



CERTIFICATE #5473.01

Test Report No.:
FCC2024-0043-RF

TEST REPORT

FCC ID : 2A9LE-WLJG4-D-RF
Applicant : Zhongshan Donlim Weili Cleaning
Product Name : Technology Co., Ltd.
Mode No. : remote-control unit
Mode No. : WLJG4-D-RF

CVC Testing Technology Co., Ltd.

Applicant		Name: Zhongshan Donlim Weili Cleaning Technology Co., Ltd. Address: Building A & Building B, No.30 Dongfu Road, Fusha Town, Zhongshan City, Guangdong China	
Manufacturer		Name: Zhongshan Donlim Weili Cleaning Technology Co., Ltd. Address: Building A & Building B, No.30 Dongfu Road, Fusha Town, Zhongshan City, Guangdong China	
Equipment Under Test		Product Name : remote-control unit Model No. : WLJG4-D-RF Trade mark : WEILI Serial no. : WLJG4-D-RF-0001 Sampling : 1-1	
Date of Receipt.	2024.08.26	Date of Testing 2024.09.18	
Test Specification		Test Result	
FCC CFR47 Part 15C Radio Frequency Devices ANSI C63.10-2020/Cor1-2023		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: September 23, 2024, Correction 1: October 21, 2024	
Approved by: Chen Huawen 		Reviewed by: Xu Zhenfei 	Tested by: Lu Weiji 
Other Aspects: NONE.			
Abbreviations:OK, 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 . Note2: The original Test Report FCC2024-0043-RF was issued dated on September 23, 2024. Correction 1 to Report FCC2024-0043-RF was made dated on October 21, 2024 due to change the address and detailed on P2.			

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1. General Product Information

1.1 General information

Product Name	remote-control unit
Model No.	WLJG4-D-RF
Additional model	/
Power Supply	DC 3V
Serial Number(SN)	WLJG4-D-RF-0001
HVIN	WLJG4-D-RF
firmware	V1.0
software	V1.0
Antenna Type	Internal Antenna
Antenna Connector	A permanently attached antenna
Antenna Gain	1.5 dBi (provided by client)
Beamforming gain	Unsupported (provided by client)
Frequency Range	2402~2480 MHz
Channel Number	3 Channel
Type of Modulation	GFSK
Max. Conducted Power	Custom technology 2.4G: -15.67dBm
Operate Temp. Range	+1° C to +40° 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.	

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 A**.

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 [MHz]
Custom technology 2.4G	1TX / 1RX	2402
	1TX / 1RX	2420
	1TX / 1RX	2480

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 configuration for confirming worst case. Data rate below means worst-case rate of each test item.

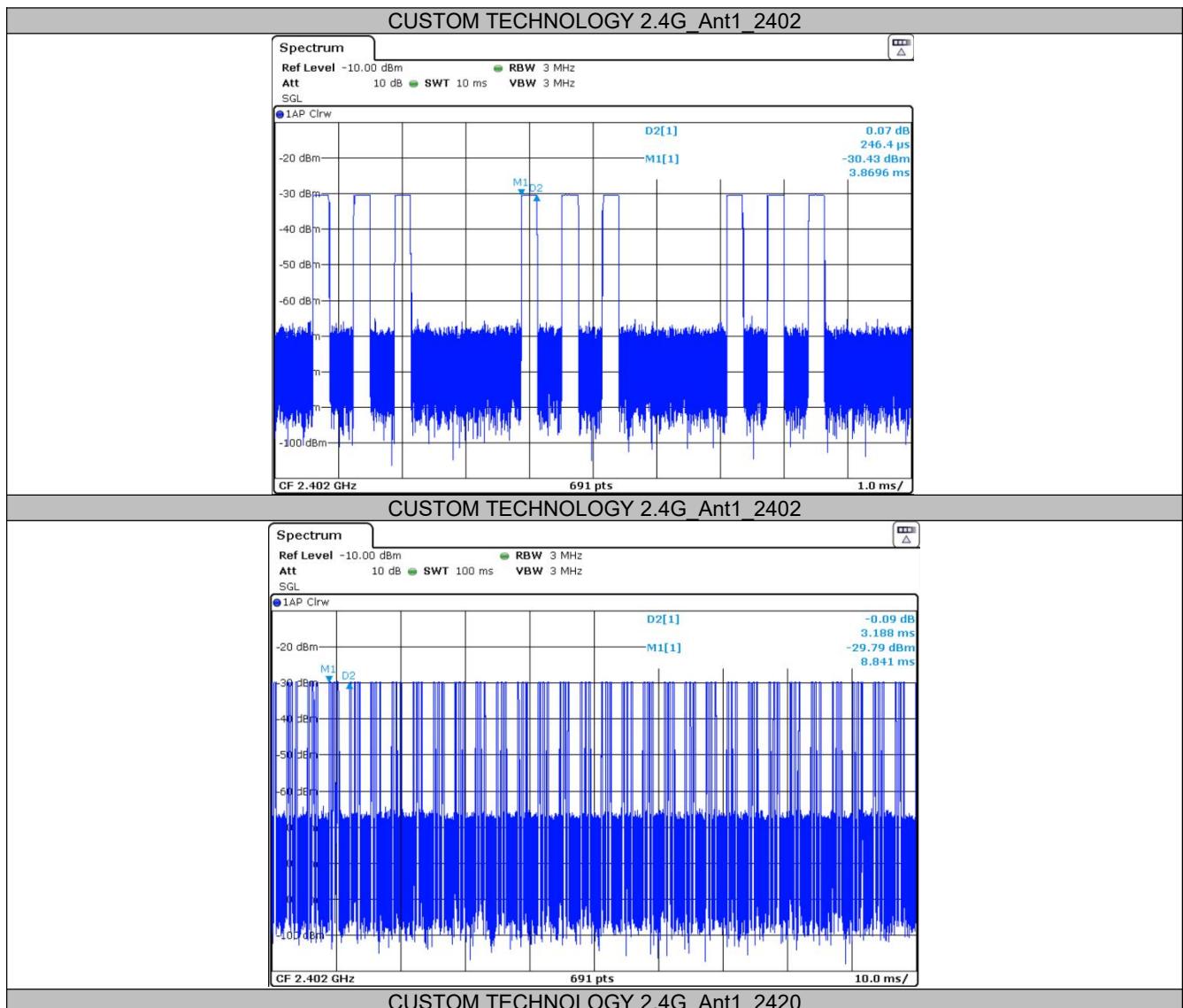
Worst-case Antenna and channels are shown as following table.

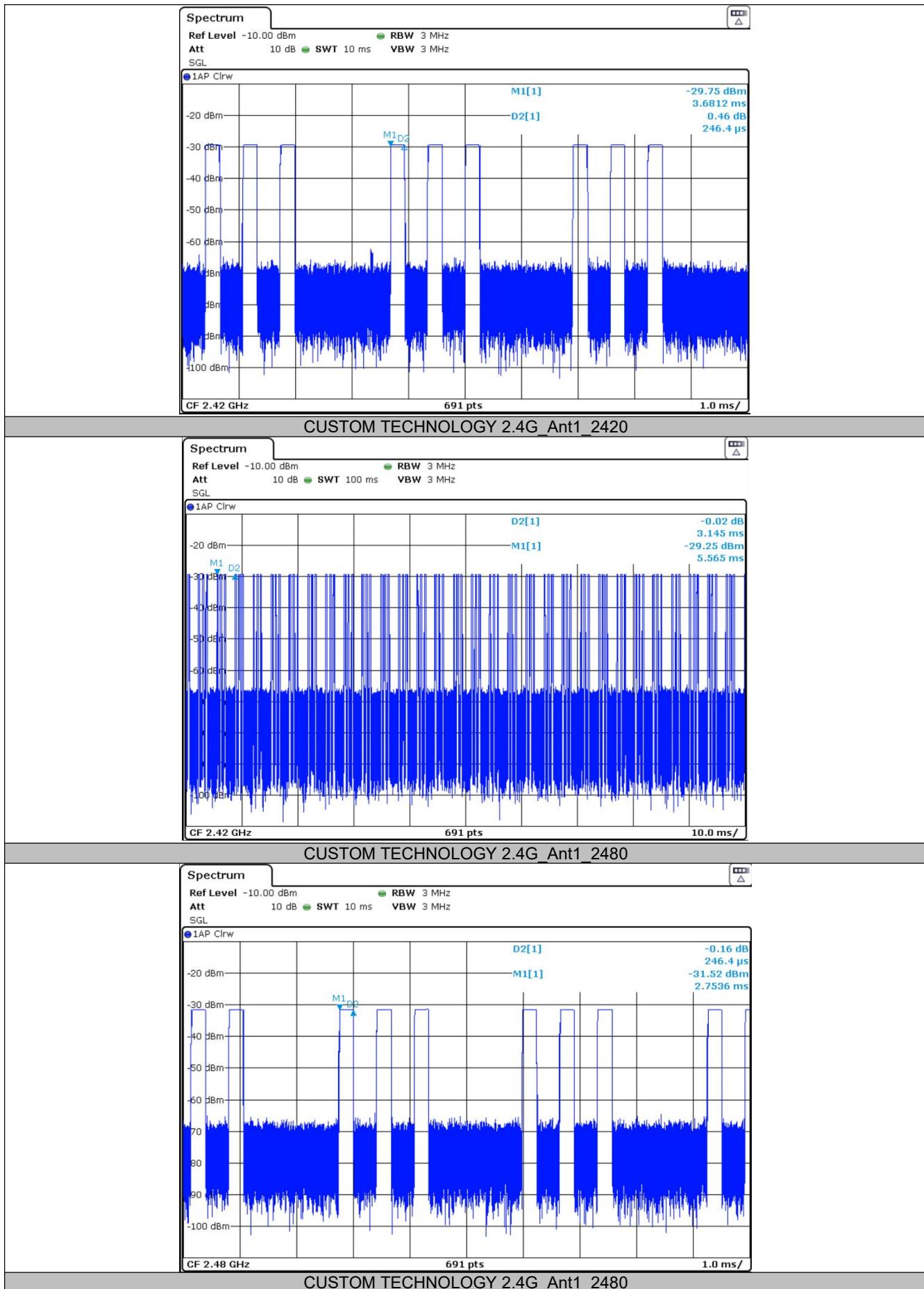
Test Mode	Antenna 1	Antenna 2	MIMO
Custom technology 2.4G	✓	/	/

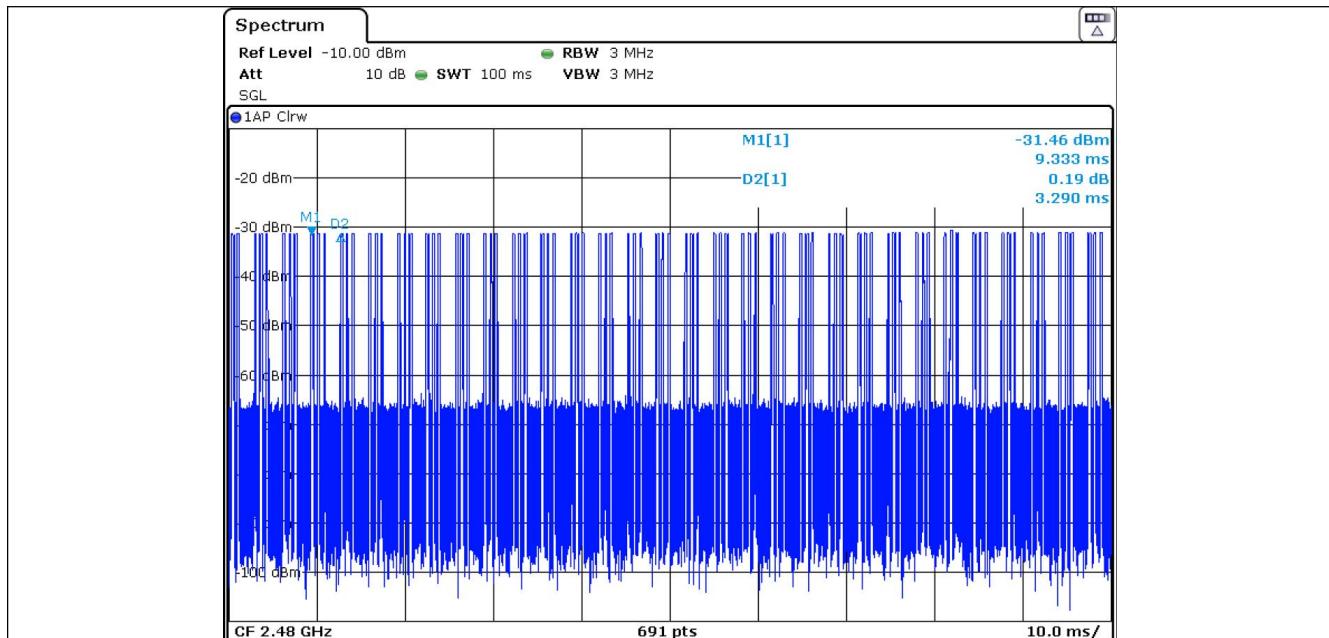
Test Items	Test Antennas	Test Modes	Test Frequency [MHz]
Conducted Emissions	Antenna 1	/	/
Radiated Emissions	Antenna 1	Custom technology 2.4G	2402, 2420, 2480
Occupied Channel Bandwidth	Antenna 1	Custom technology 2.4G	2402, 2420, 2480
Antenna Requirement	Antenna 1	/	/

3.2 Duty cycle

TestMode	Antenna	Channel [MHz]	Single Transmission Duration [us]	Number of Transmission	Transmission Period [us]	Duty Cycle [%]	Limit	Verdict
Custom technology 2.4G	Ant1	2402	246.4	3	3188	23.19	---	PASS
	Ant1	2420	246.4	3	3145	23.50	---	PASS
	Ant1	2480	246.4	3	3290	22.47	---	PASS







4. Summary of measurement results

Summary of measurements of results	Clause in FCC rules	Verdict	Note
Conducted Emissions	15.207	Not Applicable	See Note1
Radiated Emissions	15.249(a)(d)(e),15.205,15.209	PASS	/
Occupied Channel Bandwidth	15.215(c)	PASS	/
Antenna Requirement	15.203	PASS	/

Note1: Battery powered, conducted emissions Not applicable.

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.

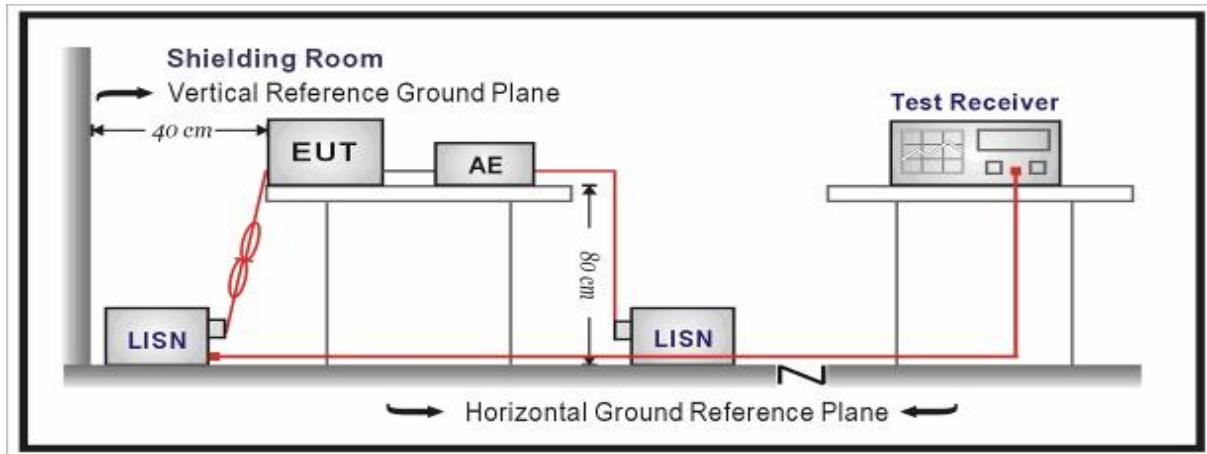
Limits:

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:

Battery powered, conducted emissions Not applicable.

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

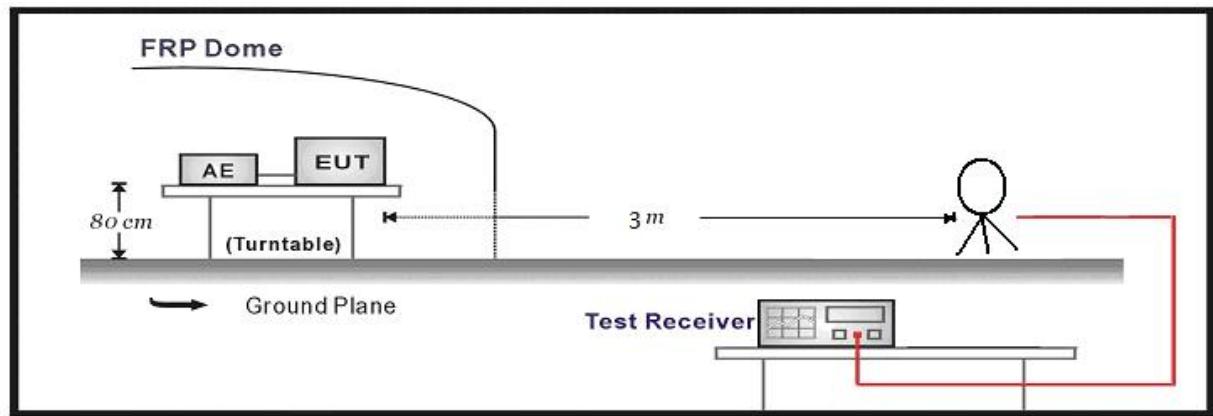
Spurious Radiated Emissions are permitted in any of the frequency bands listed below:

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	/	/	/

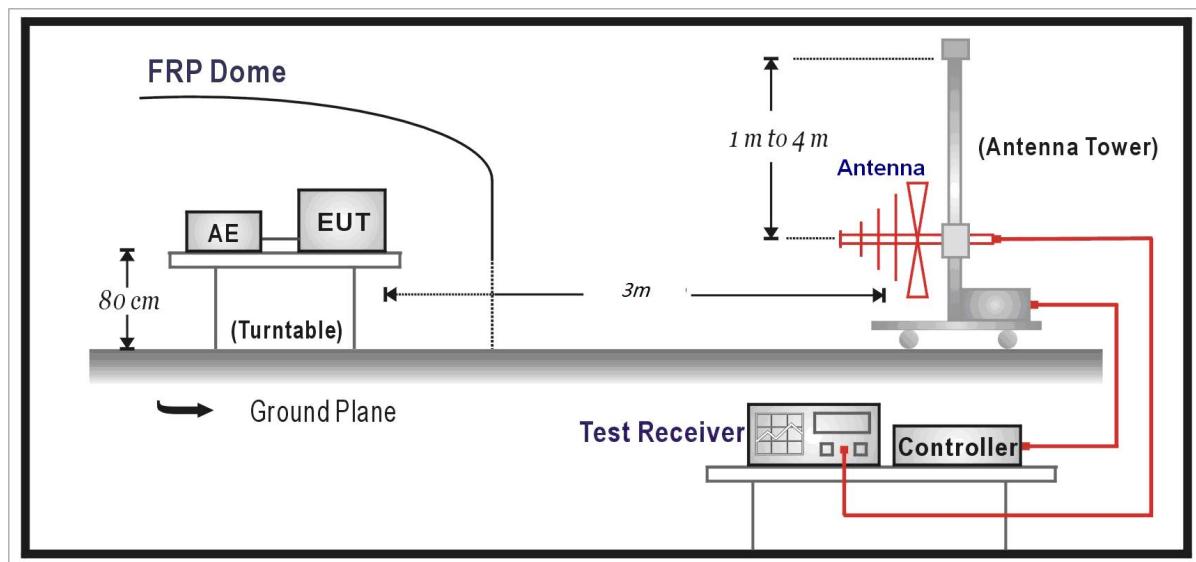
Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

Test Setup:

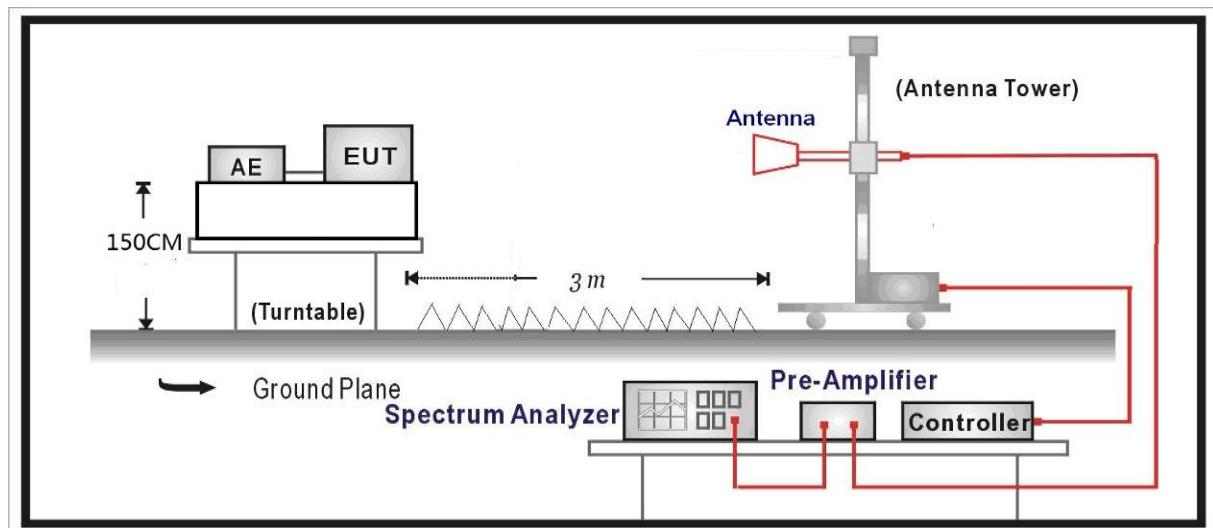
Below 30MHz Test Setup:



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:

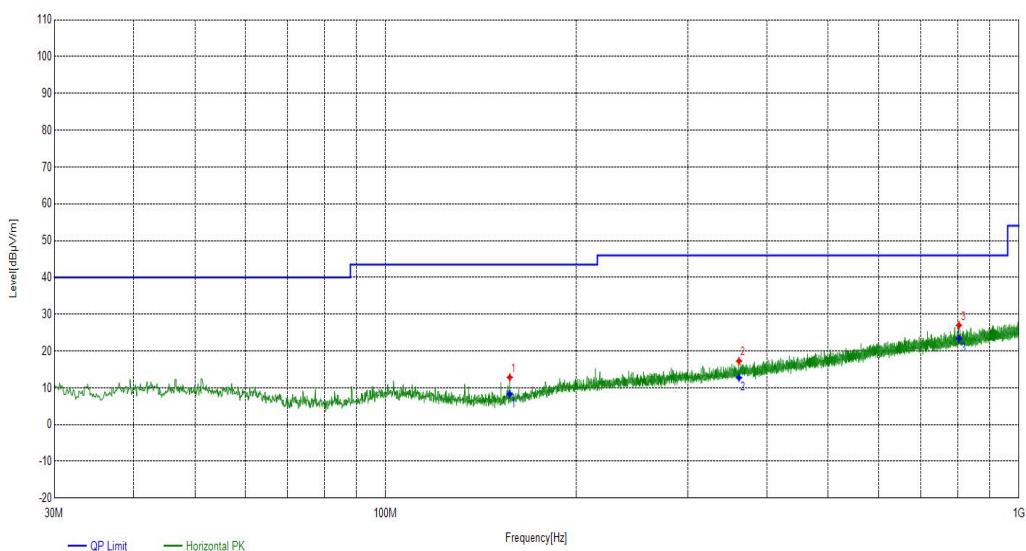
SPURIOUS EMISSIONS AND Fundamental Field Strength:

During the test, the Radiates Emission from 9kHz to 40GHz was performed in all modes with all channels and all antenna. Custom technology 2.4G, Channel 1, 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
157.0827	Horizontal	9.87	2.97	12.84	43.50	30.66	PK	100	119	PASS
361.3851	Horizontal	16.97	0.30	17.27	46.00	28.73	PK	100	158	PASS
804.0404	Horizontal	24.59	2.40	26.99	46.00	19.01	PK	100	40	PASS

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

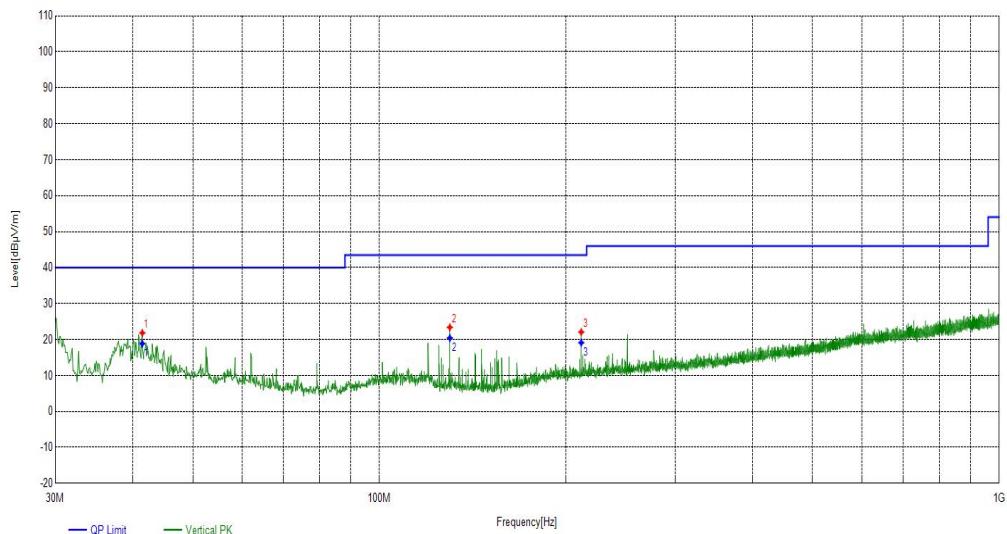
Final Data List								
Frequency [MHz]	Polarity	Factor [dB]	QP Value [dB μ V/m]	QP Limit [dB μ V/m]	QP Margin [dB]	Height [cm]	Angle [°]	Pass/Fail
157.0827	Horizontal	9.87	8.31	43.50	35.19	150	119	PASS
361.3851	Horizontal	16.97	12.74	46.00	33.26	140	158	PASS
804.0404	Horizontal	24.59	23.36	46.00	22.64	110	40	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
41.4471	Vertical	12.25	9.57	21.82	40.00	18.18	PK	100	359	PASS
129.92	Vertical	9.71	13.67	23.38	43.50	20.12	PK	100	248	PASS
211.6992	Vertical	13.20	8.87	22.07	43.50	21.43	PK	100	222	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
41.4471	Vertical	12.25	18.86	40.00	21.14	160	359	PASS
129.92	Vertical	9.71	20.42	43.50	23.08	210	248	PASS
211.6992	Vertical	13.20	19.11	43.50	24.39	120	222	PASS



Radiates Emission	1G~40G								
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]	Detector	Height [cm]	Angle deg	Pass/Fail
2402*	-5.17	84.70	79.53	114.00	34.47	PK	150	90	PASS
4806.1806	1.26	47.24	48.50	74.00	25.50	PK	150	180	PASS
7209.4209	9.01	55.34	64.35	74.00	9.65	PK	150	70	PASS
14542.1542	18.23	33.22	51.45	74.00	22.55	PK	150	20	PASS
2402*	-5.17	69.64	64.47	94.00	29.53	AV	150	120	PASS
4807.6808	1.27	38.00	39.27	54.00	14.73	AV	150	10	PASS
7212.4212	9.01	36.74	45.75	54.00	8.25	AV	150	20	PASS
14542.1542	18.23	21.37	39.60	54.00	14.40	AV	150	120	PASS

Radiates Emission	1G~40G								
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]	Detector	Height [cm]	Angle deg	Pass/Fail
2402*	-5.41	54.02	48.61	114.00	65.39	PK	150	260	PASS
4806.1806	1.26	51.54	52.80	74.00	21.20	PK	150	40	PASS
7209.4209	9.01	51.93	60.94	74.00	13.06	PK	150	60	PASS
14575.1575	18.11	32.84	50.95	74.00	23.05	PK	150	70	PASS
2402*	-5.41	41.25	35.84	94.00	58.16	AV	150	30	PASS
4807.6808	1.27	36.69	37.96	54.00	16.04	AV	150	30	PASS
7210.9211	9.01	30.10	39.11	54.00	14.89	AV	150	280	PASS
14575.1575	18.11	21.15	39.26	54.00	14.74	AV	150	20	PASS

* Fundamental Field Strength.

Other emissions are attenuated 20dB below the limits, so it does not record.

Radiates Emission	1G~40G								
Test channel	Middle 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]	Detector	Height [cm]	Angle deg	Pass/Fail
2420*	-5.10	84.54	79.44	114.00	34.56	PK	150	270	PASS
4849.1857	1.48	46.89	48.37	74.00	25.63	PK	150	330	PASS
7273.429	9.00	52.88	61.88	74.00	12.12	PK	150	120	PASS
14546.6547	18.21	32.66	50.87	74.00	23.13	PK	150	50	PASS
2420*	-5.10	72.27	67.17	94.00	21.73	AV	150	10	PASS
4848.6862	1.50	32.86	34.36	54.00	19.64	AV	150	20	PASS
7274.9292	9.00	33.49	42.49	54.00	11.51	AV	150	20	PASS
14546.6547	18.21	21.22	39.43	54.00	14.57	AV	150	340	PASS

Radiates Emission	1G~40G								
Test channel	Middle 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]	Detector	Height [cm]	Angle deg	Pass/Fail
2420*	-5.10	69.15	64.05	114.00	49.95	PK	150	200	PASS
4848.186	0.86	48.96	49.82	74.00	24.18	PK	150	280	PASS
7274.429	8.15	48.51	56.66	74.00	17.34	PK	150	10	PASS
12833.4833	12.87	34.90	47.77	74.00	26.23	PK	150	330	PASS
2420*	-5.10	57.96	52.86	94.00	41.14	AV	150	20	PASS
4849.1887	0.97	29.41	30.38	54.00	23.62	AV	150	10	PASS
7272.9292	8.15	38.91	47.06	54.00	6.94	AV	150	20	PASS
12833.4833	12.87	22.61	35.48	54.00	18.52	AV	150	190	PASS

* Fundamental Field Strength.

Other emissions are attenuated 20dB below the limits, so it does not record.

Radiates Emission	1G~40G								
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]	Detector	Height [cm]	Angle deg	Pass/Fail
2480*	-4.97	83.68	78.71	114.00	35.29	PK	150	80	PASS
4959.1959	1.28	58.50	59.78	74.00	14.22	PK	150	280	PASS
7440.444	8.28	54.32	62.60	74.00	11.40	PK	150	240	PASS
10935.7936	11.69	35.08	46.77	74.00	27.23	PK	150	340	PASS
2480*	-4.97	66.51	61.54	94.00	32.46	AV	150	100	PASS
4962.1962	1.30	45.38	46.68	54.00	7.32	AV	150	30	PASS
7440.444	8.28	42.33	50.61	54.00	3.39	AV	150	10	PASS
10935.7936	11.69	23.59	35.28	54.00	18.72	AV	150	40	PASS

Radiates Emission	1G~40G								
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]	Detector	Height [cm]	Angle deg	Pass/Fail
2480*	-4.97	68.98	64.01	114.00	49.99	PK	150	170	PASS
4960.6961	1.29	51.99	53.28	74.00	20.72	PK	150	180	PASS
7441.9442	8.28	49.19	57.47	74.00	16.53	PK	150	80	PASS
10419.742	11.92	35.25	47.17	74.00	26.83	PK	150	320	PASS
2480*	-4.97	56.76	51.79	94.00	42.21	AV	150	10	PASS
4962.1962	1.30	36.99	38.29	54.00	15.71	AV	150	20	PASS
7441.9442	8.28	35.47	43.75	54.00	10.25	AV	150	50	PASS
10419.742	11.92	22.79	34.71	54.00	19.29	AV	150	10	PASS

* Fundamental Field Strength.

Other emissions are attenuated 20dB below the limits, so it does not record.

Band Edge:

During the test, the Band Edge was performed in Custom technology 2.4G all modes with all channels and all antenna. Custom technology 2.4G, 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.

Test mode	Custom technology 2.4G								
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]	Detector	Height [cm]	Angle deg	Pass/ Fail
2352.5353	-5.33	53.31	47.98	74.00	26.02	PK	150	300	PASS
2379.3379	-5.25	54.57	49.32	74.00	24.68	PK	150	330	PASS
2390.1390	-5.21	51.17	45.96	74.00	28.04	PK	150	120	PASS
2400.1400	-5.01	67.26	62.25	74.00	11.75	PK	150	70	PASS
2352.5353	-5.33	41.63	36.30	54.00	17.70	AV	150	10	PASS
2379.3379	-5.25	42.49	37.24	54.00	16.76	AV	150	300	PASS
2390.1390	-5.21	40.82	35.61	54.00	18.39	AV	150	20	PASS
2400.1400	-5.01	30.69	25.68	54.00	28.32	AV	150	77	PASS

Test mode	Custom technology 2.4G								
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]	Detector	Height [cm]	Angle deg	Pass/ Fail
2323.1328	-5.41	54.02	48.61	74.00	25.39	PK	150	260	PASS
2349.3349	-5.35	53.49	48.14	74.00	25.86	PK	150	280	PASS
2390.1390	-5.21	52.31	47.10	74.00	26.90	PK	150	140	PASS
2400.1400	-5.01	50.49	45.48	74.00	28.52	PK	150	143	PASS
2323.1328	-5.41	41.25	35.84	54.00	18.16	AV	150	30	PASS
2349.3349	-5.35	41.27	35.92	54.00	18.08	AV	150	20	PASS
2390.1390	-5.21	40.58	35.37	54.00	18.63	AV	150	230	PASS
2400.1400	-5.01	25.54	20.53	54.00	33.47	AV	150	53	PASS

Other emissions are attenuated 20dB below the limits, so it does not record.

Test mode	Custom technology 2.4G							
Test channel	Highest channel							
polarization	Horizont							

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
2483.5484	-4.96	51.94	46.98	74.00	27.02	PK	150	270	PASS
2507.1507	-4.89	54.26	49.37	74.00	24.63	PK	150	290	PASS
2533.3533	-4.80	53.53	48.73	74.00	25.27	PK	150	170	PASS
2483.5484	-4.96	42.25	37.29	54.00	16.71	AV	150	80	PASS
2507.1507	-4.89	41.87	36.98	54.00	17.02	AV	150	60	PASS
2533.3533	-4.80	42.95	38.15	54.00	15.85	AV	150	10	PASS

Test mode	Custom technology 2.4G							
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]	Detector	Height [cm]	Angle deg	Pass/ Fail
2483.5484	-4.96	52.08	47.12	74.00	26.88	PK	150	30	PASS
2499.75	-4.92	54.24	49.32	74.00	24.68	PK	150	70	PASS
2541.9542	-4.77	54.02	49.25	74.00	24.75	PK	150	150	PASS
2483.5484	-4.96	41.90	36.94	54.00	17.06	AV	150	120	PASS
2499.75	-4.92	41.97	37.05	54.00	16.95	AV	150	120	PASS
2541.9542	-4.77	41.67	36.90	54.00	17.10	AV	150	160	PASS

Other emissions are attenuated 20dB below the limits, so it does not record.

5.3 Occupied Channel Bandwidth

Ambient condition:

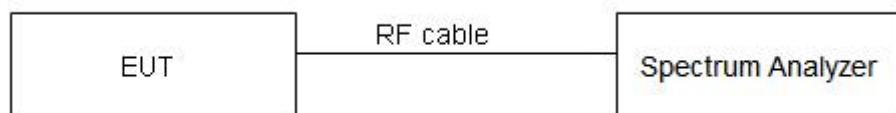
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.2kPa

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 50 kHz; VBW is set to 200 kHz on spectrum analyzer.

Detector=Peak, Trace mode=Max hold.

Test Setup:



Measurement Uncertainty:

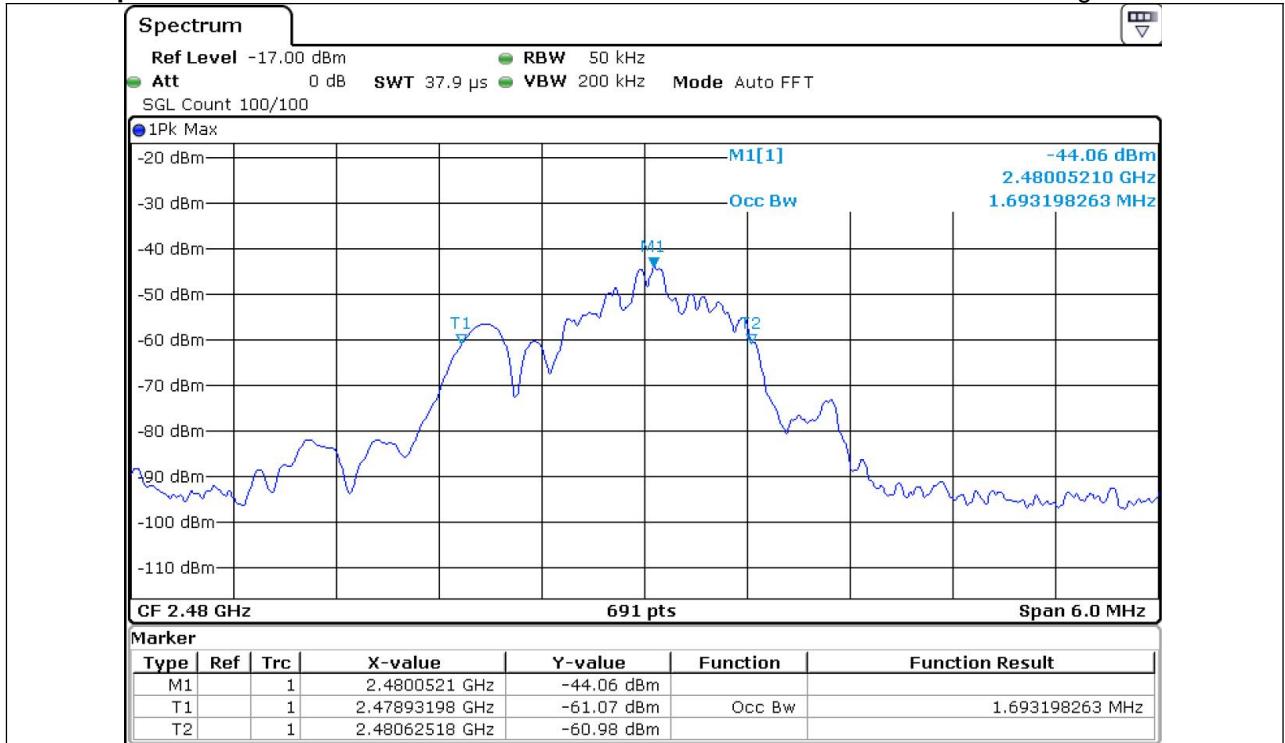
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 936$ Hz.

Test Results:

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
CUSTOM TECHNOLOGY 2.4G	Ant1	2402	1.72	2401.5572	2402.2764	---	PASS
	Ant1	2420	1.38	2419.5572	2420.9378	---	PASS
	Ant1	2480	1.69	2478.9320	2480.6252	---	PASS

Test Graphs:





5.4 Antenna Measurement

Limits:

For intentional device, according to 15.203, an intentional radiator shall be designed to ensure that no antenna other than furnished by the responsible party shall be used with the device.

Antenna Description:

PCB antenna, without antenna connector. According to 15.203, it is considered sufficient to comply with the provisions of this section.

6. Appendix A

Test Equipment	Type/Mode	SERIAL NO.	Equipment No.	Manufacturer	Cal. Due
5m Semi-Anechoic Chamber	SAC-5	SAC-5-2.0	EM-000557	COMTEST	2024/11/02
Spectrum Analyzer	N9010B	MY57470323	DZ-000174	KEYSIGHT	2025/01/02
EMI Test Receiver	N9038A-508	MY532290079	EM-000397	Agilent	2025/01/13
EMI Test Receiver	ESR7	102235	EM-000574	R&S	2025/01/13
loop antenna	HLA 6121	540046	EM-000546	TESEQ	2025/06/04
Broadband Antenna	VULB 9163	9163-530	EM-000342	SCHWARZBEC K	2025/06/09
Waveguide Horn Antenna	HF906	360306/008	EM-000093	R&S	2025/01/13
Waveguide Horn Antenna	BBHA9170	00949	DZ-000209-2	SCHWARZBEC K	2025/08/03
Preamplifier	BBV 9721	9721-050	DZ-000209-1	SCHWARZBEC K	2025/06/02
Bandstop Filters	SW-BSF-2400-100- 7-A1	/	EM-000495	/	2025/08/29
Preamplifier	BBV 9721	9721-050	DZ-000209-1	SCHWARZBEC K	2025/06/03
Temperature and humidity meter	MHO-C201	/	DZ-000249-2	Seconds test	2025/07/28

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