AEC-6905 (ETX-821)

With CFD

Temperature Cycle Test Report

Report NO: 07P020029

Issued by:	Rex Chang	/	*10/17/2007*
	Test Engineer		**Date**
Reviewed by:	Wenyuan Yang	/	*10/17/2007*
	Manager		**Date**

Test item list

1. *Test item list* ---------- 2
2. *Temperature cycle operation test* ---------- 3
3. *High temperature storage test* ---------- 6
4. *Low temperature storage test* ---------- 7
5. *Humidity test*---------- 8
6. *Cold start and hot start test* ---------- 9

Num	Item	Spec
1.	**Embedded Controller:**	AEC-6905
	1. Main Board	AAEON ETX-821 Rev. A1.2-A
	2. BIOS	AEC-6905 0.5
	3. CPU	Intel Celeron -M / 1.5GHz
	4. Memory (Wide Temp.)	ATP 1GB / SAMSUNG K4H510838D-ZCCC / DDR333
	5. CFD (Wide Temp.)	Transcend 2GB
	6. Test Software	Windows XP Embedded / Run PassMark Burn In Test 5.1 Pro
	7. I/O Board	AAEON T095 A0.2
	8. Adapter	FSP FSP120-AAB (DC Output: 19V)

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Temperature cycle test

Test Date: 10-01~03-2007

Test Product: AEC-6905

Test Site: AAEON QA Internal Lab

Performed By: Rex Chang

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

Test Equipment:

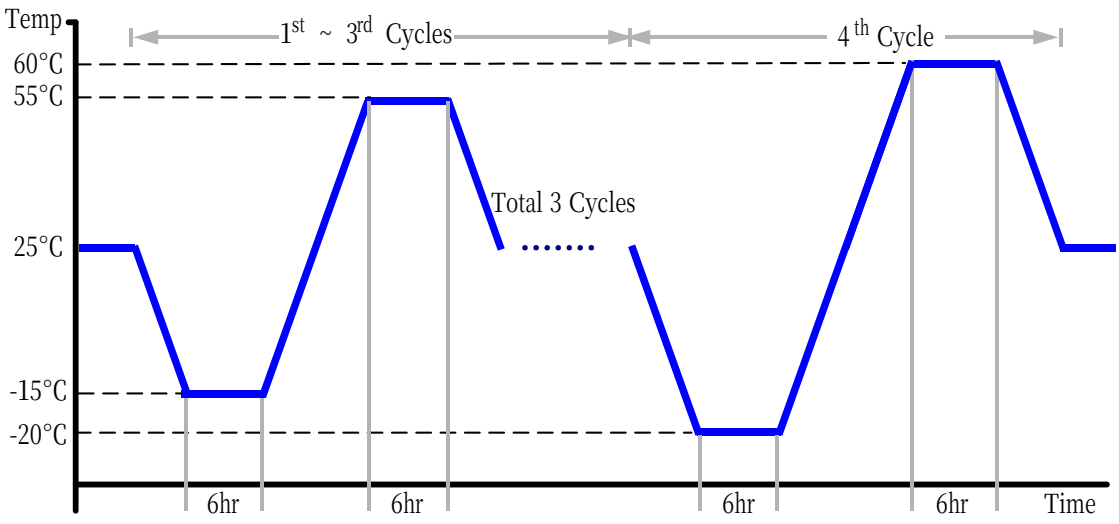
Programmable Temperature & Humidity Chamber
K.SON. INS. TECH. CORP.
Model: THS-A4C-100
Date of Calibration: 06/20/07
Serial Number: 3188

Temperature Measurement:

40 Channel Thermal Recorder:
YOKOGAWA Inc,
Model: DA100-13-1D
Date of Calibration: 12/11/06
Serial Number: 12A323190

Test Condition:

1. Test Low Temperature: -15°C (1~3 cycles)
   -20°C (4^{th} cycle)
2. Test High Temperature: 55°C (1~3 cycles)
   60°C (4^{th} cycle)
3. Test dwell time: 6Hrs
4. Temperature slope: 2°C/min
5. Test cycle: 4 cycles
6. Test Environment Curve:



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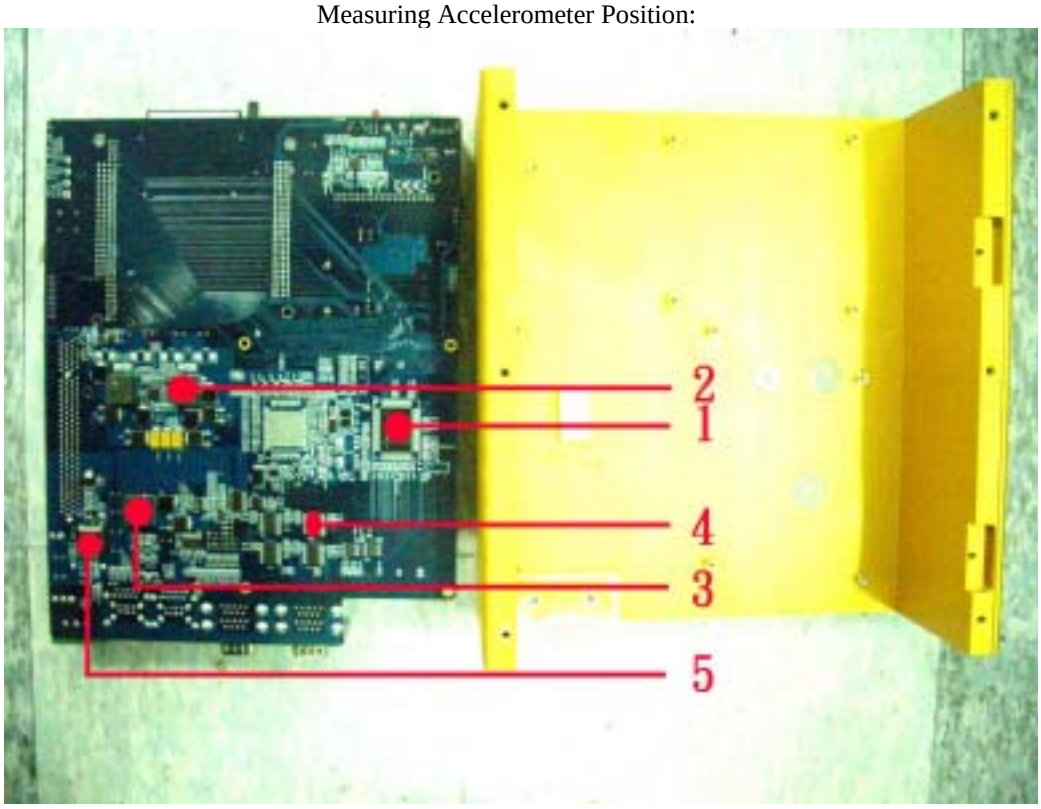
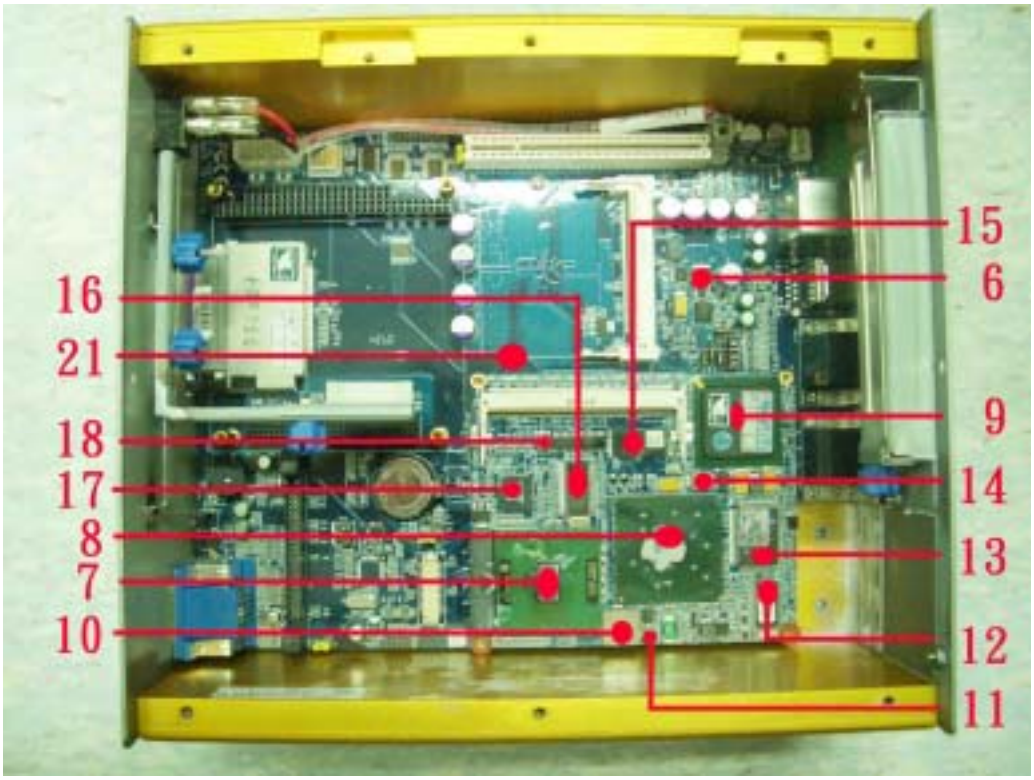
Temperature cycle test

Terminal Recorder:

Measuring Accelerometer Position:





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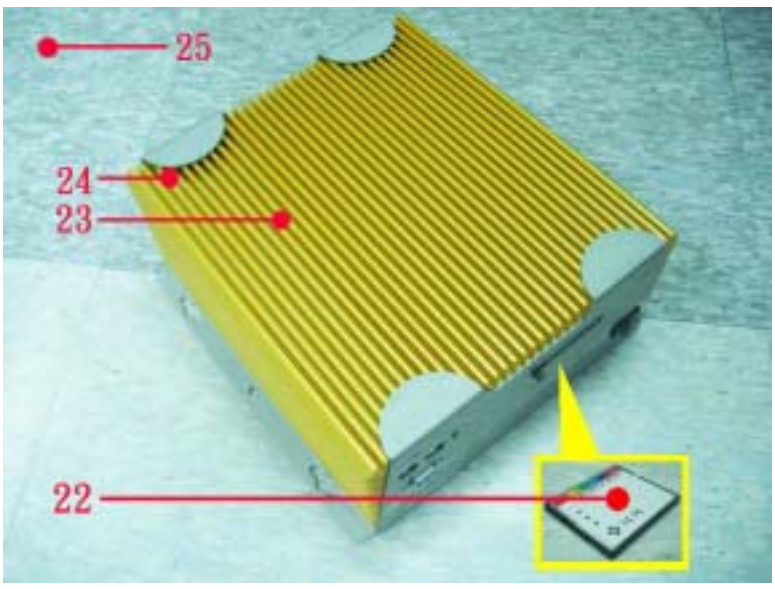
Temperature cycle test



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Temperature cycle test

Thermal profile data:

AEC-6905

Point / Temp. Stage(℃)	Spec	55	25	-15
I/O Board.T095. Rev: A0.2				
1. U28 - (TF)IC.SMD.128P QFP Super I/O.Winbond.W83977EG-AW. Rev:H	95	69.8	39.8	-0.2
2. L42 - (TF)COIL.2.2uH.SMD.GOTREND.GSTC135P-2R2MF	95	68.1	38.1	-1.9
3. L36 - (TF) COIL.3.3uH.SMD.GOTREND.GSTC135P-3R3MF	125	66.8	36.8	-3.2
4. U19 - (TF) COIL.2.2uH.SMD.GOTREND.GSTC135P-2R2MF	125	78.3	48.3	8.3
5. U15 - (TF) COIL.2.2uH.SMD.GOTREND.GSTC135P-2R2MF	125	70.6	40.6	0.6
6. Q6 - (TF)PWR.SMD.TO-252AA.N-Channel MOSFET.FAIRCHILD.FDD5670	110	70.9	40.9	0.9
ETX-821 A1.2-A				
7. U1 - Intel Celeron -M / 1.5GHz	100	90.0	60.0	20.0
8. U3 - (TF)IC.SMD.BGA732.Chipset.NB82852GM.Intel.JG82852GM-SL7VP	105	85.5	55.5	15.5
9. U4 - (TF)IC.SMD.Chipset ICH4.INTEL.NH82801DB SL8DE	115	85.8	55.8	15.8
10. L5 - (TF)COIL.1.0uH.SMD.12.9*12.9*5mm.VISHAY.HLP5050EZER1R0M01	125	88.1	58.1	18.1
11. U14- (TF)PWR.SMD SO8.N-Channel MOSFET 30V 15A.FAIRCHILD.FDS8896	125	94.9	64.9	24.9
12. U9 - (TF)IC.SMD.SSOP48 Chipset.INTEL.EP82562ET	100	86.1	56.1	16.1
13. U19 - (TF)IC.SMD.QFP128P Super I/O.ITE.IT8712F-A/IX-L	100	86.6	56.6	16.6
14. L8 - (TF)INDUCTOR.3.3uH.20%..VISHAY.IHLP2525CZRZ3R3M01	125	96.1	66.1	26.1
15. FWH3 - (TF)Flash PLCC BIOS.512k.CS:C723h.ETX-821.Rev 0.7.for PMC Star 2020.	100	87.7	57.7	17.7
16. U2 - (TF)IC.SMD.SSOP 56P.CLOCK GENERATOR.ICS.ICS952601FLFT	100	90.6	60.6	20.6
17. U42 - (TF)IC.SMD TFBGA.160P.PCI to ISA Bridge Chip.ITE.IT8888G-L	100	100.4	70.4	30.4
18. U21 - (TF)IC.SMD SO-8.5V Supervisory Circuits.ANALOG DEVICES.ADM706ARZ	100	86.8	56.8	16.8
19. Memory (wide temp.)	85	88.9	58.9	18.9
20. U11 -(TF)IC.SMD LQFP 48Pin.6 Channel AC'97 Audio Codec.REALTEK.ALC655-LF	100	101.5	71.5	31.5
21. Control Box Inside Air Temperature	N/A	68.2	38.2	-1.8
22. CFD Surface (wide temp.)	85	68.1	38.1	-1.9
23. Control Box Surface – 1	N/A	63.7	33.7	-6.3
24. Control Box Surface – 2	N/A	62.8	32.8	-7.2
25. Chamber Air Temperature	N/A	55.4	25.4	-14.6
Any Tm value showed in red words which meaning the value over the Tc + 5 degree C of this device specification.				

Sample Configuration & Quantity Under Test:

Quantity: 1 (AEC-6905)

Test Result:

No problem was found during the temperature cycle operation test.

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High temperature storage test

Test Date: 09-19~21-2007

Test Product: AEC-6905

Test Site: AAEON QA Internal Lab.

Performed By: Rex Chang

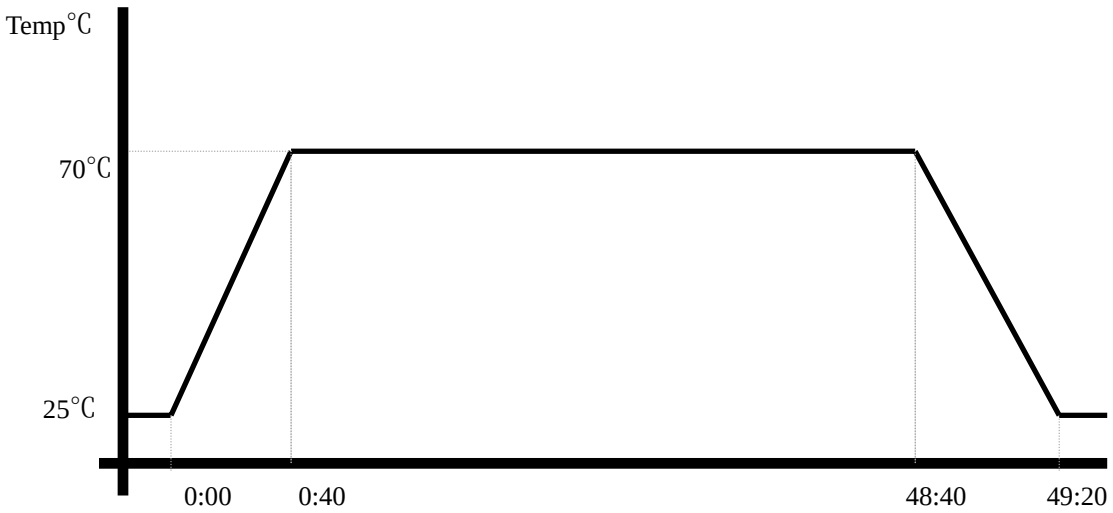
Test Standard: Reference IEC 68-2-2 Testing procedures
Test Bb: Dry Heat Test (Non-operation)

Test Equipment:

Programmable Temperature & Humidity Chamber
K.SON. INS. TECH. CORP.
Model: THS-A4C-100
Date of Calibration: 06/20/07
Serial Number: 3188

Testing Item:

1. Test Temperature: 70℃
2. Test Times: 48Hrs
3. Test Software: Windows XP Embedded / Run PassMark Burn In Test 5.1 Pro
4. Test Environment Curve:



Sample Configuration & Quantity Under Test:
Quantity: 1 (AEC-6905)

Test Result:

No problem was found after the high temperature storage test.

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Low temperature storage test

Test Date: 09-21~23-2007

Test Product: AEC-6905.

Test Site: AAEON QA Internal Lab.

Performed By: Rex Chang

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-A4C-100
Date of Calibration: 06/20/07
Serial Number: 3188

Testing Item:

1. Test Temperature: -20℃
2. Test Times: 48Hrs
3. Test Software: Windows XP Embedded / Run PassMark Burn In Test 5.1 Pro
4. Test Environment Curve:

Sample Configuration & Quantity Under Test:
Quantity: 1 (AEC-6905)

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

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Humidity test

Test Date: 09-23~25-2007

Test Product: AEC-6905

Test Site: AAEON QA Internal Lab.

Performed By: Rex Chang

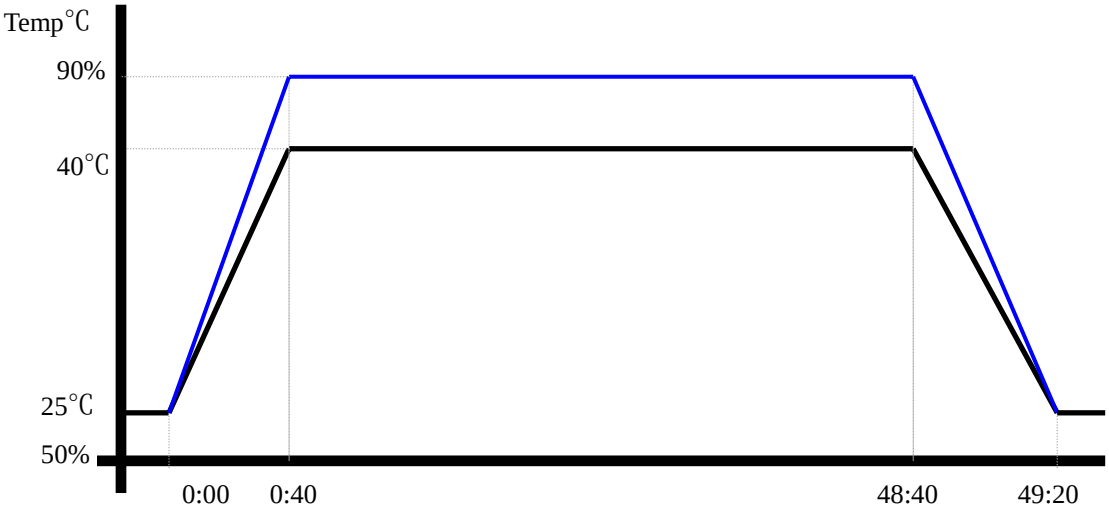
Test Standard: Reference IEC 68-2-3 Testing procedures
Test Ca: Damp heat, steady state (Non-operation)

Test Equipment:
Programmable Temperature & Humidity Chamber
K.SON. INS. TECH. CORP.
Model: THS-A4C-100
Date of Calibration: 06/20/07
Serial Number: 3188

Testing Item:

1. Test Temperature: 40℃
2. Test Humidity: 90%RH
3. Test Times: 48Hrs
4. Test Software: Windows XP Embedded / Run PassMark Burn In Test 5.1 Pro
5. Test Environment Curve:

Humidity %



Sample Configuration & Quantity Under Test:
Quantity: 1 (AEC-6905)

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

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Cold start and hot start test

Test Date: 09-26~27-2007

Test Product: AEC-6905

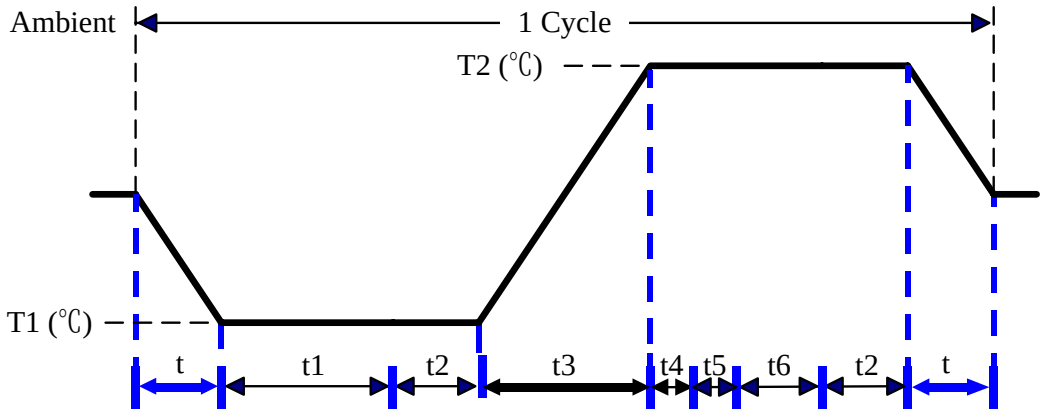
Test Site: AAEON QA Internal Lab.

Test Standard: Reference IEC 68-2-14 Testing procedures
Test Nb: Change of temperature Test

Test Equipment:

Programmable Temperature & Humidity Chamber
K.SON. INS. TECH. CORP.
Model: THS-A4C-100
Date of Calibration: 06/20/07
Serial Number: 3188

Test Condition:



Parameters	Description
T1	-20℃
T2	60℃
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 5.1 Pro
t5: Win XP Embedded Software restart test 3 times
Test Software:Windows XP Embedded

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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