Test Report

Client : Samtec Electronics (HuiZhou) Limited
Address : Huangxi Industrial Park, Shiwan Town, Boluo County, Huizhou City, Guangdong Province, China

Report on the submitted sample said to be:

Sample Name	: Connector
Sample Description	: Normal
Model/type	: MECF-50-02-L-DV
Amount of Sample	: 14 pcs
Sample Received Date	: Sep. 16, 2010
Sample tested Date	: Sep. 16, 2010~Oct. 28, 2010

Test Requested: Please see page 2.

Test Results: Please see the attached sheets.

Inspected by: Pmple Engineer

Approved by: Roger Xiao Lab Supervisor

Approved date: Dec. 20, 2010

Test Requested: (As requested by the client, please see following sheets in detail.)

Group		Test Sequence	Test Item
Seq (a)	Group A1 (001~002)	1	Dielectric Withstanding Voltage Test
	Group A2 (003~004)		
	Group B (005~006)	1	Insulation Resistance Test
		2	Dielectric Withstanding Voltage Test
		3	Thermal Shock test
		4	Insulation Resistance Test
		5	Dielectric Withstanding Voltage Test
		6	Composite temperature/humidity cyclic test
		7	Insulation Resistance Test
		8	Dielectric Withstanding Voltage Test
Seq (b) (007~014)		1	Low Level Contact Resistance (LLCR)
		2	Durability Test (100 cycles)
		3	Low Level Contact Resistance (LLCR)
		4	Thermal Shock test
		5	Low Level Contact Resistance (LLCR)
		6	Composite temperature/humidity cyclic test
		7	Low Level Contact Resistance (LLCR)
Seq (c) (015~022)		1	Low Level Contact Resistance (LLCR)
		2	Mechanical shock test
		3	Low Level Contact Resistance (LLCR)
		4	Random Vibration Test
		5	Low Level Contact Resistance (LLCR)
Seq (d) (023~026)		1	Mechanical Shock Test
		2	Random Vibration Test

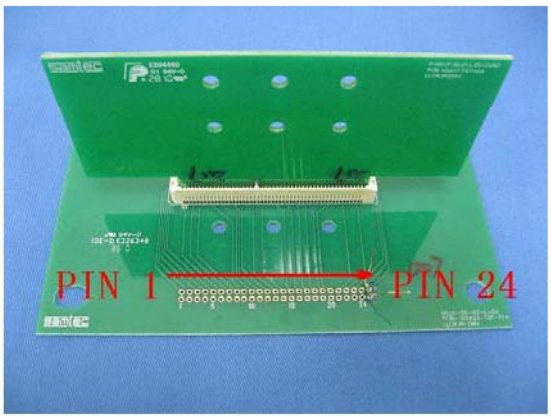
Data Summary:

Group		Test Sequence	Test Item	Requirement	Result
Seq (a)	GroupA1(001)	1	Dielectric Withstanding Voltage Test	Max Breakdown Voltage (V-AC)	1170
	GroupA1(002)				1050
	GroupA2(003)				1130
	GroupA2(004)				1210
	Group B (005~006)	1	Insulation Resistance Test	＞5000 MΩ	Pass
		2	Dielectric Withstanding Voltage Test	No breakdown	Pass
		3	Thermal Shock test	No damage	Pass
		4	Insulation Resistance Test	＞5000 MΩ	Pass
		5	Dielectric Withstanding Voltage Test	No breakdown	Pass
		6	Composite temperature/humidity cyclic test	No damage	Pass
		7	Insulation Resistance Test	＞5000 MΩ	Pass
		8	Dielectric Withstanding Voltage Test	No breakdown	Pass
Seq (b) (007~014)		1	Low Level Contact Resistance (LLCR)	△R≤10mΩ No damage	Pass
		2	Durability Test (100 cycles)		
		3	Low Level Contact Resistance (LLCR)		
		4	Thermal Shock test	△R≤10mΩ No damage	Pass
		5	Low Level Contact Resistance (LLCR)		
		6	Composite temperature/humidity cyclic test	△R≤10mΩ No damage	Pass
		7	Low Level Contact Resistance (LLCR)		
Seq (c) (015~022)		1	Low Level Contact Resistance (LLCR)	△R≤10mΩ No damage	Pass
		2	Mechanical shock test		
		3	Low Level Contact Resistance (LLCR)		
		4	Random Vibration Test	△R≤10mΩ No damage	Pass
		5	Low Level Contact Resistance (LLCR)		
Seq (d) (023~026)		1	Mechanical Shock Test	No damage 0.1 microsecond	Pass
		2	Random Vibration Test		Pass

Tested Samples:

Test Seq.	Sample No.	Sample Name	Model/type	Quantity
Seq (a)	001	Connector	MECF-50-02-L-DV	1 pc
	002		MECF-50-02-L-DV	1 pc
	003		MECF-50-02-L-DV	1 pc
	004		MECF-50-02-L-DV	1 pc
	005		MECF-50-02-L-DV	1 pc
	006		MECF-50-02-L-DV	1 pc
Seq (b)	007~014		MECF-50-02-L-DV	8 pcs
Seq (c)	015~022		MECF-50-02-L-DV	8 pcs
Seq (d)	023~026		MECF-50-02-L-DV	4 pcs

Pin No. of Sample:

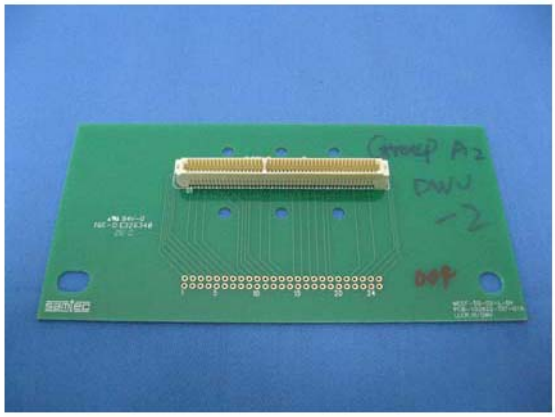


Sample Photos before the Test:

001

002

003

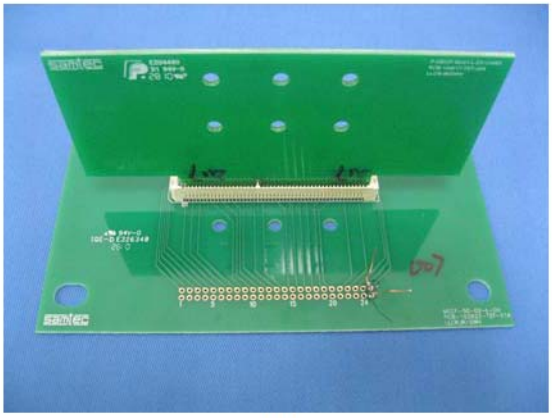


004

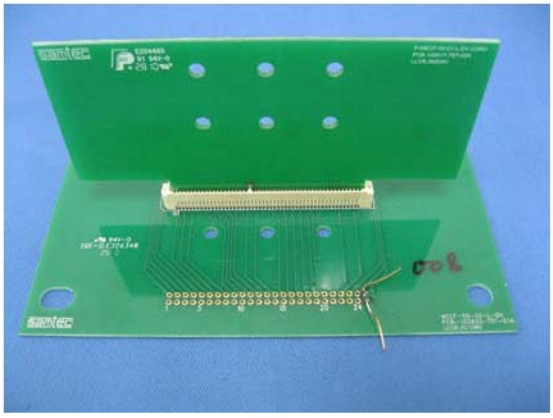
005

006

Sample Photos before the Test:



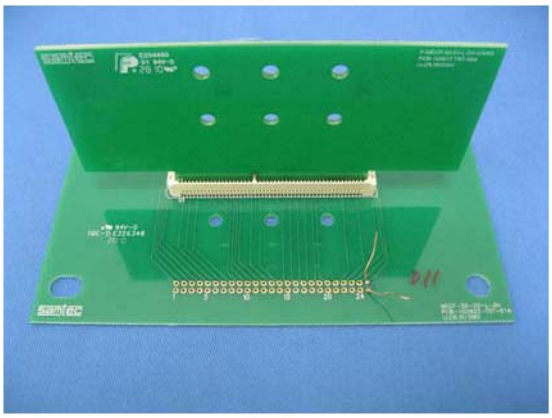
007



008

009

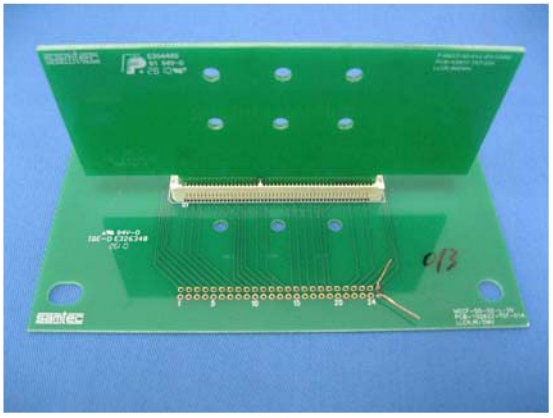
010



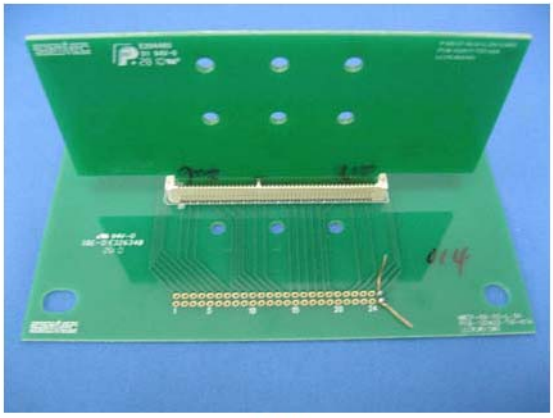
011

012

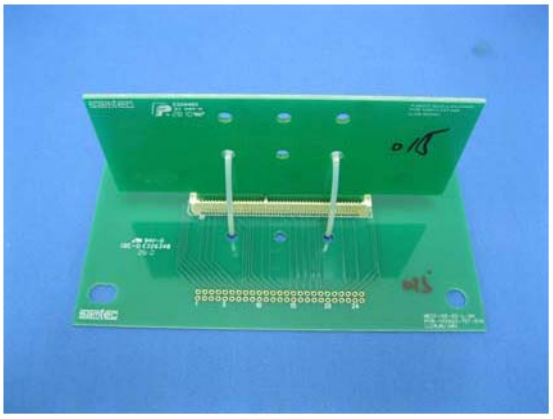
Sample Photos before the Test:



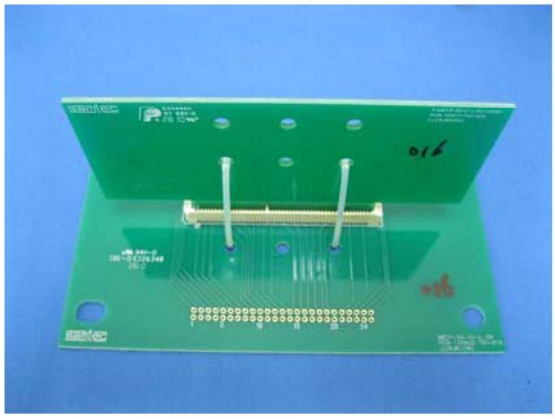
013



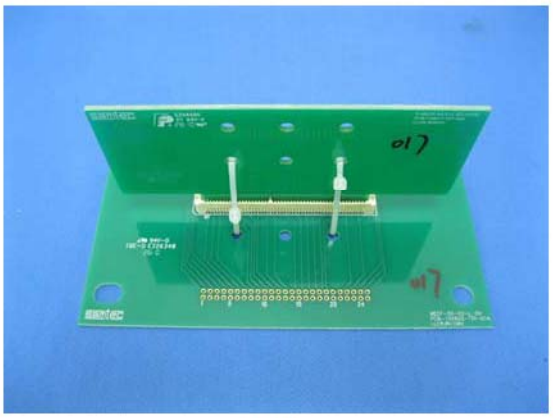
014



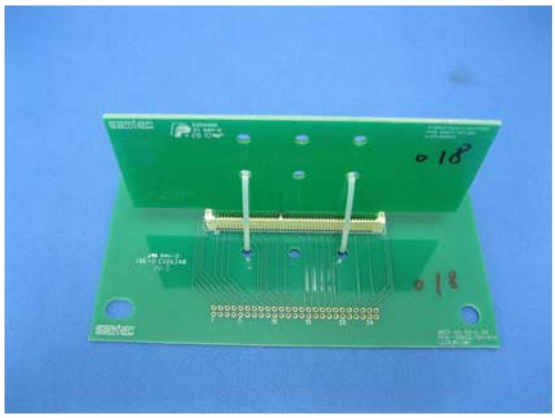
015



016

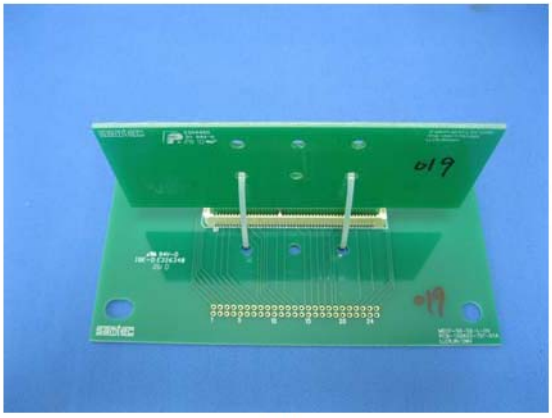


017

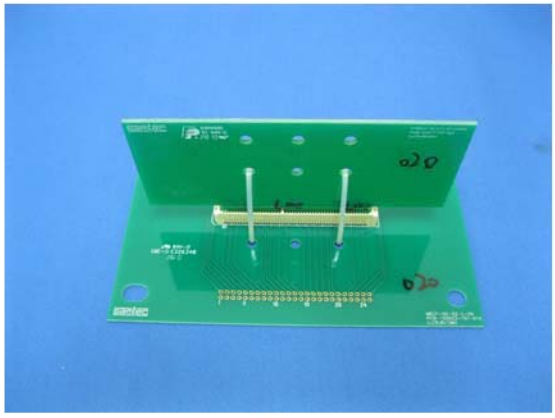


018

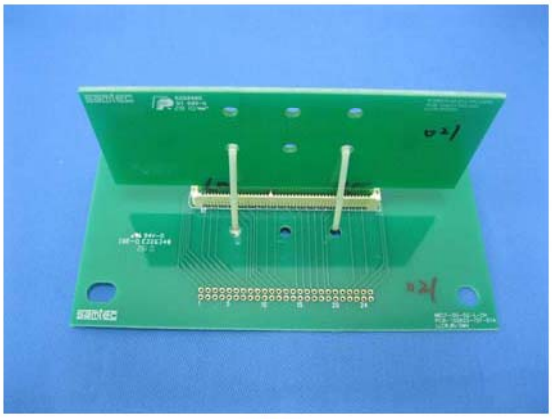
Sample Photos before the Test:



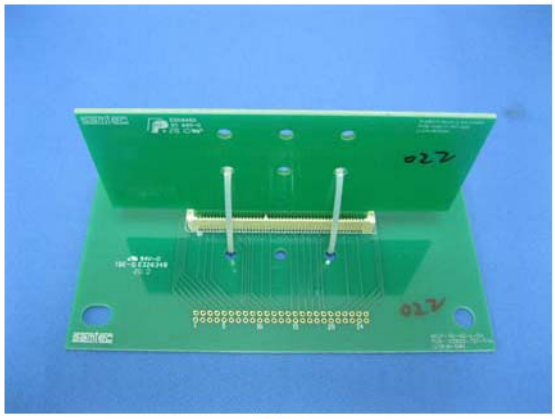
019



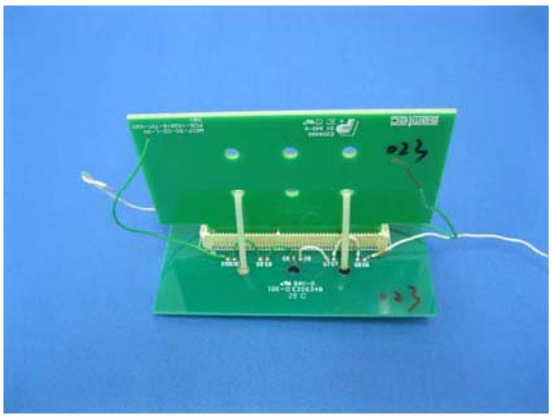
020



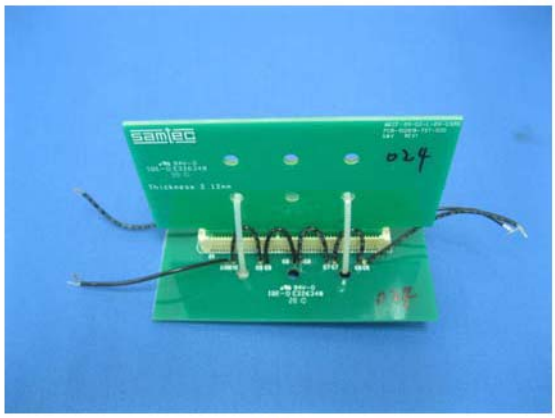
021



022

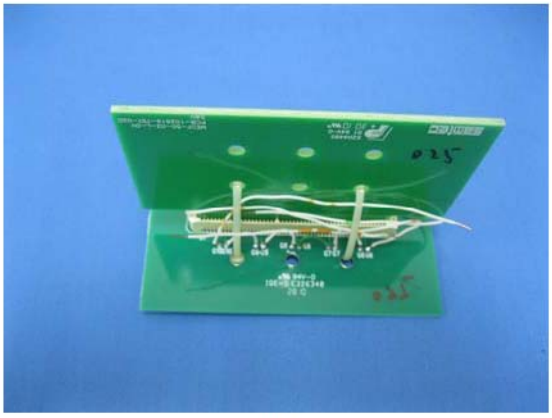


023

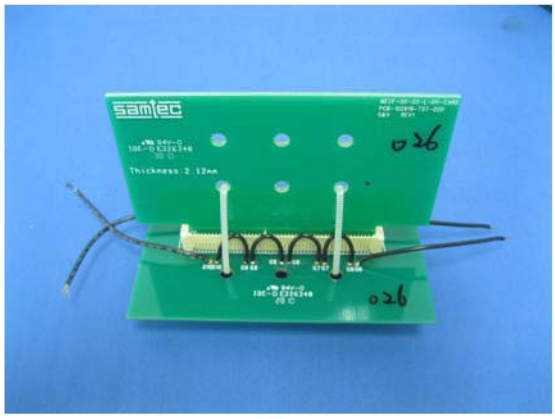


024

Sample Photos before the Test:



025



026

Test Seq (a): Group A1, Group A2

Test Item 1: Dielectric Withstanding Voltage Test

(1) Test Equipment:

Name	Model	Serial No	Valid Date to
Hi-pot Tester	TOS 5101	BTTEELSZ10036	Apr. 06, 2011

(2) Environmental Conditions:

Temperature: 26℃ Humidity: 55%RH

(3) Reference Standard: EIA-364-20B-1999

(4) Tested Samples: 001~004

(5) Test Condition:

The test performed in accordance to the criteria listed above, and under the conditions as below:

Group A1 (001-002)

---Test Voltage: AC 100-200 V/S, till the sample is breakdown

---Sample Condition: mated

Group A2 (003-004)

---Test Voltage: AC 100-200 V/S, till the sample is breakdown

---Sample Condition: unmated

Test Results: Please see the table below about the samples breaking down voltage.

Sample No.	Requirement	Breakdown Voltage (V-AC)
001	Max Voltage	1170
002		1050
003		1130
004		1210

Test Photos:

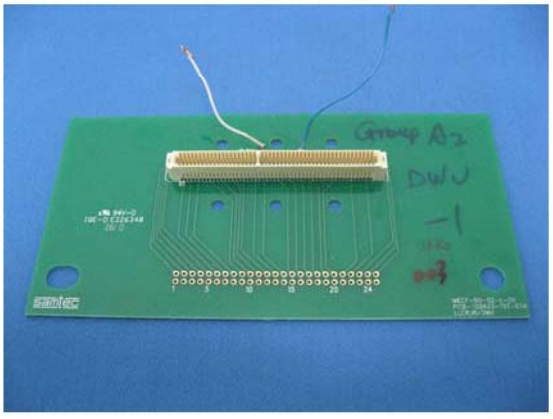
001, 002 (mated)

003, 004 (unmated)

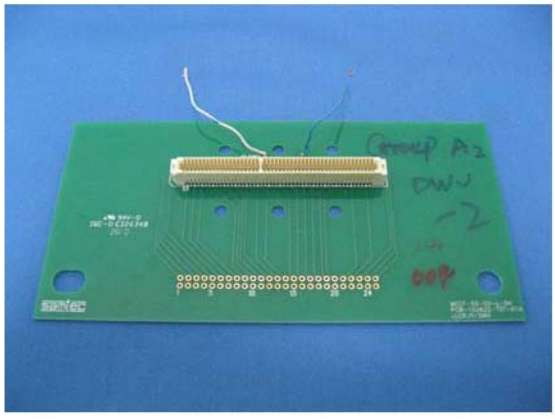
Sample Photos after Testing Seq (a) (Group A1, Group A2):

001(mated)

002(mated)



003(unmated)



004(unmated)

Test Seq (a): Group B

Test Item 1: Insulation Resistance Test

(1) Test Equipment:

Name	Model	Serial No	Valid Date to
Insulation Resistance Tester	TOS7200	BTTEELSZ20059	Jun. 12, 2011

(2) Environmental Conditions:

Temperature: 26℃ Humidity: 55%RH

(3) Reference Standard: EIA-364-21C-2000

(4) Tested Samples: 005~006

(5) Test Condition:

The test performed in accordance to the criteria listed above, and under the conditions as below:

---Test Voltage: DC 500 V

---Test duration: 2 minutes

---Sample Condition: mated and unmated

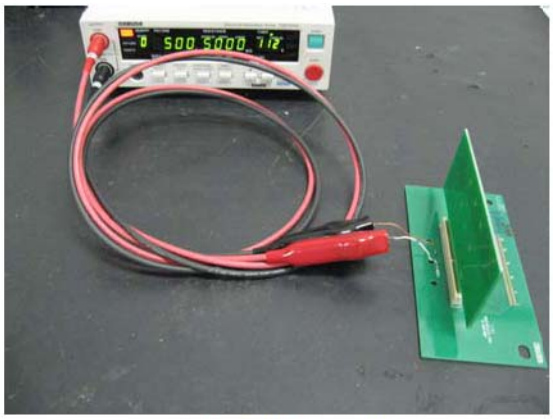
(6) Acceptance criteria:

---＞5000 MΩ

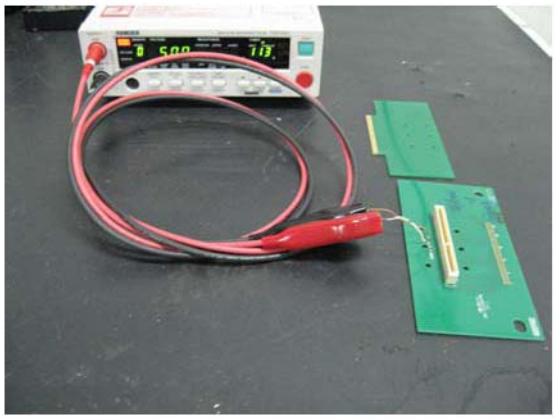
Test Results: Please see the table blow.

Sample No.	Sample Condition	Insulation Resistance (MΩ)
005	Mated	＞5000
	Unmated	
006	Mated	＞5000
	Unmated	

Test Photos:



005, 006 (mated)



005, 006 (unmated)

Test Seq (a): Group B

Test Item 2: Dielectric Withstanding Voltage Test

(1) Test Equipment:

Name	Model	Serial No	Valid Date to
Hi-pot Tester	TOS 5101	BTTEELSZ10036	Apr. 06, 2011

(2) Environmental Conditions:

Temperature: 26℃ Humidity: 55%RH

(3) Reference Standard: EIA-364-20B-1999

(4) Tested Samples: 005~006

(5) Test Condition:

The test performed in accordance to the criteria listed above, and under the conditions as below:

---Test Voltage: AC 790 V

---Leakage current: 1mA Max

---Test Duration: 1 minute

---Sample Condition: mated and unmated

(6) Acceptance criteria:

---Leakage current: 1mA Max

Test Results: Please see the table below in detail.

Sample No.	Requirement	Leakage current	Result	Remark
005,006	1mA Max	0.02mA	Pass	mated
005,006		0.02mA	Pass	unmated

Test Photos:

005, 006 (mated)

005, 006 (unmated)

Test Seq (a): Group B

Test Item 3: Thermal Shock test

(1) Test Equipment:

Name	Model	Serial No	Valid Date to
Thermal Shock Tester	TSG0765W	ATTEELSZ20007	Mar. 17, 2011

(2) Environmental Conditions:

Temperature: 26℃ Humidity: 55%RH

(3) Reference Standard: EIA 364-32D-2006

(4) Tested Samples: 005~006

(5) Test Condition:

The test performed in accordance to the criteria listed above, and under the conditions as below:

---Low temperature: -55℃, keep for 30 minutes

---High temperature: 85℃, keep for 30 minutes

---Transfer time: less than 5 minutes

---Cycle as the steps above for 100 times

---Sample Condition: unmated

(6) Acceptance criteria:

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

Test Results: There was no visible change on the surface of the samples.

Test Photo:

Test Seq (a): Group B

Test Item 4: Insulation Resistance Test

(1) Test Equipment:

Name	Model	Serial No	Valid Date to
Insulation Resistance Tester	TOS7200	BTTEELSZ20059	Jun. 12, 2011

(2) Environmental Conditions:

Temperature: 26℃ Humidity: 55%RH

(3) Reference Standard: EIA-364-21C-2000

(4) Tested Samples: 005~006

(5) Test Condition:

The test performed in accordance to the criteria listed above, and under the conditions as below:

---Test Voltage: DC 500 V

---Test duration: 2 minutes

---Sample Condition: mated and unmated

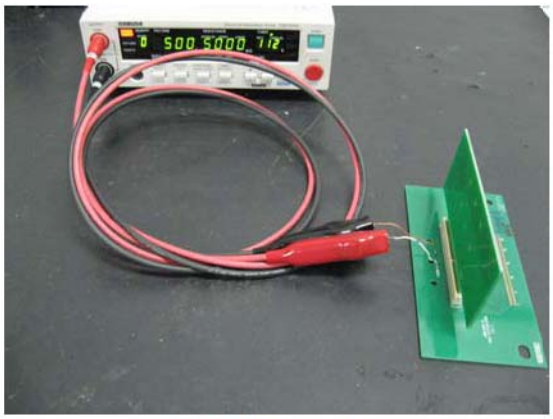
(6) Acceptance criteria:

--->5000 MΩ

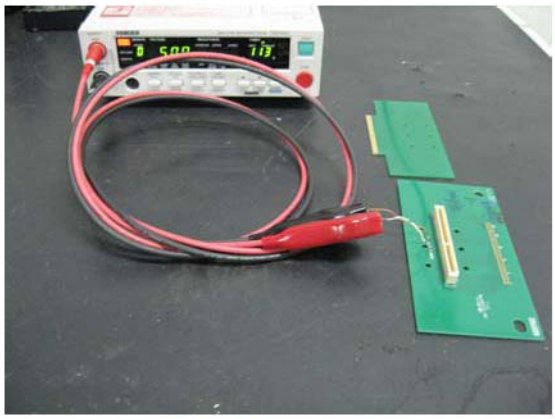
Test Results: Please see the table blow.

Sample No.	Sample Condition	Insulation Resistance (MΩ)
005	Mated	>5000
	Unmated	
006	Mated	>5000
	Unmated	

Test Photos:



005, 006 (mated)



005, 006 (unmated)

Test Seq (a): Group B

Test Item 5: Dielectric Withstanding Voltage Test

(1) Test Equipment:

Name	Model	Serial No	Valid Date to
Hi-pot Tester	TOS 5101	BTTEELSZ10036	Apr. 06, 2011

(2) Environmental Conditions:

Temperature: 26℃ Humidity: 55%RH

(3) Reference Standard: EIA-364-20B-1999

(4) Tested Samples: 005~006

(5) Test Condition:

The test performed in accordance to the criteria listed above, and under the conditions as below:

---Test Voltage: AC 790 V

--- Leakage current: 1mA Max

---Test Duration: 1 minute

---Sample Condition: mated and unmated

(6) Acceptance criteria:

---Leakage current: 1mA Max

Test Results: Please see the table below in detail.

Sample No.	Requirement	Leakage current	Result	Remark
005,006	1mA Max	0.02mA	Pass	mated
005,006		0.02mA	Pass	unmated

Test Photos:

005, 006 (mated)

005, 006 (unmated)

Test Seq (a): Group B

Test Item 6: Composite temperature/humidity cyclic test

(1) Test Equipment:

Name	Model	Serial No.	Valid Date to
Temperature & Humidity Chamber	EL-02KA	ATTEELSZ20010	Dec. 11, 2010

(2) Environmental Conditions:

Temperature: 26℃ Humidity: 55%RH

(3) Reference Standard: EIA 364-31B-2000

(4) Tested Samples: 005~006

(5) Test Condition:

---①Dwell for 24 hours at 50℃

---②Change temperature from 50℃ to 25℃ and humidity to 95%RH within 2.5 hours

---③Keep humidity at 95%RH and change temperature from 25℃ to 65℃ within 2.5 hours

---④Dwell for 3 hours at 65℃ and 95%RH

---⑤Keep humidity at 95%RH and change temperature from 65℃ to 25℃ within 2.5 hours

---⑥Keep humidity at 95%RH and change temperature from 25℃ to 65℃ within 2.5 hours

---⑦Dwell for 3 hours at 65℃ and 95%RH

---⑧Keep humidity at 95%RH and change temperature from 65℃ to 25℃ within 2.5 hours

---⑨Dwell for 8 hours at 25℃ and 95%RH

---Cycle as the steps above ③to⑨ for 10 times, test for 264 hours in total

---Sample Condition: unmated

(6) Acceptance criteria:

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

Test Results: There was no visible change on the surface of the samples.

Test Photo:

Test Seq (a): Group B

Test Item 7: Insulation Resistance Test

(1) Test Equipment:

Name	Model	Serial No	Valid Date to
Insulation Resistance Tester	TOS7200	BTTEELSZ20059	Jun. 12, 2011

(2) Environmental Conditions:

Temperature: 26℃ Humidity: 55%RH

(3) Reference Standard: EIA-364-21C-2000

(4) Tested Samples: 005~006

(5) Test Condition:

The test performed in accordance to the criteria listed above, and under the conditions as below:

---Test Voltage: DC 500 V

---Test duration: 2 minutes

---Sample Condition: mated and unmated

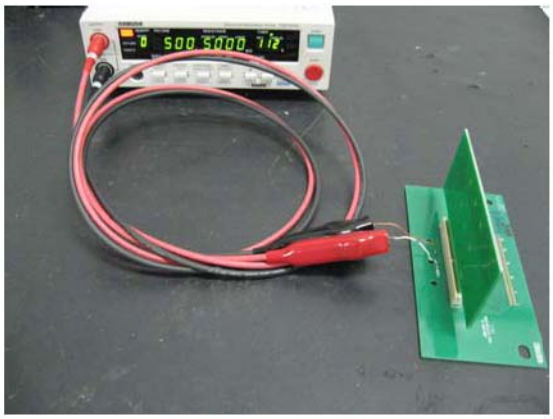
(6) Acceptance criteria:

---＞5000 MΩ

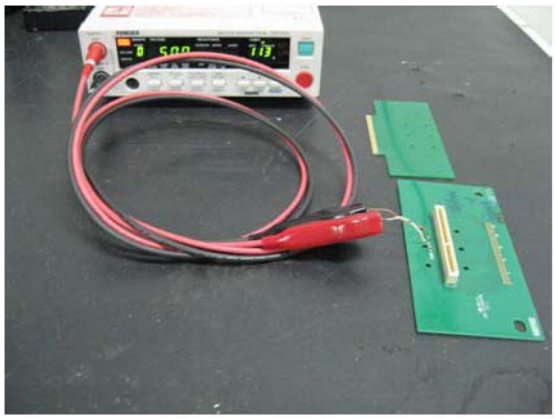
Test Results: Please see the table blow.

Sample No.	Sample Condition	Insulation Resistance (MΩ)
005	Mated	＞5000
	Unmated	
006	Mated	＞5000
	Unmated	

Test Photos:



005, 006 (mated)



005, 006 (unmated)

Test Seq (a): Group B

Test Item 8: Dielectric Withstanding Voltage Test

(1) Test Equipment:

Name	Model	Serial No	Valid Date to
Hi-pot Tester	TOS 5101	BTTEELSZ10036	Apr. 06, 2011

(2) Environmental Conditions:

Temperature: 26℃ Humidity: 55%RH

(3) Reference Standard: EIA-364-20B-1999

(4) Tested Samples: 005~006

(5) Test Condition:

The test performed in accordance to the criteria listed above, and under the conditions as below:

---Test Voltage: AC 790 V

--- Leakage current: 1mA Max

---Test Duration: 1 minute

---Sample Condition: mated and unmated

(6) Acceptance criteria:

---Leakage current: 1mA Max

Test Results: Please see the table below in detail.

Sample No.	Requirement	Leakage current	Result	Remark
005,006	1mA Max	0.02mA	Pass	mated
005,006		0.02mA	Pass	unmated

Test Photos:

005, 006 (mated)

005, 006 (unmated)

Sample Photos after Testing Seq (a): Group B

005 (mated)

006 (mated)

Test Seq (b)

Test Item 1: Low Level Contact Resistance (LLCR)

(1) Test Equipment:

Name	Model	Serial No	Valid Date to
Milliohmmeter	Agilent 4338B	BTTEELSZ20034	Feb. 03, 2011

(2) Environmental Conditions:

Temperature: 26℃ Humidity: 55%RH

(3) Reference Standard: EIA-364-23C-2006

(4) Tested Samples: 007~014

(5) Test Condition:

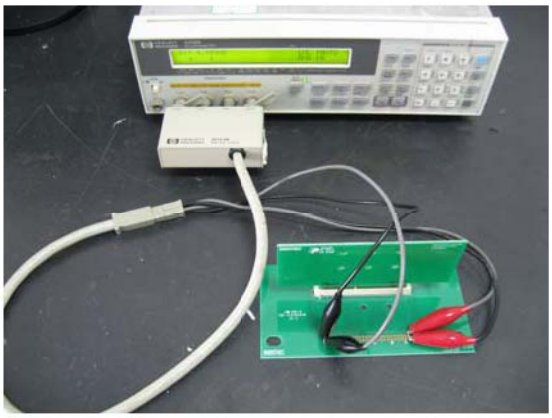
The test performed in accordance to the criteria listed above, and under the conditions as below:

---Test Current: 10 milliamps max

---Measure and record the Low Level Contact Resistance

Test Results: Please see the appendixes from page 71 to 78.

Test Photo:



Test Seq (b)

Test Item 2: Durability Test (100 cycles)

(1) Environmental Conditions:

Temperature: 26℃ Humidity: 55%RH

(2) Reference Standard: EIA-364-09C-1999

(3) Tested Samples: 007~014

(4) Test Condition:

The test performed in accordance to the criteria listed above, and under the conditions as below:

---Set the samples at room temperature to perform the durability test, and cycles for 100 times.

Test Results: There was no visible change on the surface of the samples. Other characteristics should be evaluated by the client.

Test Seq (b)

Test Item 3: Low Level Contact Resistance (LLCR)

(1) Test Equipment:

Name	Model	Serial No	Valid Date to
Milliohmmeter	Agilent 4338B	BTTEELSZ20034	Feb. 03, 2011

(2) Environmental Conditions:

Temperature: 26℃ Humidity: 55%RH

(3) Reference Standard: EIA-364-23C-2006

(4) Tested Samples: 007~014

(5) Test Condition:

The test performed in accordance to the criteria listed above, and under the conditions as below:

---Test Current: 10 milliamps max

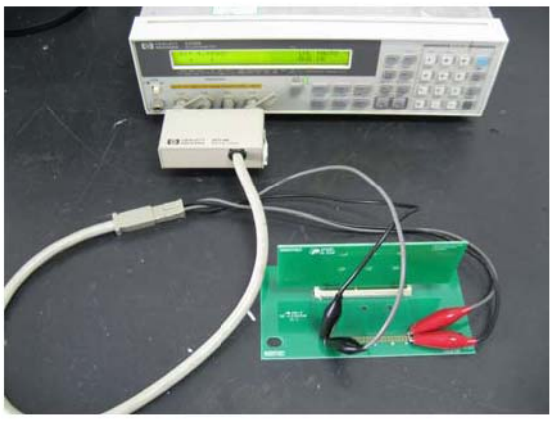
---Measure and record the Low Level Contact Resistance

(6) Acceptance criteria:

---△R≤10mΩ

Test Results: Please see the appendixes from page 71 to 78.

Test Photo:



Test Seq (b)

Test Item 4: Thermal Shock test

(1) Test Equipment:

Name	Model	Serial No	Valid Date to
Thermal Shock Tester	TSG0765W	ATTEELSZ20007	Mar. 15, 2011

(2) Environmental Conditions:

Temperature: 26℃ Humidity: 55%RH

(3) Reference Standard: EIA-364-32D-2006

(4) Tested Samples: 007~014

(5) Test Condition:

The test performed in accordance to the criteria listed above, and under the conditions as below:

---Low temperature: -55℃, keep for 30 minutes

---High temperature: 85℃, keep for 30 minutes

---Transfer time is less than 5 minutes

---Cycle as the steps above for 100 times

---Sample Condition: mated

(6) Acceptance criteria:

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

Test Results: There was no visible change on the surface of the samples.

Test Photo:

Test Seq (b)

Test Item 5: Low Level Contact Resistance (LLCR)

(1) Test Equipment:

Name	Model	Serial No	Valid Date to
Milliohmmeter	Agilent 4338B	BTTEELSZ20034	Feb. 03, 2011

(2) Environmental Conditions:

Temperature: 26℃ Humidity: 55%RH

(3) Reference Standard: EIA-364-23C-2006

(4) Tested Samples: 007~014

(5) Test Condition:

The test performed in accordance to the criteria listed above, and under the conditions as below:

---Test Current: 10 milliamps max

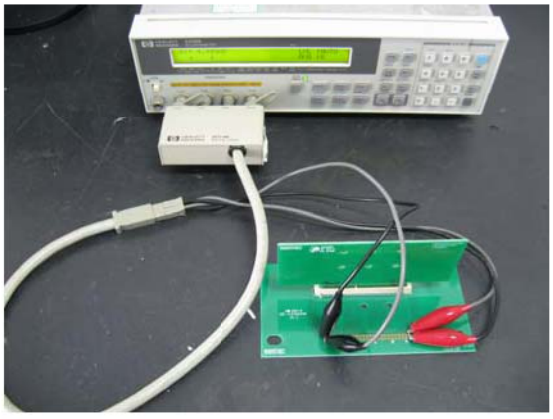
--- Measure and record the Low Level Contact Resistance

(6) Acceptance criteria:

---△R≤10mΩ

Test Results: Please see the appendixes from page 71 to 78.

Test Photo:



Test Seq (b)

Test Item 6: Composite temperature/humidity cyclic test

(1) Test Equipment:

Name	Model	Serial No.	Valid Date to
Temperature & Humidity Chamber	EL-02KA	ATTEELSZ20010	Dec. 11, 2010

(2) Environmental Conditions:

Temperature: 26℃ Humidity: 55%RH

(3) Reference Standard: EIA-364-31B-2000

(4) Tested Samples: 007~014

(5) Test Condition:

---①Dwell for 24 hours at 50℃

---②Change temperature from 50℃ to 25℃ within 2.5 hours

---③Keep humidity at 95%RH and change temperature from 25℃ to 65℃ within 2.5 hours

---④Dwell for 3 hours at 65℃ and 95%RH

---⑤Keep humidity at 95%RH and change temperature from 65℃ to 25℃ within 2.5 hours

---⑥Keep humidity at 95%RH and change temperature from 25℃ to 55℃ within 2.5 hours

---⑦Dwell for 3 hours at 65℃ and 95%RH

---⑧Keep humidity at 95%RH and change temperature from 65℃ to 25℃ within 2.5 hours

---⑨Dwell for 8 hours at 25℃ and 95%RH

---Cycle as the steps above ③to⑨ for 10 times, test for 264 hours in total.

---Sample Condition: mated

(6) Acceptance criteria:

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

Test Results: There was no visible change on the surface of the samples.

Test Photo:

Test Seq (b)

Test Item 7: Low Level Contact Resistance (LLCR)

(1) Test Equipment:

Name	Model	Serial No	Valid Date to
Milliohmmeter	Agilent 4338B	BTTEELSZ20034	Feb. 03, 2011

(2) Environmental Conditions:

Temperature: 26℃ Humidity: 55%RH

(3) Reference Standard: EIA-364-23C-2006

(4) Tested Samples: 007~014

(5) Test Condition:

The test performed in accordance to the criteria listed above, and under the conditions as below:

---Test Current: 10 milliamps max

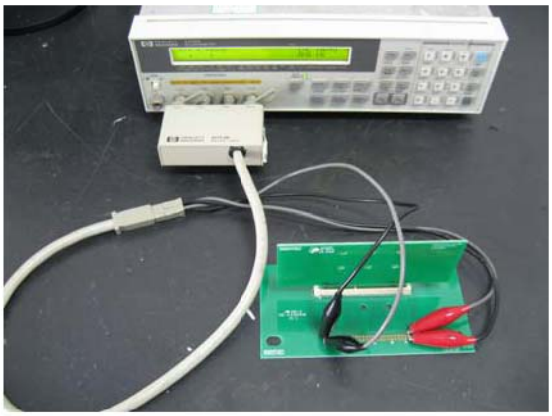
--- Measure and record the Low Level Contact Resistance

(6) Acceptance criteria:

---△R≤10mΩ

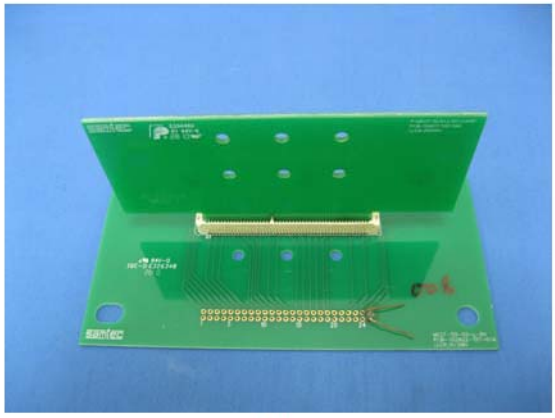
Test Results: Please see the appendixes from page 71 to 78.

Test Photo:



Sample Photos after testing Seq (b):

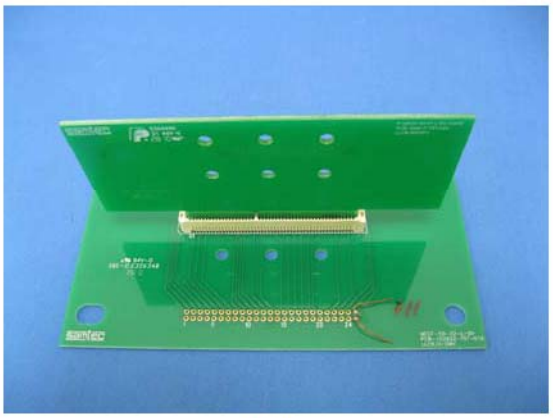
007



008

009

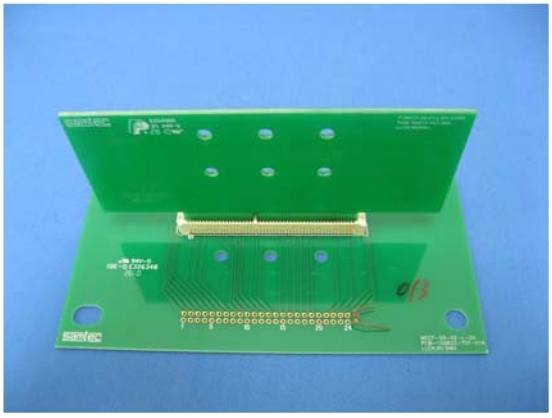
010



011

012

Sample Photos after testing Seq (b):



013

014

Test Seq (c)

Test Item 1: Low Level Contact Resistance (LLCR)

(1) Test Equipment:

Name	Model	Serial No	Valid Date to
Milliohmmeter	Agilent 4338B	BTTEELSZ20034	Feb. 03, 2011

(2) Environmental Conditions:

Temperature: 26℃ Humidity: 52%RH

(3) Reference Standard: EIA-364-23C-2006

(4) Tested Samples: 015~022

(5) Test Condition:

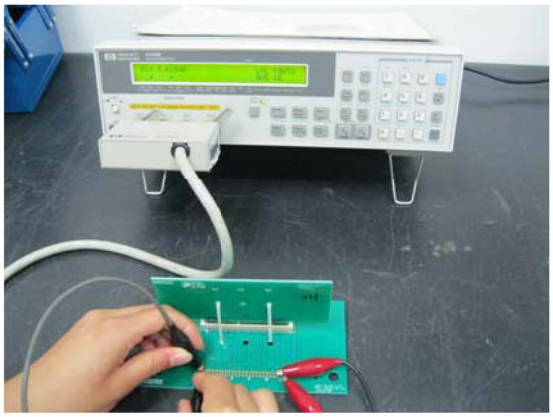
The test performed in accordance to the criteria listed above, and under the conditions as below:

---Test Current: 10 milliamps max

---Measure and record the Low Level Contact Resistance

Test Results: Please see the appendixes from page 79 to 86.

Test Photo:



Test Seq (c)

Test Item 2: Mechanical shock test

(1) Test Equipment:

Name	Model	Serial No	Valid Date to
Mechanical Shock Test System	DP-1200-45	BTTEELSZ20033	May. 25, 2011

(2) Environmental Conditions:

Temperature: 26℃ Humidity: 52%RH

(3) Reference Standard: EIA-364-27B-1996

(4) Tested Samples: 015~022

(5) Test Condition:

The test performed in accordance to the criteria listed above, and under the conditions as below:

---Wave form: Half-sine

---Acceleration: 100 g_n

--- Pulse duration: 6 ms

---Direction: Axis ±X, ±Y, ±Z

---Number of shocks: 3 shocks /axis, 18 times in total

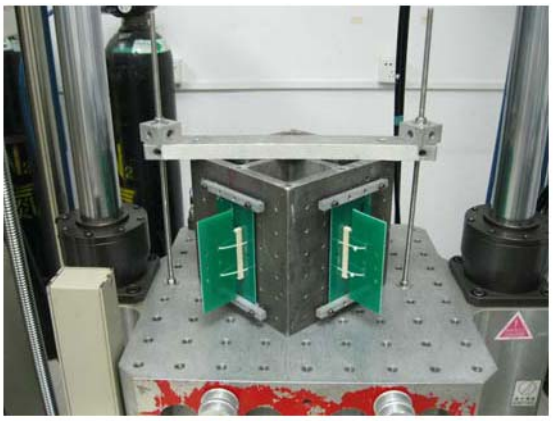
(6) Acceptance criteria:

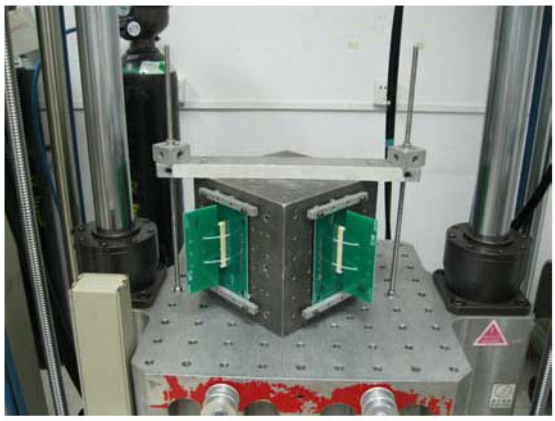
---There shall be no evidence of physical damage to the tested samples.

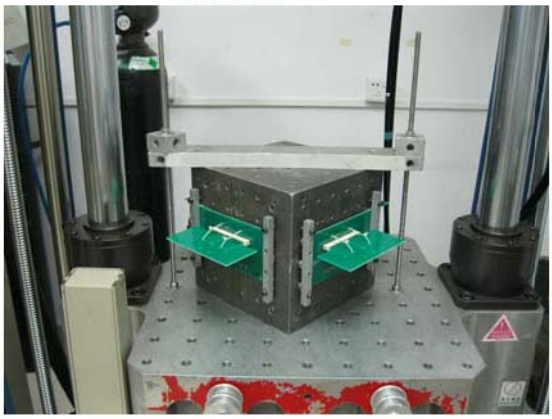
(7) Note: The samples are divided into 2 groups (Group 1: 015~020, Group 2: 021~022) for testing axis ±Z and 2 groups (Group 1: 015~018, Group 2: 019~022) for testing axis ±X, ±Y.

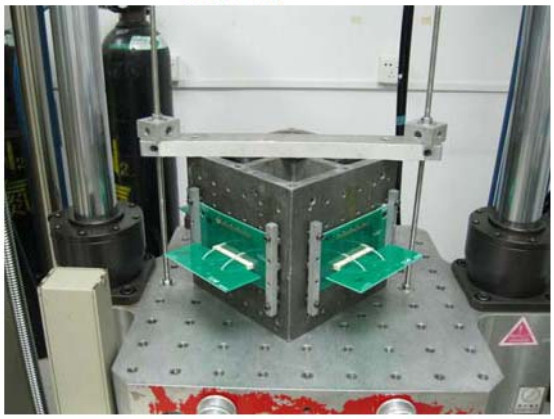
Test Results: There was no evidence of physical damage to the tested samples.

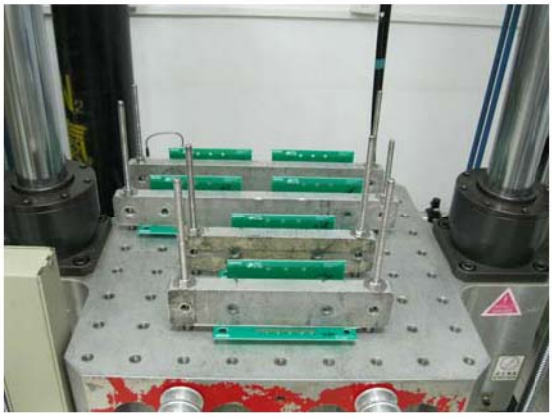
Test Photos:

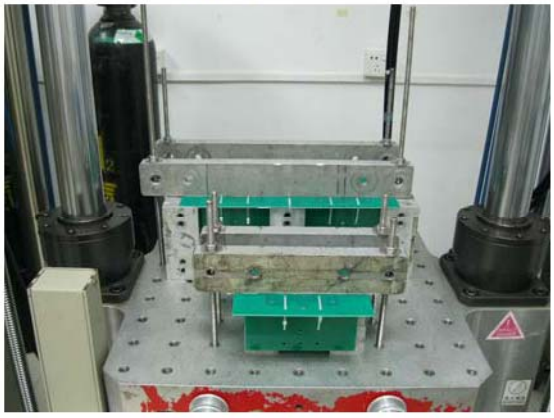

Axis +X


Axis -X

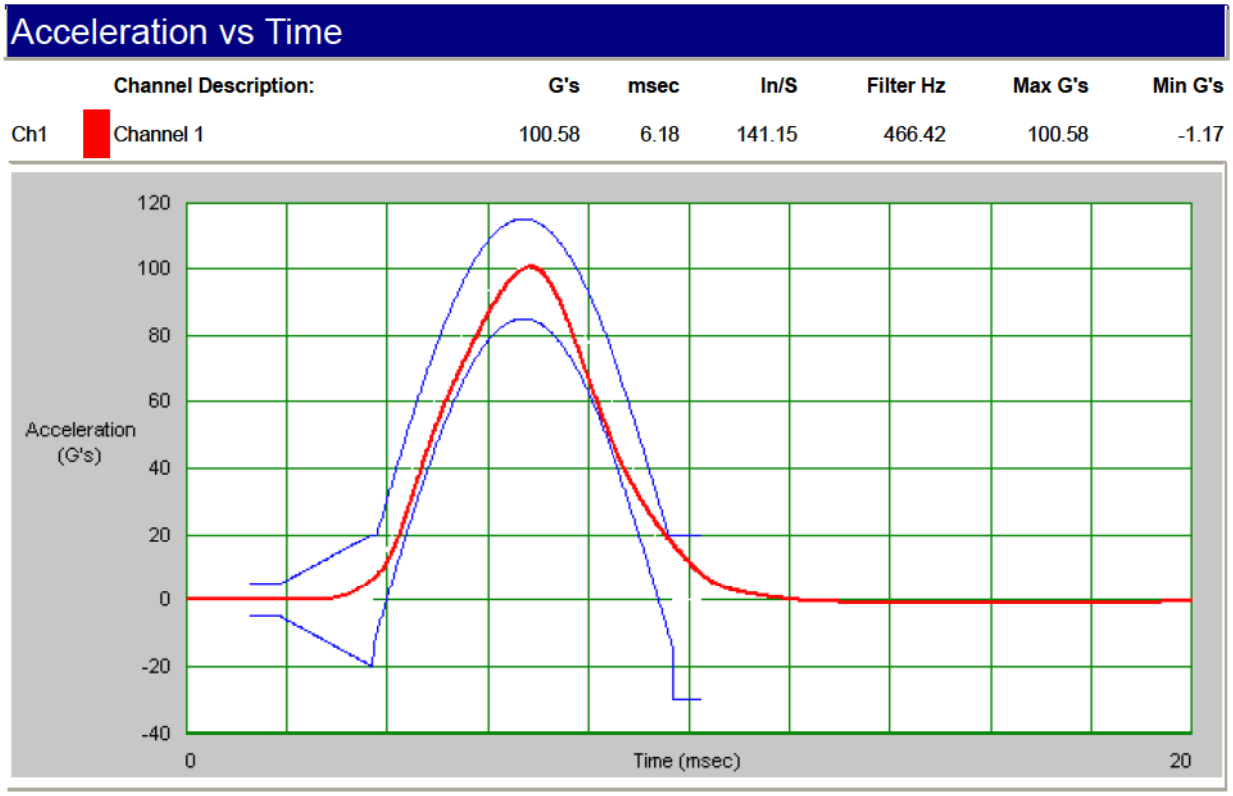

Axis +Y


Axis -Y


Axis +Z

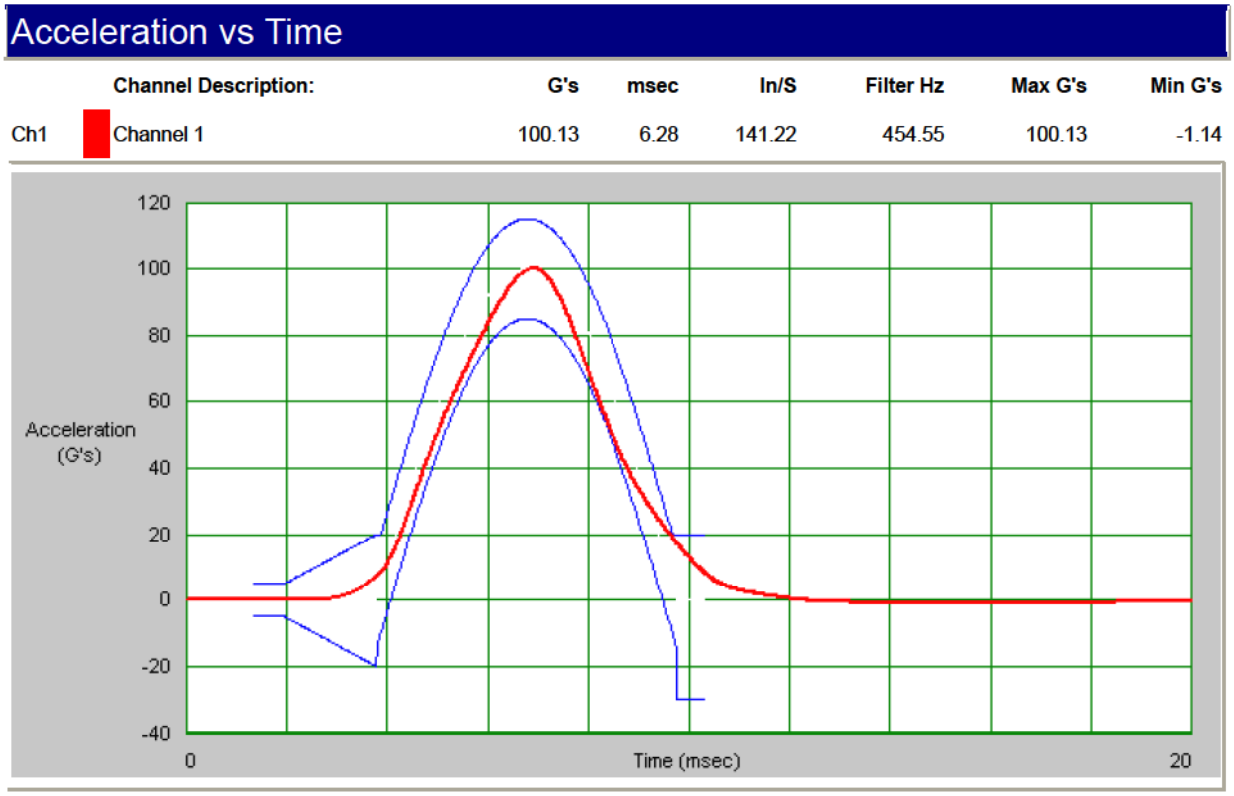

Axis -Z

Test Curve:



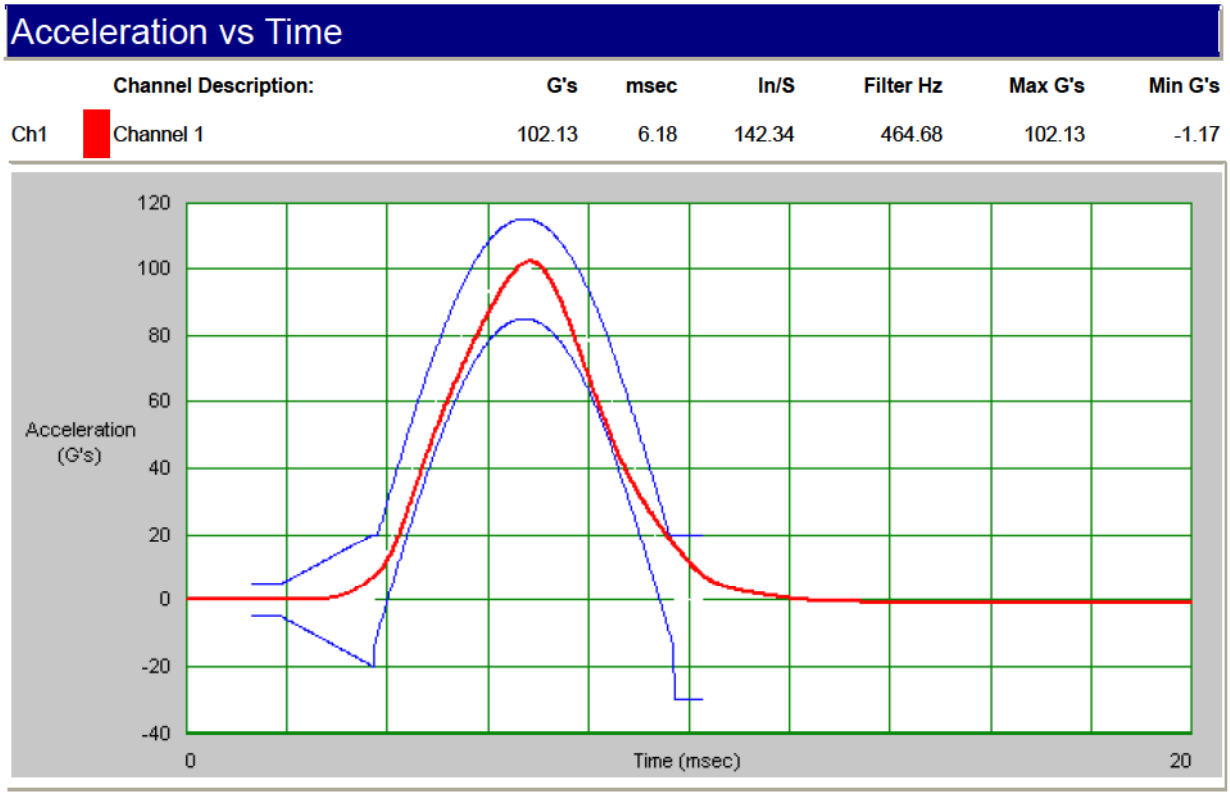
Axis +X

Test Curve:



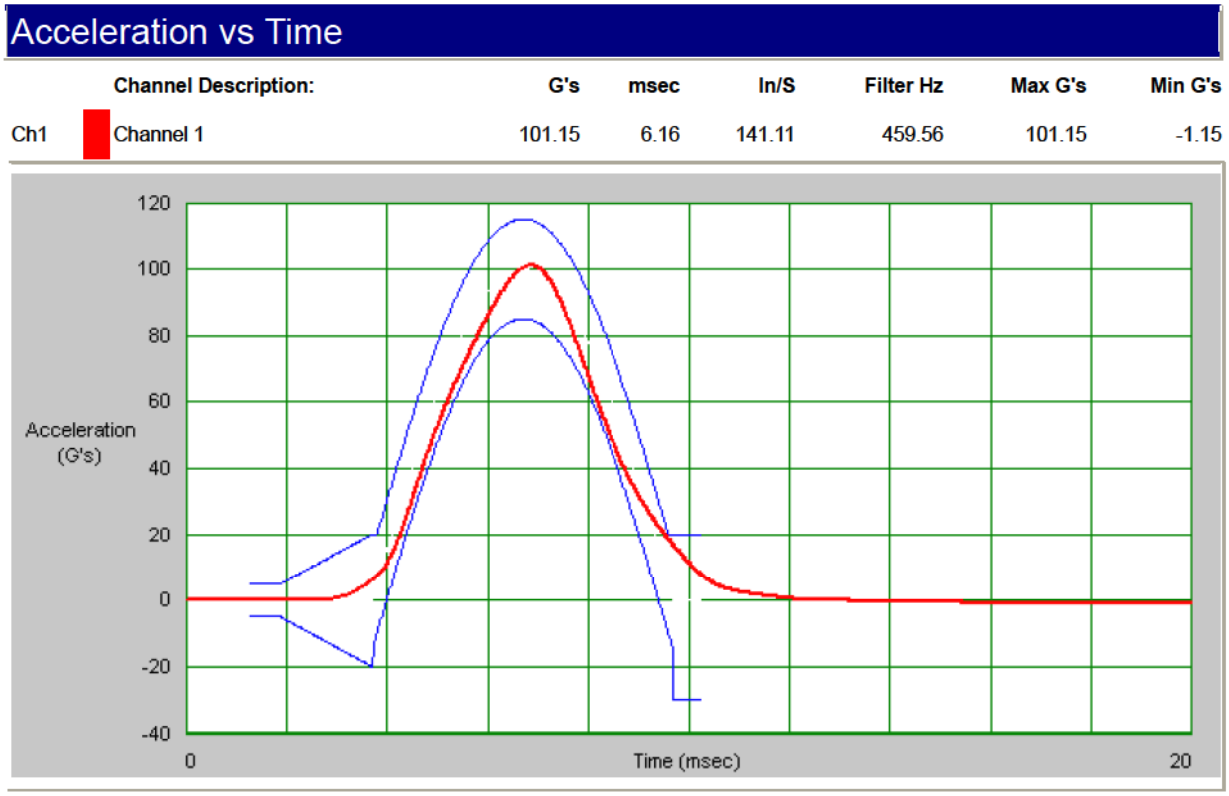
Axis -X

Test Curve:



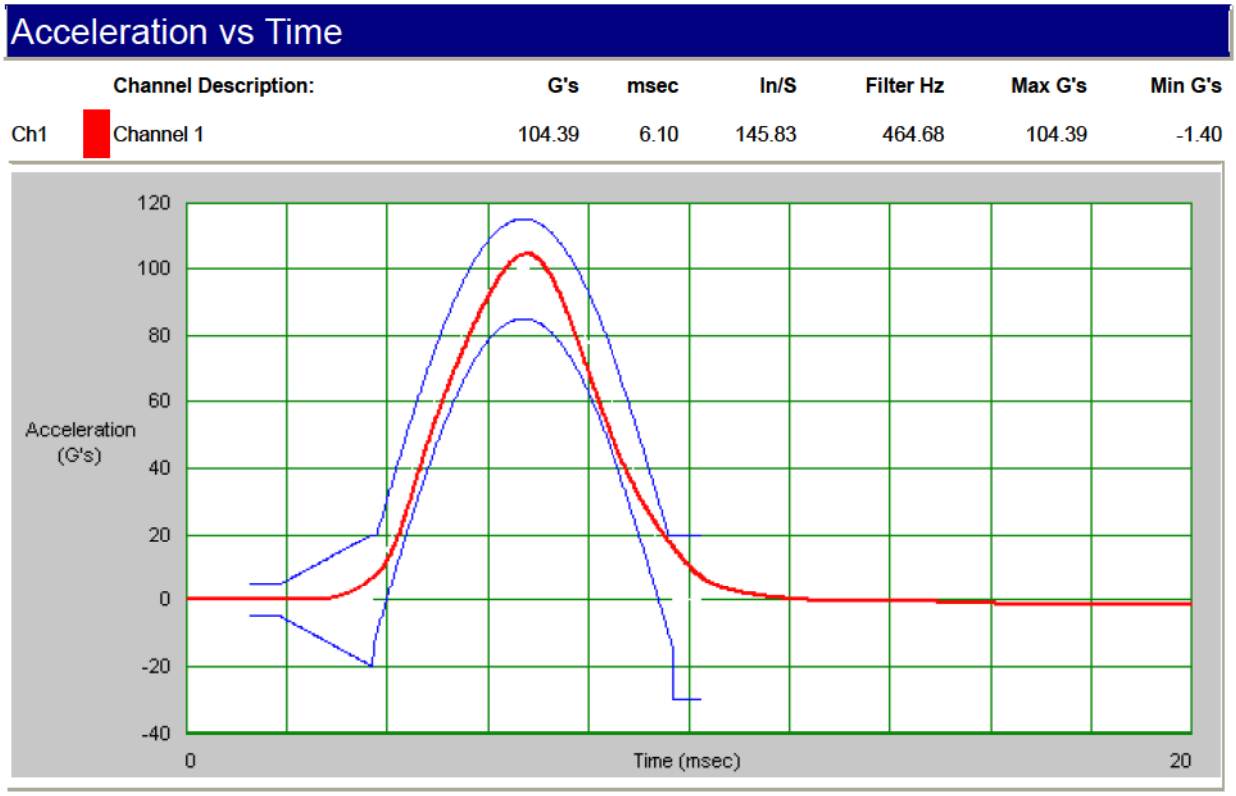
Axis +Y

Test Curve:



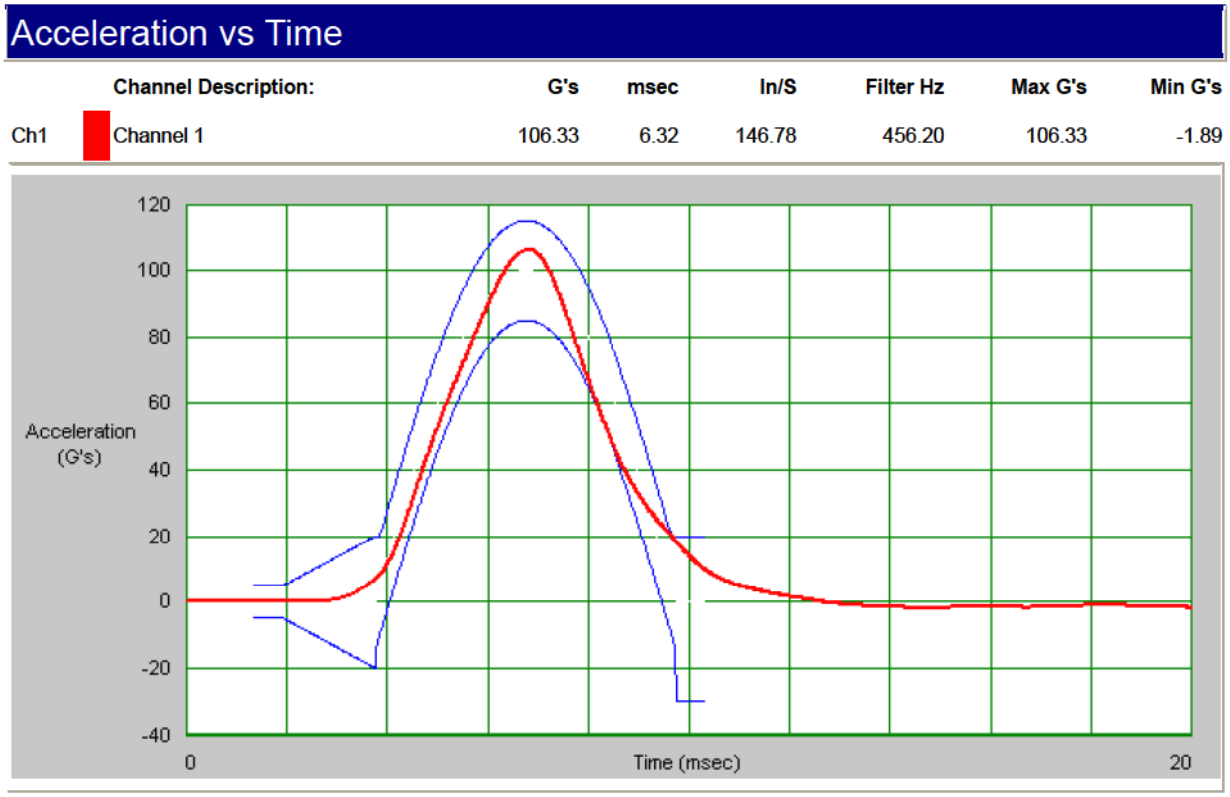
Axis -Y

Test Curve:



Axis +Z

Test Curve:



Axis -Z

Test Seq (c)

Test Item 3: Low Level Contact Resistance (LLCR)

(1) Test Equipment:

Name	Model	Serial No	Valid Date to
Milliohmmeter	Agilent 4338B	BTTEELSZ20034	Feb. 03, 2011

(2) Environmental Conditions:

Temperature: 26℃ Humidity: 52%RH

(3) Reference Standard: EIA-364-23C-2006

(4) Tested Samples: 015~022

(5) Test Condition:

The test performed in accordance to the criteria listed above, and under the conditions as below:

---Test Current: 10 milliamps max

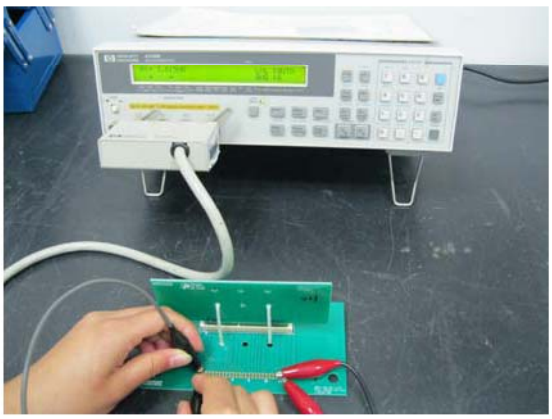
--- Measure and record the Low Level Contact Resistance

(6) Acceptance criteria:

---△R≤10mΩ

Test Results: Please see the appendixes from page 79 to 86.

Test Photo:



Test Seq (c):

Test Item 4: Random Vibration Test

(1) Test Equipment:

Name	Model	Serial No.	Valid Date to
Vibration Test System	EM-400F2K-30N80	BTTEELSZ20011	May. 24, 2011
Vibration Test System	LDS V850-440-LPT 750	ATTEELSZ20020	Mar. 18, 2011

(2) Environmental Conditions:

Temperature: 24℃ Humidity: 54%RH

(3) Reference Standard: EIA-364-28E-2006

(4) Tested Samples: 015~022

(5) Test Condition:

The test performed in accordance to the criteria listed above, and under the conditions as below:

Frequency (Hz)	PSD(g^2/ Hz)	Slope (dB/oct)
50	/	+6
100-1000	0.04	/
2000	/	-6

---Acceleration: 7.56 Grms

---Direction: Axis X, Y, Z

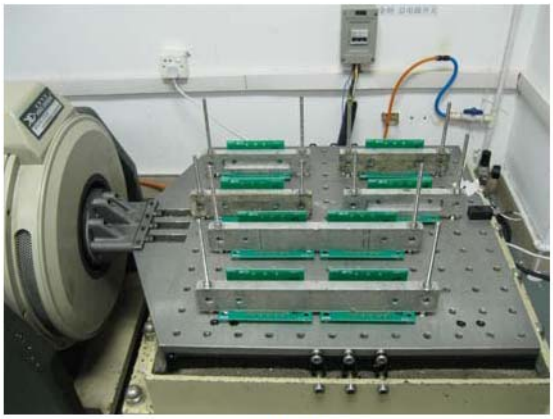
---Test duration: 2hours/axis

(6) Acceptance criteria:

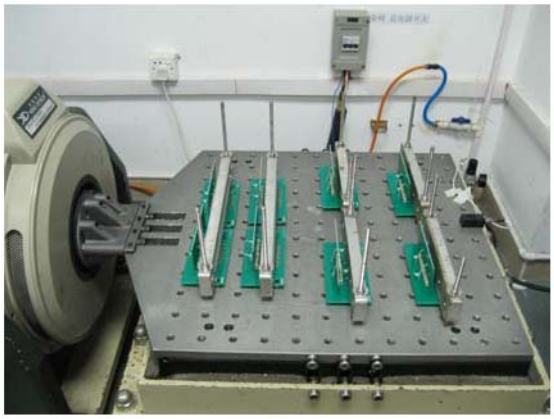
---There shall be no evidence of physical damage to the tested samples.

Test Results: There was no evidence of physical damage to the tested samples

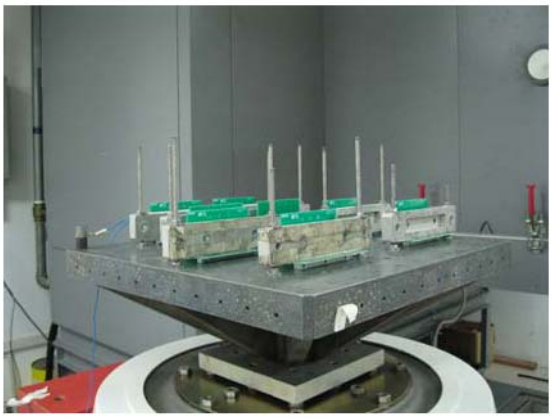
Test Photos:



Axis X

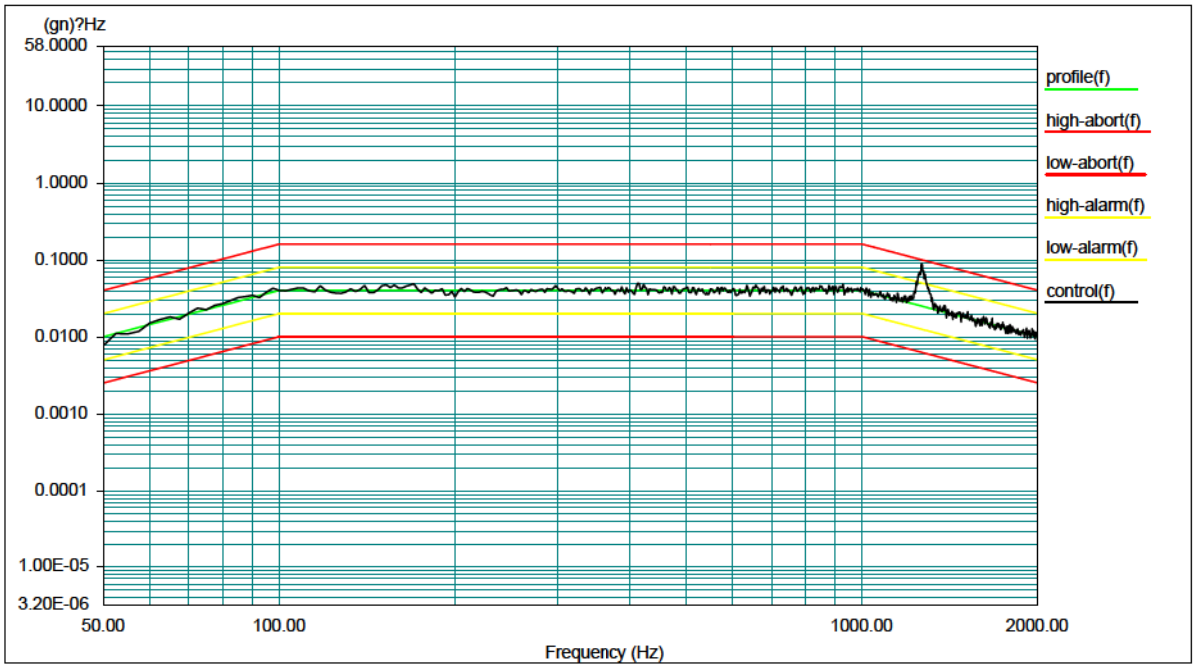


Axis Y



Axis Z

Test Curve:



Level: 100 %

Control RMS: 7.899578 gn Full Level Elapsed Time: 02:00:02 Lines: 800 Frame Time: 0.400000 Seconds

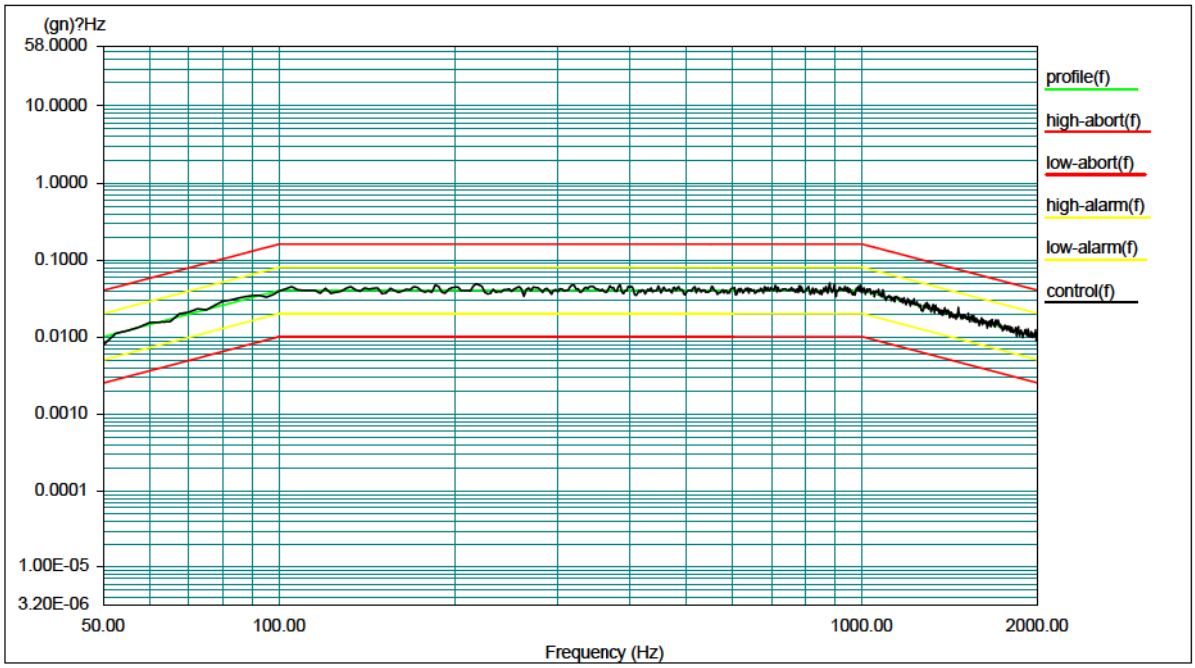
Demand RMS: 7.564701 gn Remaining Time: 00:00:00 DOF: 154 dF: 2.500000 Hz

Data saved at 05:32:43 PM, Tuesday, October 19, 2010

Report created at 05:32:49 PM, Tuesday, October 19, 2010

Axis X

Test Curve:



Level: 100 %

Control RMS: 7.789592 gn Full Level Elapsed Time: 02:00:00 Lines: 800 Frame Time: 0.400000 Seconds

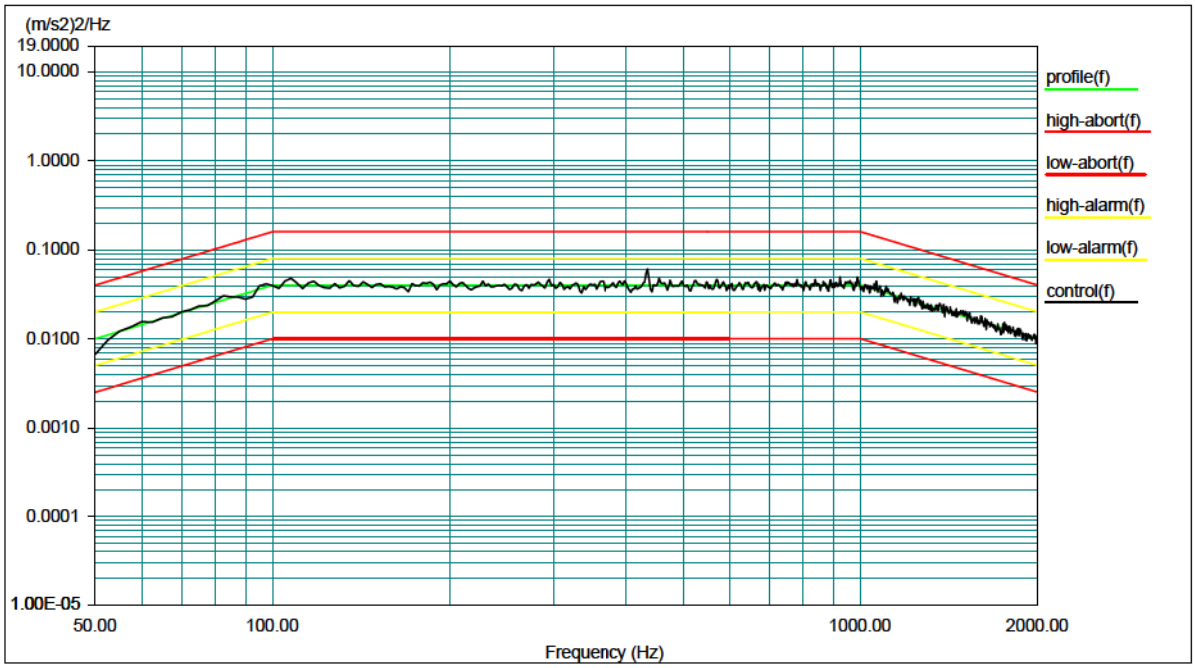
Demand RMS: 7.564701 gn Remaining Time: 00:00:00 DOF: 154 dF: 2.500000 Hz

Data saved at 07:44:01 PM, Tuesday, October 19, 2010

Report created at 07:44:02 PM, Tuesday, October 19, 2010

Axis Y

Test Curve:



Level: 100 %

Control RMS: 7.578563 m/s2 Full Level Elapsed Time: 02:00:00 Lines: 800 Frame Time: 0.400000 Seconds

Demand RMS: 7.564621 m/s2 Remaining Time: 00:00:00 DOF: 154 dF: 2.500000 Hz

Data saved at 11:54:21 PM, Wednesday, October 20, 2010

Report created at 11:54:22 PM, Wednesday, October 20, 2010

Axis Z

Test Seq (c):

Test Item 5: Low Level Contact Resistance (LLCR)

(1) Test Equipment:

Name	Model	Serial No	Valid Date to
Milliohmmeter	Agilent 4338B	BTTEELSZ20034	Feb. 03, 2011

(2) Environmental Conditions:

Temperature: 24℃ Humidity: 54%RH

(3) Reference Standard: EIA-364-23C-2006

(4) Tested Samples: 015~022

(5) Test Condition:

The test performed in accordance to the criteria listed above, and under the conditions as below:

---Test Current: 10 milliamps max

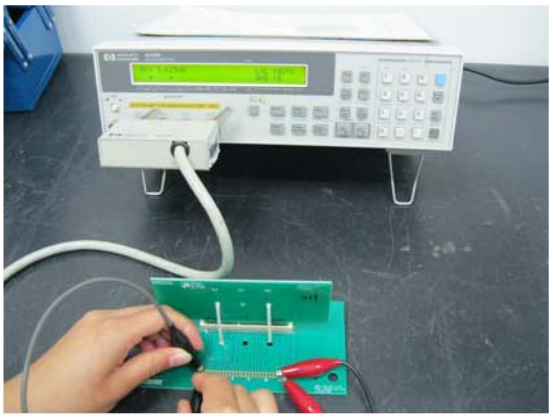
--- Measure and record the Low Level Contact Resistance

(6) Acceptance criteria:

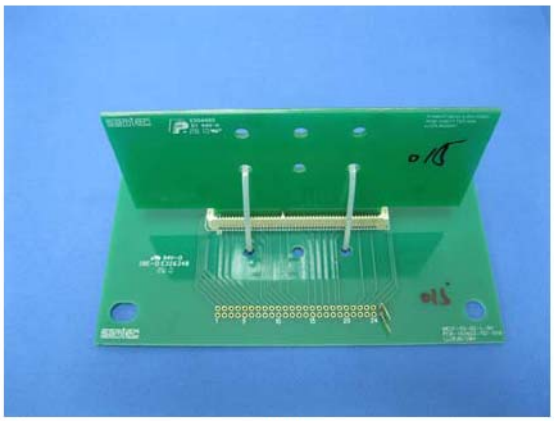
---△R≤10mΩ

Test Results: Please see the appendixes from page 79 to 86.

Test Photo:

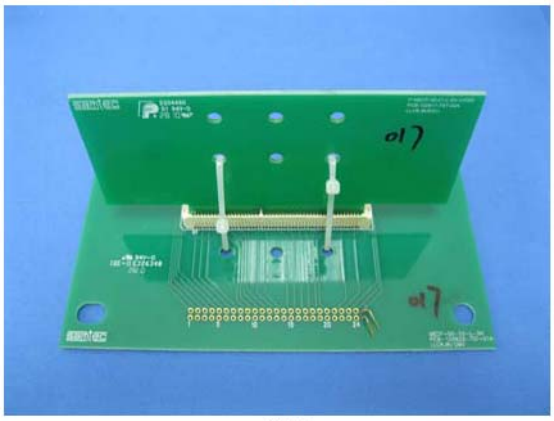


Sample Photos after testing Seq (c):



015

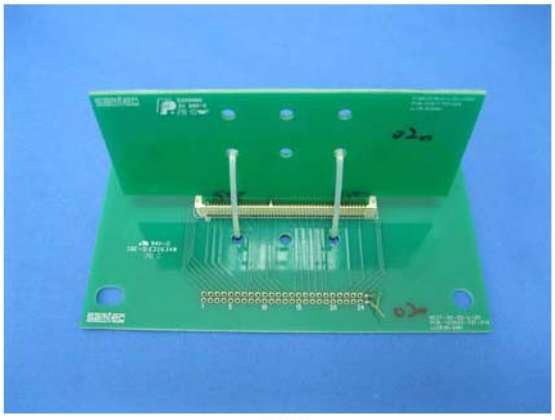
016



017

018

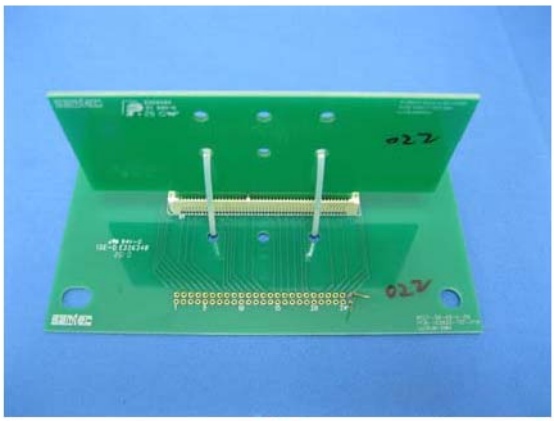
019



020

Sample Photos after testing Seq (c):

021



022

Test Seq. (d)

Test Item 1: Mechanical Shock Test

(1) Test Equipment:

Name	Model	Serial No	Valid Date to
Mechanical Shock Test System	DP-1200-45	BTTEELSZ20033	May 24, 2011
Instantaneous circuit tester	NM11A	BTTEELSZ20016	Nov. 05, 2010

(2) Environmental Conditions:

Temperature: 26℃ Humidity: 52%RH

(3) Reference Standard: EIA-364-27B-1996

(4) Tested Samples: 023~026

(5) Test Condition:

The test performed in accordance to the criteria listed above, and under the conditions as below:

---Wave form: Half-sine

---Acceleration: 100 g_n

--- Pulse duration: 6 ms

---Direction: Axis ±X, ±Y, ±Z

---Number of shocks: 3 shocks /axis, 18 times in total

---Monitor the discontinuity duration of samples during the test

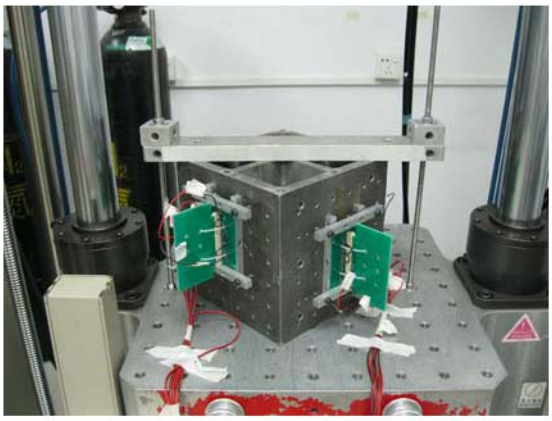
(6) Acceptance criteria:

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

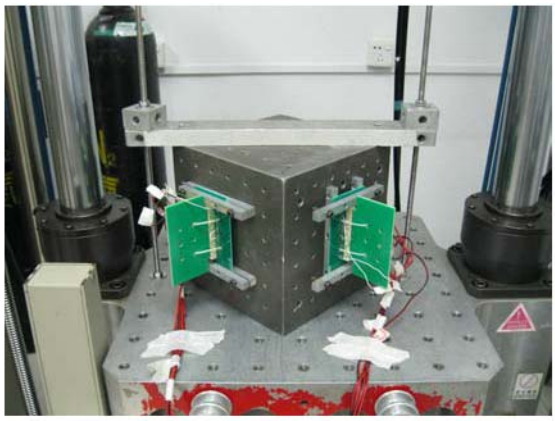
---There shall be no low microsecond event detected greater than 0.1 microsecond.

Test Results: There was no evidence of physical damage to the tested samples, there was no low microsecond event detected greater than 0.1 microsecond. Other characteristics should be evaluated by the client.

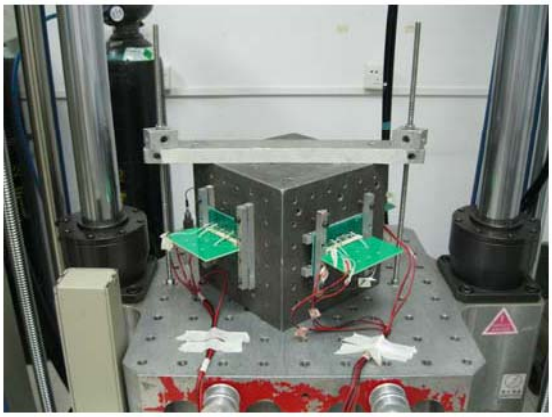
Test Photos:



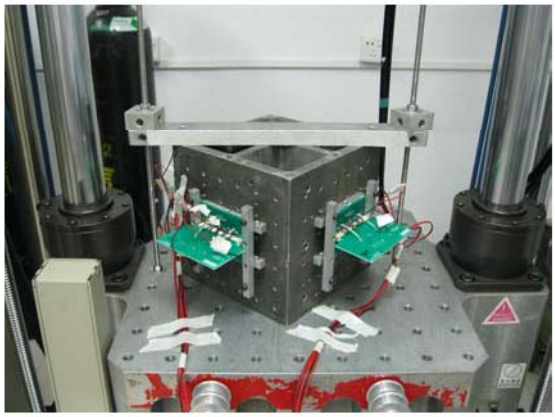
Axis +X



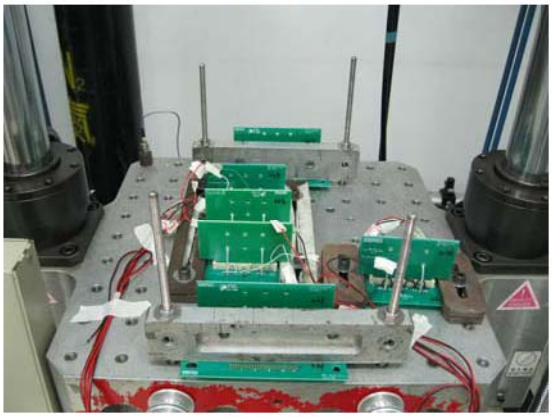
Axis -X



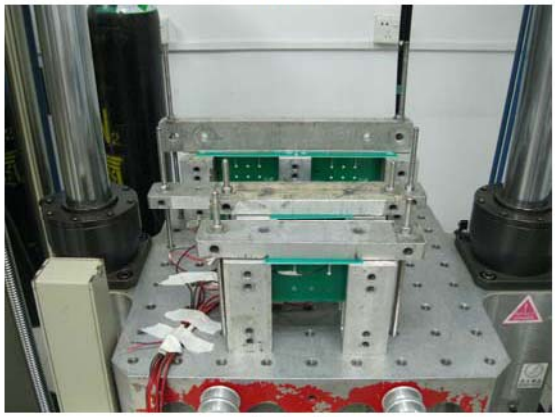
Axis +Y



Axis -Y



Axis +Z

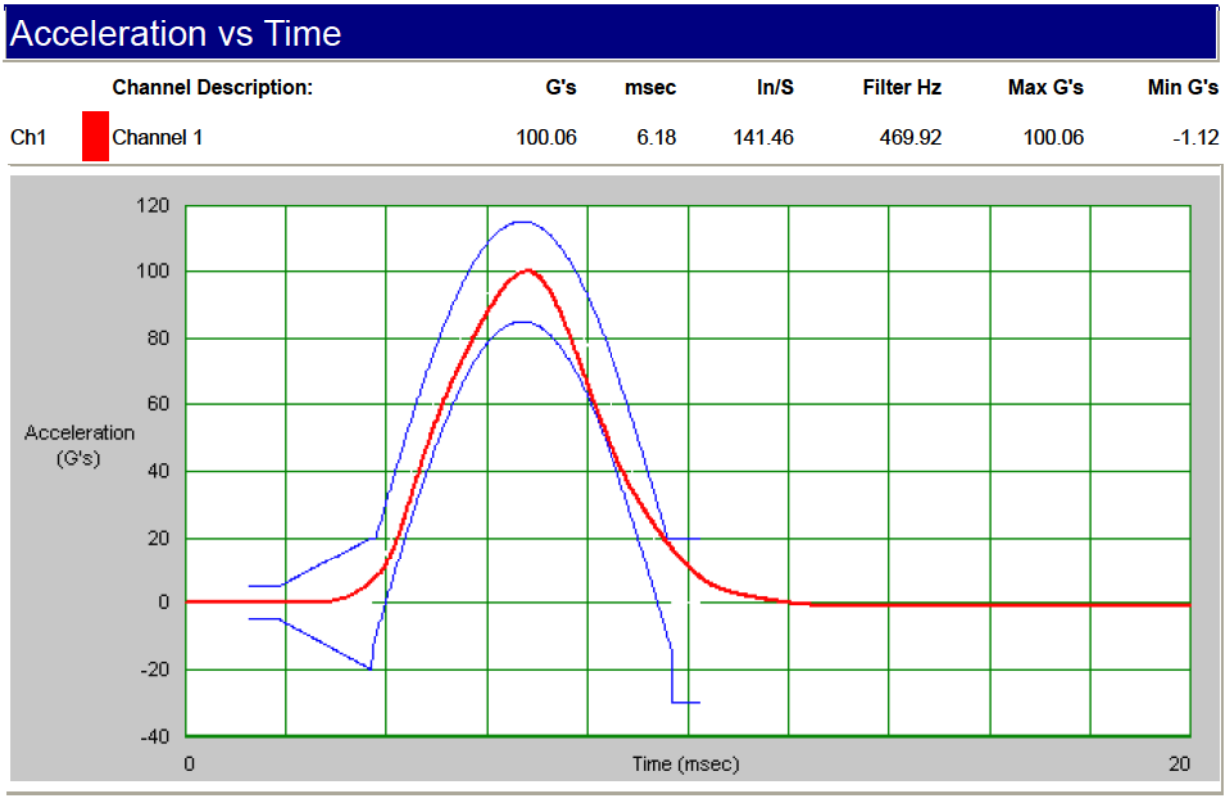


Axis -Z

Test Photo:

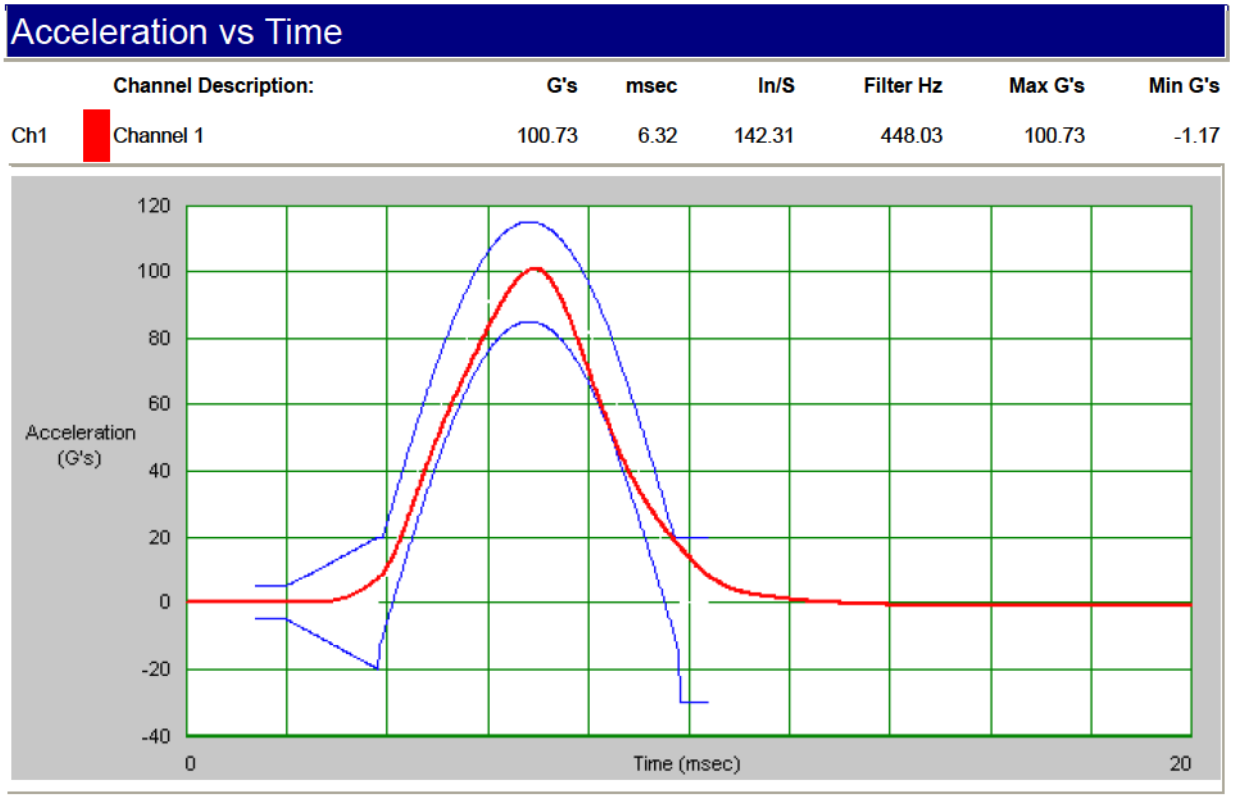
Monitor during the test

Test Curve:



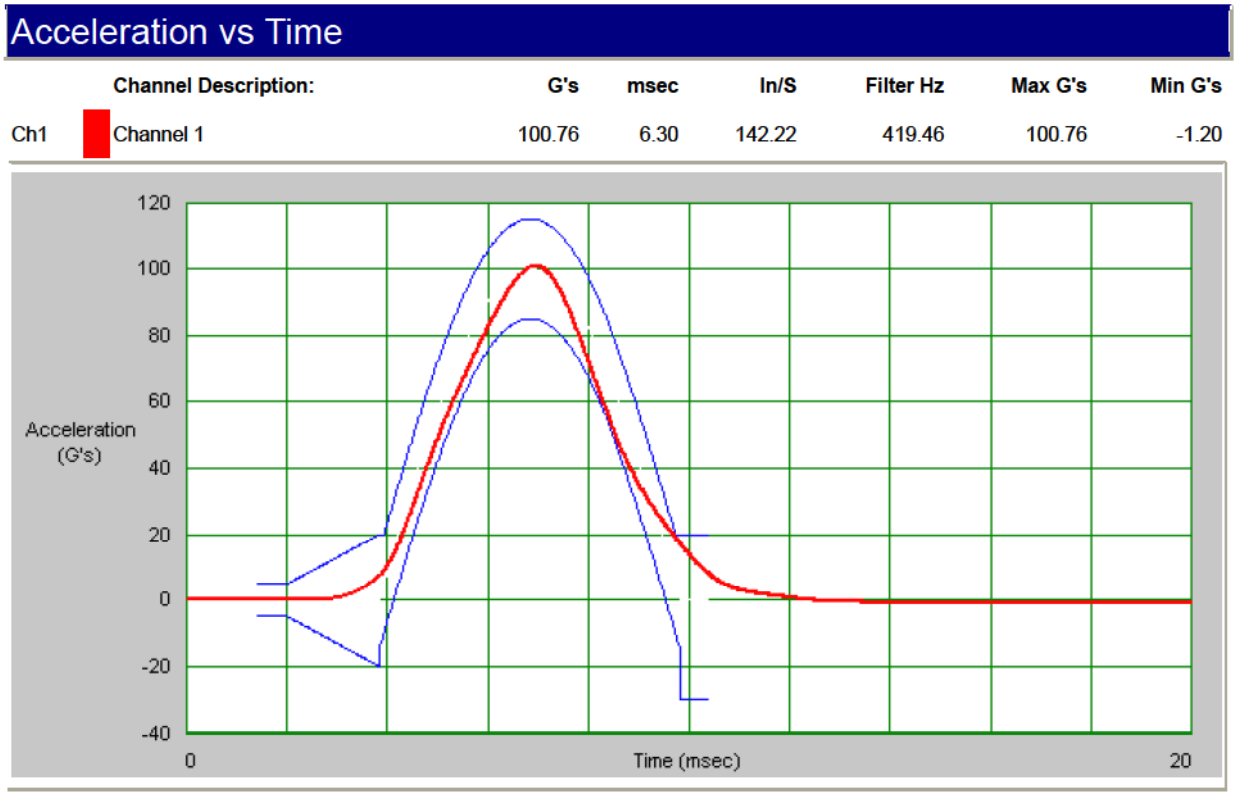
Axis +X

Test Curve:



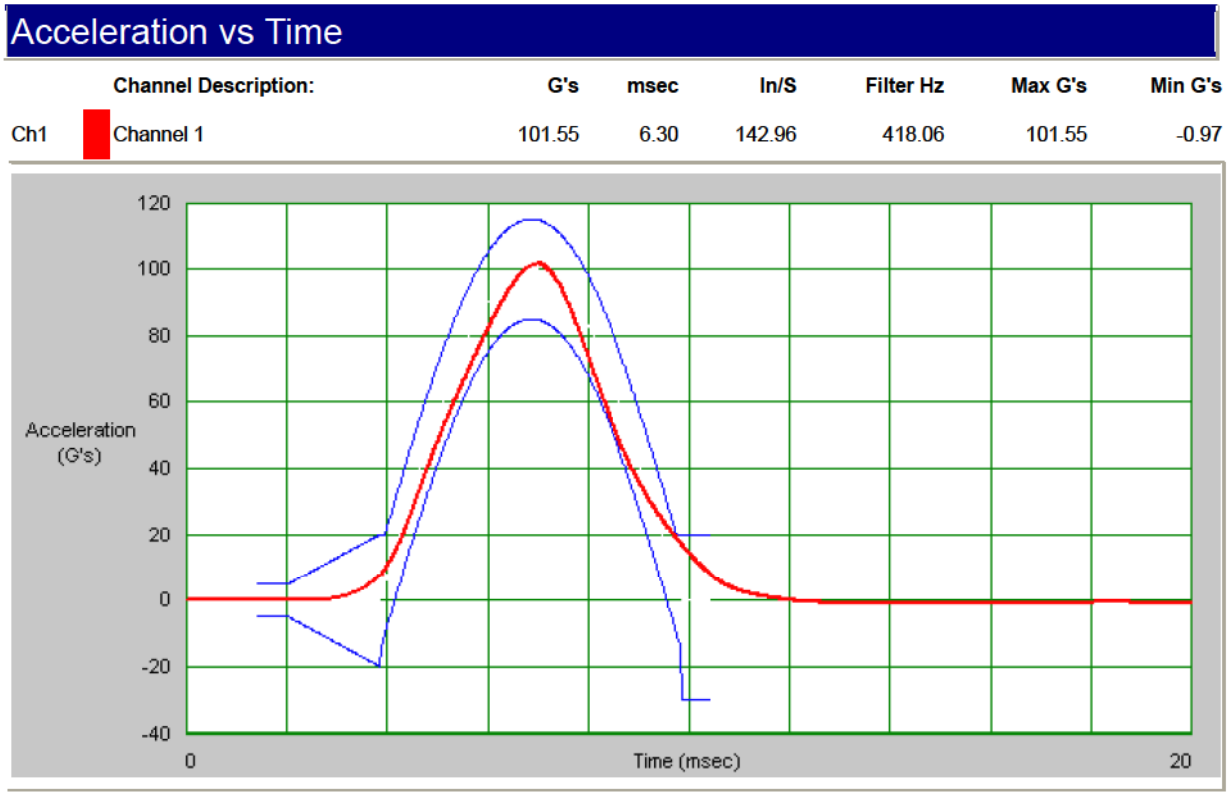
Axis -X

Test Curve:



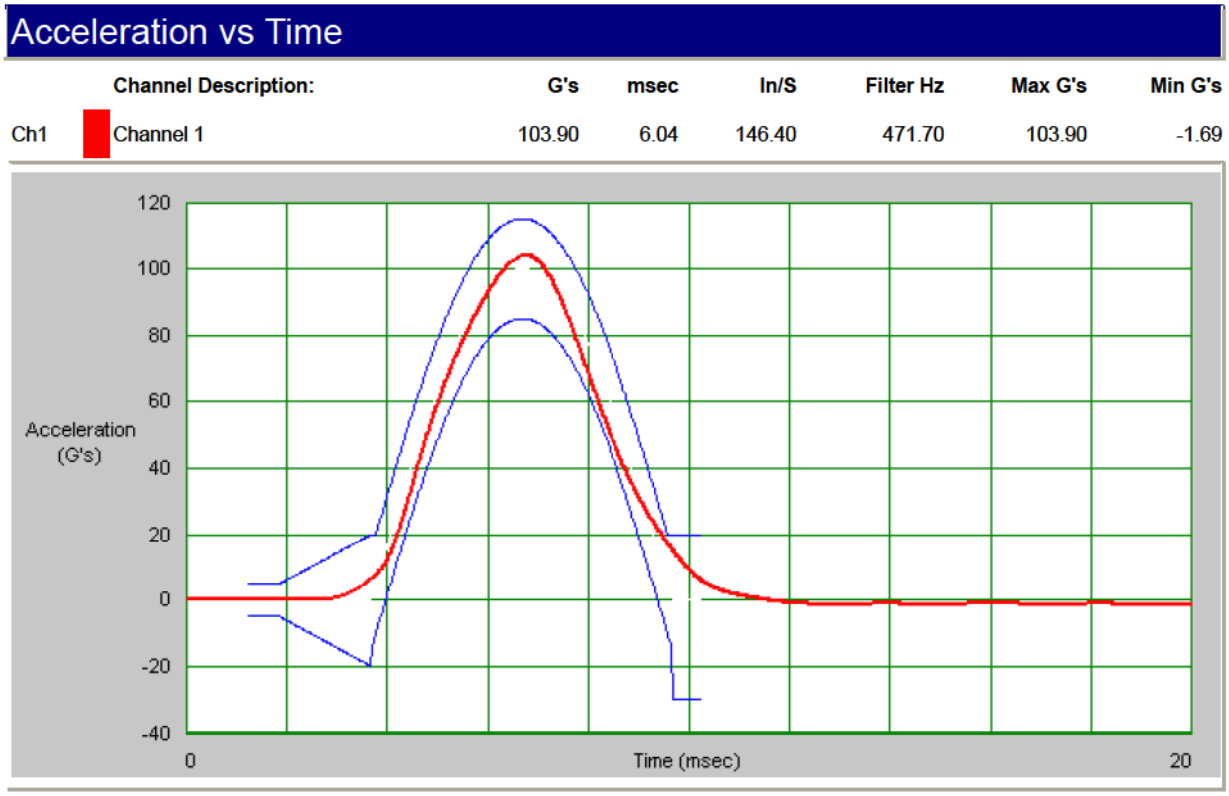
Axis +Y

Test Curve:



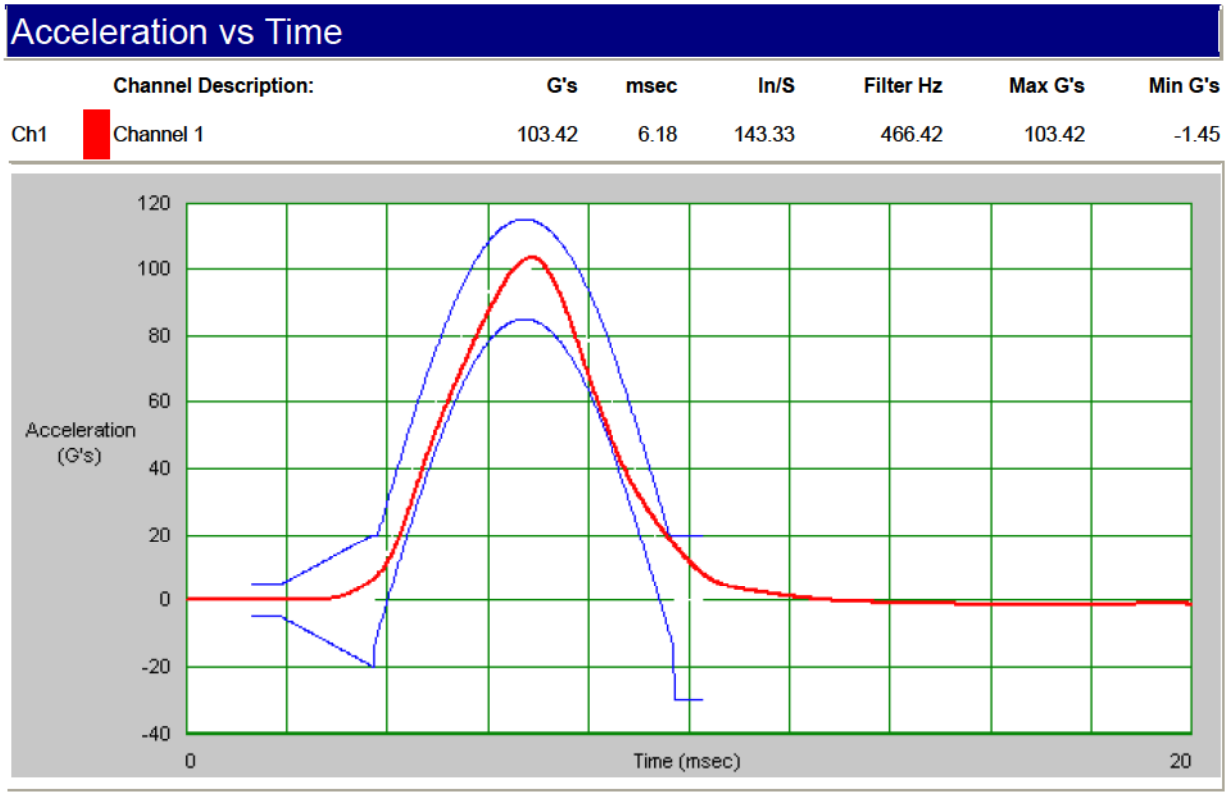
Axis -Y

Test Curve:



Axis +Z

Test Curve:



Axis -Z

Test Seq. (d)

Test Item 2: Random Vibration Test

(1) Test Equipment:

Name	Model	Serial No.	Valid Date to
Vibration Test System	EM-400F2K-30N80	BTTEELSZ20011	May 24, 2011
Vibration Test System	LDS V850-440-LPT 750	ATTEELSZ20020	Mar. 18, 2011
Instantaneous circuit tester	NM11A	BTTEELSZ20016	Nov. 05, 2010

(2) Environmental Conditions:

Temperature: 24℃ Humidity: 54%RH

(3) Reference Standard: EIA-364-28E-2006

(4) Tested Samples: 023~026

(5) Test Condition:

The test performed in accordance to the criteria listed above, and under the conditions as below:

Frequency(Hz)	PSD(g^2/ Hz)	Slope (dB/oct)
50	/	+6
100-1000	0.04	/
2000	/	-6

---Acceleration: 7.56Grms

---Direction: Axis X, Y, Z

---Test duration: 2hours/axis

---Monitor the discontinuity duration of samples during the test

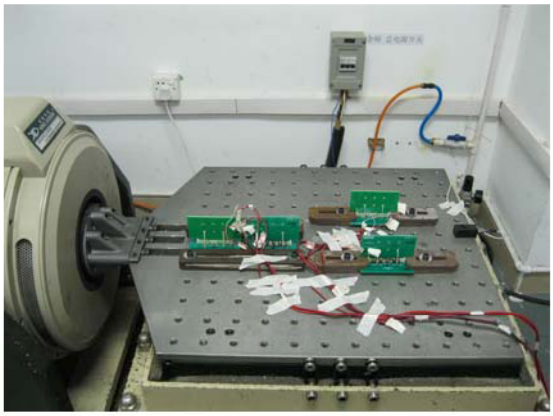
(6) Acceptance criteria:

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

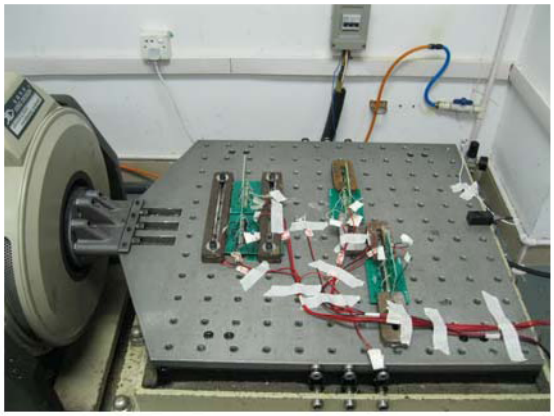
---There shall be no low microsecond event detected greater than 0.1 microsecond.

Test Results: There was no evidence of physical damage to the tested samples, there was no low microsecond event detected greater than 0.1 microsecond. Other characteristics should be evaluated by the client.

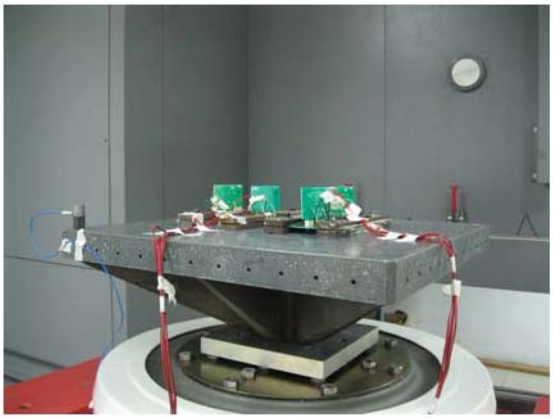
Test Photos:



Axis X



Axis Y

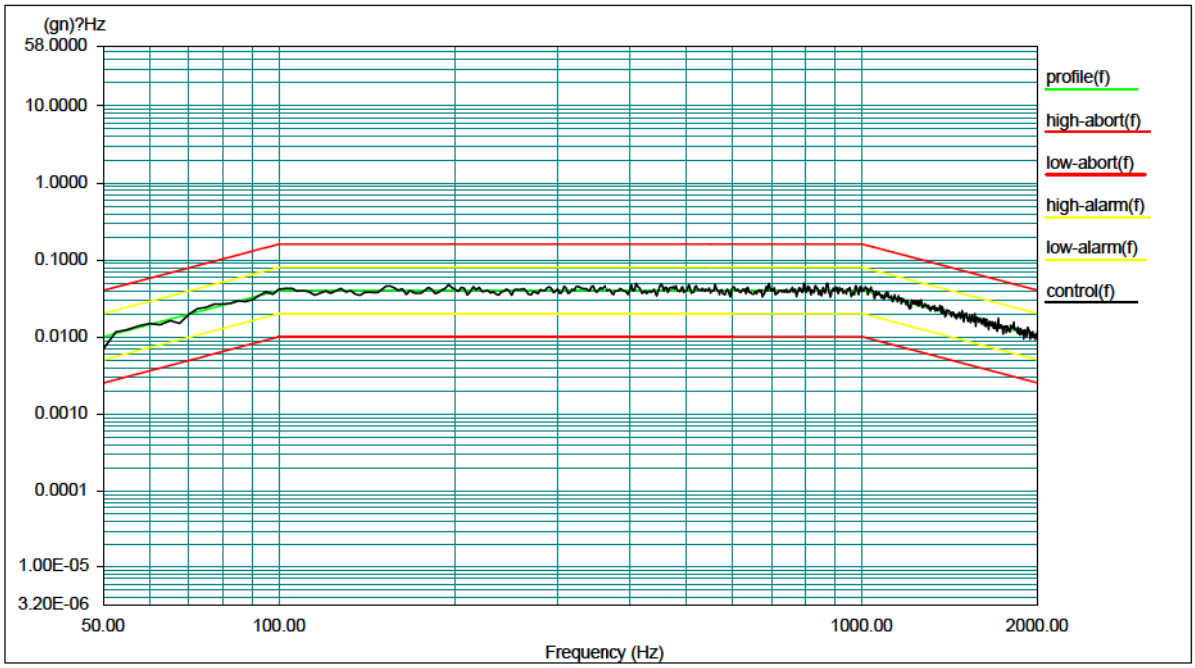


Axis Z

Monitor during the test

]

Test Curve:



Level: 100 %

Control RMS: 8.038553 gn Full Level Elapsed Time: 02:00:02 Lines: 800 Frame Time: 0.400000 Seconds

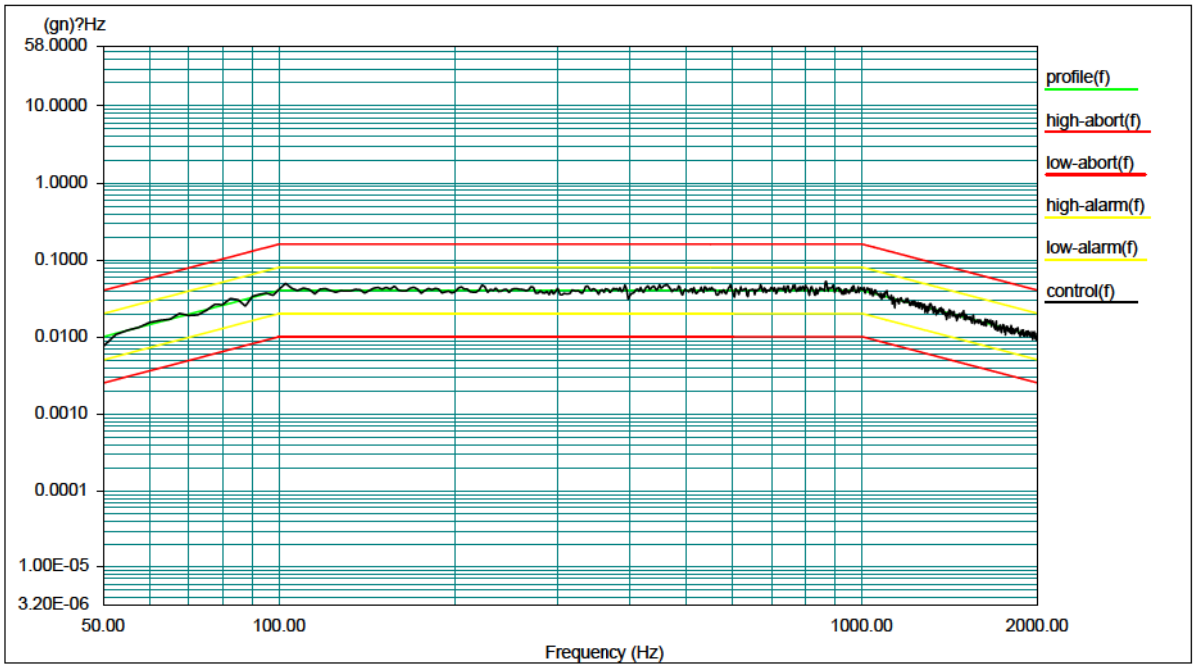
Demand RMS: 7.564701 gn Remaining Time: 00:00:00 DOF: 154 dF: 2.500000 Hz

Data saved at 12:39:44 AM, Wednesday, October 20, 2010

Report created at 12:39:44 AM, Wednesday, October 20, 2010

Axis X

Test Curve:



Level: 100 %

Control RMS: 7.900940 gn Full Level Elapsed Time: 02:00:02 Lines: 800 Frame Time: 0.400000 Seconds

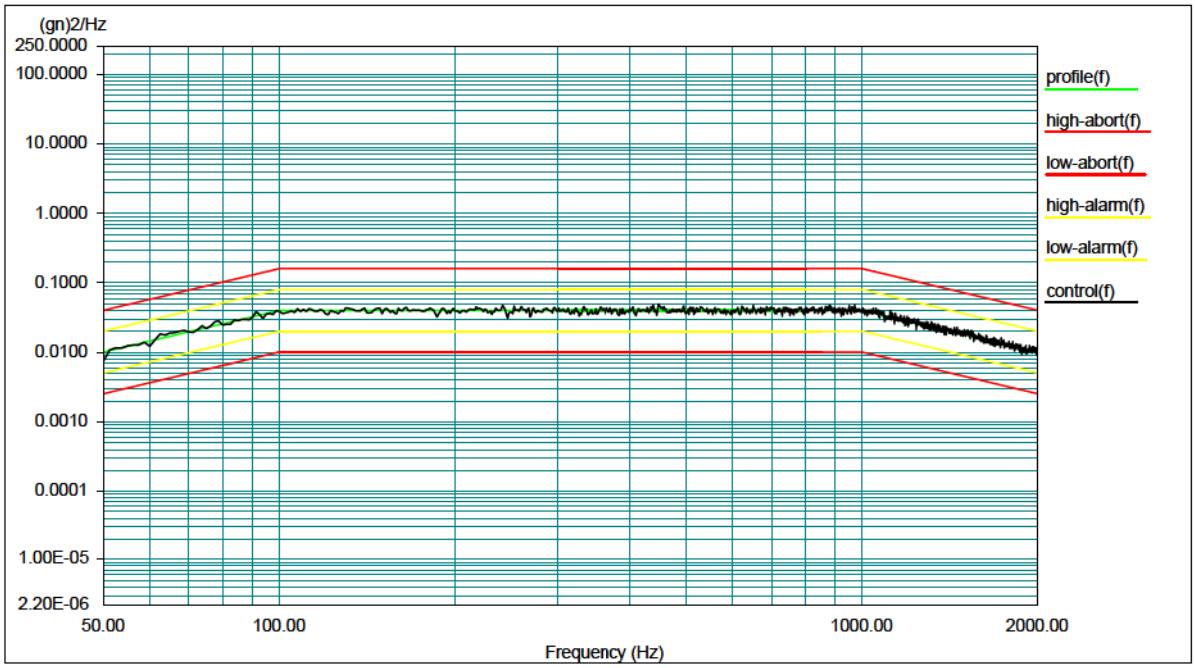
Demand RMS: 7.564701 gn Remaining Time: 00:00:00 DOF: 154 dF: 2.500000 Hz

Data saved at 10:08:37 PM, Tuesday, October 19, 2010

Report created at 10:08:38 PM, Tuesday, October 19, 2010

Axis Y

Test Curve:



Level: 100 %

Control RMS: 7.595602 gn Full Level Elapsed Time: 02:00:04 Lines: 1600 Frame Time: 0.800000 Seconds

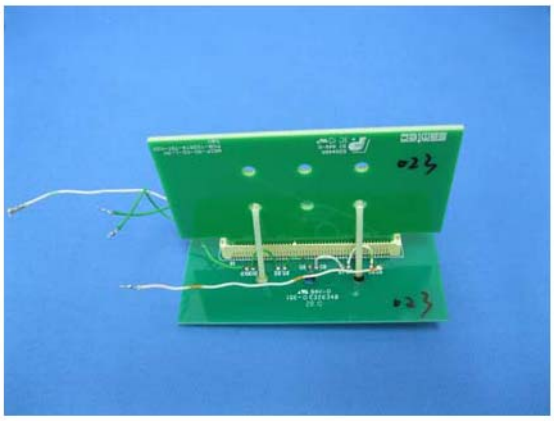
Demand RMS: 7.564273 gn Remaining Time: 00:00:00 DOF: 154 dF: 1.250000 Hz

Data saved at 07:26:45 PM, Tuesday, October 19, 2010

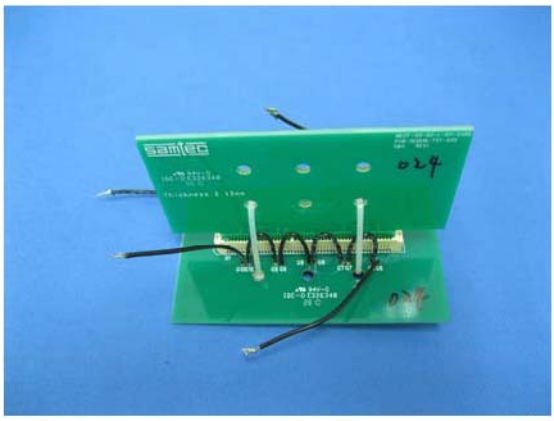
Report created at 07:26:48 PM, Tuesday, October 19, 2010

Axis Z

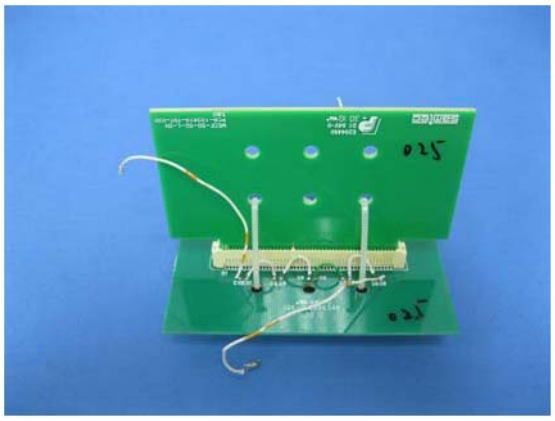
Sample Photos after Testing Seq. (d):



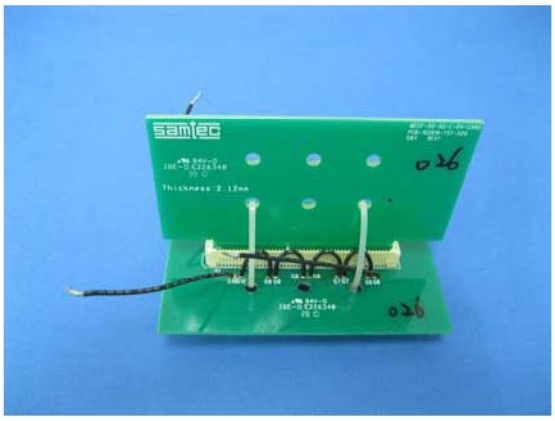
023



024



025



026

Appendix 1: Data of the resistance after Testing Seq (b)

Sample No.	PIN No.	LLCR (mΩ)						
		Initial	After 100 cycles	ΔR1	After thermal shock	ΔR2	After humidity-temperature cycling	ΔR3
007	pin1	5.308	8.036	2.728	9.332	4.024	5.695	0.387
	pin2	5.318	7.109	1.791	10.195	4.877	6.075	0.757
	pin3	5.717	7.320	1.603	9.330	3.613	4.705	-1.012
	pin4	5.189	6.854	1.665	8.058	2.869	5.438	0.249
	pin5	5.384	6.375	0.991	9.115	3.731	4.642	-0.742
	pin6	6.330	6.166	-0.164	5.960	-0.370	4.114	-2.216
	pin7	5.680	6.111	0.431	5.807	0.127	4.672	-1.008
	pin8	5.539	5.140	-0.399	5.954	0.415	7.124	1.585
	pin9	4.877	5.015	0.138	6.428	1.551	3.495	-1.382
	pin10	5.110	5.257	0.147	5.762	0.652	4.313	-0.797
	pin11	5.640	4.938	-0.702	5.835	0.195	5.031	-0.609
	pin12	5.116	4.850	-0.266	5.315	0.199	5.301	0.185
	pin13	5.110	5.497	0.387	5.942	0.832	5.529	0.419
	pin14	5.421	4.813	-0.608	5.416	-0.005	6.060	0.639
	pin15	5.050	5.824	0.774	5.411	0.361	5.369	0.319
	pin16	4.860	5.098	0.238	5.444	0.584	6.197	1.337
	pin17	4.991	5.215	0.224	5.393	0.402	5.612	0.621
	pin18	4.981	4.950	-0.031	5.408	0.427	5.174	0.193
	pin19	5.326	5.830	0.504	6.217	0.891	5.646	0.320
	pin20	5.890	5.384	-0.506	5.742	-0.148	5.168	-0.722
	pin21	5.756	6.214	0.458	6.660	0.904	5.657	-0.099
	pin22	6.092	5.924	-0.168	5.567	-0.525	7.641	1.549
	pin23	6.068	7.563	1.495	6.851	0.783	5.811	-0.257
	pin24	5.771	6.674	0.903	6.024	0.253	6.715	0.944
ΔR1=R(after 100 cycles)- R(initial)								
ΔR2=R(after thermal shock)- R(initial)								
ΔR3=R(after humidity-temperature cycling)- R(initial)								

Appendix 2: Data of the resistance after Testing Seq (b)

Sample No.	PIN No.	LLCR (mΩ)						
		Initial	After 100 cycles	ΔR1	After thermal shock	ΔR2	After humidity-temperature cycling	ΔR3
008	pin1	5.196	6.366	1.170	7.236	2.040	6.261	1.065
	pin2	5.215	6.102	0.887	8.530	3.315	8.386	3.171
	pin3	5.321	6.458	1.137	8.421	3.100	6.376	1.055
	pin4	4.778	6.519	1.741	8.948	4.170	6.651	1.873
	pin5	5.000	7.091	2.091	8.373	3.373	8.001	3.001
	pin6	4.861	6.752	1.891	6.424	1.563	5.754	0.893
	pin7	5.085	6.333	1.248	9.595	4.510	5.809	0.724
	pin8	5.214	5.460	0.246	8.165	2.951	6.954	1.740
	pin9	7.025	5.826	-1.199	9.098	2.073	8.339	1.314
	pin10	5.779	5.749	-0.030	9.253	3.474	6.477	0.698
	pin11	7.661	6.016	-1.645	7.846	0.185	6.432	-1.229
	pin12	5.376	5.654	0.278	6.816	1.440	6.972	1.596
	pin13	6.927	5.718	-1.209	6.812	-0.115	8.388	1.461
	pin14	5.093	5.797	0.704	7.543	2.450	6.782	1.689
	pin15	5.158	6.093	0.935	7.127	1.969	7.147	1.989
	pin16	4.960	5.124	0.164	5.559	0.599	6.482	1.522
	pin17	5.411	5.499	0.088	6.121	0.710	6.224	0.813
	pin18	5.402	6.228	0.826	7.523	2.121	7.154	1.752
	pin19	4.919	5.966	1.047	8.227	3.308	6.144	1.225
	pin20	4.974	5.675	0.701	6.456	1.482	6.086	1.112
	pin21	4.601	5.960	1.359	8.125	3.524	6.318	1.717
	pin22	4.956	6.324	1.368	7.879	2.923	6.345	1.389
	pin23	4.648	6.118	1.470	5.750	1.102	6.302	1.654
	pin24	5.089	6.265	1.176	6.010	0.921	6.339	1.250
ΔR1=R(after 100 cycles)- R(initial)								
ΔR2=R(after thermal shock)- R(initial)								
ΔR3=R(after humidity-temperature cycling)- R(initial)								

Appendix 3: Data of the resistance after Testing Seq (b)

Sample No.	PIN No.	LLCR (mΩ)						
		Initial	After 100 cycles	ΔR1	After thermal shock	ΔR2	After humidity-temperature cycling	ΔR3
009	pin1	4.790	5.419	0.629	5.867	1.077	5.112	0.322
	pin2	4.674	6.039	1.365	7.411	2.737	5.129	0.455
	pin3	4.717	6.221	1.504	6.811	2.094	4.634	-0.083
	pin4	4.675	5.681	1.006	6.110	1.435	5.288	0.613
	pin5	4.739	6.689	1.950	8.813	4.074	5.664	0.925
	pin6	4.452	6.260	1.808	8.373	3.921	5.251	0.799
	pin7	4.475	5.567	1.092	6.577	2.102	8.945	4.470
	pin8	4.508	6.141	1.633	7.856	3.348	5.933	1.425
	pin9	4.453	5.587	1.134	7.950	3.497	5.878	1.425
	pin10	4.730	5.863	1.133	7.498	2.768	5.823	1.093
	pin11	4.712	5.523	0.811	6.354	1.642	4.819	0.107
	pin12	4.758	6.107	1.349	5.941	1.183	4.878	0.120
	pin13	4.748	5.340	0.592	5.245	0.497	4.976	0.228
	pin14	4.738	5.566	0.828	5.265	0.527	5.527	0.789
	pin15	4.589	4.977	0.388	6.394	1.805	5.858	1.269
	pin16	4.670	5.225	0.555	5.873	1.203	8.459	3.789
	pin17	4.839	6.067	1.228	6.483	1.644	8.717	3.878
	pin18	4.787	5.478	0.691	5.744	0.957	7.455	2.668
	pin19	4.574	5.324	0.750	5.830	1.256	7.766	3.192
	pin20	4.358	5.068	0.710	5.633	1.275	4.630	0.272
	pin21	4.387	5.130	0.743	5.894	1.507	8.736	4.349
	pin22	4.530	5.320	0.790	6.410	1.880	8.581	4.051
	pin23	4.646	6.250	1.604	6.779	2.133	8.824	4.178
	pin24	4.925	7.061	2.136	6.714	1.789	8.881	3.956
ΔR1=R(after 100 cycles)- R(initial)								
ΔR2=R(after thermal shock)- R(initial)								
ΔR3=R(after humidity-temperature cycling)- R(initial)								

Appendix 4: Data of the resistance after Testing Seq (b)

Sample No.	PIN No.	LLCR (mΩ)						
		Initial	After 100 cycles	ΔR1	After thermal shock	ΔR2	After humidity-temperature cycling	ΔR3
010	pin1	6.145	6.401	0.256	5.745	-0.400	7.611	1.466
	pin2	5.150	5.969	0.819	7.668	2.518	6.671	1.521
	pin3	6.487	6.759	0.272	6.772	0.285	8.552	2.065
	pin4	5.415	5.903	0.488	6.317	0.902	5.149	-0.266
	pin5	6.096	7.148	1.052	7.426	1.330	6.763	0.667
	pin6	6.752	6.358	-0.394	7.612	0.860	6.614	-0.138
	pin7	5.856	5.590	-0.266	5.576	-0.280	5.362	-0.494
	pin8	5.708	5.805	0.097	6.441	0.733	7.223	1.515
	pin9	8.681	6.708	-1.973	7.633	-1.048	7.418	-1.263
	pin10	6.109	6.004	-0.105	5.536	-0.573	7.003	0.894
	pin11	6.003	5.608	-0.395	5.469	-0.534	7.708	1.705
	pin12	5.765	5.427	-0.338	6.187	0.422	7.763	1.998
	pin13	5.889	5.689	-0.200	6.095	0.206	5.759	-0.130
	pin14	5.596	5.583	-0.013	5.582	-0.014	5.674	0.078
	pin15	5.386	5.452	0.066	5.844	0.458	6.451	1.065
	pin16	5.327	5.554	0.227	5.405	0.078	7.552	2.225
	pin17	6.191	6.329	0.138	5.763	-0.428	5.485	-0.706
	pin18	5.441	5.666	0.225	5.531	0.090	6.545	1.104
	pin19	5.654	5.720	0.066	5.743	0.089	5.087	-0.567
	pin20	5.337	5.787	0.450	5.351	0.014	6.122	0.785
	pin21	5.815	5.802	-0.013	5.472	-0.343	7.594	1.779
	pin22	5.386	5.209	-0.177	5.521	0.135	7.581	2.195
	pin23	6.375	5.839	-0.536	6.681	0.306	5.208	-1.167
	pin24	6.544	5.870	-0.674	5.727	-0.817	5.727	-0.817
ΔR1=R(after 100 cycles)- R(initial)								
ΔR2=R(after thermal shock)- R(initial)								
ΔR3=R(after humidity-temperature cycling)- R(initial)								

Appendix 5: Data of the resistance after Testing Seq (b)

Sample No.	PIN No.	LLCR (mΩ)						
		Initial	After 100 cycles	ΔR1	After thermal shock	ΔR2	After humidity-temperature cycling	ΔR3
011	pin1	5.640	7.004	1.364	6.316	0.676	5.730	0.090
	pin2	5.308	7.746	2.438	6.656	1.348	6.255	0.947
	pin3	5.327	7.409	2.082	6.009	0.682	7.028	1.701
	pin4	4.991	5.416	0.425	5.777	0.786	7.432	2.441
	pin5	5.462	6.102	0.640	5.675	0.213	6.114	0.652
	pin6	5.705	5.820	0.115	5.446	-0.259	7.305	1.600
	pin7	4.907	5.348	0.441	5.773	0.866	6.889	1.982
	pin8	4.955	5.720	0.765	8.639	3.684	6.964	2.009
	pin9	5.049	5.898	0.849	6.164	1.115	5.243	0.194
	pin10	5.144	6.198	1.054	9.001	3.857	8.845	3.701
	pin11	5.217	5.556	0.339	5.833	0.616	4.908	-0.309
	pin12	5.653	5.220	-0.433	7.139	1.486	9.254	3.601
	pin13	5.590	5.793	0.203	5.847	0.257	6.651	1.061
	pin14	4.986	5.083	0.097	5.609	0.623	5.115	0.129
	pin15	5.681	5.854	0.173	6.098	0.417	7.342	1.661
	pin16	5.068	5.343	0.275	5.885	0.817	9.043	3.975
	pin17	6.109	5.202	-0.907	6.626	0.517	5.215	-0.894
	pin18	5.129	5.260	0.131	5.883	0.754	5.645	0.516
	pin19	5.528	5.808	0.280	6.698	1.170	7.703	2.175
	pin20	5.028	5.263	0.235	6.959	1.931	5.276	0.248
	pin21	4.701	5.485	0.784	6.284	1.583	5.301	0.600
	pin22	4.752	5.408	0.656	6.484	1.732	4.734	-0.018
	pin23	5.715	5.743	0.028	6.312	0.597	5.688	-0.027
	pin24	5.448	6.240	0.792	6.975	1.527	5.008	-0.440
ΔR1=R(after 100 cycles)- R(initial)								
ΔR2=R(after thermal shock)- R(initial)								
ΔR3=R(after humidity-temperature cycling)- R(initial)								

Appendix 6: Data of the resistance after Testing Seq (b)

Sample No.	PIN No.	LLCR (mΩ)						
		Initial	After 100 cycles	ΔR1	After thermal shock	ΔR2	After humidity-temperature cycling	ΔR3
012	pin1	4.802	6.401	1.599	8.802	4.000	7.927	3.125
	pin2	4.793	5.870	1.077	5.919	1.126	6.170	1.377
	pin3	4.947	7.588	2.641	6.232	1.285	6.577	1.630
	pin4	5.283	6.811	1.528	6.321	1.038	8.352	3.069
	pin5	4.837	5.947	1.110	6.435	1.598	5.872	1.035
	pin6	4.627	5.598	0.971	6.323	1.696	5.757	1.130
	pin7	4.562	5.674	1.112	7.095	2.533	7.689	3.127
	pin8	4.665	5.764	1.099	7.109	2.444	4.885	0.220
	pin9	5.072	5.056	-0.016	5.614	0.542	5.812	0.740
	pin10	4.698	4.929	0.231	7.132	2.434	4.929	0.231
	pin11	4.984	5.164	0.180	6.578	1.594	5.848	0.864
	pin12	4.804	4.922	0.118	6.098	1.294	4.755	-0.049
	pin13	5.192	5.170	-0.022	5.915	0.723	4.871	-0.321
	pin14	7.175	5.262	-1.913	5.605	-1.570	4.562	-2.613
	pin15	8.852	12.340	3.488	5.740	-3.112	5.257	-3.595
	pin16	4.794	5.108	0.314	5.560	0.766	4.849	0.055
	pin17	4.980	5.216	0.236	5.547	0.567	4.751	-0.229
	pin18	5.206	5.122	-0.084	5.583	0.377	5.644	0.438
	pin19	6.015	5.730	-0.285	6.554	0.539	9.625	3.610
	pin20	5.226	5.266	0.040	5.541	0.315	4.584	-0.642
	pin21	4.820	5.418	0.598	6.616	1.796	7.551	2.731
	pin22	4.836	5.017	0.181	5.982	1.146	4.977	0.141
	pin23	6.001	6.520	0.519	6.498	0.497	8.010	2.009
	pin24	5.764	6.355	0.591	6.356	0.592	5.595	-0.169
ΔR1=R(after 100 cycles)- R(initial)								
ΔR2=R(after thermal shock)- R(initial)								
ΔR3=R(after humidity-temperature cycling)- R(initial)								

Appendix 7: Data of the resistance after Testing Seq (b)

Sample No.	PIN No.	LLCR (mΩ)						
		Initial	After 100 cycles	ΔR1	After thermal shock	ΔR2	After humidity-temperature cycling	ΔR3
013	pin1	5.634	5.550	-0.084	6.031	0.397	6.077	0.443
	pin2	5.927	5.929	0.002	5.777	-0.150	5.762	-0.165
	pin3	5.212	5.288	0.076	5.974	0.762	6.228	1.016
	pin4	5.660	5.870	0.210	6.276	0.616	6.704	1.044
	pin5	5.548	5.357	-0.191	6.068	0.520	5.286	-0.262
	pin6	5.691	5.741	0.050	6.154	0.463	7.881	2.190
	pin7	8.766	5.845	-2.921	6.838	-1.928	6.772	-1.994
	pin8	5.545	5.640	0.095	6.153	0.608	7.021	1.476
	pin9	5.934	6.051	0.117	6.177	0.243	5.589	-0.345
	pin10	5.858	5.930	0.072	6.807	0.949	7.313	1.455
	pin11	5.863	5.985	0.122	6.844	0.981	6.037	0.174
	pin12	5.410	5.388	-0.022	6.240	0.830	5.962	0.552
	pin13	6.538	5.743	-0.795	7.139	0.601	5.207	-1.331
	pin14	6.314	5.491	-0.823	6.635	0.321	9.827	3.513
	pin15	6.544	5.681	-0.863	7.662	1.118	6.655	0.111
	pin16	5.259	5.352	0.093	7.671	2.412	5.837	0.578
	pin17	5.342	5.337	-0.005	6.904	1.562	7.675	2.333
	pin18	5.797	5.609	-0.188	8.705	2.908	6.389	0.592
	pin19	5.568	5.444	-0.124	7.480	1.912	7.161	1.593
	pin20	5.738	5.327	-0.411	6.873	1.135	5.532	-0.206
	pin21	5.984	5.331	-0.653	7.363	1.379	6.318	0.334
	pin22	5.902	5.668	-0.234	6.589	0.687	8.052	2.150
	pin23	6.006	5.814	-0.192	5.899	-0.107	8.229	2.223
	pin24	6.548	6.187	-0.361	7.808	1.260	9.731	3.183
ΔR1=R(after 100 cycles)- R(initial)								
ΔR2=R(after thermal shock)- R(initial)								
ΔR3=R(after humidity-temperature cycling)- R(initial)								

Appendix 8: Data of the resistance after Testing Seq (b)

Sample No.	PIN No.	LLCR (mΩ)						
		Initial	After 100 cycles	ΔR1	After thermal shock	ΔR2	After humidity-temperature cycling	ΔR3
014	pin1	5.663	6.134	0.471	6.409	0.746	5.731	0.068
	pin2	5.817	6.041	0.224	6.464	0.647	4.668	-1.149
	pin3	5.044	6.252	1.208	6.206	1.162	8.712	3.668
	pin4	5.013	7.041	2.028	5.862	0.849	6.275	1.262
	pin5	4.854	5.447	0.593	5.568	0.714	5.655	0.801
	pin6	5.576	5.272	-0.304	5.003	-0.573	4.827	-0.749
	pin7	5.981	5.586	-0.395	5.225	-0.756	4.912	-1.069
	pin8	5.525	5.686	0.161	5.773	0.248	4.929	-0.596
	pin9	6.350	5.443	-0.907	5.502	-0.848	8.441	2.091
	pin10	5.245	5.351	0.106	5.947	0.702	5.102	-0.143
	pin11	5.918	5.333	-0.585	5.996	0.078	5.615	-0.303
	pin12	6.015	5.277	-0.738	7.884	1.869	5.538	-0.477
	pin13	7.624	5.608	-2.016	6.682	-0.942	4.611	-3.013
	pin14	5.198	5.107	-0.091	6.918	1.720	5.621	0.423
	pin15	5.616	5.038	-0.578	6.713	1.097	5.497	-0.119
	pin16	6.797	5.580	-1.217	6.182	-0.615	4.899	-1.898
	pin17	6.432	5.444	-0.988	6.110	-0.322	5.382	-1.050
	pin18	7.546	7.491	-0.055	9.257	1.711	7.522	-0.024
	pin19	7.074	7.128	0.054	6.708	-0.366	7.447	0.373
	pin20	6.015	5.652	-0.363	7.282	1.267	4.993	-1.022
	pin21	5.700	6.107	0.407	5.723	0.023	5.942	0.242
	pin22	5.712	5.737	0.025	5.692	-0.020	4.875	-0.837
	pin23	5.445	5.760	0.315	5.620	0.175	5.401	-0.044
	pin24	6.655	6.566	-0.089	5.819	-0.836	5.726	-0.929
ΔR1=R(after 100 cycles)- R(initial)								
ΔR2=R(after thermal shock)- R(initial)								
ΔR3=R(after humidity-temperature cycling)- R(initial)								

Appendix 9: Data of the resistance after Testing Seq (c)

Sample No.	PIN No.	LLCR (mΩ)				
		Initial	after Shock test	ΔR1	After Vibration test	ΔR2
015	pin1	5.214	3.294	-1.920	4.245	-0.969
	pin2	5.917	3.270	-2.647	3.114	-2.803
	pin3	5.170	2.811	-2.359	2.921	-2.249
	pin4	5.551	3.199	-2.352	2.730	-2.821
	pin5	5.291	3.052	-2.239	2.233	-3.058
	pin6	5.791	2.899	-2.892	3.926	-1.865
	pin7	5.762	3.141	-2.621	7.070	1.308
	pin8	5.252	2.993	-2.259	4.088	-1.164
	pin9	5.354	2.664	-2.690	3.541	-1.813
	pin10	5.689	2.735	-2.954	3.156	-2.533
	pin11	6.602	2.992	-3.610	2.615	-3.987
	pin12	5.365	2.953	-2.412	2.809	-2.556
	pin13	5.647	2.871	-2.776	2.369	-3.278
	pin14	5.239	2.932	-2.307	1.909	-3.330
	pin15	5.522	2.652	-2.870	2.771	-2.751
	pin16	5.536	2.725	-2.811	2.284	-3.252
	pin17	4.987	2.590	-2.397	1.941	-3.046
	pin18	5.281	2.808	-2.473	5.356	0.075
	pin19	5.077	2.624	-2.453	3.875	-1.202
	pin20	5.097	2.842	-2.255	7.014	1.917
	pin21	5.104	2.781	-2.323	4.885	-0.219
	pin22	4.963	2.737	-2.226	6.426	1.463
	pin23	5.508	3.142	-2.366	6.412	0.904
	pin24	5.364	2.753	-2.611	2.329	-3.035
ΔR1=R(after shock test)- R(initial)						
ΔR2=R(after vibration test)- R(initial)						

Appendix 10: Data of the resistance after Testing Seq (c)

Sample No.	PIN No.	LLCR (mΩ)				
		Initial	after Shock test	ΔR1	After Vibration test	ΔR2
016	pin1	5.434	3.411	-2.023	1.707	-3.727
	pin2	5.847	3.530	-2.317	1.896	-3.951
	pin3	5.164	3.746	-1.418	2.527	-2.637
	pin4	5.232	3.225	-2.007	3.699	-1.533
	pin5	5.280	3.292	-1.988	5.893	0.613
	pin6	5.033	3.307	-1.726	5.548	0.515
	pin7	4.907	2.785	-2.122	3.842	-1.065
	pin8	4.957	2.813	-2.144	3.719	-1.238
	pin9	4.963	2.634	-2.329	3.507	-1.456
	pin10	5.085	3.307	-1.778	2.871	-2.214
	pin11	5.037	2.597	-2.440	1.966	-3.071
	pin12	5.248	2.695	-2.553	1.861	-3.387
	pin13	5.316	2.864	-2.452	2.112	-3.204
	pin14	5.324	2.632	-2.692	1.674	-3.650
	pin15	5.063	2.831	-2.232	1.628	-3.435
	pin16	5.083	3.254	-1.829	1.828	-3.255
	pin17	4.896	2.610	-2.286	1.659	-3.237
	pin18	5.179	2.829	-2.350	2.056	-3.123
	pin19	5.142	2.494	-2.648	2.529	-2.613
	pin20	5.058	2.808	-2.250	6.315	1.257
	pin21	4.842	2.807	-2.035	3.827	-1.015
	pin22	5.065	3.030	-2.035	5.490	0.425
	pin23	5.630	3.869	-1.761	4.988	-0.642
	pin24	5.444	3.128	-2.316	4.071	-1.373
ΔR1=R(after shock test)- R(initial)						
ΔR2=R(after vibration test)- R(initial)						

Appendix 11: Data of the resistance after Testing Seq (c)

Sample No.	PIN No.	LLCR (mΩ)				
		Initial	after Shock test	ΔR1	After Vibration test	ΔR2
017	pin1	5.049	3.396	-1.653	3.852	-1.197
	pin2	5.116	3.087	-2.029	4.130	-0.986
	pin3	5.166	3.231	-1.935	3.277	-1.889
	pin4	5.123	3.374	-1.749	5.211	0.088
	pin5	5.258	3.458	-1.800	3.109	-2.149
	pin6	5.525	3.472	-2.053	3.071	-2.454
	pin7	5.104	3.769	-1.335	3.755	-1.349
	pin8	5.471	4.027	-1.444	2.923	-2.548
	pin9	5.866	3.410	-2.456	2.455	-3.411
	pin10	5.864	3.558	-2.306	3.552	-2.312
	pin11	5.070	2.842	-2.228	3.797	-1.273
	pin12	6.202	3.734	-2.468	3.143	-3.059
	pin13	6.211	3.361	-2.850	2.668	-3.543
	pin14	5.535	3.147	-2.388	2.628	-2.907
	pin15	5.281	2.892	-2.389	2.369	-2.912
	pin16	5.113	2.977	-2.136	3.175	-1.938
	pin17	5.424	3.091	-2.333	3.036	-2.388
	pin18	5.995	2.888	-3.107	2.561	-3.434
	pin19	5.082	2.808	-2.274	2.540	-2.542
	pin20	5.648	3.343	-2.305	3.712	-1.936
	pin21	5.360	3.303	-2.057	3.107	-2.253
	pin22	5.566	2.983	-2.583	4.712	-0.854
	pin23	5.828	2.964	-2.864	3.302	-2.526
	pin24	5.182	2.863	-2.319	5.684	0.502
ΔR1=R(after shock test)- R(initial)						
ΔR2=R(after vibration test)- R(initial)						

Appendix 12: Data of the resistance after Testing Seq (c)

Sample No.	PIN No.	LLCR (mΩ)				
		Initial	after Shock test	ΔR1	After Vibration test	ΔR2
018	pin1	5.568	2.991	-2.577	3.277	-2.291
	pin2	5.698	3.584	-2.114	3.312	-2.386
	pin3	5.733	3.739	-1.994	4.559	-1.174
	pin4	5.787	3.250	-2.537	3.595	-2.192
	pin5	5.883	4.484	-1.399	4.373	-1.510
	pin6	5.549	3.747	-1.802	3.306	-2.243
	pin7	5.291	3.002	-2.289	3.863	-1.428
	pin8	5.586	3.142	-2.444	5.101	-0.485
	pin9	5.565	3.459	-2.106	5.993	0.428
	pin10	6.931	4.383	-2.548	2.666	-4.265
	pin11	5.469	3.370	-2.099	1.921	-3.548
	pin12	5.595	3.922	-1.673	4.489	-1.106
	pin13	5.729	3.109	-2.620	5.322	-0.407
	pin14	5.401	3.683	-1.718	3.148	-2.253
	pin15	5.420	3.113	-2.307	3.517	-1.903
	pin16	5.299	3.604	-1.695	4.412	-0.887
	pin17	5.072	2.799	-2.273	2.730	-2.342
	pin18	5.550	3.087	-2.463	3.014	-2.536
	pin19	5.291	2.892	-2.399	2.255	-3.036
	pin20	5.234	3.197	-2.037	2.799	-2.435
	pin21	5.162	3.087	-2.075	5.370	0.208
	pin22	5.408	3.225	-2.183	2.905	-2.503
	pin23	5.024	2.812	-2.212	2.295	-2.729
	pin24	5.264	2.961	-2.303	5.451	0.187
ΔR1=R(after shock test)- R(initial)						
ΔR2=R(after vibration test)- R(initial)						

Appendix 13: Data of the resistance after Testing Seq (c)

Sample No.	PIN No.	LLCR (mΩ)				
		Initial	after Shock test	ΔR1	After Vibration test	ΔR2
019	pin1	5.404	3.706	-1.698	3.051	-2.353
	pin2	5.265	3.308	-1.957	2.331	-2.934
	pin3	5.053	3.187	-1.866	2.660	-2.393
	pin4	5.132	3.351	-1.781	2.250	-2.882
	pin5	5.157	3.624	-1.533	2.448	-2.709
	pin6	5.054	3.481	-1.573	2.398	-2.656
	pin7	5.046	3.236	-1.810	4.233	-0.813
	pin8	5.120	3.288	-1.832	3.981	-1.139
	pin9	4.992	3.164	-1.828	3.970	-1.022
	pin10	5.189	3.148	-2.041	3.849	-1.340
	pin11	5.212	3.577	-1.635	3.946	-1.266
	pin12	5.008	3.877	-1.131	6.932	1.924
	pin13	5.518	3.807	-1.711	5.976	0.458
	pin14	4.806	3.053	-1.753	4.408	-0.398
	pin15	4.964	2.839	-2.125	3.736	-1.228
	pin16	4.632	2.748	-1.884	3.527	-1.105
	pin17	5.029	2.905	-2.124	2.830	-2.199
	pin18	4.964	2.726	-2.238	3.384	-1.580
	pin19	5.231	3.140	-2.091	3.315	-1.916
	pin20	4.930	2.992	-1.938	2.719	-2.211
	pin21	4.811	2.832	-1.979	2.239	-2.572
	pin22	4.985	2.801	-2.184	7.231	2.246
	pin23	4.854	2.856	-1.998	5.569	0.715
	pin24	5.432	3.167	-2.265	3.951	-1.481
ΔR1=R(after shock test)- R(initial)						
ΔR2=R(after vibration test)- R(initial)						

Appendix 14: Data of the resistance after Testing Seq (c)

Sample No.	PIN No.	LLCR (mΩ)				
		Initial	after Shock test	ΔR1	After Vibration test	ΔR2
020	pin1	4.130	3.579	-0.551	3.576	-0.554
	pin2	4.183	3.329	-0.854	2.332	-1.851
	pin3	4.006	3.575	-0.431	2.043	-1.963
	pin4	4.395	3.307	-1.088	1.816	-2.579
	pin5	4.217	3.495	-0.722	2.526	-1.691
	pin6	4.979	3.585	-1.394	3.437	-1.542
	pin7	4.769	2.616	-2.153	3.435	-1.334
	pin8	4.748	2.851	-1.897	5.711	0.963
	pin9	4.687	3.028	-1.659	2.300	-2.387
	pin10	4.528	3.673	-0.855	2.422	-2.106
	pin11	4.048	3.866	-0.182	1.894	-2.154
	pin12	4.832	3.092	-1.740	1.853	-2.979
	pin13	4.066	4.492	0.426	2.447	-1.619
	pin14	4.583	4.827	0.244	2.190	-2.393
	pin15	4.536	3.019	-1.517	1.671	-2.865
	pin16	4.464	3.316	-1.148	2.089	-2.375
	pin17	4.636	3.114	-1.522	1.925	-2.711
	pin18	4.427	3.427	-1.000	2.284	-2.143
	pin19	4.303	3.613	-0.690	2.045	-2.258
	pin20	5.084	3.861	-1.223	2.116	-2.968
	pin21	4.053	3.263	-0.790	2.264	-1.789
	pin22	4.439	2.967	-1.472	2.043	-2.396
	pin23	4.291	3.683	-0.608	2.019	-2.272
	pin24	5.073	3.782	-1.291	3.604	-1.469
ΔR1=R(after shock test)- R(initial)						
ΔR2=R(after vibration test)- R(initial)						

Appendix 15: Data of the resistance after Testing Seq (c)

Sample No.	PIN No.	LLCR (mΩ)				
		Initial	after Shock test	ΔR1	After Vibration test	ΔR2
021	pin1	6.224	3.761	-2.463	2.639	-3.585
	pin2	5.883	2.544	-3.339	3.628	-2.255
	pin3	5.455	3.195	-2.260	4.379	-1.076
	pin4	5.295	3.068	-2.227	2.899	-2.396
	pin5	5.632	4.144	-1.488	2.948	-2.684
	pin6	4.854	2.499	-2.355	3.251	-1.603
	pin7	4.696	2.386	-2.310	3.536	-1.160
	pin8	4.745	2.477	-2.268	4.196	-0.549
	pin9	4.845	2.261	-2.584	2.819	-2.026
	pin10	4.853	2.425	-2.428	3.841	-1.012
	pin11	4.734	2.238	-2.496	3.100	-1.634
	pin12	5.207	2.638	-2.569	3.305	-1.902
	pin13	5.288	2.905	-2.383	2.283	-3.005
	pin14	4.639	2.312	-2.327	2.727	-1.912
	pin15	5.177	2.635	-2.542	1.872	-3.305
	pin16	5.045	2.412	-2.633	2.311	-2.734
	pin17	5.117	2.411	-2.706	2.874	-2.243
	pin18	4.850	2.600	-2.250	6.491	1.641
	pin19	4.981	2.439	-2.542	2.427	-2.554
	pin20	4.828	2.499	-2.329	2.106	-2.722
	pin21	4.824	2.401	-2.423	2.724	-2.100
	pin22	4.589	2.252	-2.337	2.932	-1.657
	pin23	4.762	2.633	-2.129	4.598	-0.164
	pin24	5.047	3.144	-1.903	4.132	-0.915
ΔR1=R(after shock test)- R(initial)						
ΔR2=R(after vibration test)- R(initial)						

Appendix 16: Data of the resistance after Testing Seq (c)

Sample No.	PIN No.	LLCR (mΩ)				
		Initial	after Shock test	ΔR1	After Vibration test	ΔR2
022	pin1	6.264	3.804	2.460	2.696	3.568
	pin2	5.558	3.007	2.551	2.488	3.070
	pin3	6.051	4.297	1.754	2.765	3.286
	pin4	5.489	4.149	1.340	2.435	3.054
	pin5	5.559	4.374	1.185	5.983	0.424
	pin6	5.124	3.048	2.076	4.784	0.340
	pin7	4.871	2.932	1.939	2.998	1.873
	pin8	4.981	2.716	2.265	2.636	2.345
	pin9	5.127	2.889	2.238	3.934	1.193
	pin10	5.487	3.358	2.129	3.538	1.949
	pin11	5.387	3.527	1.860	3.285	2.102
	pin12	5.340	3.585	1.755	2.394	2.946
	pin13	5.575	3.764	1.811	3.240	2.335
	pin14	5.299	3.325	1.974	2.201	3.098
	pin15	5.229	3.274	1.955	2.189	3.040
	pin16	5.251	3.068	2.183	2.603	2.648
	pin17	5.429	3.337	2.092	3.102	2.327
	pin18	4.837	2.771	2.066	2.382	2.455
	pin19	5.127	3.079	2.048	3.416	1.711
	pin20	4.821	2.697	2.124	3.923	0.898
	pin21	5.063	2.837	2.226	2.814	2.249
	pin22	4.918	2.675	2.243	4.105	0.813
	pin23	5.285	3.129	2.156	3.526	1.759
	pin24	5.195	3.290	1.905	2.838	2.357
ΔR1=R(after shock test)- R(initial)						
ΔR2=R(after vibration test)- R(initial)						

*** End of report ***