TKS-P20-CV01-ASG

(With mSATA)

Environment Test Report

Report NO: 13E020010

Summary	☐ **Pass** ☐ **Fail** Note : There is/are ___ defect(s) not list in the report, please check it in the DTS Website. ☑ **Pass with Deviation** **Comment: There are one temperature points marginal passed, the function is normal, hope to get improvement for the next generation.**

Issue date	Approval	Test Engineer
2013-05-13	**Tom Lin**	**Rex Chang**

Configuration of EUT

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	Humidity test	Pass	
6	Cold start and hot start test	Pass	

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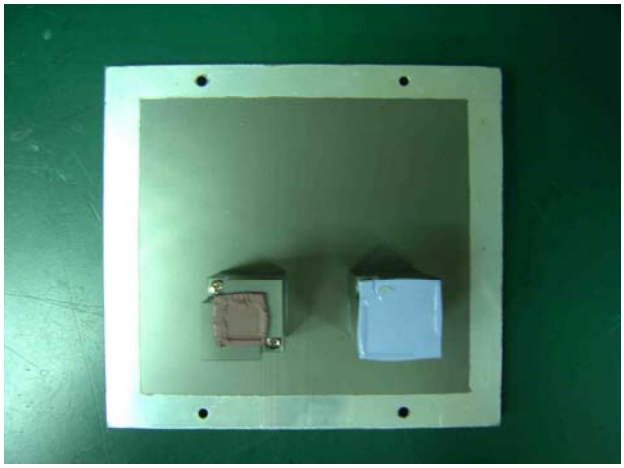
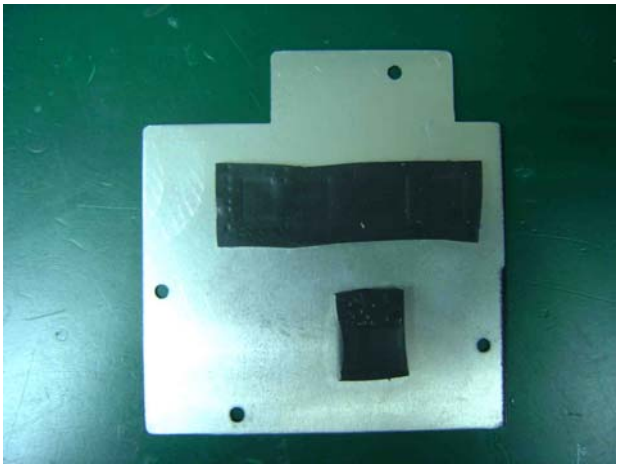
Configuration of EUT

Num	Item	Spec
1.	**Control Box**:	TKS-P20-CV01-ASG
	1. Main Board	PICO-CV01 A1.0
	2. BIOS Ver.	PICO-CV01 R1.4 (PICVAM14) (11/14/2012)
	3. CPU	Intel Atom N2600 / 1.60GHz
	4. Memory	DSL / Hynix H5TQ2G83CFR H9C / DDR3 1333 / 2GB
	5. Industrial mSATA	MS500 Series / MRMAJ5D016GN4M1l00 / 16GB
	6. Test Software	Windows 7 / Run PassMark Burn In Test 7.0 Pro
	7. Power Board	PER-24D A0.1_0_0
2.	**AC Adapter**	FSP. FSP040-DGAA1 Output: 12V; 3.33A (40W MAX)

Heat Sink





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Temperature rise test

Test Date: 05-09-2013

Test Product: TKS-P20-CV01-ASG

Test Site: AAEON QE Dept.

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

Temperature Measurement:

40 Channel Thermal Recorder: (YOKOGAWA Inc,)
Model: DA100-13-1D
Date of Calibration: 10/08/12
Serial Number: 12A323190

Test Condition:

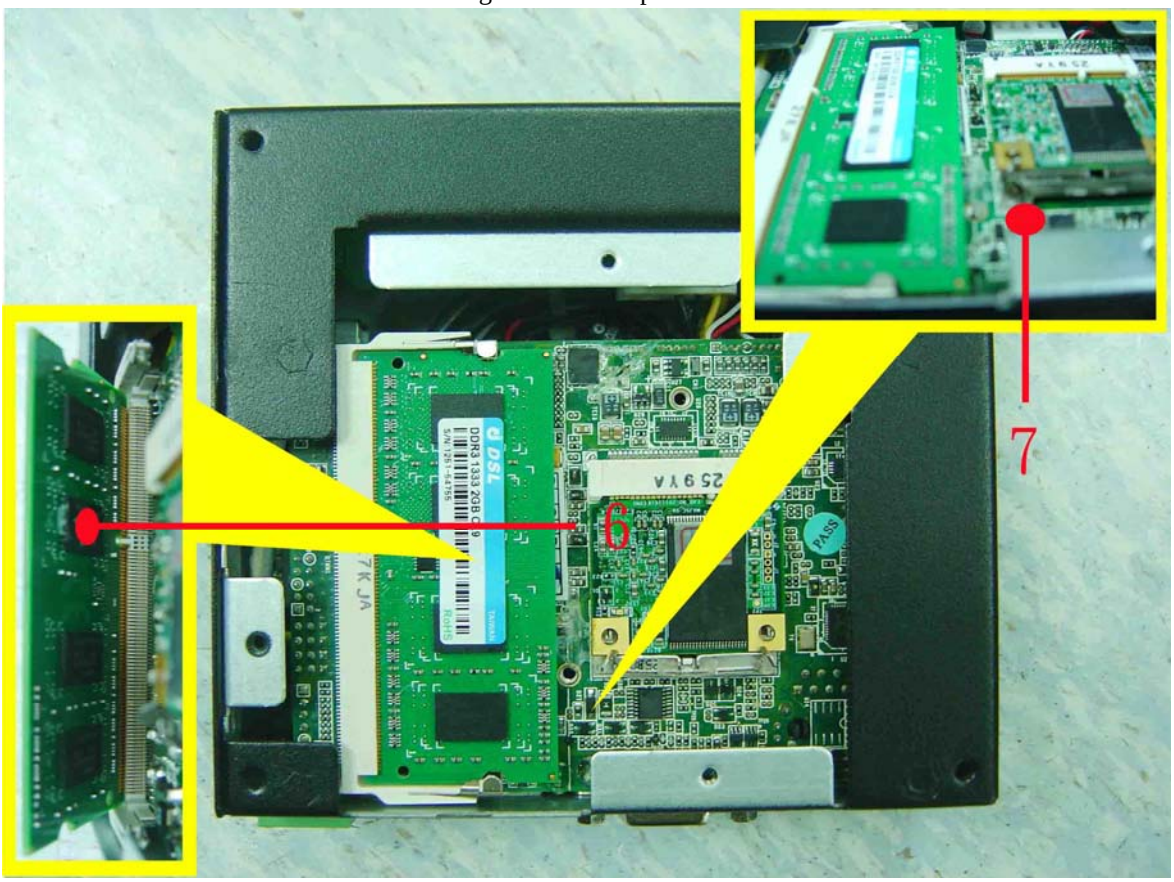
Ambient temperature: 55℃
Continuous running till thermal stability (within less than 1℃)

Test Software:

Windows 7 / Run PassMark Burn In Test 7.0 Pro

Terminal Recorder:

Measuring Thermal Couple Position：



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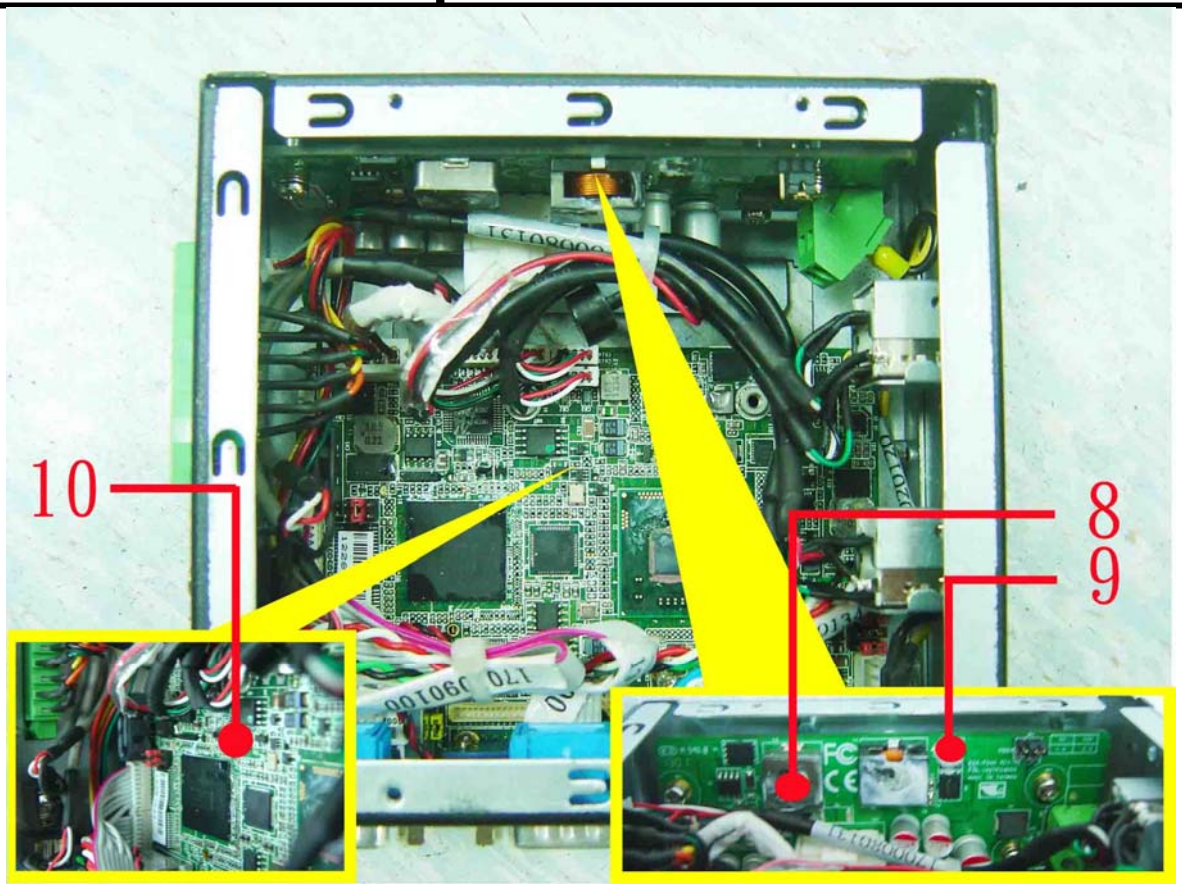
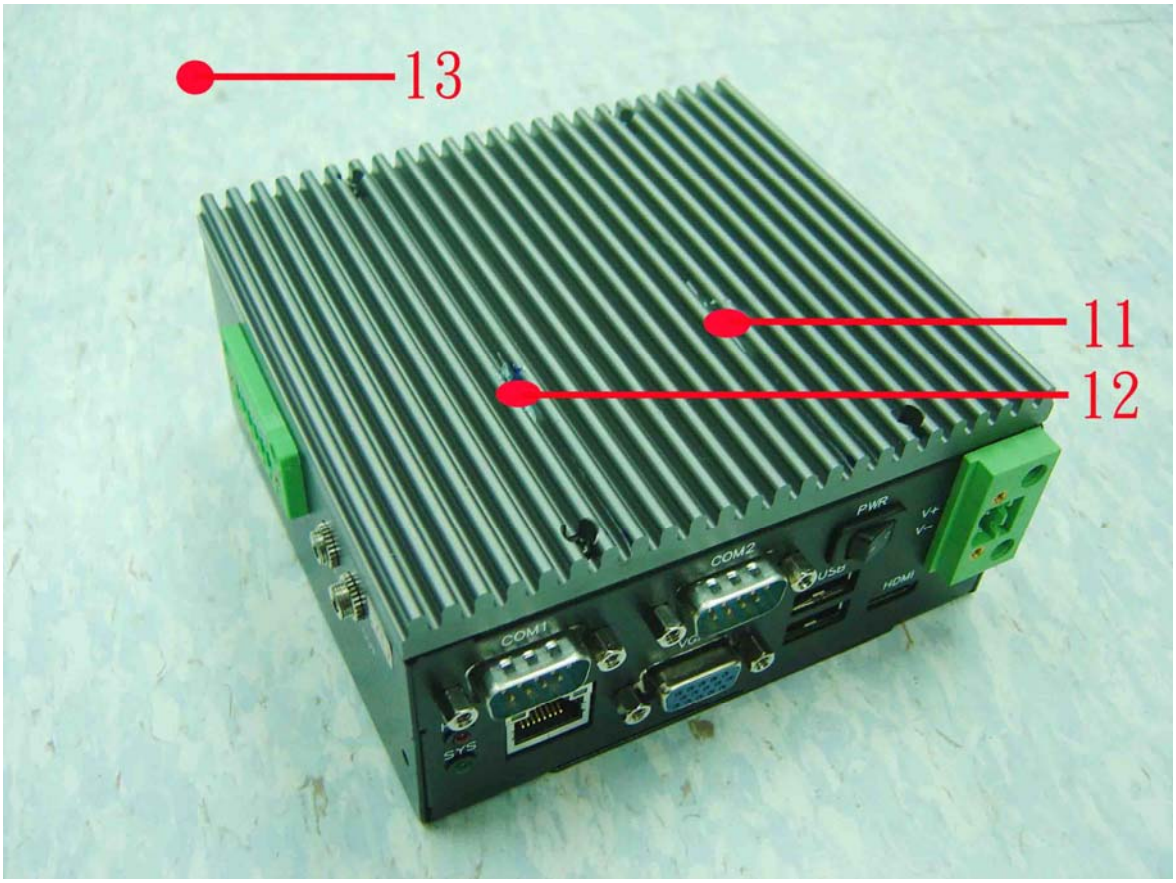
Temperature rise test





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Temperature rise test

TKS-P20-CV01-ASG

Point \ Temp. Stage(℃)	Spec	55	25	Note
PICO-CV01				
01. U9 - (TF)INTEL.Cedarview CPU.FCBGA 559 pin.1.6Ghz.N2600.	100	84.2	54.2	
02. U3 - (TF)IC.SMD.NM10 Express Chipset.INTEL.CG82NM10.SLGXX	115	82.3	52.3	
03. U4 - (TF)IC.SMD.AUDIO CODEC.REALTEK.ALC662-GR	100.5	95.7	65.7	
04. U16 - (TF)IC.SMD.TQFN .for DP to HDMI.PERICOM.PI3VDP411LSZBE	125	90.7	60.7	
05. L5 - (TF)COIL.1.5uH.20%.Irms=9.6Amp.Panasonic.ETQP3W1R5WFN	125	94.0	64.0	
06. Memory	95	86.3	56.3	
07. Control Box Inside Air Temperature - 1 (mSATA Ambient Temp.)	85	84.6	54.6	Note4
PER-24D				
08. U47 - (TF)DUAL SYNCHRONOUS STEP-DOWN CON.TI.TPS51124RGE	125	94.1	64.1	
09. Q2 - (TF)PWR.N-MOSFET.ON SEMI.NTMFS5834NL	150	89.5	59.5	
10. Control Box Inside Air Temperature - 2	N/A	83.5	53.5	
11. Control Box External Surface - 1	N/A	78.6	48.6	
12. Control Box External Surface - 2	N/A	78.4	48.4	
13. Chamber Air Temperature	N/A	55.0	25.0	

Note(*):
1. "Tc" indicates the component's case maximum temperature value specified in its datasheet.
2. "Tm" indicates the measured Tc value under working environmental temperature within product specification.
3. Judgment Criteria:
- **Fail** : Tm > Tc; The measured value is over specification.
- **Margin Pass** : Tc > Tm > Tc-5℃; The measured value is within specification with margin.
It is strongly recommended to add thermal dissipation design for better reliability.
- **Pass** : Tm < Tc-5℃; The measured value is with safety margin.

4. Defect NO. E130101QED01

Sample Configuration & Quantity Under Test:

Quantity: 1 (TKS-P20-CV01-ASG)

Test Result:

No issues were found during the temperature rise test.

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Temperature cycle operation test

Test Date: 05-03 ~ 05-2013

Test Product: TKS-P20-CV01-ASG

Test Site: AAEON QE Dept.

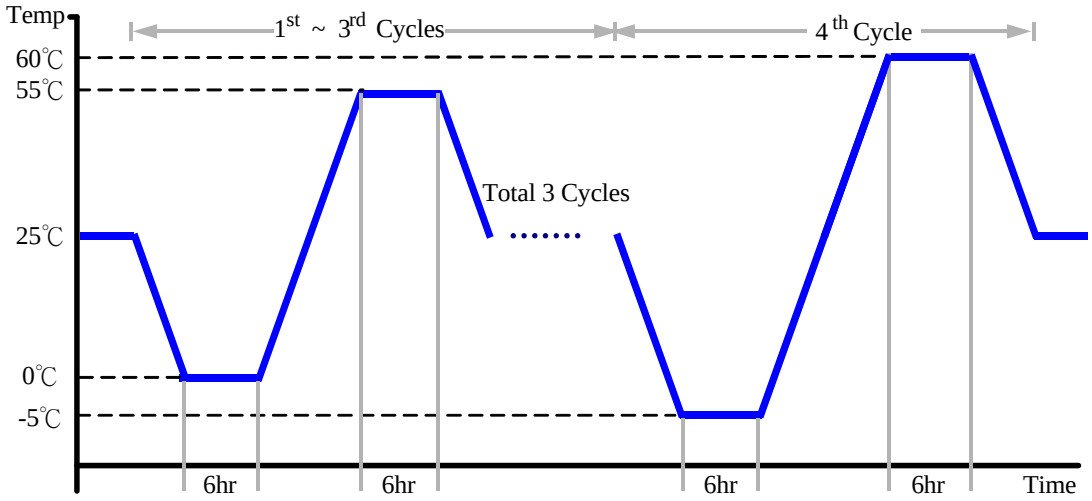
Test Standard: Refer to IEC68-2-14 Testing procedures
Test N: Change of temperature Test

Test Equipment:

Programmable Temperature & Humidity Chamber (K.SON. INS. TECH. CORP.)
Model: THS-B6T-150+LN2
Date of Calibration: 03/07/13
Serial Number: 6487KT

Test Condition:

1. Test Low Temperature: 0℃ (1~3 cycles)
   -5℃ (4^{th} cycle)
2. Test High Temperature: 55℃ (1~3 cycles)
   60℃ (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 (TKS-P20-CV01-ASG)

Test Result:

No issues were found during the temperature operation cycle test.

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High temperature storage test

Test Date: 04-24 ~ 26-2013

Test Product: TKS-P20-CV01-ASG

Test Site: AAEON QE Dept.

Test Standard: Refer to 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: 03/07/13
Serial Number: 6487KT

Testing Item:

1. Test Temperature: 80℃
2. Test Times: 48Hrs
3. Test Software: Windows 7 / Run PassMark Burn In Test 7.0 Pro
4. Test Environment Curve:

Sample Configuration & Quantity Under Test:

Quantity: 1 (TKS-P20-CV01-ASG)

Test Result:

No issues were found after the high temperature storage test.

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Low temperature storage test

Test Date: 04-26 ~ 28-2013

Test Product: TKS-P20-CV01-ASG

Test Site: AAEON QE Dept.

Test Standard: Refer to 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: 03/07/13
Serial Number: 6487KT

Testing Item:

1. Test Temperature: -40℃
2. Test Times: 48Hrs
3. Test Software: Windows 7 / Run PassMark Burn In Test 7.0 Pro
4. Test Environment Curve:

Sample Configuration & Quantity Under Test:

Quantity: 1 (TKS-P20-CV01-ASG)

Test Result:

No issues were found after the low temperature storage test.

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Humidity test

Test Date: 04-28 ~ 30-2013

Test Product: TKS-P20-CV01-ASG

Test Site: AAEON QE Dept.

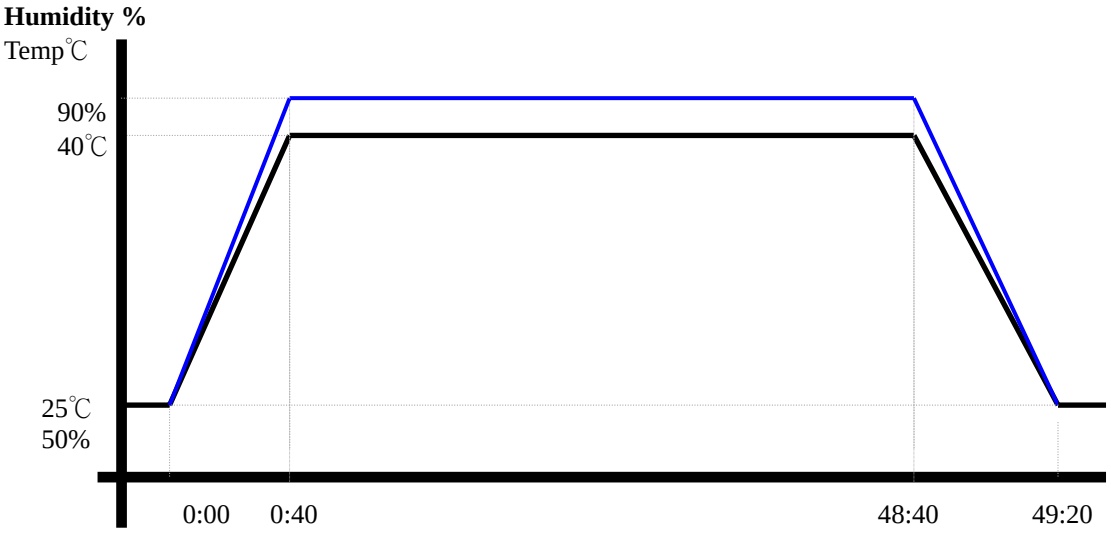
Test Standard: Refer to IEC 68-2-3 Testing procedures
Test Ca: Damp heat, steady state (Non-operation)

Test Equipment:

Programmable Temperature & Humidity Chamber (K.SON. INS. TECH. CORP.)
Model: THS-B6T-150+LN2
Date of Calibration: 03/07/13
Serial Number: 6487KT

Testing Item:

1. Test Temperature: 40℃
2. Test Humidity: 90%RH
3. Test Times: 48Hrs
4. Test Software: Windows 7 / Run PassMark Burn In Test 7.0 Pro
5. Test Environment Curve:



Sample Configuration & Quantity Under Test:
Quantity: 1 (TKS-P20-CV01-ASG)

Test Result:

No issues were found after the humidity storage test.

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Cold start and hot start test

Test Date: 05-02~03-2013

Test Product: TKS-P20-CV01-ASG

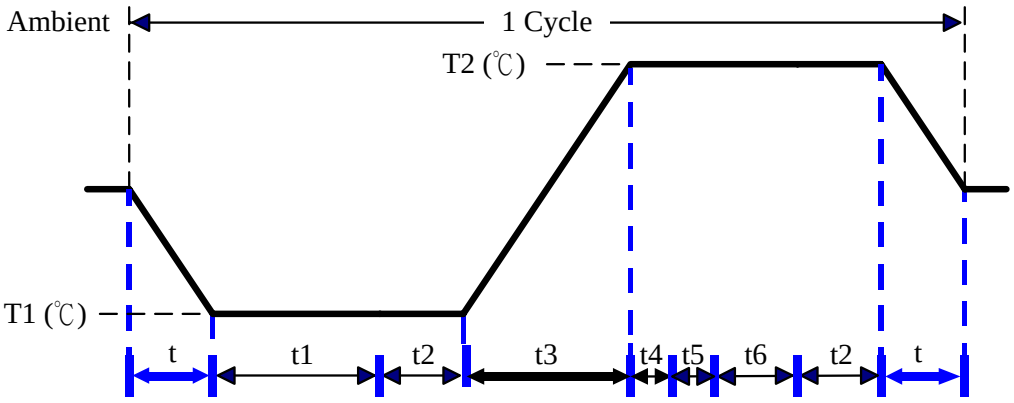
Test Site: AAEON QE Dept.

Test Standard: Refer to 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: 03/07/13
Serial Number: 6487KT

Test Condition:



Parameters	Description
T1	-5℃
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 5 times (on 2 min / off 5min)
t3, t4: Run PassMark BurnIn Test 7.0 Pro
t5: Win 7 Software restart test 3 times
Test Software:Windows 7

Test Result:

a. No issues were found during the cold start test.
b. No issues were found during the hot start test.

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