

FCC Test Report

Client Name : ZHEJIANG YOUQI TECHNOLOGY CO., LTD.

Address : No.229, Dongda Street, Shanshi, Daxi town, Wenling
City, Zhejiang Province

Product Name : Electric Scooter

Date : Sept. 26, 2021



Anbotek (Guangzhou) Compliance Laboratory Limited

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TEST REPORT

Applicant : ZHEJIANG YOUQI TECHNOLOGY CO., LTD.
Manufacturer : ZHEJIANG YOUQI TECHNOLOGY CO., LTD.
Product Name : Electric Scooter
Model No. : U2, U3, U5
Trade Mark : UKAYE
Rating(s) : Input: DC 36V, 350W
Battery: DC 36V, 7.5Ah
Test Standard(s) : FCC Rules and Regulations Part 15 Subpart B: 2020
Test Method(s) : ANSI C63.4-2014

The device described above is tested by Anbotek (Guangzhou) Compliance Laboratory Limited To determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B Class B limits both radiated and conducted emissions. The measurement results are contained in this test report and Anbotek (Guangzhou) Compliance Laboratory Limited Is assumed full responsibility for the accuracy and completeness of these measurements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Anbotek (Guangzhou) Compliance Laboratory Limited

Date of Receipt: Aug. 18, 2021

Date of Test: Aug. 18~Aug. 25, 2021

Prepared By:

Jet Zhao

(Jet Zhao)

Approved & Authorized Signer:

Stephen Liu

(Stephen Liu)

1. General Information

1.1. Client Information

Applicant	:	ZHEJIANG YOUQI TECHNOLOGY CO., LTD.
Address	:	No.229, Dongda Street, Shanshi, Daxi town, Wenling City, Zhejiang Province
Manufacturer	:	ZHEJIANG YOUQI TECHNOLOGY CO., LTD.
Address	:	No.229, Dongda Street, Shanshi, Daxi town, Wenling City, Zhejiang Province
Factory	:	ZHEJIANG YOUQI TECHNOLOGY CO., LTD.
Address	:	No.229, Dongda Street, Shanshi, Daxi town, Wenling City, Zhejiang Province

1.2. Description of Device (EUT)

Product Name	:	Electric Scooter
Model No.	:	U2, U3, U5 (Note: All samples are the same except the model number & appearance, so we prepare "U2" for test only.)
Trade Mark	:	UKAYE
Test Power Supply	:	AC 120V, 60Hz / DC 36V
Test Sample No.	:	1-3-1
Product Description	:	Adapter: MODEL: XVE-4200200 INPUT: 100-240V AC, 50/60Hz, 2.0A Max OUTPUT: DC 42.0V, 2.0A, 34W
Remark: (1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.		

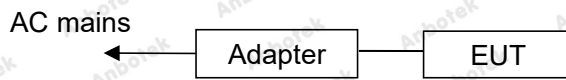
1.3. Auxiliary Equipment Used During Test

N/A	
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1.4. Description of Test Modes

Pretest Modes	Descriptions
Mode 1	Charging Mode
Mode 2	Riding Mode

For Mode 1 Block Diagram of Test Setup



For Mode 2 Block Diagram of Test Setup



1.5. Test Summary

Test Items	Test Modes	Status
Power Line Conducted Emission Test (150KHz To 30MHz)	Mode 1	P
Radiated Emission Test (30MHz To 1000MHz)	All Mode	P
P) Indicates "PASS". N) Indicates "Not applicable".		

1.6. Test Equipment List

Conducted Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMI Test Receiver	Rohde & Schwarz	ESCI	100990	Oct. 26, 2020	1 Year
2.	L.I.S.N. Artificial Mains Network	Schwarzbeck	NSLK 8127	8127386	Oct. 26, 2020	1 Year
3.	L.I.S.N. Artificial Mains Network	Schwarzbeck	NSLK 8126	8126377	Oct. 26, 2020	1 Year
4.	Software Name	Ferrari Technology	EZ-EMC	EMC-CON 3A1.1	N/A	N/A

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMI Test Receiver	Rohde & Schwarz	ESCI	101604	Oct. 26, 2020	1 Year
2.	Pre-amplifier	EMtrace	RP01A	50017	Oct. 26, 2020	1 Year
3.	Pre-amplifier	CD	PAP-0203	22008	Oct. 26, 2020	1 Year
4.	TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	01417	Nov. 02, 2020	2 Year
5.	Software Name	Ferrari Technology	EZ-EMC	Anbo-3A1	N/A	N/A

1.7. Measurement Uncertainty

Radiation Uncertainty	:	Ur = 4.7 dB (Horizontal)
		Ur = 4.3 dB (Vertical)
Conduction Uncertainty	:	Uc = 3.4 dB
Disturbance Uncertainty	:	Ud = 3.4 dB

1.8. Description of Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

Test Location

Anbotek (Guangzhou) Compliance Laboratory Limited.

Room 508, Building 2, No.232, Kezhu Road, Science City, Guangzhou Economic & Technology Development Area, Guangzhou, Guangdong, China.510663

2. Power Line Conducted Emission Test

2.1. Test Standard and Limit

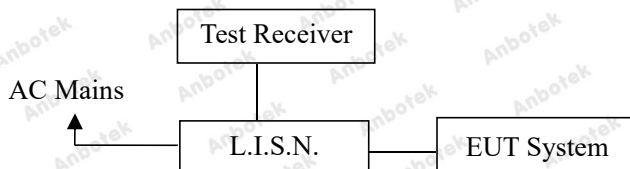
Test Standard	FCC Part 15 Subpart B
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Power Line Conducted Emission Measurement Limits (FCC Part 15 Class B)

Test Limit	Frequency (MHz)	At mains terminals (dB μ V)	
		Quasi-peak Level	Average Level
	0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
	0.50 ~ 5.00	56	46
	5.00 ~ 30.00	60	50

Remark: (1) The lower limit shall apply at the transition frequencies.
 (2) * Decreasing linearly with logarithm of frequency.

2.2. Test Setup



2.3. EUT Configuration on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

2.4. Operating Condition of EUT

- 2.4.1. Setup the EUT as shown in Section 2.2.
- 2.4.2. Turn on the power of all equipments.
- 2.4.3. Let the EUT work in test mode and measure it.

2.5. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.4-2014 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9KHz.

The frequency range from 150KHz to 30MHz is checked.

All the test results are listed in Section 2.6.

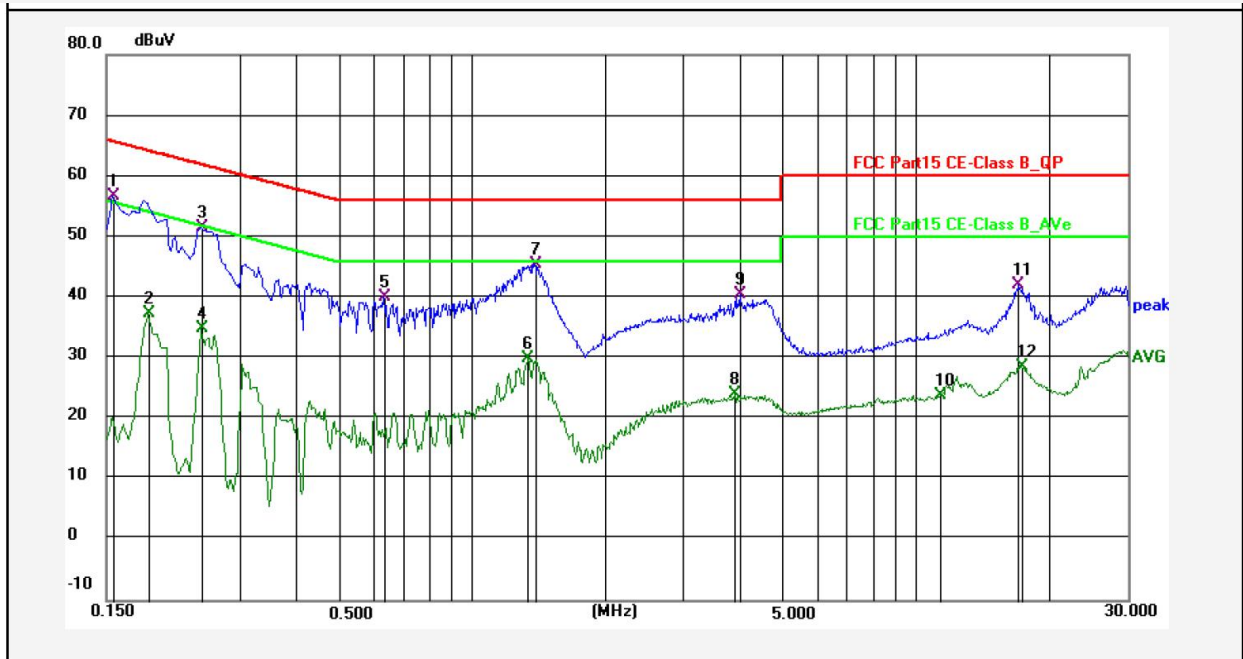
2.6. Test Results

PASS

The test curves are shown in the following pages.

Conducted Emission Test Data

Test Mode: Charging Mode
 Test Site: 1# Shielded Room
 Test Specification: AC 120V, 60Hz
 Comment: Live Line
 Temp.: 23.5°C Hum.: 54%

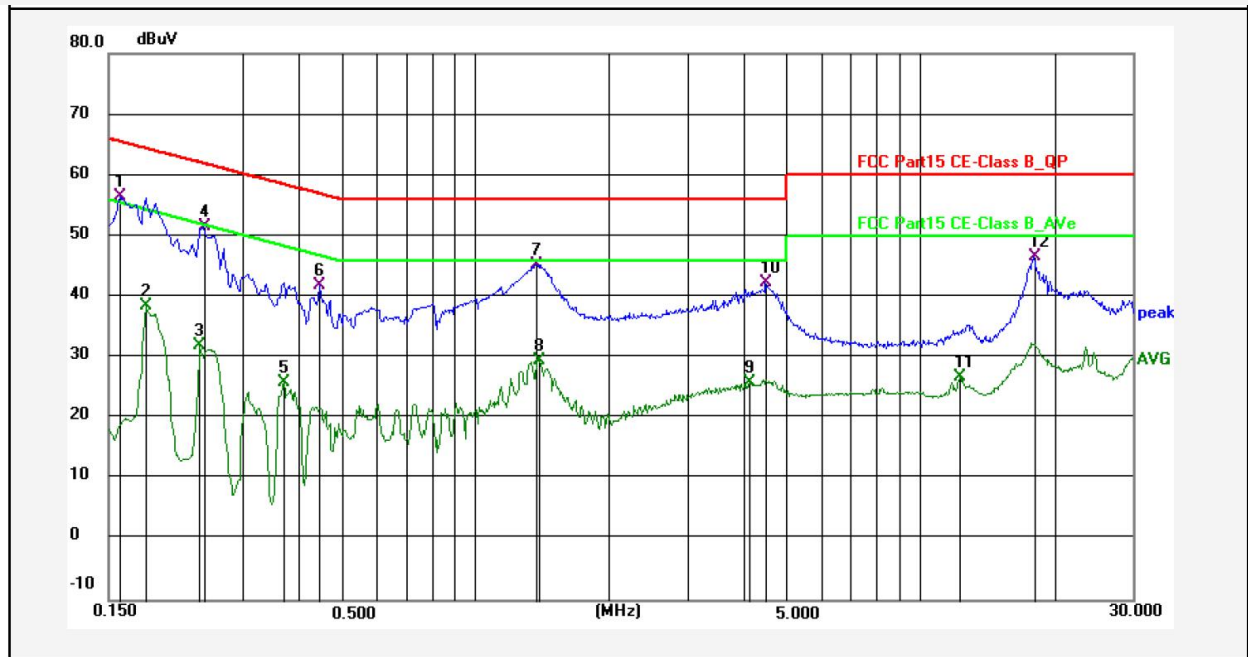


No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1545	55.96	0.77	56.73	65.75	-9.02	QP	
2	0.1860	36.57	0.76	37.33	54.21	-16.88	AVG	
3	0.2445	50.75	0.77	51.52	61.94	-10.42	QP	
4	0.2445	34.18	0.77	34.95	51.94	-16.99	AVG	
5	0.6315	39.30	0.79	40.09	56.00	-15.91	QP	
6	1.3425	29.03	0.80	29.83	46.00	-16.17	AVG	
7	1.3875	44.64	0.80	45.44	56.00	-10.56	QP	
8	3.9030	23.19	0.84	24.03	46.00	-21.97	AVG	
9	4.0155	39.65	0.84	40.49	56.00	-15.51	QP	
10	11.3595	22.97	0.88	23.85	50.00	-26.15	AVG	
11	17.0970	41.21	0.89	42.10	60.00	-17.90	QP	
12	17.2365	27.71	0.89	28.60	50.00	-21.40	AVG	

Note: Result=Reading+Factor Over Limit=Result-Limit

Conducted Emission Test Data

Test Mode: Charging Mode
 Test Site: 1# Shielded Room
 Test Specification: AC 120V, 60Hz
 Comment: Neutral Line
 Temp.: 23.5°C Hum.: 54%



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.1590	55.70	0.77	56.47	65.52	-9.05	QP	
2	0.1815	37.73	0.76	38.49	54.42	-15.93	AVG	
3	0.2400	31.09	0.77	31.86	52.10	-20.24	AVG	
4	0.2445	50.75	0.77	51.52	61.94	-10.42	QP	
5	0.3704	25.19	0.78	25.97	48.49	-22.52	AVG	
6	0.4470	41.12	0.78	41.90	56.93	-15.03	QP	
7	1.3785	44.46	0.80	45.26	56.00	-10.74	QP	
8	1.3875	28.61	0.80	29.41	46.00	-16.59	AVG	
9	4.1550	25.14	0.84	25.98	46.00	-20.02	AVG	
10	4.4925	41.42	0.84	42.26	56.00	-13.74	QP	
11	12.2955	25.82	0.88	26.70	50.00	-23.30	AVG	
12	17.9790	45.70	0.90	46.60	60.00	-13.40	QP	

Note: Result=Reading+Factor Over Limit=Result-Limit

3. Radiated Emission Test

3.1. Test Standard and Limit

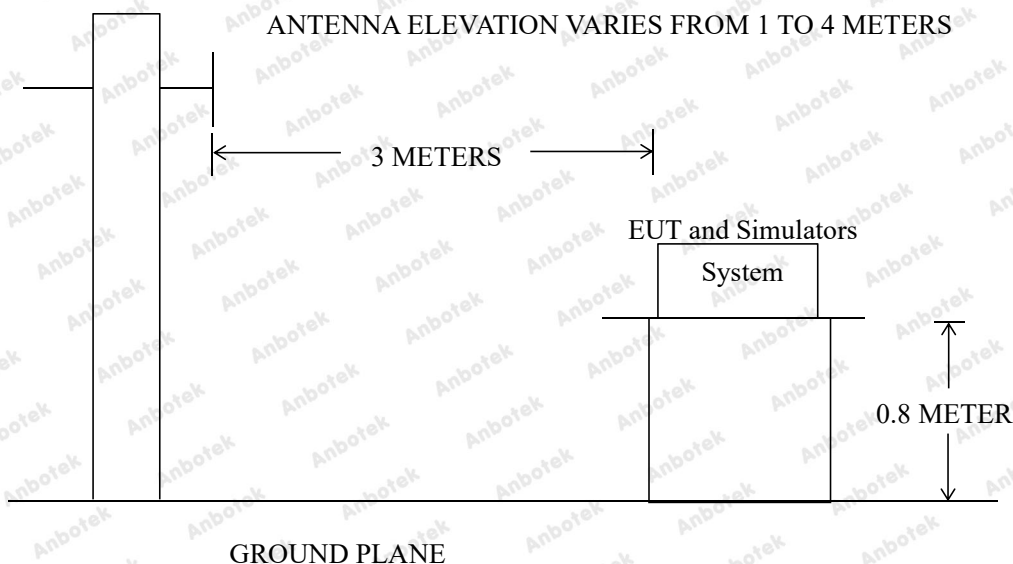
Test Standard	FCC Part 15 Subpart B
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Radiated Emission Test Limit (Subpart B Class B)

Test Limit	Frequency (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMIT	
			$\mu\text{V/m}$	$\text{dB}\mu\text{V/m}$
	30 ~ 88	3	100	40
	88 ~ 216	3	150	43.5
	216 ~ 960	3	200	46
	960 ~ 1000	3	500	54

Remark: (1) Emission level $\text{dB}\mu\text{V} = 20 \log$ Emission level $\mu\text{V/m}$
 (2) The smaller limit shall apply at the cross point between two frequency bands.
 (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

3.2. Test Setup



3.3. EUT Configuration on Measurement

The following equipments are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

3.4. Operating Condition of EUT

3.4.1. Setup the EUT as shown in Section 3.2.

3.4.2. Turn on the power of all equipments.

3.4.3. Let the EUT work in test mode and measure it.

3.5. Test Procedure

EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (Trilog Broadband Antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2014 on radiated emission measurement.

The bandwidth of the EMI test receiver (ESCI) is set at 120kHz.

The frequency range from 30MHz to 1000MHz is checked.

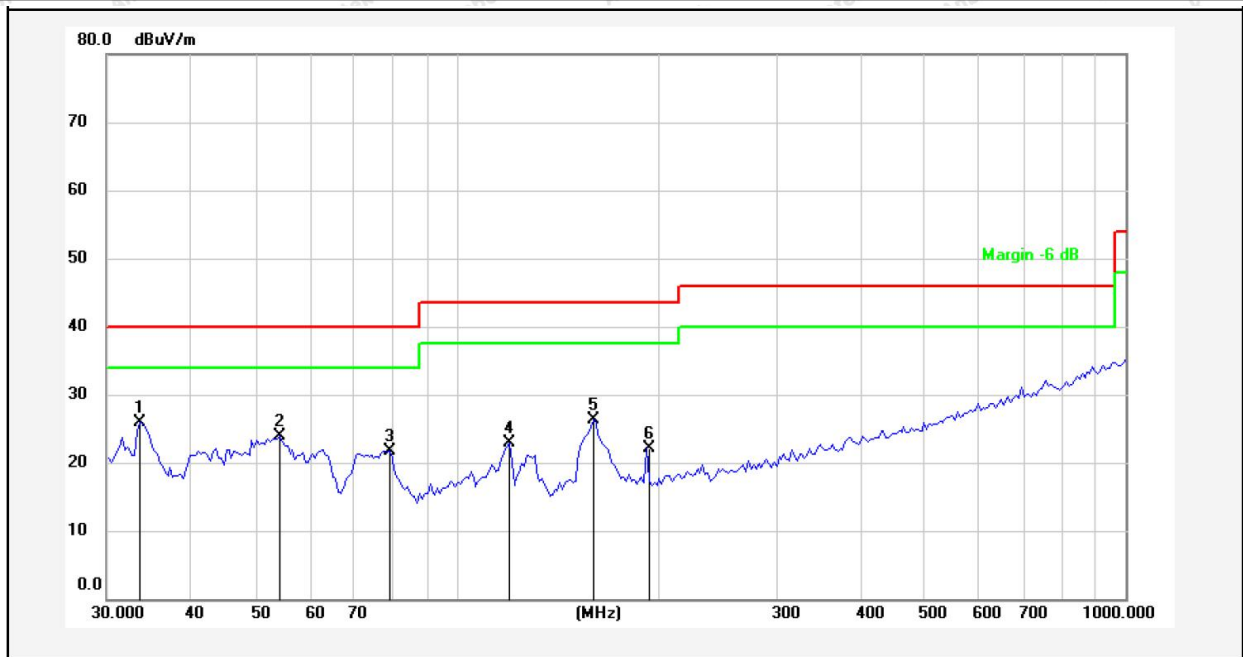
The test results are listed in Section 3.6.

3.6. Test Results

PASS

The test curves are shown in the following pages.

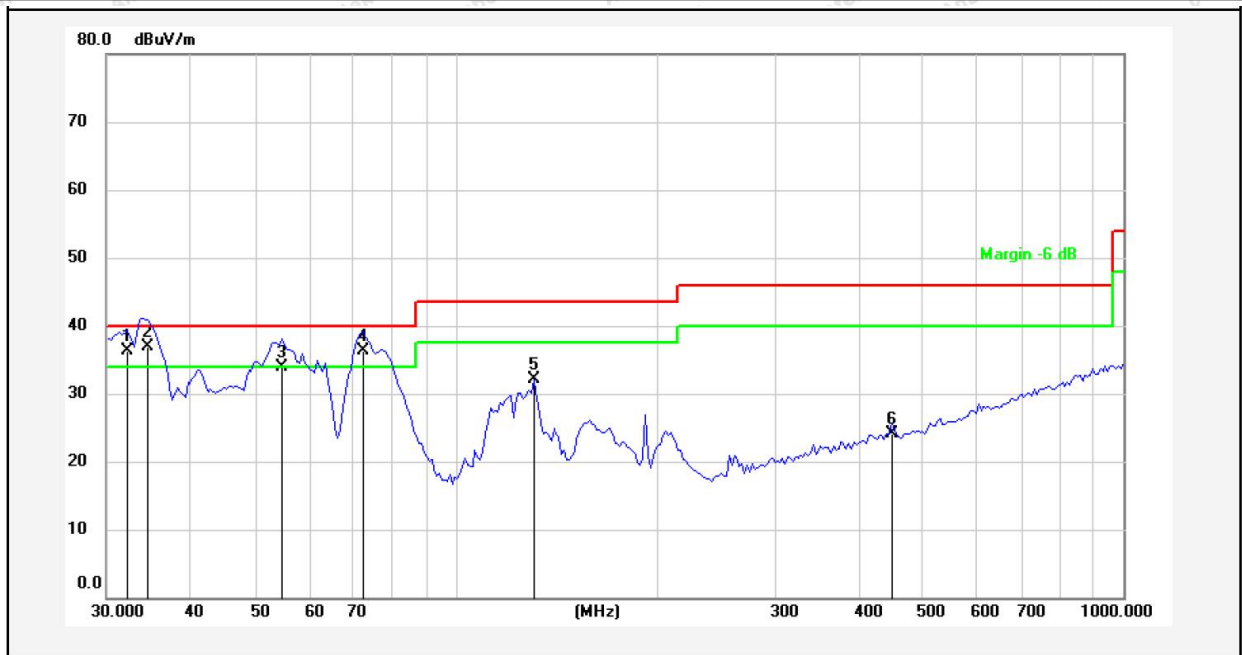
Test item:	Radiation Test	Polarization:	Horizontal
Standard:	(RE)FCC Part 15 Subpart B	Power Source:	AC 120V, 60Hz
Distance:	3m	Temp.(°C)/Hum.(%RH):	26(°C)/54%RH
Test Mode:	Charging Mode		



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	33.6213	44.67	-18.70	25.97	40.00	-14.03	peak			
2	54.4516	39.92	-15.96	23.96	40.00	-16.04	peak			
3	79.3816	43.25	-21.61	21.64	40.00	-18.36	peak			
4	119.8556	41.88	-19.00	22.88	43.50	-20.62	peak			
5	160.0648	46.31	-20.04	26.27	43.50	-17.23	peak			
6	192.4186	39.63	-17.44	22.19	43.50	-21.31	peak			

Note: **Result=Reading+Factor** **Over Limit=Result-Limit**

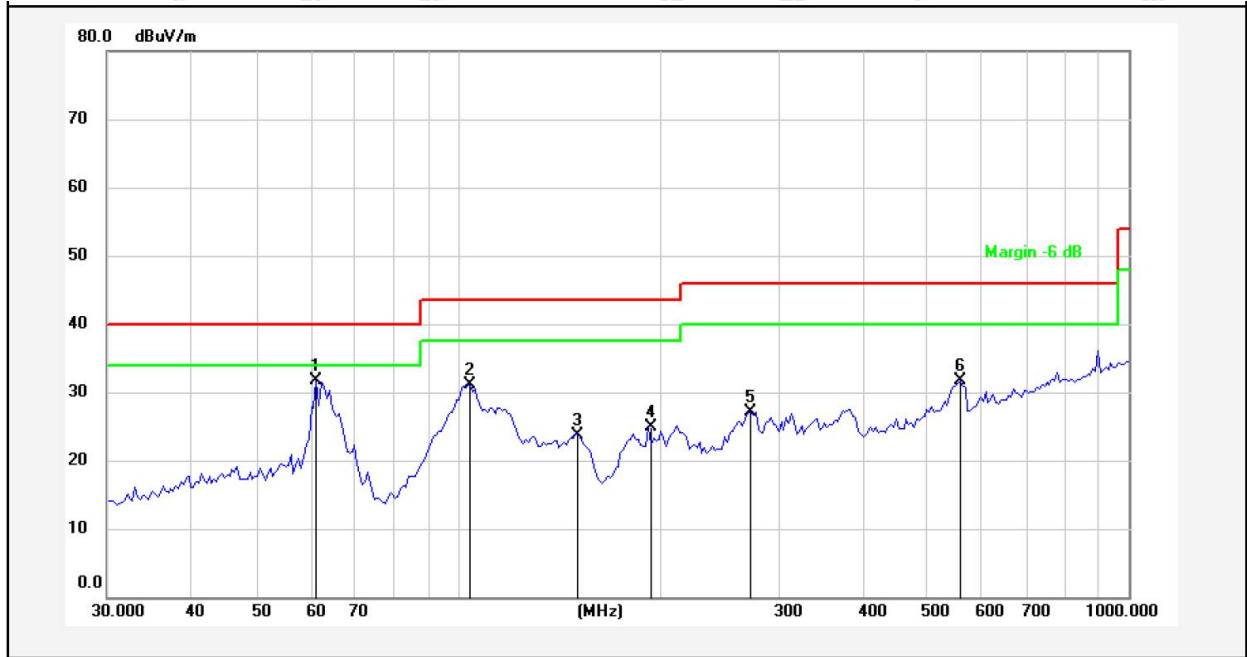
Test item:	Radiation Test	Polarization:	Vertical
Standard:	(RE)FCC Part 15 Subpart B	Power Source:	AC 120V, 60Hz
Distance:	3m	Temp.(°C)/Hum.(%RH):	26(°C)/54%RH
Test Mode:	Charging Mode		



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	32.1794	55.14	-18.93	36.21	40.00	-3.79	QP	100	0	
2	34.3424	55.48	-18.55	36.93	40.00	-3.07	QP	100	360	
3	54.6935	49.83	-16.02	33.81	40.00	-6.19	QP	100	360	
4	72.4565	57.11	-20.80	36.31	40.00	-3.69	QP	100	0	
5	130.8369	52.56	-20.53	32.03	43.50	-11.47	peak			
6	446.4141	33.44	-9.31	24.13	46.00	-21.87	peak			

Note: **Result=Reading+Factor** **Over Limit=Result-Limit**

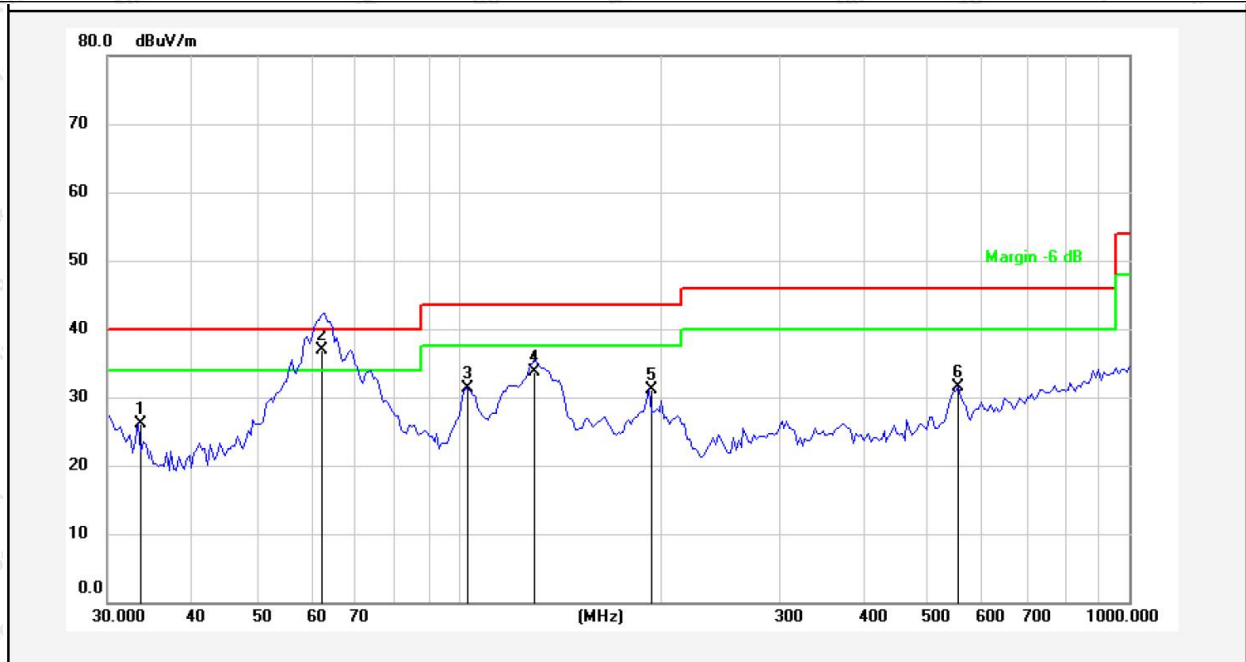
Test item: Radiation Test **Polarization:** Horizontal
Standard: (RE)FCC Part 15 Subpart B **Power Source:** DC 36V
Distance: 3m **Temp.(°C)/Hum.(%RH):** 26(°C)/54%RH
Test Mode: Riding Mode



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	61.5618	49.09	-17.47	31.62	40.00	-8.38	peak			
2	104.1701	48.25	-17.10	31.15	43.50	-12.35	peak			
3	149.2239	44.49	-20.69	23.80	43.50	-19.70	peak			
4	192.4186	42.32	-17.44	24.88	43.50	-18.62	peak			
5	270.8493	41.43	-14.25	27.18	46.00	-18.82	peak			
6	560.6928	38.30	-6.58	31.72	46.00	-14.28	peak			

Note: **Result=Reading+Factor** **Over Limit=Result-Limit**

Test item:	Radiation Test	Polarization:	Vertical
Standard:	(RE)FCC Part 15 Subpart B	Power Source:	DC 36V
Distance:	3m	Temp.(°C)/Hum.(%RH):	26(°C)/54%RH
Test Mode:	Riding Mode		



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	33.3279	44.89	-18.76	26.13	40.00	-13.87	peak			
2	62.6243	54.45	-17.54	36.91	40.00	-3.09	QP	100	360	
3	102.3597	48.44	-17.21	31.23	43.50	-12.27	peak			
4	129.6947	54.19	-20.46	33.73	43.50	-9.77	QP	100	0	
5	192.4186	48.51	-17.44	31.07	43.50	-12.43	peak			
6	555.7990	38.11	-6.69	31.42	46.00	-14.58	peak			

Note: **Result=Reading+Factor** **Over Limit=Result-Limit**

APPENDIX I -- TEST SETUP PHOTOGRAPH

Photo of Power Line Conducted Emission Test

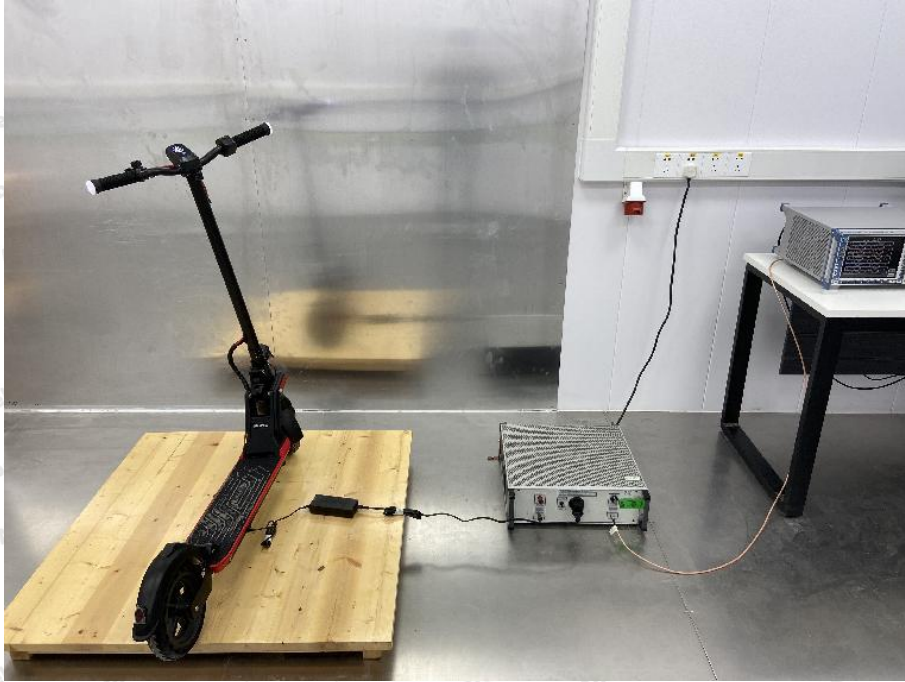
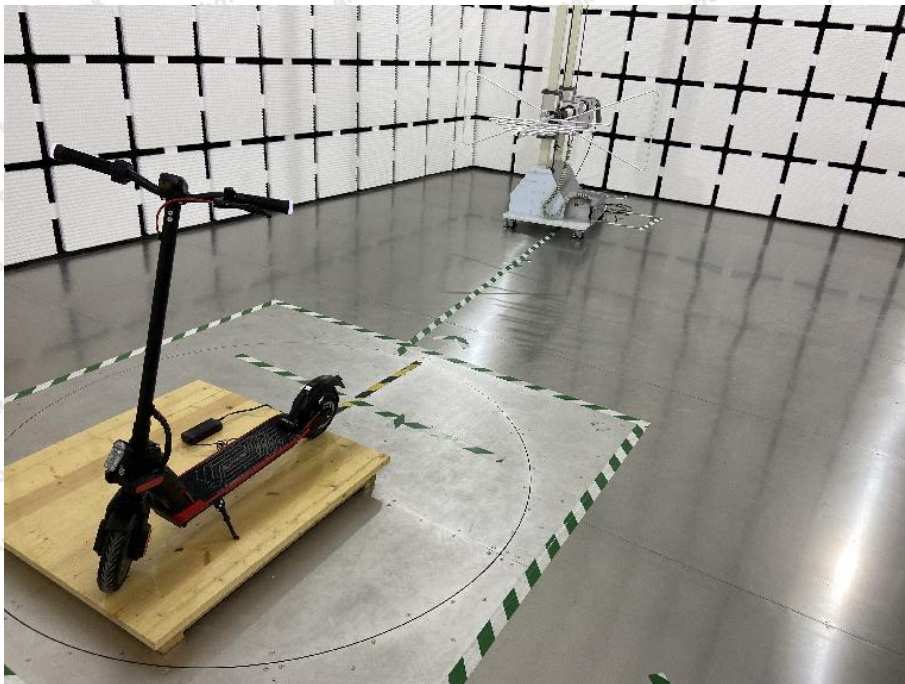


Photo of Radiated Emission Test

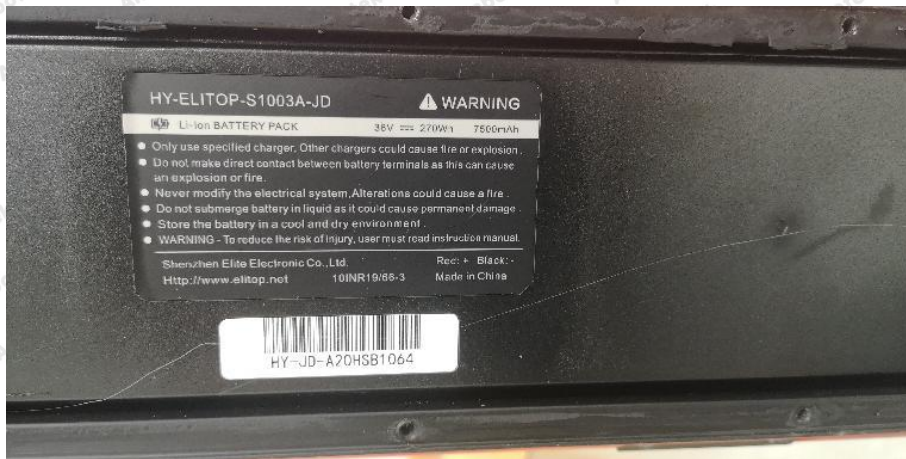


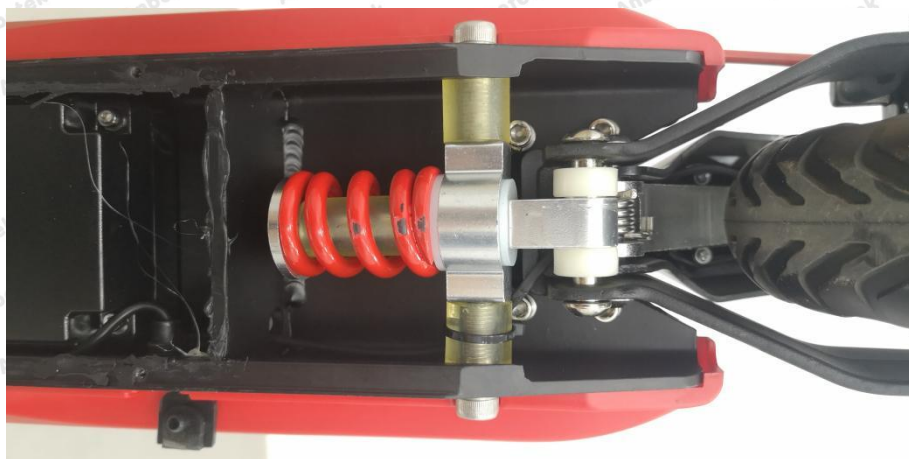
APPENDIX II -- Photo documentation

1-3-1









1-3-2





1-3-3





----- End of Report -----