# UPS-GWS01

**With eMMC**

# Environment Test Report

**Report NO: 17D020012**

| | |
|---|---|
| Summary | ☑ **Pass**<br>☐ **Fail**<br>☐ **Pass with Deviation**<br>**Comment: _____** |

| Issue date | QE Manager | Test Engineer |
|---|---|---|
| 2017-11-01 | KJ Wang | Ben Sun |

# Test item list



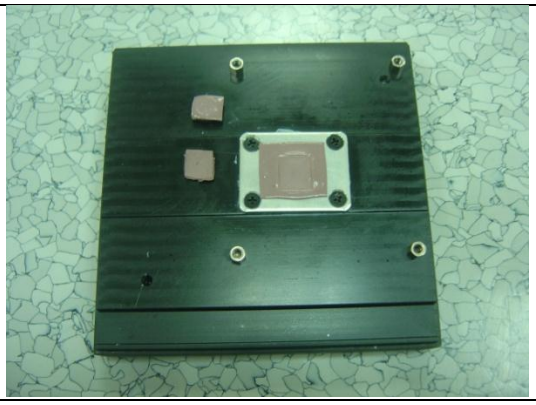
## Testing Result

| Num | Test item list | Result | Remark |
|---|---|---|---|
| 1 | High temperature operation test | Pass | |
| 2 | Temperature cycle operation test | Pass | |
| 3 | Cold start and hot start test | Pass | |

# Configuration of EUT

| Num | Item | Spec |
|---|---|---|
| **1.** | **Fanless System** | UPS-GWS01 |
| | 1. Main Board | UP-APL01 A1.0 |
| | 2. BIOS Ver. | R0.9 (UPA1AM19) |
| | 3. CPU Type | Intel Pentium N4200 1.1GHz |
| | 4. Chipset | Intel Apollo Lake |
| | 5. Memory | Onboard LPDDR4 8GB |
| | 6. Storage | Onboard eMMC Samsung DJNB4R 128GB |
| | 7. Test Software | Windows 10 / Run PassMark BurnIn test 8.1 Pro |
| **2.** | **Adapter:** | MEAN WELL / GST60A05 / Output: 5V;6A MAX |

## Photos

# High Temperature Operation test

**Test Date:** 10-30~11~01-2017

**Test Product:** UPS-GWS01

**Test Site:** AAEON QE Dept.

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

**Test Equipment:**

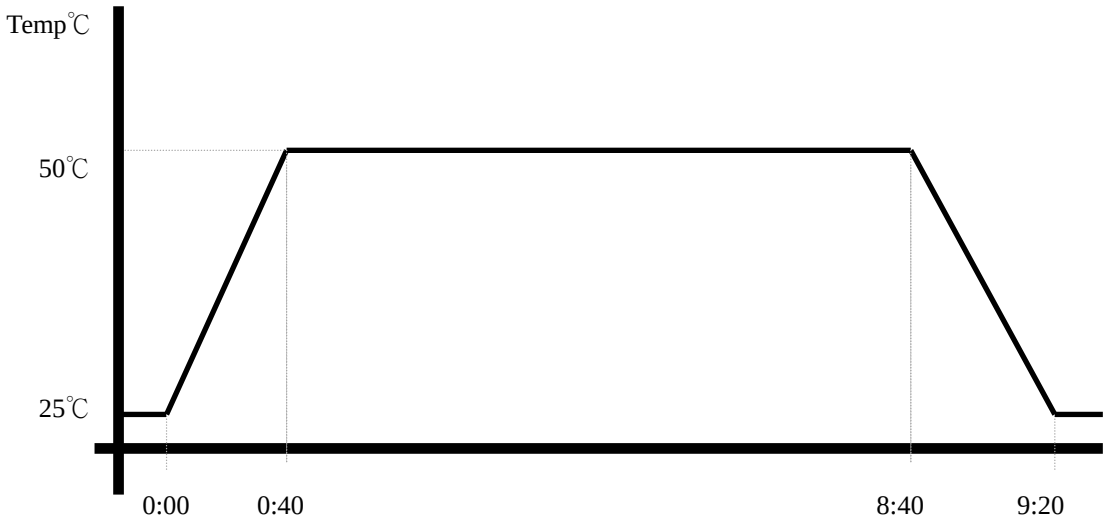
Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)
Model: THS-B6T-150+LN2
Date of Calibration: 04/21/17
Serial Number: 6488KT

**Temperature Measurement:**

20 Channel Thermal Recorder
OMRON ZR-RX45
Date of Calibration: 12/20/16
Serial Number: 12A323190

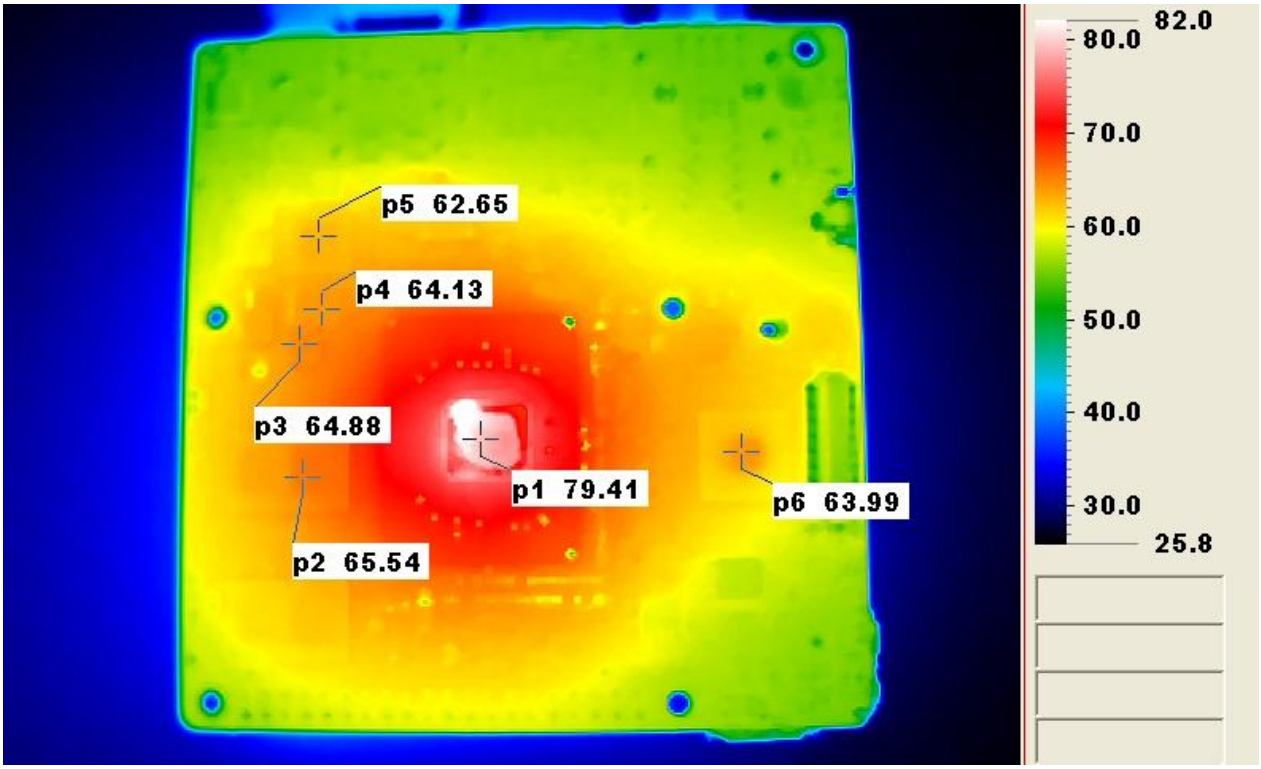
**Testing Item:**

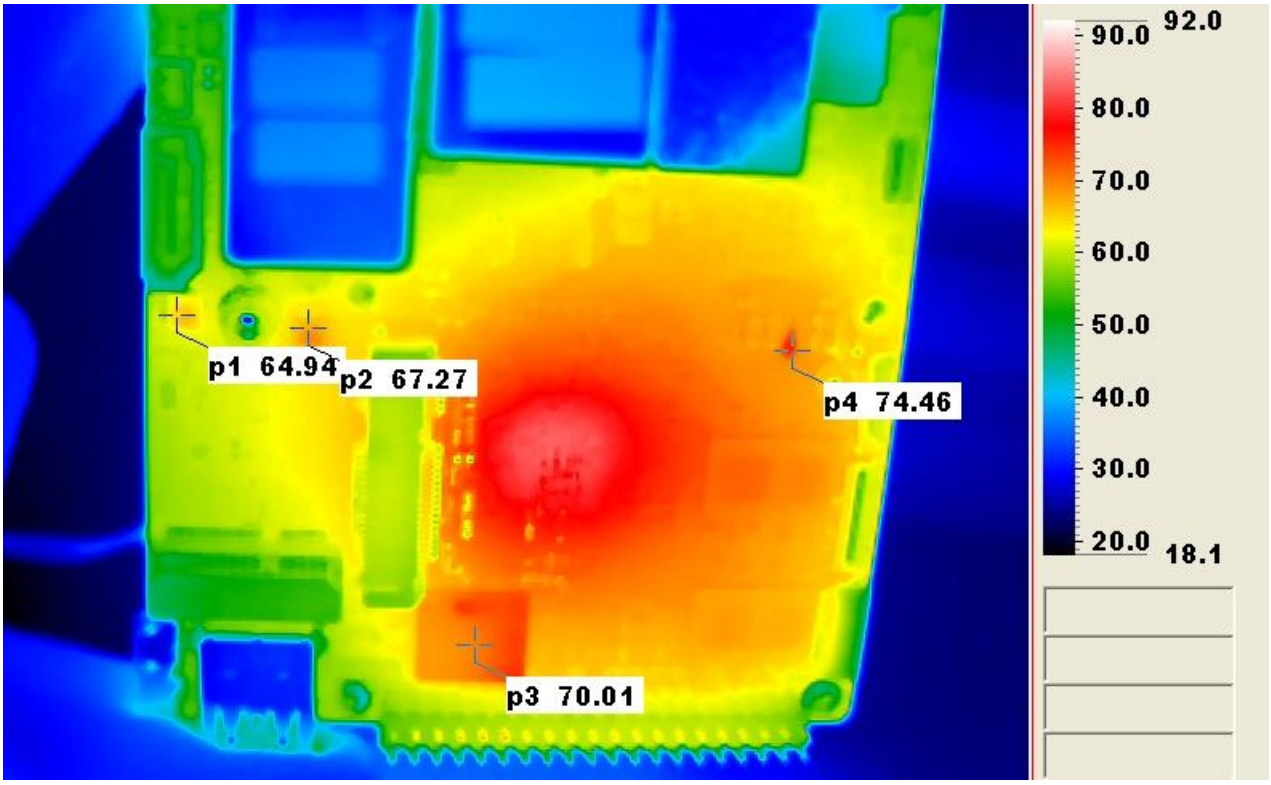
1. Test Temperature: 50℃
2. Test Times: 8Hrs
3. Test Software: Windows 10 / Run PassMark Burn In Test 8.1 Pro
4. Test Environment Curve:

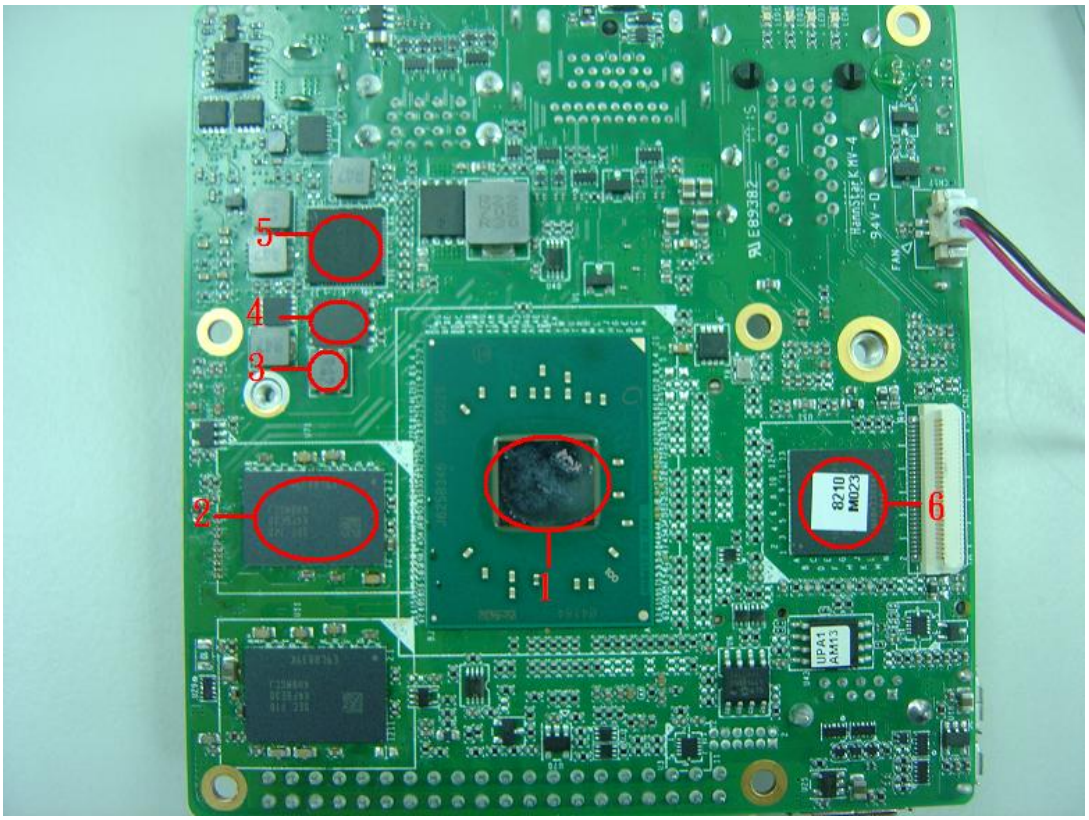


# High Temperature Operation test

**Terminal Recorder:**




5
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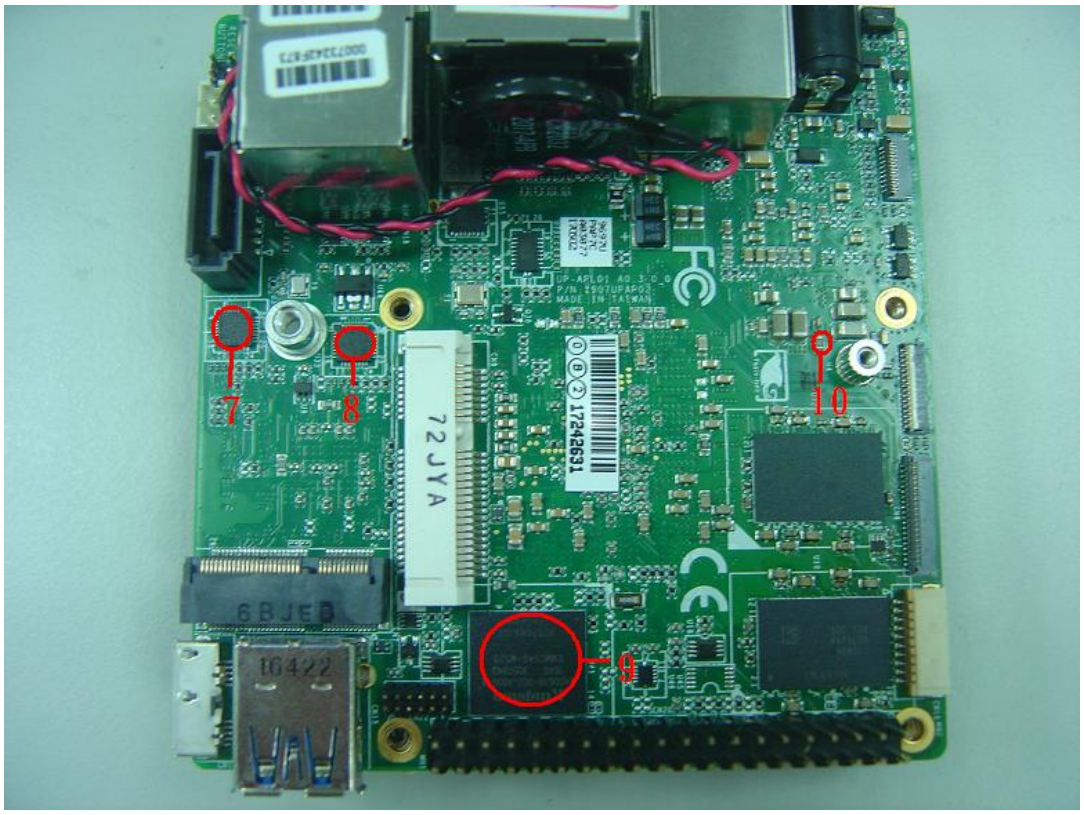

7
8
9
10

# High Temperature Operation test

**Thermal profile data:**

**UPS-GWS01 (With 0.5m/sec airflow)**

| Point | Position | Describe | Spec Tc(*1) | TAT(*2) | TPT(*3) | Note |
|---|---|---|---|---|---|---|
| | | | | 50 | 25 | |
| 1 | U1 | (TF)INTEL CPU.Apollo Lake.Pentium N4200.2.5GHz.FCBGA1296.FH8066802979703.SR2Z5 | 105 | 64.8 | 39.8 | |
| 2 | U71 | (TF)IC.16Gb(512M32)LPDDR4.SDRAM.3200Mbps.1.8V/1.1V. FBGA 200P.D9TFW.SMD.Micron MT53B512M32D2NP-062WT:C | 95 | 69.2 | 44.2 | |
| 3 | L22 | (TF)Coil.0.47uH.DCR=14mΩ.Irms=7Amp.20%.4.5x4x1.8mm. SMD.GOTREND.GSTD4020PE-R47M | 100 | 66.2 | 41.2 | |
| 4 | Q24 | (TF)PWR.SMD.PMPAK5X6 DUAL N-MOSFET Vgs1/2=(+/-)20V Id1=10.1A Id2=12A Vds1/2=30V FAIRCHILD.FDMS7620S | 125 | 66.1 | 41.1 | |
| 5 | U56 | (TF)IC.PMIC. Intel Apollo Lake.DDR=1.1V.VQFN 64P.SMD.TI.TPS650940A0RSKR | 100 | 52.2 | 27.2 | |
| 6 | U52 | (TF)IC.CPLD FOR MAX 10 devices.UBGA 169P.C/S: 00691C2C/Blue.SMD.Altera.10M02SCU169C8G | 100 | 63.7 | 38.7 | |
| 7 | U34 | (TF)IC.PCI-express.Gigabit Ethernet Chip.QFN 32P.SMD.REALTEK.RTL8111G-CG | 100 | 65.1 | 40.1 | |
| 8 | U33 | (TF)IC.PCI-express.Gigabit Ethernet Chip.QFN 32P.SMD.REALTEK.RTL8111G-CG | 100 | 67.6 | 42.6 | |
| 9 | U41 | Samsung KLMxGxJENB-B041 128GB | 85 | 83.1 | 58.1 | NOTE4 |
| 10 | R552 | (TF)CR.2.2.1/10W.1%.0603.SMD | 125 | 84.0 | 59.0 | |
| 11 | | RTC Battery | 85 | 70.3 | 45.3 | |
| 12 | | Chassis Surface Temp. | | 57.2 | 32.2 | |

**Note(*):**

**1. "Tc"** indicates the component's case maximum temperature value specified in its datasheet.

2. "TAT" indicates the actual measured temperature in chamber.

3. "TPT" indicates the predicted temperature by offset from TAT

**4. Judgment Criteria:**

**- Fail :** Tm > Tc; The measured value is over specification.

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

**- Pass :** Tm < Tc-5℃; The measured value is with safety margin.

**4. Defect NO.**

**Sample Configuration & Quantity Under Test:**

Quantity: 1 (UPS-GWS01)

**Test Result:**

No issues were found during the temperature rise operation test.

# Temperature cycle test

**Test Date:** 10-26 ~ 27-2017

**Test Product:** UPS-GWS01

**Test Site:** AAEON QE Dept.

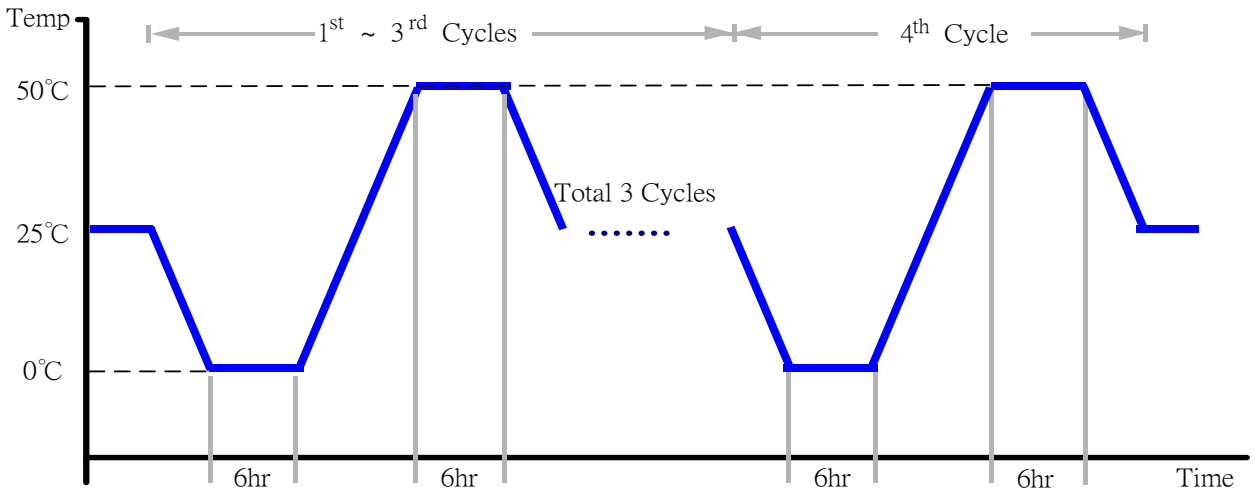
**Test Standard:** Refer to IEC68-2-14 Testing procedures
Test N: Change of temperature Test

**Test Equipment:**

Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)
Model: THS-B6T-150+LN2
Date of Calibration: 04/21/17
Serial Number: 6488KT

**Test Condition:**

1. Test Low Temperature: 0℃
2. Test High Temperature: 50℃
3. Test dwell time: 6Hrs
4. Temperature slope: 2℃/min
5. Test cycle: 4 cycles
6. Test Software: Windows 10 / Run PassMark Burn In Test 8.1 Pro
7. Test Environment Curve:




**Sample Configuration & Quantity Under Test:**

Quantity: 1 (UPS-GWS01)

**Test Result:**

No issues were found during the temperature operation cycle test.

# Cold start and hot start test

**Test Date:** 10-24 ~ 25-2017

**Test Product:** UPS-GWS01

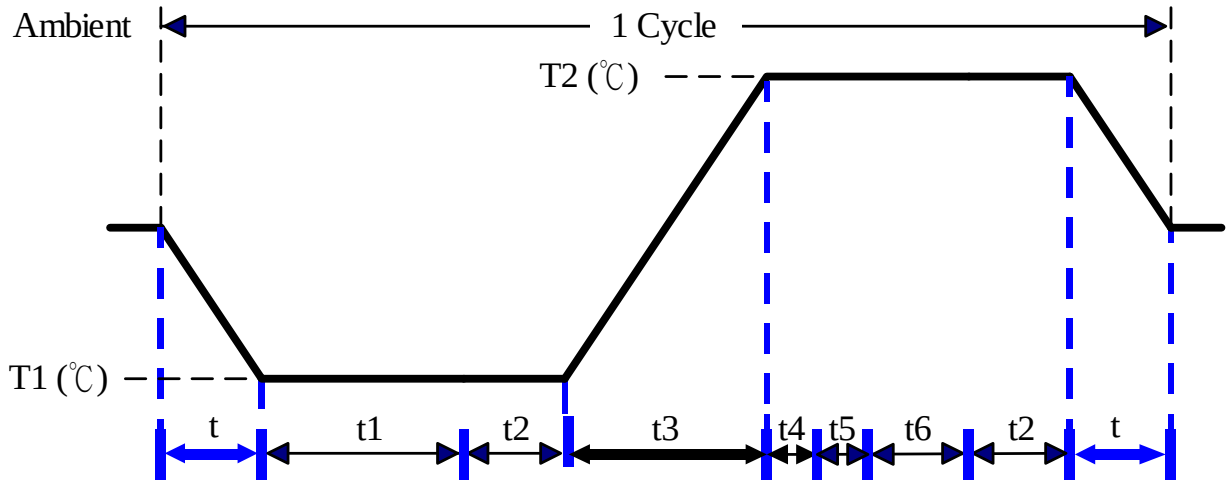
**Test Site:** AAEON QE Dept.

**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: 04/21/17
Serial Number: 6488KT

**Test Condition:**




| Parameters | Description |
|---|---|
| T1 | 0℃ |
| T2 | 50℃ |
| t1 | 4 hrs |
| t2, t6 | 2 hrs |
| t4, t5 | 1hrs |
| t, t3 | 2℃/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 PassMark Burn In Test
t5: Win 10 Software restart test 2 times
Test Software:Windows 10

**Test Result:**

a. No issues were found during the cold start test.

b. No issues were found during the hot start test.