

# ACP-1104

## Environment Test Report

Report NO: 15P020007

Summary	<input checked="" type="checkbox"/> <b>Pass</b> <input type="checkbox"/> <b>Fail</b> <input type="checkbox"/> <b>Pass with Deviation</b> Comment: _____
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**Issue date**

**2015-03-27**

**Approval**

**KJ Wang**

**Test Engineer**

**Rex / Juno**

## Test item list

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### Testing Result

Num	Test item list	Result	Remark
1	High Temperature Operation test	Pass	
2	Temperature cycle operation test	Pass	
3	High temperature storage test	Pass	
4	Low temperature storage test	Pass	
5	Humidity test	Pass	
6	Cold start and hot start test	Pass	

# Configuration of EUT

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Num	Item	Spec
1	CPU	Intel Celeron J1900 1.99GHz)
2	CPU Board	BOXER-6403
3	BIOS	(C1A4AM10)
4	Memory	DSL DDR3L 1600 2GB CL11 (SEC-431-BYK0-K4B2G0846Q)
5	mSATA	Toshiba 64GB
6	Test Software	Windows 7 / Run PassMark Burn In Test 8.0 Pro

## System Picture



# High Temperature Operation test

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**Test Date:** 02-26~27-2015

**Test Product:** ACP-1104

**Test Site:** AAEON QE Dept.

**Test Standard:** Refer to IEC 68-2-2 Testing procedures  
Test Bd: Dry Heat Test (Operation)

**Test Equipment:**

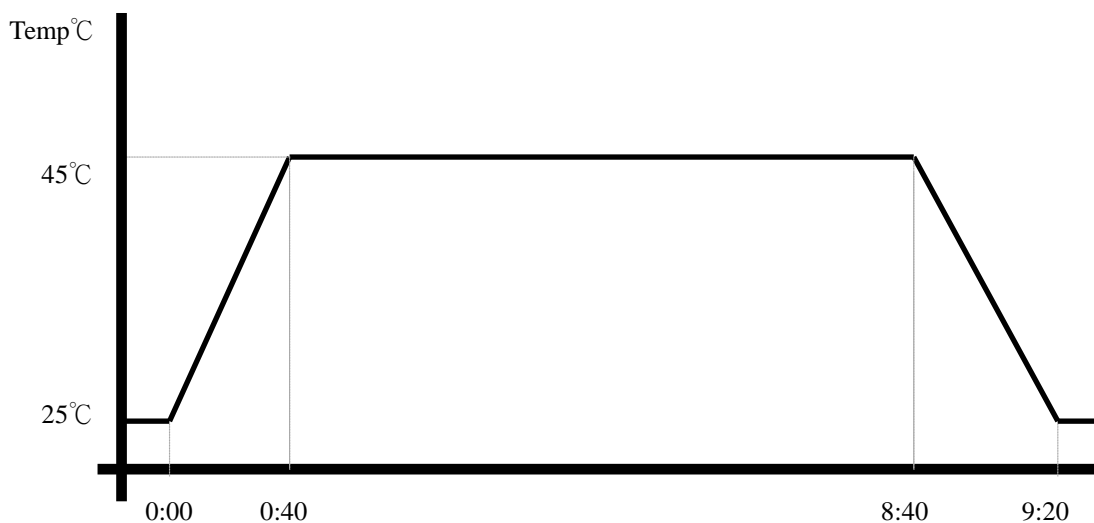
Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)  
Model: THS-D7S-100+1 N2  
Date of Calibration: 10/09/'14  
Serial Number: 3898

**Temperature Measurement:**

40 Channel Thermal Recorder:  
YOKOGAWA Inc,  
Model: DA100-13-1D  
Date of Calibration: 11/09/2014  
Serial Number: 12A32319

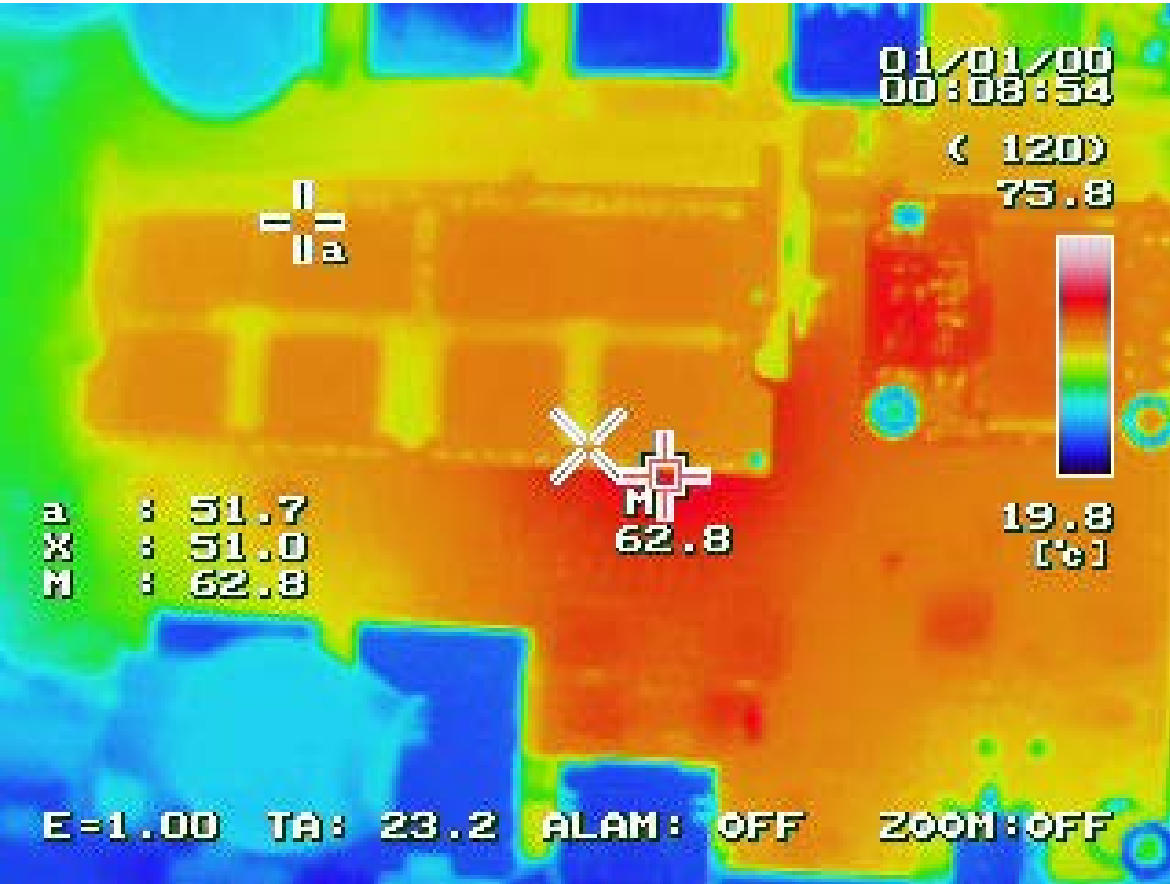
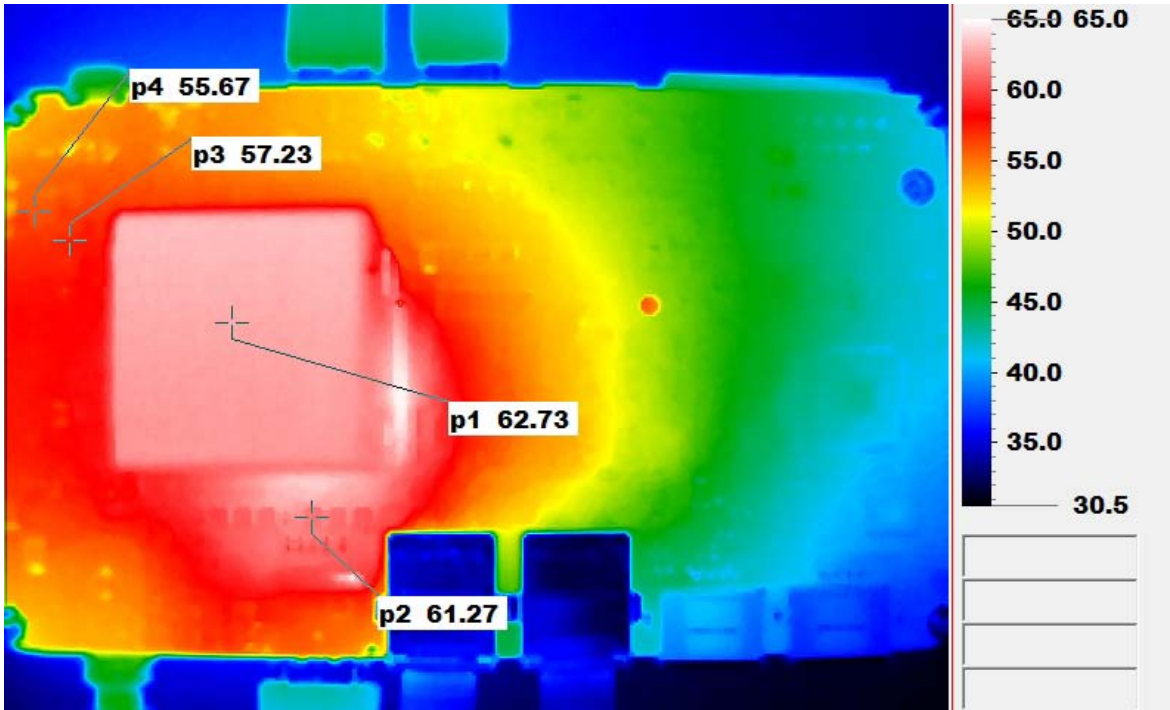
**Testing Item:**

1. Test Temperature: 45°C
2. Test Times: 8Hrs
3. Test Software: Windows 7 / Run PassMark Burn In Test 8.0 Pro
4. Test Environment Curve:

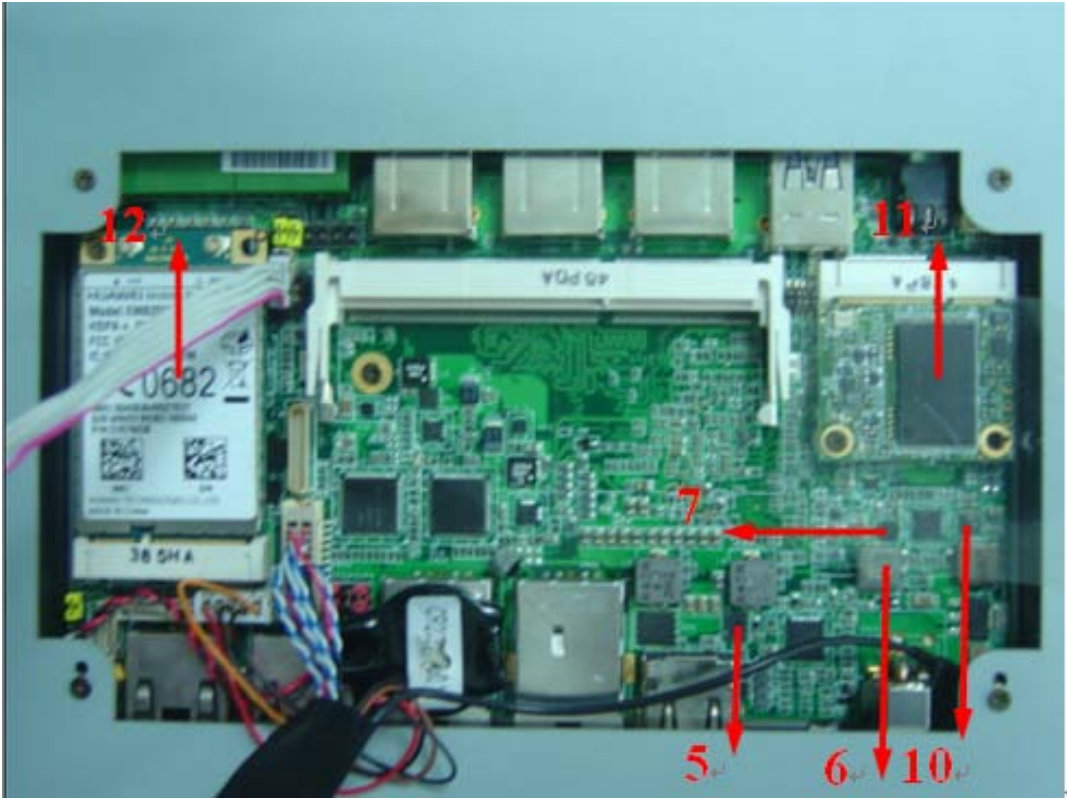
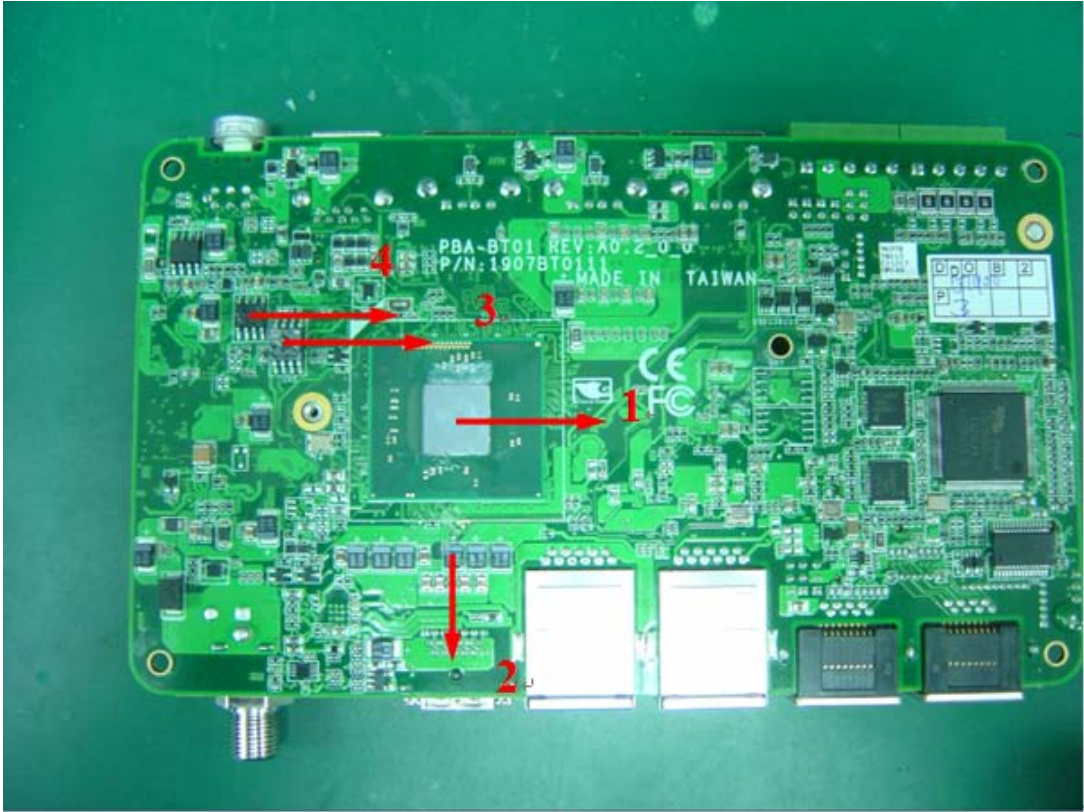


# High Temperature Operation test

Terminal Recorder:

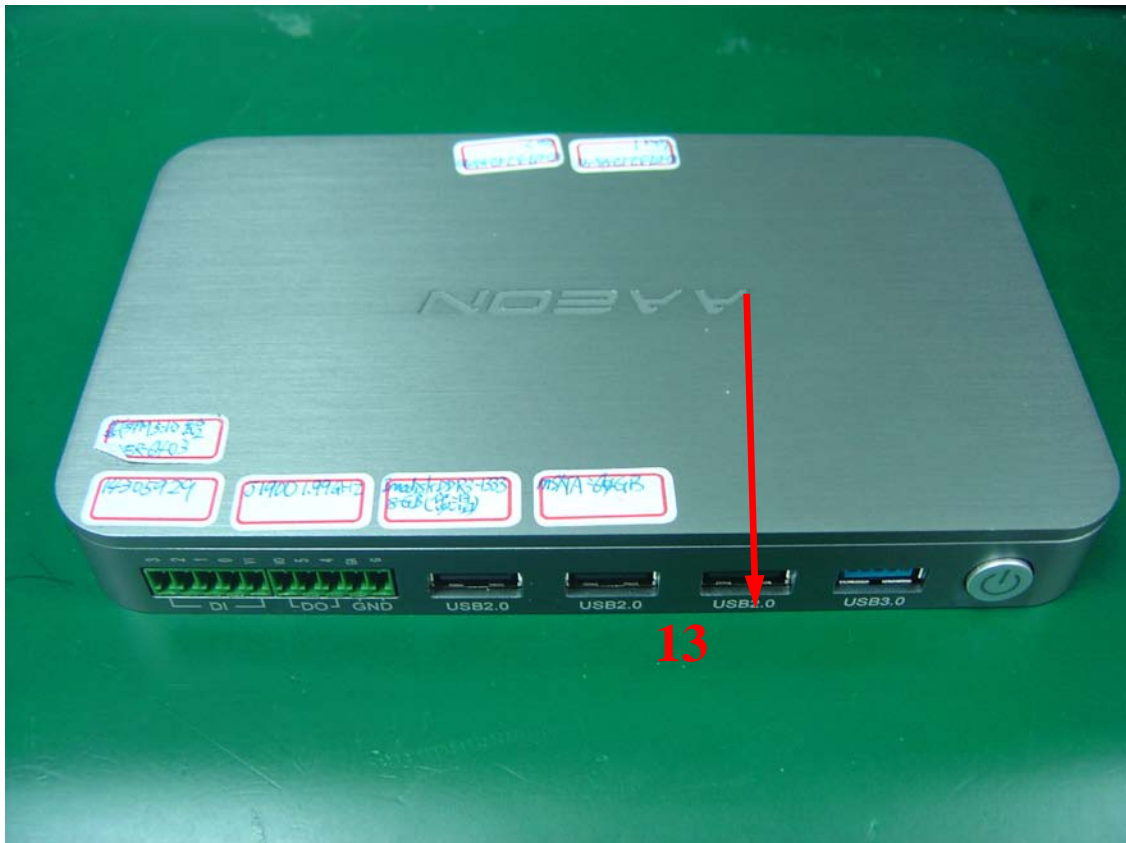


# High Temperature Operation test



# High Temperature Operation test

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# High Temperature Operation test

ACP-1104 (With 0.5m/sec airflow)

## Thermal profile data:

Point	Location	Describe	Tc (*1) (°C)	Tm (*2) Measured Under	Note
				45°C	
1	U50	Intel® Celeron™ J1900 1.99GHz	105	70.1	
2	C467	(TF)CAP.330uF.2.5V.20%.B2(3.5*2.8*1.9mm).SMD.9mohm.NEC-TOKIN.TEPSGB20E337M9-8R	105	73.2	
3	U45	(TF)IC.64 Mbit SPI Flash SOIC-8P 208mil.SMD Winbond W25Q64FVSSIG	85	70.4	
4	U41	(TF)IC.LDO Linear Regulator 0.23V 2A.SOP-8(Exposed Pad) SMD RICHTEK.RT9025-25PSP	120	71.8	
5	U24	(TF)IC.Synchronous Buck NexFET™.SON 8P.Power Stage SMD TI CSD97374Q4M	150	74.8	
6	L7	3.3UH	150	83.5	
7	Q15	FDMC7200S	150	80.0	
8	BAT 1	RTC Battery	85	59.4	
9	DIMM12	DIMM	85	77.1	
10	Q14	FDMC7200S	150	75.9	
11		Ta (under mSATA)	N/A	77.2	
12		Ta (under 3G module)	N/A	73.6	
13		Control Box External Surface Temperature	N/A	51.2	

### Note(\*):

- "Tc" indicates the component's case maximum temperature value specified in its datasheet.
- "Tm" indicates the measured Tc value under working environmental temperature within product specification.

### 3. Judgment Criteria:

- **Fail** : Tm > Tc; The measured value is over specification.
- **Margin Pass** : Tc > Tm > Tc-5°C; The measured value is within specification with margin.  
It is strongly recommended to add thermal dissipation design for better reliability.
- **Pass** : Tm < Tc-5°C; The measured value is with safety margin.

## Sample Configuration & Quantity Under Test:

Quantity: 1 (ACP-1104)

## Test Result:

No issues were found during the temperature rise operation test.



# Temperature cycle test

**Test Date:** 03-24 ~ 26-2015

**Test Product :** ACP-1104

**Test Site :** AAEON QE Dept.

**Test Standard:** Refer to IEC68-2-14 Testing procedures  
Test N: Change of temperature Test

**Test Equipment:**

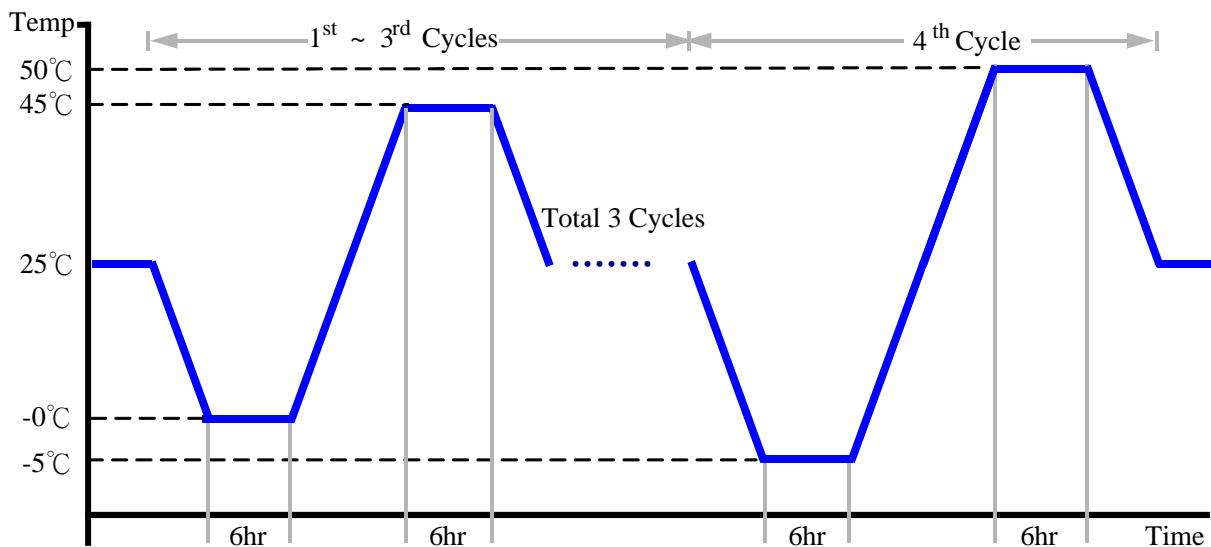
Programmable Temperature & Humidity Chamber (K.SON. INS. TECH. CORP.)  
Model: THS-B6T-150+LN2  
Date of Calibration: 09/01/14  
Serial Number: 9095KT

**Test Condition:**

1. Test Low Temperature: 0°C (1~3 cycles)  
-5°C (4<sup>th</sup> cycle)
2. Test High Temperature: 45°C (1~3 cycles)  
50°C (4<sup>th</sup> cycle)
3. Test dwell time: 6Hrs
4. Temperature slope: 2°C/min
5. Test cycle: 4 cycles
6. Test Environment Curve:

**Sample Configuration & Quantity Under Test:**

Quantity: 1 (ACP-1104)



**Test Result:**

No issues were found during the temperature operation cycle test.

# High temperature storage test

**Test Date:** 03-22 ~ 24-2015

**Test Product:** ACP-1104

**Test Site:** AAEON QE Dept.

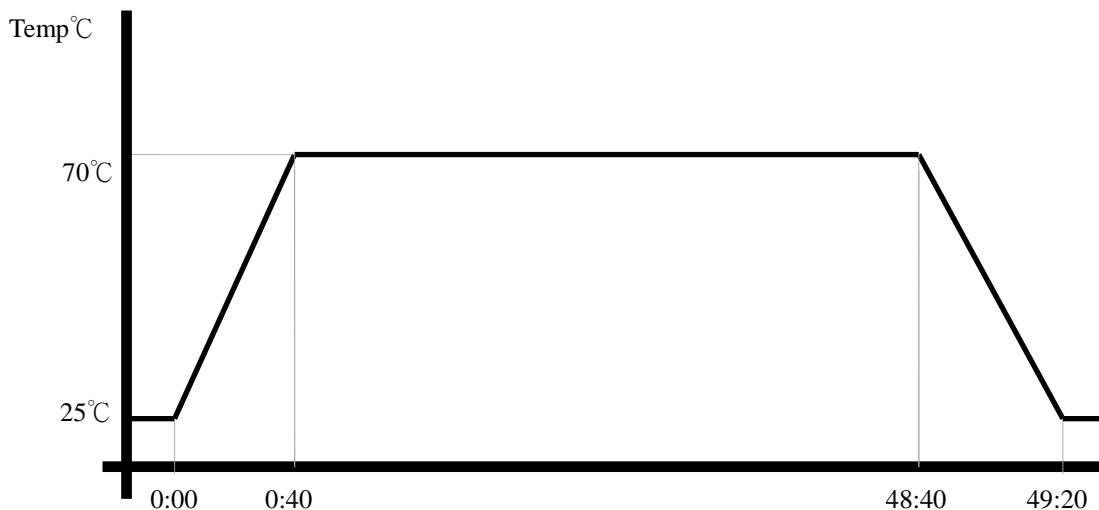
**Test Standard:** Refer to IEC 68-2-2 Testing procedures  
Test Bb: Dry Heat Test (Non-operation)

**Test Equipment:**

Programmable Temperature & Humidity Chamber (K.SON. INS. TECH. CORP.)  
Model: THS-B6T-150+LN2  
Date of Calibration: 09/01/14  
Serial Number: 9095KT

**Testing Item:**

5. Test Temperature: 70°C
6. Test Times: 48Hrs
7. Test Software: Windows 7 / Run PassMark Burn In Test 8.0
8. Test Environment Curve:



**Sample Configuration & Quantity Under Test:**

Quantity: 1 (ACP-1104)

**Test Result:**

No issues were found after the high temperature storage test.

# Low temperature storage test

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**Test Date:** 03-20 ~ 22-2015

**Test Product:** ACP-1104

**Test Site:** AAEON QE Dept.

**Test Standard:** Refer to IEC 68-2-1 Testing procedures  
Test Ab: Cold Test (Non-operation)

**Test Equipment:**

Programmable Temperature & Humidity Chamber (K.SON. INS. TECH. CORP.)  
Model: THS-B6T-150+LN2  
Date of Calibration: 09/01/14  
Serial Number: 9095KT

**Testing Item:**

1. Test Temperature: -20°C
2. Test Times: 48Hrs
3. Test Software: Windows 7 / Run PassMark Burn In Test 8.0
4. Test Environment Curve:



**Sample Configuration & Quantity Under Test:**

Quantity: 1 (ACP-1104)

**Test Result:**

No issues were found after the low temperature storage test.

# Humidity test

**Test Date:** 03-18~20-2015

**Test Product:** ACP-1104

**Test Site:** AAEON QE Dept.

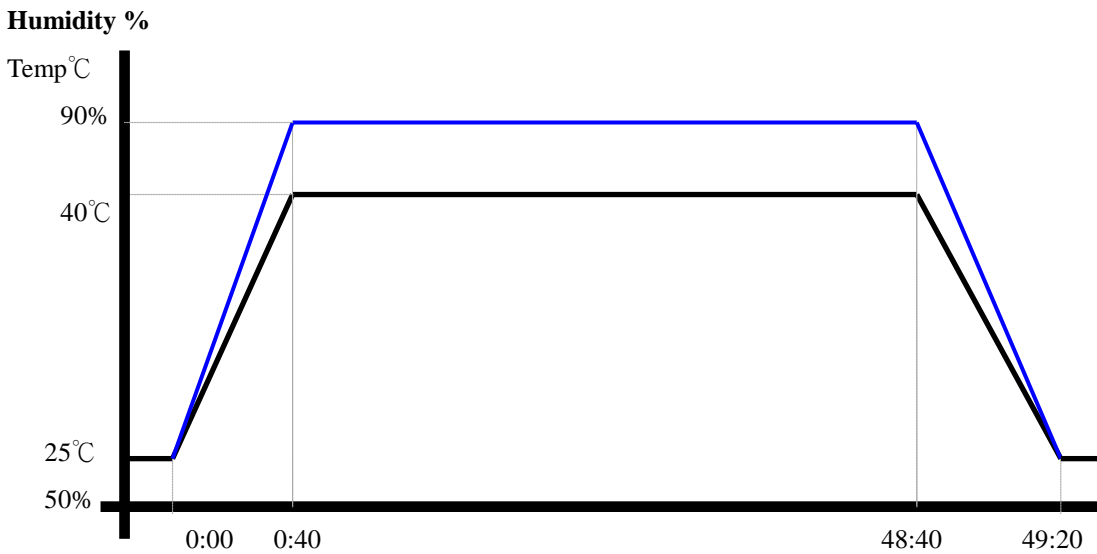
**Test Standard:** Refer to IEC 68-2-3 Testing procedures  
Test Ca: Damp heat, steady state (Non-operation)

**Test Equipment:**

Programmable Temperature & Humidity Chamber (K.SON. INS. TECH. CORP.)  
Model: THS-B6T-150+LN2  
Date of Calibration: 09/01/14  
Serial Number: 9095KT

**Testing Item:**

1. Test Temperature: 40°C
2. Test Humidity: 90%RH
3. Test Times: 48Hrs
4. Test Software: Windows 7 / Run PassMark Burn In Test 8.0
5. Test Environment Curve:



**Sample Configuration & Quantity Under Test:**  
Quantity: 1 (ACP-1104)

**Test Result:**

No issues were found after the humidity storage test.

# Cold start and hot start test

**Test Date:** 03-17~18-2015

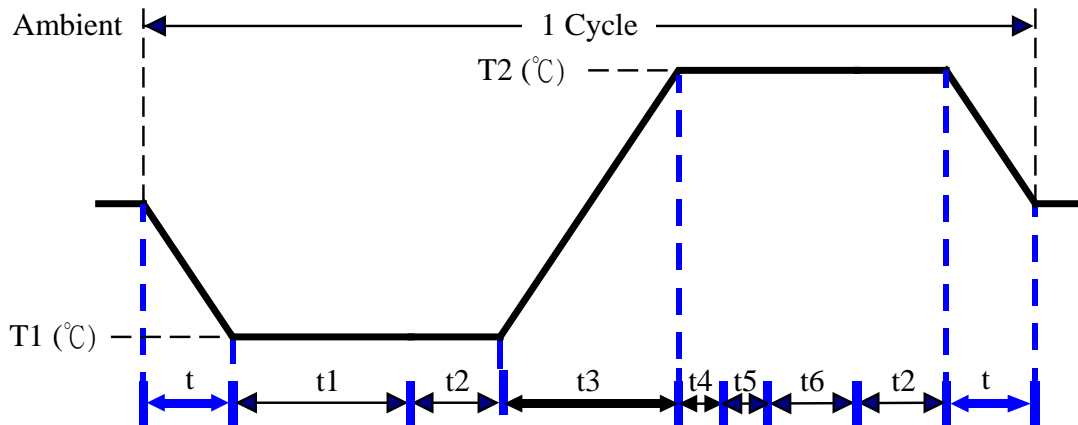
**Test Product:** ACP-1104

**Test Site:** AAEON QE Dept.

**Test Standard:** Refer to IEC 68-2-14 Testing procedures  
Test N: Change of temperature Test

**Test Equipment :**  
 Programmable Temperature & Humidity Chamber (K.SON. INS. TECH. CORP.)  
 Model: THS-B6T-150+LN2  
 Date of Calibration: 09/01/14  
 Serial Number: 9095KT

**Test Condition:**



Parameters	Description
T1	-5°C
T2	50°C
t1	4 hrs
t2, t6	2 hrs
t4, t5	1hrs
t, t3	2°C/min
n (Cycle)	1

t = temprature slope  
 t , t1, t6: Power Off  
 t2: Power on/off test 10 times (on 2 min / off 5min)  
 t3, t4: Run burn in test 8.0  
 t5: Win 7 Software restart test 3 times  
 Test Software: Windows 8.1

**Test Result:**

- a. No issues were found during the cold start test.
- b. No issues were found during the hot start test.