ACCREDITED
CERTIFICATE #5473.01

Test Report No.:
FCC2024-0062-RF

TEST REPORT

FCC ID	:	2BM9U-YJE020
Applicant	:	Shenzhen Wei Wu Sen Lin Technology Company Limited
Product Name	:	Automatic Pet Feeder
Model No.	:	YJE020

CVC Testing Technology Co., Ltd.

Applicant	**Name:** Shenzhen Wei Wu Sen Lin Technology Company Limited **Address:** Room 504, 5/F.,Tower C, Amazing Plaza, 4088 Qiaoxiang Rd, Nanshan, Shenzhen, Guangdong Province,518074,China
Manufacturer	**Name:** Shenzhen Wei Wu Sen Lin Technology Company Limited **Address:** Room 504, 5/F.,Tower C, Amazing Plaza, 4088 Qiaoxiang Rd, Nanshan, Shenzhen, Guangdong Province,518074,China
Equipment Under Test	**Product Name :** Automatic Pet Feeder **Model No. :** YJE020 **Trade mark :** Pet's Journey **Serial no.** : N/A **Sampling :** 1-1

Date of Receipt.	2024.12.24	Date of Testing	2025.1.9

Test Specification	**Test Result**
FCC CFR47 Part 15C Radio Frequency Devices ANSI C63.10-2020/Cor1-2023 KDB 558074 D01 15.247 Meas Guidance v05r02	PASS

Evaluation of Test Result	The equipment under test was found to comply with the requirements of the standards applied. **Seal of CVC** **Issue Date:** 2025-1-18

Approved by:	Reviewed by:	Tested by:
Chen Huawen	**Xu Zhenfei**	**Lu Weiji**

Other Aspects: NONE.

Abbreviations:OK, Pass= passed Fail = failed N/A= not applicable EUT= equipment, sample(s) under tested

Note: This test report relates only to the EUT, and shall not be reproduced except in full, without written approval of **CVC**.

TABLE OF CONTENTS

1. General Product Information

1.1 General information

Product Name	Automatic Pet Feeder	
Model No.	YJE020	
Additional model	/	
Power Supply	Rated Voltage	DC 5V ⎓
	Adapter	AC 100-240V~
Serial Number(SN)	/	
Hardware	1.0.1	
Software	2.6.3	
specific power settings	Bluetooth(LE_1M): Default IEEE 802.11b: 82 IEEE 802.11g: 92 IEEE 802.11n(20MHz): 92	
Antenna Type	Internal antenna	
Antenna Gain	WIFI: 2.54 dBi (provided by client) Bluetooth: 2.54 dBi (provided by client)	
Beamforming gain	Unsupported (provided by client)	
Frequency Range	Bluetooth(LE_1M): 2402~2480MHz IEEE 802.11b/g/n(20MHz): 2412~2462MHz	
Channel Number	Bluetooth(LE_1M):40 Channels IEEE 802.11b/g/n (20MHz): 11 Channels	
Type of Modulation	Bluetooth(LE_1M):GFSK IEEE 802.11b: DSSS (CCK,DQPSK,DBPSK); IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK); IEEE 802.11n(HT20) : OFDM (64QAM, 16QAM,QPSK,BPSK)	
Max. Conducted Power	Bluetooth(LE): 6.23 dBm WIFI2.4G: 20.11dBm	
Operate Temp.Range	5~40℃	

Note：
1. The information of the EUT is declared by the manufacturer.
2. The laboratory is not responsible for the product technical specification provided by the client.

2. Test Sites

2.1 Test Facilities

The tests and measurements refer to this report were performed by RF testing Lab. of CVC Testing Technology Co., Ltd.

Add.: No.3, Tiantaiyi Road, Kaitai Avenue, Science City, Guangzhou,Guangdong,510663, People's Republic of China

Telephone : +86-20-32293888

Fax : +86-20-32293889

FCC(Test firm designation number：CN1282)

2.2 Description of Non-standard Method and Deviations

The testing and measurement methods used in this report are applied by all standard methods. Not any non-standard method or deviation from the used standards was used.

2.3 List of Test and Measurement Instruments

Refer to **Appendix X**.

3. Test Configuration

3.1 Test Mode

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

Test Mode	Antenna Delivery	Test Channel
Bluetooth(LE_1M)	1TX / 1RX	0,19,39
IEEE 802.11b	1TX / 1RX	1,6,11
IEEE 802.11g	1TX / 1RX	1,6,11
IEEE 802.11n 20	1TX / 1RX	1,6,11

The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in lie-down position (X axis) and the worst case was recorded.

In order to find the worst case condition, Pre-tests are needed at the presence of different data rate and different channels. Preliminary tests have been done on all the configurations for confirming worst case. Data rate below means worst-case rate of each test item.

Worst-case data rates and channels are shown as following table.

Test Mode	Data Rate		
	Antenna 1	Antenna 2	MIMO
Bluetooth(LE_1M)	1	/	/
IEEE 802.11b	1	/	/
IEEE 802.11g	6	/	/
IEEE 802.11n 2.4GHz 20MHz	MCS 0	/	/

Test Items	Test Antennas	Test Modes	Test Channels
Radiated Emissions	Antenna 1	IEEE 802.11n 20 Bluetooth(LE_1M)	1/ 0
Radiated Emissions (Band Edge)	Antenna 1	IEEE 802.11n 20 Bluetooth(LE_1M)	1,11/ 0,39
Maximum conducted output power	Antenna 1	Bluetooth(LE_1M)/ IEEE 802.11b/ IEEE 802.11g/ IEEE 802.11n 20	0,19,39/ 1,6,11/ 1,6,11/ 1,6,11
Minimum 6 dB bandwidth	Antenna 1	Bluetooth(LE_1M)/ IEEE 802.11b/ IEEE 802.11g/ IEEE 802.11n 20	0,19,39/ 1,6,11/ 1,6,11/ 1,6,11
Occupied Channel Bandwidth	Antenna 1	Bluetooth(LE_1M)/ IEEE 802.11b/ IEEE 802.11g/ IEEE 802.11n 20	0,19,39/ 1,6,11/ 1,6,11/ 1,6,11
Band Edge Measurement	Antenna 1	Bluetooth(LE_1M)/ IEEE 802.11b/ IEEE 802.11g/ IEEE 802.11n 20	0,39/ 1,11/ 1,11/ 1,11
Maximum Power spectral density	Antenna 1	Bluetooth(LE_1M)/ IEEE 802.11b/ IEEE 802.11g/ IEEE 802.11n 20	0,19,39/ 1,6,11/ 1,6,11/ 1,6,11
Spurious RF Conducted Emissions	Antenna 1	Bluetooth(LE_1M)/ IEEE 802.11b/ IEEE 802.11g/ IEEE 802.11n 20	0,19,39/ 1,6,11/ 1,6,11/ 1,6,11

4. Summary of measurement results

Summary of measurements of results	Clause in FCC rules	Verdict	Note
Conducted Emissions	15.207	PASS	/
Radiated Emissions	15.247(d),15.205,15.209	PASS	/
Maximum conducted output power	15.247(b)(3)	PASS	Appendix C of WIFI2.4G_ diagram and Appendix C of BLE_ diagram
Minimum 6 dB bandwidth	15.247(a)(2)	PASS	Appendix A of WIFI2.4G_ diagram and Appendix A of BLE_ diagram
Occupied Channel Bandwidth	15.247(a)(2)	PASS	Appendix B of WIFI2.4G_ diagram and Appendix B of BLE_ diagram
Band Edge Measurement	15.247(d)	PASS	Appendix E of WIFI2.4G_ diagram and Appendix E of BLE_ diagram
Maximum Power spectral density	15.247(e)	PASS	Appendix D of WIFI2.4G_ diagram and Appendix D of BLE_ diagram
Spurious RF Conducted Emissions	15.247(d)	PASS	Appendix F of WIFI2.4G_ diagram and Appendix F of BLE_ diagram
Antenna Requirement	15.203	PASS	See note 1

Note 1: According to 15.203, it is considered sufficient to comply with the provisions of this section.
Note 2: Not applicable to DC powered devices.

5. Measurement procedure

5.1 Conducted Emission

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.3kPa

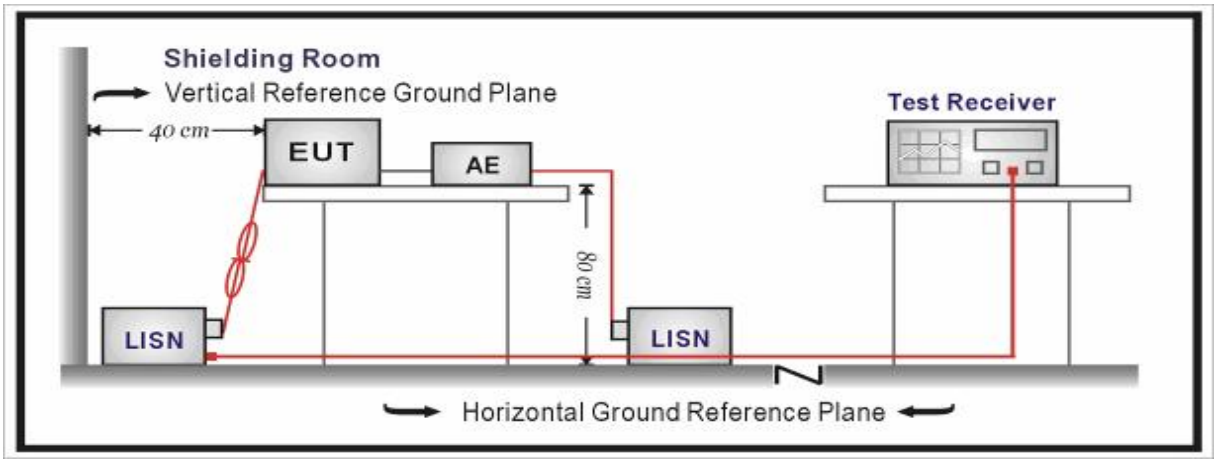
Method of Measurement:

The EUT was setup according to ANSI C63.10-2020/Cor1-2023 for compliance to FCC 47CFR 15.247 requirements. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs) Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

Limits:

Frequency (MHz)	Conducted Limits(dBμV)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 *	56 to 46*
0.5 - 5	56	46
5 - 30	60	50
Note 1: The lower limit shall apply at the transition frequencies. Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.		

Test Setup:



Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.
Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Notes:

1. *The following Quasi-Peak and Average measurements were performed on the EUT:*
2. *Final Level =Reading + Factor.*

Measurement Uncertainty：

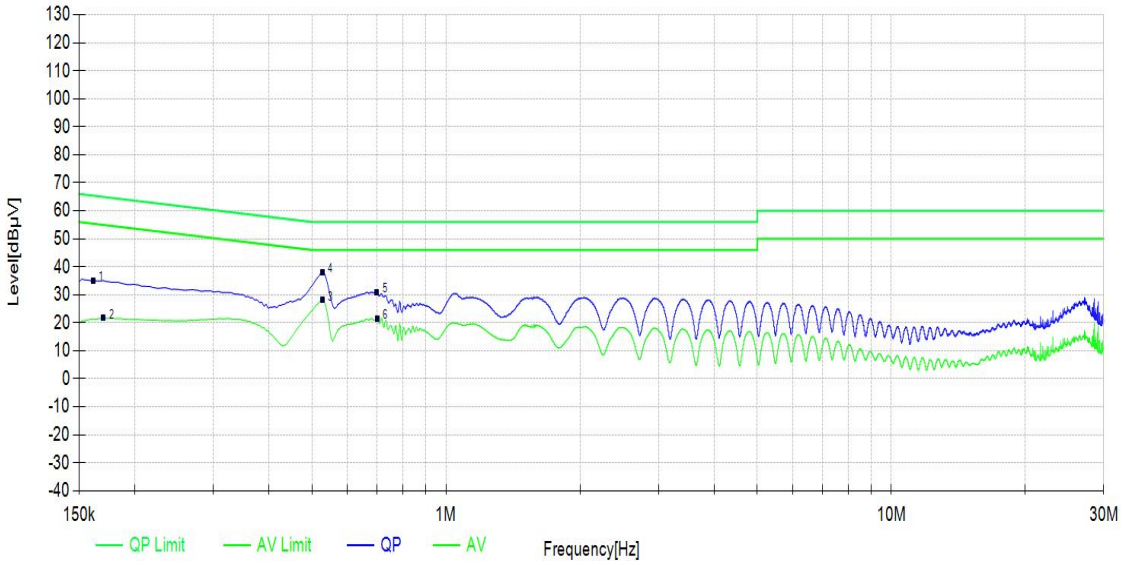
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 1.96. U= 3.12 dB.

Test Results:

During the test, the Conducted Emission from 150kHz to 30MHz was performed in all modes with all channels, and all antennas. WIFI2.4G, 11N20, Channel 1, Antenna 1 are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

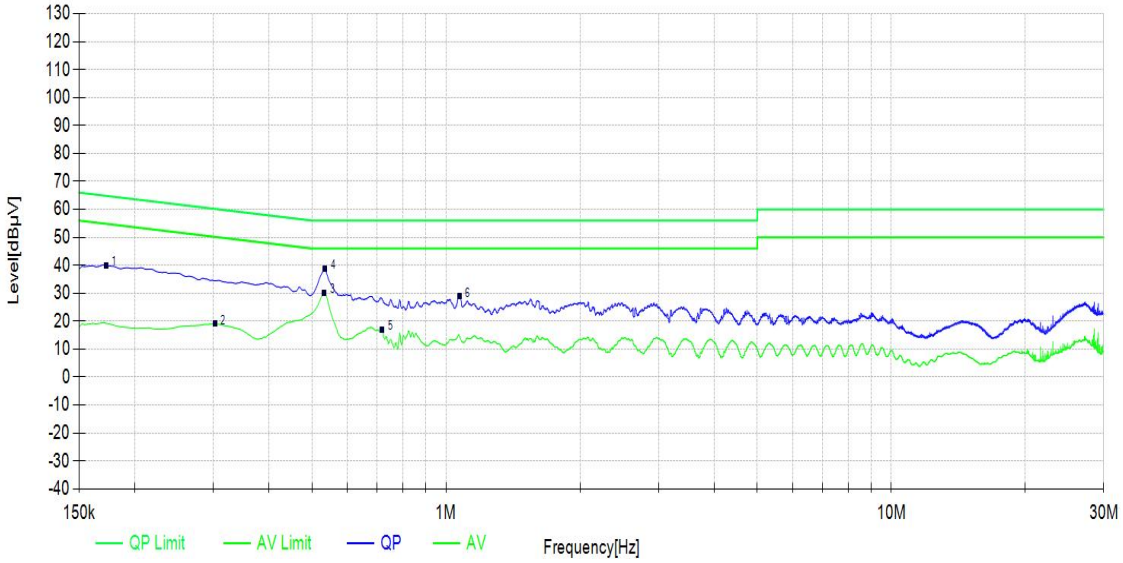
Power Line	L
Test channel	Worst-Case

NO.	Freq. [MHz]	Factor [dB]	Reading [dBµV]	Level [dBµV]	Limit [dBµV]	Margin [dB]	Detector	Pass/ Fail
1	0.1613	10.20	24.96	35.16	65.40	30.24	QP	PASS
4	0.5280	10.22	27.85	38.07	56.00	17.93	QP	PASS
5	0.6990	10.24	20.74	30.98	56.00	25.02	QP	PASS
2	0.1703	10.20	11.51	21.71	54.95	33.24	AV	PASS
6	0.7013	10.24	11.34	21.58	46.00	24.42	AV	PASS
3	0.5280	10.22	17.95	28.17	46.00	17.83	AV	PASS



Power Line	N
Test channel	Worst-Case

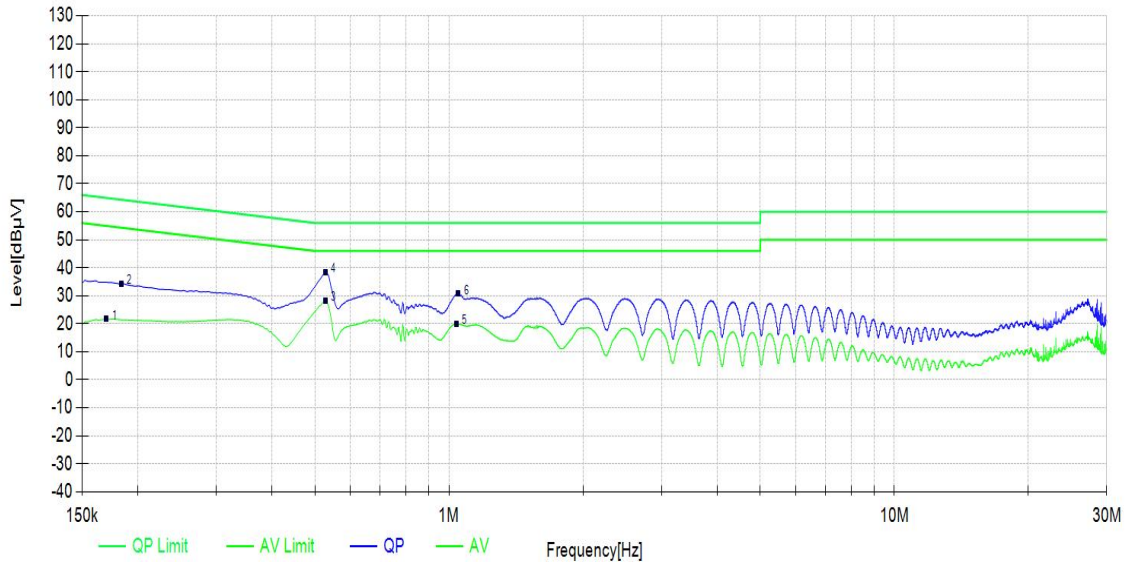
NO.	Freq. [MHz]	Factor [dB]	Reading [dBµV]	Level [dBµV]	Limit [dBµV]	Margin [dB]	Detector	Pass/ Fail
6	1.0725	10.25	18.58	28.83	56.00	27.17	QP	PASS
4	0.5348	10.21	28.53	38.74	56.00	17.26	QP	PASS
1	0.1725	10.19	29.73	39.92	64.84	24.92	QP	PASS
2	0.3030	10.20	8.89	19.09	50.16	31.07	AV	PASS
5	0.7193	10.23	6.73	16.96	46.00	29.04	AV	PASS
3	0.5325	10.21	19.91	30.12	46.00	15.88	AV	PASS



During the test, the Conducted Emission from 150kHz to 30MHz was performed in all modes with all channels, and all antennas. Bluetooth(LE_1M), Channel 0, Antenna 1 are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

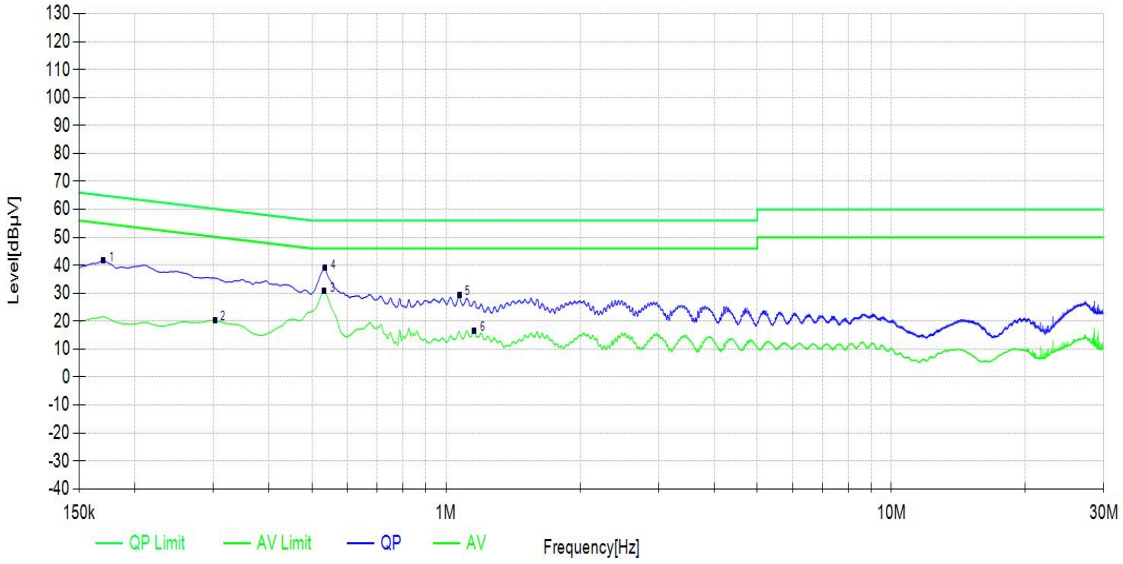
Power Line	L
Test channel	Worst-Case

NO.	Freq. [MHz]	Factor [dB]	Reading [dBµV]	Level [dBµV]	Limit [dBµV]	Margin [dB]	Detector	Pass/ Fail
6	1.0500	10.25	20.52	30.77	56.00	25.23	QP	PASS
2	0.1838	10.20	24.11	34.31	64.31	30.00	QP	PASS
4	0.5280	10.22	28.25	38.47	56.00	17.53	QP	PASS
3	0.5280	10.22	18.09	28.31	46.00	17.69	AV	PASS
5	1.0388	10.25	9.75	20.00	46.00	26.00	AV	PASS
1	0.1703	10.20	11.51	21.71	54.95	33.24	AV	PASS



Power Line	N
Test channel	Worst-Case

NO.	Freq. [MHz]	Factor [dB]	Reading [dBµV]	Level [dBµV]	Limit [dBµV]	Margin [dB]	Detector	Pass/ Fail
1	0.1703	10.19	31.50	41.69	64.95	23.26	QP	PASS
4	0.5348	10.21	28.84	39.05	56.00	16.95	QP	PASS
5	1.0725	10.25	19.23	29.48	56.00	26.52	QP	PASS
2	0.3030	10.20	10.18	20.38	50.16	29.78	AV	PASS
6	1.1580	10.25	6.31	16.56	46.00	29.44	AV	PASS
3	0.5325	10.21	20.60	30.81	46.00	15.19	AV	PASS



5.2 Radiated Emission

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.3kPa

Method of Measurement:

The EUT was setup and tested according to ANSI C63.10-2020/Cor1-2023.

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from Antenna to the EUT was 3 meters.

The Antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the Antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10-2020/Cor1-2023 on radiated measurement.

The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

The frequency range from 30MHz to 10th harmonic is checked.

Note: When doing emission measurement above 1GHz, the horn Antenna will be bended down a little (as horn Antenna has the narrow beamwidth) in order to keeping the Antenna in the “cone of radiation” of EUT. The 3dB beamwidth is 10~60 degrees for H-plane and 10~90 degrees for E-plane.

Limits:

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

Frequency	Limit (μV/m)	Limit (dBμV/m @3m)	Remark
0.009MHz-0.490MHz	2400/F(kHz)@300m	20lg(24000000/F(kHz))	Quasi-peak Level
0.490MHz~1.705MHz	24000/F(kHz)@30m	20lg(2400000/F(kHz))	Quasi-peak Level
1.705MHz~30.0MHz	30@30m	69.54	Quasi-peak Level
30MHz-88MHz	100@3m	40.0	Quasi-peak Level
88MHz-216MHz	150@3m	43.5	Quasi-peak Level
216MHz-960MHz	200@3m	46.0	Quasi-peak Level
960MHz-1GHz	500@3m	54.0	Quasi-peak Level
Above 1GHz	500@3m	54.0	Average Level

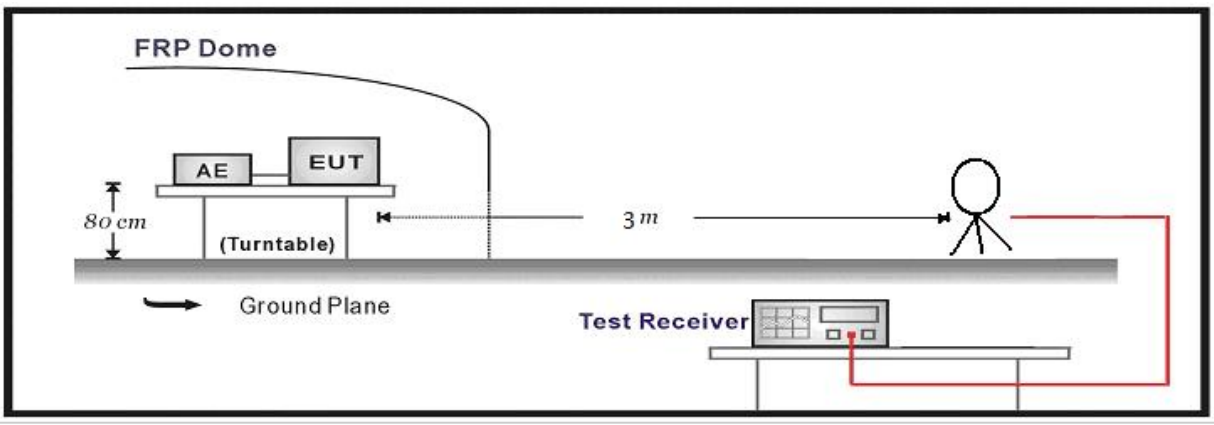
	5000@3m	74.0	Peak Level

Spurious Radiated Emissions are permitted in any of the frequency bands listed below:

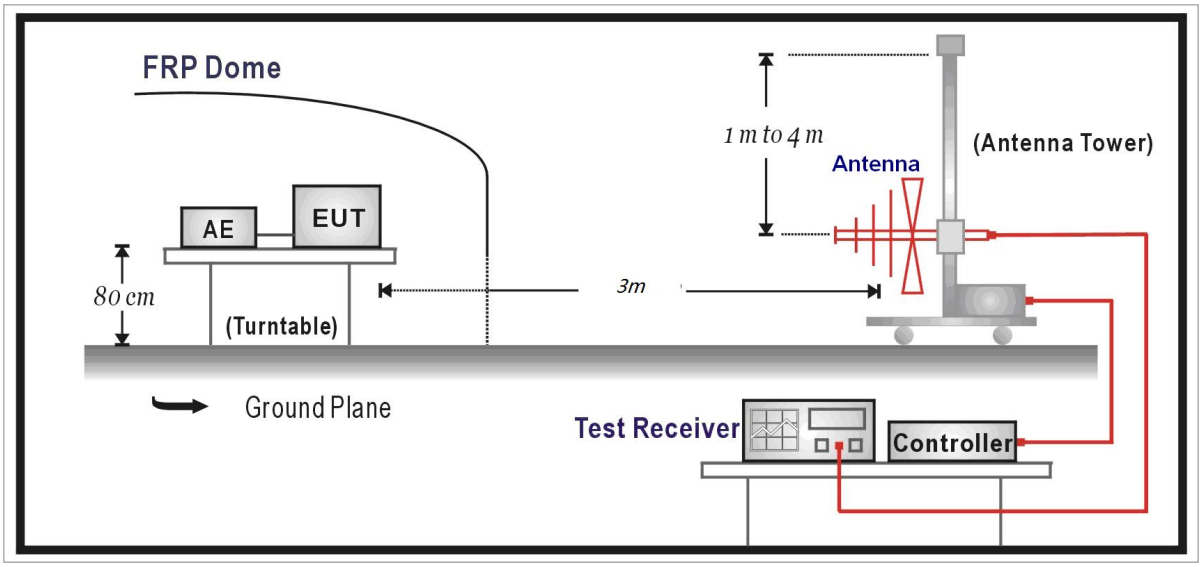
MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.
12.57675-12.57725	322-335.4	3600-4400	/
13.36-13.41	/	/	/

Test Setup:

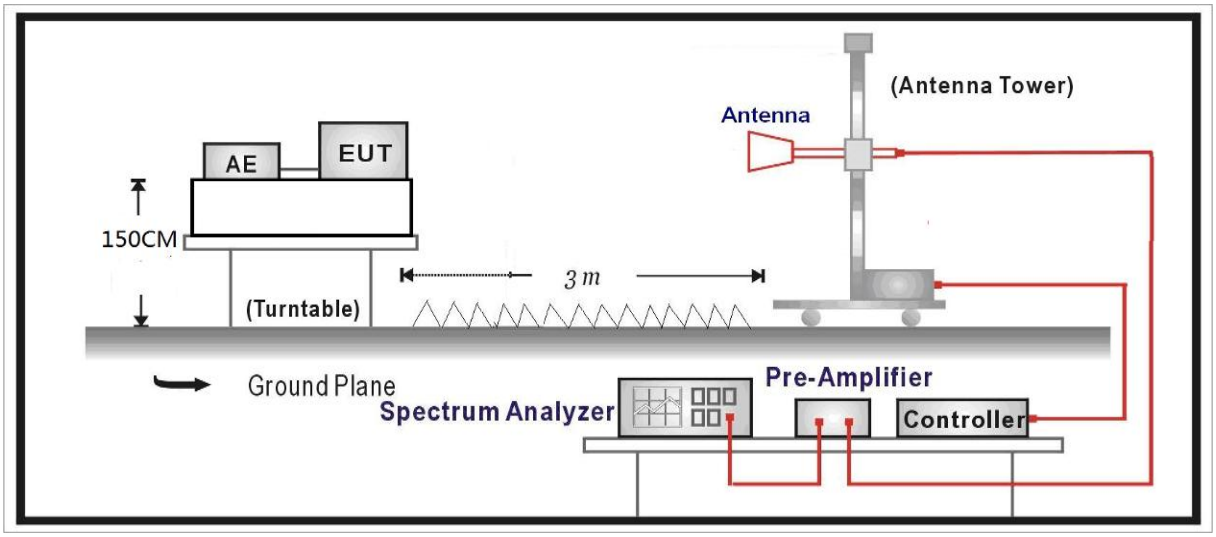
Below 30MHz Test Setup:



Below 1GHz Test Setup:



Above 1GHz Test Setup:



Measurement Data：

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Level =Reading - Factor

Factor = Preamplifier Factor – Antenna Factor–Cable Loss

Measurement Uncertainty：

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 1.96.

Frequency	Uncertainty
9KHz-30MHz	3.55 dB
30MHz-200MHz	4.19 dB
200MHz-1GHz	3.63 dB
Above 1GHz	3.68 dB

Test Results:

SPURIOUS EMISSIONS：

WIFI:

During the test, the Radiates Emission from 9kHz to 1GHz was performed in WIFI all modes with all channels and all antennas. 802.11n20, Channel 1 are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

Radiates Emission	9k~1G
Test channel	Worst-Case

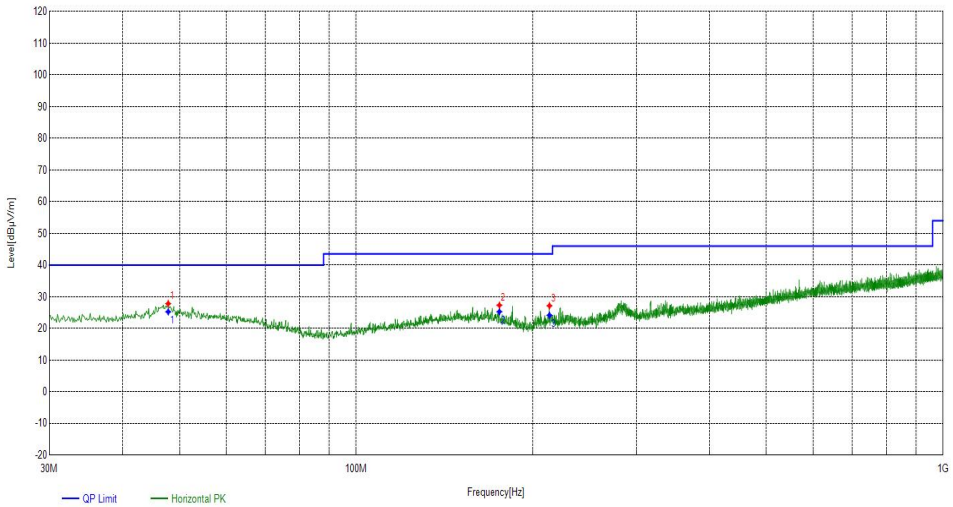
Suspected List

Frequency [MHz]	Polarity	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
47.8237	Horizontal	20.45	7.38	27.83	---	---	PK	100	198	---
175.3788	Horizontal	19.71	7.61	27.32	---	---	PK	100	263	---
213.4512	Horizontal	17.81	9.34	27.15	---	---	PK	100	88	---

Note: 9kHz~30MHz have been test and test data more than 20dB margin.

Final Data List

Frequency [MHz]	Polarity	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Pass/Fail
47.8237	Horizontal	20.45	25.26	40.00	14.74	158	198	PASS
175.3788	Horizontal	19.71	25.29	43.52	18.23	129	263	PASS
213.4512	Horizontal	17.81	24.16	43.52	19.36	201	88	PASS



Radiates Emission	9k~1G
Test channel	Worst-Case

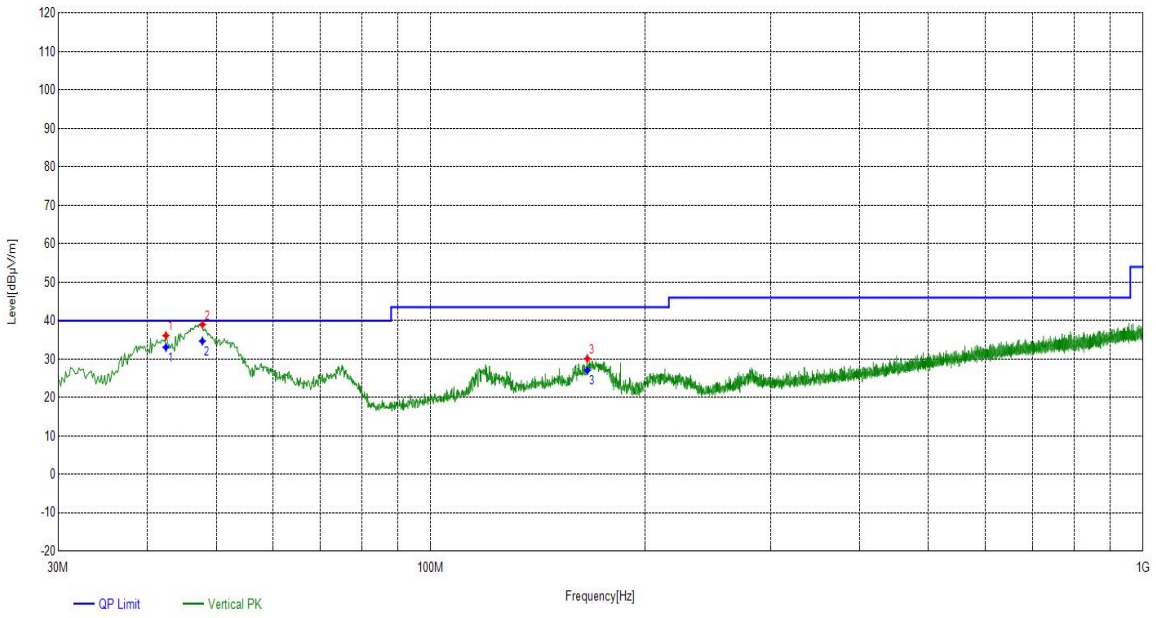
Suspected List

Frequency [MHz]	Polarity	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
42.4888	Vertical	20.18	15.95	36.13	---	---	PK	100	96	---
47.8237	Vertical	20.45	18.56	39.01	---	---	PK	100	242	---
165.9212	Vertical	20.52	9.60	30.12	---	---	PK	100	352	---

Note: 9kHz~30MHz have been test and test data more than 20dB margin.

Final Data List

Frequency [MHz]	Polarity	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Pass/Fail
42.4888	Vertical	20.18	33.07	40.00	6.93	121	96	PASS
47.802	Vertical	20.45	34.68	40.00	5.32	120	256.9	PASS
165.9212	Vertical	20.52	27.06	43.52	16.46	190	352	PASS



During the test, the Radiates Emission from 1GHz to 40GHz was performed in WIFI all modes with all channels and all antennas. 802.11n20, Highest, medium, lowest channels are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

Radiates Emission	Above 1G
Test channel	Lowest
polarization	Horizontal

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
4873.687369	1.55	38.45	40.00	74.00	34.00	PK	150	160	PASS
7872.487249	9.24	33.52	42.76	74.00	31.24	PK	150	190	PASS
11409.840984	12.00	34.33	46.33	74.00	27.67	PK	150	320	PASS
4864.686469	1.51	27.38	28.89	54.00	25.11	AV	150	240	PASS
7897.989799	9.24	24.35	33.59	54.00	20.41	AV	150	40	PASS
10779.777978	12.75	23.08	35.83	54.00	18.17	AV	150	190	PASS

Radiates Emission	Above 1G
Test channel	Lowest
polarization	Vertical

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
4936.693669	1.82	37.01	38.83	74.00	35.17	PK	150	60	PASS
6085.808581	5.80	34.33	40.13	74.00	33.87	PK	150	160	PASS
8529.552955	10.03	34.25	44.28	74.00	29.72	PK	150	150	PASS
4735.673567	0.96	28.18	29.14	54.00	24.86	AV	150	10	PASS
5965.79658	5.52	24.58	30.10	54.00	23.90	AV	150	160	PASS
8591.059106	10.10	23.96	34.06	54.00	19.94	AV	150	230	PASS

Note: The emission levels of other frequencies were greater than 20dB margin.

Radiates Emission	Above 1G
Test channel	Medium
polarization	Horizontal

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
4561.656166	0.20	38.41	38.61	74.00	35.39	PK	150	20	PASS
7005.40054	8.94	34.02	42.96	74.00	31.04	PK	150	240	PASS
11190.819082	12.59	33.91	46.50	74.00	27.50	PK	150	350	PASS
4519.651965	0.02	28.10	28.12	54.00	25.88	AV	150	340	PASS
6942.394239	8.66	23.28	31.94	54.00	22.06	AV	150	30	PASS
11246.324633	12.46	24.05	36.51	54.00	17.49	AV	150	210	PASS

Radiates Emission	Above 1G
Test channel	Medium
polarization	Vertical

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
5367.236724	3.14	35.92	39.06	74.00	34.94	PK	150	150	PASS
6991.89919	8.89	33.75	42.64	74.00	31.36	PK	150	280	PASS
12576.957696	13.00	33.05	46.05	74.00	27.95	PK	150	230	PASS
5359.735974	3.12	26.19	29.31	54.00	24.69	AV	150	60	PASS
6978.39784	8.83	23.51	32.34	54.00	21.66	AV	150	120	PASS
11603.360336	11.89	23.91	35.80	54.00	18.20	AV	150	30	PASS

Note: The emission levels of other frequencies were greater than 20dB margin.

Radiates Emission	Above 1G
Test channel	Highest
polarization	Horizontal

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
4746.174618	1.00	38.15	39.15	74.00	34.85	PK	150	230	PASS
6613.861386	6.92	33.06	39.98	74.00	34.02	PK	150	110	PASS
8534.053405	10.03	33.78	43.81	74.00	30.19	PK	150	190	PASS
4288.628863	0.26	27.74	28.00	54.00	26.00	AV	150	320	PASS
6652.865287	7.14	22.75	29.89	54.00	24.11	AV	150	240	PASS
8636.063606	10.11	24.78	34.89	54.00	19.11	AV	150	40	PASS

Radiates Emission	Above 1G
Test channel	Highest
polarization	Vertical

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
4095.109511	0.50	38.57	39.07	74.00	34.93	PK	150	240	PASS
5935.793579	5.38	33.45	38.83	74.00	35.17	PK	150	320	PASS
7801.980198	9.23	34.48	43.71	74.00	30.29	PK	150	180	PASS
4110.111011	0.50	27.77	28.27	54.00	25.73	AV	150	270	PASS
6030.30303	5.73	24.24	29.97	54.00	24.03	AV	150	140	PASS
8184.518452	9.49	23.80	33.29	54.00	20.71	AV	150	340	PASS

Note: The emission levels of other frequencies were greater than 20dB margin.

Bluetooth(Low Energy):

During the test, the Radiates Emission from 9kHz to 40GHz was performed in Bluetooth(Low Energy) all modes with all channels and all antennas. BLE(1Mbps), channel 0, antenna 1 are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

Radiates Emission	9k~1G
Test channel	Worst-Case

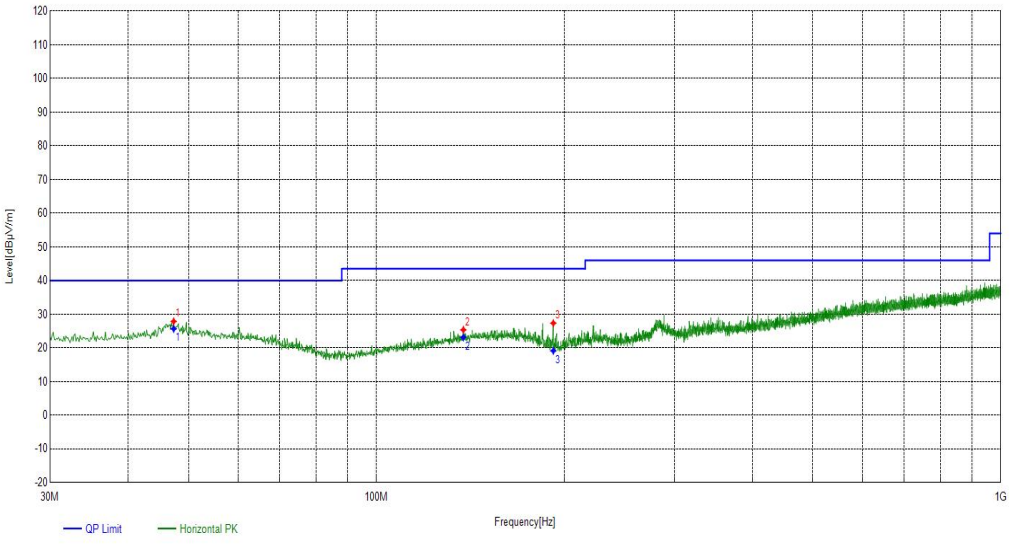
Suspected List

Frequency [MHz]	Polarity	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
47.3388	Horizontal	20.44	7.43	27.87	---	---	PK	100	181	---
137.7912	Horizontal	19.98	5.38	25.36	---	---	PK	100	234	---
191.99	Horizontal	17.98	9.36	27.34	---	---	PK	100	151	---

Note: 9kHz~30MHz have been test and test data more than 20dB margin.

Final Data List

Frequency [MHz]	Polarity	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Pass/Fail
47.3388	Horizontal	20.44	25.67	40.00	14.33	139	181	PASS
137.7912	Horizontal	19.98	23.16	43.50	20.34	128	234	PASS
191.99	Horizontal	17.98	19.14	43.50	24.36	231	151	PASS



Radiates Emission	9k~1G
Test channel	Worst-Case

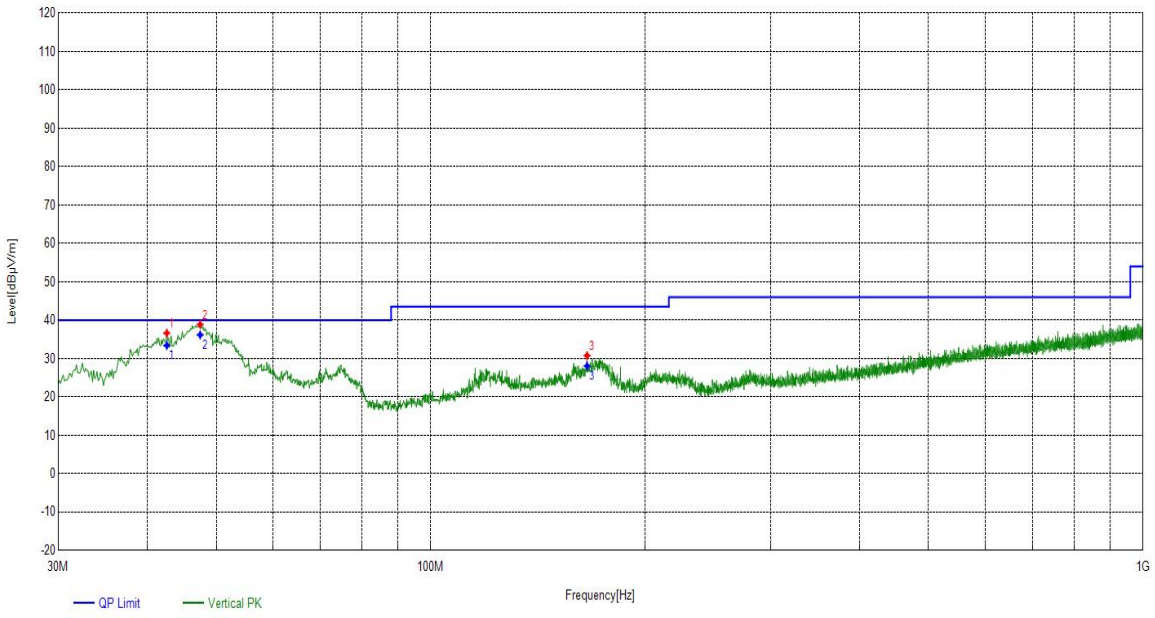
Suspected List

Frequency [MHz]	Polarity	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
42.61	Vertical	20.20	16.43	36.63	---	---	PK	100	164	---
47.46	Vertical	20.44	18.43	38.87	---	---	PK	100	335	---
165.8	Vertical	20.53	10.23	30.76	---	---	PK	100	53	---

Note: 9kHz~30MHz have been test and test data more than 20dB margin.

Final Data List

Frequency [MHz]	Polarity	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Pass/Fail
42.61	Vertical	20.20	33.39	40.00	6.61	161	164	PASS
47.46	Vertical	20.44	36.17	40.00	3.83	125	335	PASS
165.8	Vertical	20.53	28.06	43.50	15.44	187	53	PASS



During the test, the Radiates Emission from 1GHz to 40GHz was performed in WIFI all modes with all channels and all antennas. BLE(1Mbps), Highest, medium, lowest channels, antenna 1 are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

Radiates Emission	Above 1G
Test channel	Lowest
polarization	Horizontal

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
3706.570657	-0.02	38.21	38.19	74.00	35.81	PK	150	50	PASS
5350.735074	3.11	34.98	38.09	74.00	35.91	PK	150	340	PASS
7719.471947	9.18	34.27	43.45	74.00	30.55	PK	150	330	PASS
3706.570657	-0.02	28.47	28.45	54.00	25.55	AV	150	160	PASS
5425.742574	3.27	25.10	28.37	54.00	25.63	AV	150	30	PASS
7966.9967	9.25	23.67	32.92	54.00	21.08	AV	150	360	PASS

Radiates Emission	Above 1G
Test channel	Lowest
polarization	Vertical

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
6085.808581	5.80	34.33	40.13	74.00	33.87	PK	150	240	PASS
8375.037504	9.81	33.74	43.55	74.00	30.45	PK	150	250	PASS
9701.170117	12.39	31.99	44.38	74.00	29.62	PK	150	250	PASS
5965.79658	5.52	24.58	30.10	54.00	23.90	AV	150	10	PASS
8418.541854	9.87	23.38	33.25	54.00	20.75	AV	150	20	PASS
9552.655266	12.36	22.69	35.05	54.00	18.95	AV	150	10	PASS

Note: The emission levels of other frequencies were greater than 20dB margin.

Radiates Emission	Above 1G
Test channel	Medium
polarization	Horizontal

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
4960.69607	1.92	37.09	39.01	74.00	34.99	PK	150	190	PASS
6042.30423	5.75	34.09	39.84	74.00	34.16	PK	150	120	PASS
8075.007501	9.36	34.05	43.41	74.00	30.59	PK	150	200	PASS
5061.206121	2.31	26.30	28.61	54.00	25.39	AV	150	360	PASS
6244.824482	5.96	23.42	29.38	54.00	24.62	AV	150	280	PASS
8184.518452	9.49	23.80	33.29	54.00	20.71	AV	150	130	PASS

Radiates Emission	Above 1G
Test channel	Medium
polarization	Vertical

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
5367.236724	3.14	35.92	39.06	74.00	34.94	PK	150	280	PASS
6546.354636	6.50	33.47	39.97	74.00	34.03	PK	150	180	PASS
9609.660966	12.38	31.95	44.33	74.00	29.67	PK	150	350	PASS
5359.735974	3.12	26.19	29.31	54.00	24.69	AV	150	10	PASS
6978.39784	8.83	23.51	32.34	54.00	21.66	AV	150	110	PASS
9792.679268	12.41	22.25	34.66	54.00	19.34	AV	150	50	PASS

Note: The emission levels of other frequencies were greater than 20dB margin.

Radiates Emission	Above 1G
Test channel	Highest
polarization	Horizontal

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
4896.189619	1.65	37.15	38.80	74.00	35.20	PK	150	360	PASS
7656.465647	9.13	33.86	42.99	74.00	31.01	PK	150	240	PASS
10800.780078	12.77	32.84	45.61	74.00	28.39	PK	150	130	PASS
4740.174017	0.97	27.57	28.54	54.00	25.46	AV	150	50	PASS
7347.434744	8.99	24.18	33.17	54.00	20.83	AV	150	240	PASS
10746.774678	12.74	22.76	35.50	54.00	18.50	AV	150	10	PASS

Radiates Emission	Above 1G
Test channel	Highest
polarization	Vertical

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
4470.147015	-0.03	37.86	37.83	74.00	36.17	PK	150	180	PASS
7200.420042	9.01	34.02	43.03	74.00	30.97	PK	150	50	PASS
9623.162316	12.38	31.50	43.88	74.00	30.12	PK	150	250	PASS
4275.127513	0.29	27.80	28.09	54.00	25.91	AV	150	110	PASS
7609.960996	9.09	23.86	32.95	54.00	21.05	AV	150	50	PASS
9620.162016	12.38	21.53	33.91	54.00	20.09	AV	150	10	PASS

Note: The emission levels of other frequencies were greater than 20dB margin.

Band Edge：

During the test, the Band Edge was performed in WIFI all modes with all channels and all antennas. 802.11n20 are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

Test mode	802.11n20
Test channel	Lowest channel
polarization	Horizontal

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/ Fail
2372.3372	31.98	11.37	43.35	74.00	30.65	PK	150	208	PASS
2390.1390	32.06	7.77	39.83	74.00	34.17	PK	150	103	PASS
2411.1411	32.13	58.65	90.78	---	---	PK	150	103	---
2372.3372	31.98	-0.72	31.26	54.00	22.74	AV	150	91	PASS
2390.1390	32.06	-0.38	31.68	54.00	22.32	AV	150	150	PASS
2409.1409	32.12	47.65	79.77	---	---	AV	150	161	---

Test mode	802.11n20
Test channel	Lowest channel
polarization	Vertical

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/ Fail
2367.1367	31.97	9.15	41.12	74.00	32.88	PK	150	359	PASS
2390.1390	32.06	8.04	40.10	74.00	33.90	PK	150	174	PASS
2420.1420	32.16	51.80	83.96	---	---	PK	150	114	---
2367.1367	31.97	-1.06	30.91	54.00	23.09	AV	150	0	PASS
2390.1390	32.06	-0.36	31.70	54.00	22.30	AV	150	32	PASS
2413.5413	32.14	43.69	75.83	---	---	AV	150	114	---

Test mode	802.11n20
Test channel	Highest channel
polarization	Horizontal

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/ Fail
2464.7464	32.32	56.39	88.71	---	---	PK	150	120	---
2483.5483	32.38	7.63	40.01	74.00	33.99	PK	150	272	PASS
2498.7498	32.44	7.87	40.31	74.00	33.69	PK	150	333	PASS
2466.3466	32.32	48.73	81.05	---	---	AV	150	1	---
2483.5483	32.38	-0.78	31.60	54.00	22.40	AV	150	157	PASS
2498.7498	32.44	-0.99	31.45	54.00	22.55	AV	150	22	PASS

Test mode	802.11n20
Test channel	Highest channel
polarization	Vertical

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/ Fail
2466.7466	32.32	53.14	85.46	---	---	PK	150	88	---
2483.5483	32.38	7.79	40.17	74.00	33.83	PK	150	76	PASS
2497.9497	32.44	9.39	41.83	74.00	32.17	PK	150	208	PASS
2467.7467	32.33	40.46	72.79	---	---	AV	150	88	---
2483.5483	32.38	-1.05	31.33	54.00	22.67	AV	150	76	PASS
2497.9497	32.44	-0.70	31.74	54.00	22.26	AV	150	172	PASS

During the test, the Band Edge was performed in BLE all modes with all channels and all antennas. BLE(1Mbps), Antenna 1 are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

Test mode	BLE(1Mbps)
Test channel	Lowest channel
polarization	Horizontal

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/ Fail
2322.1322	31.79	9.78	41.57	74.00	32.43	PK	150	116	PASS
2390.1390	32.06	8.21	40.27	74.00	33.73	PK	150	233	PASS
2401.9401	32.09	72.71	104.80	---	---	PK	150	151	---
2322.1322	31.79	0.53	32.32	54.00	21.68	AV	150	104	PASS
2390.1390	32.06	-0.74	31.32	54.00	22.68	AV	150	104	PASS
2401.9401	32.09	55.87	87.96	---	---	AV	150	151	---

Test mode	BLE(1Mbps)
Test channel	Lowest channel
polarization	Vertical

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/ Fail
2362.1362	31.95	11.59	43.54	74.00	30.46	PK	150	163	PASS
2390.1390	32.06	7.87	39.93	74.00	34.07	PK	150	34	PASS
2401.9401	32.09	68.24	100.33	---	---	PK	150	116	---
2362.1362	31.95	-1.12	30.83	54.00	23.17	AV	150	186	PASS
2390.1390	32.06	-0.65	31.41	54.00	22.59	AV	150	359	PASS
2402.1402	32.10	47.71	79.81	---	---	AV	150	92	---

Test mode	BLE(1Mbps)
Test channel	Highest channel
polarization	Horizontal

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/ Fail
2479.9479	32.37	70.55	102.92	---	---	PK	150	115	---
2483.5483	32.38	13.20	45.58	74.00	28.42	PK	150	360	PASS
2492.3492	32.41	10.09	42.50	74.00	31.50	PK	150	328	PASS
2480.1480	32.37	53.55	85.92	---	---	AV	150	115	---
2483.5483	32.38	2.21	34.59	54.00	19.41	AV	150	115	PASS
2492.3492	32.41	-1.05	31.36	54.00	22.64	AV	150	257	PASS

Test mode	BLE(1Mbps)
Test channel	Highest channel
polarization	Vertical

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/ Fail
2480.5480	32.37	66.30	98.67	---	---	PK	150	105	---
2483.5483	32.38	7.84	40.22	74.00	33.78	PK	150	105	PASS
2489.7489	32.41	9.43	41.84	74.00	32.16	PK	150	250	PASS
2480.1480	32.37	45.37	77.74	---	---	AV	150	116	---
2483.5483	32.38	-0.64	31.74	54.00	22.26	AV	150	81	PASS
2489.7489	32.41	-0.73	31.68	54.00	22.32	AV	150	303	PASS

5.3 Maximum conducted output power

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.3kPa

Method of Measurement:

a.A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor and set the detector to PEAK. Record the power level.

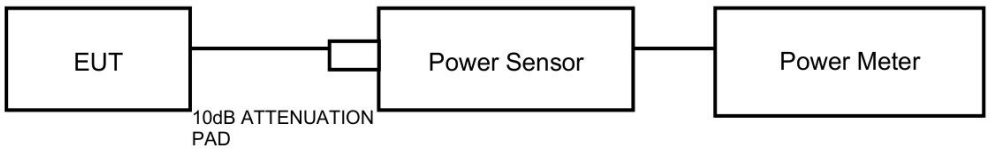
Limits:

Average Output Power	≤ 1W (30dBm)

Note: the conducted output power limit specified above is based on the use the antennas with directional gains that do not exceed 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated Levels above, as appropriate, by the amount in dB that the directional gain of antenna exceeds 6 dBi.

Systems operating in the 2400-2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

Test Setup:



Measurement Uncertainty：

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 0.44 dB.

Test Results:

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	2412	17.55	≤30.00	PASS
	Ant1	2437	18.09	≤30.00	PASS
	Ant1	2462	18.20	≤30.00	PASS
11G	Ant1	2412	19.34	≤30.00	PASS
	Ant1	2437	19.93	≤30.00	PASS
	Ant1	2462	20.11	≤30.00	PASS
11N20SISO	Ant1	2412	19.39	≤30.00	PASS
	Ant1	2437	19.88	≤30.00	PASS
	Ant1	2462	20.03	≤30.00	PASS
BLE_1M	Ant1	2402	5.79	≤30.00	PASS
	Ant1	2440	6.23	≤30.00	PASS
	Ant1	2480	5.86	≤30.00	PASS

5.4 Minimum 6 dB Bandwidth

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.3kPa

Method of Measurement:

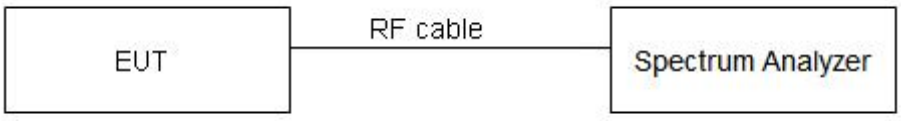
The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable. Set RBW = shall be in the range of 1% to 5% of the OBW but not less than 100 kHz; VBW is set to greater than 3 times RBW on spectrum analyzer.
Detector=Peak, Trace mode=Max hold.

Limits:

Rule Part 15.247 (a) (2) specifies that “Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.”

Minimum 6dB Bandwidth	≥ 500 kHz

Test Setup:



Measurement Uncertainty：

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 936 Hz.

Test Results:

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	9.40	2407.28	2416.68	≥0.5	PASS
	Ant1	2437	9.40	2432.28	2441.68	≥0.5	PASS
	Ant1	2462	9.40	2457.28	2466.68	≥0.5	PASS
11G	Ant1	2412	16.36	2403.80	2420.16	≥0.5	PASS
	Ant1	2437	16.44	2428.80	2445.24	≥0.5	PASS
	Ant1	2462	16.52	2453.68	2470.20	≥0.5	PASS
11N20SISO	Ant1	2412	17.76	2403.08	2420.84	≥0.5	PASS
	Ant1	2437	17.72	2428.16	2445.88	≥0.5	PASS
	Ant1	2462	17.68	2453.20	2470.88	≥0.5	PASS
BLE_1M	Ant1	2402	0.66	2401.66	2402.32	≥0.5	PASS
	Ant1	2440	0.65	2439.66	2440.31	≥0.5	PASS
	Ant1	2480	0.63	2479.66	2480.29	≥0.5	PASS

5.5 Occupied Channel Bandwidth

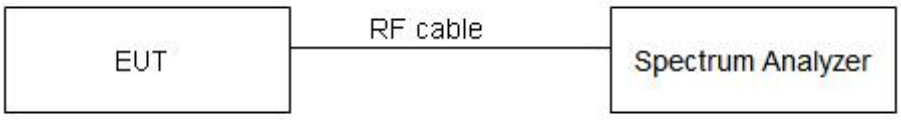
Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.3kPa

Method of Measurement:

The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable. RBW is set to 1% to 5% of the OBW; video bandwidth (VBW) shall be at least three times RBW on spectrum analyzer.
Detector=Peak, Trace mode=Max hold.

Test Setup:



Measurement Uncertainty：

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 936 Hz.

Test Results:

TestMode	Antenna	Channel	OCB [MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	14.146	---	---
	Ant1	2412	14.106	---	---
	Ant1	2437	14.146	---	---
11G	Ant1	2437	17.423	---	---
	Ant1	2462	17.383	---	---
	Ant1	2462	17.463	---	---
11N20SISO	Ant1	2402	18.501	---	---
	Ant1	2440	18.501	---	---
	Ant1	2480	18.422	---	---
BLE_1M	Ant1	2402	1.031	---	---
	Ant1	2440	1.027	---	---
	Ant1	2480	1.023	---	---

5.6 Band Edge Measurement

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.3kPa

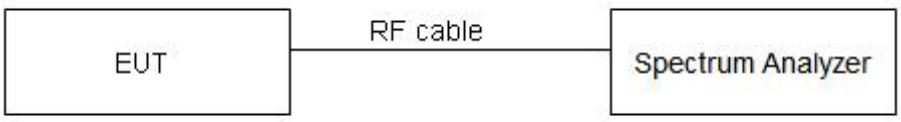
Method of Measurement:

The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable the band edge of the lowest and highest channels were measured. The peak detector is used and RBW is set to 100 kHz and VBW is set to 300 kHz on spectrum analyzer.

Limits:

Rule Part 15.247(d) specifies that “In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

Test Setup:



Measurement Uncertainty：

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 1.96, U= 936 Hz, 2 GHz-3 GHz = 1.407 dB.

Test Results:

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	5.06	-40.11	≤-14.94	PASS
	Ant1	Low	2462	6.49	-40.47	≤-13.51	PASS
11G	Ant1	High	2412	0.12	-33.43	≤-19.88	PASS
	Ant1	High	2462	0.91	-40.65	≤-19.09	PASS
11N20SISO	Ant1	Low	2412	0.35	-33.1	≤-19.65	PASS
	Ant1	High	2462	0.47	-40.34	≤-19.53	PASS
BLE_1M	Ant1	Low	2402	4.94	-42.06	≤-15.06	PASS
	Ant1	High	2480	5.49	-41.01	≤-14.51	PASS

5.7 Maximum Power Spectral Density

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.3kPa

Method of Measurement:

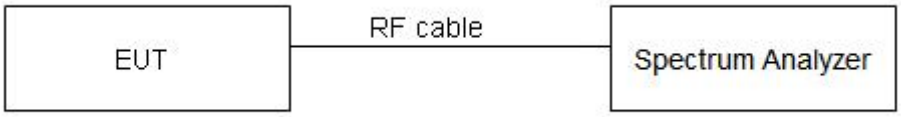
During the process of the testing, The EUT was connected to Spectrum Analyzer with a known loss. The EUT is max power transmission with proper modulation. The Average detector is used. We use Method AVGPSD-2 in KDB 558074 D01 for this test.

Limits:

Rule Part 15.247(e) specifies that" For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

Maximum Power Spectral Density	≤ 8 dBm / 3kHz

Test Setup:



Measurement Uncertainty：

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 0.75dB.

Test Results:

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-7.23	≤8	PASS
	Ant1	2437	-5.85	≤8	PASS
	Ant1	2462	-6.68	≤8	PASS
11G	Ant1	2412	-12.83	≤8	PASS
	Ant1	2437	-12.43	≤8	PASS
	Ant1	2462	-12.24	≤8	PASS
11N20SISO	Ant1	2412	-12.21	≤8	PASS
	Ant1	2437	-11.95	≤8	PASS
	Ant1	2462	-9.40	≤8	PASS
BLE_1M	Ant1	2402	-10.15	≤8	PASS
	Ant1	2440	-10.14	≤8	PASS
	Ant1	2480	-10.48	≤8	PASS

5.8 Spurious RF Conducted Emissions

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.3kPa

Method of Measurement:

The EUT was connected to the spectrum analyzer with a known loss. The spectrum analyzer scans from 30MHz to the 10th harmonic of the carrier. The peak detector is used. Set RBW to100kHz and VBW to 300 kHz, Sweep is set to AUTO .The test is in transmitting mode.

Limits:

Rule Part 15.247(d) pacifies that “In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

Test Setup:

Measurement Uncertainty：

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 1.96.

Frequency	Uncertainty
100kHz-2GHz	0.684 dB
2GHz-26GHz	1.407 dB

Test Results:

TestMode	Antenna	Channel	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	4.90	4.90	---	PASS
			30~1000	4.90	-52.01	≤-15.1	PASS
			1000~26500	4.90	-40.76	≤-15.1	PASS
		2437	Reference	6.13	6.13	---	PASS
			30~1000	6.13	-51.9	≤-13.87	PASS
			1000~26500	6.13	-40.63	≤-13.87	PASS
		2462	Reference	4.75	4.75	---	PASS
			30~1000	4.75	-51.66	≤-15.25	PASS
			1000~26500	4.75	-40.71	≤-15.25	PASS
11G	Ant1	2412	Reference	-3.72	-3.72	---	PASS
			30~1000	-3.72	-52.04	≤-23.72	PASS
			1000~26500	-3.72	-40.7	≤-23.72	PASS
		2437	Reference	-2.02	-2.02	---	PASS
			30~1000	-2.02	-52.06	≤-22.02	PASS
			1000~26500	-2.02	-36.66	≤-22.02	PASS
		2462	Reference	-2.52	-2.52	---	PASS
			30~1000	-2.52	-50.95	≤-22.52	PASS
			1000~26500	-2.52	-40.05	≤-22.52	PASS
11N20SISO	Ant1	2412	Reference	-3.74	-3.74	---	PASS
			30~1000	-3.74	-51.75	≤-23.74	PASS
			1000~26500	-3.74	-40.7	≤-23.74	PASS
		2437	Reference	-2.95	-2.95	---	PASS
			30~1000	-2.95	-52.1	≤-22.95	PASS
			1000~26500	-2.95	-40.85	≤-22.95	PASS
		2462	Reference	-3.12	-3.12	---	PASS
			30~1000	-3.12	-51.74	≤-23.12	PASS
			1000~26500	-3.12	-40.6	≤-23.12	PASS

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	3.26	3.26	---	PASS
			30~1000	3.26	-52.03	≤-16.74	PASS
			1000~26500	3.26	-40.71	≤-16.74	PASS
		2440	Reference	3.95	3.95	---	PASS
			30~1000	3.95	-51.89	≤-16.05	PASS
			1000~26500	3.95	-40.93	≤-16.05	PASS
		2480	Reference	5.52	5.52	---	PASS
			30~1000	5.52	-51.32	≤-14.48	PASS
			1000~26500	5.52	-40.36	≤-14.48	PASS

6. Appendix X

Test Equipment	Type/Mode	SERIAL NO.	Equipment No.	Manufacturer	Cal. Due
Communication Shielded Room 2	4m*3m*3m	CRTDSWKSR 44301	/	CRT	2027/04/22
Spectrum Analyzer	FSV40	101580	DZ-000238-3	R&S	2025/04/22
Power Meter	JS0806-2	19H9080187	DZ-000241	Tonscend	2025/04/27
Programmable DC Power Supply	E3644A	MY58036222	DZ-000178	KEYSIGHT	2025/04/11
5m Semi-Anechoic Chamber	SAC-5	SAC-5-2.0	EM-000557	COMTEST	2027/02/01
Spectrum Analyzer	N9010B	MY57470323	DZ-000174	KEYSIGHT	2026/01/01
EMI Test Receiver	N9038A-508	MY532290079	EM-000397	Agilent	2025/12/26
EMI Test Receiver	ESR7	102235	EM-000574	R&S	2026/01/06
loop antenna	HLA 6121	540046	EM-000546	TESEQ	2025/06/04
Broadband Antenna	VULB 9163	9163-530	EM-000342	SCHWARZBECK	2025/06/09
Waveguide Horn Antenna	HF906	360306/008	EM-000093-8	R&S	2025/12/26
Waveguide Horn Antenna	BBHA9170	00949	DZ-000209-2	SCHWARZBECK	2025/08/03
Preamplifier	BBV 9721	9721-050	DZ-000209-1	SCHWARZBECK	2025/06/02
Bandstop Filters	SW-BSF-2400-100-7-A1	/	EM-000495	/	2025/08/29
Preamplifier	BBV 9721	9721-050	DZ-000209-1	SCHWARZBECK	2025/06/03
Temperature and humidity meter	MHO-C201	/	DZ-000249-2	Seconds test	2025/07/28
Temperature and humidity meter	MHO-C201	/	DZ-000249-5	Seconds test	2025/07/28
Shielding Room(#2)	GP1A	/	EM-000372	LEINING	2029-08-04
EMI Test Receiver	ESR3	/	EM-000520	R&S	2025-01-14
LISN	NSLK 8127	/	EM-000370	SCHWARZBECK	2025-07-22

Dynacomm	Software Release	Software Developer
TS1120-3 Test System(Conduction test)	3.3.38	Tonscend
TS+（5m,Radiation test）	JS32-RE 5.0.0	Tonscend

The End

Important

1. The test report is invalid without the official stamp of CVC;
2. Any part photocopies of the test report are forbidden without the written permission from CVC;
3. The test report is invalid without the signatures of Author and Reviewer;
4. The test report is invalid if altered;
5. Objections to the test report must be submitted to CVC within 15 days;
6. Generally, commission test is responsible for the tested samples only;
7. As for the test result, "—" or " N/A" means "not applicable", " / "means "not testing", "P" means "pass" and "F" means "fail".

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