

# ACP-5187

## Environment Test Report

Report NO:13P020006

Summary	<p><input checked="" type="checkbox"/> <b>Pass</b></p> <p><input type="checkbox"/> <b>Fail</b></p> <p>Note : There is/are ____ defect(s) not list in the report, please check it in the DTS Website.</p> <p><input type="checkbox"/> <b>Pass with Deviation</b></p> <p><b>Comment:</b></p>
---------	--

**Issue date**

**Approval**

**Test Engineer**

2013-04-12

Tom Lin

Andy Chen

## Test item list

1. <i>Test item list</i> -----	2
2. <i>Configuration of EUT</i> -----	3
2. <i>Temperature rise test</i> -----	4
3. <i>Temperature cycle operation test</i> -----	8
4. <i>High temperature storage test</i> -----	9
5. <i>Low temperature storage test</i> -----	10
6. <i>Humidity test</i> -----	11
7. <i>Cold start and hot start test</i> -----	12

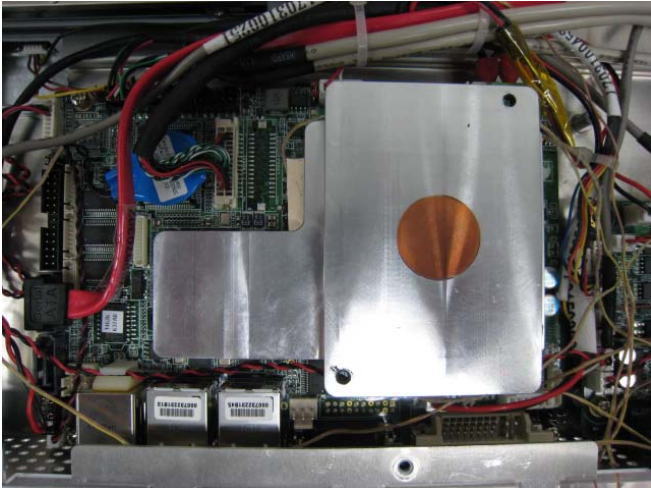
### Testing Result

Num	Test item list	Result	Remark
1	Temperature rise 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

Item	Device Information	
SYSTEM PC Model / Ver.	GENE-QM77 A1.0	
CPU	Intel Core i7-3610QE 3.3GHz	
BIOS / Version	ACP-5187 R0.1 (A587AM01)(03/05/2013)	
South Bridge	Intel QM77	
Industry Memory Type	DLS DDR3-1333 8GB ELPIDA J4208BBBG-GN-F	
Industry HDD	TOSHIBA MK1676GSC 2.5" 160G	
Operating System	Windows 7 Professional English 64 Bit	
Adapter	FSP-120-AAB 19V/6.32A	

**System picture:**



# Temperature rise test

---

**Test Date:** 04-10-2013

**Test Product:** ACP-5217

**Test Site:** AAEMON QE Dept.

**Test Standard:** Refer to EN 61131-2(94), UL508 (94)

**Temperature Measurement:**

40 Channel Thermal Recorder:

YOKOGAWA Inc,

Model: DA100-13-1D

Date of Calibration: 10/08/2012

Serial Number: 12A323190

**Test Condition:**

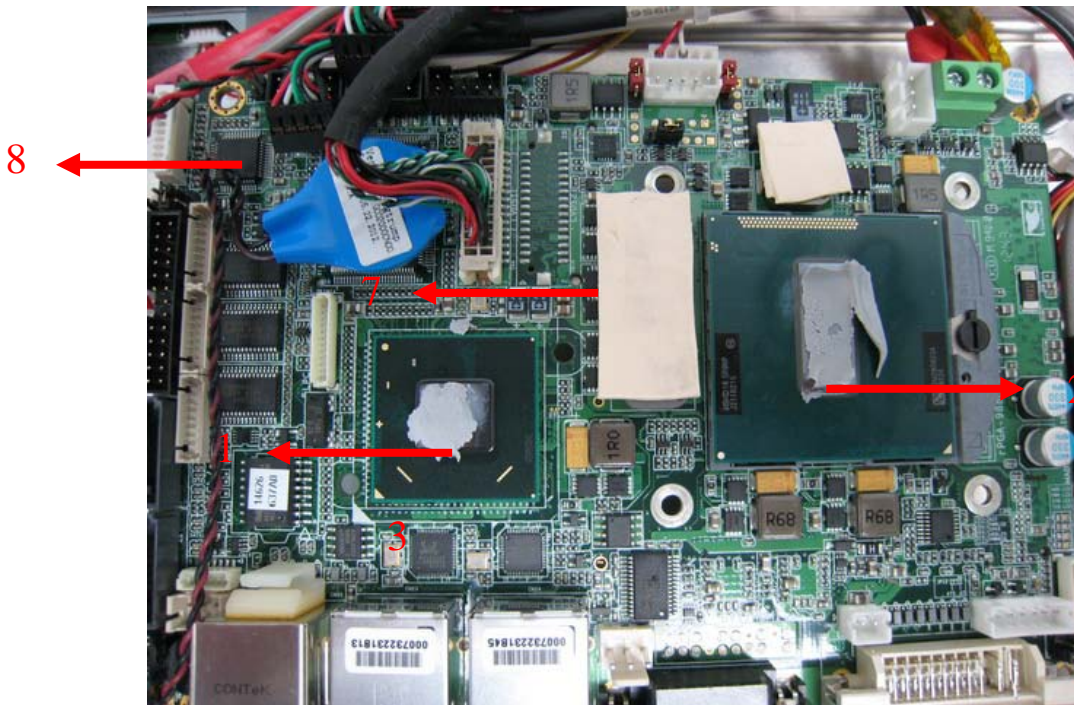
Ambient temperature: 40°C

Continuous running till thermal stable (within less than 1°C)

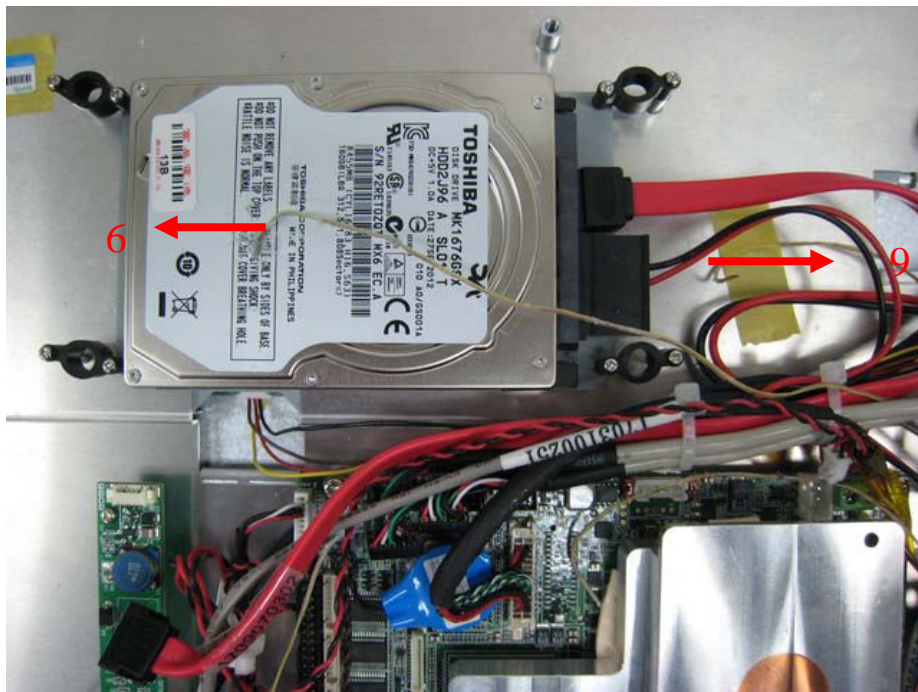
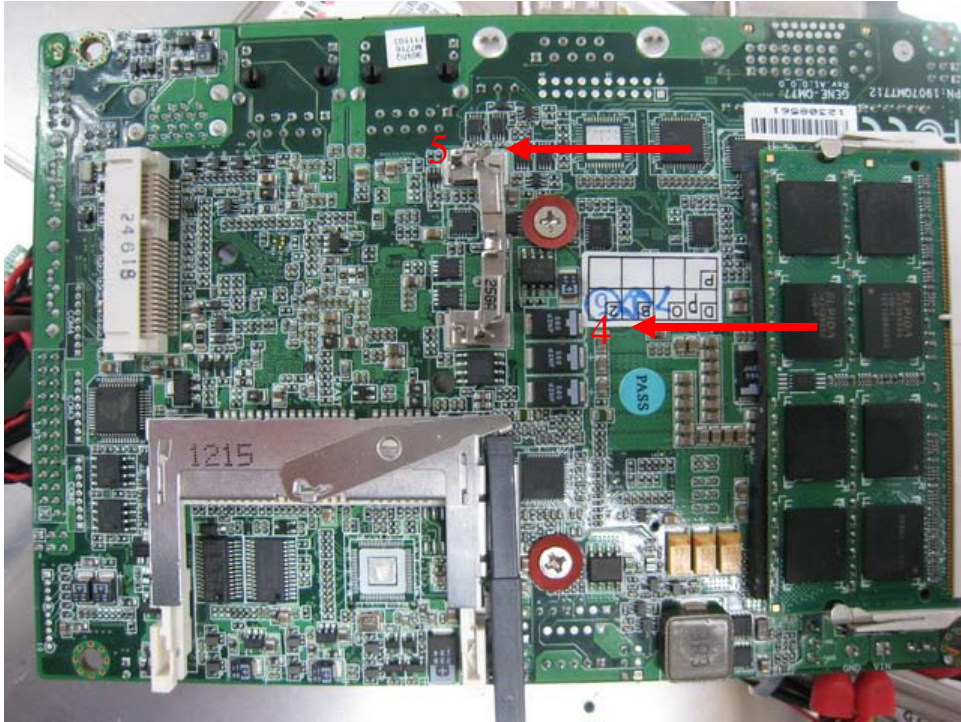
**Test Software:**

Windows 7 / Run PassMark Burn In Test 7.0 Pro

**Terminal Recorder:**

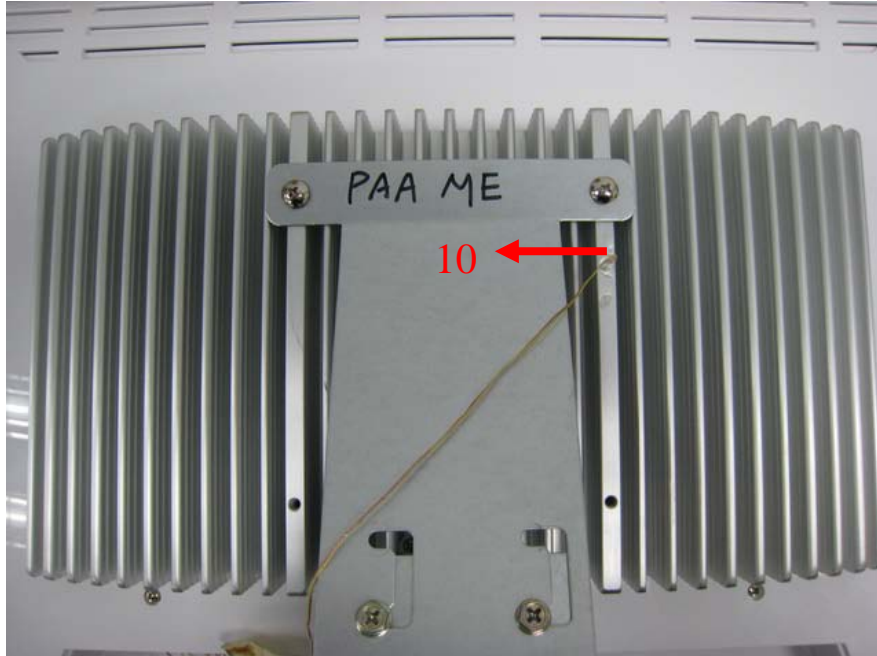


# Temperature rise test



# Temperature rise test

---



# Temperature rise test

## Thermal profile data:

Point Stage(°C)	Temp.	Spec	25	40	Note
CPU - Intel core i7-3610QE		105	51.0	66.0	
02. U31 - (TF)Chipset PCH.INTEL.BD82QM77		108	66.6	81.6	
03. U42 - (TF)PWR.SMD.SO-8P.P-Channel MOSFET.APEC.AP6679GM-HF		125	55.6	70.6	
04. Memory - DLS DDR3-1333 8GB		95	41.3	56.3	
05. U47-(TF)IC.SMD.QFN 48P.PCI-express.Gigabit Ethernet		90	53.5	68.5	
06. HDD - TOSHIBA MK1676GSC 2.5" 160G		85	52.5	67.5	
07. L5 - (TF)COIL.0.36uH.Irms=34A.20%.Panasonic.ETQP4LR36AFC		130	58.5	66.9	
08. U11 - (TF)High Definition.Audio Codec.REALTEK.ALC892-GR		100.5	58.5	73.5	
09. Internal Air		N/A	44.7	59.7	
10. Rear heatsink		N/A	43.3	58.3	
11. Chamber Temperature		N/A	25	40	
<p><b>Note(*):</b></p> <p>1. "Tc" indicates the component's case maximum temperature value specified in its datasheet.</p> <p>2. "Tm" indicates the measured Tc value under working environmental temperature within product specification.</p> <p>3. <b>Judgment Criteria:</b></p> <p>- <b>Fail</b> : <math>T_m &gt; T_c</math>; The measured value is over specification plus margin.</p> <p>- <b>Margin</b> : <math>T_c &gt; T_m &gt; T_c - 5^\circ\text{C}</math>; The measured value is within specification with margin. For FANLESS system application, it is strongly recommended to add thermal dissipation design for better reliability.</p> <p>- <b>Pass</b> : <math>T_m &lt; T_c - 5^\circ\text{C}</math>; The measured value is with safety margin.</p>					

## Sample Configuration & Quantity Under Test:

Quantity: 1 (ACP-5187)

## Test Result:

No issues were found during the temperature rise operation test.

# Temperature cycle test

**Test Date:** 03-29~30-2013

**Test Product:** ACP-5187

**Test Site:** AAEON QE Dept.

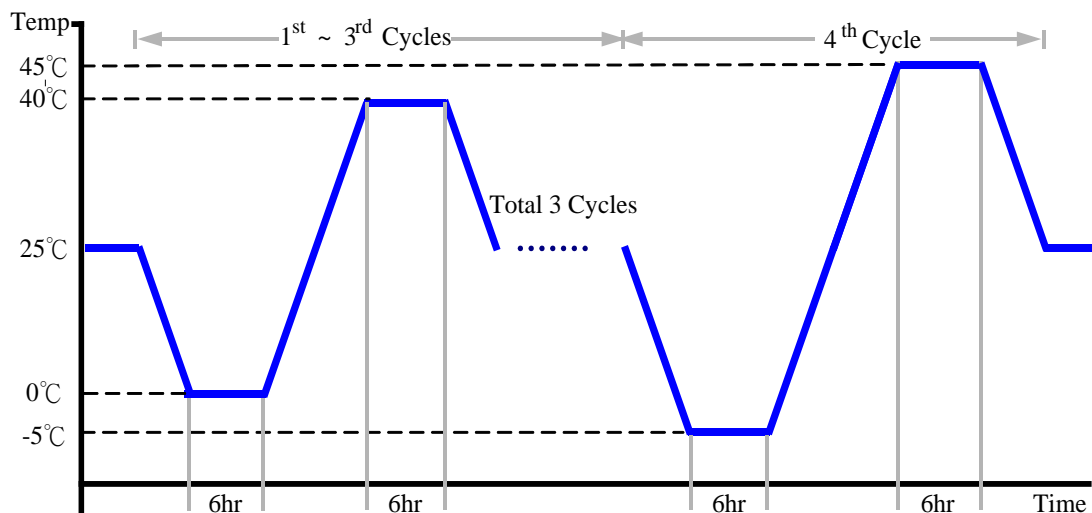
**Test Standard:** Refer to IEC68-2-14 Testing procedures  
Test N: Change of temperature Test

**Test Equipment:**

Programmable Temperature & Humidity Chamber(K.SON. INS. TECH. CORP.)  
Model: THS-D75-100+LN2  
Date of Calibration: 06/20/2012  
Serial Number: 6487KT

**Test Condition:**

1. Test Low Temperature: 0°C (1~3 cycles)  
-5°C (4<sup>th</sup> cycle)
2. Test High Temperature: 40°C (1~3 cycles)  
45°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-5187)

**Test Result:**



No issues were found during the temperature operation cycle test.

## High temperature storage test

---

**Test Date:** 04-5~7-2013

**Test Product:** ACP-5187

**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.)

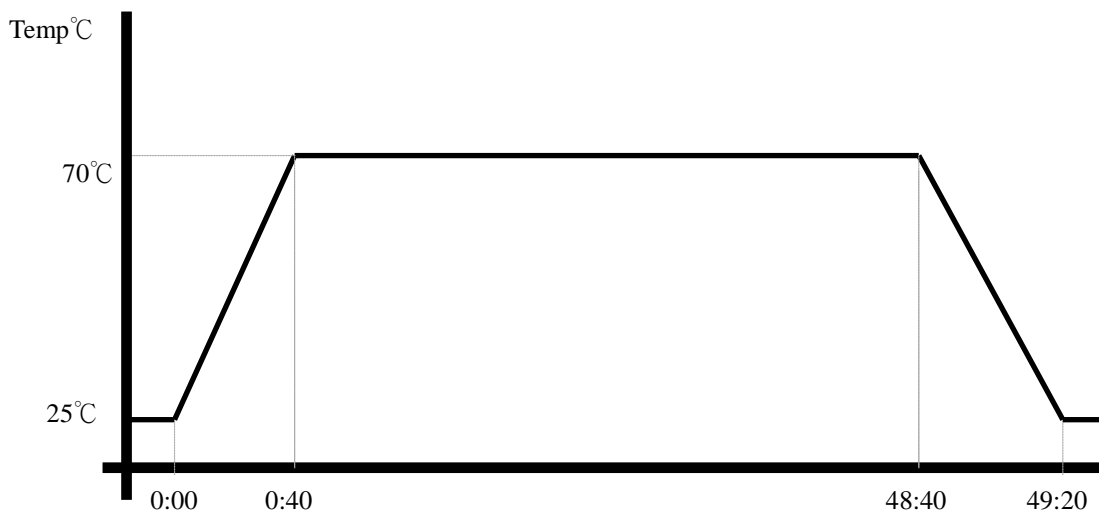
Model: THS-D75-100+LN2

Date of Calibration: 06/20/2012

Serial Number: 6487KT

**Testing Item:**

1. Test Temperature: 70°C
2. Test Times: 48Hrs
3. Test Software: Windows 7 / Run PassMark Burn In Test 7.0 Pro
4. Test Environment Curve:



**Sample Configuration & Quantity Under Test:**

Quantity: 1 (ACP-5187)

**Test Result:**

No issues were found after the high temperature storage test.

# Low temperature storage test

---

**Test Date:** 04-8~9-2013

**Test Product:** ACP-5187

**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-D75-100+LN2  
Date of Calibration: 06/20/2012  
Serial Number: 6487KT

**Testing Item:**

1. Test Temperature: -20°C
2. Test Times: 48Hrs
3. Test Software: Windows 7 / Run PassMark Burn In Test 7.0 Pro
4. Test Environment Curve:



**Sample Configuration & Quantity Under Test:**

Quantity: 1 (ACP-5187)

**Test Result:**

No issues were found after the low temperature storage test.

# Humidity test

**Test Date:** 04-9~10-2013

**Test Product:** ACP-5187

**Test Site:** AAEON QE Dept.

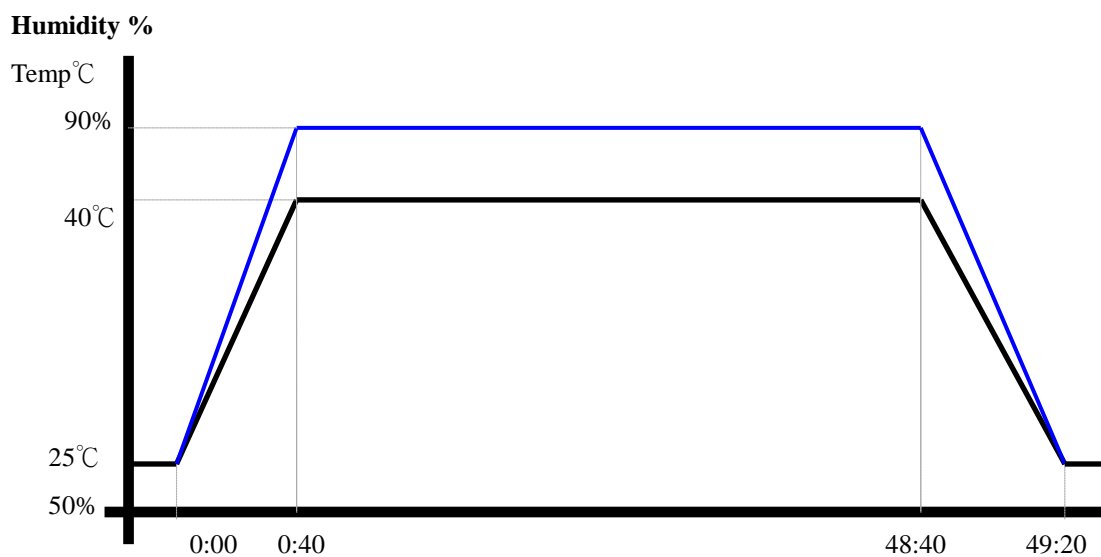
**Test Standard:** Refer to IEC 68-2-3 Testing procedures  
Test Ca: Damp heat, steady state (Non-operation)

**Test Equipment:**

Programmable Temperature & Humidity Chamber(K.SON. INS. TECH. CORP.)  
Model: THS-D75-100+LN2  
Date of Calibration: 06/20/2012  
Serial Number: 6487KT

**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 7.0 Pro
5. Test Environment Curve:



**Sample Configuration & Quantity Under Test:**

Quantity: 1 (ACP-5187)

**Test Result:**

No issues were found after the humidity storage test.

# Cold start and hot start test

**Test Date:** 04-11~12-2013

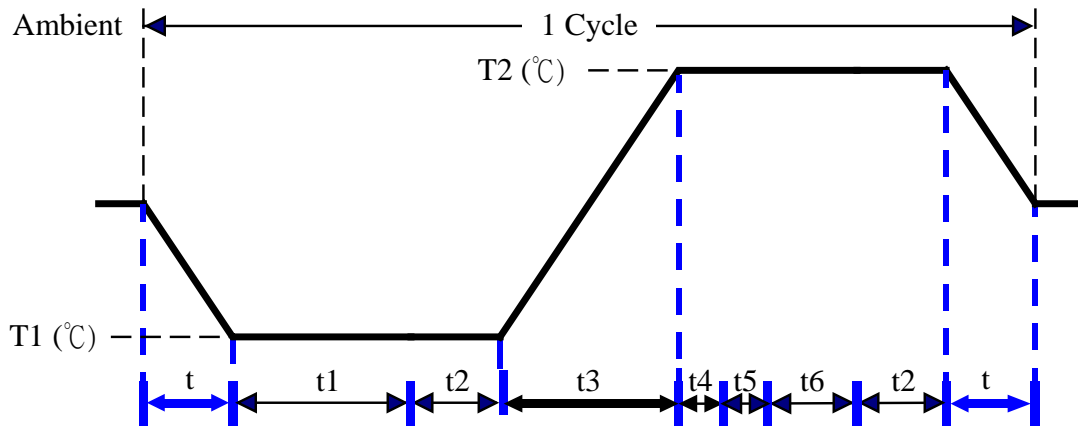
**Test Product:** ACP-5187

**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-D75-100+LN2  
Date of Calibration: 06/20/2012  
Serial Number: 6487KT

**Test Condition:**



Parameters	Description
T1	-5°C
T2	45°C
t1	4 hrs
t2, t6	2 hrs
t4, t5	1 hrs
t, t3	2°C/min
n (Cycle)	1

t = temperature slope  
t , t1, t6: Power Off  
t2: Power on/off test 10 times (on 2 min / off 5min)  
t3, t4: Run Burn In Test 7.0 Pro  
t5: Win 7 Software restart test 3 times  
Test Software: Windows 7

**Test Result:**

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