

Test Report

Report No.: 202401001

Sample Name: Li-ion Battery

Applicant: Shanghai PYTES Energy Co., Ltd.

Date of issue: 2024.01.24



ChuweiNeng Testing Technology (Shanghai) Co., Ltd

ChuweiNeng Testing Technology (Shanghai) Co., Ltd

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ChuweiNeng Testing Technology (Shanghai) Co., Ltd

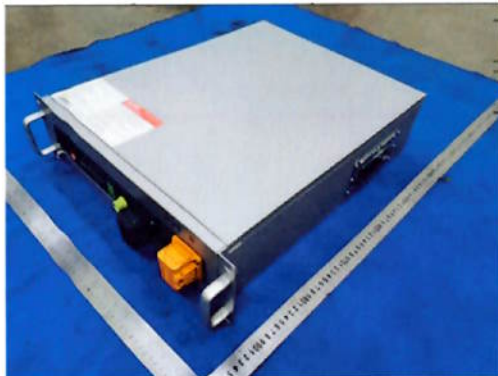
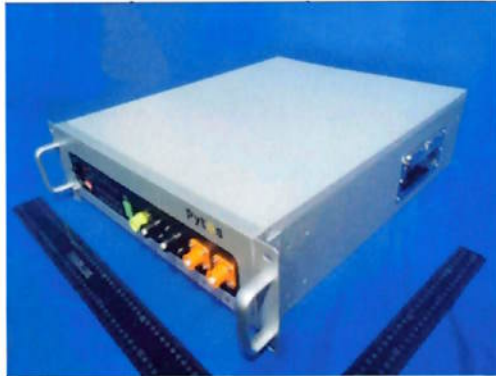
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Test Report

Sample name	Li-ion Battery	Sample No.	202401001
Applicant	Shanghai PYTES Energy Co., Ltd.	Sample receive date	202401001
Manufacturer	Shanghai PYTES Energy Co., Ltd.	Appearance	Undamaged
Model name	V5°, V5°α	Sample Quantities	1
Test items	Vibration test		
Test methods and criterion	Test standard: According to the requirements of the applicant, the test is carried out according to the vibration test parameters in SAE-J2380-DEC2021, and it is not necessary to precondition the sample according to SAE-J2380-DEC2021. Criterion: After vibration, the sample can be normally started and the voltage is normal, and there is no abnormal appearance.		
Testing duration	2024/01/05~2024/01/12		
Conclusion	1. No abnormal phenomenon during the test. 2. The Sample can be normally turned on after the end of the test without failure. 3. Voltage of sample is normal after test.		
Remark	Model name V5° and V5°α are identical except V5°and V5°α use different Batterv Connector, see pictures below. in this test, model V5° is used as represent for the two models.		
	Model V5°		Model V5°α
			
			

Approver: *Chuanhui Xie*

Reviewer: *Xiaohu Zhang*

Tester: *Wu Zhiyuan*

Test Report

Test procedure

- Vibration sequences, test time, and accelerate was set according to Table 3 of clause 4.4.3.

Table 3 - Vibration schedule for random vibration test

TEST CONDITIONS			NORMAL TEST			ALTERNATIVE TEST		
VIBRATION SPECTRUM	DOD (%)	Accel (g rms)	Time (h)	Cumul Time, h	Accel (g rms)	Time (h)	Cumul Time (h)	
Vertical Axis Vibration:								
Vertical 1 spectrum	0	1.9	0.15	0.15	1.9	0.15	0.15	0.15
Vertical 1 spectrum	0	0.75	5.25	5.4	0.95	3.5	3.5	3.65
Vertical 2 spectrum	0	1.9	0.15	5.55	1.9	0.15	3.8	3.8
Vertical 2 spectrum	0	0.75	5.25	10.8	0.95	3.5	7.3	7.3
Vertical 3 spectrum	80	1.9	0.15	10.95	1.9	0.15	7.45	7.45
Vertical 3 spectrum	80	0.75	5.25	16.2	0.95	3.5	10.95	10.95
Longitudinal Axis Vibration:								
Longitudinal spectrum	40	1.5	0.09	16.29	1.5	0.09	11.04	11.04
Longitudinal spectrum	40	0.4	19	35.29	0.75	6.7	17.74	17.74
Longitudinal spectrum	40	1.5	0.09	35.38	1.5	0.09	17.83	17.83
Longitudinal spectrum	40	0.4	19	54.38	0.75	6.7	24.53	24.53
Lateral Axis Vibration:								
Lateral spectrum	40	1.5	0.09	54.47	1.5	0.09	24.621	24.621
Lateral spectrum	40	0.4	19	73.47	0.75	6.7	31.321	31.321
Lateral spectrum	40	1.5	0.09	73.56	1.5	0.09	31.411	31.411
Lateral spectrum	40	0.4	19	92.56	0.75	6.7	38.111	38.111

- Vibration frequency was set according to Table 4 of clause 4.4.3.

Table 4 - Vibration breakpoint for random vibration test

VERTICAL 1 SPECTRUM			VERTICAL 2 SPECTRUM			VERTICAL 3 SPECTRUM		
Frequency (Hz.)	1.9 G (RMS)	0.75 G (RMS)	Frequency (Hz.)	1.9 G (RMS)	0.75 G (RMS)	Frequency (Hz.)	1.9 G (RMS)	0.75 G (RMS)
	Autospectral Density (g ² /Hz.)	Autospectral Density (g ² /Hz.)		Autospectral Density (g ² /Hz.)	Autospectral Density (g ² /Hz.)		Autospectral Density (g ² /Hz.)	Autospectral Density (g ² /Hz.)
10	0.113	0.017359	10	0.08	0.012293	10	0.071	0.010982
15	0.113	0.017359	15	0.08	0.012293	22	0.071	0.010982
18	0.083	0.012750	18	0.11	0.018802	24	0.097	0.015003
23	0.037	0.005684	22	0.11	0.018902	30	0.097	0.015003
35	0.037	0.005684	26	0.036	0.006632	35	0.032	0.004950
45	0.021	0.003226	35	0.036	0.005532	48	0.018	0.002784
80	0.021	0.003226	45	0.02	0.003073	80	0.018	0.002784
120	0.0092	0.001413	80	0.02	0.003073	120	0.0079	0.001222
170	0.0052	0.000789	120	0.0088	0.001352	170	0.0044	0.000681
190	0.0052	0.000789	170	0.005	0.000758	190	0.0044	0.000681
			190	0.005	0.000758			
	1.91 G (RMS)	0.75 G (RMS)		1.91 G (RMS)	0.75 G (RMS)		1.91 G (RMS)	0.75 G (RMS)

LONGITUDINAL SPECTRUM			LATERAL SPECTRUM		
Frequency (Hz.)	1.5 G (RMS)	0.40 G (RMS)	Frequency (Hz.)	1.5 G (RMS)	0.40 G (RMS)
	Autospectral Density (g ² /Hz.)	Autospectral Density (g ² /Hz.)		Autospectral Density (g ² /Hz.)	Autospectral Density (g ² /Hz.)
10	0.064	0.004540	10	0.064	0.004540
13	0.064	0.004540	13	0.064	0.004540
22	0.032	0.002270	22	0.032	0.002270
45	0.016	0.001135	45	0.016	0.001135
80	0.01	0.000709	80	0.01	0.000709
120	0.0057	0.000404	120	0.0057	0.000404
190	0.0057	0.000404	190	0.0057	0.000404
	1.50 G (RMS)	0.40 G (RMS)		1.50 G (RMS)	0.40 G (RMS)

- Testing was performed using a single-axis platform, starting with two-thirds of vertical axis vibration tests, then the longitudinal and lateral axis vibration tests were completed, and finally the remaining vertical axis vibration was performed.

Test Report

Requirement:

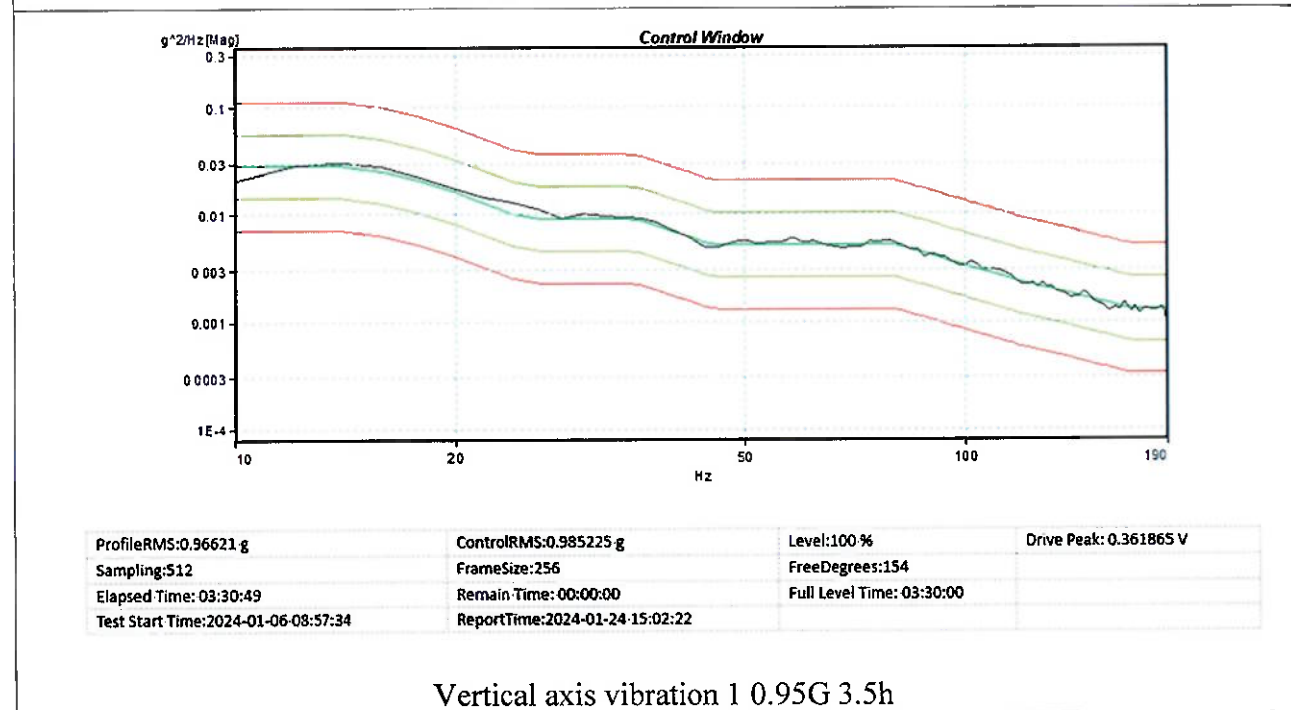
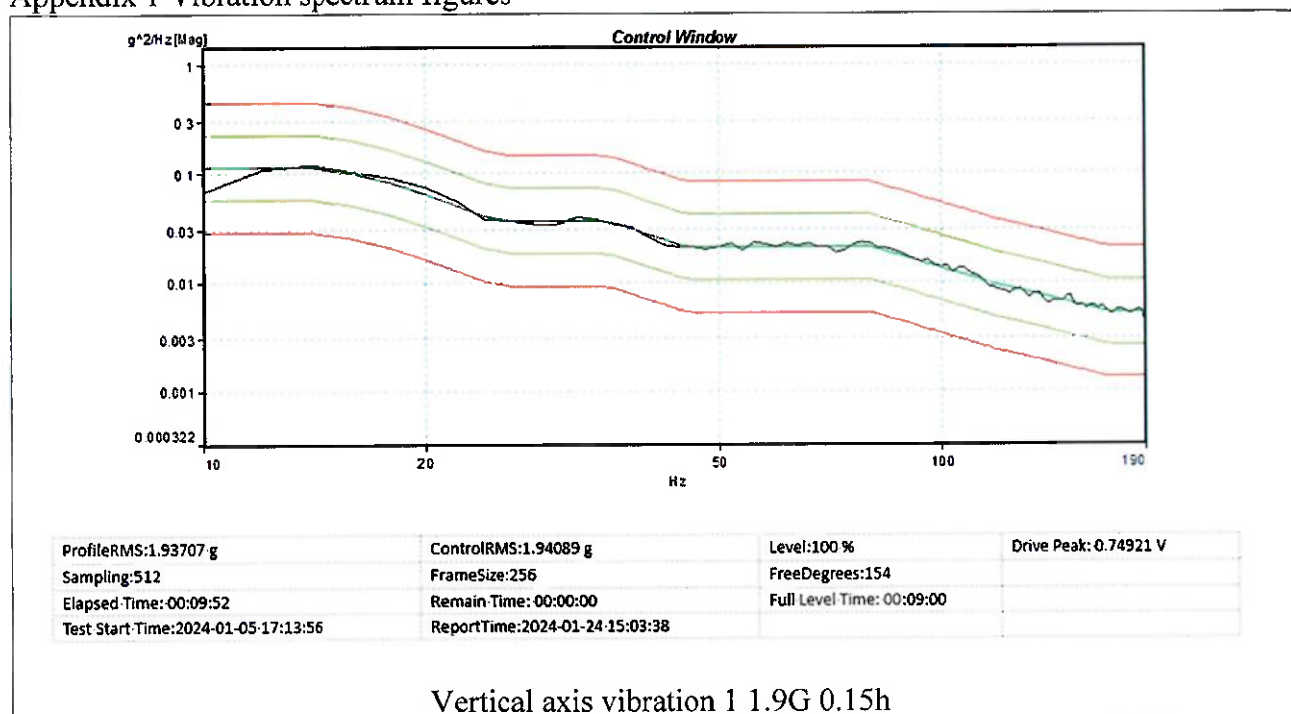
1. There shall no abnormal phenomenon during the test.
2. The sample can be normally turned on after the end of the test without failure.
3. Voltage of the sample is normal after test.

Test result:

1. No abnormal phenomenon during the test.
2. The Sample can be normally turned on after the end of the test without failure.
3. Voltage of sample is normal after test.

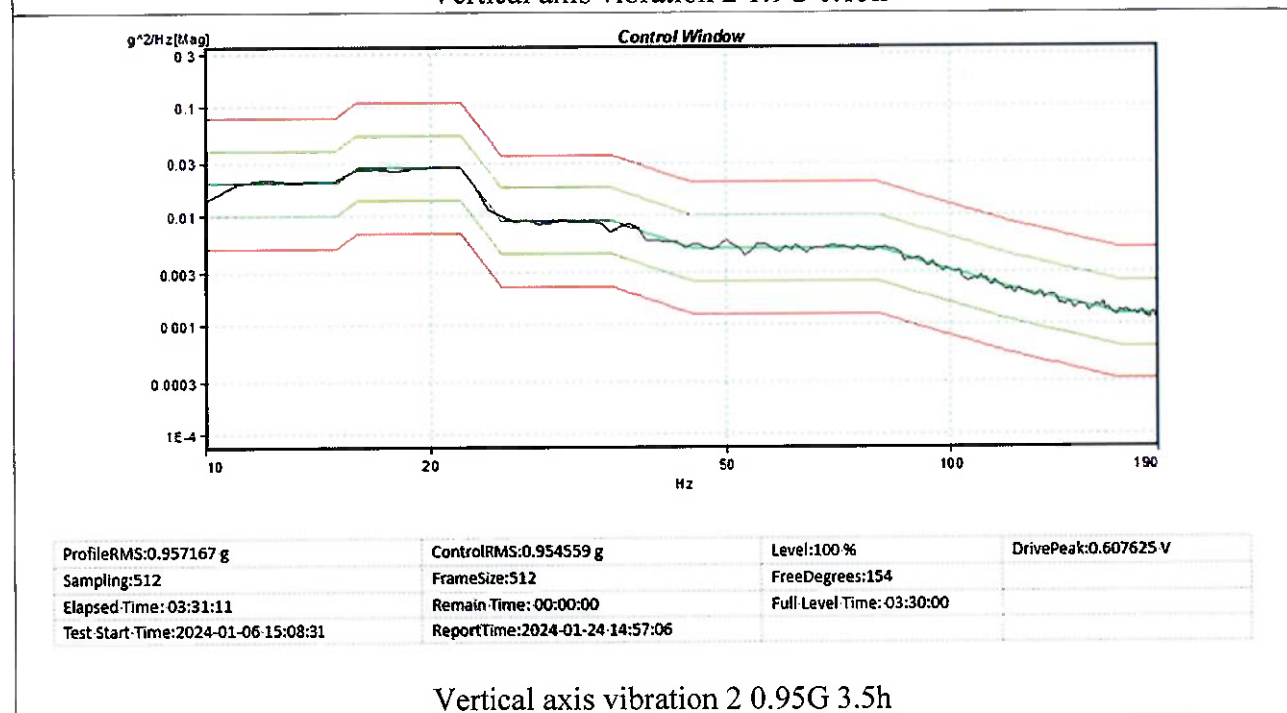
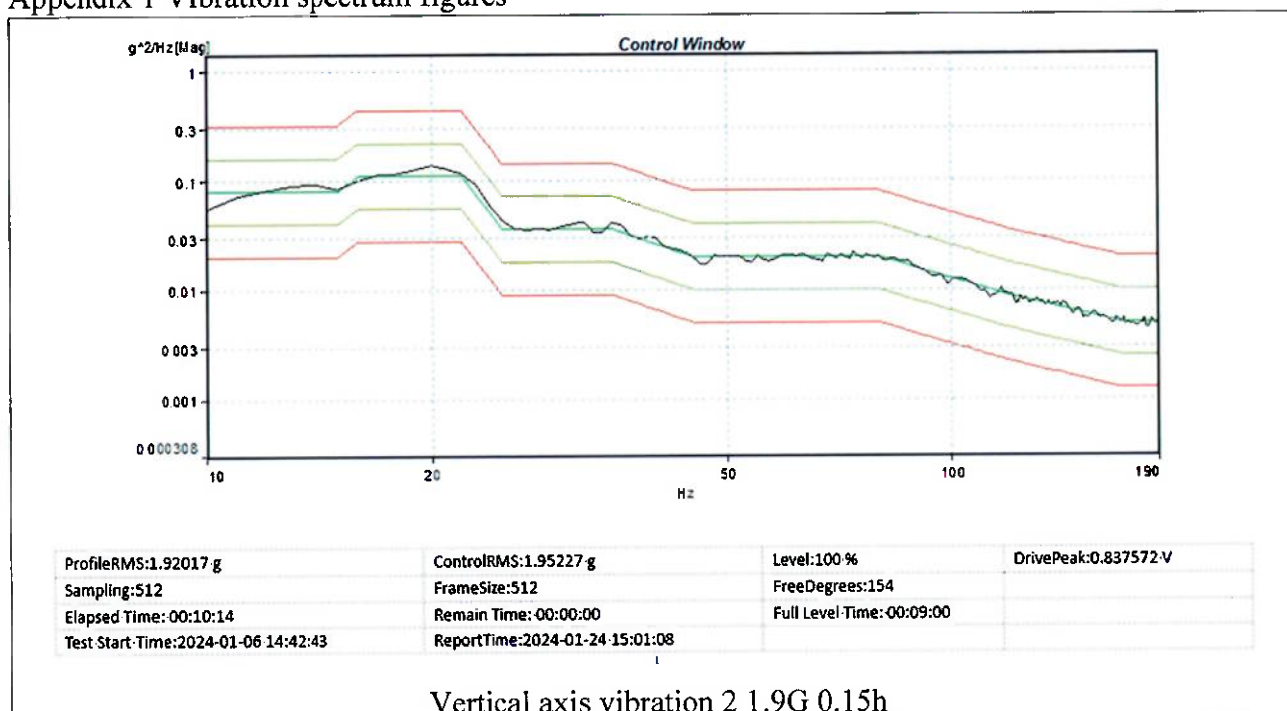
Test Report

Appendix 1 Vibration spectrum figures



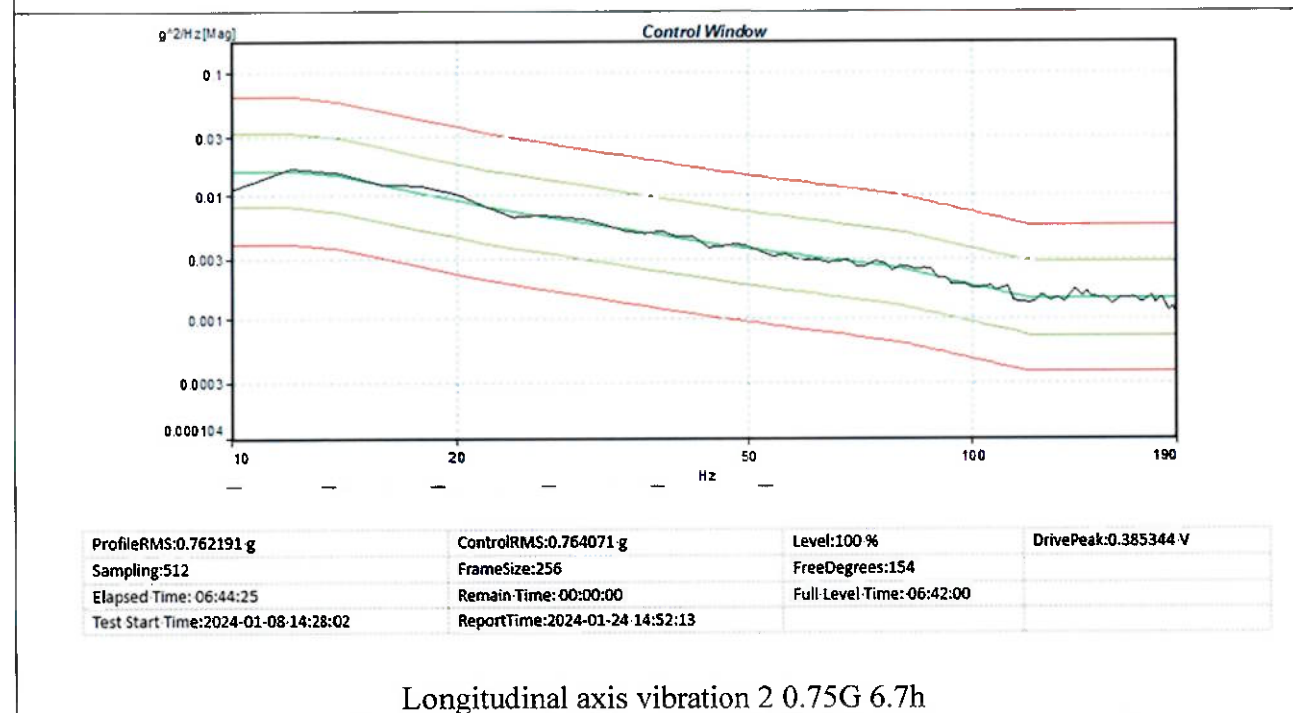
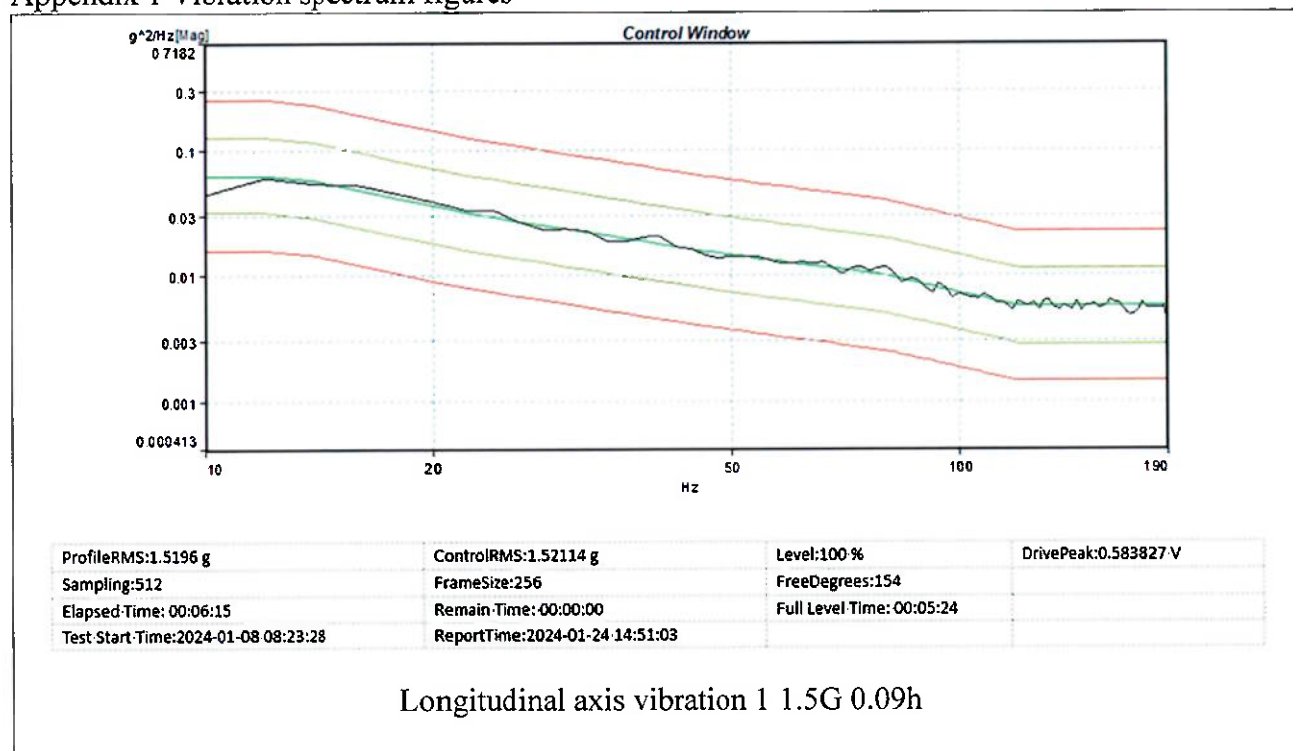
Test Report

Appendix 1 Vibration spectrum figures



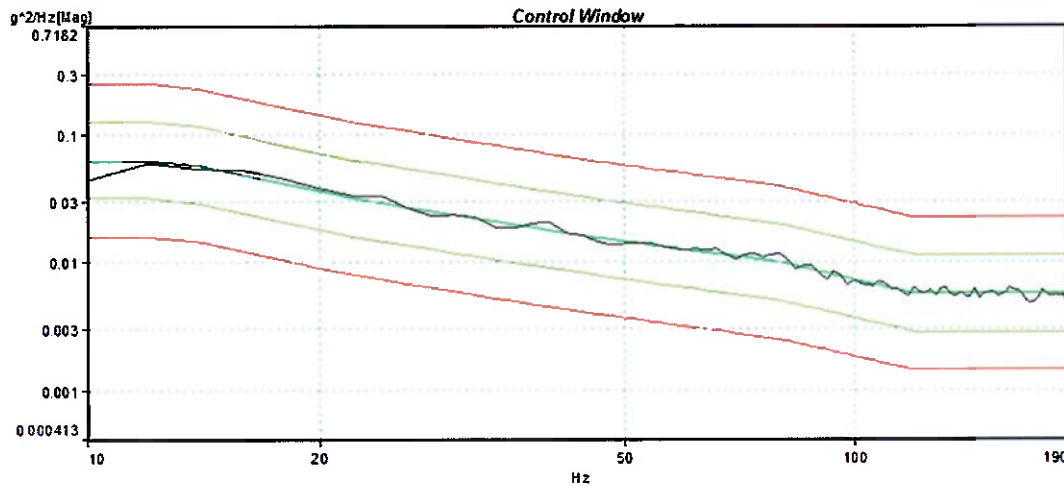
Test Report

Appendix 1 Vibration spectrum figures



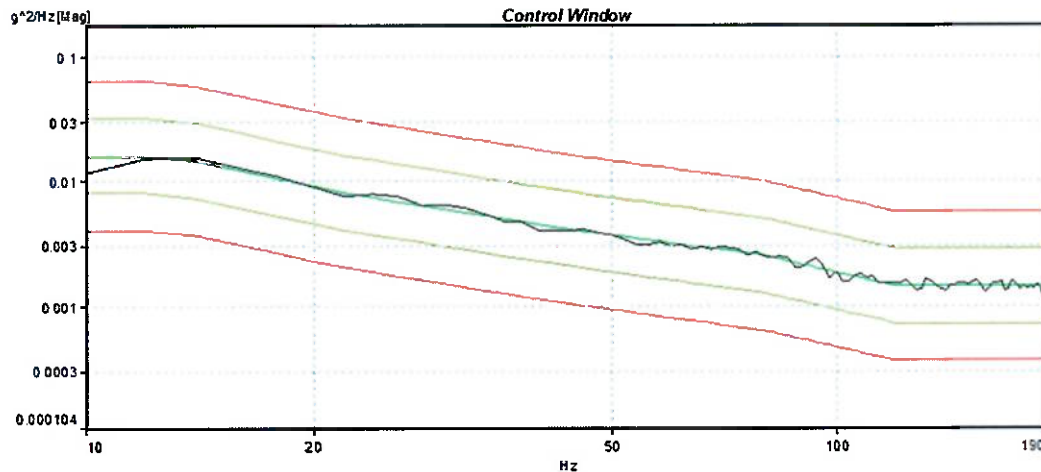
Test Report

Appendix 1 Vibration spectrum figures



ProfileRMS:1.5196 g	ControlRMS:1.52192 g	Level:100 %	DrivePeak:0.585151 V
Sampling:512	FrameSize:256	FreeDegrees:154	
Elapsed Time: 00:06:15	Remain Time: 00:00:00	Full Level Time: 00:05:24	
Test Start Time:2024-01-08 15:27:21	ReportTime:2024-01-24 14:53:53		

Longitudinal axis vibration 3, 1.5G, 0.09h

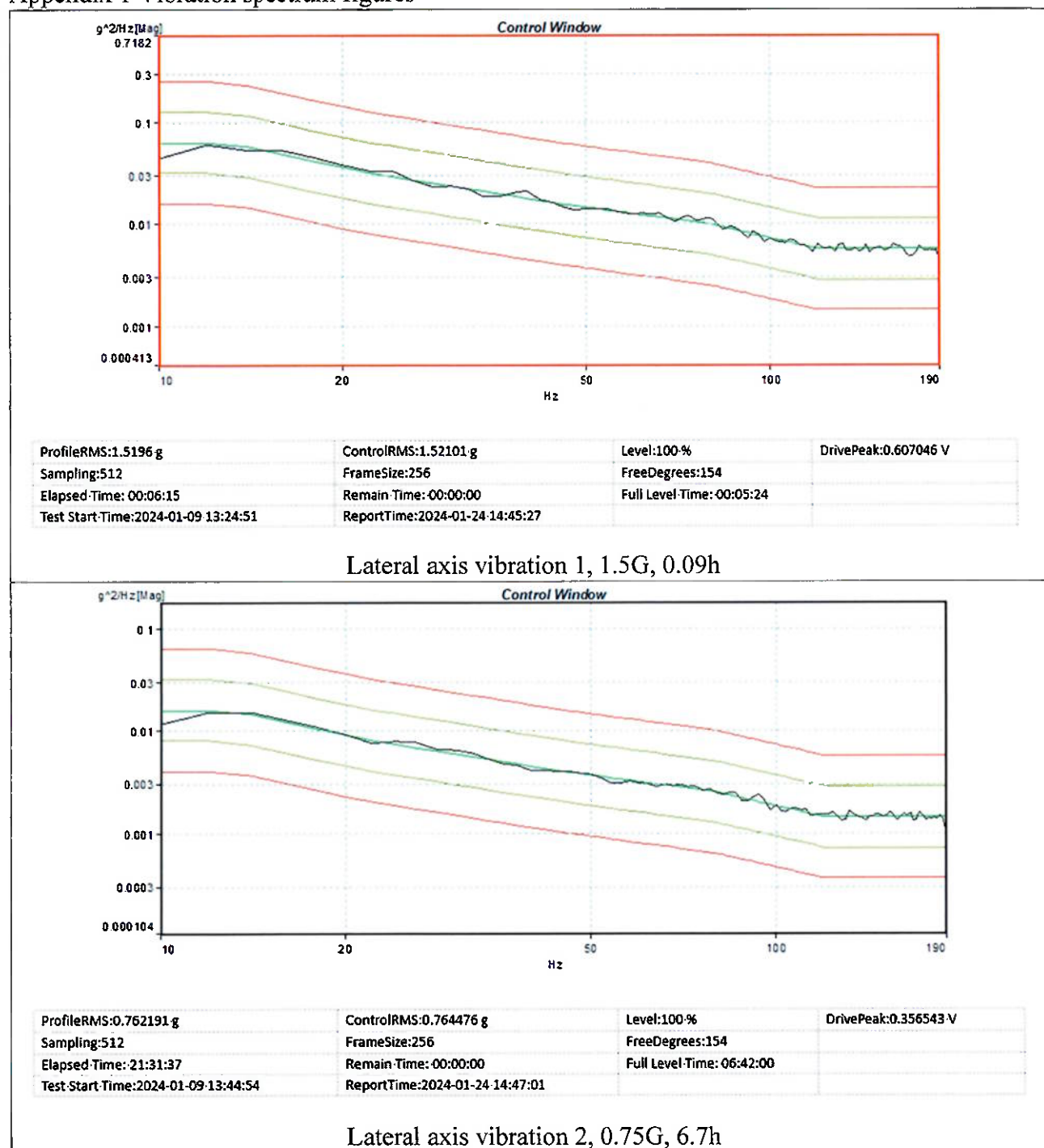


ProfileRMS:0.762191 g	ControlRMS:0.763013 g	Level:100 %	DrivePeak:0.430206 V
Sampling:512	FrameSize:256	FreeDegrees:154	
Elapsed Time: 21:33:54	Remain Time: 00:00:00	Full Level Time: 06:42:00	
Test Start Time:2024-01-08 15:40:31	ReportTime:2024-01-24 14:54:58		

Longitudinal axis vibration 4, 0.75G, 6.7h

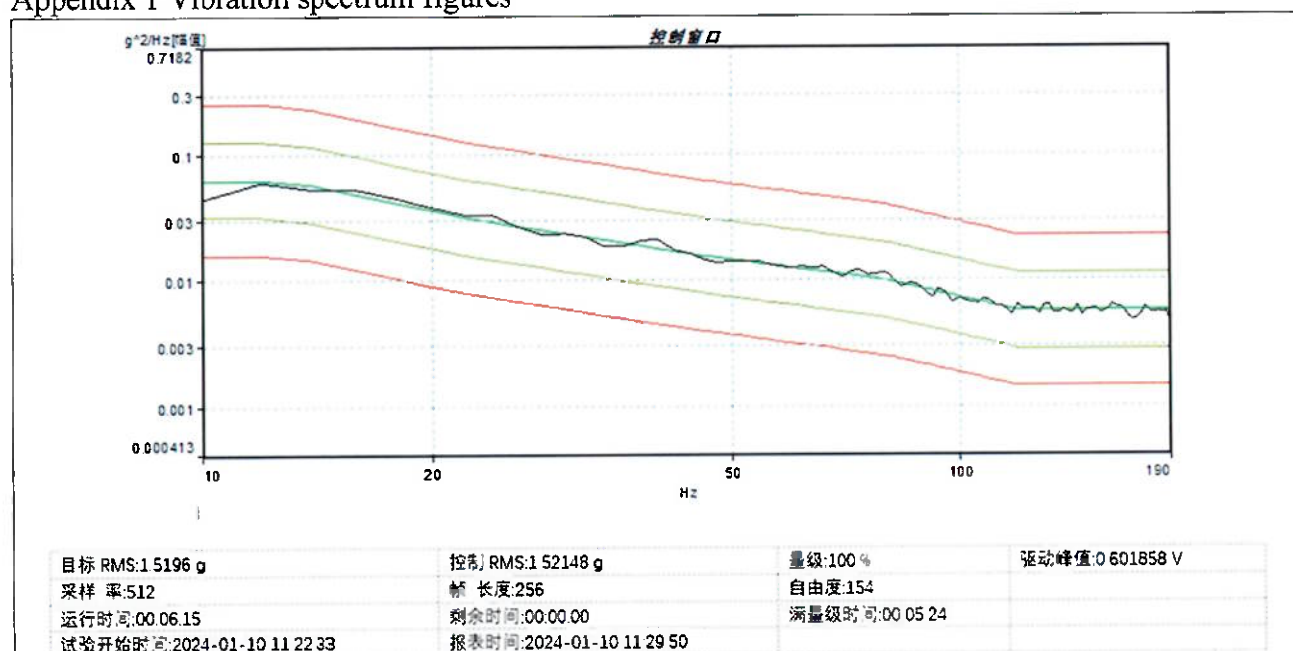
Test Report

Appendix 1 Vibration spectrum figures

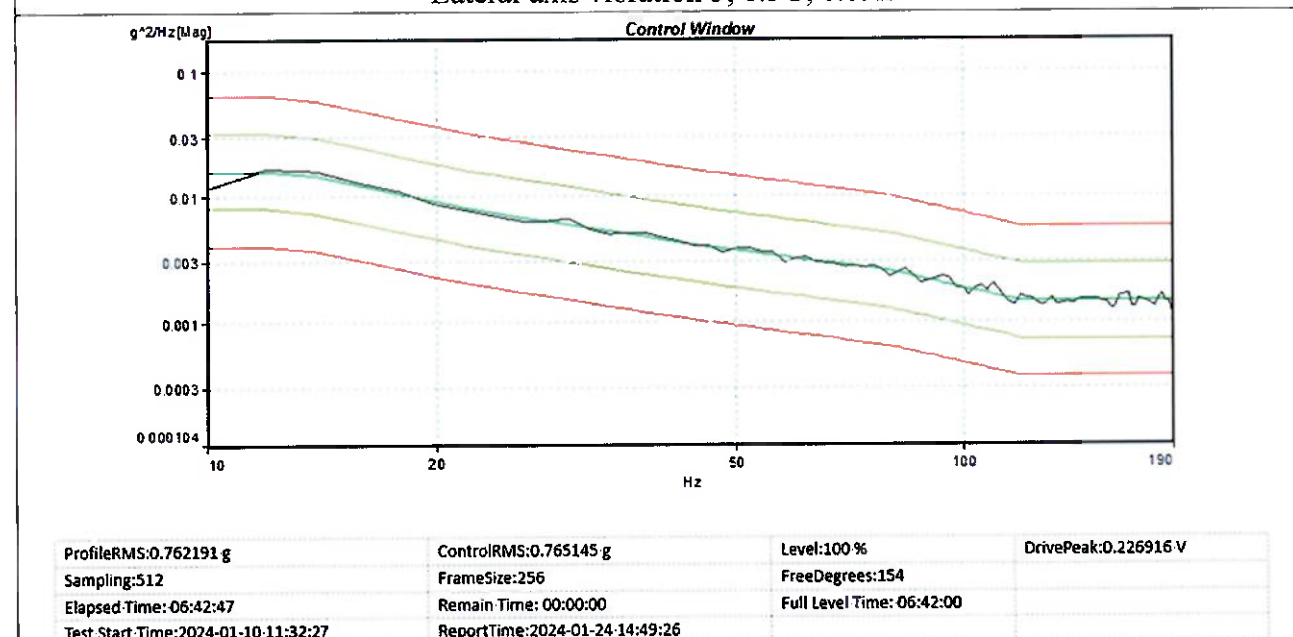


Test Report

Appendix 1 Vibration spectrum figures



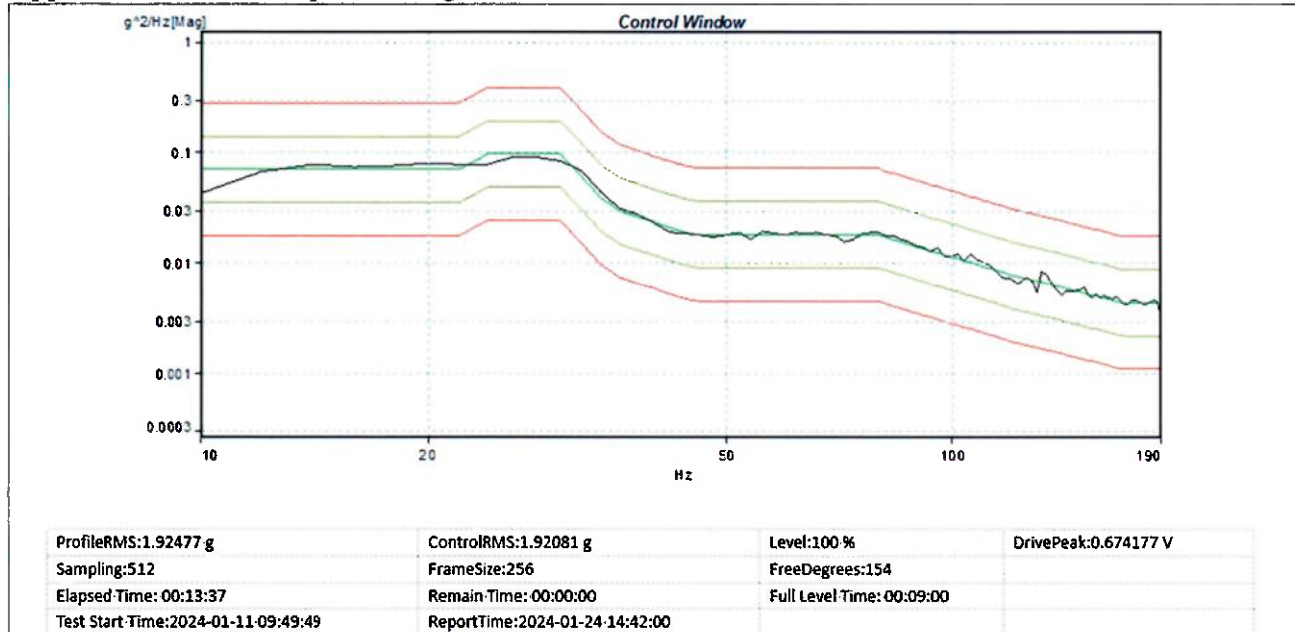
Lateral axis vibration 3, 1.5G, 0.09h



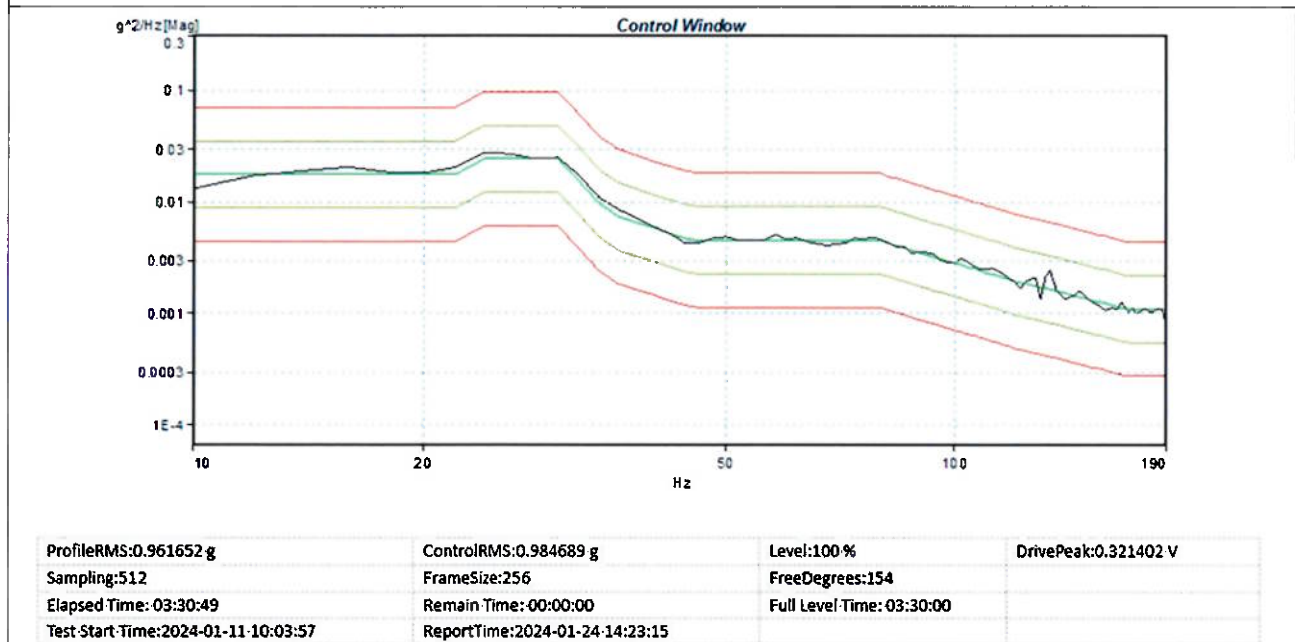
Lateral axis vibration 4, 0.75G, 6.7h

Test Report

Appendix 1 Vibration spectrum figures



Vertical axis vibration 3 1.9G 0.15h



Vertical axis vibration 3, 0.95G, 3.5h

Test Report

Appendix 2 Photos



Vertical vibration



Longitudinal vibration



Lateral vibration

----End of test report---