FWS-2251

With INTEL Celeron Processor J1900

Temperature/Humidity Test Report

Report NO: 15I020001

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:** **There is 1 temperature point marginal passed, the function is normal,**

Issue date	Approval	Test Engineer
2015-01-15	**KJ**	**Ben Sun**

Test item list

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Testing Result

Num	Test item list	Result	Remark
1	Temperature rise test	Pass	
2	Temperature variation operation test	Pass	
3	Cold start and hot start test	Pass	

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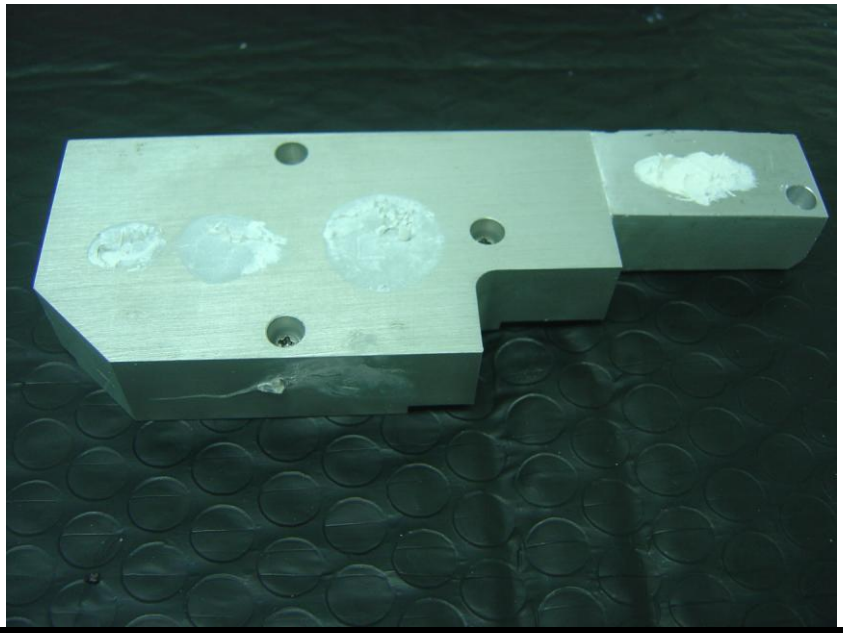
Configuration of EUT

Test Product: FWS-2251

Sample Configuration & Quantity Under Test:

1. CPU: INTEL Celeron J1900 GHz
2. BIOS Ver.: FWS-2251 R1.2
3. Chipset: N/A
4. Memory: ADATA DDR3L-1600 4G*1
5. USB Flash: Transcend CompactFlash 32GB
6. Test Software: Windows 8.1 / Run PassMark Burn In Test 8
7. Power Adapter: FSP040-DGAA1
8. CPU Cooler:



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Temperature rise test

Test Date: 01-14~15-2015

Test Product: FWS-2251

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: 2014/09/11

Serial Number: 12A323190

Test Condition:

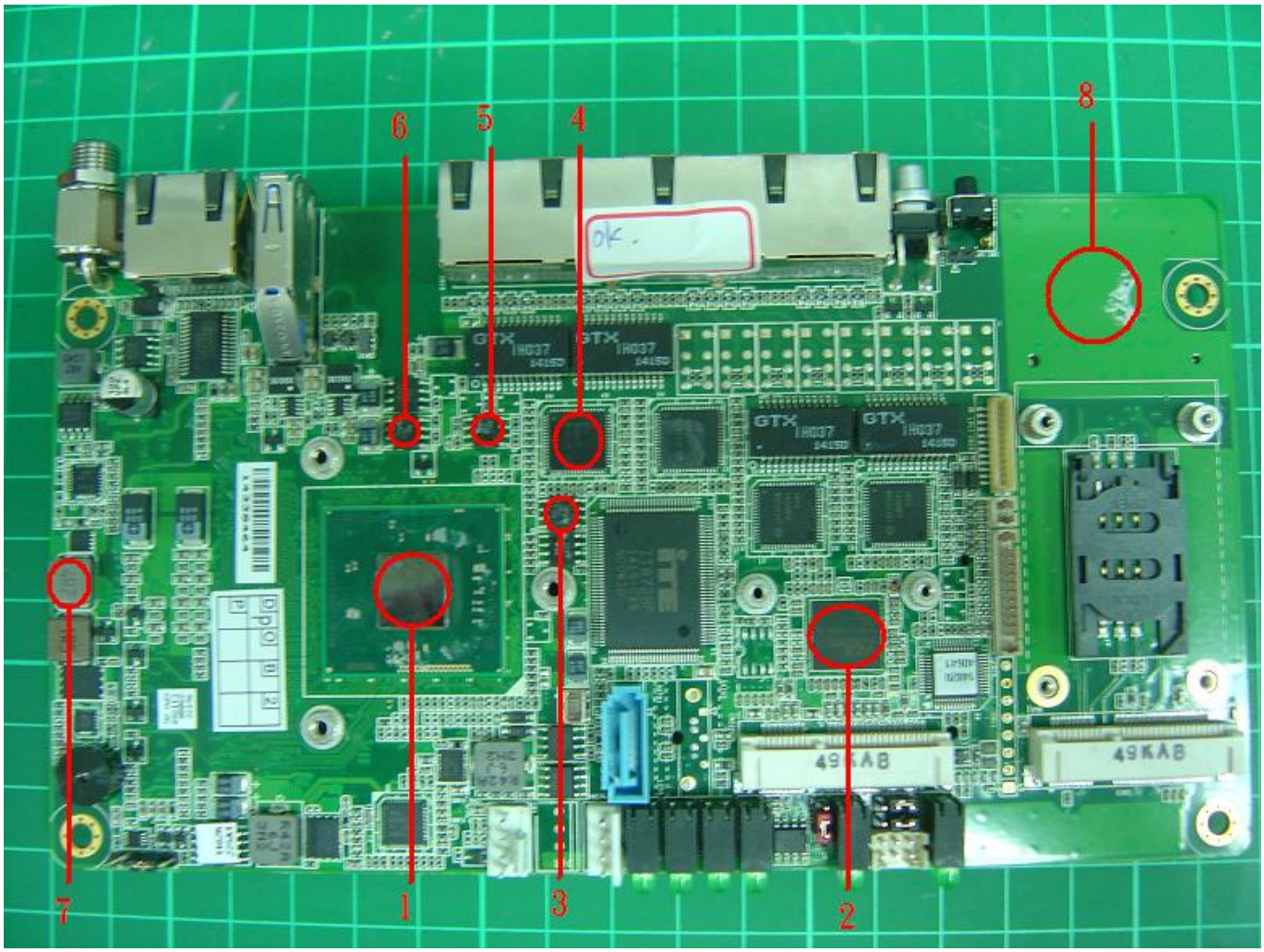
Ambient temperature: 40℃

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

Test Software:

Windows 8.1 / Run PassMark Burn In Test 8.0

Terminal Recorder:



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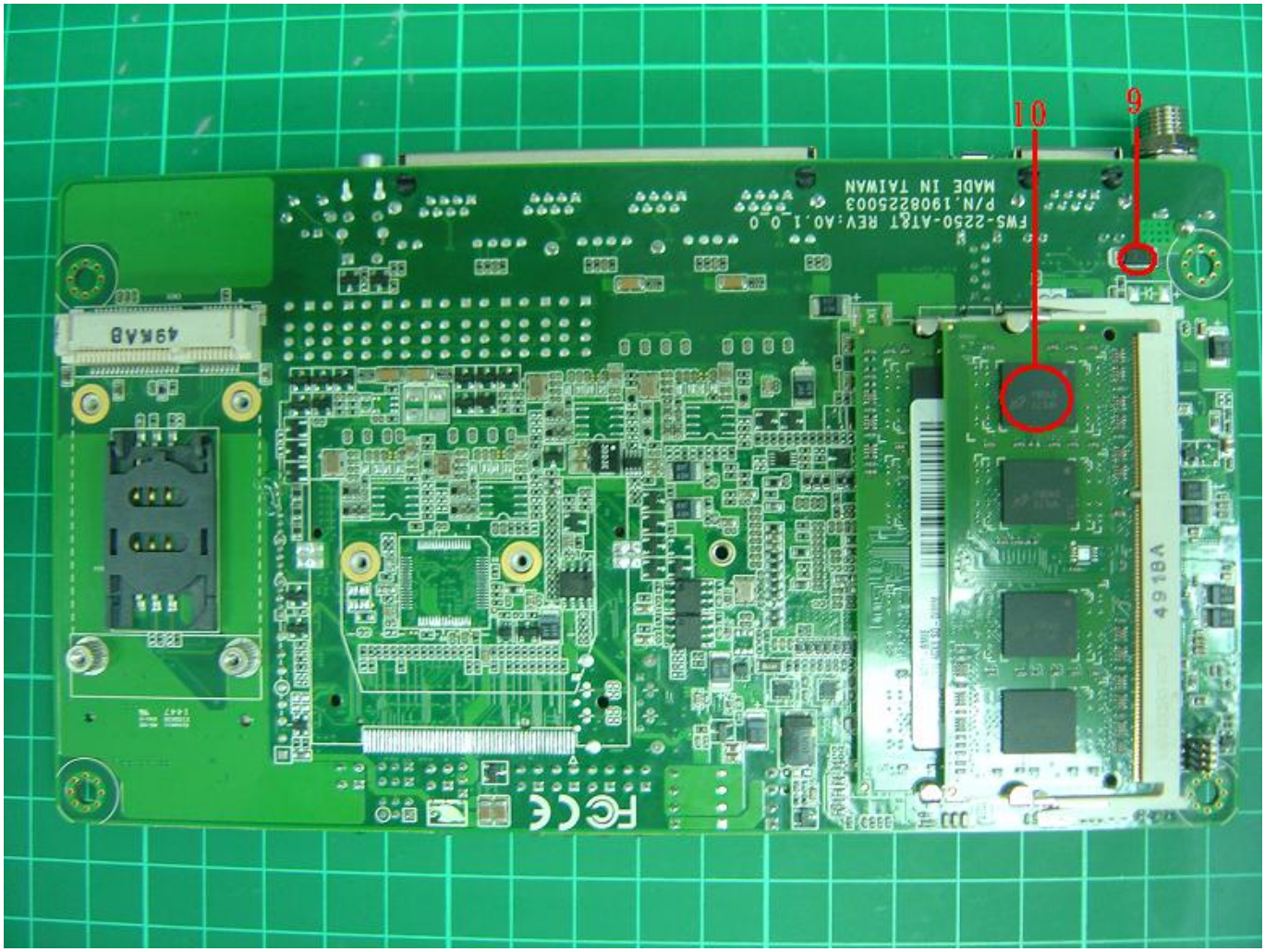

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Temperature rise test

Thermal profile data:

FWS-2251

Point / Temp. Stage(℃)	Spec	40	Note
01. U1 - INTEL Bay Trail-I E3827 1.75GHz	100	78.6	
02. U8 - PCIe-2.0 3port Switch.QFN-136.Thickness=0.9mm SMD PLX.PEX-8603-AA50NIG	100	93.8	
03. U44 - Ultra Low Dropout LDO.SOP-8.SMD.YOBON.YB1283PSP8	100	82.0	
04. U19 - PCI-E GigaBit Ethernet Chipset.QFN 64P.SMD.Intel.I211AT	85	74.9	
05. U41 - Ultra Low Dropout LDO.SOP-8.SMD.YOBON.YB1283PSP8	100	75.4	
06. U39 - Ultra Low Dropout LDO.SOP-8.SMD.YOBON.YB1283PSP8	100	75.7	
07. L13 - COIL.4.7uH.20%.SMD.7.1*6.6*3.0mm DCR=37mohm.Idc=5.5Amp Zenithtek.ZPWM-6030M-4R7M	150	80.0	
08. RTC Battery	75	60.8	
09. D13 - D Schottky.VDC=40V.3A.SMD.DO-214AC Barrier Rectifiers Willas.SK34A	100	76.0	
10. Memory - ADATA DDR3L-1600 4G	85	83.0	Note3
11. Chassis Air Temperature (inside)	N/A	55.6	
12. Chassis Surface Temperature	N/A	65.9	
13. Chamber Air Temperature		40.1	

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. I141213LABD01

Sample Configuration & Quantity Under Test:

Quantity: 1 (FWS-2251)

Test Result:

No issues were found during the temperature rise operation test.

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Temperature variation operation test

Test Date: 12-31-2014 ~ 01-01-2015

Test Site: AAEON QE Dept.

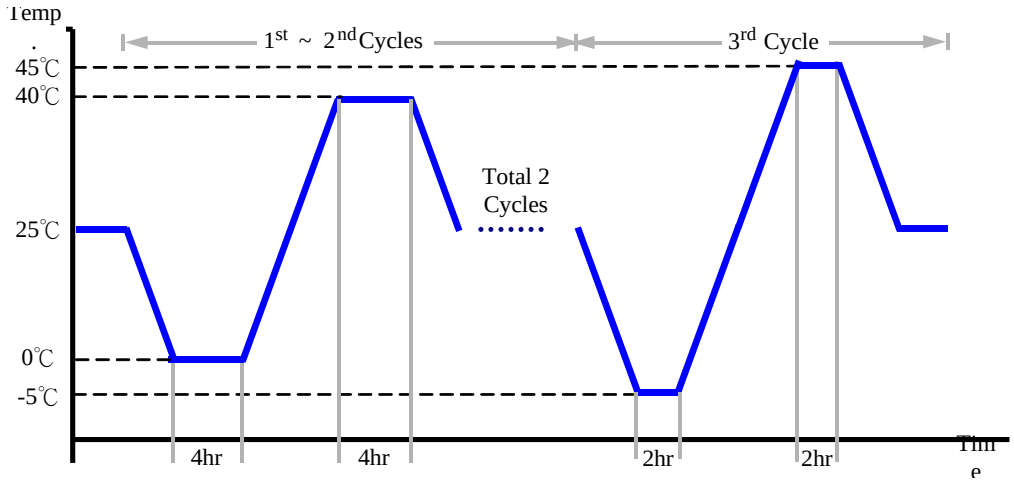
Test Standard: Refer to IEC 68-2-14 Testing procedures
Test N: Change of temperature Test

Test Equipment:

Programmable Temperature & Humidity Chamber (K.SON. INS. TECH. CORP.)
Model: THS-B6T-150+LN2
Date of Calibration: 05/29/14
Serial Number: 9095KT

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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Cold start and hot start test

Test Date: 12-30 -2014

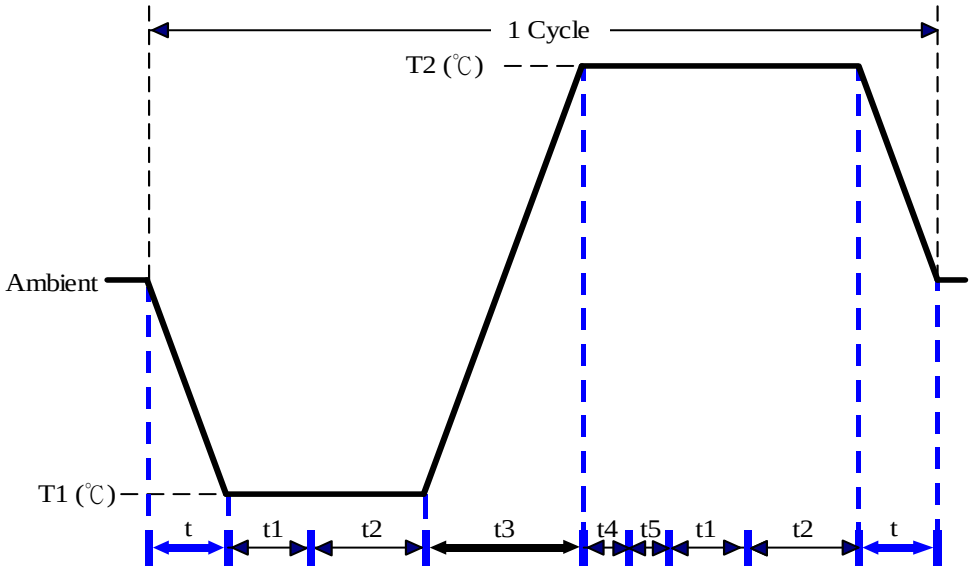
Test Site: AAEON QE Dept.

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: 05/29/14
Serial Number: 9095KT

Test Condition:



Parameter	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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