FWS-7810

Environment Test Report

Report NO: 13I020026

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: <u>There are one temperature point marginal passed, the function is normal, hope to get improvement for the next generation.</u>**

Issue date	Approval	Issued by
2013-09-06	**Tom Lin**	**Juno Cheng**

Test item list

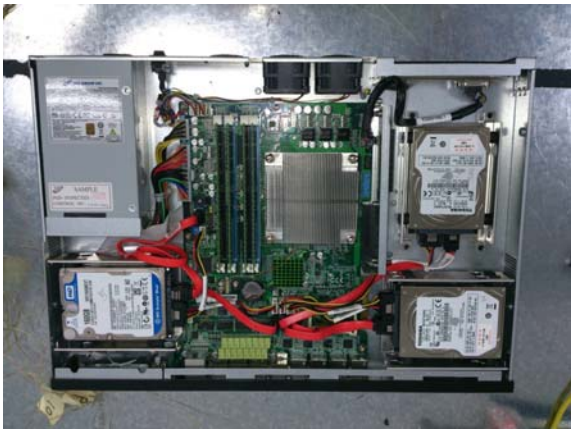
Testing Result

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-7810
	1. Main board	FWB-7810 A1.0
	2. BIOS	FWS-7810 R0.B (FW78ATOB) (08/03/2013)
	3. CPU Type	Intel Xeon CPU E3-1275 V3
	4. Memory	Transcend DDR3L-1600 8GB* 4/ SEC 234 K4B4G0846B
	5. 2.5'' SATA HDD	Western Digital WD1600BEVT 2.5" 160GB *2 TOSHIBA MK3276GSX 2.5" 320GB *3
	7. Test Software	Windows 7 / Run BurnIn test 7.0 Pro
2.	Power Supply	FSP250-50LC

CPU Cooler



Temp./humidity power on/off test

Test Date: 09-04～05-2013

Test Product: FWB-7810 A1.0

Test Site: AAEON QE Dept.

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

Test Equipment:

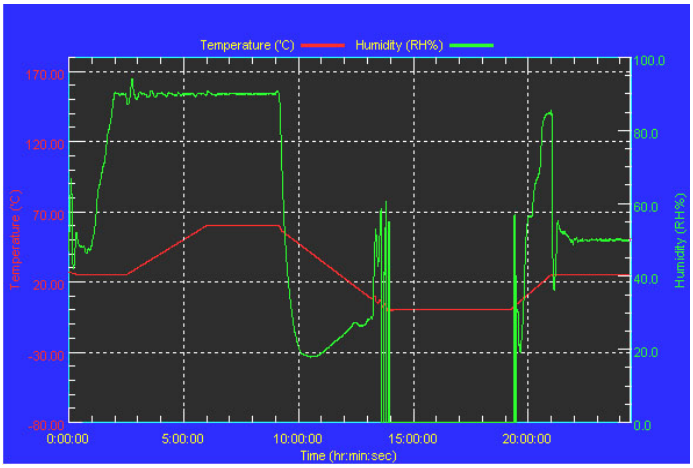
Programmable Temperature & Humidity Chamber (K.SON. INS. TECH. CORP.)
Model: THS-D7S-100+1 N2
Date of Calibration: 10/10/12
Serial Number: 3898

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	1040/times	1040/times	0 %
Note: Failure rate need to under 0.2%.			

Temperature rise test

Test Date: 09-05～06-2013

Test Product: FWS-7810

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: 10/08/12
Serial Number: 12A323190

Test Condition:

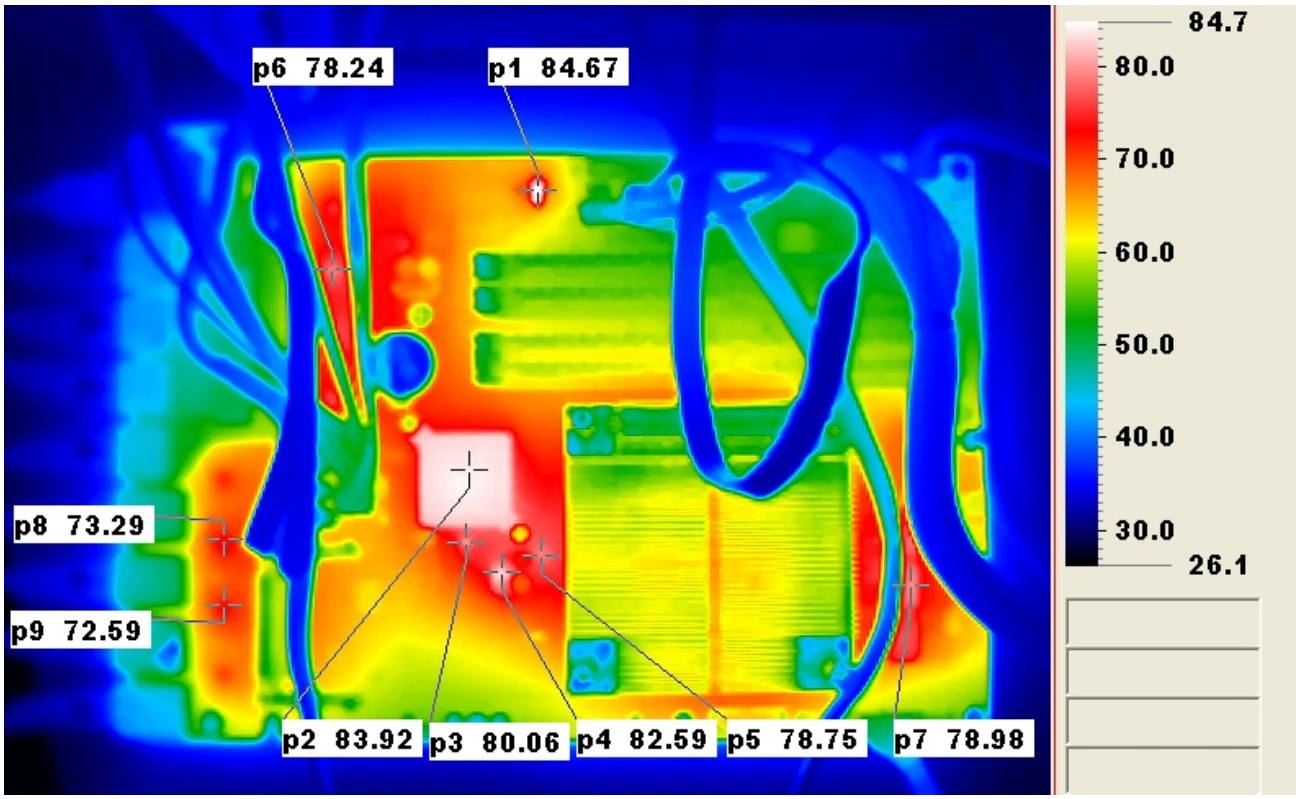
Ambient temperature: 40℃
Continuous running till thermal stability (within less than 1℃)

Test Software:

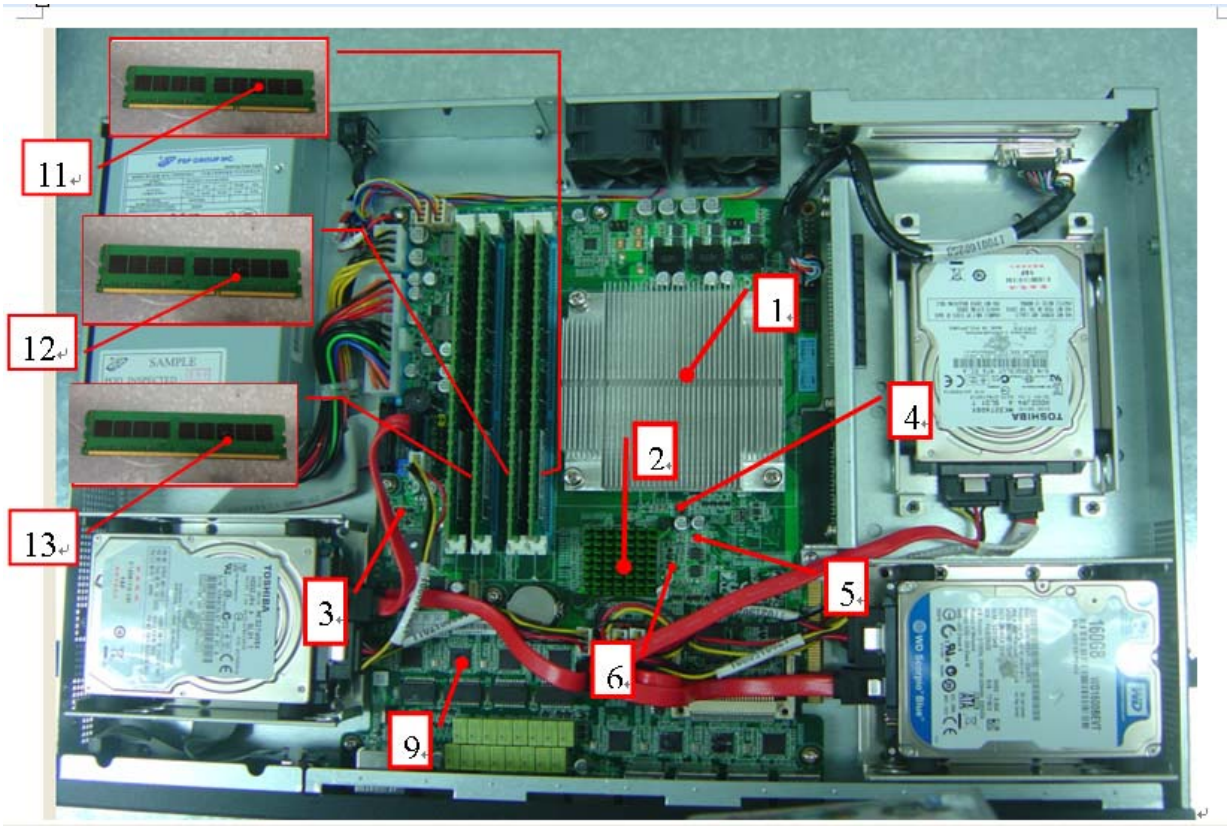
Windows 7 / Run PassMark Burn In Test 7.0 Pro

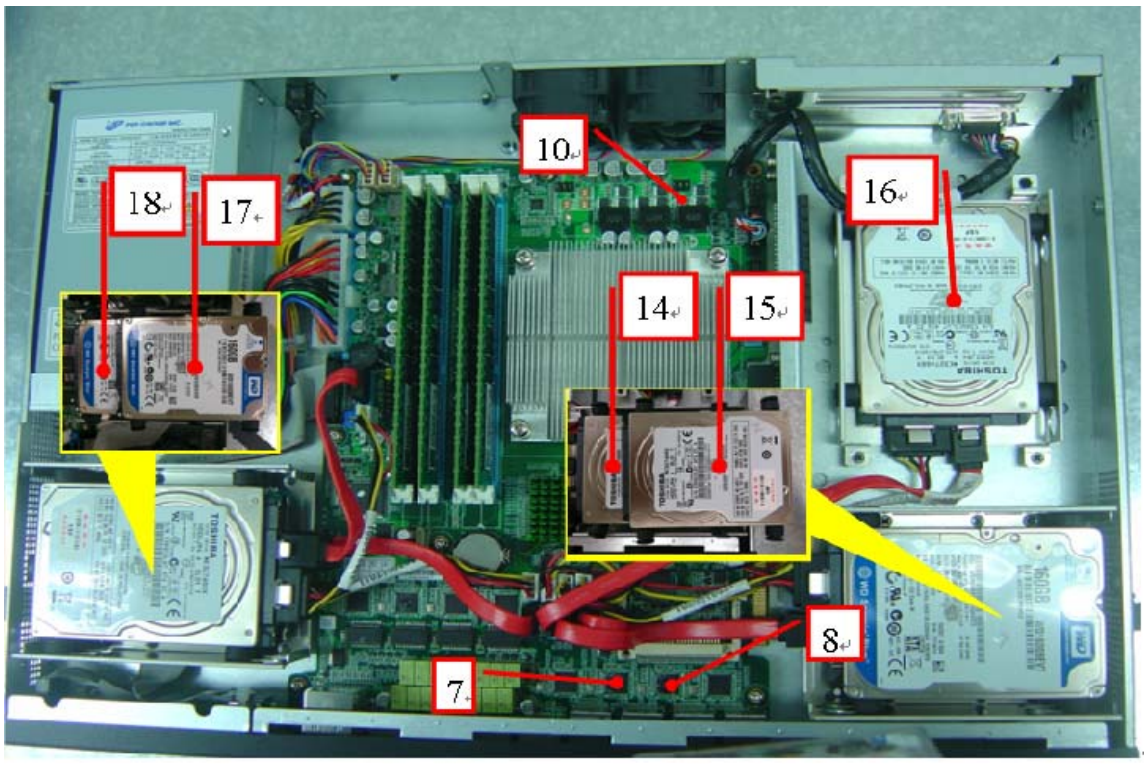
Terminal Recorder:

IR Thermal



Temperature rise test





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Temperature rise test

Thermal profile data:

FWS-8710

Point / Temp. Stage(℃)	Spec	40	25	Note
01 CPU	73.78	60.7	45.7	
02. U11 – (TF) .Desktop Lynx Point PCH.SMD.INTEL.QE93 C226 C-1 QS	104	65.7	50.7	
03. R251(TF)CR.100.1W.1%.SMD.1218	125	48.1	33.1	
04. U6 -(TF)REG. Ultra Low Dropout.Linear Regulator.APEC.APE8955MP	85	57.0	42.0	
05. Q41 (TF)PWR..N-MOSFET.NXP.PH7030AL	175	59.7	44.7	
06. VR1 (TF)REQ. ADJUSTABLE PRECISION ZENER.SHUNT.NS.LM431AIM3	70	58.8	43.8	
07. U29 (TF) CI-E GigaBit Ethernet Chipset.Intel.WG82574L SLBA8	109	63.3	48.3	
08. U30 (TF) PCI-E GigaBit Ethernet Chipset.Intel.WG82574L SLBA8	109	61.7	46.7	
09.U21 (TF) PCI-E GigaBit Ethernet Chipset.Intel.WG82574L SLBA8	109	66.6	51.6	
10. U1 (TF) PWM Controler. Intersil.ISL95820CRTZ	100	67.5	52.5	
11. Memory – 1	85	48.2	33.5	
12. Memory – 2	85	47.0	32.0	
13. Memory – 3	85	46.8	31.8	

Temperature rise test

14. HDD – 1	60	42.3	27.3	
15. HDD – 2	60	42.9	27.9	
16. HDD – 3	60	44.9	29.9	
17. HDD – 4	60	43.8	28.8	
18. HDD – 5	60	44.2	29.2	
19. Chassis Surface Temperature - 1	N/A	41.0	26.0	
20. Chamber Air Temperature	N/A	40.0	25.0	

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. BUL1301QED06

Sample Configuration & Quantity Under Test:

Quantity: 1 (FWS-7810)

Test Result:

No issues were found during the temperature rise operation test.

Temperature cycle test

Test Date: 09-04 ~ 02-2013

Test Product:FWS-7810

Test Site: AAEON QE Dept.

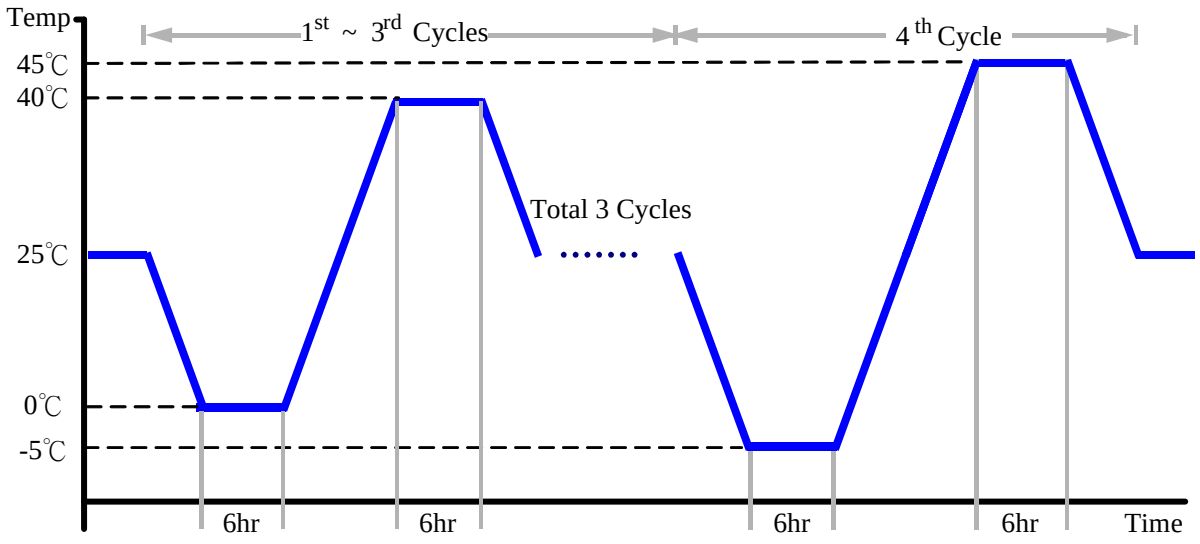
Test Standard: Refer to IEC68-2-14 Testing procedures
Test N: Change of temperature Test

Test Equipment:

Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)
Model: THS-D7S-100+1 N2
Date of Calibration: 10/10/12
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-7810)

Test Result:

No issues were found during the temperature operation cycle test.

High temperature storage test

Test Date: 08-30 ~ 28-2013

Test Product: FWS-7810

Test Site: AAEON QE Dept.

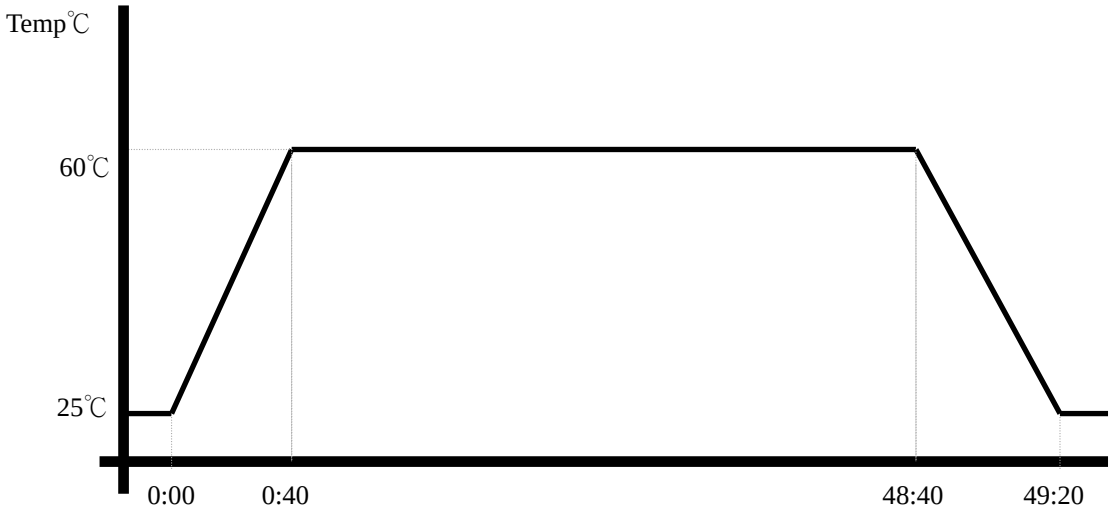
Test Standard: Refer to IEC 68-2-2 Testing procedures
Test Bb: Dry Heat Test (Non-operation)

Test Equipment:

Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)
Model: THS-D7S-100+1 N2
Date of Calibration: 10/10/12
Serial Number: 3898

Testing Item:

1. Test Temperature: 60℃
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 (FWS-7810)

Test Result:

No issues were found after the high temperature storage test.

Low temperature storage test

Test Date: 08-28 ~ 26-2013

Test Product: FWS-7810

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: 10/10/12
Serial Number: 3898

Testing Item:

1. Test Temperature: -20℃
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 (FWS-7810)

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

Humidity test

Test Date: 08-26 ~ 24-2013

Test Product: FWS-7810

Test Site: AAEON QE Dept.

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

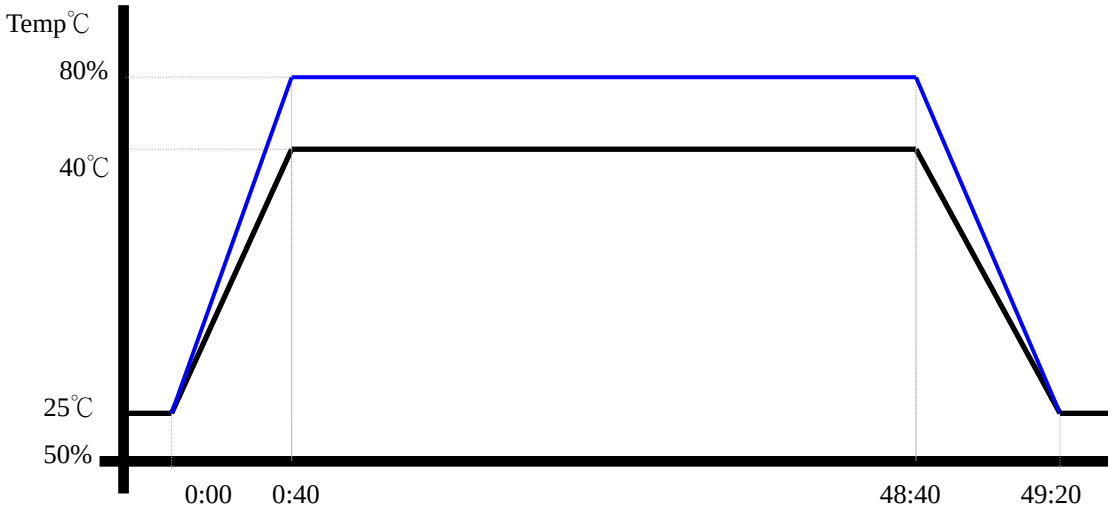
Test Equipment:

Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)
Model: THS-D7S-100+1 N2
Date of Calibration: 10/10/12
Serial Number: 3898

Testing Item:

1. Test Temperature: 40℃
2. Test Humidity: 80%RH
3. Test Times: 48Hrs
4. Test Software: Windows 7 / Run PassMark Burn In Test 7.0 Pro
5. Test Environment Curve:

Humidity %



Sample Configuration & Quantity Under Test:

Quantity: 1 (FWS-7810)

Test Result:

No issues were found after the humidity storage test.

Cold start and hot start test

Test Date: 08-24~ 22-2013

Test Product: FWS-7810

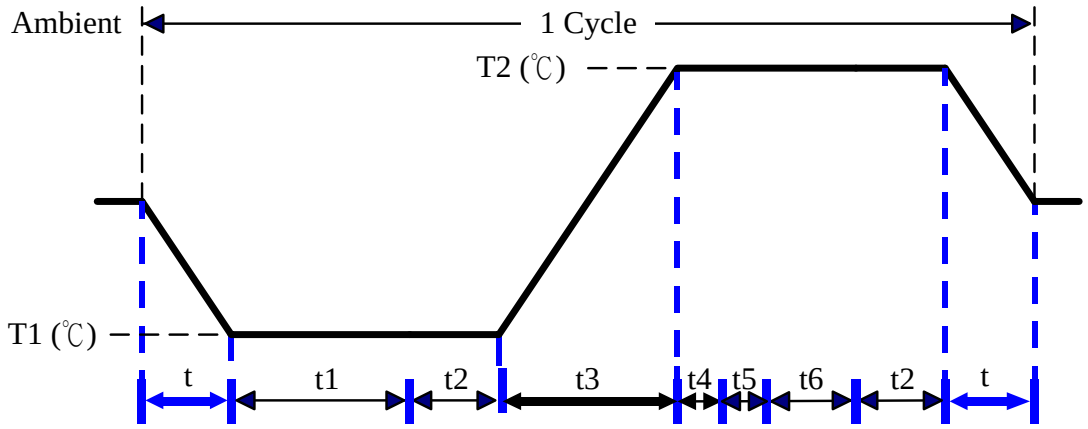
Test Site: AAEON QE Dept.

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: 10/10/12
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 7.0
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.