AHP-1123
Environment Test Report

Report NO: 14P020011

Summary	☑ **Pass**
	☐ **Fail**
	☐ **Pass with Deviation**
	Comment: <u>There are 0 temperature point marginal passed, the function is normal, hope to get improvement for the next generation.</u>

Issue date	**Approval**	**Test Engineer**
2014-04-02	**Tom Lin**	**Ben Sun**

Test item list

Testing Result

Num	Test item list	Result	Remark
1	Temperature rise test	Pass	
2	Temperature cycle operation test	Pass	
3	High temperature storage test	Pass	
4	Low temperature storage test	Pass	
5	Humidity test	Pass	
6	Cold start and hot start test	Pass	

Configuration of EUT

Num	Item	Spec
1	CPU	Intel Atom D2550 1.86GHz
2	CPU Board	GENE-CV05 B2.0.0.1
3	BIOS	GENE-CV05 R1.4
4	Memory(wide temp.)	Samsung K4B2G0846D DDR3 2GB
5	HDD	WD SATA HDD 320GB
6	Test Software	Windows 7 / Run PassMark BurnIn Test Pro 7.0

CPU COOLER
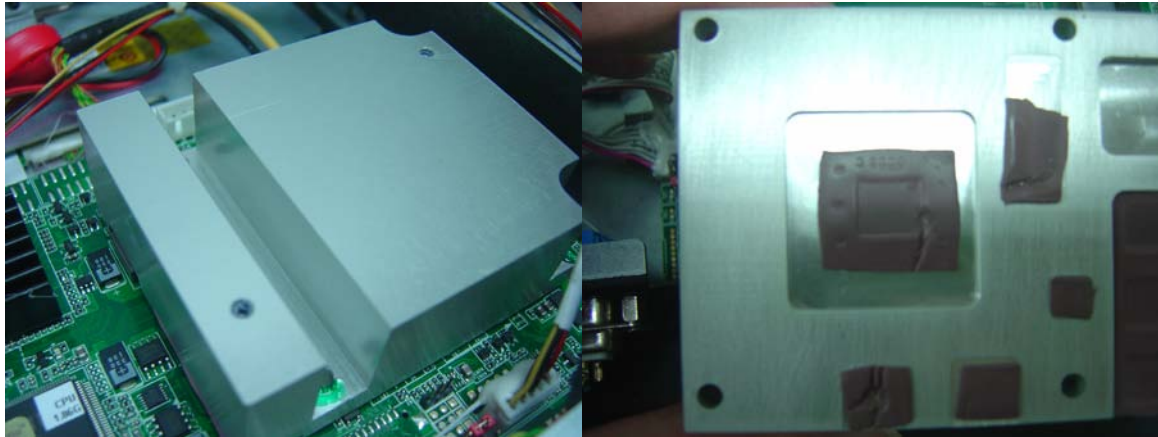
Temperature rise test

Test Date: 03-25-2014

Test Product: AHP-1123

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
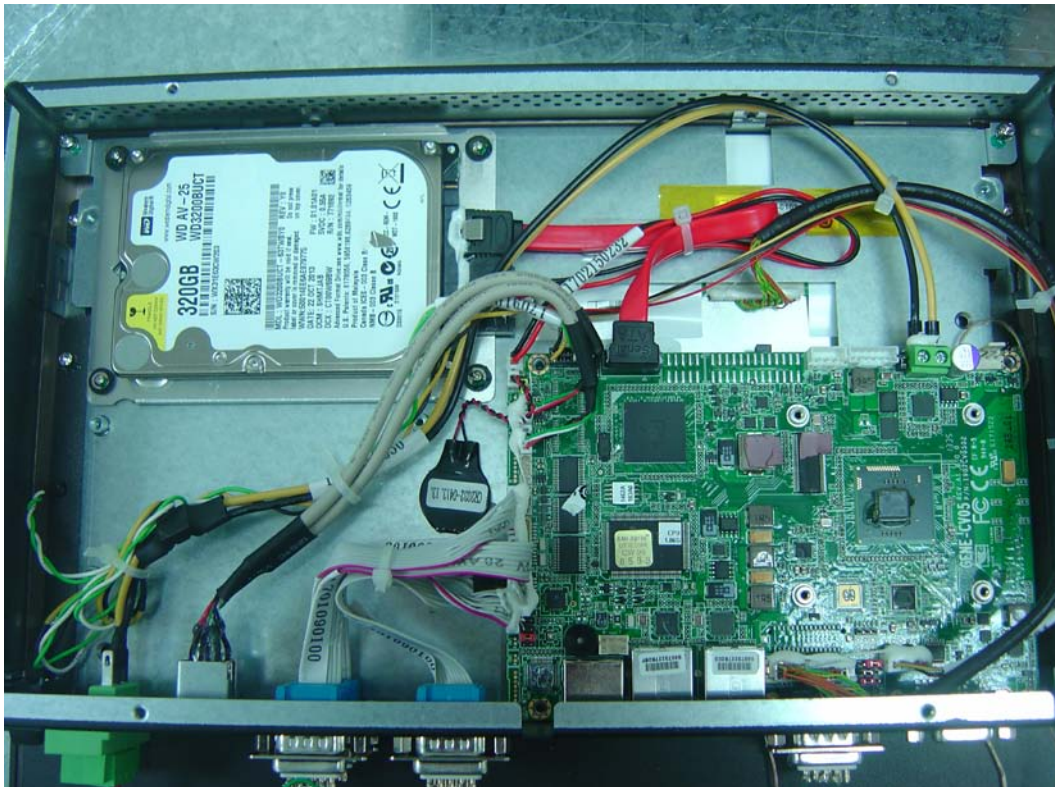Serial Number: 12A323190

Test Condition:
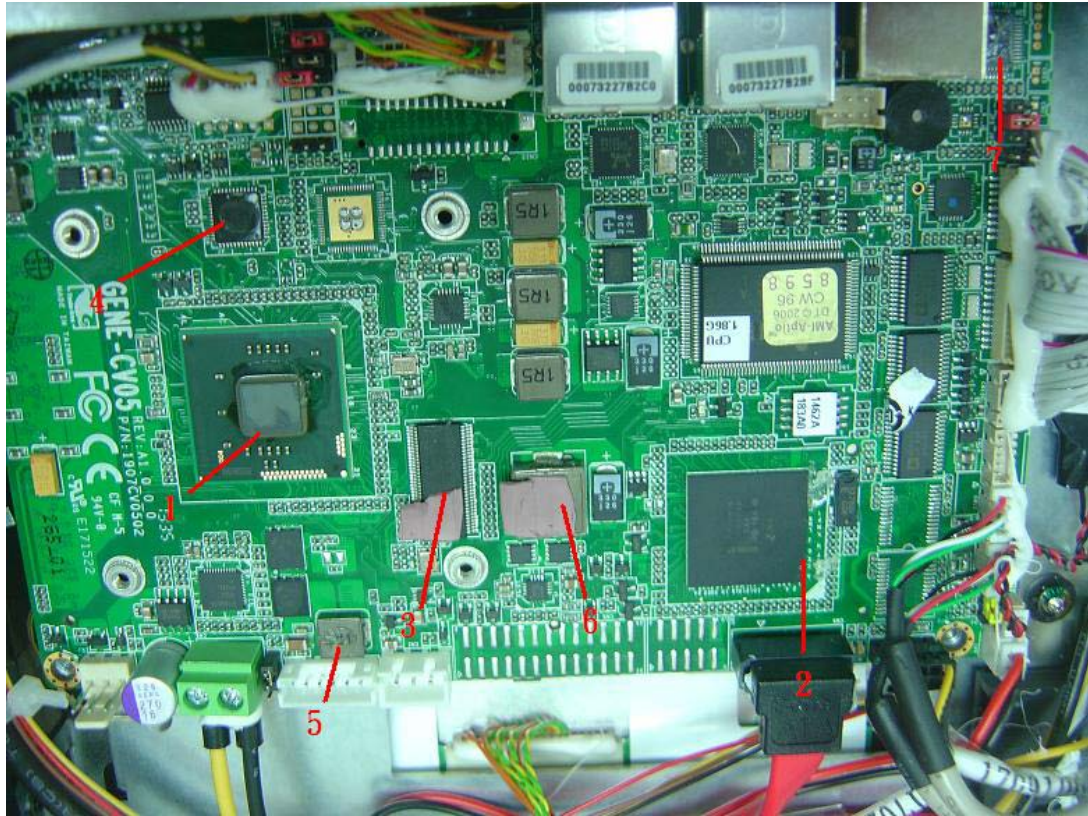
Ambient temperature: 50℃
Continuous running till thermal stability (within less than 1℃)

Test Software:

Windows 7 / Run PassMark Burn In Test 7.0 Pro

Terminal Recorder:

Temperature rise test

Thermal profile data:

Point	Position	Describe	Tc (*1) (℃)	Tm (*2) Measured Under 50℃	Note
1	U17	(TF)INTEL Atom N2800 CPU / 1.86GHz	100	77.9	
2	U7	(TF)NM10 Express Chipset.INTEL.CG82NM10.SLGXX	115	84.5	
3	U13	(TF)CLOCK GENERATOR.IDT.9LPRS501PGLF	95	73.7	
4	U31	(TF)Digital Video Level Shifter..PERICOM.PI3VDP411LSZBE	85	74.7	
5	L1	(TF)COIL.ZenithTek.ZPWM-6030M-1R5M	125	83.9	
6	L2	(TF)COIL.ZenithTek.ZPWM-1040MB-3R3M	125	75.0	
7	U42	(TF)AUDIO CODEC.REALTEK.ALC662-GR	100.5	77.1	
8	L7	(TF)COIL.ZenithTek.ZPWM-4020MP-1R0	125	87.0	
9	-	Memory chipset	95	73.9	
10		HDD Ambient Temp	60	53.7	

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 (AHP-1123)

Test Result:

    No issues were found during the temperature rise operation test.

Temperature cycle test

Test Date: 03-21 ~ 24-2014

Test Product: AHP-1123
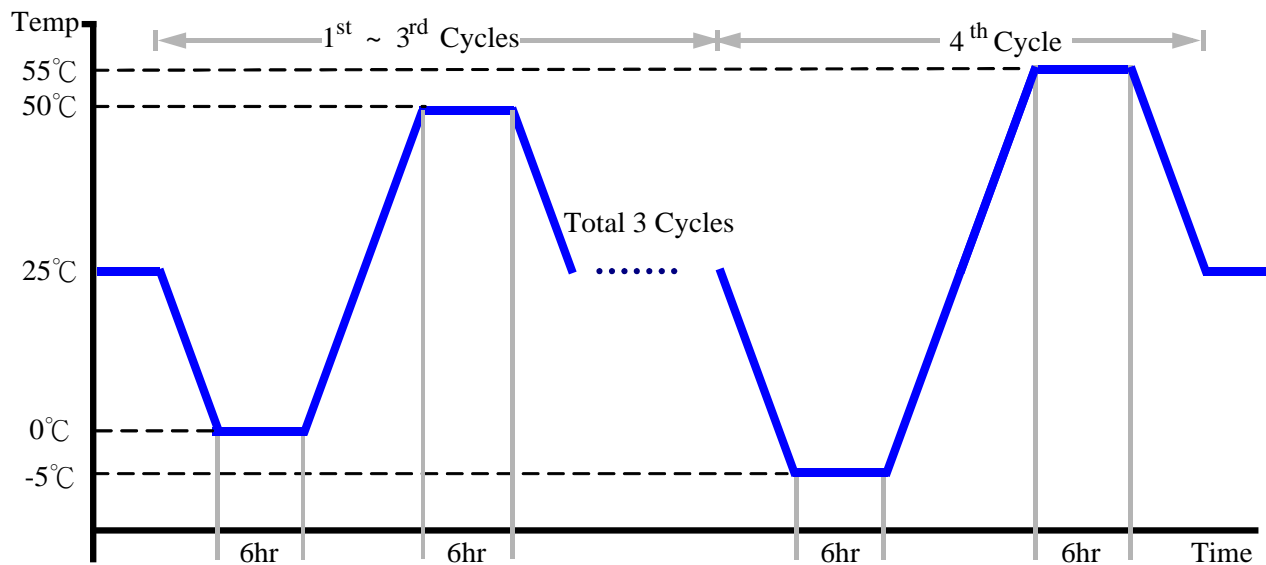
Test Site: AAEON QE Dept.

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-D4H+-100

Date of Calibration: 10/09/13
Serial Number: 2582

Test Condition:

1. Test Low Temperature: 0℃ (1~3 cycles)

-5℃ (4th cycle)

2. Test High Temperature: 50℃ (1~3 cycles)

55℃ (4th 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 (AHP-1123)

Test Result:

No issues were found during the temperature operation cycle test.

High temperature storage test

Test Date: 03-19 ~ 20-2014

Test Product: AHP-1123
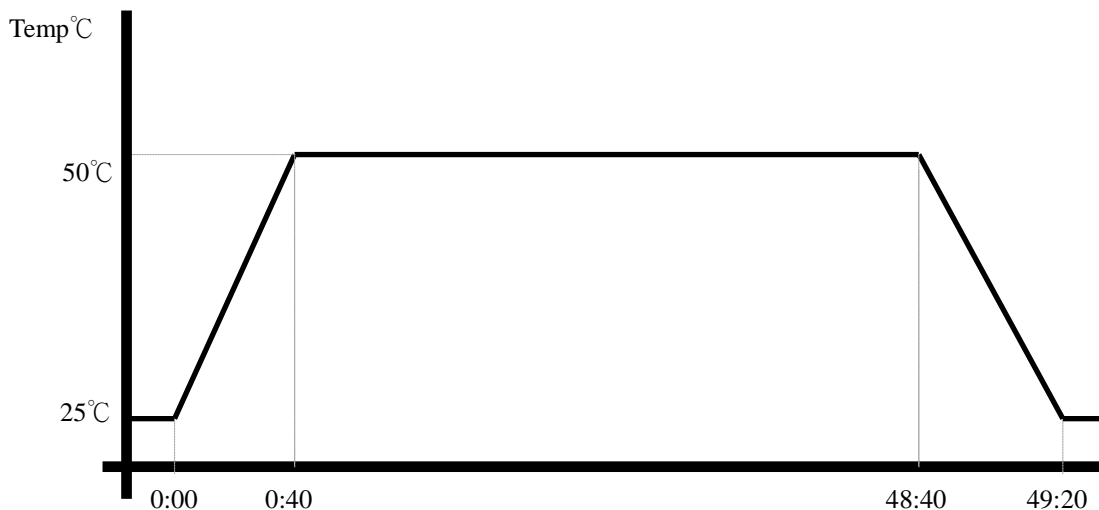
Test Site: AAEON QE Dept.

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-D4H+-100
Date of Calibration: 10/09/13
Serial Number: 2582

Testing Item:

1. Test Temperature: 50℃
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 (AHP-1123)

Test Result:

No issues were found after the high temperature storage test.

Low temperature storage test

Test Date: 03-17 ~ 18-2014

Test Product: AHP-1123

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-D4H+-100
        Date of Calibration: 10/09/13
        Serial Number: 2582

Testing Item:

1. Test Temperature: 0°C
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 (AHP-1123)

Test Result:

No issues were found after the low temperature storage test.

Humidity test

Test Date: 03-13~14-2014

Test Product: AHP-1123

Test Site: AAEON QE Dept.

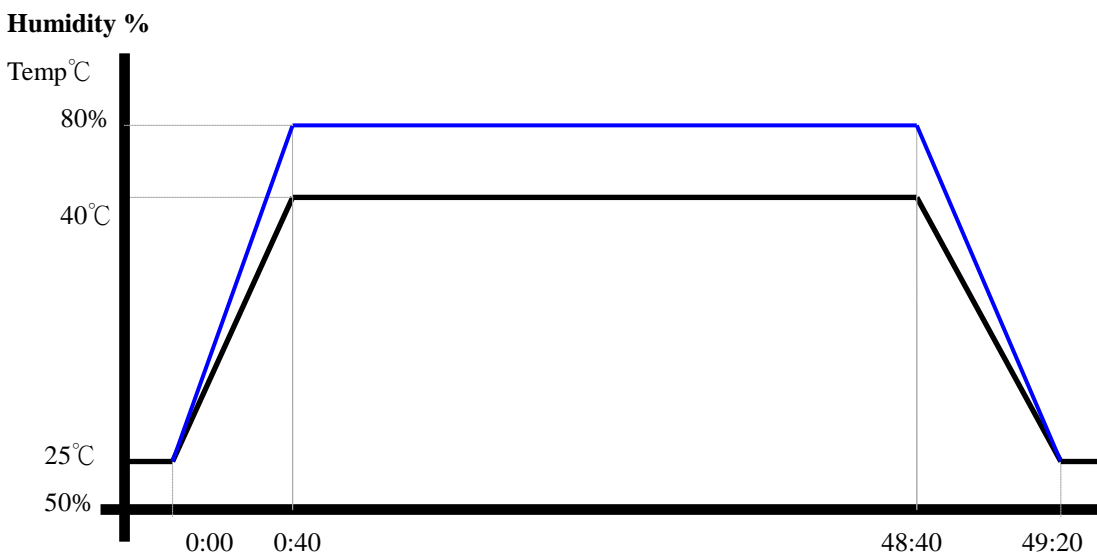**Test Standard:**   Refer to IEC 68-2-3 Testing procedures
                          Test Ca: Damp heat, steady state (Non-operation)

Test Equipment:

Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)
Model: THS-D4H+-100
Date of Calibration: 10/09/13
Serial Number: 2582

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 (AHP-1123)

Test Result:

No issues were found after the humidity storage test.

Cold start and hot start test
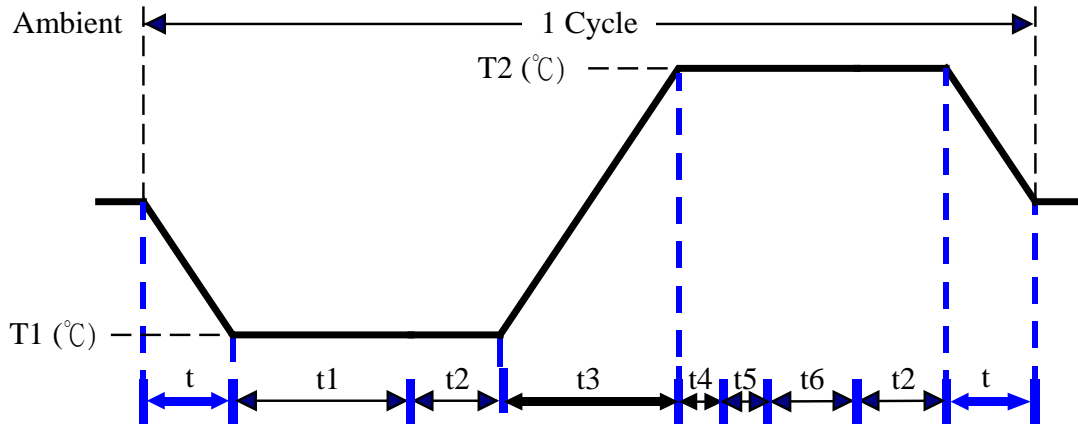
Test Date: 03-12-2014

Test Product: AHP-1123

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-D4H+-100

            Date of Calibration: 10/09/13

            Serial Number: 2582

Test Condition:

Parameters	Description
T1	-5℃
T2	55℃
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.