

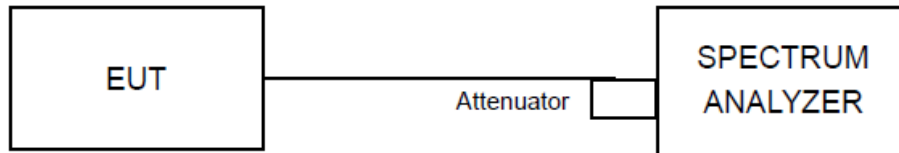


## 4.5 Conducted Band Edges Measurement

### 4.5.1 Limit

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

### 4.5.2 Test Setup



### 4.5.3 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  $\geq$  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 OOB

1. Set RBW = 100 kHz.
2. Set VBW  $\geq$  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.

### 4.5.4 Deviation of Test Standard

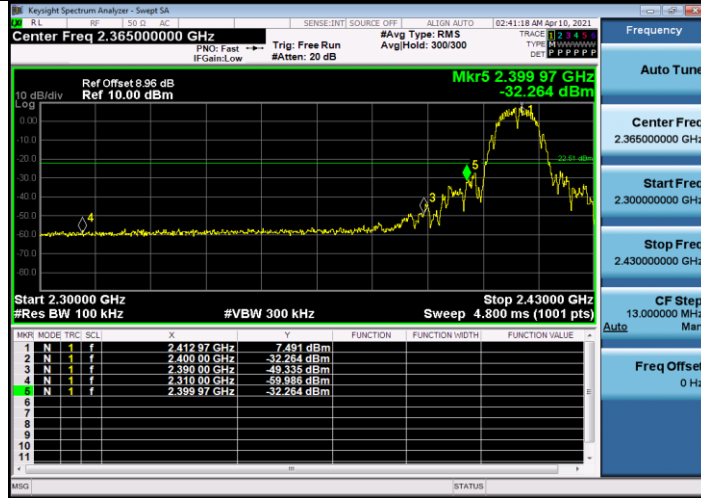
No deviation.



#### 4.5.5 Test Results

Test Mode	Antenna	ChName	Channel [MHz]	RefLevel [dBm]	Max. Spurious Level [dBm]	Limit [dBm]	Verdict
11B	Ant1	Low	2412	7.49	-32.26	<=-22.51	PASS
		High	2462	7.89	-35.39	<=-22.11	PASS
11G	Ant1	Low	2412	2.57	-27.94	<=-27.43	PASS
		High	2462	5.43	-27.73	<=-24.57	PASS
11N20SISO	Ant1	Low	2412	1.70	-29.8	<=-28.3	PASS
		High	2462	5.07	-25.36	<=-24.93	PASS

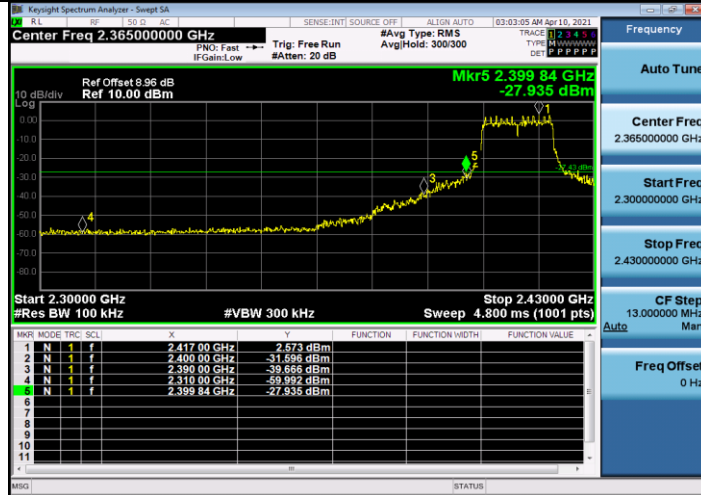
### 11B\_Ant1\_Low\_2412



### 11B\_Ant1\_High\_2462



### 11G\_Ant1\_Low\_2412



### 11G\_Ant1\_High\_2462



### 11N20SISO\_Ant1\_Low\_2412



### 11N20SISO\_Ant1\_High\_2462

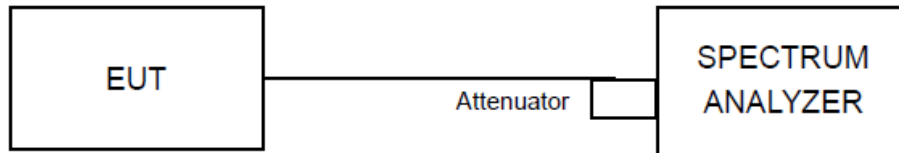


## 4.6 Conducted Spurious Emissions

### 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  $\geq$  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 OOB

1. Set RBW = 100 kHz.
2. Set VBW  $\geq$  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.



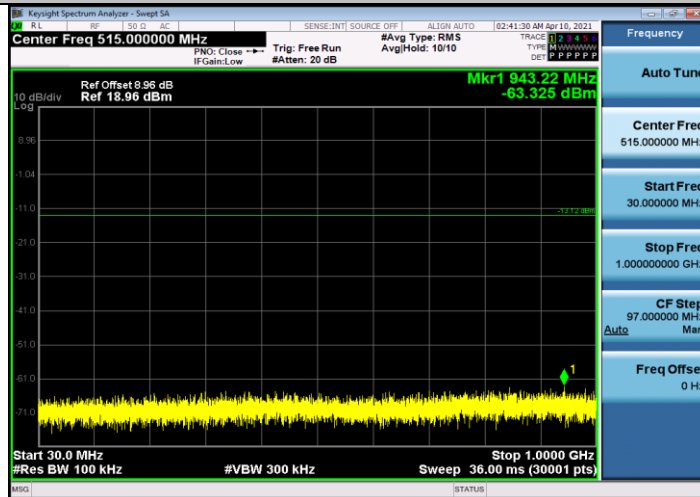
#### 4.6.5 Test Results

Test Mode	Antenna	Channel [MHz]	FreqRange [MHz]	RefLevel [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	6.88	6.88	---	PASS
			30~1000	6.88	-63.33	<=-13.12	PASS
			1000~26500	6.88	-46.06	<=-13.12	PASS
		2437	Reference	8.07	8.07	---	PASS
			30~1000	8.07	-63.19	<=-11.93	PASS
			1000~26500	8.07	-45.96	<=-11.93	PASS
		2462	Reference	7.09	7.09	---	PASS
			30~1000	7.09	-63.38	<=-12.91	PASS
			1000~26500	7.09	-46.06	<=-12.91	PASS
11G	Ant1	2412	Reference	2.72	2.72	---	PASS
			30~1000	2.72	-63.14	<=-17.28	PASS
			1000~26500	2.72	-46.92	<=-17.28	PASS
		2437	Reference	5.55	5.55	---	PASS
			30~1000	5.55	-63.21	<=-14.45	PASS
			1000~26500	5.55	-46.71	<=-14.45	PASS
		2462	Reference	5.61	5.61	---	PASS
			30~1000	5.61	-63.3	<=-14.4	PASS
			1000~26500	5.61	-47.17	<=-14.4	PASS
11N20SISO	Ant1	2412	Reference	1.78	1.78	---	PASS
			30~1000	1.78	-63.42	<=-18.22	PASS
			1000~26500	1.78	-46.53	<=-18.22	PASS
		2437	Reference	4.92	4.92	---	PASS
			30~1000	4.92	-61.86	<=-15.08	PASS
			1000~26500	4.92	-46.89	<=-15.08	PASS
		2462	Reference	5.14	5.14	---	PASS
			30~1000	5.14	-63.29	<=-14.86	PASS
			1000~26500	5.14	-47.16	<=-14.86	PASS

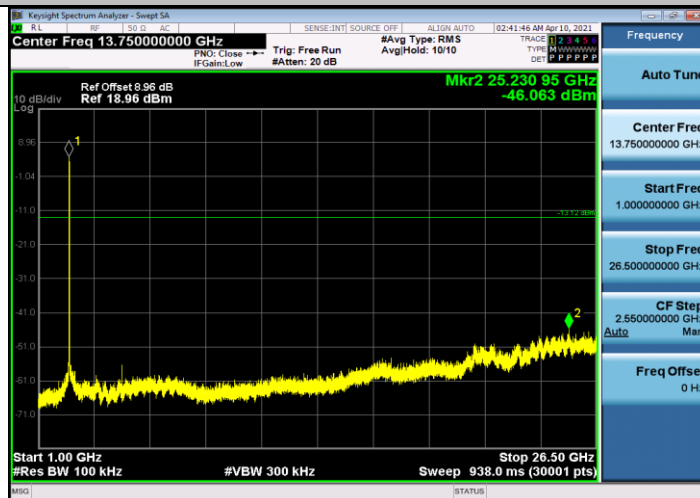
11B\_Ant1\_2412\_0~Reference



11B\_Ant1\_2412\_30~1000



11B\_Ant1\_2412\_1000~26500

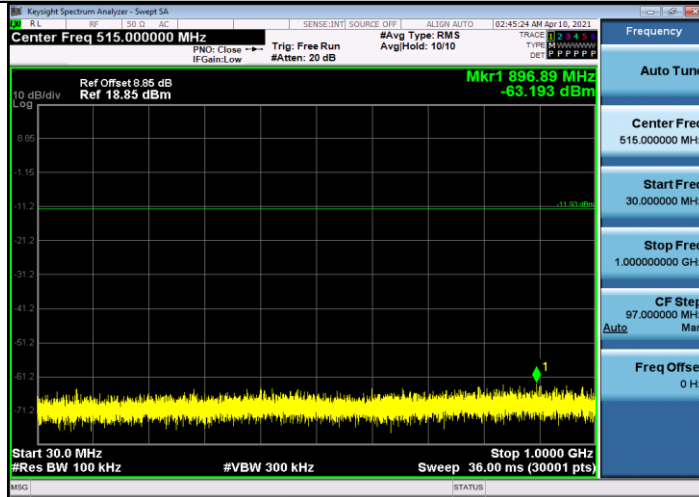




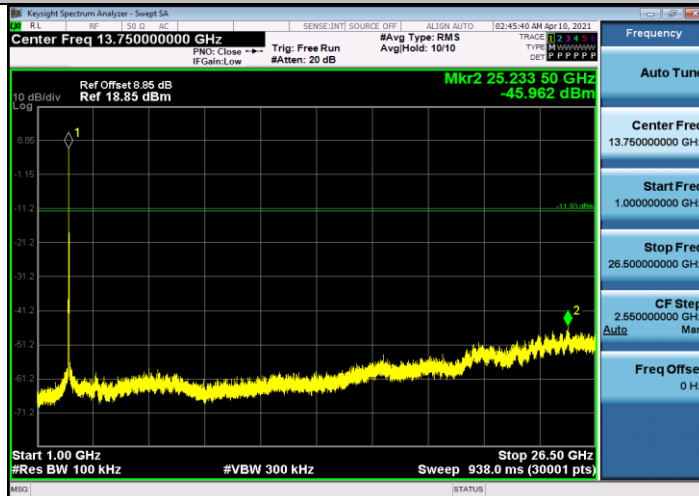
### 11B\_Ant1\_2437\_0~Reference



### 11B\_Ant1\_2437\_30~1000



### 11B\_Ant1\_2437\_1000~26500



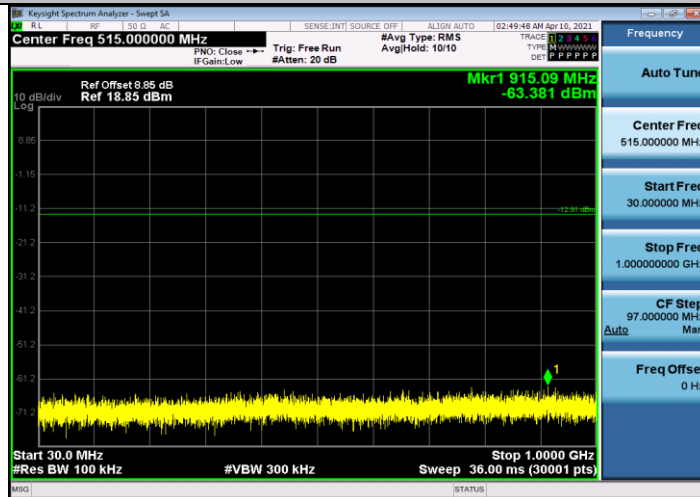




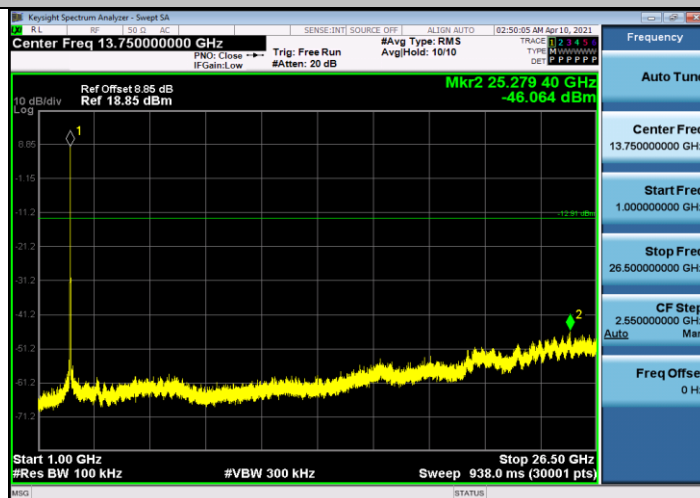
### 11B\_Ant1\_2462\_0~Reference



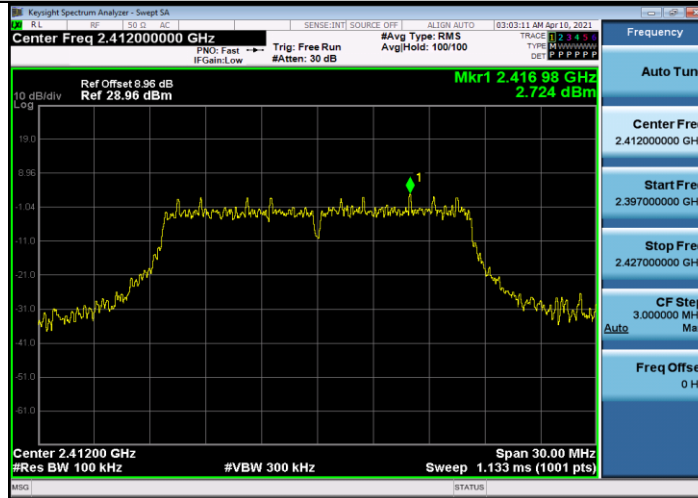
### 11B\_Ant1\_2462\_30~1000



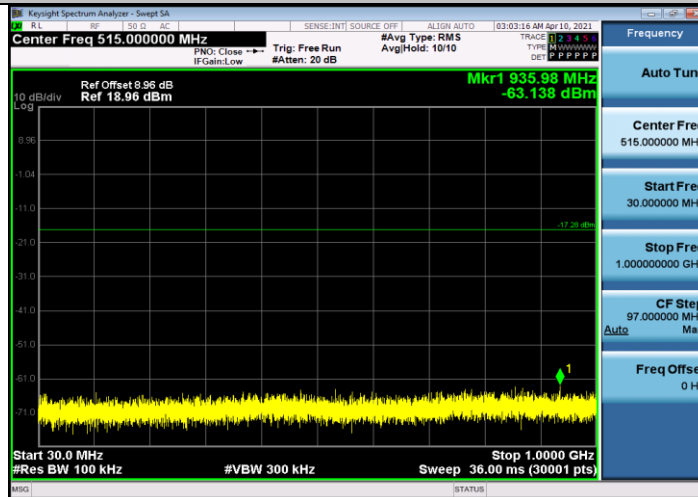
### 11B\_Ant1\_2462\_1000~26500



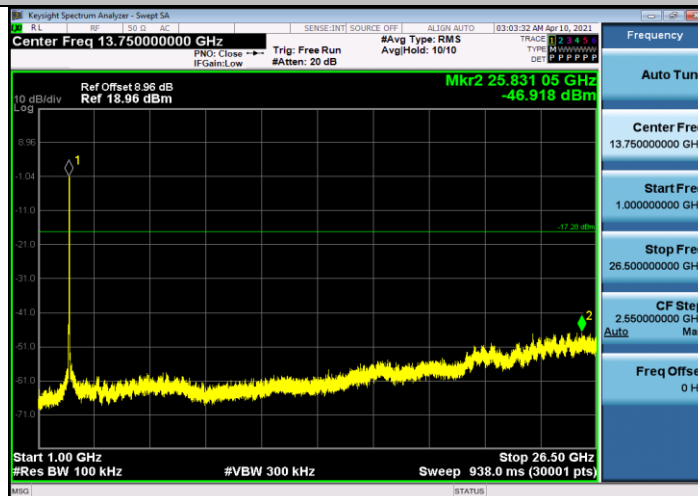
### 11G\_Ant1\_2412\_0~Reference



### 11G\_Ant1\_2412\_30~1000

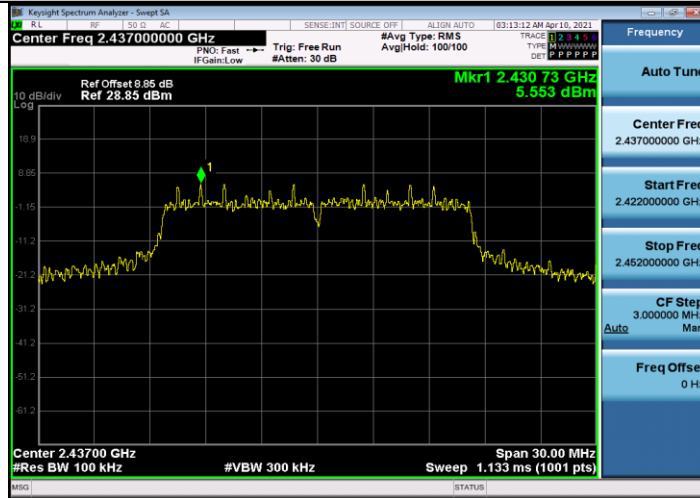


### 11G\_Ant1\_2412\_1000~26500

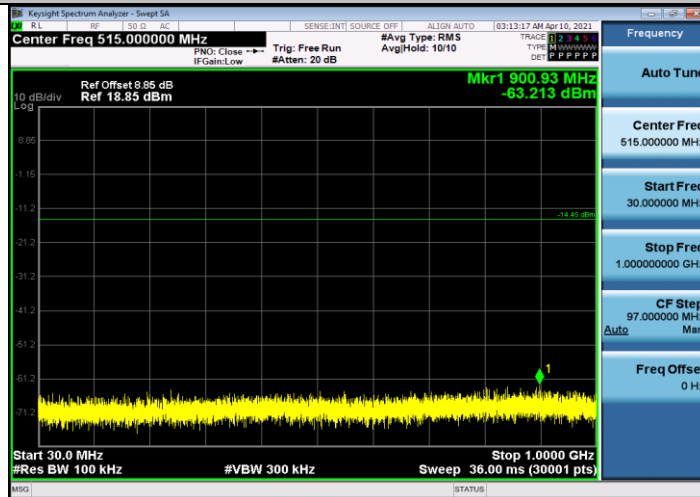




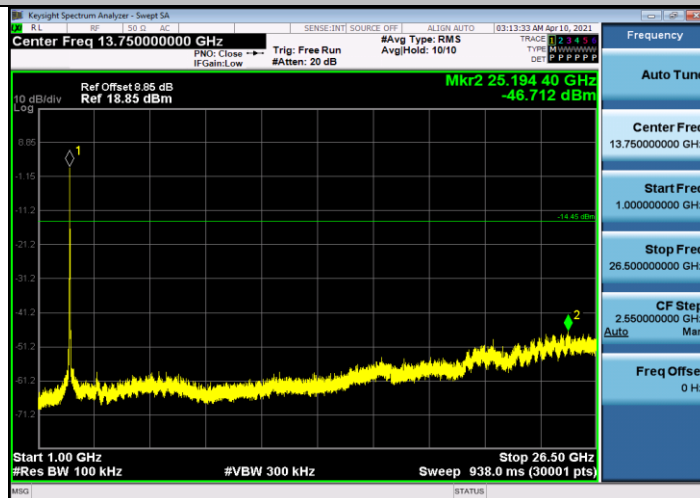
### 11G\_Ant1\_2437\_0~Reference



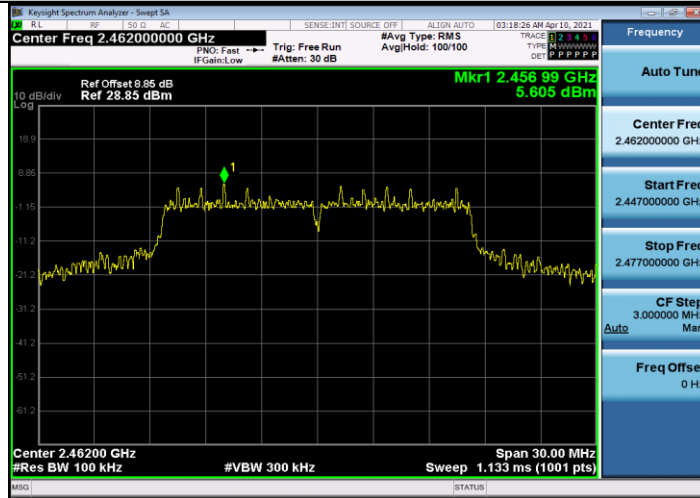
### 11G\_Ant1\_2437\_30~1000



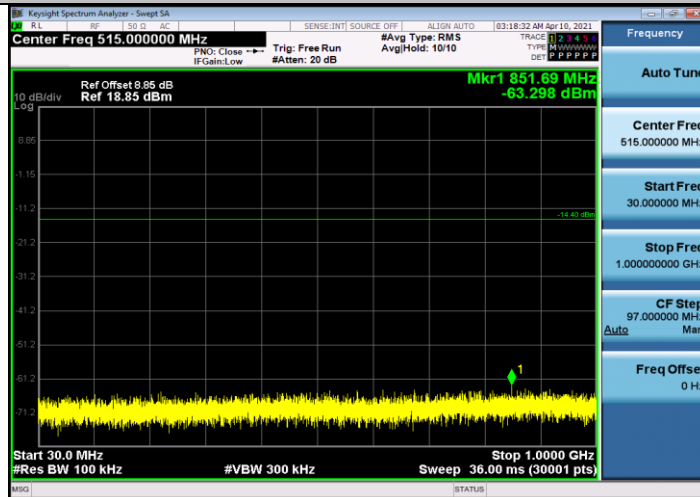
### 11G\_Ant1\_2437\_1000~26500



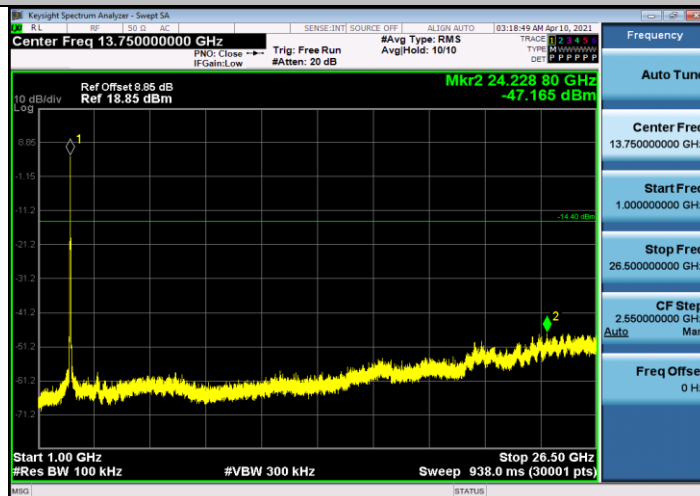
### 11G\_Ant1\_2462\_0~Reference



### 11G\_Ant1\_2462\_30~1000

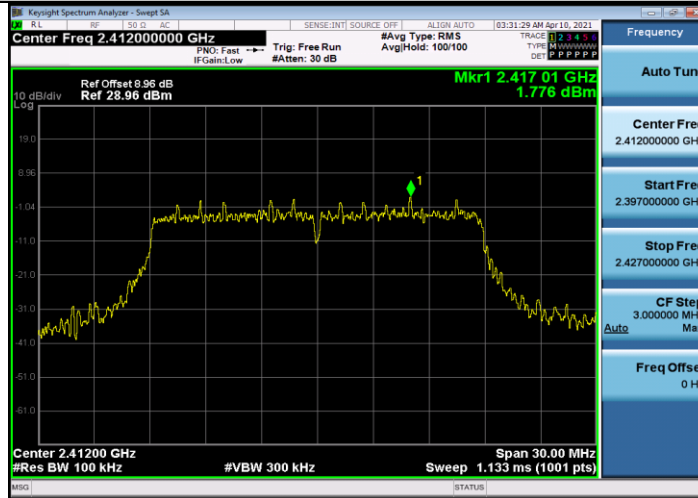


### 11G\_Ant1\_2462\_1000~26500

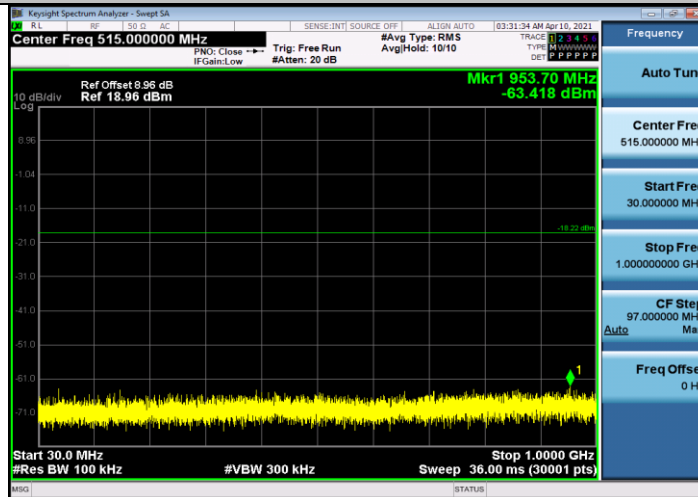




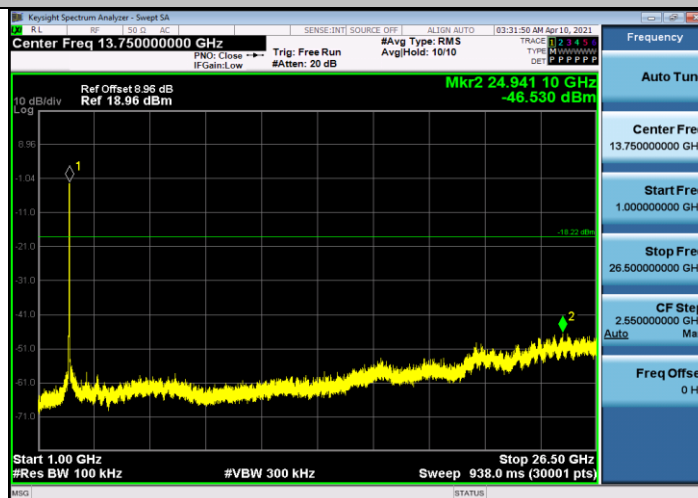
### 11N20SISO\_Ant1\_2412\_0~Reference



### 11N20SISO\_Ant1\_2412\_30~1000

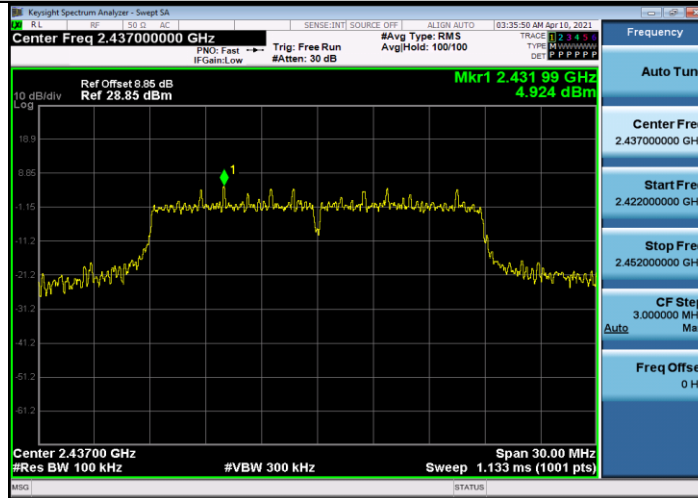


### 11N20SISO\_Ant1\_2412\_1000~26500

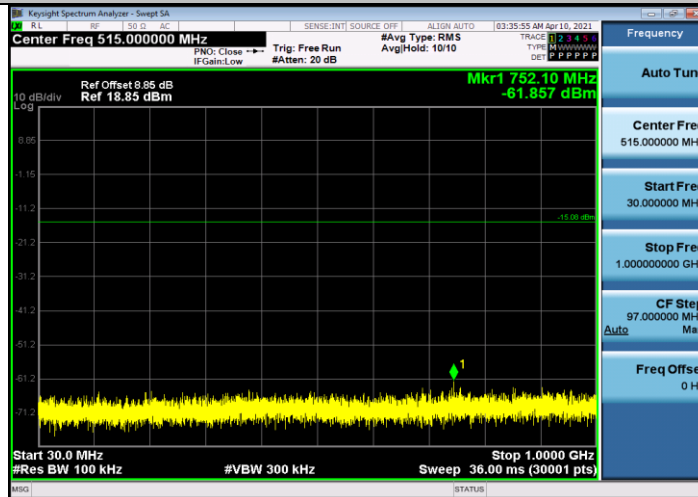




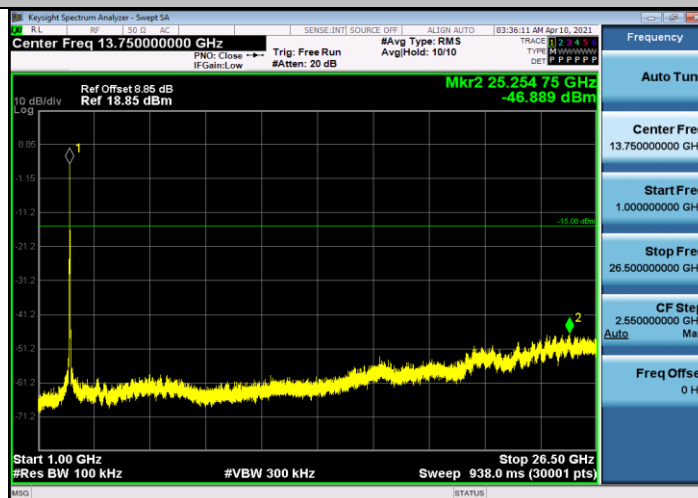
### 11N20SISO\_Ant1\_2437\_0~Reference



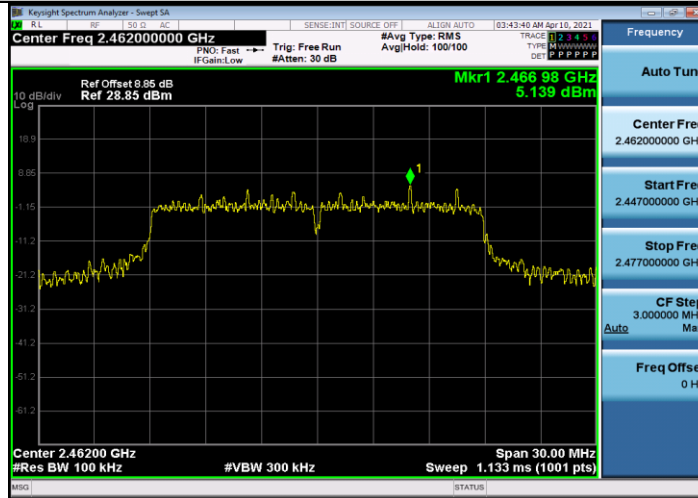
### 11N20SISO\_Ant1\_2437\_30~1000



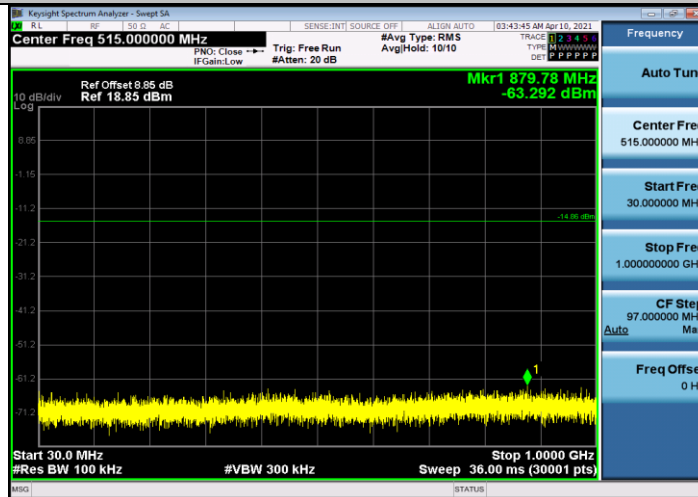
### 11N20SISO\_Ant1\_2437\_1000~26500



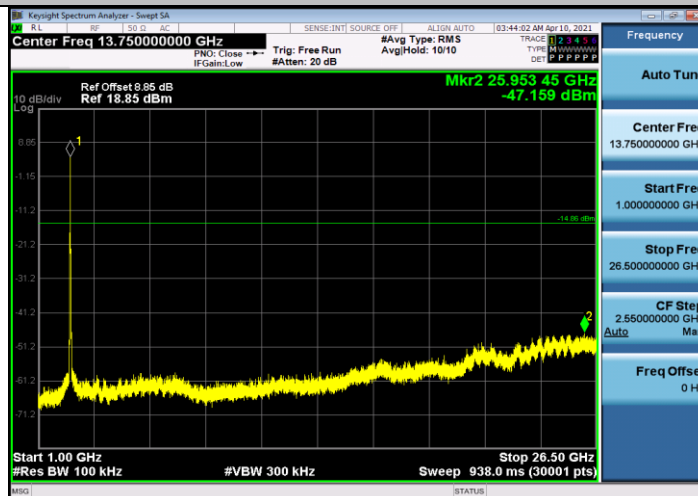
11N20SISO\_Ant1\_2462\_0~Reference



11N20SISO\_Ant1\_2462\_30~1000



11N20SISO\_Ant1\_2462\_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**

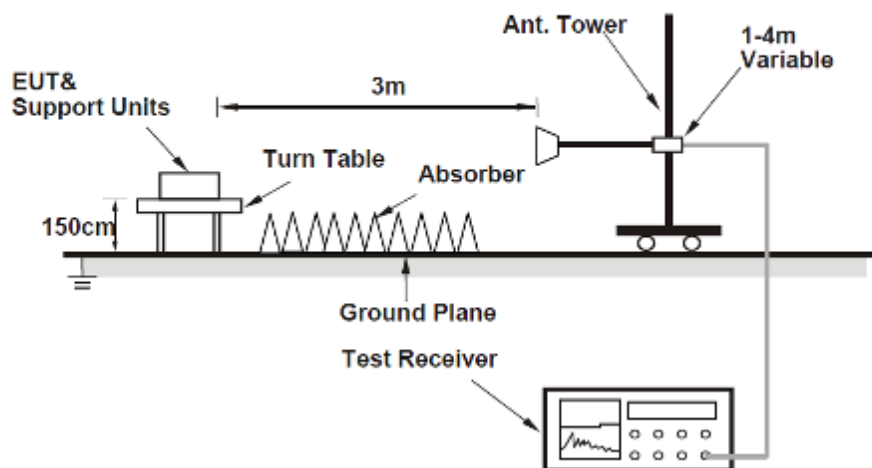
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

### 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  $\geq 98\%$ , set VBW = 10 Hz.
11. If the EUT duty cycle is  $< 98\%$ , set VBW  $\geq 1/T$ . 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

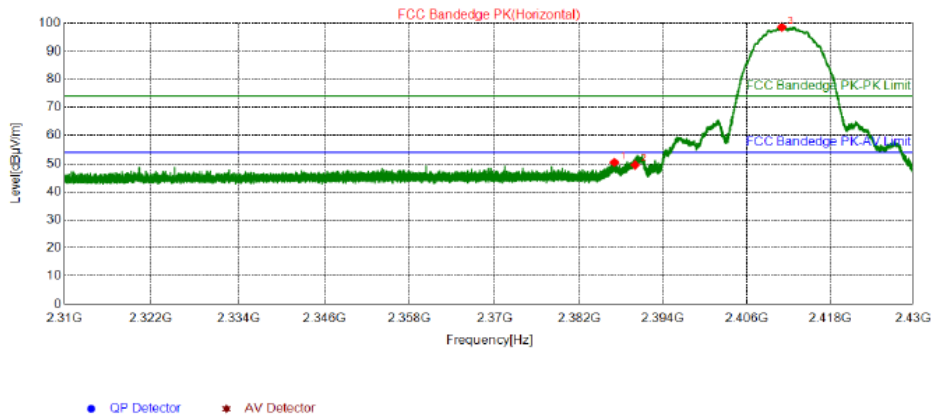
For Radiated emission above 1GHz





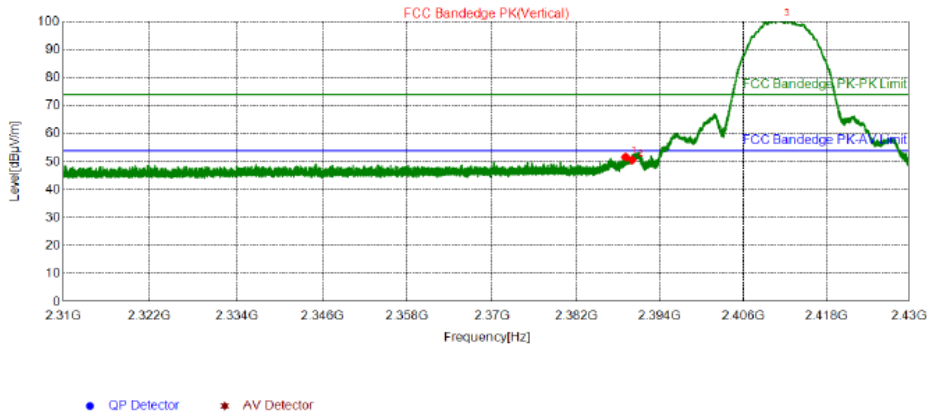
#### 4.7.5 Test Results

##### 802.11b-2412MHz/ Horizontal



NO	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2387.0340	46.03	50.45	74.00	23.55	355	301	Horizontal	PK
2	2390.0040	45.10	49.54	74.00	24.46	355	331	Horizontal	PK
3	2411.0580	93.99	98.56	74.00	-24.56	355	321	Horizontal	PK

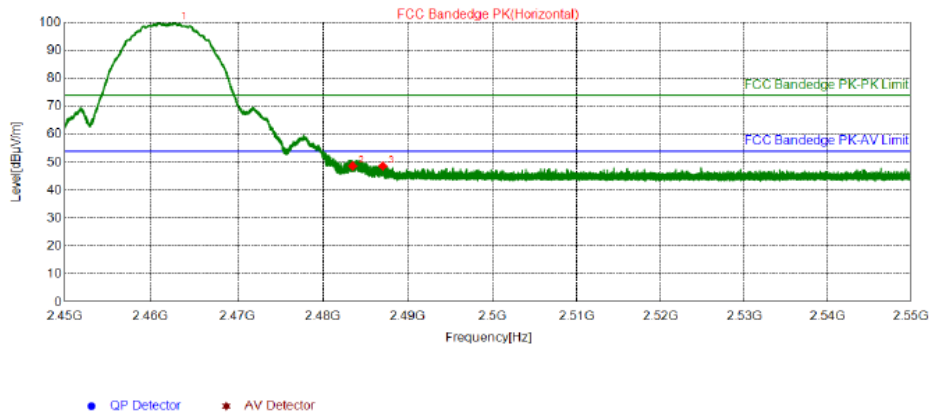
##### 802.11b-2412MHz/ Vertical



NO	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2389.0860	47.20	51.63	74.00	22.37	355	28	Vertical	PK
2	2390.0040	46.20	50.64	74.00	23.36	355	9	Vertical	PK
3	2411.0340	96.08	100.65	74.00	-26.65	355	48	Vertical	PK

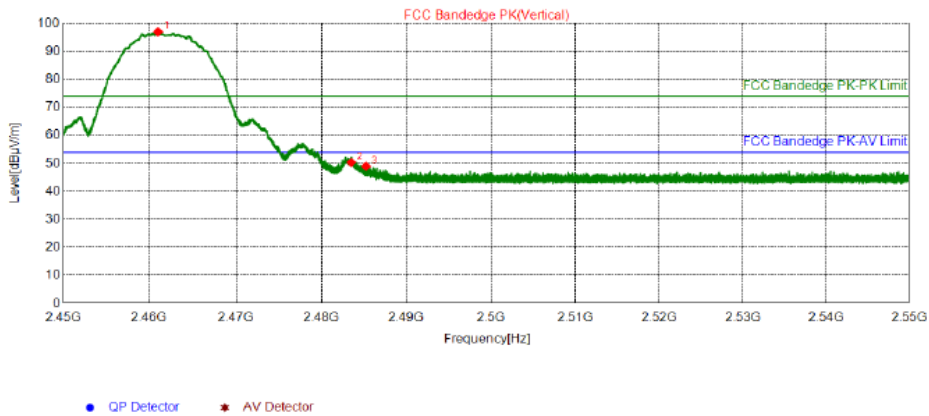


### 802.11b-2462MHz/ Horizontal



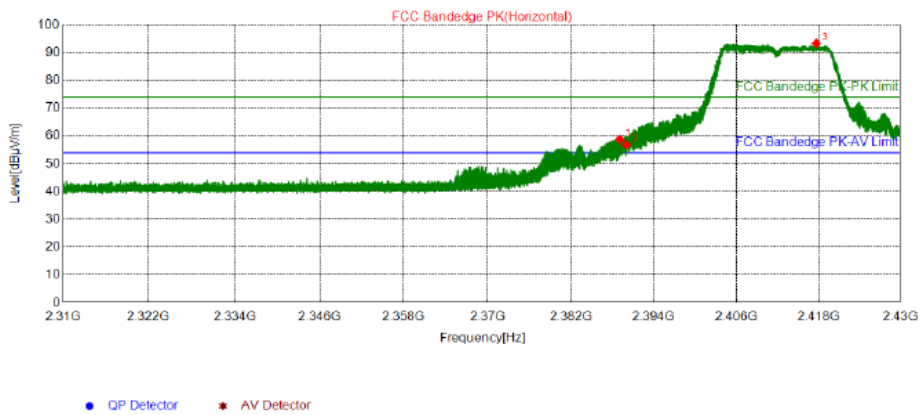
NO	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2462.9000	95.18	100.02	74.00	-26.02	355	342	Horizontal	PK
2	2483.5000	43.70	48.64	74.00	25.36	355	351	Horizontal	PK
3	2487.0500	43.67	48.62	74.00	25.38	355	275	Horizontal	PK

### 802.11b-2462MHz/ Vertical



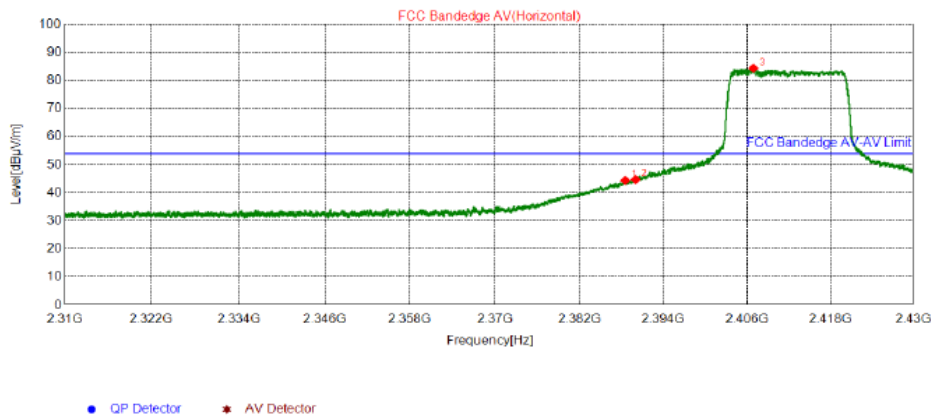
NO	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2461.0300	92.11	96.94	74.00	-22.94	355	215	Vertical	PK
2	2483.5000	45.39	50.33	74.00	23.67	355	58	Vertical	PK
3	2485.2400	43.97	48.92	74.00	25.08	355	19	Vertical	PK

### 802.11g-2412MHz/ Horizontal-PK



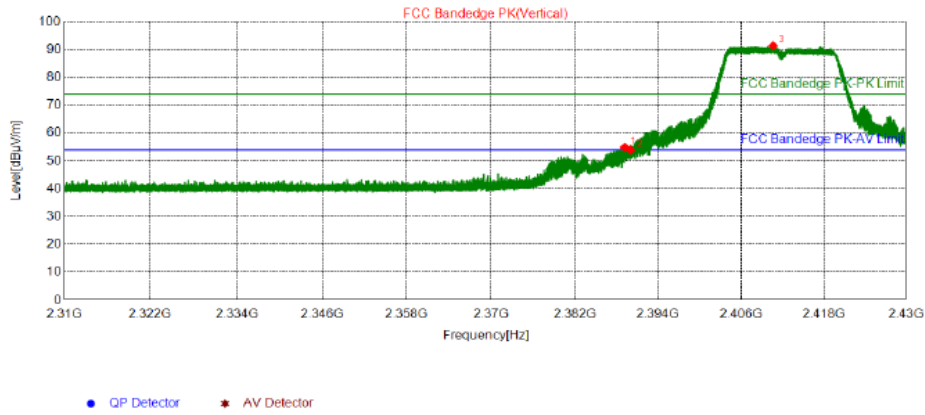
NO	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2389.0440	54.28	58.71	74.00	15.29	355	302	Horizontal	PK
2	2390.0100	52.33	56.77	74.00	17.23	355	312	Horizontal	PK
3	2417.6640	88.70	93.31	74.00	-19.31	355	164	Horizontal	PK

### 802.11g-2412MHz/ Horizontal-AV



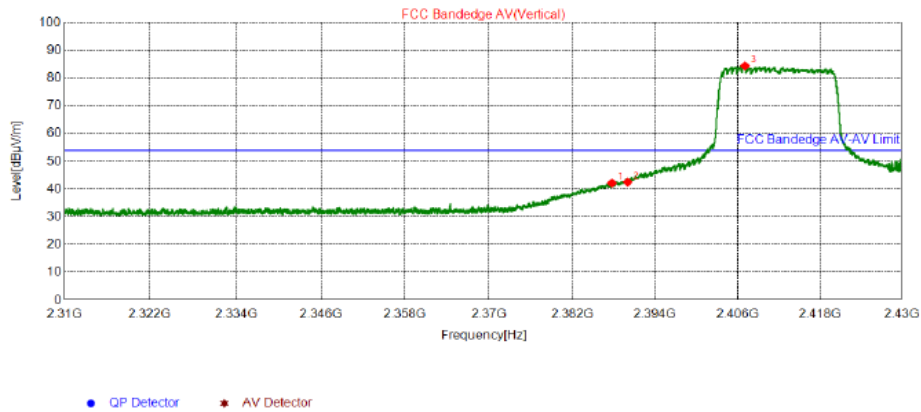
NO	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2388.5250	39.90	44.33	54.00	9.67	355	296	Horizontal	PK
2	2390.0100	40.23	44.67	54.00	9.33	355	303	Horizontal	PK
3	2406.9000	79.78	84.32	54.00	-30.32	355	303	Horizontal	PK

### 802.11g-2412MHz/ Vertical-PK



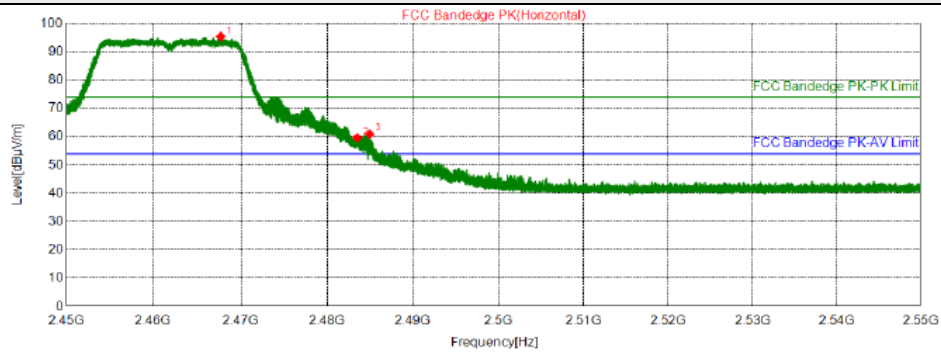
NO	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2389.1820	50.39	54.82	74.00	19.18	355	16	Vertical	PK
2	2390.0100	49.42	53.86	74.00	20.14	355	223	Vertical	PK
3	2410.6260	86.73	91.30	74.00	-17.30	355	46	Vertical	PK

### 802.11g-2412MHz/ Vertical-AV



NO	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2387.7300	37.72	42.14	54.00	11.86	355	9	Vertical	PK
2	2390.0100	38.09	42.53	54.00	11.47	355	2	Vertical	PK
3	2407.0650	79.81	84.35	54.00	-30.35	355	28	Vertical	PK

### 802.11g-2462MHz/ Horizontal-PK

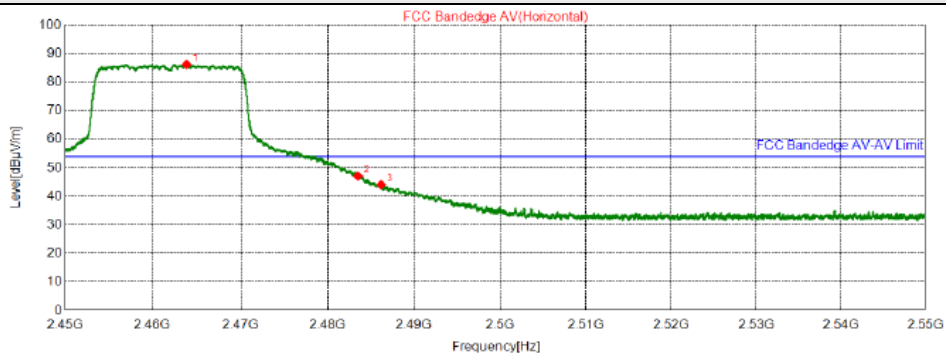


● QP Detector    ★ AV Detector

#### Suspected List

NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2467.6650	90.52	95.38	74.00	-21.38	355	147	Horizontal	PK
2	2483.5000	54.68	59.62	74.00	14.38	355	147	Horizontal	PK
3	2484.9450	55.91	60.85	74.00	13.15	355	147	Horizontal	PK

### 802.11g-2462MHz/ Horizontal-AV

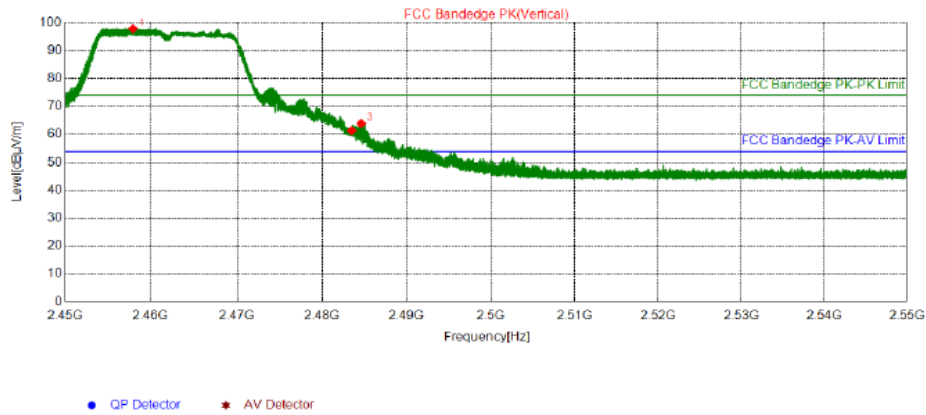


● QP Detector    ★ AV Detector

#### Suspected List

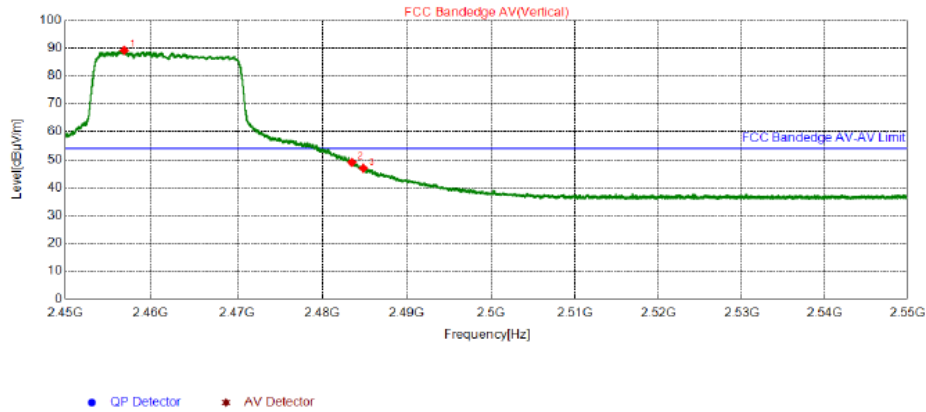
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2463.9125	81.28	86.13	54.00	-32.13	355	333	Horizontal	PK
2	2483.5000	42.13	47.07	54.00	6.93	355	333	Horizontal	PK
3	2486.1875	39.07	44.02	54.00	9.98	355	340	Horizontal	PK

### 802.11g-2462MHz/ Vertical-PK



NO	Freq. [MHz]	Reading [dBuV/m]	Level [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2457.9350	92.98	97.80	74.00	-23.80	355	207	Vertical	PK
2	2483.5000	56.47	61.41	74.00	12.59	355	59	Vertical	PK
3	2484.6400	59.00	63.94	74.00	10.06	355	39	Vertical	PK

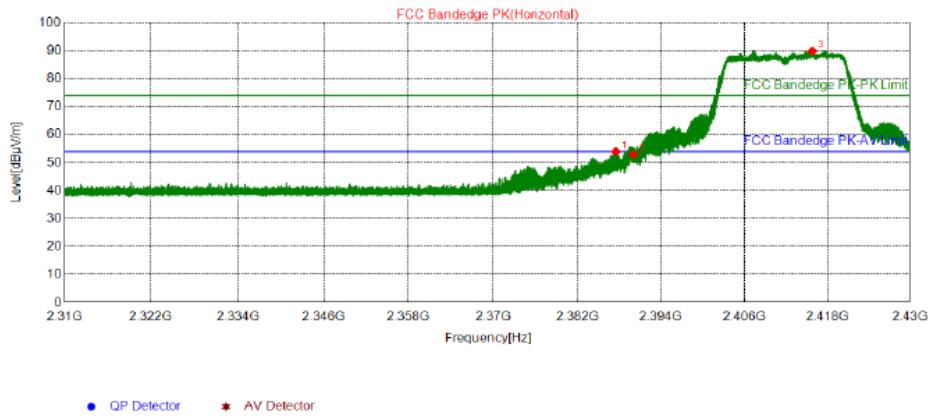
### 802.11g-2462MHz/ Vertical-AV



NO	Freq. [MHz]	Reading [dBuV/m]	Level [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2456.9000	84.31	89.12	54.00	-35.12	355	214	Vertical	PK
2	2483.5000	44.11	49.05	54.00	4.95	355	45	Vertical	PK
3	2484.8500	42.00	46.94	54.00	7.06	355	51	Vertical	PK

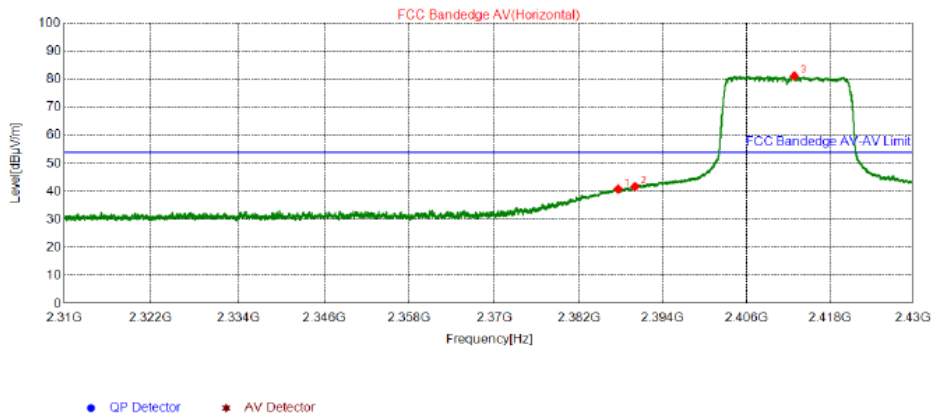


### 802.11n (HT20)-2412MHz/ Horizontal-PK



NO	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2387.5020	49.51	53.93	74.00	20.07	355	285	Horizontal	PK
2	2390.0100	48.54	52.98	74.00	21.02	355	275	Horizontal	PK
3	2415.8160	85.27	89.87	74.00	-15.87	355	147	Horizontal	PK

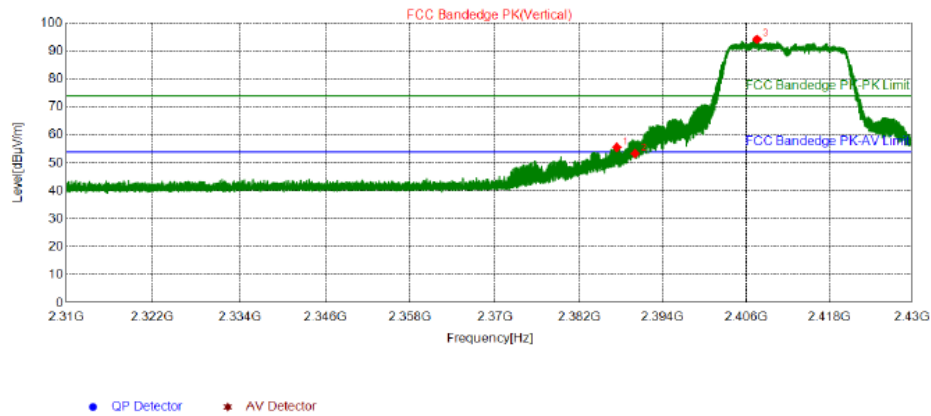
### 802.11n (HT20)-2412MHz/ Horizontal-AV



NO	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2387.6100	36.44	40.86	54.00	13.14	355	296	Horizontal	PK
2	2390.0100	37.27	41.71	54.00	12.29	355	302	Horizontal	PK
3	2412.9000	76.52	81.10	54.00	-27.10	355	302	Horizontal	PK

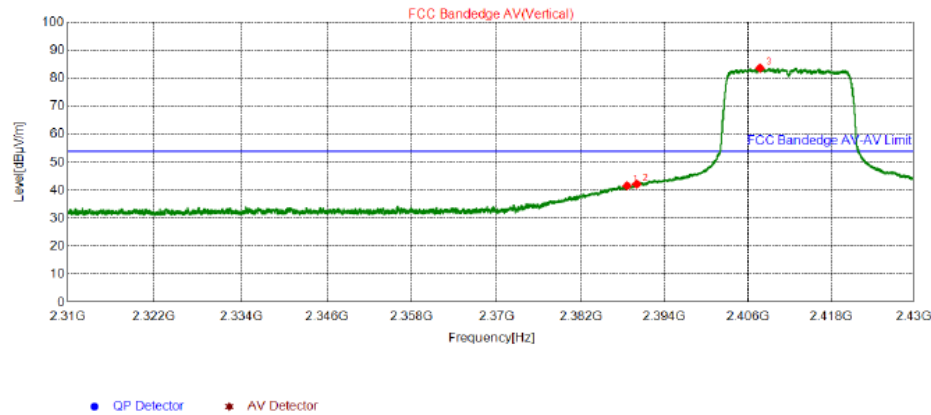


### 802.11n (HT20)-2412MHz/ Vertical-PK



NO	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2387.3880	51.16	55.58	74.00	18.42	355	10	Vertical	PK
2	2390.0100	48.91	53.35	74.00	20.65	355	50	Vertical	PK
3	2407.5600	89.58	94.13	74.00	-20.13	355	30	Vertical	PK

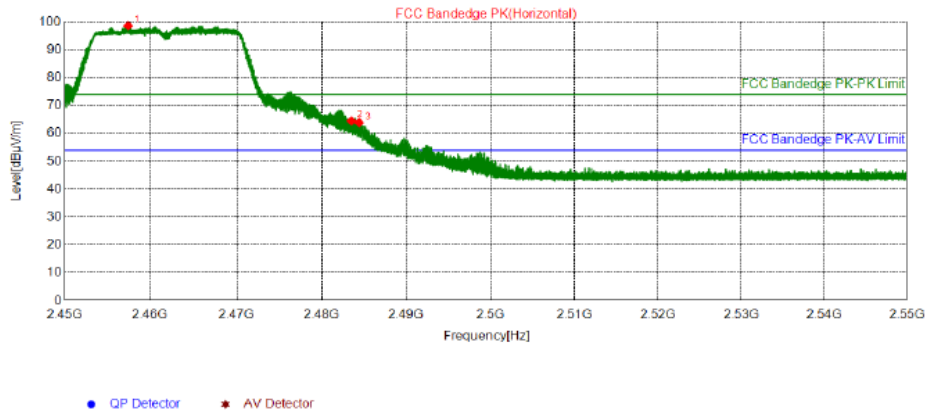
### 802.11n (HT20)-2412MHz/ Vertical-AV



NO	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2388.6000	37.14	41.57	54.00	12.43	355	13	Vertical	PK
2	2390.0100	37.78	42.22	54.00	11.78	355	13	Vertical	PK
3	2407.7400	79.03	83.58	54.00	-29.58	355	38	Vertical	PK

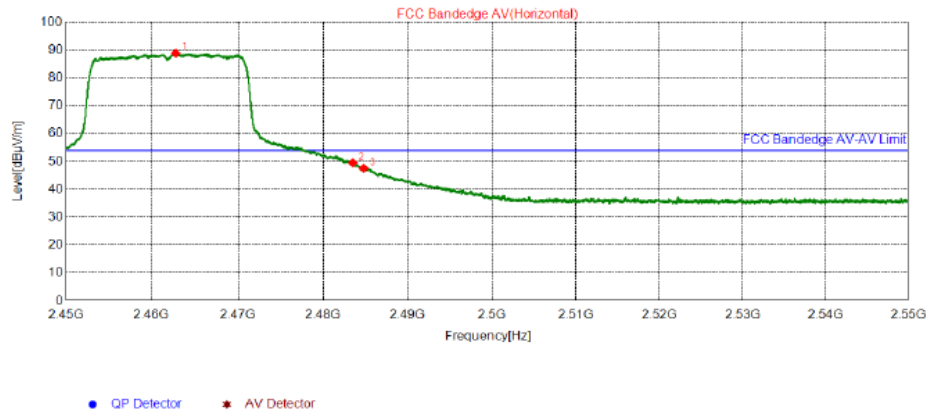


### 802.11n (ht20)-2462MHz/ Horizontal-PK



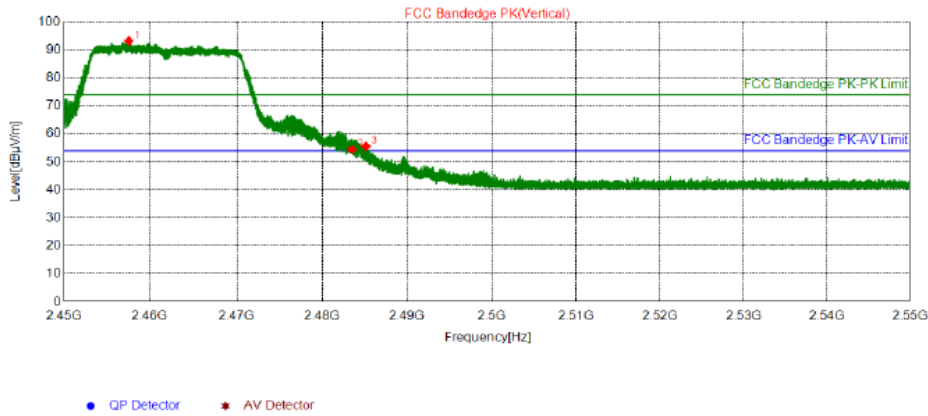
NO	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2457.4300	93.78	98.60	74.00	-24.60	355	350	Horizontal	PK
2	2483.5000	59.52	64.46	74.00	9.54	355	173	Horizontal	PK
3	2484.4200	58.89	63.83	74.00	10.17	355	350	Horizontal	PK

### 802.11n (HT20)-2462MHz/ Horizontal-AV



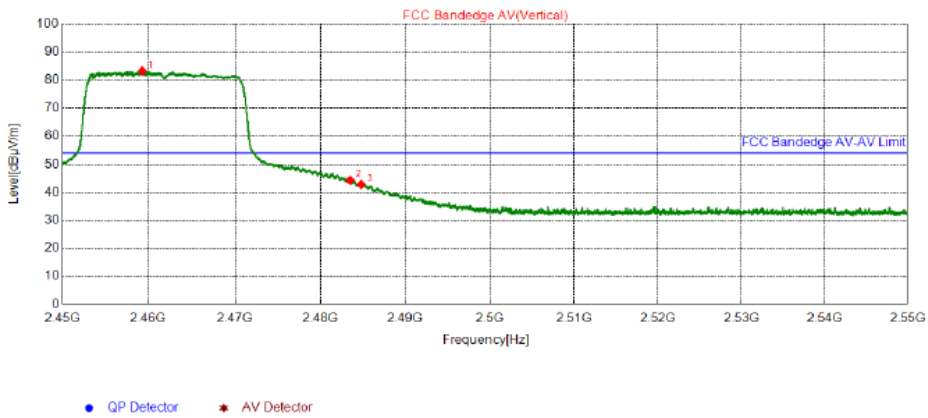
NO	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2462.8375	83.93	88.77	54.00	-34.77	355	341	Horizontal	PK
2	2483.5000	44.55	49.49	54.00	4.51	355	347	Horizontal	PK
3	2484.7875	42.61	47.55	54.00	6.45	355	347	Horizontal	PK

### 802.11n (ht20)-2462MHz/ Vertical-PK



NO	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2457.5550	88.34	93.16	74.00	-19.16	355	223	Vertical	PK
2	2483.5000	49.45	54.39	74.00	19.61	355	75	Vertical	PK
3	2485.1500	50.61	55.55	74.00	18.45	355	223	Vertical	PK

### 802.11n (HT20)-2462MHz/ Vertical-AV



NO	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2459.3125	78.37	83.20	54.00	-29.20	355	207	Vertical	PK
2	2483.5000	39.46	44.40	54.00	9.60	355	34	Vertical	PK
3	2484.8000	37.92	42.86	54.00	11.14	355	34	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:**

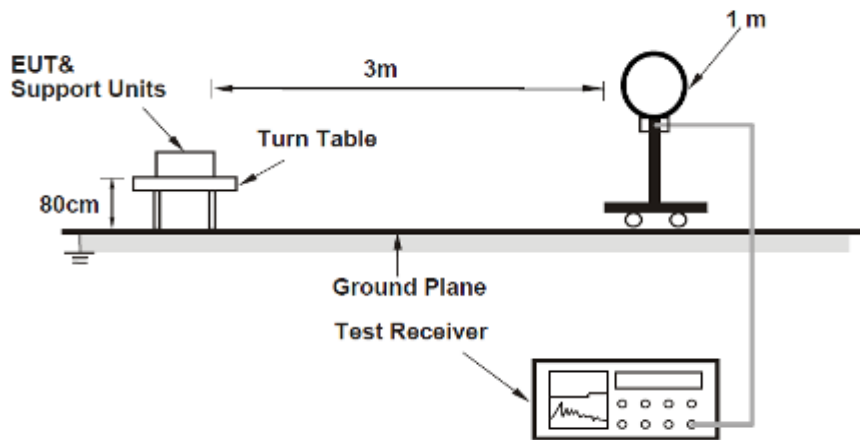
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz & 360 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency 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  $\geq$  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**

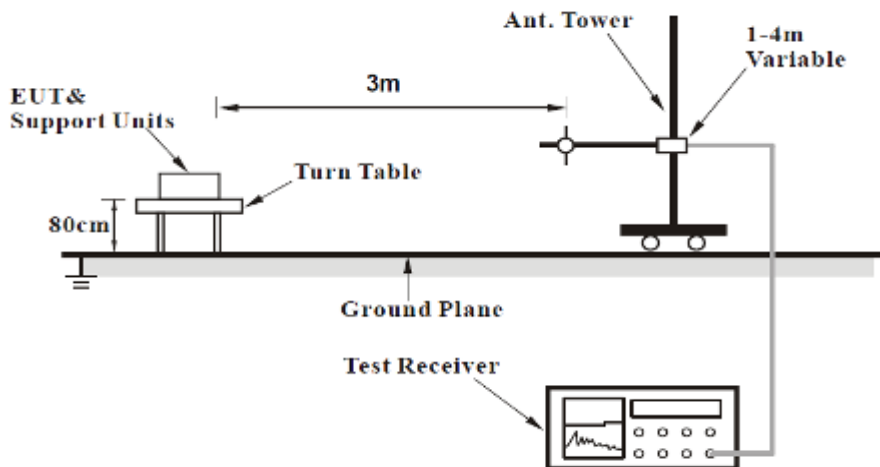
No deviation.

#### 4.8.4 Test Setup

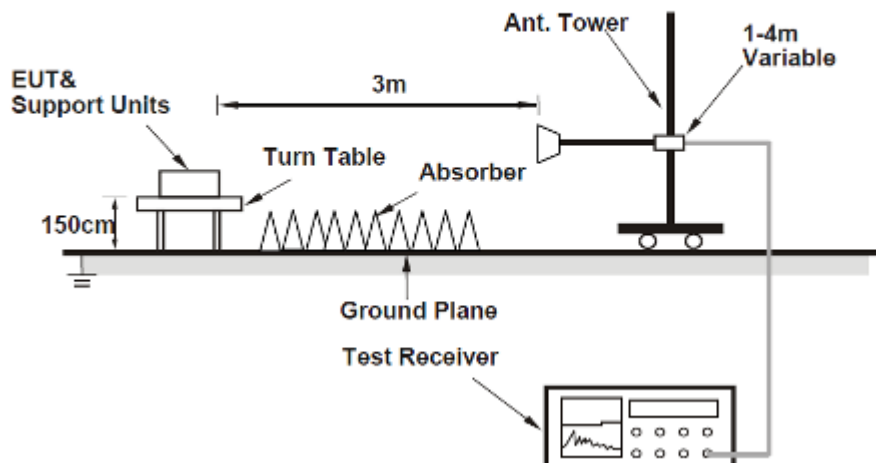
For Radiated emission below 30MHz



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.



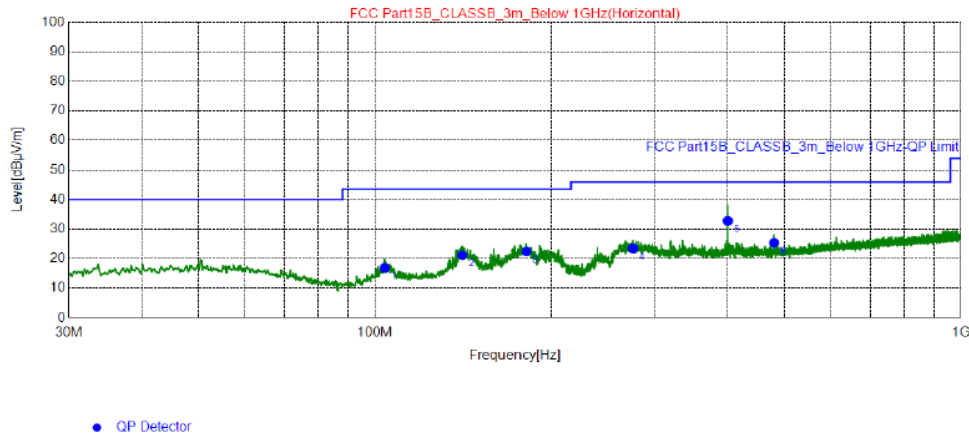


### Radiated Emissions Range 30MHz~1GHz

Below is the worst test data

<b>Channel</b>	Channel 1	<b>Detector Function</b>	Quasi-Peak (QP)
<b>Frequency Range</b>	30MHz ~ 1GHz	<b>Antenna Polarity</b>	Horizontal

Test Plot:



#### Final Data List

NO.	Freq. [MHz]	QP Reading [dB µV/m]	Factor [dB]	QP Value [dB µV/m]	QP Limit [dB µV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	103.9	31.34	-14.49	16.85	43.50	26.65	200	120	Horizontal
2	140.9	31.47	-10.30	21.17	43.50	22.33	200	102	Horizontal
3	181.3	33.38	-10.98	22.40	43.50	21.10	200	313	Horizontal
4	275.6	32.9	-9.39	23.51	46.00	22.49	100	6	Horizontal
5	400.0	39.10	-6.30	32.80	46.00	13.20	105.5	57.3	Horizontal
6	479.8	30.14	-4.78	25.36	46.00	20.64	100	132	Horizontal

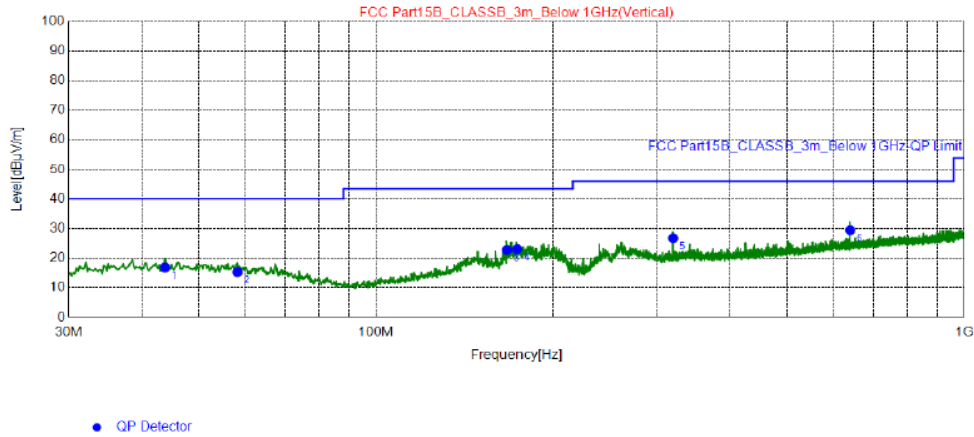
#### REMARKS:

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



<b>Channel</b>	Channel 1	<b>Detector Function</b>	Quasi-Peak (QP)
<b>Frequency Range</b>	30MHz ~ 1GHz	<b>Antenna Polarity</b>	Vertical

Test Plot:



**Final Data List**

NO.	Freq. [MHz]	QP Reading [dB μV/m]	Factor [dB]	QP Value [dB μV/m]	QP Limit [dB μV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	43.77	26.98	-10.16	16.82	40.00	23.18	200	54	Vertical
2	58.13	25.48	-10.17	15.31	40.00	24.69	100	247	Vertical
3	166.9	32.94	-10.15	22.79	43.50	20.71	200	39	Vertical
4	173.7	33.62	-10.54	23.08	43.50	20.42	100	2	Vertical
5	320.0	34.88	-8.12	26.76	46.00	19.24	200	310	Vertical
6	639.9	31.61	-2.15	29.46	46.00	16.54	100	310	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**

<b>Channel</b>	TX Channel 1	<b>Detector Function</b>	Peak (PK)
<b>Frequency Range</b>	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	7237.3000	36.85	54.00	17.15	-0.66	H	PK
2	7237.3000	41.55	74.00	32.45	-0.66	H	AV
3	7237.3000	42.63	74.00	31.37	-0.66	V	PK
4	7237.3000	37.76	54.00	16.24	-0.66	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

<b>Channel</b>	TX Channel 6	<b>Detector Function</b>	Peak (PK)
<b>Frequency Range</b>	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	7312.1000	46.95	74.00	27.05	-0.85	H	PK
2	7312.1000	43.69	54.00	10.31	-0.85	H	AV
3	7310.4000	42.15	74.00	31.85	-0.85	V	PK
4	7313.8000	37.61	54.00	16.39	-0.86	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



<b>Channel</b>	TX Channel 11	<b>Detector Function</b>	Peak (PK)
<b>Frequency Range</b>	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	7385.2000	43.09	74.00	30.91	-1.05	H	PK
2	7386.9000	41.50	54.00	12.50	-1.05	H	AV
3	7386.9000	43.07	74.00	30.93	-1.05	V	PK
4	7386.9000	39.50	54.00	14.50	-1.05	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**

<b>Channel</b>	TX Channel 1	<b>Detector Function</b>	Peak (PK)
<b>Frequency Range</b>	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	7237.3000	39.87	74.00	34.13	-0.66	H	PK
2	7237.3000	32.75	54.00	21.25	-0.66	H	AV
3	7230.5000	41.61	74.00	32.39	-0.64	V	PK
4	7239.0000	34.20	54.00	19.80	-0.66	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

<b>Channel</b>	TX Channel 6	<b>Detector Function</b>	Peak (PK)
<b>Frequency Range</b>	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	7305.3000	38.36	74.00	35.64	-0.85	H	PK
2	7312.1000	32.03	54.00	21.97	-0.84	H	AV
3	7310.4000	39.41	74.00	34.59	-0.85	V	PK
4	7312.1000	33.83	54.00	20.17	-0.85	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



<b>Channel</b>	TX Channel 11	<b>Detector Function</b>	Peak (PK)
<b>Frequency Range</b>	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	7392.0000	39.91	74.00	34.09	-1.06	H	PK
2	7392.0000	34.04	54.00	19.96	-1.06	H	AV
3	7386.9000	36.47	74.00	37.53	-1.05	V	PK
4	7386.9000	30.17	54.00	23.83	-1.05	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)**

<b>Channel</b>	TX Channel 1	<b>Detector Function</b>	Peak (PK)
<b>Frequency Range</b>	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	7237.3000	35.85	74.00	38.15	-0.66	H	PK
2	7237.3000	29.49	54.00	24.51	-0.66	H	AV
3	7237.3000	35.23	74.00	38.77	-0.66	V	PK
4	7237.3000	30.88	54.00	23.12	-0.66	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

<b>Channel</b>	TX Channel 6	<b>Detector Function</b>	Peak (PK)
<b>Frequency Range</b>	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	7312.1000	35.89	74.00	38.11	-0.85	H	PK
2	7312.1000	30.12	54.00	23.88	-0.85	H	AV
3	7312.1000	34.05	74.00	39.95	-0.85	V	PK
4	7312.1000	29.15	54.00	24.85	-0.85	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



<b>Channel</b>	TX Channel 11	<b>Detector Function</b>	Peak (PK)
<b>Frequency Range</b>	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	7286.6000	35.28	74.00	38.72	-0.79	H	PK
2	7286.6000	29.21	54.00	24.79	-0.79	H	AV
3	7286.6000	34.12	74.00	39.88	-0.79	V	PK
4	7286.6000	29.17	54.00	24.83	-0.79	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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**END** -----