RTC-900B

Environment Test Report

Report NO: 14R020003

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: _____**

Issue date	Approval	Test Engineer
2014-12-12	**Vincent Chen**	**Ben Sun**

Test Item List

Testing Result

Num	Test item list	Result	Remark
1	Temp./humidity power on/off test	Pass	
2	Room temperature test	Pass	
3	Temperature rise test	Pass	
4	High temperature storage test	Pass	
5	High temperature operation test	Pass	
6	Low temperature storage test	Pass	
7	Low temperature operation test	Pass	
8	Humidity test	Pass	
9	Temperature shock operation test	Pass	
10	Temperature shock non-operation test	Pass	
11	Cold start and hot start test	Pass	

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Configuration of EUT

Test Product: RTC-900B		
Sample Configuration & Quantity Under Test:		
Num	**Item**	**Spec**
RTC-900B		
01.	**CPU:**	Intel ® E3825 1.33GHz Dual core
02.	**PCBA**	R0.3
03.	**BIOS**	RTC-900B BIOS Rev1.0 x64 for Windows 8(11/25/2014)
04.	**Memory**	DDR3L-1600 4GB 204pin SO-DIMM Hynix
05.	**mSATA**	32GB mSATA SSD MLC
06.	**3G**	Quectel UC20
07.	**WLAN + BT Module**	AW-NB110H
08.	**LCD**	EJ101IA-01G
09.	**Touch Panel**	EDT EP1010MLD8
10.	**Battery**	AALIC As attached file
11.	**AC Adapter**	Adaptor LTE24E-S2-2D6
12.	**Test Software**	PassMark Burn In Test 7.0 Pro

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Temp./humidity power on/off test

Test Date: 11-27~28 - 2014

Test Model: RTC-900B Main Board only

Test Site: AAEON QE Dept.

Test Standard: Refer to IEC 68-2-30 Testing procedures
Test Db: Damp Heat Test
Refer to IEC 68-2-1 Testing procedures
Test Ab: Cold Test

Test Equipment:

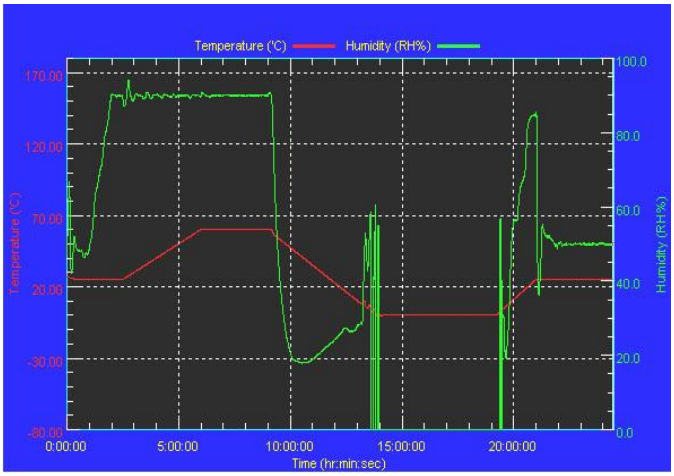
Programmable Temperature & Humidity Chamber
K.SON. INS. TECH. CORP.
Model: THS-B6T-150+LN2
Date of Calibration: 09/1/14
Serial Number: 9095KT

Temperature & Humidity Power On/Off Test:

Testing Specification:

Step	Temperature (℃)	Humidity (%RH)	Duration (HH:MM)
1	25	50	00:30
2	25	50	00:30
3	25	90	01:00
4	25	90	00:30
5	60	90	03:30
6	60	90	03:00
7	0	0	04:50
8	0	0	05:23
9	25	50	01:47
10	25	50	03:00

Test Curve:



Test Result:

No issues were found during the temperature & humidity power on/off test.

Test Method	Actual	Successful	Failure rate
Power On/Off	1379/times	1379/times	0 %
Note: Failure rate need to be 0%.			

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Room Temperature test

Test Date: 12-03-2014

Test Product: RTC-900B

Test Site: AAEON QE Dept.

Temperature Measurement:

40 Channel Thermal Recorder:
YOKOGAWA Inc,
Model: DA100-13-1D
Date of Calibration: 09/11/14
Serial Number: 12A323190

Test Condition:

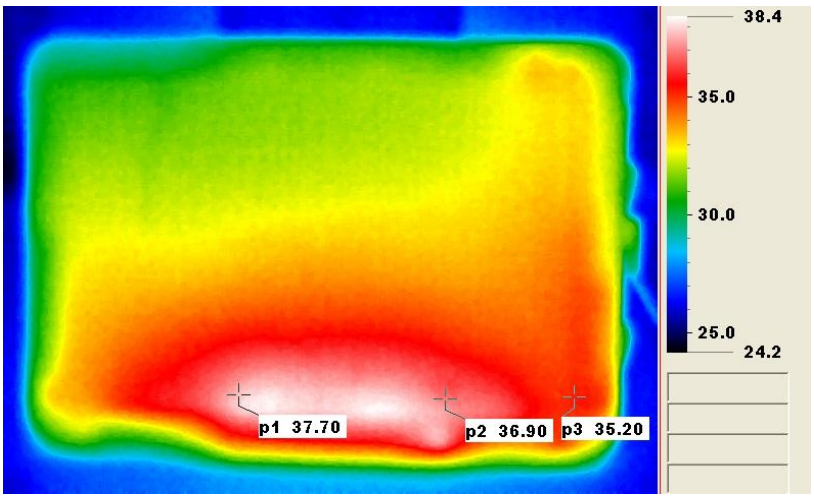
Ambient temperature: 25℃
Continuous running till thermal stability (within less than 1℃)

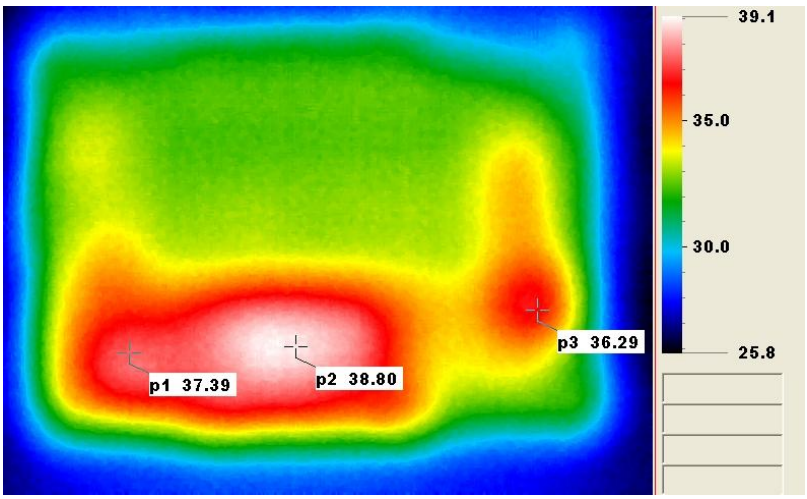
Test Software:

Windows Embedded 8.1 / Run PassMark Burn In Test 7.0 Pro

Terminal Recorder:

Measuring Thermal Couple Position：





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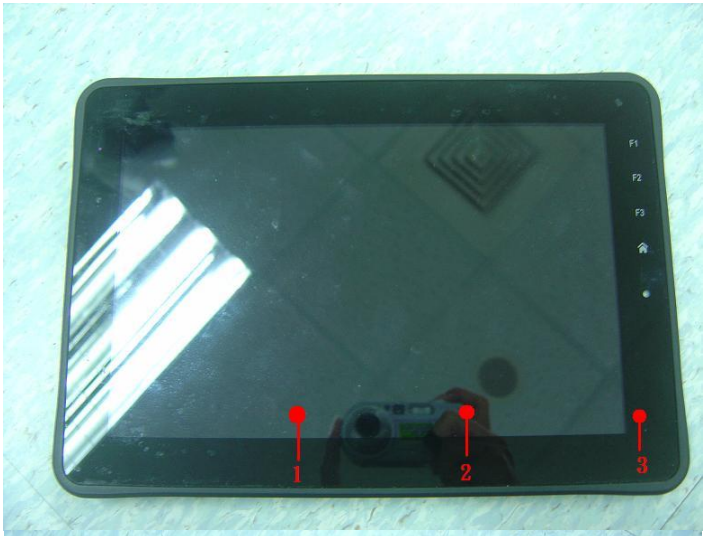
Room Temperature test



Thermal profile data:

RTC-900B

Point / Temp. Stage(℃)	Spec	25
1. Point 1		41.2
2. Point 2		40.3
3. Point 3	△T	38.8
4. Point 4	≦25	41.0
5. Point 5	℃	42.4
6. Point 6 -		40.5
Room Temperature		25.1
Any Tm value showed in red words which meaning the value over the Tc degree Cof this device specification.		

Sample Configuration & Quantity Under Test:

Quantity: 1 (RTC-900B)

Test Result:

No issues were found during the room temperature operation test.

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Temperature rise test

Test Date: 12-04~05-2014

Test Product: RTC-900B

Test Site: AAEON QE Dept.

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

Temperature Measurement:

40 Channel Thermal Recorder:
YOKOGAWA Inc,
Model: DA100-13-1D
Date of Calibration: 09/11/14
Serial Number: 12A323190

Test Condition:

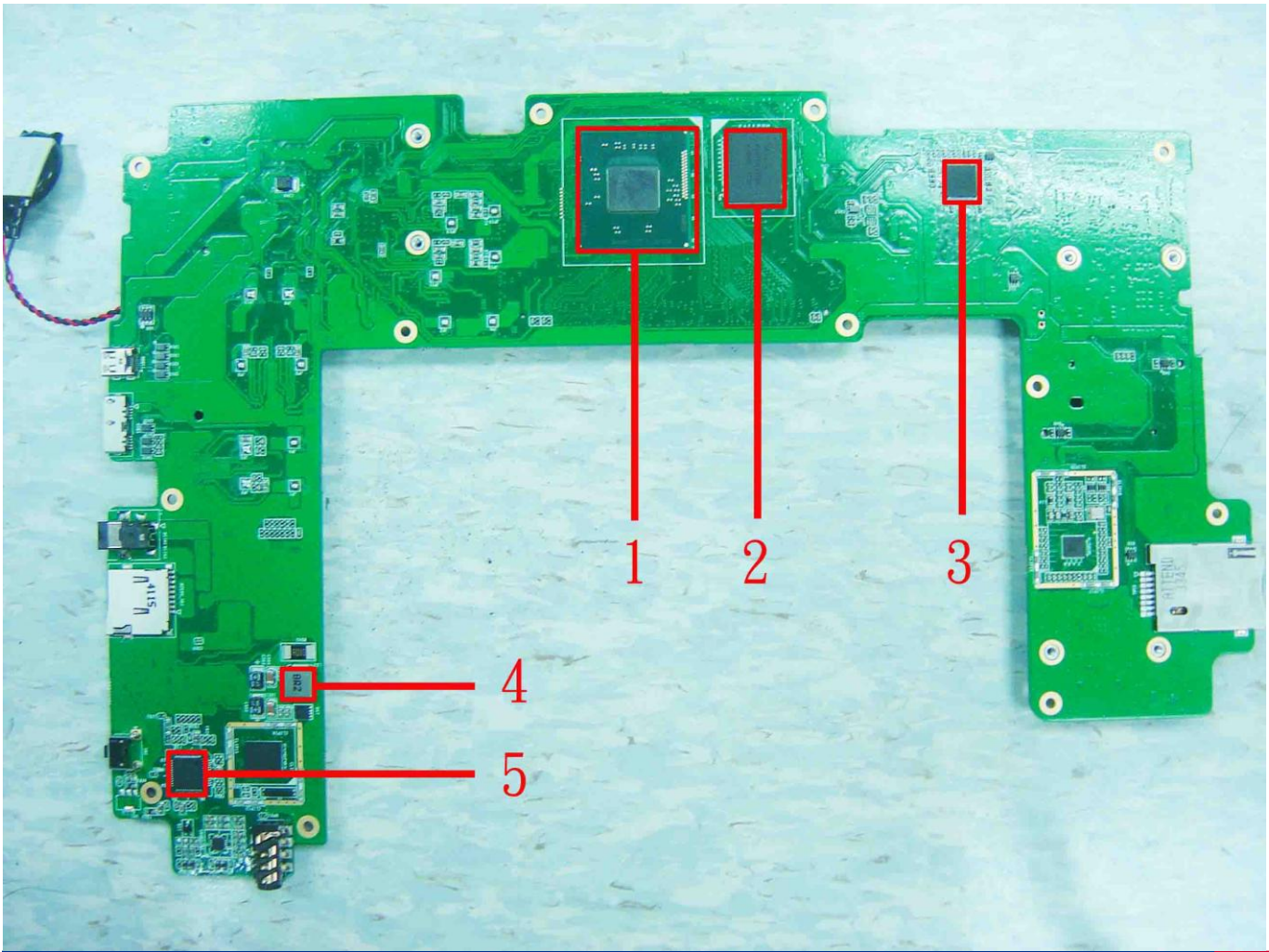
Ambient temperature: 35℃
Continuous running till thermal stability (within less than 1℃)

Test Software:

Windows Embedded 8.1 / Run PassMark Burn In Test 7.0 Pro

Terminal Recorder:

Measuring Thermal Couple Position：



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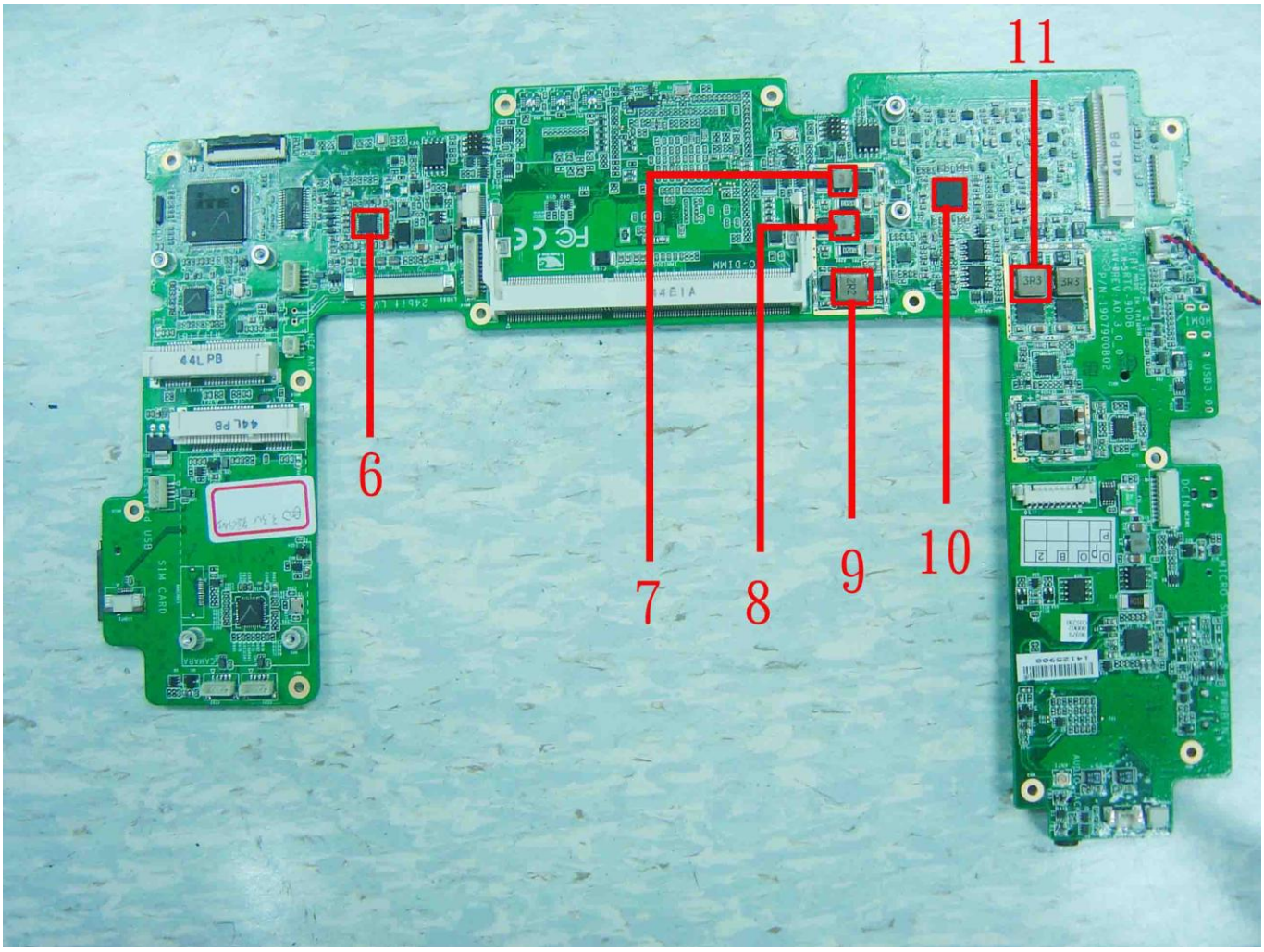

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Thermal profile data:

RTC-900B

Point	Position	Describe	Tc (*1) (℃)	Tm (*2) Measured Under 35.0℃	Note
1	U71	INTEL CPU.VALLEYVIEW MOBILE.BGA1170P	110	83	
2	U73	IC.eMMC Flash.16GB.3.3V.FBGA 169P.12x16x1mm.SMD.Hynix.H26M52003EQR	85	68	
3	U72	IC Display Port to LVDS Converter.QFN 56 Pin SMD NXP.PTN3460BS	85	67.9	
4	U75	COIL.8.2uH.DCR=64mohm.Idc=4Amp.20%.SMD.7.1*6.6*3.0mm.Zenithtek.ZPWM-6030M-8R2M	125	70.2	
5	U72	IC.7.1+2 Channel High Definition.Audio Codec.LQFP 48P.SMD.REALTEK.ALC892-CG	85	72.0	
6	L13	IC.TFT LCD Power Controller.QFN 24P.SMD.TI.TPS65150RGE	85	59.3	
7	U62	COIL.0.56uH.DCR=12.8mohm.Idc=7A.20%.SMD.4.7x4.0x2.0mm. ZenithTek.ZPWM-4020MP-R56	125	77.6	
8	U31	COIL.0.56uH.DCR=12.8mohm.Idc=7A.20%.SMD.4.7x4.0x2.0mm. ZenithTek.ZPWM-4020MP-R56	125	75.5	
9	L11	COIL.2.2uH.20%.SMD.7.1x6.6x3.0mm.DCR=18mohm.Idc=8Amp. ZenithTek.ZPWM-6030M-2R2M	125	68.9	
10	L8	IC.Dual-Channel.SVID.D-CAP+.IMVP-7 VCORE.QFN 48P.SMD.TI.TPS59641RSLTR	125	65.2	
11	L5	COIL.3.3uH.20%.SMD.7.1x6.6x3.0mm.DCR=28m ohm Idc=6Amp ZenithTek.ZPWM-6030M-3R3M	125	68.8	
12		DDR3L-1600 4GB 204pin SO-DIMM	85	71.4	
13		Ta (near 3G module)		51.2	
14		Ta (near WIFI module)		58.5	
15		Ta (near mSATA)		62.6	
16		Battery-1		47.5	
17		Battery-2		47.3	

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.

Sample Configuration & Quantity Under Test:

Quantity: 1 (RTC-900B)

Test Result:

No issues were found during the temperature rise operation test.

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High temperature storage test

Test Date: 11-03 ~ 10-2014

Test Product: RTC-900B

Test Site: AAEON QE Dept.

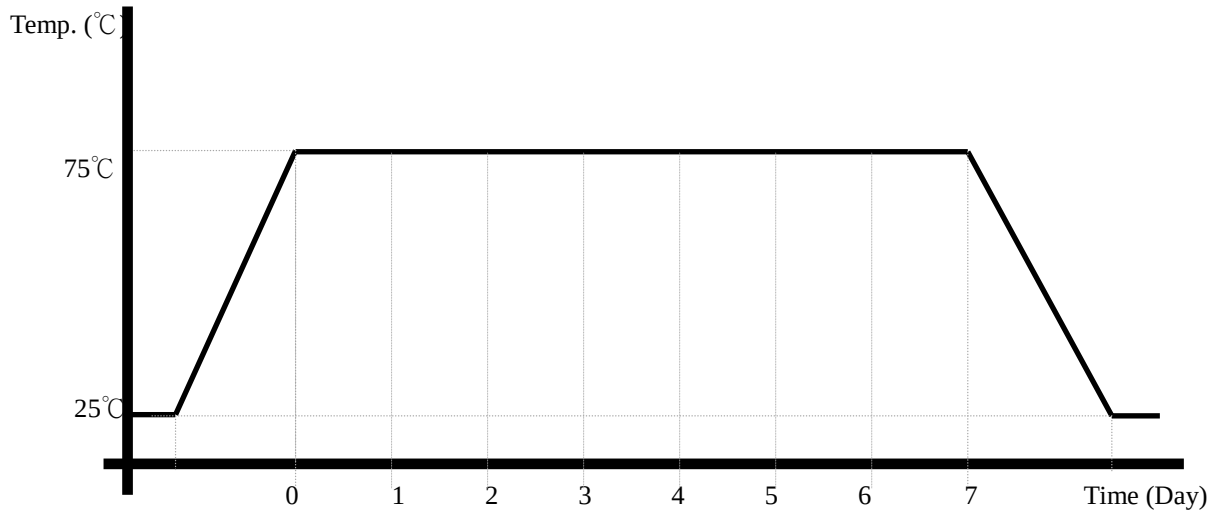
Test Standard: Refer to MIL-STD 810G Method 501.5 High Temperature
Procedure I - Storage

Test Equipment:

Programmable Temperature & Humidity Chamber (K.SON. INS. TECH. CORP.)
Model: THS-B6T-150+LN2
Date of Calibration: 09/01/14
Serial Number: 9095KT

Testing Item:

1. Test Temperature: 75℃
2. Test Time: 7days
3. Test Environment Curve:



Sample Configuration & Quantity Under Test:

Quantity: 1 (RTC-900B)

Test Result:

No issues were found after the high temperature storage test.

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High temperature operation test

Test Date: 11-11 ~ 16-2014

Test Product: RTC-900B

Test Site: AAEON QE Dept.

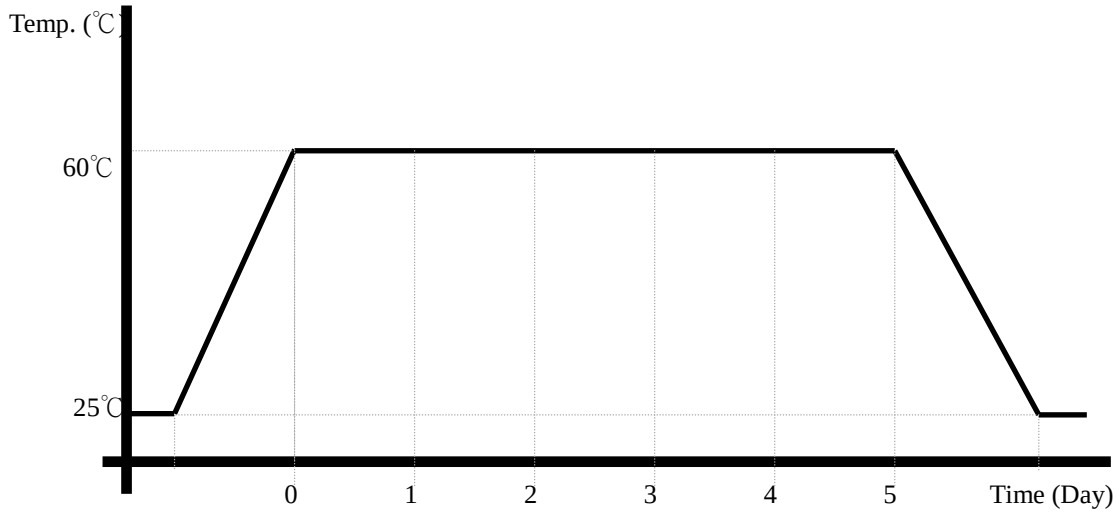
Test Standard: Refer to MIL-STD 810G Method 501.5 High Temperature
Procedure II - Operation

Test Equipment:

Programmable Temperature & Humidity Chamber (K.SON. INS. TECH. CORP.)
Model: THS-B6T-150+LN2
Date of Calibration: 09/01/14
Serial Number: 9095KT

Testing Item:

4. Test Temperature: 60℃
5. Test Time: 5days
6. Test Software: Windows Embedded 8.1 / Run PassMark Burn In Test 7.0 Pro
7. Test Environment Curve:



Sample Configuration & Quantity Under Test:
Quantity: 1 (RTC-900B)

Test Result:
No issues were found during the high temperature operation test.

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Low temperature storage test

Test Date: 11-17~18-2014

Test Product: RTC-900B

Test Site: AAEON QE Dept.

Test Standard: Refer to MIL-STD 810G Method 502.5 Low Temperature
Procedure I - Storage

Test Equipment:

Programmable Temperature & Humidity Chamber (K.SON. INS. TECH. CORP.)
Model: THS-B6T-150+LN2
Date of Calibration: 09/01/14
Serial Number: 9095KT

Testing Item:

1. Test Temperature: -55℃
2. Test Times: 24Hrs
3. Test Environment Curve:

Sample Configuration & Quantity Under Test:
Quantity: 1 (RTC-900B)

Test Result:
No issues were found after the low temperature storage test.

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Low temperature operation test

Test Date: 11-18~19-2014

Test Product: RTC-900B

Test Site: AAEON QE Dept.

Test Standard: Refer to MIL-STD 810G Method 502.5 High Temperature
Procedure II - Operation

Test Equipment:

Programmable Temperature & Humidity Chamber (K.SON. INS. TECH. CORP.)
Model: THS-B6T-150+LN2
Date of Calibration: 09/01/14
Serial Number: 9095KT

Testing Item:

1. Test Temperature: -23℃
2. Test Times: 24Hrs
3. Test Software: Windows Embedded 8.1 / Run PassMark Burn In Test 7.0 Pro
4. Test Environment Curve:

Sample Configuration & Quantity Under Test:

Quantity: 1 (RTC-900B)

Test Result:

No issues were found during the low temperature operation test.

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Humidity test

Test Date: 11-20~21-2014

Test Product: RTC-900B

Test Site: AAEON QE Dept.

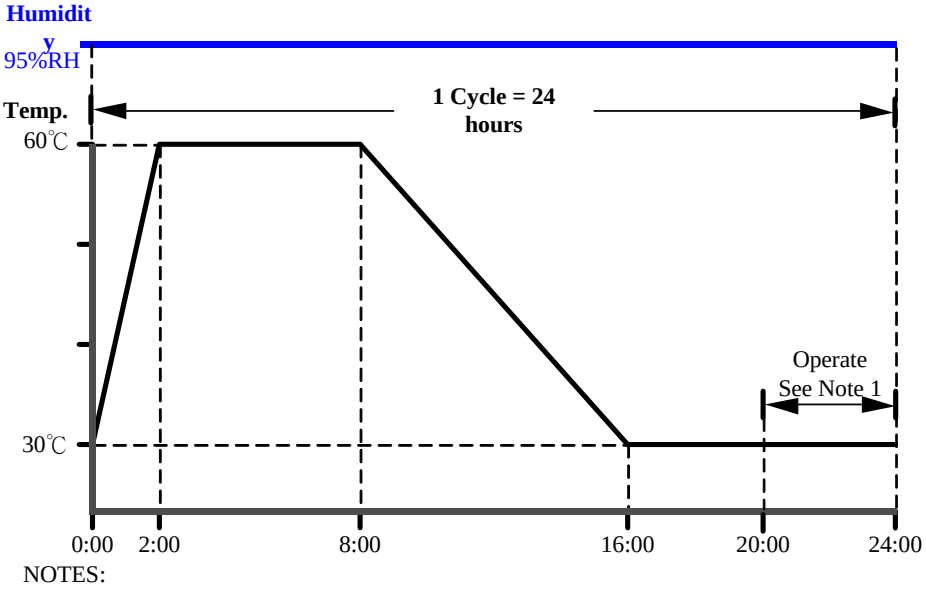
Test Standard: Refer to MIL-STD 810G Method 507.5 Testing
Procedures II – Aggravated Cycle (FIGURE 507.5-7)

Test Equipment:

Programmable Temperature & Humidity Chamber (K.SON. INS. TECH. CORP.)
Model: THS-B6T-150+LN2
Date of Calibration: 09/01/14
Serial Number: 9095KT

Test Condition:

1. Test Humidity: 95%RH
2. Test Temperature: 60℃ / 30℃
3. Test Times: 24Hrs / Cycle
4. Test Cycle: 5 Cycles
5. Test Environment Curve:



NOTES:
1. Perform operational checks near the end of the fifth cycles.

Sample Configuration & Quantity Under Test:
Quantity: 1 (RTC-900B)

Test Result:
No issues were found after the humidity storage test.

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Temperature shock operation test

Test Date: 11-24~25-2014

Test Product: RTC-900B

Test Site: AAEON QE Dept.

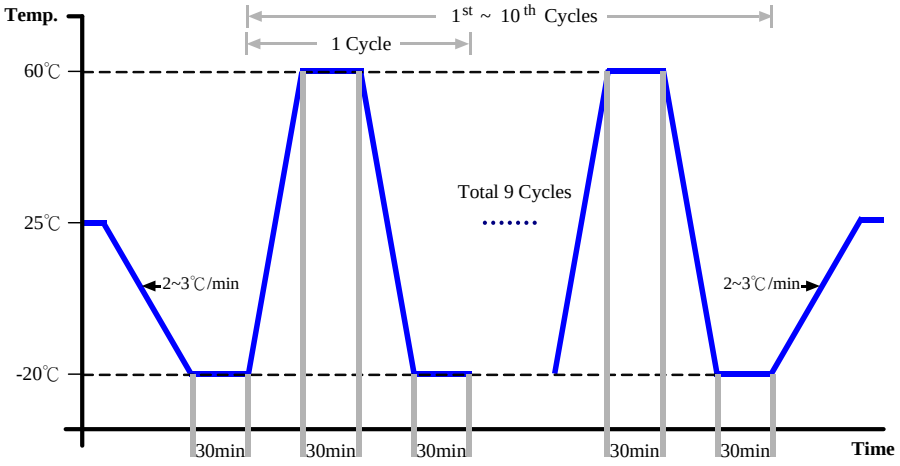
Test Standard: Refer to MIL-STD 810G Method 503.5 Temperature Shock
Procedure I - Shock from constant extreme temperatures

Test Equipment:

Programmable Temperature & Humidity Chamber (K.SON. INS. TECH. CORP.)
Model: THS-B6T-150+LN2
Date of Calibration: 09/01/14
Serial Number: 9095KT

Test Condition:

1. Test Low Temperature: -20℃
2. Test High Temperature: 60℃
3. Test dwell time: 30min
4. Temperature slope: 5 min
5. Test cycle: 10 cycles
6. Test Software: Windows Embedded 8.1 / Run PassMark Burn In Test 7.0 Pro
7. Test Environment Curve:



Sample Configuration & Quantity Under Test:

Quantity: 1 (RTC-900B)

Test Result:

No issues were found during the variation temperature operation test.

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Temperature shock non-operation test

Test Date: 11-25~27-2014

Test Product: RTC-900B

Test Site: AAEON QE Dept.

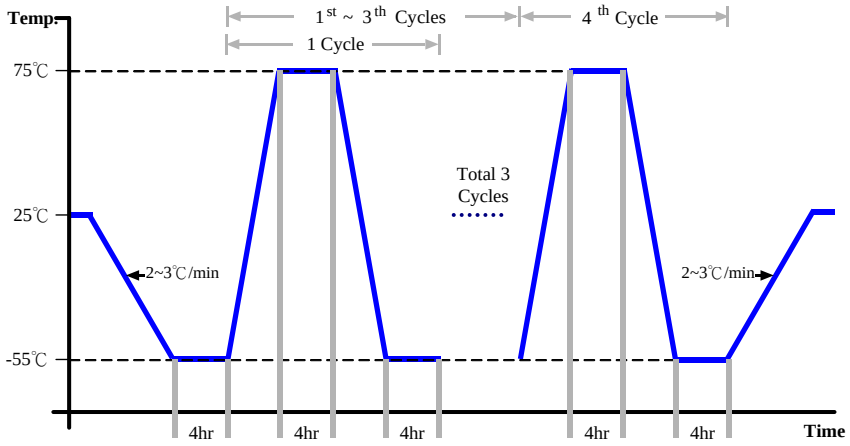
Test Standard: Refer to MIL-STD 810G Method 503.5 Temperature Shock
Procedure I - Shock from constant extreme temperatures

Test Equipment:

Programmable Temperature & Humidity Chamber (K.SON. INS. TECH. CORP.)
Model: THS-B6T-150+LN2
Date of Calibration: 09/01/14
Serial Number: 9095KT

Test Condition:

1. Test Low Temperature: -55℃
2. Test High Temperature: 75℃
3. Test dwell time: 4Hrs
4. Temperature slope: 10 min
5. Test cycle: 4 cycles
6. Test Environment Curve:



Sample Configuration & Quantity Under Test:

Quantity: 1 (RTC-900B)

Test Result:

No issues were found after the variation temperature non-operation test.

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Cold start and hot start test

Test Date: 11-27~28-2014

Test Product: RTC-900B

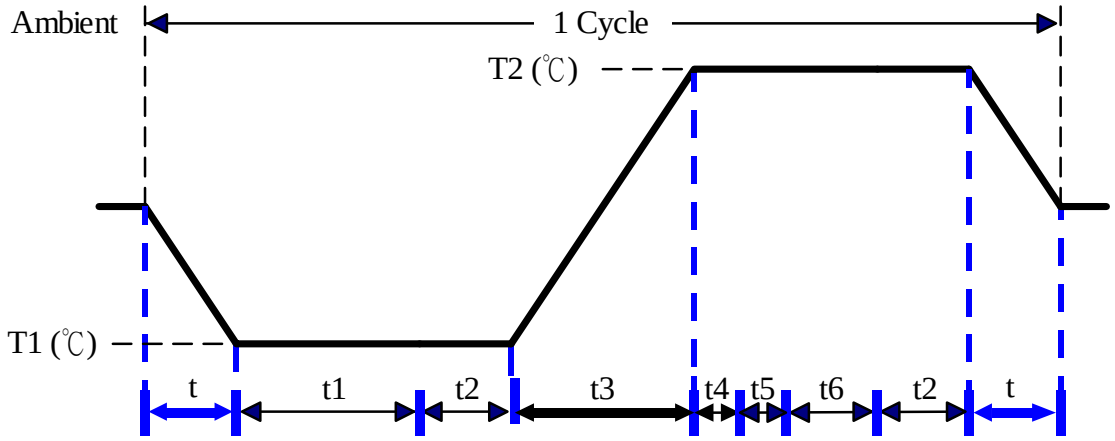
Test Site: AAEON QE Dept.

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: 09/01/14
Serial Number: 9095KT

Test Condition:



Parameters	Description
T1	-5℃
T2	45℃
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 8.1 Software restart test 3 times
Test Software:Windows 8.1

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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