ACP-1074

(CPU TYPE : J1900)

Environment Test Report

Report NO: 15P020021

Summary	☐ **Pass**
	☐ **Fail**
	☑ **Pass with Deviation**
	Comment: **Temperature at 1 component were estimated to be in marginal temperature point in comparison with component datasheets.**

Issue date	**Approval**	**Test Engineer**
2015-12-15	**KJ Wang**	**Rex / Juno**

Test item list

Testing Result

Num	Test item list	Result	Remark
1	High temperature operation 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	CPU	Intel® Celeron® Processor J1900(2M Cache, up to 2.42 GHz)
2	CPU Board	PBA-BT01
3	BIOS	ACP-1074 R0.1 (C174AM01) (10/02/2015)
4	Memory	Memphis 2GB.DDR3L-1600/IM4G16D3FABG / D3SO256M646GLI-E26IA
5	mSATA	Innodisk 3ME3 32GB DEMSM-32GD09SW1DC-26
6	Test Software	Windows 7 / Run PassMark Burn In Test 7.1 Pro

System Pictureure

High Temperature Operation test

Test Date: 12-14～15-2015

Test Product: ACP-1074

Test Site: AAEON QE Dept.

Test Standard:　　Refer to IEC 68-2-2 Testing procedures

　　　　　　　　　　Test Bd: Dry Heat Test (Operation)

**Test Equipment:**

　　　　　Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)

　　　　　Model: THS-D7S-100+1 N2

　　　　　Date of Calibration: 10/09/'15

　　　　　Serial Number: 3898
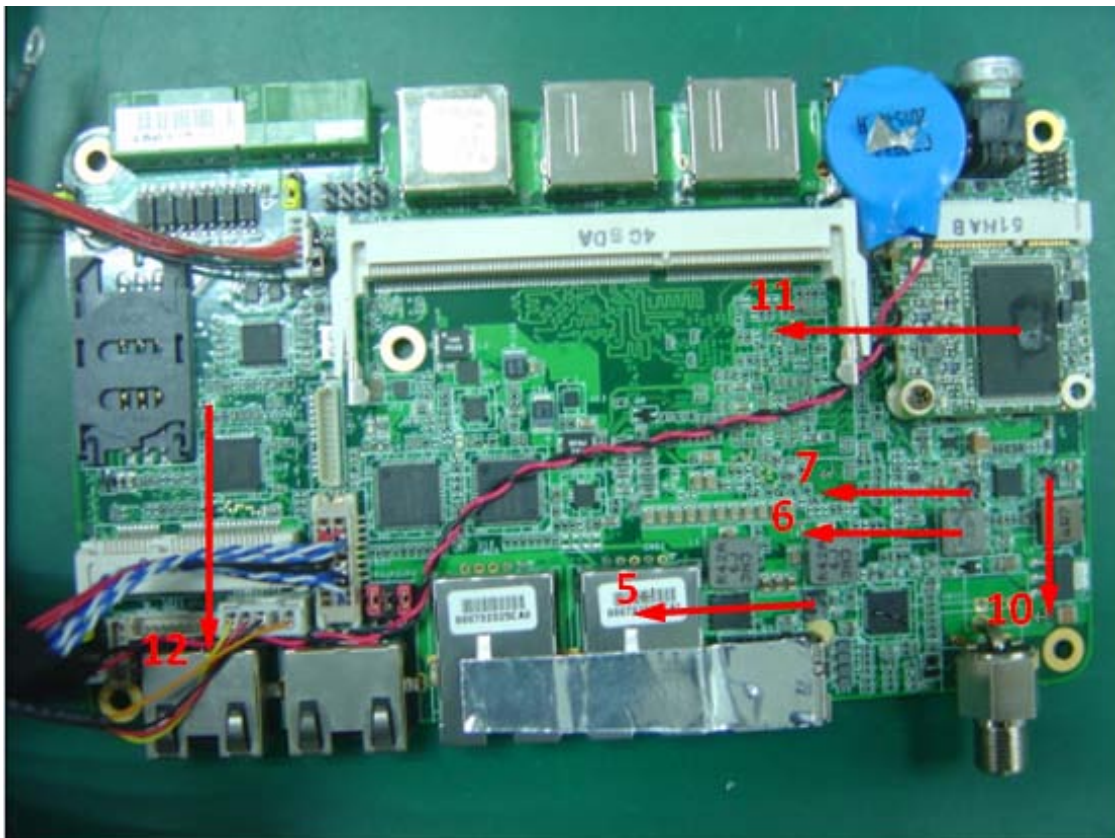
Temperature Measurement:
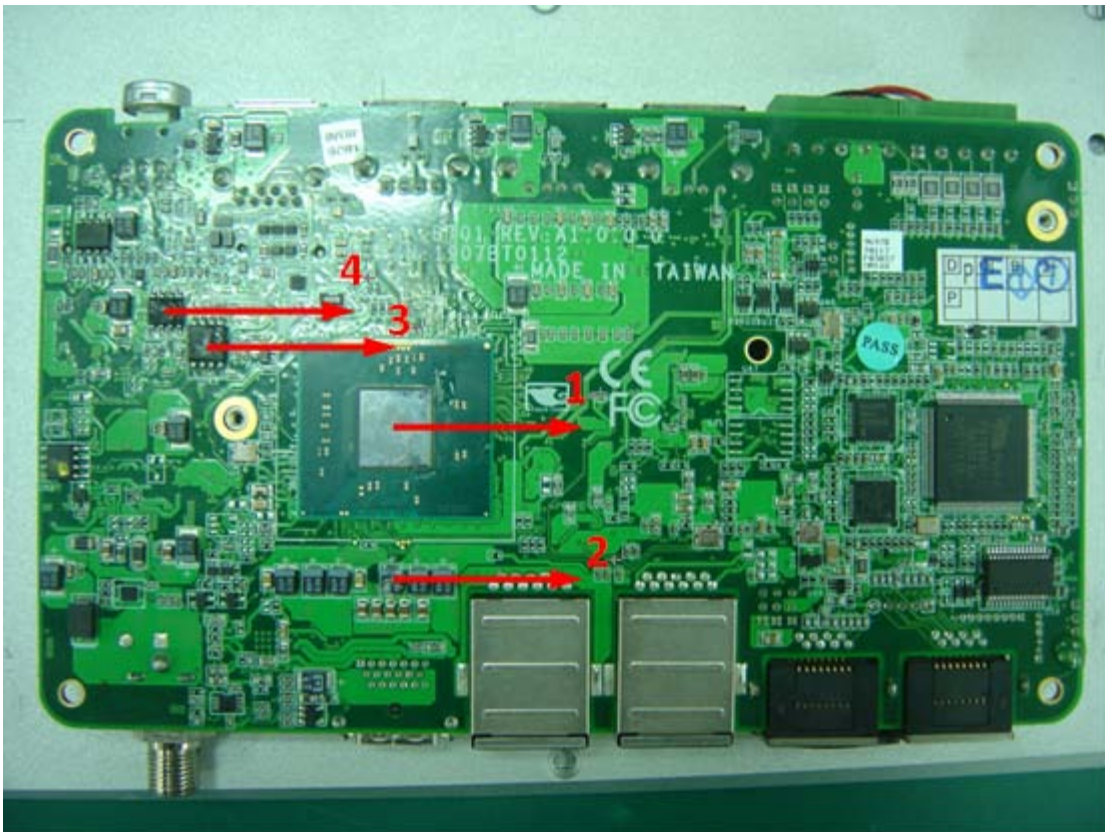
　　　　　40 Channel Thermal Recorder:

　　　　　YOKOGAWA Inc,

　　　　　Model: DA100-13-1D

　　　　　Date of Calibration: 10/09/2015

　　　　　Serial Number: 12A32319

Testing Item:

1. Test Temperature: 50℃
2. Test Times: 8Hrs
3. Test Software: Windows 7 / Run PassMark Burn In Test 7.1 Pro
4. Test Environment Curve:
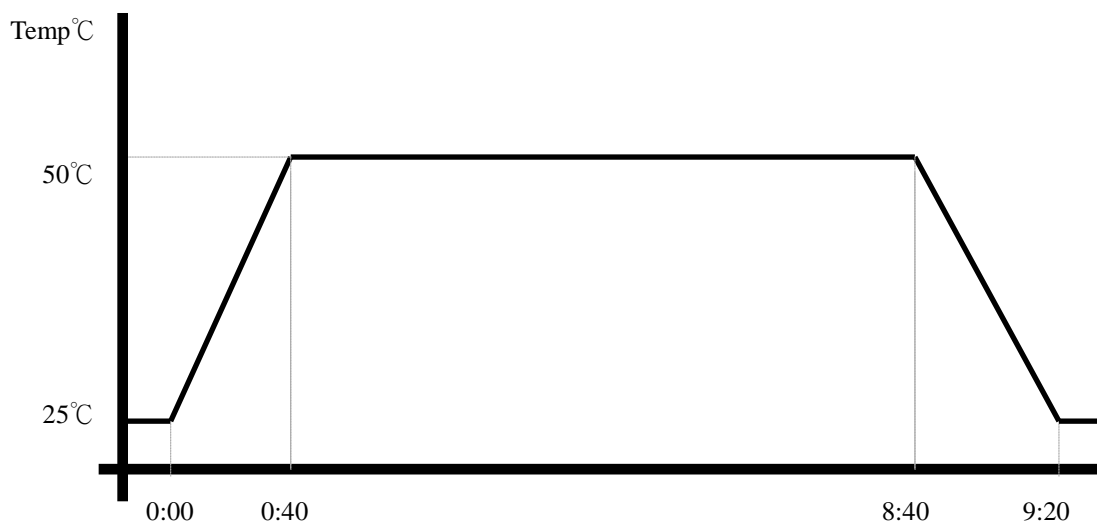
High Temperature Operation test

High Temperature Operation test

High Temperature Operation test

ACP-1074 (With 0.5m/sec airflow)

Thermal profile data:

Point	Temp. Stage(℃)	Spec Tc(*1)	T$_{AT}$(*2) 50	T$_{PT}$(*3) 25	Note
01. U50- Intel® Celeron™ J1900 1.99GHz		105	71.5	46.5	
02. C467 - CAP.NEC-TOKIN.TEPSGB20E337M9-8R		105	80.3	55.3	
03. U45 - IC.64 Mbit SPI Flash SOIC-8P 208mil.SMD Winbond W25Q64FVSSIG		85	77.4	52.4	
04. U41 -IC.LDO Linear Regulator SMD RICHTEK.RT9025-25PSP		120	77.3	52.3	
05. U24-IC.Synchronous Buck NexFETTM.SON Power Stage CSD97374Q4M		150	84.0	59.0	
06. L7-3.3UH		150	86.0	61.0	
07. Q15 -FDMC7200S		150	82.9	57.9	
08. Battery –Maxell CR2032		85	71.8	46.8	
09. DIMM		95	82.6	57.6	
10. FDMC7200S		150	81.6	56.6	
11. Ta (under mSATA)		N/A	84.0	59.2	
12 Ta (under 3G module)		N/A	66.5	41.5	
13. Control Box External Surface Temperature		N/A	50.5	25.5	

Note(*):
1. "Tc" indicates the component's case maximum temperature value specified in its datasheet.
2. "T$_{AT}$" indicates the actual measured temperature in chamber.
3. "T$_{PT}$" indicates the predicted temperature by offset from T$_{AT}$
4. 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.
5. Defect NO. : P150507QED09

Sample Configuration & Quantity Under Test:

      Quantity: 1 (ACP-1074)

Test Result:

      No issues were found during the temperature rise operation test.

Temperature cycle test

Test Date: 12-12 ~ 14-2015

Test Product: ACP-1074

Test Site: AAEON QE Dept.
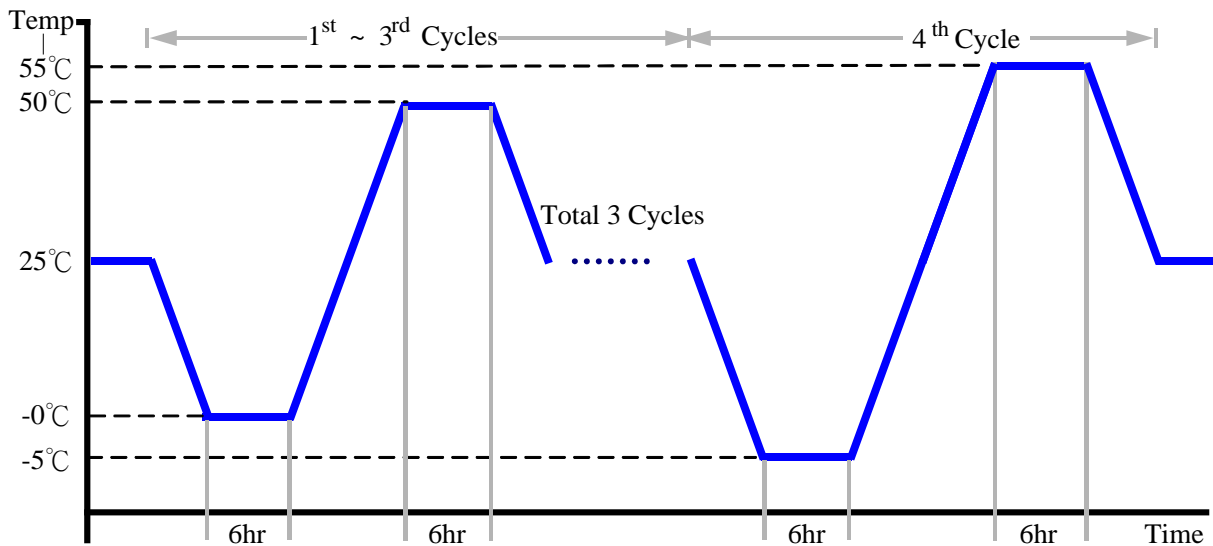
Test Standard: Refer to IEC68-2-14 Testing procedures

　　　　　　　　　　　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: 09/10/15
　　　　　Serial Number: 9095KT

Test Condition:

　　　　　1. Test Low Temperature:　　　0℃　(1~3 cycles)

　　　　　　　　　　　　　　　　　　　-5℃　(4th cycle)

　　　　　2. Test High Temperature:　　50℃　(1~3 cycles)

　　　　　　　　　　　　　　　　　　　55℃　(4th 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 (ACP-1074)

Test Result:

　　　　　No issues were found during the temperature operation cycle test.

High temperature storage test

Test Date: 12-10 ~ 12-2015

Test Product: ACP-1074
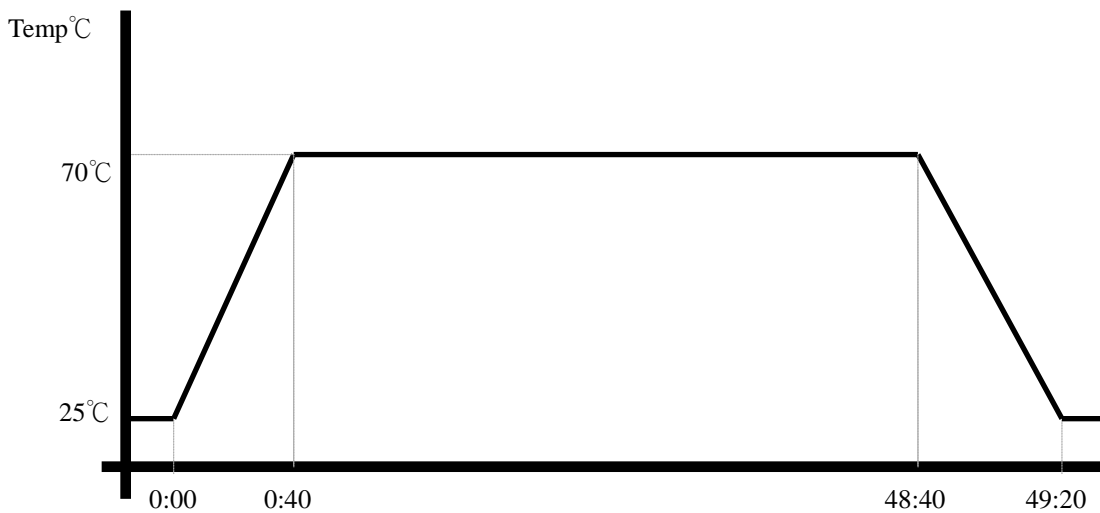
Test Site: AAEON QE Dept.

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: 09/10/15
Serial Number: 9095KT

Testing Item:

5. Test Temperature: 70℃

6. Test Times: 48Hrs

7. Test Software: Windows 7 / Run PassMark Burn In Test 7.1 Pro

8. Test Environment Curve:

Sample Configuration & Quantity Under Test:
Quantity: 1 (ACP-1074)

Test Result:

No issues were found after the high temperature storage test.

Low temperature storage test

Test Date: 12-08 ~ 10-2015

Test Product: ACP-1074

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: 09/10/15
    Serial Number: 9095KT

Testing Item:

1. Test Temperature: -20℃
2. Test Times: 48Hrs
3. Test Software: Windows 7 / Run PassMark Burn In Test 7.1
4. Test Environment Curve:

Sample Configuration & Quantity Under Test:
Quantity: 1 (ACP-1074)

Test Result:

    No issues were found after the low temperature storage test.

Humidity test

Test Date: 12-06~08-2015

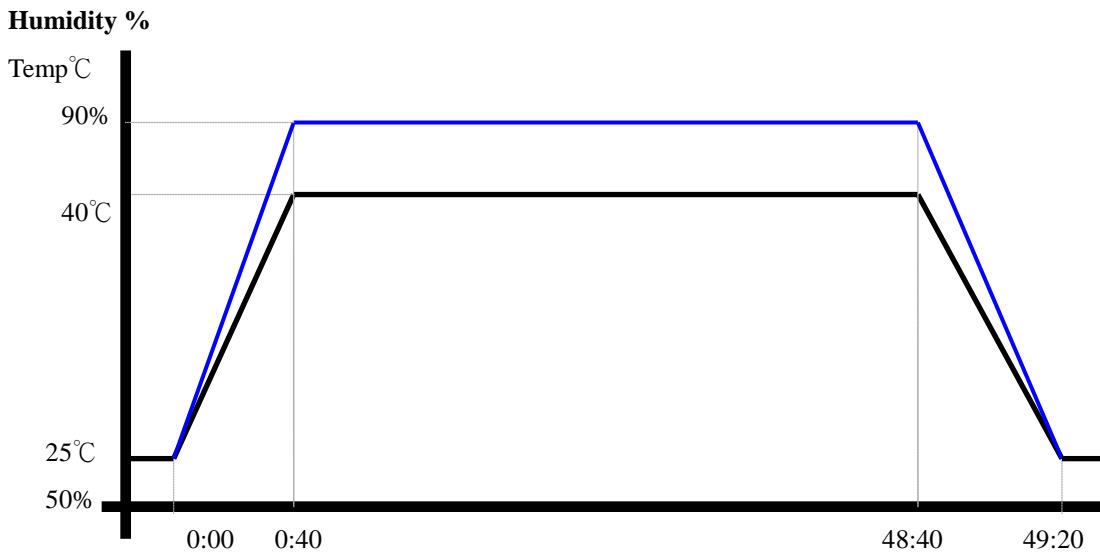**Test Product:** ACP-1074

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: 09/10/15
Serial Number: 9095KT

Testing Item:

1. Test Temperature: 40℃
2. Test Humidity: 95%RH
3. Test Times: 48Hrs
4. Test Software: Windows 7 / Run PassMark Burn In Test 7.1 Pro
5. Test Environment Curve:

Humidity %

Sample Configuration & Quantity Under Test:
        Quantity: 1 (ACP-1074)

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

Cold start and hot start test
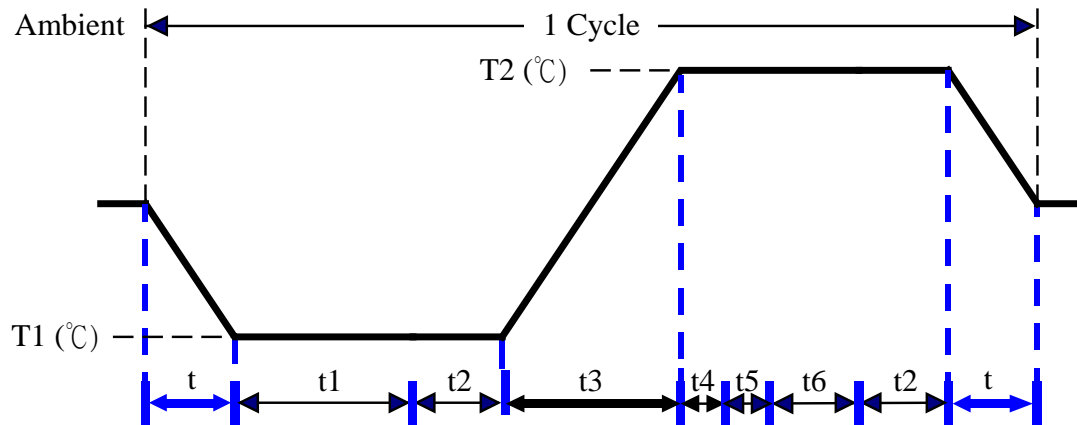
Test Date: 12-05~06-2015

Test Product: ACP-1074

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: 09/10/15

Serial Number: 9095KT

Test Condition:

Parameters	Description
T1	-5℃
T2	55℃
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 8.0

 t5: Win 7 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.