FCC Part 15B Test Report
FCC ID: 2BL64-ZY2216

Applicant:	Shenzhen ZEYI Industrial Development CO.,LTD
Address:	318, Chuangyi Building, Building 7, Ailian Industrial Zone, Wulian Community, Longgang Street, Longgang District, Shenzhen, Guangdong, China
Manufacturer:	Shenzhen ZEYI Industrial Development CO.,LTD
Address:	318, Chuangyi Building, Building 7, Ailian Industrial Zone, Wulian Community, Longgang Street, Longgang District, Shenzhen, Guangdong, China
EUT:	ZEYI Left number Mechanical Keyboard Flagship Edition
Trade Mark:	ZEYI, Left number
Model Number:	ZY-2216
Date of Receipt:	Dec. 31, 2024
Test Date:	Dec. 31, 2024 - Jan. 04, 2025
Date of Report:	Jan. 04, 2025
Prepared By:	Shenzhen DL Testing Technology Co., Ltd.
Address:	101-201, Comprehensive Building, Tongzhou Electronics Longgang Factory Area, No.1 Baolong Fifth Road, Baolong Community, Baolong Street, Longgang District, Shenzhen, China
Applicable Standards:	FCC Part 15 Subpart B ANSI C63.4:2014
Test Result:	Pass
Report Number:	DL-241231013ER

Prepared (Test Engineer):	Alisa Song
Reviewer (Supervisor):	Jack Bu
Approved (Manager):	Jade Yang

This test report is based on a single evaluation of one sample of above mentioned products. It is not permitted to be duplicated in extracts without written approval of Shenzhen DL Testing Technology Co., Ltd.

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1. VERSION

Version No.	Date	Description
00	Jan. 04, 2025	Original

2. TEST SUMMARY

EMC Emission				
Standard	Test Item	Limit	Result	Remark
FCC PART 15 B	Conducted Emission at power ports	Class B	PASS	
	Radiated Emission below 1GHz	Class B	PASS	
	Radiated Emission above 1GHz	Class B	PASS	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

(2) Test Facility: Shenzhen DL Testing Technology Co., Ltd.
Address: 101-201, Comprehensive Building, Tongzhou Electronics Longgang Factory Area, No.1 Baolong Fifth Road, Baolong Community, Baolong Street, Longgang District, Shenzhen, China

3. ENERAL INFORMATION

3.1 Description of Device (EUT)

EUT:	ZEYI Left number Mechanical Keyboard Flagship Edition
Trade Mark:	ZEYI, Left number
Model Number:	ZY-2216
Test Model:	ZY-2216
Model difference:	N/A
Power Supply:	DC 3.7V from battery DC 5V from charger
Working Frequency:	2402-2480MHz

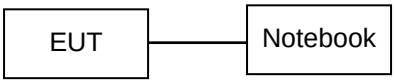
Note: (1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
(2) The EUT's all information provided by client.

3.2 Tested System Details

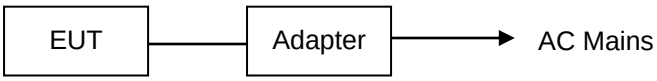
None.

3.3 Block Diagram of Test Set-up

Radiated Spurious Emission Test



Power Line Conducted Emission Test



3.4 Test Mode Description

Mode1. On Mode(Wired mode)

3.5 Test Auxiliary Equipment

Notebook (Provide by test lab):
Manufacturer: DELL
Model: Vostro 3420
I/P: 19.5V⎓3.34A

Adapter (Provide by test lab):
Manufacturer: HAIWEI
Model: HW-0501000E
I/P: AC 100-240V 50/60Hz
O/P: DC 5V 1A

3.6 Test Uncertainty

Conducted Emission Uncertainty	:	±2.56dB
Radiated Emission Uncertainty(<1G)	:	±3.65dB
Radiated Emission Uncertainty(>1G)		±4.89dB

4. TEST INSTRUMENT USED

For Conducted Emission Test (843 Shielded Room)

Equipment	Manufacturer	Model	Serial	Last Cal.	Next Cal.
843 Shielded Room	YIHENG	843 Room	843	Nov. 05, 2023	Nov. 04, 2026
EMI Receiver	R&S	ESR	101421	Nov. 01, 2024	Oct. 31, 2025
LISN	R&S	ENV216	102417	Nov. 01, 2024	Oct. 31, 2025
Clamp	COM-POWER	CLA-050	431072	Nov. 01, 2024	Oct. 31, 2025
3-Loop Antenna	DAZE	ZN30401	13021	Nov. 01, 2024	Oct. 31, 2025
ISN T8	Schwarzbeck	NTFM 8158	101135	Nov. 01, 2024	Oct. 31, 2025
ISN T5	Schwarzbeck	NTFM 8158	101136	Nov. 01, 2024	Oct. 31, 2025
843 Cable 1#	ChengYu	CE Cable	001	Nov. 01, 2024	Oct. 31, 2025
843 Cable 1#	ChengYu	CE Cable	002	Nov. 01, 2024	Oct. 31, 2025

For Radiated Emission Test (966 chamber)

Equipment	Manufacturer	Model	Serial	Last Cal.	Next Cal.
966 chamber	YIHENG	966 Room	966	Nov. 05, 2023	Nov. 04, 2026
Spectrum Analyzer	Agilent	E4408B	MY50140780	Nov. 01, 2024	Oct. 31, 2025
EMI Receiver	R&S	ESRP7	101393	Nov. 01, 2024	Oct. 31, 2025
Amplifier	Schwarzbeck	BBV9743B	00153	Nov. 01, 2024	Oct. 31, 2025
Amplifier	EMEC	EM01G8GA	00270	Nov. 01, 2024	Oct. 31, 2025
Broadband Trilog Antenna	Schwarzbeck	VULB9162	00306	Nov. 01, 2024	Oct. 31, 2025
Horn Antenna	Schwarzbeck	BBHA9120D	02139	Nov. 01, 2024	Oct. 31, 2025
966 Cable 1#	ChengYu	966	004	Nov. 01, 2024	Oct. 31, 2025
966 Cable 2#	ChengYu	966	003	Nov. 01, 2024	Oct. 31, 2025

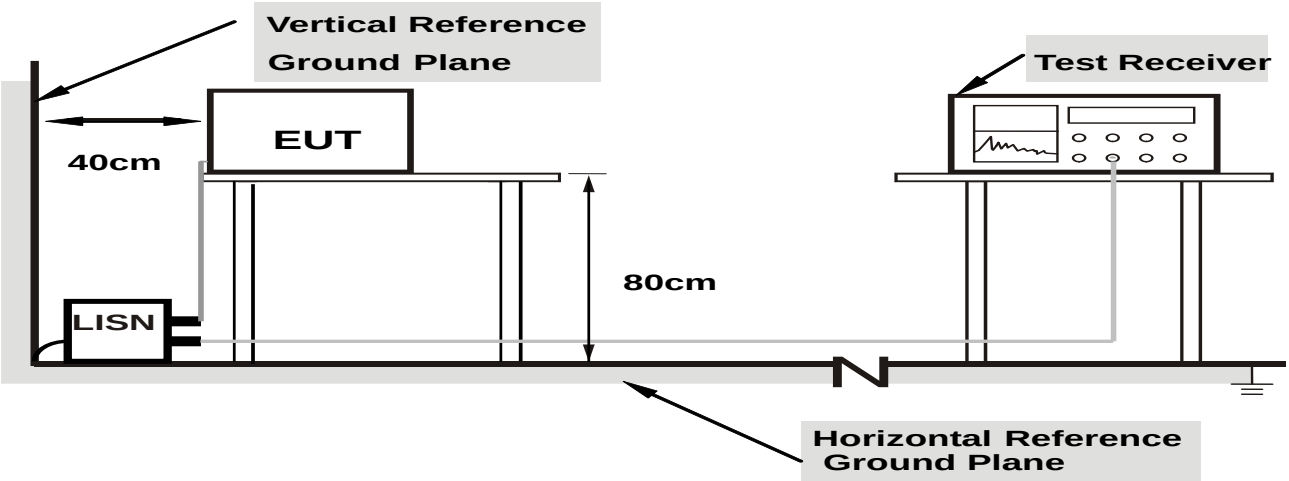
Other

Name	Manufacturer	Model	Software version
EMC Conduction Test System	FALA	EZ_EMC	EMC-CON 3A1.1
EMC radiation test system	FALA	EZ_EMC	FA-03A2

5. CONDUCTED EMISSION TEST

5.1 Block Diagram of Test Setup

For Mains Terminals Test



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

5.2 Test Standard and Limit

FCC PART 15 B

Frequency MHz	Limits dB(μV)	
	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

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

5.3 EUT Configuration on Test

The following equipment's are installed on conducted emission test to meet FCC PART 15 B requirement and operating in a manner which tends to maximize its emission characteristics in a normal application.

5.4 Operating Condition of EUT

5.4.1 Setup the EUT and simulators as shown in Section 5.1.

5.4.2 Turn on the power of all equipments.

5.4.3 Let the EUT work in test modes and test it.

5.5 Test Procedure

The EUT is put on the table and connected to the AC mains through a Artificial Mains Network (AMN) or ISN. This provided a 50ohm coupling impedance for the tested equipments. Both sides of AC line are checked to find out the maximum conducted emission levels according to the **ANSI C63.4** regulations during conducted emission test.

The bandwidth of the test receiver (R&S Test Receiver ESR) is set at 10KHz.

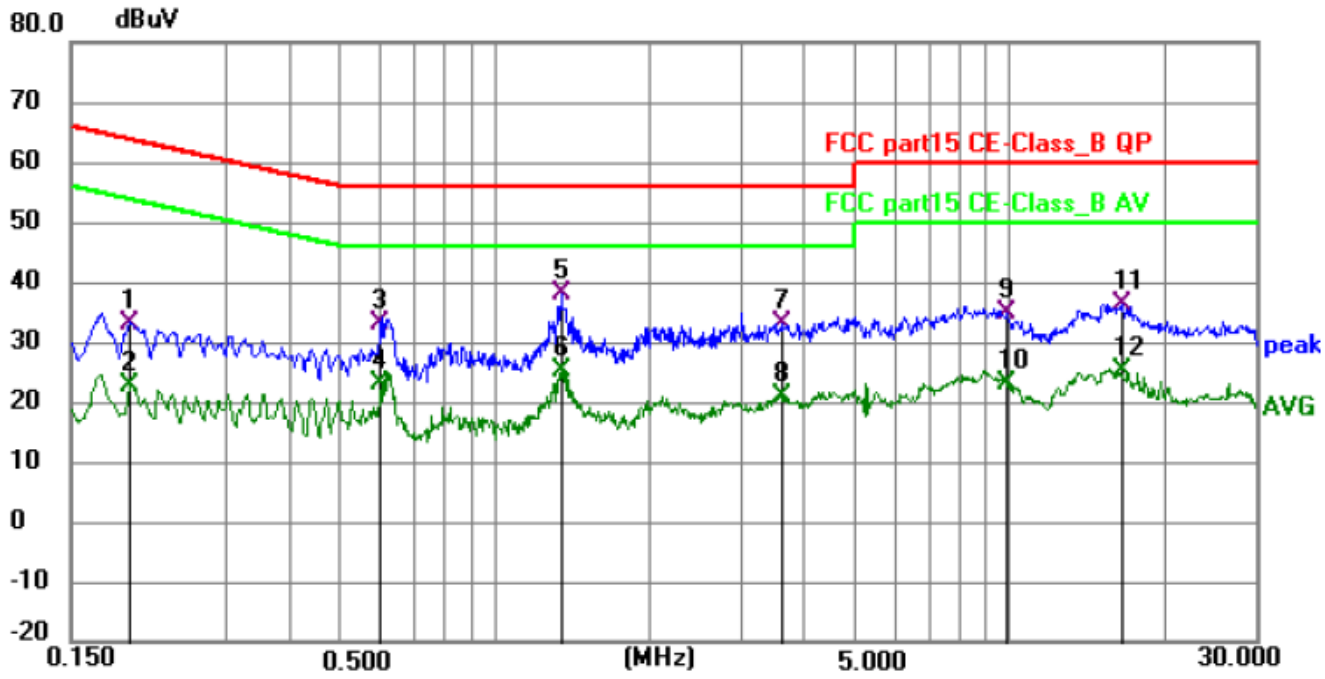
The frequency range from 150 KHz to 30 MHz is investigated.

5.6 Test Result

PASS

Please refer to the following page.

Conducted Emission Test Data			
Temperature:	24.5 ℃	Relative Humidity:	54%
Pressure:	1009hPa	Phase:	Line
Test Voltage:	AC 120V/60Hz	Test Mode:	Mode 1

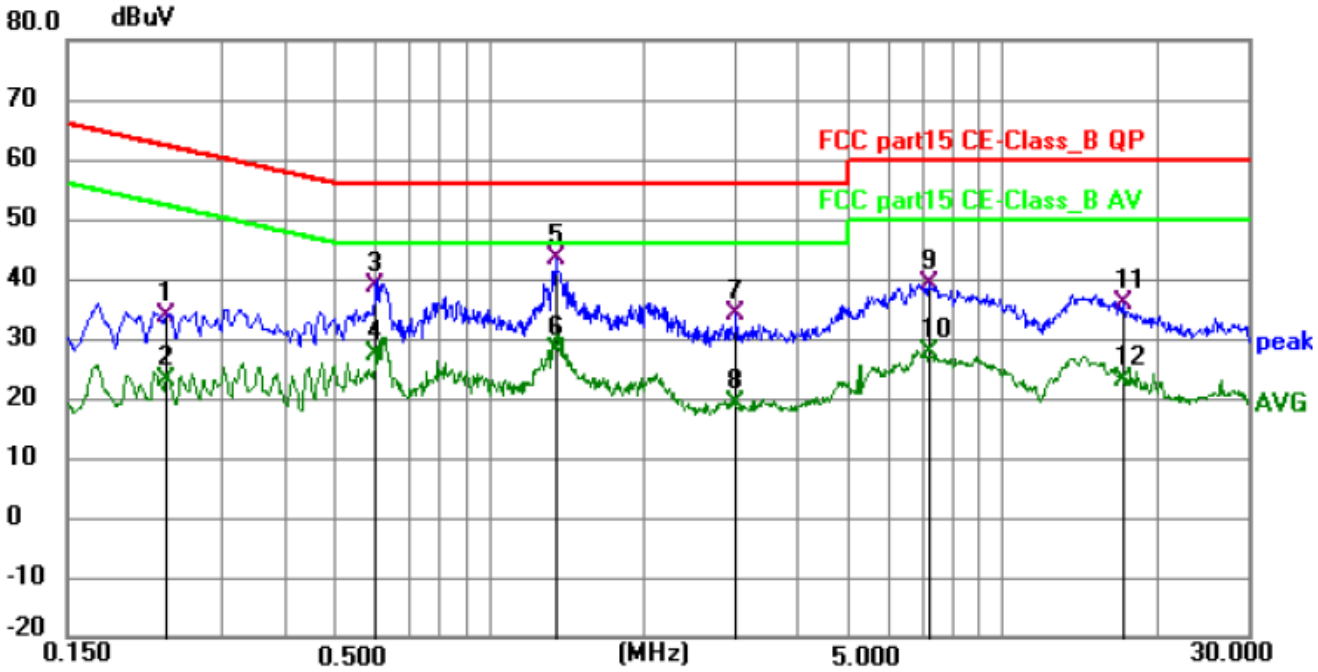


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1949	22.93	10.16	33.09	63.83	-30.74	QP	P	
2	0.1949	12.38	10.16	22.54	53.83	-31.29	AVG	P	
3	0.6000	22.93	10.17	33.10	56.00	-22.90	QP	P	
4	0.6000	12.70	10.17	22.87	46.00	-23.13	AVG	P	
5 *	1.3513	27.83	10.09	37.92	56.00	-18.08	QP	P	
6	1.3513	15.18	10.09	25.27	46.00	-20.73	AVG	P	
7	3.6194	22.86	10.11	32.97	56.00	-23.03	QP	P	
8	3.6194	10.90	10.11	21.01	46.00	-24.99	AVG	P	
9	9.8790	23.79	11.20	34.99	60.00	-25.01	QP	P	
10	9.8790	11.98	11.20	23.18	50.00	-26.82	AVG	P	
11	16.5975	24.45	11.71	36.16	60.00	-23.84	QP	P	
12	16.5975	13.61	11.71	25.32	50.00	-24.68	AVG	P	

Remark:Correct Factor = Cable lose + LISN insertion loss;

Level = Reading + Correct factor;Margin = Level – Limit;

Conducted Emission Test Data			
Temperature:	24.5 ℃	Relative Humidity:	54%
Pressure:	1009hPa	Phase:	Neutral
Test Voltage:	AC 120V/60Hz	Test Mode:	Mode 1



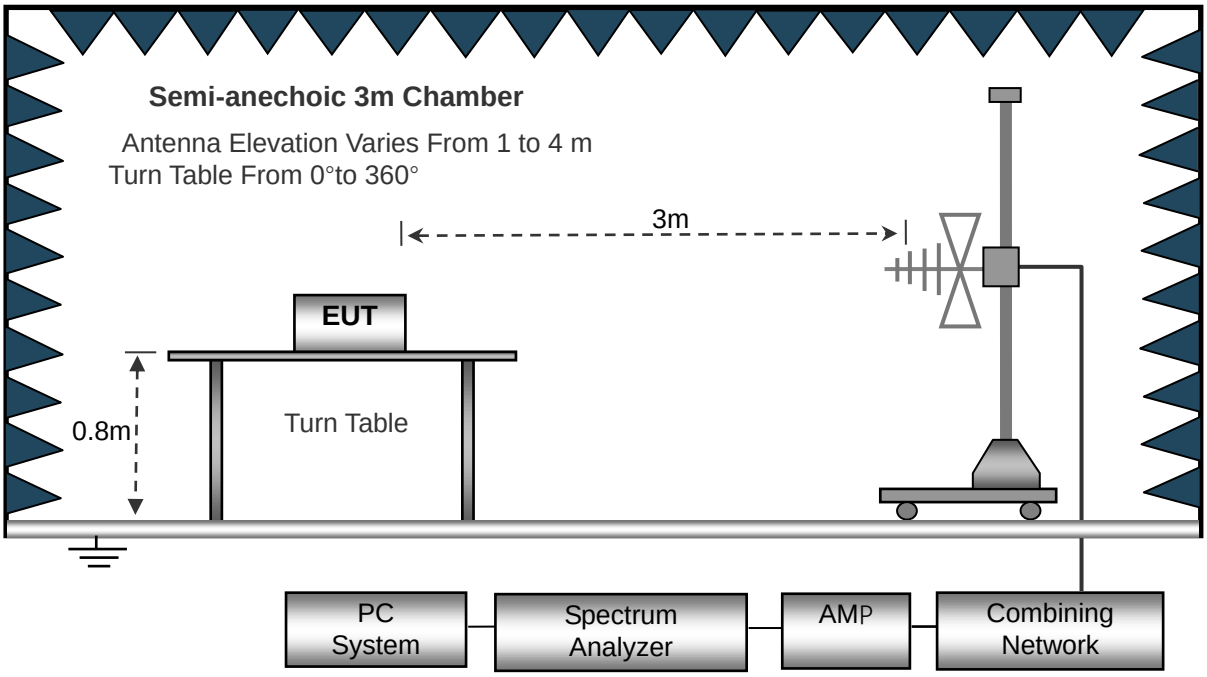
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.2353	23.52	10.19	33.71	62.26	-28.55	QP	P	
2	0.2353	12.85	10.19	23.04	52.26	-29.22	AVG	P	
3	0.6000	28.43	10.17	38.60	56.00	-17.40	QP	P	
4	0.6000	17.07	10.17	27.24	46.00	-18.76	AVG	P	
5 *	1.3512	33.33	10.09	43.42	56.00	-12.58	QP	P	
6	1.3512	17.90	10.09	27.99	46.00	-18.01	AVG	P	
7	3.0210	24.08	10.09	34.17	56.00	-21.83	QP	P	
8	3.0210	8.92	10.09	19.01	46.00	-26.99	AVG	P	
9	7.2374	28.21	10.76	38.97	60.00	-21.03	QP	P	
10	7.2374	17.04	10.76	27.80	50.00	-22.20	AVG	P	
11	17.1420	24.06	11.74	35.80	60.00	-24.20	QP	P	
12	17.1420	11.47	11.74	23.21	50.00	-26.79	AVG	P	

Remark:Correct Factor = Cable lose + LISN insertion loss;
Level = Reading + Correct factor;Margin = Level – Limit;

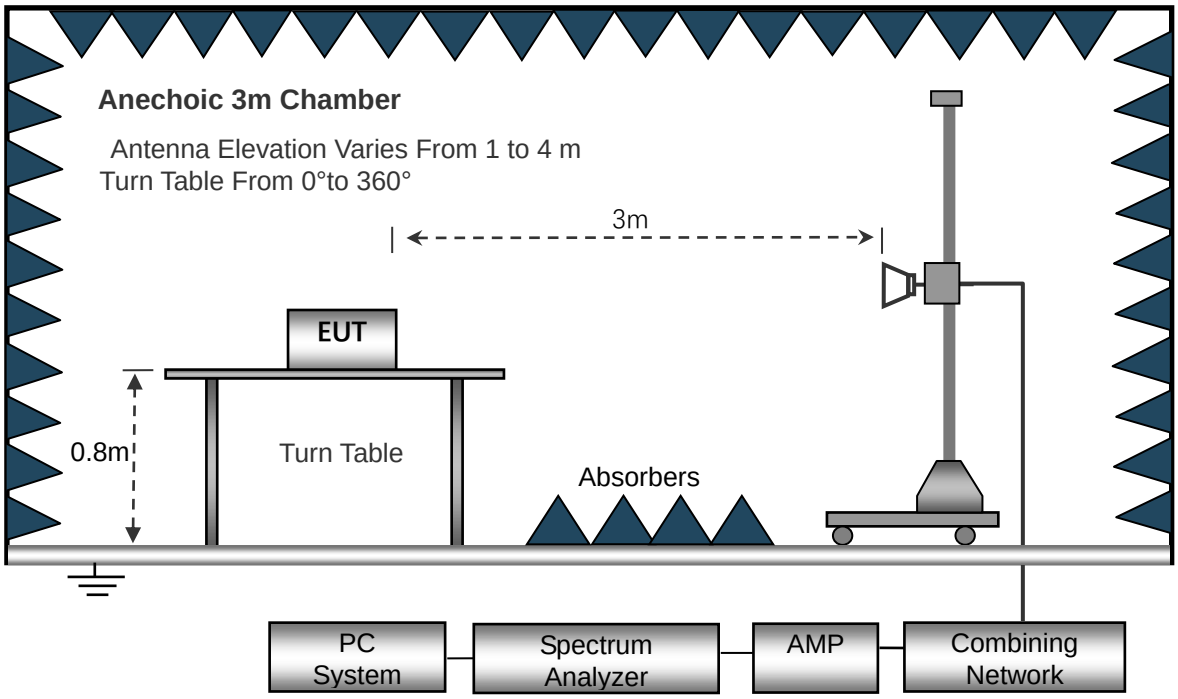
6. RADIATION EMISSION TEST

6.1 Block Diagram of Test Setup

Below 1GHz



Above 1GHz



6.2 Test Standard and Limit

FCC PART 15 B

Below 1GHz

Frequency (MHz)	Distance (Meters)	Field Strengths Limits (dBμV/m)
30 ~ 88	3	40.0
88 ~ 216	3	43.5
216 ~ 960	3	46.0
960 ~ 1000	3	54.0

Above 1GHz

Frequency MHz	Distance (Meters)	Field Strengths Limits dB(μV)/m	Detector
1000～25000	3	74.0	PEAK
1000～25000	3	54.0	AVERAGE

Remark:

(1) The smaller limit shall apply at the cross point between two frequency bands.

(2) Distance refers to the distance in meters between the measuring instrument, antenna and the closed point of any part of the device or system.

6.3 EUT Configuration on Test

The FCC PART 15 B regulations test method must be used to find the maximum emission during radiated emission test.

The configuration of EUT is the same as used in conducted emission test.

Please refer to Section 5.3.

6.4 Operating Condition of EUT

Same as conducted emission test, which is listed in Section 5.4 except the test set up replaced as Section 6.2.

6.5 Test Procedure

1) The radiated emissions test was conducted in a semi-anechoic chamber.

2) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.

3) Before final measurements of radiated emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emissions spectrum plots of the EUT.

4) The frequencies of maximum emission were determined in the final radiated emissions measurement. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum disturbance. Measurements were performed for both horizontal and vertical antenna polarization.

5) The bandwidth setting on the field strength meter (R&S Test Receiver ESCI) is set at 120KHz.

6) The frequency range from 30MHz to 25000MHz is checked.

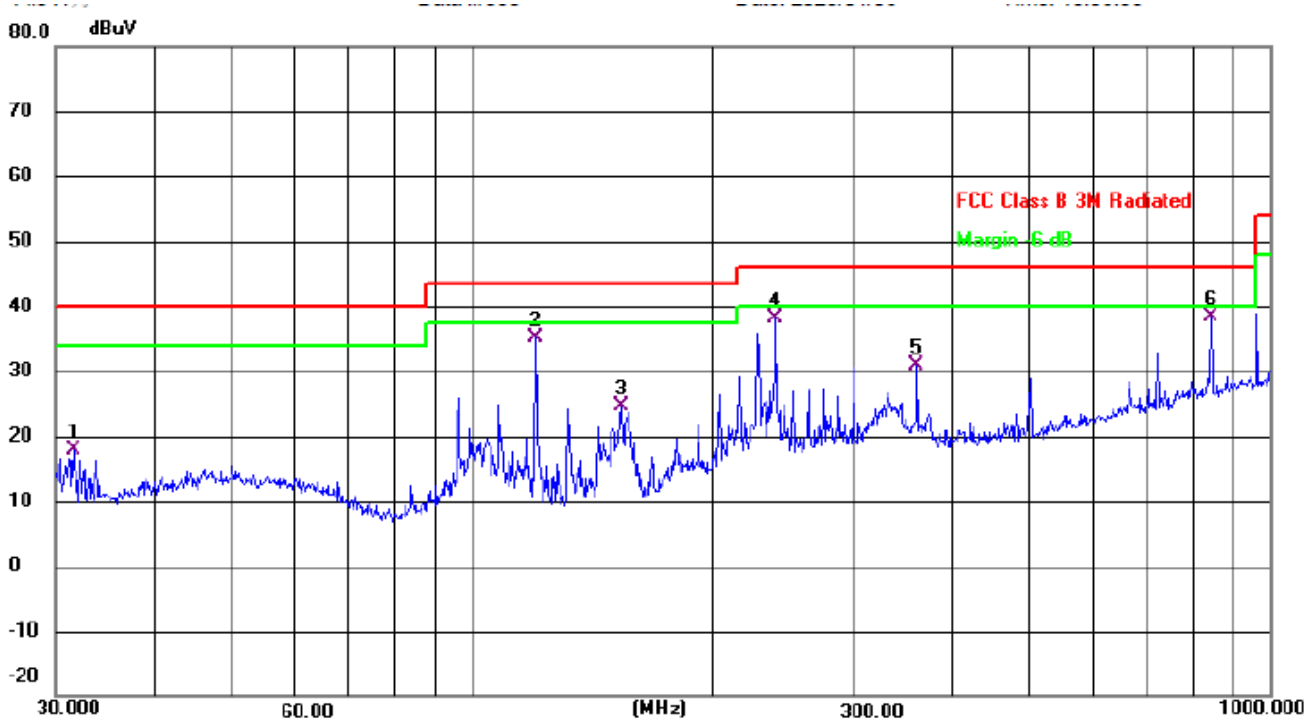
7) For above 6GHz, the amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

6.6 Test Result

PASS

Please refer to the following page.

Radiation Emission Test Data (Below 1GHz)			
Temperature:	24.5℃	Relative Humidity:	54%
Pressure:	1009hPa	Polarization:	Horizontal
Test Voltage:	DC 3.7V	Test Mode:	Mode 1



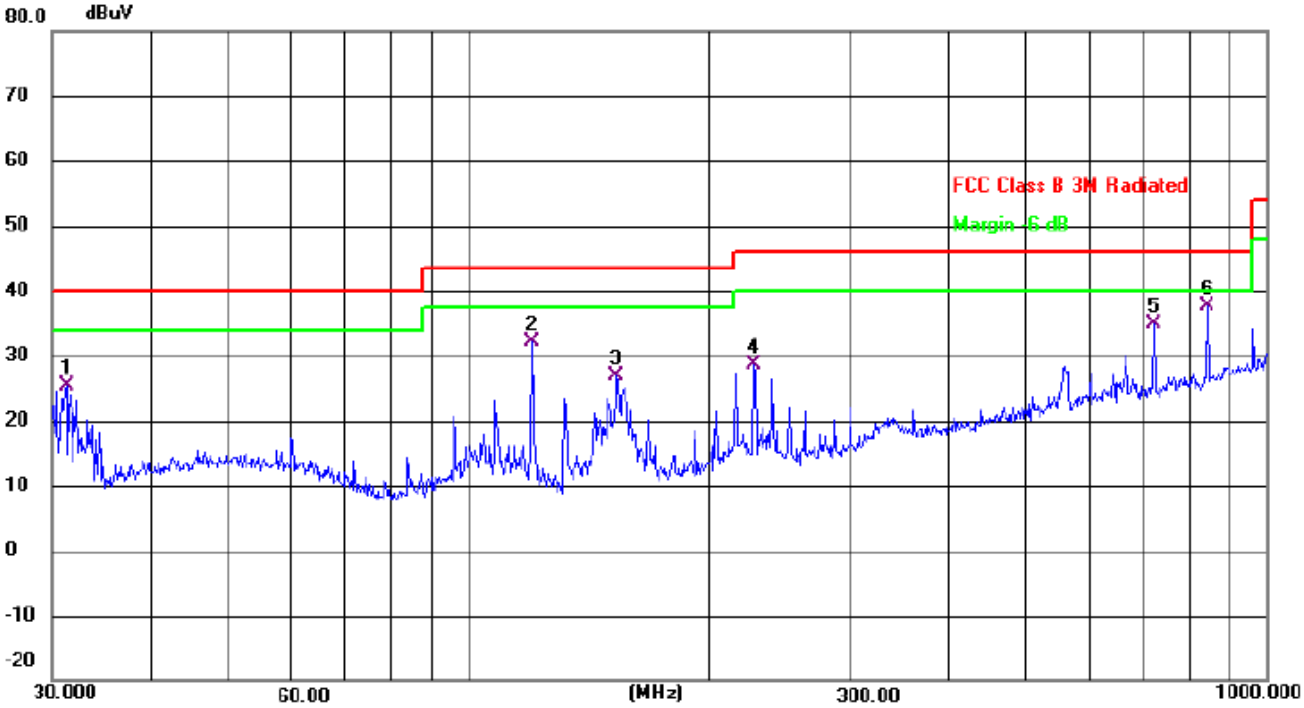
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	
		MHz	dBuV	dB	dBuV	dB	dB	Detector
1		31.6202	33.91	-16.08	17.83	40.00	-22.17	QP
2		119.8556	51.52	-16.37	35.15	43.50	-8.35	QP
3		153.7385	43.07	-18.36	24.71	43.50	-18.79	QP
4		239.9874	51.80	-13.56	38.24	46.00	-7.76	QP
5		360.4476	41.21	-10.30	30.91	46.00	-15.09	QP
6	*	842.1296	40.06	-1.70	38.36	46.00	-7.64	QP

Remark:

Correct Factor=Cable loss+Antenna factor-Preamplifier

Measurement Level = Reading Level + Correct Factor; Margin = Measurement Level- Limit;

Radiation Emission Test Data (Below 1GHz)			
Temperature:	24.5℃	Relative Humidity:	54%
Pressure:	1009hPa	Polarization:	Vertical
Test Voltage:	DC 3.7V	Test Mode:	Mode 1



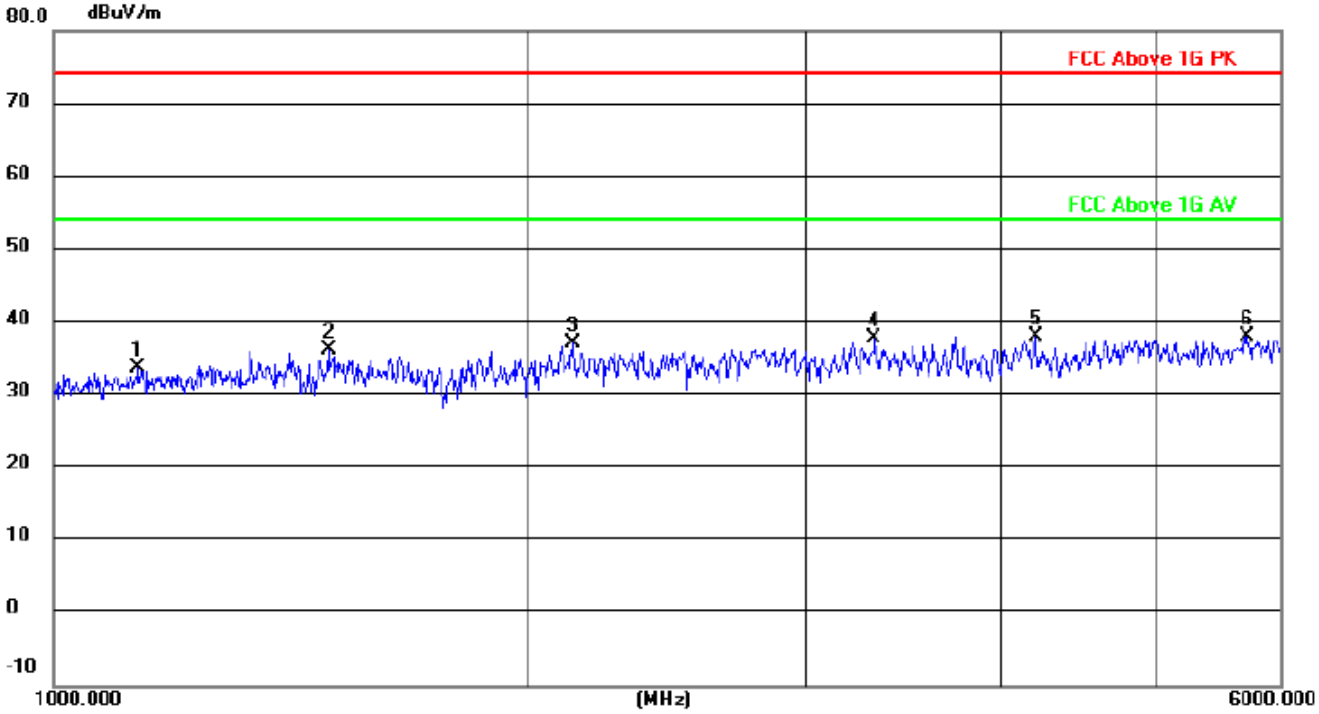
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	
		MHz	dBuV	dB	dBuV	dB	dB	Detector
1		31.2893	41.51	-16.09	25.42	40.00	-14.58	QP
2		119.8556	48.42	-16.37	32.05	43.50	-11.45	QP
3		153.2004	45.24	-18.41	26.83	43.50	-16.67	QP
4		227.6906	42.67	-13.97	28.70	46.00	-17.30	QP
5		721.7259	38.72	-3.83	34.89	46.00	-11.11	QP
6	*	842.1296	39.45	-1.70	37.75	46.00	-8.25	QP

Remark:

Correct Factor=Cable loss+Antenna factor-Preamplifier

Measurement Level = Reading Level + Correct Factor; Margin = Measurement Level- Limit;

Radiation Emission Test Data (Above 1GHz)			
Temperature:	24.5℃	Relative Humidity:	54%
Pressure:	1009hPa	Polarization:	Horizontal
Test Voltage:	DC 3.7V	Test Mode:	Mode 1



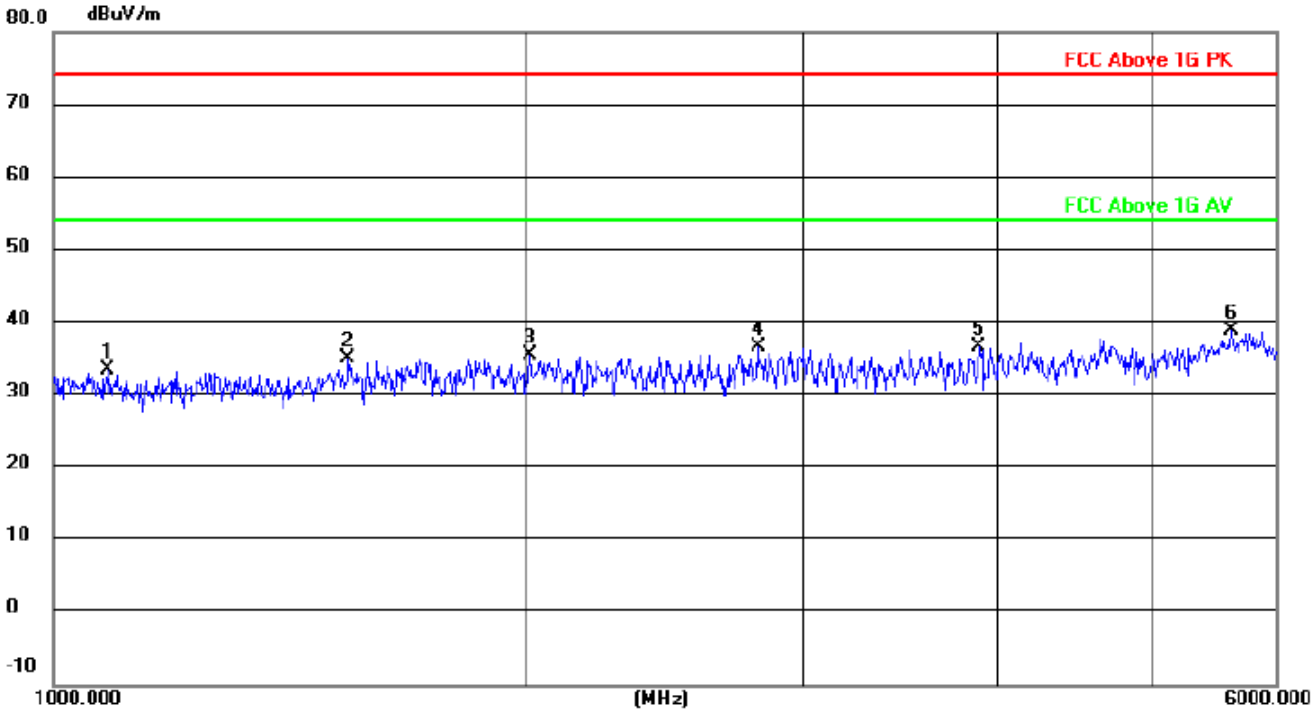
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		1131.599	54.15	-20.31	33.84	74.00	-40.16	peak
2		1493.846	54.57	-18.42	36.15	74.00	-37.85	peak
3		2133.821	52.06	-14.89	37.17	74.00	-36.83	peak
4		3315.761	49.79	-12.09	37.70	74.00	-36.30	peak
5		4192.963	46.30	-8.32	37.98	74.00	-36.02	peak
6	*	5716.644	40.64	-2.55	38.09	74.00	-35.91	peak

Remark:

Correct Factor=Cable loss+Antenna factor-Preamplifier

Measurement Level = Reading Level + Correct Factor; Margin = Measurement Level- Limit;

Radiation Emission Test Data (Above 1GHz)			
Temperature:	24.5℃	Relative Humidity:	54%
Pressure:	1009hPa	Polarization:	Vertical
Test Voltage:	DC 3.7V	Test Mode:	Mode 1



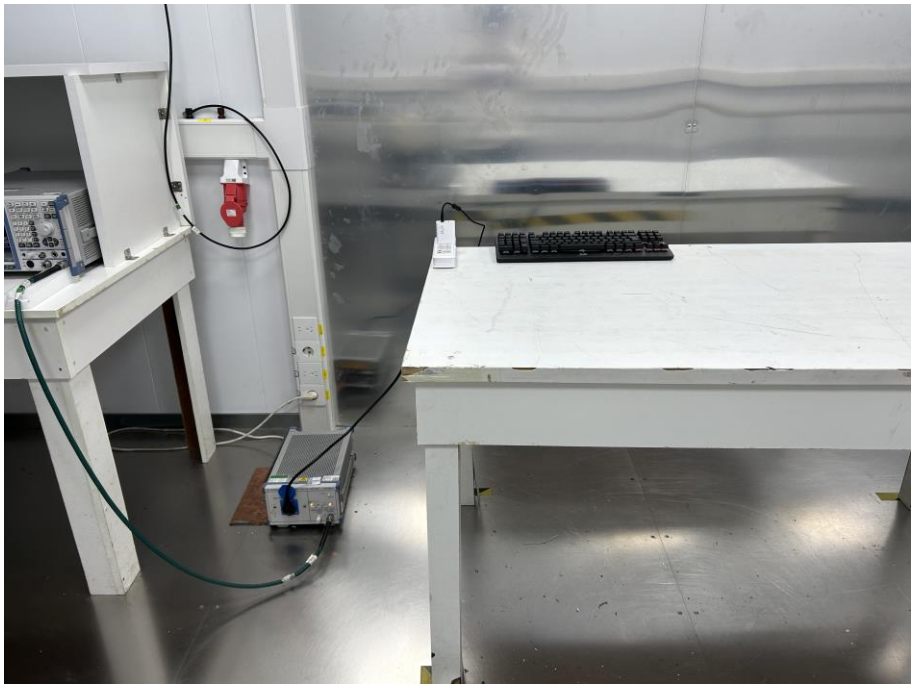
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		1082.028	54.31	-20.70	33.61	74.00	-40.39	peak
2		1540.049	53.87	-18.81	35.06	74.00	-38.94	peak
3		2011.310	51.81	-16.14	35.67	74.00	-38.33	peak
4		2806.824	51.56	-14.91	36.65	74.00	-37.35	peak
5		3889.006	45.48	-8.80	36.68	74.00	-37.32	peak
6	*	5615.128	41.93	-3.07	38.86	74.00	-35.14	peak

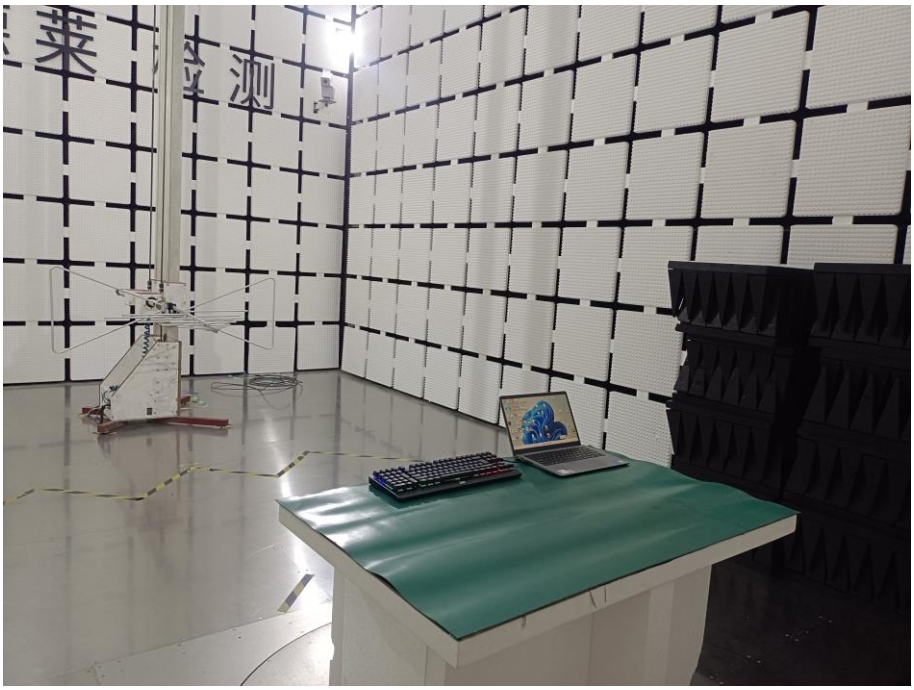
Remark:

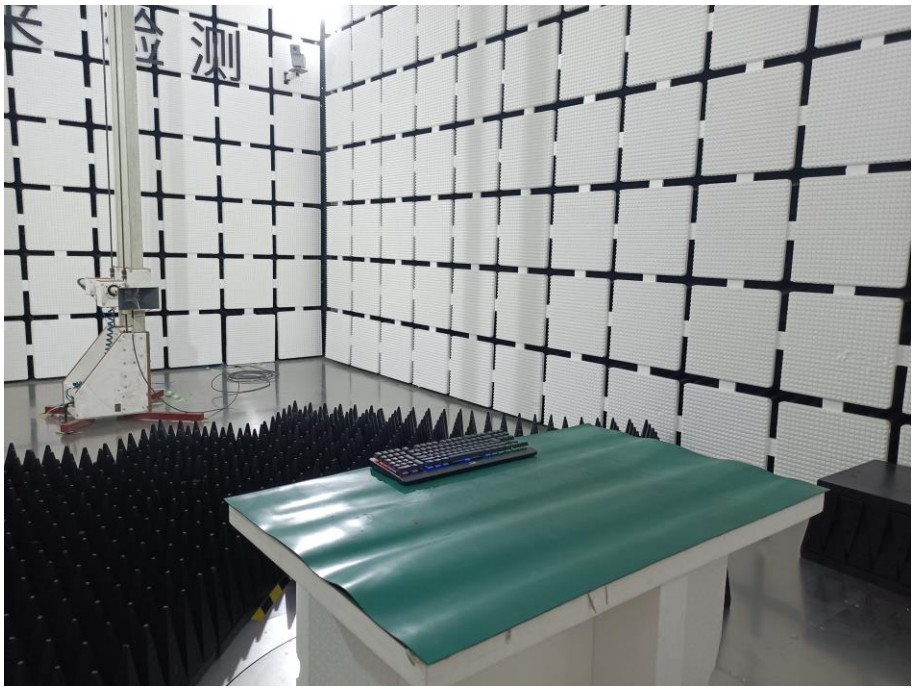
Correct Factor=Cable loss+Antenna factor-Preamplifier

Measurement Level = Reading Level + Correct Factor; Margin = Measurement Level- Limit;

7. SETUP PHOTOGRAPHS







8. EUT PHOTOGRAPHS

Reference to the appendix II for details.

※※※※※ **END OF REPORT** ※※※※※