# ACP-2153

# Environment Test Report

**Report NO: 12P020018**

| Summary | ☑ **Pass**<br><br>☐ **Fail**<br><br>Note : There is/are ___ defect(s) not list in the report, please check it in the DTS Website.<br><br>☐ **Pass with Deviation** |
|---|---|

| Issue date | Approval | Test Engineer |
|---|---|---|
| **2012-10-03** | **Tom Lin** | **Matthew Chi** |

# 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

| Item | Device Information | |
|---|---|---|
| SYSTEM PC Model / Ver. | ACP-2153 A1.0 | |
| CPU Board | GENE-CV05 A1.0 | |
| BIOS / Version | AEP-5153 R0.2(A5153M02)(08/30/2012) | |
| CPU Type | Intel Atom D2550 1.86GHz | |
| Memory Type | Transcend DDR3 1333 4GB Samsung SEC HCH9 K4B2G0846C | |
| HDD | TOSHIBA MK1060GSC 2.5" 100G | |
| Operating System | ☒ Windows 7 Professional English 32 Bit | |
| DC Adapter | FSP084-DAMM1/ DC 12V/ 7.0A | |

## System picture:

# Temperature rise test

**Test Date:** 10-02-2012

**Test Product:** ACP-2153

**Test Site:** AAEON QE Dept.

**Test Standard:**　Reference EN 61131-2(94), UL508 (94)

**Temperature Measurement:**
> 40 Channel Thermal Recorder:
>
> YOKOGAWA Inc,
>
> Model: DA100-13-1D
>
> Date of Calibration: 10/12/2011
> Serial Number: 12A323190

**Test Condition:**
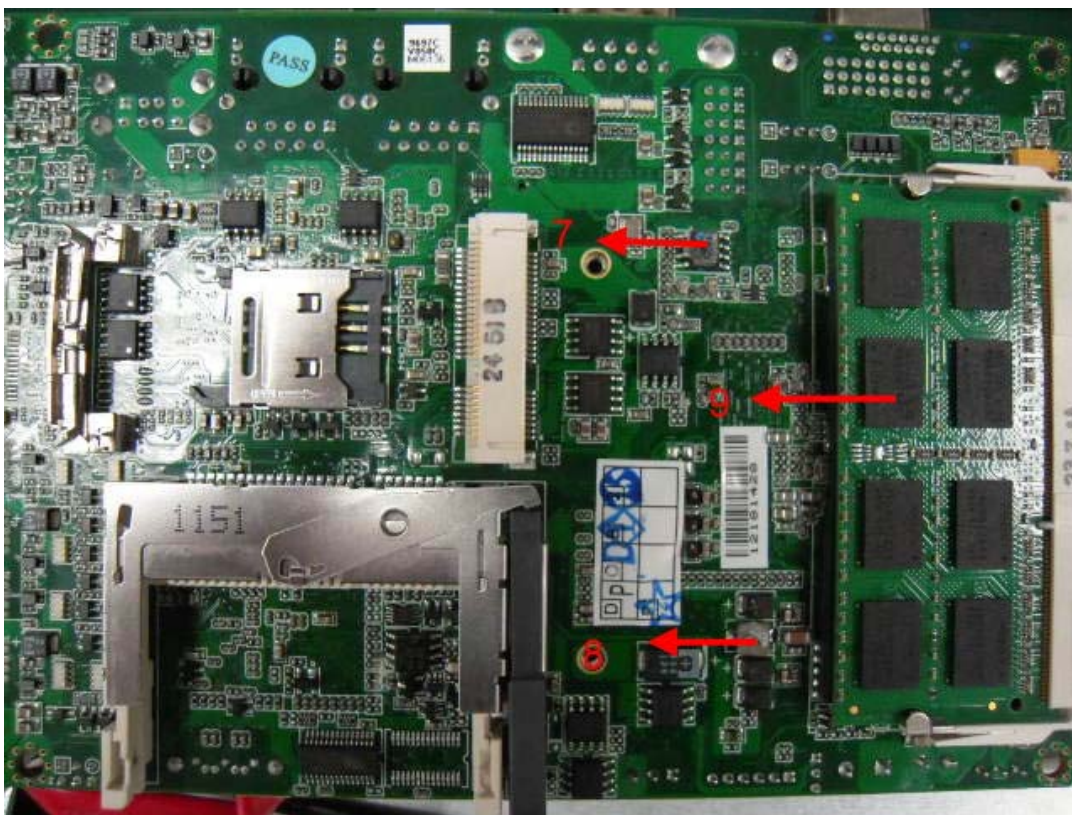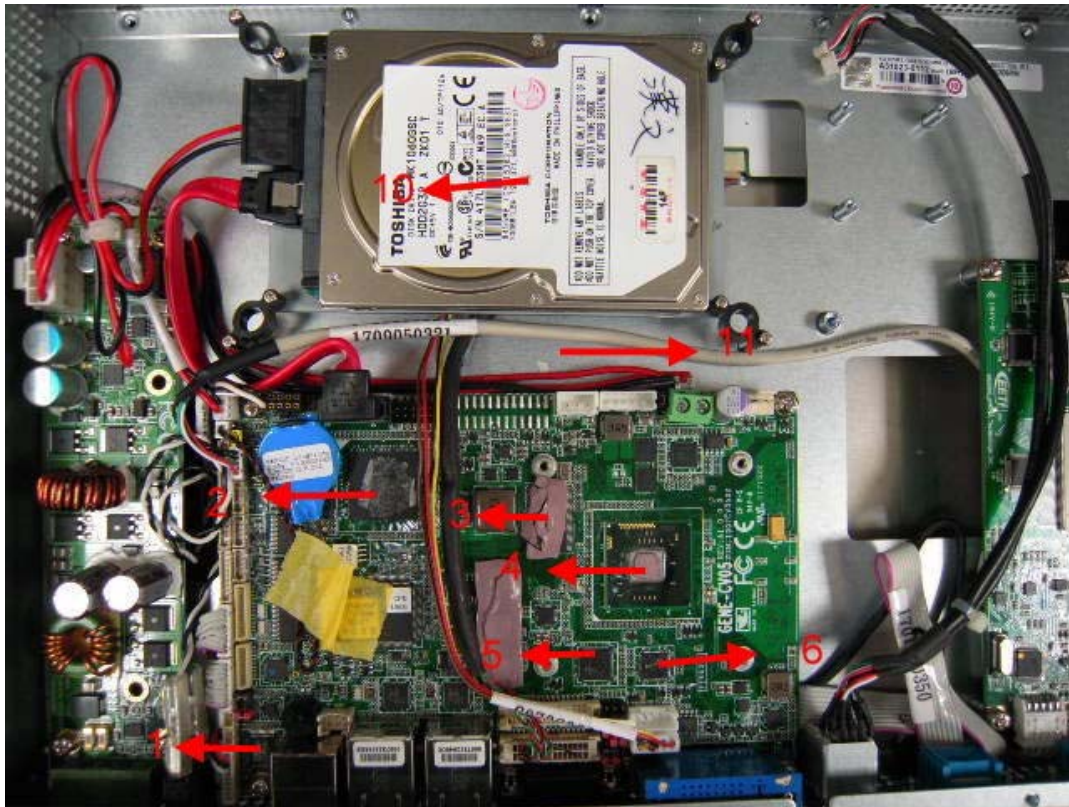> Ambient temperature: 60℃
> Continuous running till thermal stable (within less than 1℃)

**Test Software:**
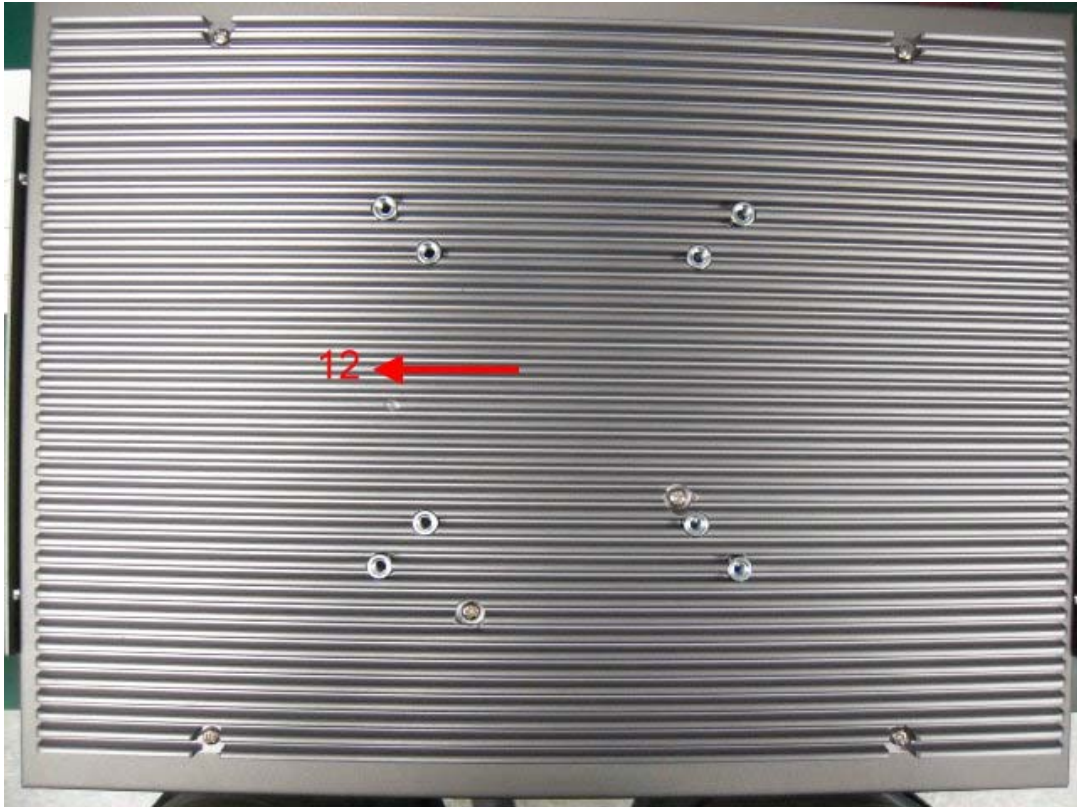> Windows 7 / Run PassMark Burn In Test 7.0 Pro

**Terminal Recorder:**

# Temperature rise test

# Temperature rise test

# Temperature rise test

**Thermal profile data:**

| Point ⟋ Temp. Stage(℃) | Spec | 60 | Note |
|---|---|---|---|
| 01. U42 - (TF)AUDIO CODEC.REALTEK.ALC662-GR | 100.5 | 87.1 | |
| 02. U7 - (TF)NM10 Express Chipset.INTEL.CG82NM10.SLGXX | 115 | 86.4 | |
| 03. U13 - (TF)CLOCK GENERATOR.IDT.9LPRS501PGLF | 95 | 73.2 | |
| 04. U17 - Intel Atom D2550 1.86GHz | 100 | 74.9 | |
| 05. U29 - (TF)DisplayPort to LVDS Converter.Chrontel.CH7511B-BF | 85 | 75.9 | |
| 06. U31 - (TF)Digital Video Level Shifter..PERICOM.PI3VDP411LSZBE | 85 | 74.6 | |
| 07. U57 - (TF)Regulator.ANPEC.APL5912-KAC-TR | 100 | 80.5 | |
| 08. L7 - (TF)COIL.ZenithTek.ZPWM-4020MP-1R | 125 | 84.9 | |
| 09. Memory - Transcend DDR3 1333 4GB Samsung SEC HCH9 K4B2G0846C | 85 | 79.1 | |
| 10. HDD - TOSHIBA MK1060GSC 2.5" 100G | 85 | 78.6 | |
| 11. Control Box Inside Air Temperature | N/A | 74.8 | |
| 12. Control Box Surface Temperature | N/A | 69.1 | |
| 13. Chamber Air Temperature | N/A | 60.2 | |

**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.

**Sample Configuration & Quantity Under Test:**

     Quantity: 1 (ACP-2153)

**Test Result:**

     No issues were found during the temperature rise operation test.

# Temperature cycle test

**Test Date:** 09-28~ 10-01-2012

**Test Product:** ACP-2153
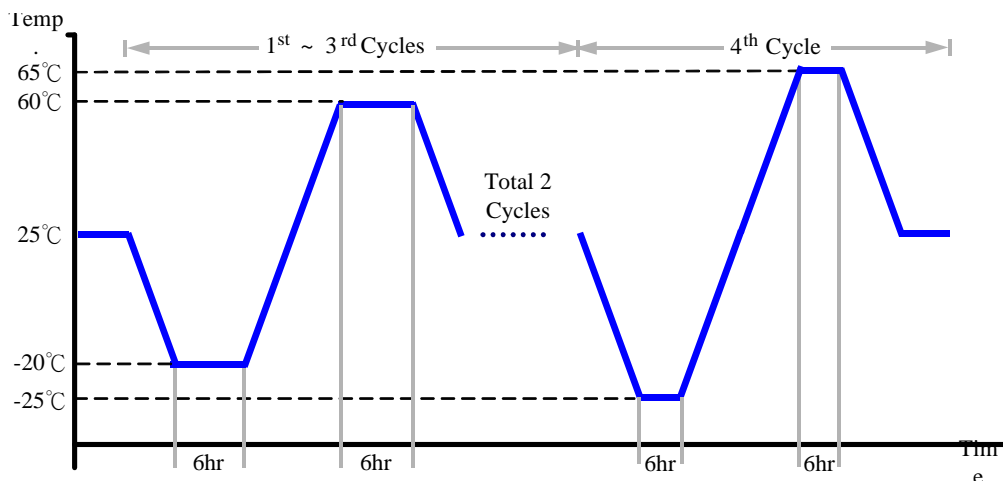
**Test Site:** AAEON QE Dept.

**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-D75-100+LN2
Date of Calibration: 10/13/11
Serial Number: 6487KT

**Test Condition:**

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

-25℃ (4th cycle)

2. Test High Temperature:        60℃ (1~3 cycles)

65℃ (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-2153)

**Test Result:**

No issues were found during the temperature operation cycle test.

# High temperature storage test

**Test Date:** 09-26 ~ 27-2012

**Test Product:** ACP-2153

**Test Site:** AAEON QE Dept.
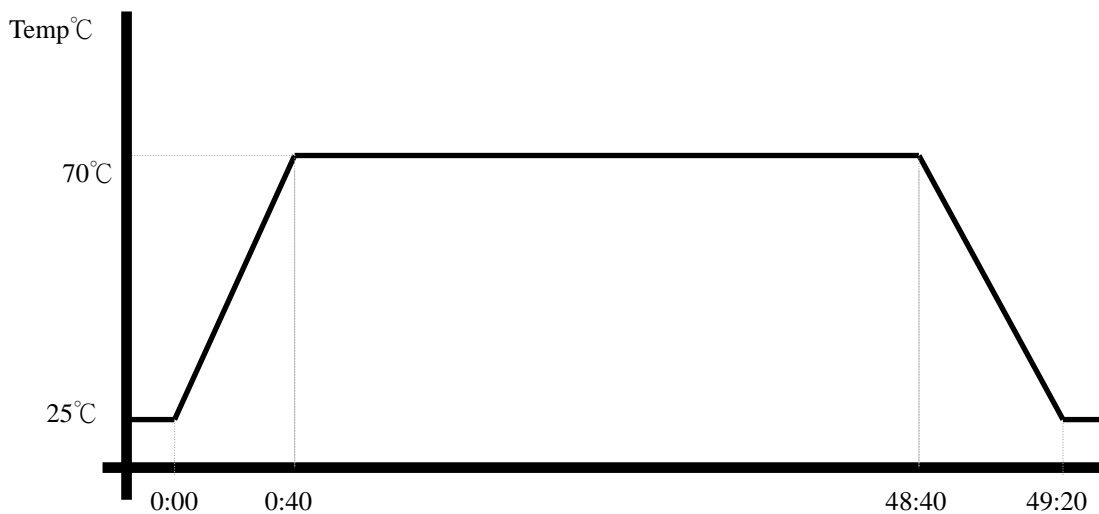
**Test Standard:**  Refer to IEC 68-2-2 Testing procedures
                          Test Bb: Dry Heat Test (Non-operation)

**Test Equipment:**

Programmable Temperature & Humidity Chamber
K.SON. INS. TECH. CORP.

Model: THS-D75-100+LN2

Date of Calibration: 10/13/11
Serial Number: 6487KT

**Testing Item:**

1. Test Temperature: 70℃

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 (ACP-2153)

**Test Result:**

No issues were found after the high temperature storage test.

# Low temperature storage test

**Test Date:** 09-25 ~ 26-2012

**Test Product:** ACP-2153

**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-D75-100+LN2
Date of Calibration: 10/13/11
Serial Number: 6487KT

**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 (ACP-2153)

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

# Humidity test

**Test Date:** 10-01 ~ 02-2012

**Test Product:** ACP-2153

**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
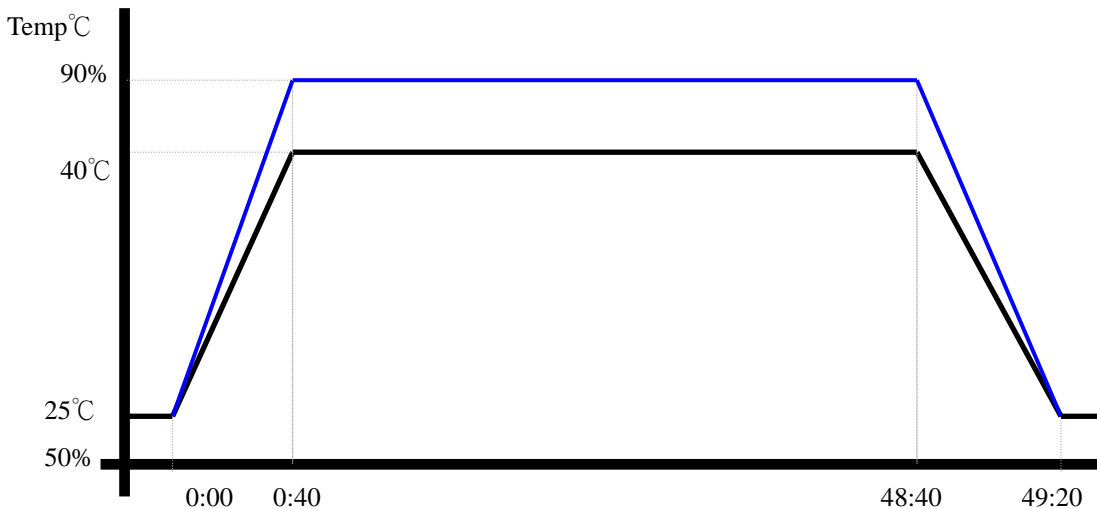K.SON. INS. TECH. CORP.

Model: THS-D75-100+LN2
Date of Calibration: 10/13/11
Serial Number: 6487KT

**Testing Item:**

1. Test Temperature: 40℃
2. Test Humidity: 90%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 (ACP-2153)

**Test Result:**

No issues were found after the humidity storage test.

# Cold start and hot start test

**Test Date:** 09-26 ~27-2012
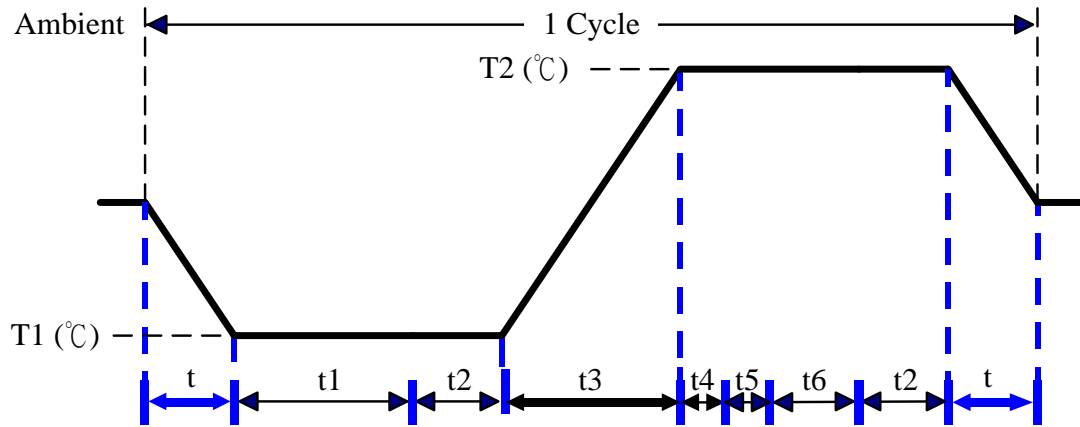
**Test Product:** ACP-2153

**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-D75-100+LN2

Date of Calibration: 10/13/11
Serial Number: 6487KT

**Test Condition:**



| Parameters | Description |
|---|---|
| T1 | -25℃ |
| T2 | 65℃ |
| 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 media player
 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.