

**802.11b High Channel**

Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	ANT	Verdict
3264.82	-9.80	39.31	74.00	-34.69	Peak	Vertical	Pass
3264.82	-9.80	28.11	54.00	-25.89	Average	Vertical	Pass
3264.73	-9.80	38.63	74.00	-35.37	Peak	Horizontal	Pass
3264.73	-9.80	29.45	54.00	-24.55	Average	Horizontal	Pass
4924.36	-3.56	56.02	74.00	-17.98	Peak	Vertical	Pass
4924.36	-3.56	35.79	54.00	-18.21	Average	Vertical	Pass
4924.45	-3.56	54.57	74.00	-19.43	Peak	Horizontal	Pass
4924.45	-3.56	35.40	54.00	-18.60	Average	Horizontal	Pass
5359.76	-2.34	44.11	74.00	-29.89	Peak	Vertical	Pass
5359.76	-2.34	36.06	54.00	-17.94	Average	Vertical	Pass
5359.83	-2.34	43.84	74.00	-30.16	Peak	Horizontal	Pass
5359.83	-2.34	35.73	54.00	-18.27	Average	Horizontal	Pass
7385.70	3.40	55.11	74.00	-18.89	Peak	Vertical	Pass
7385.70	3.40	36.46	54.00	-17.54	Average	Vertical	Pass
7385.79	3.40	55.27	74.00	-18.73	Peak	Horizontal	Pass
7385.79	3.40	36.65	54.00	-17.35	Average	Horizontal	Pass

Remark:

- Factor = Antenna Factor + Cable Loss – Pre-amplifier.
- Scan with 802.11b, 802.11g, 802.11n (HT-20) the worst case is 802.11b.
Emission Level = Reading + Factor
Margin = Limit - Emission Level
- The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.



3.3.7 TEST RESULTS (BAND EDGE REQUIREMENTS)

Frequency (MHz)	Reading (dBμV)	Amplifier (dB)	Loss (dB)	Antenna	Corrected	Emission	Limits (dBμV/m)	Margin (dB)	Detector Type	Comment
				Factor (dB/m)	Factor (dB)	Level (dBμV/m)				
802.11b										
2390.00	68.42	43.80	4.91	25.90	-12.99	55.43	74.00	-18.57	Peak	Vertical
2390.00	53.64	43.80	4.91	25.90	-12.99	40.65	54.00	-13.35	Average	Vertical
2390.00	69.20	43.80	4.91	25.90	-12.99	56.21	74.00	-17.79	Peak	Horizontal
2390.00	53.13	43.80	4.91	25.90	-12.99	40.14	54.00	-13.86	Average	Horizontal
2483.50	70.14	43.80	5.12	25.90	-12.78	57.36	74.00	-16.64	Peak	Vertical
2483.50	52.53	43.80	5.12	25.90	-12.78	39.75	54.00	-14.25	Average	Vertical
2483.50	69.35	43.80	5.12	25.90	-12.78	56.57	74.00	-17.43	Peak	Horizontal
2483.50	53.08	43.80	5.12	25.90	-12.78	40.30	54.00	-13.70	Average	Horizontal
802.11g										
2390.00	66.02	43.80	4.91	25.90	-12.99	53.03	74.00	-20.97	Peak	Vertical
2390.00	52.35	43.80	4.91	25.90	-12.99	39.36	54.00	-14.64	Average	Vertical
2390.00	66.57	43.80	4.91	25.90	-12.99	53.58	74.00	-20.42	Peak	Horizontal
2390.00	53.96	43.80	4.91	25.90	-12.99	40.97	54.00	-13.03	Average	Horizontal
2483.50	66.15	43.80	5.12	25.90	-12.78	53.37	74.00	-20.63	Peak	Vertical
2483.50	52.90	43.80	5.12	25.90	-12.78	40.12	54.00	-13.88	Average	Vertical
2483.50	66.37	43.80	5.12	25.90	-12.78	53.59	74.00	-20.41	Peak	Horizontal
2483.50	52.78	43.80	5.12	25.90	-12.78	40.00	54.00	-14.00	Average	Horizontal
802.11n20										
2390.00	67.10	43.80	4.91	25.90	-12.99	54.11	74.00	-19.89	Peak	Vertical
2390.00	52.64	43.80	4.91	25.90	-12.99	39.65	54.00	-14.35	Average	Vertical
2390.00	66.58	43.80	4.91	25.90	-12.99	53.59	74.00	-20.41	Peak	Horizontal
2390.00	53.62	43.80	4.91	25.90	-12.99	40.63	54.00	-13.37	Average	Horizontal
2483.50	65.16	43.80	5.12	25.90	-12.78	52.38	74.00	-21.62	Peak	Vertical
2483.50	52.58	43.80	5.12	25.90	-12.78	39.80	54.00	-14.20	Average	Vertical
2483.50	65.90	43.80	5.12	25.90	-12.78	53.12	74.00	-20.88	Peak	Horizontal
2483.50	53.07	43.80	5.12	25.90	-12.78	40.29	54.00	-13.71	Average	Horizontal
<p>Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Low measurement frequencies is range from 2300 to 2422 MHz, high measurement frequencies is range from 2452 to 2500 MHz. Only show the worst point data of the emissions in the frequency 2300-2422 MHz and 2452-2500 MHz.</p>										

4 CONDUCTED SPURIOUS & BAND EDGE EMISSION

4.1 APPLIED PROCEDURES / LIMIT

According to FCC Part 15.247(d), in any 100kHz 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 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

4.2 TEST PROCEDURE

Spectrum Parameter	Setting
Detector	Peak
Start/Stop Frequency	30 MHz to 10th carrier harmonic
RB / VB (emission in restricted band)	100 KHz/300 KHz
Trace-Mode:	Max hold

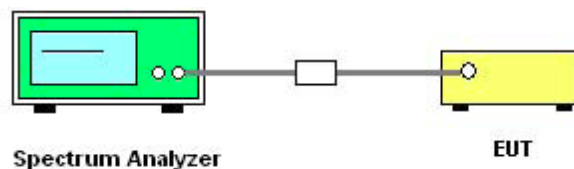
For Band edge

Spectrum Parameter	Setting
Detector	Peak
Start/Stop Frequency	Lower Band Edge: 2300 to 2422 MHz Upper Band Edge: 2452 to 2500 MHz
RB / VB (emission in restricted band)	100 KHz/300 KHz
Trace-Mode:	Max hold

4.3 DEVIATION FROM STANDARD

No deviation.

4.4 TEST SETUP



The EUT which is powered by the Battery, is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.

Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW.

4.5 EUT OPERATION CONDITIONS

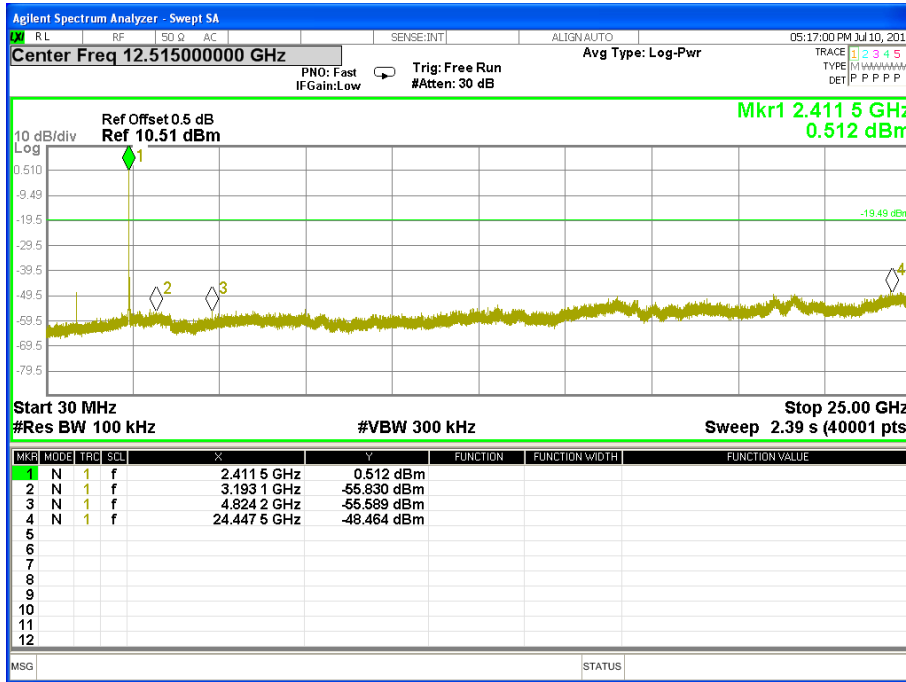
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.



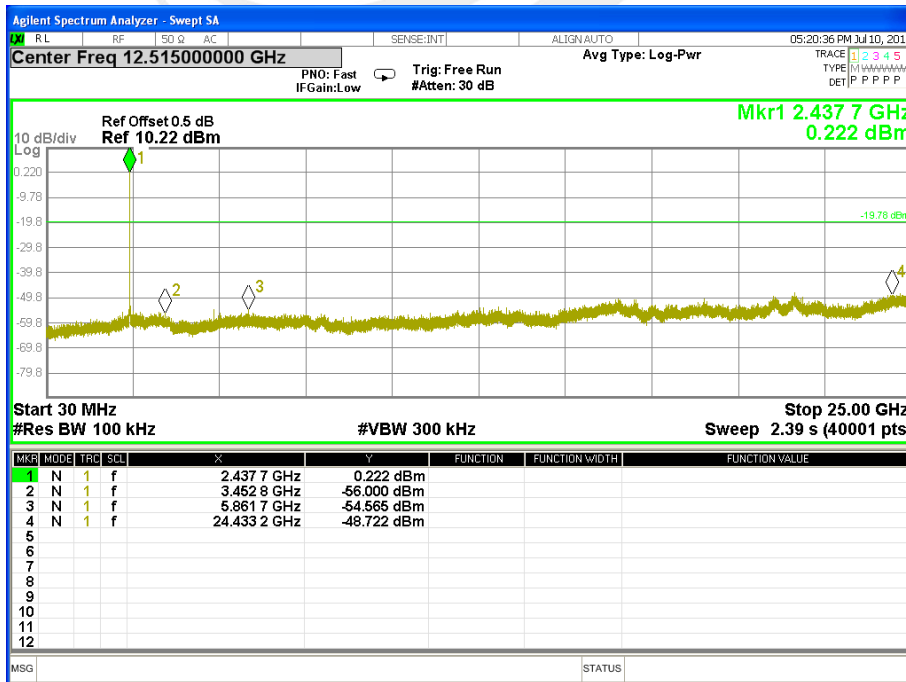
4.6 TEST RESULTS

Temperature :	25 °C	Relative Humidity :	60%
Test Voltage :	AC 120V/60Hz	Test Mode :	TX b Mode /CH01, CH06, CH11

CH 01

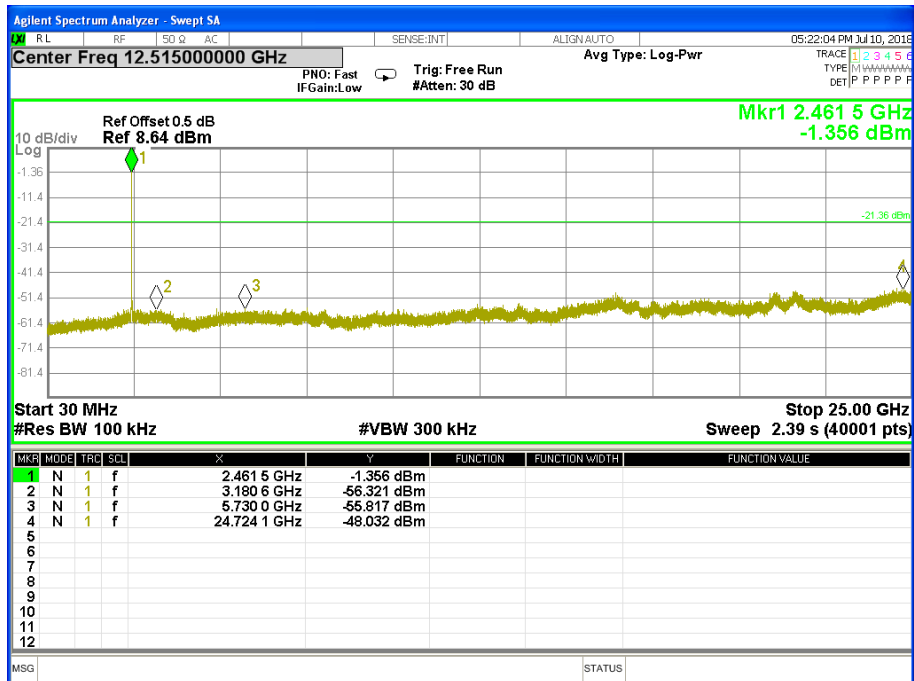


CH 06





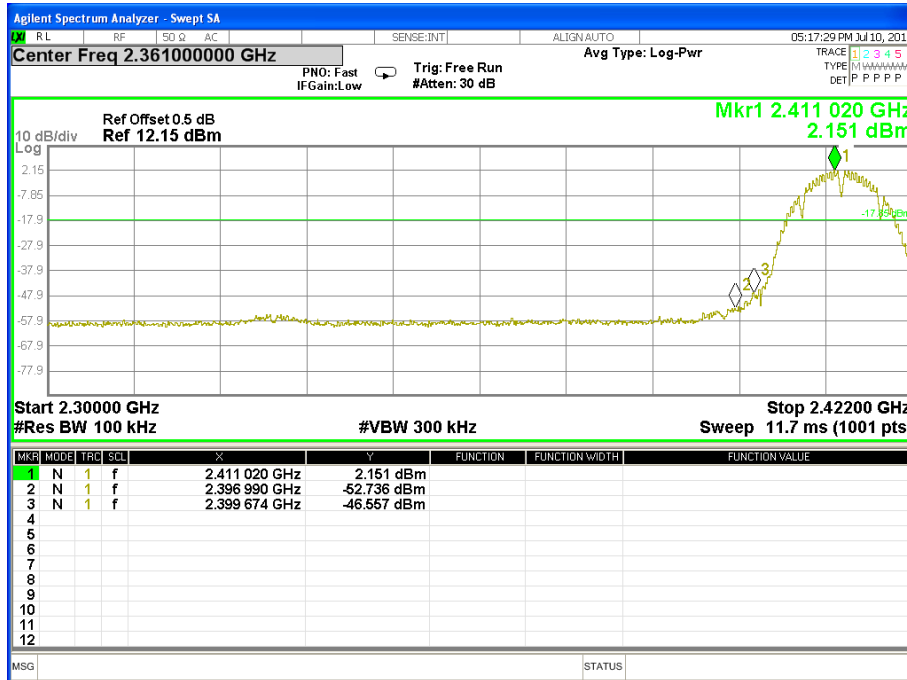
CH 11



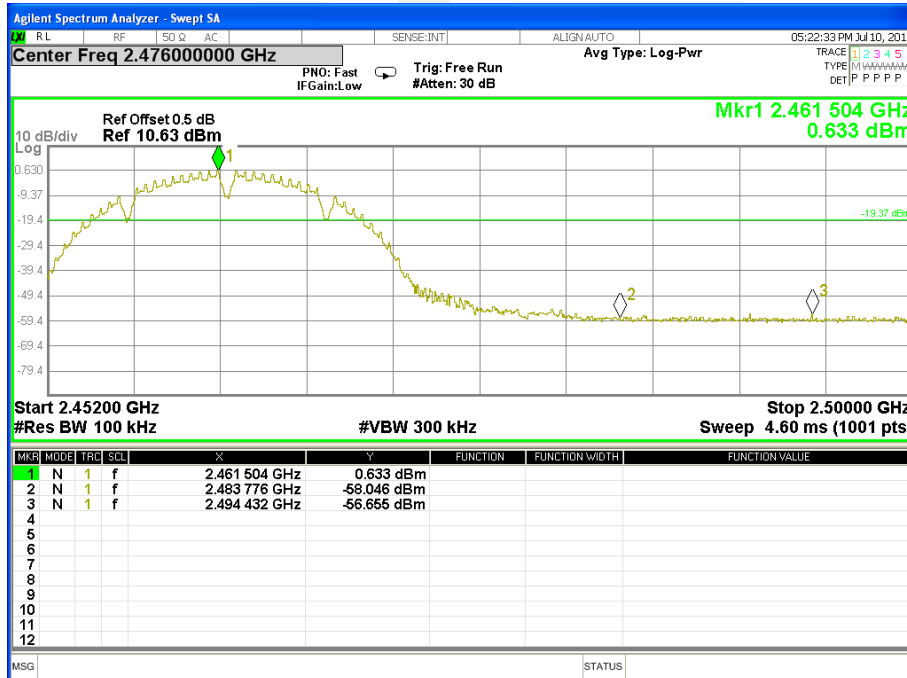


Band edge

CH 01



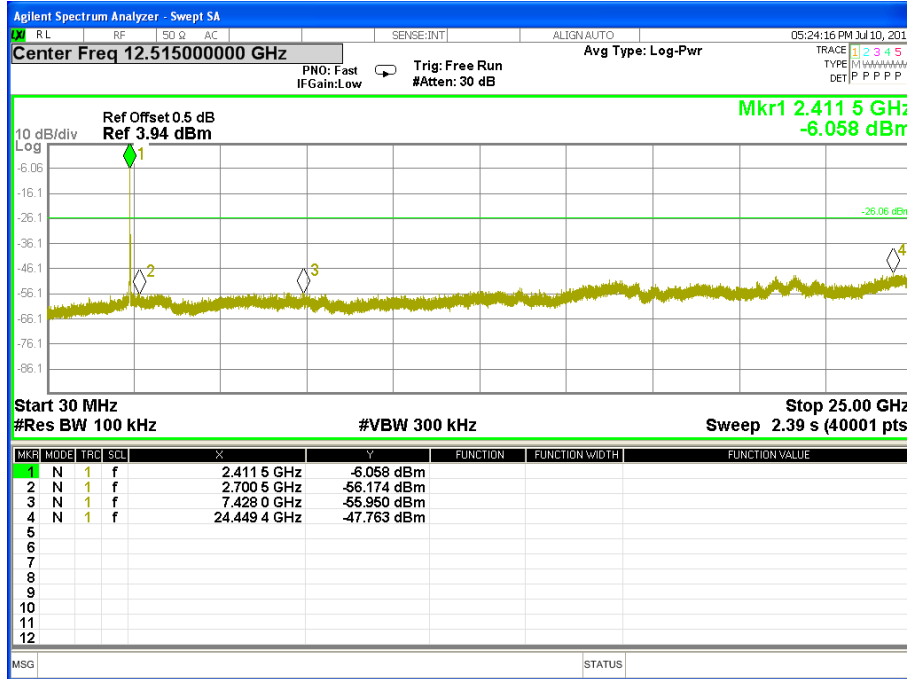
CH 11



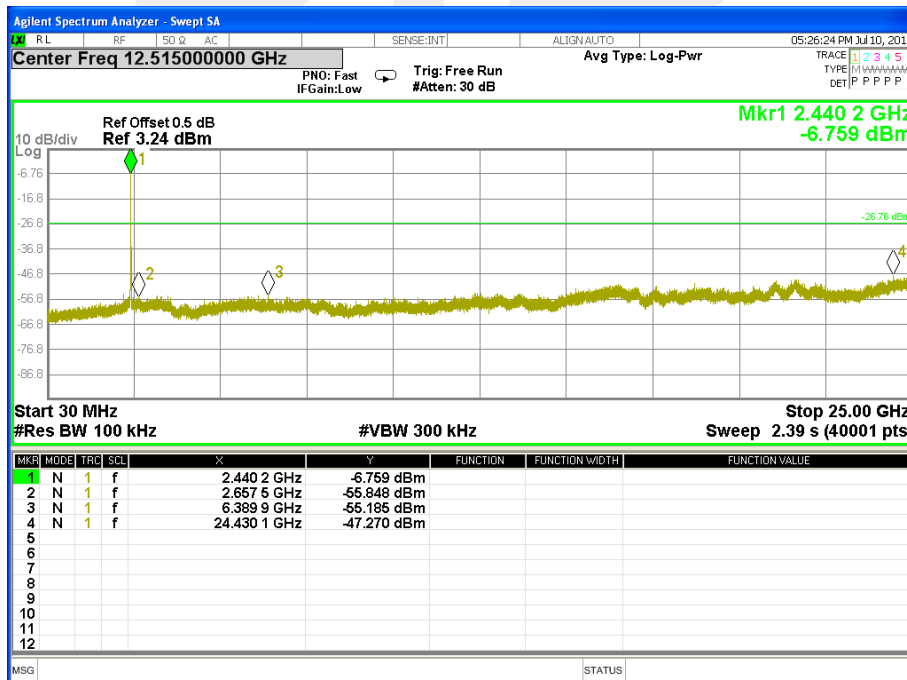


Temperature :	25 °C	Relative Humidity :	60%
Test Voltage :	AC 120V/60Hz	Test Mode :	TX g Mode /CH01, CH06, CH11

CH 01

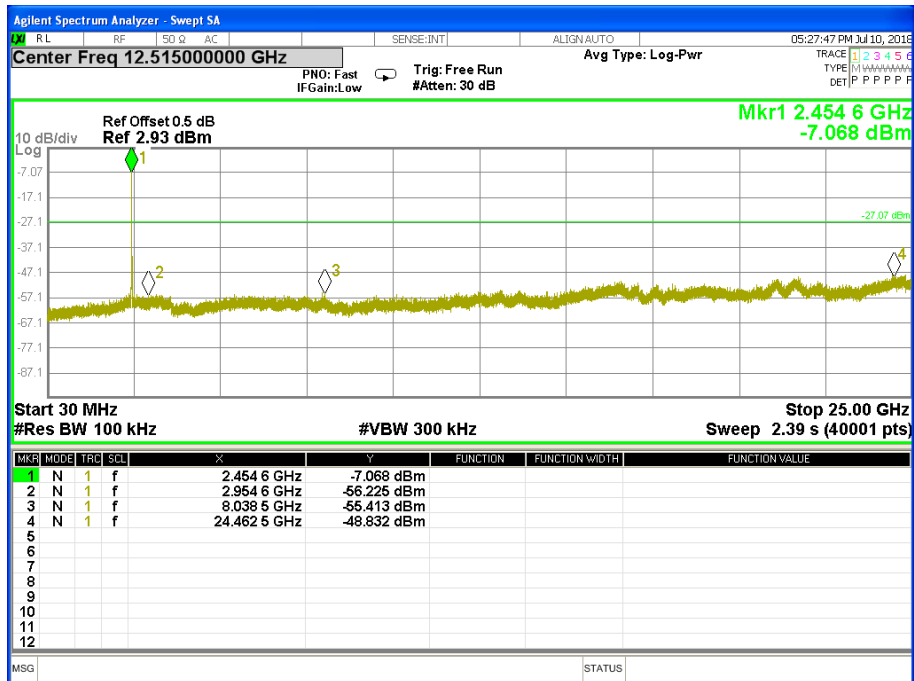


CH06





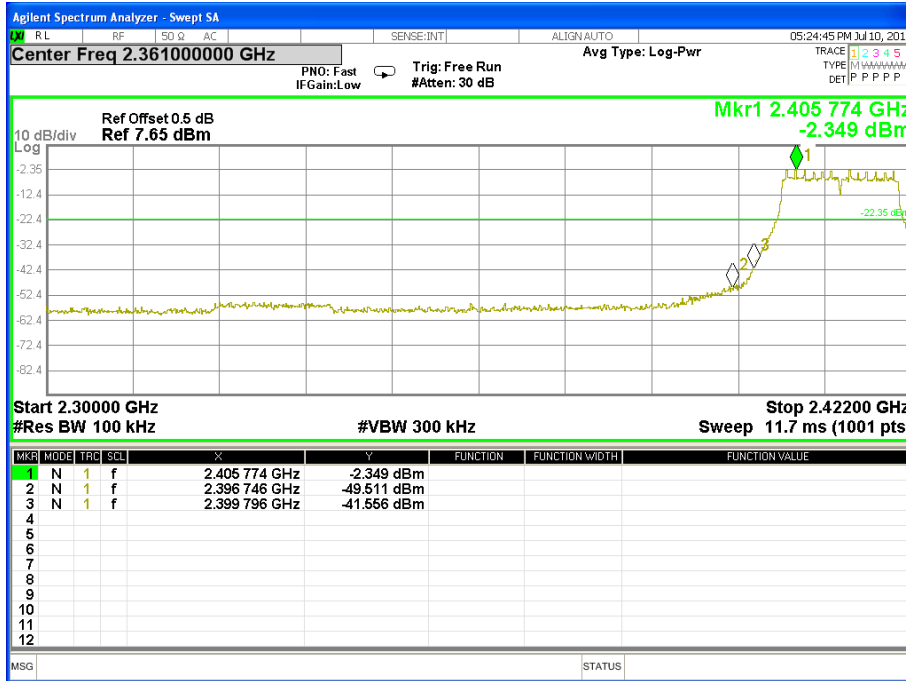
CH 11



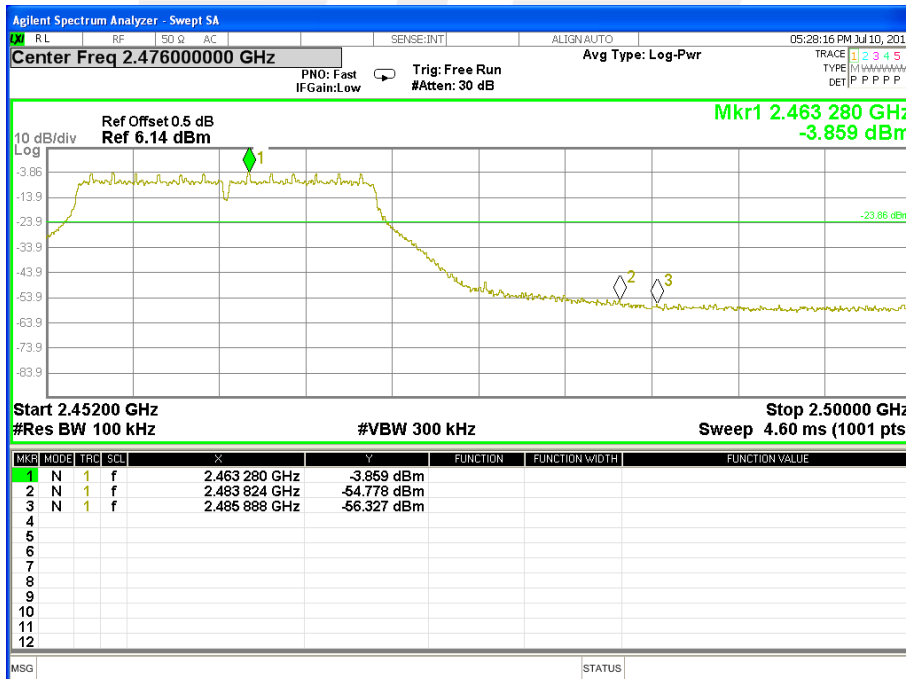


Band edge

CH 01



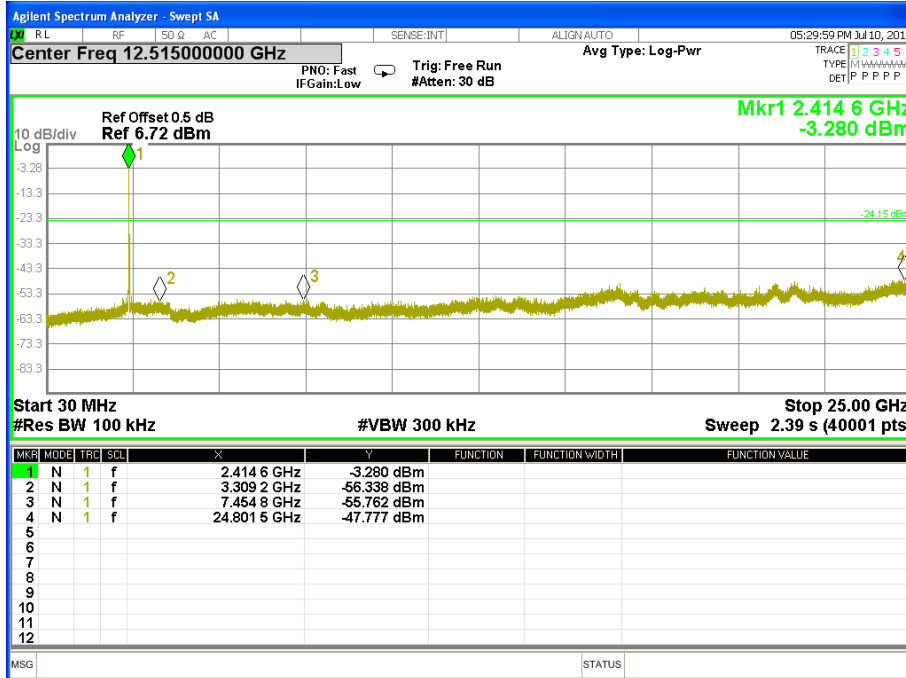
CH11



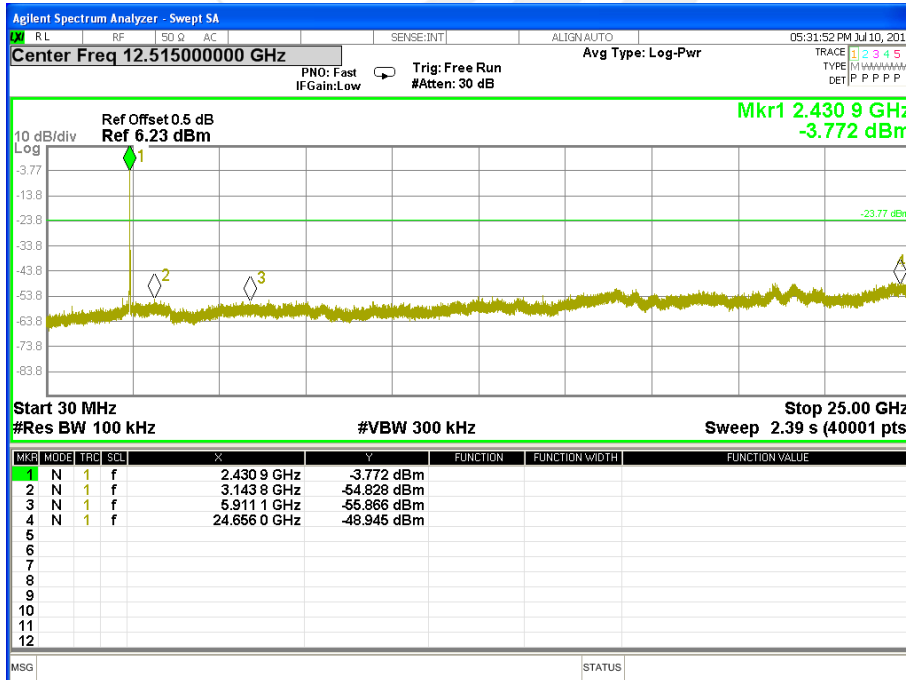


Temperature :	25 °C	Relative Humidity :	60%
Test Voltage :	AC 120V/60Hz	Test Mode :	TX n Mode(20M) /CH01, CH06, CH11

CH 01

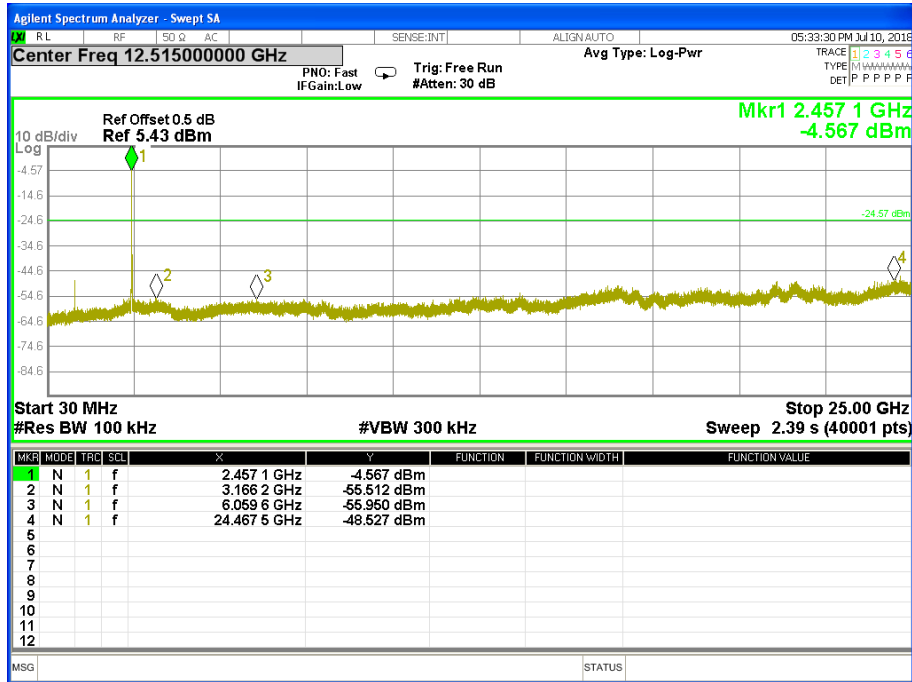


CH 06





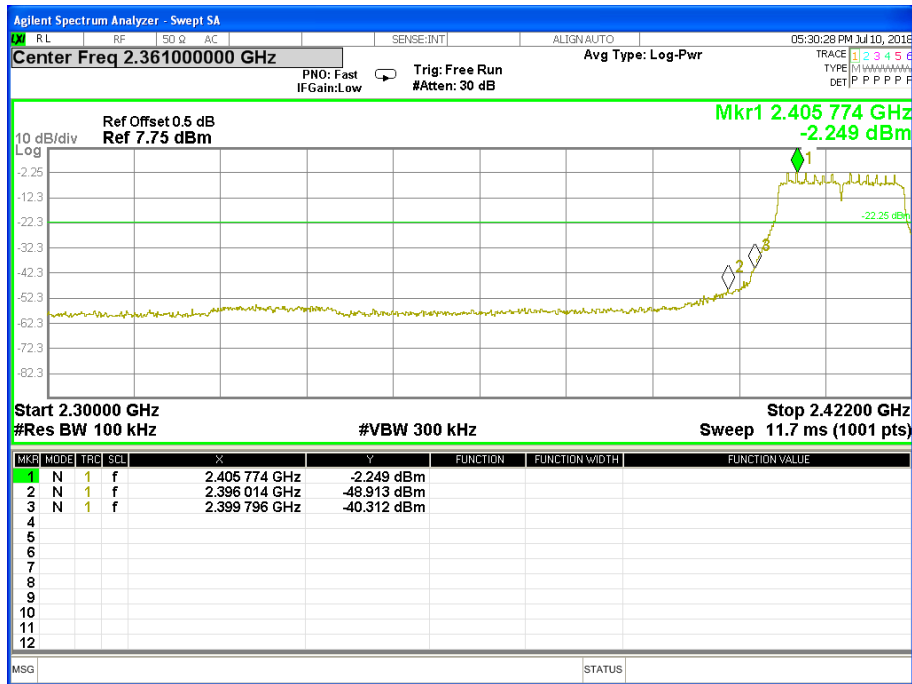
CH 11



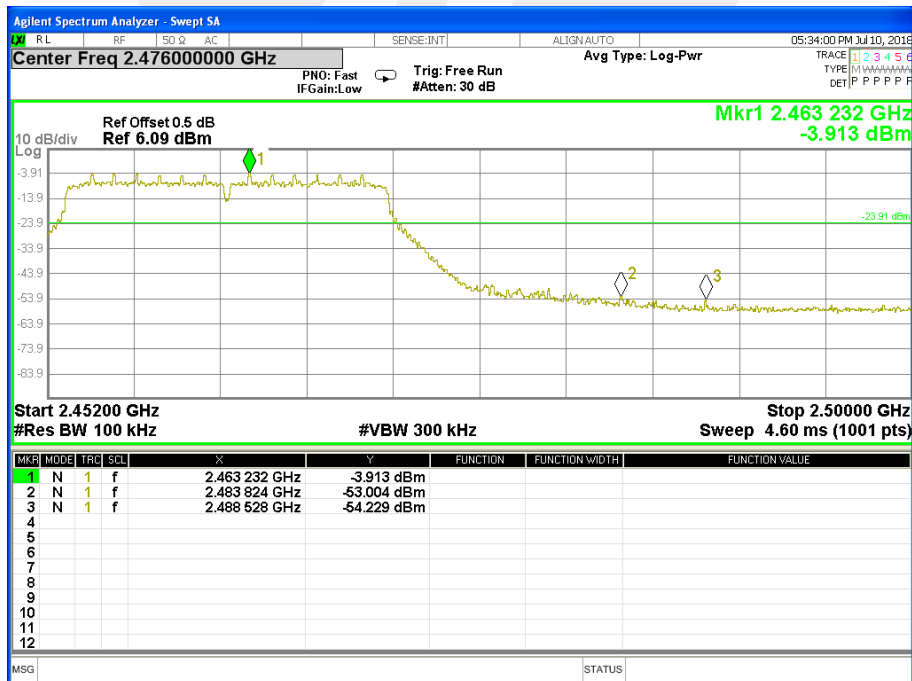


Band edge

CH 01



CH 11





5 POWER SPECTRAL DENSITY TEST

5.1 APPLIED PROCEDURES / LIMIT

FCC Part 15.247, Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(e)	Power Spectral Density	≤ 8 dBm (RBW ≥ 3 KHz)	2400-2483.5	PASS

5.2 TEST PROCEDURE

- 1) Set analyzer center frequency to DTS channel center frequency.
- 2) Set the span to 1.5 times the DTS channel bandwidth.
- 3) Set the $100 \text{ kHz} \geq \text{RBW} \geq 3 \text{ kHz}$.
- 4) Set the $\text{VBW} \geq 3 \times \text{RBW}$.
- 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.
- 10) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

5.3 DEVIATION FROM STANDARD

No deviation.

5.4 TEST SETUP



5.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

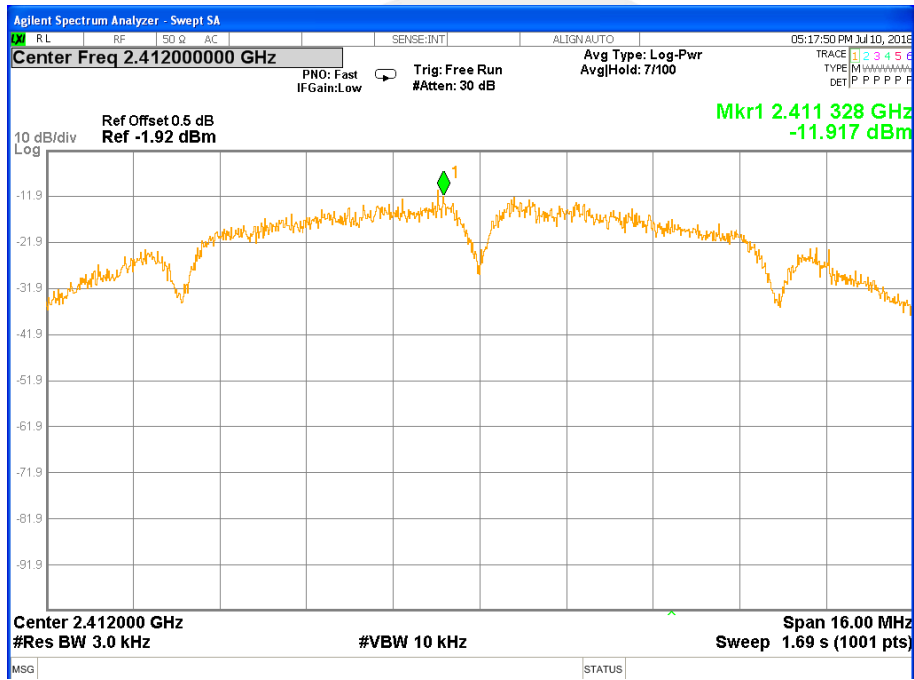


5.6 TEST RESULTS

Temperature:	25 °C	Relative Humidity:	60%
Test Voltage:	AC 120V/60Hz	Test Mode:	TX b Mode /CH01, CH06, CH11

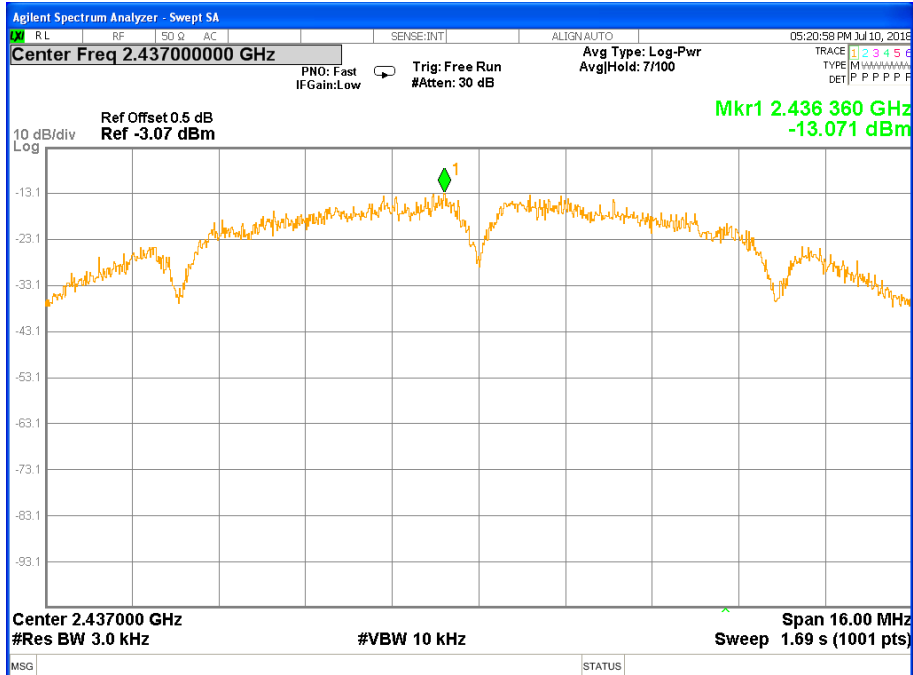
Test Mode	Frequency (MHz)	Power Density (dBm/3kHz)	Limit (dBm/3KHz)	Result
b mode (1 Mbps)	2412.00	-11.917	≤ 8.00	PASS
	2437.00	-13.071	≤ 8.00	PASS
	2462.00	-14.126	≤ 8.00	PASS

TX CH01

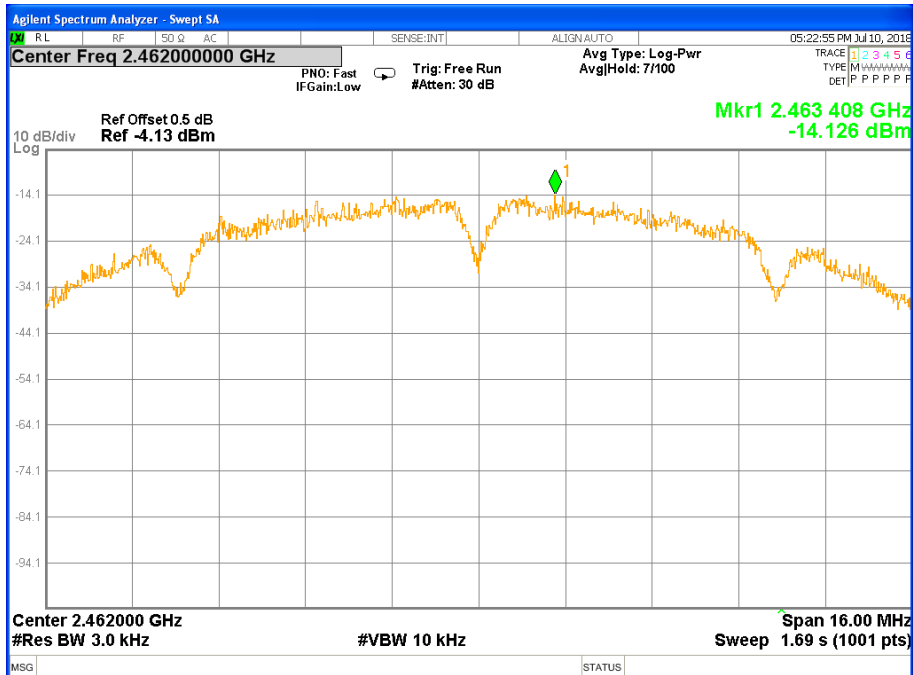




TX CH06



TX CH11

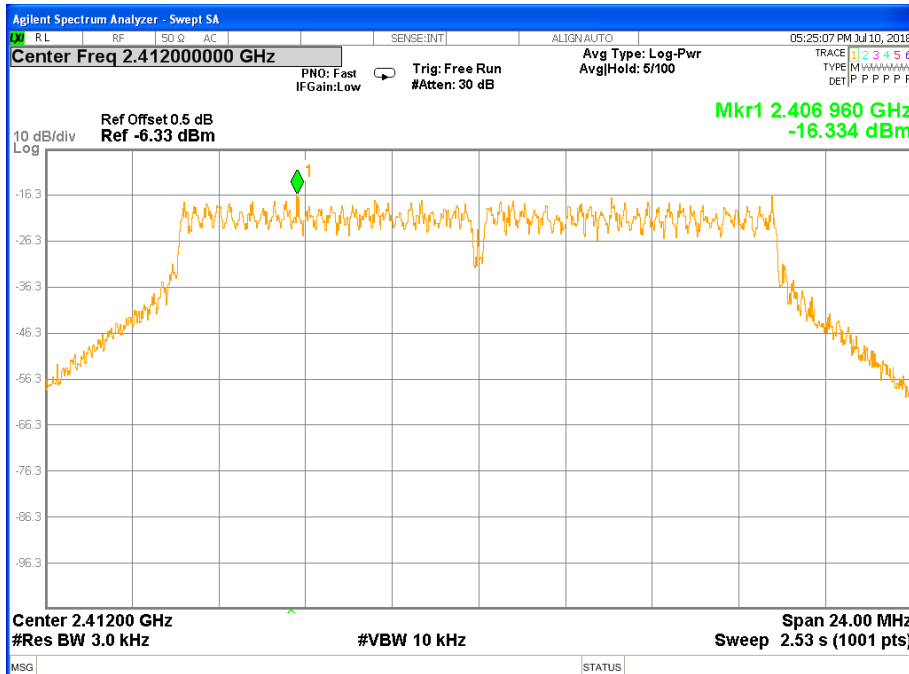




Temperature:	25 °C	Relative Humidity:	60%
Test Voltage:	AC 120V/60Hz	Test Mode:	TX g Mode /CH01, CH06, CH11

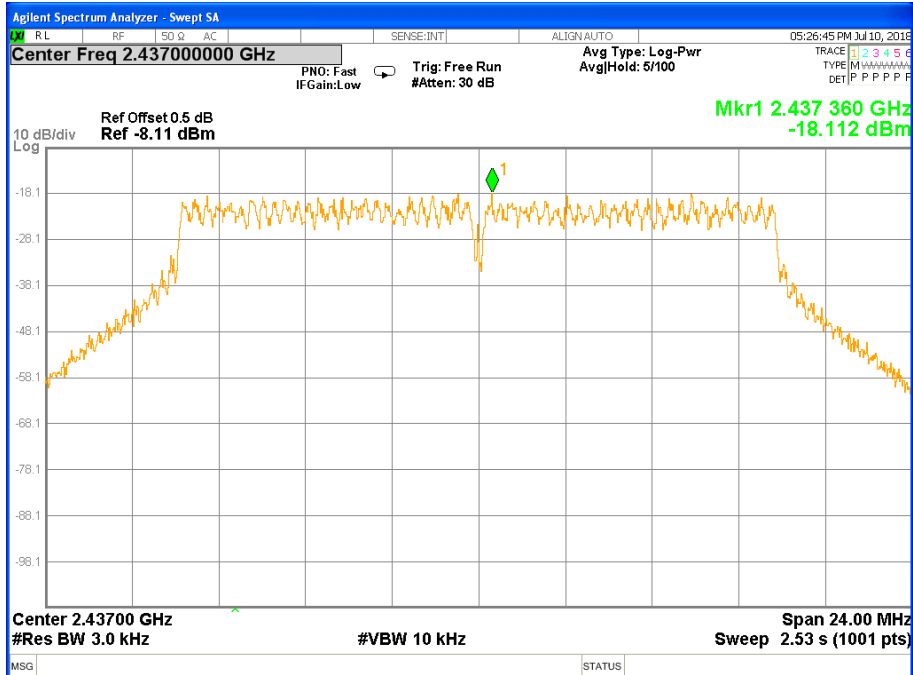
Test Mode	Frequency (MHz)	Power Density (dBm/3kHz)	Limit (dBm/3KHz)	Result
g mode (6 Mbps)	2412.00	-16.334	≤ 8.00	PASS
	2437.00	-18.112	≤ 8.00	PASS
	2462.00	-18.013	≤ 8.00	PASS

TX CH01

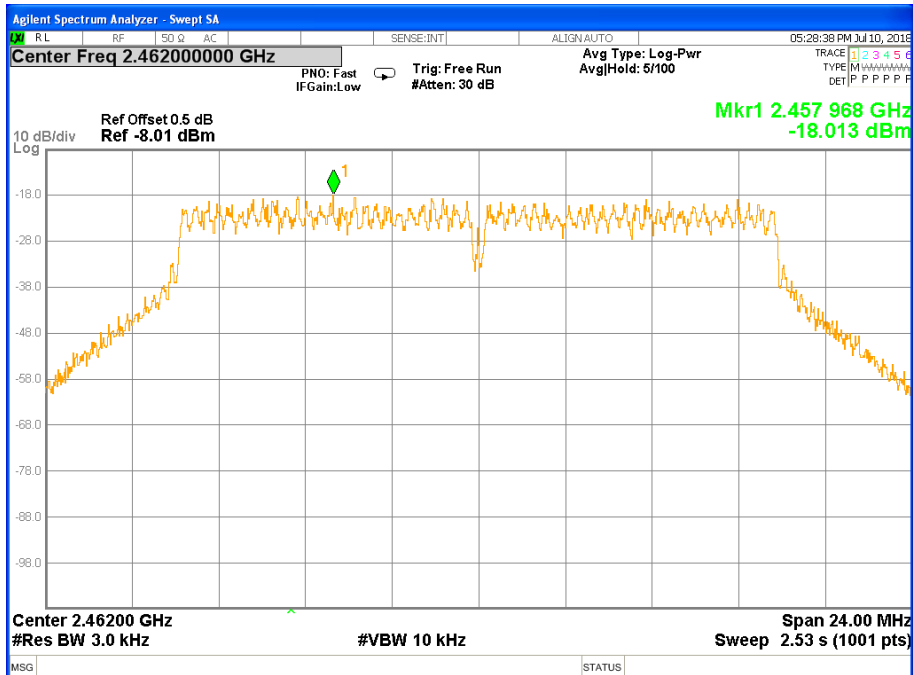




TX CH06



TX CH11

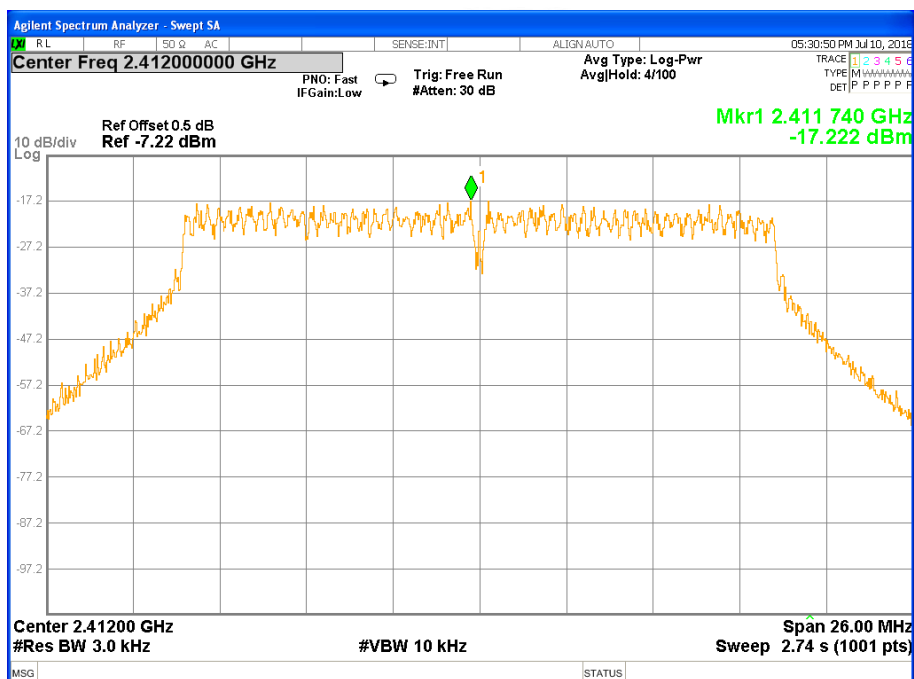




Temperature:	25 °C	Relative Humidity:	60%
Test Voltage:	AC 120V/60Hz	Test Mode:	TX n Mode(20M) /CH01, CH06, CH11

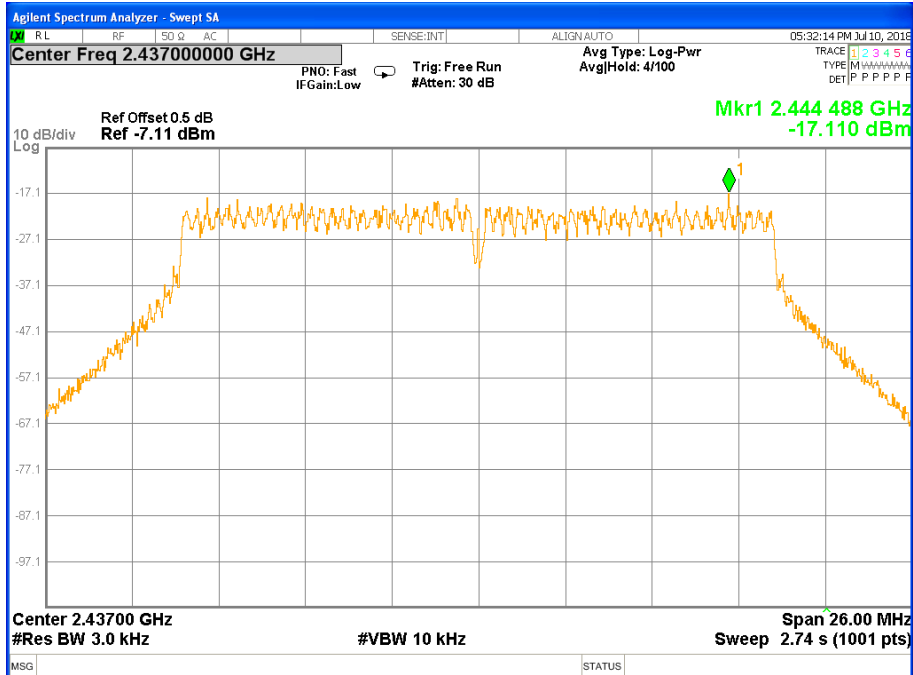
Test Mode	Frequency (MHz)	Power Density (dBm/3kHz)	Limit (dBm/3KHz)	Result
n(HT20) mode (MCS0)	2412.00	-17.222	≤ 8.00	PASS
	2437.00	-17.110	≤ 8.00	PASS
	2462.00	-17.272	≤ 8.00	PASS

TX CH01

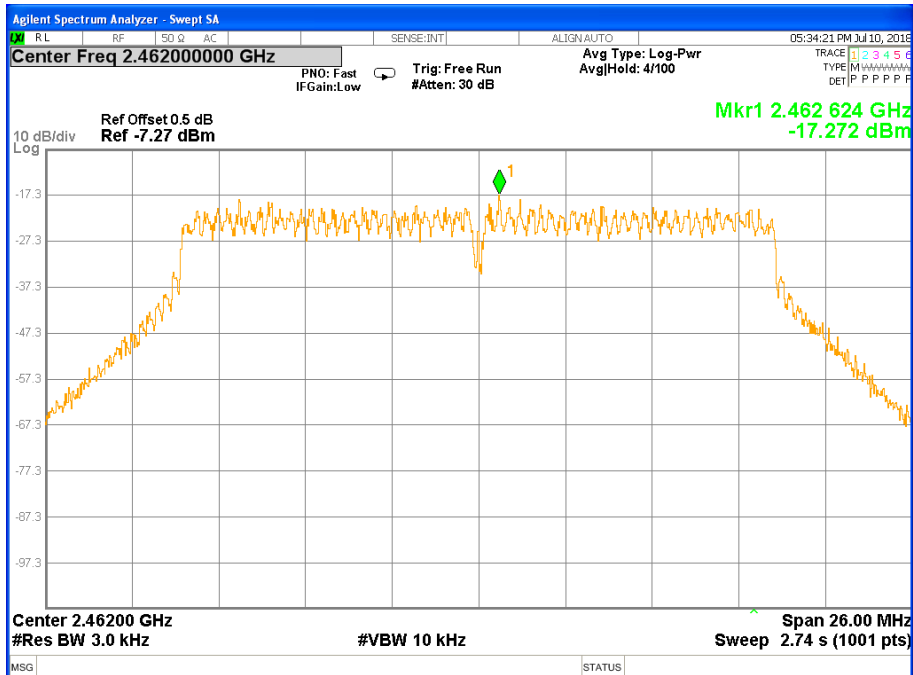




TX CH06



TX CH11





6 BANDWIDTH TEST

6.1 APPLIED PROCEDURES / LIMIT

FCC Part 15.247, Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	6dB Bandwidth	$\geq 500\text{KHz}$	2400-2483.5	PASS

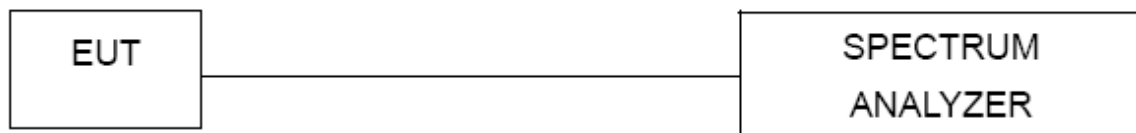
6.2 TEST PROCEDURE

The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described above (i.e., RBW = 100 kHz, VBW \geq 3RBW, peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be ≥ 6 dB.

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



6.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.



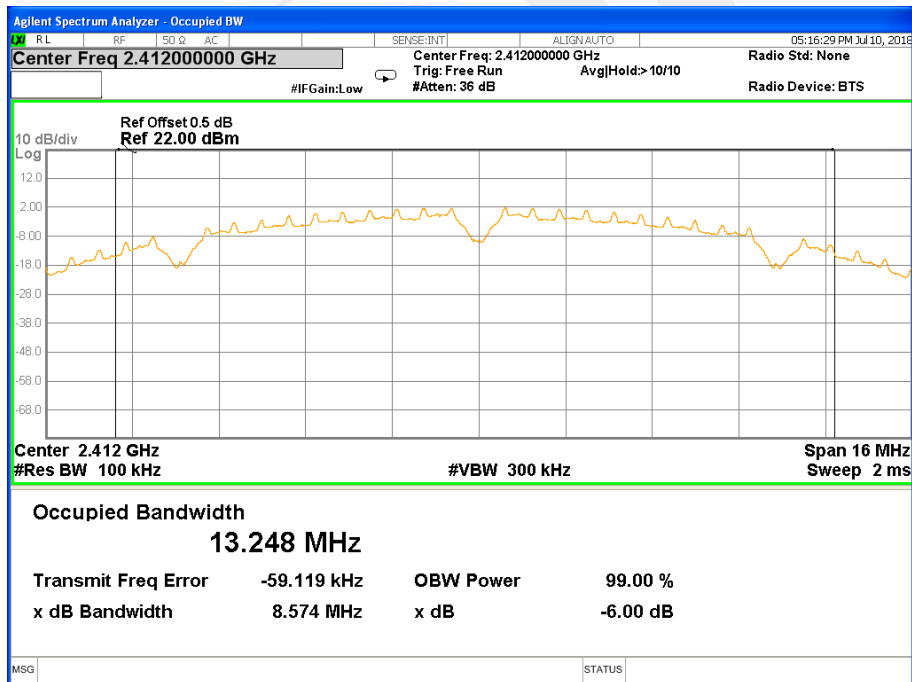
6.6 TEST RESULTS

Temperature:	25 °C	Relative Humidity:	60%
Test Voltage:	AC 120V/60Hz	Test Mode:	TX b Mode /CH01, CH06, CH11

Remark: PEAK DETECTOR IS USED

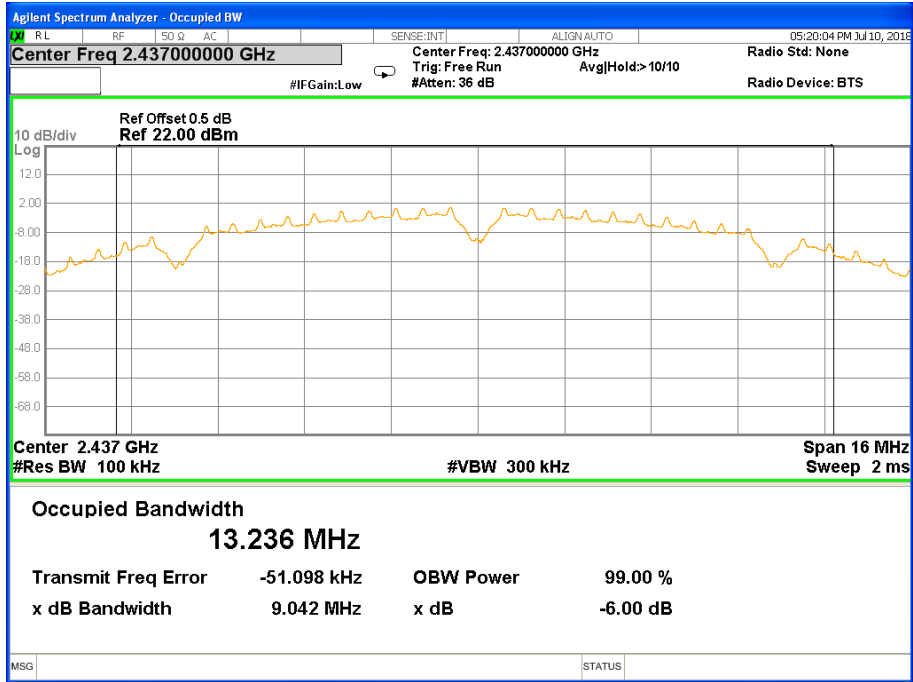
Test Mode	Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit of 6dB Bandwidth (MHz)	Result
b mode (1 Mbps)	2412.00	8.574	13.248	≥ 0.50	PASS
	2437.00	9.042	13.236	≥ 0.50	PASS
	2462.00	9.020	13.218	≥ 0.50	PASS

TX CH 01

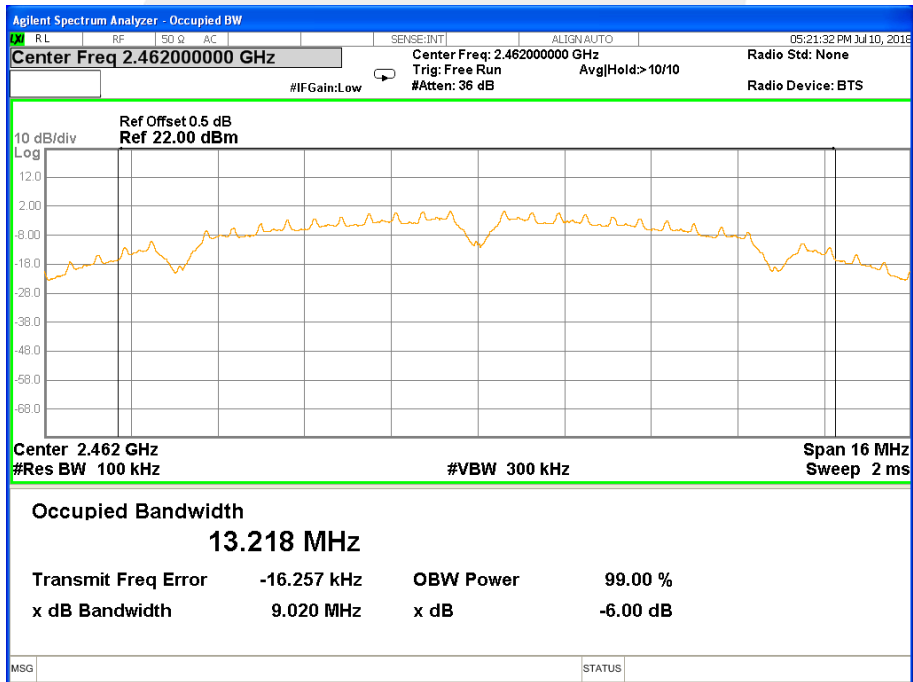




TX CH 06



TX CH 11

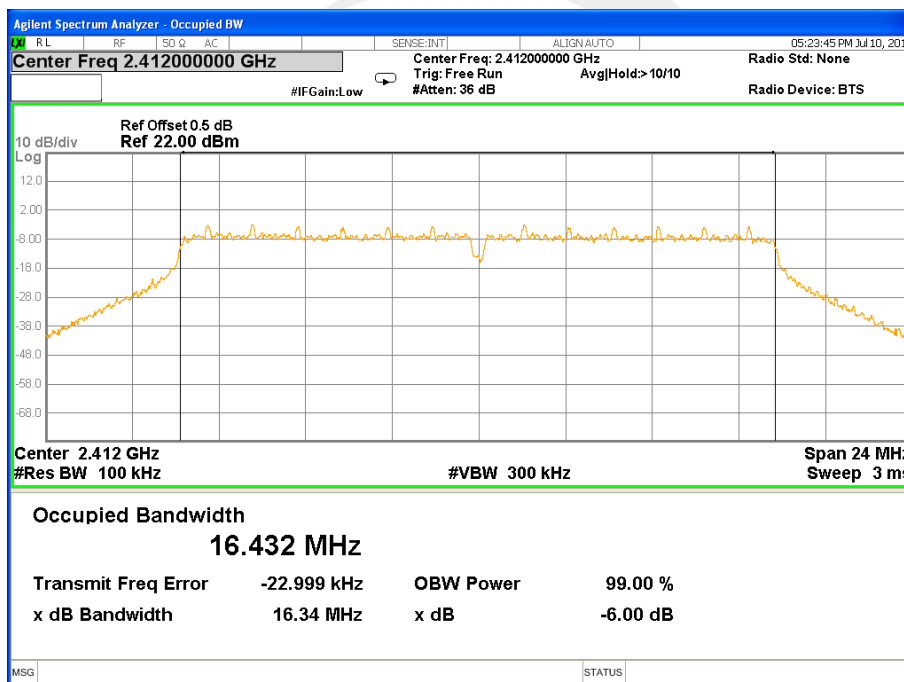




Temperature:	25 °C	Relative Humidity:	60%
Test Voltage:	AC 120V/60Hz	Test Mode:	TX g Mode /CH01, CH06, CH11

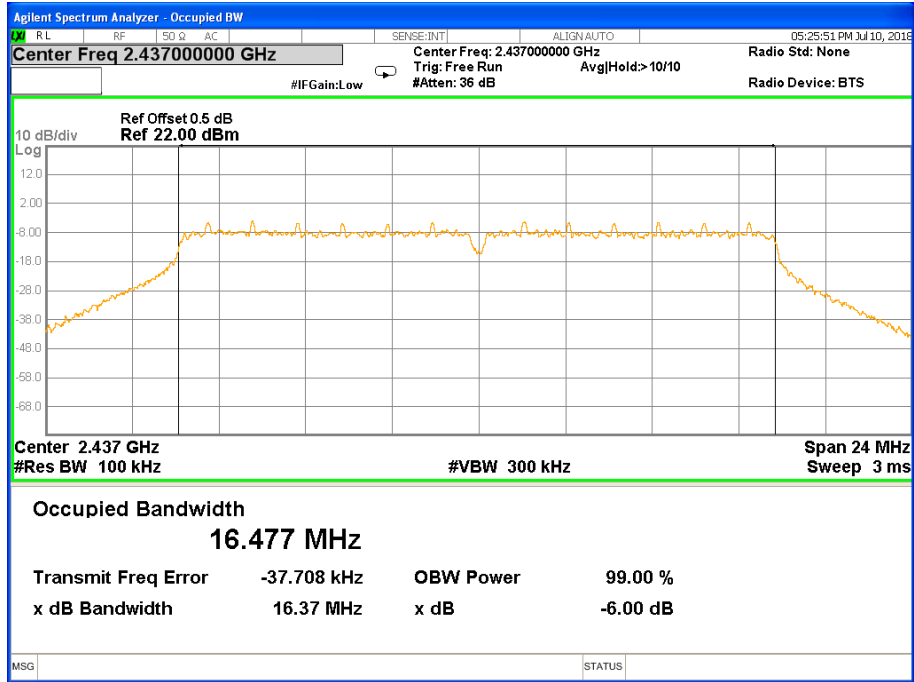
Test Mode	Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit of 6dB Bandwidth (MHz)	Result
g mode (6 Mbps)	2412.00	16.34	16.432	≥ 0.50	PASS
	2437.00	16.37	16.477	≥ 0.50	PASS
	2462.00	16.36	16.462	≥ 0.50	PASS

TX CH 01

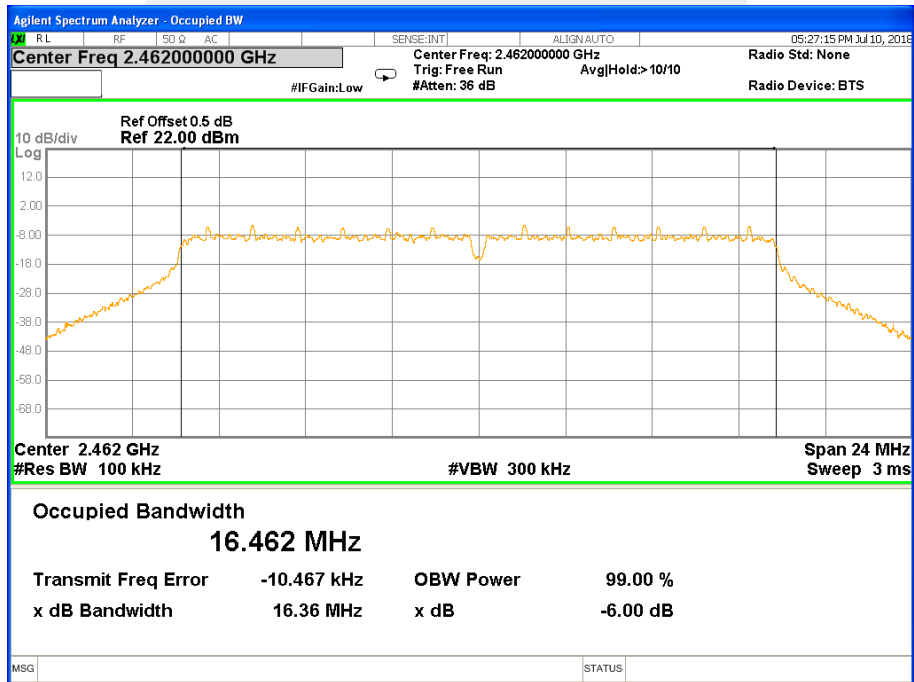




TX CH 06



TX CH 11

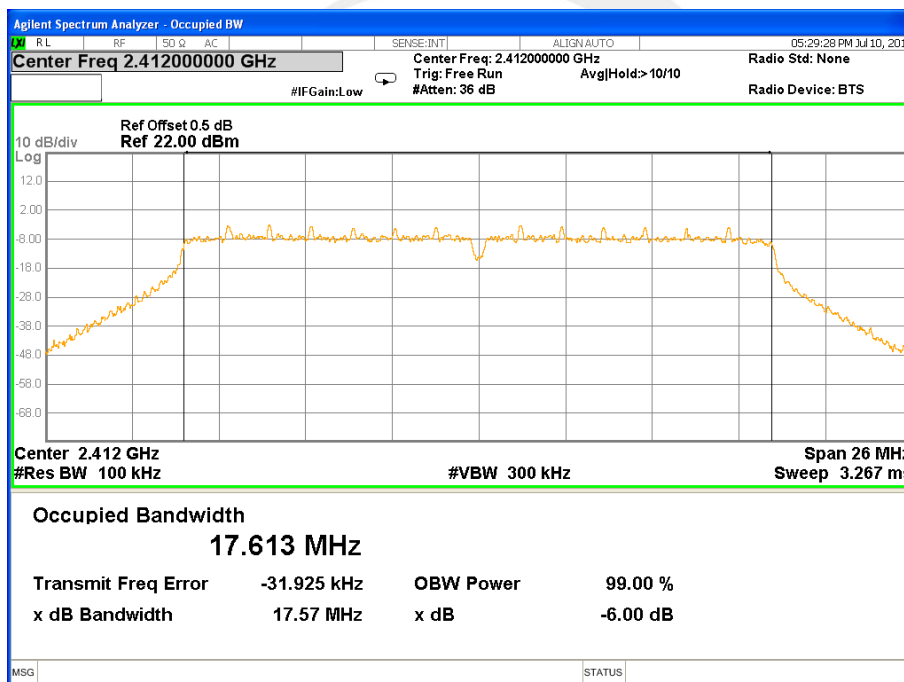




Temperature:	25 °C	Relative Humidity:	60%
Test Voltage:	AC 120V/60Hz	Test Mode:	TX n Mode(20M) /CH01, CH06, CH11

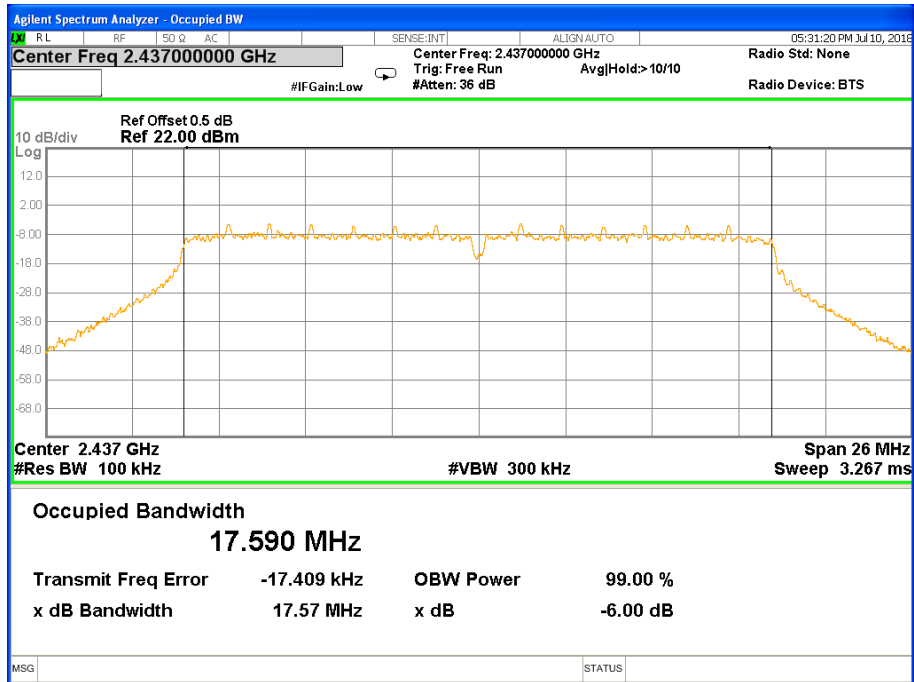
Test Mode	Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit of 6dB Bandwidth (MHz)	Result
n(HT20) mode (MCS0)	2412.00	17.57	17.613	≥ 0.50	PASS
	2437.00	17.57	17.590	≥ 0.50	PASS
	2462.00	17.57	17.633	≥ 0.50	PASS

TX CH 01

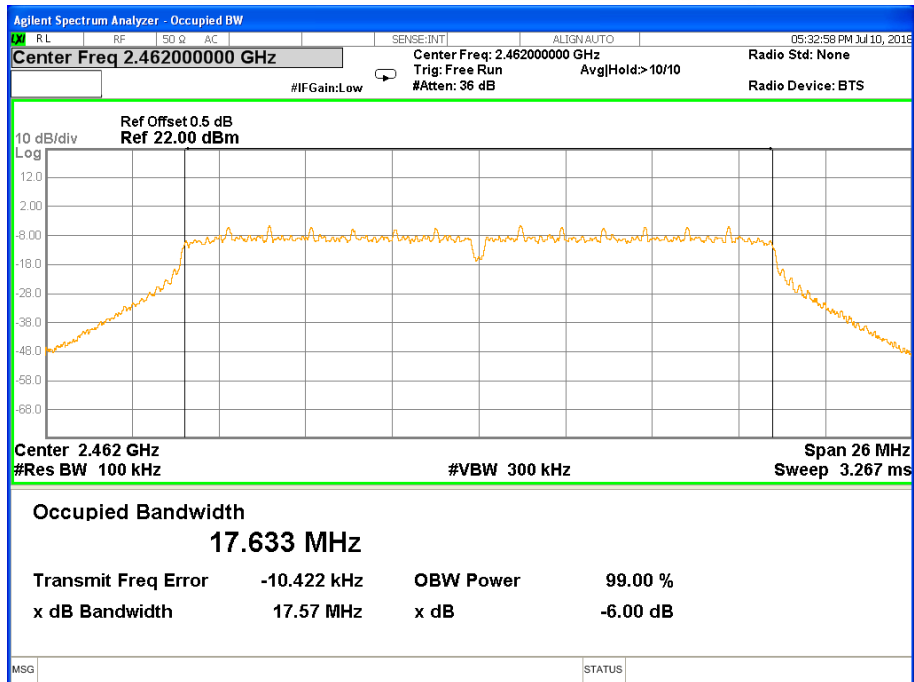




TX CH 06



TX CH 11





7 PEAK OUTPUT POWER TEST

7.1 APPLIED PROCEDURES / LIMIT

FCC Part 15.247,Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Output Power	1 watt or 30dBm	2400-2483.5	PASS

7.2 TEST PROCEDURE

- a. The EUT was directly connected to the Power Meter

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP



7.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.



7.6 TEST RESULTS

Temperature :	25 °C	Relative Humidity :	60%
Test Voltage :	AC 120V/60Hz		

TX 802.11 b mode (1 Mbps)				
Test Channel	Frequency (MHz)	Conducted Output Power		Limit (dBm)
		Peak(dBm)	AVG(dBm)	
CH01	2412.00	11.50	10.48	30.00
CH06	2437.00	11.56	10.54	30.00
CH11	2462.00	10.43	9.41	30.00

TX 802.11 g mode (6 Mbps)				
Test Channel	Frequency (MHz)	Conducted Output Power		Limit (dBm)
		Peak(dBm)	AVG(dBm)	
CH01	2412.00	10.65	9.63	30.00
CH06	2437.00	9.92	8.90	30.00
CH11	2462.00	8.79	7.77	30.00

TX 802.11 n(HT20) mode (MCS0)				
Test Channel	Frequency (MHz)	Conducted Output Power		Limit (dBm)
		Peak(dBm)	AVG(dBm)	
CH01	2412.00	10.74	8.72	30.00
CH06	2437.00	9.86	7.84	30.00
CH11	2462.00	8.88	6.86	30.00



8 ANTENNA REQUIREMENT

8.1 STANDARD REQUIREMENT

15.203 requirement: 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.

8.2 EUT ANTENNA

The EUT antenna is Integral Antenna. It comply with the standard requirement.

