

# Test Report

Verified Code:271299

Report No.:H202502262097-24EN

Customer: ProTech CO., Ltd

Address: No. 18, Baoying Road, Dawang High-Tech District, Zhaoqing, Guangdong

Sample Name: SINORA HARD SHELL

Sample Model: SIN-RIM-S04U28

Receive  
Sample Date: Mar.20,2025

Test Date: Mar.25,2025~Apr.08,2025

Reference  
Document: MIL-STD-810H-2019

Test Result: Meet the requirements

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Issued Date: 2025/4/22

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Test type	<input checked="" type="checkbox"/> Commissioning Test <input type="checkbox"/> Routine test <input type="checkbox"/> DV <input type="checkbox"/> ECV <input type="checkbox"/> PV <input type="checkbox"/> OTS <input type="checkbox"/> R&D test <input type="checkbox"/> Others_____			
Sample Source	<input checked="" type="checkbox"/> Commissioned units send sample <input type="checkbox"/> Others:			
Sample	Model	Quantity	Sample No.	Test No.
SINORA HARD SHELL	SIN-RIM-S04U28	1pc	/	H202502262097-0009
Sample Components and Accessories	Components: /                      Accessories: /			
Test with packaging or not	<input type="checkbox"/> Yes, Outer Packing _____ <input checked="" type="checkbox"/> No			
Sample quality before test	<input checked="" type="checkbox"/> Conformity Product <input type="checkbox"/> Non-conformity Product <input type="checkbox"/> Prototype <input type="checkbox"/> Others			
Abnormal condition of sample before test	No Abnormalities			
Environmental requirements	Temperature: 15.8℃~28.9℃                  Relative Humidity: 29%~58% Atmospheric pressure: 99.89kPa~102.94kPa			
Test Address	No. 698 Yaohu West 6th Road, High-tech Zone,Nanchang City,Jiangxi China			

Test information summary

Serial number	Item name	Test basis	Test Result	Page
1	Temperature shock test	MIL-STD-810H-2019 Method 503.7	Meet the requirements	Page 5
2	Vibration test	MIL-STD-810H-2019 Method 514.8	Meet the requirements	Page 8
3	Drop test	MIL-STD-810H-2019 Method 516.8	Meet the requirements	Page 12

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## 1 Temperature shock test

### 1.1 Test Condition

According to MIL-STD-810H-2019 method 503.7

1.1.1 Initial detection: Before the experiment, conduct initial testing on the test sample under standard atmospheric conditions;

1.1.2 Sample Installation: Place the test sample flat on the rack inside the temperature shock test chamber and keep it within the effective volume of the chamber, allowing air to flow freely inside the chamber;

1.1.3 Experimental operation: The experiment starts from the low temperature range. During the experiment, the high temperature is 80 °C and the low temperature is -30 °C. The holding time for both high and low temperatures is 2 hours, and the transition time between high and low temperatures is no more than 1 minute. A total of 3 cycles are conducted;

1.1.4 Recovery processing: at the end of the experiment, the test chamber returns to indoor temperature, and the chamber door is opened to allow the test sample to recover for 2 hours under the standard atmospheric conditions of the experiment;

1.1.5 Final testing: After the experiment, the final detection of the test sample is carried out under the standard atmospheric conditions of the experiment.

### 1.2 Sample Information

Sample information is shown in Table 1-1.

**Table 1-1 Sample Information**

Sample Name	Sample Model	Sample Quantity	Test No
SINORA HARD SHELL	SIN-RIM-S04U28	1pc	H202502262097-0009

### 1.3 Test Requirements

According to the requirements of the client.

After the test, the appearance of the sample should not be cracked, unglued or damaged.

1.4 Test Result

The test result is shown in Table 1-2.

Table 1-2 Test Result

Test No.	Test result	Conclusion
H202502262097-0009	After the test, the appearance of the sample is not cracked, unglued and damaged.	Meet the requirements

1.5 Test Photos



Fig.1-1 Sample appearance before test



Fig.1-2 Sample appearance after test



Fig.1-3 Low temperature test erection



Fig.1-4 Low temperature operating interface





Fig.1-5 High temperature test erection



Fig.1-6 High-temperature operating interface

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## 2 Vibration Test

### 2.1 Test Condition

According to MIL-STD-810H-2019 method 514.8.

2.1.1 Initial Detection: Before the experiment, conduct initial testing on the test sample under standard atmospheric conditions;

2.1.2 Sample Installation And positioning: Install the test sample on the fixture, then rigidly fix the fixture on the vibration table, install control sensors on the bottom bracket of the test sample, and use two-point average control method;

2.1.3 Experimental Operation: Conduct a 1-hour vibration test on each axis of the test specimen according to the conditions of Table 2-1 Highway Transportation Vibration Test Scale and Table 2-2 Jet C-5 Vibration Test Scale, with the test sequence being X-axis, Y-axis, and Z-axis;

2.1.4 Final Testing: After the experiment, the final detection of the test sample is carried out under the standard atmospheric conditions of the experiment.

**Table 2-1 Highway Transportation - Vibration Test Scale**

Z-Axis (Vertical)		X-Axis (Transverse)		Y-Axis (longitudinal)		Test axis and its time
Frequency (Hz)	Acceleration ( $\text{g}^2/\text{Hz}$ )	Frequency (Hz)	Acceleration ( $\text{g}^2/\text{Hz}$ )	Frequency (Hz)	Acceleration ( $\text{g}^2/\text{Hz}$ )	
5	0.015	5	0.00013	5	0.0065	Vibration in horizontal, vertical, and vertical directions for 1 hour each
40	0.015	10	0.00013	20	0.0065	
500	0.00015	20	0.00065	120	0.0002	
/	/	30	0.00065	121	0.003	
/	/	78	0.00002	200	0.003	
/	/	79	0.00019	240	0.0015	
/	/	120	0.00019	340	0.00003	
/	/	500	0.00001	500	0.00015	
Root-Mean-Square Value: 1.08g		Root-Mean-Square Value: 0.21g		Root-Mean-Square Value: 0.76g		



**Table 2-2 Vibration Test Scale Of Jet C-5**

Frequency (Hz)	Acceleration ( (g) <sup>2</sup> /Hz)	Left Slope (db/Oct)	Right Slope (db/Oct)	Test Axis And Time
15	0.003	0	0	Vibration in horizontal, vertical, and vertical directions for 1 hour each
1000	0.003	0	-6	
2000	0.0007	-6	0	
Root-Mean-Square Value: 2.11g				

## 2.2 Sample Information

Sample information is shown in Table 2-3.

**Table 2-3 Sample Information**

Sample Name	Sample Model	Sample Quantity	Test No
SINORA HARD SHELL	SIN-RIM-S04U28	1pc	H202502262097-0009

## 2.3 Test Requirements

According to the requirements of the client.

After the test, the appearance of the sample should not be cracked, unglued or damaged.

## 2.4 Test Result

The test result is shown in Table 2-4.

**Table 2-4 Test Result**

Test No.	Test result	Conclusion
H202502262097-0009	After the test, the appearance of the sample is not cracked, unglued and damaged.	Meet the requirements

2.5 Test Photos



Fig.2-1 Sample appearance before test



Fig.2-2 Sample appearance after test

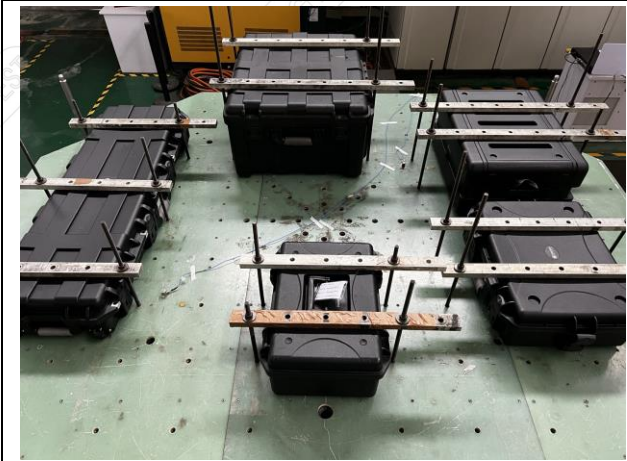


Fig.2-3 Test erection (Z-axis)



Fig.2-4 Test erection (Y-axis)

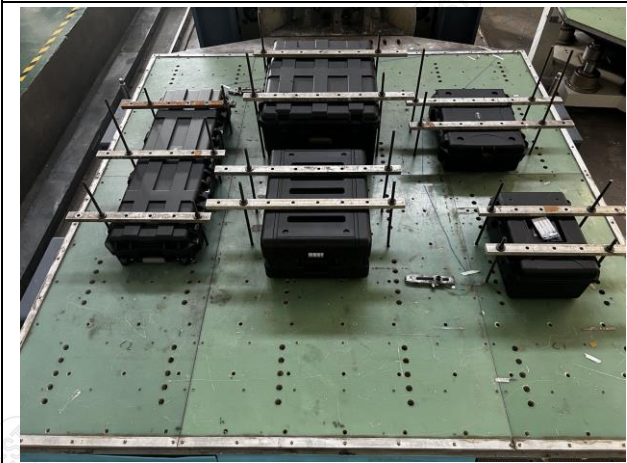


Fig.2-5 Test erection (X-axis)

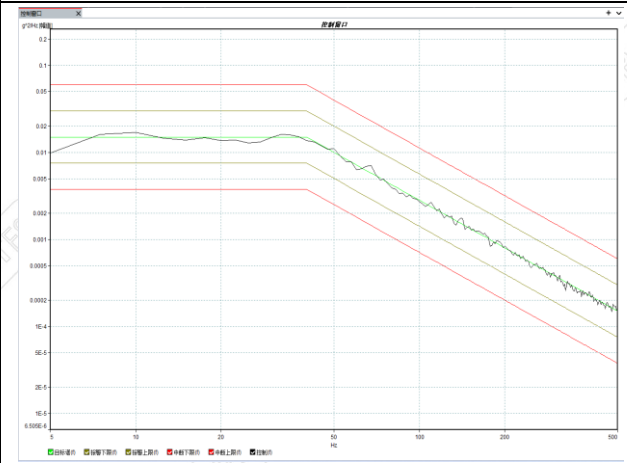


Fig.2-6 Road transport vibration test curve (Z-axis)

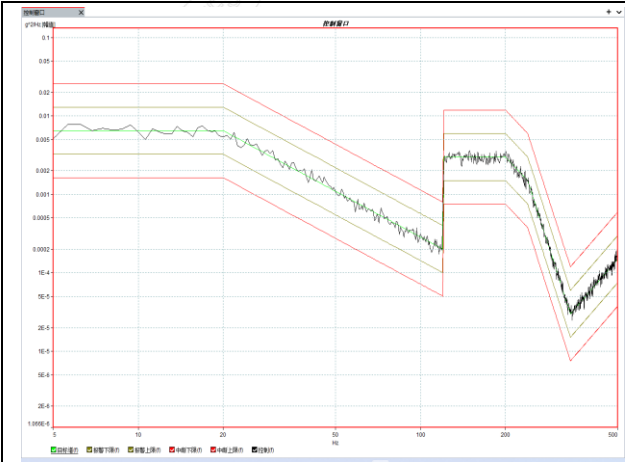


Fig.2-7 Road transport vibration test curve (Y-axis)

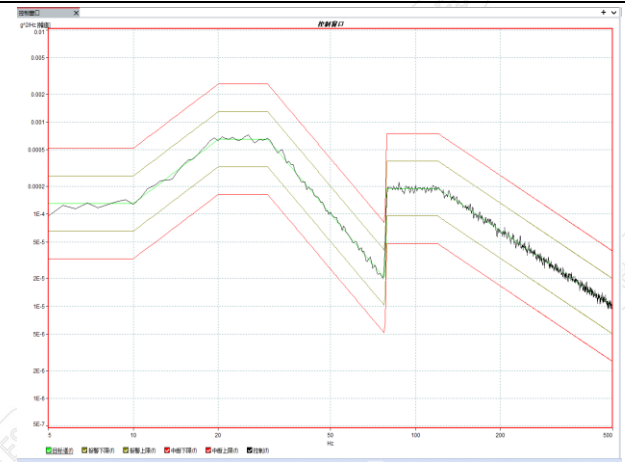


Fig.2-8 Road transport vibration test curve (X-axis)

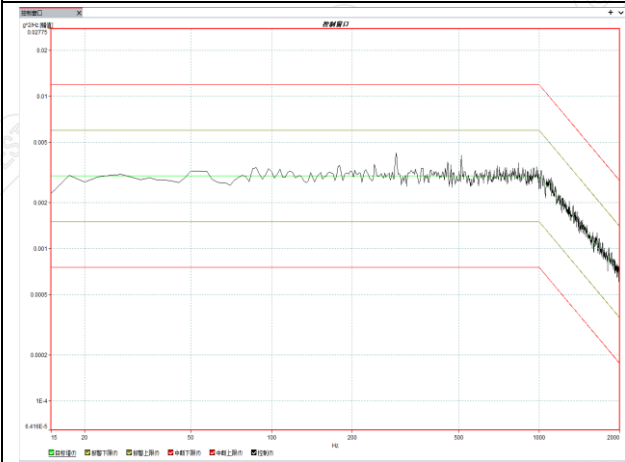


Fig.2-9 Jet vibration test curve (Z-axis)

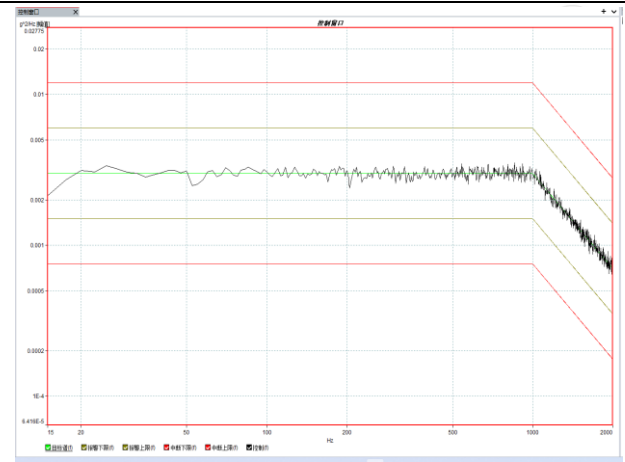


Fig.2-10 Jet vibration test curve (Y-axis)

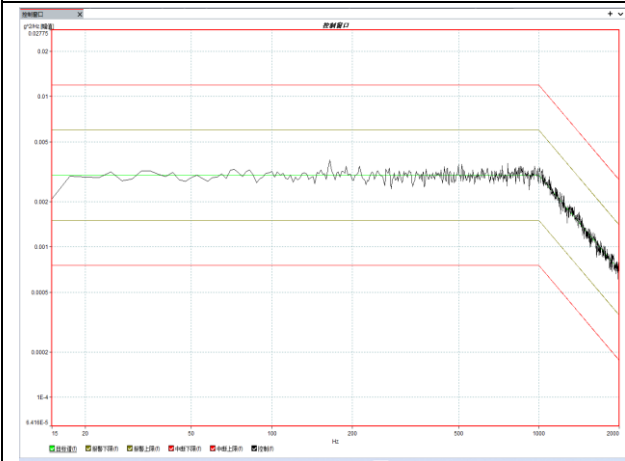


Fig.2-11 Jet vibration test curve (X-axis)

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### 3.1 Drop Test

According to MIL-STD-810H-2019 method 516.8.

3.1.1 Initial detection: Before the experiment, conduct initial testing on the test sample under standard atmospheric conditions

3.1.2 Sample Installation And positioning: Install the test sample on the drop testing machine. eep it within the effective volume of the chamber, allowing air to flow freely inside the chamber.

3.1.3 Experimental operation: Perform the drop test according to the conditions in Table 3-1.

**Table 3-1 Drop Test Conditions**

Falling Surface	Drop Height (cm)	Number Of Drops
12 edges	122	each edge once, a total of 12 times
8 corners	122	1 time per corner, a total of 8 times
6 faces	122	1 time per face, a total of 6 times

### 3.2 Sample Information

Sample information is shown in Table 3-2.

**Table 3-2 Sample Information**

Sample Name	Sample Model	Sample Quantity	Test No
SINORA HARD SHELL	SIN-RIM-S04U28	1pc	H202502262097-0009

### 3.3 Test Requirements

According to the requirements of the client.

After the test, the appearance of the sample should not be cracked, unglued or damaged.



3.4 Test Result

The test result is shown in Table 3-3.

Table 3-3 Test Result

Test No.	Test result	Conclusion
H202502262097-0009	After the test, the appearance of the sample is not cracked, unglued and damaged.	Meet the requirements

3.5 Test Photos



Fig.3-1 Sample appearance before test



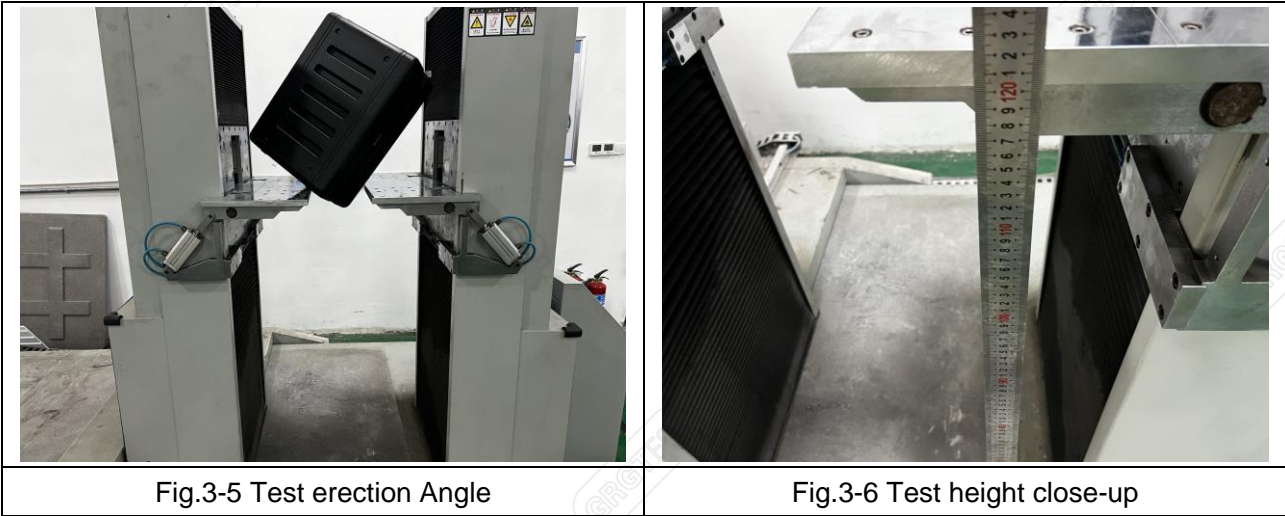
Fig.3-2 Sample appearance after test



Fig.3-3 Test the erection-surface



Fig.3-4 Test erection-edge



4 Test Instrument & Equipment

List of Instrument for Testing Equipment					
No.	Testing Item	Instrument/Equipment	Type	Serial No.	Calibration Valid Date
1	Temperature shock test	Three comprehensive test chamber	THVS4020-5F	HA03X2170150101010101	2025-02-06~2026-02-05
		Walk-in rapid temperature change (humid heat) test chamber	BE-8207-12m³	20180410004	2024-12-27~2025-12-26
2	Vibration test	Vibration table	ES-200-650	D1805157	2024-10-11~2025-10-10
		Acceleration sensor	357B03	LW75645	2024-07-27~2025-07-26
		Acceleration sensor	DL312	H00126	2024-12-03~2025-12-02
3	Drop test	Free drop tester	BE-8206-3000	20180410007	2024-09-26~2025-09-25
		Steel ruler	1500mm	00722058	2024-11-29~2025-11-28

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