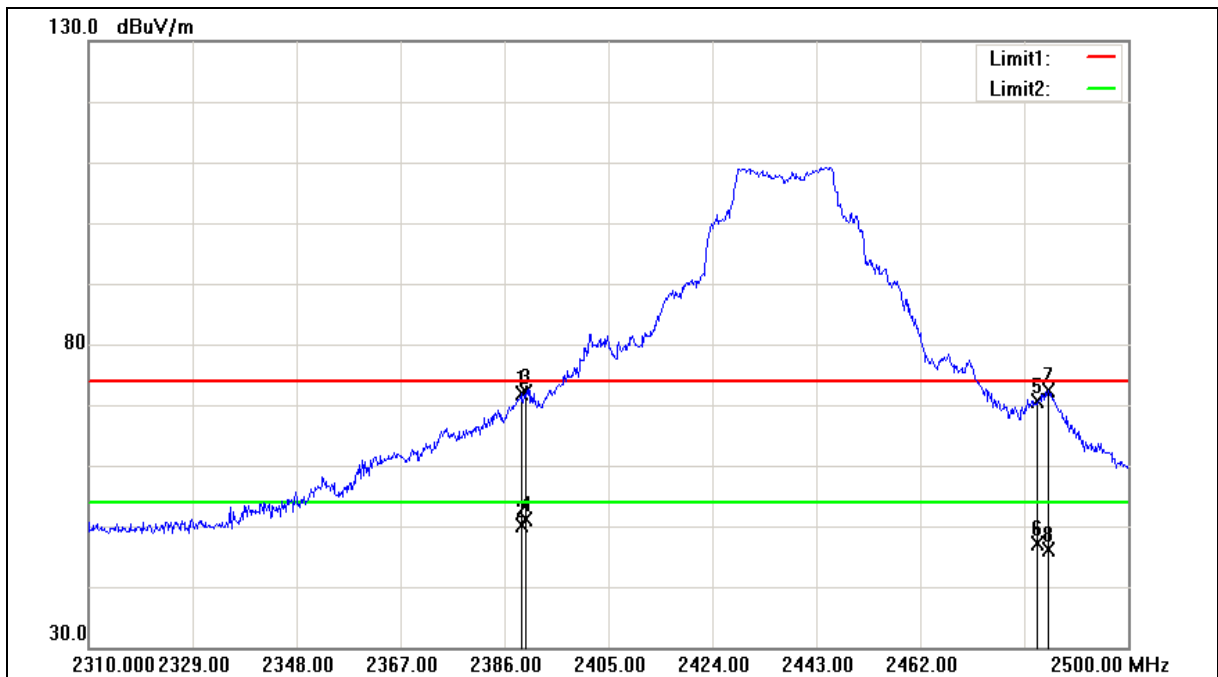




Standard:	FCC Part 15.247	Test Distance:	3m
Test item:	Band edge	Power:	AC 110V/60Hz
Frequency:	2437MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	08/27/2017
Ant.Polar.:	Vertical		





Standard:	FCC Part 15.247	Test Distance:	3m
Test item:	Band edge	Power:	AC 110V/60Hz
Frequency:	2437MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	08/27/2017
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.040	73.73	-1.86	71.87	74.00	-2.13	peak
2	2389.040	52.08	-1.86	50.22	54.00	-3.78	AVG
3	2390.000	73.88	-1.86	72.02	74.00	-1.98	peak
4	2390.000	53.10	-1.86	51.24	54.00	-2.76	AVG
5	2483.500	72.22	-1.50	70.72	74.00	-3.28	peak
6	2483.500	48.67	-1.50	47.17	54.00	-6.83	AVG
7	2485.370	73.81	-1.49	72.32	74.00	-1.68	peak
8	2485.370	47.74	-1.49	46.25	54.00	-7.75	AVG

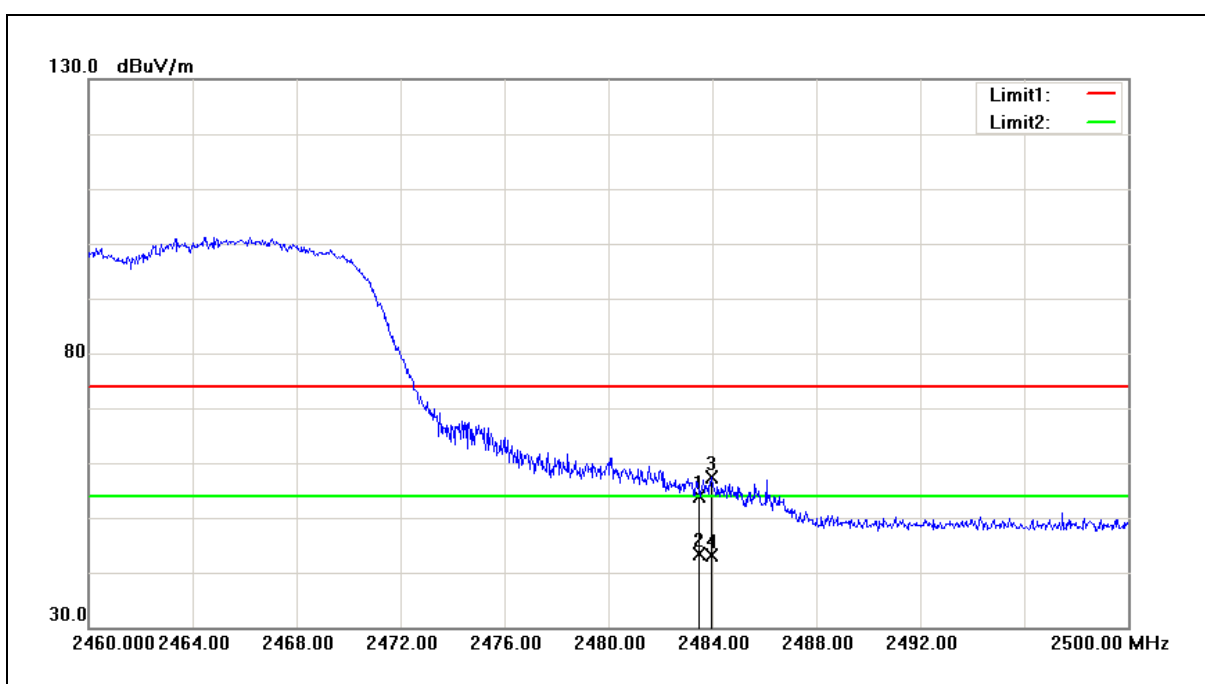
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

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

3. When the peak results are less than average limit, so not need to evaluate the average.



Standard:	FCC Part 15.247	Test Distance:	3m
Test item:	Band edge	Power:	AC 110V/60Hz
Frequency:	2462MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	08/27/2017
Ant.Polar.:	Horizontal		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	55.40	-1.50	53.90	74.00	-20.10	peak
2	2483.500	44.77	-1.50	43.27	54.00	-10.73	AVG
3	2483.960	58.89	-1.49	57.40	74.00	-16.60	peak
4	2483.960	44.55	-1.49	43.06	54.00	-10.94	AVG

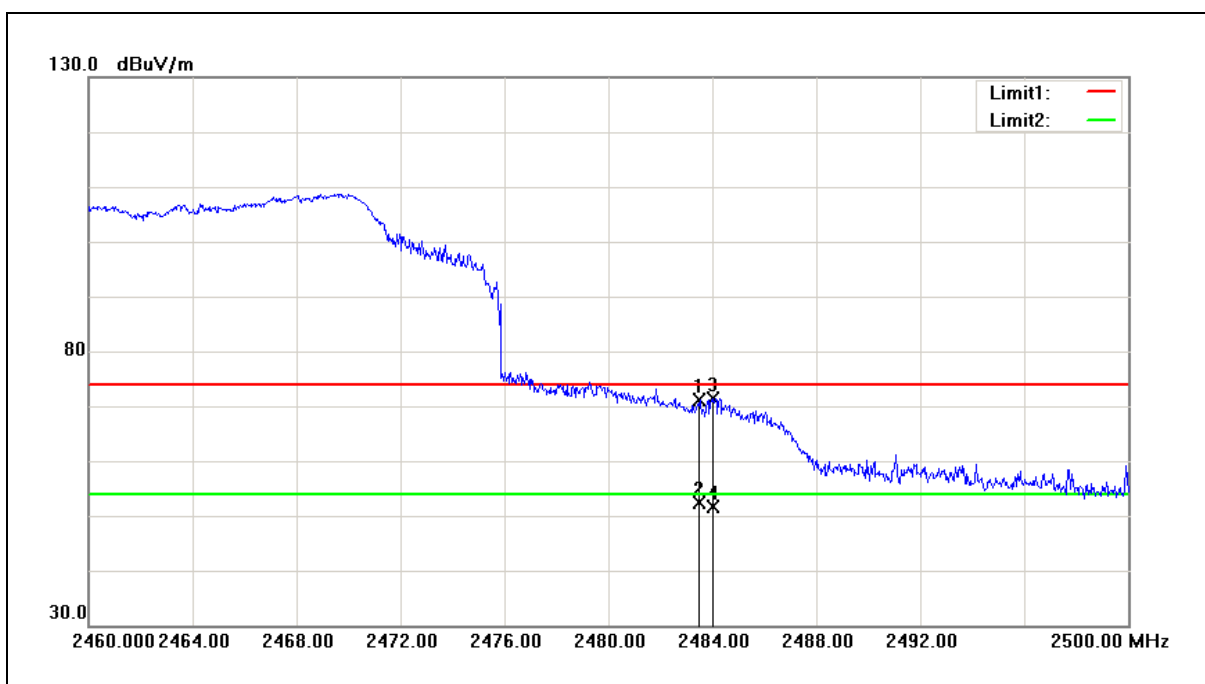
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

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

3. When the peak results are less than average limit, so not need to evaluate the average.



Standard:	FCC Part 15.247	Test Distance:	3m
Test item:	Band edge	Power:	AC 110V/60Hz
Frequency:	2462MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	08/27/2017
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	72.60	-1.50	71.10	74.00	-2.90	peak
2	2483.500	53.82	-1.50	52.32	54.00	-1.68	AVG
3	2484.000	72.88	-1.49	71.39	74.00	-2.61	peak
4	2484.000	53.17	-1.49	51.68	54.00	-2.32	AVG

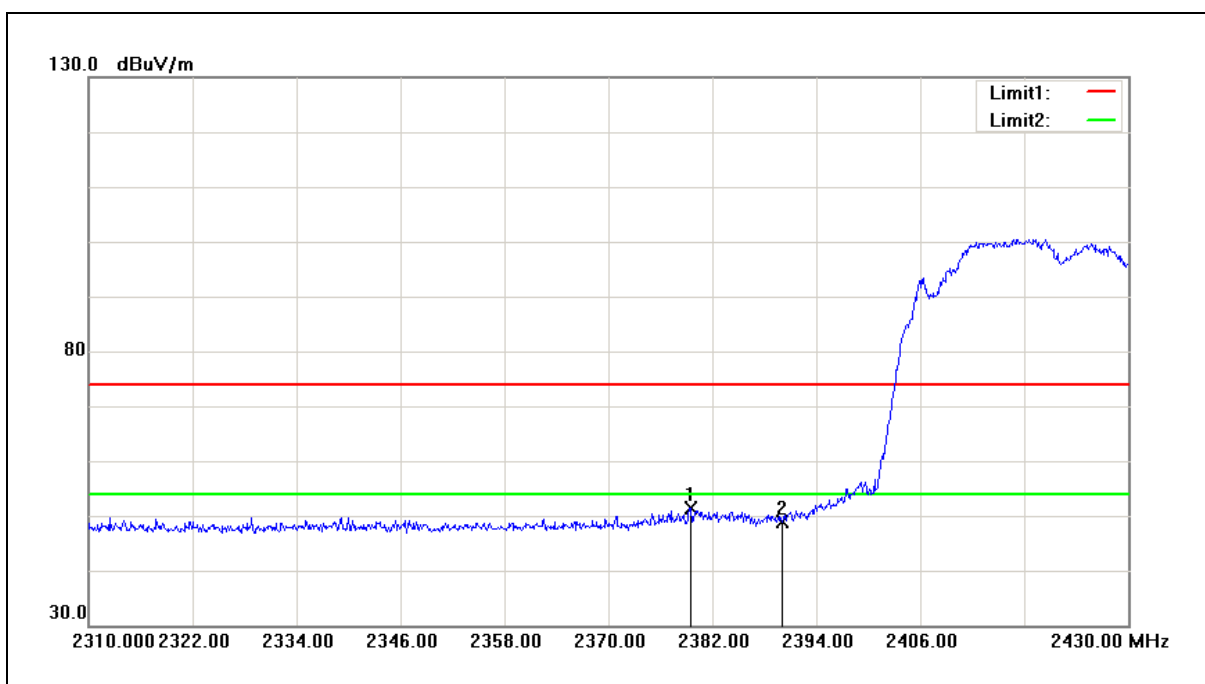
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

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

3. When the peak results are less than average limit, so not need to evaluate the average.



Standard:	FCC Part 15.247	Test Distance:	3m
Test item:	Band edge	Power:	AC 110V/60Hz
Frequency:	2422MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	08/27/2017
Ant.Polar.:	Horizontal		



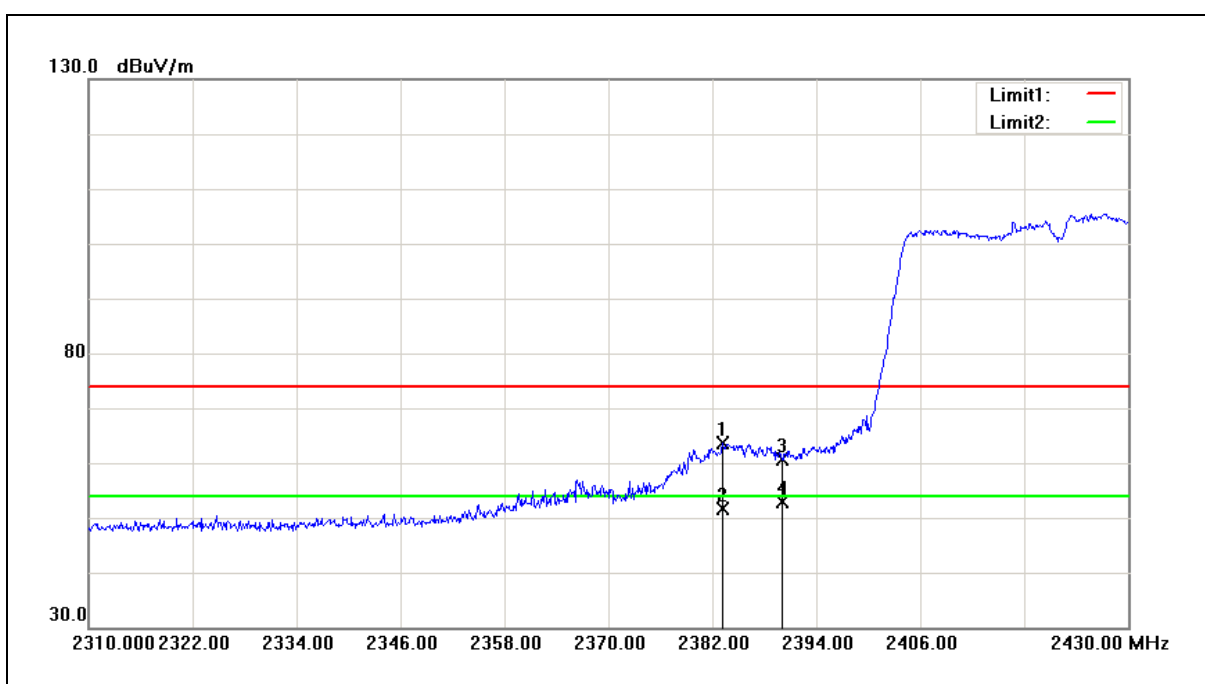
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2379.480	53.39	-1.90	51.49	74.00	-22.51	peak
2	2390.000	50.77	-1.86	48.91	74.00	-25.09	peak

Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

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

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	FCC Part 15.247	Test Distance:	3m
Test item:	Band edge	Power:	AC 110V/60Hz
Frequency:	2422MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	08/27/2017
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2383.200	65.47	-1.88	63.59	74.00	-10.41	peak
2	2383.200	53.53	-1.88	51.65	54.00	-2.35	AVG
3	2390.000	62.56	-1.86	60.70	74.00	-13.30	peak
4	2390.000	54.75	-1.86	52.89	54.00	-1.11	AVG

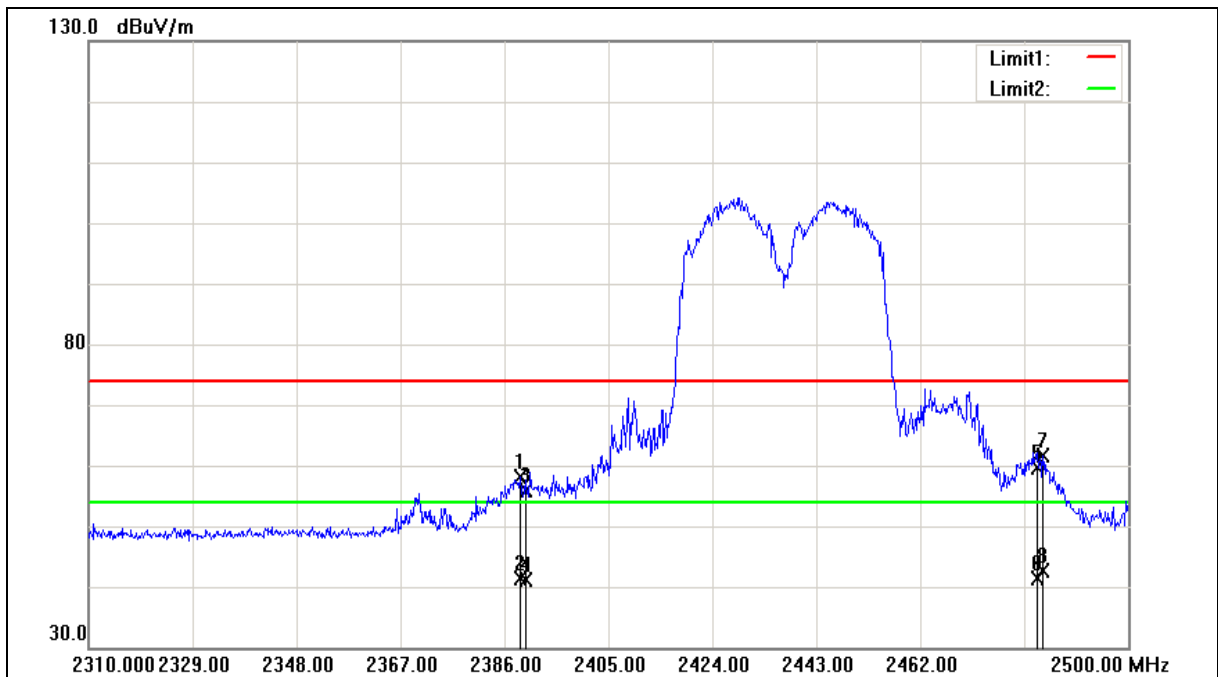
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

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

3. When the peak results are less than average limit, so not need to evaluate the average.



Standard:	FCC Part 15.247	Test Distance:	3m
Test item:	Band edge	Power:	AC 110V/60Hz
Frequency:	2437MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	08/27/2017
Ant.Polar.:	Horizontal		





Standard:	FCC Part 15.247	Test Distance:	3m
Test item:	Band edge	Power:	AC 110V/60Hz
Frequency:	2437MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	08/27/2017
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2388.850	60.07	-1.86	58.21	74.00	-15.79	peak
2	2388.850	43.12	-1.86	41.26	54.00	-12.74	AVG
3	2390.000	57.66	-1.86	55.80	74.00	-18.20	peak
4	2390.000	42.97	-1.86	41.11	54.00	-12.89	AVG
5	2483.500	61.18	-1.50	59.68	74.00	-14.32	peak
6	2483.500	42.79	-1.50	41.29	54.00	-12.71	AVG
7	2484.420	63.02	-1.49	61.53	74.00	-12.47	peak
8	2484.420	44.02	-1.49	42.53	54.00	-11.47	AVG

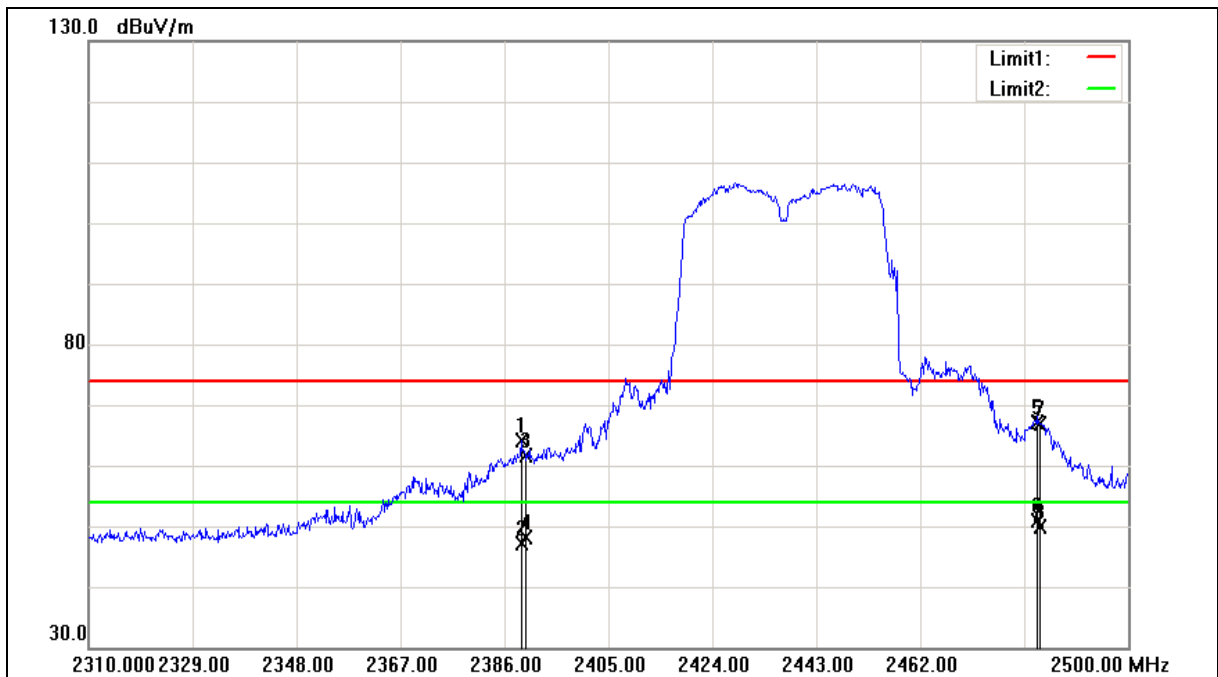
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

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

3. When the peak results are less than average limit, so not need to evaluate the average.



Standard:	FCC Part 15.247	Test Distance:	3m
Test item:	Band edge	Power:	AC 110V/60Hz
Frequency:	2437MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	08/27/2017
Ant.Polar.:	Vertical		





Standard:	FCC Part 15.247	Test Distance:	3m
Test item:	Band edge	Power:	AC 110V/60Hz
Frequency:	2437MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	08/27/2017
Ant.Polar.:	Vertical		

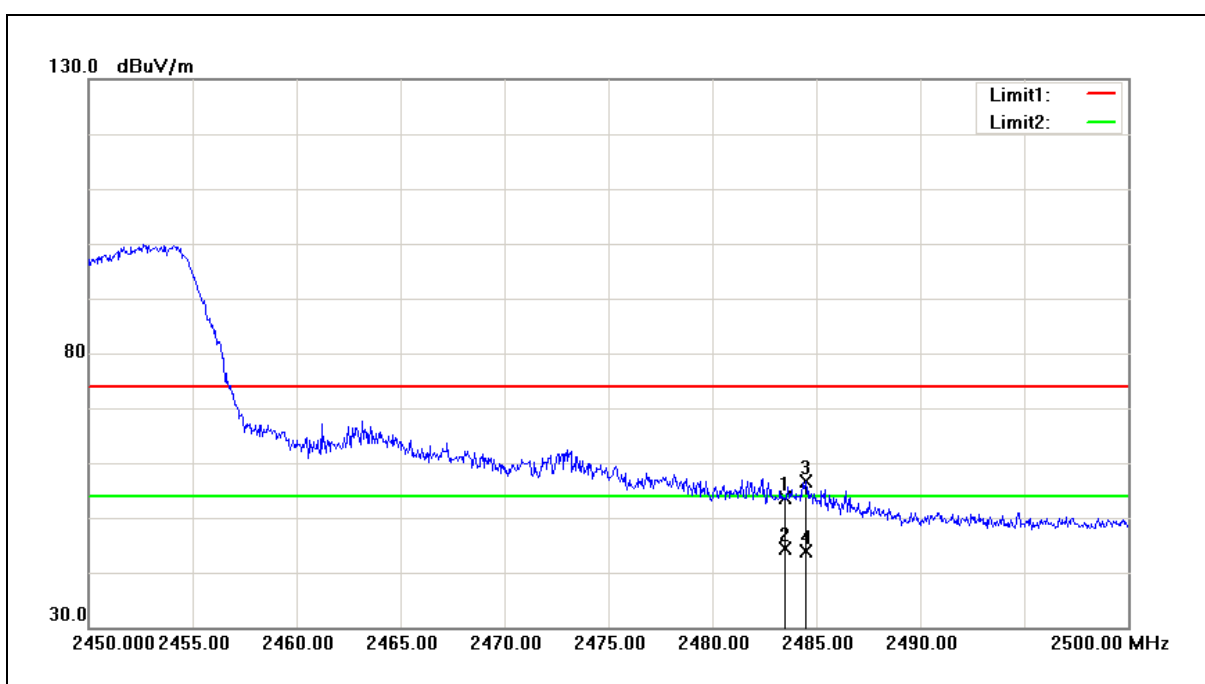
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.040	65.87	-1.86	64.01	74.00	-9.99	peak
2	2389.040	49.10	-1.86	47.24	54.00	-6.76	AVG
3	2390.000	63.56	-1.86	61.70	74.00	-12.30	peak
4	2390.000	50.10	-1.86	48.24	54.00	-5.76	AVG
5	2483.500	68.75	-1.50	67.25	74.00	-6.75	peak
6	2483.500	52.43	-1.50	50.93	54.00	-3.07	AVG
7	2483.850	68.36	-1.50	66.86	74.00	-7.14	peak
8	2483.850	51.32	-1.50	49.82	54.00	-4.18	AVG

Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

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

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	FCC Part 15.247	Test Distance:	3m
Test item:	Band edge	Power:	AC 110V/60Hz
Frequency:	2452MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	08/27/2017
Ant.Polar.:	Horizontal		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	55.20	-1.50	53.70	74.00	-20.30	peak
2	2483.500	45.84	-1.50	44.34	54.00	-9.66	AVG
3	2484.500	58.05	-1.49	56.56	74.00	-17.44	peak
4	2484.500	45.25	-1.49	43.76	54.00	-10.24	AVG

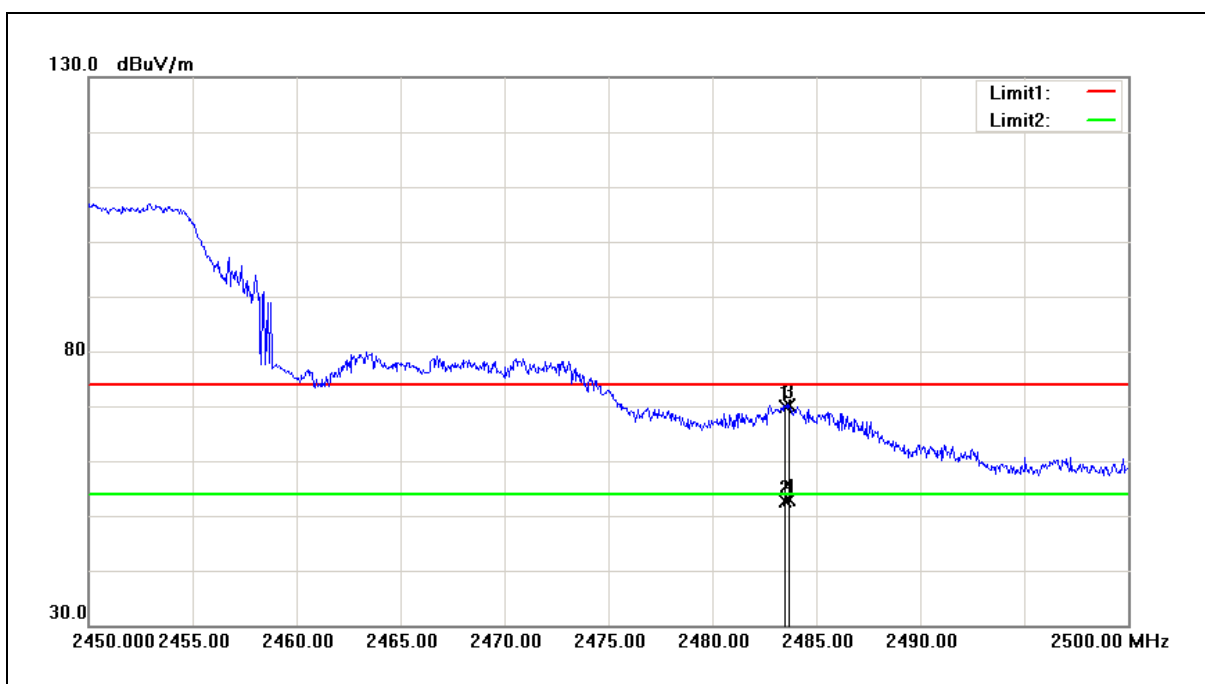
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

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

3. When the peak results are less than average limit, so not need to evaluate the average.



Standard:	FCC Part 15.247	Test Distance:	3m
Test item:	Band edge	Power:	AC 110V/60Hz
Frequency:	2452MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	08/27/2017
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	71.35	-1.50	69.85	74.00	-4.15	peak
2	2483.500	54.12	-1.50	52.62	54.00	-1.38	AVG
3	2483.700	71.64	-1.50	70.14	74.00	-3.86	peak
4	2483.700	54.40	-1.50	52.90	54.00	-1.10	AVG

Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

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

3. When the peak results are less than average limit, so not need to evaluate the average.

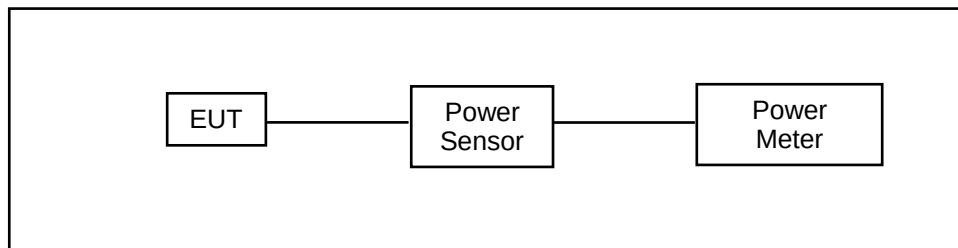
6 Maximum Conducted Output Power Measurement

6.1. Limit

For systems using digital modulation in the 2400-2483.5MHz, the limit for maximum output power is 30dBm.

And According to 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

6.2. Test Setup



6.3. Test Procedure

The tests below are run with the EUT's transmitter set at high power in TX mode. The EUT is needed to force selection of output power level and channel number. While testing, EUT was set to transmit continuously. Remove the Subjective device's antenna and connect the RF output port to power sensor.

6.4. Test Result

Test Item	Maximum Conducted Output Power						
Test Mode	Frequency (MHz)	Data Rate	Average Output Power				
			Measurement Results				Limit
			ANT-0		ANT-1		
			dBm	W	dBm	W	
Mode 2	2412	1M	15.30	0.034	14.27	0.027	< 30
	2437		15.35	0.034	14.12	0.026	< 30
	2462		15.93	0.039	14.54	0.028	< 30
	2437	2M	15.30	0.034	14.10	0.026	< 30
	2437	5.5M	15.25	0.033	14.08	0.026	< 30
	2437	11M	15.23	0.033	14.05	0.025	< 30
Mode 3	2412	6M	11.01	0.013	13.01	0.020	< 30
	2437		16.12	0.041	18.40	0.069	< 30
	2462		9.88	0.010	12.20	0.017	< 30
	2437	9M	16.10	0.041	18.35	0.068	< 30
	2437	12M	16.08	0.041	18.33	0.068	< 30
	2437	18M	16.03	0.040	18.30	0.068	< 30
	2437	24M	16.00	0.040	18.22	0.066	< 30
	2437	36M	15.98	0.040	18.28	0.067	< 30
	2437	48M	15.95	0.039	18.18	0.066	< 30
	2437	54M	15.94	0.039	18.12	0.065	< 30

Note: The relevant measured result has the offset with cable loss already.

Test Item	Maximum Conducted Output Power						
Test Mode	Frequency (MHz)	Data Rate	Average Output Power				
			Measurement Results				Limit
			ANT-0		ANT-1		dBm
			dBm	W	dBm	W	
Mode 4	2412	13M	10.94	0.012	13.31	0.021	< 30
	2437		15.20	0.033	17.63	0.058	< 30
	2462		9.85	0.010	12.11	0.016	< 30
	2437	28.8M	15.18	0.033	17.58	0.057	< 30
	2437	43.4M	15.12	0.033	17.53	0.057	< 30
	2437	57.8M	15.10	0.032	17.50	0.056	< 30
	2437	86.6M	15.04	0.032	17.45	0.056	< 30
	2437	115.6M	15.08	0.032	17.47	0.056	< 30
	2437	130M	15.01	0.032	17.43	0.055	< 30
	2437	144.4M	14.99	0.032	17.38	0.055	< 30
	2437	173.4M	14.93	0.031	17.39	0.055	< 30
Mode 5	2422	27M	7.65	0.006	9.61	0.009	< 30
	2437		9.45	0.009	11.54	0.014	< 30
	2452		10.28	0.011	12.22	0.017	< 30
	2437	60M	9.42	0.009	11.50	0.014	< 30
	2437	90M	9.39	0.009	11.48	0.014	< 30
	2437	120M	9.32	0.009	11.43	0.014	< 30
	2437	180M	9.30	0.009	11.39	0.014	< 30
	2437	240M	9.25	0.008	11.45	0.014	< 30
	2437	270M	9.21	0.008	11.40	0.014	< 30
	2437	300M	9.20	0.008	11.38	0.014	< 30
	2437	360M	9.12	0.008	11.32	0.014	< 30
	2437	400M	9.15	0.008	11.33	0.014	< 30

Note: The relevant measured result has the offset with cable loss already.

Test Item	Maximum Conducted Output Power				
Test Mode	Frequency (MHz)	Data Rate	Average Output Power		
			Measurement Results		Limit
			ANT-0+1		dBm
			dBm	W	
Mode 2	2412	1M	17.83	0.061	< 30
	2437		17.79	0.060	< 30
	2462		18.30	0.068	< 30
	2437	2M	17.75	0.060	< 30
	2437	5.5M	17.71	0.059	< 30
	2437	11M	17.69	0.059	< 30
Mode 3	2412	6M	15.13	0.033	< 30
	2437		20.42	0.110	< 30
	2462		14.20	0.026	< 30
	2437	9M	20.38	0.109	< 30
	2437	12M	20.36	0.109	< 30
	2437	18M	20.32	0.108	< 30
	2437	24M	20.26	0.106	< 30
	2437	36M	20.29	0.107	< 30
	2437	48M	20.22	0.105	< 30
	2437	54M	20.18	0.104	< 30

Note: The relevant measured result has the offset with cable loss already.

Test Item	Maximum Conducted Output Power				
Test Mode	Frequency (MHz)	Data Rate	Average Output Power		
			Measurement Results		Limit
			ANT-0+1		dBm
			dBm	W	
Mode 4	2412	13M	15.30	0.034	< 30
	2437		19.59	0.091	< 30
	2462		14.14	0.026	< 30
	2437	28.8M	19.55	0.090	< 30
	2437	43.4M	19.50	0.089	< 30
	2437	57.8M	19.47	0.089	< 30
	2437	86.6M	19.42	0.088	< 30
	2437	115.6M	19.45	0.088	< 30
	2437	130M	19.40	0.087	< 30
	2437	144.4M	19.36	0.086	< 30
	2437	173.4M	19.34	0.086	< 30
Mode 5	2422	27M	11.75	0.015	< 30
	2437		13.63	0.023	< 30
	2452		14.37	0.027	< 30
	2437	60M	13.59	0.023	< 30
	2437	90M	13.57	0.023	< 30
	2437	120M	13.51	0.022	< 30
	2437	180M	13.48	0.022	< 30
	2437	240M	13.50	0.022	< 30
	2437	270M	13.45	0.022	< 30
	2437	300M	13.44	0.022	< 30
	2437	360M	13.37	0.022	< 30
	2437	400M	13.39	0.022	< 30

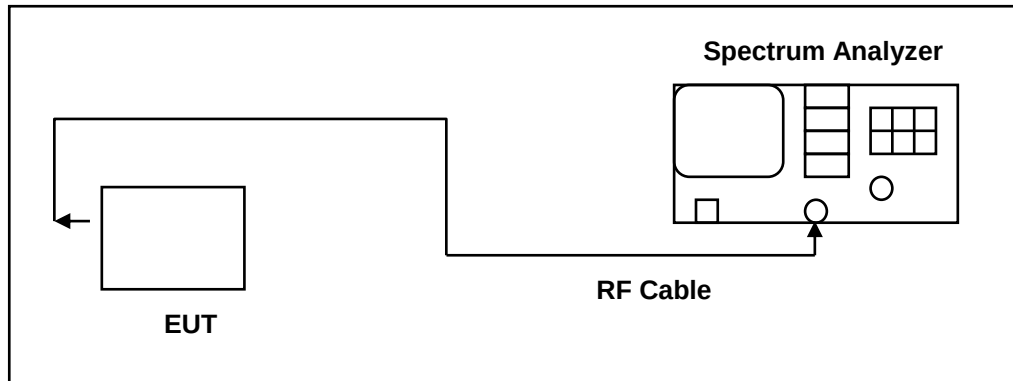
Note: The relevant measured result has the offset with cable loss already.

7 6dB RF Bandwidth Measurement

7.1. Limit

6dB RF Bandwidth: Systems using digital modulation techniques may operate in the 2400–2483.5 MHz bands. The minimum 6 dB band-width shall be at least 500 kHz.

7.2. Test Setup



7.3. Test Procedure

The EUT tested to DTS test procedure of KDB558074D01 for compliance to FCC 47CFR 15.247 requirements.

6dB RF Bandwidth: The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RBW was set to 100 kHz. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A peak output reading was taken, a DISPLAY line was drawn 6 dB lower than peak level. The 6 dB bandwidth was determined from where the channel output spectrum intersected the display line.

The test was performed at 3 channels (Channel low, middle, high)

7.4. Test Result

Test Item	6dB RF Bandwidth			
Test Mode	Frequency (MHz)	Measurement (kHz)		Limit (kHz)
		ANT-0	ANT-1	
Mode 2	2412	8100	7083	> 500
	2437	8101	7073	> 500
	2462	8106	7092	> 500
Mode 3	2412	16400	15730	> 500
	2437	16390	15940	> 500
	2462	16390	15960	> 500
Mode 4	2412	17610	15120	> 500
	2437	17620	15770	> 500
	2462	17610	17330	> 500
Mode 5	2422	35200	35670	> 500
	2437	35210	35310	> 500
	2452	35170	35080	> 500



7.5. Test Graphs

Mode 2: IEEE 802.11b Continuous TX mode_ANT-0

2412 MHz



2437 MHz



2462 MHz

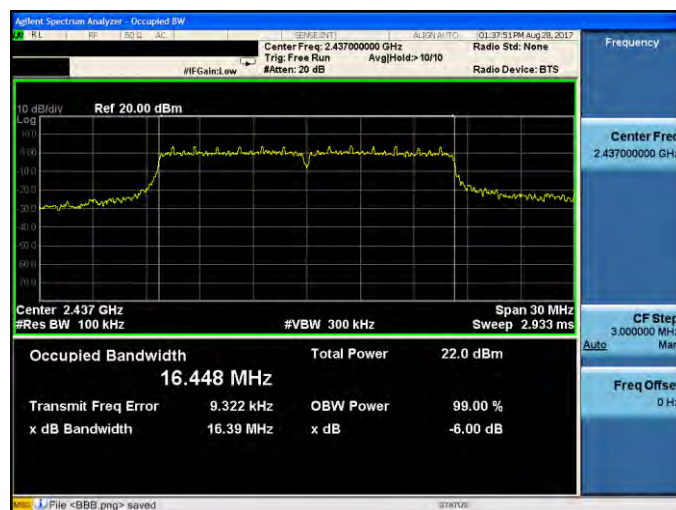




2412 MHz



2437 MHz



2462 MHz





Mode 4: IEEE 802.11n 2.4GHz 20MHz Continuous TX mode_ANT-0

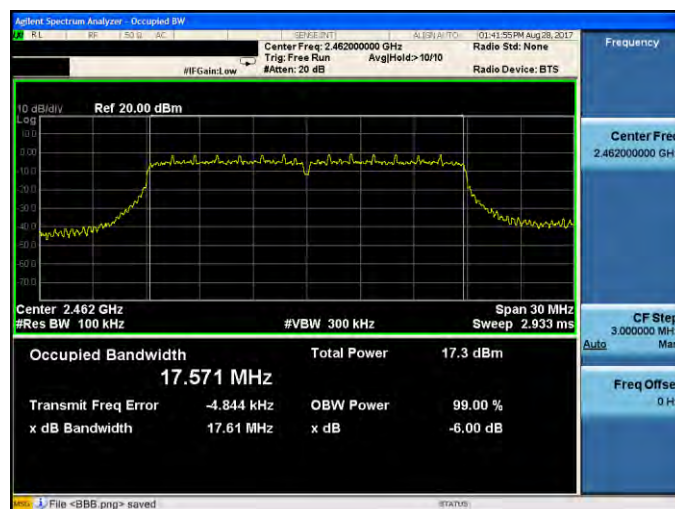
2412 MHz



2437 MHz



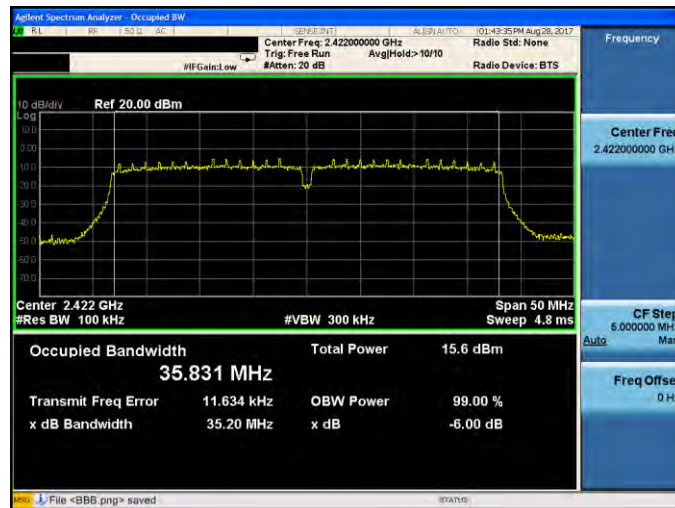
2462 MHz





Mode 5: IEEE 802.11n 2.4GHz 40MHz Continuous TX mode_ANT-0

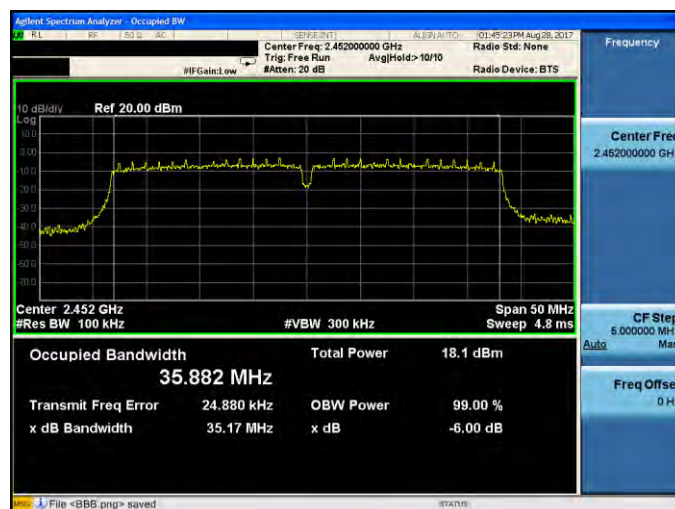
2422 MHz



2437 MHz



2452 MHz





Mode 2: IEEE 802.11b Continuous TX mode_ANT-1

2412 MHz



2437 MHz



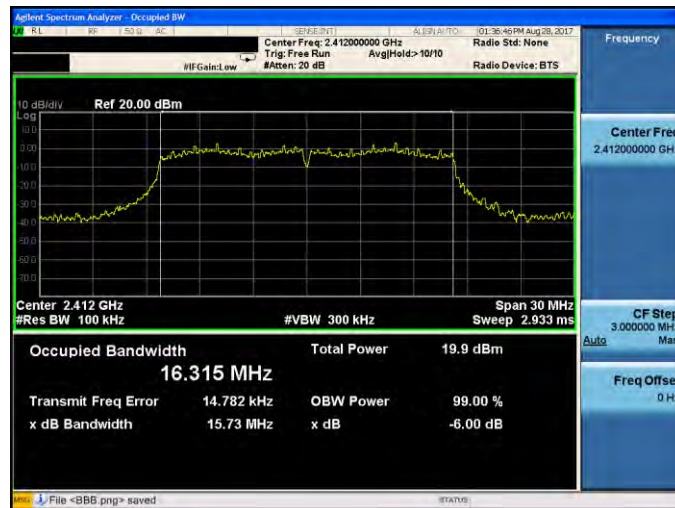
2462 MHz





Mode 3: IEEE 802.11g Continuous TX mode_ANT-1

2412 MHz



2437 MHz



2462 MHz





Mode 4: IEEE 802.11n 2.4GHz 20MHz Continuous TX mode_ANT-1

2422 MHz



2437 MHz



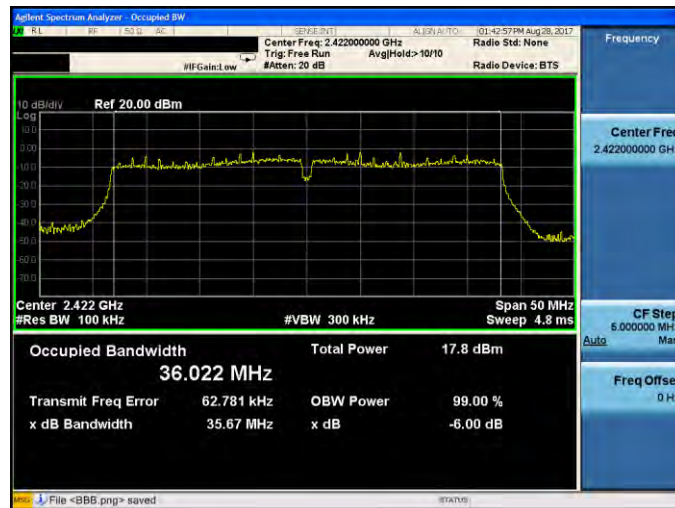
2452 MHz





Mode 5: IEEE 802.11n 2.4GHz 40MHz Continuous TX mode_ANT-1

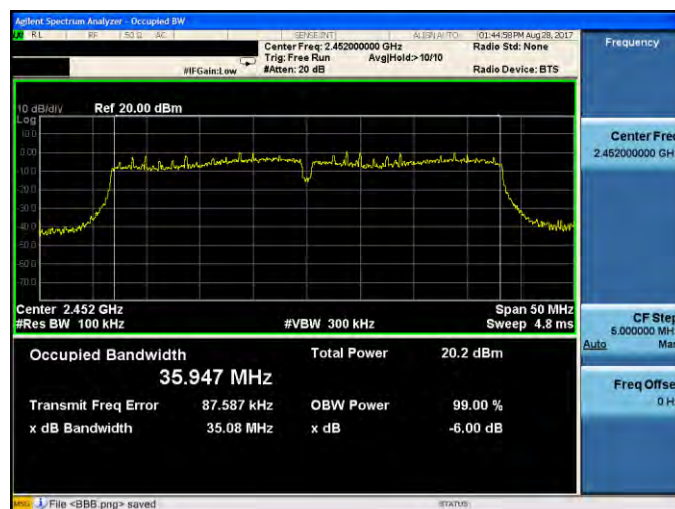
2422 MHz



2437 MHz



2452 MHz



8 Maximum Power Density Measurement

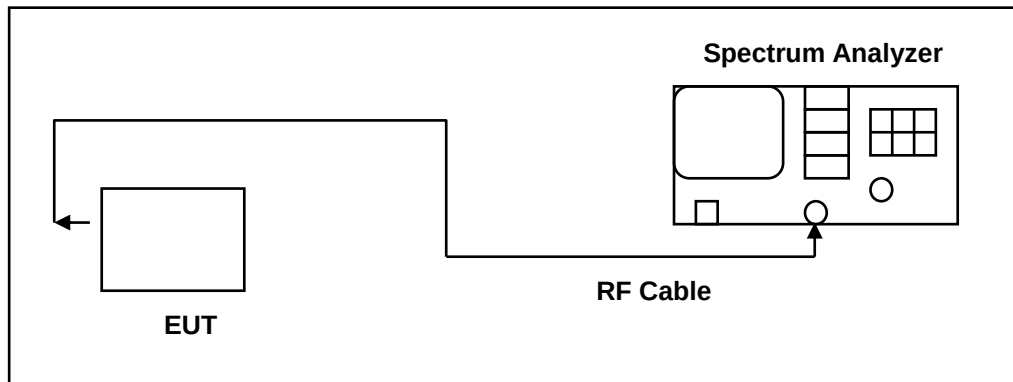
8.1. Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

IEEE 802.11b / IEEE 802.11g / IEEE 802.11n 2.4GHz 20MHz / 40MHz

- * CDD mode : Directional Gain = $10 \cdot \log\{[10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_n/20}]^2 / NANT\}$ = 7.59 dBi > 6dBi
- * CDD mode power density limit shall be reduced = $8 - 1.59 = 6.41$ dBm/3KHz

8.2. Test Setup





8.3. Test Procedure

The EUT tested to DTS test procedure of KDB558074D01 for compliance to FCC 47CFR 15.247 requirements.

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS bandwidth.
3. Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
4. Set the VBW $\geq 3 \times \text{RBW}$.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

8.4. Test Result

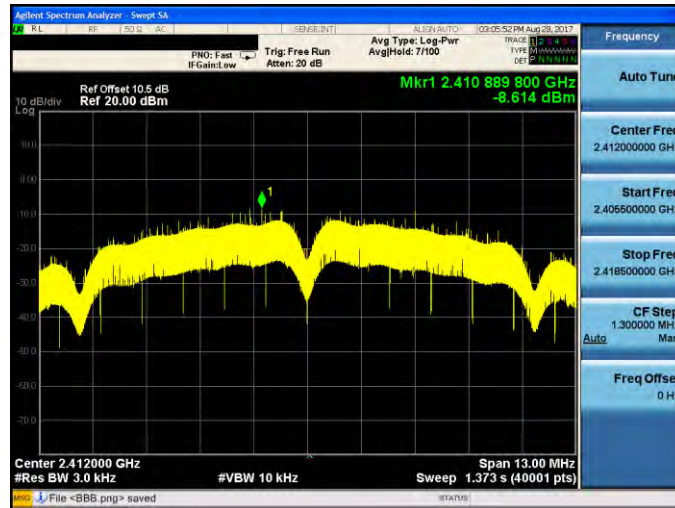
Test Item	Maximum Power Density				
Test Mode	Frequency (MHz)	Measurement (dBm/3KHz)			Limit (dBm/3KHz)
		ANT-0	ANT-1	ANT-0+1	
Mode 2	2412	-8.614	-9.868	-6.186	< 6.41
	2437	-8.761	-9.514	-6.111	< 6.41
	2462	-8.434	-9.166	-5.774	< 6.41
Mode 3	2412	-15.520	-13.069	-11.114	< 6.41
	2437	-10.002	-7.080	-5.289	< 6.41
	2462	-16.150	-13.062	-11.327	< 6.41
Mode 4	2412	-15.065	-13.219	-11.034	< 6.41
	2437	-11.554	-8.355	-6.656	< 6.41
	2462	-15.480	-13.407	-11.311	< 6.41
Mode 5	2422	-20.332	-18.483	-16.300	< 6.41
	2437	-18.301	-15.755	-13.834	< 6.41
	2452	-17.112	-14.899	-12.856	< 6.41



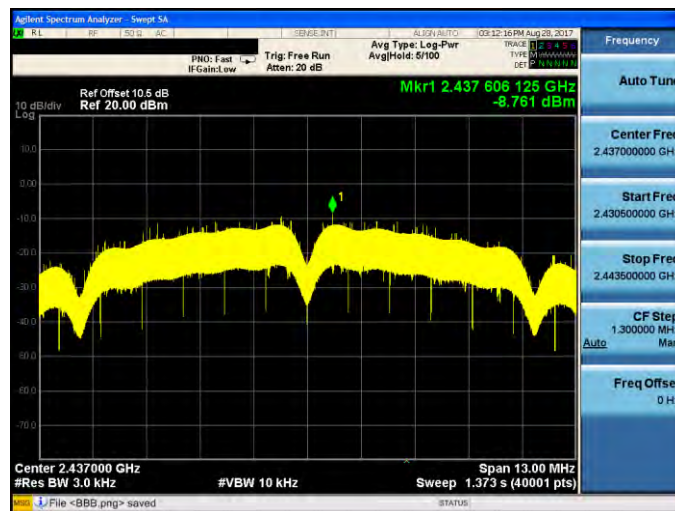
8.5. Test Graphs

Mode 2: IEEE 802.11b Continuous TX mode_ANT-0

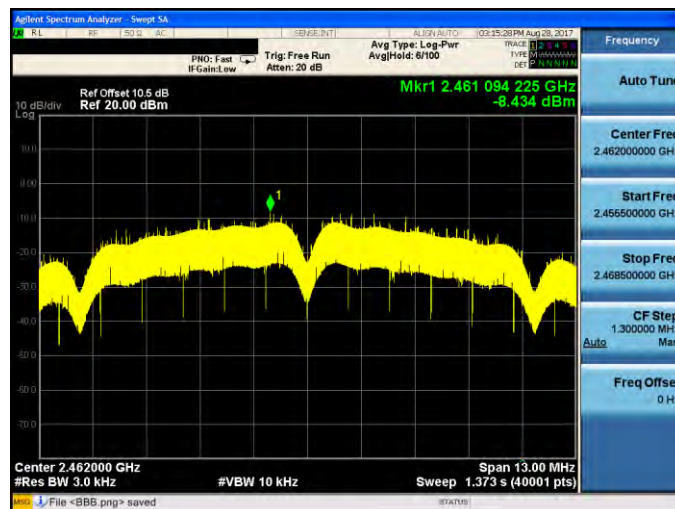
2412 MHz



2437 MHz



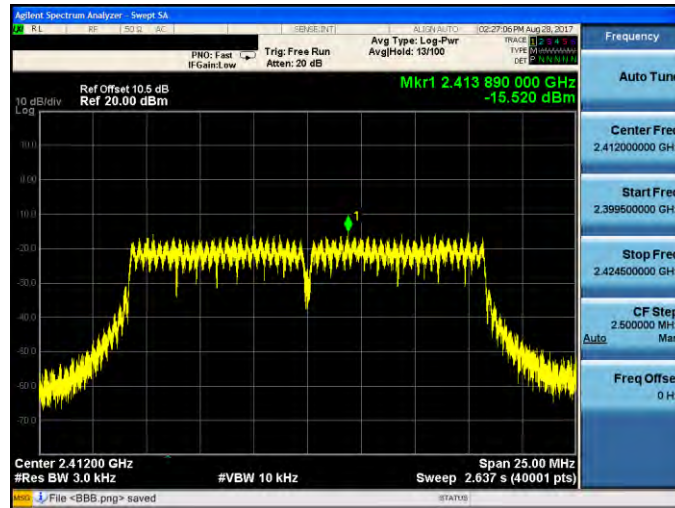
2462 MHz



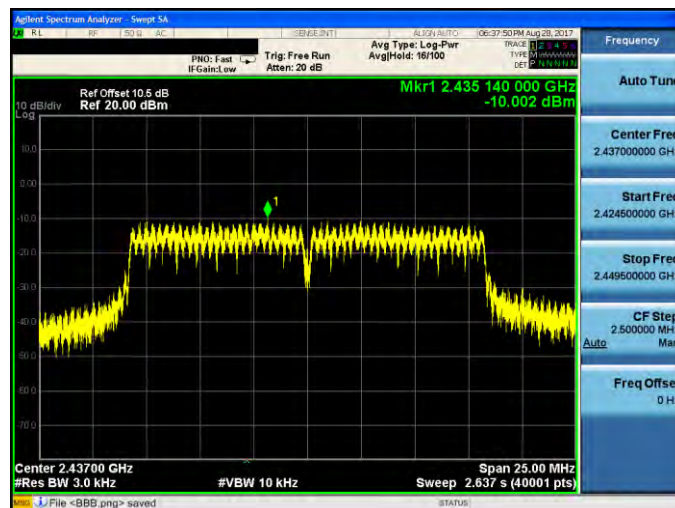


Mode 3: IEEE 802.11g Continuous TX mode_ANT-0

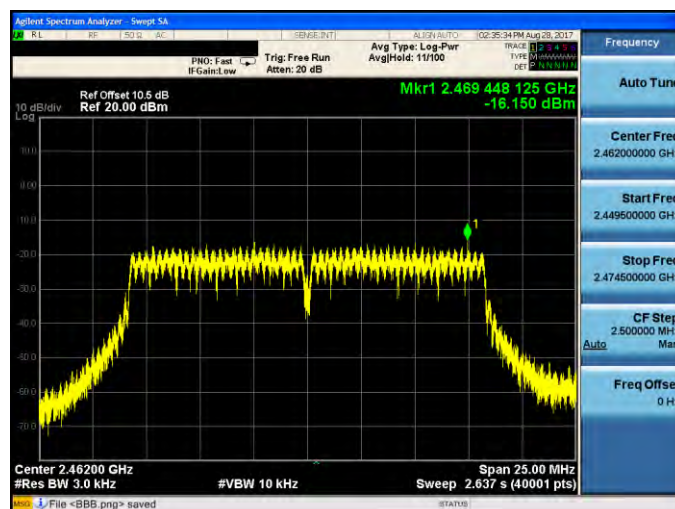
2412 MHz



2437 MHz



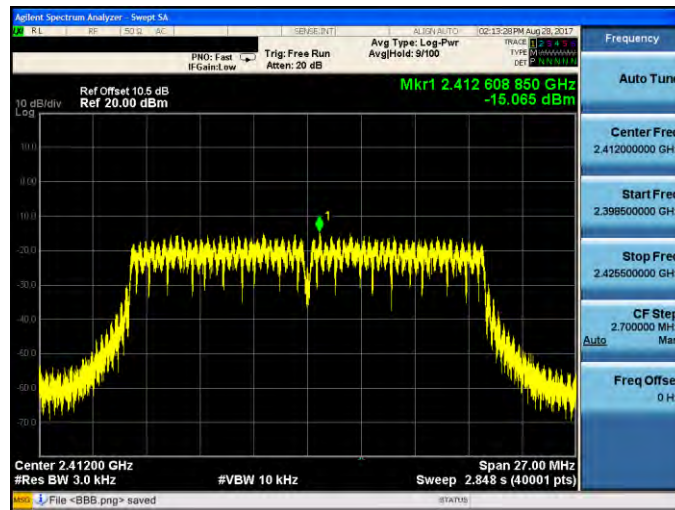
2462 MHz



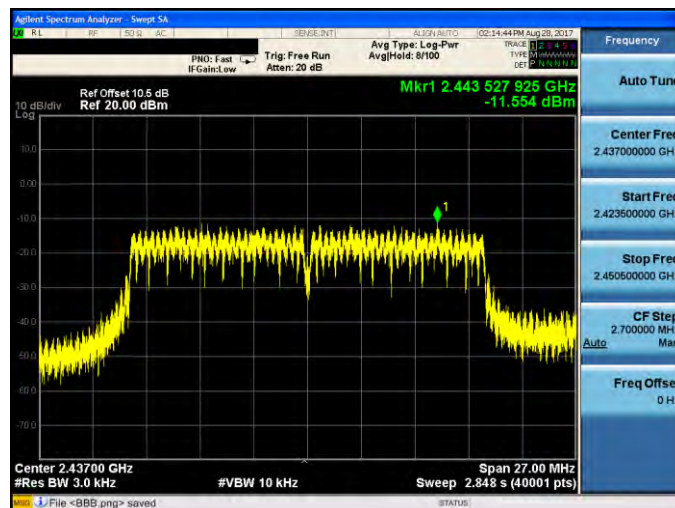


Mode 4: IEEE 802.11n 2.4GHz 20MHz Continuous TX mode_ANT-0

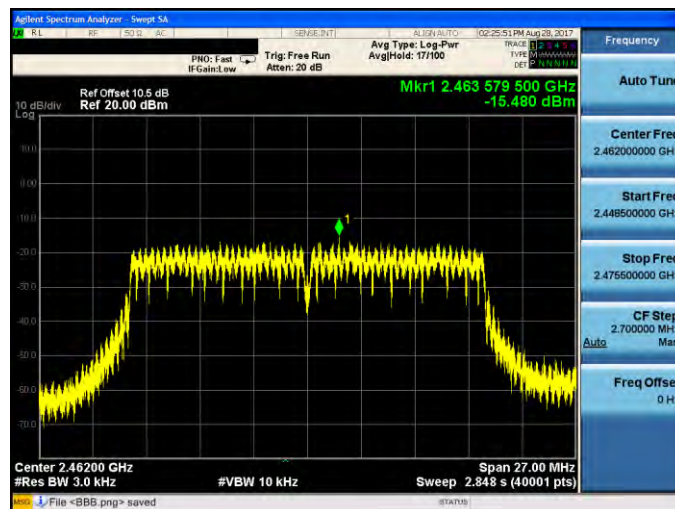
2412 MHz



2437 MHz



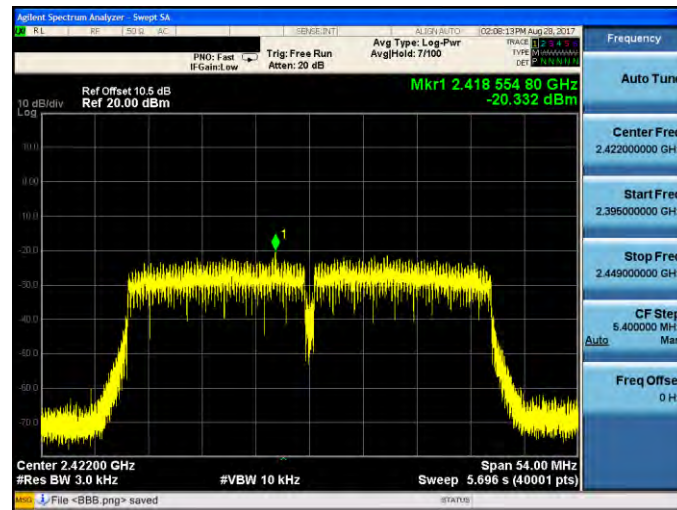
2462 MHz



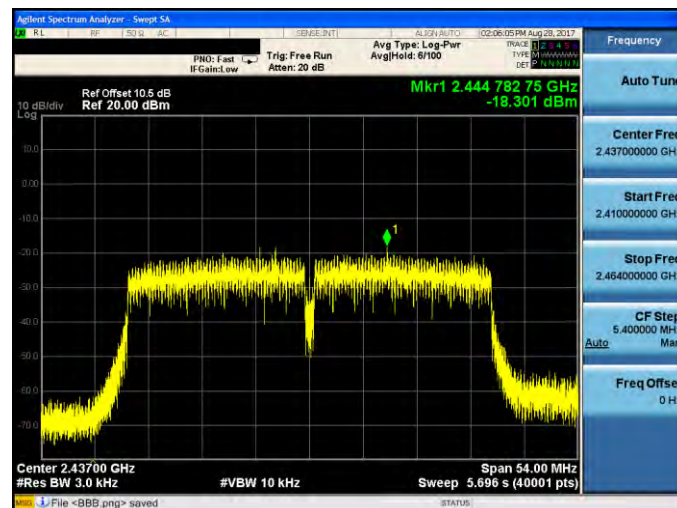


Mode 5: IEEE 802.11n 2.4GHz 40MHz Continuous TX mode_ANT-0

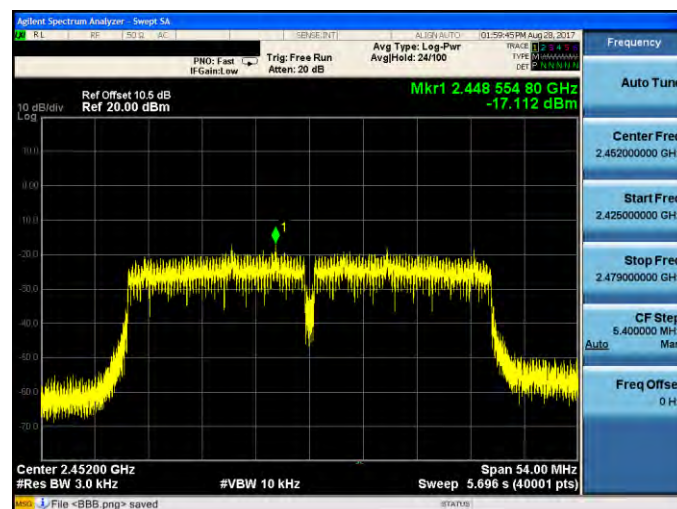
2422 MHz



2437 MHz



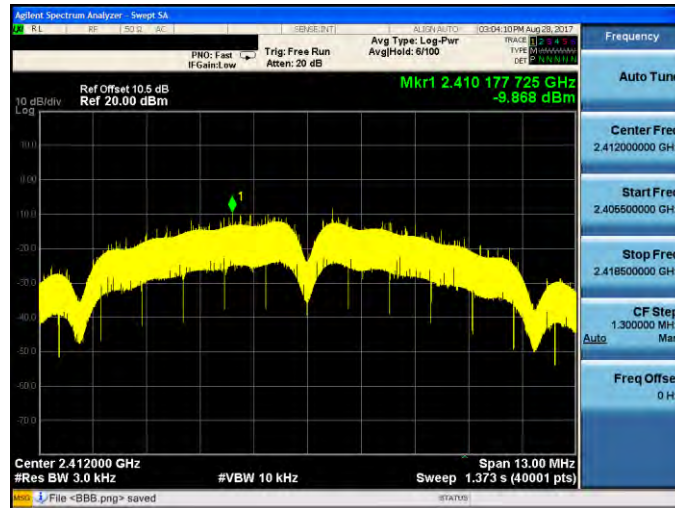
2452 MHz



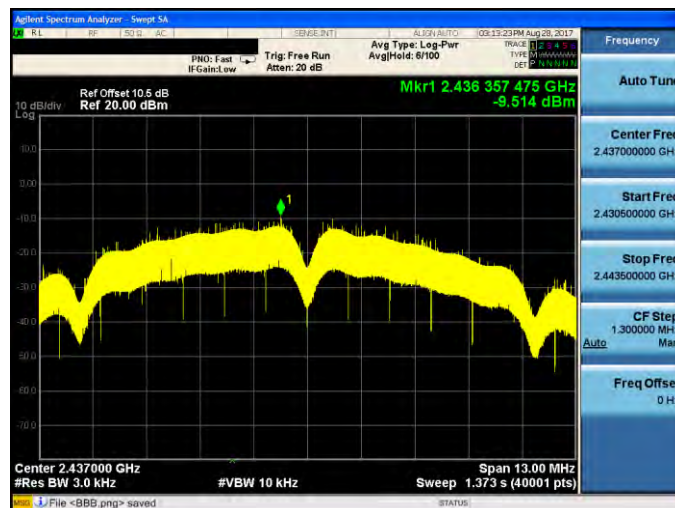


Mode 2: IEEE 802.11b Continuous TX mode_ANT-1

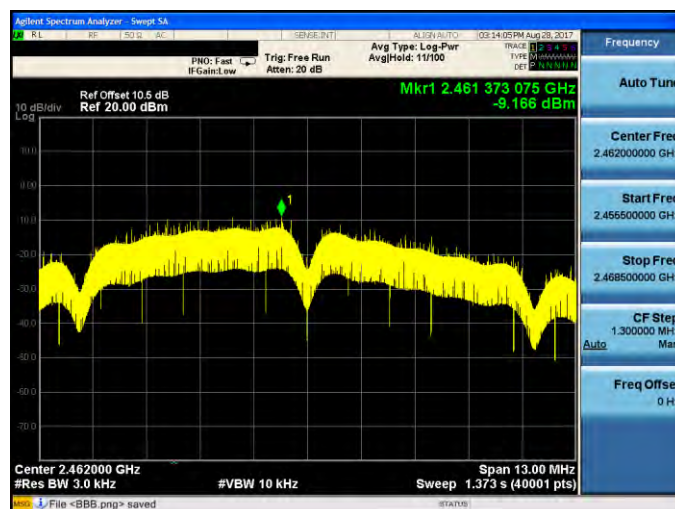
2412 MHz



2437 MHz



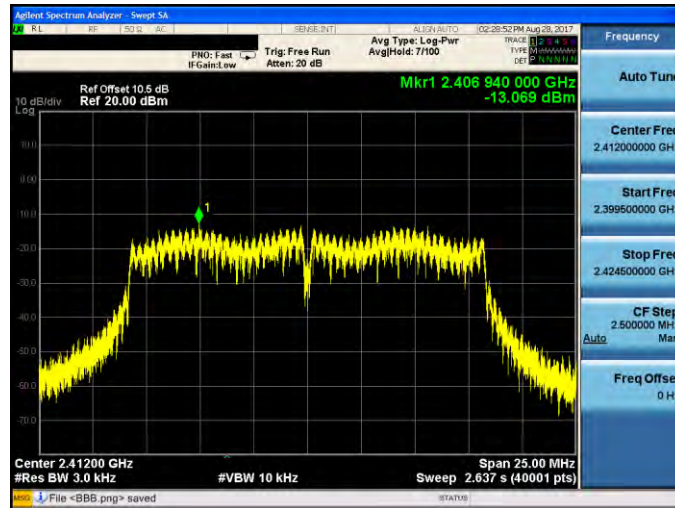
2462 MHz



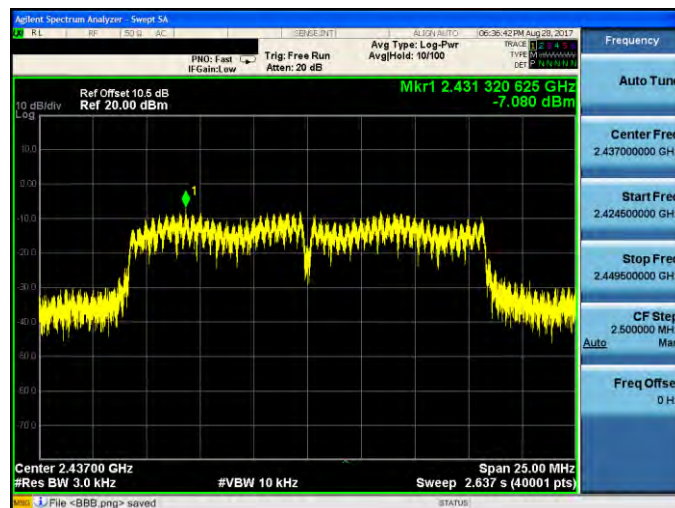


Mode 3: IEEE 802.11g Continuous TX mode_ANT-1

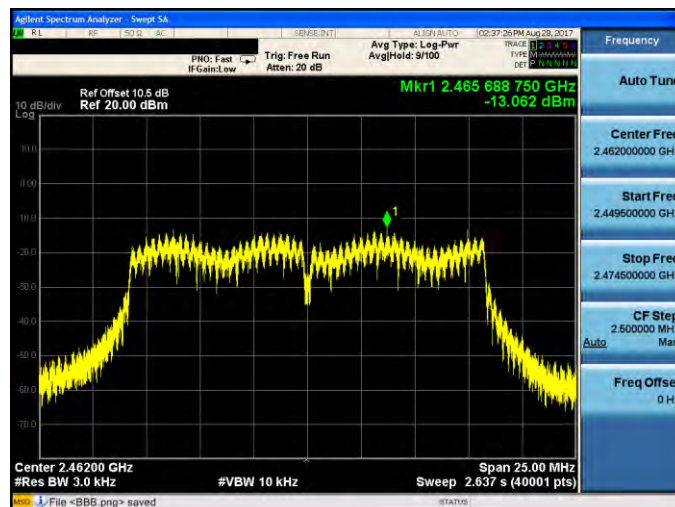
2412 MHz



2437 MHz



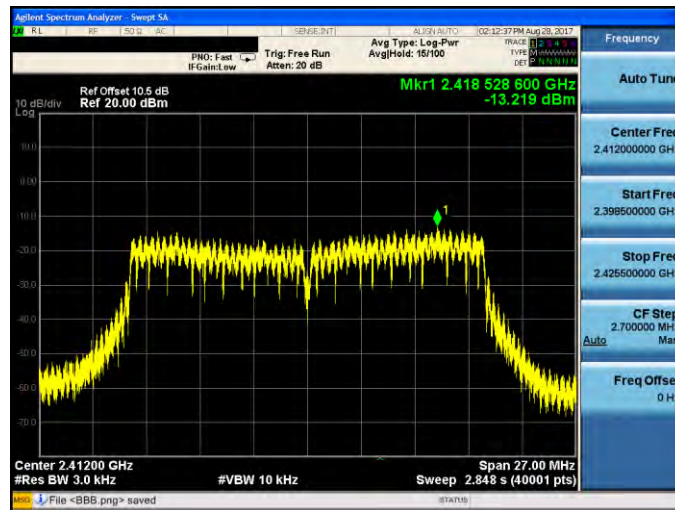
2462 MHz



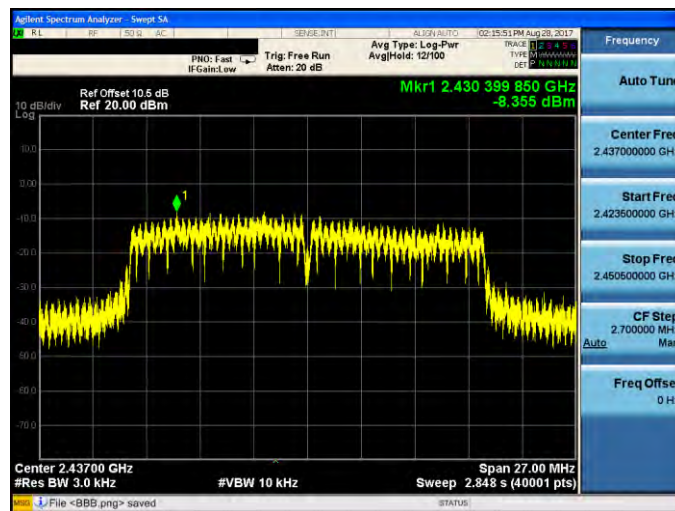


Mode 4: IEEE 802.11n 2.4GHz 20MHz Continuous TX mode_ANT-1

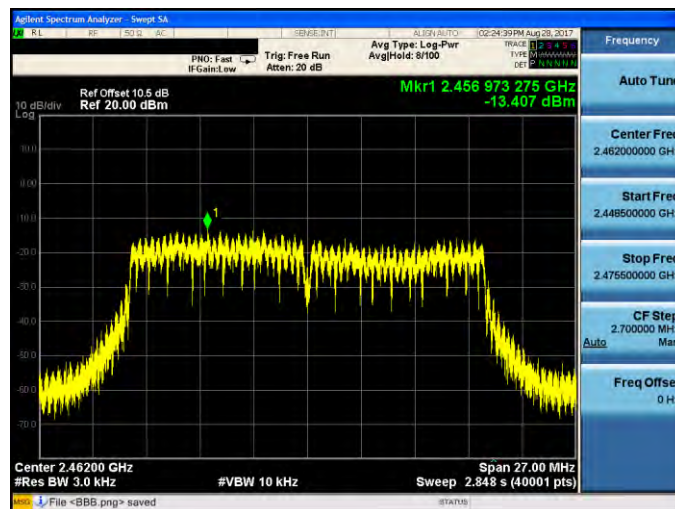
2412 MHz



2437 MHz



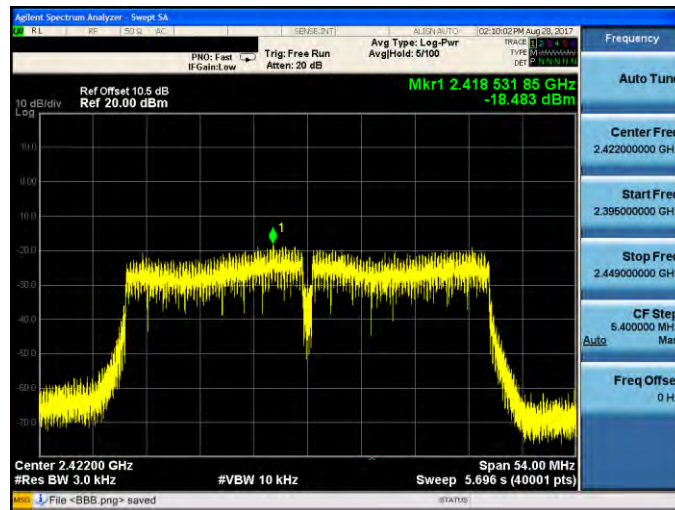
2462 MHz



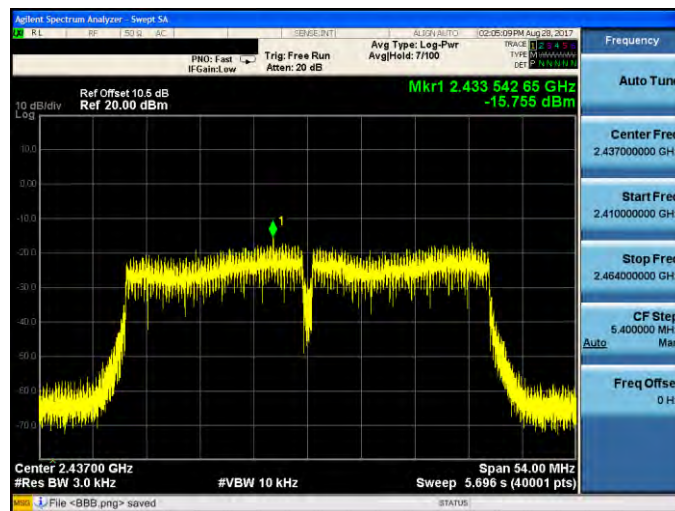


Mode 5: IEEE 802.11n 2.4GHz 40MHz Continuous TX mode_ANT-1

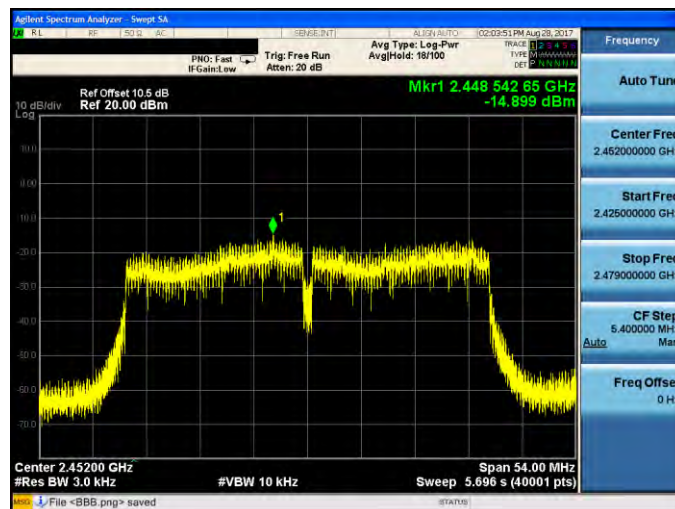
2422 MHz



2437 MHz



2452 MHz

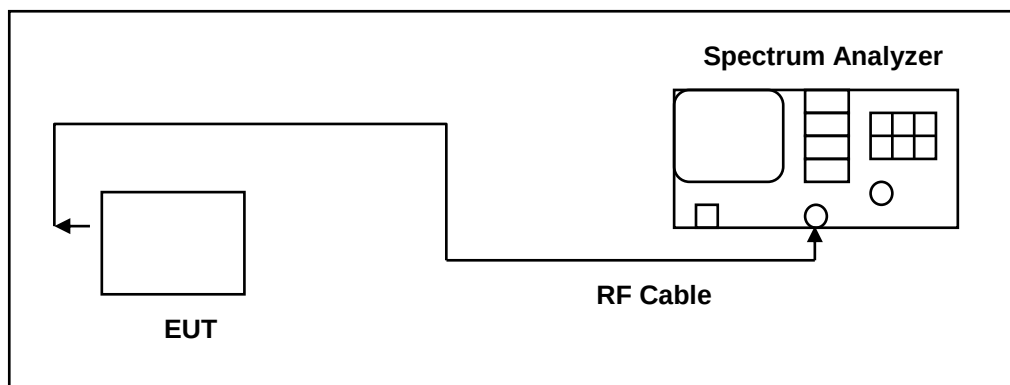


9 Out of Band Conducted Emissions Measurement

9.1. Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 30 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power

9.2. Test Setup



9.3. Test Procedure

In any 100 kHz bandwidth outside the EUT pass band, the RF power produced by the modulation products of the spreading sequence, the information sequence, and the carrier frequency shall be at least 30 dB below that of the maximum in-band 100 kHz emission, antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function. All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the pass band. The test was performed at 3 channels.



9.4. Test Graphs

Reference level

Mode 2: IEEE 802.11b Continuous TX mode_ANT-0

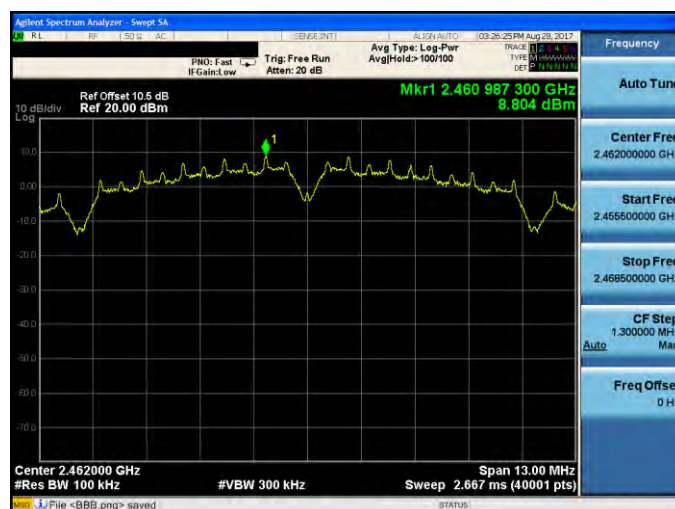
2412 MHz



2437 MHz



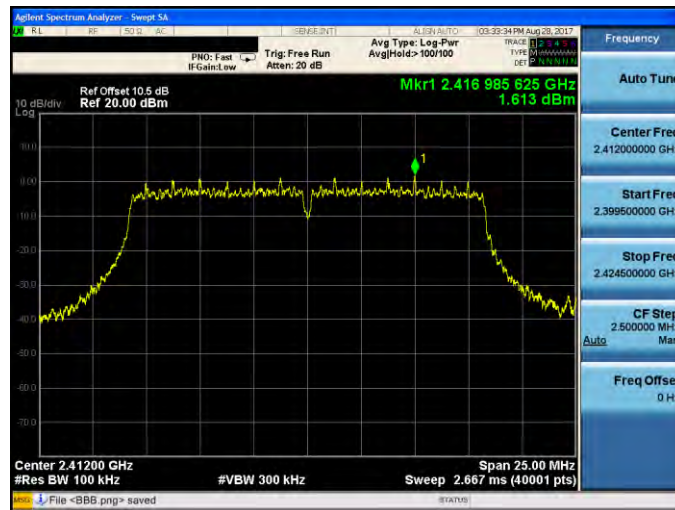
2462 MHz





Mode 3: IEEE 802.11g Continuous TX mode_ANT-0

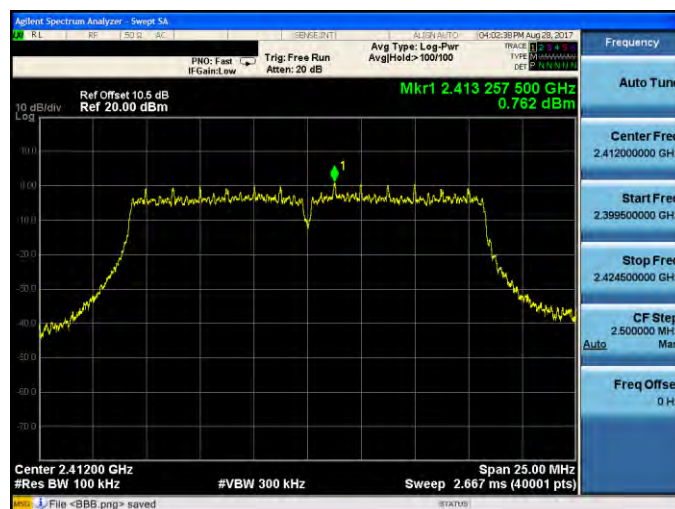
2412 MHz



2437 MHz



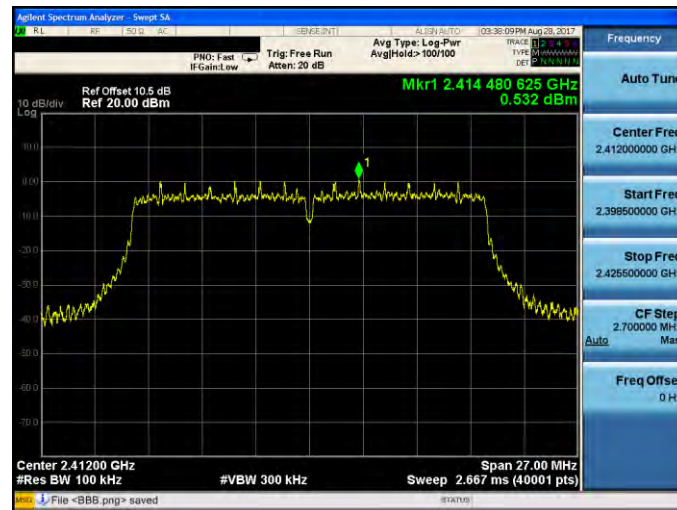
2462 MHz



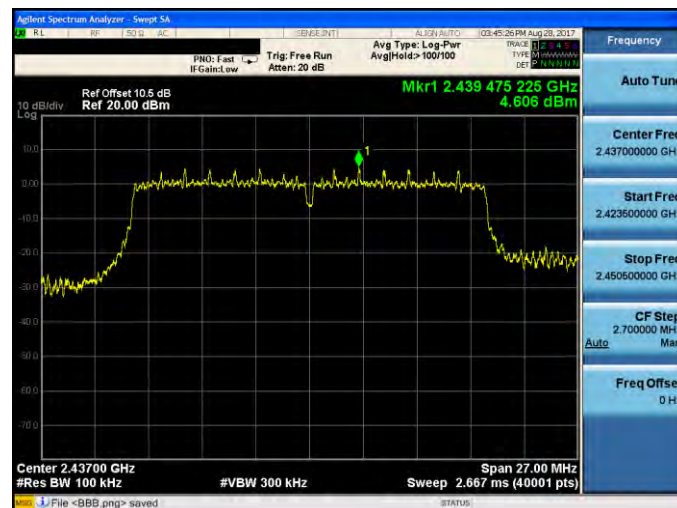


Mode 4: IEEE 802.11n 2.4GHz 20MHz Continuous TX mode_ANT-0

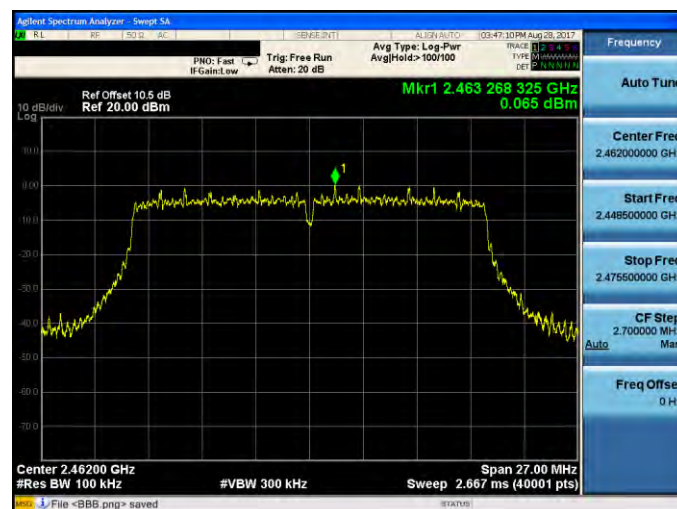
2412 MHz



2437 MHz



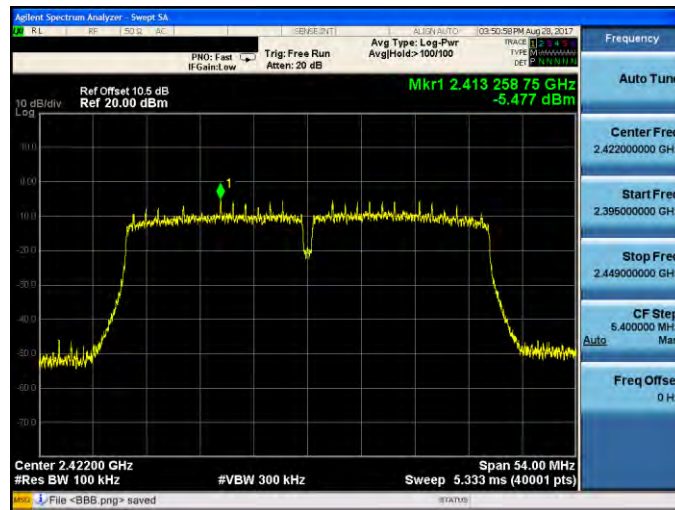
2462 MHz



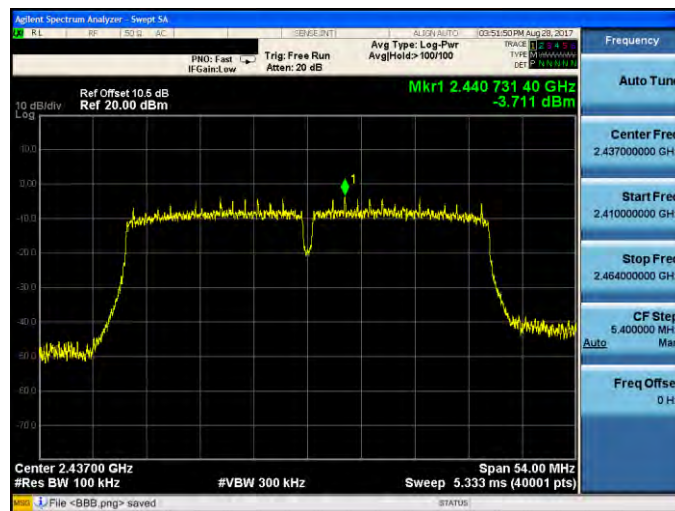


Mode 5: IEEE 802.11n 2.4GHz 40MHz Continuous TX mode_ANT-0

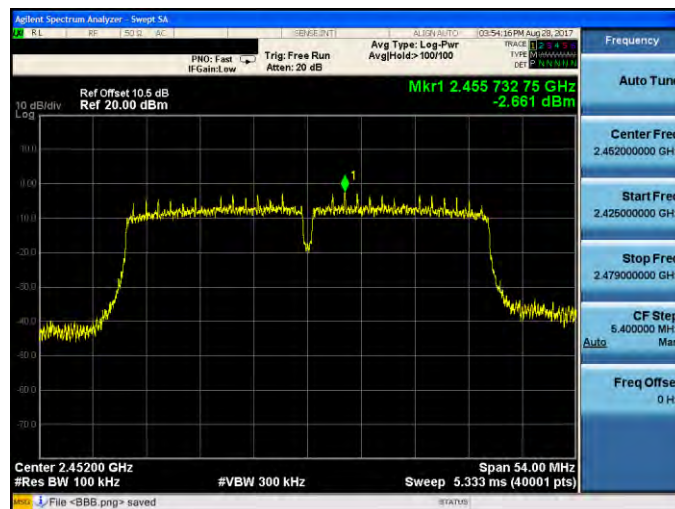
2422 MHz



2437 MHz



2452 MHz





Mode 2: IEEE 802.11b Continuous TX mode_ANT-1

2412 MHz



2437 MHz



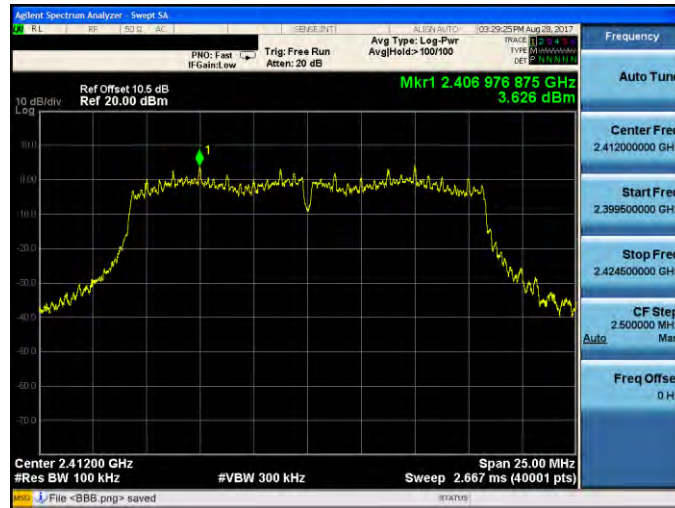
2462 MHz





Mode 3: IEEE 802.11g Continuous TX mode_ANT-1

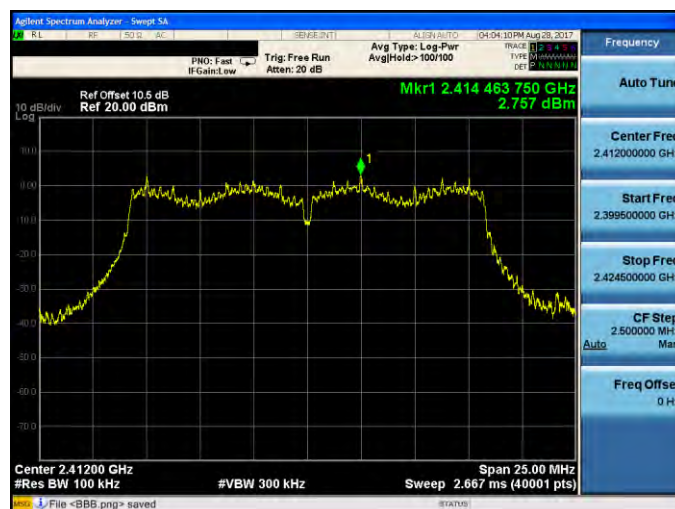
2412 MHz



2437 MHz



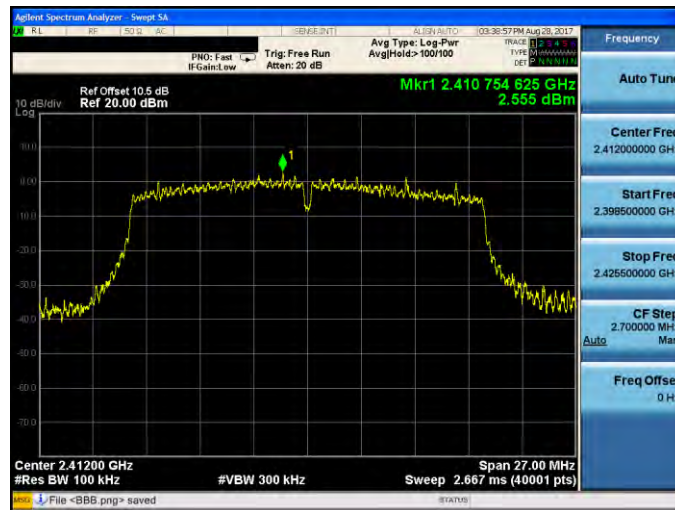
2462 MHz



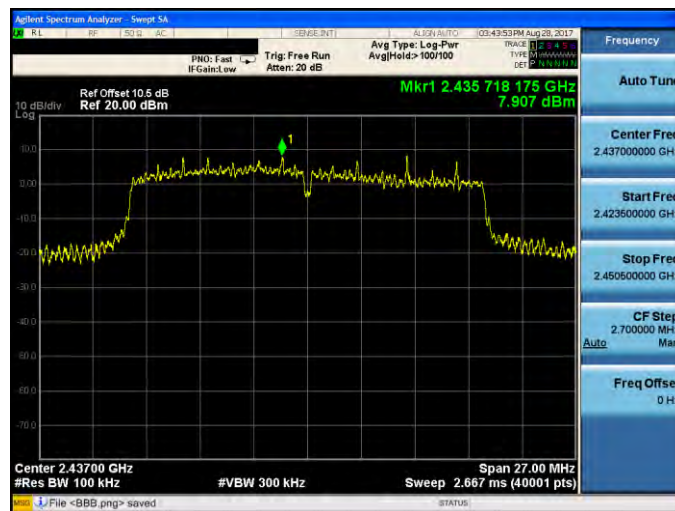


Mode 4: IEEE 802.11n 2.4GHz 20MHz Continuous TX mode_ANT-1

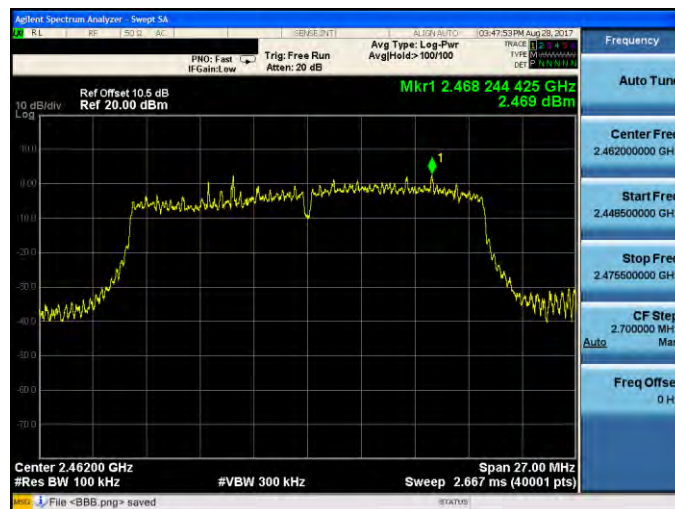
2412 MHz



2437 MHz



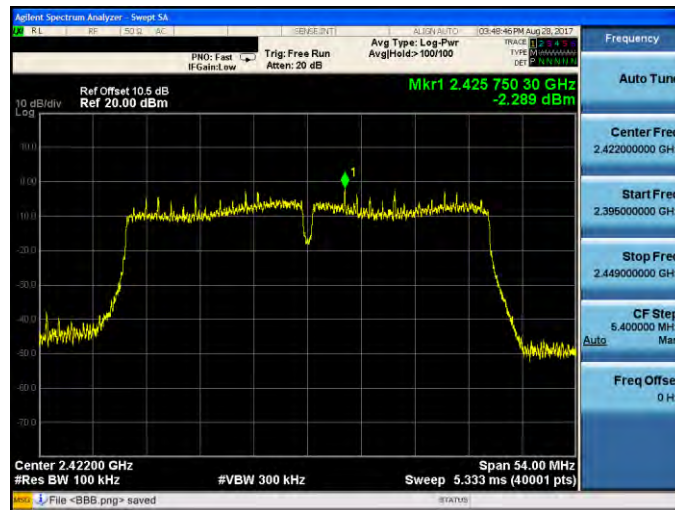
2462 MHz



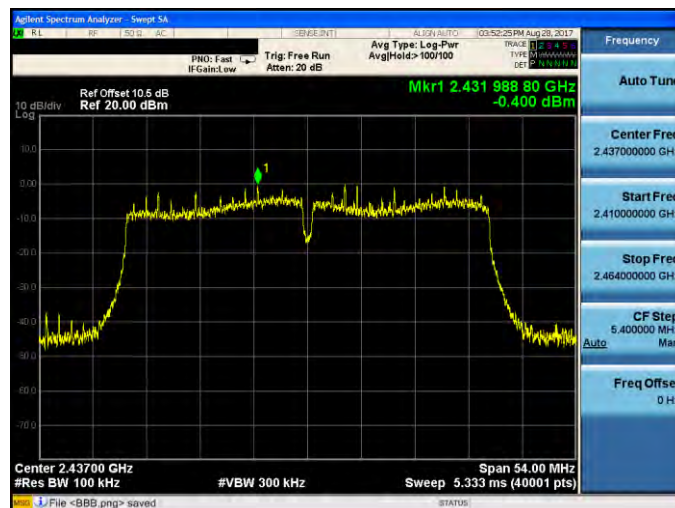


Mode 5: IEEE 802.11n 2.4GHz 40MHz Continuous TX mode_ANT-1

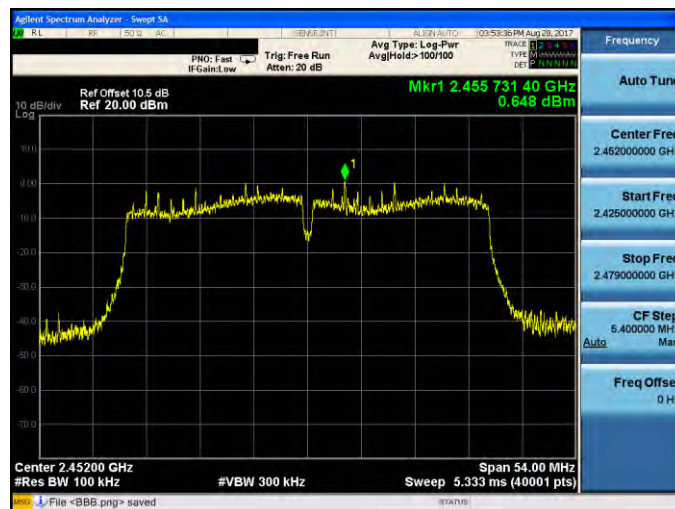
2422 MHz



2437 MHz



2452 MHz

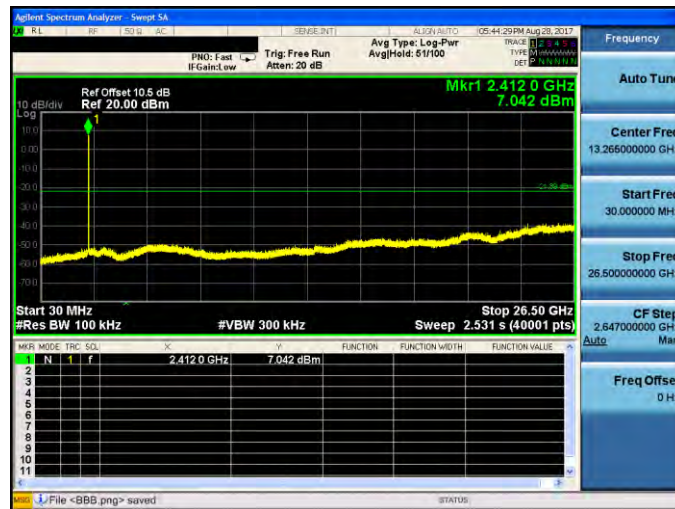




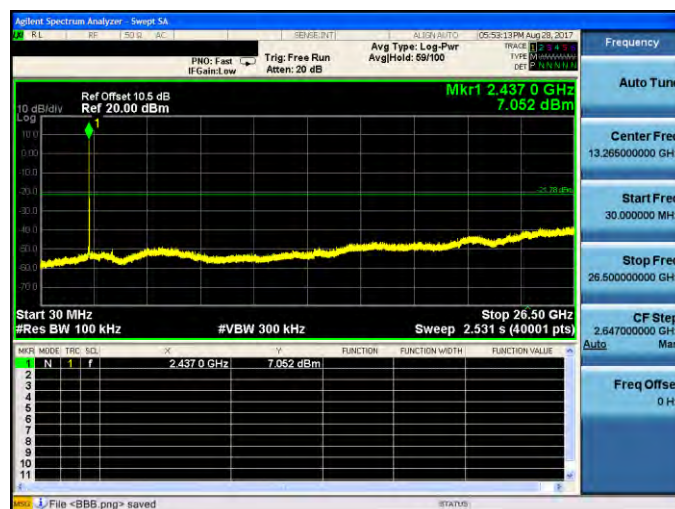
Out of Band Conducted Emissions

Mode 2: IEEE 802.11b Continuous TX mode_ANT-0

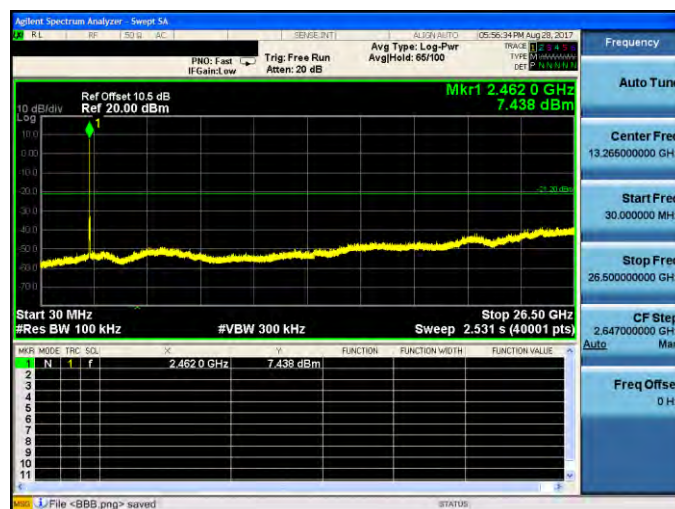
2412 MHz



2437 MHz



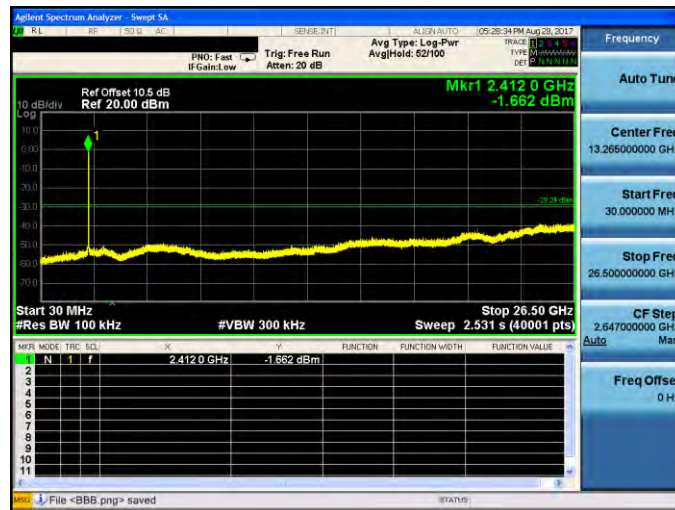
2462 MHz



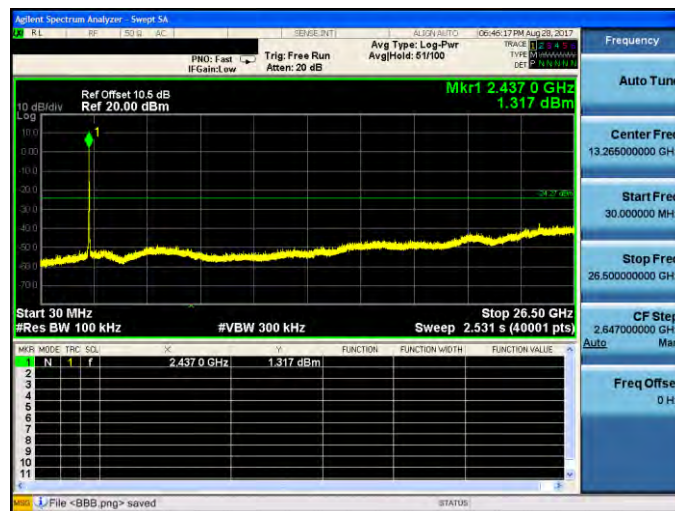


Mode 3: IEEE 802.11g Continuous TX mode_ANT-0

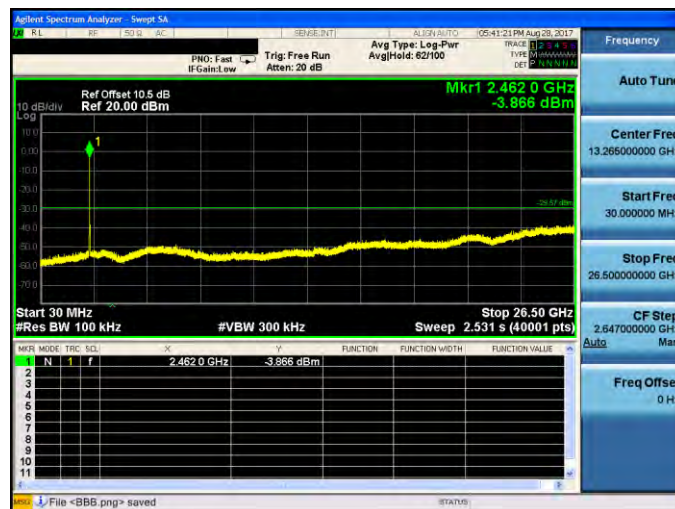
2412 MHz



2437 MHz



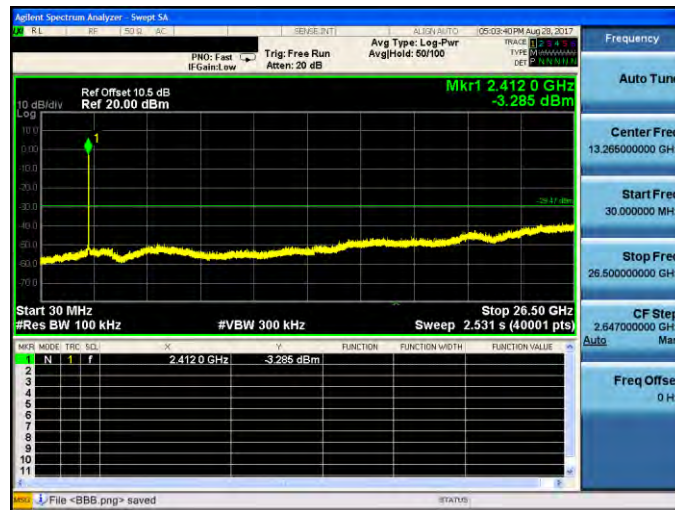
2462 MHz



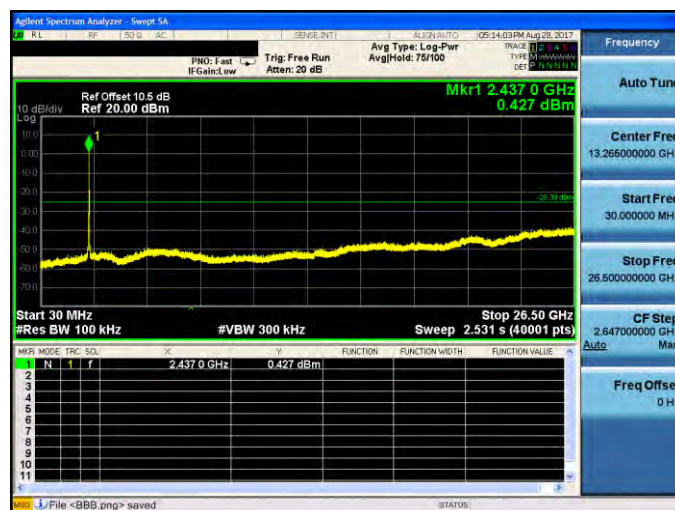


Mode 4: IEEE 802.11n 2.4GHz 20MHz Continuous TX mode_ANT-0

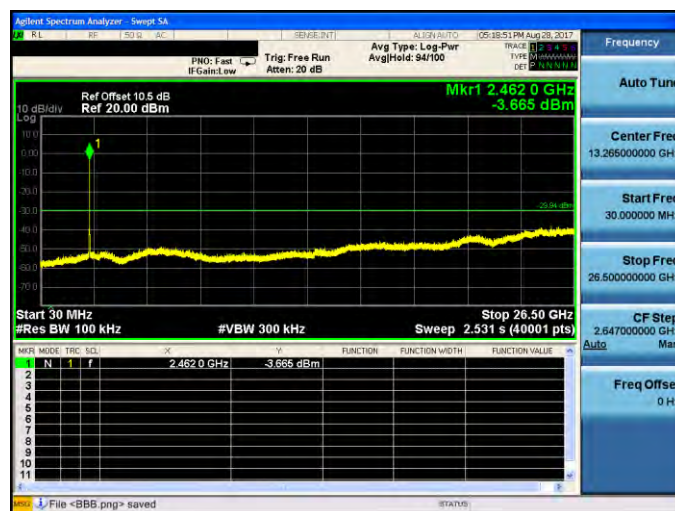
2412 MHz



2437 MHz



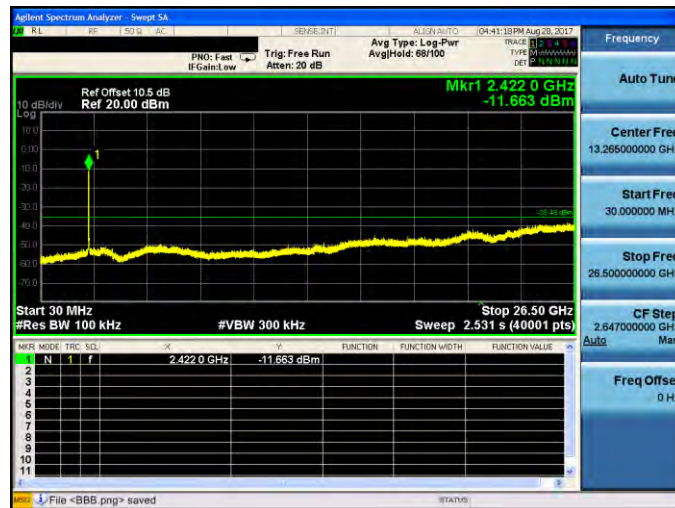
2462 MHz



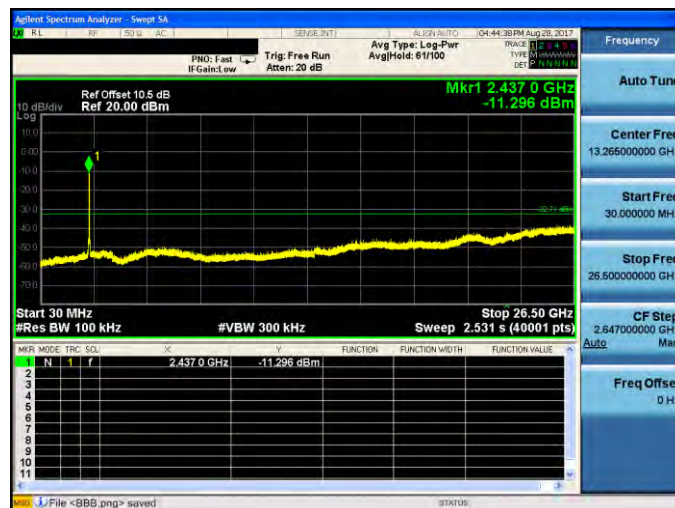


Mode 5: IEEE 802.11n 2.4GHz 40MHz Continuous TX mode_ANT-0

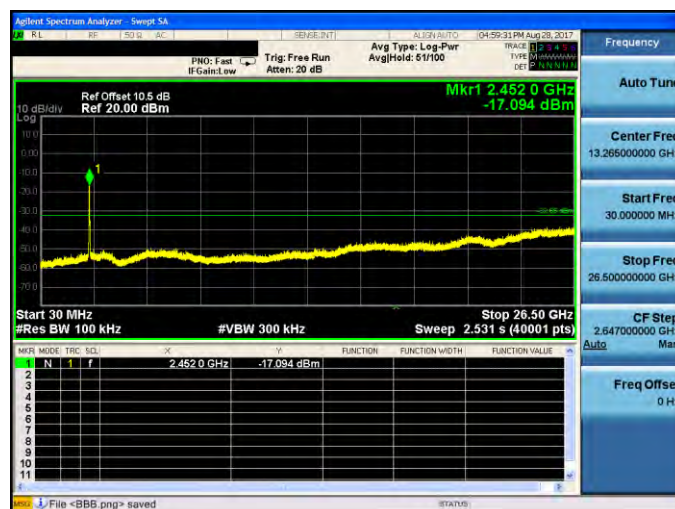
2422 MHz



2437 MHz



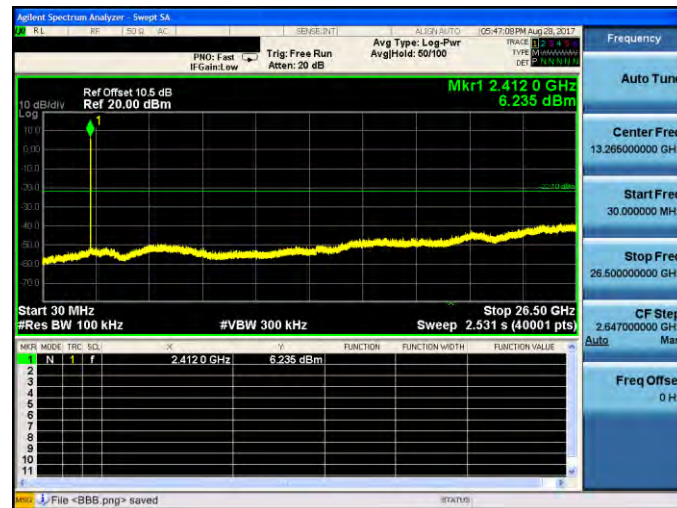
2452 MHz



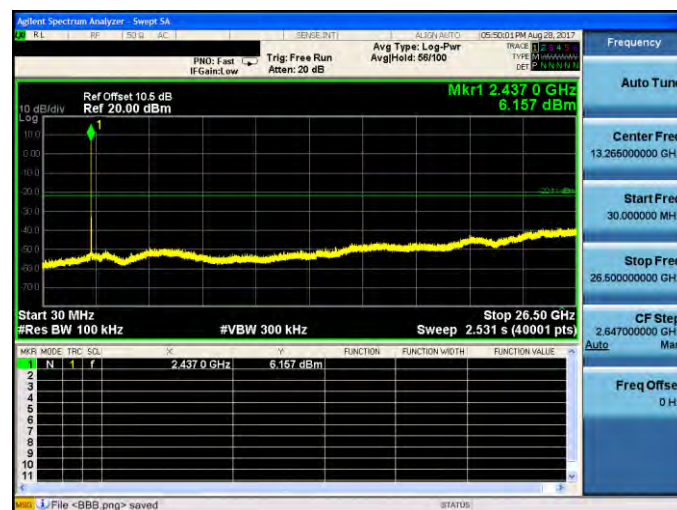


Mode 2: IEEE 802.11b Continuous TX mode_ANT-1

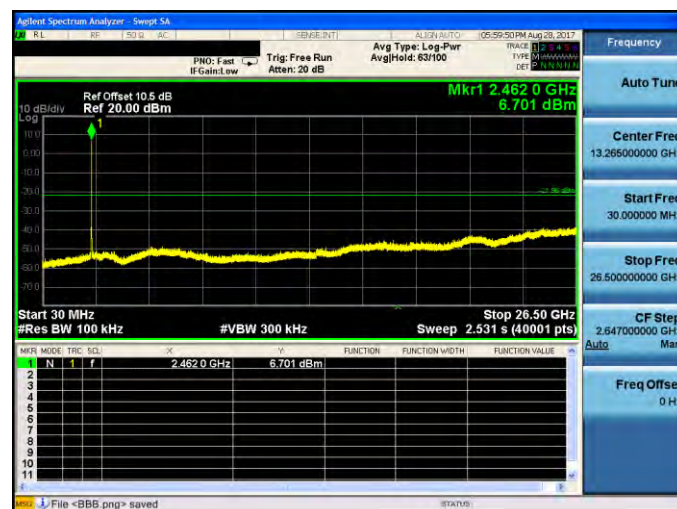
2412 MHz



2437 MHz



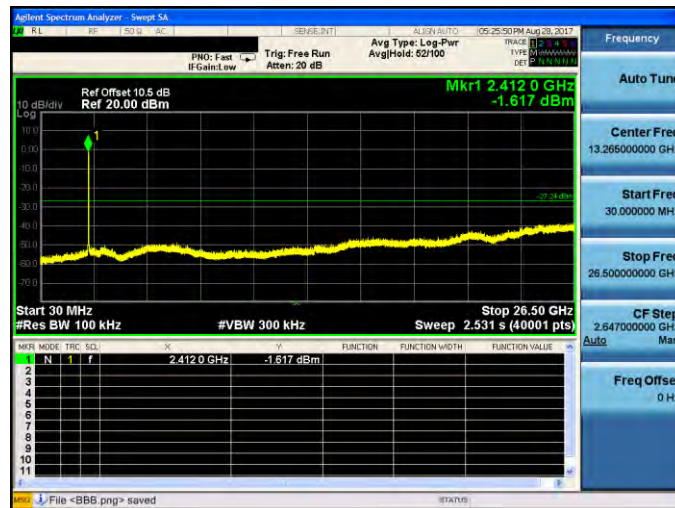
2462 MHz



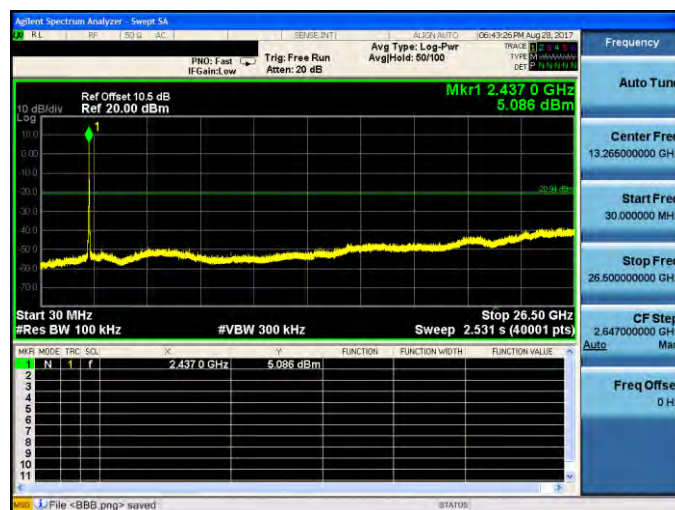


Mode 3: IEEE 802.11g Continuous TX mode_ANT-1

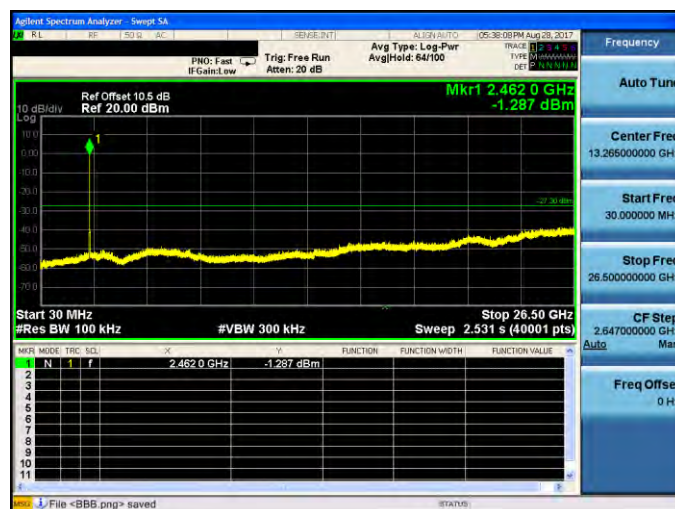
2412 MHz



2437 MHz



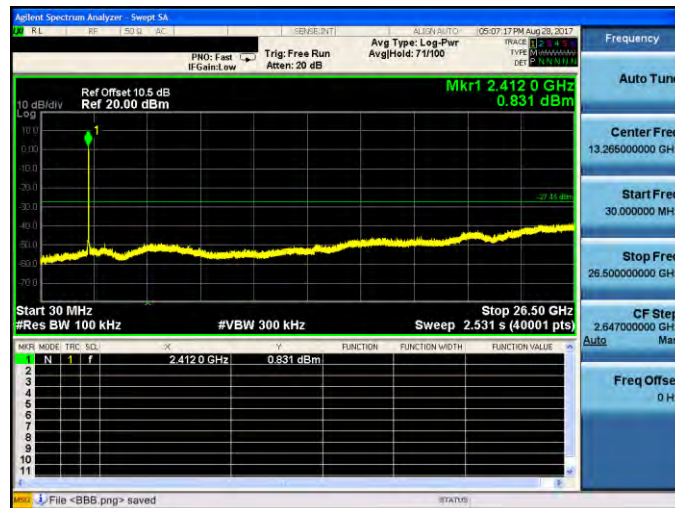
2462 MHz



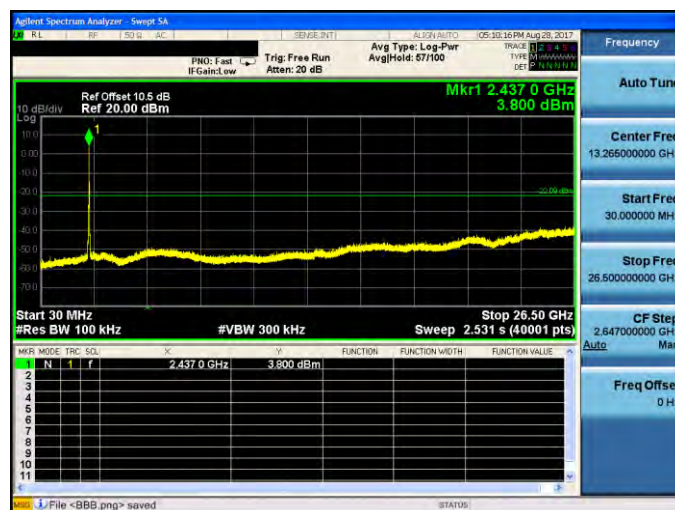


Mode 4: IEEE 802.11n 2.4GHz 20MHz Continuous TX mode_ANT-1

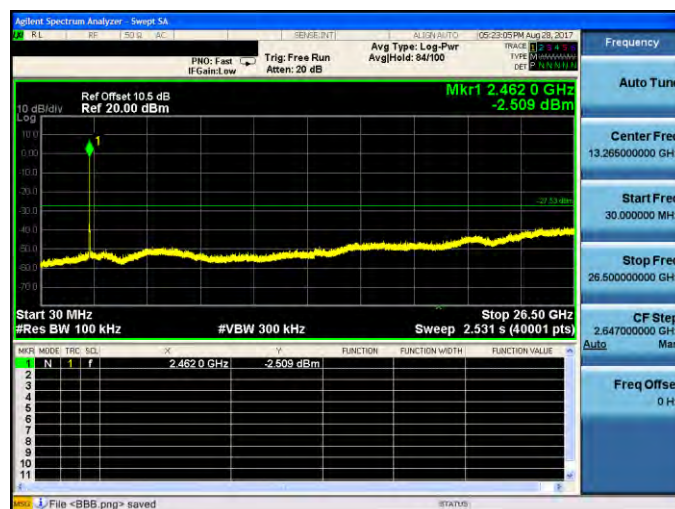
2412 MHz



2437 MHz



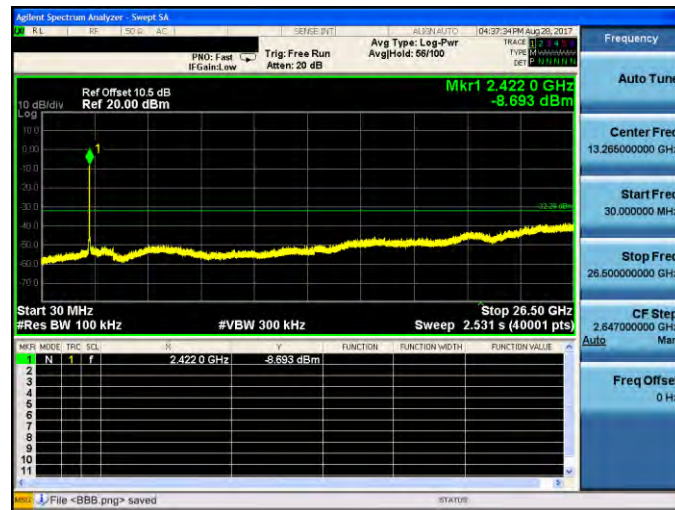
2462 MHz



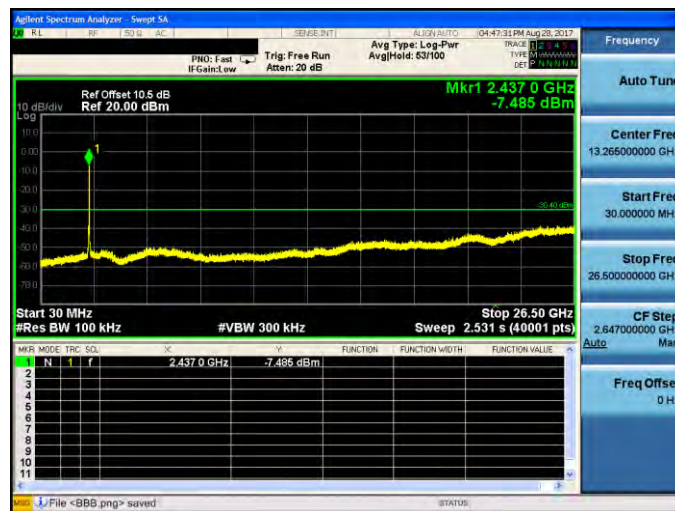


Mode 5: IEEE 802.11n 2.4GHz 40MHz Continuous TX mode_ANT-1

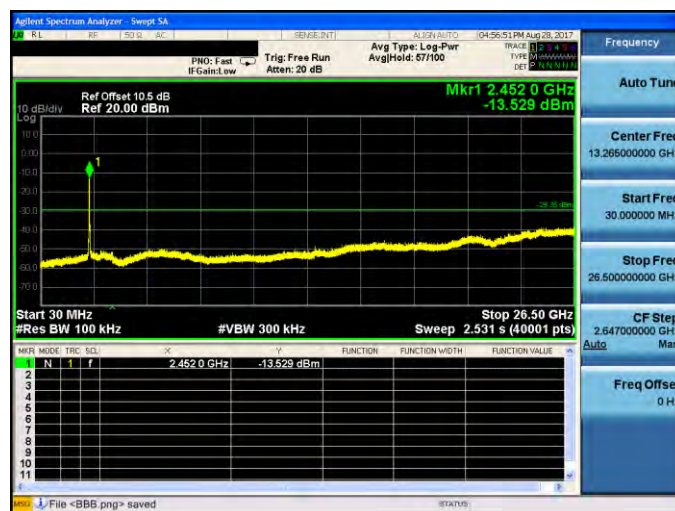
2422 MHz



2437 MHz



2452 MHz

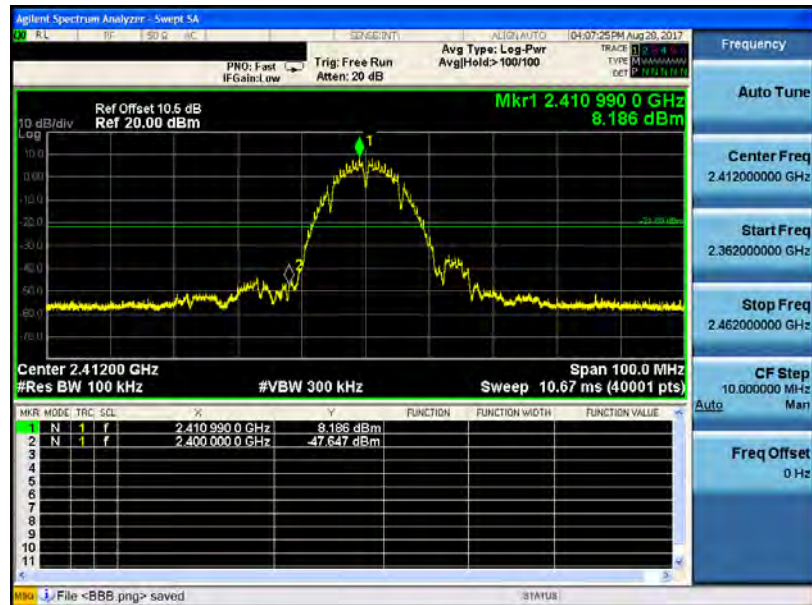




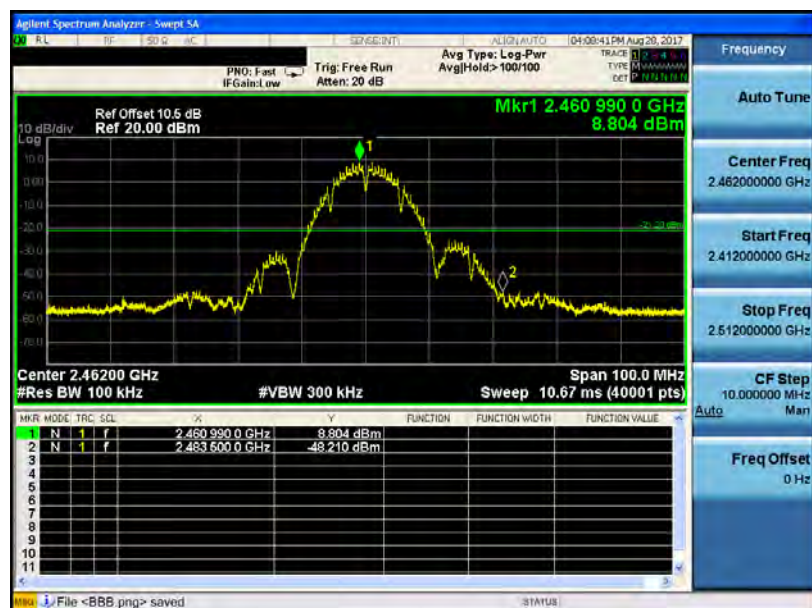
Conducted Band Edge

Mode 2: IEEE 802.11b Continuous TX mode_ANT-0

2412 MHz



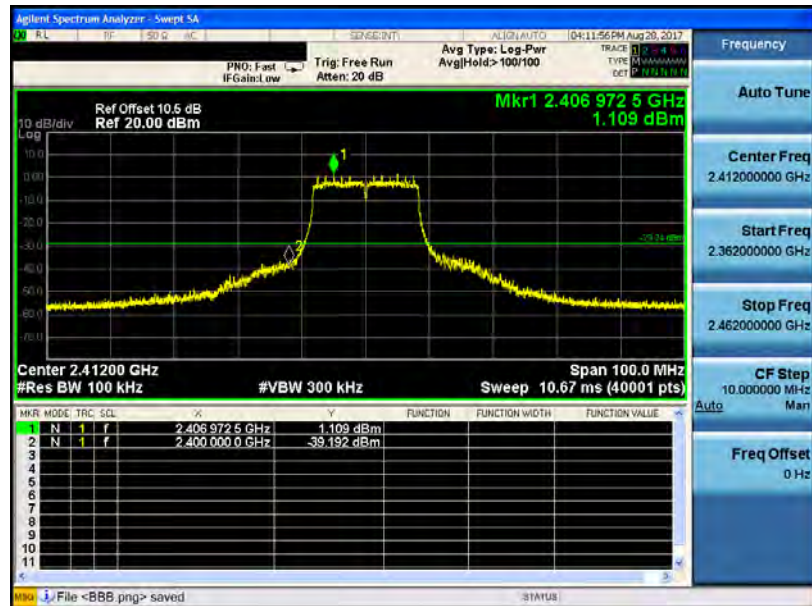
2462 MHz



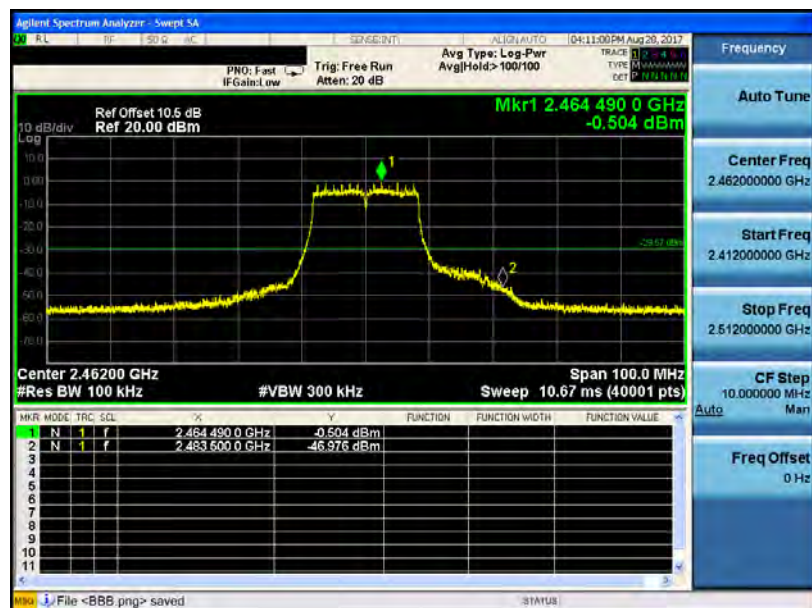


Mode 3: IEEE 802.11g Continuous TX mode_ANT-0

2412 MHz



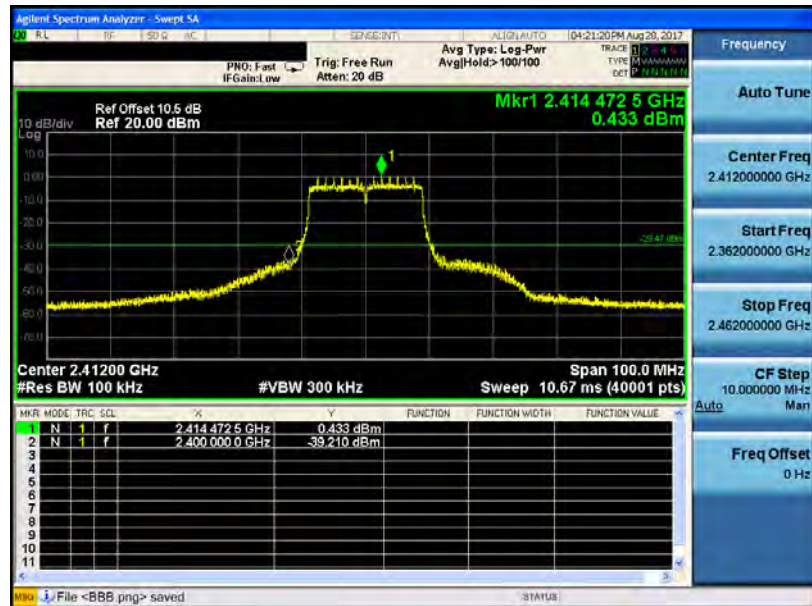
2462 MHz



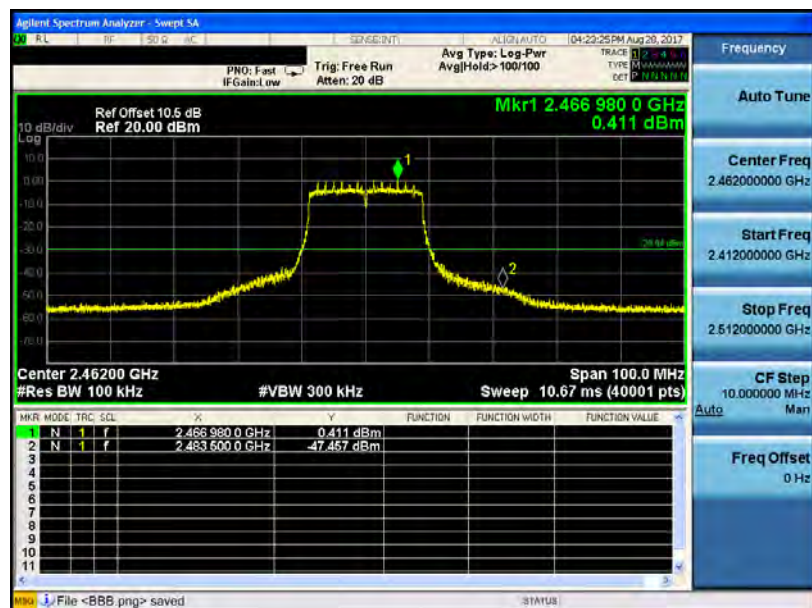


Mode 4: IEEE 802.11n 2.4GHz 20MHz Continuous TX mode_ANT-0

2412 MHz



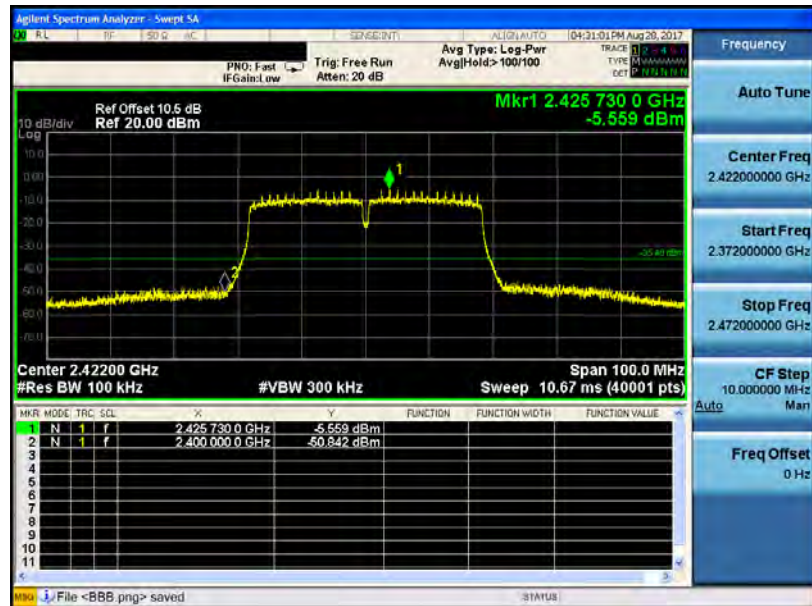
2462 MHz



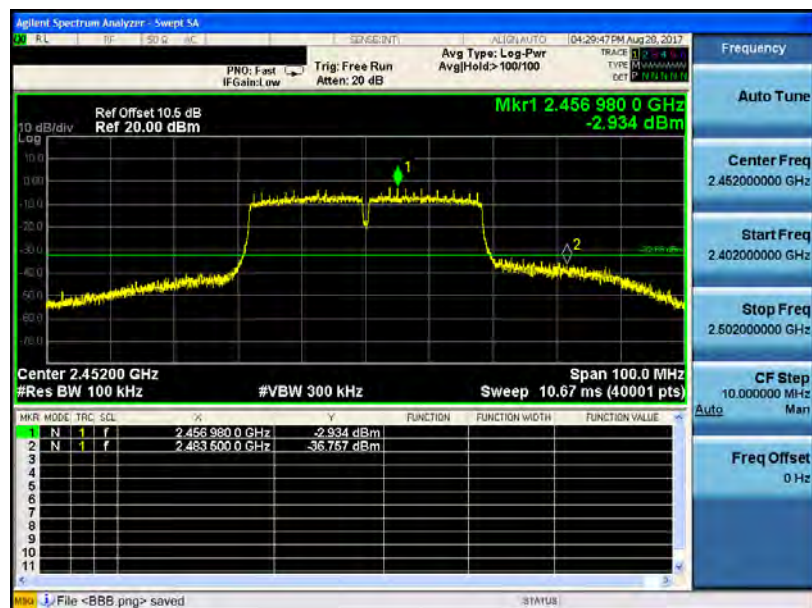


Mode 5: IEEE 802.11n 2.4GHz 40MHz Continuous TX mode_ANT-0

2422 MHz



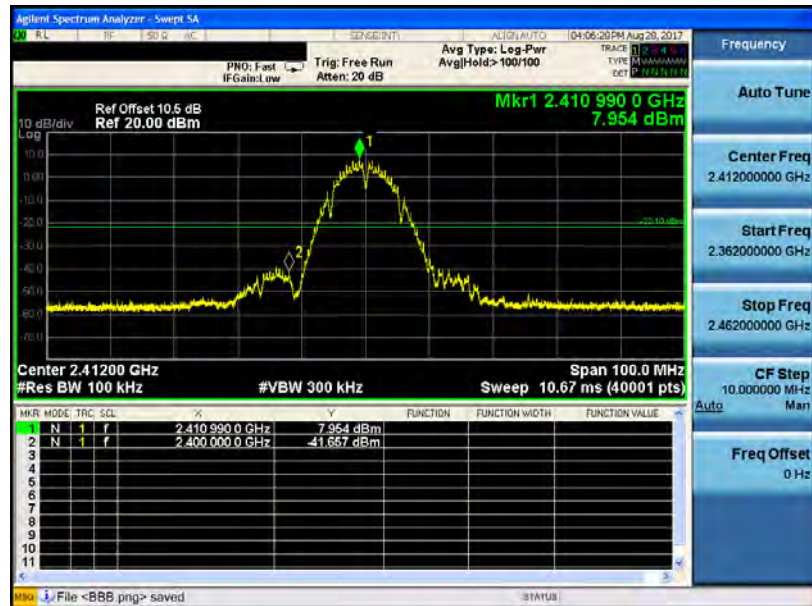
2452 MHz



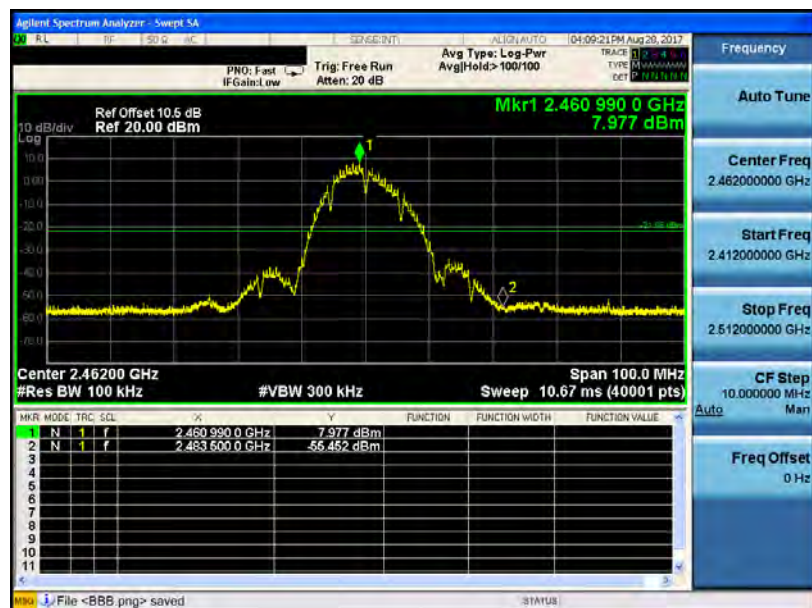


Mode 2: IEEE 802.11b Continuous TX mode_ANT-0

2412 MHz



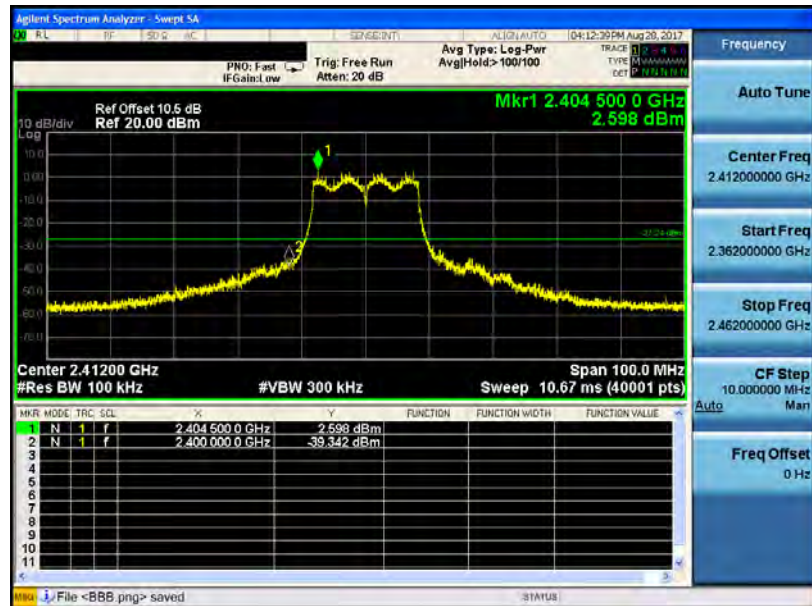
2462 MHz



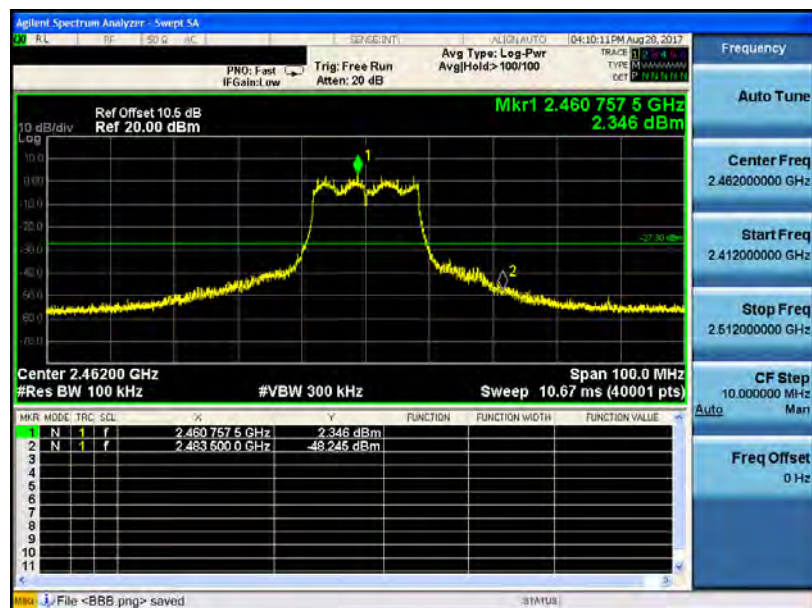


Mode 3: IEEE 802.11g Continuous TX mode_ANT-1

2412 MHz



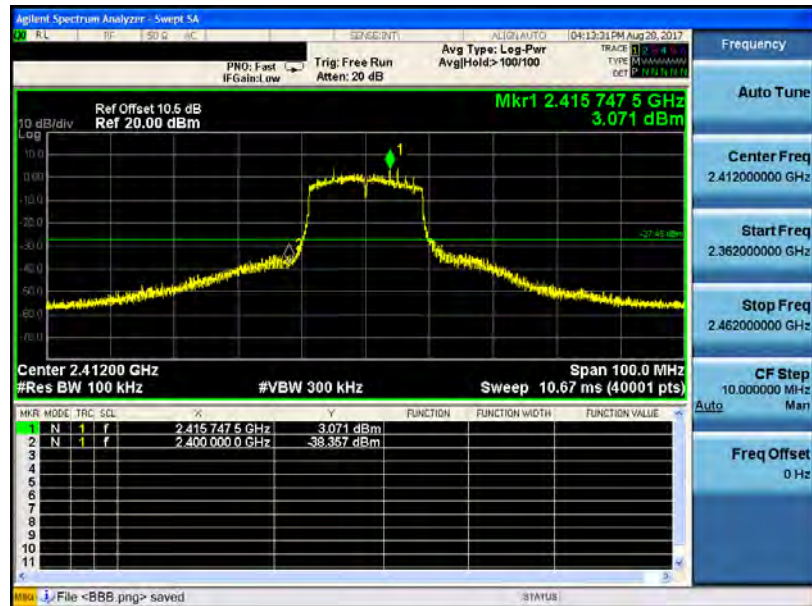
2462 MHz



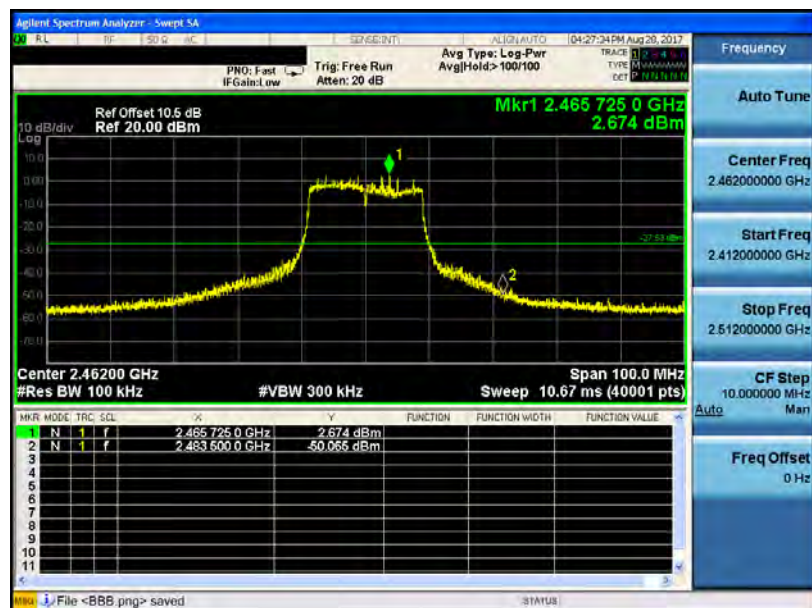


Mode 4: IEEE 802.11n 2.4GHz 20MHz Continuous TX mode_ANT-1

2412 MHz



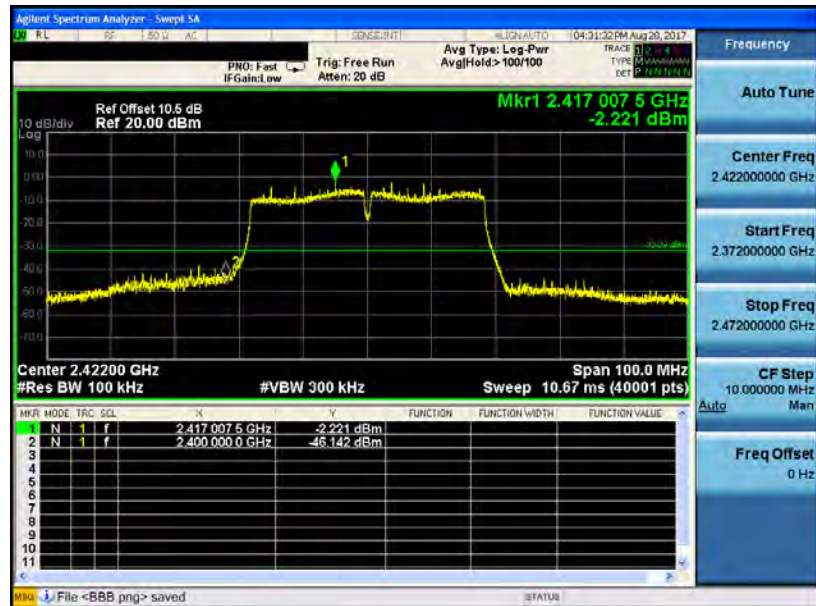
2462 MHz



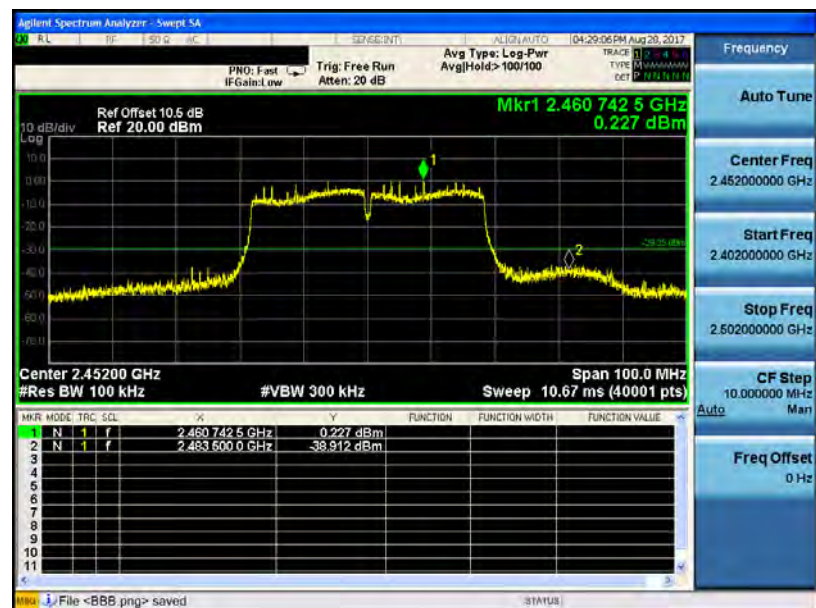


Mode 5: IEEE 802.11n 2.4GHz 40MHz Continuous TX mode_ANT-1

2422 MHz



2452 MHz





10 Antenna Measurement

10.1.Limit

For intentional device, according to 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And According to 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

10.2.Antenna Description

See section 2 – antenna information.

10.3.Directiona Gain Calculated

For Maximum Power Density

Directional Gain = $10 \cdot \log\{[10^{(G1/20)} + 10^{(G2/20)} + \dots + 10^{(Gn/20)}]^2 / NANT\} = 7.59 \text{ dBi} > 6\text{dBi}$

Operate Freq. Band	Directional Gain (dBi)
IEEE 802.11b	7.59
IEEE 802.11g	7.59
IEEE 802.11n 2.4GHz 20MHz	7.59
IEEE 802.11n 2.4GHz 40MHz	7.59