FCC Test Report

Client Name	:	**DGL Group LTD.**
Client Address	:	**2045 Lincoln Highway, 3rd Floor, Edison, NJ 08817, United States**
Product Name	:	**RC Motion mouse toy**
Report Date	:	**Nov. 18, 2022**

Shenzhen Anbotek Compliance Laboratory Limited

Contents

TEST REPORT

Applicant	:	DGL Group LTD.
Manufacturer	:	DGL Group LTD.
Product Name	:	RC Motion mouse toy
Model No.	:	HY-PCMT
Trade Mark	:	N.A.
Rating(s)	:	Input: 3V⎓ with “AA”*2 battery
Test Standard(s)	:	**FCC Part15 Subpart C, Section 15.227**
Test Method(s)	:	**ANSI C63.10: 2020**

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 15 Subpart C requirements.

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

Date of Receipt Oct. 09, 2022

Date of Test Oct. 09~Nov.14, 2022

Prepared By Nian Xiu Chen

(Nianxiu Chen)

Approved & Authorized Signer Kingkong Jin

(Kingkong Jin)

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Revision History

Report Version	Description	Issued Date
R00	Original Issue.	Nov. 18, 2022

1. General Information

1.1. Client Information

Applicant	:	DGL Group LTD.
Address	:	2045 Lincoln Highway, 3rd Floor, Edison, NJ 08817, United States
Manufacturer	:	DGL Group LTD.
Address	:	2045 Lincoln Highway, 3rd Floor, Edison, NJ 08817, United States
Factory	:	DGL Group LTD.
Address	:	2045 Lincoln Highway, 3rd Floor, Edison, NJ 08817, United States

1.2. Description of Device (EUT)

Product Name	:	RC Motion mouse toy
Model No.	:	HY-PCMT
Trade Mark	:	N.A.
Test Power Supply	:	DC 3V battery
Test Sample No.	:	1-2-1(Normal Sample), 1-2-2(Engineering Sample)
Adapter	:	N/A
RF Specification		
Operation Frequency	:	27MHz
Number of Channel	:	1 Channel
Modulation Type	:	ASK
Antenna Type	:	External antenna
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

Description	Rating(s)
/	/

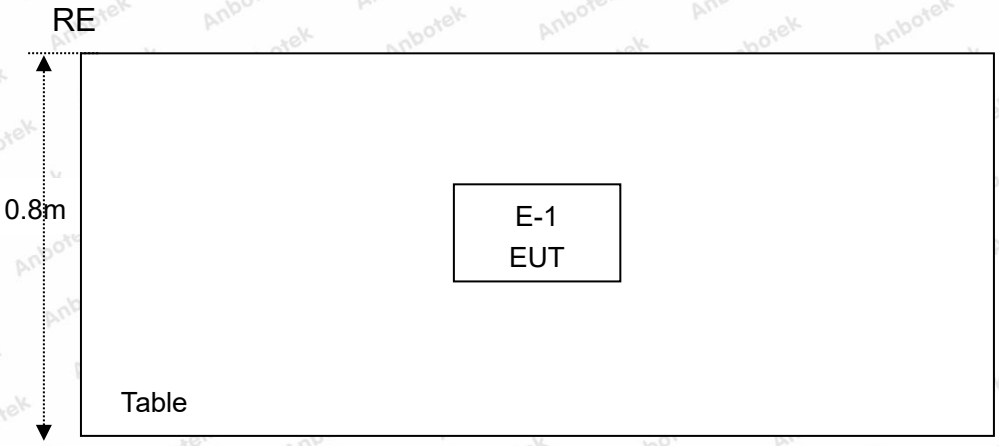
1.4. Description of Test Configuration

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
01	27.00								

Note:

1. During the test, the EUT was keeping continuous transmission.

1.5. Description Of Test Setup



1.6. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	L.I.S.N. Artificial Mains Network	Rohde & Schwarz	ENV216	100055	Oct. 23, 2022	1 Year
2.	Three Phase V-type Artificial Power Network	CYBERTEK	EM5040DT	E215040DT001	Jul. 05, 2022	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Oct. 13, 2022	1 Year
4.	EMI Test Receiver	Rohde & Schwarz	ESR26	101481	Oct. 23, 2022	1 Year
5.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Oct. 22, 2022	1 Year
6.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Oct. 13, 2022	1 Year
7.	EMI Preamplifier	SKET Electronic	LNPA-0118G-45	SKET-PA-002	Oct. 13, 2022	1 Year
8.	Double Ridged Horn Antenna	SCHWARZBECK	BBHA 9120D	02555	Oct. 16, 2022	3 Year
9.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Oct. 23, 2022	1 Year
10.	Loop Antenna	Schwarzbeck	FMZB1519B	00053	Oct. 23, 2022	1 Year
11.	Horn Antenna	A-INFO	LB-180400-KF	J211060628	Oct. 23, 2022	1 Year
12.	Pre-amplifier	SONOMA	310N	186860	Oct. 23, 2022	1 Year
13.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
14.	MXA Spectrum Analysis	KEYSIGHT	N9020A	MY53280032	Oct. 13, 2022	1 Year
15.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Oct. 13, 2022	1 Year
16.	Signal Generator	Agilent	E4421B	MY41000743	Oct. 13, 2022	1 Year
17.	DC Power Supply	IVYTECH	IV3605	1804D360510	Oct. 22, 2022	1 Year
18.	Constant Temperature Humidity Chamber	ZHONGJIAN	ZJ-KHWS80B	N/A	Oct. 19, 2022	1 Year

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1.7. Measurement Uncertainty

Radiation Uncertainty	:	Ur = 3.9 dB (Horizontal)
		Ur = 3.8 dB (Vertical)
Conduction Uncertainty	:	Uc = 3.4 dB

1.8. Description of Test Facility

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

FCC-Registration No.: 184111

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No. 184111.

ISED-Registration No.: 8058A

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A.

Test Location

Shenzhen Anbotek Compliance Laboratory Limited.
1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.518102

2. Summary of Test Results

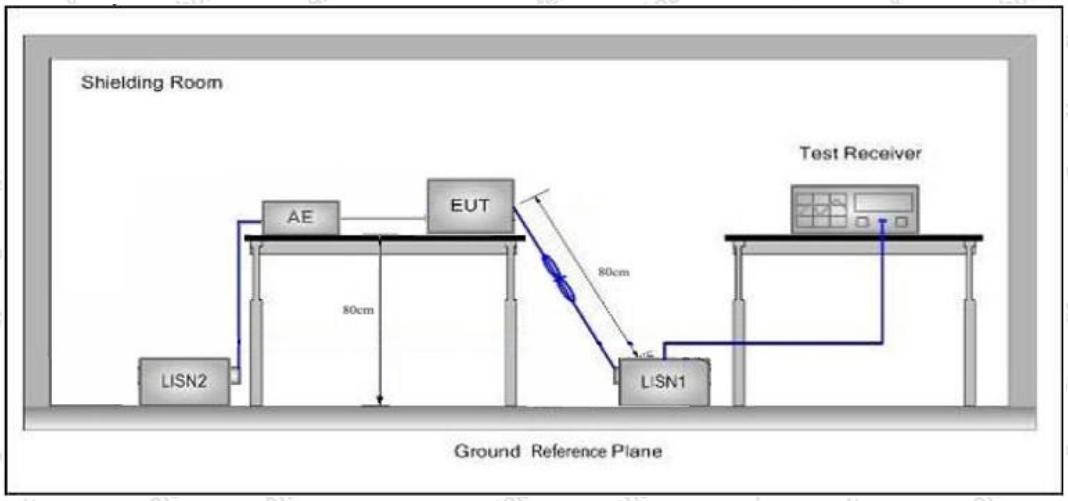
Standard Section	Test Item	Result
15.203	Antenna Requirement	PASS
15.207	Conducted Emission	N/A
15.205/15.209/15.227(b)	Spurious Emission	PASS
15.215(c)	20dB Occupied Bandwidth	PASS
Remark: "N/A" is an abbreviation for Not Applicable.		

3. Conducted Emission Test

3.1. Test Standard and Limit

Test Standard	FCC Part15 Section 15.207		
Test Limit	Frequency	Maximum RF Line Voltage (dBuV)	
		Quasi-peak Level	Average Level
	150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
	500kHz~5MHz	56	46
	5MHz~30MHz	60	50
Remark: (1) *Decreasing linearly with logarithm of the frequency. (2) The lower limit shall apply at the transition frequency.			

3.2. Test Setup



3.3. 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 C63.10-2020 on Conducted Emission Measurement.

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

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

3.4. Test Data

Not applicable. The EUT is powered by DC 3V battery inside, so there is no need to conduct this test.

4. Radiation Spurious Emission and Band Edge

4.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.209, 15.205 and 15.227(b)				
Test Limit	Frequency (MHz)	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz~0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
	1.705MHz-30MHz	30	-	-	30
	30MHz~88MHz	100	40.0	Quasi-peak	3
	88MHz~216MHz	150	43.5	Quasi-peak	3
	216MHz~960MHz	200	46.0	Quasi-peak	3
	960MHz~1000MHz	500	54.0	Quasi-peak	3
	Above 1000MHz	500	54.0	Average	3
		-	74.0	Peak	3
Remark: (1)The lower limit shall apply at the transition frequency. (2) 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.					

(a) The field strength of any emission within this band shall not exceed 10,000 microvolts/meter at 3 meters. The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply.

(b) The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in §15.209.

4.2. Test Setup

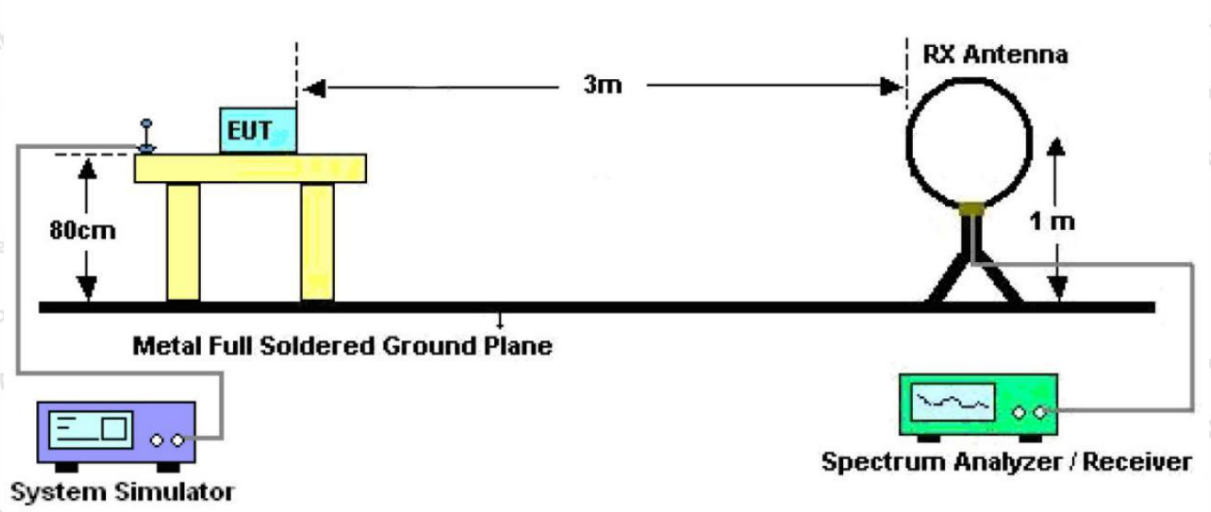


Figure 1. Below 30MHz

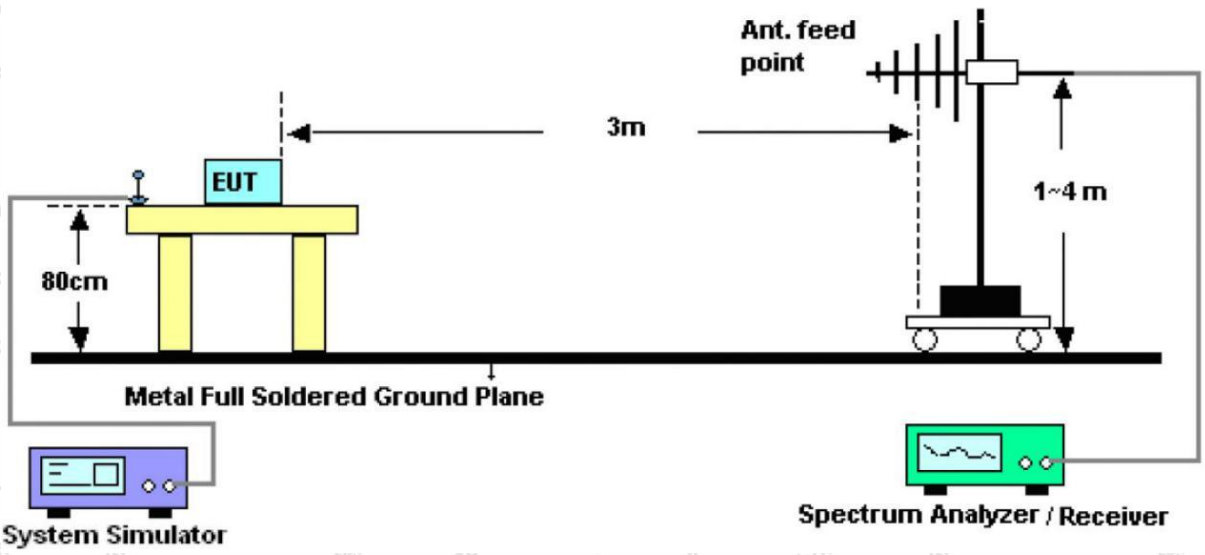


Figure 2. 30MHz to 1GHz

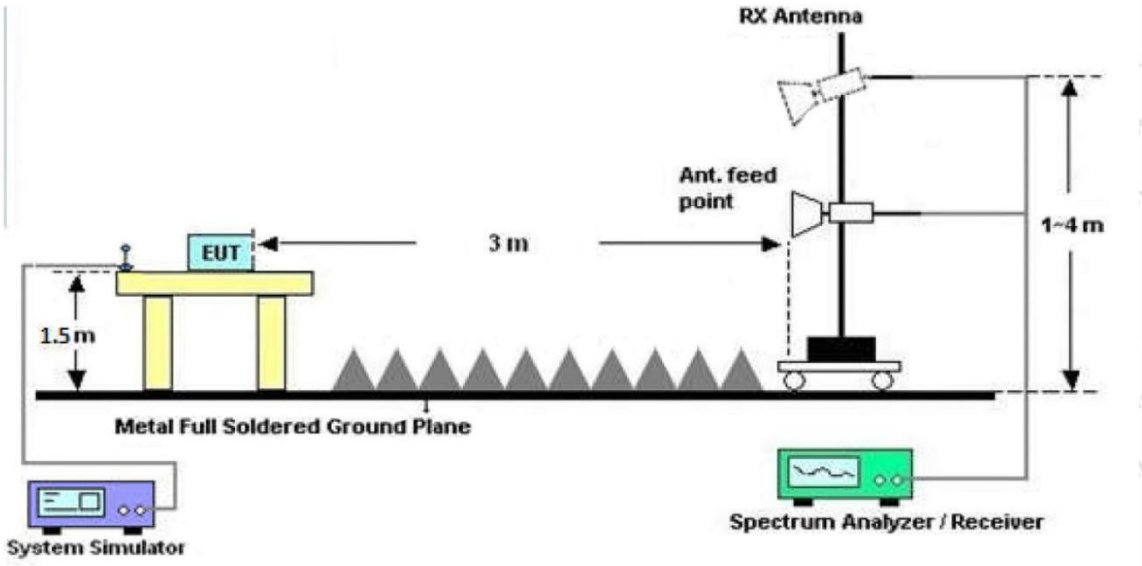


Figure 3. Above 1 GHz

4.3. Test Procedure

For below 1GHz: The EUT is placed on a turntable, which is 0.8m above the ground plane.
The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Rotated the EUT through three orthogonal axes to determine the maximum emissions, both horizontal and vertical polarization of the antenna are set on test. The EUT is tested in 9*6*6 Chamber. The device is evaluated in xyz orientation.

For 9kHz to 150kHz, Set the spectrum analyzer as:
RBW = 200Hz, VBW =1kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 150kHz to 30MHz, Set the spectrum analyzer as:
RBW = 9KHz, VBW =30kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 30MHz to 1000MHz, Set the spectrum analyzer as:
RBW = 100kHz, VBW =300kHz,Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For above 1GHz,Set the spectrum analyzer as:
RBW =1MHz, VBW =1MHz, Detector= Peak, Trace mode= Max hold, Sweep- auto couple.
RBW =1MHz, VBW =10Hz, Detector= Average, Trace mode= Max hold, Sweep- auto couple.

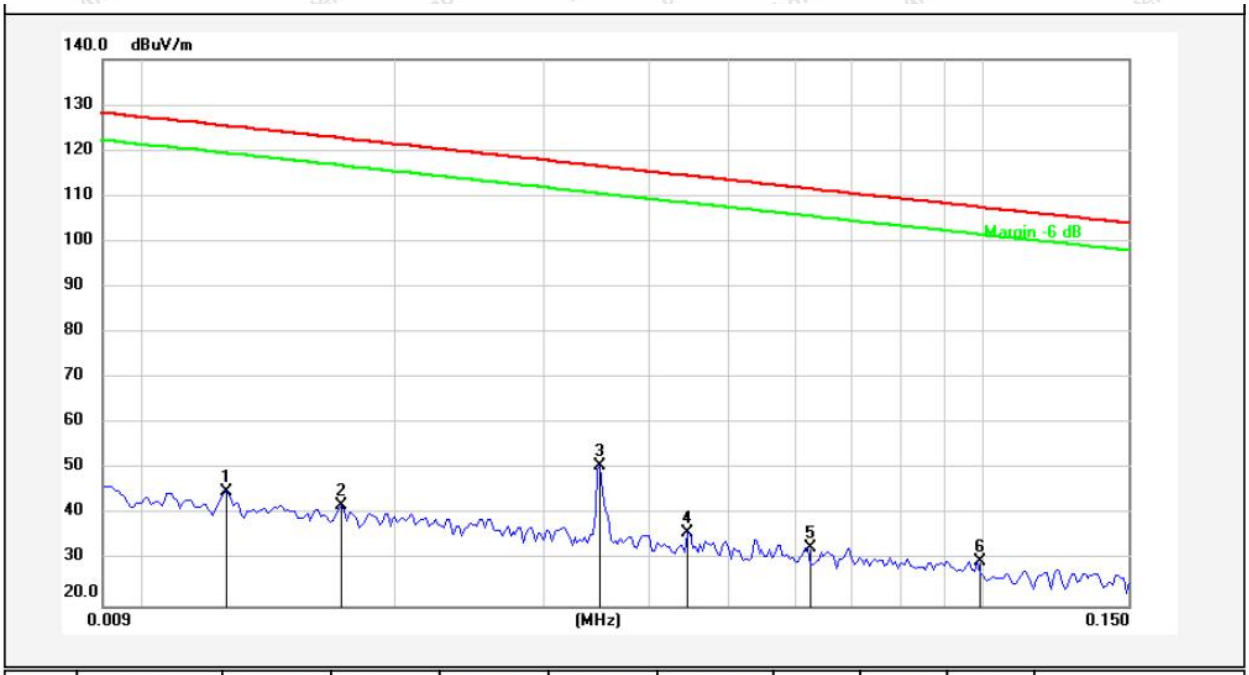
4.4. Test Data

PASS

During the test, Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the X-axis is the worst case.

Test Results (9KHz~0.15MHz)

Test Mode:	27MHz
Power Source:	DC 3V Battery
Polarization:	X
Temp.(℃)/Hum.(%RH):	23.3℃/52%RH



No.	Freq. (MHz)	Reading (dBuV)	Factor ()	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	0.0126	24.91	20.14	45.05	125.40	-80.35	AV			
2	0.0173	21.90	20.14	42.04	122.66	-80.62	AV			
3	0.0352	30.23	20.48	50.71	116.53	-65.82	AV			
4	0.0447	15.68	20.46	36.14	114.47	-78.33	AV			
5	0.0623	12.53	20.37	32.90	111.60	-78.70	AV			
6	0.0991	9.49	20.29	29.78	107.60	-77.82	AV			

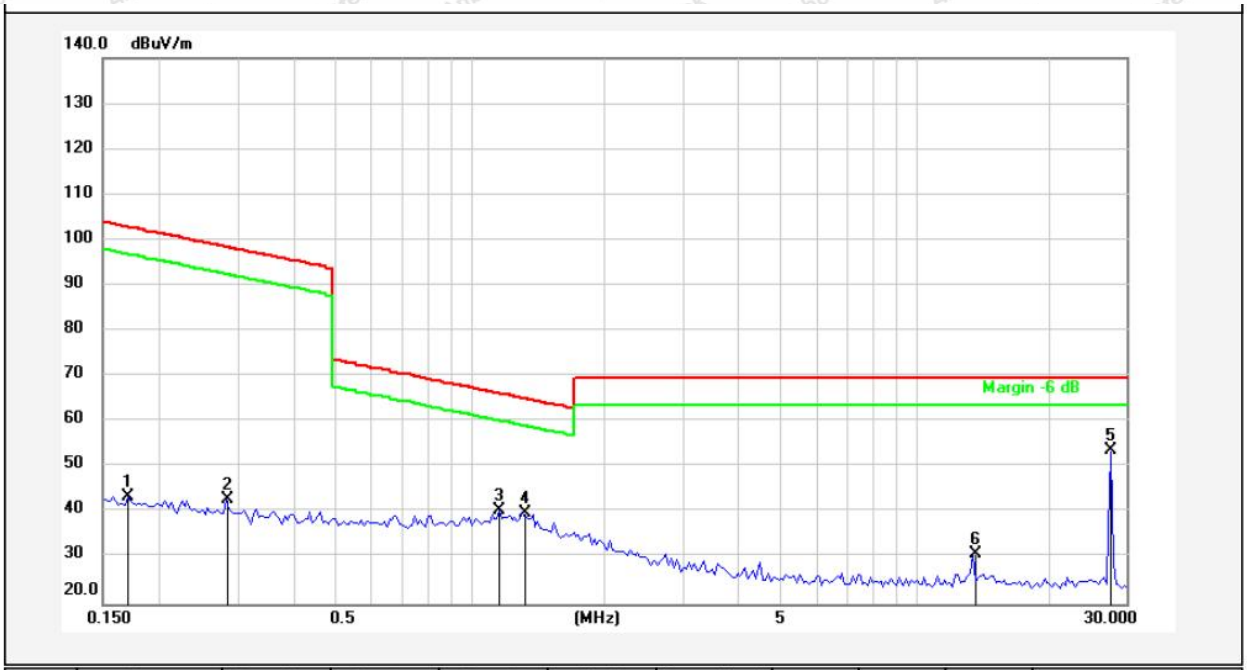
Test Results (0.15MHz~30MHz)

Test Mode: 27MHz

Power Source: DC 3V Battery

Polarization: X

Temp.(℃)/Hum.(%RH): 23.3℃/52%RH



No.	Freq. (MHz)	Reading (dBuV)	Factor ()	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	0.1712	23.21	20.32	43.53	102.88	-59.35	AV			
2	0.2833	22.75	20.31	43.06	98.53	-55.47	AV			
3	1.1688	20.40	20.26	40.66	66.27	-25.61	QP			
4	1.3168	19.56	20.26	39.82	65.24	-25.42	QP			
5	27.7077	32.94	20.66	53.60	69.50	-15.90	Peak			
6	13.5509	10.30	20.53	30.83	69.50	-38.67	QP			

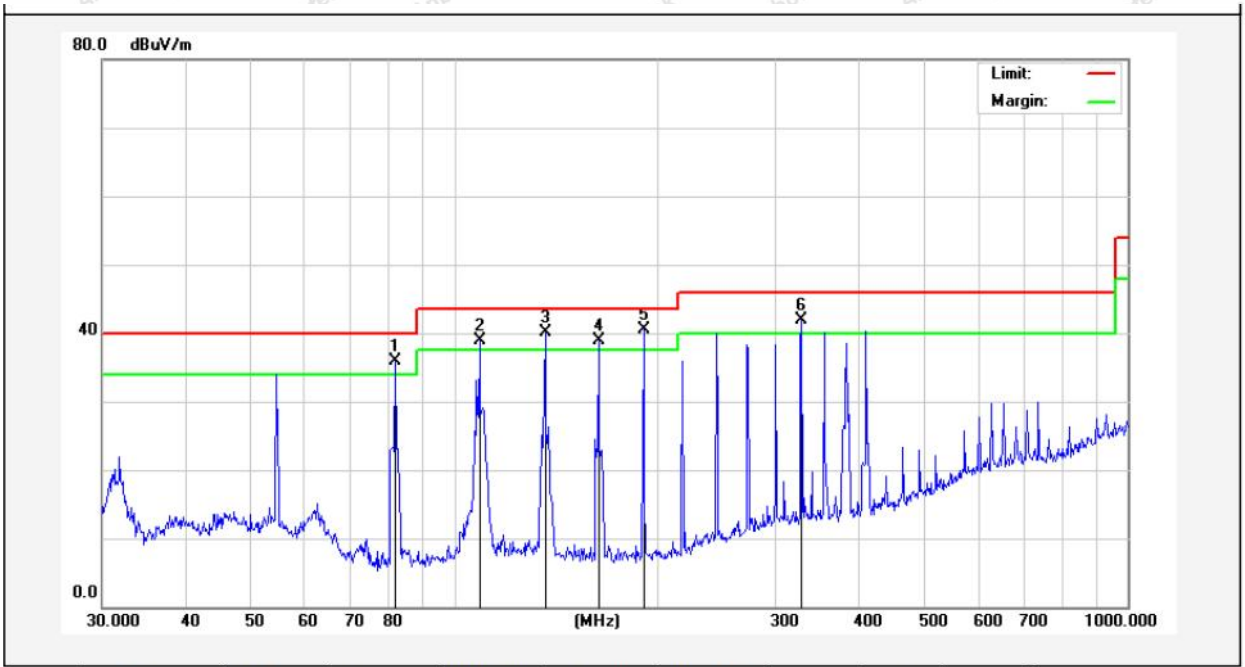
Test Results (30~1000MHz)

Test Mode: 27MHz

Power Source: DC 3V Battery

Polarization: Horizontal

Temp.(℃)/Hum.(%RH): 23.2℃/48%RH



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	81.7831	58.66	-22.85	35.81	40.00	-4.19	QP			
2	109.0284	61.85	-23.01	38.84	43.50	-4.66	QP			
3	136.4598	63.04	-22.87	40.17	43.50	-3.33	QP			
4	163.7548	62.68	-23.87	38.81	43.50	-4.69	QP			
5	191.0738	63.17	-22.71	40.46	43.50	-3.04	QP			
6	327.8872	58.36	-16.52	41.84	46.00	-4.16	QP			

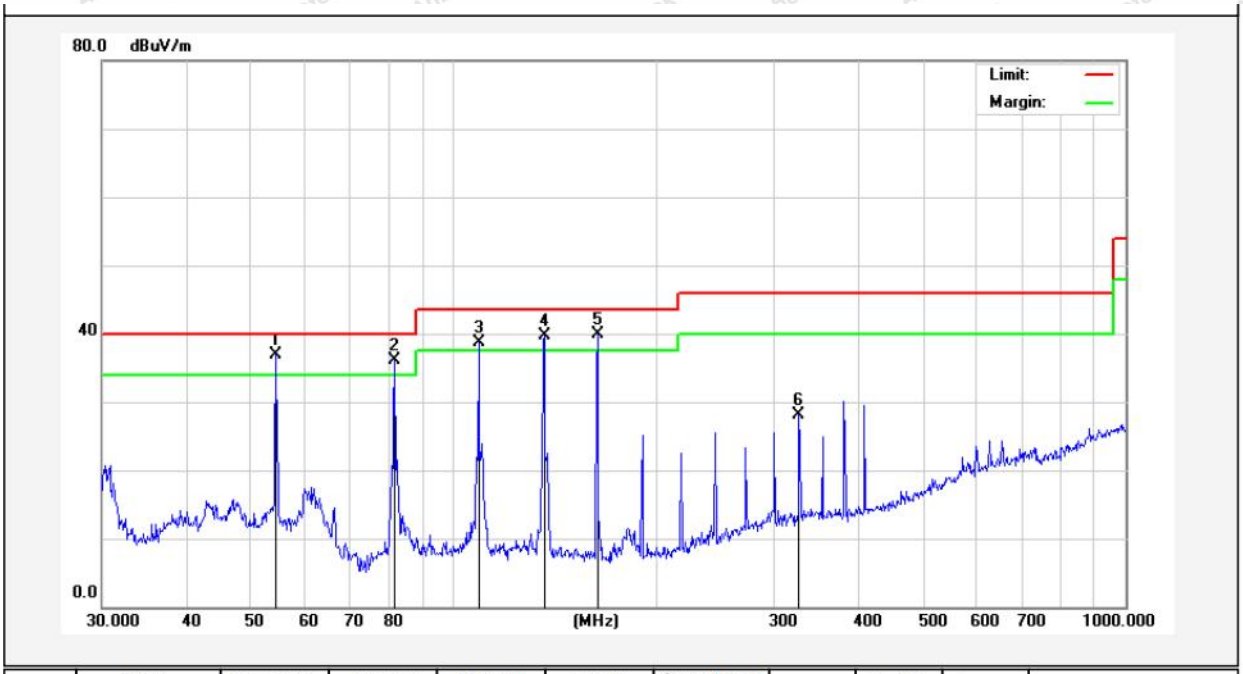
Test Results (30~1000MHz)

Test Mode: 27MHz

Power Source: DC 3V Battery

Polarization: Vertical

Temp.(℃)/Hum.(%RH): 23.2℃/48%RH



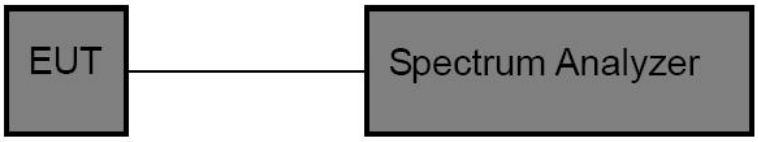
No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	54.4516	54.37	-17.42	36.95	40.00	-3.05	QP			
2	81.7831	55.11	-19.03	36.08	40.00	-3.92	QP			
3	109.0284	56.83	-18.03	38.80	43.50	-4.70	QP			
4	136.4598	61.70	-21.93	39.77	43.50	-3.73	QP			
5	163.7550	61.45	-21.46	39.99	43.50	-3.51	QP			
6	326.7395	43.79	-15.59	28.20	46.00	-17.80	QP			

5. 20DB Occupy Bandwidth Test

5.1. Test Standard and Limit

According to FCC section 15.215(c), the 20dB bandwidth should be contained within the frequency band designated in the rule section under which the EUT is operated, it was measured with a spectrum analyzer connected the EUT while the EUT is operating in transmission mode.

5.2. Test Setup



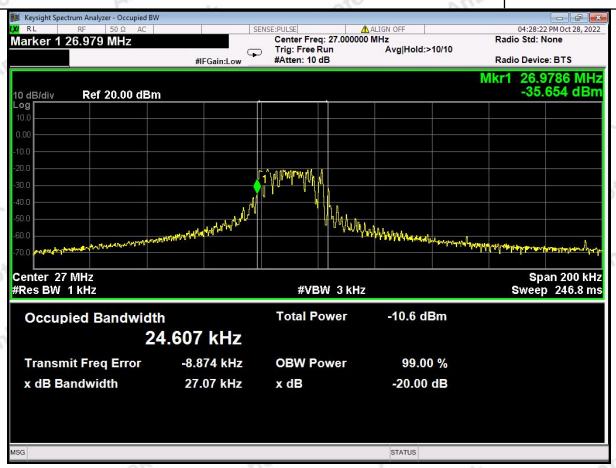
5.3. Test Procedure

The bandwidth of the fundamental frequency was measured by spectrum analyzer with 3kHz RBW and VBW≥3*RBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

5.4. Test Data

Test Item	:	20dB Bandwidth	Test Mode	:	Continuously transmitting
Test Voltage	:	DC 3V battery	Temperature	:	24℃
Test Result	:	PASS	Humidity	:	55%RH

Freq.(MHz)	Bandwidth (kHz)	Results
27	27.07	PASS



6. Antenna Requirement

6.1. Test Standard and Requirement

Test Standard	FCC Part15 Section 15.203
Requirement	1) 15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

6.2. Antenna Connected Construction

The antenna is a External antenna which permanently attached. It complies with the standard requirement.

APPENDIX I -- TEST SETUP PHOTOGRAPH

Please refer to separated files Appendix I -- Test Setup Photograph

APPENDIX II -- EXTERNAL PHOTOGRAPH

Please refer to separated files Appendix II -- External Photograph

APPENDIX III -- INTERNAL PHOTOGRAPH

Please refer to separated files Appendix III -- Internal Photograph

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