



Test Report No.:
FCC2025-0035-RF1

TEST REPORT

FCC ID : 2BQIW-PM220
Applicant : Zhongshan Polono Electronic Technology Co., Ltd.
Product Name : Label Maker
Model No. : PM220

CVC Testing Technology Co., Ltd.

Product Name	Label Maker	Trade Mark	---			
Type/Model	PM220	Sample Status	---			
Applicant	Zhongshan Polono Electronic Technology Co., Ltd.					
Applicant Address	No. 132, Tanlong North Road, Tanzhou Town, Zhongshan City, 4th and 5th floors, Building 2, 4th and 5th floors, Building 3					
Manufacturer	Zhongshan Polono Electronic Technology Co., Ltd.					
Manufacturer Address	No. 132, Tanlong North Road, Tanzhou Town, Zhongshan City, 4th and 5th floors, Building 2, 4th and 5th floors, Building 3					
Factory	Zhongshan Polono Electronic Technology Co., Ltd.					
Factory Address	No. 132, Tanlong North Road, Tanzhou Town, Zhongshan City, 4th and 5th floors, Building 2, 4th and 5th floors, Building 3					
Sample Identification	1-1	Test Item	See page 07			
Tested According To	FCC CFR47 Part 15C Radio Frequency Devices ANSI C63.10-2020+Cor1-2023 KDB 558074 D01 15.247 Meas Guidance v05r02					
Receiving Date	Jul.13,2025	Completing Date	Jul.16,2025~Aug.15,2025			
Test conclusion	<p>The equipment under test was found to comply with the requirements of the standards applied.</p> <p>Final Verdict: Pass.</p> <p>Seal of CVC</p> <p>Date of issue: Sep.05,2025</p>					
Abbreviations: / Pass= passed Fail= failed N/A= not applicable						
This test report relates only to the EUT, and shall not be reproduced except in full, without written approval of CVC.						

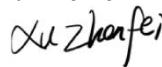
Approved by:

Chen Huawen



Reviewed by:

Xu Zhenfei



Tested by:

Li Yueao

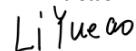


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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FCC2025-0035-RF1	Original release	Sep.05,2025

1. General Product Information

1.1 General information

Product Name	Label Maker
Model No.	PM220
Additional model	N/A
Power Supply	DC 5.0V
Software version	0.2.5
Hardware version	1.0.1
specific power settings	Bluetooth(LE_1M): Default
Antenna Type	PCB Antenna
Antenna Gain	Bluetooth: -0.93 dBi (provided by client)
Beamforming gain	Unsupported (provided by client)
Frequency Range	Bluetooth(LE_1M): 2402~2480MHz
Channel Number	Bluetooth(LE_1M):40 Channels
Type of Modulation	GFSK for BT-LE
Max. Conducted Power	Bluetooth(LE): 1 .65dBm
Operate Temp.Range	+5°C~+45°C
<p>Note:</p> <ol style="list-style-type: none"> 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. 3. The product models of this application are: PM220.All the tests carried out on model PM220. 4. EUT photo refer to report (Report NO.:FCC2025-0035-EUT). 5. The EUT have SISO function, provides 1 completed transmitter and 1 receiver. 	

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.

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FCC(Test firm designation number: CN1282)

IC(Test firm CAB identifier number: CN0103)

CNAS(Test firm designation number: L0095)

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

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	/	/

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

3.2 Duty cycle

Appendix G of BLE_diagram

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 BLE_diagram
Minimum 6 dB bandwidth	15.247(a)(2)	PASS	Appendix A of BLE_diagram
Occupied Channel Bandwidth	15.247(a)(2)	PASS	Appendix B of BLE_diagram
Band Edge Measurement	15.247(d)	PASS	Appendix E of BLE_diagram
Maximum Power spectral density	15.247(e)	PASS	Appendix D of BLE_diagram
Spurious RF Conducted Emissions	15.247(d)	PASS	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.

5. Measurement procedure

5.1 Conducted Emission

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.2kPa

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.

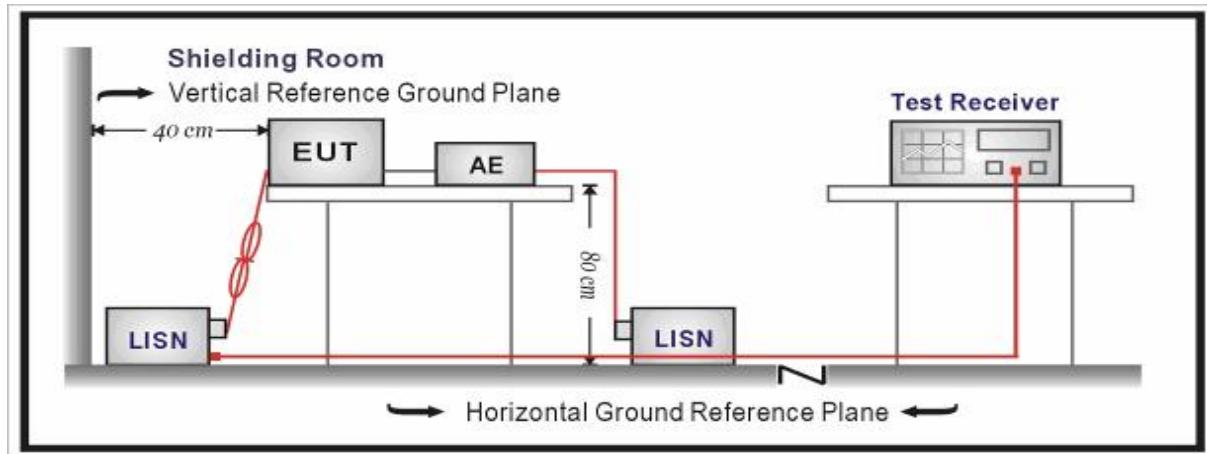
Limits:

Frequency (MHz)	Conducted Limits(dB μ V)	
	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:

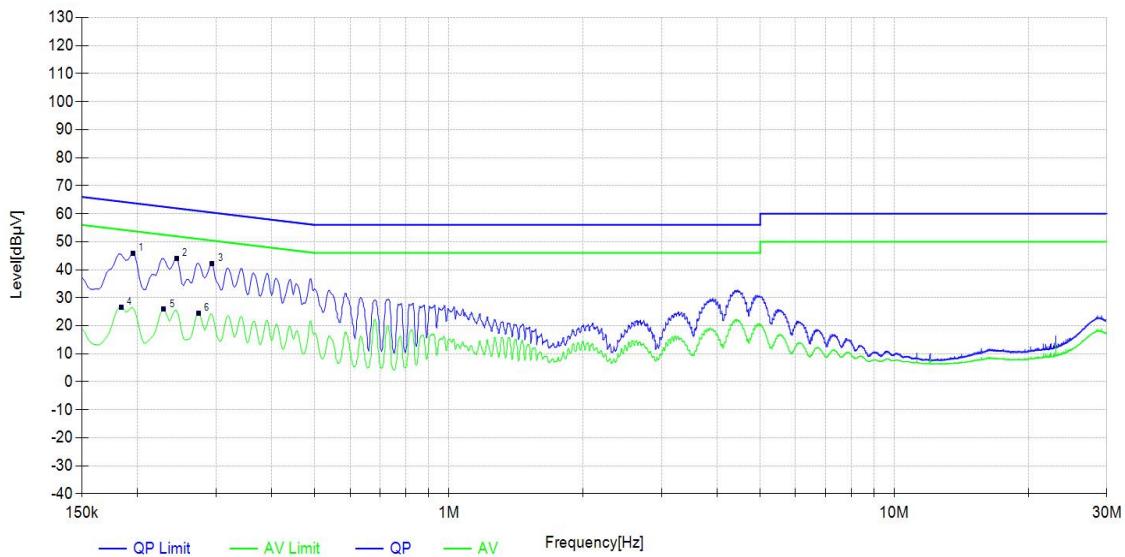
Bluetooth(Low Energy):

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.

Radiates Emission	150k~30MHz						
Power Line	L						
Test channel	Worst-Case						

Suspected List

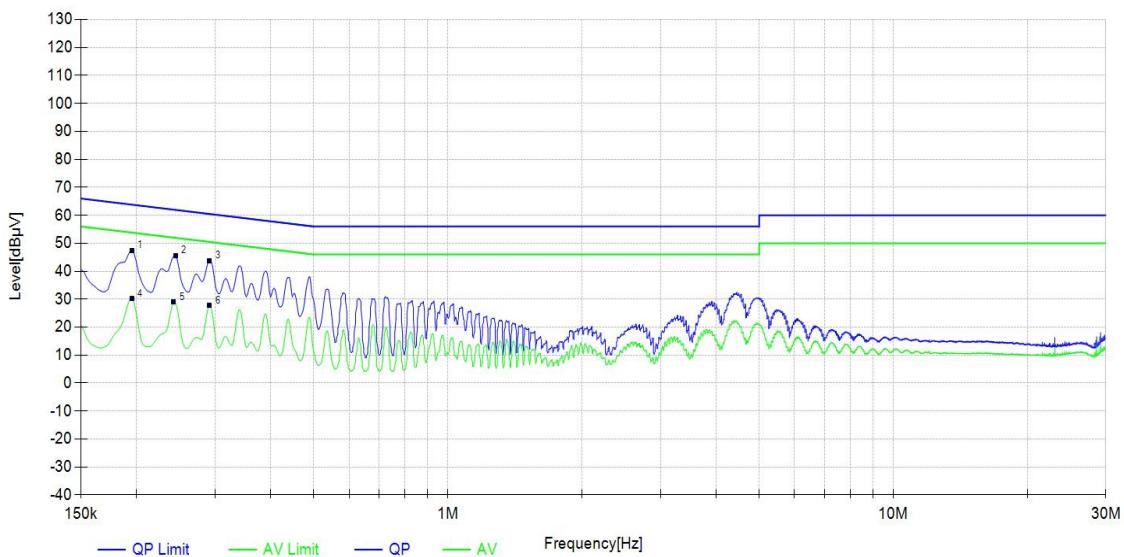
Freq. [MHz]	Factor [dB]	Reading [dB μ V]	Level [dB μ V]	Limit [dB μ V]	Margin [dB]	Detector	Pass/Fail
0.195	10.17	35.79	45.96	63.82	17.86	QP	PASS
0.2445	10.18	33.94	44.12	61.94	17.82	QP	PASS
0.294	10.19	32.03	42.22	60.41	18.19	QP	PASS
0.18375	10.18	16.51	26.69	54.31	27.62	AV	PASS
0.22875	10.18	15.67	25.85	52.49	26.64	AV	PASS
0.27375	10.18	14.29	24.47	51.00	26.53	AV	PASS



Radiates Emission	150k~30MHz
Power Line	N
Test channel	Worst-Case

Suspected List

Freq. [MHz]	Factor [dB]	Reading [dB μ V]	Level [dB μ V]	Limit [dB μ V]	Margin [dB]	Detector	Pass/Fail
0.195	10.17	37.25	47.42	63.82	16.40	QP	PASS
0.2445	10.18	35.36	45.54	61.94	16.40	QP	PASS
0.29175	10.19	33.61	43.80	60.47	16.67	QP	PASS
0.195	10.17	20.00	30.17	53.82	23.65	AV	PASS
0.24225	10.18	18.74	28.92	52.02	23.10	AV	PASS
0.29175	10.19	17.48	27.67	50.47	22.80	AV	PASS



5.2 Radiated Emission

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.2kPa

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)).

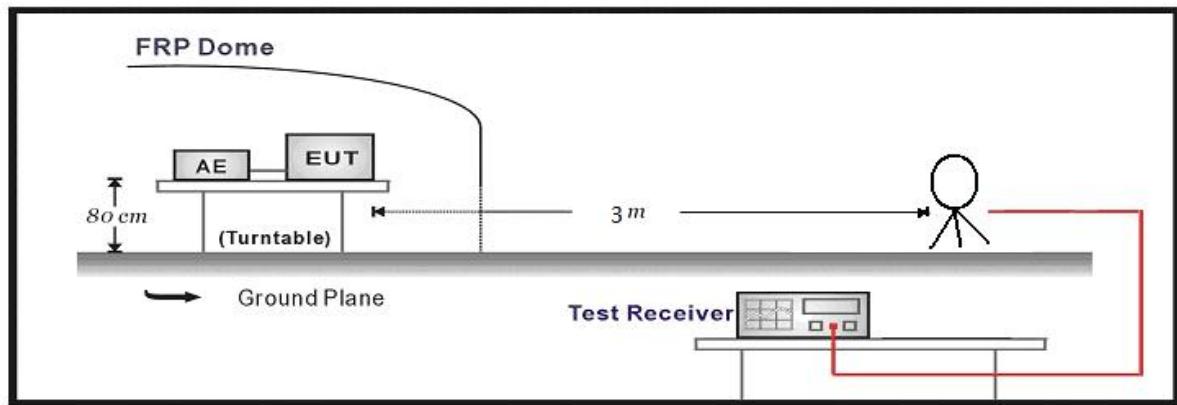
Frequency	Limit (μ V/m)	Limit (dB μ V/m @3m)	Remark
0.009MHz-0.490MHz	2400/F(kHz)@300m	20lg(24000000/F(kHz))	Quasi-peak Level
0.490MHz~1.705MHz	24000/F(kHz)@30m	20lg(2400000/F(kHz))	Quasi-peak Level
1.705MHz~30.0MHz	30@30m	69.54	Quasi-peak Level
30MHz-88MHz	100@3m	40.0	Quasi-peak Level
88MHz-216MHz	150@3m	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:

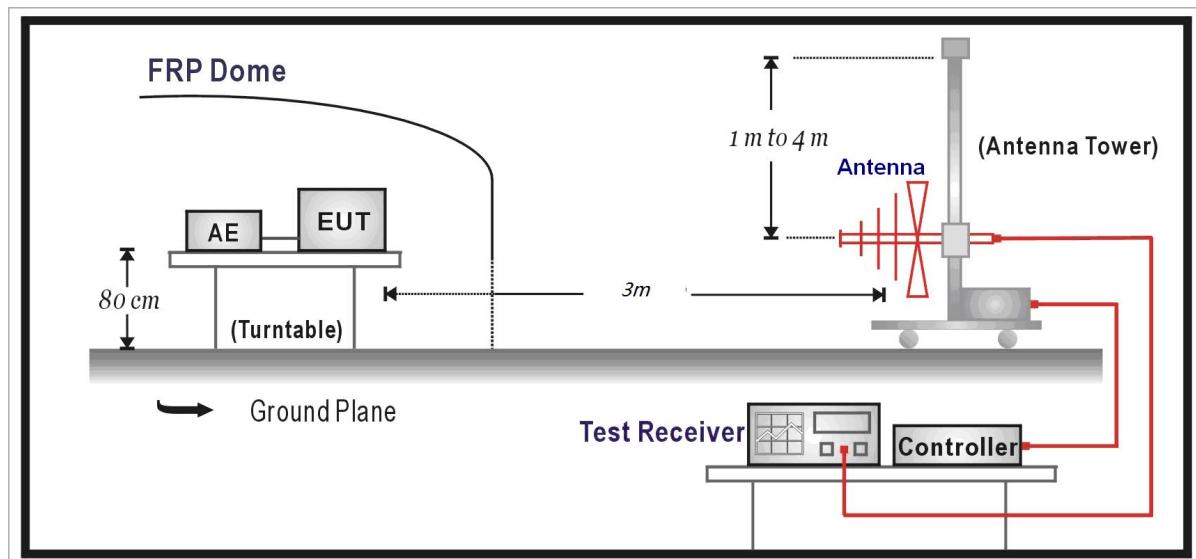
MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	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:

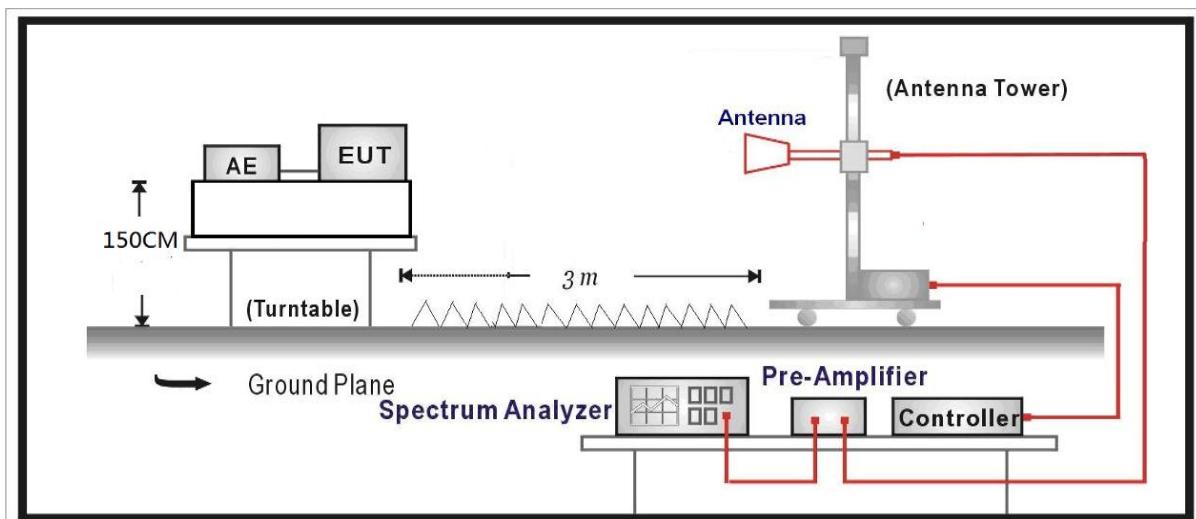
Below 30MHz Test Setup:



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

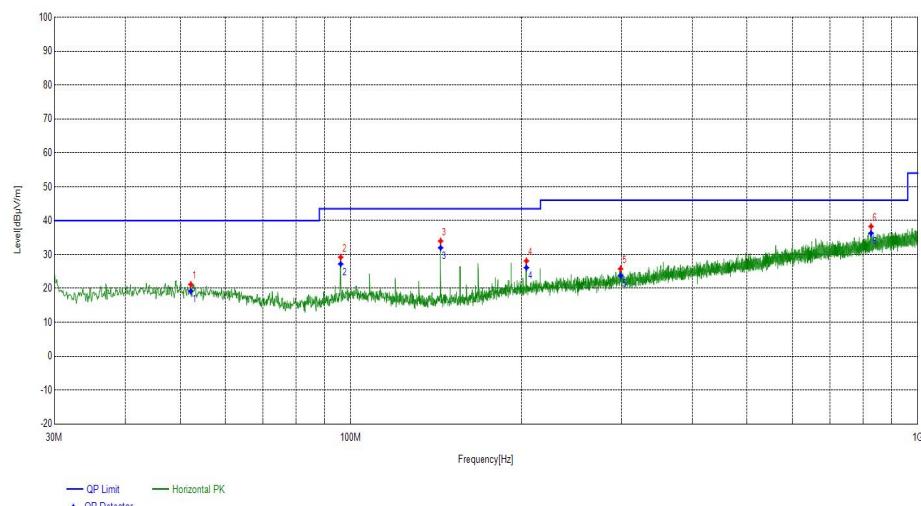
Test Results:**SPURIOUS EMISSIONS:****Bluetooth(Low Energy):**

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 [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail	
52.22	Horizontal	12.90	8.24	21.14	40.00	18.86	PK	100	270	PASS	
95.97	Horizontal	11.06	18.12	29.18	43.50	14.32	PK	100	250	PASS	
143.99	Horizontal	9.50	24.46	33.96	43.50	9.54	PK	100	230	PASS	
204.04	Horizontal	13.00	15.10	28.10	43.50	15.40	PK	100	170	PASS	
299.01	Horizontal	15.49	10.28	25.77	46.00	20.23	PK	100	130	PASS	
827.03	Horizontal	24.92	13.35	38.27	46.00	7.73	PK	100	140	PASS	

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

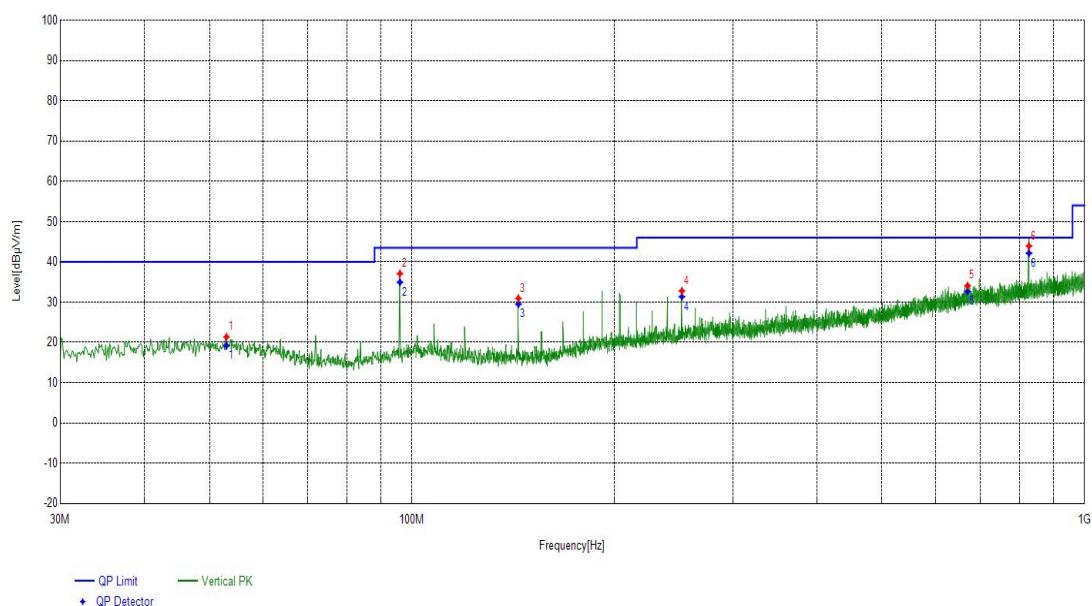
Final Data List								
Frequency [MHz]	Polarity	Factor [dB]	QP Value [dB μ V/m]	QP Limit [dB μ V/m]	QP Margin [dB]	Height [cm]	Angle [°]	Pass/Fail
59.975998	Horizontal	12.90	19.16	40.00	20.84	198	275	PASS
97.421742	Horizontal	11.06	27.20	43.50	16.30	175	253	PASS
179.588959	Horizontal	9.50	31.98	43.50	11.52	236	226	PASS
290.471047	Horizontal	13.00	26.12	43.50	17.38	112	185	PASS
497.877788	Horizontal	15.49	23.79	46.00	22.21	327	127	PASS
791.429143	Horizontal	24.92	36.29	46.00	9.71	339	133	PASS



Radiates Emission		9k~1G									
Test channel		Worst-Case									
Suspected List											
Frequency [MHz]	Polarity	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/Fail	
52.99	Vertical	12.82	8.53	21.35	40.00	18.65	PK	100	290	PASS	
95.97	Vertical	11.06	26.01	37.07	43.50	6.43	PK	100	140	PASS	
143.99	Vertical	9.50	21.41	30.91	43.50	12.59	PK	100	90	PASS	
251.96	Vertical	14.26	18.50	32.76	46.00	13.24	PK	100	270	PASS	
669.97	Vertical	22.89	11.17	34.06	46.00	11.94	PK	100	200	PASS	
826.93	Vertical	24.92	19.00	43.92	46.00	2.08	PK	100	40	PASS	

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

Final Data List								
Frequency [MHz]	Polarity	Factor [dB]	QP Value [dB μ V/m]	QP Limit [dB μ V/m]	QP Margin [dB]	Height [cm]	Angle [°]	Pass/Fail
52.99129	Vertical	12.82	19.21	40.00	20.79	153	290	PASS
95.966597	Vertical	11.06	34.93	43.50	8.57	216	140	PASS
143.98639	Vertical	9.50	29.49	43.50	14.01	351	90	PASS
251.95819	Vertical	14.26	31.34	46.00	14.66	85	270	PASS
669.97299	Vertical	22.89	32.64	46.00	13.36	196	200	PASS
826.93469	Vertical	24.92	42.17	46.00	3.83	283	40	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 [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
3202.54	-1.70	58.20	56.50	74.00	17.50	PK	150	287	PASS
4003.70	-0.57	46.84	46.27	74.00	27.73	PK	150	53	PASS
7676.44	7.25	34.43	41.68	74.00	32.32	PK	150	59	PASS
3204.04	-1.70	54.06	52.36	54.00	1.64	AV	150	287	PASS
4005.20	-0.57	40.63	40.06	54.00	13.94	AV	150	53	PASS
7818.96	7.36	23.29	30.65	54.00	23.35	AV	150	268	PASS
Radiates Emission		Above 1G							
Test channel		Lowest							
polarization		Vertical							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detector	Height [cm]	Angle deg	Pass/Fail
3202.54	-1.70	55.63	53.93	74.00	20.07	PK	150	237	PASS
4003.70	-0.57	51.34	50.77	74.00	23.23	PK	150	83	PASS
5604.52	3.11	43.20	46.31	74.00	27.69	PK	150	146	PASS
3204.04	-1.70	51.15	49.45	54.00	4.55	AV	150	237	PASS
4005.20	-0.57	46.03	45.46	54.00	8.54	AV	150	159	PASS
5606.02	3.12	37.70	40.82	54.00	13.18	AV	150	242	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 [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/ Fail
3306.06	-1.51	55.13	53.62	74.00	20.38	PK	150	110	PASS
4132.73	-0.69	46.03	45.34	74.00	28.66	PK	150	344	PASS
7874.47	7.40	34.79	42.19	74.00	31.81	PK	150	283	PASS
3307.56	-1.50	47.44	45.94	54.00	8.06	AV	150	312	PASS
4134.23	-0.69	38.16	37.47	54.00	16.53	AV	150	264	PASS
8188.04	7.77	23.00	30.77	54.00	23.23	AV	150	5	PASS

Radiates Emission	Above 1G								
Test channel	Medium								
polarization	Vertical								

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/ Fail
3306.06	-1.51	54.91	53.40	74.00	20.60	PK	150	293	PASS
4132.73	-0.69	48.88	48.19	74.00	25.81	PK	150	103	PASS
5786.06	3.83	40.39	44.22	74.00	29.78	PK	150	215	PASS
3307.56	-1.50	47.13	45.63	54.00	8.37	AV	150	287	PASS
4134.23	-0.69	41.35	40.66	54.00	13.34	AV	150	250	PASS
5787.56	3.84	33.47	37.31	54.00	16.69	AV	150	116	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 [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/ Fail
3306.06	-1.51	55.01	53.50	74.00	20.50	PK	150	103	PASS
4132.73	-0.69	45.51	44.82	74.00	29.18	PK	150	349	PASS
8660.63	8.43	34.11	42.54	74.00	31.46	PK	150	324	PASS
3307.56	-1.50	47.61	46.11	54.00	7.89	AV	150	103	PASS
4134.23	-0.69	37.63	36.94	54.00	17.06	AV	150	343	PASS
8588.62	8.33	23.07	31.40	54.00	22.60	AV	150	336	PASS

Radiates Emission	Above 1G								
Test channel	Highest								
polarization	Vertical								

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/ Fail
3306.06	-1.51	54.64	53.13	74.00	20.87	PK	150	301	PASS
4132.73	-0.69	48.41	47.72	74.00	26.28	PK	150	239	PASS
7988.50	7.49	34.10	41.59	74.00	32.41	PK	150	326	PASS
3307.56	-1.50	46.73	45.23	54.00	8.77	AV	150	295	PASS
4134.23	-0.69	40.37	39.68	54.00	14.32	AV	150	296	PASS
8162.53	7.74	22.88	30.62	54.00	23.38	AV	150	270	PASS

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

Band Edge:

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 [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/ Fail
2147.11	29.33	10.63	39.96	74.00	34.04	PK	150	288	PASS
2390.14	29.92	8.63	38.55	74.00	35.45	PK	150	192	PASS
2402.34	29.93	44.42	74.35	---	---	PK	150	294	---
2113.11	29.32	3.61	32.93	54.00	21.07	AV	150	260	PASS
2390.14	29.91	2.30	32.21	54.00	21.79	AV	150	183	PASS
2401.74	29.93	43.94	73.87	---	---	AV	150	281	---
Test mode		BLE(1Mbps)							
Test channel		Lowest channel							
polarization		Vertical							
Suspected List									
Frequency [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/ Fail
2154.97	29.68	15.57	45.25	74.00	28.75	PK	150	359	PASS
2389.94	29.91	8.91	38.82	74.00	35.18	PK	150	278	PASS
2401.94	29.93	44.73	74.66	---	---	PK	150	94	---
2154.97	29.68	7.27	36.95	54.00	17.05	AV	150	359	PASS
2390.14	29.92	1.76	31.68	54.00	22.32	AV	150	61	PASS
2401.74	29.93	43.93	73.86	---	---	AV	150	323	---

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

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/ Fail
2480.15	29.75	52.79	82.54	---	---	PK	150	272	---
2483.35	29.74	9.09	38.83	74.00	35.17	PK	150	311	PASS
2650.97	29.66	12.12	41.78	74.00	32.22	PK	150	59	PASS
2480.15	29.75	52.39	82.14	---	---	AV	150	277	---
2483.35	29.74	2.43	32.17	54.00	21.83	AV	150	311	PASS
2681.97	29.79	3.96	33.75	54.00	20.25	AV	150	148	PASS

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

Suspected List

Frequency [MHz]	Factor [dB]	Reading [dB μ V/m]	Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Detect or	Height [cm]	Angle deg	Pass/ Fail
2480.35	29.75	54.86	84.61	---	---	PK	150	344	---
2483.55	29.74	9.51	39.25	74.00	34.75	PK	150	260	PASS
2657.37	29.69	13.60	43.29	74.00	30.71	PK	150	344	PASS
2479.75	29.75	54.13	83.88	---	---	AV	150	321	---
2483.35	29.74	2.38	32.12	54.00	21.88	AV	150	327	PASS
2663.17	29.71	4.15	33.86	54.00	20.14	AV	150	299	PASS

5.3 Maximum conducted output power

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.2kPa

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.

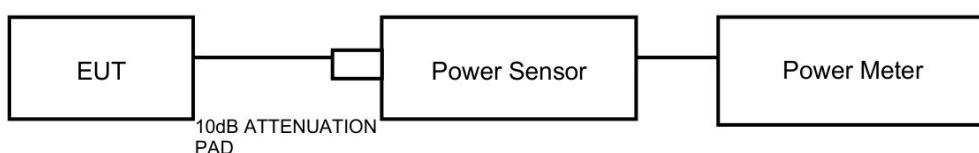
Limits:

Average Output Power	$\leq 1W$ (30dBm)
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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.

5.4 Minimum 6 dB Bandwidth

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.2kPa

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.

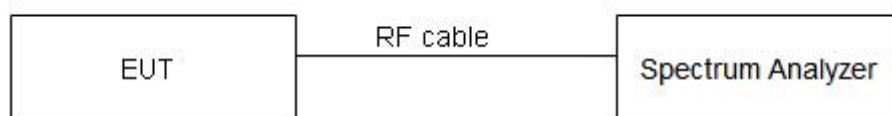
Detector=Peak, Trace mode=Max hold.

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
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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.

5.5 Occupied Channel Bandwidth

Ambient condition:

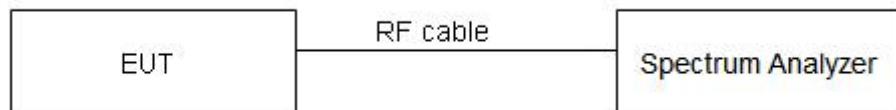
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.2kPa

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.

5.6 Band Edge Measurement

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.2kPa

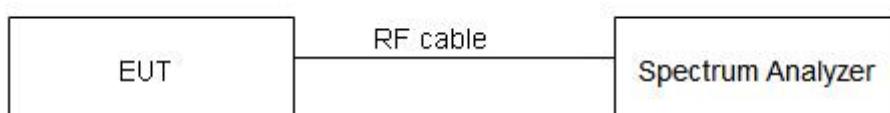
Method of Measurement:

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, $2 \text{ GHz}-3 \text{ GHz} = 1.407 \text{ dB}$.

5.7 Maximum Power Spectral Density

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.2kPa

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 Peak detector is used.

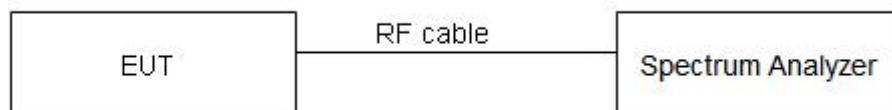
The conducted Power is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically.

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
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Test Setup:



Measurement Uncertainty:

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

5.8 Spurious RF Conducted Emissions

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.2kPa

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 to 100kHz 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

6. Appendix X

Test Equipment	Type/Mode	SERIAL NO.	Equipment No.	Manufacturer	Cal. Due
Communication Shielded Room 2	4m*3m*3m	CRTDSWKS44301	DZ-000244-2	CRT	2027/04/22
Spectrum Analyzer	FSV40	101580	DZ-000238-3	R&S	2026/03/27
UXA signal analyzer	N9040B	US57212256	DZ-000466	KEYSIGHT	2025/12/17
Power Meter	JS0806-2	19H9080187	DZ-000241	Tonscend	2026/03/27
Programmable DC Power Supply	E3644A	MY58036222	DZ-000178	KEYSIGHT	2026/04/10
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	2026/01/05
loop antenna	HLA 6121	540046	EM-000546	TESEQ	2026/06/03
Broadband Antenna	VULB 9163	9163-530	EM-000342	SCHWARZ BECK	2026/06/02
Waveguide Horn Antenna	HF906	360306/008	EM-000093	R&S	2025/12/26
Waveguide Horn Antenna	BBHA9170	00949	DZ-000209-2	SCHWARZ BECK	2026/08/02
2.4GHz band stop	ZBSF6-C2400-2483.5-5 43	1232723	DZ-000399-1	Tonscend	2026/06/10
5.8GHz band resistance	ZBSF6-C5725-5850-16 27	1232740	DZ-000399-2	Tonscend	2026/05/29
Preamplifier	BBV 9721	9721-050	DZ-000209-1	SCHWARZ BECK	2026/06/02
Temperature and humidity meter	UT330THC	C231446122	DZ-000249-2	UNI-T	2026/07/24
Temperature and humidity meter	UT330THC	C231446087	DZ-000249-5	UNI-T	2026/07/24

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

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.

Description	Brand	Model No.	Serial Number	Supplied by
laptop	DELL	G5 5500	379P463	Lab
SWITCHING ADAPTER	HUIZHOU FUJIA APPLIANCE	FJ-SW2050501000U	/	Lab

————— No Body Text Below —————

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”.

Address: No.3,Tiantaiyi Road, Kaitai Avenue, Science City, Guangzhou, China (Test location)

Post Code: 510663 Tel: 020-32293888

FAX: 020 32293889 E-mail: office@cvc.org.cn