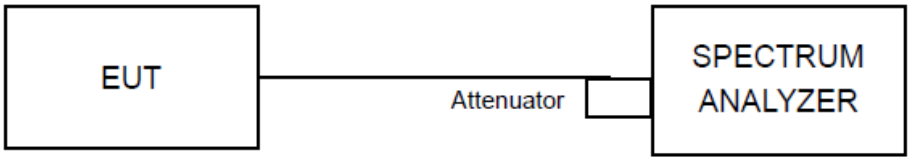
4.6 Conducted Spurious Emissions

4.6.1 Limit

Below 30 dB of the highest emission level of operating band (in 100 kHz Resolution Bandwidth).

4.6.2 Test Setup



4.6.3 Test Procedures

The EUT was tested according to DTS test procedure of "KDB558074 D01 DTS Meas Guidance" (clause 11.0) for compliance to FCC 47CFR 15.247 requirements.

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW ⩾ 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOBE

1. Set RBW = 100 kHz.
2. Set VBW ⩾ 300 kHz.
3. Detector = peak.
4. Sweep = auto couple.
5. Trace Mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum amplitude level.

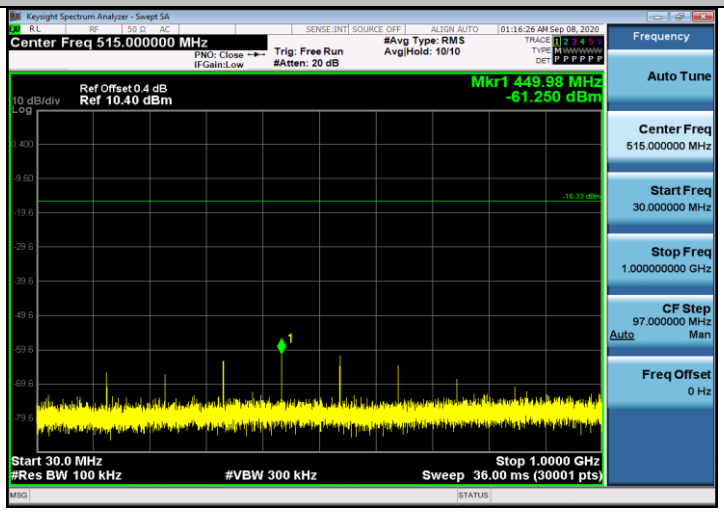
4.6.4 Deviation of Test Standard

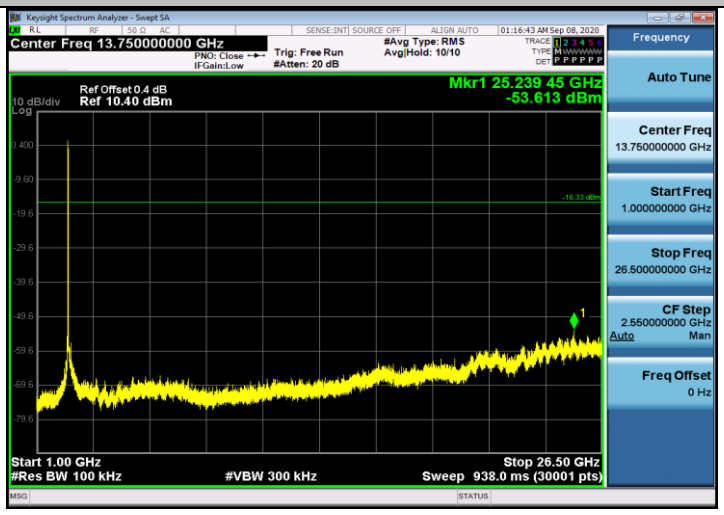
No deviation.

4.6.5 Test Results

Test Mode	Antenna	Channel [MHz]	FreqRange [MHz]	RefLevel [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
802.11b	Ant1	2412	Reference	3.67	3.67	---	PASS
			30~1000	30~1000	-61.25	<=-16.328	PASS
			1000~26500	1000~26500	-53.613	<=-16.328	PASS
		2437	Reference	5.15	5.15	---	PASS
			30~1000	30~1000	-61.101	<=-14.851	PASS
			1000~26500	1000~26500	-54.976	<=-14.851	PASS
		2462	Reference	5.23	5.23	---	PASS
			30~1000	30~1000	-60.553	<=-14.768	PASS
			1000~26500	1000~26500	-54.517	<=-14.768	PASS
802.11g	Ant1	2412	Reference	-1.20	-1.20	---	PASS
			30~1000	30~1000	-61.133	<=-21.195	PASS
			1000~26500	1000~26500	-54.789	<=-21.195	PASS
		2437	Reference	-0.46	-0.46	---	PASS
			30~1000	30~1000	-61.277	<=-20.461	PASS
			1000~26500	1000~26500	-54.955	<=-20.461	PASS
		2462	Reference	-0.03	-0.03	---	PASS
			30~1000	30~1000	-61.144	<=-20.03	PASS
			1000~26500	1000~26500	-54.81	<=-20.03	PASS
802.11n (HT20)	Ant1	2412	Reference	-1.27	-1.27	---	PASS
			30~1000	30~1000	-60.959	<=-21.266	PASS
			1000~26500	1000~26500	-54.403	<=-21.266	PASS
		2437	Reference	-1.18	-1.18	---	PASS
			30~1000	30~1000	-60.806	<=-21.18	PASS
			1000~26500	1000~26500	-54.62	<=-21.18	PASS
		2462	Reference	-1.53	-1.53	---	PASS
			30~1000	30~1000	-60.61	<=-21.527	PASS
			1000~26500	1000~26500	-54.88	<=-21.527	PASS
802.11n (HT40)	Ant1	2422	Reference	-3.33	-3.33	---	PASS
			30~1000	30~1000	-61.25	<=-23.332	PASS
			1000~26500	1000~26500	-54.844	<=-23.332	PASS
		2437	Reference	-3.15	-3.15	---	PASS
			30~1000	30~1000	-61.125	<=-23.153	PASS
			1000~26500	1000~26500	-55.207	<=-23.153	PASS
		2452	Reference	-3.48	-3.48	---	PASS
			30~1000	30~1000	-60.422	<=-23.477	PASS
			1000~26500	1000~26500	-54.075	<=-23.477	PASS

802.11b_Ant1_2412_0~Reference


802.11b_Ant1_2412_30~1000


802.11b_Ant1_2412_1000~26500


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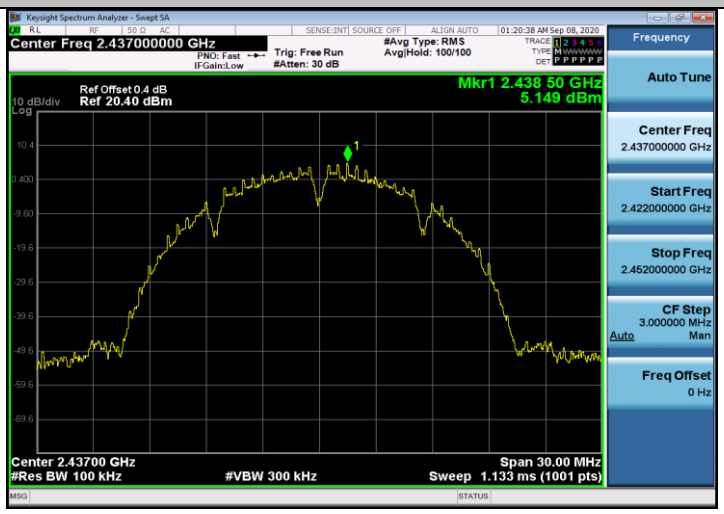
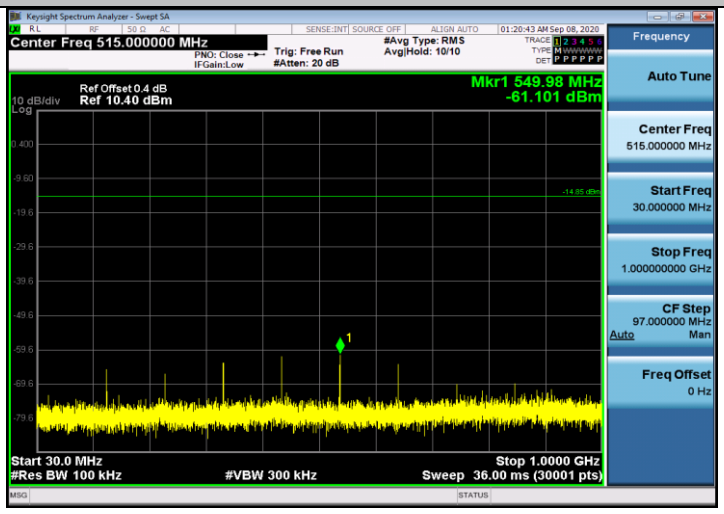
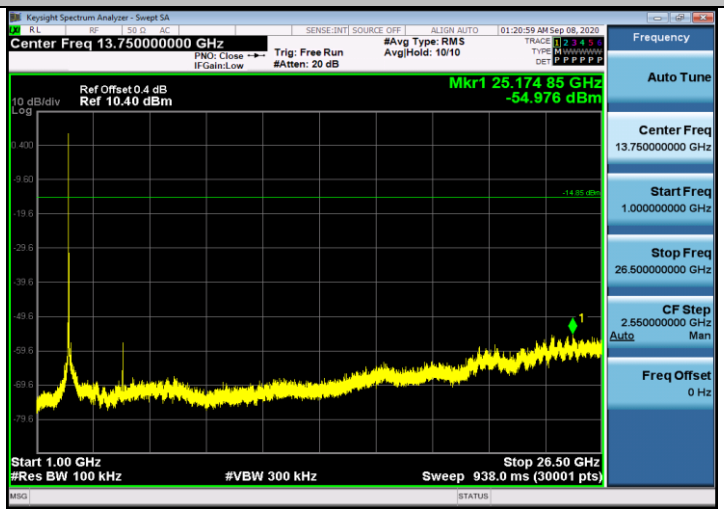


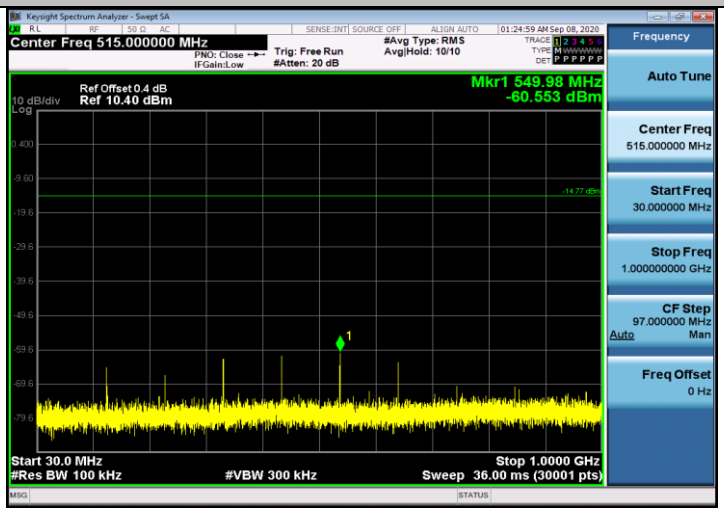
802.11b_Ant1_2437_30~1000

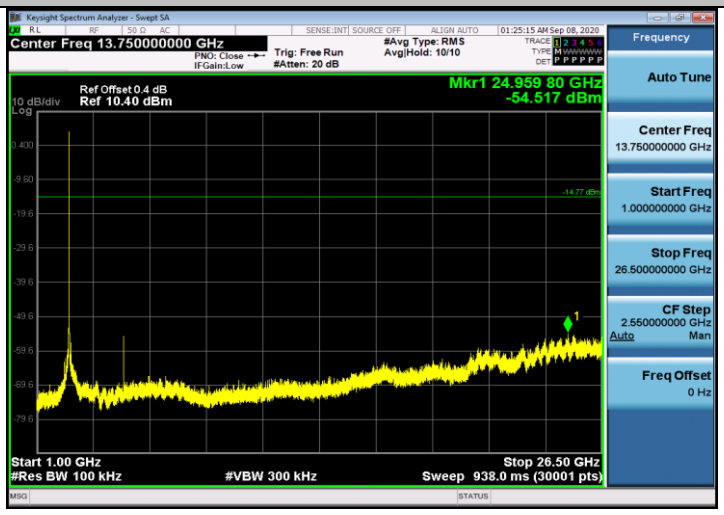


802.11b_Ant1_2437_1000~26500

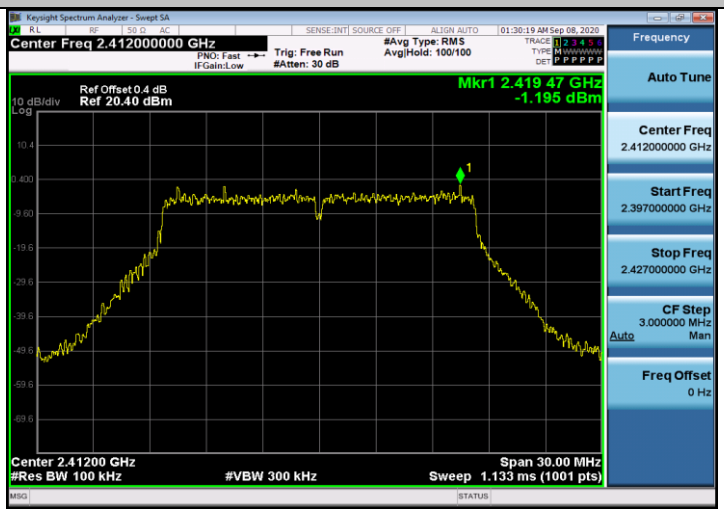


802.11b_Ant1_2462_0~Reference

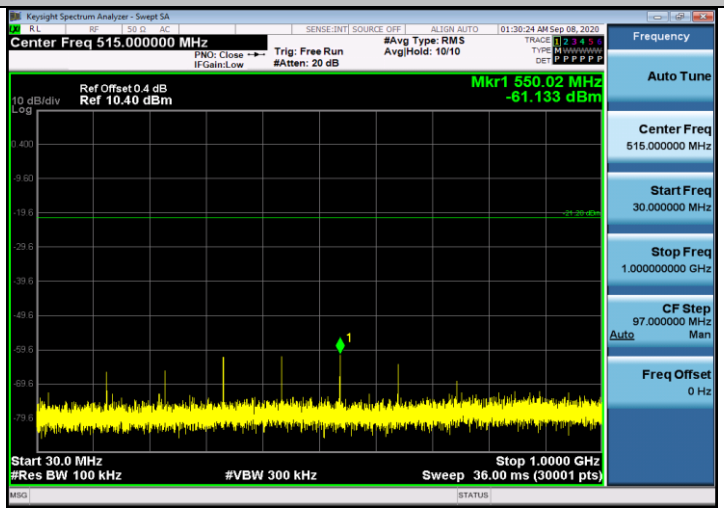

802.11b_Ant1_2462_30~1000


802.11b_Ant1_2462_1000~26500


802.11g_Ant1_2412_0~Reference

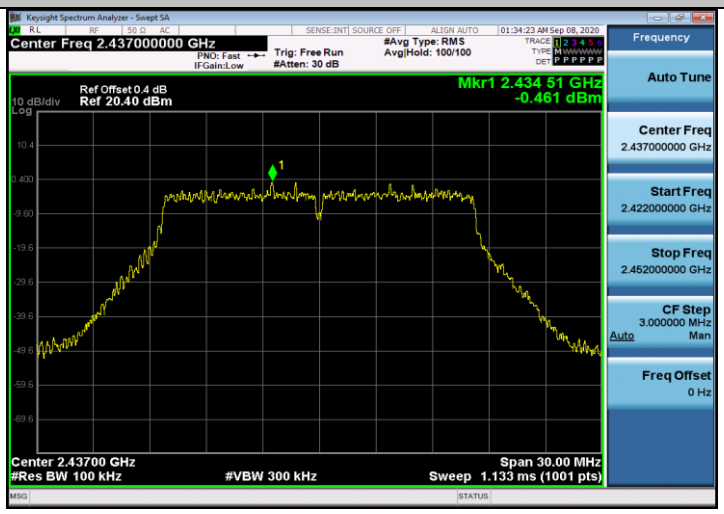


802.11g_Ant1_2412_30~1000

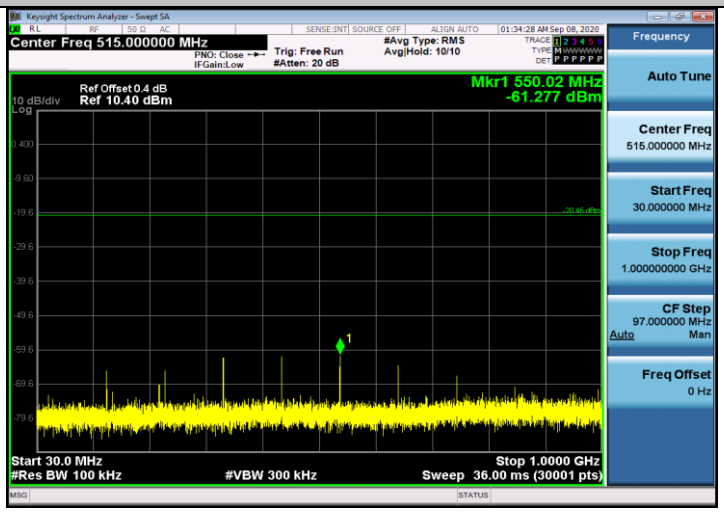


802.11g_Ant1_2412_1000~26500

802.11g_Ant1_2437_0~Reference

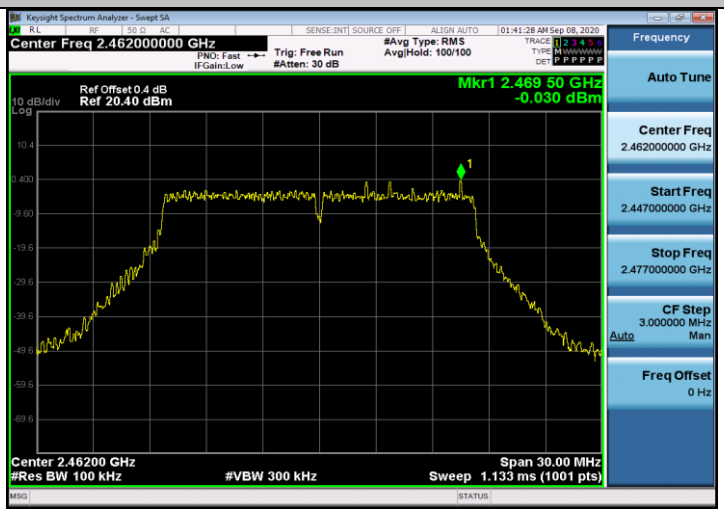


802.11g_Ant1_2437_30~1000

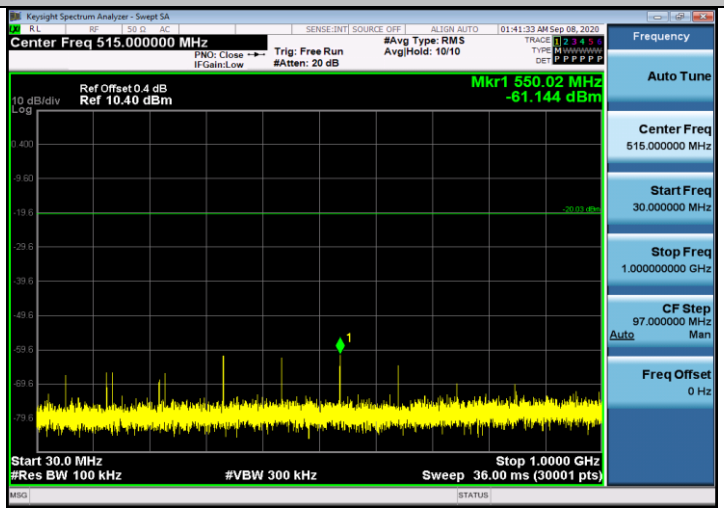


802.11g_Ant1_2437_1000~26500

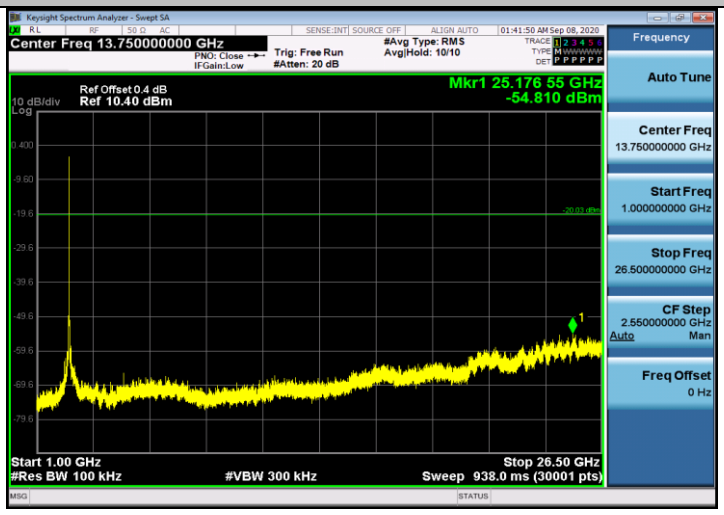
802.11g_Ant1_2462_0~Reference

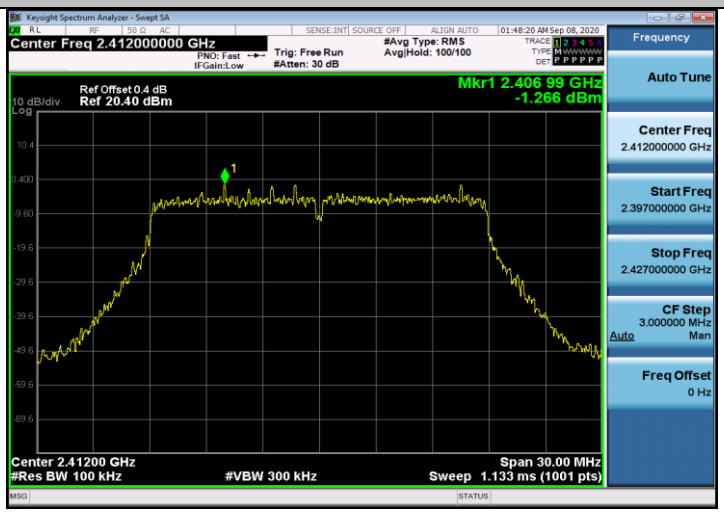


802.11g_Ant1_2462_30~1000



802.11g_Ant1_2462_1000~26500



802.11n (HT20)_Ant1_2412_0~Reference


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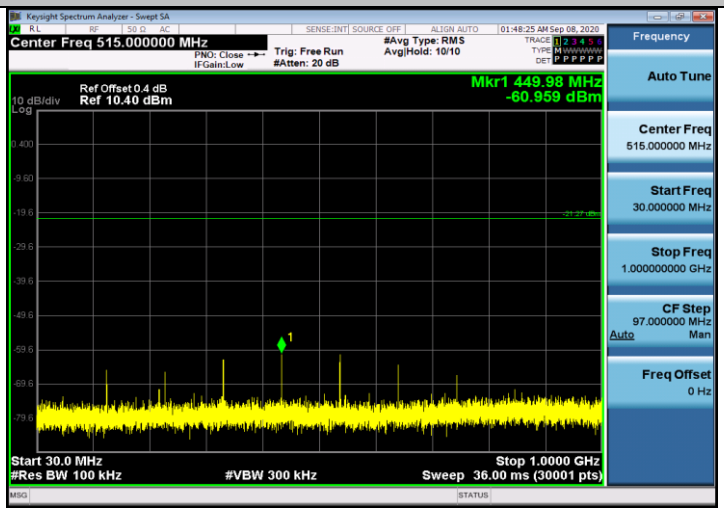
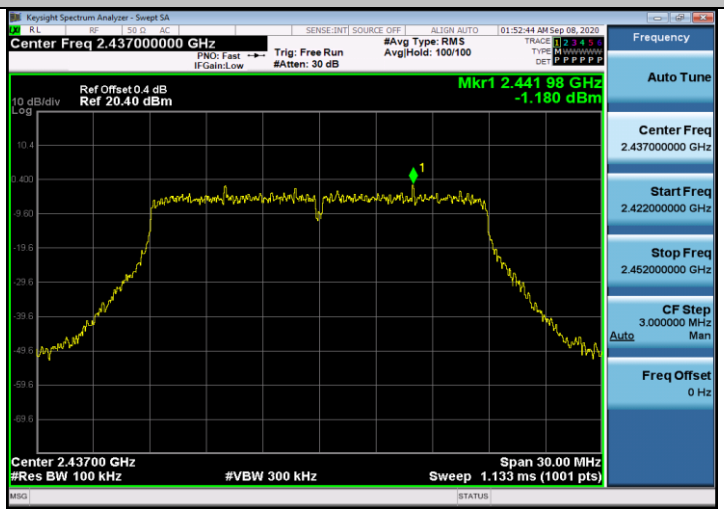
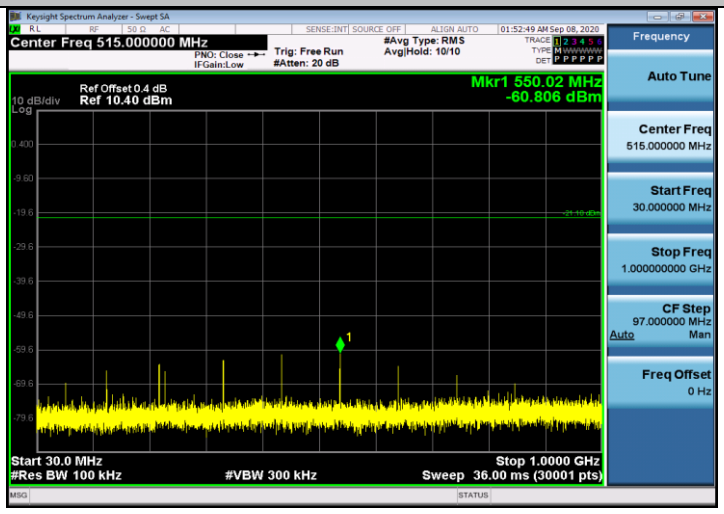


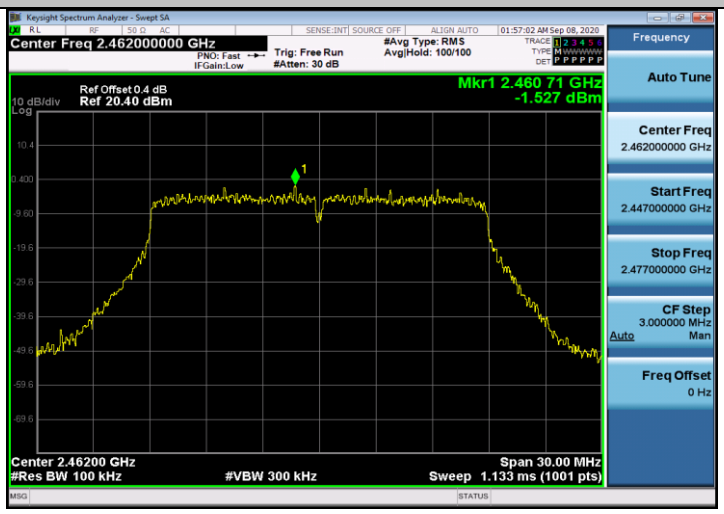
802.11n (HT20)_Ant1_2412_1000~26500


802.11n (HT20)_Ant1_2437_0~Reference


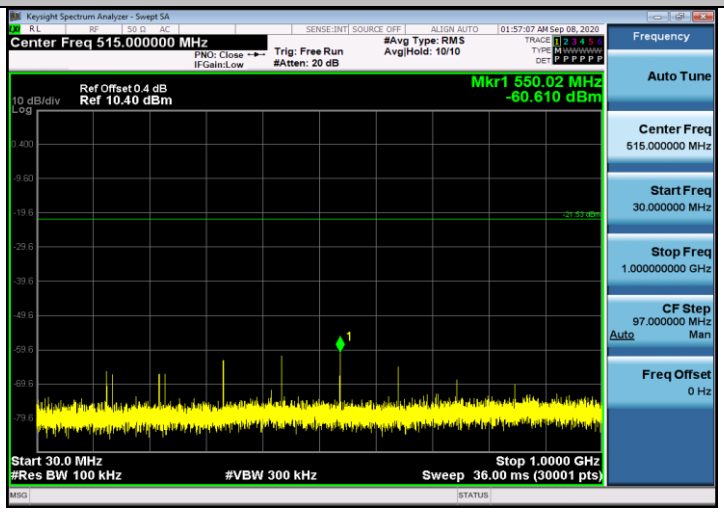
802.11n (HT20)_Ant1_2437_30~1000


802.11n (HT20)_Ant1_2437_1000~26500

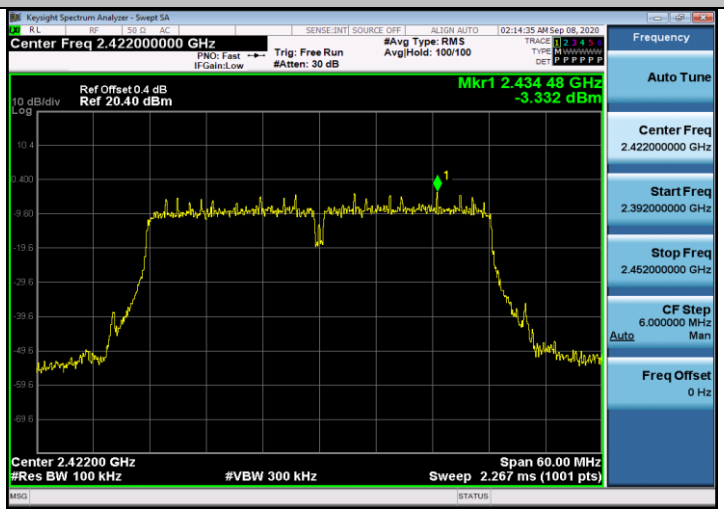

802.11n (HT20)_Ant1_2462_0~Reference

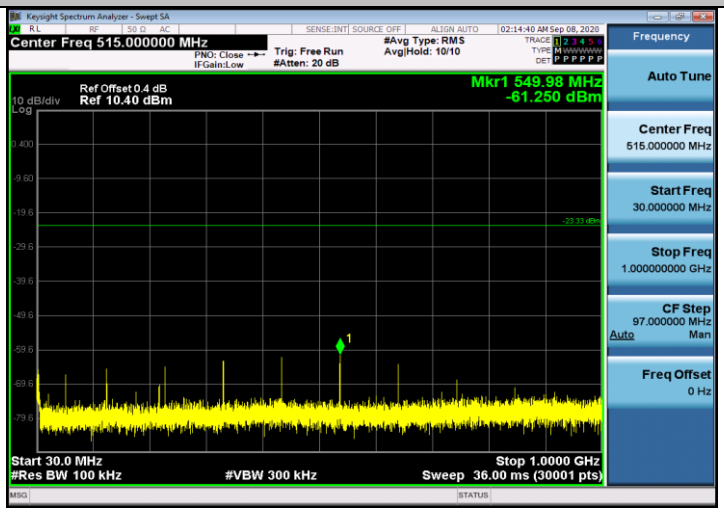


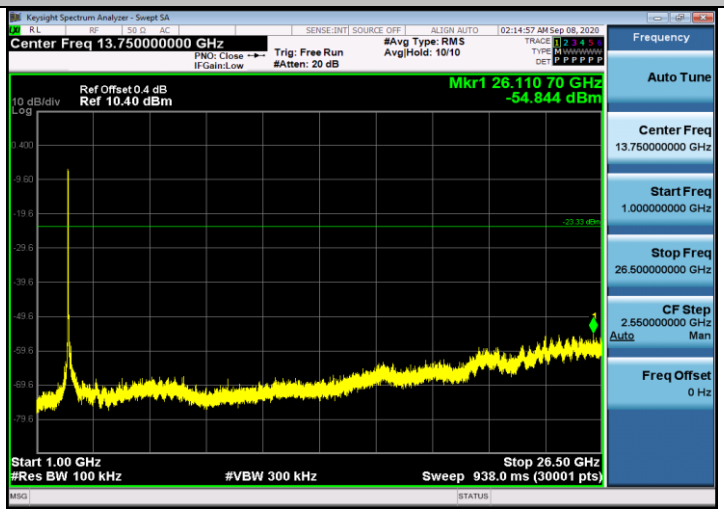
802.11n (HT20)_Ant1_2462_30~1000

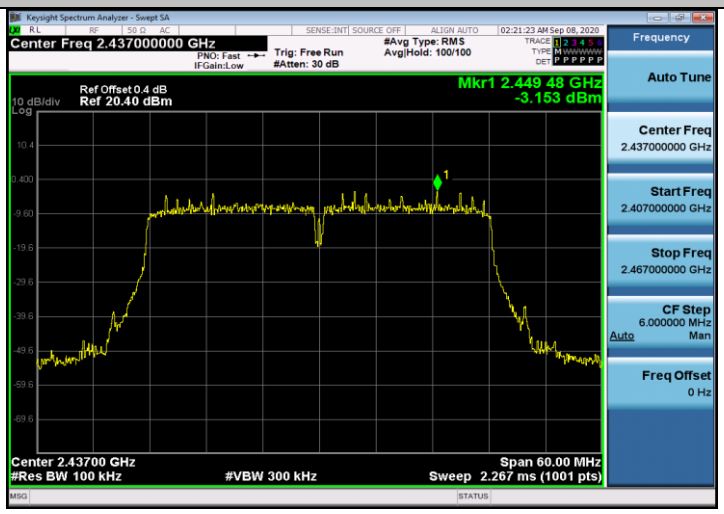


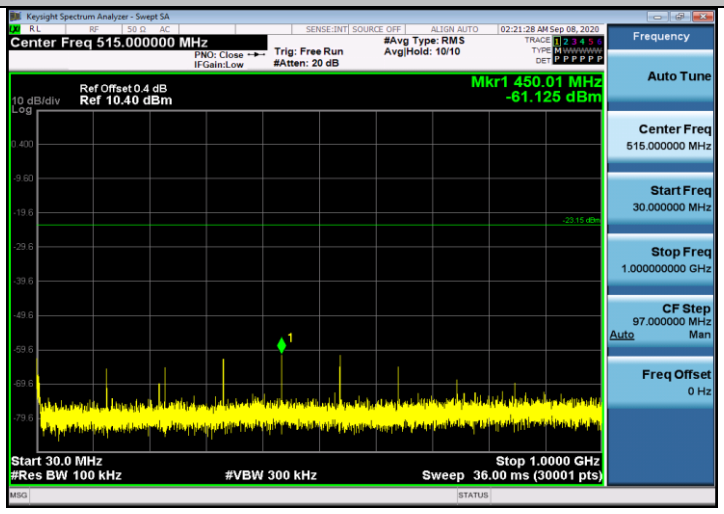
802.11n (HT20)_Ant1_2462_1000~26500

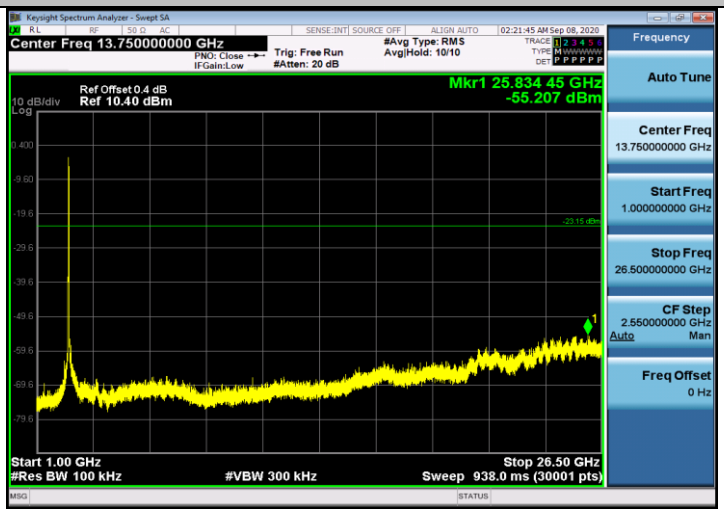
802.11n (HT40)_Ant1_2422_0~Reference


802.11n (HT40)_Ant1_2422_30~1000


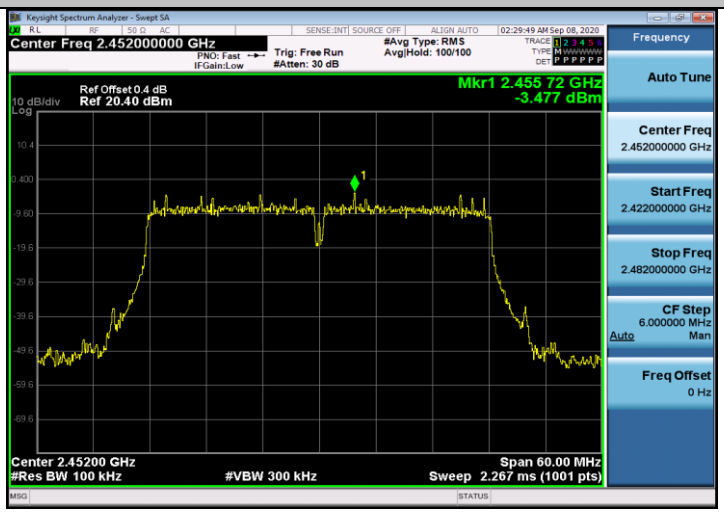
802.11n (HT40)_Ant1_2422_1000~26500


802.11n (HT40)_Ant1_2437_0~Reference


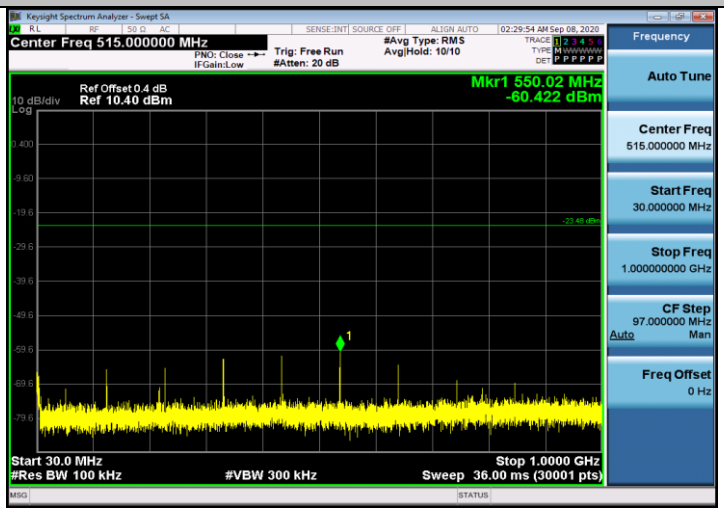
802.11n (HT40)_Ant1_2437_30~1000


802.11n (HT40)_Ant1_2437_1000~26500


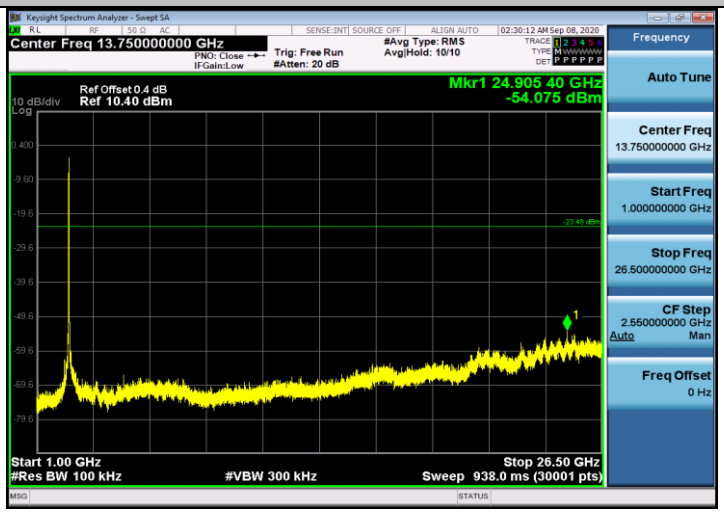
802.11n (HT40)_Ant1_2452_0~Reference



802.11n (HT40)_Ant1_2452_30~1000



802.11n (HT40)_Ant1_2452_1000~26500



4.7 Emissions in restricted frequency bands

4.7.1 Test Limit

For 15.205 requirement:

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part15, must also comply with the radiated emission limits specified in Section 15.209(a).

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
1 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 - 156.525	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	--	--	--

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [uV/m]	Measured Distance [Meters]
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

4.7.2 Test Procedure Reference

ANSI C63.10 Section 6.3 (General Requirements)

ANSI C63.10 Section 6.6 (Standard test method above 1GHz)

4.7.3 Test Procedures

Peak Field Strength Measurements

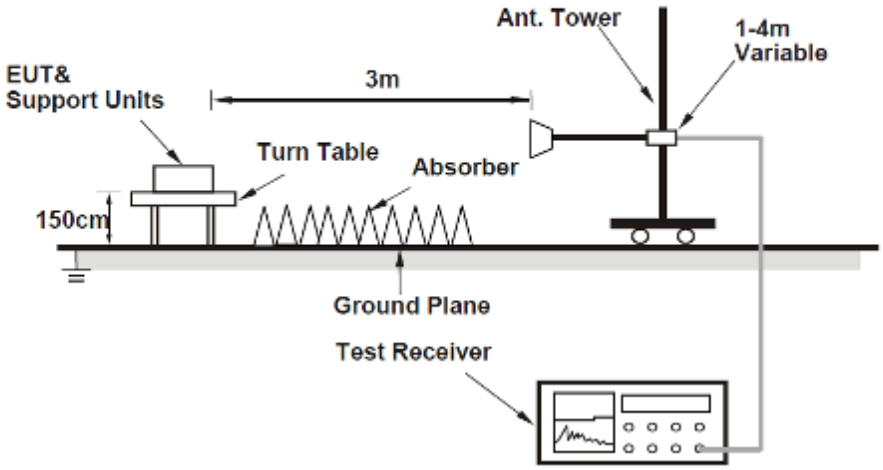
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average Measurements above 1GHz (Method VB)

8. 1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
9. 2. RBW = 1MHz
10. 3. VBW; If the EUT is configured to transmit with duty cycle ≥ 98%, set VBW = 10 Hz.
11. If the EUT duty cycle is < 98%, set VBW ≥ 1/T. T is the minimum transmission duration.
12. 4. Detector = Peak
13. 5. Sweep time = auto
14. 6. Trace mode = max hold
15. 7. Trace was allowed to stabilize

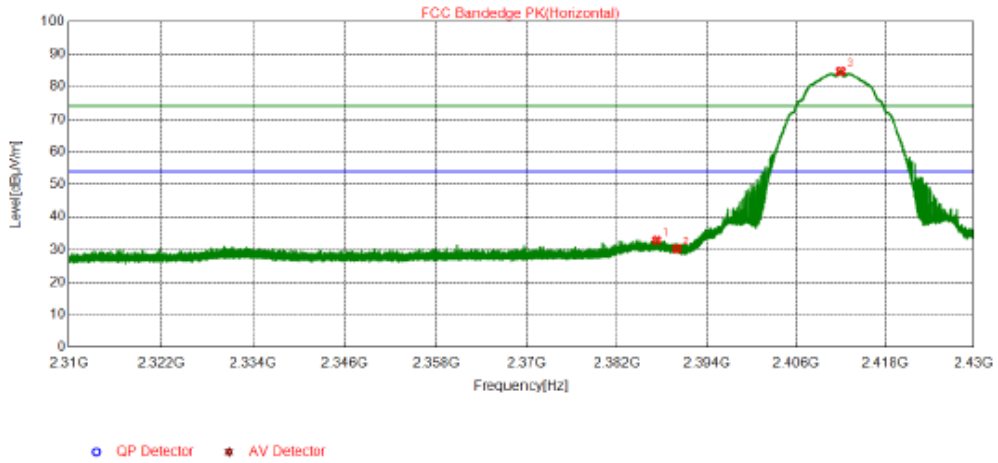
4.7.4 Test Setup

For Radiated emission above 1GHz



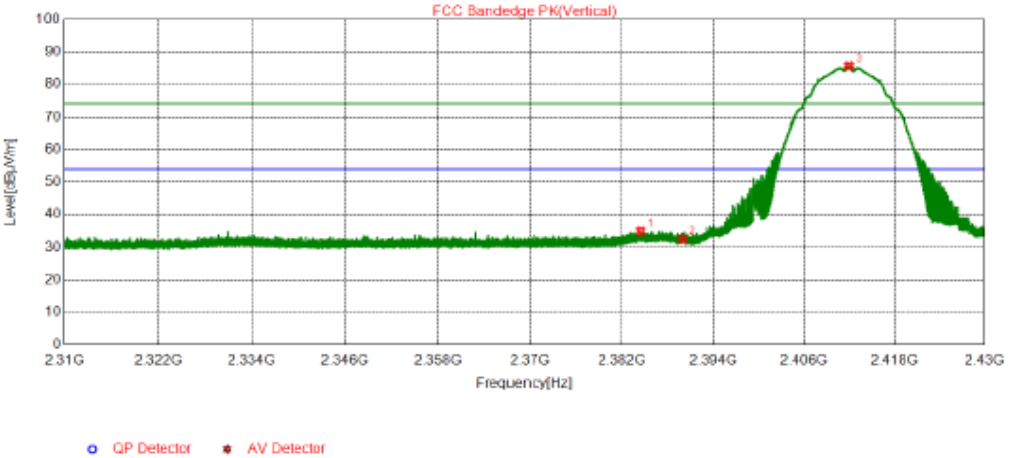
4.7.5 Test Results

802.11b-2412MHz/ Horizontal



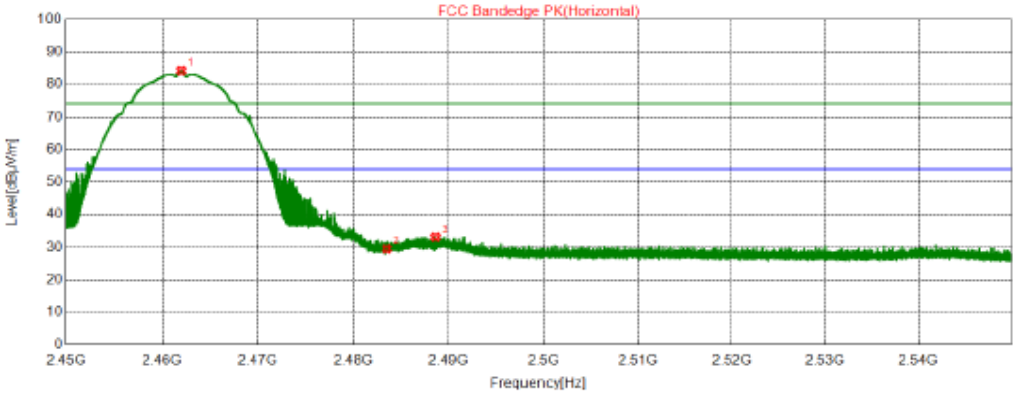
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2387.2980	42.85	32.88	74.00	41.12	150	8	Horizontal	PK
2	2390.0040	40.21	30.25	74.00	43.75	150	326	Horizontal	PK
3	2412.0300	94.70	84.78	74.00	-10.78	150	326	Horizontal	PK

802.11b-2412MHz/ Vertical



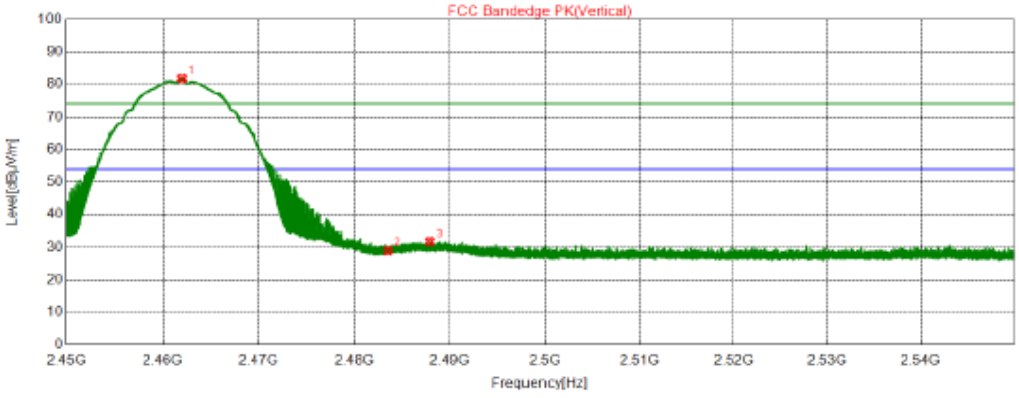
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2384.4660	44.89	34.92	74.00	39.08	150	250	Vertical	PK
2	2390.0040	42.48	32.52	74.00	41.48	150	133	Vertical	PK
3	2411.9700	95.60	85.68	74.00	-11.68	150	200	Vertical	PK

802.11b-2462MHz/ Horizontal



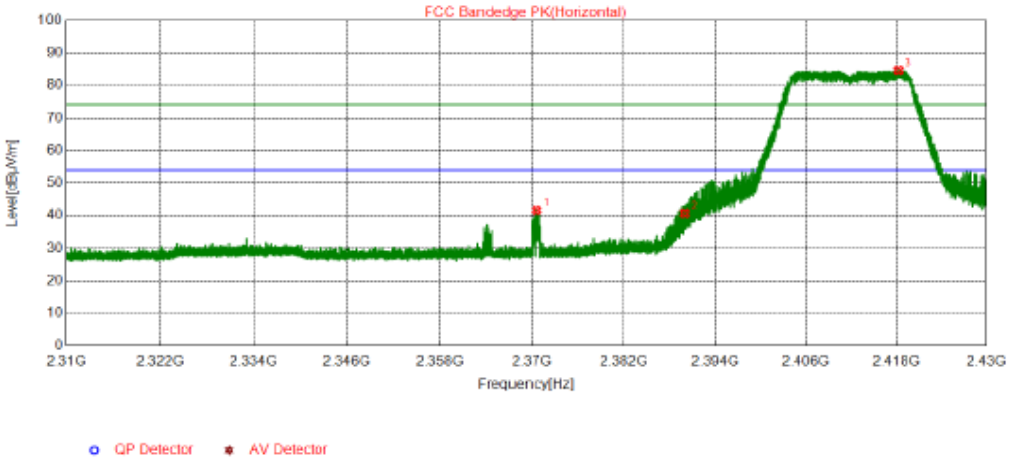
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2461.9750	94.01	84.18	74.00	-10.18	150	351	Horizontal	PK
2	2483.5000	39.31	29.52	74.00	44.48	150	351	Horizontal	PK
3	2488.6350	42.91	33.13	74.00	40.87	150	351	Horizontal	PK

802.11b-2462MHz/ Vertical



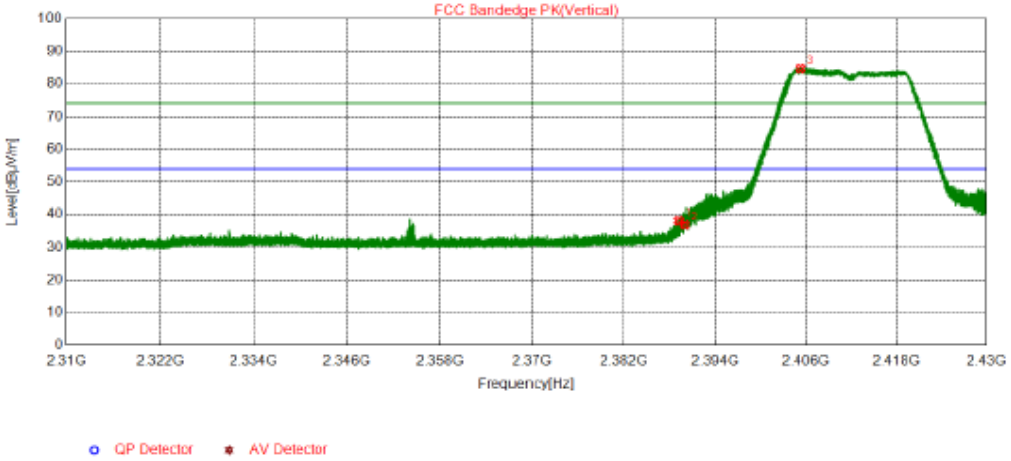
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2461.9850	91.72	81.89	74.00	-7.89	150	41	Vertical	PK
2	2483.5000	38.78	28.99	74.00	45.01	150	74	Vertical	PK
3	2487.8950	41.53	31.75	74.00	42.25	150	24	Vertical	PK

802.11g-2412MHz/ Horizontal



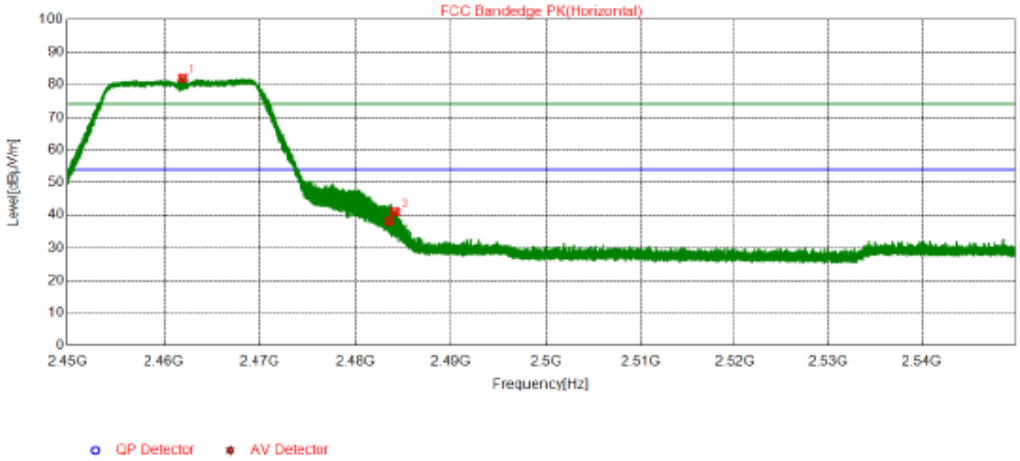
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2370.6000	51.65	41.65	74.00	32.35	150	17	Horizontal	PK
2	2390.0040	50.59	40.63	74.00	33.37	150	351	Horizontal	PK
3	2418.2940	94.56	84.65	74.00	-10.65	150	351	Horizontal	PK

802.11g-2412MHz/ Vertical



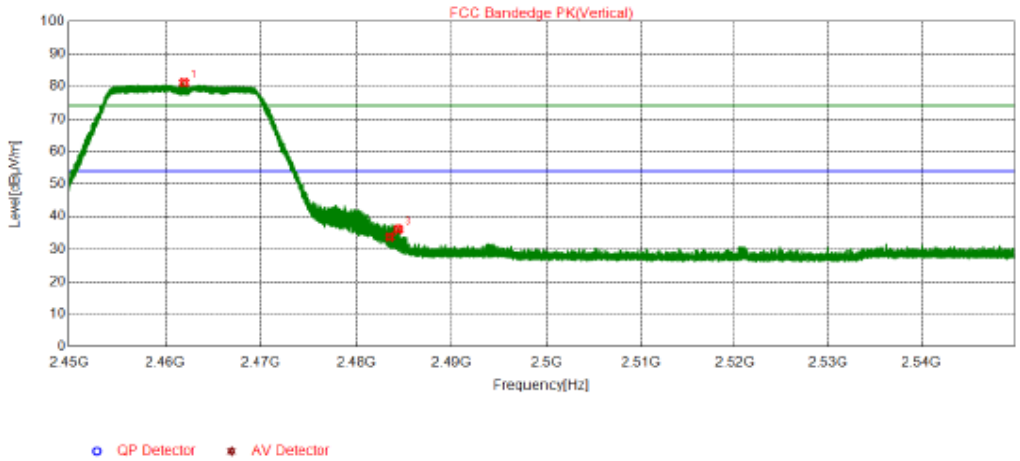
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2389.2360	48.04	38.08	74.00	35.92	150	26	Vertical	PK
2	2390.0040	46.79	36.83	74.00	37.17	150	226	Vertical	PK
3	2405.3040	94.68	84.75	74.00	-10.75	150	59	Vertical	PK

802.11g-2462MHz/ Horizontal



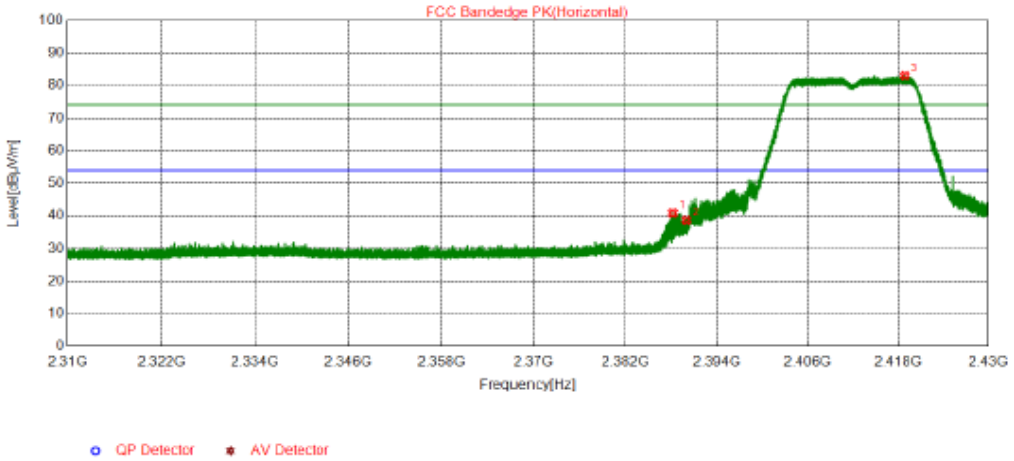
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2461.9500	91.94	82.11	74.00	-8.11	150	41	Horizontal	PK
2	2483.5000	47.98	38.19	74.00	35.81	150	7	Horizontal	PK
3	2484.1100	50.91	41.12	74.00	32.88	150	7	Horizontal	PK

802.11g-2462MHz/ Vertical



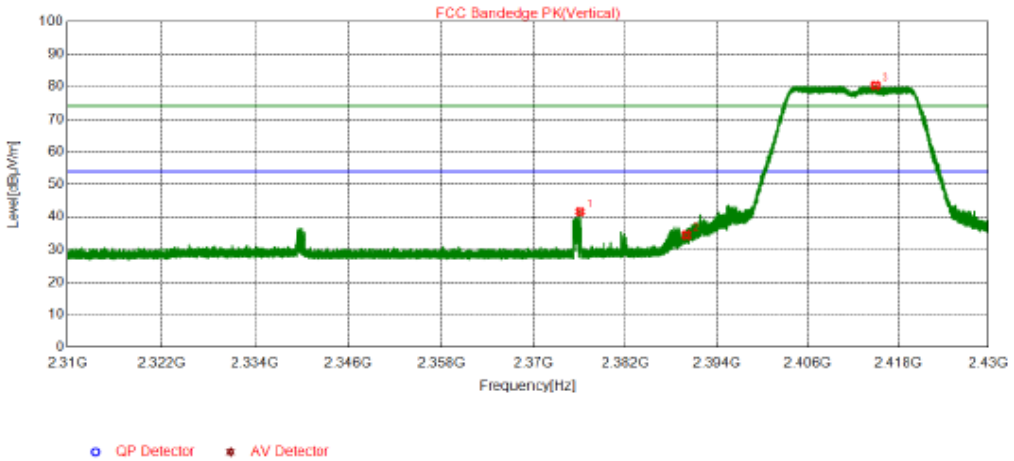
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2461.9600	90.96	81.13	74.00	-7.13	150	150	Vertical	PK
2	2483.5000	43.49	33.70	74.00	40.30	150	67	Vertical	PK
3	2484.3900	45.87	36.08	74.00	37.92	150	150	Vertical	PK

802.11n (HT20)-2412MHz/ Horizontal



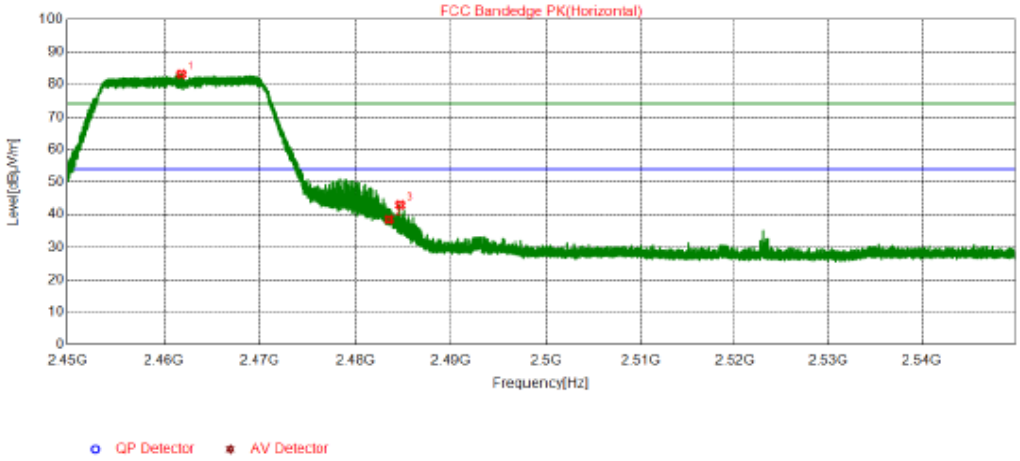
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2388.2460	50.82	40.85	74.00	33.15	150	8	Horizontal	PK
2	2390.0040	48.63	38.67	74.00	35.33	150	343	Horizontal	PK
3	2418.9060	92.95	83.04	74.00	-9.04	150	8	Horizontal	PK

802.11n (HT20)-2412MHz/ Vertical



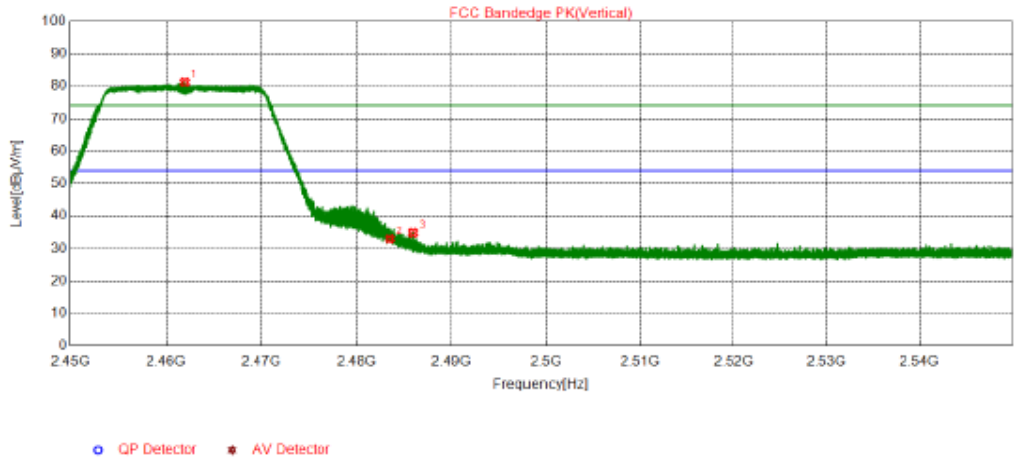
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2376.0780	51.64	41.65	74.00	32.35	150	118	Vertical	PK
2	2390.0040	44.38	34.42	74.00	39.58	150	84	Vertical	PK
3	2415.0180	90.25	80.34	74.00	-6.34	150	204	Vertical	PK

802.11n (HT20)-2462MHz/ Horizontal



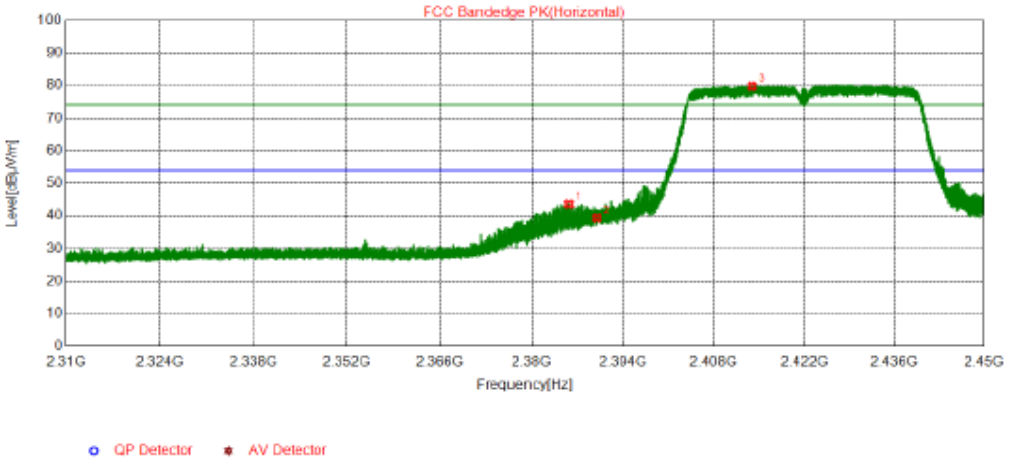
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2461.8150	92.98	83.15	74.00	-9.15	150	350	Horizontal	PK
2	2483.5000	48.33	38.54	74.00	35.46	150	50	Horizontal	PK
3	2484.6600	52.70	42.91	74.00	31.09	150	350	Horizontal	PK

802.11n (HT20)-2462MHz/ Vertical



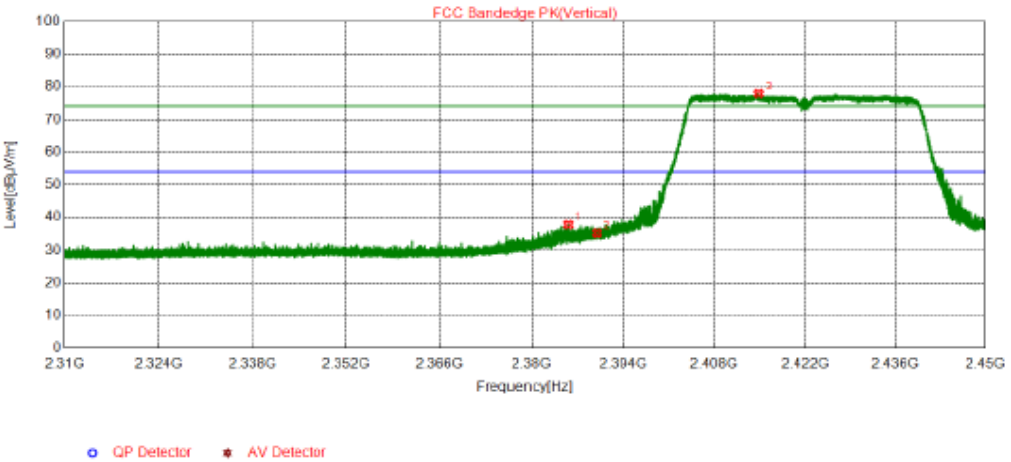
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2461.9450	91.04	81.21	74.00	-7.21	150	42	Vertical	PK
2	2483.5000	42.76	32.97	74.00	41.03	150	26	Vertical	PK
3	2485.9600	44.64	34.85	74.00	39.15	150	42	Vertical	PK

802.11n (HT40)-2422MHz/ Horizontal



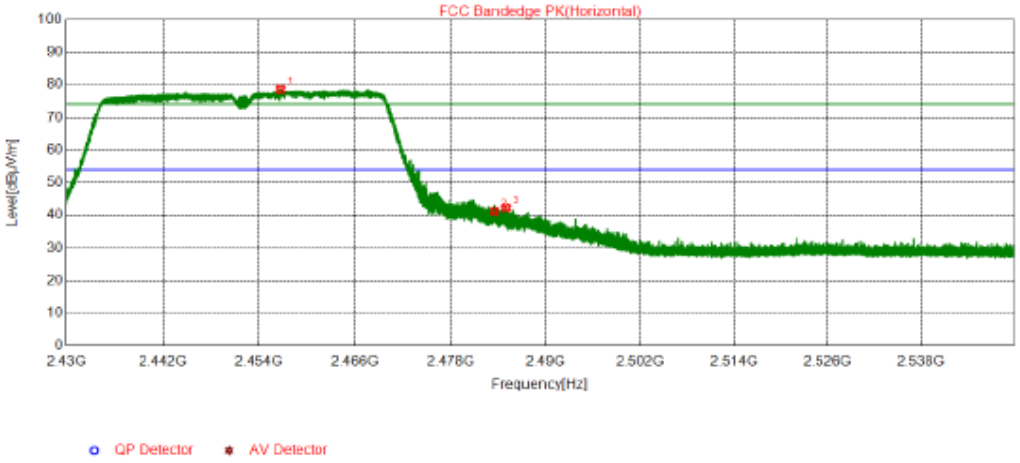
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2385.7050	53.55	43.58	74.00	30.42	150	350	Horizontal	PK
2	2390.0030	49.30	39.34	74.00	34.66	150	350	Horizontal	PK
3	2413.9010	89.72	79.81	74.00	-5.81	150	350	Horizontal	PK

802.11n (HT40)-2422MHz/ Vertical



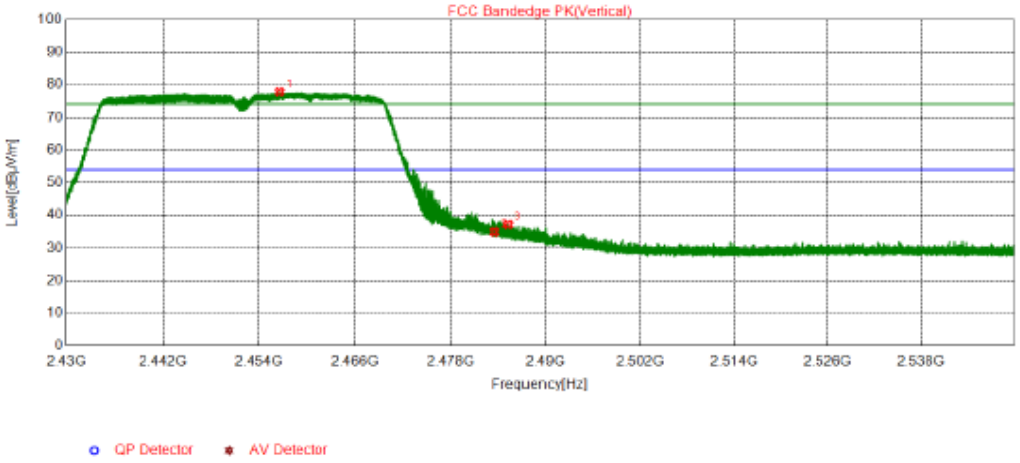
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2385.6140	47.76	37.79	74.00	36.21	150	59	Vertical	PK
2	2390.0030	45.18	35.22	74.00	38.78	150	42	Vertical	PK
3	2414.8390	87.80	77.89	74.00	-3.89	150	75	Vertical	PK

802.11n (HT40)-2452MHz/ Horizontal



NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2456.6640	88.37	78.53	74.00	-4.53	150	9	Horizontal	PK
2	2483.5020	51.02	41.23	74.00	32.77	150	42	Horizontal	PK
3	2484.9600	52.03	42.24	74.00	31.76	150	9	Horizontal	PK

802.11n (HT40)-2452MHz/ Vertical



NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2456.5380	87.62	77.78	74.00	-3.78	150	151	Vertical	PK
2	2483.5020	44.73	34.94	74.00	39.06	150	151	Vertical	PK
3	2485.2300	46.88	37.09	74.00	36.91	150	151	Vertical	PK

4.8 Radiated Emission Measurement

4.8.1 Limits

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F (kHz)	300
0.490 ~ 1.705	24000/F (kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

4.8.2 Test Procedures

For Radiated emission below 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degree to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. Both X and Y axes of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and the rotate table was turned from 0 degree to 360 degree to find the maximum reading.

e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters (for below 1 GHz) / 1.5 meters (for above 1 GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

f. The test-receiver system was set to peak and average detected function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

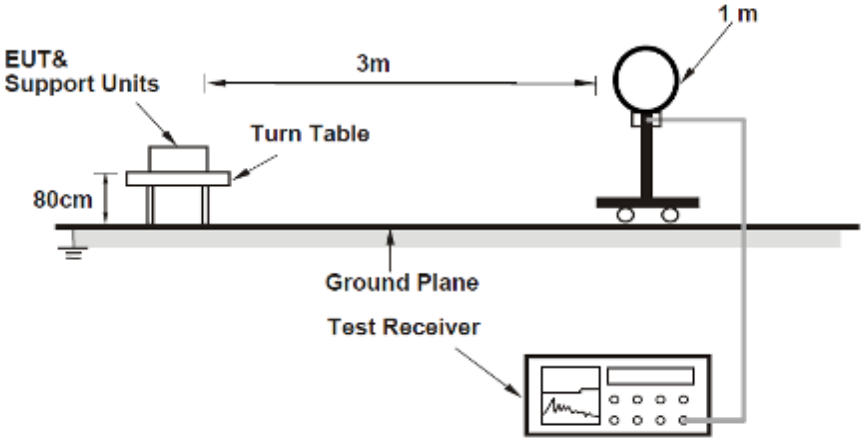
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz & 360 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1/T for RMS Average (Duty cycle < 98 %) for Peak detection at frequency above 1 GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz (Duty cycle $\geqslant$ 98 %) for Average detection (AV) at frequency above 1 GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

4.8.3 Deviation from Test Standard

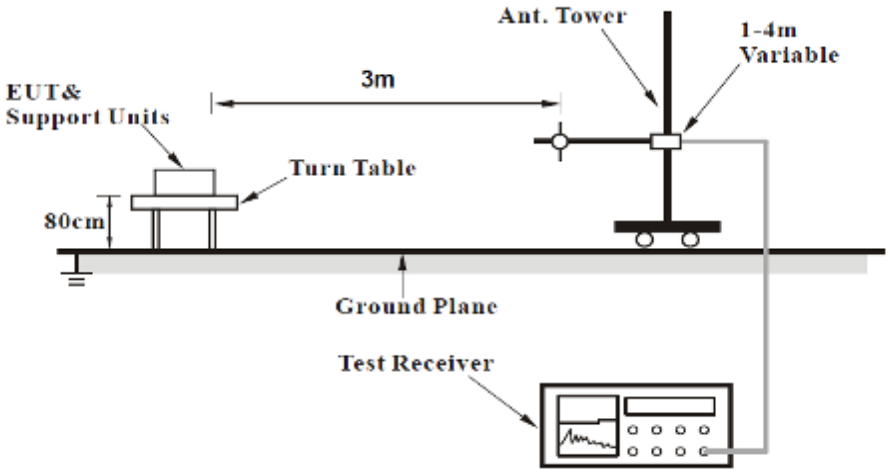
No deviation.

4.8.4 Test Setup

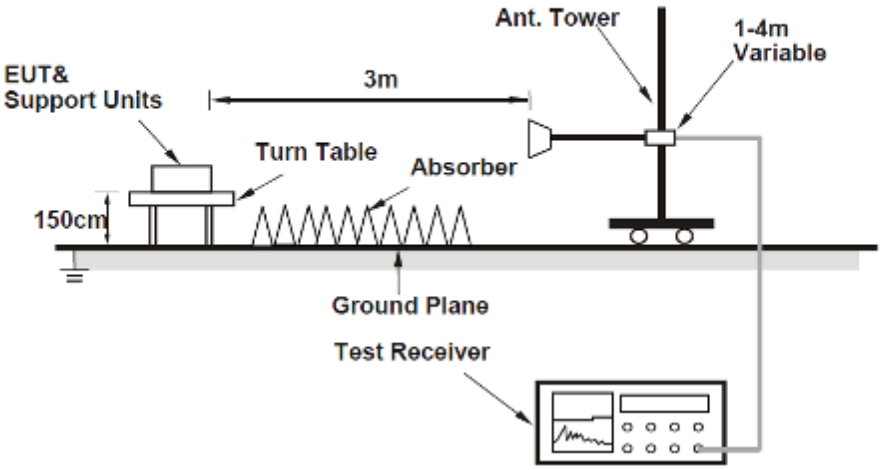
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.8.5 EUT Operating Conditions

a. Placed the EUT on a testing table.

b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.

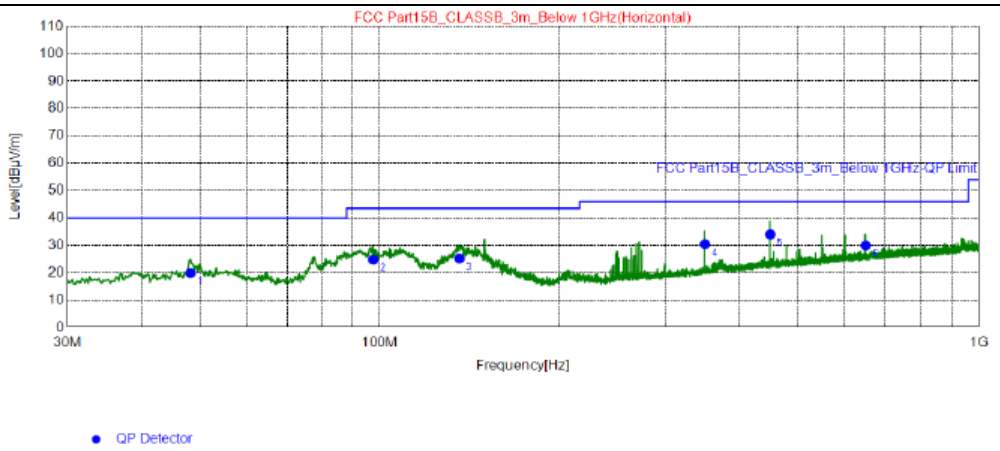
4.8.6 Test Results

Radiated Emissions Range 9kHz~30MHz

The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

Radiated Emissions Range 30MHz~1GHz

Mode	802.11b-2412MHz	**Detector Function**	Quasi-Peak (QP)
Frequency Range	30MHz ~ 1GHz	**Antenna Polarity**	Horizontal
	AC 120V, 60Hz with adapter KA06E-0501000US		



Final Data List

NO.	Freq. [MHz]	QP Reading [dBµV/m]	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	48.23	29.75	-9.83	19.92	40.00	20.08	200	306	Horizontal
2	97.51	40	-15.20	24.80	43.50	18.70	200	94	Horizontal
3	135.9	36.01	-10.77	25.24	43.50	18.26	200	105	Horizontal
4	349.9	37.87	-7.42	30.45	46.00	15.55	200	248	Horizontal
5	450.0	39.1	-5.13	33.97	46.00	12.03	200	236	Horizontal
6	650.0	31.99	-2.08	29.91	46.00	16.09	200	240	Horizontal

REMARKS:

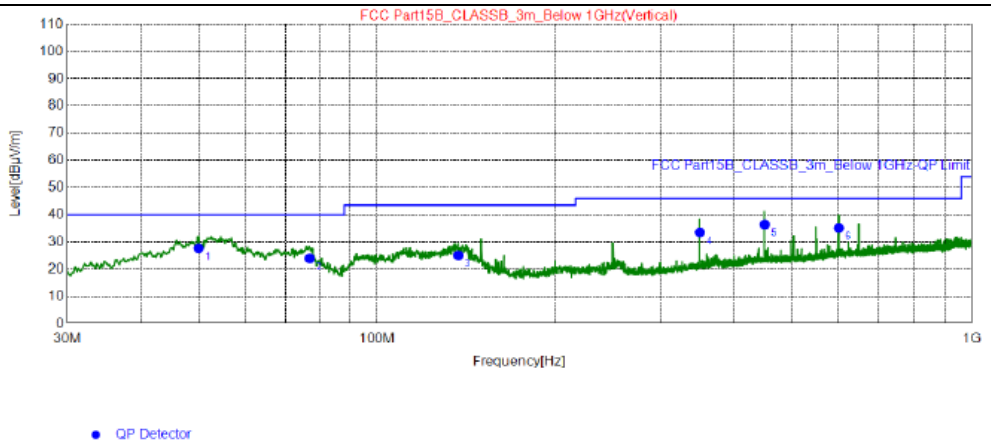
1. Emission Level(dBuV/m) = Spectrum reading (dBuV) + Correction Factor(dB/m)

2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)

3. The other emission levels were very low against the limit.

4. Margin value = Limit value - Emission Level

Mode	802.11b-2412MHz	**Detector Function**	Quasi-Peak (QP)
Frequency Range	30MHz ~ 1GHz	**Antenna Polarity**	Vertical
Power supply	AC 120V, 60Hz with adapter KA06E-0501000US		



Final Data List									
NO.	Freq. [MHz]	QP Reading [dBµV/m]	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	49.98	37.38	-9.70	27.68	40.00	12.32	100	278	Vertical
2	76.94	37.52	-13.63	23.89	40.00	16.11	100	89	Vertical
3	137.0	35.71	-10.64	25.07	43.50	18.43	100	101	Vertical
4	349.9	40.93	-7.42	33.51	46.00	12.49	100	166	Vertical
5	450.0	41.53	-5.13	36.40	46.00	9.60	100	120	Vertical
6	599.9	37.52	-2.43	35.09	46.00	10.91	100	212	Vertical

REMARKS:

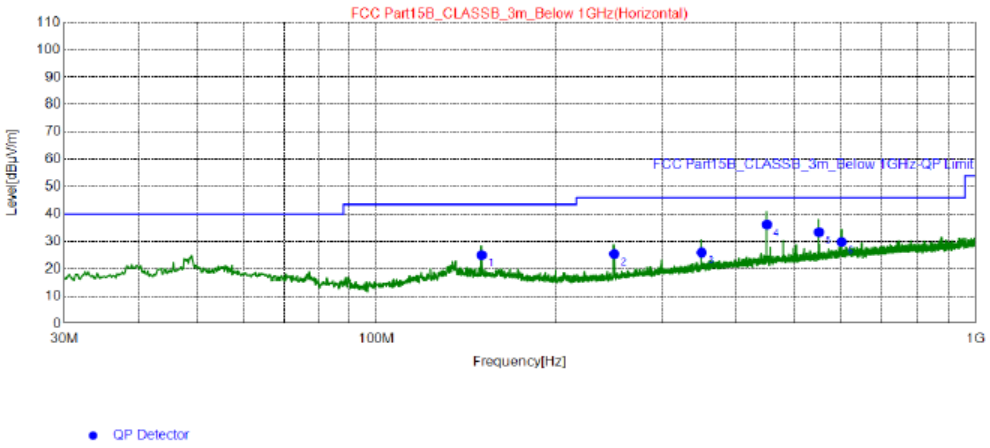
1. Emission Level(dBuV/m) = Original Spectrum reading (dBuV) + Correction Factor(dB/m)

2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)

3. The other emission levels were very low against the limit.

4. Margin value = Limit value - Emission Level

Mode	802.11b-2412MHz	**Detector Function**	Quasi-Peak (QP)
Frequency Range	30MHz ~ 1GHz	**Antenna Polarity**	Horizontal
	AC 120V, 60Hz with adapter TPA-46B050100UU		



Final Data List

NO.	Freq. [MHz]	QP Reading [dBµV/m]	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	149.8	35.07	-10.04	25.03	43.50	18.47	200	117	Horizontal
2	249.9	36.01	-10.57	25.44	46.00	20.56	200	125	Horizontal
3	349.9	33.35	-7.42	25.93	46.00	20.07	200	97	Horizontal
4	450.0	41.34	-5.13	36.21	46.00	9.79	200	236	Horizontal
5	549.9	37.12	-3.69	33.43	46.00	12.57	200	217	Horizontal
6	599.9	32.21	-2.43	29.78	46.00	16.22	200	125	Horizontal

REMARKS:

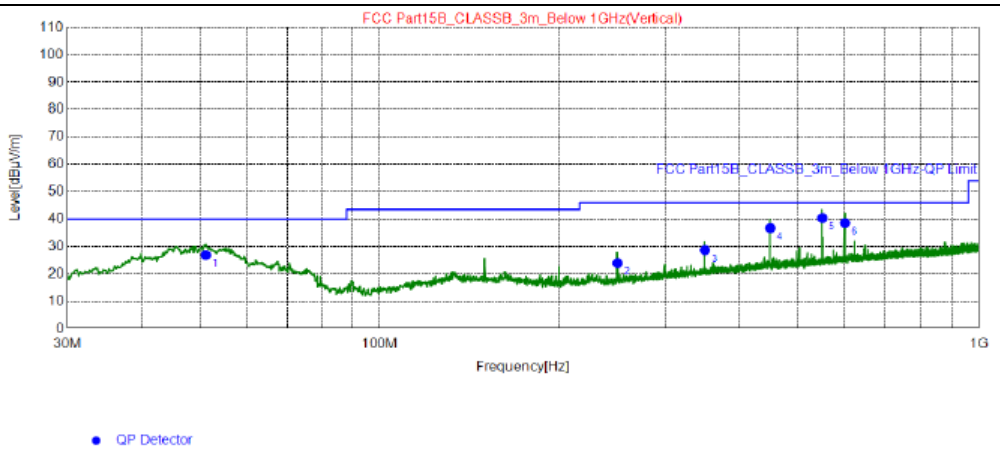
1. Emission Level(dBuV/m) = Spectrum reading (dBuV) + Correction Factor(dB/m)

2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)

3. The other emission levels were very low against the limit.

4. Margin value = Limit value - Emission Level

Mode	802.11b-2412MHz	**Detector Function**	Quasi-Peak (QP)
Frequency Range	30MHz ~ 1GHz	**Antenna Polarity**	Vertical
Power supply	AC 120V, 60Hz with adapter TPA-46B050100UU		



Final Data List

NO.	Freq. [MHz]	QP Reading [dBμV/m]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	51.14	36.58	-9.77	26.81	40.00	13.19	100	340	Vertical
2	249.9	34.42	-10.57	23.85	46.00	22.15	100	5	Vertical
3	349.9	36.05	-7.42	28.63	46.00	17.37	100	0	Vertical
4	450.0	41.84	-5.13	36.71	46.00	9.29	100	117	Vertical
5	549.9	43.99	-3.69	40.30	46.00	5.70	100	236	Vertical
6	599.9	40.99	-2.43	38.56	46.00	7.44	100	213	Vertical

REMARKS:

1. Emission Level(dBuV/m) = Original Spectrum reading (dBuV) + Correction Factor(dB/m)

2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)

3. The other emission levels were very low against the limit.

4. Margin value = Limit value - Emission Level

Radiated Emission Range 1GHz~10th Harmonic

802.11b

Channel	TX Channel 1	Detector Function	Peak (PK)
Frequency Range	1GHz ~ 25GHz		Average (AV)

Spurious Emission Level							
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Correction Factor (dB/m)	Antenna Polarity	Detector
1	7236.4500	30.33	74.00	43.67	-4.62	H	PK
2	7236.4500	23.04	54.00	30.96	-4.62	H	AV
3	7236.4500	31.97	74.00	42.03	-4.62	V	PK
4	7236.4500	22.93	54.00	31.07	-4.62	V	AV

REMARKS:

1. Emission Level(dBuV/m) = Original Spectrum reading (dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Limit value - Emission Level

Channel	TX Channel 6	Detector Function	Peak (PK)
Frequency Range	1GHz ~ 25GHz		Average (AV)

Spurious Emission Level							
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Correction Factor (dB/m)	Antenna Polarity	Detector
1	7311.2500	31.51	74.00	42.49	-4.41	H	PK
2	7311.2500	23.59	54.00	30.41	-4.41	H	AV
3	7311.2500	34.70	74.00	39.30	-4.41	V	PK
4	7311.2500	24.54	54.00	29.46	-4.41	V	AV

REMARKS:

1. Emission Level(dBuV/m) = Original Spectrum reading (dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Limit value - Emission Level

Channel	TX Channel 11	**Detector Function**	Peak (PK)
Frequency Range	1GHz ~ 25GHz		Average (AV)

Spurious Emission Level							
No.	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Correction Factor (dB/m)**	**Antenna Polarity**	**Detector**
1	7386.0500	29.51	74.00	44.49	-4.18	H	PK
2	7386.0500	22.46	54.00	31.54	-4.18	H	AV
3	7386.0500	30.56	74.00	43.44	-4.18	V	PK
4	7386.0500	22.85	54.00	31.15	-4.18	V	AV

REMARKS:

1. Emission Level(dBuV/m) = Original Spectrum reading (dBuV) + Correction Factor(dB/m)

2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)

3. The other emission levels were very low against the limit.

4. Margin value = Limit value - Emission Level

802.11g

Channel	TX Channel 1	Detector Function	Peak (PK)
Frequency Range	1GHz ~ 25GHz		Average (AV)

Spurious Emission Level							
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Correction Factor (dB/m)	Antenna Polarity	Detector
1	7236.4500	29.83	74.00	44.17	-4.62	H	PK
2	7236.4500	23.87	54.00	30.13	-4.62	H	AV
3	7236.4500	29.79	74.00	44.21	-4.62	V	PK
4	7236.4500	23.30	54.00	30.70	-4.62	V	AV

REMARKS:

1. Emission Level(dBuV/m) = Original Spectrum reading (dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Limit value - Emission Level

Channel	TX Channel 6	Detector Function	Peak (PK)
Frequency Range	1GHz ~ 25GHz		Average (AV)

Spurious Emission Level							
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Correction Factor (dB/m)	Antenna Polarity	Detector
1	7311.2500	29.08	74.00	44.92	-4.41	H	PK
2	7311.2500	22.77	54.00	31.23	-4.41	H	AV
3	7311.2500	30.26	74.00	43.74	-4.41	V	PK
4	7311.2500	22.97	54.00	31.03	-4.41	V	AV

REMARKS:

1. Emission Level(dBuV/m) = Original Spectrum reading (dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Limit value - Emission Level

Channel	TX Channel 11	**Detector Function**	Peak (PK)
Frequency Range	1GHz ~ 25GHz		Average (AV)

Spurious Emission Level							
No.	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Correction Factor (dB/m)**	**Antenna Polarity**	**Detector**
1	7386.0500	31.19	74.00	42.81	-4.18	H	PK
2	7386.0500	22.64	54.00	31.36	-4.18	H	AV
3	7386.0500	30.51	74.00	43.49	-4.18	V	PK
4	7386.0500	22.71	54.00	31.29	-4.18	V	AV

REMARKS:

1. Emission Level(dBuV/m) = Original Spectrum reading (dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Limit value - Emission Level

802.11n (HT20)

Channel	TX Channel 1	Detector Function	Peak (PK)
Frequency Range	1GHz ~ 25GHz		Average (AV)

Spurious Emission Level							
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Correction Factor (dB/m)	Antenna Polarity	Detector
1	7236.4500	29.71	74.00	44.29	-4.62	H	PK
2	7236.4500	22.81	54.00	31.19	-4.62	H	AV
3	7236.4500	30.87	74.00	43.13	-4.62	V	PK
4	7236.4500	22.10	54.00	31.90	-4.62	V	AV

REMARKS:

1. Emission Level(dBuV/m) = Original Spectrum reading (dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Limit value - Emission Level

Channel	TX Channel 6	Detector Function	Peak (PK)
Frequency Range	1GHz ~ 25GHz		Average (AV)

Spurious Emission Level							
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Correction Factor (dB/m)	Antenna Polarity	Detector
1	7311.2500	29.50	74.00	44.50	-4.41	H	PK
2	7311.2500	22.81	54.00	31.19	-4.41	H	AV
3	7311.2500	30.06	74.00	43.94	-4.41	V	PK
4	7311.2500	22.79	54.00	31.21	-4.41	V	AV

REMARKS:

1. Emission Level(dBuV/m) = Original Spectrum reading (dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Limit value - Emission Level

Channel	TX Channel 11	**Detector Function**	Peak (PK)
Frequency Range	1GHz ~ 25GHz		Average (AV)

Spurious Emission Level							
No.	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Correction Factor (dB/m)**	**Antenna Polarity**	**Detector**
1	7386.0500	30.80	74.00	43.20	-4.18	H	PK
2	7386.0500	22.03	54.00	31.97	-4.18	H	AV
3	7386.0500	29.40	74.00	44.60	-4.18	V	PK
4	7386.0500	22.30	54.00	31.70	-4.18	V	AV

REMARKS:

1. Emission Level(dBuV/m) = Original Spectrum reading (dBuV) + Correction Factor(dB/m)

2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)

3. The other emission levels were very low against the limit.

4. Margin value = Limit value - Emission Level

802.11n (HT40)

Channel	TX Channel 3	Detector Function	Peak (PK)
Frequency Range	1GHz ~ 25GHz		Average (AV)

Spurious Emission Level							
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Correction Factor (dB/m)	Antenna Polarity	Detector
1	7266.2000	29.56	74.00	44.44	-4.54	H	PK
2	7266.2000	23.08	54.00	30.92	-4.54	H	AV
3	7266.2000	29.77	74.00	44.23	-4.54	V	PK
4	7266.2000	23.06	54.00	30.94	-4.54	V	AV

REMARKS:

1. Emission Level(dBuV/m) = Original Spectrum reading (dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Limit value - Emission Level

Channel	TX Channel 6	Detector Function	Peak (PK)
Frequency Range	1GHz ~ 25GHz		Average (AV)

Spurious Emission Level							
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Correction Factor (dB/m)	Antenna Polarity	Detector
1	7311.2500	29.78	74.00	44.22	-4.41	H	PK
2	7311.2500	22.83	54.00	31.17	-4.41	H	AV
3	7311.2500	29.82	74.00	44.18	-4.41	V	PK
4	7311.2500	22.63	54.00	31.37	-4.41	V	AV

REMARKS:

1. Emission Level(dBuV/m) = Original Spectrum reading (dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Limit value - Emission Level

Channel	TX Channel 9	**Detector Function**	Peak (PK)
Frequency Range	1GHz ~ 25GHz		Average (AV)

Spurious Emission Level							
No.	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Correction Factor (dB/m)**	**Antenna Polarity**	**Detector**
1	7356.3000	30.01	74.00	43.99	-4.27	H	PK
2	7356.3000	23.15	54.00	30.85	-4.27	H	AV
3	7356.3000	30.26	74.00	43.74	-4.27	V	PK
4	7356.3000	22.15	54.00	31.85	-4.27	V	AV

REMARKS:

1. Emission Level(dBuV/m) = Original Spectrum reading (dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Limit value - Emission Level

5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

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