

***PX22D-M280***  
***Environment Test Report***

**Test Start : 2021,7,29**  
**Test End : 2021,9,2**

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**Ver 1.3**

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## 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 PX22D-M280

### 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	-

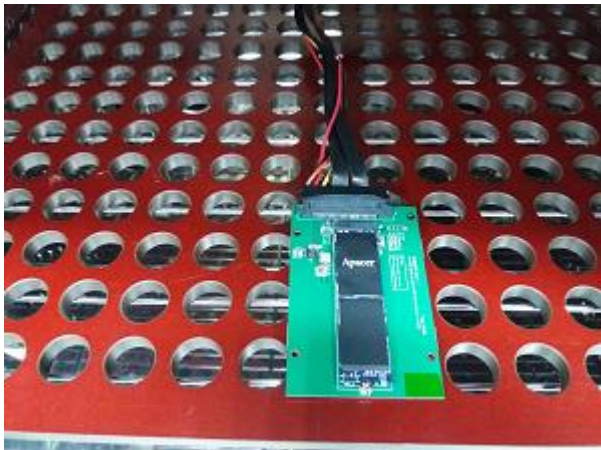
## 1.8 Testing Criteria

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 PX22D-M280

### 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	-

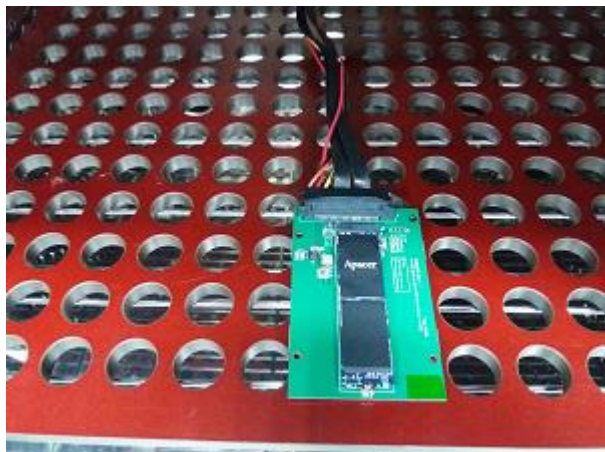
## 2.8 Testing Criteria

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 PX22D-M280

#### 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	-

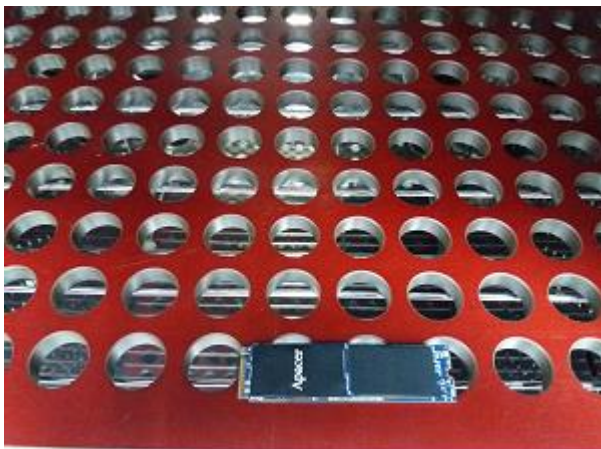
### 3.8 Testing Criteria

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 PX22D-M280

##### 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	-

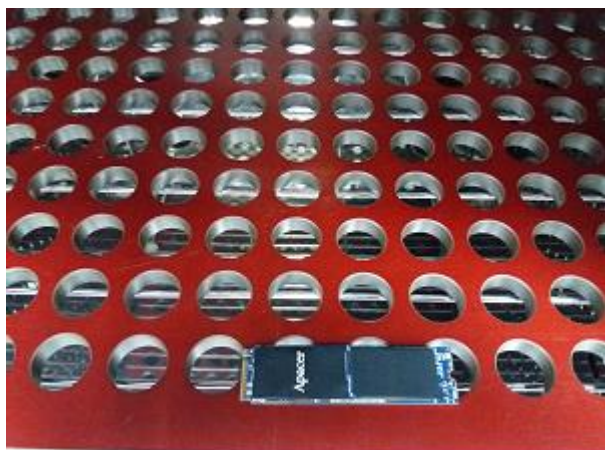
## 4.8 Testing Criteria

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. Power on the motherboard and run Passmark for 3 minutes then 2 minutes off.
6. Repeat step5 for another 99 times.
7. Keep the component (DUT) -40C and run Run-In C2I Test V1.8.6 for 60 minutes.
8. Ramp up to 85C in 45 minutes
9. Keep the component (DUT) running 60 minutes at 85C.
10. Ramp down to -40C at 1C/min
11. Repeat Step7 to Step10 for another 2 times
12. 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 PX22D-M280

### 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	5 minutes	-
System Off	25->-40	1 hour 5 minutes	-
Function Test	-40	3 minutes	repeat 100 times
System Off	-40	2 minutes	
Function Test	-40	60 minutes	repeat 3 times
Function Test	-40->85	45 minutes	
Function Test	85	60 minutes	
Function Test	85->-40	2 hours 5 minutes	
Function Test	-40->25	1 hour 5 minutes	-

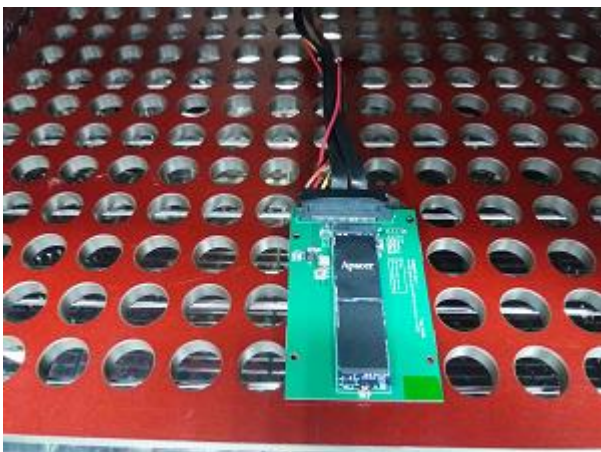
## 5.8 Testing Criteria

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	Cycle	Result	Remark
			Sample No. 1	
Operation	-40°C	100 times	Pass	
	-40°C->85 °C	3 times	Pass	

## 5.10 Testing Photo



## 6. High Temperature/High Humidity Test(PASS)

### 6.1 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.

### 6.2 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.

### 6.3 Testing Component (DUT)

1pc PX22D-M280

### 6.4 Testing Equipment

KSON THS-A6T-150 Temperature/Humidity chamber



### 6.5 Testing Software

Running PassMark Burn-In Test Tool V8 Pro

### 6.6 Testing Location

Apacer QT Reliability & Environment Test Lab

## 6.7 Testing Specification

Operating Test(Comply with MIL-STD-810G 507.5)

Step No.	Test Item	Temperature (°C)	Humidity (%)	Time	Remark
1	Function Test	25	50	10 minutes	-
2	Function Test	30	95	45minutes	-
3	Function Test	60	95	2 hours	-
4	Function Test	60	95	6 hours	-
5	Function Test	30	95	8 hours	-
6	Function Test	30	95	8 hours	Repeat step3~6 for a total 10 cycles
7	Function Test	25	50	45minutes	-

## 6.8 Testing Criteria

1. No crack
2. No easily removed button
3. No transfigure,deformity
4. No stiffness or squeak for buttons when pressed
5. No warp or rust for metal parts
6. No slack(e.g. screw loose)
- 7.No cracks to cushion(especially after drop test)
- 8.No severe damage to carton box

## 6.9 Testing Result

Testing Condition	Temperature		Testing Time	Result	Remark
	Temperature	Humidity(%)		Sample No. 1	
Operation	30°C,60°C	95	244 hours	Pass	-

Notes : The temperature/humidity gradient should be less than 20 °C per hours, 20% per hour to prevent condensation.

## 6.10 Testing Photo/Profile

