



矽英科技股份有限公司 可靠度實驗室

Gtti RA Testing Service Laboratory

Golden-Tech

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Reliability Test Report

Ser. No. : A104111002**Company :** ShingTech Electronics Co. Ltd.**Address :** 5F, No.303, Sec. 2, Nanshan Rd., Luzhu Dist, Taoyuan City 33852, Taiwan**Date Started :** 11/11/2015**Date Finished :** 12/24/2015**Lab. Environment :** Temp. : 25 °C ± 5 °C ; Humidity : 40 %RH to 70 %RH**Lab. Accreditation and Certificate :**

TAF: Certificate # L1043-150701 (accredited under ISO/IEC 17025:2005)

IECQ: Certificate # T1090 (accredited under ISO/IEC 17025:2005)

We Hereby Certify That :

The test(s) shown in the attachment were conducted according to the indicating procedures. We assume full responsibility for the accuracy and completeness of these tests and vouch for the qualifications of all personnel performing them.

Remark :

1. This report will be invalid if reproduced in part or altered in any way.
2. This report refers only to the specimen(s) submitted to test, and is invalid if used otherwise.
3. The tested specimen(s) will only be preserved for thirty days from the date issued, if not collected by the applicant.

	Name	Signature	Date
Testing Engineer	May Liao		
Approval Signatory	Anthony Chou		
Laboratory Head	Lillian Chan		

CONTENTS

1. PTH Copper Adhesion Test

Description	3
Picture of Experiment	4~5
Profile	6~8

2. High Temperature Storage Test

Description	9
Picture of Experiment	10~12

3. Low Temperature Storage Test

Description	13
Picture of Experiment	14~16

4. Temperature & Humidity Storage Test

Description	17
Picture of Experiment	18~23

5. Temperature & Humidity Storage Test with Ion Migration Test

Description	24
Meter Verification	25
The point of Testing placement	26
Picture of Experiment	27
SIR Operation Record and Report	28
MIG Passage Data Graph	29~36

6. Temperature Cycling Test

Description	37
Picture of Experiment	38~40

7. Hot Oil Test

Description	41
Picture of Experiment	42~44

8. Solder Adsorption Test

Description	45
Picture of Experiment	46~48

9. Withstanding Voltage Test

Description	49
Picture of Experiment	50~52

<u>Result</u>	53
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1. PTH Copper Adhesion Test

A. Test Specification and/ or standard:

The test is based on customer specification.

B. Test Sample and Quantity:

Name	Reliability Test
Model	Shing-Tech / Jet-PCB
Quantity	15 Pcs

C. Testing Equipment:

SE TESTSYSTEMS CO., LTD. Auto Z Axes Load Tester Model: 9300S

Calibrate trace code : MT1040409

D. Test Condition:

Test Condition:

Force applied 98N(Thickness 1.6mm)

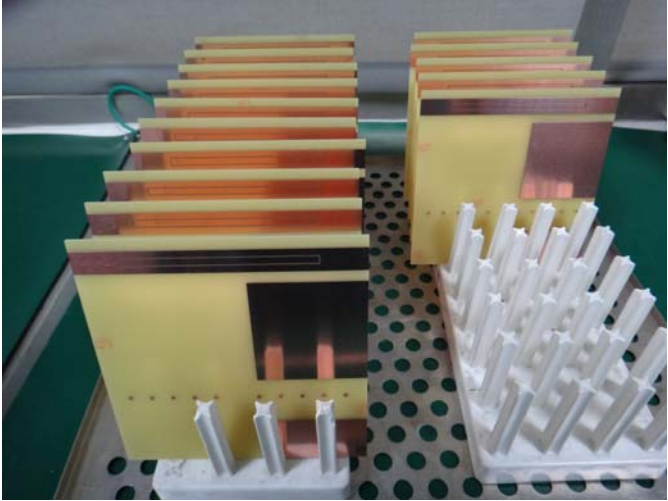
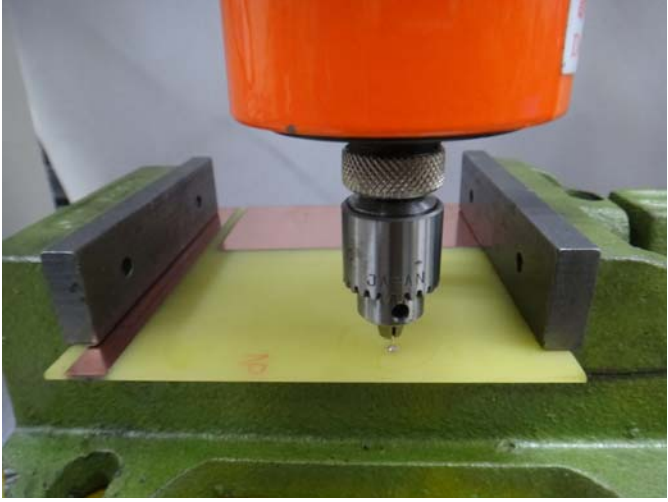

Test Procedure:

- (1) Check out samples.
- (2) the test sample on the machine table, the positioning operation.
- (3) Set test conditions and start to test.
- (4) Finish testing, check out samples and prepare final report.

E. Result:

Please refer to the page 53

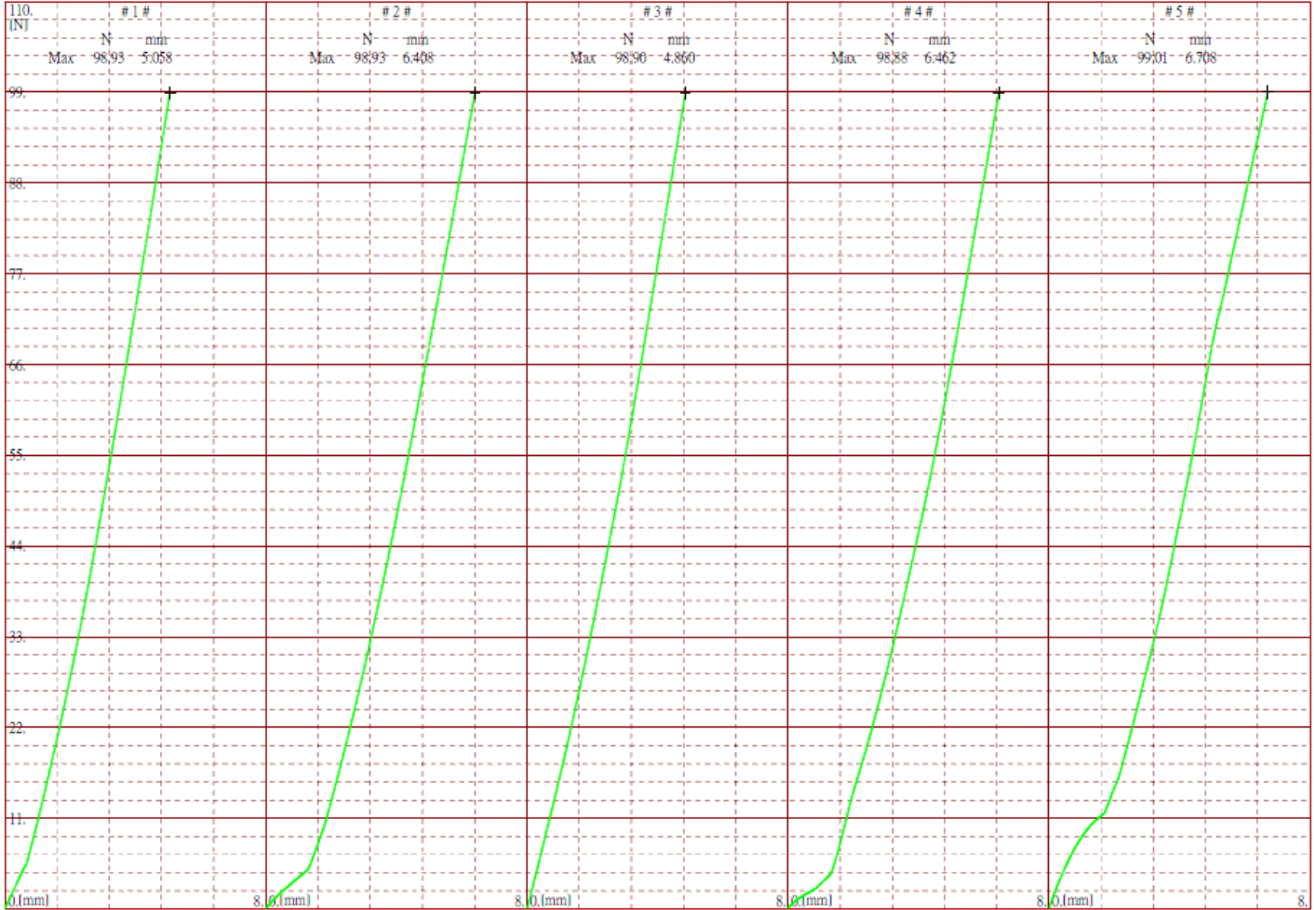
F. Test Photo :

<p>Pre-test</p>	
<p>In the Equipment</p>	
<p>Post-test</p>	

G. Test Data :

No.	Point	Torque Force(N)
1	front	98.93
2	front	98.93
3	front	98.90
4	front	98.88
5	front	99.01
6	mid	99.01
7	mid	99.01
8	mid	98.88
9	mid	98.95
10	mid	98.72
11	rear	98.95
12	rear	98.90
13	rear	99.01
14	rear	98.98
15	rear	98.94
Minimum		98.72
Maximum		99.01
Average		98.93

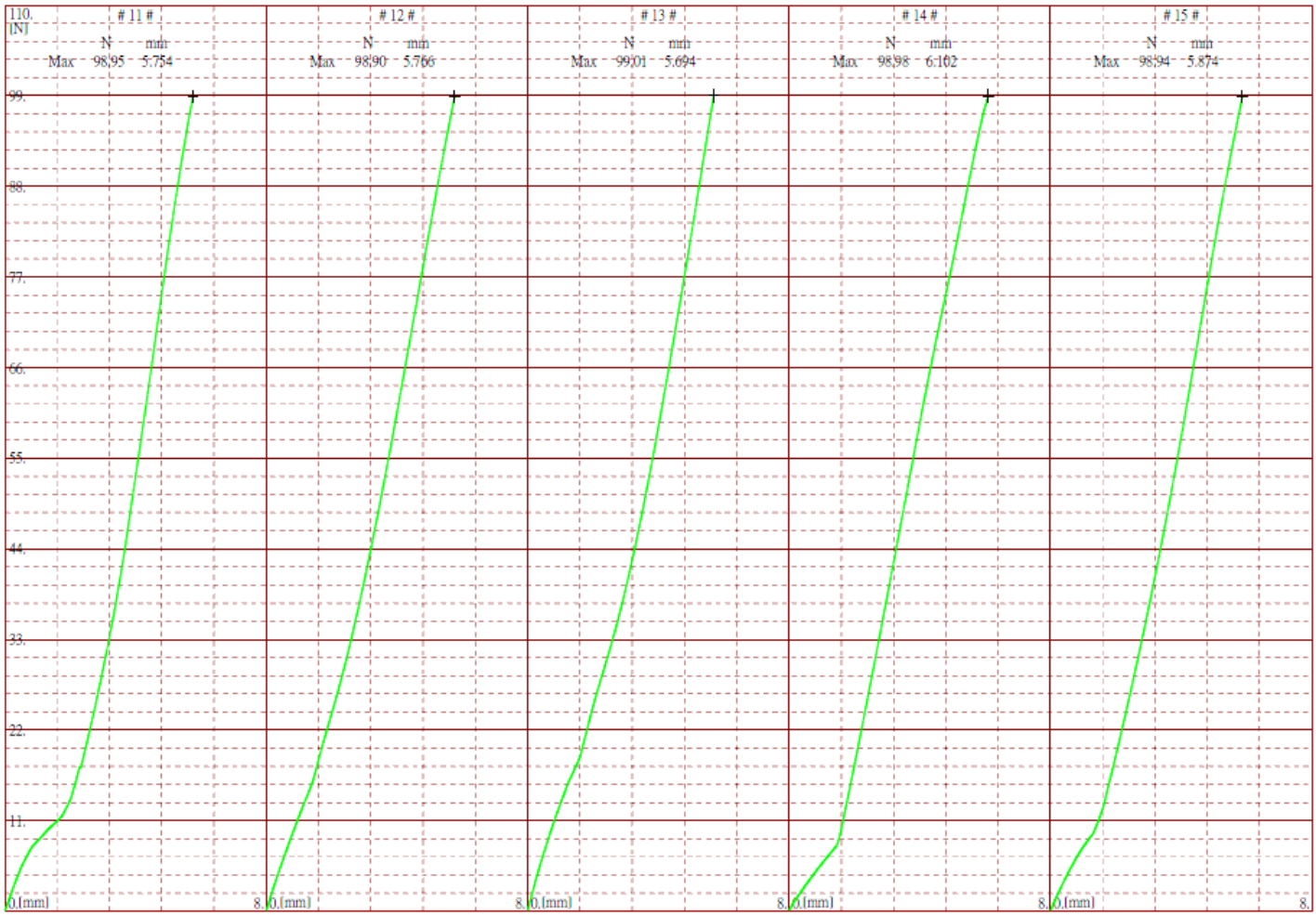
H. Test Profile:



P.1

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2. High Temperature Storage Test

A. Test Specification and/ or standard :

IPC TM650 3.14

B. Test Sample and Quantity :

Name	Reliability Test
Model	Shing-Tech / Jet-PCB
Quantity	15 Pcs

C. Testing Equipment :

(1) ETAC HS230 High Temperature Chamber

Calibrate trace code : 15-06-BCC-274-03L

(2) Milliohm Meter GOM-801G

Calibrate trace code : 15-03-BCC-110-03L

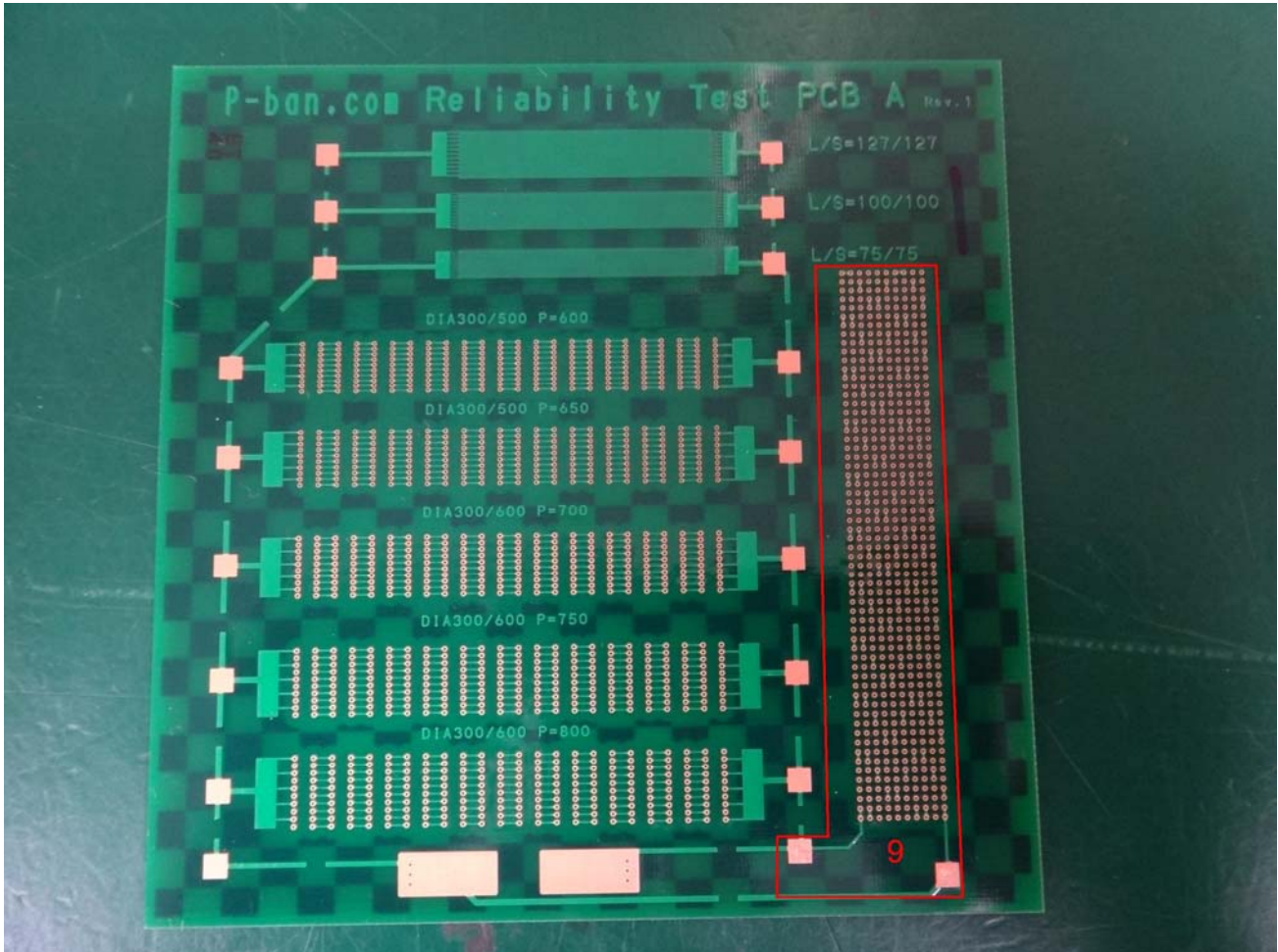
D. Test Condition and procedure :

100 °C , 1000 Hour , R<10 %

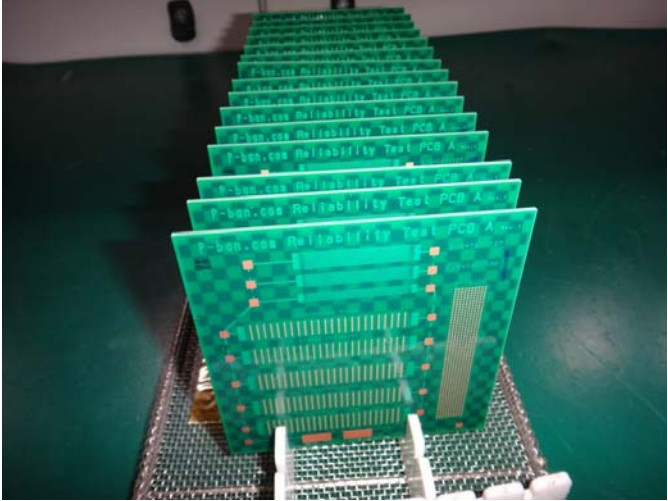
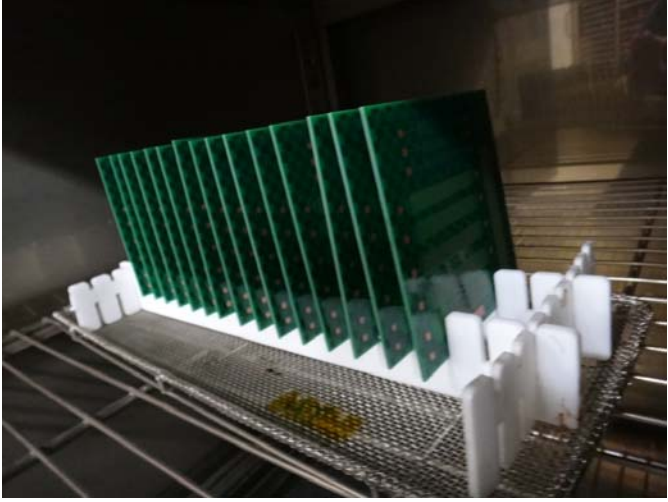
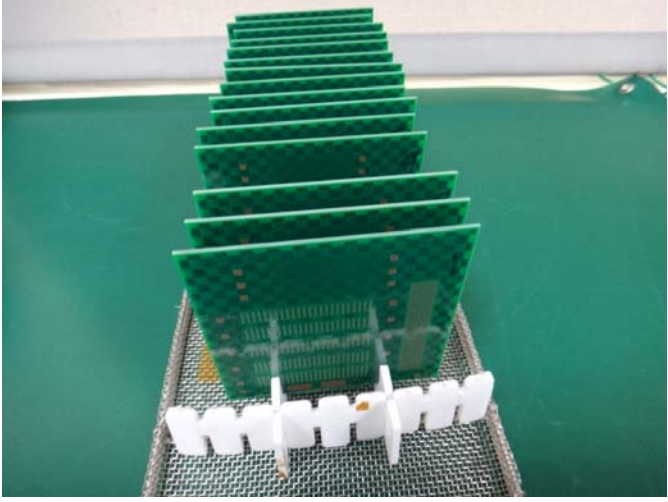
E. Result :

Please refer to the page 53

F. The point of Testing placement :



G. Test Photo :

<p>Pre-test</p>	 A stack of approximately 15 green PCBs is shown on a metal test fixture. The boards are oriented vertically, and their top surfaces are visible. Each board has the text "P-bsp.004 Reliability Test PCB A" printed on it. The fixture has a grid of holes and some white plastic components at the bottom.
<p>In the Equipment</p>	 The same stack of green PCBs is shown inside a test chamber. The boards are now oriented horizontally and are held in place by white plastic clips. The chamber has a metal mesh floor and a glass or plastic front panel.
<p>Post-test</p>	 The stack of green PCBs is shown again on the metal test fixture, similar to the pre-test image. The boards are oriented vertically, and their top surfaces are visible. The fixture and white plastic components are the same as in the pre-test image.

H. Test Data :

No.	Point	0H	500H	Change%	1000H	Change%
		Resistance(ohm)	Resistance(ohm)		Resistance(ohm)	
1	9	1.511	1.512	0.1%	1.512	0.1%
2	9	1.458	1.458	0.0%	1.459	0.1%
3	9	1.563	1.563	0.0%	1.563	0.0%
4	9	1.595	1.595	0.0%	1.596	0.1%
5	9	1.516	1.516	0.0%	1.516	0.0%
6	9	1.462	1.462	0.0%	1.462	0.0%
7	9	1.567	1.567	0.0%	1.567	0.0%
8	9	1.630	1.631	0.1%	1.632	0.1%
9	9	1.535	1.536	0.1%	1.536	0.1%
10	9	1.593	1.593	0.0%	1.593	0.0%
11	9	1.579	1.579	0.0%	1.580	0.1%
12	9	1.491	1.491	0.0%	1.491	0.0%
13	9	1.581	1.581	0.0%	1.581	0.0%
14	9	1.566	1.566	0.0%	1.567	0.1%
15	9	1.475	1.476	0.1%	1.476	0.1%
Minimum		1.458	1.458	0.0%	1.459	0.0%
Maximum		1.630	1.631	0.1%	1.632	0.1%
Average		1.541	1.542	0.0%	1.542	0.0%

3. Low Temperature Storage Test

A. Test Specification and/ or standard :

IPC TM650 2.6.18A

B. Test Sample and Quantity :

Name	Reliability Test
Model	Shing-Tech / Jet-PCB
Quantity	15 Pcs

C. Testing Equipment :

(1) ETAC FX732P Temperature & Humidity Chamber

Calibrate trace code : 15-07-BCC-344-02L

(2) Milliohm Meter GOM-801G

Calibrate trace code : 15-03-BCC-110-03L

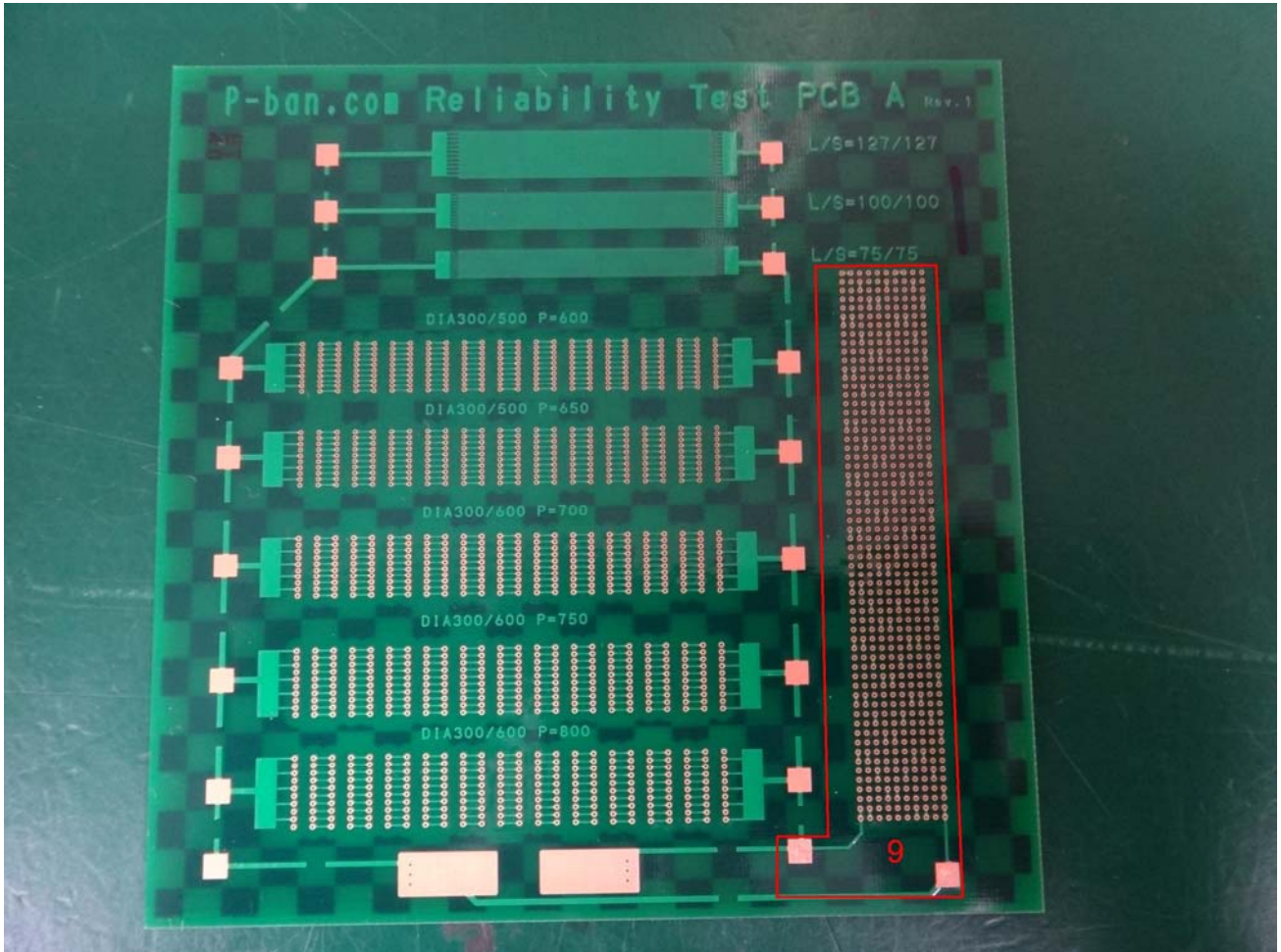
D. Test Condition and procedure :

-55 °C , 1000 Hour , R<10 %

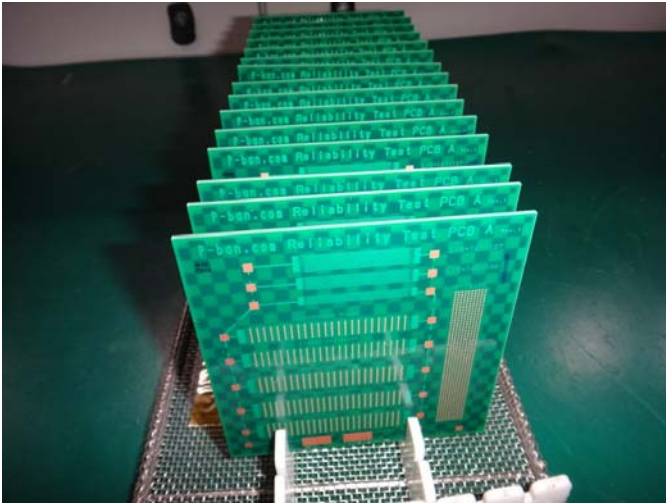
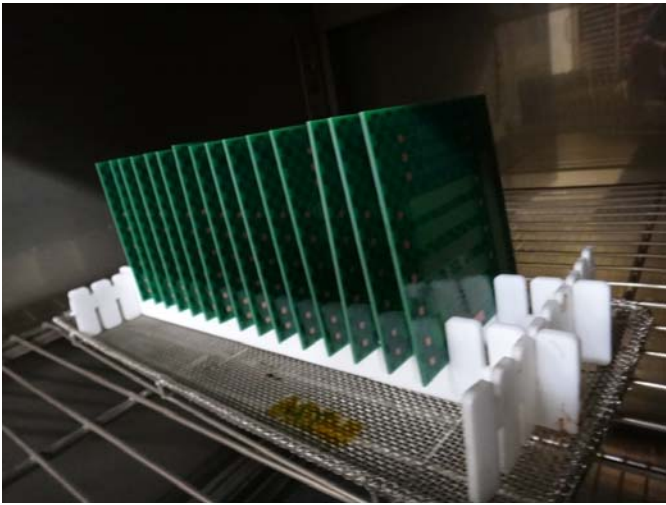
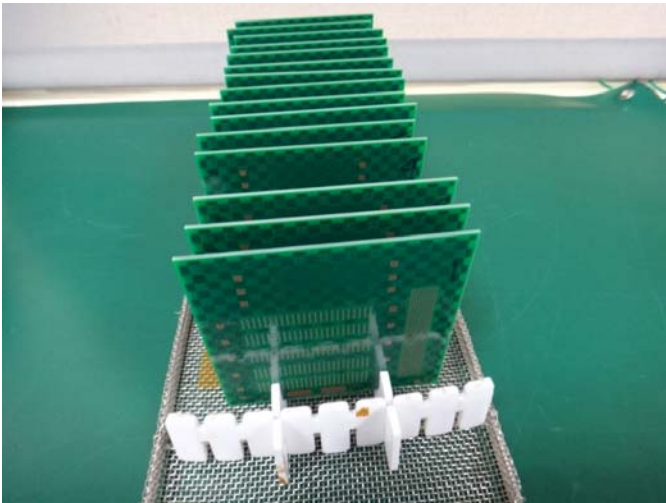
E. Result :

Please refer to the page 53

F. The point of Testing placement :



G. Test Photo :

<p>Pre-test</p>	 A stack of approximately 15 green PCBs is shown on a metal test fixture. The boards are arranged in a slightly offset, stepped fashion, showing their top surfaces. Each board has the text "P-bsp.004 Reliability Test PCB A" printed on it. The fixture has white plastic guides at the bottom.
<p>In the Equipment</p>	 The PCBs are now inside a test chamber. They are mounted on a metal tray with white plastic guides. The boards are standing upright, and the chamber's interior is visible in the background.
<p>Post-test</p>	 The PCBs are shown after the test. They are still on the metal test fixture with white plastic guides. The boards are arranged in a stepped stack, similar to the pre-test photo, but now they are lying flat on the fixture.

H. Test Data :

No.	Point	0H	500H	Change%	1000H	Change%
		Resistance(ohm)	Resistance(ohm)		Resistance(ohm)	
1	9	1.590	1.591	0.1%	1.591	0.1%
2	9	1.498	1.498	0.0%	1.498	0.0%
3	9	1.483	1.484	0.1%	1.485	0.1%
4	9	1.662	1.663	0.1%	1.664	0.1%
5	9	1.566	1.566	0.0%	1.566	0.0%
6	9	1.614	1.614	0.0%	1.614	0.0%
7	9	1.534	1.535	0.1%	1.535	0.1%
8	9	1.592	1.592	0.0%	1.592	0.0%
9	9	1.617	1.617	0.0%	1.617	0.0%
10	9	1.565	1.565	0.0%	1.565	0.0%
11	9	1.577	1.578	0.1%	1.578	0.1%
12	9	1.596	1.596	0.0%	1.596	0.0%
13	9	1.493	1.493	0.0%	1.493	0.0%
14	9	1.591	1.591	0.0%	1.591	0.0%
15	9	1.611	1.611	0.0%	1.612	0.1%
Minimum		1.483	1.484	0.0%	1.485	0.0%
Maximum		1.662	1.663	0.1%	1.664	0.1%
Average		1.573	1.573	0.0%	1.573	0.0%

4. Temperature & Humidity Storage Test

A. Test Specification and/ or standard :

JESD22-A101-C

B. Test Sample and Quantity :

Name	Reliability Test
Model	Shing-Tech / Jet-PCB
Quantity	15 Pcs

C. Testing Equipment :

(1) TERCHY HB-225L Temperature & Humidity Test Chamber

Calibrate trace code : 15-03-BCC-226-05L

(2) High Resistance Meter HP-4339B

Calibrate trace code : 15-09-BCC-355-01L

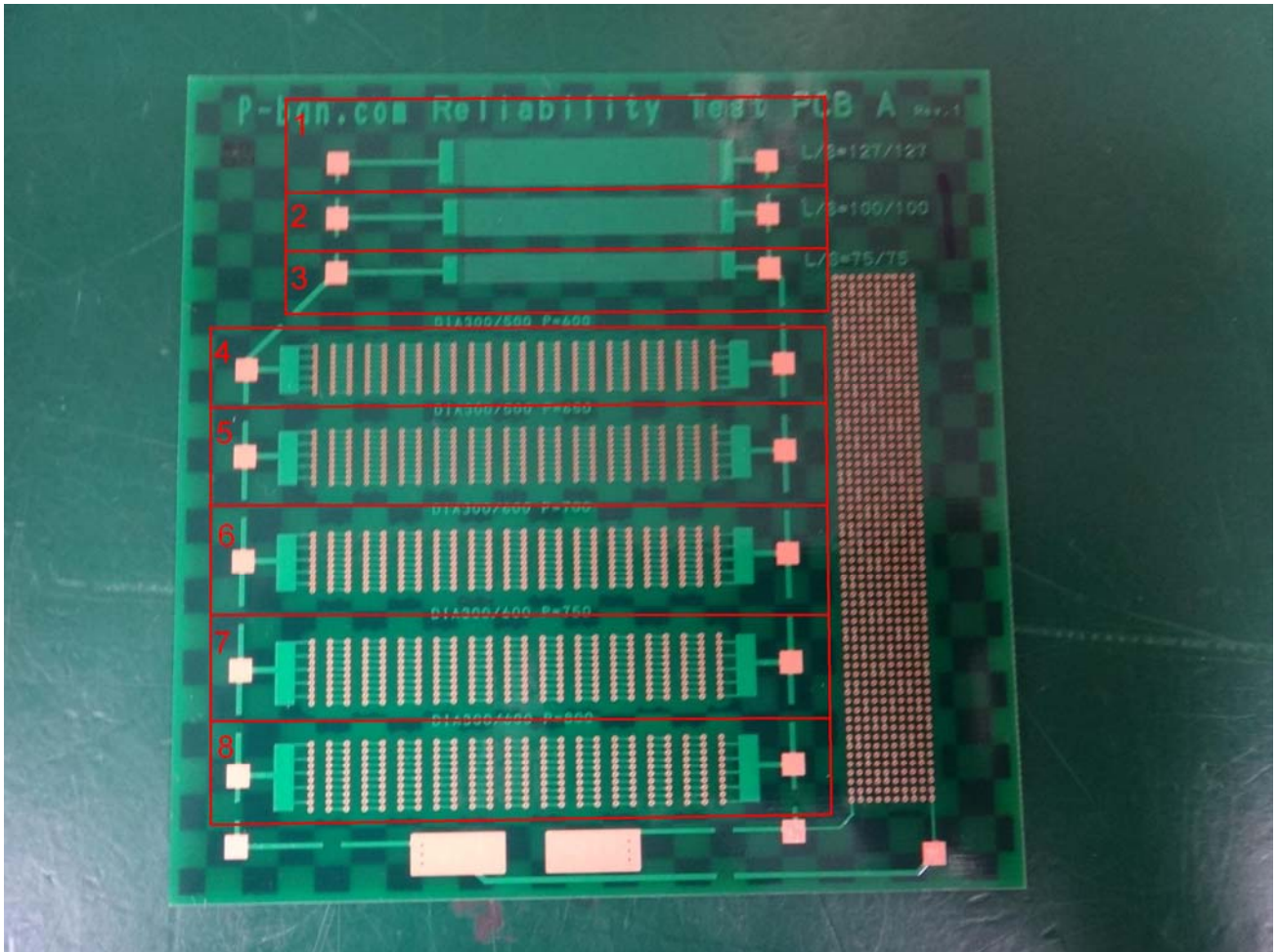
D. Test Condition and procedure :

60 °C/90 %RH ,1000 Hour , R>500MΩ

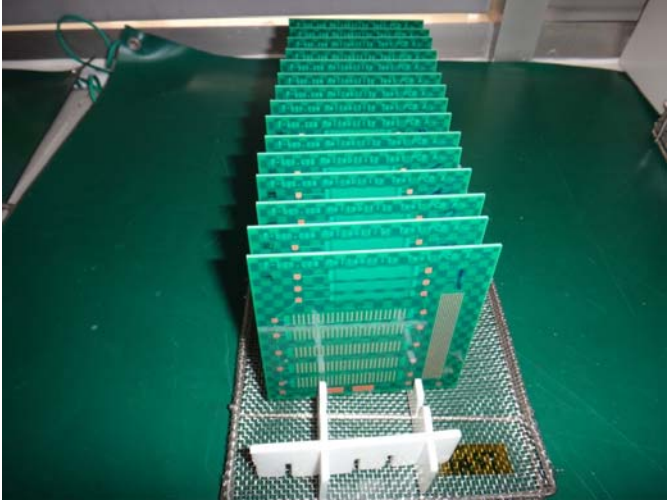
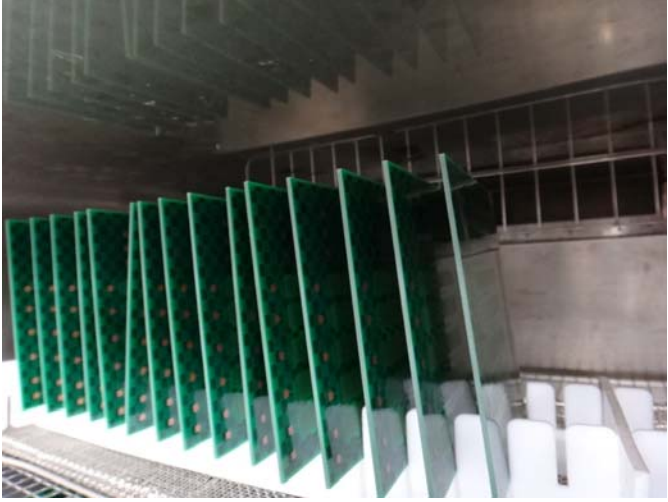
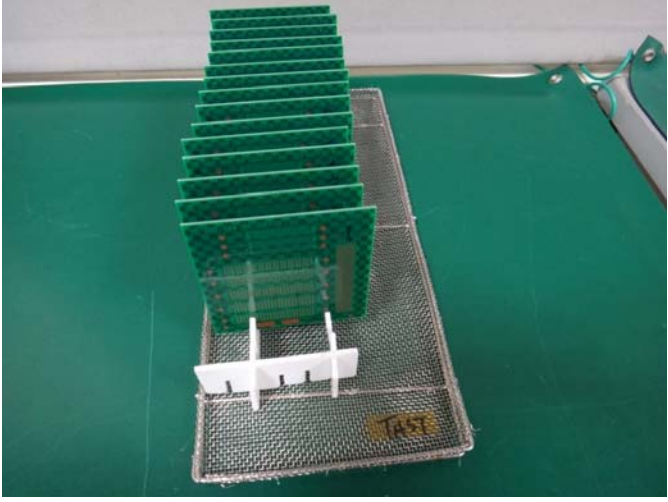
E. Result :

Please refer to the page 53

F. The point of Testing placement :



G. Test Photo :

<p>Pre-test</p>	
<p>In the Equipment</p>	
<p>Post-test</p>	

H. Test Data :

No.	Point	0H	500H	1000H
		Resistance(ohm)	Resistance(ohm)	Resistance(ohm)
1	1	8.5E+12	2.6E+12	2.5E+12
	2	8.0E+12	2.1E+12	2.0E+12
	3	7.9E+12	2.2E+12	1.9E+12
	4	6.7E+12	2.0E+10	1.9E+10
	5	7.5E+12	2.2E+10	2.0E+10
	6	7.8E+12	2.5E+10	2.3E+10
	7	8.3E+12	2.7E+10	2.5E+10
	8	6.8E+12	2.8E+10	2.6E+10
2	1	8.0E+12	2.5E+12	2.0E+12
	2	8.7E+12	2.0E+12	1.8E+12
	3	7.2E+12	1.9E+12	1.6E+12
	4	6.5E+12	1.4E+10	1.0E+10
	5	7.2E+12	1.3E+10	1.0E+10
	6	7.5E+12	1.7E+10	1.5E+10
	7	8.8E+12	2.3E+10	2.1E+10
	8	6.5E+12	2.5E+10	2.3E+10
3	1	8.6E+12	1.6E+12	1.5E+12
	2	8.2E+12	1.9E+12	1.7E+12
	3	7.4E+12	2.1E+12	2.0E+12
	4	6.5E+12	1.3E+10	1.1E+10
	5	7.5E+12	1.2E+10	1.0E+10
	6	7.8E+12	1.2E+10	1.0E+10
	7	8.7E+12	1.3E+10	1.1E+10
	8	6.8E+12	3.5E+10	3.3E+10
4	1	8.3E+12	1.5E+12	1.4E+12
	2	8.0E+12	1.4E+12	1.3E+12
	3	7.6E+12	1.6E+12	1.5E+12
	4	6.9E+12	1.2E+10	1.0E+10
	5	7.2E+12	2.1E+10	2.0E+10
	6	7.7E+12	2.5E+10	2.4E+10
	7	8.9E+12	2.8E+10	2.6E+10
	8	6.1E+12	3.0E+10	3.0E+10
5	1	8.8E+12	1.7E+12	1.5E+12

	2	8.4E+12	2.6E+12	2.5E+12
	3	7.8E+12	2.3E+12	2.0E+12
	4	6.3E+12	1.7E+10	1.6E+10
	5	7.6E+12	2.4E+10	2.1E+10
	6	7.9E+12	2.1E+10	2.0E+10
	7	8.5E+12	2.2E+10	2.0E+10
	8	6.7E+12	2.5E+10	2.4E+10
	6	1	8.4E+12	1.9E+12
2		8.1E+12	2.6E+12	2.6E+12
3		7.7E+12	2.8E+12	2.8E+12
4		6.3E+12	1.4E+10	1.1E+10
5		7.6E+12	2.0E+10	1.8E+10
6		7.9E+12	2.6E+10	2.6E+10
7		8.2E+12	3.1E+10	3.0E+10
8		6.6E+12	3.6E+10	3.4E+10
7	1	8.7E+12	1.9E+12	1.6E+12
	2	8.5E+12	1.7E+12	1.5E+12
	3	7.9E+12	1.7E+12	1.5E+12
	4	6.4E+12	1.5E+10	1.3E+10
	5	7.2E+12	1.8E+10	1.5E+10
	6	7.6E+12	2.0E+10	1.7E+10
	7	8.2E+12	2.1E+10	1.9E+10
	8	6.4E+12	2.2E+10	2.1E+10
8	1	8.9E+12	1.6E+12	1.4E+12
	2	8.6E+12	1.4E+12	1.1E+12
	3	7.7E+12	1.0E+12	1.0E+12
	4	6.5E+12	2.7E+10	2.4E+10
	5	7.0E+12	2.9E+10	2.9E+10
	6	7.4E+12	3.1E+10	3.0E+10
	7	8.5E+12	3.5E+10	3.5E+10
	8	6.9E+12	3.9E+10	3.8E+10
9	1	8.8E+12	2.3E+12	2.1E+12
	2	8.1E+12	2.8E+12	2.6E+12
	3	7.2E+12	3.0E+12	2.9E+12
	4	6.7E+12	2.6E+10	2.4E+10
	5	7.3E+12	2.7E+10	2.6E+10
	6	7.8E+12	2.9E+10	2.7E+10
	7	8.3E+12	2.8E+10	2.7E+10

	8	6.2E+12	3.1E+10	2.9E+10
10	1	8.5E+12	2.3E+12	2.1E+12
	2	8.0E+12	2.5E+12	2.4E+12
	3	7.4E+12	2.5E+12	2.4E+12
	4	6.6E+12	1.7E+10	1.5E+10
	5	7.3E+12	2.1E+10	1.9E+10
	6	7.9E+12	2.6E+10	2.4E+10
	7	8.5E+12	2.8E+10	2.6E+10
	8	6.8E+12	3.3E+10	3.2E+10
11	1	8.7E+12	2.4E+12	2.1E+12
	2	8.0E+12	2.5E+12	2.4E+12
	3	7.6E+12	2.5E+12	2.5E+12
	4	6.8E+12	3.0E+10	2.7E+10
	5	7.1E+12	3.1E+10	2.9E+10
	6	7.9E+12	2.9E+10	2.8E+10
	7	8.5E+12	3.3E+10	3.1E+10
	8	6.5E+12	3.6E+10	3.4E+10
12	1	8.6E+12	1.6E+12	1.5E+12
	2	8.2E+12	1.6E+12	1.5E+12
	3	7.4E+12	2.5E+12	2.5E+12
	4	6.6E+12	2.0E+10	1.8E+10
	5	7.3E+12	2.5E+10	2.4E+10
	6	7.7E+12	2.5E+10	2.4E+10
	7	8.4E+12	2.8E+10	2.6E+10
	8	6.8E+12	3.9E+10	3.8E+10
13	1	8.7E+12	1.9E+12	1.8E+12
	2	8.2E+12	1.8E+12	1.6E+12
	3	7.8E+12	1.7E+12	1.5E+12
	4	6.7E+12	1.5E+10	1.1E+10
	5	7.2E+12	1.4E+10	1.3E+10
	6	7.7E+12	1.4E+10	1.3E+10
	7	8.2E+12	1.9E+10	1.7E+10
	8	6.6E+12	2.2E+10	2.0E+10
14	1	8.3E+12	2.6E+12	2.6E+12
	2	8.0E+12	2.5E+12	2.3E+12
	3	7.1E+12	2.2E+12	1.7E+12
	4	6.0E+12	1.7E+10	1.4E+10
	5	7.2E+12	2.1E+10	2.0E+10

	6	7.8E+12	2.7E+10	2.6E+10
	7	8.1E+12	3.0E+10	3.1E+10
	8	6.1E+12	3.6E+10	3.5E+10
15	1	8.9E+12	2.5E+12	2.4E+12
	2	8.5E+12	2.0E+12	1.7E+12
	3	7.0E+12	2.0E+12	1.7E+12
	4	6.7E+12	1.8E+10	1.5E+10
	5	7.4E+12	2.1E+10	1.8E+10
	6	7.9E+12	2.2E+10	2.0E+10
	7	8.3E+12	2.6E+10	2.4E+10
	8	6.3E+12	2.9E+10	2.5E+10
Minimum		6.0E+12	1.2E+10	1.0E+10
Maximum		8.9E+12	3.0E+12	2.9E+12
Average		7.6E+12	8.0E+11	7.4E+11

5. Temperature & Humidity Storage Test with Ion Migration Test

A. Test Specification and/ or standard :

JIS Z 3284

B. Test Sample and Quantity :

Name	Reliability Test
Model	Shing-Tech / Jet-PCB
Quantity	15 Pcs

C. Testing Equipment :

(1) TERCHY HB-225L Temperature & Humidity Test Chamber

Calibrate trace code : 15-03-BCC-226-05L

(2) ETAC SIR12 Insulation Resistance Measurement

Calibrate trace code AL98147004

D. Test Condition and procedure :

60 °C/90 %RH ,DC 30V,1000 Hour, R>500MΩ

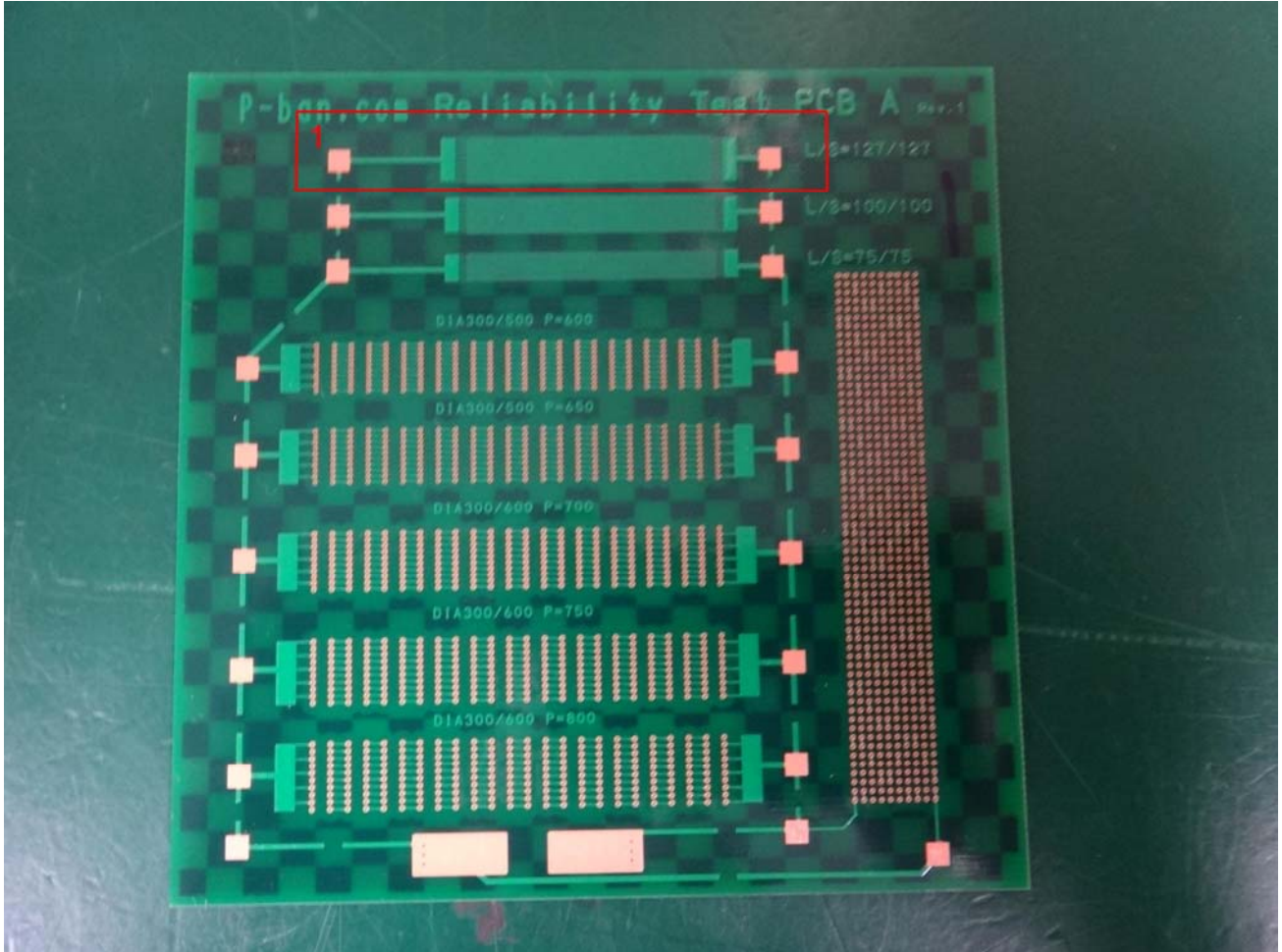
E. Result :

Please refer to the page 53

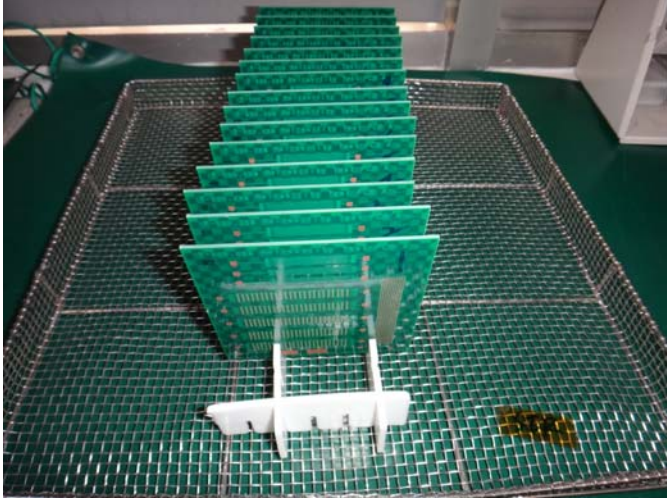
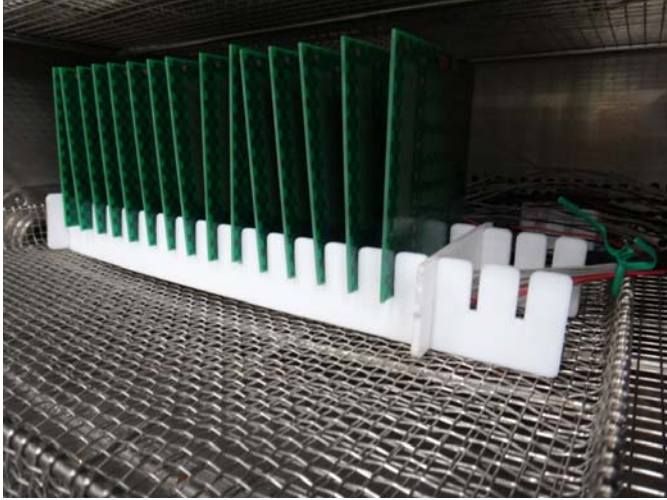
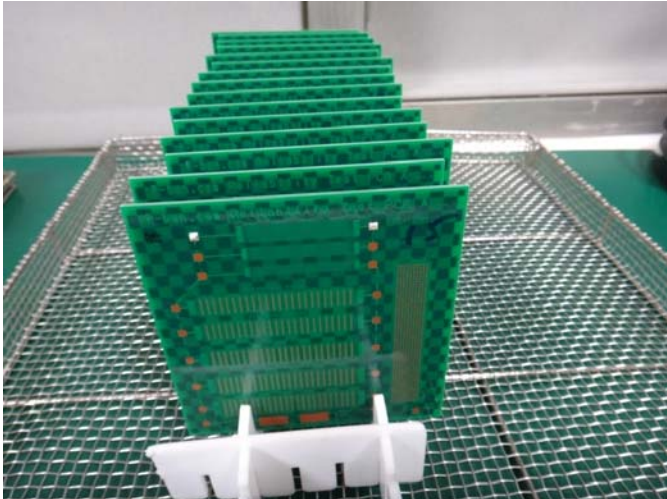
F. Initial High Resistance Measuring Meter Verification :

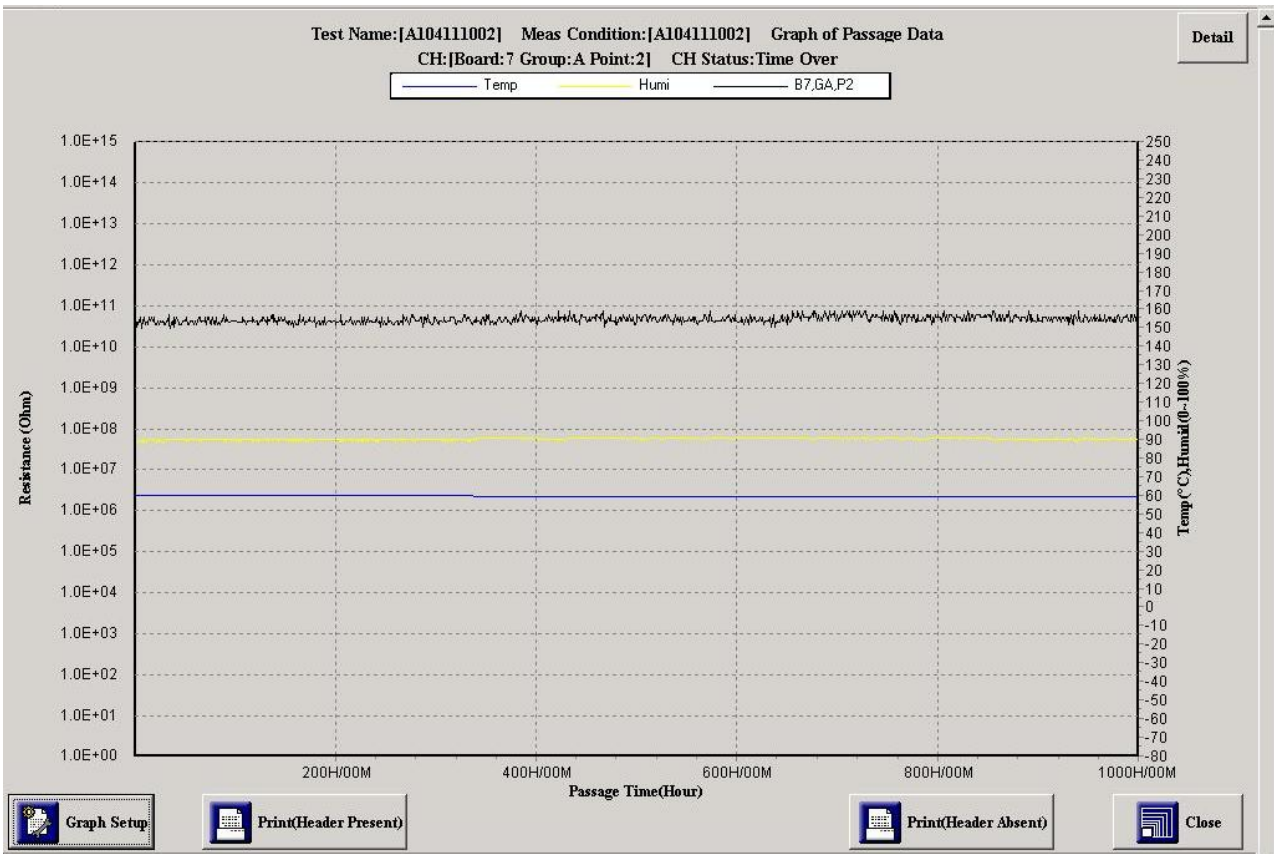
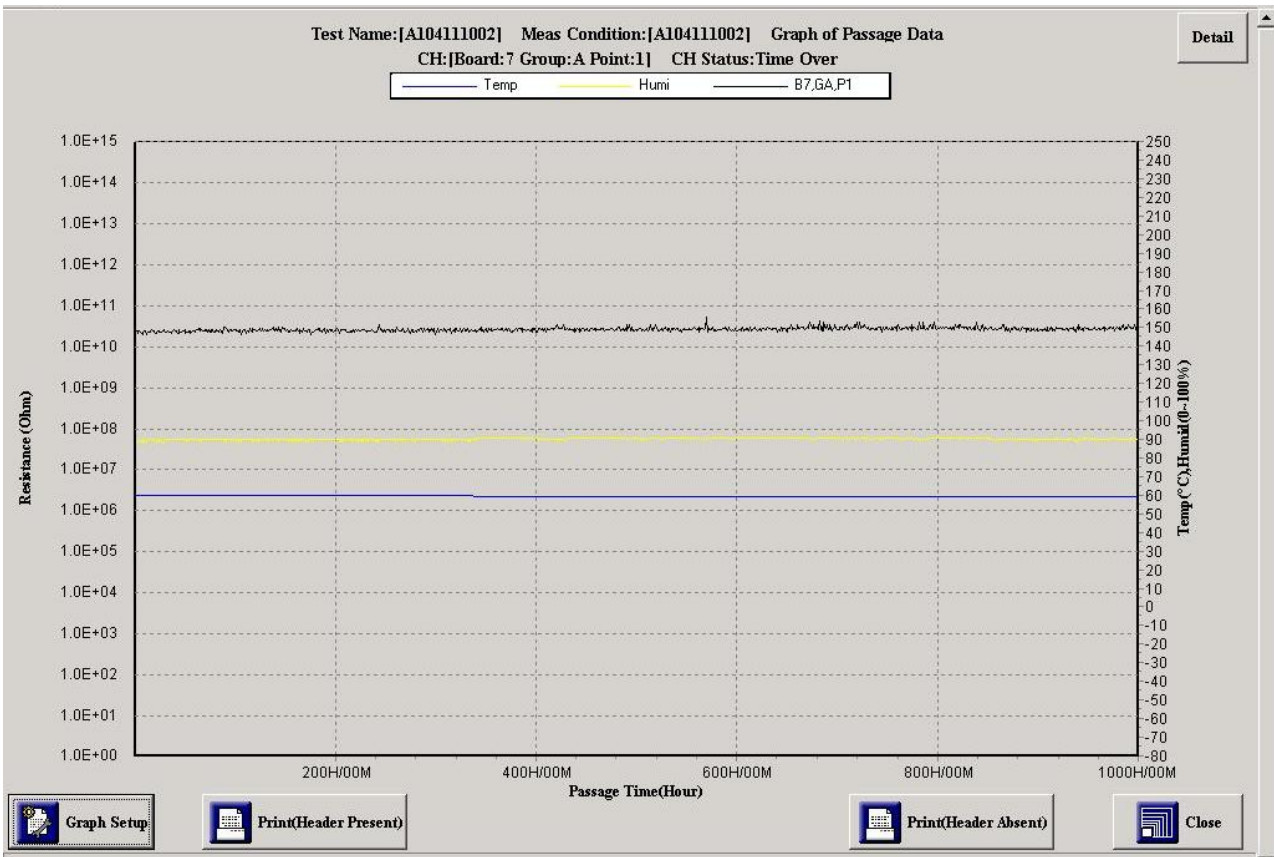
Reference Resistor		100MΩ	500MΩ
Testing Person	No.	Testing (Ω)	Testing (Ω)
EH	1	1.01×10^8	5.02×10^8
	2	1.01×10^8	5.01×10^8
	3	1.00×10^8	5.01×10^8
	4	1.00×10^8	5.02×10^8
	5	1.01×10^8	5.01×10^8
ML	1	1.01×10^8	5.00×10^8
	2	1.00×10^8	5.01×10^8
	3	1.01×10^8	5.02×10^8
	4	1.02×10^8	5.00×10^8
	5	1.01×10^8	5.02×10^8

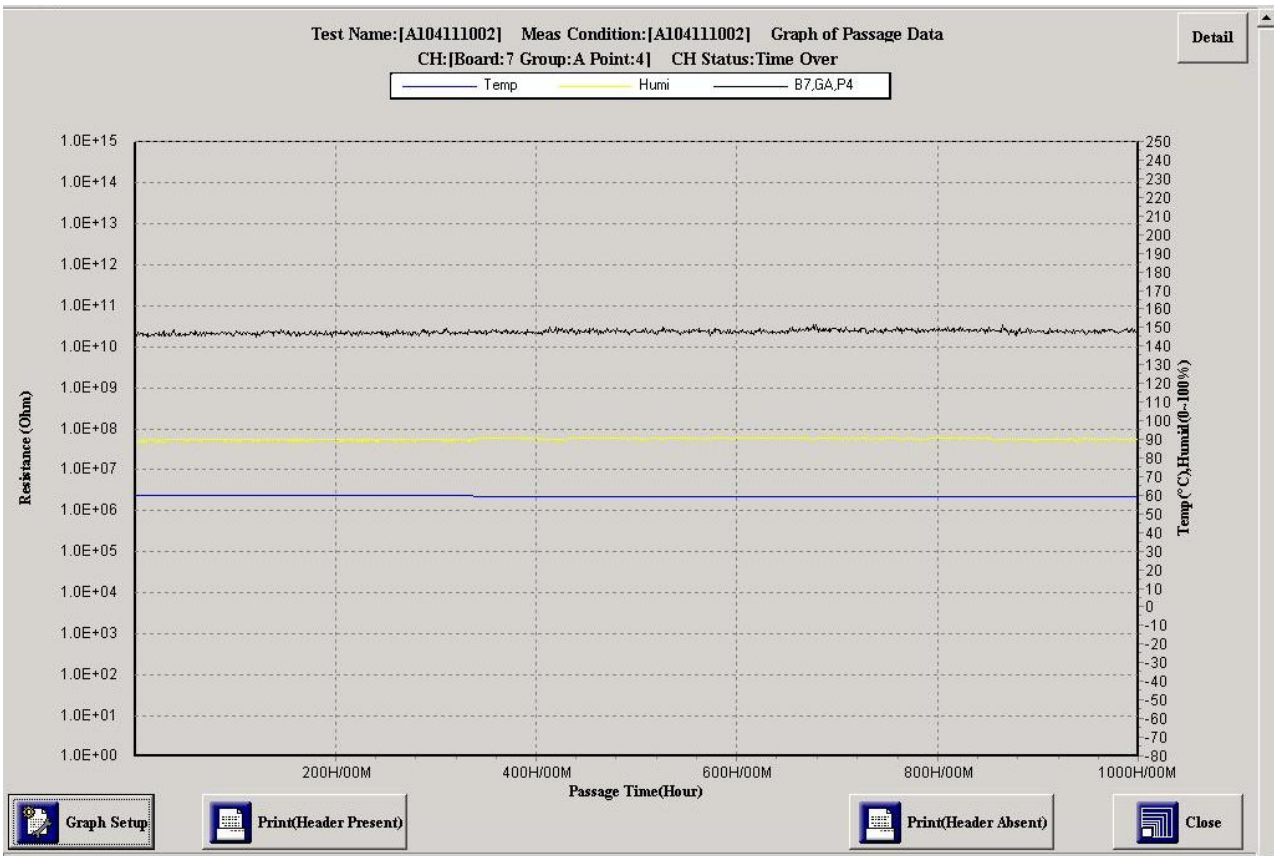
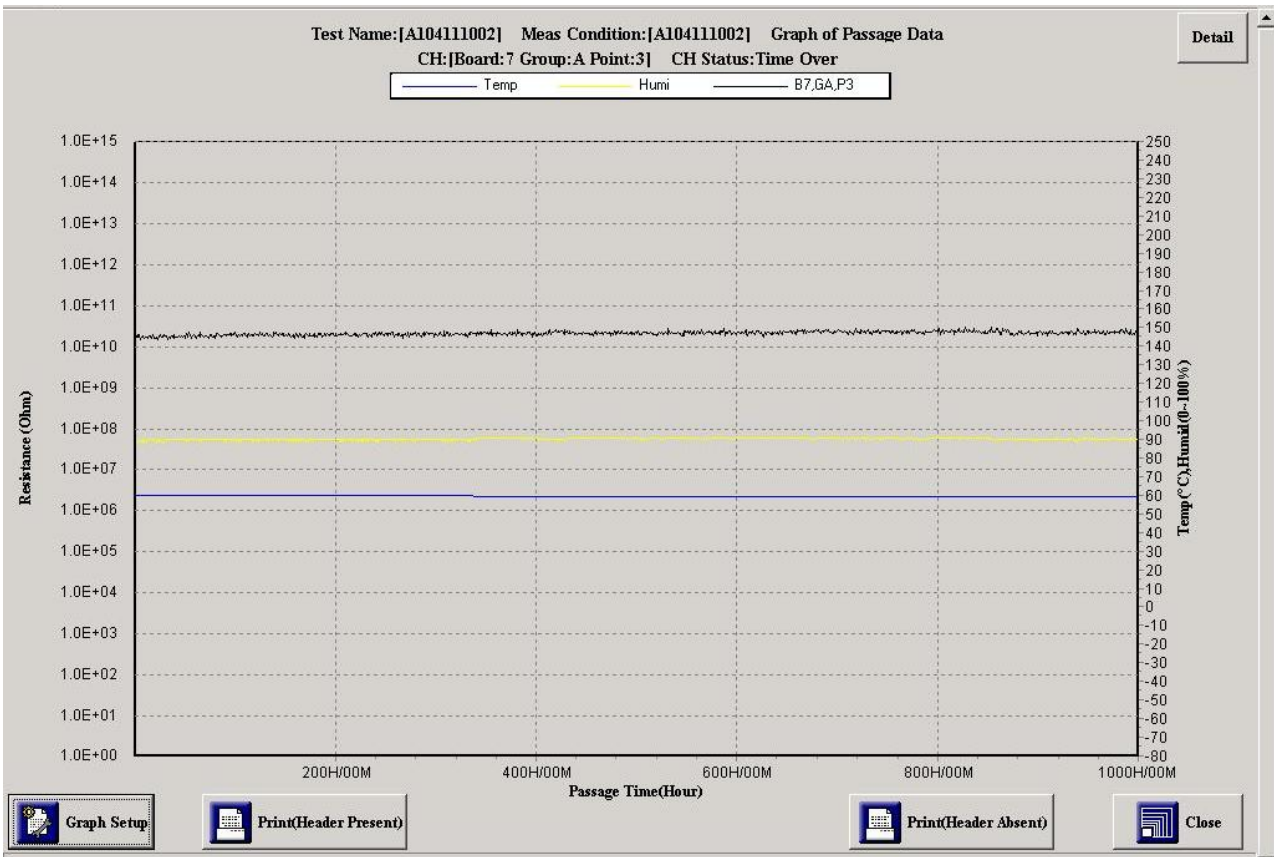
G. The point of Testing placement :

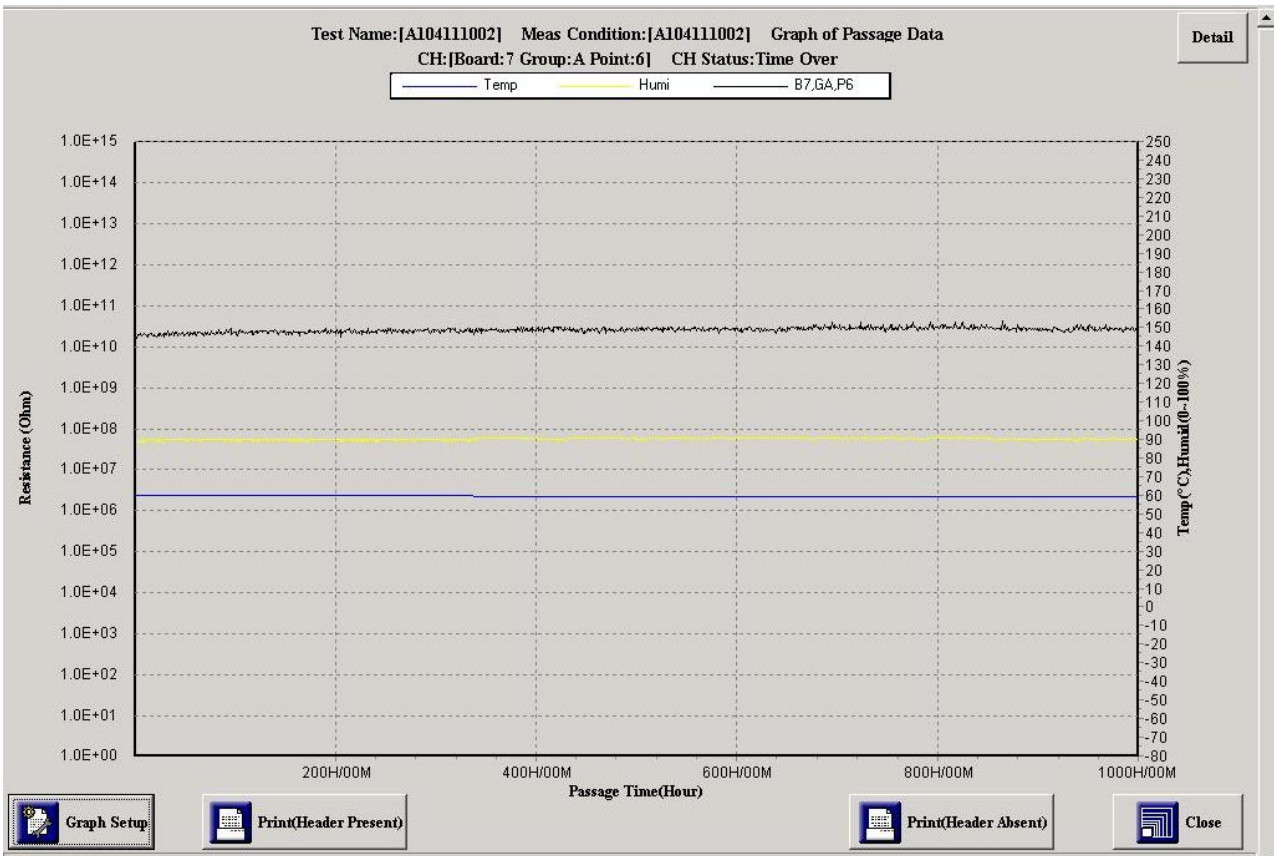
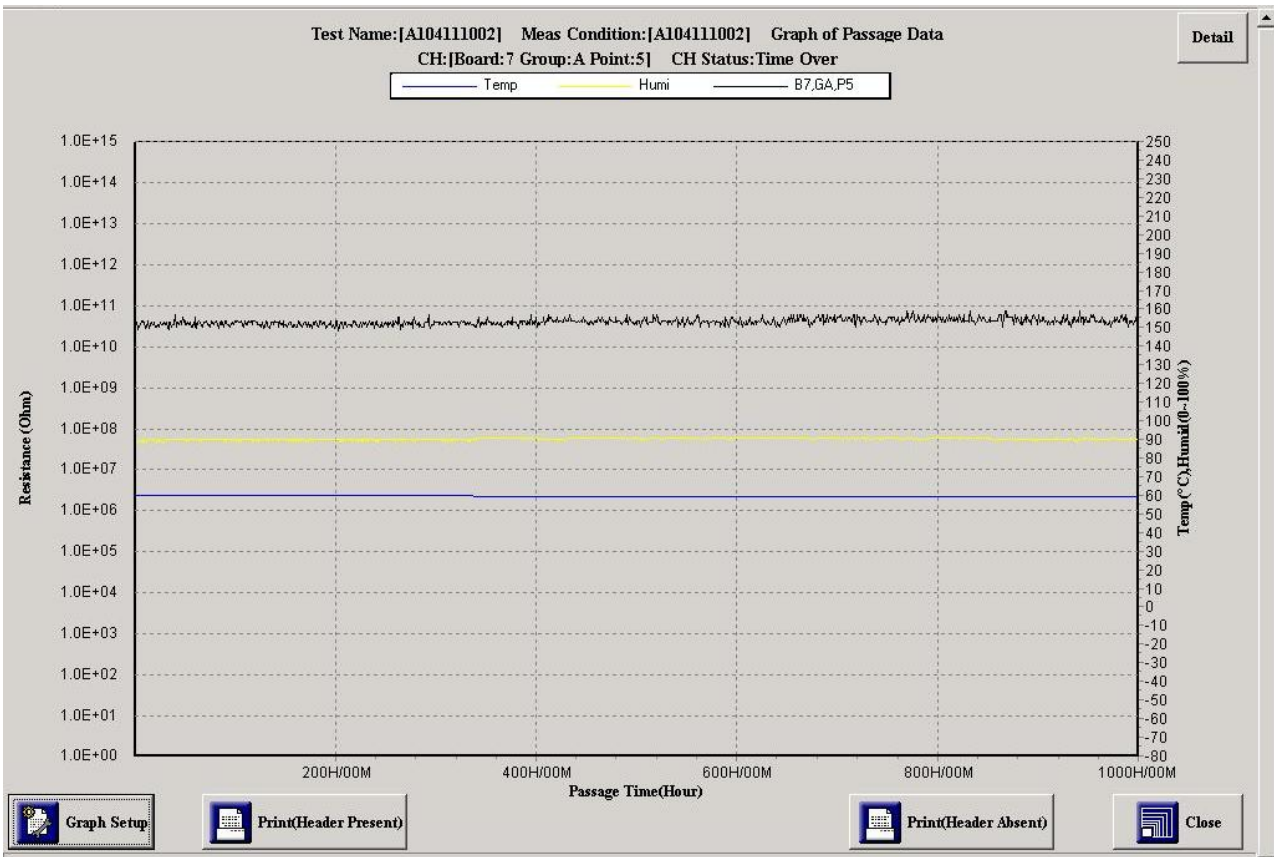


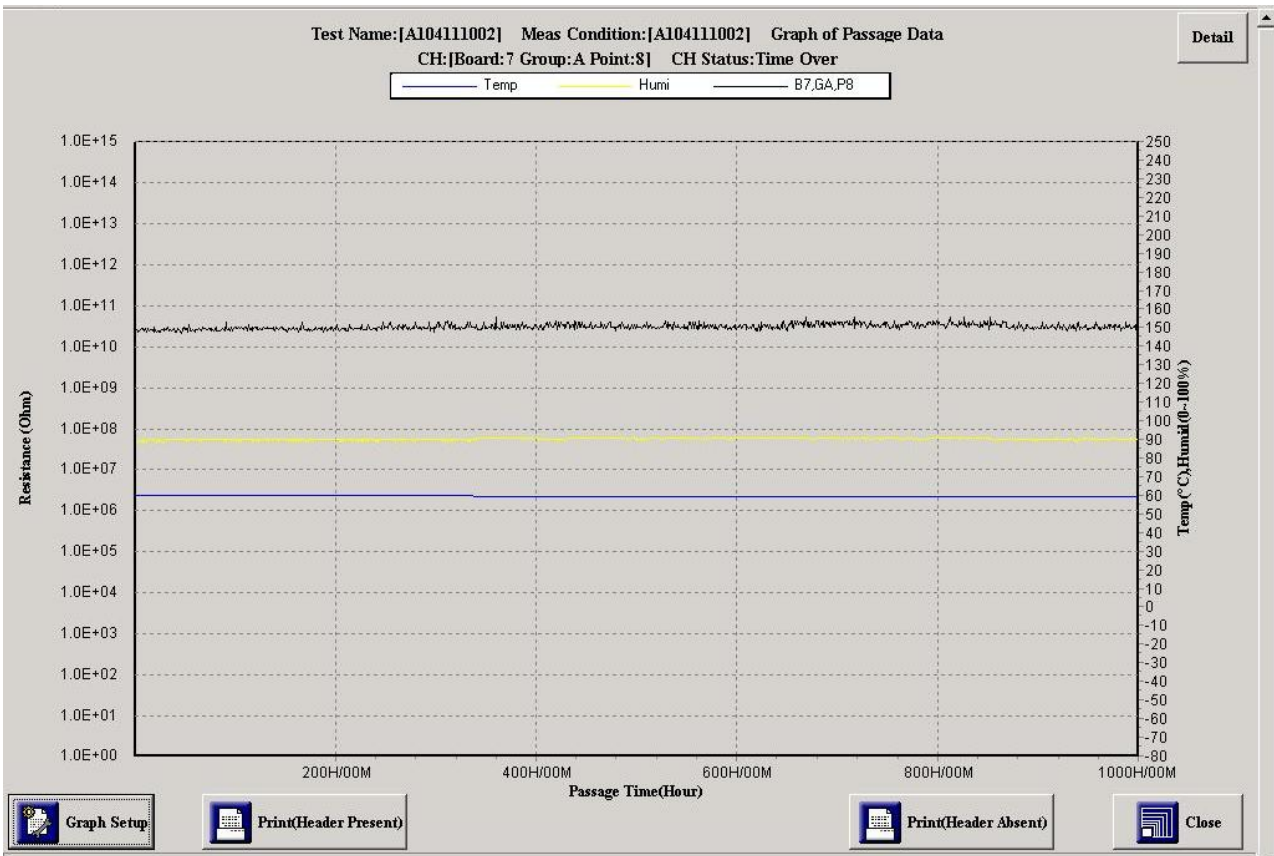
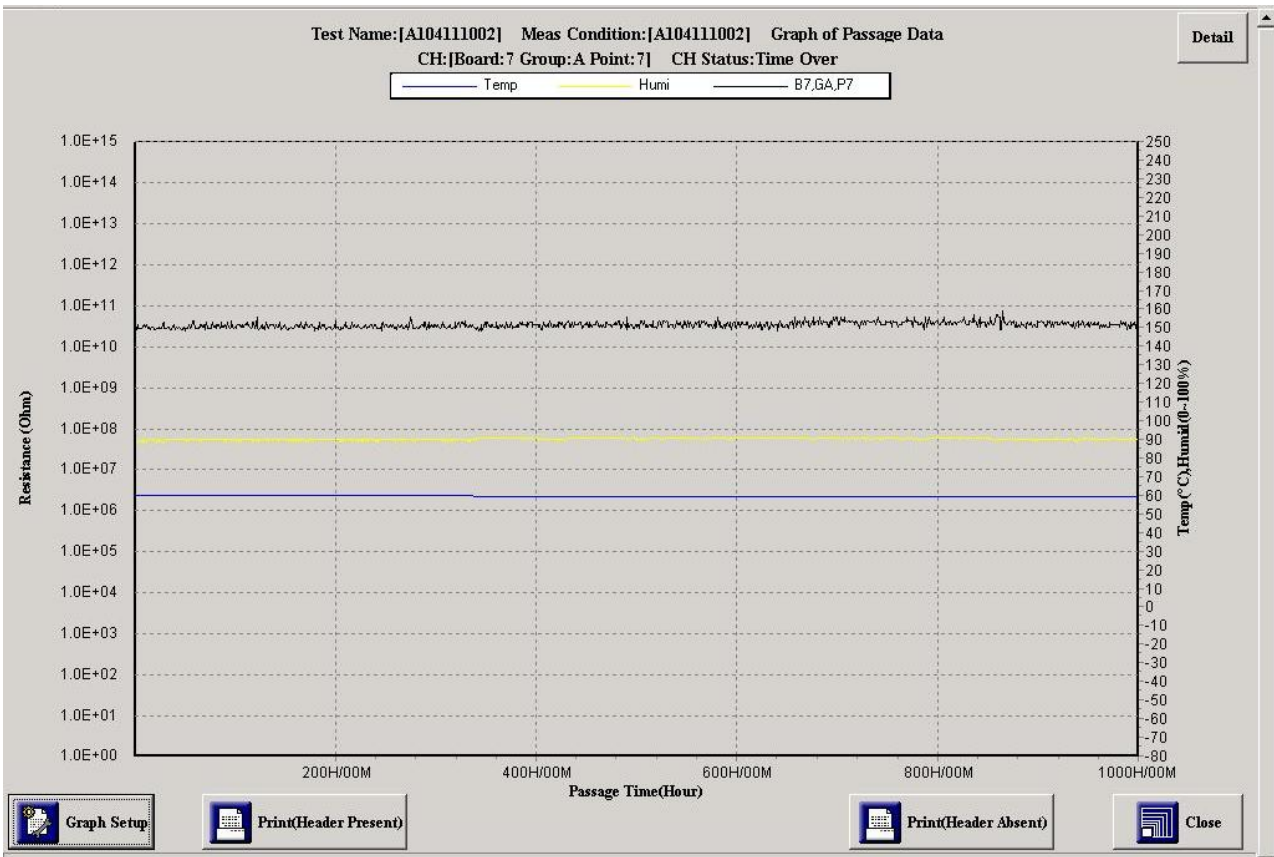
H. Test Photo :

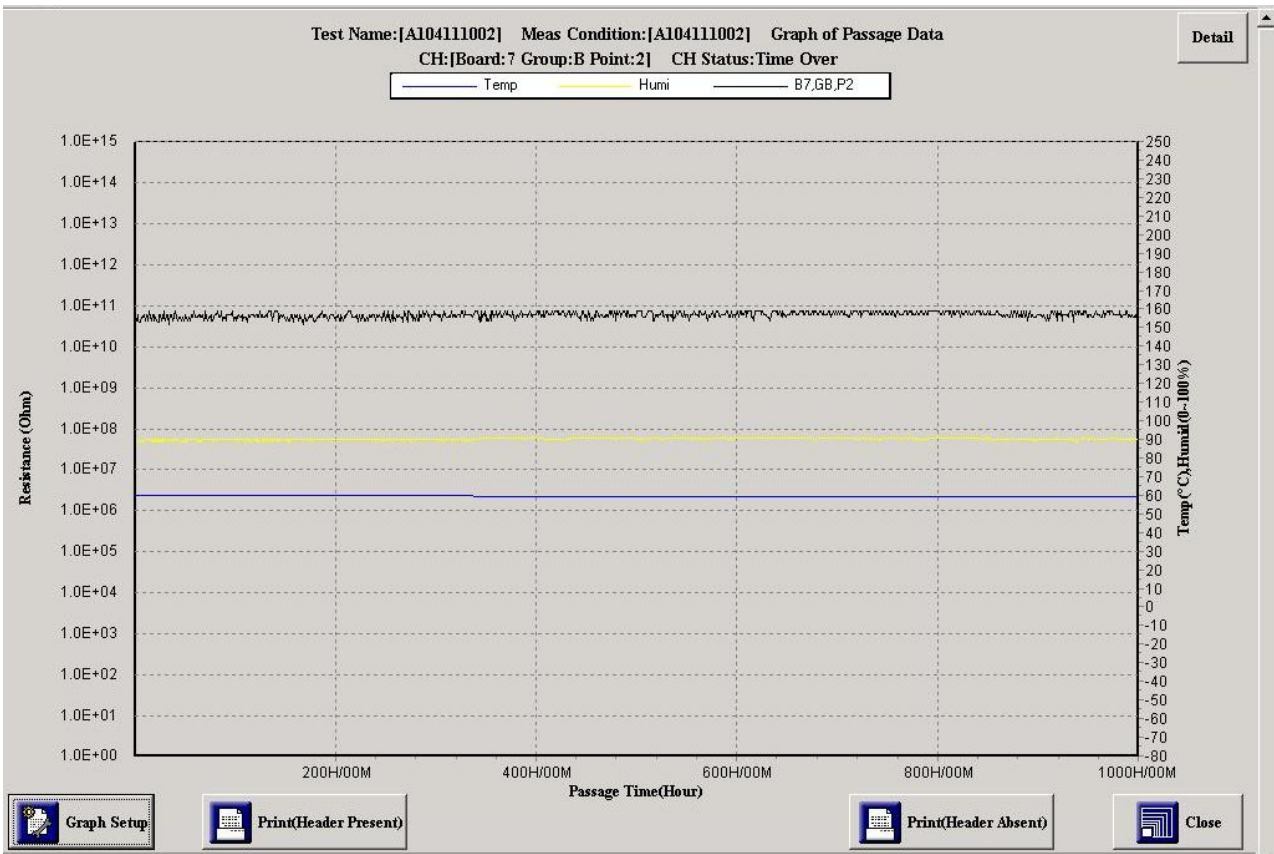
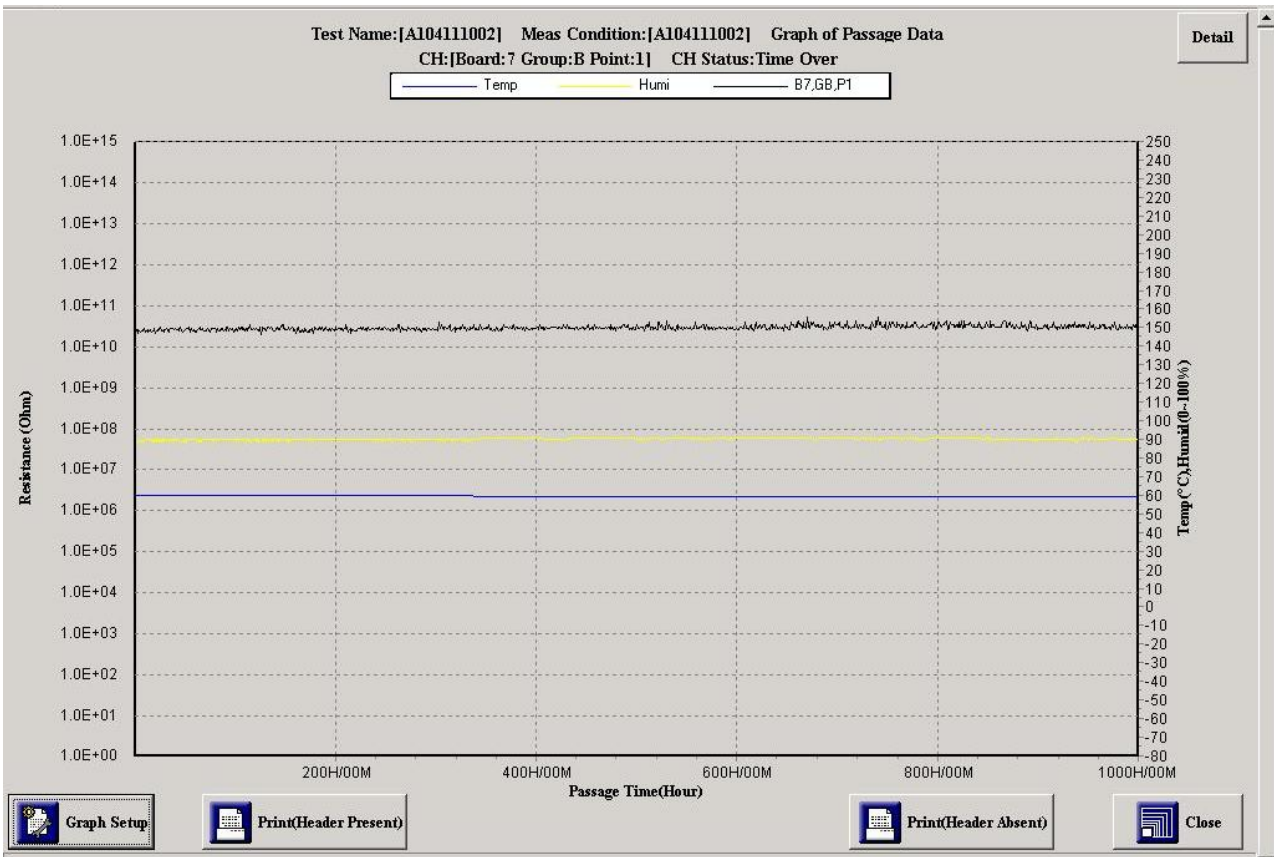
Pre-test	
In the Equipment	
Post-test	

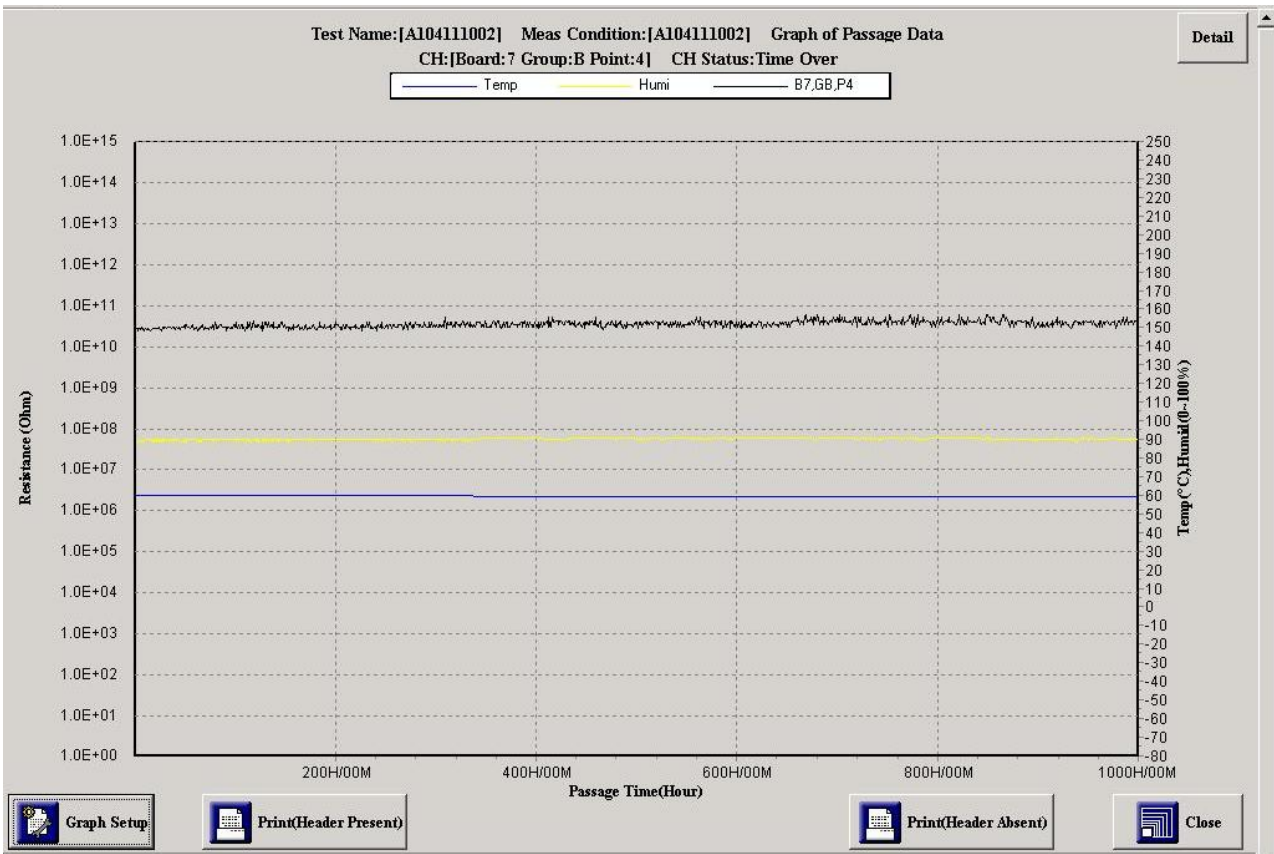
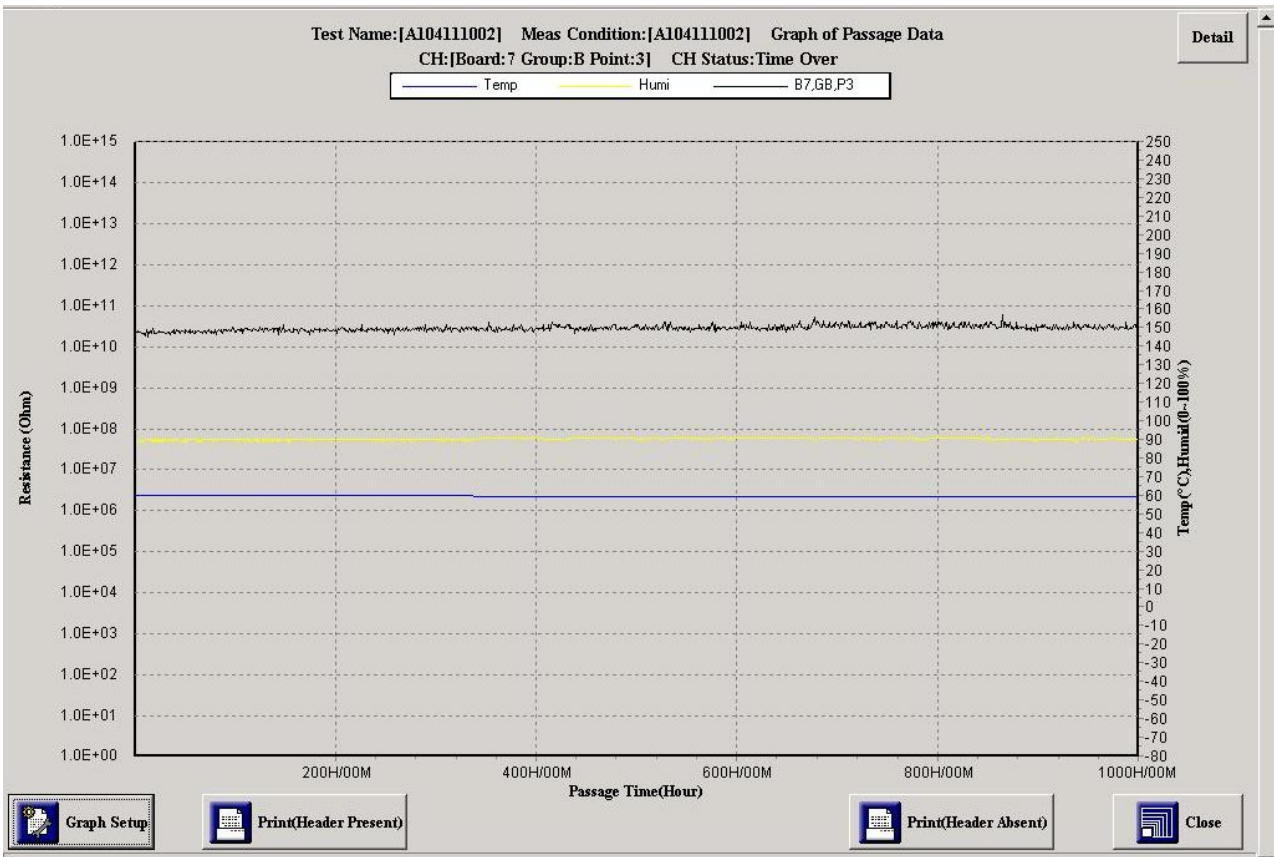


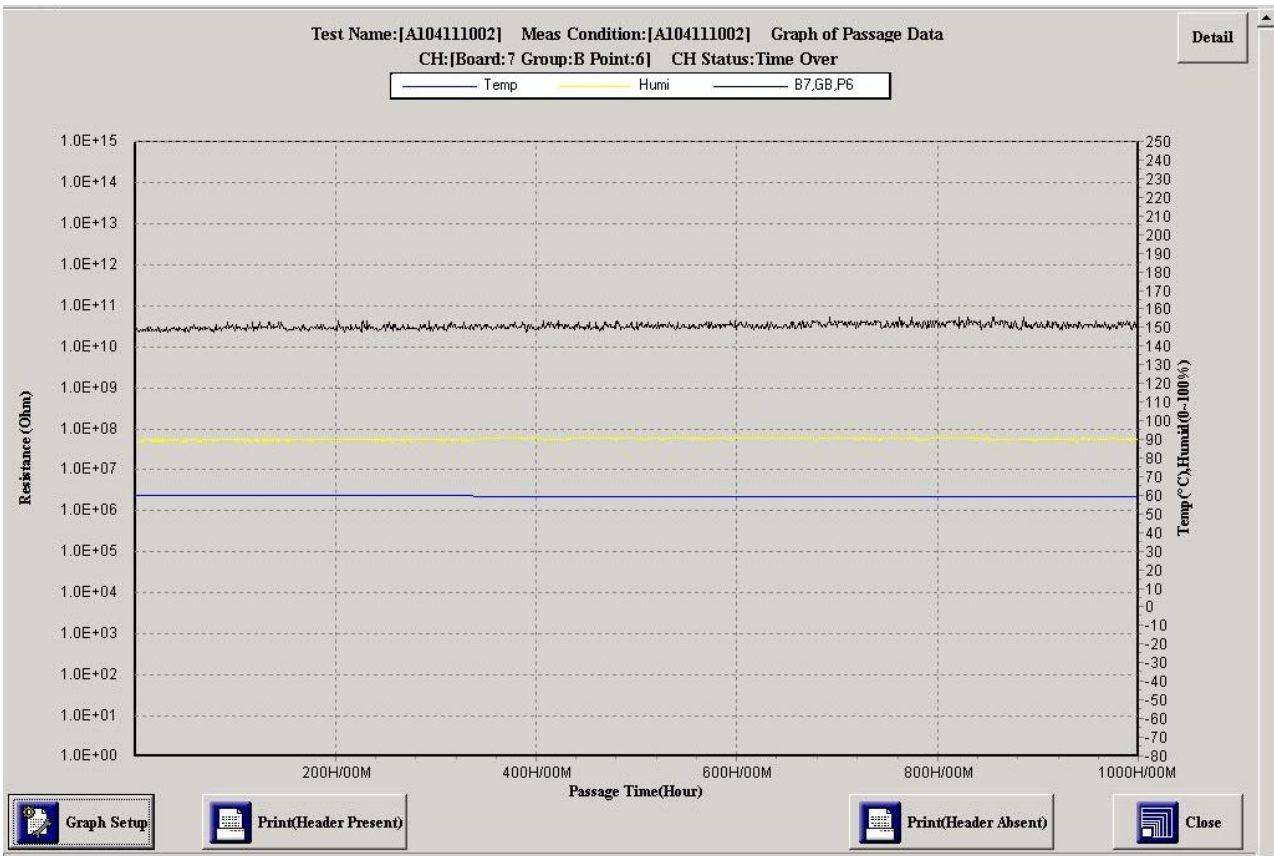
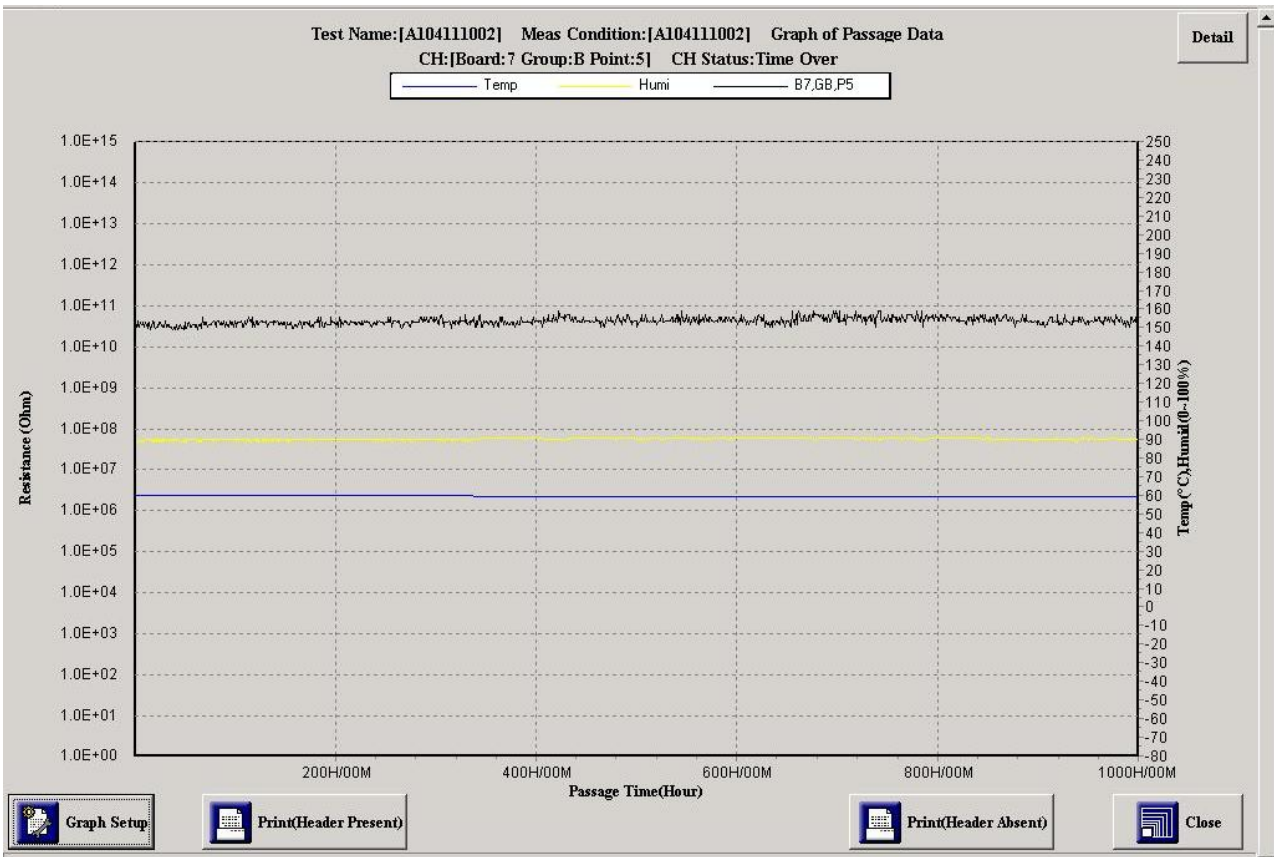










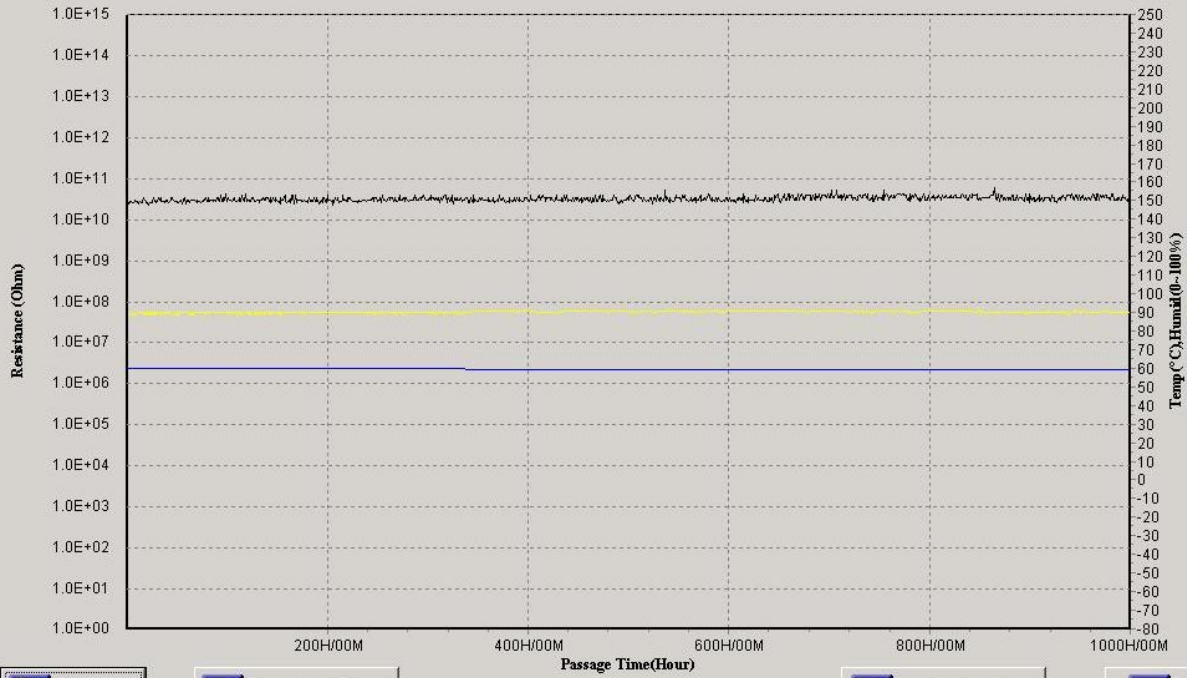


Test Name:[A104111002] Meas Condition:[A104111002] Graph of Passage Data

CH:[Board:7 Group:B Point:7] CH Status:Time Over

Temp Humi B7,GB,P7

Detail



Graph Setup

Print(Header Present)

Print(Header Absent)

Close

6. Temperature Cycling Test(TCT)

A. Test Specification and/ or standard :

IPC TM650 2.6.6B

B. Test Sample and Quantity :

Name	Reliability Test
Model	Shing-Tech / Jet-PCB
Quantity	15 Pcs

C. Testing Equipment :

(1) ETAC NT1510 Thermal Shock Chamber

Calibrate trace code : 15-07-BCC-247-01L

(2) Milliohm Meter GOM-801G

Calibrate trace code : 15-03-BCC-110-03L

D. Test Condition and procedure :

Test Condition:

- 65 °C / 30 min to 125 °C / 30 min , 100 cycle, 1cycle=1h, R<10 %

Test Procedure:

(1) Check out samples.

(2) Set test condition.

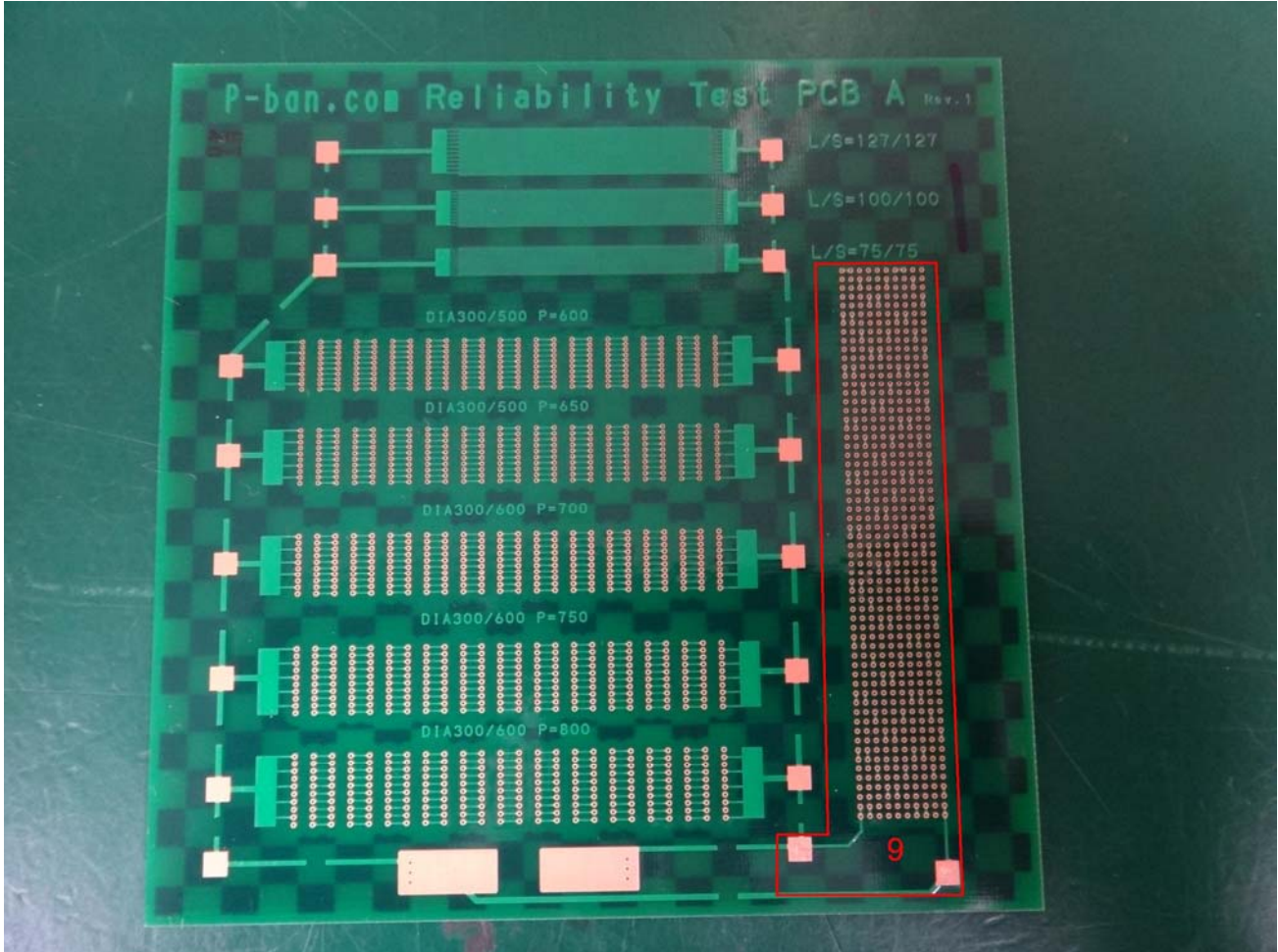
(3) Starting test.

(4) Finish testing, check out samples and prepare final report.

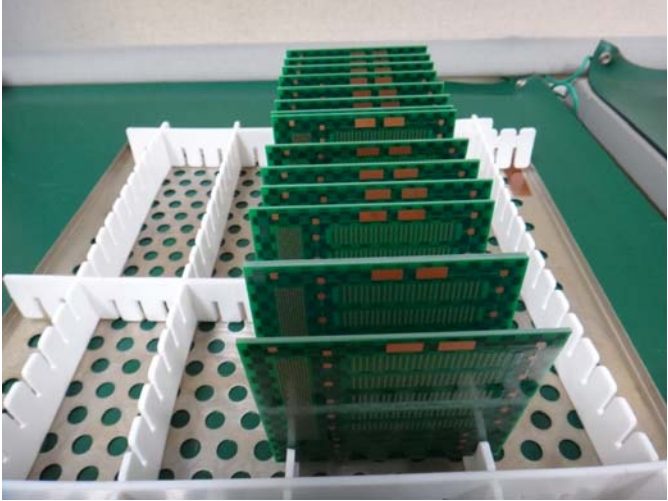

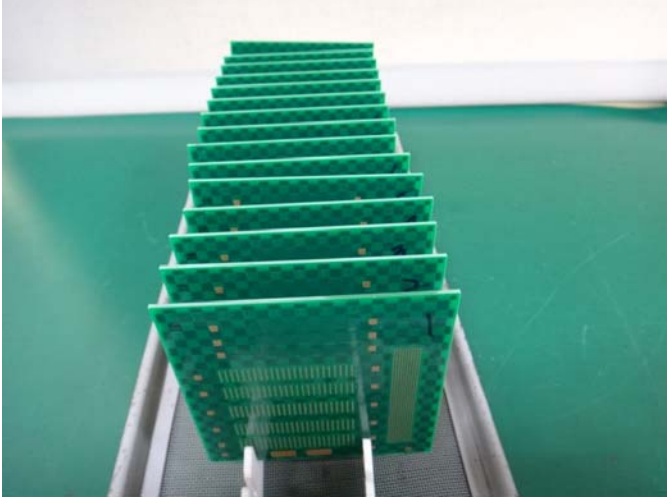
E. Result :

Please refer to the page 53

F. The point of Testing placement :



G. Test Photo :

<p>Pre-test</p>	
<p>In the Equipment</p>	
<p>Post-test</p>	

H. Test Data :

No.	Point	0 Cycle	50 Cycle	Change%	100 Cycle	Change%
		Resistance(ohm)	Resistance(ohm)		Resistance(ohm)	
1	9	1.576	1.577	0.1%	1.577	0.1%
2	9	1.577	1.577	0.0%	1.577	0.0%
3	9	1.587	1.587	0.0%	1.587	0.0%
4	9	1.570	1.571	0.1%	1.571	0.1%
5	9	1.612	1.612	0.0%	1.612	0.0%
6	9	1.566	1.566	0.0%	1.566	0.0%
7	9	1.497	1.497	0.0%	1.497	0.0%
8	9	1.487	1.487	0.0%	1.487	0.0%
9	9	1.590	1.590	0.0%	1.590	0.0%
10	9	1.578	1.578	0.0%	1.578	0.0%
11	9	1.626	1.626	0.0%	1.626	0.0%
12	9	1.620	1.620	0.0%	1.620	0.0%
13	9	1.484	1.484	0.0%	1.484	0.0%
14	9	1.502	1.503	0.1%	1.503	0.1%
15	9	1.588	1.588	0.0%	1.588	0.0%
Minimum		1.484	1.484	0.0%	1.484	0.0%
Maximum		1.626	1.626	0.1%	1.626	0.1%
Average		1.564	1.564	0.0%	1.564	0.0%

7. Hot Oil Test

A. Test Specification and/ or standard :

IPC TM650 2.4.5

B. Test Sample and Quantity :

Name	Reliability Test
Model	Shing-Tech / Jet-PCB
Quantity	15 Pcs

C. Testing Equipment :

Hot Oil Tester PH-500C

D. Test Condition and procedure :

Test Condition:

260 °C (15 sec) to 10 sec to 20 °C (20 sec) ,30 cycle,R<10 %

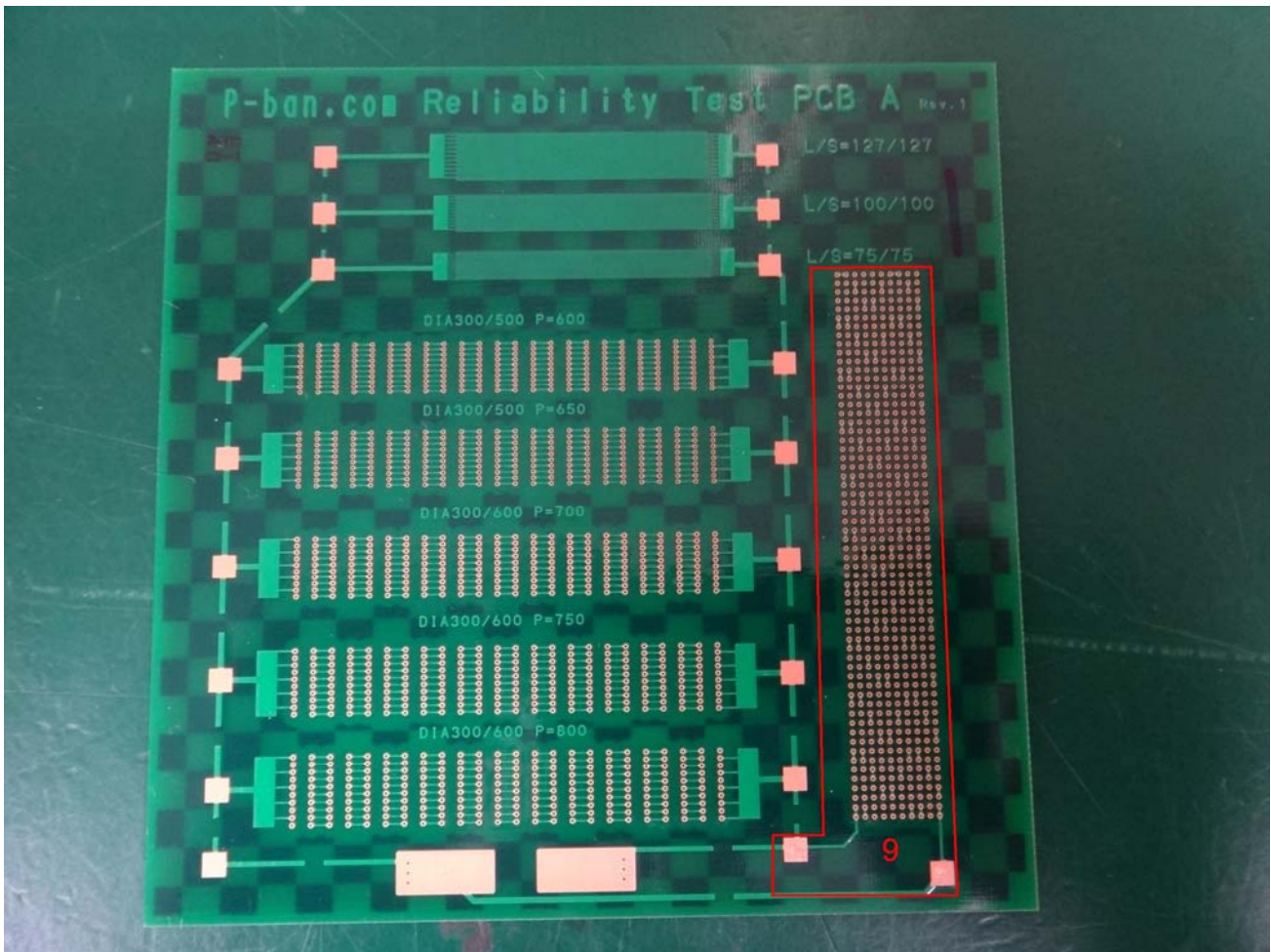
Test Procedure:

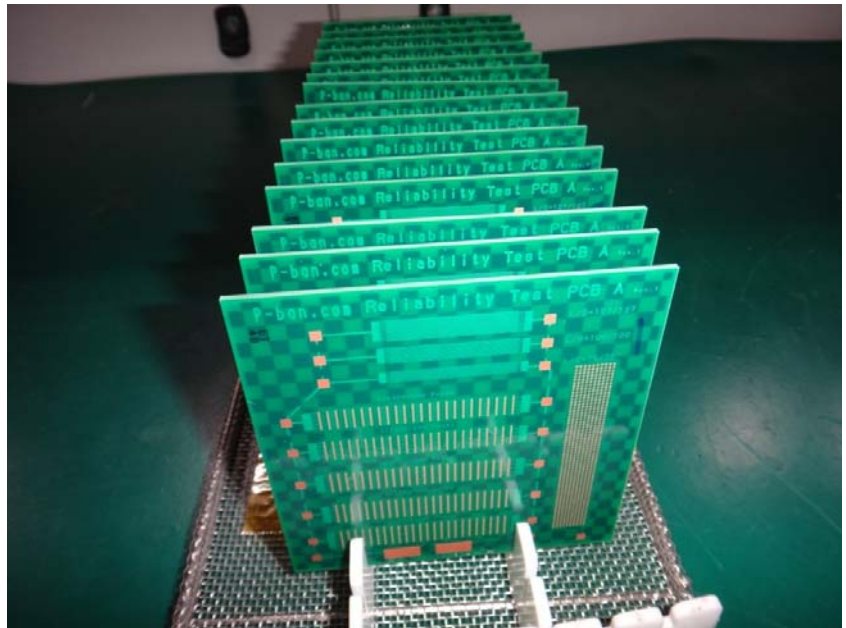
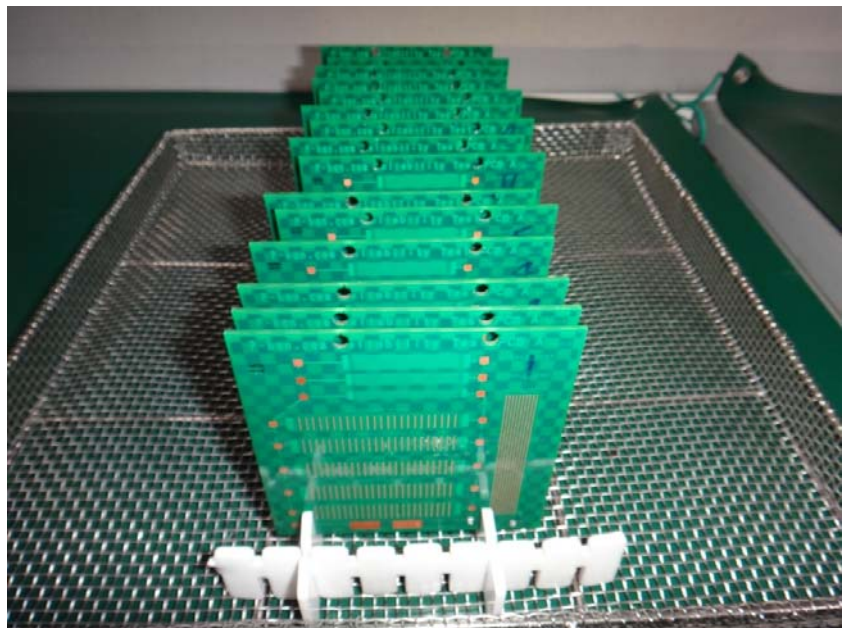
- (1) Check out samples.
- (2) Set test condition.
- (3) Starting test.
- (4) Finish testing, check out samples and prepare final report.

E. Result :

Please refer to the page 53

F. The point of Testing placement :



G. Test Photo :**Pre-test****Post-test**

H. Test Data :

No.	Point	Before	After	Change%
		Resistance(ohm)	Resistance(ohm)	
1	9	1.466	1.471	0.3%
2	9	1.473	1.482	0.6%
3	9	1.584	1.593	0.6%
4	9	1.589	1.598	0.6%
5	9	1.434	1.437	0.2%
6	9	1.637	1.643	0.4%
7	9	1.464	1.473	0.6%
8	9	1.541	1.547	0.4%
9	9	1.475	1.482	0.5%
10	9	1.674	1.680	0.4%
11	9	1.561	1.569	0.5%
12	9	1.473	1.476	0.2%
13	9	1.497	1.502	0.3%
14	9	1.652	1.657	0.3%
15	9	1.448	1.453	0.3%
Minimum		1.434	1.437	0.2%
Maximum		1.674	1.680	0.6%
Average		1.531	1.538	0.4%

8. Solder Adsorption Test

A. Test Specification and/ or standard :

JIS-C 5012-1993 10.4

B. Test Sample and Quantity :

Name	Reliability Test
Model	Shing-Tech / Jet-PCB
Quantity	15 Pcs

C. Testing Equipment :

Solder immersion Test System U-71 / YCP2N

Test Procedure:

- (1)Preparation of the terminations.
- (2)Preconditioning.
- (3)Application of flux and immersion of the terminations into molten solder.
- (4)Examination and evaluation of the tested portions of the terminations.
- (5)Finish testing, check out samples and prepare final report.

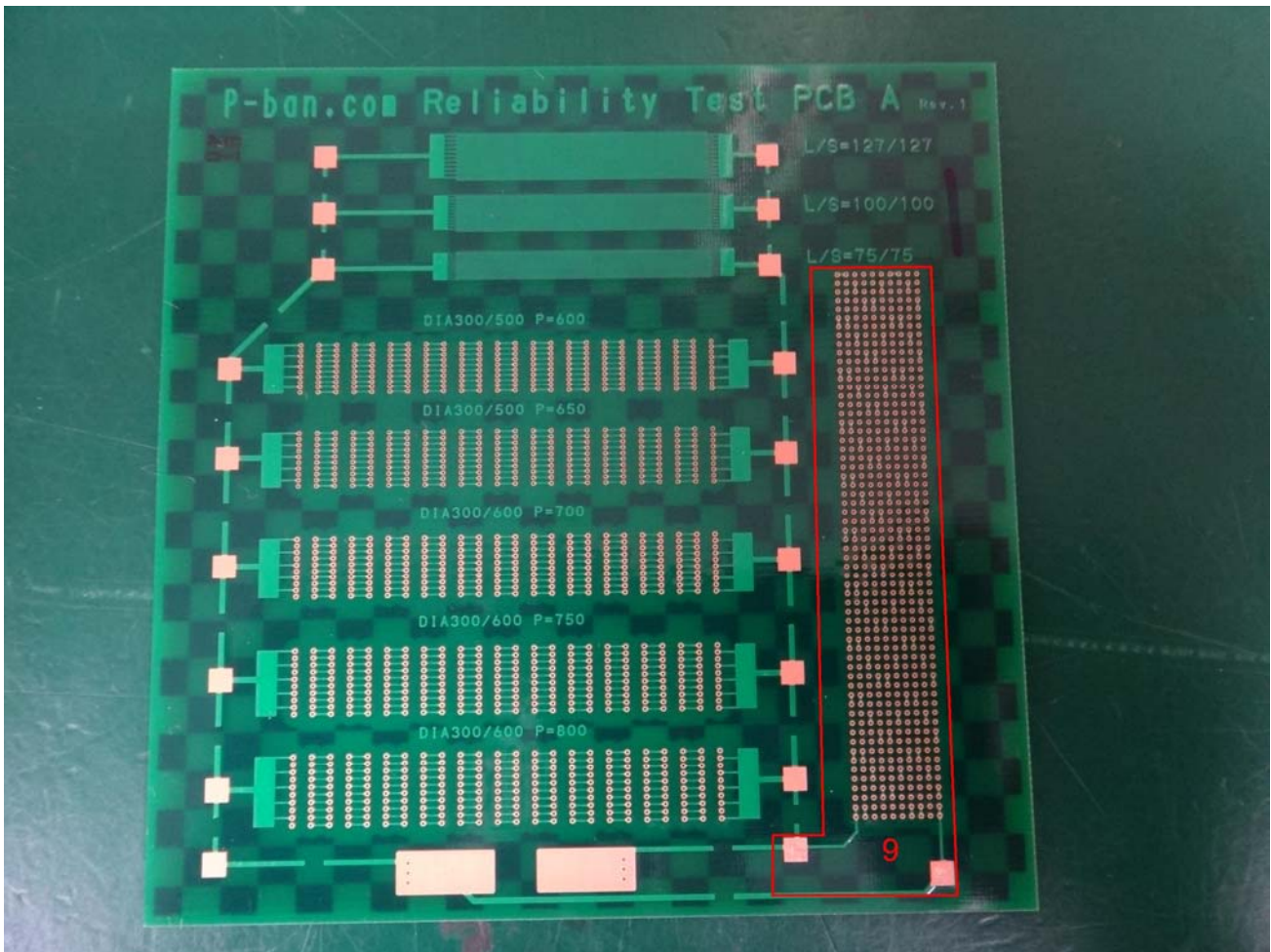
D. Test Condition :

260 °C, 10 sec, 2 cycle, R<10%

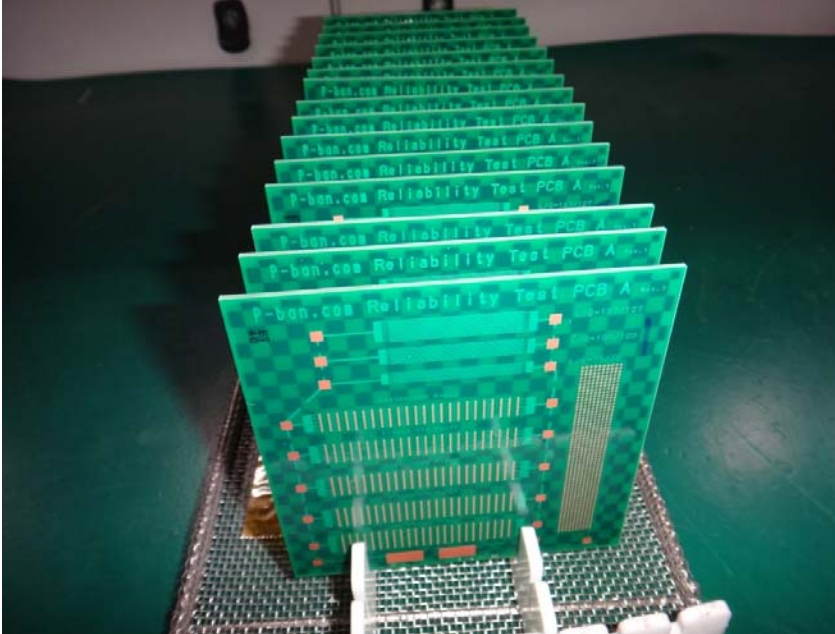
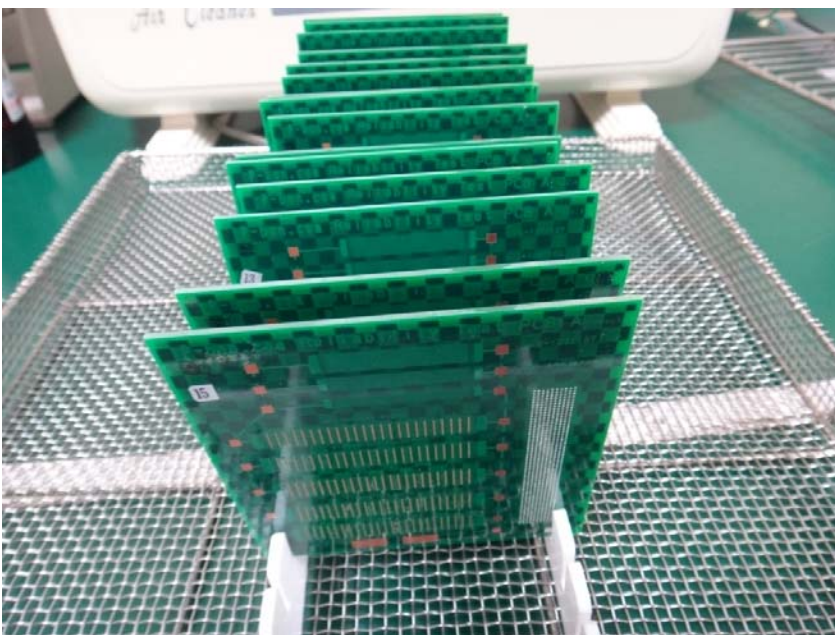
E. Result :

Please refer to the page 53

F. The point of Testing placement :



G. Test Photo :

Pre-test	 A photograph showing a stack of approximately 15 green printed circuit boards (PCBs) held in a white test fixture. The boards are arranged in a slightly staggered fashion, showing their top surfaces. Each board has the text "P-ban.csa Reliability Test PCB A" printed on it. The fixture is placed on a metal mesh tray.
Post-test	 A photograph showing a stack of approximately 15 green printed circuit boards (PCBs) held in a white test fixture, similar to the pre-test photo. The boards are arranged in a slightly staggered fashion, showing their top surfaces. Each board has the text "P-ban.csa Reliability Test PCB A" printed on it. The fixture is placed on a metal mesh tray.

H. Test Data :

No.	Point	Before	After	Change%
		Resistance(ohm)	Resistance(ohm)	
1	9	1.499	1.485	-0.9%
2	9	1.566	1.556	-0.6%
3	9	1.459	1.446	-0.9%
4	9	1.479	1.465	-0.9%
5	9	1.514	1.503	-0.7%
6	9	1.473	1.466	-0.5%
7	9	1.621	1.610	-0.7%
8	9	1.577	1.563	-0.9%
9	9	1.495	1.482	-0.9%
10	9	1.517	1.504	-0.9%
11	9	1.462	1.449	-0.9%
12	9	1.478	1.465	-0.9%
13	9	1.540	1.528	-0.8%
14	9	1.575	1.563	-0.8%
15	9	1.483	1.470	-0.9%
Minimum		1.459	1.446	-0.9%
Maximum		1.621	1.610	-0.5%
Average		1.516	1.504	-0.8%

9. Withstanding Voltage Test

A. Test Specification and/ or standard :

IPC TM650 2.5.7

B. Test Sample and Quantity :

Name	Reliability Test
Model	Shing-Tech / Jet-PCB
Quantity	15 Pcs

C. Testing Equipment :

High Resistance Meter HP-4339B

Calibrate trace code: 15-09-BCC-355-01L

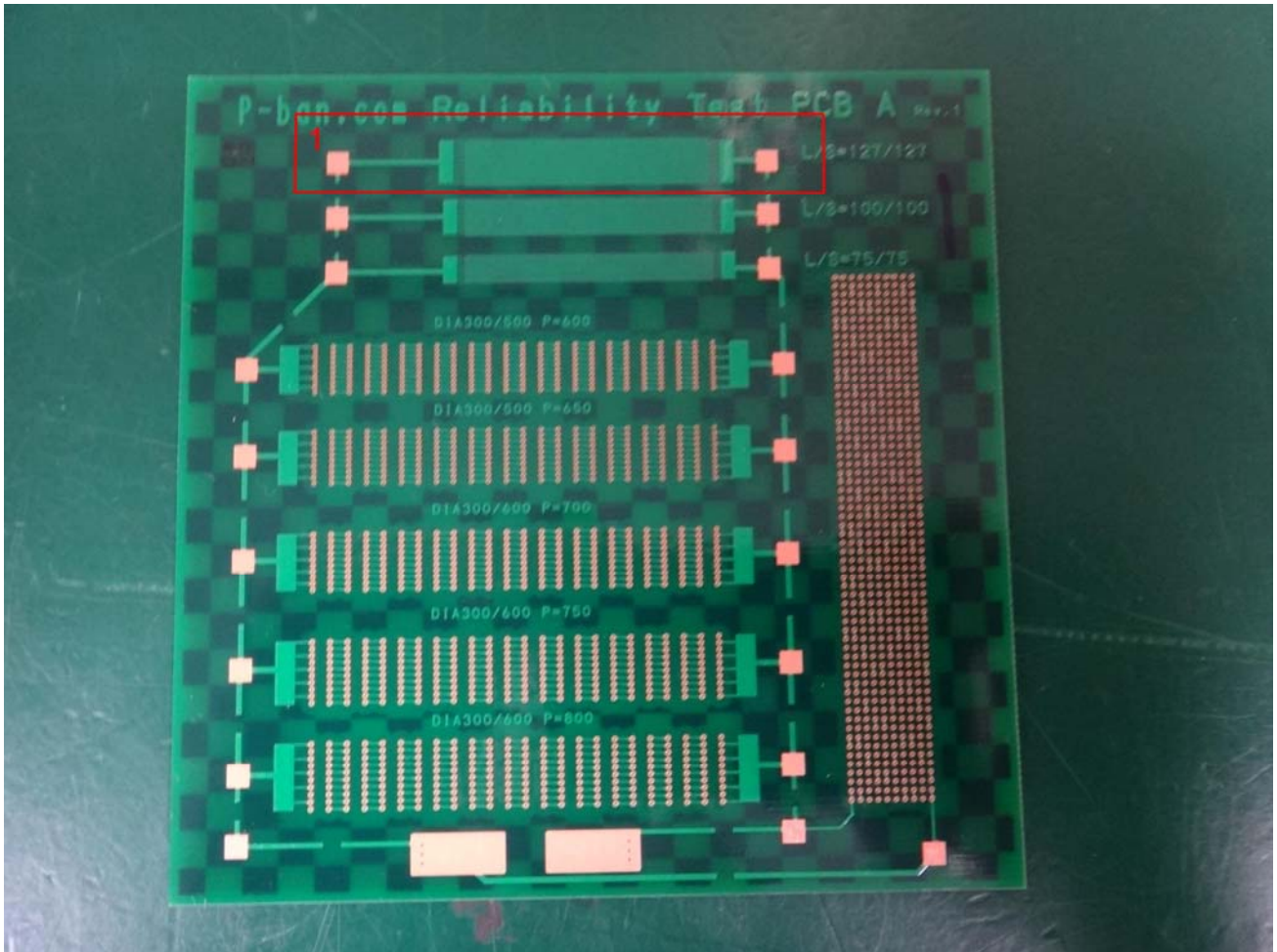
D. Test Condition and procedure :

DC 1000V, 1 min.

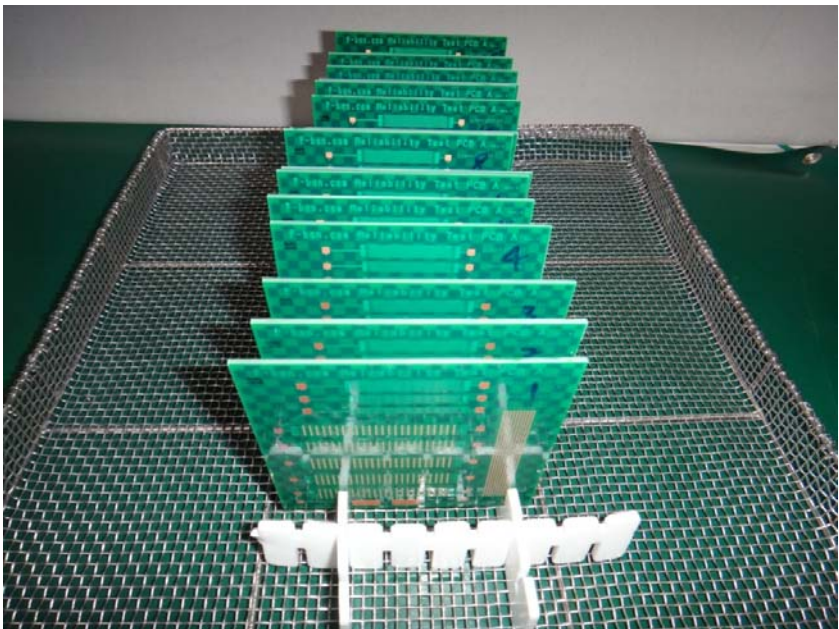
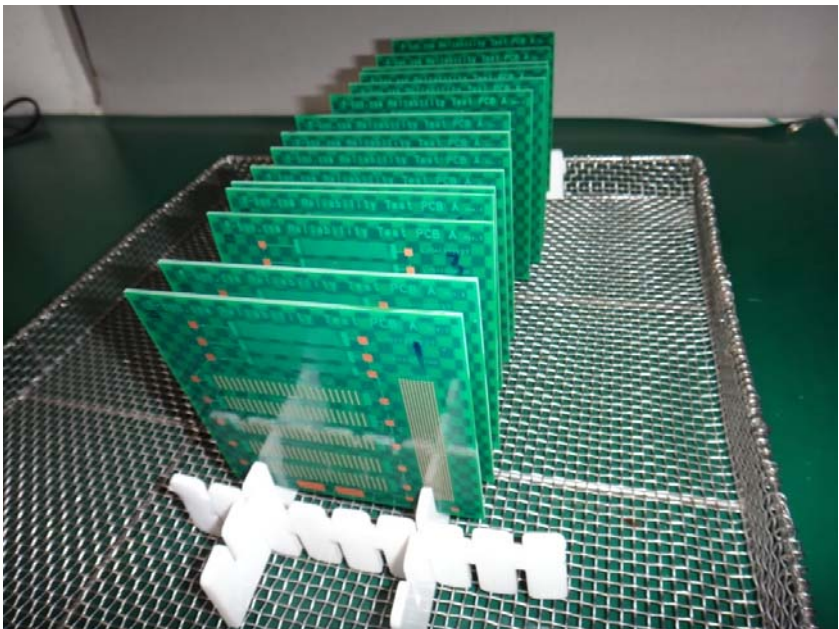
E. Result :

Please refer to the page 53

F. The point of Testing placement :



G. Test Photo :

<p>Pre-test</p>	 A photograph showing a stack of approximately 10 green PCBs held together by a white plastic tape. The stack is placed inside a silver wire mesh tray. The PCBs are oriented vertically, and the tape is wrapped around the bottom edge of the stack. The background is a dark green surface.
<p>Post-test</p>	 A photograph showing the same stack of green PCBs in the wire mesh tray after testing. The stack appears slightly more separated or the tape is less visible compared to the pre-test photo. The PCBs are still oriented vertically, and the white plastic tape is still present at the bottom.

H. Test Data :

No.	Point	Appearance check (Visual check)
1	1	PASS
2	1	PASS
3	1	PASS
4	1	PASS
5	1	PASS
6	1	PASS
7	1	PASS
8	1	PASS
9	1	PASS
10	1	PASS
11	1	PASS
12	1	PASS
13	1	PASS
14	1	PASS
15	1	PASS

Result:

Project	Test Details	Test purposes	Specification	QTY	Average	Test Result
1. PTH Copper Adhesion Test	Force applied 98N(Thickness 1.6mm)	TH-hole tensile strength	>98N	15 Pcs	98.93N	PASS
2. High Temperature Storage Test	100°C, 1000H	Conduction	Conduction resistance change rate < 10%	15 Pcs	1.542(ohm)	PASS
3. Low Temperature Storage Test	-55°C, 1000H	Conduction	Conduction resistance change rate < 10%	15 Pcs	1.573(ohm)	PASS
4. Temperature & Humidity Storage Test	60 °C/90 %RH, 1000 H	Insulation	Insulation resistance>500MΩ	15 Pcs	7.4E+11 (ohm)	PASS
5. Temperature & Humidity Storage Test with Ion Migration Test	60 °C/90 %RH / DC30 V, 1000 H	Insulation	Insulation resistance>500MΩ	15 Pcs	3.7E+10 (ohm)	PASS
6. Temperature Cycling Test	-65°C (30min) to 125°C (30min), 100 cycle	Conduction	Conduction resistance change rate < 10%	15 Pcs	1.564(ohm)	PASS
7. Hot Oil Test	260°C (15sec) to 10sec to 20°C (20sec) ,30 cycle	Conduction	Conduction resistance change rate < 10%	15 Pcs	1.538(ohm)	PASS
8. Solder Adsorption Test	260°C, 10sec, 2 cycle	Conduction	Conduction resistance change rate < 10%	15 Pcs	1.504(ohm)	PASS
		Appearance	Appearance check			
9. Withstanding Voltage Test	1000V, 1Min	Appearance	Appearance check	15 Pcs	N/A	PASS