

4.4 Power Spectral Density

Test Procedures

Procedure 10.2 in KDB 558074, Method Peak PSD

The peak power density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating in transmission mode at the appropriate frequencies.

Test Settings:

Center frequency = the highest, middle and the lowest channels

- a) RBW : $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$
- b) VBW $\geq 3 \times \text{RBW}$
- c) span $\geq 1.5 \times \text{DTS bandwidth}$
- d) Sweep time = auto couple
- e) Detector = peak
- f) Trace mode= max hold
- g) Allow trace to fully stabilize
- h) Use the peak marker function to determine the maximum amplitude level within the RBW.

Limit

Operating Mode	Mode	ANT Configuration	ANT Gain (dBi)	Limit (dBm)	
				FCC	IC
SISO	802.11b/g/n	ANT0	1.83	8	8
SISO	802.11b/g/n	ANT1	1.67	8	8
MIMO (2Tx)	802.11g/n	ANT0 + ANT1	4.76	8	8



Test Data

Test Mode : 802.11b_ANT0

Frequency (MHz)	Measured Power Density (dBm/3kHz)		
	Result (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
2 412	-4.026	8	12.026
2 417	-2.006	8	10.006
2 422	-3.106	8	11.106
2 437	-2.798	8	10.798
2 462	-5.317	8	13.317
2 467	-9.605	8	17.605
2 472	-11.162	8	19.162

Test Mode : 802.11g_ANT0

Frequency (MHz)	Measured Power Density (dBm/3kHz)		
	Result (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
2 412	-10.443	8	18.443
2 417	-6.964	8	14.964
2 422	-5.168	8	13.168
2 437	-5.791	8	13.791
2 462	-8.770	8	16.770
2 467	-11.343	8	19.343
2 472	-14.318	8	22.318

Test Mode : 802.11n_HT20_ANT0

Frequency (MHz)	Measured Power Density (dBm/3kHz)		
	Result (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
2 412	-7.662	8	15.662
2 417	-6.974	8	14.974
2 422	-7.186	8	15.186
2 437	-6.249	8	14.249
2 462	-9.004	8	17.004
2 467	-12.665	8	20.665
2 472	-14.189	8	22.189

Test Mode : 802.11n_HT40_ANT0

Frequency (MHz)	Measured Power Density (dBm/3kHz)		
	Result (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
2 422	-10.838	8	18.838
2 427	-10.393	8	18.393
2 437	-10.447	8	18.447
2 447	-11.379	8	19.379
2 452	-13.058	8	21.058
2 457	-13.255	8	21.255
2 462	-15.581	8	23.581



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Test Mode : 802.11b_ANT1

Frequency (MHz)	Measured Power Density (dBm/3kHz)		
	Result (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
2 412	-3.883	8	11.883
2 417	-3.752	8	11.752
2 422	-3.493	8	11.493
2 437	-4.102	8	12.102
2 462	-3.165	8	11.165
2 467	-3.989	8	11.989
2 472	-4.391	8	12.391

Test Mode : 802.11g_ANT1

Frequency (MHz)	Measured Power Density (dBm/3kHz)		
	Result (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
2 412	-10.141	8	18.141
2 417	-7.124	8	15.124
2 422	-5.621	8	13.621
2 437	-5.911	8	13.911
2 462	-8.810	8	16.810
2 467	-11.444	8	19.444
2 472	-13.662	8	21.662

Test Mode : 802.11n_HT20_ANT1

Frequency (MHz)	Measured Power Density (dBm/3kHz)		
	Result (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
2 412	-7.830	8	15.830
2 417	-7.244	8	15.244
2 422	-4.040	8	12.040
2 437	-5.400	8	13.400
2 462	-8.969	8	16.969
2 467	-12.257	8	20.257
2 472	-13.818	8	21.818

Test Mode : 802.11n_HT40_ANT1

Frequency (MHz)	Measured Power Density (dBm/3kHz)		
	Result (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
2 422	-11.958	8	19.958
2 427	-10.613	8	18.613
2 437	-10.390	8	18.390
2 447	-11.767	8	19.767
2 452	-12.647	8	20.647
2 457	-13.677	8	21.677
2 462	-16.079	8	24.079



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Test Mode : 802.11g_ANT0+ANT1

Frequency (MHz)	Measured Power Density (dBm/3kHz)		
	Result (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
2 412	-7.279	8	15.279
2 417	-4.033	8	12.033
2 422	-2.378	8	10.378
2 437	-2.840	8	10.840
2 462	-5.780	8	13.780
2 467	-8.383	8	16.383
2 472	-10.967	8	18.967

Test Mode : 802.11n_HT20_ANT0+ANT1

Frequency (MHz)	Measured Power Density (dBm/3kHz)		
	Result (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
2 412	-4.735	8	12.735
2 417	-4.097	8	12.097
2 422	-2.324	8	10.324
2 437	-2.793	8	10.793
2 462	-5.976	8	13.976
2 467	-9.446	8	17.446
2 472	-10.989	8	18.989

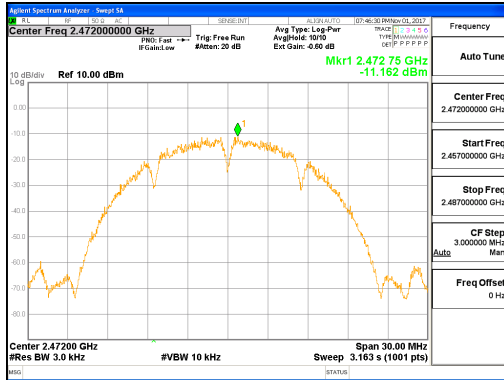
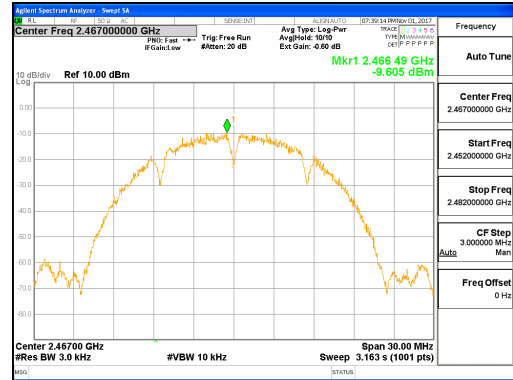
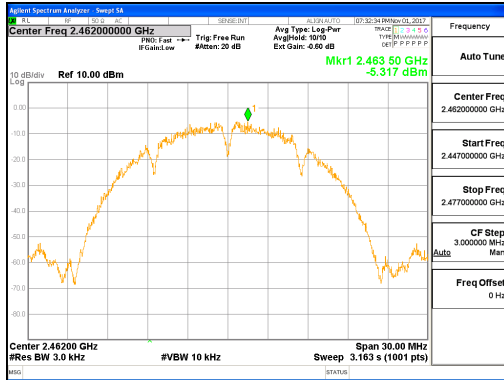
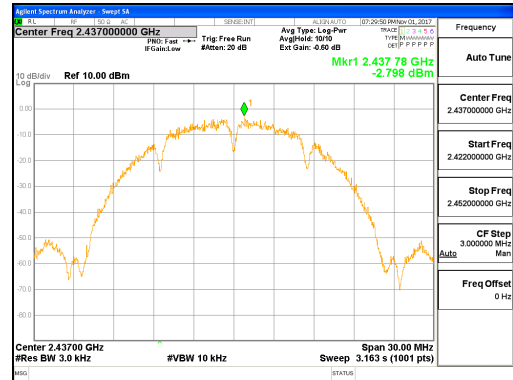
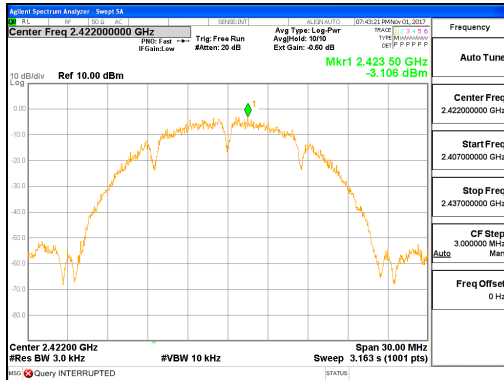
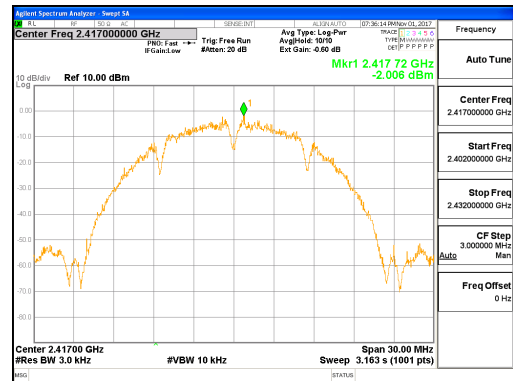
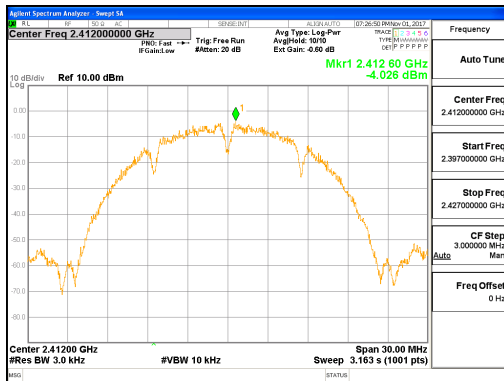
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Frequency (MHz)	Measured Power Density (dBm/3kHz)		
	Result (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
2 422	-8.352	8	16.352
2 427	-7.491	8	15.491
2 437	-7.408	8	15.408
2 447	-8.558	8	16.558
2 452	-9.837	8	17.837
2 457	-10.451	8	18.451
2 462	-12.813	8	20.813



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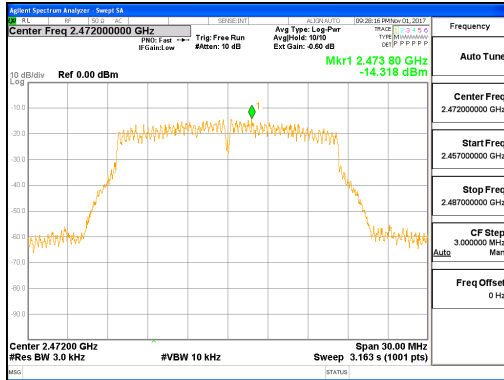
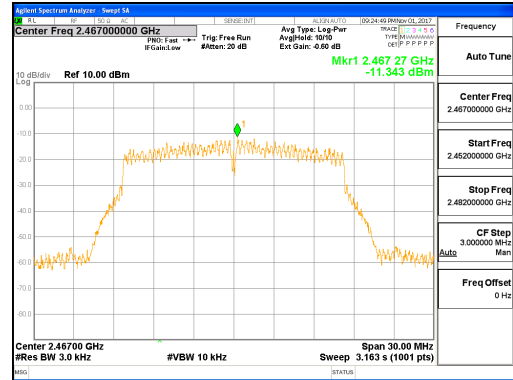
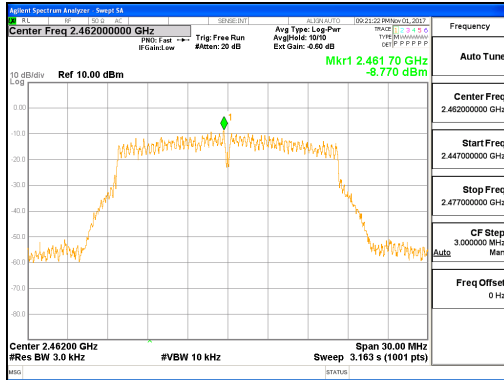
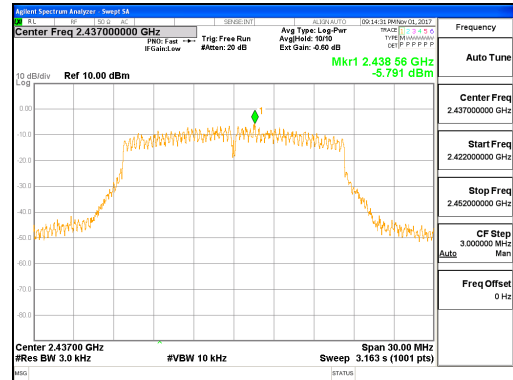
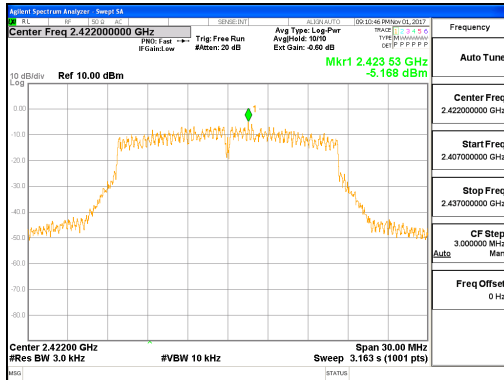
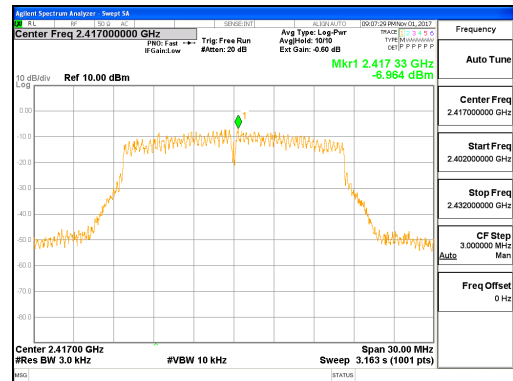
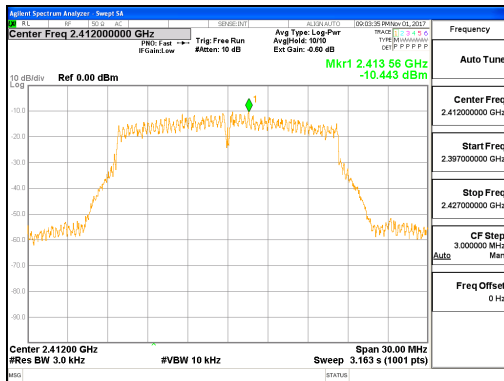


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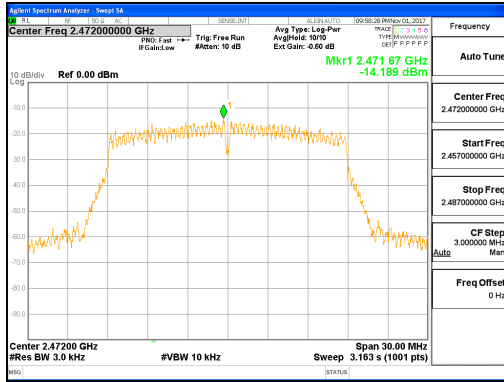
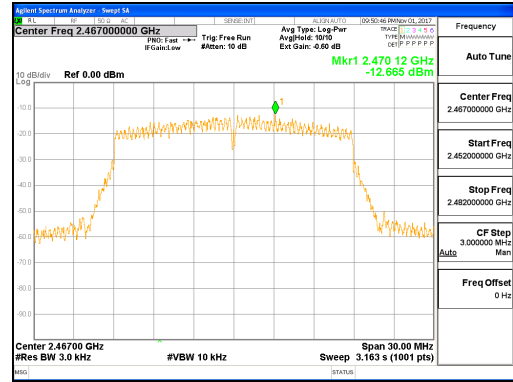
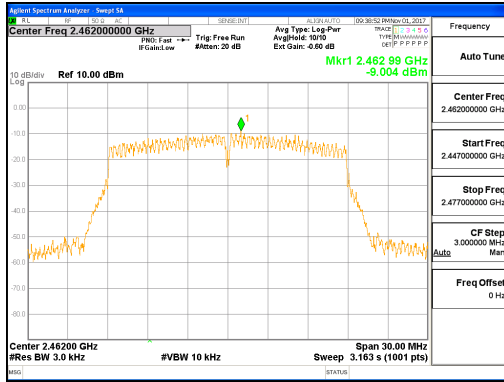
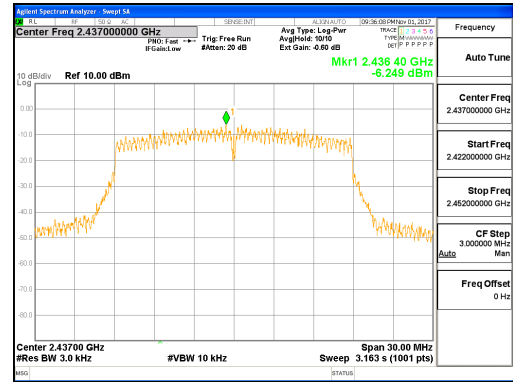
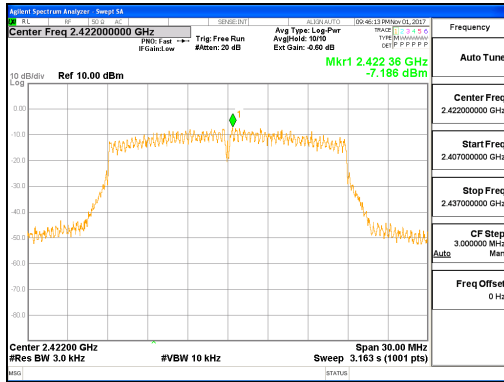
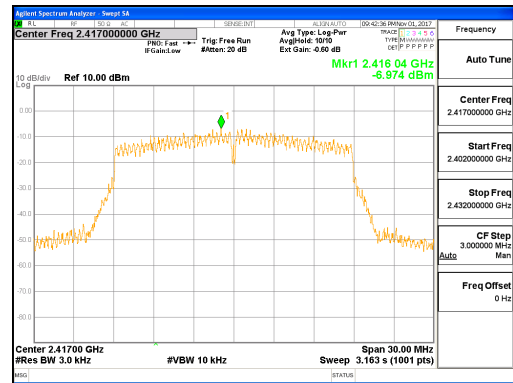
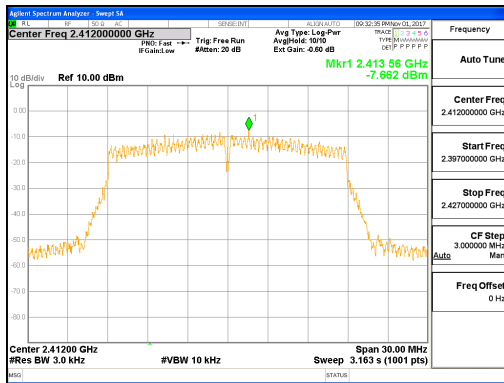


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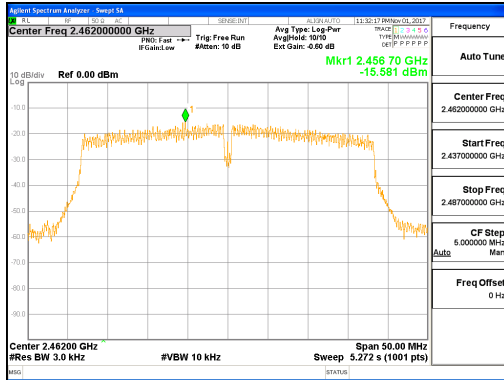
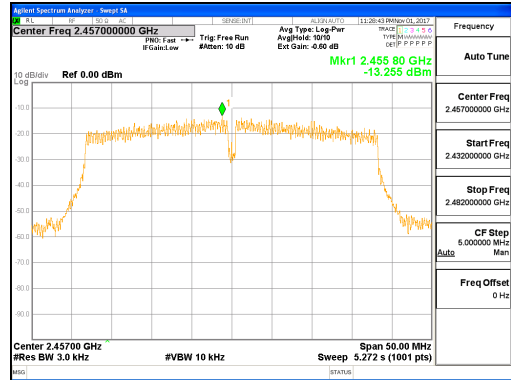
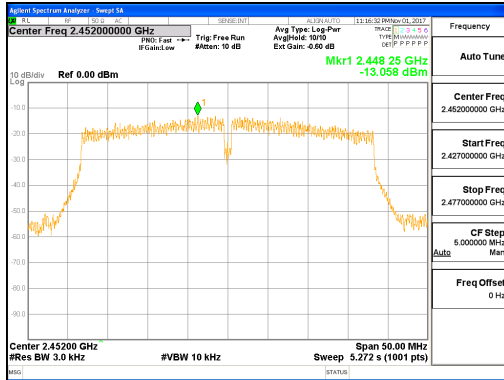
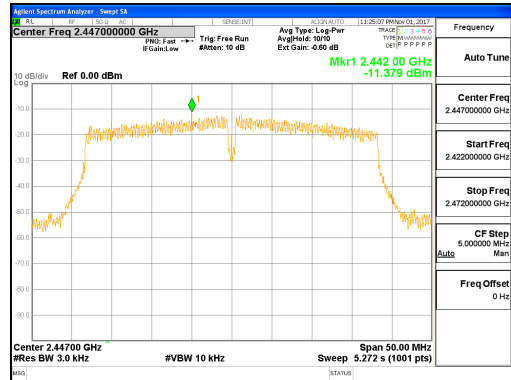
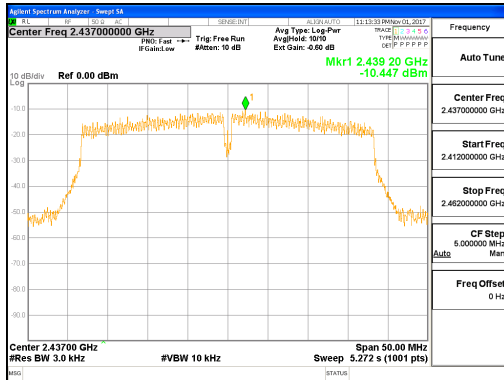
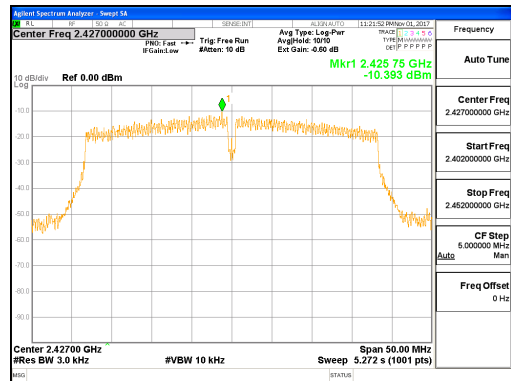
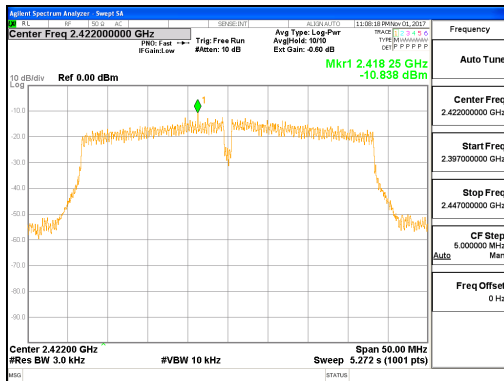


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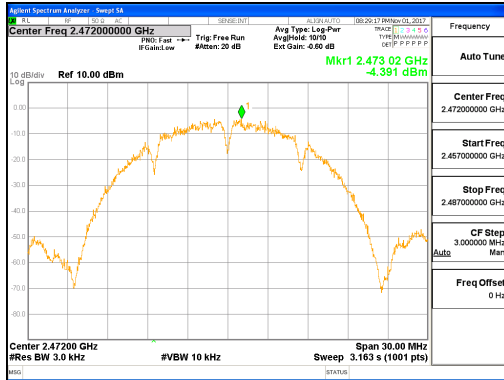
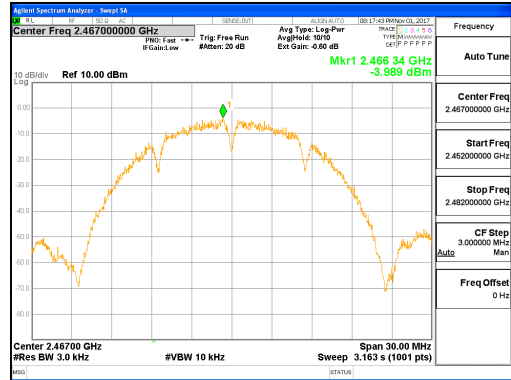
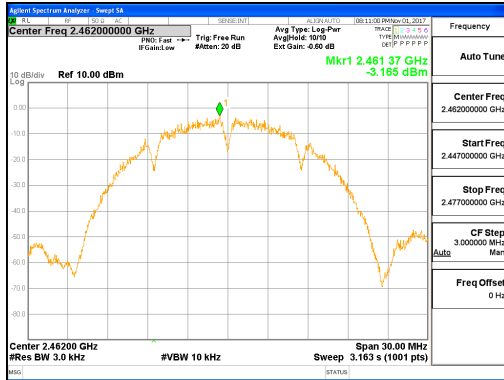
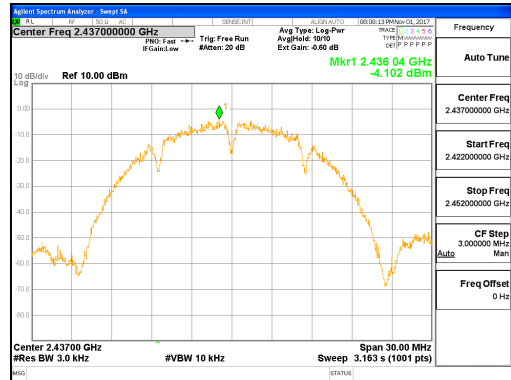
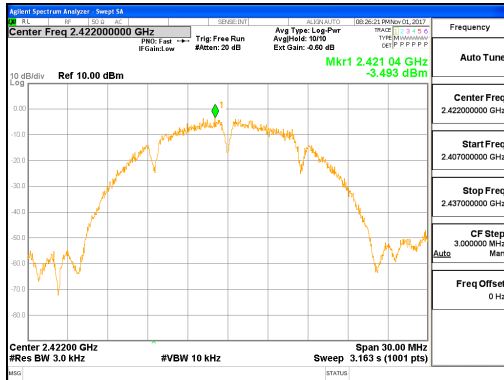
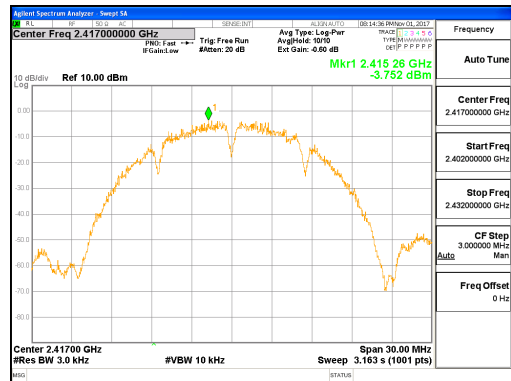
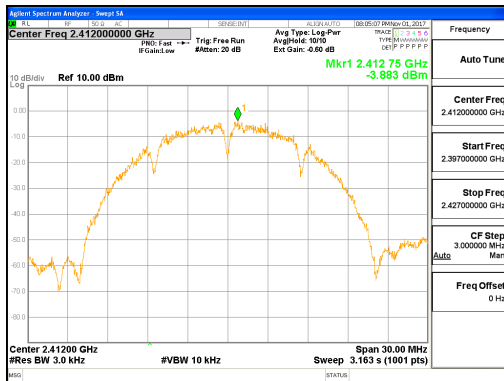


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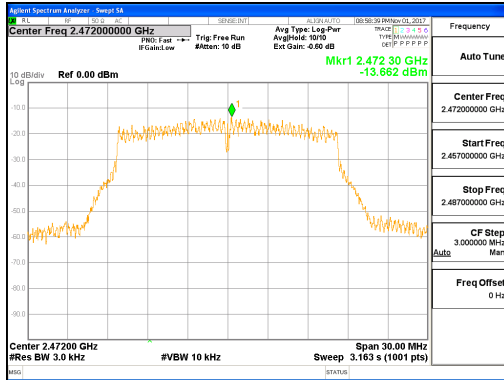
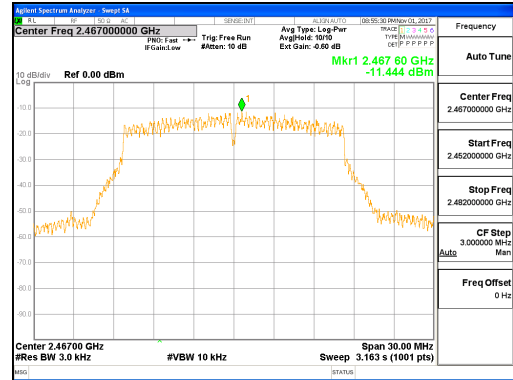
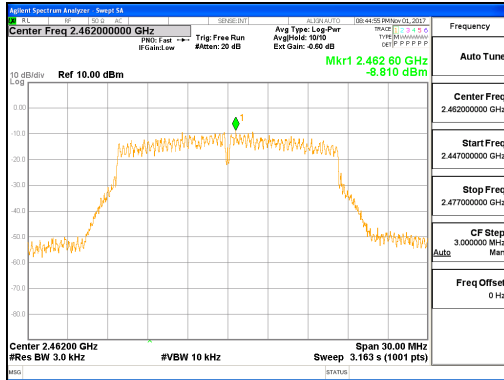
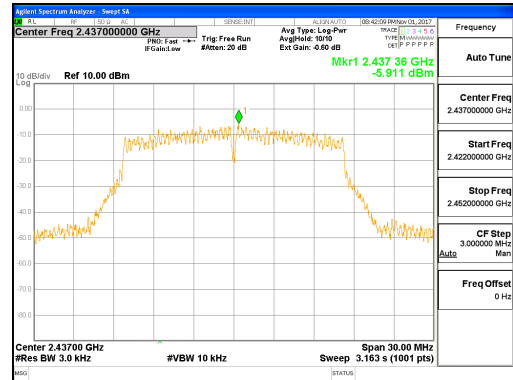
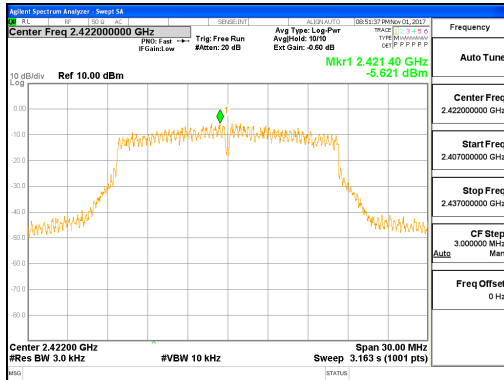
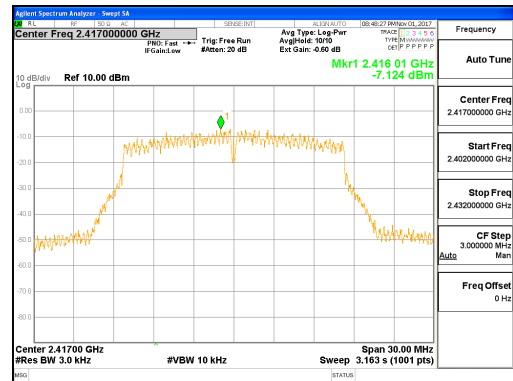
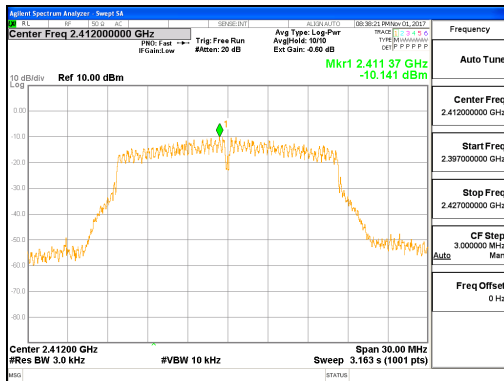


802.11b_ANT1



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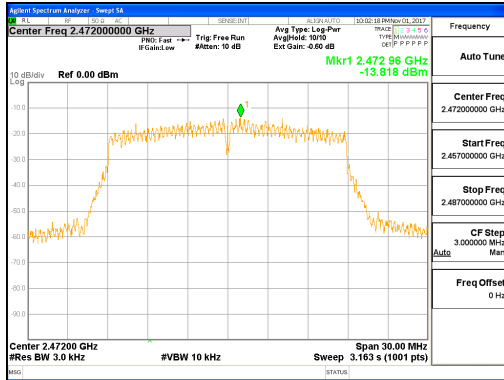
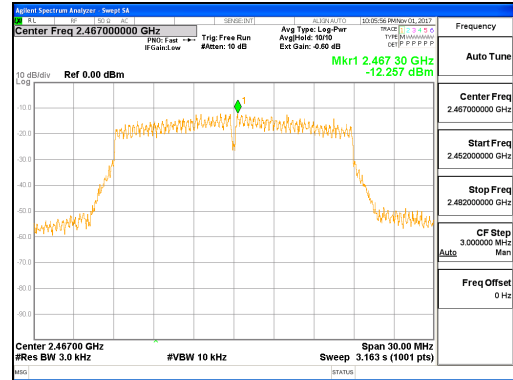
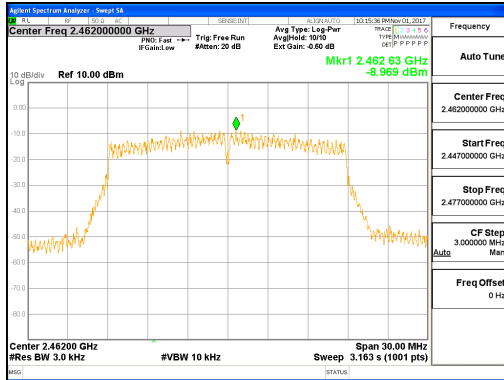
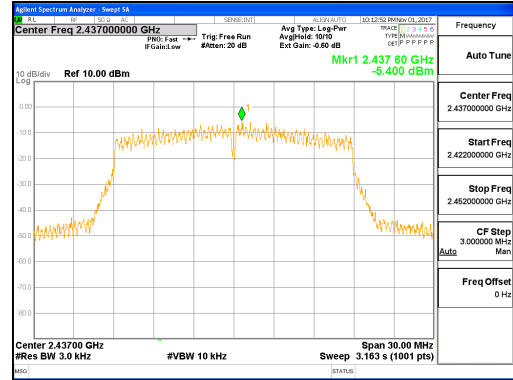
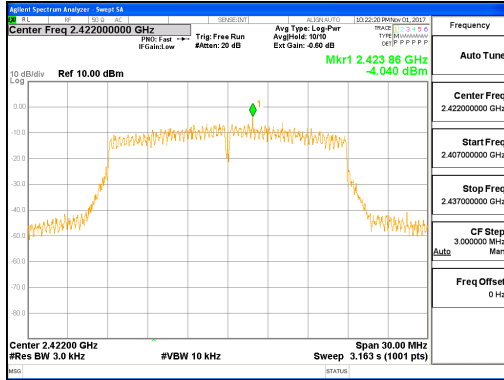
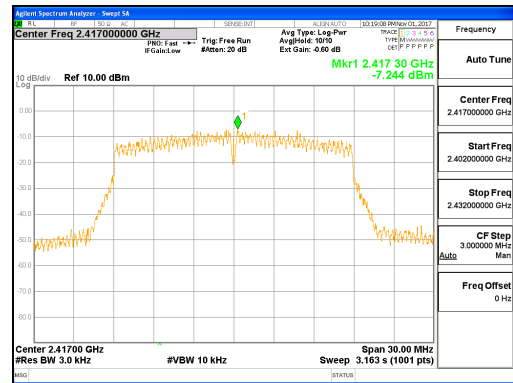
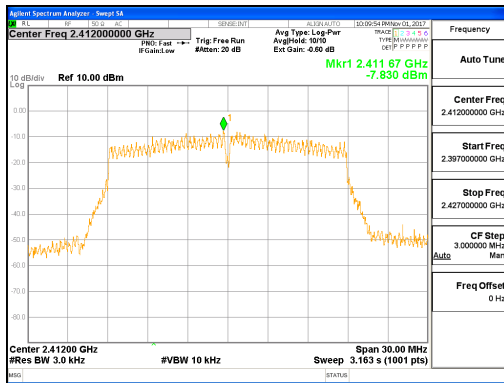


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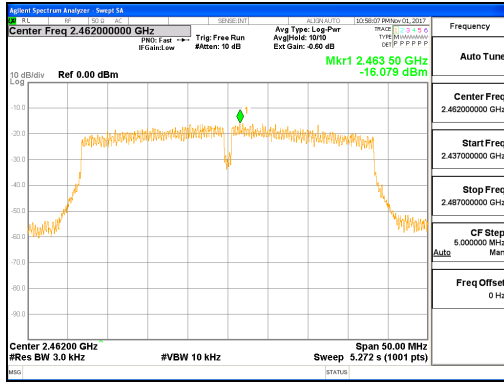
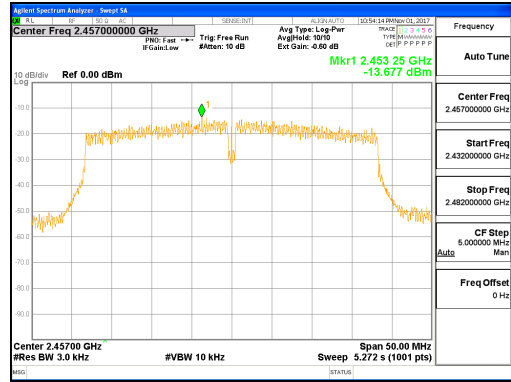
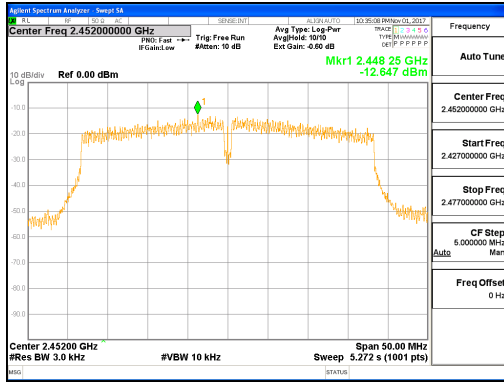
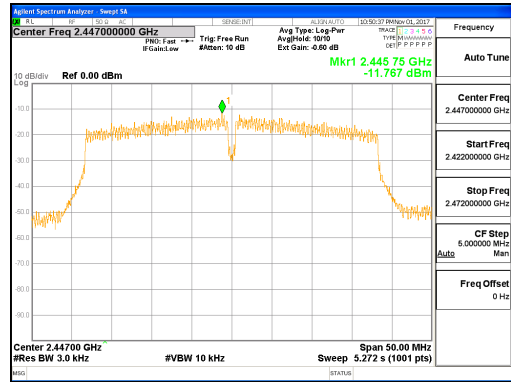
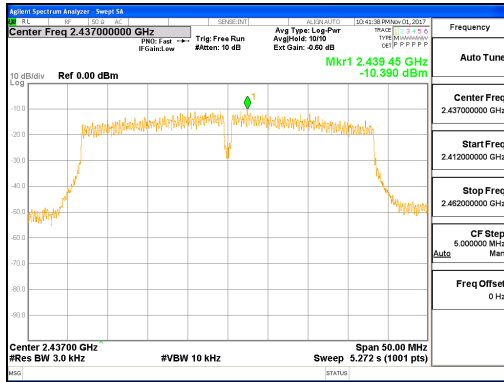
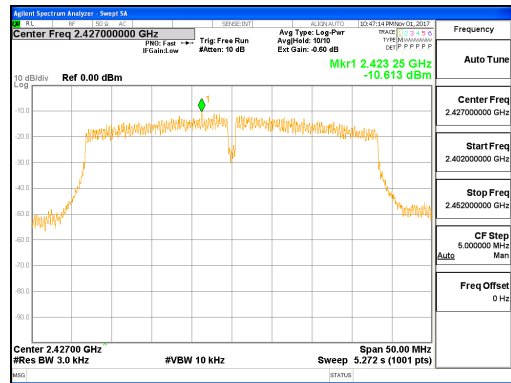
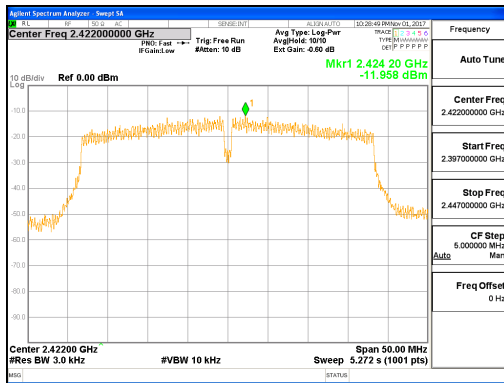


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4.5 Band - edge

Test Procedures

The bandwidth at 20dB down from the highest inband spectral density is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate frequencies.

After the trace being stable, Use the marker-to-peak function to measure 20 dB down both sides of the intentional emission.

Test Settings:

Center frequency = the highest, middle and the lowest channels

- a) RBW = 100 kHz
- b) VBW $\geq 3 \times$ RBW
- c) Detector = peak
- d) Sweep time = auto couple
- e) Trace mode= max hold
- f) Allow trace to fully stabilize
- g) Use the peak marker function to determine the maximum amplitude level.

Limit :

Emission level < 30 dBc

Test Data: Complies

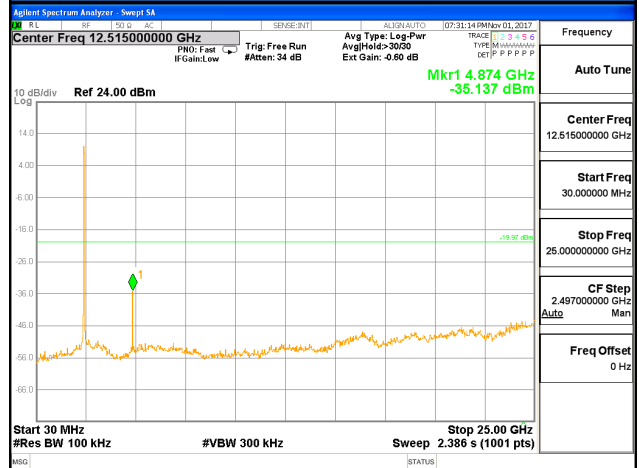
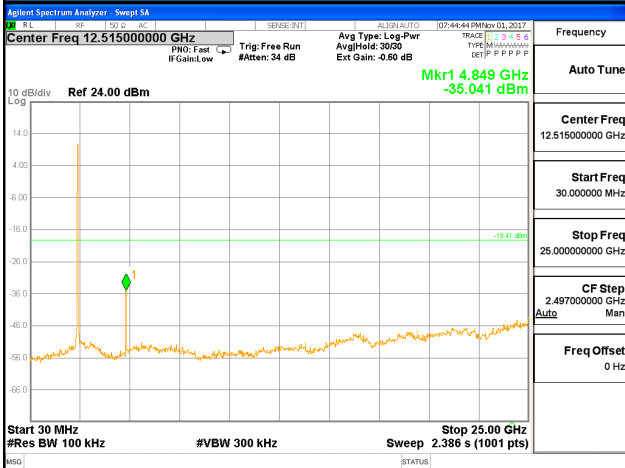
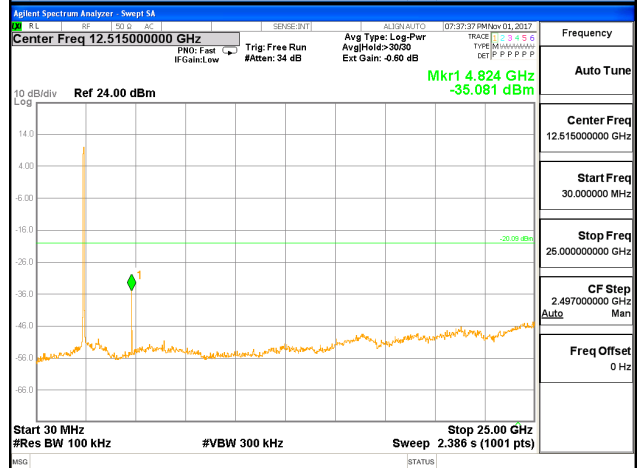
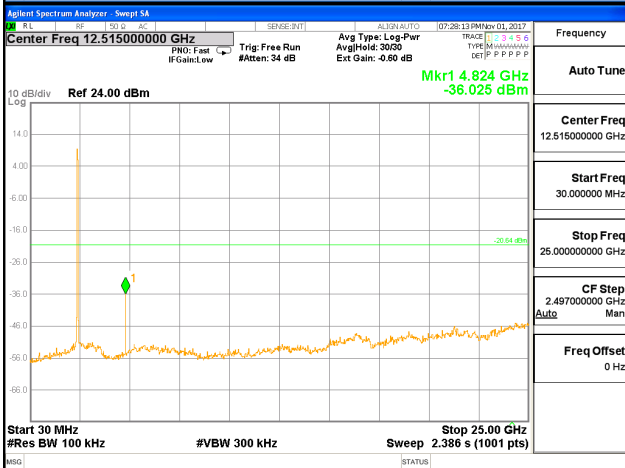
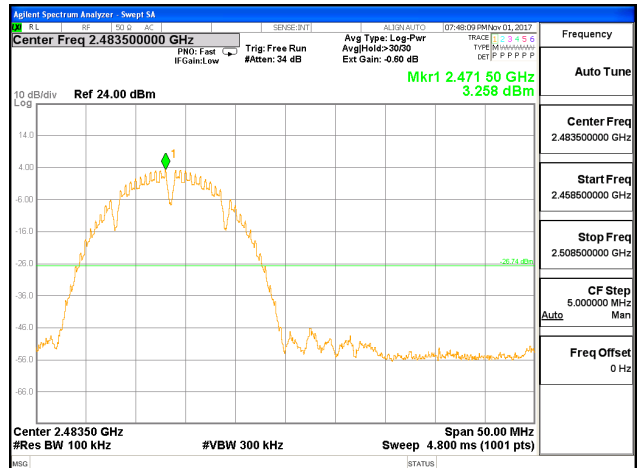
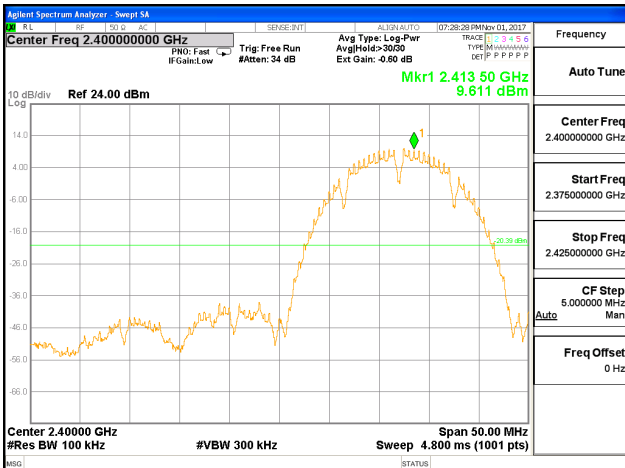
- All conducted emission in any 100 kHz bandwidth outside of the spread spectrum band was at least 30dB lower than the highest inband spectral density. Therefore the applying equipment meets the requirement.

See next pages for actual measured spectrum plots.



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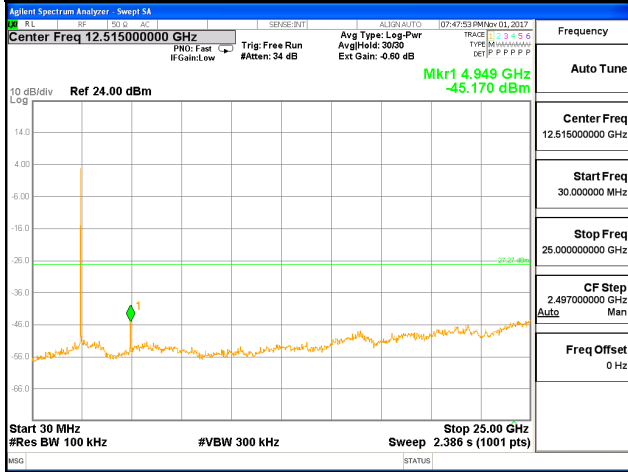
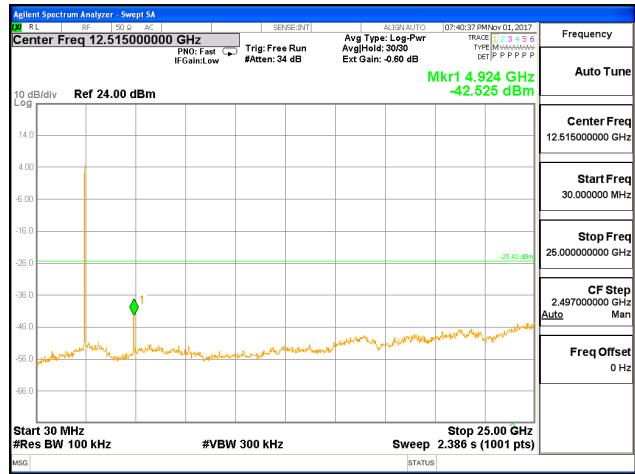
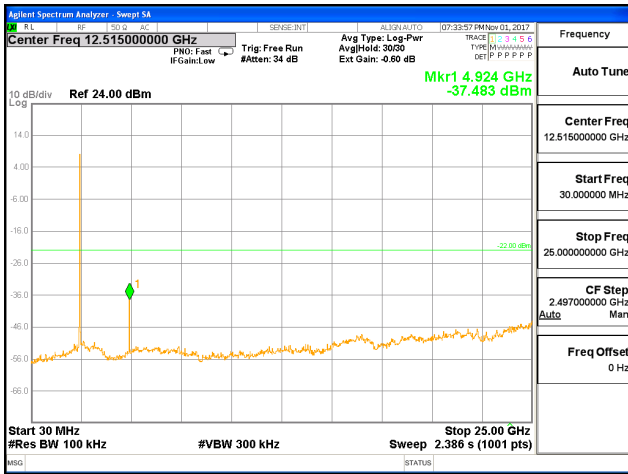
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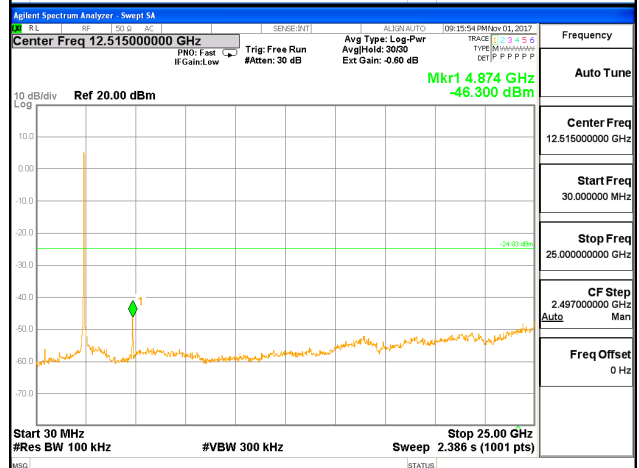
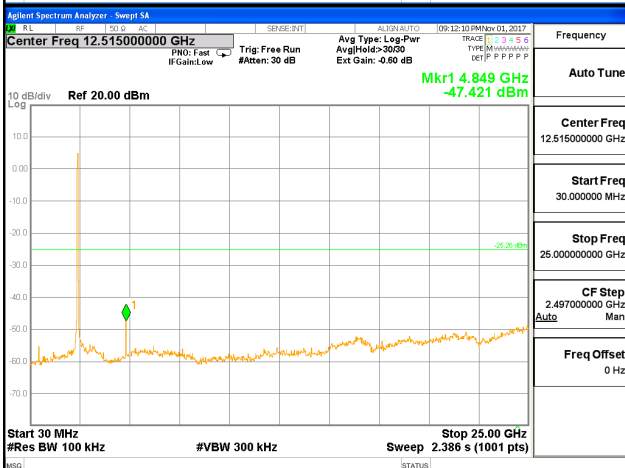
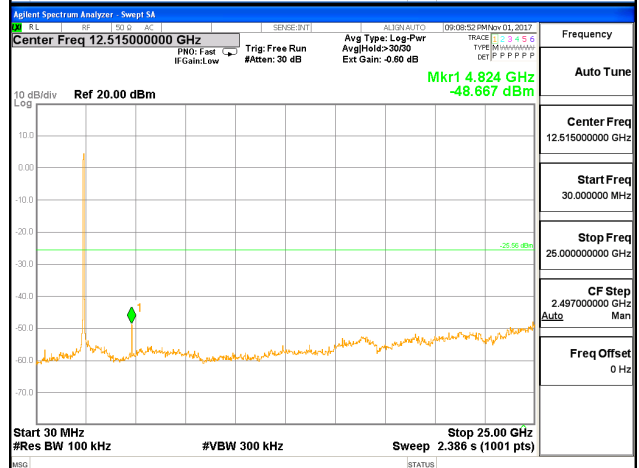
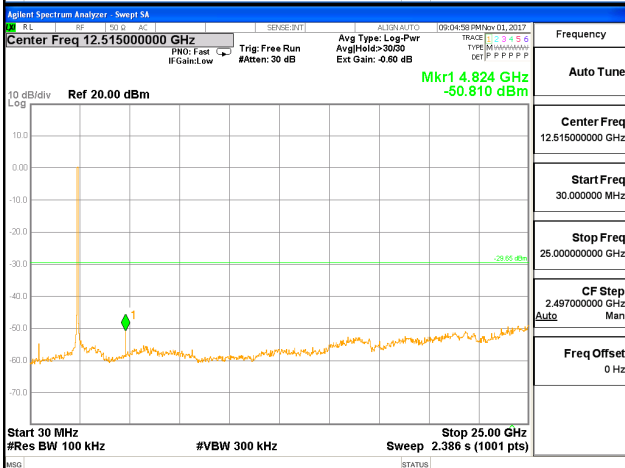
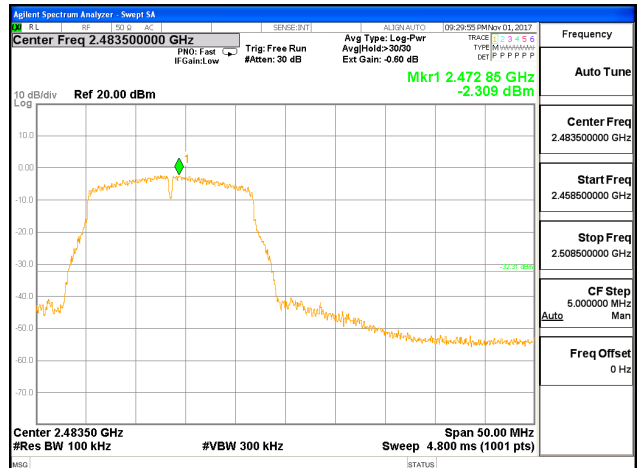
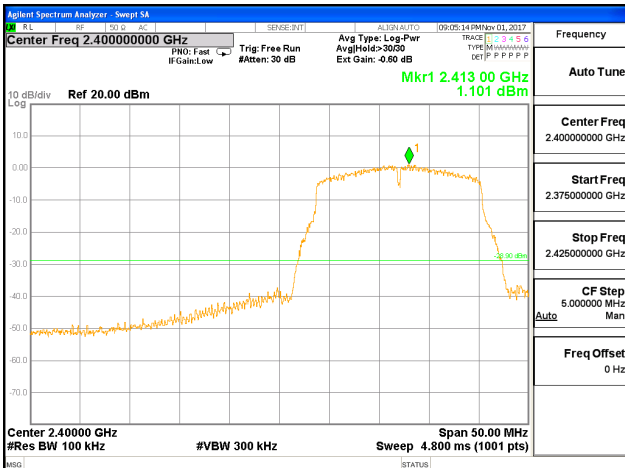


802.11b_ANTO



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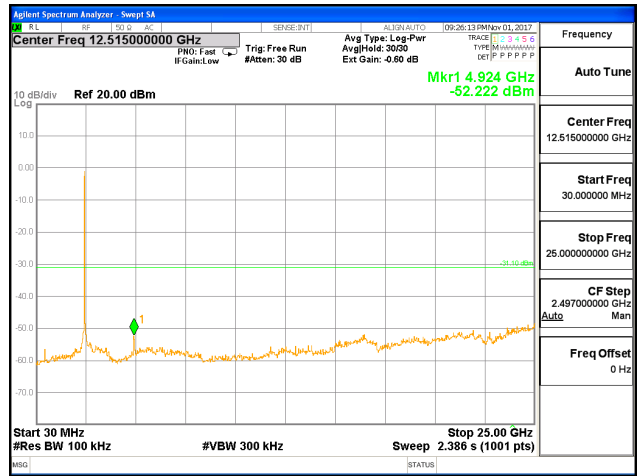
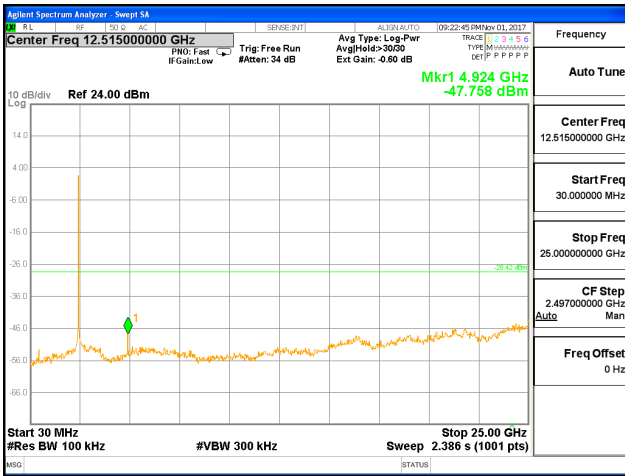
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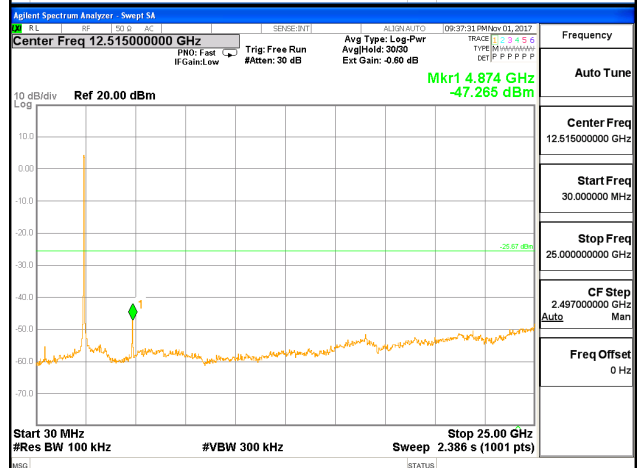
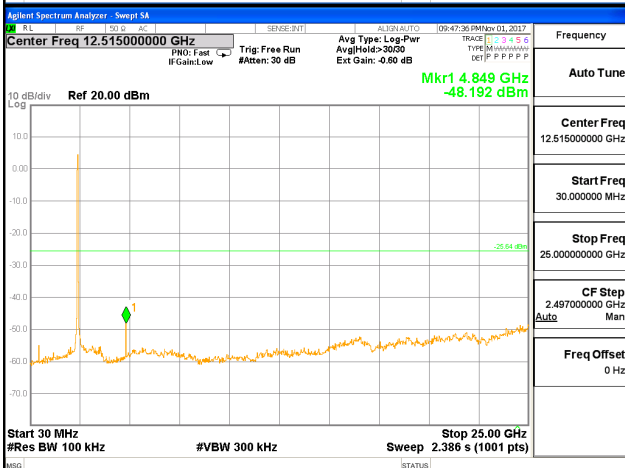
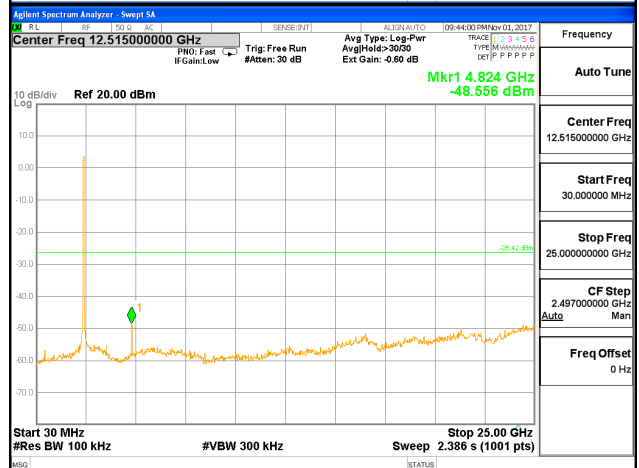
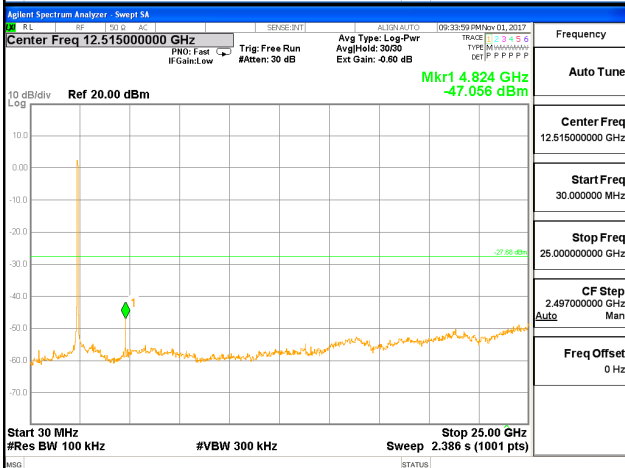
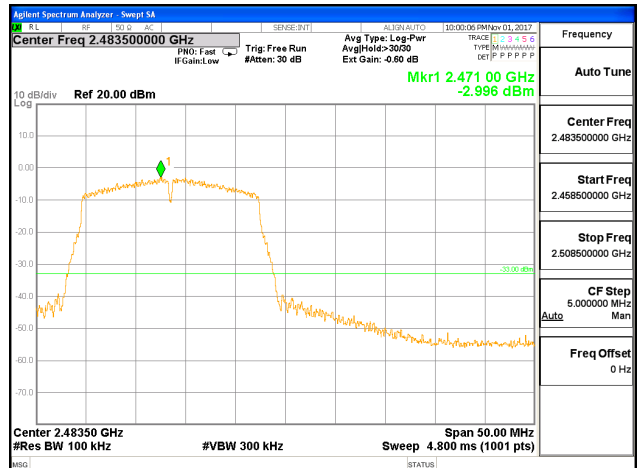
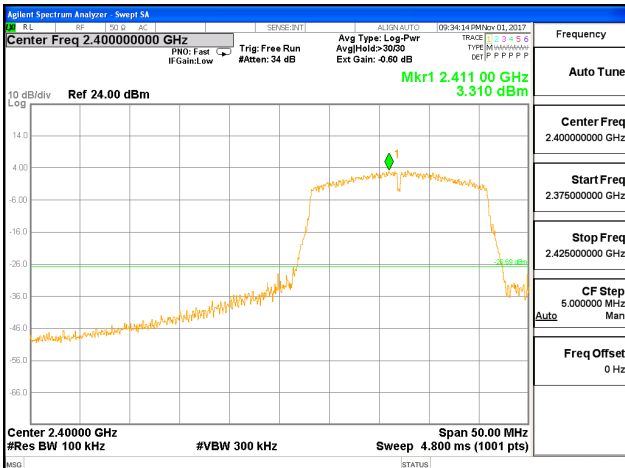


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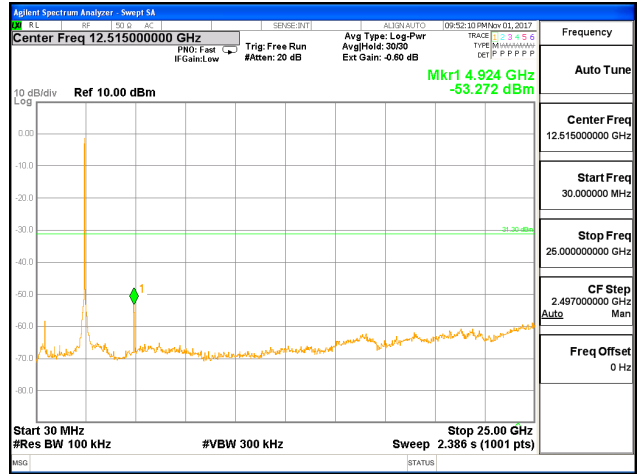
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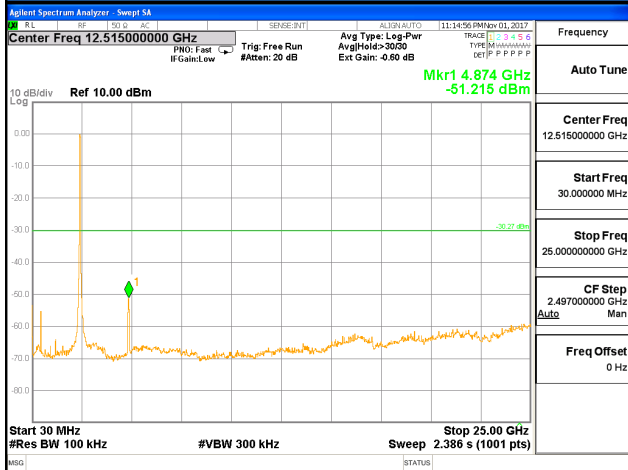
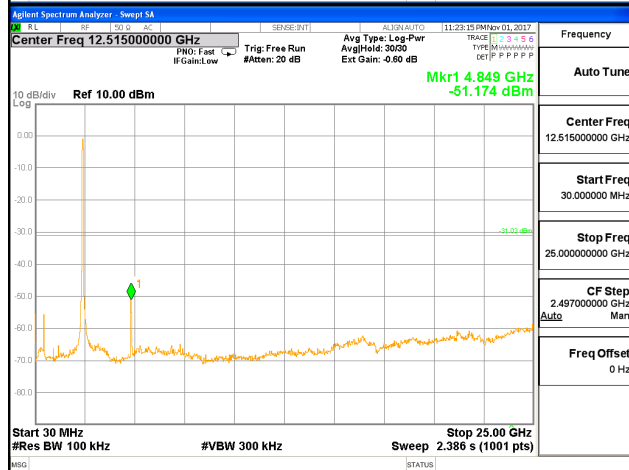
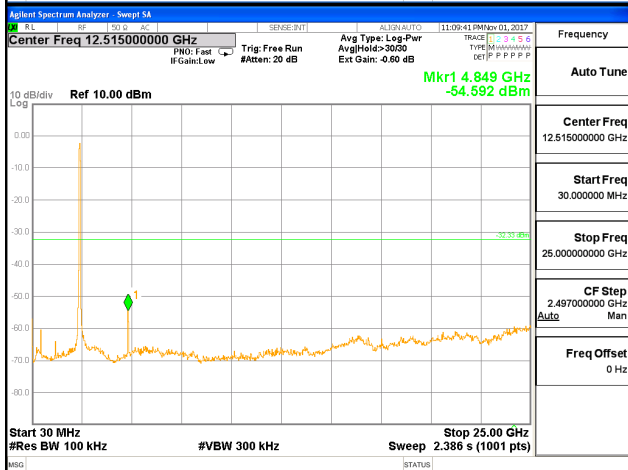
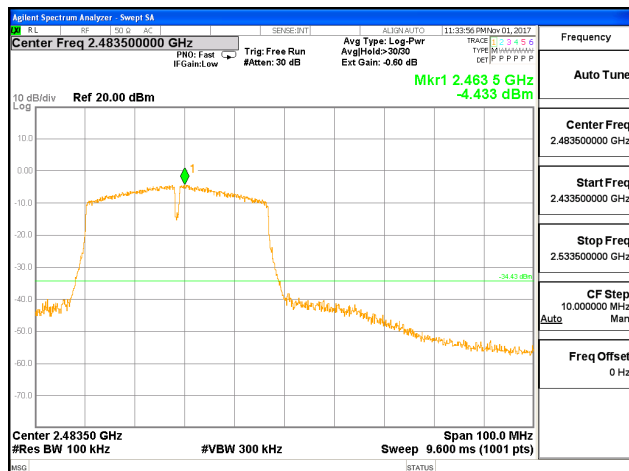
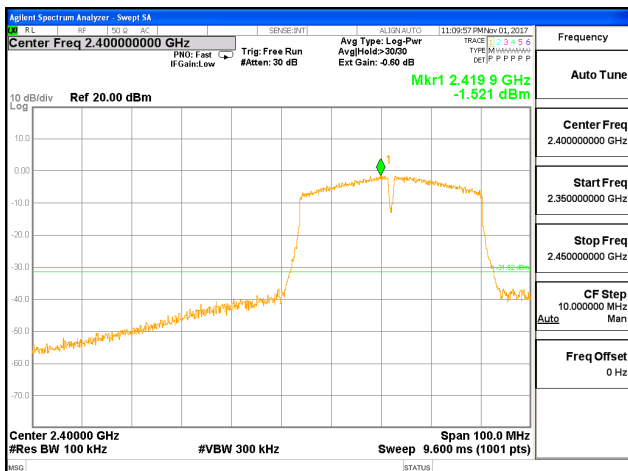


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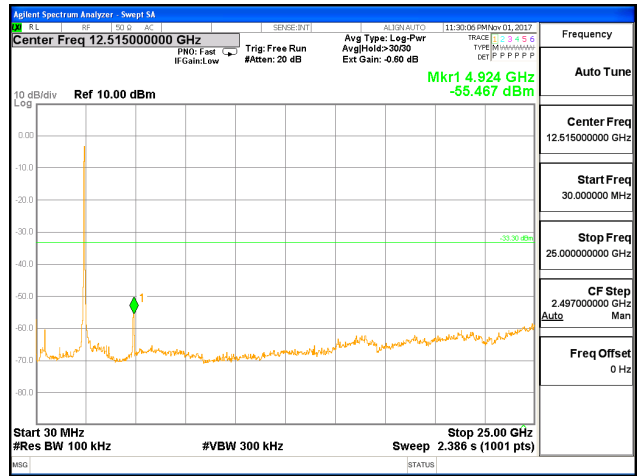
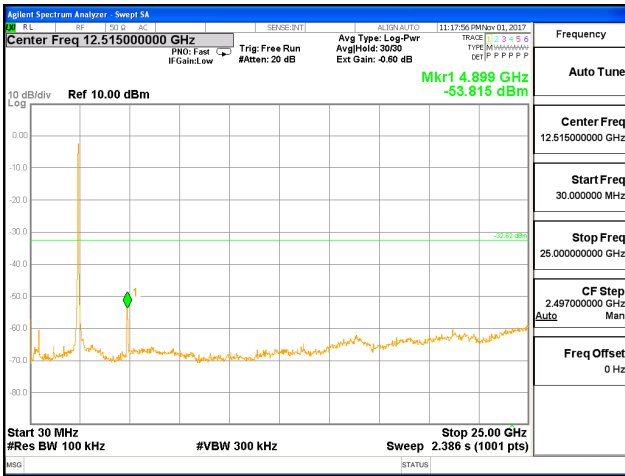
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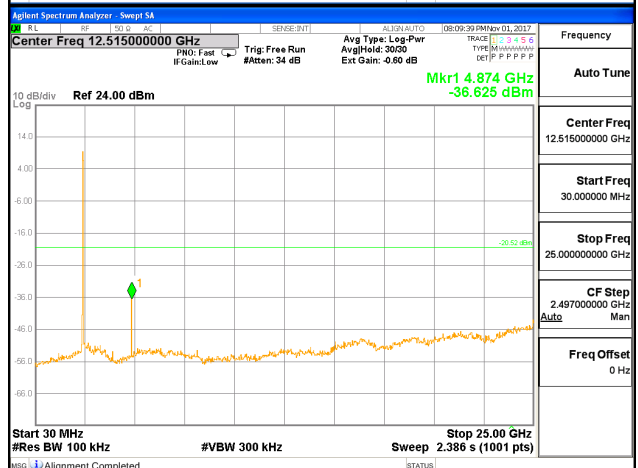
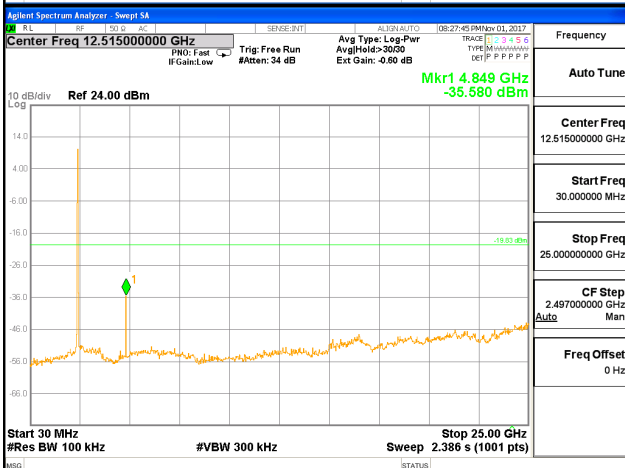
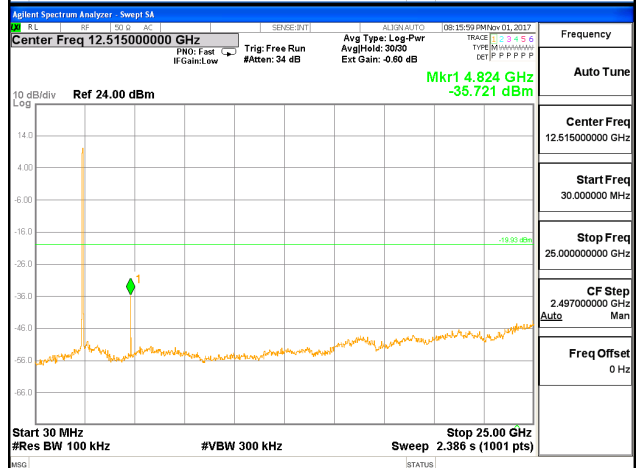
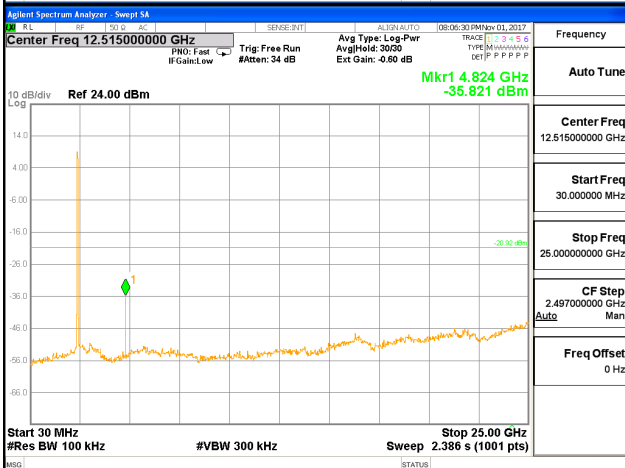
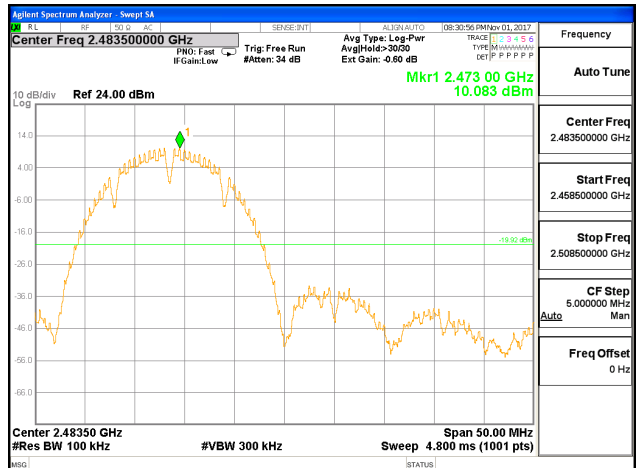
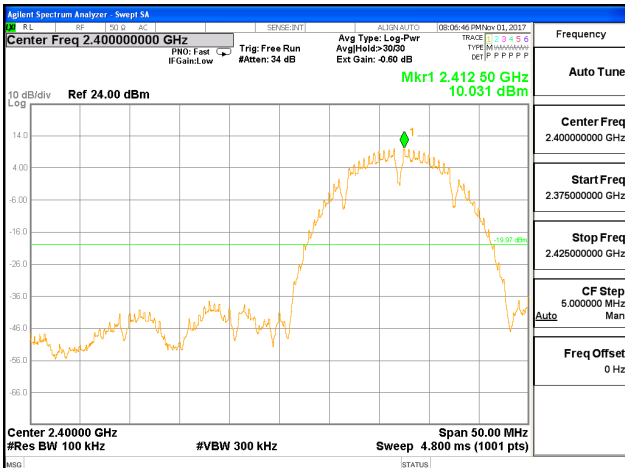


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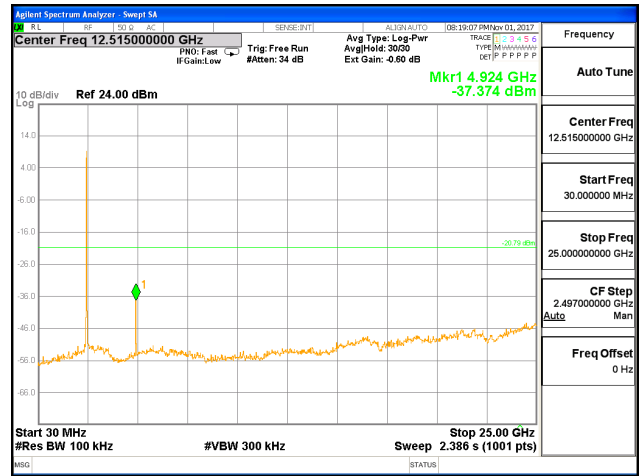
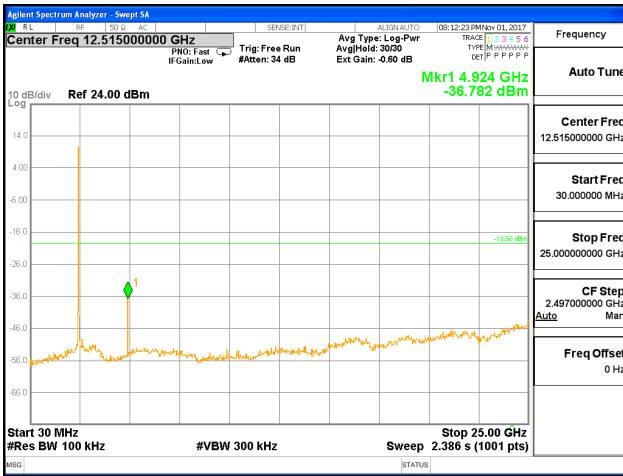
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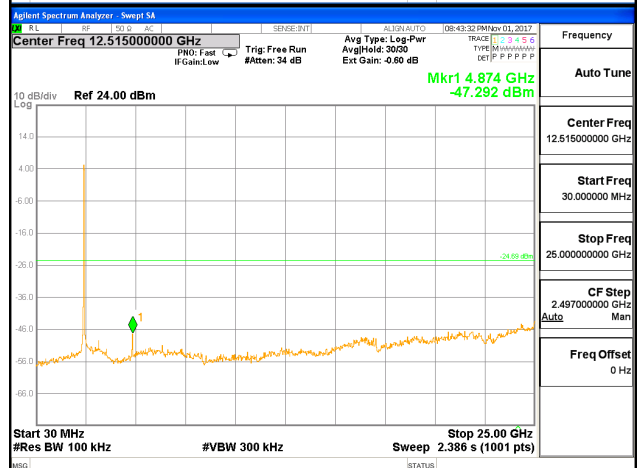
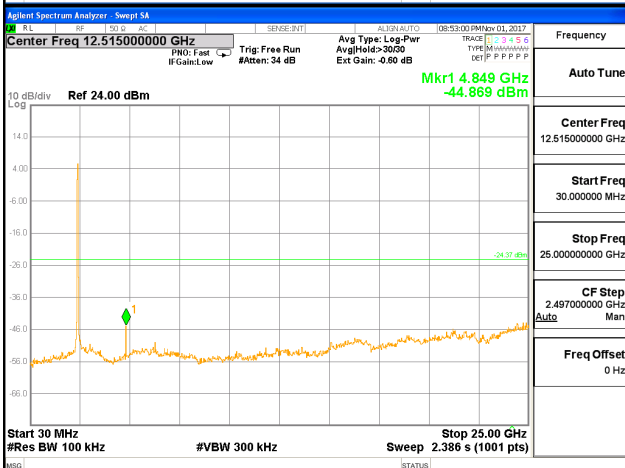
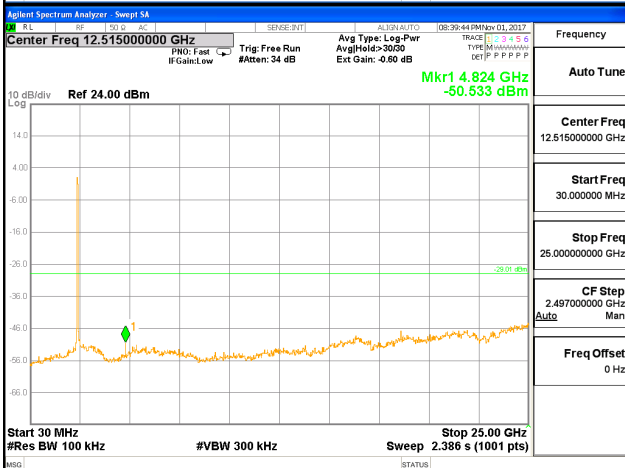
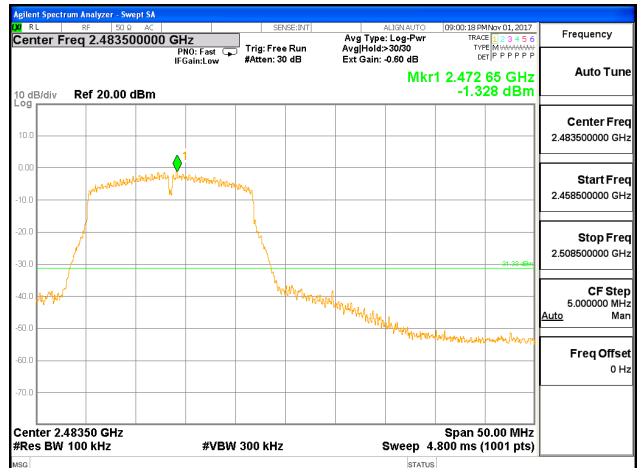
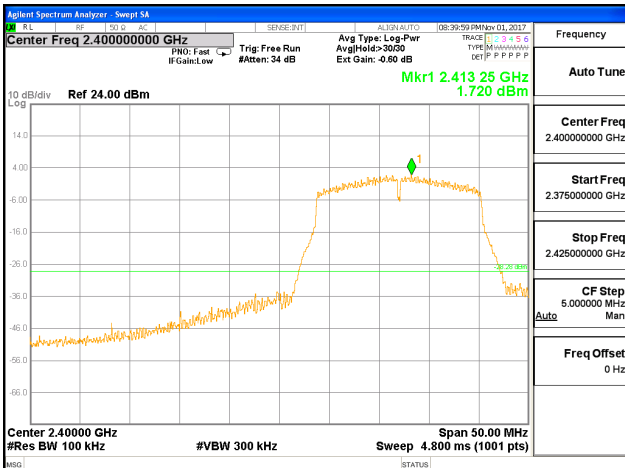


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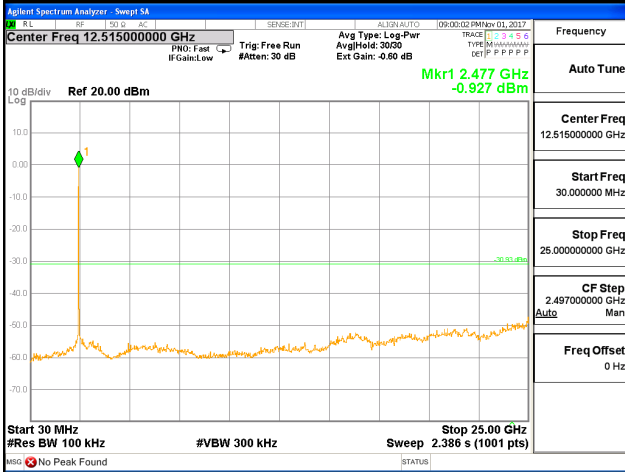
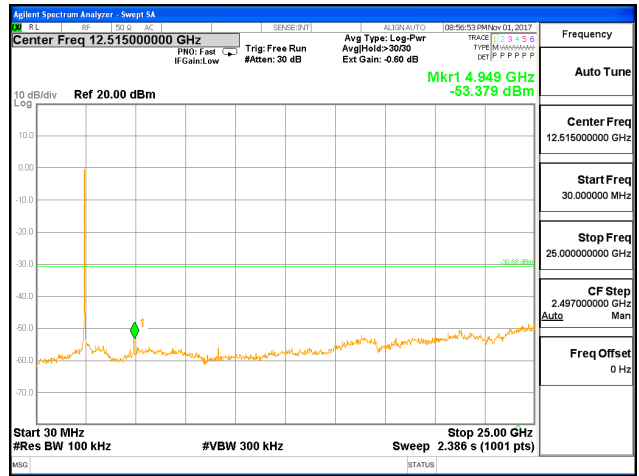
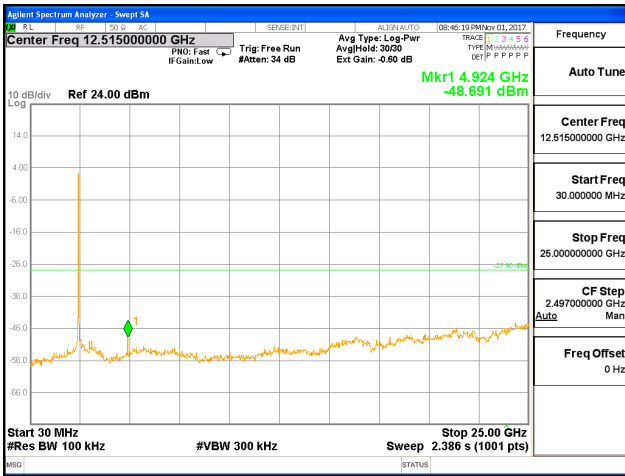
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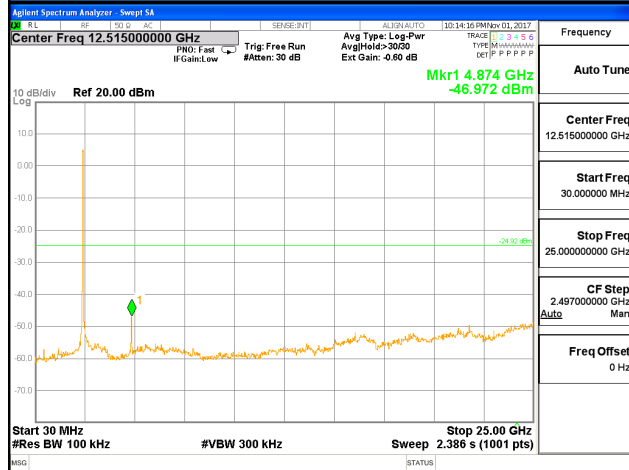
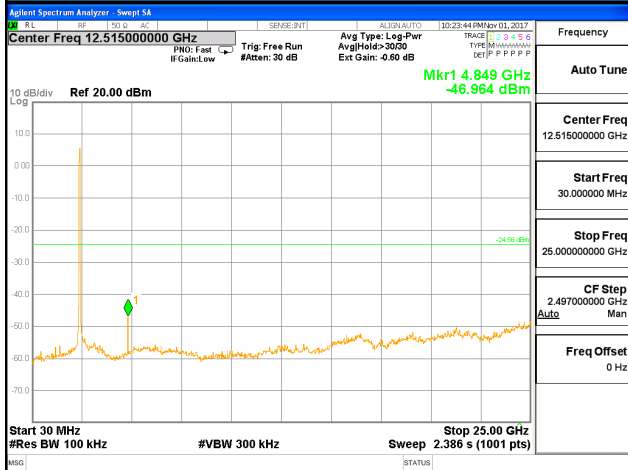
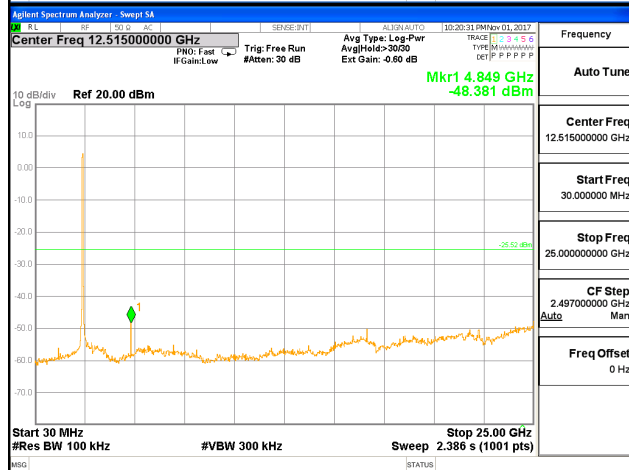
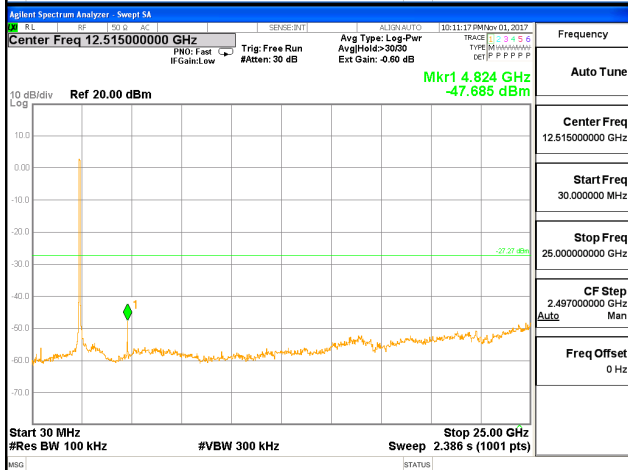
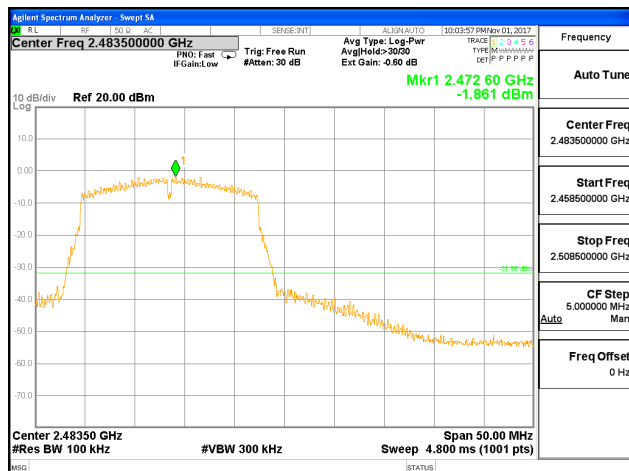
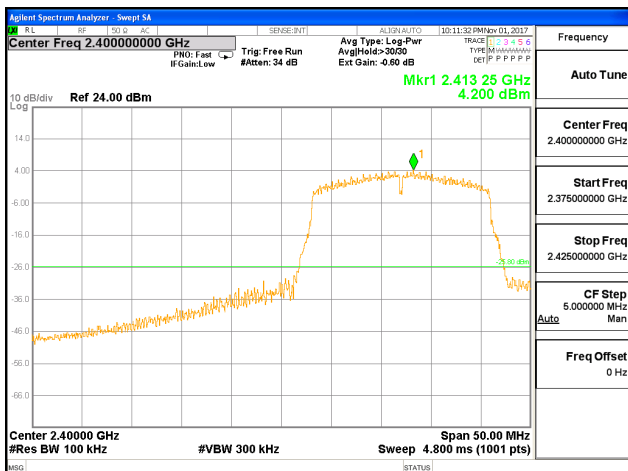


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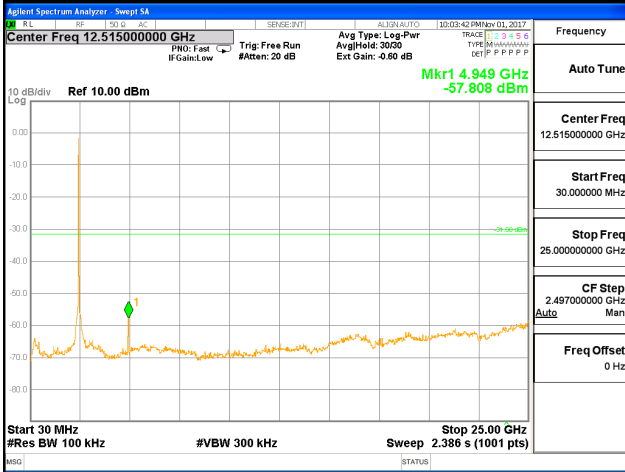
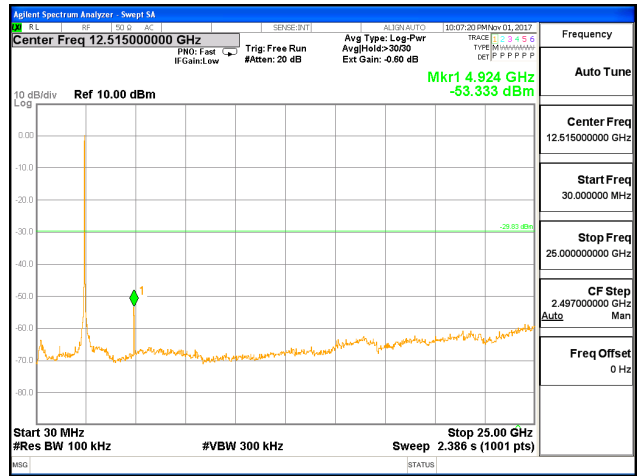
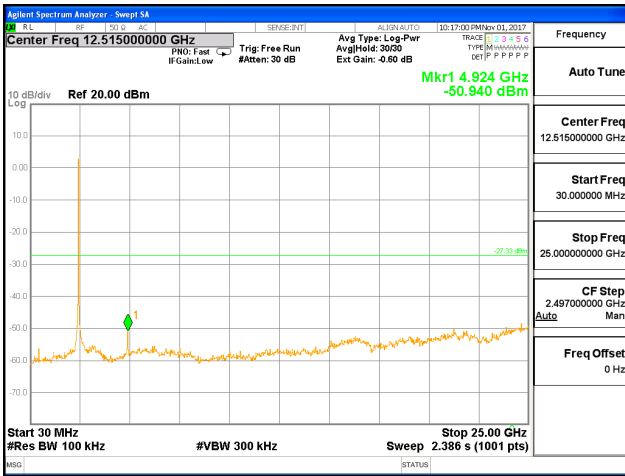
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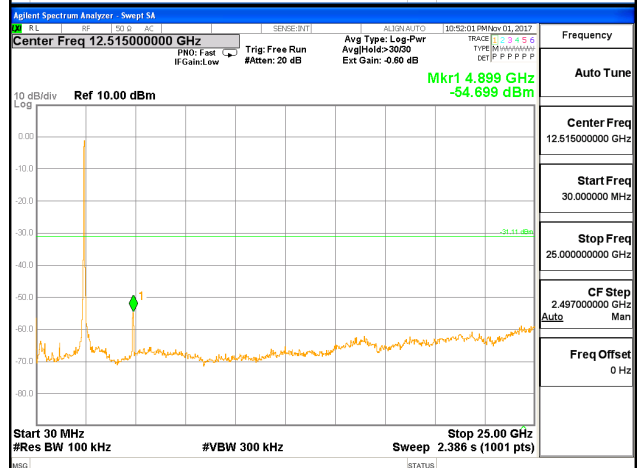
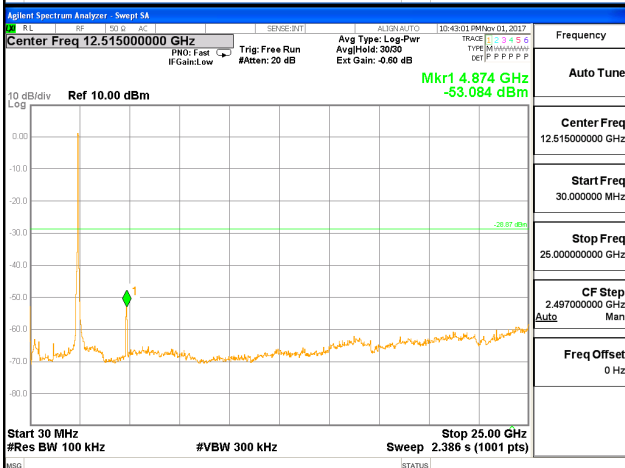
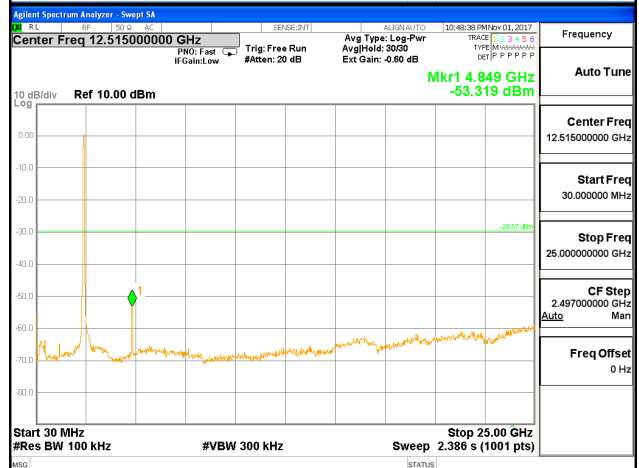
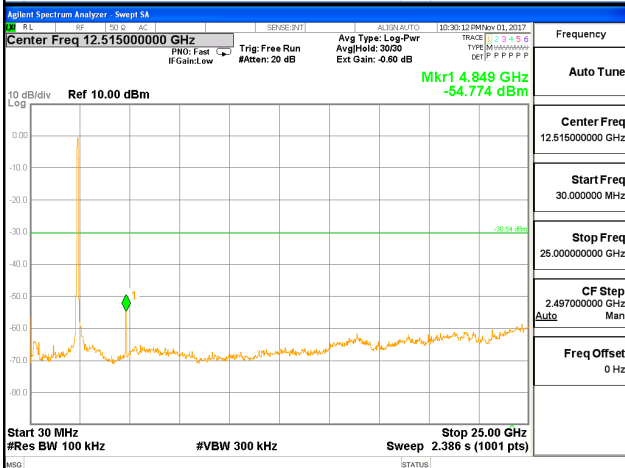
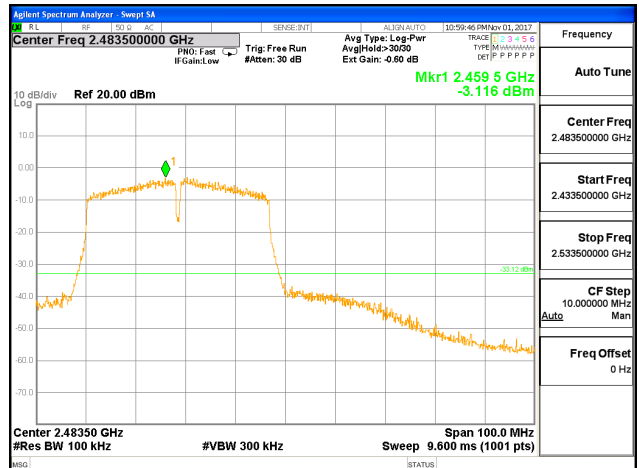
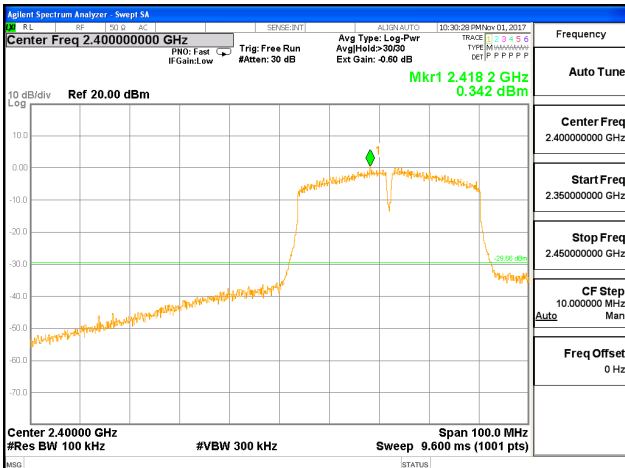


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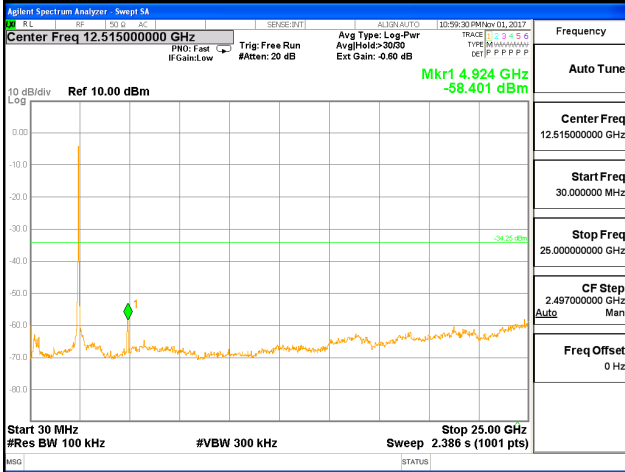
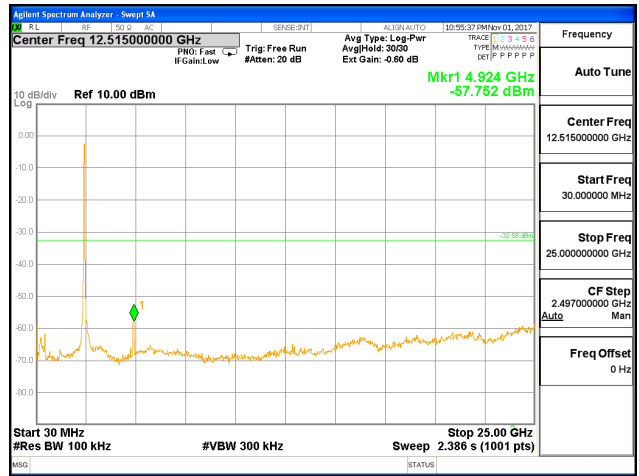
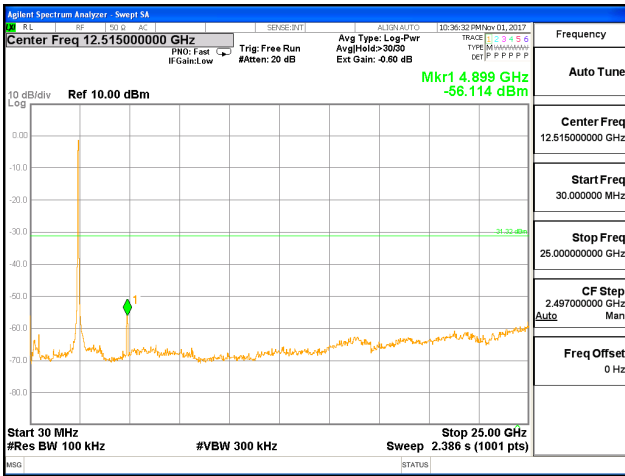
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4.6 Field Strength of Emissions

Test Location

- 10 m SAC (test distance : 10 m, 3 m)
 3 m SAC (test distance : 3 m)

Test Procedures

- 1) In the frequency range of 9 kHz to 30 MHz, magnetic field is measured with Loop Antenna. The Test Antenna is positioned with its plane vertical at 1m distance from the EUT. The center of the Loop Test Antenna is 1m above the ground. During the measurement the Loop Test Antenna rotates about its vertical axis for maximum response at each azimuth about the EUT.
- 2) In the frequency range above 30 MHz, Bi-Log Test Antenna(30 MHz to 1 GHz) and Horn Test Antenna(above 1 GHz) are used. Test Antenna is 3m away from the EUT. Test Antenna height is carried from 1m to 4m above the ground to determine the maximum value of the field strength. The emissions levels at both horizontal and vertical polarizations should be tested.

Test Settings:

Frequency Range = 9 kHz ~ 25 GHz (2.4 GHz 10th harmonic)

- a) RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz, 9 kHz for $f < 30$ MHz
- b) VBW \geq RBW
- c) Sweep time = auto couple

Limit

- 15.209(a)

Frequency(MHz)	Field Strength uV/m@3m	Field Strength dBuV/m@3m	Deasurement Distance (meters)
0.009-0.490	2 400/F(kHz)	-	300
0.490-1.705	24 000/F(kHz)	-	30
1.705-30	30	-	30
30-88	100**	40	3
88-216	150**	43.5	3
216-960	200**	46	3
Above 960	500	54	3

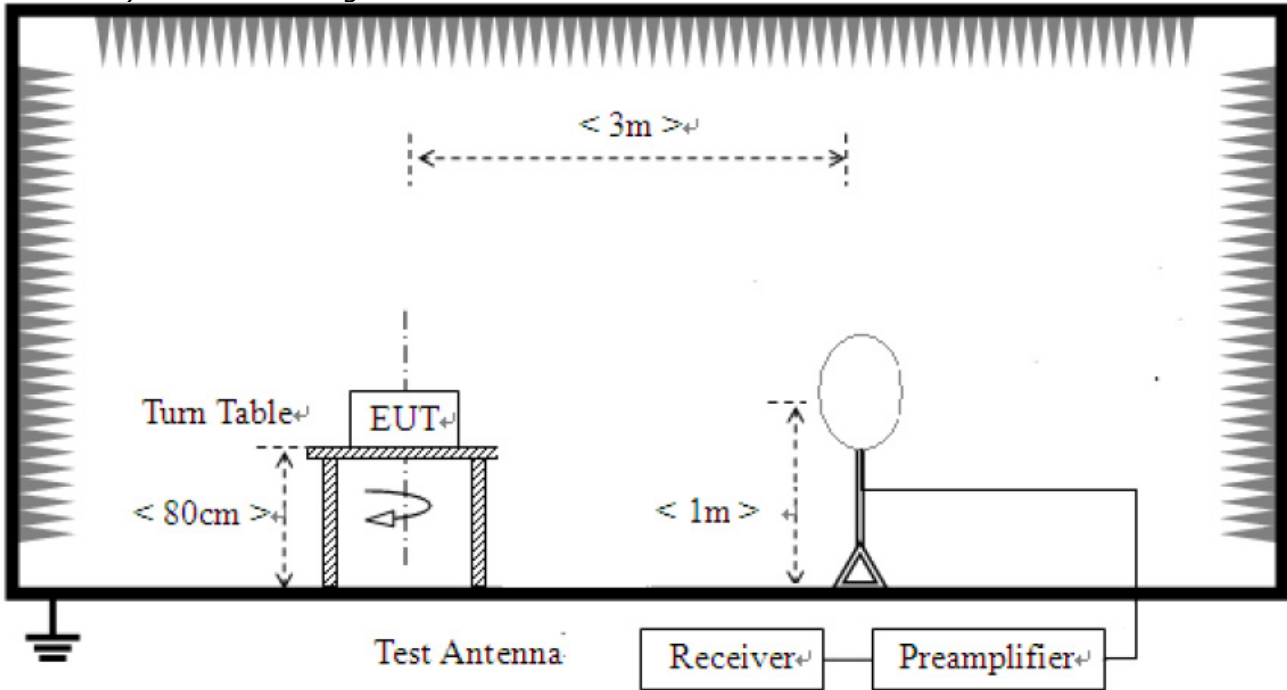
** Except as provided in 15.209(g).fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72MHz, 76-88MHz, 174-216MHz, 470-806MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g.15.231 and 15.241.

Note :

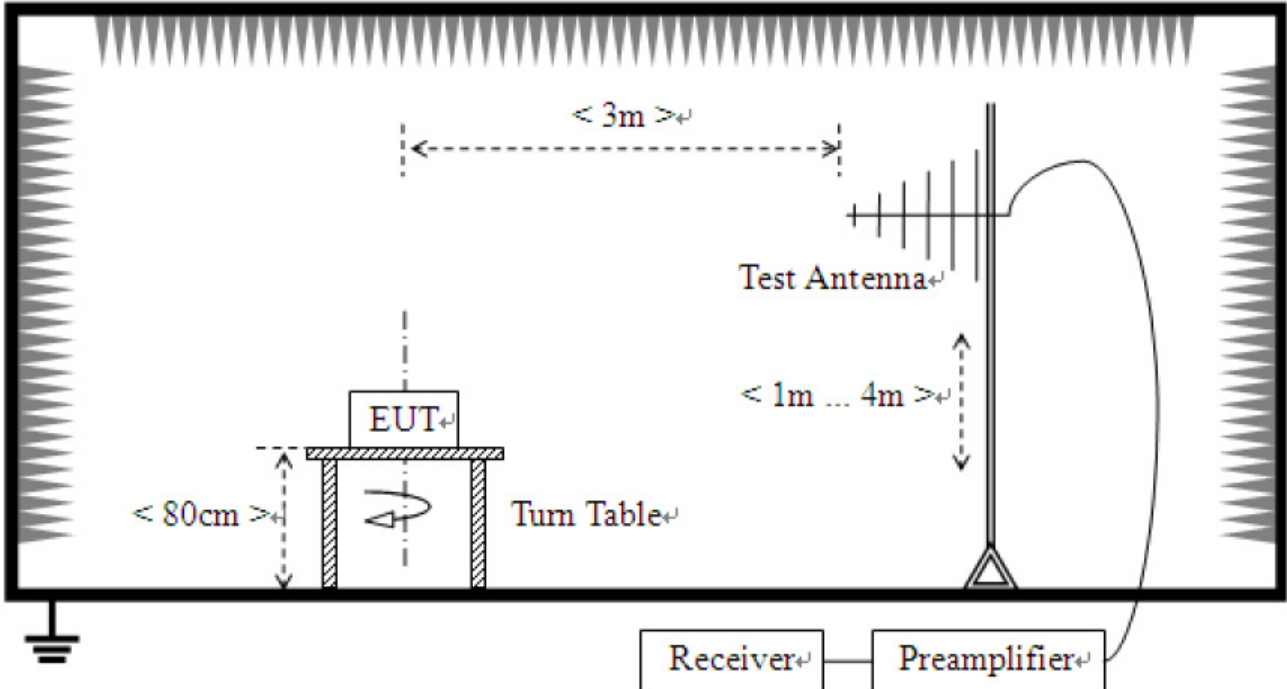
- 1) For above 1 GHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.
- 2) For above 1 GHz, limit field strength of harmonics : 54 dBuV/m@3m (AV) and 74 dBuV/m@3m (PK)

Test Setup:

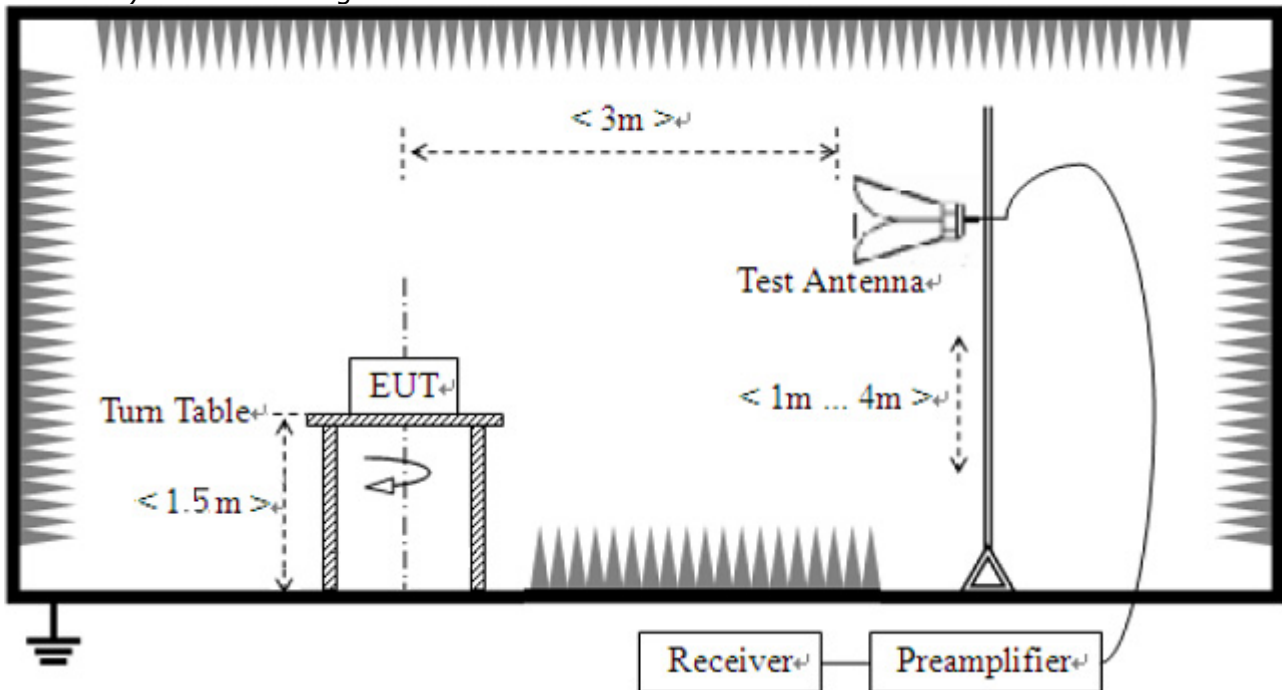
- 1) For field strength of emissions from 9 kHz to 30 MHz



- 2) For field strength of emissions from 30 MHz to 1 GHz



3) For field strength of emissions above 1 GHz



Test Mode

We have done all test mode.

The worst-case antenna configuration are determined to be as follows for each mode.

802.11b mode : ANT0, ANT1 (SISO)

802.11g/n mode : ANT0 + ANT1

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Test Results

1) 9 kHz to 30 MHz

Test mode : 802.11b/g/n_HT20/n_HT40 (Worst Case)

EUT	Wi-Fi Transceiver	Measurement Detail	
Model	WDN220M	Frequency Range	9 kHz - 30 MHz
Test mode	802.11b/g/n_HT20/n_HT40	Detector function	Quasi-Peak

The requirements are:

Complies

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
-	-	-	See note

Note :

The amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

Distance extrapolation factor = $40 \log (\text{specific distance} / \text{test distance})$ (dB)

2) 30 MHz to 1 GHz

Test mode : 802.11b_ANT0(Worst Case)

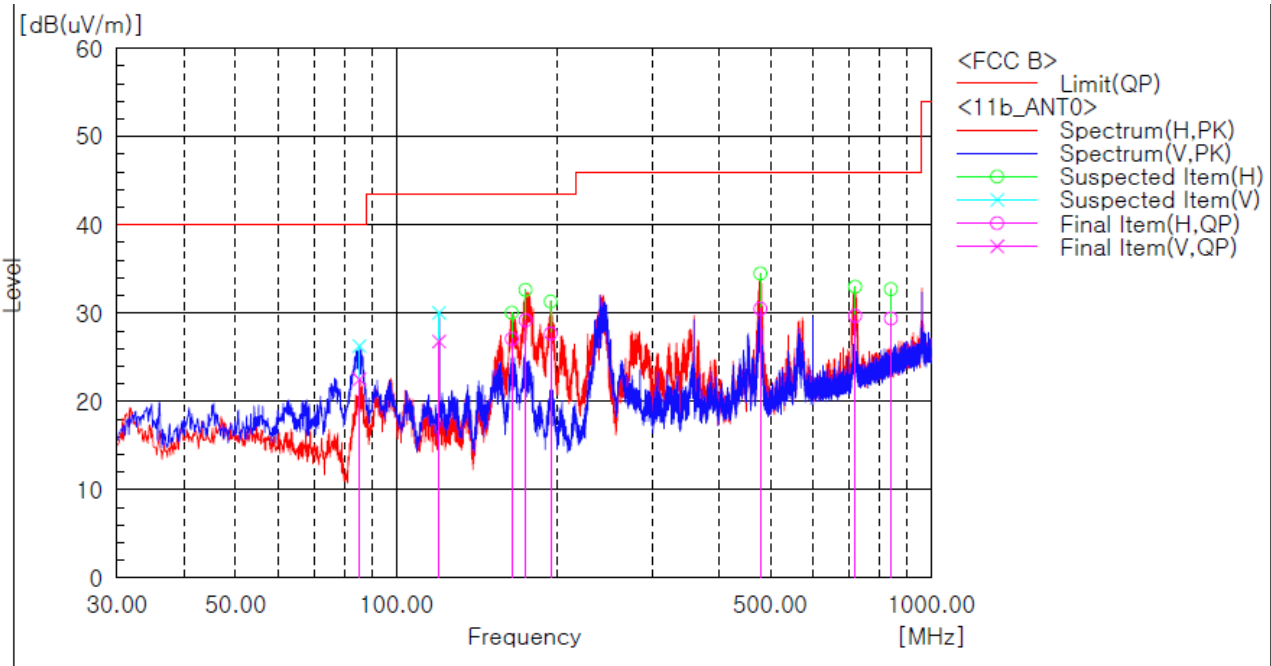
EUT	Wi-Fi Transceiver	Measurement Detail	
Model	WDN220M	Frequency Range	Below 1 000 MHz
Configuration	802.11b_ANT0	Detector function	Quasi-Peak

The requirements are:

Complies

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
174.184	29.2	14.3	Quasi-Peak

Test Data



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Angle [deg]	Remark
1	85.176	V	39.9	-17.4	22.5	40.0	17.5	197.2	
2	119.979	V	42.6	-15.8	26.8	43.5	16.7	142.5	
3	164.119	H	44.1	-17.0	27.1	43.5	16.4	254.5	
4	174.184	H	45.7	-16.5	29.2	43.5	14.3	242.9	
5	194.193	H	42.2	-14.5	27.7	43.5	15.8	242.9	
6	478.681	H	40.4	-9.9	30.5	46.0	15.5	124.1	
7	720.120	H	36.3	-6.6	29.7	46.0	16.3	293.2	
8	840.051	H	34.2	-4.8	29.4	46.0	16.6	98.9	

Remark :

1. The worst emission was found in li-down position(Z axis) and the worst case was recorded.
2. Result = Reading + c.f(Correction factor)
3. Correction factor = Antenna factor + Cable loss + 6 dB attenuator - Amp Gain



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Test mode : 802.11b_ANT1(Worst Case)

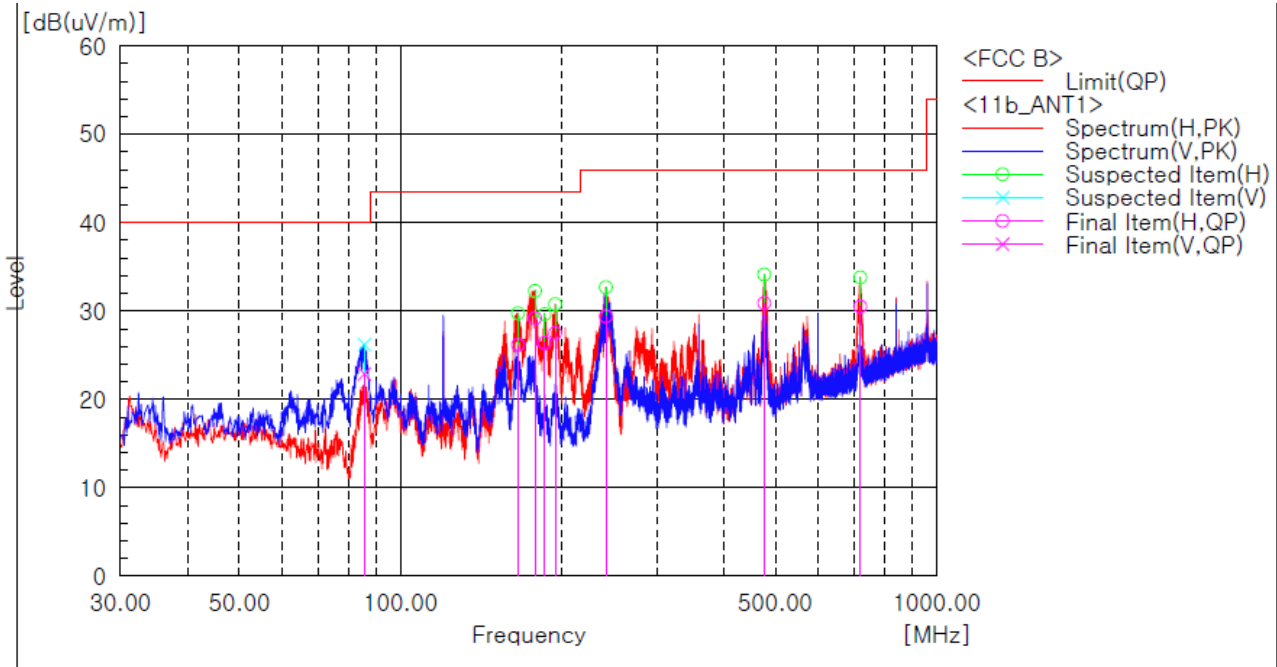
EUT	Wi-Fi Transceiver	Measurement Detail	
Model	WDN220M	Frequency Range	Below 1 000 MHz
Configuration	802.11b_ANT1	Detector function	Quasi-Peak

The requirements are:

Complies

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
177.943	29.2	14.3	Quasi-Peak

Test Data



Final Result

No.	Frequency [MHz]	(P)	Reading [dB(uV)]	c.f [dB(1/m)]	Result [dB(uV/m)]	Limit [dB(uV/m)]	Margin [dB]	Angle [deg]	Remark
1	85.539	V	40.2	-17.3	22.9	40.0	17.1	258.4	
2	165.574	H	43.1	-16.9	26.2	43.5	17.3	93.0	
3	177.943	H	45.5	-16.3	29.2	43.5	14.3	268.1	
4	185.462	H	41.8	-15.4	26.4	43.5	17.1	253.4	
5	194.193	H	42.0	-14.5	27.5	43.5	16.0	240.2	
6	241.365	H	42.5	-13.1	29.4	46.0	16.6	62.2	
7	476.862	H	40.9	-10.0	30.9	46.0	15.1	133.3	
8	720.120	H	37.1	-6.6	30.5	46.0	15.5	294.6	

Remark :

1. The worst emission was found in li-down position(Z axis) and the worst case was recorded.
2. Result = Reading + c.f(Correction factor)
3. Correction factor = Antenna factor + Cable loss + 6 dB attenuator - Amp Gain



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Test mode : 802.11g_ANT0 + ANT1(Worst Case)

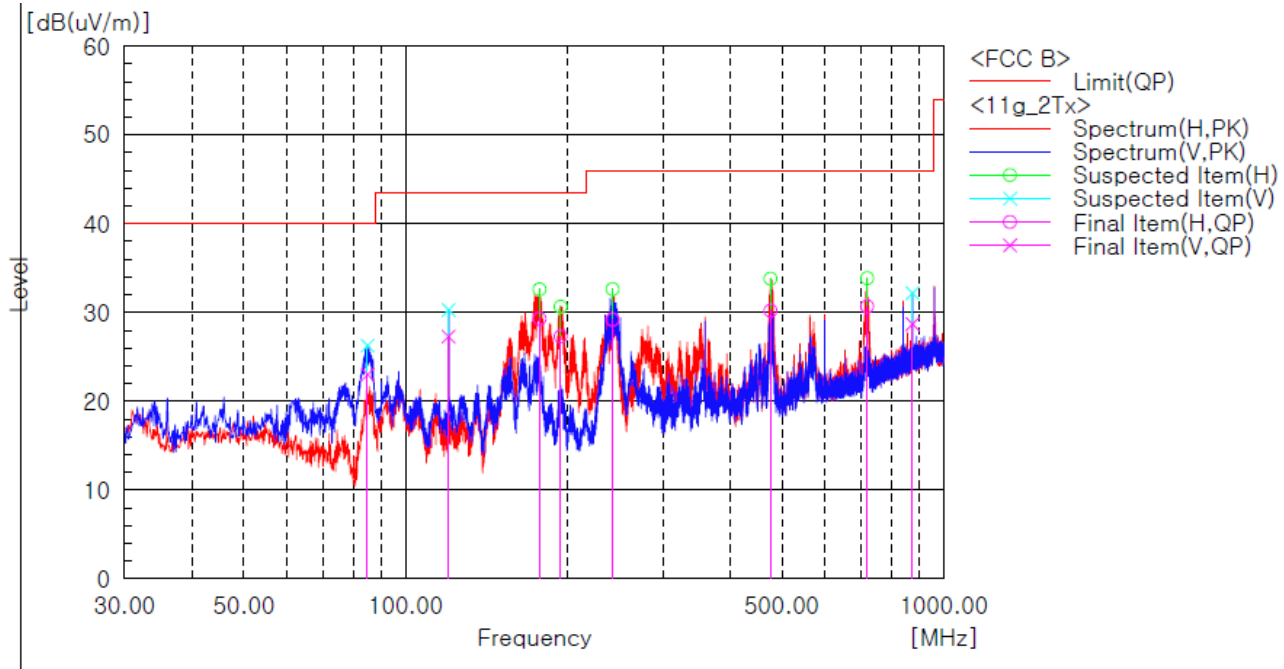
EUT	Wi-Fi Transceiver	Measurement Detail	
Model	WDN220M	Frequency Range	Below 1 000 MHz
Configuration	802.11g_ANT0 + ANT1	Detector function	Quasi-Peak

The requirements are:

Complies

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
177.216	29.3	14.2	Quasi-Peak

Test Data



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Angle [deg]	Remark
1	84.812	V	40.5	-17.5	23.0	40.0	17.0	133.4	
2	119.979	V	43.1	-15.8	27.3	43.5	16.2	174.7	
3	177.216	H	45.6	-16.3	29.3	43.5	14.2	82.1	
4	193.829	H	41.8	-14.5	27.3	43.5	16.2	257.9	
5	242.093	H	42.3	-13.1	29.2	46.0	16.8	70.7	
6	476.256	H	40.2	-10.0	30.2	46.0	15.8	134.4	
7	719.999	H	37.3	-6.6	30.7	46.0	15.3	300.6	
8	873.763	V	33.1	-4.4	28.7	46.0	17.3	73.4	

Remark :

1. The worst emission was found in li-down position(Z axis) and the worst case was recorded.
2. Result = Reading + c.f(Correction factor)
3. Correction factor = Antenna factor + Cable loss + 6 dB attenuator - Amp Gain



Test mode : 802.11n_HT20_ANT0+ANT1(Worst Case)

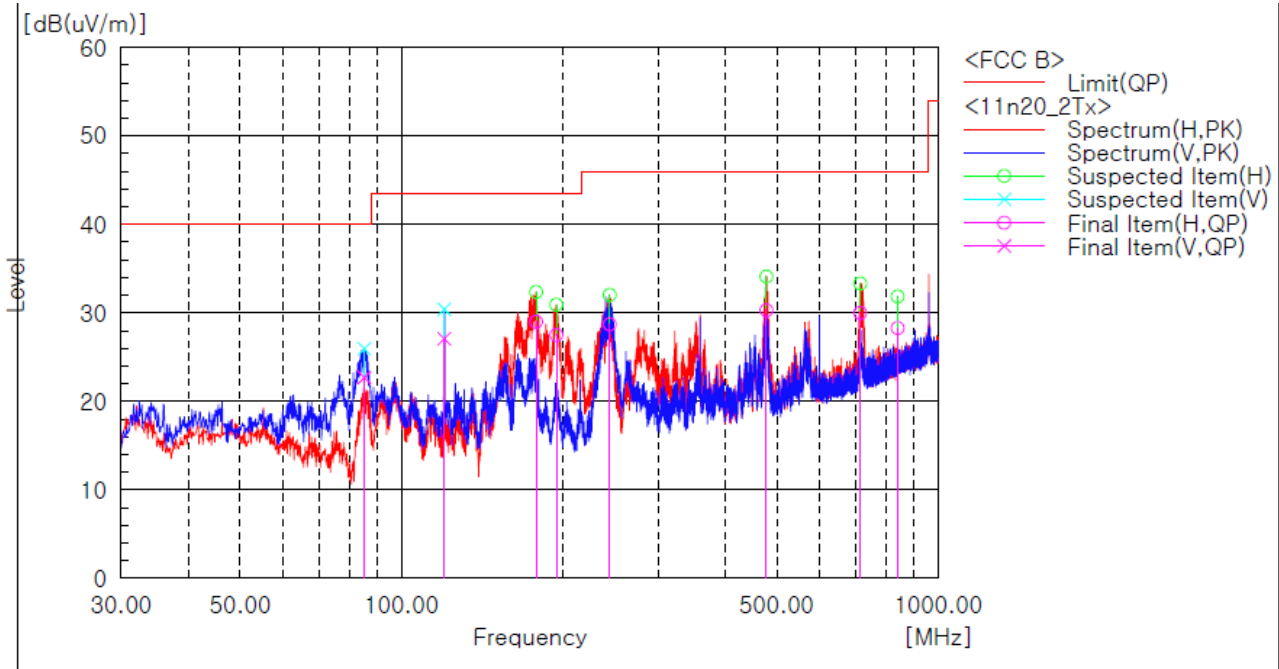
EUT	Wi-Fi Transceiver	Measurement Detail	
Model	WDN220M	Frequency Range	Below 1 000 MHz
Configuration	802.11n_HT20_ANT0+ANT1	Detector function	Quasi-Peak

The requirements are:

Complies

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
177.943	29.0	14.5	Quasi-Peak

Test Data



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Angle [deg]	Remark
1	85.176	V	40.1	-17.4	22.7	40.0	17.3	122.0	
2	119.979	V	42.9	-15.8	27.1	43.5	16.4	164.1	
3	177.943	H	45.3	-16.3	29.0	43.5	14.5	251.1	
4	194.193	H	42.0	-14.5	27.5	43.5	16.0	96.5	
5	244.154	H	41.7	-13.0	28.7	46.0	17.3	79.9	
6	478.317	H	40.2	-9.9	30.3	46.0	15.7	132.1	
7	715.027	H	36.7	-6.7	30.0	46.0	16.0	324.8	
8	840.051	H	33.1	-4.8	28.3	46.0	17.7	96.5	

Remark :

1. The worst emission was found in li-down position(Z axis) and the worst case was recorded.
2. Result = Reading + c.f(Correction factor)
3. Correction factor = Antenna factor + Cable loss + 6 dB attenuator - Amp Gain



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Test mode : 802.11n_HT40_ANT0+ANT1(Worst Case)

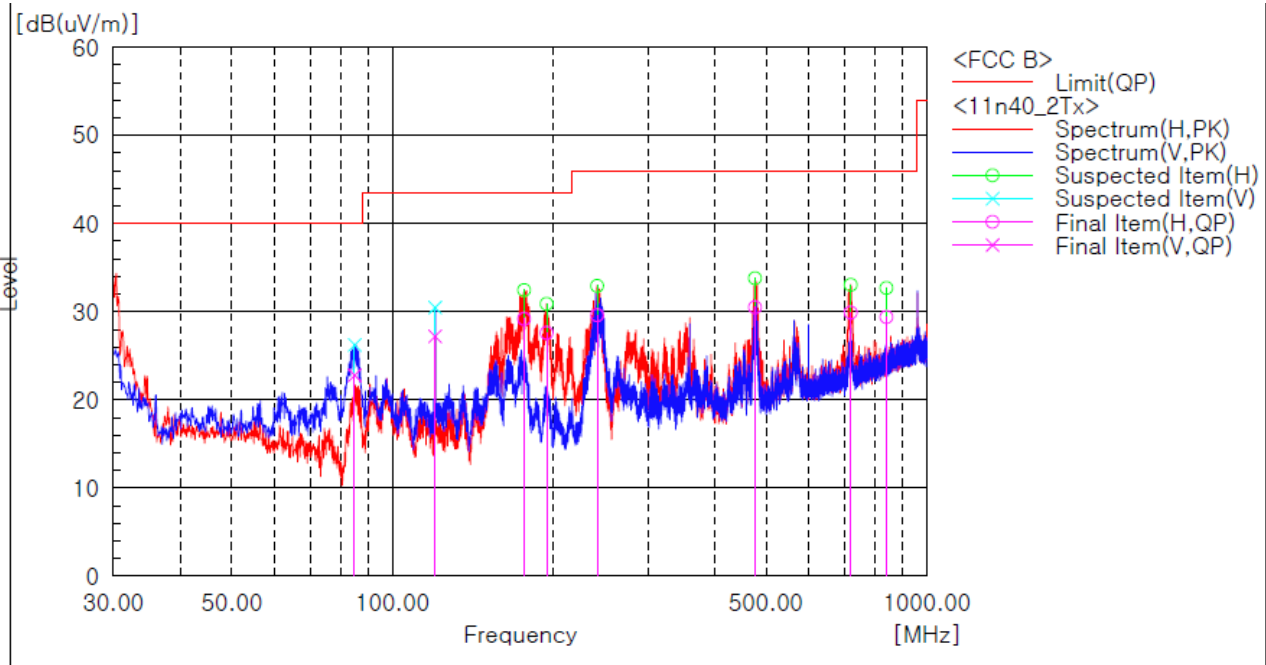
EUT	Wi-Fi Transceiver	Measurement Detail	
Model	WDN220M	Frequency Range	Below 1 000 MHz
Configuration	802.11n_HT40_ANT0+ANT1	Detector function	Quasi-Peak

The requirements are:

Complies

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
176.246	29.2	14.3	Quasi-Peak

Test Data



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Angle [deg]	Remark
1	84.812	V	40.3	-17.5	22.8	40.0	17.2	5.1	
2	119.979	V	43.0	-15.8	27.2	43.5	16.3	163.0	
3	176.246	H	45.6	-16.4	29.2	43.5	14.3	237.3	
4	194.072	H	42.1	-14.5	27.6	43.5	15.9	220.0	
5	241.365	H	42.7	-13.1	29.6	46.0	16.4	35.8	
6	476.620	H	40.5	-10.0	30.5	46.0	15.5	103.8	
7	720.120	H	36.5	-6.6	29.9	46.0	16.1	289.3	
8	840.051	H	34.2	-4.8	29.4	46.0	16.6	117.7	

Remark :

1. The worst emission was found in li-down position(Z axis) and the worst case was recorded.
2. Result = Reading + c.f(Correction factor)
3. Correction factor = Antenna factor + Cable loss + 6 dB attenuator - Amp Gain



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Test mode : Receiver

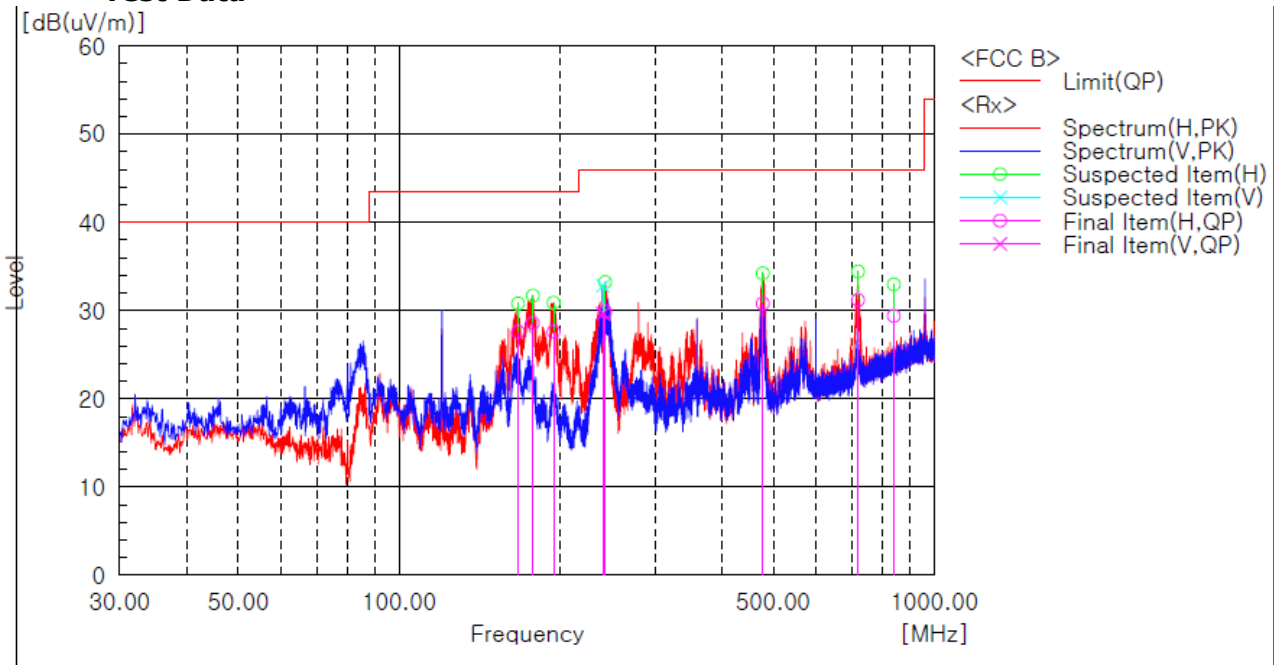
EUT	Wi-Fi Transceiver	Measurement Detail	
Model	WDN220M	Frequency Range	Below 1 000 MHz
Configuration	Receiver	Detector function	Quasi-Peak

The requirements are:

Complies

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
720.120	31.2	14.8	Quasi-Peak

Test Data



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Angle [deg]	Remark
1	166.545	H	44.5	-16.9	27.6	43.5	15.9	56.0	
2	177.580	H	44.9	-16.3	28.6	43.5	14.9	235.3	
3	194.193	H	42.1	-14.5	27.6	43.5	15.9	235.3	
4	240.031	V	42.9	-13.2	29.7	46.0	16.3	349.6	
5	242.457	H	43.0	-13.1	29.9	46.0	16.1	56.0	
6	477.953	H	40.7	-9.9	30.8	46.0	15.2	99.7	
7	720.120	H	37.8	-6.6	31.2	46.0	14.8	265.9	
8	840.051	H	34.2	-4.8	29.4	46.0	16.6	69.8	

Remark :

1. The worst emission was found in li-down position(Z axis) and the worst case was recorded.
2. Result = Reading + c.f(Correction factor)
3. Correction factor = Antenna factor + Cable loss + 6 dB attenuator - Amp Gain



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3) above 1 GHz

Test mode : 802.11b_ANT0

EUT	Wi-Fi Transceiver	Measurement Detail	
Model	WDN220M	Frequency Range	1 - 25 GHz
Mode	802.11b_ANT0	Detector function	Average / Peak

The requirements are:

Complies

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
2 483.5	50.72	3.28	Average

Ch.1(2 412 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 824.00	H	54.00	74.00	46.88	50.57	7.12	23.43
4 824.00	V	54.00	74.00	48.66	51.74	5.34	22.26
7 236.00	H	54.00	74.00	36.48	48.21	17.52	25.79
7 236.00	V	-	-	-	-	-	-
2 390.00	H	54.00	74.00	49.71	57.57	4.29	16.43
2 390.00	V	54.00	74.00	48.55	56.08	5.45	17.92
2 483.50	H	54.00	74.00	37.81	51.70	16.19	22.30
2 483.50	V	54.00	74.00	37.08	50.59	16.92	23.41

Ch.2(2 417 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 834.00	H	54.00	74.00	47.35	49.58	6.65	24.42
4 834.00	V	54.00	74.00	47.31	51.03	6.69	22.97
7 251.00	H	54.00	74.00	36.29	47.94	17.71	26.06
7 251.00	V	-	-	-	-	-	-
2 390.00	H	54.00	74.00	49.18	56.48	4.82	17.52
2 390.00	V	54.00	74.00	44.23	54.39	9.77	19.61
2 483.50	H	54.00	74.00	37.88	50.91	16.12	23.09
2 483.50	V	54.00	74.00	37.45	50.46	16.55	23.54

Ch.3(2 422 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 844.00	H	54.00	74.00	47.85	51.11	6.15	22.89
4 844.00	V	54.00	74.00	48.29	51.61	5.71	22.39
7 266.00	H	54.00	74.00	37.03	49.53	16.97	24.47
7 266.00	V	-	-	-	-	-	-
2 390.00	H	54.00	74.00	43.06	53.62	10.94	20.38
2 390.00	V	54.00	74.00	43.36	54.23	10.64	19.77
2 483.50	H	54.00	74.00	37.88	51.91	16.12	22.09
2 483.50	V	54.00	74.00	37.88	50.92	16.12	23.08

Ch.6(2 437 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 874.00	H	54.00	74.00	49.77	51.80	4.23	22.20
4 874.00	V	54.00	74.00	48.58	52.05	5.42	21.95
7 311.00	H	54.00	74.00	36.25	47.84	17.75	26.16
7 311.00	V	-	-	-	-	-	-
2 390.00	H	54.00	74.00	39.06	52.63	14.94	21.37
2 390.00	V	54.00	74.00	41.11	51.84	12.89	22.16
2 483.50	H	54.00	74.00	39.26	49.82	14.74	24.18
2 483.50	V	54.00	74.00	38.38	51.42	15.62	22.58

Ch.11(2 462 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 924.00	H	54.00	74.00	49.35	52.41	4.65	21.59
4 924.00	V	54.00	74.00	50.67	51.63	3.33	22.37
2 390.00	H	54.00	74.00	38.84	49.67	15.16	24.33
2 390.00	V	54.00	74.00	38.98	50.93	15.02	23.07
2 483.50	H	54.00	74.00	50.33	57.03	3.67	16.97
2 483.50	V	54.00	74.00	46.81	54.11	7.19	19.89

Ch.12(2 467 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 934.00	H	54.00	74.00	44.99	50.91	9.01	23.09
4 934.00	V	54.00	74.00	43.31	47.75	10.69	26.25
2 390.00	H	54.00	74.00	34.95	46.82	19.05	27.18
2 390.00	V	54.00	74.00	34.73	46.99	19.27	27.01
2 483.50	H	54.00	74.00	50.02	56.85	3.98	17.15
2 483.50	V	54.00	74.00	48.53	55.30	5.47	18.70

Ch.13(2 472 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 944.00	H	54.00	74.00	41.48	47.04	12.52	26.96
4 944.00	V	54.00	74.00	40.08	46.79	13.92	27.21
2 390.00	H	54.00	74.00	34.39	46.69	19.61	27.31
2 390.00	V	54.00	74.00	33.67	46.28	20.33	27.72
2 483.50	H	54.00	74.00	50.72	55.84	3.28	18.16
2 483.50	V	54.00	74.00	48.33	54.12	5.67	19.88

Remarks

1. The worst emission was found in li-down position(Z axis) and the worst case was recorded.



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Test mode : 802.11b_ANT1

EUT	Wi-Fi Transceiver	Measurement Detail	
Model	WDN220M	Frequency Range	1 - 25 GHz
Mode	802.11b_ANT1	Detector function	Average / Peak

The requirements are:

Complies

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
4 844.00	51.82	2.18	Average

Ch.1(2 412 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 824.00	H	54.00	74.00	51.64	53.55	2.36	20.45
4 824.00	V	54.00	74.00	49.41	52.23	4.59	21.77
2 390.00	H	54.00	74.00	45.79	54.59	8.21	19.41
2 390.00	V	54.00	74.00	45.08	55.24	8.92	18.76
2 483.50	H	54.00	74.00	37.22	50.05	16.78	23.95
2 483.50	V	54.00	74.00	36.27	49.92	17.73	24.08

Ch.2(2 417 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 834.00	H	54.00	74.00	51.78	53.78	2.22	20.22
4 834.00	V	54.00	74.00	47.50	51.01	6.50	22.99
2 390.00	H	54.00	74.00	43.82	56.12	10.18	17.88
2 390.00	V	54.00	74.00	42.95	55.85	11.05	18.15
2 483.50	H	54.00	74.00	43.24	52.78	10.76	21.22
2 483.50	V	54.00	74.00	36.28	52.88	17.72	21.12

Ch.3(2 422 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 844.00	H	54.00	74.00	51.82	53.72	2.18	20.28
4 844.00	V	54.00	74.00	48.20	50.82	5.80	23.18
7 266.00	H	54.00	74.00	36.21	47.85	17.79	26.15
7 266.00	V	-	-	-	-	-	-
2 390.00	H	54.00	74.00	40.91	51.06	13.09	22.94
2 390.00	V	54.00	74.00	39.64	52.44	14.36	21.56
2 483.50	H	54.00	74.00	37.06	50.57	16.94	23.43
2 483.50	V	54.00	74.00	36.27	50.39	17.73	23.61



Ch.6(2 437 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 874.00	H	54.00	74.00	50.97	53.02	3.03	20.98
4 874.00	V	54.00	74.00	48.19	51.57	5.81	22.43
7 266.00	H	54.00	74.00	37.77	48.02	16.23	25.98
7 266.00	V	-	-	-	-	-	-
2 390.00	H	54.00	74.00	37.90	50.55	16.10	23.45
2 390.00	V	54.00	74.00	37.97	51.15	16.03	22.85
2 483.50	H	54.00	74.00	37.47	50.53	16.53	23.47
2 483.50	V	54.00	74.00	36.46	49.91	17.54	24.09

Ch.11(2 462 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 924.00	H	54.00	74.00	48.29	51.15	5.71	22.85
4 924.00	V	54.00	74.00	51.19	48.03	2.81	25.97
2 390.00	H	54.00	74.00	36.20	47.61	17.80	26.39
2 390.00	V	54.00	74.00	35.84	48.22	18.16	25.78
2 483.50	H	54.00	74.00	49.77	56.52	4.23	17.48
2 483.50	V	54.00	74.00	50.06	56.54	3.94	17.46

Ch.12(2 467 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 934.00	H	54.00	74.00	51.57	54.22	2.43	19.78
4 934.00	V	54.00	74.00	50.07	54.09	3.93	19.91
7 401.00	H	54.00	74.00	43.57	50.91	10.43	23.09
7 401.00	V	54.00	74.00	39.95	49.22	14.05	24.78
2 390.00	H	54.00	74.00	34.64	48.26	19.36	25.74
2 390.00	V	54.00	74.00	35.49	48.02	18.51	25.98
2 483.50	H	54.00	74.00	51.65	59.24	2.35	14.76
2 483.50	V	54.00	74.00	50.21	57.89	3.79	16.11

Ch.13(2 472 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 944.00	H	54.00	74.00	47.59	50.86	6.41	23.14
4 944.00	V	54.00	74.00	45.65	50.62	8.35	23.38
2 390.00	H	54.00	74.00	35.15	47.52	18.85	26.48
2 390.00	V	54.00	74.00	35.67	47.56	18.33	26.44
2 483.50	H	54.00	74.00	50.16	56.54	3.84	17.46
2 483.50	V	54.00	74.00	50.47	59.38	3.53	14.62

Remarks

1. The worst emission was found in li-down position(Z axis) and the worst case was recorded.



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Report No.:
 CTK-2017-02075
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Test mode : 802.11g_ANT0+ANT1

EUT	Wi-Fi Transceiver	Measurement Detail	
Model	WDN220M	Frequency Range	1 - 25 GHz
Mode	802.11g_ANT0+ANT1	Detector function	Average / Peak

The requirements are:

Complies

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
2 483.50	71.82	2.18	Peak

Ch.1(2 412 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 824.00	H	54.00	74.00	35.89	52.37	18.11	21.63
4 824.00	V	54.00	74.00	34.77	50.75	19.23	23.25
2 390.00	H	54.00	74.00	45.59	68.39	8.41	5.61
2 390.00	V	54.00	74.00	42.04	65.44	11.96	8.56
2 483.50	H	54.00	74.00	40.99	54.37	13.01	19.63
2 483.50	V	54.00	74.00	40.70	54.08	13.30	19.92

Ch.2(2 417 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 834.00	H	54.00	74.00	40.52	54.77	13.48	19.23
4 834.00	V	54.00	74.00	38.28	54.64	15.72	19.36
7 251.00	H	54.00	74.00	36.35	53.11	17.65	20.89
7 251.00	V	-	-	-	-	-	-
2 390.00	H	54.00	74.00	48.10	70.29	5.90	3.71
2 390.00	V	54.00	74.00	45.97	69.54	8.03	4.46
2 483.50	H	54.00	74.00	42.91	56.31	11.09	17.69
2 483.50	V	54.00	74.00	42.42	55.86	11.58	18.14

Ch.3(2 422 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 844.00	H	54.00	74.00	41.67	56.10	12.33	17.90
4 844.00	V	54.00	74.00	39.37	55.58	14.63	18.42
7 266.00	H	54.00	74.00	38.84	53.35	15.16	20.65
7 266.00	V	54.00	74.00	5.96	5.96	48.04	68.04
2 390.00	H	54.00	74.00	46.88	66.53	7.12	7.47
2 390.00	V	54.00	74.00	45.37	67.70	8.63	6.30
2 483.50	H	54.00	74.00	43.83	56.79	10.17	17.21
2 483.50	V	54.00	74.00	43.50	56.47	10.50	17.53



Ch.6(2 437 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 874.00	H	54.00	74.00	40.47	55.30	13.53	18.70
4 874.00	V	54.00	74.00	39.07	53.42	14.93	20.58
7 311.00	H	54.00	74.00	37.02	51.64	16.98	22.36
7 311.00	V	-	-	-	-	-	-
2 390.00	H	54.00	74.00	45.08	59.65	8.92	14.35
2 390.00	V	54.00	74.00	43.12	59.98	10.88	14.02
2 483.50	H	54.00	74.00	44.37	59.27	9.63	14.73
2 483.50	V	54.00	74.00	44.26	57.35	9.74	16.65

Ch.11(2 462 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 924.00	H	54.00	74.00	37.05	53.10	16.95	20.90
4 924.00	V	54.00	74.00	36.12	52.06	17.88	21.94
2 390.00	H	54.00	74.00	40.17	52.50	13.83	21.50
2 390.00	V	54.00	74.00	36.73	49.56	17.27	24.44
2 483.50	H	54.00	74.00	47.91	70.53	6.09	3.47
2 483.50	V	54.00	74.00	46.61	66.60	7.39	7.40

Ch.12(2 467 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
2 390.00	H	54.00	74.00	37.10	49.44	16.90	24.56
2 390.00	V	54.00	74.00	34.73	48.32	19.27	25.68
2 483.50	H	54.00	74.00	48.50	69.96	5.50	4.04
2 483.50	V	54.00	74.00	45.96	66.78	8.04	7.22

Ch.13(2 472 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
2 390.00	H	54.00	74.00	36.69	48.98	17.31	25.02
2 390.00	V	54.00	74.00	35.09	49.08	18.91	24.92
2 483.50	H	54.00	74.00	48.67	71.82	5.33	2.18
2 483.50	V	54.00	74.00	48.48	64.78	5.52	9.22

Remarks

1. The worst emission was found in li-down position(Z axis) and the worst case was recorded.



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Test mode : 802.11n_HT20_ANT0+ANT1

EUT	Wi-Fi Transceiver	Measurement Detail	
Model	WDN220M	Frequency Range	1 - 25 GHz
Mode	802.11n_HT20_ANT0+ANT1	Detector function	Average / Peak

The requirements are:

Complies

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
2 483.50	52.25	1.75	Average

Ch.1(2 412 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 824.00	H	54.00	74.00	38.13	53.70	15.87	20.30
4 824.00	V	54.00	74.00	37.04	51.31	16.96	22.69
2 390.00	H	54.00	74.00	50.30	70.06	3.70	3.94
2 390.00	V	54.00	74.00	49.47	69.75	4.53	4.25
2 483.50	H	54.00	74.00	42.89	56.20	11.11	17.80
2 483.50	V	54.00	74.00	42.07	55.72	11.93	18.28

Ch.2(2 417 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 834.00	H	54.00	74.00	39.21	54.47	14.79	19.53
4 834.00	V	54.00	74.00	37.55	51.45	16.45	22.55
7 251.00	H	54.00	74.00	36.12	51.42	17.88	22.58
7 251.00	V	-	-	-	-	-	-
2 390.00	H	54.00	74.00	47.68	67.65	6.32	6.35
2 390.00	V	54.00	74.00	46.04	66.09	7.96	7.91
2 483.50	H	54.00	74.00	43.80	57.55	10.20	16.45
2 483.50	V	54.00	74.00	43.47	56.88	10.53	17.12

Ch.3(2 422 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 844.00	H	54.00	74.00	38.85	55.38	15.15	18.62
4 844.00	V	54.00	74.00	37.91	52.17	16.09	21.83
7 266.00	H	54.00	74.00	36.50	52.09	17.50	21.91
7 266.00	V	-	-	-	-	-	-
2 390.00	H	54.00	74.00	46.59	66.42	7.41	7.58
2 390.00	V	54.00	74.00	45.46	65.81	8.54	8.19
2 483.50	H	54.00	74.00	43.91	57.05	10.09	16.95
2 483.50	V	54.00	74.00	43.43	56.79	10.57	17.21

Ch.6(2 437 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 874.00	H	54.00	74.00	38.64	55.31	15.36	18.69
4 874.00	V	54.00	74.00	38.75	54.20	15.25	19.80
7 311.00	H	54.00	74.00	36.60	50.81	17.40	23.19
7 311.00	V	-	-	-	-	-	-
2 390.00	H	54.00	74.00	45.03	59.37	8.97	14.63
2 390.00	V	54.00	74.00	43.38	58.77	10.62	15.23
2 483.50	H	54.00	74.00	44.51	58.48	9.49	15.52
2 483.50	V	54.00	74.00	44.00	57.32	10.00	16.68

Ch.11(2 462 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 924.00	H	54.00	74.00	37.19	52.31	16.81	21.69
4 924.00	V	54.00	74.00	36.57	51.25	17.43	22.75
2 483.50	H	54.00	74.00	49.52	70.31	4.48	3.69
2 483.50	V	54.00	74.00	47.64	67.04	6.36	6.96

Ch.12(2 467 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
2 483.50	H	54.00	74.00	48.29	69.45	5.71	4.55
2 483.50	V	54.00	74.00	46.51	67.76	7.49	6.24

Ch.13(2 472 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
2 483.50	H	54.00	74.00	52.25	70.96	1.75	3.04
2 483.50	V	54.00	74.00	51.97	70.58	2.03	3.42

Remarks

1. The worst emission was found in li-down position(Z axis) and the worst case was recorded.



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Test mode : 802.11n_HT40_ANT0+ANT1

EUT	Wi-Fi Transceiver	Measurement Detail	
Model	WDN220M	Frequency Range	1 - 25 GHz
Mode	802.11n_HT40_ANT0+ANT1	Detector function	Average / Peak

The requirements are:

Complies

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
2 483.50	51.31	2.69	Average

Ch.1(2 422 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 844.00	H	54.00	74.00	32.65	47.45	21.35	26.55
4 844.00	V	54.00	74.00	31.82	45.77	22.18	28.23
2 390.00	H	54.00	74.00	48.07	69.01	5.93	4.99
2 390.00	V	54.00	74.00	48.73	65.09	5.27	8.91
2 483.50	H	54.00	74.00	38.75	56.47	15.25	17.53
2 483.50	V	54.00	74.00	37.78	55.30	16.22	18.70

Ch.4(2 427 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 854.00	H	54.00	74.00	33.75	46.47	20.25	27.53
4 854.00	V	54.00	74.00	32.33	45.79	21.67	28.21
2 390.00	H	54.00	74.00	48.77	69.80	5.23	4.20
2 390.00	V	54.00	74.00	49.00	69.14	5.00	4.86
2 483.50	H	54.00	74.00	41.50	60.27	12.50	13.73
2 483.50	V	54.00	74.00	39.99	57.06	14.01	16.94

Ch.6(2 437 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 874.00	H	54.00	74.00	35.37	48.02	18.63	25.98
4 874.00	V	54.00	74.00	34.45	49.34	19.55	24.66
2 390.00	H	54.00	74.00	47.48	67.62	6.52	6.38
2 390.00	V	54.00	74.00	46.96	65.26	7.04	8.74
2 483.50	H	54.00	74.00	48.90	66.40	5.10	7.60
2 483.50	V	54.00	74.00	45.92	63.24	8.08	10.76



Ch.8(2 447 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
4 894.00	H	54.00	74.00	31.79	42.69	22.21	31.31
4 894.00	V	54.00	74.00	32.08	46.41	21.92	27.59
2 390.00	H	54.00	74.00	39.48	57.38	14.52	16.62
2 390.00	V	54.00	74.00	38.43	55.88	15.57	18.12
2 483.50	H	54.00	74.00	49.18	71.04	4.82	2.96
2 483.50	V	54.00	74.00	45.98	63.64	8.02	10.36

Ch.9(2 452 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
2 390.00	H	54.00	74.00	35.38	53.90	18.62	20.10
2 390.00	V	54.00	74.00	34.68	51.71	19.32	22.29
2 483.50	H	54.00	74.00	47.53	70.14	6.47	3.86
2 483.50	V	54.00	74.00	44.69	65.46	9.31	8.54

Ch.10(2 457 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
2 390.00	H	54.00	74.00	35.14	48.26	18.86	25.74
2 390.00	V	54.00	74.00	34.43	47.55	19.57	26.45
2 483.50	H	54.00	74.00	50.41	70.94	3.59	3.06
2 483.50	V	54.00	74.00	46.98	68.25	7.02	5.75

Ch.11(2 462 MHz)

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
2 390.00	H	54.00	74.00	34.97	47.91	19.03	26.09
2 390.00	V	54.00	74.00	34.56	47.38	19.44	26.62
2 483.50	H	54.00	74.00	51.31	69.71	2.69	4.29
2 483.50	V	54.00	74.00	47.87	67.45	6.13	6.55

Remarks

1. The worst emission was found in li-down position(Z axis) and the worst case was recorded.



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Test mode : Receiver

EUT	Wi-Fi Transceiver	Measurement Detail	
Model	WDN220M	Frequency Range	1 - 25 GHz
Mode	Receiver	Detector function	Average / Peak

The requirements are:

Complies

Frequency (MHz)	Measured Data (dBUV/m)	Margin (dB)	Remark
No emissions were detected at a level greater than 20dB below limit.			

Frequency [MHz]	(P)	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]
No emissions were detected at a level greater than 20dB below limit.							

Remarks

1. The worst emission was found in li-down position(Z axis) and the worst case was recorded.



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4.7 AC Conducted Emissions

Test Location
 Shielded Room

Frequency Range of Measurement
 150 kHz to 30 MHz

Instrument Settings
 IF Band Width: 9 kHz

Test Procedures

The EUT was placed on a non-metallic table 0.8m above the metallic, grounded floor and 0.4m from the reference ground plane wall. The distance to other metallic surfaces was at least 0.8m.

Amplitude measurements were performed with a quasi-peak detector and an average detector.

Limit

- 15.207(a)

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56*	56 to 46*
0.5 ~ 5	56	46
5 ~ 30	60	50

* Decreases with the logarithm of the frequency.

Test Results

The requirements are:

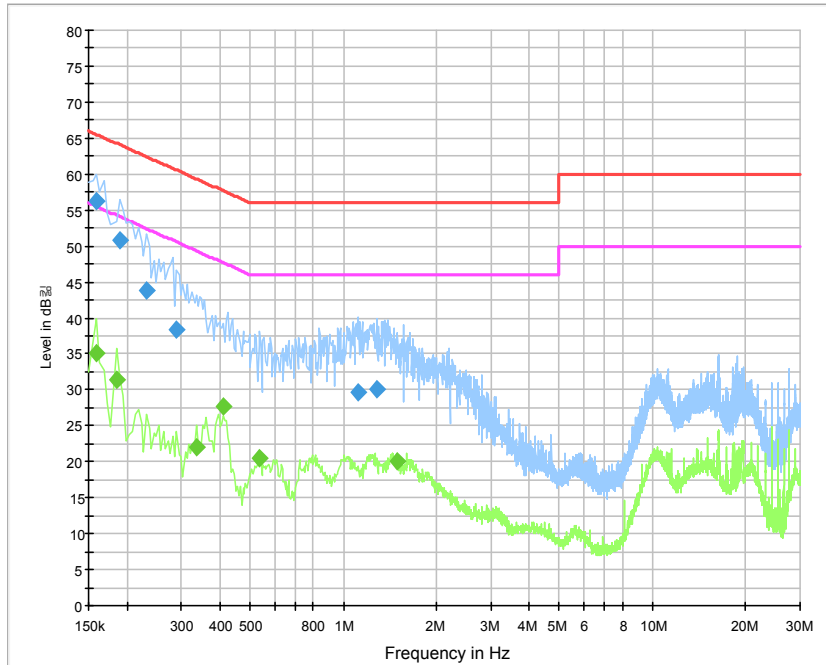
Complies

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
0.159	56.3	9.2	Quasi-peak

Test Data

[LINE]

Class B_L1



Final Result 1

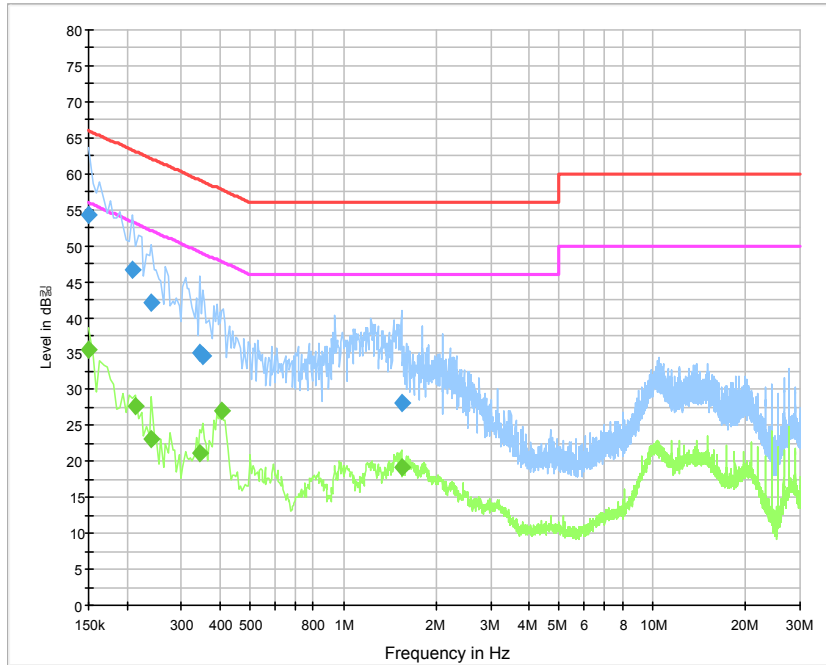
Frequency (MHz)	QuasiPeak (dBμ)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμ)
0.159000	56.3	1000.0	9.000	On	L1	9.8	9.2	65.5
0.190500	50.8	1000.0	9.000	On	L1	9.9	13.2	64.0
0.231000	43.9	1000.0	9.000	On	L1	9.7	18.5	62.4
0.289500	38.3	1000.0	9.000	On	L1	9.7	22.2	60.5
1.122000	29.7	1000.0	9.000	On	L1	9.7	26.3	56.0
1.284000	30.1	1000.0	9.000	On	L1	9.7	25.9	56.0

Final Result 2

Frequency (MHz)	CAverage (dBμ)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμ)
0.159000	35.0	1000.0	9.000	On	L1	9.8	20.5	55.5
0.186000	31.4	1000.0	9.000	On	L1	9.9	22.8	54.2
0.334500	22.0	1000.0	9.000	On	L1	9.8	27.3	49.3
0.411000	27.6	1000.0	9.000	On	L1	9.9	20.0	47.6
0.537000	20.5	1000.0	9.000	On	L1	9.9	25.5	46.0
1.486500	20.0	1000.0	9.000	On	L1	9.7	26.0	46.0

[NEUTRAL]

Class B_N



Final Result 1

Frequency (MHz)	QuasiPeak (dBμ)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμ)
0.150000	54.2	1000.0	9.000	On	N	9.8	11.8	66.0
0.208500	46.6	1000.0	9.000	On	N	9.9	16.7	63.3
0.240000	42.1	1000.0	9.000	On	N	9.7	20.0	62.1
0.343500	35.1	1000.0	9.000	On	N	9.8	24.0	59.1
0.352500	34.7	1000.0	9.000	On	N	9.8	24.2	58.9
1.540500	28.1	1000.0	9.000	On	N	9.7	27.9	56.0

Final Result 2

Frequency (MHz)	CAverage (dBμ)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμ)
0.150000	35.6	1000.0	9.000	On	N	9.8	20.4	56.0
0.213000	27.7	1000.0	9.000	On	N	9.8	25.4	53.1
0.240000	23.0	1000.0	9.000	On	N	9.7	29.1	52.1
0.343500	21.2	1000.0	9.000	On	N	9.8	27.9	49.1
0.406500	26.9	1000.0	9.000	On	N	9.9	20.8	47.7
1.540500	19.1	1000.0	9.000	On	N	9.7	26.9	46.0



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APPENDIX A – Test Equipment Used For Tests

	Name of Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Signal Analyzer	Agilent	N9020A	MY48011598	2017-11-01	2018-11-01
2	Signal Generator	Rohde & Schwarz	SMB100A	175528	2017-11-01	2018-11-01
3	EMI Test Receiver	Rohde & Schwarz	ESCI7	100814	2017-11-01	2018-11-01
4	Bilog Antenna	Schaffner	CBL6111C	2551	2016-05-13	2018-05-13
5	Active Loop Antenna	SCHWARZBECK	FMZB 1513	1513-125	2016-05-16	2018-05-16
6	6dB Attenuator	R&S	DNF	272.4110.50-2	2017-11-01	2018-11-01
7	6dB Attenuator	R&S	DNF	272.4110.50-1	2017-02-03	2018-02-03
8	AMPLIFIER	SONOMA	310	291721	2017-02-02	2018-02-02
9	LISN	Rohde & Schwarz	ENV216	101235	2017-05-09	2018-05-09
10	Preamplifier	Agilent	8449B	3008A02011	2016-12-01	2017-12-01
11	Horn Antenna	ETS-Lindgren	3115	00078895	2017-04-25	2019-04-25
12	Horn Antenna	ETS-Lindgren	3116	00062916	2017-04-25	2019-04-25
13	Horn Antenna	ETS-Lindgren	3117	00154525	2017-09-14	2019-09-14
14	Band Reject Filter	Micro Tronics	BRM50702	G233	2017-02-03	2018-02-03
15	EMI Test Receiver	Rohde & Schwarz	ESU40	100336	2017-05-12	2018-05-12