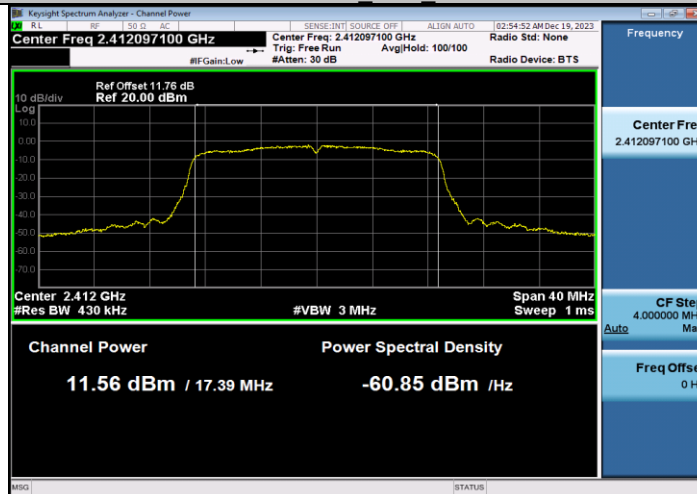


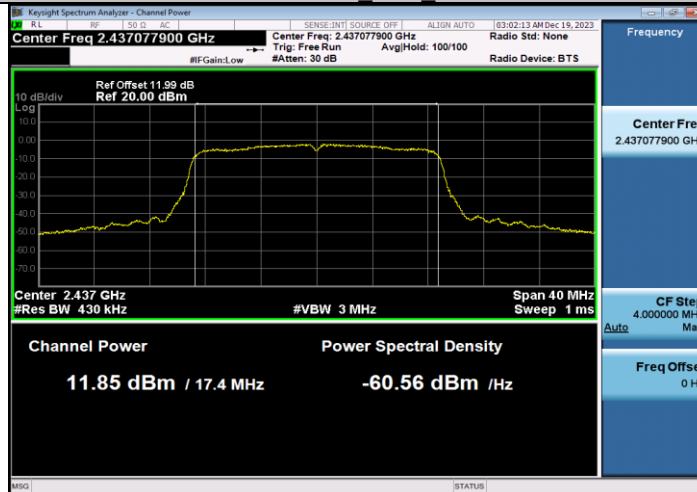


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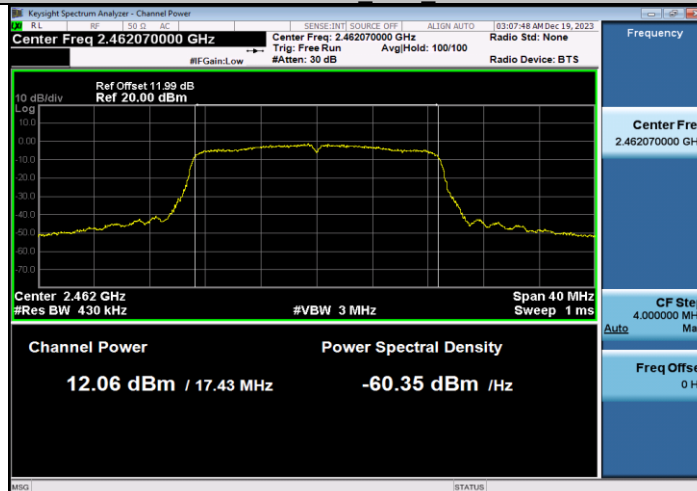
11N20SISO Ant1 2412



11N20SISO Ant1 2437



11N20SISO Ant1 2462

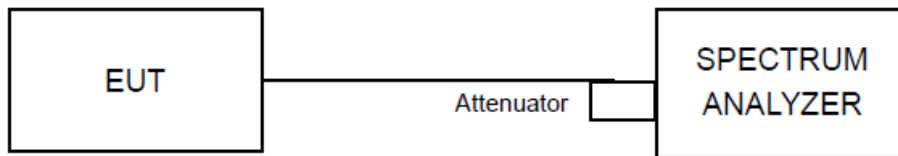


4.4 Power Spectral Density

4.4.1 Limit

The Maximum of Power Spectral Density Measurement is 8 dBm in any 3 kHz band.

4.4.2 Test Setup



4.4.3 Test Procedures

The power output per FCC § 15.247(e) was tested according to DTS test procedure of “KDB558074 D01 DTS Meas Guidance” (clause 10.5) for compliance to FCC 47CFR 15.247 requirements.

- Measure the duty cycle (x) of the transmitter output signal.
- Set instrument center frequency to DTS channel center frequency.
- Set span to at least 1.5 OBW.
- Set RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- Set VBW $\geq 3 \text{ RBW}$.
- Detector = power averaging (RMS) or sample detector (when RMS not available).
- Ensure that the number of measurement points in the sweep $\geq 2 \text{ span/RBW}$.
- Sweep time = auto couple.
- Do not use sweep triggering. Allow sweep to “free run”.
- Employ trace averaging (RMS) mode over a minimum of 100 traces.
- Use the peak marker function to determine the maximum amplitude level.
- Add $10 \log (1/x)$, where x is the duty cycle measured in step (a), to the measured PSD to compute the average PSD during the actual transmission time.
- If resultant value exceeds the limit, then reduce RBW (no less than 3 kHz) and repeat (note that this may require zooming in on the emission of interest and reducing the span in order to meet the minimum measurement point requirement as the RBW is reduced).

4.4.4 Deviation of Test Standard

No deviation.

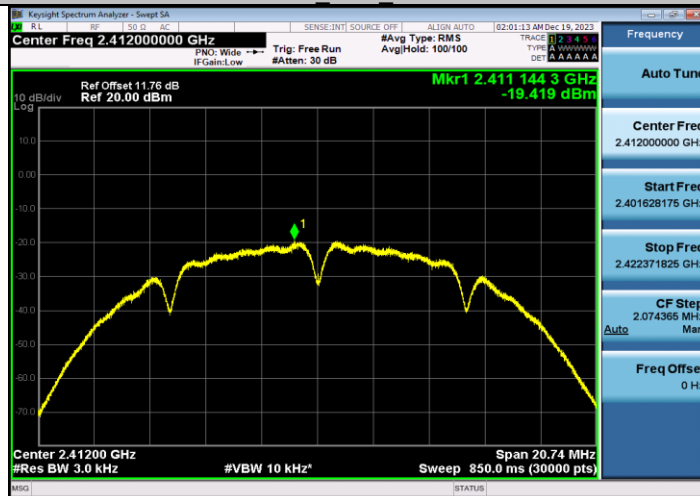
4.4.5 Test Results

Test Mode	Antenna	Channel [MHz]	Level [dBm]	10log(1/x) Factor[dB]	PSD [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
11B	Ant1	2412	-19.42	0.00	-19.42	<=8	PASS
		2437	-19.31	0.00	-19.31	<=8	PASS
		2462	-19.29	0.00	-19.29	<=8	PASS
11G	Ant1	2412	-21.11	0.00	-21.11	<=8	PASS
		2437	-21.02	0.00	-21.02	<=8	PASS
		2462	-20.79	0.00	-20.79	<=8	PASS
11N20SI SO	Ant1	2412	-21.56	0.00	-21.56	<=8	PASS
		2437	-21.43	0.00	-21.43	<=8	PASS
		2462	-21.04	0.00	-21.04	<=8	PASS

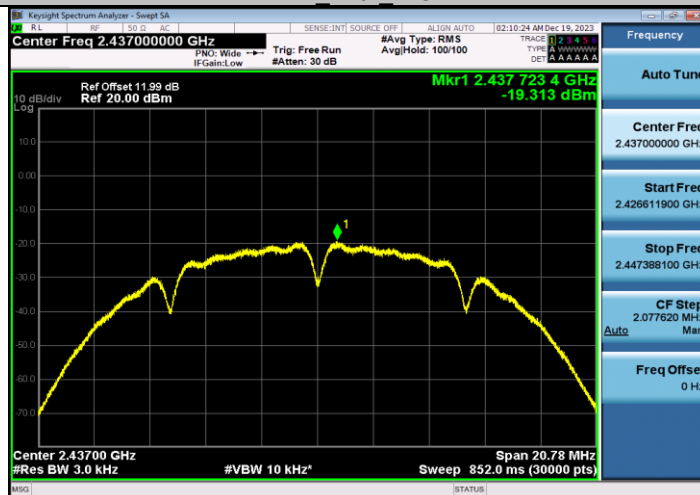


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11B Ant1 2412



11B Ant1 2437



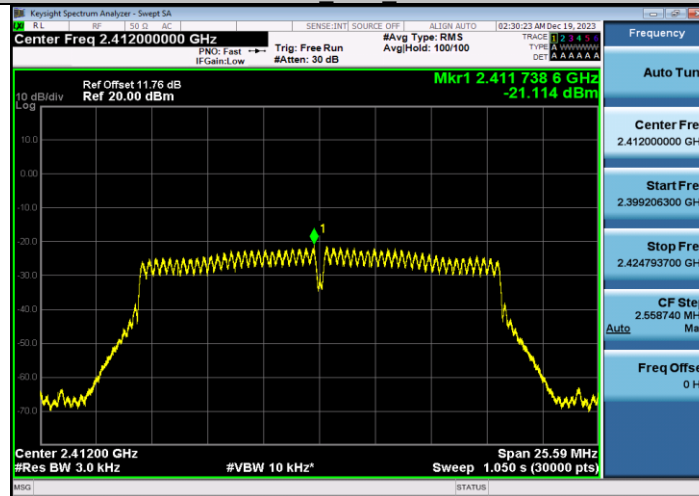
11B Ant1 2462



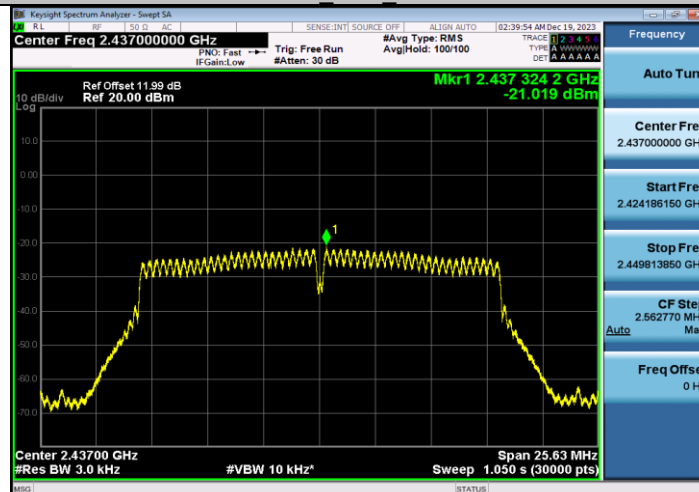


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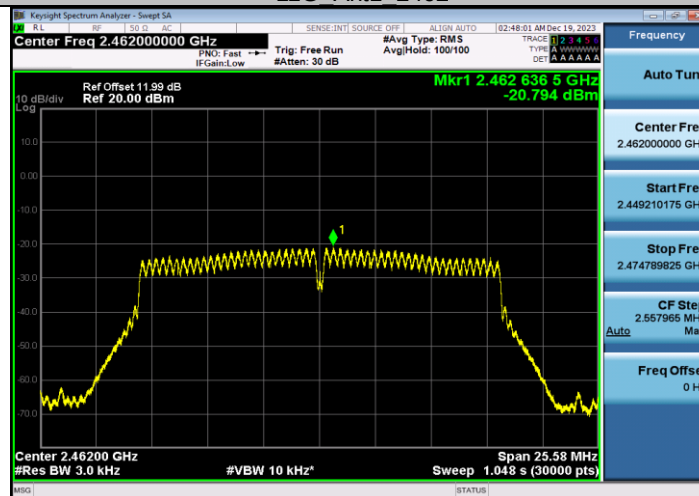
11G Ant1 2412



11G Ant1 2437



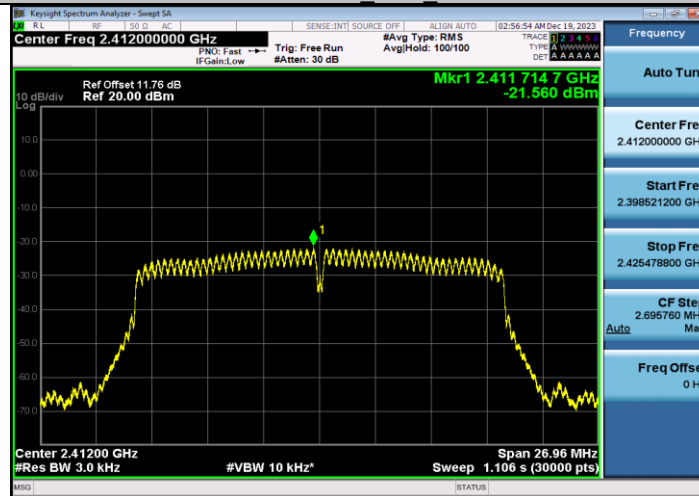
11G Ant1 2462



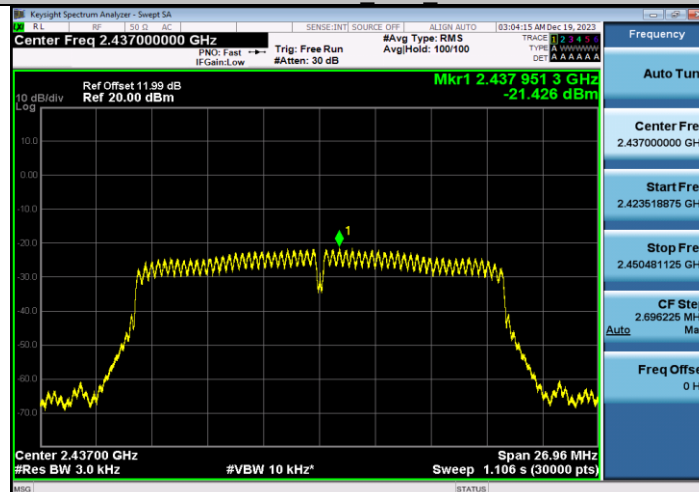


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VERITAS

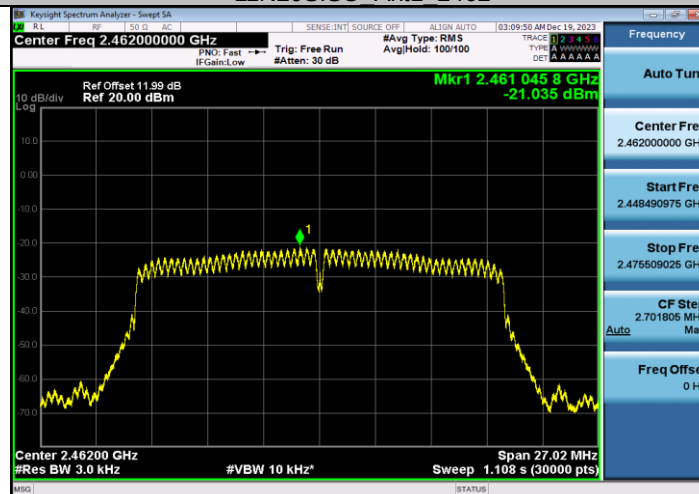
11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



11N20SISO_Ant1_2462

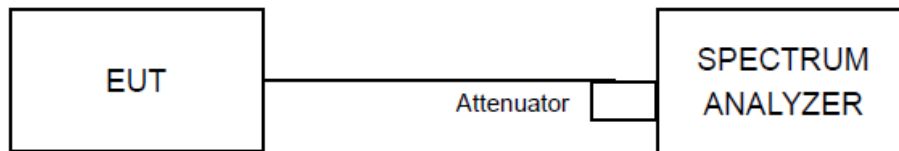


4.5 Conducted Band Edges Measurement

4.5.1 Limit

Below 20 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.

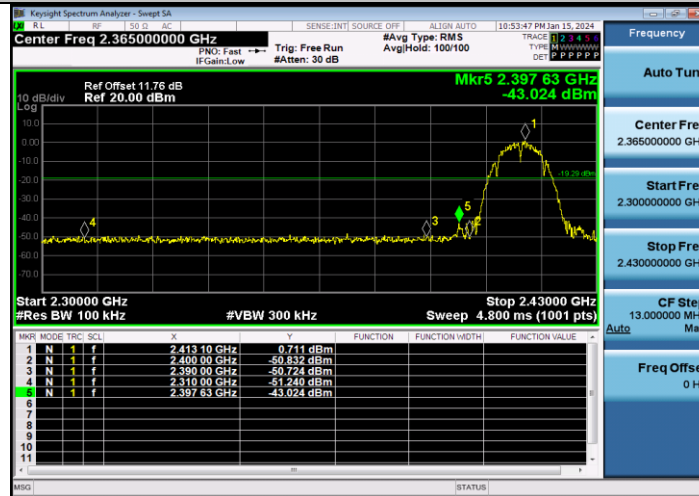
4.5.5 Test Results

TestMode	Antenna	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	0.71	-43.02	≤ -19.29	PASS
		High	2462	1.33	-48.21	≤ -18.67	PASS
11G	Ant1	Low	2412	-0.76	-43.14	≤ -20.76	PASS
		High	2462	-0.28	-48.16	≤ -20.28	PASS
11N20SISO	Ant1	Low	2412	-0.54	-43.11	≤ -20.54	PASS
		High	2462	-1.07	-48.09	≤ -21.07	PASS

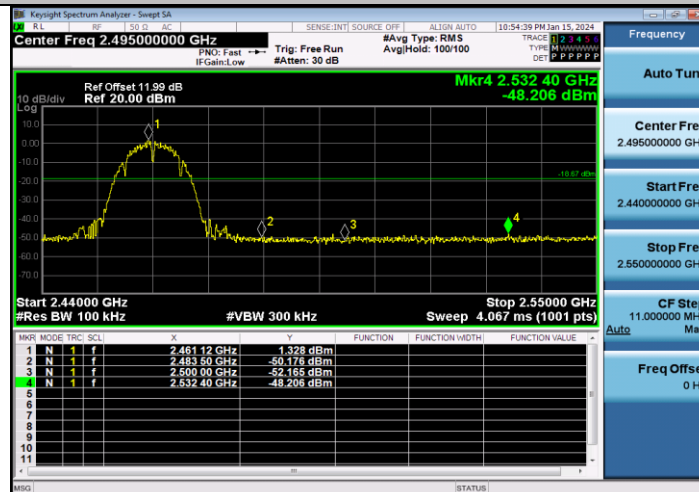


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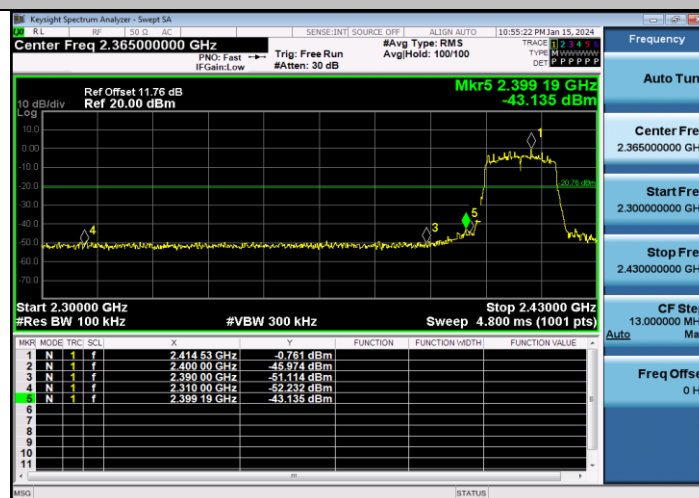
11B_Ant1_Low_2412



11B_Ant1_High_2462



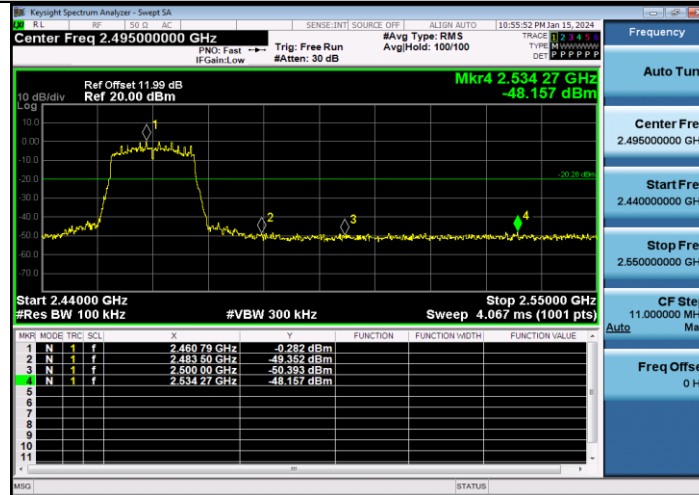
11G_Ant1_Low_2412



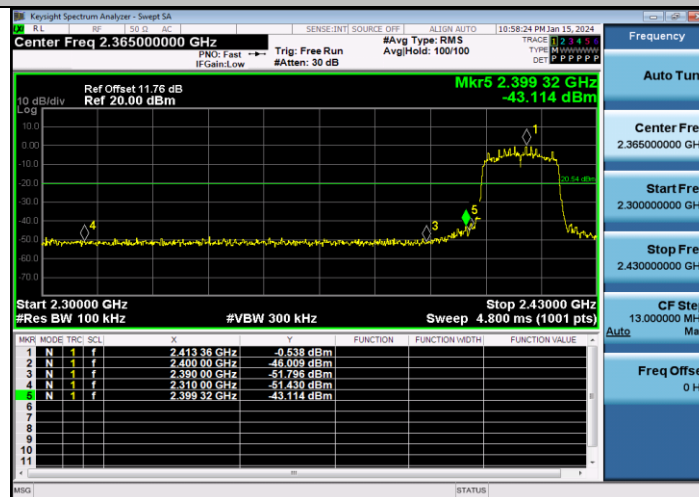


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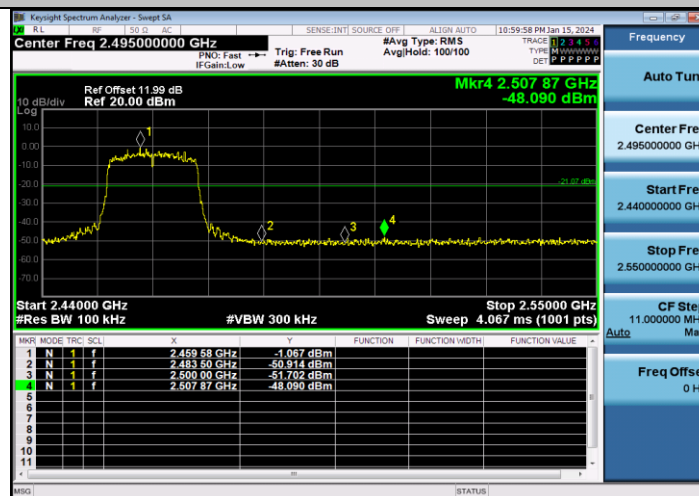
11G_Ant1_High_2462



11N20SISO_Ant1_Low_2412



11N20SISO_Ant1_High_2462

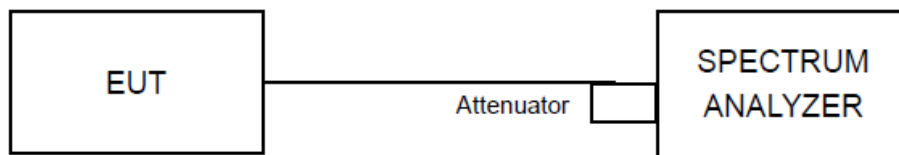


4.6 Conducted Spurious Emissions

4.6.1 Limit

Below 20 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

TestMode	Antenna	Frequency[MHz]	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	1.58	1.58	---	PASS
			30~1000	1.58	-59.85	≤-18.42	PASS
			1000~26500	1.58	-43.85	≤-18.42	PASS
		2437	Reference	1.26	1.26	---	PASS
			30~1000	1.26	-59.76	≤-18.74	PASS
			1000~26500	1.26	-43.6	≤-18.74	PASS
		2462	Reference	0.90	0.90	---	PASS
			30~1000	0.90	-59.6	≤-19.1	PASS
			1000~26500	0.90	-43.53	≤-19.1	PASS
11G	Ant1	2412	Reference	-2.85	-2.85	---	PASS
			30~1000	-2.85	-60.28	≤-22.85	PASS
			1000~26500	-2.85	-44.33	≤-22.85	PASS
		2437	Reference	-2.42	-2.42	---	PASS
			30~1000	-2.42	-60.51	≤-22.42	PASS
			1000~26500	-2.42	-43.64	≤-22.42	PASS
		2462	Reference	-0.36	-0.36	---	PASS
			30~1000	-0.36	-59.98	≤-20.36	PASS
			1000~26500	-0.36	-43.57	≤-20.36	PASS
11N20SISO	Ant1	2412	Reference	-2.11	-2.11	---	PASS
			30~1000	-2.11	-60.32	≤-22.11	PASS
			1000~26500	-2.11	-44.44	≤-22.11	PASS
		2437	Reference	-2.49	-2.49	---	PASS
			30~1000	-2.49	-60.47	≤-22.49	PASS
			1000~26500	-2.49	-43.74	≤-22.49	PASS
		2462	Reference	-1.59	-1.59	---	PASS
			30~1000	-1.59	-59.45	≤-21.59	PASS
			1000~26500	-1.59	-43.82	≤-21.59	PASS

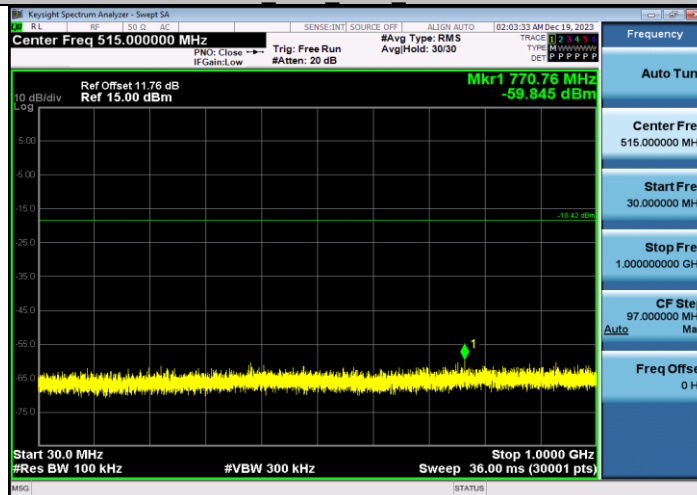


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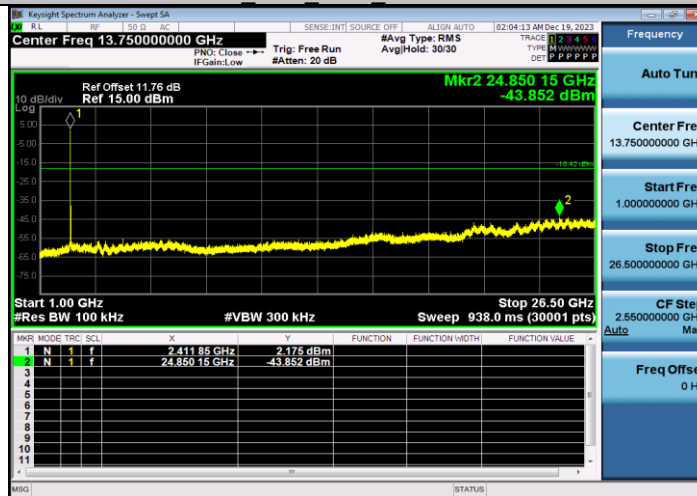
11B Ant1 2412 0~Reference



11B Ant1 2412 30~1000



11B Ant1 2412 1000~26500



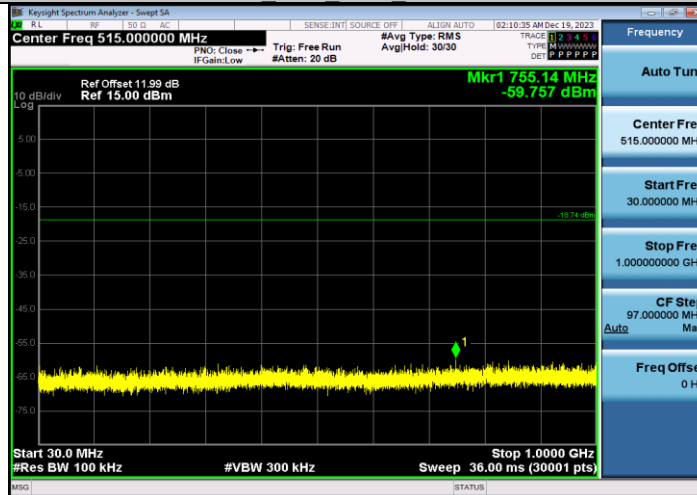


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VERITAS

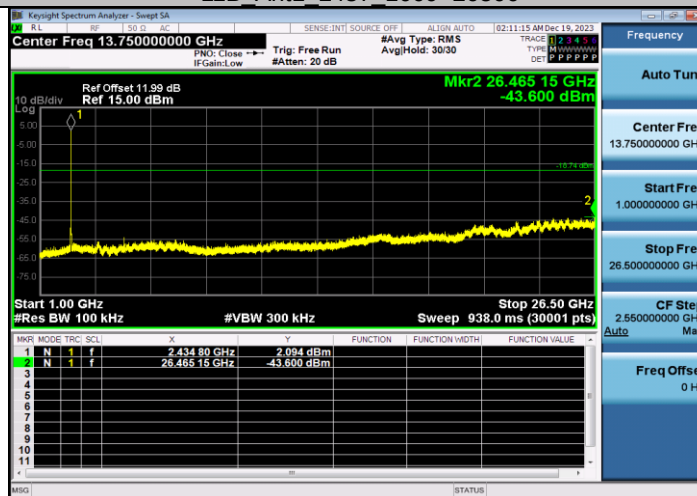
11B Ant1 2437 0~Reference



11B Ant1 2437 30~1000



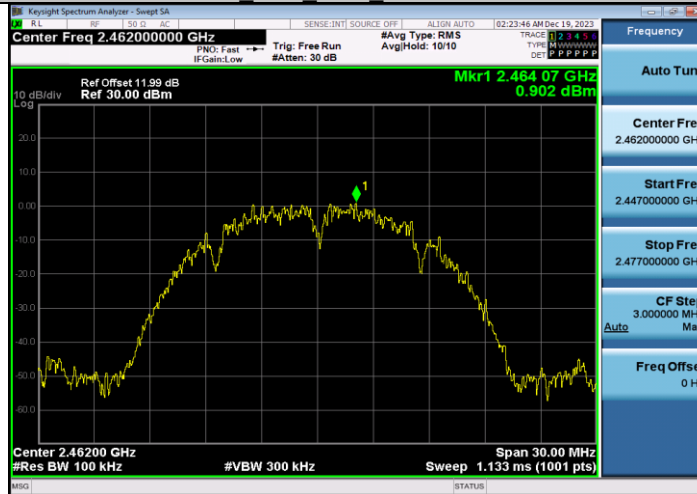
11B Ant1 2437 1000~26500



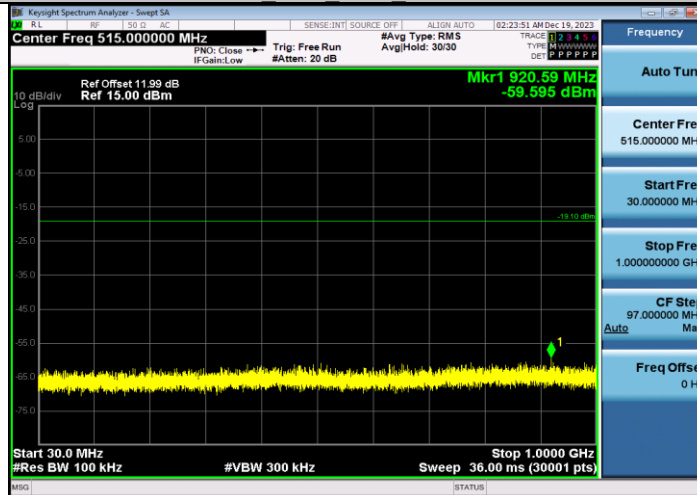


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VERITAS

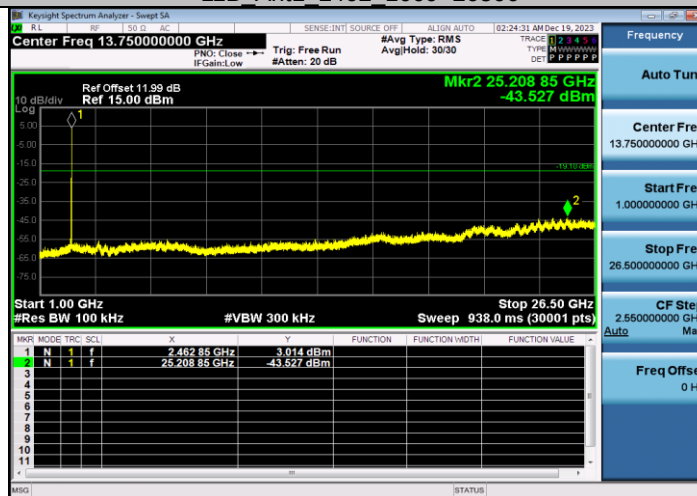
11B Ant1 2462 0~Reference



11B Ant1 2462 30~1000



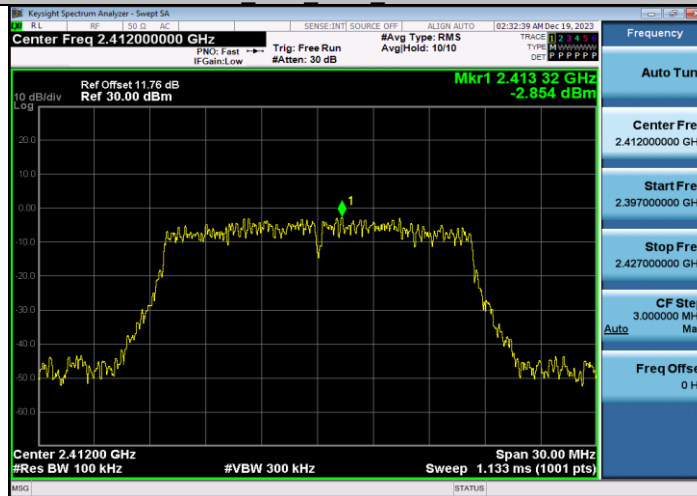
11B Ant1 2462 1000~26500



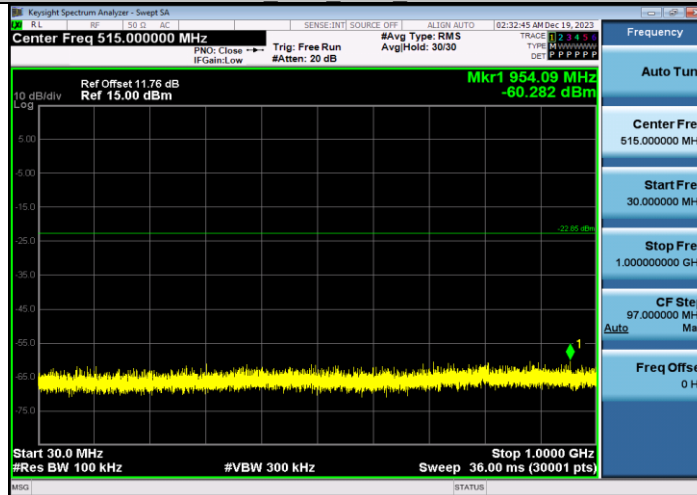


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VERITAS

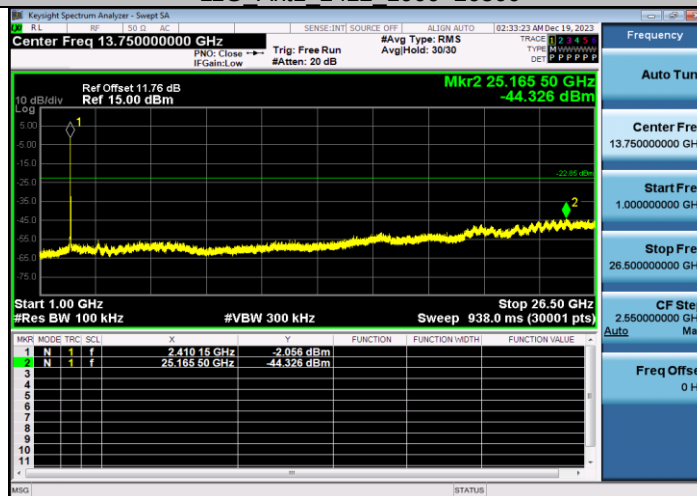
11G Ant1 2412 0~Reference



11G Ant1 2412 30~1000



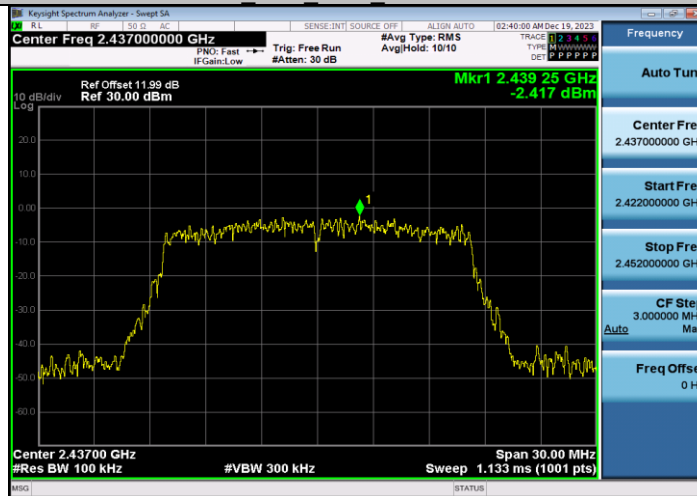
11G Ant1 2412 1000~26500



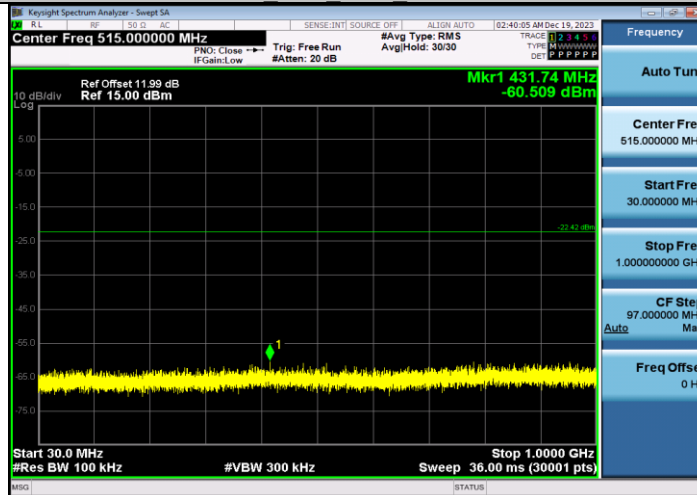


BUREAU
VERITAS

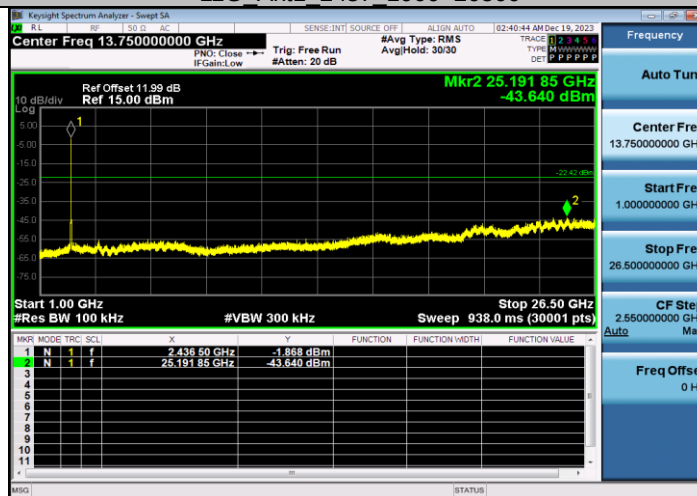
11G Ant1 2437 0~Reference



11G Ant1 2437 30~1000



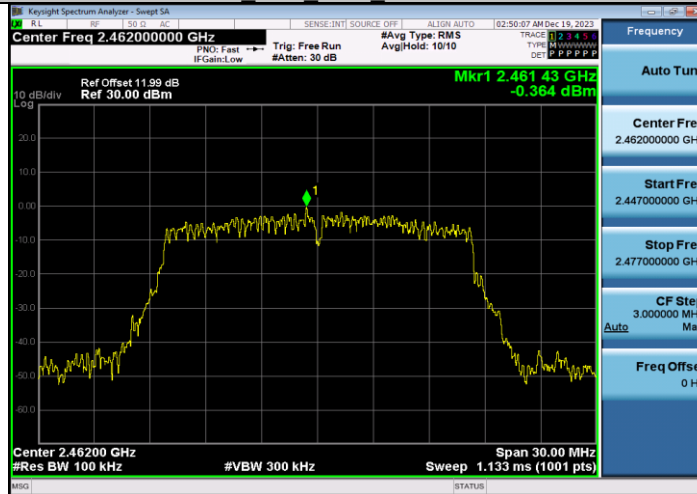
11G Ant1 2437 1000~26500



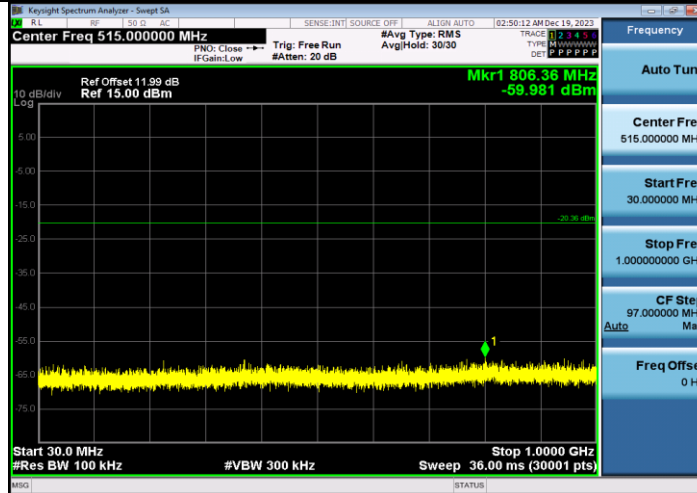


BUREAU
VERITAS

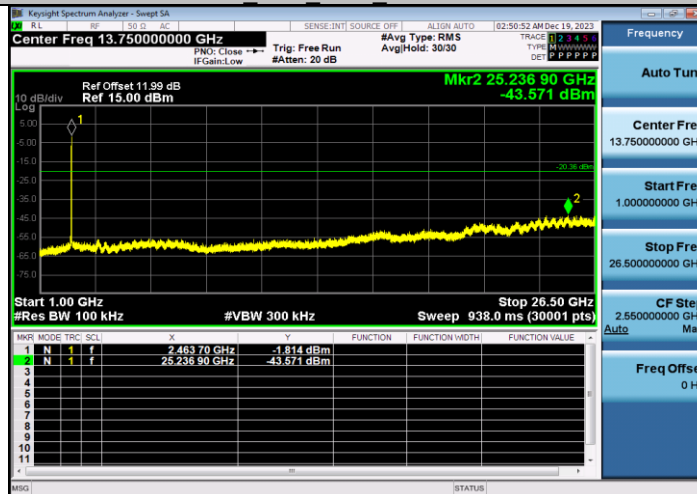
11G Ant1 2462 0~Reference



11G Ant1 2462 30~1000



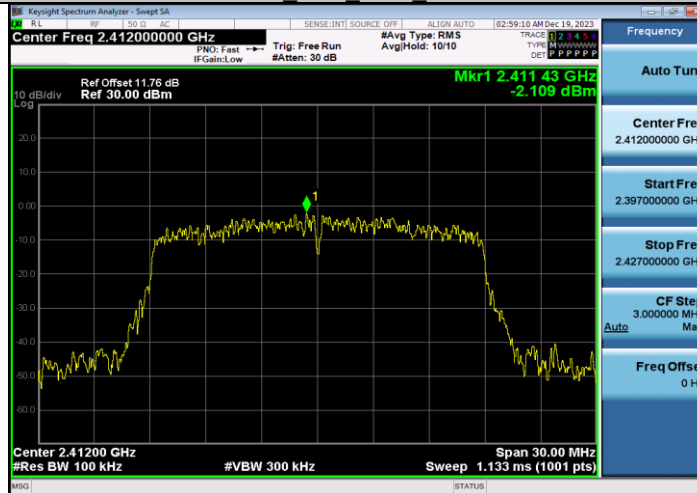
11G Ant1 2462 1000~26500



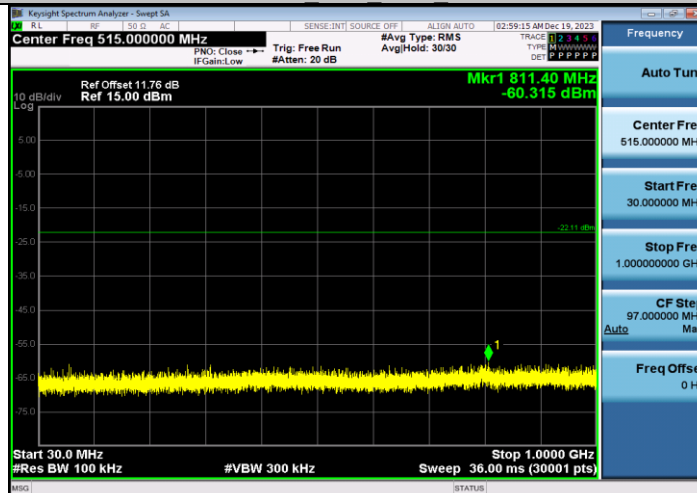


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VERITAS

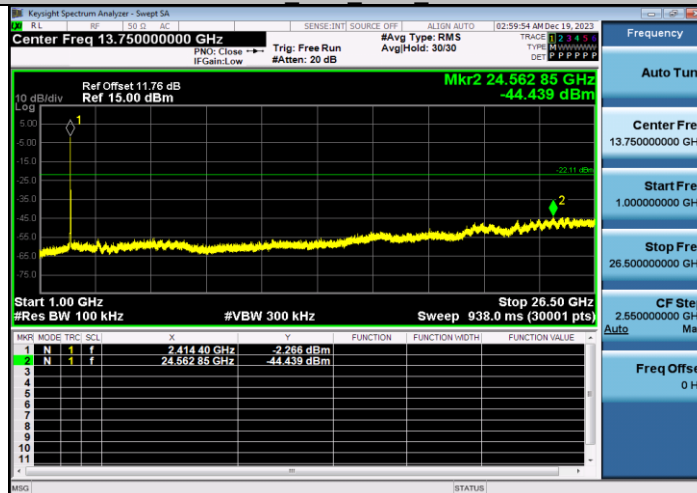
11N20SISO Ant1 2412 0~Reference



11N20SISO Ant1 2412 30~1000



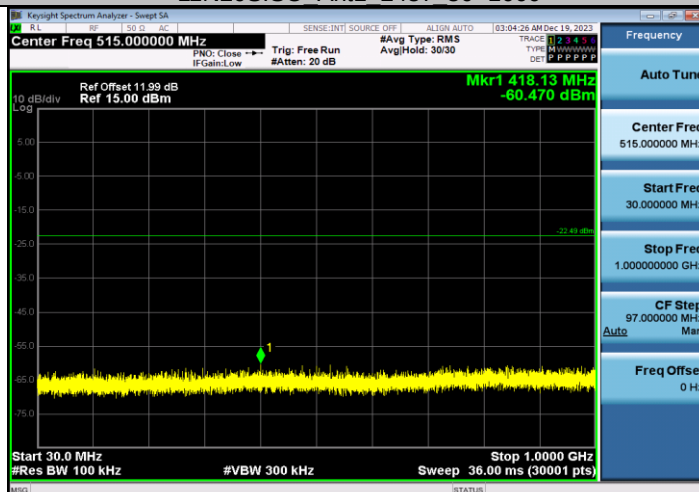
11N20SISO Ant1 2412 1000~26500



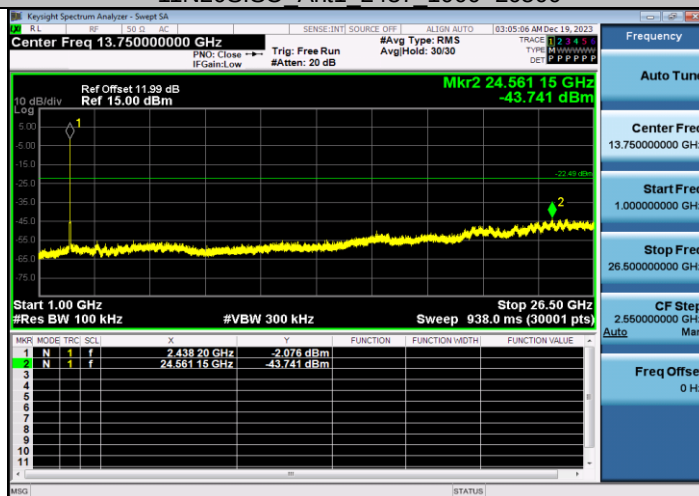
11N20SISO Ant1 2437 0~Reference



11N20SISO Ant1 2437 30~1000



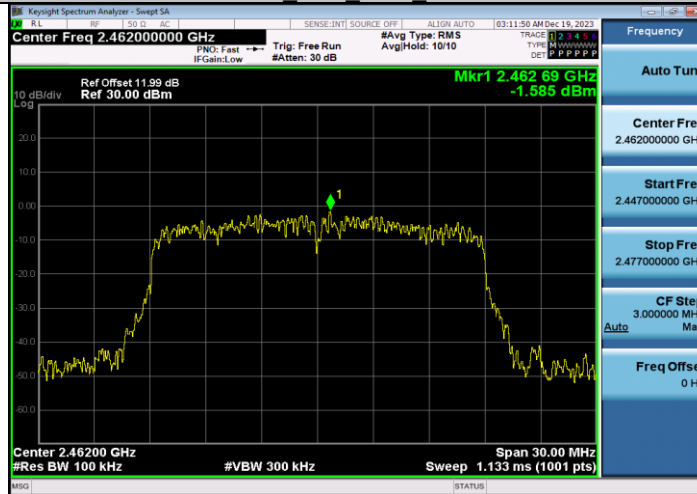
11N20SISO Ant1 2437 1000~26500



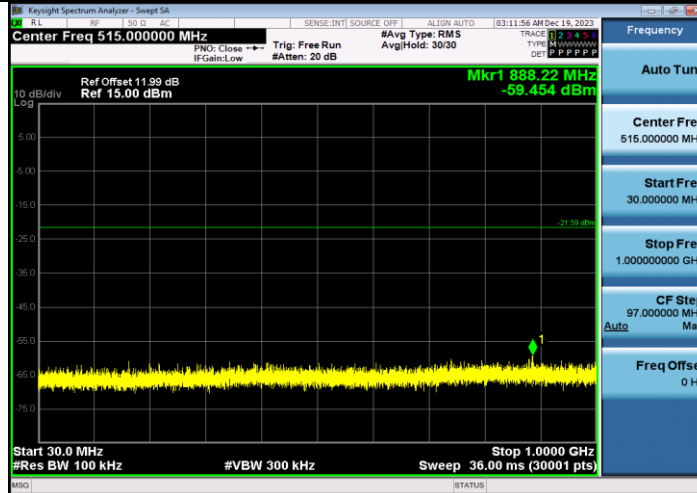


BUREAU
VERITAS

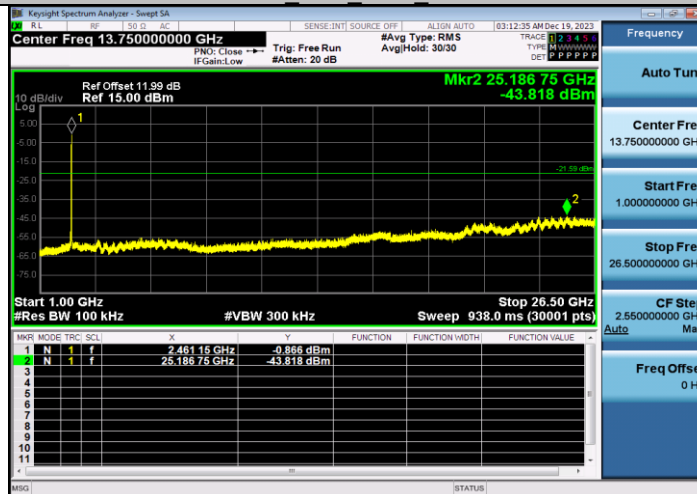
11N20SISO Ant1 2462 0~Reference



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

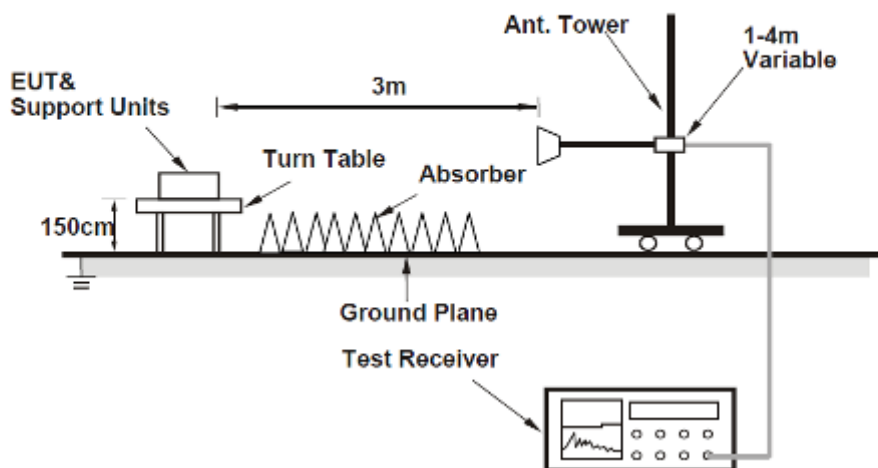
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average Measurements above 1GHz (Method VB)

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

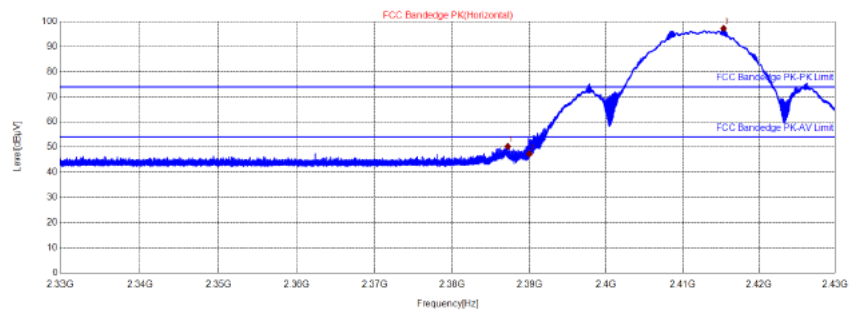
4.7.4 Test Setup

For Radiated emission above 1GHz



4.7.5 Test Results

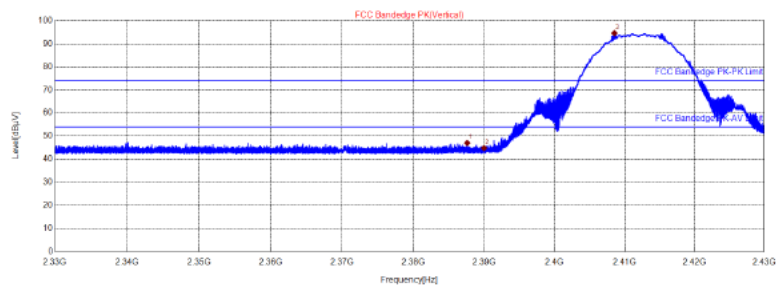
802.11b-2412MHz/ Horizontal



Suspected List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2387.2100	67.99	50.27	74.00	23.73	155	226	Horizontal	PK
2	2390.0000	65.05	47.33	74.00	26.67	155	218	Horizontal	PK
3	2415.3500	115.02	97.24	74.00	-23.24	155	294	Horizontal	PK

802.11b-2412MHz/ Vertical



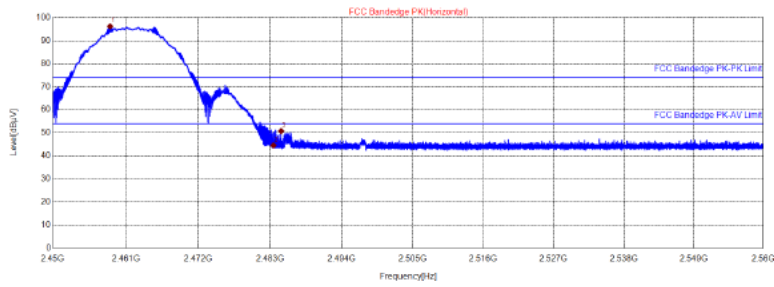
Suspected List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2387.6100	64.70	46.98	74.00	27.02	155	154	Vertical	PK
2	2390.000	62.48	44.76	74.00	29.24	155	275	Vertical	PK
3	2408.5100	112.28	94.51	74.00	-20.51	155	143	Vertical	PK



BUREAU
VERITAS

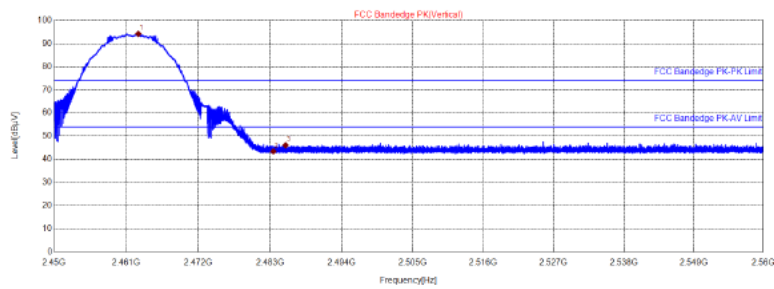
802.11b-2462MHz/ Horizontal



Suspected List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2458.5250	113.96	96.13	74.00	-22.13	155	218	Horizontal	PK
2	2483.5005	62.35	44.5	74.00	29.50	155	255	Horizontal	PK
3	2484.6940	68.61	50.76	74.00	23.24	155	4	Horizontal	PK

802.11b-2462MHz/ Vertical



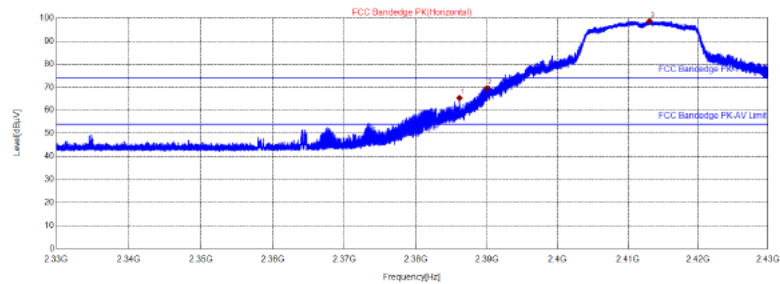
Suspected List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2462.8315	111.95	94.11	74.00	-20.11	155	270	Vertical	PK
2	2483.5005	61.21	43.36	74.00	30.64	155	335	Vertical	PK
3	2485.3815	63.86	46.00	74.00	28.00	155	187	Vertical	PK



BUREAU
VERITAS

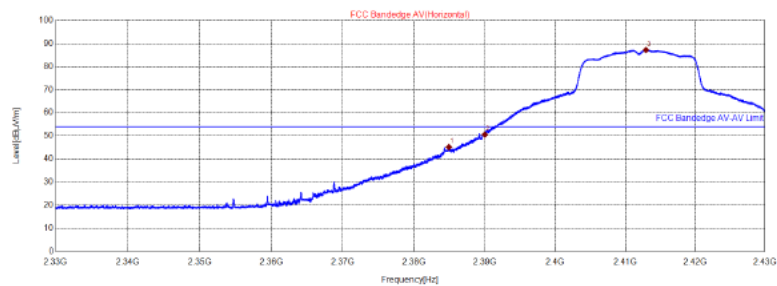
802.11g-2412MHz/ Horizontal-PK



Suspected List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2386.1350	83.01	65.29	74.00	8.71	155	11	Horizontal	PK
2	2390.0150	87.28	69.56	74.00	4.44	155	217	Horizontal	PK
3	2413.0750	116.38	98.6	74.00	-24.60	155	354	Horizontal	PK

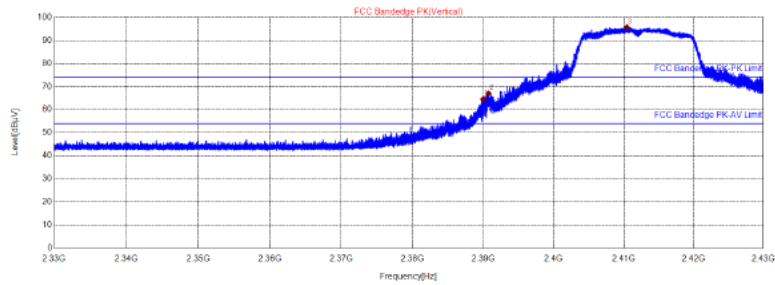
802.11g-2412MHz/ Horizontal-AV



Suspected List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2384.9250	62.80	45.09	54.00	4.91	155	284	Horizontal	AV
2	2390.0125	68.27	50.55	54.00	3.45	155	217	Horizontal	AV
3	2412.9250	104.96	87.18	54.00	-33.18	155	226	Horizontal	AV

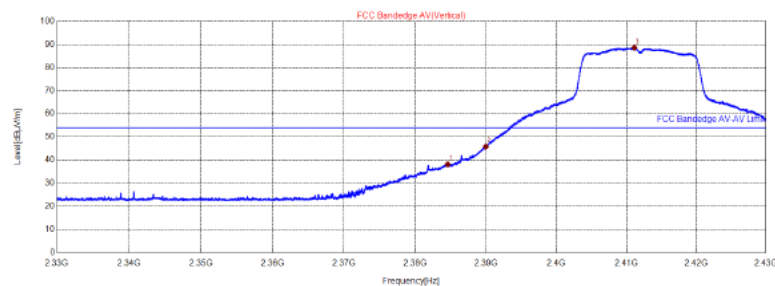
802.11g-2412MHz/ Vertical-PK



Suspected List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2390.0000	82.20	64.48	74.00	9.52	155	221	Vertical	PK
2	2390.7500	84.66	66.94	74.00	7.06	155	142	Vertical	PK
3	2410.4150	113.36	95.58	74.00	-21.58	155	142	Vertical	PK

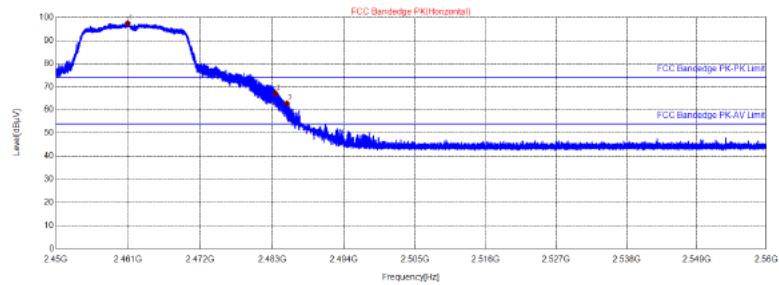
802.11g-2412MHz/ Vertical-AV



Suspected List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2384.6000	55.86	38.15	54.00	15.85	155	201	Vertical	AV
2	2390.0000	63.48	45.76	54.00	8.24	155	140	Vertical	AV
3	2411.1125	106.34	88.56	54.00	-34.56	155	142	Vertical	AV

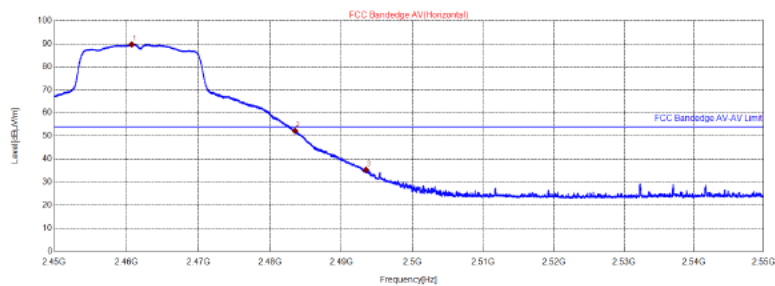
802.11g-2462MHz/ Horizontal-PK



Suspected List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2460.9230	115.26	97.43	74.00	-23.43	155	2	Horizontal	PK
2	2483.5005	84.86	67.01	74.00	6.99	155	215	Horizontal	PK
3	2485.2495	80.61	62.75	74.00	11.25	155	20	Horizontal	PK

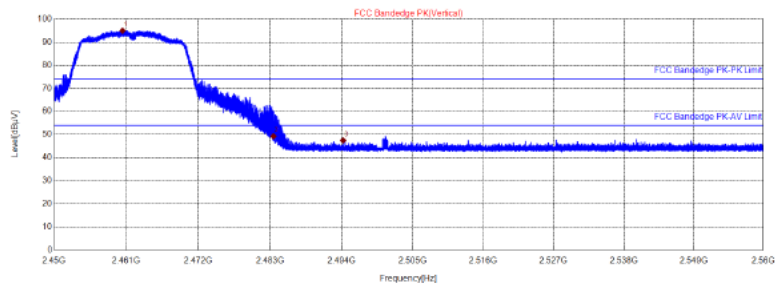
802.11g-2462MHz/ Horizontal-AV



Suspected List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2460.7500	107.52	89.69	54.00	-35.69	155	6	Horizontal	AV
2	2483.5125	70.09	52.24	54.00	1.76	155	6	Horizontal	AV
3	2493.4750	53.16	35.32	54.00	18.68	155	4	Horizontal	AV

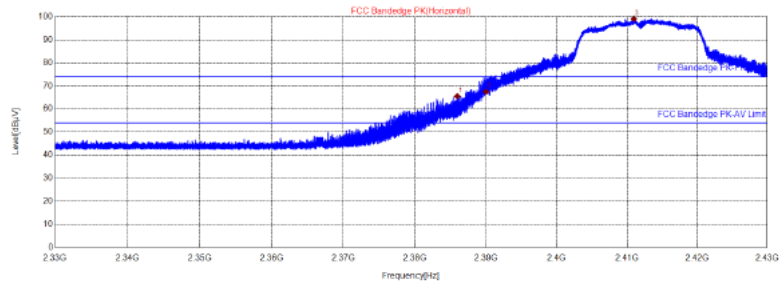
802.11g-2462MHz/ Vertical



Suspected List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2460.4225	112.72	94.89	74.00	-20.89	155	269	Vertical	PK
2	2483.5005	67.08	49.23	74.00	24.77	155	154	Vertical	PK
3	2494.2640	65.26	47.42	74.00	26.58	155	292	Vertical	PK

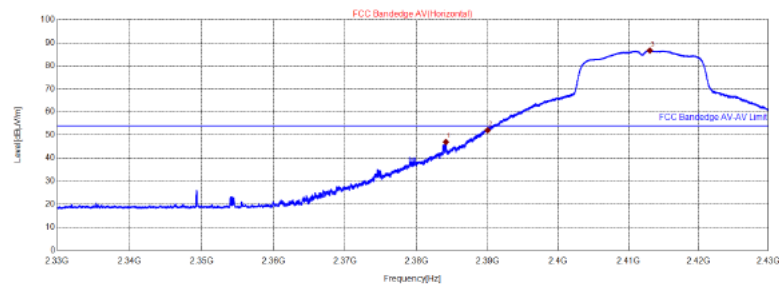
802.11n (HT20)-2412MHz/ Horizontal-PK



Suspected List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2385.9650	83.20	65.48	74.00	8.52	155	221	Horizontal	PK
2	2390.0150	85.19	67.47	74.00	6.53	155	221	Horizontal	PK
3	2410.9450	116.81	99.03	74.00	-25.03	155	2	Horizontal	PK

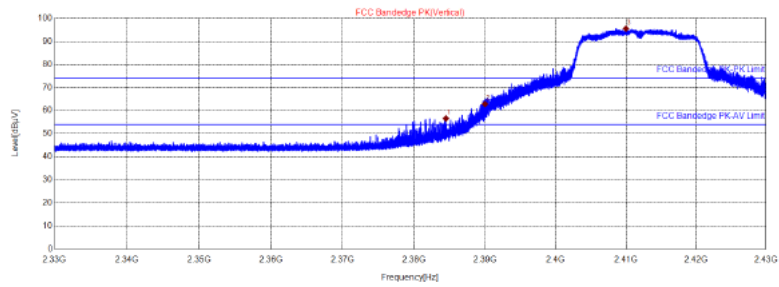
802.11n (HT20)-2412MHz/ Horizontal-AV



Suspected List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2384.1375	64.64	46.93	54.00	3.07	155	161	Horizontal	AV
2	2390.0250	69.76	52.04	54.00	1.96	155	226	Horizontal	AV
3	2413.0250	104.41	86.63	54.00	-32.63	155	218	Horizontal	AV

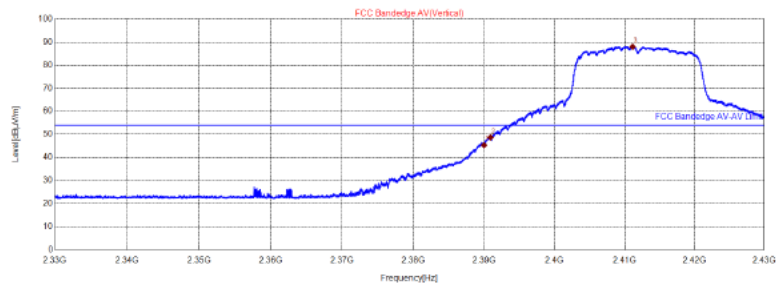
802.11n (HT20)-2412MHz/ Vertical-PK



Suspected List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2384.4900	74.33	56.62	74.00	17.38	155	167	Vertical	PK
2	2390.0000	80.49	62.77	74.00	11.23	155	336	Vertical	PK
3	2409.9650	113.23	95.45	74.00	-21.45	155	140	Vertical	PK

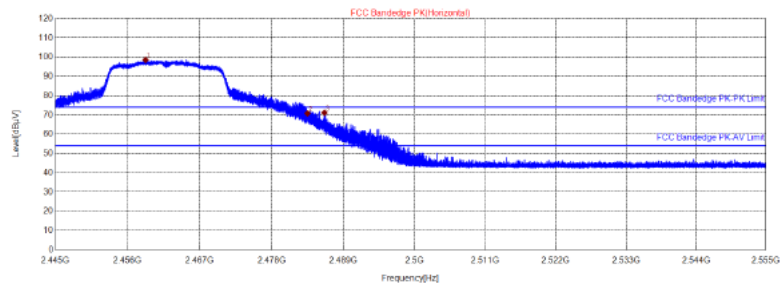
802.11n (HT20)-2412MHz/ Vertical-AV



Suspected List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2390.0000	62.99	45.27	54.00	8.73	155	342	Vertical	AV
2	2390.9125	66.37	48.65	54.00	5.35	155	145	Vertical	AV
3	2411.1125	105.76	87.98	54.00	-33.98	155	145	Vertical	AV

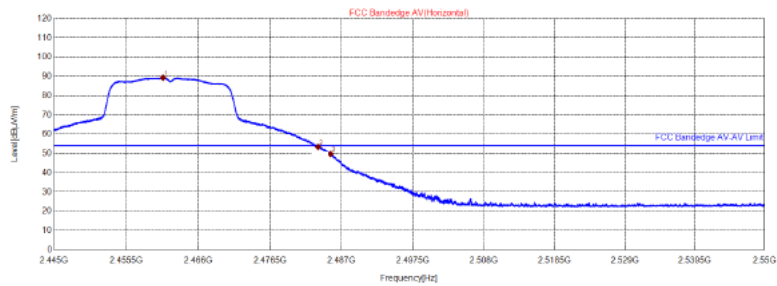
802.11n (HT20)-2462MHz/ Horizontal-PK



Suspected List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2458.7280	116.40	98.57	74.00	-24.57	155	360	Horizontal	PK
2	2483.5000	88.65	70.8	74.00	3.20	155	360	Horizontal	PK
3	2486.1125	88.97	71.11	74.00	2.89	155	360	Horizontal	PK

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

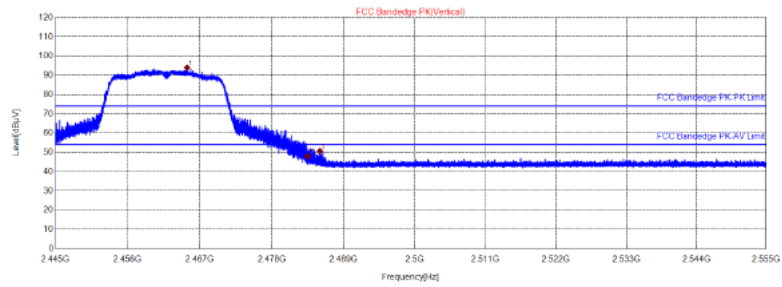


Suspected List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2460.8625	107.17	89.34	54.00	-35.34	155	1	Horizontal	AV
2	2483.5215	71.17	53.32	54.00	0.68	155	358	Horizontal	AV
3	2485.3465	67.57	49.71	54.00	4.29	155	0	Horizontal	AV



802.11n (HT20)-2462MHz/ Vertical



Suspected List

NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	2465.0585	111.80	93.95	74.00	-19.95	155	222	Vertical	PK
2	2483.5000	65.80	47.95	74.00	26.05	155	203	Vertical	PK
3	2485.3865	68.44	50.58	74.00	23.42	155	226	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:

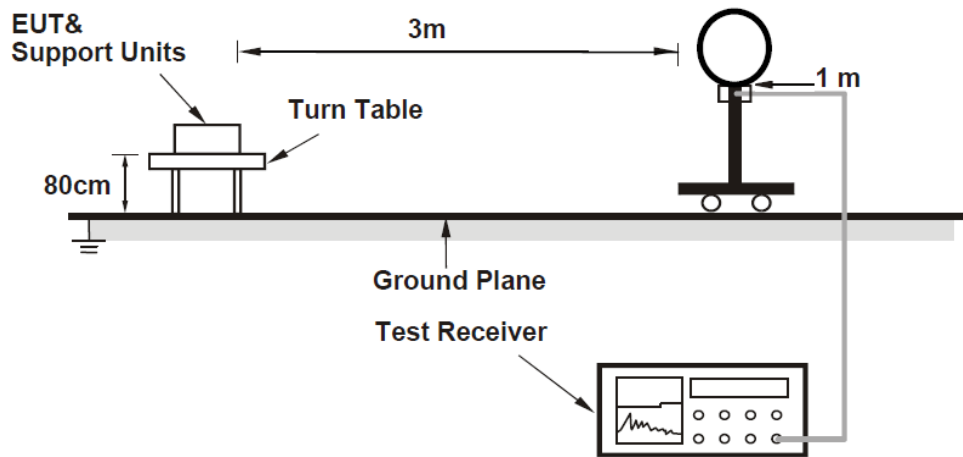
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz & 360 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency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

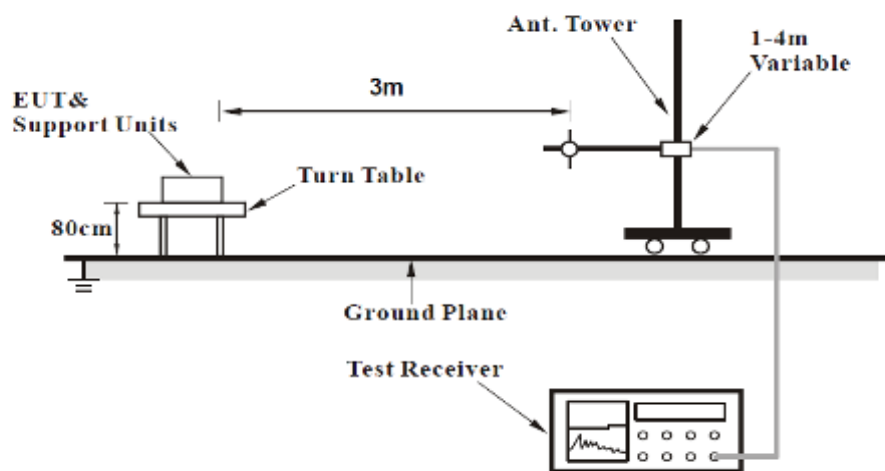
No deviation.

4.8.4 Test Setup

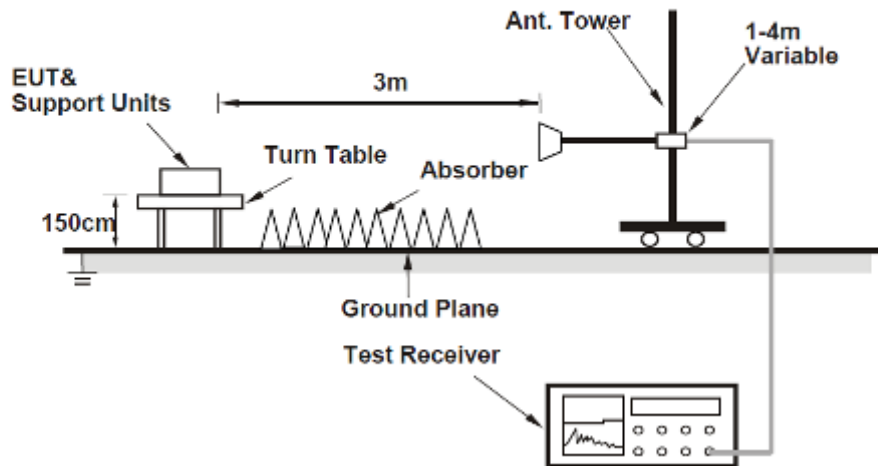
For Radiated emission below 30MHz



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

- Placed the EUT on a testing table.
- 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.

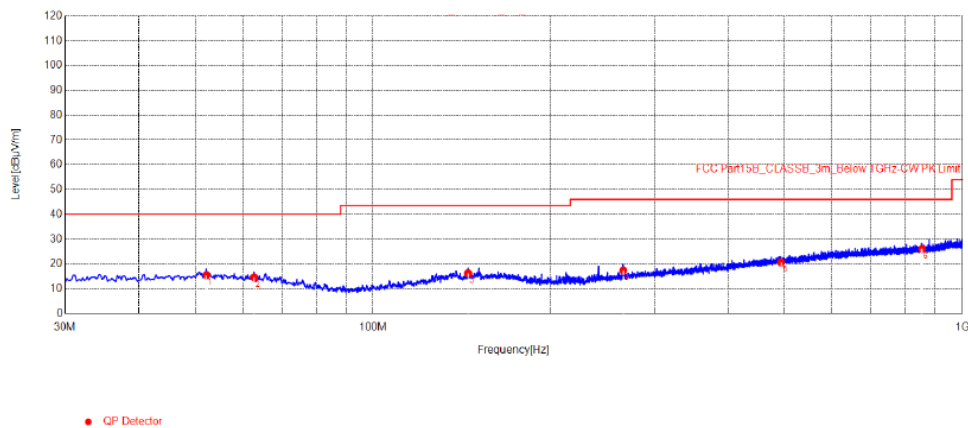
Radiated Emissions Range 30MHz~1GHz

Below is the worst test data

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

Test Plot:

Test Graph



Final Data List

NO.	Freq. [MHz]	QP Reading [dB μ V/m]	Factor [dB]	QP Value [dB μ V/m]	QP Limit [dB μ V/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	52.11	25.85	-10.42	15.43	40.00	24.57	162	83	Horizontal
2	62.78	25.64	-11.06	14.58	40.00	25.42	111	155	Horizontal
3	144.8	26.37	-10.18	16.19	43.50	27.31	102	143	Horizontal
4	265.7	27.11	-9.77	17.34	46.00	28.66	100	177	Horizontal
5	492.4	24.77	-4.13	20.64	46.00	25.36	131	159	Horizontal
6	854.1	24.77	1.25	26.02	46.00	19.98	176	37	Horizontal

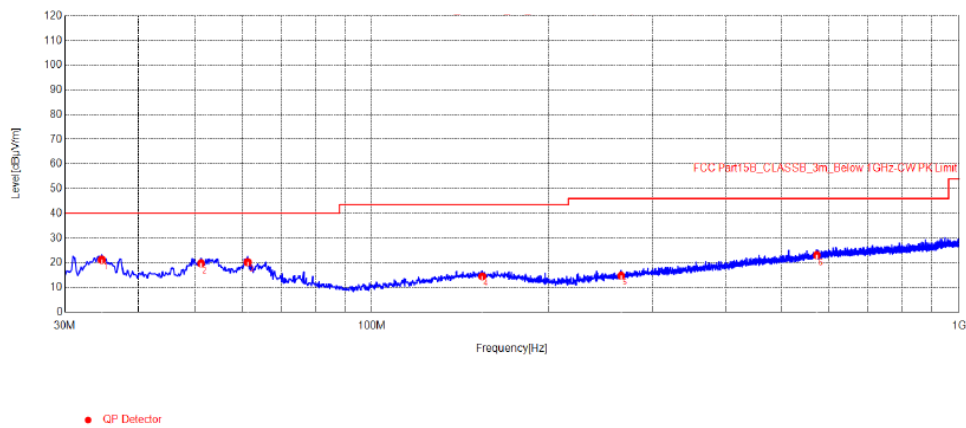
REMARKS:

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

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

Test Plot:

Test Graph



Final Data List

NO.	Freq. [MHz]	QP Reading [dB μ V/m]	Factor [dB]	QP Value [dB μ V/m]	QP Limit [dB μ V/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	34.65	32.53	-11.38	21.15	40.00	18.85	128	281	Vertical
2	51.14	30.11	-10.41	19.70	40.00	20.30	111	3	Vertical
3	61.42	31.07	-10.86	20.21	40.00	19.79	200	354	Vertical
4	154.1	24.4	-9.92	14.48	43.50	29.02	100	2	Vertical
5	265.7	24.49	-9.77	14.72	46.00	31.28	169	204	Vertical
6	572.6	25.67	-2.64	23.03	46.00	22.97	192	256	Vertical

REMARKS:

- Emission Level(dBuV/m) = Original Spectrum reading (dBuV) + Correction Factor(dB/m)
- Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
- The other emission levels were very low against the limit.
- 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	4825.0000	57.30	74.00	16.70	-13.24	H	PK
2	4825.0000	52.84	54.00	1.16	-13.24	H	AV
3	4825.0000	51.10	74.00	22.90	-13.24	V	PK
4	4825.0000	48.84	54.00	5.16	-13.24	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	4874.3000	59.77	74.00	14.23	-13.19	H	PK
2	4874.3000	50.35	54.00	3.65	-13.19	H	AV
3	4874.3000	53.99	74.00	20.01	-13.19	V	PK
4	4874.3000	44.23	54.00	9.77	-13.19	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	4925.3000	50.48	74.00	23.52	-12.15	H	PK
2	4925.3000	49.69	54.00	4.31	-12.15	H	AV
3	4925.3000	44.49	74.00	29.51	-12.15	V	PK
4	4925.3000	42.92	54.00	11.08	-12.15	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	4825.0000	39.95	74.00	34.05	-13.24	H	PK
2	4825.0000	32.55	54.00	21.45	-13.24	H	AV
3	4825.0000	47.15	74.00	26.85	-13.24	V	PK
4	4825.0000	43.06	54.00	10.94	-13.24	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	4874.3000	46.21	74.00	27.79	-13.19	H	PK
2	4874.3000	40.28	54.00	13.72	-13.19	H	AV
3	4874.3000	52.69	74.00	21.31	-13.19	V	PK
4	4874.3000	48.69	54.00	5.31	-13.19	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	4925.3000	45.37	74.00	28.63	-12.15	H	PK
2	4925.3000	41.01	54.00	12.99	-12.14	H	AV
3	4925.3000	49.07	74.00	24.93	-12.15	V	PK
4	4925.3000	44.12	54.00	9.88	-12.15	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	4825.0000	49.45	74.00	24.55	-13.24	H	PK
2	4825.0000	45.14	54.00	8.86	-13.24	H	AV
3	4825.0000	45.16	74.00	28.84	-13.24	V	PK
4	4825.0000	39.43	54.00	14.57	-13.24	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	4874.3000	52.43	74.00	21.57	-13.19	H	PK
2	4874.3000	48.56	54.00	5.44	-13.19	H	AV
3	4874.3000	45.19	74.00	28.81	-13.19	V	PK
4	4874.3000	42.20	54.00	11.80	-13.19	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	4925.3000	49.31	74.00	24.69	-12.15	H	PK
2	4925.3000	44.26	54.00	9.74	-12.14	H	AV
3	4925.3000	44.94	74.00	29.06	-12.15	V	PK
4	4925.3000	37.57	54.00	16.43	-12.15	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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