FCC PART 15.249
TEST REPORT

On Behalf of

AOFENG (SHENZHEN) TECHNOLOGY CO., LTD.

2F13, Building 3, Area 30, No.2 Kefa Road, Yuehai Street, Nanshan District, Shenzhen City, Guangdong Province, China

FCC ID: 2BH8M-X6PRO

Model: X6 PRO, X8, X9, X15, X22, X36, X52, X68, X98

August 1, 2024

This Report Concerns:	**Equipment Type:**
☒ Original Report	Remote Control Four-axis Aircraft

Test Engineer:	LBi Li / LBi Li
Report Number:	**QCT24GR-1796E-01**
Test Date:	July 2, 2024 ~ August 1, 2024
Reviewed By:	Gordon Tan/ Gordon.Tan
Approved By:	Kendy Wang /
Prepared By:	**Shenzhen QC Testing Laboratory Co., Ltd.** East of 1/F., Building E, Xinghong Science Park, No.111, Shuiku Road, Fenghuanggang, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China **Tel: 0755-23008269** **Fax: 0755-23726780**

Address: East of 1/F., Building E, Xinghong Science Park, No.111, Shuiku Road, Fenghuanggang, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China
Tel: 0755-23008269 Fax: 0755-23726780 www.qctest.com.cn

Table of Contents

Address: East of 1/F., Building E, Xinghong Science Park, No.111, Shuiku Road, Fenghuanggang, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China
Tel: 0755-23008269 Fax: 0755-23726780 www.qctest.com.cn

Revision History of This Test Report

Report Number	Description	Issued Date
QCT24GR-1796E-01	Initial Issue	2024-8-1

Address: East of 1/F., Building E, Xinghong Science Park, No.111, Shuiku Road, Fenghuanggang, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China
Tel: 0755-23008269 Fax: 0755-23726780 www.qctest.com.cn

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Description	Remote Control Four-axis Aircraft
Model No.	X6 PRO, X8, X9, X15, X22, X36, X52, X68, X98
Model Difference:	All models in each series have similar construction with the same diagram circuit and PCB layout, but different from model names. All tests were conducted on the models (X6 PRO) and the test result was passed.
Tested Model	X6 PRO
Sample(s) Status	Engineer sample
Operation Frequency:	2410~2470MHz
Channel numbers:	18
Modulation type:	GFSK
Antenna Type:	Wire antenna
Antenna gain*1:	0.59dBi
Power supply:	DC 4.5V (Powered by 3*1.5V AA battery for Remote Control)
Trade Mark:	N/A
Applicant	AOFENG (SHENZHEN) TECHNOLOGY CO., LTD.
Address	2F13, Building 3, Area 30, No.2 Kefa Road, Yuehai Street, Nanshan District, Shenzhen City, Guangdong Province, China
Manufacturer	AOFENG (SHENZHEN) TECHNOLOGY CO., LTD.
Address	2F13, Building 3, Area 30, No.2 Kefa Road, Yuehai Street, Nanshan District, Shenzhen City, Guangdong Province, China
Sample No.	Y24G1796E01WC

Note: *1This information provided by Manufacturer, SZ QC Lab is not responsible for the accuracy of this information.

Address: East of 1/F., Building E, Xinghong Science Park, No.111, Shuiku Road, Fenghuanggang, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China
Tel: 0755-23008269 Fax: 0755-23726780 www.qctest.com.cn

1.2 System Test Configuration

1.2.1 Channel List

Operation Frequency each of channel					
Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2410MHz	8	2448MHz	15	2462MHz
2	2440MHz	9	2449MHz	16	2463MHz
3	2441MHz	10	2450MHz	17	2464MHz
4	2442MHz	11	2455MHz	18	2470MHz
5	2443MHz	12	2456MHz		
6	2446MHz	13	2457MHz		
7	2447MHz	14	2461MHz		

Note: In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency	Channel	Frequency
The lowest channel	2410MHz	The middle channel	2440MHz
The Highest channel	2470MHz		

1.2.2 Support Equipment

N/A

1.2.3 Test mode and voltage

Transmitting mode: Keep the EUT in continuously transmitting.

Test voltage: DC 4.5V

Address: East of 1/F., Building E, Xinghong Science Park, No.111, Shuiku Road, Fenghuanggang, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China
Tel: 0755-23008269 Fax: 0755-23726780 www.qctest.com.cn

1.3 Test Facility

Test Firm : Shenzhen QC Testing Laboratory Co., Ltd.

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19. The testing quality system of our laboratory meets with ISO/IEC-17025 requirements. This approval result is accepted by MRA of APLAC.

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

CNAS – Registration No.: L8464

The EMC Laboratory has been accredited by CNAS, and in compliance with ISO/IEC 17025:2017 General Requirements for testing Laboratories.

A2LA Certificate Number: 6759.01

The EMC Laboratory has been accredited by A2LA, and in compliance with ISO/IEC 17025:2017 General Requirements for testing Laboratories.

FCC Registration Number: 561109

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission.

IC Registration Number: 29628

CAB identifier: CN0141

The EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada.

1.4 Measurement Uncertainty

Parameter	Uncertainty
Occupied Channel Bandwidth	±1.42 x10^{-4}%
RF output power, conducted	±1.06dB
Power Spectral Density, conducted	±1.06dB
Unwanted Emissions, conducted	±2.51dB
AC Power Line Conducted Emission	±1.80dB
Radiated Spurious Emission test (9kHz-30MHz)	±2.66dB
Radiated Spurious Emission test (30MHz-1000MHz)	±4.04dB
Radiated Spurious Emission test (1000MHz-18000MHz)	±4.70 dB
Radiated Spurious Emission test (18GHz-40GHz)	±4.80dB
Temperature	±0.8℃
Humidity	±3.2%
DC and low frequency voltages	±0.1%
Time	±5%
Duty cycle	±5%

Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2

Address: East of 1/F., Building E, Xinghong Science Park, No.111, Shuiku Road, Fenghuanggang, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China
Tel: 0755-23008269 Fax: 0755-23726780 www.qctest.com.cn

2. Summary of Test Results

Test Item	Section	Result
Antenna Requirement	15.203	Pass
Conduction Emission	15.207	Not Applicable
Radiated Emissions	15.205, 15.209, 15.249	Pass
20dB Bandwidth	15.215 (c)	Pass

Note: 1. Pass: The EUT complies with the essential requirements in the standard.

2. Test according to ANSI C63.10:2013

3.. All indications of Pass/Fail in this report are opinions expressed by Shenzhen QC Testing Laboratory Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.

Address: East of 1/F., Building E, Xinghong Science Park, No.111, Shuiku Road, Fenghuanggang, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China
Tel: 0755-23008269 Fax: 0755-23726780 www.qctest.com.cn

3. List of Test and Measurement Instruments

3.1 Radiated Emission Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1.	Spectrum Analyzer	ROHDE&SCHWARZ	FSV 40	101458	2024.03.14	2025.03.13
2.	Loop Antenna	EMCO	6502	2133	2024.07.21	2026.07.20
3.	Logarithmic compound broadband Antenna	SCKWARZBECK	VULB9168	VULB9168-1-588	2023.04.01	2025.03.31
4.	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESIB 7	2277573376	2024.03.14	2025.03.13
5.	EMI Test Receiver	R&S	ESPI	101131	2024.03.14	2025.03.13
6.	Horn Antenna	SCHWARZBECK	BBHA9120D	02069	2023.04.01	2025.03.31
7.	Horn Antenna	COM-MW	ZLB7-18-40G -950	12221225	2023.01.12	2025.01.09
8.	Amplifier	R&S	BBV9721	9721-031	2024.03.14	2025.03.13
9.	Amplifier	HPX	BP-01G-18G	210902	2024.03.14	2025.03.13
10.	Pre-amplifier	COM-MW	DLAN-18000 -40000-02	10229104	2024.03.14	2025.03.13
11.	966 Chamber	ZhongYu Electron	9*6*6	/	2022.07.25	2025.07.24
Radiated Emission Measurement Software: EZ_EMC						

3.2 RF Conducted test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1.	Wideband Radio Communication Tester	Rohde & Schwarz	CW500	151583	2024.03.14	2025.03.13
2.	Spectrum Analyzer	ROHDE& SCHWARZ	FSV 40	101458	2024.03.14	2025.03.13
3.	Signal Generator	Agilent	N5182A	MY50141563	2024.03.14	2025.03.13
4.	RF Automatic Test System	MW	MW100-RFCB/ MW100-PSB	MW2007004	2024.03.14	2025.03.13
RF Conducted Measurement Software: MTS 8310						

Address: East of 1/F., Building E, Xinghong Science Park, No.111, Shuiku Road, Fenghuanggang, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China
Tel: 0755-23008269 Fax: 0755-23726780 www.qctest.com.cn

4. 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.

EUT Antenna: The antenna is Wire Antenna, the best case gain of the antenna is 0.59dBi, reference to the Internal Photos for details.

Address: East of 1/F., Building E, Xinghong Science Park, No.111, Shuiku Road, Fenghuanggang, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China
Tel: 0755-23008269 Fax: 0755-23726780 www.qctest.com.cn

5. Radiated Emission Method

5.1 Applicable Standard

FCC Part15 C Section 15.249

5.2 Limit

Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902–928 MHz	50	500
2400–2483.5 MHz	50	500
5725–5875 MHz	50	500
24.0–24.25 GHz	250	2500

As per FCC Section 15.249

(c) Field strength limits are specified at a distance of 3 meters.

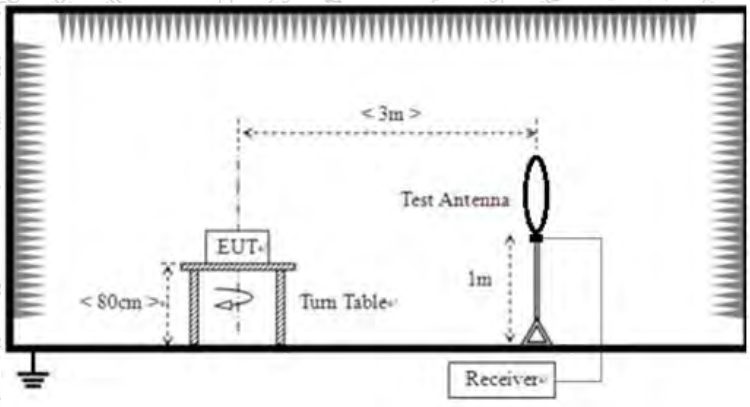
(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

5.3 Receiver setup

Frequency	Detector	RBW	VBW	Value
9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average
Remark: For the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission test in these three bands are based on measurements employing an average detector.				

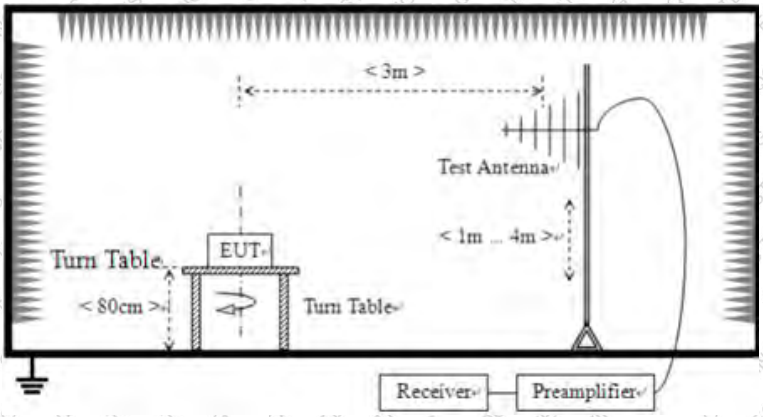
5.4 Test setup

For radiated emissions from 9kHz to 30MHz

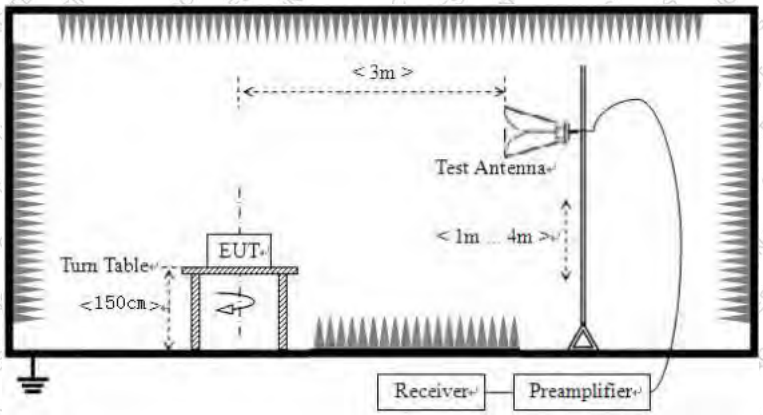


Address: East of 1/F., Building E, Xinghong Science Park, No.111, Shuiku Road, Fenghuanggang, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China
Tel: 0755-23008269 Fax: 0755-23726780 www.qctest.com.cn

For radiated emissions from 30MHz to1GHz



For radiated emissions above 1GHz



5.5 Test Procedure

1. The EUT was placed on the top of a rotating table (0.8 meters for below 1GHz and 1.5 meters for above 1GHz) above the ground at a 3 meter camber. 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 rota 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.

Address: East of 1/F., Building E, Xinghong Science Park, No.111, Shuiku Road, Fenghuanggang, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China
Tel: 0755-23008269 Fax: 0755-23726780 www.qctest.com.cn

5.6 Test Data

Temperature	25℃	Humidity	49%
ATM Pressure	101.1kPa	Antenna Gain	0.59dBi
Test by	Charlie He	Test result	PASS

Remarks:

Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.

Measurement data:

9 kHz ~ 30 MHz

The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

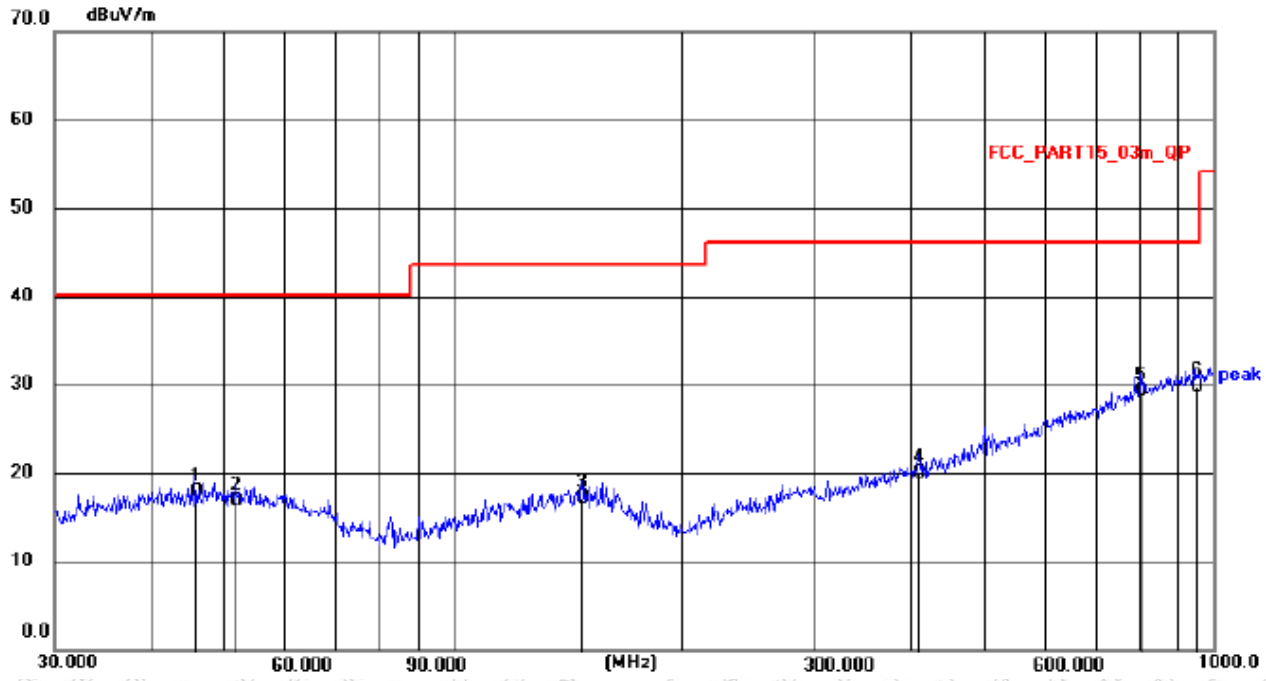
Address: East of 1/F., Building E, Xinghong Science Park, No.111, Shuiku Road, Fenghuanggang, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China
Tel: 0755-23008269 Fax: 0755-23726780 www.qctest.com.cn

Measurement data:

Pre-scan all test modes, found worst case at GFSK 2410MHz, and so only show the test result of GFSK 2410MHz.

Below 1GHz:

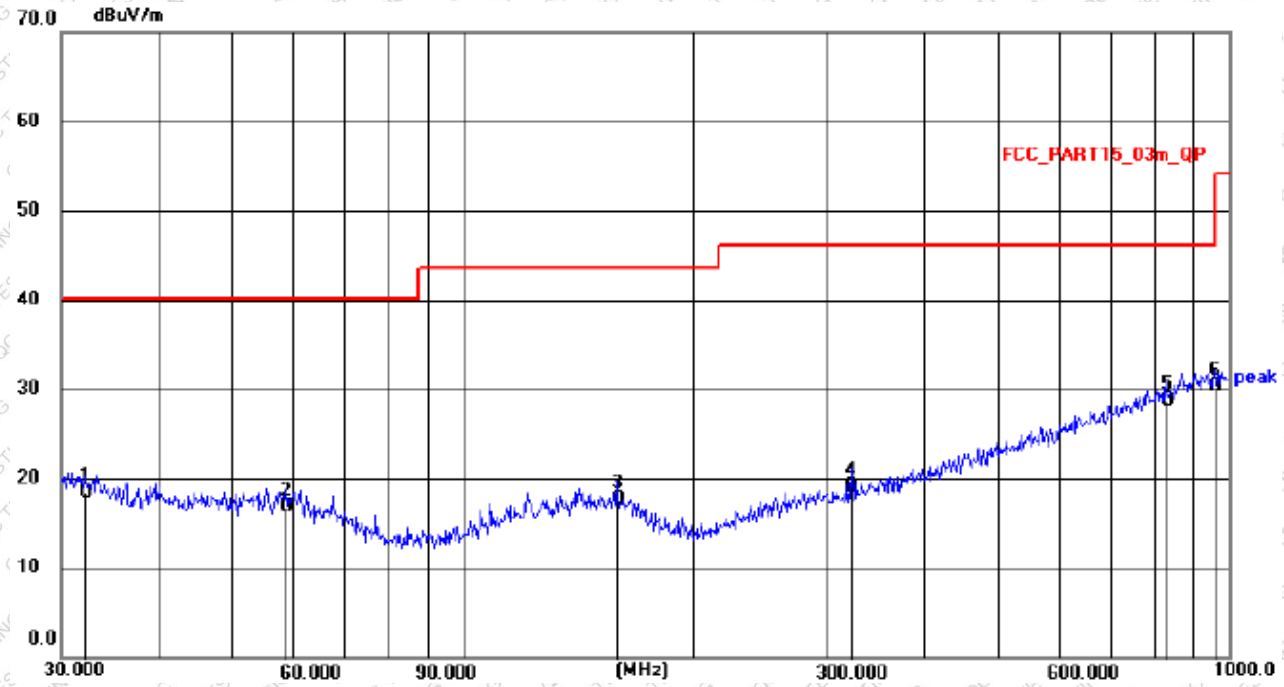
Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	45.8553	3.44	14.50	17.94	40.00	22.06	QP
2	51.8430	2.53	14.29	16.82	40.00	23.18	QP
3	147.9214	2.84	14.35	17.19	43.50	26.31	QP
4	410.3824	2.30	17.81	20.11	46.00	25.89	QP
5	801.7863	4.55	24.78	29.33	46.00	16.67	QP
6 *	948.7609	3.27	26.55	29.82	46.00	16.18	QP

Address: East of 1/F., Building E, Xinghong Science Park, No.111, Shuiku Road, Fenghuanggang, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China
Tel: 0755-23008269 Fax: 0755-23726780 www.qctest.com.cn

Vertical



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	32.1794	5.11	13.29	18.40	40.00	21.60	QP
2	59.0251	2.99	13.97	16.96	40.00	23.04	QP
3	159.2251	3.08	14.71	17.79	43.50	25.71	QP
4	321.0608	4.00	15.24	19.24	46.00	26.76	QP
5	827.4934	3.78	25.03	28.81	46.00	17.19	QP
6 *	955.4381	3.53	26.79	30.32	46.00	15.68	QP

Address: East of 1/F., Building E, Xinghong Science Park, No.111, Shuiku Road, Fenghuanggang, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China
Tel: 0755-23008269 Fax: 0755-23726780 www.qctest.com.cn

Above 1G:

Test channel: Lowest channel

Frequency (MHz)	Read Level (dBμV)	polarization	Factor (dB/m)	Level (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)	Detector
2310	52.18	H	-11.46	40.72	74	33.28	peak
2310	52.20	V	-11.46	40.74	74	33.26	peak
2390	51.22	H	-11.16	40.06	74	33.94	peak
2390	50.93	V	-11.16	39.77	74	34.23	peak
2400	50.41	H	-11.12	39.29	74	34.71	peak
2400	50.37	V	-11.12	39.25	74	34.75	peak
4820	58.01	H	-5.92	52.09	74	21.91	peak
4820	54.72	H	-5.92	48.80	54	5.20	AVG
4820	58.49	V	-5.92	52.57	74	21.43	peak
4820	55.15	V	-5.92	49.23	54	4.77	AVG
16939.937	43.18	H	8.65	51.83	74	22.17	peak
17639.473	38.09	V	12.32	50.41	74	23.59	peak

Test channel: Middle channel

Frequency (MHz)	Read Level (dBμV)	polarization	Factor (dB/m)	Level (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)	Detector
4880	58.46	H	-5.71	52.75	74	21.25	peak
4880	54.85	H	-5.71	49.14	54	4.86	AVG
4880	58.85	V	-5.71	53.14	74	20.86	peak
4880	54.89	V	-5.71	49.18	54	4.82	AVG

Test channel: Highest channel

Frequency (MHz)	Read Level (dBμV)	polarization	Factor (dB/m)	Level (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)	Detector
2483.5	49.44	H	-10.81	38.63	74	35.37	peak
2483.5	49.29	V	-10.81	38.48	74	35.52	peak
2500	48.82	H	-10.75	38.07	74	35.93	peak
2500	48.55	V	-10.75	37.80	74	36.20	peak
4940	55.94	H	-5.51	50.43	74	23.57	peak
4940	52.17	H	-5.51	46.66	54	7.34	AVG
4940	56.73	V	-5.51	51.22	74	22.78	peak
4940	53.28	V	-5.51	47.77	54	6.23	AVG

Address: East of 1/F., Building E, Xinghong Science Park, No.111, Shuiku Road, Fenghuanggang, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China
Tel: 0755-23008269 Fax: 0755-23726780 www.qctest.com.cn

17186.528	40.62	H	9.85	50.47	74	23.53	peak
17537.798	38.58	V	11.77	50.35	74	23.65	peak

Frequency (MHz)	Read Level (dBμV)	polarization	Factor (dB/m)	Peak value (dBμV/m)	Average Limit (dBμV/m)	Margin (dB)
2410	97.89	H	-11.09	86.80	93.98	7.18
2410	104.01	V	-11.09	92.92	93.98	1.06
2440	98.02	H	-10.97	87.05	93.98	6.93
2440	102.74	V	-10.97	91.77	93.98	2.21
2470	101.75	H	-10.86	90.89	93.98	3.09
2470	101.81	V	-10.86	90.95	93.98	3.03

Remarks:

1. Level =Reading + Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

Address: East of 1/F., Building E, Xinghong Science Park, No.111, Shuiku Road, Fenghuanggang, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China
Tel: 0755-23008269 Fax: 0755-23726780 www.qctest.com.cn

6. 20dB Occupy Bandwidth

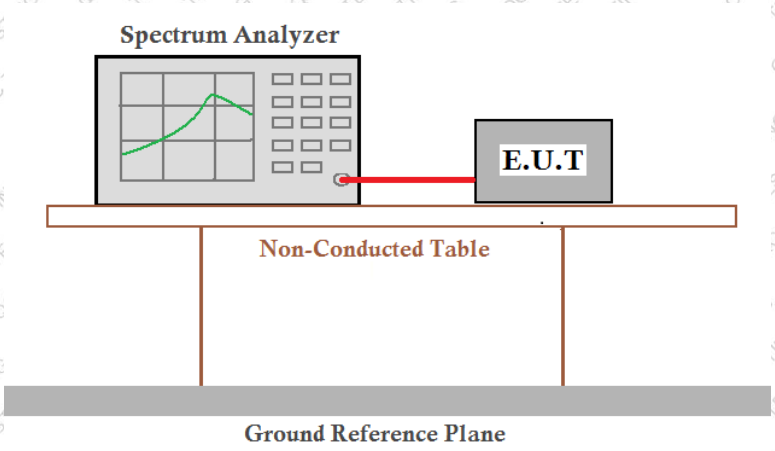
6.1 Applicable Standard

FCC Part15 C Section 15.215

6.2 Limit

N/A

6.3 Test setup



6.4 Test Data

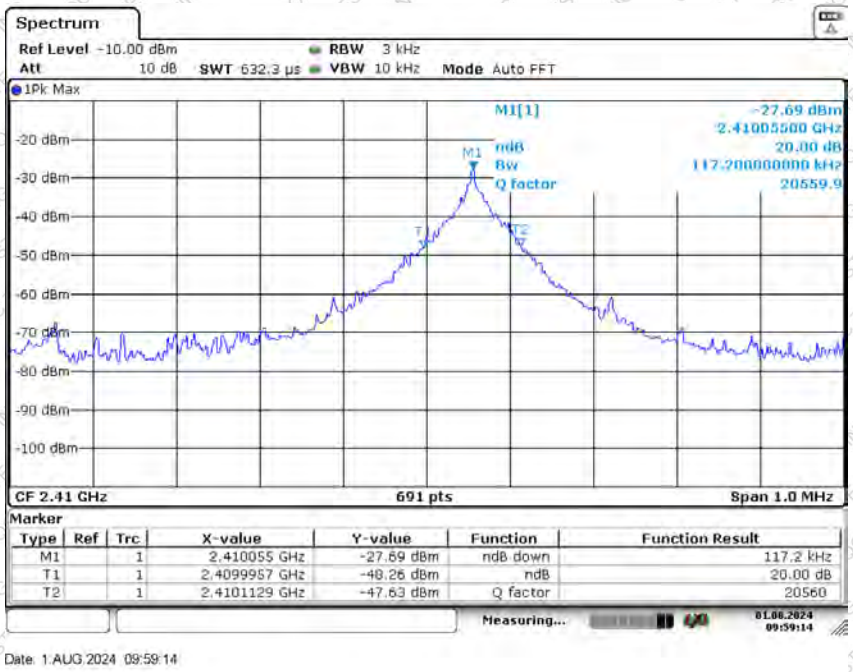
Temperature	22 ℃	Humidity	54%
ATM Pressure	101.1kPa	Antenna Gain	0.59dBi
Test by	LBi Li	Test result	PASS

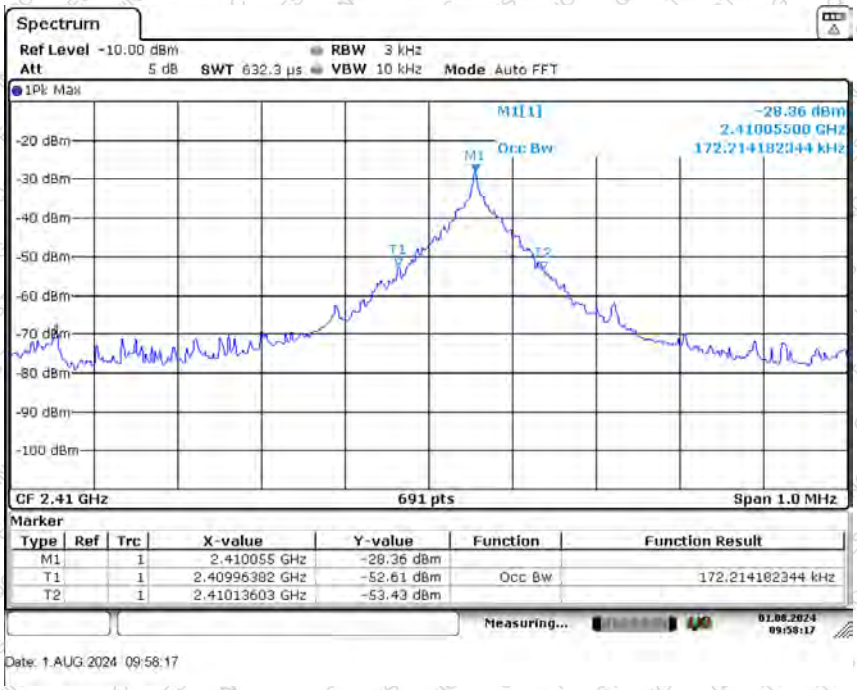
Please refer to following table and plots.

Address: East of 1/F., Building E, Xinghong Science Park, No.111, Shuiku Road, Fenghuanggang, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China
Tel: 0755-23008269 Fax: 0755-23726780 www.qctest.com.cn

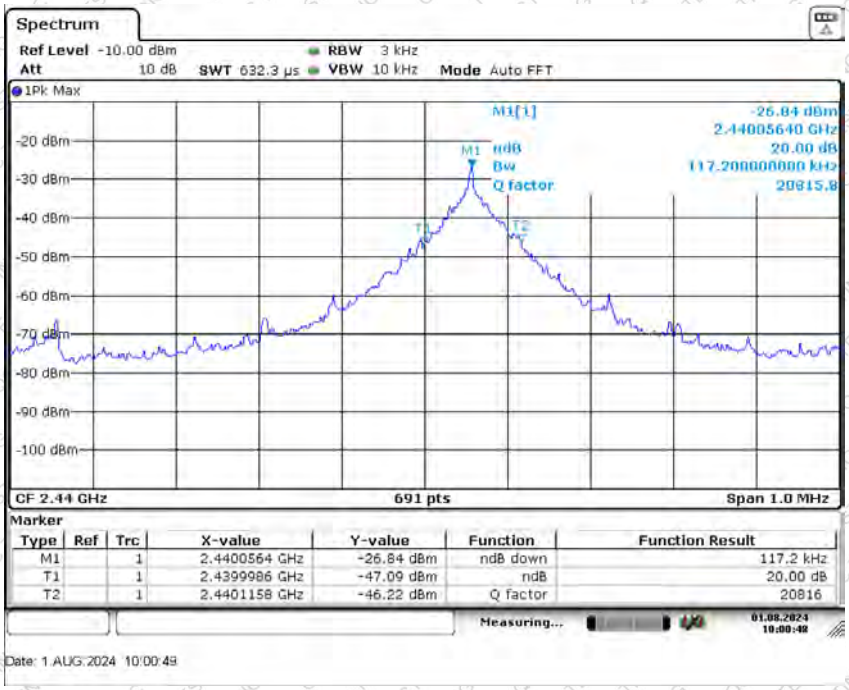
Test Frequency (MHz)	20dB bandwidth (MHz)	99% Occupied Bandwidth (MHz)
2410	0.117	0.172
2440	0.117	0.175
2470	0.125	0.184

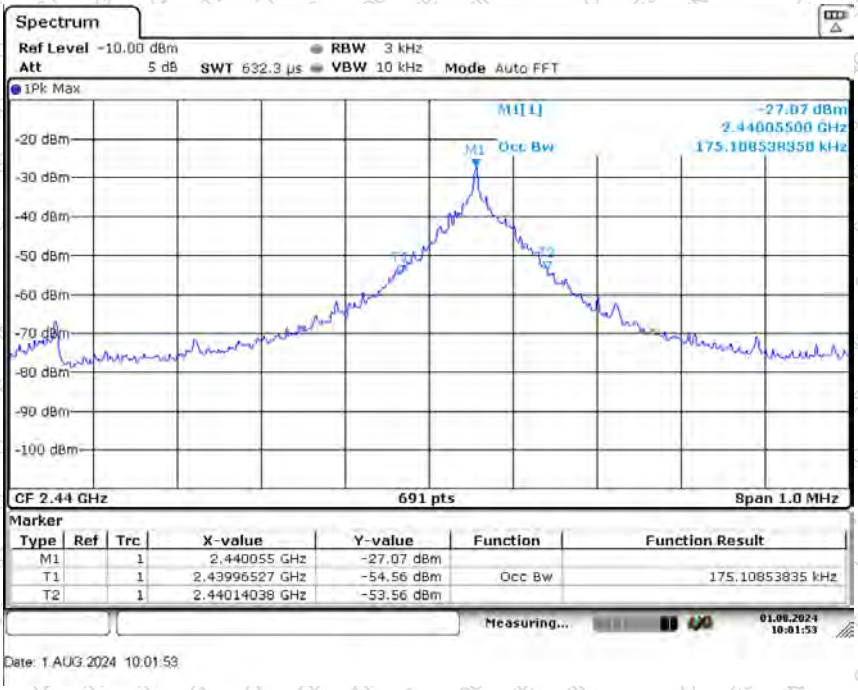
Test plot as follows:



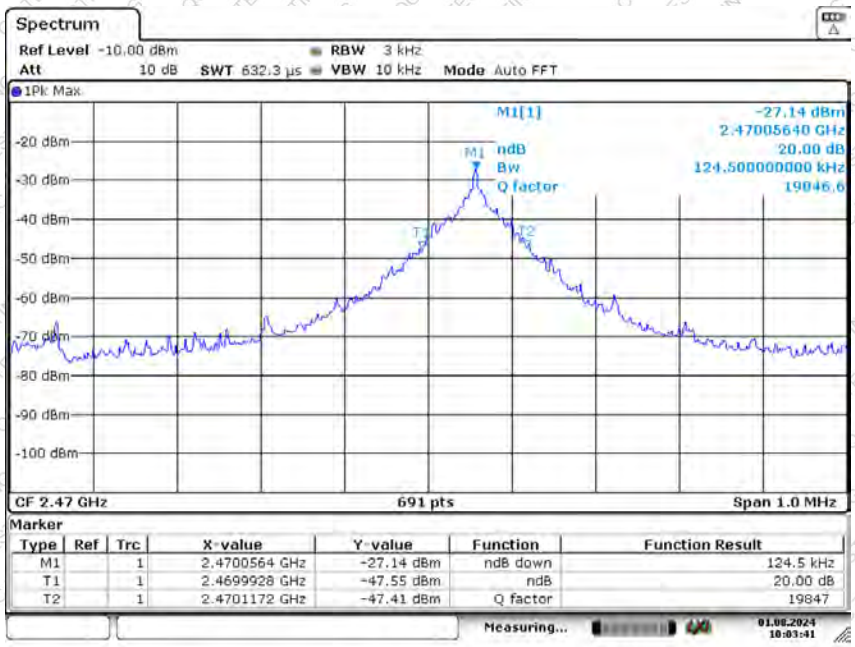


Address: East of 1/F., Building E, Xinghong Science Park, No.111, Shuiku Road, Fenghuanggang, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China
Tel: 0755-23008269 Fax: 0755-23726780 www.qctest.com.cn

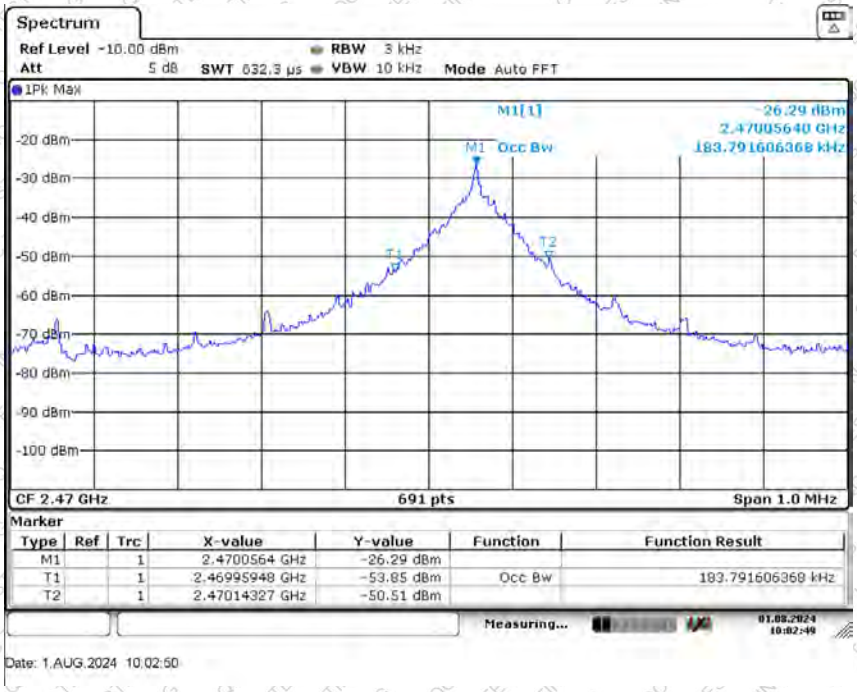




Address: East of 1/F., Building E, Xinghong Science Park, No.111, Shuiku Road, Fenghuanggang, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China
Tel: 0755-23008269 Fax: 0755-23726780 www.qctest.com.cn



Date: 1.AUG.2024 10:03:41



Date: 1.AUG.2024 10:02:50

---------- THE END OF TEST REPORT ----------

Address: East of 1/F., Building E, Xinghong Science Park, No.111, Shuiku Road, Fenghuanggang, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China
Tel: 0755-23008269 Fax: 0755-23726780 www.qctest.com.cn