FWS-7350

Environment Test Report

Report NO: 14I020008

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	Issued by
2014-04-17	**Tom Lin**	**Ben Sun**

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-7350
	1. Main board	FWB-7350 A1.0
	2. BIOS	FWS-7350 R0.B
	3. CPU Type	Intel Atom C2758 2.4GHz
	4. Memory	ADATA DDR3L 1600 8GX18
	5. 2.5'' SATA HDD	TOSHIBA MQ01ABD032 2.5" 320GB
	6. Test Software	Windows 7 / Run BurnIn test 7.0 Pro
2.	Power Supply	FSP100-50LG

CPU Cooler

Temp./humidity power on/off test

Test Date: 03-31～04-01-2014

Test Product: FWS-7350 A1.0

Test Site: AAEON QE Dept.

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

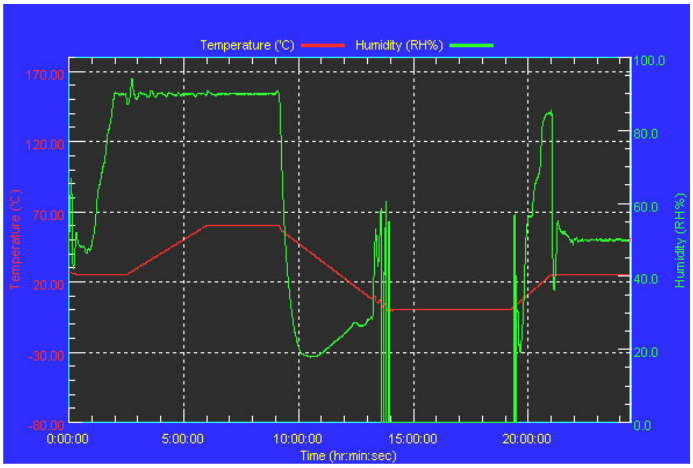
Test Equipment:
Programmable Temperature & Humidity Chamber (K.SON. INS. TECH. CORP.)
Model: THS-D7S-100+1 N2
Date of Calibration: 10/09/13
Serial Number: 3898

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	1083/times	1083/times	0 %
Note: Failure rate need to be 0.			

Temperature rise test

Test Date: 04-10～11-2014

Test Product: FWS-7350

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: 10/01/13
Serial Number: 12A323190

Test Condition:

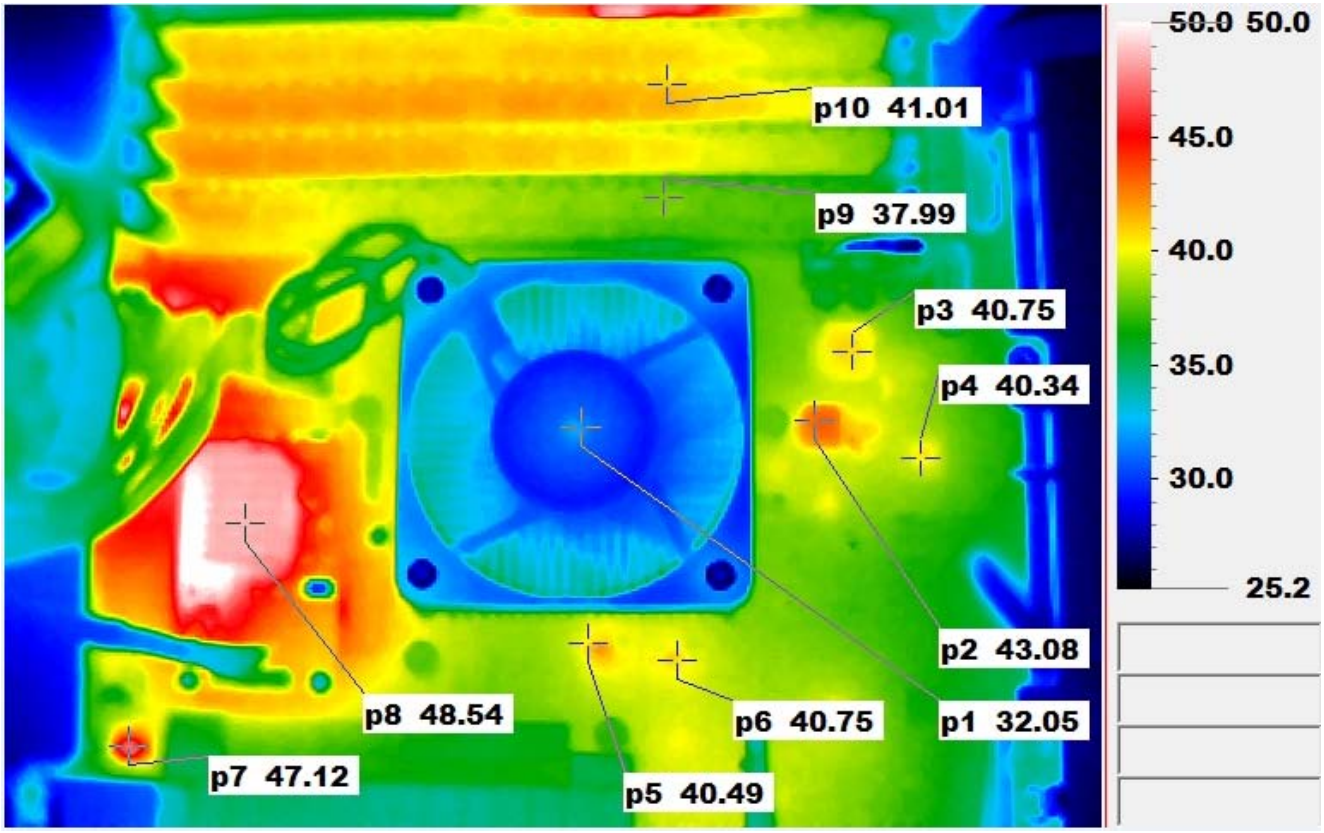
Ambient temperature: 40℃
Continuous running till thermal stability (within less than 1℃)

Test Software:

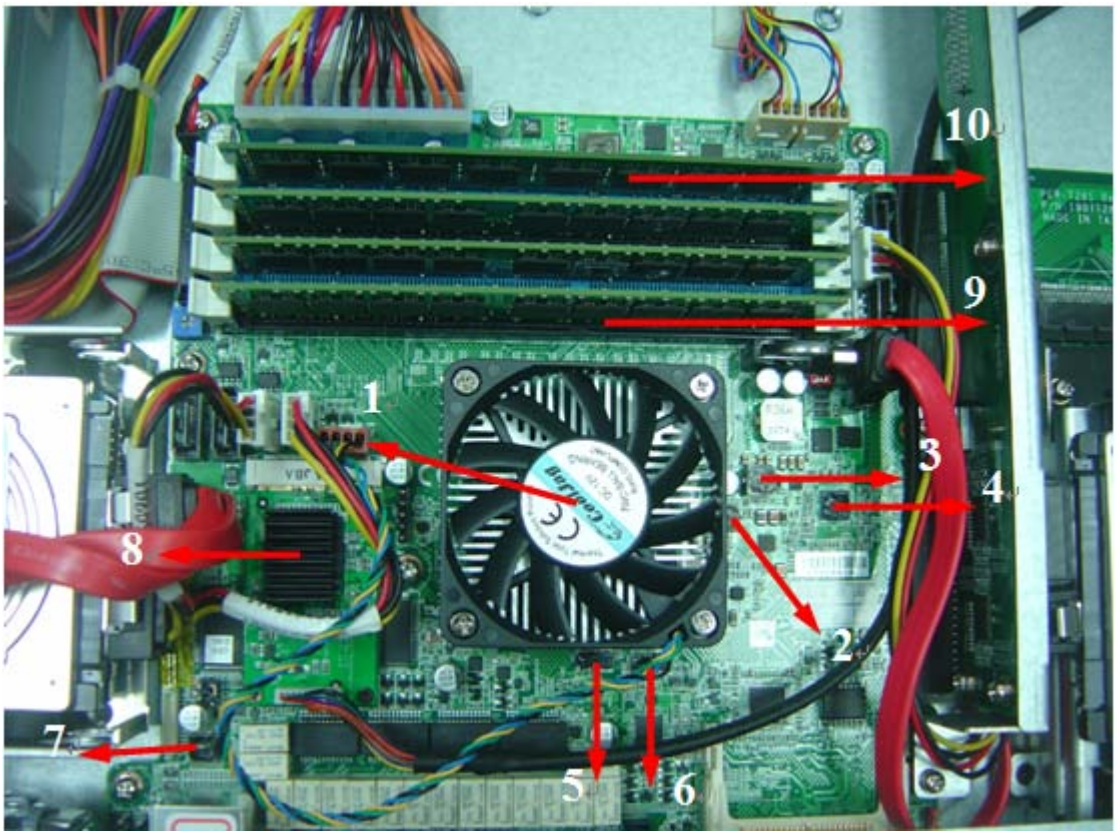
Windows 7 / Run PassMark Burn In Test 7.0 Pro

Terminal Recorder:

IR Thermal



Temperature rise test



Temperature rise test

Point / Temp. Stage(℃)	Spec	40℃	Note
01. U10 – (TF)INTEL CPU.Rangeley SoC.1.7GHz.FCBGA1283.C2358	85	53.0	
02. L7 – (TF) SMD.7.6*6.8*3mm.netSWAP.NIMS0603N-1R5M	150	51.2	
03. L5 – (TF)SMD.8.7*7.0*4.0mm.Panasonic.ETQP4LR36AFM	150	52.4	
04. U8 – (TF) Controller.QFN60.SMD.ON.NCP6132AMNR2G	120	49.9	
05. U23 – (TF) Low Dropout LDO.SOP-8.SMD.YOBON.YB1283PSP8	100	50.2	
06. U25 – (TF) Low Dropout LDO.SOP-8.SMD.YOBON.YB1283PSP8	100	51.0	
07. U36 – (TF) RS-232 Driver&Receivers.TI.GD75232DBR	95	50.1	
08.外購 VGA Card	NA	56.5	
09. Memory – 1	85	48.8	
10. Memory – 1	85	42.5	
11. HDD	60	41.6	
12System inside air temperature	NA	42.5	
13 Housing Surface Temperature	NA	40.3	

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.

Sample Configuration & Quantity Under Test:

Quantity: 1 (FWS-7350)

Test Result:

No issues were found during the temperature rise operation test.

Temperature cycle test

Test Date: 04-01 ~02-2014

Test Product: FWS-7350

Test Site: AAEON QE Dept.

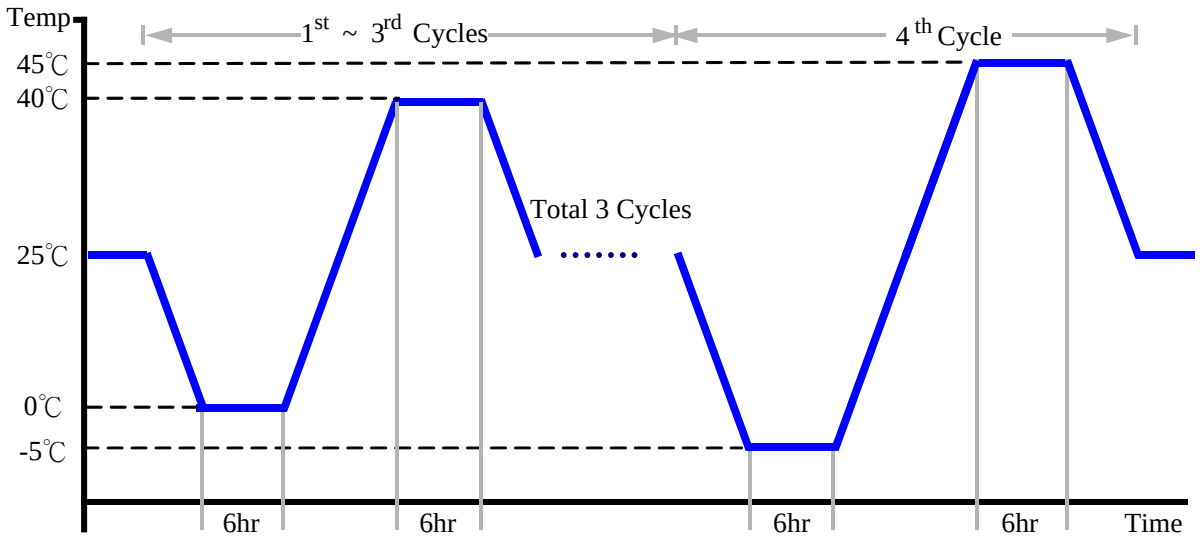
Test Standard: Refer to IEC68-2-14 Testing procedures
Test N: Change of temperature Test

Test Equipment:

Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)
Model: THS-D7S-100+1 N2
Date of Calibration: 10/09/13
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-7350)

Test Result:

No issues were found during the temperature operation cycle test.

High temperature storage test

Test Date: 04-03 ~ 04-2014

Test Product: FWS-7350

Test Site: AAEON QE Dept.

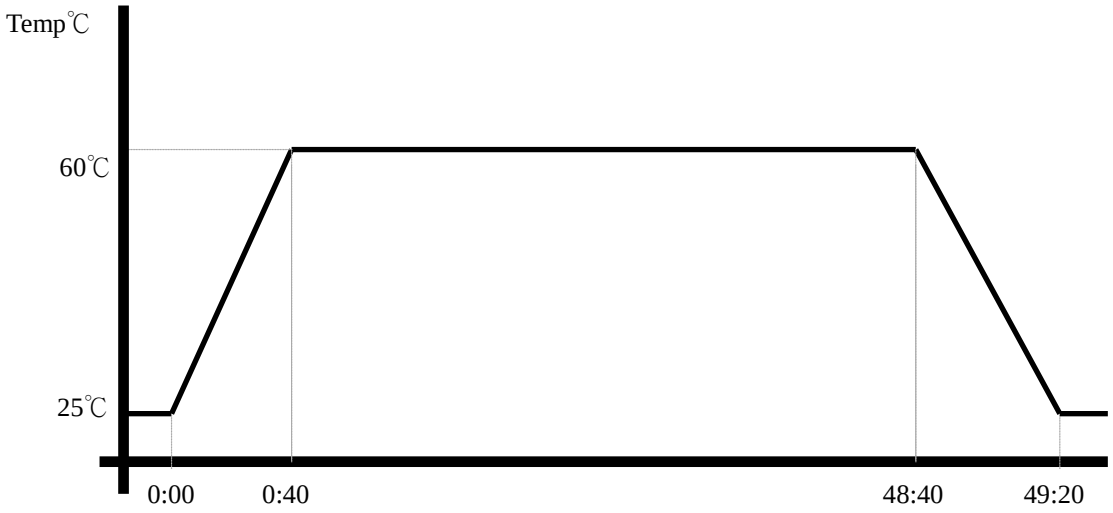
Test Standard: Refer to IEC 68-2-2 Testing procedures
Test Bb: Dry Heat Test (Non-operation)

Test Equipment:

Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)
Model: THS-D7S-100+1 N2
Date of Calibration: 10/09/13
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-7350)

Test Result:

No issues were found after the high temperature storage test.

Low temperature storage test

Test Date: 04-07 ~ 08-2014

Test Product: FWS-7350

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: 10/09/13
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-7350)

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

Humidity test

Test Date: 04-09 ~ 10-2014

Test Product: FWS-7350

Test Site: AAEON QE Dept.

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

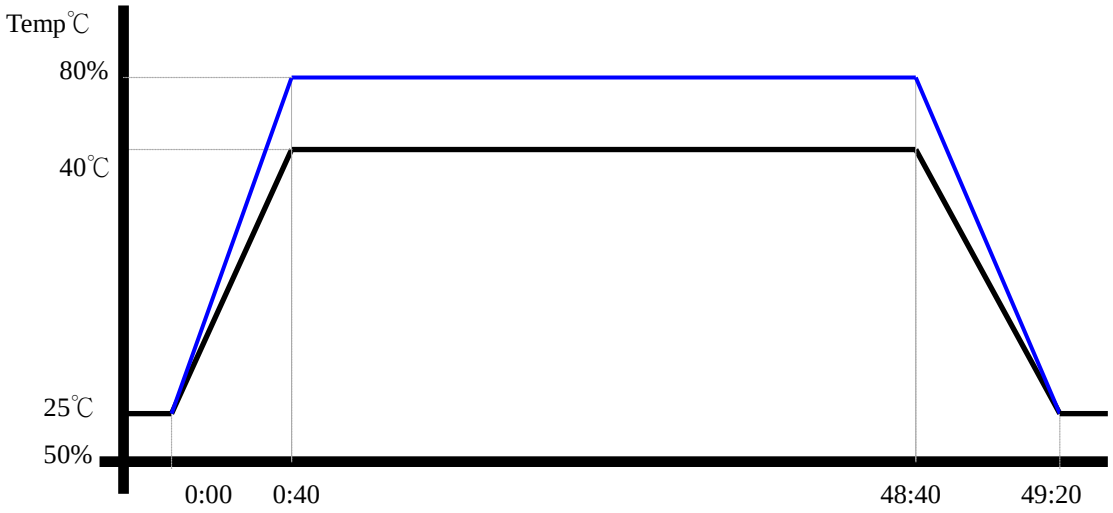
Test Equipment:

Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)
Model: THS-D7S-100+1 N2
Date of Calibration: 10/09/13
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-7350)

Test Result:

No issues were found after the humidity storage test.

Cold start and hot start test

Test Date: 03-29~30-2014

Test Product: FWS-7350

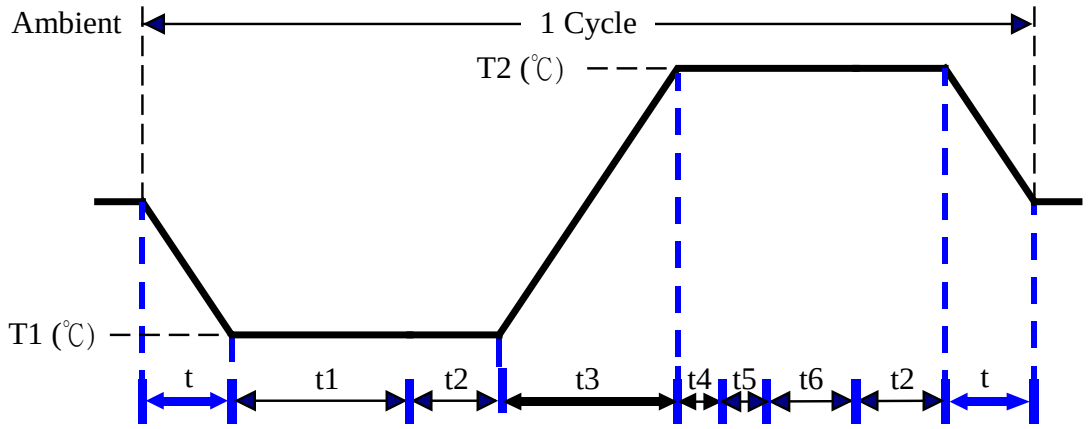
Test Site: AAEON QE Dept.

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: 10/09/13
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.