

SX23D-25
Environment Test Report

Test Start : 2021,2,19
Test End : 2021,3,31

Tested by:

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Ver 1.2

March 31, 2021

| | |
|--|-----------|
| 1. LOW TEMPERATURE/HUMIDITY OPERATING TEST(PASS) | 2 |
| 2. HIGH TEMPERATURE/HUMIDITY OPERATING TEST(PASS) | 4 |
| 3. LOW TEMPERATURE NON-OPERATING TEST(PASS) | 6 |
| 4. HIGH TEMPERATURE NON-OPERATING TEST(PASS) | 8 |
| 5. COLD START TEST(PASS) | 10 |

1. Low Temperature/Humidity Operating Test(PASS)

1.1 Testing Objective

To meet the varied temperature requirements from the different areas because products may be subjected to varied operation temperature condition. The product must be tested to verify its temperature endurance.

1.2 Testing Procedure

1. Inspect the component (DUT) to establish operation pretest criteria and physical condition.
2. Connect the component (DUT) to the motherboard and verify its functionality for baseline.
3. Put the component (DUT) into chamber and the motherboard is outside then power on the motherboard.
4. Program the test profile and turn on the chamber based on specification.
5. Inspect the component (DUT) and compare it to pretest data and physical condition.
If any physical issue or malfunction happened during the testing ,this should be recorded and reported.

1.3 Testing Component (DUT)

1pc SX23D-25

1.4 Testing Equipment

KSON THS-A6T-150 Temperature/Humidity chamber



1.5 Testing Software

Running PassMark Burn-In Test Tool V8.1 Pro

1.6 Testing Location

Apacer QT Reliability & Environment Test Lab

1.7 Testing Specification

Operating Test(MIL-STD-810G,Method 502.5,Procedure II)

| Test Item | Temperature (°C) | Humidity (%) | Time | Remark |
|---------------|------------------|--------------|----------------|--------|
| Function Test | 25 | 50 | 10 minutes | - |
| Function Test | 25->20 | 50->5 | 2 hours | - |
| Function Test | 20 | 5 | 2 hours | - |
| Function Test | 20->-40 | 5->- | 1 hour | - |
| Function Test | -40 | - | 96 hours | - |
| Function Test | -40->25 | -->50 | 1hour 5minutes | - |
| Function Test | 25 | 50 | 2 hours | - |

1.8 Testing Criteria

1. Function works normally.
2. No crack on soldering,components.
3. No deformity on components.
4. No rust on metal parts.

1.9 Testing Result

| Testing Condition | Temperature | Testing Time | Result | Remark |
|-------------------|-------------|--------------|--------------|--------|
| | | | Sample No. 1 | |
| Operation | -40°C | 96 hours | Pass | - |

1.10 Testing Photo



2. High Temperature/Humidity Operating Test(PASS)

2.1 Testing Objective

To meet the varied temperature requirements from the different areas because products may be subjected to varied operation temperature condition. The product must be tested to verify its temperature endurance.

2.2 Testing Procedure

1. Inspect the component (DUT) to establish operation pretest criteria and physical condition.
2. Connect the component (DUT) to the motherboard and verify its functionality for baseline.
3. Put the component (DUT) into chamber and the motherboard is outside then power on the motherboard.
4. Program the test profile and turn on the chamber based on specification.
5. Inspect the component (DUT) and compare it to pretest data and physical condition.
If any physical issue or malfunction happened during the testing ,this should be recorded and reported.

2.3 Testing Component (DUT)

1pc SX23D-25

2.4 Testing Equipment

KSON THS-A6T-150 Temperature/Humidity chamber



2.5 Testing Software

Running PassMark Burn-In Test Tool V8.1 Pro

2.6 Testing Location

Apacer QT Reliability & Environment Test Lab

2.7 Testing Specification

Operating Test(MIL-STD-810G,Method 501.5,Procedure II)

| Test Item | Temperature (°C) | Humidity (%) | Time | Remark |
|---------------|------------------|--------------|------------|--------|
| Function Test | 25 | 50 | 10 minutes | - |
| Function Test | 25->85 | 50 | 2 hours | - |
| Function Test | 85 | 50 | 94 hours | - |
| Function Test | 85 | 50->95 | 2 hours | - |
| Function Test | 85 | 95 | 2 hours | - |
| Function Test | 85->25 | 95->50 | 2 hours | - |
| Function Test | 25 | 50 | 2 hours | - |

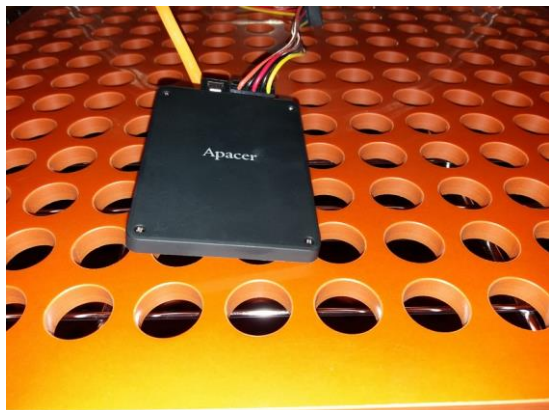
2.8 Testing Criteria

1. Function works normally.
2. No crack on soldering,components.
3. No deformity on components.
4. No rust on metal parts.

2.9 Testing Result

| Testing Condition | Temperature/Humidity | Testing Time | Result | Remark |
|-------------------|----------------------|--------------|--------------|--------|
| | | | Sample No. 1 | |
| Operation | 85°C/50~95%RH | 96 hours | Pass | - |

2.10 Testing Photo



3. Low Temperature Non-Operating Test(PASS)

3.1 Testing Objective

To meet the varied temperature requirements from the different areas because products may be subjected to varied operation temperature condition. The product must be tested to verify its temperature endurance.

3.2 Testing Procedure

1. Inspect the component (DUT) to establish operation pretest criteria and physical condition.
2. Put the component (DUT) into chamber and the motherboard is outside.
3. Program the test profile and turn on the chamber based on specification.
4. After test, inspect the component (DUT) and compare it to pretest data and physical condition.
If any physical issue or malfunction happened, this should be recorded and reported.

3.3 Testing Component (DUT)

1pc SX23D-25

3.4 Testing Equipment

KSON THS-A6T-150 Temperature/Humidity chamber



3.5 Testing Software

Running PassMark Burn-In Test Tool V8.1 Pro

3.6 Testing Location

Apacer QT Reliability & Environment Test Lab

3.7 Testing Specification

Non-Operating Test(MIL-STD-810G,Method 502.5,Procedure I)

| Test Item | Temperature (°C) | Time | Remark |
|------------|------------------|------------------|--------|
| System Off | 25 | 10 minutes | - |
| System Off | 25->-55 | 1 hour 20minutes | - |
| System Off | -55 | 96 hours | - |
| System Off | -55->25 | 1 hour 20minutes | - |
| System Off | 25 | 2 hours | - |

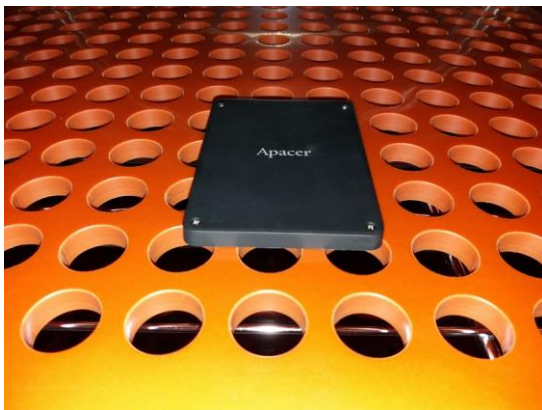
3.8 Testing Criteria

1. Function works normally.
2. No crack on soldering,components.
3. No deformity on components.
4. No rust on metal parts.

3.9 Testing Result

| Testing Condition | Temperature | Testing Time | Result | Remark |
|-------------------|-------------|--------------|--------------|--------|
| | | | Sample No. 1 | |
| Non-Operation | -55°C | 96 hours | Pass | - |

3.10 Testing Photo



4. High Temperature Non-Operating Test(PASS)

4.1 Testing Objective

To meet the varied temperature requirements from the different areas because products may be subjected to varied operation temperature condition. The product must be tested to verify its temperature endurance.

4.2 Testing Procedure

1. Inspect the component (DUT) to establish operation pretest criteria and physical condition.
2. Put the component (DUT) into chamber and the motherboard is outside.
3. Program the test profile and turn on the chamber based on specification.
4. After test, inspect the component (DUT) and compare it to pretest data and physical condition.
If any physical issue or malfunction happened, this should be recorded and reported.

4.3 Testing Component (DUT)

1pc SX23D-25

4.4 Testing Equipment

KSON THS-A6T-150 Temperature/Humidity chamber



4.5 Testing Software

Running PassMark Burn-In Test Tool V8.1 Pro

4.6 Testing Location

Apacer QT Reliability & Environment Test Lab

4.7 Testing Specification

Non-Operating Test(MIL-STD-810G,Method 501.5,Procedure I)

| Test Item | Temperature (°C) | Time | Remark |
|------------|------------------|------------------|--------|
| System Off | 25 | 10 minutes | - |
| System Off | 25->100 | 1 hour 15minutes | - |
| System Off | 100 | 96 hours | - |
| System Off | 100->25 | 1 hour 15minutes | - |
| System Off | 25 | 2 hours | - |

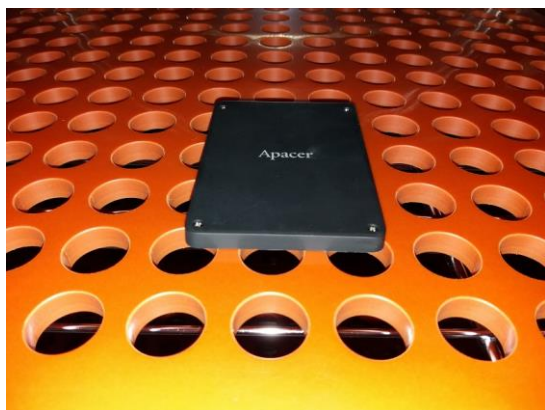
4.8 Testing Criteria

1. Function works normally.
2. No crack on soldering,components.
3. No deformity on components.
4. No rust on metal parts.

4.9 Testing Result

| Testing Condition | Temperature | Testing Time | Result | Remark |
|-------------------|-------------|--------------|--------------|--------|
| | | | Sample No. 1 | |
| Non-Operation | 100°C | 96 hours | Pass | - |

4.10 Testing Photo



5. Cold Start Test(PASS)

5.1 Testing Objective

To meet the varied temperature requirements from the different areas because products may be subjected to varied operation temperature condition. The product must be tested to verify its cold start boot cycles.

5.2 Testing Procedure

1. Inspect the component (DUT) to establish operation pretest criteria and physical condition.
2. Connect the component (DUT) to the motherboard and verify its functionality for baseline.
3. Put the component (DUT) into chamber and the motherboard/Power Box are outside.
4. Program the test profile and turn on the chamber based on specification.
5. Keep the component (DUT) off -40C 30 minutes.
6. Power on the motherboard and run Passmark for 30minutes then 10 minutes off.
7. Repeat step6 for another 99 times.
8. After the test, inspect the component (DUT) and compare it to pretest data and physical condition.
If any physical issue or malfunction happened during the testing ,this should be recorded and reported.

5.3 Testing Component (DUT)

1pc SX23D-25

5.4 Testing Equipment

KSON THS-A6T-150 Temperature/Humidity chamber



5.5 Testing Software

Running Cold Start Test by Passmark and Power Box

5.6 Testing Location

Apacer QT Reliability & Environment Test Lab

5.7 Testing Specification

Operating Test

| Test Item | Temperature (°C) | Time | Remark |
|---------------|------------------|-----------------|------------------|
| System Off | 25 | 10 minutes | - |
| System Off | 25->-40 | 1 hour 5minutes | - |
| System Off | -40 | 30minutes | - |
| Function Test | -40 | 30 minutes | repeat 100 times |
| System Off | -40 | 10 minutes | |
| System Off | -40->25 | 1 hour 5minutes | - |

5.8 Testing Criteria

1. Function works normally.
2. No crack on soldering,components.
3. No deformity on components.
4. No rust on metal parts.

5.9 Testing Result

| Testing Condition | Temperature | Testing Time | Result | Remark |
|-------------------|-------------|--------------|--------------|-----------|
| | | | Sample No. 1 | |
| Operation | -40°C | 30 minutes | Pass | 100 times |

5.10 Testing Photo

