OMNI-2155

Environment Test Report

Report NO: 15P020015

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:** **1. There are 3 component temperature was estimated to be in marginal temperature point in comparison with component datasheet.** **2. There are 1 component in the absence of Tc and Tj specification, So we are unable to determine.** **3. We found LAN error for run Burn In Test with PAA LAN module, When Burn In Test with LAN performance is set on 100%. Therefore, We changed the original LAN performance 100% to 99% and then run Burn In Test can be to get LAN pass.**

Issue date	Approval	Test Engineer
2015-07-09	**KJ Wang**	**Jerry Chen**

Test item list

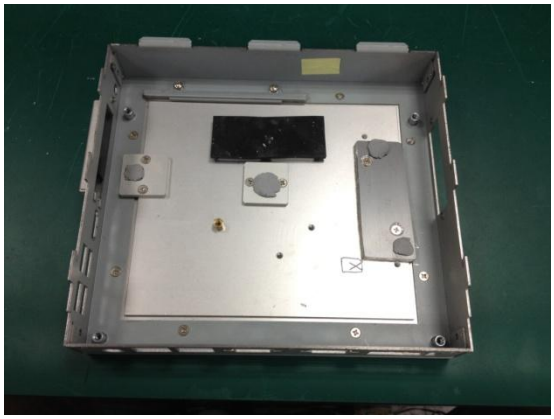
Testing Result

Num	Test item list	Result	Remark
1	Temperature rise test	Pass	
	Temp./humidity power on/off 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	

Configuration of EUT

Num	Item	Device Information
1.	Model Name	OMNI-2155
2.	LCD	15.6”, TFT LCD 1366x768, LED backlight / AUO / Panel Model: G156XW01V1 NEW EC.
3.	M/B Name	PBA-BT03 A0.2
4.	CPU	Intel Celeron® J1900 1.99GHz
5.	BIOS / Version	OMNI-2155 R0.4 (02F5BM04) (05/19/2015) X64
6.	Memory Type	MEMPHIS / ISODIM D3L-1600 8GB (IM / IM4G08D3F / ABG-1251TW)
7.	SATA HDD	Toshiba MK1060GSC 100GB
8.	USB Flash	Apacer 4GB (For DOS Mode Power On/Off Test)
9.	Test Software	Windows 8 / Run PassMark Burn In Test 8.0 Pro
10.	Adapter	FSP / FSP120-AAB / 19V 6.32A

Photos



Temperature rise test

Test Date: 07-10-2015

Test Product: OMNI-2155

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

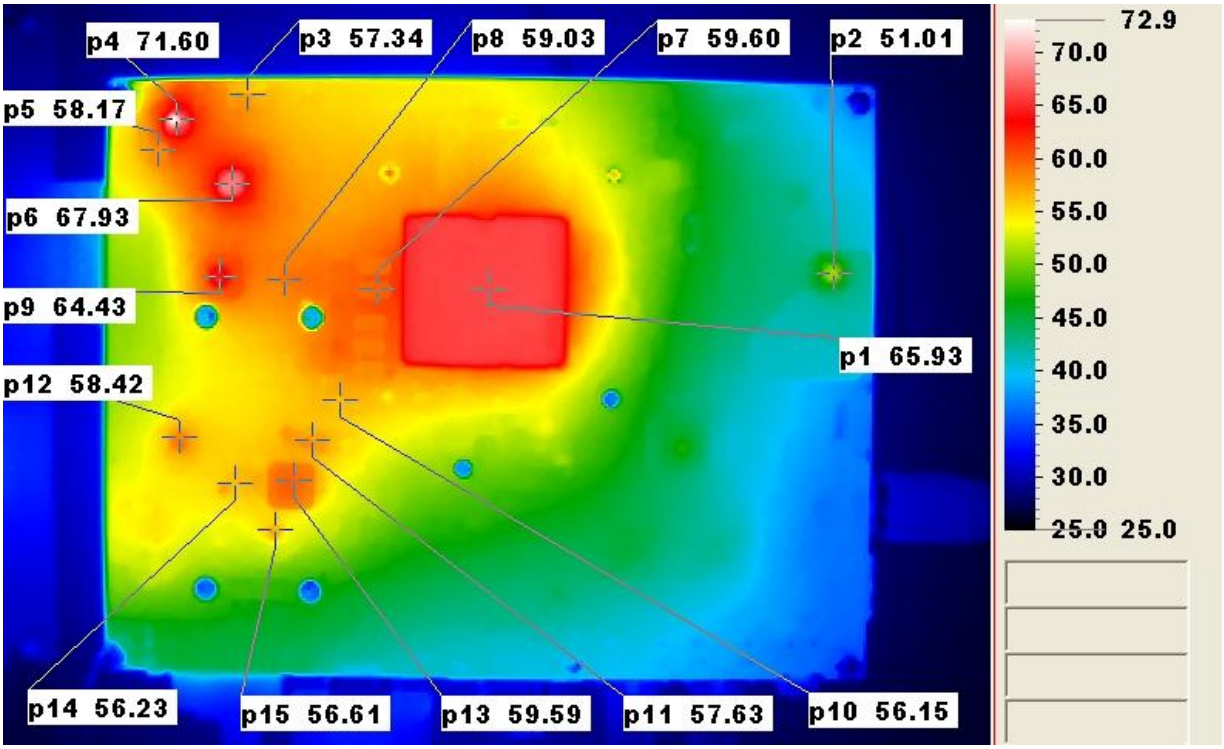
Test Condition:

Ambient temperature: 55℃
Continuous running till thermal stable (within less than 1℃)
with 0.5 m/s airflow

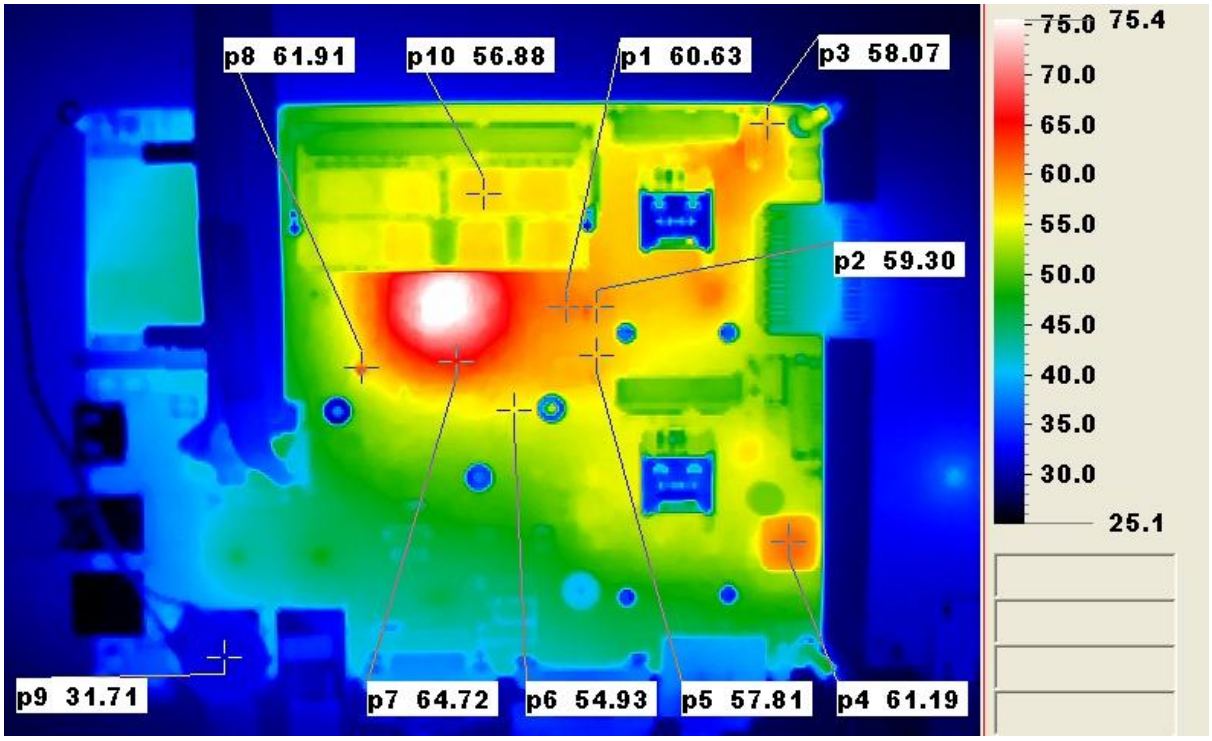
Test Software:

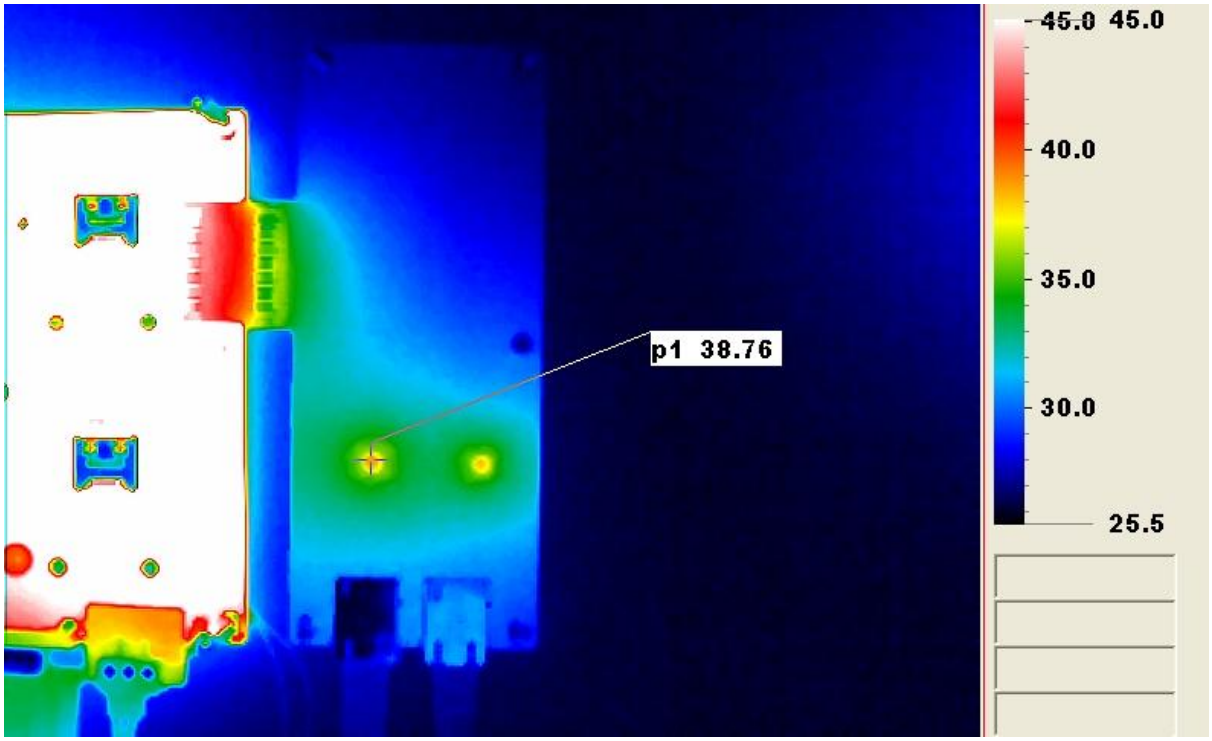
Windows 8 / Run PassMark Burn In Test 8.0 Pro

Terminal Recorder:

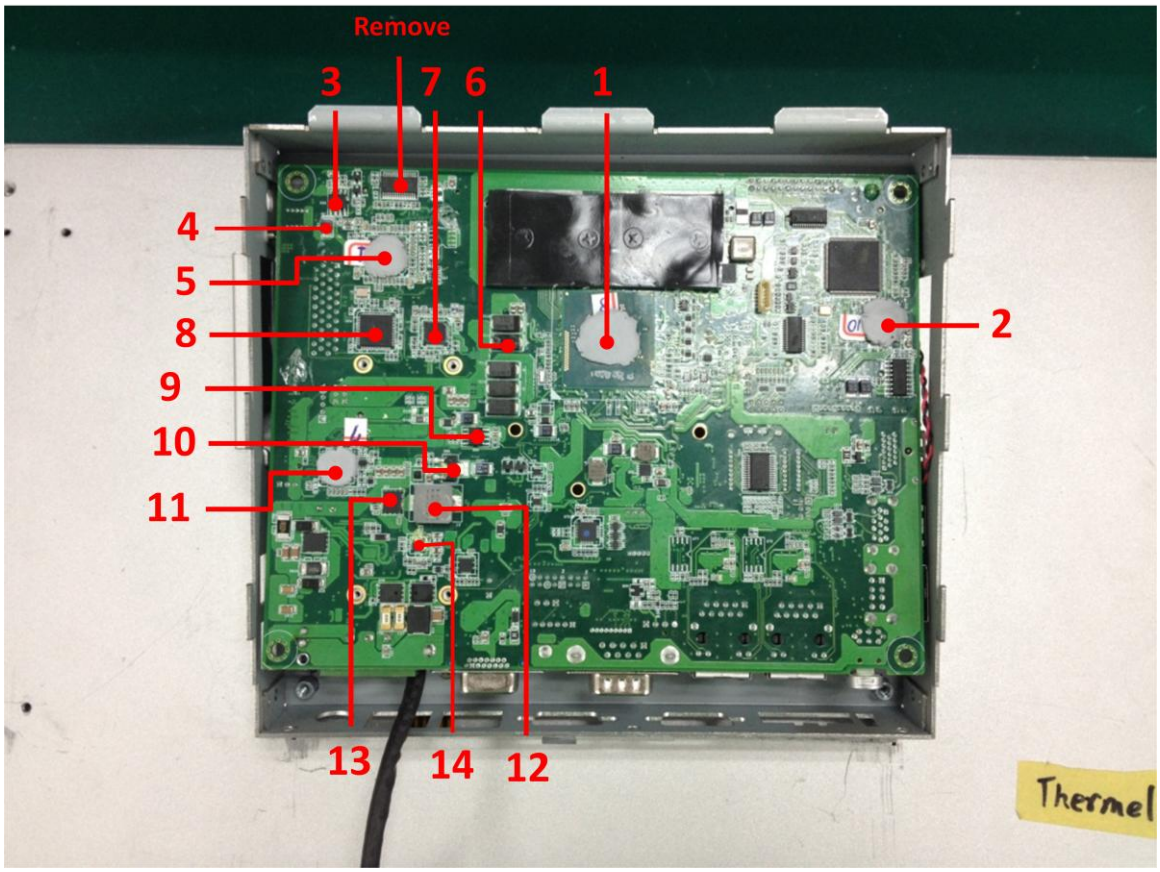


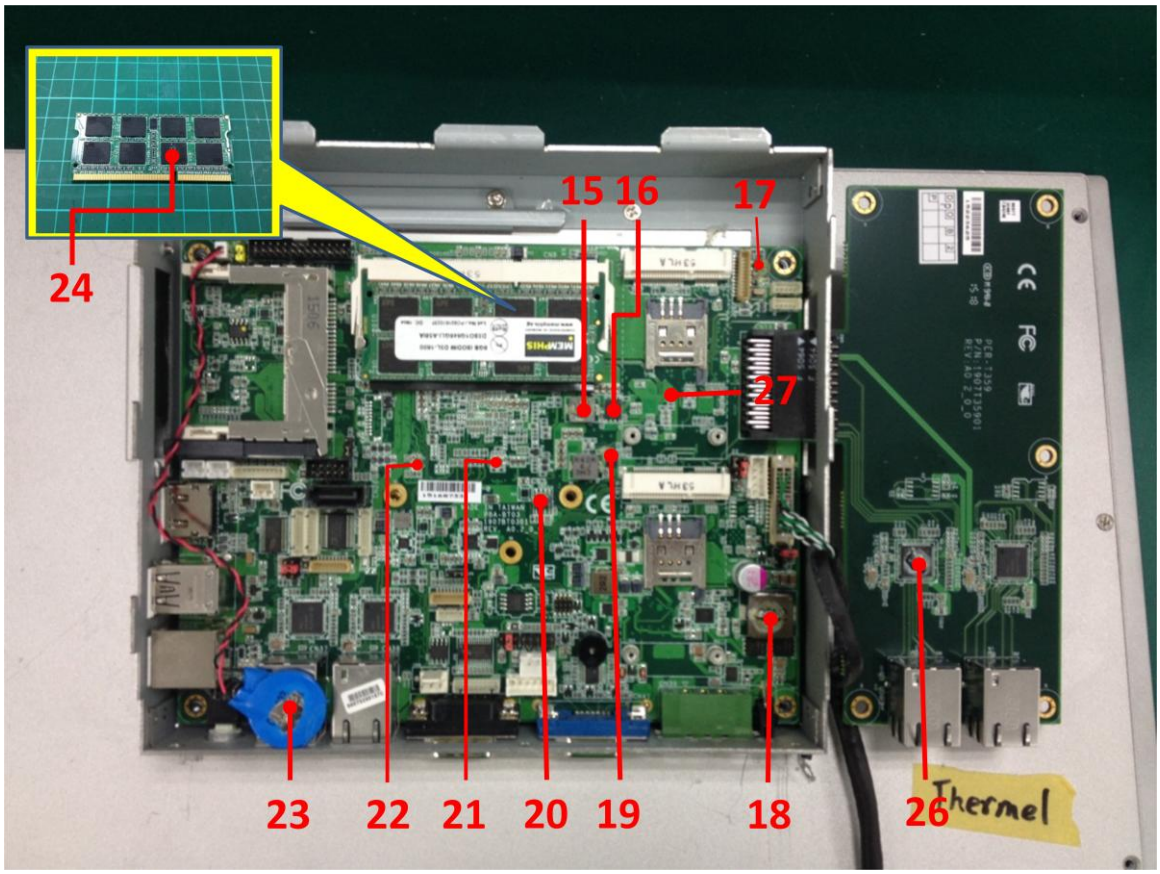
Temperature rise test



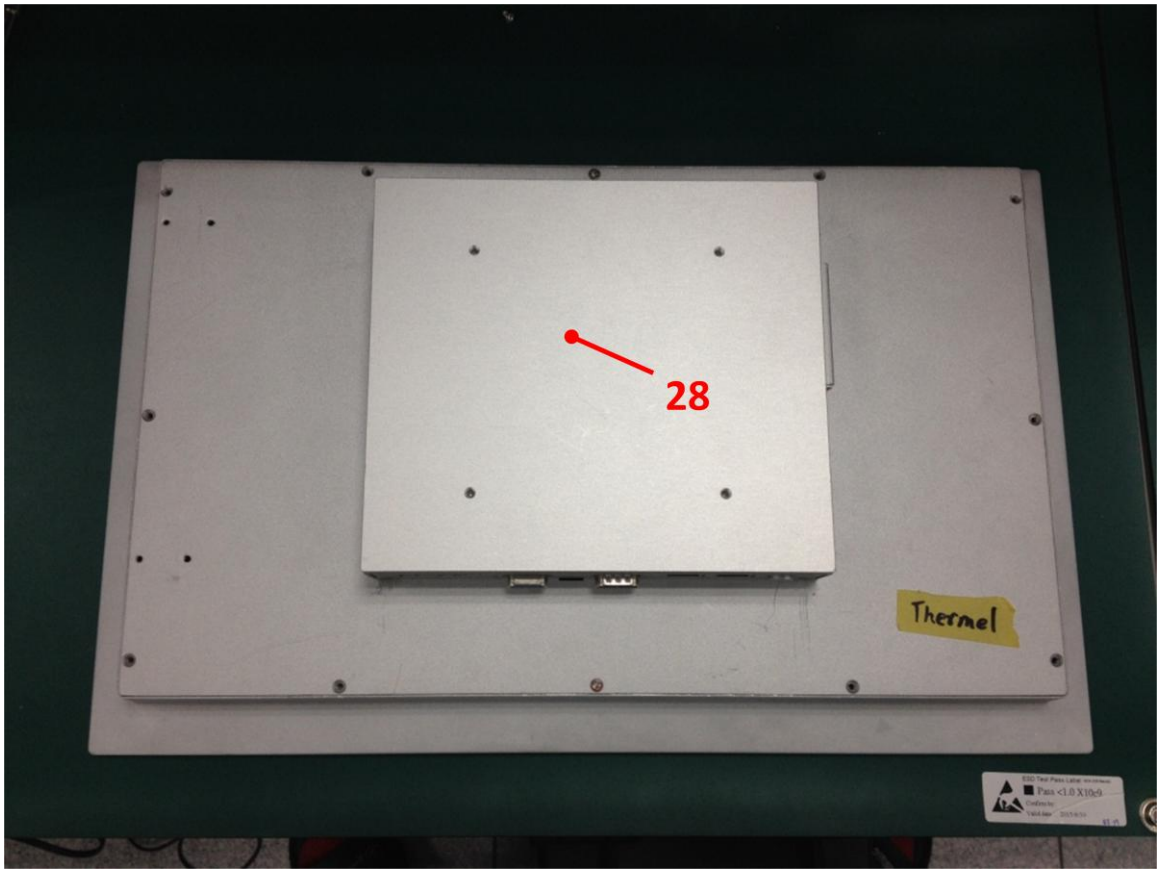


Temperature rise test





Temperature rise test



Temperature rise test

Thermal profile data:

Point \ Temp. Stage(℃)	Spec	25	55	Note
PBA-BT03 A0.2				
01.U56 - CPU – Intel Celeron J1900 1.99GHz	105	58.5	88.5	
02.U52 - IC.Channel High Definition.Audio Codec.LQFP 48P..REALTEK.ALC892-CG	N/A	40.8	70.8	**Note 4**
03.U39 - IC.LDO Linear Regulator.0.23V.2A.SOP-8.RICHTEK.RT9025-25PSP	125	71.4	101.4	
04.C462 - CAP.100uF.6.3V.20%.45mOhm.NEC-TOKIN.TEPSLB20J107M(45)8R	105	59.4	89.4	
05.U43 - IC.PCIe-2.0 4port Switch.QFN-64P.ASMEDIA.ASM1184e	95	44.4	74.4	
06.TC11 - SP CAP.330uF.2.5V.+10/-35%.9mohm.3000mA.Panasonic.EEFSX0E331EY	105	57	87	
07.U55 - IC.Dual-Channel.SVID.D-CAP+.IMVP-7 VCORE.QFN.TI.TPS59641RSLTR	100	58.2	88.2	
08.U54 - IC.USB2.0 7-PORT HUB CONTROLLER.QFN 64.SMSC.USB2517i-JZX	100	67.1	97.1	**Note 3**
09.U64 - IC.LDO Linear Regulator.0.23V.2A.SOP-8.RICHTEK.RT9025-25PSP	125	54.2	84.2	
10.U68 - REG.1A Adjustable Linear Regulator. SOT223.Diodes.AP1117EL-13	125	59.8	89.8	
11.U67 - IC.Display Port to LVDS Converter.QFN 56 Pin.NXP.PTN3460BS	80	42.5	72.5	
12.L9 - COIL.1.5uH.DCR=3.8mohm.Irms=16Amp.CYNTEC.PCMB104T-1R5MS	125	59.1	89.1	
13.Q62 - N-MOSFET.Vgs20V.Ids=12A/18A.DFN8.ON.NTMFD4C50NT1G	125	60.9	90.9	
14.U76 - IC.Wide Input Voltage.Single Synchronous Step-Down.TI.TPS53219ARGTR	125	60.3	90.3	
15.L1 - COIL.0.42uH.DCR=1.5mohm.Irms=17Amp.Panasonic.ETQP4LR42AFM	130	61.8	91.8	
16.Q9 - PWR.DUAL.N-MOSFET.PQFN8.FAIRCHILD.FDMS3664S	125	60.8	90.8	
17.U1 - PWR.SOT-235.2.High-Side Switches with Flag.RICHTEK.RT9715AGBR	125	61.1	91.1	
18.L5 - COIL.2.2uH.DCR=4.6mΩ IDC=20A.ZenithTek.ZPWM-1250M-2R2M	125	70	100	
19.U10 - IC.Synchronous Buck NexFETTM.SON 8P.Power Stage.TI.CSD97374Q4M	125	59.2	89.2	
20.U14 - IC.LDO Linear Regulator.0.23V.2A.SOP-8.RICHTEK.RT9025-25PSP	125	49.9	79.9	
21.Y1 - X'TAL.25MHz.4P.20PF.30ppm.ECERA.FL2500039	85	51.4	81.4	**Note 3**
22.U11 - IC.LDO Regulator.500mA.SOT23-5 5P.UPI.UP0107BMA5-00	125	56.6	86.6	
23.M1 - BATTERY.Li.3V.210mAh.MAXELL.Battery Power.BP-CR2032-M150-002	85	34.5	64.5	
24.RAM / MEMPHIS / ISODIM D3L-1600 8GB (IM / IM4G08D3F / ABG-1251TW)	95	51.4	81.4	
25.HDD / Toshiba MK1060GSC 100GB	85	51.3	81.3	**Note 3**
LAN Module PER-T359 A0.2				
26.U31 - LAN Module / IC.PCI-E GigaBit Ethernet Chipset.QFN 64P.Intel.WGI211AT	85	43.1	73.1	
27. Control Box Inside Air Temperature	N/A	46.1	76.1	
28. Control Box External Surface Temperature	N/A	37.9	67.9	
29. Chamber Air Temperature	N/A	25	55	

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 plus margin.
- **Margin** : Tc > Tm > Tc-5℃; The measured value is within specification with margin.

For FANLESS system application, 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. **P141110QED02**

Sample Configuration & Quantity Under Test:

Quantity: 1 (OMNI-2155)

Test Result:

No issues were found during the temperature rise operation test.

Temp./humidity power on/off test

Test Date: 06-29 ~ 30-2015

Test Site: AAEON QE Dept.

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

Test Equipment:

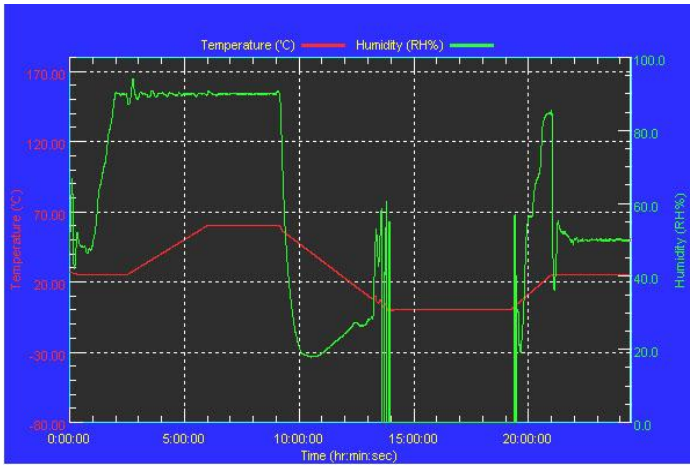
Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)
Model: THS-D7TS-100+LN2
Date of Calibration: 09/11/14
Serial Number: A0004

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:

Test Method	Actual	Successful	Failure rate
Power On/Off	1130/times	1130/times	0 %
Note: Failure rate need to under 0%.			

Temperature cycle test

Test Date: 06-30 ~07-02-2015

Test Product: OMNI-2155

Test Site: AAEON QE Dept.

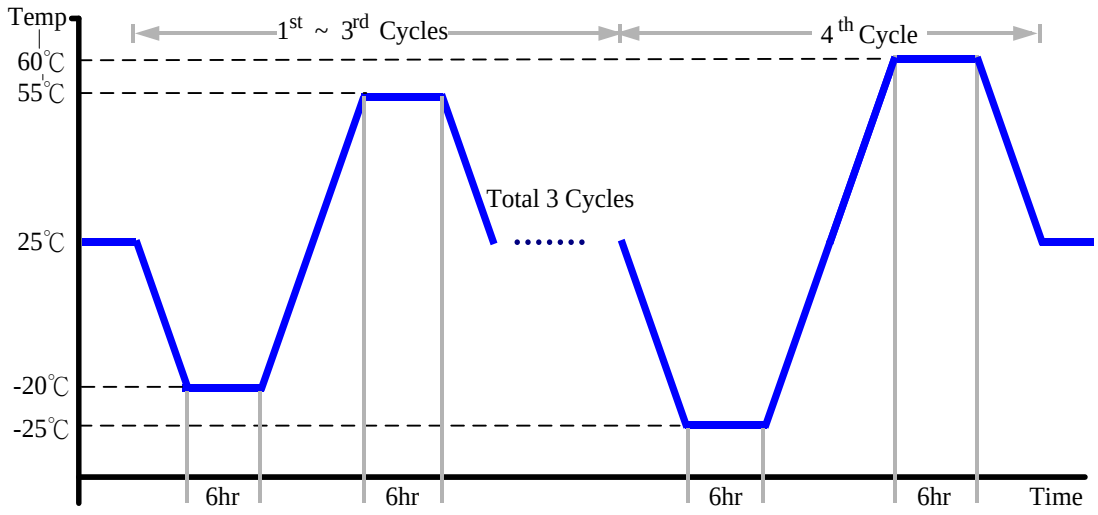
Test Standard: Refer to IEC68-2-14 Testing procedures
Test N: Change of temperature Test

Test Equipment:

Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)
Model: THS-D7TS-100+LN2
Date of Calibration: 09/11/'14
Serial Number: A0004

Test Condition:

1. Test Low Temperature: -20℃ (1~3 cycles)
   -25℃ (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 (OMNI-2155)

Test Result:

No issues were found during the temperature operation cycle test.

High temperature storage test

Test Date: 07-06~08-2015

Test Product: OMNI-2155

Test Site: AAEON QE Dept.

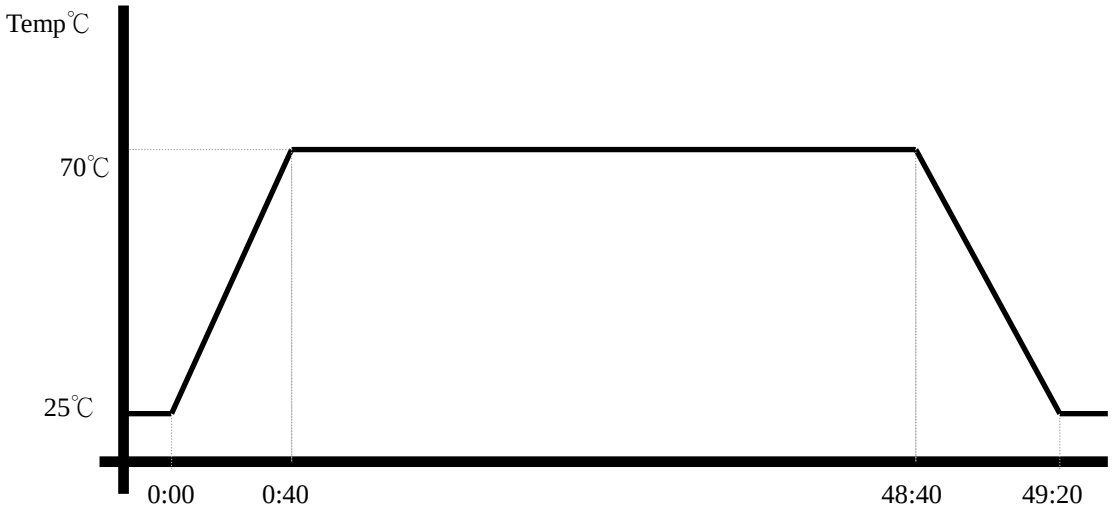
Test Standard: Refer to IEC 68-2-2 Testing procedures
Test Bb: Dry Heat Test (Non-operation)

Test Equipment:

Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)
Model: THS-D7TS-100+LN2
Date of Calibration: 09/11/'14
Serial Number: A0004

Testing Item:

1. Test Temperature: 70℃
2. Test Times: 48Hrs
3. Test Software: Windows 8 / Run PassMark Burn In Test 8.0 Pro
4. Test Environment Curve:



Sample Configuration & Quantity Under Test:
Quantity: 1 (OMNI-2155)

Test Result:

No issues were found after the high temperature storage test.

Low temperature storage test

Test Date: 07-03~06-2015

Test Product: OMNI-2155

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-D7TS-100+LN2
Date of Calibration: 09/11/'14
Serial Number: A0004

Testing Item:

1. Test Temperature: -20℃
2. Test Times: 48Hrs
3. Test Software: Windows 8 / Run PassMark Burn In Test 8.0 Pro
4. Test Environment Curve:

Sample Configuration & Quantity Under Test:
Quantity: 1 (OMNI-2155)

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

Humidity test

Test Date: 07-08~10-2015

Test Product: OMNI-2155

Test Site: AAEON QE Dept.

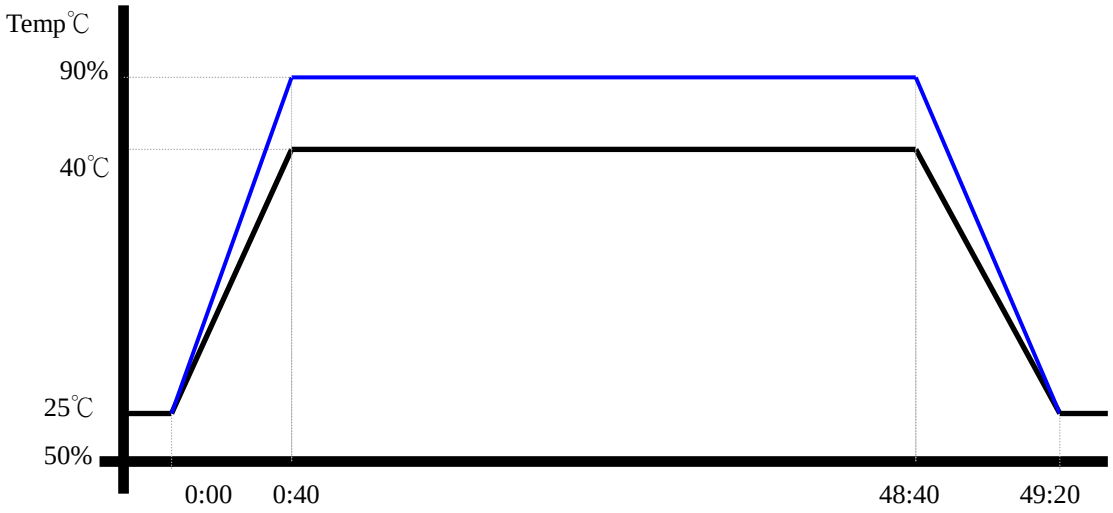
Test Standard: Refer to IEC 68-2-3 Testing procedures
Test Ca: Damp heat, steady state (Non-operation)

Test Equipment:
Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)
Model: THS-D7TS-100+LN2
Date of Calibration: 09/11/'14
Serial Number: A0004

Testing Item:

1. Test Temperature: 40℃
2. Test Humidity: 90%RH
3. Test Times: 48Hrs
4. Test Software: Windows 8 / Run PassMark Burn In Test 8.0 Pro
5. Test Environment Curve:

Humidity %



Sample Configuration & Quantity Under Test:
Quantity: 1 (OMNI-2155)

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

Cold start and hot start test

Test Date: 07-02~03-2015

Test Product: OMNI-2155

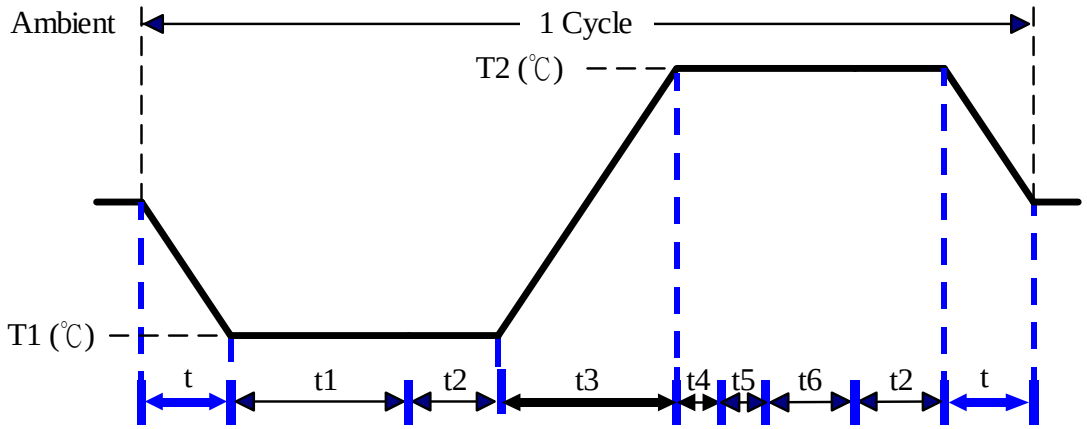
Test Site: AAEON QE Dept.

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-D7TS-100+LN2
Date of Calibration: 09/11/'14
Serial Number: A0004

Test Condition:



Parameters	Description
T1	-25℃
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 Burn In Test 7.1 Pro
t5: Win 8 Software restart test 3 times
Test Software: Windows 8

Test Result:

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

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