



Test Report

Client Name : **Shenzhen Techtion Smart Electronics Co., Ltd**

Client Address : **Room 902, 8th Floor, Unit 1, Building No. 2, Xintianxia Chengyun Factory District, Vanke City Community, Bantian Street, Longgang District, Shenzhen**

Product Name : **Stretched Bar Display**

Report Date : **2024.11.13**

Shenzhen Anbotek Compliance Laboratory Limited

Shenzhen Anbotek Compliance Laboratory Limited

Address: Zone South, 1/F., Building 2, Hengchangrong High-Tech Industrial Park, Huangtian, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.

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Code:AB-AR-01-e



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Marking

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2. Nobody is allowed to photocopy or partly photocopy this test report without written permission of Shenzhen Anbotek Compliance Laboratory Limited.
3. The test report is invalid without the signature of the approver.
4. The test report is invalid if altered.
5. Objections to the test report must be submitted to Shenzhen Anbotek Compliance Laboratory Limited within 15 days.
6. The test report is valid for the tested samples only.
7. As for test verdict, “—” means “no need for judgment” “N/A” means “not applicable”.
8. The power supply voltage variation test is conducted by the EMC laboratory at the testing location Sogood Industrial Zone Laboratory & 1/F. of Building D, Sogood Science and Technology Park, Sanwei Community, Hangcheng Subdistrict, Bao'an District, Shenzhen, Guangdong, China.



TEST REPORT

Client Name : 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

Report on the submitted sample(s) said to be:

Product Name : Stretched Bar Display
Model : TS-286THD(Main Test),TS-XXTHD/TS-XXPHD ("X" stands for a-z or number or empty, or - or #; Different combinations of products represent different sales channels and customers; Does not affect product safety and electromagnetic compatibility.)

Trademark : 

Description : /

Sample(s) received quantity : 1pc

Sample(s) Testing quantity : 1pc

Manufacturer : Shenzhen Techtion Smart Electronics Co., Ltd

Factory : Shenzhen Techtion Smart Electronics Co., Ltd

Other information : /

Sample(s) received Date : 2024.10.19

Testing period : 2024.10.19 - 2024.10.25



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Name: King kong Jin

Checked by:

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Name: Jimmy Zhou

Approved by:

Jeff Zhu

Name: Jeff Zhu



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1. Test Overview

Test Items	Test Standard	Conclusion
3.1 Visual Inspection	EN 50155:2021	Pass
3.2 Performance Test	EN 50155:2021	Pass
3.3 Insulation test	EN 50155:2021	Pass
3.4 Low temperature start-up test	EN 50155:2021	Pass
3.5 Dry Heat Test	EN 50155:2021	Pass
3.6 Cyclic Damp Heat Test	EN 50155:2021	Pass
3.7 Functional Random Vibration Test	EN 50155:2021	Pass
3.8 Simulated Long Life Test	EN 50155:2021	Pass
3.9 Shock Test	EN 50155:2021	Pass
4.1 DC Power Supply Test	EN 50155:2021	Pass



2. Test Environment

Ambient temperature: 15°C ~35°C

Relative humidity: 25%RH ~ 75%RH

Atmospheric pressure: 86kpa ~ 106kpa



3. Reliability Test

3.1 Visual Inspection

3.1.1 Judgement basis

Test standard: EN 50155:2021
Sample NO.: 1819C400624131-1-1-1
Sample status: Non-Operating

3.1.2 Judgement basis

1. The sample shell should be flat, smooth, clean, and free of scratches, rust, and stains; The edges and corners should be free of defects such as burrs and burrs.
2. The surface color of the sample should be uniform, and the surface coating and coating should not have bubbles, cracks, peeling, or mechanical damage.
3. All components should be securely fastened without any looseness.
4. The identification should be clear and durable.

3.1.3 Test result

1. The sample shell is flat, smooth, clean, without scratches, rust spots, or stains; The edges and corners are free of defects such as burrs and flying edges.
2. The surface color of the sample is uniform, and the surface coating and coating do not bubble, crack, peel off, or suffer mechanical damage.
3. All components are securely fastened without any looseness.
4. Clear and durable identification.

3.1.4 Test conclusion

Pass

3.1.5 Test photos



3.2 Performance Test

3.2.1 Test requirements

Test standard: EN 50155:2021
Sample NO.: 1819C400624131-1-1-1
Sample status: Operating

3.2.2 Judgement basis

After being powered on, the sample can work normally.

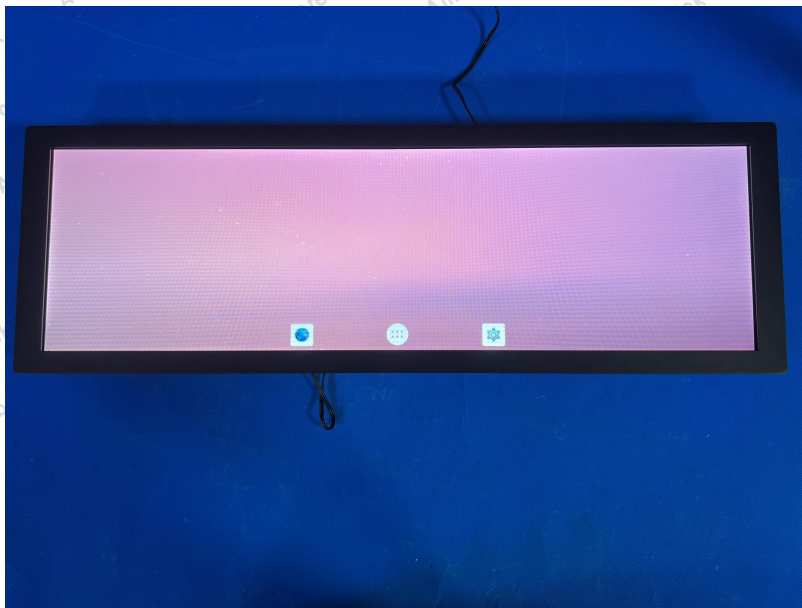
3.2.3 Test result

After being powered on, the sample can work normally.

3.2.4 Test conclusion

Pass

3.2.5 Test photos



3.3 Insulation Test

3.3.1 Test Requirements

Test Standard: EN 50155:2021

Sample NO.: 1819C400624131-1-1-1

Sample Status: Non-Operating

Test Conditions:

1. Insulation resistance test:

Test voltage: DC 500V

Test time: 1 minute

2. During the test, the equipment cannot be energized.

3. Voltage withstand test:

Test voltage: AC 1500V

Test time: 1 minute

3.3.2 Test Equipment

Equipment Name	Equipment No.	Equipment Model	Equipment Cal validity Period
Insulation Resistance Tester	SE-4352	YD9820A	2025.5.5
Withstand Voltage Tester	SE-4351	125B	2025.5.5

3.3.3 Judgement Basis

1. The resistance value after insulation resistance test should be greater than 20M Ω .
2. Destructive discharge and flashover should not occur during the withstand voltage test.
3. After testing, the sample works normally when powered on.

3.3.4 Test Result

Test Number	Test project		测试结果
1	Insulation resistance	Before voltage withstand test	1.747G Ω
2		After withstand voltage test	1.755G Ω
The withstand voltage test has no destructive discharge or flashover.			

3.3.5 Test Conclusion

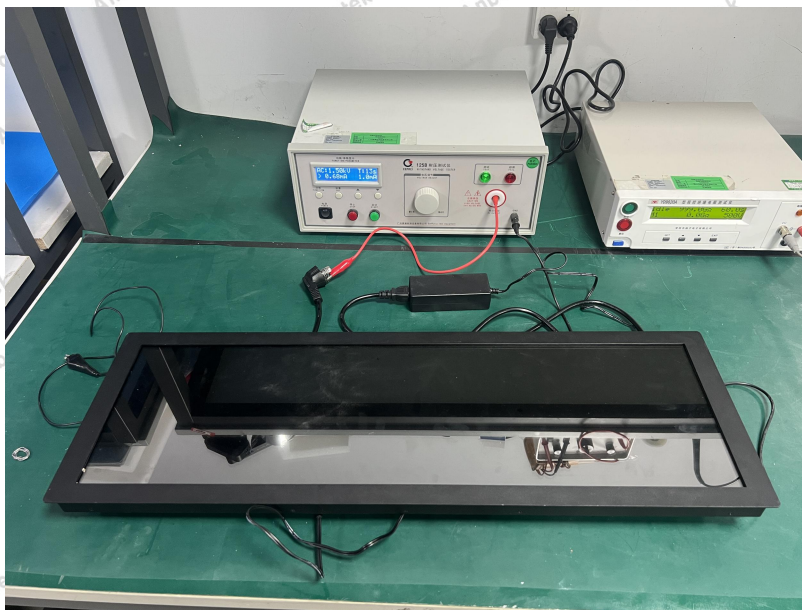
Pass



3.3.6 Test Photos

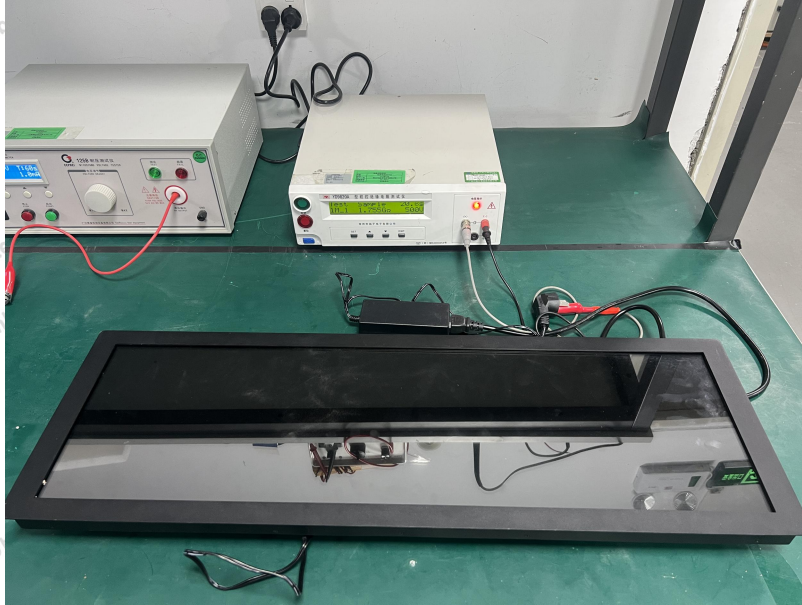


Insulation resistance test - before withstand voltage test



Voltage withstand test





Insulation resistance test - after withstand voltage test



3.4 Low temperature start-up test

3.4.1 Test requirements

Test standard: EN 50155:2021

Sample NO.: 1819C400624131-1-1-1

1. Test temperature: - 25°C;
2. Test time: 2.5 hours;
3. Temperature change rate: 1°C / min;
4. After being stored at low temperature for 2 hours, the sample was powered on and operated continuously for 0.5 hours at low temperature. Then cut off the power and the temperature returned to normal.
5. See the figure below for details:

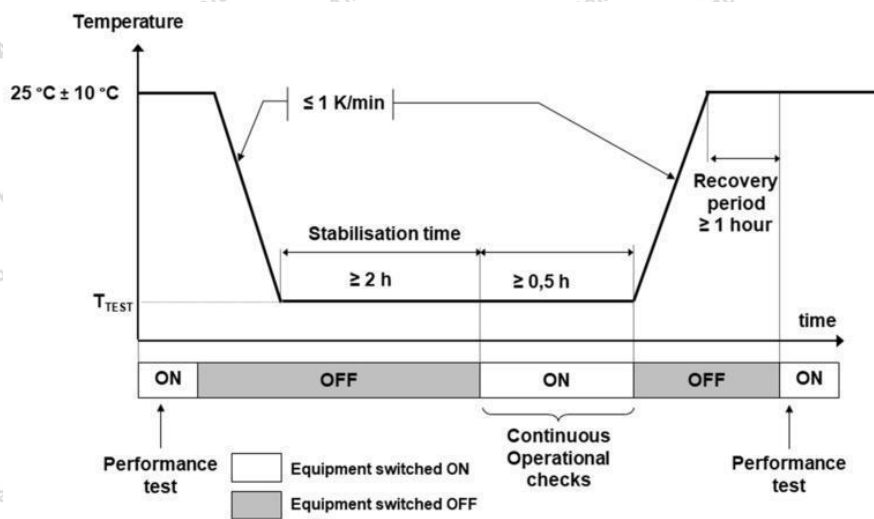


Figure 13 — Low temperature test

3.4.2 Test equipment

Equipment Name	Equipment No.	Equipment model	Equipment Cal validity period
Temperature & humidity chamber	SE-3054	ZJ-HWHS1000B	2025.6.16

3.4.3 Judgement basis

The sample works normally when powered on during testing. After testing, the appearance of the sample showed no bubbles, deformation, or cracking, the structure was normal, and it worked normally after being powered on.

3.4.4 Test result

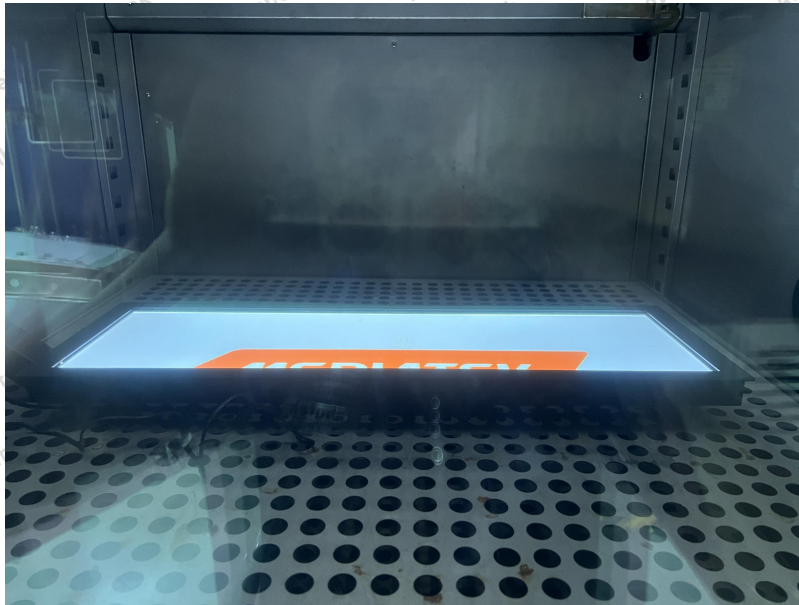
The sample works normally when powered on during testing. After testing, the appearance of the sample showed no bubbles, deformation, or cracking, the structure was normal, and it worked normally after being powered on.



3.4.5 Test conclusion

Pass

3.4.6 Test photos



Low temperature start-up test



Low temperature start-up test



3.5 Dry Heat Test

3.5.1 Test requirements

Test standard: EN 50155:2021

Sample NO: 1819C400624131-1-1-1

Test conditions:

1. Raise the temperature from room temperature to 70 °C at a rate of 1 °C/min, stabilize for 2 hours, then turn on the equipment for operation inspection and continue working for 6 hours. Then, raise the temperature to 85 °C at a rate of 1 °C/min and maintain it for 10 minutes to perform performance testing in this environment.
2. Then turn off the device and cool it down to ambient temperature at a rate of 1 °C/min for 1 hour before conducting further performance testing.
3. Please refer to the following figure for details:

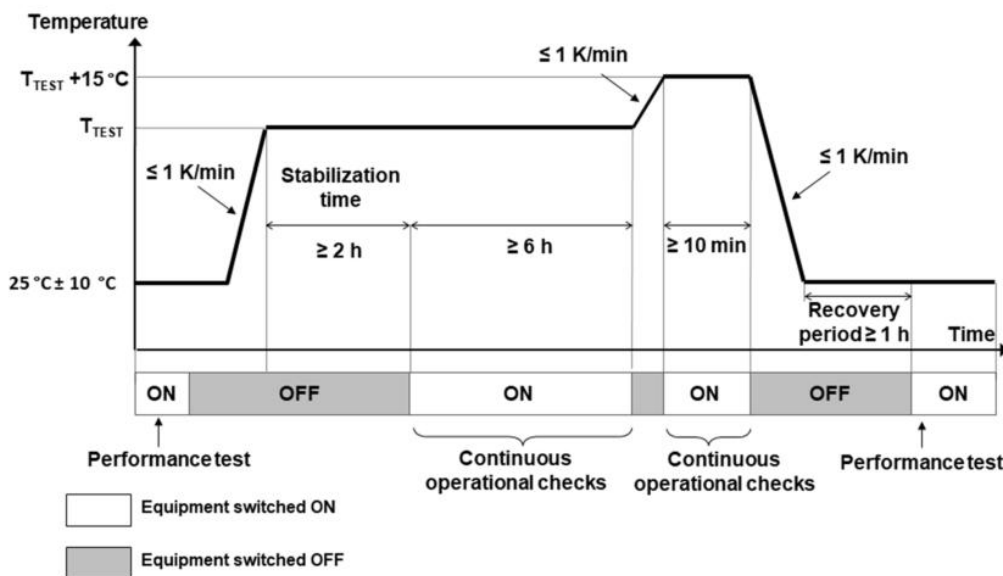


Figure 15 — Dry heat thermal test — Cycle B

3.5.2 Test equipment

Equipment Name	Equipment No.	Equipment model	Equipment Cal validity period
Temperature & humidity chamber	SE-3054	ZJ-HWHS1000B	2025.6.16

3.5.3 Judgement basis

The sample works normally when powered on during testing. After testing, the appearance of the sample showed no bubbles, deformation, or cracking, the structure was normal, and it worked normally after being powered on.



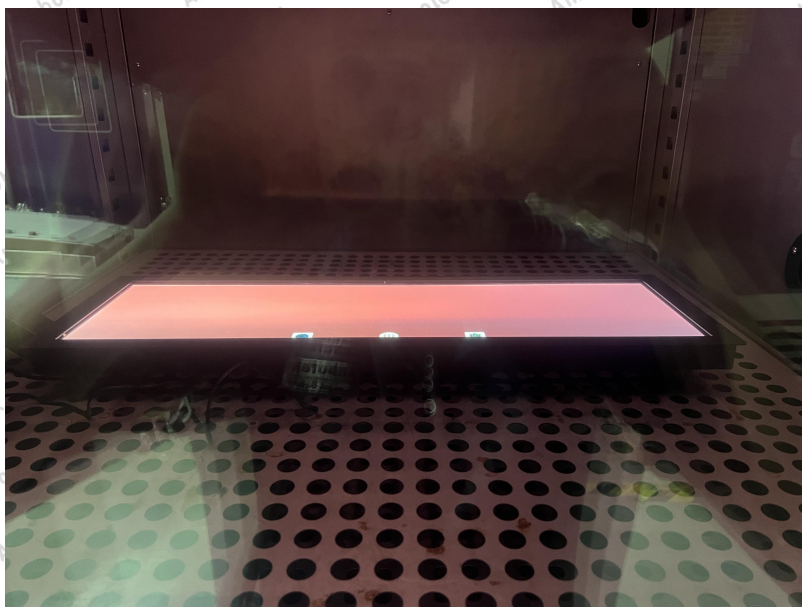
3.5.4 Test result

The sample works normally when powered on during testing. After testing, the appearance of the sample showed no bubbles, deformation, or cracking, the structure was normal, and it worked normally after being powered on.

3.5.5 Test conclusion

Pass

3.5.6 Test photos



Dry heat test



Dry heat test





Dry heat test



3.6 Cyclic Damp Heat Test

3.6.1 Test requirements

Test standard: EN 50155:2021
 Sample NO.: 1819C400624131-1-1-1
 Sample status: Operating
 Test conditions: Non-Operating

The tested sample shall not be powered outside during performance inspection

Temperature: 55 °C and 25 °C.

Number of cycles: 2 cycles.

Testing time: 2 × 24 hours.

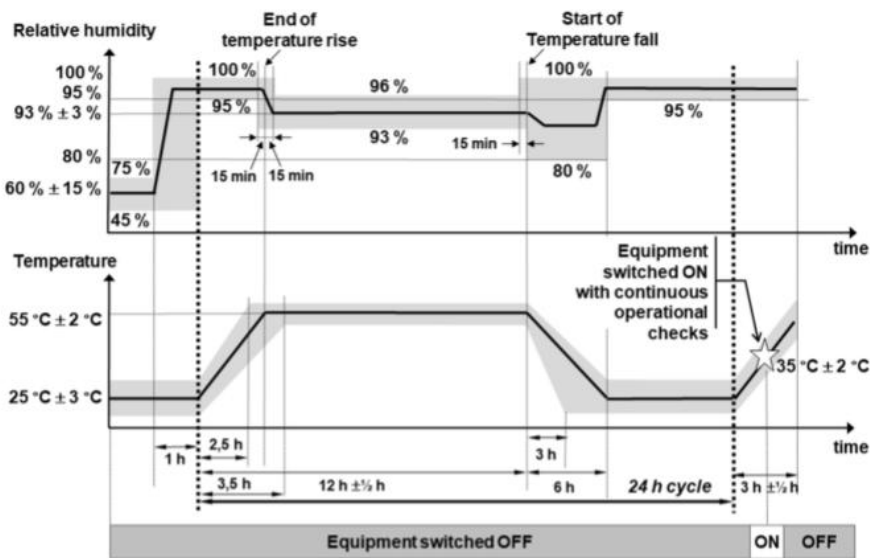
Temperature change rate: $\leq 1^\circ\text{C}/\text{min}$.

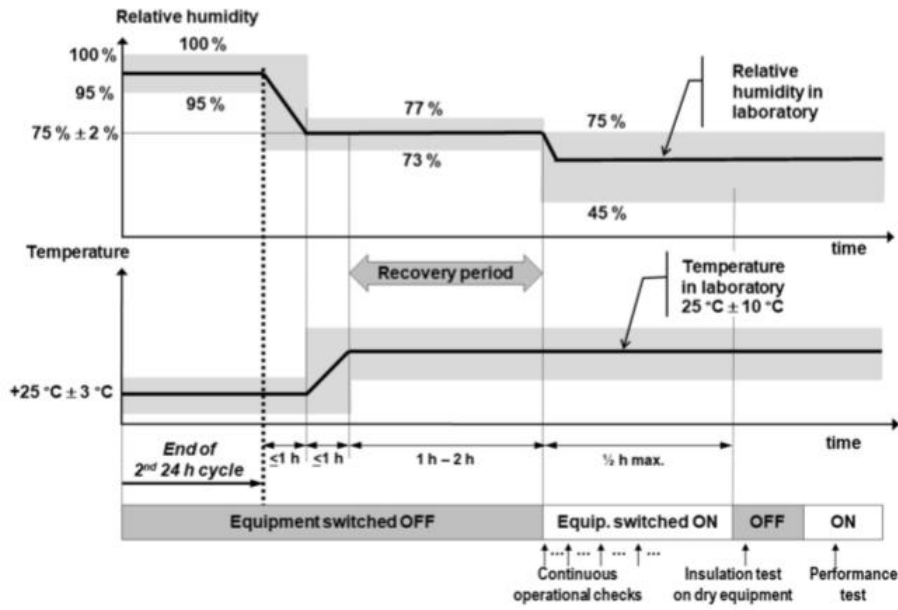
Intermediate measurement: An operational check should be performed when the temperature rises at the beginning of the second cycle.

Insulation resistance test: DC 500V, test time: 1 minute.

Voltage withstand test: AC 1500V, test time: 1 minute.

Please refer to the following figure for details:





3.6.2 Test equipment

Equipment Name	Equipment No.	Equipment model	Equipment Cal validity period
Insulation Resistance Tester	SE-4352	YD9820A	2025.5.5
Voltage withstand tester	SE-4351	125B	2025.5.5
Temperature & humidity chamber	SE-3054	ZJ-HWHS1000B	2025.6.16

3.6.3 Judgement basis

1. The resistance value after insulation resistance test should be greater than 20M Ω.
2. Destructive discharge and flashover should not occur during the withstand voltage test.
3. After testing, the sample works normally when powered on.

3.6.4 Test result

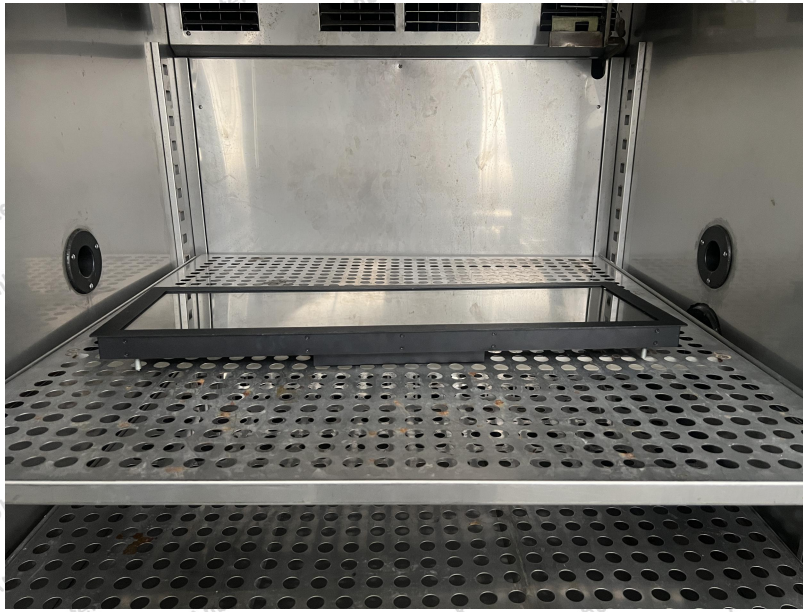
Test Number	Test project	Test result
1	Insulation Resistance	2.28GΩ
2	Voltage Withstand Test	Leakage current:0.73mA
The withstand voltage test has no destructive discharge or flashover.		

3.6.5 Test Conclusion

Pass



3.6.6 Test photos



Cyclic damp heat test

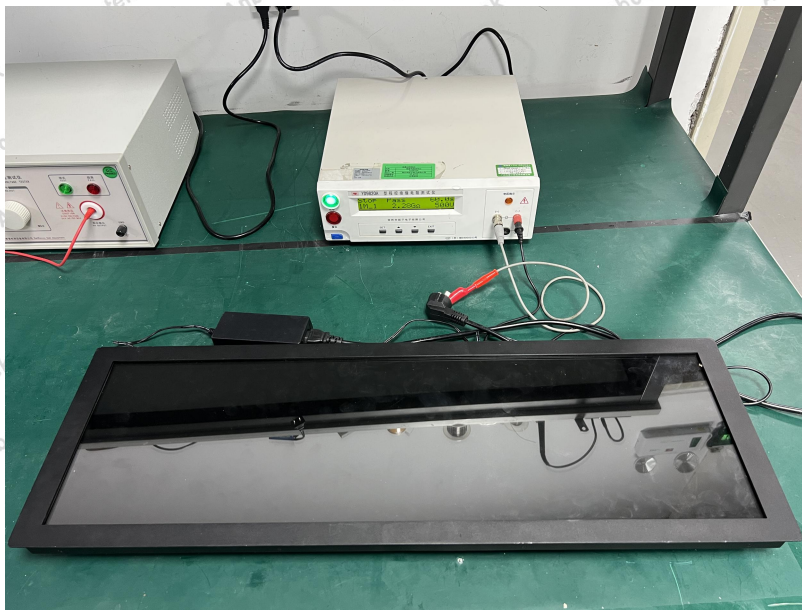


Cyclic damp heat test



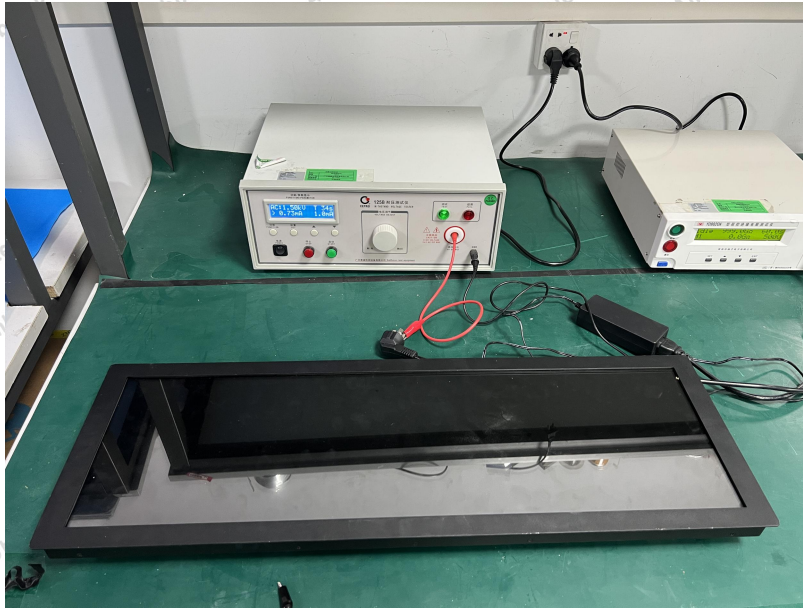


Cyclic damp heat test



Cyclic damp heat test





Cyclic damp heat test



3.7 Functional Random Vibration Test

3.7.1 Test requirements

Test standard: EN 50155:2021

Sample NO.: 1819C400624131-1-1

Sample status: Operating

Test conditions:

Classification	Direction	RMS(m/s ²)	Frequency
Category 1 Class B	Vertical	1.01	5Hz ~ 150Hz
	Horizontal	0.45	
	Longitudinal	0.7	
Test time	30 min per direction		

3.7.2 Test equipment

Equipment Name	Equipment No.	Equipment model	Equipment Cal validity period
Vibration tester	SE-4730	DC-2200-26	2024.11.14
Vibration tester	SE-1199	DC-2200-26	2024.11.2
DC power supply	SE-4471	YF-66002PR	2025.5.5

3.7.3 Judgement basis

1. During the experiment, the sample can function normally.
2. After the experiment, the appearance of the sample is normal and the functional structure is normal.

3.7.4 Test result

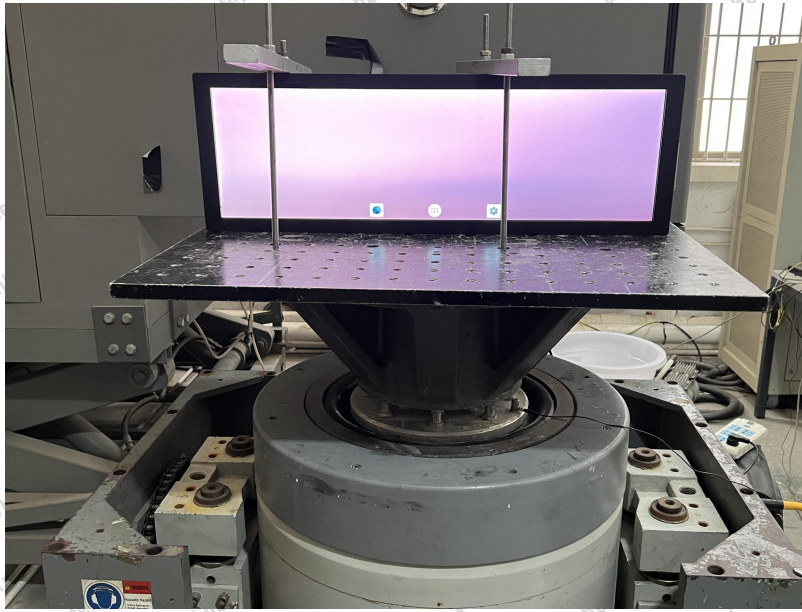
1. During the experiment, the sample can function normally.
2. After the experiment, the appearance of the sample is normal and the functional structure is normal.

3.7.5 Test conclusion

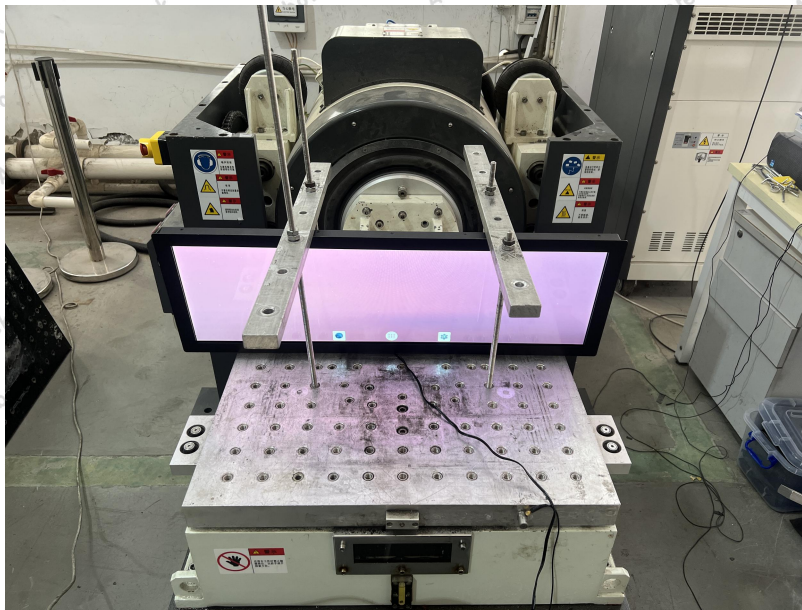
Pass



3.7.6 Test photos

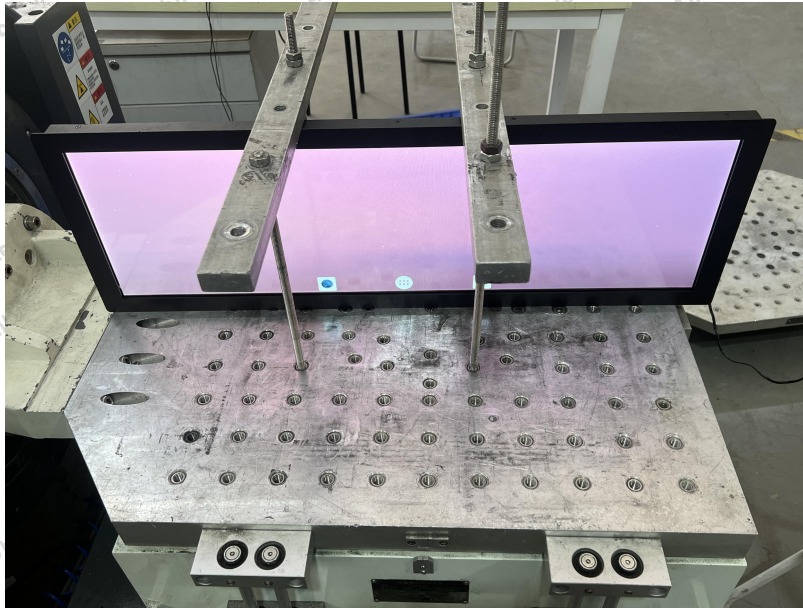


Vertical

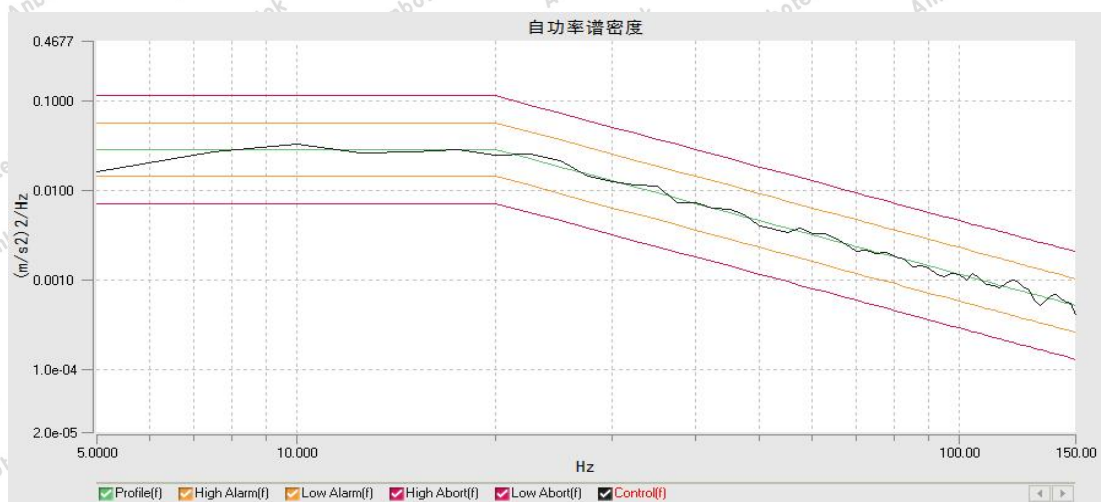


Horizontal



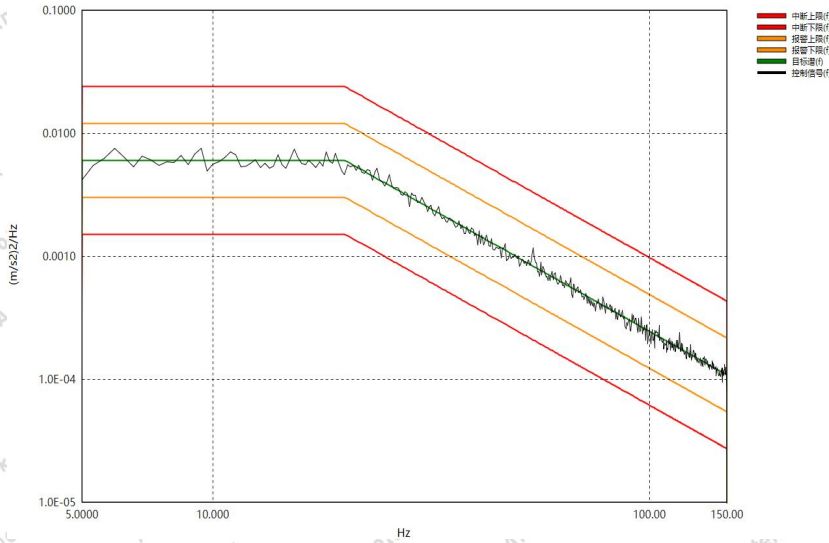


Longitudinal

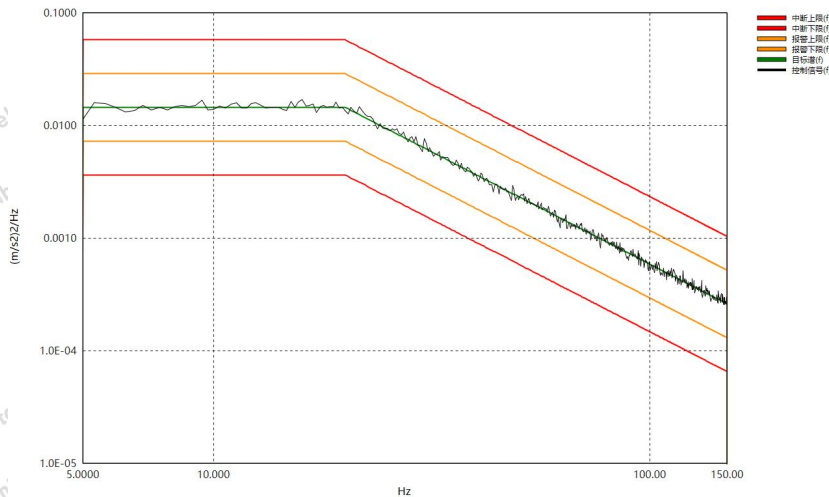


Spectrogram (Vertical)





Spectrogram (Horizontal)



Spectrogram (Longitudinal)



3.8 Simulated Long Life Test

3.8.1 Test requirements

Test standard: EN 50155:2021

Sample NO.: 1819C400624131-1-1

Sample status: Non-Operating

Test conditions:

Classification	Direction	RMS(m/s ²)	Frequency
Category 1 ClassB	Vertical	5.72	5Hz ~ 150Hz
	Horizontal	2.55	
	Longitudinal	3.96	
Test time	5 hours per direction		

3.8.2 Test equipment

Equipment Name	Equipment No.	Equipment model	Equipment Cal validity period
Vibration tester	SE-4730	DC-2200-26	2024.11.14
Vibration tester	SE-1199	DC-2200-26	2024.11.2
DC power supply	SE-4471	YF-66002PR	2025.5.5

3.8.3 Judgement basis

After the experiment, the appearance and functional structure of the sample were normal.

3.8.4 Test result

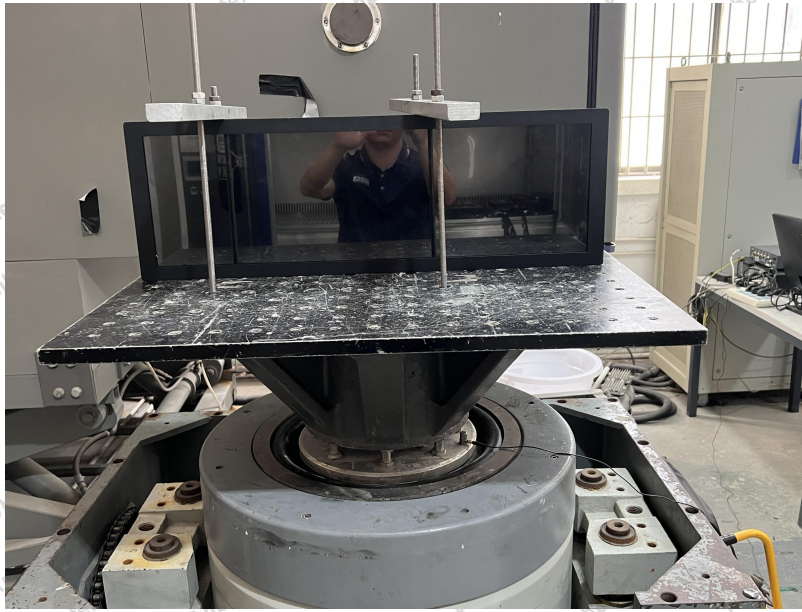
After the experiment, the appearance and functional structure of the sample were normal.

3.8.5 Test conclusion

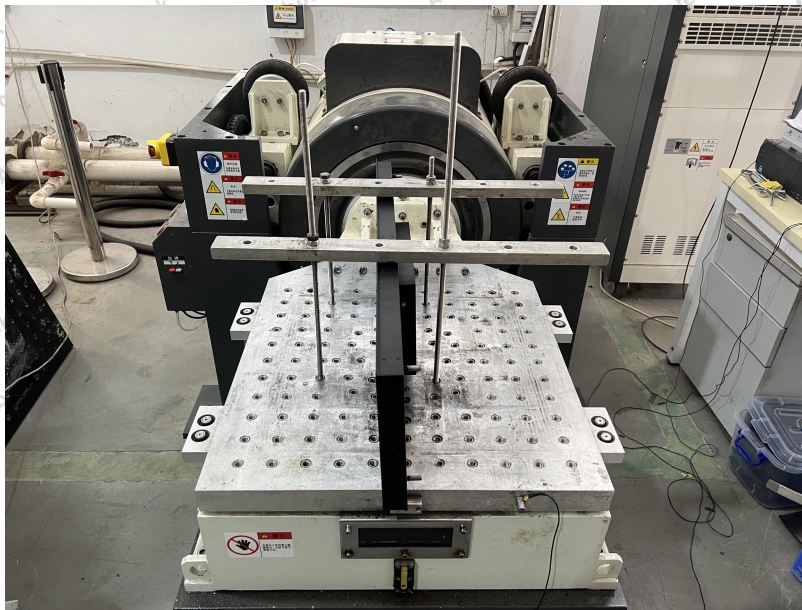
Pass



3.8.6 Test photos

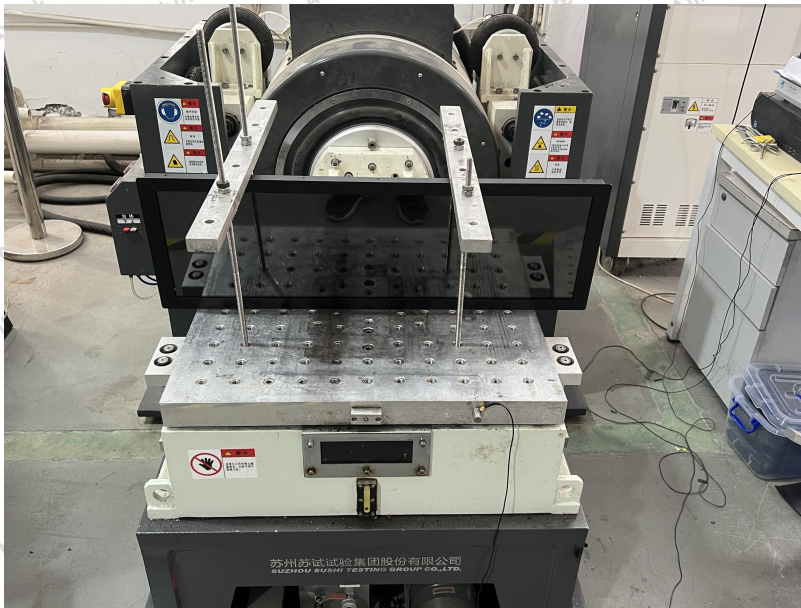


Vertical

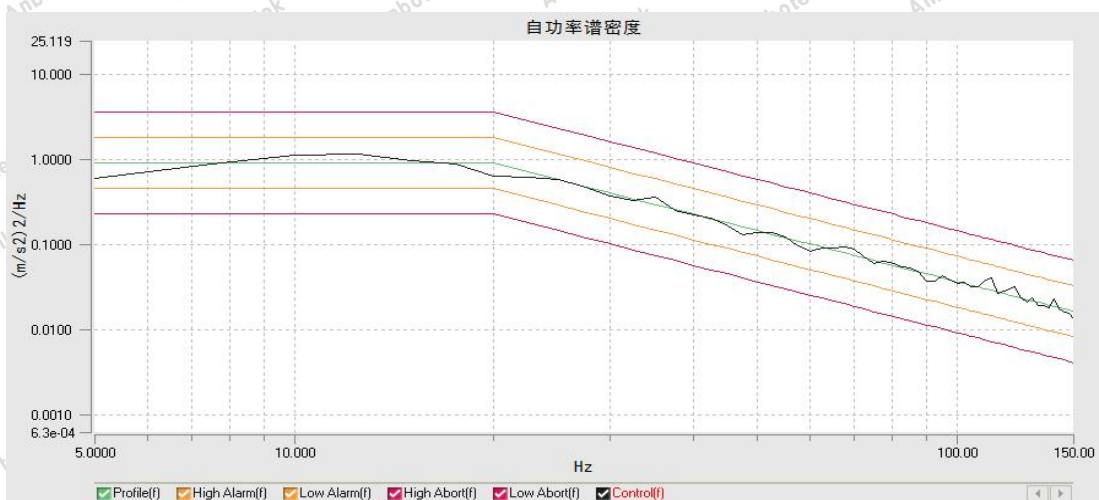


Horizontal



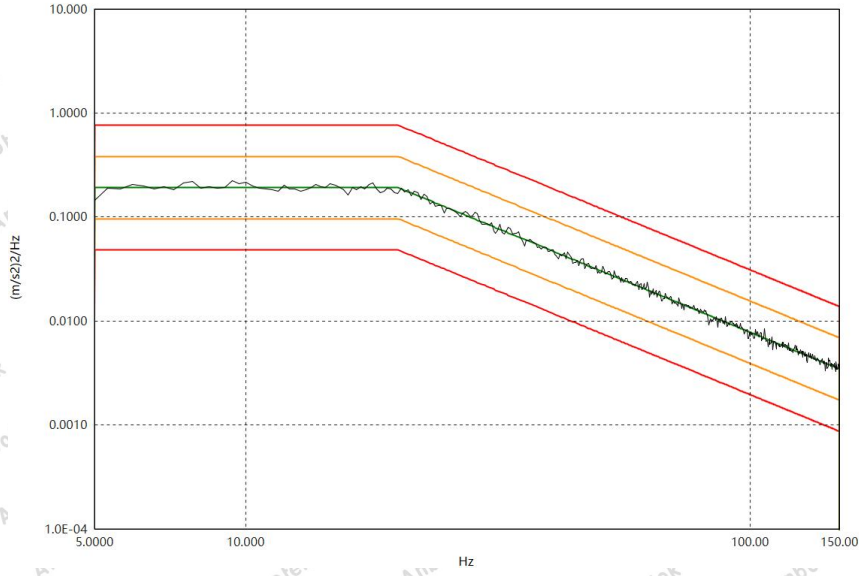


Longitudinal

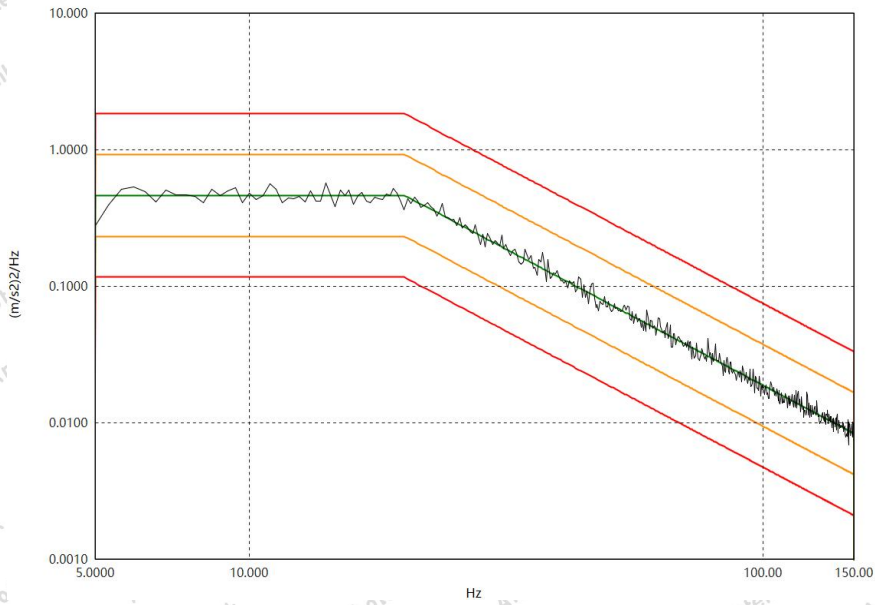


spectrogram (Vertical)





Spectrogram (Horizontal)



Spectrogram (Longitudinal)



3.9 Shock Test

3.9.1 Test requirements

Test standard: EN 50155:2021
 Sample NO.: 1819C400624131-1-1
 Sample status: Operating
 Test conditions:

Classification	Direction	Acceleration(m/s ²)	Pulse width(ms)
1 Class B	Vertical	30	30
	Horizontal	30	30
	Longitudinal	50	30
Test time	3 times in each direction, 18 times in total		

3.9.2 Test equipment

Equipment Name	Equipment No.	Equipment model	Equipment Cal validity period
Vibration tester	SE-4730	DC-2200-26	2024.11.14
Vibration tester	SE-1199	DC-2200-26	2024.11.2
DC power supply	SE-4471	YF-66002PR	2025.5.5

3.9.3 Judgement basis

1. During the experiment, the sample can function normally.
2. After the experiment, the appearance of the sample is normal and the functional structure is normal.

3.9.4 Test result

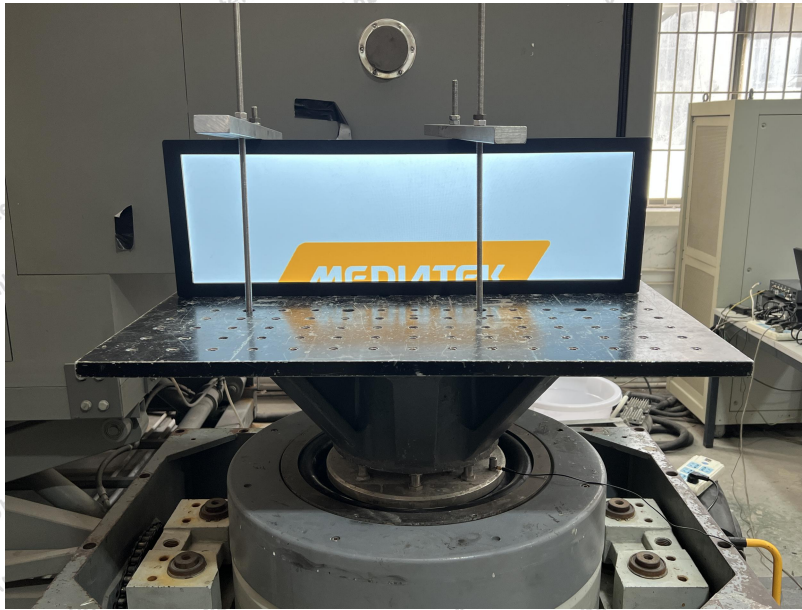
1. During the experiment, the sample can function normally.
2. After the experiment, the appearance of the sample is normal and the functional structure is normal.

3.9.5 Test conclusion

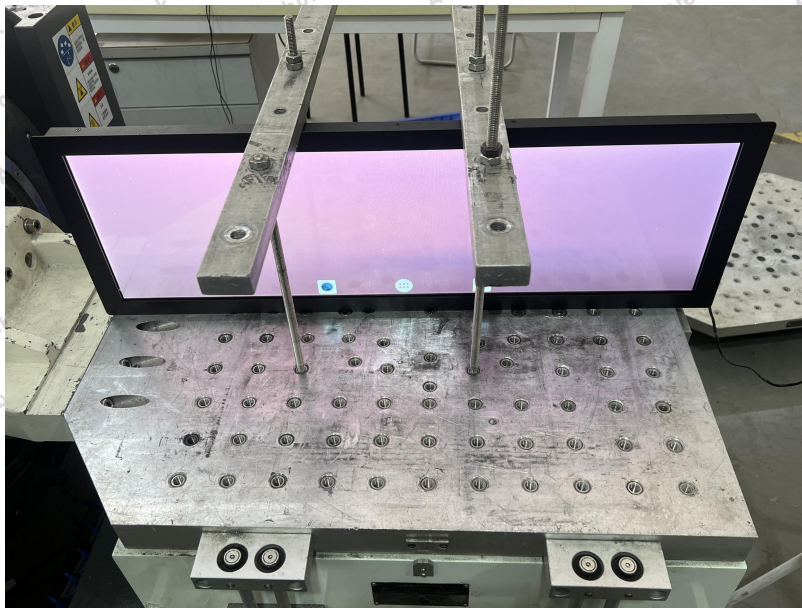
Pass



3.9.6 Test photos

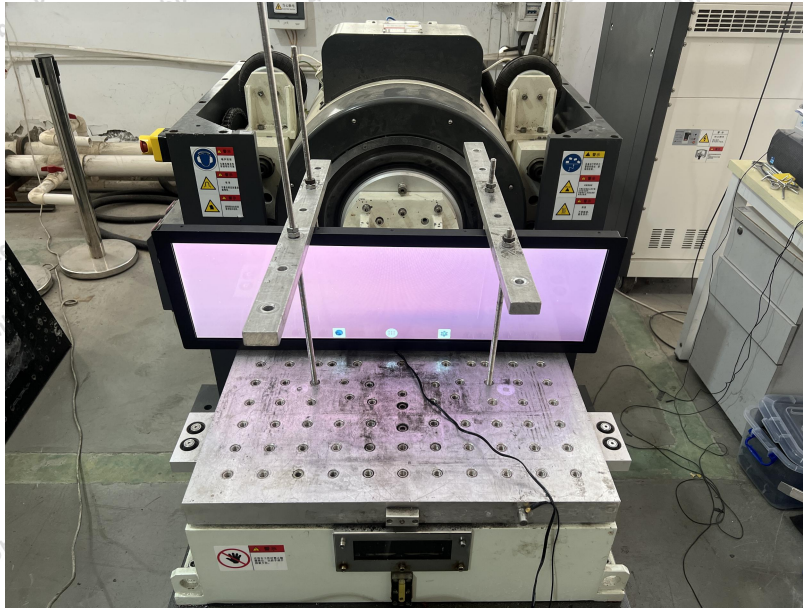


Vertical

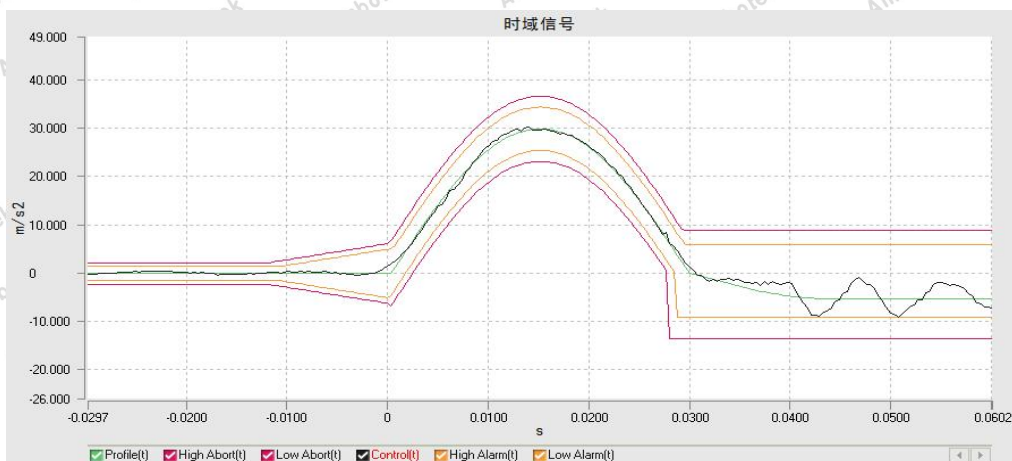


Horizontal

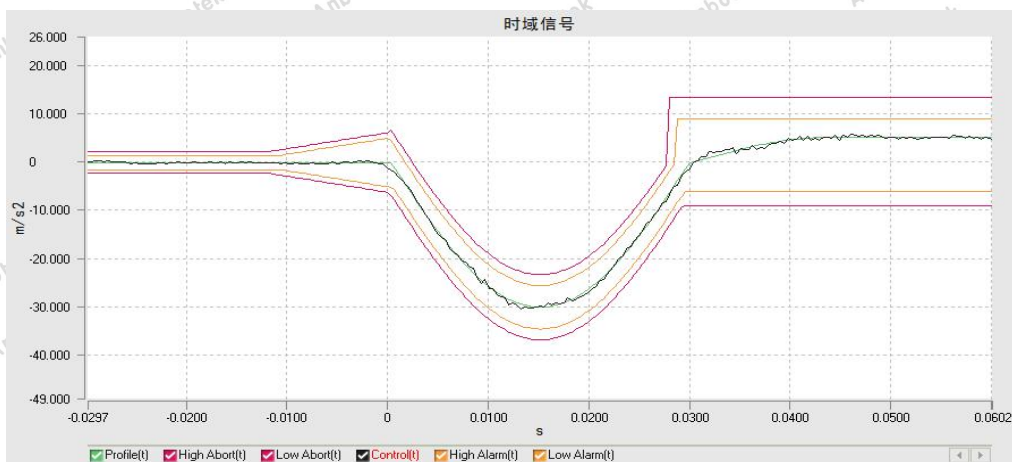




Longitudinal

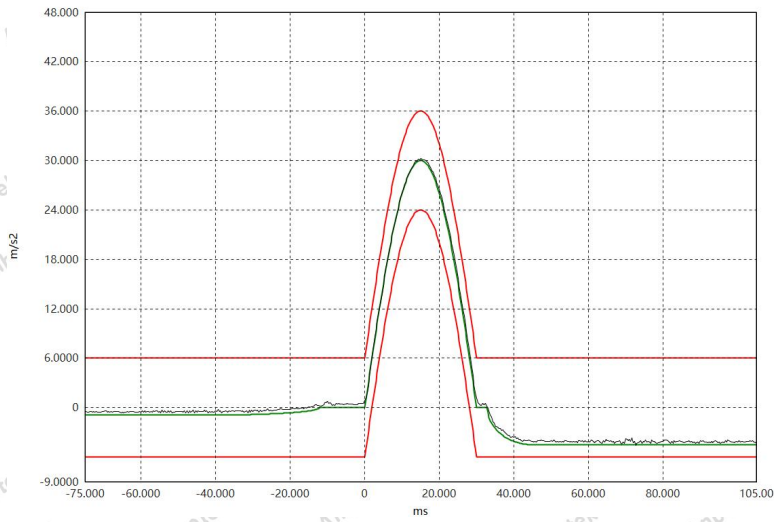


Spectrogram (+Vertical)



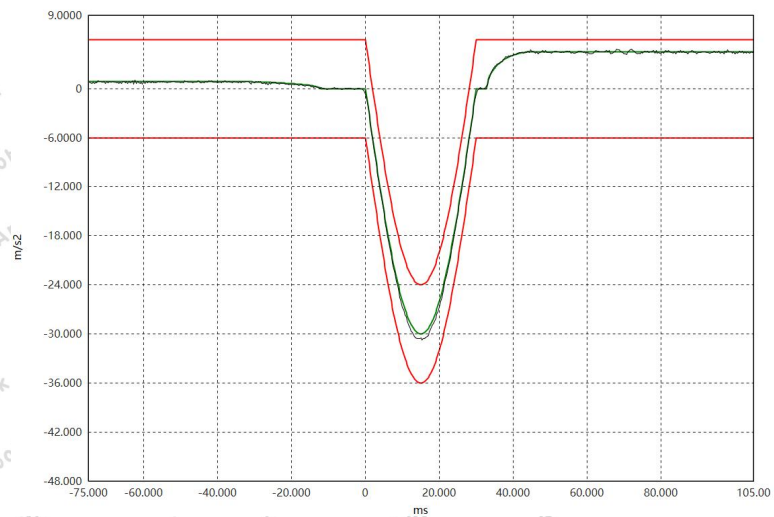
Spectrogram (-Vertical)





— 中斷上限(m)
— 中斷下限(m)
— 實際值(m)
— 控制信號(m)

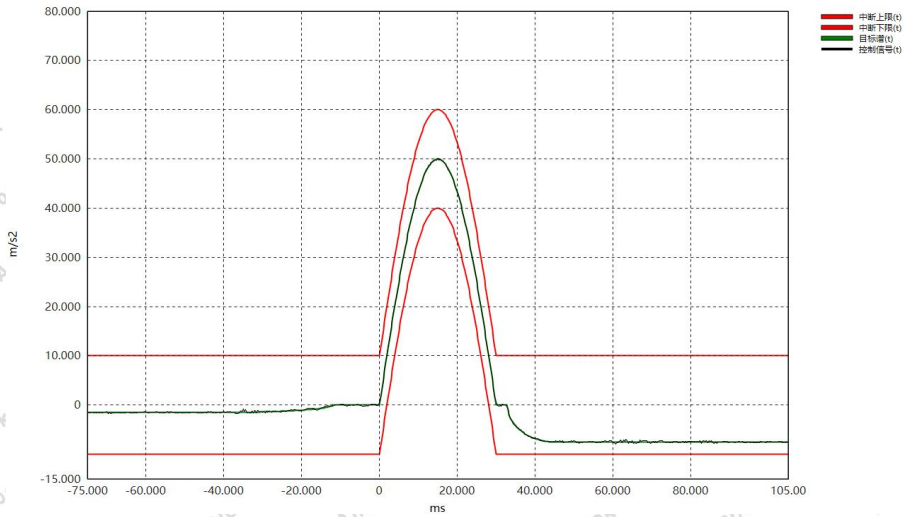
Spectrogram (+Horizontal)



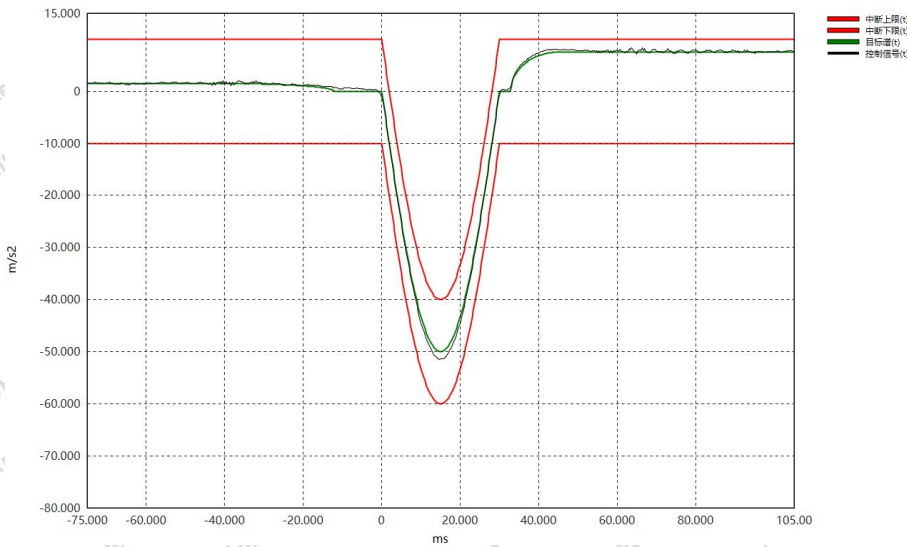
— 中斷上限(m)
— 中斷下限(m)
— 實際值(m)
— 控制信號(m)

Spectrogram (-Horizontal)





Spectrogram (+Longitudinal)



Spectrogram (-Longitudinal)



4.EMC Test

4.1 DC Power Supply Test

4.1.1 Test Specification

Test Standard:	EN 50155:2021
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Designation	Limit	Duration	Performance Criterion
Minimum temporary supply undervoltage	0,6 Un	<0,1s	A
Minimum continuous voltage	0,7 Un	Permanent	A
Nominal voltage	Un		
Rated voltage	1,15 Un		
Maximum continuous voltage	1,25 Un		
Maximum temporary supply overvoltage	1,4 Un	≤ 0,1s	A
Maximum temporary supply overvoltage	1,4 Un	≤ 1,0s	B
Supply change-over	0 Un	≤ 0.03	B
Interruptions of supply voltage	0 Un	≤0.01s	A
Interruptions of supply voltage	0 Un	>0.01s	C

Remark: The system integrator should define the supply voltage interruption class. Unless otherwise specified, the requirements of class S2 apply.

4.1.2 Test Equipment

DC Power Supply Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PROGRAMMABLE AC/DC POWER	NF	KP3000GS	9271106	Jan. 18, 2024	1 Year

4.1.3 Test Results

PASS

Please refer to the following page.



DC Power Supply Test Results

Test Result:		<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail		Temperature:	24.4°C
Power Supply:		DC 12V		Humidity:	54%
Testing Voltage	Duration (s)	Interval time(s)	Repetitions	performance criterion	Result
0.7Un	60	/	/	A	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C
1.25Un	60	/	/	A	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C
1.4Un	0.1	10	10	A	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C
1.4Un	1	10	10	B	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C
0.6Un	0.1	10	10	A	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C
0Un	0.01 and 0.02	10	10	A	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C
0Un	0.03	10	10	B	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C
0Un	0.01	10	10	A	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C
0Un	>0.01	10	10	C	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C
Un=DC 12V					
Note: N/A					



4.2 EMS Performance Criteria

Performance criterion A

The EUT shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer. when the EUT is used as intended. If the performance level is not specified by the manufacturer. this may be derived from the product description and documentation and what the user may reasonably expect from the equipment if used as intended.

Performance criterion B

The EUT shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer. when the EUT is used as intended. The performance level may be replaced by a permissible loss of performance. However. during the test degradation of performance is allowed but no change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer. either of these may be derived from the product description and and what the user may reasonably expect from the equipment if used as intended.

Performance criterion C

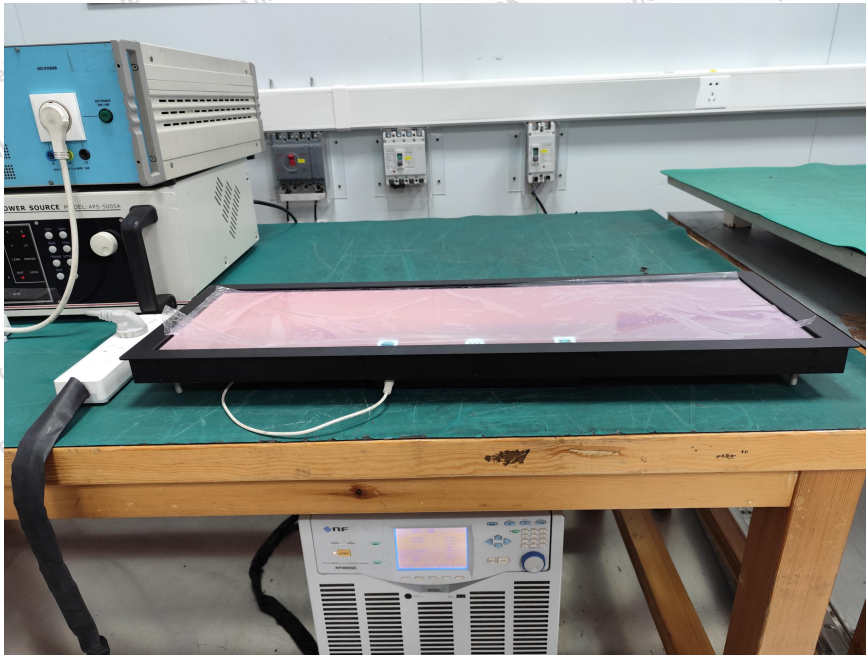
Temporary loss of function is allowed during the test. provided the function is self-recoverable or can be restored by the operation of the controls.

If. as a result of the application of the tests defined in this standard. the EUT becomes dangerous or unsafe. it shall be deemed to have failed the test.



APPENDIX I -- TEST SETUP PHOTOGRAPH

Photo of DC Power Supply Test



APPENDIX II -- Photo documentation







End of Report

