FES-6110

Environment Test Report

Report NO: 10I020006

Issued by:	Rex-Chang	/	*04/01/2010*
	Test Engineer		**Date**
Reviewed by:	Jansin Lee	/	*04/01/2010*
	Sr. Manager		**Date**

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	Temperature variation operation test	Pass	
6	Cold start and hot start test	Pass	

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Configuration of EUT

Num	Item	Spec
1.	Mounting Chassis:	FES-6110
	1. PCB / CPU	IMBE-945G A1.0 (BIOS: 1.0) / Intel Atom N270 / 1. 6GHz
	3. Memory	Transcend DDR2-667 1GB / ELPIDA E5108AJBG
	4. 2.5” SATA SSD	Transcend ST23SGDS52-S / 32GB
	5. Test Software	Windows XP / Run PassMark Burn In Test 4.0 Pro
2.	Mini Card	AzureWave AW-VD904
3.	Adapter	FSP FSP060-DBAB1

Heat Sink

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Temperature rise test

Test Date: 03-19-2010

Test Product: FES-6110

Test Site: AAEON QA 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:

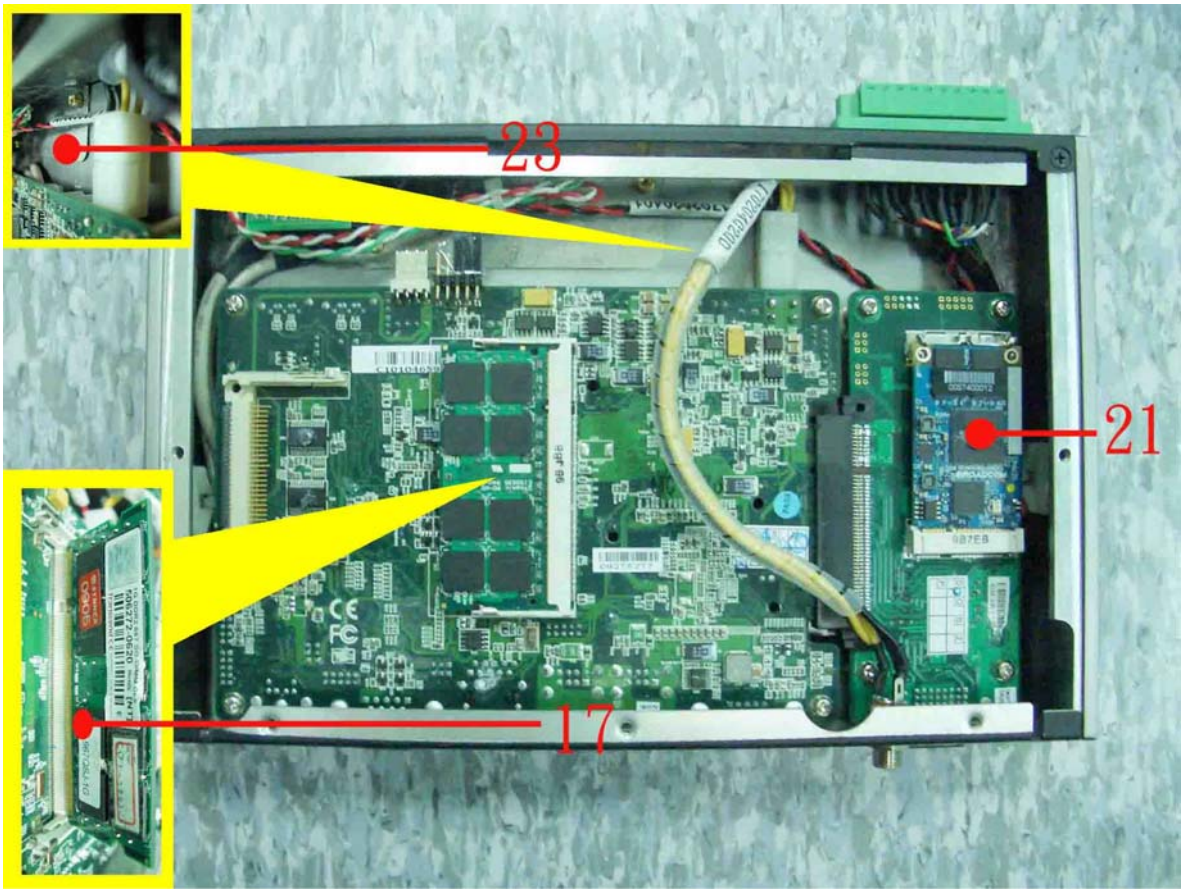
Ambient temperature: 45dC
Continuous running till thermal stability (within less than 1℃)

Test Software:

Windows XP / Run PassMark Burn In Test 4.0 Pro

Terminal Recorder:

Measuring Thermal Couple Position：



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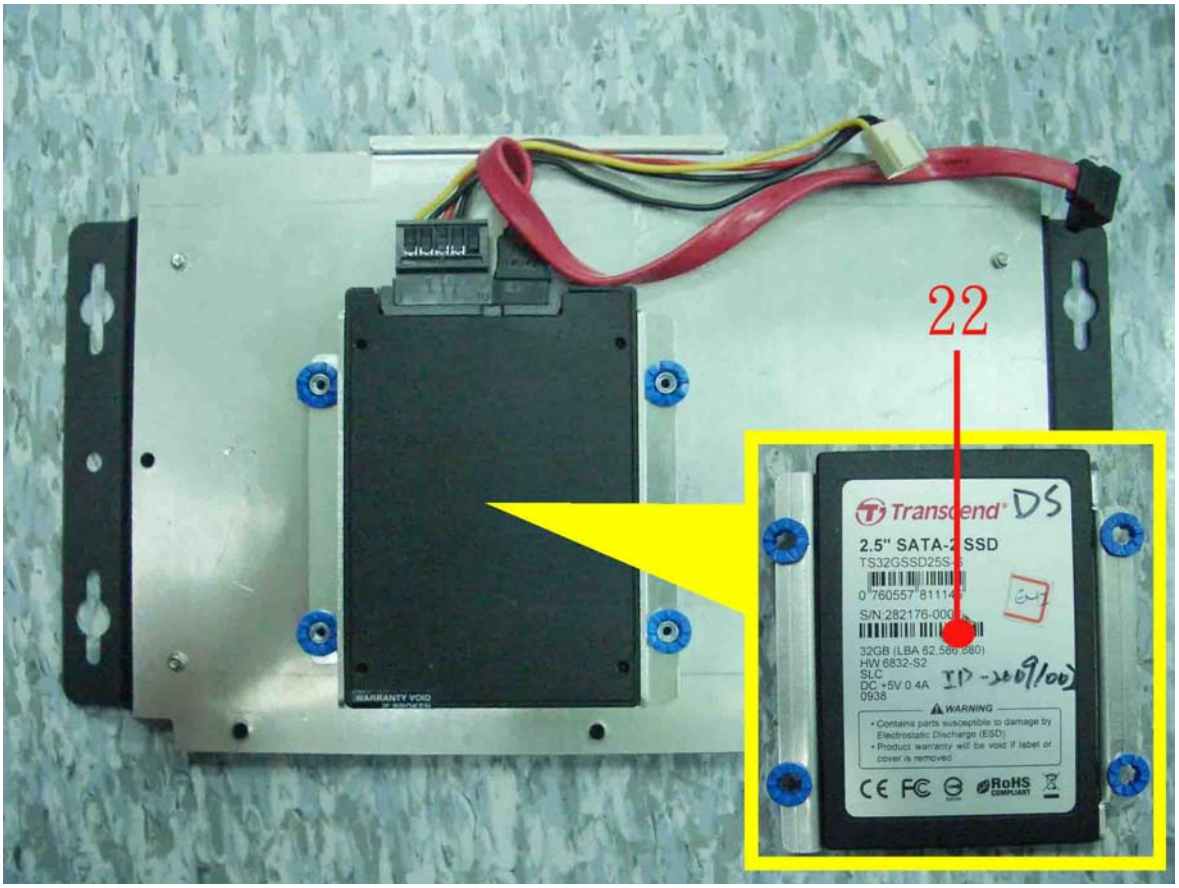
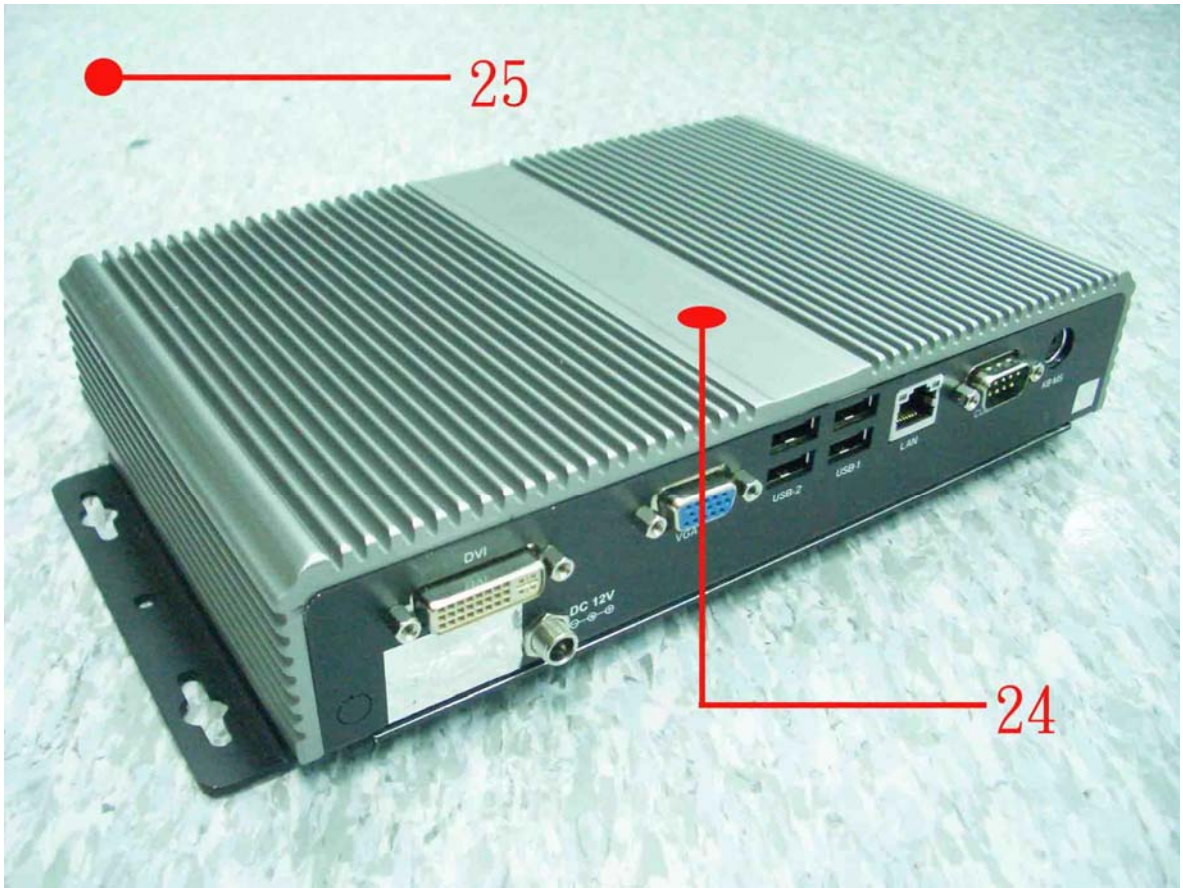
Temperature rise test





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Temperature rise test

Thermal profile data:

FES-6110

Point \ Temp. Stage(℃)	Spec	45	25
IMBE-945G			
01. CPU	90	69.0	49.0
02. U10 - (TF) Intel.QG82945GME	105	67.4	47.4
03. U9 - (TF) Chipset ICH7M.Intel.NH82801GBM SL8YB	99	68.7	48.7
04. U13 - (TF) CLOCK GENERATOR.ICS.ICS9LPR501HGLFT	100	85.0	65.0
05. U38 - (TF) Super I/O w/4 COMs.ITE.IT8781F/AX-L	100	75.3	55.3
06. U15 - (TF) 7.1Channel HD Audio Codec.VIA.VT1708B	85	73.2	53.2
07. U19 - (TF) PCI-express.Gigabit Ethernet Chip.REALTEK.RTL8111C-VB-GR	100	78.0	58.0
08. U26 - (TF) IMVP6 Single Phase PWM.Intersil.ISL6261CRZ-T	100	71.0	51.0
09. L5 - (TF) COIL.GOTREND.GSTC063P-3R3MN	125	65.7	45.7
10. L3 - (TF) COIL.GOTREND.GSTC063P-3R3MN	125	84.7	64.7
11. L4 - (TF) BEAD.BLM21PG300SN1D	125	85.4	65.4
12. U1 - (TF) Power Controller.for Dual Channel DDR.INTERSIL.ISL6537ACRZ	100	83.1	63.1
13. L1 - (TF) BEAD.BLM21PG300SN1D	125	78.4	58.4
14. L2 - (TF) BEAD.BLM21PG300SN1D	125	80.3	60.3
15. U39 - (TF) RS232 Driver ESD 15KV.AD.ADM213EARSZ	85	72.0	52.0
16. U40 - (TF) RS232 Driver ESD 15KV.AD.ADM213EARSZ	85	70.7	50.7
17. Memory	85	81.4	61.4
18. Q25 - (TF) PWR.N-Channel POWER MOSFET.FAIRCHILD.FDS6680AS_NL	125	83.4	63.4
19. Q27 - (TF) PWR.N-Channel MOSFET.FAIRCHILD.FDS8896	125	81.6	61.6
20. Q28 - (TF) PWR.N-Channel MOSFET.FAIRCHILD.FDS8896	125	83.8	63.8
AzureWave AW-VD904 Mini Card			
21. U3	85	74.4	54.4
22. SSD	70	66.0	46.0
23. Control Box Inside Air Temperature	N/A	69.1	49.1
24. Control Box External Surface	N/A	64.5	44.5
25. Chamber Air Temperature	N/A	45.0	25.0
Any Tm value showed in red words which meaning the value over the Tc degree C of this device specification.			

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Temperature rise test

Temperature Measurement Table:

T_A=45.0℃ / Location	Temp. Rise (Thermal Couple)	SpeedFan 4.31 (Read from BIOS)
CPU	69.0℃	79.0℃
System Temp. 1 (North Bridge)	67.4℃	78.0℃
System Temp. 2	N/A	71.0℃

Sample Configuration & Quantity Under Test:

Quantity: 1 (FES-6110)

Test Result:

No problem was found during the temperature rise operation test.

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Temperature cycle test

Test Date: 03-05~08-2010

Test Product: FES-6110

Test Site: AAEON QA Internal Lab.

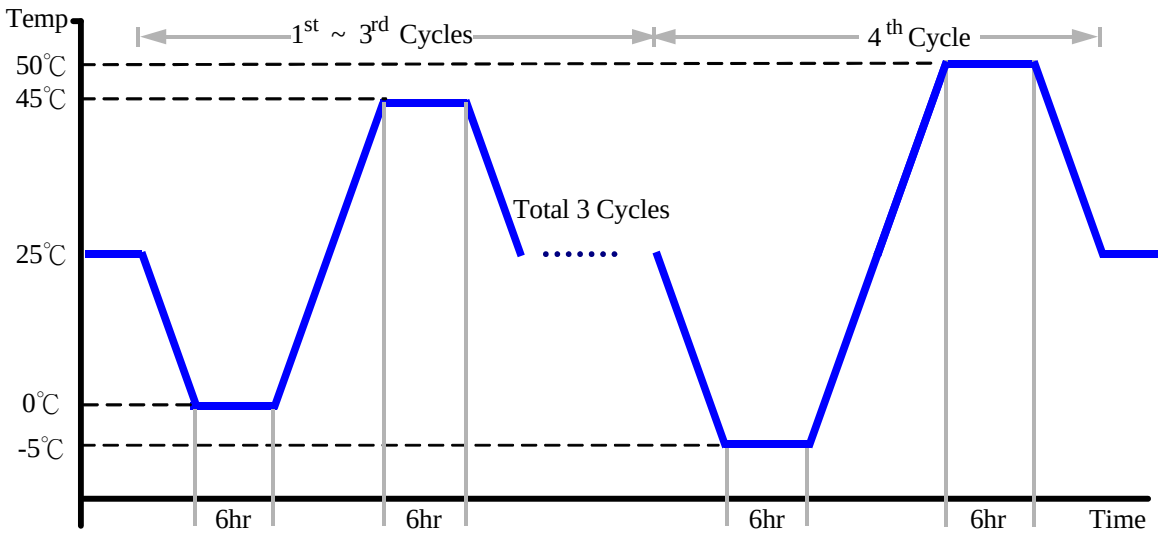
Test Standard: Reference IEC68-2-14 Testing procedures
Test N: Change of temperature Test

Test Equipment:

Programmable Temperature & Humidity Chamber
K.SON. INS. TECH. CORP.
Model: THS-B6T-150+LN2
Date of Calibration: 04/10/09
Serial Number: 6488KT

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 (FES-6110)

Test Result:

No problem was found during the temperature operation cycle test.

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High temperature storage test

Test Date: 03-08~10-2010

Test Product: FES-6110

Test Site: AAEON QA Internal Lab.

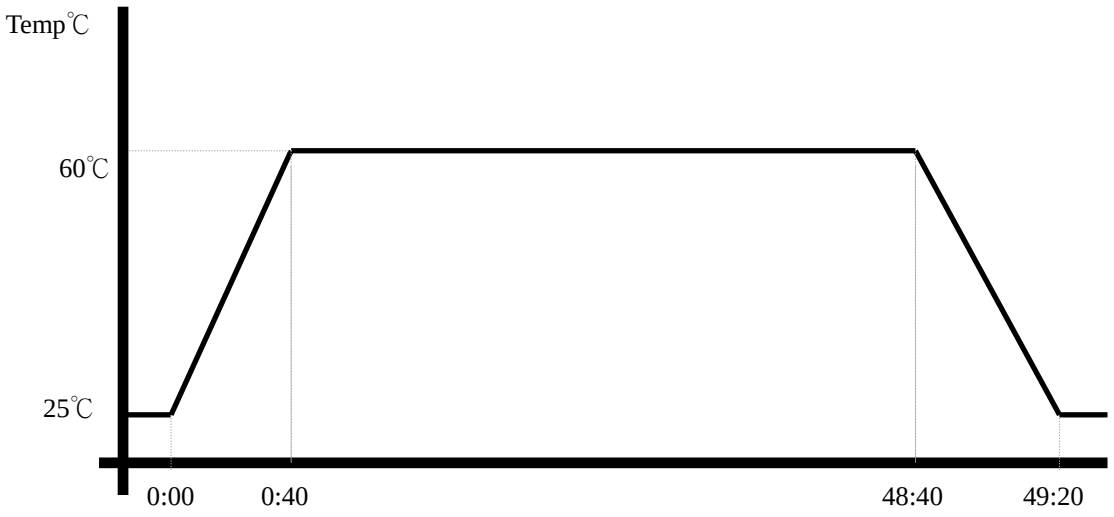
Test Standard: Reference IEC 68-2-2 Testing procedures
Test Bb: Dry Heat Test (Non-operation)

Test Equipment:

Programmable Temperature & Humidity Chamber
K.SON. INS. TECH. CORP.
Model: THS-B6T-150+LN2
Date of Calibration: 04/10/09
Serial Number: 6488KT

Testing Item:

1. Test Temperature: 60℃
2. Test Times: 48Hrs
3. Test Software: Windows XP / Run PassMark Burn In Test 4.0 Pro
4. Test Environment Curve:



Sample Configuration & Quantity Under Test:
Quantity: 1 (FES-6110)

Test Result:

No problem was found after the high temperature storage test.

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Low temperature storage test

Test Date: 03-10~12-2010

Test Product: FES-6110

Test Site: AAEON QA 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: 04/10/09
Serial Number: 6488KT

Testing Item:

1. Test Temperature: -20℃
2. Test Times: 48Hrs
3. Test Software: Windows XP / Run PassMark Burn In Test 4.0 Pro
4. Test Environment Curve:

Sample Configuration & Quantity Under Test:
Quantity: 1 (FES-6110)

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

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Humidity test

Test Date: 03-12~15-2010

Test Product: FES-6110

Test Site: AAEON QA Internal Lab.

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

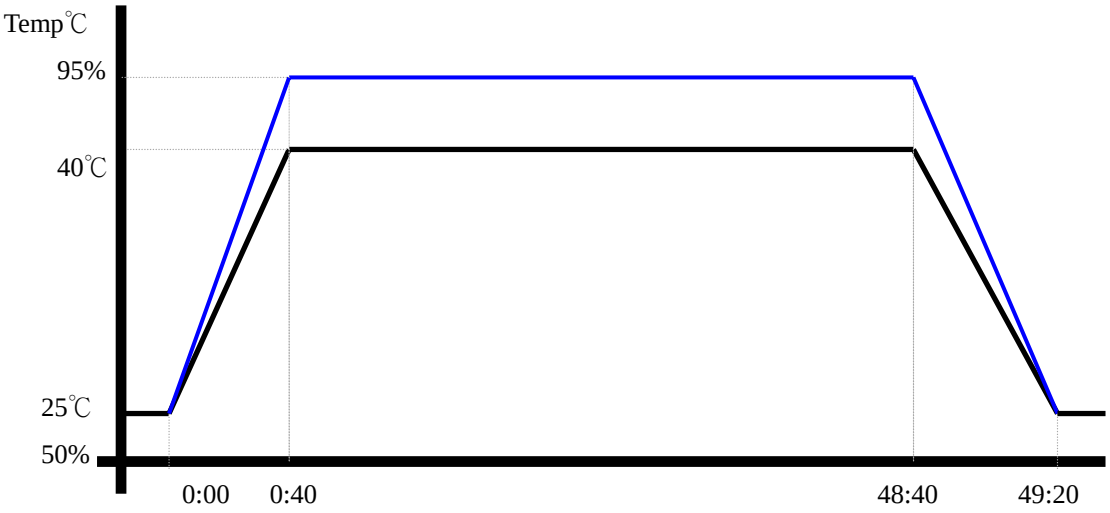
Test Equipment:

Programmable Temperature & Humidity Chamber
K.SON. INS. TECH. CORP.
Model: THS-B6T-150+LN2
Date of Calibration: 04/10/09
Serial Number: 6488KT

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 4.0 Pro
5. Test Environment Curve:

Humidity %



Sample Configuration & Quantity Under Test:
Quantity: 1 (FES-6110)

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

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Cold start and hot start test

Test Date: 03-16~17-2010

Test Product: FES-6110

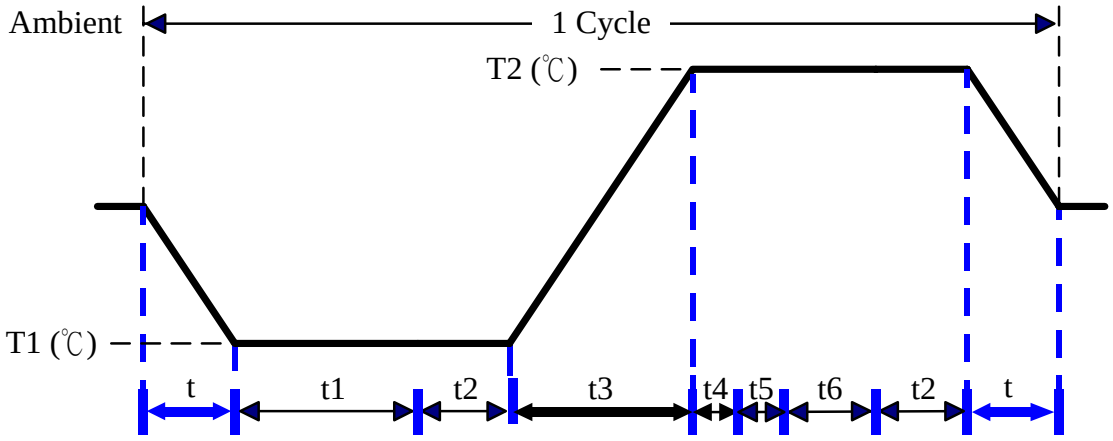
Test Site: AAEON QA Internal Lab.

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: 04/10/09
Serial Number: 6488KT

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.

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