

■ Spurious Emission in Restricted Band 2310-2390MHz and 2483.5-2500MHz
All modes 2.4G 802.11b/g/n have been tested, and the worst result antenna A 802.11g recorded was report as below:

Test mode: 802.11 g Frequency: Channel 1: 2412MHz

Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	Over(dB)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)	Over(dB)
2389.43	H	65.64	74	-8.36	46.06	54	-7.94
2389.79	V	58.62	74	-15.38	44.02	54	-9.98

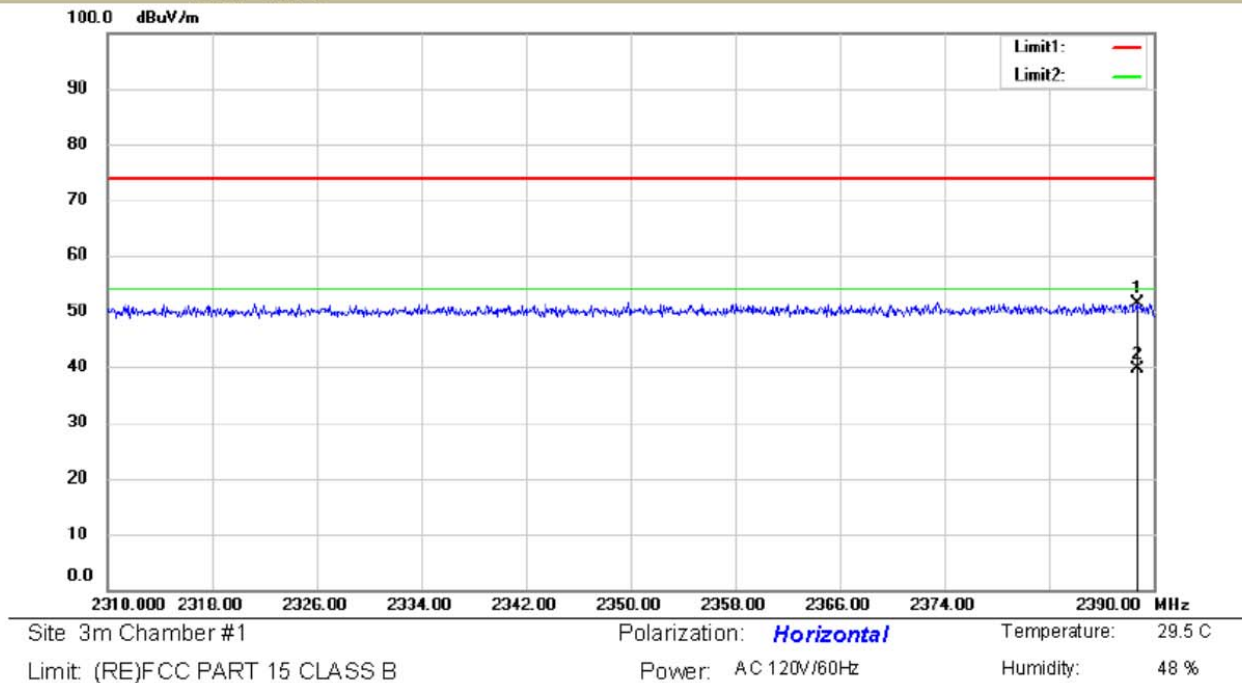
Test mode: 802.11 g Frequency: Channel 11: 2462MHz

Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	Over(dB)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)	Over(dB)
2483.62	H	65.25	74	-8.75	45.69	54	-8.31
2484.29	V	61.78	74	-12.22		54	

Note: (1) All Readings are Peak Value (VBW=3MHz) and Peak Value (VBW=10Hz).
(2) Emission Level= Reading Level+Correct Factor +Cable Loss.
(3) Correct Factor= Ant_F + Cab_L - Preamp
(4)Data of measurement within this frequency range shown " -- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

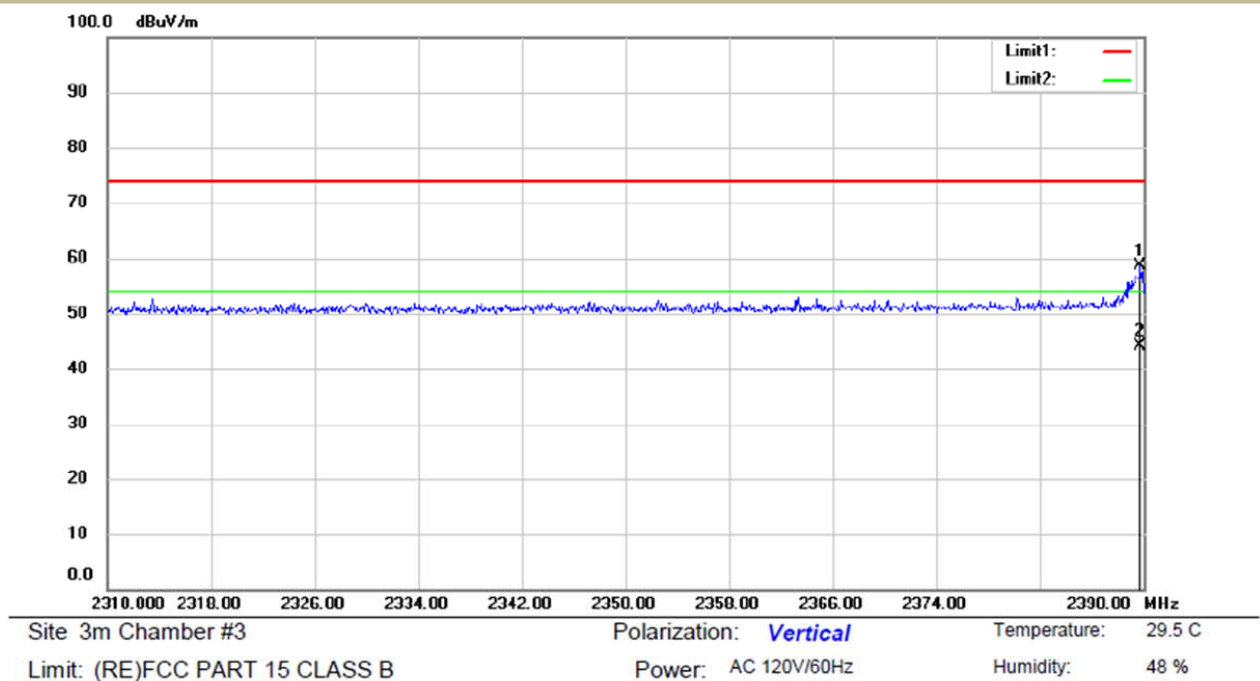
Spurious Emission in Restricted Band 2310-2390MHz

Test Model ☐ 802.11b ☒ 802.11g ☐ 802.11n(HT20) ☐ 802.11n(HT40)
☒ Channel 1: 2412MHz ☐ Channel 3: 2422MHz Polarity: H
 VBW=3MHz



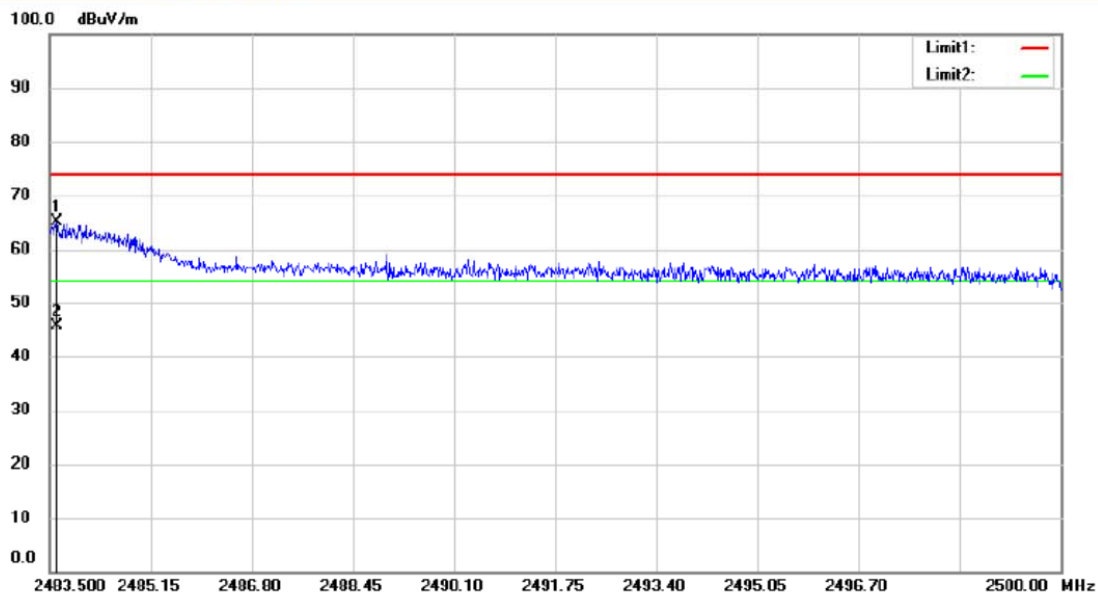
Spurious Emission in Restricted Band 2310-2390MHz

Test Model ☐ 802.11b ☒ 802.11g ☐ 802.11n(HT20) ☐ 802.11n(HT40)
☒ Channel 1: 2412MHz ☐ Channel 3: 2422MHz Polarity: V
 VBW=3MHz



Spurious Emission in Restricted Band 2483.5-2500MHz

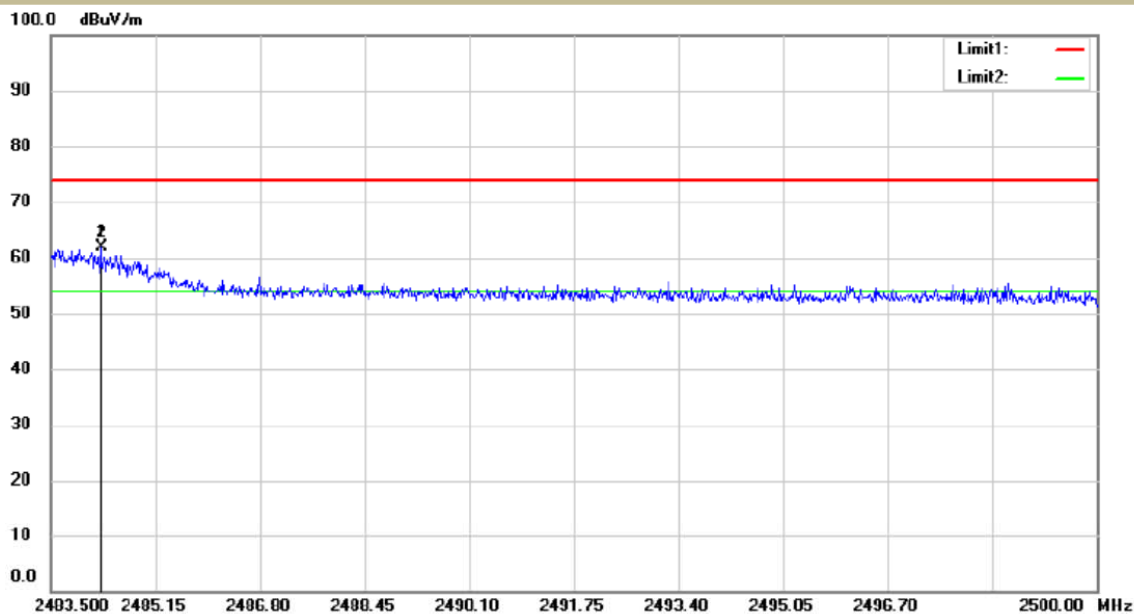
Test Model	☐ 802.11b	☒ 802.11g	☐ 802.11n(HT20)	☐ 802.11n(HT40)
	☒ Channel 11: 2462MHz	☐ Channel 9: 2452MHz	Polarity: H	
VBW=3MHz				



Site 3m Chamber #3 Polarization: **Horizontal** Temperature: 29.5 C
Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 48 %

Spurious Emission in Restricted Band 2483.5-2500MHz

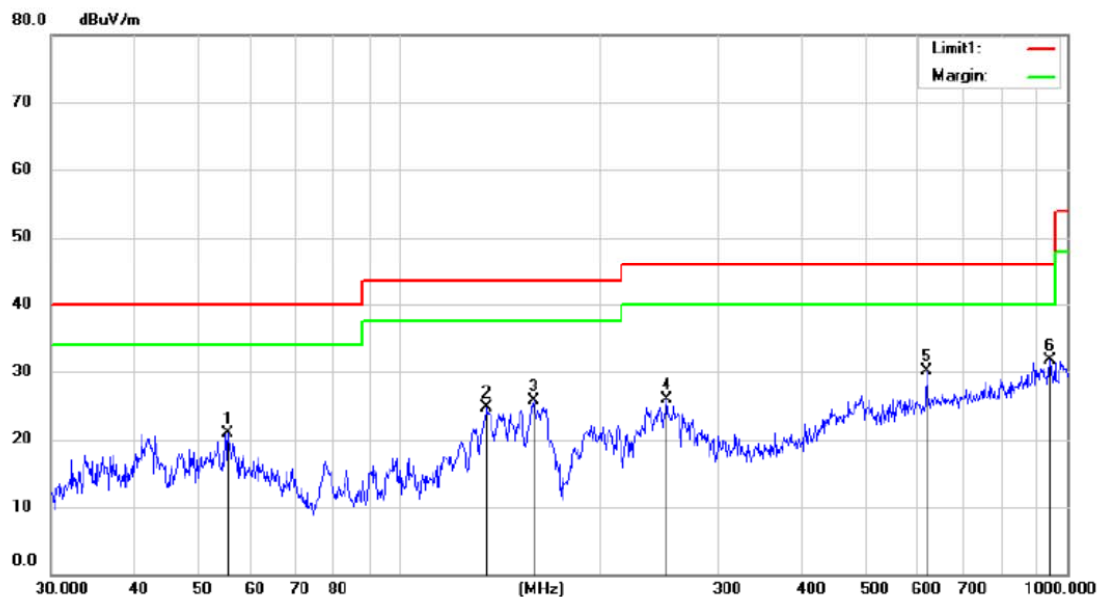
Test Model	☐ 802.11b	☒ 802.11g	☐ 802.11n(HT20)	☐ 802.11n(HT40)
	☒ Channel 11: 2462MHz	☐ Channel 9: 2452MHz	Polarity: V	
VBW=3MHz				



Site 3m Chamber #3 Polarization: **Vertical** Temperature: 29.5 C
Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 48 %

■ Spurious Emission below 1GHz (30MHz to 1GHz)

All modes 2.4G 802.11b/g/n have been tested, and the worst result 802.11g recorded was report as below:



Site 3m Chamber #3

Polarization: **Vertical**

Temperature: 29.5 C

Limit: (RE)FCC PART 15 CLASS B

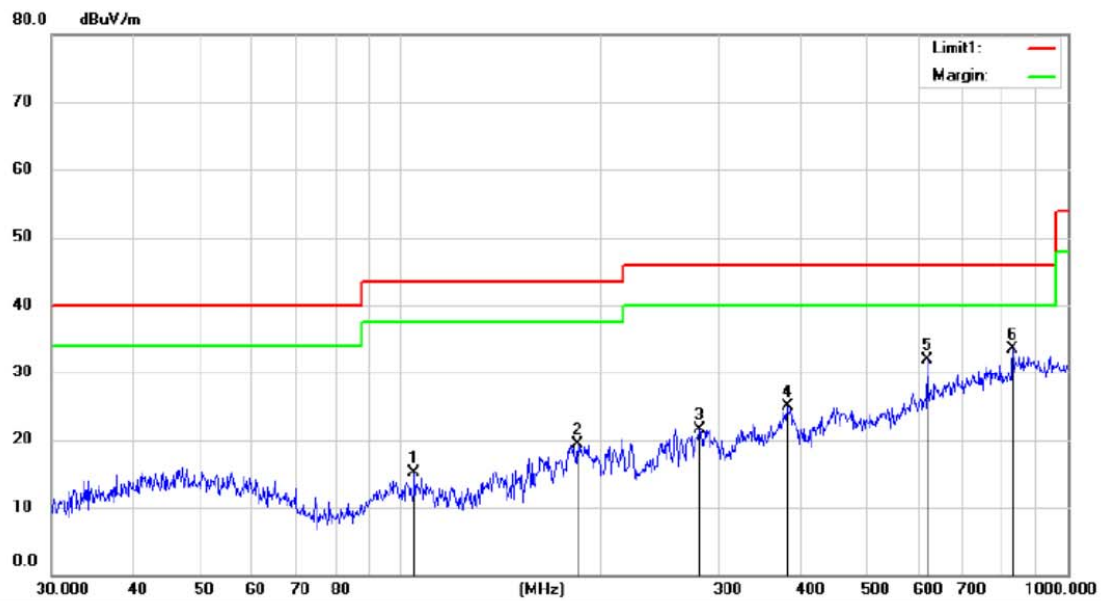
Power: AC 120V/60Hz

Humidity: 48 %

Mode: WIFI 2412

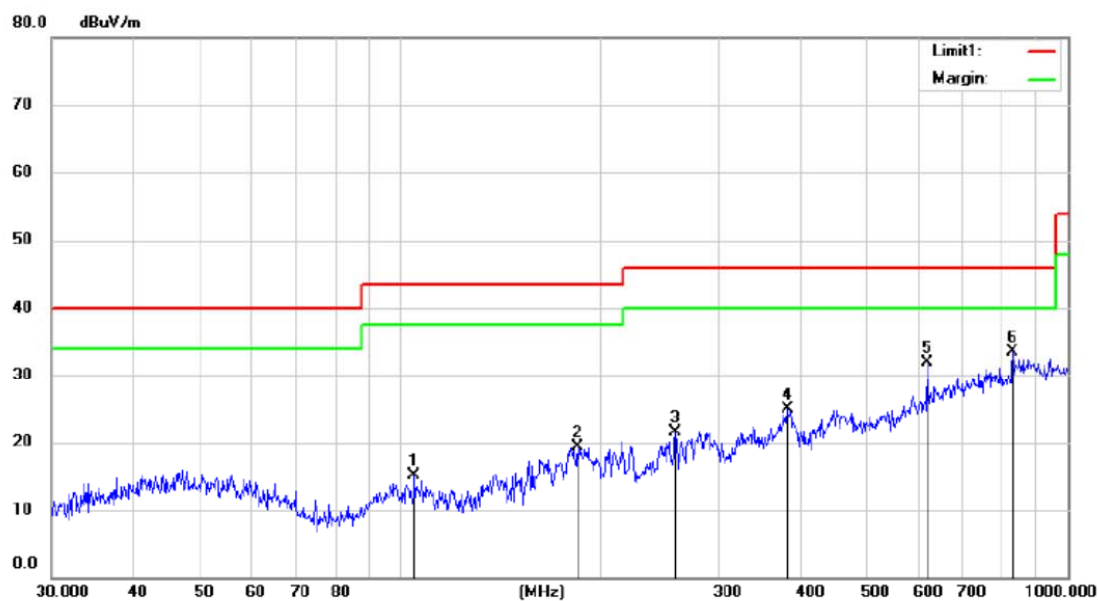
Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		55.2692	32.66	-11.70	20.96	40.00	-19.04	QP			
2		135.0320	40.30	-15.59	24.71	43.50	-18.79	QP			
3		159.0160	40.56	-14.79	25.77	43.50	-17.73	QP			
4		251.2905	35.72	-9.83	25.89	46.00	-20.11	QP			
5		618.2658	32.07	-1.93	30.14	46.00	-15.86	QP			
6	*	944.6115	28.88	2.86	31.74	46.00	-14.26	QP			



Site 3m Chamber #3 Polarization: **Horizontal** Temperature: 29.5 C
 Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 48 %
 Mode:WIFI 2412
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1		105.0873	27.37	-12.26	15.11	43.50	-28.39	QP		
2		184.4898	32.42	-13.13	19.29	43.50	-24.21	QP		
3		281.7475	30.27	-8.84	21.43	46.00	-24.57	QP		
4		380.5808	31.32	-6.46	24.86	46.00	-21.14	QP		
5		618.2658	33.90	-1.93	31.97	46.00	-14.03	QP		
6	*	827.8562	32.96	0.55	33.51	46.00	-12.49	QP		



Site 3m Chamber #3

Polarization: **Horizontal**

Temperature: 29.5 C

Limit: (RE)FCC PART 15 CLASS B

Power: AC 120V/60Hz

Humidity: 48 %

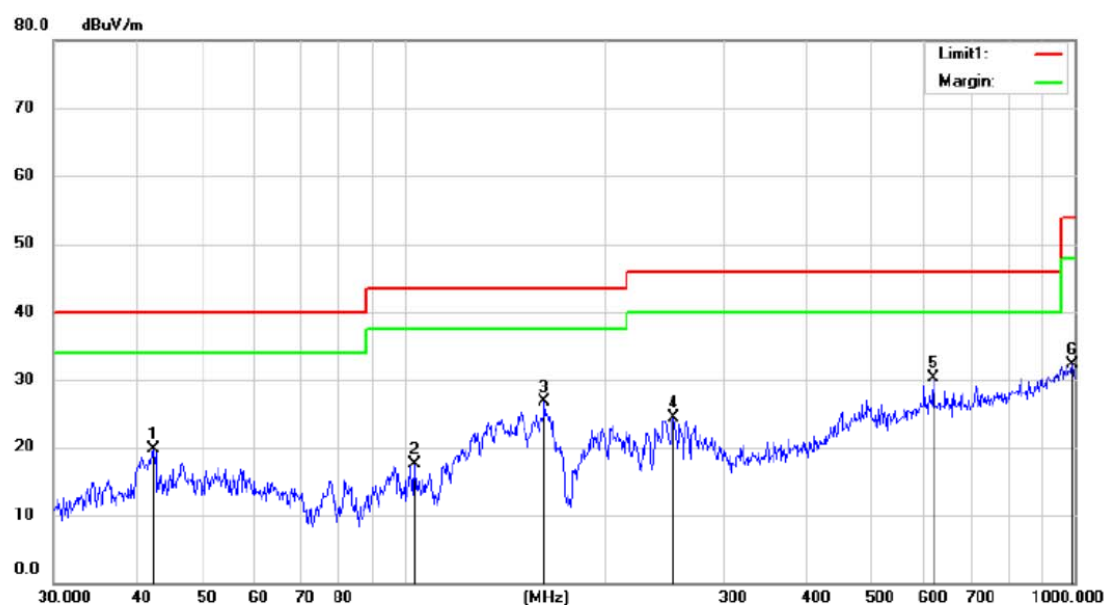
Mode: WIFI 2437

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		105.0873	27.37	-12.26	15.11	43.50	-28.39	QP		
2		184.4898	32.42	-13.13	19.29	43.50	-24.21	QP		
3		258.3264	30.97	-9.54	21.43	46.00	-24.57	QP		
4		380.5808	31.32	-6.46	24.86	46.00	-21.14	QP		
5		618.2658	33.90	-1.93	31.97	46.00	-14.03	QP		
6	*	827.8562	32.96	0.55	33.51	46.00	-12.49	QP		

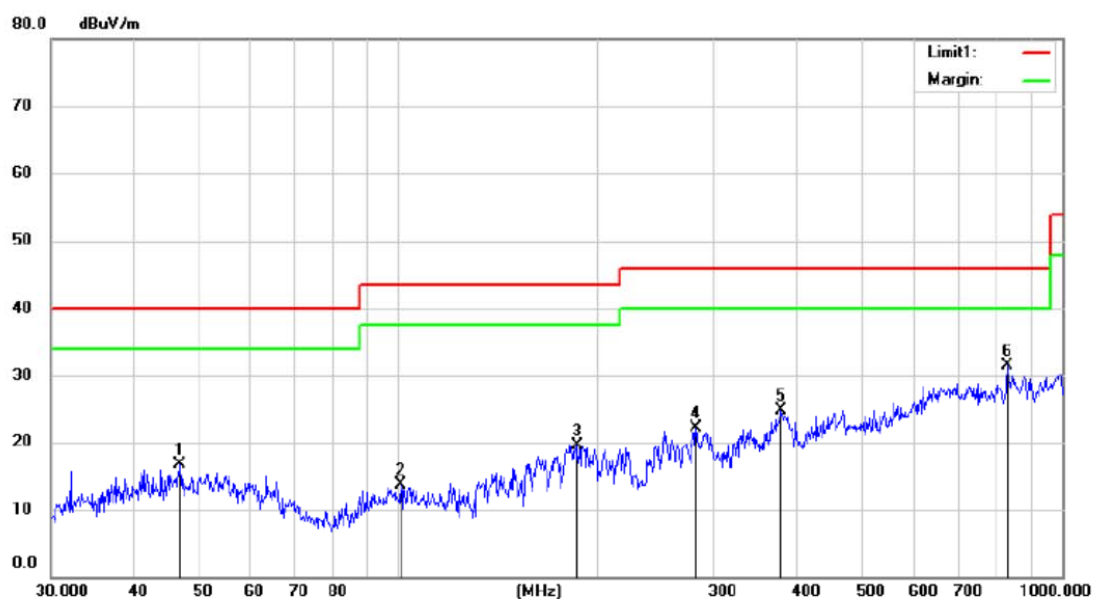


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1		95.9723	29.73	-13.27	16.46	43.50	-27.04	QP			
2		162.3970	39.90	-14.56	25.34	43.50	-18.16	QP			
3		204.5961	35.18	-11.59	23.59	43.50	-19.91	QP			
4		253.0591	34.66	-9.74	24.92	46.00	-21.08	QP			
5	*	618.2658	32.10	-1.93	30.17	46.00	-15.83	QP			
6		1000.000	27.51	3.93	31.44	54.00	-22.56	QP			



Site 3m Chamber #3 Polarization: **Vertical** Temperature: 29.5 C
 Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 48 %
 Mode: WIFI 2462
 Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1		42.3393	31.21	-11.57	19.64	40.00	-20.36	QP			
2		104.0332	29.89	-12.34	17.55	43.50	-25.95	QP			
3		162.2546	41.19	-14.56	26.63	43.50	-16.87	QP			
4		252.8373	34.03	-9.75	24.28	46.00	-21.72	QP			
5	*	618.2658	32.22	-1.93	30.29	46.00	-15.71	QP			
6		994.7540	28.38	3.85	32.23	54.00	-21.77	QP			



Site 3m Chamber #3

Polarization: **Horizontal**

Temperature: 29.5 C

Limit: (RE)FCC PART 15 CLASS B

Power: AC 120V/60Hz

Humidity: 48 %

Mode: WIFI 2462

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		46.8508	27.87	-11.24	16.63	40.00	-23.37	QP		
2		101.1111	26.27	-12.56	13.71	43.50	-29.79	QP		
3		185.9512	32.44	-12.96	19.48	43.50	-24.02	QP		
4		281.0075	30.90	-8.87	22.03	46.00	-23.97	QP		
5		377.7555	31.26	-6.57	24.69	46.00	-21.31	QP		
6	*	829.3090	30.97	0.56	31.53	46.00	-14.47	QP		

8.6 CONDUCTED EMISSIONS TEST

8.6.1 Applicable Standard

According to FCC Part 15.207(a)

8.6.2 Conformance Limit

Frequency(MHz)	Conducted Emission Limit	
	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

8.6.3 Test Configuration

Test according to clause 7.3conducted emission test setup

8.6.4 Test Procedure

The EUT was placed on a table which is 0.8m above ground plane.

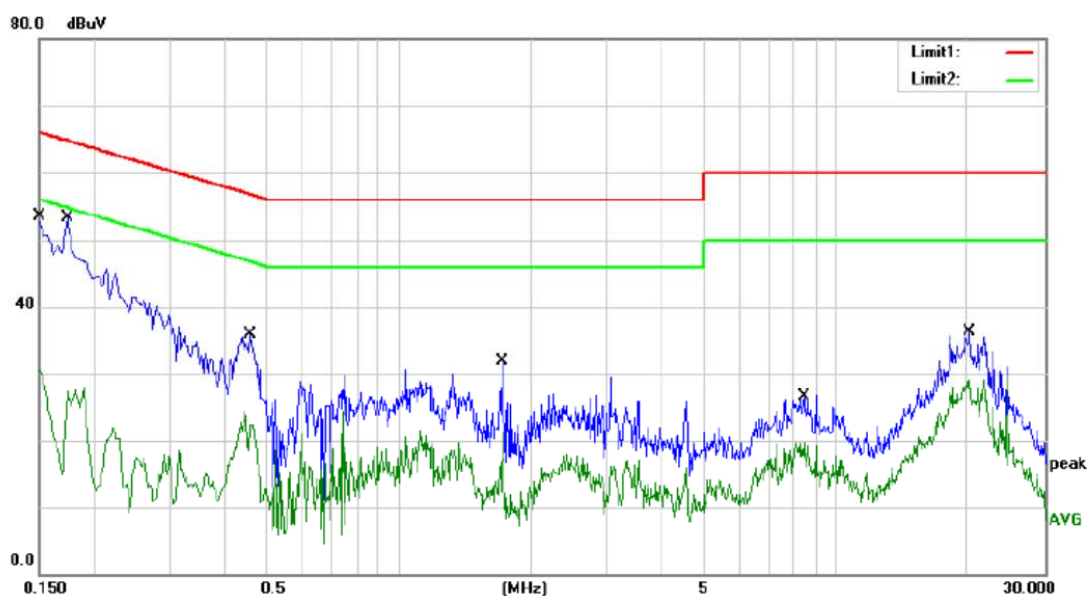
Maximum procedure was performed on the highest emissions to ensure EUT compliance.

Repeat above procedures until all frequency measured were complete.

8.6.5 Test Results

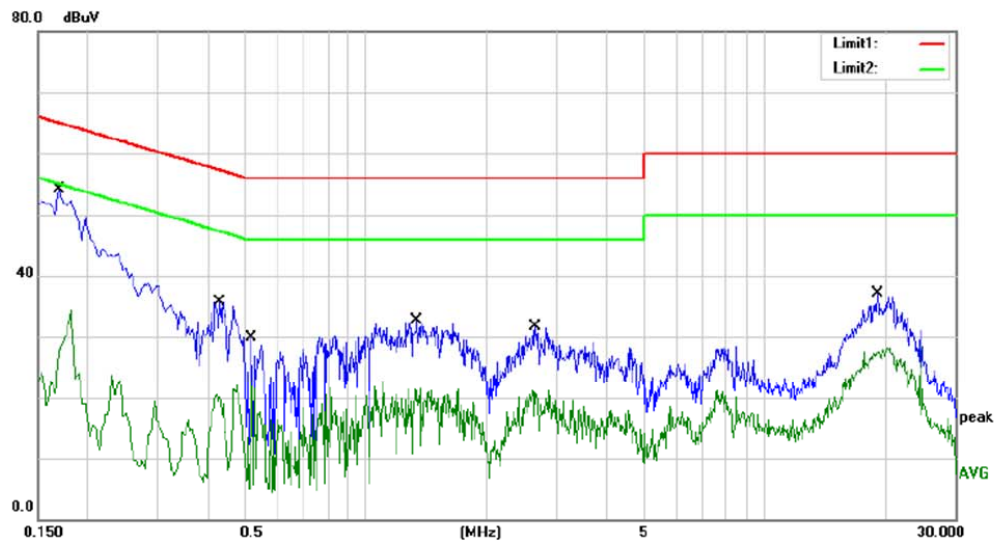
Pass

The 120V &240V voltagehave been tested, and the worst result recorded was report as below:



Site Conduction #1 Phase: **N** Temperature: 25.4
 Limit: (CE)FCC PART 15 class B_QP Power: AC 120V/60Hz Humidity: 54 %
 Mode: WIFI 2412MHz
 Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1500	43.77	9.67	53.44	66.00	-12.56	QP	
2		0.1500	21.40	9.67	31.07	56.00	-24.93	AVG	
3	*	0.1740	43.65	9.55	53.20	64.77	-11.57	QP	
4		0.1740	18.28	9.55	27.83	54.77	-26.94	AVG	
5		0.4580	26.36	9.57	35.93	56.73	-20.80	QP	
6		0.4580	14.69	9.57	24.26	46.73	-22.47	AVG	
7		1.7220	22.41	9.59	32.00	56.00	-24.00	QP	
8		1.7220	11.57	9.59	21.16	46.00	-24.84	AVG	
9		8.4420	16.81	9.75	26.56	60.00	-33.44	QP	
10		8.4420	10.00	9.75	19.75	50.00	-30.25	AVG	
11		20.2460	26.03	10.18	36.21	60.00	-23.79	QP	
12		20.2460	19.02	10.18	29.20	50.00	-20.80	AVG	



Site Conduction #1

Phase: **L1**

Temperature: 25.4

Limit: (CE)FCC PART 15 class B_QP

Power: AC 120V/60Hz

Humidity: 54 %

Mode: WIFI 2412MHz

Note:

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over		
		MHz	Level	Factor	ment			Detector	Comment
			dBuV	dB	dBuV	dBuV	dB		
1	*	0.1700	44.54	9.55	54.09	64.96	-10.87	QP	
2		0.1700	24.67	9.55	34.22	54.96	-20.74	AVG	
3		0.4300	26.23	9.57	35.80	57.25	-21.45	QP	
4		0.4300	10.91	9.57	20.48	47.25	-26.77	AVG	
5		0.5180	20.35	9.57	29.92	56.00	-26.08	QP	
6		0.5180	13.04	9.57	22.61	46.00	-23.39	AVG	
7		1.3380	23.05	9.59	32.64	56.00	-23.36	QP	
8		1.3380	12.00	9.59	21.59	46.00	-24.41	AVG	
9		2.6580	22.12	9.62	31.74	56.00	-24.26	QP	
10		2.6580	11.48	9.62	21.10	46.00	-24.90	AVG	
11		19.1700	26.97	10.14	37.11	60.00	-22.89	QP	
12		19.1700	18.15	10.14	28.29	50.00	-21.71	AVG	

8.7 ANTENNA APPLICATION

8.7.1 Antenna Requirement

Standard	Requirement
FCC CRF Part15.203	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

8.7.2 Result

PASS.

- The EUT has 2 FPC antennas for WIFI 2.4G: antenna0: 2.26dBi, Antenna1: 2.41dBi
- Note:
- ☒ Antenna uses a permanently attached antenna which is not replaceable.
 - ☐ Not using a standard antenna jack or electrical connector for antenna replacement
 - ☐ The antenna has to be professionally installed (please provide method of installation)

Which in accordance to section 15.203, please refer to the internal photos

Detail of factor for radiated emission

Frequency(MHz)	Ant_F(dB)	Cab_L(dB)	Preamp(dB)	Correct Factor(dB)
0.009	20.6	0.03	\	20.63
0.15	20.7	0.1	\	20.8
1	20.9	0.15	\	21.05
10	20.1	0.28	\	20.38
30	18.8	0.45	\	19.25
30	11.7	0.62	27.9	-15.58
100	12.5	1.02	27.8	-14.28
300	12.9	1.91	27.5	-12.69
600	19.2	2.92	27	-4.88
800	21.1	3.54	26.6	-1.96
1000	22.3	4.17	26.2	0.27
1000	25.6	1.76	41.4	-14.04
3000	28.9	3.27	43.2	-11.03
5000	31.1	4.2	44.6	-9.3
8000	36.2	5.95	44.7	-2.55
10000	38.4	6.3	43.9	0.8
12000	38.5	7.14	42.3	3.34
15000	40.2	8.15	41.4	6.95
18000	45.4	9.02	41.3	13.12
18000	37.9	1.81	47.9	-8.19
21000	37.9	1.95	48.7	-8.85
25000	39.3	2.01	42.8	-1.49
28000	39.6	2.16	46.0	-4.24
31000	41.2	2.24	44.5	-1.06
34000	41.5	2.29	46.6	-2.81
37000	43.8	2.30	46.4	-0.3
40000	43.2	2.50	42.2	3.5