AVR-3000 (PCM-8150)

With CFD and HDD

Environment Test Report

Report NO: 07P020028

Issued by:	Rex-Chang	/	*10/04/2007*
	Test Engineer		**Date**
Reviewed by:	Wenyuan Yang	/	*10/04/2007*
	Manager		**Date**

Test item list

Num	Item	Spec
1.	**Embedded Control PC**:	AVR-3000
	1. Main Board	AAEON PCM-8150 Rev. A2.0-C
	2. BIOS	Rev: 1.4
	3. CPU	Intel(R) Celeron-M 1.3GHz CPU
	4. Memory	DSL 256MB / ELPIDA D5116AFTA-6B-E (DDR-333)
	5. Wide Temp. CFD	Transcend 2GB (Industrial)
	6. Wide Temp. HDD	2.5” Fujitsu MHT2040AC 40GB
	7. Power Module	AAEON PER-T026 A1.1
	8. Capture Card	Softwell DVC-3110-SW-A
	9. CCD IR Camera	VDI VDI-2001CIH * 4
	10. Test Software	Linux 7.3 / Run DVR 3643
	11. Adapter	FSP FSP120-AAB

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Temperature cycle test

Test Date: 09-17~19-2007

Test Product: AVR-3000

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:

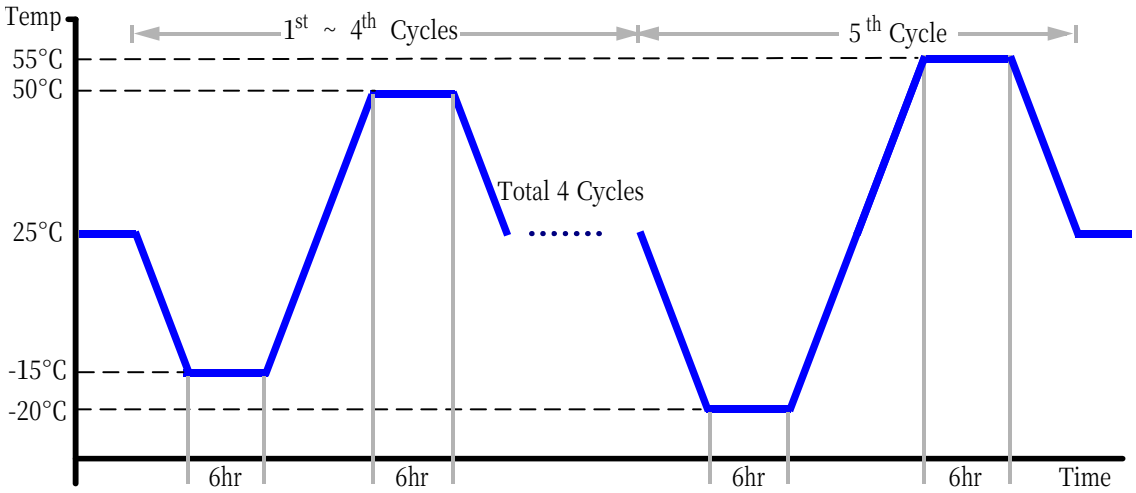
Programmable Temperature & Humidity Chamber
K.SON. INS. TECH. CORP.
Model: THS-A4C-100
Date of Calibration: 06/20/07
Serial Number: 3188

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℃ (1~4 cycles)
   -20℃ (5^{th} cycle)
2. Test High Temperature: 50℃ (1~4 cycles)
   55℃ (5^{th} cycle)
3. Test dwell time: 6Hrs
4. Temperature slope: 2℃/min
5. Test cycle: 5 cycles
6. Test Environment Curve:



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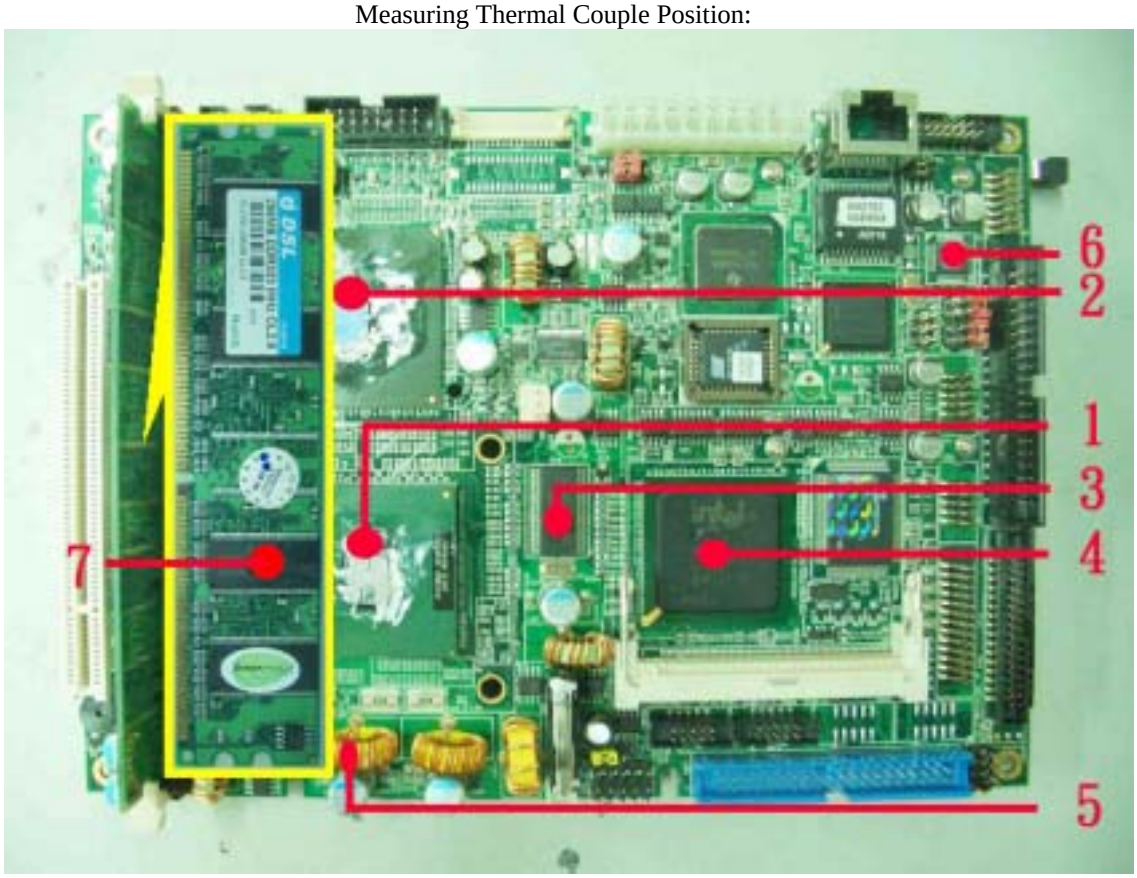
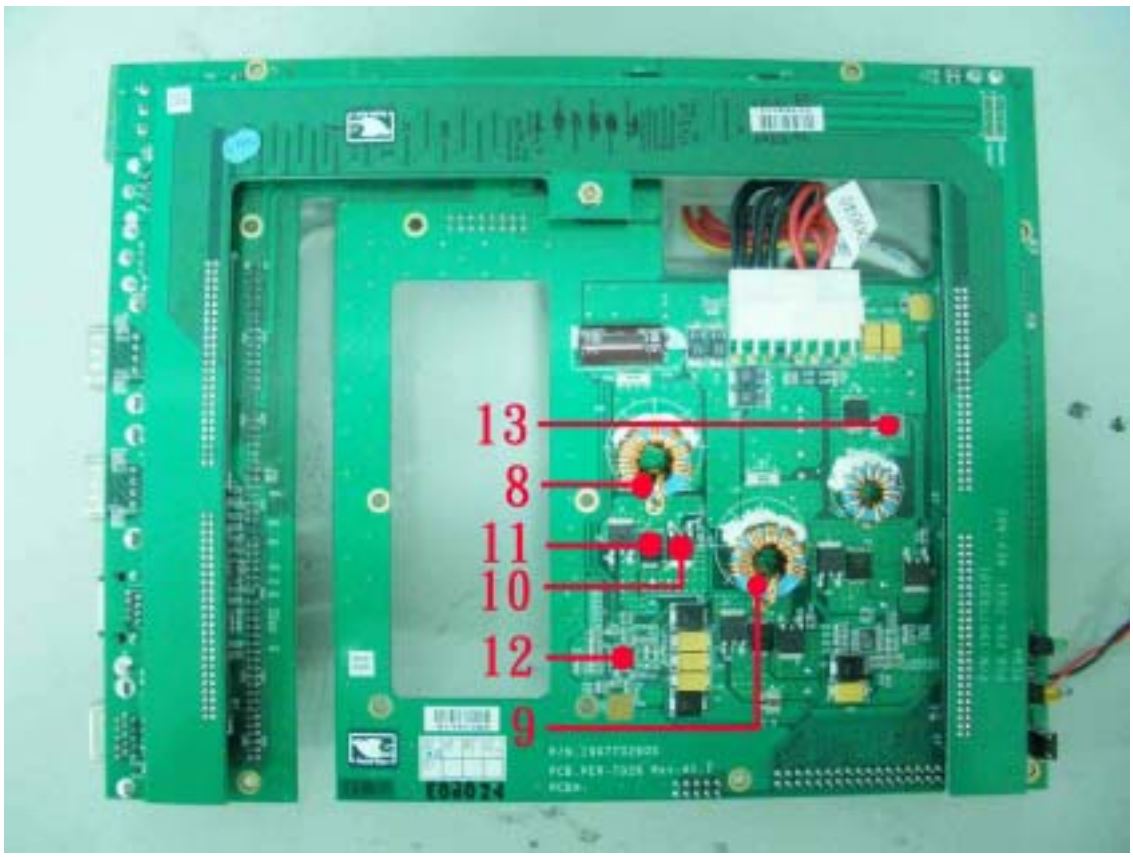
Temperature cycle test

Temperature Recorder:

Measuring Thermal Couple Position:





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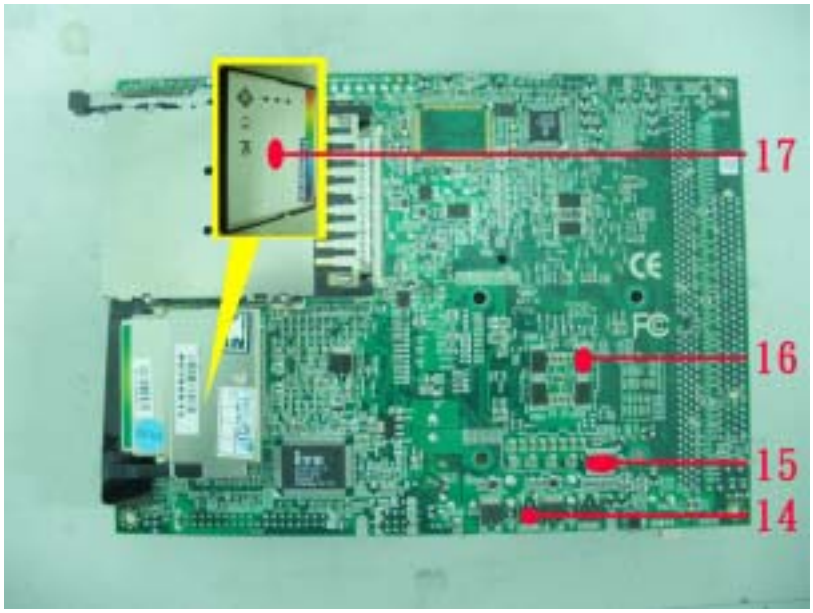
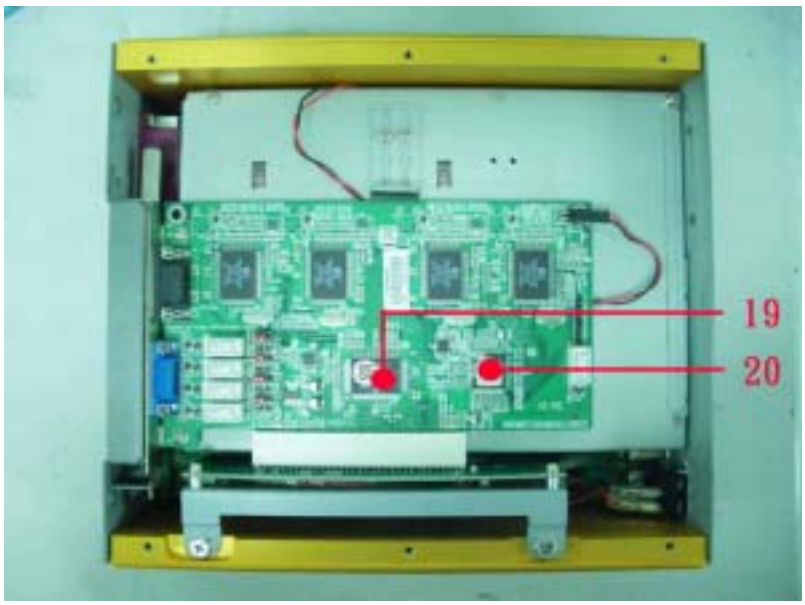
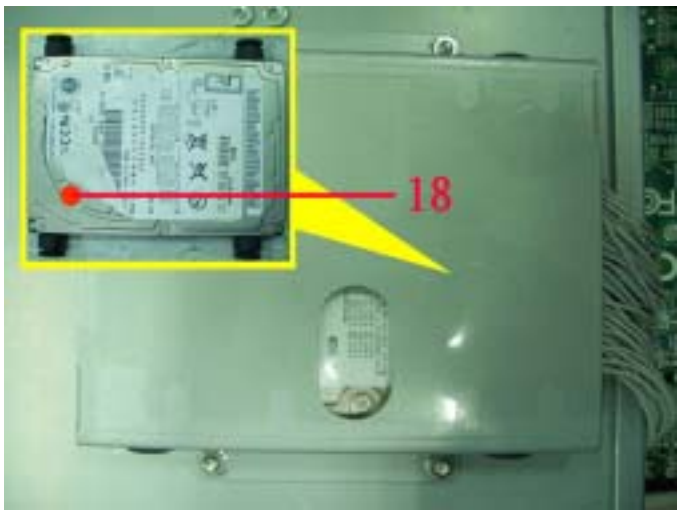
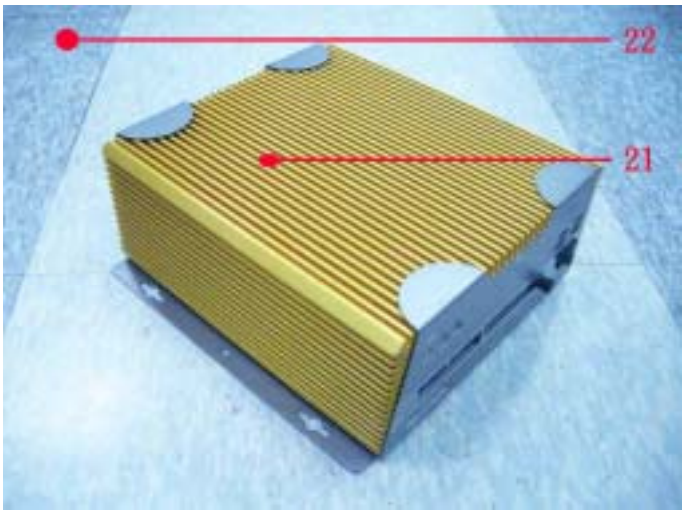
Temperature cycle test









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Temperature cycle test

Thermal profile data:

AVR-3000 (PCM-8150 A2.0-C)

Point / Temp. Stage(℃)	Spec	50	25	-15
01. PCM-8150 - U19 (Intel Celeron-M 1.3GHz CPU)	100	67.2	42.2	2.2
02. PCM-8150 - U4 (IC.BGA732.Chipset.NB82852GM.Intel.RG82852GM-SL6ZK)	105	63.9	38.9	-1.1
03. PCM-8150 - U16 (IC.SMD.SSOP 56Pin Clock Generator.ICS.ICS950201)	115	79.0	54.0	14
04. PCM-8150 - U18 (IC.Chipset ICH4.INTEL.FW82801DB SL6DM)	115	81.6	56.6	16.6
05. PCM-8150 - L24(Coil.1uH.+/-20%.DCR=0.004Ohm.Idc=25A.DIP.AG.TC5052-1R0M-UL)	115	110.2	85.2	45.2
06. PCM-8150 - U1(IC.SMD LQFP 48Pin.6 Channel AC'97 Audio Codec.REALTEK.ALC655)	100	78.1	53.1	13.1
07. Memory	85	73.8	48.8	8.8
08. PER-T026 - L21 (Coil.6uH.+/-25%.DIP.GOTREND.C60MPP-09C08YFA)	115	84.7	59.7	19.7
09. PER-T026 - L22 (Coil.5uH.+/-25%.DIP.GOTREND.C60MPP-09C07YFA)	115	80.6	55.6	15.6
10. PER-T026 - Q1 (PWR. TO-252AA.N-Channel MOSFET.FAIRCHILD.FDD5670)	125	78.2	53.2	13.2
11. PER-T026 - D4 (D Schottky.60V.3A.SMD.WILLAS.SK36C)	125	76.2	51.2	11.2
12. PER-T026 - U1 ((TF)IC.SMD QFN 32Pin Regulator.LINEAR.LTC3728LXCUH#PBF)	100	76.1	51.1	11.1
13. PER-T026 - Q7 (PWR.SOP 8P.N-Channel MOSFET.FAIRCHILD.FDS5670)	125	66.8	41.8	1.8
14. PCM-8150 - Q60 (PWR.TO-252.N-ChannelPower30V 55A MOSFET.APEC.AP60N03H)	125	99.6	99.6	59.6
15. PCM-8150 - U37 (IC.SMDTSSOP-38IMVP4.DualPhasePWM Controller.SEMTECH.SC1476)	104	77.0	77.0	37.0
16. PCM-8150 - C568 (Panasonic.EEFSX0D221YR)	105	77.1	77.1	37.1
17. CFD Surface	85	73.6	48.6	8.6
18. HDD Surface	80	72.8	47.8	7.8
19. Capture Card - 1	N/A	73.2	48.2	8.2
20. Capture Card - 2	N/A	75.2	50.2	10.2
21. Control Box External Surface	N/A	61.8	36.8	-3.2
22. Chamber Air Temperature	N/A	51.3	26.3	-13.7
1. 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 (AVR-3000)

Test Result:

No problem was found during the temperature operation cycle test.

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High temperature storage test

Test Date: 09-24~26-2007

Test Product: AVR-3000

Test Site: AAEON QA Internal Lab.

Performed By: Rex Chang

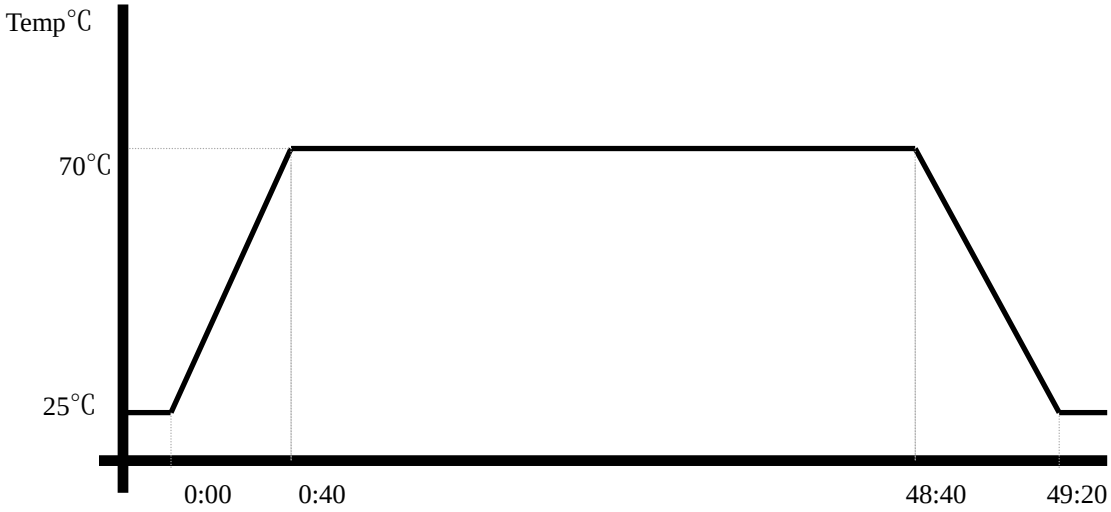
Test Standard: Reference IEC 68-2-2 Testing procedures
Test Bb: Dry Heat Test (Non-operation)

Test Equipment:

Programmable Temperature & Humidity Chamber
K.SON. INS. TECH. CORP.
Model: THS-D4H+-100
Date of Calibration: 05/16/07
Serial Number: 1241

Testing Item:

1. Test Temperature: 70℃
2. Test Times: 48Hrs
3. Test Software: Linux 7.3 / Run DVR 3643
4. Test Environment Curve:



Sample Configuration & Quantity Under Test:
Quantity: 1 (AVR-3000)

Test Result:

No problem was found after the high temperature storage test.

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Low temperature storage test

Test Date: 09-26~28-2007

Test Product: AVR-3000

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-D4H+-100
Date of Calibration: 05/16/07
Serial Number: 1241

Testing Item:

1. Test Temperature: -20℃
2. Test Times: 48Hrs
3. Test Software: Linux 7.3 / Run DVR 3643
4. Test Environment Curve:

Sample Configuration & Quantity Under Test:
Quantity: 1 (AVR-3000)

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

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Humidity test

Test Date: 09-21~24-2007

Test Product: AVR-3000

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)

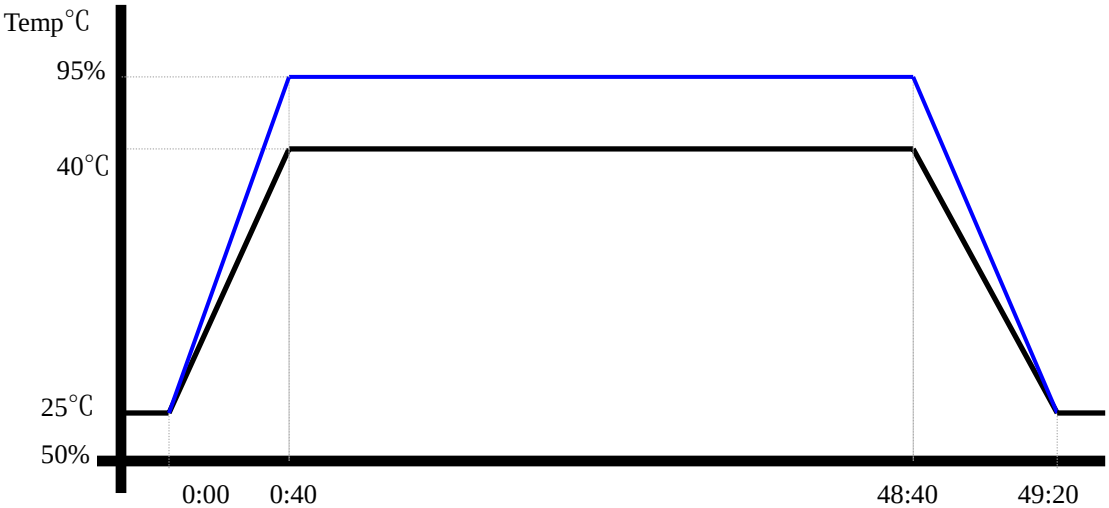
Test Equipment:

Programmable Temperature & Humidity Chamber
K.SON. INS. TECH. CORP.
Model: THS-D4H+-100
Date of Calibration: 05/16/07
Serial Number: 1241

Testing Item:

1. Test Temperature: 40℃
2. Test Humidity: 95%RH
3. Test Times: 48Hrs
4. Test Software: Linux 7.3 / Run DVR 3643
5. Test Environment Curve:

Humidity %



Sample Configuration & Quantity Under Test:
Quantity: 1 (AVR-3000)

Test Result:

No problem was found after the humidity storage test.

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Cold start and hot start test

Test Date: 09-19~20-2007

Test Product: AVR-3000

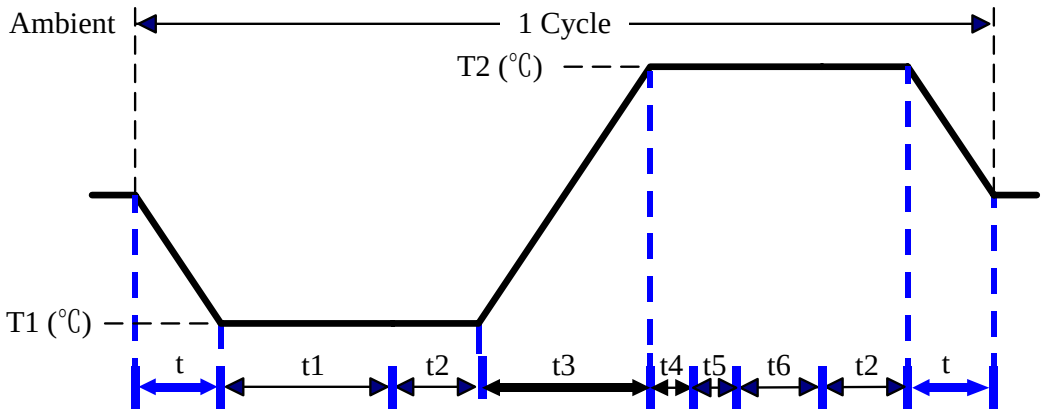
Test Site: AAEON QA Internal Lab.

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	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 DVR 3643
t5: Power On/Off test 3 times
Test Software: Linux 7.3

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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