



FCC Part 15C Test Report

FCC ID: 2BV58-B54

Applicant: Guangdong Zaoqufang Technology Industrial Co., LTD

Address: 3rd Floor, No.1, Yuan Lin 3rd Road, Lian Xia Town, Chenghai District, Shantou City, Guangdong Province, China

Manufacturer: Guangdong Zaoqufang Technology Industrial Co., LTD

Address: 3rd Floor, No.1, Yuan Lin 3rd Road, Lian Xia Town, Chenghai District, Shantou City, Guangdong Province, China

Product Name: BUBBLE TOYS

Trade Mark: N/A

Model Number: B54, B54-01, B54-02, B54-03, B54-04, B54-05, B54-06, B54-07, B54-08, B54-09, B54-10, B54-11, B54-12, B54-13, B54-14, B54-15, B54-16, B54-17, B54-18, B54-19, B54-20

Date of Receipt: Mar. 04, 2026

Test Date: Mar. 04, 2026 ~ May 19, 2026

Date of Report: May 19, 2026

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 Rules and Regulations Part 15 Subpart C Section 15.249
ANSI C63.10: 2020

Test Result: Pass

Report Number: DLE-260519012R

Prepared by(Engineer): Ken Tan

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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**** Issued History ****

Revision	Description	Issued Date	Remark
Revision 1.0	Initial Test Report Release	May 19, 2026	



1. Summary

1.1 Test Procedures and Results

DESCRIPTION OF TEST	SECTION NUMBER	RESULT
AC CONDUCTED EMISSIONS TEST	15.207	N/A
RADIATED EMISSION TEST	15.249(a)/15.209	PASS
BAND EDGE	15.249(d)/15.205	PASS
OCCUPIED BANDWIDTH MEASUREMENT	15.215(c)	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 DL Testing Technology Co., Ltd.

Add: 101-201, Comprehensive Building, Tongzhou Electronics Longgang Factory Area, No.1
Baolong Fifth Road, Baolong Community, Baolong Street, Longgang District, Shenzhen, China

1.3 Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately **95%**.

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 2.56\text{dB}$
2	RF power, conducted	$\pm 0.42\text{dB}$
3	Spurious emissions, conducted	$\pm 2.76\text{dB}$
4	All emissions, radiated(<1G)	$\pm 3.65\text{dB}$
5	All emissions, radiated(>1G)	$\pm 4.89\text{dB}$
6	Temperature	$\pm 0.5^{\circ}\text{C}$
7	Humidity	$\pm 2\%$
8	6dB Bandwidth	$\pm 0.2\text{MHz}$
9	Power Spectral Density	$\pm 0.3\text{dBm}$



2. General Information

2.1 General Description of EUT

Equipment:	BUBBLE TOYS
Model Name:	B54
Series Model(s):	B54-01, B54-02, B54-03, B54-04, B54-05, B54-06, B54-07, B54-08, B54-09, B54-10, B54-11, B54-12, B54-13, B54-14, B54-15, B54-16, B54-17, B54-18, B54-19, B54-20
Model Difference:	All model's the function, software and electric circuit are the same, only product model named different. Test sample model: B54.
Antenna Type:	PCB antenna
Antenna Gain:	-8.81dBi
Operation Frequency:	2407-2470MHz
Number of Channels:	64CH
Modulation Type:	GFSK
Power Source:	DC3V from Battery
Power Rating:	DC3V 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)	Channel	Frequency (MHz)
1	2407	23	2429	45	2451
2	2408	24	2430	46	2452
3	2409	25	2431	47	2453
4	2410	26	2432	48	2454
5	2411	27	2433	49	2455
6	2412	28	2434	50	2456
7	2413	29	2435	51	2457
8	2414	30	2436	52	2458
9	2415	31	2437	53	2459
10	2416	32	2438	54	2460
11	2417	33	2439	55	2461
12	2418	34	2440	56	2462
13	2419	35	2441	57	2463
14	2420	36	2442	58	2464
15	2421	37	2443	59	2465
16	2422	38	2444	60	2466
17	2423	39	2445	61	2467
18	2424	40	2446	62	2468
19	2425	41	2447	63	2469
20	2426	42	2448	64	2470
21	2427	43	2449		
22	2428	44	2450		

2.3 Operation of EUT during Testing

Operating Mode

The mode is used: **Transmitting mode**

Low Channel: 2407MHz

Middle Channel: 2438MHz

High Channel: 2470MHz

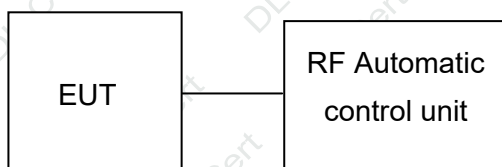


2.4 Description of Test Setup

Operation of EUT during Radiation testing:



Operation of EUT during RF Conducted 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	BUBBLE TOYS	N/A	B54	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.
3. For conducted measurements (20dB 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.



2.6 Measurement Instruments List

Radiation test, Band-edge test and 6db bandwidth test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	Agilent	E4408B	MY50140780	Oct. 25, 2025	Oct. 24, 2026
2	Test Receiver (9kHz-7GHz)	R&S	ESRP7	101393	Oct. 25, 2025	Oct. 24, 2026
3	Bilog Antenna (30MHz-1GHz)	R&S	VULB9162	00306	Oct. 25, 2025	Oct. 24, 2026
4	Horn Antenna (1GHz-18GHz)	Schwarzbeck	BBHA9120D	02139	Oct. 25, 2025	Oct. 24, 2026
5	Horn Antenna (18GHz-40GHz)	A.H. Systems	SAS-574	588	Oct. 25, 2025	Oct. 24, 2026
6	Amplifier (9KHz-6GHz)	Schwarzbeck	BBV9743B	00153	Oct. 25, 2025	Oct. 24, 2026
7	Amplifier (1GHz-18GHz)	EMEC	EM01G8GA	00270	Oct. 25, 2025	Oct. 24, 2026
8	Amplifier (18GHz-40GHz)	Quanjuda	DLE-161	97	Oct. 25, 2025	Oct. 24, 2026
9	Loop Antenna (9KHz-30MHz)	Schwarzbeck	FMZB1519B	00014	Oct. 25, 2025	Oct. 24, 2026
10	RF cables1 (9kHz-1GHz)	ChengYu	966	004	Oct. 25, 2025	Oct. 24, 2026
11	RF cables2 (1GHz-40GHz)	ChengYu	966	003	Oct. 25, 2025	Oct. 24, 2026
12	Antenna connector	Florida RF Labs	N/A	RF 01#	Oct. 25, 2025	Oct. 24, 2026
13	Power probe	KEYSIGHT	U2021XA	MY55210018	Oct. 25, 2025	Oct. 24, 2026
14	Signal Analyzer 9kHz-26.5GHz	Agilent	N9020A	MY55370280	Oct. 25, 2025	Oct. 24, 2026
15	Test Receiver 20kHz-40GHz	R&S	ESU 40	100376	Oct. 25, 2025	Oct. 24, 2026
16	D.C. Power Supply	LongWei	PS-305D	010964729	Oct. 25, 2025	Oct. 24, 2026

Conduction Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	843 Shielded Room	ChengYu	843 Room	843	Nov. 05, 2023	Nov. 04, 2026
2	EMI Receiver	R&S	ESR	101421	Oct. 25, 2025	Oct. 24, 2026
3	LISN	R&S	ENV216	102417	Oct. 25, 2025	Oct. 24, 2026
4	843 Cable 1#	ChengYu	CE Cable	001	Oct. 25, 2025	Oct. 24, 2026

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. AC Conducted Emissions Test

3.1 Limit

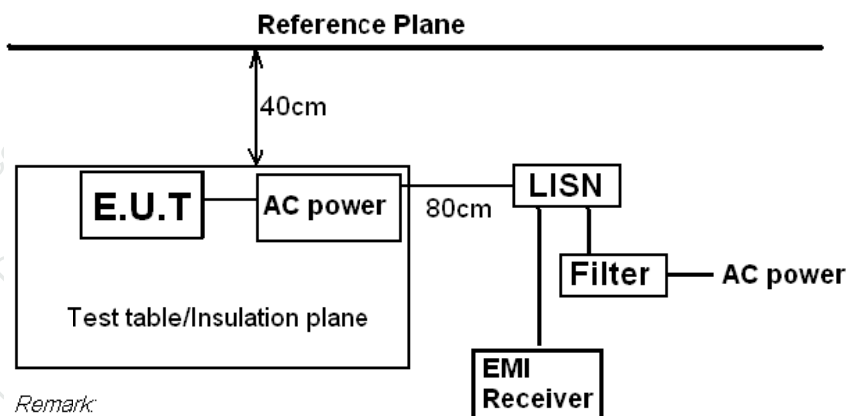
For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following.

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 Impedance 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

Not applicable.

Note: EUT power supply by battery powered, so this test item not applicable.



4. Radiated Emission Test

4.1 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	$20\log 2400/F$ (kHz)	2400/F (kHz)
0.490-1.705	30	$20\log 24000/F$ (kHz)	24000/F (kHz)
1.705-30	30	$20\log 30$	30
30-88	3	40	100
88-216	3	43.5	150
216-960	3	46	200
Above 960	3	54	500

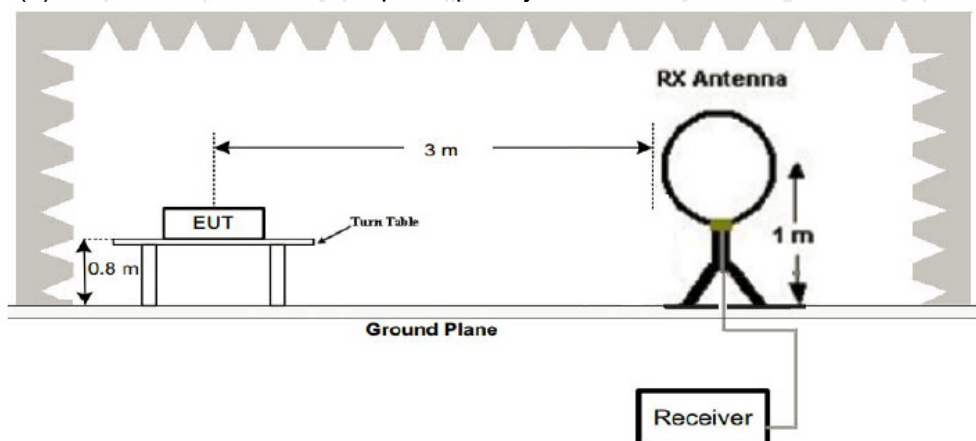
For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

For unintentional device, according to § 15.249(a), Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

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

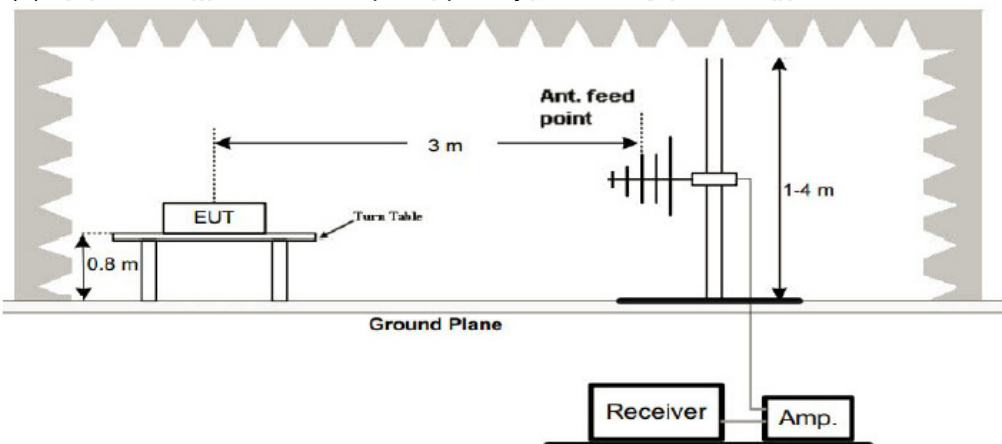
4.2 Test Setup

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

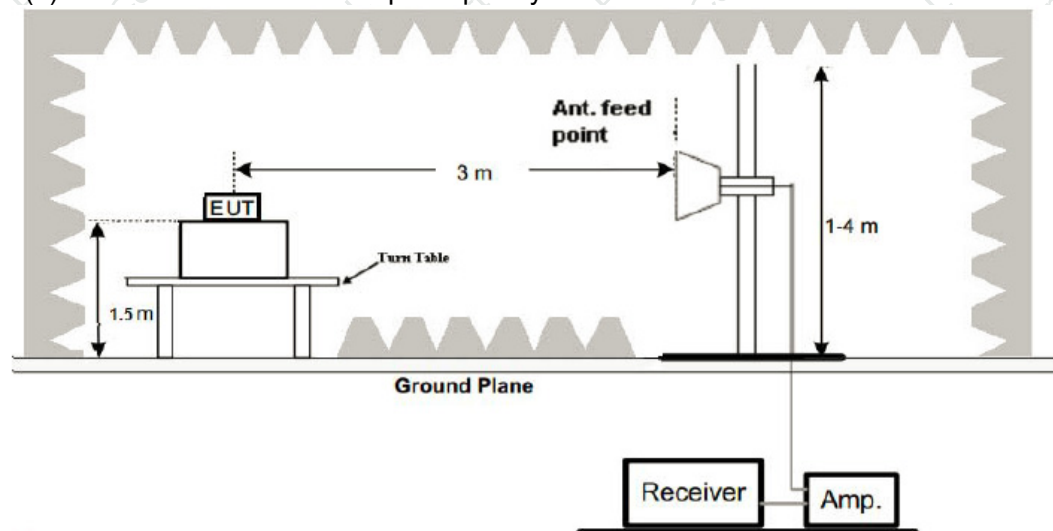




(2) Radiated Emission Test-Up Frequency 30MHz~1GHz



(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 26GHz per FCC PART 15.33(a).

Note:

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

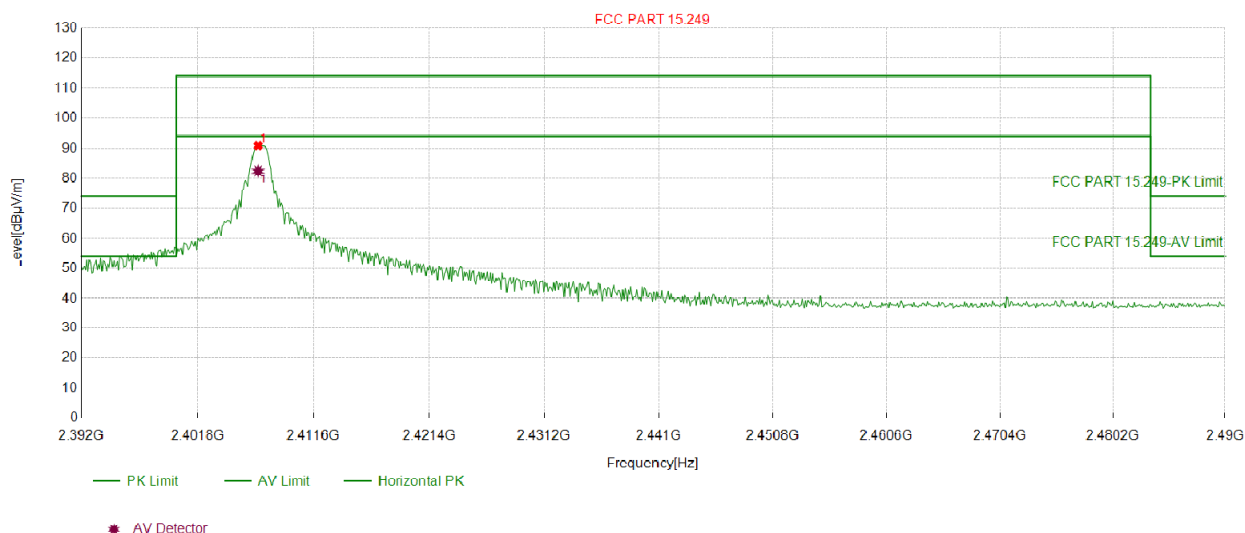


4.4 Test Result

Field strength of fundamental:

Operation Mode: TX CH Low (2407MHz)

Antenna polarity: Horizontal



Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2406.911	105.35	90.99	-14.36	114.00	23.01	150	146	Horizontal

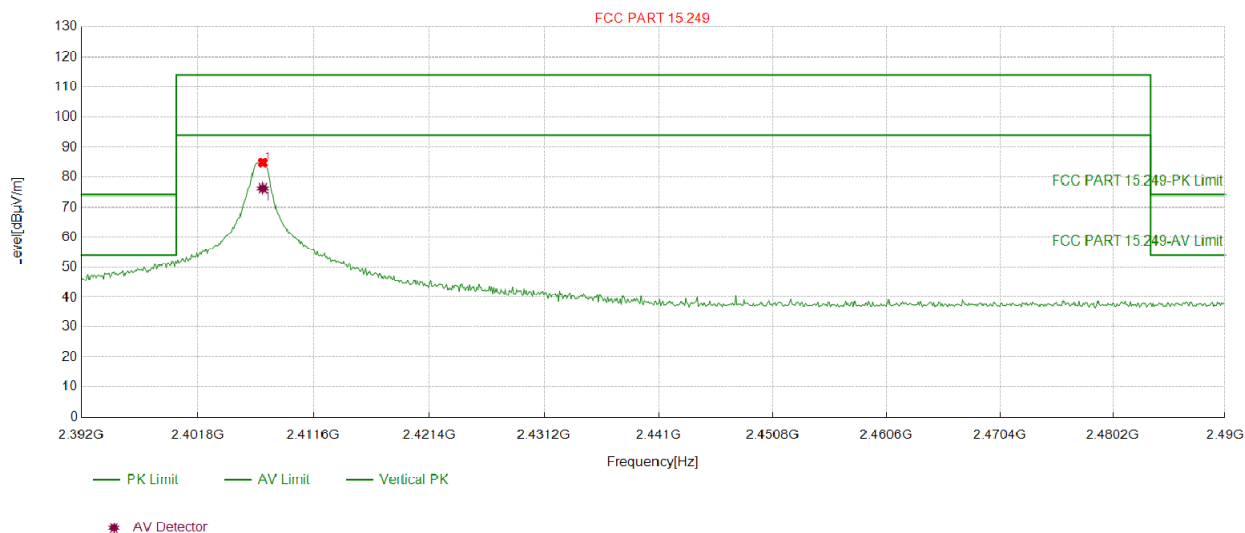
AV Final Data List

NO	Freq. [MHz]	Factor [dB]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2406.911	-14.36	82.43	94.00	11.57	150	146	Horizontal

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



Antenna polarity: Vertical

**Suspected Data List**

NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2407.303	99.08	84.71	-14.37	114.00	29.29	150	318	Vertical

AV Final Data List

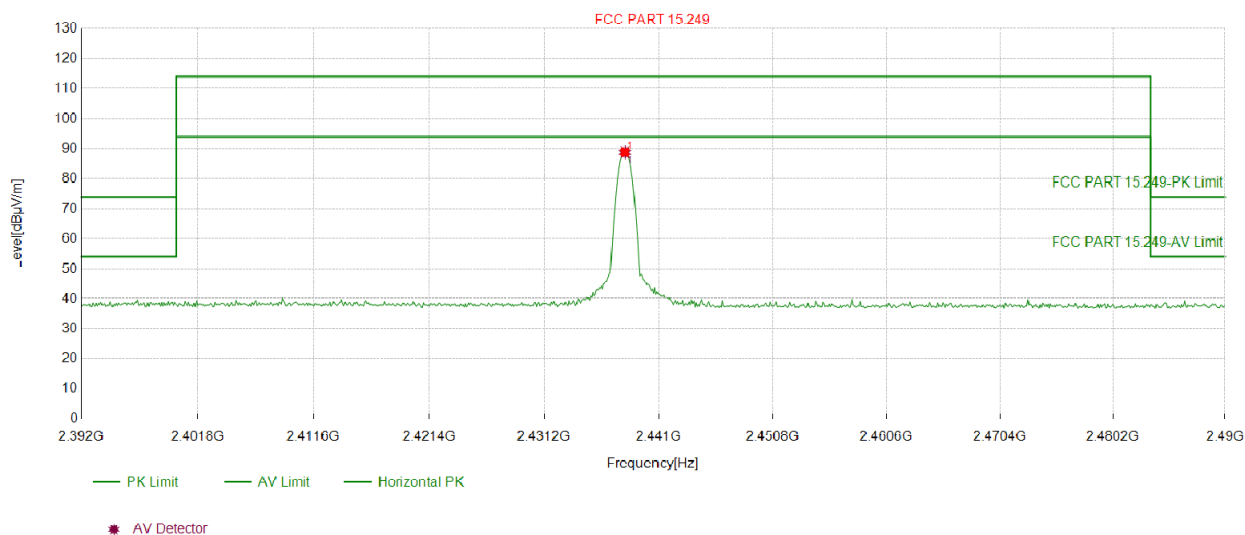
NO	Freq. [MHz]	Factor [dB]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2407.303	-14.37	76.14	94.00	17.86	150	318	Vertical

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



Operation Mode: TX CH Middle (2438MHz)

Antenna polarity: Horizontal

**Suspected Data List**

NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2438.106	103.37	88.83	-14.54	114.00	25.17	150	148	Horizontal

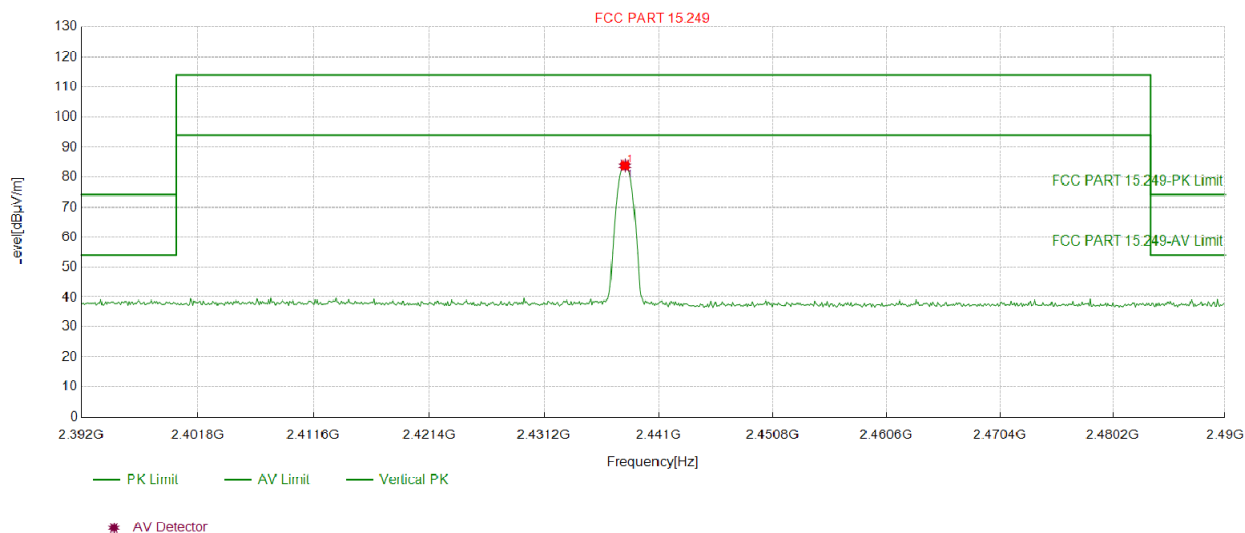
AV Final Data List

NO	Freq. [MHz]	Factor [dB]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2438.106	-14.54	88.75	94.00	5.25	150	148	Horizontal

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



Antenna polarity: Vertical



Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2438.106	98.37	83.83	-14.54	114.00	30.17	150	49	Vertical

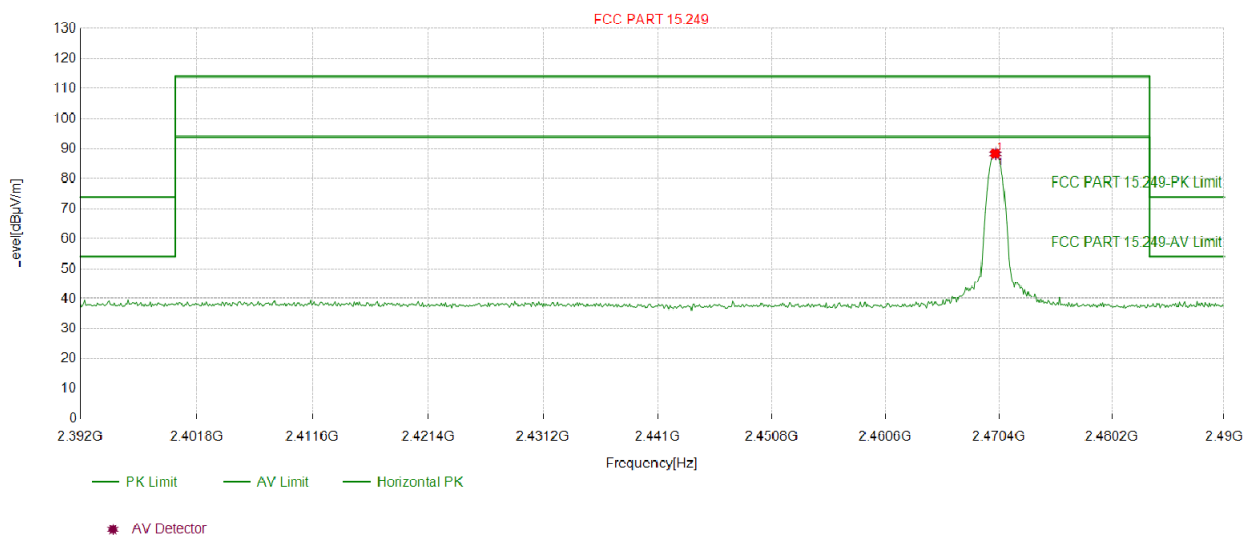
AV Final Data List								
NO	Freq. [MHz]	Factor [dB]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2438.106	-14.54	83.74	94.00	10.26	150	49	Vertical

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



Operation Mode: TX CH High (2470MHz)

Antenna polarity: Horizontal

**Suspected Data List**

NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2470.086	103.03	88.35	-14.68	114.00	25.65	150	148	Horizontal

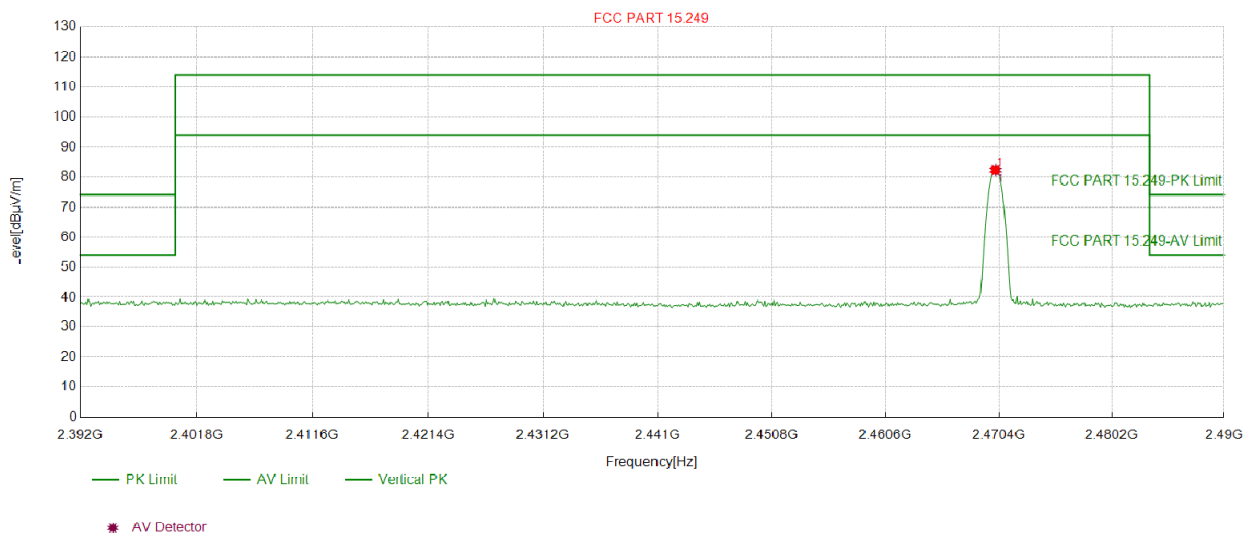
AV Final Data List

NO	Freq. [MHz]	Factor [dB]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2470.111	-14.68	88.23	94.00	5.77	150	148	Horizontal

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



Antenna polarity: Vertical

**Suspected Data List**

NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2470.086	96.98	82.30	-14.68	114.00	31.70	150	91	Vertical

AV Final Data List

NO	Freq. [MHz]	Factor [dB]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2470.111	-14.68	82.24	94.00	11.76	150	91	Vertical

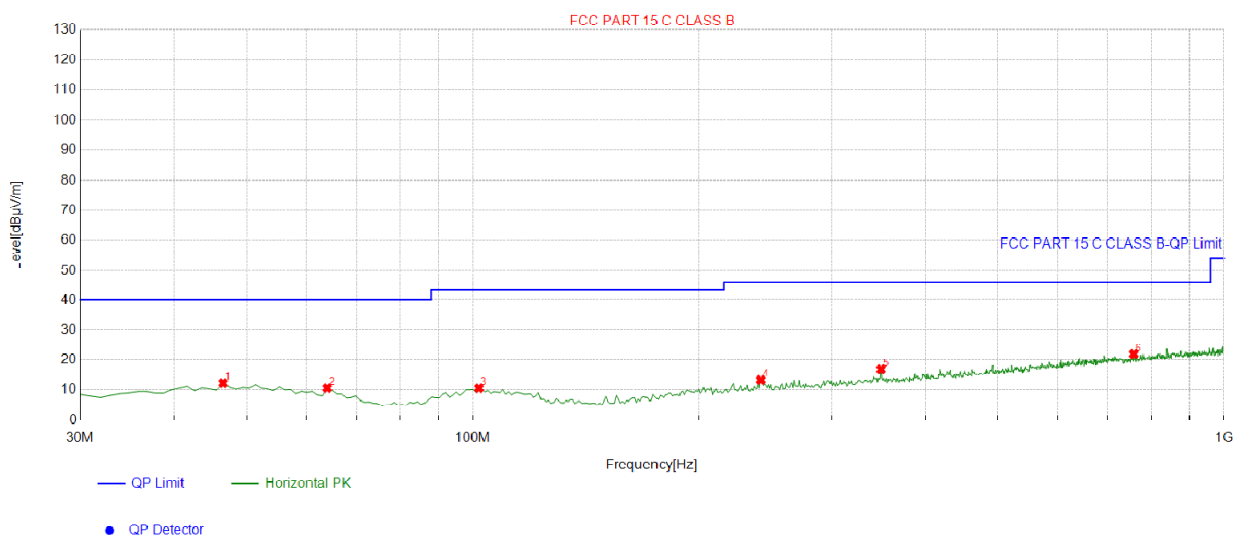
Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level



All the test modes completed for test. Only the worst result was reported as below:

Below 1GHz Test Results

Antenna polarity: Horizontal

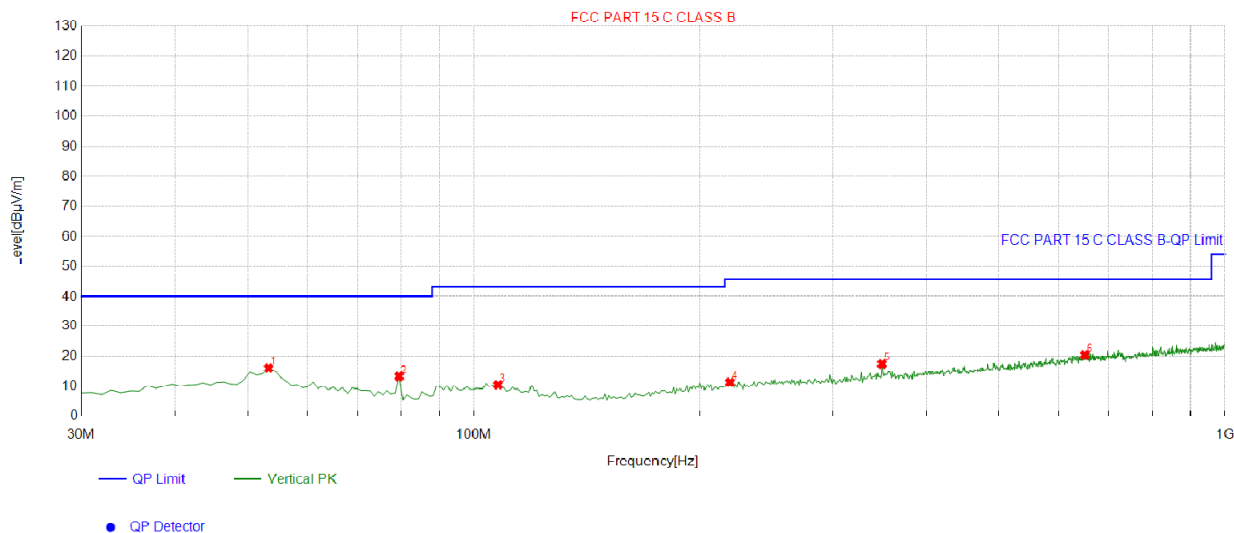


Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	46.507	-12.74	25.05	12.31	40.00	27.69	100	144	Horizontal
2	63.984	-14.88	25.51	10.63	40.00	29.37	100	119	Horizontal
3	101.852	-14.41	25.00	10.59	43.50	32.91	100	52	Horizontal
4	241.672	-13.42	26.76	13.34	46.00	32.66	100	89	Horizontal
5	349.449	-10.54	27.52	16.98	46.00	29.02	100	0	Horizontal
6	758.228	-3.10	25.26	22.16	46.00	23.84	100	107	Horizontal

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



Antenna polarity: Vertical



Suspected List

NO.	Freq. [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	53.303	-12.97	29.17	16.20	40.00	23.80	100	116	Vertical
2	79.520	-18.65	32.09	13.44	40.00	26.56	100	154	Vertical
3	107.678	-14.52	25.14	10.62	43.50	32.88	100	360	Vertical
4	219.339	-14.32	25.78	11.46	46.00	34.54	100	260	Vertical
5	349.449	-10.54	28.21	17.67	46.00	28.33	100	288	Vertical
6	650.450	-4.77	25.37	20.60	46.00	25.40	100	356	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.

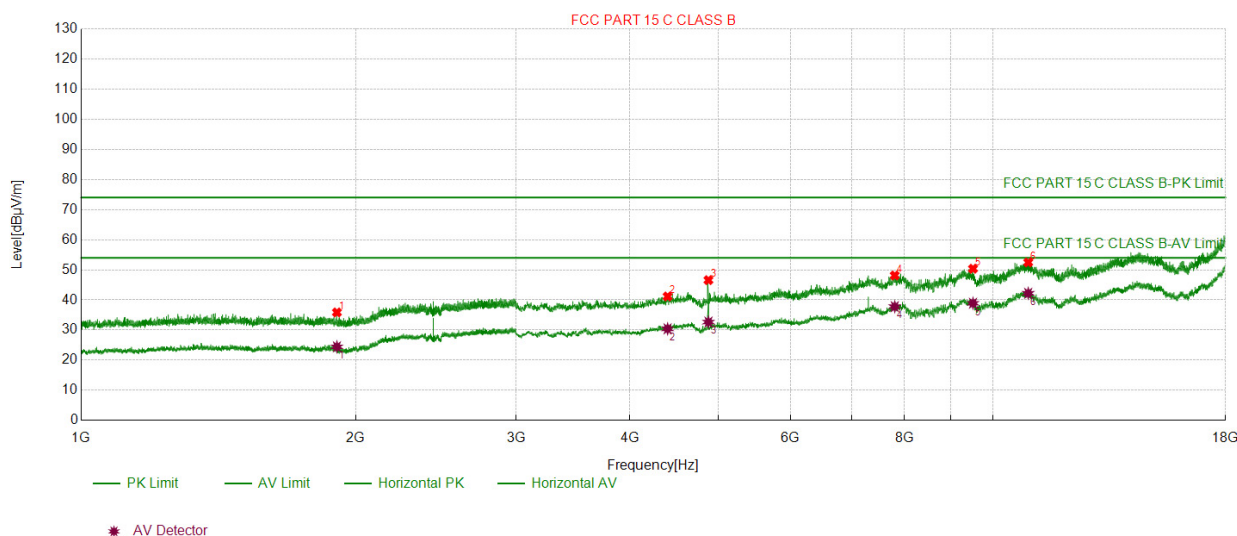


Above 1GHz Test Results

All the test modes completed for test. Only the worst result was reported as below:

For 1GHz to 18GHz

Antenna polarity: Horizontal



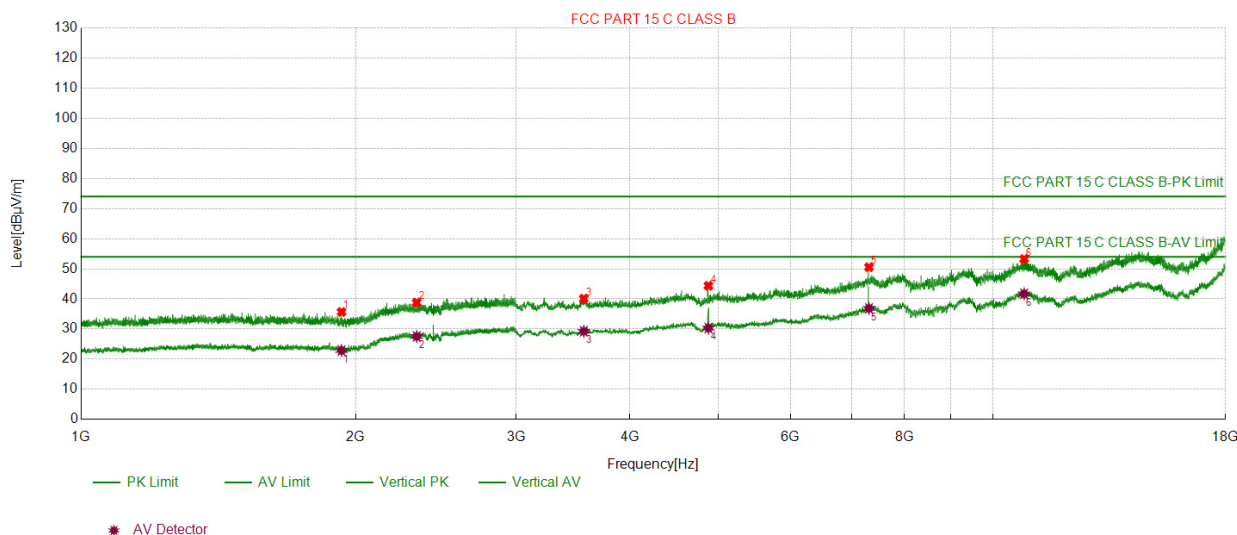
Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1907.891	52.84	35.88	-16.96	74.00	38.12	150	358	Horizontal
2	4398.140	52.02	41.17	-10.85	74.00	32.83	150	253	Horizontal
3	4876.688	56.23	46.59	-9.64	74.00	27.41	150	112	Horizontal
4	7806.481	51.13	48.14	-2.99	74.00	25.86	150	94	Horizontal
5	9512.151	50.31	50.37	0.06	74.00	23.63	150	28	Horizontal
6	10935.794	49.58	52.47	2.89	74.00	21.53	150	314	Horizontal

AV Final Data List								
NO	Freq. [MHz]	Factor [dB]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1907.891	-16.96	24.45	54.00	29.55	150	358	Horizontal
2	4398.140	-10.85	30.42	54.00	23.58	150	253	Horizontal
3	4876.688	-9.64	32.66	54.00	21.34	150	112	Horizontal
4	7806.481	-2.99	37.78	54.00	16.22	150	94	Horizontal
5	9512.151	0.06	38.90	54.00	15.10	150	28	Horizontal
6	10935.794	2.89	42.21	54.00	11.79	150	314	Horizontal

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



Antenna polarity: Vertical



Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1930.293	52.55	35.69	-16.86	74.00	38.31	150	296	Vertical
2	2333.933	53.32	38.82	-14.50	74.00	35.18	150	332	Vertical
3	3559.556	52.97	40.11	-12.86	74.00	33.89	150	319	Vertical
4	4876.688	54.04	44.40	-9.64	74.00	29.60	150	119	Vertical
5	7314.431	54.28	50.56	-3.72	74.00	23.44	150	101	Vertical
6	10824.782	50.78	53.27	2.49	74.00	20.73	150	29	Vertical

AV Final Data List

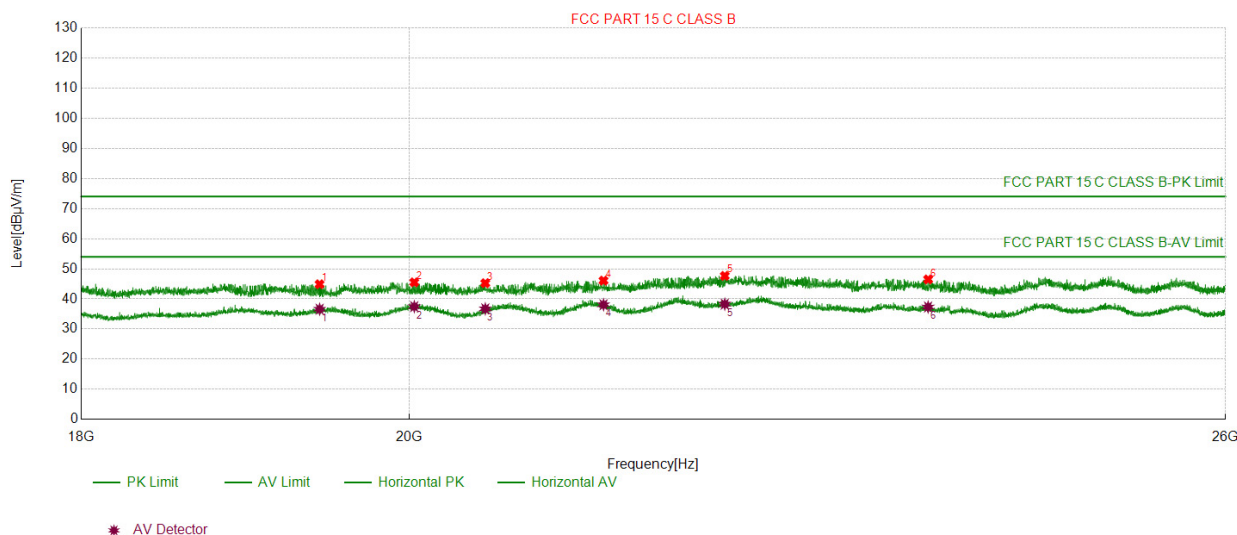
NO	Freq. [MHz]	Factor [dB]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1930.293	-16.86	22.87	54.00	31.13	150	296	Vertical
2	2333.933	-14.50	27.56	54.00	26.44	150	332	Vertical
3	3559.556	-12.86	29.27	54.00	24.73	150	319	Vertical
4	4876.688	-9.64	30.34	54.00	23.66	150	119	Vertical
5	7314.431	-3.72	36.87	54.00	17.13	150	101	Vertical
6	10824.782	2.49	41.71	54.00	12.29	150	29	Vertical

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



For 18GHz to 26GHz

Antenna polarity: Horizontal



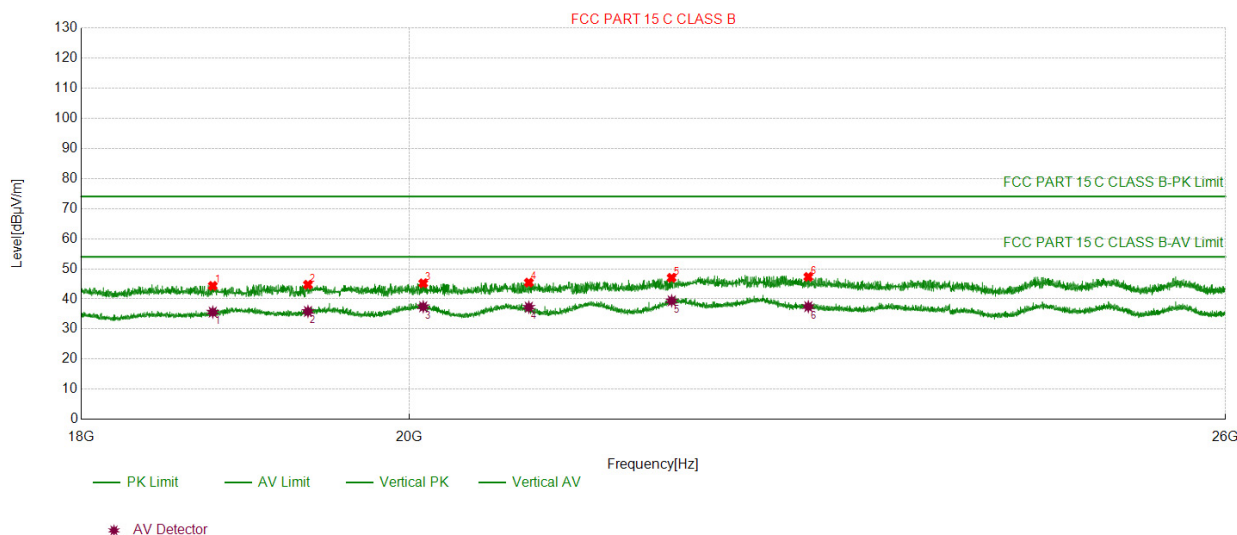
Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	19433.743	38.83	44.89	6.06	74.00	29.11	150	350	Horizontal
2	20033.803	39.33	45.52	6.19	74.00	28.48	150	310	Horizontal
3	20496.250	39.26	45.24	5.98	74.00	28.76	150	110	Horizontal
4	21289.929	40.82	46.10	5.28	74.00	27.90	150	300	Horizontal
5	22135.614	41.93	47.67	5.74	74.00	26.33	150	270	Horizontal
6	23630.163	40.90	46.50	5.60	74.00	27.50	150	160	Horizontal

AV Final Data List								
NO	Freq. [MHz]	Factor [dB]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	19433.743	6.06	36.61	54.00	17.39	150	350	Horizontal
2	20033.803	6.19	37.46	54.00	16.54	150	310	Horizontal
3	20496.250	5.98	36.73	54.00	17.27	150	110	Horizontal
4	21289.929	5.28	38.09	54.00	15.91	150	300	Horizontal
5	22135.614	5.74	38.28	54.00	15.72	150	270	Horizontal
6	23630.163	5.60	37.34	54.00	16.66	150	160	Horizontal

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



Antenna polarity: Vertical

**Suspected Data List**

NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18777.678	38.83	44.35	5.52	74.00	29.65	150	170	Vertical
2	19360.936	38.70	44.73	6.03	74.00	29.27	150	270	Vertical
3	20091.409	39.04	45.19	6.15	74.00	28.81	150	160	Vertical
4	20785.079	39.78	45.44	5.66	74.00	28.56	150	340	Vertical
5	21761.176	41.50	47.02	5.52	74.00	26.98	150	80	Vertical
6	22738.074	41.79	47.33	5.54	74.00	26.67	150	200	Vertical

AV Final Data List

NO	Freq. [MHz]	Factor [dB]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18777.678	5.52	35.63	54.00	18.37	150	170	Vertical
2	19360.936	6.03	35.86	54.00	18.14	150	270	Vertical
3	20091.409	6.15	37.42	54.00	16.58	150	160	Vertical
4	20785.079	5.66	37.27	54.00	16.73	150	340	Vertical
5	21761.176	5.52	39.39	54.00	14.61	150	80	Vertical
6	22738.074	5.54	37.46	54.00	16.54	150	200	Vertical

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



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

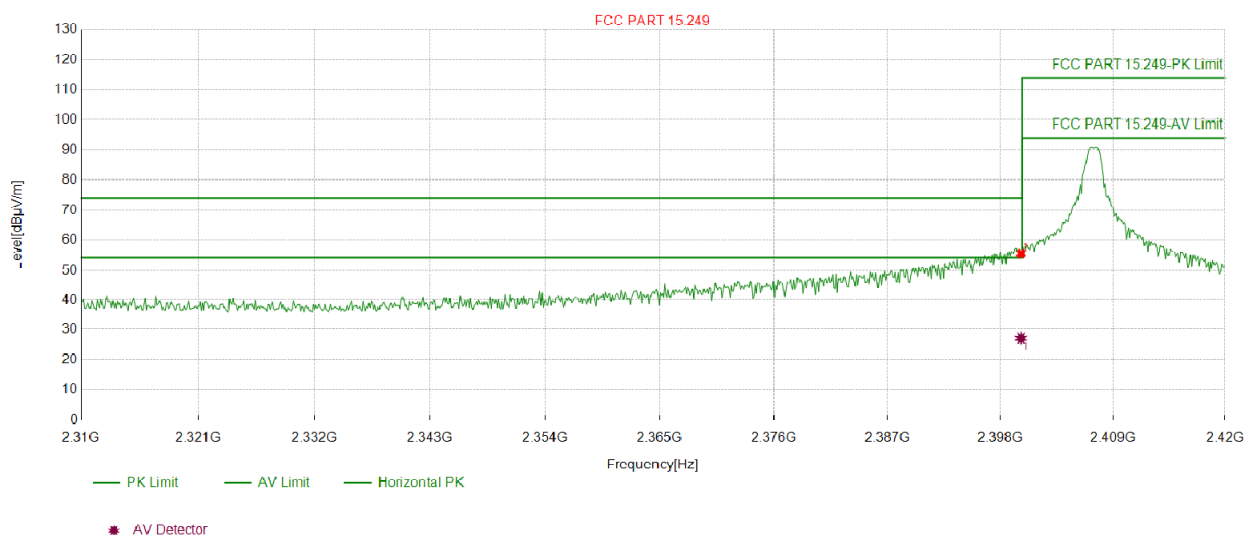
The band edge compliance of RF radiated emission should be measured by following the guidance in ANSI C63.10 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc.



5.3 Test Result

Operation Mode: TX CH Low (2407MHz)

Antenna polarity: Horizontal



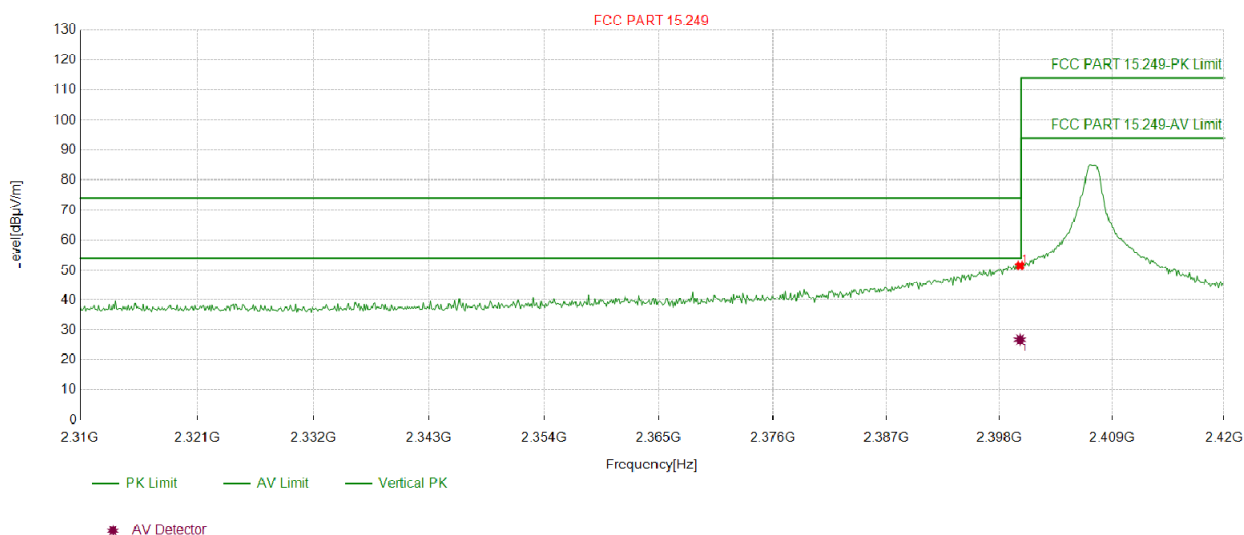
Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2400.000	69.68	55.35	-14.33	74.00	18.65	150	128	Horizontal

AV Final Data List								
NO	Freq. [MHz]	Factor [dB]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2400.000	-14.33	27.33	54.00	26.67	150	128	Horizontal

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



Antenna polarity: Vertical

**Suspected Data List**

NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2400.000	65.87	51.54	-14.33	74.00	22.46	150	40	Vertical

AV Final Data List

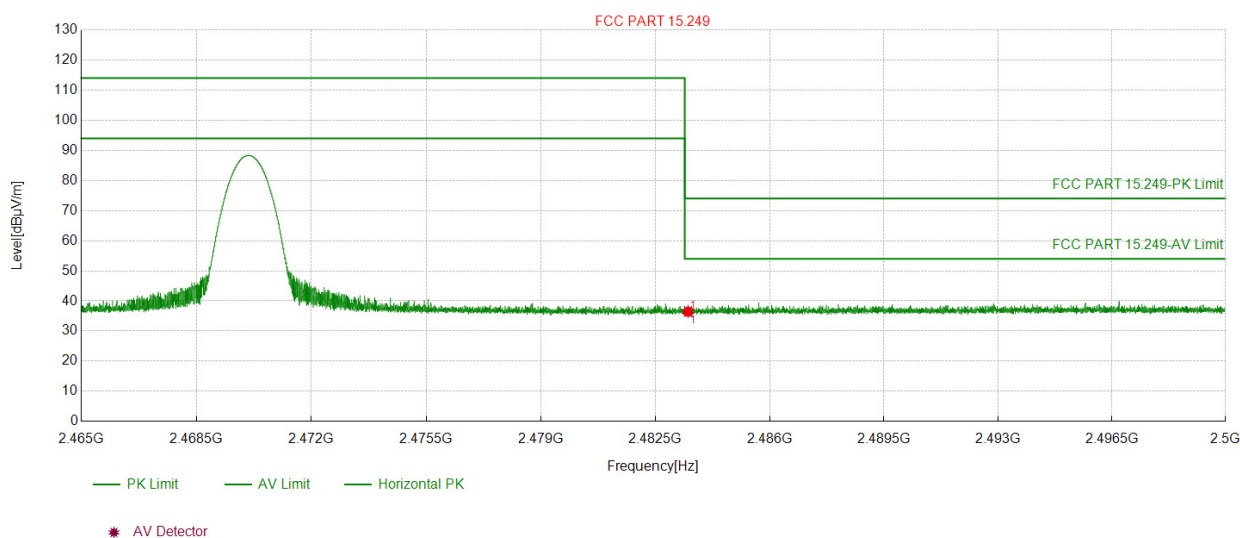
NO	Freq. [MHz]	Factor [dB]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2400.000	-14.33	26.97	54.00	27.03	150	40	Vertical

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



Operation Mode: TX CH High (2470MHz)

Antenna polarity: Horizontal

**Suspected Data List**

NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2483.500	51.10	36.38	-14.72	74.00	37.62	150	216	Horizontal

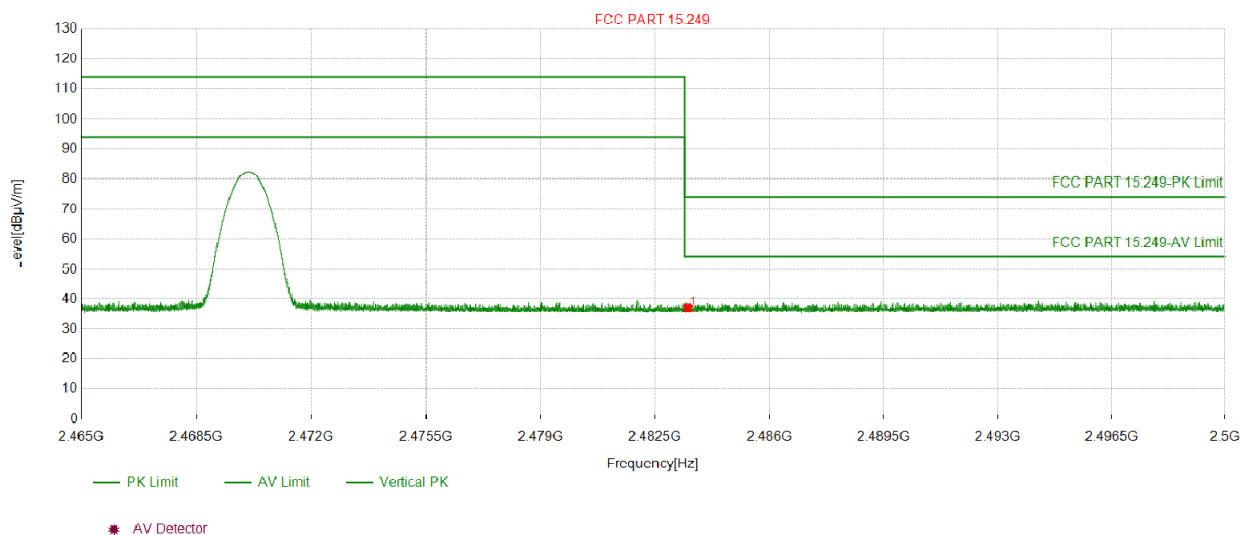
AV Final Data List

NO	Freq. [MHz]	Factor [dB]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2483.500	-14.72	36.51	54.00	17.49	150	216	Horizontal

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



Antenna polarity: Vertical

**Suspected Data List**

NO.	Freq. [MHz]	Reading [dBuV/m]	PK Level [dBuV/m]	Factor [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2483.500	51.68	36.96	-14.72	74.00	37.04	150	198	Vertical

AV Final Data List

NO	Freq. [MHz]	Factor [dB]	AV Value [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2483.500	-14.72	36.83	54.00	17.17	150	198	Vertical

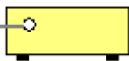
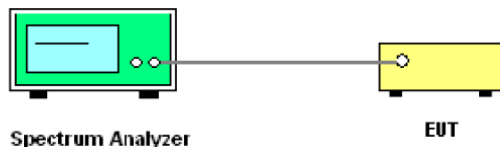
Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

Note: 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.



6. Occupied Bandwidth Measurement

6.1 Test Setup



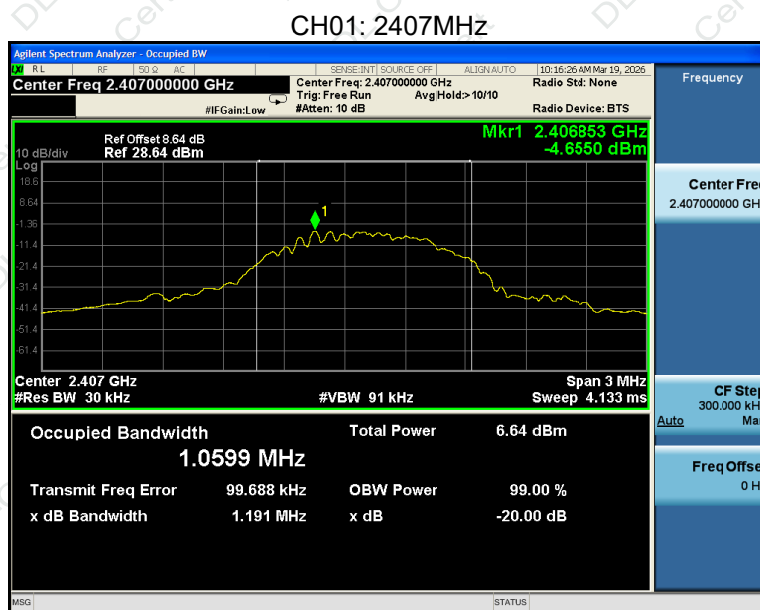
6.2 Test Procedure

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 Transmitting 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.

6.3 Test Result

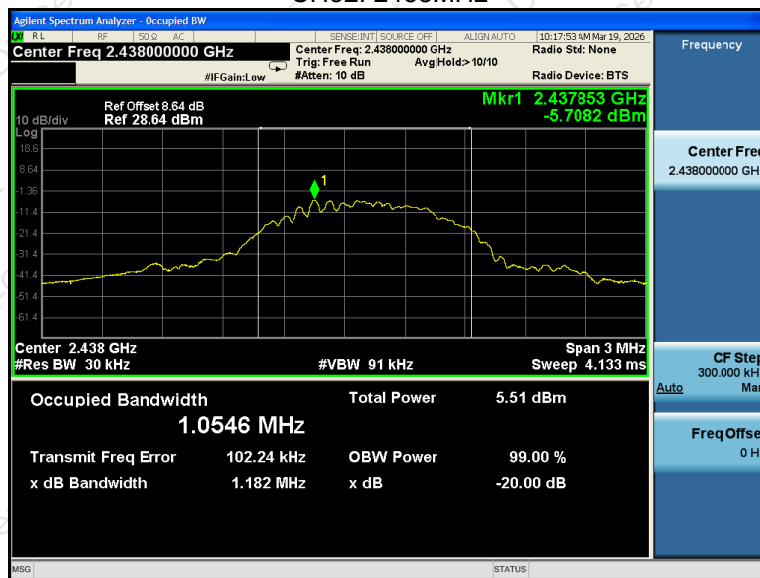
PASS

Frequency	20dB Bandwidth (MHz)	Result
2407 MHz	1.191	PASS
2438 MHz	1.182	PASS
2470 MHz	1.185	PASS

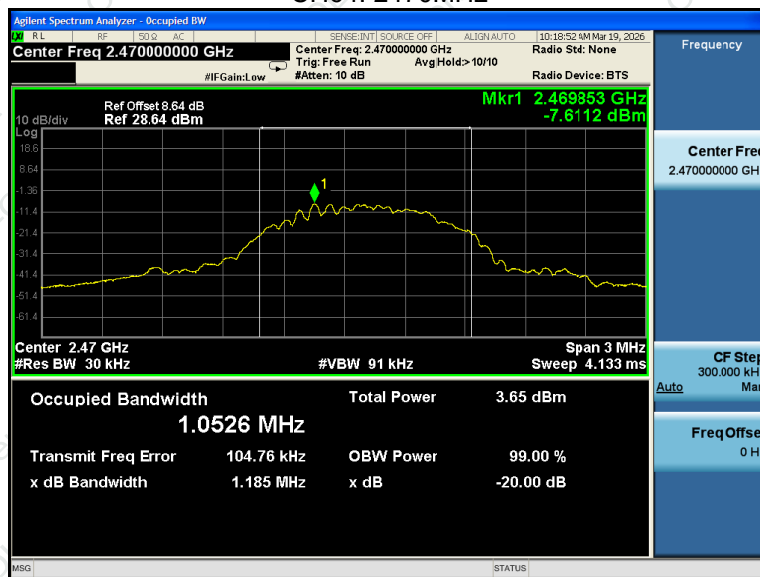




CH32: 2438MHz



CH64: 2470MHz





7. Antenna Requirement

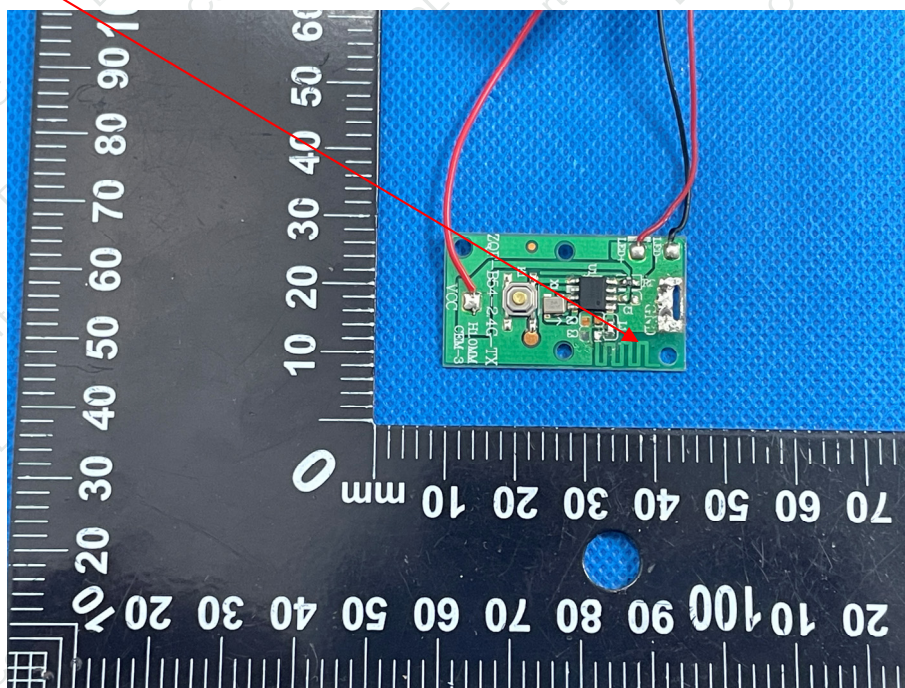
Standard Applicable

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, is a permanently attached antenna on the PCB. It conforms to the standard requirements. The directional gains of antenna used for transmitting is -8.81dBi.

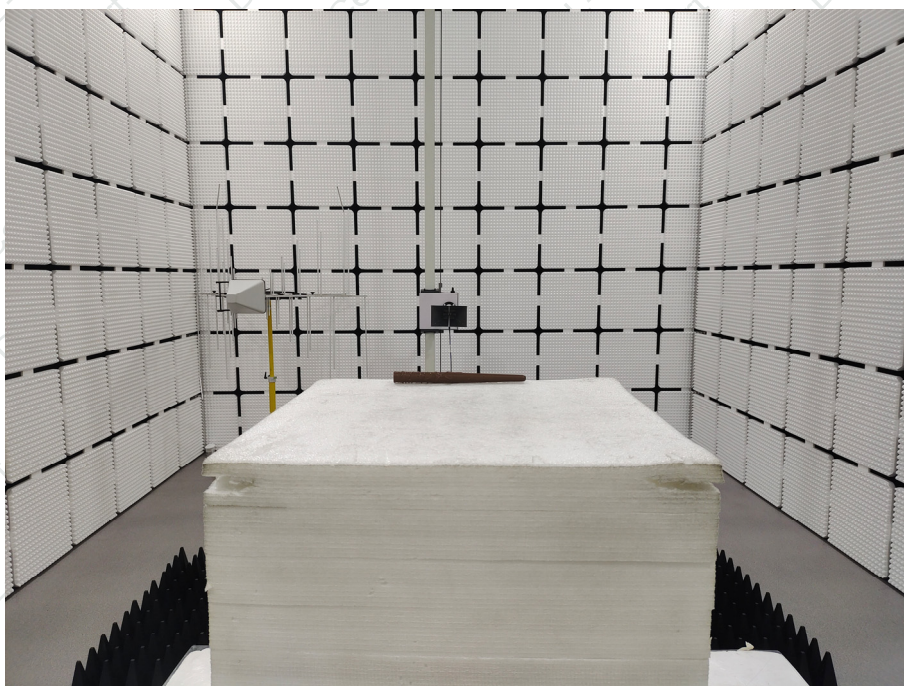
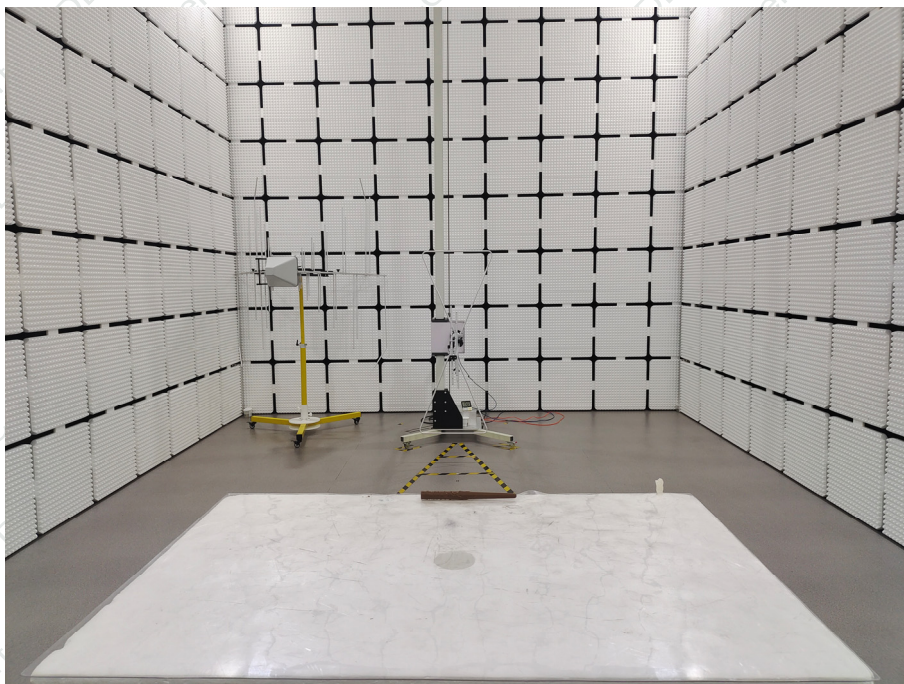
Antenna





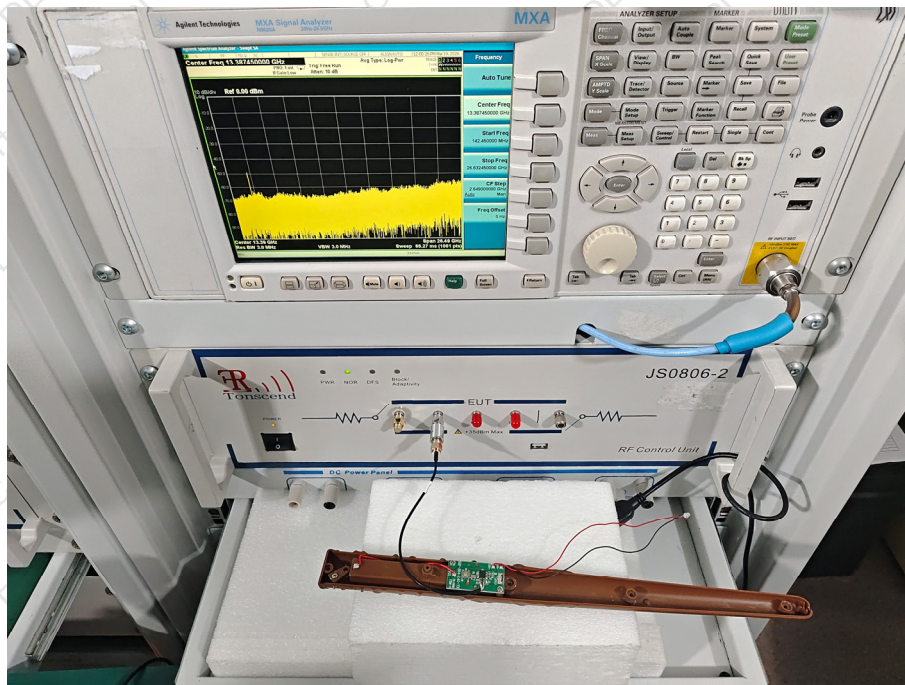
8. Test Setup Photos of the EUT

Radiated Emission





RF 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-----