TEST REPORT

Report No.: GTS20250811007-1-01

Applicant	Shenzhen Techtion Smart Electronics Co., Ltd.
Manufacturer	Shenzhen Techtion Smart Electronics Co., Ltd.
Sample name	Outdoor Reflective and Transflective Display Screen
Specification Model	TS-280PHD
Approval Types	Commission Test

Shenzhen Global Test Service Co., Ltd.

Address: No.7-101 and 8A-104, Building 7 and 8, DCC Cultural and Creative Garden, No.98, Pingxin North Road, Shangmugu Community, Pinghu Subdistrict, Longgang District, Shenzhen, Guangdong, China
telephone: 0755-28717088 Portraiture: 0755-28717111 e-mail: gts_sz@gtscert.com web page: http://www.gtscert.com

Sample name	Outdoor Reflective and Transflective Display Screen		
Specification Model	TS-280PHD		
Applicant	Shenzhen Techtion Smart Electronics Co., Ltd.		
Address	Room 902, 8th Floor, Unit 1, Building No. 2, Xintianxia Chengyun Factory District, Vanke City Community, Bantian Street, Longgang District, Shenzhen		
Manufacturer	Shenzhen Techtion Smart Electronics Co., Ltd.		
Address	Room 902, 8th Floor, Unit 1, Building No. 2, Xintianxia Chengyun Factory District, Vanke City Community, Bantian Street, Longgang District, Shenzhen		
Factory	Shenzhen Techtion Smart Electronics Co., Ltd.		
Address	Room 902, 8th Floor, Unit 1, Building No. 2, Xintianxia Chengyun Factory District, Vanke City Community, Bantian Street, Longgang District, Shenzhen		
Trade Mark	/	Sample serial number	/
Sample source	Customer sample delivery	Sample quantity	
Date of submission for inspection	2025.08.29	Testing Date	2025.09.05 to 2025.10.22

Testing items:

Damp heat-steady state, Composite temperature/humidity cyclic test, Change of temperature, Random vibration, Drop, IP6X, IPX5.

According to the standard:

IEC 60068-2-78:2012 Environmental testing-Part 2-78:Tests-Test Cab:Damp heat,steady state

IEC 60068-2-38:2021 Environmental testing-Part 2-38:Tests methods-Test Z/AD:Composite temperature/humidity cyclic test

IEC 60068-2-14:2009 Environmental testing-Part 2-14:Tests-Test N:Change of temperature

IEC 60068-2-64:1993 Environmental testing-Part 2: Test methods-Test Fh: Vibration, broad-band random (digital control) and guidance

ISTA 2A 2011 International Safe Transit Association

IEC 60529:1989+AMD1:1999+AMD2:2013 Degrees of protection provided by enclosure (IP co...

Test conclusion:

Pass

(S... of testing ins...)

Tested by: Warren Xing 2025.11.22

Reviewed by : Sky Shi 2025.11.22

Approved by: Jason Hu 2025.11.22

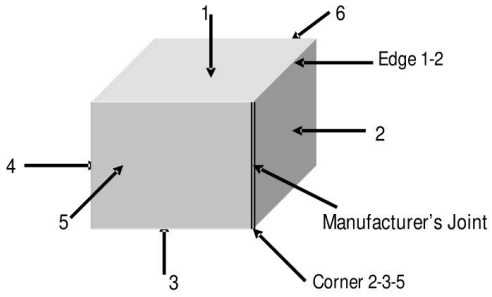
Remarks:

Note: The conclusion "P" indicates that the test is "qualified"; "F" indicates that the test is "unqualified"; "N/A"indicates that

the test is "not applicable".

Overview of Test Results

<table>
<tr><th>Serial number</th><th>Testing items</th><th>Standard requirements</th><th>Results</th><th>Conclusion</th></tr>
<tr><td>1.</td><td>Damp heat-steady state</td><td>1、Temperature:70℃
2、Relative humidity:90%
3、Test Duration:72Hours
4、Sample status:Operating/Non-operating
5、Packaging Status:unpacked</td><td>After the test, the sample's appearance and function were normal.</td><td>Pass</td></tr>
<tr><td>2.</td><td>Composite temperature/ humidity cyclic test</td><td>1、High temperature:60℃
2、Low temperature:10℃
3、Relative humidity:85%
4、Transfer time:1℃/minute
5、Dwell time:12Hours
6、Number of test cycles:10
7、Sample status:Non-operating
8、Packaging Status:unpacked</td><td>After the test, the sample's appearance and function were normal.</td><td>Pass</td></tr>
<tr><td>3.</td><td>Change of temperature</td><td>1、High temperature:70℃
2、Low temperature:-20℃
3、Dwell time:30minutes
4、Transfer time:less than 3minutes
5、Number of test cycles:10
6、Sample status:Non-operating
7、Packaging Status:unpacked</td><td>After the test, the sample's appearance and function were normal.</td><td>Pass</td></tr>
<tr><td>4.</td><td>Random vibration</td><td>1、Frequency and acceleration:
<table><tr><th>Frequency (Hz)</th><th>PSD Level (g²/Hz)</th><th>Grms (G)</th></tr><tr><td>1</td><td>0.0001</td><td rowspan="4">1.15</td></tr><tr><td>4</td><td>0.01</td></tr><tr><td>100</td><td>0.01</td></tr><tr><td>200</td><td>0.001</td></tr></table>2、Testing axial direction: X,Y,Z
3、Test Duration:30minutes/axis
4、Sample status:Non-operating
5、Packaging Status:packaging</td><td>After the test, the sample's appearance and function were normal.</td><td>Pass</td></tr>
</table>

5.	Drop	1、Packaging Weight:19.5kg 2、Drop Height:660mm 3、Drop Position:1corner, 3edges, 6faces 4、Number of Drops:1time/Position 5、Sample status:Non-operating 6、Packaging Status:packaging 7、Packaging Position Identification:  	1、After the test, the dropped corner is slightly damaged, and the damage does not exceed one-tenth of the second-longest edge. 2、After the test, the display Screen's appearance and function were normal.	Pass
6.	IP6X	1. Dust: talc powder (75 μ m); 2. Test time: 8h continuous dust blowing; 3. Concentration: 2 kg/m³; 4. Sample status during the test: the sample does not work during the test; 5. Sample status: storage;	After the IP6X dustproof test, no dust entered the interior of the sample.	Pass
7.	IPX5	1. Nozzle diameter: 6.3mm; 2. Water spray distance: 2.5m~3m; 3. Total flow rate: 12.5L/min; 4. Test time: 5 min.	After the IPX5 waterproof test, no water seeped into the interior of the sample.	Pass

Test requirements and results

Testing item: Damp heat-steady state

1）Testing basis：

IEC 60068-2-78:2012 Environmental testing-Part 2-78:Tests-Test Cab:Damp heat,steady state

2）Inspection methods and instructions：

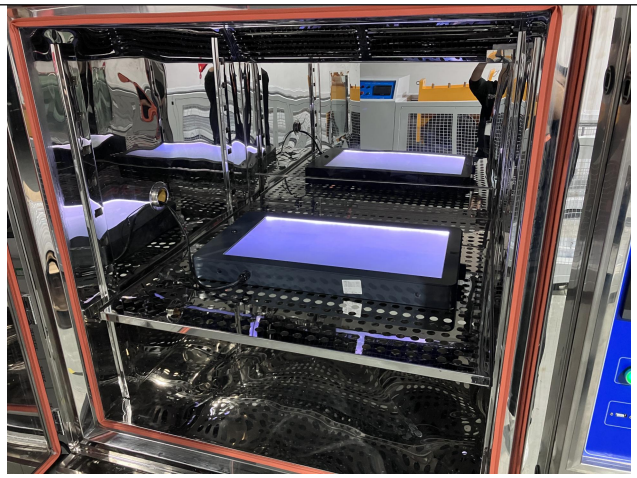
1.Temperature:70℃
2.Relative humidity:90%
3.Test Duration:72Hours
4.Sample status:Operating
5.Packaging Status:unpacked

3）Determination basis：

After the test, the sample's appearance and function were normal.

4）Test data:

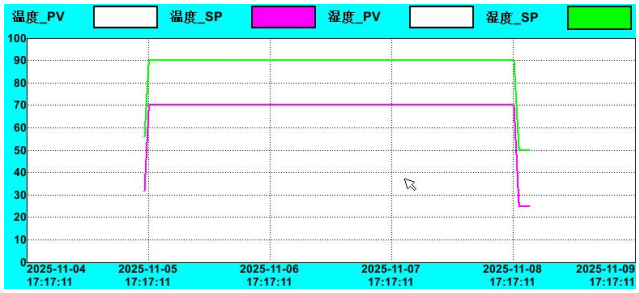
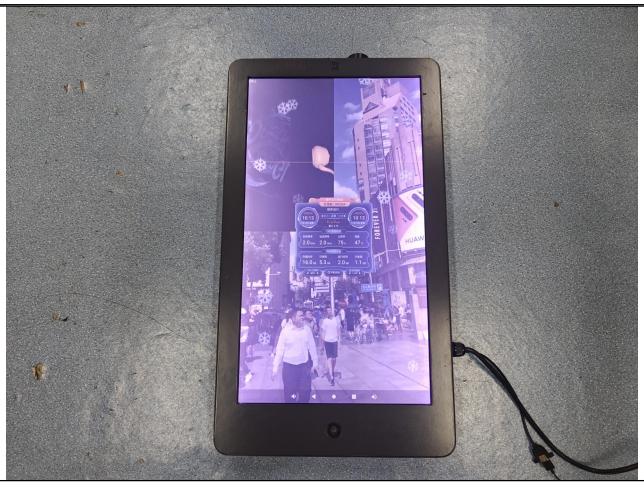
Before the test



Test Status(Operating)

Test Status(Operating)

Test conditions

	
Test curve	Functional check after testing

5）Test result:

After the test, the sample's appearance and function were normal.

Test requirements and results

Testing item: Damp heat-steady state

1）Testing basis：

IEC 60068-2-78:2012 Environmental testing-Part 2-78:Tests-Test Cab:Damp heat,steady state

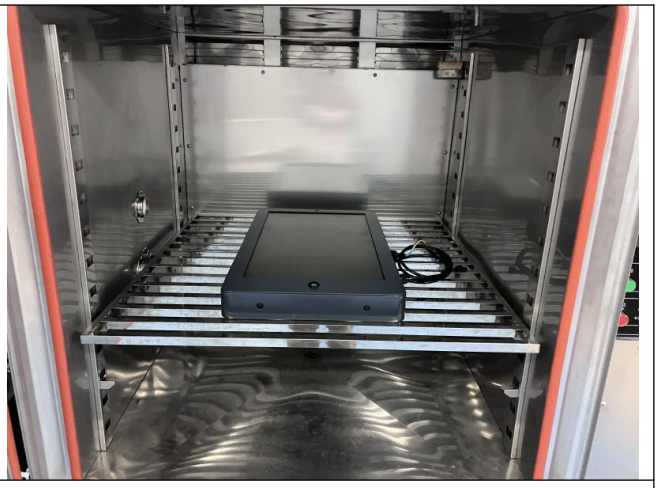
2）Inspection methods and instructions：

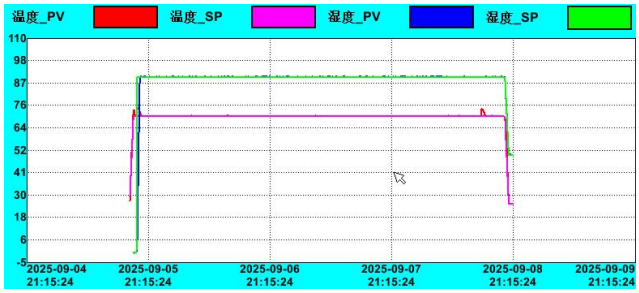
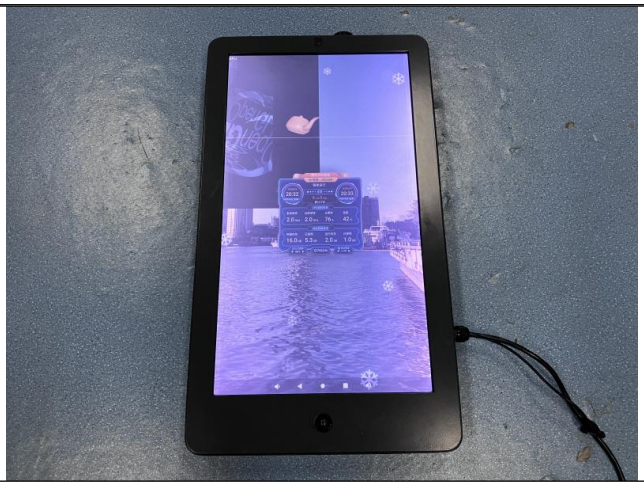
1.Temperature:70℃
2.Relative humidity:90%
3.Test Duration:72Hours
4.Sample status:Non-operating
5.Packaging Status:unpacked

3）Determination basis：

After the test, the sample's appearance and function were normal.

4）Test data:

	
Before the test	Test Status(Non-operating)
	
Test Status(Non-operating)	Test conditions

	
Test curve	Functional check after testing

5）Test result:

After the test, the sample's appearance and function were normal.

Test requirements and results

Testing item: Composite temperature/humidity cyclic test

1) Testing basis：

IEC 60068-2-38:2021 Environmental testing-Part 2-38:Tests methods-Test Z/AD:Composite

2) Inspection methods and instructions：

1.High temperature:60℃

2.Low temperature:10℃

3.Relative humidity:85%

4.Transfer time:1℃/minute

5.Dwell time:12Hours

6.Number of test cycles:10

7.Sample status:Non-operating

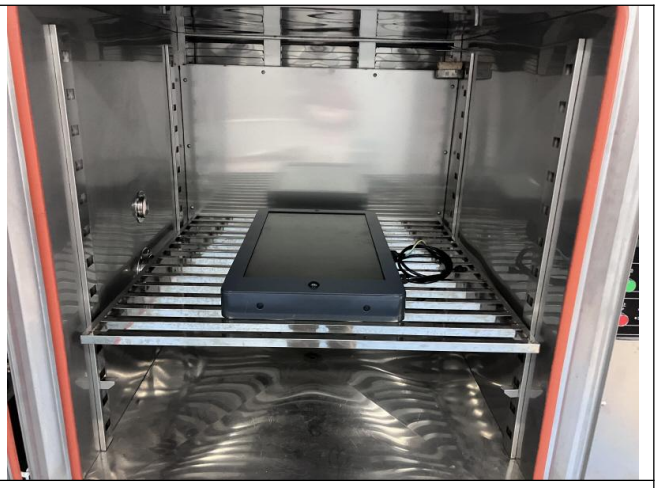
8.Packaging Status:unpacked

3）Determination basis：

After the test, the sample's appearance and function were normal.

4）Test data:

Before the test

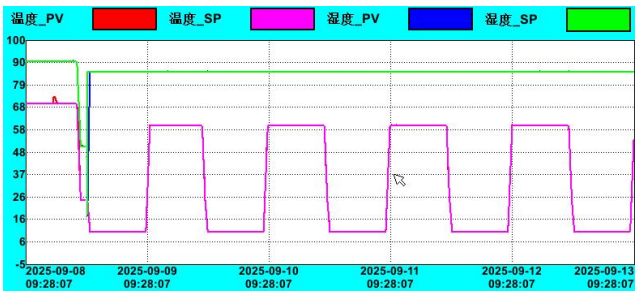


During the test-1

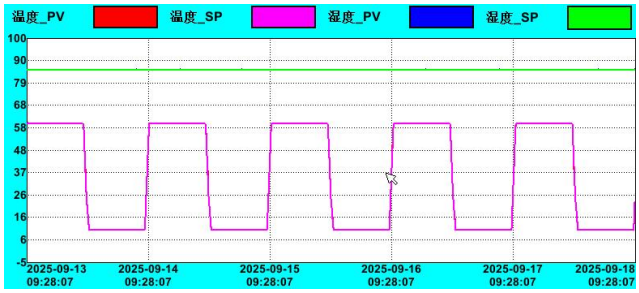
During the test-2

Test conditions-1

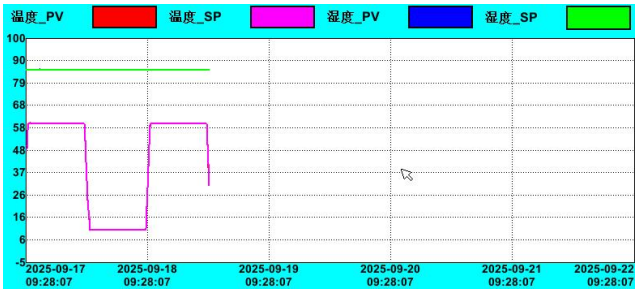
Test conditions-2



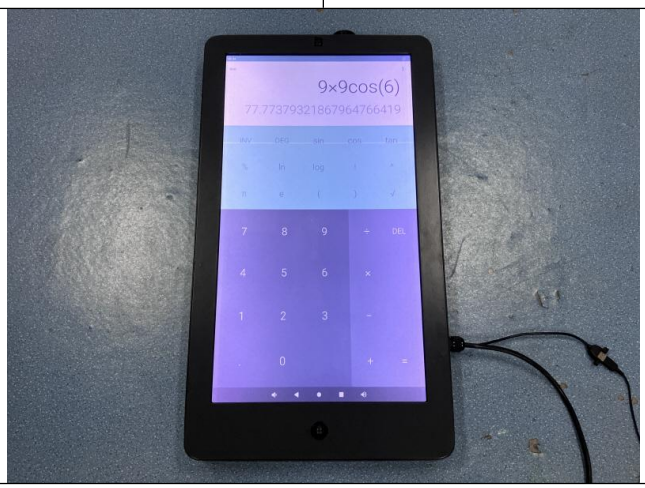
Test curve-1



Test curve-2



Test curve-3



Functional check after testing

5) Test result:

After the test, the sample's appearance and function were normal.

Test requirements and results

Testing item: Change of temperature

1）Testing basis：

IEC 60068-2-14:2009 Environmental testing-Part 2-14:Tests-Test N:Change of temperature

2）Inspection methods and instructions：

1、High temperature:70℃

2、Low temperature:-20℃

3、Dwell time:30minutes

4、Transfer time:less than 3minutes

5、Number of test cycles:10

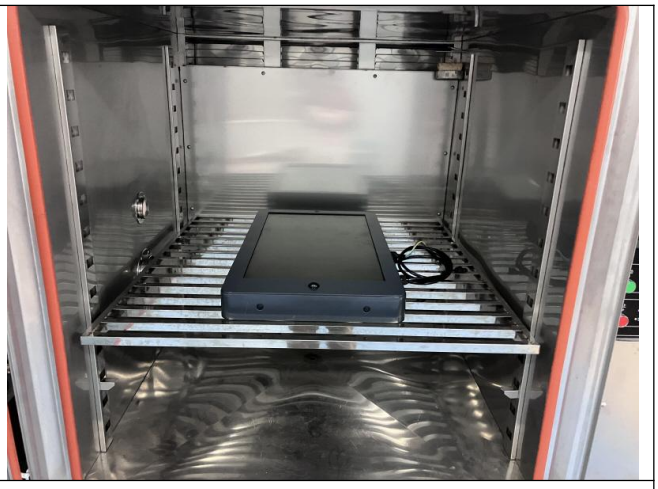
6、Sample status:Non-operating

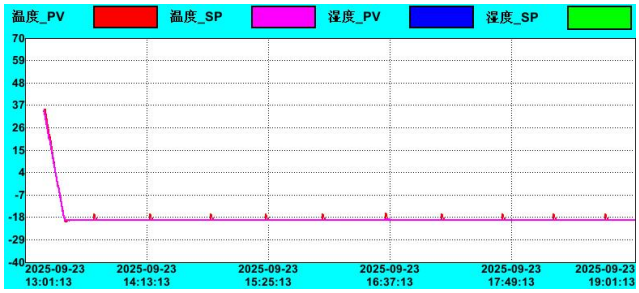
7、Packaging Status:unpacked

3）Determination basis：

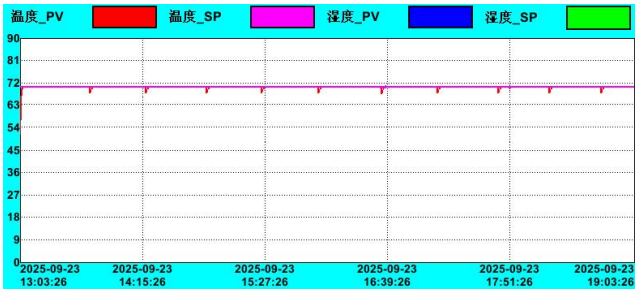
After the test, the sample's appearance and function were normal.

4）Test data:

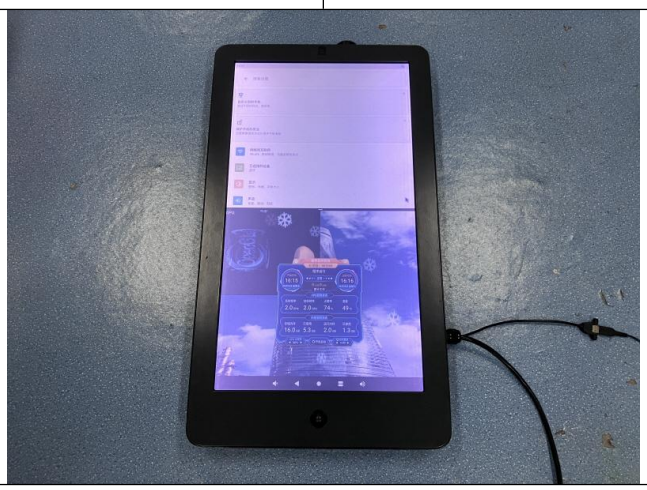
<table>
<tr><td>  </td><td>  </td></tr>
<tr><td>Before the test</td><td>During the test-1</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>During the test-2</td><td>During the test-3</td></tr>
</table>



Test curve-1



Test curve-2



Functional check after testing

5）Test result:

After the test, the sample's appearance and function were normal.

Test requirements and results

Testing item: Random vibration

1）Testing basis：

IEC 60068-2-64:1993 Environmental testing-Part 2: Test methods-Test Fh: Vibration, broad-band random (digital control) and guidance

2）Inspection methods and instructions：

1、Frequency and acceleration:

Frequency (Hz)	PSD Level (g^2/Hz)	Grms (G)
1	0.0001	1.15
4	0.01	
100	0.01	
200	0.001	

2、Testing axial direction: X,Y,Z

3、Test Duration:30minutes/axis

4、Sample status:Non-operating

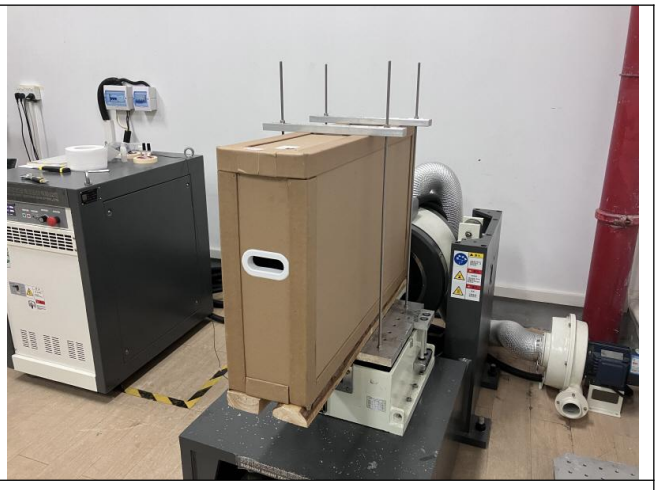
5、Packaging Status:packaging

3）Determination basis：

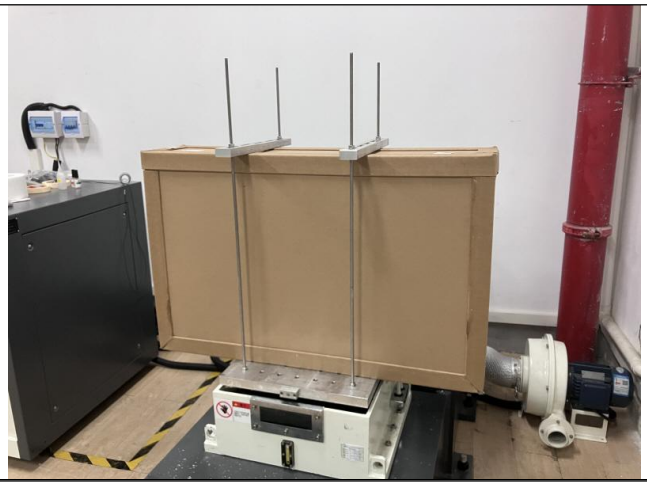
After the test, the sample's appearance and function were normal.

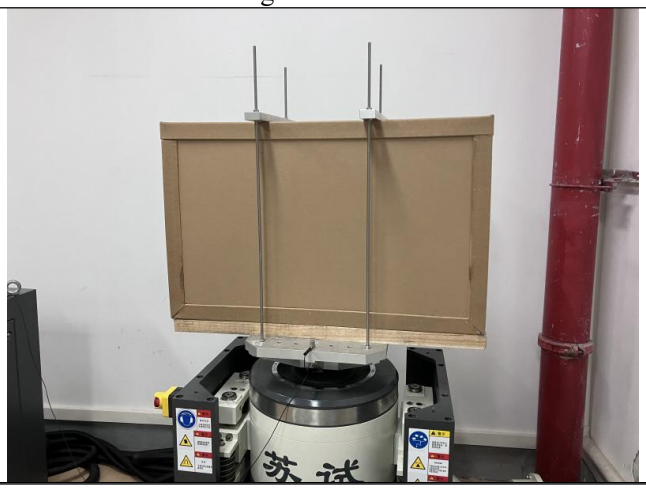
4）Test data:

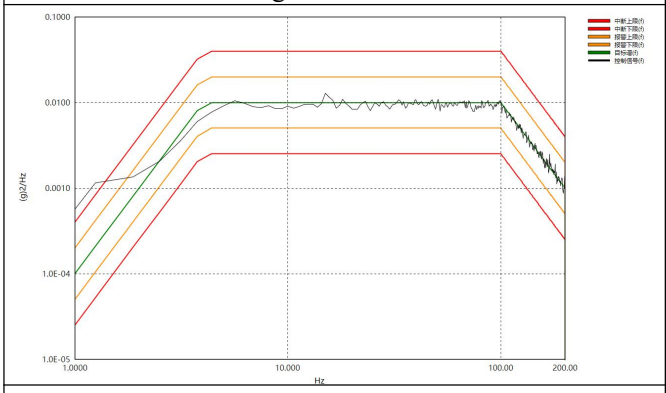
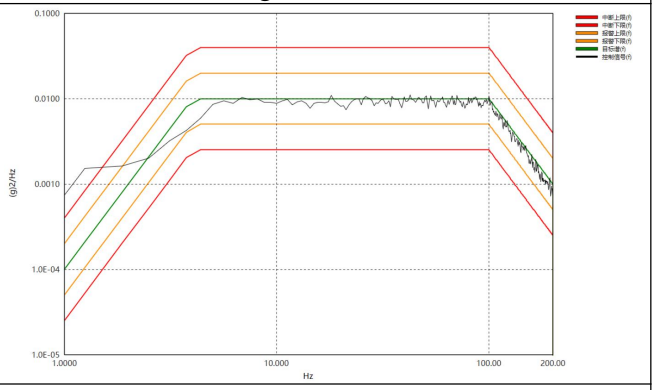
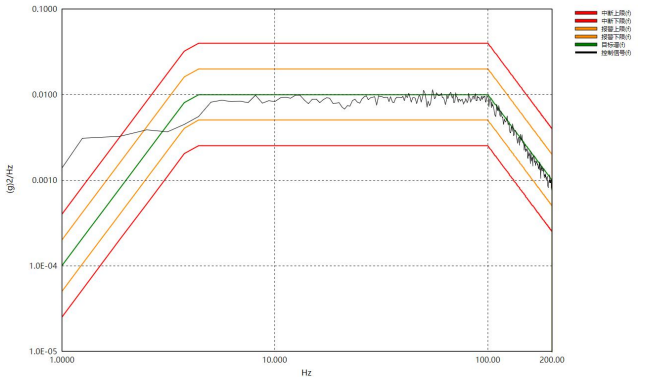
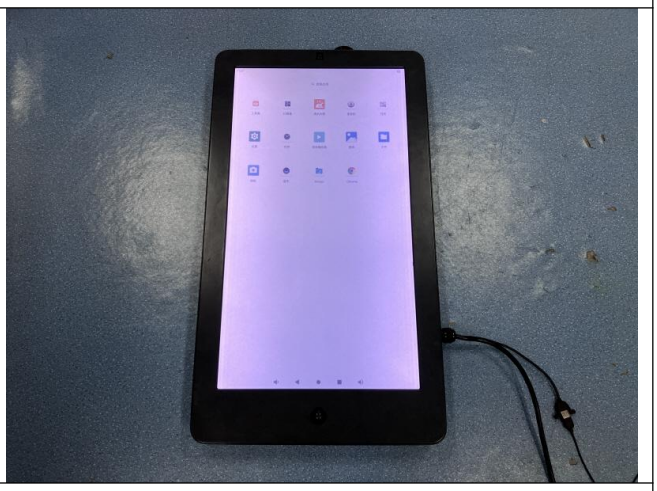
Before the test



During the test-X Axis





During the test-Y Axis	During the test-Z Axis
	
Test curve - X Axis	Test curve - Y Axis
	
Test curve - Z Axis	Functional check after testing

5） Test result:

After the test, the sample's appearance and function were normal.

Test requirements and results

Testing item: Drop

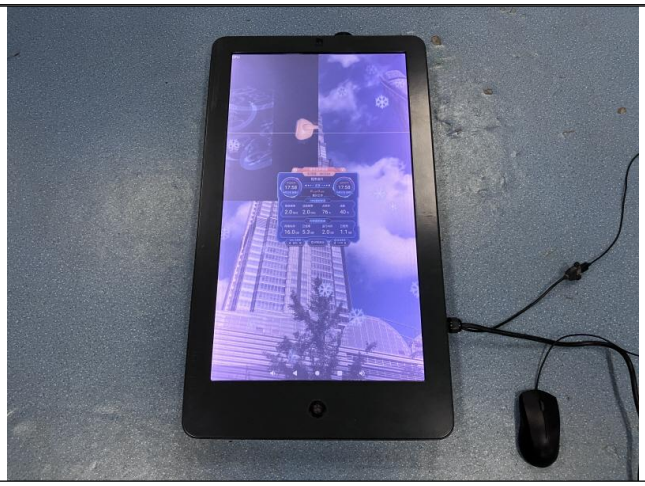
1) Testing basis：
ISTA 2A 2011 International Safe Transit Association

2) Inspection methods and instructions：
1、Packaging Weight:19.5kg
2、Drop Height:660mm
3、Drop Position:1corner, 3edges, 6faces
4、Number of Drops:1time/Position
5、Sample status:Non-operating
6、Packaging Status:packaging
7、Packaging Position Identification:

3）Determination basis：
After the test, the sample's appearance and function were normal.

4）Test data:

	
Before the test	Packaging Weight：19.5kg
	
During the test-Coner	During the test-Edge

	
During the test-Face	Functional check after testing

5）Test result:

1、 After the test, the dropped corner is slightly damaged, and the damage does not exceed one-tenth of the second-longest edge.

2、After the test, the display Screen's appearance and function were normal.

Test requirements and results

Testing item: IP6X

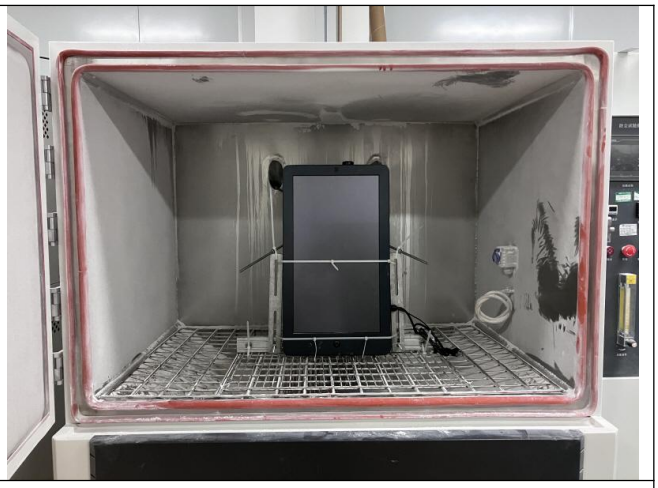
1) Testing basis:
IEC 60529:1989+AMD1:1999+AMD2:2013 Degrees of protection provided by enclosure (IP code)

2) Inspection methods and instructions:
1. Dust: talc powder (75 μ m);
2. Test time: 8h continuous dust blowing;
3. Concentration: 2 kg/m³;
4. Sample status during the test: the sample does not work during the test;
5. Sample status: storage;

3) Determination basis:
After the test, there was no obvious dust deposition inside the sample shell.

4) Test data:

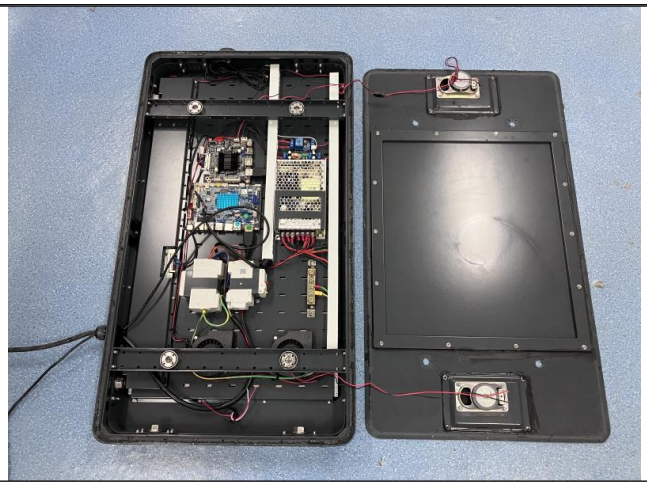
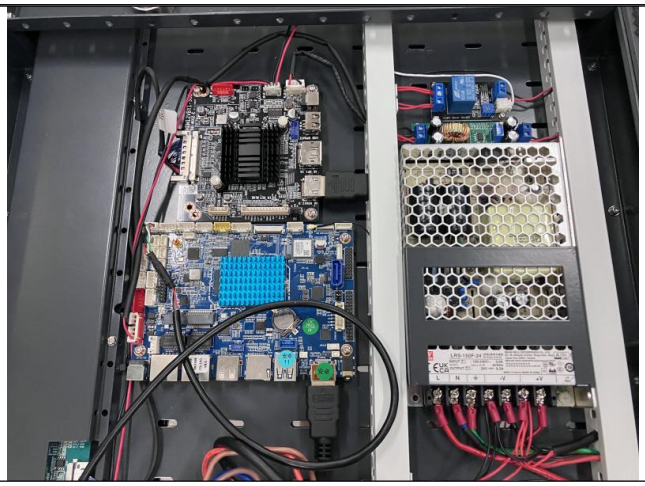
Before the test



Sample fixation status

During the test

After the test-1

	
After the test-2	After the test-3

5）Test result:

After the IP6X dustproof test, no dust entered the interior of the sample.

Test requirements and results

Testing item: IPX5

1) Testing basis:

IEC 60529:1989+AMD1:1999+AMD2:2013 Degrees of protection provided by enclosure (IP code)

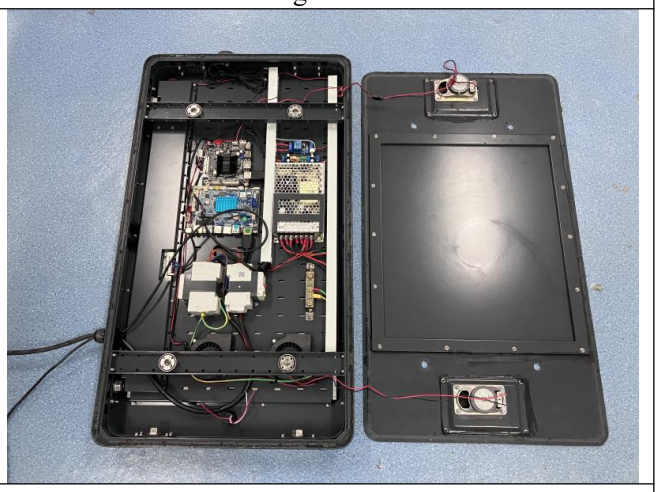
2) Inspection methods and instructions:

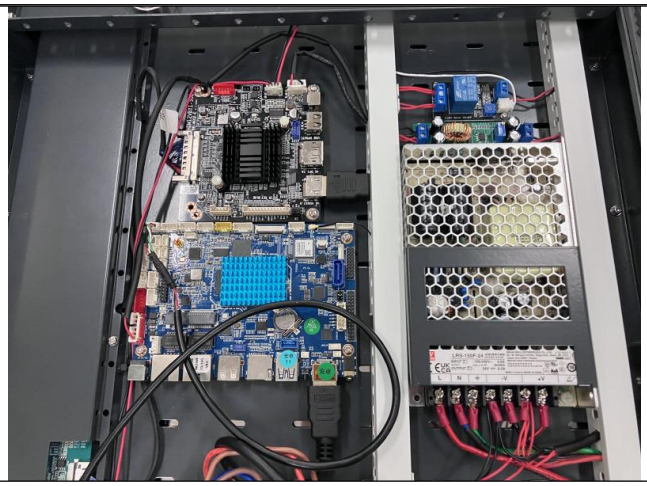
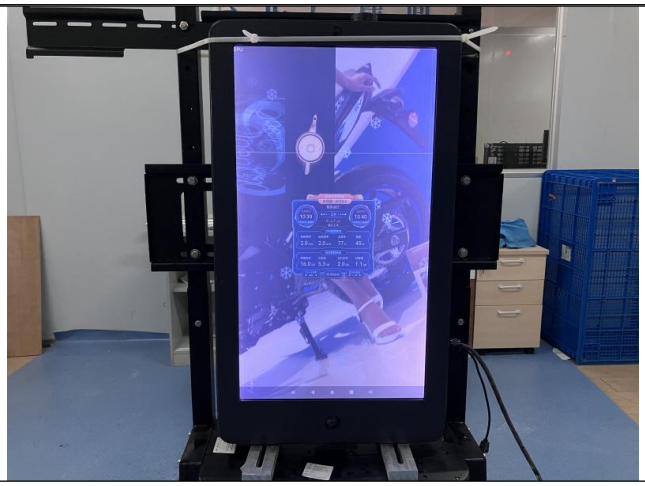
1. Nozzle diameter: 6.3mm;
2. Water spray distance: 2.5m~3m;
3. Total flow rate: 12.5L/min;
4. Test time: 5 min.

3) Determination basis:

After the test, a small amount of water infiltration is permitted, and the sample shall remain functionally normal.

4) Test data:

<table>
<tr><td>  </td><td>  </td></tr>
<tr><td>Before the test</td><td>During the test-1</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>During the test-2</td><td>After the test-1</td></tr>
</table>

	
After the test-2	Functional check after testing

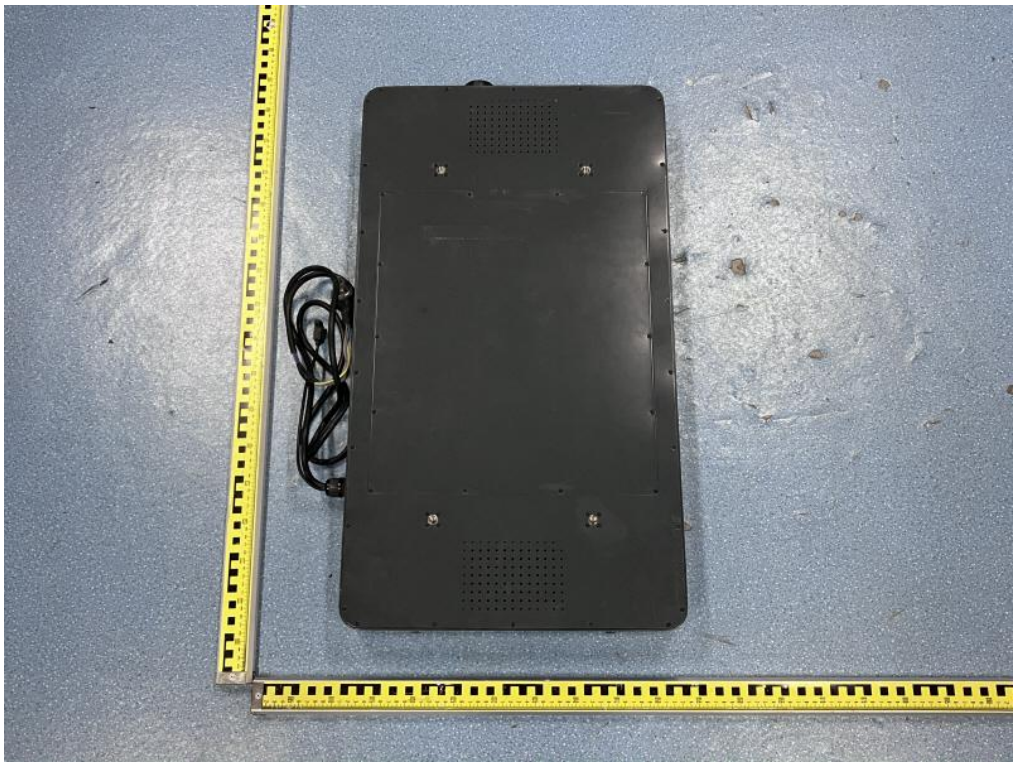
5）Test result:

After the IPX5 waterproof test, no water seeped into the interior of the sample.

Sample photo

Front

Rear



Testing equipment

Serial number	Equipment name	Model	Number/Serial Number	Manufacturer	Calibration validity period until
1	Temperature and Humidity Test Chamber	YK-3760-1000Z	GSE0419	Dongguan Youke Automation Equipment Co., Ltd.	2026/04/14
2	Temperature and Humidity Test Chamber	ASR-HW1000	GSE0283	Guangdong Aisirui Instrument Technology Co., Ltd.	2026/05/05
3	Vibration Tester	DC-300-3	GSE0262	Suzhou Sushi Test Group Co., Ltd.	2026/03/05
4	Drop Tester	MY6300	GSE0150	Dongguan Mingyu Electronic Technology Co., Ltd.	2026/05/05
5	Dust test box	YK-1210B-1000Z	GSE0418	Dongguan Youke Automation Equipment Co., Ltd.	2026/04/14
6	Waterproof equipment	IPX3456	GSE0147	Wordt	2026/05/21

Note: The above instruments and equipment are all within the metrological calibration cycle。

Report ends

Declaration

1. The report is invalid if it is not stamped with the "special seal for testing".

2. The report is invalid without the signature of the testing and approval personnel.

3. Any alterations to the report are invalid.

4. The testing conclusion of the self submitted sample is only valid for the submitted sample.

5. Without permission, partial reproduction of this report is not allowed.

6. If you have any objections to this report, you can appeal to our unit within 15 days after receiving the report, and it will not be accepted after the deadline.

7.The data results presented in this report are intended for use in scientific research, teaching, internal quality control within enterprises, and product development of enterprises.