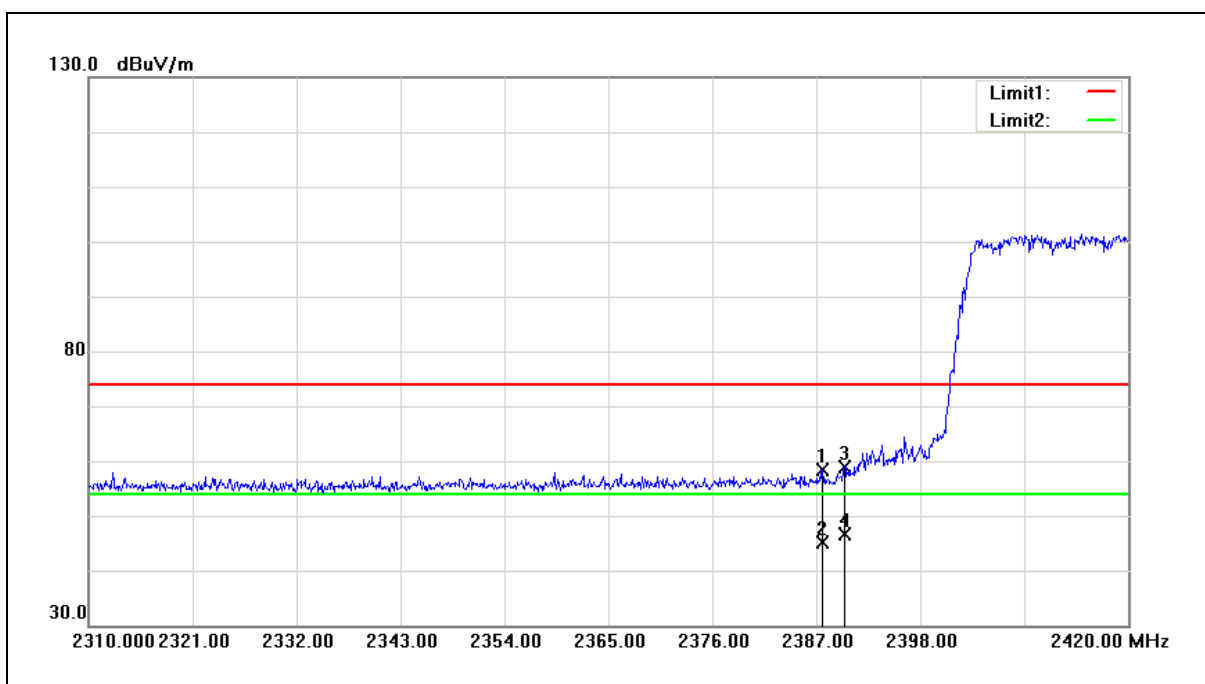


Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	2412MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	03/21/2017
Ant.Polar.:	Horizontal		



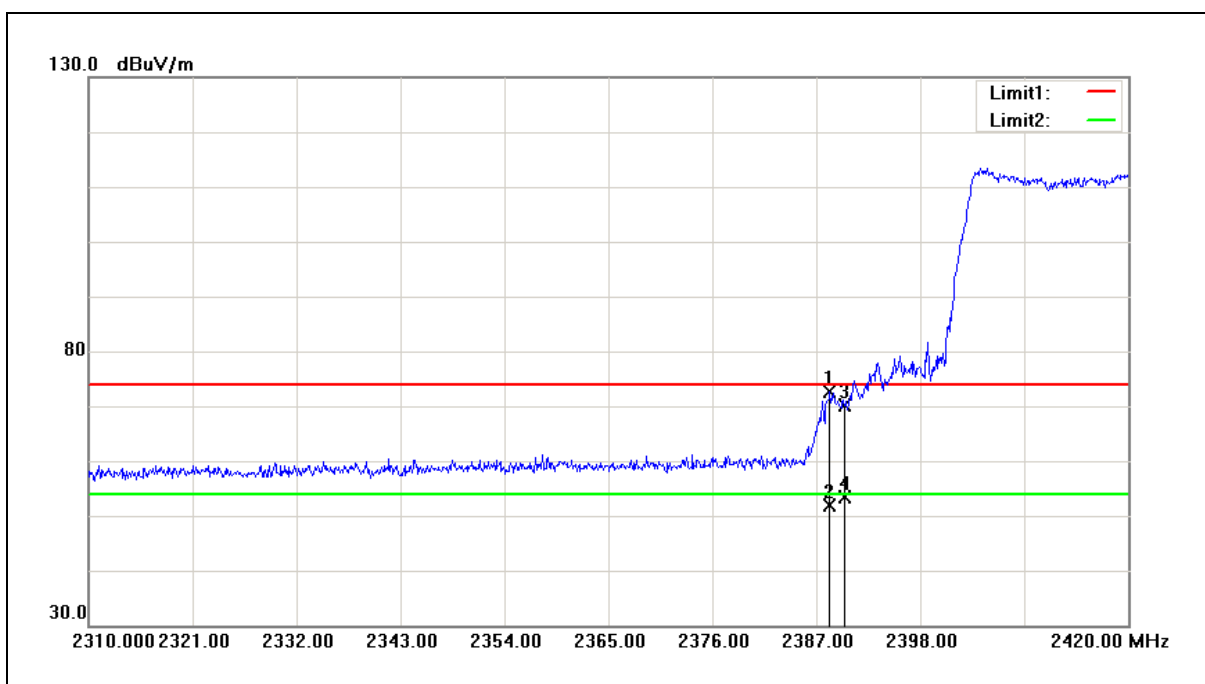
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2387.660	58.57	-0.26	58.31	74.00	-15.69	peak
2	2387.660	45.47	-0.26	45.21	54.00	-8.79	AVG
3	2390.000	59.26	-0.26	59.00	74.00	-15.00	peak
4	2390.000	46.97	-0.26	46.71	54.00	-7.29	AVG

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 15C	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	2412MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	03/21/2017
Ant.Polar.:	Vertical		



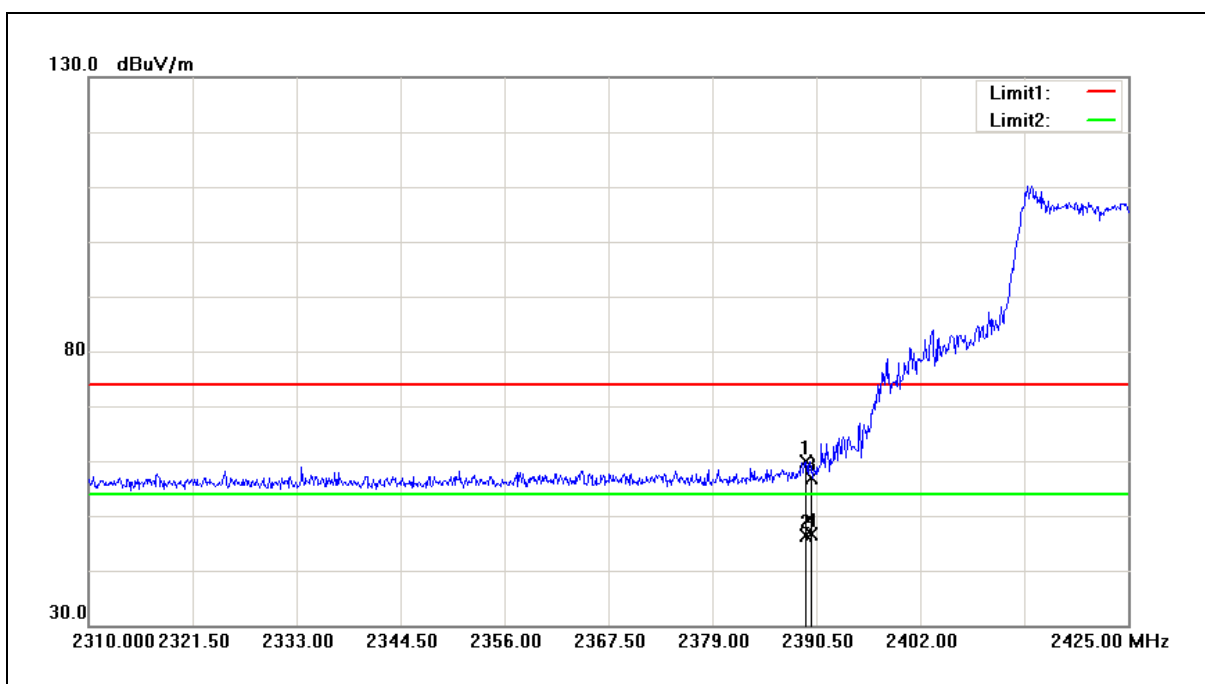
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2388.430	72.83	-0.26	72.57	74.00	-1.43	peak
2	2388.430	52.21	-0.26	51.95	54.00	-2.05	AVG
3	2390.000	70.38	-0.26	70.12	74.00	-3.88	peak
4	2390.000	53.67	-0.26	53.41	54.00	-0.59	AVG

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 15C	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	2422MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	03/21/2017
Ant.Polar.:	Horizontal		



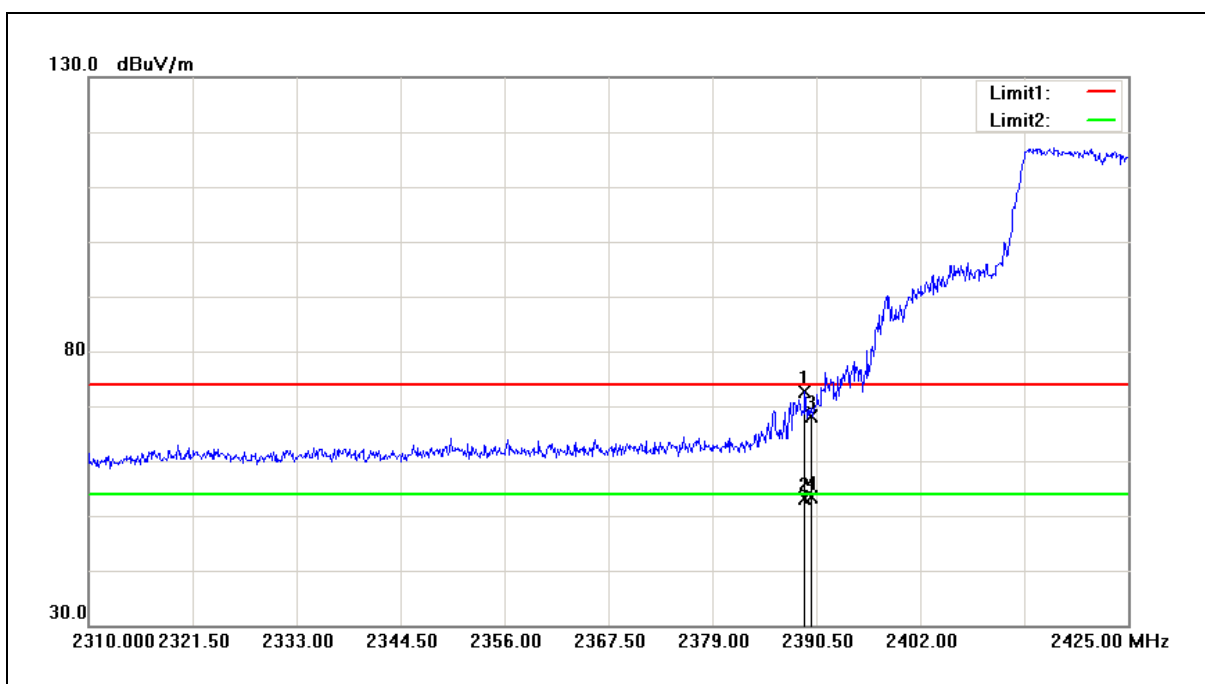
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.350	60.25	-0.26	59.99	74.00	-14.01	peak
2	2389.350	46.62	-0.26	46.36	54.00	-7.64	AVG
3	2390.000	57.23	-0.26	56.97	74.00	-17.03	peak
4	2390.000	46.97	-0.26	46.71	54.00	-7.29	AVG

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 15C	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	2422MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	03/21/2017
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.235	72.84	-0.26	72.58	74.00	-1.42	peak
2	2389.235	53.38	-0.26	53.12	54.00	-0.88	AVG
3	2390.000	68.41	-0.26	68.15	74.00	-5.85	peak
4	2390.000	53.53	-0.26	53.27	54.00	-0.73	AVG

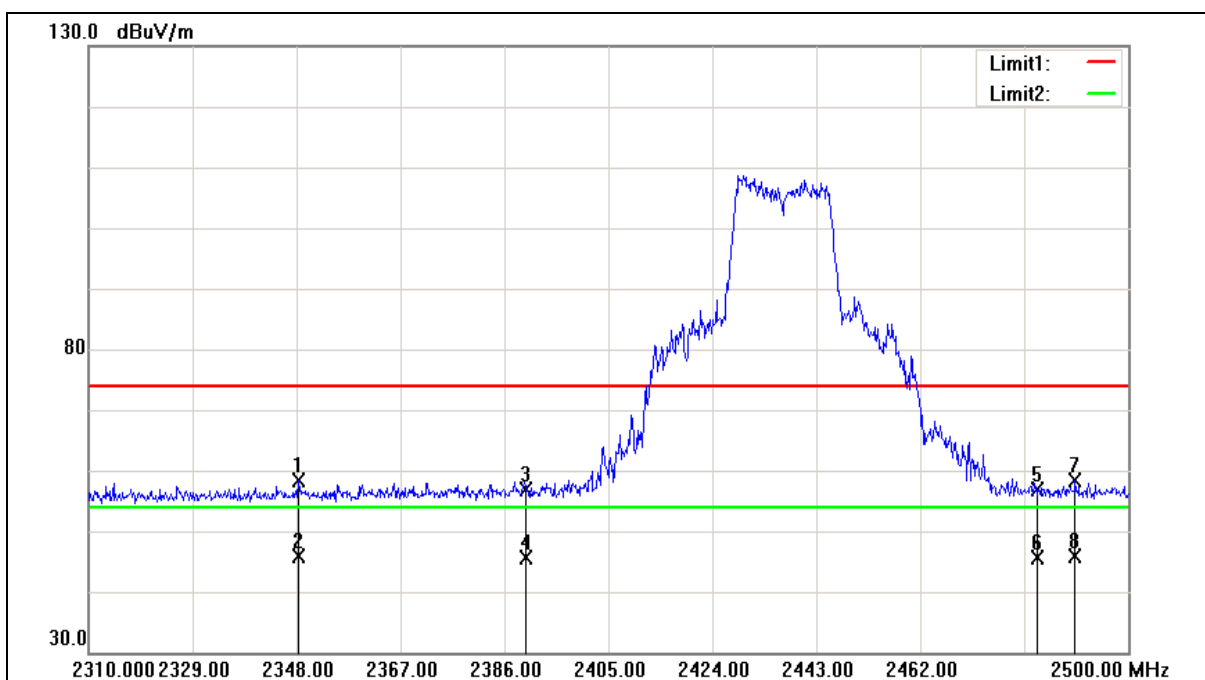
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

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 15C	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	2437MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	03/21/2017
Ant.Polar.:	Horizontal		



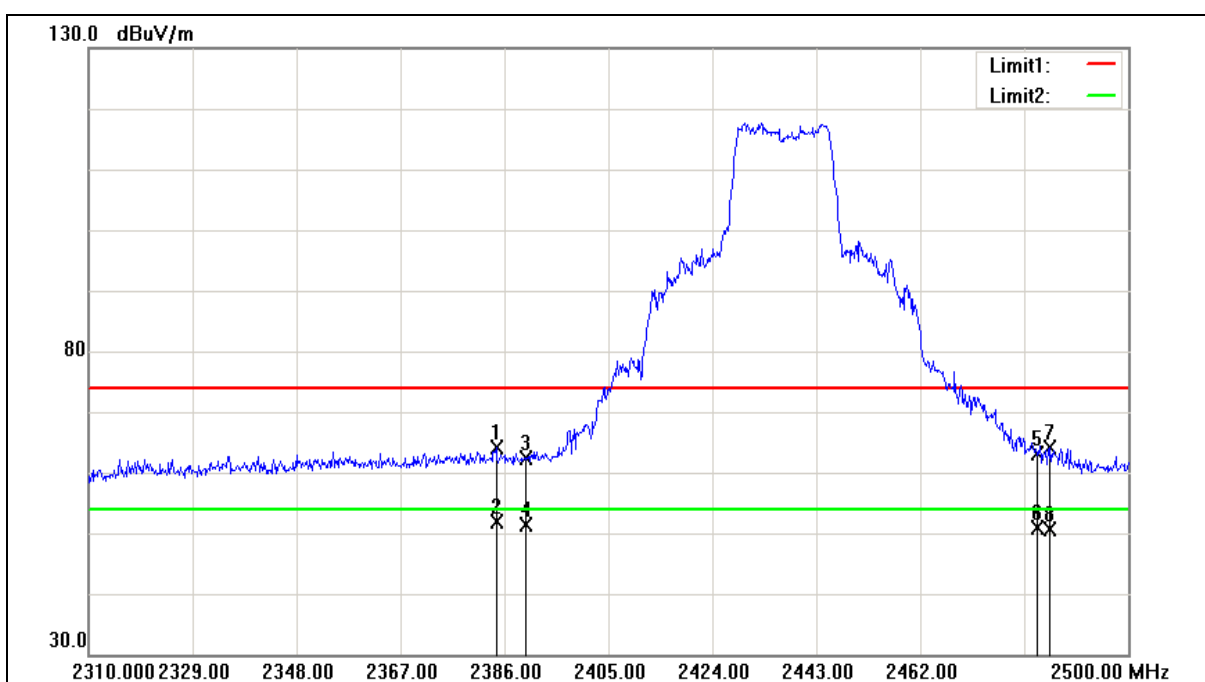
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2348.380	58.69	-0.42	58.27	74.00	-15.73	peak
2	2348.380	46.40	-0.42	45.98	54.00	-8.02	AVG
3	2390.000	57.17	-0.26	56.91	74.00	-17.09	peak
4	2390.000	45.97	-0.26	45.71	54.00	-8.29	AVG
5	2483.500	56.68	0.11	56.79	74.00	-17.21	peak
6	2483.500	45.59	0.11	45.70	54.00	-8.30	AVG
7	2490.310	58.17	0.14	58.31	74.00	-15.69	peak
8	2490.310	45.76	0.14	45.90	54.00	-8.10	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.

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	2437MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	03/21/2017
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2384.480	64.42	-0.28	64.14	74.00	-9.86	peak
2	2384.480	52.26	-0.28	51.98	54.00	-2.02	AVG
3	2390.000	62.62	-0.26	62.36	74.00	-11.64	peak
4	2390.000	51.58	-0.26	51.32	54.00	-2.68	AVG
5	2483.500	63.00	0.11	63.11	74.00	-10.89	peak
6	2483.500	50.65	0.11	50.76	54.00	-3.24	AVG
7	2485.750	63.98	0.12	64.10	74.00	-9.90	peak
8	2485.750	50.58	0.12	50.70	54.00	-3.30	AVG

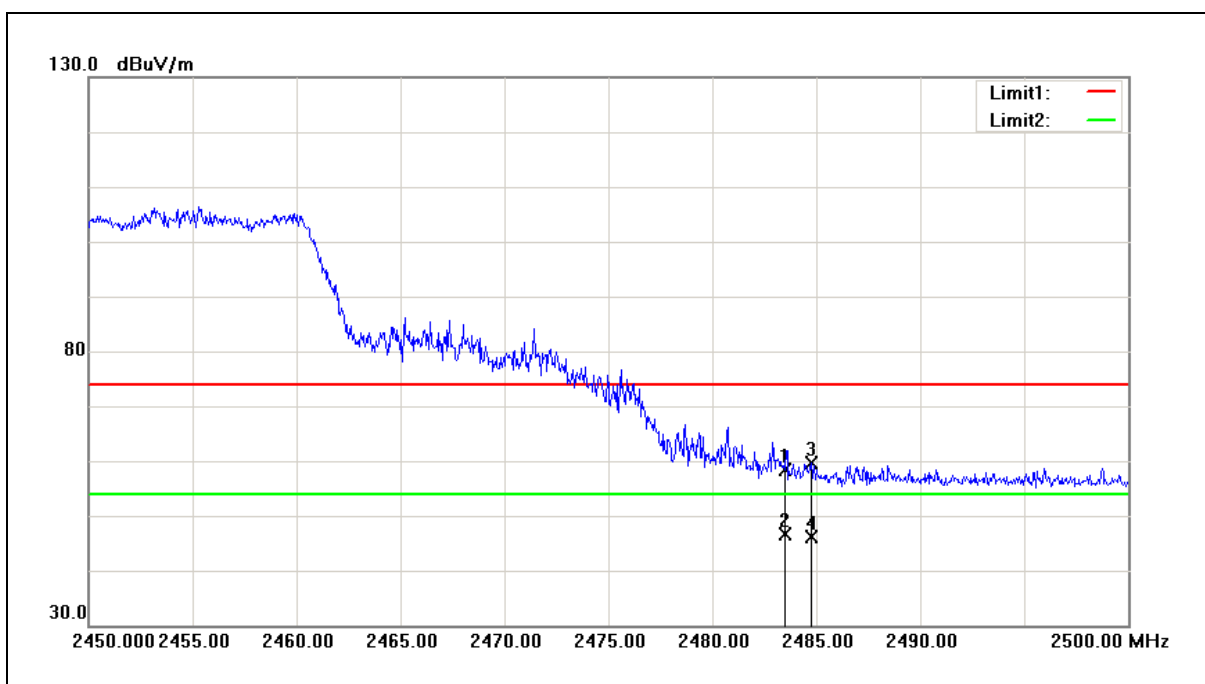
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

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 15C	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	2452MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	03/21/2017
Ant.Polar.:	Horizontal		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	58.32	0.11	58.43	74.00	-15.57	peak
2	2483.500	46.56	0.11	46.67	54.00	-7.33	AVG
3	2484.750	59.46	0.12	59.58	74.00	-14.42	peak
4	2484.750	46.00	0.12	46.12	54.00	-7.88	AVG

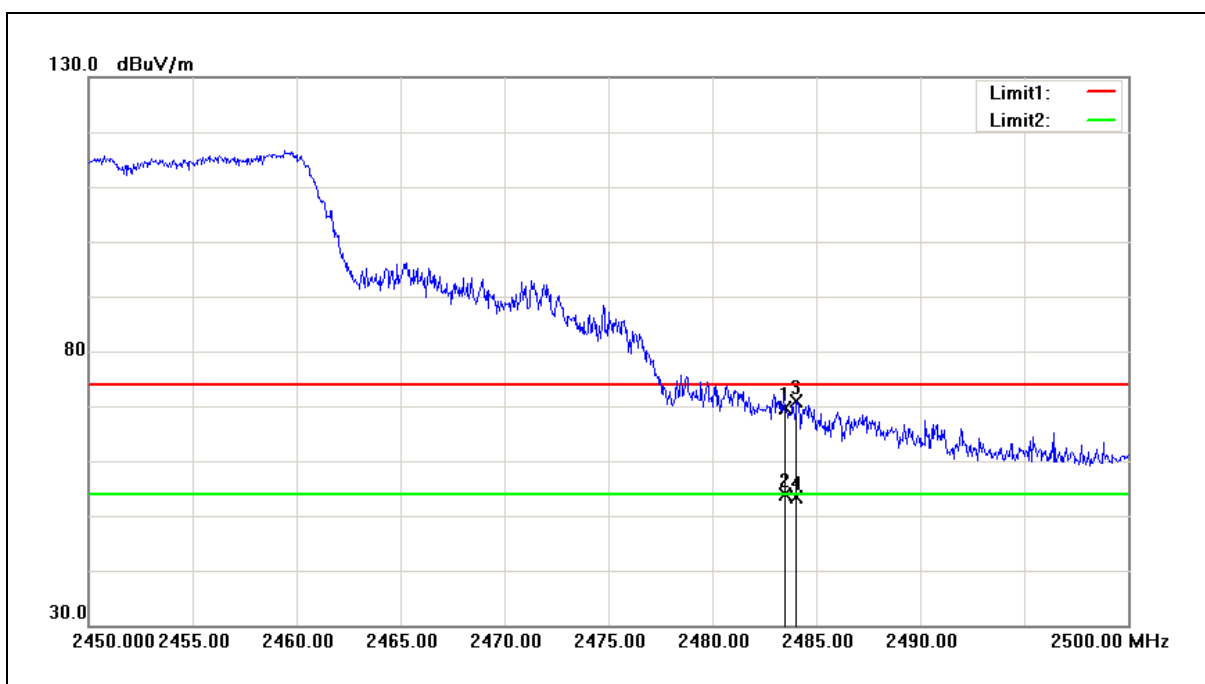
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

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 15C	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	2452MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	03/21/2017
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	69.48	0.11	69.59	74.00	-4.41	peak
2	2483.500	53.66	0.11	53.77	54.00	-0.23	AVG
3	2484.050	70.85	0.12	70.97	74.00	-3.03	peak
4	2484.050	53.27	0.12	53.39	54.00	-0.61	AVG

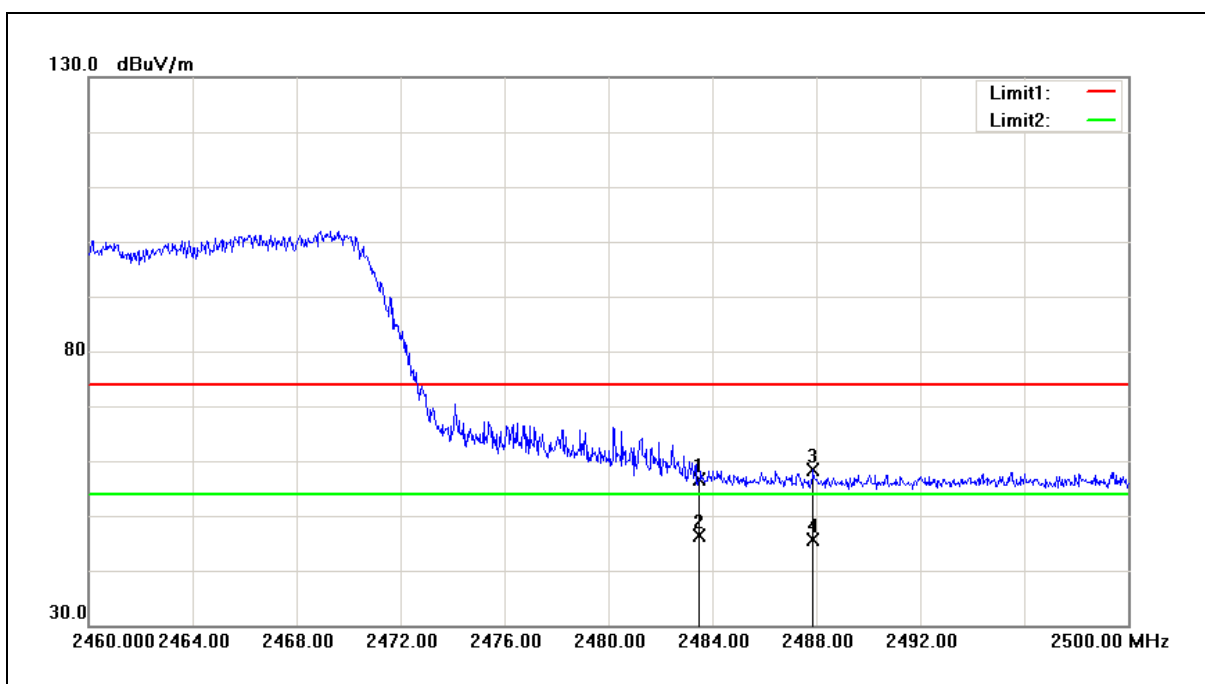
Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

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 15C	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	2462MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	03/21/2017
Ant.Polar.:	Horizontal		



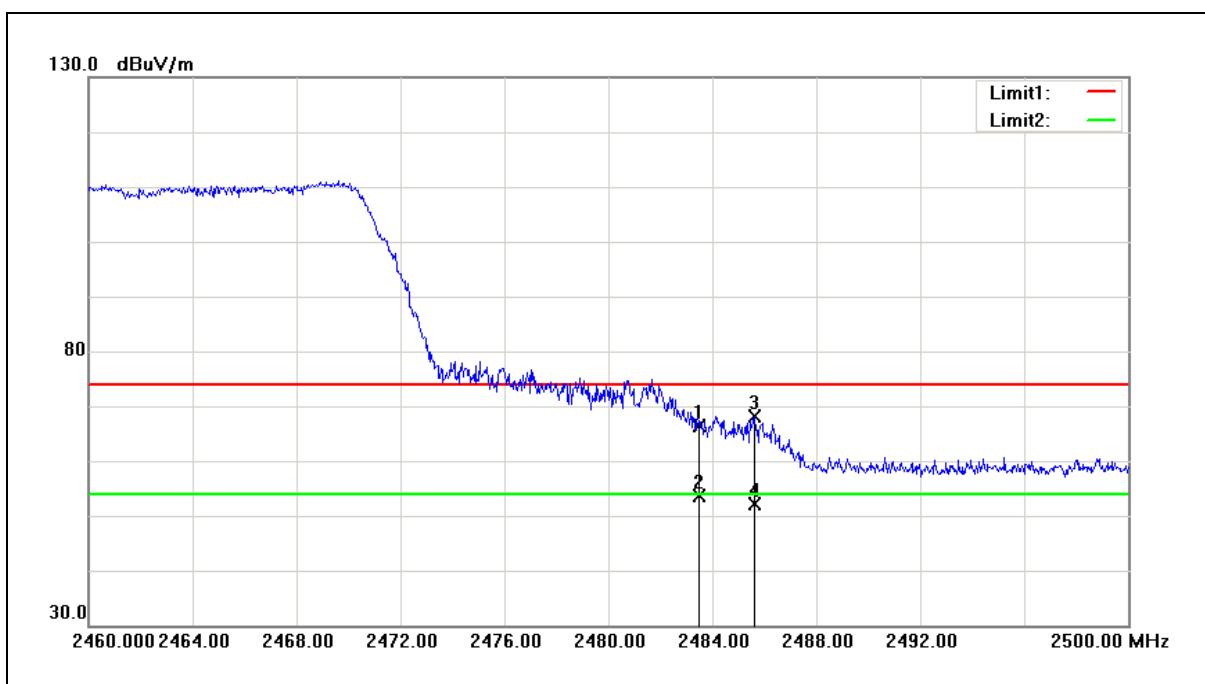
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	56.64	0.11	56.75	74.00	-17.25	peak
2	2483.500	46.36	0.11	46.47	54.00	-7.53	AVG
3	2487.880	58.36	0.13	58.49	74.00	-15.51	peak
4	2487.880	45.40	0.13	45.53	54.00	-8.47	AVG

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 15C	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	2462MHz	Temp.(°C)/Hum. (%RH):	26(°C)/60%RH
Mode:	Mode 4	Date:	03/21/2017
Ant.Polar.:	Vertical		



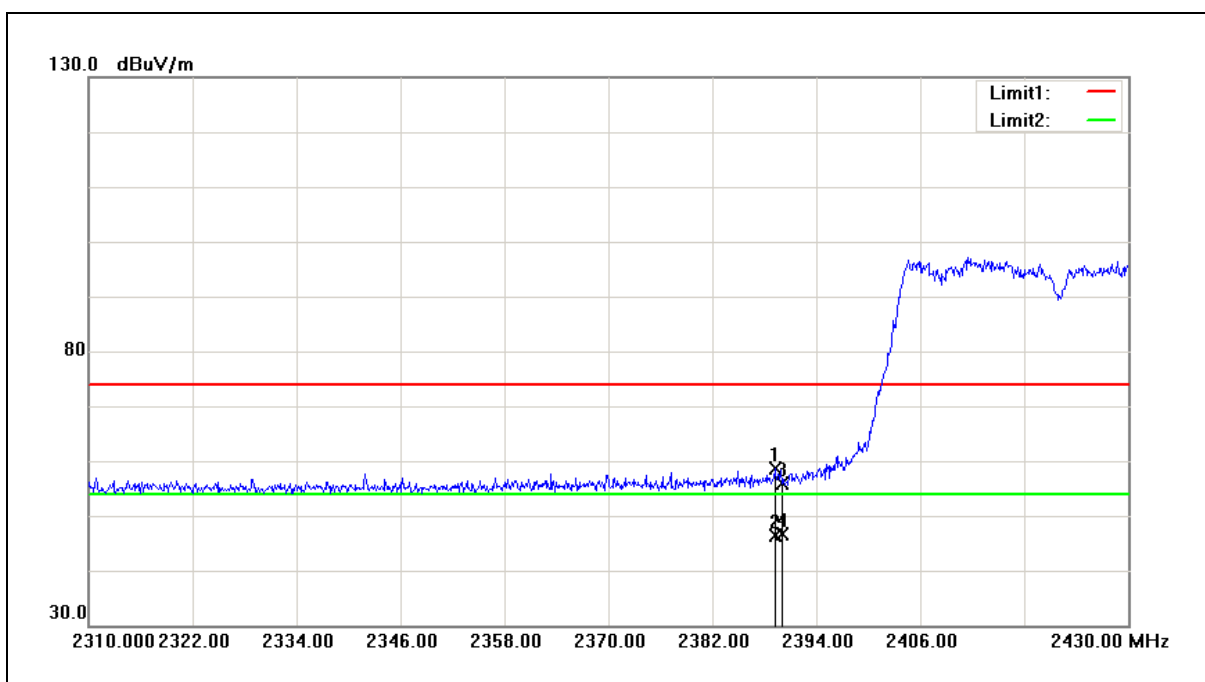
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	66.30	0.11	66.41	74.00	-7.59	peak
2	2483.500	53.52	0.11	53.63	54.00	-0.37	AVG
3	2485.640	68.10	0.12	68.22	74.00	-5.78	peak
4	2485.640	52.07	0.12	52.19	54.00	-1.81	AVG

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 15C	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	2422MHz	Temp.(°C)/Hum. (%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	03/21/2017
Ant.Polar.:	Horizontal		



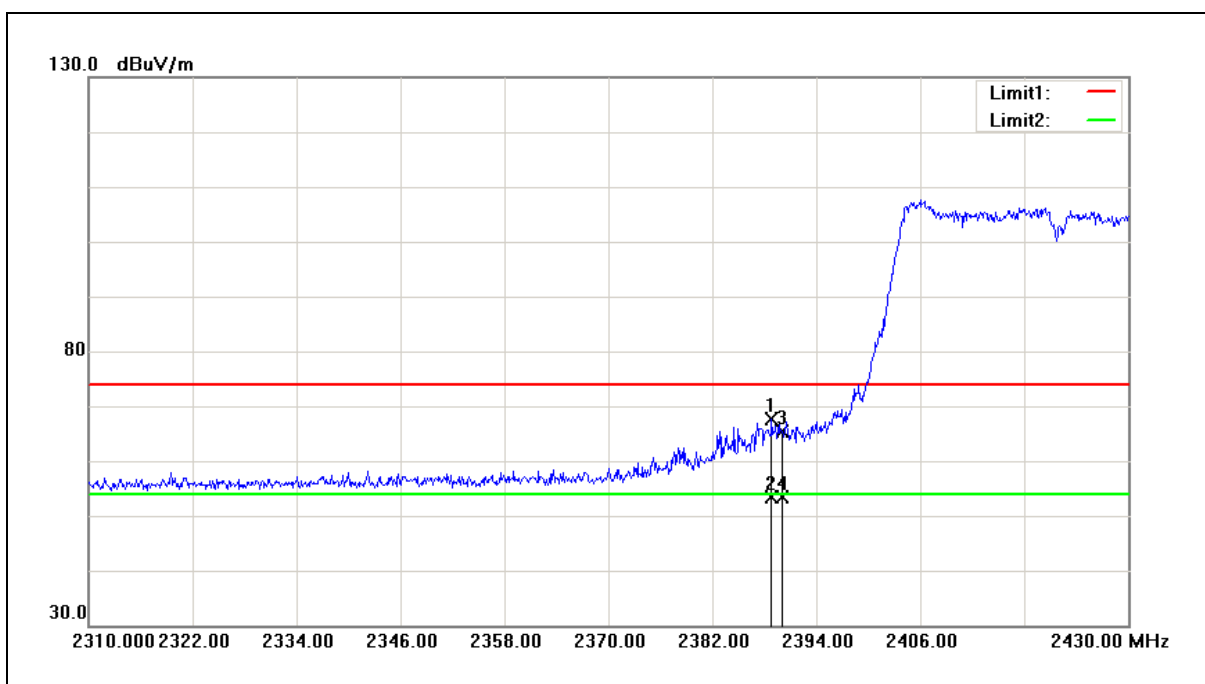
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.200	58.89	-0.26	58.63	74.00	-15.37	peak
2	2389.200	46.68	-0.26	46.42	54.00	-7.58	AVG
3	2390.000	56.18	-0.26	55.92	74.00	-18.08	peak
4	2390.000	46.77	-0.26	46.51	54.00	-7.49	AVG

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 15C	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	2422MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	03/21/2017
Ant.Polar.:	Vertical		



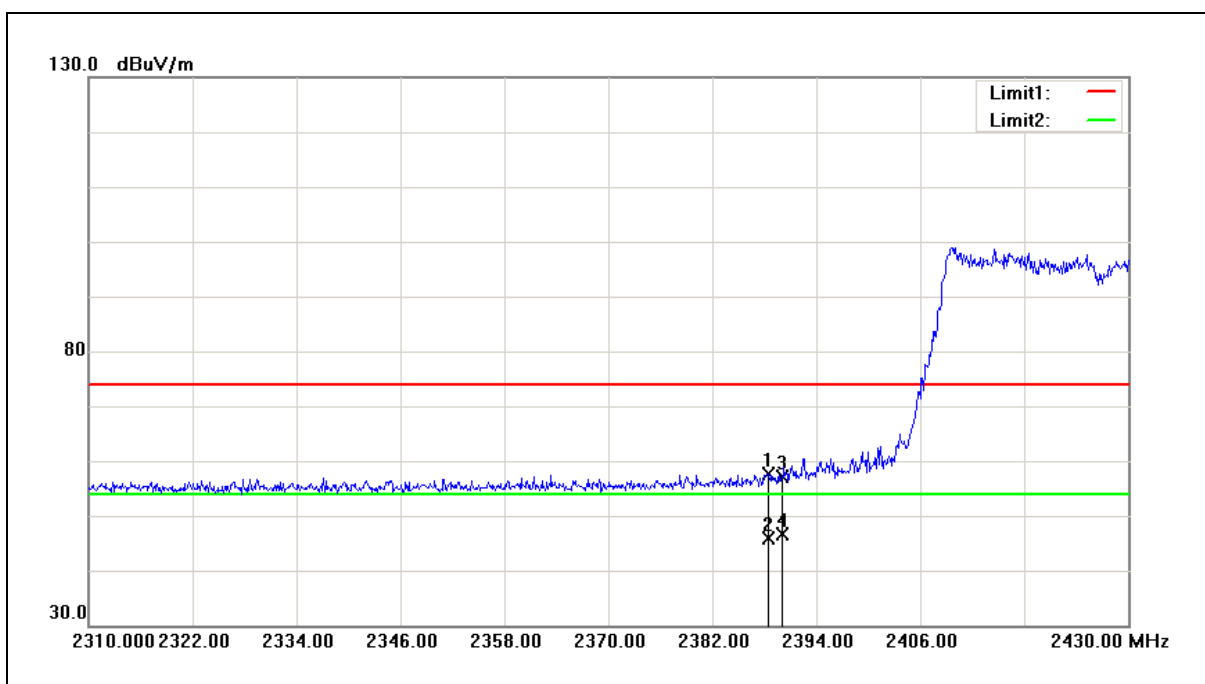
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2388.840	67.95	-0.26	67.69	74.00	-6.31	peak
2	2388.840	53.54	-0.26	53.28	54.00	-0.72	AVG
3	2390.000	65.73	-0.26	65.47	74.00	-8.53	peak
4	2390.000	53.58	-0.26	53.32	54.00	-0.68	AVG

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 15C	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	2427MHz	Temp.(°C)/Hum. (%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	03/21/2017
Ant.Polar.:	Horizontal		



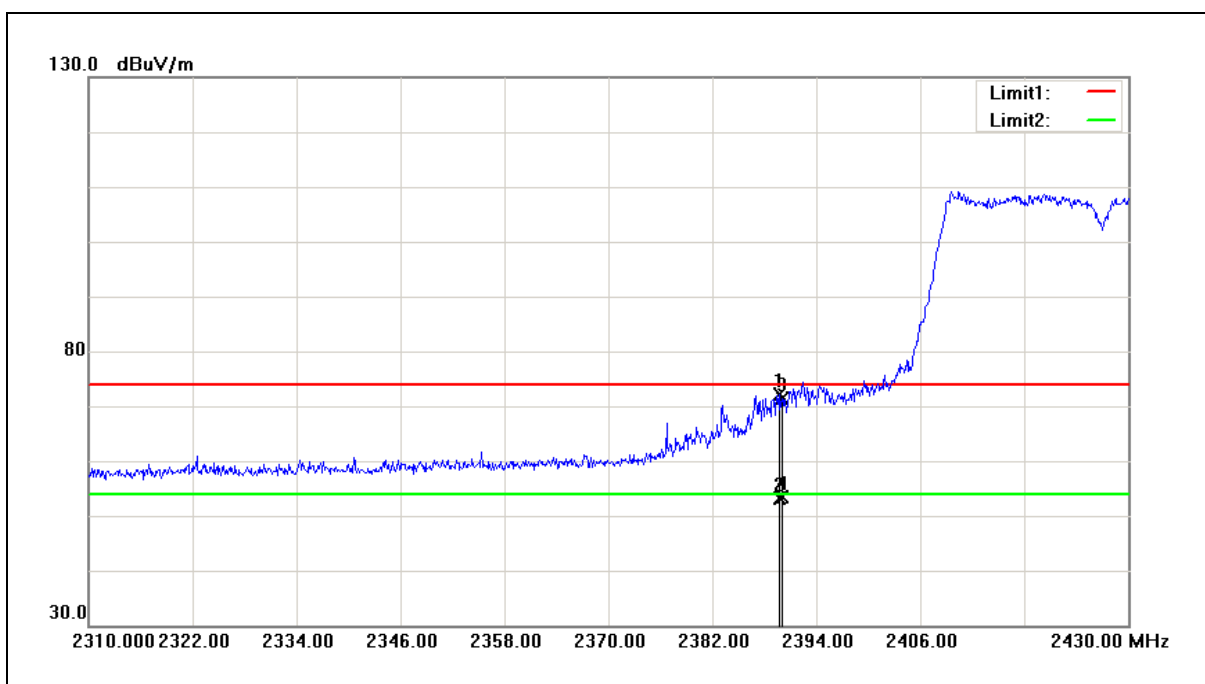
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2388.480	57.83	-0.26	57.57	74.00	-16.43	peak
2	2388.480	46.20	-0.26	45.94	54.00	-8.06	AVG
3	2390.000	57.35	-0.26	57.09	74.00	-16.91	peak
4	2390.000	46.87	-0.26	46.61	54.00	-7.39	AVG

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 15C	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	2427MHz	Temp.(°C)/Hum. (%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	03/21/2017
Ant.Polar.:	Vertical		



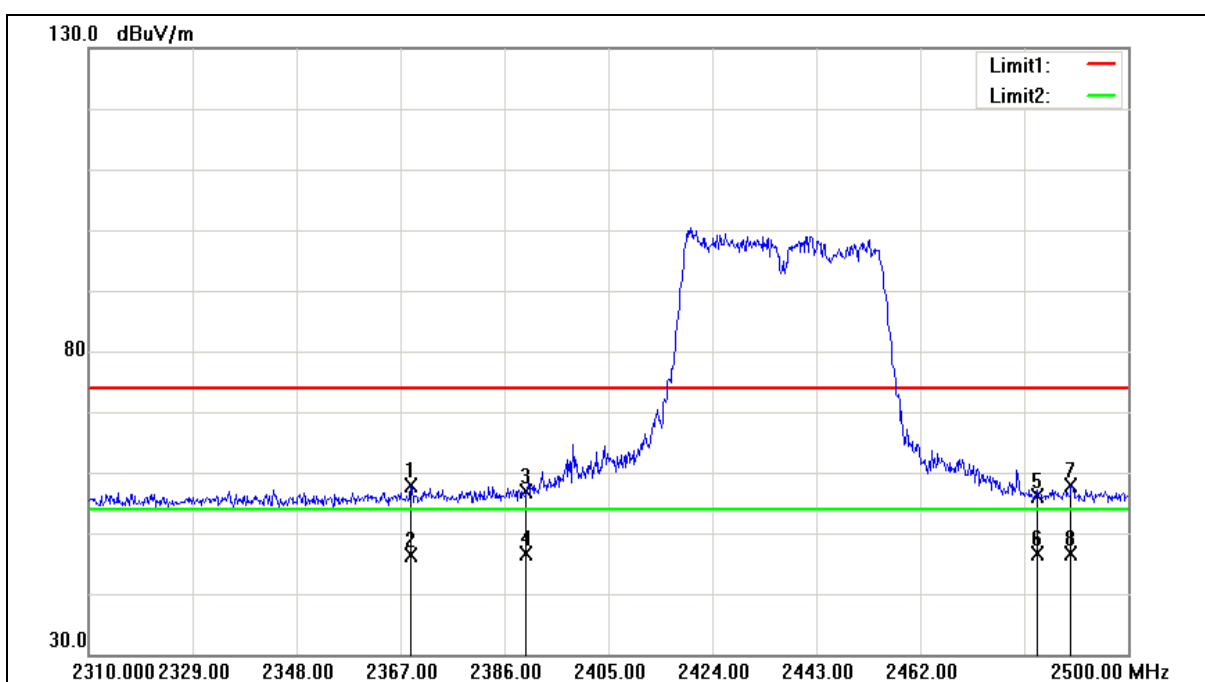
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.800	72.43	-0.26	72.17	74.00	-1.83	peak
2	2389.800	53.38	-0.26	53.12	54.00	-0.88	AVG
3	2390.000	71.68	-0.26	71.42	74.00	-2.58	peak
4	2390.000	53.59	-0.26	53.33	54.00	-0.67	AVG

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 15C	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	2437MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	03/21/2017
Ant.Polar.:	Horizontal		



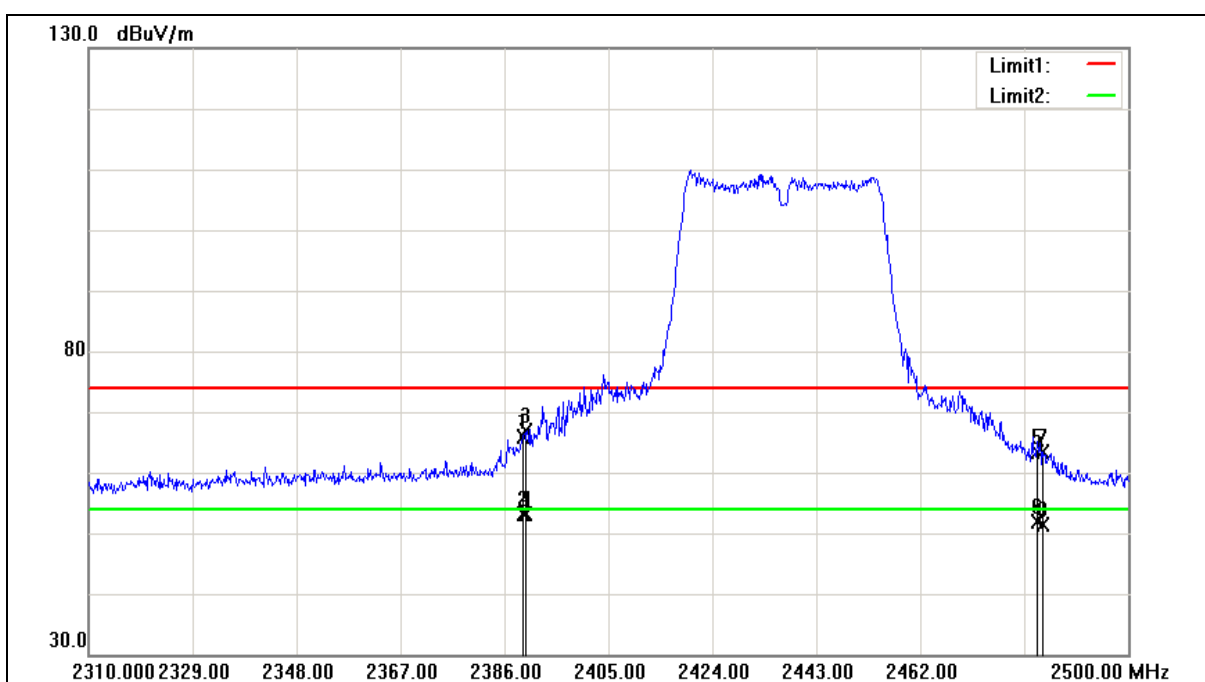
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2368.900	58.17	-0.35	57.82	74.00	-16.18	peak
2	2368.900	46.84	-0.35	46.49	54.00	-7.51	AVG
3	2390.000	57.15	-0.26	56.89	74.00	-17.11	peak
4	2390.000	46.82	-0.26	46.56	54.00	-7.44	AVG
5	2483.500	55.92	0.11	56.03	74.00	-17.97	peak
6	2483.500	46.60	0.11	46.71	54.00	-7.29	AVG
7	2489.550	57.81	0.14	57.95	74.00	-16.05	peak
8	2489.550	46.41	0.14	46.55	54.00	-7.45	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 15C	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	2437MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	03/21/2017
Ant.Polar.:	Vertical		



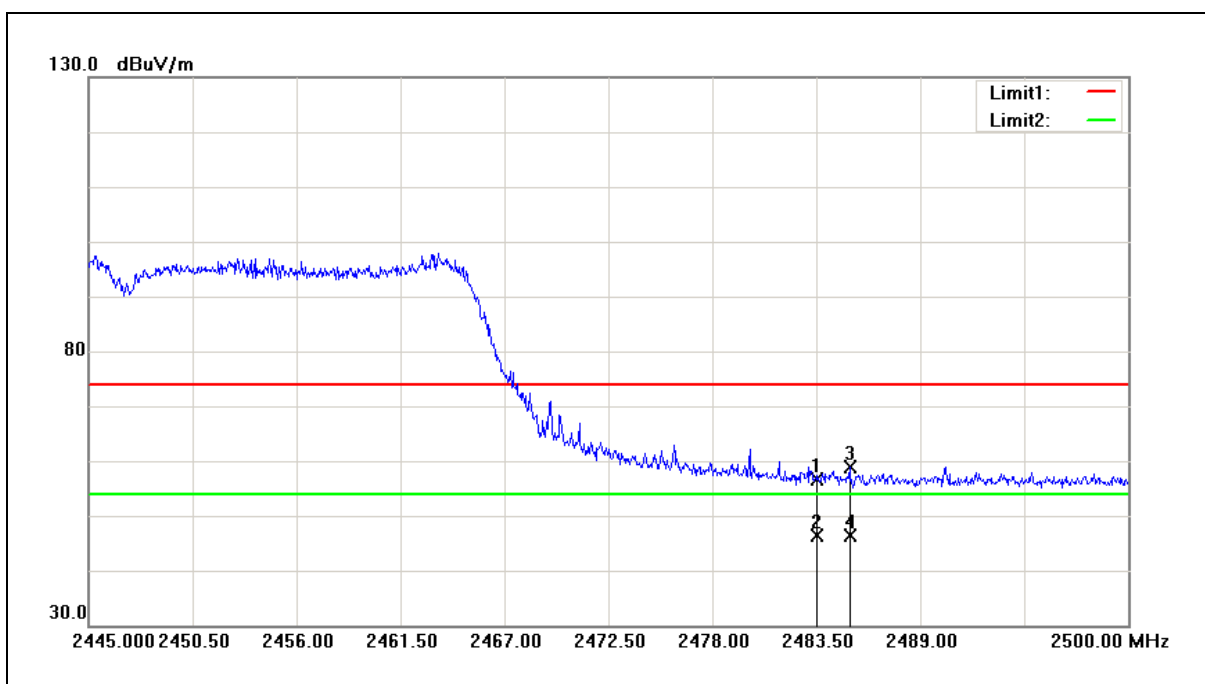
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.420	66.10	-0.26	65.84	74.00	-8.16	peak
2	2389.420	53.31	-0.26	53.05	54.00	-0.95	AVG
3	2390.000	67.16	-0.26	66.90	74.00	-7.10	peak
4	2390.000	53.47	-0.26	53.21	54.00	-0.79	AVG
5	2483.500	63.24	0.11	63.35	74.00	-10.65	peak
6	2483.500	51.76	0.11	51.87	54.00	-2.13	AVG
7	2484.420	63.15	0.12	63.27	74.00	-10.73	peak
8	2484.420	51.33	0.12	51.45	54.00	-2.55	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 15C	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	2447MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	03/21/2017
Ant.Polar.:	Horizontal		



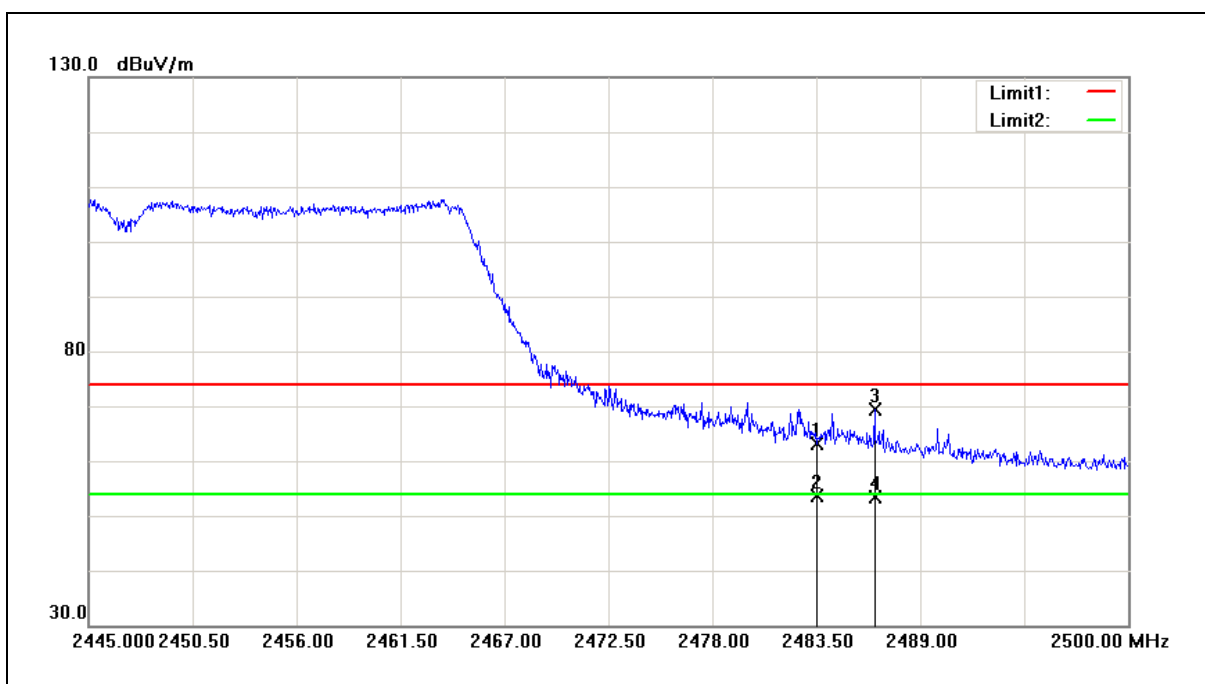
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	56.54	0.11	56.65	74.00	-17.35	peak
2	2483.500	46.29	0.11	46.40	54.00	-7.60	AVG
3	2485.260	58.83	0.12	58.95	74.00	-15.05	peak
4	2485.260	46.19	0.12	46.31	54.00	-7.69	AVG

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 15C	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	2447MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	03/21/2017
Ant.Polar.:	Vertical		



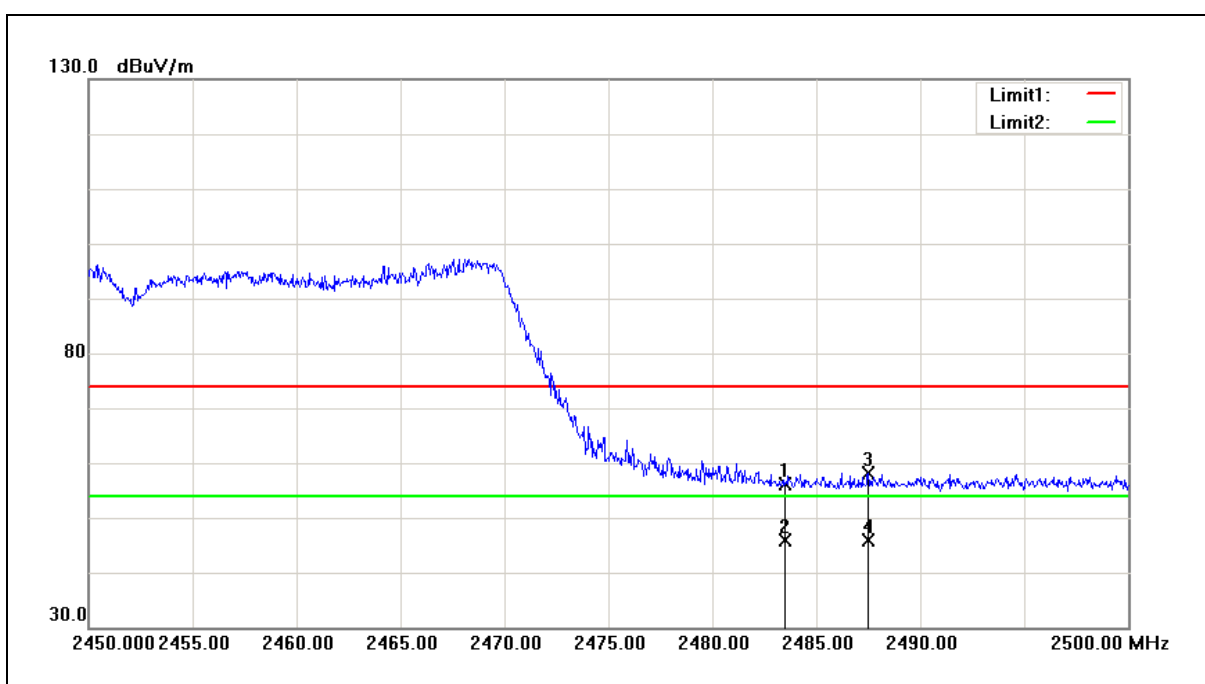
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	63.07	0.11	63.18	74.00	-10.82	peak
2	2483.500	53.64	0.11	53.75	54.00	-0.25	AVG
3	2486.580	69.25	0.12	69.37	74.00	-4.63	peak
4	2486.580	53.24	0.12	53.36	54.00	-0.64	AVG

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 15C	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	2452MHz	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	03/21/2017
Ant.Polar.:	Horizontal		



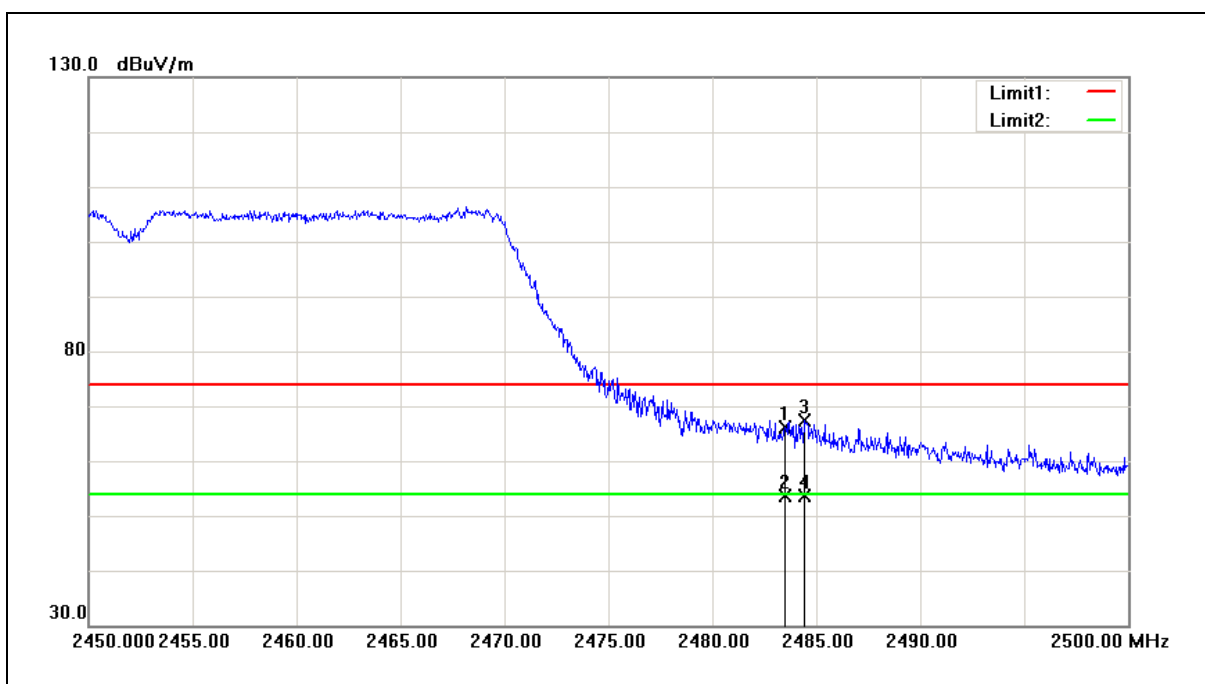
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	56.13	0.11	56.24	74.00	-17.76	peak
2	2483.500	45.82	0.11	45.93	74.00	-28.07	QP
3	2487.500	57.95	0.13	58.08	74.00	-15.92	peak
4	2487.500	45.81	0.13	45.94	74.00	-28.06	QP

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 15C	Test Distance:	3m
Test item:	Band edge	Power:	AC 120V/60Hz
Frequency:	2452MHz	Temp.(°C)/Hum. (%RH):	26(°C)/60%RH
Mode:	Mode 5	Date:	03/21/2017
Ant.Polar.:	Vertical		



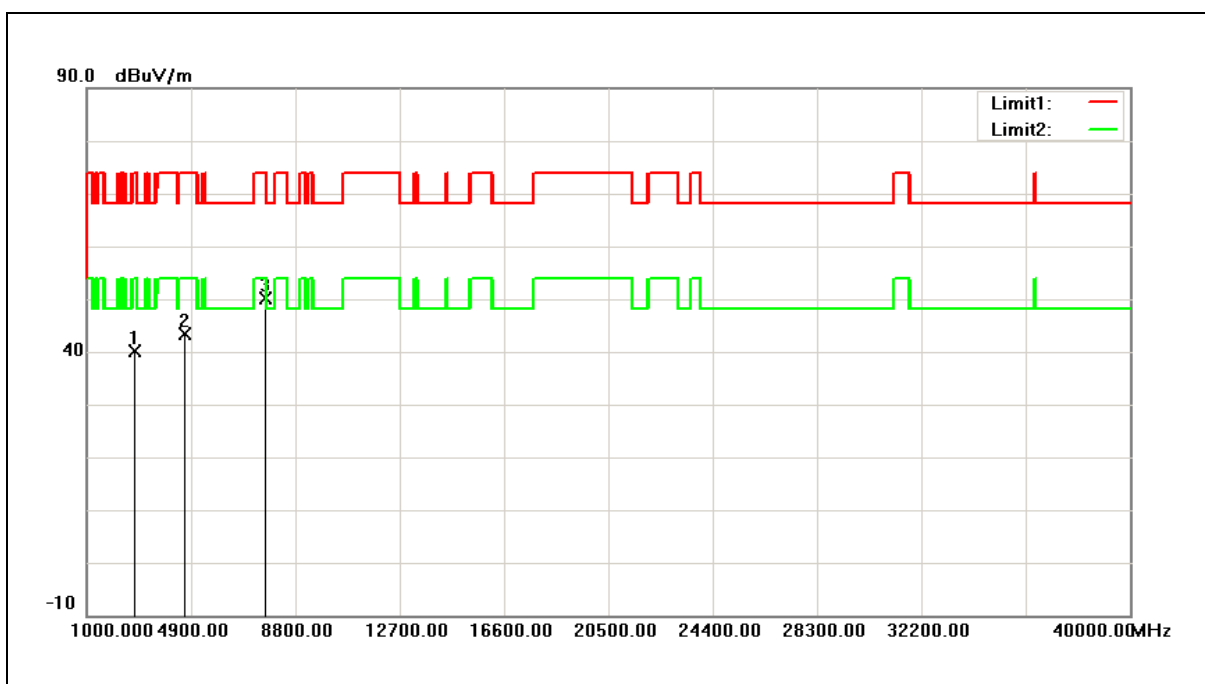
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	66.06	0.11	66.17	74.00	-7.83	peak
2	2483.500	53.63	0.11	53.74	54.00	-0.26	AVG
3	2484.450	67.20	0.12	67.32	74.00	-6.68	peak
4	2484.450	53.42	0.12	53.54	54.00	-0.46	AVG

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 15C	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	(DTS+NII)	Temp.(°C)/Hum. (%RH):	26(°C)/60%RH
Mode:	Simultaneous Transmitting	Date:	03/21/2017
Ant.Polar.:	Horizontal		



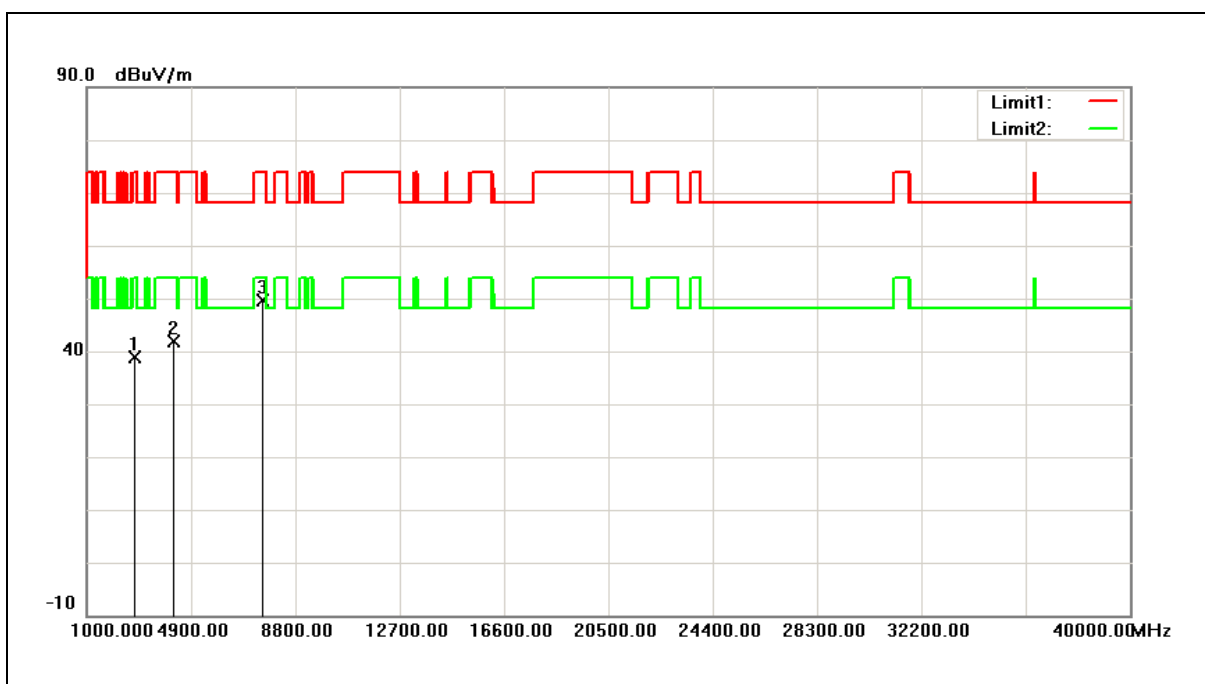
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2785.000	52.99	-12.85	40.14	74.00	-33.86	peak
2	4638.000	51.06	-7.67	43.39	74.00	-30.61	peak
3	7647.000	49.13	0.91	50.04	74.00	-23.96	peak

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 15C	Test Distance:	3m
Test item:	Harmonic	Power:	AC 120V/60Hz
Frequency:	(DTS+NII)	Temp.(°C)/Hum. (%RH):	26(°C)/60%RH
Mode:	Simultaneous Transmitting	Date:	03/21/2017
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2785.000	51.81	-12.85	38.96	74.00	-35.04	peak
2	4247.000	50.51	-8.74	41.77	74.00	-32.23	peak
3	7562.000	48.84	0.68	49.52	74.00	-24.48	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.

6 Maximum Conducted Output Power Measurement

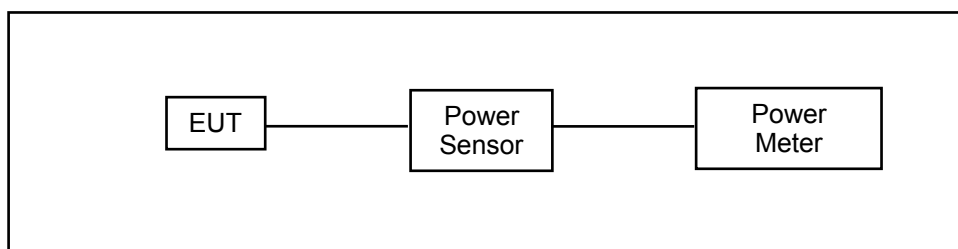
6.1. Limit

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.

- * CDD mode : Directional Gain = Max. Gain = 3 dBi < 6 dBi.
- * CDD mode power limit shall be reduced = $30 - 0 = 30$ dBm.

6.2. Test Setup



6.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
Power Sensor	Anritsu	MA2411B	1126022	08/29/2016	1 year
Power Meter	Anritsu	ML2495A	1135009	08/29/2016	1 year
Microwave Cable	EMCI	EMC104-SM-SM-1500	140303	02/22/2017	1 year
Test Site	ATL	TE05	TE05	N.C.R.	-----

Note: N.C.R. = No Calibration Request.

6.4. 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.

The testing follows the Measurement Procedure of ANSI C63.10-2013 section 11.9.2.3 Method AVGPM

6.5. Test Result

Date of Test	03/17/2017				
Antenna	ANT-0				
Test Mode	Frequency (MHz)	Data Rate	Average Output Power		
			Measurement Results		Limit
			dBm	W	dBm
Mode 2	2412	1M	16.55	0.045	< 30
	2427		22.21	0.166	< 30
	2437		22.21	0.166	< 30
	2462		17.88	0.061	< 30
	2437	2M	22.19	0.166	< 30
	2437	5.5M	22.17	0.165	< 30
	2437	11M	22.14	0.164	< 30
Mode 3	2412	6M	16.42	0.044	< 30
	2437		22.46	0.176	< 30
	2462		17.13	0.052	< 30
	2437	9M	22.44	0.175	< 30
	2437	12M	22.41	0.174	< 30
	2437	18M	22.39	0.173	< 30
	2437	24M	22.43	0.175	< 30
	2437	36M	22.40	0.174	< 30
	2437	48M	22.41	0.174	< 30
	2437	54M	22.43	0.175	< 30

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



Date of Test	03/17/2017				
Antenna	ANT-0				
Test Mode	Frequency (MHz)	Data Rate	Average Output Power		
			Measurement Results		Limit
			dBm	W	dBm
Mode 4	2412	13M	13.14	0.021	< 30
	2437		20.97	0.125	< 30
	2462		14.61	0.029	< 30
	2437	28.8M	20.93	0.124	< 30
	2437	43.4M	20.95	0.124	< 30
	2437	57.8M	20.90	0.123	< 30
	2437	86.6M	20.88	0.122	< 30
	2437	115.6M	20.66	0.116	< 30
	2437	130M	20.91	0.123	< 30
	2437	144.4M	20.95	0.124	< 30
Mode 5	2422	27M	11.55	0.014	< 30
	2437		15.08	0.032	< 30
	2452		12.44	0.018	< 30
	2437	60M	15.05	0.032	< 30
	2437	90M	15.01	0.032	< 30
	2437	120M	15.03	0.032	< 30
	2437	180M	15.00	0.032	< 30
	2437	240M	14.98	0.031	< 30
	2437	270M	15.02	0.032	< 30
	2437	300M	15.01	0.032	< 30

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



Date of Test	03/17/2017				
Antenna	ANT-1				
Test Mode	Frequency (MHz)	Data Rate	Average Output Power		
			Measurement Results		Limit
			dBm	W	dBm
Mode 2	2412	1M	16.13	0.041	< 30
	2427		21.99	0.158	< 30
	2437		21.99	0.158	< 30
	2462		17.48	0.056	< 30
	2437	2M	21.90	0.155	< 30
	2437	5.5M	21.84	0.153	< 30
	2437	11M	21.88	0.154	< 30
Mode 3	2412	6M	16.11	0.041	< 30
	2437		22.44	0.175	< 30
	2462		16.86	0.049	< 30
	2437	9M	22.42	0.175	< 30
	2437	12M	22.40	0.174	< 30
	2437	18M	22.39	0.173	< 30
	2437	24M	22.37	0.173	< 30
	2437	36M	22.41	0.174	< 30
	2437	48M	22.43	0.175	< 30
	2437	54M	22.39	0.173	< 30

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



Date of Test	03/17/2017				
Antenna	ANT-1				
Test Mode	Frequency (MHz)	Data Rate	Average Output Power		
			Measurement Results		Limit
			dBm	W	dBm
Mode 4	2412	13M	12.96	0.020	< 30
	2437		20.89	0.123	< 30
	2462		14.12	0.026	< 30
	2437	28.8M	20.75	0.119	< 30
	2437	43.4M	20.87	0.122	< 30
	2437	57.8M	20.85	0.122	< 30
	2437	86.6M	20.80	0.120	< 30
	2437	115.6M	20.83	0.121	< 30
	2437	130M	20.88	0.122	< 30
	2437	144.4M	20.85	0.122	< 30
Mode 5	2422	27M	11.27	0.013	< 30
	2437		14.80	0.030	< 30
	2452		12.12	0.016	< 30
	2437	60M	14.75	0.030	< 30
	2437	90M	14.71	0.030	< 30
	2437	120M	14.65	0.029	< 30
	2437	180M	14.69	0.029	< 30
	2437	240M	14.67	0.029	< 30
	2437	270M	14.70	0.030	< 30
	2437	300M	14.65	0.029	< 30

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



Date of Test	03/17/2017				
Antenna	ANT-0+1				
Test Mode	Frequency (MHz)	Data Rate	Average Output Power		
			Measurement Results		Limit
			dBm	W	dBm
Mode 2	2412	1M	19.36	0.086	< 30
	2472		25.11	0.324	
	2437		25.11	0.324	< 30
	2462		20.69	0.117	< 30
	2437	2M	25.06	0.320	< 30
	2437	5.5M	25.02	0.318	< 30
	2437	11M	25.02	0.318	< 30
Mode 3	2412	6M	19.28	0.085	< 30
	2437		25.46	0.352	< 30
	2462		20.01	0.100	< 30
	2437	9M	25.44	0.350	< 30
	2437	12M	25.42	0.348	< 30
	2437	18M	25.40	0.347	< 30
	2437	24M	25.41	0.348	< 30
	2437	36M	25.42	0.348	< 30
	2437	48M	25.43	0.349	< 30
	2437	54M	25.42	0.348	< 30

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



Date of Test	03/17/2017				
Antenna	ANT-0+1				
Test Mode	Frequency (MHz)	Data Rate	Average Output Power		
			Measurement Results		Limit
			dBm	W	dBm
Mode 4	2412	13M	16.06	0.040	< 30
	2437		23.94	0.248	< 30
	2462		17.38	0.055	< 30
	2437	28.8M	23.85	0.243	< 30
	2437	43.4M	23.92	0.247	< 30
	2437	57.8M	23.89	0.245	< 30
	2437	86.6M	23.85	0.243	< 30
	2437	115.6M	23.76	0.237	< 30
	2437	130M	23.91	0.246	< 30
	2437	144.4M	23.91	0.246	< 30
Mode 5	2422	27M	14.42	0.028	< 30
	2437		17.95	0.062	< 30
	2452		15.29	0.034	< 30
	2437	60M	17.91	0.062	< 30
	2437	90M	17.87	0.061	< 30
	2437	120M	17.85	0.061	< 30
	2437	180M	17.86	0.061	< 30
	2437	240M	17.84	0.061	< 30
	2437	270M	17.87	0.061	< 30
	2437	300M	17.84	0.061	< 30

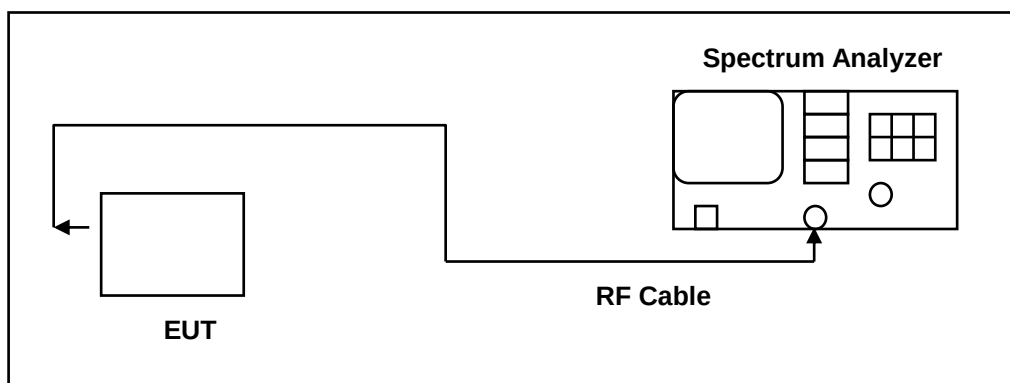
Note: The relevant measured result has the offset with cable loss already.

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 Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/19/2016	1 year
Microwave Cable	EMCI	EMC104-SM-SM-1500	140303	02/22/2017	1 year
Test Site	ATL	TE05	TE05	N.C.R.	-----

Note: N.C.R. = No Calibration Request.

7.4. 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)

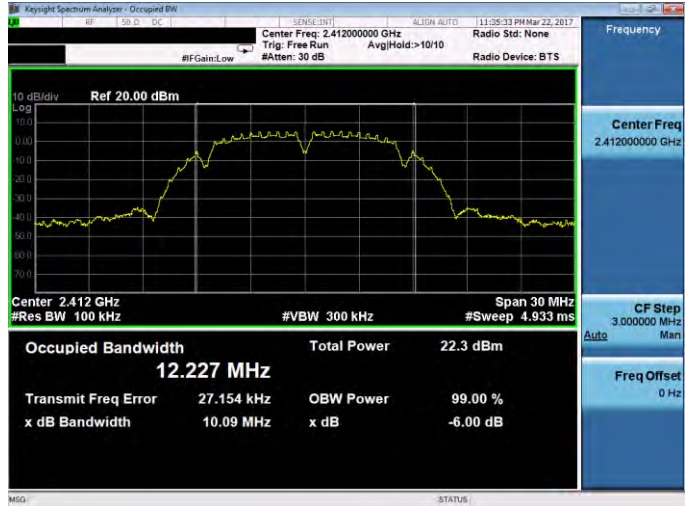
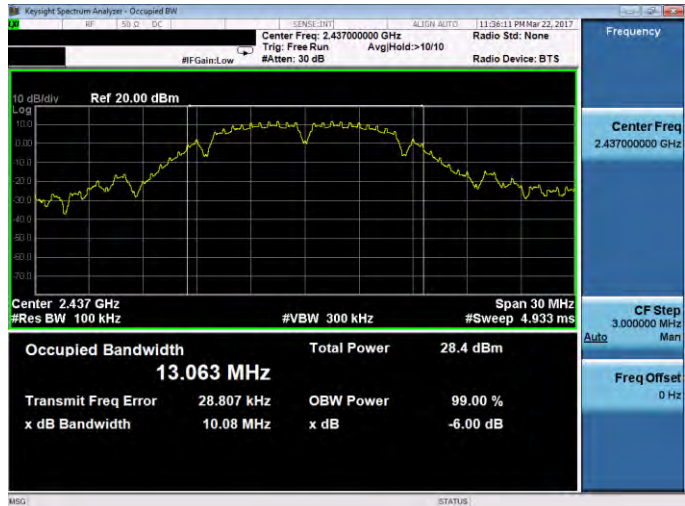
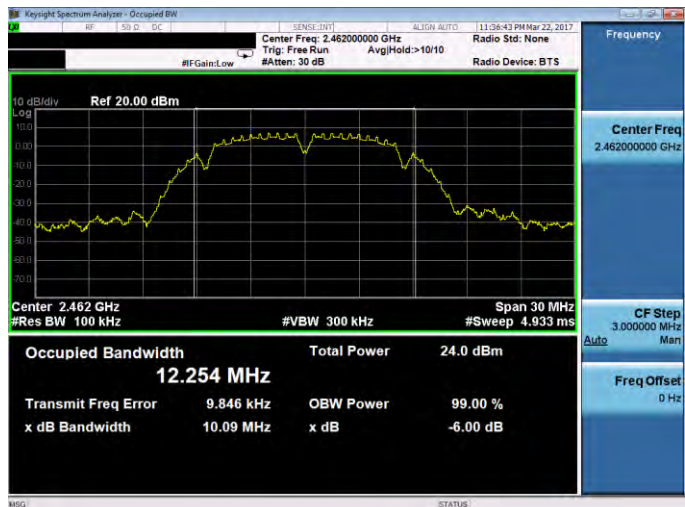


7.5. Test Result

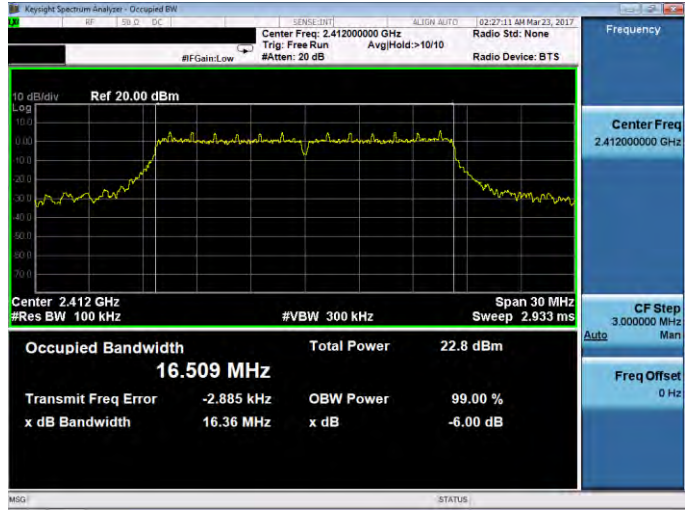
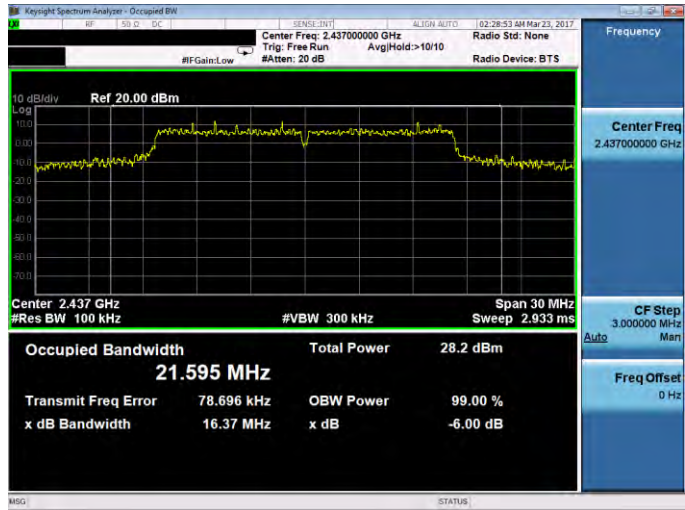
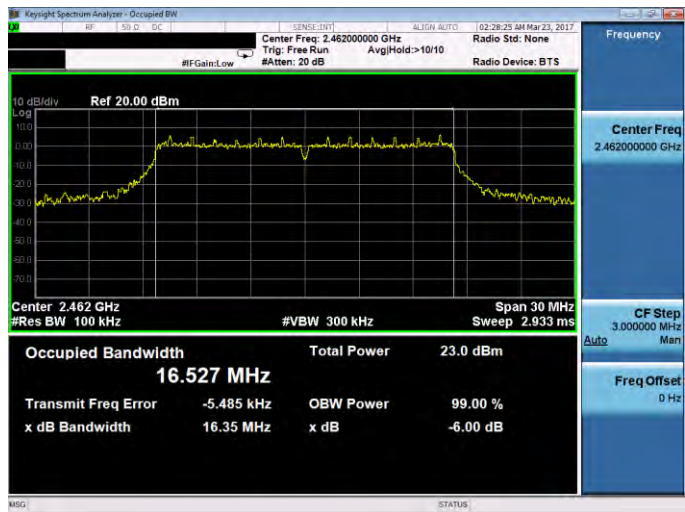
Date of Test	03/22/2017			
Test Mode	Frequency (MHz)	Measurement (kHz)		Limit (kHz)
		ANT-0	ANT-1	
Mode 2	2412	10090	10080	> 500
	2437	10080	10090	> 500
	2462	10090	10080	> 500
Mode 3	2412	16360	16350	> 500
	2437	16370	16360	> 500
	2462	16350	16370	> 500
Mode 4	2412	17090	17330	> 500
	2437	17090	17090	> 500
	2462	17320	17090	> 500
Mode 5	2422	35970	36350	> 500
	2437	36340	36330	> 500
	2452	36340	36340	> 500



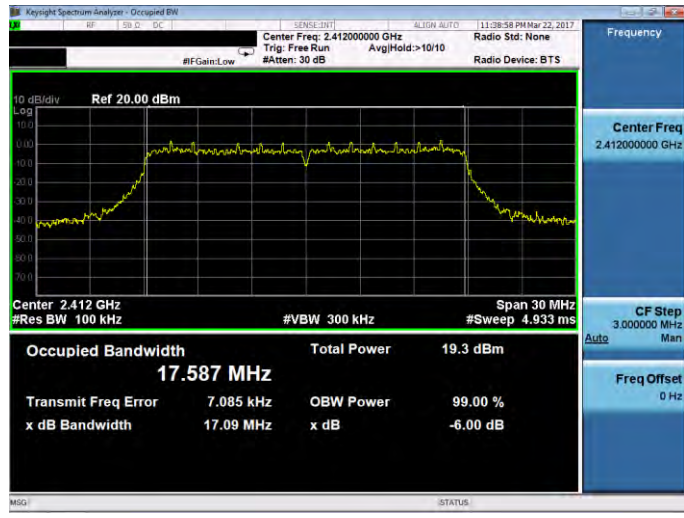
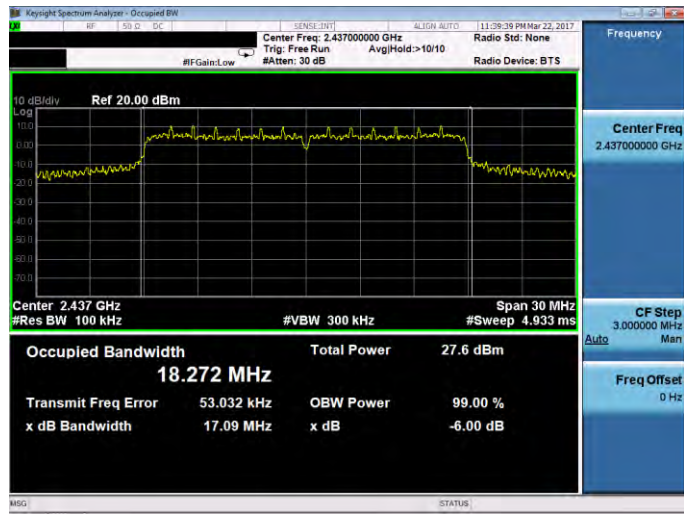
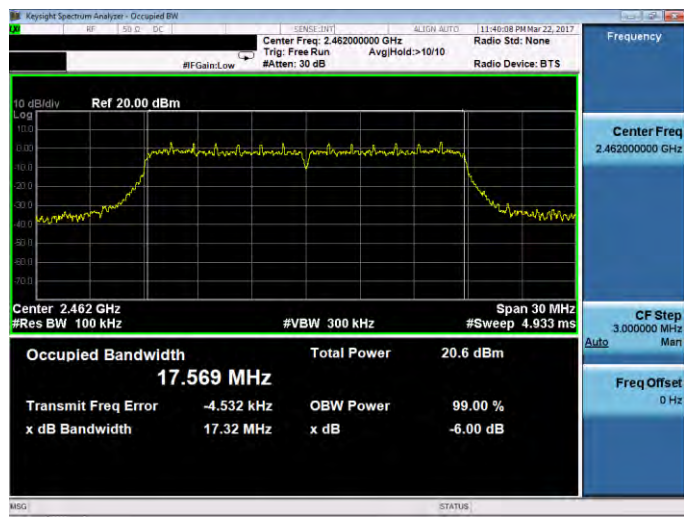
7.6. Test Graphs

Test Mode:	Mode 2: IEEE 802.11b TX mode
Antenna:	ANT-0
2412 MHz	
2437 MHz	
2462 MHz	

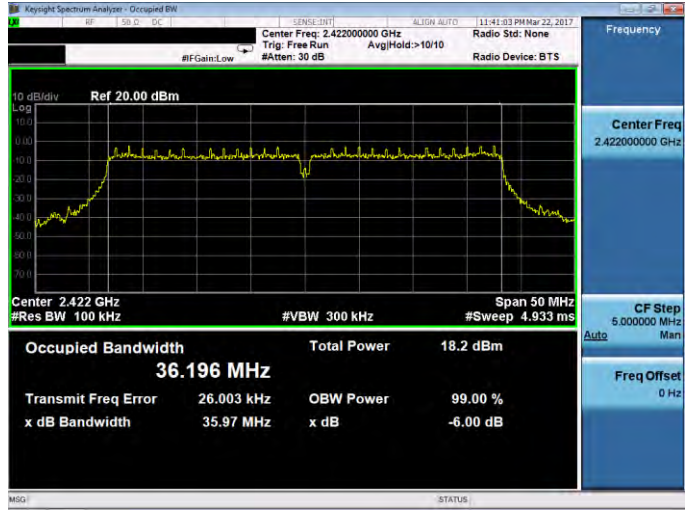
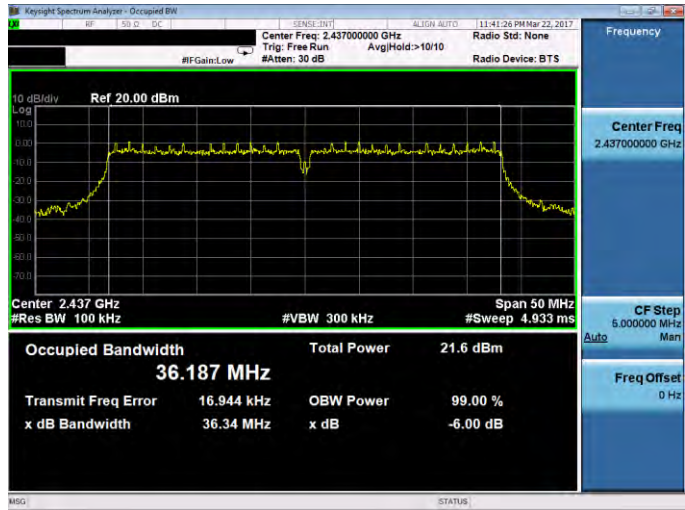
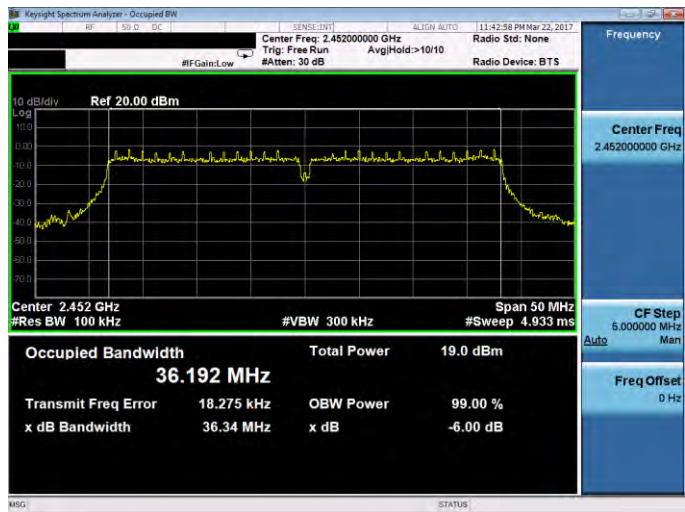


Test Mode:	Mode 3: IEEE 802.11g TX mode
Antenna:	ANT-0
2412 MHz	
2437 MHz	
2462 MHz	

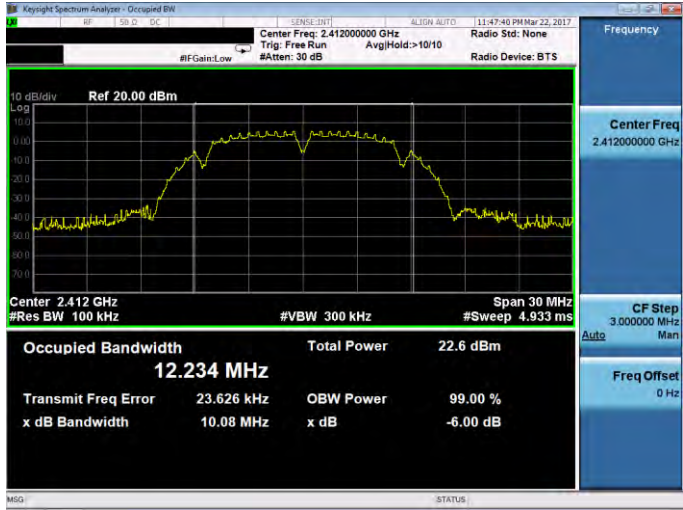
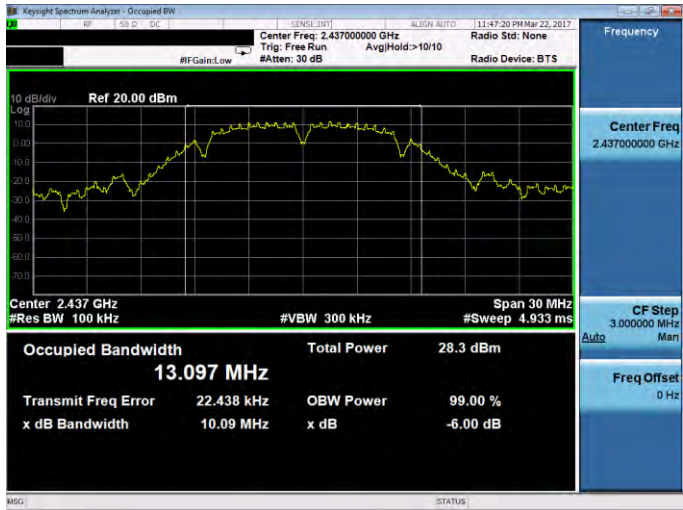
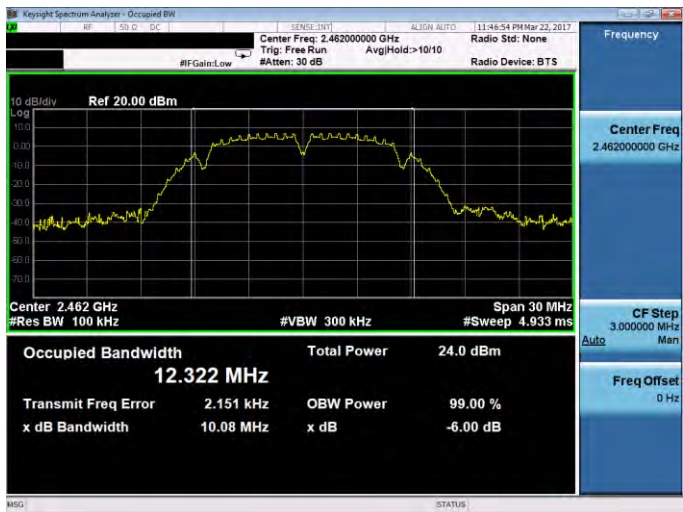


Test Mode:	Mode 4: IEEE 802.11n 2.4GHz 20MHz TX mode
Antenna:	ANT-0
2412 MHz	 KeySight Spectrum Analyzer - Occupied BW Center Freq: 2.412000000 GHz Trig: Free Run #Atten: 30 dB Radio Device: BTS Ref 20.00 dBm Center 2.412 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz #Sweep 4.933 ms Occupied Bandwidth 17.587 MHz Total Power 19.3 dBm Transmit Freq Error 7.085 kHz OBW Power 99.00 % x dB Bandwidth 17.09 MHz x dB -6.00 dB CF Step 3.000000 MHz Freq Offset 0 Hz
2437 MHz	 KeySight Spectrum Analyzer - Occupied BW Center Freq: 2.437000000 GHz Trig: Free Run #Atten: 30 dB Radio Device: BTS Ref 20.00 dBm Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz #Sweep 4.933 ms Occupied Bandwidth 18.272 MHz Total Power 27.6 dBm Transmit Freq Error 53.032 kHz OBW Power 99.00 % x dB Bandwidth 17.09 MHz x dB -6.00 dB CF Step 3.000000 MHz Freq Offset 0 Hz
2462 MHz	 KeySight Spectrum Analyzer - Occupied BW Center Freq: 2.462000000 GHz Trig: Free Run #Atten: 30 dB Radio Device: BTS Ref 20.00 dBm Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz #Sweep 4.933 ms Occupied Bandwidth 17.569 MHz Total Power 20.6 dBm Transmit Freq Error -4.532 kHz OBW Power 99.00 % x dB Bandwidth 17.32 MHz x dB -6.00 dB CF Step 3.000000 MHz Freq Offset 0 Hz

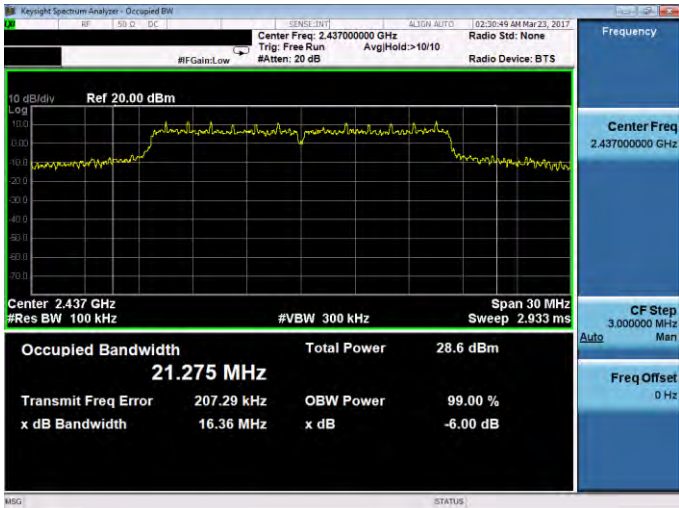
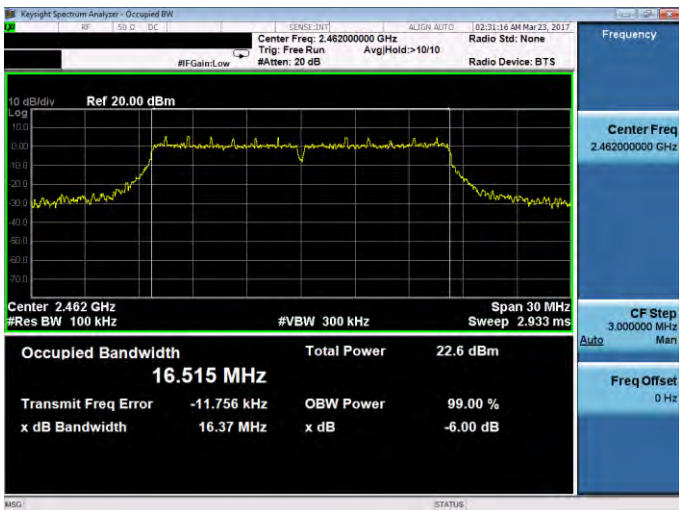


Test Mode:	Mode 5: IEEE 802.11n 2.4GHz 40MHz TX mode
Antenna:	ANT-0
2422 MHz	 KeySight Spectrum Analyzer - Occupied BW Center Freq: 2.42200000 GHz Trig: Free Run #Atten: 30 dB Radio Device: BTS Ref 20.00 dBm Center 2.422 GHz #Res BW 100 kHz #VBW 300 kHz Span 50 MHz #Sweep 4.933 ms Occupied Bandwidth 36.196 MHz Total Power 18.2 dBm Transmit Freq Error 26.003 kHz OBW Power 99.00 % x dB Bandwidth 35.97 MHz x dB -6.00 dB
2437 MHz	 KeySight Spectrum Analyzer - Occupied BW Center Freq: 2.43700000 GHz Trig: Free Run #Atten: 30 dB Radio Device: BTS Ref 20.00 dBm Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 50 MHz #Sweep 4.933 ms Occupied Bandwidth 36.187 MHz Total Power 21.6 dBm Transmit Freq Error 16.944 kHz OBW Power 99.00 % x dB Bandwidth 36.34 MHz x dB -6.00 dB
2452 MHz	 KeySight Spectrum Analyzer - Occupied BW Center Freq: 2.45200000 GHz Trig: Free Run #Atten: 30 dB Radio Device: BTS Ref 20.00 dBm Center 2.452 GHz #Res BW 100 kHz #VBW 300 kHz Span 50 MHz #Sweep 4.933 ms Occupied Bandwidth 36.192 MHz Total Power 19.0 dBm Transmit Freq Error 18.275 kHz OBW Power 99.00 % x dB Bandwidth 36.34 MHz x dB -6.00 dB

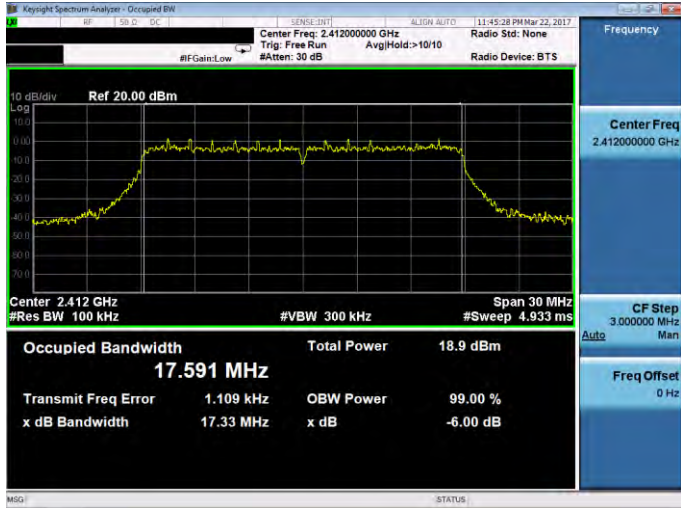
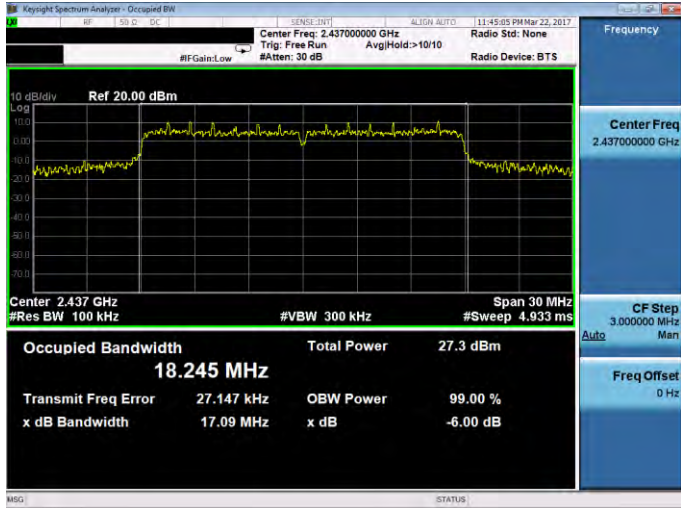
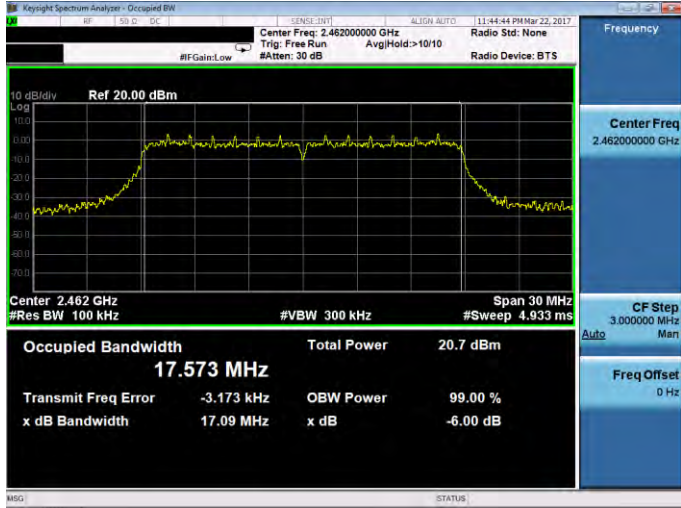


Test Mode:	Mode 2: IEEE 802.11b TX mode
Antenna:	ANT-1
2412 MHz	
2437 MHz	
2462 MHz	

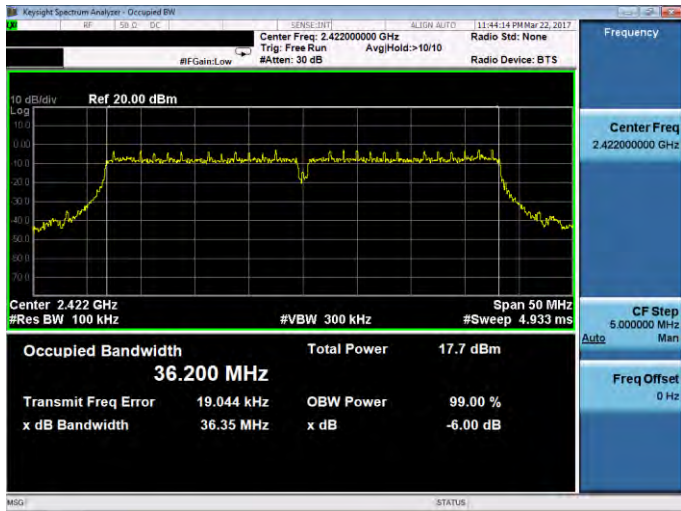
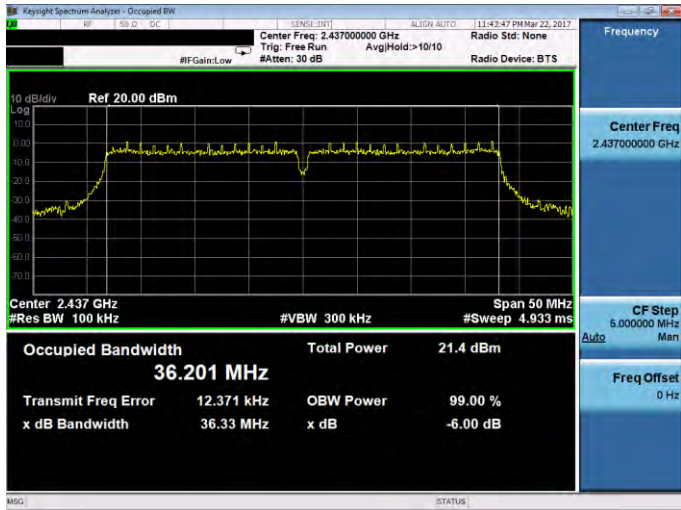
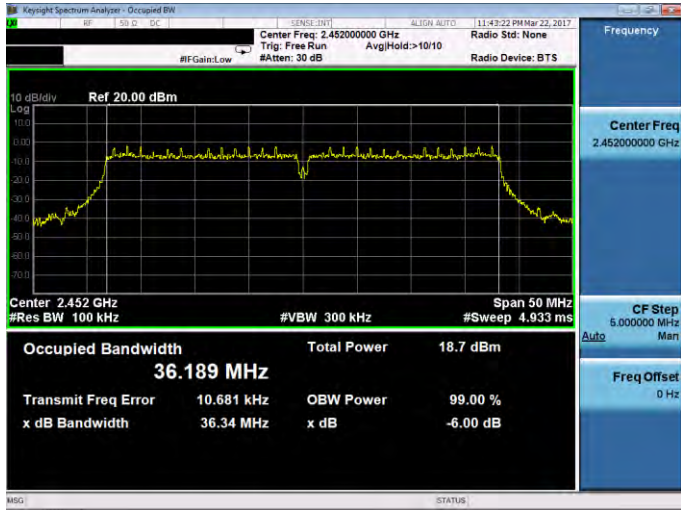


Test Mode:	Mode 3: IEEE 802.11g TX mode
Antenna:	ANT-1
2412 MHz	 KeySight Spectrum Analyzer - Occupied BW Center Freq: 2.41200000 GHz Trig: Free Run #Atten: 20 dB Radio Std: None Radio Device: BTS Ref 20.00 dBm Center 2.412 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 16.504 MHz Total Power 22.0 dBm Transmit Freq Error -3.204 kHz OBW Power 99.00 % x dB Bandwidth 16.35 MHz x dB -6.00 dB
2437 MHz	 KeySight Spectrum Analyzer - Occupied BW Center Freq: 2.43700000 GHz Trig: Free Run #Atten: 20 dB Radio Std: None Radio Device: BTS Ref 20.00 dBm Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 21.275 MHz Total Power 28.6 dBm Transmit Freq Error 207.29 kHz OBW Power 99.00 % x dB Bandwidth 16.36 MHz x dB -6.00 dB
2462 MHz	 KeySight Spectrum Analyzer - Occupied BW Center Freq: 2.46200000 GHz Trig: Free Run #Atten: 20 dB Radio Std: None Radio Device: BTS Ref 20.00 dBm Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 30 MHz Sweep 2.933 ms Occupied Bandwidth 16.515 MHz Total Power 22.6 dBm Transmit Freq Error -11.756 kHz OBW Power 99.00 % x dB Bandwidth 16.37 MHz x dB -6.00 dB



Test Mode:	Mode 4: IEEE 802.11n 2.4GHz 20MHz TX mode
Antenna:	ANT-1
2412 MHz	
2437 MHz	
2462 MHz	



Test Mode:	Mode 5: IEEE 802.11n 2.4GHz 40MHz TX mode
Antenna:	ANT-1
2422 MHz	 Keylight Spectrum Analyzer - Occupied BW Center Freq: 2.42200000 GHz Trig: Free Run #Atten: 30 dB Radio Std: None Avg/Hold: >10/10 Radio Device: BTS Ref 20.00 dBm Center 2.422 GHz #Res BW 100 kHz #VBW 300 kHz Span 50 MHz #Sweep 4.933 ms Occupied Bandwidth 36.200 MHz Total Power 17.7 dBm Transmit Freq Error 19.044 kHz OBW Power 99.00 % x dB Bandwidth 36.35 MHz x dB -6.00 dB
2437 MHz	 Keylight Spectrum Analyzer - Occupied BW Center Freq: 2.43700000 GHz Trig: Free Run #Atten: 30 dB Radio Std: None Avg/Hold: >10/10 Radio Device: BTS Ref 20.00 dBm Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 50 MHz #Sweep 4.933 ms Occupied Bandwidth 36.201 MHz Total Power 21.4 dBm Transmit Freq Error 12.371 kHz OBW Power 99.00 % x dB Bandwidth 36.33 MHz x dB -6.00 dB
2452 MHz	 Keylight Spectrum Analyzer - Occupied BW Center Freq: 2.45200000 GHz Trig: Free Run #Atten: 30 dB Radio Std: None Avg/Hold: >10/10 Radio Device: BTS Ref 20.00 dBm Center 2.452 GHz #Res BW 100 kHz #VBW 300 kHz Span 50 MHz #Sweep 4.933 ms Occupied Bandwidth 36.189 MHz Total Power 18.7 dBm Transmit Freq Error 10.681 kHz OBW Power 99.00 % x dB Bandwidth 36.34 MHz x dB -6.00 dB

8 Maximum Power Density Measurement

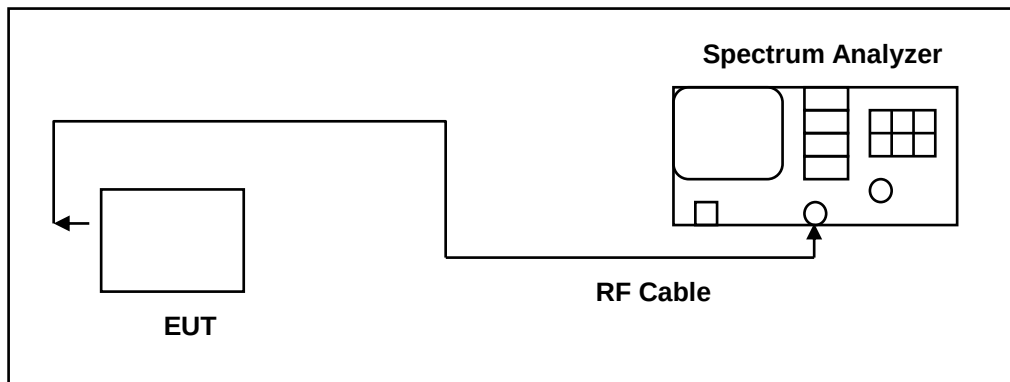
8.1. Limit

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.

$$\begin{aligned} * \text{ CDD mode : Directional Gain} &= 10 \cdot \log\{[10^{(G1/20)} + 10^{(G2/20)} + \dots + 10^{(Gn/20)}]^2 / NANT\} \\ &= 6.01 \text{ dBi} > 6 \text{ dBi} \end{aligned}$$

$$* \text{ CDD mode power density limit shall be reduced} = 8 - 0.01 = 7.99 \text{ dBm.}$$

8.2. Test Setup



8.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/19/2016	1 year
Microwave Cable	EMCI	EMC104-SM-SM-1500	140303	02/22/2017	1 year
Test Site	ATL	TE05	TE05	N.C.R.	-----

Note: N.C.R. = No Calibration Request.

8.4. 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.

8.5. Test Result

Date of Test	03/22~03/23/2017				
Test Mode	Frequency (MHz)	Measurement (dBm/3KHz)			Limit (dBm/3KHz)
		ANT-0	ANT-1	ANT-0+1	
Mode 2	2412	-8.704	-8.209	-5.439	< 7.99
	2437	-2.658	-2.525	0.419	< 7.99
	2462	-6.947	-6.685	-3.804	< 7.99
Mode 3	2412	-10.808	-12.280	-8.472	< 7.99
	2437	-4.544	-5.195	-1.847	< 7.99
	2462	-10.337	-10.236	-7.276	< 7.99
Mode 4	2412	-14.055	-11.805	-9.776	< 7.99
	2437	-4.944	-4.733	-1.827	< 7.99
	2462	-11.753	-12.185	-8.953	< 7.99
Mode 5	2422	-17.836	-17.180	-14.485	< 7.99
	2437	-14.464	-14.249	-11.345	< 7.99
	2452	-17.014	-17.393	-14.189	< 7.99



8.6. Test Graphs

Test Mode:	Mode 2: IEEE 802.11b TX mode
Antenna:	ANT-0
2412 MHz	
2437 MHz	
2462 MHz	



Test Mode:	Mode 3: IEEE 802.11g TX mode
Antenna:	ANT-0
2412 MHz	
2437 MHz	
2462 MHz	

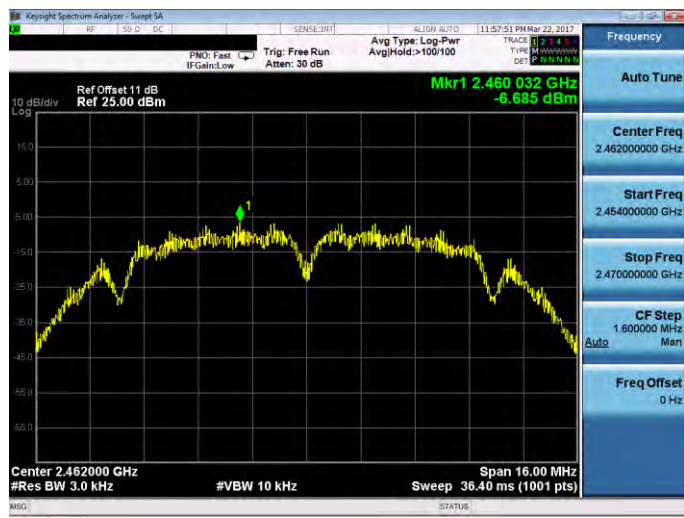


Test Mode:	Mode 4: IEEE 802.11n 2.4GHz 20MHz TX mode
Antenna:	ANT-0
2412 MHz	
2437 MHz	
2462 MHz	

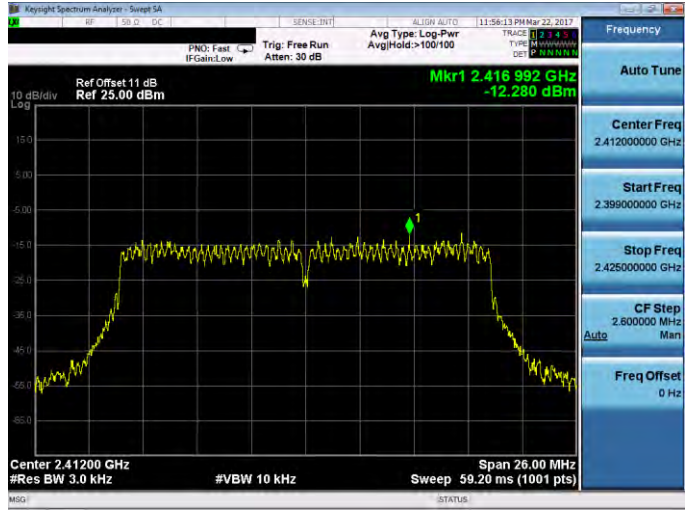
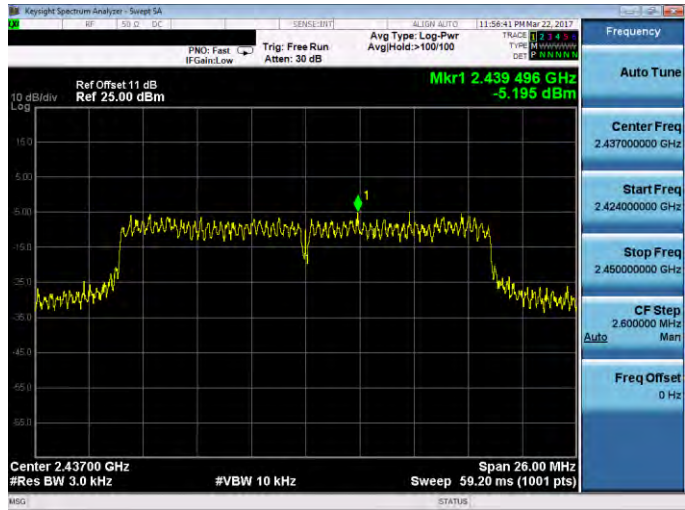
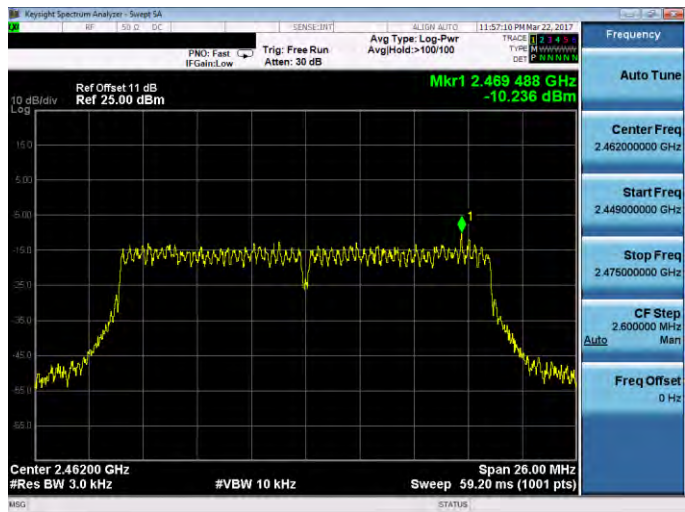


Test Mode:	Mode 5: IEEE 802.11n 2.4GHz 40MHz TX mode
Antenna:	ANT-0
2422 MHz	
2437 MHz	
2452 MHz	

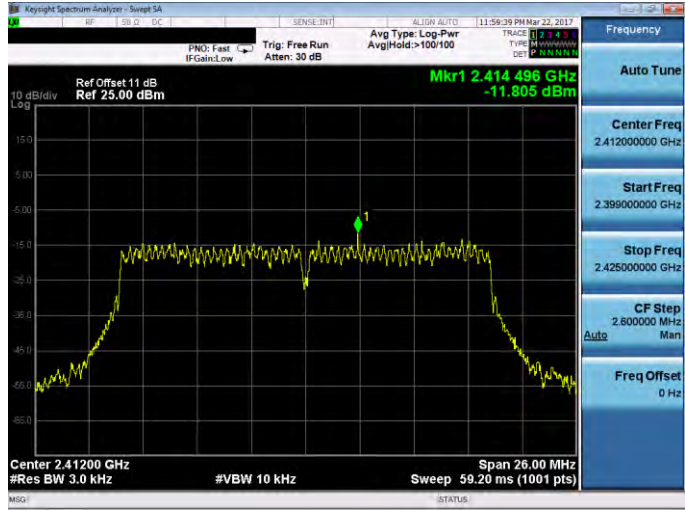
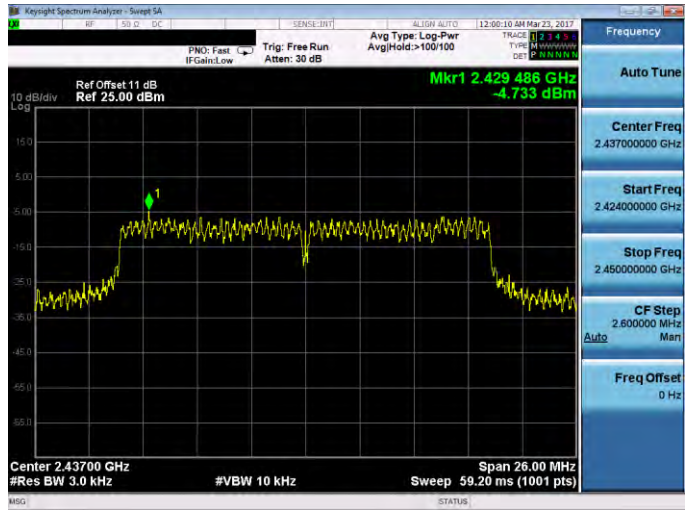
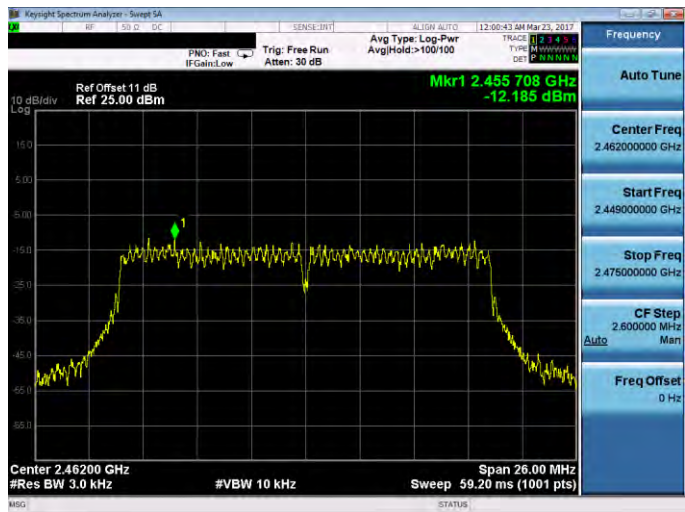


Test Mode:	Mode 2: IEEE 802.11b TX mode
Antenna:	ANT-1
2412 MHz	
2437 MHz	
2462 MHz	

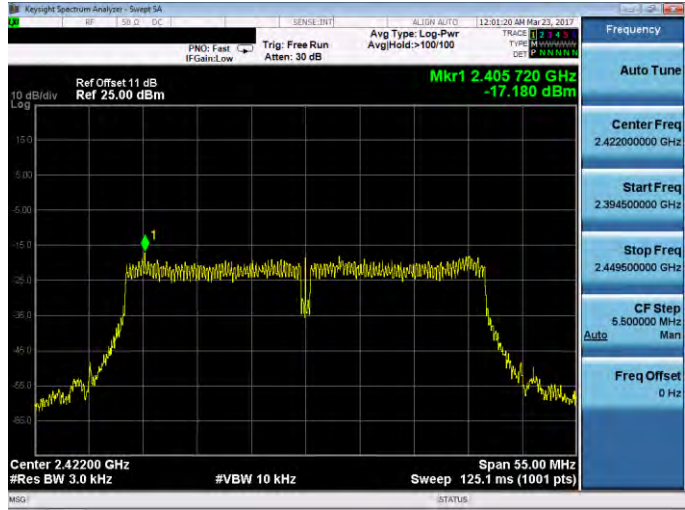
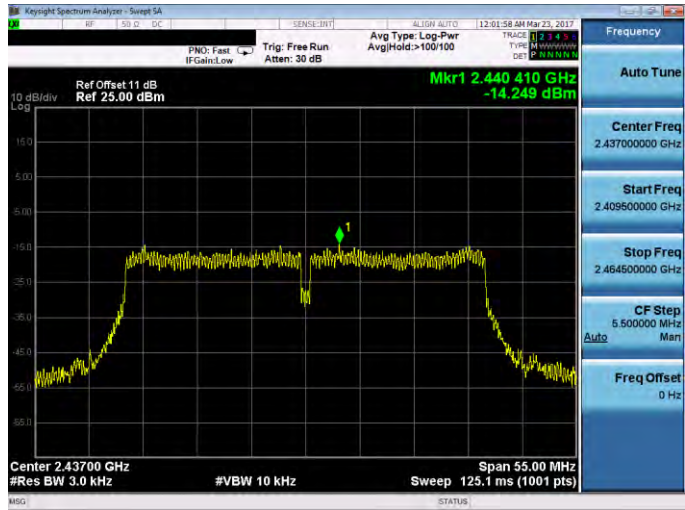
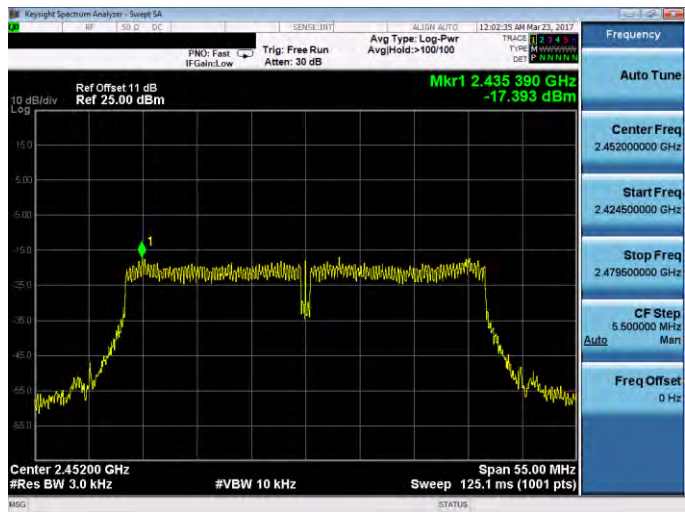


Test Mode:	Mode 3: IEEE 802.11g TX mode
Antenna:	ANT-1
2412 MHz	
2437 MHz	
2462 MHz	



Test Mode:	Mode 4: IEEE 802.11n 2.4GHz 20MHz TX mode
Antenna:	ANT-1
2412 MHz	
2437 MHz	
2462 MHz	



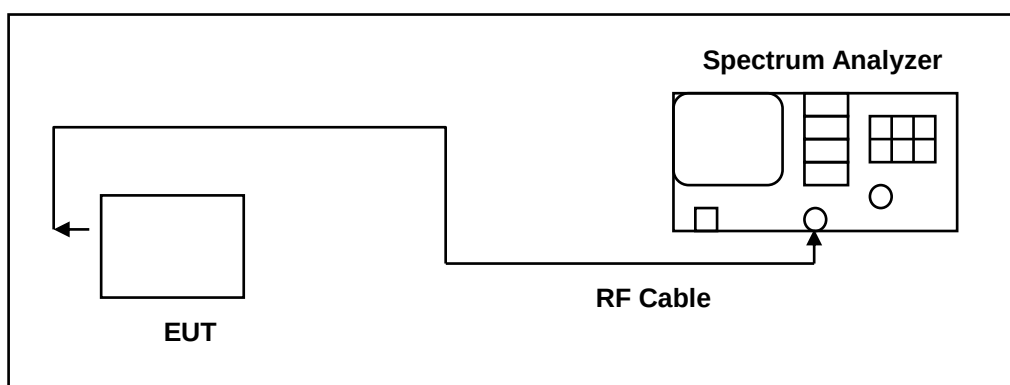
Test Mode:	Mode 5: IEEE 802.11n 2.4GHz 40MHz TX mode
Antenna:	ANT-1
2422 MHz	
2437 MHz	
2452 MHz	

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 Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/19/2016	1 year
Spectrum Analyzer	Agilent	E4408B	MY45107753	08/08/2016	1 year
Microwave Cable	EMCI	EMC104-SM-SM-1500	140303	02/22/2017	1 year
Test Site	ATL	TE05	TE05	N.C.R.	-----

Note: N.C.R. = No Calibration Request.

9.4. 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.

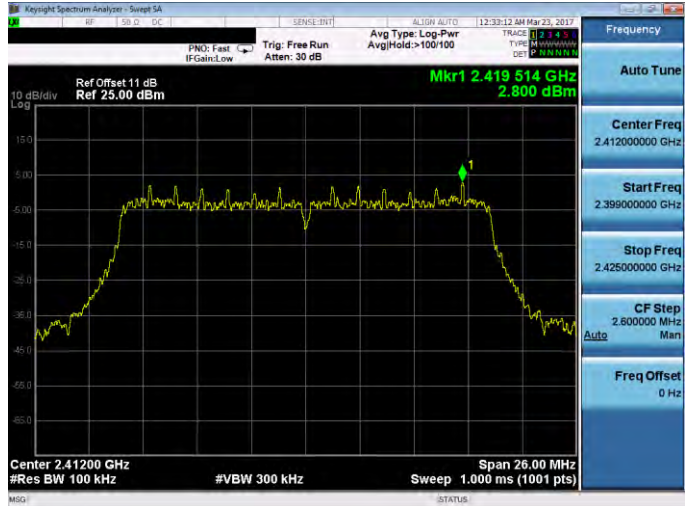
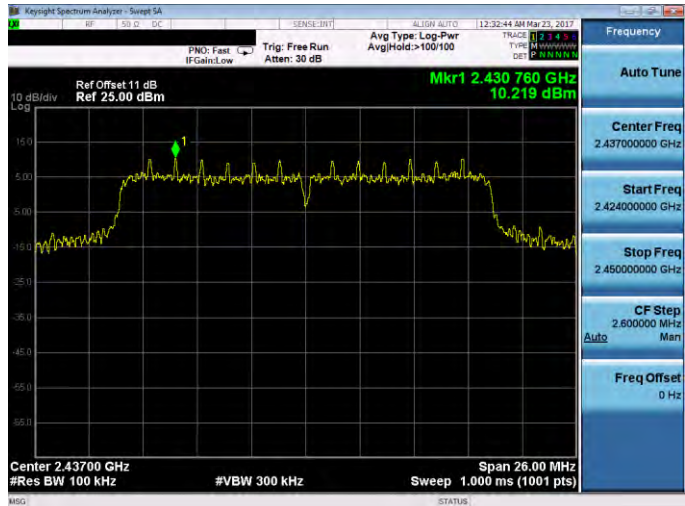


9.5. Test Graphs

Reference level

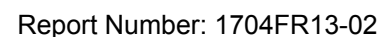
Test Mode:	Mode 2: IEEE 802.11b TX mode
Antenna:	ANT-0
2412 MHz	
2437 MHz	
2462 MHz	



Test Mode:	Mode 3: IEEE 802.11g TX mode
Antenna:	ANT-0
2412 MHz	
2437 MHz	
2462 MHz	



Test Mode:	Mode 4: IEEE 802.11n 2.4GHz 20MHz TX mode
Antenna:	ANT-0
2412 MHz	
2437 MHz	
2462 MHz	

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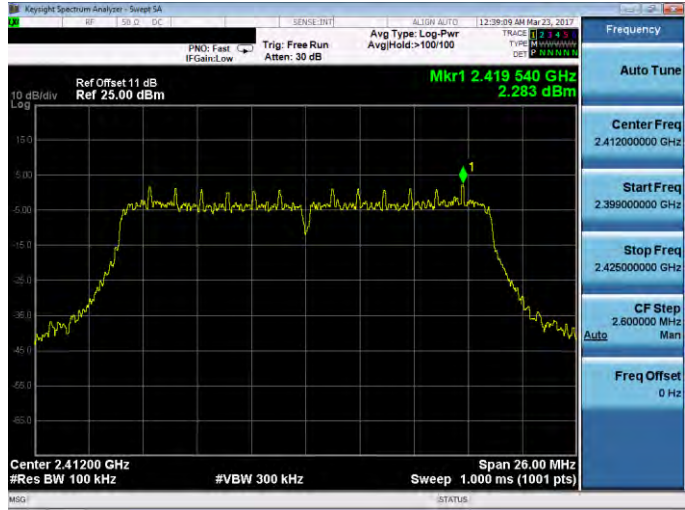
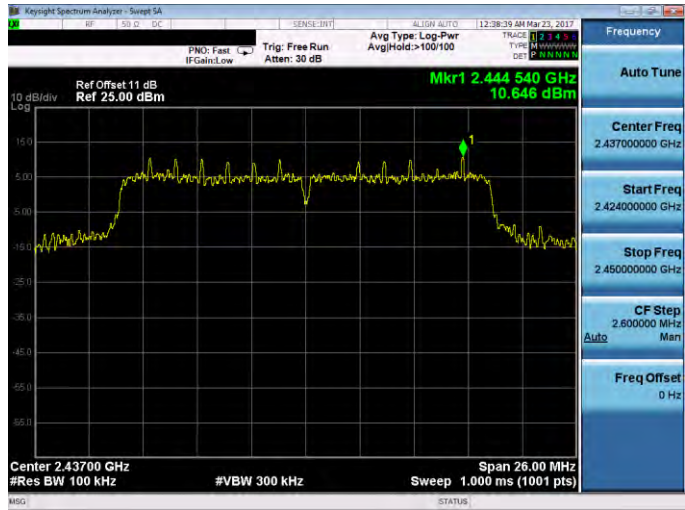
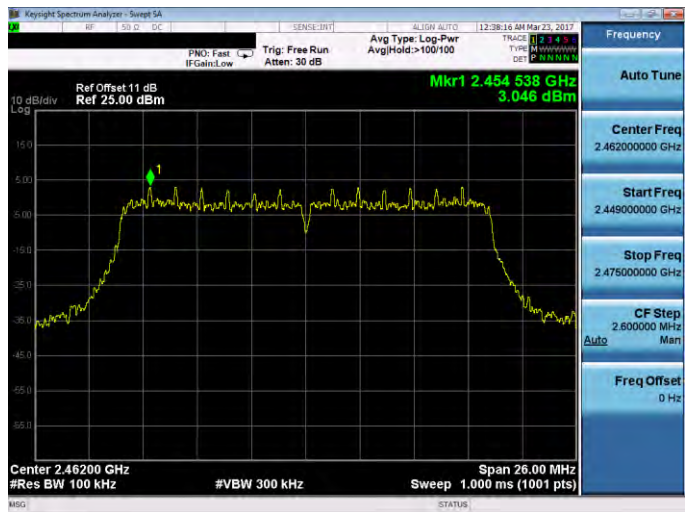


Test Mode:	Mode 2: IEEE 802.11b TX mode
Antenna:	ANT-1
2412 MHz	
2437 MHz	
2462 MHz	

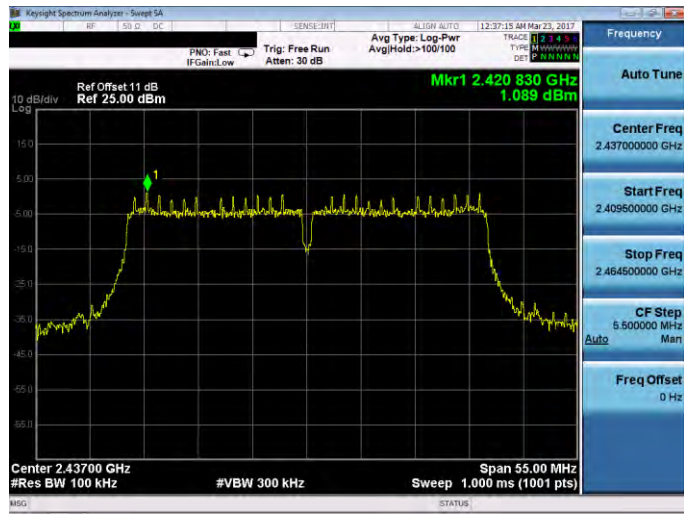
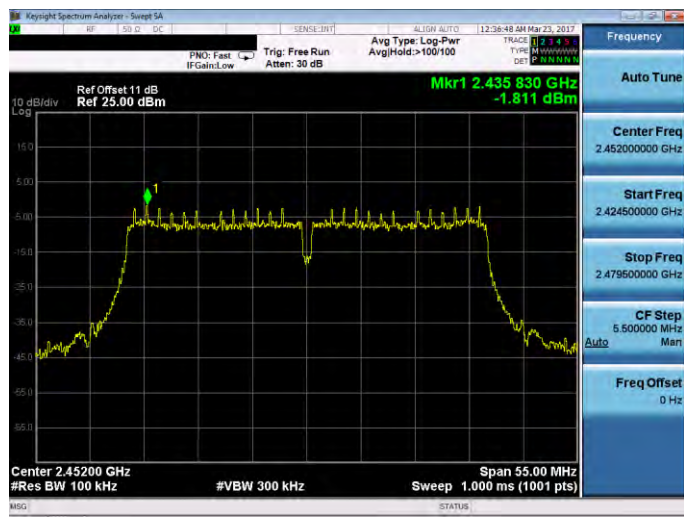


Test Mode:	Mode 3: IEEE 802.11g TX mode
Antenna:	ANT-1
2412 MHz	
2437 MHz	
2462 MHz	



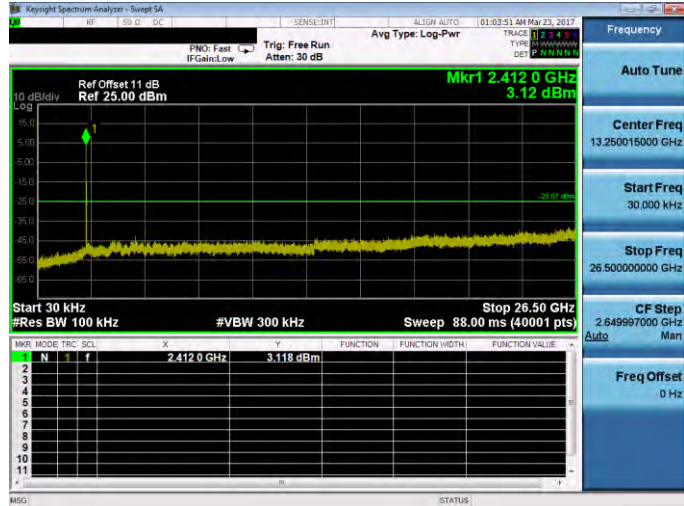
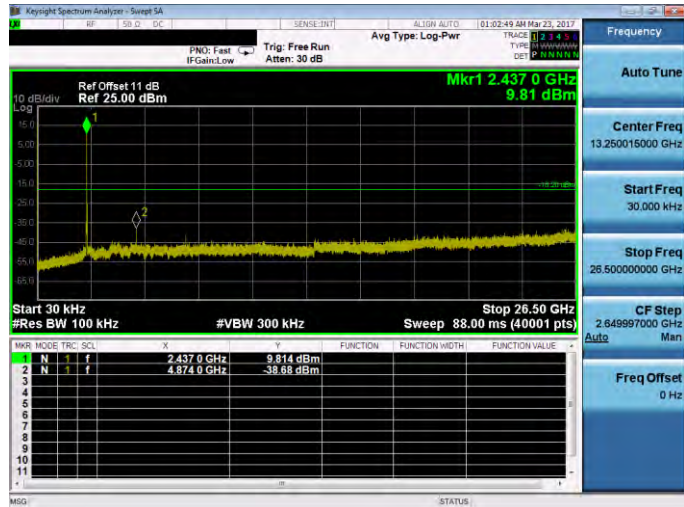
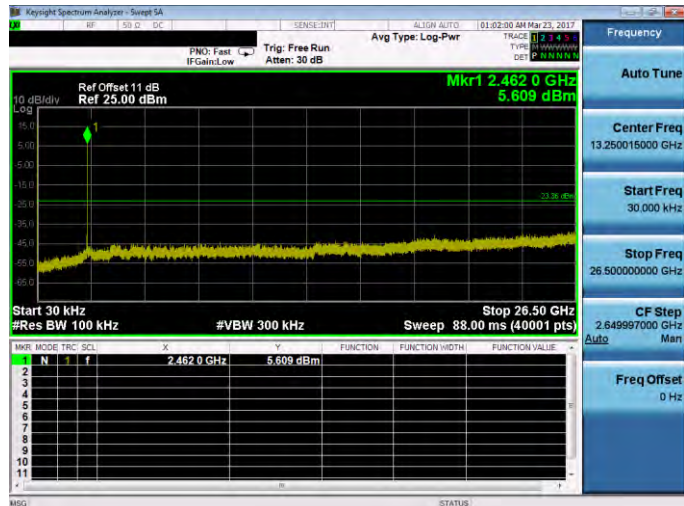
Test Mode:	Mode 4: IEEE 802.11n 2.4GHz 20MHz TX mode
Antenna:	ANT-1
2412 MHz	
2437 MHz	
2462 MHz	



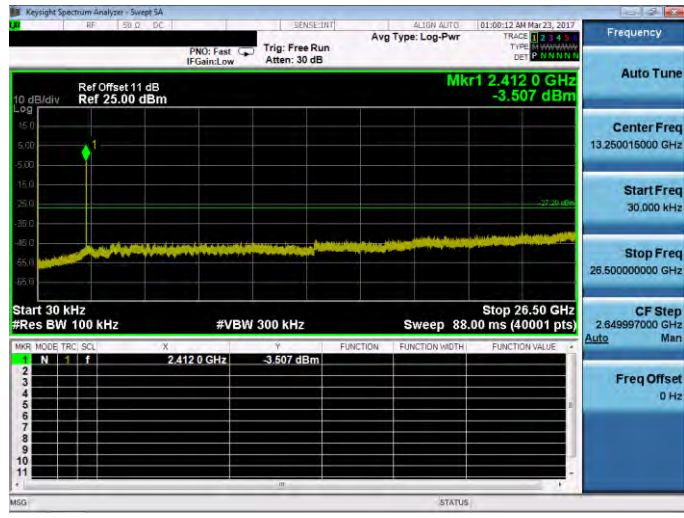
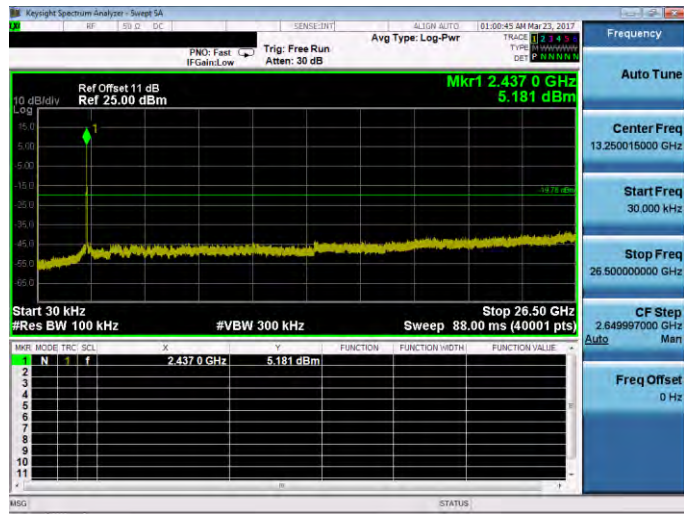
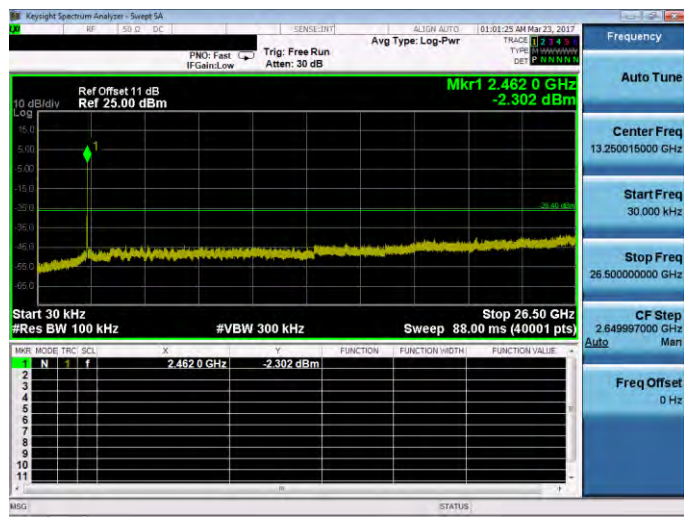
Test Mode:	Mode 5: IEEE 802.11n 2.4GHz 40MHz TX mode
Antenna:	ANT-1
2422 MHz	
2437 MHz	
2452 MHz	



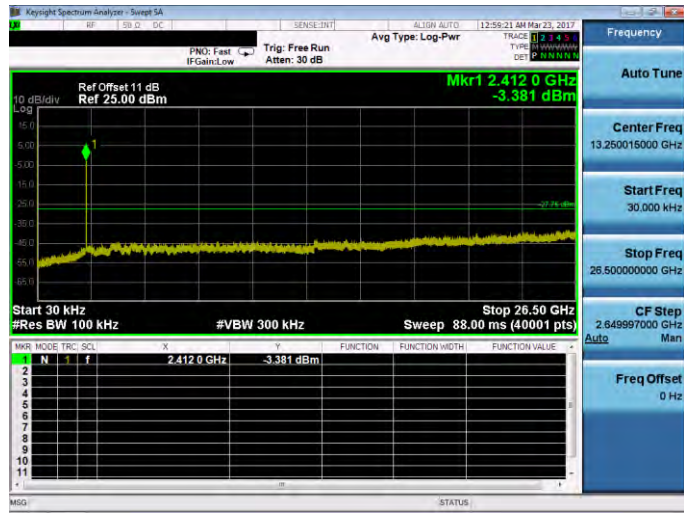
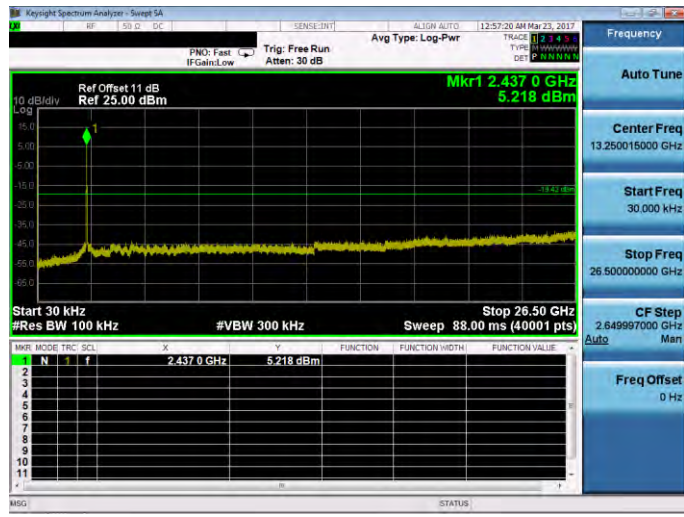
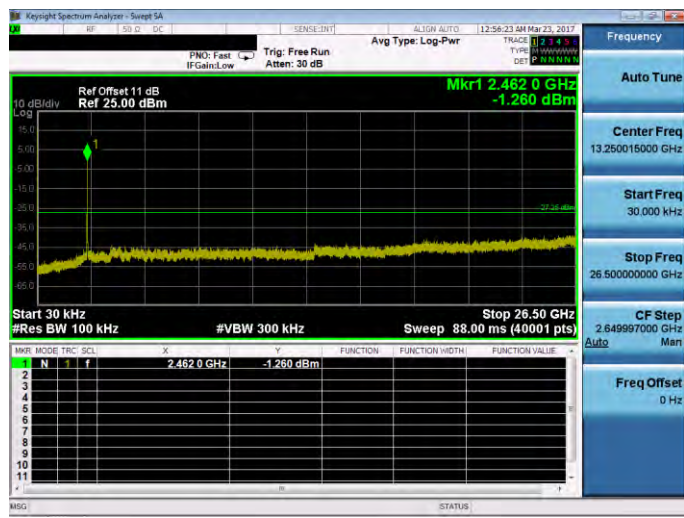
Out of Band Conducted Emissions

Test Mode:	Mode 2: IEEE 802.11b TX mode
Antenna:	ANT-0
2412 MHz	
2437 MHz	
2462 MHz	



Test Mode:	Mode 3: IEEE 802.11g TX mode
Antenna:	ANT-0
2412 MHz	
2437 MHz	
2462 MHz	

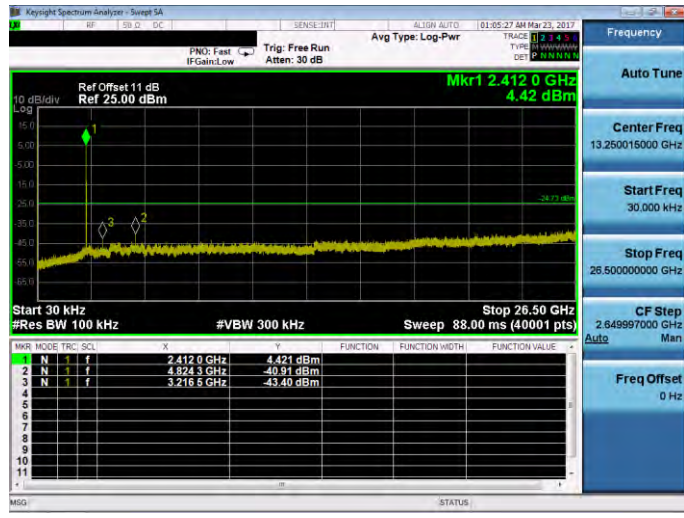
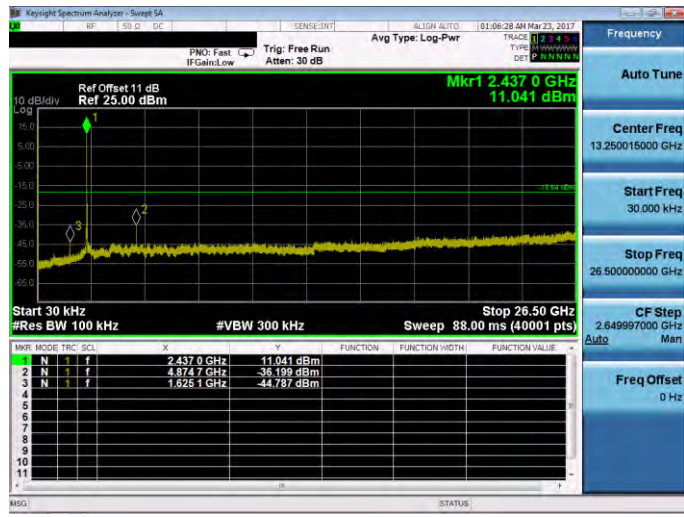
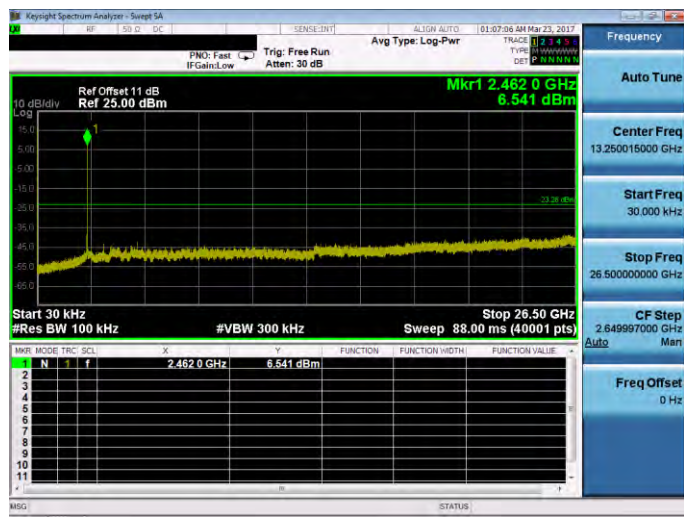


Test Mode:	Mode 4: IEEE 802.11n 2.4GHz 20MHz TX mode
Antenna:	ANT-0
2412 MHz	
2437 MHz	
2462 MHz	

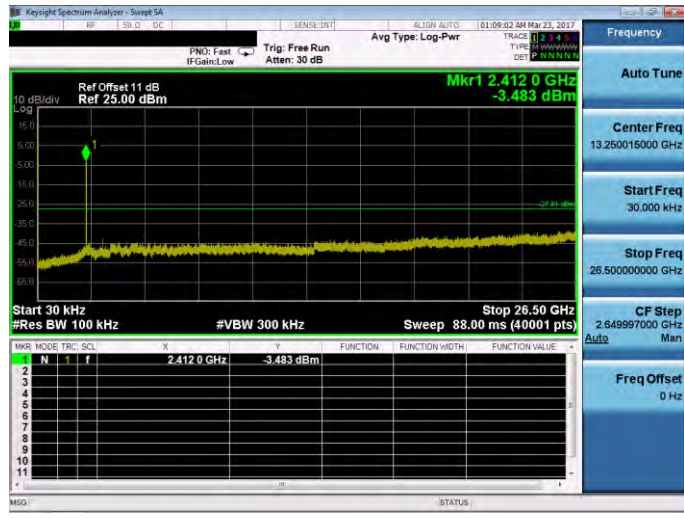
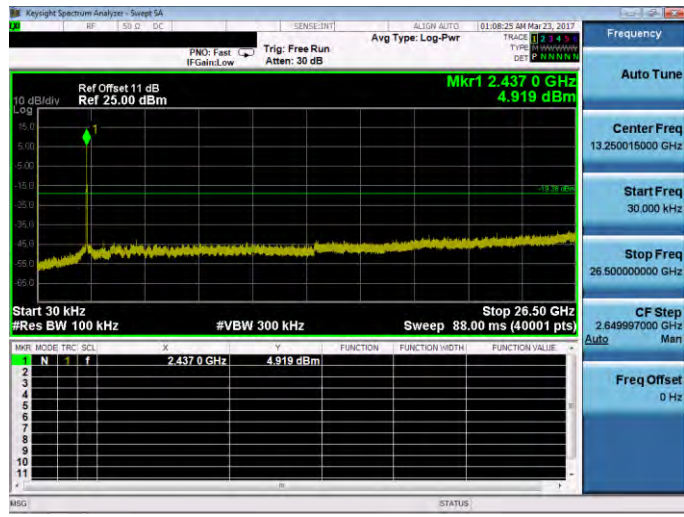
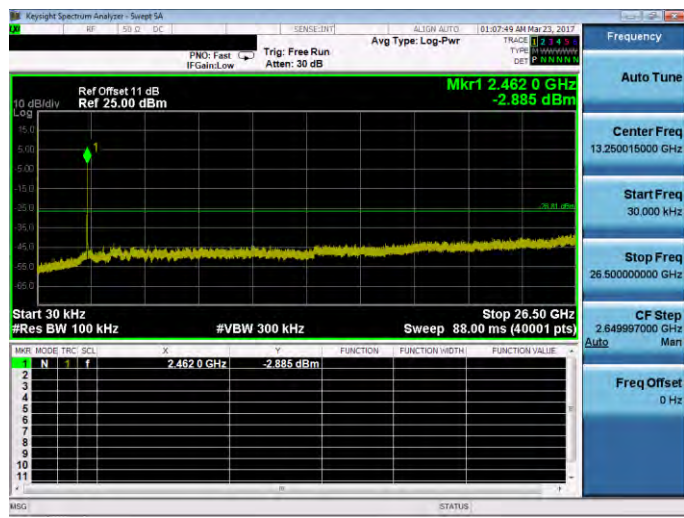


Test Mode:	Mode 5: IEEE 802.11n 2.4GHz 40MHz TX mode
Antenna:	ANT-0
2422 MHz	
2437 MHz	
2452 MHz	

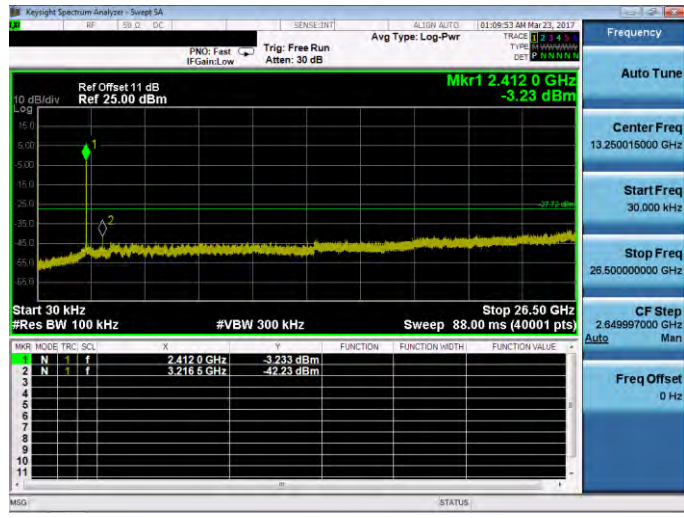
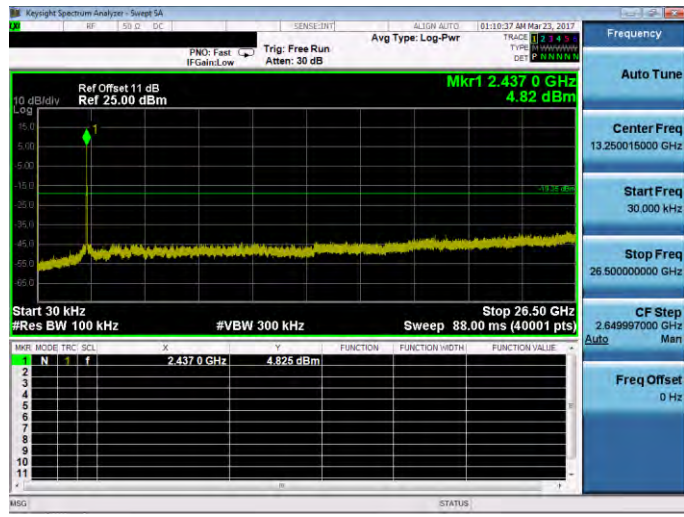
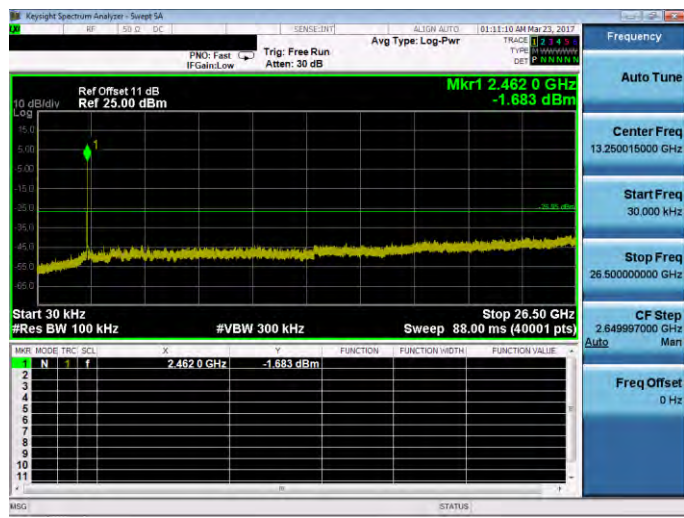


Test Mode:	Mode 2: IEEE 802.11b TX mode
Antenna:	ANT-1
2412 MHz	
2437 MHz	
2462 MHz	

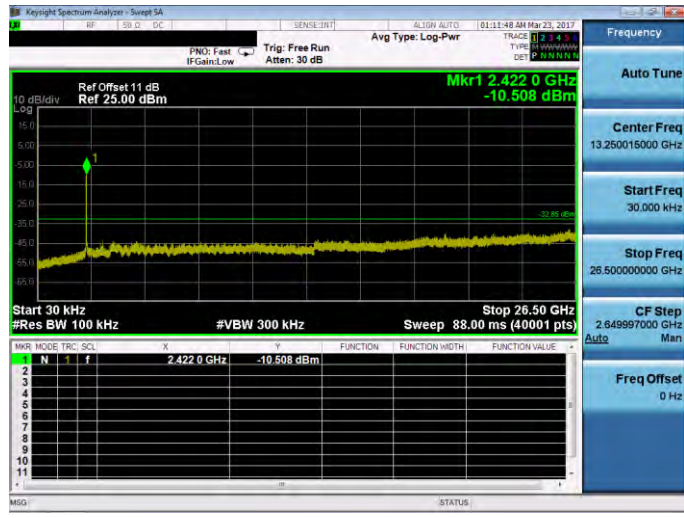
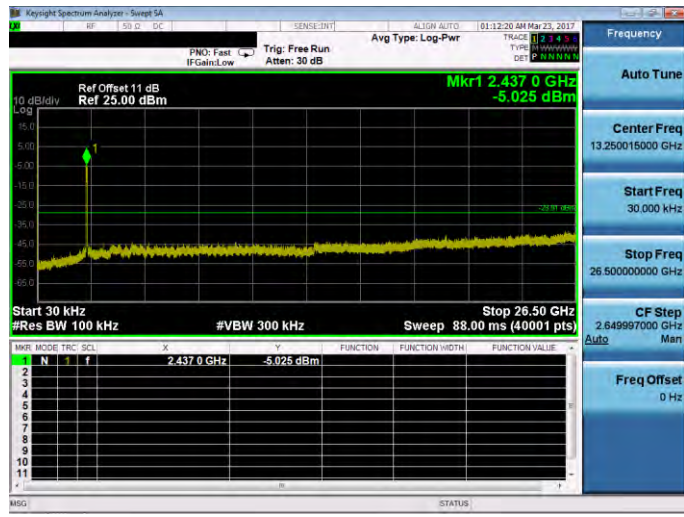
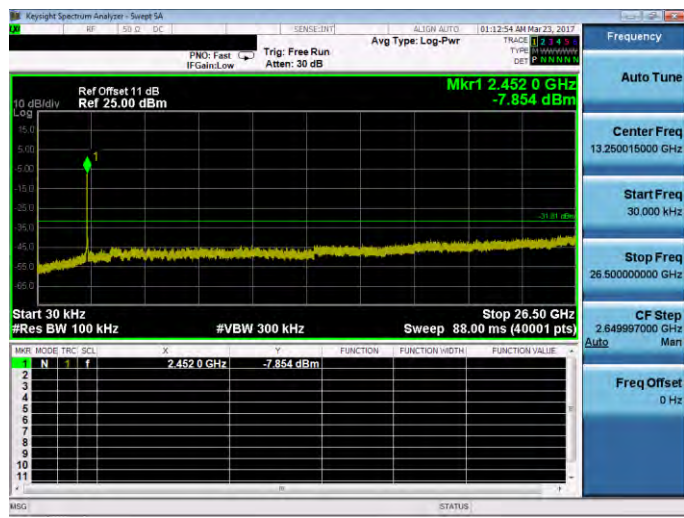


Test Mode:	Mode 3: IEEE 802.11g TX mode
Antenna:	ANT-1
2412 MHz	
2437 MHz	
2462 MHz	



Test Mode:	Mode 4: IEEE 802.11n 2.4GHz 20MHz TX mode
Antenna:	ANT-1
2412 MHz	
2437 MHz	
2462 MHz	



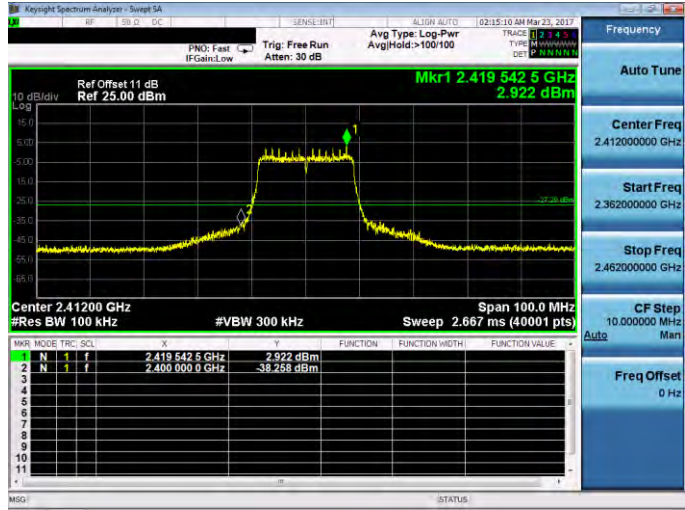
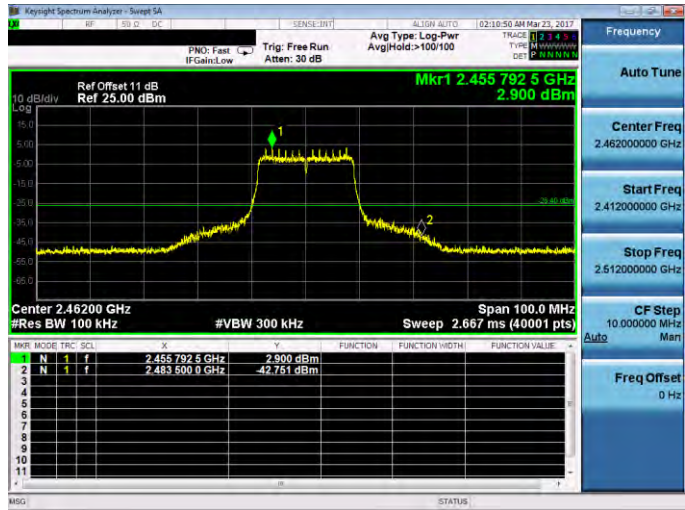
Test Mode:	Mode 5: IEEE 802.11n 2.4GHz 40MHz TX mode
Antenna:	ANT-1
2422 MHz	
2437 MHz	
2452 MHz	



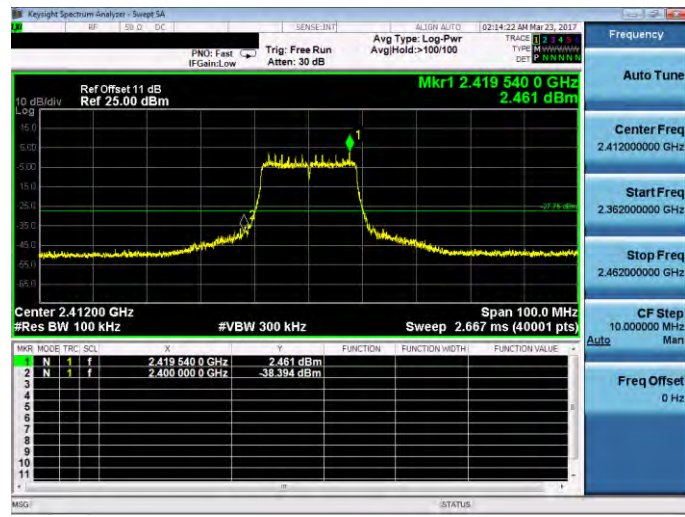
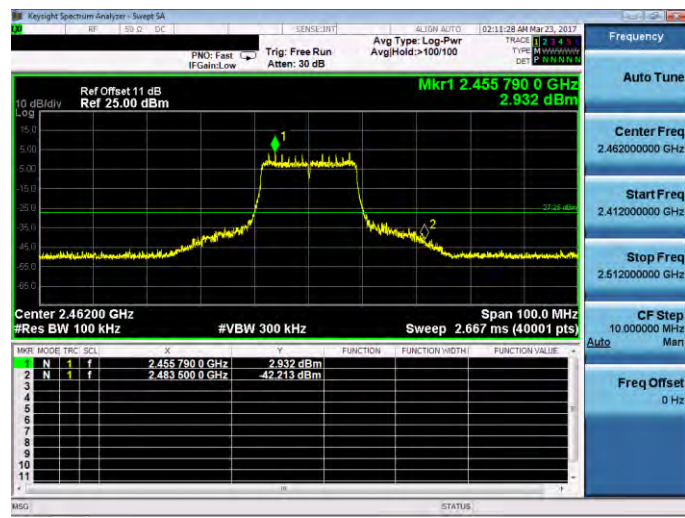
Conducted Band Edge

Test Mode:	Mode 2: IEEE 802.11b TX mode
Antenna:	ANT-0
2412 MHz	KeySight Spectrum analyzer - Sweep SA SENSE:INT ALIGN: AUTO 02:15:47 AM Mar 23, 2017 PN0: Fast IFGain:Low Trig: Free Run Atten: 30 dB Avg Type: Log-Per AvgHold:>100/100 TRAC: P TIME: WWWWW DET: P WWWNNNN Ref Offset 11 dB Ref 25.00 dBm Mkr2 2.400 000 0 GHz -46.204 dBm 10 dB/div Log 15.0 5.0 5.0 5.0 25.0 35.0 45.0 55.0 65.0 Center 2.41200 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 2.667 ms (40001 pts) Span 100.0 MHz 1 N 1 f 2.414 542 5 GHz -4.797 dBm 2 N 1 f 2.400 000 0 GHz -46.204 dBm 3 4 5 6 7 8 9 10 11 MSG STATUS Frequency Auto Tune Center Freq 2.412000000 GHz Start Freq 2.362000000 GHz Stop Freq 2.462000000 GHz CF Step 10.000000 MHz Auto Man Freq Offset 0 Hz
2462 MHz	KeySight Spectrum analyzer - Sweep SA SENSE:INT ALIGN: AUTO 02:08:46 AM Mar 23, 2017 PN0: Fast IFGain:Low Trig: Free Run Atten: 30 dB Avg Type: Log-Per AvgHold:>100/100 TRAC: P TIME: WWWWW DET: P WWWNNNN Ref Offset 11 dB Ref 25.00 dBm Mkr2 2.483 500 0 GHz -48.381 dBm 10 dB/div Log 15.0 5.0 5.0 5.0 25.0 35.0 45.0 55.0 65.0 Center 2.46200 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 2.667 ms (40001 pts) Span 100.0 MHz 1 N 1 f 2.463 547 5 GHz -6.634 dBm 2 N 1 f 2.483 500 0 GHz -48.381 dBm 3 4 5 6 7 8 9 10 11 MSG STATUS Frequency Auto Tune Center Freq 2.462000000 GHz Start Freq 2.412000000 GHz Stop Freq 2.512000000 GHz CF Step 10.000000 MHz Auto Man Freq Offset 0 Hz

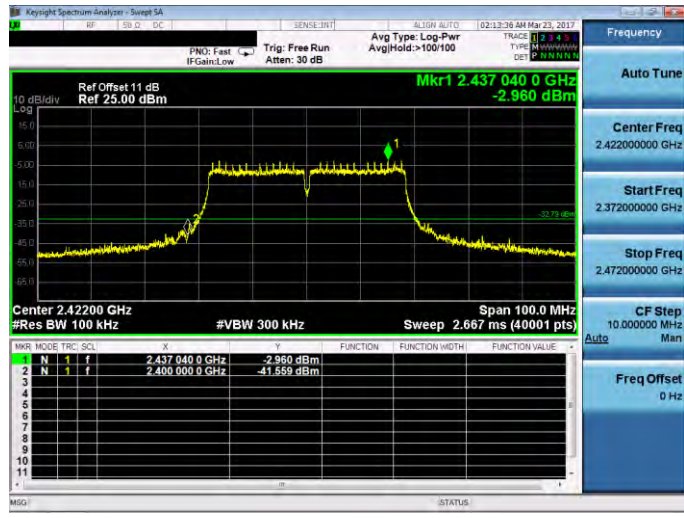
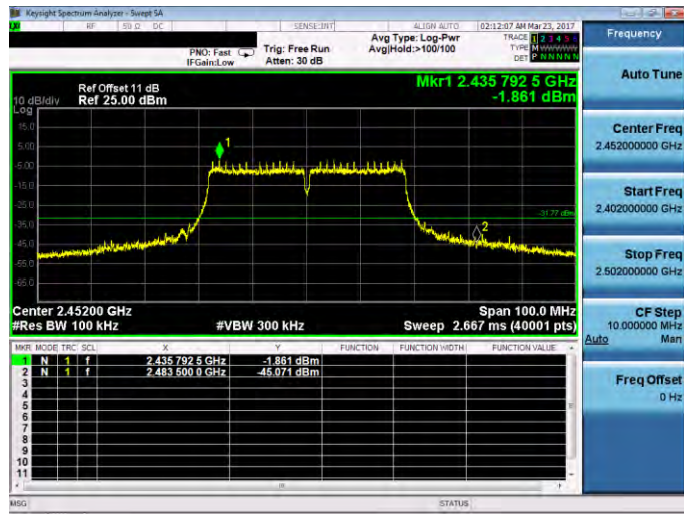


Test Mode:	Mode 3: IEEE 802.11g TX mode
Antenna:	ANT-0
2412 MHz	
2462 MHz	

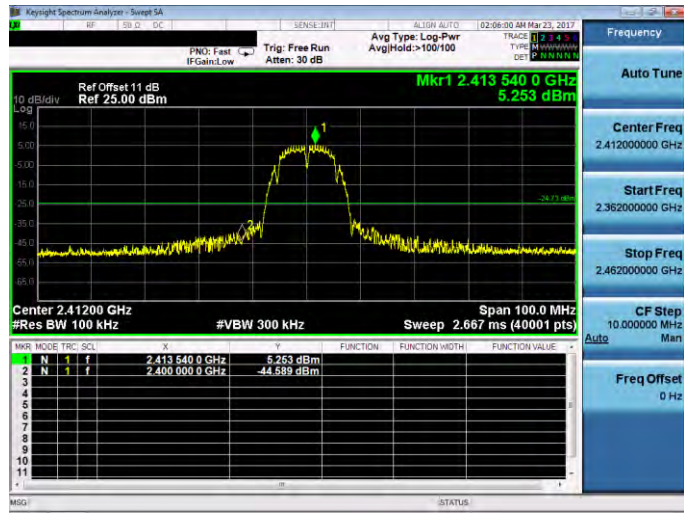
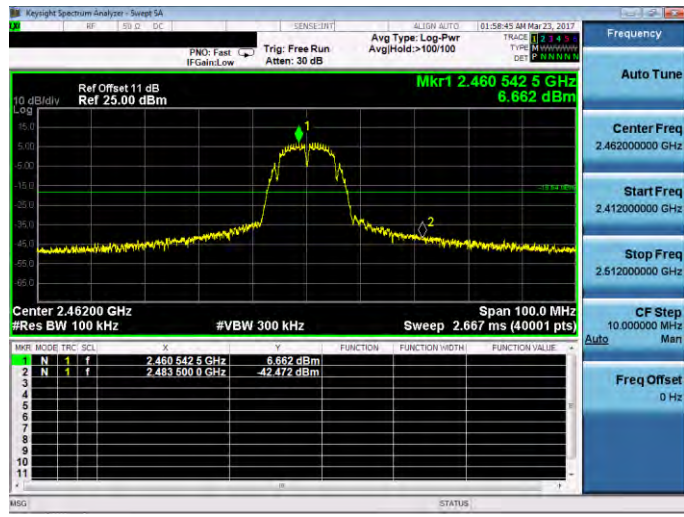


Test Mode:	Mode 4: IEEE 802.11n 2.4GHz 20MHz TX mode																											
Antenna:	ANT-0																											
2412 MHz	 Keyight Spectrum Analyzer - Sweet SA RF 1 50 0 - DC SENSE IN Align AUTO 02:14:22 AM Mar 23, 2017 Trig: Free Run AvgType: Log-Pwr AvgHold: >100/100 Ref Offset 11 dB Ref 25.00 dBm Mkr1 2.419 540 0 GHz 2.461 dBm Center 2.41200 GHz #Res BW 100 kHz #VBW 300 kHz Span 100.0 MHz Sweep 2.667 ms (40001 pts) <table><tr><th>Mkr</th><th>Mode</th><th>Trig</th><th>SC</th><th>X</th><th>Y</th><th>Function</th><th>Function Width</th><th>Function Value</th></tr><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.419 540 0 GHz</td><td>2.461 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>2.400 000 0 GHz</td><td>-38.394 dBm</td><td></td><td></td><td></td></tr></table>	Mkr	Mode	Trig	SC	X	Y	Function	Function Width	Function Value	1	N	1	f	2.419 540 0 GHz	2.461 dBm				2	N	1	f	2.400 000 0 GHz	-38.394 dBm			
Mkr	Mode	Trig	SC	X	Y	Function	Function Width	Function Value																				
1	N	1	f	2.419 540 0 GHz	2.461 dBm																							
2	N	1	f	2.400 000 0 GHz	-38.394 dBm																							
2462 MHz	 Keyight Spectrum Analyzer - Sweet SA RF 1 50 0 - DC SENSE IN Align AUTO 02:11:28 AM Mar 23, 2017 Trig: Free Run AvgType: Log-Pwr AvgHold: >100/100 Ref Offset 11 dB Ref 25.00 dBm Mkr1 2.455 790 0 GHz 2.932 dBm Center 2.46200 GHz #Res BW 100 kHz #VBW 300 kHz Span 100.0 MHz Sweep 2.667 ms (40001 pts) <table><tr><th>Mkr</th><th>Mode</th><th>Trig</th><th>SC</th><th>X</th><th>Y</th><th>Function</th><th>Function Width</th><th>Function Value</th></tr><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.455 790 0 GHz</td><td>2.932 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>2.483 500 0 GHz</td><td>-42.213 dBm</td><td></td><td></td><td></td></tr></table>	Mkr	Mode	Trig	SC	X	Y	Function	Function Width	Function Value	1	N	1	f	2.455 790 0 GHz	2.932 dBm				2	N	1	f	2.483 500 0 GHz	-42.213 dBm			
Mkr	Mode	Trig	SC	X	Y	Function	Function Width	Function Value																				
1	N	1	f	2.455 790 0 GHz	2.932 dBm																							
2	N	1	f	2.483 500 0 GHz	-42.213 dBm																							

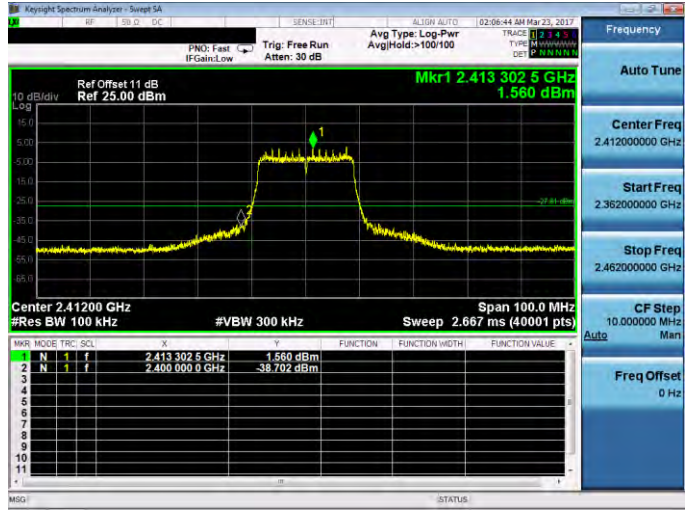
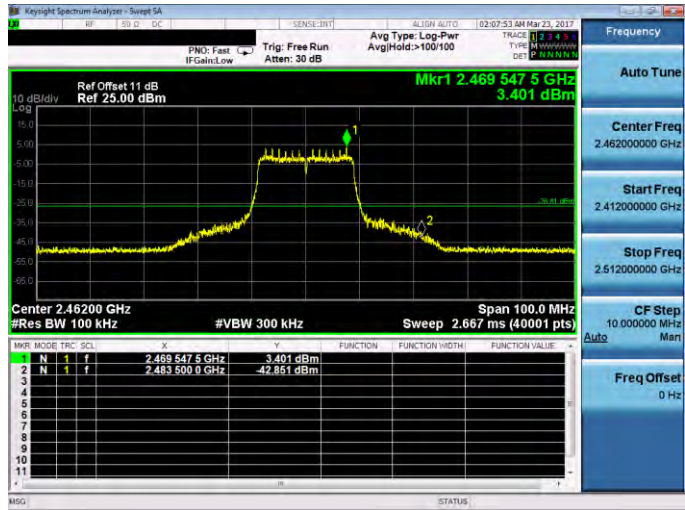


Test Mode:	Mode 5: IEEE 802.11n 2.4GHz 40MHz TX mode
Antenna:	ANT-0
2422 MHz	
2452 MHz	

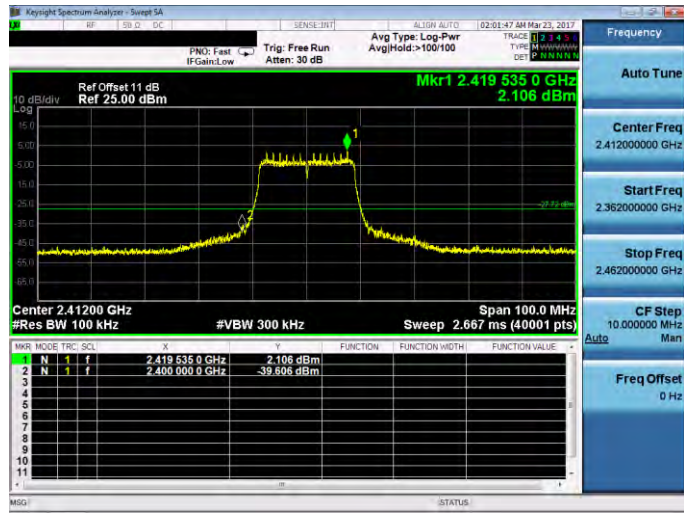
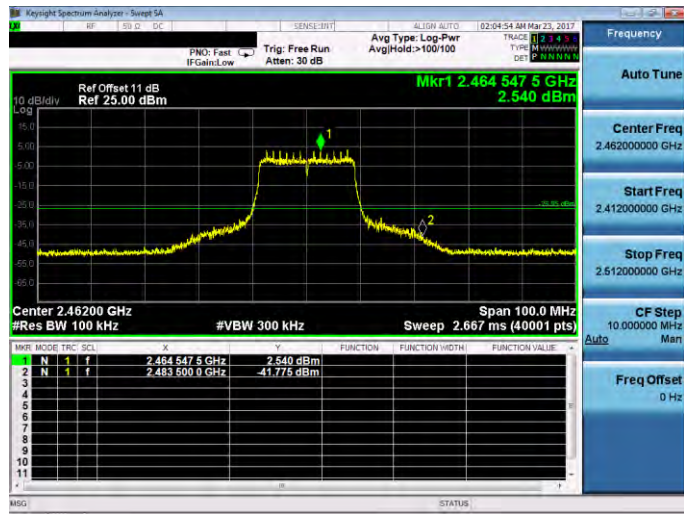


Test Mode:	Mode 2: IEEE 802.11b TX mode
Antenna:	ANT-1
2412 MHz	
2462 MHz	

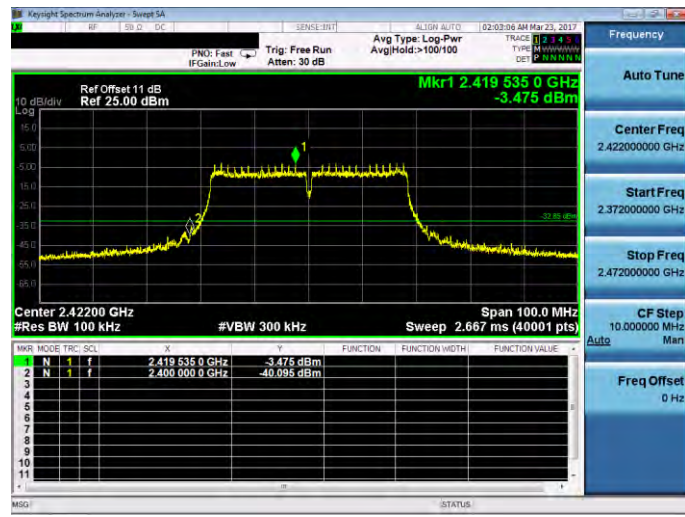
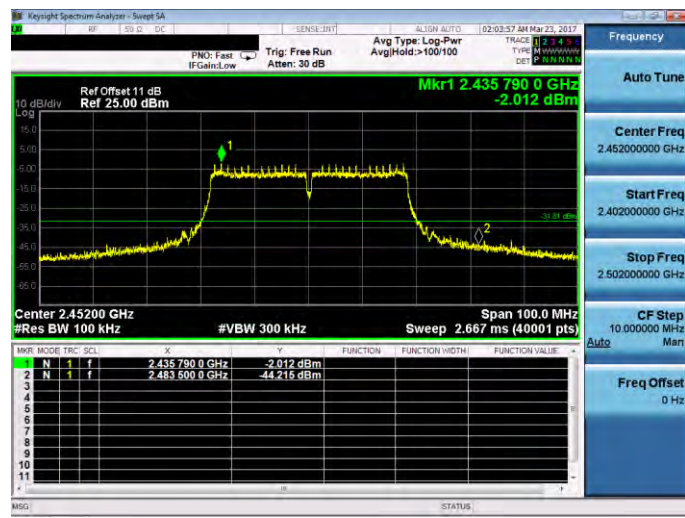


Test Mode:	Mode 3: IEEE 802.11g TX mode
Antenna:	ANT-1
2412 MHz	
2462 MHz	



Test Mode:	Mode 4: IEEE 802.11n 2.4GHz 20MHz TX mode
Antenna:	ANT-1
2412 MHz	
2462 MHz	



Test Mode:	Mode 5: IEEE 802.11n 2.4GHz 40MHz TX mode																											
Antenna:	ANT-1																											
2422 MHz	 Keylight Spectrum Analyzer - Sweet SA Ref Offset 11 dB Ref 25.00 dBm Mkr1 2.419 535 0 GHz -3.475 dBm Center 2.42200 GHz #Res BW 100 kHz #VBW 300 kHz Span 100.0 MHz Sweep 2.667 ms (40001 pts) <table><tr><th>Mkr</th><th>Mode</th><th>Trc</th><th>Scal</th><th>X</th><th>Y</th><th>Function</th><th>Function Width</th><th>Function Value</th></tr><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.419 535 0 GHz</td><td>-3.475 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>2.400 000 0 GHz</td><td>-40.095 dBm</td><td></td><td></td><td></td></tr></table>	Mkr	Mode	Trc	Scal	X	Y	Function	Function Width	Function Value	1	N	1	f	2.419 535 0 GHz	-3.475 dBm				2	N	1	f	2.400 000 0 GHz	-40.095 dBm			
Mkr	Mode	Trc	Scal	X	Y	Function	Function Width	Function Value																				
1	N	1	f	2.419 535 0 GHz	-3.475 dBm																							
2	N	1	f	2.400 000 0 GHz	-40.095 dBm																							
2452 MHz	 Keylight Spectrum Analyzer - Sweet SA Ref Offset 11 dB Ref 25.00 dBm Mkr1 2.435 790 0 GHz -2.012 dBm Center 2.45200 GHz #Res BW 100 kHz #VBW 300 kHz Span 100.0 MHz Sweep 2.667 ms (40001 pts) <table><tr><th>Mkr</th><th>Mode</th><th>Trc</th><th>Scal</th><th>X</th><th>Y</th><th>Function</th><th>Function Width</th><th>Function Value</th></tr><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.435 790 0 GHz</td><td>-2.012 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>2.483 500 0 GHz</td><td>-44.215 dBm</td><td></td><td></td><td></td></tr></table>	Mkr	Mode	Trc	Scal	X	Y	Function	Function Width	Function Value	1	N	1	f	2.435 790 0 GHz	-2.012 dBm				2	N	1	f	2.483 500 0 GHz	-44.215 dBm			
Mkr	Mode	Trc	Scal	X	Y	Function	Function Width	Function Value																				
1	N	1	f	2.435 790 0 GHz	-2.012 dBm																							
2	N	1	f	2.483 500 0 GHz	-44.215 dBm																							



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.DirectionaI Gain Calculated

For Maximum Conducted Output Power

* CDD mode : Directional Gain = Max. Gain = 3 dBi < 6 dBi.

For Maximum Power Density

* Directional Gain = $10 \cdot \log\{[10^{(G1/20)} + 10^{(G2/20)} + \dots + 10^{(Gn/20)}]^2 / NANT\} = 6.01 \text{ dBi} > 6 \text{ dBi}$

Operate Freq. Band	Directional Gain (dBi)
IEEE 802.11b	6.01
IEEE 802.11g	6.01
IEEE 802.11n 2.4GHz 20MHz	6.01
IEEE 802.11n 2.4GHz 40MHz	6.01