Industrial Computing Platform Partner

AEC-VPMS-200

Environment Test Report

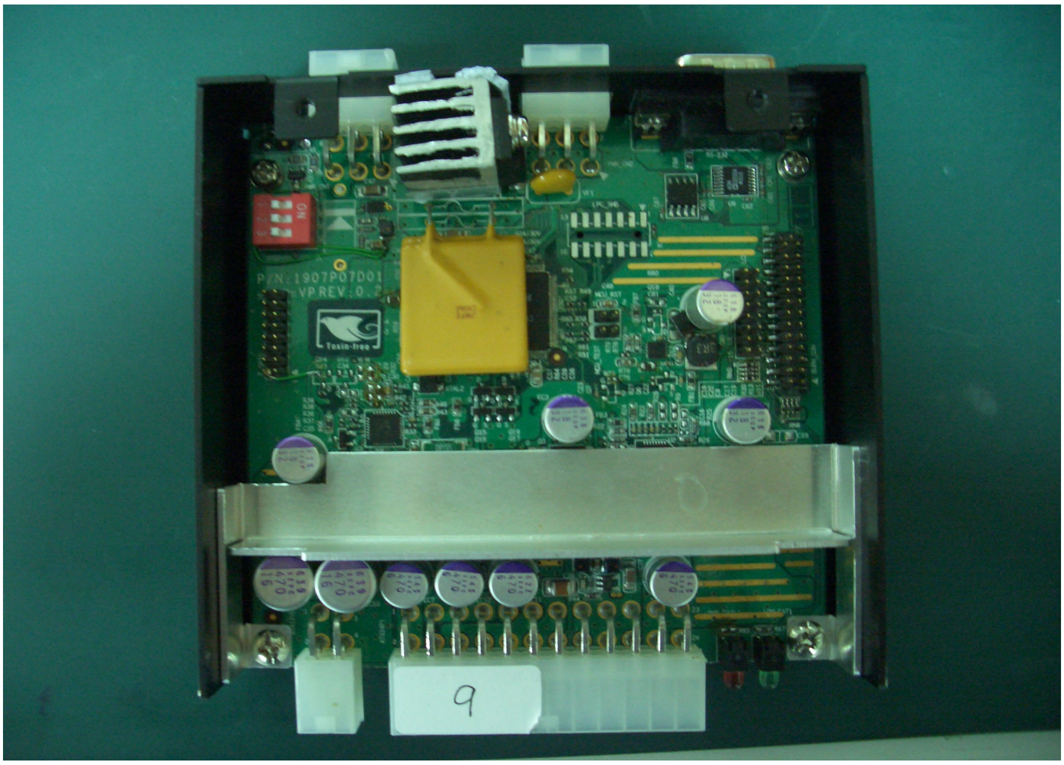
Report NO: 07P020027

Issued by:	Sean Hsu	/	*09/26/2007*
	Test Engineer		Date
Reviewed by:	Wenyuan Yang	/	*09/26/2007*
	Manager		Date

Test item list

Num	Item	Spec
1.	**Power management Module**	AEC-VPMS-200 REV 0.2

Inside



Temperature cycle test

Test Date: 09-03~05-2007

Test Product: AEC-VPMS-200

Test Site: AAEON QA Internal Lab.

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

Test Equipment:

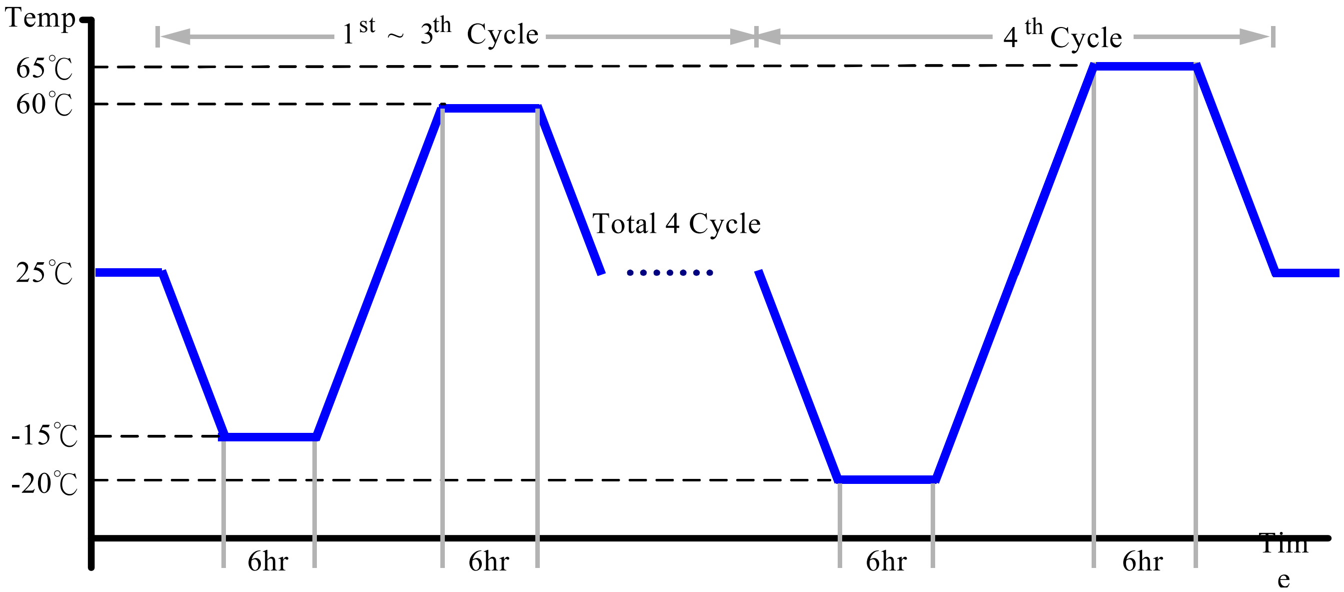
Programmable Temperature & Humidity Chamber
K.SON. INS. TECH. CORP.
Model: THS-A4C-100
Date of Calibration: 07/07/06
Serial Number: 3188

Temperature Measurement:

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

Test Condition:

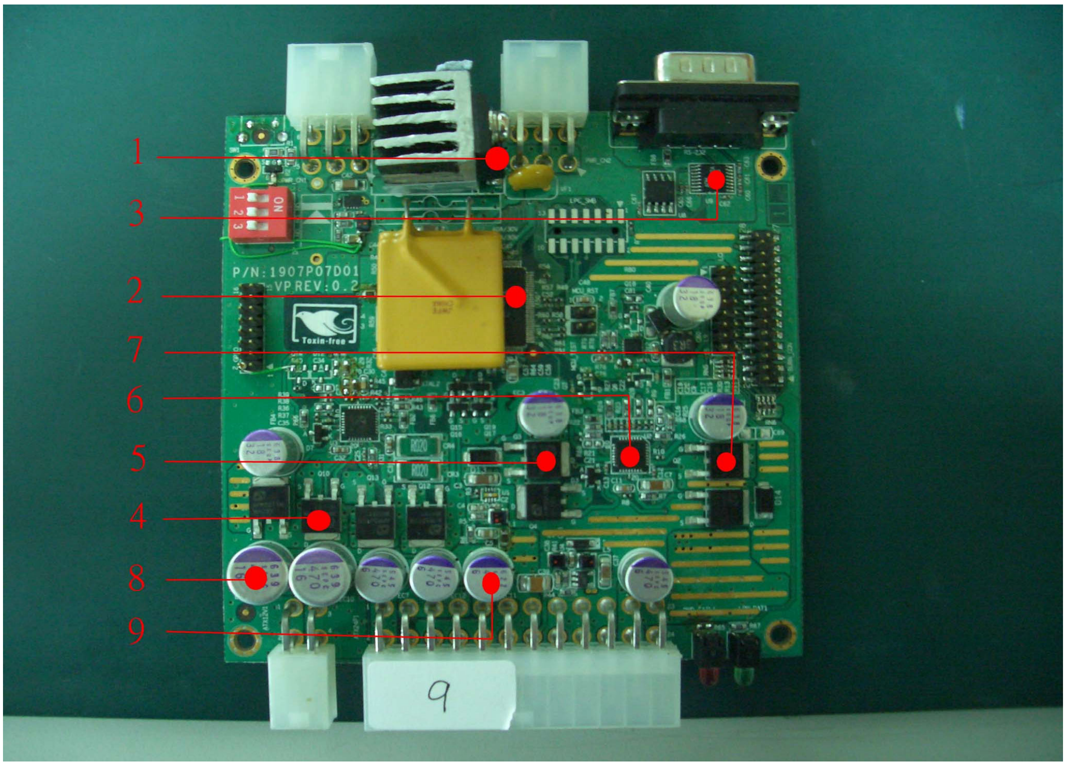
1. Test Low Temperature: -15℃ (1~3 cycle)
   -20℃ (4th cycle)
2. Test High Temperature: 60℃ (1~3 cycle)
   65℃ (4th cycle)
3. Test dwell time: 6Hrs
4. Temperature slope: 2℃/min
5. Test cycle: 4 cycle
6. Test Environment Curve:

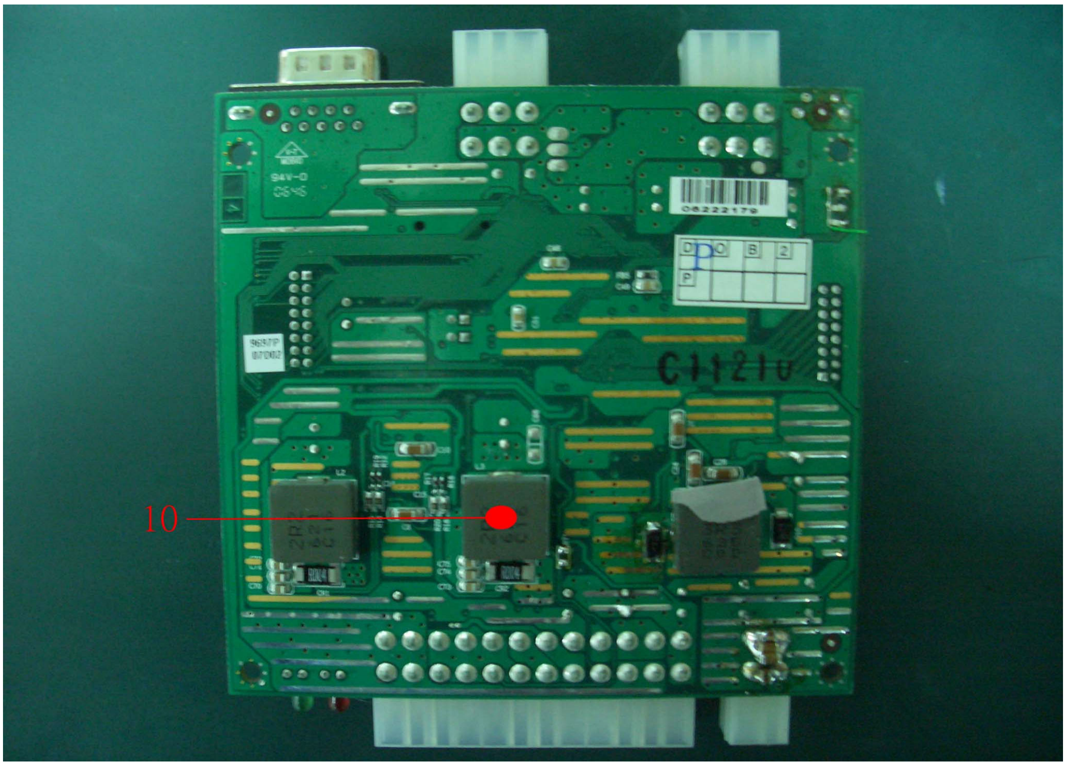


Temperature cycle test

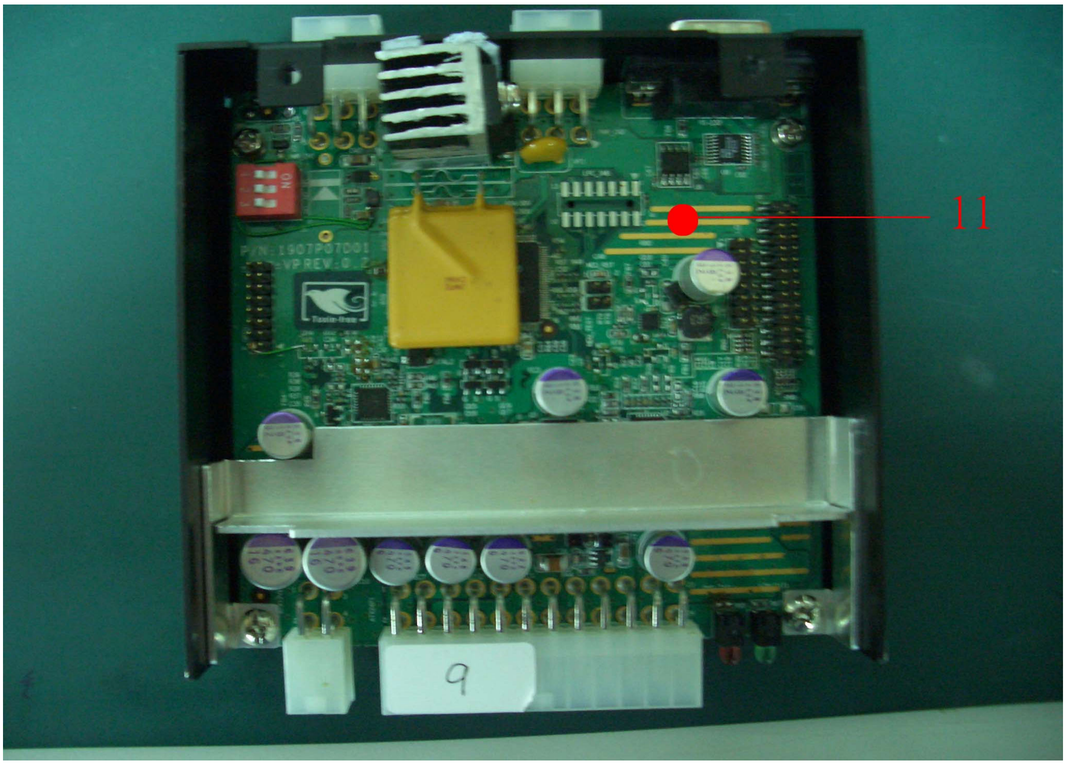
Temperature Recorder:

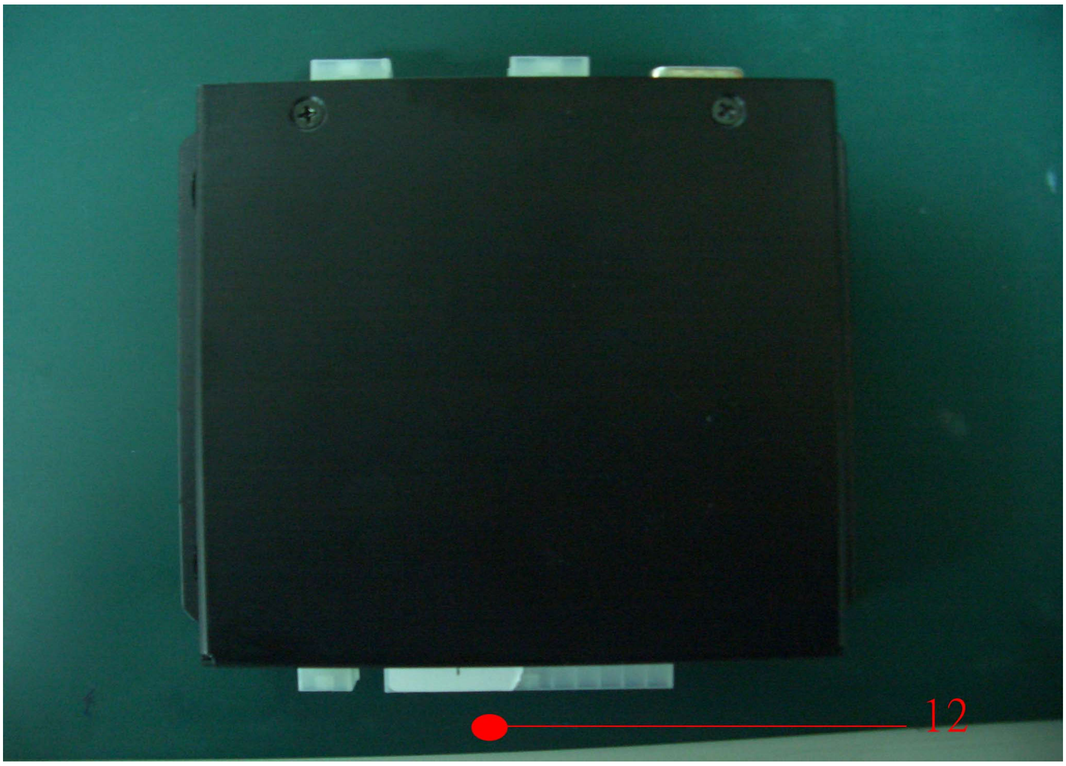
Measuring Thermal Couple Position:





Temperature cycle test





Temperature cycle test

Thermal profile data:

AEC-VPMS-200

Point / Temp. Stage(℃)	Spec	60	25	-15
1. D1-(TF)D.Schottky.20A.TO-220F.DIP.Fairchild.FYPF2010DNTU	125	113.9	78.9	43.9
2.U6-(TF)IC.SMD.LQFP.128Pin.Embedded Controller.Winbond.W83L951DG	95	95.6	60.6	25.6
3. U9-(TF) IC.SMD.TSSOP16.RS232 Transceivers.460Kbitsw/1.	85	81.9	46.9	11.9
4. Q10-(TF)PWR.SMD.TO-252.N-Channel.Mosfet.Vds=30V Ids=40A	150	99	64.0	29.0
5.Q3-(TF)PWR.SMD.TO-252.N-Channel.Mosfet.Vds=30VIds=40A	150	91.9	56.9	21.9
6. U2-(TF)IC.SMD.QFN 32Pin Regulator.Vin 3.5-36V.LINEAR.	85	89.3	54.3	19.3
7. Q2-(TF)PWR.SMD.TO-252.N-Channel.Mosfet.Vds=30V Ids=40A	150	88.2	53.2	18.2
8. EC9-(TF)OS-CON.470UF.16V.20%.DIP.10*13mm.SANYO.16SEPC470M	105	93.3	58.3	23.3
9. EC11-(TF)OS-CON.470uF.6.3V.20%.	105	92.2	57.2	22.2
10.L3- (TF)COIL.2.2uH.SMD.13.8*12.8*5.0mm.	125	92.1	57.1	22.1
11. Control Box Internal inside Air Temperature	N/A	80.1	45.1	10.1
12 Chamber Air Temperature	N/A	60.9	25.9	-9.1

Sample Configuration & Quantity Under Test:

Quantity: 1 (AEC-VPMS-200)

Test Result:

No problem was found during the temperature operation cycle test.

High temperature storage test

Test Date: 08-27~29-2007

Test Product: AEC-VPMS-200

Test Site: AAEON QA Internal Lab.

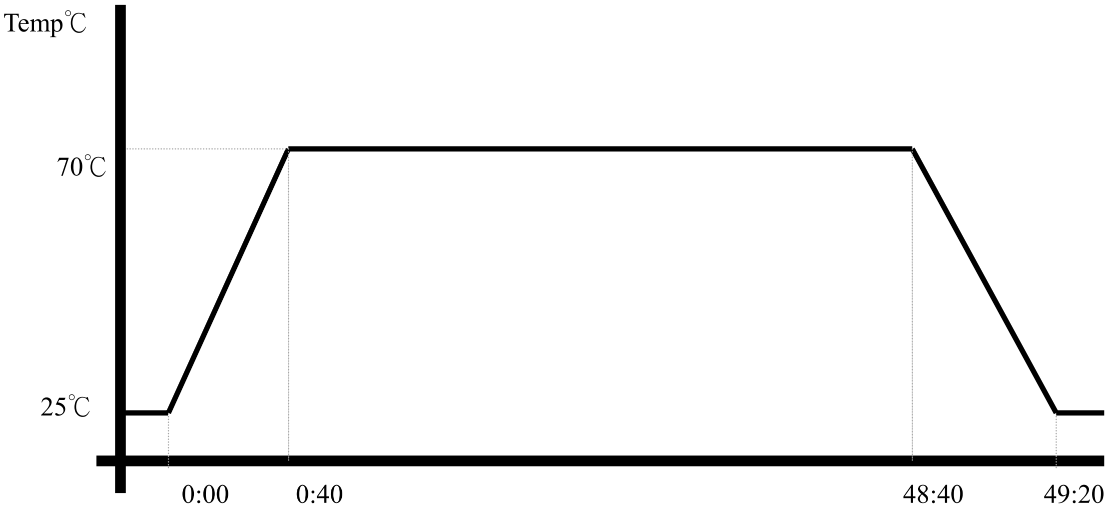
Test Standard: Reference IEC 68-2-2 Testing procedures
Test Bb: Dry Heat Test (Non-operation)

Test Equipment:

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

Testing Item:

1. Test Temperature: 70℃
2. Test Times: 48Hrs
3. Test Environment Curve:



Sample Configuration & Quantity Under Test:
Quantity: 1 (AEC-VPMS-200)

Test Result:

No problem was found after the high temperature storage test.

Low temperature storage test

Test Date: 08-30~31-2007

Test Product: AEC-VPMS-200

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

Testing Item:

1. Test Temperature: -20℃
2. Test Times: 48Hrs
3. Test Environment Curve:

Sample Configuration & Quantity Under Test:

Quantity: 1 (AEC-VPMS-200)

Test Result:

No problem was found after the low temperature storage test.

Humidity test

Test Date: 09-01~03-2007

Test Product: AEC-VPMS-200

Test Site: AAEON QA Internal Lab.

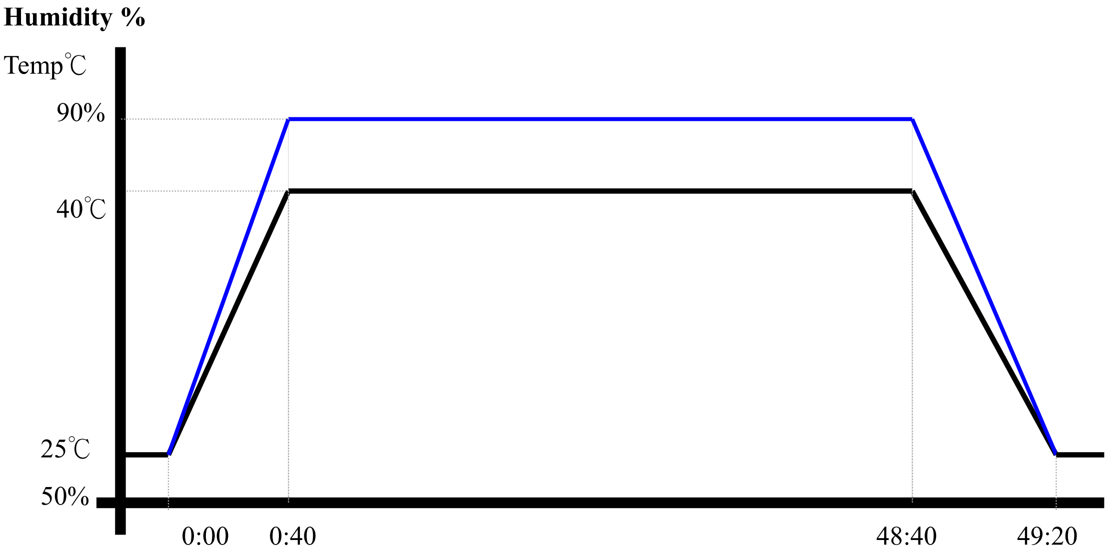
Test Standard: Reference IEC 68-2-3 Testing procedures
Test Ca: Damp heat, steady state (Non-operation)

Test Equipment:

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

Testing Item:

1. Test Temperature: 40℃
2. Test Humidity: 90%RH
3. Test Times: 48Hrs
4. Test Environment Curve:



Sample Configuration & Quantity Under Test:
Quantity: 1 (AEC-VPMS-200)

Test Result:

No problem was found after the humidity storage test.

Cold start and hot start test

Test Date: 08-23~24-2007

Test Product: AEC-VPMS-200

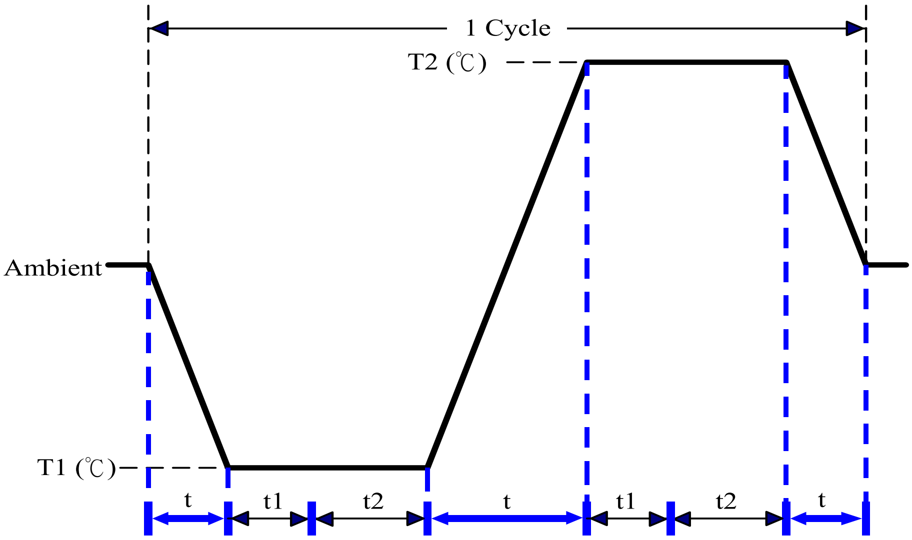
Test Site: AAEON QA Internal Lab.

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

Test Condition:



Parameters	Description
T1	-20℃
T2	65℃
t1	1 hrs
t2	2 hrs
t	2℃/min
n (Cycle)	1

t = temprature slope
t ~ t1: Power Off
t2: Power on/off test 10 times (on 2 min / off 5min)

Test Result:

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