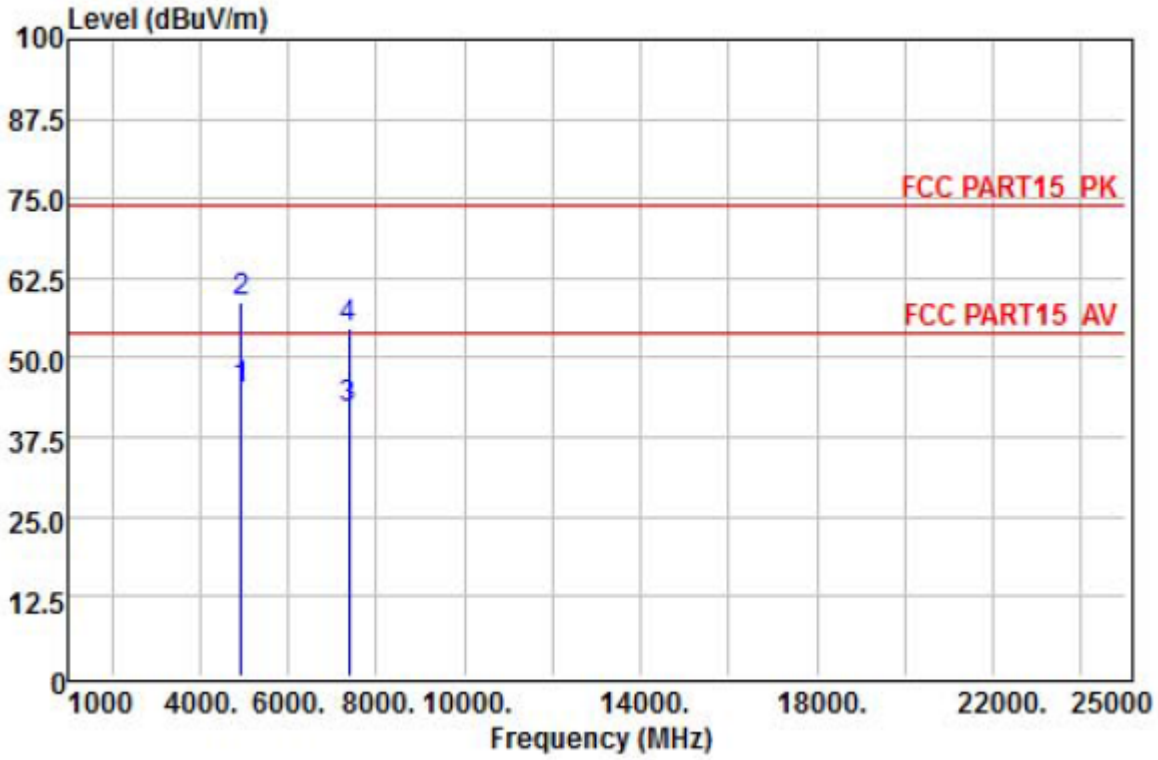
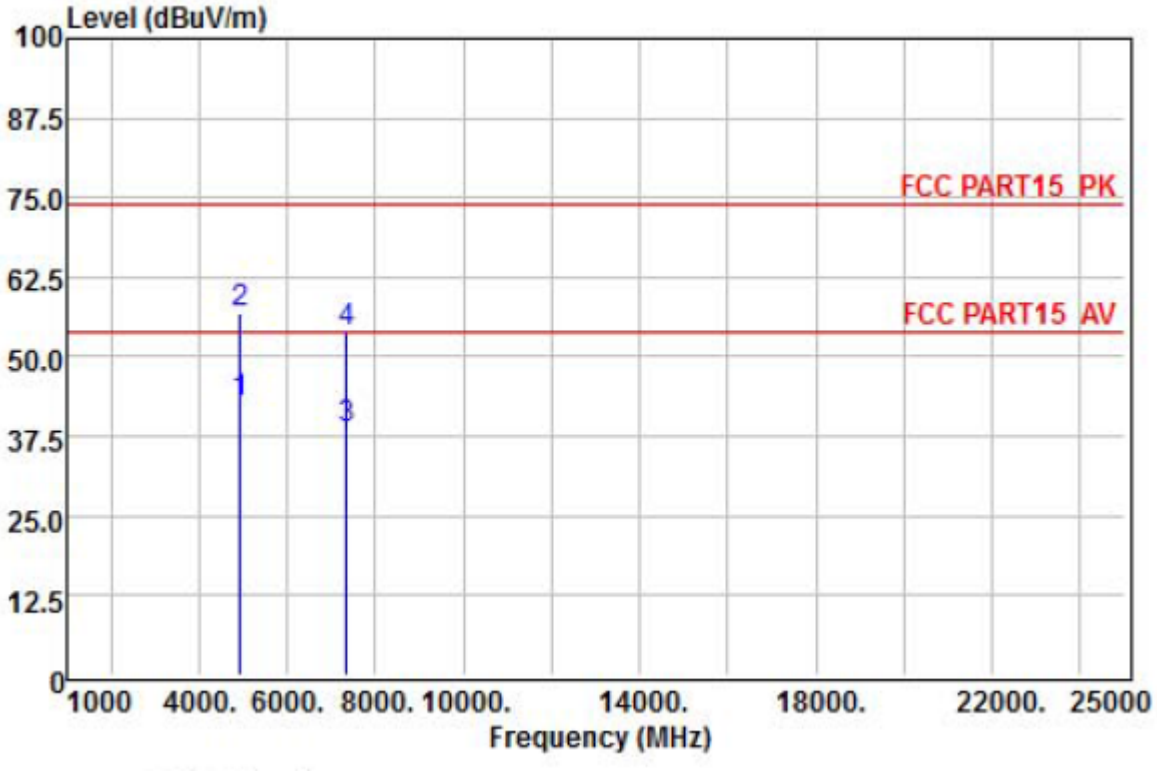
Above 1GHz			
EUT：	Traveltek	Model Name ：	W1330Q
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010hPa	Test Mode：	Mode 4 TX Channel 11
Test Voltage ：	DC 7.6V		

Vertical



	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	4942.00	26.95	33.28	27.57	12.32	44.98	54.00	-9.02	Average
2	4942.00	40.75	33.28	27.57	12.32	58.78	74.00	-15.22	Peak
3	7386.00	16.05	37.36	27.98	16.62	42.05	54.00	-11.95	Average
4	7386.00	28.49	37.36	27.98	16.62	54.49	74.00	-19.51	Peak

Horizontal



	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	4942.00	24.91	33.28	27.57	12.32	42.94	54.00	-11.06	Average
2	4942.00	38.79	33.28	27.57	12.32	56.82	74.00	-17.18	Peak
3	7356.00	12.84	37.34	27.97	16.62	38.83	54.00	-15.17	Average
4	7356.00	27.83	37.34	27.97	16.62	53.82	74.00	-20.18	Peak

Note: 1. Absolute Level= Reading Level + Antenna Factor + Cable Loss-Preamp factor,
2.Over Limit= Absolute Level – Limit;
3.When PK value is lower than the Average value limit, average didn't record.
4.The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has not to be reported.

Spurious Emission in Restricted Band (1-25G) :

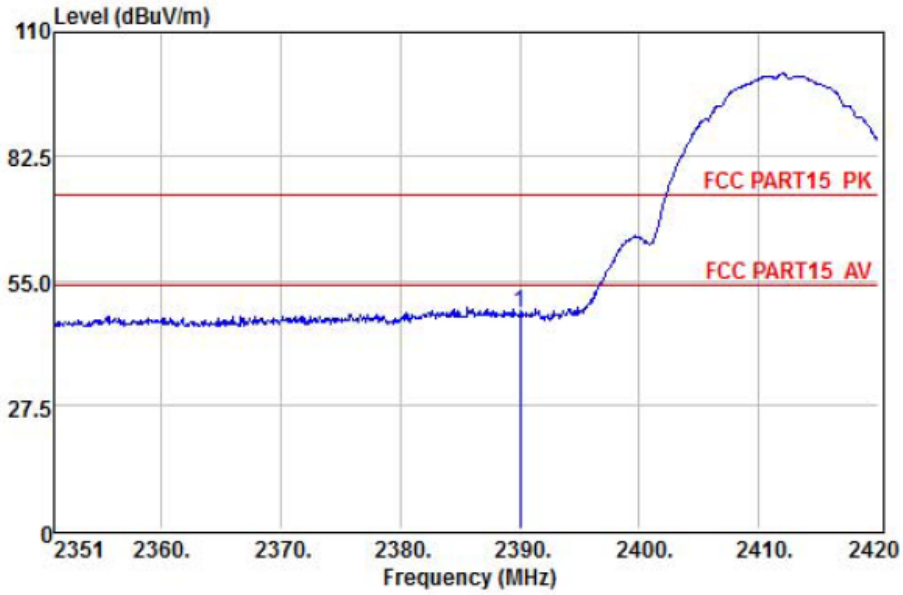
All the modulation modes have been tested and all other emissions more than 20dB below the limit, the worst result was report as below:

Polar (H/V)	Frequency	Meter Reading	Antenna Factor	Cable loss	Preamp factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
802.11b									
V	3264	30.56	30.26	9.96	26.63	44.15	74	-29.85	Pk
H	3264	31.36	30.26	9.96	26.63	44.95	74	-29.05	PK
V	3336	31.13	30.33	9.96	26.66	44.76	74	-29.24	Pk
H	3336	30.45	30.33	9.96	26.66	44.08	74	-29.92	PK
V	4100	33.72	31.64	10.61	27.06	48.91	74	-25.09	Pk
H	4100	32.48	31.64	10.61	27.06	47.67	74	-26.33	PK
V	11764	32.68	26.64	17.32	28.98	47.66	74	-26.34	Pk
H	11764	32.21	26.64	17.32	28.98	47.19	74	-26.81	PK
V	17732	31.53	26.27	22.01	30.39	49.42	74	-24.58	Pk
H	17732	31.56	26.27	22.01	30.39	49.45	74	-24.55	PK
802.11g									
V	3264	32.23	30.26	9.96	26.63	45.82	74	-28.18	Pk
H	3264	31.58	30.26	9.96	26.63	45.17	74	-28.83	PK
V	3336	31.48	30.33	9.96	26.66	45.11	74	-28.89	Pk
H	3336	30.63	30.33	9.96	26.66	44.26	74	-29.74	PK
V	4100	32.86	31.64	10.61	27.06	48.05	74	-25.95	Pk
H	4100	31.53	31.64	10.61	27.06	46.72	74	-27.28	PK
V	11764	30.23	26.64	17.32	28.98	45.21	74	-28.79	Pk
H	11764	31.65	26.64	17.32	28.98	46.63	74	-27.37	PK
V	17732	31.53	26.27	22.01	30.39	49.42	74	-24.58	Pk
H	17732	31.78	26.27	22.01	30.39	49.67	74	-24.33	PK
802.11n(HT20)									
V	3264	30.53	30.26	9.96	26.63	44.12	74	-29.88	Pk
H	3264	30.66	30.26	9.96	26.63	44.25	74	-29.75	PK
V	3336	32.85	30.33	9.96	26.66	46.48	74	-27.52	Pk
H	3336	32.56	30.33	9.96	26.66	46.19	74	-27.81	PK
V	4100	33.83	31.64	10.61	27.06	49.02	74	-24.98	Pk
H	4100	31.42	31.64	10.61	27.06	46.61	74	-27.39	PK
V	11764	32.85	26.64	17.32	28.98	47.83	74	-26.17	Pk
H	11764	32.76	26.64	17.32	28.98	47.74	74	-26.26	PK
V	17732	30.36	26.27	22.01	30.39	48.25	74	-25.75	Pk
H	17732	30.62	26.27	22.01	30.39	48.51	74	-25.49	PK
802.11n(HT40)									
V	3264	31.34	30.26	9.96	26.63	44.93	74	-29.07	Pk
H	3264	31.85	30.26	9.96	26.63	45.44	74	-28.56	PK
V	3336	31.28	30.33	9.96	26.66	44.91	74	-29.09	Pk
H	3336	32.25	30.33	9.96	26.66	45.88	74	-28.12	PK
V	4100	32.45	31.64	10.61	27.06	47.64	74	-26.36	Pk
H	4100	31.45	31.64	10.61	27.06	46.64	74	-27.36	PK
V	11764	31.56	26.64	17.32	28.98	46.54	74	-27.46	Pk
H	11764	31.42	26.64	17.32	28.98	46.4	74	-27.6	PK
V	17732	30.57	26.27	22.01	30.39	48.46	74	-25.54	Pk
H	17732	29.78	26.27	22.01	30.39	47.67	74	-26.33	PK

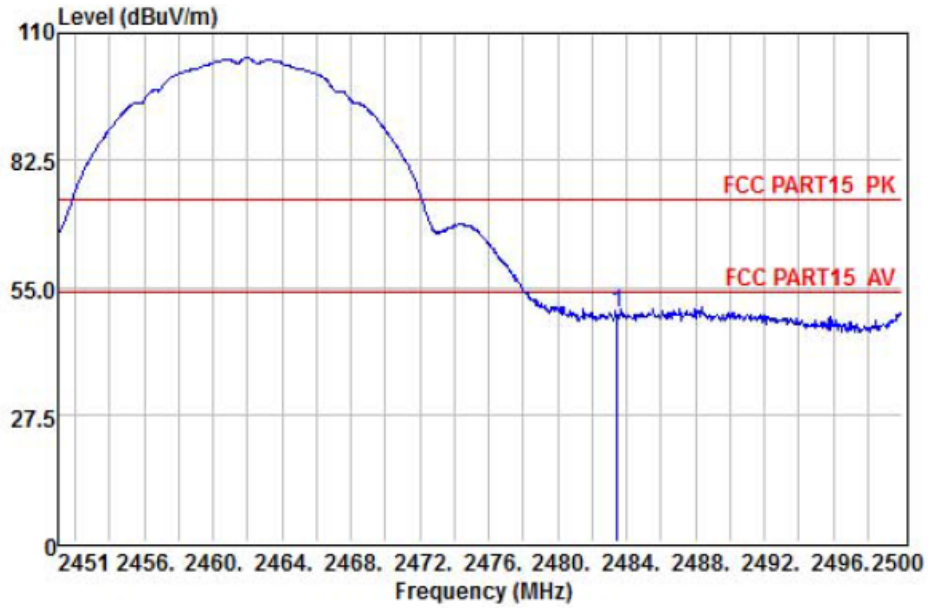
If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.

Spurious Emission in Band Edge:

802.11b - Vertical

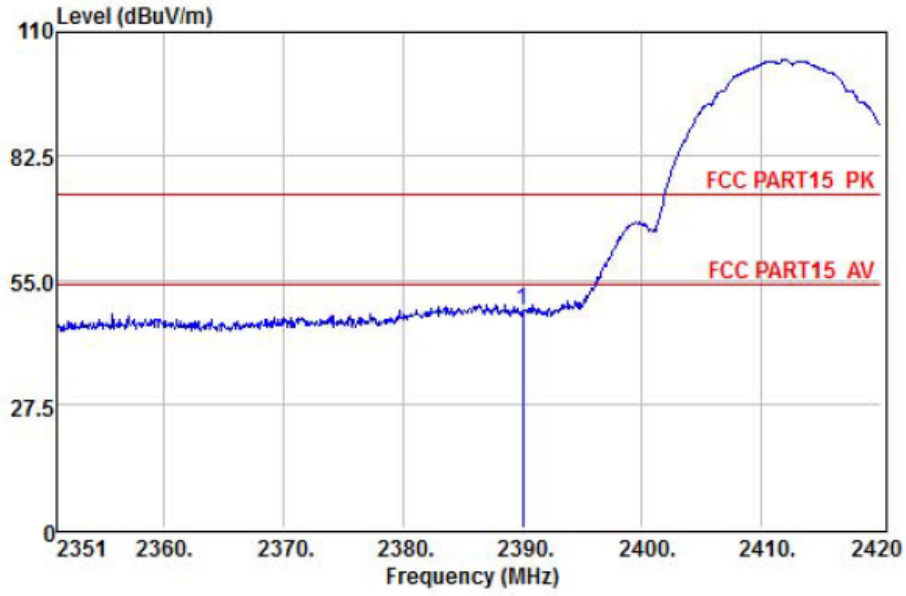


	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	2390.00	26.32	38.18	7.34	28.72	47.92	74.00	-26.08	Peak

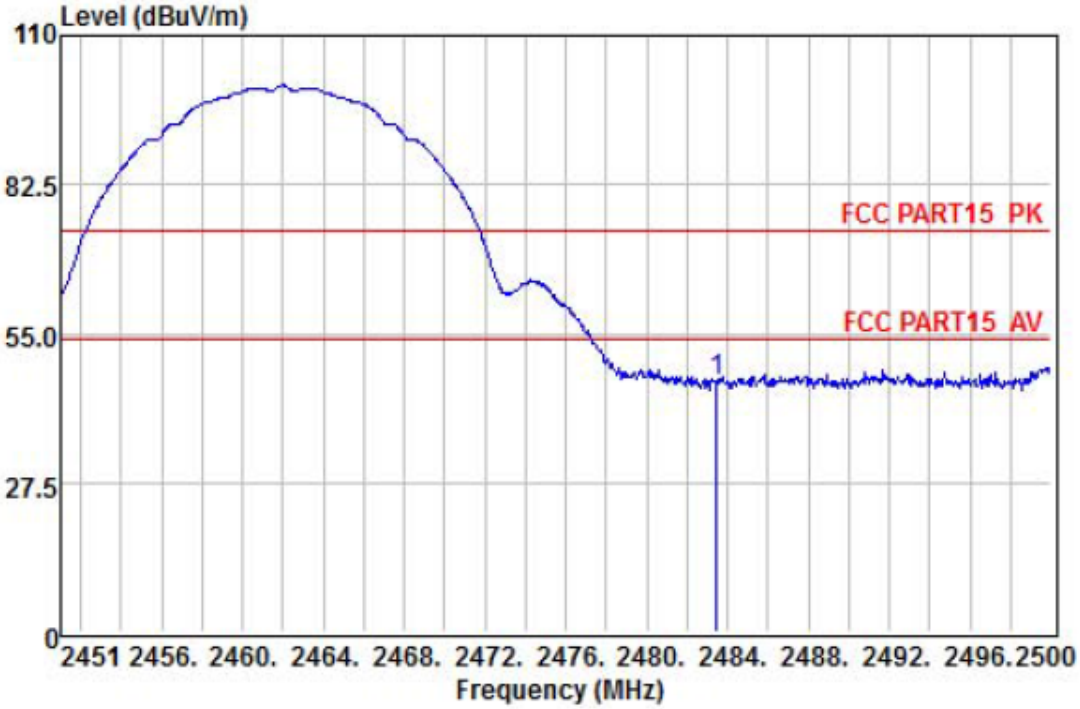


	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	2483.50	26.34	39.57	7.57	28.79	49.59	74.00	-24.41	Peak

802.11b - Horizontal

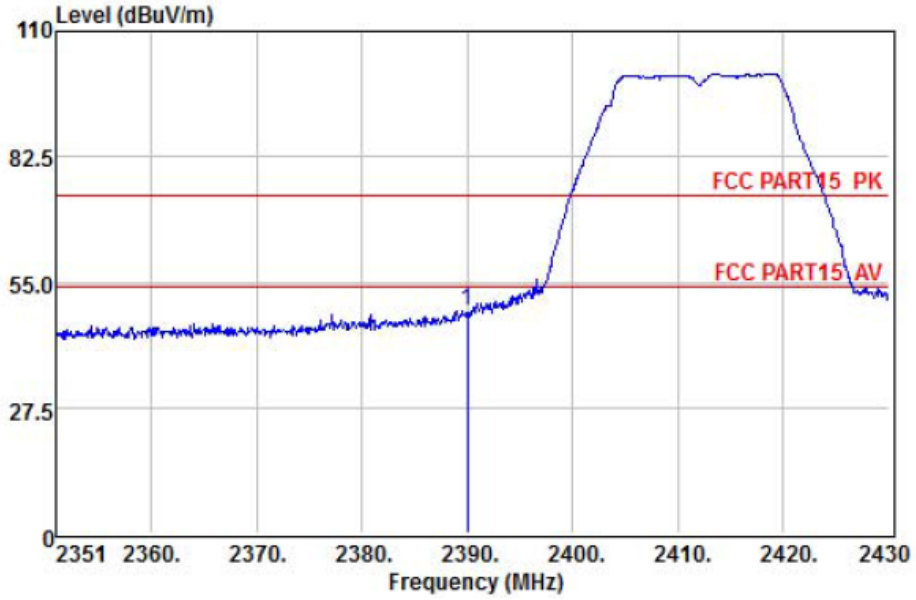


	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	2390.00	26.32	38.52	7.34	28.72	48.26	74.00	-25.74	Peak

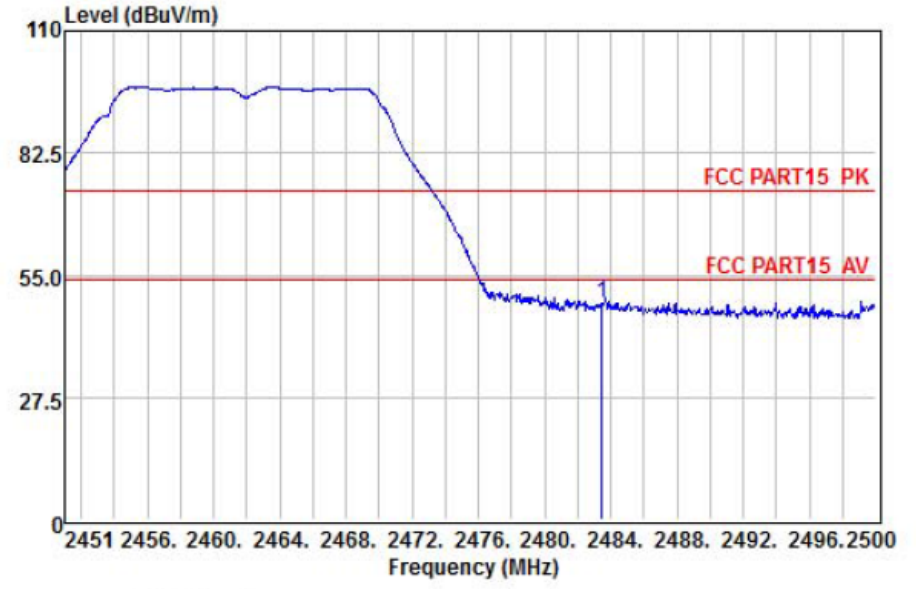


	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	2483.50	26.34	36.25	7.57	28.79	46.27	74.00	-27.73	Peak

802.11g - Vertical

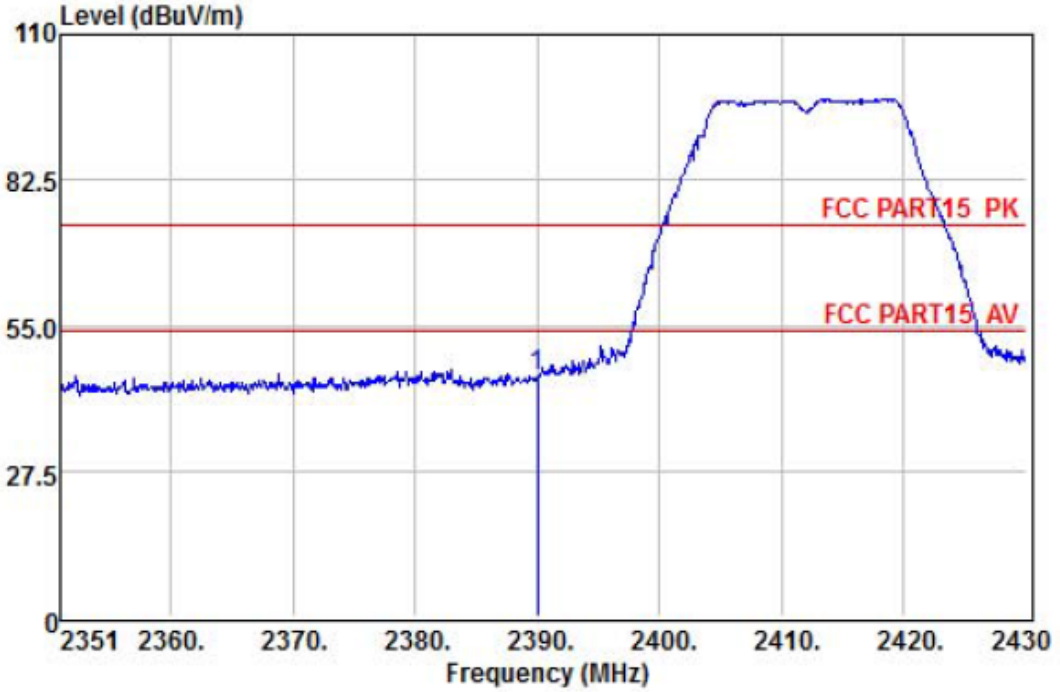


	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	2390.00	26.32	38.78	7.34	28.72	48.52	74.00	-25.48	Peak

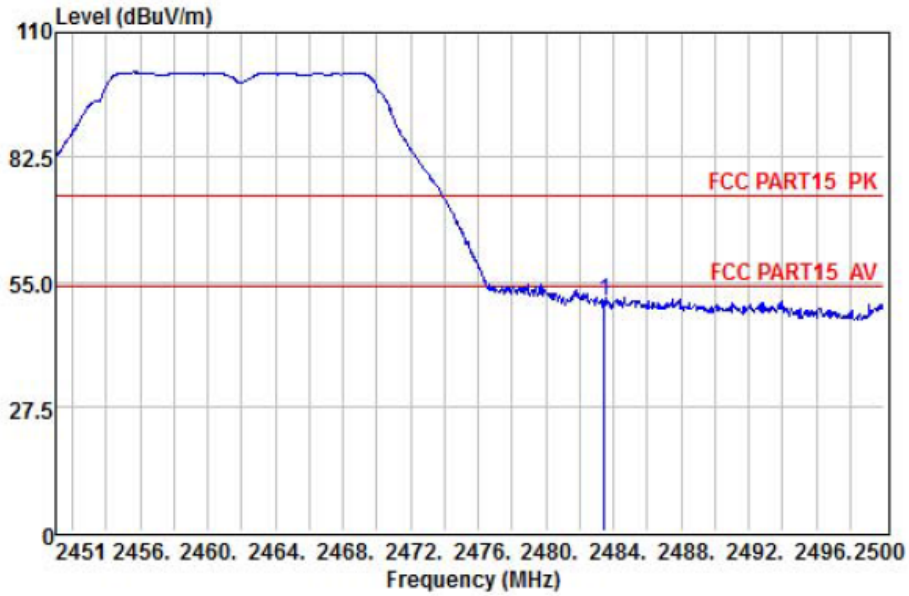


	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	2483.50	26.34	38.65	7.57	28.79	48.67	74.00	-25.33	Peak

802.11g - Horizontal

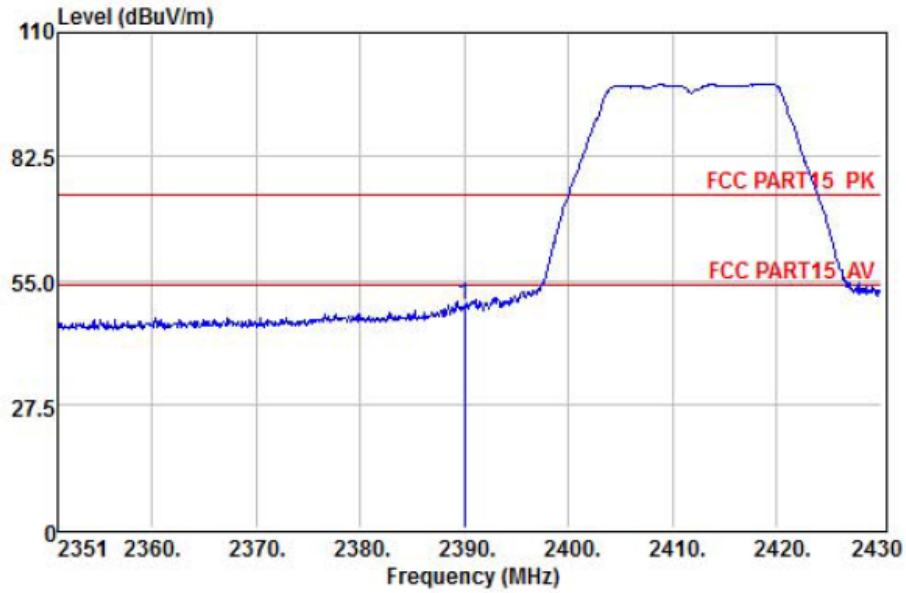


	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	2390.00	26.32	35.53	7.34	28.72	45.27	74.00	-28.73	Peak

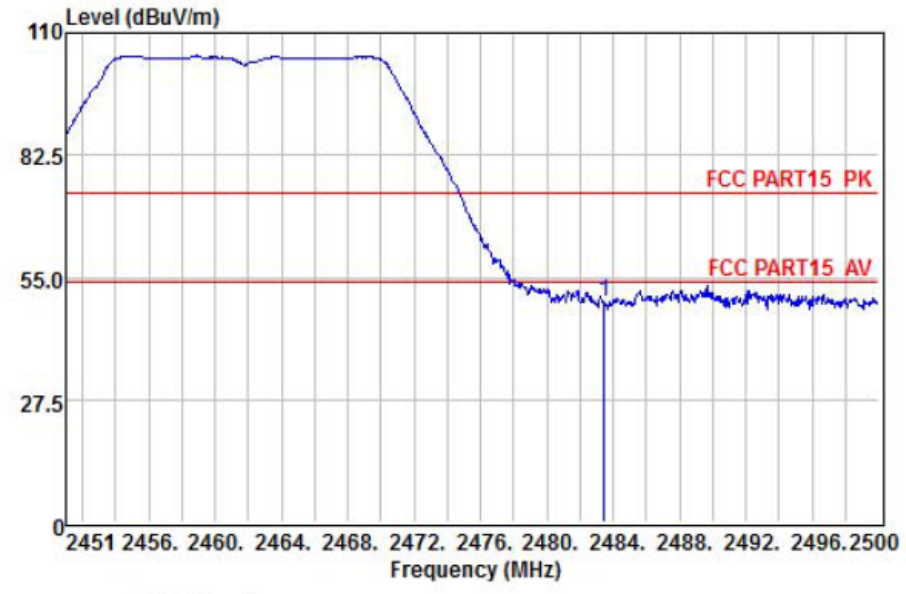


	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	2483.50	26.34	40.87	7.57	28.79	50.89	74.00	-23.11	Peak

802.11n(HT20) - Vertical

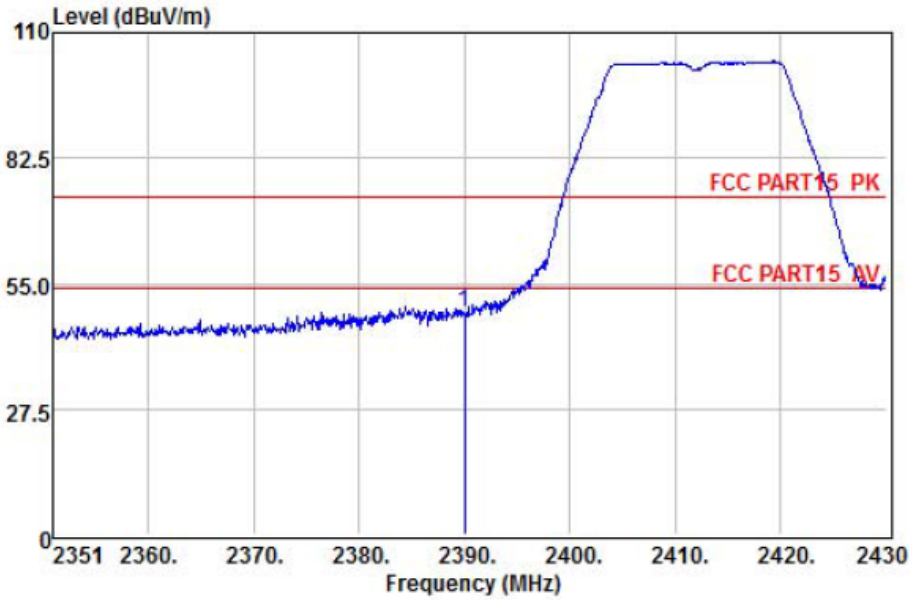


	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	2390.00	26.32	39.55	7.34	28.72	49.29	74.00	-24.71	Peak

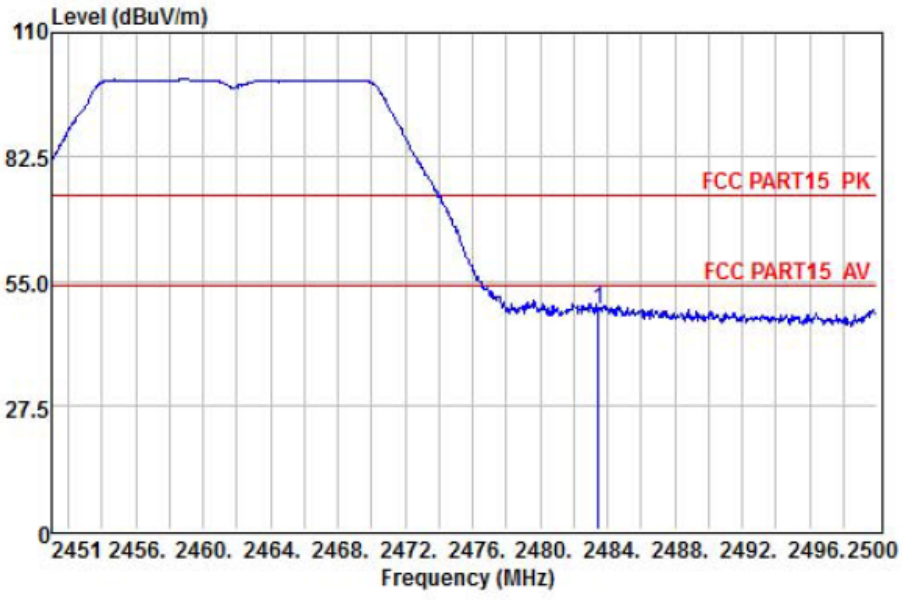


	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	2483.50	26.34	39.26	7.57	28.79	49.28	74.00	-24.72	Peak

802.11n(HT20) - Horizontal

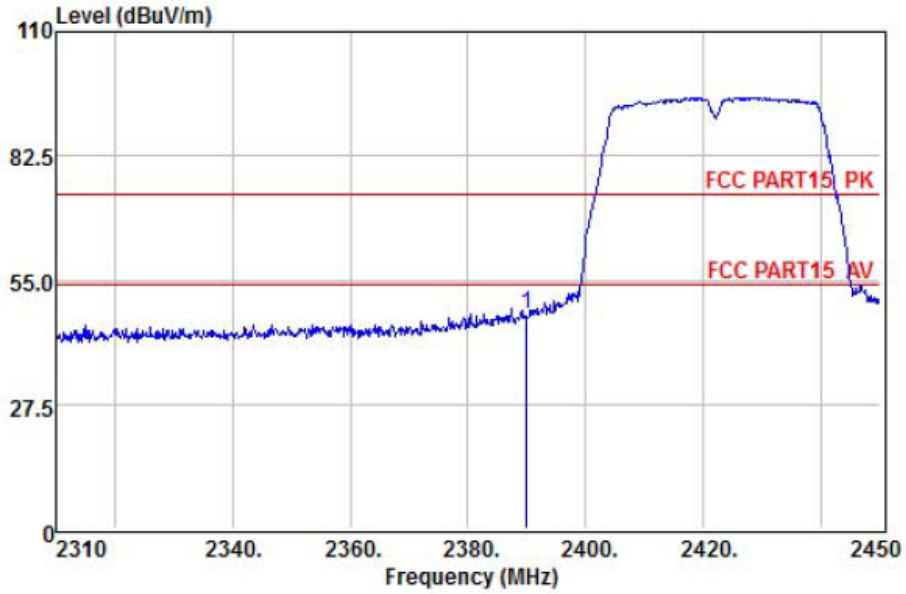


	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	2390.00	26.32	38.93	7.34	28.72	48.67	74.00	-25.33	Peak

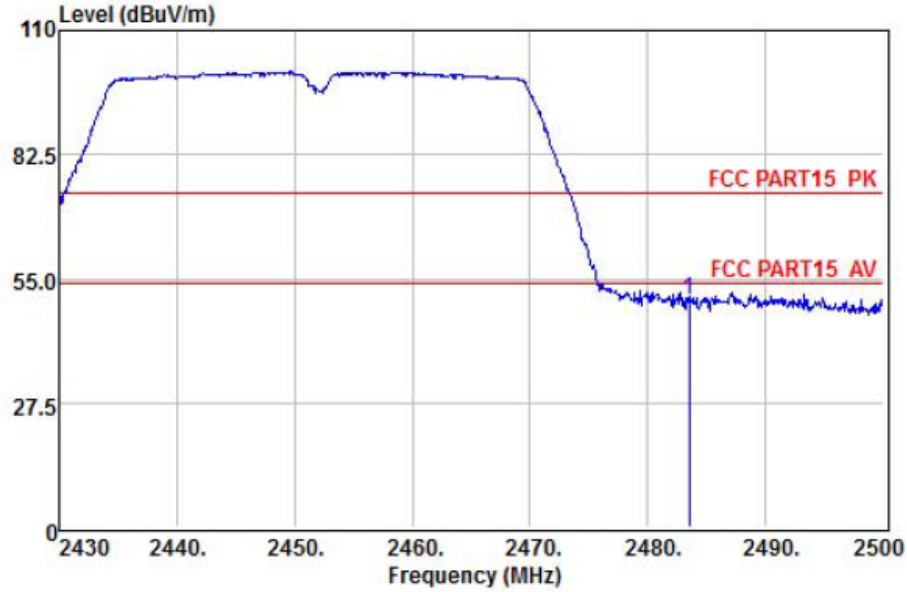


	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	2483.50	26.34	38.71	7.57	28.79	48.73	74.00	-25.27	Peak

802.11n(HT40) - Vertical

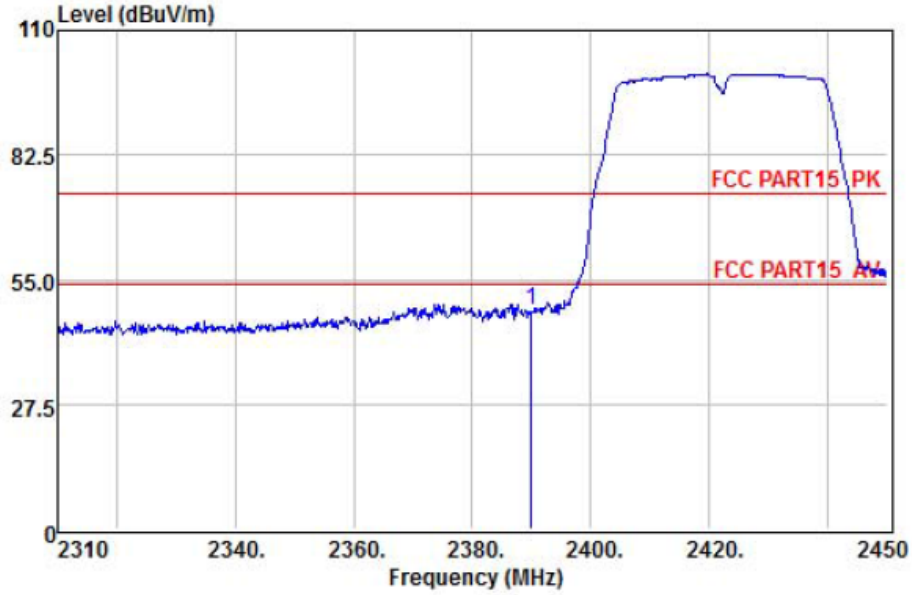


	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	2390.00	26.32	37.53	7.34	28.72	47.27	74.00	-26.73	Peak

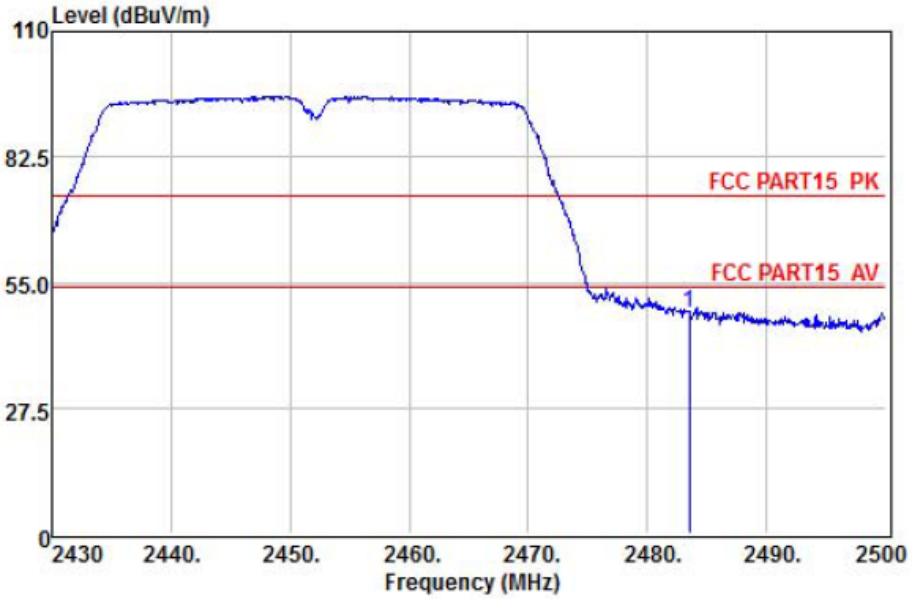


	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	2483.50	26.34	40.36	7.57	28.79	50.38	74.00	-23.62	Peak

802.11n(HT40) - Horizontal



	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	2390.00	26.32	38.35	7.34	28.72	48.09	74.00	-25.91	Peak



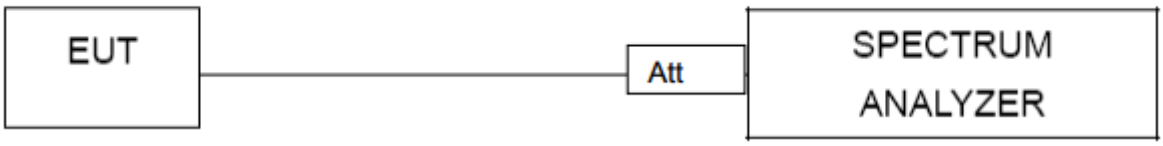
	Freq	Preamp Factor	Read Level	Cable Loss	Antenna Factor	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	2483.50	26.34	38.13	7.57	28.79	48.15	74.00	-25.85	Peak

5. BAND EDGE COMPLIANCE TEST

5.1. Limits

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 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see §15.205(c)).

5.2. Test Setup



5.3. Test Procedure

a) Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.

b) Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.

c) Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.

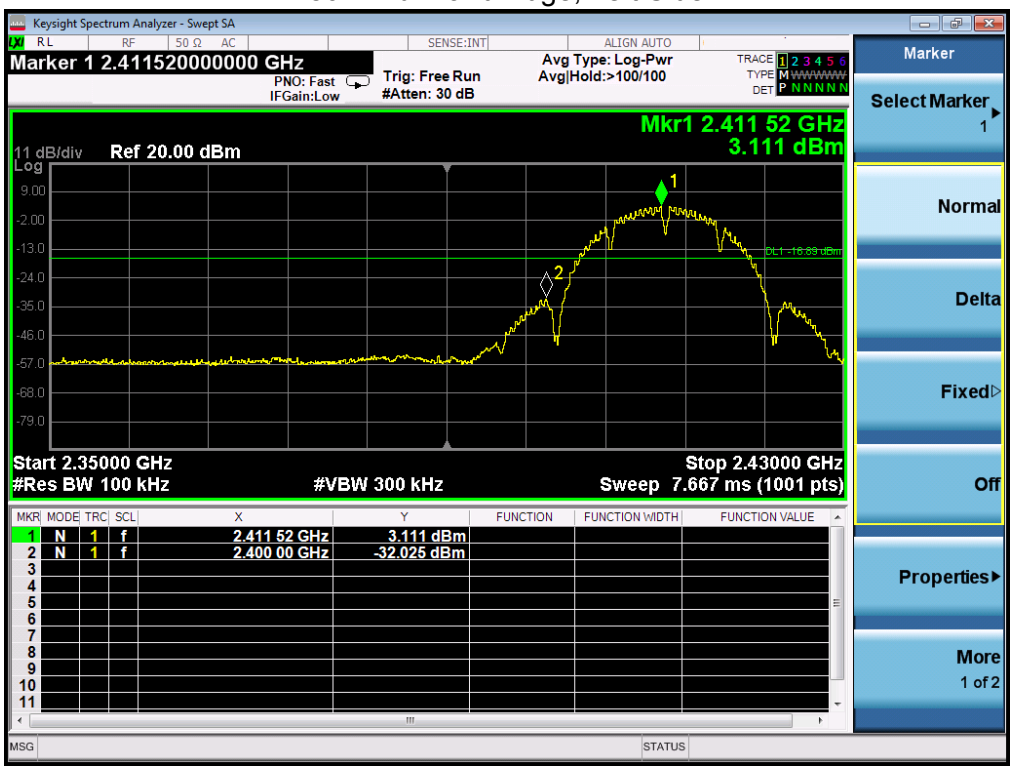
d) Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.

e) Repeat above procedures until all measured frequencies were complete.

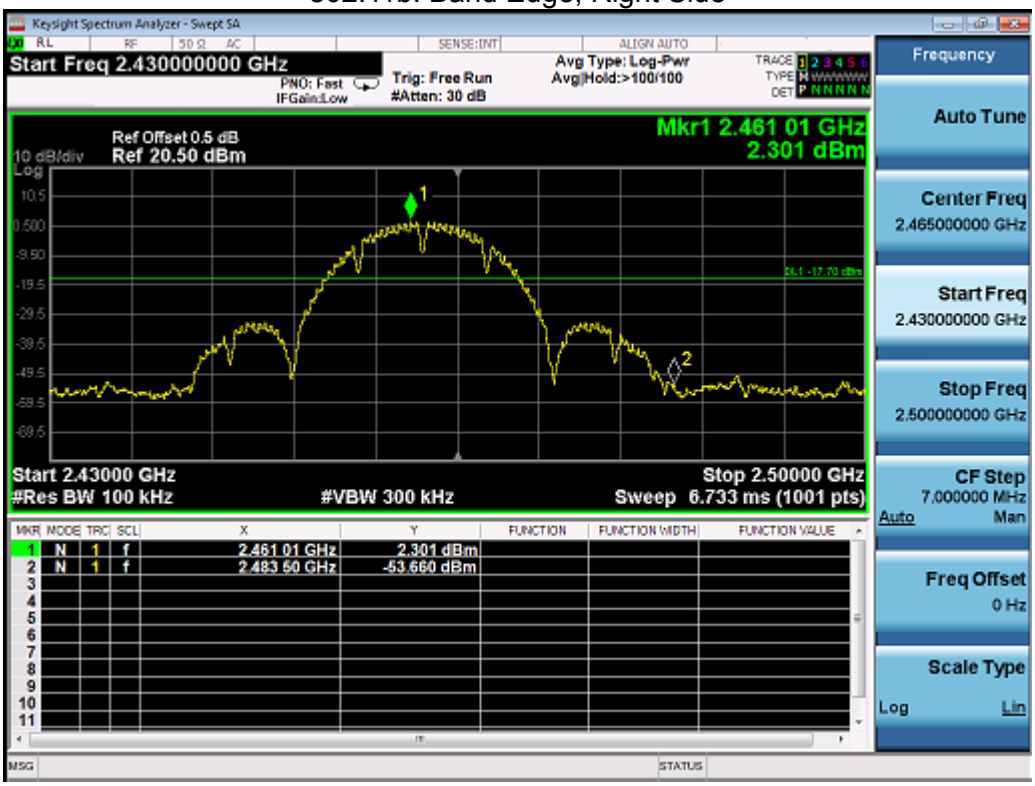
Conduction band-edge

Frequency Band MHz	Delta Peak to band emission (dBc)	> Limit (dBc)	Result
802.11b mode			
2400	35.136	20	Pass
2483.5	55.961	20	Pass
802.11g mode			
2400	32.02	20	Pass
2483.5	41.92	20	Pass
802.11n-HT20 mode			
2400	33.92	20	Pass
2483.5	37.10	20	Pass
802.11n-HT40 mode			
2400	29.71	20	Pass
2483.5	42.77	20	Pass

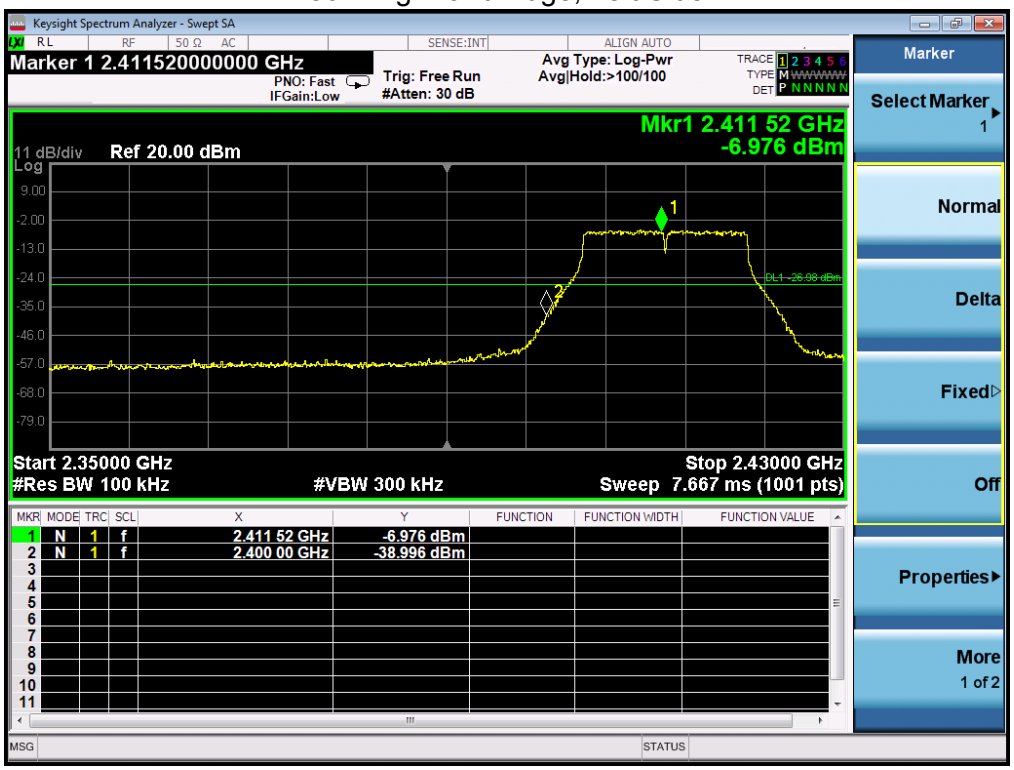
802.11b: Band Edge, Left Side



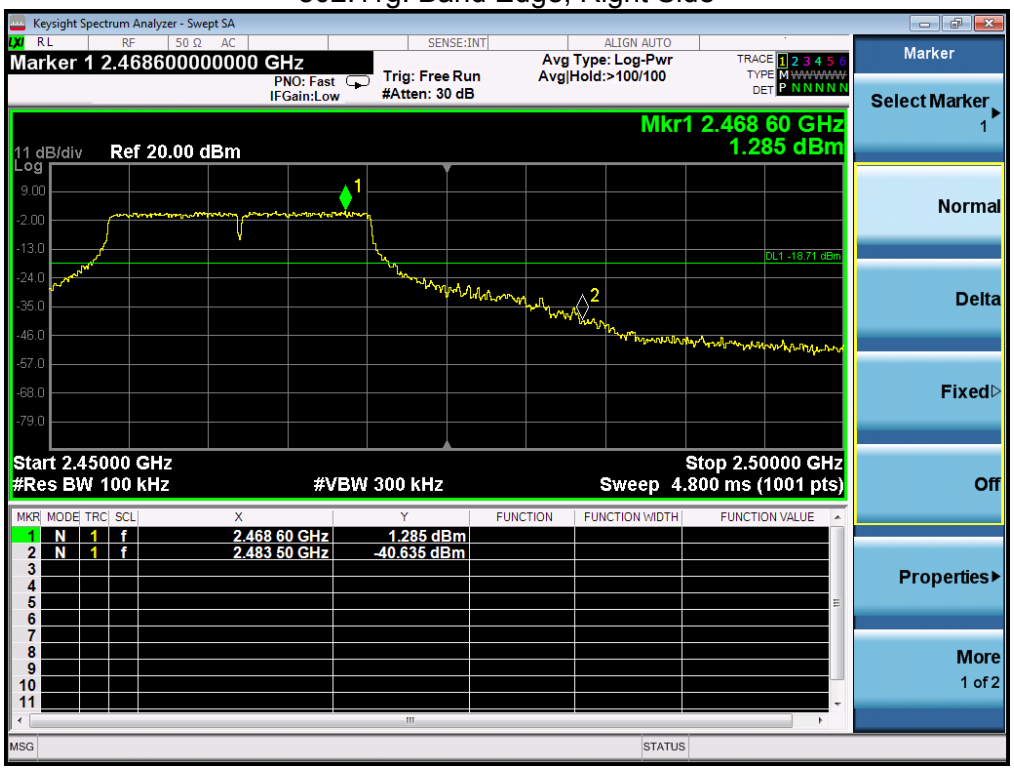
802.11b: Band Edge, Right Side



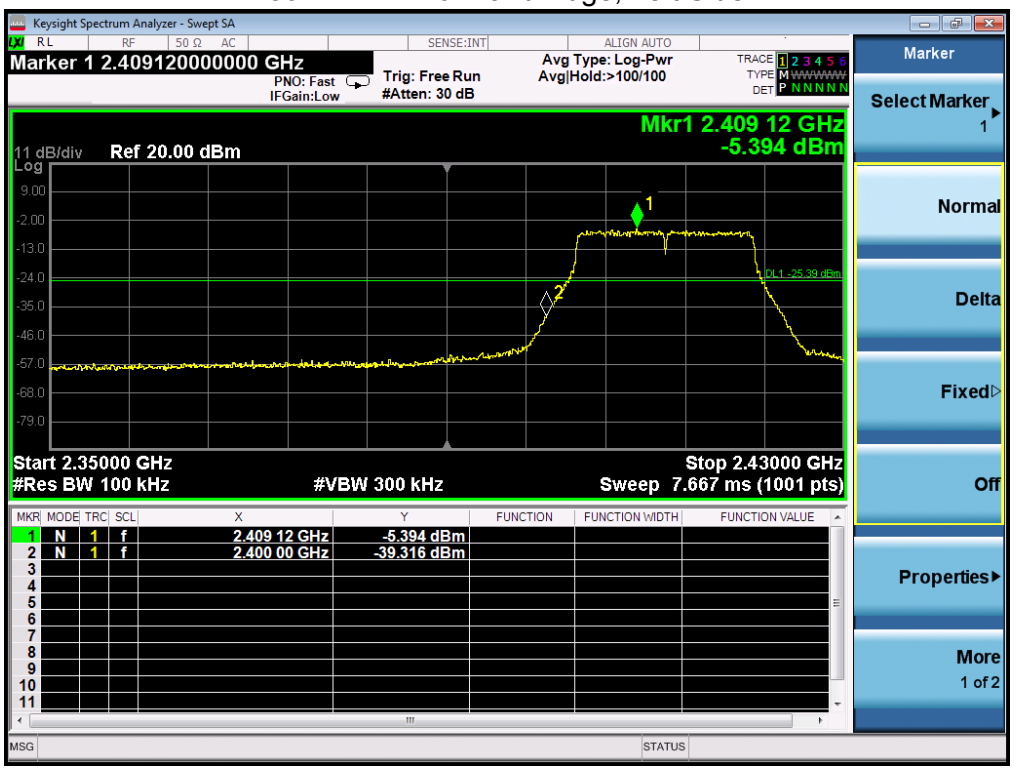
802.11g: Band Edge, Left Side



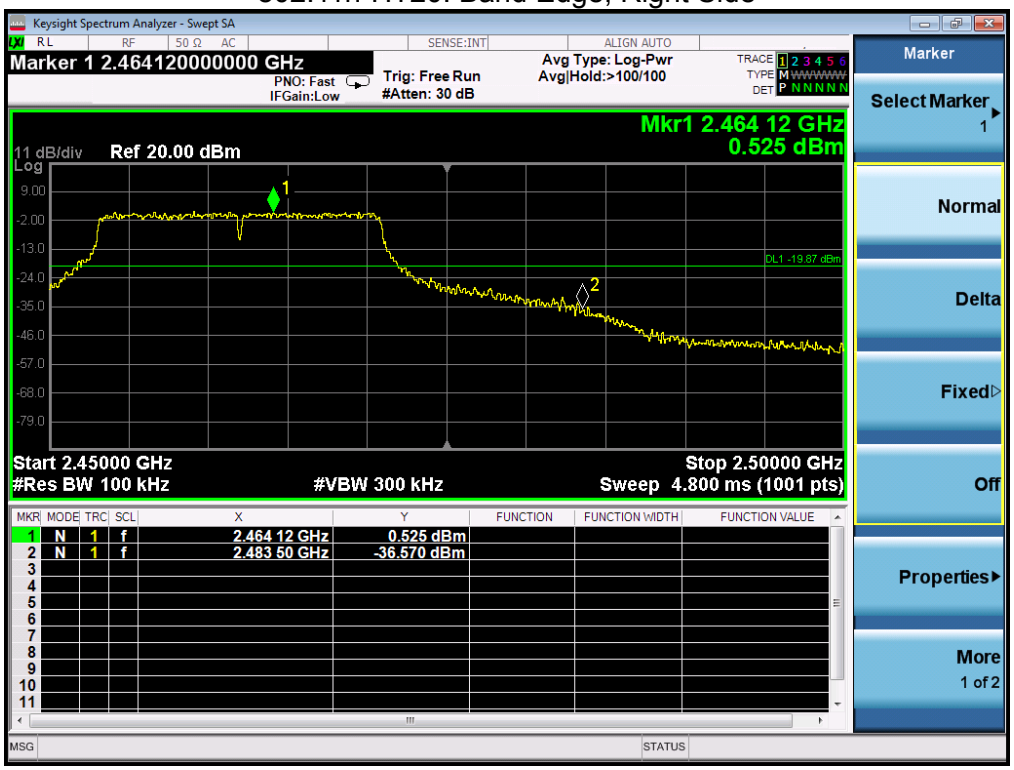
802.11g: Band Edge, Right Side



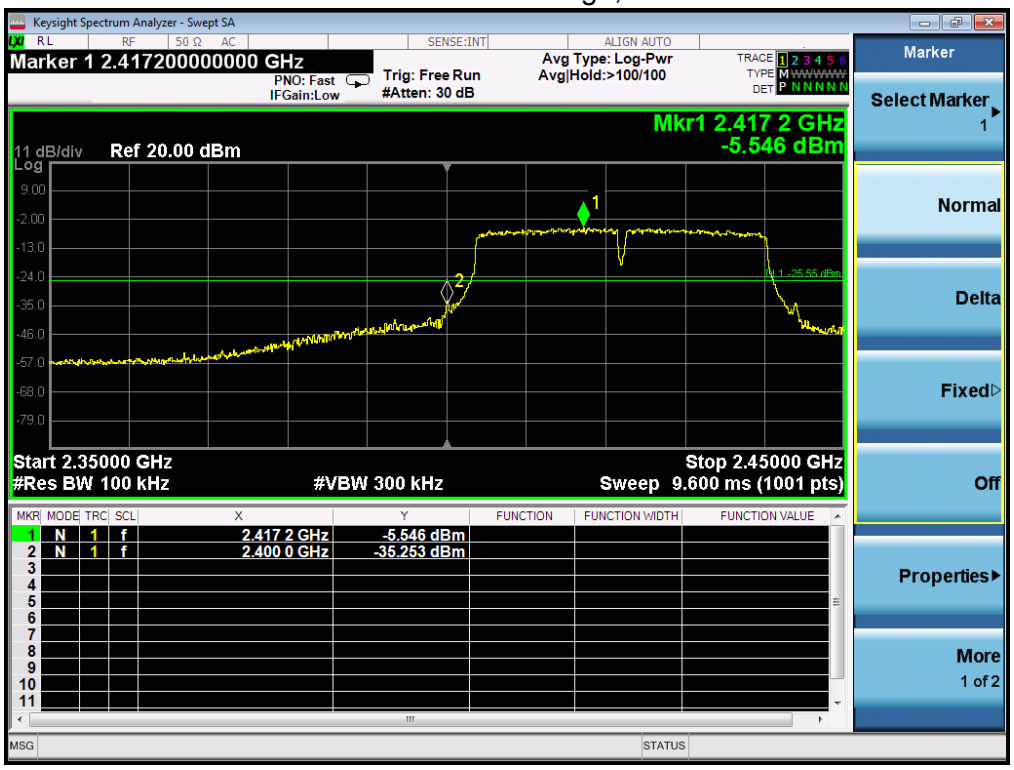
802.11n-HT20: Band Edge, Left Side



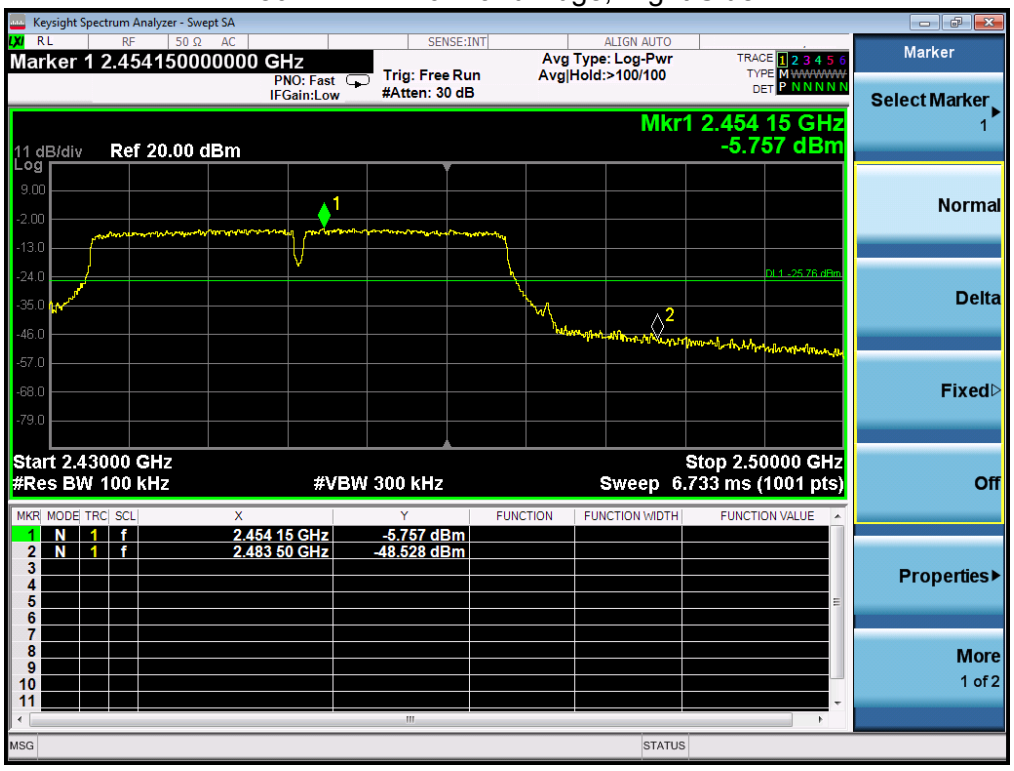
802.11n-HT20: Band Edge, Right Side



802.11n-HT40: Band Edge, Left Side



802.11n-HT40: Band Edge, Right Side



6. BANDWIDTH TEST

6.1. Limits

For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz

6.2. Test Procedure

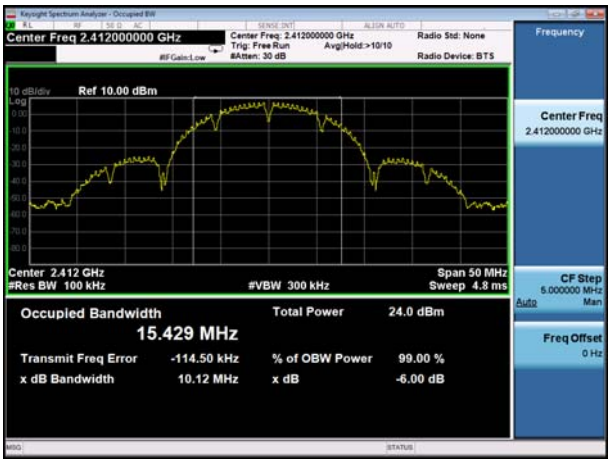
1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 x RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies Associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Test data:

	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Result
802.11b	2412	10.12	>0.5	Pass
	2437	10.13	>0.5	Pass
	2462	10.13	>0.5	Pass
802.11g	2412	16.62	>0.5	Pass
	2437	16.63	>0.5	Pass
	2462	16.63	>0.5	Pass
802.11n (HT20)	2412	17.85	>0.5	Pass
	2437	17.84	>0.5	Pass
	2462	17.85	>0.5	Pass
802.11n (HT40)	2422	36.46	>0.5	Pass
	2437	36.47	>0.5	Pass
	2452	36.47	>0.5	Pass

Test plot as follows:
6dB bandwidth

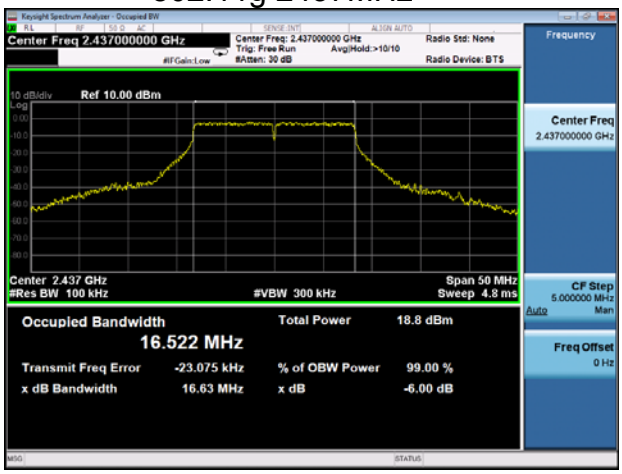
802.11b 2412MHz



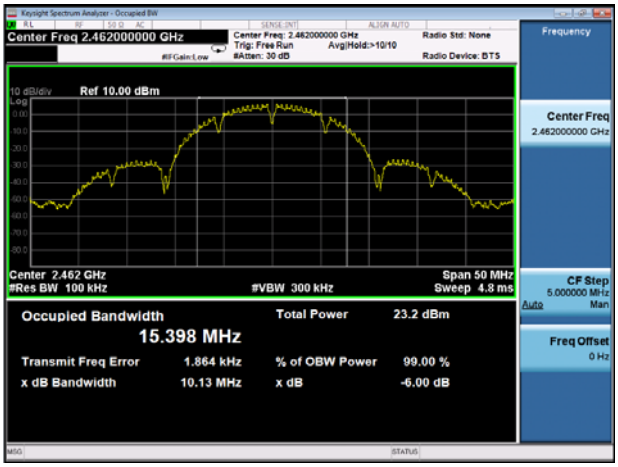
802.11g 2412MHz

802.11b 2437MHz

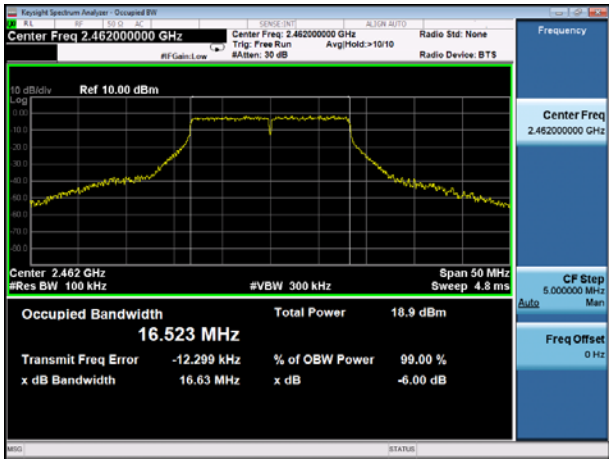
802.11g 2437MHz



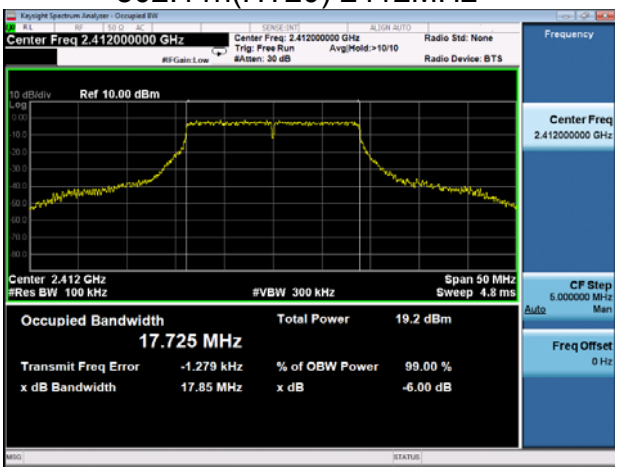
802.11b 2462MHz



802.11g 2462MHz

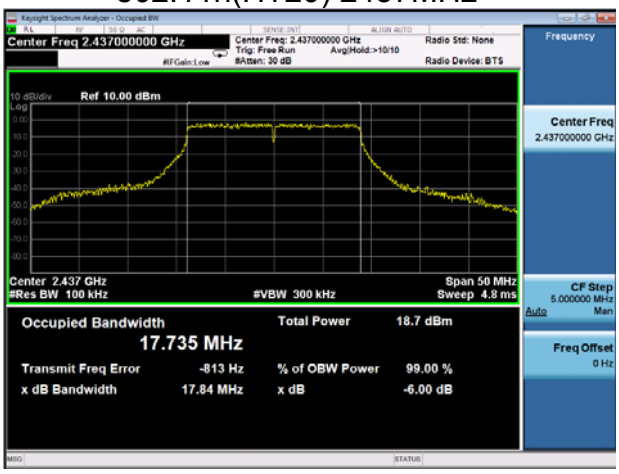


802.11n(HT20) 2412MHz

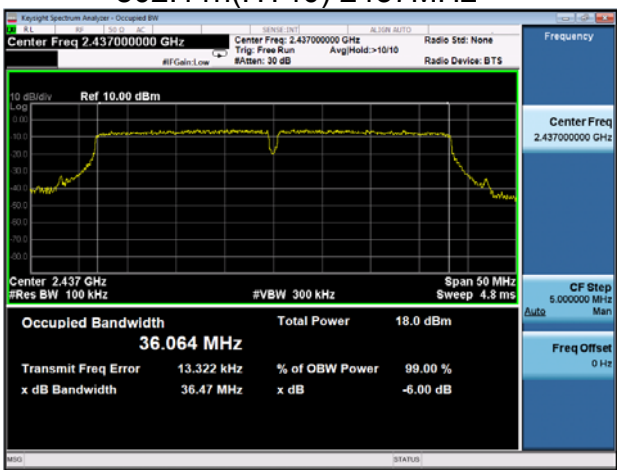


802.11n(HT40) 2422MHz

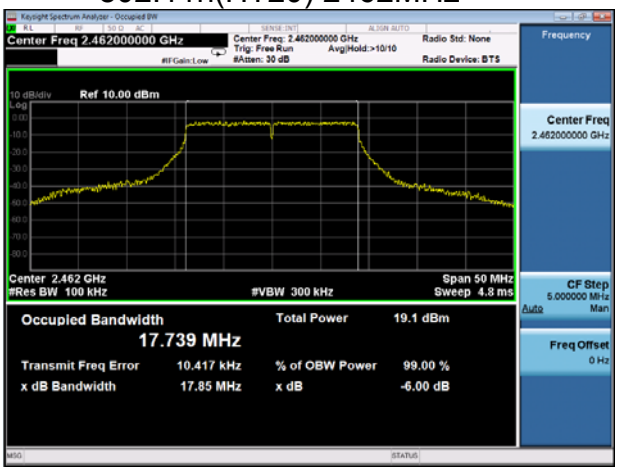
802.11n(HT20) 2437MHz



802.11n(HT40) 2437MHz



802.11n(HT20) 2462MHz



802.11n(HT40)2452MHz

7. OUTPUT POWER TEST

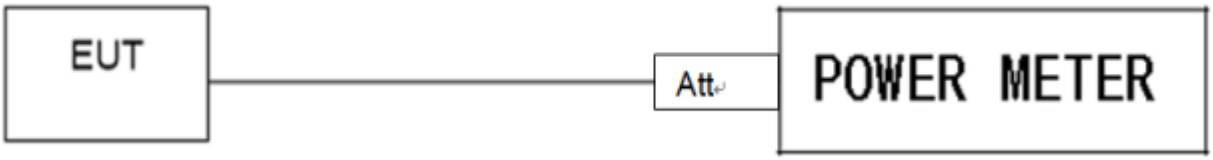
7.1. Limits

For systems using digital modulation in the 2400~2483.5MHz, The output power shall not exceed 1W (30dBm)

7.2. Test Setup

1. The Transmitter output (antenna port) was connected to the power meter.
2. Turn on the EUT and power meter and then record the power value.
3. Repeat above procedures on all channels needed to be tested.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.



7.3. Test Result

Test Channel	Frequency	Maximum Conducted Output Power	LIMIT
	(MHz)	(dBm)	dBm
TX 802.11b Mode			
CH01	2412	7.91	30
CH06	2437	8.47	30
CH11	2462	8.58	30
TX 802.11g Mode			
CH01	2412	7.36	30
CH06	2437	7.24	30
CH11	2462	7.29	30
TX 802.11n(HT20) Mode			
CH01	2412	7.39	30
CH06	2437	7.01	30
CH11	2462	7.24	30
TX 802.11n(HT40) Mode			
CH03	2422	6.94	30
CH06	2437	6.67	30
CH09	2452	6.71	30

Note: For power test the duty cycle is 100% in continous transmitting mode.

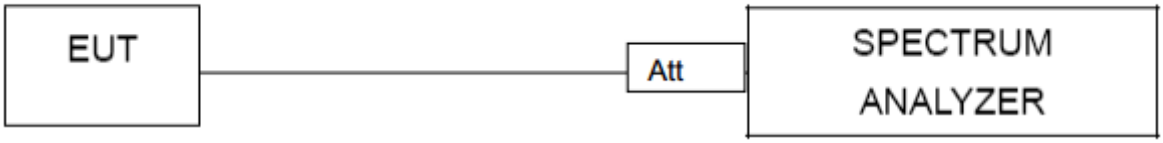
8. DUTY CYCLE

8.1. Test Procedure

The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal.Set the center frequency of the instrument to the center frequency of the transmission. Set RBW ≥ OBW if possible; otherwise, set RBW to the largest available value. Set VBW ≥ RBW. Set detector = peak or average. The zero-span measurement method shall not be used unless both RBW and VBW are > 50/T and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if T ≤ 16.7 microseconds.)

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.
The path loss was compensated to the results for each measurement.
Set to the maximum power setting and enable the EUT transmit continuously.
The EUT was operating in controlled its channel.
Use the following spectrum analyzer settings:
Span = Zero Span
RBW = 8MHz
VBW = 50MHz
Number of points in Sweep >100
Detector function = peak
Trace = Clear write Measure Ttotal and Ton
Calculate Duty Cycle = Ton / Ttotal and Duty Cycle Factor=10*log(1/Duty Cycle)

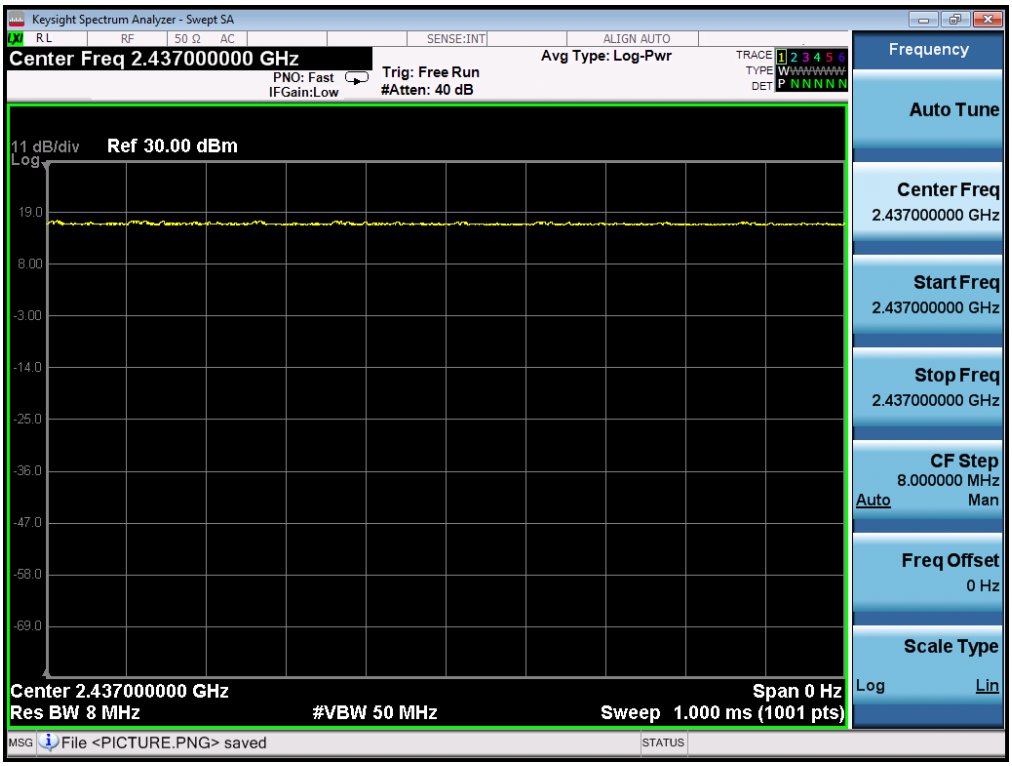
8.2. Test Setup



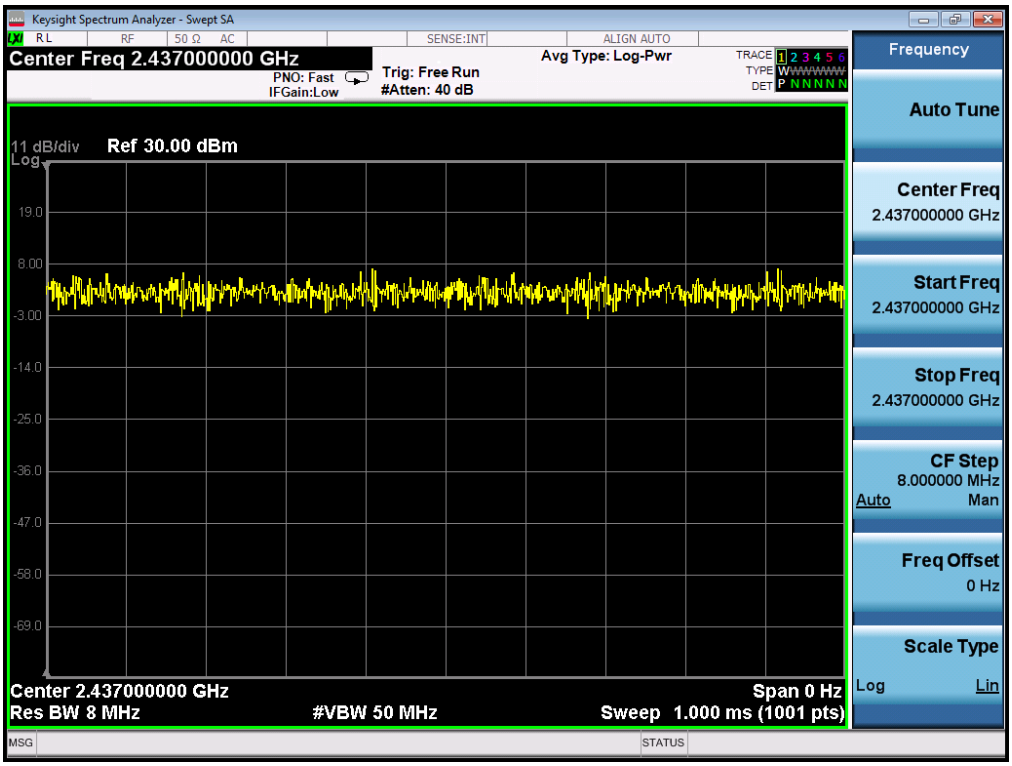
8.3. Test Result

Duty cycle ≥98 %, it conforms with the standard requirements.

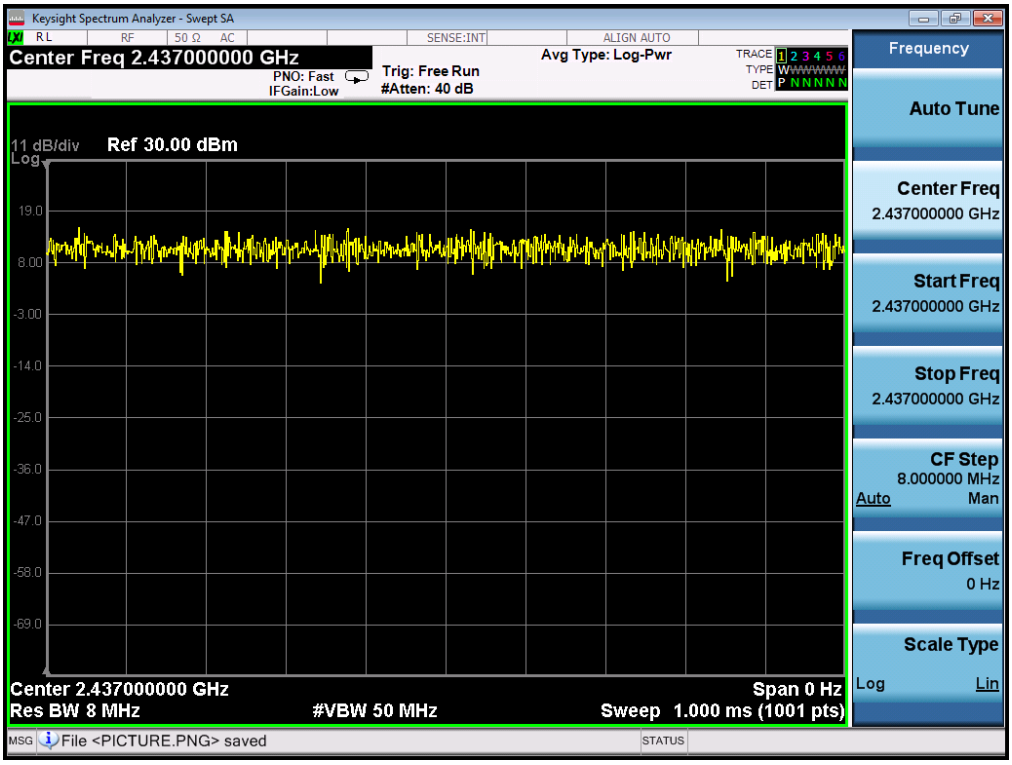
Test plot of Duty Cycle for 802.11b



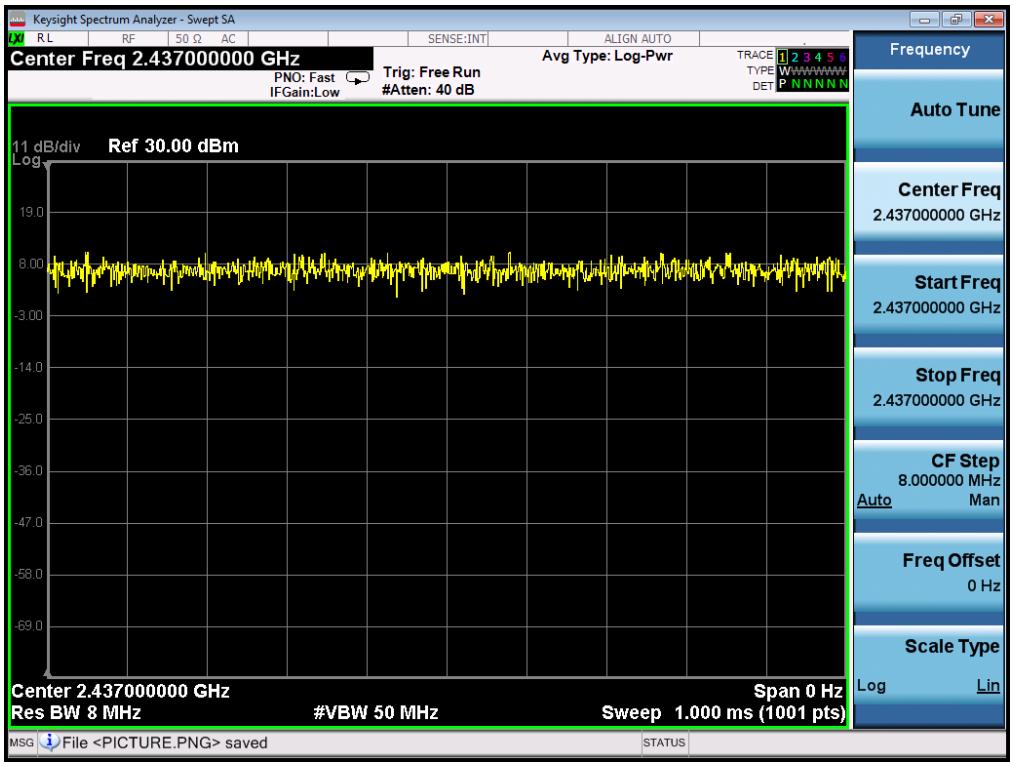
Test plot of Duty Cycle for 802.11g



Test plot of Duty Cycle for 802.11n(HT20)



Test plot of Duty Cycle for 802.11n(HT40)



9. POWER SPECTRAL DENSITY TEST

9.1. Limits

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

9.2. Test Setup

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 kHz ≤ RBW ≤ 100 kHz.
4. Set the VBW ≥ 3 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.

9.3. Test Result

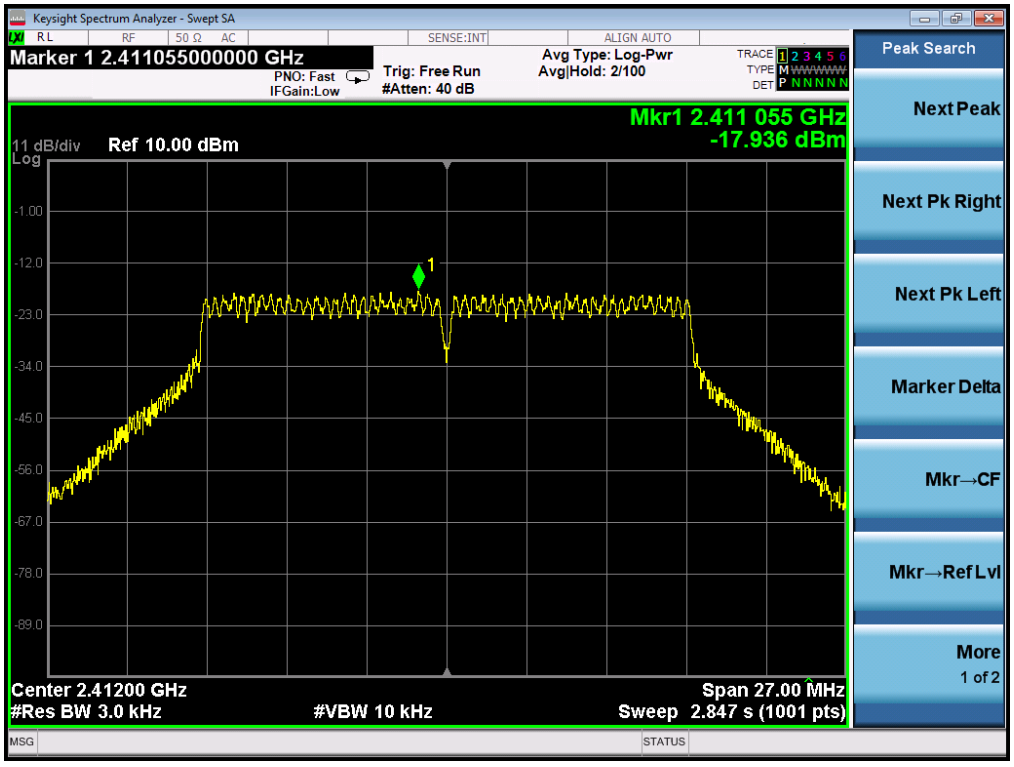
	Channel Frequency (MHz)	Power density (dBm/3kHz)	Limit (dBm/3kHz)	Result
802.11b	2412	-15.754	8	Pass
	2437	-13.569	8	Pass
	2462	-13.885	8	Pass
802.11g	2412	-17.936	8	Pass
	2437	-18.348	8	Pass
	2462	-18.453	8	Pass
802.11n (HT20)	2412	-17.726	8	Pass
	2437	-18.110	8	Pass
	2462	-17.847	8	Pass
802.11n (HT40)	2422	-21.551	8	Pass
	2437	-19.981	8	Pass
	2452	-21.444	8	Pass

802.11b 2412MHz

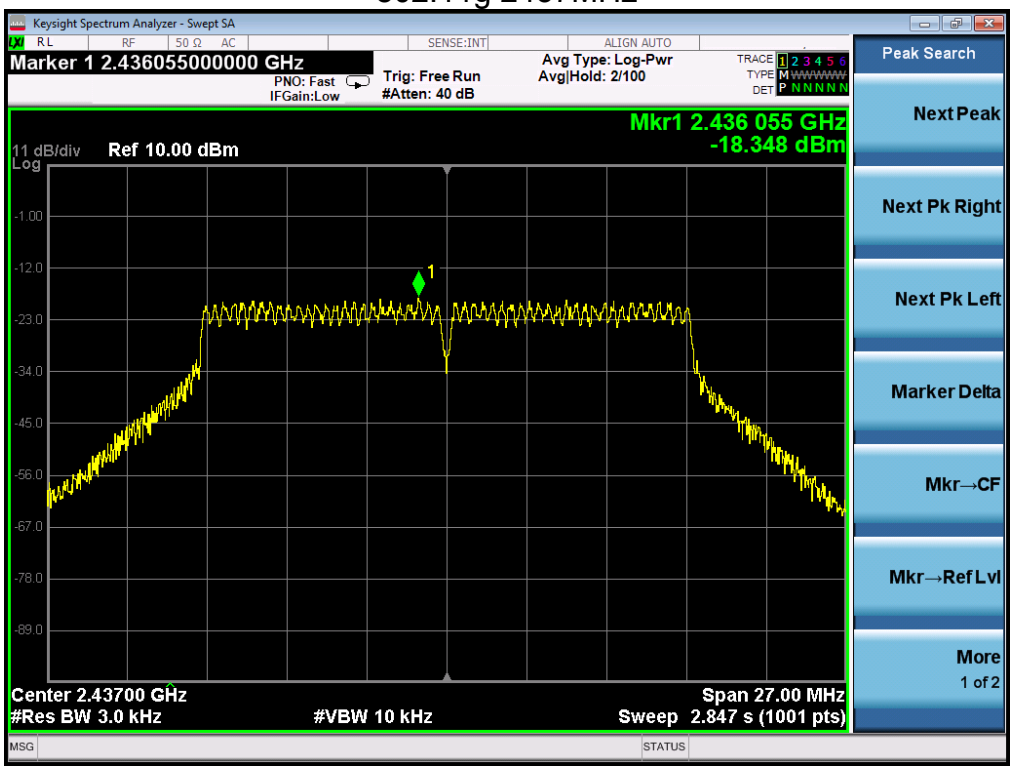
802.11b 2437MHz

802.11b 2462MHz

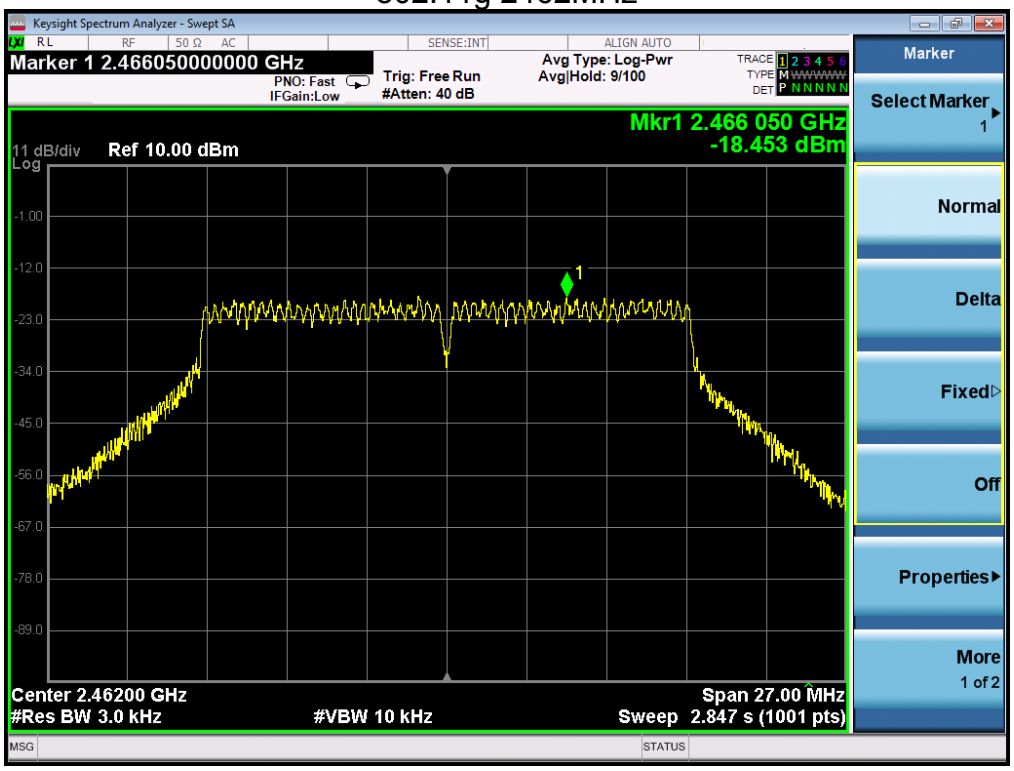
802.11g 2412MHz



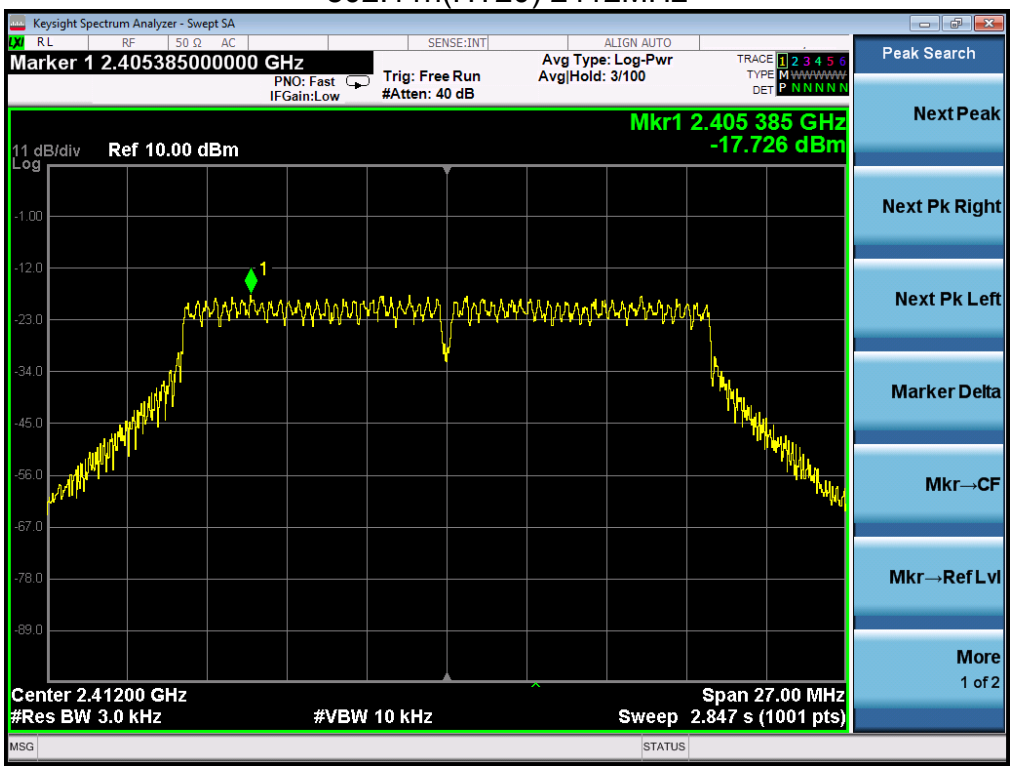
802.11g 2437MHz



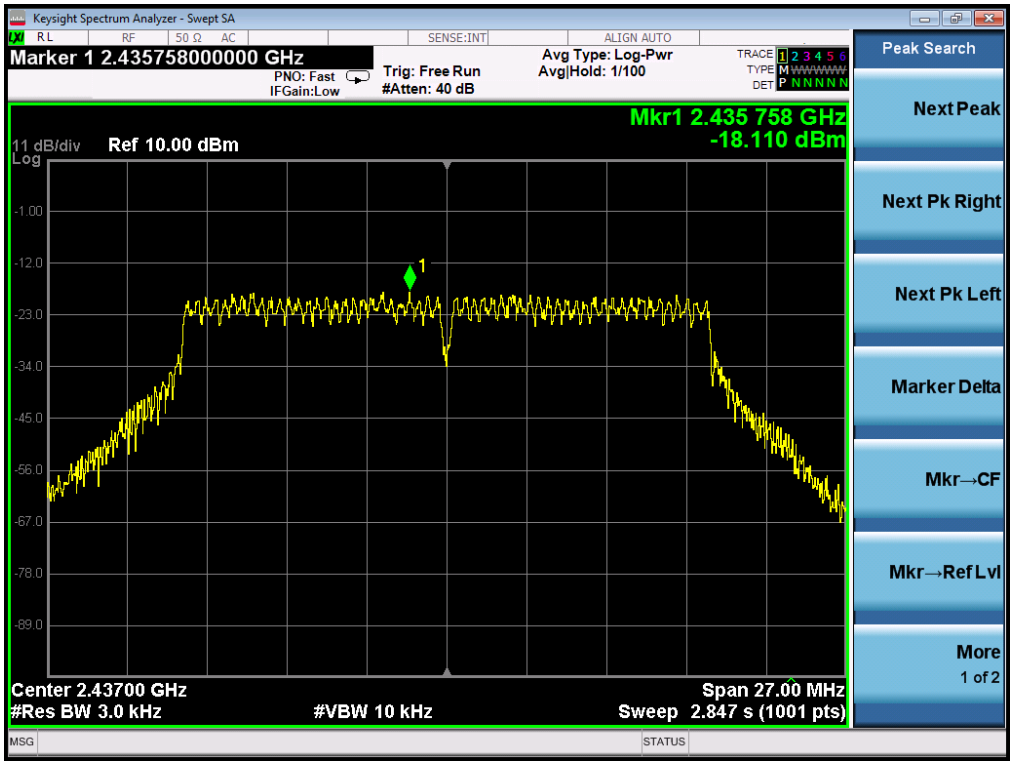
802.11g 2462MHz



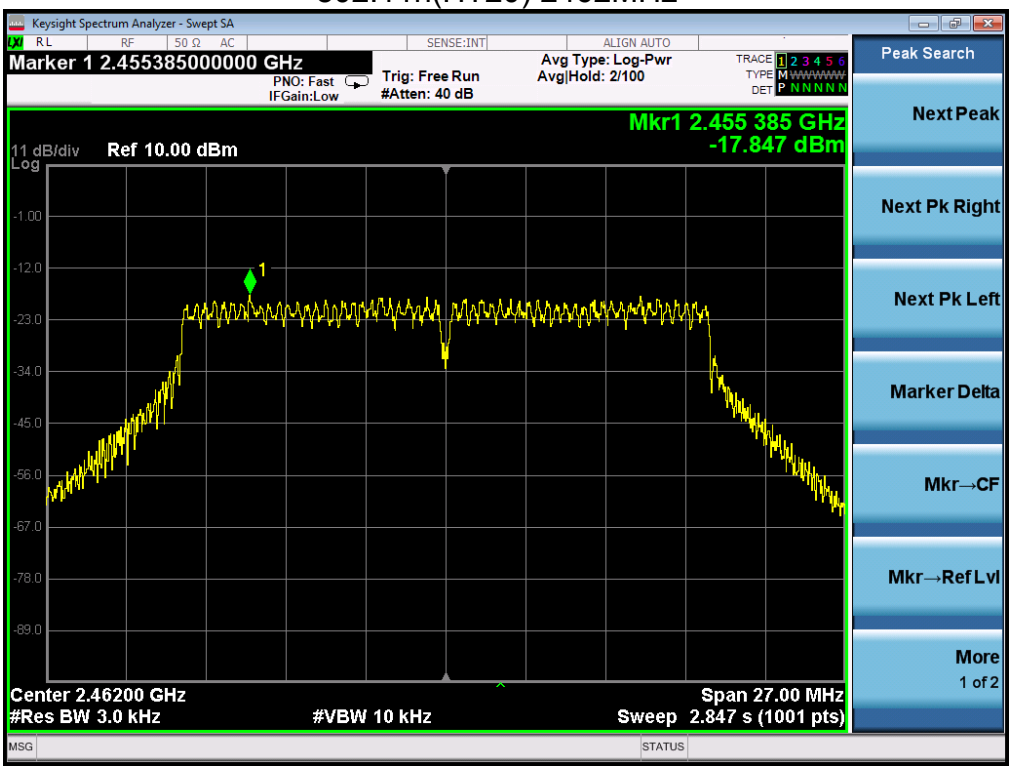
802.11n(HT20) 2412MHz



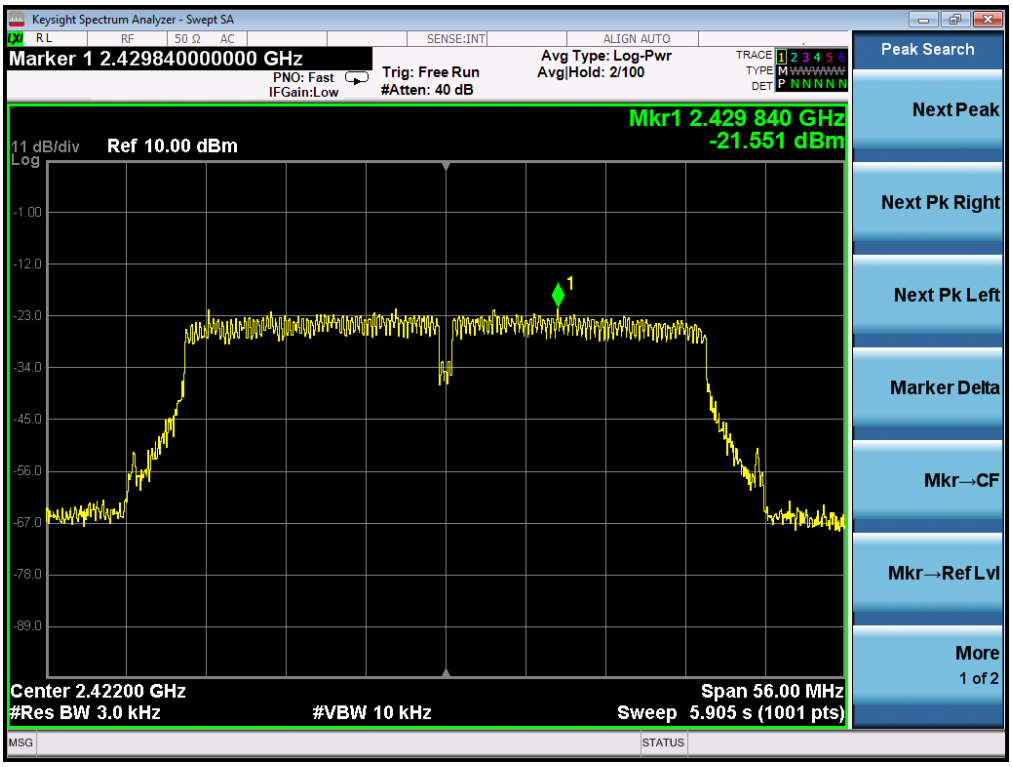
802.11n(HT20) 2437MHz



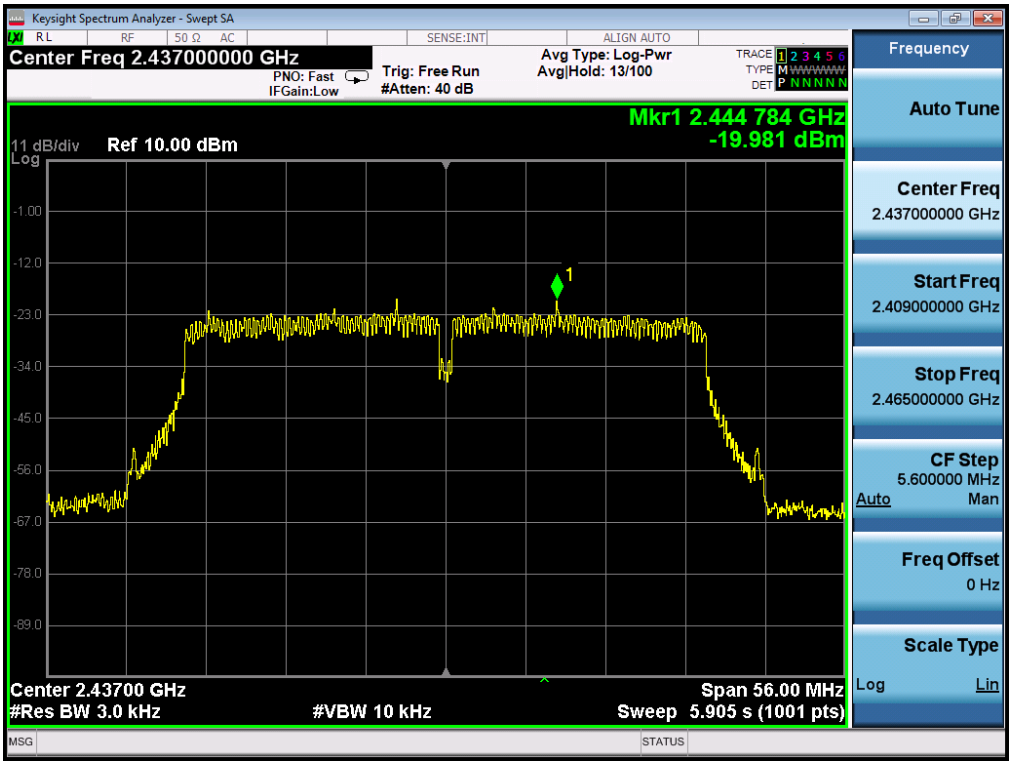
802.11n(HT20) 2462MHz



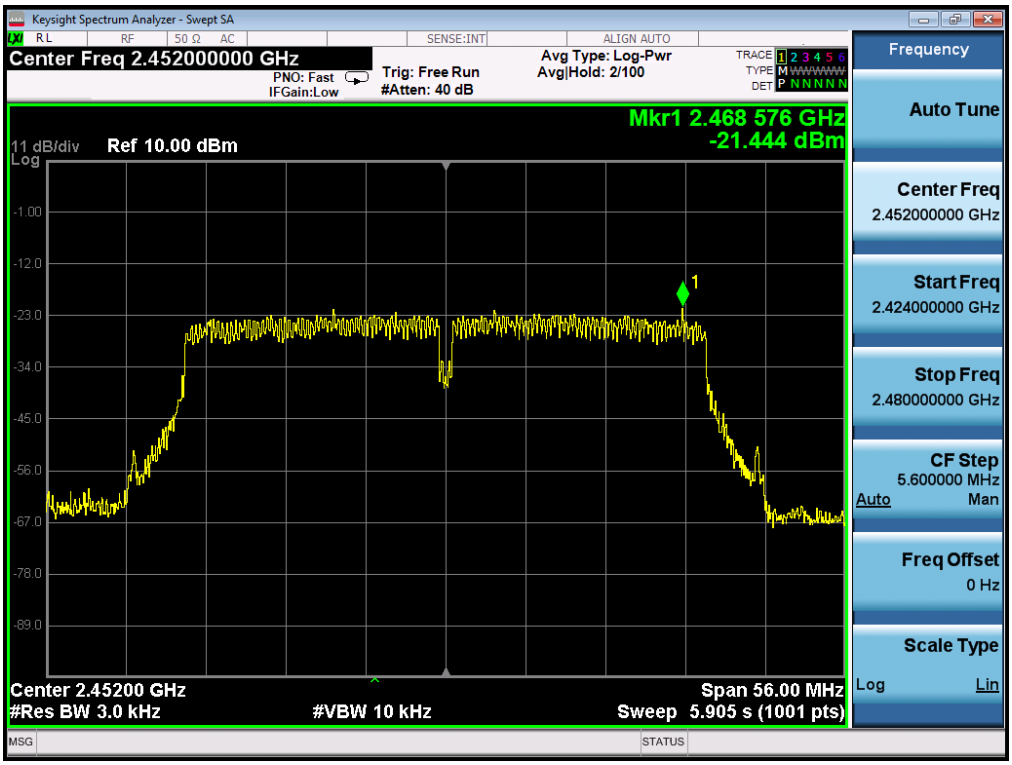
802.11n(HT40) 2422MHz



802.11n(HT40) 2437MHz



802.11n(HT40)2452MHz



10. ANTENNA REQUIREMENTS

10.1. Limits

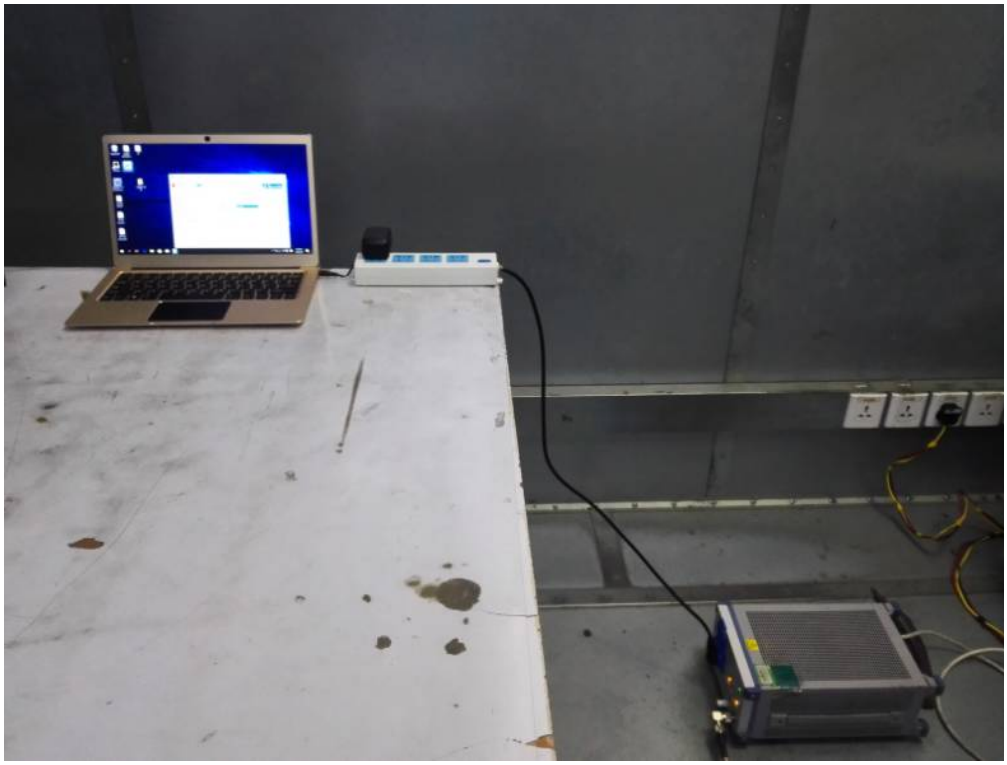
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

10.2. Result

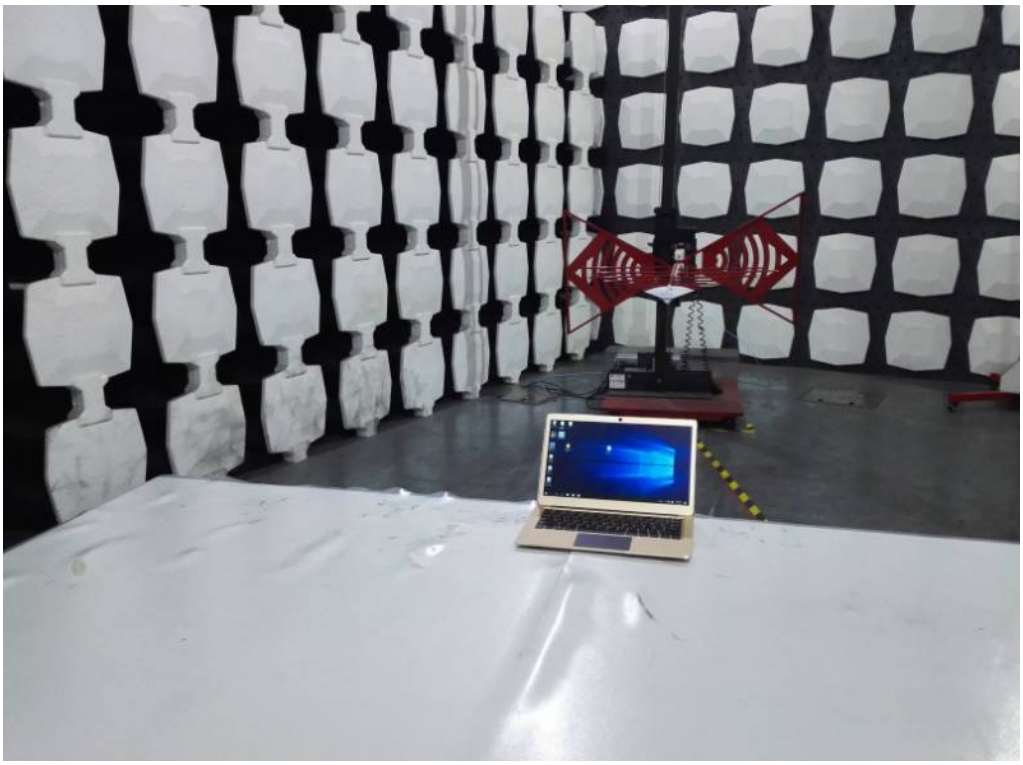
The antennas used for this product is FPCB antenna and that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is 1.0 dBi.

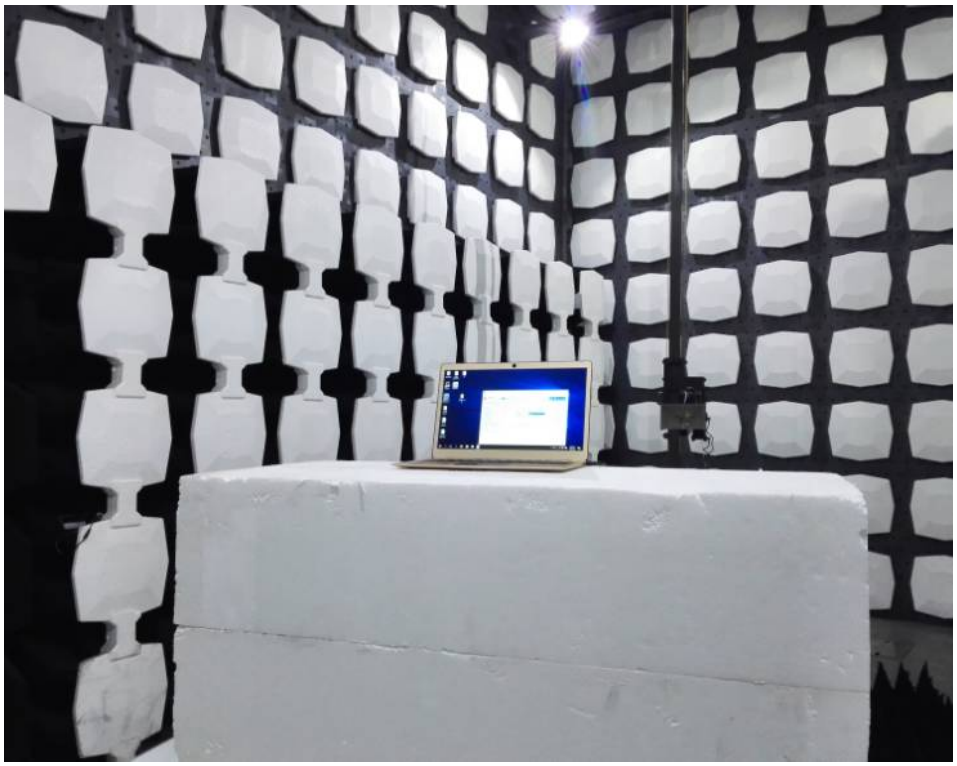
11. PHOTOGRAPHS OF TEST SET-UP

Conducted Emission



Radiated Emission Test





12. PHOTOGRAPHS OF THE EUT

*** the end of report ***