FWS-7250

Environment Test Report

Report NO : 14I020025

Summary	☐ **Pass** ☐ **Fail** Note : There is/are ___ defect(s) not list in the report, please check it in the DTS Website. ☑ **Pass with Deviation** **Comment:** Temperature at one component was estimated to be in marginal temperature point in comparison with component datasheet.

Issue date	Approval	Issued by
2014-12-26	**Vincent Chen**	**Rex Chang/ Juno Cheng**

Test item list

Testing Result

Num	Test item list	Result	Remark
1	Temp./Humidity power on/off test	Pass	
2	Temperature rise test	Pass	
3	Temperature cycle operation test	Pass	
4	High temperature storage test	Pass	
5	Low temperature storage test	Pass	
6	Humidity test	Pass	
7	Cold start and hot start test	Pass	

Configuration of EUT

Num	Item	Spec
1.	System:	FWS-7250
	1. Main board	FWB-7250 A0.2
	2. BIOS	K7250M04
	3. CPU Type	Intel Celeron CPU J1900 @ 1.99GHz
	4. Memory	ADATA ADDS1600W4G11-BMIE 4GB * 2
	5. 2.5'' SATA HDD	WD WD1600BEVT 160GB *1 WD WD3200BEKX 320GB *1
	6. Test Software	Windows 8 / Run PassMark Burn In Test 8.0 Pro
2.	Power Supply	FSP100-50LG

CPU Cooler

Temp./humidity power on/off test

Test Date: 12-24～26-2014

Test Product: FWS-7250 A0.2

Test Site: AAEON QE Dept.

Test Standard: Refer to IEC 68-2-30 Testing procedures
Test Db: Damp Heat Test

Test Equipment:

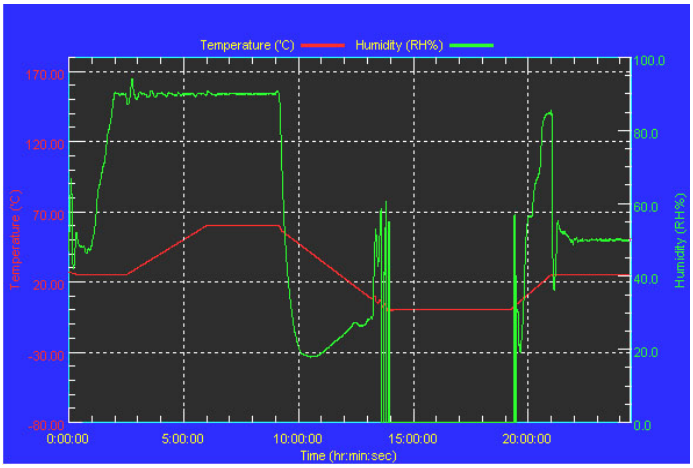
Programmable Temperature & Humidity Chamber (K.SON. INS. TECH. CORP.)
Model: THS-D7S-100+1 N2
Date of Calibration: 10/08/14
Serial Number: 3898

Temperature & Humidity Power On/Off Test:

Testing Specification:

Step	Temperature (℃)	Humidity (%RH)	Duration (HH:MM)
1	25	50	00:30
2	25	50	00:30
3	25	90	01:00
4	25	90	00:30
5	60	90	03:30
6	60	90	03:00
7	0	0	04:50
8	0	0	05:23
9	25	50	01:47
10	25	50	03:00

Test Curve:



Test Result:

Test Method	Actual	Successful	Failure rate
Power On/Off	1042/times	1042/times	0 %
Note: Failure rate need to 0%.			

Temperature rise test

Test Date: 12-23～24-2014

Test Product: FWS-7250

Test Site: AAEON 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: 09/10/14
Serial Number: 12A323190

Test Condition:

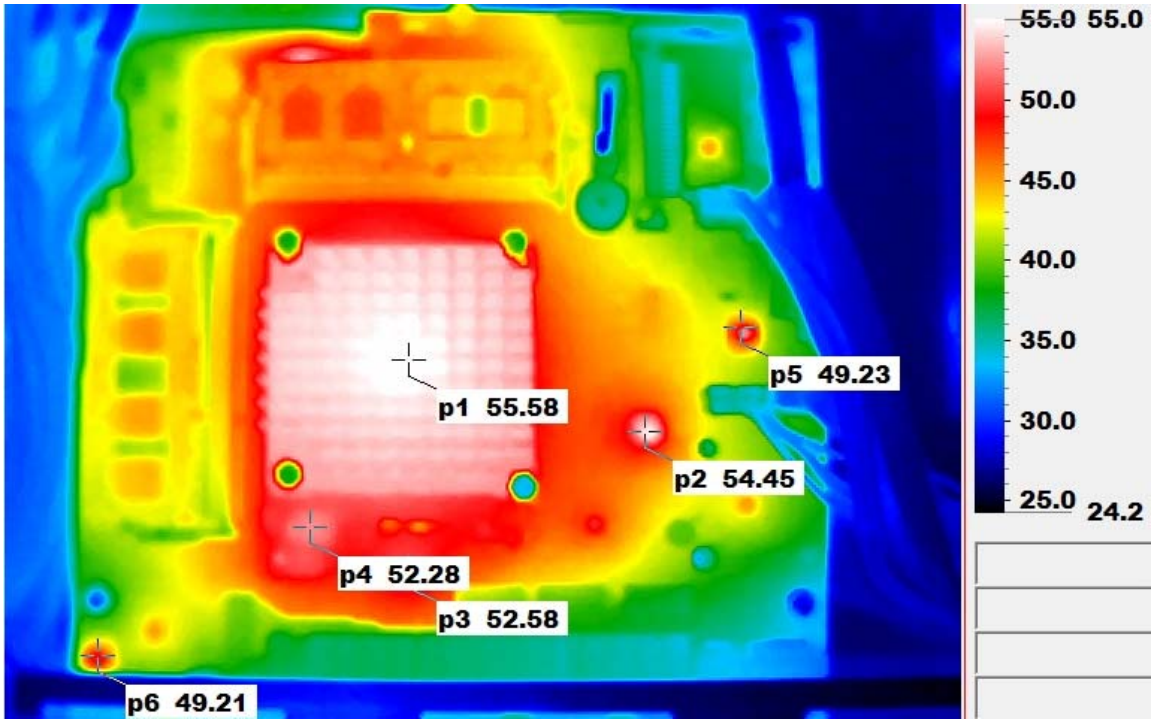
Ambient temperature: 40℃
Continuous running till thermal stability (within less than 1℃)

Test Software:

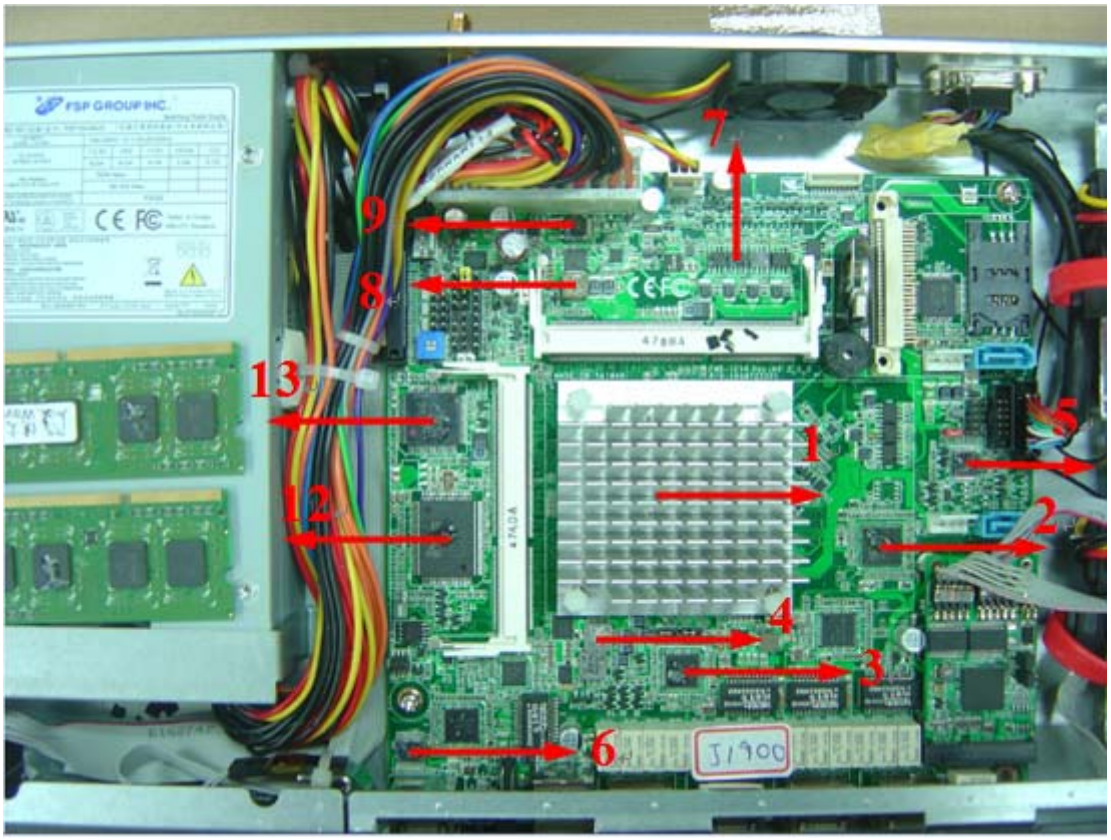
Windows 8 / Run PassMark Burn In Test 8.0 Pro

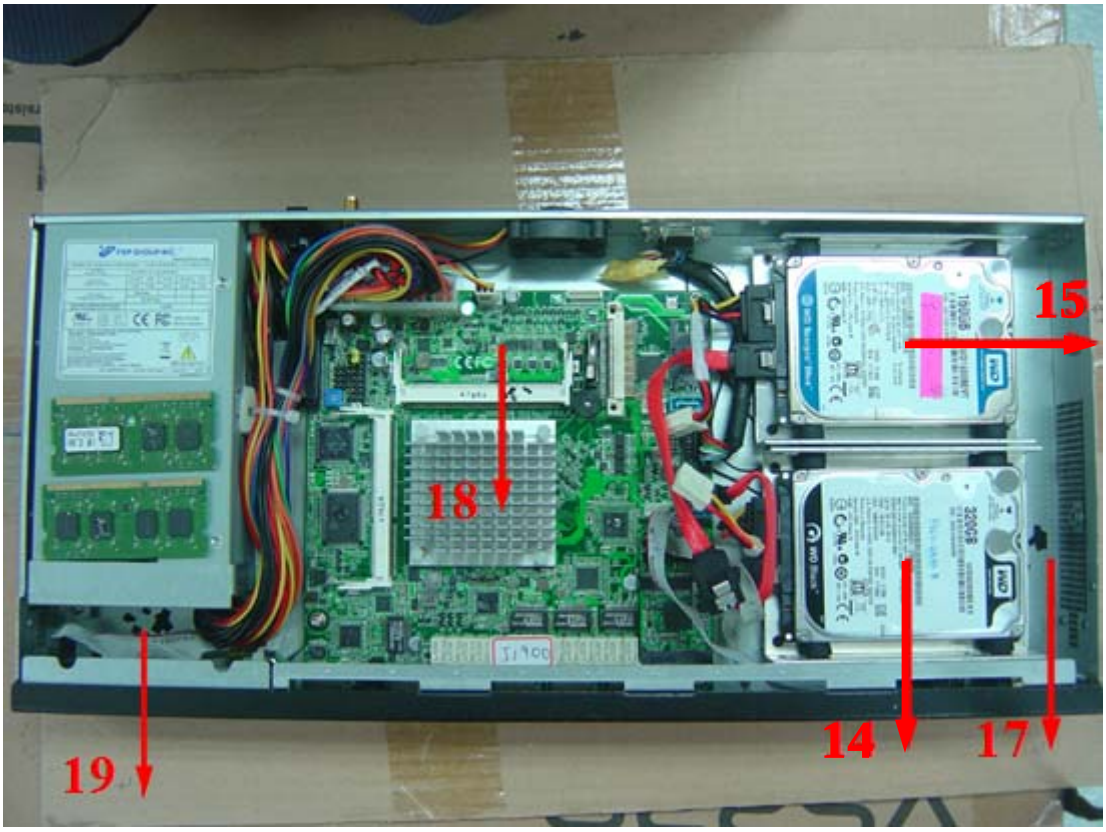
Terminal Recorder:

IR Thermal



Temperature rise test





Temperature rise test

Thermal profile data:

FWS-7250

Temperature rise test

Point / Temp. Stage(℃)	Spec	40	25	Note
01. U28 – (TF)INTEL Bay Trail-D.J1900.2GHz..FH8065301615010 SR1UT	110	79.0	64	
02. U30 – (TF)IC.PCIe-2.0 3port Switch..SMD.PLX.PEX8603-AB50NIG	100	69.1	54.1	
03. U38 – (TF)IC.PCI-E GigaBit Ethernet Chipset.QFN 64P.SMD.Intel.I210AT	100	66.8	51.8	
04. L3 – (TF)COIL..Panasonic.ETQP4LR42AFM	140	70.3	55.3	
05. U25 – (TF)IC.SMD SSOP Driver&Receivers.TI.GD75232DBR	85	64.4	49.4	
06.U43– (TF)IC.SMD SSOP.20Pin Driver&Receivers.TI.GD75232DBR	100	67.5	52.5	
07. U12 – (TF)IC.3A.Ultra Low Dropout.SMD.YOBON.YB1283PSP8	100	66.6	51.6	
08. L2 – (TF)COIL.GOTREND.GSTD6030PE-1R5M	140	70.7	55.7	
09. U2 – (TF)REG.SMD. Linear Regulator.Diodes.AP1084DG-13	100	77.9	62.9	
10. Memory – 1	85	67.5	52.5	
11. Memory –2	85	67.8	52.8	
12. U29 – (TF)IC.SMD.QFP128P.Super I/O.ITE.IT8728F/CX	85	64.0	49.0	
13. U20 – (TF)IC.CPLD.TQFP100..LATTICE.LCMXO2-640HC-4TG100C	100	62.7	47.7	
14. HDD	60	54.3	39.3	
15. HDD	60	57.3	42.3	Note 3
16 Battery - (TF)Lithium Battery.3V.225mAH.PANASONIC.CR2032	60	52.1	37.1	
17. System inside air temperature	NA	40.8	33.8	
18. System inside air temperature	NA	57.5	42.5	
19. System inside air temperature	NA	49.4	34.4	
20. Housing Surface Temperature	NA	46.6	31.6	

Note(*):

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

2. "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℃; 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. :** :I140610QED04

Sample Configuration & Quantity Under Test:

Quantity: 1 (FWS-7250)

Test Result:

No issues were found during the temperature rise operation test.

Temperature cycle test

Test Date: 12-21 ~23-2014

Test Product: FWS-7350

Test Site: AAEON QE Dept.

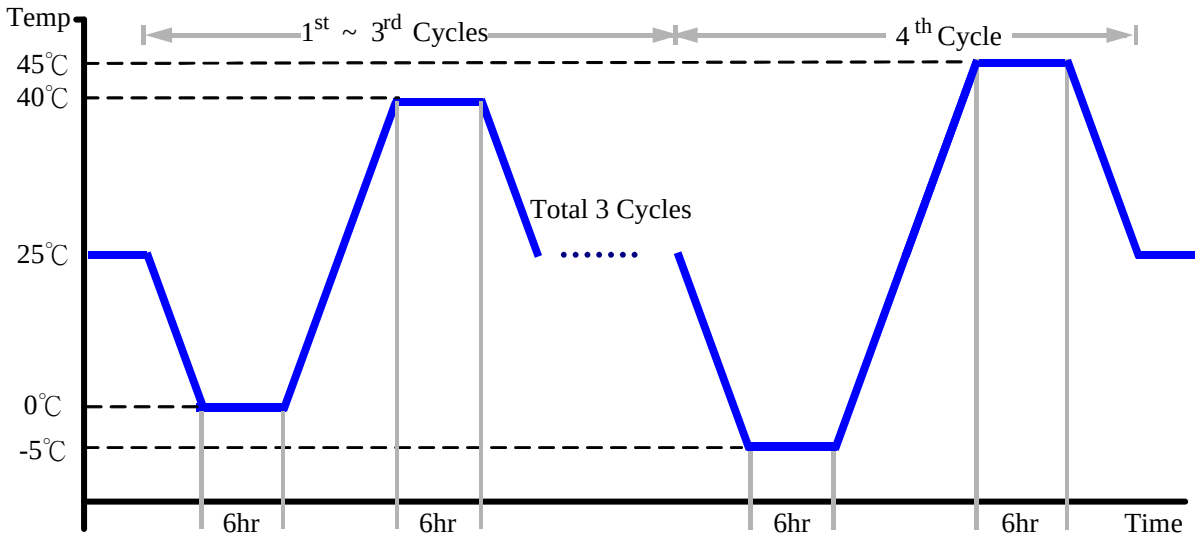
Test Standard: Refer to IEC68-2-14 Testing procedures
Test N: Change of temperature Test

Test Equipment:

Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)
Model: THS-D7S-100+1 N2
Date of Calibration: 10/08/14
Serial Number: 3898

Test Condition:

1. Test Low Temperature: 0℃ (1~3 cycles)
   -5℃ (4^{th} cycle)
2. Test High Temperature: 40℃ (1~3 cycles)
   45℃ (4^{th} cycle)
3. Test dwell time: 6Hrs
4. Temperature slope: 2℃/min
5. Test cycle: 4 cycles
6. Test Environment Curve:



Sample Configuration & Quantity Under Test:

Quantity: 1 (FWS-7250)

Test Result:

No issues were found during the temperature operation cycle test.

High temperature storage test

Test Date: 12-19 ~ 21-2014

Test Product: FWS-7250

Test Site: AAEON QE Dept.

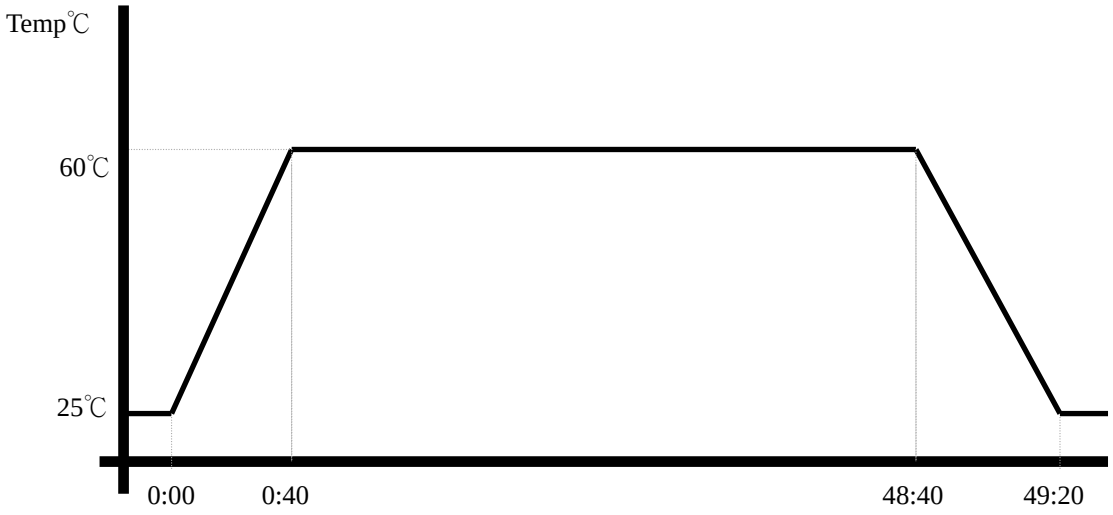
Test Standard: Refer to IEC 68-2-2 Testing procedures
Test Bb: Dry Heat Test (Non-operation)

Test Equipment:

Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)
Model: THS-D7S-100+1 N2
Date of Calibration: 10/08/14
Serial Number: 3898

Testing Item:

1. Test Temperature: 60℃
2. Test Times: 48Hrs
3. Test Software: Windows 8 / Run PassMark Burn In Test 8.0 Pro
4. Test Environment Curve:



Sample Configuration & Quantity Under Test:

Quantity: 1 (FWS-7250)

Test Result:

No issues were found after the high temperature storage test.

Low temperature storage test

Test Date: 12-17 ~19-2014

Test Product: FWS-7250

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-D7S-100+1 N2
Date of Calibration: 10/08/14
Serial Number: 3898

Testing Item:

1. Test Temperature: -20℃
2. Test Times: 48Hrs
3. Test Software: Windows 8 / Run PassMark Burn In Test 8.0 Pro
4. Test Environment Curve:

Sample Configuration & Quantity Under Test:
Quantity: 1 (FWS-7250)

Test Result:
No issues were found after the low temperature storage test.

Humidity test

Test Date: 12-15 ~ 17-2014

Test Product: FWS-7250

Test Site: AAEON QE Dept.

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

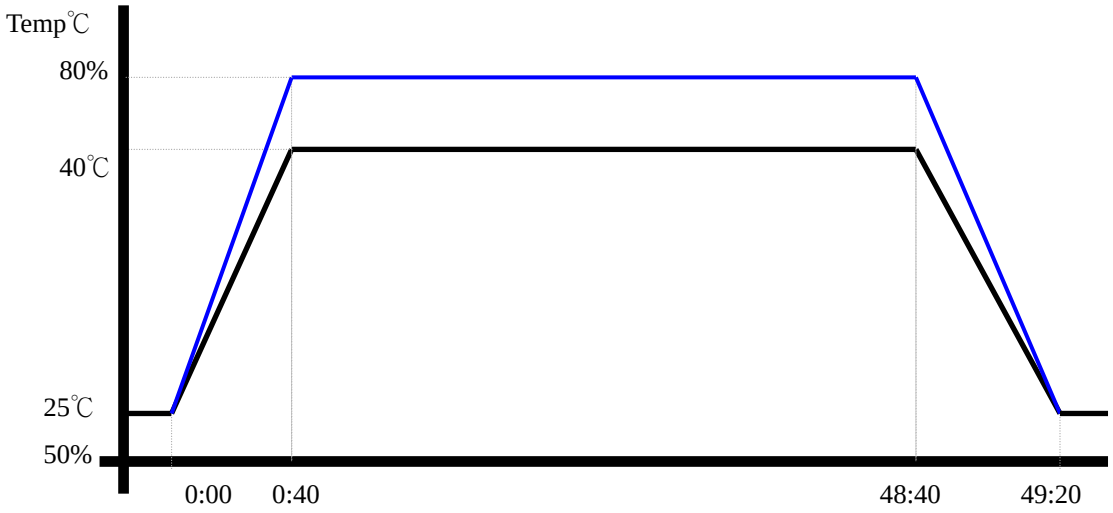
Test Equipment:

Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)
Model: THS-D7S-100+1 N2
Date of Calibration: 10/08/14
Serial Number: 3898

Testing Item:

1. Test Temperature: 40℃
2. Test Humidity: 80%RH
3. Test Times: 48Hrs
4. Test Software: Windows 8 / Run PassMark Burn In Test 8.0 Pro
5. Test Environment Curve:

Humidity %



Sample Configuration & Quantity Under Test:

Quantity: 1 (FWS-7250)

Test Result:

No issues were found after the humidity storage test.

Cold start and hot start test

Test Date: 12-13~15-2014

Test Product: FWS-7250

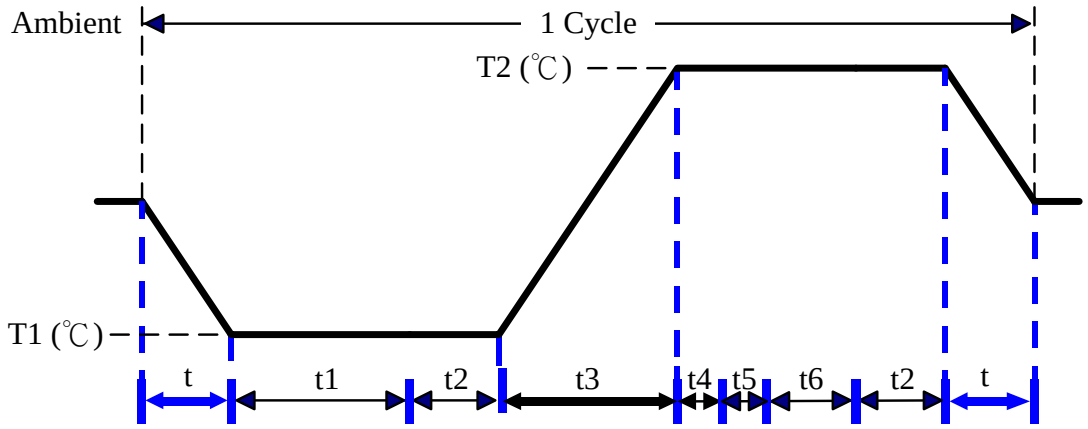
Test Site: AAEON QE Dept.

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-D7S-100+1 N2
Date of Calibration: 10/08/14
Serial Number: 3898

Test Condition:



Parameters	Description
T1	-5℃
T2	45℃
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 burn in test 8.0
t5: Win 8 Software restart test 3 times
Test Software: Windows 8

Test Result:

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

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