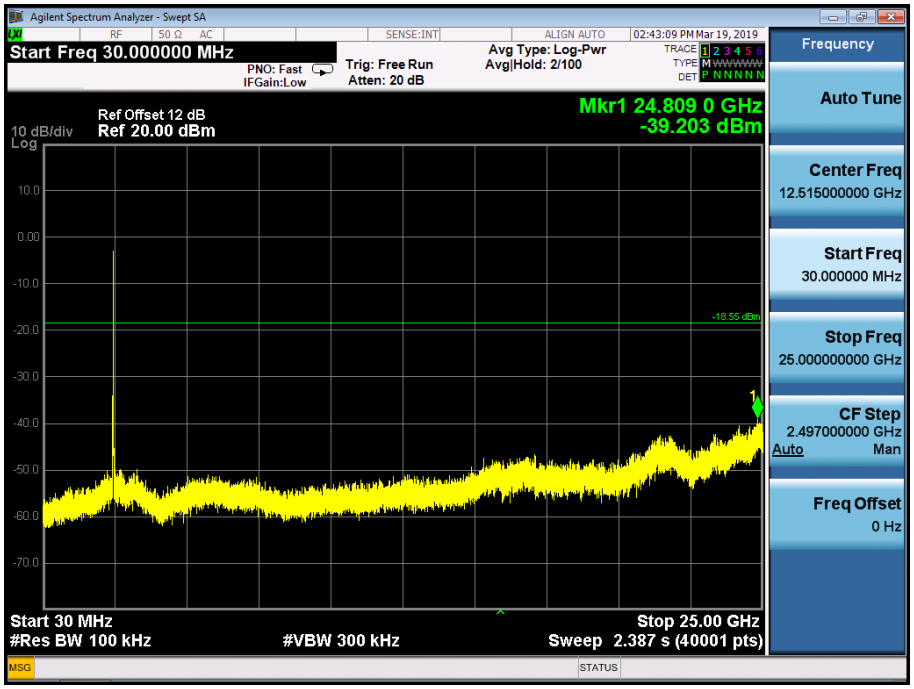
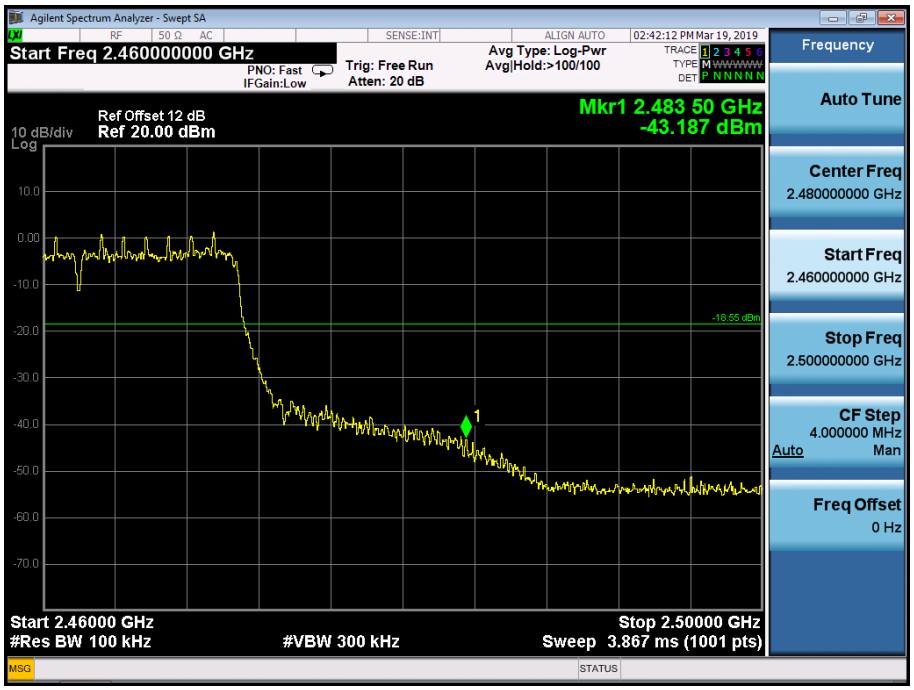
Unwanted Emissions In Non-Restricted Frequency Bands				
Test Model	☐802.11b	☐802.11g	☒802.11n(HT20)	☐802.11n(HT40)
	☒Channel 11: 2462MHz	☐Channel 9: 2452MHz		Mode: MIMO

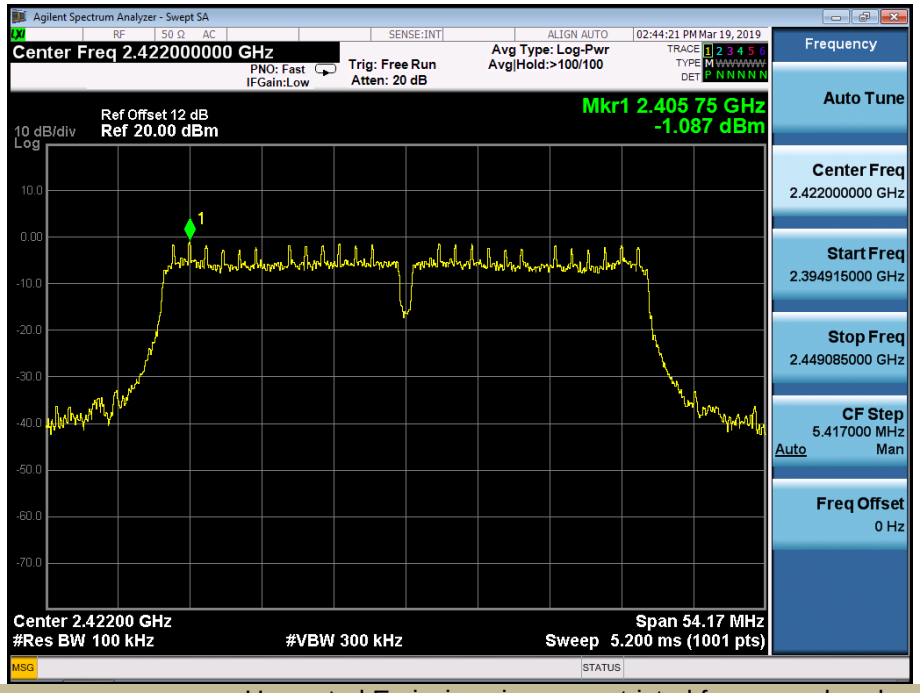


Band edge				
Test Model	☐802.11b	☐802.11g	☒802.11n(HT20)	☐802.11n(HT40)
	☒Channel 11: 2462MHz	☐Channel 9: 2452MHz		Mode: MIMO



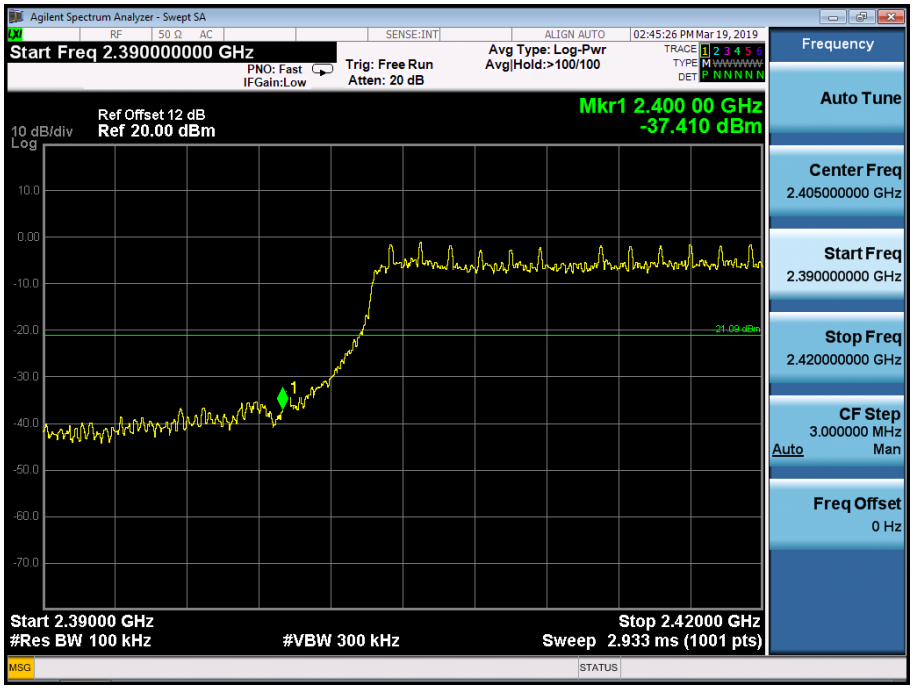
●

Test Model	PSD(Power Spectral Density) RBW=100kHz ☐802.11b ☐802.11g ☐802.11n(HT20) ☒802.11n(HT40) ☐Channel 1: 2412MHz ☒Channel 3: 2422MHz Mode: MIMO

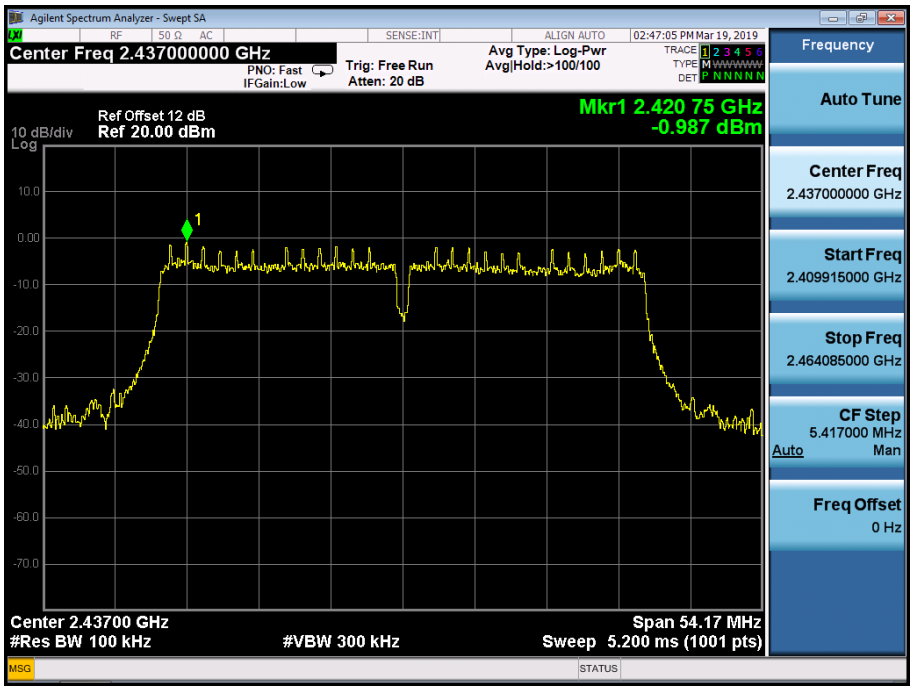


Test Model	Unwanted Emissions in non-restricted frequency bands ☐802.11b ☐802.11g ☐802.11n(HT20) ☒802.11n(HT40) ☐Channel 1: 2412MHz ☒Channel 3: 2422MHz Mode: MIMO

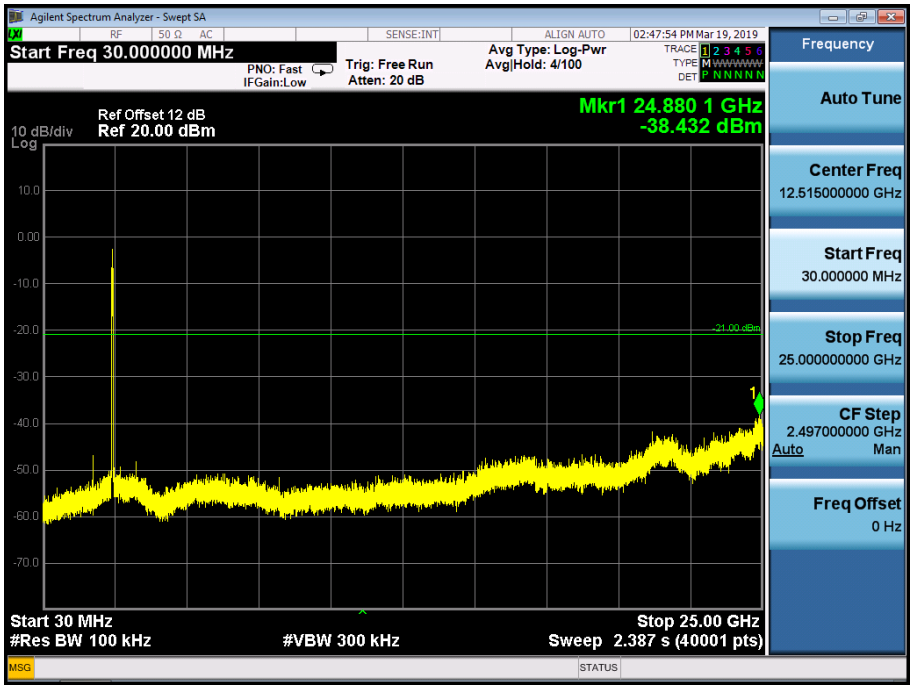
Band edge				
Test Model	☐802.11b	☐802.11g	☐802.11n(HT20)	☒802.11n(HT40)
	☐Channel 1: 2412MHz	☒Channel 3: 2422MHz		Mode: MIMO



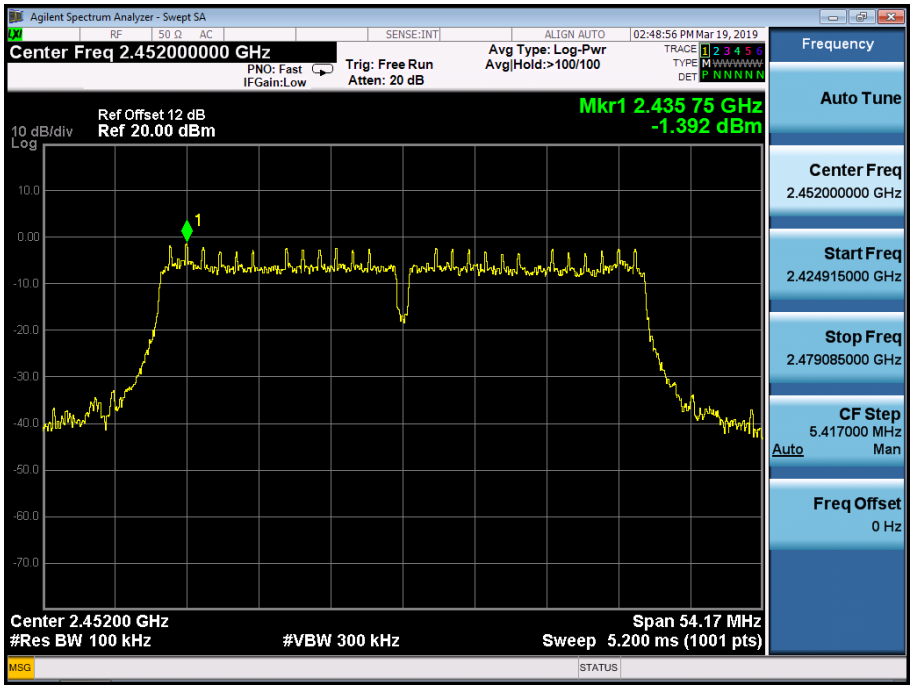
PSD(Power Spectral Density) RBW=100kHz				
Test Model	☐802.11b	☐802.11g	☐802.11n(HT20)	☒802.11n(HT40)
	Channel 6: 2437MHz			Mode: MIMO



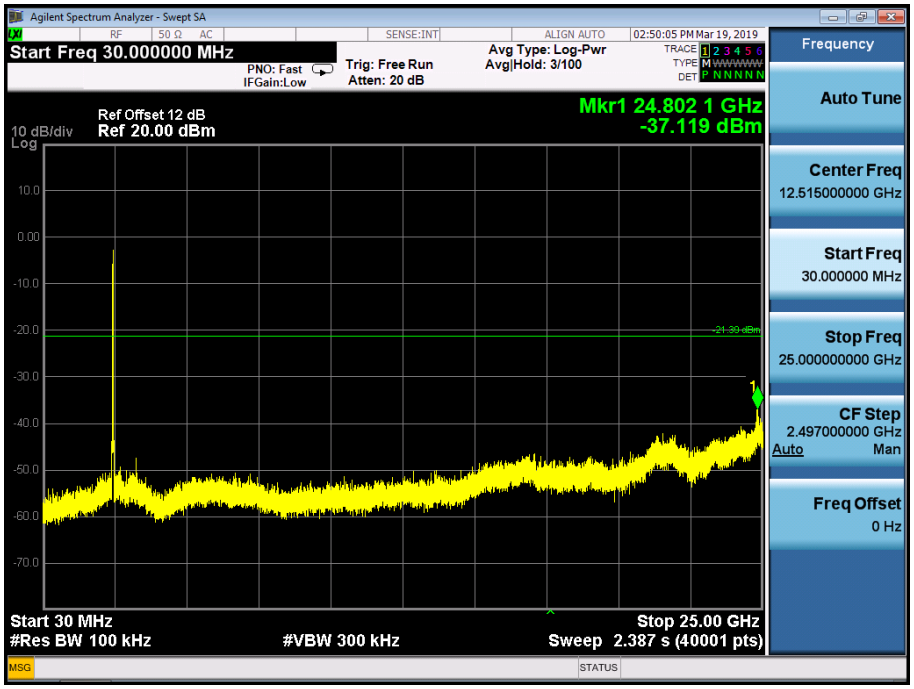
Unwanted Emissions In Non-Restricted Frequency Bands				
Test Model	☐802.11b	☐802.11g	☐802.11n(HT20)	☒802.11n(HT40)
Channel 6: 2437MHz			Mode: MIMO	



PSD(Power Spectral Density) RBW=100kHz				
Test Model	☐802.11b	☐802.11g	☐802.11n(HT20)	☒802.11n(HT40)
☐Channel 11: 2462MHz	☒Channel 9: 2452MHz		Mode: MIMO	



Unwanted Emissions In Non-Restricted Frequency Bands				
Test Model	☐802.11b	☐802.11g	☐802.11n(HT20)	☒802.11n(HT40)
	☐Channel 11: 2462MHz	☒Channel 9: 2452MHz	Mode: MIMO	



Band edge				
Test Model	☐802.11b	☐802.11g	☐802.11n(HT20)	☒802.11n(HT40)
	☐Channel 11: 2462MHz	☒Channel 9: 2452MHz	Mode: MIMO	

8.5 RADIATED SPURIOUS EMISSION

8.5.1 Applicable Standard

According to FCC Part 15.247(d) and 15.209 and FCC KDB 558074 D01 Meas Guidance v05

8.5.2 Conformance Limit

According to FCC Part 15.247(d): radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).
According to FCC Part15.205, Restricted bands

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
10.495-0.505	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	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	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(2)
13.36-13.41			

According to FCC Part15.205,the level of any transmitter spurious emission in Restricted bands shall not exceed the level of the emission specified in the following table

Restricted Frequency(MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	Measurement Distance
0.009-0.490	2400/F(KHz)	20 log (uV/m)	300
0.490-1.705	2400/F(KHz)	20 log (uV/m)	30
1.705-30	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

8.5.3 Test Configuration

Test according to clause 7.2 radio frequency test setup 2

8.5.4 Test Procedure

This test is required for any spurious emission that falls in a Restricted Band, as defined in Section 15.205. It must be performed with the highest gain of each type of antenna proposed for use with the EUT. Use the following spectrum analyzer settings:
The EUT was placed on a turn table which is 0.8m above ground plane.
Maximum procedure was performed on the highest emissions to ensure EUT compliance.
Span = wide enough to fully capture the emission being measured
RBW = 1 MHz for f ≥ 1 GHz(1GHz to 25GHz), 100 kHz for f < 1 GHz(30MHz to 1GHz), 200Hz for f<150KHz(9KHz to 150KHz), 9KHz for f<30MHz(150KHz to 30KHz)
VBW ≥ RBW
Sweep = auto
Detector function = peak
Trace = max hold
Follow the guidelines in ANSI C63.10-2013 with respect to maximizing the emission by rotating the EUT,

measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization, etc. A pre-amp and a high pass filter are required for this test, in order to provide the measuring system with sufficient sensitivity. Allow the trace to stabilize. The peak reading of the emission, after being corrected by the antenna factor, cable loss, pre-amp gain, etc., is the peak field strength, which must comply with the limit specified in Section 15.35(b). Submit this data.
Now set the VBW to 10 Hz, while maintaining all of the other instrument settings. This peak level, once corrected, must comply with the limit specified in Section 15.209. If the dwell time per channel of the hopping signal is less than 100 ms, then the reading obtained with the 10 Hz VBW may be further adjusted by a “duty cycle correction factor”, derived from 20log(dwell time/100 ms), in an effort to demonstrate compliance with the 15.209 limit. Submit this data.
Repeat above procedures until all frequency measured was complete.

8.5.5 Test Results

■ Spurious Emission below 30MHz(9KHz to 30MHz)

Temperature: 24℃ Test By: King Kong
Humidity: 53 %
Test mode: 802.11b

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
--	--	--	--	--	--	--	--

Note: the amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.
Distance extrapolation factor =40log(Specific distance/ test distance)(dB);
Limit line=Specific limits(dBuV) + distance extrapolation factor

■ Spurious Emission Above 1GHz(1GHz to 25GHz)
2.4G 802.11b/g/n SISO and MIMO modes have been tested, and the worst case recorded was report as below:

Temperature : 26℃ Test By: King Kong
Humidity : 60 % Frequency: Channel 1: 2412MHz
Test mode: 802.11b Mode: SISO antenna 0

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
4293.00	V	58.05	43.56	74.00	54.00	-15.95	-10.44
9144.70	V	52.92	35.42	74.00	54.00	-21.08	-18.58
11026.00	V	53.10	35.12	74.00	54.00	-20.90	-18.88
4294.45	H	56.11	41.36	74.00	54.00	-17.89	-12.64
9966.65	H	53.15	35.24	74.00	54.00	-20.85	-18.76
13968.45	H	53.23	34.98	74.00	54.00	-20.77	-19.02

Temperature :	26℃	Test By:	King Kong
Humidity :	60 %	Frequency:	Channel 6: 2437MHz
Test mode:	802.11b	Mode:	SISO antenna 0

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m) PK	Emission Level(dBuV/m) AV	Limit 3m(dBuV/m) PK	Limit 3m(dBuV/m) AV	Over(dB) PK	Over(dB) AV
4874.30	V	59.66	43.88	74.00	54.00	-14.34	-10.12
11746.55	V	53.09	34.82	74.00	54.00	-20.91	-19.18
13676.05	V	53.43	35.25	74.00	54.00	-20.57	-18.75
4873.45	H	55.98	42.69	74.00	54.00	-18.02	-11.31
7864.60	H	51.95	34.52	74.00	54.00	-22.05	-19.48
13478.85	H	53.41	35.04	74.00	54.00	-20.59	-18.96

Temperature :	26℃	Test By:	King Kong
Humidity :	60 %	Frequency:	Channel 11: 2462MHz
Test mode:	802.11b	Mode:	SISO antenna 0

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m) PK	Emission Level(dBuV/m) AV	Limit 3m(dBuV/m) PK	Limit 3m(dBuV/m) AV	Over(dB) PK	Over(dB) AV
4824.15	V	59.82	41.2	74.00	54.00	-14.18	-12.80
7076.65	V	51.42	35.91	74.00	54.00	-22.58	-18.09
12348.35	V	53.85	36.56	74.00	54.00	-20.15	-17.44
4824.15	H	56.02	41.54	74.00	54.00	-17.98	-12.46
10193.60	H	51.67	35.41	74.00	54.00	-22.33	-18.59
11589.30	H	53.03	35.27	74.00	54.00	-20.97	-18.73

Note: (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
(2) Emission Level= Reading Level + Probe Factor +Cable Loss.
(3) 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.

Temperature :	26℃	Test By:	King Kong
Humidity :	60 %	Frequency:	Channel 1: 2412MHz
Test mode:	802.11g	Mode:	SISO antenna 0

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
4831.69	V	57.51	43.00	74.00	54.00	-16.49	-11.00
9556.31	V	52.75	34.57	74.00	54.00	-21.25	-19.43
11469.22	V	52.88	34.67	74.00	54.00	-21.12	-19.33
4830.58	H	55.63	41.10	74.00	54.00	-18.37	-12.90
10394.68	H	52.45	34.52	74.00	54.00	-21.55	-19.48
14345.08	H	52.70	34.61	74.00	54.00	-21.30	-19.39

Temperature :	26℃	Test By:	King Kong
Humidity :	60 %	Frequency:	Channel 6: 2437MHz
Test mode:	802.11g	Mode:	SISO antenna 0

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
4895.17	V	58.22	42.27	74.00	54.00	-15.78	-11.73
9437.25	V	52.74	34.80	74.00	54.00	-21.26	-19.20
11389.48	V	53.15	35.07	74.00	54.00	-20.85	-18.93
4880.84	H	55.15	41.71	74.00	54.00	-18.85	-12.29
10293.51	H	51.63	34.34	74.00	54.00	-22.37	-19.66
14237.83	H	52.61	34.81	74.00	54.00	-21.39	-19.19

Temperature :	26℃	Test By:	King Kong
Humidity :	60 %	Frequency:	Channel 11: 2462MHz
Test mode:	802.11g	Mode:	SISO antenna 0

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
4916.97	V	58.48	40.33	74.00	54.00	-15.52	-13.67
9401.07	V	50.76	35.11	74.00	54.00	-23.24	-18.89
11486.34	V	52.97	35.58	74.00	54.00	-21.03	-18.42
4942.03	H	54.76	41.43	74.00	54.00	-19.24	-12.57
10422.84	H	50.75	34.54	74.00	54.00	-23.25	-19.46
14383.36	H	52.51	34.55	74.00	54.00	-21.49	-19.45

Note: (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
(2) Emission Level= Reading Level + Probe Factor +Cable Loss.
(3) 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.

Temperature :	26℃	Test By:	King Kong
Humidity :	60 %	Frequency:	Channel 1: 2412MHz
Test mode:	802.11n20(HT20)	Mode:	MIMO

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
4803.22	V	56.01	41.04	74.00	54.00	-17.99	-12.96
9630.86	V	52.73	35.32	74.00	54.00	-21.27	-18.68
11361.38	V	52.38	34.61	74.00	54.00	-21.62	-19.39
4826.53	H	53.75	40.03	74.00	54.00	-20.25	-13.97
10225.70	H	52.38	35.16	74.00	54.00	-21.62	-18.84
14335.79	H	52.30	34.09	74.00	54.00	-21.70	-19.91

Temperature :	26℃	Test By:	King Kong
Humidity :	60 %	Frequency:	Channel 6: 2437MHz
Test mode:	802.11n(HT20)	Mode:	MIMO

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
4884.66	V	55.73	40.51	74.00	54.00	-18.27	-13.49
9636.34	V	52.49	34.21	74.00	54.00	-21.51	-19.79
11354.30	V	53.13	34.55	74.00	54.00	-20.87	-19.45
4851.52	H	52.40	39.75	74.00	54.00	-21.60	-14.25
10369.05	H	51.26	33.85	74.00	54.00	-22.74	-20.15
14340.07	H	52.49	34.12	74.00	54.00	-21.51	-19.88

Temperature :	26℃	Test By:	King Kong
Humidity :	60 %	Frequency:	Channel 11: 2462MHz
Test mode:	802.11n(HT20)	Mode:	MIMO

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
4938.26	V	55.98	39.76	74.00	54.00	-18.02	-14.24
9563.08	V	50.60	35.81	74.00	54.00	-23.40	-18.19
11312.49	V	53.55	36.00	74.00	54.00	-20.45	-18.00
4902.65	H	51.81	39.01	74.00	54.00	-22.19	-14.99
10462.94	H	51.54	34.45	74.00	54.00	-22.46	-19.55
14290.13	H	52.59	34.65	74.00	54.00	-21.41	-19.35

Note: (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
(2) Emission Level= Reading Level + Probe Factor +Cable Loss.
(3) 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.

Temperature :	26℃	Test By:	King Kong
Humidity :	60 %	Frequency:	Channel 3: 2422MHz
Test mode:	802.11n20(HT40)	Mode:	MIMO

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
4845.78	V	53.53	40.80	74.00	54.00	-19.47	-13.20
9511.72	V	52.25	34.76	74.00	54.00	-21.75	-19.24
11471.60	V	52.47	34.49	74.00	54.00	-21.53	-19.51
4840.79	H	52.47	39.33	74.00	54.00	-21.53	-14.67
10411.94	H	52.35	34.57	74.00	54.00	-21.65	-19.43
14393.91	H	53.09	34.39	74.00	54.00	-20.91	-19.61

Temperature :	26℃	Test By:	King Kong
Humidity :	60 %	Frequency:	Channel 6: 2437MHz
Test mode:	802.11n(HT40)	Mode:	MIMO

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
4861.80	V	54.38	39.54	74.00	54.00	-18.62	-14.46
9539.38	V	52.39	34.40	74.00	54.00	-21.61	-19.60
11277.16	V	53.35	35.23	74.00	54.00	-20.65	-18.77
4876.87	H	52.90	39.05	74.00	54.00	-21.10	-14.95
10244.12	H	51.55	34.01	74.00	54.00	-22.45	-19.99
14285.16	H	53.03	34.61	74.00	54.00	-20.97	-19.39

Temperature :	26℃	Test By:	King Kong
Humidity :	60 %	Frequency:	Channel 9: 2452MHz
Test mode:	802.11n(HT40)	Mode:	MIMO

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
4889.67	V	53.98	38.54	74.00	54.00	-20.02	-15.46
9582.36	V	50.62	34.95	74.00	54.00	-23.38	-19.05
11277.20	V	53.20	36.46	74.00	54.00	-20.80	-17.54
4901.75	H	51.00	39.60	74.00	54.00	-23.00	-14.40
10367.18	H	50.68	34.97	74.00	54.00	-23.32	-19.03
14405.83	H	52.92	34.34	74.00	54.00	-21.08	-19.66

Note: (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
(2) Emission Level= Reading Level + Probe Factor +Cable Loss.
(3) 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 and 2483.5-2500MHz
- 2.4G 802.11b/g/n SISO and MIMO modes have been tested, and the worst case recorded was report as below:

Temperature :	26℃	Test By:	King Kong
Humidity :	60 %	Frequency:	Channel 1: 2412MHz
Test mode:	802.11b	Mode:	SISO Antenna 0

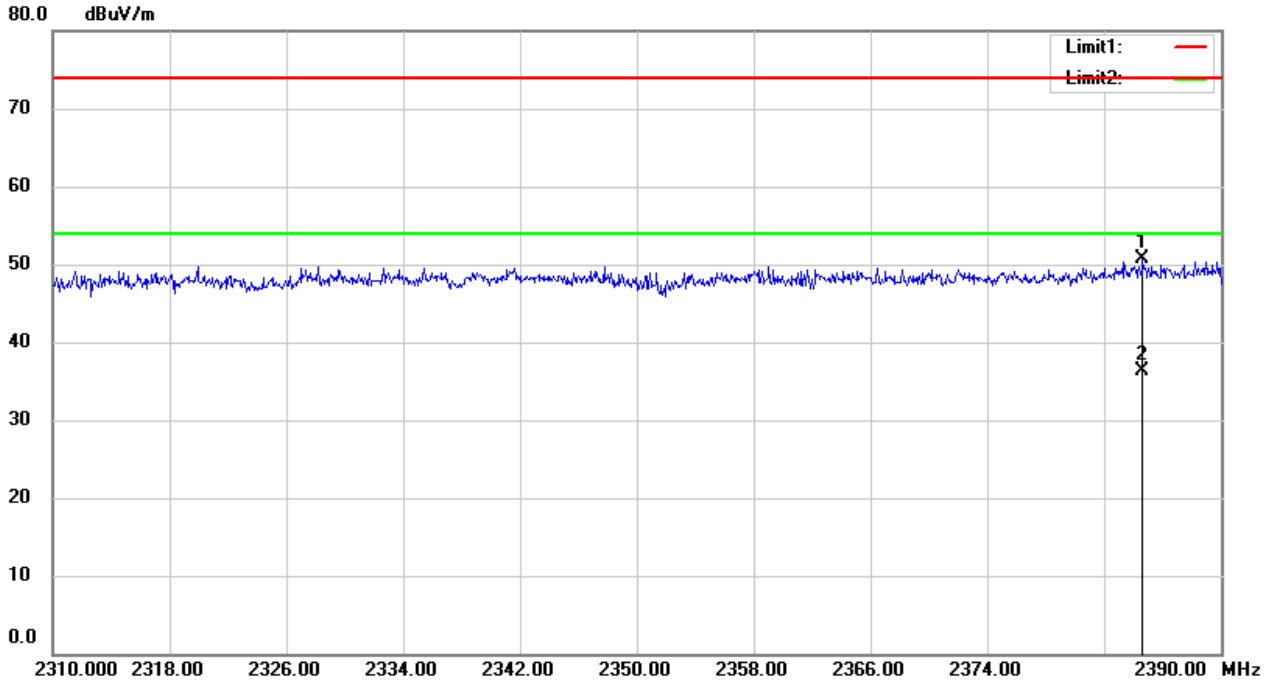
Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	Margin (dB)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)	Margin (dB)
2384.67	H	50.68	74.00	-23.32	36.40	54.00	-17.60
2389.62	V	50.83	74.00	-23.17	35.10	54.00	-18.90

Temperature :	26℃	Test By:	King Kong
Humidity :	60 %	Frequency:	Channel 11: 2462MHz
Test mode:	802.11b	Mode:	SISO Antenna 0

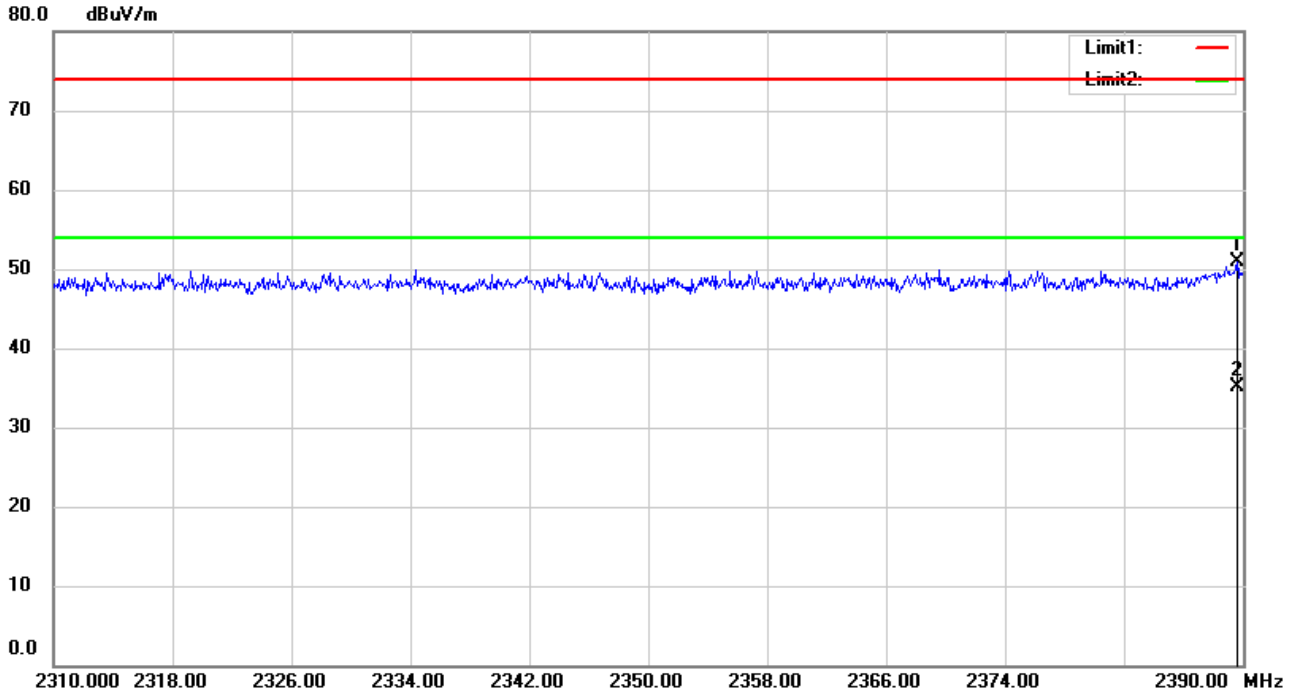
Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	Margin (dB)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)	Margin (dB)
2483.98	H	50.89	74.00	-23.11	35.70	54.00	-18.30
2485.33	V	52.07	74.00	-21.93	37.20	54.00	-16.80

Note: (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
(2) Emission Level= Reading Level+Probe Factor +Cable Loss.
(3) 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.

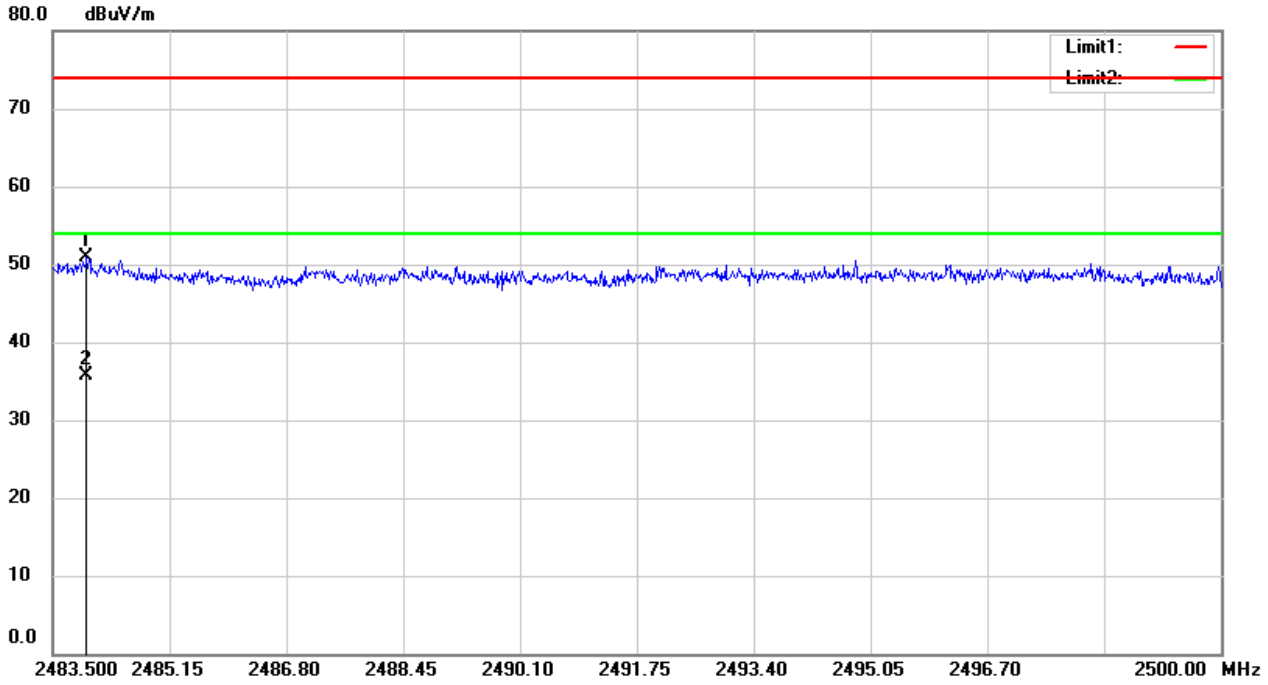
Test Model	Spurious Emission in Restricted Band 2310-2390MHz ☒802.11b ☐802.11g ☐802.11n(HT20) ☐802.11n(HT40) ☒Channel 1: 2412MHz ☐Channel 3: 2422MHz Polarity: H VBW=3MHz Test By: King Kong



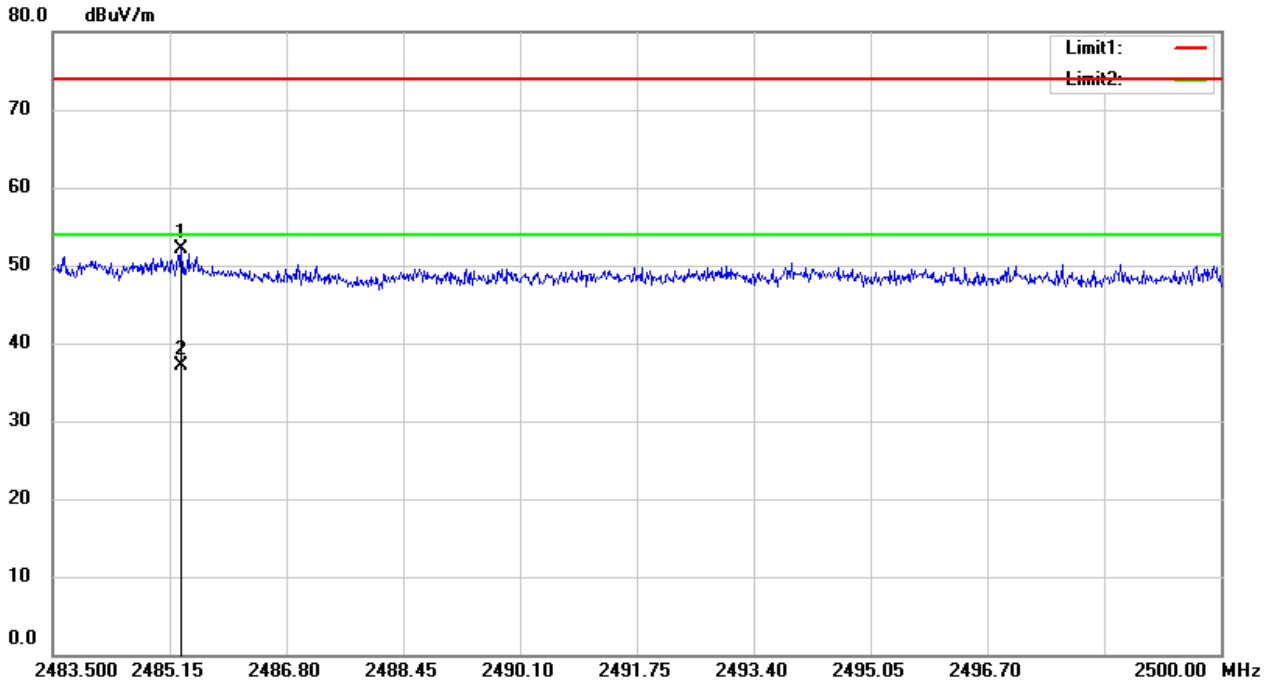
Test Model	Spurious Emission in Restricted Band 2310-2390MHz ☒802.11b ☐802.11g ☐802.11n(HT20) ☐802.11n(HT40) ☒Channel 1: 2412MHz ☐Channel 3: 2422MHz Polarity: V VBW=3MHz Test By: King Kong



Test Model	Spurious Emission in Restricted Band 2483.5-2500MHz ☒802.11b ☐802.11g ☐802.11n(HT20) ☐802.11n(HT40) ☒Channel 11: 2462MHz ☐Channel 9: 2452MHz Polarity: H VBW=3MHz Test By: King Kong



Test Model	Spurious Emission in Restricted Band2483.5-2500MHz ☒802.11b ☐802.11g ☐802.11n(HT20) ☐802.11n(HT40) ☒Channel 11: 2462MHz ☐Channel 9: 2452MHz Polarity: V VBW=3MHz Test By: King Kong



Temperature :	26℃	Test By:	King Kong
Humidity :	60 %	Frequency:	Channel 1: 2412MHz
Test mode:	802.11g	Mode:	SISO Antenna 0

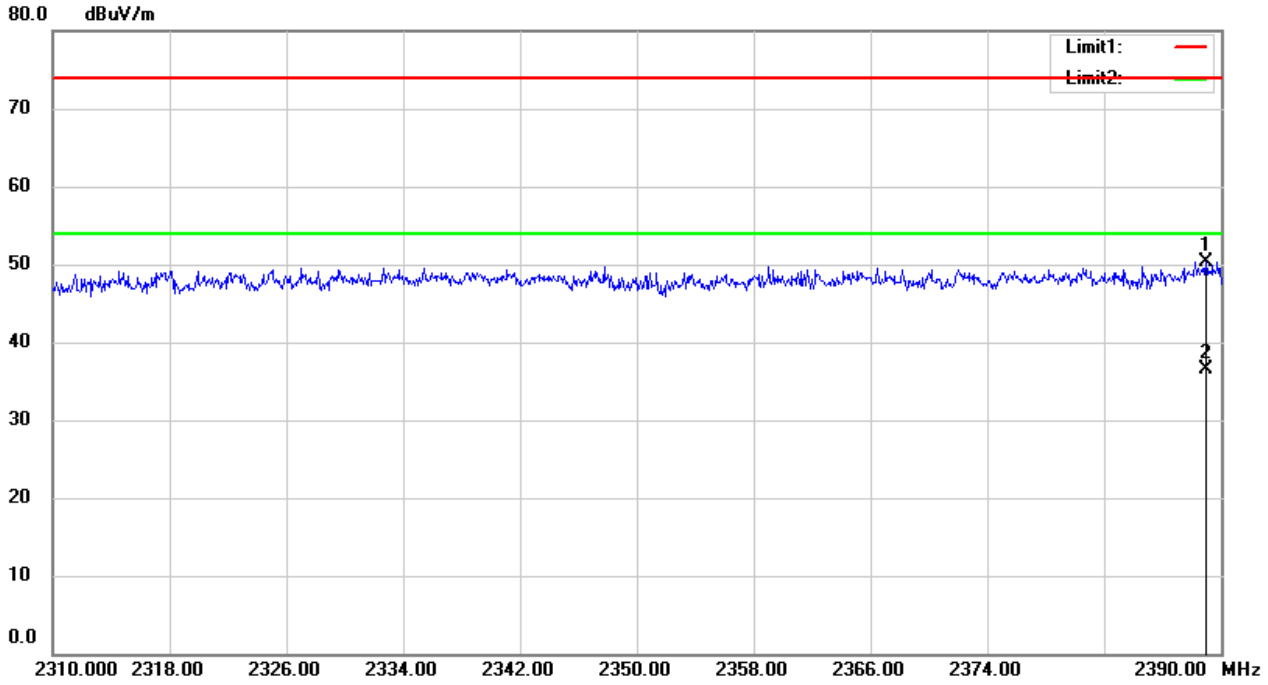
Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	Margin (dB)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)	Margin (dB)
2388.99	H	50.26	74.00	-23.74	36.47	54.00	-17.53
2389.62	V	50.33	74.00	-23.67	35.27	54.00	-18.73

Temperature :	26℃	Test By:	King Kong
Humidity :	60 %	Frequency:	Channel 11: 2462MHz
Test mode:	802.11g	Mode:	SISO Antenna 0

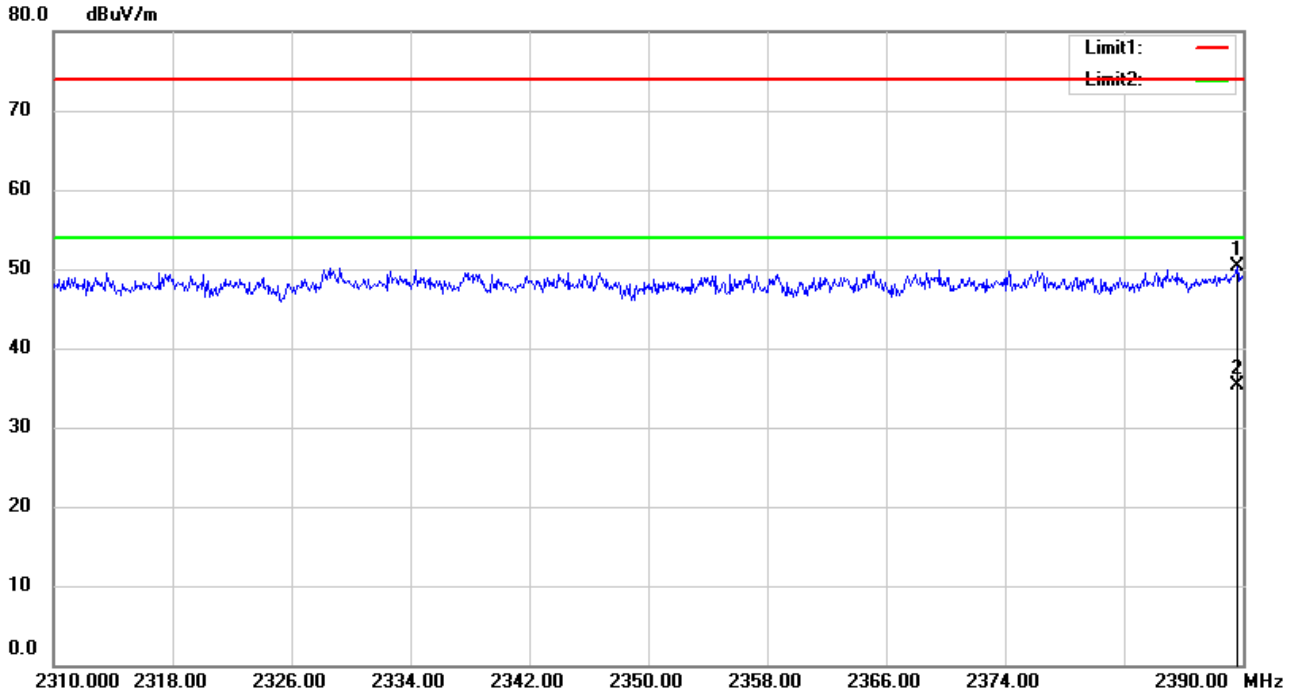
Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	Margin (dB)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)	Margin (dB)
2484.04	H	50.51	74.00	-23.49	35.25	54.00	-18.75
2484.65	V	51.40	74.00	-22.60	35.41	54.00	-18.59

Note: (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
(2) Emission Level= Reading Level+Probe Factor +Cable Loss.
(3) 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.

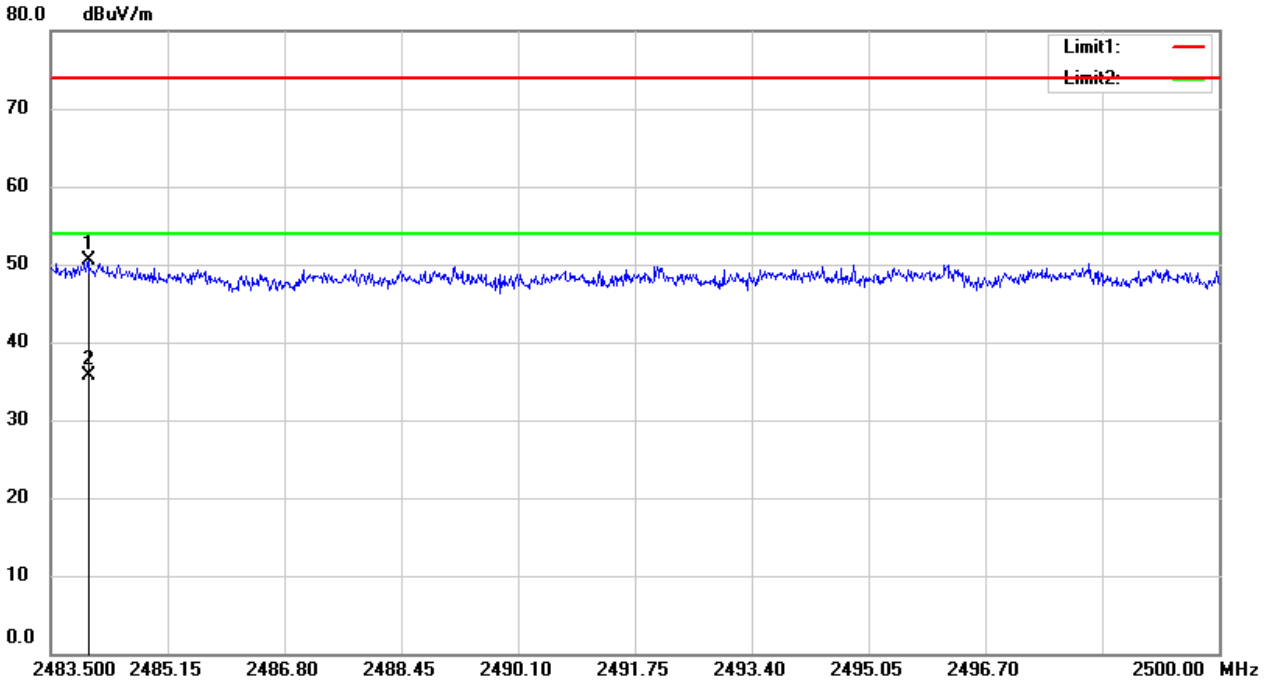
Test Model	Spurious Emission in Restricted Band 2310-2390MHz ☐802.11b ☒802.11g ☐802.11n(HT20) ☐802.11n(HT40) ☒Channel 1: 2412MHz ☐Channel 3: 2422MHz Polarity: H VBW=3MHz Test By: King Kong



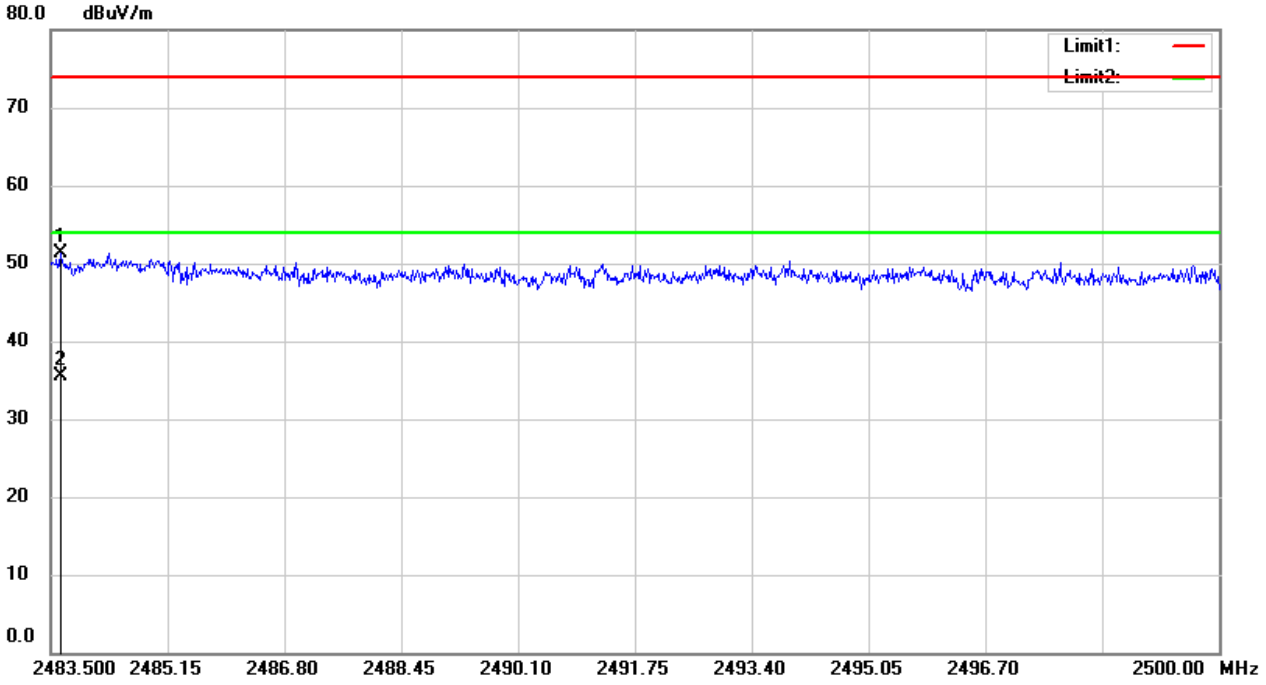
Test Model	Spurious Emission in Restricted Band 2310-2390MHz ☐802.11b ☒802.11g ☐802.11n(HT20) ☐802.11n(HT40) ☒Channel 1: 2412MHz ☐Channel 3: 2422MHz Polarity: V VBW=3MHz Test By: King Kong



Test Model	Spurious Emission in Restricted Band 2483.5-2500MHz ☐802.11b ☒802.11g ☐802.11n(HT20) ☐802.11n(HT40) ☒Channel 11: 2462MHz ☐Channel 9: 2452MHz Polarity: H VBW=3MHz Test By: King Kong



Test Model	Spurious Emission in Restricted Band2483.5-2500MHz ☐802.11b ☒802.11g ☐802.11n(HT20) ☐802.11n(HT40) ☒Channel 11: 2462MHz ☐Channel 9: 2452MHz Polarity: V VBW=3MHz Test By: King Kong



Temperature :	26℃	Test By:	King Kong
Humidity :	60 %	Frequency:	Channel 1: 2412MHz
Test mode:	802.11n (HT20)	Mode:	MIMO

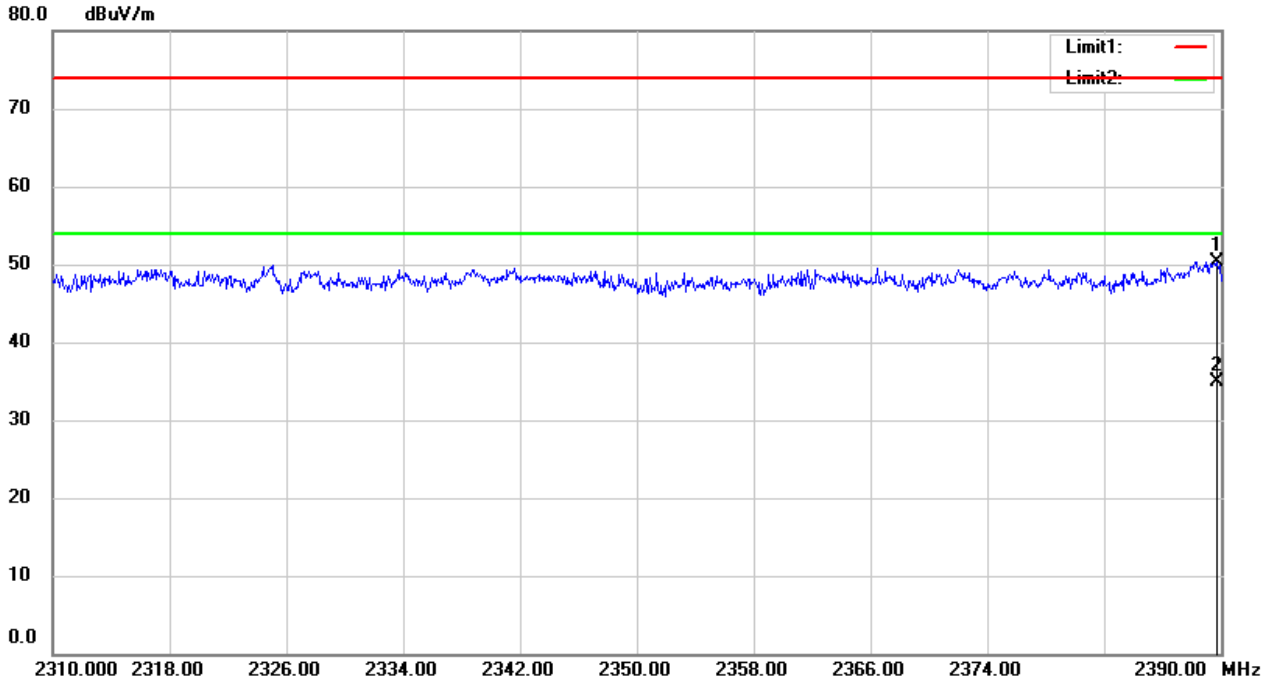
Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	Margin (dB)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)	Margin (dB)
2389.69	H	50.33	74.00	-23.67	34.97	54.00	-19.03
2389.62	V	50.83	74.00	-23.17	35.67	54.00	-18.33

Temperature :	26℃	Test By:	King Kong
Humidity :	60 %	Frequency:	Channel 11: 2462MHz
Test mode:	802.11n (HT20)	Mode:	MIMO

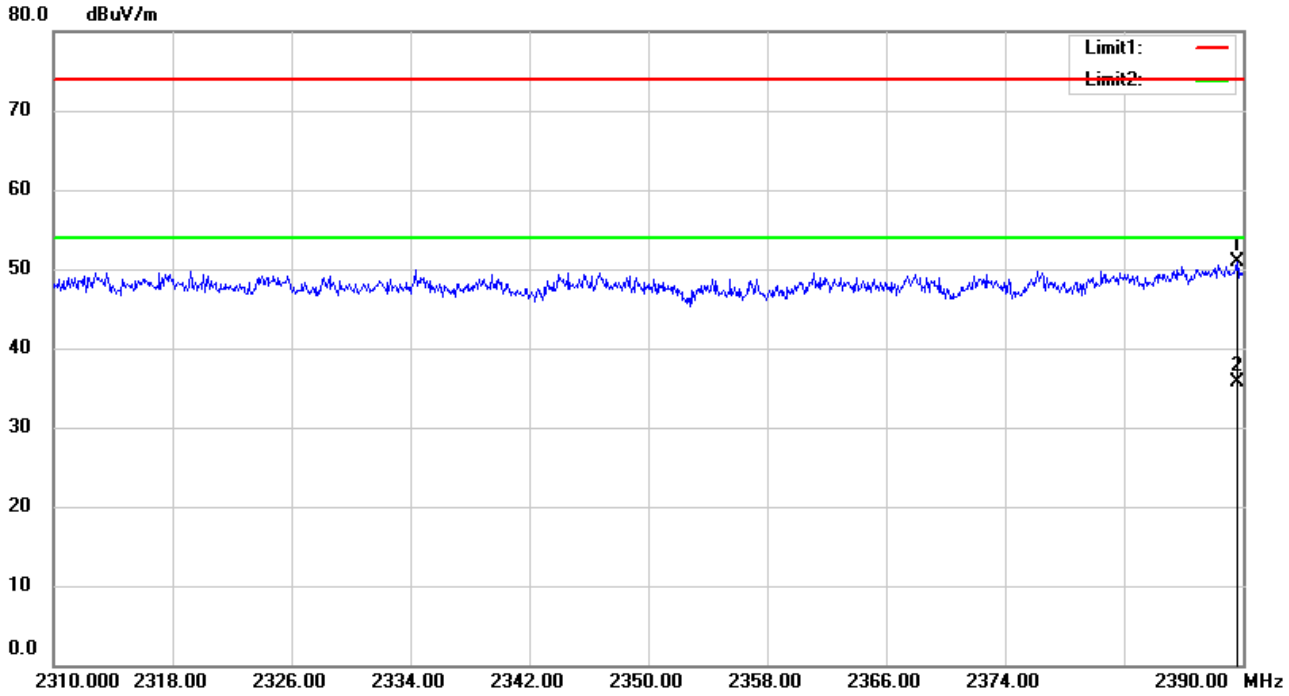
Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	Margin (dB)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)	Margin (dB)
2483.98	H	50.39	74.00	-23.61	35.76	54.00	-18.24
2389.62	V	50.98	74.00	-23.02	36.14	54.00	-17.86

Note: (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
(2) Emission Level= Reading Level+Probe Factor +Cable Loss.
(3) 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.

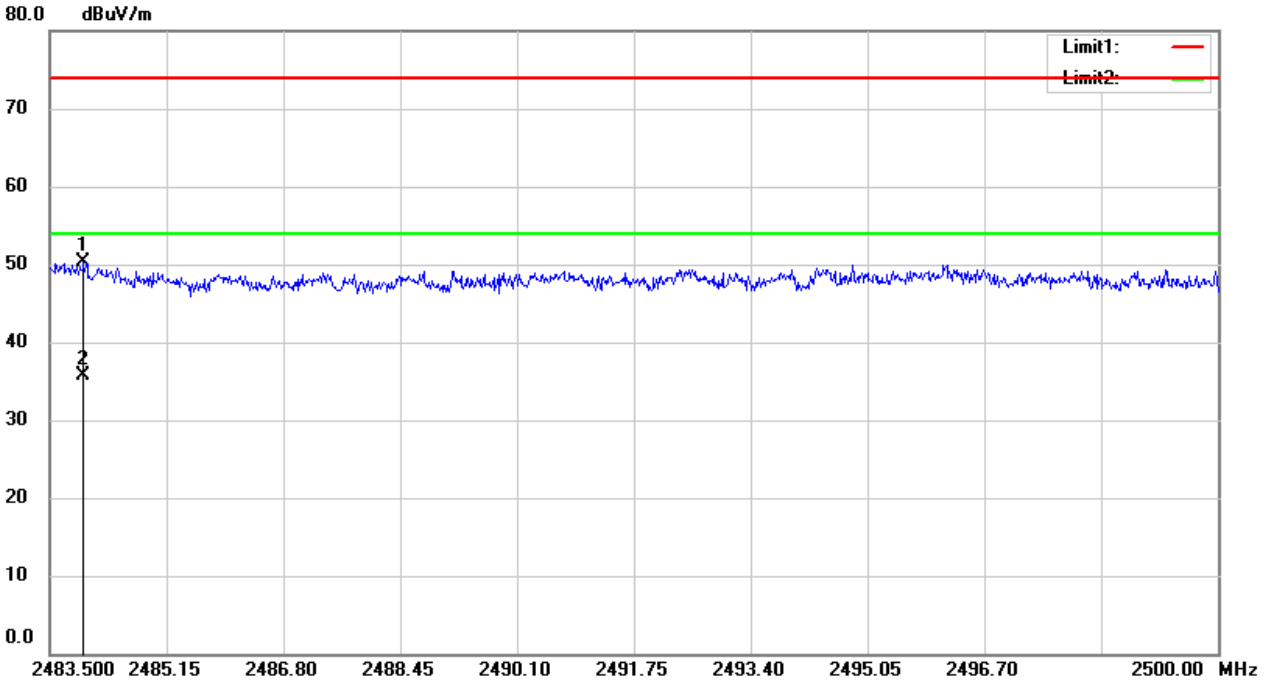
Test Model	Spurious Emission in Restricted Band 2310-2390MHz ☐802.11b ☐802.11g ☒802.11n(HT20) ☐802.11n(HT40) ☒Channel 1: 2412MHz ☐Channel 3: 2422MHz Polarity: H VBW=3MHz Test By: King Kong



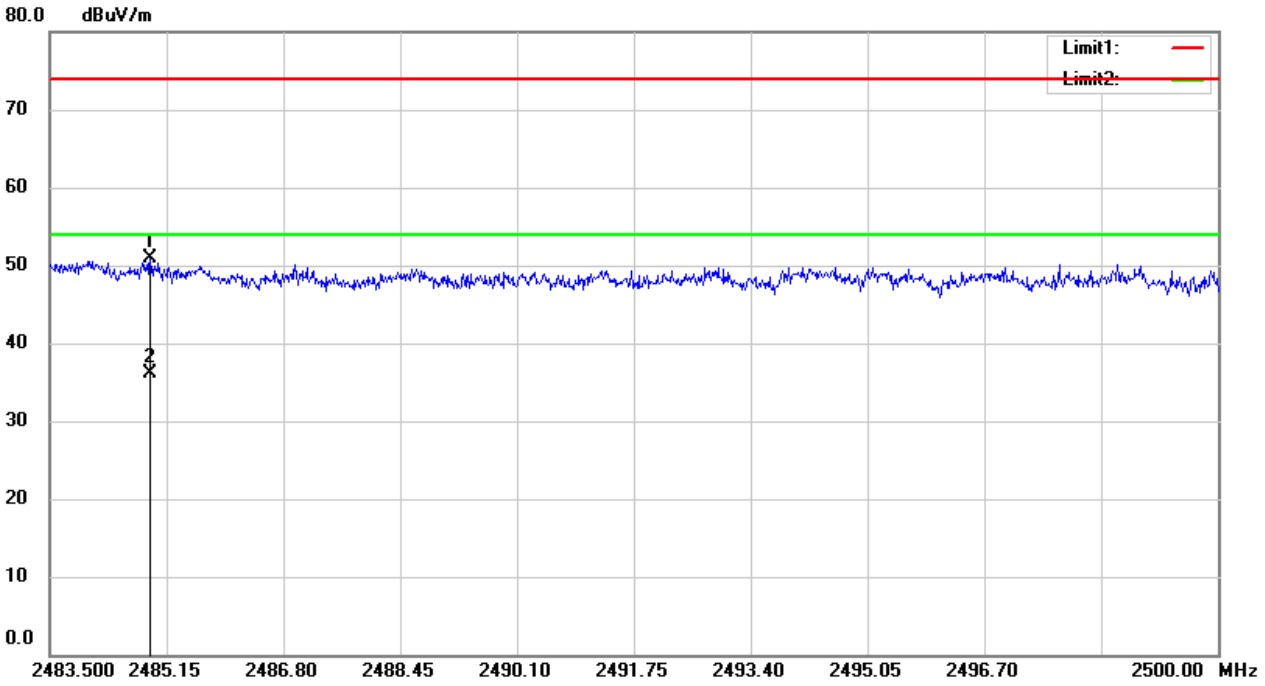
Test Model	Spurious Emission in Restricted Band 2310-2390MHz ☐802.11b ☐802.11g ☒802.11n(HT20) ☐802.11n(HT40) ☒Channel 1: 2412MHz ☐Channel 3: 2422MHz Polarity: V VBW=3MHz Test By: King Kong



Test Model	Spurious Emission in Restricted Band 2483.5-2500MHz ☐802.11b ☐802.11g ☒802.11n(HT20) ☐802.11n(HT40) ☒Channel 11: 2462MHz ☐Channel 9: 2452MHz Polarity: H VBW=3MHz Test By: King Kong



Test Model	Spurious Emission in Restricted Band2483.5-2500MHz ☐802.11b ☐802.11g ☒802.11n(HT20) ☐802.11n(HT40) ☒Channel 11: 2462MHz ☐Channel 9: 2452MHz Polarity: V VBW=3MHz Test By: King Kong



Temperature :	26℃	Test By:	King Kong
Humidity :	60 %	Frequency:	Channel 3: 2422MHz
Test mode:	802.11n (HT40)	Mode:	MIMO

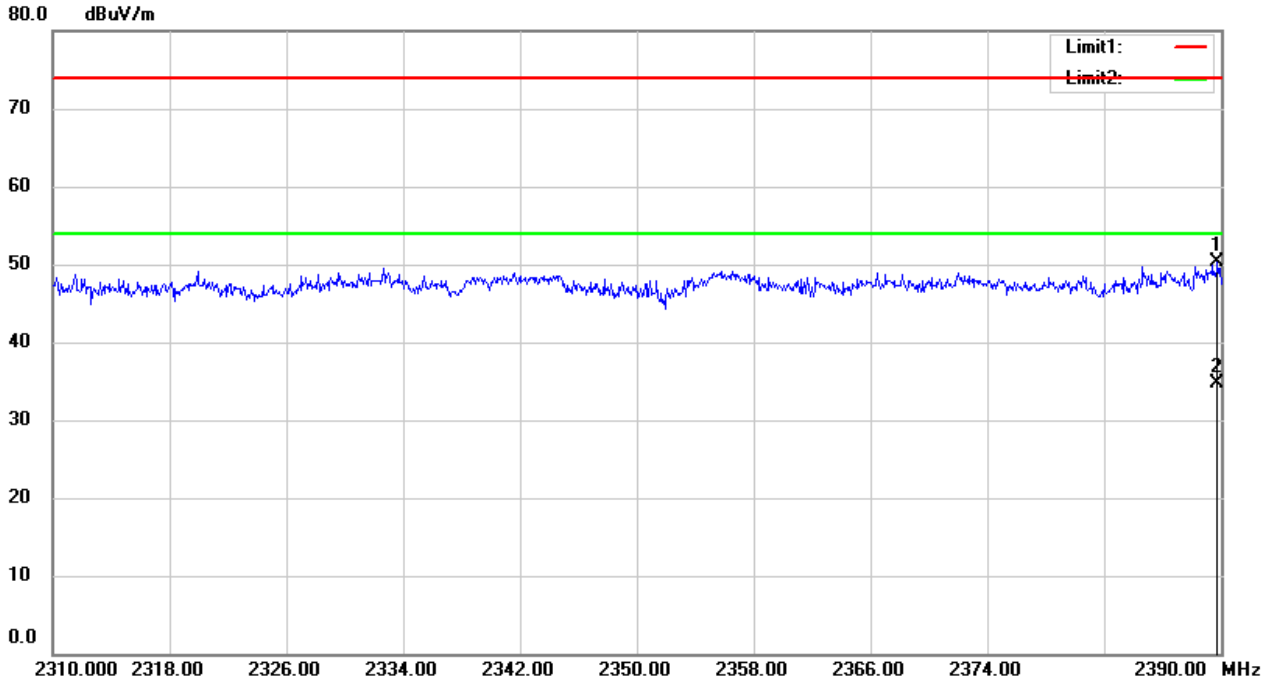
Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	Margin (dB)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)	Margin (dB)
2389.81	H	50.25	74.00	-23.75	34.78	54.00	-19.22
2389.62	V	50.33	74.00	-23.67	35.62	54.00	-18.38

Temperature :	26℃	Test By:	King Kong
Humidity :	60 %	Frequency:	Channel 9: 2462MHz
Test mode:	802.11n (HT40)	Mode:	MIMO

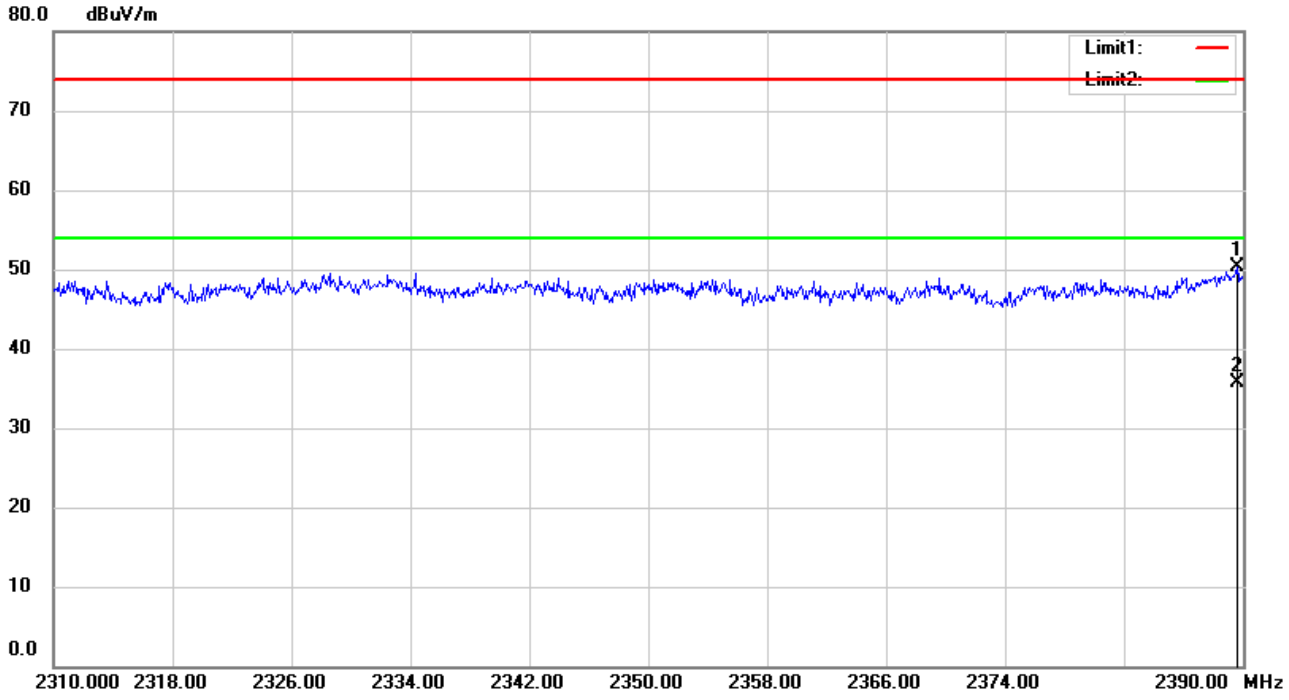
Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	Margin (dB)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)	Margin (dB)
2483.59	H	50.56	74.00	-23.44	34.80	54.00	-19.20
2483.65	V	51.40	74.00	-22.60	35.28	54.00	-18.72

Note: (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
(2) Emission Level= Reading Level + Probe Factor +Cable Loss.
(3) 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.

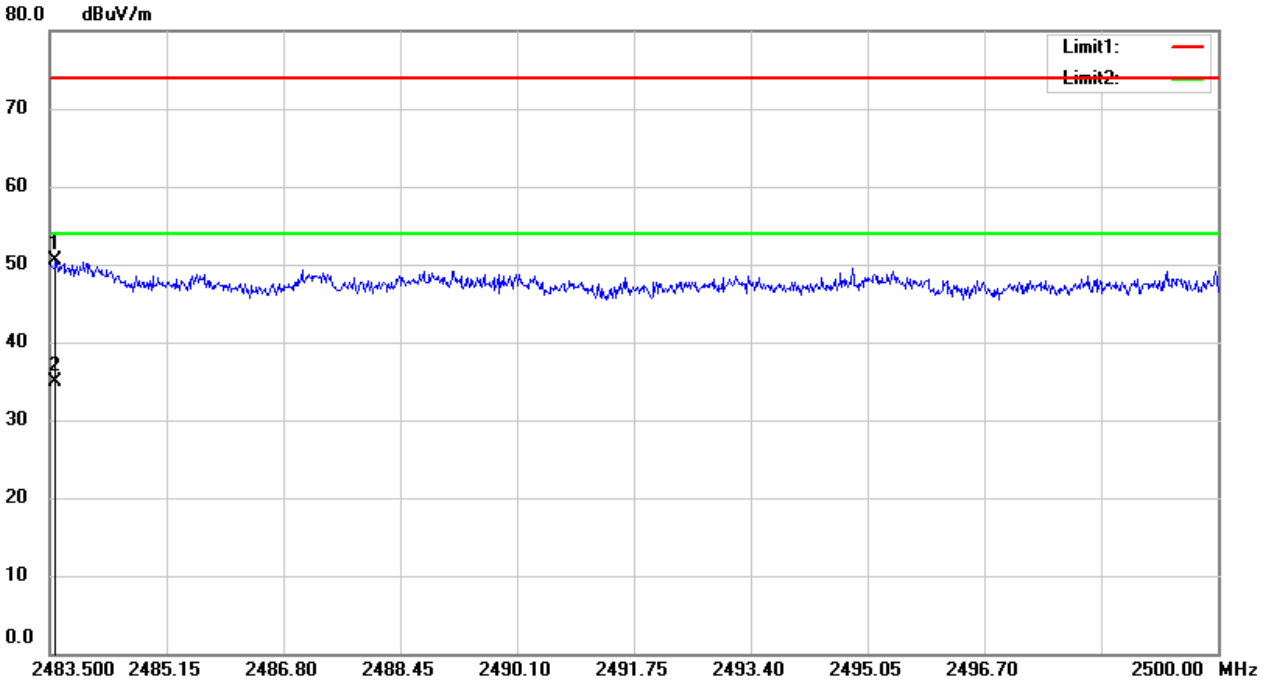
Test Model	Spurious Emission in Restricted Band 2310-2390MHz ☐802.11b ☐802.11g ☐802.11n(HT20) ☒802.11n(HT40) ☐Channel 1: 2412MHz ☒Channel 3: 2422MHz Polarity: H VBW=3MHz Test By: King Kong



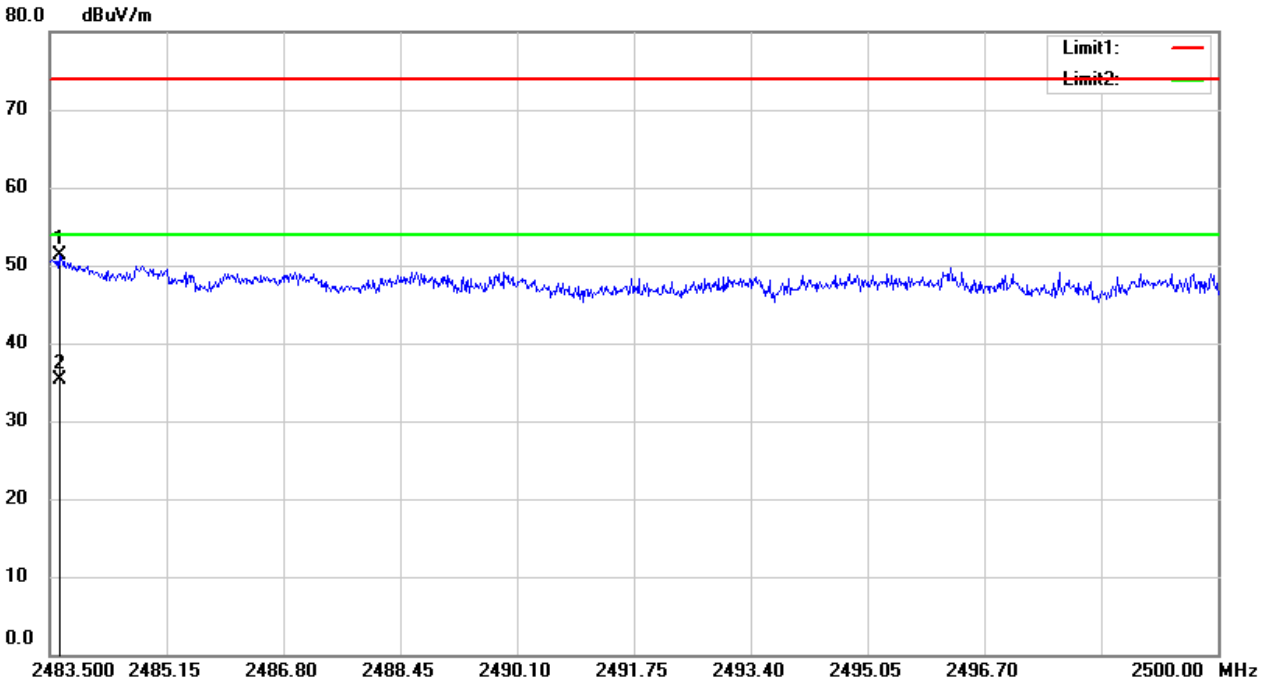
Test Model	Spurious Emission in Restricted Band 2310-2390MHz ☐802.11b ☐802.11g ☐802.11n(HT20) ☒802.11n(HT40) ☐Channel 1: 2412MHz ☒Channel 3: 2422MHz Polarity: V VBW=3MHz Test By: King Kong



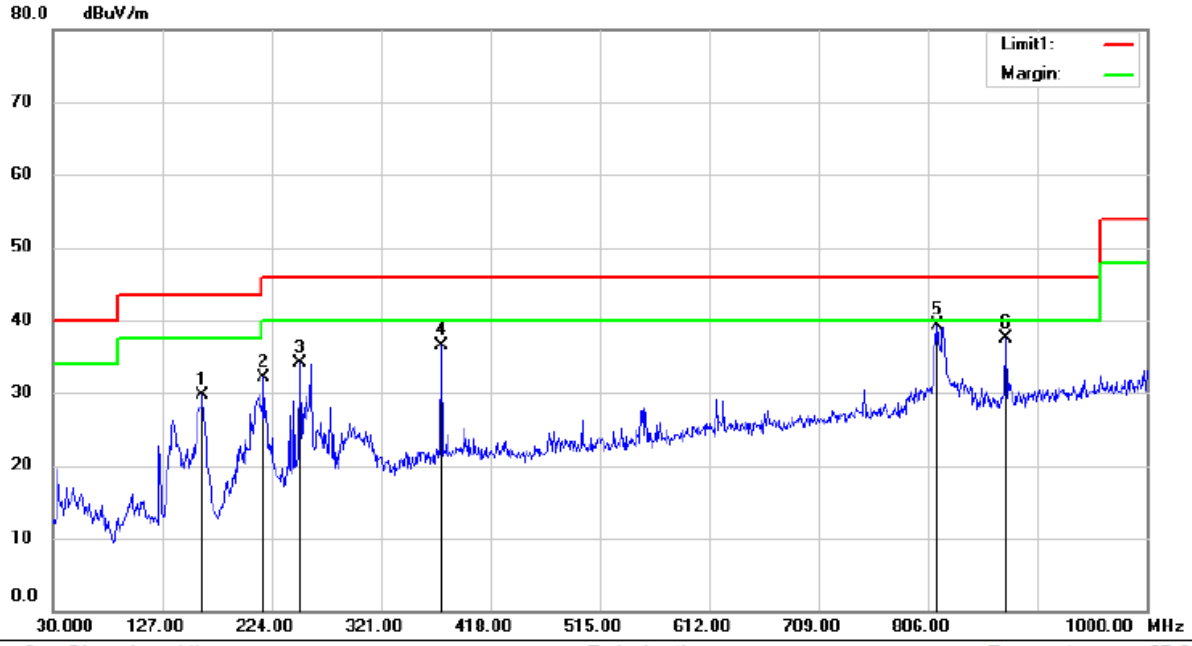
Test Model	Spurious Emission in Restricted Band 2483.5-2500MHz ☐802.11b ☐802.11g ☐802.11n(HT20) ☒802.11n(HT40) ☐Channel 11: 2462MHz ☒Channel 9: 2452MHz Polarity: H VBW=3MHz Test By: King Kong



Test Model	Spurious Emission in Restricted Band2483.5-2500MHz ☐802.11b ☐802.11g ☐802.11n(HT20) ☒802.11n(HT40) ☐Channel 11: 2462MHz ☒Channel 9: 2452MHz Polarity: V VBW=3MHz Test By: King Kong



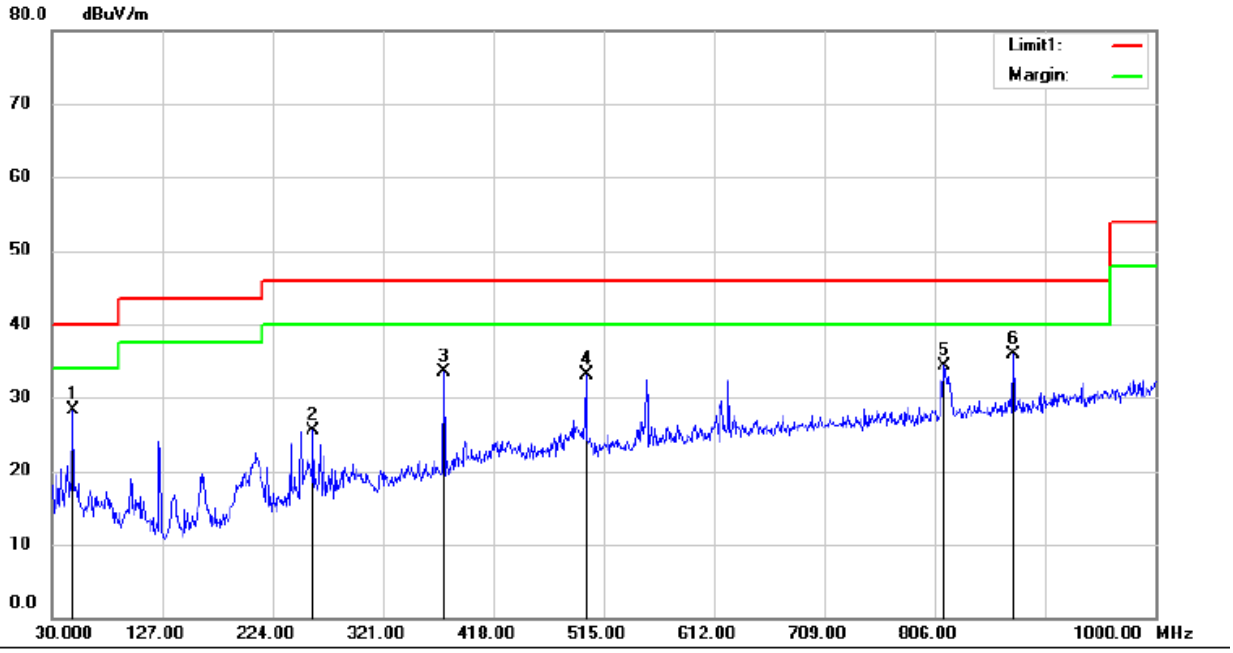
■ Spurious Emission below 1GHz (30MHz to 1GHz)
All modes have been tested, and the worst results (802.11a siso mode antenna 0) have been recorded in the report.



Site 3m Chamber 1# Polarization: *Horizontal* Temperature: 27 C
Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 43 %
Mode:11B 2412
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		163.4962	44.17	-14.48	29.69	43.50	-13.81	peak			
2		217.9375	43.42	-11.29	32.13	46.00	-13.87	peak			
3		249.9474	43.96	-9.89	34.07	46.00	-11.93	peak			
4		374.9562	43.18	-6.70	36.48	46.00	-9.52	peak			
5	*	814.8512	38.91	0.43	39.34	46.00	-6.66	peak			
6		875.1124	35.86	1.55	37.41	46.00	-8.59	peak			

*:Maximum data x:Over limit !:over margin Operator: XZC



Site 3m Chamber 1#
Polarization: *Vertical*
Temperature: 27 C

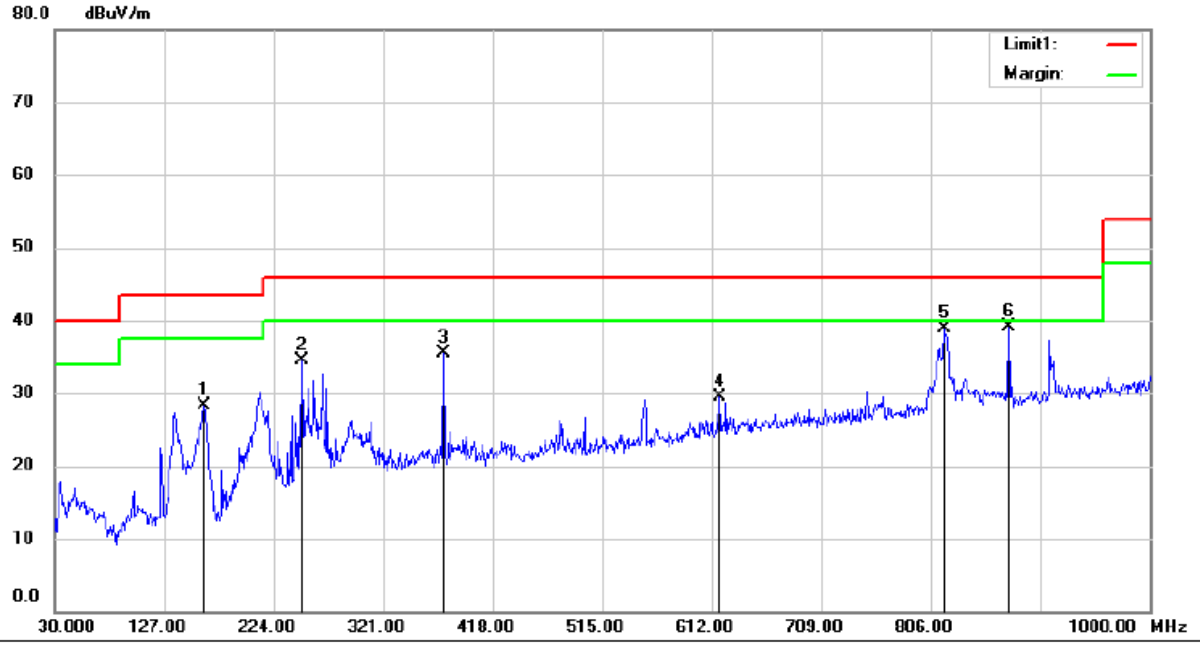
Limit: (RE)FCC PART 15C
Power: AC 120V/60Hz
Humidity: 43 %

Mode:11B 2412

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		49.1574	39.58	-11.23	28.35	40.00	-11.65	peak			
2		260.0111	35.08	-9.49	25.59	46.00	-20.41	peak			
3		374.9562	40.16	-6.70	33.46	46.00	-12.54	peak			
4		499.9650	37.92	-4.74	33.18	46.00	-12.82	peak			
5		815.4573	33.80	0.43	34.23	46.00	-11.77	peak			
6	*	875.1124	34.39	1.55	35.94	46.00	-10.06	peak			

*:Maximum data x:Over limit !:over margin Operator: XZC



Site 3m Chamber 1# Polarization: *Horizontal* Temperature: 27 C

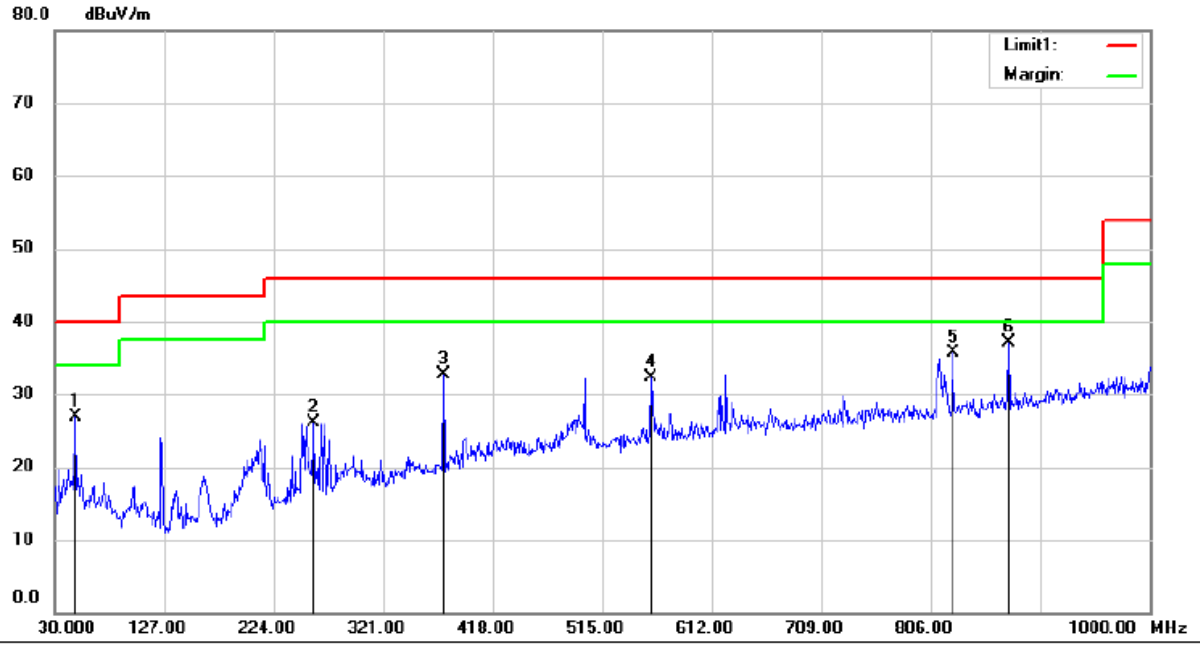
Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 43 %

Mode: 11B 2437

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		163.4962	42.87	-14.48	28.39	43.50	-15.11	peak			
2		249.9474	44.40	-9.89	34.51	46.00	-11.49	peak			
3		374.9562	42.12	-6.70	35.42	46.00	-10.58	peak			
4		619.1537	31.39	-1.92	29.47	46.00	-16.53	peak			
5		817.8825	38.38	0.43	38.81	46.00	-7.19	peak			
6	*	875.1124	37.46	1.55	39.01	46.00	-6.99	peak			

*:Maximum data x:Over limit !:over margin Operator: XZC



Site 3m Chamber 1# Polarization: *Vertical* Temperature: 27 C

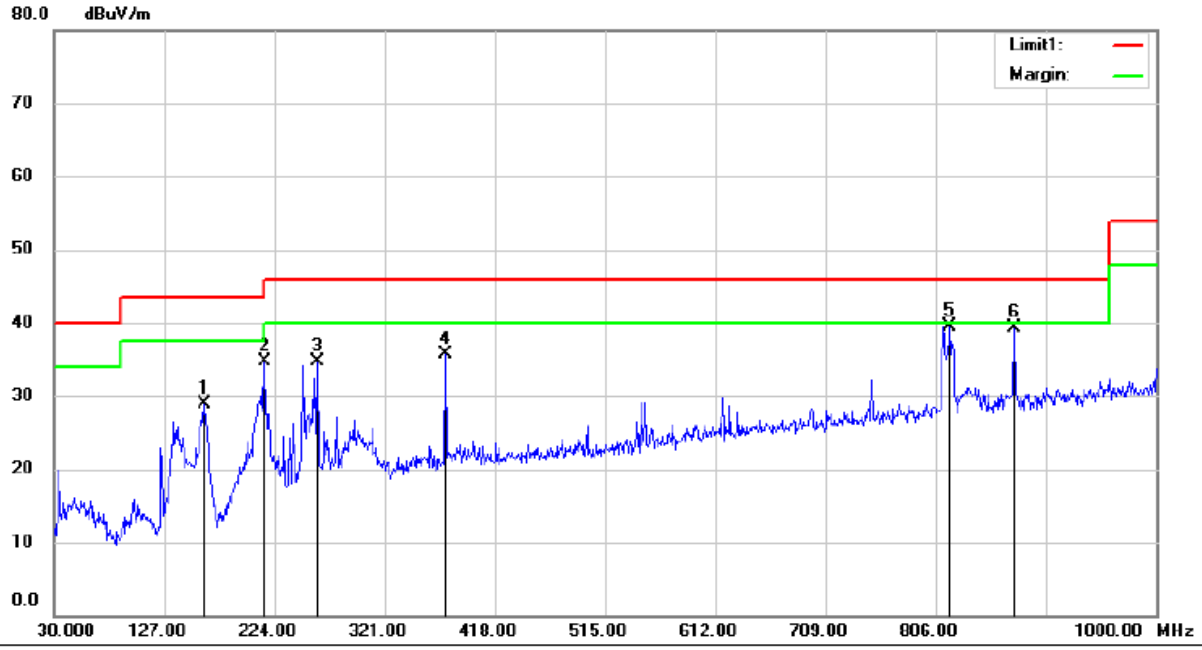
Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 43 %

Mode: 11B 2437

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		49.1574	38.16	-11.23	26.93	40.00	-13.07	peak			
2		260.0111	35.52	-9.49	26.03	46.00	-19.97	peak			
3		374.9562	39.45	-6.70	32.75	46.00	-13.25	peak			
4		558.4074	35.94	-3.63	32.31	46.00	-13.69	peak			
5		825.8850	35.25	0.52	35.77	46.00	-10.23	peak			
6	*	875.1124	35.51	1.55	37.06	46.00	-8.94	peak			

*:Maximum data x:Over limit !:over margin Operator: XZC



Site 3m Chamber 1# Polarization: *Horizontal* Temperature: 27 C

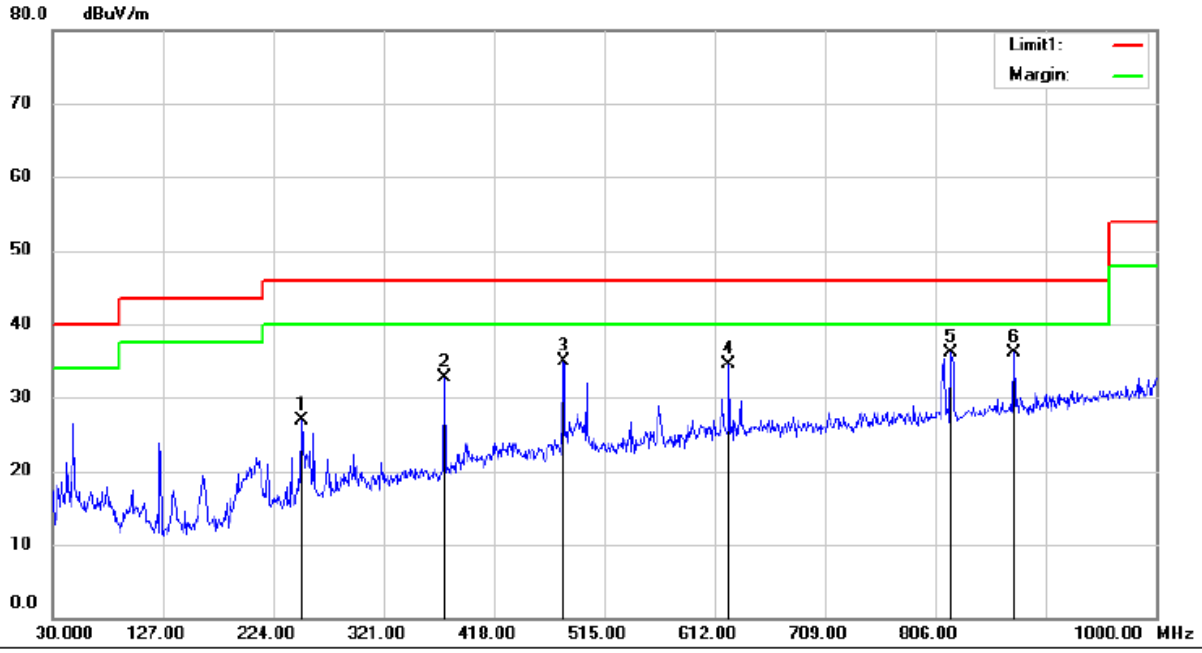
Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 43 %

Mode: 11B 2412

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		162.6475	43.48	-14.54	28.94	43.50	-14.56	peak			
2		215.3912	46.24	-11.50	34.74	43.50	-8.76	peak			
3		262.4362	44.10	-9.42	34.68	46.00	-11.32	peak			
4		374.9562	42.33	-6.70	35.63	46.00	-10.37	peak			
5	*	818.8524	39.15	0.44	39.59	46.00	-6.41	peak			
6		875.1124	37.78	1.55	39.33	46.00	-6.67	peak			

*:Maximum data x:Over limit !:over margin Operator: XZC



Site 3m Chamber 1# Polarization: *Vertical* Temperature: 27 C

Limit: (RE)FCC PART 15C Power: AC 120V/60Hz Humidity: 43 %

Mode:11B 2462

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		249.9474	36.73	-9.89	26.84	46.00	-19.16	peak			
2		374.9562	39.31	-6.70	32.61	46.00	-13.39	peak			
3		479.9587	39.91	-5.03	34.88	46.00	-11.12	peak			
4		624.9737	36.48	-1.89	34.59	46.00	-11.41	peak			
5		820.4287	35.65	0.44	36.09	46.00	-9.91	peak			
6	*	875.1124	34.57	1.55	36.12	46.00	-9.88	peak			

*:Maximum data x:Over limit !:over margin Operator: XZC

8.6 CONDUCTED EMISSIONS TEST

8.6.1 Applicable Standard

According to FCC Part 15.207(a)

8.6.2 Conformance Limit

Conducted Emision Limit		
Frequency(MHz)	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

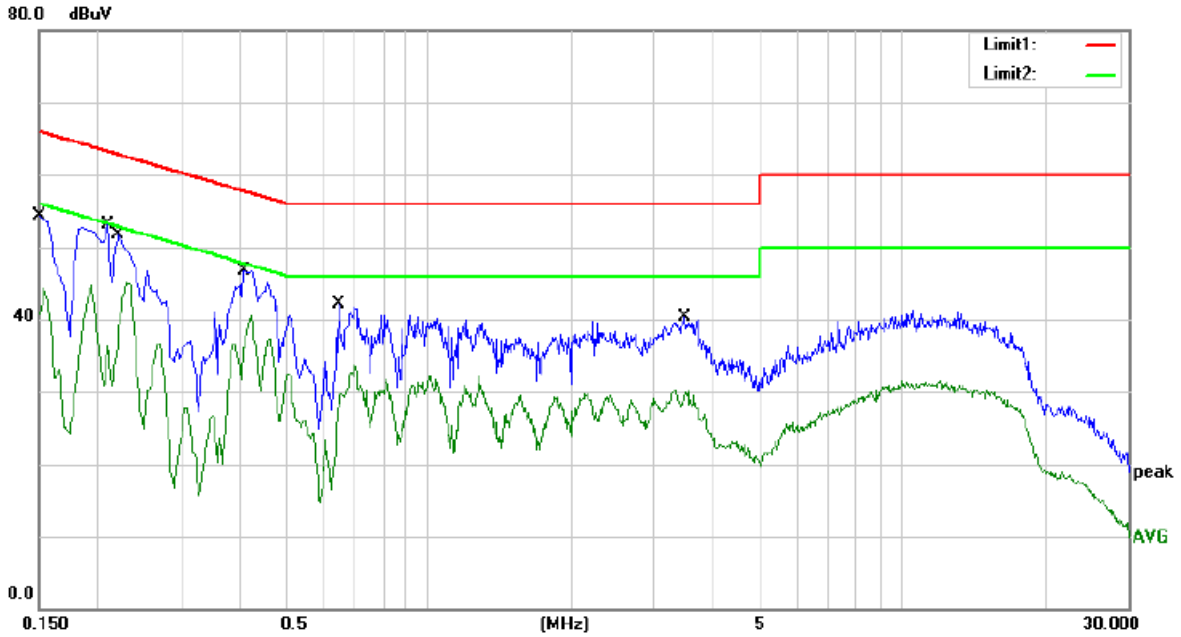
8.6.4 Test Procedure

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

All modes have been tested, and the worst results (802.11a siso mode antenna 0) have been recorded in the report



Site Conduction #1 Phase: L1 Temperature: 24.9

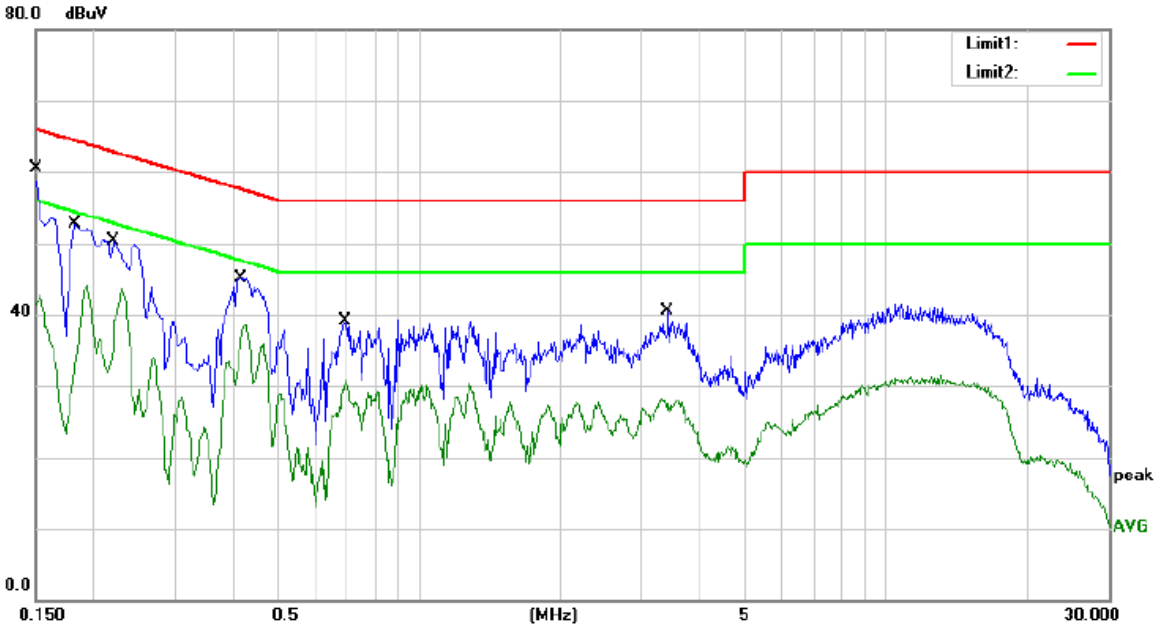
Limit: (CE)FCC PART 15 class B_QP Power: AC 120V/60Hz Humidity: 54 %

Mode: 802.11 b Low channel

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1500	44.70	9.67	54.37	66.00	-11.63	QP	
2		0.1500	34.62	9.67	44.29	56.00	-11.71	AVG	
3		0.2100	43.47	9.55	53.02	63.21	-10.19	QP	
4		0.2100	35.25	9.55	44.80	53.21	-8.41	AVG	
5		0.2220	42.24	9.55	51.79	62.74	-10.95	QP	
6		0.2220	35.48	9.55	45.03	52.74	-7.71	AVG	
7		0.4100	37.13	9.57	46.70	57.65	-10.95	QP	
8	*	0.4100	30.86	9.57	40.43	47.65	-7.22	AVG	
9		0.6460	32.47	9.57	42.04	56.00	-13.96	QP	
10		0.6460	24.08	9.57	33.65	46.00	-12.35	AVG	
11		3.4820	30.73	9.63	40.36	56.00	-15.64	QP	
12		3.4820	20.69	9.63	30.32	46.00	-15.68	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: gkm



Site Conduction #1 Phase: N Temperature: 24.9

Limit: (CE)FCC PART 15 class B_QP Power: AC 120V/60Hz Humidity: 54 %

Mode: 802.11 b Low channel

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1516	47.42	9.66	57.08	65.91	-8.83	QP	
2		0.1516	33.07	9.66	42.73	55.91	-13.18	AVG	
3		0.1820	43.17	9.55	52.72	64.39	-11.67	QP	
4		0.1820	34.50	9.55	44.05	54.39	-10.34	AVG	
5		0.2220	40.82	9.55	50.37	62.74	-12.37	QP	
6		0.2220	34.18	9.55	43.73	52.74	-9.01	AVG	
7		0.4140	35.54	9.57	45.11	57.57	-12.46	QP	
8		0.4140	28.96	9.57	38.53	47.57	-9.04	AVG	
9		0.6900	29.58	9.57	39.15	56.00	-16.85	QP	
10		0.6900	21.33	9.57	30.90	46.00	-15.10	AVG	
11		3.4100	30.91	9.63	40.54	56.00	-15.46	QP	
12		3.4100	18.63	9.63	28.26	46.00	-17.74	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: gkm

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

The EUT'S with 2.4G WIFI function has two external PCB antennas. The antenna0's gain is 5.0dBi, The antenna1's gain is 5.0dBi, and the two antennas can't be replaced by the user which in accordance to section 15.203, please refer to the photos.