March 3, 2005

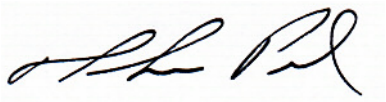
TEST REPORT #205004, REV.1.0

DPAM/DPAF SERIES CONNECTOR TESTING

PART NUMBER

DPAF-15-01-H-8-1
DPAM-15-10-H-8-1

SAMTEC, INC.



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

1478 - 01
ACCREDITED
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Contech Research
An Independent Test and Research Laboratory

REVISION HISTORY

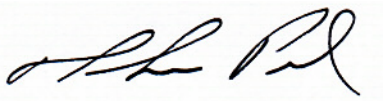
DATE	REV. NO.	DESCRIPTION	ENG.
3/3/2005	1.0	Initial Issue	TP

CERTIFICATION

This is to certify that the DPAF/DPAM 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 DPAM/DPAF 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: TCO424-DPAM-DPAF-0454

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) Socket Connector	DPAF-15-01-H-8-1
b) Terminal Connector	DPAM-15-10-H-8-1

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 interruptions during vibration and/or shock.

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

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:

Sequence A : Group A - A-A-1,A-A-2
: Group B1 - A-B1-1,A-B1-2
: Group B2 - A-B2-1,A-B2-2
: Group B3 - A-B3-1,A-B3-2

Sequence B : Group A - B-A-1,B-A-2,B-A-3,B-A-4,B-A-5,B-A-6, B-A-7,B-A-8

Sequence C : Group A - C-A-1,C-A-2,C-A-3

Sample ID Key

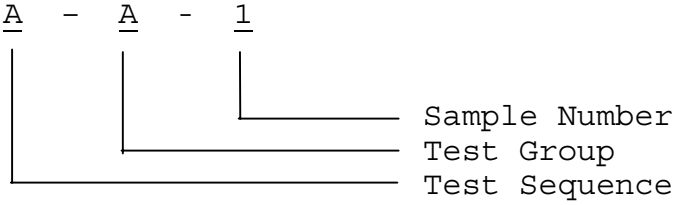
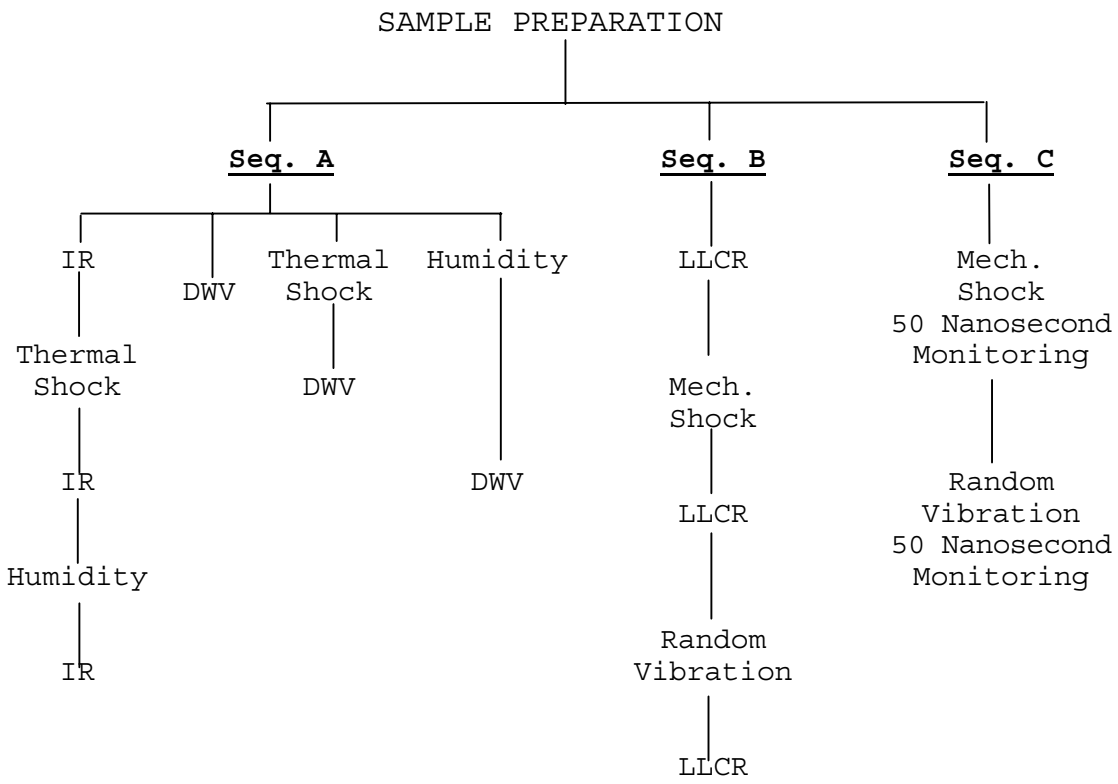


FIGURE #1

TEST PLAN FLOW DIAGRAM



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

DATA SUMMARY

TEST	REQUIREMENT	RESULTS
SEQUENCE A		
GROUP A		
Insulation Resistance	1000 Megohms Min.	>50000 Megohms
Thermal Shock	No Damage	Passed
Insulation Resistance	1000 Megohms Min.	>50000 Megohms
Humidity	No Damage	Passed
Insulation Resistance	1000 Megohms Min.	>50000 Megohms
GROUP B1		
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		
GROUP A		
LLCR	Record	10.4 mΩ Max.
Mechanical Shock	No Damage	Passed
LLCR	+10.0 mΩ Max.Chg.	+0.7 mΩ Max.Chg.
Random Vibration	No Damage	Passed
LLCR	+10.0 mΩ Max.Chg.	+1.1 mΩ Max.Chg.
GROUP C		
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
27			Temp. Humid. Chamber	Blue M Co.	FR-256PC-1	F2-249	See Cal Cert	Each Test
192			Vertical Thermal Shock	Cincinnati Sub-Zero	VTS-1-5-3	88-11094	See Cal Cert	Each Test
321	x3/4/2005	2/4/04	AC-DC Hipot/Megometer	Hipotronics Co.	H300B	DS16-201	See Cal Cert	12 mon.
512			Bench Oven	Blue M Co.	POM 146C-1	CD9506	See Manual	Each Test
553	12/6/05	12/6/04	12 channel Power Unit	PCB Co.	483A	1303	See Cal Cert	12mon
601			Computer	A.M.I.	P111-450	082714	N/A	N/A
676	10/13/05	10/13/04	Digital Thermometer	Omega Co.	DP116-JC2	8010266	±1.1DegC	12mon
1028	12/23/05	12/23/04	Event Detector	Analysis Tech	32 EHD	981019	See Cal.Cert.	12mon
1121	10/20/05	10/20/04	Accelerometer	PCB	353B04	57715	See Cal. Cert.	12mon
1166	6/14/05	6/14/04	Sine/Rndm Vib Control Digitizer	Hewlett Packard	E1432A	US39342279	See Cal Cert	12 months
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
1278	7/26/05	7/26/04	Microohm mtr	Keithley	580	0803947	See Manual	12 mon.
1314	12/8/05	12/8/04	Multiplexer card	Keithley Co.	7708	0862544	See CERT	12mon
1315	12/8/05	12/8/04	Data Aquisition Multimeter	Keithley Co.	2700	0862680	See CERT	12mon
1361	12/8/05	12/8/04	Multiplexer Card	Keithley	7708	1067661	See Cal Cert	6mon

TEST RESULTS

SEQUENCE A

Group A

PROJECT NO.: 205004 SPECIFICATION: TC0424-DPAM-DPAF-0454

PART NO.: DPAF-15-01-H-8-1 PART DESCRIPTION: DPAM/DPAF
DPAM-15-10-H-8-1 Connectors

SAMPLE SIZE: ID# A-A-1,A-A-2 TECHNICIAN: BE

START DATE: 1/31/05 COMPLETE DATE: 1/31/05

ROOM AMBIENT: 24°C RELATIVE HUMIDITY: 19%

EQUIPMENT ID#: 321

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.: 205004 SPECIFICATION: TC0424-DPAM-DPAF-0454

PART NO.: DPAF-15-01-H-8-1, DPAM-15-10-H-8-1 PART DESCRIPTION: DPAM/DPAF Connectors

SAMPLE SIZE: ID# A-A-1,A-A-2 TECHNICIAN: BE

START DATE: 2/3/05 COMPLETE DATE: 2/7/05

ROOM AMBIENT: 26°C RELATIVE HUMIDITY: 21%

EQUIPMENT ID#: 192, 321, 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.: 205004 SPECIFICATION: TC0424-DPAM-DPAF-0454

PART NO.: DPAF-15-01-H-8-1, DPAM-15-10-H-8-1 PART DESCRIPTION: DPAM/DPAF Connectors

SAMPLE SIZE: ID# A-A-1,A-A-2 TECHNICIAN: BE / DAM

START DATE: 2/8/05 COMPLETE DATE: 2/18/05

ROOM AMBIENT: 22°C RELATIVE HUMIDITY: 21%

EQUIPMENT ID#: 27, 321, 512, 676

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 50,000 megohms.

TEST RESULTS

SEQUENCE A

Group B1

PROJECT NO.: 205004 SPECIFICATION: TC0424-DPAM-DPAF-0454

PART NO.: DPAF-15-01-H-8-1, DPAM-15-10-H-8-1 PART DESCRIPTION: DPAM/DPAF Connectors

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

START DATE: 2/11/05 COMPLETE DATE: 2/11/05

ROOM AMBIENT: 24°C RELATIVE HUMIDITY: 24%

EQUIPMENT ID#: 321

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.: 205004 SPECIFICATION: TC0424-DPAM-DPAF-0454

PART NO.: DPAF-15-01-H-8-1, DPAM-15-10-H-8-1 PART DESCRIPTION: DPAM/DPAF Connectors

SAMPLE SIZE: ID# A-B2-1,A-B2-2 TECHNICIAN: BE

START DATE: 2/3/05 COMPLETE DATE: 2/7/05

ROOM AMBIENT: 24°C RELATIVE HUMIDITY: 20%

EQUIPMENT ID#: 192, 321, 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. 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.: 205004 SPECIFICATION: TC0424-DPAM-DPAF-0454

PART NO.: DPAF-15-01-H-8-1, DPAM-15-10-H-8-1 PART DESCRIPTION: DPAM/DPAF Connectors

SAMPLE SIZE: ID# A-B3-1,A-B3-2 TECHNICIAN: BE

START DATE: 2/8/05 COMPLETE DATE: 2/18/05

ROOM AMBIENT: 22°C RELATIVE HUMIDITY: 21%

EQUIPMENT ID#: 27, 321, 512, 676

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.: 205004		SPECIFICATION: TC0424-DPAM-DPAF-0454	
PART NO.:	DPAF-15-01-H-8-1 DPAM-15-10-H-8-1	PART DESCRIPTION:	DPAM/DPAF Connectors
SAMPLE SIZE:	ID# B-A-1, B-A-2, B-A-3, B-A-4, B-A-5, B-A-6, B-A-7, B-A-8	TECHNICIAN:	BE
START DATE:	2/4/05	COMPLETE DATE:	2/4/05
ROOM AMBIENT:	24°C	RELATIVE HUMIDITY:	22%
EQUIPMENT ID#:	601, 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, 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:

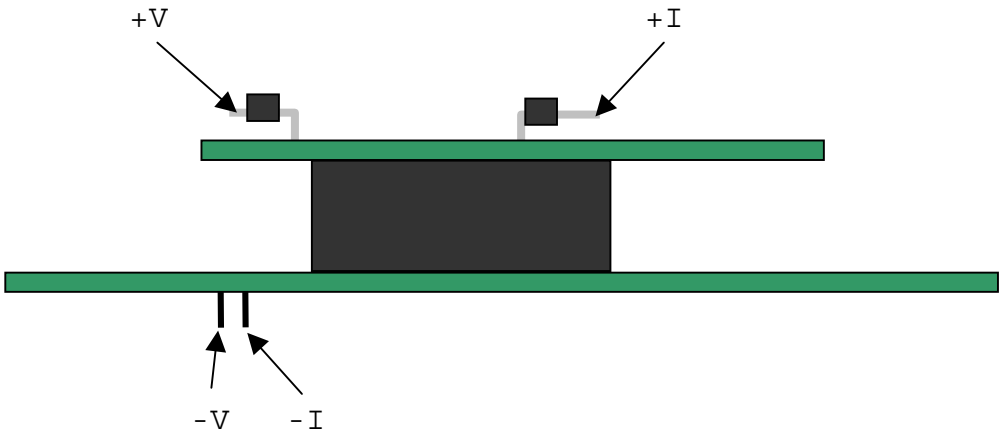
LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg.	Max.	Min.
B-A-1	7.4	9.3	6.5
B-A-2	7.6	10.0	6.5
B-A-3	8.0	10.4	7.0
B-A-4	7.6	9.4	6.7
B-A-5	7.6	9.6	6.8
B-A-6	7.6	9.5	6.7
B-A-7	7.4	9.2	6.6
B-A-8	7.6	9.8	6.6

2. See data files 20500401 through 20500408 for individual data points.

FIGURE #2

TYPICAL LLCR SET-UP



PROJECT NO.: 205004 SPECIFICATION: TC0424-DPAM-DPAF-0454

PART NO.: DPAF-15-01-H-8-1, DPAM-15-10-H-8-1 PART DESCRIPTION: DPAM/DPAF Connectors

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

START DATE: 2/9/05 COMPLETE DATE: 2/10/05

ROOM AMBIENT: 23°C RELATIVE HUMIDITY: 28%

EQUIPMENT ID#: 553, 601, 1121, 1166, 1167, 1168, 1169, 1271, 1272, 1278

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

REQUIREMENTS:

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

REQUIREMENTS: Continued

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

RESULTS:

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

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

CHANGE IN
LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg. Change	Max. Change
B-A-1	+0.0	+0.3
B-A-2	+0.0	+0.2
B-A-3	+0.0	+0.2
B-A-4	+0.0	+0.6
B-A-5	+0.1	+0.5
B-A-6	+0.2	+0.6
B-A-7	+0.2	+0.6
B-A-8	+0.1	+0.7

3. See data files 20500401 through 20500408 for individual data points.

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

FIGURE #3

TYPICAL FIXTURING FOR MECHANICAL SHOCK/RANDOM VIBRATION

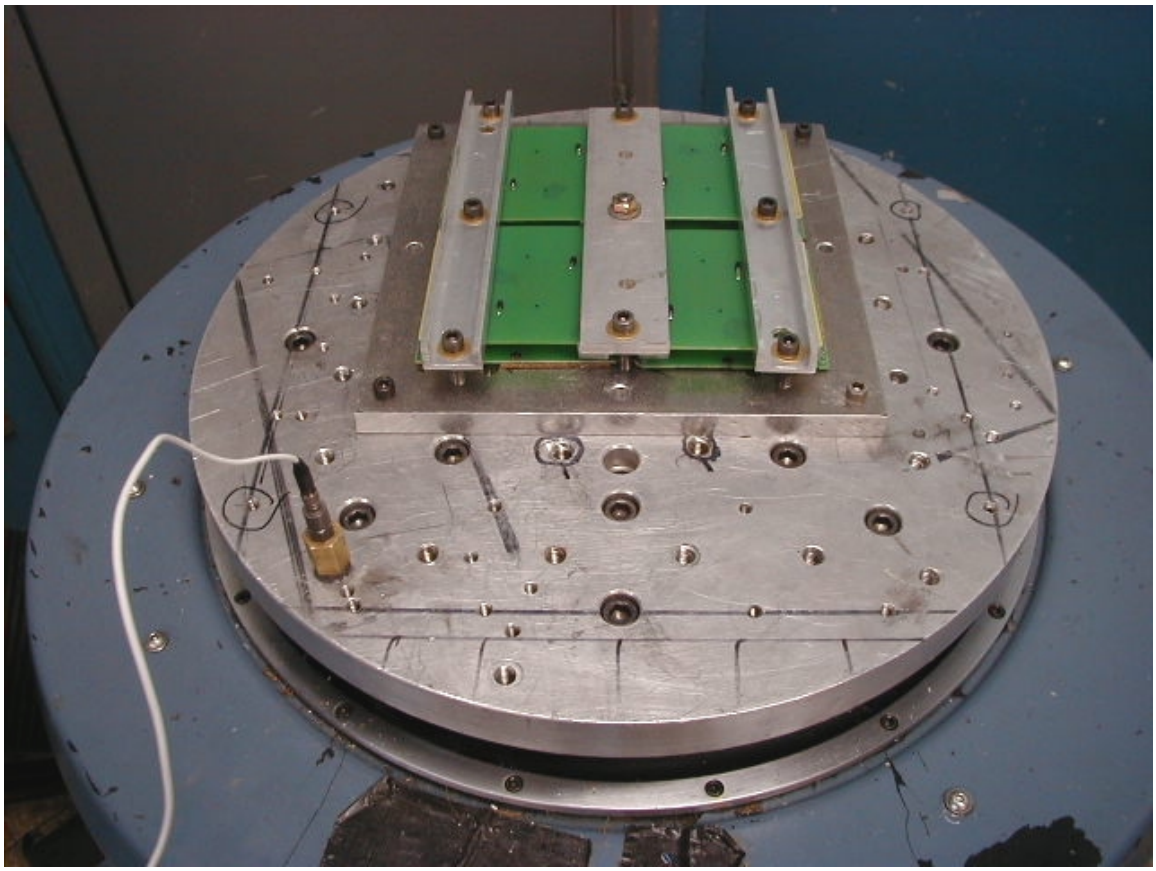
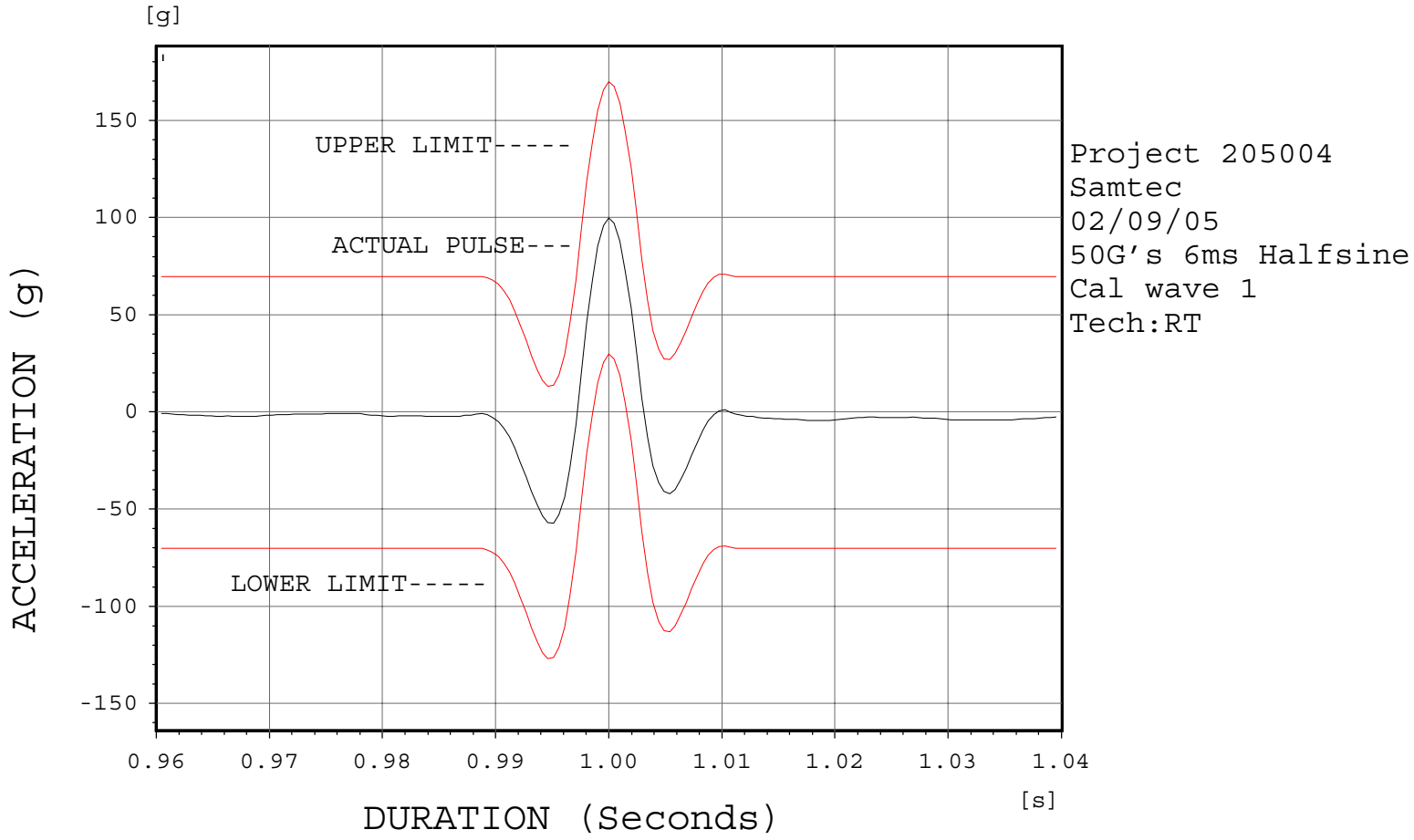


FIGURE #4

Classical Shock

Channel 1



Project 205004
Samtec
02/09/05
50G's 6ms Halfsine
Cal wave 1
Tech:RT

1478 - 01
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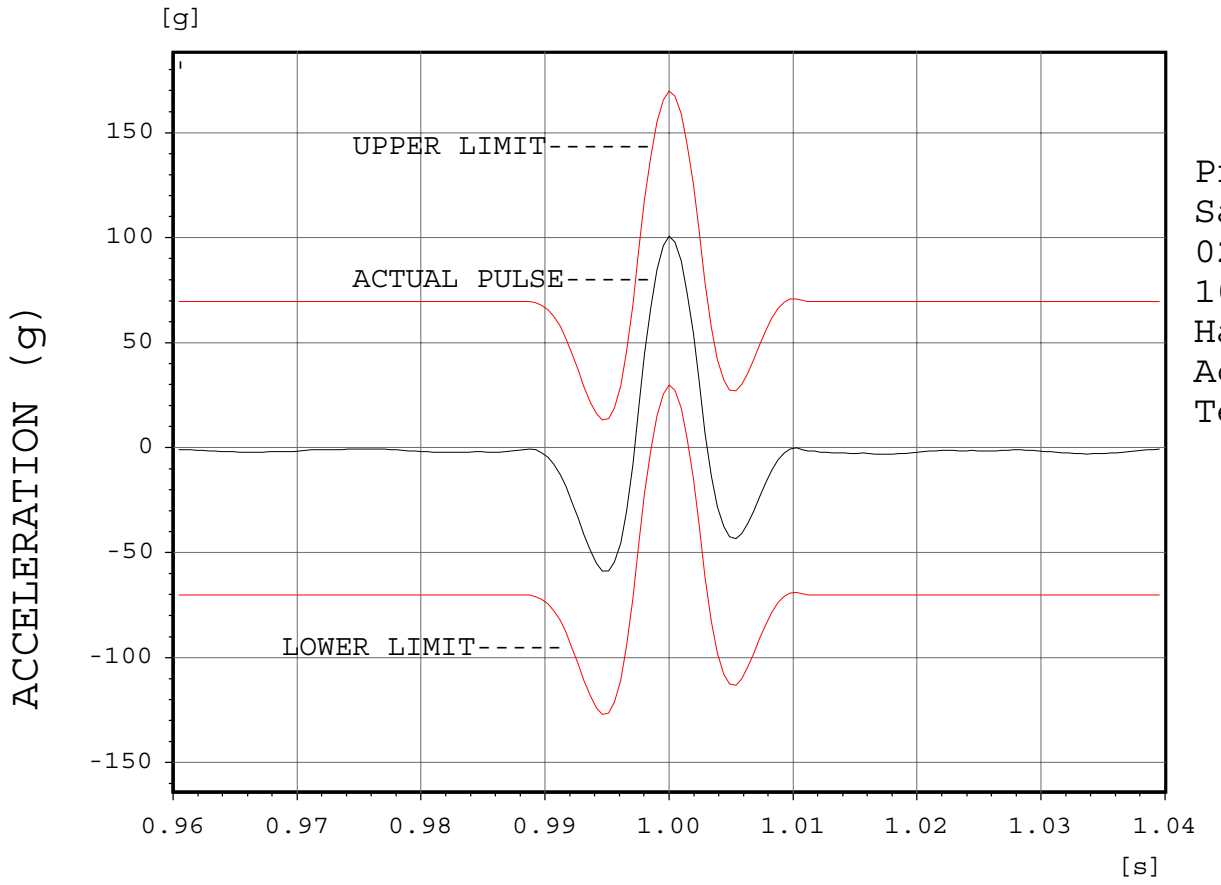
FIGURE #5

Classical Shock

Channel 1



Project 205004
Samtec
02/09/05
100G's 6ms
Halfsine
Actual Wave 1
Tech:RT

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PROJECT NO.: 205004 SPECIFICATION: TC0424-DPAM-DPAF-0454

PART NO.: DPAF-15-01-H-8-1, DPAM-15-10-H-8-1 PART DESCRIPTION: DPAM/DPAF Connectors

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

START DATE: 2/10/05 COMPLETE DATE: 2/11/05

ROOM AMBIENT: 24°C RELATIVE HUMIDITY: 24%

EQUIPMENT ID#: 553, 601, 1121, 1166, 1167, 1168, 1169, 1271, 1272, 1278

VIBRATION, RANDOM

PURPOSE:

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

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

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

PROCEDURE:

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

2. Test Conditions:

   a) G 'RMS' : 7.56
   b) Frequency : 50 to 2000 Hz
   c) Duration : 2.0 hours per axis, 3 axis total

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

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

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

REQUIREMENTS:

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

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

RESULTS:

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

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

CHANGE IN
LOW LEVEL CIRCUIT RESISTANCE
(Milliohms)

Sample ID#	Avg. Change	Max. Change
B-A-1	+0.3	+0.7
B-A-2	+0.0	+0.1
B-A-3	+0.1	+0.6
B-A-4	+0.1	+0.7
B-A-5	+0.2	+1.0
B-A-6	+0.3	+0.9
B-A-7	+0.2	+0.9
B-A-8	+0.3	+1.1

3. See data files 20500401 through 20500408 for individual data points.

LLCR DATA FILES

DATA FILE NUMBERS

20500401
20500402
20500403
20500404
20500405
20500406
20500407
20500408

			Low Level Contact Resistance					
	Project:	205004				Spec:	EIA 364, TP 23	
	Customer:	Samtec				Subgroup:	Sequence b	
	Product:	Series DPAM/DPAF Connector				File #:	20500401	
	Description:	ID# B-A-1						
	Open circuit voltage:		20mv			Current:	10ma	
				Delta values				
				units: milliohms				
	Temp ºC	24	23	24				
	R.H. %	22	28	24				
	Date:	04Feb05	10Feb05	11Feb05				
	Pos. ID	Initial	M-Shock	Vibration				
	1	9.3	0.0	0.1				
	2	9.1	0.2	0.4				
	3	7.8	0.1	0.4				
	4	7.7	0.0	0.2				
	5	7.2	-0.1	0.0				
	6	7.0	0.1	0.2				
	7	7.4	0.0	0.0				
	8	7.0	0.1	0.2				
	9	6.6	0.3	0.2				
	10	7.0	0.0	0.1				
	11	7.3	0.2	0.5				
	12	6.7	-0.1	0.3				
	13	7.9	-0.1	0.1				
	14	7.1	0.0	0.6				
	15	7.4	0.0	0.2				
	16	8.6	0.1	0.5				
	17	8.0	-0.1	0.2				
	18	7.5	0.0	0.6				
	19	7.5	0.1	0.3				
	20	6.9	0.0	0.3				
	21	6.9	0.0	0.2				
	22	6.8	-0.1	0.0				
	23	7.3	0.3	0.7				
	24	7.5	0.2	0.6				
	25	6.5	0.0	0.3				
	MAX	9.3	0.3	0.7				
	MIN	6.5	-0.1	0.0				
	AVG	7.4	0.0	0.3				
	STD	0.7	0.1	0.2				
	Open	0	0	0				
	Tech	BE	BE	BE				
	Equip ID	601	601	601				
		1278	1278	1278				

			Low Level Contact Resistance					
	Project:	205004				Spec:	EIA 364, TP 23	
	Customer:	Samtec				Subgroup:	Sequence b	
	Product:	Series DPAM/DPAF Connector				File #:	20500402	
	Description:	ID# B-A-2						
	Open circuit voltage:		20mv			Current:	10ma	
				Delta values				
				units: milliohms				
	Temp ºC	24	23	24				
	R.H. %	22	28	24				
	Date:	04Feb05	10Feb05	11Feb05				
	Pos. ID	Initial	M-Shock	Vibration				
	1	10.0	-0.3	-0.1				
	2	9.8	-0.3	-0.1				
	3	7.9	-0.1	0.0				
	4	8.4	-0.3	-0.1				
	5	7.1	-0.1	0.0				
	6	7.4	-0.2	0.0				
	7	7.2	0.0	0.0				
	8	7.2	-0.1	0.1				
	9	7.1	0.0	0.0				
	10	7.0	0.0	0.1				
	11	6.7	0.1	0.0				
	12	7.2	0.1	0.1				
	13	7.8	-0.1	-0.1				
	14	6.7	0.0	0.1				
	15	7.1	0.0	0.1				
	16	8.5	0.1	0.1				
	17	8.3	0.2	0.0				
	18	7.6	0.1	0.0				
	19	7.2	0.2	0.0				
	20	6.9	-0.1	0.0				
	21	7.0	-0.1	-0.1				
	22	6.9	0.0	0.0				
	23	7.5	-0.2	-0.2				
	24	7.8	0.0	-0.2				
	25	6.5	0.1	-0.1				
	MAX	10.0	0.2	0.1				
	MIN	6.5	-0.3	-0.2				
	AVG	7.6	0.0	0.0				
	STD	0.9	0.1	0.1				
	Open	0	0	0				
	Tech	BE	BE	BE				
	Equip ID	601	601	601				
		1278	1278	1278				

			Low Level Contact Resistance					
	Project:	205004				Spec:	EIA 364, TP 23	
	Customer:	Samtec				Subgroup:	Sequence b	
	Product:	Series DPAM/DPAF Connector				File #:	20500403	
	Description:	ID# B-A-3						
	Open circuit voltage:		20mv			Current:	10ma	
				Delta values				
				units: milliohms				
	Temp ºC	24	23	24				
	R.H. %	22	28	24				
	Date:	04Feb05	10Feb05	11Feb05				
	Pos. ID	Initial	M-Shock	Vibration				
	1	10.2	0.0	0.0				
	2	10.4	0.2	0.3				
	3	8.4	-0.4	-0.2				
	4	8.1	0.0	0.1				
	5	7.8	-0.1	-0.1				
	6	7.6	-0.1	0.1				
	7	7.8	0.0	0.1				
	8	7.3	0.1	0.2				
	9	7.2	0.0	0.0				
	10	7.3	0.2	0.0				
	11	7.1	0.2	0.0				
	12	7.1	0.1	0.2				
	13	8.0	0.1	0.0				
	14	7.5	0.1	-0.1				
	15	7.6	0.1	0.5				
	16	9.2	0.0	-0.2				
	17	8.9	0.1	0.2				
	18	8.0	0.0	-0.2				
	19	8.0	0.0	0.3				
	20	7.8	-0.1	0.6				
	21	7.2	0.1	0.2				
	22	7.1	0.0	0.0				
	23	8.3	-0.1	0.0				
	24	8.4	0.1	0.1				
	25	7.0	-0.1	-0.1				
	MAX	10.4	0.2	0.6				
	MIN	7.0	-0.4	-0.2				
	AVG	8.0	0.0	0.1				
	STD	0.9	0.1	0.2				
	Open	0	0	0				
	Tech	BE	BE	BE				
	Equip ID	601	601	601				
		1278	1278	1278				

			Low Level Contact Resistance					
	Project:	205004				Spec:	EIA 364, TP 23	
	Customer:	Samtec				Subgroup:	Sequence b	
	Product:	Series DPAM/DPAF Connector				File #:	20500404	
	Description:	ID# B-A-4						
	Open circuit voltage:		20mv			Current:	10ma	
				Delta values				
				units: milliohms				
	Temp ºC	24	23	24				
	R.H. %	22	28	24				
	Date:	04Feb05	10Feb05	11Feb05				
	Pos. ID	Initial	M-Shock	Vibration				
	1	9.4	0.3	0.2				
	2	9.1	-0.1	0.0				
	3	8.0	0.0	-0.1				
	4	7.9	-0.1	0.3				
	5	7.3	-0.3	-0.1				
	6	7.5	-0.1	0.1				
	7	7.3	0.0	0.0				
	8	7.4	-0.1	0.2				
	9	6.7	0.1	0.1				
	10	6.9	0.0	0.2				
	11	7.0	0.0	0.1				
	12	7.3	-0.1	0.3				
	13	7.8	-0.3	0.1				
	14	7.5	-0.1	-0.1				
	15	7.4	-0.2	0.1				
	16	8.6	-0.3	-0.2				
	17	8.7	-0.1	0.2				
	18	7.6	0.1	0.1				
	19	7.5	0.4	0.0				
	20	7.3	-0.2	0.0				
	21	7.2	0.1	0.0				
	22	6.8	0.6	0.4				
	23	7.6	0.0	0.7				
	24	7.4	0.1	0.2				
	25	6.8	0.0	0.0				
	MAX	9.4	0.6	0.7				
	MIN	6.7	-0.3	-0.2				
	AVG	7.6	0.0	0.1				
	STD	0.7	0.2	0.2				
	Open	0	0	0				
	Tech	BE	BE	BE				
	Equip ID	601	601	601				
		1278	1278	1278				

			Low Level Contact Resistance					
	Project:	205004				Spec:	EIA 364, TP 23	
	Customer:	Samtec				Subgroup:	Sequence b	
	Product:	Series DPAM/DPAF Connector				File #:	20500405	
	Description:	ID# B-A-5						
	Open circuit voltage:		20mv			Current:	10ma	
				Delta values				
				units: milliohms				
	Temp ºC	24	23	24				
	R.H. %	22	28	24				
	Date:	04Feb05	10Feb05	11Feb05				
	Pos. ID	Initial	M-Shock	Vibration				
	1	9.6	0.1	0.4				
	2	9.6	-0.1	0.2				
	3	7.6	0.2	0.5				
	4	7.5	0.1	0.3				
	5	6.8	0.1	0.3				
	6	7.1	0.3	0.1				
	7	7.2	0.1	0.2				
	8	6.9	0.1	0.1				
	9	6.9	0.2	0.4				
	10	7.0	0.2	0.5				
	11	6.8	0.2	0.3				
	12	6.9	0.5	0.7				
	13	7.7	0.3	0.5				
	14	7.8	0.1	0.1				
	15	7.3	0.1	0.2				
	16	8.5	-0.2	0.2				
	17	8.8	0.1	0.0				
	18	7.8	0.2	0.0				
	19	8.0	0.0	-0.1				
	20	7.1	0.1	0.3				
	21	7.0	0.1	0.6				
	22	6.9	0.1	0.6				
	23	7.4	0.2	0.5				
	24	8.0	0.5	1.0				
	25	7.1	0.1	0.6				
	MAX	9.6	0.5	1.0				
	MIN	6.8	-0.2	-0.1				
	AVG	7.6	0.1	0.3				
	STD	0.8	0.1	0.2				
	Open	0	0	0				
	Tech	BE	BE	BE				
	Equip ID	601	601	601				
		1278	1278	1278				

			Low Level Contact Resistance					
	Project:	205004				Spec:	EIA 364, TP 23	
	Customer:	Samtec				Subgroup:	Sequence b	
	Product:	Series DPAM/DPAF Connector				File #:	20500406	
	Description:	ID# B-A-6						
	Open circuit voltage:		20mv			Current:	10ma	
				Delta values				
				units: milliohms				
	Temp ºC	24	23	24				
	R.H. %	22	28	24				
	Date:	04Feb05	10Feb05	11Feb05				
	Pos. ID	Initial	M-Shock	Vibration				
	1	9.5	0.4	0.6				
	2	9.1	0.1	0.0				
	3	7.7	0.3	0.4				
	4	7.8	0.2	0.5				
	5	7.3	0.2	0.3				
	6	7.5	0.5	0.4				
	7	7.9	0.5	0.3				
	8	7.4	0.6	0.9				
	9	7.1	0.5	0.7				
	10	7.7	-0.3	-0.7				
	11	7.2	0.3	0.4				
	12	7.2	0.1	0.3				
	13	7.5	0.4	0.1				
	14	7.4	-0.1	-0.1				
	15	7.0	0.1	0.3				
	16	8.3	0.3	0.5				
	17	8.5	0.3	0.2				
	18	7.5	0.1	0.1				
	19	7.2	0.2	0.3				
	20	7.2	0.1	-0.1				
	21	6.8	0.2	0.4				
	22	6.7	0.1	0.3				
	23	7.8	0.5	0.5				
	24	7.6	-0.1	0.1				
	25	6.8	0.1	0.1				
	MAX	9.5	0.6	0.9				
	MIN	6.7	-0.3	-0.7				
	AVG	7.6	0.2	0.3				
	STD	0.7	0.2	0.3				
	Open	0	0	0				
	Tech	BE	BE	BE				
	Equip ID	601	601	601				
		1278	1278	1278				

			Low Level Contact Resistance					
	Project:	205004				Spec:	EIA 364, TP 23	
	Customer:	Samtec				Subgroup:	Sequence b	
	Product:	Series DPAM/DPAF Connector				File #:	20500407	
	Description:	ID# B-A-7						
	Open circuit voltage:		20mv			Current:	10ma	
				Delta values				
				units: milliohms				
	Temp ºC	24	23	24				
	R.H. %	22	28	24				
	Date:	04Feb05	10Feb05	11Feb05				
	Pos. ID	Initial	M-Shock	Vibration				
	1	9.2	0.3	0.5				
	2	9.0	0.4	0.4				
	3	7.8	0.2	0.2				
	4	8.2	0.0	0.2				
	5	7.1	0.3	0.4				
	6	7.1	0.3	0.1				
	7	7.3	0.2	0.1				
	8	6.8	0.2	0.3				
	9	6.7	0.4	0.4				
	10	6.9	0.2	-0.1				
	11	6.6	0.4	0.5				
	12	6.8	0.1	0.0				
	13	7.6	-0.1	-0.2				
	14	7.1	0.2	0.2				
	15	7.8	-0.2	-0.2				
	16	8.2	-0.1	0.0				
	17	8.3	0.3	0.7				
	18	7.5	0.0	0.0				
	19	7.4	0.3	0.2				
	20	7.0	0.2	0.3				
	21	7.0	0.2	0.2				
	22	6.9	0.3	0.3				
	23	7.4	0.6	0.9				
	24	7.7	0.4	0.5				
	25	6.6	0.4	0.4				
	MAX	9.2	0.6	0.9				
	MIN	6.6	-0.2	-0.2				
	AVG	7.4	0.2	0.2				
	STD	0.7	0.2	0.3				
	Open	0	0	0				
	Tech	BE	BE	BE				
	Equip ID	601	601	601				
		1278	1278	1278				

			Low Level Contact Resistance					
	Project:	205004				Spec:	EIA 364, TP 23	
	Customer:	Samtec				Subgroup:	Sequence b	
	Product:	Series DPAM/DPAF Connector				File #:	20500408	
	Description:	ID# B-A-8						
	Open circuit voltage:		20mv			Current:	10ma	
				Delta values				
				units: milliohms				
	Temp ºC	24	23	24				
	R.H. %	22	28	24				
	Date:	04Feb05	10Feb05	11Feb05				
	Pos. ID	Initial	M-shock	Vibration				
	1	9.8	0.0	0.3				
	2	9.4	0.5	0.6				
	3	7.6	0.5	0.3				
	4	8.0	0.7	0.9				
	5	7.2	0.1	0.2				
	6	7.0	0.6	0.9				
	7	7.2	0.3	0.6				
	8	7.2	0.1	0.4				
	9	6.8	0.1	1.0				
	10	7.4	0.1	-0.2				
	11	7.2	0.2	0.3				
	12	6.9	0.0	0.1				
	13	8.3	0.0	0.8				
	14	7.3	0.3	0.5				
	15	7.1	0.0	0.1				
	16	8.6	0.1	0.2				
	17	8.9	-0.3	-0.3				
	18	7.8	-0.2	-0.1				
	19	7.8	-0.2	-0.3				
	20	7.0	0.1	0.1				
	21	7.3	-0.3	0.0				
	22	7.0	-0.1	0.1				
	23	7.7	0.6	1.1				
	24	8.0	-0.1	-0.2				
	25	6.6	0.1	0.1				
	MAX	9.8	0.7	1.1				
	MIN	6.6	-0.3	-0.3				
	AVG	7.6	0.1	0.3				
	STD	0.8	0.3	0.4				
	Open	0	0	0				
	Tech	BE	BE	BE				
	Equip ID	601	601	601				
		1278	1278	1278				

TEST RESULTS

SEQUENCE C

Group A

PROJECT NO.: 205004 SPECIFICATION: TC0424-DPAM-DPAF-0454

PART NO.: DPAF-15-01-H-8-1, DPAM-15-10-H-8-1 PART DESCRIPTION: DPAM/DPAF Connectors

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

START DATE: 2/14/05 COMPLETE DATE: 2/14/05

ROOM AMBIENT: 23°C RELATIVE HUMIDITY: 20%

EQUIPMENT ID#: 553, 1028, 1121, 1166, 1167, 1168, 1169, 1271, 1172

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

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

REQUIREMENTS:

1. There shall be no evidence of axial movement of the test samples relative to each other.

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

RESULTS:

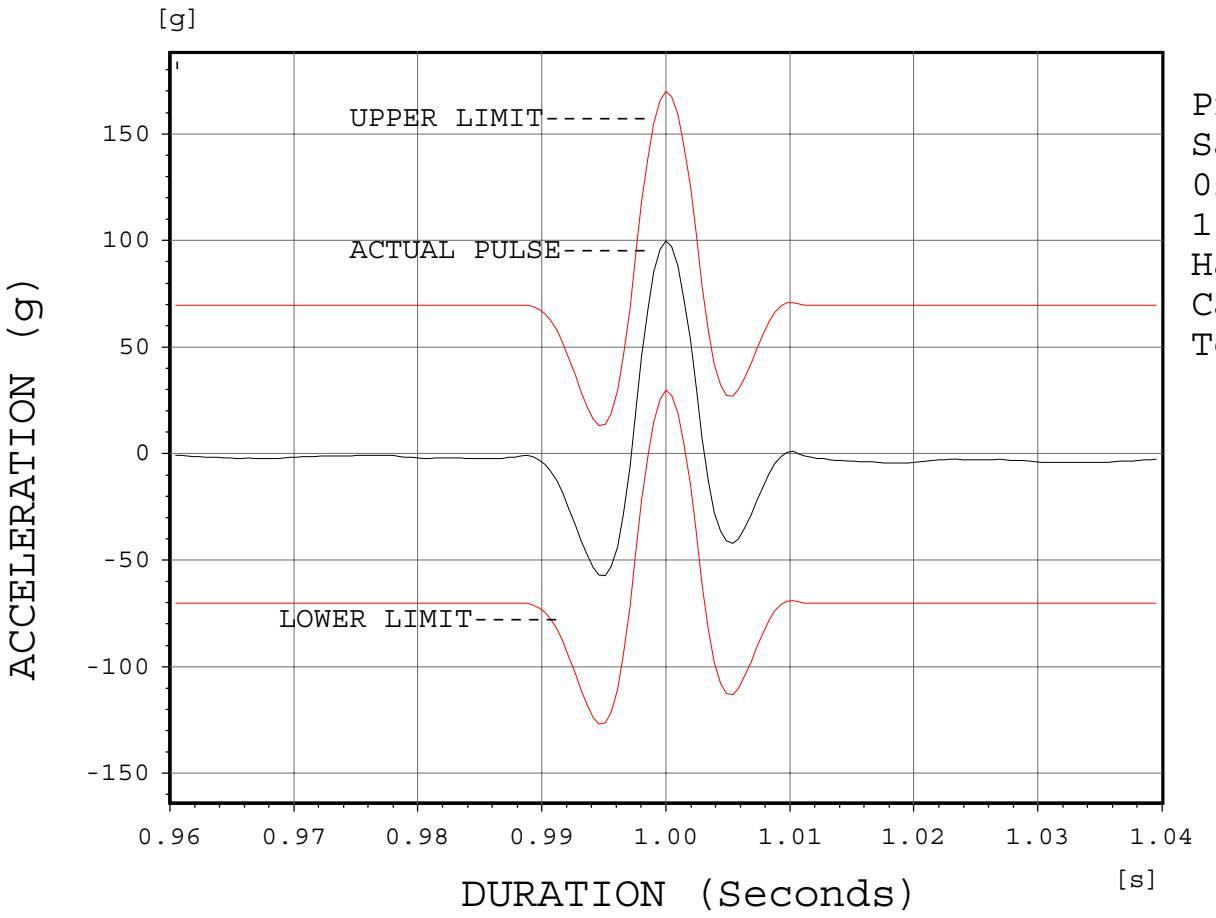
1. There was no evidence of physical damage to the test samples as tested.

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

3. The Mechanical Shock characteristics are shown in Figures #6 (Calibration Pulse) and #7 (Test Pulse). Each figure displays the shock pulse contained within the upper and lower limits as defined by the appropriate test specification.

FIGURE #8

Classical Shock **Channel 1**



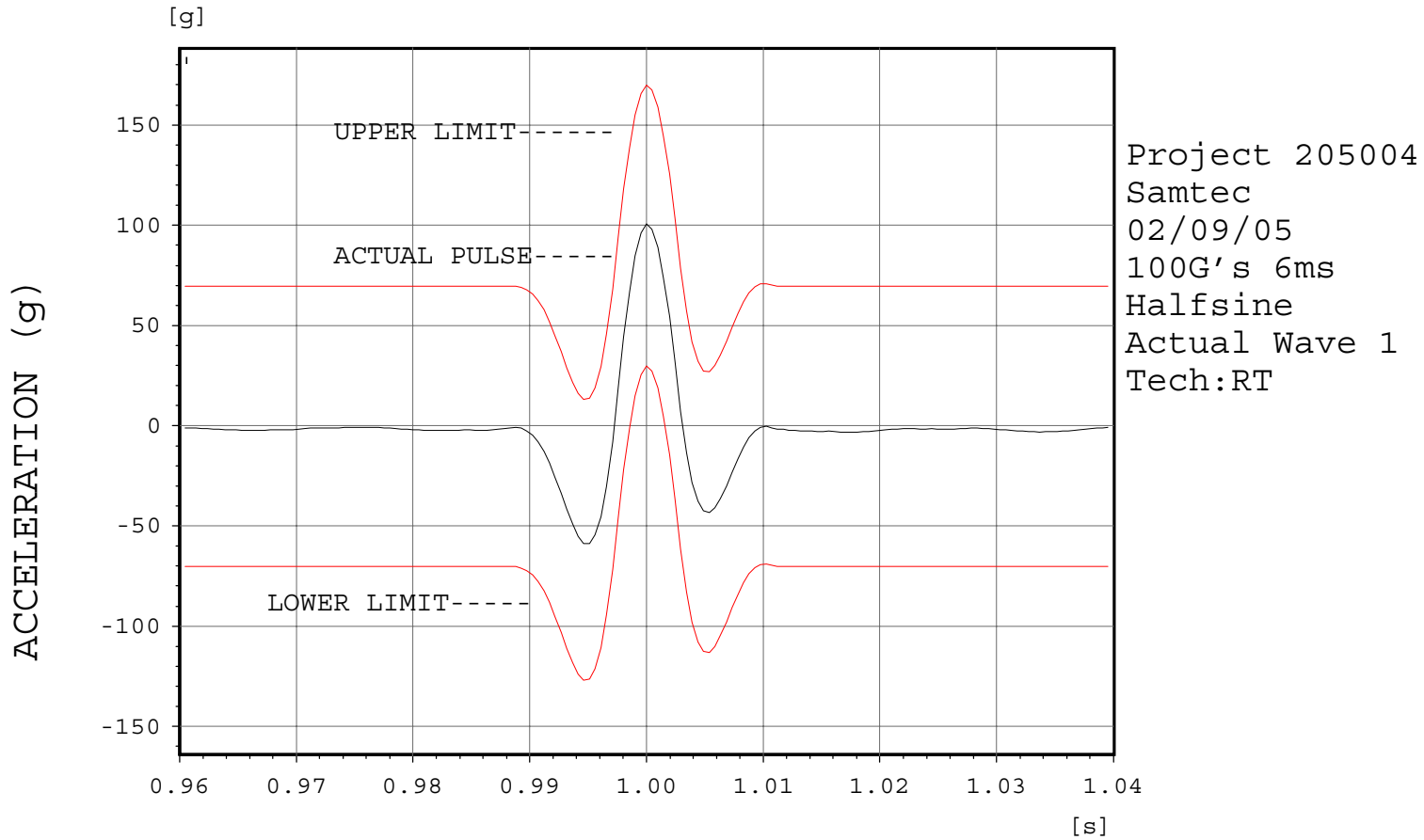
Project 205004
Samtec
02/09/05
100G's 6ms
Halfsine
Cal wave 1
Tech:RT

1478 - 01
ACCREDITED
1478 - 02

Contech Research
An Independent Test and Research Laboratory

FIGURE #7

Classical Shock **Channel 1**



Project 205004
Samtec
02/09/05
100G's 6ms
Halfsine
Actual Wave 1
Tech:RT

PROJECT NO.: 205004 SPECIFICATION: TC0424-DPAM-DPAF-0454

PART NO.: DPAF-15-01-H-8-1, DPAM-15-10-H-8-1 PART DESCRIPTION: DPAM/DPAF Connectors

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

START DATE: 2/14/05 COMPLETE DATE: 2/14/05

ROOM AMBIENT: 23°C RELATIVE HUMIDITY: 20%

EQUIPMENT ID#: 553, 1028, 1121, 1166, 1167, 1168, 1169, 1271, 1172

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

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

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.