

# AIS-E1

## Environment Test Report

Report NO:11I020014

Summary	<p><input type="checkbox"/> Pass</p> <p><input type="checkbox"/> Fail</p> <p>Note : There is/are ____ defect(s) not list in the report, please check it in the DTS Website.</p> <p><input checked="" type="checkbox"/> Pass with Deviation</p> <p>Comment: <u>One temperature point need improving</u></p>
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Issue date

Approval

Test Engineer

2012-05-15

Vincent Chen

Matthew Chi

## Test item list

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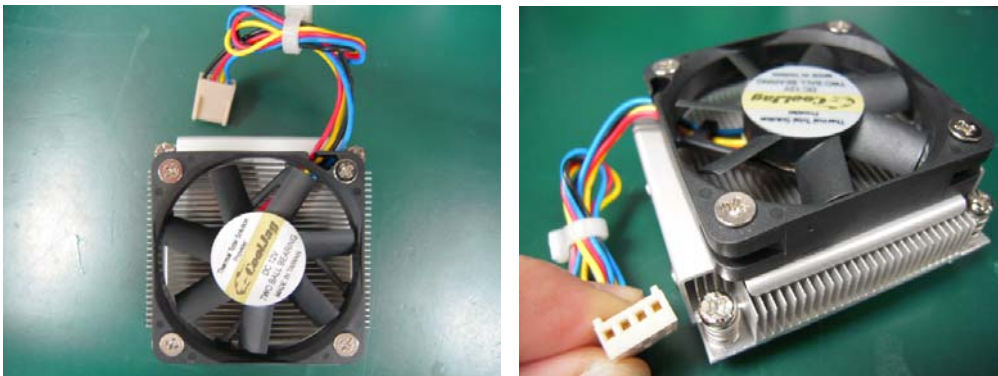
### Testing Result

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.	<b>System:</b>	AIS-E1 A1.0
	1.Main board	EMB-QM67 A1.0 (Bios Ver. AIS-E1 Rev0.2)
	2.CPU Type	Intel Core CPU i7-2710QE 2.10GHz
	2. Chipset	Intel QM67
	3. Memory	InnoDisk DDR3-1333 4GB CL9 ELPIDA E5108AJBG-6E-E
	4. SATA HDD	WD 2"5 WD1600BU DT-630DPZY0 x4
	5. Test Software	Windows 7 / Run BurnIn test 7.0
2.	Adapter :	FSP060-DBAB1

## Smart Fan:



# Temperature rise test

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**Test Date:** 05-14-2012

**Test Product:** AIS-E1

**Test Site:** AAEON QE Dept.

**Test Standard:** Reference EN 61131-2(94), UL508 (94)

**Temperature Measurement:**

40 Channel Thermal Recorder:

YOKOGAWA Inc,

Model: AIS-E1

Date of Calibration: 10/12/2011

Serial Number: 12A323190

**Test Condition:**

Ambient temperature: 45°C

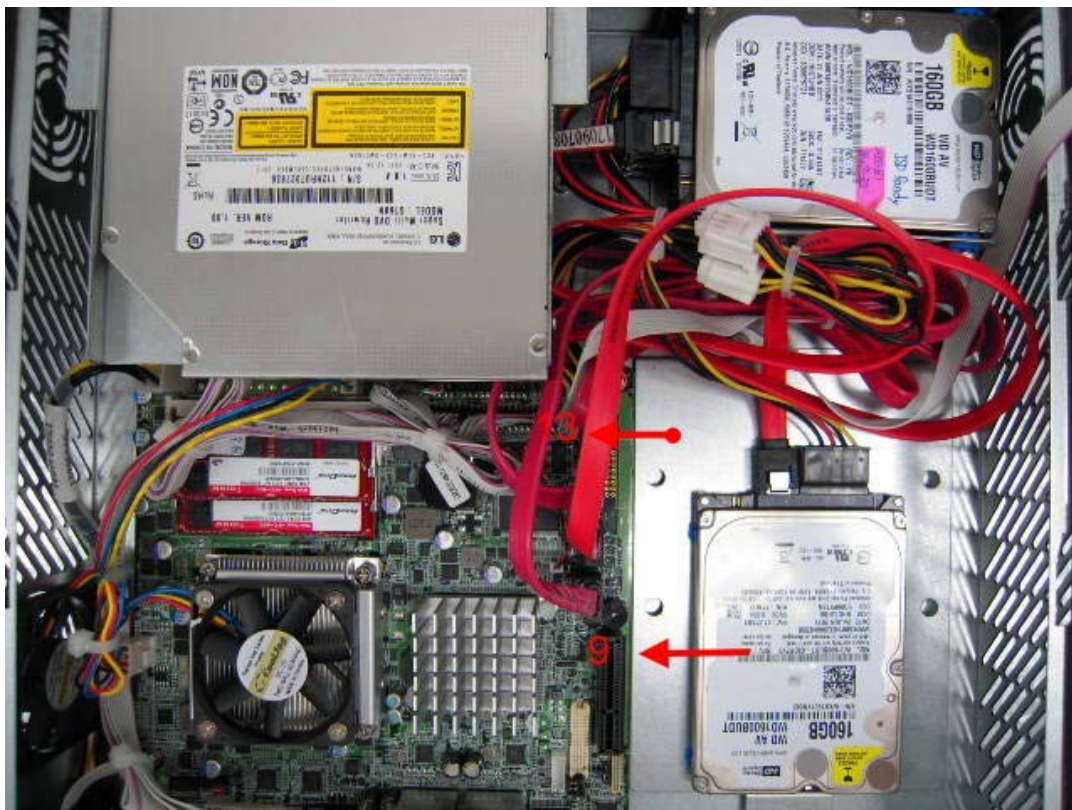
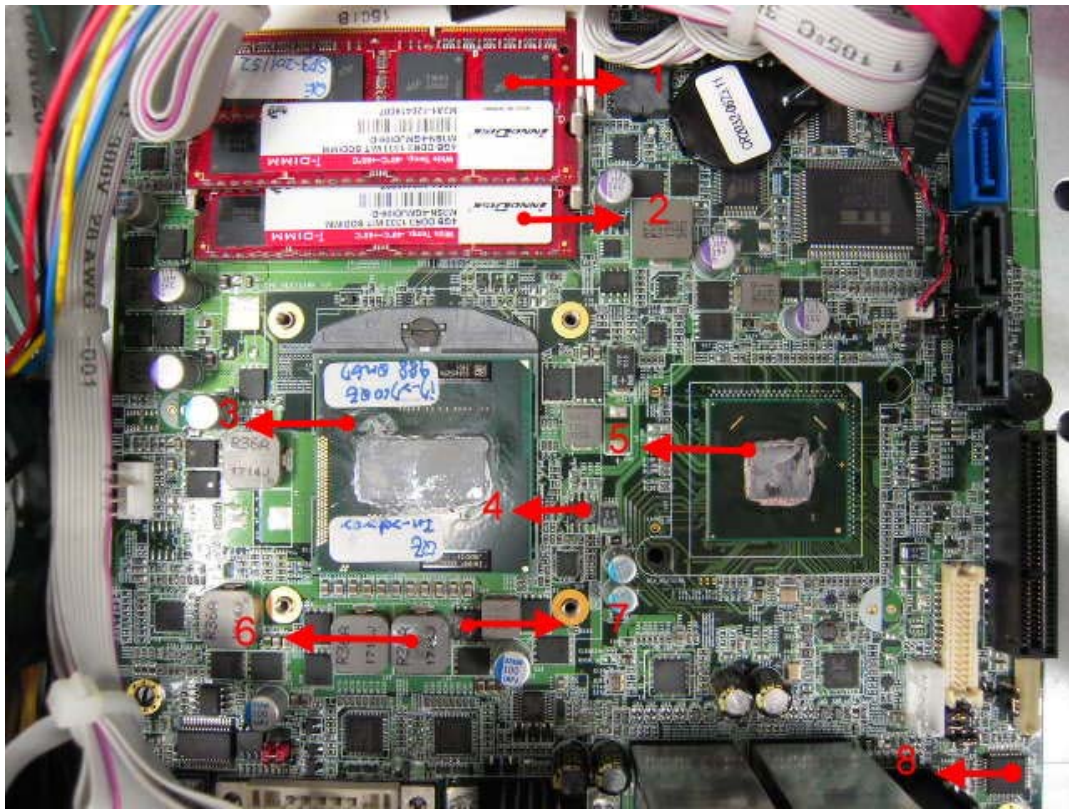
Continuous running till thermal stability (within less than 1°C)

**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(°C)	Spec	45
<b>EMB-QM67 A1.0</b>			
01.memory 1 -InnoDisk DDR3-1333 4GB ELPIDA E5108AJBG-6E-E		85	65.4
02.memory 2 - InnoDisk DDR3-1333 4GB ELPIDA E5108AJBG-6E-E		85	68.1
03.U26 - Intel Core I7 CPU 2710QE @2.10GHz		100	66.1
04.U28 - (TF)REG.SO-8.5A Ultra Low Dropout.Linear Regulator.APEC.APE8955MP		125	75.9
05.U27 - (TF)IC.SMD.Chipset PCH.INTEL.BD82QM67 SLJ4M		105	61.3
06.L15 - (TF)COIL.0.36uH.RDC=0.76m Ohm.Panasonic.ETQP4LR36AFC		130	75.8
07.Q32 - (TF)PWR.PMPAK5X6.Rds=3.3m/5mOHM.Vds=30V.APEC.AP3R303GMT-HF		125	73.6
08.U51- (TF)IC.SMD.LQFP 48P. High Definition.Audio Codec.REALTEK.ALC892-GR		85	78.6
09.HDD 1 - WD 2.5" WD1600BUDT-630DPZY0 160GB		85	68.5
10.HDD 2 - WD 2.5" WD1600BUDT-630DPZY0 160GB		85	68.2
11.HDD 3 - WD 2.5" WD1600BUDT-630DPZY0 160GB		85	62.9
12.HDD 4 - WD 2.5" WD1600BUDT-630DPZY0 160GB		85	46.6
13. Control Box Inside Air Temperature		N/A	46.9
14. Control Box Surface Temperature		N/A	47.8
15. Chamber Air Temperature		N/A	45.7
<b>Note(*):</b> <b>1. "Tc"</b> indicates the component's case maximum temperature value specified in its datasheet. <b>2. "Tm"</b> indicates the measured Tc value under working environmental temperature within product specification. <b>3. Judgment Criteria:</b> <b>- Fail</b> : $T_m > T_c + 5^{\circ}\text{C}$ ; The measured value is over specification plus margin. <b>- Margin</b> : $T_c + 5^{\circ}\text{C} > T_m > T_c - 10^{\circ}\text{C}$ ; The measured value is within specification with margin. For FANLESS system application, it is strongly recommended to add thermal dissipation design for better reliability. <b>- Pass</b> : $T_m < T_c - 10^{\circ}\text{C}$ ; The measured value is with safety margin.			

## Sample Configuration & Quantity Under Test:

Quantity: 1 (AIS-E1)

## Test Result:

No problem was found during the temperature rise operation test.

# Temperature cycle test

**Test Date:** 05-07 ~ 08-2012

**Test Product:** AIS-E1

**Test Site:** AAEON QE Dept.

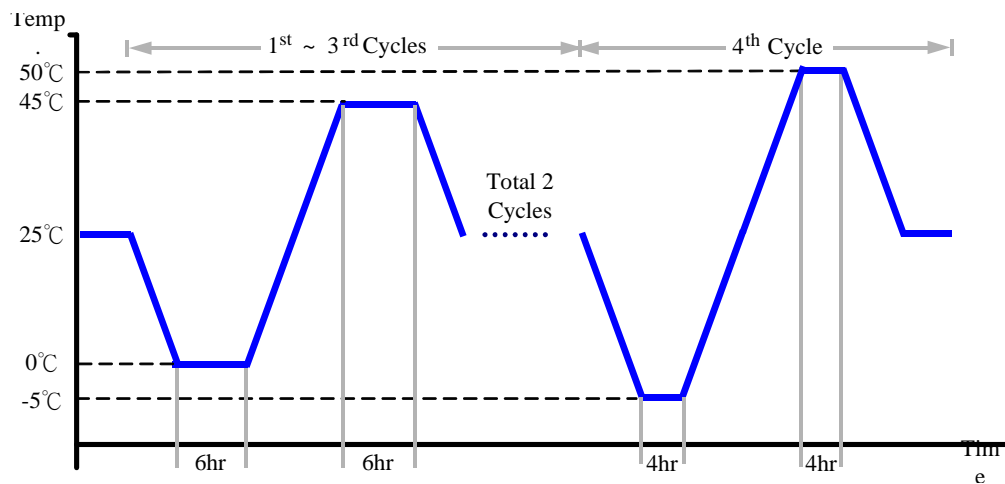
**Test Standard:** Reference IEC68-2-14 Testing procedures  
Test N: Change of temperature Test

**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°C (1~3 cycles)  
-5°C (4<sup>th</sup> cycle)
2. Test High Temperature: 45°C (1~3 cycles)  
50°C (4<sup>th</sup> cycle)
3. Test dwell time: 6Hrs
4. Temperature slope: 2°C/min
5. Test cycle: 4 cycles
6. Test Environment Curve:



**Sample Quantity Under Test:**

Quantity: 1 (AIS-E1)

**Test Result:**

No problem was found during the temperature operation cycle test.



# High temperature storage test

**Test Date:** 05-08 ~ 09-2012

**Test Product:** AIS-E1

**Test Site:** AAEON QE Dept.

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

**Test Equipment:**

Programmable Temperature & Humidity Chamber  
K.SON. INS. TECH. CORP.

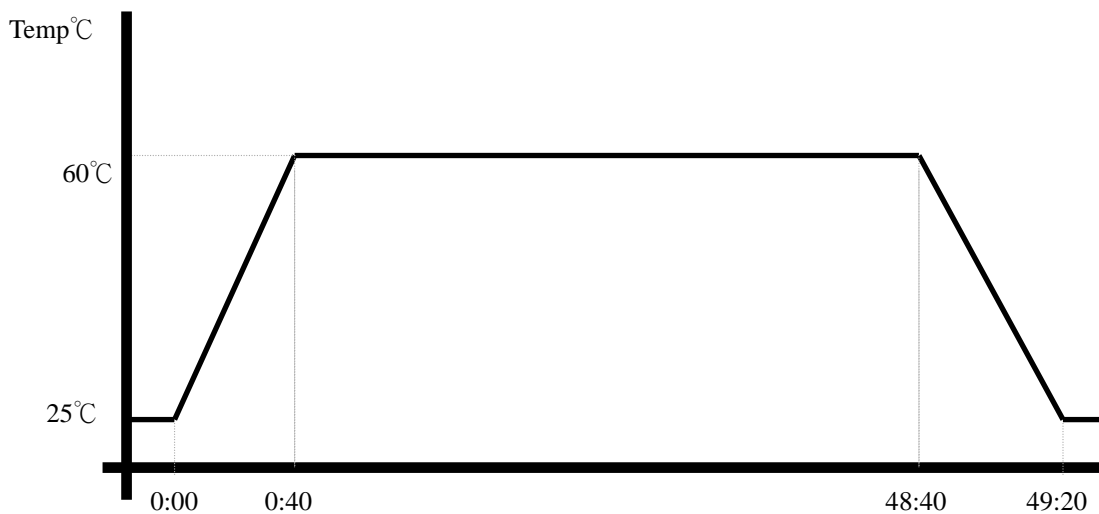
Model: THS-D75-100+LN2

Date of Calibration: 10/13/11

Serial Number: 6487KT

**Testing Item:**

1. Test Temperature: 60°C
2. Test Time: 48Hrs
3. Test Software: Windows 7 / Run PassMark Burn In Test 7.0 Pro
4. Test Environment Curve:



**Sample Quantity Under Test:**

Quantity: 1 (AIS-E1)

**Test Result:**

No problem was found after the high temperature storage test.

# Low temperature storage test

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**Test Date:** 05- 09~ 10-2012

**Test Product:** AIS-E1

**Test Site:** AAEON QE Dept.

**Test Standard:** Reference 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°C
2. Test Time: 48Hrs
3. Test Software: Windows 7 / Run PassMark Burn In Test 7.0 Pro
4. Test Environment Curve:



**Sample Quantity Under Test:**  
Quantity: 1 (AIS-E1)

**Test Result:**

No problem was found after the low temperature storage test.

# Humidity test

**Test Date:** 05-10 ~11 -2012

**Test Product:** AIS-E1

**Test Site:** AAEON QE Dept.

**Test Standard:** Reference 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

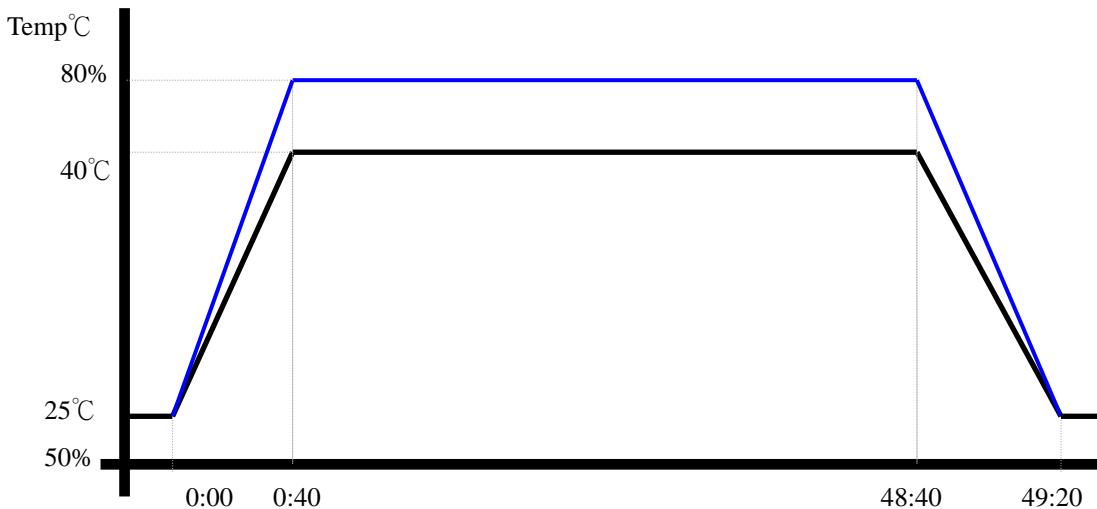
Date of Calibration: 10/13/11

Serial Number: 6487KT

**Testing Item:**

1. Test Temperature: 40°C
2. Test Humidity: 80%RH
3. Test Time: 48Hrs
4. Test Software: Windows 7 / Run PassMark Burn In Test 7.0 Pro
5. Test Environment Curve:

**Humidity %**



**Sample Quantity Under Test:**

Quantity: 1 (AIS-E1)

**Test Result:**

No problem was found after the humidity storage test.

# Cold start and hot start test

**Test Date:** 05-08 ~09 -2012

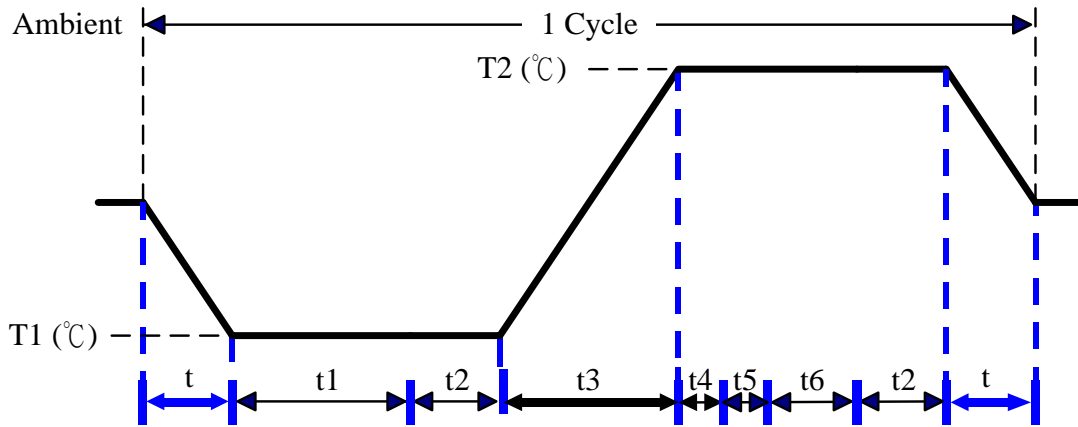
**Test Product:** AIS-E1

**Test Site:** AAEON QE Dept.

**Test Standard:** Reference 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°C
T2	50°C
t1	4 hrs
t2, t6	2 hrs
t4, t5	1hrs
t, t3	2°C/min
n (Cycle)	1

t = temperature 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 problem was found during the cold start test.
- b. No problem was found during the hot start test.