PER-C37L

Environment Test Report

Report NO: 13I020028

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	Issued by
2013-10-23	**Tom Lin**	**Juno Cheng**

Test item list

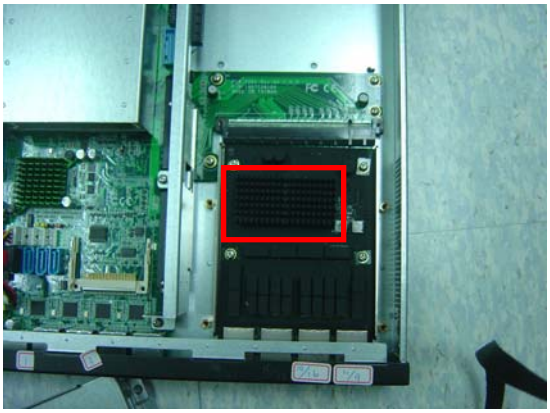
Testing Result

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	

Configuration of EUT

Num	Item	Spec
1.	**PCI-Express 1G Ethernet Module**	PER-C371L
2.	Host System:	FWS-7810
	1. Main board	FWB-7810 A1.0
	2. BIOS	FWS-7810 R0.B (FW78ATOB) (08/03/2013)
	3. CPU Type	Intel Xeon CPU E3-1275 V3
	4. Memory	DSL DDR3 1333 4GB CL9*4
	5. 3.5'' SATA HDD	Western Digital WD3200AAKX 3.5" 320GB
	7. Test Software	Windows 7 / Run BurnIn test 7.0 Pro
3.	Power Supply	FSP250-50LC

CPU Cooler



Temperature rise test

Test Date: 10-21～22-2013

Test Product: PER-C37L

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: 10/01/13
Serial Number: 12A323190

Test Condition:

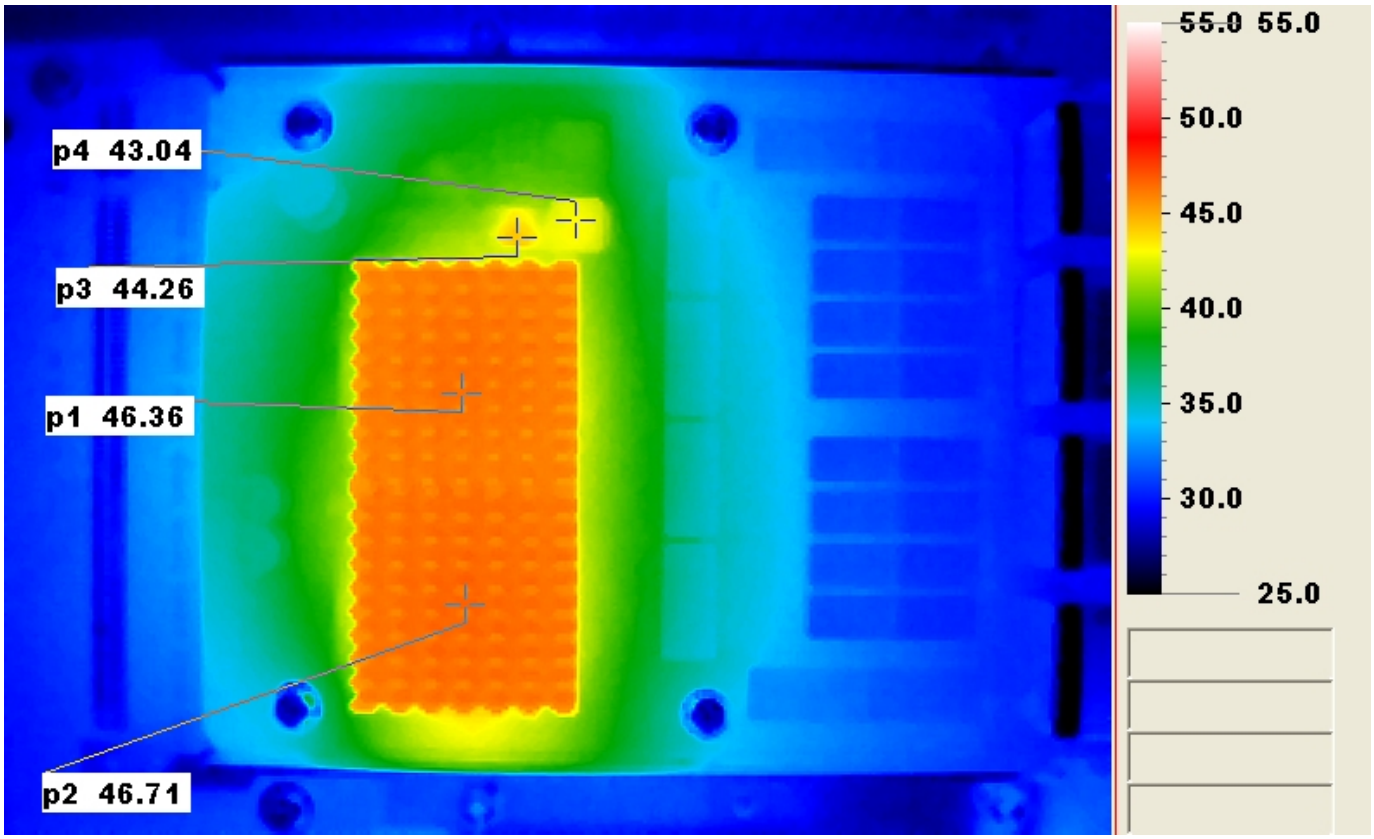
Ambient temperature: 40℃
Continuous running till thermal stability (within less than 1℃)

Test Software:

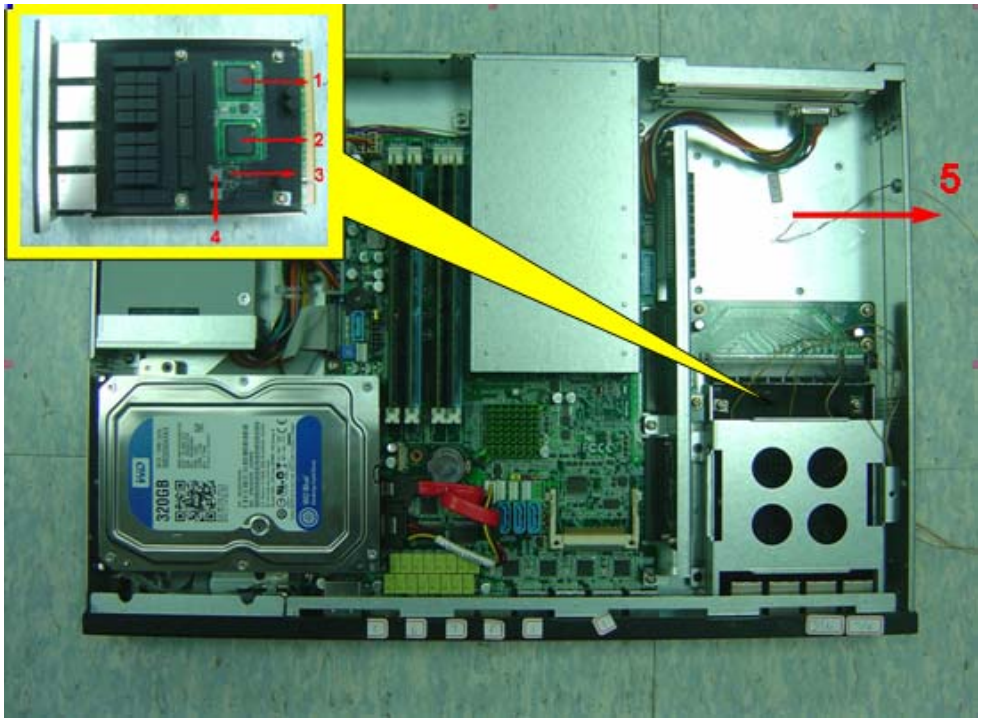
Windows 7 / Run PassMark Burn In Test 7.0 Pro

Terminal Recorder:

IR Thermal



Temperature rise test



Temperature rise test

Thermal profile data:

PER-C37L

Point \ Temp. Stage(℃)	Spec	40℃	25℃	Note
01. U11–(TF) PCI-E.GbE Controller.Qual Port.Intel.I350-AM4	85	53.9	38.9	
02. U12 – (TF) PCI-E.GbE Controller.Qual Port.Intel.I350-AM4	85	53.0	38.0	
03. Q22 - (TF)PWR. N-Ch Enhancement Mode. MOSFET.Sinopower.APM7334KC-TRG	150	51.9	36.9	
04. L34 (TF)COIL.3.3uH GOTREND.GSTC063P-3R3MN	125	50.7	35.7	
05. System inside air temperature	N/A	41.2	26.2	
06. Chamber Air Temperature	N/A	40.0	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.

Sample Configuration & Quantity Under Test:

Quantity: 1 (PER-C37L)

Test Result:

No issues were found during the temperature rise operation test.

Temperature cycle test

Test Date : 10-21 ~ 19-2013

Test Product : PER-C37L

Test Site: AAEON QE Dept.

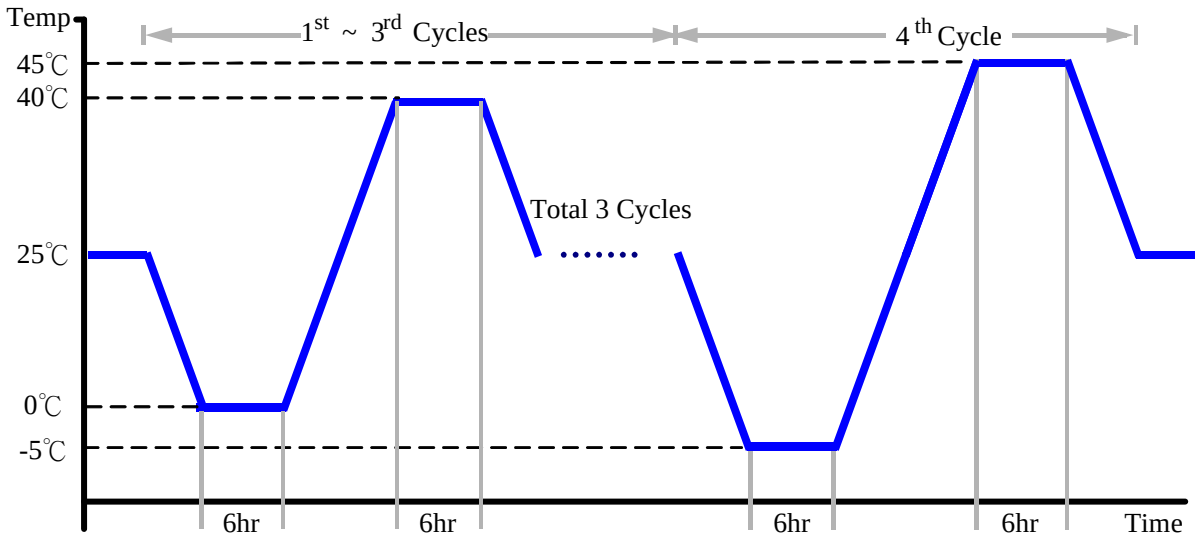
Test Standard: Refer to IEC68-2-14 Testing procedures
Test N: Change of temperature Test

Test Equipment:

Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)
Model: THS-D7S-100+1 N2
Date of Calibration: 09/16/'13
Serial Number: 3898

Test Condition:

1. Test Low Temperature: 0℃ (1~3 cycles)
   -5℃ (4^{th} cycle)
2. Test High Temperature: 40℃ (1~3 cycles)
   45℃ (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 (PER-C37L)

Test Result:

No issues were found during the temperature operation cycle test.

High temperature storage test

Test Date: 10-19 ~ 17-2013

Test Product: PER-C37L

Test Site: AAEON QE Dept.

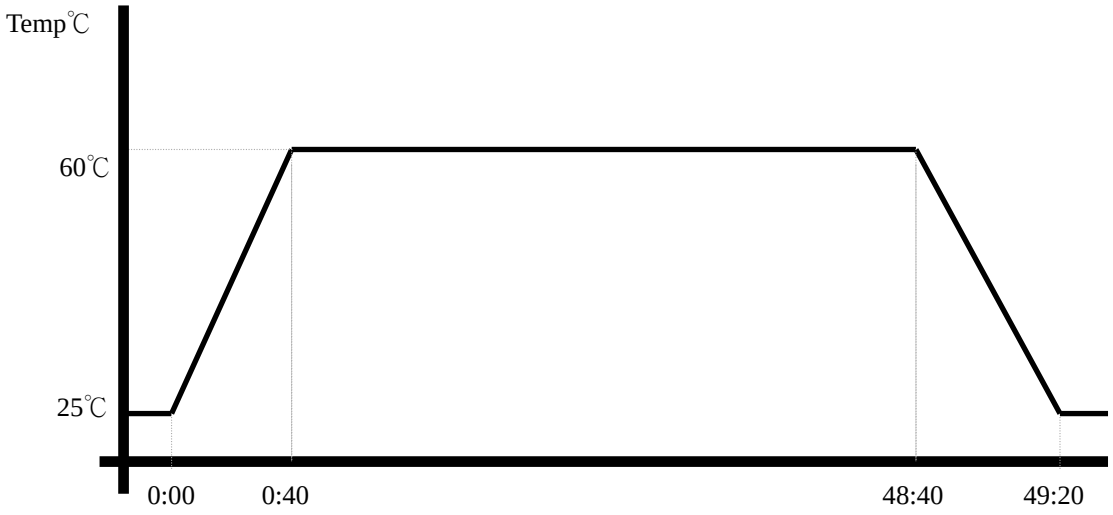
Test Standard: Refer to IEC 68-2-2 Testing procedures
Test Bb: Dry Heat Test (Non-operation)

Test Equipment:

Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)
Model: THS-D7S-100+1 N2
Date of Calibration: 09/16/'13
Serial Number: 3898

Testing Item:

1. Test Temperature: 60℃
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 (PER-C37L)

Test Result:

No issues were found after the high temperature storage test.

Low temperature storage test

Test Date: 10-17 ~ 16-2013

Test Product: FWS-7810

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-D7S-100+1 N2
Date of Calibration: 09/16/'13
Serial Number: 3898

Testing Item:

1. Test Temperature: -20℃
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 (PER-C37L)

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

Humidity test

Test Date: 10-16 ~ 14-2013

Test Product: PER-C37L

Test Site: AAEON QE Dept.

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

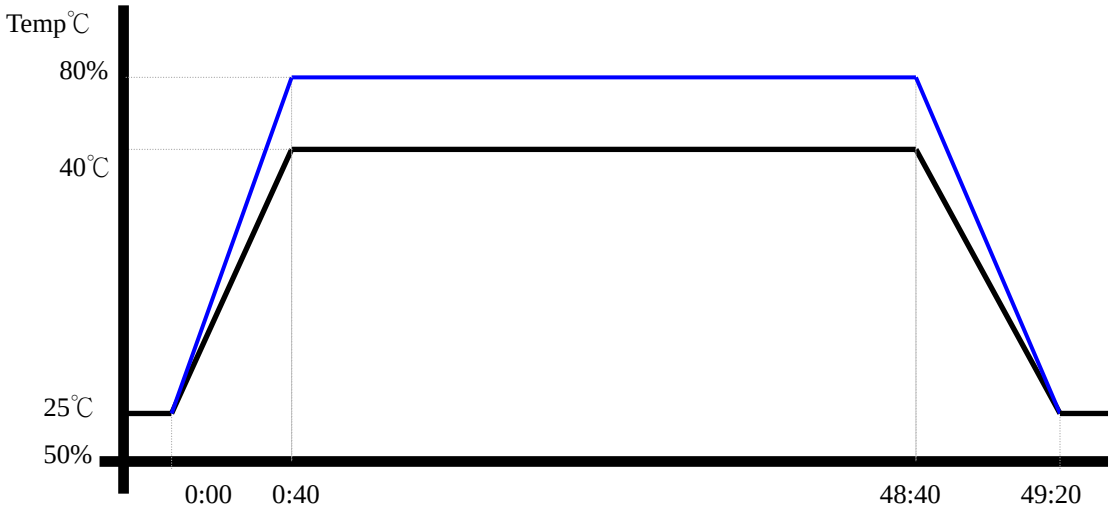
Test Equipment:

Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)
Model: THS-D7S-100+1 N2
Date of Calibration: 09/16/'13
Serial Number: 3898

Testing Item:

1. Test Temperature: 40℃
2. Test Humidity: 80%RH
3. Test Times: 48Hrs
4. Test Software: Windows 7 / Run PassMark Burn In Test 7.0 Pro
5. Test Environment Curve:

Humidity %



Sample Configuration & Quantity Under Test:

Quantity: 1 (PER-C37L)

Test Result:

No issues were found after the humidity storage test.

Cold start and hot start test

Test Date: 10-14~ 12-2013

Test Product: PER-C37L

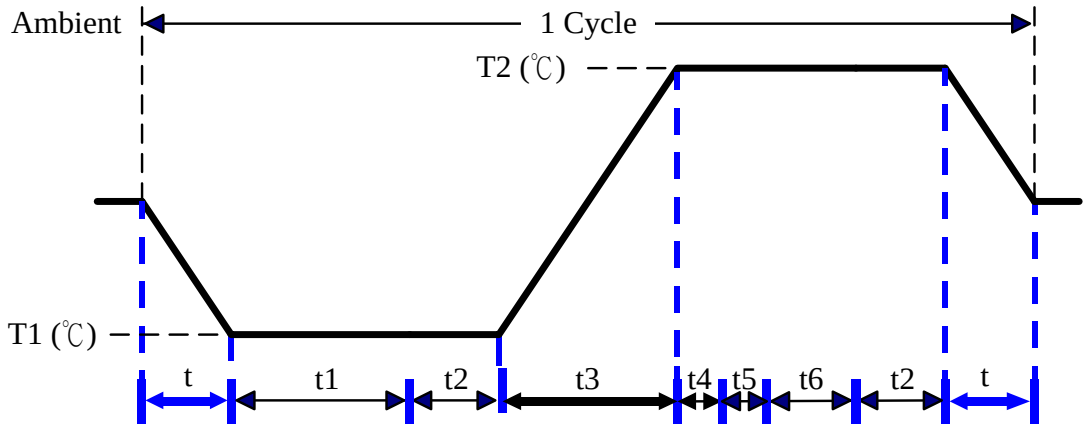
Test Site: AAEON QE Dept.

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-D7S-100+1 N2
Date of Calibration: 09/16/'13
Serial Number: 3898

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 burn in test 7.0
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.