AEC-6913
Environment Test Report

Report NO: 14P020009

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

Issue date	Approval	Test Engineer
2014-03-20	**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 Board	COM-CV B1.0
2	Chipset	Intel NM10
3	BIOS	AEC-6913 R0.2
4	CPU	Intel Atom D2550 1.86GHz
5	Memory	Transcend DDR3-1333 4G
6	HDD	TOSHIBA MK1060GSC / 100GB
7	Test Software	Windows 7 / Run BurnIn Test 7.1 PRO
8	Adapter	FSP120-ABB 19V/6.32A

CPU COOLER

Temperature rise test

Test Date: 03-11~12-2014

Test Product: AEC-6913

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

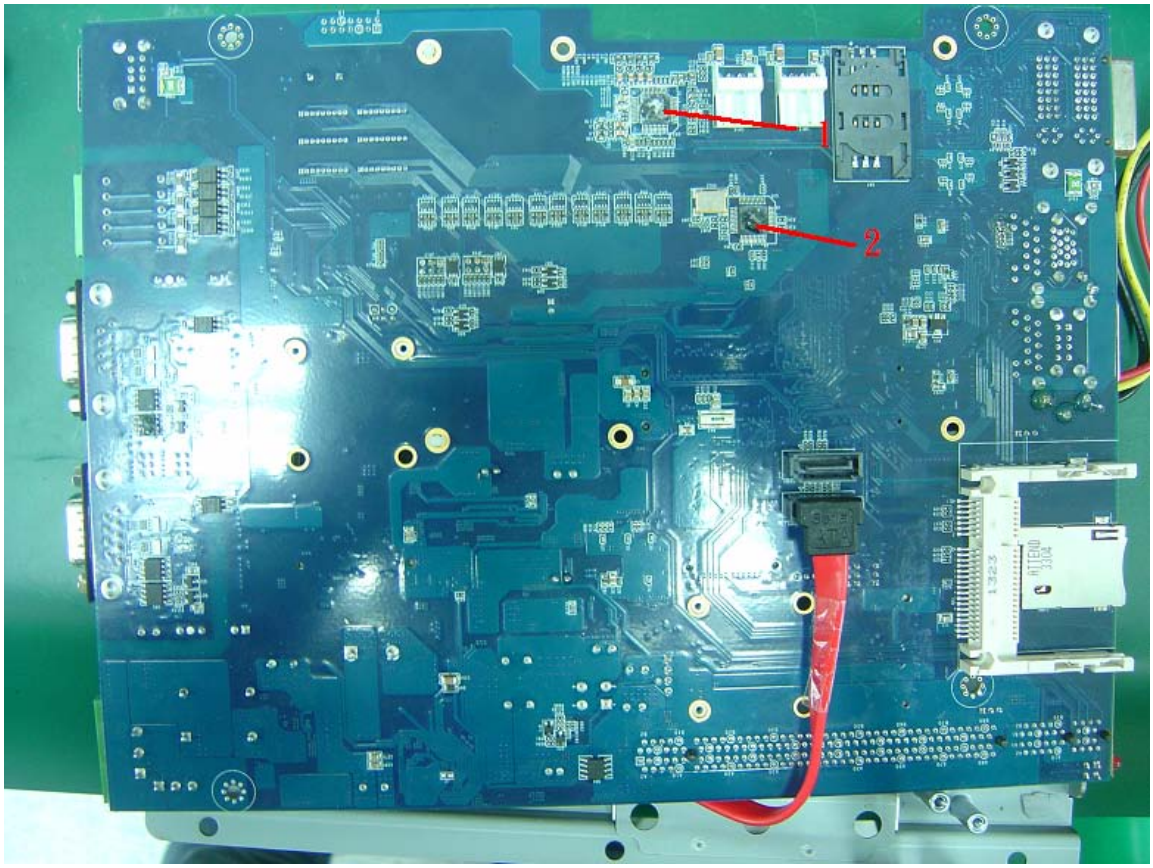
Test Condition:

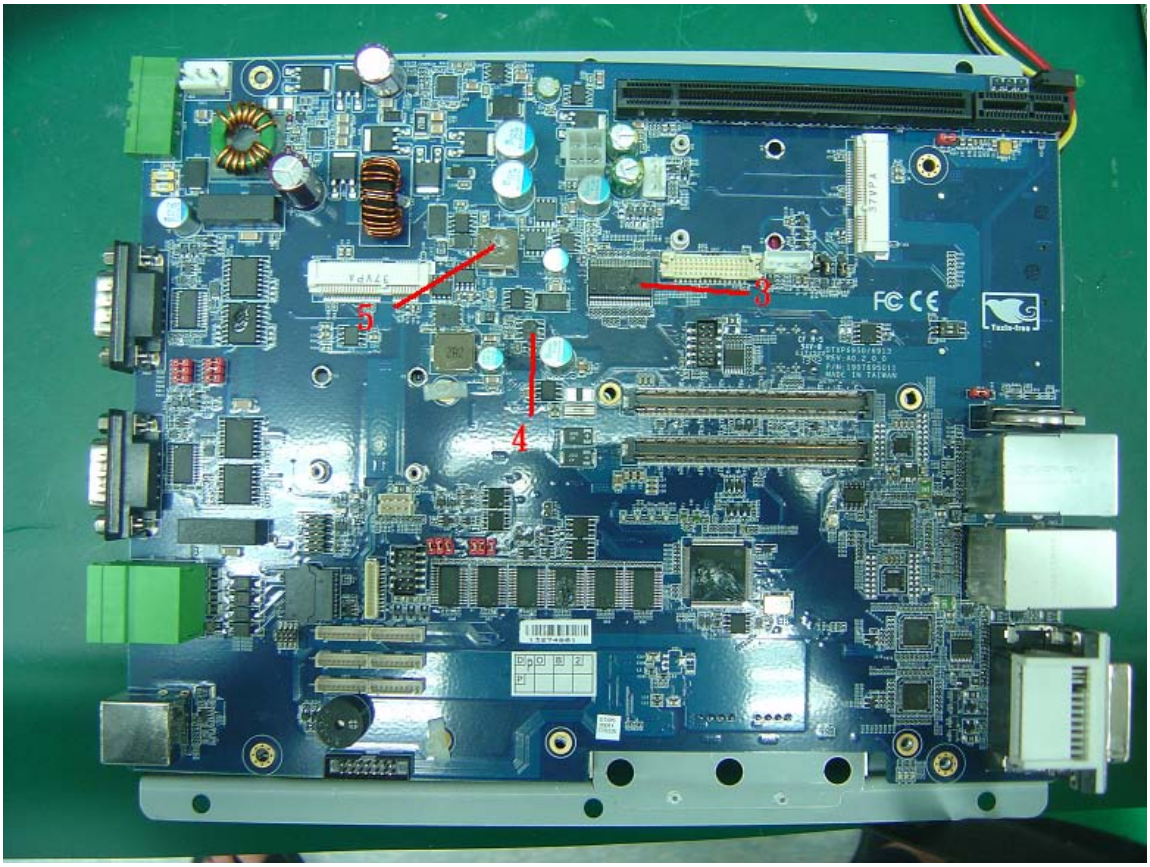
Ambient temperature: 50℃
Continuous running till thermal stability (within less than 1℃)

Test Software:

Windows 7 / Run PassMark Burn In Test 7.0 Pro

Terminal Recorder:

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3
4

Temperature rise test

Thermal profile data:

AEC-6913					
Point	Position	Describe	Tc (*1) (℃)	Tm (*2) Measured Under 50℃	Note
1	U33	(TF)IC.7.1+2 Channel High Definition.Audio Codec.LQFP 48P.SMD.REALTEK.ALC892-CG	85	74.2	
2	U35	,(TF)IC.SMD.LQFP 48P.LPC to 4 UART.FINTEK.F81216DG	85	71.4	
3	U74	(TF)IC.SMD.SOP 8P.Switching PWM Controller.Richtek.RT9214PS	107.5	94.7	
4	U75	(TF)IC.SMD.SOP 8P.Switching PWM Controller.Richtek.RT9214PS	107.5	90.9	
5	L16	(TF)COIL.1.5uH.20%.SMD.11.5x10.5x4.0mm.DCR=5.3mohm.Idc=15Amp ZenithTek ZPWM-1040MB-1R5M	125	106.6	
COM-CV					
6	U14	(TF)INTEL.Cedarview CPU.1.6Ghz.N2600.	100	83.6	
7	U45	(TF)IC.SMD.NQG132.132P.4-port.PCI Express Switch.IDT	100	82.4	
8	Memory	ADATA DDR3-1066 2GB Hynix H5TQ1G83BFR	95	89.0	
9	U42	(TF)IC.SMD.FBGA USB3.0 Host Controller.NEC	100	99.8	Note3
10	HDD	TOSHIBA MK1060GSC / 100GB	85	84.7	Note3

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. P130310QED01

Sample Configuration & Quantity Under Test:

Quantity: 1 (AEC-6913)

Test Result:

No issues were found during the temperature rise operation test.

Temperature cycle test

Test Date: 03-07 ~ 09-2014

Test Product: AEC-6913

Test Site: AAEON QE Dept.

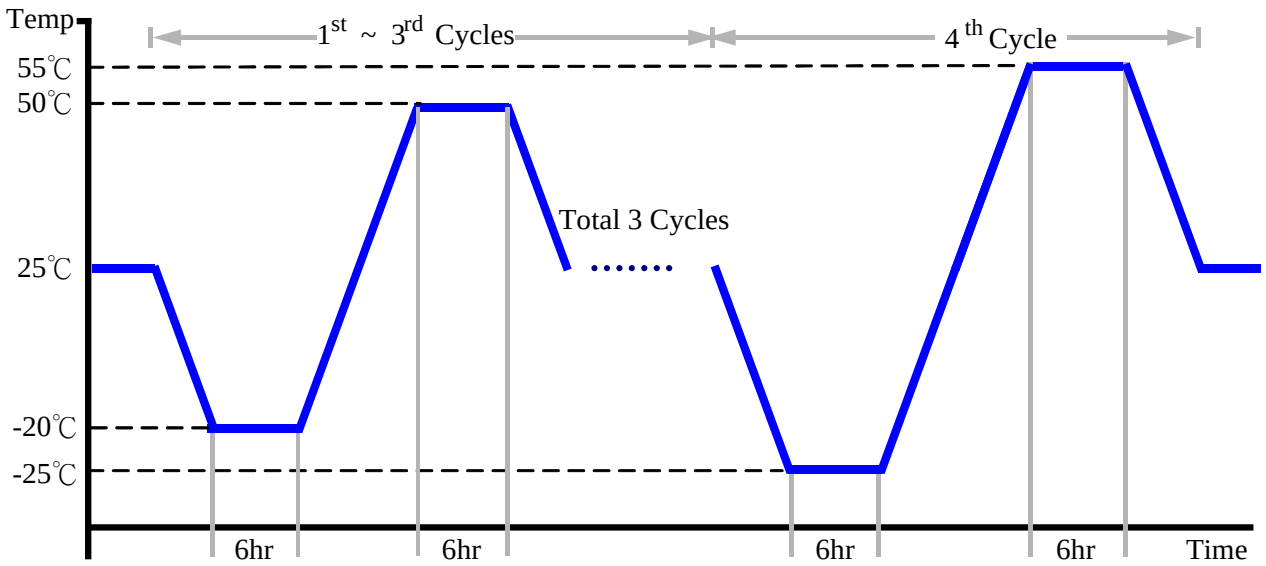
Test Standard: Refer to IEC68-2-14 Testing procedures
Test N: Change of temperature Test

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: -20℃ (1~3 cycles)
   --25℃ (4^{th} cycle)
2. Test High Temperature: 50℃ (1~3 cycles)
   55℃ (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 (AEC-6913)

Test Result:

No issues were found during the temperature operation cycle test.

High temperature storage test

Test Date: 03-05 ~ 06-2014

Test Product: AEC-6913

Test Site: AAEON QE Dept.

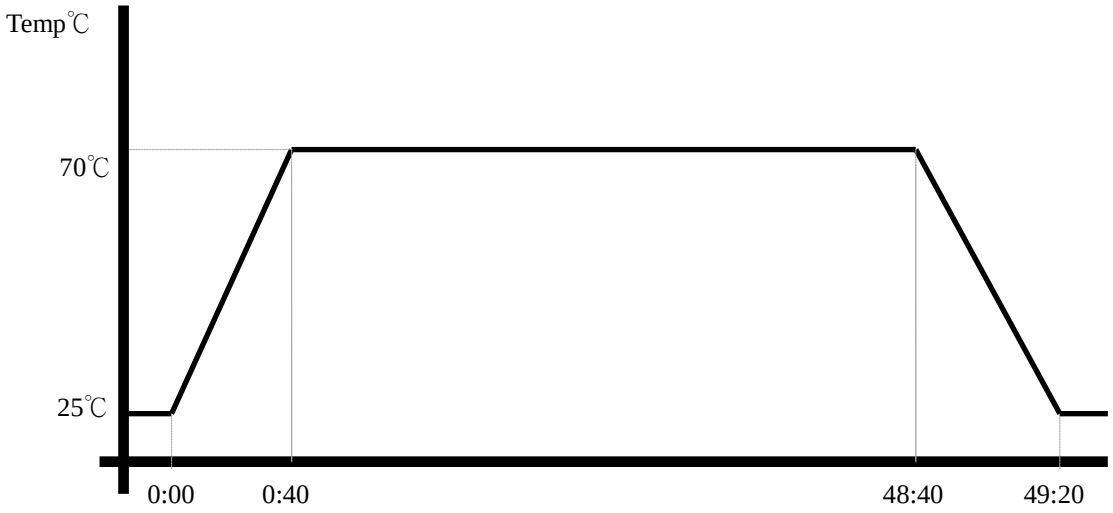
Test Standard: Refer to IEC 68-2-2 Testing procedures
Test Bb: Dry Heat Test (Non-operation)

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: 70℃
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 (AEC-6913)

Test Result:

No issues were found after the high temperature storage test.

Low temperature storage test

Test Date: 03-03 ~ 04-2014

Test Product: AEC-6913

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: -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 (AEC-6913)

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

Humidity test

Test Date: 02-26~27-2014

Test Product: AEC-6913

Test Site: AAEON QE Dept.

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

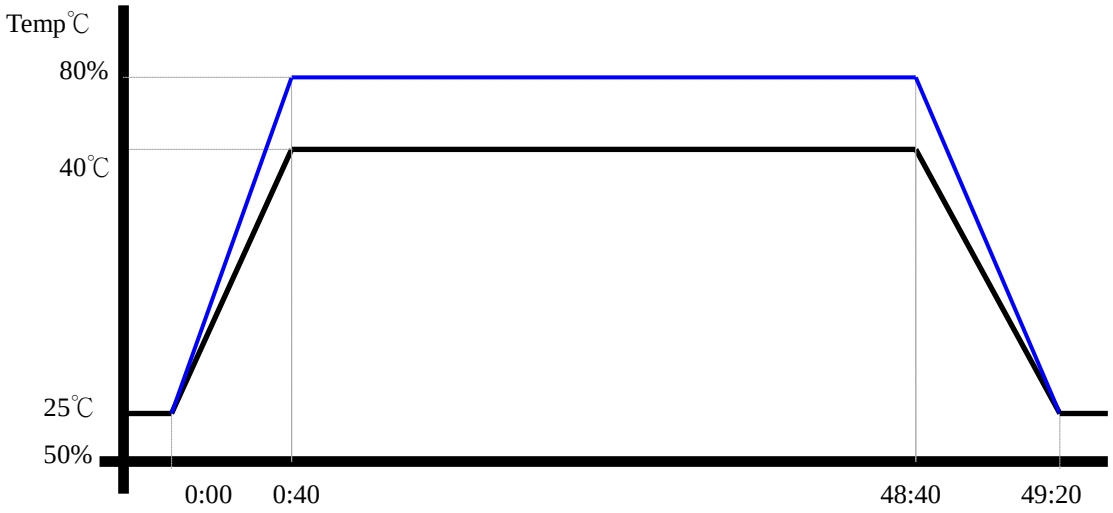
Test Equipment:

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 (AEC-6913)

Test Result:

No issues were found after the humidity storage test.

Cold start and hot start test

Test Date: 02-25 -2013

Test Product: AEC-6913

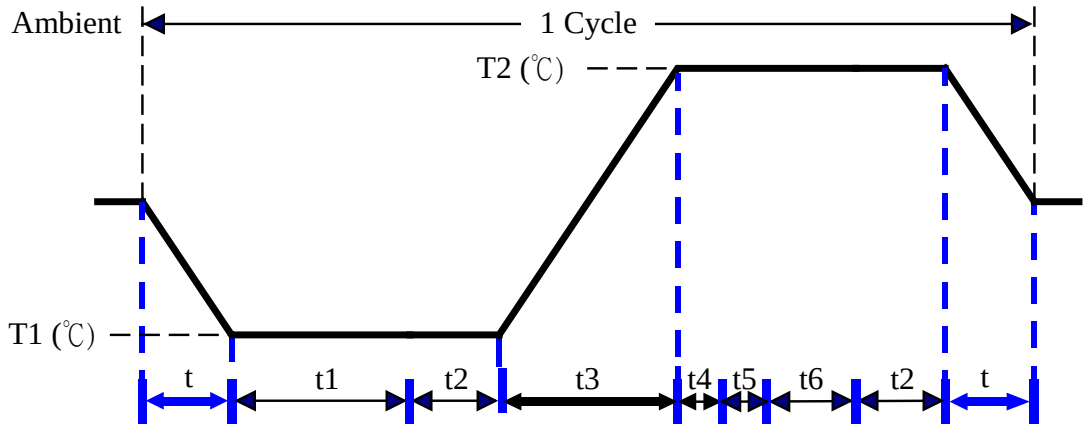
Test Site: AAEON QE Dept.

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	-25℃
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.