Ant.0

802.11n_40MHz BW (UNII 1)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11n_40M BW Mode: 5190~5230)

802.11n(40MHz) Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5190	38	0	3.27	0.44	3.71	23.98
		1	2.72	0.77	3.49	23.98
		2	2.44	1.07	3.51	23.98
		3	2.23	1.37	3.60	23.98
		4	1.76	1.79	3.55	23.98
		5	1.42	2.16	3.59	23.98
		6	1.33	2.27	3.61	23.98
		7	1.18	2.47	3.65	23.98
5230	46	0	3.16	0.44	3.60	23.98
		1	2.86	0.77	3.63	23.98
		2	2.49	1.07	3.56	23.98
		3	2.22	1.37	3.59	23.98
		4	1.76	1.79	3.55	23.98
		5	1.45	2.16	3.61	23.98
		6	1.30	2.27	3.57	23.98
		7	1.12	2.47	3.59	23.98

Ant.1

802.11n_40MHz BW (UNII 1)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11n_40M BW Mode: 5190~5230)

802.11n(40MHz) Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5190	38	0	3.12	0.44	3.56	23.98
		1	2.95	0.77	3.72	23.98
		2	2.73	1.13	3.86	23.98
		3	2.26	1.37	3.63	23.98
		4	2.01	1.79	3.81	23.98
		5	1.48	2.16	3.64	23.98
		6	1.45	2.30	3.75	23.98
		7	1.29	2.45	3.74	23.98
5230	46	0	2.87	0.44	3.31	23.98
		1	2.59	0.77	3.36	23.98
		2	2.29	1.13	3.42	23.98
		3	2.06	1.37	3.43	23.98
		4	1.63	1.79	3.42	23.98
		5	1.29	2.16	3.45	23.98
		6	1.19	2.30	3.49	23.98
		7	1.02	2.45	3.47	23.98

▣ TEST RESULTS _ Sum Data of Ant.0 and Ant.1 (UNII 1)

Conducted Output Power Measurements (802.11n_40M BW Mode: 5190~5230)

802.11n(40MHz) Mode		MCS Index	Measured Power (dBm)	Limit (dBm)
Frequency [MHz]	Channel No.			
5190	38	0	6.65	23.98
		1	6.62	23.98
		2	6.70	23.98
		3	6.63	23.98
		4	6.69	23.98
		5	6.63	23.98
		6	6.69	23.98
		7	6.71	23.98
5230	46	0	6.47	23.98
		1	6.51	23.98
		2	6.50	23.98
		3	6.52	23.98
		4	6.50	23.98
		5	6.54	23.98
		6	6.54	23.98
		7	6.54	23.98

Ant.0

802.11n_40MHz BW (UNII 3)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11n_40M BW Mode: 5755~5795)

802.11n(40MHz) Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5755	151	0	1.89	0.44	2.33	30
		1	1.54	0.77	2.31	30
		2	1.22	1.07	2.29	30
		3	1.01	1.37	2.38	30
		4	0.46	1.79	2.25	30
		5	0.17	2.16	2.33	30
		6	0.03	2.27	2.30	30
		7	-0.12	2.47	2.35	30
5795	159	0	2.38	0.44	2.82	30
		1	2.00	0.77	2.76	30
		2	1.70	1.07	2.77	30
		3	1.47	1.37	2.84	30
		4	1.01	1.79	2.81	30
		5	0.68	2.16	2.84	30
		6	0.59	2.27	2.86	30
		7	0.44	2.47	2.91	30

Ant.1

802.11n_40MHz BW (UNII 3)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11n_40M BW Mode: 5755~5795)

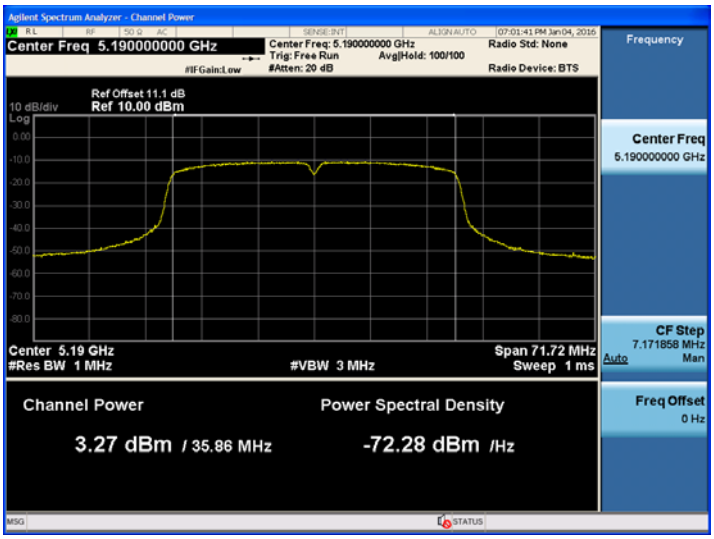
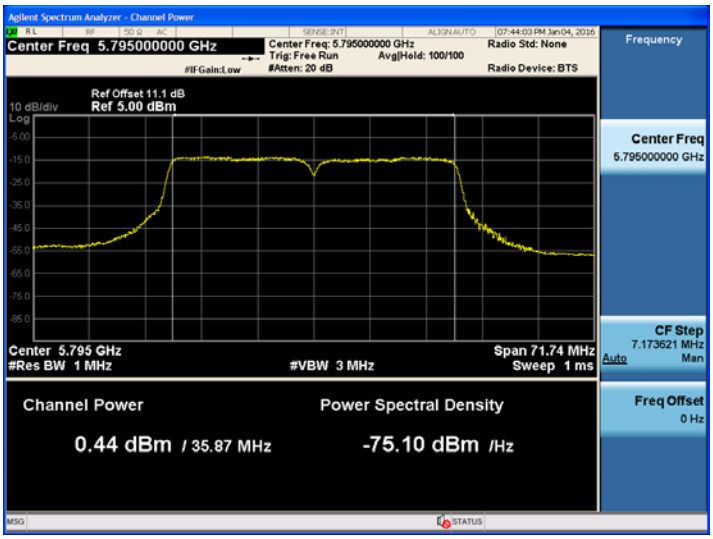
802.11n(40MHz) Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5755	151	0	2.48	0.44	2.92	30
		1	2.13	0.77	2.90	30
		2	1.84	1.13	2.97	30
		3	1.61	1.37	2.98	30
		4	1.16	1.79	2.95	30
		5	0.90	2.16	3.06	30
		6	0.75	2.30	3.05	30
		7	0.58	2.45	3.03	30
5795	159	0	3.28	0.44	3.72	30
		1	2.92	0.77	3.69	30
		2	2.65	1.13	3.79	30
		3	2.46	1.37	3.83	30
		4	2.04	1.79	3.84	30
		5	1.70	2.16	3.86	30
		6	1.55	2.30	3.86	30
		7	1.46	2.45	3.91	30

▣ TEST RESULTS_ Sum Data of Ant.0 and Ant.1 (UNII 3)

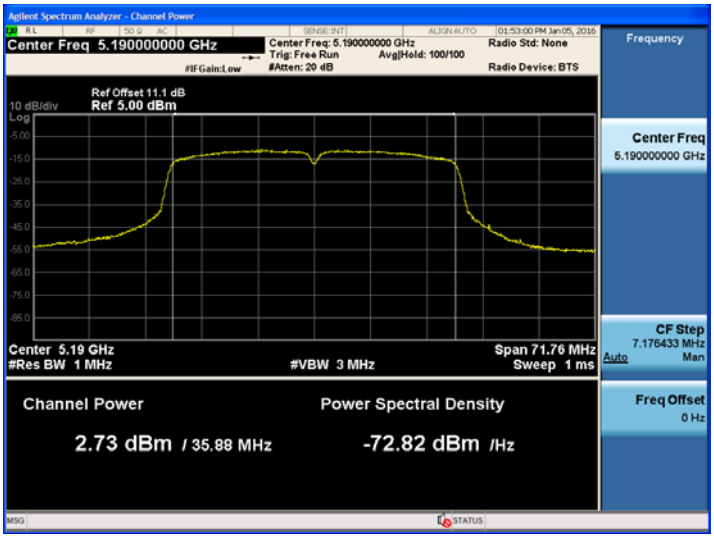
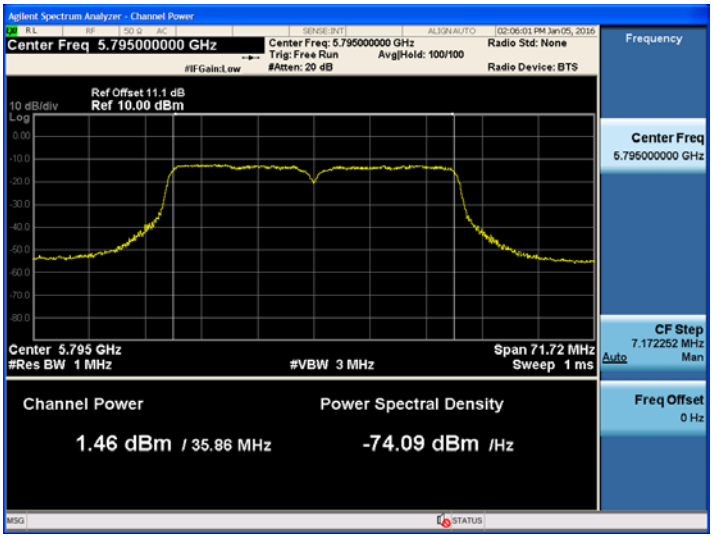
Conducted Output Power Measurements (802.11n_40M BW Mode: 5755~5795)

802.11n(40MHz) Mode		MCS Index	Measured Power (dBm)	Limit (dBm)
Frequency [MHz]	Channel No.			
5755	151	0	5.65	30
		1	5.63	30
		2	5.65	30
		3	5.70	30
		4	5.62	30
		5	5.72	30
		6	5.70	30
		7	5.71	30
5795	159	0	6.30	30
		1	6.26	30
		2	6.32	30
		3	6.37	30
		4	6.37	30
		5	6.39	30
		6	6.40	30
		7	6.45	30

▣ TEST Plots for Ant.0_802.11n_40MHz BW

802.11n_40 MHz BW UNII 1 BAND Average Power (5190 MHz ~5230 MHz) CH 38 MCS0	802.11n_40 MHz BW UNII 3 BAND Average Power (5775 MHz ~5795 MHz) CH 159 MCS7
	

▣ TEST Plots for Ant.1_802.11n_40MHz BW

802.11n_40 MHz BW UNII 1 BAND Average Power (5190 MHz ~5230 MHz) CH 38 MCS2	802.11n_40 MHz BW UNII 3 BAND Average Power (5775 MHz ~5795 MHz) CH 159 MCS7
	

Ant.0

802.11ac _40MHz BW (UNII 1)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11ac_40M BW Mode: 5190~5230)

802.11ac(40MHz) Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5190	38	0	1.13	0.43	1.56	23.98
		1	0.71	0.77	1.48	23.98
		2	0.46	1.10	1.56	23.98
		3	0.30	1.37	1.67	23.98
		4	-0.22	1.81	1.59	23.98
		5	-0.58	2.10	1.52	23.98
		6	-0.67	2.24	1.57	23.98
		7	-0.84	2.39	1.55	23.98
5230	46	0	-1.06	2.66	1.60	23.98
		1	-1.24	2.78	1.54	23.98
		2	1.11	0.43	1.55	23.98
		3	0.71	0.77	1.48	23.98
		4	0.44	1.10	1.54	23.98
		5	0.15	1.37	1.52	23.98
		6	-0.30	1.81	1.50	23.98
		7	-0.57	2.10	1.53	23.98

Ant.1

802.11ac _40MHz BW (UNII 1)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11ac_40M BW Mode: 5190~5230)

802.11ac(40MHz) Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5190	38	0	1.28	0.42	1.70	23.98
		1	1.02	0.80	1.81	23.98
		2	0.69	1.07	1.75	23.98
		3	0.37	1.37	1.74	23.98
		4	-0.13	1.76	1.63	23.98
		5	-0.43	2.08	1.65	23.98
		6	-0.54	2.25	1.72	23.98
		7	-0.73	2.35	1.62	23.98
5230	46	0	-0.96	2.66	1.70	23.98
		1	-1.23	2.74	1.51	23.98
		2	0.92	0.42	1.34	23.98
		3	0.60	0.80	1.40	23.98
		4	0.30	1.07	1.36	23.98
		5	0.12	1.37	1.49	23.98
		6	-0.36	1.76	1.40	23.98
		7	-0.67	2.08	1.41	23.98

▣ TEST RESULTS_ Sum Data of Ant.0 and Ant.1 (UNII 1)

Conducted Output Power Measurements (802.11ac_40M BW Mode: 5190~5230)

802.11ac(40MHz) Mode		MCS Index	Measured Power (dBm)	Limit (dBm)
Frequency [MHz]	Channel No.			
5190	38	0	4.64	23.98
		1	4.66	23.98
		2	4.67	23.98
		3	4.72	23.98
		4	4.62	23.98
		5	4.60	23.98
		6	4.66	23.98
		7	4.60	23.98
5230	46	0	4.66	23.98
		1	4.54	23.98
		2	4.46	23.98
		3	4.45	23.98
		4	4.46	23.98
		5	4.52	23.98
		6	4.46	23.98
		7	4.48	23.98

Ant.0

802.11ac_40MHz BW (UNII 3)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11ac_40M BW Mode: 5755~5795)

802.11ac(40MHz) Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5755	151	0	0.85	0.43	1.28	30
		1	0.56	0.77	1.34	30
		2	0.22	1.10	1.32	30
		3	0.00	1.37	1.37	30
		4	-0.50	1.81	1.31	30
		5	-0.78	2.10	1.32	30
		6	-0.93	2.24	1.31	30
		7	-1.07	2.39	1.32	30
5795	159	0	-1.29	2.66	1.37	30
		1	-1.49	2.78	1.30	30
		2	0.41	0.43	0.84	30
		3	0.13	0.77	0.90	30
		4	-0.24	1.10	0.87	30
		5	-0.48	1.37	0.89	30
		6	-0.90	1.81	0.90	30
		7	-1.22	2.10	0.88	30

Ant.1

802.11ac_40MHz BW (UNII 3)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11ac_40M BW Mode: 5755~5795)

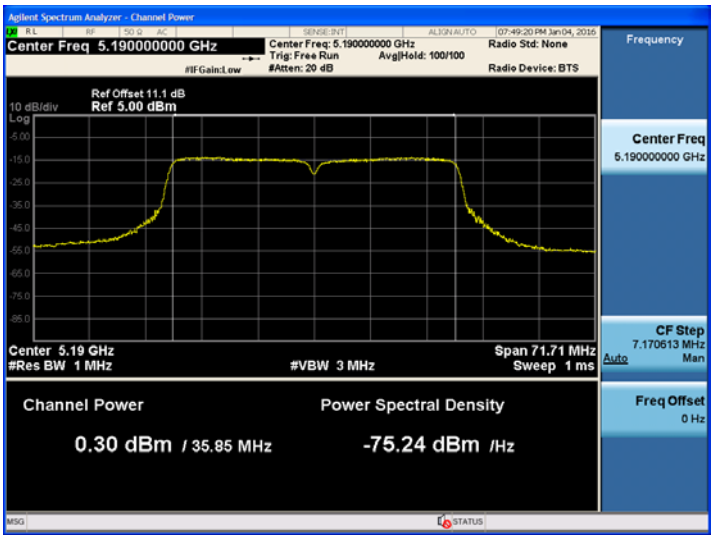
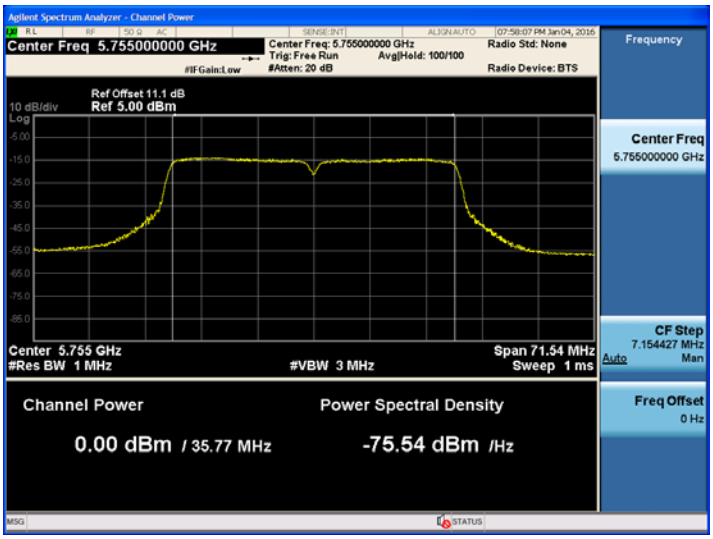
802.11ac(40MHz) Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5755	151	0	1.42	0.42	1.84	30
		1	1.02	0.80	1.82	30
		2	0.78	1.07	1.85	30
		3	0.44	1.37	1.81	30
		4	0.18	1.76	1.94	30
		5	-0.15	2.08	1.94	30
		6	-0.32	2.25	1.93	30
		7	-0.44	2.35	1.90	30
5795	159	0	-0.72	2.66	1.94	30
		1	-0.82	2.74	1.92	30
		2	1.19	0.42	1.61	30
		3	0.79	0.80	1.58	30
		4	0.51	1.07	1.58	30
		5	0.30	1.37	1.67	30
		6	-0.11	1.76	1.65	30
		7	-0.45	2.08	1.63	30

▣ TEST RESULTS_ Sum Data of Ant.0 and Ant.1 (UNII 3)

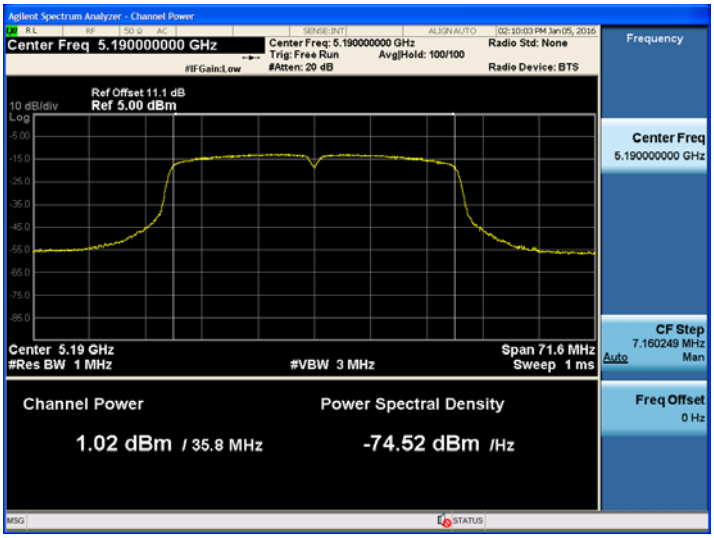
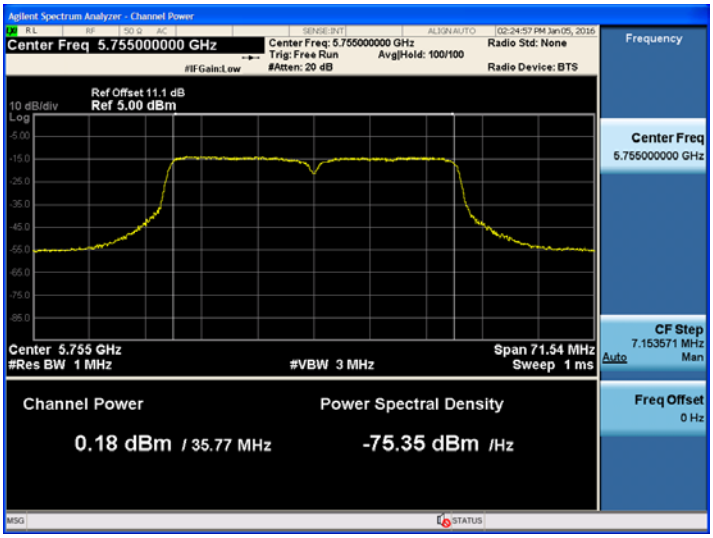
Conducted Output Power Measurements (802.11ac_40M BW Mode: 5755~5795)

802.11ac(40MHz) Mode		MCS Index	Measured Power (dBm)	Limit (dBm)
Frequency [MHz]	Channel No.			
5755	151	0	4.58	23.98
		1	4.60	23.98
		2	4.60	23.98
		3	4.61	23.98
		4	4.65	23.98
		5	4.65	23.98
		6	4.64	23.98
		7	4.63	23.98
5795	159	0	4.67	23.98
		1	4.63	23.98
		2	4.25	23.98
		3	4.26	23.98
		4	4.25	23.98
		5	4.31	23.98
		6	4.30	23.98
		7	4.28	23.98

▣ TEST Plots for Ant.0_802.11ac_40MHz BW

802.11ac_40 MHz BW UNII 1 BAND Average Power (5190 MHz ~5230 MHz) CH 38 MCS3	802.11ac_40 MHz BW UNII 3 BAND Average Power (5755 MHz ~5795 MHz) CH 151 MCS3
	

▣ TEST Plots for Ant.1_802.11ac_40MHz BW

802.11ac_40 MHz BW UNII 1 BAND Average Power (5190 MHz ~5230 MHz) CH 38 MCS1	802.11ac_40 MHz BW UNII 3 BAND Average Power (5755 MHz ~5795 MHz) CH 151 MCS4
	

Ant.0

802.11ac_80MHz BW (UNII 1)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11ac_80M BW Mode: 5210)

802.11ac(80MHz) Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5210	42	0	-0.32	0.84	0.52	23.98
		1	-0.85	1.40	0.55	23.98
		2	-1.27	1.89	0.62	23.98
		3	-1.40	2.21	0.81	23.98
		4	-1.92	2.69	0.77	23.98
		5	-2.26	3.01	0.75	23.98
		6	-2.43	3.20	0.77	23.98
		7	-2.48	3.33	0.86	23.98
		8	-2.73	3.57	0.84	23.98
		9	-2.92	3.71	0.79	23.98

Ant.1

802.11ac_80MHz BW (UNII 1)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11ac_80M BW Mode: 5210)

802.11ac(80MHz) Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5210	42	0	-0.77	0.82	0.05	23.98
		1	-1.22	1.43	0.21	23.98
		2	-1.71	1.86	0.14	23.98
		3	-1.83	2.21	0.38	23.98
		4	-2.36	2.69	0.33	23.98
		5	-2.72	2.99	0.27	23.98
		6	-2.78	3.18	0.40	23.98
		7	-2.87	3.28	0.42	23.98
		8	-3.10	3.52	0.41	23.98
		9	-3.21	3.65	0.44	23.98

▣ TEST RESULTS_ Sum Data of Ant.0 and Ant.1 (UNII 1)

Conducted Output Power Measurements (802.11ac_80M BW Mode: 5210)

802.11ac(80MHz) Mode		MCS Index	Measured Power (dBm)	Limit (dBm)
Frequency [MHz]	Channel No.			
5210	42	0	3.30	23.98
		1	3.39	23.98
		2	3.40	23.98
		3	3.61	23.98
		4	3.57	23.98
		5	3.53	23.98
		6	3.60	23.98
		7	3.66	23.98
		8	3.64	23.98
		9	3.63	23.98

Ant.0

802.11ac_80MHz BW (UNII 3)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11ac_80M BW Mode: 5775)

802.11ac(80MHz) Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5775	155	0	-0.61	0.84	0.23	30
		1	-1.15	1.40	0.25	30
		2	-1.56	1.89	0.32	30
		3	-1.74	2.21	0.47	30
		4	-2.20	2.69	0.49	30
		5	-2.53	3.01	0.48	30
		6	-2.85	3.20	0.35	30
		7	-2.87	3.33	0.47	30
		8	-3.05	3.57	0.52	30
		9	-3.23	3.71	0.48	30

Ant.1

802.11ac_80MHz BW (UNII 3)

▣ TEST RESULTS

Conducted Output Power Measurements (802.11ac_80M BW Mode: 5775)

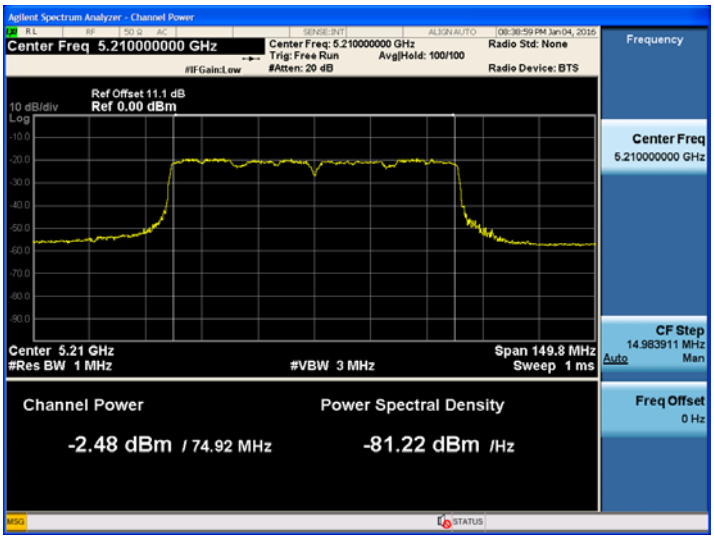
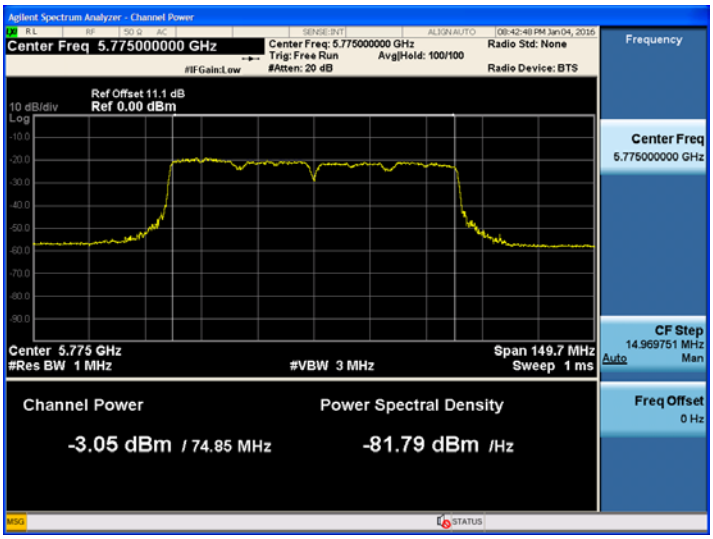
802.11ac(80MHz) Mode		MCS Index	Measured Power (dBm)	Duty Cycle Factor (dB)	Measured Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)
Frequency [MHz]	Channel No.					
5775	155	0	-0.24	0.82	0.59	30
		1	-0.80	1.43	0.62	30
		2	-1.25	1.86	0.60	30
		3	-1.32	2.21	0.89	30
		4	-1.86	2.69	0.83	30
		5	-2.11	2.99	0.88	30
		6	-2.37	3.18	0.80	30
		7	-2.37	3.28	0.91	30
		8	-2.67	3.52	0.85	30
		9	-2.74	3.65	0.90	30

▣ TEST RESULTS_Sum Data of Ant.0 and Ant.1 (UNII 3)

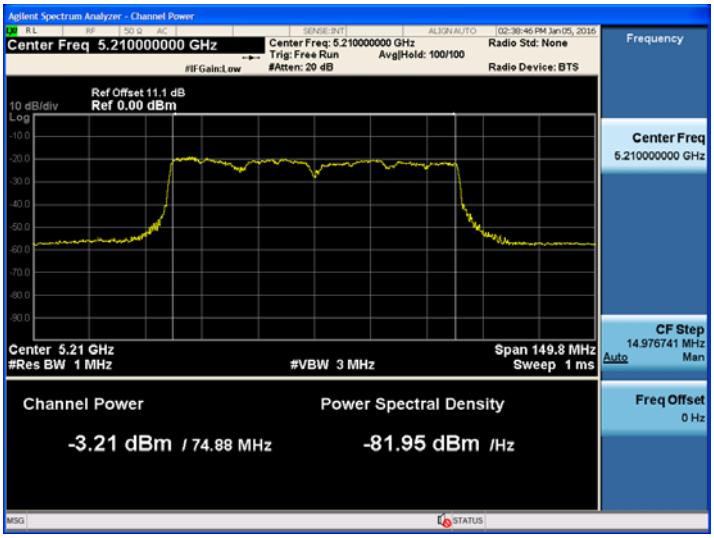
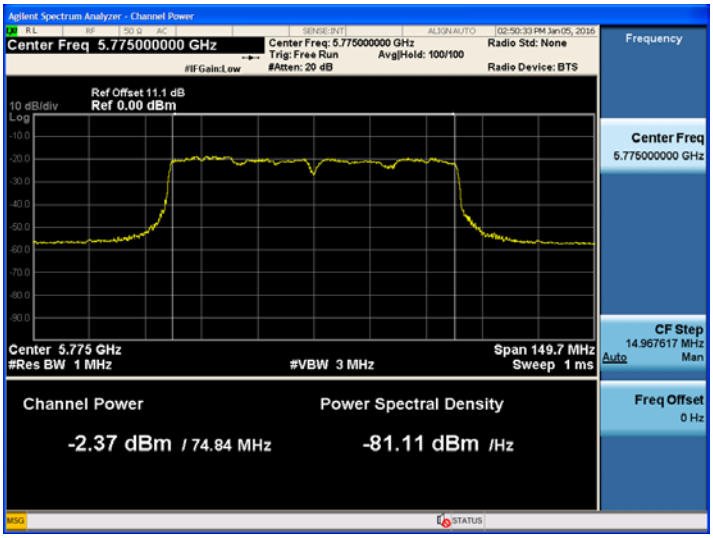
Conducted Output Power Measurements (802.11ac_80M BW Mode: 5775)

802.11ac(80MHz) Mode		MCS Index	Measured Power (dBm)	Limit (dBm)
Frequency [MHz]	Channel No.			
5775	155	0	3.42	30
		1	3.45	30
		2	3.47	30
		3	3.70	30
		4	3.67	30
		5	3.69	30
		6	3.59	30
		7	3.71	30
		8	3.70	30
		9	3.71	30

▣ TEST Plots Ant.0 for 802.11ac_80MHz BW

802.11ac_80 MHz BW UNII 1 BAND Average Power (5210 MHz) CH 42 MCS7	802.11ac_80 MHz BW UNII 3 BAND Average Power (5775 MHz) CH 58 MCS8
	

▣ TEST Plots Ant.1 for 802.11ac_80MHz BW

802.11ac_80 MHz BW UNII 1 BAND Average Power (5210 MHz) CH 42 MCS9	802.11ac_80 MHz BW UNII 3 BAND Average Power (5775 MHz) CH 58 MCS7
	

8.4 POWER SPECTRAL DENSITY

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. The maximum permissible peak power spectral density is 11 dBm/ MHz for UNII 1 and 30 dBm/500 kHz for UNII 3.

▣ Limit(CDD)

Power Spectral Density

Band	Mode	Limit
UNII 1	802.11a,n,ac	11 dBm/MHz
UNII 3	802.11a,n,ac	30 dBm/500 kHz

Power Spectral Density

Operating Mode	Band	Mode	Operating Ant.	Ant. Gain (dBi)	Limit
SISO	UNII 1	802.11a/n/ac	Ant 0	3.84	11 dBm/MHz
			Ant 1	4.90	11 dBm/MHz
	UNII 3		Ant 0	4.80	30 dBm/500 kHz
			Ant 1	4.65	30 dBm/500 kHz
MIMO(CDD)	UNII 1	802.11a/n_HT20	Ant 0 & 1	7.40	9.6 dBm/MHz
	UNII 3			7.74	28.26 dBm/500 kHz
MIMO(SDM)	UNII 1	802.11n/ac_VHT20/ ac_VHT40/ac_VHT80	Ant 0 & 1	4.40	11 dBm/MHz
	UNII 3			4.73	30 dBm/500 kHz

Note : 1. If all antenna gains are not equal,

Directional gain = $10*\log[(10^{G1/20} + 10^{G2/20}+\ldots+10^{GN/20})^2/N]$ dBi (CDD)

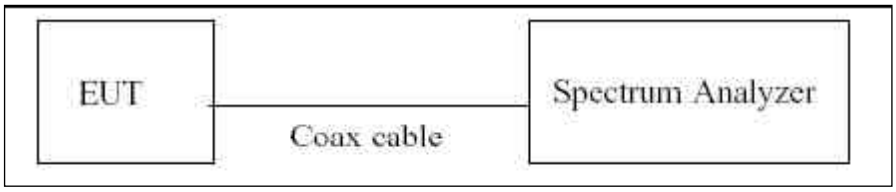
Directional gain = $10*\log[(10^{G1/10} + 10^{G2/10}+\ldots+10^{GN/10})/N]$ dBi (SDM)

(according to KDB662911 D01 v02r01)

2. Limit is calculated by antenna gain.

3. The limits of maximum conducted power were applied the antenna gain. Therefore, if conducted power is pass, e.i.r.p. is also pass. So, we attached only conducted power table.

▣ TEST CONFIGURATION



▣ TEST PROCEDURE

We tested according to Method in KDB 789033(issued 06/06/2014).

The spectrum analyzer is set to :

1. Set span to encompass the entire emission bandwidth(EBW) of the signal.
2. RBW = 1 MHz(510 kHz for UNII 3)
3. VBW ≥ 3 MHz
4. Number of points in sweep ≥ 2*span/RBW.
5. Sweep time = auto.
6. Detector = RMS(i.e., power averaging), if available. Otherwise, use sample detector mode.
7. Do not use sweep triggering. Allow the sweep to “free run”.
8. Trace average at least 100 traces in power averaging(RMS) mode
9. Use the peak search function on the spectrum analyzer to find the peak of the spectrum.
10. If Method SA-2 was used, add 10 log(1/x), where x is the duty cycle, to the peak of the spectrum.

▣ Sample Calculation

PSD = Reading Value + ATT loss + Cable loss(1 ea) + Duty Cycle Factor

Output Power = -5 dBm + 10 dB + 0.8 dB + 0.21 dB = 16.01 dBm

Note :

1. Spectrum reading values are not plot data. The PSD results in plot is already including the actual values of loss for the attenuator and cable combination.
2. Spectrum offset = Attenuator loss + Cable loss
3. We apply to the offset in the 5.2 GHz, 5.3 GHz and 5.6 GHz range that was rounded off to the closest tenth dB. Actual value of loss for the attenuator and cable combination is below table.

Band	Loss(dB)
UNII 1, 3	11.1

(Actual value of loss for the attenuator and cable combination)

Ant.0

▣ TEST RESULTS

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result				
			Measured Power Density (dBm)	Duty Cycle Factor (dB)	Measured Power Density(dBm) + Duty Cycle Factor	Limit (dBm)	Pass/Fail
5180	36	802.11a	-7.937	1.454	-6.483	11	Pass
5200	40		-8.924	1.331	-7.593	11	Pass
5240	48		-7.314	1.454	-5.860	11	Pass
5745	149		-10.559	1.454	-9.105	30	Pass
5785	157		-8.740	1.454	-7.286	30	Pass
5825	165		-8.161	0.746	-7.415	30	Pass
5180	36	802.11n 20MHz BW	-9.185	1.471	-7.714	11	Pass
5200	40		-9.290	1.471	-7.819	11	Pass
5240	48		-8.905	1.568	-7.337	11	Pass
5745	149		-10.875	1.341	-9.534	30	Pass
5785	157		-11.277	1.471	-9.806	30	Pass
5825	165		-11.184	1.471	-9.713	30	Pass
5180	36	802.11ac 20MHz BW	-11.171	1.427	-9.744	11	Pass
5200	40		-11.545	1.732	-9.813	11	Pass
5240	48		-10.981	1.427	-9.554	11	Pass
5745	149		-13.263	1.732	-11.531	30	Pass
5785	157		-13.136	1.427	-11.709	30	Pass
5825	165		-13.005	1.427	-11.578	30	Pass

Ant.1

▣ TEST RESULTS

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result				
			Measured Power Density (dBm)	Duty Cycle Factor (dB)	Measured Power Density(dBm) + Duty Cycle Factor	Limit (dBm)	Pass/Fail
5180	36	802.11a	-7.214	1.434	-5.780	11	Pass
5200	40		-8.180	1.320	-6.860	11	Pass
5240	48		-6.680	1.320	-5.360	11	Pass
5745	149		-9.891	1.320	-8.571	30	Pass
5785	157		-8.280	1.320	-6.960	30	Pass
5825	165		-8.110	1.320	-6.790	30	Pass
5180	36	802.11n 20MHz BW	-8.480	1.596	-6.884	11	Pass
5200	40		-8.347	1.341	-7.006	11	Pass
5240	48		-8.210	1.596	-6.614	11	Pass
5745	149		-10.346	1.596	-8.750	30	Pass
5785	157		-10.744	1.596	-9.148	30	Pass
5825	165		-10.974	1.596	-9.378	30	Pass
5180	36	802.11ac 20MHz BW	-10.715	1.739	-8.976	11	Pass
5200	40		-10.617	1.739	-8.878	11	Pass
5240	48		-10.304	1.739	-8.565	11	Pass
5745	149		-12.226	1.419	-10.807	30	Pass
5785	157		-12.378	1.320	-11.058	30	Pass
5825	165		-12.768	1.739	-11.029	30	Pass

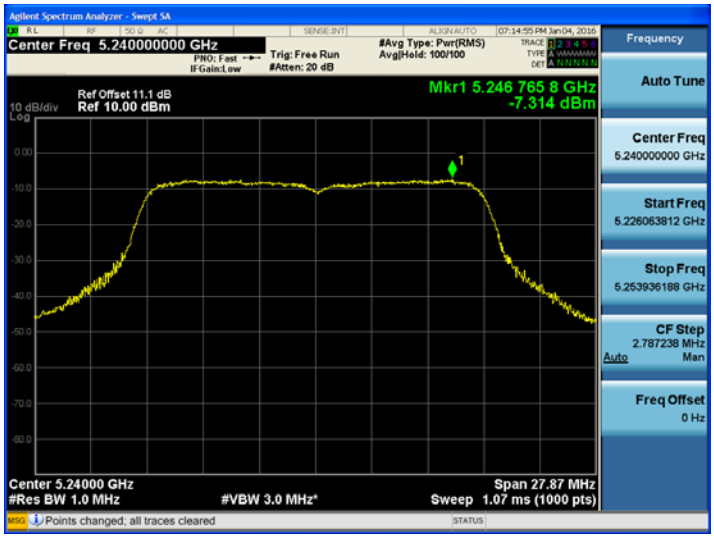
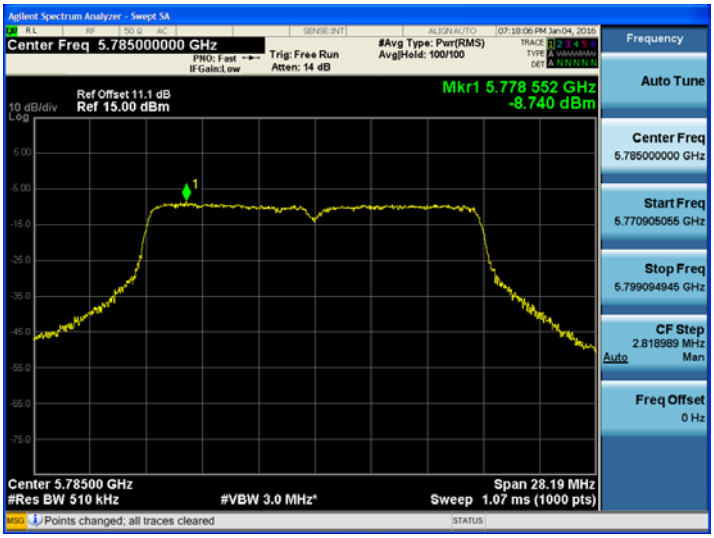
▣ **Sum Data of Ant.0 and Ant.1**

▣ **TEST RESULTS**

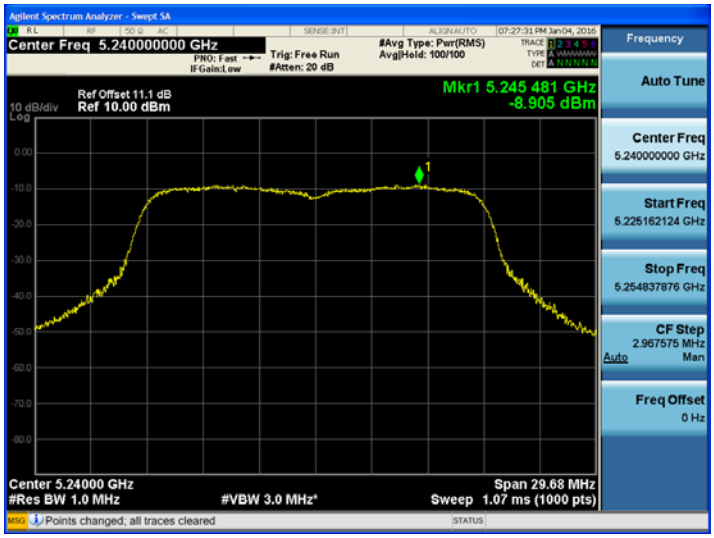
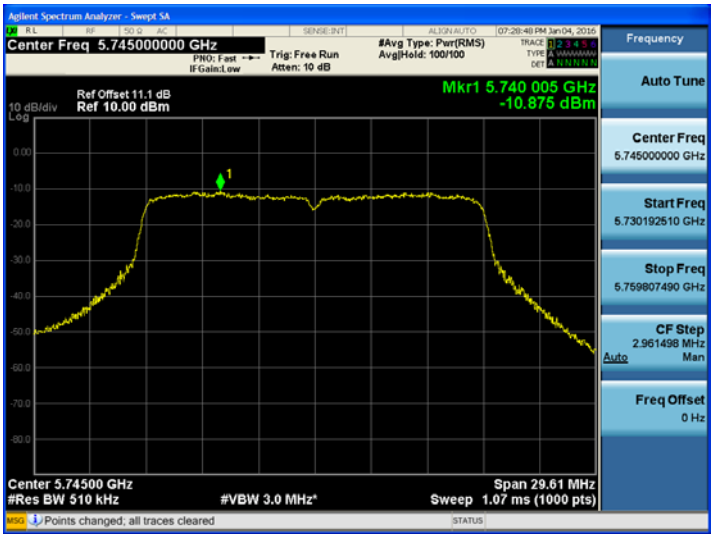
Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result		
			Measured Power Density (dBm)	Limit (dBm)	Pass/Fail
5180	36	802.11a	-3.11	9.6	Pass
5200	40		-4.20		Pass
5240	48		-2.59		Pass
5745	149		-5.82	28.26	Pass
5785	157		-4.11		Pass
5825	165		-4.08		Pass
5180	36	802.11n 20MHz BW	-4.27	9.6	Pass
5200	40		-4.38		Pass
5240	48		-3.95		Pass
5745	149		-6.11	28.26	Pass
5785	157		-6.45		Pass
5825	165		-6.53		Pass
5180	36	802.11ac 20MHz BW	-6.33	11	Pass
5200	40		-6.31		Pass
5240	48		-6.02		Pass
5745	149		-8.14	30	Pass
5785	157		-8.36		Pass
5825	165		-8.28		Pass

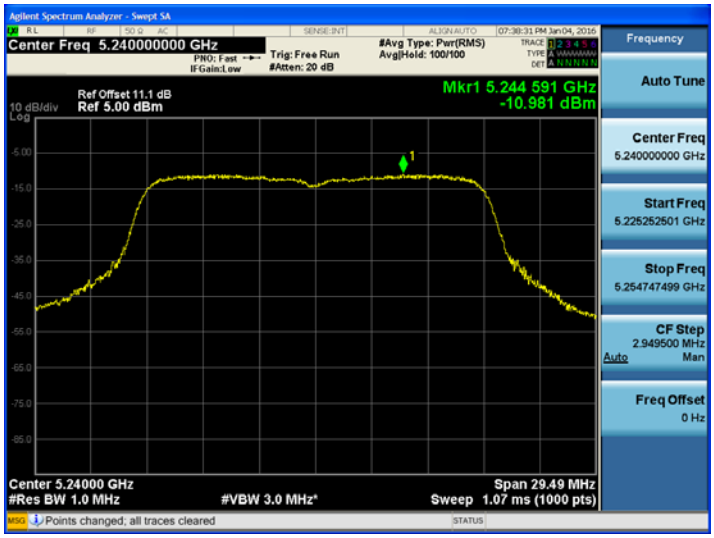
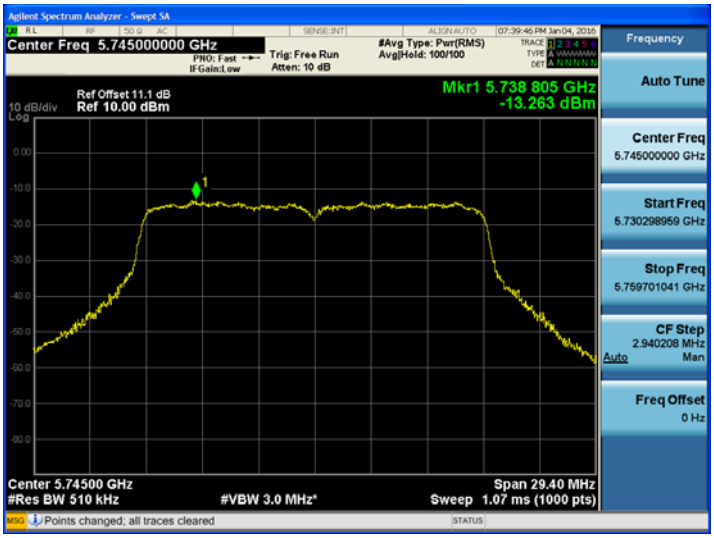
▣ TEST Plot for 802.11a 20MHz BW_Ant.0

802.11a_20MHz BW UNII 1 BAND PSD CH 48	802.11a_20MHz BW UNII 3 BAND PSD CH 157
	

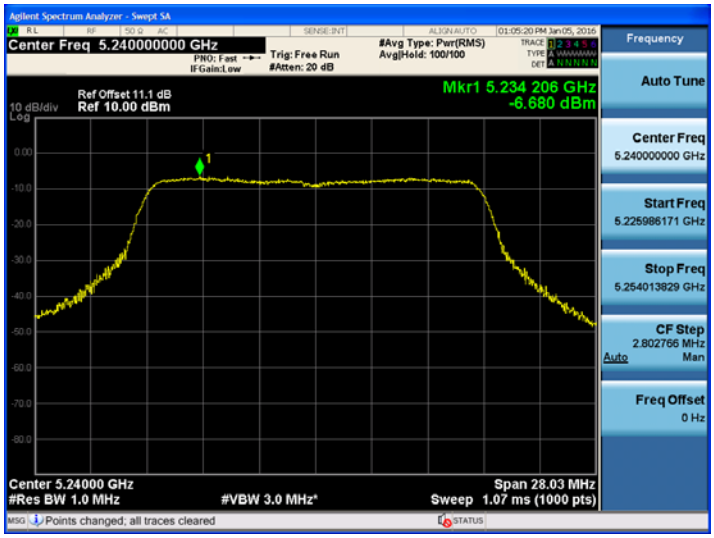
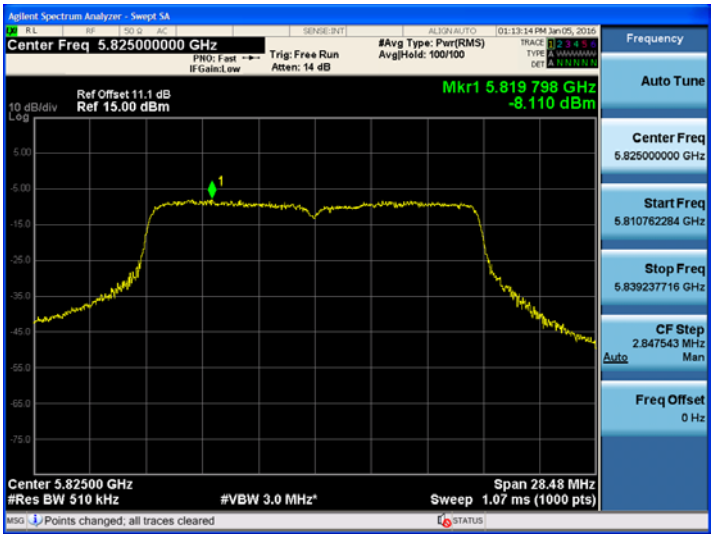
▣ TEST Plot for 802.11n 20MHz BW_Ant.0

802.11n_20MHz BW UNII 1 BAND PSD CH 48	802.11n_20MHz BW UNII 3 BAND PSD CH 149
	

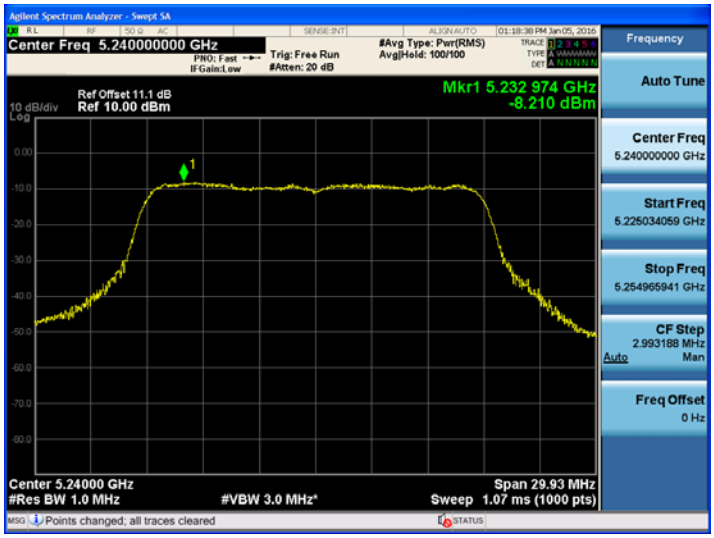
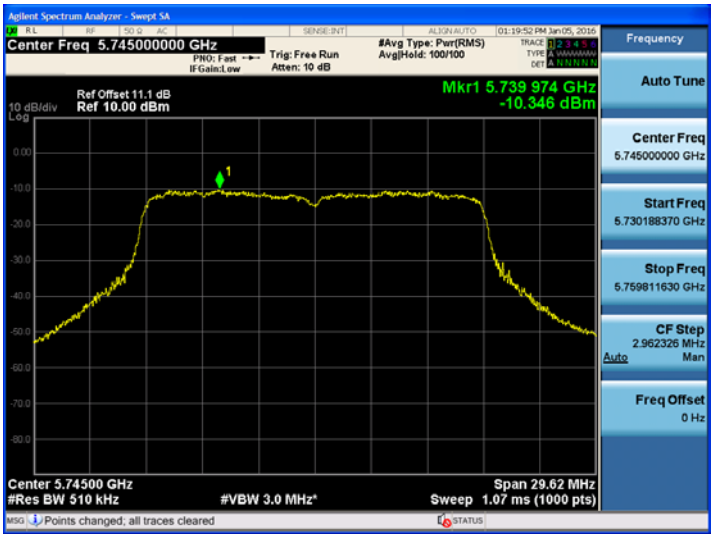
▣ TEST Plot for 802.11ac 20MHz BW_Ant.0

802.11ac_20MHz BW UNII 1 BAND PSD CH 48	802.11ac_20MHz BW UNII 3 BAND PSD CH 149
	

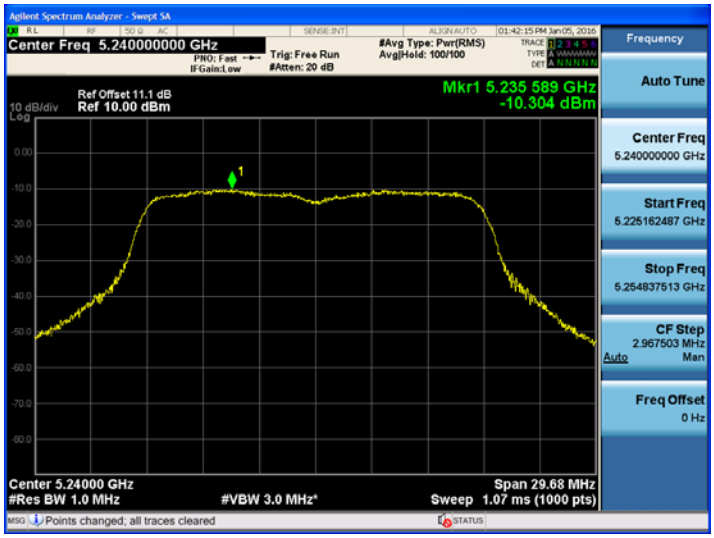
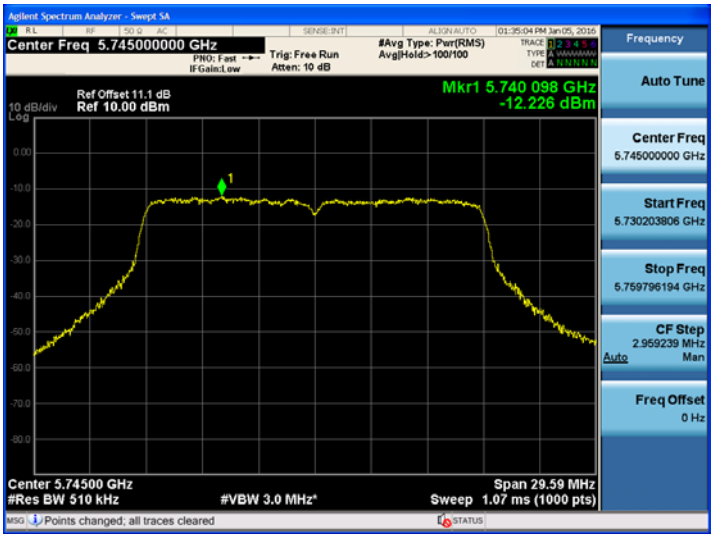
▣ TEST Plot for 802.11a 20MHz BW_Ant.1

802.11a_20MHz BW UNII 1 BAND PSD CH 48	802.11a_20MHz BW UNII 3 BAND PSD CH 165
	

▣ TEST Plot for 802.11n 20MHz BW_Ant.1

802.11n_20MHz BW UNII 1 BAND PSD CH 48	802.11n_20MHz BW UNII 3 BAND PSD CH 149
	

▣ TEST Plot for 802.11ac 20MHz BW_Ant.1

802.11ac_20MHz BW UNII 1 BAND PSD CH 48	802.11ac_20MHz BW UNII 3 BAND PSD CH 149
	

Ant.0

▣ TEST RESULTS

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result				
			Measured Power Density (dBm)	Duty Cycle Factor (dB)	Measured Power Density(dBm) + Duty Cycle Factor	Limit (dBm)	Pass/Fail
5190	38	802.11n 40MHz BW	-10.674	0.439	-10.235	11	Pass
5230	46		-11.011	0.770	-10.241	11	Pass
5755	151		-15.543	1.371	-14.172	30	Pass
5795	159		-16.066	2.469	-13.597	30	Pass
5190	38	802.11ac 40MHz BW	-14.285	1.370	-12.915	11	Pass
5230	46		-14.744	2.660	-12.084	11	Pass
5755	151		-16.496	1.370	-15.126	30	Pass
5795	159		-17.380	2.237	-15.143	30	Pass

Ant.1

▣ TEST RESULTS

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result				
			Measured Power Density (dBm)	Duty Cycle Factor (dB)	Measured Power Density(dBm) + Duty Cycle Factor	Limit (dBm)	Pass/Fail
5190	38	802.11n 40MHz BW	-11.286	1.134	-10.152	11	Pass
5230	46		-12.408	2.304	-10.104	11	Pass
5755	151		-15.015	2.161	-12.854	30	Pass
5795	159		-15.039	2.450	-12.589	30	Pass
5190	38	802.11ac 40MHz BW	-13.126	0.796	-12.330	11	Pass
5230	46		-15.000	2.660	-12.340	11	Pass
5755	151		-16.255	1.761	-14.494	30	Pass
5795	159		-16.659	2.660	-13.999	30	Pass

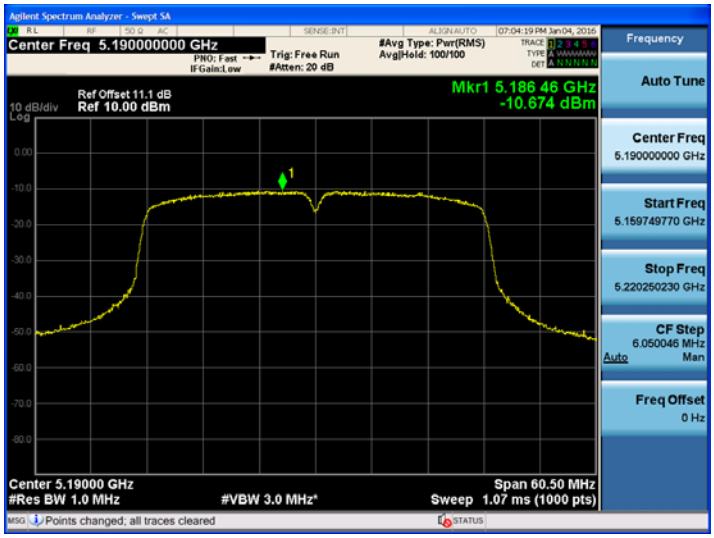
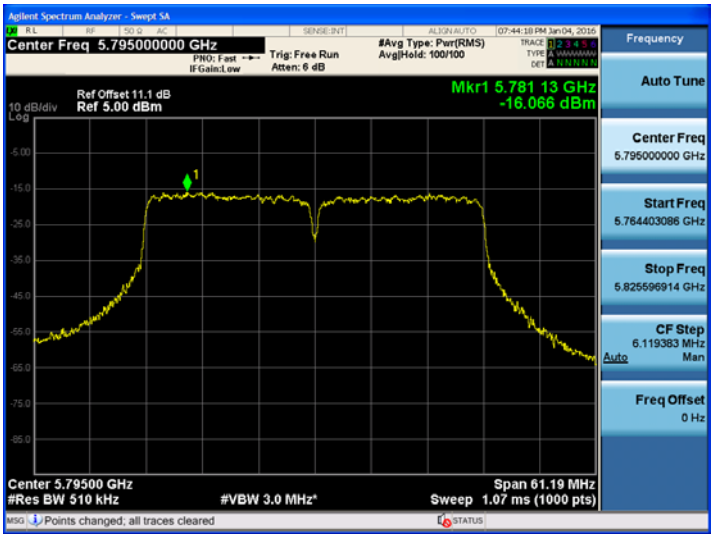
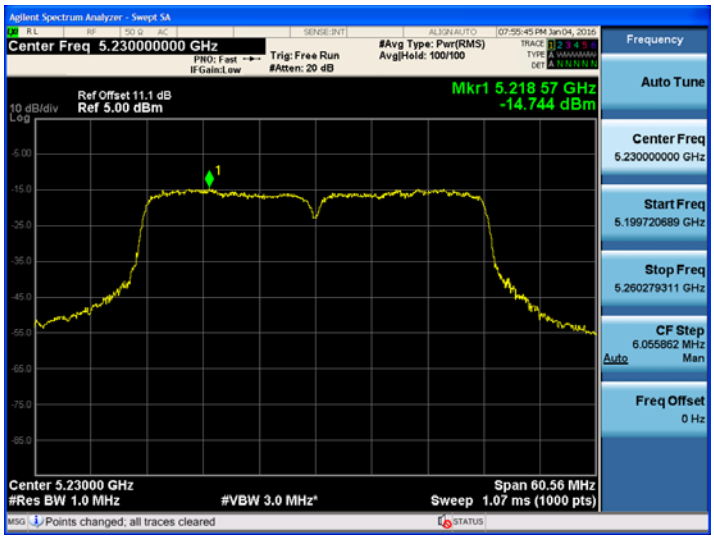
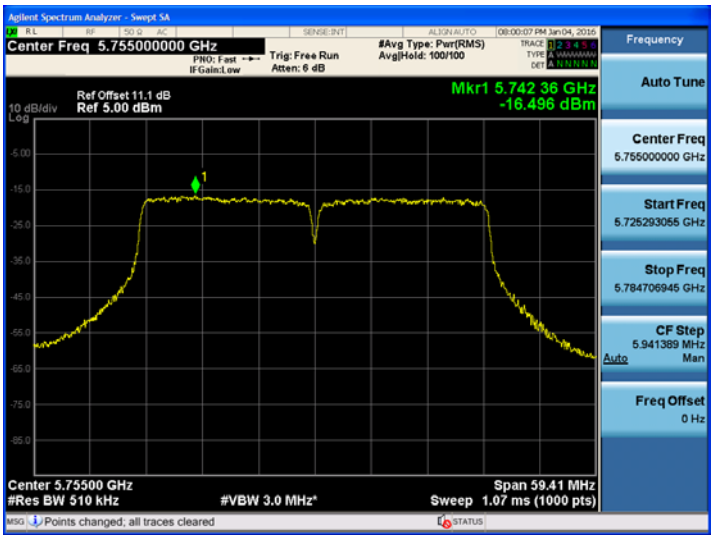
▣ **Sum Data of Ant.0 and Ant.1**

▣ **TEST RESULTS**

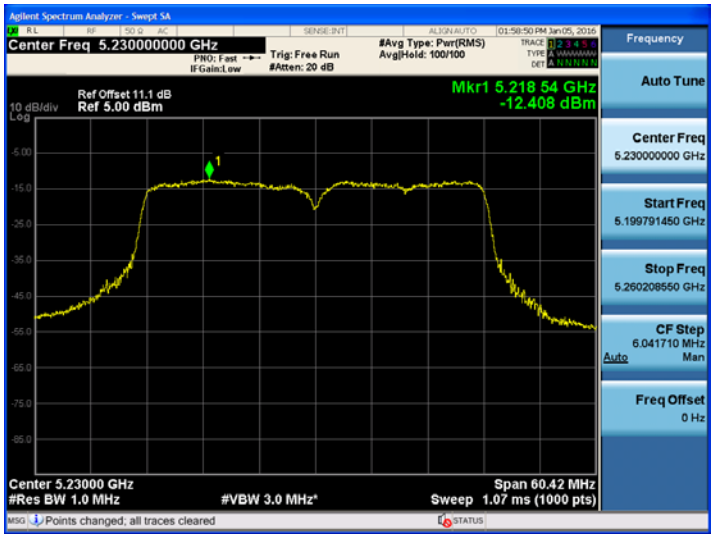
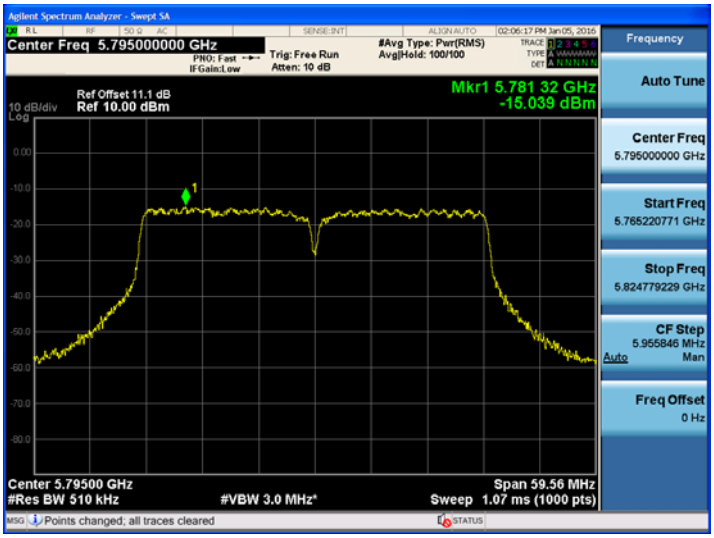
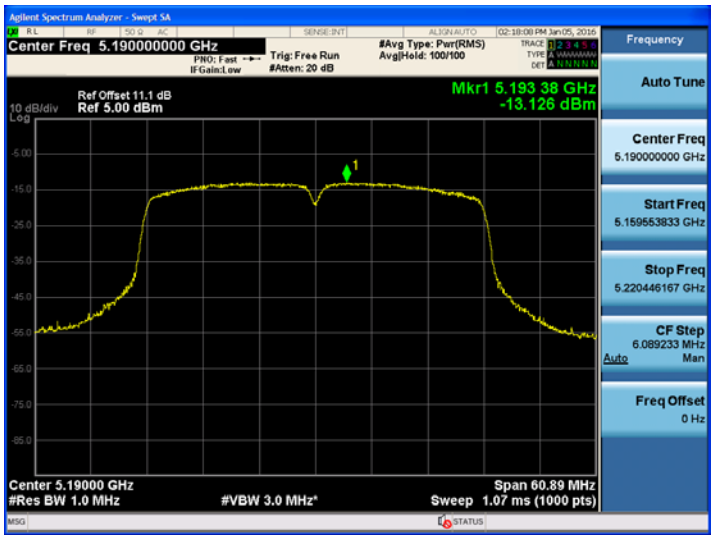
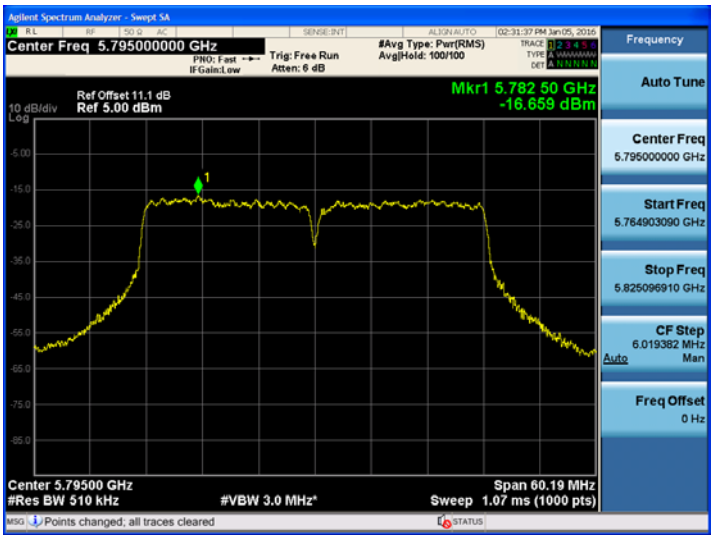
Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result		
			Measured Power Density (dBm)	Limit (dBm)	Pass/Fail
5190	38	802.11n 40MHz BW	-7.18	11	Pass
5230	46		-7.16	11	Pass
5755	151		-10.45	30	Pass
5795	159		-10.05	30	Pass
5190	38	802.11ac 40MHz BW	-9.60	11	Pass
5230	46		-9.20	11	Pass
5755	151		-11.79	30	Pass
5795	159		-11.52	30	Pass

▣ TEST Plot Ant.0

802.11n_40MHz BW UNII 1 BAND PSD CH 38	802.11n_40MHz BW UNII 3 BAND PSD CH159
	
802.11ac_40MHz BW UNII 1 BAND PSD CH 46	**802.11ac_40MHz BW UNII 3 BAND PSD CH 151**
	

▣ TEST Plot Ant.1

802.11n_40MHz BW UNII 1 BAND PSD CH 46	802.11n_40MHz BW UNII 3 BAND PSD CH159
	
802.11ac_40MHz BW UNII 1 BAND PSD CH 38	**802.11ac_40MHz BW UNII 3 BAND PSD CH 159**
	

Ant.0

▣ 802.11ac_80MHz BW

▣ TEST RESULTS

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result				
			Measured Power Density (dBm)	Duty Cycle Factor (dB)	Measured Power Density(dBm) + Duty Cycle Factor	Limit (dBm)	Pass/Fail
5210	42	802.11ac 80MHz BW	-20.048	3.334	-16.714	11	Pass
5775	155		-23.469	3.572	-19.897	30	Pass

Ant.1

▣ 802.11ac_80MHz BW

▣ TEST RESULTS

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result				
			Measured Power Density (dBm)	Duty Cycle Factor (dB)	Measured Power Density(dBm) + Duty Cycle Factor	Limit (dBm)	Pass/Fail
5210	42	802.11ac 80MHz BW	-19.757	3.646	-16.111	11	Pass
5775	155		-21.083	3.283	-17.800	30	Pass

▣ **Sum Data of Ant.0 and Ant.1**

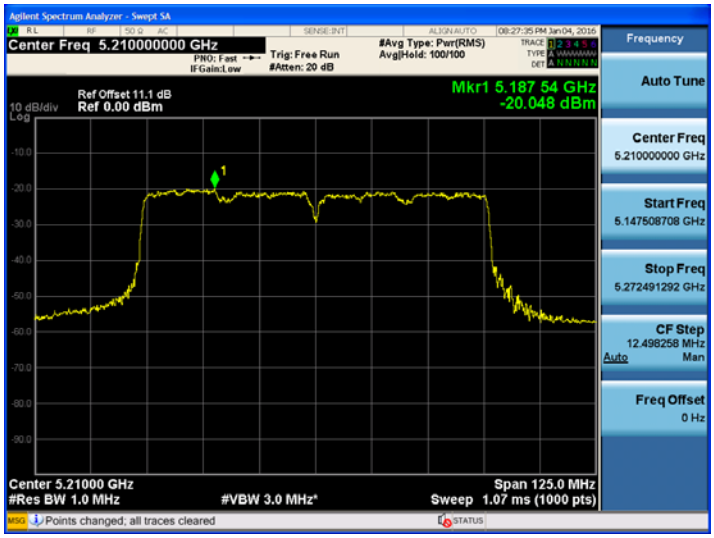
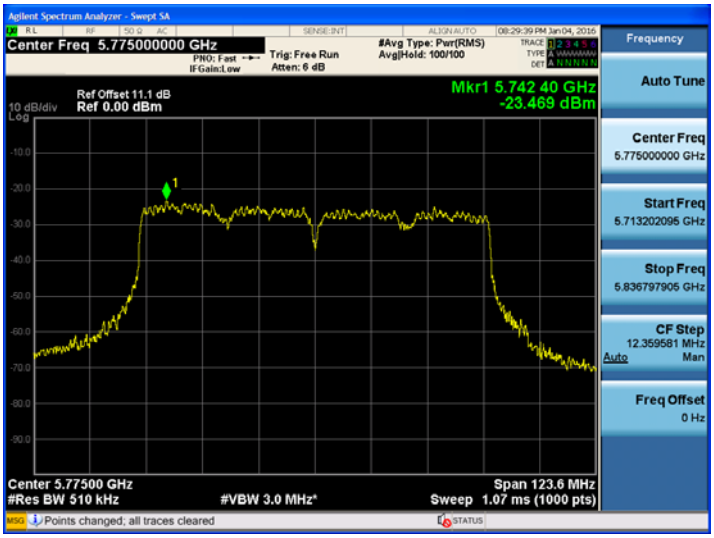
▣ **802.11ac_80MHz BW**

▣ **TEST RESULTS**

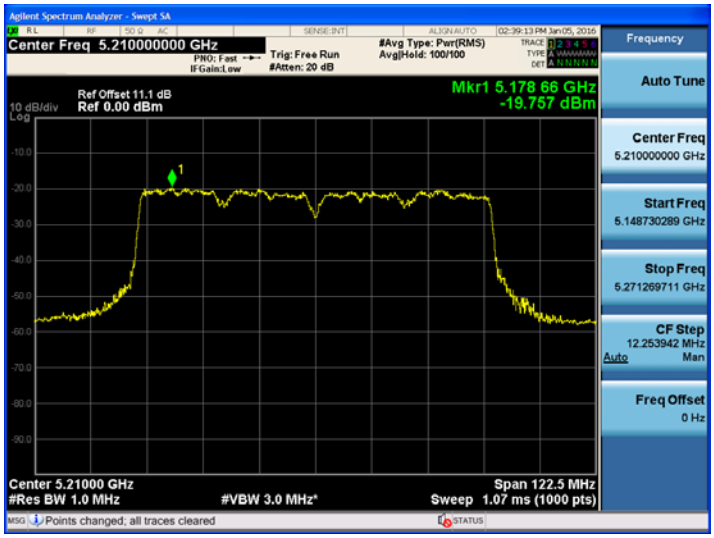
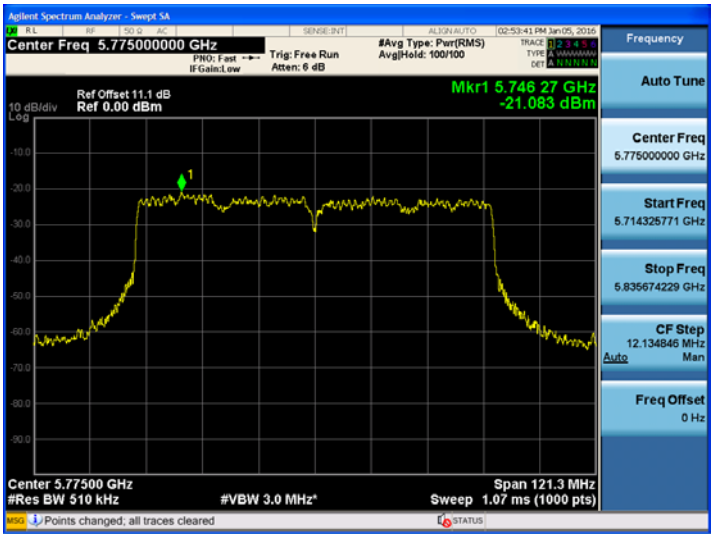
Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result		
			Measured Power Density (dBm)	Limit (dBm)	Pass/Fail
5210	42	802.11ac 80MHz BW	-13.39	11	Pass
5775	155		-15.71	30	Pass

▣ TEST Plot for Ant.0 802.11ac 80MHz BW

802.11ac_80MHz BW UNII 1 BAND PSD CH 42	802.11ac_80MHz BW UNII 3 BAND PSD CH 155
	

▣ TEST Plot for Ant.1 802.11ac 80MHz BW

802.11ac_80MHz BW UNII 1 BAND PSD CH 42	802.11ac_80MHz BW UNII 3 BAND PSD CH 155
	

8.5 FREQUENCY STABILITY.

The EUT was placed inside an environmental chamber as the temperature in the chamber was varied between -30 ℃ and 50 ℃. The temperature was incremented by 10 ℃ intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded.

20 MHz BW

OPERATING BAND: UNII Band 1
OPERATING FREQUENCY: 5,180,000,000 Hz
CHANNEL: 36
REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5179957.50	-42.50
100%		-30	5179938.74	-61.26
100%		-20	5179941.06	-58.94
100%		-10	5179948.33	-51.67
100%		0	5179951.79	-48.21
100%		+10	5179955.44	-44.56
100%		+30	5179964.84	-35.16
100%		+40	5179974.52	-25.48
100%		+50	5179978.31	-21.69
Batt. Endpoint	10.2	+20	5179956.45	-43.55

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

OPERATING BAND: UNII Band 3

OPERATING FREQUENCY: 5,745,000,000 Hz

CHANNEL: 149

REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5744954.82	-45.18
100%		-30	5744930.82	-69.18
100%		-20	5744938.71	-61.29
100%		-10	5744940.57	-59.43
100%		0	5744945.39	-54.61
100%		+10	5744950.92	-49.08
100%		+30	5744959.92	-40.08
100%		+40	5744962.66	-37.34
100%		+50	5744966.39	-33.61
Batt. Endpoint	10.2	+20	5744958.14	-41.86

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

40 MHz BW

OPERATING BAND: UNII Band 1

OPERATING FREQUENCY: 5,190,000,000 Hz

CHANNEL: 38

REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5189958.54	-41.46
100%		-30	5189935.32	-64.68
100%		-20	5189940.84	-59.16
100%		-10	5189944.71	-55.29
100%		0	5189950.49	-49.51
100%		+10	5189954.54	-45.46
100%		+30	5189964.39	-35.61
100%		+40	5189969.74	-30.26
100%		+50	5189975.41	-24.59
Batt. Endpoint	10.2	+20	5189956.89	-43.11

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

OPERATING BAND: UNII Band 3

OPERATING FREQUENCY: 5,755,000,000 Hz

CHANNEL: 151

REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5754954.49	-45.51
100%		-30	5754928.88	-71.12
100%		-20	5754935.41	-64.59
100%		-10	5754940.84	-59.16
100%		0	5754946.36	-53.64
100%		+10	5754950.49	-49.51
100%		+30	5754964.36	-35.64
100%		+40	5754969.88	-30.12
100%		+50	5754974.33	-25.67
Batt. Endpoint	10.2	+20	5754957.72	-42.28

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

80 MHz BW

OPERATING BAND: UNII Band 1

OPERATING FREQUENCY: 5,210,000,000 Hz

CHANNEL: 42

REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5209958.38	-41.62
100%		-30	5209935.92	-64.08
100%		-20	5209940.40	-59.60
100%		-10	5209946.74	-53.26
100%		0	5209950.85	-49.15
100%		+10	5209955.34	-44.66
100%		+30	5209966.22	-33.78
100%		+40	5209972.21	-27.79
100%		+50	5209978.38	-21.62
Batt. Endpoint	10.2	+20	5209960.79	-39.21

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

OPERATING BAND: UNII Band 3

OPERATING FREQUENCY: 5,775,000,000 Hz

CHANNEL: 155

REFERENCE VOLTAGE: 12.0 VDC

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (kHz)	Frequency Error (kHz)
100%	12.0	+20(Ref)	5774953.51	-46.49
100%		-30	5774927.36	-72.64
100%		-20	5774932.95	-67.05
100%		-10	5774940.39	-59.61
100%		0	5774944.19	-55.81
100%		+10	5774949.54	-50.46
100%		+30	5774959.84	-40.16
100%		+40	5774965.13	-34.87
100%		+50	5774971.70	-28.30
Batt. Endpoint	10.2	+20	5774956.32	-43.68

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

8.6 RADIATED MEASUREMENT

8.6.1 RADIATED SPURIOUS EMISSIONS.

Test Requirements and limit, §15.205, §15.209, §15.407

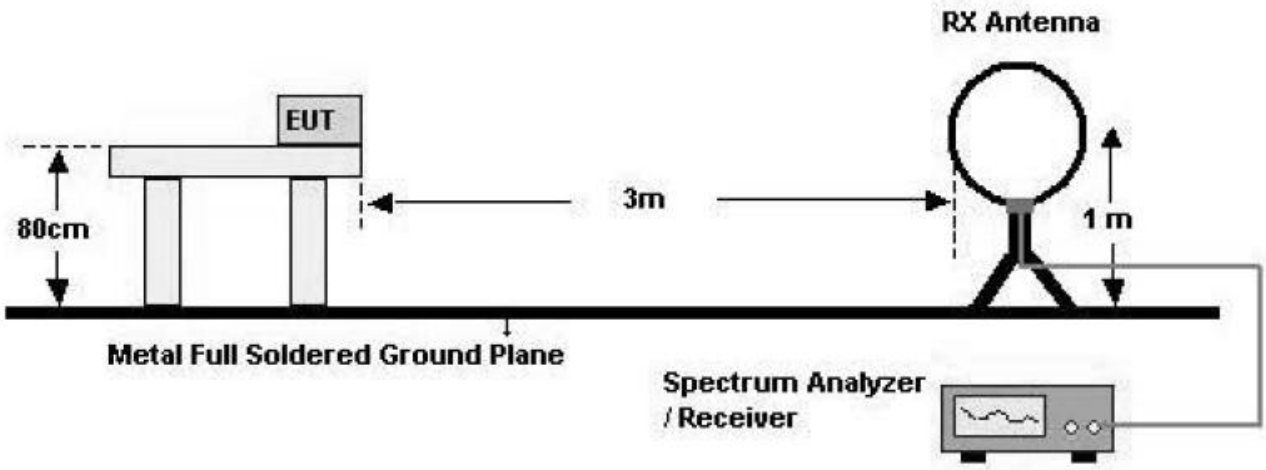
Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

▣ §15.407, KDB 789033 D02

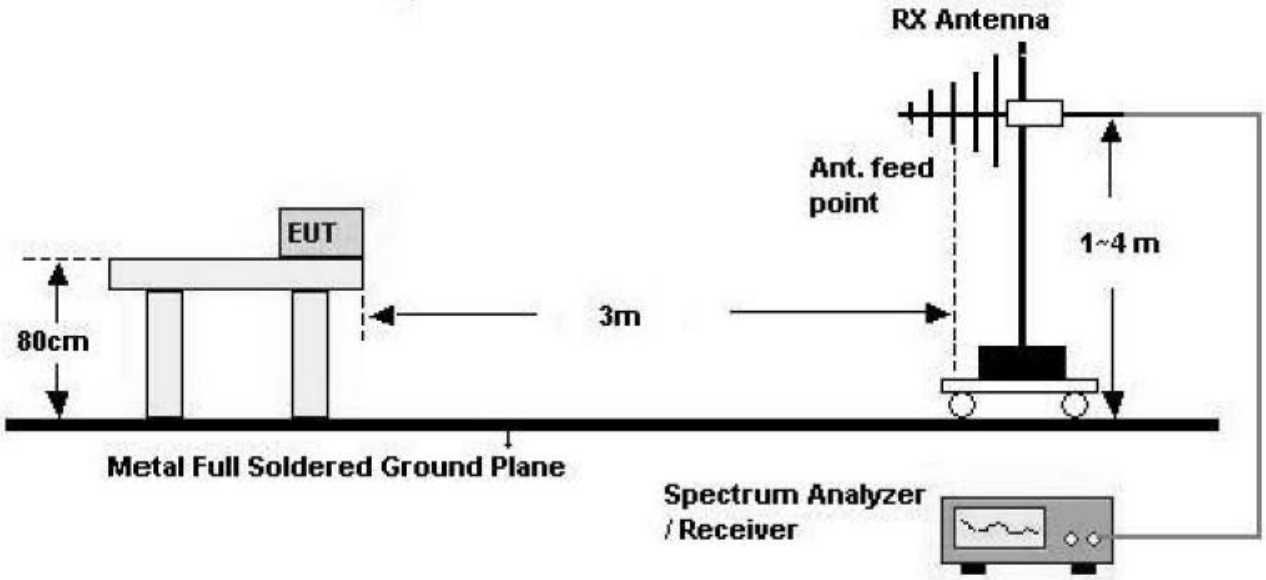
All harmonics that do not lie in a restricted band are subject to a peak limit of -27 dBm/MHz. At a distance of 3 meters the field strength limit in dBµV/m can be determined by adding a “conversion” factor of 95.2 dB to the EIRP limit of -27 dBm/MHz to obtain the limit for out of band spurious emissions of 68.2 dBµV/m. Espectally, for transmitter operating in the 5725 Mhz – 5850 MHz : all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequency 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBm/MHz.

Test Configuration

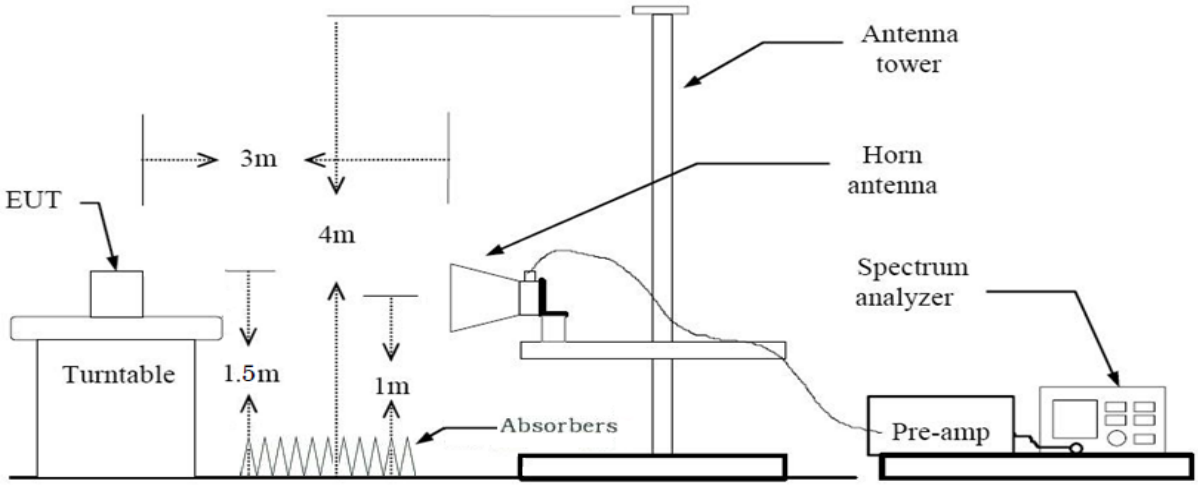
Below 30 MHz



30 MHz - 1 GHz



Above 1 GHz



TEST PROCEDURE USED

ANSI C63.10:2013

Method G)5) in KDB 789033, issued 06/06/2014 (Peak)

Method G)6)d) in KDB 789033, issued 06/06/2014 (Average)

. Spectrum setting:

- Peak.

1. RBW = 1 MHz
2. VBW ≥ 3 MHz
3. Detector = Peak
4. Sweep Time = auto
5. Trace mode = max hold
6. Allow sweeps to continue until the trace stabilizes.
7. Note that if the transmission is not continuous, the time required for the trace to stabilize will increase by a factor of approximately 1/x, where x is the duty cycle.

- Average (Method VB :Averaging using reduced video bandwidth)

1. RBW = 1 MHz
2. VBW
   2.1. If the EUT is configured to transmit with duty cycle ≥ 98 percent, set VBW ≤ RBW/100(i.e., 10 kHz) but not less than 10 Hz.
   2.2. If the EUT duty cycle is < 98 percent, set VBW ≥ 1/T, where T is the minimum transmission duration.
3. The analyzer is set to linear detector mode.

4. Detector = Peak.
5. Sweep time = auto.
6. Trace mode = max hold.
7. Allow max hold to run for at least 50 traces if the transmitted signal is continuous or has at least 98 percent duty cycle. For lower duty cycles, increase the minimym number of traces by a factor of 1/x, where x is the duty cycle.

Note :

1. We used the Method VB for 802.11a/n/ac_20, n/ac_40, ac_80 mode to perform the average filed strength measurements.
2. The actual setting value of VBW for 802.11a/n/ac_20, n/ac_40, ac_80

Mode	Worst Data rate (Mbps)	T_{on} (ms)	T_{total} (ms)	Duty Cycle (%)	VBW(1/T) (Hz)	The actual setting value of VBW (Hz)
a	**6**	**2.042**	**2.139**	**95.47**	**490**	**1000**
n_20	**MCS 0**	**1.906**	**2.004**	**95.11**	**525**	**1000**
ac_20	**MCS 0**	**1.921**	**2.019**	**95.15**	**521**	**1000**
n_40	**MCS 0**	**0.940**	**1.040**	**90.38**	**1064**	**3000**
ac_40	**MCS 0**	**0.942**	**1.041**	**90.49**	**1062**	**3000**
ac_80	**MCS 0**	**0.460**	**0.558**	**82.44**	**2174**	**3000**

TEST RESULTS

9 kHz – 30MHz

Operation Mode: Normal Mode

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dBμV	dB /m	dB	(H/V)	dBμV/m	dBμV/m	dB
No Critical peaks found							

Notes:

1. Measuring frequencies from 9 kHz to the 30MHz.
2. The reading of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
3. Distance extrapolation factor = 40 log (specific distance / test distance) (dB)
4. Limit line = specific Limits (dBuV) + Distance extrapolation factor
5. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

TEST RESULTS

Below 1 GHz

Operation Mode: Normal Mode

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dBμV	dB /m	dB	(H/V)	dBμV/m	dBμV/m	dB
No Critical peaks found							

Notes:

1. Measuring frequencies from 30 MHz to the 1 GHz.
2. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Quasi peak detector mode.
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Above 1 GHz

Band :	UNII 1
Operation Mode:	802.11 a_20 MHz BW
Transfer Rate:	6 Mbps
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10360	66.82	-2.21	V	64.61	68.20	3.59	PK
15540	59.11	-1.95	V	57.16	73.98	16.82	PK
15540	45.86	-1.95	V	43.91	53.98	10.07	AV
10360	67.28	-2.21	H	65.07	68.20	3.13	PK
15540	59.23	-1.95	H	57.28	73.98	16.70	PK
15540	45.97	-1.95	H	44.02	53.98	9.96	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11a. Worst case is 6 Mbps in 802.11a.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11 a_20 MHz BW
Transfer Rate:	6 Mbps
Operating Frequency	5200 MHz
Channel No.	40 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10400	65.19	-2.16	V	63.03	68.20	5.17	PK
15600	59.28	-2.51	V	56.77	73.98	17.21	PK
15600	45.54	-2.51	V	43.03	53.98	10.95	AV
10400	66.01	-2.16	H	63.85	68.20	4.35	PK
15600	59.41	-2.51	H	56.90	73.98	17.08	PK
15600	45.66	-2.51	H	43.15	53.98	10.83	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11a. Worst case is 6 Mbps in 802.11a.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11 a_20 MHz BW
Transfer Rate:	6 Mbps
Operating Frequency	5240 MHz
Channel No.	48 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10480	65.82	-2.59	V	63.23	68.20	4.97	PK
15720	59.81	-1.62	V	58.19	73.98	15.79	PK
15720	46.15	-1.62	V	44.53	53.98	9.45	AV
10480	66.34	-2.59	H	63.75	68.20	4.45	PK
15720	59.98	-1.62	H	58.36	73.98	15.62	PK
15720	46.17	-1.62	H	44.55	53.98	9.43	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11a. Worst case is 6 Mbps in 802.11a.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna

Band :	UNII 1
Operation Mode:	802.11 n_20 MHz BW
Transfer MCS Index:	0
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10360	65.86	-2.21	V	63.65	68.20	4.55	PK
15540	58.46	-1.95	V	56.51	73.98	17.47	PK
15540	46.28	-1.95	V	44.33	53.98	9.65	AV
10360	66.50	-2.21	H	64.29	68.20	3.91	PK
15540	58.69	-1.95	H	56.74	73.98	17.24	PK
15540	46.86	-1.95	H	44.91	53.98	9.07	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_20 MHz BW. Worst case is MCS 0 in 802.11n_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11 n_20 MHz BW
Transfer MCS Index:	0
Operating Frequency	5200 MHz
Channel No.	40 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10400	65.86	-2.16	V	63.70	68.20	4.50	PK
15600	58.94	-2.51	V	56.43	73.98	17.55	PK
15600	45.81	-2.51	V	43.30	53.98	10.68	AV
10400	66.43	-2.16	H	64.27	68.20	3.93	PK
15600	59.01	-2.51	H	56.50	73.98	17.48	PK
15600	45.84	-2.51	H	43.33	53.98	10.65	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_20 MHz BW. Worst case is MCS 0 in 802.11n_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11 n_20 MHz BW
Transfer MCS Index:	0
Operating Frequency	5240 MHz
Channel No.	48 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10480	65.19	-2.59	V	62.60	68.20	5.60	PK
15720	59.45	-1.62	V	57.83	73.98	16.15	PK
15720	46.05	-1.62	V	44.43	53.98	9.55	AV
10480	65.28	-2.59	H	62.69	68.20	5.51	PK
15720	59.53	-1.62	H	57.91	73.98	16.07	PK
15720	46.18	-1.62	H	44.56	53.98	9.42	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_20 MHz BW. Worst case is MCS 0 in 802.11n_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11 ac_20 MHz BW
Transfer MCS Index:	0
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10360	59.46	-2.21	V	57.25	68.20	10.95	PK
15540	58.93	-1.95	V	56.98	73.98	17.00	PK
15540	45.88	-1.95	V	43.93	53.98	10.05	AV
10360	60.82	-2.21	H	58.61	68.20	9.59	PK
15540	59.64	-1.95	H	57.69	73.98	16.29	PK
15540	45.91	-1.95	H	43.96	53.98	10.02	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_20 MHz BW. Worst case is MCS 0 in 802.11ac_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11 ac_20 MHz BW
Transfer MCS Index:	0
Operating Frequency	5200 MHz
Channel No.	40 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10400	60.92	-2.16	V	58.76	68.20	9.44	PK
15600	58.78	-2.51	V	56.27	73.98	17.71	PK
15600	45.62	-2.51	V	43.11	53.98	10.87	AV
10400	61.78	-2.16	H	59.62	68.20	8.58	PK
15600	59.12	-2.51	H	56.61	73.98	17.37	PK
15600	45.75	-2.51	H	43.24	53.98	10.74	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_20 MHz BW. Worst case is MCS 0 in 802.11ac_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11 ac_20 MHz BW
Transfer MCS Index:	0
Operating Frequency	5240 MHz
Channel No.	48 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10480	59.44	-2.59	V	56.85	68.20	11.35	PK
15720	59.48	-1.62	V	57.86	73.98	16.12	PK
15720	46.18	-1.62	V	44.56	53.98	9.42	AV
10480	60.38	-2.59	H	57.79	68.20	10.41	PK
15720	59.80	-1.62	H	58.18	73.98	15.80	PK
15720	46.28	-1.62	H	44.66	53.98	9.32	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_20 MHz BW. Worst case is MCS 0 in 802.11ac_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11n_40 MHz BW
Transfer MCS Index:	0
Operating Frequency	5190 MHz
Channel No.	38 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10380	62.45	-2.51	V	59.94	68.20	8.26	PK
15570	58.92	-2.14	V	56.78	73.98	17.20	PK
15570	45.26	-2.14	V	43.12	53.98	10.86	AV
10380	63.39	-2.51	H	60.88	68.20	7.32	PK
15570	59.27	-2.14	H	57.13	73.98	16.85	PK
15570	45.53	-2.14	H	43.39	53.98	10.59	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_40 MHz BW. Worst case is MCS 0 in 802.11n_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11n_40 MHz BW
Transfer MCS Index:	0
Operating Frequency	5230 MHz
Channel No.	46 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10460	62.05	-2.28	V	59.77	68.20	8.43	PK
15690	58.99	-1.92	V	57.07	73.98	16.91	PK
15690	45.86	-1.92	V	43.94	53.98	10.04	AV
10460	62.10	-2.28	H	59.82	68.20	8.38	PK
15690	59.78	-1.92	H	57.86	73.98	16.12	PK
15690	46.30	-1.92	H	44.38	53.98	9.60	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_40 MHz BW. Worst case is MCS 0 in 802.11n_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11ac_40 MHz BW
Transfer MCS Index:	0
Operating Frequency	5190 MHz
Channel No.	38 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10380	59.46	-2.51	V	56.95	68.20	11.25	PK
15570	58.93	-2.14	V	56.79	73.98	17.19	PK
15570	45.39	-2.14	V	43.25	53.98	10.73	AV
10380	60.56	-2.51	H	58.05	68.20	10.15	PK
15570	59.39	-2.14	H	57.25	73.98	16.73	PK
15570	45.69	-2.14	H	43.55	53.98	10.43	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_40 MHz BW. Worst case is MCS 0 in 802.11ac_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11ac_40 MHz BW
Transfer MCS Index:	0
Operating Frequency	5230 MHz
Channel No.	46 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10460	59.19	-2.28	V	56.91	68.20	11.29	PK
15690	59.68	-1.92	V	57.76	73.98	16.22	PK
15690	45.86	-1.92	V	43.94	53.98	10.04	AV
10460	60.12	-2.28	H	57.84	68.20	10.36	PK
15690	60.38	-1.92	H	58.46	73.98	15.52	PK
15690	46.52	-1.92	H	44.60	53.98	9.38	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_40 MHz BW. Worst case is MCS 0 in 802.11ac_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 1
Operation Mode:	802.11ac_80 MHz BW
Transfer MCS Index:	0
Operating Frequency	5210 MHz
Channel No.	42 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
10420	58.79	-2.53	V	56.26	68.20	11.94	PK
15630	58.83	-2.73	V	56.10	73.98	17.88	PK
15630	45.69	-2.73	V	42.96	53.98	11.02	AV
10420	59.61	-2.53	H	57.08	68.20	11.12	PK
15630	60.28	-2.73	H	57.55	73.98	16.43	PK
15630	45.76	-2.73	H	43.03	53.98	10.95	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_80 MHz BW. Worst case is MCS 0 in 802.11ac_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11 a_20 MHz BW
Transfer Rate:	6 Mbps
Operating Frequency	5745MHz
Channel No.	149 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11490	61.45	-1.70	V	59.75	73.98	14.23	PK
11490	50.11	-1.70	V	48.41	53.98	5.57	AV
17235	59.02	2.52	V	61.54	68.20	6.66	PK
11490	61.78	-1.70	H	60.08	73.98	13.90	PK
11490	50.23	-1.70	H	48.53	53.98	5.45	AV
17235	59.17	2.52	H	61.69	68.20	6.51	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11a. Worst case is 6 Mbps in 802.11a.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11 a_20 MHz BW
Transfer Rate:	6 Mbps
Operating Frequency	5785 MHz
Channel No.	157 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11570	61.29	-2.08	V	59.21	73.98	14.77	PK
11570	50.12	-2.08	V	48.04	53.98	5.94	AV
17355	58.12	2.67	V	60.79	68.20	7.41	PK
11570	61.76	-2.08	H	59.68	73.98	14.30	PK
11570	50.39	-2.08	H	48.31	53.98	5.67	AV
17355	58.35	2.67	H	61.02	68.20	7.18	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11a. Worst case is 6 Mbps in 802.11a.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11 a_20 MHz BW
Transfer Rate:	6 Mbps
Operating Frequency	5825 MHz
Channel No.	165 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11650	64.82	-2.36	V	62.46	73.98	11.52	PK
11650	51.82	-2.36	V	49.46	53.98	4.52	AV
17475	59.26	3.81	V	63.07	68.20	5.13	PK
11650	65.07	-2.36	H	62.71	73.98	11.27	PK
11650	52.00	-2.36	H	49.64	53.98	4.34	AV
17475	59.84	3.81	H	63.65	68.20	4.55	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11a. Worst case is 6 Mbps in 802.11a.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna

Band :	UNII 3
Operation Mode:	802.11 n_20 MHz BW
Transfer MCS Index:	0
Operating Frequency	5745 MHz
Channel No.	149 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11490	60.43	-1.70	V	58.73	73.98	15.25	PK
11490	48.93	-1.70	V	47.23	53.98	6.75	AV
17235	58.26	2.52	V	60.78	68.20	7.42	PK
11490	61.46	-1.70	H	59.76	73.98	14.22	PK
11490	49.28	-1.70	H	47.58	53.98	6.40	AV
17235	58.92	2.52	H	61.44	68.20	6.76	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_20 MHz BW. Worst case is MCS 0 in 802.11n_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11 n_20 MHz BW
Transfer MCS Index:	0
Operating Frequency	5785 MHz
Channel No.	157 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11570	60.48	-2.08	V	58.40	73.98	15.58	PK
11570	48.62	-2.08	V	46.54	53.98	7.44	AV
17355	58.29	2.67	V	60.96	68.20	7.24	PK
11570	60.65	-2.08	H	58.57	73.98	15.41	PK
11570	49.11	-2.08	H	47.03	53.98	6.95	AV
17355	58.46	2.67	H	61.13	68.20	7.07	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_20 MHz BW. Worst case is MCS 0 in 802.11n_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11 n_20 MHz BW
Transfer MCS Index:	0
Operating Frequency	5825 MHz
Channel No.	165 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11650	62.18	-2.36	V	59.82	73.98	14.16	PK
11650	50.66	-2.36	V	48.30	53.98	5.68	AV
17475	60.83	3.81	V	64.64	68.20	3.56	PK
11650	63.16	-2.36	H	60.80	73.98	13.18	PK
11650	50.84	-2.36	H	48.48	53.98	5.50	AV
17475	61.29	3.81	H	65.10	68.20	3.10	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_20 MHz BW. Worst case is MCS 0 in 802.11n_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11 ac_20 MHz BW
Transfer MCS Index:	0
Operating Frequency	5745 MHz
Channel No.	149 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11490	59.12	-1.70	V	57.42	73.98	16.56	PK
11490	48.81	-1.70	V	47.11	53.98	6.87	AV
17235	58.29	2.52	V	60.81	68.20	7.39	PK
11490	59.37	-1.70	H	57.67	73.98	16.31	PK
11490	48.88	-1.70	H	47.18	53.98	6.80	AV
17235	58.72	2.52	H	61.24	68.20	6.96	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_20 MHz BW. Worst case is MCS 0 in 802.11ac_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11 ac_20 MHz BW
Transfer MCS Index:	0
Operating Frequency	5785 MHz
Channel No.	157 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11570	59.16	-2.08	V	57.08	73.98	16.90	PK
11570	48.56	-2.08	V	46.48	53.98	7.50	AV
17355	58.05	2.67	V	60.72	68.20	7.48	PK
11570	59.34	-2.08	H	57.26	73.98	16.72	PK
11570	48.74	-2.08	H	46.66	53.98	7.32	AV
17355	58.17	2.67	H	60.84	68.20	7.36	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_20 MHz BW. Worst case is MCS 0 in 802.11ac_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11 ac_20 MHz BW
Transfer MCS Index:	0
Operating Frequency	5825 MHz
Channel No.	165 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11650	60.26	-2.36	V	57.90	73.98	16.08	PK
11650	48.29	-2.36	V	45.93	53.98	8.05	AV
17475	60.05	3.81	V	63.86	68.20	4.34	PK
11650	61.09	-2.36	H	58.73	73.98	15.25	PK
11650	48.91	-2.36	H	46.55	53.98	7.43	AV
17475	60.15	3.81	H	63.96	68.20	4.24	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_20 MHz BW. Worst case is MCS 0 in 802.11ac_20 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII3
Operation Mode:	802.11n_40 MHz BW
Transfer MCS Index:	0
Operating Frequency	5755 MHz
Channel No.	151 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11510	59.66	-1.79	V	57.87	73.98	16.11	PK
11510	48.29	-1.79	V	46.50	53.98	7.48	AV
17265	58.46	3.16	V	61.62	68.20	6.58	PK
11510	60.10	-1.79	H	58.31	73.98	15.67	PK
11510	48.59	-1.79	H	46.80	53.98	7.18	AV
17265	58.71	3.16	H	61.87	68.20	6.33	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_40 MHz BW. Worst case is MCS 0 in 802.11n_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11n_40 MHz BW
Transfer MCS Index:	0
Operating Frequency	5795 MHz
Channel No.	159 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11590	59.62	-2.20	V	57.42	73.98	16.56	PK
11590	48.96	-2.20	V	46.76	53.98	7.22	AV
17385	58.48	3.26	V	61.74	68.20	6.46	PK
11590	60.77	-2.20	H	58.57	73.98	15.41	PK
11590	49.40	-2.20	H	47.20	53.98	6.78	AV
17385	59.11	3.26	H	62.37	68.20	5.83	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11n_40 MHz BW. Worst case is MCS 0 in 802.11n_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII3
Operation Mode:	802.11ac_40 MHz BW
Transfer MCS Index:	0
Operating Frequency	5755 MHz
Channel No.	151 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11510	58.79	-1.79	V	57.00	73.98	16.98	PK
11510	48.29	-1.79	V	46.50	53.98	7.48	AV
17265	58.05	3.16	V	61.21	68.20	6.99	PK
11510	59.53	-1.79	H	57.74	73.98	16.24	PK
11510	48.67	-1.79	H	46.88	53.98	7.10	AV
17265	58.27	3.16	H	61.43	68.20	6.77	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_40 MHz BW. Worst case is MCS 0 in 802.11ac_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11ac_40 MHz BW
Transfer MCS Index:	0
Operating Frequency	5795 MHz
Channel No.	159 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11590	58.79	-2.20	V	56.59	73.98	17.39	PK
11590	48.68	-2.20	V	46.48	53.98	7.50	AV
17385	58.26	3.26	V	61.52	68.20	6.68	PK
11590	59.93	-2.20	H	57.73	73.98	16.25	PK
11590	48.93	-2.20	H	46.73	53.98	7.25	AV
17385	59.12	3.26	H	62.38	68.20	5.82	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_40 MHz BW. Worst case is MCS 0 in 802.11ac_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	UNII 3
Operation Mode:	802.11ac_80 MHz BW
Transfer MCS Index:	0
Operating Frequency	5775 MHz
Channel No.	155 Ch

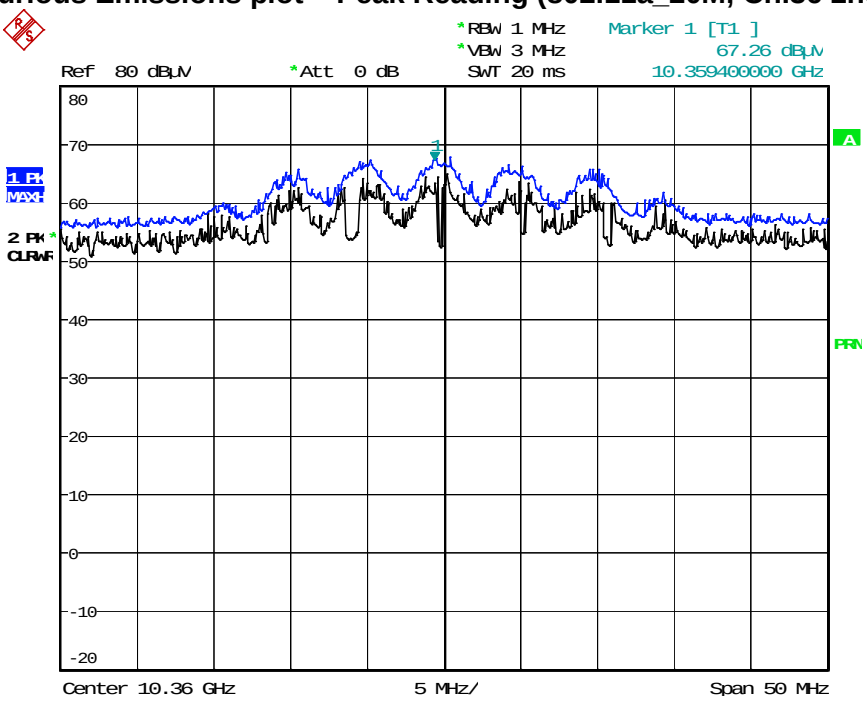
Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11550	58.19	-1.78	V	56.41	73.98	17.57	PK
11550	47.64	-1.78	V	45.86	53.98	8.12	AV
17325	57.93	2.95	V	60.88	68.20	7.32	PK
11550	59.23	-1.78	H	57.45	73.98	16.53	PK
11550	48.72	-1.78	H	46.94	53.98	7.04	AV
17325	58.88	2.95	H	61.83	68.20	6.37	PK

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done all data rate in 802.11ac_80 MHz BW. Worst case is MCS 0 in 802.11ac_40 MHz BW.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

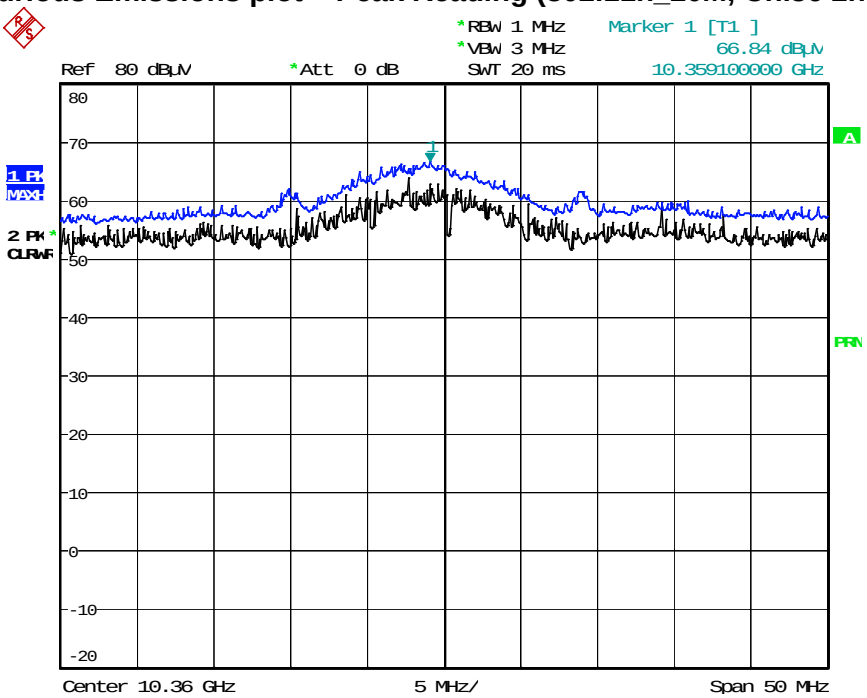
▣ RESULT PLOTS

Radiated Spurious Emissions plot – Peak Reading (802.11a_20M, Ch.36 2nd Harmonic)



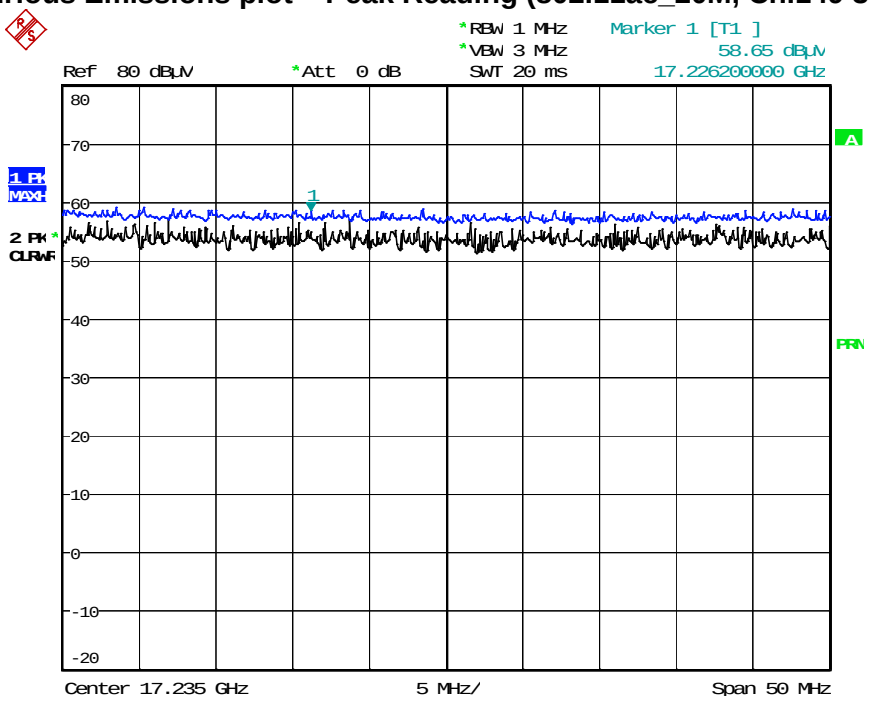
Date: 14.JAN.2016 12:52:55

Radiated Spurious Emissions plot – Peak Reading (802.11n_20M, Ch.36 2nd Harmonic)



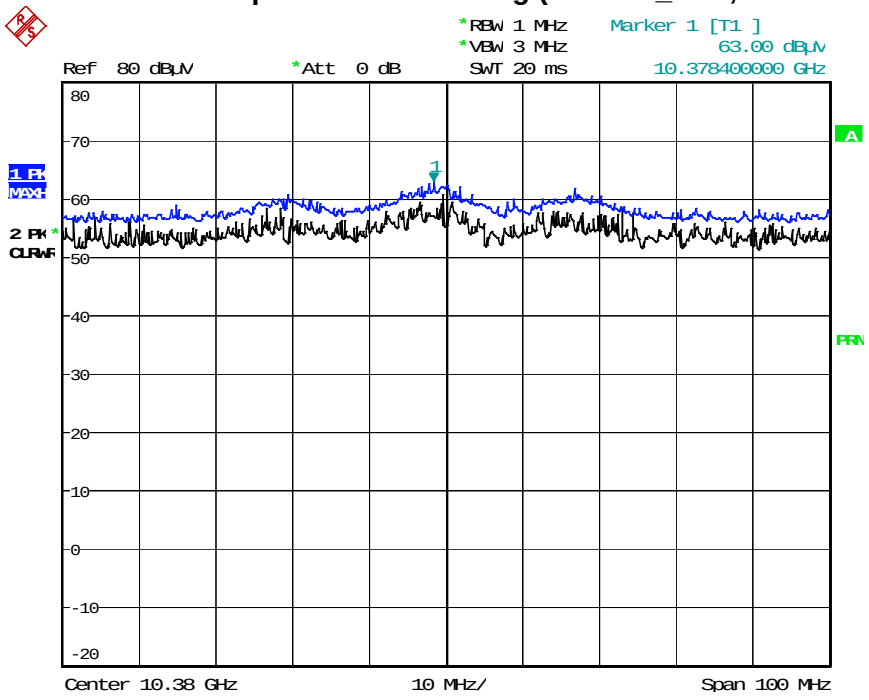
Date: 14.JAN.2016 12:55:56

Radiated Spurious Emissions plot – Peak Reading (802.11ac_20M, Ch.149 3rd Harmonic)



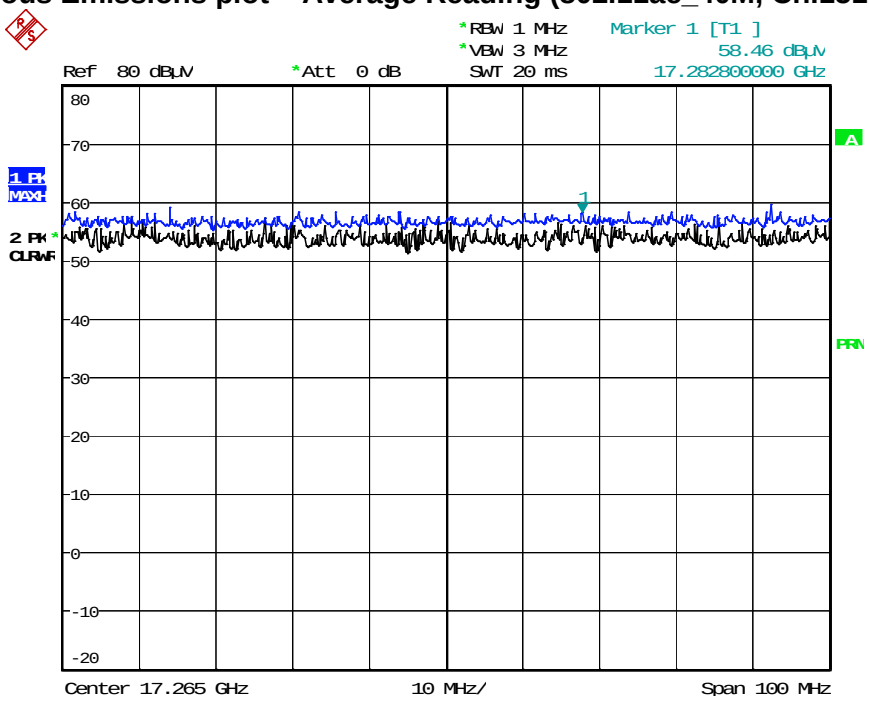
Date: 14.JAN.2016 12:57:22

Radiated Spurious Emissions plot – Peak Reading (802.11n_40M, Ch.38 2nd Harmonic)



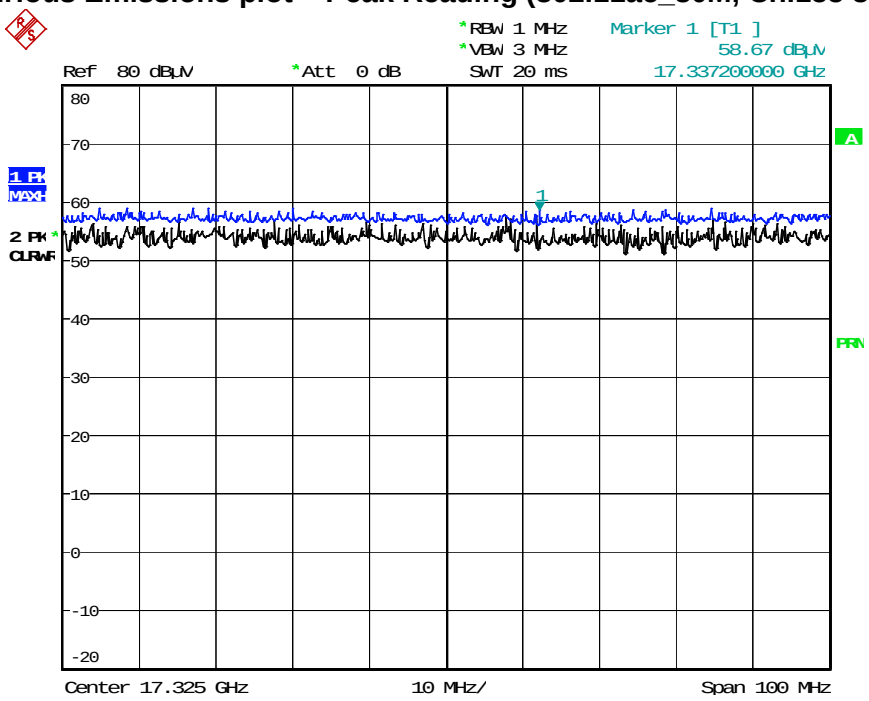
Date: 14.JAN.2016 13:00:12

Radiated Spurious Emissions plot – Average Reading (802.11ac_40M, Ch.151 3rd Harmonic)



Date: 14.JAN.2016 13:01:39

Radiated Spurious Emissions plot – Peak Reading (802.11ac_80M, Ch.155 3rd Harmonic)



Date: 14.JAN.2016 13:03:05

8.6.2 RADIATED RESTRICTED BAND EDGE MEASUREMENTS

Test Requirements and limit, §15.247(d) §15.205, §15.209

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in section 15.209(a) (See section 15.205(c)).

Band :	UNII 1
Operation Mode:	802.11 a_20 MHz BW
Transfer Rate:	6 Mbps
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP+ATT. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5150	65.23	3.13	H	68.36	73.98	5.62	PK
5150	44.69	3.13	H	47.82	53.98	6.16	AV
5150	64.89	3.13	V	68.02	73.98	5.96	PK
5150	44.56	3.13	V	47.69	53.98	6.29	AV

Band :	UNII 1
Operation Mode:	802.11 n_20 MHz BW
Transfer MCS Index:	0
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP+ATT [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5150	63.14	3.13	H	66.27	73.98	7.71	PK
5150	43.96	3.13	H	47.09	53.98	6.89	AV
5150	62.86	3.13	V	65.99	73.98	7.99	PK
5150	43.58	3.13	V	46.71	53.98	7.27	AV

Band :	UNII 1
Operation Mode:	802.11 ac_20 MHz BW
Transfer MCS Index:	0
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP+ATT [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5150	59.77	3.13	H	62.90	73.98	11.08	PK
5150	43.37	3.13	H	46.5	53.98	7.48	AV
5150	58.69	3.13	V	61.82	73.98	12.16	PK
5150	43.21	3.13	V	46.34	53.98	7.64	AV

Band :	UNII 1
Operation Mode:	802.11 n_40 MHz BW
Transfer MCS Index:	0
Operating Frequency	5190 MHz
Channel No.	38 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP+ATT [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5150	65.28	3.13	H	68.41	73.98	5.57	PK
5150	43.67	3.13	H	46.80	53.98	7.18	AV
5150	65.12	3.13	V	68.25	73.98	5.73	PK
5150	43.55	3.13	V	46.68	53.98	7.30	AV

Band :	UNII 1
Operation Mode:	802.11 ac_40 MHz BW
Transfer MCS Index:	0
Operating Frequency	5190 MHz
Channel No.	38 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP+ATT [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5150	64.14	3.13	H	67.27	73.98	6.71	PK
5150	43.22	3.13	H	46.35	53.98	7.63	AV
5150	63.45	3.13	V	66.58	73.98	7.40	PK
5150	43.12	3.13	V	46.25	53.98	7.73	AV

Band :	UNII 1
Operation Mode:	802.11 ac_80 MHz BW
Transfer MCS Index:	0
Operating Frequency	5210 MHz
Channel No.	42 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP+ATT [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5150	58.10	3.13	H	61.23	73.98	12.75	PK
5150	44.09	3.13	H	47.22	53.98	6.76	AV
5150	58.02	3.13	V	61.15	73.98	12.83	PK
5150	43.85	3.13	V	46.98	53.98	7.00	AV

Band : UNII 3
Operation Mode: 802.11 a_20 MHz BW
Transfer Rate: 6 Mbps
Operating Frequency 5745 MHz
Channel No. 149 Ch

Frequency [MHz]	Reading DBuV	AN.+CL-AMP+ATT [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5725	68.96	4.08	H	73.04	78.20	5.16	PK
5725	69.27	4.08	V	73.35	78.20	4.85	PK
5715	64.52	3.99	H	68.51	73.98	5.48	PK
5715	41.59	3.99	H	45.58	53.98	8.40	AV
5715	64.76	3.99	V	68.75	73.98	5.24	PK
5715	41.65	3.99	V	45.64	53.98	8.34	AV

Band : UNII 3
Operation Mode: 802.11 a_20 MHz BW
Transfer Rate: 6 Mbps
Operating Frequency 5825 MHz
Channel No. 165 Ch

Frequency [MHz]	Reading DBuV	AN.+CL-AMP+ATT [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
*5850	70.16	4.40	H	74.56	78.20	3.64	PK
*5850	69.88	4.40	V	74.28	78.20	3.92	PK
*5860	65.80	4.42	H	70.22	73.98	3.76	PK
*5860	44.23	4.42	H	48.65	53.98	5.33	AV
*5860	65.12	4.42	V	69.54	73.98	4.44	PK
*5860	43.91	4.42	V	48.33	53.98	5.65	AV

Band :	UNII 3
Operation Mode:	802.11 n_20MHz BW
Transfer MCS Index:	0
Operating Frequency	5745 MHz
Channel No.	149 Ch

Frequency [MHz]	Reading DBuV	AN.+CL-AMP+ATT [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5725	68.89	4.08	H	72.97	78.20	5.23	PK
5725	69.92	4.08	V	74.00	78.20	4.20	PK
5715	63.48	3.99	H	67.47	73.98	6.52	PK
5715	41.86	3.99	H	45.85	53.98	8.14	AV
5715	64.20	3.99	V	68.19	73.98	5.80	PK
5715	41.92	3.99	V	45.91	53.98	8.08	AV

Band :	UNII 3
Operation Mode:	802.11 n_20MHz BW
Transfer MCS Index:	0
Operating Frequency	5825 MHz
Channel No.	165 Ch

Frequency [MHz]	Reading DBuV	AN.+CL-AMP+ATT [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
*5850	70.80	4.40	H	75.20	78.20	3.00	PK
*5850	69.58	4.40	V	73.98	78.20	4.22	PK
*5860	65.01	4.42	H	69.43	73.98	4.55	PK
*5860	44.11	4.42	H	48.53	53.98	5.45	AV
*5860	64.21	4.42	V	68.63	73.98	5.35	PK
*5860	43.98	4.42	V	48.40	53.98	5.58	AV

Band :	UNII 3
Operation Mode:	802.11 ac_20MHz BW
Transfer MCS Index:	0
Operating Frequency	5745 MHz
Channel No.	149Ch

Frequency [MHz]	Reading DBuV	AN.+CL-AMP+ATT [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5725	66.87	4.08	H	70.95	78.20	7.25	PK
5725	67.43	4.08	V	71.51	78.20	6.69	PK
5715	61.21	3.99	H	65.20	73.98	8.79	PK
5715	41.79	3.99	H	45.78	53.98	8.21	AV
5715	61.41	3.99	V	65.40	73.98	8.59	PK
5715	41.87	3.99	V	45.86	53.98	8.13	AV

Band :	UNII 3
Operation Mode:	802.11 ac_20MHz BW
Transfer MCS Index:	0
Operating Frequency	5825 MHz
Channel No.	165 Ch

Frequency [MHz]	Reading DBuV	AN.+CL-AMP+ATT [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
*5850	68.13	4.40	H	72.53	78.20	5.67	PK
*5850	67.82	4.40	V	72.22	78.20	5.98	AV
*5860	62.80	4.42	H	67.22	73.98	6.76	PK
*5860	43.51	4.42	H	47.93	53.98	6.05	AV
*5860	62.22	4.42	V	66.64	73.98	7.34	PK
*5860	43.12	4.42	V	47.54	53.98	6.44	AV

Band : UNII 3
Operation Mode: 802.11 n_40 MHz BW
Transfer MCS Index: 0
Operating Frequency 5755 MHz
Channel No. 151 Ch

Frequency [MHz]	Reading DBuV	AN.+CL-AMP+ATT [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5725	69.42	4.08	H	73.50	78.20	4.70	PK
5725	70.33	4.08	V	74.41	78.20	3.79	PK
5715	64.86	3.99	H	68.85	73.98	5.14	PK
5715	41.56	3.99	H	45.55	53.98	8.44	AV
5715	65.65	3.99	V	69.64	73.98	4.35	PK
5715	42.06	3.99	V	46.05	53.98	7.94	AV

Band : UNII 3
Operation Mode: 802.11 n_40 MHz BW
Transfer MCS Index: 0
Operating Frequency 5795 MHz
Channel No. 159 Ch

Frequency [MHz]	Reading DBuV	AN.+CL-AMP+ATT [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
*5850	62.17	4.40	H	66.57	78.20	11.63	PK
*5850	61.89	4.40	V	66.29	78.20	11.91	PK
*5860	61.15	4.42	H	65.57	73.98	8.41	PK
*5860	43.08	4.42	H	47.50	53.98	6.48	AV
*5860	61.02	4.42	V	65.44	73.98	8.54	PK
*5860	42.56	4.42	V	46.98	53.98	7.00	AV

Band :	UNII 3
Operation Mode:	802.11 ac_40 MHz BW
Transfer MCS Index:	0
Operating Frequency	5755 MHz
Channel No.	151 Ch

Frequency [MHz]	Reading DBuV	AN.+CL-AMP+ATT [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5725	66.69	4.08	H	70.77	78.20	7.43	PK
5725	67.00	4.08	V	71.08	78.20	7.12	PK
5715	63.72	3.99	H	67.71	73.98	6.28	PK
5715	41.86	3.99	H	45.85	53.98	8.14	AV
5715	64.48	3.99	V	68.47	73.98	5.52	PK
5715	42.05	3.99	V	46.04	53.98	7.95	AV

Band :	UNII 3
Operation Mode:	802.11 ac_40 MHz BW
Transfer MCS Index:	0
Operating Frequency	5795 MHz
Channel No.	159 Ch

Frequency [MHz]	Reading DBuV	AN.+CL-AMP+ATT [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
*5850	62.25	4.40	H	66.65	78.20	11.55	PK
*5850	61.86	4.40	V	66.26	78.20	11.94	AV
*5860	60.65	4.42	H	65.07	68.20	3.13	PK
*5860	59.88	4.42	V	64.3	68.20	3.90	AV

Band :	UNII 3
Operation Mode:	802.11 ac_80 MHz BW
Transfer MCS Index:	0
Operating Frequency	5755 MHz
Channel No.	155 Ch

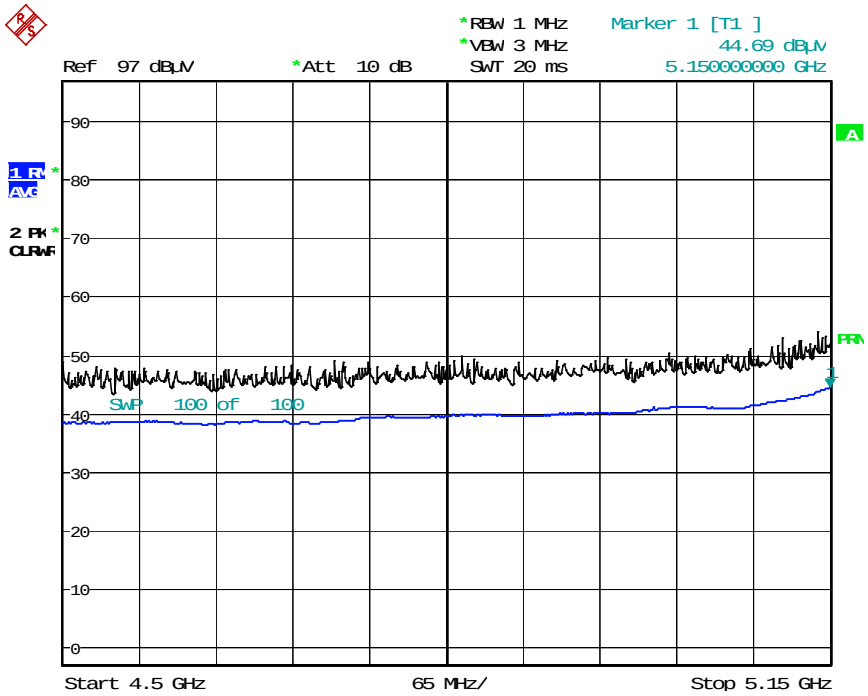
Frequency [MHz]	Reading DBuV	AN.+CL-AMP+ATT [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
5725	61.59	4.08	H	65.67	78.20	12.53	PK
5725	60.81	4.08	V	64.89	78.20	13.31	PK
5715	58.62	3.99	H	62.61	68.20	5.60	PK
5715	58.15	3.99	V	62.135	68.20	6.07	PK
5850	59.31	4.40	H	63.71	78.20	14.49	PK
5850	58.66	4.40	V	63.06	78.20	15.14	PK
5860	57.64	4.42	H	62.06	68.20	6.14	PK
5860	57.59	4.42	V	62.01	68.20	6.19	PK

Notes:

1. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain + ATT
2. We have done all data rate in 802.11a/n/ac mode test. . Worst case of EUT is lowest data rate in 802.11a/n/ac.
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
4. '*' is radiated band edge test frequency.(not restricted band emissions)

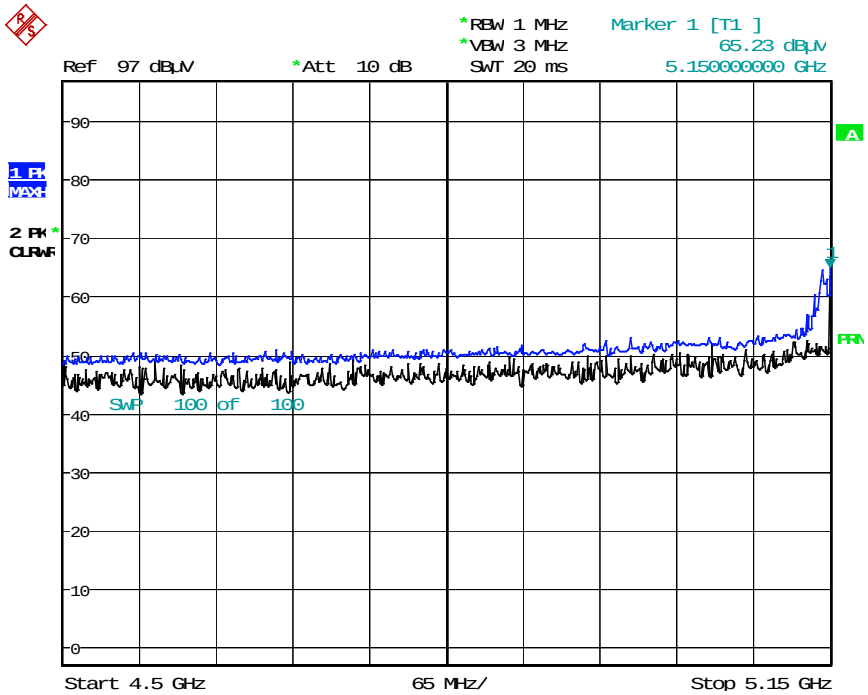
▣ RESULT PLOTS

Radiated Restricted Band Edges plot – Average Reading (802.11a_20M, Ch.36)



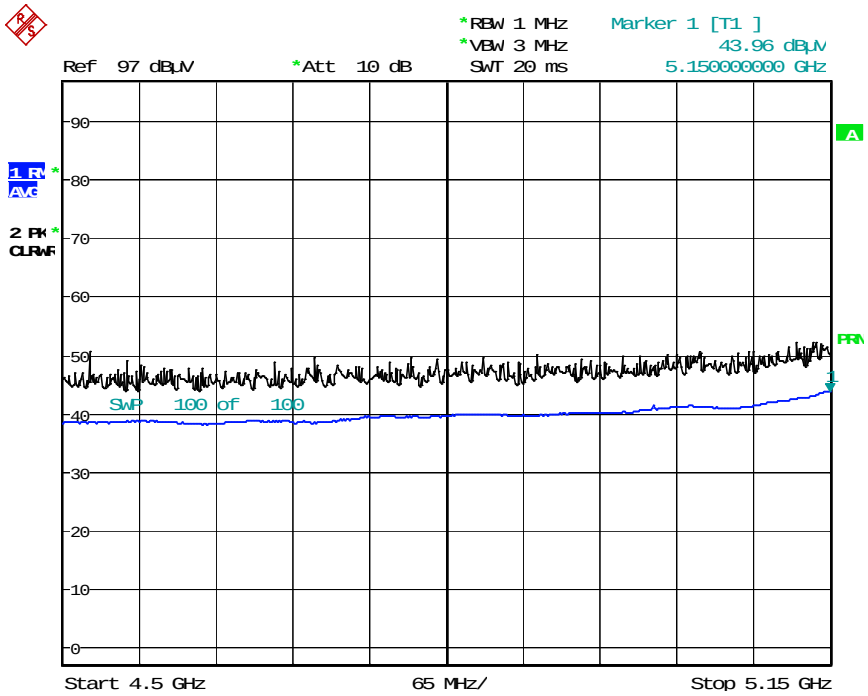
Date: 16.NOV.2015 06:31:57

Radiated Restricted Band Edges plot – Peak Reading (802.11a_20M, Ch.36)



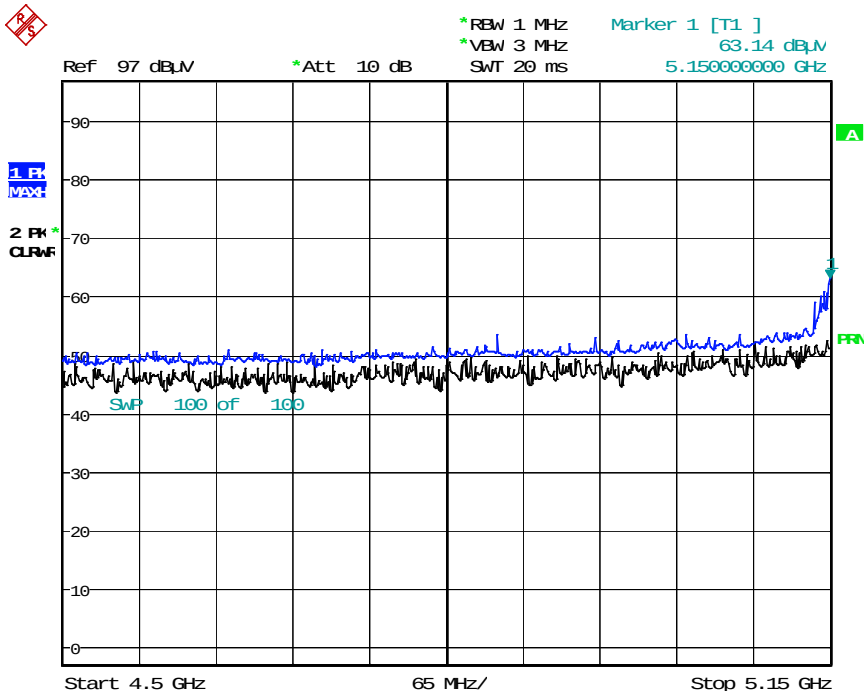
Date: 16.NOV.2015 06:33:08

Radiated Restricted Band Edges plot – Average Reading (802.11n_20M, Ch.36)



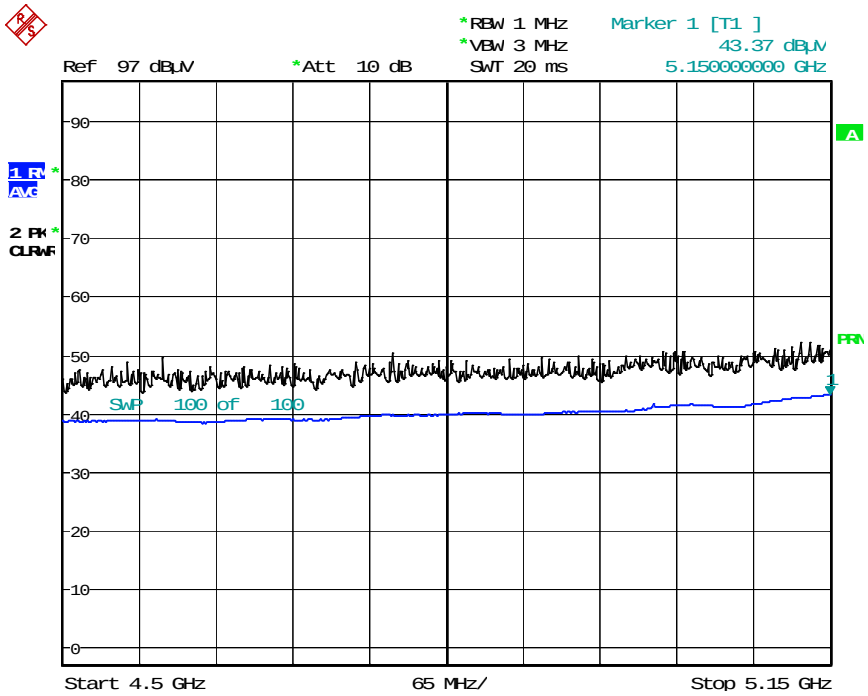
Date: 17.NOV.2015 13:45:35

Radiated Restricted Band Edges plot – Peak Reading (802.11n_20M, Ch.36)



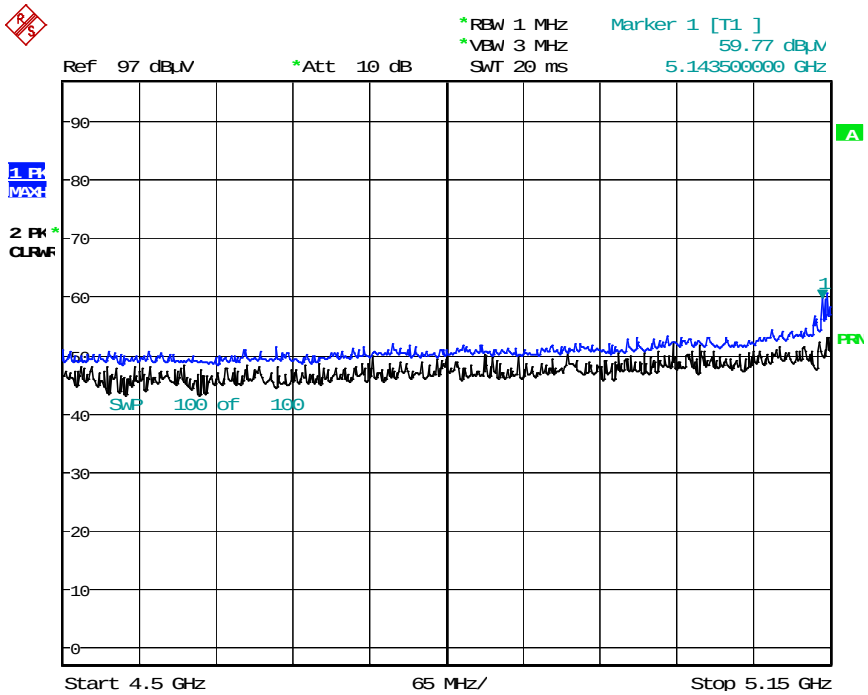
Date: 17.NOV.2015 13:44:36

Radiated Restricted Band Edges plot – Average Reading (802.11ac_20M, Ch.36)



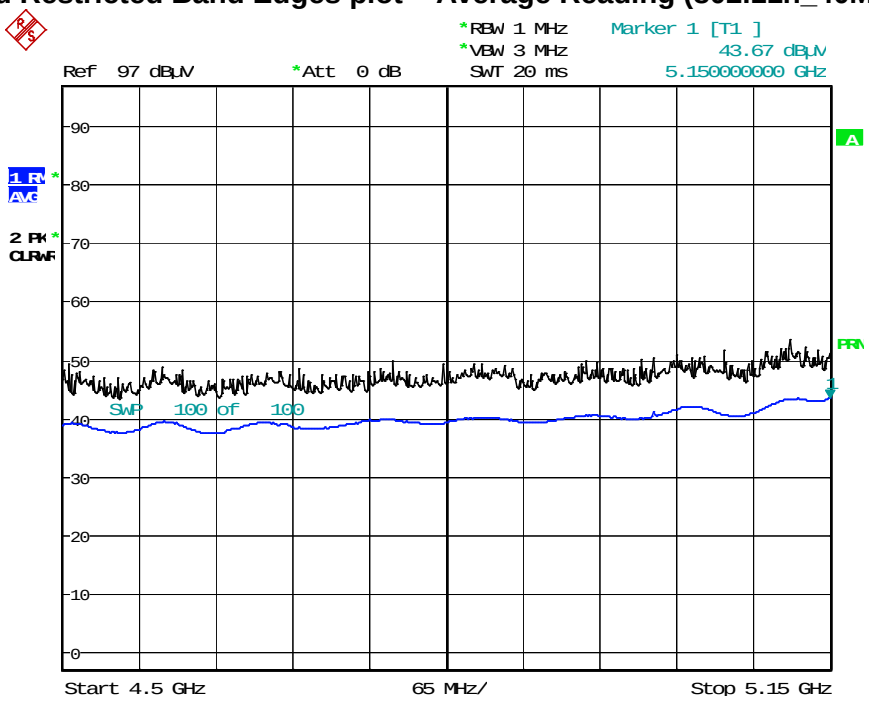
Date: 18.NOV.2015 03:30:15

Radiated Restricted Band Edges plot – Peak Reading (802.11ac_20M, Ch.36)



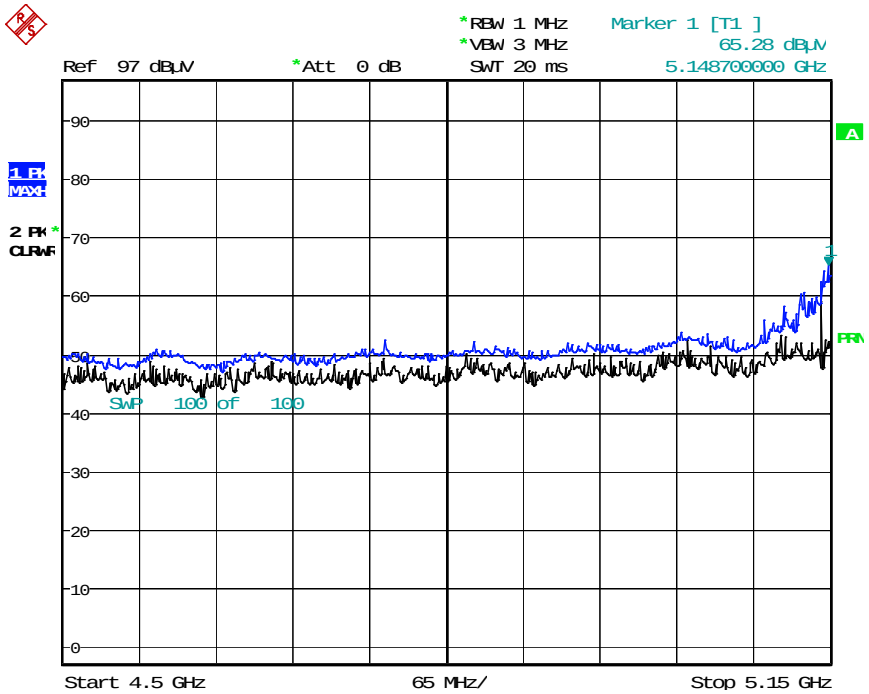
Date: 18.NOV.2015 03:29:39

Radiated Restricted Band Edges plot – Average Reading (802.11n_40M, Ch.38)



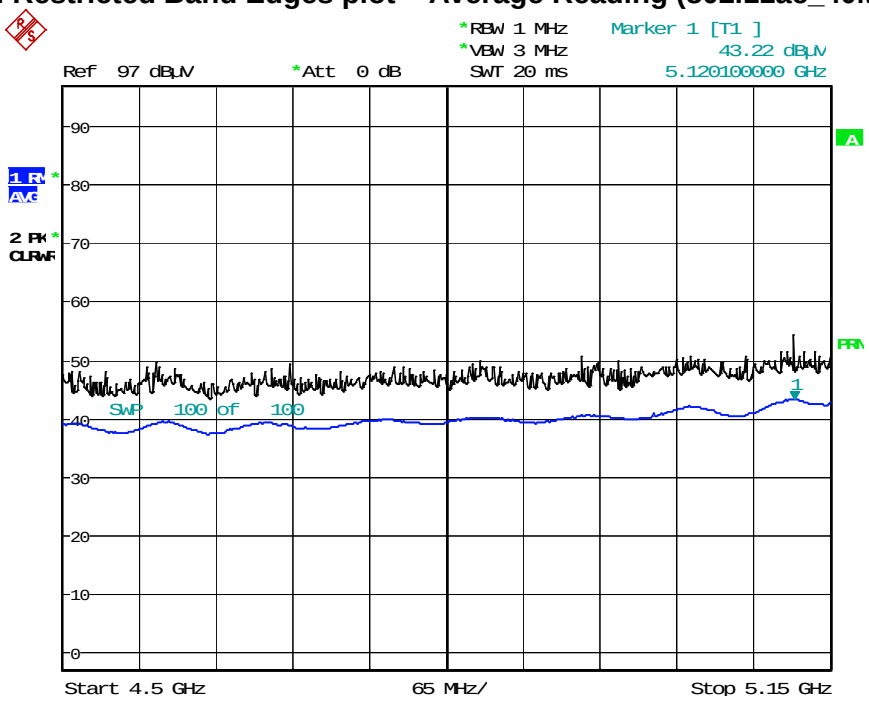
Date: 18.NOV.2015 03:39:40

Radiated Restricted Band Edges plot – Peak Reading (802.11n_40M, Ch.38)



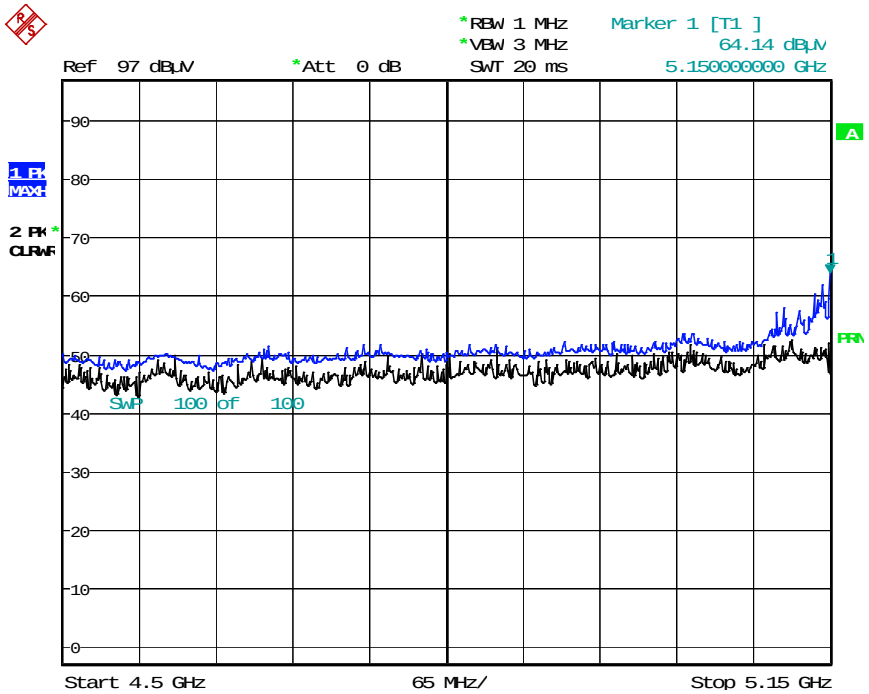
Date: 18.NOV.2015 03:39:06

Radiated Restricted Band Edges plot – Average Reading (802.11ac_40M, Ch.38)



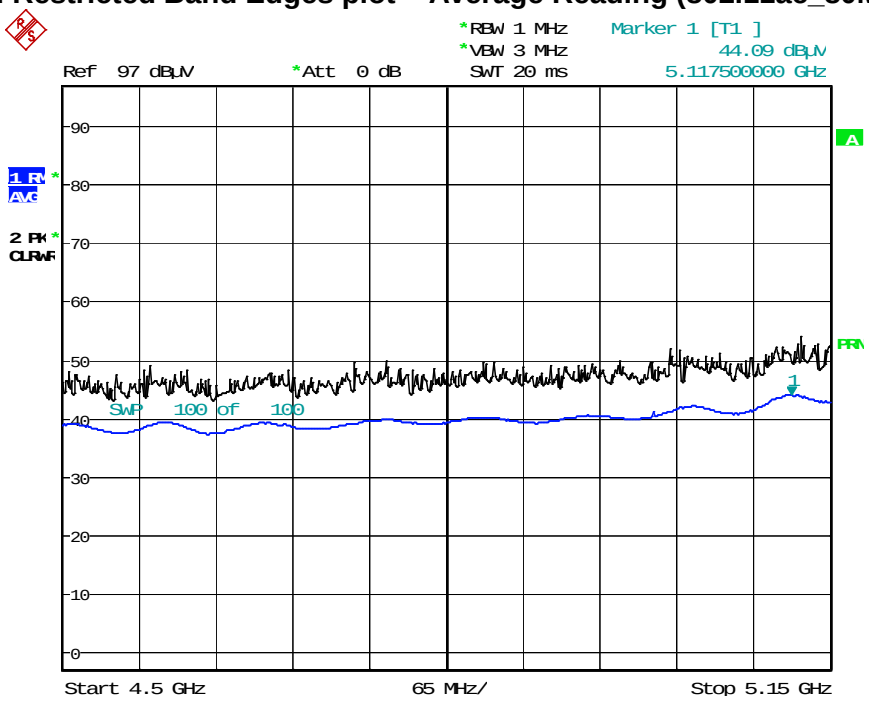
Date: 18.NOV.2015 03:44:27

Radiated Restricted Band Edges plot – Peak Reading (802.11ac_40M, Ch.38)



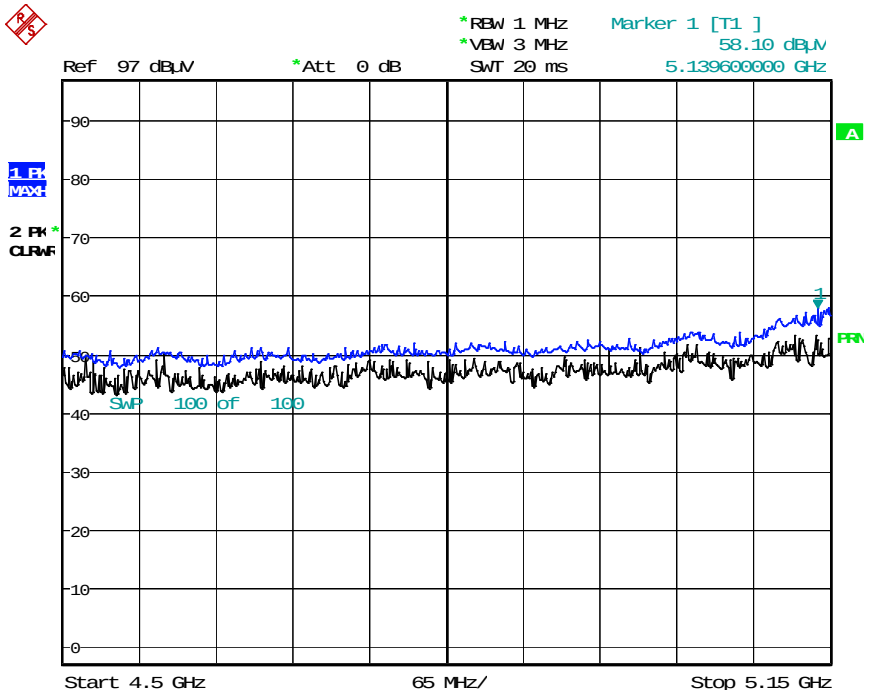
Date: 18.NOV.2015 03:43:55

Radiated Restricted Band Edges plot – Average Reading (802.11ac_80M, Ch.42)



Date: 18.NOV.2015 03:55:11

Radiated Restricted Band Edges plot – Peak Reading (802.11ac_80M, Ch.42)



Date: 18.NOV.2015 03:54:02

8.7 POWERLINE CONDUCTED EMISSIONS

Test Requirements and limit, §15.207

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

Frequency Range (MHz)	Limits (dBµV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

Test Configuration

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

TEST PROCEDURE

1. The EUT is placed on a wooden table 80 cm above the reference groundplane.
2. The EUT is connected via LISN to a test power supply.
3. The measurement results are obtained as described below:
4. Detectors – Quasi Peak and Average Detector.

Sample Calculation

Quasi-peak(Final Result) = Reading Value + Correction Factor

Note : We don’t perform powerline conducted emission test. Because this EUT is used with vehicle.

9. LIST OF TEST EQUIPMENT

9.1 LIST OF TEST EQUIPMENT(Conducted Test)

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Rohde & Schwarz	ENV216/ LISN	01/13/2015	Annual	100073
Agilent	E4440A/ Spectrum Analyzer	03/18/2015	Annual	US45303008
Agilent	N9020A / SIGNAL ANALYZER	06/30/2015	Annual	MY51110085
Agilent	N9020A / SIGNAL ANALYZER	07/02/2015	Annual	MY50510304
Agilent	N1911A/Power Meter	07/09/2015	Annual	MY45100523
Agilent	N1921A /POWER SENSOR	07/09/2015	Annual	MY45241059
*Agilent	*87300B/Directional Coupler	11/30/2015	Annual	3116A03621
Hewlett Packard	11667B / Power Splitter	06/15/2015	Annual	5001
Hewlett Packard	E3632A / DC POWER SUPPLY	03/11/2015	Annual	KR75303962
Agilent	8493C / Attenuator(10 dB)	07/21/2015	Annual	07560
*The Agilnet '87300B/Directional Coupler' was used after calibration date.(11/30/2015)				

9.2 LIST OF TEST EQUIPMENT(Radiated Test)

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Schwarzbeck	VULB 9160/ TRILOG Antenna	10/10/2014	Biennial	3368
HD	MA240/ Antenna Position Tower	N/A	N/A	556
EMCO	1050/ Turn Table	N/A	N/A	114
HD GmbH	HD 100/ Controller	N/A	N/A	13
HD GmbH	KMS 560/ SlideBar	N/A	N/A	12
Schwarzbeck	BBHA 9120D/ Horn Antenna	05/07/2015	Biennial	937
Schwarzbeck	BBHA9170 / Horn Antenna(15 GHz ~ 40 GHz)	04/30/2015	Biennial	BBHA9170124
Rohde & Schwarz	FSP / Spectrum Analyzer	01/22/2015	Annual	839117/011
Wainwright Instrument	WHF3.0/18G-10EF / High Pass Filter	06/29/2015	Annual	8
Wainwright Instrument	WHKX8-6090-7000-18000-40SS / High Pass Filter	08/03/2015	Annual	5
Wainwright Instrument	WRCJV5100/5850-40/50-8EEK / Band Reject Filter	01/29/2015	Annual	2
Wainwright Instrument	WRCJ2400/2483.5-2370/2520-60/14SS / Band Reject Filter	06/15/2015	Annual	1
Rohde & Schwarz	LOOP ANTENNA	09/03/2014	Biennial	1513-175
CERNEX	CBL26405040 / POWER AMP	07/21/2015	Annual	19660
CERNEX	CBL18265035 / POWER AMP	07/27/2015	Annual	22966
CERNEX	CBL06185030 / POWER AMP	07/21/2015	Annual	22965