

4.5 6dB Bandwidth

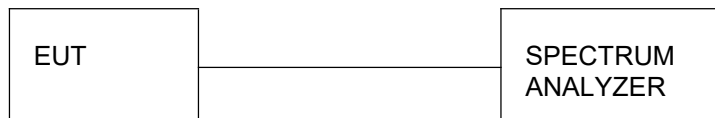
Limit

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	7.080	≥500	Pass
	06	8.000		
	11	7.120		
802.11g	01	16.280	≥500	Pass
	06	16.240		
	11	16.280		
802.11n(HT20)	01	16.040	≥500	Pass
	06	17.280		
	11	16.920		
802.11n(HT40)	03	35.040	≥500	Pass
	06	33.840		
	09	33.760		
802.11ax(HT20)	01	16.640	≥500	Pass
	06	17.400		
	11	15.320		
802.11ax(HT40)	03	35.120	≥500	Pass
	06	35.040		
	09	35.040		

Ant 2

Type	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11b	01	8.040	≥500	Pass
	06	7.560		
	11	8.000		
802.11g	01	16.040	≥500	Pass
	06	15.680		
	11	16.320		
802.11n(HT20)	01	17.480	≥500	Pass
	06	15.080		
	11	17.520		
802.11n(HT40)	03	35.040	≥500	Pass
	06	35.120		
	09	33.920		
802.11ax(HT20)	01	16.880	≥500	Pass
	06	17.560		
	11	15.280		
802.11ax(HT40)	03	33.840	≥500	Pass
	06	35.040		
	09	35.120		

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



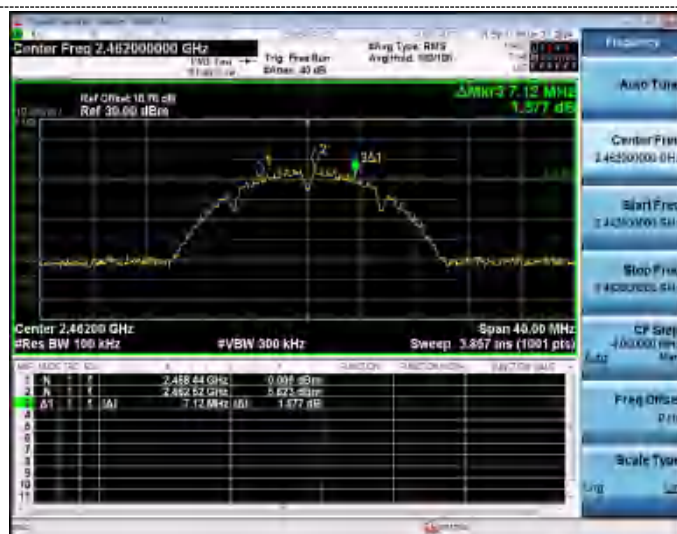
CH01

CH01



CH06

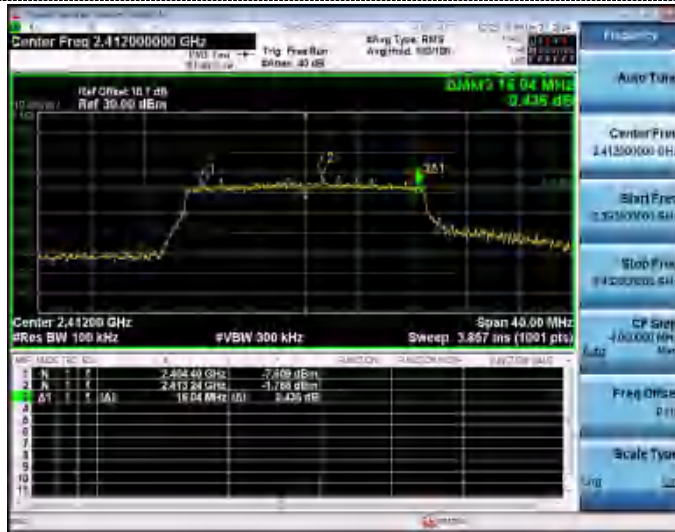
CH06



CH11

CH11

802.11n(HT20)



802.11n(HT40)



CH01



CH03



CH06



CH06



CH11

CH09

802.11ax(HT40)



CH03



CH06

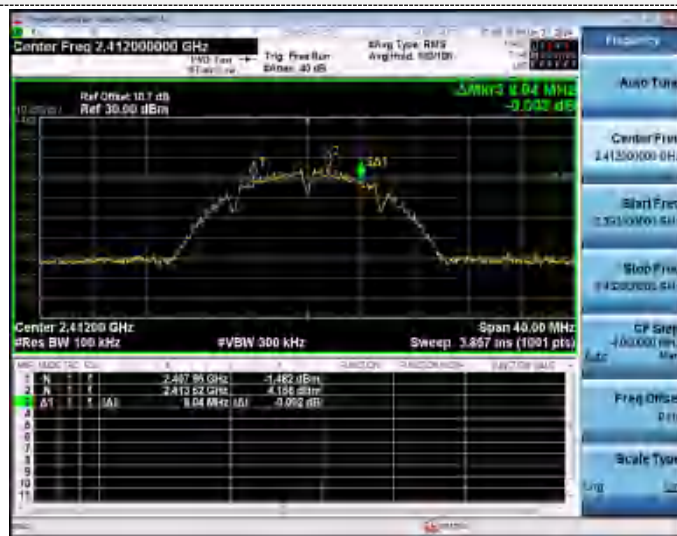


CH09

Ant 2

802.11b

802.11g



CH01



CH01



CH06



CH06

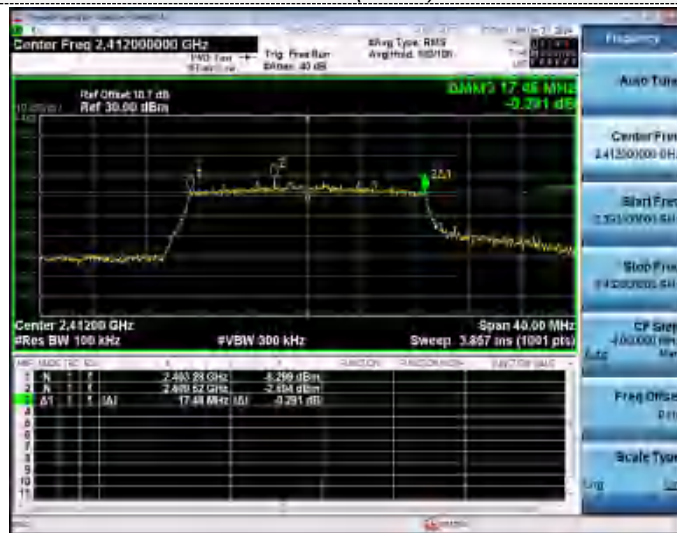


CH11



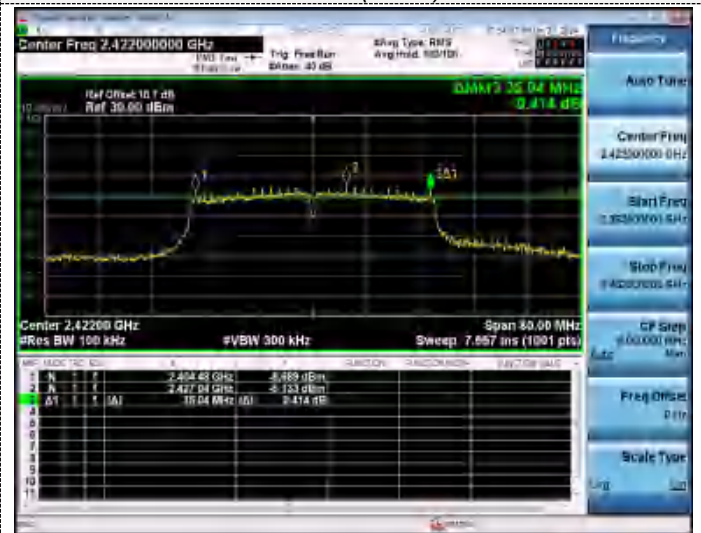
CH11

802.11n(HT20)



CH01

802.11n(HT40)



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

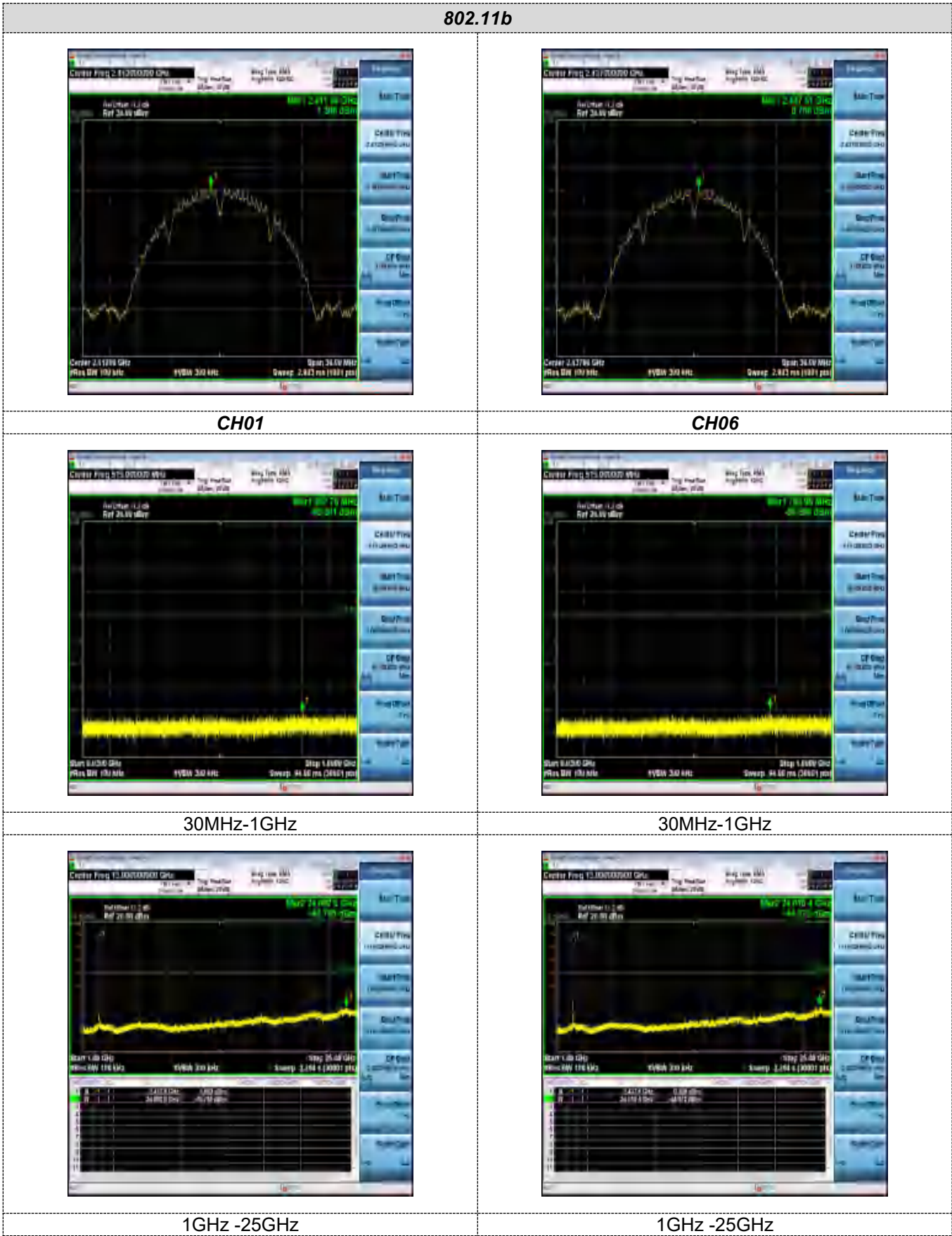


Test Results

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



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

802.11n(HT40)



CH06



CH09



30MHz-1GHz



30MHz-1GHz



1GHz -25GHz

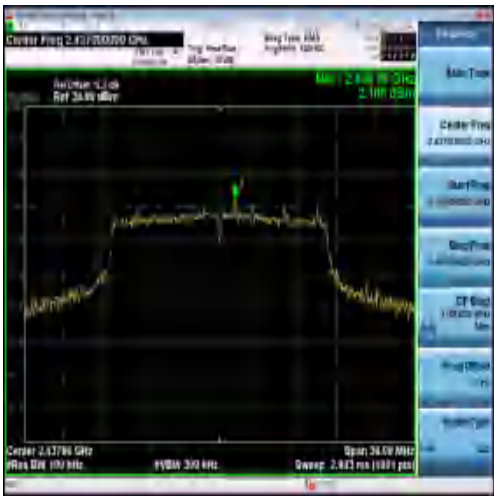


1GHz -25GHz

802.11ax(HT20)



CH01



CH06



30MHz-1GHz



30MHz-1GHz



1GHz -25GHz



1GHz -25GHz

802.11ax(HT20)



CH11

802.11ax(HT40)



CH03



30MHz-1GHz



30MHz-1GHz



1GHz -25GHz



1GHz -25GHz