Apacer Technology Inc. **Qual Report**

ST18E-25
Reliability & Environment Test Report

Test Start: 2023,8,23
Test End : 2023,9,22

Tested by:

Chain Yang

Approved by:

Danny TC Chen

Ver 1.0

Sep. 22, 2023

Apacer Technology

Qual Report

1. Drop Test (Pass)

1.1 Testing Objective

To verify the product can withstand any external forces caused by real application.

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. Setup the testing environment.
4. Program the test profile and turn on the equipment 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)

3pcs ST18E-25

1.4 Testing Equipment

Manual

1.5 Testing Specification

1. Height:80cm
2. Drop Surface:6 surfaces

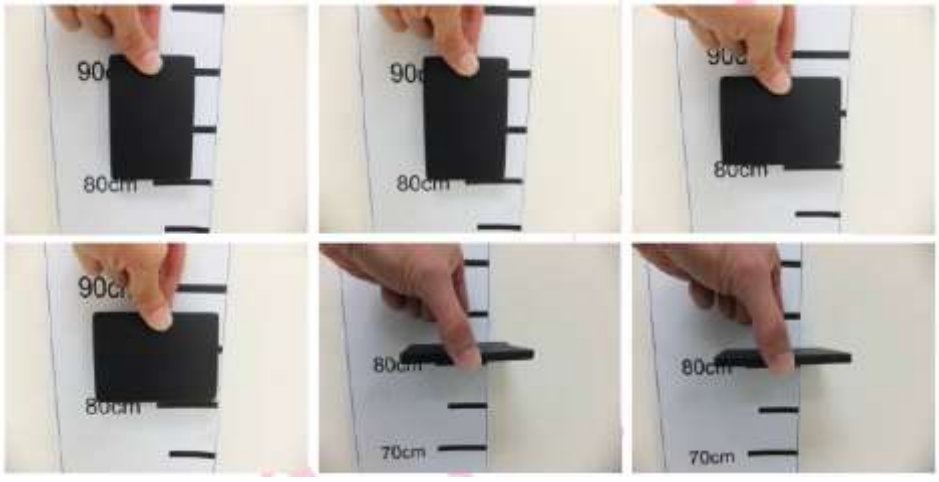
1.6 Testing Criteria

1. No crack.
2. Card is functional.
3. No transfigure,deformity.
4. No warp or rust for metal parts.

1.7 Testing Result

Testing Condition	Height	Drop Surface	Result	Remark
			Sample No. 1,2,3	
Storage	80cm	6 surfaces	Pass	

1.8 Testing Photo



2. Temp. Cycling Operation Test(Pass)

2.1 Testing Objective

To verify 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)

3pcs ST18E-25

2.4 Testing Equipment

MMTemperature & Humidity Chamber (Model: Giant Force GTH-150-50-CP-AR)

2.5 Testing Specification

1. Operation Temperature 0C~55C
2. Dwell times: 30 minutes hold each at high & low temperature
3. Rise/Drop Rate: 1℃/Min.
4. Number of Cycles: 10 cycles

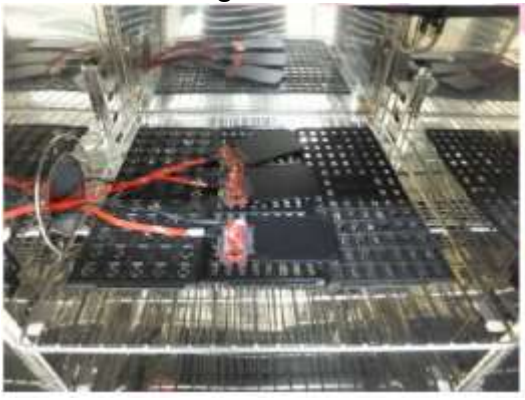
2.6 Testing Criteria

1. No crack.
2. Card is functional.
3. No transfigure,deformity.
4. No warp or rust for metal parts.

2.7 Testing Result

Testing Condition	Temperature	Testing Time	Result	Remark
			Sample No. 1,2,3	
Operation	0º~55º C	30 minutes each temp.	Pass	-

2.8 Testing Photo



3. Bending Test (Pass)

3.1 Testing Objective

To verify the product can withstand any external forces caused by real application.

3.2 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. Setup the testing environment.
4. Program the test profile and turn on the equipment 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.

3.3 Testing Component (DUT)

3pcs ST18E-25

3.4 Testing Equipment

Universal load tester (Model: HIT-B)

3.5 Testing Specification

1.Applied Force:50N
2.Duration:Hold 60 seconds/cycle
3.Test Cycles:5 cycles

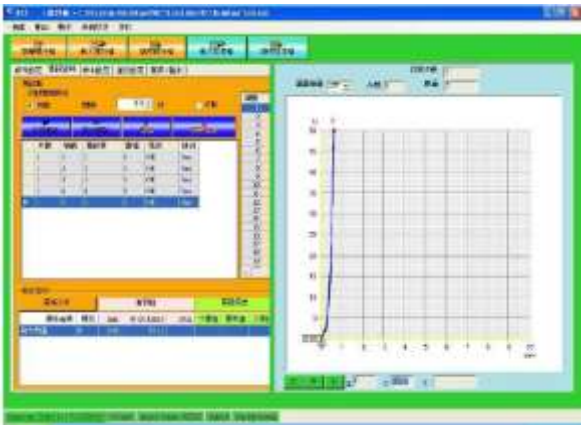
3.6 Testing Criteria

1. No crack.
2. Card is functional.
3. No transfigure,deformity.
4. No warp or rust for metal parts.

3.7 Testing Result

Testing Condition	Force	Duration	Result	Remark
			Sample No. 1,2,3	
Storage	50N	60 seconds/cycle	Pass	-

3.8 Testing Photo



4. Vibration Test (Pass)

4.1 Testing Objective

The purpose of the vibration test is to determine mechanical weakness or performance degradation of a component(DUT) when subjected to vibration. Based on this information, to decide whether the component(DUT) is acceptable or not. It may be used in some cases to determine the structural integrity of specimens and study their dynamic behavior. Vibration testing may be performed anytime during the course of the test program. The accumulated effects of vibration induced stress may affect component(DUT) performance under other environmental conditions, such as temperature, altitude, humidity.

4.2 Testing Procedure

1. Inspect the component (DUT) to establish operation pretest criteria and physical condition.
2. Verify the component (DUT) functionality.
3. Fix component (DUT) on vibration table properly by adequate fixture
4. Expose the component (DUT) to the test level and duration as determined from the specifications.
5. 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.
6. Repeat step 3~5 for each axis.

4.3 Testing Component (DUT)

3pcs ST18E-25

4.4 Testing Equipment

Vibration tester (Model: KD-9363-EM-600F3K-40N120)

4.5 Testing Specification

1.Type:Sine vibration

2.Frequency/Displacement:

20~80Hz /1.52mm

3.30G peak Frequency/Acceleration:

80~2000Hz / 20Gp-p

4.Axis:X/Y/Z

5. Duration:
30min/Axis

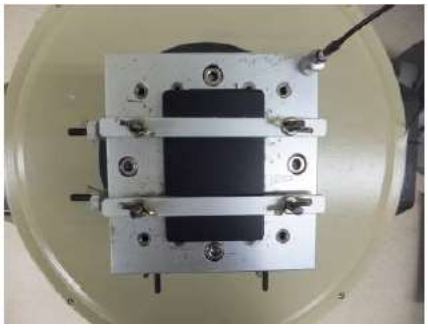
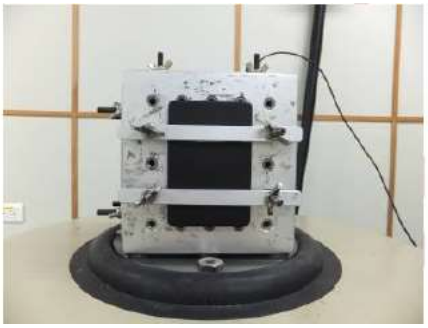
4.6 Testing Criteria

1. No crack.
2. Card is functional.
3. No transfigure,deformity.
4. No warp or rust for metal parts.

4.7 Testing Result

Testing Condition	Frequency	Duration	Result	Remark
			Sample No. 1,2,3	
Storage	20Hz~ 2000Hz	30mins/Axis	Pass	-

4.8 Testing Photo/Profile


5. Durability Test (Pass)

5.2 Testing Objective

To verify the product can withstand a certain number of mating caused by real application.

5.3 Testing Procedure

1. Inspect the component (DUT) to establish operation pretest criteria and physical condition.
2. Verify the component (DUT) functionality.
3. Fix component (DUT) on equipment properly by adequate fixture
4. Expose the component (DUT) to the test level and duration as determined from the specifications.
5. 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.

5.4 Testing Component (DUT)

3pcs ST18E-25

5.5 Testing Equipment

Test fixture with M.2 Socket

5.6 Testing Specification

No. of Trials:1,000

5.7 Testing Criteria

1. No crack.
2. Card is functional.
3. No transfigure,deformity.
4. No warp or rust for metal parts.

5.8 Testing Result

Testing Condition	No. of Trials	Result	Remark
		Sample No. 1,2,3	
Storage	1,000	Pass	-

5.9 Testing Photo/Profile

6. Mechanical Shock Test (Pass)

6.1 Testing Objective

The purpose of the vibration test is to determine mechanical weakness or performance degradation of a component(DUT) when subjected to vibration. Based on this information, to decide whether the component(DUT) is acceptable or not. It may be used in some cases to determine the structural integrity of specimens and study their dynamic behavior. Vibration testing may be performed anytime during the course of the test program. The accumulated effects of vibration induced stress may affect component(DUT) performance under other environmental conditions, such as temperature, altitude, humidity.

6.2 Testing Procedure

1. Inspect the component (DUT) to establish operation pretest criteria and physical condition.
2. Verify the component (DUT) functionality.
3. Fix component (DUT) on Shock table properly by adequate fixture
4. Expose the component (DUT) to the test level and duration as determined from the specifications.
5. 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.
6. Repeat step 3~5 for each axis.

6.3 Testing Component (DUT)

3pcs PX150-uSSD

6.4 Testing Equipment

Mechanical Shock Tester (Model: KD-DP-1200-20)

6.5 Testing Specification

1. Acceleration:1,500G with Half Sine Wave
2. Durations:0.5ms
3. 3axes,6faces

6.6 Testing Criteria

1. No crack.
2. Card is functional.
3. No transfigure,deformity.
4. No warp or rust for metal parts.

6.7 Testing Result

Testing Condition	Acceleration	Result	Remark
		Sample No. 1,2,3	
Storage	1,500G	Pass	-

6.8 Testing Photo/Profile