FCC Test Report

Test Report
On Behalf of
Cherub Technology Co., Ltd.
For
2.4GHz wireless microphone system
Model No.: B-3RC, B-4RC

FCC ID: 2BCVT-B-3RC

Prepared For:	**Cherub Technology Co., Ltd.** **No.10, Keji 9th Road, Tangjiawan Town, Zhuhai High-tech Zone, Zhuhai, Guangdong, 519080, China**
Prepared By:	**Shenzhen DL Testing Technology Co., Ltd.** **101-201, Building C, Shuanghuan, No.8, Baoqing Road, Baolong Industrial Zone, Baolong Street, Longgang District, Shenzhen, Guangdong, China**
Date of Test:	**May 17, 2024 ~ May 28, 2024**
Date of Report:	**May 28, 2024**
Report Number:	**DL-240606007ER**

Test Result Certification

Applicant's Name	:	Cherub Technology Co., Ltd.
Address	:	No.10, Keji 9th Road, Tangjiawan Town, Zhuhai High-tech Zone, Zhuhai, Guangdong, 519080, China
Manufacturer's Name	:	Cherub Technology Co., Ltd.
Address	:	No.10, Keji 9th Road, Tangjiawan Town, Zhuhai High-tech Zone, Zhuhai, Guangdong, 519080, China
Product Description		
Trade Mark	:	NUX
Product Name	:	2.4GHz wireless microphone system
Model and/or Type Reference	:	B-3RC, B-4RC
Standards	:	**FCC Rules and Regulations Part 15 Subpart C Section 15.249** **ANSI C63.10: 2013**

Date of Test	:	
Date (s) of Performance of Tests	:	**May 17, 2024 ~ May 28, 2024**
Date of Issue	:	**May 28, 2024**
Test Result	:	**Pass**

Testing Engineer Randy Xie

Randy Xie

Technical Manager

Jack Bu

Authorized Signatory

Jade Yang

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** Modified History **

Revision	Description	Issued Data	Remark
Revision 1.0	Initial Test Report Release	May 28, 2024	

1. Test Summary

1.1 Test Procedures and Results

DESCRIPTION OF TEST	SECTION NUMBER	RESULT
CONDUCTED EMISSIONS TEST	15.207	COMPLIANT
RADIATED EMISSION TEST	15.249(a)/15.209	COMPLIANT
BAND EDGE	15.249(d)/15.205	COMPLIANT
OCCUPIED BANDWIDTH MEASUREMENT	15.215(c)	COMPLIANT
ANTENNA REQUIREMENT	15.203	COMPLIANT

1.2 Information of the Test Laboratory

Shenzhen DL Testing Technology Co., Ltd.
Add.: 101-201, Building C, Shuanghuan, No.8, Baoqing Road, Baolong Industrial Zone, Baolong Street, Longgang District, Shenzhen, Guangdong, China

Testing Laboratory Authorization：

FCC Test Firm Registration Number: 854456
Designation Number: CN1307
IC Registered No.: 27485
CAB ID.: CN0118

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. General Information

2.1 General Description of EUT

Equipment:	2.4GHz wireless microphone system
Model Name:	B-3RC
Series Model:	B-4RC
Model Difference:	All model's the function, software and electric circuit are the same, only with a product model named different. Test sample model: B-3RC
FCC ID:	2BCVT-B-3RC
Antenna Type:	PCB Antenna
Antenna Gain:	5.09dBi
Operation Frequency:	2404-2479MHz
Number of Channels:	26CH
Modulation Type:	GFSK
Power Source:	DC5V From Charging compartment or DC 3.7V From Battery
Power Rating:	DC5V From Charging compartment or DC 3.7V 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 Carrier Frequency of Channels

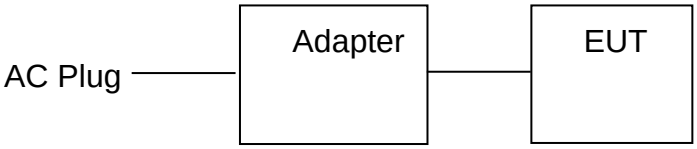
Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2404	15	2446
2	2407	16	2449
3	2410	17	2452
4	2413	18	2455
5	2416	19	2458
6	2419	20	2461
7	2422	21	2464
8	2425	22	2467
9	2428	23	2470
10	2431	24	2473
11	2434	25	2476
12	2437	26	2479
13	2440	27	/
14	2443	28	/

2.3 Operation of EUT during Testing

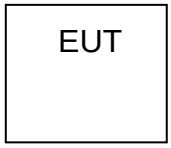
Operating Mode
The mode is used: **Transmitting mode**
Low Channel: 2404MHz
Middle Channel: 2440MHz
High Channel: 2479 MHz

2.4 Description of Test Setup

Operation of EUT during conducted testing:



Operation of EUT during radiation testing:



The sample was placed (0.8m below 1GHz, 1.5m above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages. The worst case is X position.

2.5 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	2.4GHz wireless microphone system	NUX	B-3RC	N/A	EUT
2	USB cable	N/A	N/A	Length:1.0m	Accessory
3	Adapter	N/A	MDY-10-EH	Input: AC100-240V, 50/60Hz, 0.7A Output: DC5V/3A, 9V/3A, 12V/2.25A, 20V/1.35A	Peripheral

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.

3. For conducted measurements (Occupied Bandwidth), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.

2.5 Measurement Instruments List

Radiation test, Band-edge test and 20db bandwidth test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	Agilent	E4408B	MY50140780	Nov. 04, 2023	Nov. 03, 2024
2	Test Receiver (9kHz-7GHz)	R&S	ESRP7	101393	Nov. 04, 2023	Nov. 03, 2024
3	Bilog Antenna (30MHz-1GHz)	R&S	VULB9162	00306	Nov. 04, 2023	Nov. 03, 2024
4	Horn Antenna (1GHz-18GHz)	Schwarzbeck	BBHA9120D	02139	Nov. 04, 2023	Nov. 03, 2024
5	Horn Antenna (18GHz-40GHz)	A.H. Systems	SAS-574	588	Nov. 04, 2023	Nov. 03, 2024
6	Amplifier (9KHz-6GHz)	Schwarzbeck	BBV9743B	00153	Nov. 04, 2023	Nov. 03, 2024
7	Amplifier (1GHz-18GHz)	EMEC	EM01G8GA	00270	Nov. 04, 2023	Nov. 03, 2024
8	Amplifier (18GHz-40GHz)	Quanjuda	DLE-161	97	Nov. 04, 2023	Nov. 03, 2024
9	Loop Antenna (9KHz-30MHz)	Schwarzbeck	FMZB1519B	00014	Nov. 04, 2023	Nov. 03, 2024
10	RF cables1 (9kHz-1GHz)	ChengYu	966	004	Nov. 04, 2023	Nov. 03, 2024
11	RF cables2 (1GHz-40GHz)	ChengYu	966	003	Nov. 04, 2023	Nov. 03, 2024
12	Antenna connector	Florida RF Labs	N/A	RF 01#	Nov. 04, 2023	Nov. 03, 2024
13	Power probe	KEYSIGHT	U2021XA	MY55210018	Nov. 04, 2023	Nov. 03, 2024
14	Signal Analyzer 9kHz-26.5GHz	Agilent	N9020A	MY55370280	Nov. 04, 2023	Nov. 03, 2024
15	Test Receiver 20kHz-40GHz	R&S	ESU 40	100376	Nov. 04, 2023	Nov. 03, 2024
16	D.C. Power Supply	LongWei	PS-305D	010964729	Nov. 04, 2023	Nov. 03, 2024

Conduction Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	843 Shielded Room	ChengYu	843 Room	843	Sep. 20, 2022	Sep. 19, 2025
2	EMI Receiver	R&S	ESR	101421	Nov. 04, 2023	Nov. 03, 2024
3	LISN	R&S	ENV216	102417	Nov. 04, 2023	Nov. 03, 2024
4	843 Cable 1#	ChengYu	CE Cable	001	Nov. 04, 2023	Nov. 03, 2024
5	10dB Attenuator	Schwarzbeck	VTSD9561F	00154	Nov. 04, 2023	Nov. 03, 2024

Other

Item	Name	Manufacturer	Model	Software version
1	EMC Conduction Test System	FALA	EZ_EMC	EMC-CON 3A1.1
2	EMC radiation test system	FALA	EZ_EMC	FA-03A2
3	RF test system	MAIWEI	MTS8310	2.0.0.0
4	RF communication test system	MAIWEI	MTS8200	2.0.0.0

3. Conducted Emissions Test

3.1 Conducted Power Line Emission Limit

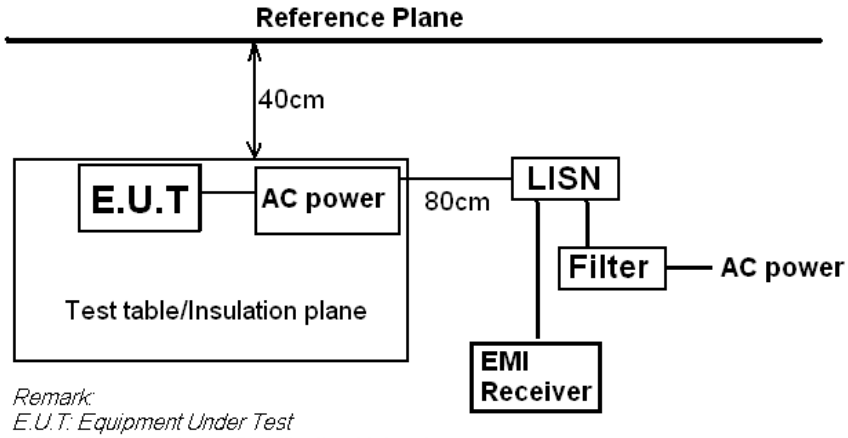
For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following.

Frequency (MHz)	Maximum RF Line Voltage (dBμV)			
	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.

3.2 Test Setup



Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m

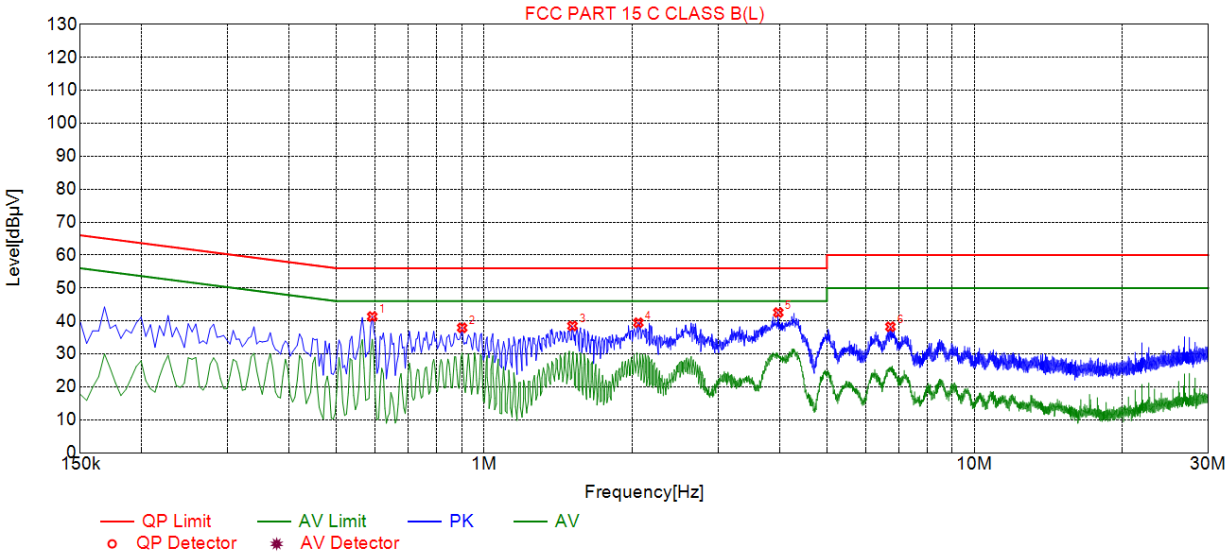
3.3 Test Procedure

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.

3.4 Test Result

All modes have been tested. Only the worst result was reported as below:

Test Specification: Line



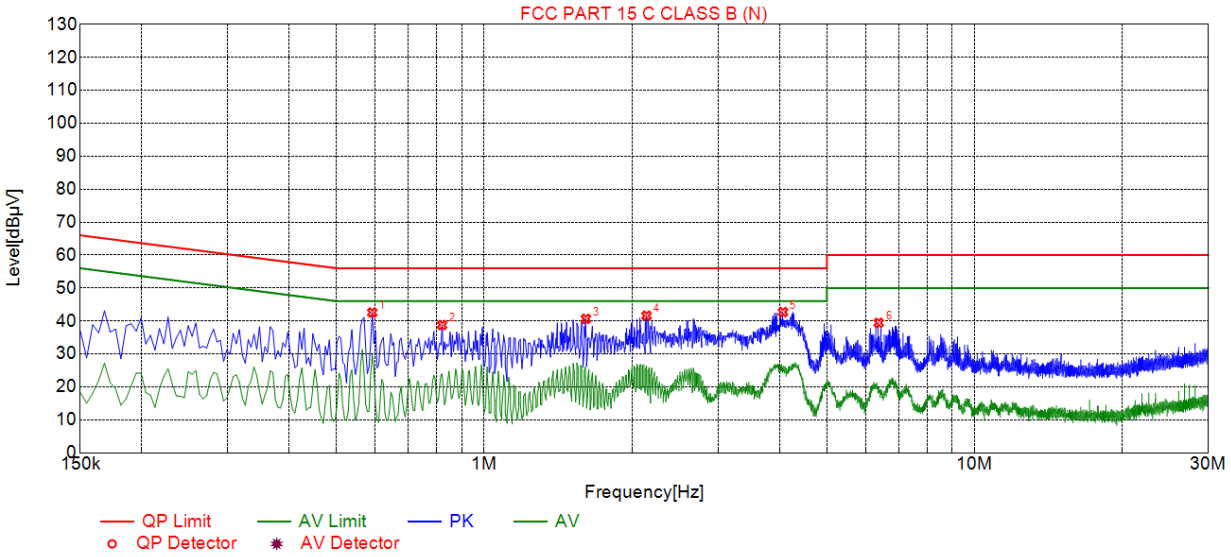
Suspected List								
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.5910	41.35	20.13	56.00	14.65	21.22	PK	L
2	0.9015	37.93	20.17	56.00	18.07	17.76	PK	L
3	1.5135	38.50	20.29	56.00	17.50	18.21	PK	L
4	2.0625	39.47	20.39	56.00	16.53	19.08	PK	L
5	3.9795	42.56	20.69	56.00	13.44	21.87	PK	L
6	6.7380	38.24	20.94	60.00	21.76	17.30	PK	L

Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor

Test Specification: Neutral



Suspected List								
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Type
1	0.5910	42.56	20.22	56.00	13.44	22.34	PK	N
2	0.8205	38.76	20.25	56.00	17.24	18.51	PK	N
3	1.6125	40.65	20.37	56.00	15.35	20.28	PK	N
4	2.1435	41.61	20.47	56.00	14.39	21.14	PK	N
5	4.0695	42.69	20.75	56.00	13.31	21.94	PK	N
6	6.3780	39.43	20.94	60.00	20.57	18.49	PK	N

Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor

4. Radiated Emission Test

4.1 Radiation Limit

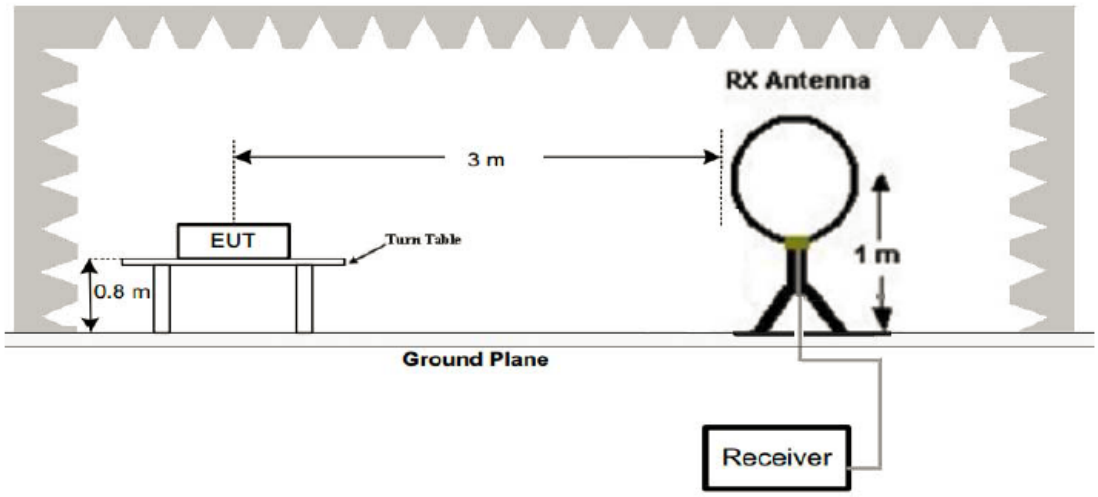
For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values：

Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/m)
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	100
88-216	3	43.5	150
216-960	3	46	200
Above 960	3	54	500

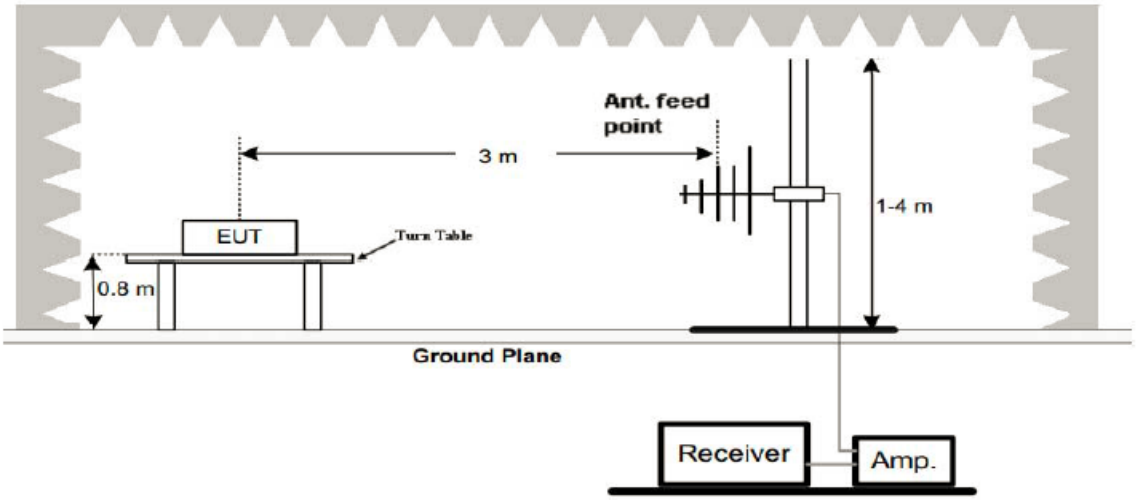
For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

4.2 Test Setup

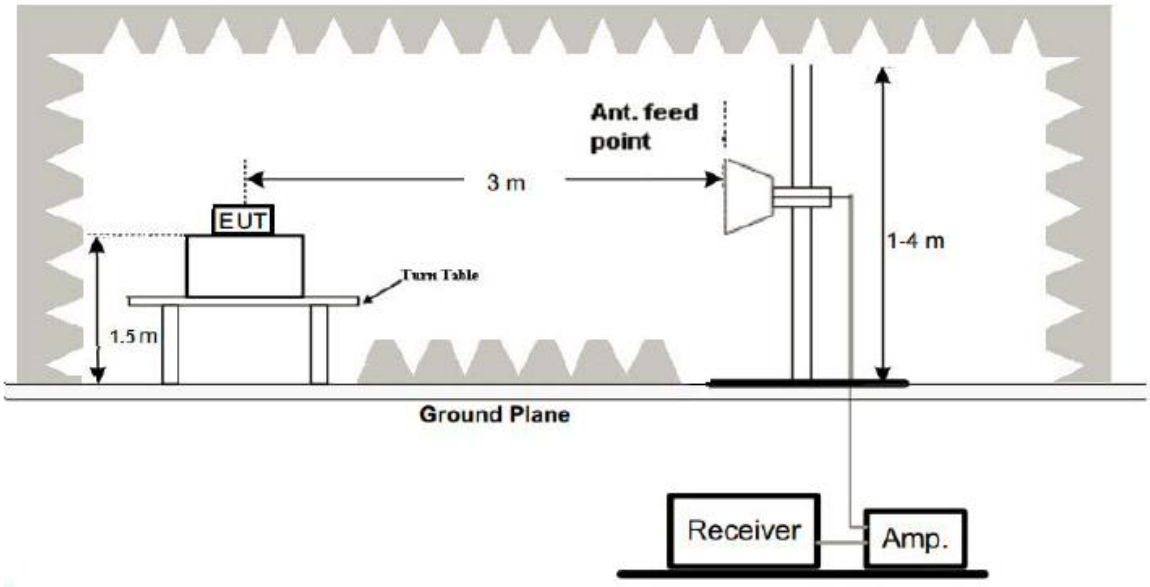
（1）Radiated Emission Test-Up Frequency Below 30MHz



（2）Radiated Emission Test-Up Frequency 30MHz~1GHz


Ant. feed point
3 m
1-4 m
EUT
Turn Table
0.8 m
Ground Plane
Receiver
Amp.

（3）Radiated Emission Test-Up Frequency Above 1GHz



4.3 Test Procedure

1. Below 1GHz measurement the EUT is placed on turntable which is 0.8m above ground plane. And above 1GHz measurement EUT was placed on low permittivity and low tangent turn table which is 1.5m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The test frequency range from 9KHz to 25GHz per FCC PART 15.33(a).

Note:
For battery operated equipment, the equipment tests shall be performed using a new battery.

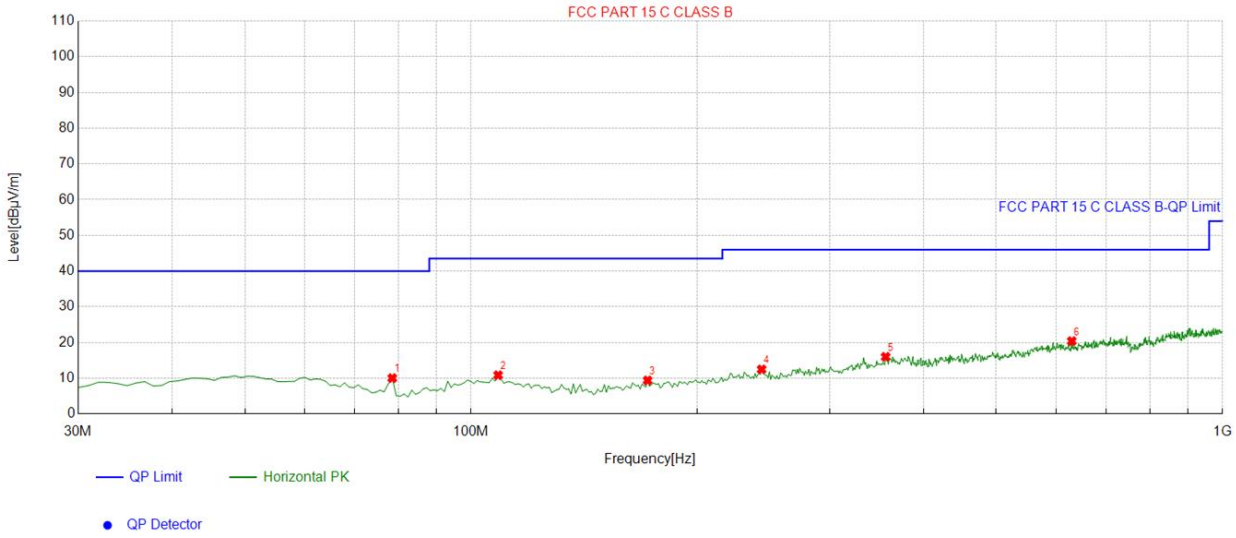
4.4 Test Result

PASS

All the test modes completed for test. The worst case of Radiated Emission is CH 01; the test data of this mode was reported.

Below 1GHz Test Results:

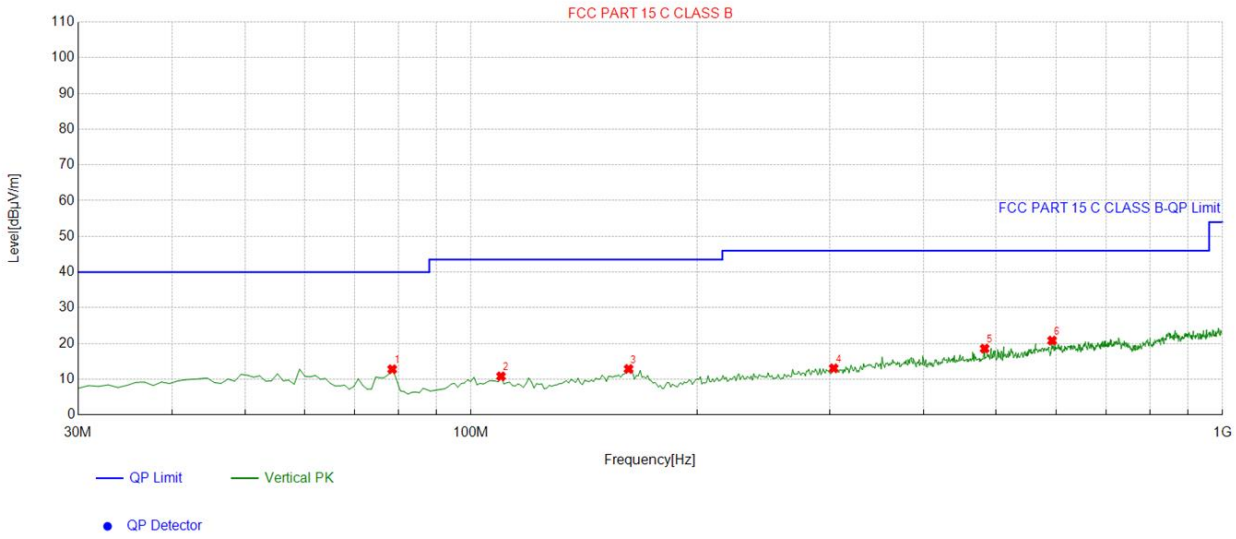
Antenna polarity: H



Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	78.548549	-17.92	27.95	10.03	40.00	29.97	100	151	Horizontal
2	108.64864	-14.02	24.87	10.85	43.50	32.65	100	126	Horizontal
3	171.76176	-16.84	26.23	9.39	43.50	34.11	100	81	Horizontal
4	243.61361	-13.32	25.80	12.48	46.00	33.52	100	64	Horizontal
5	356.24624	-10.15	26.14	15.99	46.00	30.01	100	304	Horizontal
6	630.06006	-4.95	25.34	20.39	46.00	25.61	100	251	Horizontal

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

Antenna polarity: V



Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	78.548549	-17.92	30.71	12.79	40.00	27.21	100	122	Vertical
2	109.61962	-14.22	25.04	10.82	43.50	32.68	100	192	Vertical
3	162.05205	-17.59	30.47	12.88	43.50	30.62	100	58	Vertical
4	303.81381	-11.87	24.93	13.06	46.00	32.94	100	242	Vertical
5	482.47247	-8.11	26.69	18.58	46.00	27.42	100	340	Vertical
6	593.16316	-5.37	26.19	20.82	46.00	25.18	100	202	Vertical

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

Harmonics and Spurious Emissions

Frequency Range (9 kHz-30MHz)

Frequency (MHz)	Level@3m (dBµV/m)	Limit@3m (dBµV/m)
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Note: *1. Emission Level=Reading+ Cable loss+ Antenna factor-Amp factor.*

2. The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement.

Above 1 GHz Test Results:

CH Low (2404MHz)

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2404	99.08	-5.84	93.24	114	-20.76	peak
2404	85.7	-5.84	79.86	94	-14.14	AVG
4808	53.00	-3.64	49.36	74	-24.64	peak
4808	38.22	-3.64	34.58	54	-19.42	AVG
7212	49.65	-0.95	48.7	74	-25.3	peak
7212	39.06	-0.95	38.11	54	-15.89	AVG
Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2404	102.67	-5.84	96.83	114	-17.17	peak
2404	79.4	-5.84	73.56	94	-20.44	AVG
4808	50.41	-3.64	46.77	74	-27.23	peak
4808	38.57	-3.64	34.93	54	-19.07	AVG
7212	48.36	-0.95	47.41	74	-26.59	peak
7212	38.87	-0.95	37.92	54	-16.08	AVG
Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level.						

CH Middle (2440MHz)

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2440	105.46	-5.71	99.75	114	-14.25	peak
2440	75.22	-5.71	69.51	94	-24.49	AVG
4880	46.46	-3.51	42.95	74	-31.05	peak
4880	42.31	-3.51	38.8	54	-15.2	AVG
7320	47.02	-0.82	46.2	74	-27.8	peak
7320	41.71	-0.82	40.89	54	-13.11	AVG
Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2440	102.46	-5.71	96.75	114	-17.25	peak
2440	81.55	-5.71	75.84	94	-18.16	AVG
4880	56.94	-3.51	53.43	74	-20.57	peak
4880	41.89	-3.51	38.38	54	-15.62	AVG
7320	51.15	-0.82	50.33	74	-23.67	peak
7320	41.13	-0.82	40.31	54	-13.69	AVG
Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level.						

CH High (2479MHz)

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2479	102.74	-5.65	97.09	114	-16.91	peak
2479	79.49	-5.65	73.84	94	-20.16	AVG
4958	53.37	-3.43	49.94	74	-24.06	peak
4958	42.33	-3.43	38.9	54	-15.1	AVG
7437	50.30	-0.75	49.55	74	-24.45	peak
7437	37.64	-0.75	36.89	54	-17.11	AVG
Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2479	104.47	-5.65	98.82	114	-15.18	peak
2479	80.66	-5.65	75.01	94	-18.99	AVG
4958	50.97	-3.43	47.54	74	-26.46	peak
4958	42.08	-3.43	38.65	54	-15.35	AVG
7437	49.00	-0.75	48.25	74	-25.75	peak
7437	42.03	-0.75	41.28	54	-12.72	AVG
Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level.						

Remark :
(1) Measuring frequencies from 1 GHz to the 25 GHz.
(2) “F” denotes fundamental frequency; “H” denotes spurious frequency; “E” denotes band edge frequency.
(3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
(4)The emissions are attenuated more than 20dB below the permissible limits are not record in the report.
(5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
(6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.
(7) All modes of operation were investigated and the worst-case emissions are reported.

5. Band Edge

5.1 Limits

FCC PART 15.249(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.

5.2 Test Procedure

The band edge compliance of RF radiated emission should be measured by following the guidance in ANSI C63.10 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW to 1MHz and VBM to 3MHz to measure the peak field strength and set RBW to 1MHz and VBW to 10Hz to measure the average radiated field strength. The conducted RF band edge was measured by using a spectrum analyzer. Set span wide enough to capture the highest in-band emission and the emission at the band edge. Set RBW to 1MHz and VBW to 3MHz, to measure the conducted peak band edge.

5.3 Test Result

PASS

Radiated Band Edge Test:

Operation Mode: TX CH Low (2404MHz)

Horizontal (Worst case):

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2310	55.87	-5.81	50.06	74	-23.94	peak
2310	/	-5.81	/	54	/	AVG
2390	53.16	-5.84	47.32	74	-26.68	peak
2390	/	-5.84	/	54	/	AVG
2400	50.94	-5.84	45.1	74	-28.9	peak
2400	/	-5.84	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2310	57.16	-5.81	51.35	74	-22.65	peak
2310	/	-5.81	/	54	/	AVG
2390	53.64	-5.84	47.8	74	-26.2	peak
2390	/	-5.84	/	54	/	AVG
2400	53.98	-5.84	48.14	74	-25.86	peak
2400	/	-5.84	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.						

Operation Mode: TX CH High (2479MHz)

Horizontal (Worst case):

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.50	55.21	-5.65	49.56	74	-24.44	peak
2483.50	/	-5.65	/	54	/	AVG
2500.00	53.62	-5.65	47.97	74	-26.03	peak
2500.00	/	-5.65	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.						

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.50	52.84	-5.65	47.19	74	-26.81	peak
2483.50	/	-5.65	/	54	/	AVG
2500.00	51.49	-5.65	45.84	74	-28.16	peak
2500.00	/	-5.65	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.						
Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.						

Remark:

1. If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.
2. In restricted bands of operation, the spurious emissions below the permissible value more than 20dB.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

6. Occupied Bandwidth Measurement

6.1 Test Setup

Same as Radiated Emission Measurement

6.2 Test Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set EUT as normal operation.
3. Based on ANSI C63.10 section 6.9.2: RBW=10KHz. VBW= 30KHz, Span= 3MHz.
4. The useful radiated emission from the EUT was detected by the spectrum analyzer with peak detector.

6.3 Measurement Equipment Used

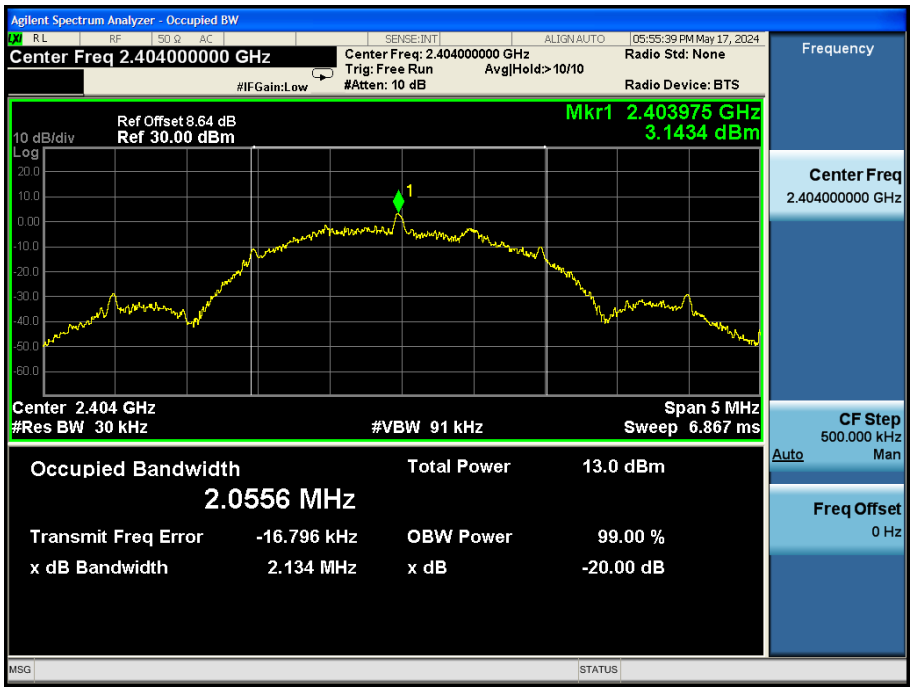
Same as Radiated Emission Measurement

6.4 Test Result

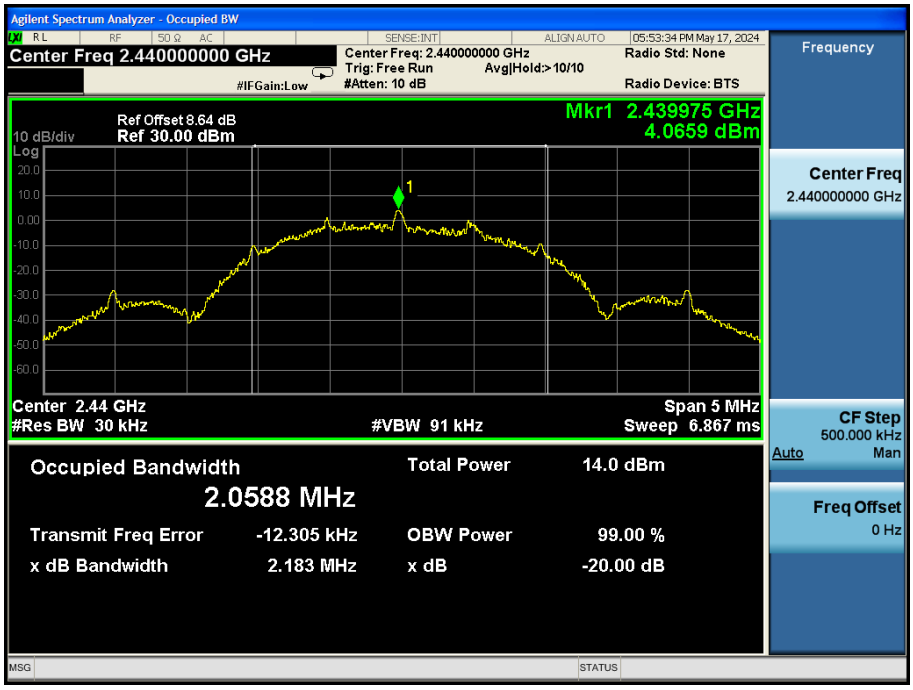
PASS

Frequency	20dB Bandwidth (MHz)	Result
2404 MHz	2.134	**PASS**
2440 MHz	2.183	**PASS**
2479MHz	2.133	**PASS**

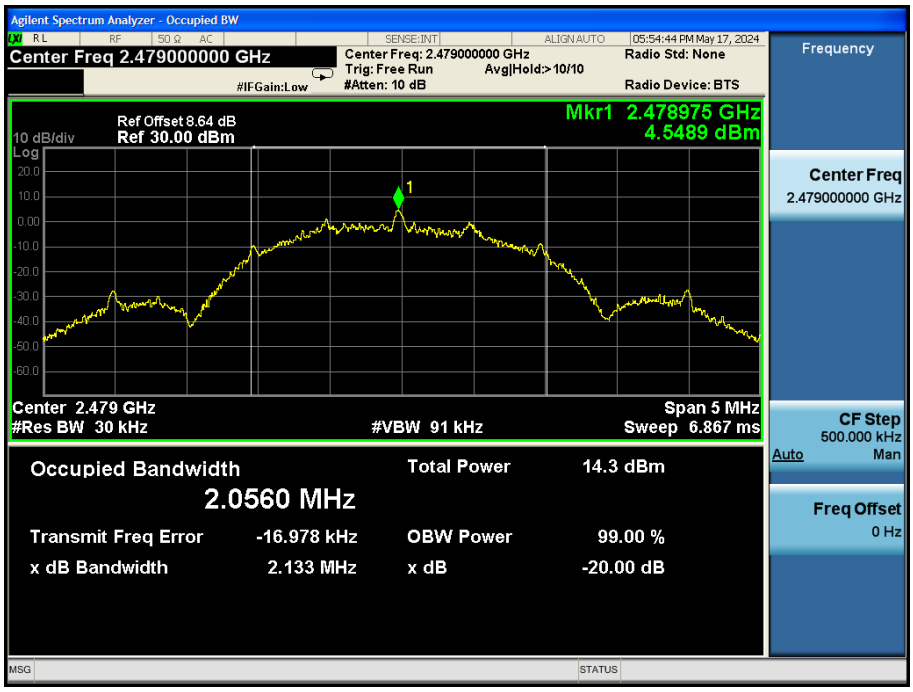
CH: 2404MHz



CH: 2440MHz



CH: 2479MHz



7. Antenna Requirement

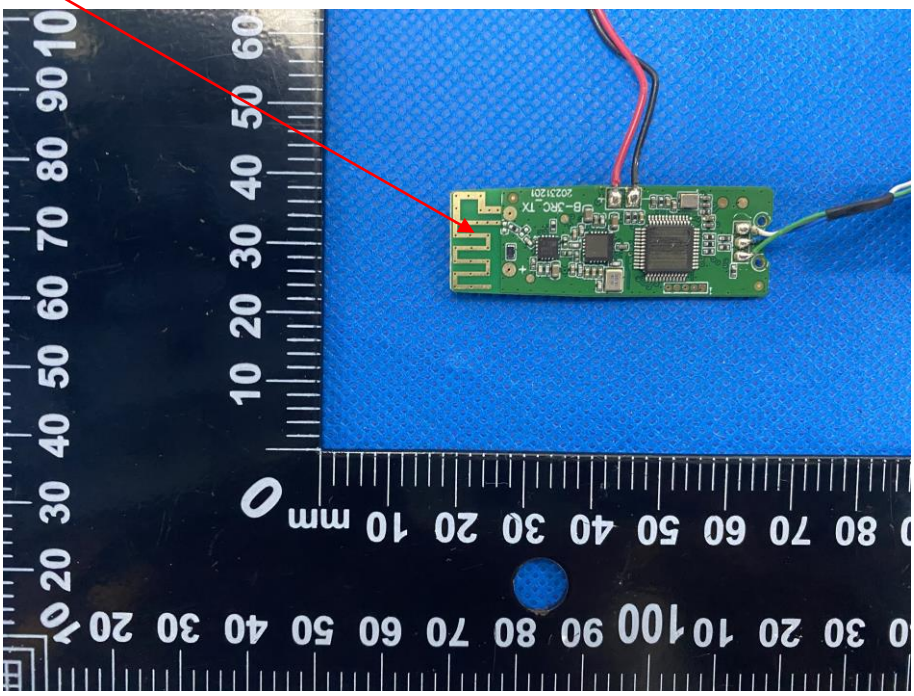
Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, 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.

Antenna Connected Construction

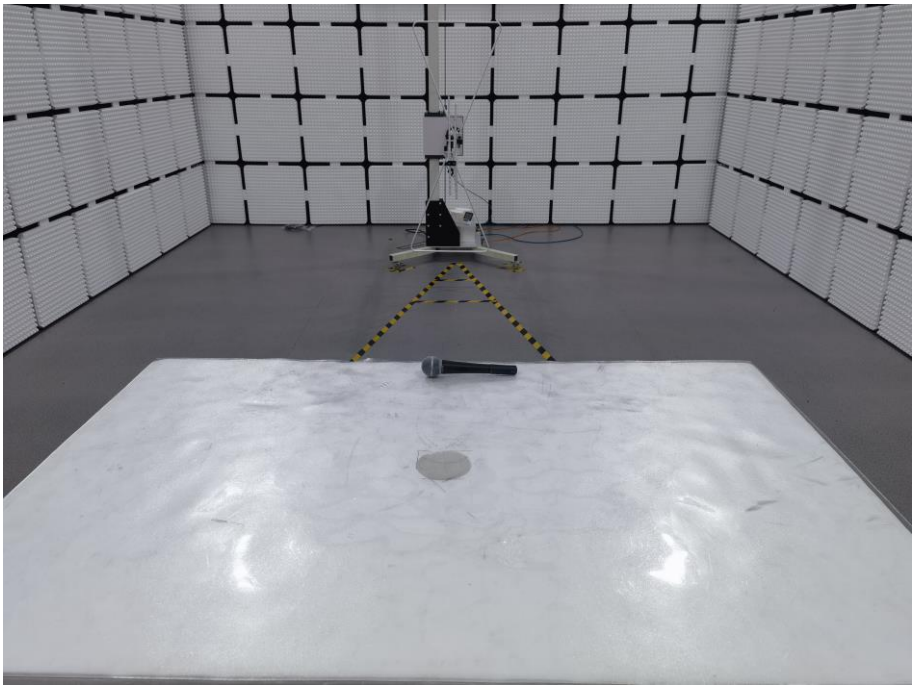
The antenna used in this product is a PCB antenna, which permanently attached. It conforms to the standard requirements. The directional gains of antenna used for transmitting is 5.09dBi.

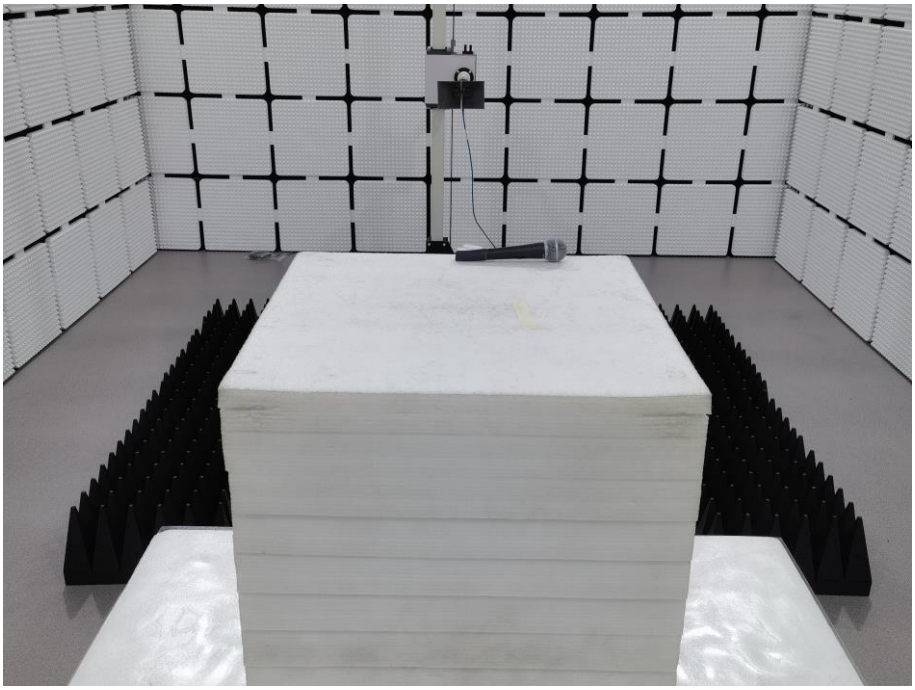
Antenna



8. Photographs of Test

Radiated Emission





Conducted Emission

9. Photos of the EUT

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

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