ACS-1U01-BT4
Environment Test Report

Report NO: 15IP020013

Summary	☑ **Pass** ☐ **Fail** ☐ **Pass with Deviation** Comment: _____

Issue date	Approval	Test Engineer
2015-07-31	**KJ Wang**	**Ben Sun**

Test item list

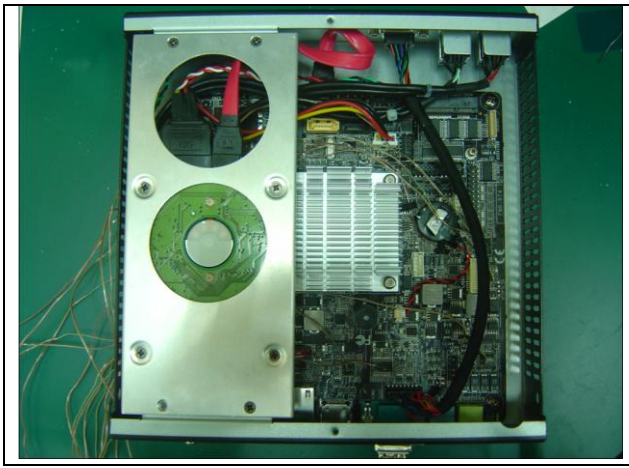
Testing Result

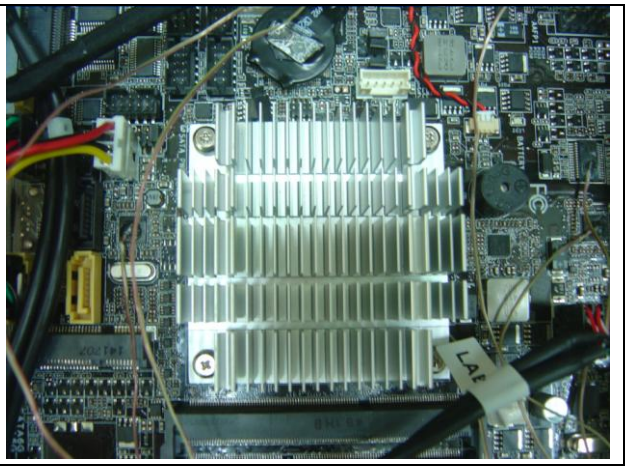
Num	Test item list	Result	Remark
1	Temperature rise test	Pass	
2	Temperature cycle operation test	Pass	
3	High temperature storage test	Pass	
4	Low temperature storage test	Pass	
5	Humidity test	Pass	
6	Cold start and hot start test	Pass	

Configuration of EUT

Num	Item	Spec
1.	**System**:	ACS-1U01-BT4 Ver. A1.00
	1. Main board	EMB-BT4 Ver. A1.01
	2. BIOS Ver.	EBT4DM13
	3. CPU Type	Intel(R) Celeron(R) CPU J1900 @ 1.99GHz
	4. 2.5” SATA HDD	HGST HTS725050A7E630 500GB
	5. Memory	SK hynix 8GB PC3L-12800S-11-12-F3
	6. Test Software	Windows 8 / Run PassMark BurnIn test 8.0 Pro
2.	**Adapter:**	FSP060-DBAB1

Heat Sink Photos





Temperature rise test

Test Date: 07-30-2015

Test Product: ACS-1U01-BT4

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: 09/11/14

Serial Number: 12A323190

IR Scanner: Infrared Camera

NEC Avio Infrared Technologies Co., Ltd.

Model: Thermo GEAR G100W2-D

Date of Calibration: 09/11/14

Serial Number: 1051444

Test Condition:

Ambient temperature: 50℃

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

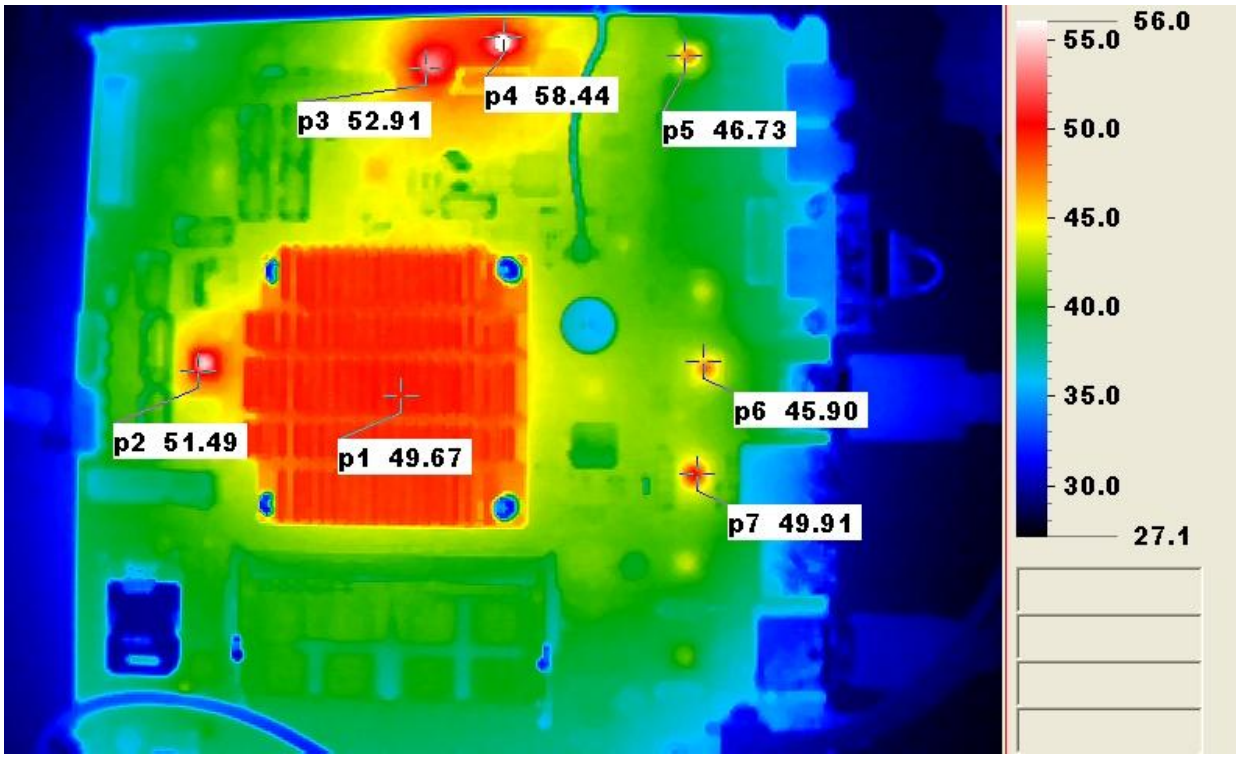
Test Software:

Windows 8 / Run PassMark Burn In Test 8.0 Pro

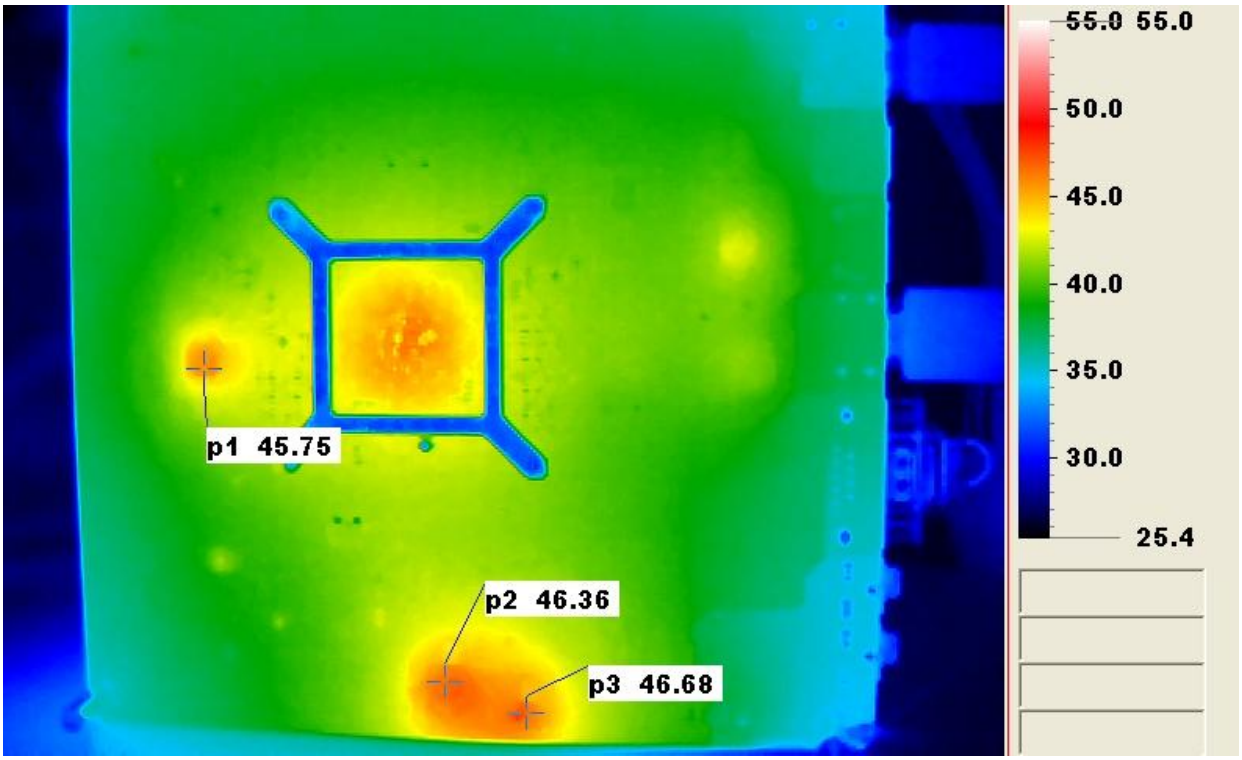
Temperature rise test

Terminal Recorder:

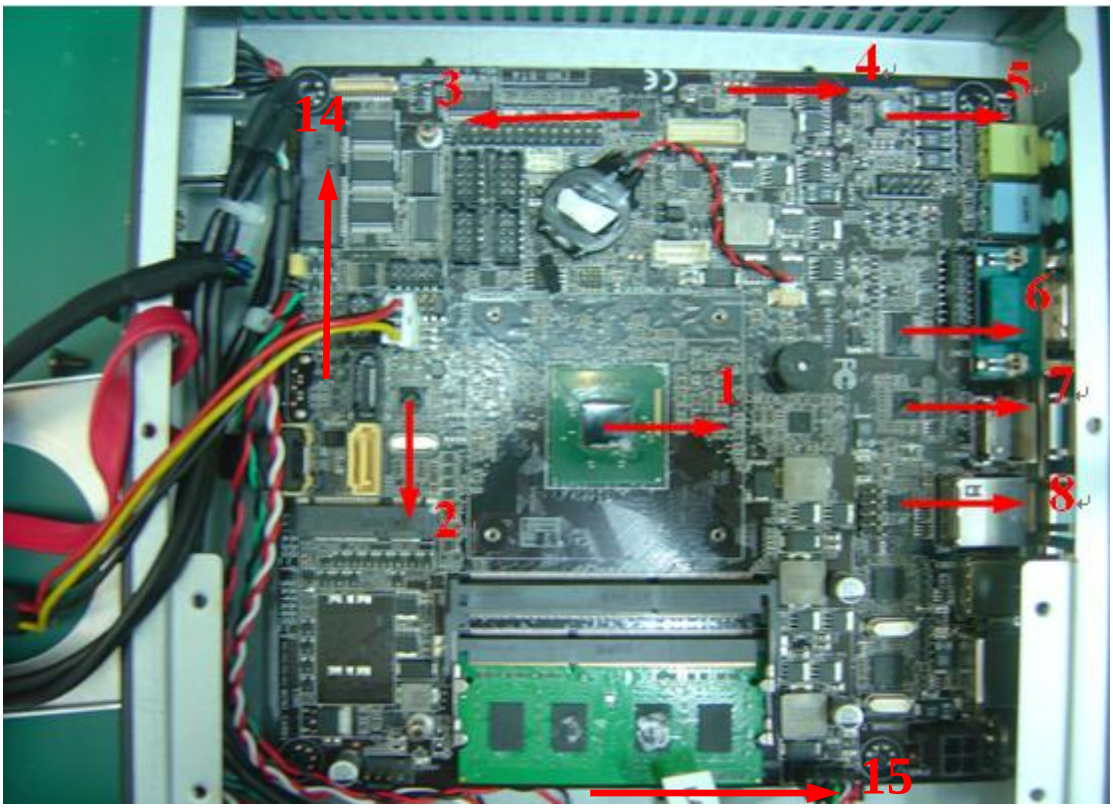
Measuring Thermal Couple Position：

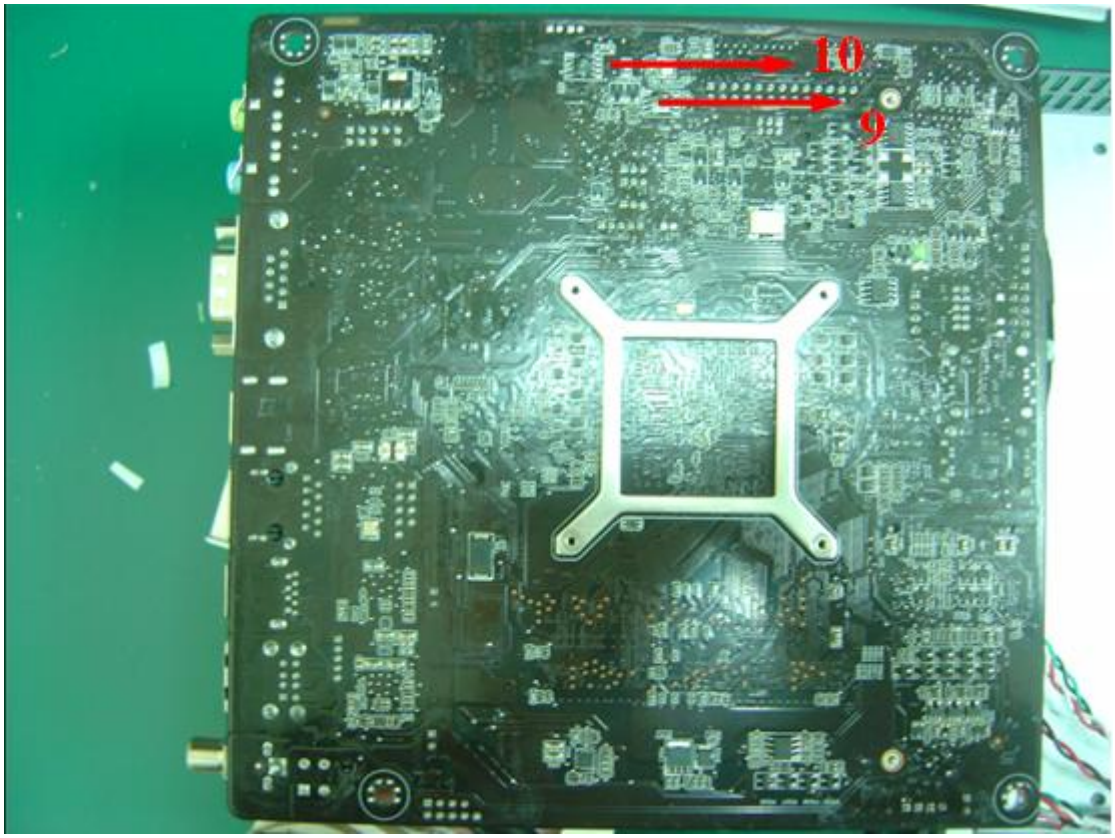


Back side

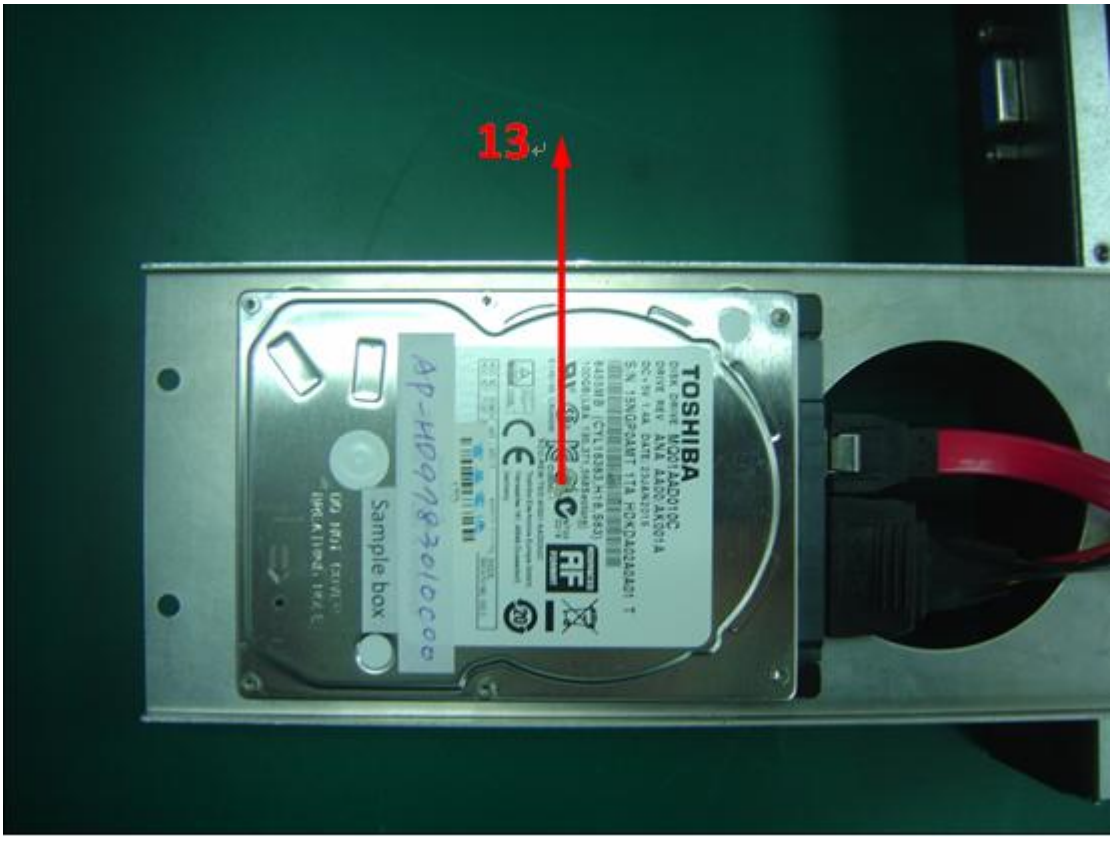


Temperature rise test





Temperature rise test



Temperature rise test

Thermal profile data:

ACS-1U01-BT4

Point / Temp. Stage(℃)			Spec	25℃	50℃	Note
01.	CPU	CPU FH8065301615010 934010//INT J1900 2.0G	105	63.2	88.2	
02.	TU2	C.S ASM1061 (A3) QFN48L// ASMEDIA	95	62.0	87.0	
03.	LVU1	C.S CH7511B-BF CHRONTEL CH7511B-BF DP TO LVDS	95	61.5	86.5	
04	WU2	LDO REG. G9141T11U SOT23-5//GMT	100	56.3	81.3	
05.	AU1	C.S ALC887-VD2-CG LQFP-48//REALTEK	85	52.8	77.8	
06	U8	INTERFACE ADM213EARSZ SSOP-28//A.D.	100	49.6	74.6	
07.	DU1	C.S ASM1442K (A1) QFN-48//ASM HDMI LEVELSHIFTER	85	51.8	76.8	
08.	U29	C.S RTL8111G-CG QFN-32//REALTEK	85	46.8	71.8	
09.	U27	EEPROM 9904AMF SOP-8//CHRONTEL EMB-H61A 120430	85	54.8	79.8	
10.	Q31	P-MOSFET EMB07P03G SOP-8//EXCELLIANCE	90	54.5	79.5	
11.		Lithium Battery. MAXELL.CR2032H	85	51.4	76.8	
12.		Memory	85	53.3	78.3	
13		HDD	85	46.4	71.6	
14.		Control box internal temp-1	NA	44.1	69.1	
15		Control box internal temp-2	NA	46.3	71.3	
16		Control box external temp	NA	44.6	69.6	

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. N/A

Sample Configuration & Quantity Under Test:

Quantity: 1 (ACS-1U01-BT4)

Test Result:

No issues were found during the temperature rise operation test.

Temperature cycle test

Test Date: 07-28 ~ 29-2015

Test Product: ACS-1U01-BT4

Test Site: AAEON QE Dept.

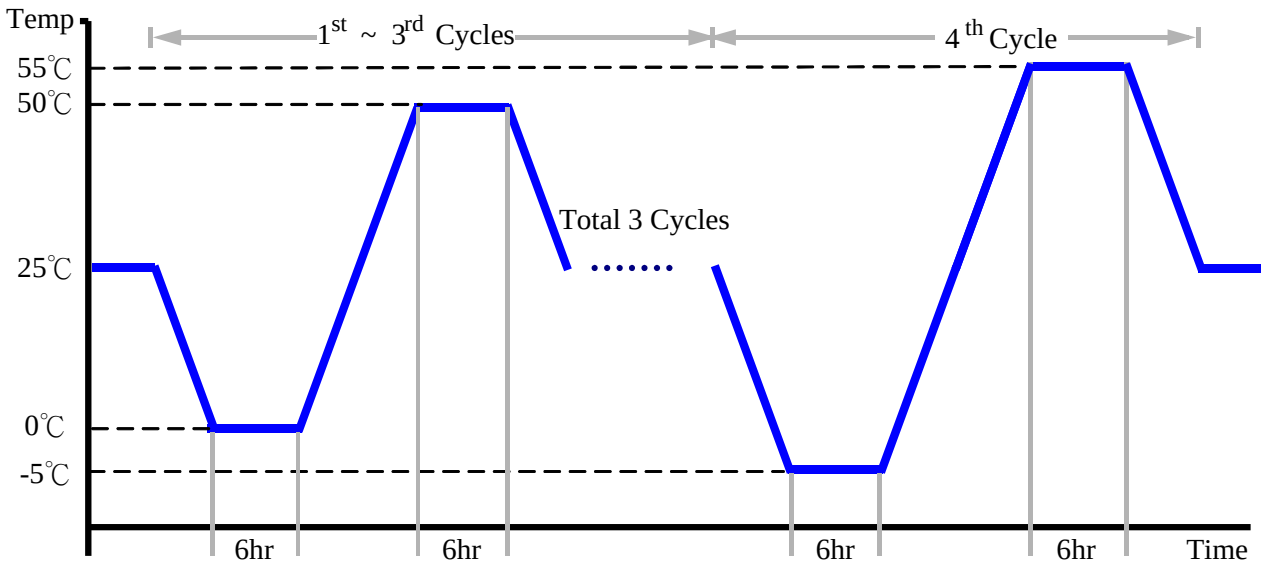
Test Standard: Refer to IEC68-2-14 Testing procedures
Test N: Change of temperature Test

Test Equipment:

Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)
Model: THS-D4H+-100
Date of Calibration: 09/30/14
Serial Number: 2582

Test Condition:

1. Test Low Temperature: 0℃ (1~3 cycles)
   -5℃ (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 (ACS-1U01-BT4)

Test Result:

No issues were found during the temperature operation cycle test.

High temperature storage test

Test Date: 07-20 ~ 21-2015

Test Product: ACS-1U01-BT4

Test Site: AAEON QE Dept.

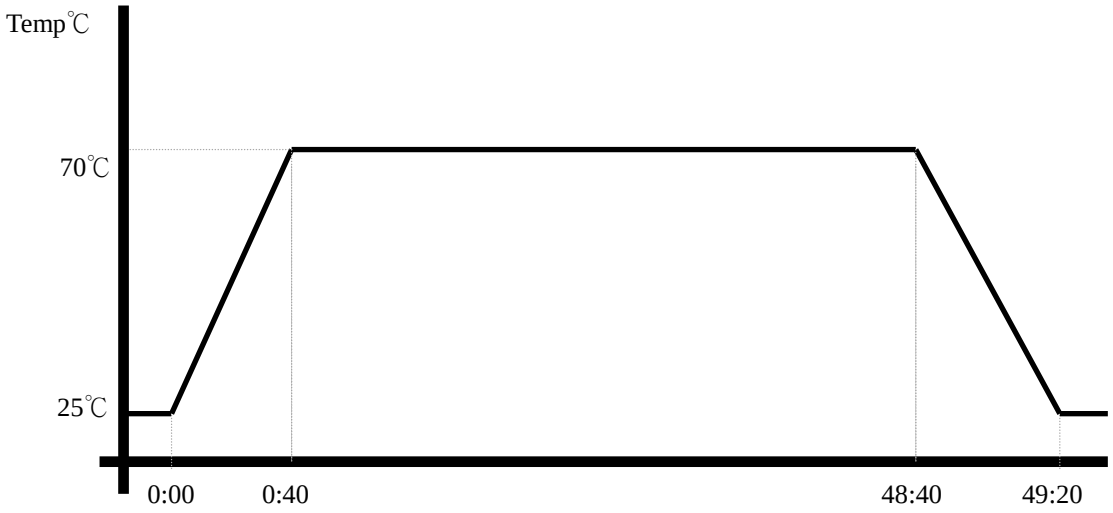
Test Standard: Refer to IEC 68-2-2 Testing procedures
Test Bb: Dry Heat Test (Non-operation)

Test Equipment:

Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)
Model: THS-D4H+-100
Date of Calibration: 09/30/14
Serial Number: 2582

Testing Item:

1. Test Temperature: 70℃
2. Test Times: 48Hrs
3. Test Software: Windows 8 / Run PassMark Burn In Test 8.0 Pro
4. Test Environment Curve:



Sample Configuration & Quantity Under Test:

Quantity: 1 (ACS-1U01-BT4)

Test Result:

No issues were found after the high temperature storage test.

Low temperature storage test

Test Date: 07-22 ~ 23-2015

Test Product: ACS-1U01-BT4

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: 09/30/14
Serial Number: 2582

Testing Item:

1. Test Temperature: -20℃
2. Test Times: 48Hrs
3. Test Software: Windows 8 / Run PassMark Burn In Test 8.0 Pro
4. Test Environment Curve:

Sample Configuration & Quantity Under Test:
Quantity: 1 (ACS-1U01-BT4)

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

Humidity test

Test Date: 07-24~25-2015

Test Product: ACS-1U01-BT4

Test Site: AAEON QE Dept.

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

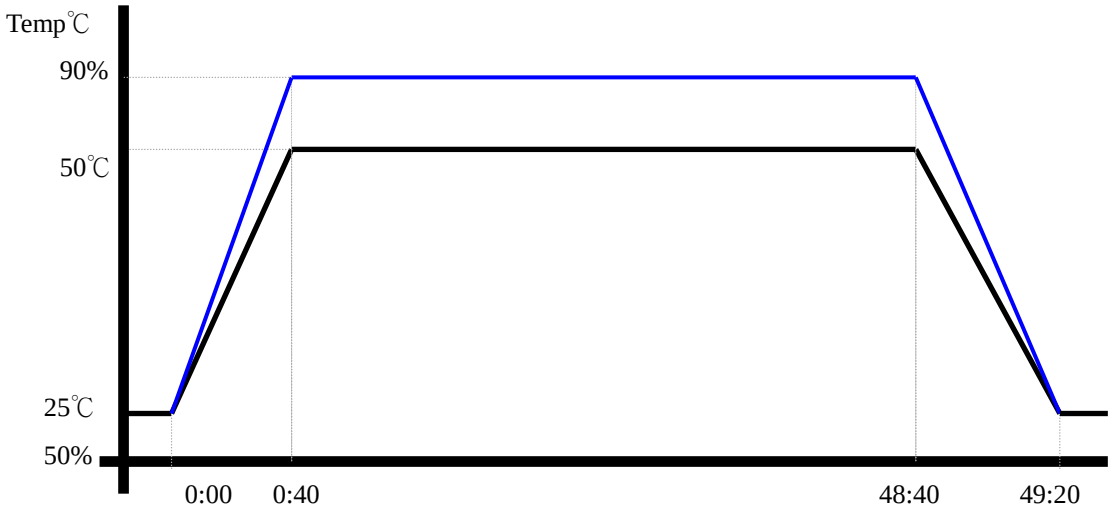
Test Equipment:

Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)
Model: THS-D4H+-100
Date of Calibration: 09/30/14
Serial Number: 2582

Testing Item:

1. Test Temperature: 50℃
2. Test Humidity: 90%RH
3. Test Times: 48Hrs
4. Test Software: Windows 8 / Run PassMark Burn In Test 8.0 Pro
5. Test Environment Curve:

Humidity %



Sample Configuration & Quantity Under Test:

Quantity: 1 (ACS-1U01-BT4)

Test Result:

No issues were found after the humidity storage test.

Cold start and hot start test

Test Date: 07-27~ 28-2015

Test Product: ACS-1U01-BT4

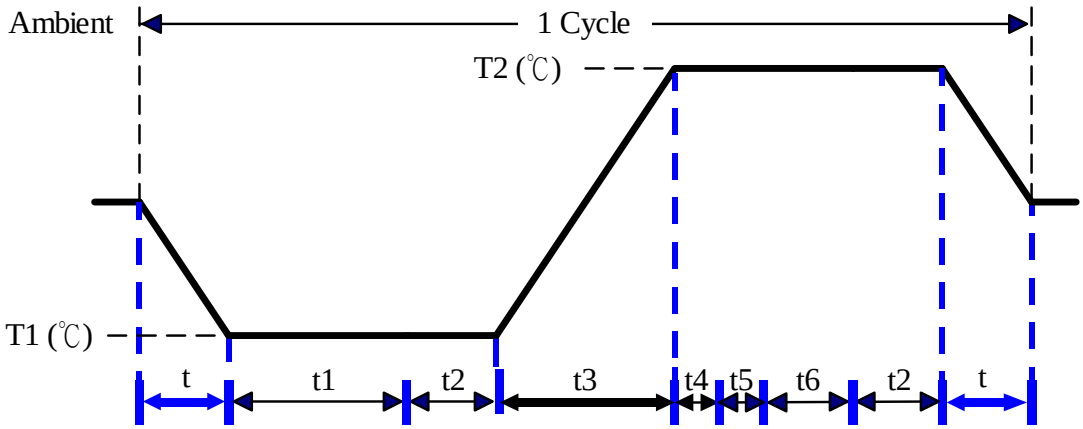
Test Site: AAEON QE Dept.

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: 09/30/14
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 8.0
t5: Win 8 Software restart test 3 times
Test Software: Windows 8

Test Result:

a. No issues were found during the cold start test.

b. No issues were found during the hot start test.