FWS-2260

Environment Test Report

Report NO: 15i020011

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: _____**

Issue date	Approval	Test Engineer
2016-09-16	**KJ Wang**	**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 variation 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	

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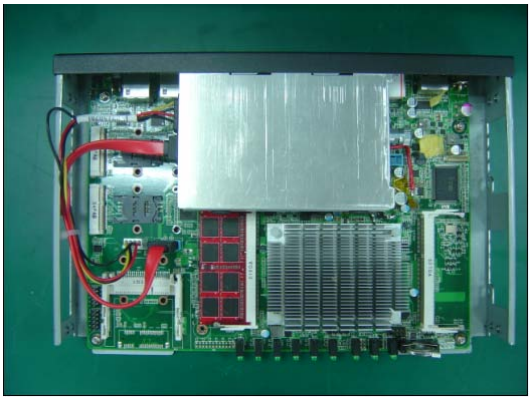
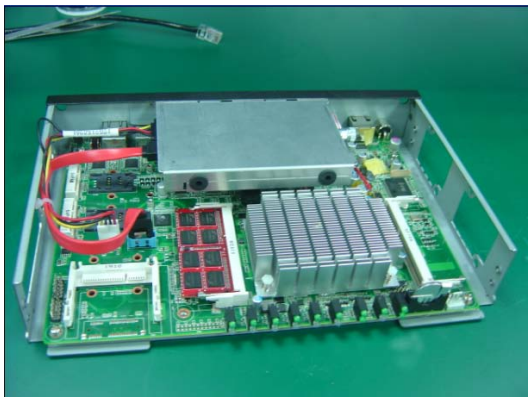
Configuration of EUT

Test Product: FWS-2260

Sample Configuration & Quantity Under Test:

1. CPU: Intel ® N3700 @1.60GHz
2. BIOS Ver.: FWS-2260 R0.6 (K226AM 06) (07/14/2015)
3. Memory: Innodisk DDR3L 1600 W/T SODIMM(V73CBG04808RAJJ1II)/8GB *2
4. 2.5” SATA HDD : WD WD5000BPKX /500GB
5. Test Software: Windows 8.1 / Run PassMark Burn In Test 8.0 Pro
6. ATX Power Supply: FSP060-DBAE1
7. Heat sink :





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Temp./humidity power on/off test

Test Date: 09-15 ~ 16-2015

Test Site: AAEON QE Dept.

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

Test Equipment:

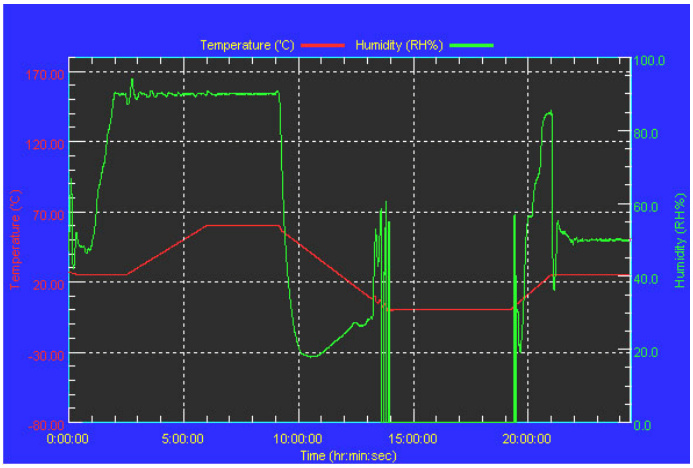
Programmable Temperature & Humidity Chamber (K.SON. INS. TECH. CORP.)
Model: THS-B6T-150+LN2
Date of Calibration: 03/26/15
Serial Number: 6487KT

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	1079/times	1079/times	0 %
Note: Failure rate need to be 0%.			

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Temperature rise test

Test Date: 09-14~ 15-2015

Test Product: FWS-2260

Test Site: AAEON QE Dept.

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

Temperature Measurement:

40 Channel Thermal Recorder:

Model: DA100-13-1D

Date of Calibration: 2014/10/01

Serial Number: 12A323190

Test Condition:

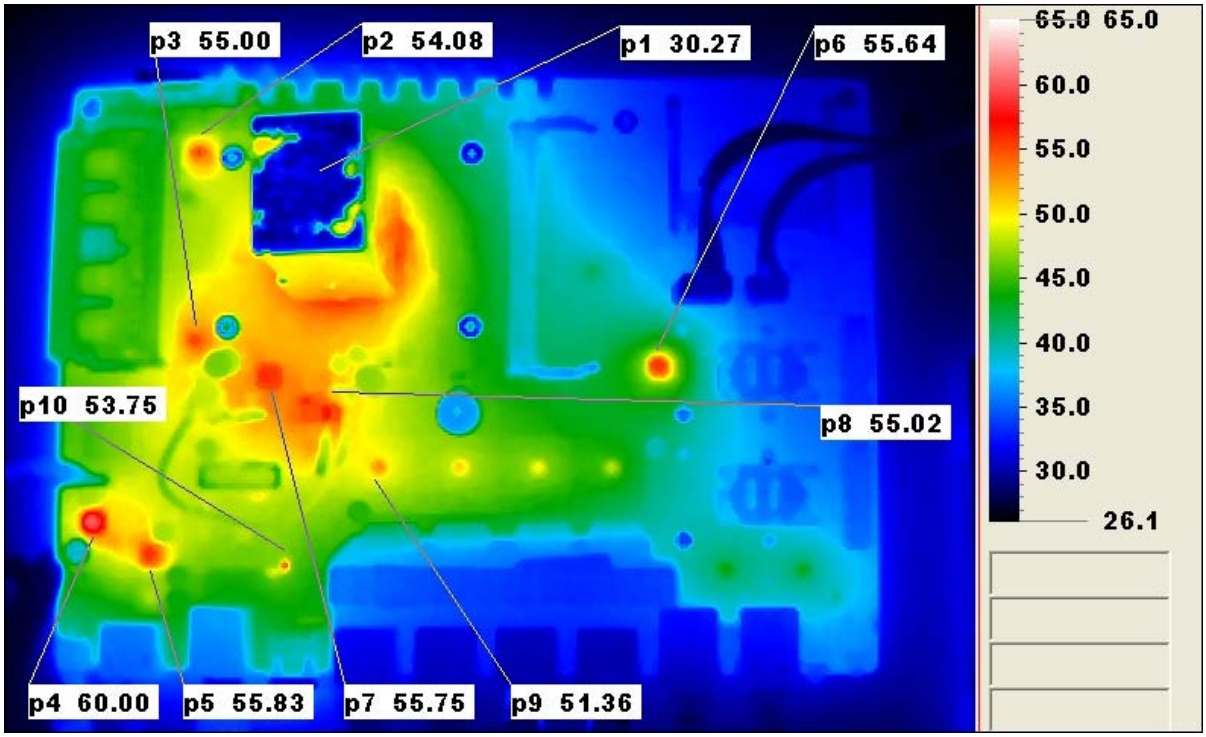
Ambient temperature: 40℃

Continuous running till thermal stability (within less than 1℃)

Test Software:

Windows 8.1 / Run PassMark Burn In Test 8.0 Pro

Terminal Recorder:



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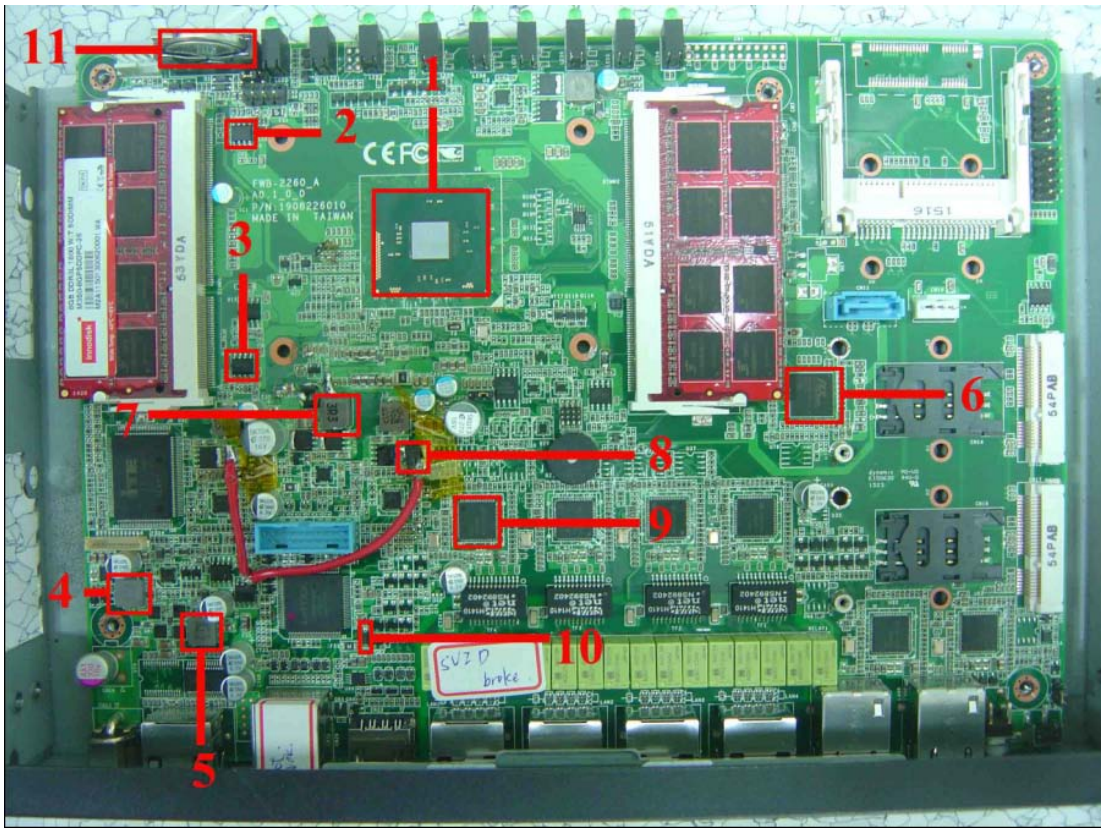
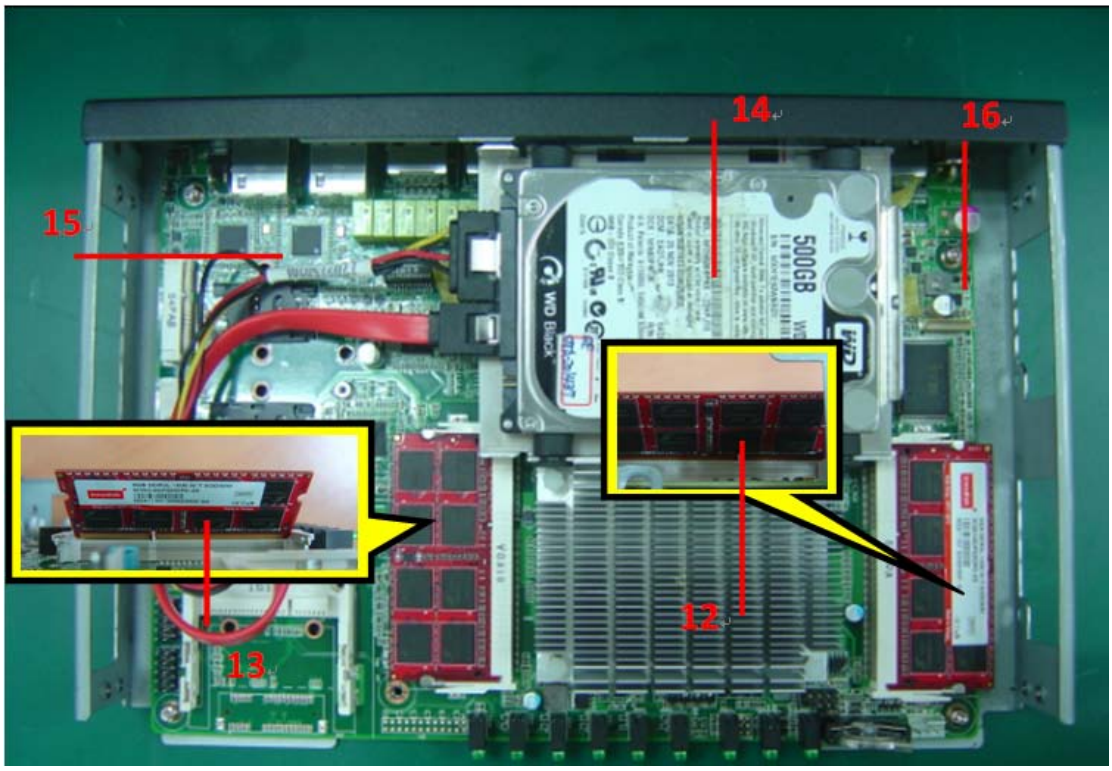
Temperature rise test





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Temperature rise test

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Temperature rise test

Thermal profile data:

FWS-2260

Point / Temp. Stage(℃)	Spec	40℃	25℃	Note
01. U8 (TF)INTEL CPU.Braswell.SERIES.BGA1170P.SMD	90	86.0	71.0	Note4
02. U5 (TF)IC.LDO Linear Regulator.SMD.RICHTEK.RT9025-25PSP	100	85.8	84.8	
03. U20 (TF)IC.LDO Linear Regulator.SMD.RICHTEK.RT9025-25PSP	100	79.9	64.9	
04. L7 (TF)COIL.SMD.CYNTEC.PCMB063T-2R2MS	85	72.4	57.4	
05. L8 (TF)COIL.CYNTEC.PCMB063T-4R7MS	100	78.8	63.8	
06. U75(TF)IC.PCIe-2.0 4port Switch..SMD.PLX.PEX8605-AB50NI G	100	80.4	65.4	
07. L25 (TF)COIL..SMD.CYNTEC.PCMB063T-1R5MS	100	81.8	66.8	
08. Q36 (TF)N-Channel.SOT-669.SMD.NXP.PH6030DLB	150	75.3	60.3	
09. U40 (TF)IC.PCI-E GigaBit Ethernet Chipset.SMD.Intel.WGI211AT	85	76.4	61.4	
10. D7 (TF) Schottky.ON.MBR0530T1G;EE-A011187;1301053040;TWN	100	64.2	49.2	
11. Lithium Battery.3V..PANASONIC.BR2032;;TWN	80	68.9	53.9	
12. Memory chipset-1	95	74.5	59.5	
13.Memory chipset-2	95	77.7	62.7	
14. SATA HDD	60	55.7	40.7	Note4
15. Control Box Inside Air Temperature-1	NA	65.4	50.4	
16 .Control Box Inside Air Temperature-2	NA	57.4	42.4	
17. Control Box External Surface Temperature-1	NA	52.8	37.8	
18. Control Box External Surface Temperature-2	NA	51.6	36.6	

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. : I150202QED38

Sample Configuration & Quantity Under Test:

Quantity: 1 (FWS-2260)

Test Result:

No issues were found during the temperature rise operation test.

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Temperature variation operation test

Test Date: 09-12 ~ 14-2015

Test Site: AAEON QE Dept.

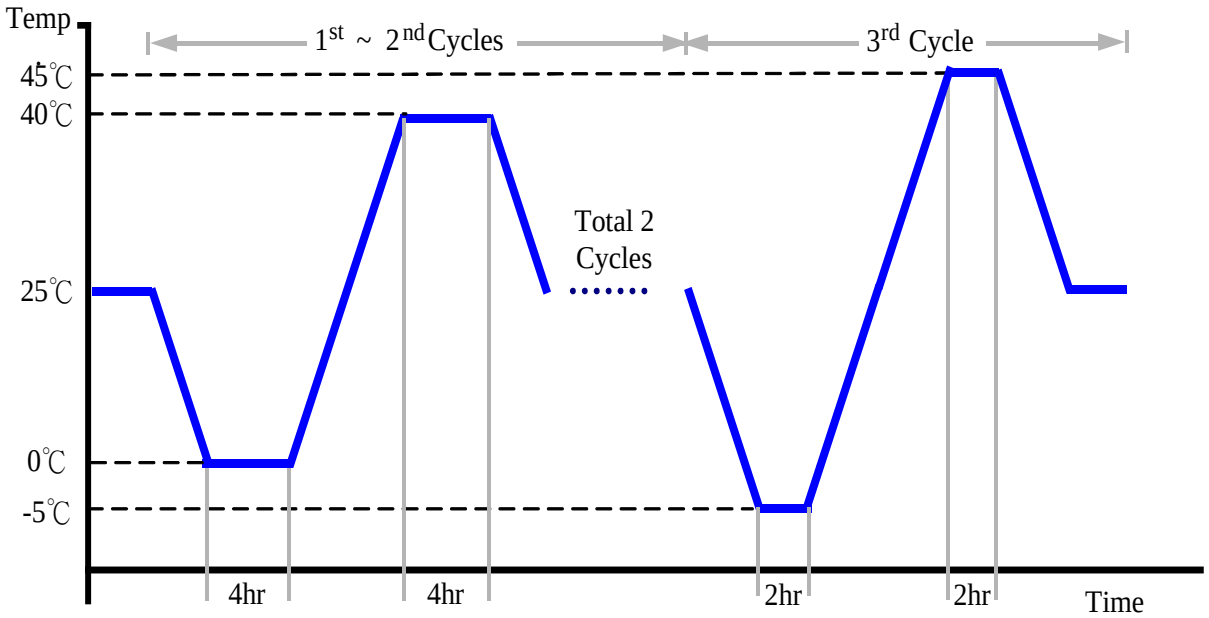
Test Standard: Refer to IEC 68-2-14 Testing procedures
Test N: Change of temperature Test

Test Equipment:

Programmable Temperature & Humidity Chamber (K.SON. INS. TECH. CORP.)
Model: THS-B6T-150+LN2
Date of Calibration: 03/26/15
Serial Number: 6487KT

Temperature & Humidity Cycle Test:

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



Test Result:

No issues were found during the temperature variation operation test.

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High temperature storage test

Test Date: 09-10 ~ 12-2015

Test Product: FWS-2260

Test Site: AAEON QE Dept.

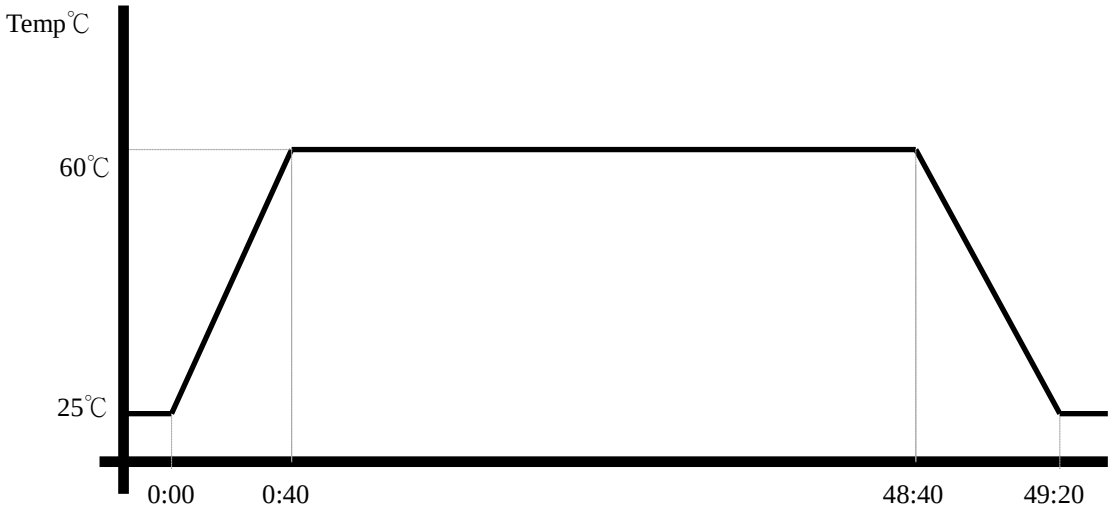
Test Standard: Refer to IEC 68-2-2 Testing procedures
Test Bb: Dry Heat Test (Non-operation)

Test Equipment:

Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)
Model: THS-B6T-150+LN2
Date of Calibration: 03/26/15
Serial Number: 6487KT

Testing Item:

1. Test Temperature: 60℃
2. Test Times: 48Hrs
3. Test Software: Windows 8.1 / Run PassMark Burn In Test 8.0 Pro
4. Test Environment Curve:



Sample Configuration & Quantity Under Test:

Quantity: 1 (FWS-2260)

Test Result:

No issues were found after the high temperature storage test.

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Low temperature storage test

Test Date: 09-08 ~ 10-2015

Test Product: FWS-2260

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: 03/26/15
Serial Number: 6487KT

Testing Item:

1. Test Temperature: -20℃
2. Test Times: 48Hrs
3. Test Software: Windows 8.1 / Run PassMark Burn In Test 8.0 Pro
4. Test Environment Curve:

Sample Configuration & Quantity Under Test:
Quantity: 1 (FWS-2260)

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

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Humidity test

Test Date: 09-07~08-2015

Test Product: FWS-2260

Test Site: AAEON QE Dept.

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

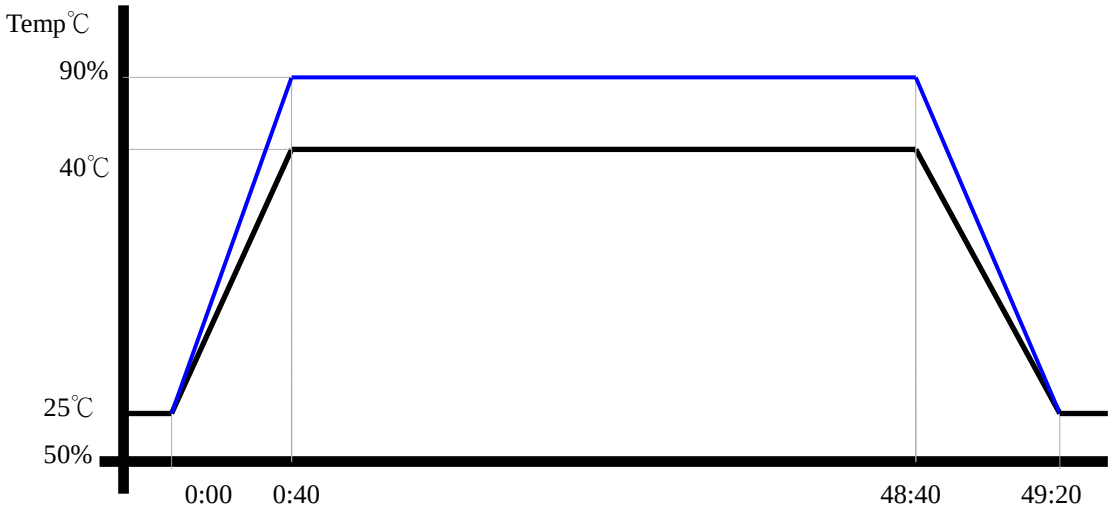
Test Equipment:

Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)
Model: THS-B6T-150+LN2
Date of Calibration: 03/26/15
Serial Number: 6487KT

Testing Item:

1. Test Temperature: 40℃
2. Test Humidity: 90%RH
3. Test Times: 48Hrs
4. Test Software: Windows 8.1 / Run PassMark Burn In Test 8.0 Pro
5. Test Environment Curve:

Humidity %



Sample Configuration & Quantity Under Test:
Quantity: 1 (FWS-2260)

Test Result:

No issues were found during the temperature rise operation test

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Cold start and hot start test

Test Date: 09-06 ~ 07-2015

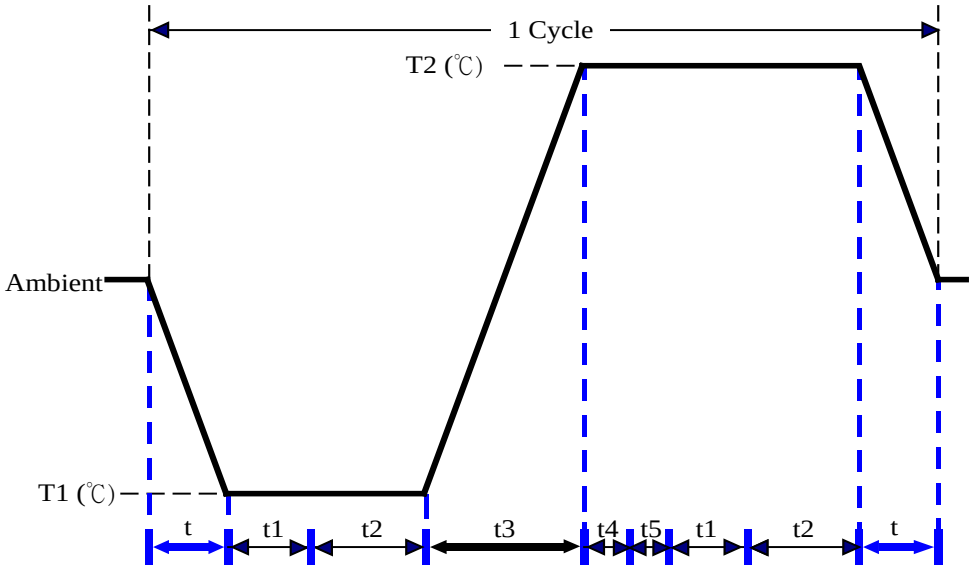
Test Site: AAEON QE Dept.

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: 03/26/15
Serial Number: 6487KT

Test Condition:



Parameters	Description
T1	-5℃
T2	45℃
t1	1 hrs
t2	2 hrs
t4, t5	30 min
t, t3	2℃/min
n (Cycle)	1

t,t3 = temprature slope
t, t1: Power Off
t2: Power on/off test 10 times (on 2 min / off 5min)
t3,t4: Run PassMark Burn In Test
t5: Windows 8.1 Software restart test 2 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.

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