

4.5 6dB Bandwidth

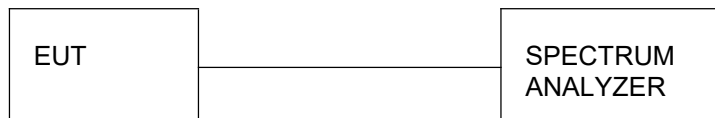
Limit

For digital modulation systems, the minimum 6 dB bandwidth shall be at least 500 kHz

Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 KHz RBW and 300 KHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

Test Configuration



Test Results

Ant 1

Type	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11b	01	9.760	≥500	Pass
	06	10.080		
	11	10.080		
802.11g	01	13.480	≥500	Pass
	06	14.400		
	11	15.040		
802.11n(HT20)	01	15.120	≥500	Pass
	06	13.840		
	11	13.880		
802.11n(HT40)	03	35.040	≥500	Pass
	06	35.040		
	09	33.840		
802.11ax(HT20)	01	16.400	≥500	Pass
	06	13.760		
	11	16.400		
802.11ax(HT40)	03	35.040	≥500	Pass
	06	35.040		
	09	33.760		

Ant 2

Type	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11b	01	10.120	≥500	Pass
	06	10.080		
	11	10.080		
802.11g	01	15.120	≥500	Pass
	06	15.120		
	11	15.080		
802.11n(HT20)	01	15.120	≥500	Pass
	06	15.120		
	11	15.120		
802.11n(HT40)	03	35.040	≥500	Pass
	06	35.040		
	09	35.040		
802.11ax(HT20)	01	16.520	≥500	Pass
	06	16.360		
	11	16.400		
802.11ax(HT40)	03	35.040	≥500	Pass
	06	35.040		
	09	32.640		

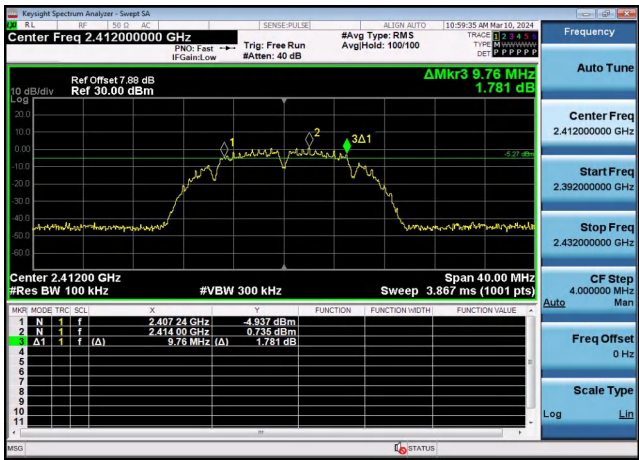
Note:

- 1) Measured peak power spectrum density at difference data rate for each mode and recorded worst case for each mode.
- 2) Test results including cable loss;
- 3) Worst case data at 1Mbps at IEEE 802.11b; 6Mbps at IEEE 802.11g; 6.5Mbps at IEEE 802.11n HT20; 13.5Mbps at IEEE 802.11n HT40; 8.6Mbps at IEEE 802.11ax HT20; 17.2Mbps at IEEE 802.11ax HT40.

Please refer to following plots;

Ant 1

802.11b

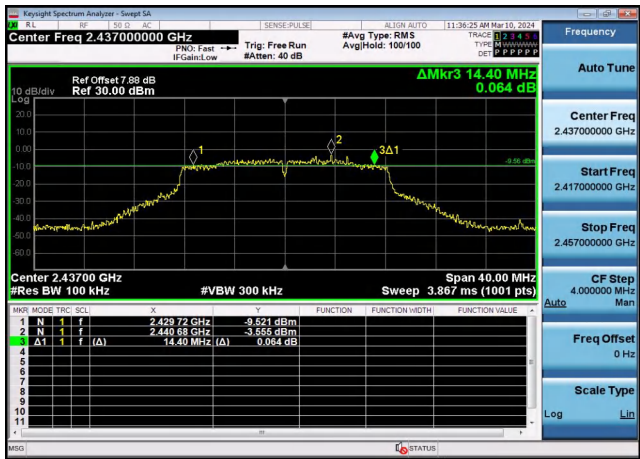
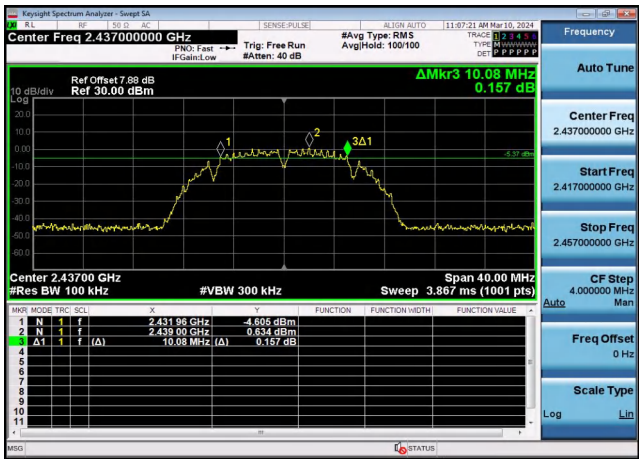


802.11g



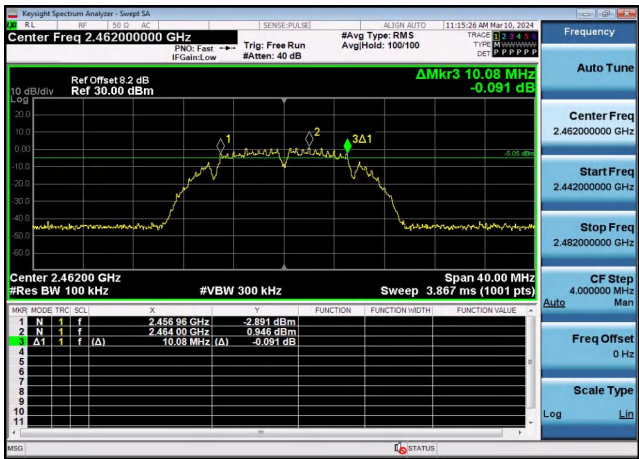
CH01

CH01



CH06

CH06



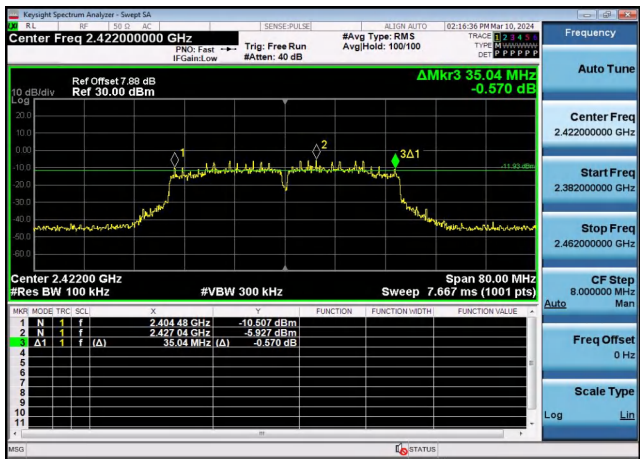
CH11

CH11

802.11n(HT20)



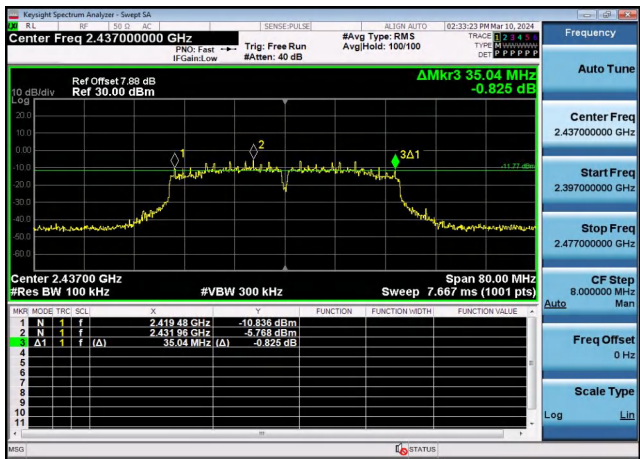
802.11n(HT40)



CH01



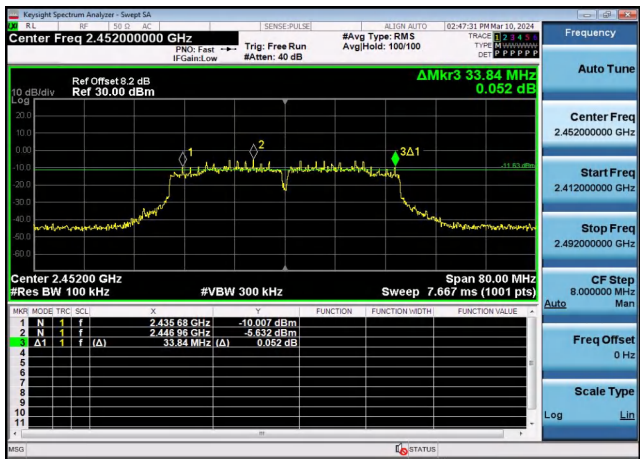
CH03



CH06



CH06



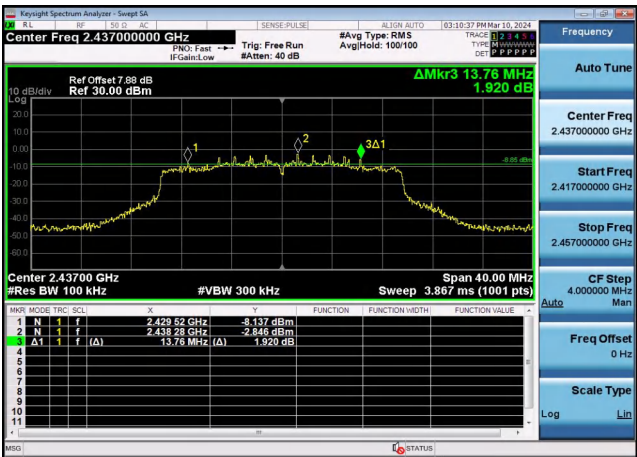
CH11

CH09

802.11ax(HT20)



CH01



CH06

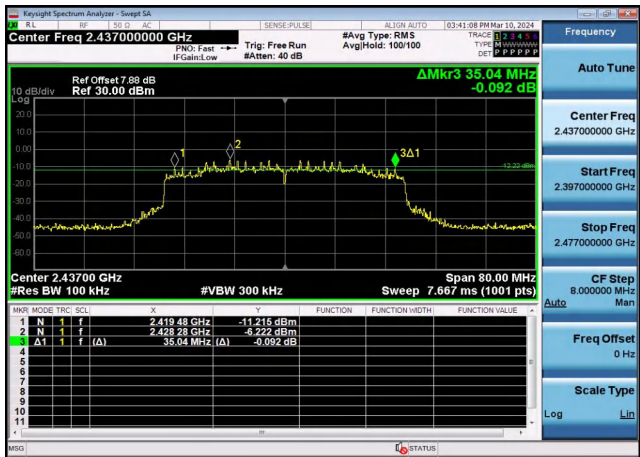


CH11

802.11ax(HT40)



CH03



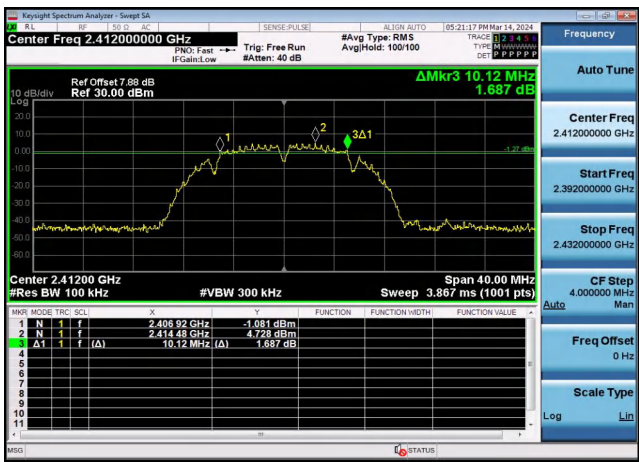
CH06



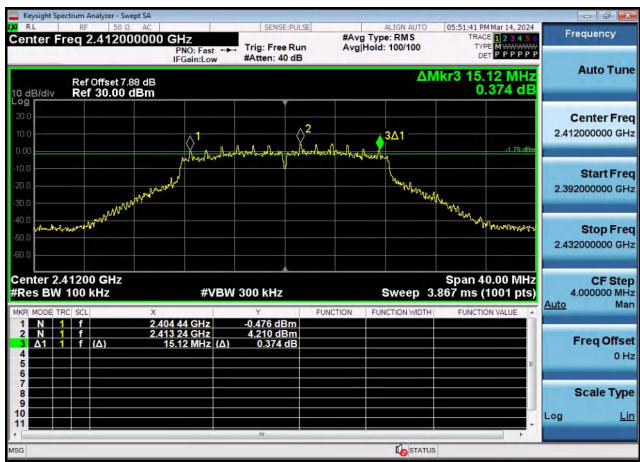
CH09

Ant 2

802.11b

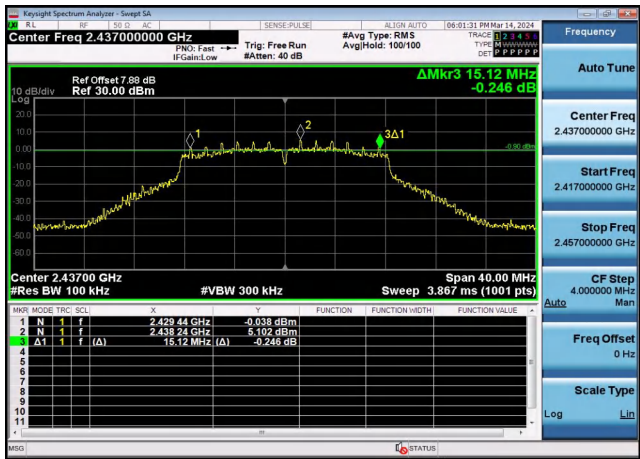
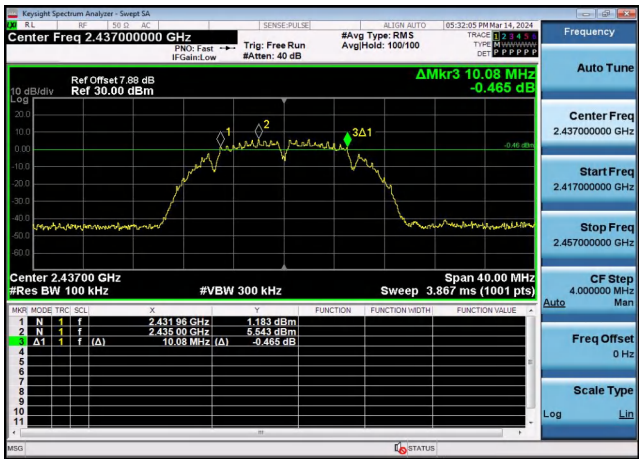


802.11g



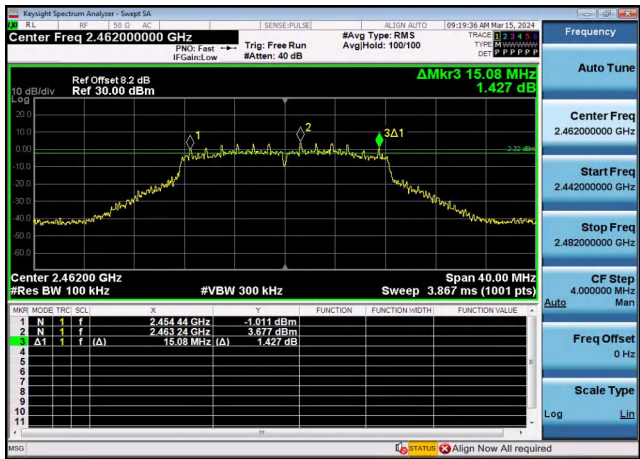
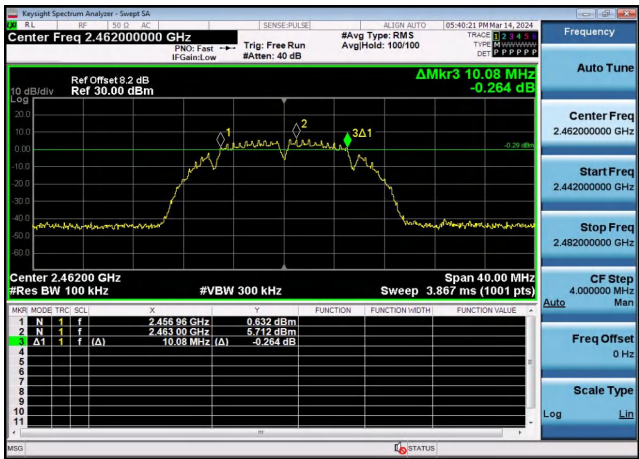
CH01

CH01



CH06

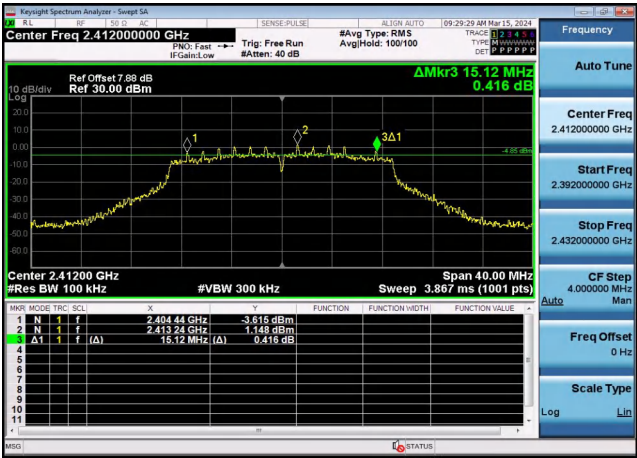
CH06



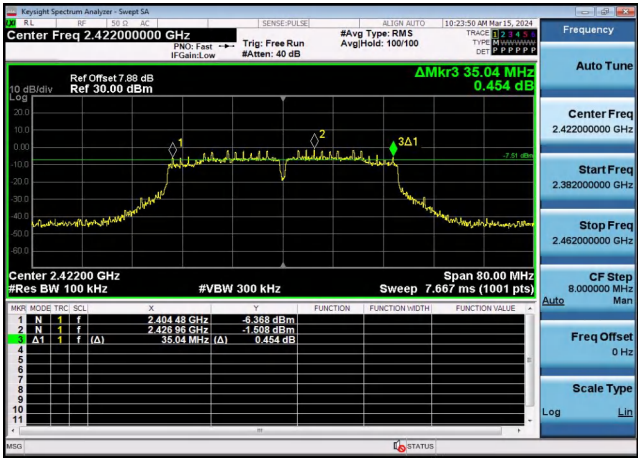
CH11

CH11

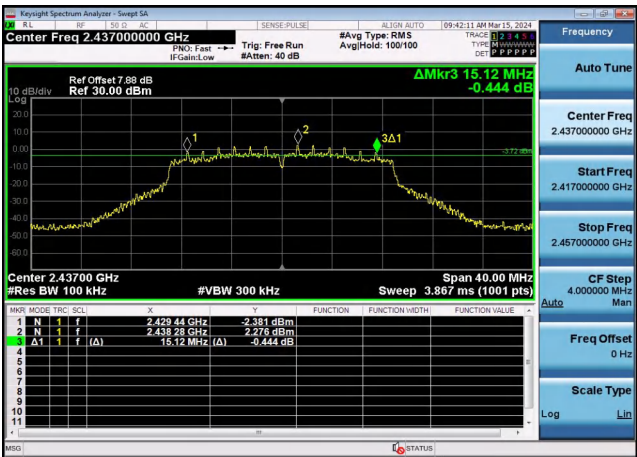
802.11n(HT20)



802.11n(HT40)



CH01



CH03



CH06



CH06



CH11



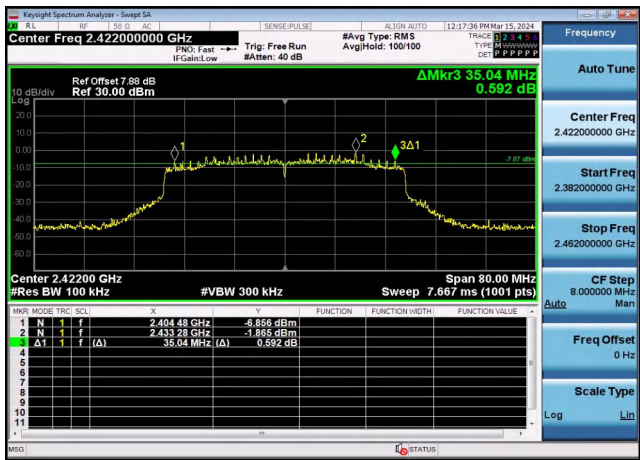
CH09



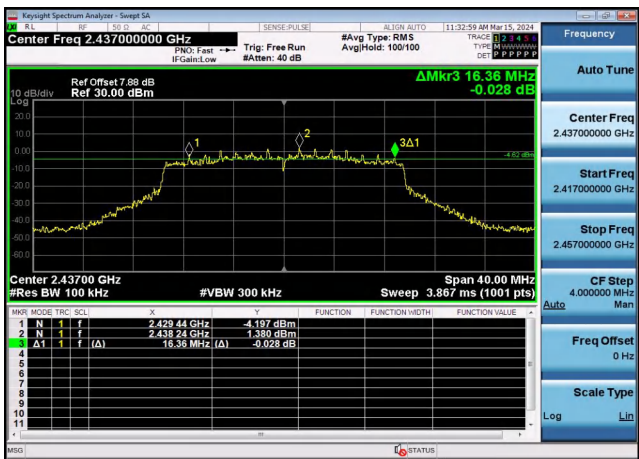
802.11ax(HT20)



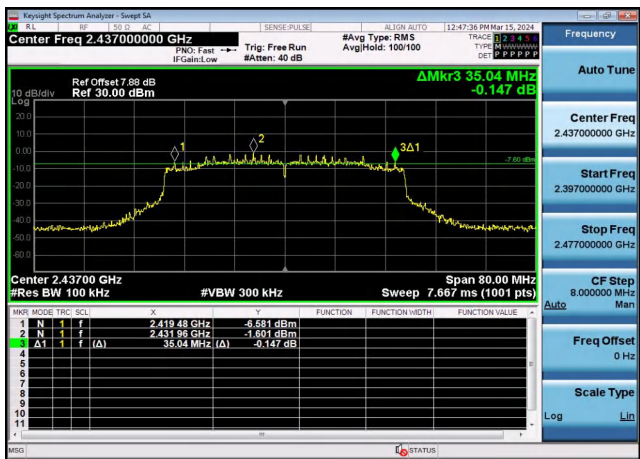
802.11ax(HT40)



CH01



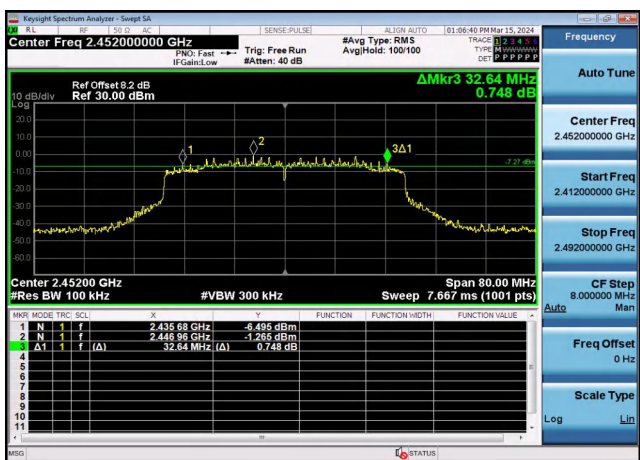
CH03



CH06



CH06



CH11

CH09

4.6 Out-of-band Emissions

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 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.

Test Procedure

Connect the transmitter output to spectrum analyzer using a low loss RF cable, and set the spectrum analyzer to RBW=100 kHz, VBW= 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, band edge and out-of-band emissions.

Test Configuration



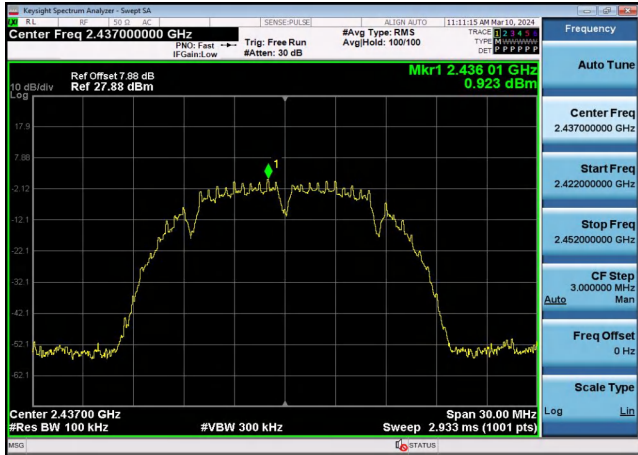
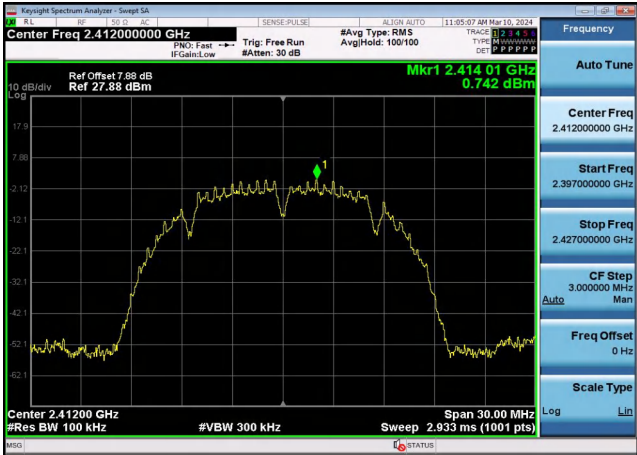
Test Results

Remark: The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions and band edge measurement data. And record the worst data in the report.

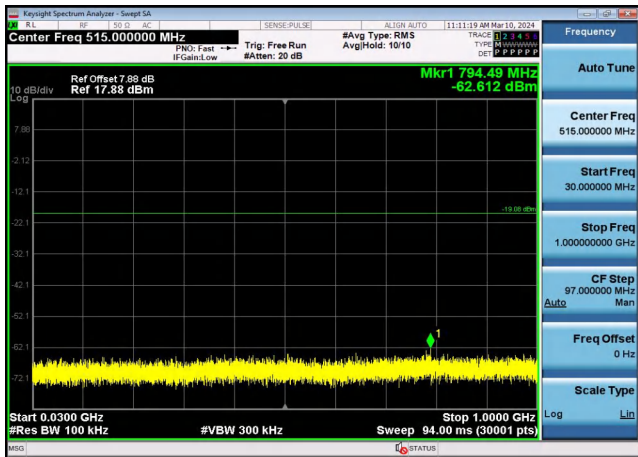
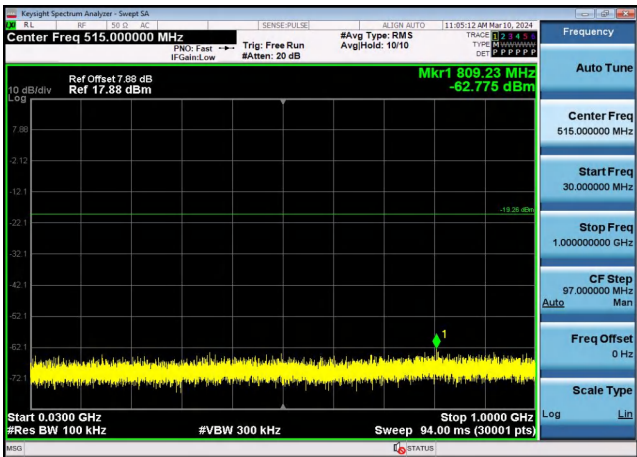
Test plot as follows:

Ant 1

802.11b

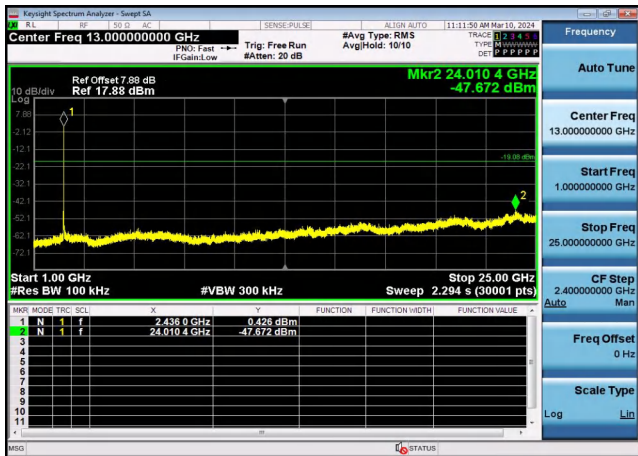
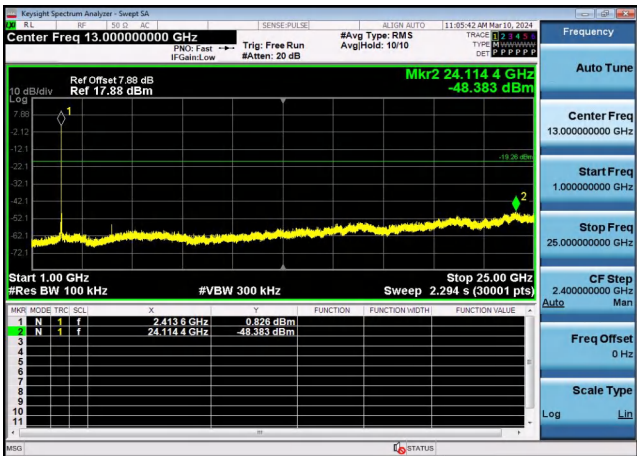


CH01



30MHz-1GHz

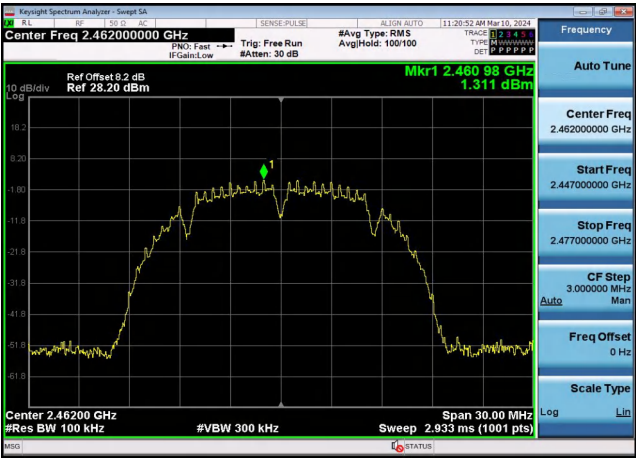
30MHz-1GHz



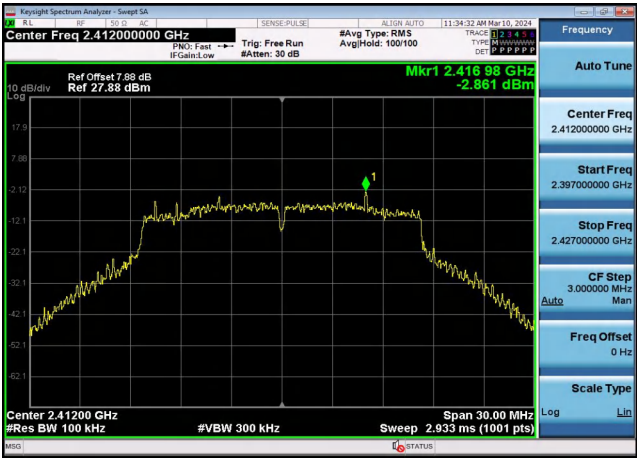
1GHz-25GHz

1GHz-25GHz

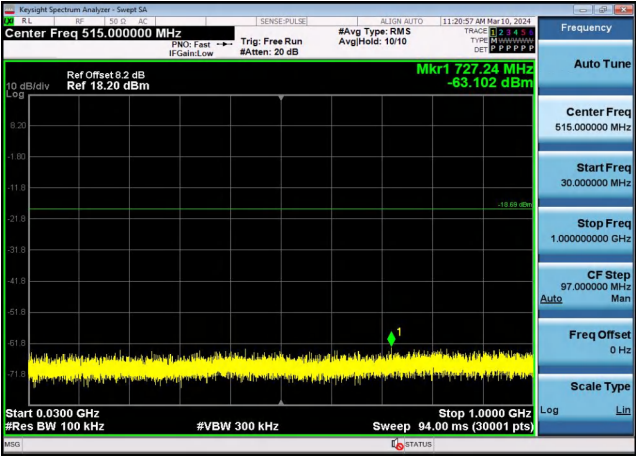
802.11b



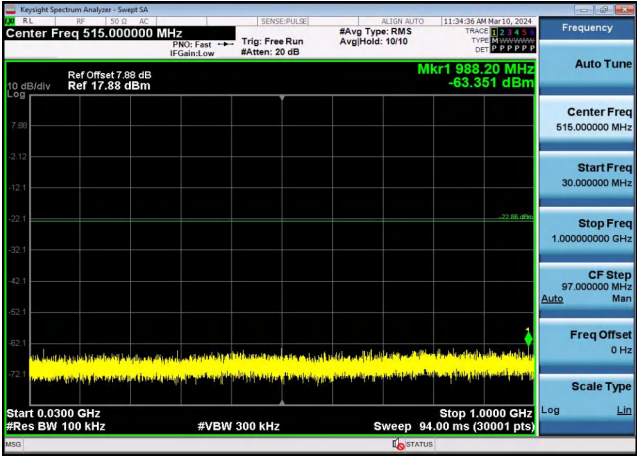
802.11g



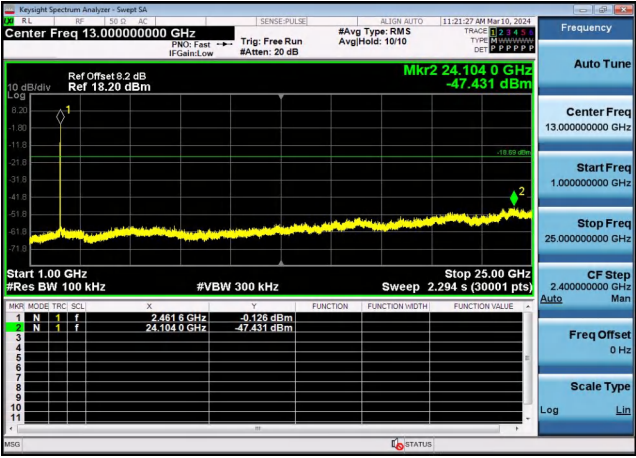
CH11



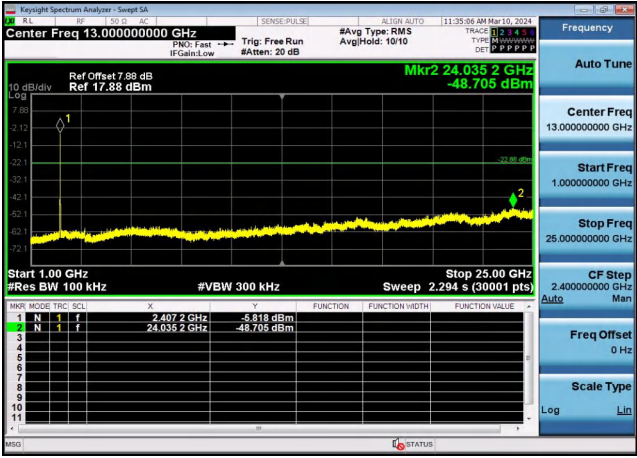
CH01



30MHz-1GHz



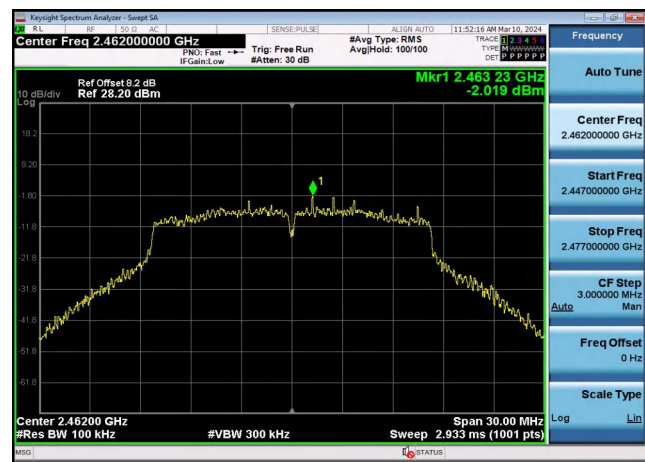
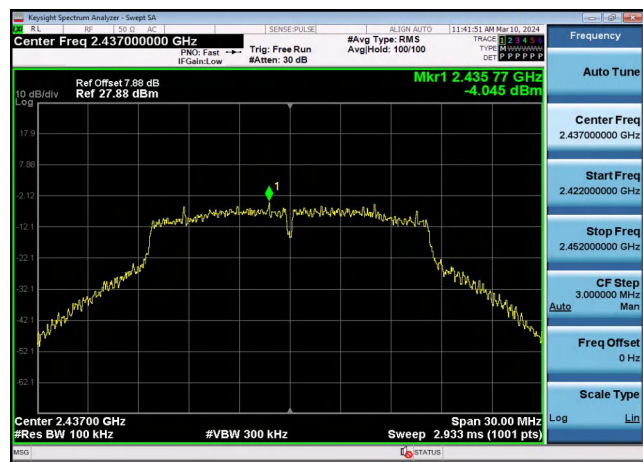
30MHz-1GHz



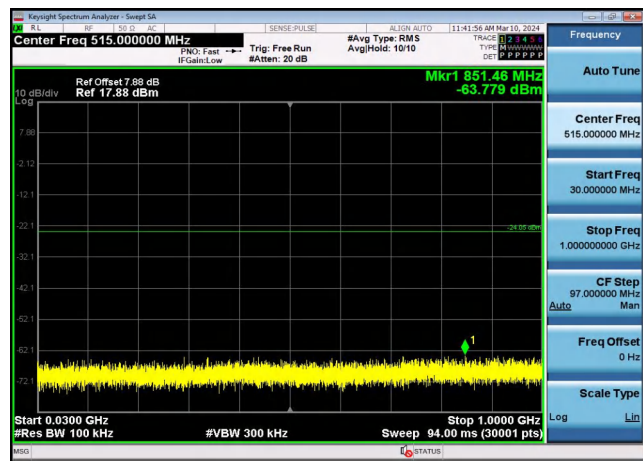
1GHz -25GHz

1GHz -25GHz

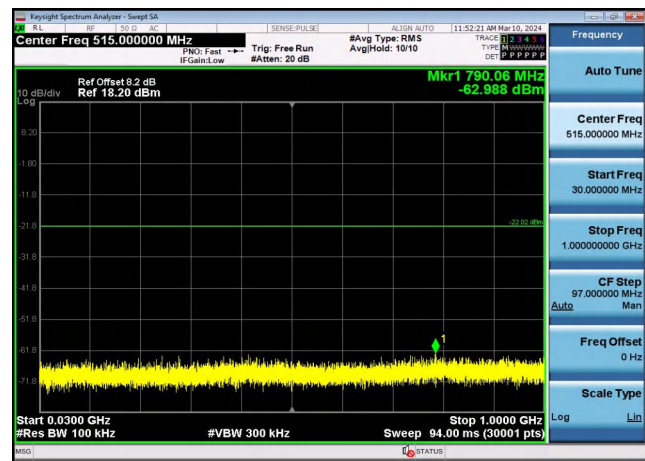
802.11g



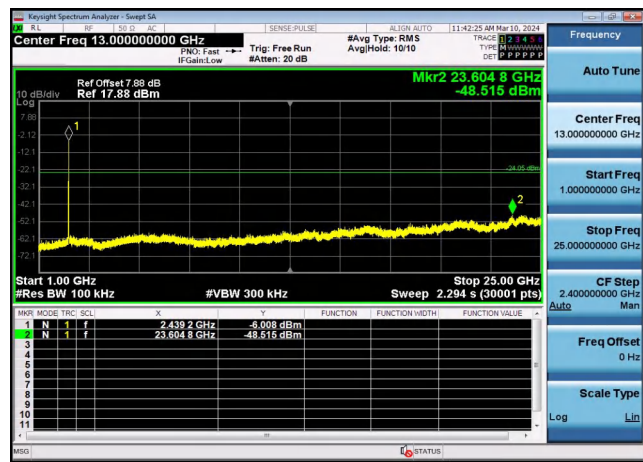
CH06



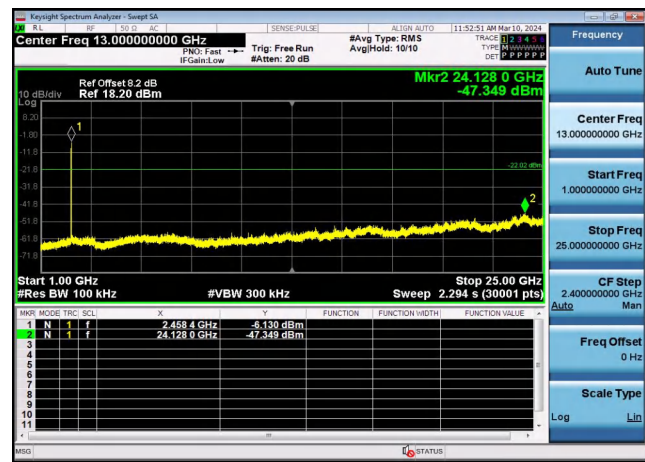
CH11



30MHz-1GHz



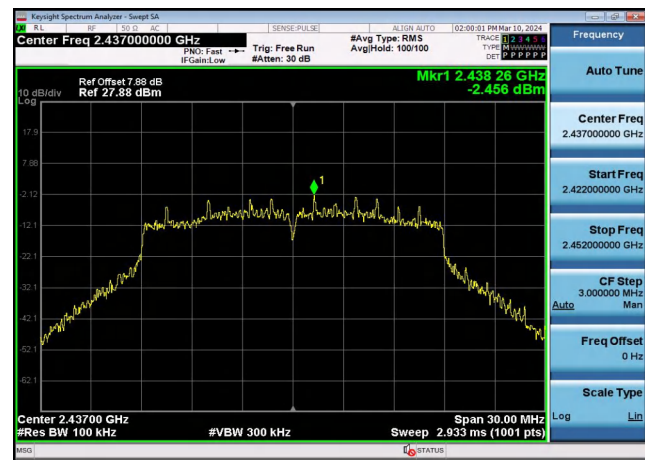
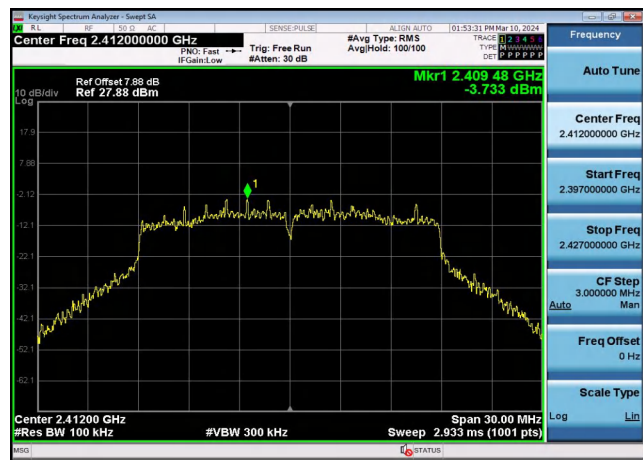
30MHz-1GHz



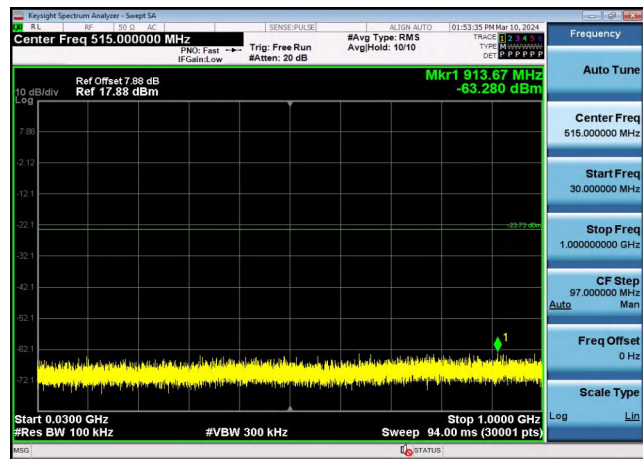
1GHz -25GHz

1GHz -25GHz

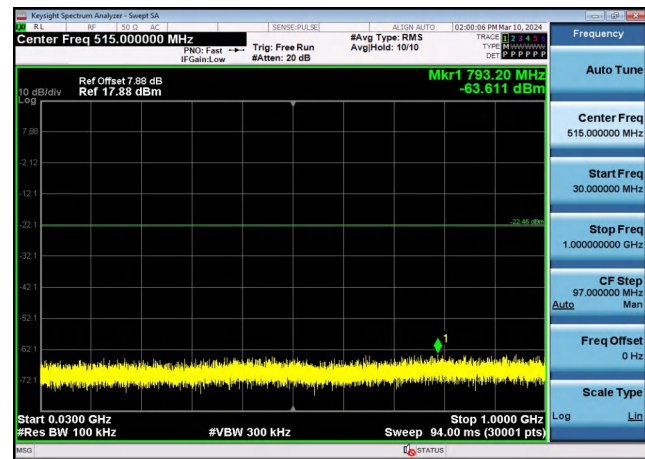
802.11n(HT20)



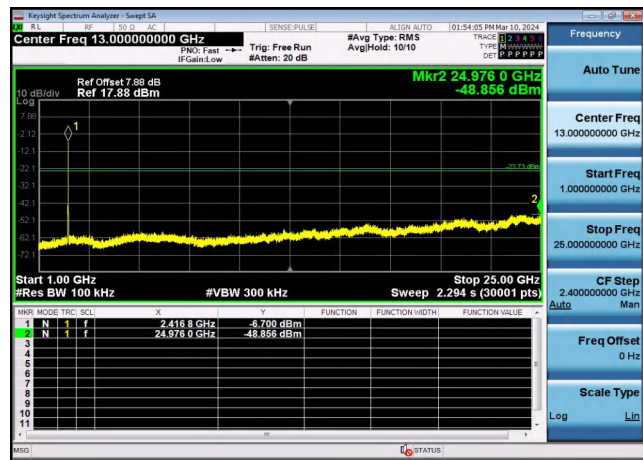
CH01



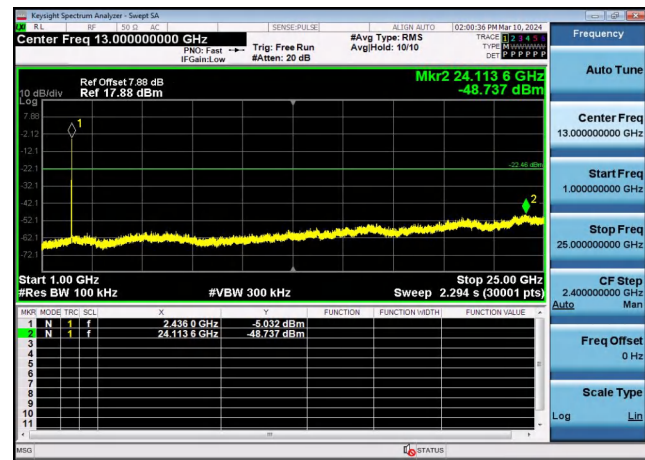
CH06



30MHz-1GHz



30MHz-1GHz



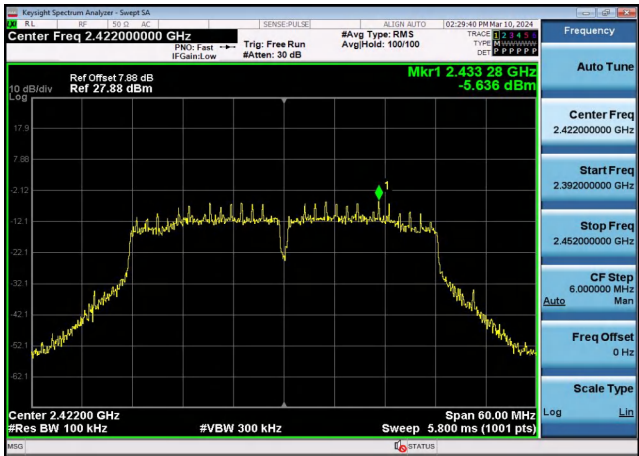
1GHz -25GHz

1GHz -25GHz

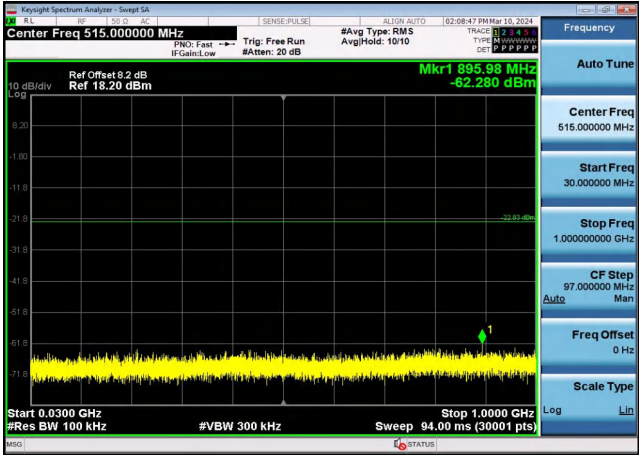
802.11n(HT20)



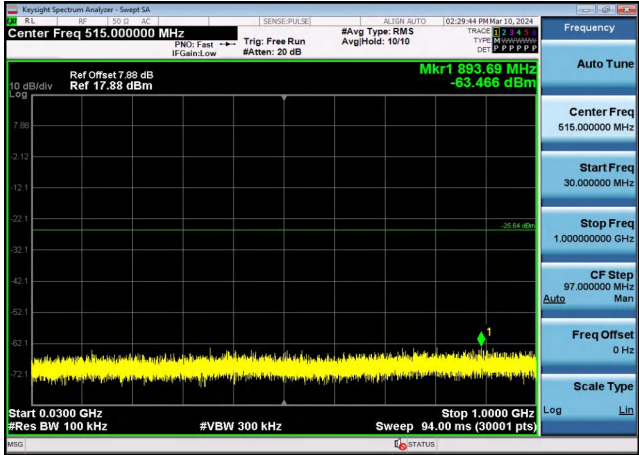
802.11n(HT40)



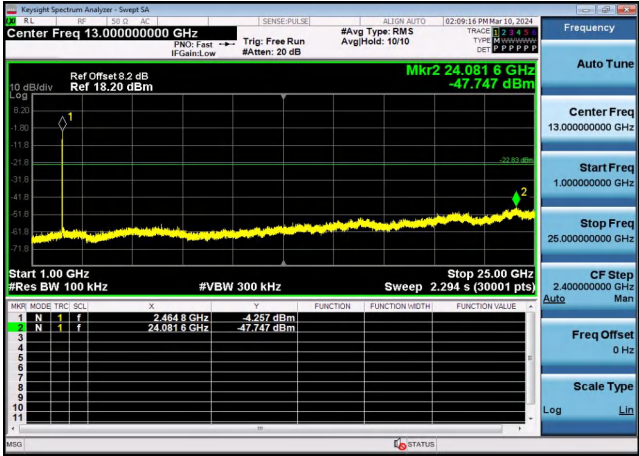
CH11



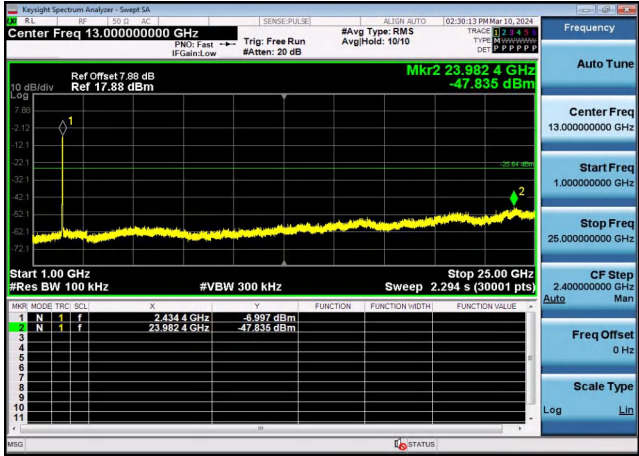
CH03



30MHz-1GHz



30MHz-1GHz



1GHz -25GHz

1GHz -25GHz