AAEON®

Computing Platform Service Partner

FES-5130

Environment Test Report

Report NO: 10I020010

Issued by:	Rex Chang	/	*08/11/2010*
	Test Engineer		**Date**
Reviewed by:	Jansin Lee	/	*08/11/2010*
	Sr. Manager		**Date**

Test item list

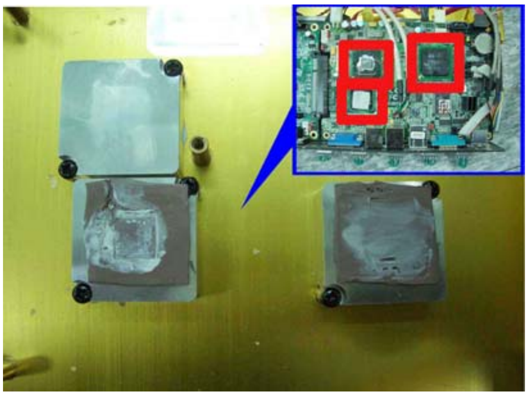
Testing Result

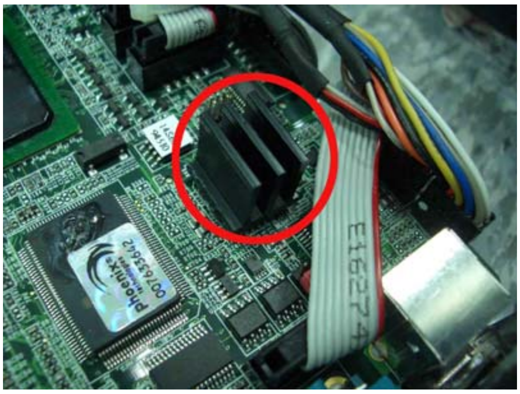
Num	Test item list	Result	Remark
1	Temperature rise test	Pass	
2	Temperature cycle operation test	Pass	
3	High temperature storage test	Pass	
4	Low temperature storage test	Pass	
5	Temperature variation operation test	Pass	
6	Cold start and hot start test	Pass	

Configuration of EUT

Num	Item	Spec
1.	**Embedded System**:	FES-5130
	1. Main Board	AAEON IMBE-945G Rev. A1.1 (BIOS Ver: 0.3)
	2. CPU	Intel Atom N270 / 1.6GHz
	3. Memory	Transcend 2GB * 1 / DDR2 667 / SAMSUNG K4T1G084QQ
	4. 3.5” SATA SSD	Transcend TS16GSSD25S-S / 16GB
	5. Test Software	Windows XP / Run PassMark Burn In Test 5.1 Pro
	6. POS Card	AEB-POS A1.2
	7. Mini PCI Card	PER-T168 A0.1
2.	Power Adapter	FSP FSP060-DBAB1

Heat Sink





Temperature rise test

Test Date: 08-10-2010

Test Product: FES-5130

Test Site: AAEON QE Internal Lab.

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

Temperature Measurement:

40 Channel Thermal Recorder:
YOKOGAWA Inc,
Model: DA100-13-1D
Date of Calibration: 12/08/09
Serial Number: 12A323190

Test Condition:

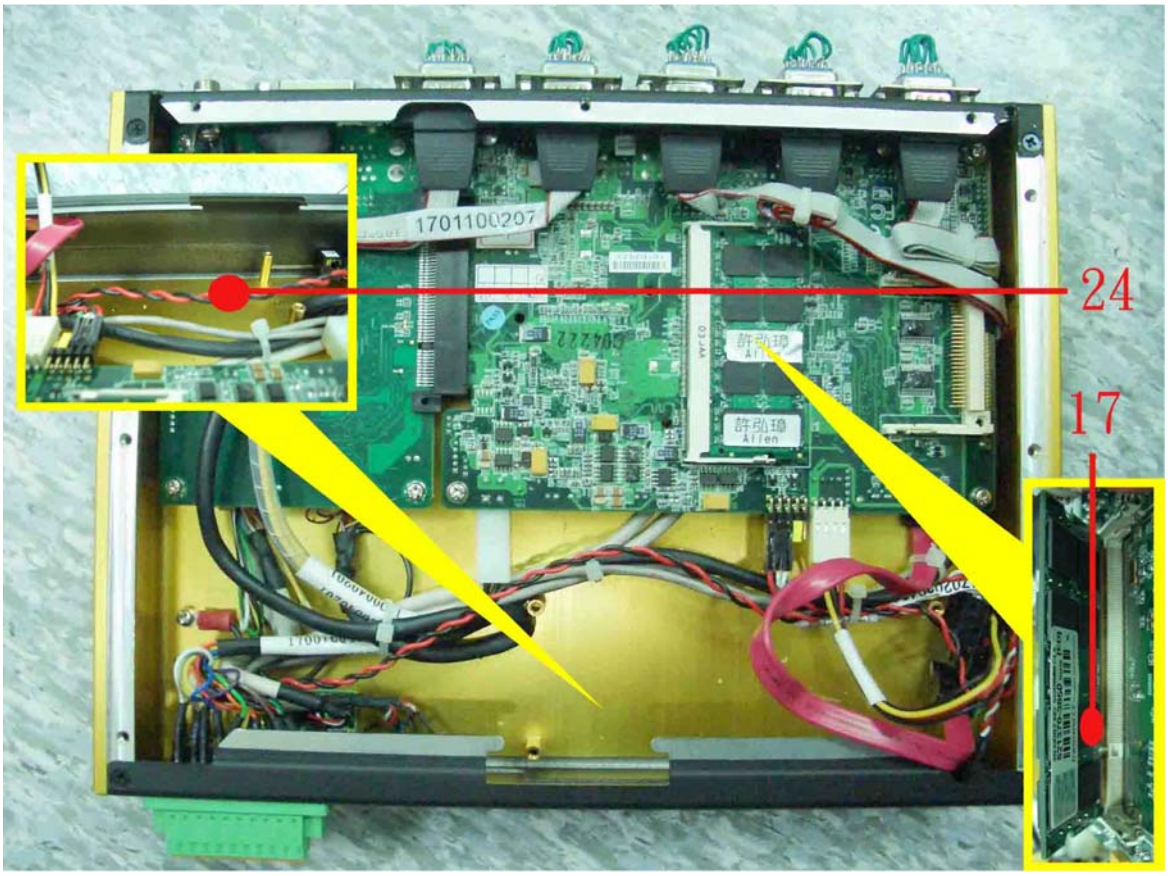
Ambient temperature: 45℃
Continuous running till thermal stability (within less than 1℃)

Test Software:

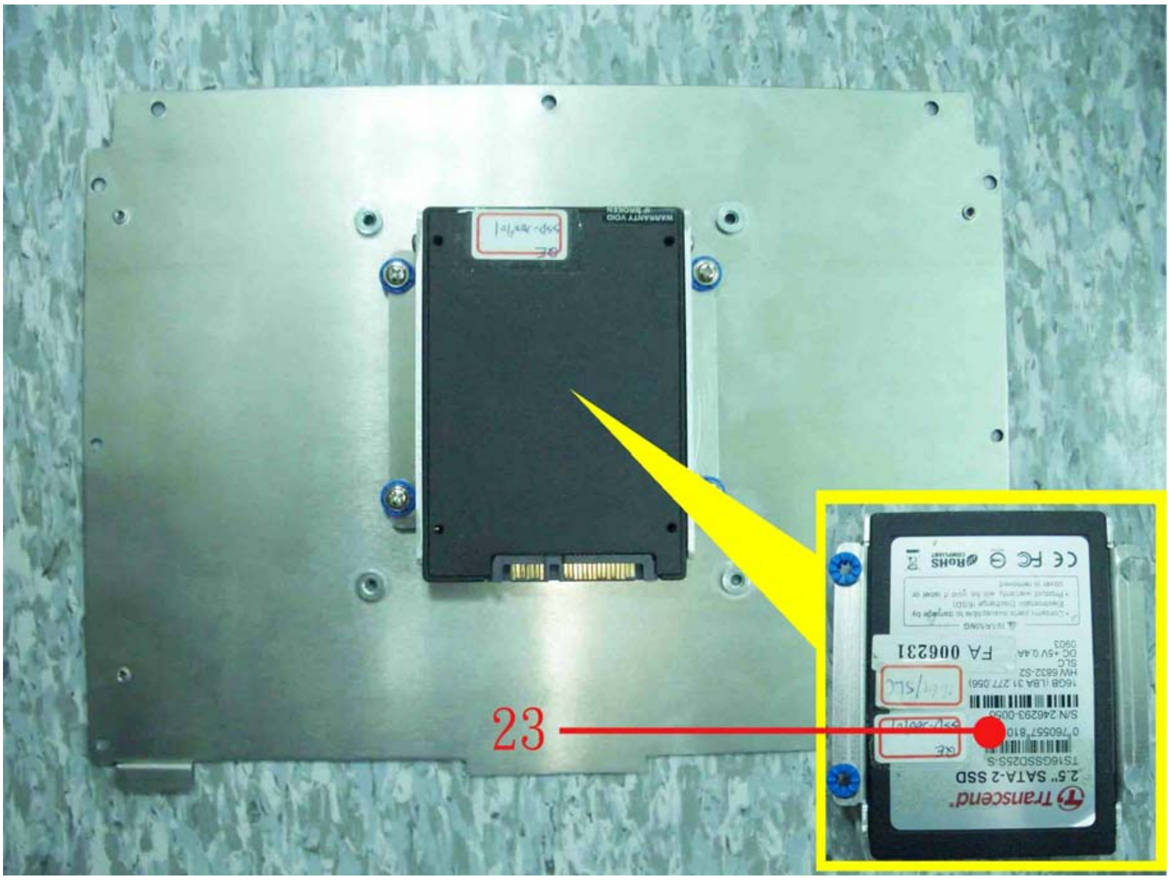
Windows XP / Run PassMark Burn In Test 5.1 Pro

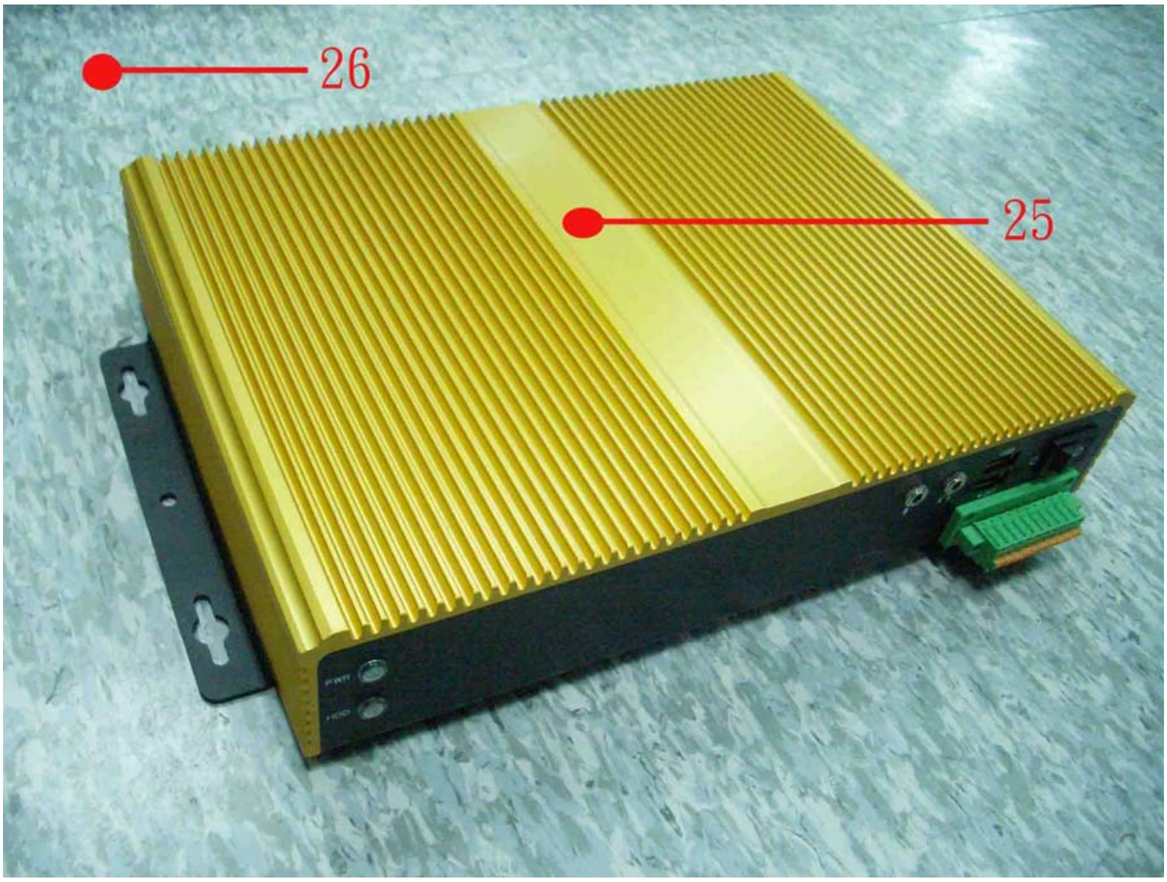
Terminal Recorder:

Measuring Thermal Couple Position：



Temperature rise test





Temperature rise test

Thermal profile data:

FES-5130

Point Temp. Stage(℃)	Spec	45	25
IMBE-945G			
01. CPU	90	73.5	53.5
02. U10 - (TF) Intel.QG82945GME	105	62.7	42.7
03. U9 - (TF) Chipset ICH7M.Intel.NH82801GBM SL8YB	99	65.4	45.4
04. U13 - (TF) CLOCK GENERATOR.ICS.ICS9LPR501HGLFT	100	84.4	64.4
05. U38 - (TF) Super I/O w/4 COMs.ITE.IT8781F/AX-L	100	70.6	50.6
06. U15 - (TF) 7.1Channel HD Audio Codec.VIA.VT1708B	85	70.5	50.5
07. U19 - (TF) PCI-express.Gigabit Ethernet Chip.REALTEK.RTL8111C-VB-GR	100	72.2	52.2
08. U26 - (TF) IMVP6 Single Phase PWM.Intersil.ISL6261CRZ-T	100	64.8	44.8
09. L5 - (TF) COIL.GOTREND.GSTC063P-3R3MN	125	75.1	55.1
10. L3 - (TF) COIL.GOTREND.GSTC063P-3R3MN	125	78.6	58.6
11. L4 - (TF) BEAD.BLM21PG300SN1D	125	78.4	58.4
12. U1 - (TF) Power Controller.for Dual Channel DDR.INTERSIL.ISL6537ACRZ	100	76.6	56.6
13. L1 - (TF) BEAD.BLM21PG300SN1D	125	72.3	52.3
14. L2 - (TF) BEAD.BLM21PG300SN1D	125	73.1	53.1
15. U39 - (TF) RS232 Driver ESD 15KV.AD.ADM213EARSZ	85	70.3	50.3
16. U40 - (TF) RS232 Driver ESD 15KV.AD.ADM213EARSZ	85	67.8	47.8
17. Memory	85	77.0	57.0
18. Q25 - (TF) PWR.N-Channel POWER MOSFET.FAIRCHILD.FDS6680AS_NL	125	76.7	56.7
19. Q28 - (TF) PWR.N-Channel MOSFET.FAIRCHILD.FDS8896	125	76.9	56.9
PER-T168			
20. U1 - (TF) PCI-express.Gigabit Ethernet Chip.REALTEK.RTL8111C-VB-GR	85	65.7	45.7
AEB-POS			
21. U7 - (TF) DVI Transmitter.CHRONTEL.CH7307C-DEF	100	67.2	47.2
22. U1 - (TF) LPC to 4 UART.FINTEK.F81216DG	85	62.4	42.4
23. SSD	70	60.2	40.2
24. Control Box Inside Air Temperature	N/A	58.7	38.7
25. Control Box External Surface	N/A	57.8	37.8
26. Chamber Air Temperature	N/A	45.1	25.1
Any Tm value showed in red words which meaning the value over the Tc degree C of this device specification.			

Temperature rise test

Temperature Measurement Table:

T_A=45.0℃ / Location	Temp. Rise (Thermal Couple)	SpeedFan 4.31 (Read from BIOS)
CPU	73.5℃	70.0℃
System Temp. 1 (North Bridge)	62.7℃	68.0℃
System Temp. 2	N/A	66.0℃

Sample Configuration & Quantity Under Test:

Quantity: 1 (FES-5130)

Test Result:

No problem was found during the temperature rise operation test.

Temperature cycle test

Test Date: 08-06~09-2010

Test Product: FES-5130

Test Site: AAEON QE Internal Lab.

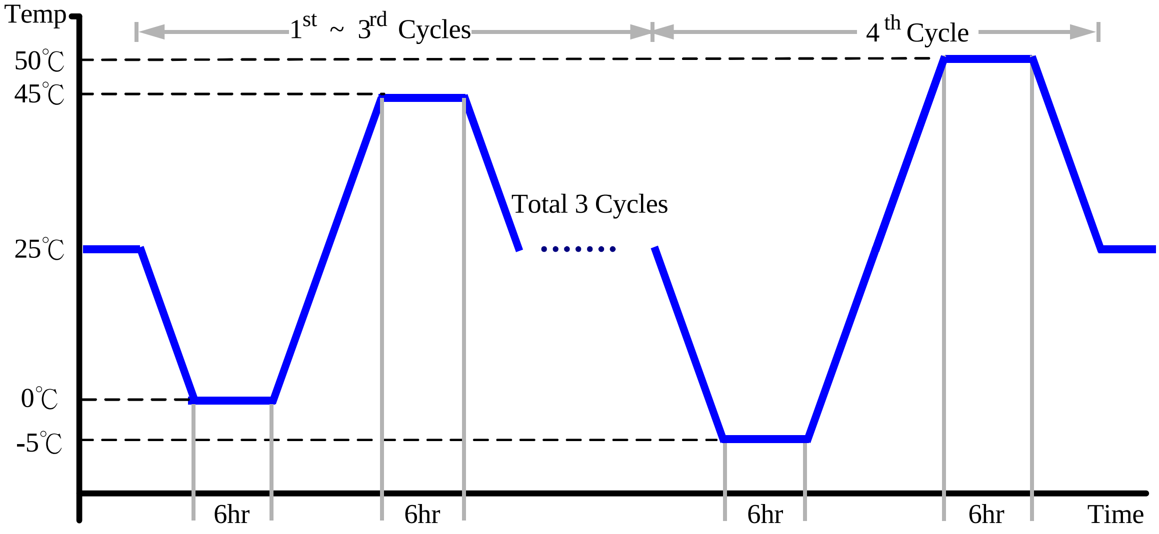
Test Standard: Reference IEC68-2-14 Testing procedures
Test N: Change of temperature Test

Test Equipment:

Programmable Temperature & Humidity Chamber
K.SON. INS. TECH. CORP.
Model: THS-B6T-150+LN2
Date of Calibration: 04/01/10
Serial Number: 6487KT

Test Condition:

1. Test Low Temperature: 0℃ (1~3 cycles)
   -5℃ (4th cycle)
2. Test High Temperature: 45℃ (1~3 cycles)
   50℃ (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 (FES-5130)

Test Result:

No problem was found during the temperature operation cycle test.

High temperature storage test

Test Date: 07-28~30-2010

Test Product: FES-5130

Test Site: AAEON QE Internal Lab.

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

Test Equipment:

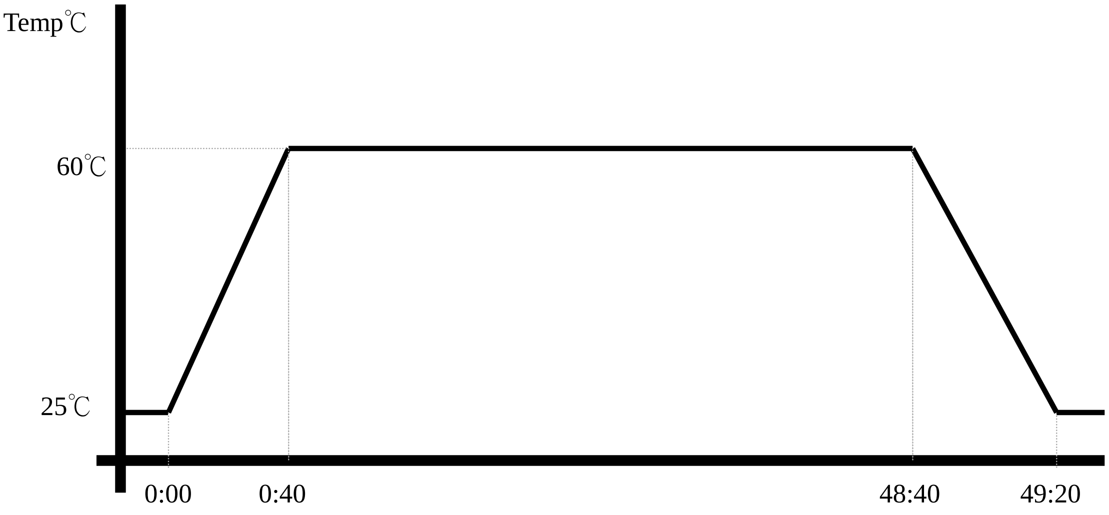
Programmable Temperature & Humidity Chamber
K.SON. INS. TECH. CORP.

Model: THS-B6T-150+LN2

Date of Calibration: 04/01/10
Serial Number: 6487KT

Testing Item:

1. Test Temperature: 60℃
2. Test Times: 48Hrs
3. Test Software: Windows XP / Run PassMark Burn In Test 5.1 Pro
4. Test Environment Curve:



Sample Configuration & Quantity Under Test:

Quantity: 1 (FES-5130)

Test Result:

No problem was found after the high temperature storage test.

Low temperature storage test

Test Date: 08-03~05-2010

Test Product: FES-5130

Test Site: AAEON QE Internal Lab.

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-B6T-150+LN2
Date of Calibration: 04/01/10
Serial Number: 6487KT

Testing Item:

1. Test Temperature: -10℃
2. Test Times: 48Hrs
3. Test Software: Windows XP / Run PassMark Burn In Test 5.1 Pro
4. Test Environment Curve:

Sample Configuration & Quantity Under Test:

Quantity: 1 (FES-5130)

Test Result:

No problem was found after the low temperature storage test.

Humidity test

Test Date: 07-30-2010 ~ 08-02-2010

Test Product: FES-5130

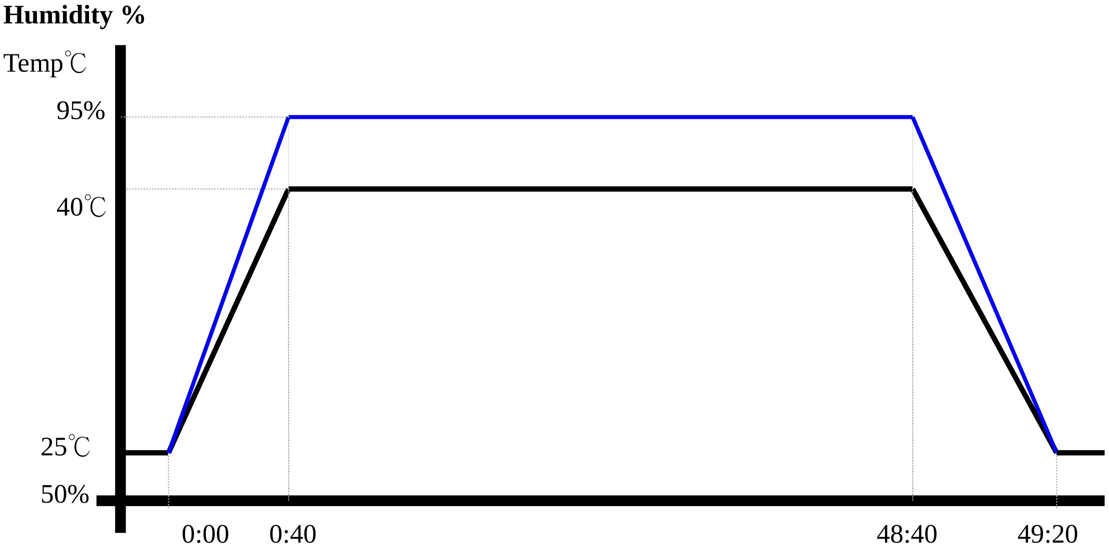
Test Site: AAEON QE Internal Lab.

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-B6T-150+LN2
Date of Calibration: 04/01/10
Serial Number: 6487KT

Testing Item:

1. Test Temperature: 40℃
2. Test Humidity: 95%RH
3. Test Times: 48Hrs
4. Test Software: Windows XP / Run PassMark Burn In Test 5.1 Pro
5. Test Environment Curve:



Sample Configuration & Quantity Under Test:
Quantity: 1 (FES-5130)

Test Result:
No problem was found after the humidity storage test.

Cold start and hot start test

Test Date: 08-05~06-2010

Test Product: FES-5130

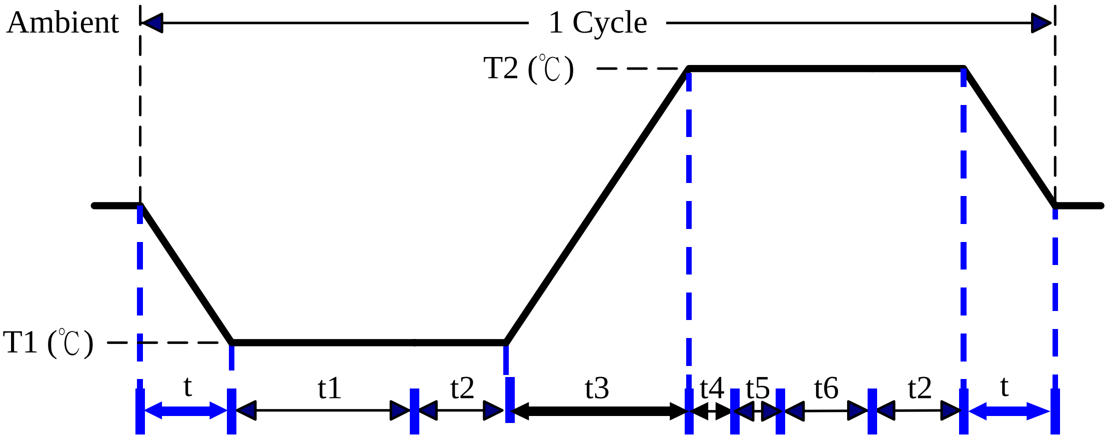
Test Site: AAEON QE Internal Lab.

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-B6T-150+LN2
Date of Calibration: 04/01/10
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 PassMark Burn In Test
t5: Win XP Software restart test 3 times
Test Software:Windows XP

Test Result:

a. No problem was found during the cold start test.
b. No problem was found during the hot start test.