AIS-E2

Rev.A1.0

Environment Test Report

Report NO: 12I020025

Summary	☑ **Pass** ☐ **Fail** Note : There is/are ___ defect(s) not list in the report, please check it in the DTS Website. ☐ **Pass with Deviation**

Issue date	Approval	Test Engineer
2012-08-20	**Tom Lin**	**Matthew Chi**

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

Item	Device Information	
SYSTEM PC Model / Ver.	AIS-E2 A1.0	
CPU Board	EMB-QM77 A1.0	
BIOS / Version	AIS-E2 R0.2 (ASE2AT02) (07/24/2012)	
CPU Type	Intel Core i7-3610QE 2.30GHz	
Memory Type	Transcend DDR3-1600 8GBx2	
HDD	WD 2.5” SATA WD1600BUDT-63DPZY0 x2	
Operating System	☒ Windows 7 Professional English 32 Bit	
DC Adapter	FSP084-DAMM1/ DC 12V/ 7.0A	

System picture:

Temperature rise test

Test Date: 08-20-2012

Test Product: AIS-E2

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: 10/12/2011
Serial Number: 12A323190

Test Condition:

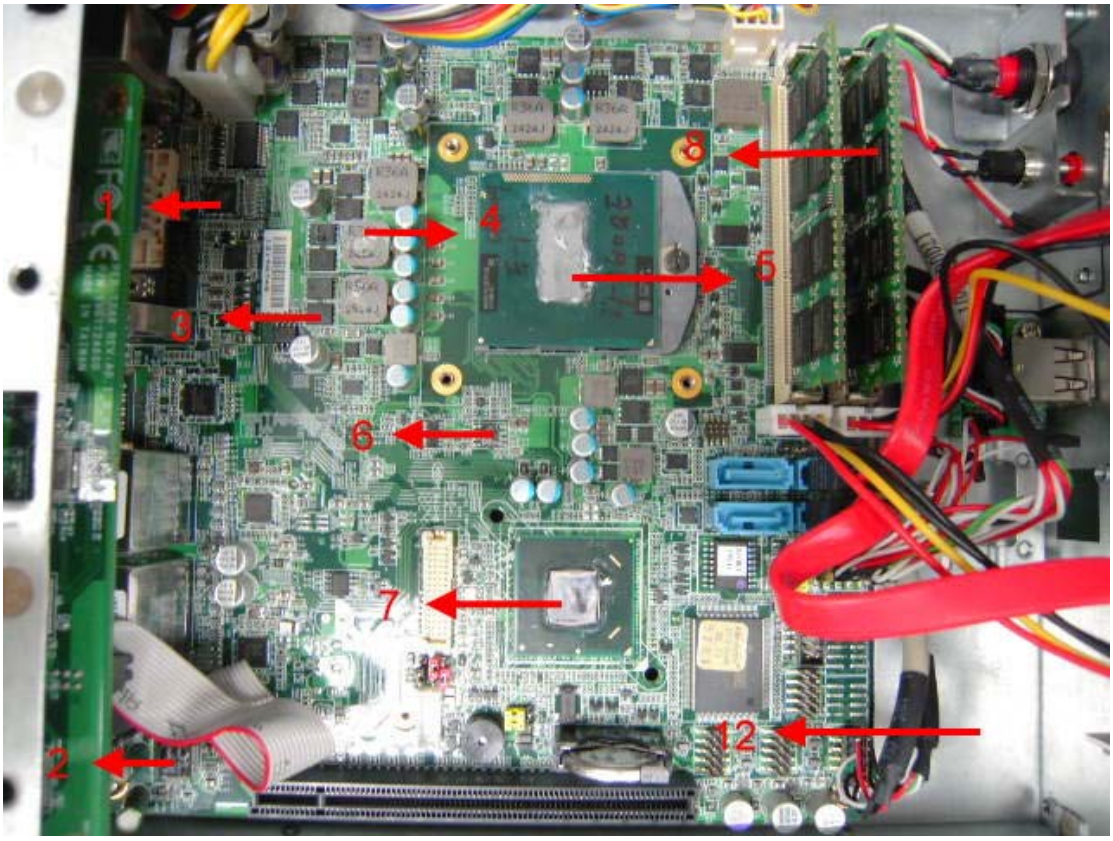
Ambient temperature: 45℃
Continuous running till thermal stable (within less than 1℃)

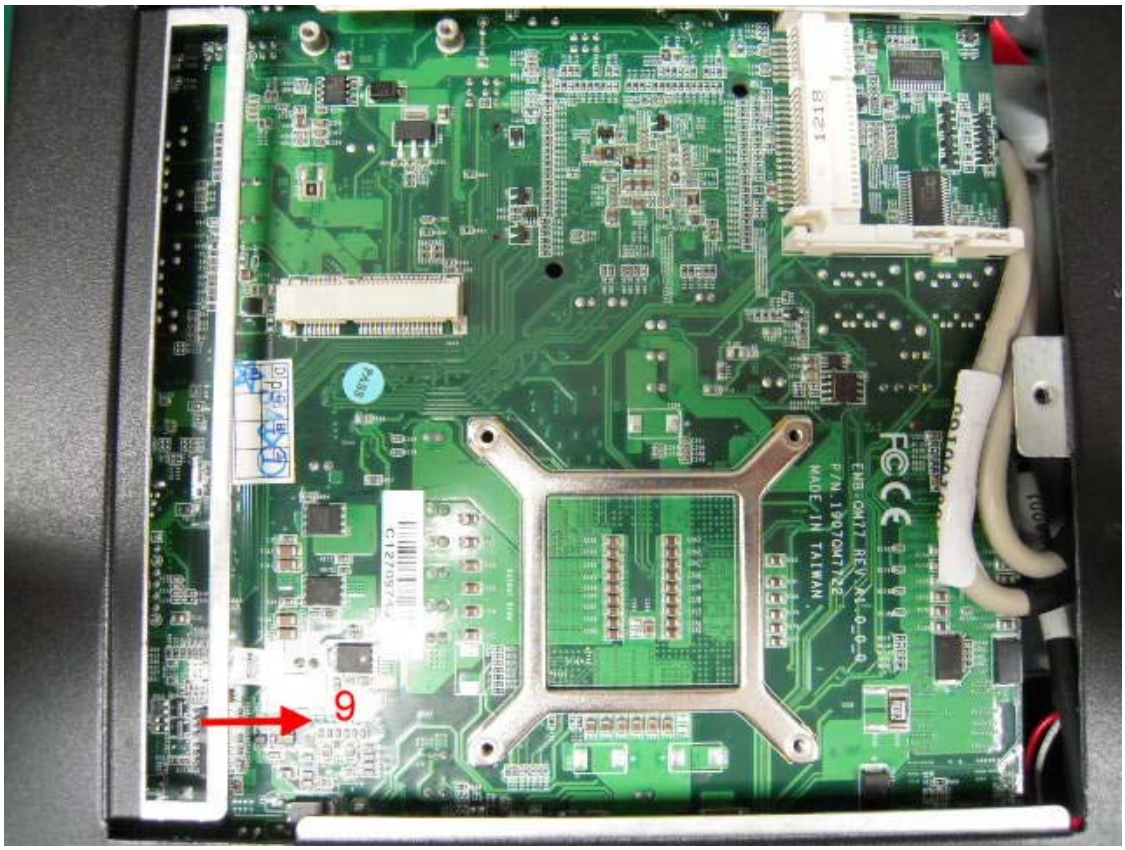
Test Software:

Windows 7 / Run PassMark Burn In Test 7.0 Pro

Terminal Recorder:

Temperature rise test





Temperature rise test

Temperature rise test

Thermal profile data:

Point \ Temp. Stage(℃)	Spec	45	Note
01. U42 - (TF)Digital Video Level Shifter.for DP to HDMI.ASMEDIA.ASM1442	100	54.8	
02. U46 - (TF)HIGH DEFINITIOND.AUDIO CODEC.REALTEK.ALC662-GR	100.5	62.4	
03. Q48 - (TF)PWR.PMPAK5X6 N-MOSFET.APEC.AP0503GMT-HF	125	58.7	
04. L19 - (TF)COIL.0.36uH.Irms=34A.20%.MDPanasonic.ETQP4LR36AFC	130	59.7	
05. CPU – Intel Core I7-3610QE 3.30GHz	105	81.2	
06. U20 - (TF)5A Ultra Low Dropout.Linear Regulator.APEC.APE8955MP	100	71.1	
07. U16 - (TF)Chipset PCH.INTEL.BD82QM77	108	64.9	
08. Memory - Transcend DDR3-1600 8GB	85	59.7	
09. U63 - (TF)NSOIC 8P.RS-485 Transceivers.SIPEX.SP485ECN-L	100	52.8	
10. HDD 1- WD 2.5” SATA WD1600BUDT-63DPZY0	85	51.4	
11. HDD 2- WD 2.5” SATA WD1600BUDT-63DPZY0	85	55.2	
12. Control Box Inside Air Temperature	N/A	50.6	
13. Control Box Surface Temperature	N/A	48.8	
14. Chamber Air Temperature	N/A	45.2	

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 plus margin.
- **Margin** : Tc > Tm > Tc-5℃; The measured value is within specification with margin.
  For FANLESS system application, 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 (AIS-E2)

Test Result:

No issues were found during the temperature rise operation test.

Temperature cycle test

Test Date: 08-10~ 13-2012

Test Product: AIS-E2

Test Site: AAEON QE Dept.

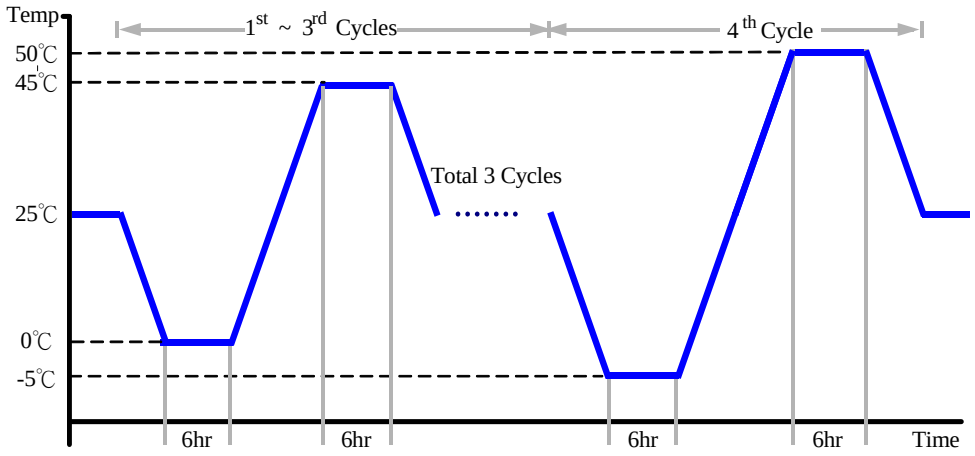
Test Standard: Refer to IEC68-2-14 Testing procedures
Test N: Change of temperature Test

Test Equipment:

Programmable Temperature & Humidity Chamber
K.SON. INS. TECH. CORP.
Model: THS-D75-100+LN2
Date of Calibration: 10/13/11
Serial Number: 6487KT

Test Condition:

1. Test Low Temperature: 0℃ (1~3 cycles)
   -5℃ (4^{th} cycle)
2. Test High Temperature: 45℃ (1~3 cycles)
   50℃ (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 (AIS-E2)

Test Result:

No issues were found during the temperature operation cycle test.

High temperature storage test

Test Date: 08-13 ~ 14-2012

Test Product: AIS-E2

Test Site: AAEON QE Dept.

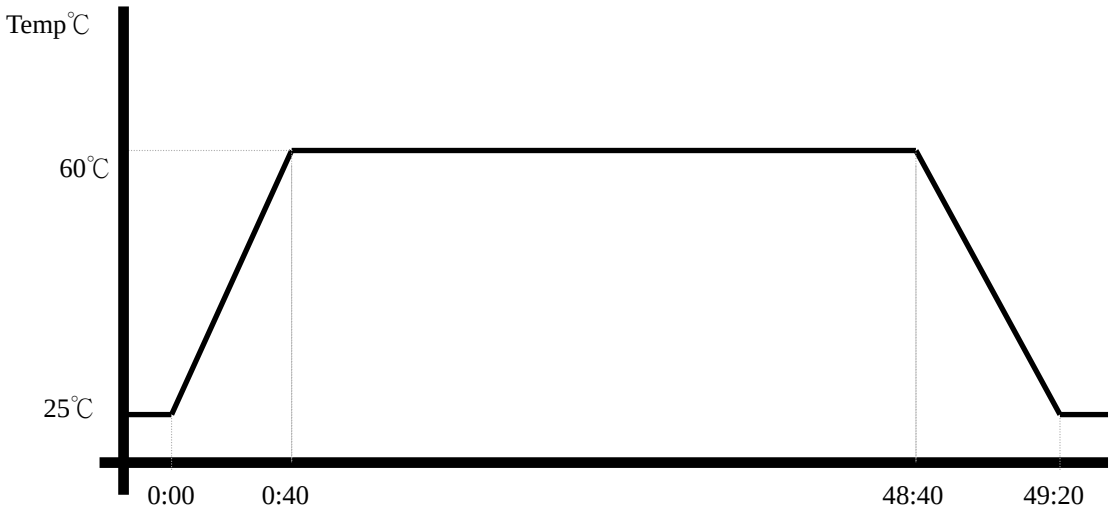
Test Standard: Refer to IEC 68-2-2 Testing procedures
Test Bb: Dry Heat Test (Non-operation)

Test Equipment:

Programmable Temperature & Humidity Chamber
K.SON. INS. TECH. CORP.
Model: THS-D75-100+LN2
Date of Calibration: 10/13/11
Serial Number: 6487KT

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 (AIS-E2)

Test Result:

No issues were found after the high temperature storage test.

Low temperature storage test

Test Date: 08-14 ~ 15-2012

Test Product: AIS-E2

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-D75-100+LN2
Date of Calibration: 10/13/11
Serial Number: 6487KT

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 (AIS-E2)

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

Humidity test

Test Date: 08-15 ~ 16-2012

Test Product: AIS-E2

Test Site: AAEON QE Dept.

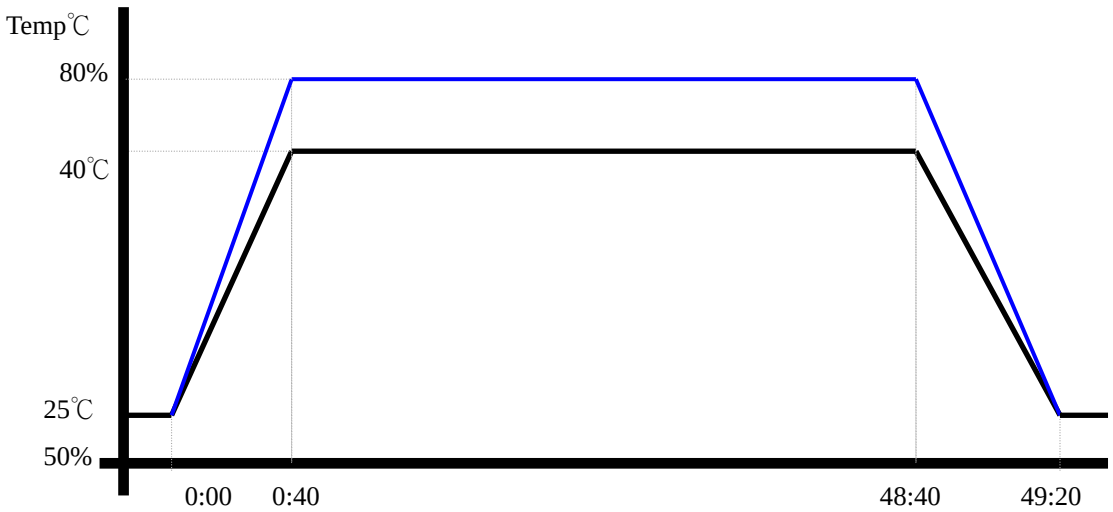
Test Standard: Refer to IEC 68-2-3 Testing procedures
Test Ca: Damp heat, steady state (Non-operation)

Test Equipment:

Programmable Temperature & Humidity Chamber
K.SON. INS. TECH. CORP.
Model: THS-D75-100+LN2
Date of Calibration: 10/13/11
Serial Number: 6487KT

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:



Sample Configuration & Quantity Under Test:
Quantity: 1 (AIS-E2)

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

Cold start and hot start test

Test Date: 08-16 ~17-2012

Test Product: AIS-E2

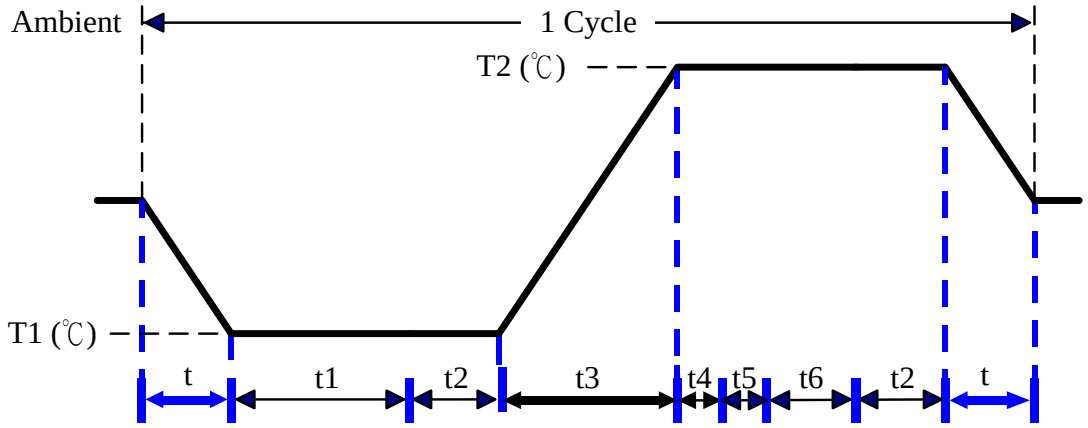
Test Site: AAEON QE Dept.

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-D75-100+LN2
Date of Calibration: 10/13/11
Serial Number: 6487KT

Test Condition:



Parameters	Description
T1	-5℃
T2	50℃
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 media player
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.