	0.3	0.7
7	29.6	0.0	0.0	3.2
8	29.2	0.4	0.4	4.5
9	29.3	0.1	0.0	0.4
10	29.4	0.0	0.0	0.2
11	29.6	-0.2	0.0	0.1
12	29.5	-0.1	0.0	0.3
13	29.3	0.0	0.1	0.2
14	29.5	0.0	0.1	1.5
15	29.4	0.0	0.1	0.3
16	29.6	-0.4	-0.2	0.0
17	29.6	-0.3	-0.1	1.3
18	29.7	0.1	0.2	0.4
19	29.4	-0.1	0.0	0.1
20	29.5	-0.1	-0.1	0.0
21	29.9	-0.6	-0.5	0.4
23	29.6	-0.1	0.0	0.2
24	29.8	-0.1	0.0	0.1
MAX	30.3	0.4	0.4	4.5
MIN	29.2	-0.6	-0.5	-0.4
AVG	29.6	-0.1	0.0	0.6
STD	0.2	0.2	0.2	1.2
Open	0	0	0	0
Tech	S-R	S-R	S-R	S-R
Equip ID	681	681	681	681
	1278	1278	1278	1278

Low Level Circuit Resistance - Delta Values				
Project:	209698		Spec:	EIA 364 TP 23
Customer:	Samtec		Subgroup:	Sequence "b"
Product:	S2SD series cable		File No:	209698014
Description:	ID# B-A2-6		Tech:	S-R
Open circuit voltage:		20mV	Current:	10ma
Units: milliohms				
Temp ºC	22	22	21	20
R.H. %	24	24	24	33
Date:	24Feb10	01Mar10	09Mar10	22Mar10
Pos. ID	Initial	Dura 100X	T.Shock	Humidity
1	29.4	1.7	0.2	0.4
2	29.7	-0.3	0.0	0.6
3	29.5	0.0	0.4	3.8
4	29.7	-0.2	0.1	0.6
5	30.0	-0.4	0.1	0.0
7	30.2	-0.6	0.5	1.6
8	31.3	-1.9	1.7	3.0
9	29.3	0.3	0.1	1.5
10	29.7	-0.5	0.1	0.6
11	29.7	-0.2	0.1	1.6
12	29.6	0.0	0.1	1.1
13	29.5	0.2	0.0	1.7
14	30.7	-1.5	1.7	1.8
15	29.4	-0.3	0.0	0.4
16	29.3	-0.3	0.2	2.3
17	29.7	-0.1	0.8	1.0
18	29.3	-0.1	0.2	1.3
19	29.7	-0.3	0.1	0.4
20	29.7	-0.2	0.4	0.2
21	29.5	0.0	-0.1	0.3
23	29.4	-0.3	-0.1	0.3
24	29.4	-0.1	0.2	0.5
MAX	31.3	1.7	1.7	3.8
MIN	29.3	-1.9	-0.1	0.0
AVG	29.7	-0.2	0.3	1.1
STD	0.5	0.7	0.5	1.0
Open	0	0	0	0
Tech	S-R	S-R	S-R	S-R
Equip ID	681	681	681	681
	1278	1278	1278	1278

Low Level Circuit Resistance - Delta Values				
Project:	209698		Spec:	EIA 364 TP 23
Customer:	Samtec		Subgroup:	Sequence "b"
Product:	S2SD series cable		File No:	209698015
Description:	ID# B-A2-7		Tech:	S-R
Open circuit voltage:		20mV	Current:	10ma
Units: milliohms				
Temp ºC	22	22	21	20
R.H. %	24	24	24	33
Date:	24Feb10	01Mar10	09Mar10	22Mar10
Pos. ID	Initial	Dura 100X	T.Shock	Humidity
1	29.6	-0.1	0.0	0.2
2	29.9	-0.4	-0.2	-0.2
3	29.1	0.0	0.0	0.3
4	29.6	0.1	0.0	2.1
5	29.6	0.0	0.0	0.1
7	29.6	0.1	0.0	0.2
8	29.5	0.0	0.0	0.1
9	29.9	0.0	0.0	0.2
10	29.4	-0.1	0.0	0.0
11	29.9	-0.2	-0.2	0.2
12	29.8	-0.2	-0.1	0.1
13	29.9	0.0	-0.1	0.1
14	29.4	-0.1	0.0	0.0
15	29.3	0.0	0.1	1.2
16	29.2	0.0	0.0	0.2
17	29.7	0.0	0.2	0.3
18	29.5	-0.2	-0.1	1.8
19	29.4	0.2	0.3	0.4
20	29.5	0.0	0.3	0.6
21	29.7	-0.1	0.0	0.1
23	29.2	0.1	0.1	0.3
24	29.8	-0.4	-0.2	0.2
MAX	29.9	0.2	0.3	2.1
MIN	29.1	-0.4	-0.2	-0.2
AVG	29.6	-0.1	0.0	0.4
STD	0.2	0.2	0.1	0.6
Open	0	0	0	0
Tech	S-R	S-R	S-R	S-R
Equip ID	681	681	681	681
	1278	1278	1278	1278

Low Level Circuit Resistance - Delta Values				
Project:	209698		Spec:	EIA 364 TP 23
Customer:	Samtec		Subgroup:	Sequence "b"
Product:	S2SD series cable		File No:	209698016
Description:	ID# B-A2-8		Tech:	S-R
Open circuit voltage:		20mV	Current:	10ma
Units: milliohms				
Temp ºC	22	22	21	20
R.H. %	24	24	24	33
Date:	24Feb10	01Mar10	09Mar10	22Mar10
Pos. ID	Initial	Dura 100X	T.Shock	Humidity
1	30.7	1.2	0.2	1.9
2	29.7	-0.7	0.1	-0.3
3	29.5	-0.2	0.0	0.6
4	30.0	0.1	0.3	1.2
5	29.2	0.6	2.1	1.0
7	29.5	0.0	0.2	0.1
8	29.4	0.0	0.2	0.1
9	29.4	0.1	0.3	0.7
10	29.3	-0.1	0.1	0.2
11	29.7	-0.2	0.2	0.3
12	30.2	-0.8	-0.5	-0.4
13	29.5	-0.2	-0.1	0.2
14	29.7	-0.3	-0.2	-0.2
15	29.4	-0.2	-0.1	0.1
16	30.1	0.2	0.5	0.7
17	29.7	0.1	0.2	0.4
18	29.9	-0.1	1.3	3.4
19	29.0	0.8	0.1	0.2
20	29.8	0.0	0.2	1.1
21	29.5	0.0	-0.2	0.2
23	29.6	0.1	0.0	0.1
24	29.3	0.1	0.1	0.2
MAX	30.7	1.2	2.1	3.4
MIN	29.0	-0.8	-0.5	-0.4
AVG	29.6	0.0	0.2	0.5
STD	0.4	0.4	0.5	0.8
Open	0	0	0	0
Tech	S-R	S-R	S-R	S-R
Equip ID	681	681	681	681
	1278	1278	1278	1278

TEST RESULTS

SEQUENCE C

Group A

PROJECT NO.: 209698	SPECIFICATION: TC0946-2877
PART NO.: S2SD-30-24-S-02.75-D-NUS	PART DESCRIPTION: S2SD series cable
SAMPLE SIZE: 8 Samples	TECHNICIAN: S-R
START DATE: 3/15/10	COMPLETE DATE: 3/15/10
ROOM AMBIENT: 23°C	RELATIVE HUMIDITY: 30%
EQUIPMENT ID#: 681, 1278	

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.

-continued on next page.

PROCEDURE:–continued

2. Test Conditions:

a) Test Current : 10 milliamps
b) Open Circuit Voltage : 20 millivolts
c) No. of positions tested : 22 per sample

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	29.5	30.1	28.8
C-A-2	29.8	32.1	28.9
C-A-3	30.8	32.9	28.9
C-A-4	30.0	31.1	28.8
C-A-5	30.2	31.4	29.2
C-A-6	30.3	31.1	29.6
C-A-7	29.9	30.9	29.1
C-A-8	30.3	32.8	28.4

2. See data files 20969825 through 20969832 for individual data points.

PROJECT NO.: 209698	SPECIFICATION: TC0946-2877
PART NO.: S2SD-30-24-S-02.75-D-NUS	PART DESCRIPTION: S2SD series cable
SAMPLE SIZE: 8 Samples	TECHNICIAN: S-R
START DATE: 3/17/10	COMPLETE DATE: 3/17/10
ROOM AMBIENT: 22°C	RELATIVE HUMIDITY: 26%
EQUIPMENT ID#: 34, 200, 585, 681, 1010, 1278, 1521	

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 Axes (18 Total)

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

4. Figure #2 illustrates the test sample fixturing utilized during the test.

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 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
C-A-1	+0.2	+0.7
C-A-2	+0.0	+0.3
C-A-3	+0.5	+2.7
C-A-4	+0.3	+2.1
C-A-5	+0.1	+0.6
C-A-6	+0.1	+0.9
C-A-7	+0.2	+0.4
C-A-8	+0.2	+0.7

3. See data files 20969825 through 20969832 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 #2

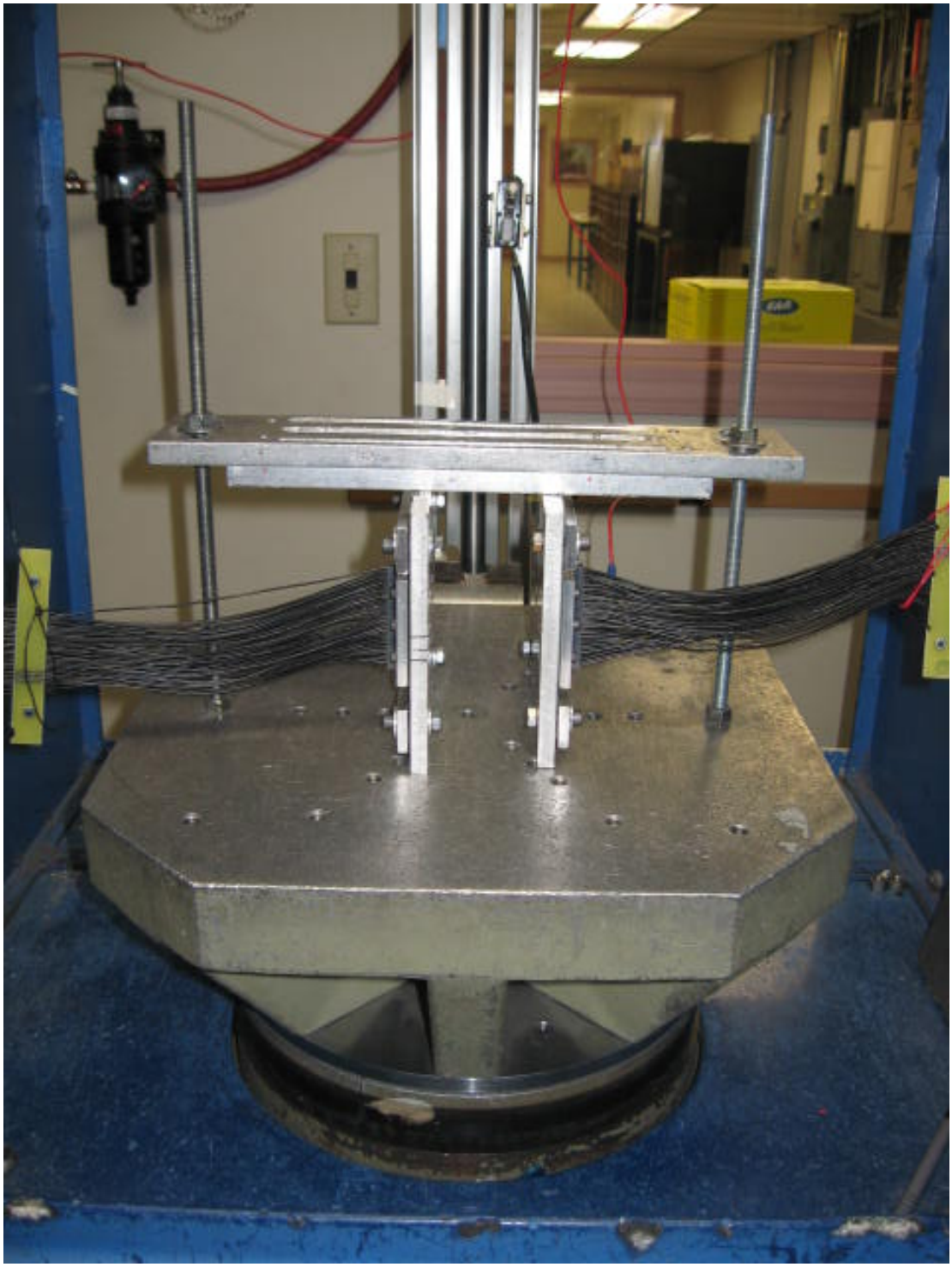


FIGURE #3

Delay 1 to 1 = 6.175 ms V ampl 1 = 1.06 V

Graph [1] 175 mV/div 500 mV 2.00 ms/div -10.00 ms

1: [Mem 0]
209698 CAL

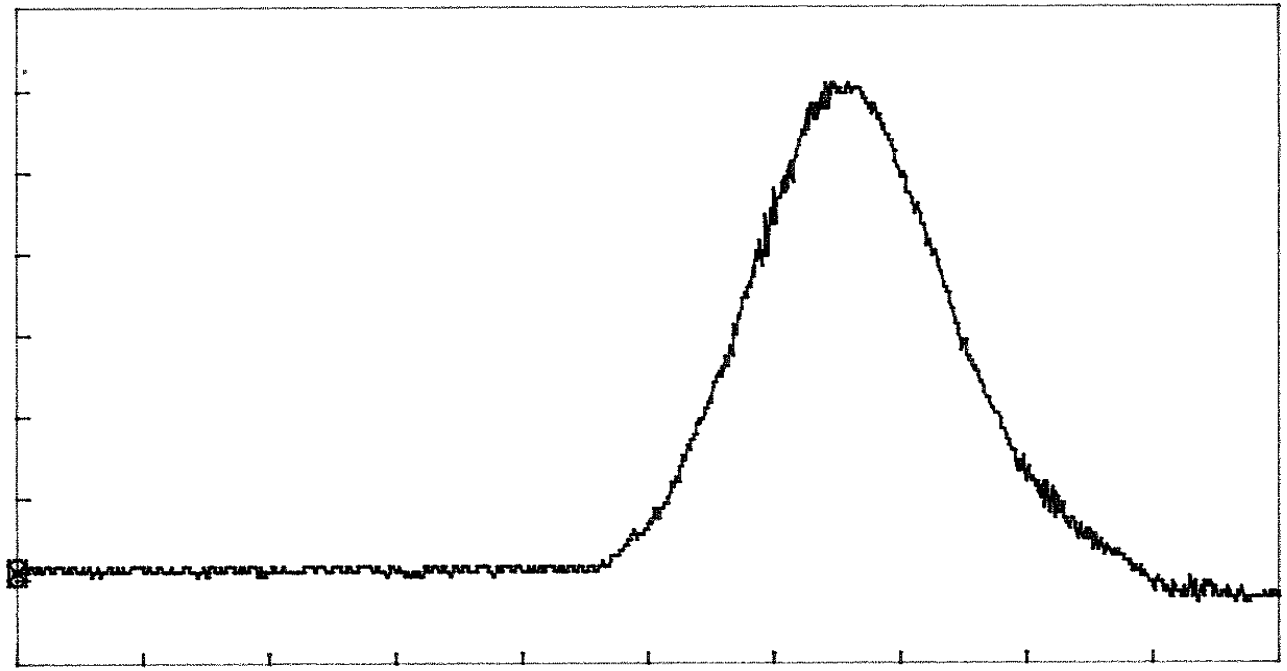
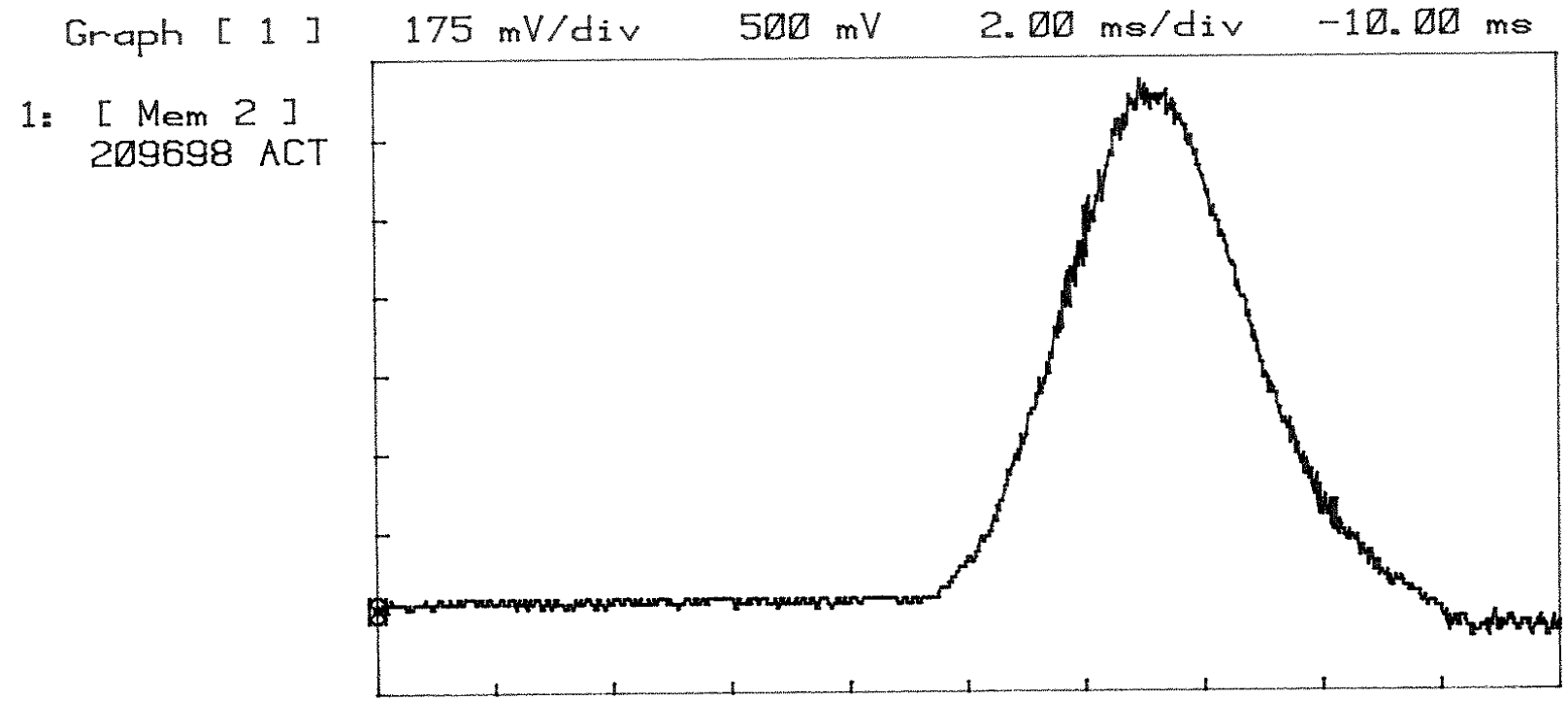


FIGURE #4

Delay 1 to 1 = 5.880 ms V ampl 1 = 1.17 V



PROJECT NO.: 209698	SPECIFICATION: TC0946-2877
PART NO.: S2SD-30-24-S-02.75-D-NUS	PART DESCRIPTION: S2SD series cable
SAMPLE SIZE: 8 Samples	TECHNICIAN: S-R
START DATE: 3/18/10	COMPLETE DATE: 3/22/10
ROOM AMBIENT: 21°C	RELATIVE HUMIDITY: 28%
EQUIPMENT ID#: 14, 553, 681, 1166, 1167, 1168, 1271, 1272, 1278, 1426, 1634	

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) Power Spectral Density : 0.04 g^2/Hz
   b) G 'rms' : 7.56
   c) Frequency : 50 to 2000 Hz
   d) Duration : 2.0 hrs per axis, 3 axes total

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

4. Figure #5 illustrates the test sample fixturing utilized during the test.

-continued on next page.

PROCEDURE:-continued

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

REQUIREMENTS:

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

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

RESULTS:

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

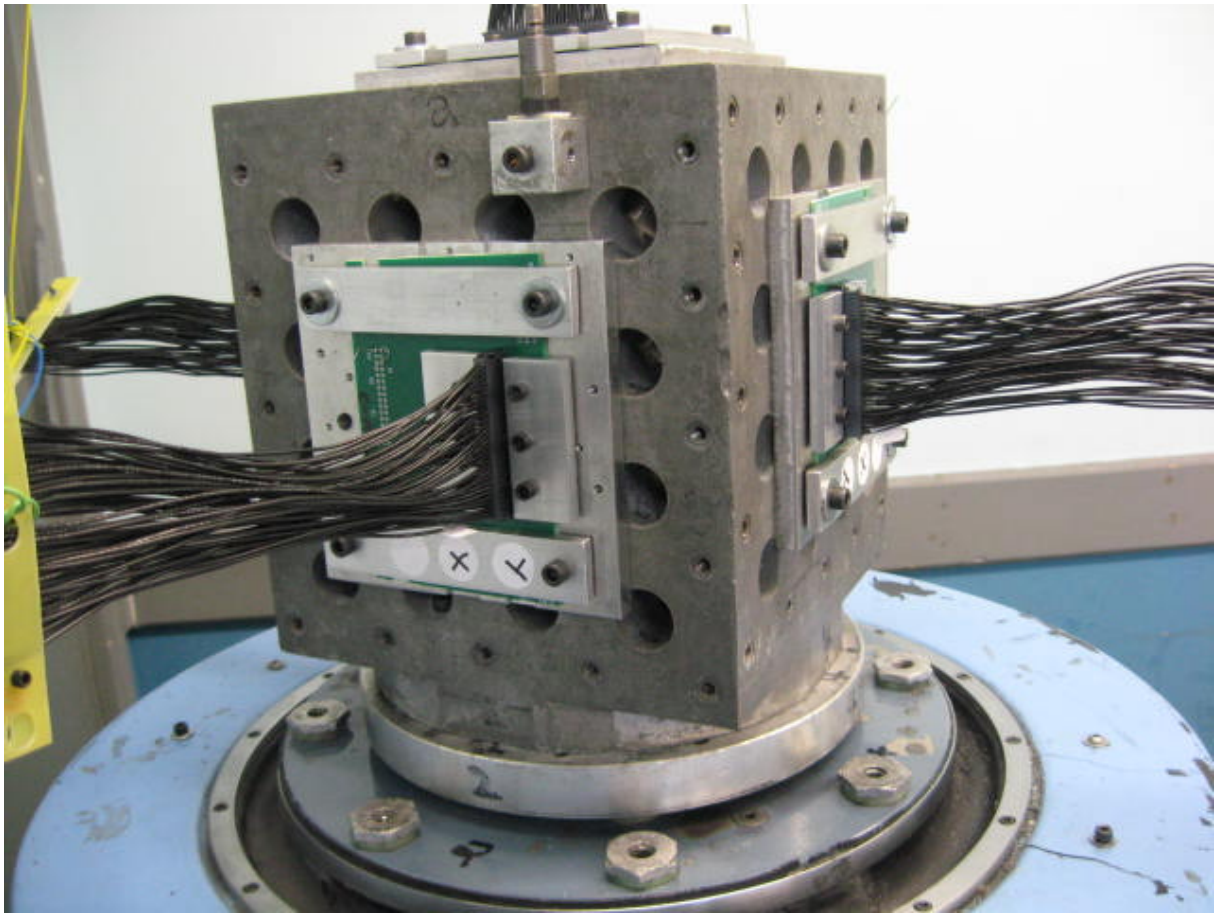
2. The following is a summary of the observed data:

CHANGE IN
LOW LEVEL CIRCUIT RESISTANCE
(milliohms)

Sample ID#	Avg. Change	Max. Change
C-A-1	-0.2	+0.7
C-A-2	+0.1	+0.8
C-A-3	+0.5	+2.8
C-A-4	+0.3	+1.3
C-A-5	+0.1	+0.5
C-A-6	+0.2	+0.7
C-A-7	+0.4	+1.3
C-A-8	+0.3	+1.0

3. See data files 20969825 through 20969832 for individual data points.

FIGURE #5



LLCR DATA FILES

DATA FILE NUMBERS

20969825
20969826
20969827
20969828
20969829
20969830
20969831
20969832

Low Level Circuit Resistance - Delta Values				
Project:	209698		Spec:	EIA 364 TP 23
Customer:	Samtec		Subgroup:	Sequence "c"
Product:	S2SD series cable		File No:	20969825
Description:	ID# C-A-1		Tech:	S-R
Open circuit voltage:		20mV	Current:	10ma
Units: milliohms				
Temp ºC	23	21	21	
R.H. %	30	28	32	
Date:	15Mar10	18Mar10	23Mar10	
Pos. ID	Initial	M-Shock	VIB	
1	29.8	0.2	-0.6	
2	29.2	0.1	0.0	
3	29.6	0.2	-0.6	
4	29.8	0.0	-0.6	
5	30.1	0.5	0.1	
7	30.1	0.1	-1.0	
8	29.9	0.6	-0.7	
9	29.8	0.0	-0.1	
10	29.4	0.7	0.7	
11	29.7	0.0	-0.7	
12	29.2	0.5	0.7	
13	29.1	0.0	-0.3	
14	29.0	0.0	0.1	
15	29.1	0.1	0.1	
16	29.2	0.0	0.0	
17	29.7	0.2	-0.5	
18	29.4	0.0	-0.4	
19	28.9	0.0	0.1	
20	29.0	-0.1	0.0	
21	29.7	0.1	-0.4	
23	29.5	0.4	0.2	
24	28.8	0.0	0.1	
MAX	30.1	0.7	0.7	
MIN	28.8	-0.1	-1.0	
AVG	29.5	0.2	-0.2	
STD	0.4	0.2	0.4	
Open	0	0	0	
Tech	S-R	S-R	S-R	
Equip ID	681	681	681	
	1278	1278	1278	

Low Level Circuit Resistance - Delta Values				
Project:	209698		Spec:	EIA 364 TP 23
Customer:	Samtec		Subgroup:	Sequence "c"
Product:	S2SD series cable		File No:	20969826
Description:	ID# C-A-2		Tech:	S-R
Open circuit voltage:		20mV	Current:	10ma
Units: milliohms				
Temp ºC	23	21	21	
R.H. %	30	28	32	
Date:	15Mar10	18Mar10	23Mar10	
Pos. ID	Initial	M-Shock	VIB	
1	29.6	0.3	0.2	
2	29.9	0.1	0.1	
3	29.9	0.2	0.0	
4	30.1	-0.1	-0.2	
5	29.7	0.0	0.0	
7	32.1	0.0	0.0	
8	31.2	-0.1	-0.1	
9	31.7	-0.1	0.1	
10	31.0	0.1	0.1	
11	29.5	-0.1	0.1	
12	29.8	0.0	0.0	
13	29.4	0.0	-0.1	
14	29.3	0.1	0.1	
15	29.6	0.1	0.2	
16	29.2	0.0	0.1	
17	29.1	-0.1	0.3	
18	29.2	0.0	0.0	
19	28.9	0.2	0.3	
20	29.1	-0.2	0.2	
21	29.5	0.1	0.6	
23	29.6	0.0	-0.2	
24	29.0	0.1	0.8	
MAX	32.1	0.3	0.8	
MIN	28.9	-0.2	-0.2	
AVG	29.8	0.0	0.1	
STD	0.9	0.1	0.2	
Open	0	0	0	
Tech	S-R	S-R	S-R	
Equip ID	681	681	681	
	1278	1278	1278	

Low Level Circuit Resistance - Delta Values				
Project:	209698		Spec:	EIA 364 TP 23
Customer:	Samtec		Subgroup:	Sequence "c"
Product:	S2SD series cable		File No:	20969827
Description:	ID# C-A-3		Tech:	S-R
Open circuit voltage:		20mV	Current:	10ma
Units: milliohms				
Temp ºC	23	21	21	
R.H. %	30	28	32	
Date:	15Mar10	18Mar10	23Mar10	
Pos. ID	Initial	M-Shock	VIB	
1	32.2	0.1	0.2	
2	30.5	0.0	0.0	
3	31.4	0.1	0.1	
4	32.9	-0.2	-0.3	
5	32.5	-0.1	0.4	
7	32.8	0.9	0.7	
8	31.9	0.1	-0.1	
9	31.2	0.5	1.0	
10	31.2	-0.1	0.1	
11	31.3	0.1	0.2	
12	30.5	0.2	0.2	
13	30.5	0.1	0.2	
14	30.1	0.4	0.6	
15	29.9	0.5	0.7	
16	29.7	0.1	-0.3	
17	29.3	0.6	0.7	
18	28.9	0.4	-0.4	
19	29.7	0.7	0.3	
20	30.2	2.7	0.1	
21	30.7	1.9	2.8	
23	30.6	0.8	2.2	
24	30.4	0.5	0.7	
MAX	32.9	2.7	2.8	
MIN	28.9	-0.2	-0.4	
AVG	30.8	0.5	0.5	
STD	1.1	0.7	0.8	
Open	0	0	0	
Tech	S-R	S-R	S-R	
Equip ID	681	681	681	
	1278	1278	1278	

Low Level Circuit Resistance - Delta Values				
Project:	209698		Spec:	EIA 364 TP 23
Customer:	Samtec		Subgroup:	Sequence "c"
Product:	S2SD series cable		File No:	20969828
Description:	ID# C-A-4		Tech:	S-R
Open circuit voltage:		20mV	Current:	10ma
Units: milliohms				
Temp ºC	23	21	21	
R.H. %	30	28	32	
Date:	15Mar10	18Mar10	23Mar10	
Pos. ID	Initial	M-Shock	VIB	
1	30.2	-0.1	0.0	
2	30.7	0.6	-0.3	
3	30.6	0.8	1.3	
4	30.4	-0.2	0.2	
5	28.8	-0.3	0.5	
7	31.1	0.2	0.4	
8	30.5	-0.1	-0.1	
9	30.6	-0.1	0.5	
10	30.9	0.1	0.3	
11	30.5	0.3	0.3	
12	29.9	0.1	0.2	
13	30.0	0.1	0.3	
14	29.9	0.1	0.3	
15	30.0	0.1	0.2	
16	29.7	0.1	0.2	
17	29.4	-0.1	0.1	
18	28.9	0.4	0.4	
19	28.9	0.2	0.2	
20	28.8	0.0	0.3	
21	30.7	1.5	1.0	
23	29.4	0.2	0.8	
24	29.8	2.1	-0.1	
MAX	31.1	2.1	1.3	
MIN	28.8	-0.3	-0.3	
AVG	30.0	0.3	0.3	
STD	0.7	0.6	0.4	
Open	0	0	0	
Tech	S-R	S-R	S-R	
Equip ID	681	681	681	
	1278	1278	1278	

Low Level Circuit Resistance - Delta Values				
Project:	209698		Spec:	EIA 364 TP 23
Customer:	Samtec		Subgroup:	Sequence "c"
Product:	S2SD series cable		File No:	20969829
Description:	ID# C-A-5		Tech:	S-R
Open circuit voltage:		20mV	Current:	10ma
Units: milliohms				
Temp ºC	23	21	21	
R.H. %	30	28	32	
Date:	15Mar10	18Mar10	23Mar10	
Pos. ID	Initial	M-Shock	VIB	
1	29.3	0.1	0.3	
2	29.6	-0.2	-0.2	
3	30.9	0.1	0.1	
4	31.3	-0.2	0.0	
5	31.4	0.0	0.2	
7	31.4	0.3	0.1	
8	31.0	0.0	0.1	
9	30.7	0.1	0.5	
10	30.9	0.1	0.0	
11	30.6	0.0	0.1	
12	30.3	0.1	0.3	
13	29.3	0.1	0.3	
14	29.3	0.0	0.2	
15	29.4	0.0	0.2	
16	29.2	0.2	0.5	
17	29.3	0.1	-0.6	
18	29.8	0.0	0.1	
19	29.7	0.6	-0.1	
20	30.5	-0.1	0.2	
21	30.6	-0.1	0.3	
23	29.9	0.1	-0.1	
24	30.4	0.0	0.3	
MAX	31.4	0.6	0.5	
MIN	29.2	-0.2	-0.6	
AVG	30.2	0.1	0.1	
STD	0.8	0.2	0.3	
Open	0	0	0	
Tech	S-R	S-R	S-R	
Equip ID	681	681	681	
	1278	1278	1278	

Low Level Circuit Resistance - Delta Values				
Project:	209698		Spec:	EIA 364 TP 23
Customer:	Samtec		Subgroup:	Sequence "c"
Product:	S2SD series cable		File No:	209698030
Description:	ID# C-A-6		Tech:	S-R
Open circuit voltage:		20mV	Current:	10ma
Units: milliohms				
Temp ºC	23	21	21	
R.H. %	30	28	32	
Date:	15Mar10	18Mar10	23Mar10	
Pos. ID	Initial	M-Shock	VIB	
1	30.5	-0.2	0.1	
2	30.5	0.0	0.2	
3	31.0	0.2	0.3	
4	30.7	0.0	0.2	
5	30.9	0.0	0.2	
7	31.1	0.1	0.2	
8	30.7	0.1	0.4	
9	30.6	0.1	0.2	
10	30.7	-0.1	0.1	
11	30.5	0.2	0.3	
12	30.1	0.1	0.5	
13	29.9	0.0	0.2	
14	29.9	-0.2	0.1	
15	29.6	0.4	0.1	
16	29.7	0.1	0.2	
17	29.9	0.1	0.1	
18	30.4	0.2	0.1	
19	31.0	-0.3	-1.2	
20	30.1	0.2	0.4	
21	30.0	0.9	0.7	
23	30.1	0.1	0.2	
24	29.8	0.1	0.3	
MAX	31.1	0.9	0.7	
MIN	29.6	-0.3	-1.2	
AVG	30.3	0.1	0.2	
STD	0.5	0.2	0.3	
Open	0	0	0	
Tech	S-R	S-R	S-R	
Equip ID	681	681	681	
	1278	1278	1278	

Low Level Circuit Resistance - Delta Values				
Project:	209698		Spec:	EIA 364 TP 23
Customer:	Samtec		Subgroup:	Sequence "c"
Product:	S2SD series cable		File No:	20969831
Description:	ID# C-A-7		Tech:	S-R
Open circuit voltage:		20mV	Current:	10ma
Units: milliohms				
Temp ºC	23	21	21	
R.H. %	30	28	32	
Date:	15Mar10	18Mar10	23Mar10	
Pos. ID	Initial	M-Shock	VIB	
1	30.0	0.0	0.1	
2	30.6	0.1	0.3	
3	30.7	0.2	0.4	
4	30.6	-0.1	0.4	
5	30.9	0.2	0.5	
7	30.6	0.3	1.3	
8	30.4	0.2	0.3	
9	30.3	0.3	0.5	
10	30.8	0.3	0.3	
11	29.5	0.4	0.4	
12	29.9	0.2	0.1	
13	29.7	0.2	0.3	
14	29.6	0.2	0.3	
15	29.5	0.2	0.3	
16	29.2	0.2	0.3	
17	29.1	0.1	0.3	
18	29.7	0.2	0.3	
19	29.4	0.3	0.5	
20	29.2	0.2	0.2	
21	29.4	0.3	0.5	
23	29.6	0.3	0.3	
24	29.6	0.1	0.2	
MAX	30.9	0.4	1.3	
MIN	29.1	-0.1	0.1	
AVG	29.9	0.2	0.4	
STD	0.6	0.1	0.2	
Open	0	0	0	
Tech	S-R	S-R	S-R	
Equip ID	681	681	681	
	1278	1278	1278	

Low Level Circuit Resistance - Delta Values				
Project:	209698		Spec:	EIA 364 TP 23
Customer:	Samtec		Subgroup:	Sequence "c"
Product:	S2SD series cable		File No:	20969832
Description:	ID# C-A-8		Tech:	S-R
Open circuit voltage:		20mV	Current:	10ma
Units: milliohms				
Temp ºC	23	21	21	
R.H. %	30	28	32	
Date:	15Mar10	18Mar10	23Mar10	
Pos. ID	Initial	M-Shock	VIB	
1	31.6	0.2	0.2	
2	31.1	-0.2	0.2	
3	30.6	0.0	0.3	
4	31.8	0.2	0.3	
5	32.5	0.3	0.4	
7	32.8	0.1	0.2	
8	32.7	0.2	0.4	
9	31.5	0.0	0.2	
10	32.0	0.1	0.3	
11	30.4	0.1	0.2	
12	30.5	0.1	0.2	
13	29.5	0.2	0.3	
14	29.8	0.3	0.3	
15	28.5	0.3	0.4	
16	29.0	0.3	0.4	
17	28.6	0.1	0.3	
18	29.0	0.3	0.4	
19	28.9	0.3	0.3	
20	28.4	0.7	-0.2	
21	28.8	0.1	0.1	
23	29.1	0.3	1.0	
24	28.8	0.2	0.2	
MAX	32.8	0.7	1.0	
MIN	28.4	-0.2	-0.2	
AVG	30.3	0.2	0.3	
STD	1.5	0.2	0.2	
Open	0	0	0	
Tech	S-R	S-R	S-R	
Equip ID	681	681	681	
	1278	1278	1278	

TEST RESULTS

SEQUENCE D

Group A

PROJECT NO.: 209698	SPECIFICATION: TC0946-2877
PART NO.: S2SD-30-24-S-02.75-D-NUS	PART DESCRIPTION: S2SD series cable
SAMPLE SIZE: 3 Samples	TECHNICIAN: S-R
START DATE: 3/17/10	COMPLETE DATE: 3/17/10
ROOM AMBIENT: 22°C	RELATIVE HUMIDITY: 26%
EQUIPMENT ID#: 34, 200, 585, 1010, 1028, 1147, 1521, 5045	

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 Axes (18 Total)

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

4. Figure #6 illustrates the test sample fixturing utilized during the test.

5. The samples were characterized to assure that the low nanosecond event being monitored will trigger the detector.

-continued on next page.

PROCEDURE:-continued

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

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.

3. The Mechanical Shock characteristics are shown in Figures #7 (Calibration Pulse) and #8 (Test Pulse). Each figure displays the shock pulse contained within the upper and lower limits as defined by the appropriate test specification.

FIGURE #6

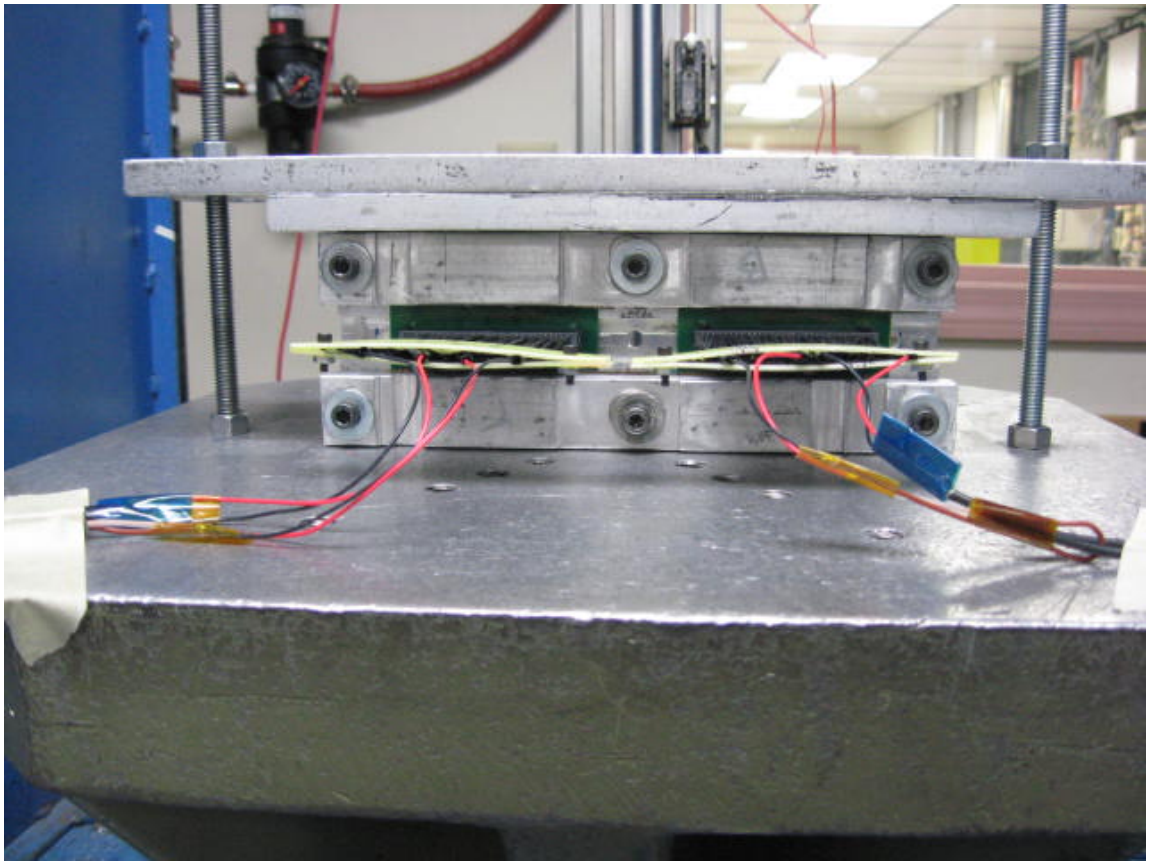


FIGURE #7

Delay 1 to 1 = 5.980 ms V ampl 1 = 1.20 V

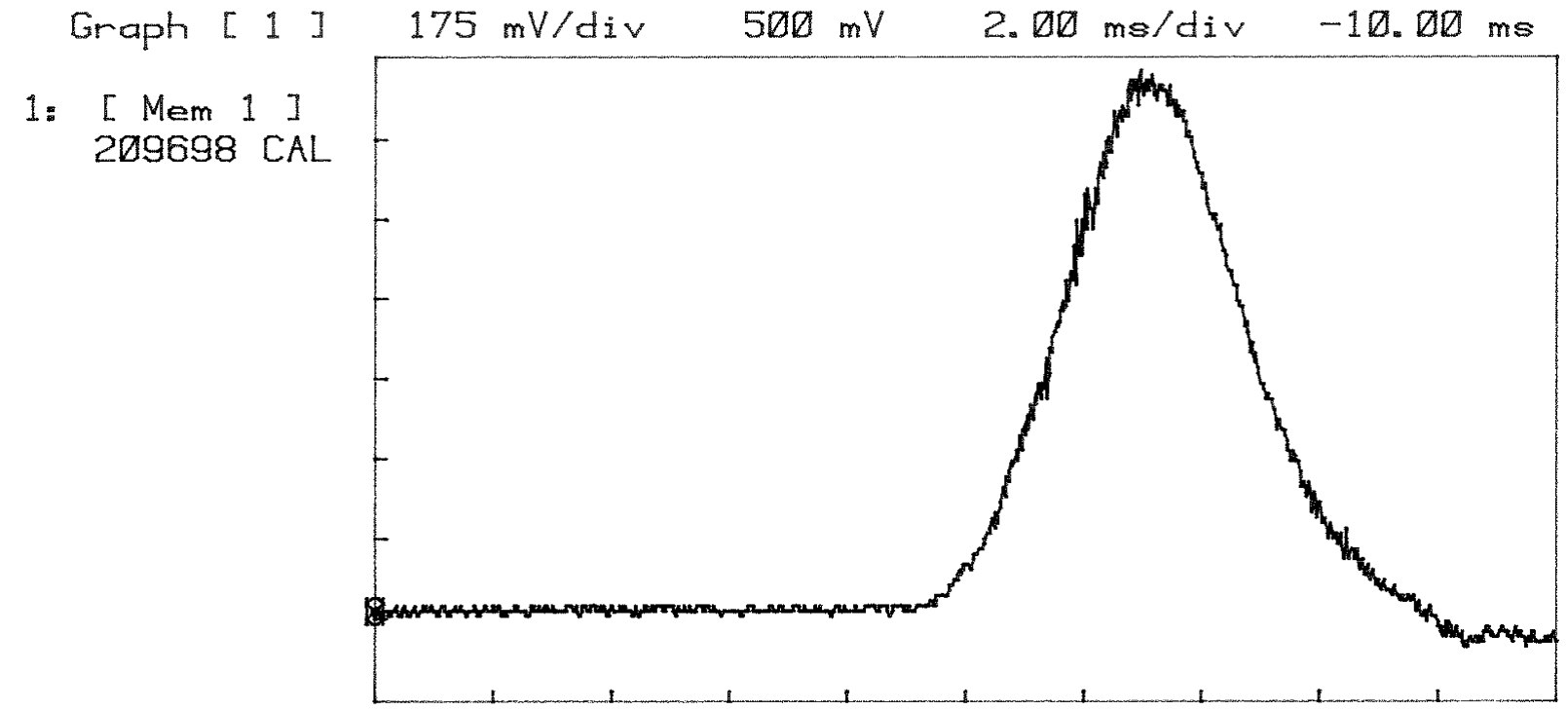
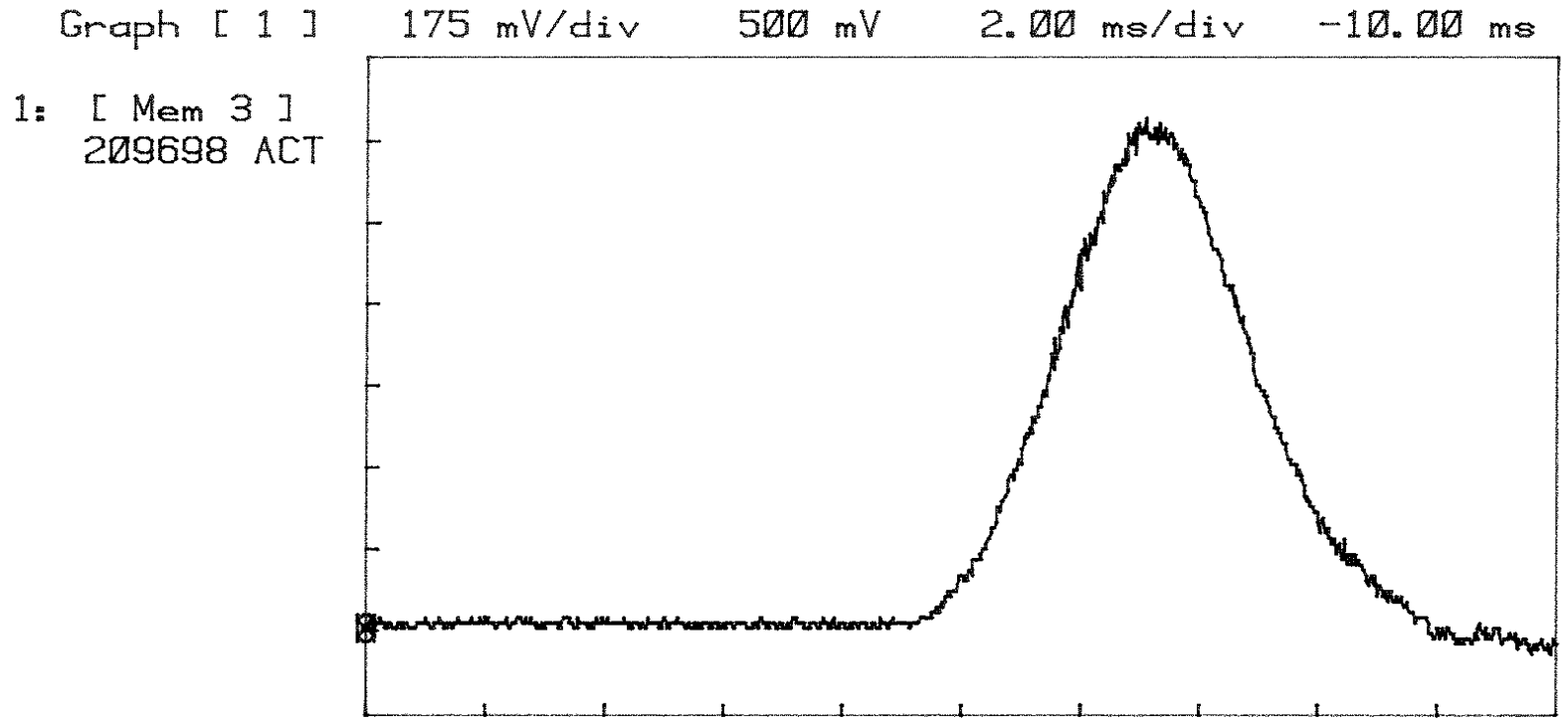


FIGURE #8

Delay 1 to 1 = 6.295 ms V ampl 1 = 1.08 V



PROJECT NO.: 209698	SPECIFICATION: TC0946-2877
PART NO.: S2SD-30-24-S-02.75-D-NUS	PART DESCRIPTION: S2SD series connector
SAMPLE SIZE: 3 Samples	TECHNICIAN: GL
START DATE: 8/20/09	COMPLETE DATE: 8/20/09
ROOM AMBIENT: 22°C	RELATIVE HUMIDITY: 50%
EQUIPMENT ID#: 14, 545, 553, 1147, 1166, 1167, 1168, 1271, 1272, 1426, 1634, 5045	

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) Power Spectral Density : 0.04 g^2/Hz
   b) G 'rms' : 7.56
   c) Frequency : 50 to 2000 Hz
   d) Duration : 2.0 hrs per axis, 3 axes total

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

4. Figure #9 illustrates the test sample fixturing utilized during the test.

-continued on next page.

PROCEDURE: -continued

5. Prior to testing, the connectors were characterized to assure that the desired event being monitored was capable of being detected.

6. The low nanosecond event detection was performed in accordance with EIA 364, Test Procedure 87.

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.

FIGURE #9