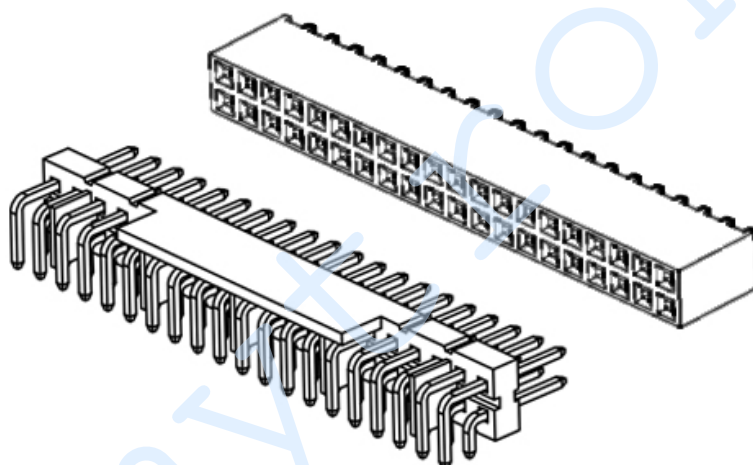


Project Number: 201801	Date: 05.10.2018
Part #: FPH25409-D40B3013M / F185-1220C6DSYB1	Tech: S.Rudi
Part description: Pitch 2.54mm: Pin Header 90°Angle / Female Header DIP HTSW	
Test Start: 07.08.2018	Test Completed: 21.09.2018

SamyTronic



**DESIGN QUALIFICATION TEST REPORT
FPH25409-D40B3013M / F185-1220C6DSYB1**

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SCOPE To perform the following tests: Design Qualification test. Please see Part 1. TEST GROUP FLOWCHARTS.

APPLICABLE DOCUMENTS Standards: EIA Publication 364 TEST SAMPLES AND PREPARATION

- 1) All materials were manufactured in accordance with the applicable product specification.
- 2) All test samples were identified and encoded to maintain traceability throughout the test sequences.
- 3) After soldering, the parts to be used for LLCR testing were cleaned according to TLWI-0001.
- 4) Either an automated cleaning procedure or an ultrasonic cleaning procedure may be used.
- 5) The automated procedure is used with aqueous compatible soldering materials.
- 6) Parts not intended for testing LLCR are visually inspected and cleaned if necessary.
- 7) Any additional preparation will be noted in the individual test sequences.
- 8) Solder Information: Lead Free
- 9) Re-Flow Time/Temp: See accompanying profile.

TYPICAL OVEN PROFILE (Soldering Parts to Test Boards)

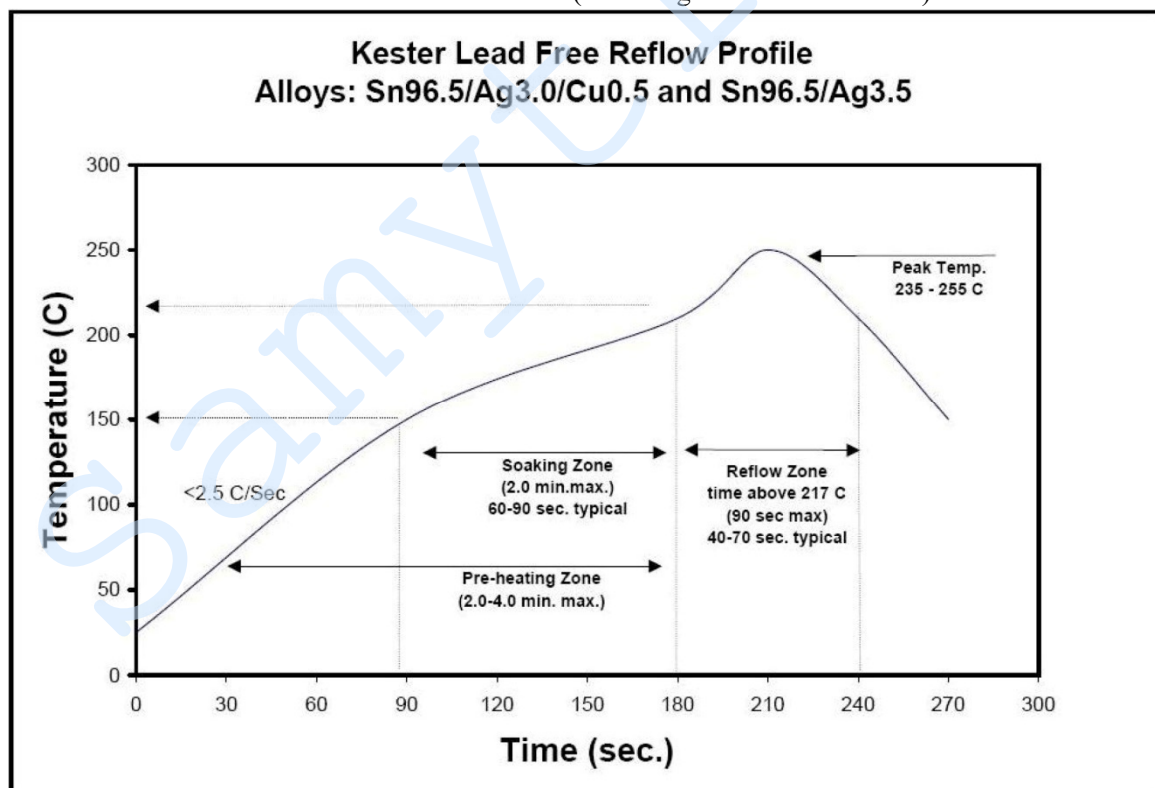


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Part 1. TEST GROUP FLOWCHARTS

Part 2. NORMAL FORCE TEST GROUP REPORT

Part 3. THERMAL AGING TEST GROUP REPORT

Part 4. DURABILITY/MATING/UNMATING/GAPS TEST GROUP REPORT

Part 5. INSULATION RESISTANCE (IR) / DIELECTRIC WITHSTANDING VOLTAGE (DWV) TEST GROUP
REPORT

Part 6. CURRENT-CARRYING CAPACITY TEST (DERATING-CURVE) REPORT

Part 7. MECHANICAL SHOCK+EVENT DETECTION/VIBRATION+EVENT DETECTION/LLCR TEST
GROUP REPORT

Part 1.

TEST GROUP FLOWCHARTS

NORMAL FORCE TEST GROUP (Part 2)

Test Seq.	Test Group Items
01	Contact Gaps
02	Normal Force (in the body and soldered on PCB unless otherwise specified)
03	Thermal Aging (Mated and Undisturbed)
04	Contact Gaps
05	Normal Force (in the body and soldered on PCB unless otherwise specified)

THERMAL AGING TEST GROUP (Part 3)

Test Seq.	Test Group Items
01	Contact Gaps
02	Forces - Mating / Unmating
03	Low Level Contact Resistance (LLCR-1)
04	Thermal Aging (Mated and Undisturbed)
05	Low Level Contact Resistance (LLCR-2)
06	Forces - Mating / Unmating
07	Contact Gaps

DURABILITY/MATING/UNMATING/GAPS TEST GROUP (Part 4)

Test Seq.	Test Group Items
01	Contact Gaps
02	Low Level Contact Resistance (LLCR-1)
03	Forces - Mating / Unmating
04	25 Cycles
05	Forces - Mating / Unmating
06	25 Cycles (50 Total)
07	Forces - Mating / Unmating
08	25 Cycles (75 Total)
09	Forces - Mating / Unmating
10	25 Cycles (100 Total)
11	Forces - Mating / Unmating
12	Clean w/Compressed Air
13	Contact Gaps

14	Low Level Contact Resistance (LLCR-2)
15	Thermal Shock (Mated and Undisturbed)
16	Low Level Contact Resistance (LLCR-3)
17	Cyclic Humidity (Mated and Undisturbed)
18	Low Level Contact Resistance (LLCR-4)
19	Forces - Mating / Unmating

***INSULATION RESISTANCE (IR) / DIELECTRIC WITHSTANDING VOLTAGE (DWV) TEST GROUP
 (Part 5)***

Test Seq.	Test Group Items
01	IR & DWV at test voltage (on both mated sets and on each connector unmated; pin-to-pin and row-to-row)
02	Thermal Shock (Mated and Undisturbed)
03	IR & DWV at test voltage (on both mated sets and on each connector unmated; pin-to-pin and row-to-row)
04	Cyclic Humidity (Mated and Undisturbed)
05	IR & DWV at test voltage (on both mated sets and on each connector unmated; pin-to-pin and row-to-row)

CURRENT-CARRYING CAPACITY TEST (DERATING-CURVE) (Part 6)

Test Seq.	Test Group Items
01	Current-Carrying Capacity (Mated Assemblies 2, 10, 20, 40 Contacts Powered)

***MECHANICAL SHOCK+EVENT DETECTION/VIBRATION+EVENT DETECTION/LLCR TEST GROUP
 (Part 7)***

Test Seq.	Test Group Items
01	Low Level Contact Resistance (LLCR-1)
02	Mechanical Shock + Nanosecond Event Detection
03	Vibration + Nanosecond Event Detection
04	Low Level Contact Resistance (LLCR-2)

Part 2.
NORMAL FORCE
TEST GROUP REPORT

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5. THERMAL AGING
 - 5.1 Reference Standard
 - 5.2 Laboratory Environment
 - 5.3 Test Equipment
 - 5.4 Test Procedure
 - 5.5 Test Conditions
 - 5.6 Test Photos

1. SAMPLE INFORMATION

Sample Name	Pin Header FPH25409-D40B3013M; Female header F185-1220C6DSYB1
Model / Specification	Pitch 2.54mm, Pin Header: 90°Angle, 40 (2*20) Circuits DIP; Female Header: 40 (2*20) Circuits DIP
Sample Quantity	12 sets
Sample Description	Connector

2. TEST INFORMATION

Normal Force Test

Test Seq.	Test Items	Received Date	Date of Test(s)
01	Contact Gaps	07.08.2018	13.08.2018
02	Normal Force (for contacts tested in the housing)	13.08.2018	14.08.2018
03	Thermal Aging (Mated and Undisturbed)	14.08.2018	16.08.2018
04	Contact Gaps	27.08.2018	29.08.2018
05	Normal Force (for contacts tested in the housing)	29.08.2018	30.08.2018

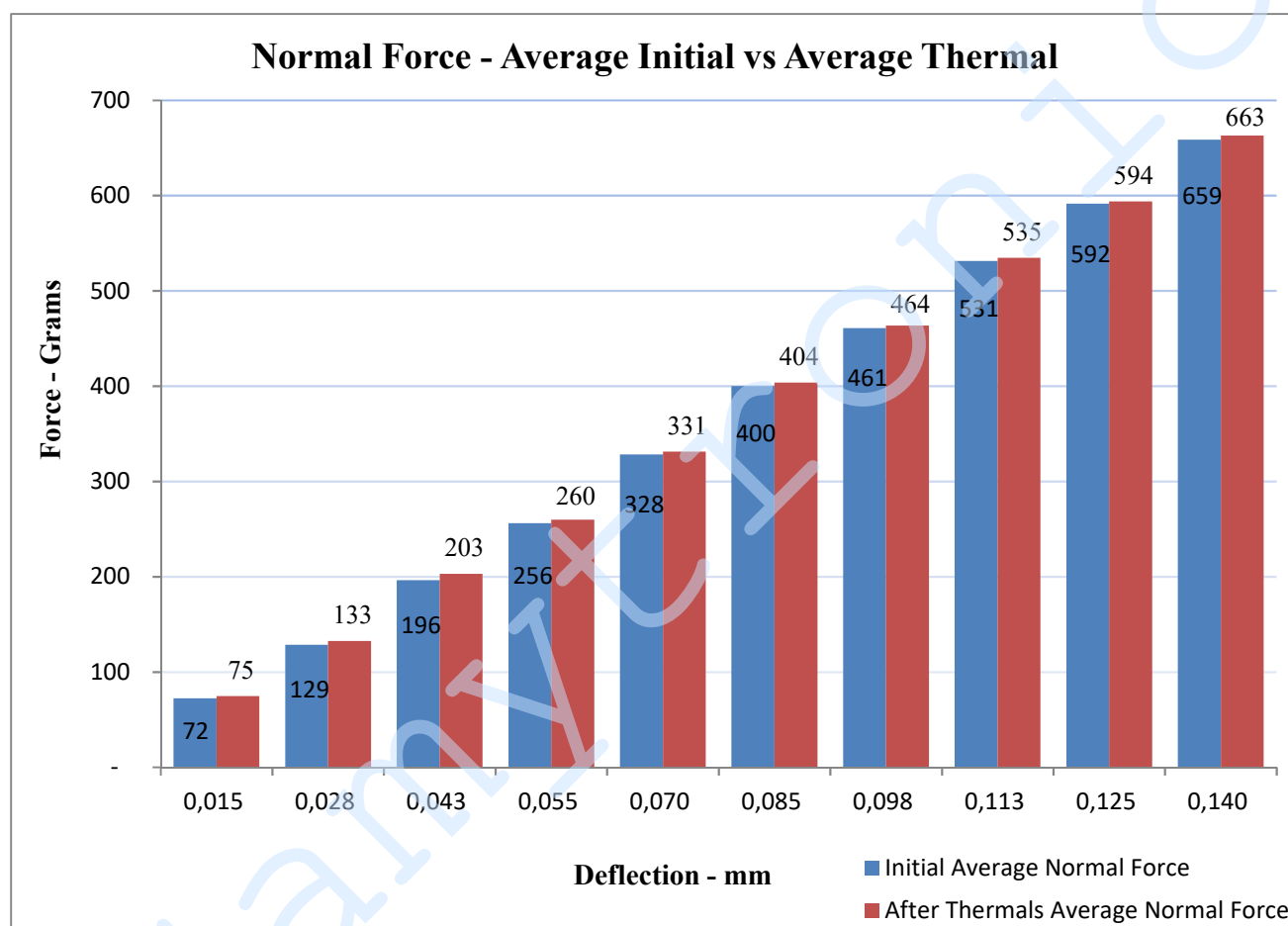
3. TEST RESULTS

Test Seq.	Test Items	Test Results
01	Contact Gaps	Ok (No standard method. Measured optically)
02	Normal Force (for contacts tested in the housing)	Detailed data of Normal Force is shown in Table1.
03	Thermal Aging (Mated and Undisturbed)	All conditions according to standard EIA-364-17 during test, and no evidence of physical damages after test.
04	Contact Gaps	Ok (No standard method. Measured optically)
05	Normal Force (for contacts tested in the housing)	Detailed data of Normal Force is shown in Table1.

Table1

Initial	Deflections in mm, Forces in Grams									
	<u>0,0150</u>	<u>0,0275</u>	<u>0,0425</u>	<u>0,0550</u>	<u>0,0700</u>	<u>0,0850</u>	<u>0,0975</u>	<u>0,1125</u>	<u>0,1250</u>	<u>0,1400</u>
Average	72	129	196	256	328	400	461	531	592	659
Minimum	76	134	199	259	330	402	463	533	593	664
Maximum	66	120	194	254	327	398	459	529	590	652
St Dev	5	6	2	2	2	2	2	2	1	6
Count	12	12	12	12	12	12	12	12	12	12

Thermal	Deflections in mm, Forces in Grams									
	<u>0,0150</u>	<u>0,0275</u>	<u>0,0425</u>	<u>0,0550</u>	<u>0,0700</u>	<u>0,0850</u>	<u>0,0975</u>	<u>0,1125</u>	<u>0,1250</u>	<u>0,1400</u>
Average	75	133	203	260	331	404	464	535	594	663
Minimum	77	137	209	268	340	410	468	540	599	665
Maximum	71	126	194	254	325	399	460	530	590	659
St Dev	3	4	7	6	6	5	4	4	3	2
Count	12	12	12	12	12	12	12	12	12	12



4. NORMAL FORCE

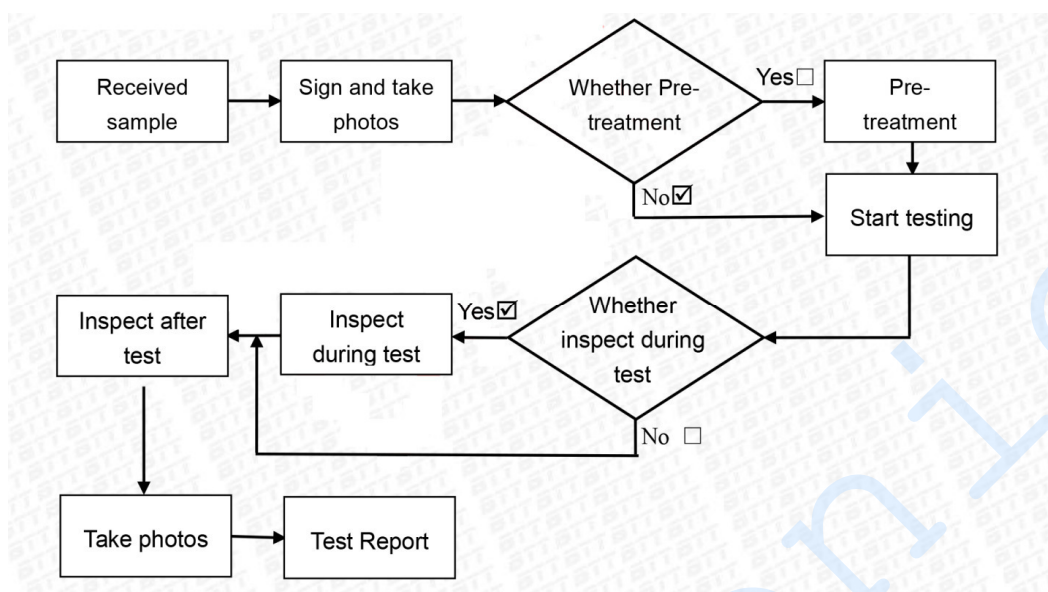
4.1 Reference Standard: Test according to EIA-364-04.

4.2 Laboratory Environment: Ambient temperature: $26 \pm 3^{\circ}\text{C}$ Relative humidity: 65%~90% RH

4.3 Test Equipment:

Test Equipment/Producer	Test Equipment Model	Calibration Date
Normal force analyzer / Wan Wei Precision Co., Ltd.	Type: WV1226S	23.04.2018

4.4 Test Procedure:



4.5 Test Conditions: (Perpendicular) Displacement Force = 12.7 mm/min $\pm$ 6 mm/min, Force Range = 5kg;

4.6 Test Photos:

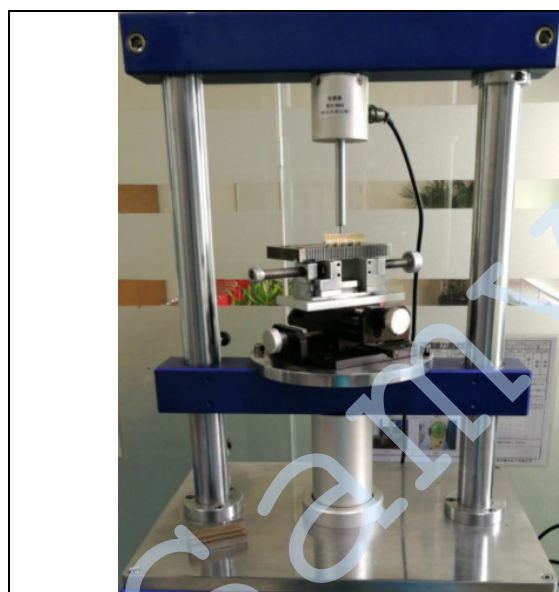


Figure 1: Overview Normal force test machine

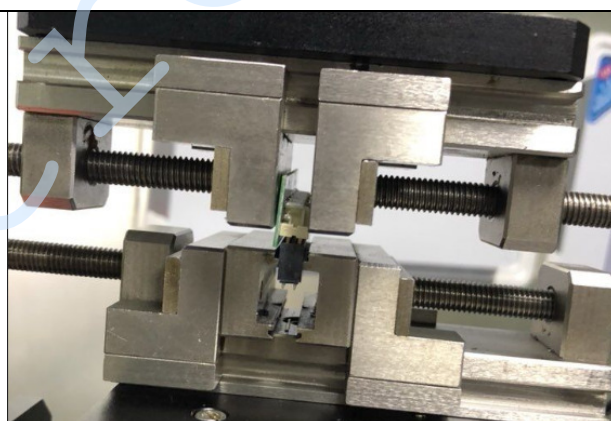


Figure 2: Overview samples under test

5. THERMAL AGING TEST

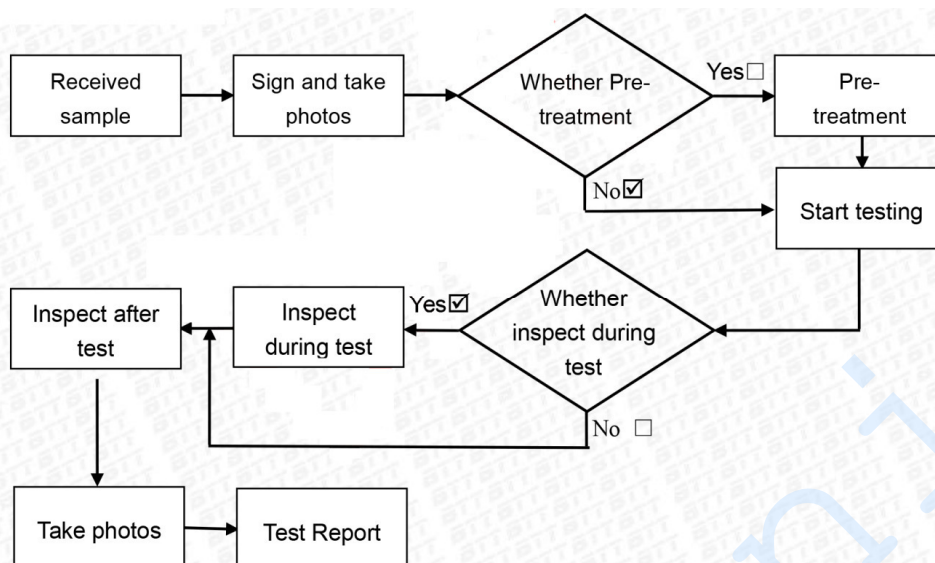
5.1 Reference Standard: Test according to EIA-364-17

5.2 Laboratory Environment: Ambient temperature: 26 $\pm$ 3°C Relative humidity: 65%~90% RH

5.3 Test Equipment:

Test Equipment/Producer	Test Equipment Model	Calibration Date
Thermal Shock & Aging Chamber / Kunshan Qingsheng Electronic Co., Ltd.	Type: STST-CH-80-55-3(A)	15.07.2018

5.4 Test Procedure:



5.5 Test Conditions: Test Condition 4 at 105° C, Test Time Condition B for 250 hours, All test samples are exposed to environmental stressing in the mated condition.

5.6 Test Photos:



Figure 1: Thermal Shock & Aging Chamber



Figure 2: Overview samples under test



Figure 3



Figure 4

Part 3.
THERMAL AGING
TEST GROUP REPORT

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 - 5.5 Test Conditions
 - 5.6 Test Photos
6. THERMAL AGING
 - 6.1 Reference Standard
 - 6.2 Laboratory Environment
 - 6.3 Test Equipment
 - 6.4 Test Procedure
 - 6.5 Test Conditions
 - 6.6 Test Photos

1. SAMPLE INFORMATION

Sample Name	Pin Header FPH25409-D40B3013M; Female header F185-1220C6DSYB1
Model / Specification	Pitch 2.54mm, Pin Header: 90°Angle, 40 (2*20) Circuits DIP; Female Header: 40 (2*20) Circuits DIP
Sample Quantity	
Sample Description	Connector

2. TEST INFORMATION

Thermal Aging Test

Test Seq.	Test Items	Received Date	Date of Test(s)
01	Contact Gaps	07.08.2018	13.08.2018
02	Forces - Mating / Unmating	13.08.2018	14.08.2018
03	LLCR-1	14.08.2018	14.08.2018
04	Thermal Aging (Mated and Undisturbed)	14.08.2018	16.08.2018
05	LLCR-2	27.08.2018	29.08.2018
06	Forces - Mating / Unmating	29.08.2018	30.08.2018
07	Contact Gaps	30.08.2018	30.08.2018

3. TEST RESULTS

Test Seq.	Test Items	Test Results
01	Contact Gaps	Ok (No standard method. Measured optically)
02	Forces-Mating / Unmating	Detailed data of Mating / Unmating Force is shown in Table1.
03	LLCR-1	Detailed data of LLCR is shown in Table2.
04	Thermal Aging (Mated and Undisturbed)	All conditions according to standard EIA-364-17 during test, and no evidence of physical damages after test.
05	LLCR-2	Detailed data of LLCR is shown in Table2.
06	Forces-Mating / Unmating	Detailed data of Mating / Unmating Force is shown in Table1.
07	Contact Gaps	Ok (No standard method. Measured optically)

Table 1

	Initial (Newtons)		After Thermal Aging (Newtons)	
	Mating	Unmating	Mating	Unmating
Minimum	62,5	60,1	53,2	49,2
Maximum	52,8	45,0	43,4	37,8
Average	58,8	54,4	49,6	44,2
St Dev	3,9	5,3	3,4	4,0
Count	8	8	8	8

Table 2

mOhm values			LLCR-1 Actual Initial		LLCR-2 Delta Thermal Aging	
			Pin Type 1: Signal			
Average			5,79		0,03	
St. Dev.			0,59		0,07	
Min			5,03		0,07	
Max			6,44		0,15	
Points Summary Count			200		200	
Total Count			200		200	
LLCR Delta Count by Category						
mOhms	Stable	Minor	Acceptable	Marginal	Unstable	Open Failure
	<=5	>5& <=10	>10 &<=15	>15&<=50	>50&<=1000	>1000
Thermal Aging	200	0	0	0	0	0

4. FORCES MATING / UNMATING TEST

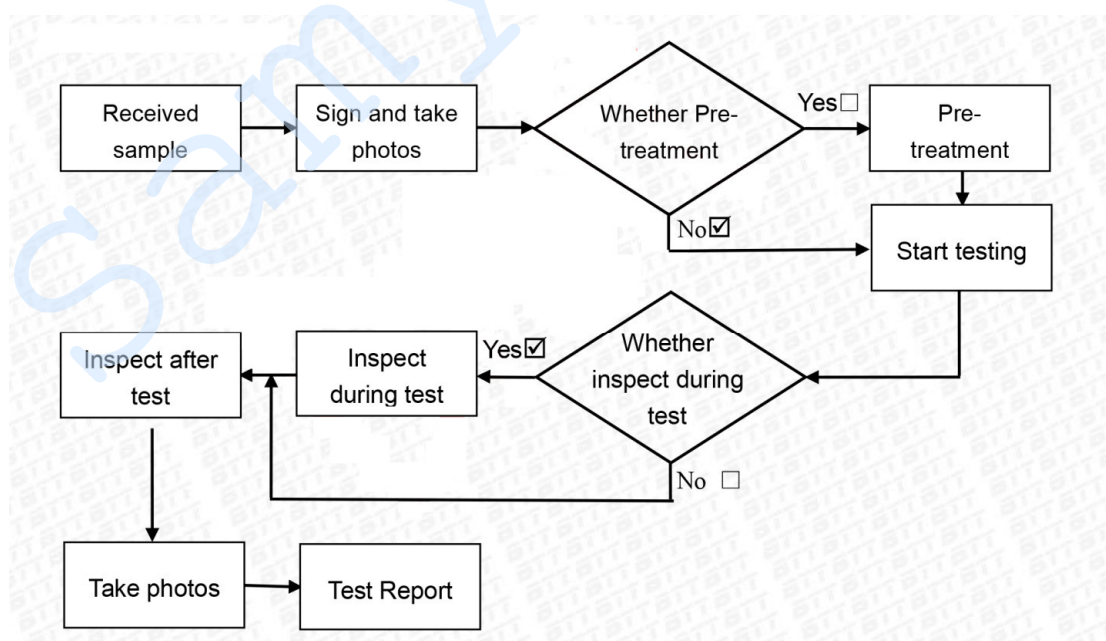
4.1 Reference Standard: Test according to EIA-364-13

4.2 Laboratory Environment: Ambient temperature: 20°C ~25°C Relative humidity: 70%~80% RH

4.3 Test Equipment:

Test Equipment/Producer	Test Equipment Model	Calibration Date
Normal force test machine / Dgnande Electronic Co., Ltd.	Type: 1220S	24.04.2018

4.4 Test Procedure:



4.5 Test Conditions: The full insertion position was to within 0.075mm to 0.1mm of the plug bottoming out in the receptacle to prevent damage to the system under test, one of the mating parts is secured to a floating X-Y table to prevent damage during cycling.

4.6 Test Photos:

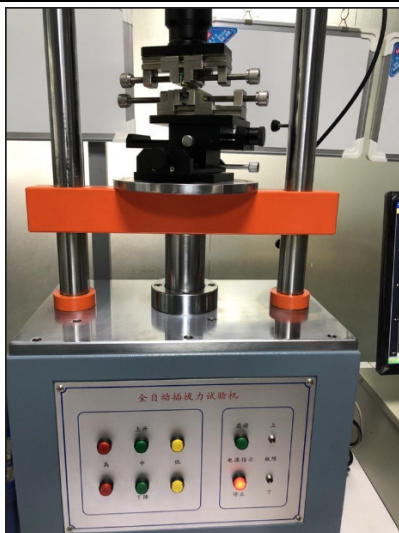


Figure 1: Overview Normal force test machine

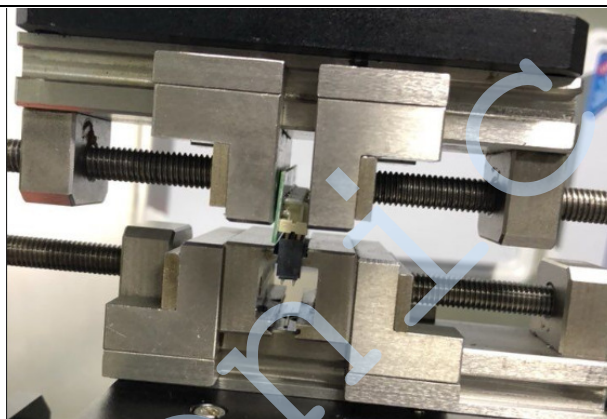


Figure 2: Overview samples under test

5. LLCR

5.1 Reference Standard: Test according to EIA-364-23C.

5.2 Laboratory Environment: Ambient temperature: 20°C~25°C Relative humidity:70%~80% RH

5.3 Test Equipment:

Test Equipment/Producer	Test Equipment Model	Calibration Date
Micro-ohmmeter / Changzhou Tonghui Electrical Co., Ltd.	TH2512A	12.08.2018

5.4 Test Procedure: /

5.5 Test Conditions: 20 mV Max, 100 mA Max Use Keithley 580 or 3706 in 4 wire dry circuit mode

5.6 Test Photos:



Figure 1: Overview samples under test

6. THERMAL AGING TEST

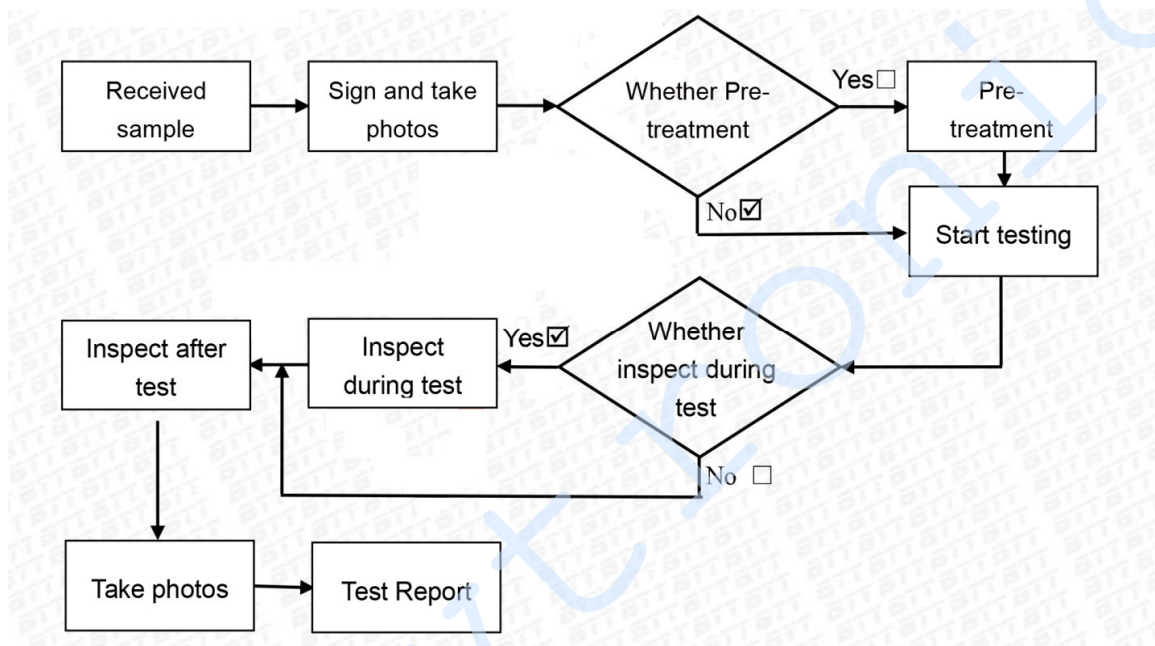
6.1 Reference Standard: Test according to EIA-364-17

6.2 Laboratory Environment: Ambient temperature: 20°C~25° C Relative humidity:70%~80% RH

6.3 Test Equipment:

Test Equipment/Producer	Test Equipment Model	Calibration Date
Thermal Shock & Aging Chamber / Kunshan Qingsheng Electronic Co., Ltd.	Type: STST-CH-80-55-3(A)	15.07.2018

6.4 Test Procedure:



6.5 Test Conditions: Test Condition 4 at 105° C, Test Time Condition B for 250 hours, All test samples are exposed to environmental stressing in the mated condition

6.6 Test Photos:



Figure 1: Thermal Shock & Aging Chamber



Figure 2: Overview samples under test



Figure 3



Figure 4

Part 4.
DURABILITY / MATING / UNMATING
TEST GROUP REPORT

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 - 5.3 Test Equipment
 - 5.4 Test Procedure
 - 5.5 Test Conditions
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6. THERMAL SHOCK TEST
 - 6.1 Reference Standard
 - 6.2 Laboratory Environment
 - 6.3 Test Equipment
 - 6.4 Test Procedure
 - 6.5 Test Conditions
 - 6.6 Test Photos
7. HUMIDITY TEST
 - 7.1 Reference Standard
 - 7.2 Laboratory Environment
 - 7.3 Test Equipment
 - 7.4 Test Procedure
 - 7.5 Test Conditions
 - 7.6 Test Photos

1. SAMPLE INFORMATION

Sample Name	Pin Header FPH25409-D40B3013M; Female header F185-1220C6DSYB1
Model / Specification	Pitch 2.54mm, Pin Header: 90°Angle, 40 (2*20) Circuits DIP; Female Header: 40 (2*20) Circuits DIP
Sample Quantity	
Sample Description	Connector

2. TEST INFORMATION

Durability / Mating / Unmating

Test Seq.	Test Items	Received Date	Date of Test(s)
01	Contact Gaps	07.08.2018	13.08.2018
02	LLCR-1	13.08.2018	13.08.2018
03	Forces-Mating / Unmating	14.08.2018	14.08.2018
04	25 Cycles	14.08.2018	15.08.2018
05	Forces-Mating / Unmating	15.08.2018	15.08.2018
06	25 Cycles (50 Total)	15.08.2018	16.08.2018
07	Forces-Mating / Unmating	16.08.2018	16.08.2018
08	25 Cycles (75 Total)	16.08.2018	17.08.2018
09	Forces-Mating / Unmating	17.08.2018	17.08.2018
10	25 Cycles (100 Total)	17.08.2018	20.08.2018
11	Forces-Mating / Unmating	20.08.2018	20.08.2018
12	Clean w/Compressed Air	20.08.2018	20.08.2018
13	Contact Gaps	20.08.2018	20.08.2018
14	LLCR-2	20.08.2018	21.08.2018
15	Thermal shock (Mated and Undisturbed)	21.08.2018	23.08.2018
16	LLCR-3	28.08.2018	30.08.2018
17	Cyclic Humidity (Mated and Undisturbed)	30.08.2018	05.09.2018
18	LLCR-4	17.09.2018	19.09.2018
19	Forces – Mating / Unmating	19.09.2018	20.09.2018

3. TEST RESULTS

Test Seq.	Test Items	Test Results
01	Contact Gaps	Ok (No standard method. Measured optically)
02	LLCR-1	Detailed data of LLCR is shown in Table1.
03	Forces-Mating / Unmating initial	Detailed data of Mating / Unmating Force is shown in Table2.
05	Forces-Mating / Unmating after 25 Cycles	
07	Forces-Mating / Unmating after 50 Cycles	
09	Forces-Mating / Unmating after 75 Cycles	

11	Forces-Mating / Unmating after 100 Cycles	
13	Contact Gaps	Ok (No standard method. Measured optically)
14	LLCR-2	Detailed data of LLCR is shown in Table1.
15	Thermal shock (Mated and Undisturbed)	All conditions according to standard EIA-364-32 during test, and no evidence of physical damages after test.
16	LLCR-3	Detailed data of LLCR is shown in Table1.
17	Cyclic Humidity (Mated and Undisturbed)	All conditions according to standard EIA-364-31 during test, and no evidence of physical damages after test.
18	LLCR-4	Detailed data of LLCR is shown in Table1.
19	Forces – Mating / Unmating	Detailed data of Mating / Unmating Force is shown in Table2.

Table1

mOhm values		LLCR-1 Actual Initial	LLCR-2 Delta 100 Cycles	LLCR-3 Delta Thermal Shock	LLCR-4 Delta Humidity	
		Pin Type 1: Signal				
Average		5,87	0,28	0,33	0,37	
St. Dev.		0,58	0,03	0,02	0,02	
Min		4,70	0,39	0,50	0,52	
Max		6,81	0,41	0,61	0,66	
Points Summary Count		200	200	200	200	
Total Count		200	200	200	200	
LLCR Delta Count by Category						
mOhms	Stable	Minor	Acceptable	Marginal	Unstable	Open Failure
	<=5	>5& <=10	>10 &<=15	>15&<=50	>50&<=1000	>1000
100Cycles	200	0	0	0	0	0
Thermal Shock	200	0	0	0	0	0
Humidity	200	0	0	0	0	0

Table2

	Initial (Newtons)		After 25 Cycles(Newtons)	
	Mating	Unmating	Mating	Unmating
Maximum	58,7	59,2	65,5	65,4
Minimum	39,3	42,5	54,1	50,3
Average	47,2	47,7	59,6	57,4
St Dev	7,5	6,8	4,0	5,5
Count	8	8	8	8
		After 50 Cycles(Newtons)	After 75 Cycles(Newtons)	

	Mating	Unmating	Mating	Unmating
Maximum	68,5	66,6	70,7	69,1
Minimum	57,2	52,9	60,4	56,1
Average	63,1	60,2	66,0	63,4
St Dev	4,2	5,5	4,2	5,6
Count	8	8	8	8
	After 100 Cycles(Newtons)		After Humidity (Newtons)	
	Mating	Unmating	Mating	Unmating
Maximum	72,5	71,4	70,3	68,8
Minimum	63,0	58,3	61,4	56,1
Average	68,6	65,9	67,2	64,2
St Dev	3,9	5,6	3,6	5,1
Count	8	8	8	8

4. LLCR

4.1 Reference Standard: Test according to EIA-364-23C.

4.2 Laboratory Environment: Ambient temperature: 20°C~25° C Relative humidity:70%~80% RH

4.3 Test Equipment:

Test Equipment/Producer	Test Equipment Model	Calibration Date
Micro-ohmmeter / Changzhou Tonghui Electronical Co., Ltd.	TH2512A	12.08.2018

4.4 Test Procedure: /

4.5 Test Conditions: 20 mV Max, 100 mA Max Use Keithley 580 or 3706 in 4 wire dry circuit mode

4.6 Test Photos:



Figure 1: Overview samples under test

5. FORCES MATING / UNMATING TEST

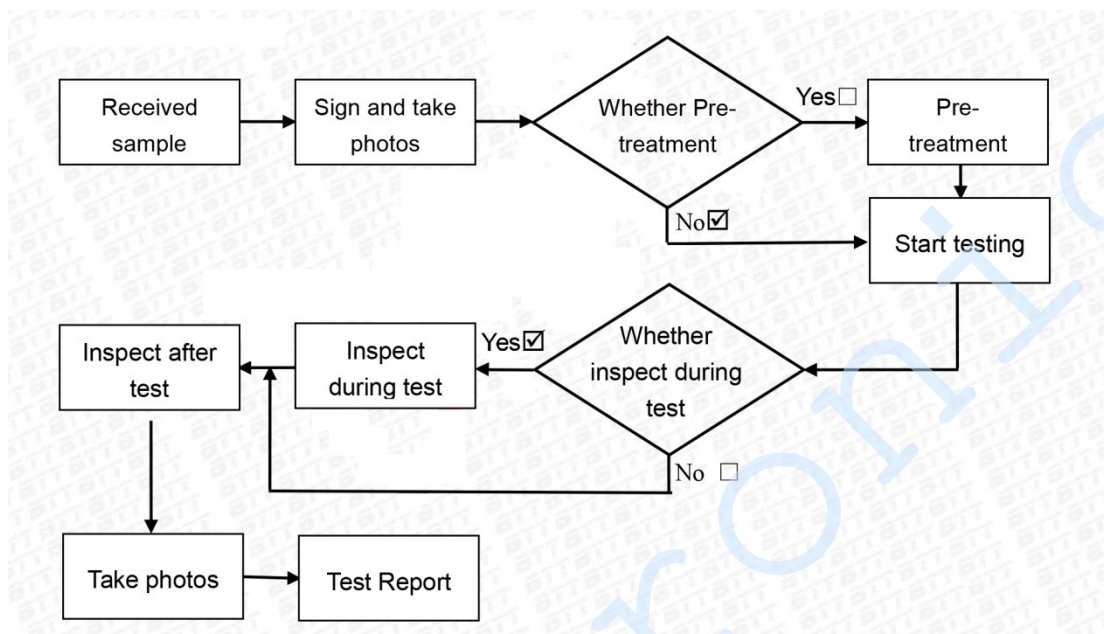
5.1 Reference Standard: Test according to EIA-364-13

5.2 Laboratory Environment: Ambient temperature: 20°C~25°C Relative humidity:70%~80% RH

5.3 Test Equipment:

Test Equipment/Producer	Test Equipment Model	Calibration Date
Normal force test machine / Dgnande Electronic Co., Ltd.	Type: 1220S	24.04.2018

5.4 Test Procedure:



5.5 Test Conditions: The full insertion position was to within 0.075mm to 0.1mm of the plug bottoming out in the receptacle to prevent damage to the system under test, one of the mating parts is secured to a floating X-Y table to prevent damage during cycling.

5.6 Test Photos:

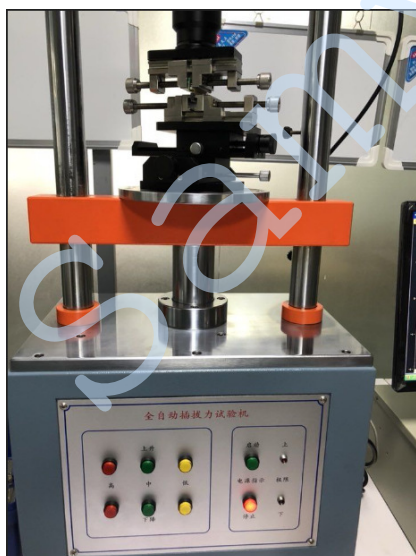


Figure 1: Overview Normal force test machine

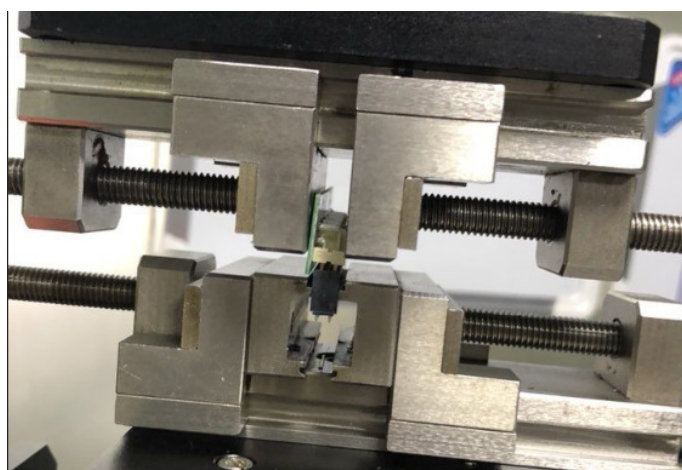


Figure 2: Overview samples under test

6. THERMAL SHOCK TEST

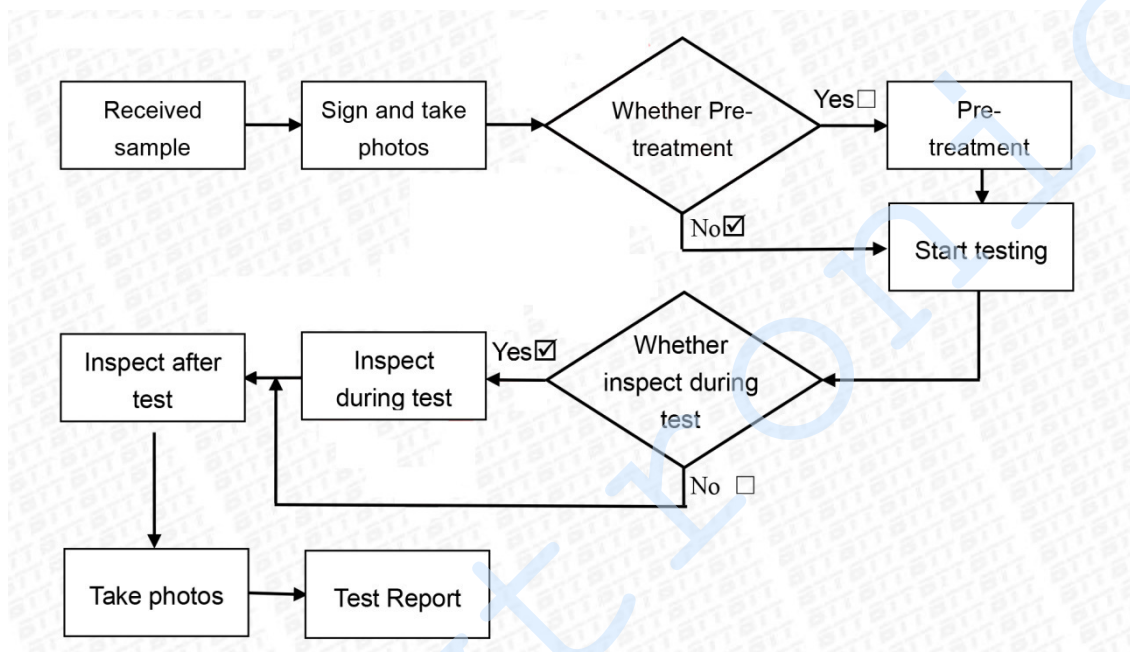
6.1 Reference Standard: Test according to EIA-364-32, Table II

6.2 Laboratory Environment: Ambient temperature: 20°C~25°C Relative humidity:70%~80% RH

6.3 Test Equipment:

Test Equipment/Producer	Test Equipment Model	Calibration Date
Thermal Shock & Aging Chamber / Kunshan Qingsheng Electronic Co., Ltd.	Type: STST-CH-80-55-3(A)	15.07.2018

6.4 Test Procedure:



6.5 Test Conditions: -55° C to +85° C 1/2 hour dwell, 100 cycles.

6.6 Test Photos:



Figure 1: Thermal Shock & Aging Chamber



Figure 2: The setting test condition parameters



Figure 3: Overview samples under test

7. HUMIDITY TEST

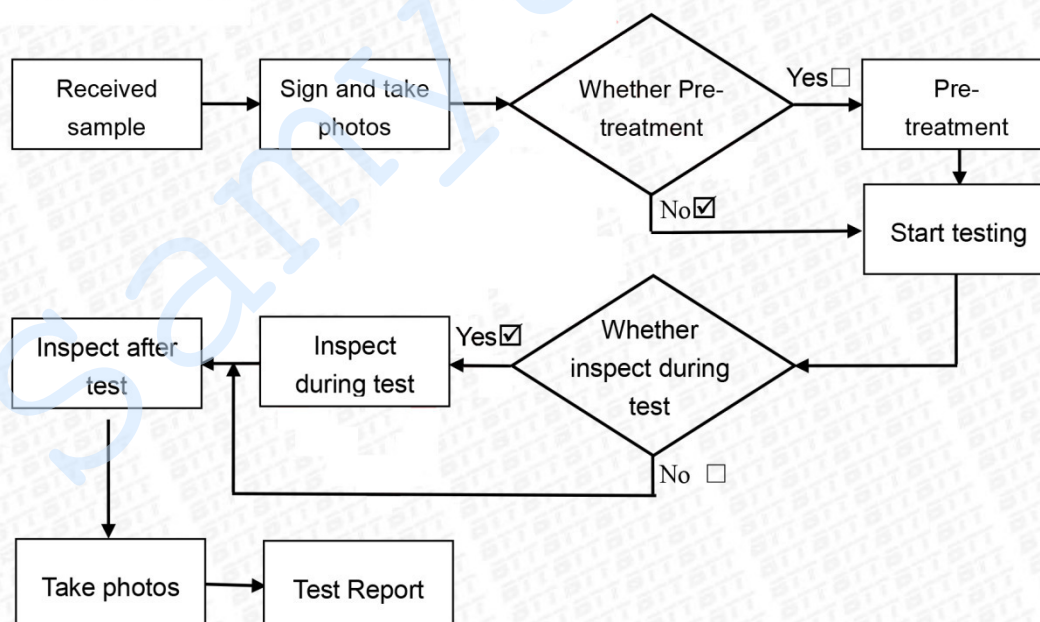
7.1 Reference Standard: Test according to EIA-364-31

7.2 Laboratory Environment: Ambient temperature: $22 \pm 3^\circ\text{C}$ Relative humidity: 50%~80% RH

7.3 Test Equipment:

Test Equipment/Producer	Test Equipment Model	Calibration Date
Humidity transmitter / EDESON INSTRUMENT CO.,LTD	ETH100LE	04.09.2018

7.4 Test Procedure:



7.5 Test Conditions: Test Condition B (240Hours) and Method III ($+25^\circ\text{C}$ to 65°C at 90% RH to 98% RH) ambient pre-condition and delete steps 7a and 7b

7.6 Test Photos:



Figure 1

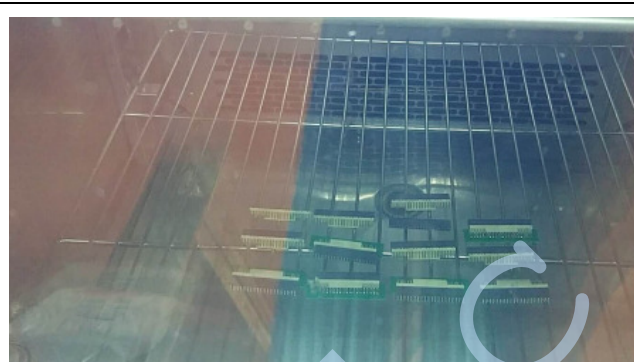


Figure 2

Part 5.

Insulation Resistance (IR) / Dielectric Withstanding Voltage (DWV)

TEST GROUP REPORT

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2. TEST INFORMATION
3. TEST RESULTS
4. INSULATION RESISTANCE (IR)
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 - 4.2 Laboratory Environment
 - 4.3 Test Equipment
 - 4.4 Test Procedure
 - 4.5 Test Conditions
 - 4.6 Test Photos
5. DIELECTRIC WITHSTANDING VOLTAGE (DWV) TEST
 - 5.1 Reference Standard
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 - 7.2 Laboratory Environment
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 - 7.5 Test Conditions
 - 7.6 Test Photos

1. SAMPLE INFORMATION

Sample Name	Pin Header FPH25409-D40B3013M; Female header F185-1220C6DSYB1
Model / Specification	Pitch 2.54mm, Pin Header: 90°Angle, 40 (2*20) Circuits DIP; Female Header: 40 (2*20) Circuits DIP
Sample Quantity	
Sample Description	Connector

2. TEST INFORMATION

Insulation Resistance, Dielectric Withstanding Voltage Test

Test Seq.	Test Items	Received Date	Date of Test(s)
01	IR & DWV at test voltage (on both mated sets and on each connector unmated; pin-to-pin and row-to-row)	07.08.2018	26.08.2018
02	Thermal Shock (Mated and Undisturbed)	26.08.2018	04.09.2018
03	IR & DWV at test voltage (on both mated sets and on each connector unmated; pin-to-pin and row-to-row)	08.09.2018	10.09.2018
04	Cyclic Humidity (Mated and Undisturbed)	10.09.2018	11.09.2018
05	IR & DWV at test voltage (on both mated sets and on each connector unmated; pin-to-pin and row-to-row)	20.09.2018	21.09.2018

3. TEST RESULTS

Test Seq.	Test Items	Test Results
01	IR & DWV at test voltage (on both mated sets and on each connector unmated; pin-to-pin and row-to-row)	Detailed data of IR is shown in Table1.& DWV is shown in Table2.
02	Thermal Shock (Mated and Undisturbed)	All conditions according to standard EIA-364-32 during test, and no evidence of physical damages after test.
03	IR & DWV at test voltage (on both mated sets and on each connector unmated; pin-to-pin and row-to-row)	Detailed data of IR is shown in Table1.& DWV is shown in Table2.
04	Cyclic Humidity (Mated and Undisturbed)	All conditions according to standard EIA-364-32 during test, and no evidence of physical damages after test.
05	IR & DWV at test voltage (on both mated sets and on each connector unmated; pin-to-pin and row-to-row)	Detailed data of IR is shown in Table1.& DWV is shown in Table2.

Table 1

Insulation Resistance minimums, IR

	Pin to Pin		
	Mated	Unmated	Unmated
Minimum	FPH25409-D40B3013M/ F185-1220C6DSYB1	FPH25409-D40B3013M	F185-1220C6DSYB1
Initial	>9999 Meg Ω	>9999 Meg Ω	>9999 Meg Ω
Thermal Shock	>9999 Meg Ω	>9999 Meg Ω	>9999 Meg Ω
Humidity	>9999 Meg Ω	>9999 Meg Ω	>9999 Meg Ω

	Row to Row		
	Mated	Unmated	Unmated
Minimum	FPH25409-D40B3013M/ F185-1220C6DSYB1	FPH25409-D40B3013M	F185-1220C6DSYB1
Initial	>9999 Meg Ω	>9999 Meg Ω	>9999 Meg Ω
Thermal Shock	>9999 Meg Ω	>9999 Meg Ω	>9999 Meg Ω
Humidity	>9999 Meg Ω	>9999 Meg Ω	>9999 Meg Ω

Table 2

Dielectric Withstanding Voltage minimums, DWV

Minimums

- Breakdown Voltage ----- 1650 VAC
- Test Voltage ----- 1220 VAC
- Working Voltage ----- 500 VAC

	Pin to Pin		
	Mated	Unmated	Unmated
Test	FPH25409-D40B3013M/ F185-1220C6DSYB1	FPH25409-D40B3013M	F185-1220C6DSYB1
Initial	Passed	Passed	Passed
Thermal Shock	Passed	Passed	Passed
Humidity	Passed	Passed	Passed

	Row to Row		
	Mated	Unmated	Unmated
Test	FPH25409-D40B3013M/ F185-1220C6DSYB1	FPH25409-D40B3013M	F185-1220C6DSYB1
Initial	Passed	Passed	Passed
Thermal Shock	Passed	Passed	Passed
Humidity	Passed	Passed	Passed

4. INSULATION RESISTANCE (IR)

4.1 Reference Standard: Test according to EIA-364-21.

4.2 Laboratory Environment: Ambient temperature: $25 \pm 3^\circ\text{C}$ Relative humidity: $55 \pm 20\%$ RH

4.3 Test Equipment:

Test Equipment/Producer	Test Equipment Model	Calibration Date
Guangzhou Lanke Electronical Equipment Co., Ltd.	7122	02.07.2018

4.4 Test Procedure: /

4.5 Test Conditions:

- Between Adjacent Contacts or Signal-to-Ground;
- Electrification Time 2.0 minutes;
- Test Voltage (500 VDC) corresponds to calibration settings for measuring resistances

4.6 Test Photos:



Figure 1



Figure 2



Figure 3

5. DIELECTRIC WITHSTANDING VOLTAGE (DWV) TEST

5.1 Reference Standard: Test according to EIA-364-20.

5.2 Laboratory Environment: Ambient temperature: $25 \pm 3^\circ\text{C}$ Relative humidity: $55 \pm 20\%$ RH

5.3 Test Equipment:

Test Equipment/Producer	Test Equipment Model	Calibration Date
Meiruike Electronic Technology Co.,Ltd	RK2672AM	12.06.2018

5.4 Test Procedure: /

5.5 Test Conditions:

- Between Adjacent Contacts or Signal-to-Ground;
- Barometric Test Condition 1;
- Rate of Application 500 V/Sec;
- Test Voltage (VAC) until breakdown occurs.

5.6 Test Photos:



Figure 1



Figure 2

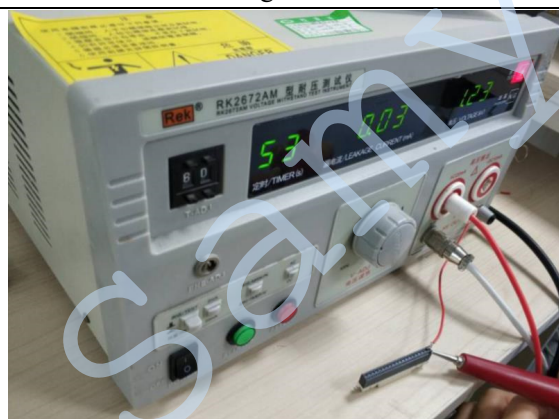


Figure 3

6. THERMAL SHOCK TEST

6.1 Reference Standard: Test according to EIA-364-32, Table II

6.2 Laboratory Environment: Ambient temperature: 20°C~25°C Relative humidity: 70%~80% RH

6.3 Test Equipment:

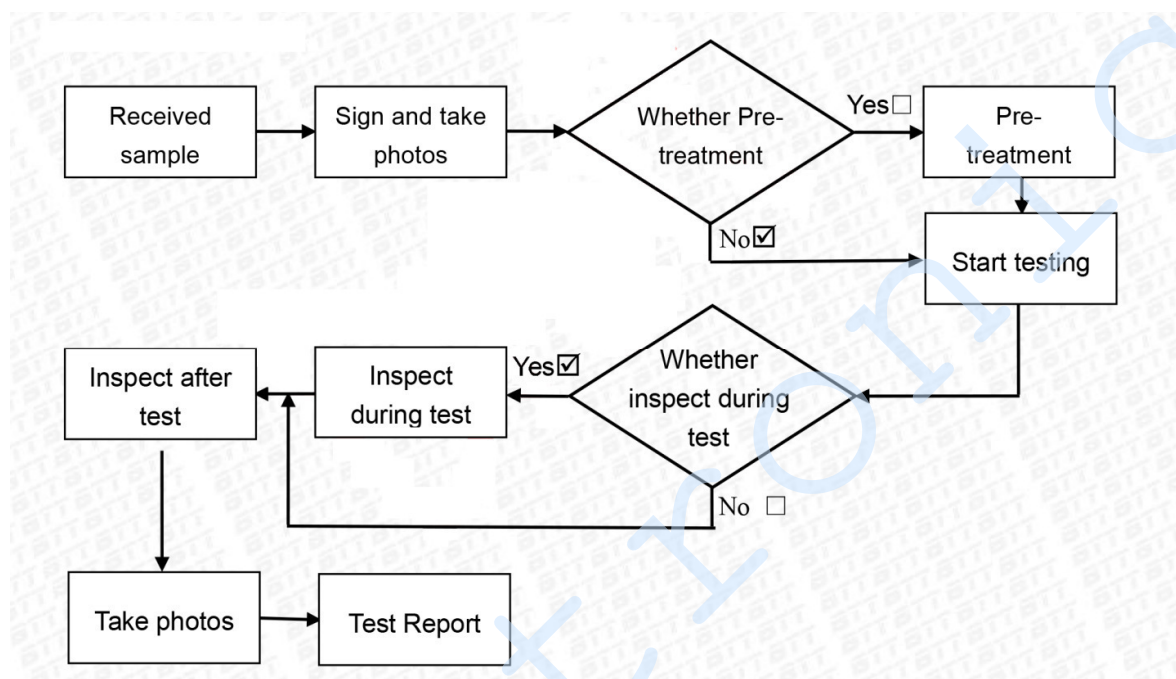


Figure 1: Thermal Shock & Aging Chamber



Figure 3: Overview samples under test

7. HUMIDITY TEST

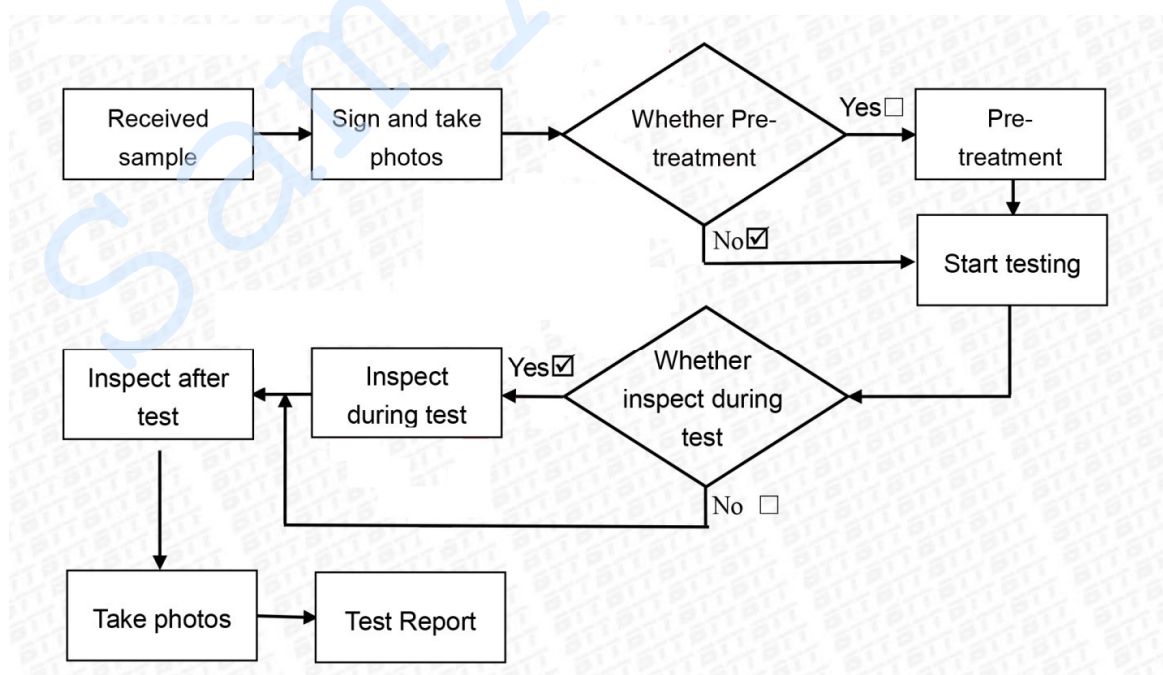
7.1 Reference Standard: Test according to EIA-364-31

7.2 Laboratory Environment: Ambient temperature: $22 \pm 3^\circ\text{C}$ Relative humidity: 50%~80% RH

7.3 Test Equipment:

Test Equipment/Producer	Test Equipment Model	Calibration Date
Humidity transmitter / EDESON INSTRUMENT CO.,LTD	ETH100LE	04.09.2018

7.4 Test Procedure:



7.5 Test Conditions: Test Condition B (240Hours) and Method III (+25° C to 65° C at 90% RH to 98% RH) ambient pre-condition and delete steps 7a and 7b

7.6 Test Photos:



Figure 1

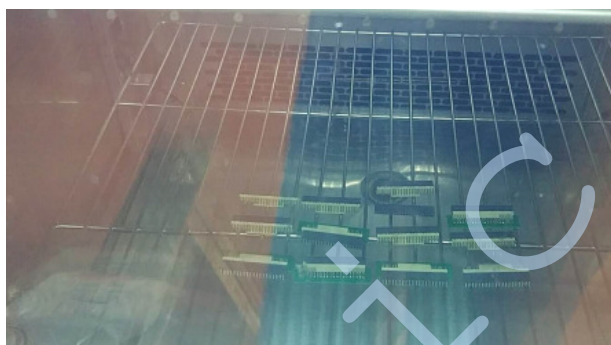


Figure 2

Part 6.

CURRENT-CARRYING CAPACITY TEST (DERATING-CURVE)
carried out by TrainAlytics GmbH, Order 021807-1841

TEST GROUP REPORT

Table of Contents:

1. TASK DESCRIPTION
2. APPLIED METHODS
 - 2.1 Equipment under Test (EUT)
 - 2.2 Test Procedure
3. TEST RESULTS

Sample Name	Pin Header FPH25409-D40B3013M; Female header F185-1220C6DSYB1
Model / Specification	Pitch 2.54mm, Pin Header: 90°Angle, 40 (2*20) Circuits DIP; Female Header: 40 (2*20) Circuits DIP
Sample Quantity	8 sets
Sample Description	Connector
Testing company	Trainalytics GmbH
Testing company's address	Erwitter Str. 105, 59557 Lippstadt, Germany
Testing company's website	http://www.trainalytics.de
Client	Samytronic UG
Client's address	Flensburger Str. 26, 33605 Bielefeld, Germany

SUMMARY

Delivered through hole square post headers (right angle version, Pin Header: FPH25409-D40B3013M) with corresponding through hole socket strips (Female Header: F185-1220C6DSYB1) were investigated according DIN EN/IEC 60512-5-2, Test 5b: current-temperature derating.

The derating-curves of the provided samples are shown in chapter 3 of this document.

1. TASK DESCRIPTION\

The customer delivered through hole square post headers (right angle version, Pin Header: FPH25409-D40B3013M) with corresponding through hole socket strips (Female Header: F185-1220C6DSYB1). The task was to carry out a current-carrying capacity test according DIN EN/IEC 60512-5-2, Test 5b: current-temperature derating.

2. APPLIED METHODS

2.1. Equipment under Test (EUT)

Figure 1 gives an overview of the provided equipment under test (EUT). In sum 3 through hole square post headers and 3 through hole socket strips were used for the current-temperature derating test.

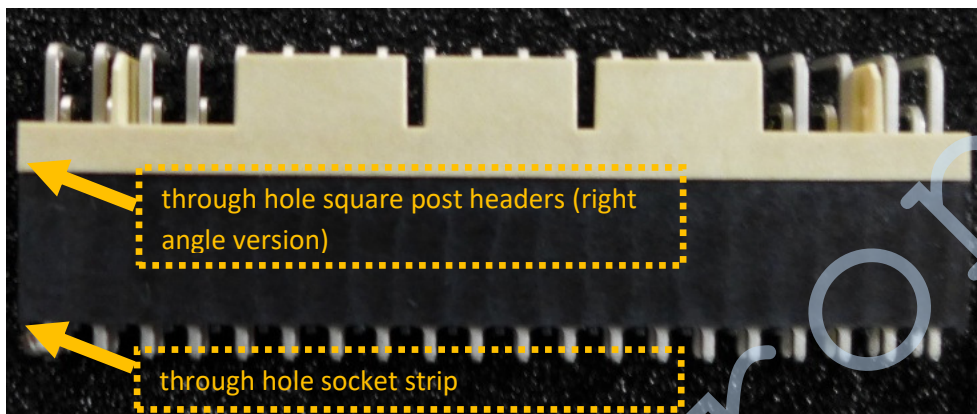


Figure 1: Overview EUT

2.2. Test Procedure

The current-temperature derating test was performed in a temperature environmental stress chamber as shown in Figure 2. The used measurement equipment is shown in Figure 3. A device list is given in Table 1.



Figure 2: Overview, Temperature Environmental Stress Chamber (Weiss Umwelttechnik GmbH, Type: WT1-340)

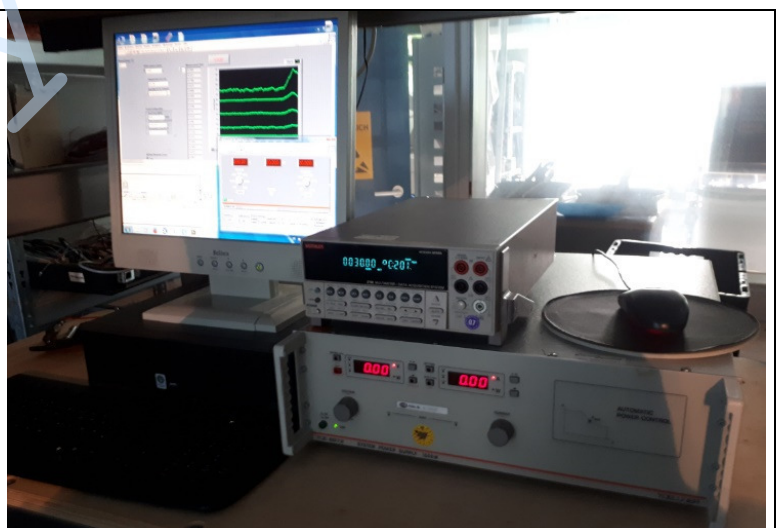


Figure 3: Overview Measurement Equipment (Current-Source: Toellner TOE 8872, Temperature-Measurement: Keithley 2700 DMM, Data-Acquisition: Desktop-PC)

Table 1: Device List

Equipment	Manufacturer	Type
Temperature Chamber	Weiss Umwelttechnik GmbH	WT1-340
Current Supply	Toellner Electronic Instrumente GmbH	TOE 8871
Temperature Measurement	Keithley Instruments	2700 DMM + 7708 Multiplexer
Type-K-Thermocouples	Rössel Messtechnik GmbH	TE-TT-4602K-0,22L-5000
Power Lines	Richard Hirschmann GmbH & Co.	MLN.../2,5mm

Figure 4 gives an overview of the test set-up. As defined in DIN EN/IEC 60512-5-2 the thermocouples were applied on the “approximately hottest spot”. It was decided that the hottest spot is the connection between through hole square post header and through hole socket strip. Figure 5 to Figure 8 show overview images with the thermocouple positions depending on the number of contacts in linear series. The power lines (2.5 mm²) were soldered on the EUT. The bridging of the contacts in linear series was performed through soldering of commonly used silver cables. For ambient temperature measurement, thermocouples were applied in immediate vicinity to the EUT (max. 50 mm).

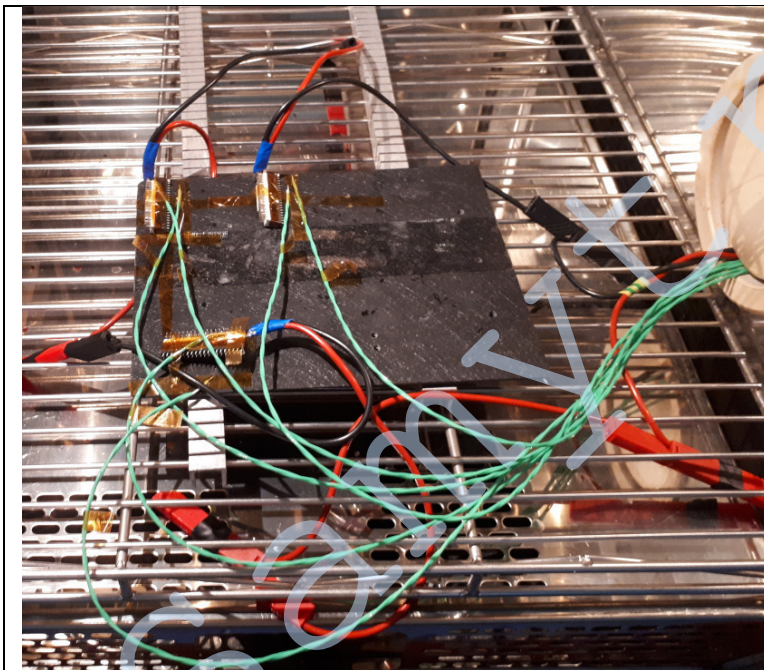


Figure 4: Test Set-Up



Figure 5: "Approximately Hottest Spot", 2 Contacts in Linear Series



Figure 6: "Approximately Hottest Spot", 10 Contacts in Linear Series

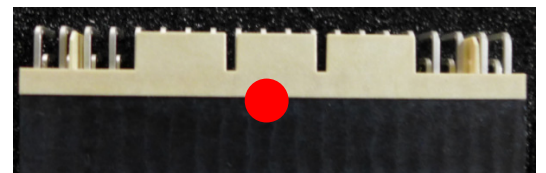


Figure 7: "Approximately Hottest Spot", 20 Contacts in Linear Series

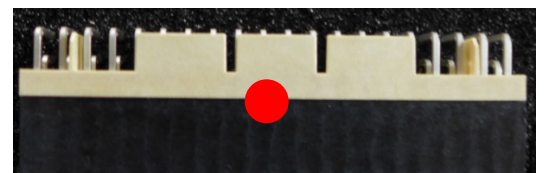


Figure 8: "Approximately Hottest Spot", 40 Contacts in Linear Series

The temperature of a measuring point (approximately the hottest spot) on the connection between through hole square post header and through hole socket strip (tb) and the temperature in the environment (tu) of the EUT are measured for different current values. The difference between the two temperatures (Δt) is the self-heating or rise created by the current flow.

Each selected current value was held for approximately one hour after thermal equilibration. This is the case when the temperature increase of three consecutive measurements in the interval of 5 minutes is smaller than 2 Kelvin. The upper limit temperature was specified by the customer as 125 °C.

The equivalent base-circuit of the performed measurement is shown in Figure 9.

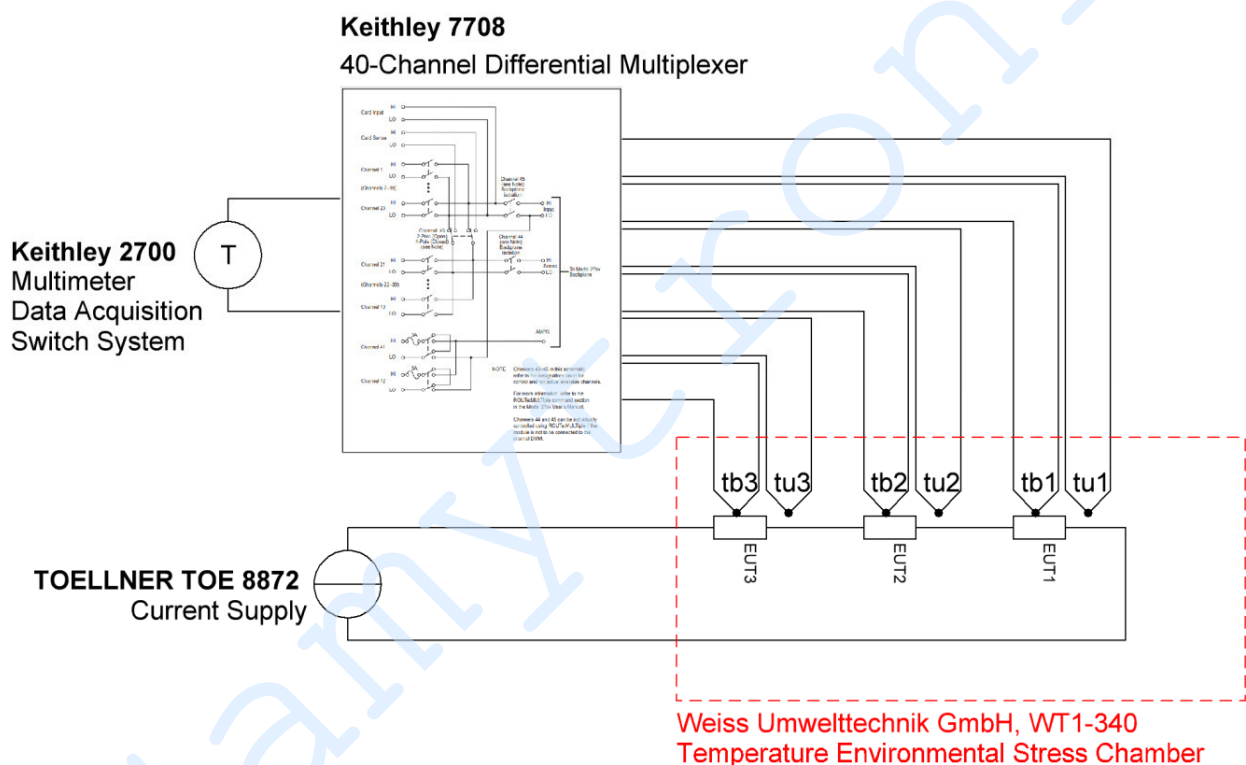


Figure 9: Equivalent Base-Circuit

3. TEST RESULTS

An overview of the measurement results is given in Table 2. The resulting derating-curves of the 2-, 10-, 20- and 40-contacts in linear series variants is shown in Figure 10 to Figure 13.

The graphs contain the basic current-carrying capacity curve and the corrected current-carrying capacity curve. The corrected current-carrying capacity curve is obtained by applying a reduction factor of 0.8 to the value of the current of the base curve, unless otherwise specified for the current-carrying capacity curve.

Table 2: Overview Measurement Results

Number of contacts in linear series	Amperage of basic current-carrying capacity curve in A	Amperage of the corrected current-carrying capacity curve in A	Temperature at approximately hottest spot of EUT t_b ^(*) in °C	Temperature in the immediate vicinity of the component t_u ^(*) in °C	Over temperature (self-heating) Δt ^(*) in °C	Upper limit temperature in °C	Derating-curve
2	0	0	0	0	0	125	125
	3	2.4	25.73	25.35	0.38	125	124.62
	5	4	28.04	25.41	2.63	125	122.37
	10	8	36.71	25.71	11	125	114
	15	12	51.16	26.12	25.04	125	99.96
	20	16	74.71	27.13	47.58	125	77.42
10	0	0	0	0	0	125	125
	3	2.4	32.65	25.48	7.17	125	117.83
	5	4	46.69	26.13	20.56	125	104.44
	7.5	6	71.02	27.22	43.8	125	81.2
	10	8	97.13	28.54	68.59	125	56.41
20	0	0	0	0	0	125	125
	3	2.4	34.86	25.01	9.85	125	115.15
	5	4	54.21	26.11	28.1	125	96.9
	7	5.6	83.01	27.77	55.24	125	69.76
40	0	0	0	0	0	125	125
	3	2.4	37.31	25.58	11.73	125	113.27
	5	4	57.65	26.31	31.34	125	93.66
	7.5	6	96.23	28.15	68.08	125	56.92

^(*) The temperatures result from measurements on three specimens. The arithmetic mean of the series of measurements after reaching the thermal equilibrium is shown. This is the case when the temperature increase of three consecutive measurements in the interval of 5 minutes is smaller than 2 Kelvin.

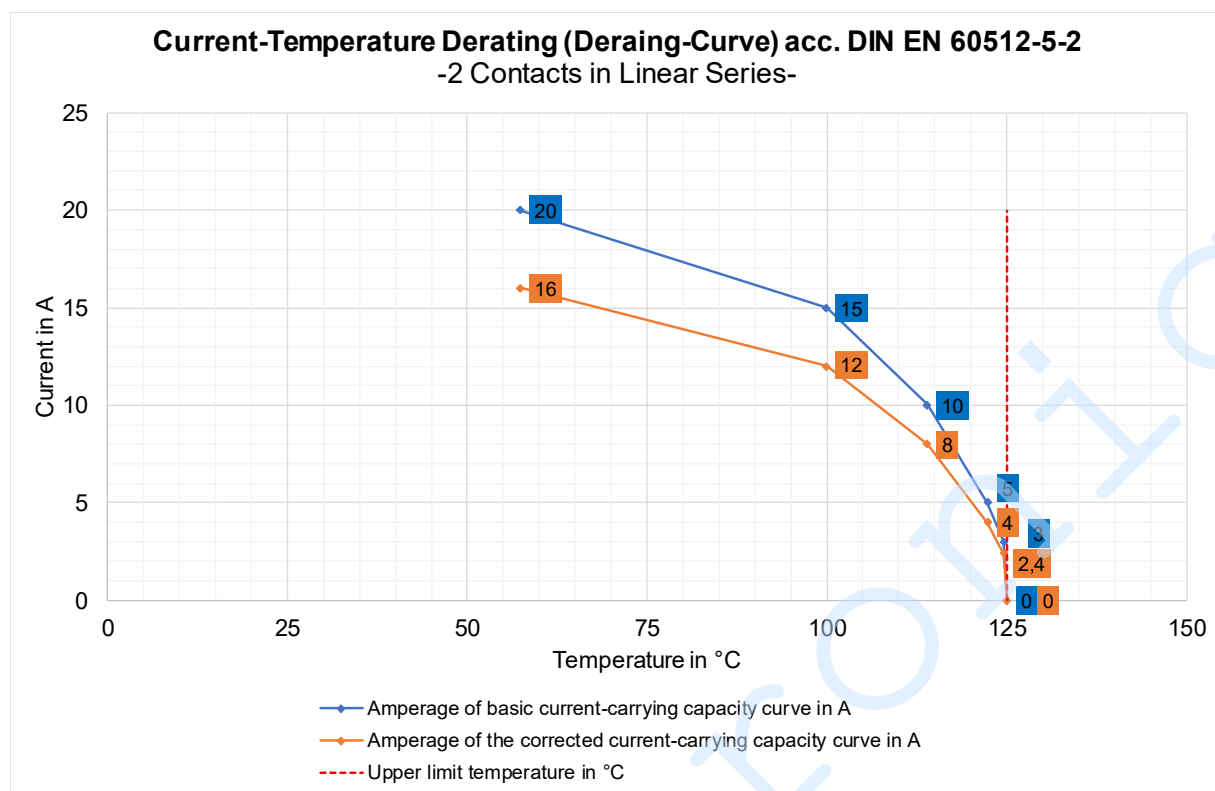


Figure 10: Derating-Curve, 2 Contacts in Linear Series

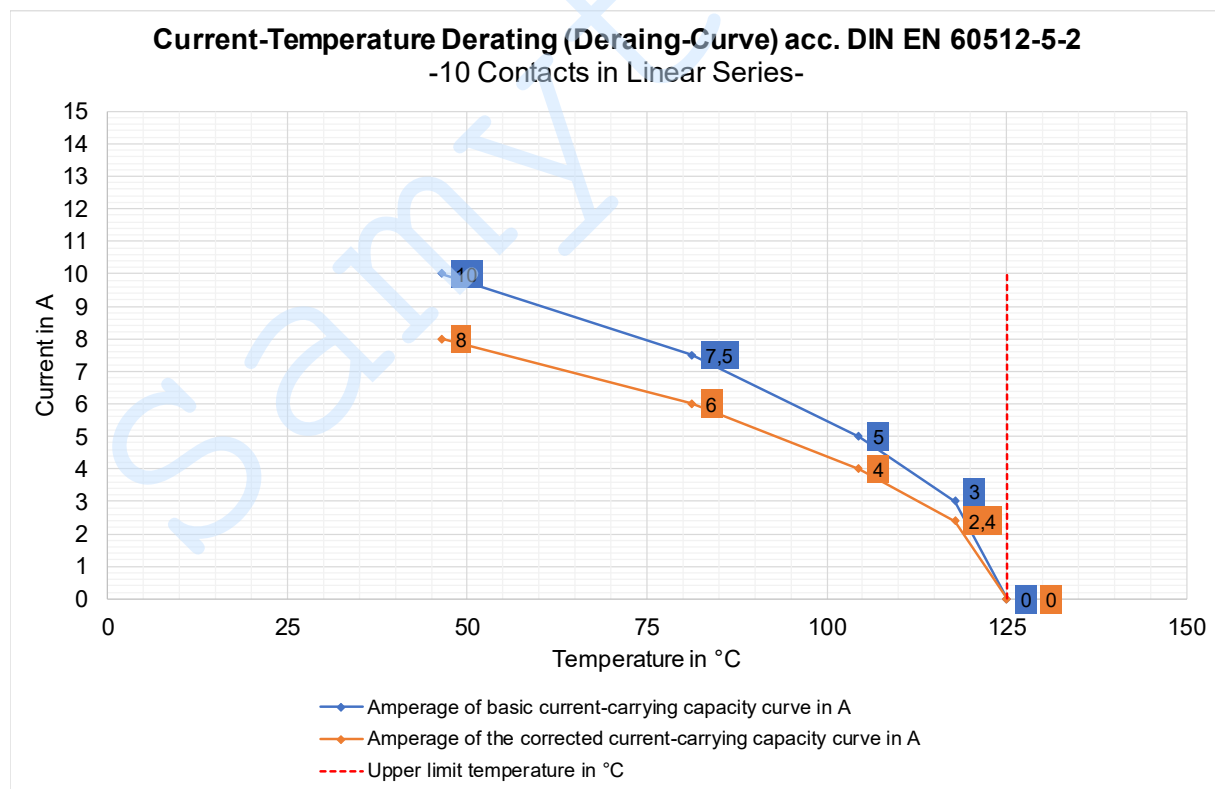


Figure 11: Derating-Curve, 10 Contacts in Linear Series

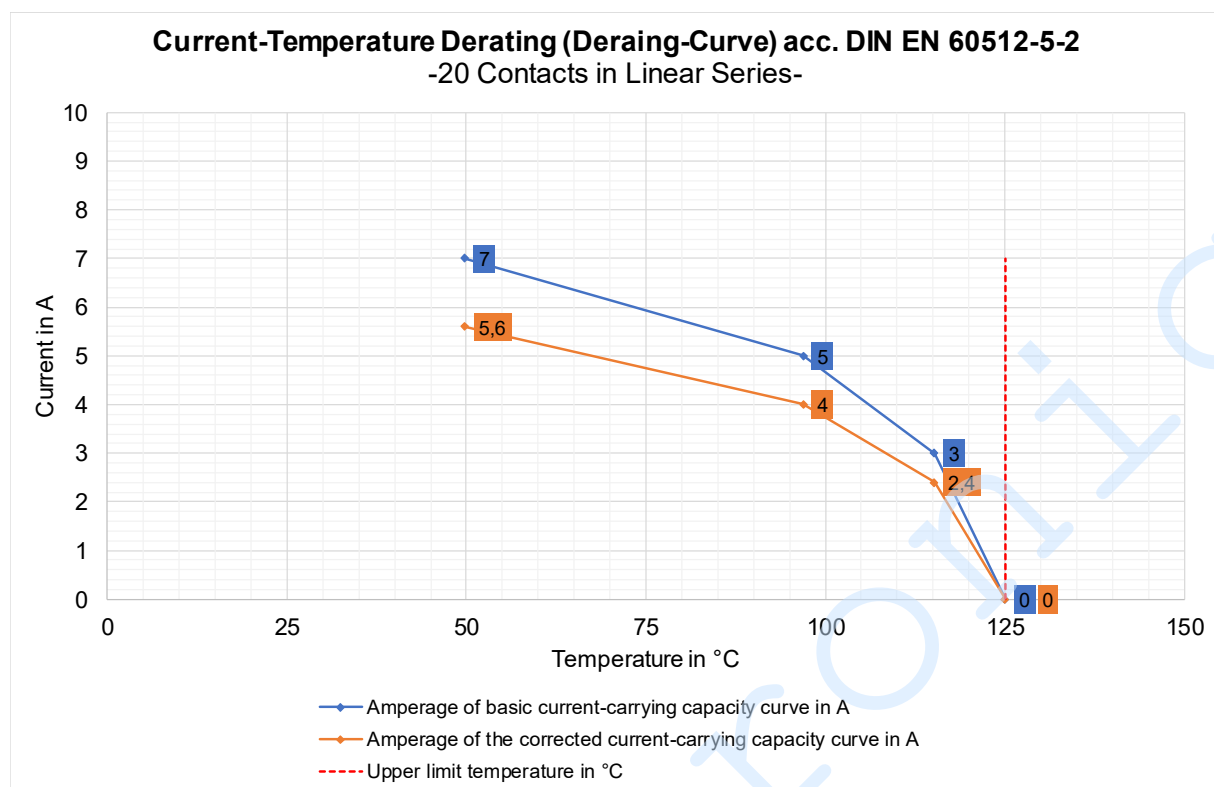


Figure 12: Derating-Curve, 20 Contacts in Linear Series

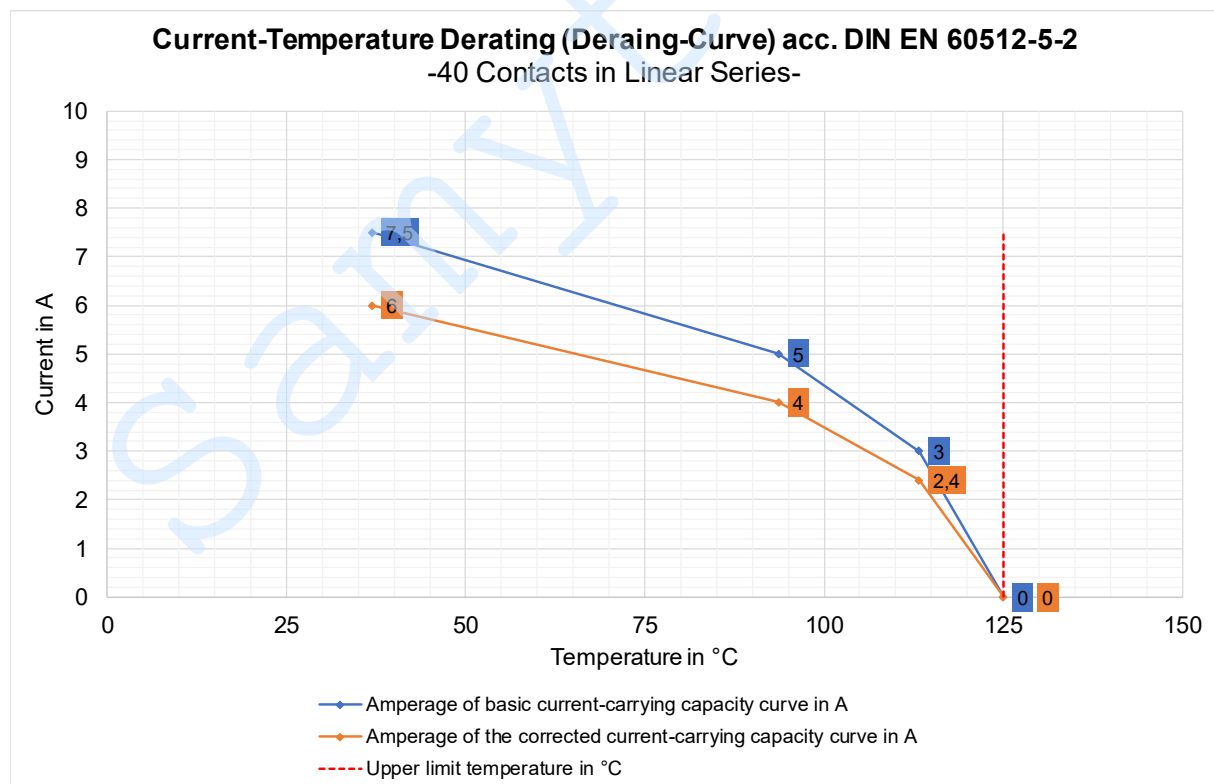


Figure 13: Derating-Curve, 40 Contacts in Linear Series

Part 7.

MECHANICAL SHOCK + NANOSECOND EVENT DETECTION /
VIBRATION + NANOSECOND EVENT DETECTION
carried out by BTT Co. Ltd, Order BJ-R180901101A-EN

TEST GROUP REPORT

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6. VIBRATION TEST+NANOSECOND EVENT DETECTION
 - 6.1 Reference Standard
 - 6.2 Laboratory Environment
 - 6.3 Test Equipment
 - 6.4 Test Procedure
 - 6.5 Test Conditions
 - 6.6 Test Photos

1. SAMPLE INFORMATION

Sample Name	Pin Header FPH25409-D40B3013M; Female header F185-1220C6DSYB1
Model / Specification	Pitch 2.54mm, Pin Header: 90°Angle, 40 (2*20) Circuits DIP; Female Header: 40 (2*20) Circuits DIP
Sample Quantity	6 sets
Sample Description	Connector
Testing company	ShenZhen BestJ Testing Technologies Co., Ltd
Testing company's address	1/F, Fengze Building B, The Second Industrial Park of Huafeng, Nanchang Road, Hangcheng Street, Baoan District, Shenzhen, China
Testing company's website	www.bestj.cn
Client	Samytronic UG
Client's address	Flensburger Str. 26, 33605 Bielefeld, Germany

2. TEST INFORMATION

Mechanical Shock + Nanosecond Event Detection /
 Vibration + Nanosecond Event Detection

Test Seq.	Test Items	Received Date	Date of Test(s)
01	LLCR - 1	01.09.2018	03.09.2018
02	Mechanical Shock+Nanosecond Event Detection	01.09.2018	04.09.2018
03	Vibration Test+Nanosecond Event Detection	01.09.2018	04.09.2018 05.09.2018
04	LLCR-2	01.09.2018	06.09.2018

3. TEST RESULTS

Test Seq.	Test Items	Test Results
01	LLCR-1	Detailed data of LLCR is shown in Table1.
02	Mechanical Shock+Nanosecond Event Detection	No evidence of physical damages after test. Nanosecond Event Detection is shown in Table2
03	Vibration Test+Nanosecond Event Detection	No evidence of physical damages after test. Nanosecond Event Detection is shown in Table2
04	LLCR-2	Detailed data of LLCR is shown in Table1.

Table 1

mOhm values	LLCR-1 Actual Initial	LLCR-2 Delta Shock/Vibration
Pin Type 1: Signal		
Average	5,79	1,34
St. Dev.	0,70	0,29
Min	4,57	0,83
Max	7,07	1,82
Points Summary Count	240	240

Pin Header: FPH25409-D40B3013M
Female Header: F185-1220C6DSYB1
Part 7. Mechanical Shock/Vibration +
Nanosecond Event Detection
Test Group Report



Total Count		240			240	
LLCR Delta Count by Category						
mOhms	Stable	Minor	Acceptable	Marginal	Unstable	Open Failure
	<=5	>5& <=10	>10 & <=15	>15& <=50	>50& <=1000	>1000
Thermal Aging	240	0	0	0	0	0

Position	1#			2#			3#			4#			5#			6#		
	Before	After	ΔLLCR	Before	After	ΔLLCR	Before	After	ΔLLCR	Before	After	ΔLLCR	Before	After	ΔLLCR	Before	After	ΔLLCR
P1-P1	5.74	6.78	1.04	5.02	6.34	1.32	4.64	6.46	1.82	4.97	6.50	1.53	5.00	6.57	1.57	4.99	6.43	1.44
P2-P2	5.22	6.62	1.40	5.04	6.35	1.31	4.79	6.60	1.81	5.21	6.59	1.38	5.72	6.55	0.83	5.42	6.34	0.92
P3-P3	5.79	6.69	0.90	5.02	6.31	1.29	4.71	6.35	1.64	5.47	6.45	0.98	4.70	6.27	1.57	5.01	6.18	1.17
P4-P4	6.09	6.92	0.83	5.40	6.42	1.02	4.91	6.73	1.82	4.75	6.47	1.72	4.84	6.33	1.49	5.35	6.48	1.13
P5-P5	5.37	6.61	1.24	5.69	6.64	0.95	5.17	6.47	1.30	4.93	6.65	1.72	5.14	6.40	1.26	4.63	6.23	1.60
P6-P6	5.26	6.48	1.22	5.73	6.63	0.90	5.42	6.40	0.98	4.57	6.23	1.66	4.73	6.47	1.74	5.11	6.30	1.19
P7-P7	5.42	6.43	1.01	5.35	6.50	1.15	4.85	6.52	1.67	4.74	6.54	1.80	5.15	6.52	1.37	5.03	6.31	1.28
P8-P8	5.60	6.55	0.95	4.65	6.36	1.71	5.06	6.50	1.44	5.21	6.45	1.24	5.11	6.88	1.77	5.14	6.56	1.42
P9-P9	4.97	6.50	1.53	4.99	6.38	1.39	5.69	6.70	1.01	4.77	6.49	1.72	5.11	6.41	1.30	4.78	6.45	1.67
P10-P10	5.10	6.52	1.42	5.36	6.42	1.06	5.17	6.63	1.46	5.57	6.47	0.90	5.16	6.34	1.18	5.36	6.69	1.33
P11-P11	5.30	6.49	1.19	5.11	6.53	1.42	4.94	6.45	1.51	5.63	6.49	0.86	5.20	6.54	1.34	5.54	6.48	0.94
P12-P12	4.82	6.32	1.50	4.88	6.44	1.56	5.33	6.63	1.30	5.53	6.75	1.22	5.52	6.39	0.87	4.66	6.48	1.82
P13-P13	5.56	6.48	0.92	5.02	6.52	1.50	4.91	6.52	1.61	5.04	6.59	1.55	4.76	6.48	1.72	4.72	6.36	1.64
P14-P14	5.49	6.41	0.92	5.62	6.61	0.99	5.23	6.36	1.13	5.43	6.52	1.09	4.76	6.39	1.63	5.00	6.57	1.57
P15-P15	5.81	6.64	0.83	5.45	6.58	1.13	5.27	6.47	1.20	4.84	6.55	1.71	5.55	6.41	0.86	5.04	6.43	1.39
P16-P16	5.05	6.67	1.62	5.17	6.46	1.29	5.20	6.24	1.04	5.71	6.62	0.91	4.68	6.37	1.69	5.86	6.72	0.86
P17-P17	5.61	6.56	0.95	5.53	6.40	0.87	4.92	6.55	1.63	4.65	6.39	1.74	4.67	6.40	1.73	4.95	6.61	1.66
P18-P18	4.91	6.28	1.37	5.18	6.25	1.07	5.29	6.47	1.18	4.70	6.42	1.72	5.08	6.44	1.36	5.43	6.43	1.00
P19-P19	5.01	6.65	1.64	5.20	6.61	1.41	4.93	6.61	1.68	5.13	6.52	1.39	5.20	6.30	1.10	5.36	6.43	1.07
P20-P20	5.30	6.63	1.33	5.60	6.51	0.91	5.19	6.28	1.09	4.85	6.30	1.45	5.29	6.20	0.91	5.27	6.61	1.34
P21-P21	6.41	7.80	1.39	6.48	7.94	1.46	6.06	7.83	1.77	6.70	7.78	1.08	6.18	7.60	1.42	6.90	7.81	0.91
P22-P22	6.87	7.84	0.97	6.25	7.96	1.71	6.58	7.63	1.05	6.03	7.63	1.60	6.06	7.60	1.54	6.37	7.89	1.52
P23-P23	6.38	7.86	1.48	6.92	7.98	1.06	6.40	7.67	1.27	6.25	7.45	1.20	6.56	7.76	1.20	5.92	7.70	1.78
P24-P24	6.40	7.96	1.56	6.33	7.85	1.52	6.21	7.54	1.33	6.12	7.39	1.27	6.56	7.50	0.94	6.34	7.96	1.62
P25-P25	6.44	7.94	1.50	6.40	7.99	1.59	6.22	7.80	1.58	6.36	7.63	1.27	6.37	7.99	1.62	6.96	7.96	1.00
P26-P26	6.39	7.81	1.42	7.04	7.92	0.88	6.33	7.88	1.55	6.37	7.85	1.48	6.32	7.96	1.64	6.32	7.87	1.55
P27-P27	6.48	7.98	1.50	7.02	7.96	0.94	6.14	7.77	1.63	6.55	7.91	1.36	6.95	7.83	0.88	6.20	7.74	1.54
P28-P28	6.36	7.97	1.61	6.28	7.81	1.53	6.07	7.81	1.74	6.82	7.74	0.92	6.65	7.54	0.89	6.06	7.56	1.50
P29-P29	7.07	7.92	0.85	6.30	7.91	1.61	6.72	7.97	1.25	7.01	7.97	0.96	5.94	7.71	1.77	6.18	7.48	1.30
P30-P30	6.55	7.92	1.37	6.90	7.78	0.88	5.77	7.59	1.82	6.34	7.80	1.46	6.09	7.68	1.59	6.13	7.33	1.20
P31-P31	6.74	7.94	1.20	6.59	7.86	1.27	6.07	7.74	1.67	5.88	7.48	1.60	6.53	7.88	1.35	5.93	7.72	1.79
P32-P32	6.65	7.96	1.31	6.16	7.78	1.62	6.65	7.62	0.97	6.97	7.95	0.98	6.99	7.87	0.88	6.16	7.73	1.57
P33-P33	6.16	7.91	1.75	6.78	7.94	1.16	6.12	7.84	1.72	6.66	7.66	1.00	6.35	7.94	1.59	6.14	7.95	1.81
P34-P34	6.10	7.86	1.76	6.08	7.71	1.63	6.15	7.68	1.53	6.41	7.83	1.42	6.17	7.73	1.56	6.39	7.66	1.27
P35-P35	6.34	7.71	1.37	6.26	7.91	1.65	6.76	7.88	1.12	6.04	7.68	1.64	5.99	7.71	1.72	6.79	7.80	1.01
P36-P36	6.76	7.81	1.05	7.00	7.99	0.99	6.05	7.39	1.34	6.76	7.82	1.06	6.06	7.83	1.77	5.87	7.31	1.44
P37-P37	6.71	7.97	1.26	6.54	7.70	1.16	6.34	7.96	1.62	6.34	7.93	1.59	6.41	7.45	1.04	6.86	7.84	0.98
P38-P38	5.89	7.62	1.73	6.26	7.61	1.35	6.59	7.67	1.08	6.28	7.33	1.05	6.52	7.79	1.27	6.76	7.91	1.15
P39-P39	6.73	7.80	1.07	6.25	7.56	1.31	6.34	7.76	1.42	6.54	7.62	1.08	6.72	7.88	1.16	5.93	7.71	1.78
P40-P40	6.61	7.85	1.24	6.13	7.45	1.32	6.35	7.78	1.43	6.76	7.88	1.12	5.81	7.30	1.49	6.29	7.73	1.44

Table 2
 Nanosecond Event Detection
 Shock and Vibration Detection Summary

Contacts tested	240
Test Condition	C,100g's,6ms,Half-Sine
Shock Events	0
Test Condition	V-B,7.56 rms g
Vibration Events	0
Total Events	0

4. LLCR

4.1 Reference Standard: Test according to EIA-364-23C.

4.2 Laboratory Environment: Ambient temperature:25±3°C Relative humidity:55±20% RH

4.3 Test Equipment:

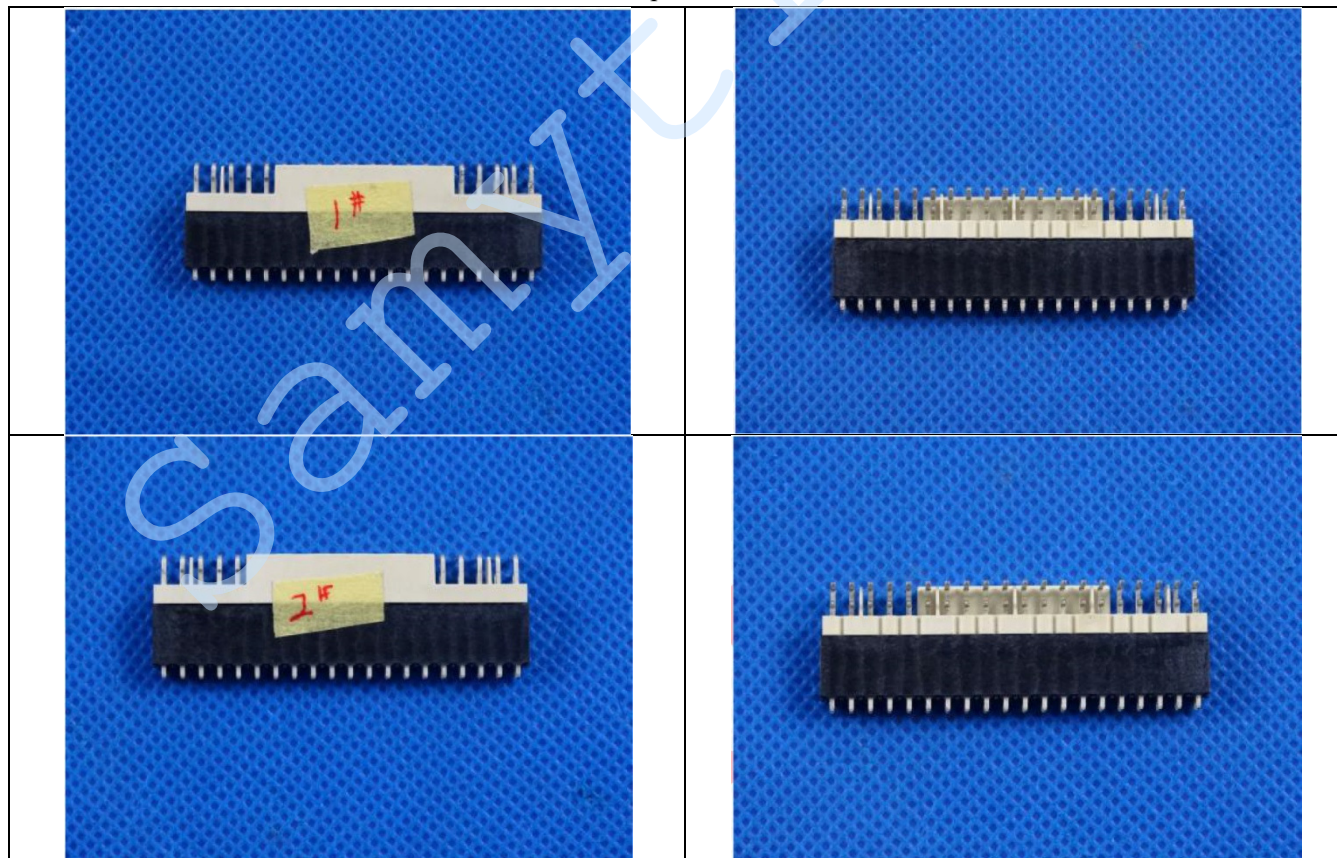
Test Equipment	Test Equipment Model	Calibration Date
DC low resistance tester	JK2511	28.05.2018

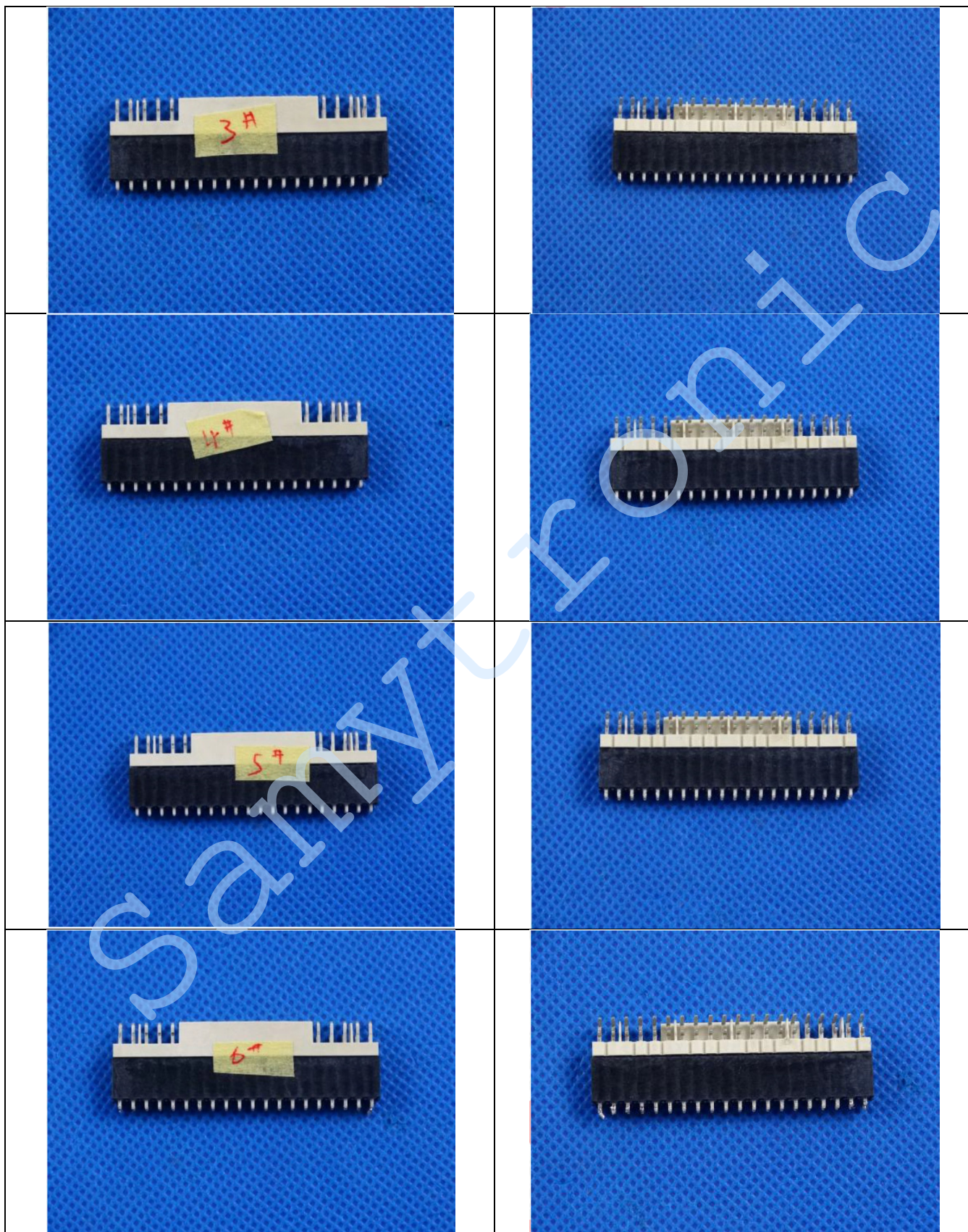
4.4 Test Procedure: /

4.5 Test Conditions: 20 mV Max, 100 mA Max, Use Keithley 580 or 3706 in 4 wire dry circuit mode

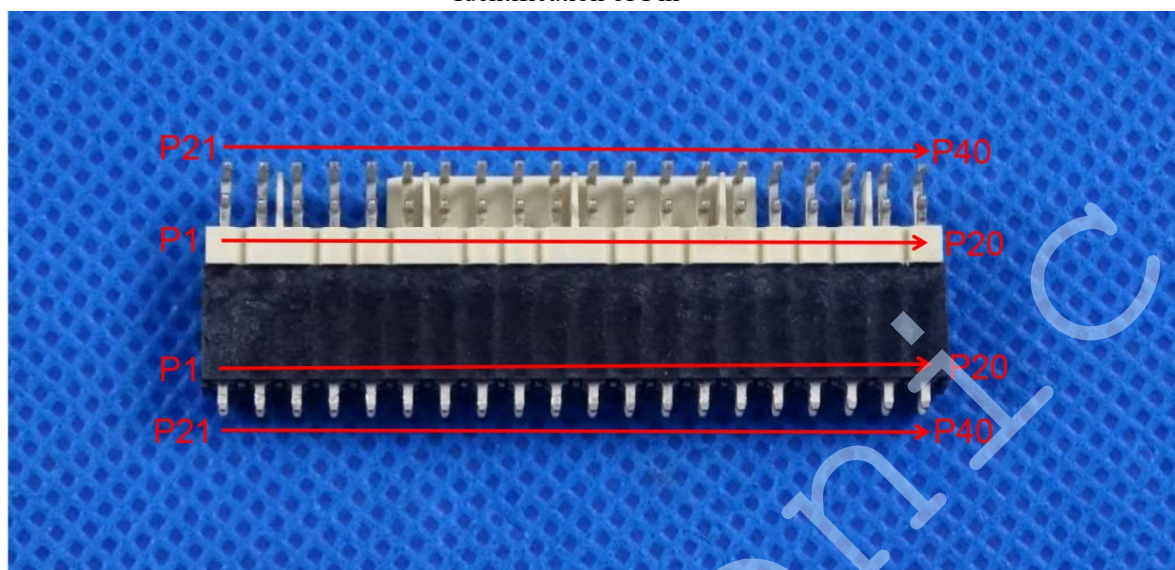
4.6 Test Photos:

Sample Photos

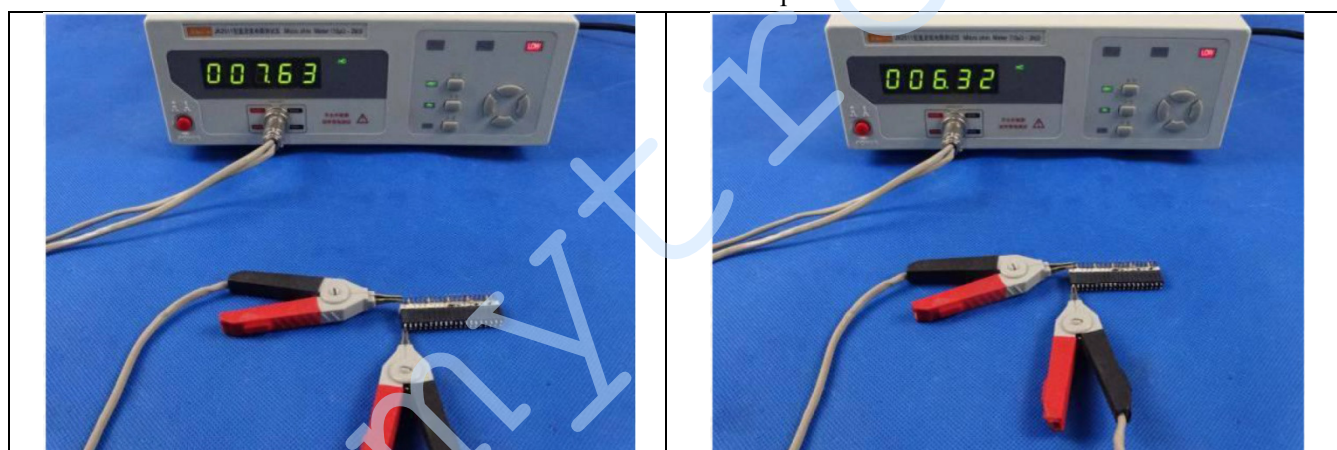




Identification of Pin



Test Setup



5. MECHANICAL SHOCK TEST+NANOSECOND EVENT DETECTION

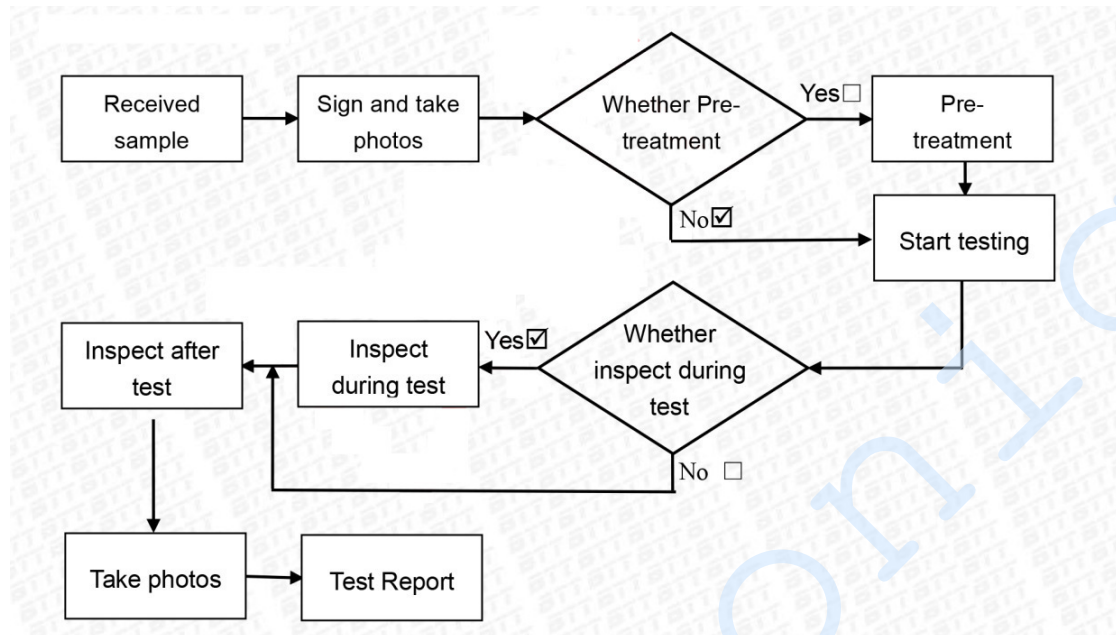
5.1 Reference Standard: EIA-364-27C, test condition C EIA-364-87

5.2 Laboratory Environment: Ambient temperature: $25 \pm 3^\circ\text{C}$, Relative humidity: $55 \pm 20\% \text{ RH}$

5.3 Test Equipment:

Test Equipment	Test Equipment Model	Calibration Date
Mechanical Shock Tester	DP-1200-60	25.05.2018
Moment Disconnection Tester	NM-1A	28.05.2018

5.4 Test Procedure



5.5 Test Conditions:

5.5.1 Mechanical Shock Test: Each axis ($\pm X$, $\pm Y$, $\pm Z$) shock 3 times, total 18 times;

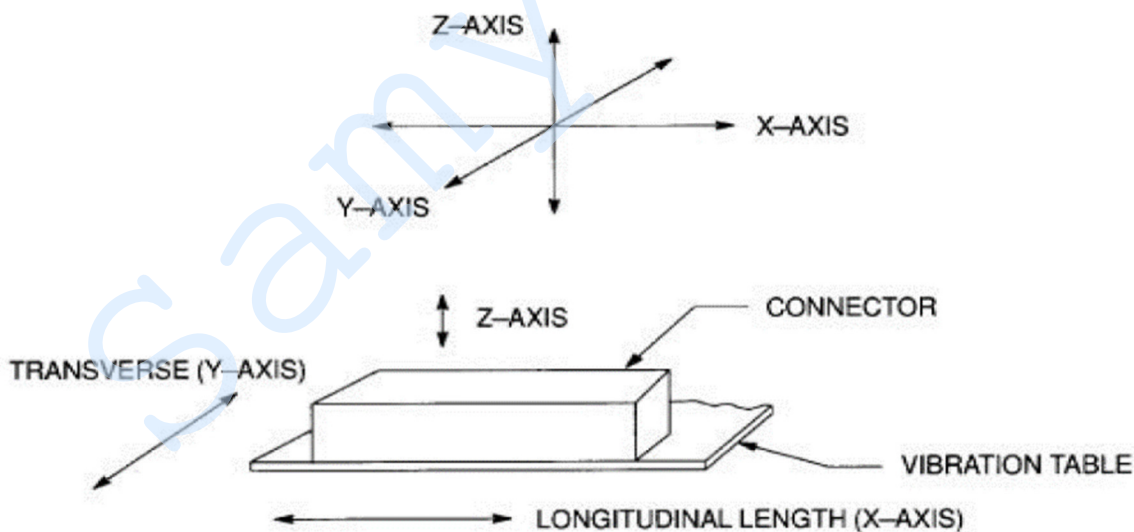
Peak acceleration: $980\text{m/s}^2(100g's)$;

Normal duration: 6ms;

Waveform: Half-Sine;

Velocity change: 3.75m/s ;

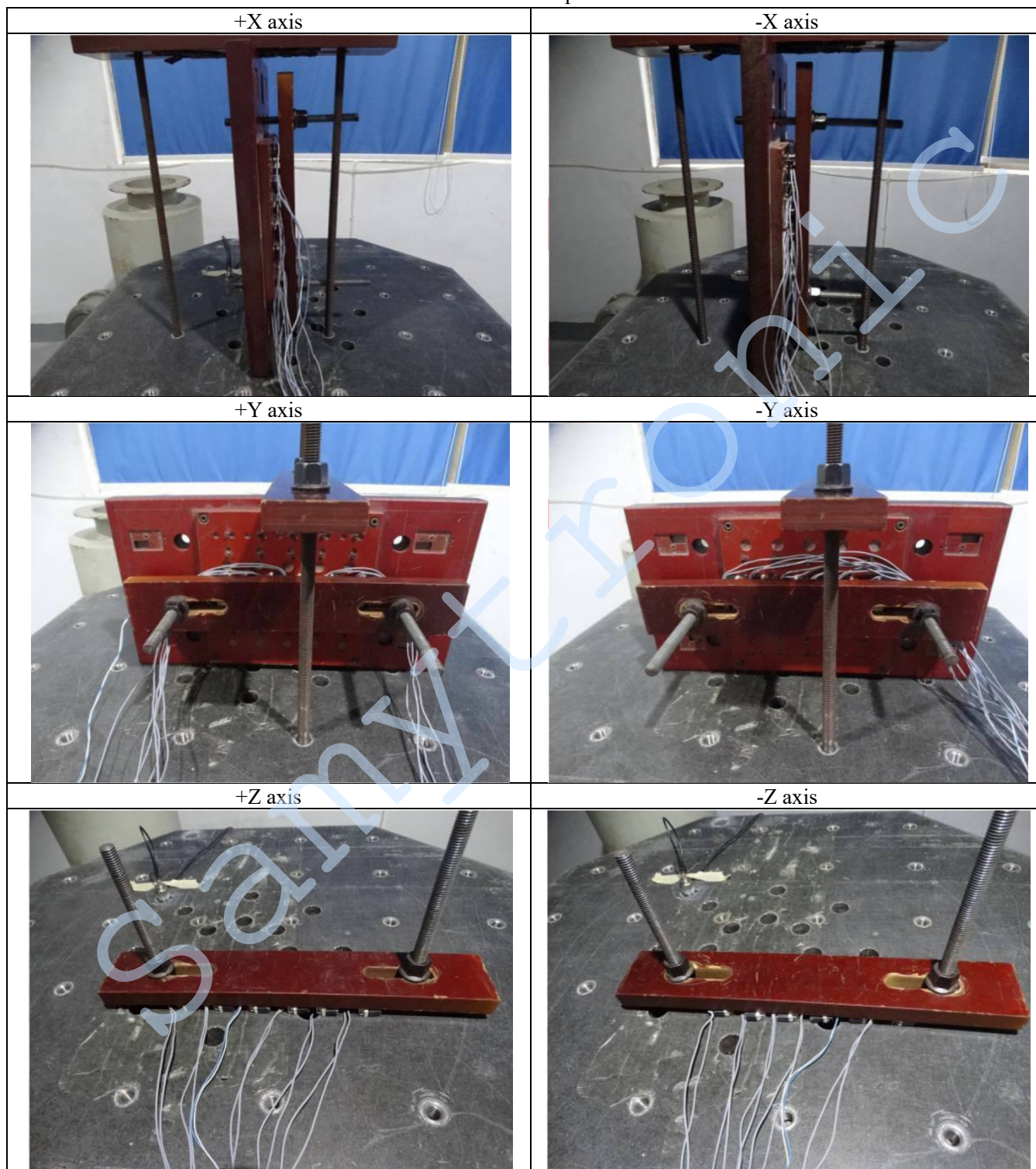
The electrical discontinuity shall not exceed 0.1us.



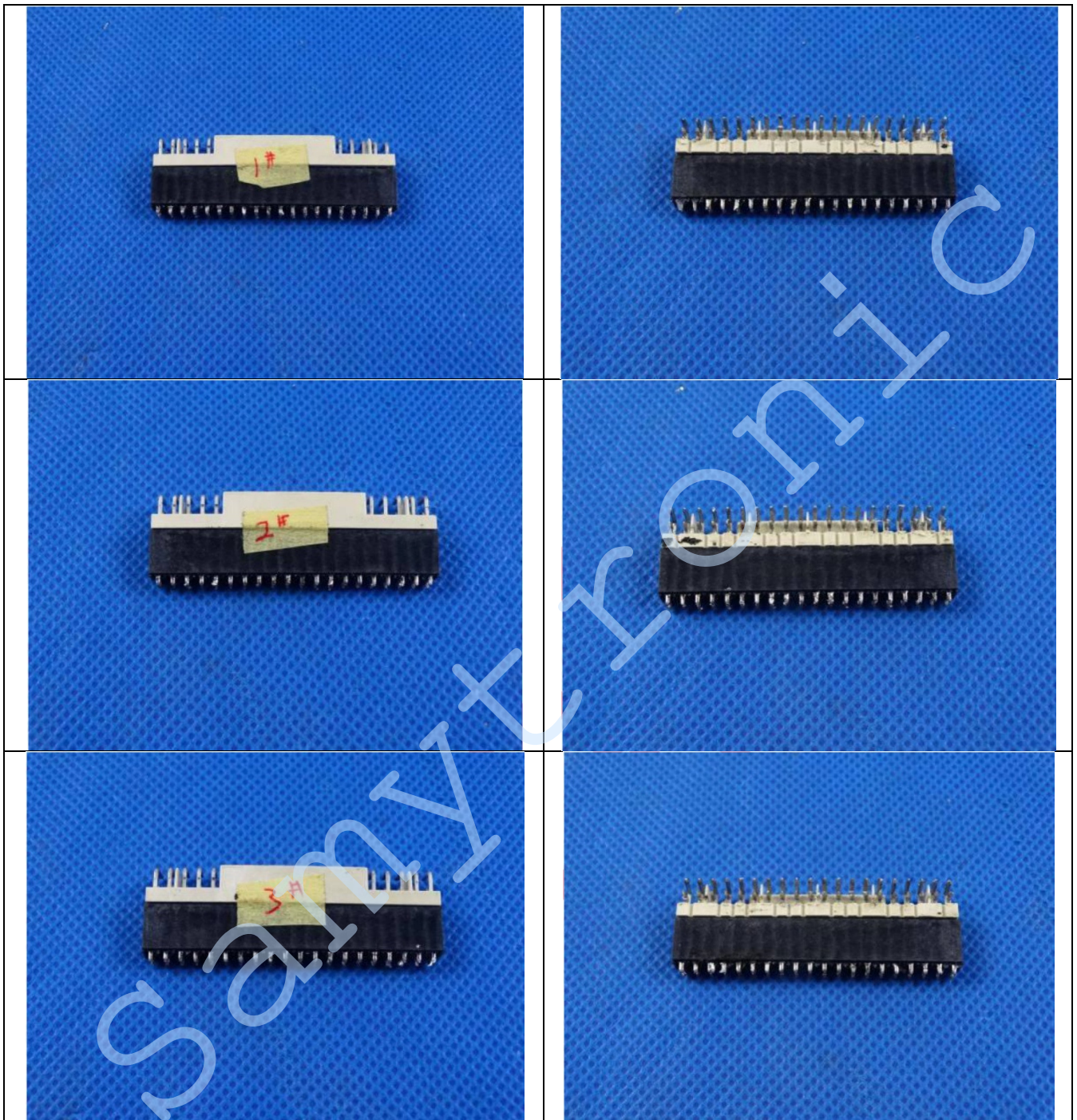
5.5.2 Nanosecond Event Detection: During Shock is 100 nanoseconds minimum

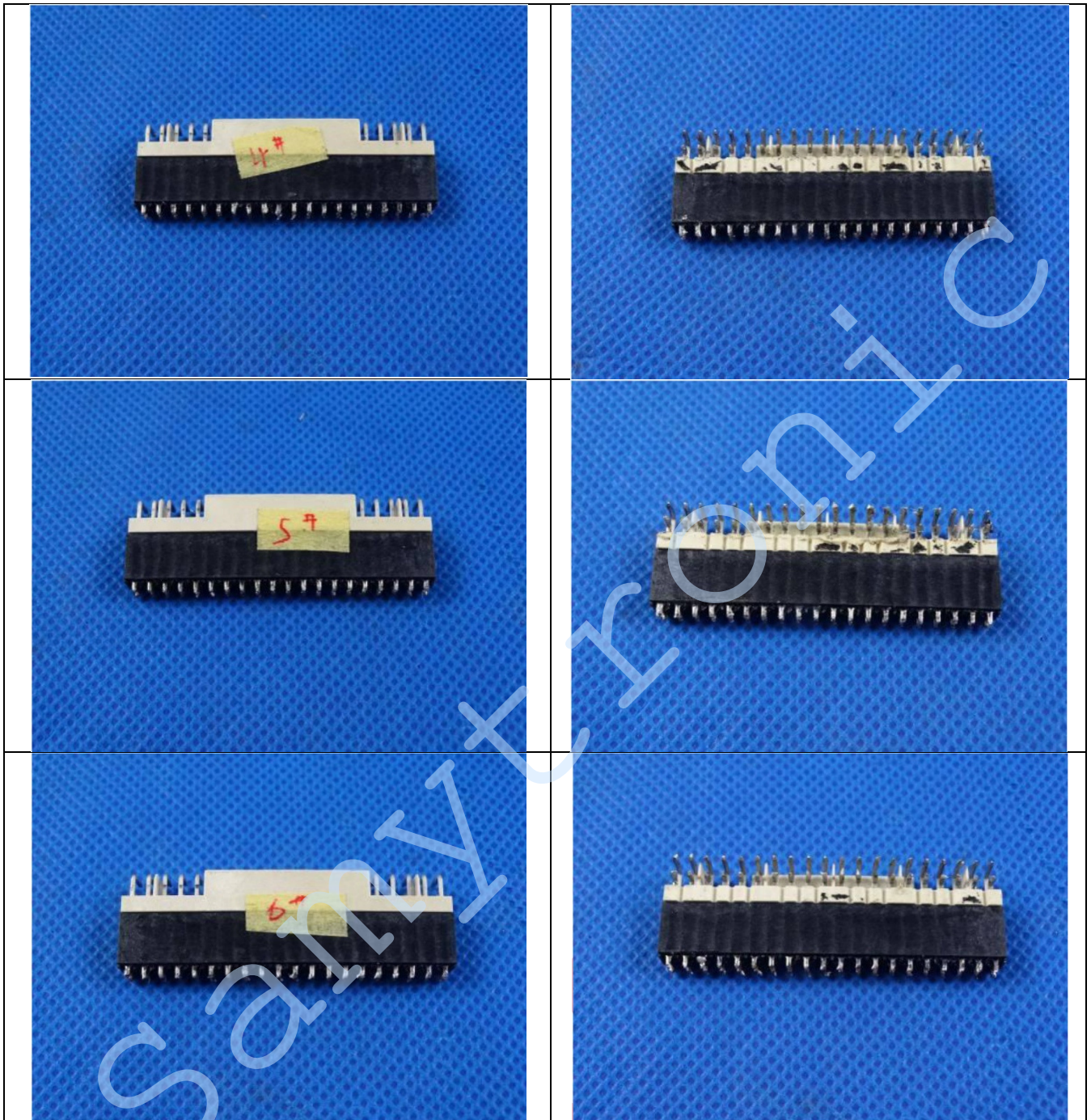
5.6 Test Photos:

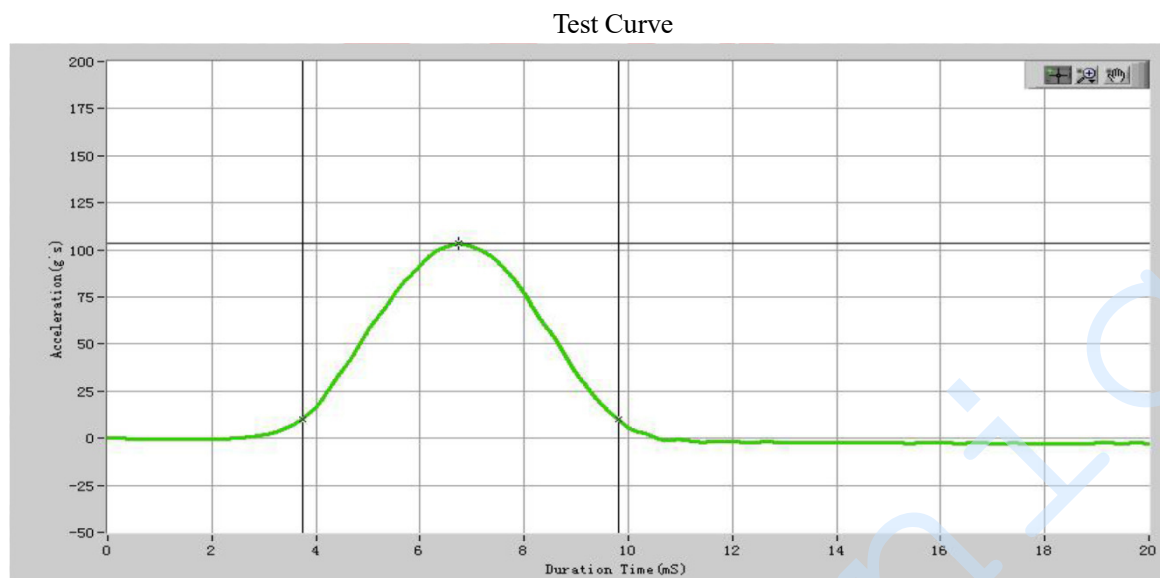
Test Setup



After Test







6. VIBRATION TEST+NANOSECOND EVENT DETECTION

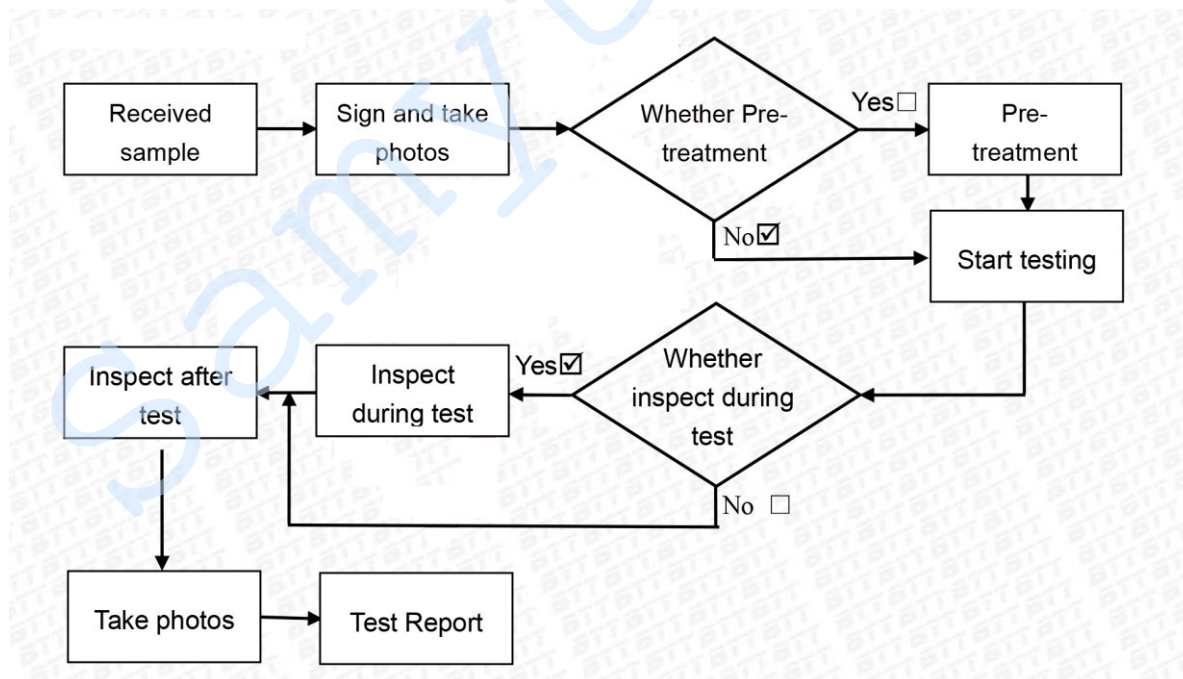
6.1 Reference Standard: EIA-364-28E, test condition V letter B EIA-364-87

6.2 Laboratory Environment: Ambient temperature: $25 \pm 3^\circ\text{C}$, Relative humidity: $55 \pm 20\%$ RH

6.3 Test Equipment

Test Equipment	Test Equipment Model	Calibration Date
Vibration Tester	ES-10-240/LT0606	28.05.2018
Moment Disconnection Tester	NM-1A	28.05.2018

6.4 Test Procedure



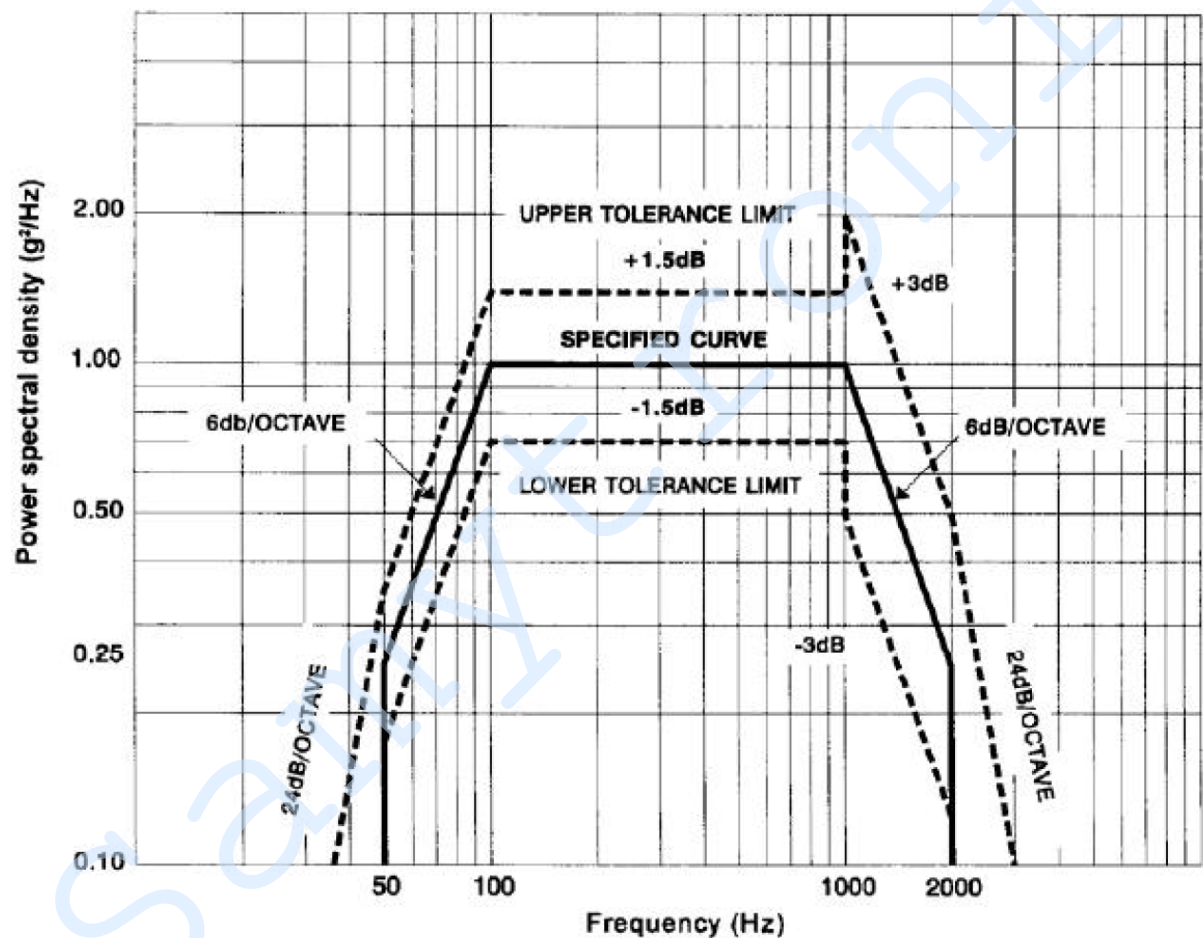
6.5 Test Conditions

6.5.1 Vibration Test:

Test duration: 2 hours in each of three mutually perpendicular directions (total of 6 hours).

The electrical discontinuity shall not exceed 0.1 us.

Frequency(Hz)	PSD(g^2/Hz)	Slope(dB/Oct)	Overall rms g
50	/	6	7.56
100	0.04	/	
1000	0.04	/	
2000	/	-6	

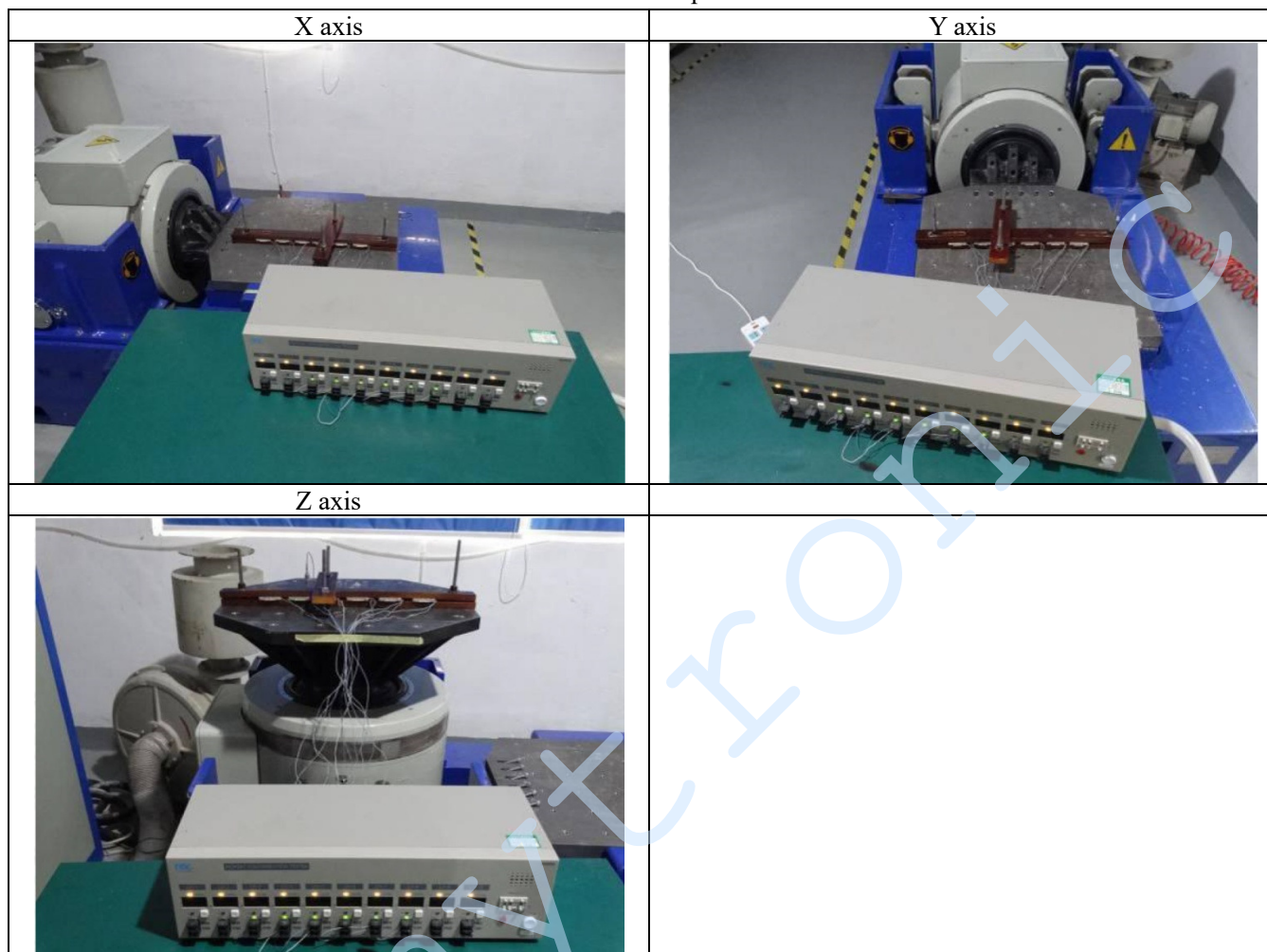


(Test condition V, random vibration test-curve envelope)

6.5.2 Nanosecond Event Detection: During Vibration is 100 nanoseconds minimum

6.6 Test Photos:

Test Setup



After Test

