**Apacer Technology Inc.** **Qual Report**

# *PT1AE-E3SX*
# *Reliability & Environment Test Report*

**Test Start : 2025,9,19**
**Test End : 2025,10,20**

**Tested by:**

**Chain Yang**

**Approved by:**

**Danny TC Chen**

**Ver 1.0**

**Oct. 20, 2025**

# Apacer Technology Inc.

# 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 PT1AE-E3SX

### 1.4 Testing Equipment

Manual

### 1.5 Testing Specification

1.Height:80cm
2.Drop Surface:6 surfaces
3.No. of Trial:Each face 1 time

### 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

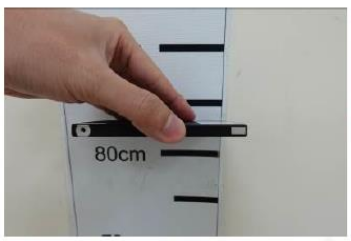
| Testing Condition | Height | Drop Surface | Result | Remark |
|---|---|---|---|---|
| | | | Sample No. 1,2,3 | |
| Storage | 80cm | 6 surfaces | Pass | |

### 1.8 Testing Photo


-X


+Y


-Y




+Z


-Z

## *2. Bending Test(Pass)*

### 2.1 Testing Objective

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

### 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. 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.

### 2.3 Testing Component (DUT)

3pcs PT1AE-E3SX

### 2.4 Testing Equipment

Universal Load Tester

### 2.5 Testing Specification

1.Applied Force:50N
2.Duration:Hold 60 seconds/cycle
3.No. of Trial:5

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

### 2.8 Testing Photo

## *3. Torque 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 PT1AE-E3SX

### 3.4 Testing Equipment

Torgue Tester Model:2205S

### 3.5 Testing Specification

1.Applied Force:0.5N-m or ±5deg
2.Duration:Hold 30 seconds/cycle
3.No. of Trial:5

### 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 | 0.5N-m or ±5deg | 30 seconds/cycle | Pass | - |

### 3.8 Testing Photo

## *4. Durability Test(Pass)*

### 4.1 Testing Objective

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

### 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 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.

### 4.3 Testing Component (DUT)

3pcs PT1AE-E3SX

### 4.4 Testing Equipment

UNIVERSAL Load Tester

### 4.5 Testing Specification

No. of Trials:10,000

### 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 | No. of Trials | Result | Remark |
|---|---|---|---|
| | | Sample No. 1,2,3 | |
| Storage | 10,000 | Pass | - |

### 4.8 Testing Photo/Profile

## *5. Non-Operating Vibration Test(Pass)*

### 5.1 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.

### 5.2 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.

### 5.3 Testing Component (DUT)

3pcs PT1AE-E3SX

### 5.4 Testing Equipment

1. Vibration Tester: KING DESIGN KD-9363EM-1000F2K-50N120,S/N:GUG02102091
2. Controller: DACTRON LASER USB, S/N: 12448370
3. Control Accelerometer: WILCOXON RESEARCH WR-784A, S/N: 2356

### 5.5 Testing Specification

1.Waveform:Sine waveform
2.Frequency/Displacement:20~80Hz/1.52mm
3.Frequency/Acceleration:80~2000Hz/20G
4.Axis:X/Y/Z
5.Duration:30min/Axis
6.No. of Trials:1

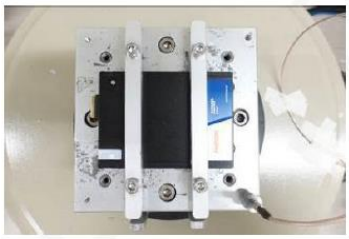
### 5.6 Testing Criteria

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

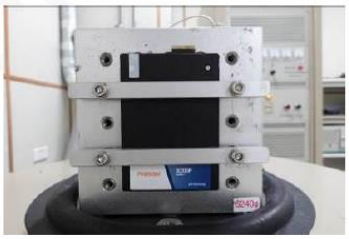
### 5.7 Testing Result

| Testing Condition | Waveform | Duration | Result | Remark |
|---|---|---|---|---|
| | | | Sample No. 1,2,3 | |
| Storage | Sine | 30min/Axis | Pass | - |

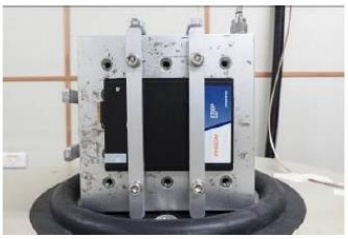
### 4.8 Testing Photo/Profile



Z axis



X axis



Y axis

## *6. Operating Vibration 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 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.

### 6.3 Testing Component (DUT)

3pcs PT1AE-E3SX

### 6.4 Testing Equipment

1. Vibration Tester: KING DESIGN KD-9363EM-1000F2K-50N120,S/N:GUG02102091
2. Controller: DACTRON LASER USB, S/N: 12448370
3. Control Accelerometer: WILCOXON RESEARCH WR-784A, S/N: 2366

### 6.5 Testing Specification

1.Waveform: Random waveform
2.Frequency: 7~800Hz
3.Acceleration: 3.08grms
4.Axis:X/Y/Z
5.Duration:30min/Axis
6.No. of Trials:1

### 6.6 Testing Criteria

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

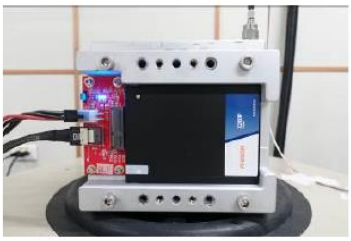
### 6.7 Testing Result

| Testing Condition | Waveform | Duration | Result | Remark |
|---|---|---|---|---|
| | | | Sample No. 1,2,3 | |
| Operating | Random | 30min/Axis | Pass | - |

### 4.8 Testing Photo/Profile

Z axis

X axis



Y axis

## *7. Non-Operating Shock Test(Pass)*

### 7.1 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.

### 7.2 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.

### 7.3 Testing Component (DUT)

3pcs PT1AE-E3SX

### 7.4 Testing Equipment

1. Vibration Tester: KING DESIGN KD-9363EM-1000F2K-50N120,S/N:GUG02102091
2. Controller: DACTRON LASER USB, S/N: 12448370
3. Control Accelerometer: WILCOXON RESEARCH WR-784A, S/N: 23116

### 7.5 Testing Specification

1. Acceleration:1500G with Half Sine Wave
2. Durations:0.5ms
3. No. of shocks: 1 time per each direction

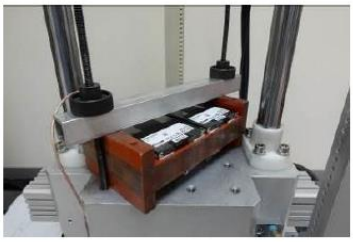
### 7.6 Testing Criteria

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

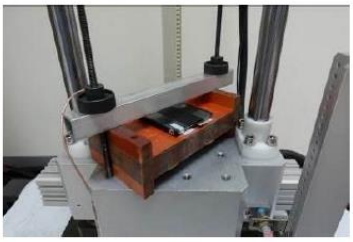
### 7.7 Testing Result

| Testing Condition | Acceleration | Result | Remark |
|---|---|---|---|
| | | Sample No. 1,2,3 | |
| Storage | 1500G | Pass | - |

**7.8 Testing Photo/Profile**



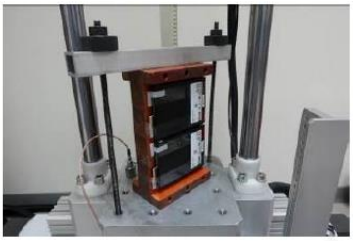
+Z



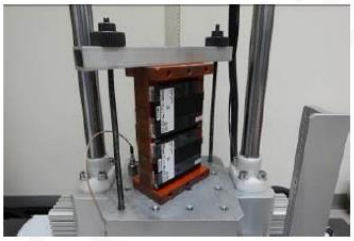
-Z

+X

-X



+Y



-Y

## *8. Operating Shock Test(Pass)*

### 8.1 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.

### 8.2 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.

### 8.3 Testing Component (DUT)

3pcs PT1AE-E3SX

### 8.4 Testing Equipment

1. Vibration Tester: KING DESIGN KD-9363EM-1000F2K-50N120,S/N:GUG02102091
2. Controller: DACTRON LASER USB, S/N: 12448370
3. Control Accelerometer: WILCOXON RESEARCH WR-784A, S/N: 23116

### 8.5 Testing Specification

1. Acceleration:1000G with Half Sine Wave
2. Durations:0.5ms
3. No. of shocks: 1 time per each direction

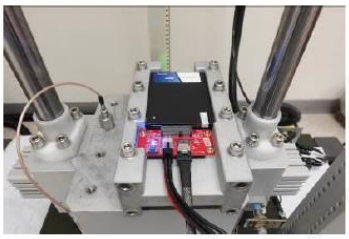
### 8.6 Testing Criteria

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

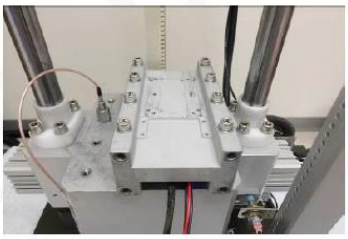
### 8.7 Testing Result

| Testing Condition | Acceleration | Result | Remark |
|---|---|---|---|
| | | Sample No. 1,2,3 | |
| Storage | 1000G | Pass | - |

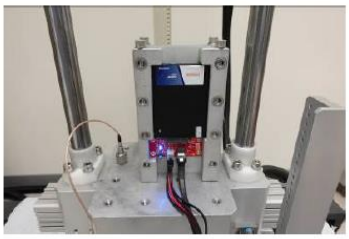
### 8.8 Testing Photo/Profile



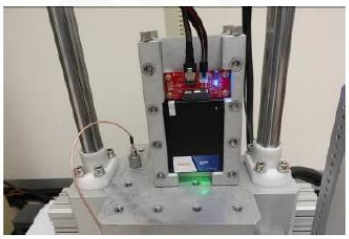
+Z



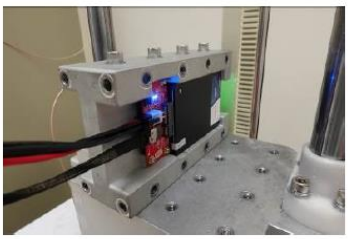
-Z



+X



-X



+Y

-Y