

ACP-5210

Environment Test Report

Report NO: 14P020001

| | |
|---------|--|
| Summary | <p><input type="checkbox"/> Pass</p> <p><input type="checkbox"/> Fail</p> <p>Note : There is/are ___ defect(s) not list in the report, please check it in the DTS Website.</p> <p><input checked="" type="checkbox"/> Pass with Deviation</p> <p>Comment: <u>Temperature at one component was estimated to be in marginal temperature point in comparison with component datasheet.</u></p> |
|---------|--|

Issue date

Approval

Test Engineer

2014-01-02

Tom Lin

Jerry Chen

Test item list

| | | |
|-----------|--|-----------|
| 1. | <i>Test item list</i> ----- | 2 |
| 2. | <i>Configuration of EUT</i> ----- | 3 |
| 2. | <i>Temperature rise test</i> ----- | 4 |
| 3. | <i>Temperature cycle operation test</i> ----- | 8 |
| 4. | <i>High temperature storage test</i> ----- | 9 |
| 5. | <i>Low temperature storage test</i> ----- | 10 |
| 6. | <i>Humidity test</i> ----- | 11 |
| 7. | <i>Cold start and hot start test</i> ----- | 12 |

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

| Item | Device Information |
|------------------------|---|
| SYSTEM PC Model / Ver. | ACP-5210 A1.0 |
| CPU | AMD G-T56N 1.65GHzGHz |
| BIOS / Version | ACP-5210 R0.1(C5L0AM01)(11/25/2013) |
| Chipset | North Bridge(AMD A50M) / PCH Bridge(Intel QM77) |
| Industry Memory Type | DLS DDR3-1066 2GB CL7 / ELPIDA J1108BFSE-DJ-F |
| Industry HDD | TOSHIBA MK1060GSC 2.5" 100G |
| Test Software | Windows 7 / Run BurnIn test 7.1 |
| Adapter | FSP084-DMAA1 12V/7A |

System picture:



Temperature rise test

Test Date: 12-26~27-2013

Test Product: ACP-5210

Test Site: AAEMON 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:

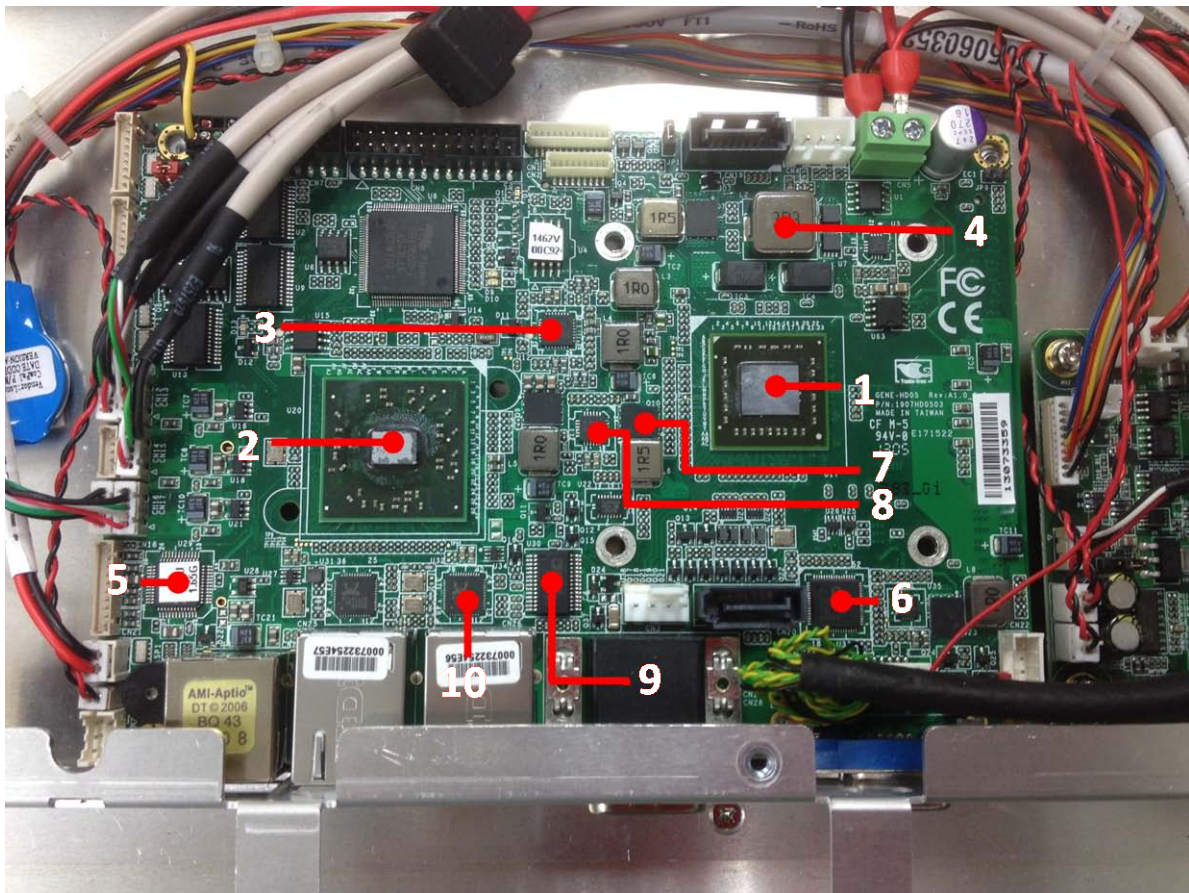
Ambient temperature: 40°C

Continuous running till thermal stable (within less than 1°C)

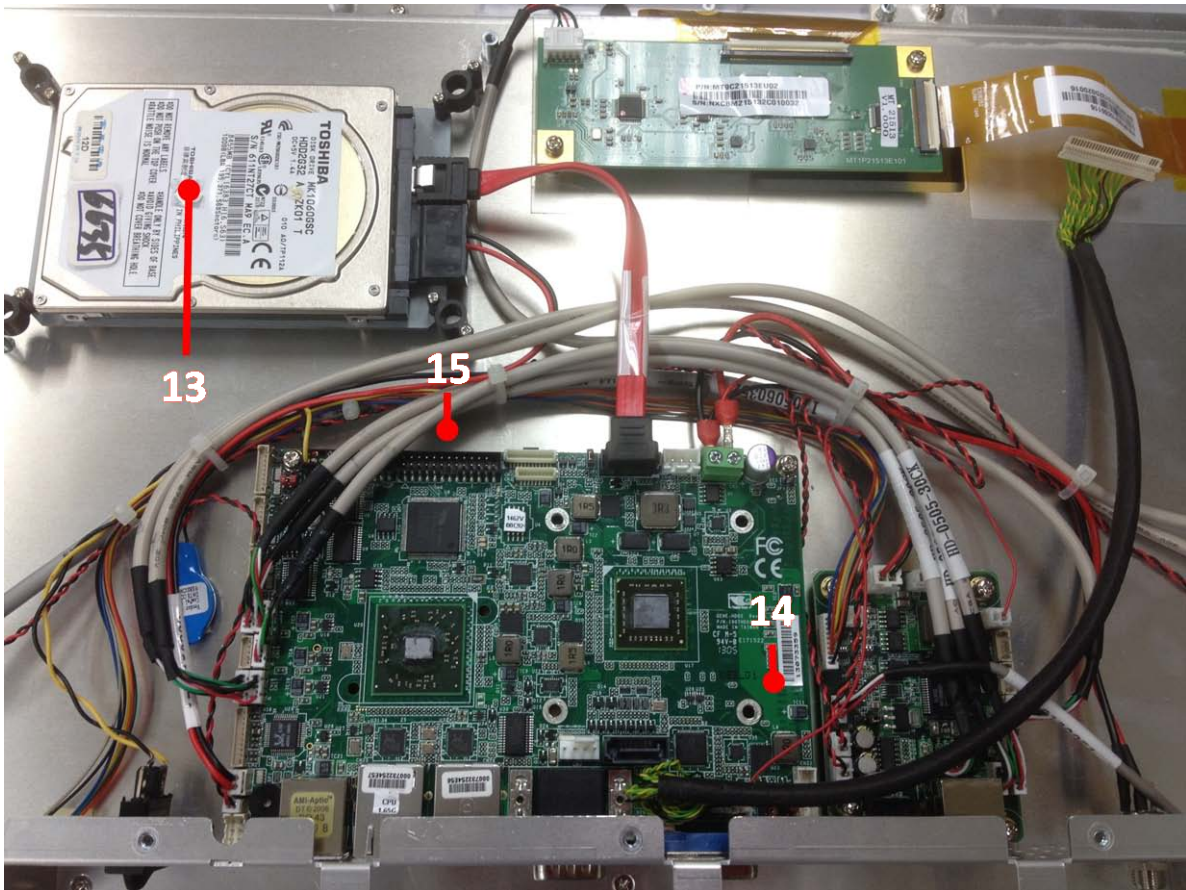
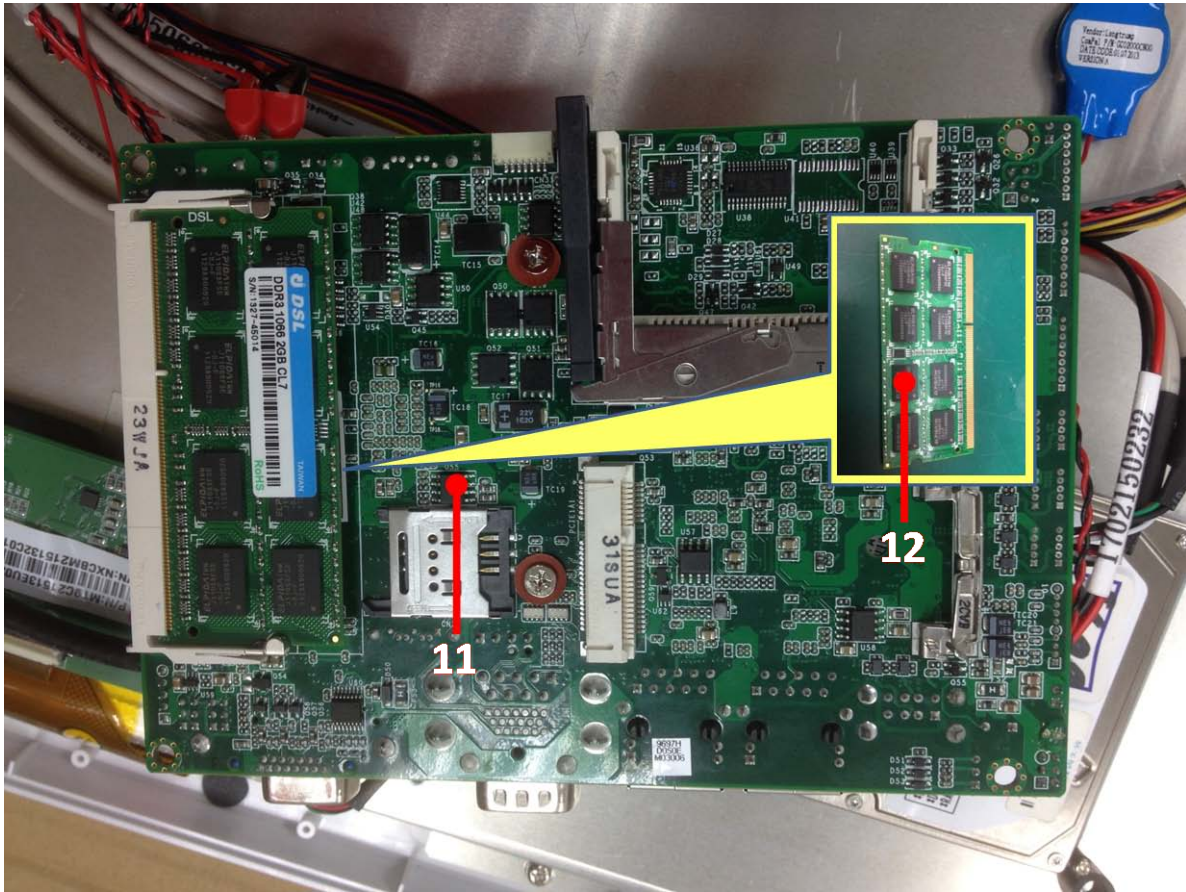
Test Software:

Windows 7 / Run PassMark Burn In Test 7.1 Pro

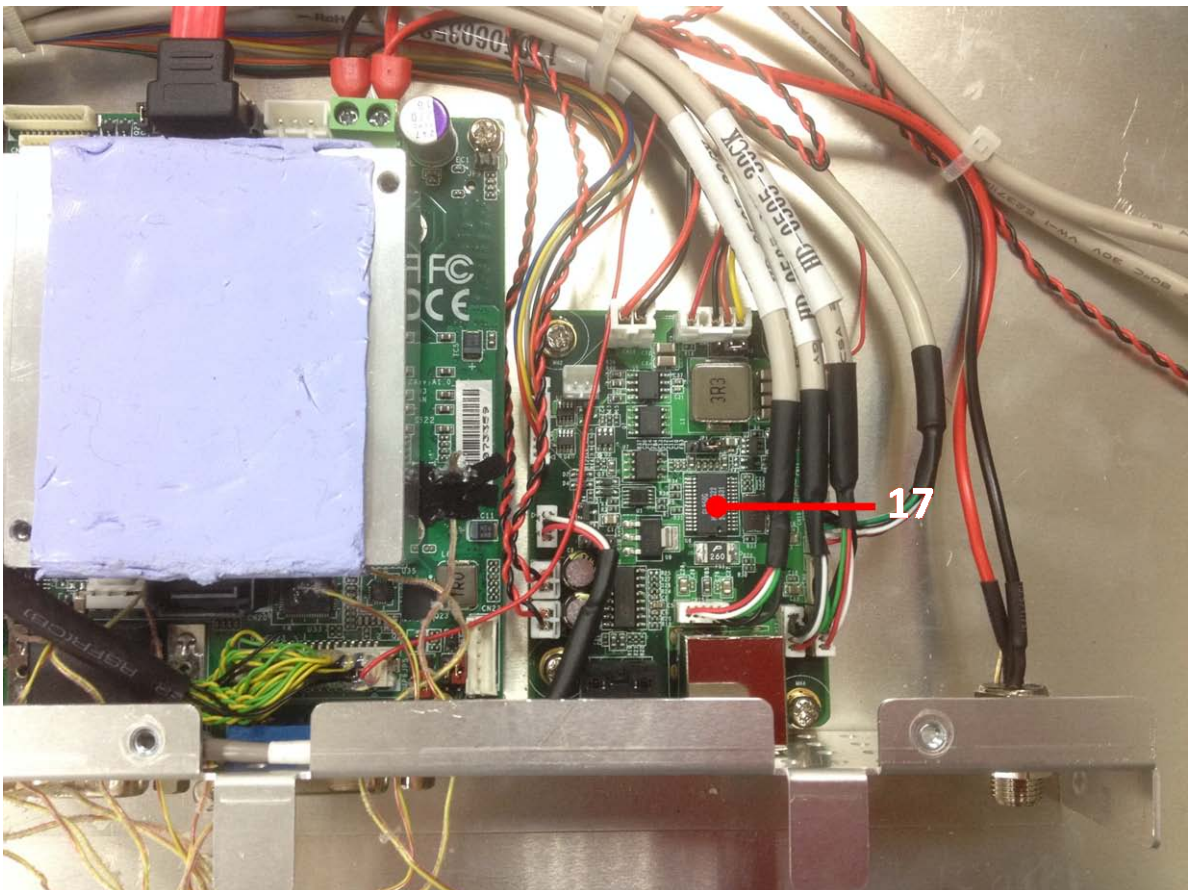
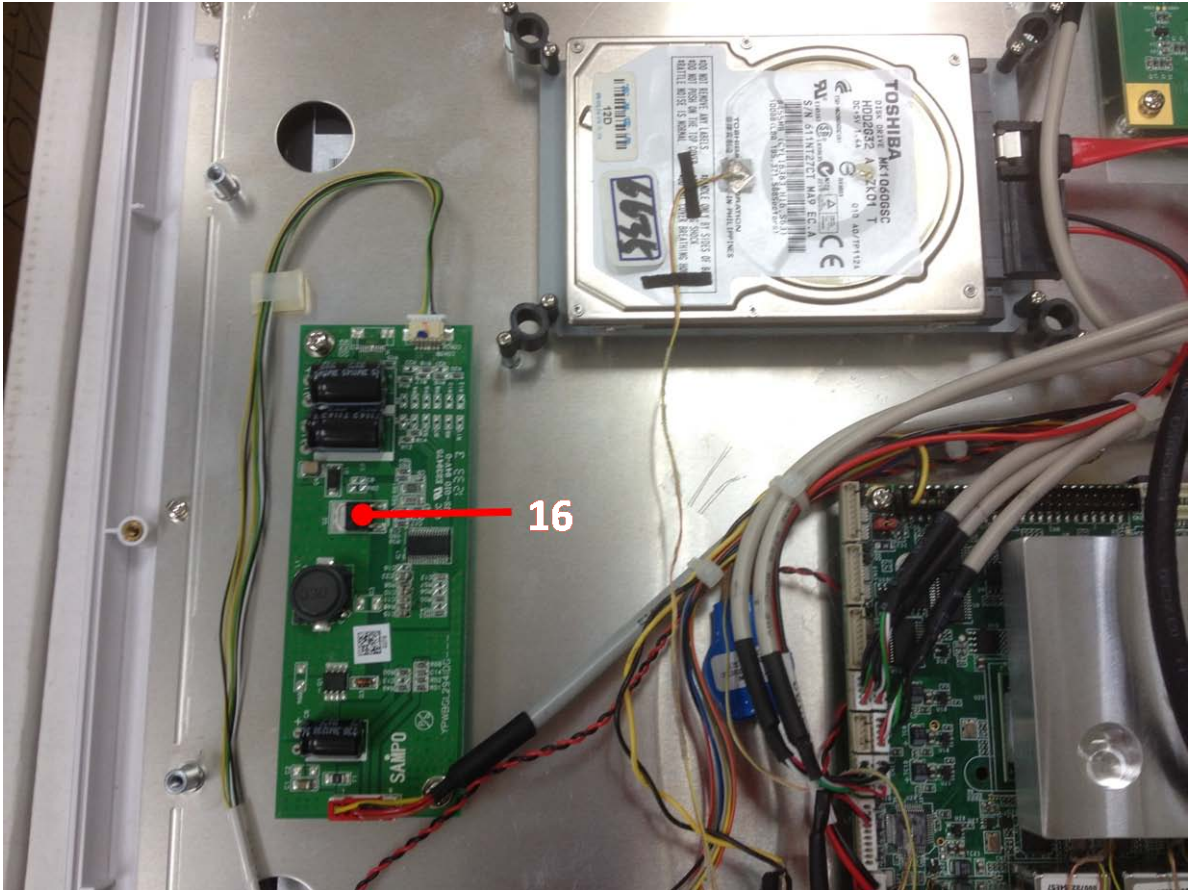
Terminal Recorder:



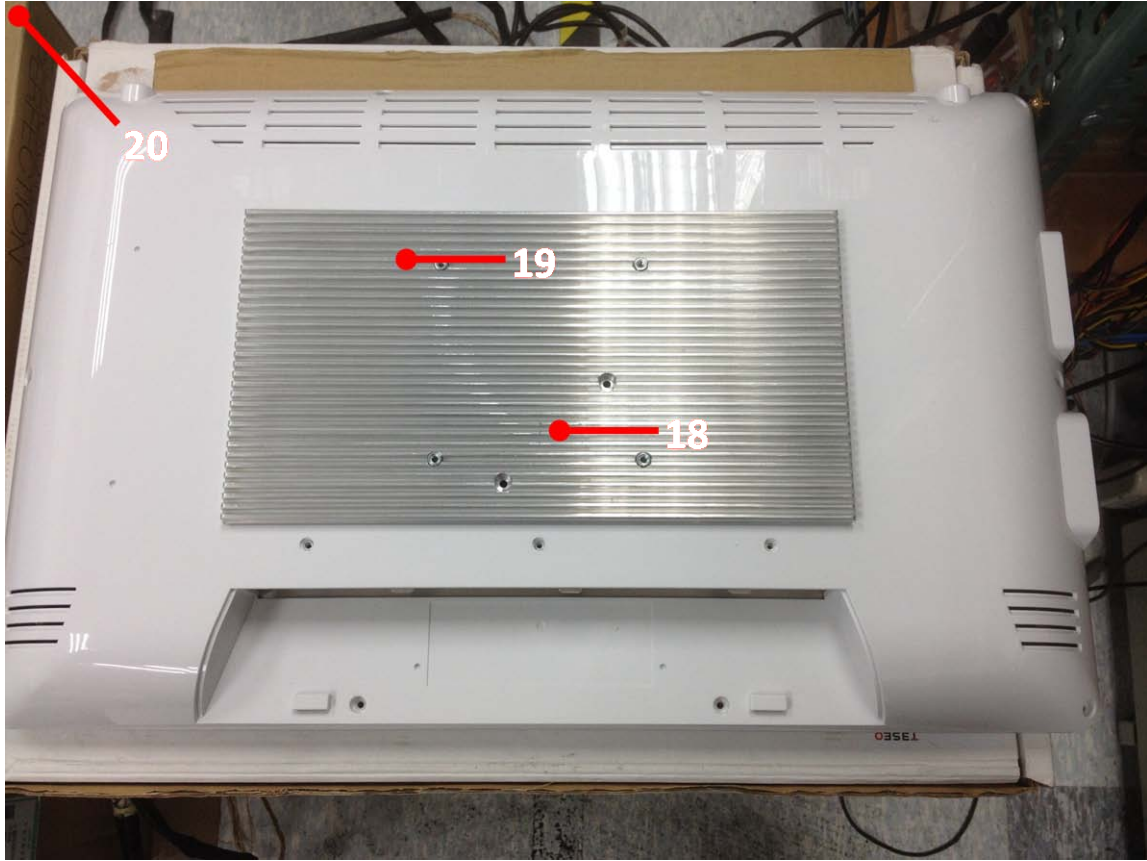
Temperature rise test



Temperature rise test



Temperature rise test



Temperature rise test

Thermal profile data:

| Point | Temp. Stage(°C) | Spec | 40 | 25 | Note |
|--|-----------------|-------|------|------|-------|
| 01. CPU – AMD G-T56N 1.65GHz | | 90 | 83.3 | 68.3 | |
| 02. U20 - (TF)AMD Hudson-M1 Fusion.AMD.A50M.100-CG2198 | | 105 | 75.2 | 60.2 | |
| 03. L4 - (TF)COIL. Zenithtek.ZPWM-6030M-1R0M | | 125 | 83.8 | 68.8 | |
| 04. L2 - (TF)COIL. ZenithTek.ZPWM-1040MB-3R3M | | 125 | 89.7 | 74.7 | |
| 05. U29 - (TF)HIGH DEFINITIOND.AUDIO CODEC.REALTEK.ALC662-GR | | 100.5 | 74.9 | 59.9 | |
| 06. U33 - (TF)IC. DisplayPort to LVDS Converter.Chrontel.CH7511B-BF | | 85 | 76.6 | 61.6 | |
| 07. Q10 - (TF)PWR. PMPAK5X6 DUAL N-MOSFET.FAIRCHILD.FDMS7620S | | 125 | 75.8 | 60.8 | |
| 08. U19 - (TF) DUAL SYNCHRONOUS STEP-DOWN CON.TI.TPS51124RGE | | 100 | 81.5 | 66.5 | |
| 09. U30 - (TF)RS232 Driver ESD 15KV.AD.ADM213EARSZ | | 100 | 72.4 | 57.4 | |
| 10. U32 - (TF)PCI-express.Gigabit Ethernet Chip.REALTEK.RTL8111E-VB-GR | | 100 | 71.8 | 56.8 | |
| 11. U55 - (TF) Low dropout Linear Regulator.GMT.G9731F11U | | 100 | 95.1 | 80.1 | Note4 |
| 12. Memory - DSL DDR3-1066 2GB CL7 (ELPIDA J1108BFSE-DJ-F) | | 95 | 81.7 | 66.7 | |
| 13. HDD - HDD- TOSHIBA 2.5" 100GB (MK1060GSC) | | 85 | 67.6 | 52.6 | |
| 14. Control Box Inside Air Temperature - 1 | | N/A | 61.8 | 46.8 | |
| 15. Control Box Inside Air Temperature - 2 | | N/A | 69.5 | 54.5 | |
| 16. Q2 - Inverter board | | 125 | 62.1 | 47.1 | |
| 17. U2 - I/O board GL850G HH1GD08G22 | | 85 | 67.1 | 52.1 | |
| 18. Chassis Surface Temperature - 1 | | N/A | 62.8 | 47.8 | |
| 19. Chassis Surface Temperature - 2 | | N/A | 60.5 | 45.5 | |
| 20. Chamber Temperature | | N/A | 40 | 25 | |

Note(*):

- "Tc" indicates the component's case maximum temperature value specified in its datasheet.
- "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°C; 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°C; The measured value is with safety margin.

4. Defect NO. [P131120QED12](#)

Sample Configuration & Quantity Under Test:

Quantity: 1 (ACP-5210)

Test Result:

No issues were found during the temperature rise operation test.

Temperature cycle test

Test Date: 12-23 ~25-2013

Test Product: ACP-5210

Test Site: AAEON QE Dept.

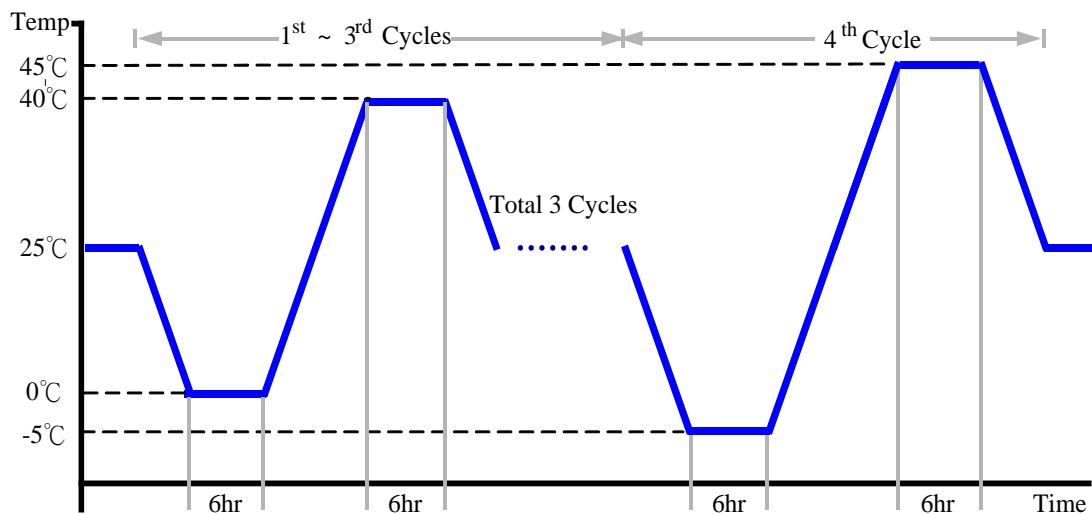
Test Standard: Refer to IEC68-2-14 Testing procedures
Test N: Change of temperature Test

Test Equipment:

Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)
Model: THS-B6T-150+LN2
Date of Calibration: 2013/06/11
Serial Number: 9095KT

Test Condition:

1. Test Low Temperature: 0°C (1~3 cycles)
-5°C (4th cycle)
2. Test High Temperature: 40°C (1~3 cycles)
45°C (4th cycle)
3. Test dwell time: 6Hrs
4. Temperature slope: 2°C/min
5. Test cycle: 4 cycles



6. Test Environment Curve:

Sample Configuration & Quantity Under Test:

Quantity: 1 (ACP-5210)

Test Result:

No issues were found during the temperature operation cycle test.

High temperature storage test

Test Date: 12-20~23-2013

Test Product: ACP-5210

Test Site: AAEON QE Dept.

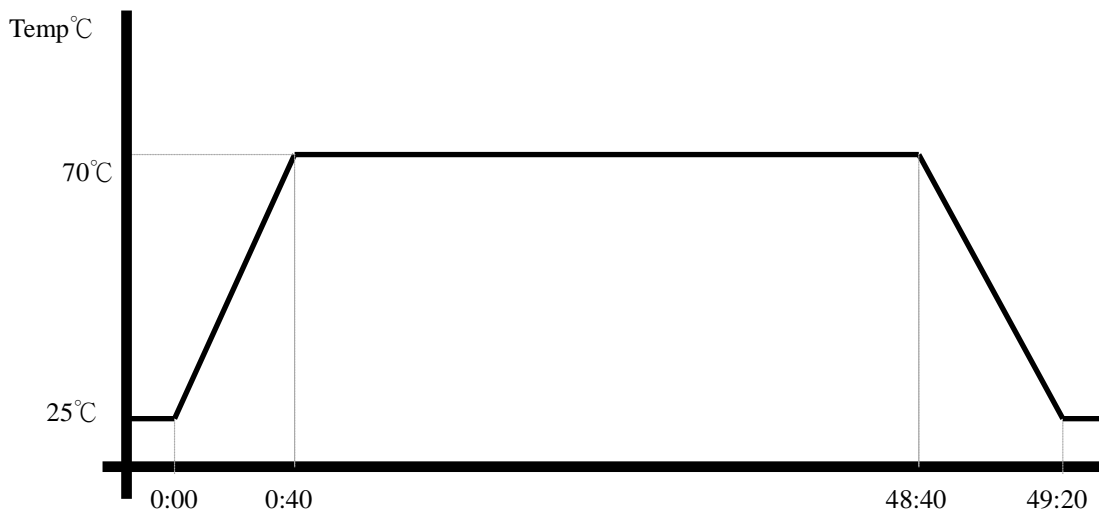
Test Standard: Refer to IEC 68-2-2 Testing procedures
Test Bb: Dry Heat Test (Non-operation)

Test Equipment:

Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)
Model: THS-B6T-150+LN2
Date of Calibration: 2013/06/11
Serial Number: 9095KT

Testing Item:

1. Test Temperature: 70°C
2. Test Times: 48Hrs
3. Test Software: Windows 7 / Run PassMark Burn In Test 7.1 Pro
4. Test Environment Curve:



Sample Configuration & Quantity Under Test:

Quantity: 1 (ACP-5210)

Test Result:

No issues were found after the high temperature storage test.

Low temperature storage test

Test Date: 12-18~20-2013

Test Product: ACP-5210

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: 2013/06/11

Serial Number: 9095KT

Testing Item:

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



Sample Configuration & Quantity Under Test:

Quantity: 1 (ACP-5210)

Test Result:

No issues were found after the low temperature storage test.

Humidity test

Test Date: 12-16~18-2013

Test Product: ACP-5210

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.)

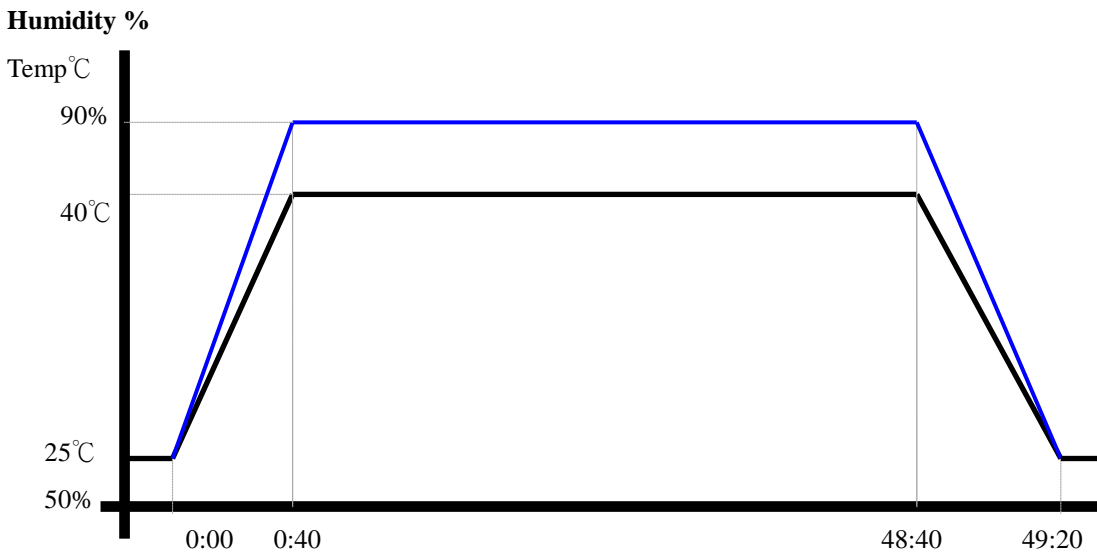
Model: THS-B6T-150+LN2

Date of Calibration: 2013/06/11

Serial Number: 9095KT

Testing Item:

1. Test Temperature: 40°C
2. Test Humidity: 90%RH
3. Test Times: 48Hrs
4. Test Software: Windows 7 / Run PassMark Burn In Test 7.1 Pro
5. Test Environment Curve:



Sample Configuration & Quantity Under Test:

Quantity: 1 (ACP-5210)

Test Result:

No issues were found after the humidity storage test.

Cold start and hot start test

Test Date: 12-25~26-2013

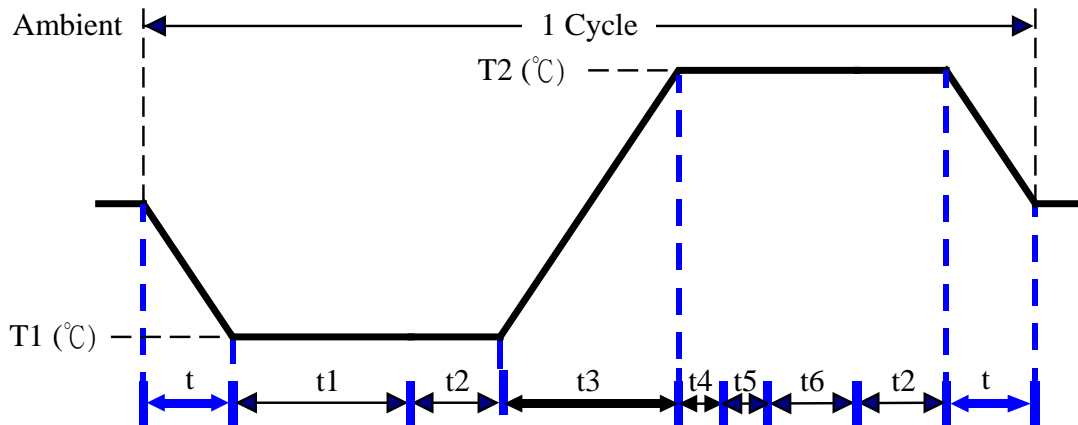
Test Product: ACP-5210

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: 2013/06/11
 Serial Number: 9095KT

Test Condition:



| Parameters | Description |
|------------|-------------|
| T1 | -5°C |
| T2 | 45°C |
| t1 | 4 hrs |
| t2, t6 | 2 hrs |
| t4, t5 | 1 hrs |
| t, t3 | 2°C/min |
| n (Cycle) | 1 |

t = temperature 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 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.