



FCC Test Report

Test Report
On Behalf of
XING RONG TOYS FACTORY
For
Shark toys

Model No.: 208000, 208001, 208002, 208003, 208004, 208005,
208006, 208007, 208008, 208009, 208050, 208051, 208052,
208053, 208054, 208055, 208056, 208057, 208058, 208059,
208080, 208081, 208082, 208083, 208084, 208085, 208086,
208087, 208088, 208089

FCC ID: 2BMDG-208000

Prepared For: **XING RONG TOYS FACTORY**
CHENGHAI DISTRICT, SHANTOU CITY, GUANGDONG PROVINCE, 515800 China

Prepared By: **Shenzhen HUAKE Testing Technology Co., Ltd.**
1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

Date of Test: **Nov. 20, 2024 ~ Dec. 30, 2024**

Date of Report: **Dec. 30, 2024**

Report Number: **HK2411207023-E**



Test Result Certification

Applicant's Name.....: XING RONG TOYS FACTORY

Address: CHENGHAI DISTRICT, SHANTOU CITY, GUANGDONG PROVINCE, 515800 China

Manufacturer's Name: XING RONG TOYS FACTORY

Address: CHENGHAI DISTRICT, SHANTOU CITY, GUANGDONG PROVINCE, 515800 China

Product Description

Trade Mark: N/A

Product Name: Shark toys

Model and/or Type Reference: 208000, 208001, 208002, 208003, 208004, 208005, 208006, 208007, 208008, 208009, 208050, 208051, 208052, 208053, 208054, 208055, 208056, 208057, 208058, 208059, 208080, 208081, 208082, 208083, 208084, 208085, 208086, 208087, 208088, 208089

Standards: 47 CFR Part15, Subpart C 15.227

This publication may be reproduced in whole or in part for non-commercial purposes as long as the Shenzhen HUAKE Testing Technology Co., Ltd. is acknowledged as copyright owner and source of the material. Shenzhen HUAKE Testing Technology Co., Ltd. takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.

Date of Test.....:

Date (s) of Performance of Tests: Nov. 20, 2024 ~ Dec. 30, 2024

Date of Issue.....: Dec. 30, 2024

Test Result.....: Pass

Testing Engineer :

(Len Liao)

Technical Manager :

(Sliver Wan)

Authorized Signatory :

(Jason Zhou)



Table of Contents

1. Test Result Summary	5
1.1. Test Facility	5
1.2. Information of the Test Laboratory	5
1.3. Measurement Uncertainty	5
2. EUT Description	6
2.1. General Description of EUT	6
2.2. Description of Test Setup	7
3. General Information	8
3.1. Test Environment and Mode	8
3.2. Description of Support Units	8
4. Test Results and Measurement Data	9
4.1. Antenna Requirement	9
4.2. Conducted Emission	10
4.3. Radiated Emission Measurement	12
4.4. Occupied Bandwidth	20
5. Test Setup Photos of the EUT	22
6. Photos of the EUT	23



**** Modified History ****

Revision	Description	Issued Data	Remark
Revision 1.0	Initial Test Report Release	Dec. 30, 2024	Jason Zhou



1. Test Result Summary

1.1. Test Facility

Requirement	CFR 47 Section	Result
Conduction Emission, 0.15MHz to 30MHz	§15.207	N/A
Radiation Emission	§15.227, §15.205, §15.209	PASS
Occupied Bandwidth	§15.215	PASS
Antenna requirement	§15.203	PASS

Note:

1. PASS: Test item meets the requirement.
2. Fail: Test item does not meet the requirement.
3. N/A: Test case does not apply to the test object.
4. The test result judgment is decided by the limit of test standard.

1.2. Information of the Test Laboratory

Shenzhen HUAKE Testing Technology Co., Ltd.

Add.: 1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping,
Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

Testing Laboratory Authorization:

A2LA Accreditation Code is 4781.01.

FCC Designation Number is CN1229.

Canada IC CAB identifier is CN0045.

CNAS Registration Number is L9589.

1.3. Measurement Uncertainty

Measurement Uncertainty

Conducted Emission Expanded Uncertainty	= 2.71dB, k=2
Radiated Emission Expanded Uncertainty(9kHz-30MHz)	= 3.90dB, k=2
Radiated Emission Expanded Uncertainty(30MHz-1000MHz)	= 3.90dB, k=2
Radiated Emission Expanded Uncertainty(Above 1GHz)	= 4.28dB, k=2



2. EUT Description

2.1. General Description of EUT

Equipment	Shark toys
Model Name	208000
Serial Models	208001, 208002, 208003, 208004, 208005, 208006, 208007, 208008, 208009, 208050, 208051, 208052, 208053, 208054, 208055, 208056, 208057, 208058, 208059, 208080, 208081, 208082, 208083, 208084, 208085, 208086, 208087, 208088, 208089
Model Difference	All model's the function, software and electric circuit are the same, only with a product model named different. Test sample mode: 208000.
FCC ID	2BMDG-208000
Antenna Type	External Antenna
Antenna Gain	0dBi
Operation Frequency	27.147MHz
Modulation Type	ASK
Power Source	DC 3V From Battery
Power Rating	DC 3V From Battery
Note: 1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual. 2. Antenna gain Refer to the antenna specifications. 3. The cable loss data is obtained from the supplier. 4. The test results in the report only apply to the tested sample.	



2.2. Description of Test Setup

Operation of EUT during testing:

EUT



3. General Information

3.1. Test Environment and Mode

Operating Environment:	
Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar
Test Mode:	
Operation mode:	Keep the EUT in continuous transmitting with modulation

3.2. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Trade Mark	Model/Type No.	Specification	Note
1	Shark toys	N/A	208000	N/A	EUT

Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.



4. Test Results and Measurement Data

4.1. Antenna Requirement

Standard requirement:	FCC Part15 C Section 15.203
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.	
E.U.T Antenna:	External Antenna
The antenna used in this product is an External Antenna, need professional installation. conforms to the standard requirements. The directional gains of antenna used for transmitting is 0dBi.	
	



4.2. Conducted Emission

4.2.1. Conducted Power Line Emission Limit

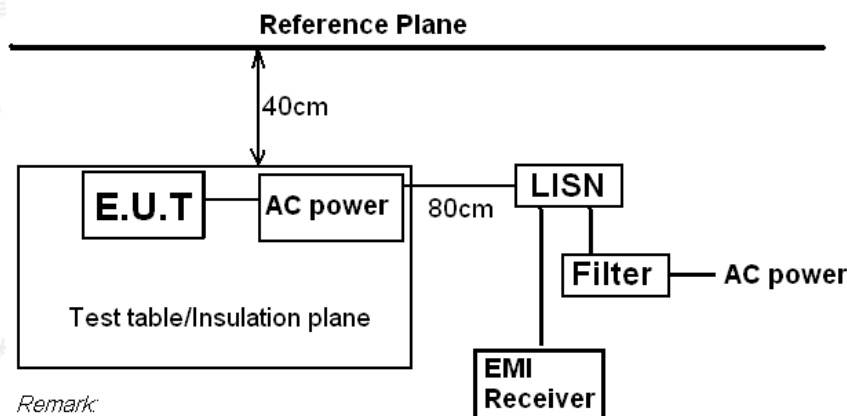
For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following

Frequency (MHz)	Maximum RF Line Voltage (dB μ V)			
	CLASS A		CLASS B	
	Q.P.	Ave.	Q.P.	Ave.
0.15 - 0.50	79	66	66-56*	56-46*
0.50 - 5.00	73	60	56	46
5.00 - 30.0	73	60	60	50

* Decreasing linearly with the logarithm of the frequency

For intentional device, according to §15.207(a) Line Conducted Emission Limit is same as above table.

4.2.2. Test Setup



Remark:

E.U.T: Equipment Under Test

LISN: Line Impedance Stabilization Network

Test table height=0.8m

4.2.3. Test Procedure

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10.
2. Support equipment, if needed, was placed as per ANSI C63.10.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
4. If a EUT received DC power from the USB Port of Notebook PC, the PC's adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5. All support equipments received AC power from a second LISN, if any.
6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.



4.2.4. Test Result

Not applicable.

Note: EUT power supply by DC Power, so this test item not applicable.



4.3. Radiated Emission Measurement

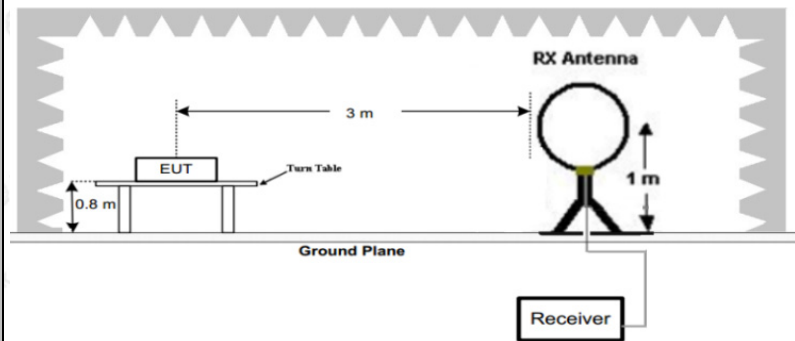
4.3.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.227 and 15.209				
Test Method:	ANSI C63.10:2013				
Frequency Range:	9 kHz to 1 GHz				
Measurement Distance:	3 m				
Antenna Polarization:	Horizontal & Vertical				
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	9kHz-150kHz	Quasi-peak	200Hz	1kHz	Quasi-peak Value
	150kHz-30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value
	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		Peak	1MHz	10Hz	Average Value
1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber in below 1GHz, 1.5m above the ground in above 1GHz. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.					

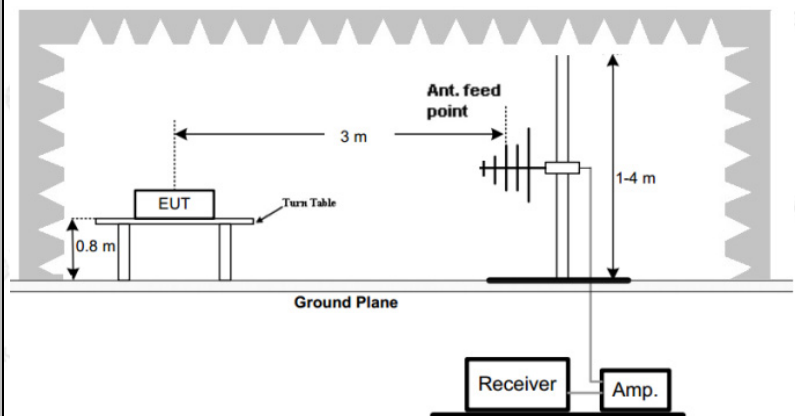


Test Setup:

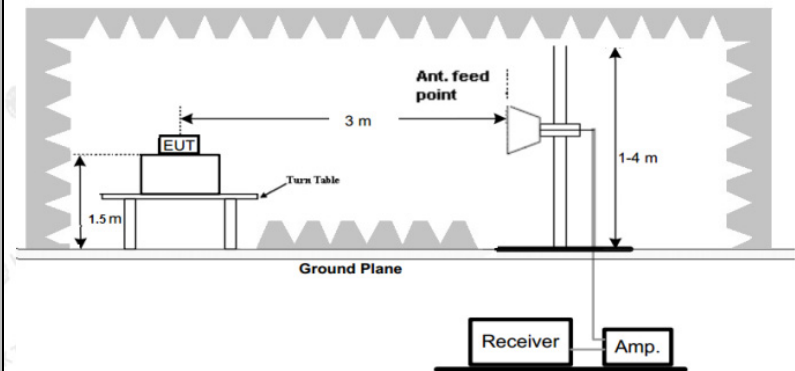
For Radiated Emissions



30MHz to 1GHz



Above 1GHz



Test Mode:

Transmitting Mode

Test Results:

PASS

4.3.2. Limit

(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.

**4.3.3. Frequencies in restricted band are complied to limit on Paragraph 15.209**

Frequency Range (MHz)	Distance (m)	Field strength (dB μ V/m)	Field strength (microvolts/meter)
0.009-0.490	300	20log 2400/F (kHz)	2400/F (kHz)
0.490-1.705	30	20log 24000/F (kHz)	24000/F (kHz)
1.705-30	30	20log 30	30
30-88	3	40.0	100**
88-216	3	43.5	150**
216-960	3	46.0	200**
Above 960	3	54.0	500
NOTE: **Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., S 15.231 and 15.241.			



4.3.4. Test Instruments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	L.I.S.N.	R&S	ENV216	HKE-002	2024/02/20	1 Year
2	L.I.S.N.	R&S	ENV216	HKE-059	2024/02/20	1 Year
3	EMI Test Receiver	R&S	ESR	HKE-005	2024/02/20	1 Year
4	Spectrum analyzer	R&S	FSV3044	HKE-126	2024/02/20	1 Year
5	Preamplifier	EMCI	EMC051845S	HKE-006	2024/02/20	1 Year
6	Preamplifier	Schwarzbeck	BBV 9743	HKE-016	2024/02/20	1 Year
7	Preamplifier	A.H. Systems	SAS-574	HKE-182	2024/02/20	1 Year
8	6d Attenuator	Pasternack	6db	HKE-184	2024/02/20	1 Year
9	EMI Test Receiver	Rohde & Schwarz	ESR-7	HKE-010	2024/02/20	1 Year
10	Broadband Antenna	Schwarzbeck	VULB9168	HKE-167	2024/02/21	2 Year
11	Loop Antenna	COM-POWER FMZB 1519 012 May 11, 2016 1 Year	AL-130R	HKE-014	2024/02/21	2 Year
12	Horn Antenna	Schwarzbeck	9120D	HKE-013	2024/02/21	2 Year
13	EMI Test Software	Tonscend	JS32-CE 2.5.0.6	HKE-081	/	/
14	EMI Test Software	Tonscend	JS32-RE 5.0.0	HKE-082	/	/
15	RF Automatic control unit	Tonscend	JS0806-2	HKE-060	2024/02/20	1 Year
16	High pass filter unit	Tonscend	JS0806-F	HKE-055	2024/02/20	1 Year
17	Wireless Communication Test Set	R&S	CMU200	HKE-026	2024/02/20	1 Year
18	Wireless Communication Test Set	R&S	CMW500	HKE-027	2024/02/20	1 Year
19	High-low temperature chamber	Guangke	HT-80L	HKE-118	2024/06/10	1 Year
20	Temperature and humidity meter	Boyang	HTC-1	HKE-075	2024/06/10	1 Year
21	RF Test Software	Tonscend	JS1120-3 Version V3.5.39	HKE-083	/	/
22	10dB Attenuator	Schwarzbeck	VTSD9561F	HKE-153	2024/02/20	1 Year
23	RSE Test Software	Tonscend	JS36-RSE 5.0 .0	HKE-184	/	/

The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.

TEL : +86-755 2302 9901 FAX : +86-755 2302 9901 E-mail : service@cer-mark.com

Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China



4.3.5. Test Data

Note: this EUT was tested in 3 orthogonal positions and the worst case position data was reported.

Field Strength of Fundamental

Frequency (MHz)	Reading (dBuV/m)	Correction Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Polar (H/V)	Detector
26.96	30.62	-10.82	19.80	69.50	49.70	H	Peak
26.96	31.22	-10.82	20.40	69.50	49.10	V	Peak
27.147	44.91	-12.57	32.34	100	67.66	H	Peak
27.147	46.61	-12.57	34.04	100	65.96	V	Peak
27.28	31.45	-10.82	20.63	69.50	48.87	H	Peak
27.28	30.99	-10.82	20.17	69.50	49.33	V	Peak

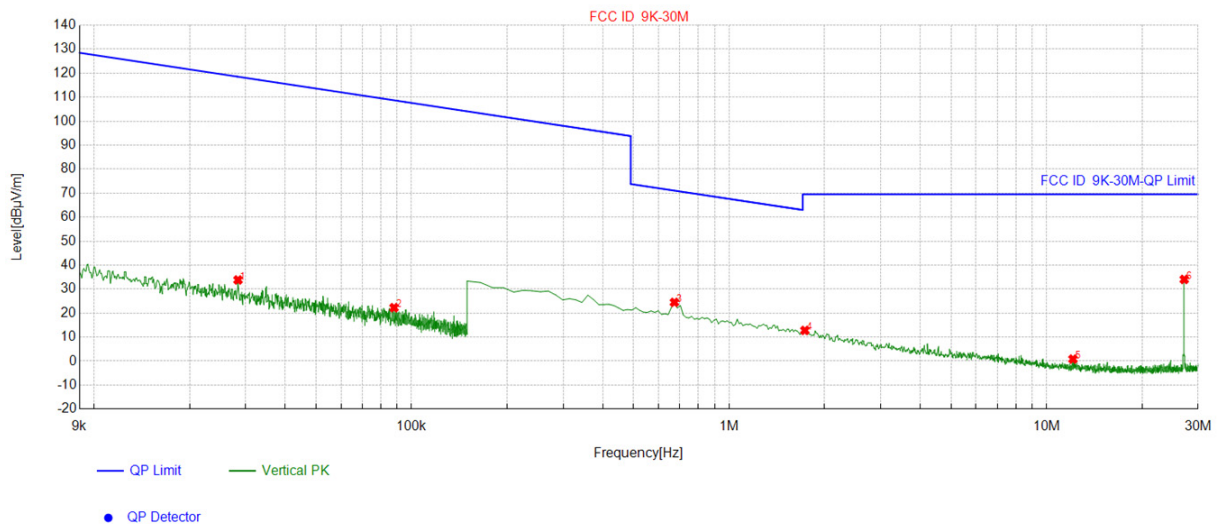
Remark: Margin = Limit - Result

Result = Reading +Correction Factor

Correction Factor = Antenna Factor + Cable Factor



For 9KHz - 30MHz

**Suspected List**

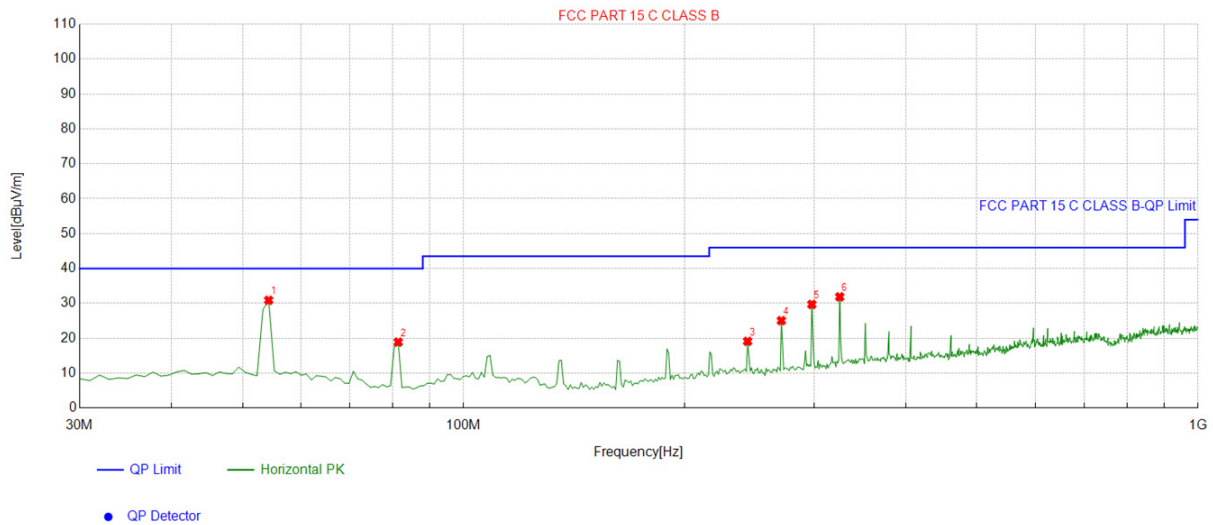
NO.	Freq. [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]
1	0.028397	-10.72	44.54	33.82	118.52	84.70
2	0.08807	-10.06	32.32	22.26	108.70	86.44
3	0.672636	-10.95	35.42	24.47	71.06	46.59
4	1.732841	-10.49	23.26	12.77	69.50	56.73
5	12.110905	-11.68	12.52	0.84	69.50	68.66
6	27.147899	-12.57	46.61	34.04	69.50	35.46

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level



About 30MHz-1GHz

Horizontal:



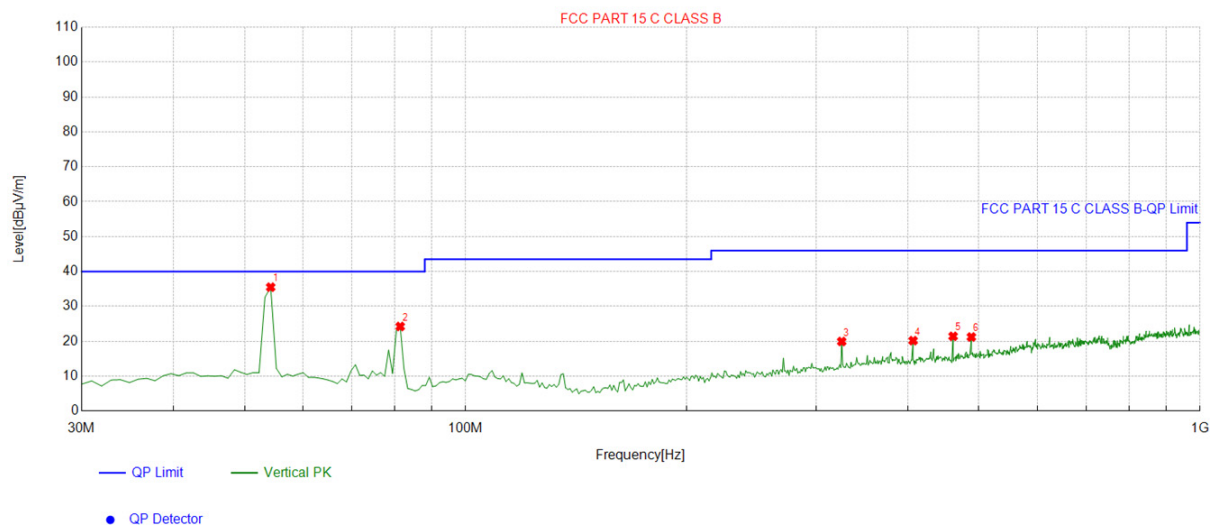
Suspected List

NO.	Freq. [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	54.274274	-13.50	44.39	30.89	40.00	9.11	100	99	Horizontal
2	81.461461	-18.34	37.24	18.90	40.00	21.10	100	258	Horizontal
3	243.61361	-13.32	32.45	19.13	46.00	26.87	100	123	Horizontal
4	270.80080	-12.52	37.58	25.06	46.00	20.94	100	142	Horizontal
5	297.98798	-11.79	41.49	29.70	46.00	16.30	100	163	Horizontal
6	325.17517	-11.00	42.87	31.87	46.00	14.13	100	99	Horizontal

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level



Vertical:



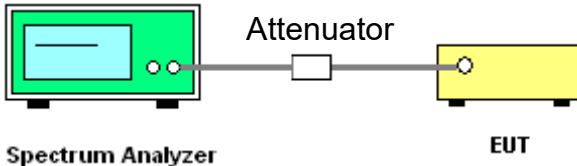
Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	54.274274	-13.50	49.00	35.50	40.00	4.50	100	324	Vertical
2	81.461461	-18.34	42.58	24.24	40.00	15.76	100	308	Vertical
3	325.17517	-11.00	30.94	19.94	46.00	26.06	100	202	Vertical
4	406.73673	-9.75	29.93	20.18	46.00	25.82	100	22	Vertical
5	461.11111	-8.91	30.34	21.43	46.00	24.57	100	1	Vertical
6	488.29829	-7.91	29.13	21.22	46.00	24.78	100	8	Vertical

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level



4.4. Occupied Bandwidth

4.4.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.215
Test Method:	ANSI C63.10: 2013
Limit:	N/A
	1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT. 2. Set to the maximum power setting and enable the EUT transmit continuously. 3. Use the following spectrum analyzer settings for 20dB Bandwidth measurement. Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel; RBW=1% to 5% of the Occupied Bandwidth; VBW=3RBW; Sweep = auto; Detector function = peak; Trace = max hold. 4. Measure and record the results in the test report.
Test Setup:	 The diagram shows a Spectrum Analyzer (green box) connected to an Attenuator (white box), which is then connected to the EUT (yellow box). The labels 'Spectrum Analyzer', 'Attenuator', and 'EUT' are placed below their respective components.
Test Mode:	Transmitting Mode
Test Results:	PASS

4.4.2. Test Instruments

RF Test Room				
Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	N9020A	HKE-025	2025/02/19

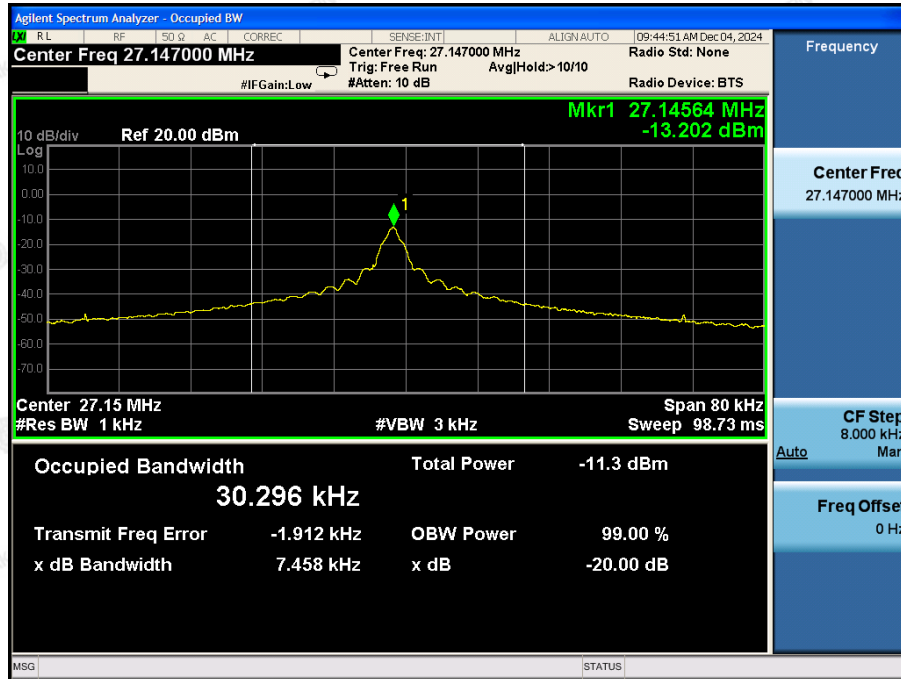
Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).



4.4.3. Test data

Test Channel (MHz)	20dB Occupy Bandwidth (kHz)	Limit (kHz)	Conclusion
27.147	7.458	N/A	PASS

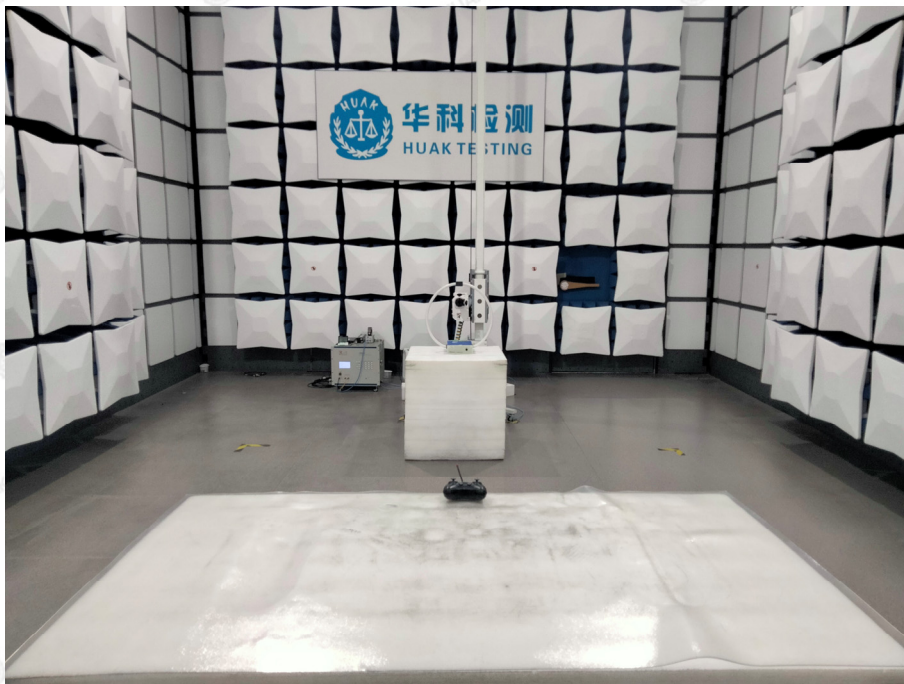
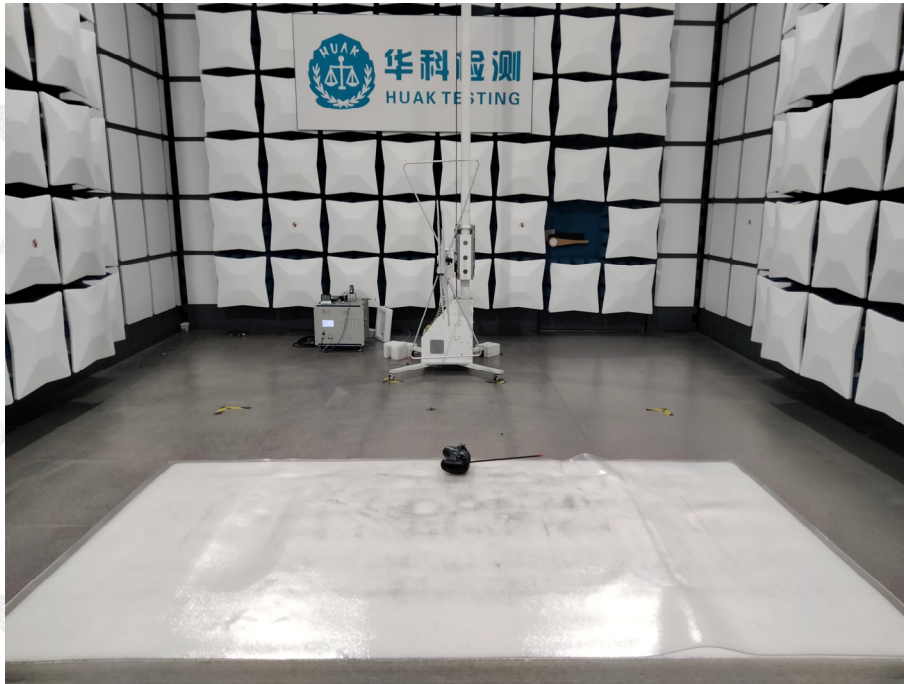
Test plots as follows:





5. Test Setup Photos of the EUT

Radiated Emission



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.

TEL : +86-755 2302 9901 FAX : +86-755 2302 9901 E-mail : service@cer-mark.com

Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China



6. Photos of the EUT

Reference to the report: ANNEX A of external photos and ANNEX B of internal photos

-----End of test report-----

