



Test Report No.:
FCC2025-0026-RF

TEST REPORT

FCC ID

2BG9T-TCLSMARTK1

Applicant

: Shenzhen TCL Smart Home Technology
Co., Ltd.

Product Name

: TCL K1 Series Smart Door Knob

Model No.

: K1

CVC Testing Technology Co., Ltd.

Applicant	Name: Shenzhen TCL Smart Home Technology Co., Ltd. Address: 7/F,TCL G1 Building. TCL International E City, No.1001 Zhongshan Yuan Road, Nanshan District,Shenzhen		
Manufacturer	Name: Shenzhen TCL Smart Home Technology Co., Ltd. Address: 7/F,TCL G1 Building. TCL International E City, No.1001 Zhongshan Yuan Road, Nanshan District,Shenzhen		
Producer	Name: SHENZHEN ZAIFENGDA TECHNOLOGY CO..LTD Address: FuDiGang 2nd Industrial estate 2-1,2-2.PingDong community,PingDi Street,LongGang Dist,Shenzhen,China		
Equipment Under Test	Product Name : TCL K1 Series Smart Door Knob Model No. : K1 Trade mark : TCL Serial no. : — Sampling : 1-1		
Date of Receipt.	2025.6.20	Date of Testing	2025.7.4
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 Date of issue: 2025-07-10		
Approved by: Chen Huawen 	Reviewed by: Xu Zhenfei 	Tested by: Lu Weiji 	
Other Aspects: NONE.			
Abbreviations: Pass= passed Fail = failed N/A= not applicable EUT= equipment, sample(s) under tested			
Note1: This test report relates only to the EUT, and shall not be reproduced except in full, without written approval of CVC.			

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1. General Product Information

1.1 General information

Product Name	TCL K1 Series Smart Door Knob
Model No.	K1
Additional model	K1X(the “X” is a number from 0~9,or is an alphabet in A~Z.)
Power Supply	DC 6V from battery or DC 5V from USB port
Serial Number(SN)	TZYK10000057W0001
HW-Release NO	V13
SW-Release NO	V3.1
specific power settings	0
Antenna Type	Internal Antenna
Antenna Gain	-4.52dBi (provided by client)
Beamforming gain	Unsupported (provided by client)
Frequency Range	2402~2480MHz
Channel Number	40 Channels
Type of Modulation	GFSK
Operate Temp.Range	-10°C-50°C

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.
3. Product photo reference report:FCC2025-0026-EUT.

Remark:: The sample models applied for this time are K1,K1X,(the “X” is a number from 0~9,or is an alphabet in A~Z.). All the models with the same RF circuit, with only difference being model name, colour, package and with or without fingerprint module(this hardware difference won't affect the RF performance). detailed difference see the following table:

No.	Model	Difference	Color	Picture	Remarks
1	K1	1. Only the appearance color difference is different, include Silver,Brushed Nickel, Obsidian Black . 2. Only the printing style/label on the surface of the package is different, the product inside the package is the same.	Silver		Inspection model
2			Brushed Nickel		Coverage model
3			Obsidian Black		Coverage model
4	K1X	1. The same with K1,only without fingerprint recognition module. 2. K1X,the “X” is a number from 0~9,or is an alphabet in A~Z.			Coverage model

All tests were conducted at K1, and the test results covered other models.

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)

IC(Test firm CAB identifier number: CN0103)

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	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	1Mbps	/	/

Test Items	Test Antennas	Test Modes	Test Channels
Conducted Emissions	Antenna 1	Bluetooth-LE 1M	0
Radiated Emissions	Antenna 1	Bluetooth-LE 1M	0,39
Radiated Emissions (Band Edge)	Antenna 1	Bluetooth-LE 1M	0,39
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

TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Limit	Verdict
BLE_1M	Ant1	2402	1.01	2.89	34.95	---	---
		2440	1.01	2.89	34.95	---	---
		2480	1.01	2.89	34.95	---	---

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	/
Minimum 6 dB bandwidth	15.247(a)(2)	PASS	Appendix A of Bluetooth-LE_diagram
Occupied Channel Bandwidth	15.247(a)(2)	PASS	Appendix B of Bluetooth-LE_diagram
Band Edge Measurement	15.247(d)	PASS	Appendix E of Bluetooth-LE_diagram
Maximum Power spectral density	15.247(e)	PASS	Appendix D of Bluetooth-LE_diagram
Spurious RF Conducted Emissions	15.247(d)	PASS	Appendix F of Bluetooth-LE_diagram
Antenna Requirement	15.203	PASS	See Note

Note : 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%	101.5kPa

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.

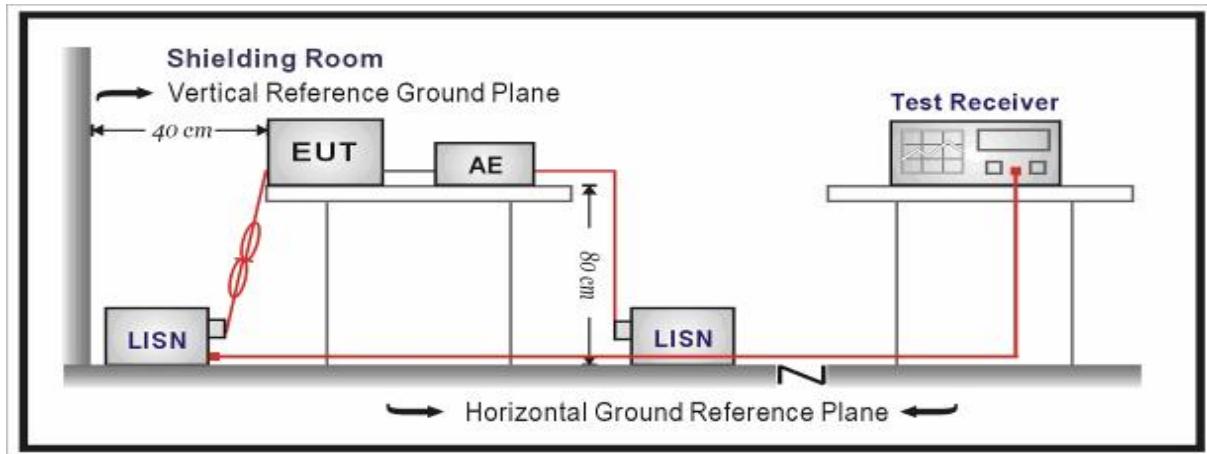
Limits:

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:

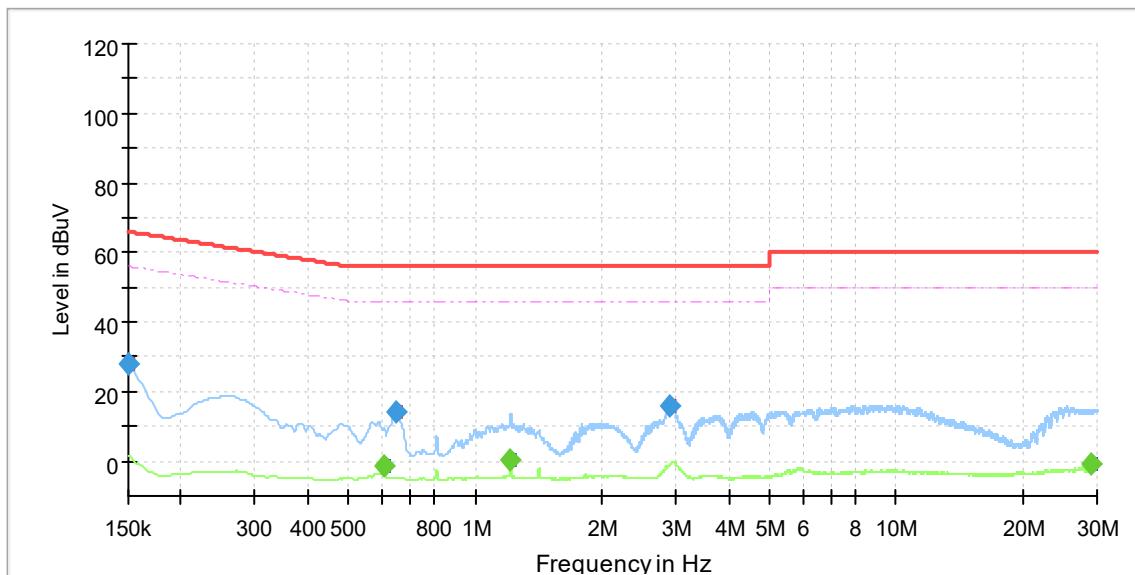
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$. $U = 3.12$ dB.

Test Results:

During the test, the Conducted Emission from 150kHz to 30MHz was performed in all modes with all channels, and all antenna. Bluetooth-LE 1M, Channel 0, Antenna1 are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

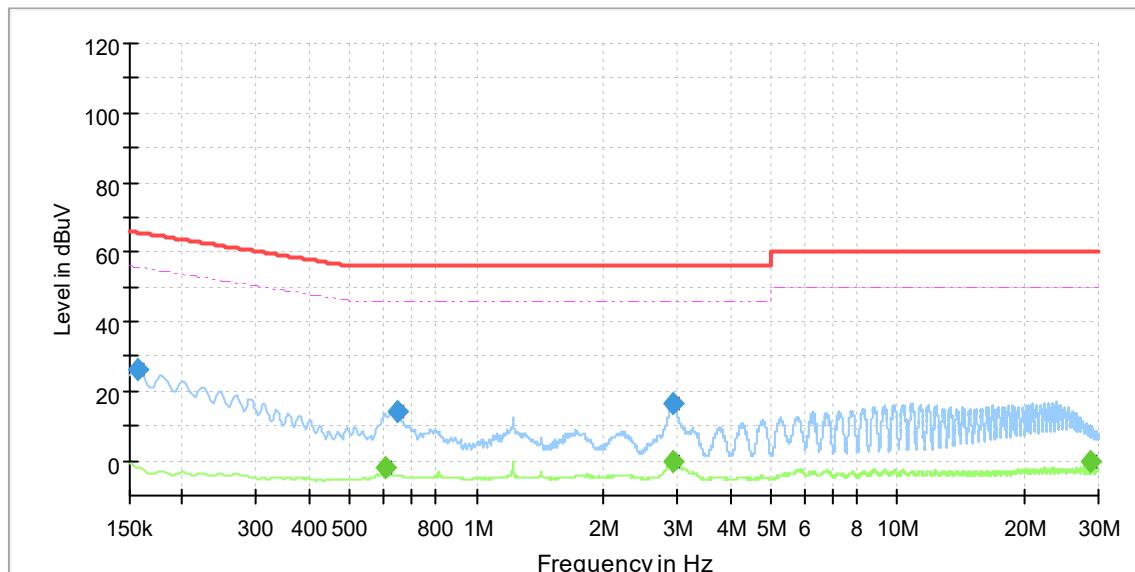
Power Line	L
Test channel	Worst-Case

Suspected List						
NO.	Freq. [MHz]	Level [dB μ V]	Limit [dB μ V]	Margin [dB]	Detector	Pass/Fail
1	0.150	27.7	66.0	38.3	QP	PASS
2	0.607	-1.5	46.0	47.5	AV	PASS
3	0.645	14.3	56.0	41.7	QP	PASS
4	1.214	0.1	46.0	45.9	AV	PASS
5	2.893	15.9	56.0	40.1	QP	PASS
6	28.905	-0.5	50.0	50.5	AV	PASS



Power Line	N
Test channel	Worst-Case

Suspected List						
NO.	Freq. [MHz]	Level [dB μ V]	Limit [dB μ V]	Margin [dB]	Detector	Pass/Fail
1	0.157	26.1	65.6	39.5	QP	PASS
2	0.609	-2.0	46.0	48.0	AV	PASS
3	0.650	14.0	56.0	42.0	QP	PASS
4	2.913	16.6	56.0	39.4	AV	PASS
5	2.927	0.0	46.0	46.0	QP	PASS
6	28.736	-0.1	50.0	50.1	AV	PASS



5.2 Radiated Emission

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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)).

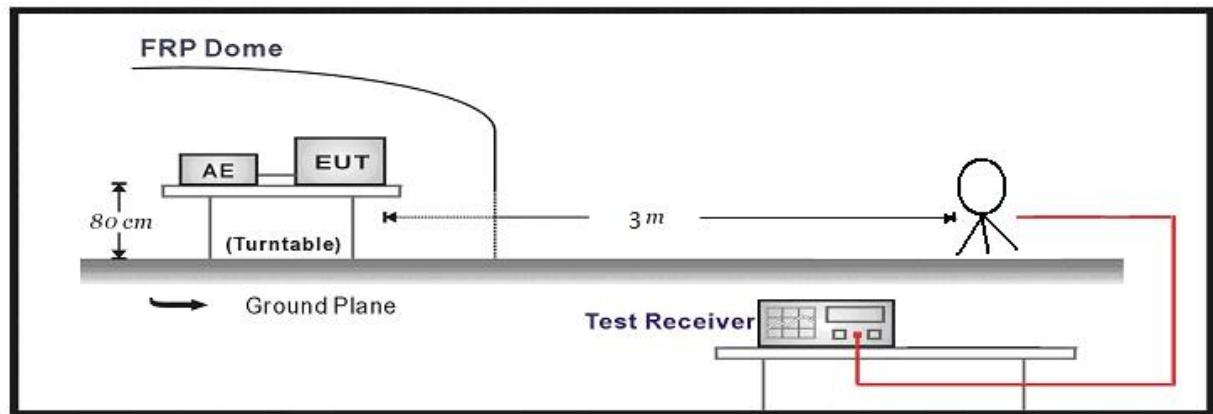
Frequency	Limit (μ V/m)	Limit (dB μ V/m @3m)	Remark
0.009MHz-0.490MHz	2400/F(kHz)@300m	20lg(24000000/F(kHz))	Quasi-peak Level
0.490MHz~1.705MHz	24000/F(kHz)@30m	20lg(2400000/F(kHz))	Quasi-peak Level
1.705MHz~30.0MHz	30@30m	49.54	Quasi-peak Level
30MHz-88MHz	100@3m	40.0	Quasi-peak Level
88MHz-216MHz	150@3m	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:

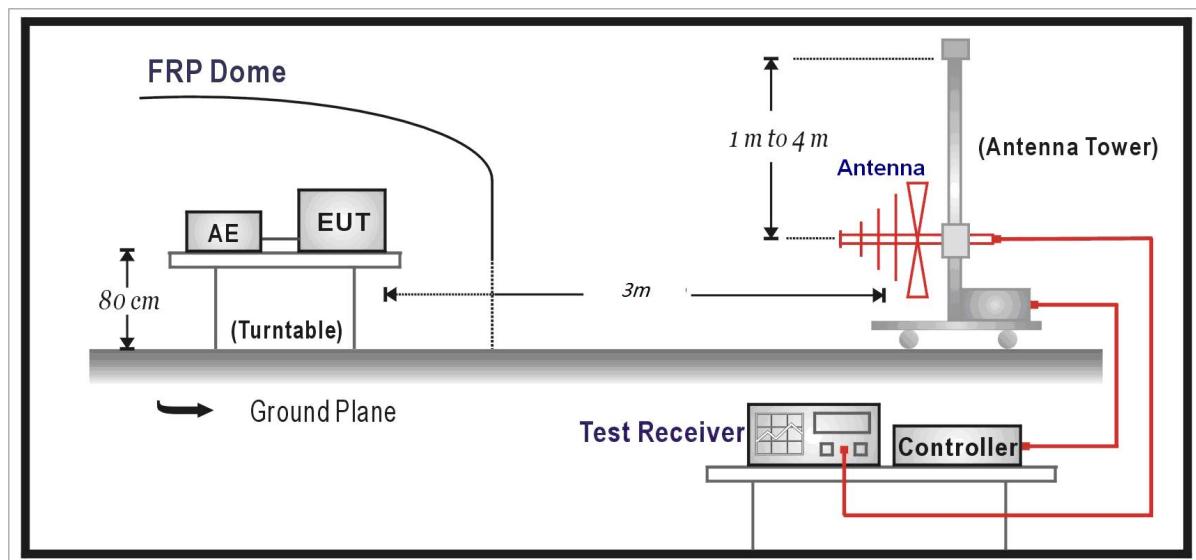
MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218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

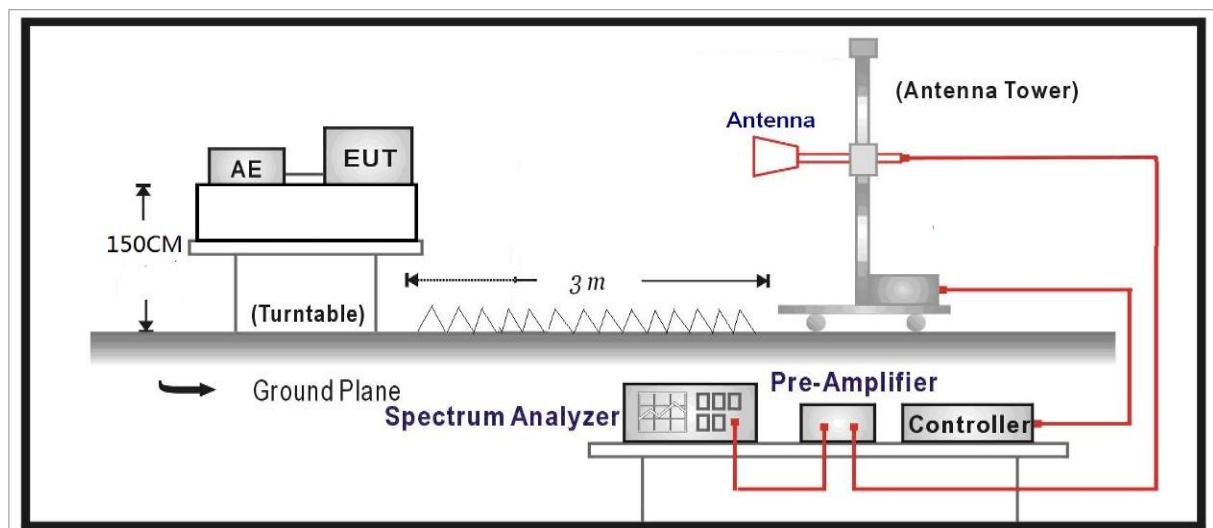
Below 30MHz Test Setup:



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:

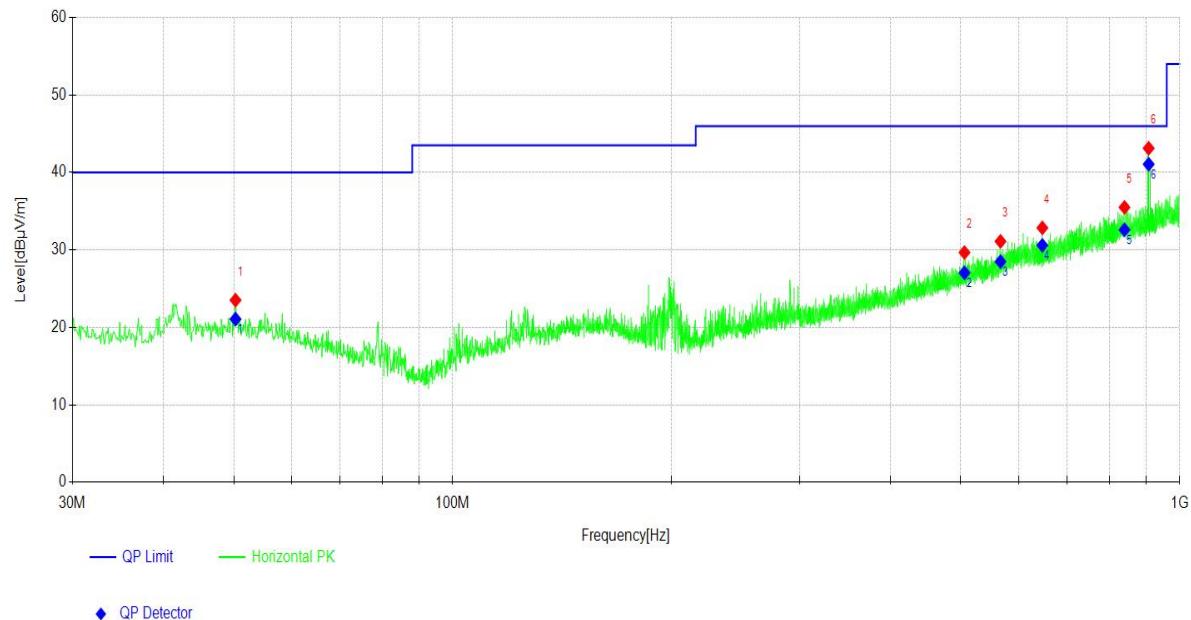
SPURIOUS EMISSIONS:

During the test, the Radiates Emission from 9kHz to 40GHz was performed in Bluetooth-LE 1M. 2402MHz, antenna 1 are selected as the worst condition in 9kHz to 1GHz. Highest and lowest channels, antenna 1 are selected as the worst condition in 1GHz to 40GHz. The test data of the worst-case condition was recorded in this report.

Radiates Emission		9kHz~1GHz							
Test channel		Worst-Case							
Polarity		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
50.275	20.26	3.26	23.52	—	—	PK	100	141	—
505.833	25.39	4.28	29.67	—	—	PK	100	52	—
566.949	26.57	4.54	31.11	—	—	PK	100	200	—
647.370	27.86	4.99	32.85	—	—	PK	100	39	—
839.643	30.83	4.67	35.50	—	—	PK	100	357	—
906.483	31.23	11.90	43.13	—	—	PK	100	19	—

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

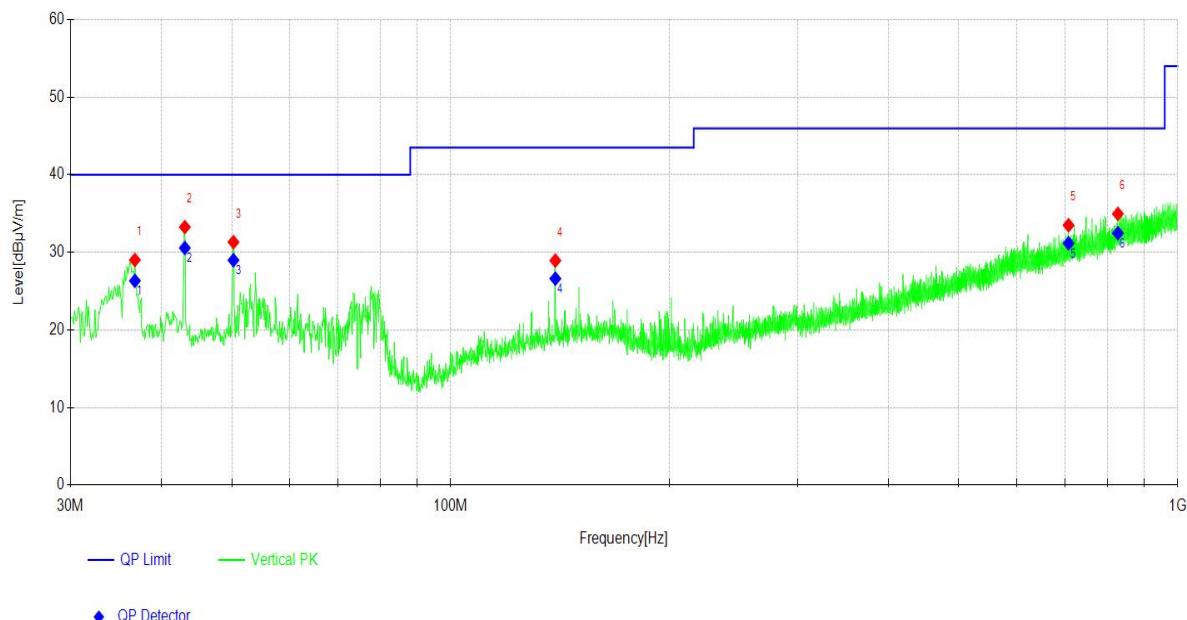
Final Data List							
Frequency [MHz]	Factor [dB]	QP Value [dB μ V/m]	QP Limit [dB μ V/m]	QP Margin [dB]	Height [cm]	Angle [°]	Pass/Fail
50.275	20.26	21.07	40.00	18.93	200	141	PASS
505.833	25.39	27.05	46.00	18.95	100	52	PASS
566.949	26.57	28.49	46.00	17.51	200	200	PASS
647.370	27.86	30.59	46.00	15.41	100	39	PASS
839.643	30.83	32.60	46.00	13.40	100	357	PASS
906.483	31.23	41.07	46.00	4.93	200	19	PASS



Radiates Emission		9kHz~1GHz							
Test channel		Worst-Case							
Polarity		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
36.791	18.99	10.03	29.02	—	—	PK	100	137	—
43.096	19.76	13.50	33.26	—	—	PK	100	214	—
50.275	20.26	11.06	31.32	—	—	PK	100	167	—
139.330	19.49	9.45	28.94	—	—	PK	100	69	—
707.807	28.80	4.70	33.50	—	—	PK	100	120	—
827.517	30.74	4.22	34.96	—	—	PK	100	163	—

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

Final Data List							
Frequency [MHz]	Factor [dB]	QP Value [dB μ V/m]	QP Limit [dB μ V/m]	QP Margin [dB]	Height [cm]	Angle [°]	Pass/Fail
36.791	18.99	26.33	40.00	13.67	390	137	PASS
43.096	19.76	30.57	40.00	9.43	220	214	PASS
50.275	20.26	28.99	40.00	11.01	280	167	PASS
139.330	19.49	26.61	43.50	16.89	270	69	PASS
707.807	28.80	31.17	46.00	14.83	210	120	PASS
827.517	30.74	32.47	46.00	13.53	330	163	PASS



Radiates Emission	Above 1G							
Test channel	2402							
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]	Pass/ Fail
3994.5995	0.53	37.74	38.27	74.00	35.73	PK	150	PASS
5635.7636	4.04	34.71	38.75	74.00	35.25	PK	150	PASS
8631.5632	10.11	33.95	44.06	74.00	29.94	PK	150	PASS
14068.1068	15.85	32.44	48.29	74.00	25.71	PK	150	PASS
17881.4881	25.55	31.00	56.55	74.00	17.45	PK	150	PASS
4087.6088	0.49	27.69	28.18	54.00	25.82	AV	150	PASS
5670.2670	4.18	24.53	28.71	54.00	25.29	AV	150	PASS
8694.5695	10.13	23.39	33.52	54.00	20.48	AV	150	PASS
14632.1632	18.03	22.84	40.87	54.00	13.13	AV	150	PASS
17984.9985	26.15	20.45	46.60	54.00	7.40	AV	150	PASS

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

Radiates Emission	Above 1G							
Test channel	2402							
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]	Pass/ Fail
3705.0705	-0.02	38.39	38.37	74.00	35.63	PK	150	PASS
5293.7294	2.99	35.55	38.54	74.00	35.46	PK	150	PASS
7071.4071	8.97	34.72	43.69	74.00	30.31	PK	150	PASS
10575.7576	12.71	32.79	45.50	74.00	28.50	PK	150	PASS
16942.3942	21.90	32.51	54.41	74.00	19.59	PK	150	PASS
17281.4281	22.97	32.15	55.12	74.00	18.88	PK	150	PASS
3796.5797	0.15	27.23	27.38	54.00	26.62	AV	150	PASS
5364.2364	3.13	25.42	28.55	54.00	25.45	AV	150	PASS
7326.4326	9.00	24.16	33.16	54.00	20.84	AV	150	PASS
10385.2385	12.87	22.46	35.33	54.00	18.67	AV	150	PASS
17122.4122	22.39	21.54	43.93	54.00	10.07	AV	150	PASS
17261.9262	22.82	22.24	45.06	54.00	8.94	AV	150	PASS

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

Radiates Emission	Above 1G							
Test channel	2480							
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]	Pass/ Fail
4081.6082	0.50	38.63	39.13	74.00	34.87	PK	150	PASS
7068.4068	8.97	33.26	42.23	74.00	31.77	PK	150	PASS
10007.2007	12.36	32.68	45.04	74.00	28.96	PK	150	PASS
14416.1416	18.03	33.23	51.26	74.00	22.74	PK	150	PASS
17998.4999	26.22	30.74	56.96	74.00	17.04	PK	150	PASS
4113.1113	0.48	27.77	28.25	54.00	25.75	AV	150	PASS
7044.4044	8.96	23.99	32.95	54.00	21.05	AV	150	PASS
10316.2316	12.76	21.95	34.71	54.00	19.29	AV	150	PASS
14728.1728	18.04	23.60	41.64	54.00	12.36	AV	150	PASS
17927.9928	25.81	20.48	46.29	54.00	7.71	AV	150	PASS

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

Radiates Emission	Above 1G							
Test channel	2480							
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]	Pass/ Fail
4096.6097	0.49	38.79	39.28	74.00	34.72	PK	150	PASS
5937.2937	5.38	33.72	39.10	74.00	34.90	PK	150	PASS
9710.1710	12.39	32.07	44.46	74.00	29.54	PK	150	PASS
14522.6523	18.29	33.22	51.51	74.00	22.49	PK	150	PASS
17609.9610	24.10	30.60	54.70	74.00	19.30	PK	150	PASS
4102.6103	0.49	27.84	28.33	54.00	25.67	AV	150	PASS
6052.8053	5.76	23.40	29.16	54.00	24.84	AV	150	PASS
9747.6748	12.39	22.31	34.70	54.00	19.30	AV	150	PASS
14453.6454	18.18	22.63	40.81	54.00	13.19	AV	150	PASS
17815.4815	25.16	21.50	46.66	54.00	7.34	AV	150	PASS

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

Band Edge:

During the test, the Band Edge was performed in Bluetooth-LE 1M. Antenna 1, Highest and lowest channels are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

Radiates Emission	Bluetooth-LE 1M							
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]	Pass/ Fail
1725.8726	-6.44	40.42	33.98	74.00	40.02	PK	150	PASS
2386.1386	-4.58	37.30	32.72	74.00	41.28	PK	150	PASS
2390.1390	-4.57	37.08	32.51	74.00	41.49	PK	150	PASS
1725.6726	-6.44	28.32	21.88	54.00	32.12	AV	150	PASS
2385.3385	-4.60	27.52	22.92	54.00	31.08	AV	150	PASS
2390.1390	-4.57	26.15	21.58	54.00	32.42	AV	150	PASS

Radiates Emission	Bluetooth-LE 1M							
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]	Pass/ Fail
1514.4514	-7.12	41.30	34.18	74.00	39.82	PK	150	PASS
2390.1390	-4.57	37.53	32.96	74.00	41.04	PK	150	PASS
2402.1402	-4.53	75.42	70.89	---	---	PK	150	---
1488.2488	-4.60	27.64	23.04	54.00	30.96	AV	150	PASS
2386.1386	-4.58	27.70	23.12	54.00	30.88	AV	150	PASS
2390.1390	-4.57	26.59	22.02	54.00	31.98	AV	150	PASS

Radiates Emission	Bluetooth-LE 1M							
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]	Pass/ Fail
2483.5484	-4.26	36.81	32.55	74.00	41.45	PK	150	PASS
2498.7499	-4.20	38.17	33.97	74.00	40.03	PK	150	PASS
2816.3816	-3.13	39.72	36.59	74.00	37.41	PK	150	PASS
2483.5484	-4.26	25.97	21.71	54.00	32.29	AV	150	PASS
2511.3511	-4.15	26.26	22.11	54.00	31.89	AV	150	PASS
2840.1840	-3.05	27.90	24.85	54.00	29.15	AV	150	PASS

Radiates Emission	Bluetooth-LE 1M							
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]	Pass/ Fail
2483.5484	-4.26	36.34	32.08	74.00	41.92	PK	150	PASS
2491.5492	-4.23	40.40	36.17	74.00	37.83	PK	150	PASS
2867.7868	-2.95	40.17	37.22	74.00	36.78	PK	150	PASS
2483.5484	-4.26	25.95	21.69	54.00	32.31	AV	150	PASS
2491.7492	-4.23	27.71	23.48	54.00	30.52	AV	150	PASS
2822.3822	-3.11	28.19	25.08	54.00	28.92	AV	150	PASS

5.3 Maximum conducted output power

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement:

The EUT was tested according to DTS test procedure of ANSI C63.10 for compliance to FCC 47CFR 15.247 requirements. The maximum conducted output power using ANSI C63.10 section 11.9.1.2 PKPM1 Peak power meter method method.

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall use a fast responding diode detector.

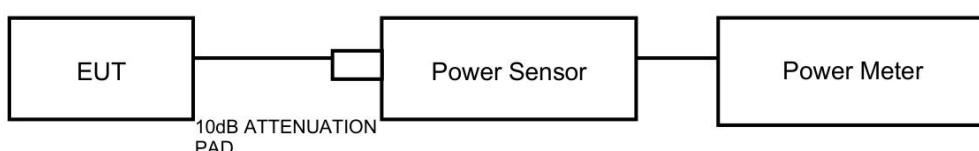
Limits:

Average Output Power	$\leq 1W$ (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
BLE_1M	Ant1	2402	-9.78	≤30	PASS
	Ant1	2440	-9.97	≤30	PASS
	Ant1	2480	-9.92	≤30	PASS

5.4 Minimum 6 dB Bandwidth

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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 100 kHz; VBW is set to 300 kHz on spectrum analyzer.

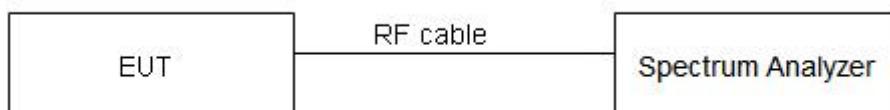
Detector=Peak, Trace mode=Max hold.

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.

Test Results:

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.68	2401.64	2402.32	≥0.5	PASS
	Ant1	2440	0.69	2439.64	2440.32	≥0.5	PASS
	Ant1	2480	0.70	2479.63	2480.33	≥0.5	PASS

5.5 Occupied Channel Bandwidth

Ambient condition:

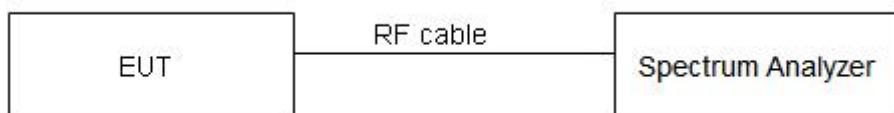
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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 50 kHz; VBW is set to 200 kHz 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]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.023	2401.4725	2402.4955	---	---
	Ant1	2440	1.027	2439.4685	2440.4955	---	---
	Ant1	2480	1.031	2479.4685	2480.4995	---	---

5.6 Band Edge Measurement

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

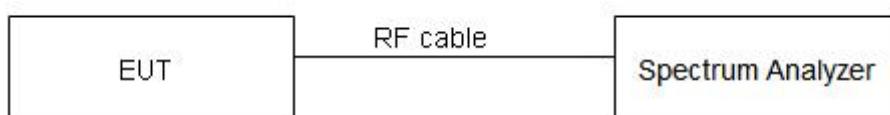
Method of Measurement:

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

Test Results:

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-10.27	-48.66	≤-30.27	PASS
	Ant1	High	2480	-10.42	-47.35	≤-30.42	PASS

5.7 Maximum Power Spectral Density

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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.

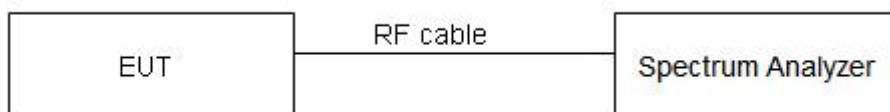
The conducted Power is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically.

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	$\leq 8 \text{ dBm} / 3\text{kHz}$
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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 $k = 2$, $U = 0.75\text{dB}$.

Test Results:

TestMode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-25.13	≤8	PASS
	Ant1	2440	-25.68	≤8	PASS
	Ant1	2480	-25.41	≤8	PASS

5.8 Spurious RF Conducted Emissions

Ambient condition:

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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

Test Results:

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-10.25	-10.25	---	PASS
			30~1000	-10.25	-56.32	\leq -30.25	PASS
			1000~26500	-10.25	-44.63	\leq -30.25	PASS
		2440	Reference	-10.55	-10.55	---	PASS
			30~1000	-10.55	-56.85	\leq -30.55	PASS
			1000~26500	-10.55	-45.29	\leq -30.55	PASS
		2480	Reference	-10.51	-10.51	---	PASS
			30~1000	-10.51	-56.02	\leq -30.51	PASS
			1000~26500	-10.51	-45.95	\leq -30.51	PASS

6. Appendix X

Test Equipment	Type/Mode	SERIAL NO.	Equipment No.	Manufacturer	Cal. Due
Spectrum Analyzer	FSV40	101580	DZ-000238-3	R&S	2026/03/27
RF Radio Frequency Switch	JS0806-2	19H9080187	DZ-000241	Tonscend	2026/03/27
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	2026/06/01
Broadband Antenna	VULB 9163	9163-530	EM-000342	SCHWARZBECK	2026/06/06
Waveguide Horn Antenna	HF906	360306/008	EM-000093	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	2026/06/01
Bandstop Filters	SW-BSF-2400-100-7-A1	/	EM-000495	/	2025/08/29
5G Bandstop Filters	WRCJV12-4900-5100-5900-6100-50EE	1	DZ-000186	WI	2025/12/02
Temperature and humidity meter	UT330THC	C231446122	DZ-000249-2	UNI-T	2025/07/28

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”.

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