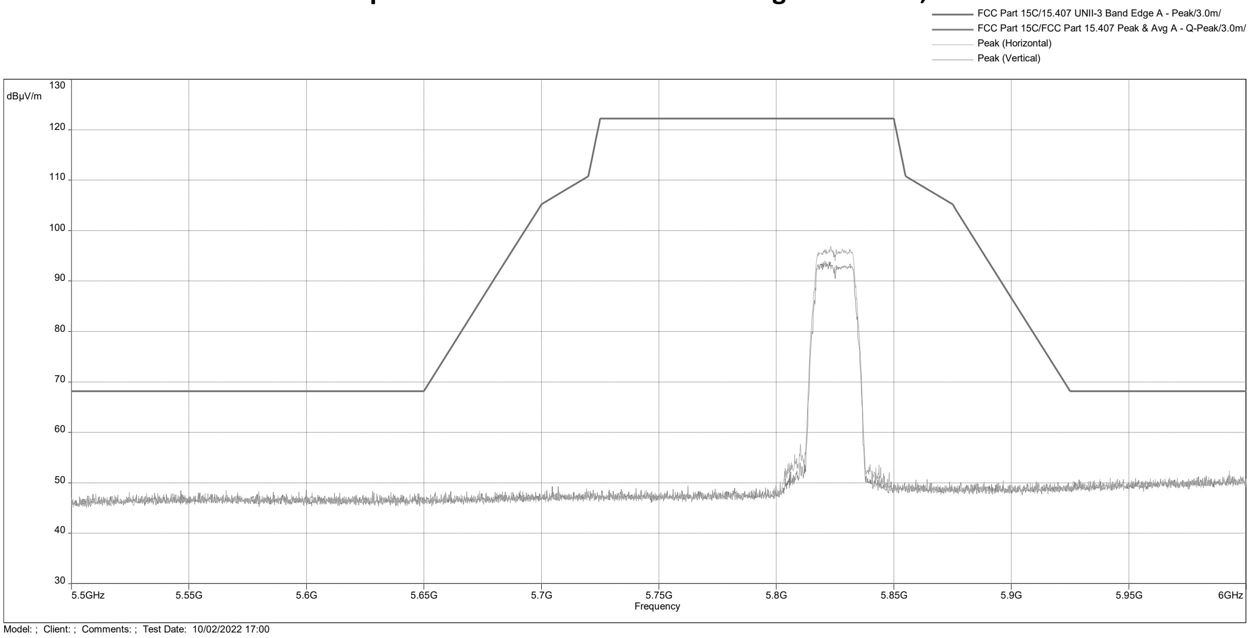
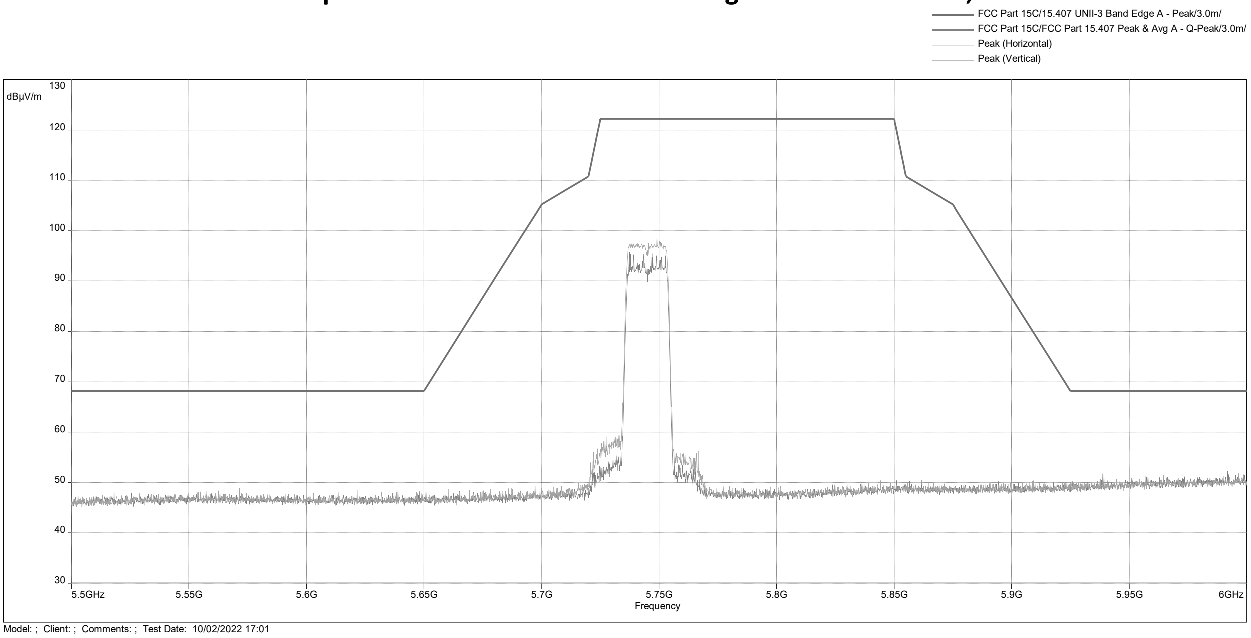
Out-of-Band Spurious Emissions at the Band Edge - 802.11a, 5825 MHz

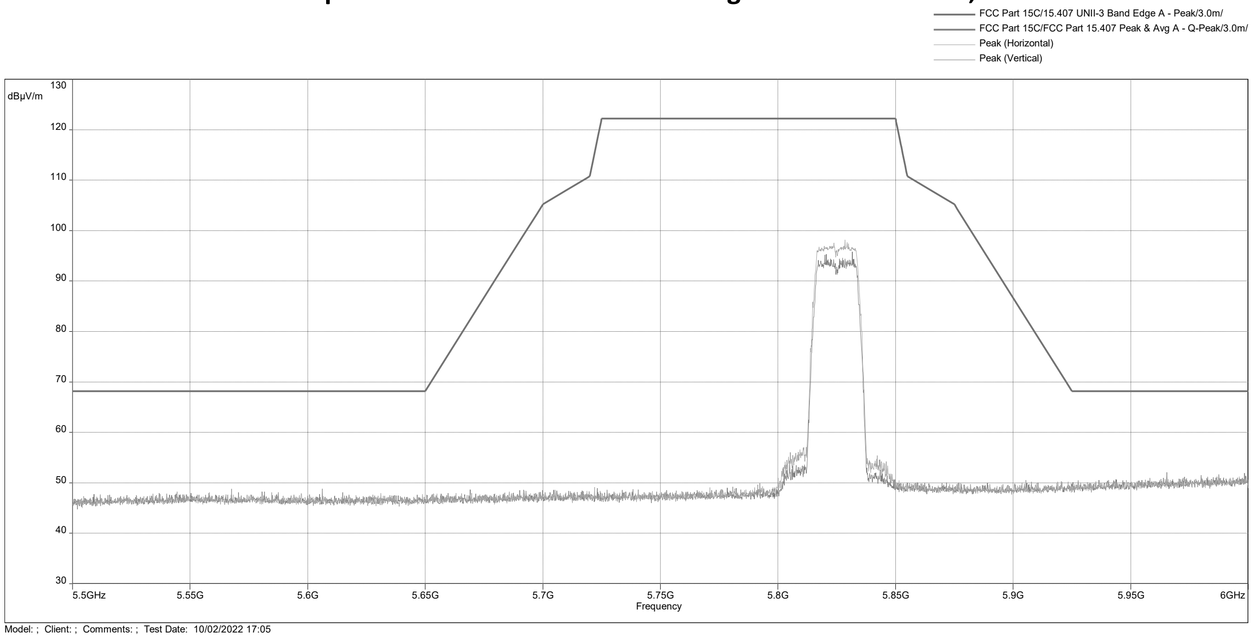


Test Results: 15.209/15.205 Restricted Band Emissions

Out-of-Band Spurious Emissions at the Band Edge - 802.11n 20MHz, 5745 MHz

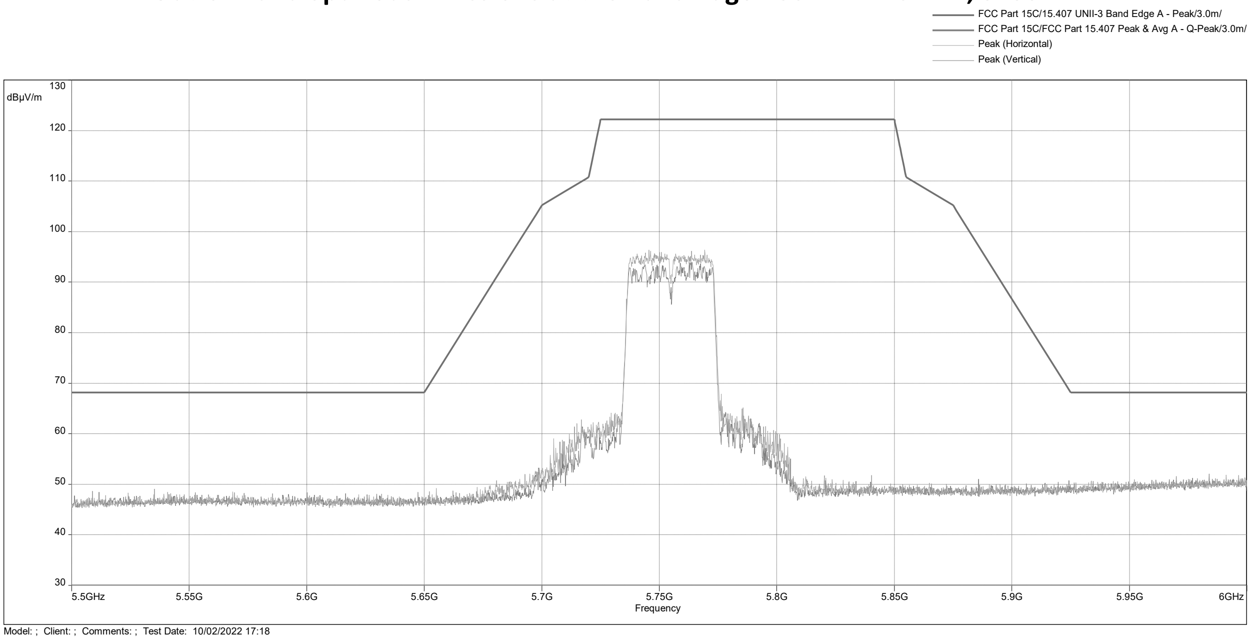


Out-of-Band Spurious Emissions at the Band Edge - 802.11n 20MHz, 5825 MHz



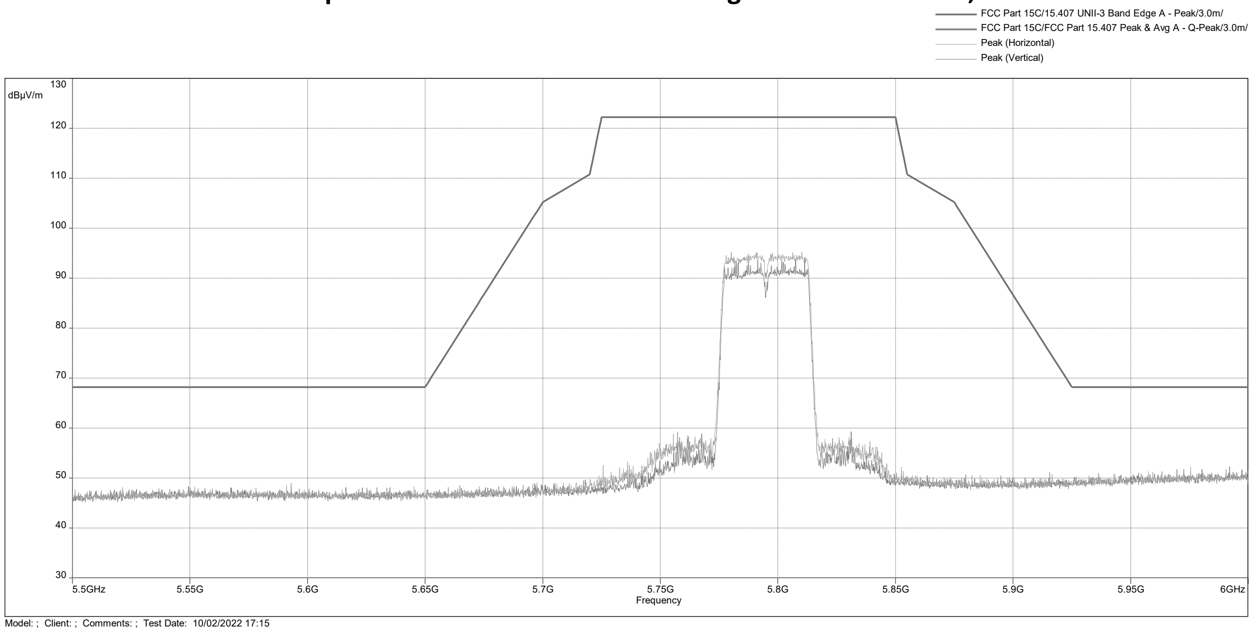
Test Results: 15.209/15.205 Restricted Band Emissions

Out-of-Band Spurious Emissions at the Band Edge - 802.11n 40MHz, 5755 MHz

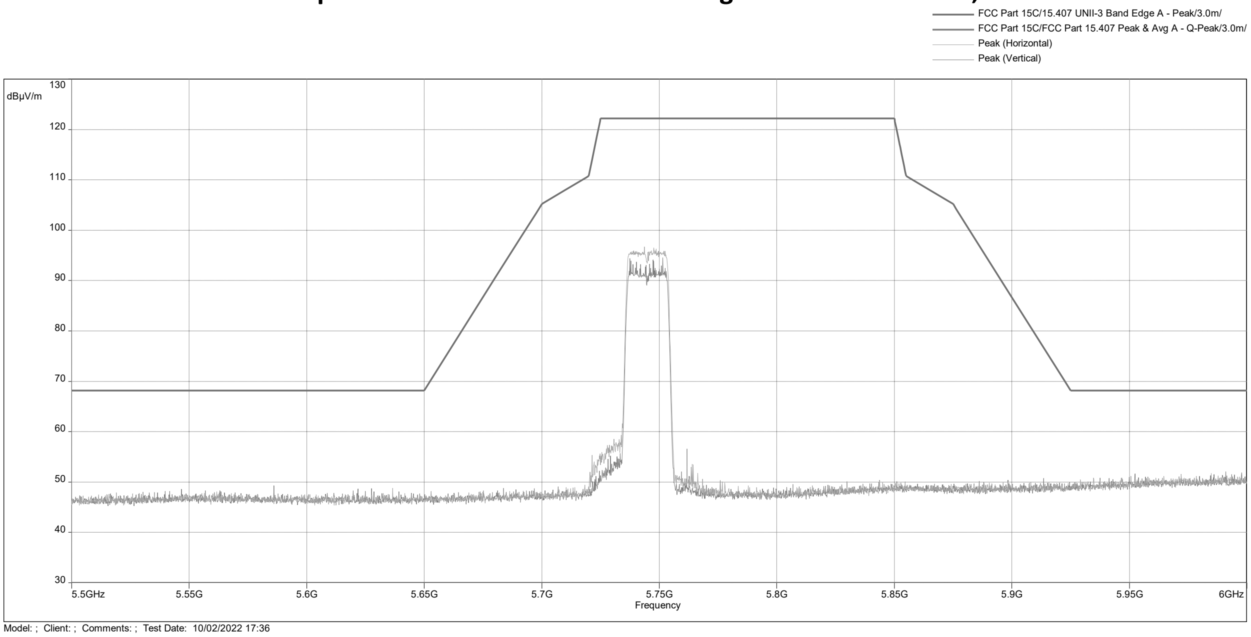


![intertek Total Quality. Assured.]

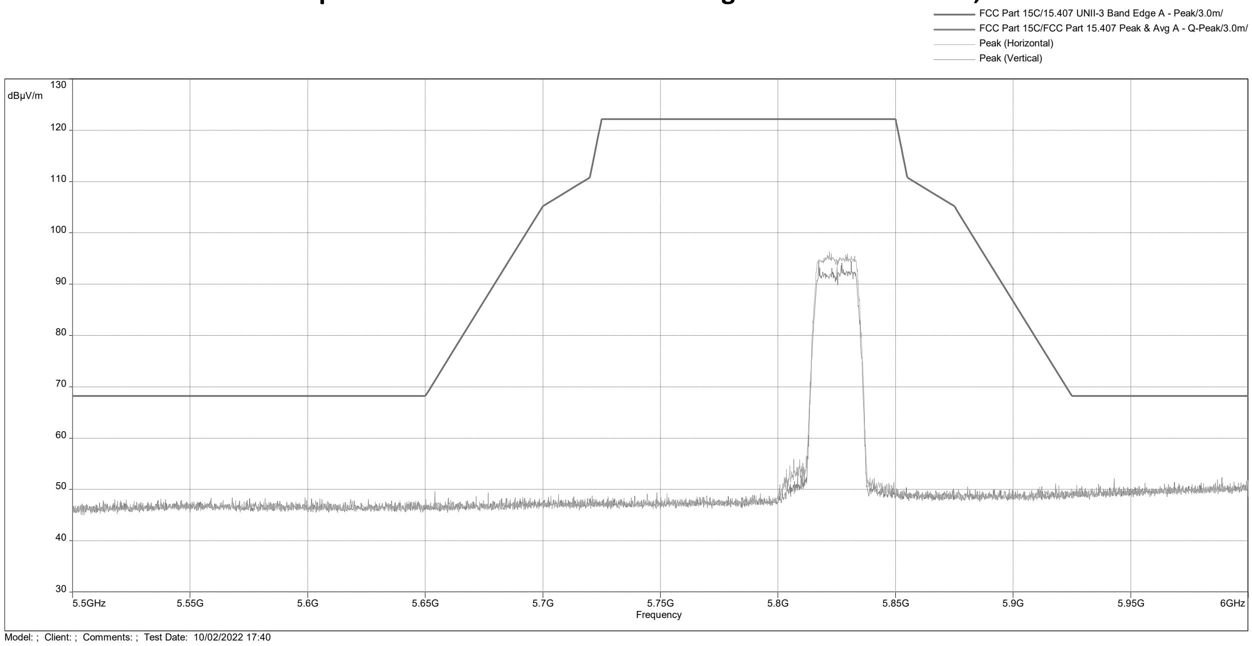
Out-of-Band Spurious Emissions at the Band Edge - 802.11n 40MHz, 5795 MHz



Out-of-Band Spurious Emissions at the Band Edge - 802.11ac 20MHz, 5745 MHz



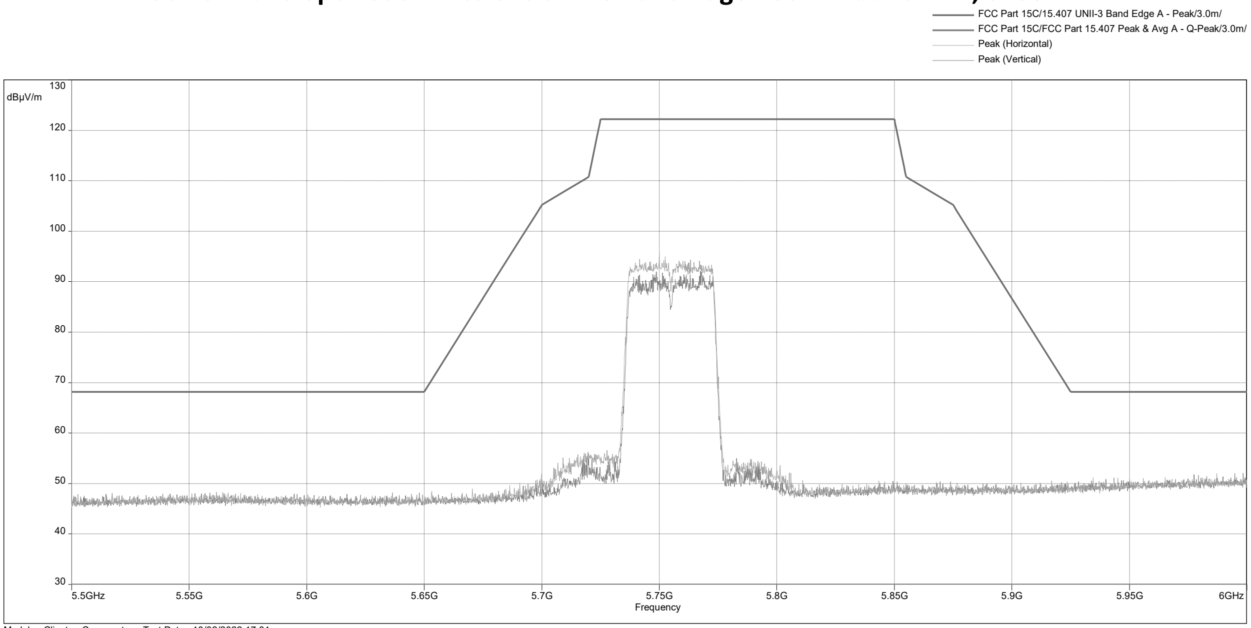
Out-of-Band Spurious Emissions at the Band Edge - 802.11ac 20MHz, 5825 MHz



Total Quality. Assured.

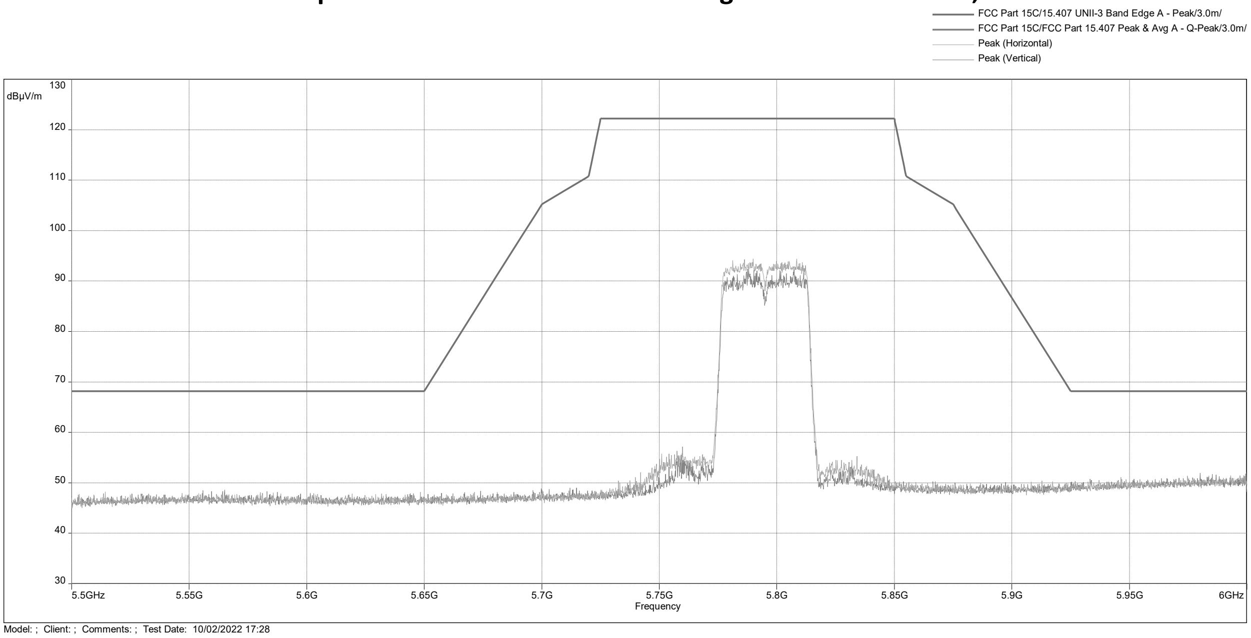
Test Results: 15.209/15.205 Restricted Band Emissions

Out-of-Band Spurious Emissions at the Band Edge - 802.11ac 40MHz, 5755 MHz

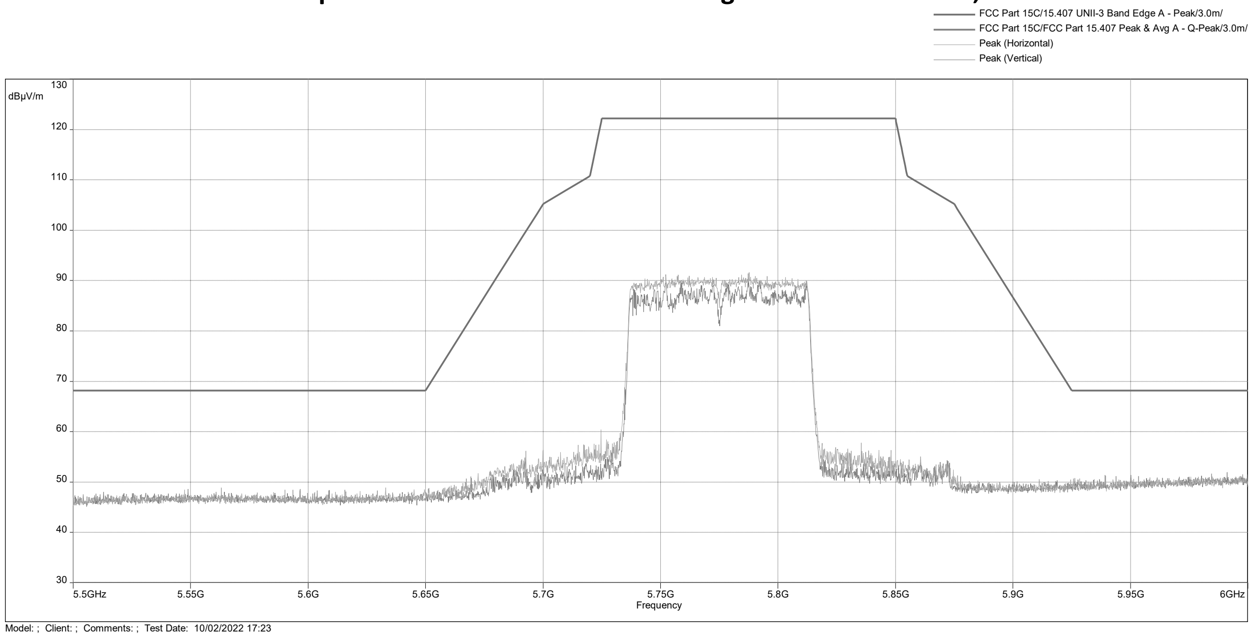


Model: ; Client: ; Comments: ; Test Date: 10/02/2022 17:31

Out-of-Band Spurious Emissions at the Band Edge - 802.11ac 40MHz, 5795 MHz



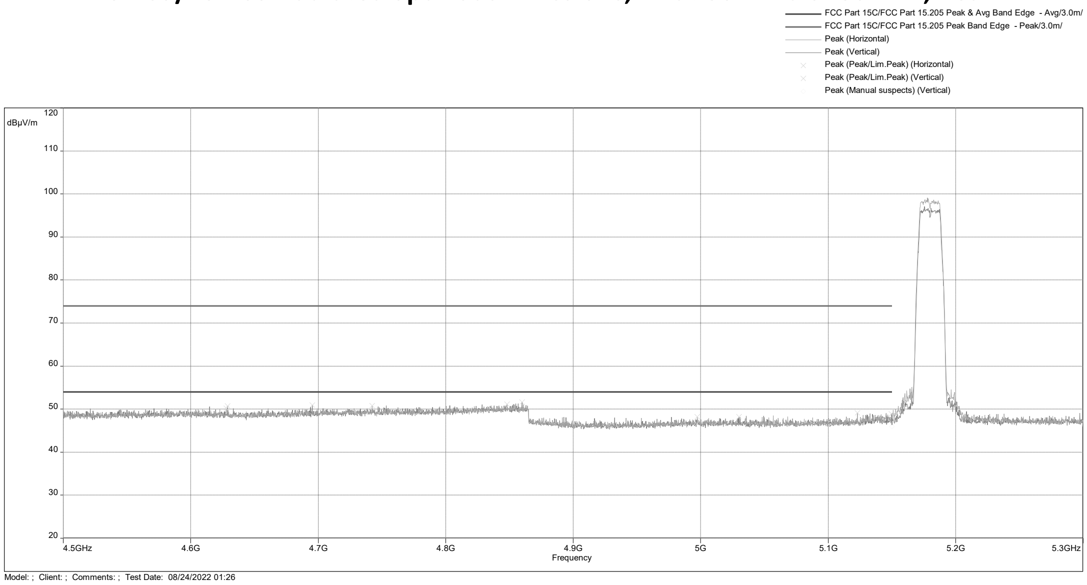
Out-of-Band Spurious Emissions at the Band Edge - 802.11ac 80MHz, 5775 MHz



Total Quality. Assured.

Radiated Band Edge at the Restricted Bands

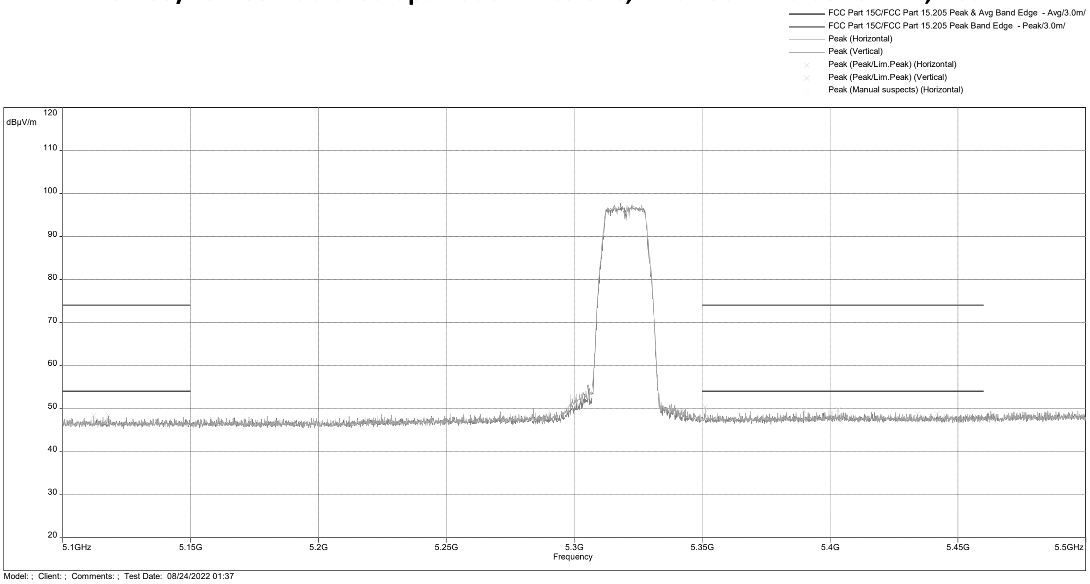
15.209/15.205 Radiated Spurious Emissions, Tx at 802.11a 5180MHz, Peak



Frequency	Detector	Amplitude	Limit	Margin	Pass / Fail?
(MHz)		(dBuV/m)	(dBuV/m)	(dB)	
5150	Peak	49.03	54	-4.97	Pass

Radiated Band Edge at the Restricted Bands

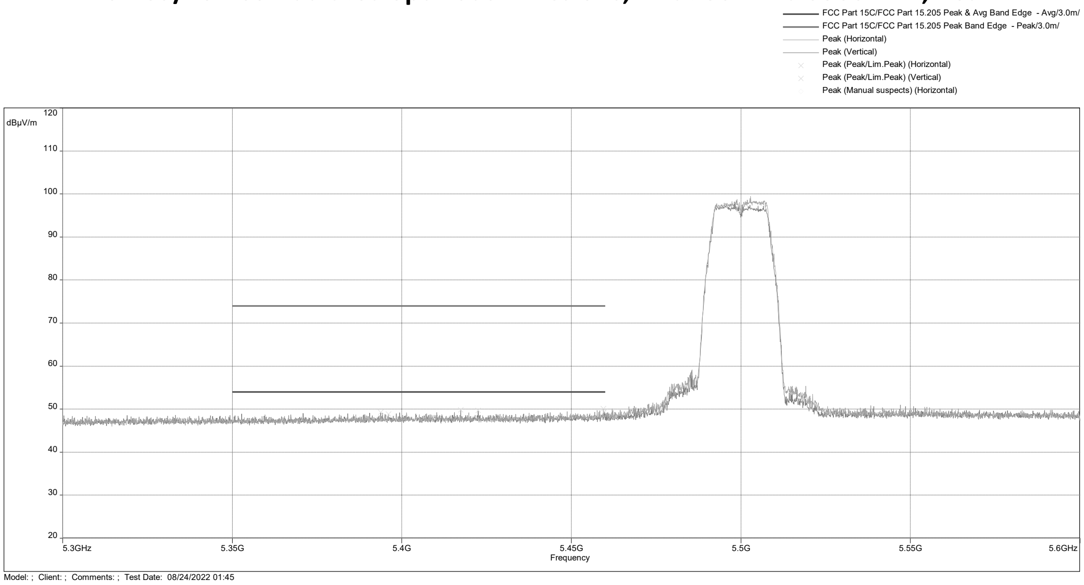
15.209/15.205 Radiated Spurious Emissions, Tx at 802.11a 5320MHz, Peak



Frequency (MHz)	Detector	Amplitude (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pass / Fail?
5350	Peak	50.38	54	-3.62	Pass

Radiated Band Edge at the Restricted Bands

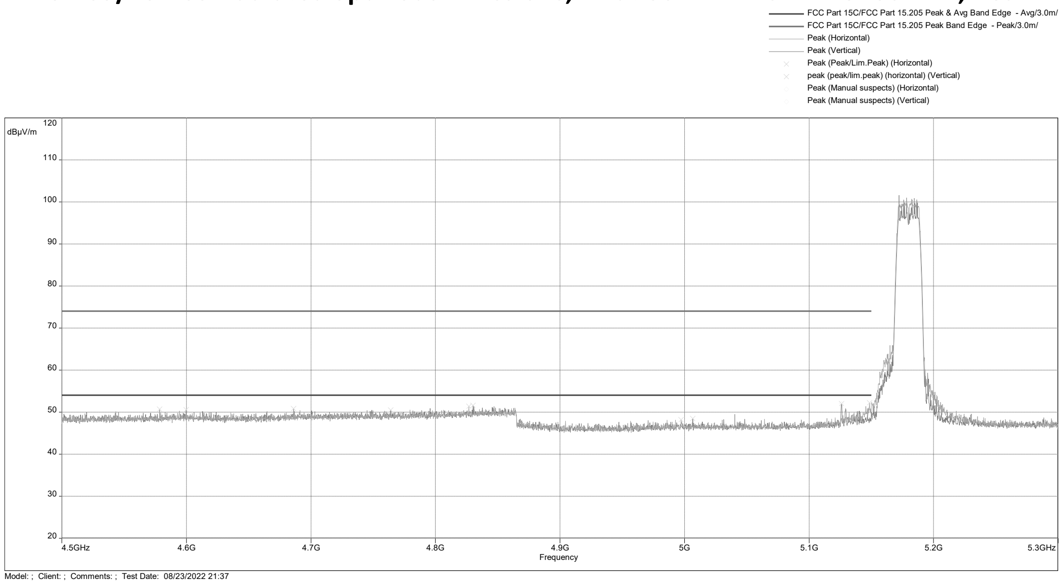
15.209/15.205 Radiated Spurious Emissions, Tx at 802.11a 5500MHz, Peak



Frequency	Detector	Amplitude	Limit	Margin	Pass / Fail?
(MHz)		(dBuV/m)	(dBuV/m)	(dB)	
5460	Peak	48.05	54	-5.95	Pass

Radiated Band Edge at the Restricted Bands

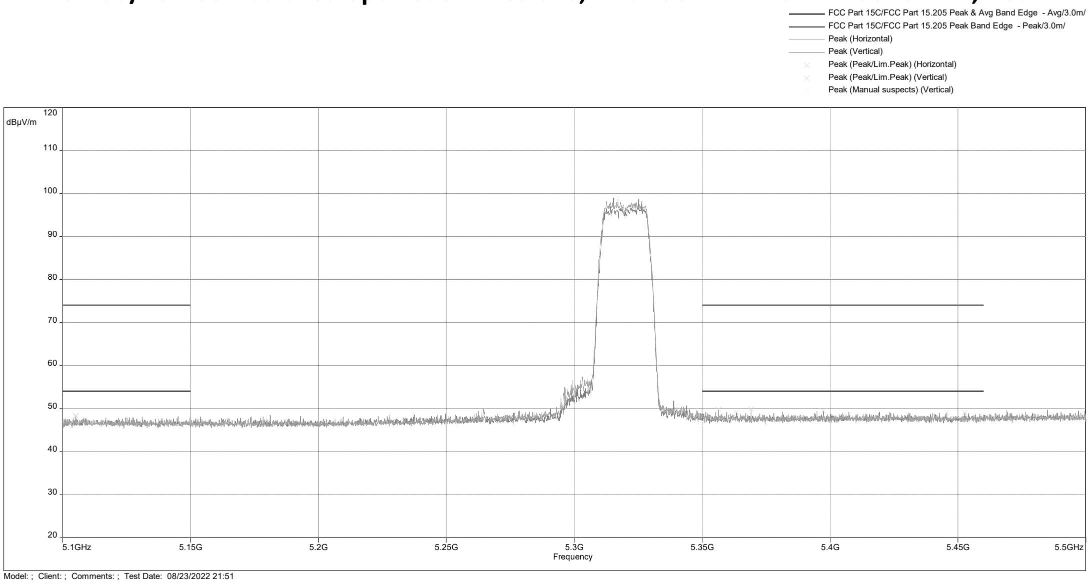
15.209/15.205 Radiated Spurious Emissions, Tx at 802.11n 20MHz 5180MHz, Peak



Frequency	Detector	Amplitude	Limit	Margin	Pass / Fail?
(MHz)		(dBuV/m)	(dBuV/m)	(dB)	
5150	Peak	49.71	54	-4.29	Pass

Radiated Band Edge at the Restricted Bands

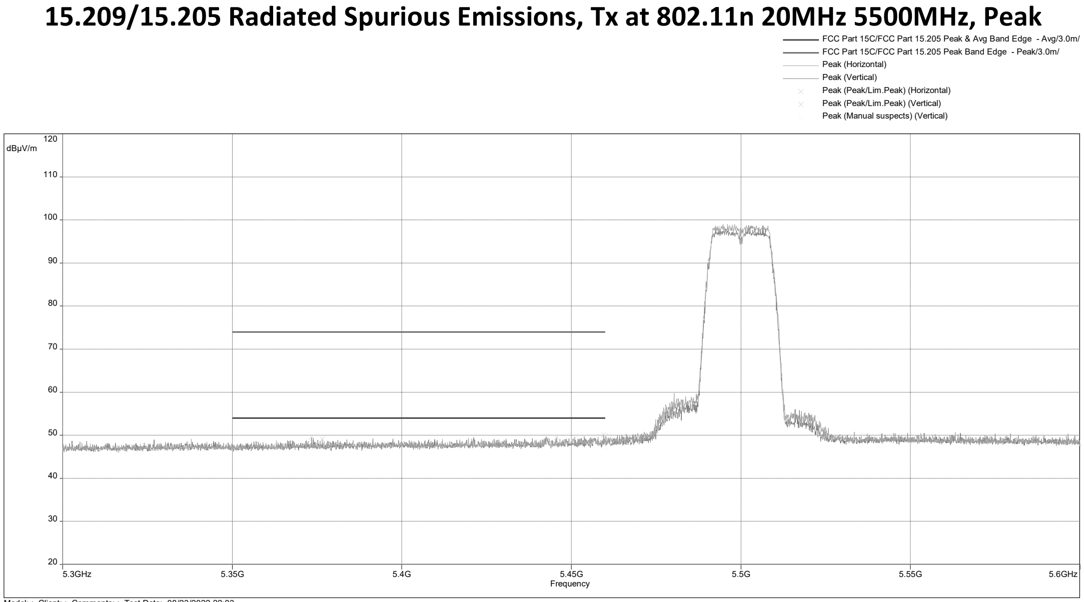
15.209/15.205 Radiated Spurious Emissions, Tx at 802.11n 20MHz 5320MHz, Peak



Frequency	Detector	Amplitude	Limit	Margin	Pass / Fail?
(MHz)		(dBuV/m)	(dBuV/m)	(dB)	
5350	Peak	46.62	54	-7.38	Pass

Radiated Band Edge at the Restricted Bands

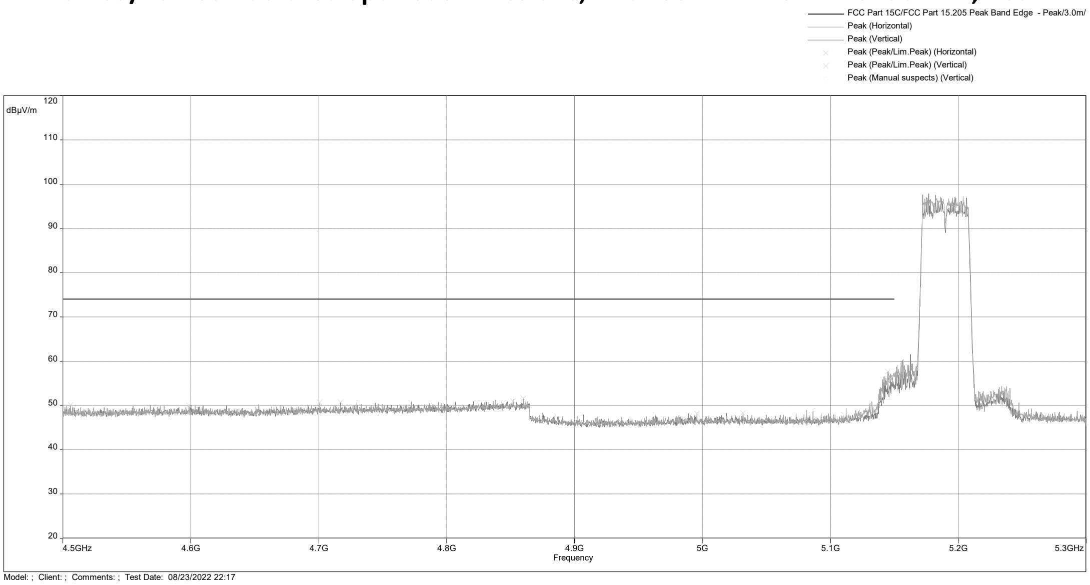
15.209/15.205 Radiated Spurious Emissions, Tx at 802.11n 20MHz 5500MHz, Peak



Frequency	Detector	Amplitude	Limit	Margin	Pass / Fail?
(MHz)		(dBuV/m)	(dBuV/m)	(dB)	
5460	Peak	47.14	54	-6.86	Pass

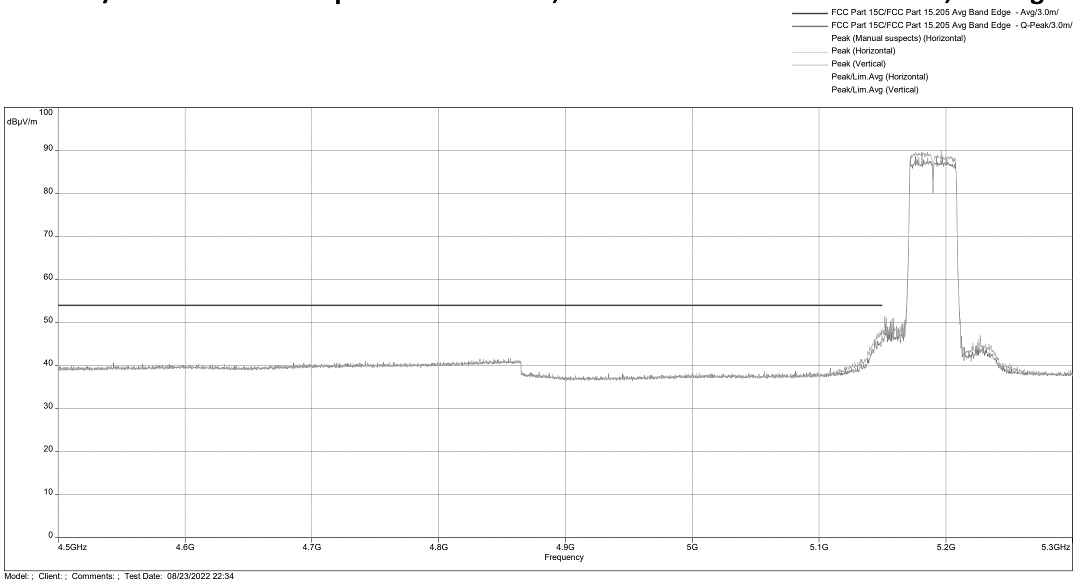
Radiated Band Edge at the Restricted Bands

15.209/15.205 Radiated Spurious Emissions, Tx at 802.11n 40MHz 5190MHz, Peak



Frequency	Detector	Amplitude	Limit	Margin	Pass / Fail?
(MHz)		(dBuV/m)	(dBuV/m)	(dB)	
5150	Peak	54.75	74	-19.25	Pass

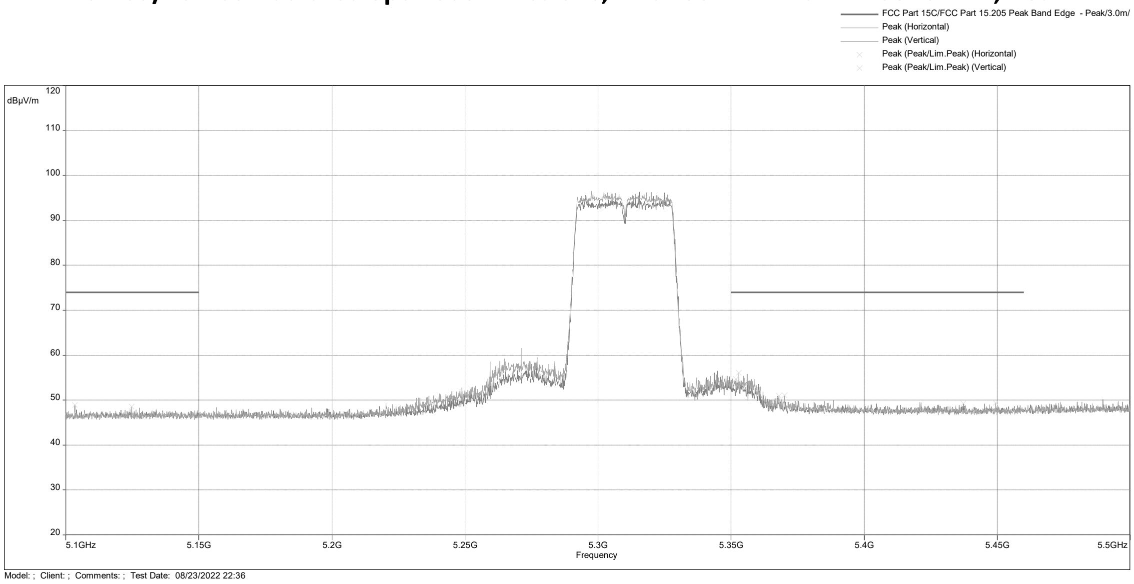
15.209/15.205 Radiated Spurious Emissions, Tx at 802.11n 40MHz 5190MHz, Average



Frequency	Detector	Amplitude	Limit	Margin	Pass / Fail?
(MHz)		(dBuV/m)	(dBuV/m)	(dB)	
5150	Average	48.63	54	-5.37	Pass

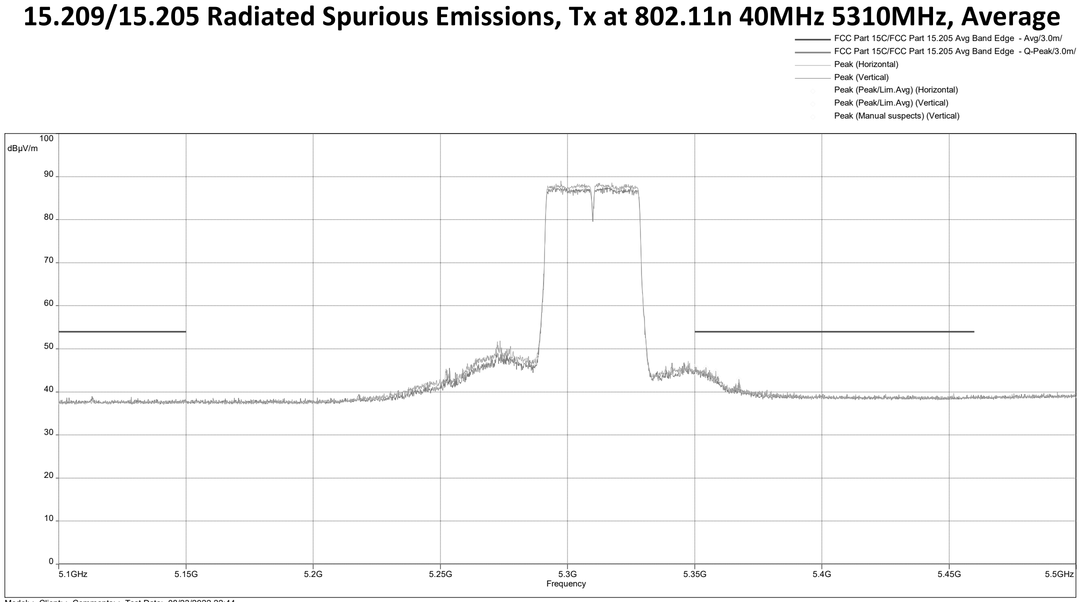
Radiated Band Edge at the Restricted Bands

15.209/15.205 Radiated Spurious Emissions, Tx at 802.11n 40MHz 5310MHz, Peak



Frequency (MHz)	Detector	Amplitude (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pass / Fail?
5350	Peak	52.03	74	-21.97	Pass

15.209/15.205 Radiated Spurious Emissions, Tx at 802.11n 40MHz 5310MHz, Average

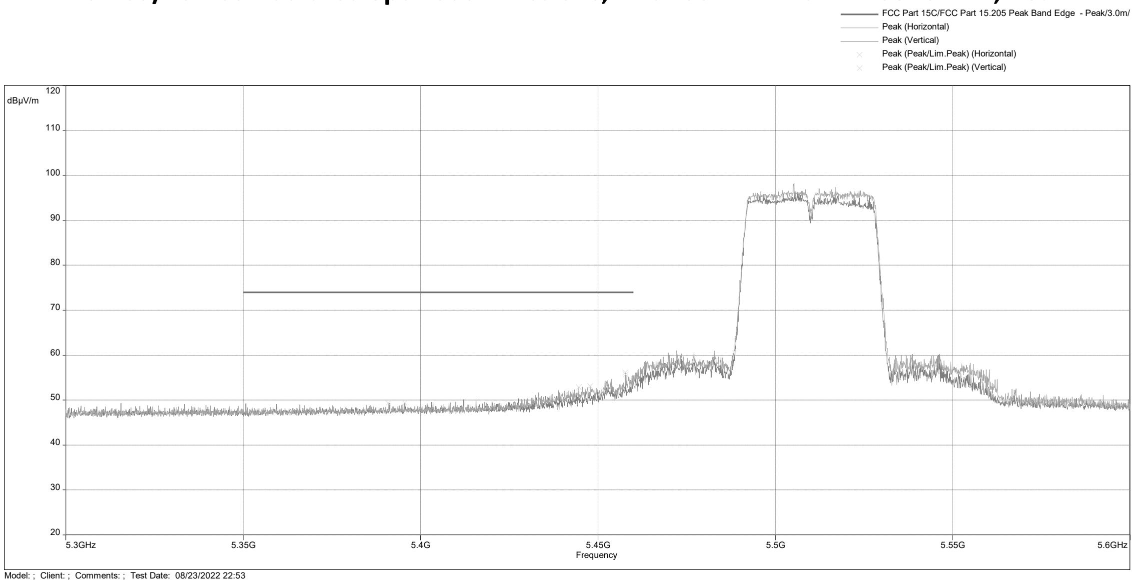


Frequency (MHz)	Detector	Amplitude (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pass / Fail?
5350	Average	44.53	54	-9.47	Pass

Total Quality. Assured.

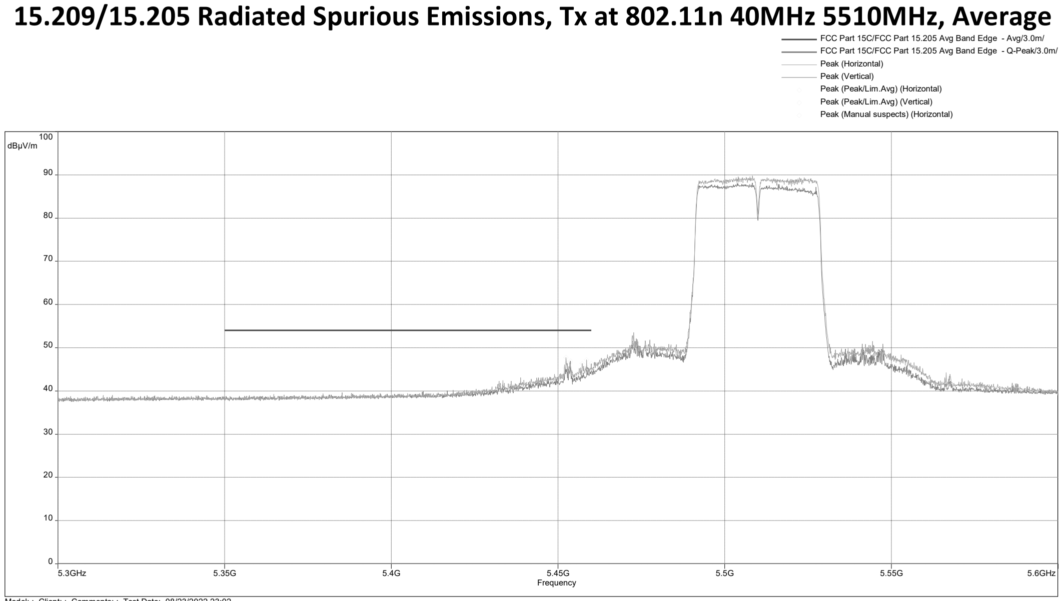
Radiated Band Edge at the Restricted Bands

15.209/15.205 Radiated Spurious Emissions, Tx at 802.11n 40MHz 5510MHz, Peak



Frequency	Detector	Amplitude	Limit	Margin	Pass / Fail?
(MHz)		(dBuV/m)	(dBuV/m)	(dB)	
5460	Peak	52.74	74	-11.26	Pass

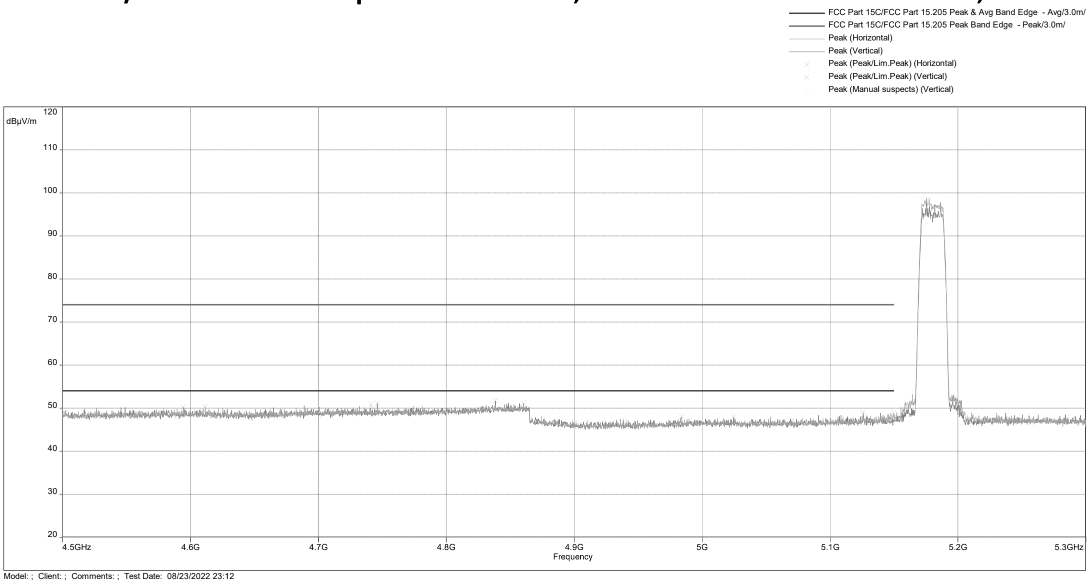
15.209/15.205 Radiated Spurious Emissions, Tx at 802.11n 40MHz 5510MHz, Average



Frequency	Detector	Amplitude	Limit	Margin	Pass / Fail?
(MHz)		(dBuV/m)	(dBuV/m)	(dB)	
5460	Average	46.35	54	-7.65	Pass

Radiated Band Edge at the Restricted Bands

15.209/15.205 Radiated Spurious Emissions, Tx at 802.11ac 20MHz 5180MHz, Peak



Frequency	Detector	Amplitude	Limit	Margin	Pass / Fail?
(MHz)		(dBuV/m)	(dBuV/m)	(dB)	
5150	Peak	46.98	54	-7.02	Pass

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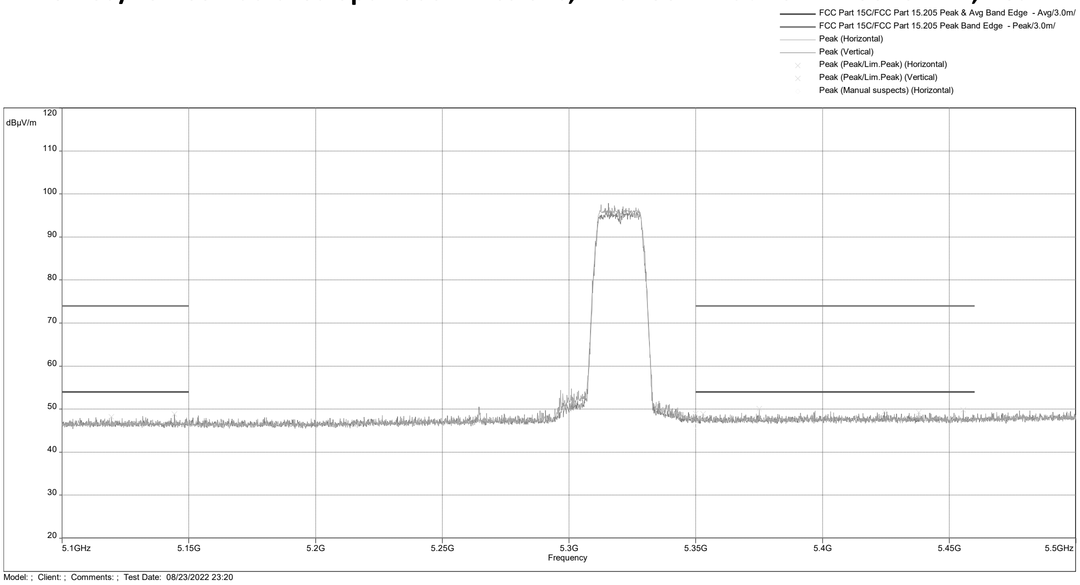
Total Quality. Assured.

Radiated Band Edge at the Restricted Bands

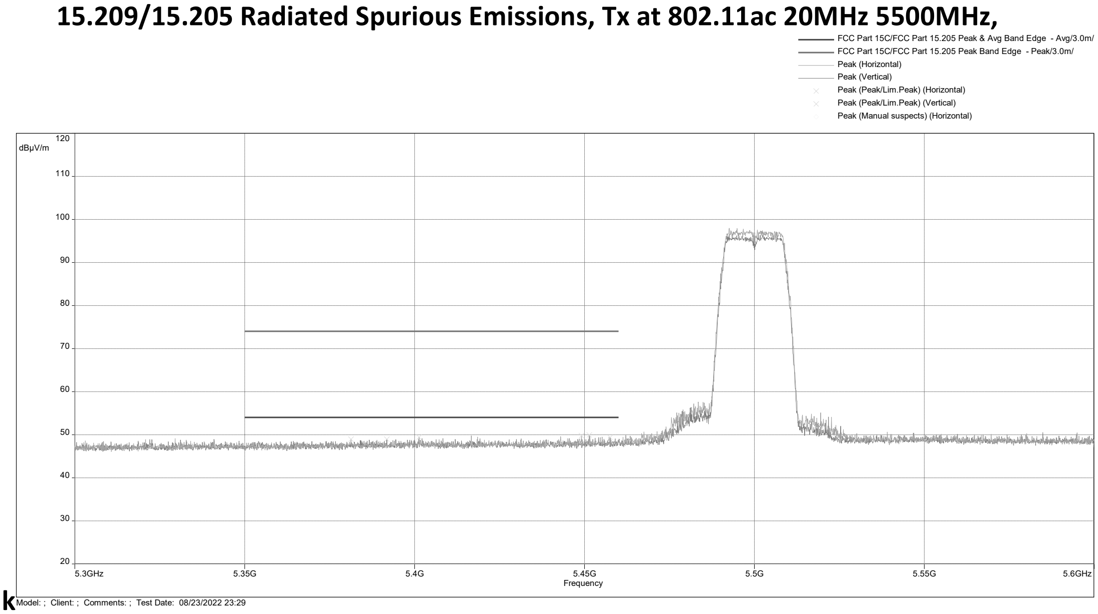
15.209/15.205 Radiated Spurious Emissions, Tx at 802.11ac 20MHz 5320MHz, Peak



Frequency	Detector	Amplitude	Limit	Margin	Pass / Fail?
(MHz)		(dBuV/m)	(dBuV/m)	(dB)	
5350	Peak	46.62	54	-7.38	Pass

Radiated Band Edge at the Restricted Bands

15.209/15.205 Radiated Spurious Emissions, Tx at 802.11ac 20MHz 5500MHz,



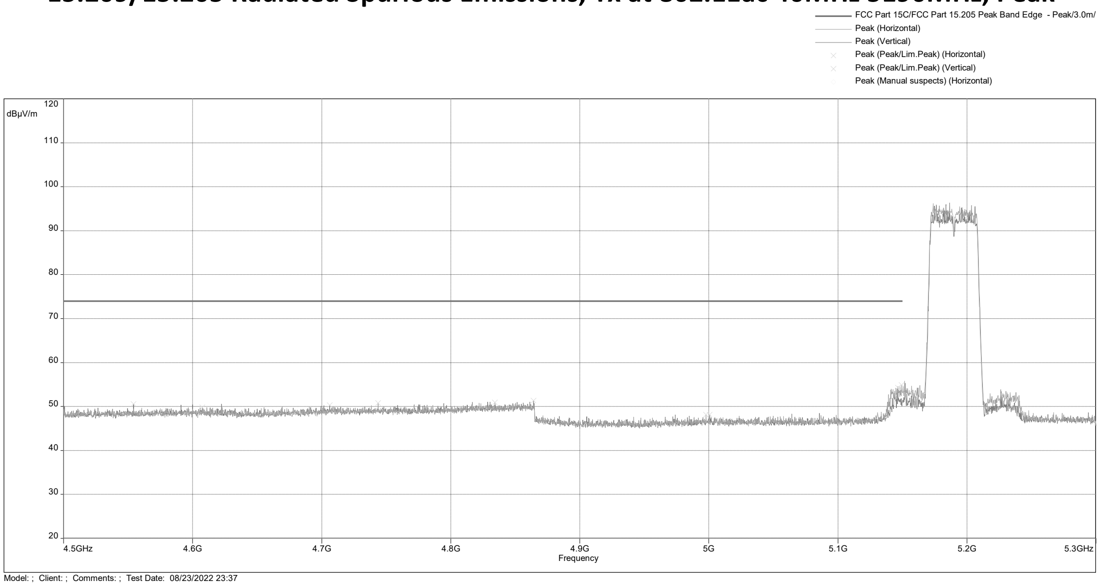
Peak

Frequency	Detector	Amplitude	Limit	Margin	Pass / Fail?
(MHz)		(dBuV/m)	(dBuV/m)	(dB)	

5460	Peak	47.14	54	-6.86	Pass

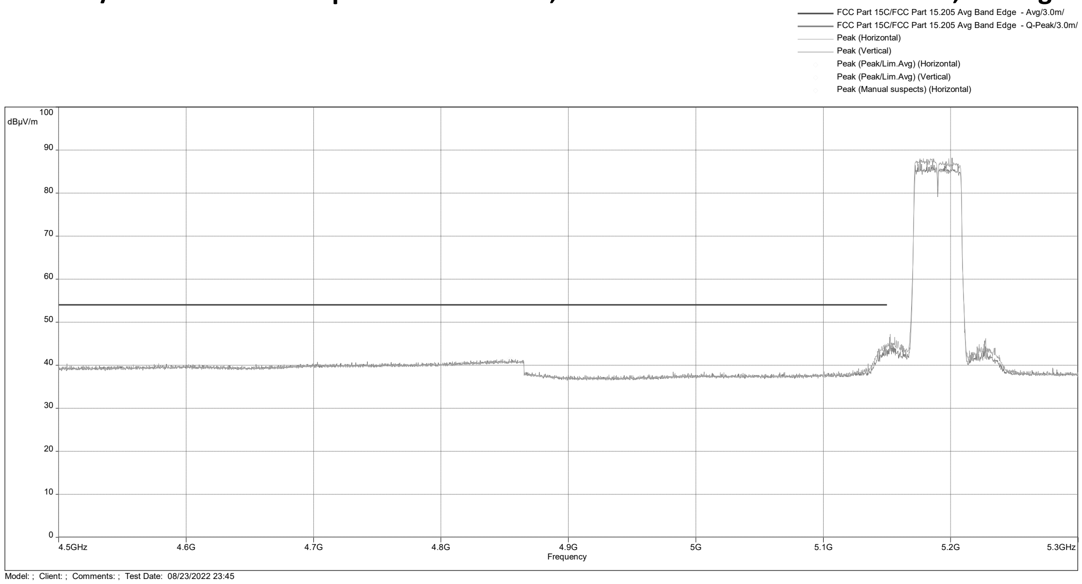
Radiated Band Edge at the Restricted Bands

15.209/15.205 Radiated Spurious Emissions, Tx at 802.11ac 40MHz 5190MHz, Peak



Frequency (MHz)	Detector	Amplitude (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pass / Fail?
5150	Peak	51.31	74	-22.69	Pass

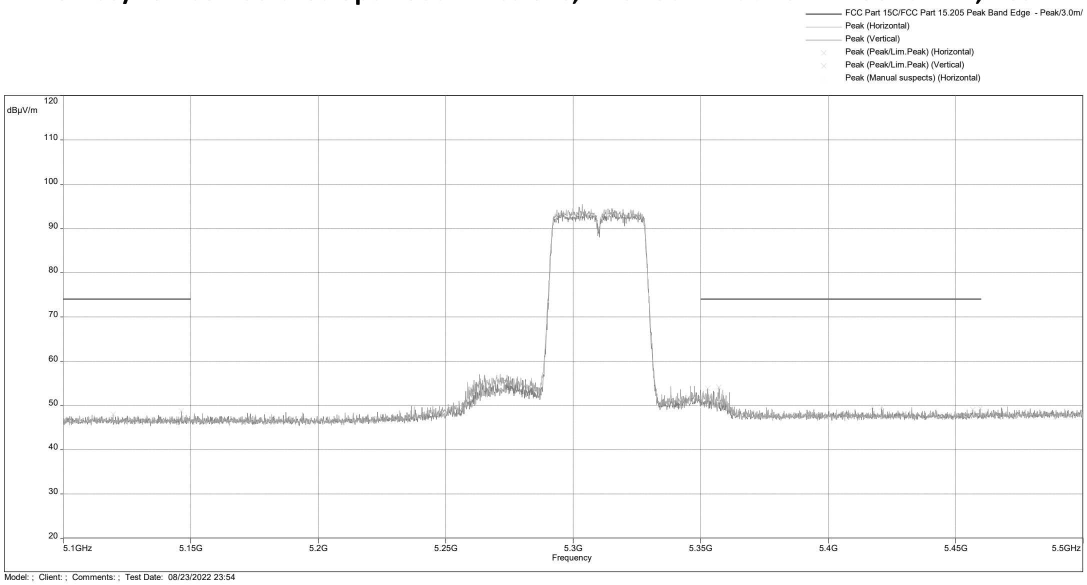
15.209/15.205 Radiated Spurious Emissions, Tx at 802.11ac 40MHz 5190MHz, Average



Frequency (MHz)	Detector	Amplitude (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pass / Fail?
5150	Average	43.19	54	-10.81	Pass

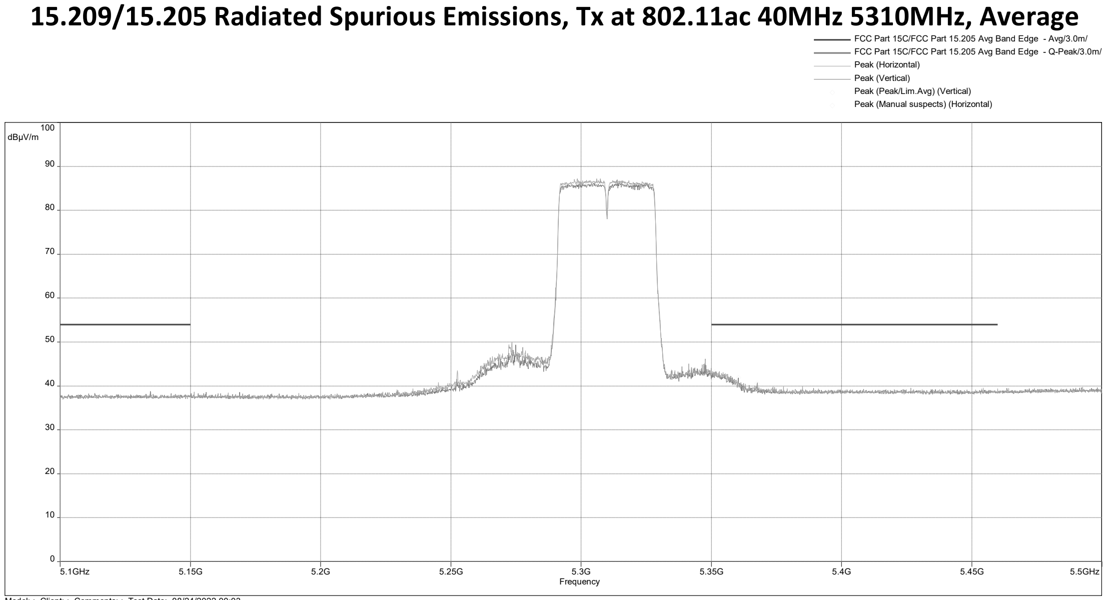
Radiated Band Edge at the Restricted Bands

15.209/15.205 Radiated Spurious Emissions, Tx at 802.11ac 40MHz 5310MHz, Peak



Frequency	Detector	Amplitude	Limit	Margin	Pass / Fail?
(MHz)		(dBuV/m)	(dBuV/m)	(dB)	
5350	Peak	49.96	74	-24.04	Pass

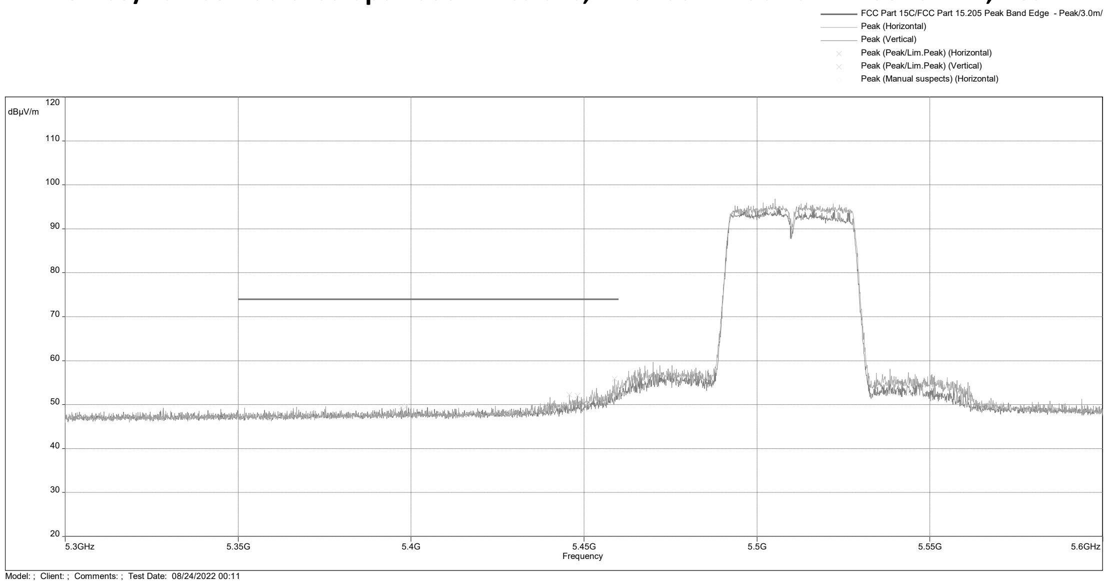
15.209/15.205 Radiated Spurious Emissions, Tx at 802.11ac 40MHz 5310MHz, Average



Frequency	Detector	Amplitude	Limit	Margin	Pass / Fail?
(MHz)		(dBuV/m)	(dBuV/m)	(dB)	
5350	Average	41.64	54	-12.36	Pass

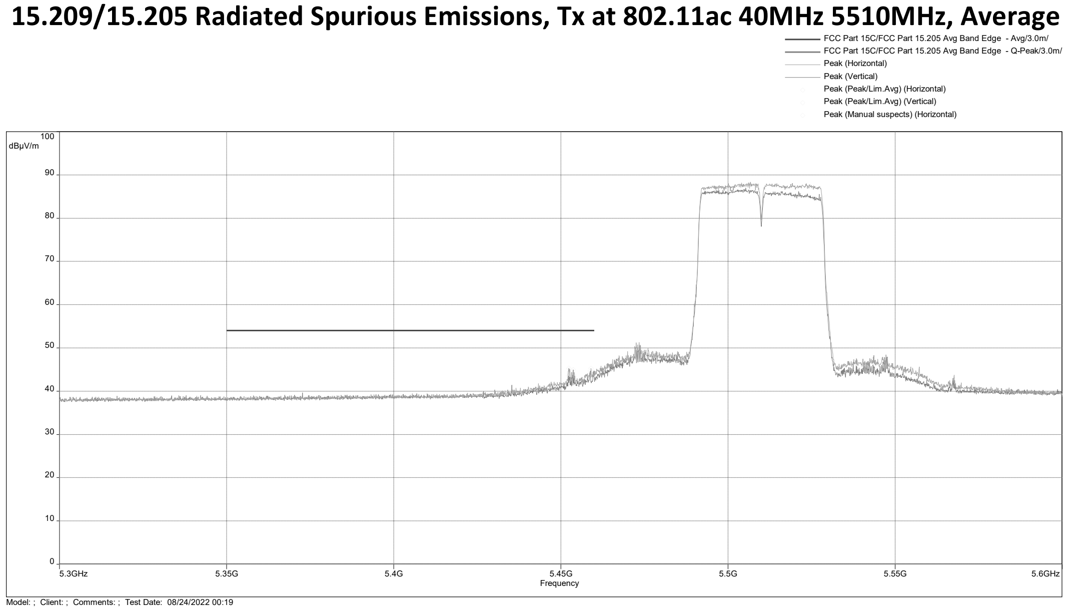
Radiated Band Edge at the Restricted Bands

15.209/15.205 Radiated Spurious Emissions, Tx at 802.11ac 40MHz 5510MHz, Peak



Frequency	Detector	Amplitude	Limit	Margin	Pass / Fail?
(MHz)		(dBuV/m)	(dBuV/m)	(dB)	
5460	Peak	59.49	74	-14.51	Pass

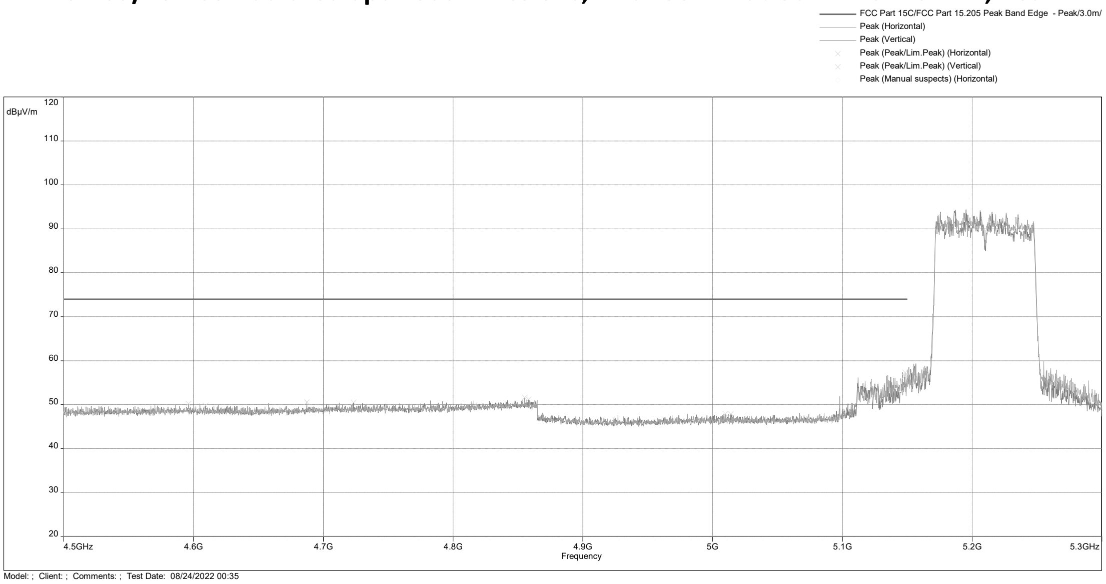
15.209/15.205 Radiated Spurious Emissions, Tx at 802.11ac 40MHz 5510MHz, Average



Frequency	Detector	Amplitude	Limit	Margin	Pass / Fail?
(MHz)		(dBuV/m)	(dBuV/m)	(dB)	
5460	Average	51.44	54	-2.56	Pass

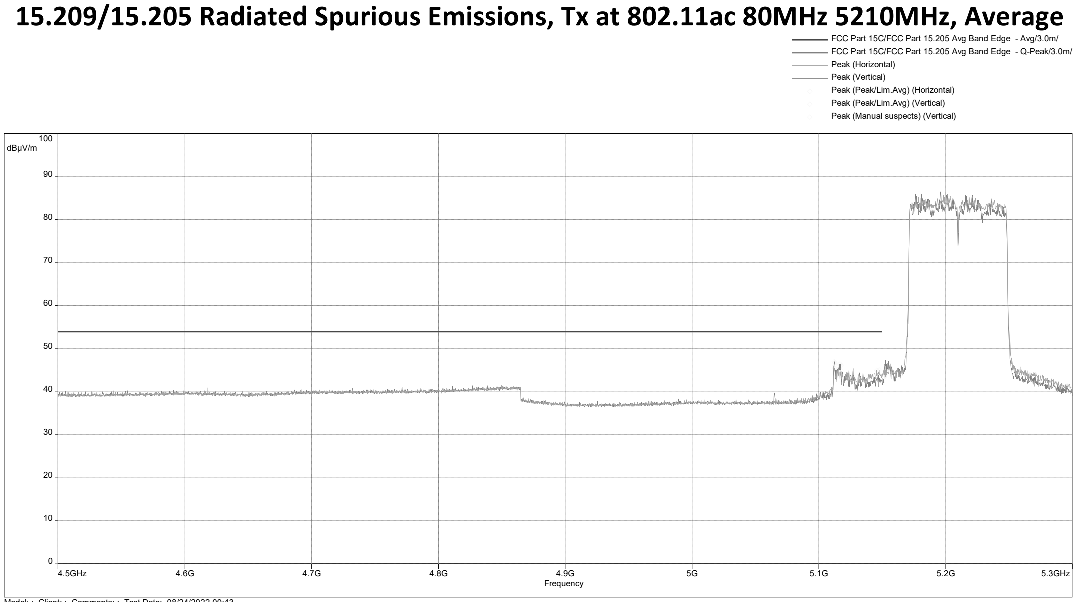
Radiated Band Edge at the Restricted Bands

15.209/15.205 Radiated Spurious Emissions, Tx at 802.11ac 80MHz 5210MHz, Peak



Frequency	Detector	Amplitude	Limit	Margin	Pass / Fail?
(MHz)		(dBuV/m)	(dBuV/m)	(dB)	
5150	Peak	54.87	74	-19.13	Pass

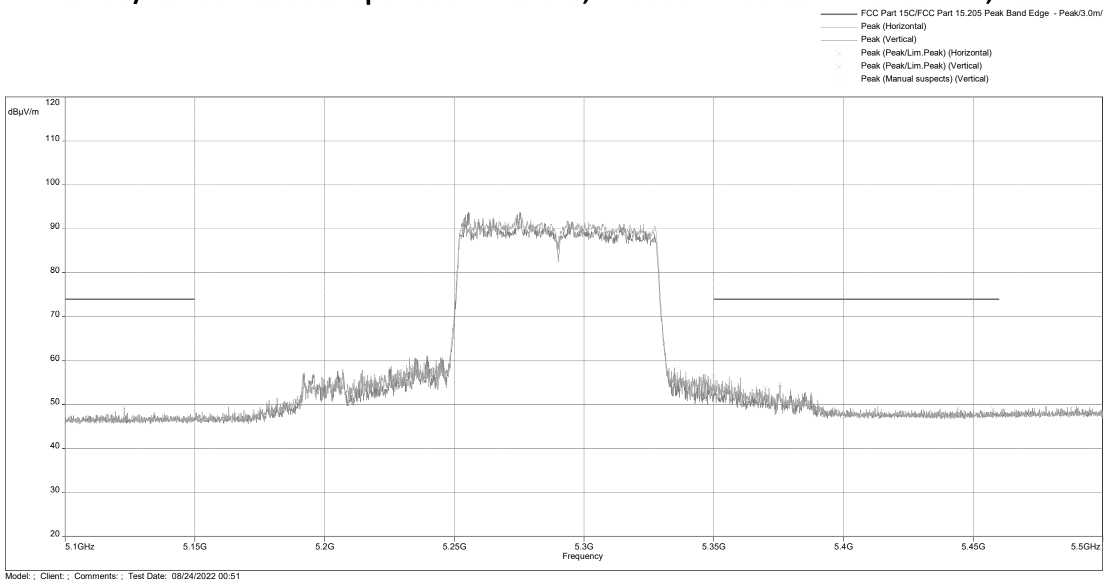
15.209/15.205 Radiated Spurious Emissions, Tx at 802.11ac 80MHz 5210MHz, Average



Frequency	Detector	Amplitude	Limit	Margin	Pass / Fail?
(MHz)		(dBuV/m)	(dBuV/m)	(dB)	
5150	Average	42.2	54	-11.8	Pass

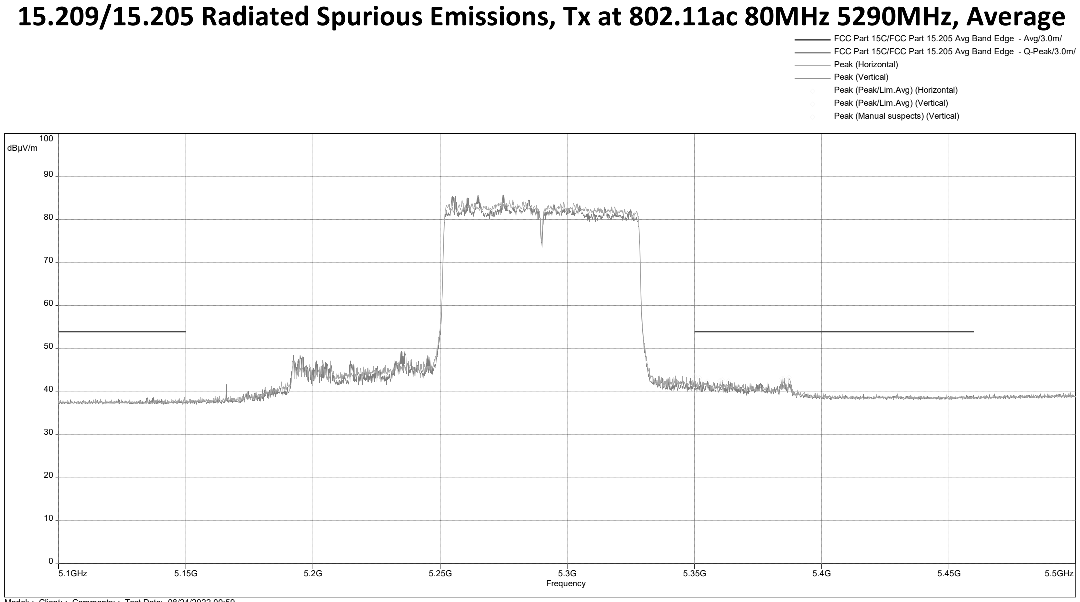
Radiated Band Edge at the Restricted Bands

15.209/15.205 Radiated Spurious Emissions, Tx at 802.11ac 80MHz 5290MHz, Peak



Frequency	Detector	Amplitude	Limit	Margin	Pass / Fail?
(MHz)		(dBuV/m)	(dBuV/m)	(dB)	
5350	Peak	50.81	74	-23.19	Pass

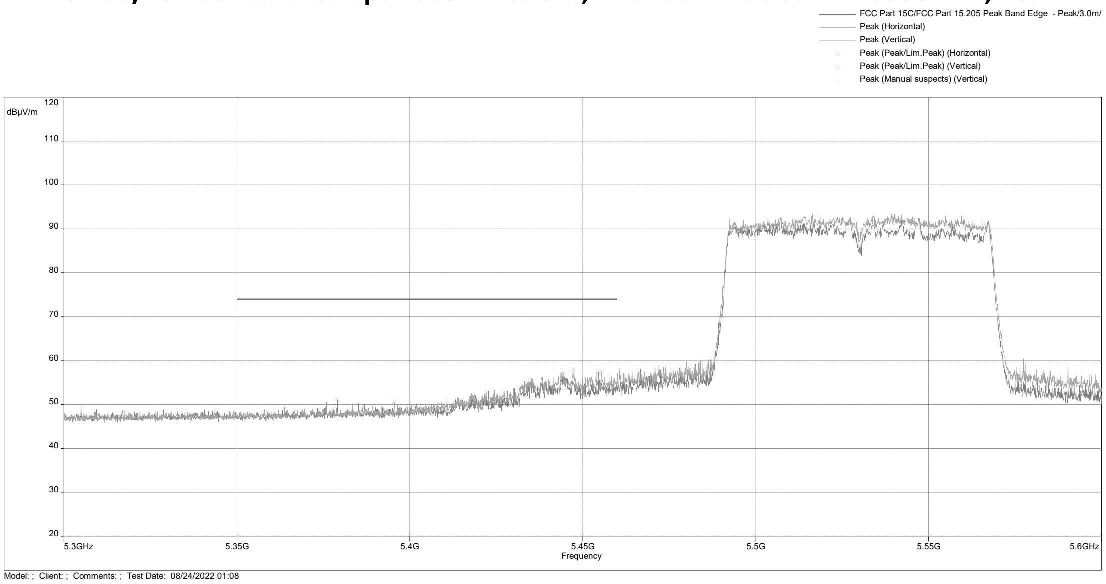
15.209/15.205 Radiated Spurious Emissions, Tx at 802.11ac 80MHz 5290MHz, Average



Frequency	Detector	Amplitude	Limit	Margin	Pass / Fail?
(MHz)		(dBuV/m)	(dBuV/m)	(dB)	
5350	Average	40.46	54	-13.54	Pass

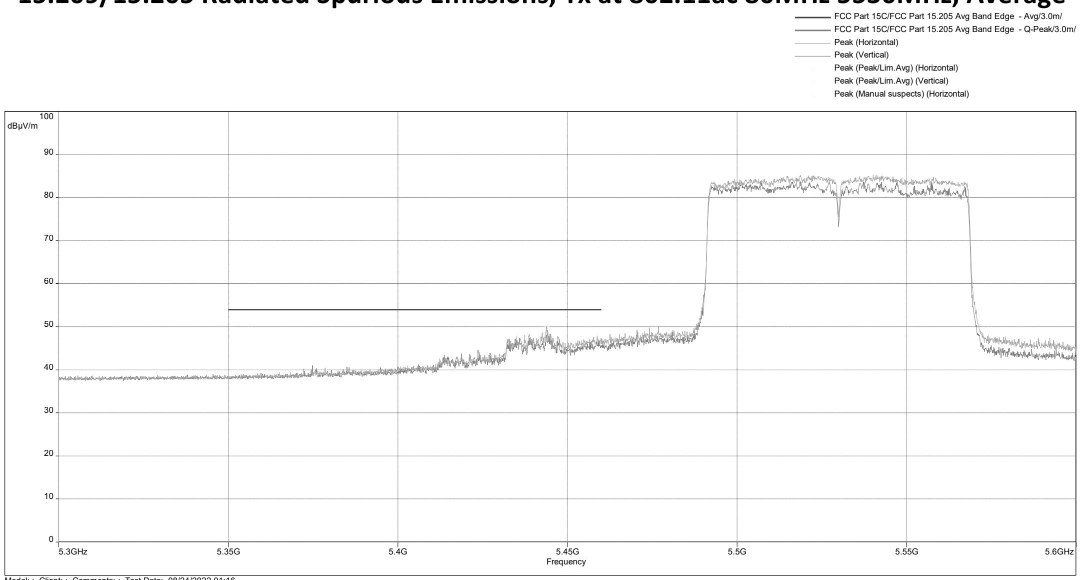
Radiated Band Edge at the Restricted Bands

15.209/15.205 Radiated Spurious Emissions, Tx at 802.11ac 80MHz 5530MHz, Peak



Frequency	Detector	Amplitude	Limit	Margin	Pass / Fail?
(MHz)		(dBuV/m)	(dBuV/m)	(dB)	
5460	Peak	59.49	74	-14.51	Pass

15.209/15.205 Radiated Spurious Emissions, Tx at 802.11ac 80MHz 5530MHz, Average

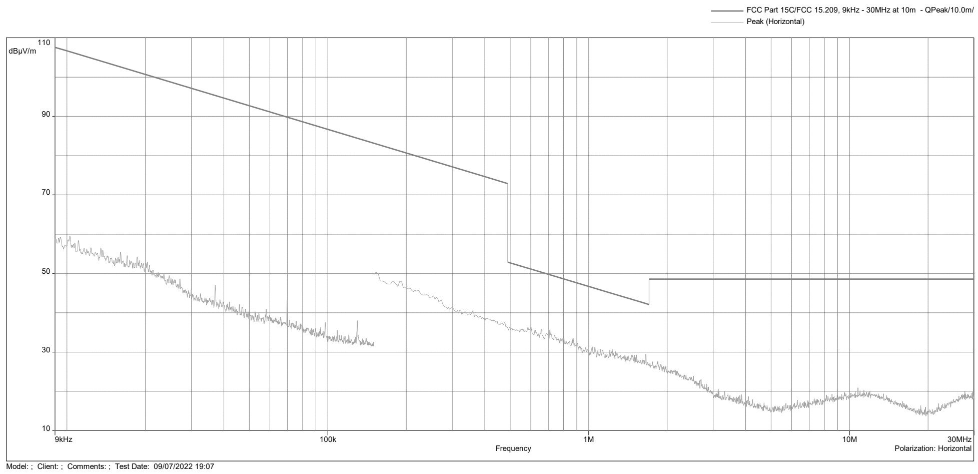


Frequency	Detector	Amplitude	Limit	Margin	Pass / Fail?
(MHz)		(dBuV/m)	(dBuV/m)	(dB)	
5460	Average	45.56	54	-8.44	Pass

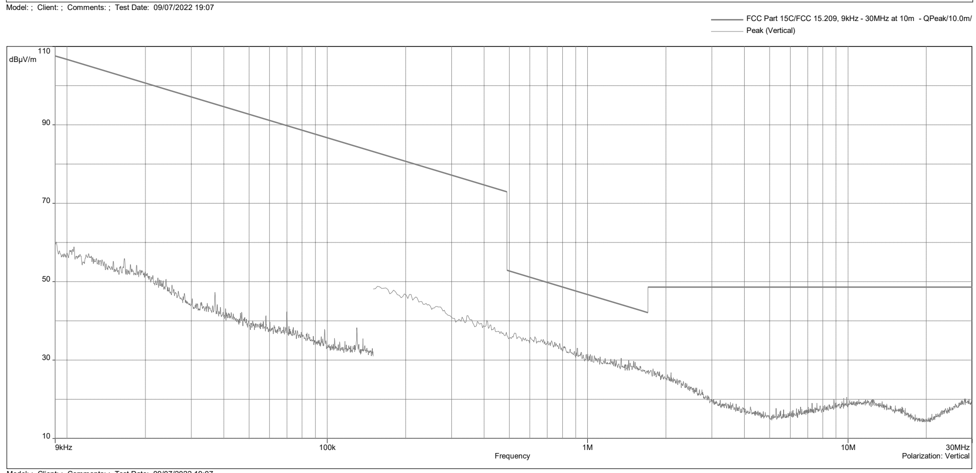
Test Results: 15.209 Radiated Spurious Emissions, Tx at 802.11n

Radiated Spurious Emissions 9 kHz to 30 MHz, Peak Scan vs QP Limit

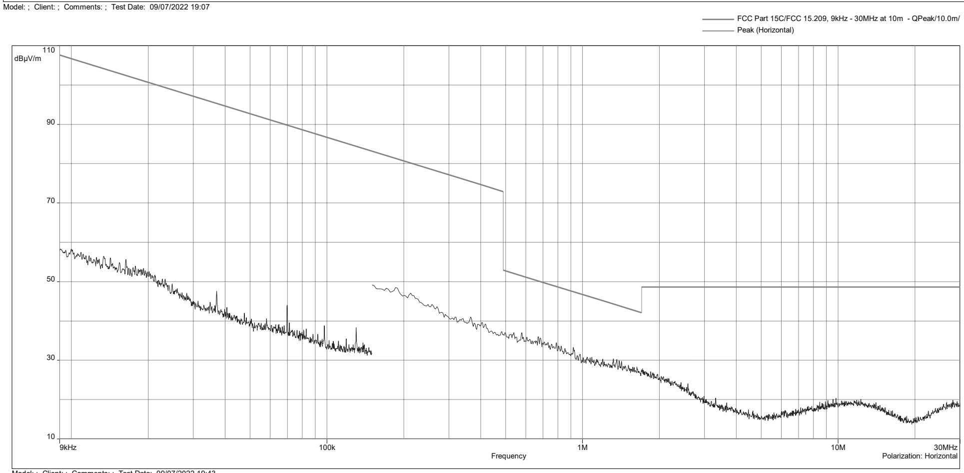
Antenna Position - Coaxial



Antenna Position - Coplanar

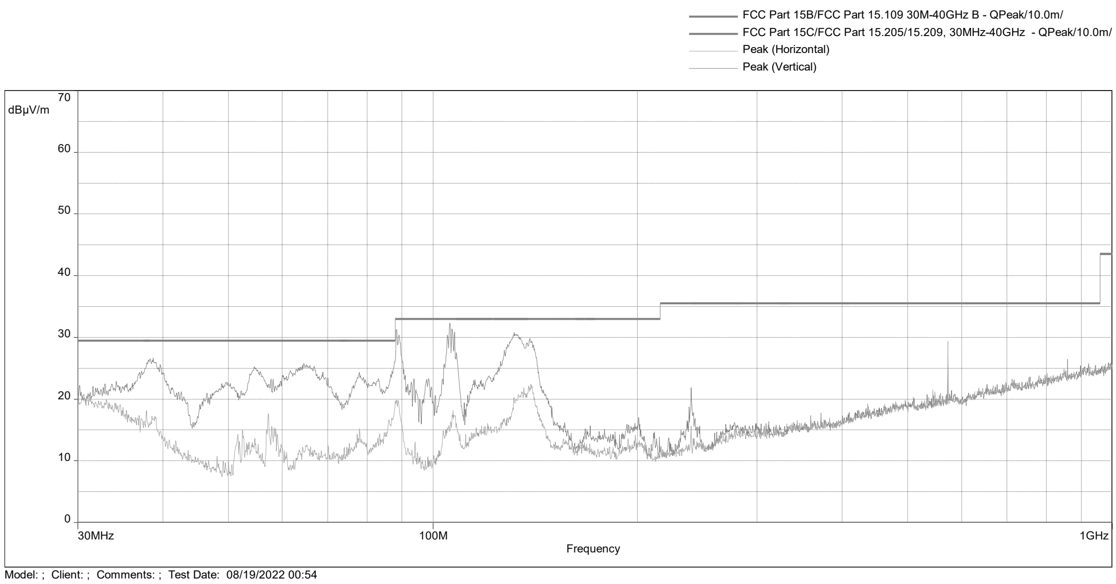


Antenna Position - Horizontal

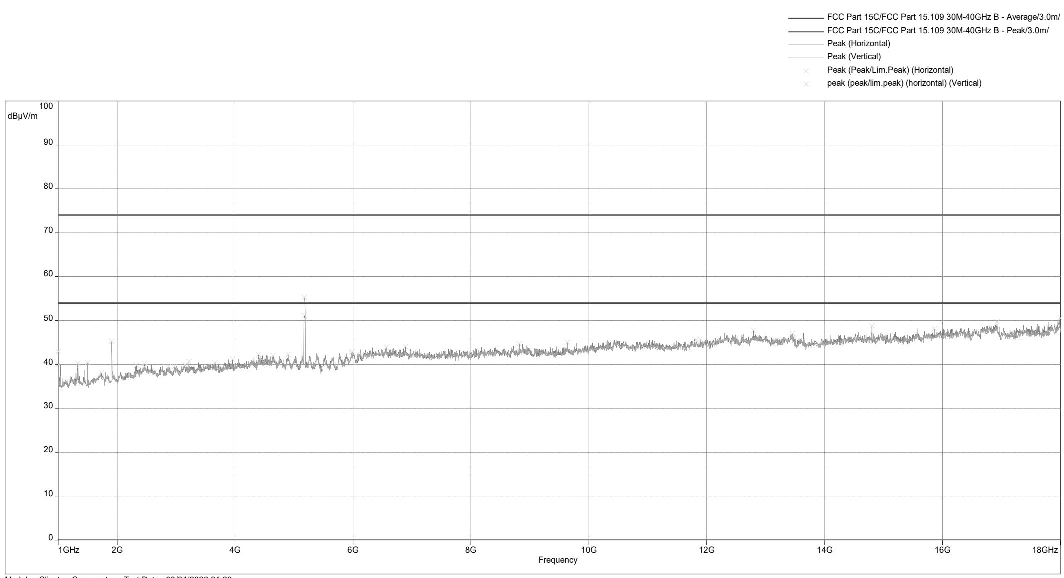


Test Results: 15.209 Radiated Spurious Emissions, Tx at 802.11n 20MHz 5180MHz

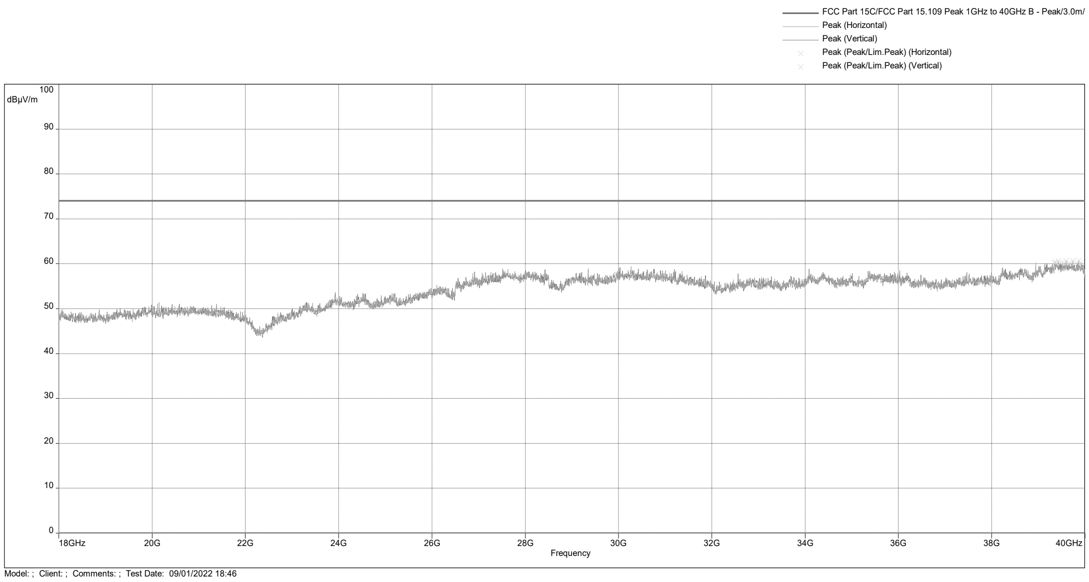
Radiated Spurious Emissions 30 MHz to 1000 MHz, Peak Scan vs QP Limit

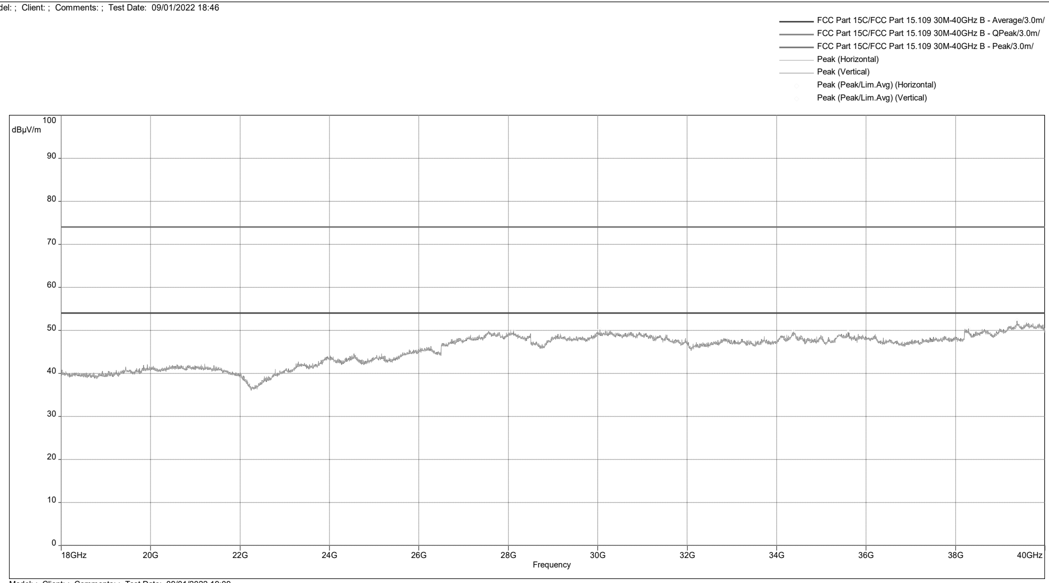


Radiated Spurious Emissions 1000 to 18000 MHz, Peak Scan vs Peak & Avg Limit



Radiated Spurious Emissions 18000 to 40000 MHz, Peak & Avg Scan vs Peak & Avg Limit



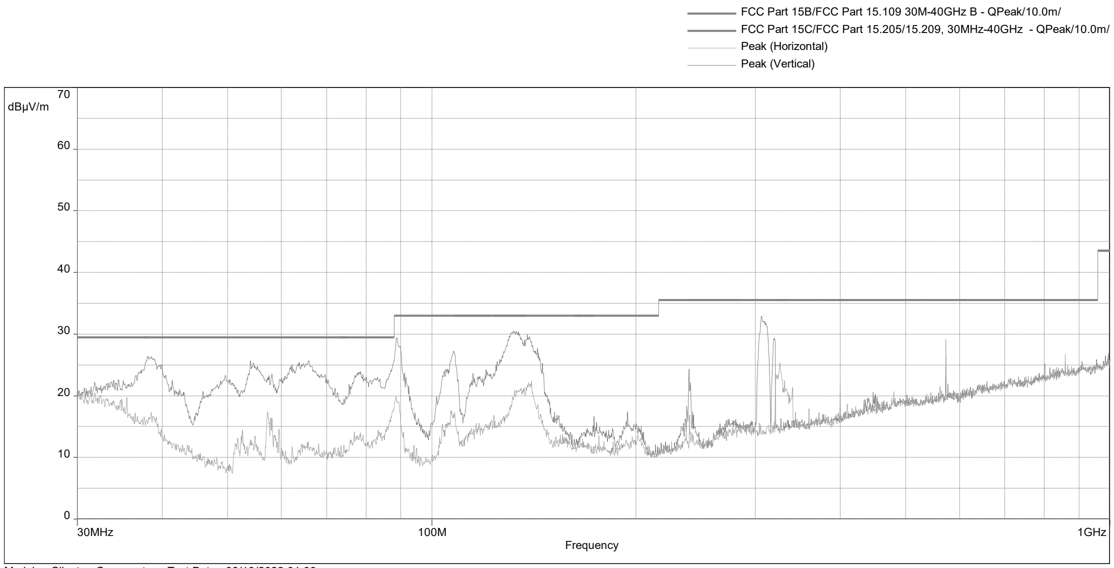


Frequency	FS@10m	Limit@ 10m	Margin	Height	Azimuth	Polarity	Correction
MHz	dBuV/m	dBuV/m	(dB)	(m)	(deg)		dB
38.69767	26.65	29.5	-2.85	3	143	Vertical	-12.41
88.32933	31.32	33	-1.68	2	136.75	Vertical	-19.27
105.8863	32.35	33	-0.65	2	136.75	Vertical	-14.99
106.6623	31.34	33	-1.66	2	136.75	Vertical	-14.83
107.5677	30.91	33	-2.09	2	136.75	Vertical	-14.64
131.6237	30.83	33	-2.17	0.98	131.5	Vertical	-12.52

Note: Correction = AF + CF - Preamp

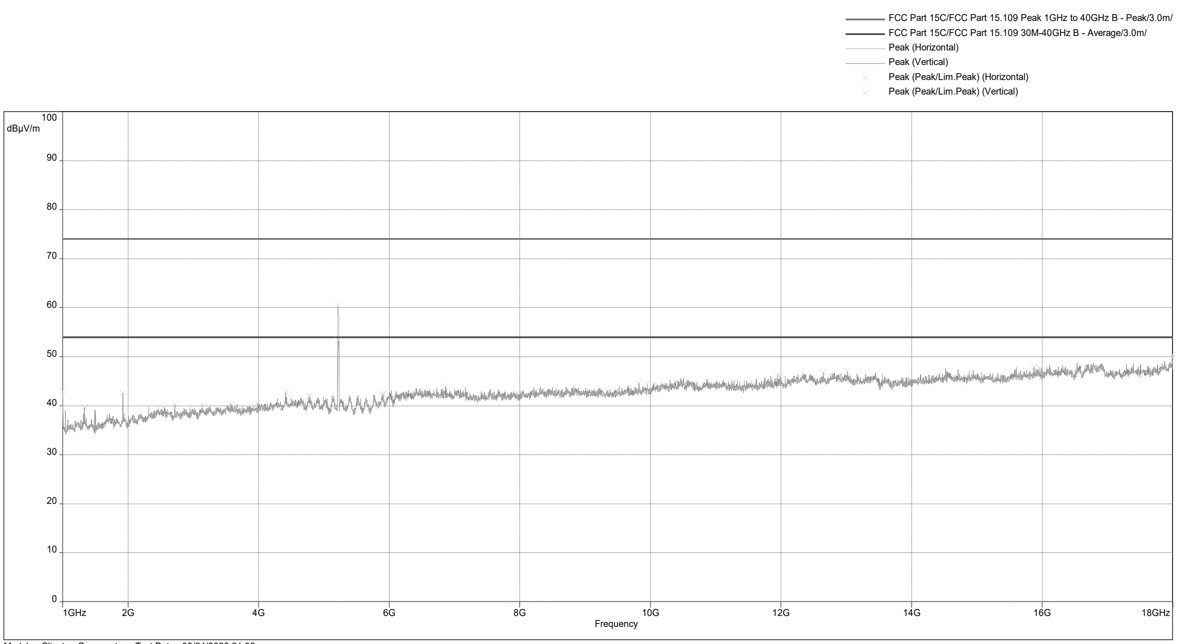
Test Results: 15.209 Radiated Spurious Emissions, Tx at 802.11n 20MHz 5220MHz

Radiated Spurious Emissions 30 MHz to 1000 MHz, Peak Scan vs QP Limit



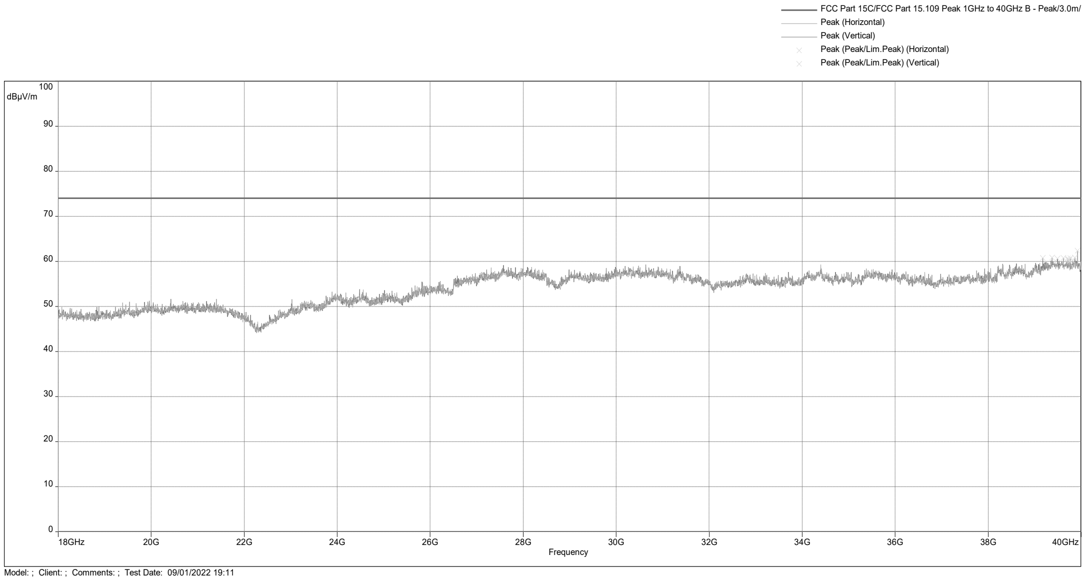
Model: ; Client: ; Comments: ; Test Date: 08/19/2022 01:03

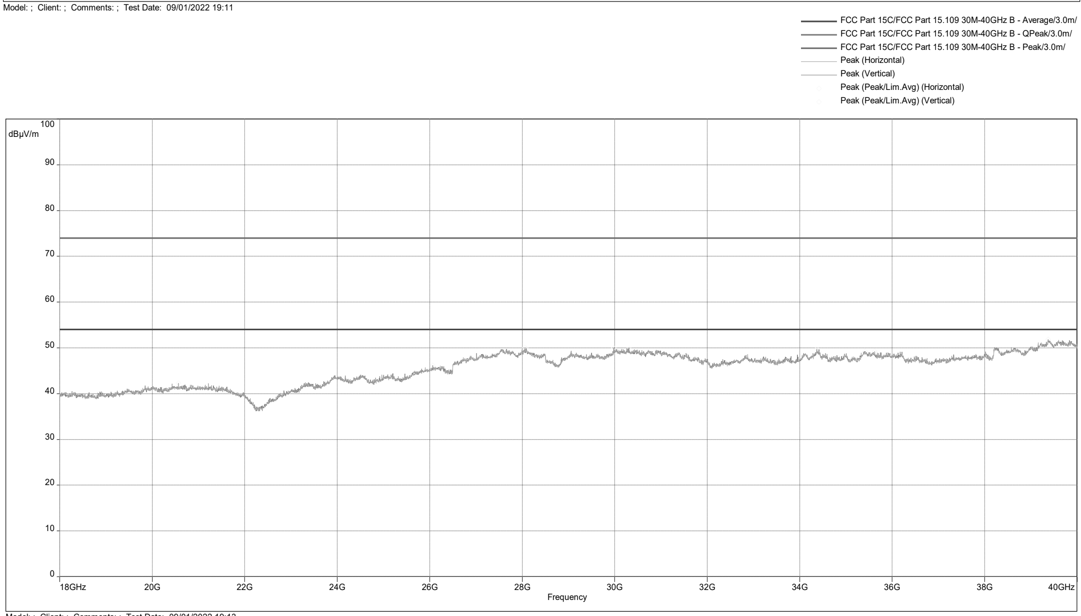
Radiated Spurious Emissions 1000 to 18000 MHz, Peak Scan vs Peak & Avg Limit



Model: ; Client: ; Comments: ; Test Date: 08/24/2022 21:38

Radiated Spurious Emissions 18000 to 40000 MHz, Peak & Avg Scan vs Peak & Avg Limit



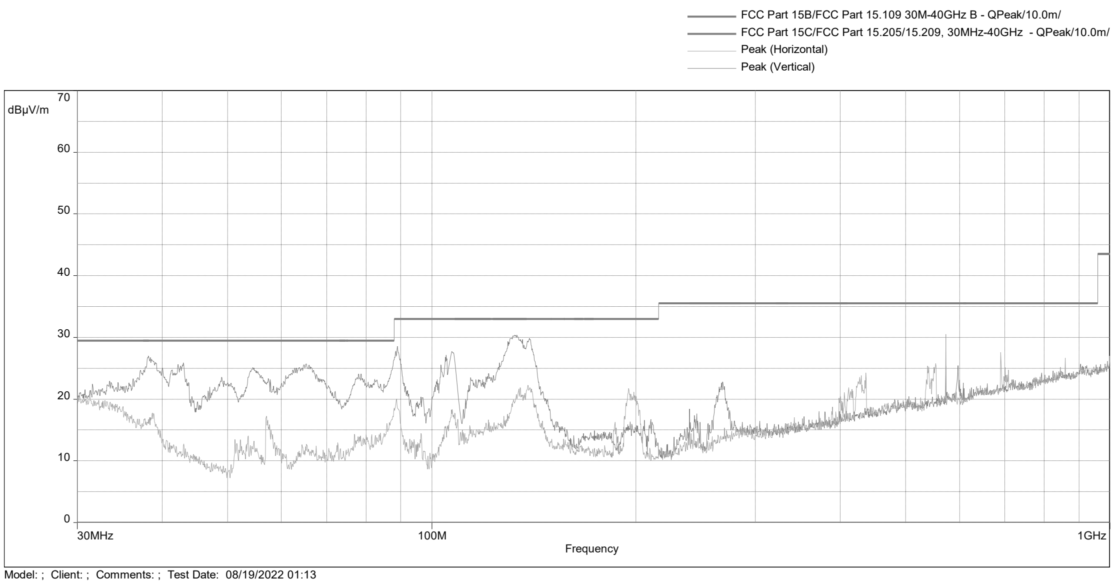


Frequency	FS@10m	Limit@ 10m	Margin	Height	Azimuth	Polarity	Correction
MHz	dBuV/m	dBuV/m	(dB)	(m)	(deg)		dB
38.148	26.44	29.5	-3.06	3	127.75	Vertical	-11.97
54.02367	25.73	29.5	-3.77	4	174.75	Vertical	-19.98
65.793	25.69	29.5	-3.81	2	95.75	Vertical	-19
88.782	29.43	33	-3.57	0.98	157.5	Vertical	-19.22
132.4967	30.51	33	-2.49	2	162.75	Vertical	-12.61
306.3853	32.92	35.5	-2.58	4	331.5	Vertical	-12.07
38.148	26.44	29.5	-3.06	3	127.75	Vertical	-11.97

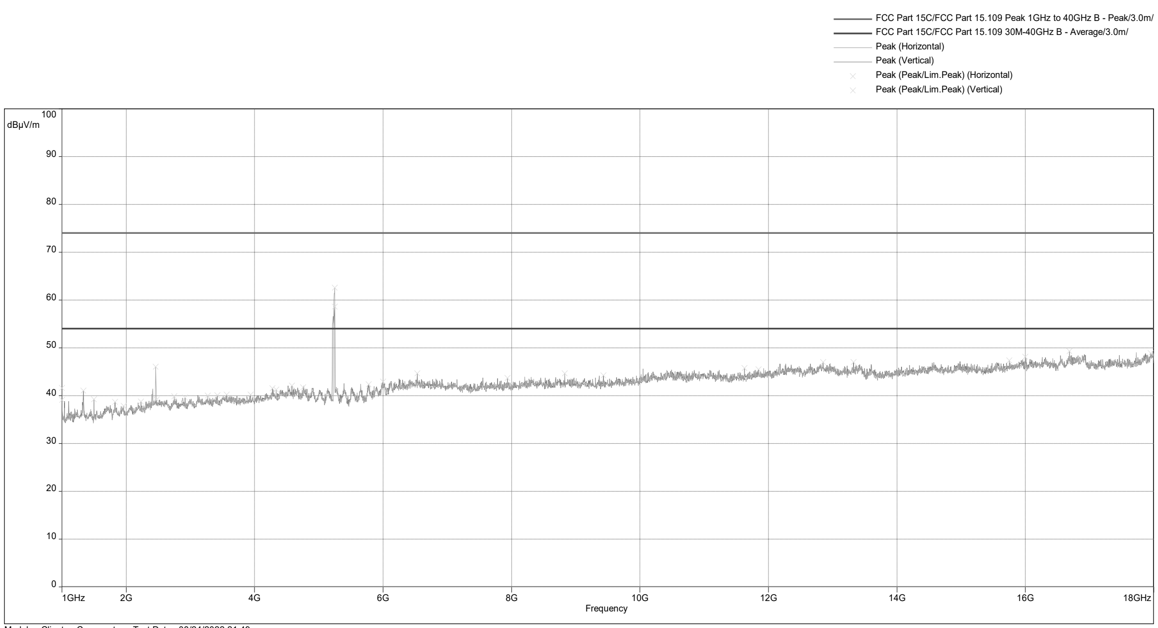
Note: Correction = AF + CF - Preamp

Test Results: 15.209 Radiated Spurious Emissions, Tx at 802.11n 20MHz 5240MHz

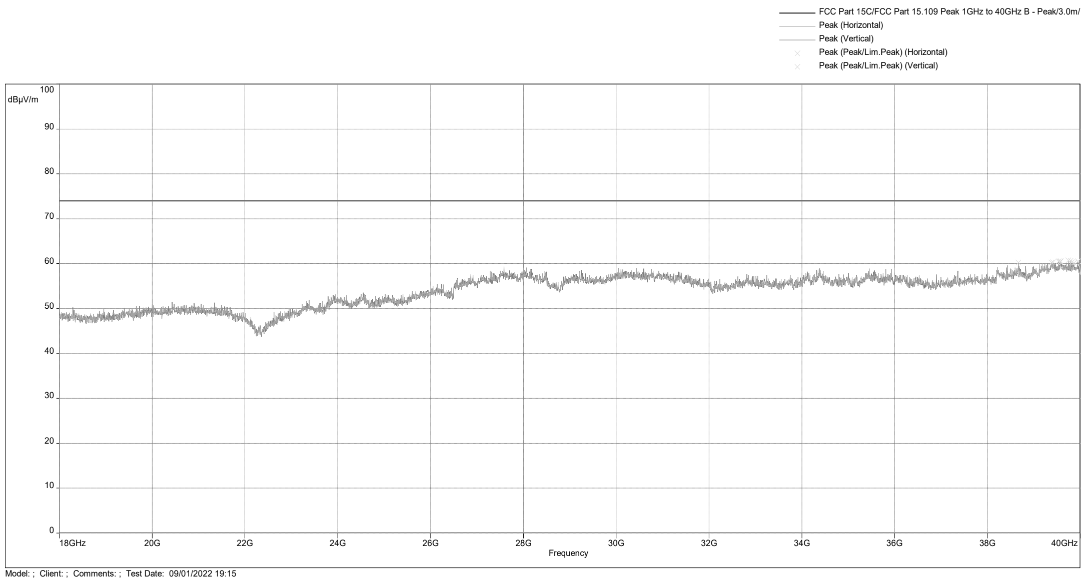
Radiated Spurious Emissions 30 MHz to 1000 MHz, Peak Scan vs QP Limit

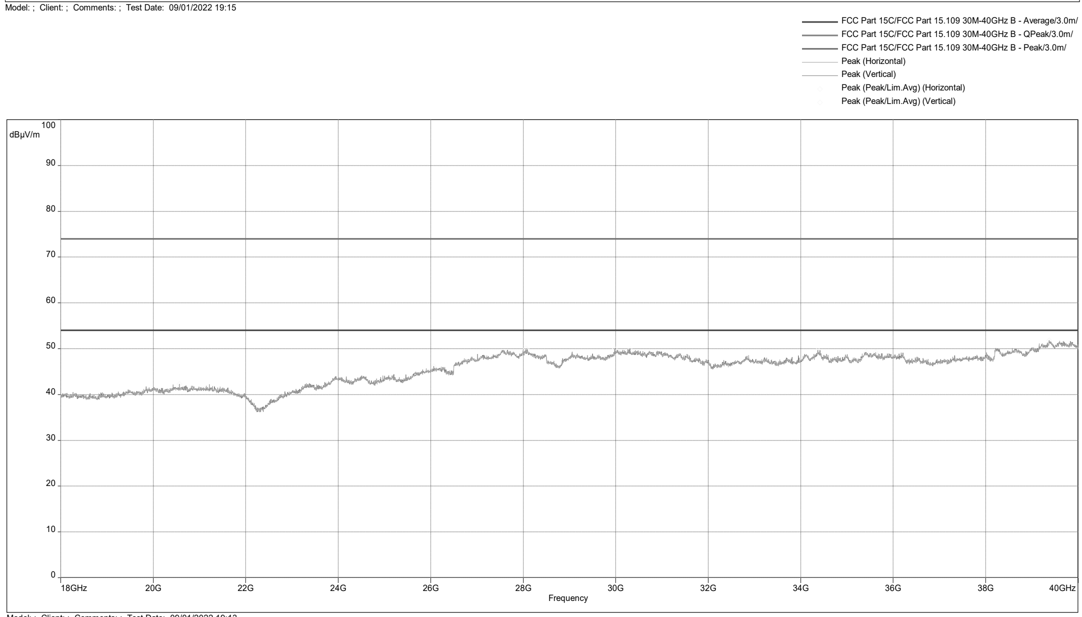


Radiated Spurious Emissions 1000 to 18000 MHz, Peak Scan vs Peak & Avg Limit



Radiated Spurious Emissions 18000 to 40000 MHz, Peak & Avg Scan vs Peak & Avg Limit



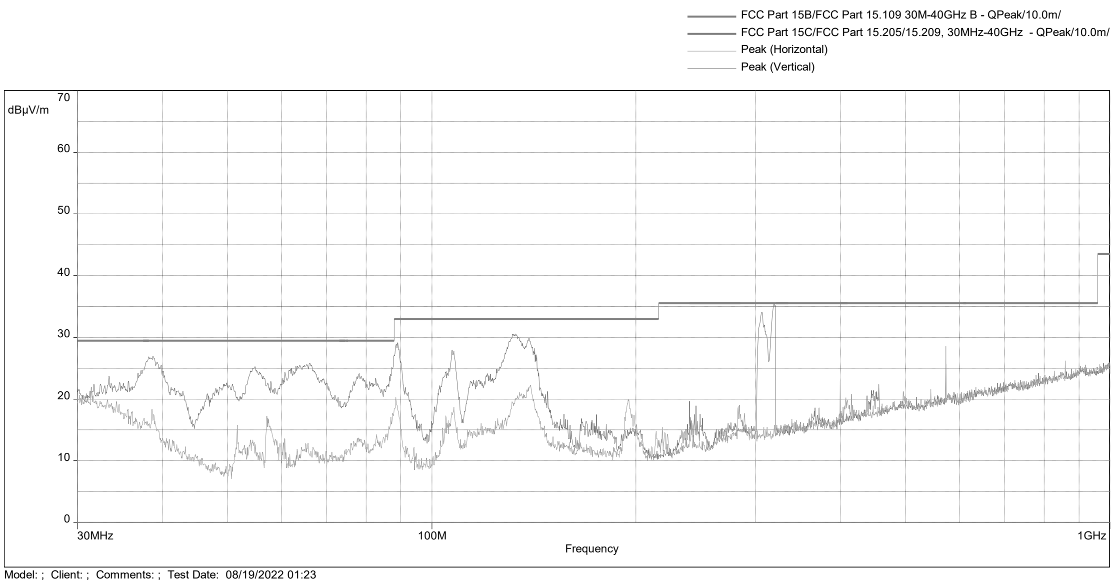


Frequency	FS@10m	Limit@ 10m	Margin	Height	Azimuth	Polarity	Correction
MHz	dBuV/m	dBuV/m	(dB)	(m)	(deg)		dB
38.21267	26.97	29.5	-2.53	0.99	101.25	Vertical	-12.02
43.03033	25.91	29.5	-3.59	0.99	344.75	Vertical	-15.53
54.47633	25.11	29.5	-4.39	4	206.75	Vertical	-19.97
65.24333	25.69	29.5	-3.81	2	65.5	Vertical	-19.06
88.976	28.58	33	-4.42	0.99	153.75	Vertical	-19.2
133.499	30.42	33	-2.58	2	81.5	Vertical	-12.7

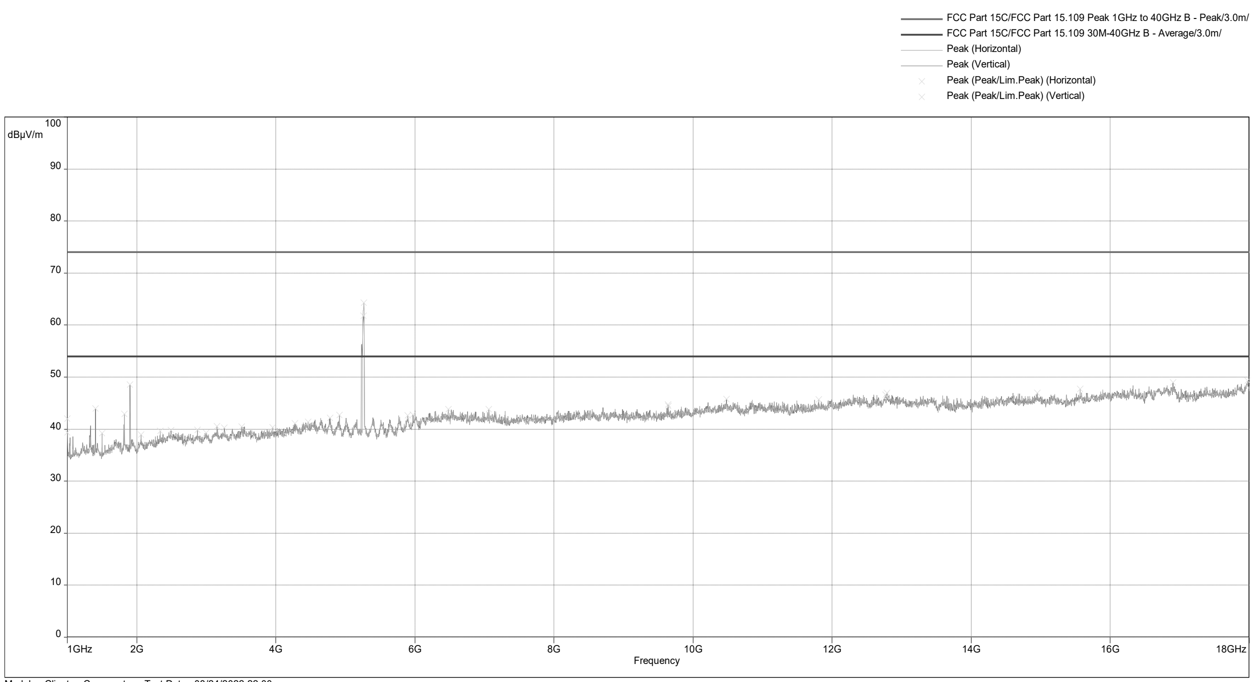
Note: Correction = AF + CF - Preamp

Test Results: 15.209 Radiated Spurious Emissions, Tx at 802.11n 20MHz 5260MHz

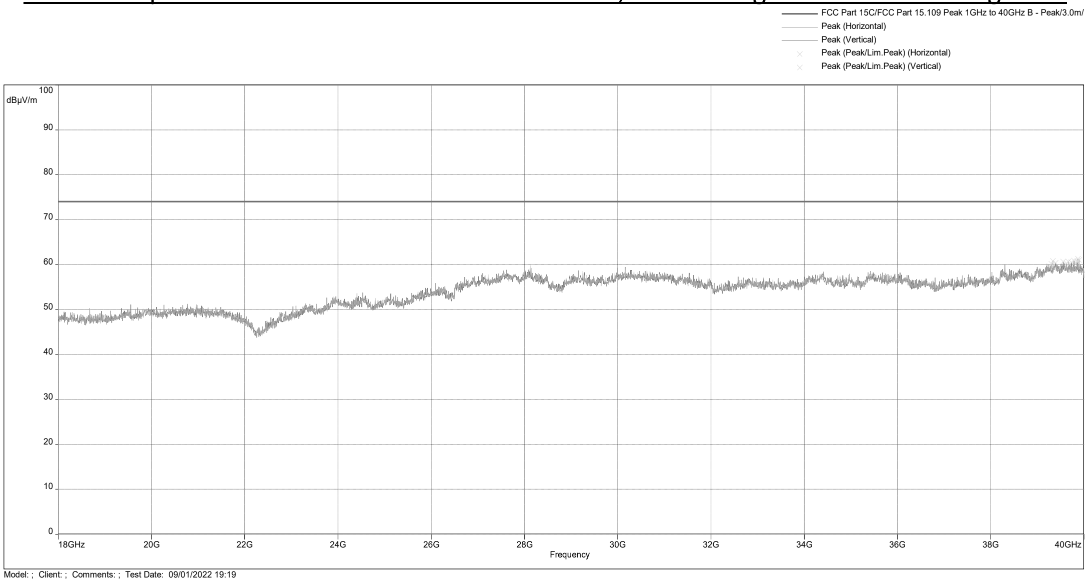
Radiated Spurious Emissions 30 MHz to 1000 MHz, Peak Scan vs QP Limit

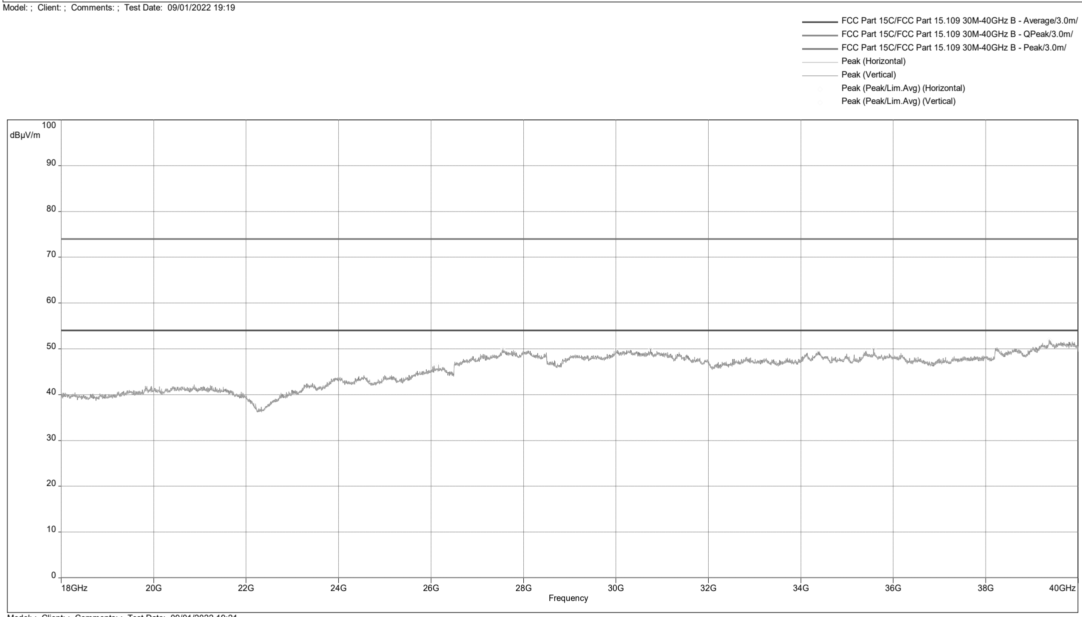


Radiated Spurious Emissions 1000 to 18000 MHz, Peak Scan vs Peak & Avg Limit



Radiated Spurious Emissions 18000 to 40000 MHz, Peak & Avg Scan vs Peak & Avg Limit



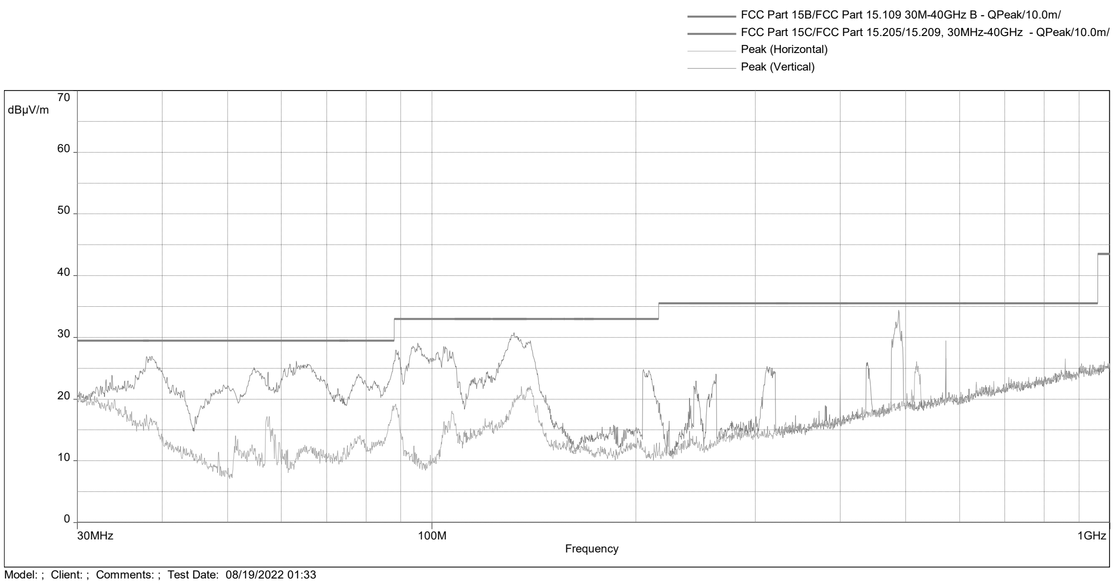


Frequency	FS@10m	Limit@ 10m	Margin	Height	Azimuth	Polarity	Correction
MHz	dBuV/m	dBuV/m	(dB)	(m)	(deg)		dB
38.79467	26.94	29.5	-2.56	0.99	125.25	Vertical	-12.48
66.084	25.86	29.5	-3.64	2	97	Vertical	-18.97
89.00833	29.13	33	-3.87	0.99	148.25	Vertical	-19.2
132.9817	30.58	33	-2.42	2	127	Vertical	-12.66
306.5147	34.06	35.5	-1.44	2	342.5	Vertical	-12.07
319.448	35.4	35.5	-0.1	2	342.5	Vertical	-11.6

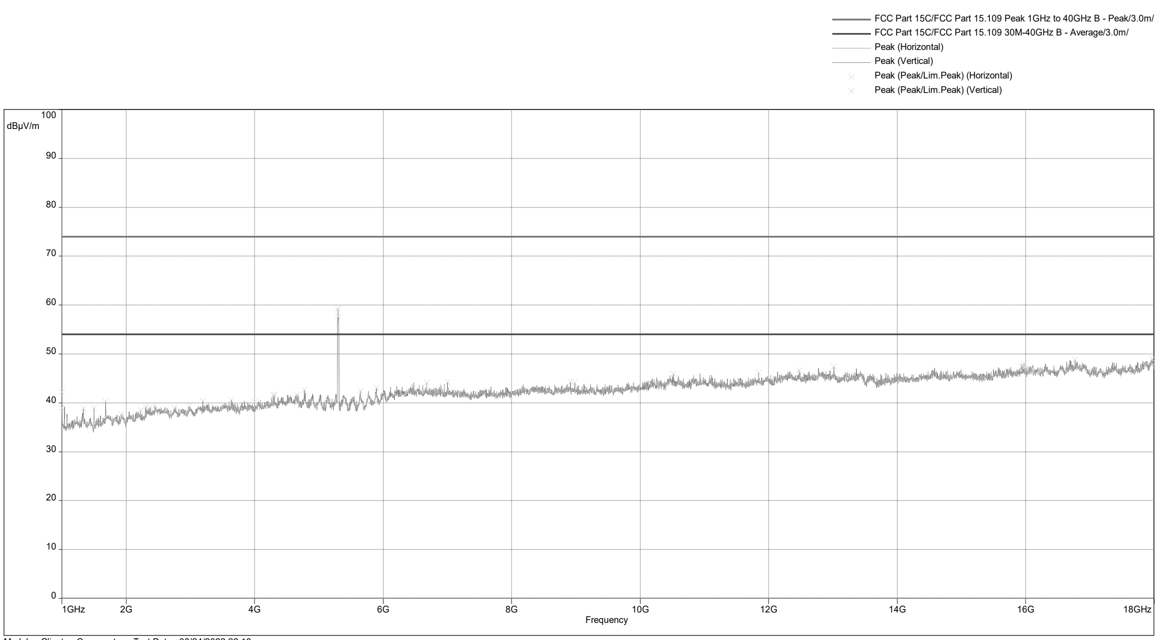
Note: Correction = AF + CF - Preamp

Test Results: 15.209 Radiated Spurious Emissions, Tx at 802.11n 20MHz 5300MHz

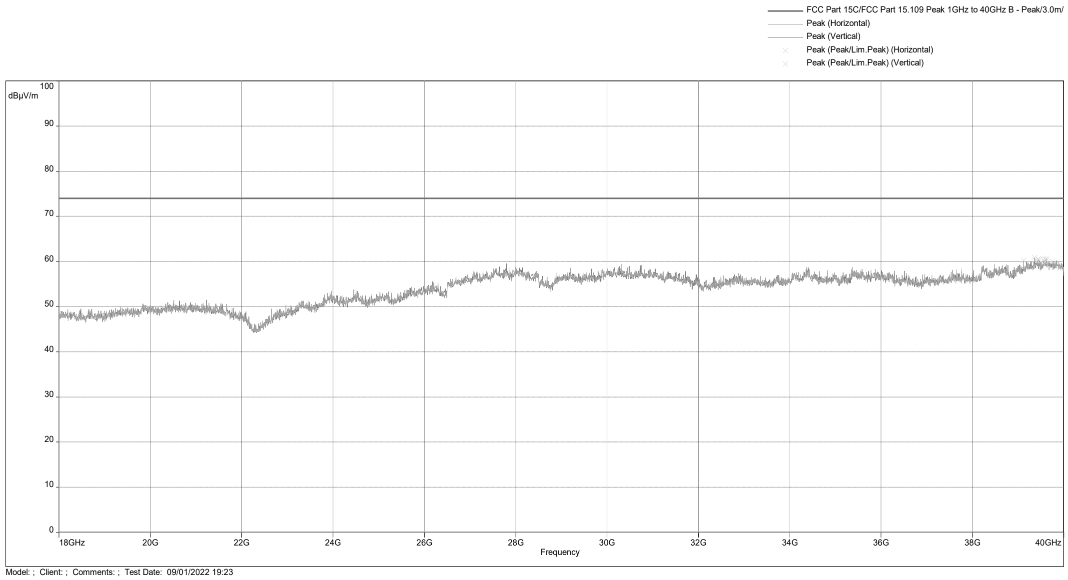
Radiated Spurious Emissions 30 MHz to 1000 MHz, Peak Scan vs QP Limit

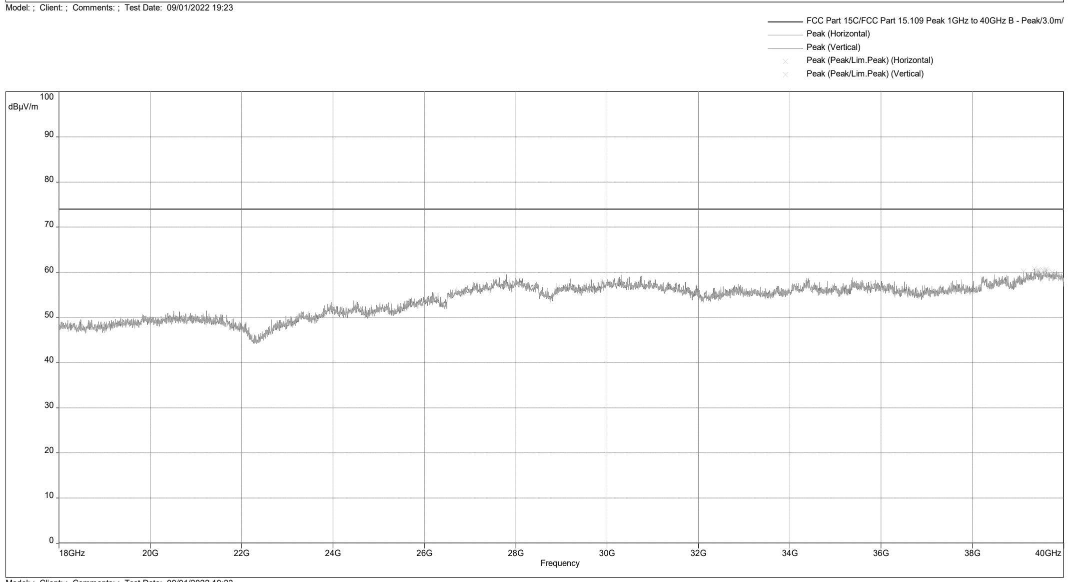


Radiated Spurious Emissions 1000 to 18000 MHz, Peak Scan vs Peak & Avg Limit



Radiated Spurious Emissions 18000 to 40000 MHz, Peak & Avg Scan vs Peak & Avg Limit



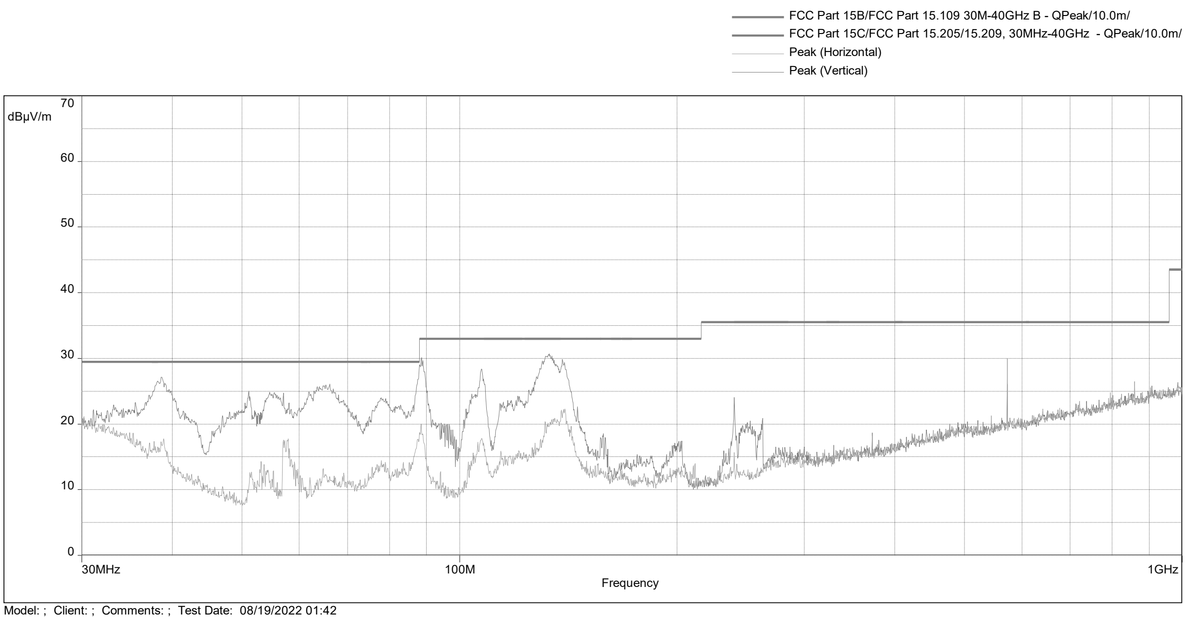


Frequency	FS@10m	Limit@ 10m	Margin	Height	Azimuth	Polarity	Correction
MHz	dBuV/m	dBuV/m	(dB)	(m)	(deg)		dB
38.79467	26.94	29.5	-2.56	0.99	125.25	Vertical	-12.48
66.084	25.86	29.5	-3.64	2	97	Vertical	-18.97
89.00833	29.13	33	-3.87	0.99	148.25	Vertical	-19.2
132.9817	30.58	33	-2.42	2	127	Vertical	-12.66
306.5147	34.06	35.5	-1.44	2	342.5	Vertical	-12.07
319.448	35.4	35.5	-0.1	2	342.5	Vertical	-11.6

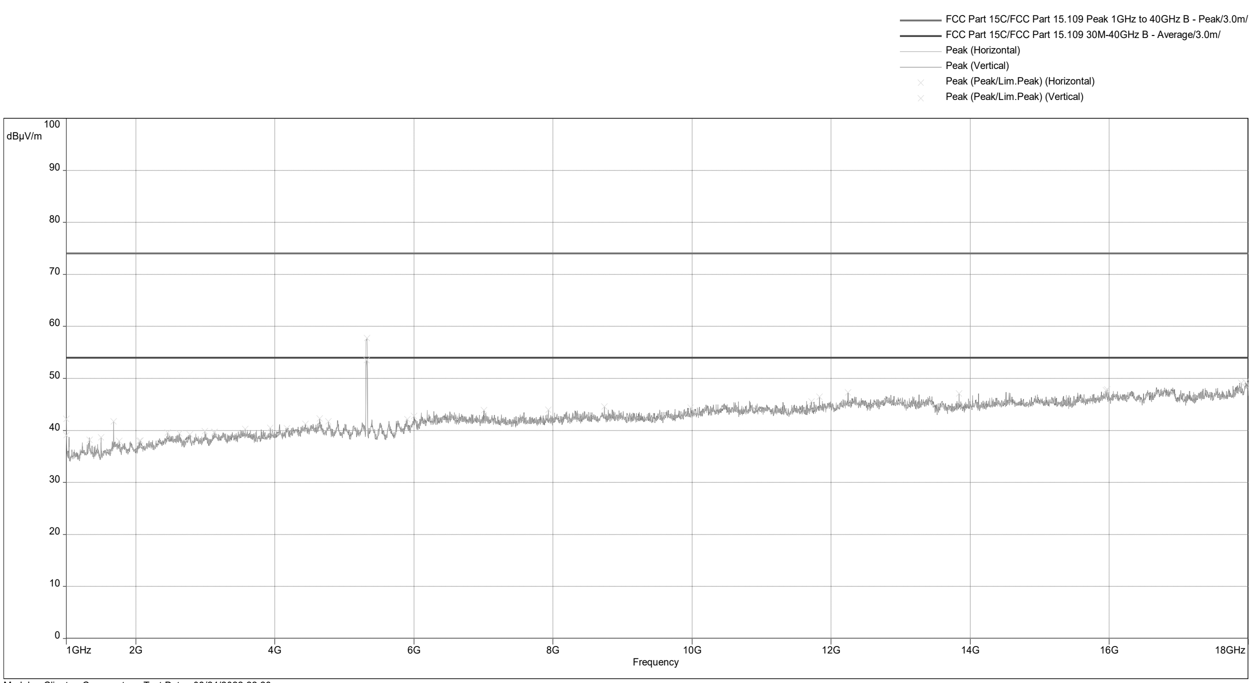
Note: Correction = AF + CF - Preamp

Test Results: 15.209 Radiated Spurious Emissions, Tx at 802.11n 20MHz 5320MHz

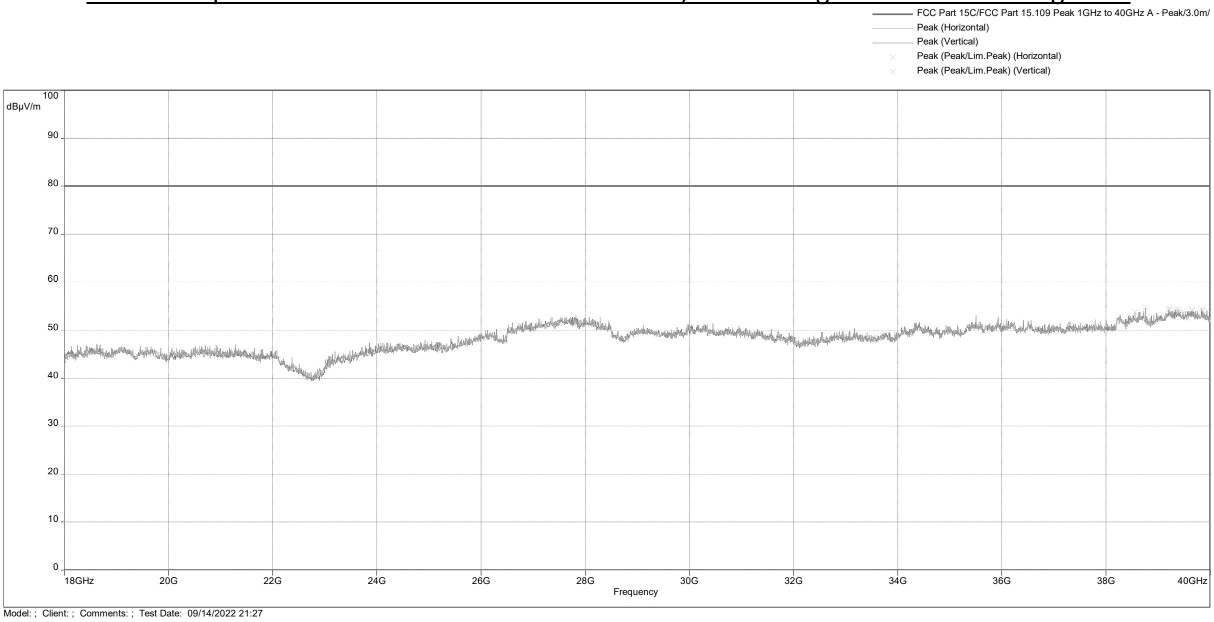
Radiated Spurious Emissions 30 MHz to 1000 MHz, Peak Scan vs QP Limit

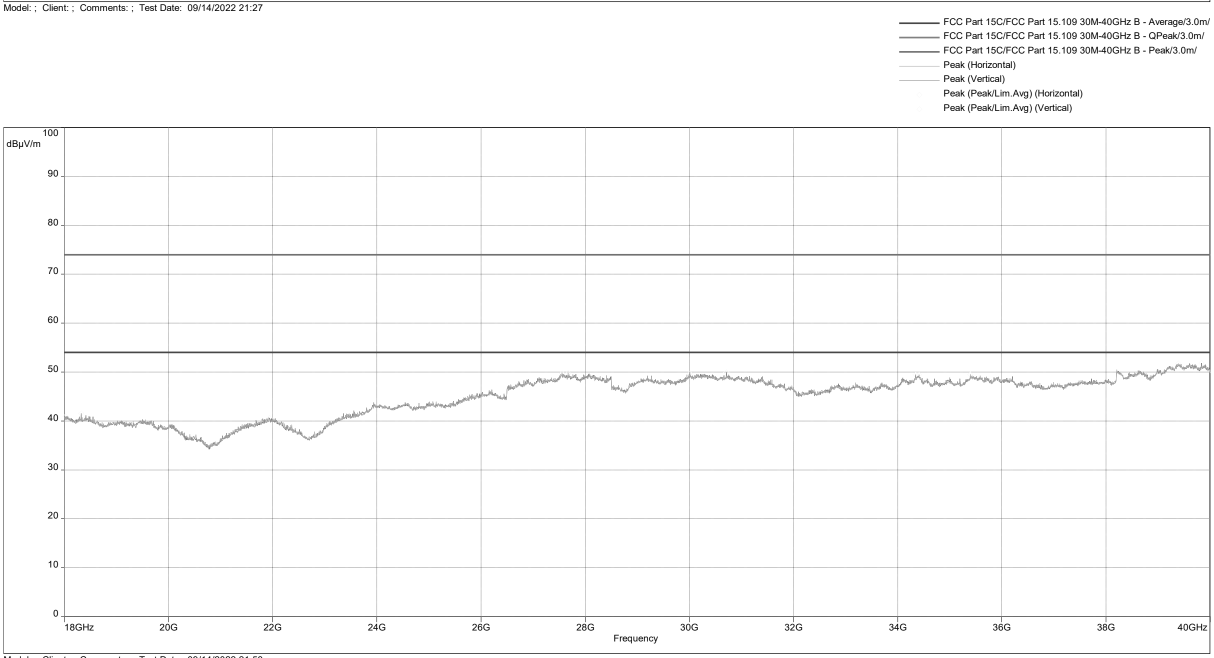


Radiated Spurious Emissions 1000 to 18000 MHz, Peak Scan vs Peak & Avg Limit



Radiated Spurious Emissions 18000 to 40000 MHz, Peak & Avg Scan vs Peak & Avg Limit



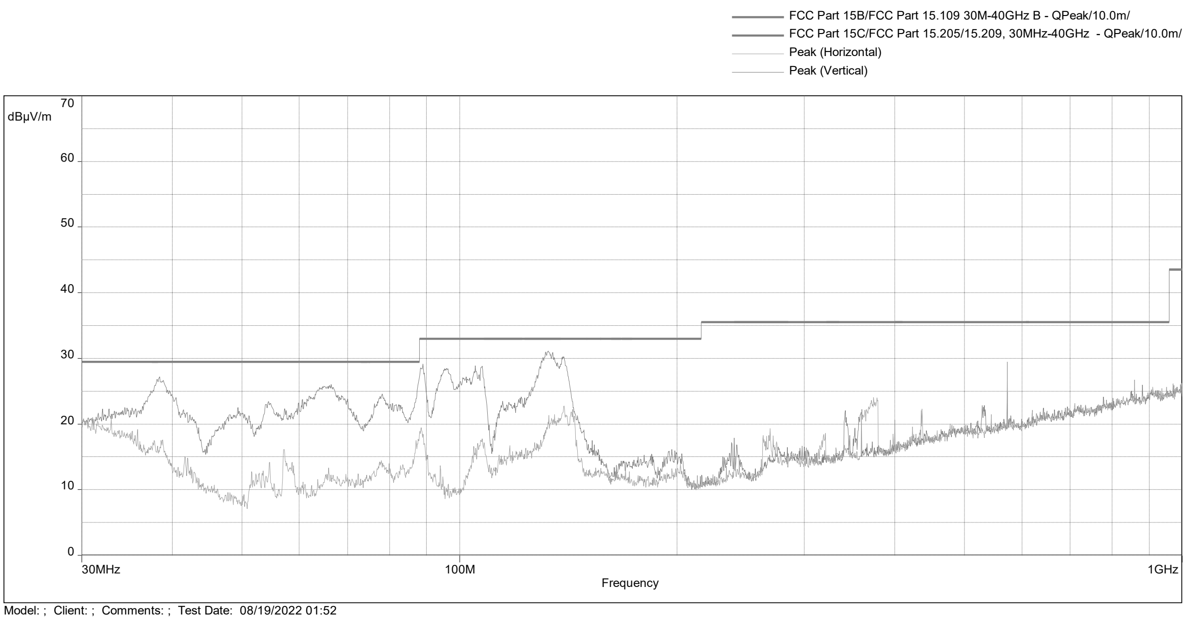


Frequency	FS@10m	Limit@ 10m	Margin	Height	Azimuth	Polarity	Correction
MHz	dBuV/m	dBuV/m	(dB)	(m)	(deg)		dB
38.69767	27.15	29.5	-2.35	0.99	101	Vertical	-12.41
51.08133	25.05	29.5	-4.45	0.99	166.25	Vertical	-19.53
66.11633	26.07	29.5	-3.43	2	106.25	Vertical	-18.97
88.55567	30.11	33	-2.89	0.99	111.25	Vertical	-19.25
107.2767	28.37	33	-4.63	0.99	59.75	Vertical	-14.7
133.111	30.74	33	-2.26	2	92.25	Vertical	-12.67

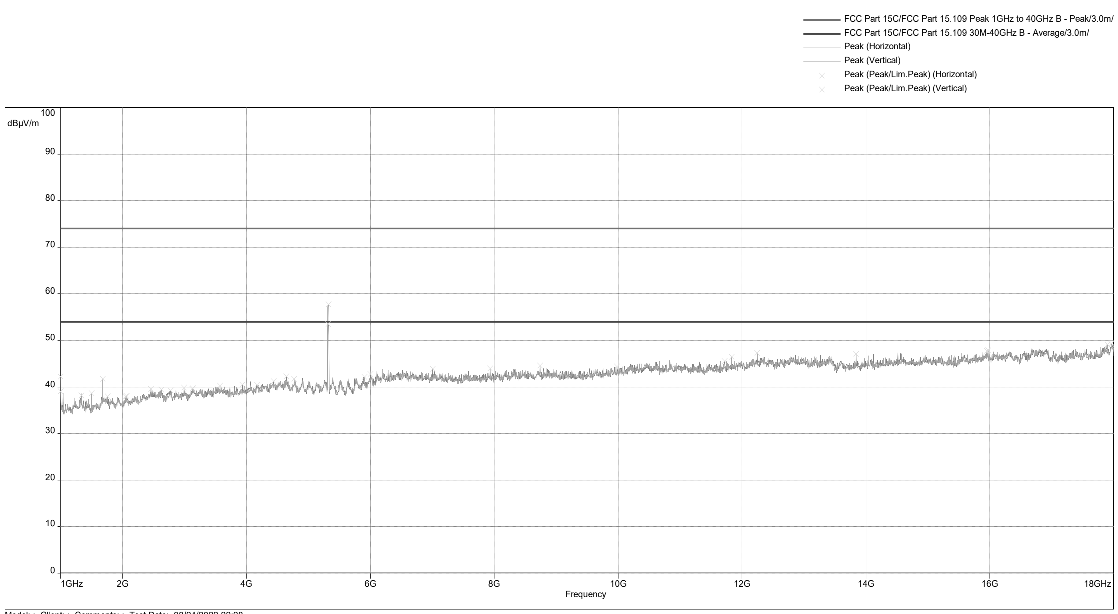
Note: Correction = AF + CF - Preamp

Test Results: 15.209 Radiated Spurious Emissions, Tx at 802.11n 20MHz 5500MHz

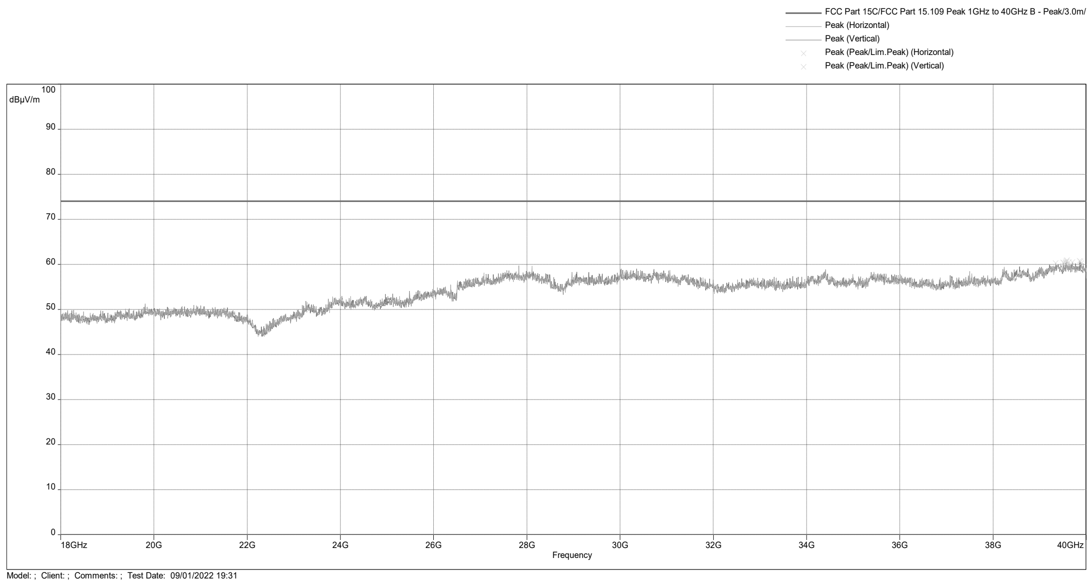
Radiated Spurious Emissions 30 MHz to 1000 MHz, Peak Scan vs QP Limit

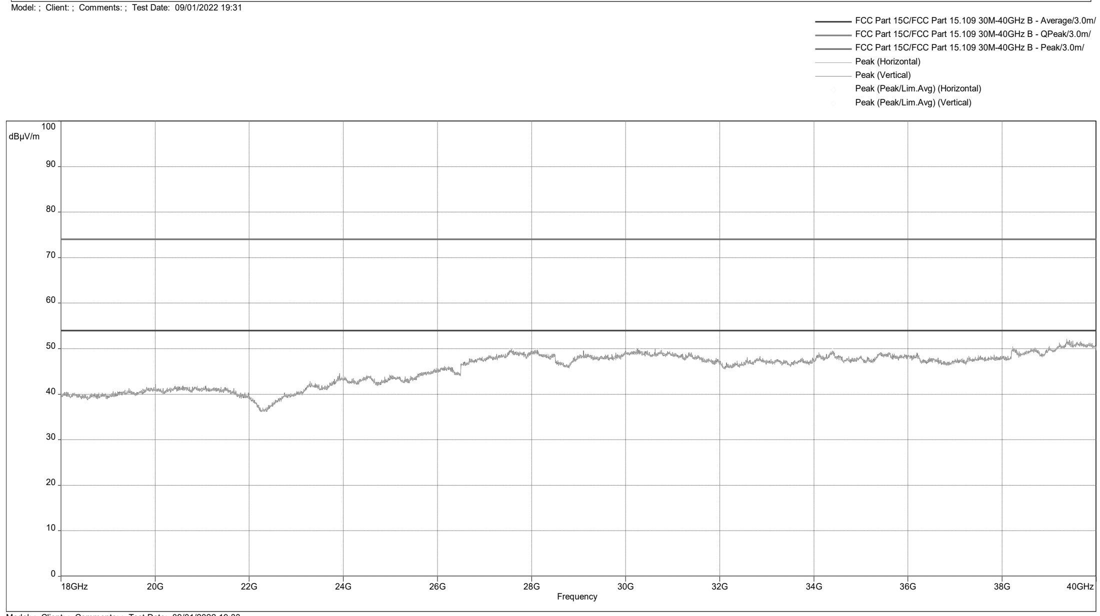


Radiated Spurious Emissions 1000 to 18000 MHz, Peak Scan vs Peak & Avg Limit



Radiated Spurious Emissions 18000 to 40000 MHz, Peak & Avg Scan vs Peak & Avg Limit



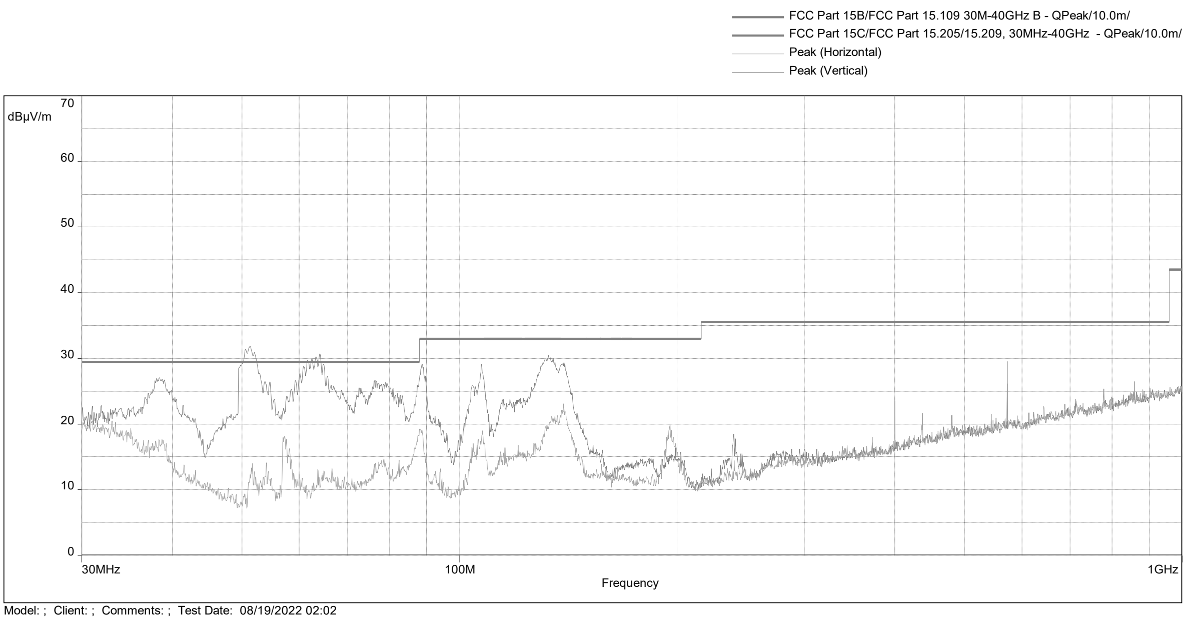


Frequency	FS@10m	Limit@ 10m	Margin	Height	Azimuth	Polarity	Correction
MHz	dBuV/m	dBuV/m	(dB)	(m)	(deg)		dB
38.439	27.2	29.5	-2.3	0.99	141.5	Vertical	-12.2
66.375	26	29.5	-3.5	2	133.75	Vertical	-18.93
88.976	29.17	33	-3.83	0.99	139.25	Vertical	-19.2
95.92767	28.52	33	-4.48	4	277.5	Vertical	-17.66
105.1103	28.88	33	-4.12	4	277.5	Vertical	-15.15
132.7877	31.12	33	-1.88	3	102	Vertical	-12.64

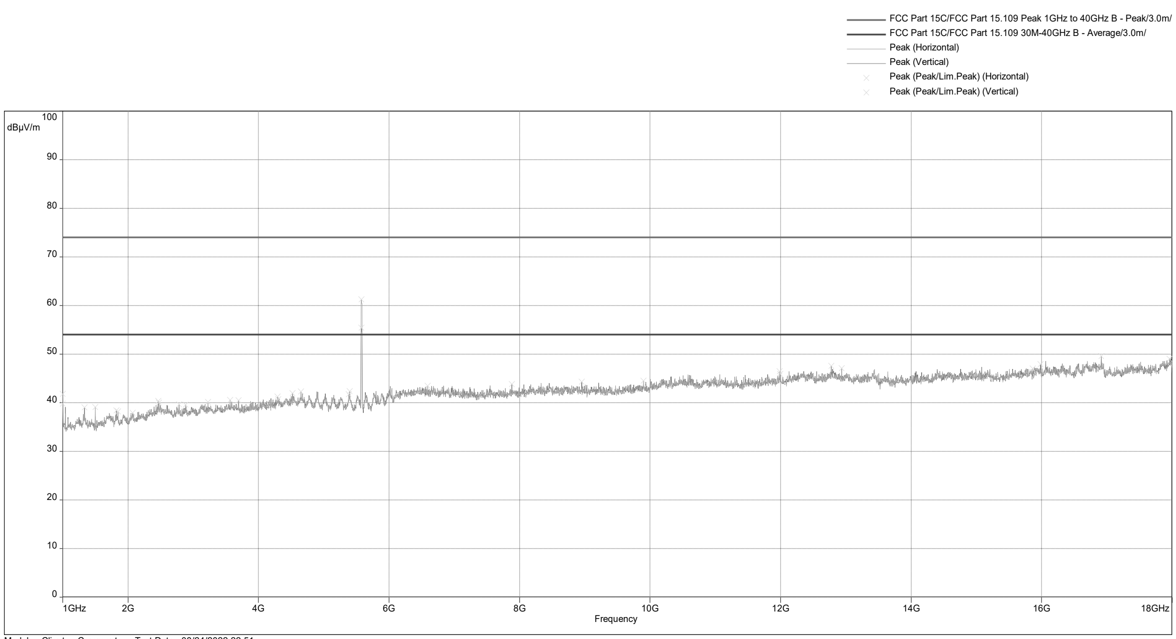
Note: Correction = AF + CF - Preamp

Test Results: 15.209 Radiated Spurious Emissions, Tx at 802.11n 20MHz 5580MHz

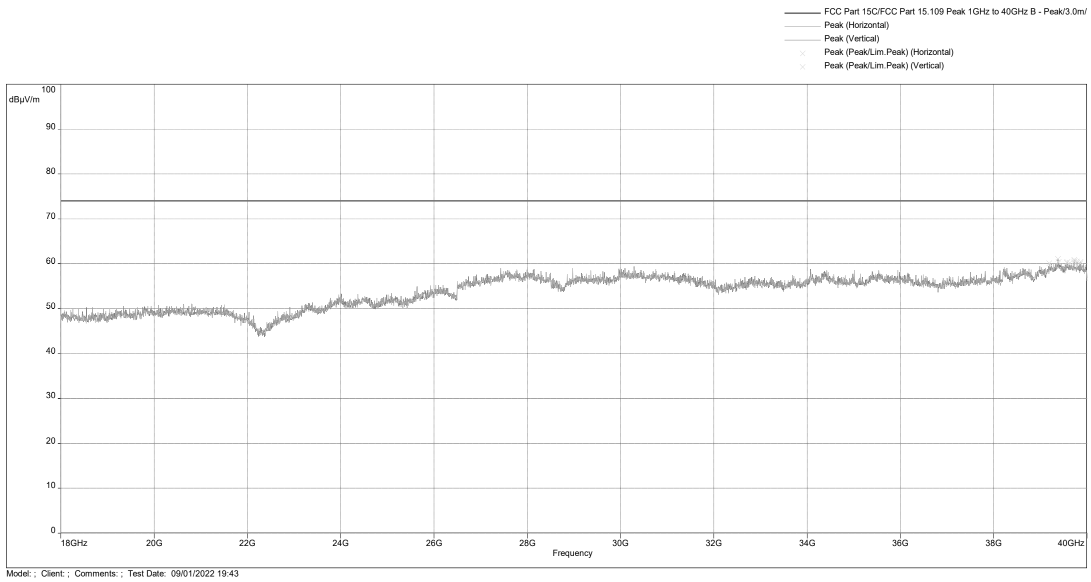
Radiated Spurious Emissions 30 MHz to 1000 MHz, Peak Scan vs QP Limit

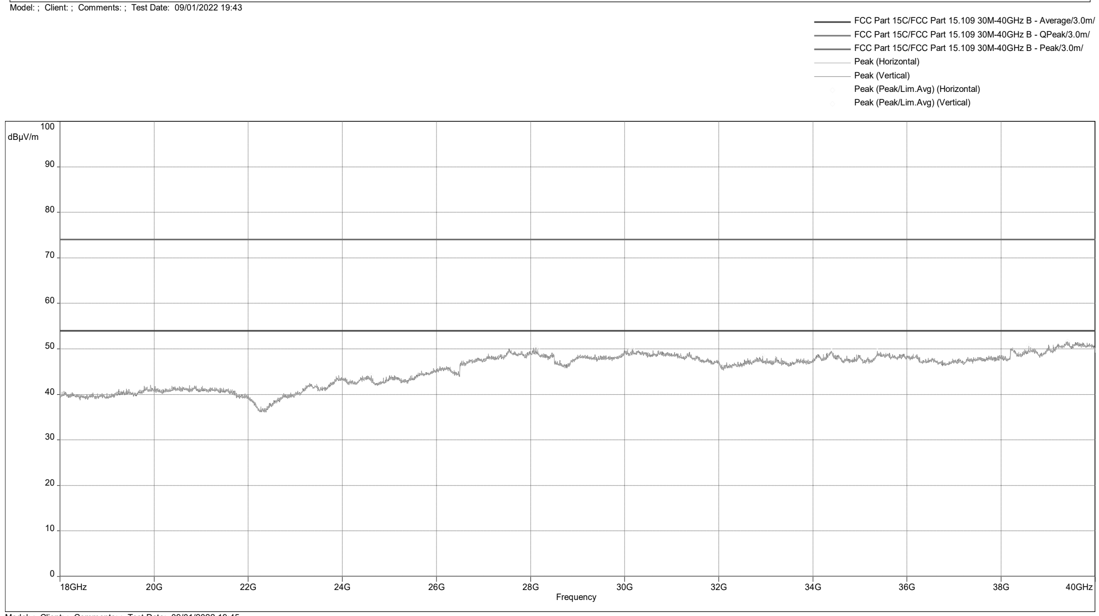


Radiated Spurious Emissions 1000 to 18000 MHz, Peak Scan vs Peak & Avg Limit



Radiated Spurious Emissions 18000 to 40000 MHz, Peak & Avg Scan vs Peak & Avg Limit





Frequency	FS@10m	Limit@ 10m	Margin	Height	Azimuth	Polarity	Correction
MHz	dBuV/m	dBuV/m	(dB)	(m)	(deg)		dB
38.40667	27.05	29.5	-2.45	3	147.75	Vertical	-12.17
72.61533	25.51	29.5	-3.99	0.99	219	Vertical	-18.63
76.59233	26.67	29.5	-2.83	0.99	219	Vertical	-18.85
88.685	29.18	33	-3.82	0.99	102	Vertical	-19.23
107.2767	29.1	33	-3.9	0.99	99.5	Vertical	-14.7
132.7553	30.46	33	-2.54	2	139.5	Vertical	-12.63

Note: Correction = AF + CF - Preamp

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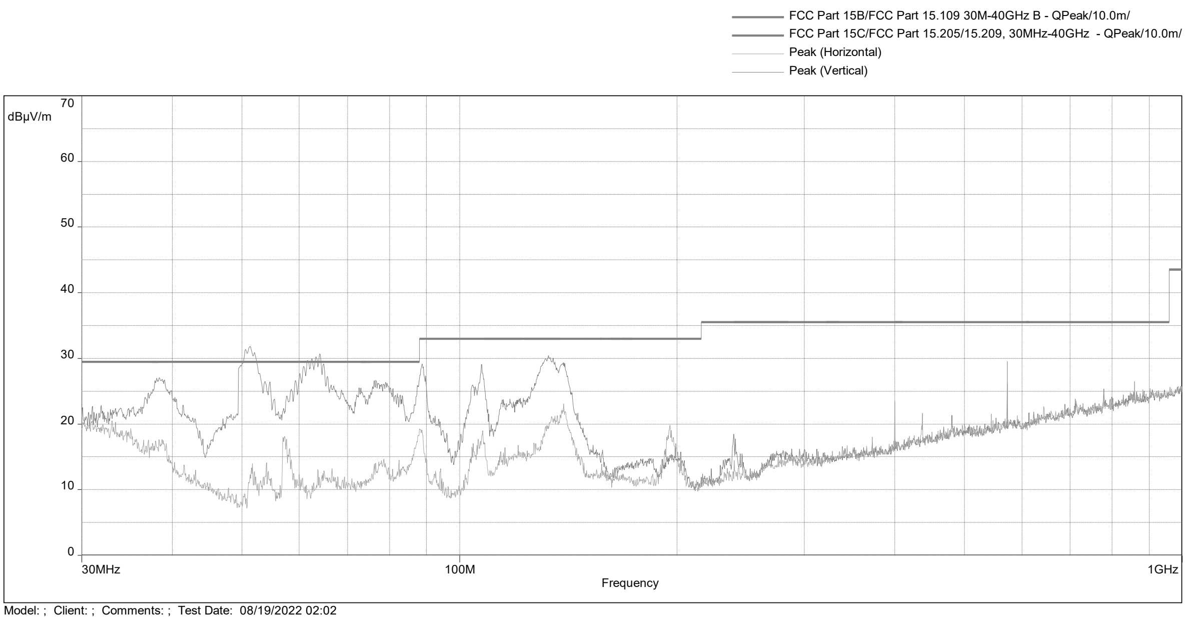
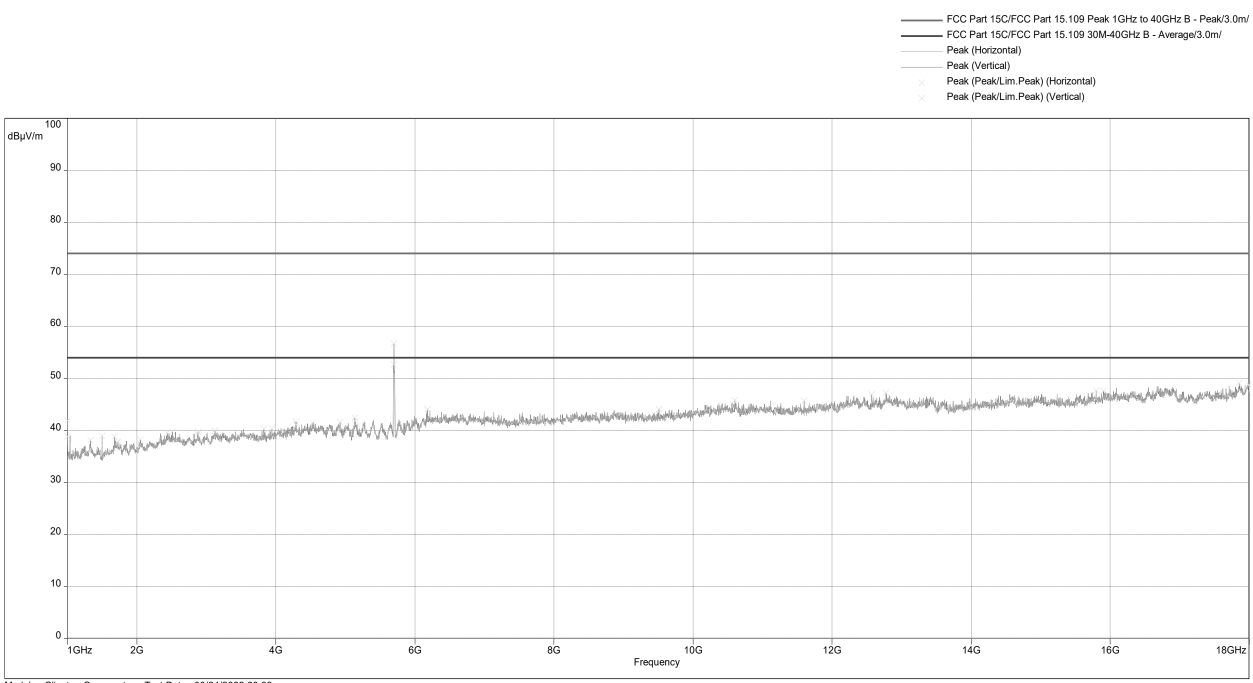
Total Quality. Assured.

Test Results: 15.209 Radiated Spurious Emissions, Tx at 802.11n 20MHz 5700MHz

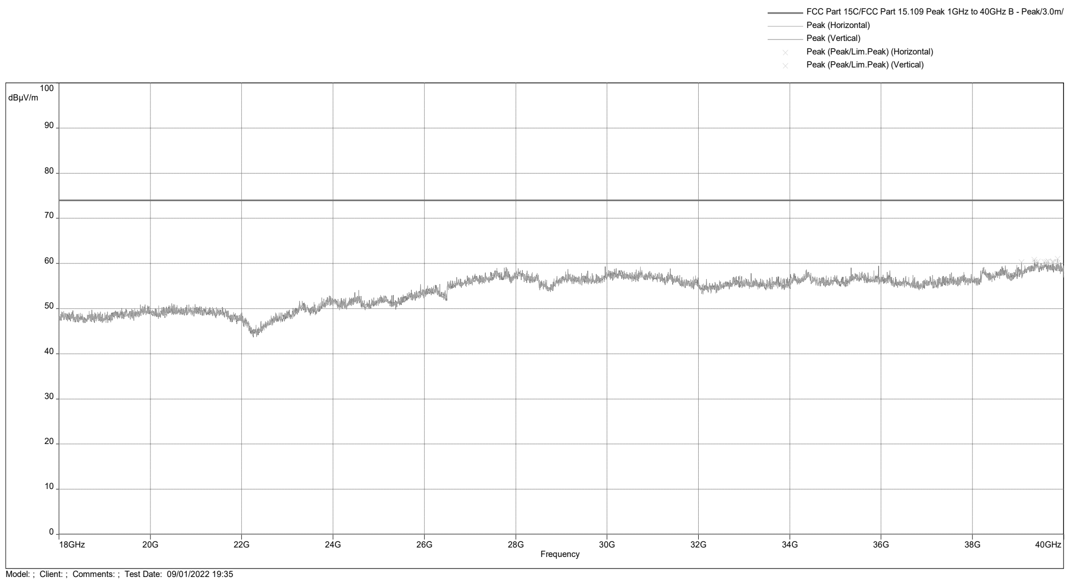
Radiated Spurious Emissions 30 MHz to 1000 MHz, Peak Scan vs QP Limit

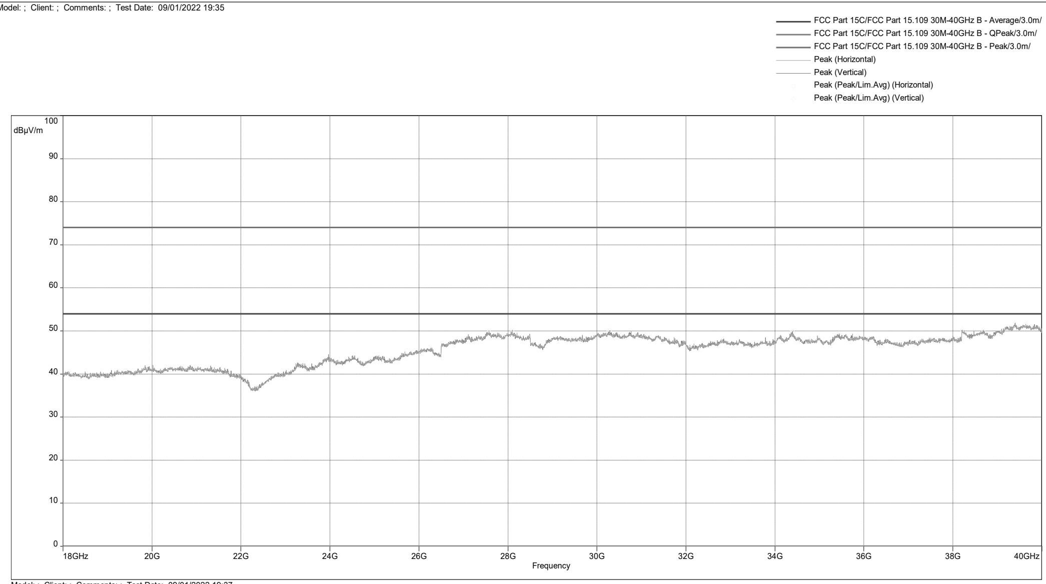


Radiated Spurious Emissions 1000 to 18000 MHz, Peak Scan vs Peak & Avg Limit



Radiated Spurious Emissions 18000 to 40000 MHz, Peak & Avg Scan vs Peak & Avg Limit



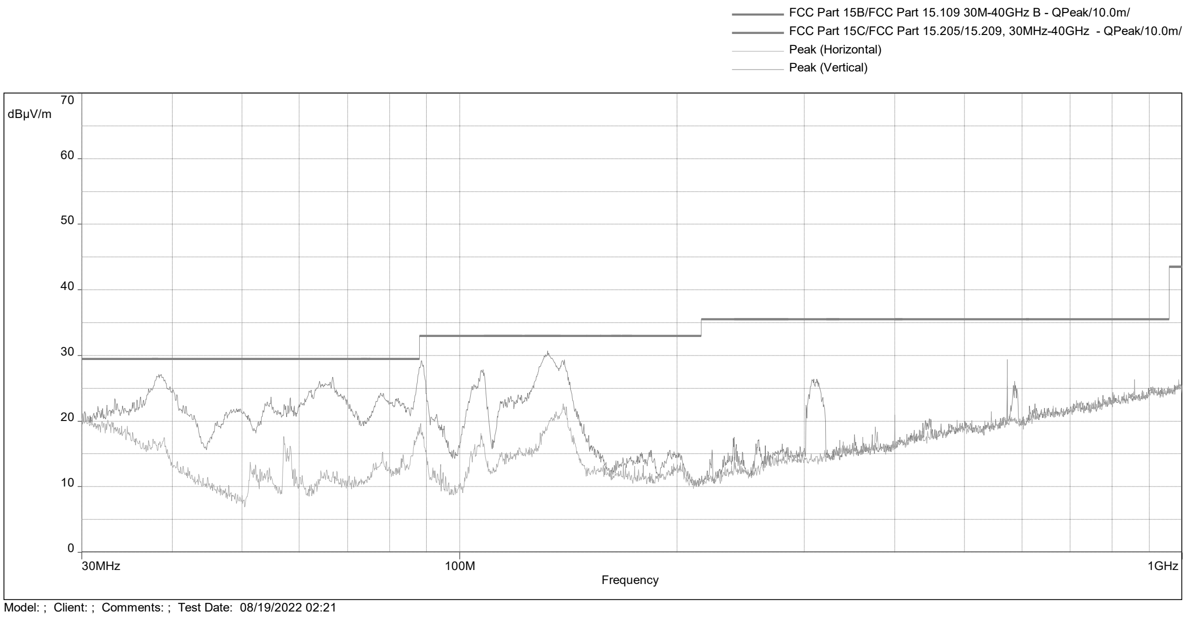


Frequency	FS@10m	Limit@ 10m	Margin	Height	Azimuth	Polarity	Correction
MHz	dBuV/m	dBuV/m	(dB)	(m)	(deg)		dB
572.715	30.04	35.5	-5.46	2.98	14.75	Horizontal	-5.99
38.66533	27.03	29.5	-2.47	3	153	Vertical	-12.38
77.53	24.73	29.5	-4.77	0.99	82	Vertical	-18.94
88.71733	28.55	33	-4.45	0.99	119.5	Vertical	-19.23
107.4707	27.93	33	-5.07	0.99	51	Vertical	-14.66
133.2403	30.25	33	-2.75	2	141.5	Vertical	-12.68

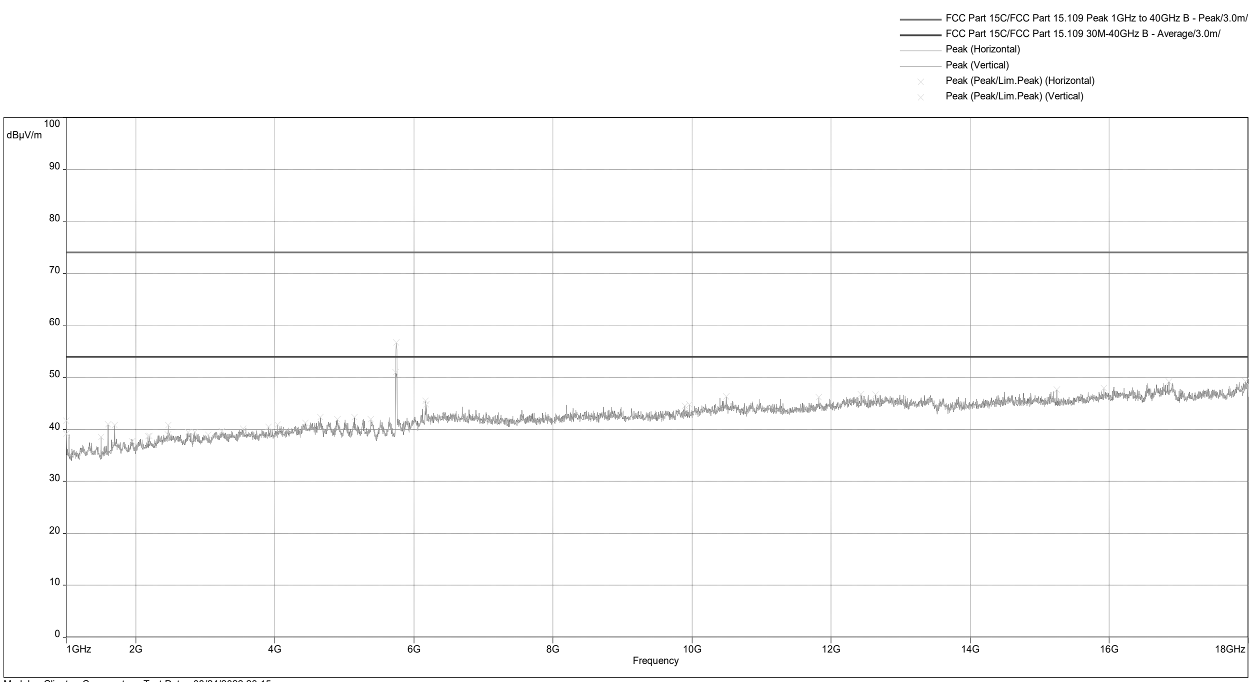
Note: Correction = AF + CF - Preamp

Test Results: 15.209 Radiated Spurious Emissions, Tx at 802.11n 20MHz 5745MHz

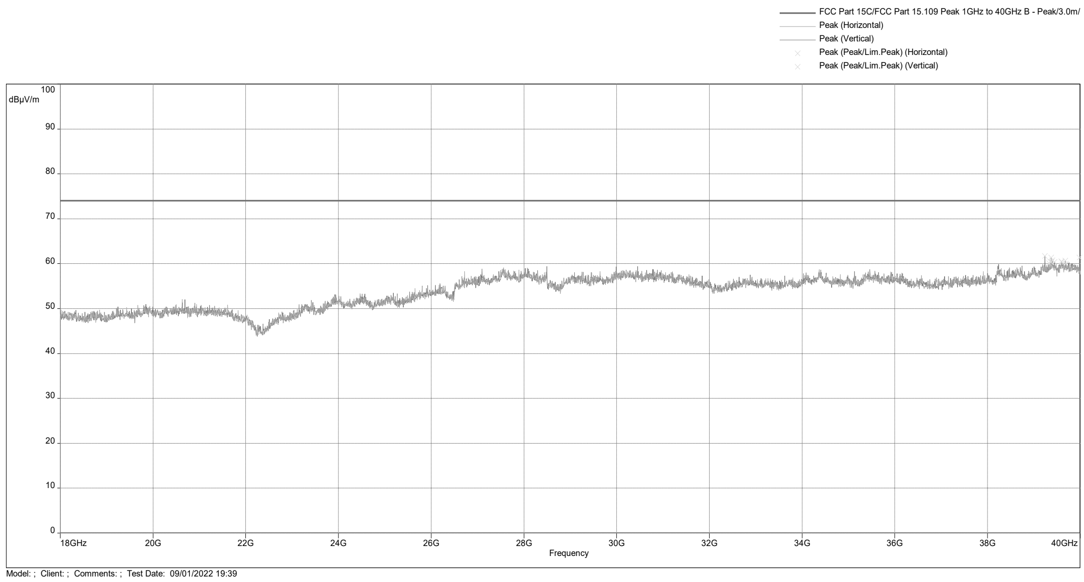
Radiated Spurious Emissions 30 MHz to 1000 MHz, Peak Scan vs QP Limit

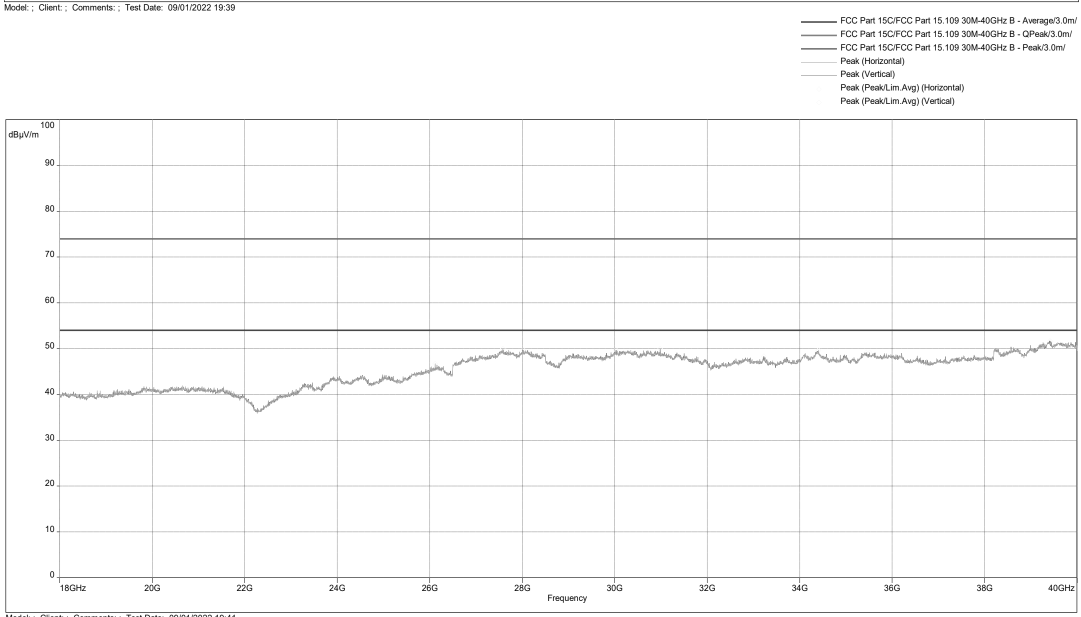


Radiated Spurious Emissions 1000 to 18000 MHz, Peak Scan vs Peak & Avg Limit



Radiated Spurious Emissions 18000 to 40000 MHz, Peak & Avg Scan vs Peak & Avg Limit





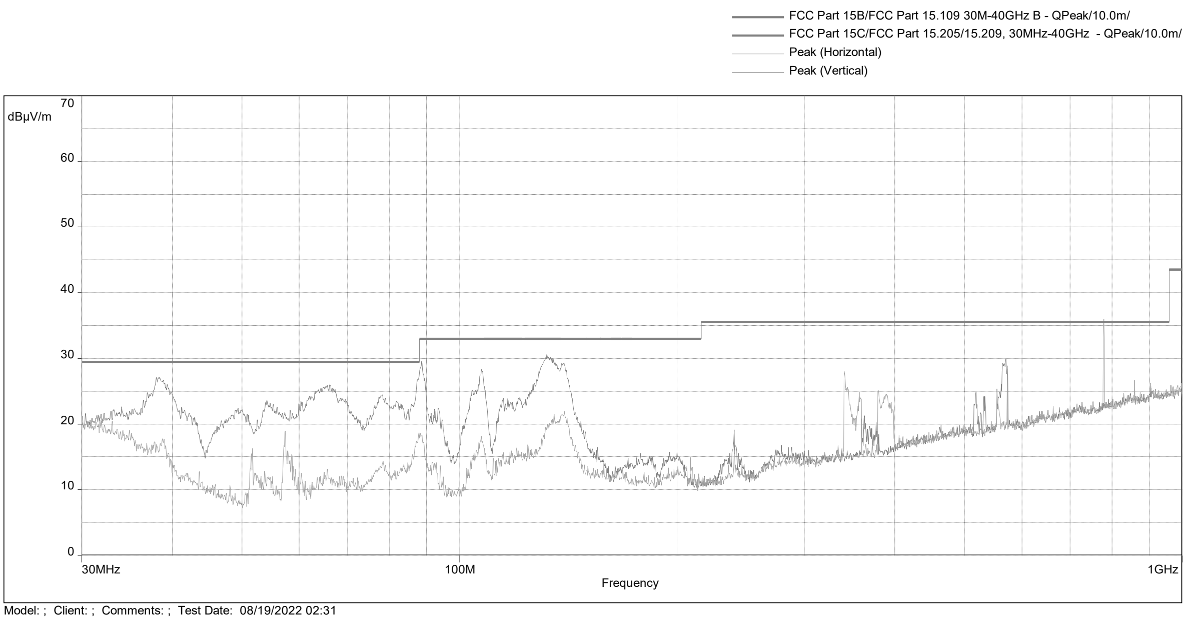
Frequency	FS@10m	Limit@ 10m	Margin	Height	Azimuth	Polarity	Correction
MHz	dBuV/m	dBuV/m	(dB)	(m)	(deg)		dB
38.342	27.11	29.5	-2.39	3	144.5	Vertical	-12.12
66.73067	26.68	29.5	-2.82	2	84	Vertical	-18.89
77.75633	24.25	29.5	-5.25	2	84	Vertical	-18.96
88.62033	29.19	33	-3.81	0.99	101.25	Vertical	-19.24
107.7293	27.84	33	-5.16	0.99	48.5	Vertical	-14.6
132.335	30.72	33	-2.28	0.99	120	Vertical	-12.59

Note: Correction = AF + CF - Preamp

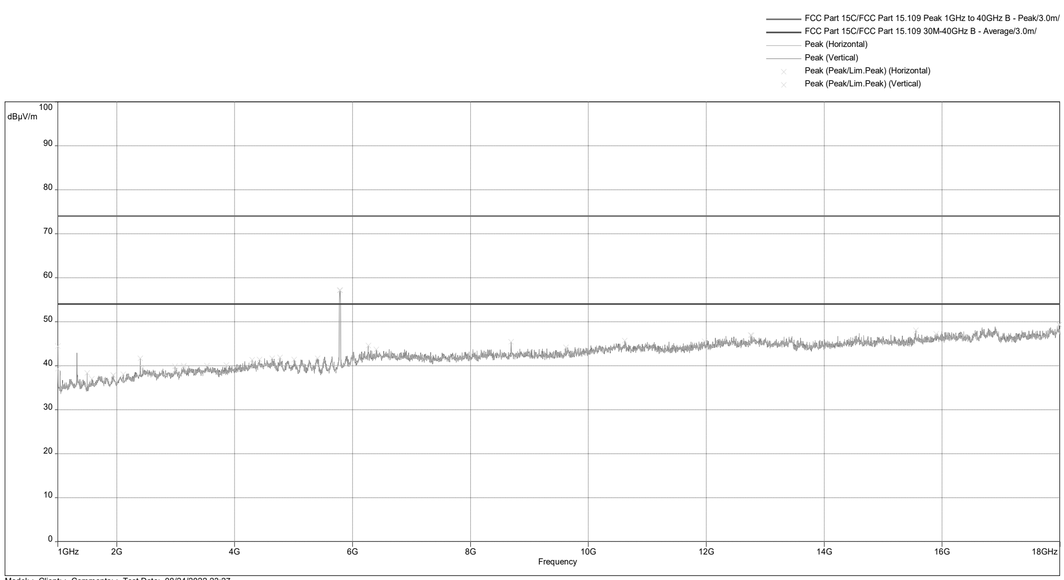
Total Quality. Assured.

Test Results: 15.209 Radiated Spurious Emissions, Tx at 802.11n 20MHz 5785MHz

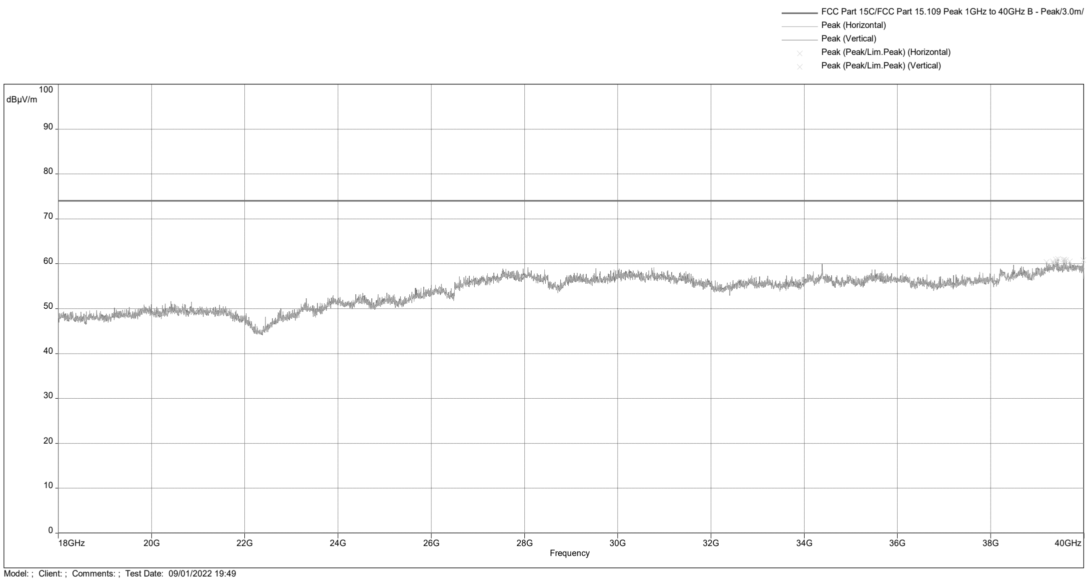
Radiated Spurious Emissions 30 MHz to 1000 MHz, Peak Scan vs QP Limit

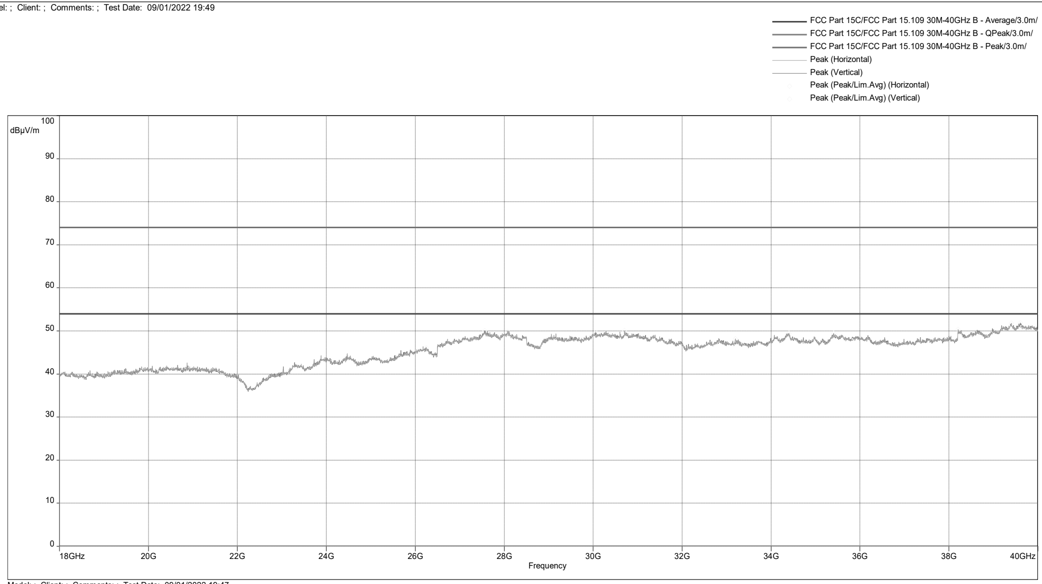


Radiated Spurious Emissions 1000 to 18000 MHz, Peak Scan vs Peak & Avg Limit



Radiated Spurious Emissions 18000 to 40000 MHz, Peak & Avg Scan vs Peak & Avg Limit



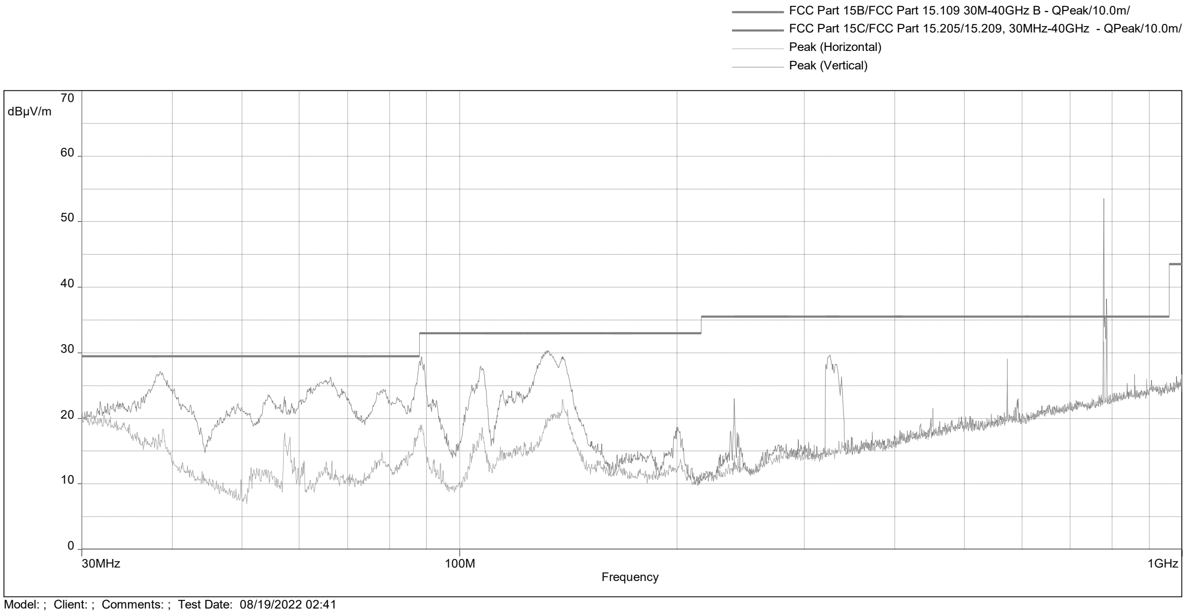


Frequency	FS@10m	Limit@ 10m	Margin	Height	Azimuth	Polarity	Correction
MHz	dBuV/m	dBuV/m	(dB)	(m)	(deg)		dB
780.1333	32.87	35.5	-2.63	4	306.5	Horizontal	-2.45
38.439	27.11	29.5	-2.39	3	147.25	Vertical	-12.2
66.084	25.97	29.5	-3.53	2	116.75	Vertical	-18.97
88.62033	29.57	33	-3.43	0.98	132.5	Vertical	-19.24
107.2443	28.29	33	-4.71	0.98	113.5	Vertical	-14.7
132.044	30.56	33	-2.44	2	120.5	Vertical	-12.56

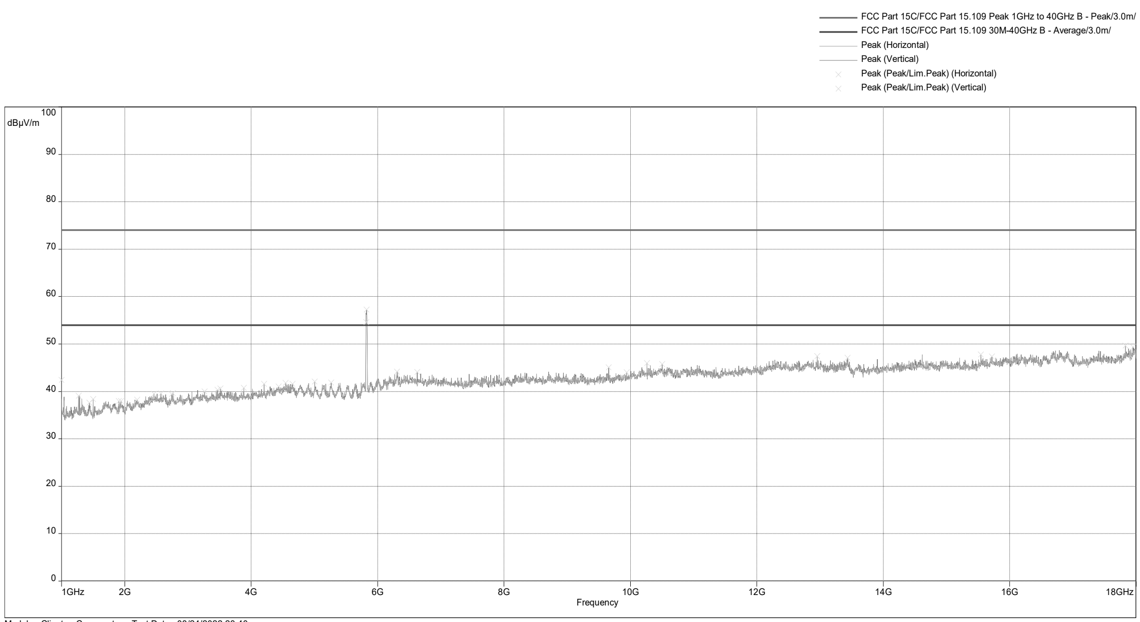
Note: Correction = AF + CF - Preamp

Test Results: 15.209 Radiated Spurious Emissions, Tx at 802.11n 20MHz 5825MHz

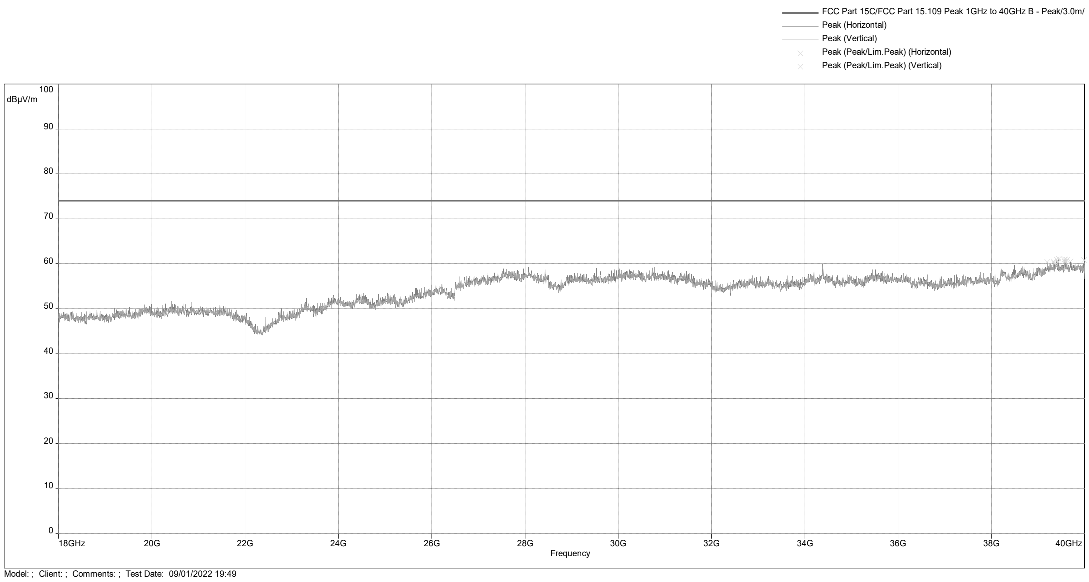
Radiated Spurious Emissions 30 MHz to 1000 MHz, Peak Scan vs QP Limit

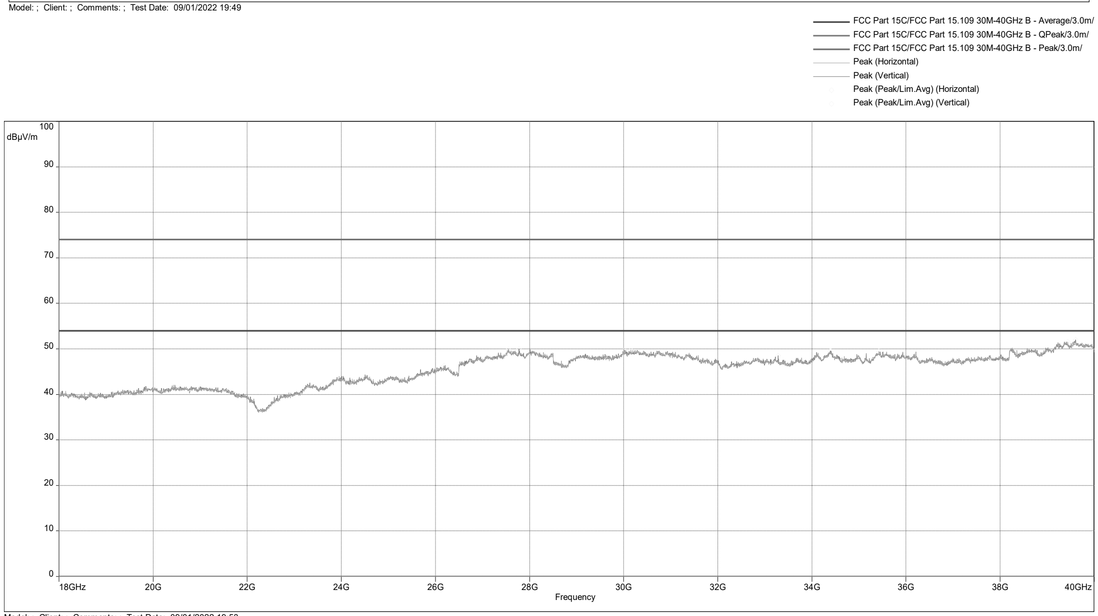


Radiated Spurious Emissions 1000 to 18000 MHz, Peak Scan vs Peak & Avg Limit



Radiated Spurious Emissions 18000 to 40000 MHz, Peak & Avg Scan vs Peak & Avg Limit





Frequency	FS@10m	Limit@ 10m	Margin	Height	Azimuth	Polarity	Correction
MHz	dBuV/m	dBuV/m	(dB)	(m)	(deg)		dB
778.937	31.7	35.5	-3.8	4	287.25	Horizontal	-2.46
38.536	27.14	29.5	-2.36	0.99	144.5	Vertical	-12.28
66.24567	26.3	29.5	-3.2	2	105.25	Vertical	-18.95
88.55567	29.4	33	-3.6	0.99	102	Vertical	-19.25
132.141	30.41	33	-2.59	2	96	Vertical	-12.57
782.914	32.11	35.5	-3.39	4	215.5	Vertical	-2.36

Note: Correction = AF + CF - Preamp

4.3.7 Test setup

The following photographs show the testing configurations used.

4.4 Dynamic Frequency Selection (DFS)

4.4.1 Requirement

Applicability of DFS Requirements Prior to Use of a Channel

Requirement	Operational Mode		
	Master	Client Without Radar Detection	Client With Radar Detection
Non-Occupancy Period	Yes	Not Required	Yes
DFS Detection Threshold	Yes	Not Required	Yes
Channel Availability Check Time	Yes	Not Required	Not Required
U-NII Detection Bandwidth	Yes	Not Required	Yes

Applicability of DFS requirements during normal operation

Requirement	Operational Mode	
	Master Device or Client with Radar Detection	Client With Radar Detection
DFS Detection Threshold	Yes	Not Required
Channel Closing Transmission Time	Yes	Yes
Channel Move Time	Yes	Yes
U-NII Detection Bandwidth	Yes	Not Required

Additional requirements for devices with multiple bandwidth modes	Master Device or Client with Radar Detection	Client Without Radar Detection
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link
All other tests	Any single BW mode	Not required
Note: Frequencies selected for statistical performance check should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.		

4.4.1.1 DFS Detection Thresholds for Master or Client Devices with DFS Detection

Maximum Transmit Power	Values (See Notes 1, 2, and 3)
EIRP ≥ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet the power spectral density requirement	-64 dBm
Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna. **Note 2:** Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response. **Note3:** EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01	

Parameter	Value
Non-Occupancy Period	Minimum 30 minutes
Channel Availability Check Time	60 Seconds
Channel Move Time	10 seconds (see note 1)
Channel Closing Transmission Time	200 ms + an aggregate of 60 ms over remaining 10 Second period. (see note 1 and 2)
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. (see note 3)
Note 1: *Channel Move Time* and the *Channel Closing Transmission Time* should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst. **Note 2:** The *Channel Closing Transmission Time* is comprised of 200 milliseconds starting at the beginning of the *Channel Move Time* plus any additional intermittent control signals required to facilitate a *Channel* move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions. **Note 3:** During the *U-NII Detection Bandwidth* detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.	

4.4.1.2 Test Waveform

<table>
<tr><th>Radar Type</th><th>Pulse Width (µsec)</th><th>PRI (µsec)</th><th>Number of Pulses</th><th>Minimum Percentage of Successful Detection</th><th>Minimum Number of Trials</th></tr>
<tr><td>0</td><td>1</td><td>1428</td><td>18</td><td>See Note 1</td><td>See Note 1</td></tr>
<tr><td rowspan="2">1</td><td rowspan="2">1</td><td>Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a</td><td>$\text{Roundup}\left\{\left(\frac{1}{360}\right)\cdot\left(\frac{19\cdot10^{6}}{\text{PRI}_{\mu\text{sec}}}\right)\right\}$</td><td rowspan="2">60.00%</td><td rowspan="2">30</td></tr>
<tr><td>Test B: 15 unique PRI values randomly selected within the range of 518-3066 µsec, with a minimum increment of 1 µsec, excluding PRI values selected in Test A</td><td></td></tr>
<tr><td>2</td><td>1-5</td><td>150-230</td><td>23-29</td><td>60%</td><td>30</td></tr>
<tr><td>3</td><td>6-10</td><td>200-500</td><td>16-18</td><td>60%</td><td>30</td></tr>
<tr><td>4</td><td>11-20</td><td>200-500</td><td>12-16</td><td>60%</td><td>30</td></tr>
<tr><td colspan="4">Aggregate (Radar Types 1-4)</td><td>80%</td><td>120</td></tr>
<tr><td colspan="6">Note 1: Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests.</td></tr>
</table>

Radar Type	Pulse Width (µsec)	Chrip Width (MHz)	PRI (µsec)	Number of Pulses per Burst	Number of Burst	Minimum Percentage of Successful Detection	Minimum Number of Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

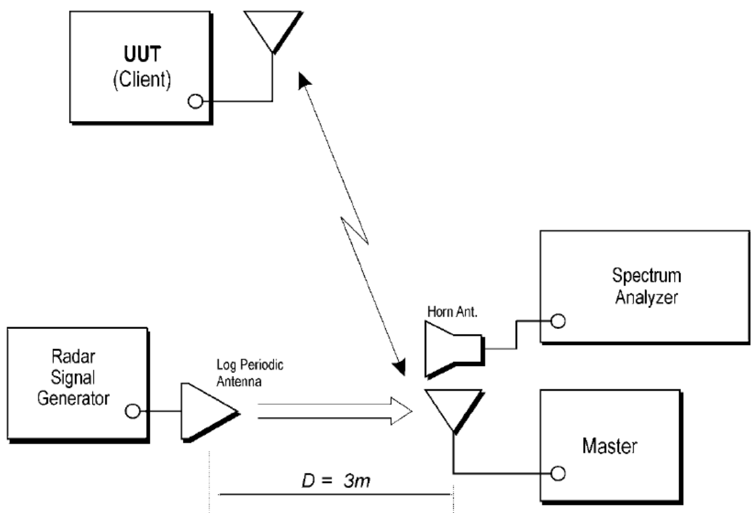
Radar Type	Pulse Width (µsec)	PRI (µsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Minimum Percentage of Successful Detection	Minimum Number of Trials
6	1	333	9	0.333	300	70%	30

4.4.2 Procedure

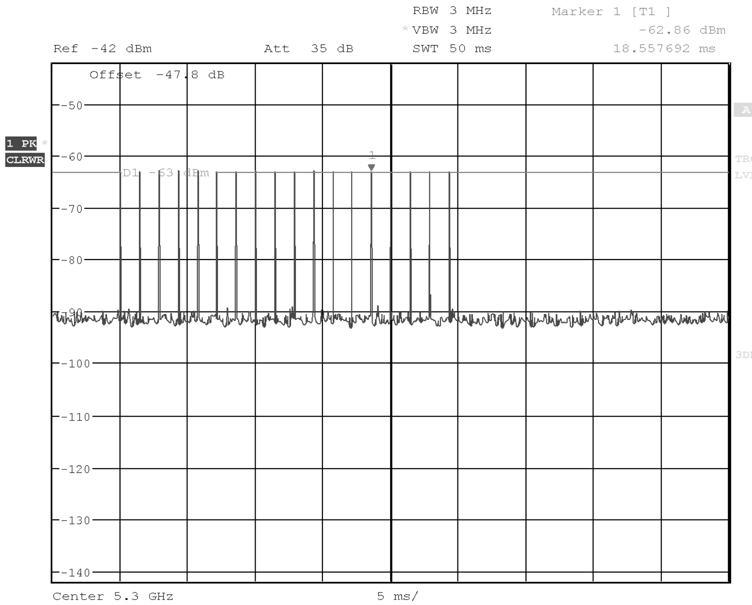
DFS Waveform Calibration

Calibration Procedure

For the DFS signal, horn antenna was attached to a signal generator (RS SMU200A). On the Receive side another horn antenna was attached to a spectrum analyzer with a preamp inline. The spectrum analyzer's resolution bandwidth was set to 3 MHz and the video bandwidth was set to 3 MHz with peak detection. The field was corrected to account for cable loss, antenna gain and preamp. The DFS signal was calibrated to a field strength of -63 dBm. Test wave form 0 was utilized. The calibration setup is diagrammed below along with a setup picture.

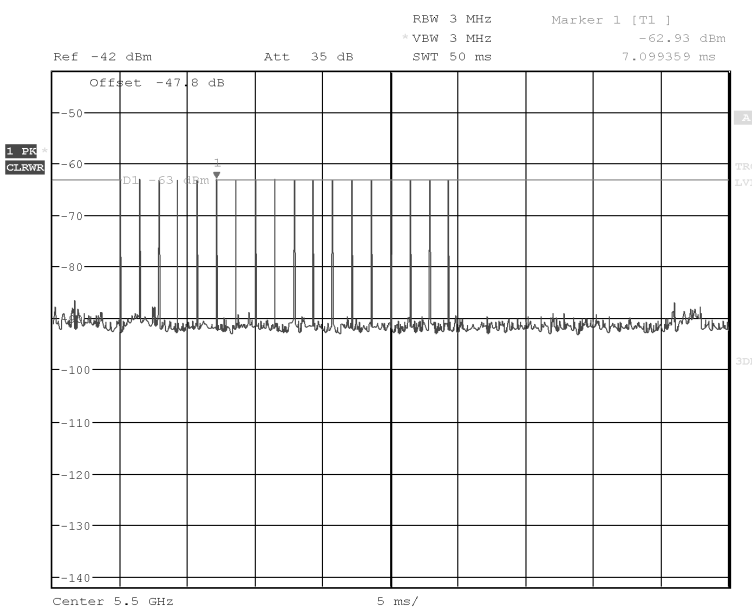


Radar Type 0 Calibration 5310MHz



Date: 5.OCT.2022 21:35:28

Radar Type 0 Calibration 5510MHz



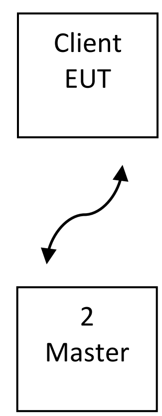
Date: 5.OCT.2022 21:32:08

DFS Setup & Procedure

Test Procedure

A radiated test method was used and the test setup was made as depicted in the diagram below. DFS testing was setup as a client with injection into the master.

The diagram below depicts the setup of the EUT along with associated support equipment.



Item	Description	Model	Serial
2	Netgear	Nighthawk RAX200 FCC ID: PY318400434	69F31177A0646

Test Procedure Continued

The Master and Client (EUT) were placed in a semi-anechoic chamber. The simulated radar waveform was transmitted from a horn antenna towards the Master. The signal level of the simulated radar waveform was set 1 dB higher than calibrated level to -62 dBm and was applied to the Master. The horn antenna was connected to the spectrum analyzer and positioned towards the client with a level higher than emissions from the Master.

A Rhode & Schwarz Vector Signal Generator with Pulse Sequencer Software was used to generate the DFS radar signals. A Rhode & Schwarz Spectrum Analyzer was used to monitor the transmissions of the Client. The trigger of the spectrum analyzer was aligned with the end of the radar waveform burst from the signal generator.

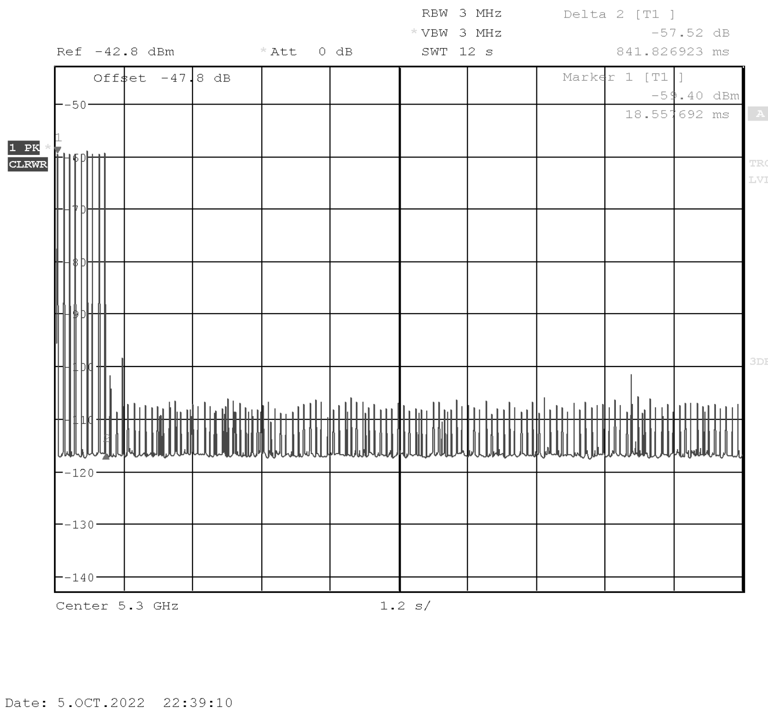
Channel closing transmission time and channel move time were measured by applying a radar signal to the Master device. The EUT transmissions were observed while Type 0 Radar waveforms were applied. The time between the end of the applied radar waveform and the final transmission on the channel is the channel move time. The channel closing transmission time comprises only those fragments of the channel move time during which the EUT transmits.

The EUT (client without DFS detection) was configured to communicate with a Master wirelessly. The test file/data was streamed from the Master to the Client. The channel load is recorded and presented in test results below.

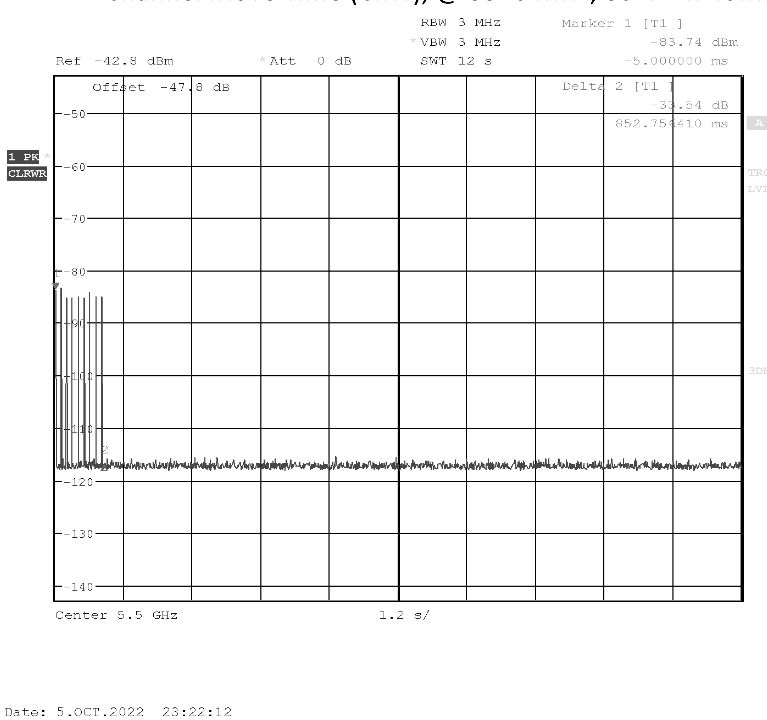
4.4.3 Test Results

Channel Move Time Test Summary					
Description	**Radar Type**	**Frequency MHz**	**Measured Value**	**Limit Requirements**	**Results**
Channel Move Time	0	5310	841.82 ms	10s	Pass
		5510	852.75 ms	10s	Pass
Channel Closing Transmission Time Test Summary					
Description	**Radar Type**	**Frequency MHz**	**Aggregate Measured Value**	**Limit Requirements**	**Results**
Closing Transmission Time	0	5310	24.03 ms	260ms	Pass
		5510	24.03 ms	260ms	Pass
Channel Unoccupancy Time Test Summary					
Description	**Radar Type**	**Frequency MHz**	**Measured Value**	**Limit Requirements**	**Results**
Unoccupancy Time	0	5310	No Transmission Found	Minimum 30 minutes	Pass
		5510	No Transmission Found	Minimum 30 minutes	Pass

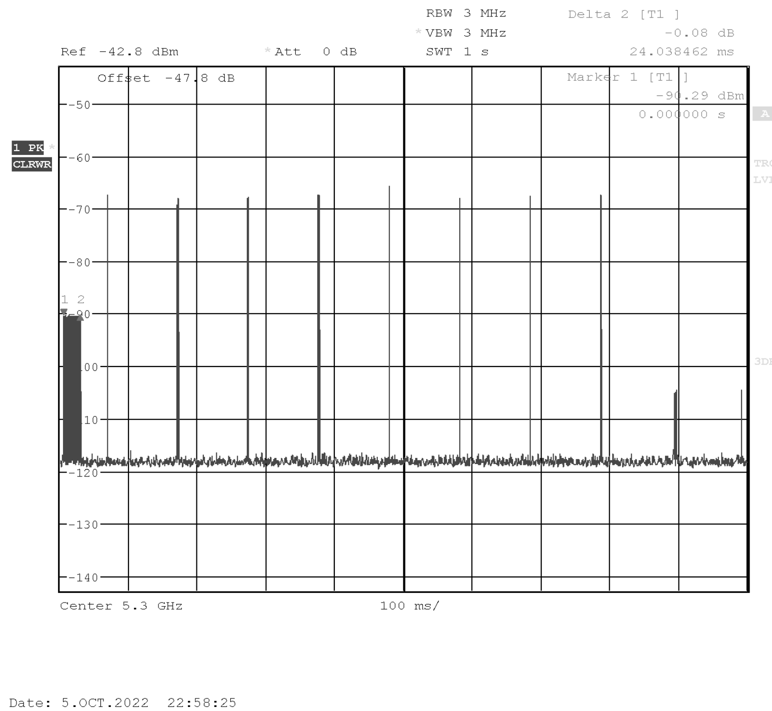
Channel Move Time (CMT), @ 5310 MHz, 802.11n 40MHz



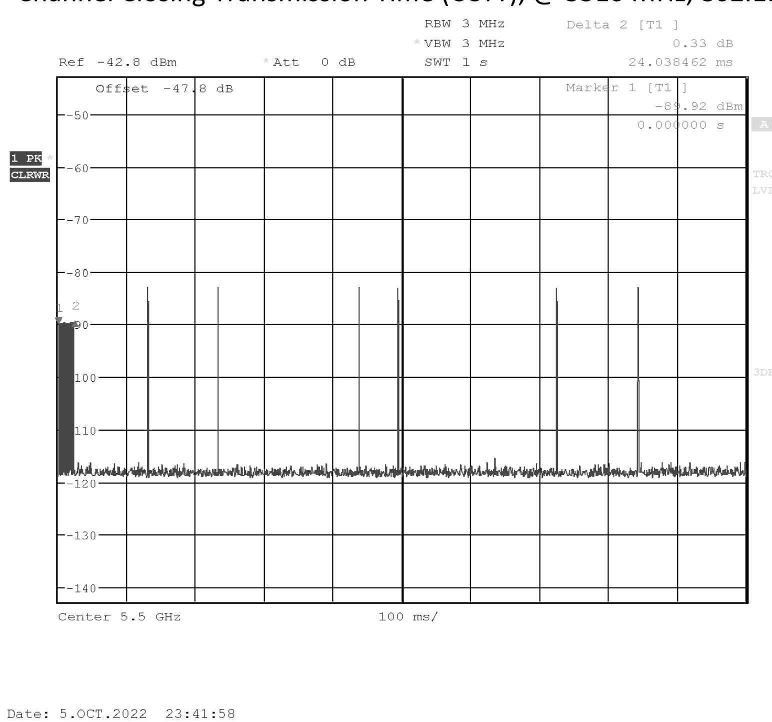
Channel Move Time (CMT), @ 5510 MHz, 802.11n 40MHz



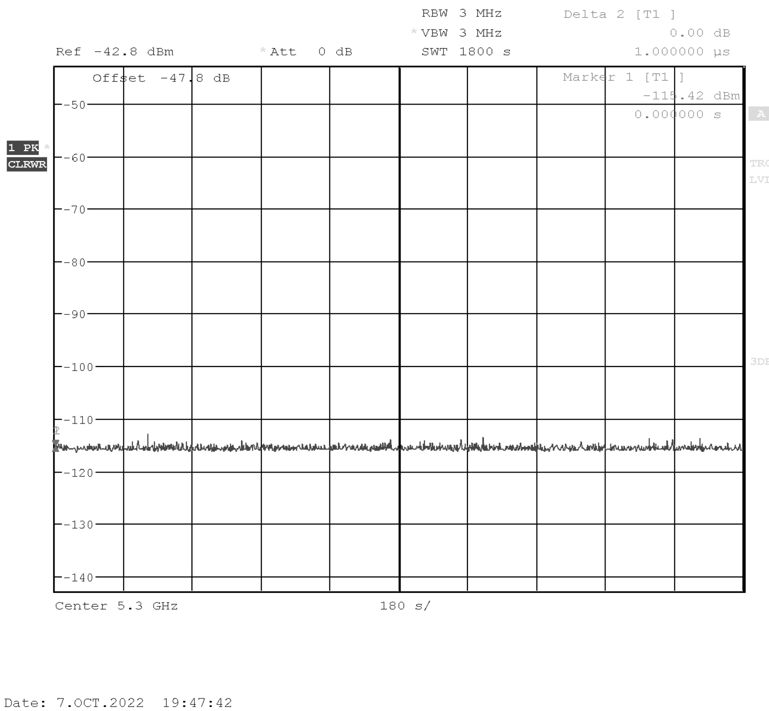
Channel Closing Transmission Time (CCTT), @ 5310 MHz, 802.11n 40MHz



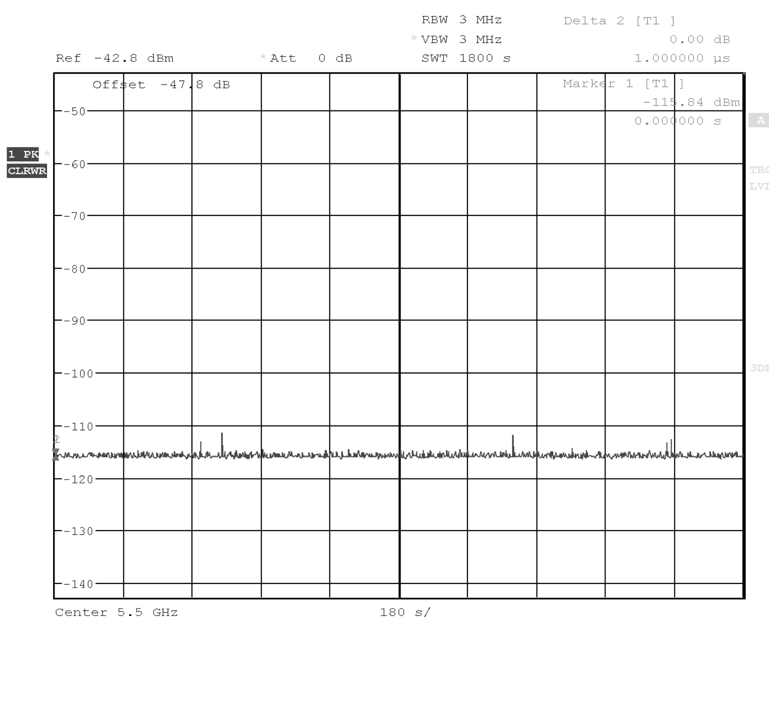
Channel Closing Transmission Time (CCTT), @ 5510 MHz, 802.11n 40MHz



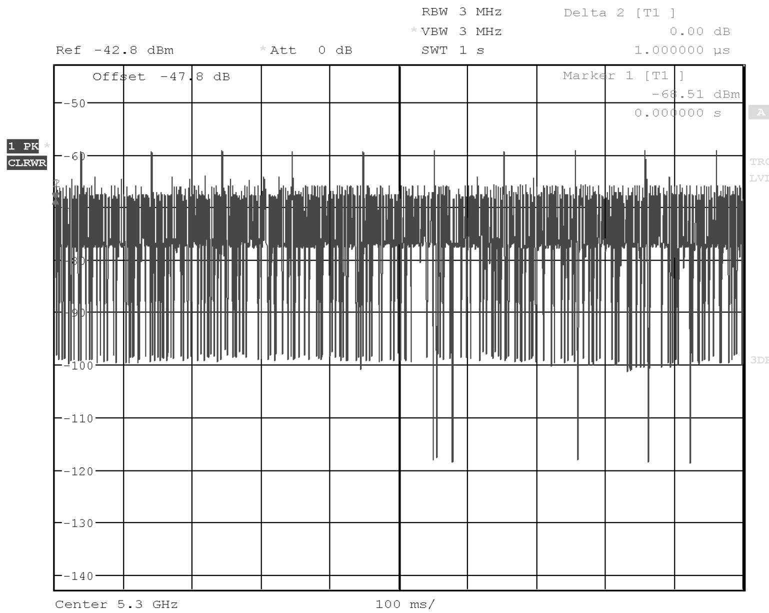
Channel Unoccupancy Time @ 5310 MHz, 802.11n 40MHz



Channel Unoccupancy Time @ 5510 MHz, 802.11n 40MHz

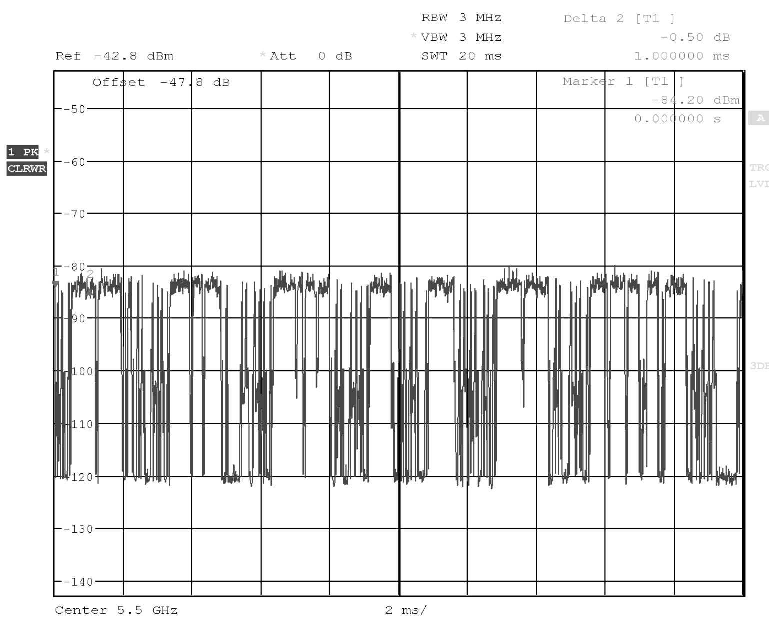


Channel Loading @ 5310MHz, 802.11n 40MHz



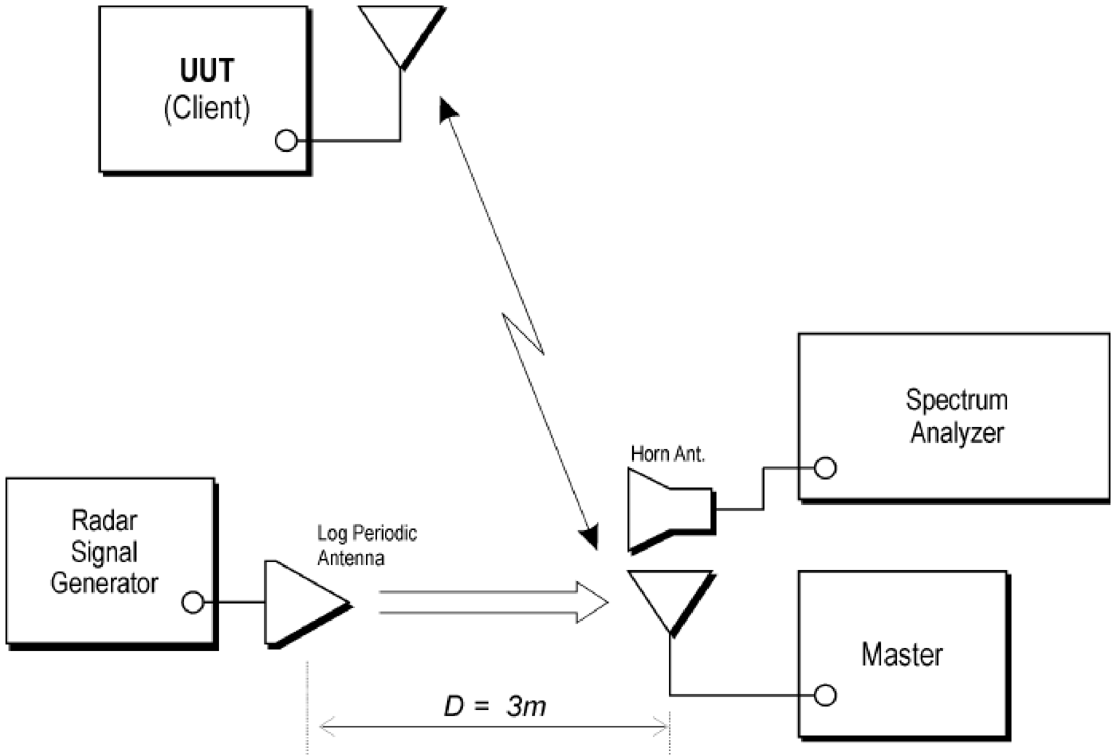
Date: 7.OCT.2022 18:59:28

Channel Loading @ 5510MHz, 802.11n 40MHz



Date: 7.OCT.2022 18:45:36

4.4.4 Test setup



4.5 AC Line Conducted Emission

FCC: 15.207; RSS-GEN

4.5.1 Requirement

Frequency Band MHz	FCC Part 15.207 Limits	
	Quasi-Peak	Average
0.15-0.50	66 to 56 *	56 to 46 *
0.50-5.00	56	46
5.00-30.00	60	50

*Note: *Decreases linearly with the logarithm of the frequency*
At the transition frequency the lower limit applies.

4.5.2 Procedure

Measurements are carried out using quasi-peak and average detector receivers in accordance with CISPR 16. An AMN is required to provide a defined impedance at high frequencies across the power feed at the point of measurement of terminal voltage and also to provide isolation of the circuit under test from the ambient noise on the power lines. An AMN as defined in CISPR 16 shall be used.

The EUT is located so that the distance between the boundary of the EUT and the closest surface of the AMN is 0.8m.

Where a flexible mains cord is provided by the manufacturer, this shall be 1m long or if in excess of 1m, the excess cable is folded back and forth as far as possible so as to form a bundle not exceeding 0.4m in length.

The EUT is arranged and connected with cables terminated in accordance with the product specification.

Conducted disturbance is measured between the phase lead and the reference ground, and between the neutral lead and the reference ground. Both measured values are reported.

The EUT, where intended for tabletop use, is placed on a table whose top is 0.8m above the ground plane. A vertical, metal reference plane is placed 0.4m from the EUT. The vertical metal reference-plane is at least 2m by 2m. The EUT shall be kept at least 0.8m from any other metal surface or other ground plane not being part of the EUT. The table is constructed of non-conductive materials. Its dimensions are 1m by 1.5m, but may be extended for larger EUT.

Floor standing EUT are placed on a horizontal metal ground plane and isolated from the ground plane by resting on an insulating material. The metal ground plane extends at least 0.5m beyond the boundaries of the EUT and has minimum dimensions of 2m by 2m.

Equipment setup for conducted disturbance tests followed the guidelines of ANSI C63.10:2013.

4.5.3 Test Results

15.207: Not Applicable. EUT is DC powered.

5.0 List of Test Equipment

Measurement equipment used for emission compliance testing utilized the equipment on the following list:

Equipment	Manufacturer	Model/Type	Asset #	Cal Int	Cal Due
9kHz-30MHz Loop Antenna	ETS Lindgren	6512	01573	12	11/09/2022
30MHz-2GHz Bi-Log	SunAR RF Motion	JB1	01577	12	02/10/2023
1-18GHz 2 meter RF Cable	TRU Corp.	TRU Core 300	01330	12	08/25/2023
1-40GHz RF Cable (SMA	MEGAPHASE	EMC1-K1K1-20	01889	12	03/11/2023
1-40GHz DRG Horn (small)	ETS-Lindgren	3116	01894	12	06/20/2023
1-18GHz Horn Antenna	ETS Lindgren	3117-PA	01325	12	10/26/2022
9kHz-1GHz Pre-amplifier	Sonoma Instrument	310N	01713	12	02/17/2023
Vector Signal Generator	Rohde & Schwarz	SMU200A	00880	12	12/14/2022
1-40GHz RF Cable	Mega PHASE	TM40-K1K1-59	01655	12	01/11/2023
1GHz to 40GHz RF Cable	MEGAPHASE	EMC1-K1K1-236	01484	12	06/27/2023
1-18GHz Horn Antenna	EMCO	3115	001595	12	#
18-40GHz Preamp	uComp Nordic	MCNS-50-18004000335p	01799	12	03/24/2023
USB Wideband Power	Keysight	U2021XA	01578	12	05/03/2023
EMI Test Receiver 40GHz	Rohde & Schwarz	ESU40	00961	12	03/10/2023
EMI Test Receiver	Rohde & Schwarz	ESR7	01607	12	11/19/2022
10m chamber	Panashield	10 Meter Chamber	00984	12	#

= Calibration not required.

Software used for emission compliance testing utilized the following:

Name	Manufacturer	Version	Template/Profile
Tile	Quantum Change	3.4.K.22	Conducted Restricted Band Edge_Avg Conducted Restricted Band Edge_Peak
BAT-EMC	Nexio	3.20.0.23	Lytx Wifi.bpp
RS Commander	Rohde Schwarz	1.6.4	Not Applicable (Screen grabber)

6.0 Document History

Revision/ Job Number	Writer Initials	Reviewer Initials	Date	Change
1.0 / G105146268	JAV	ML	October 29, 2022	Original document
1.1 / G105146268	AC	AS	April 10, 2023	Modified channel list on pages 6, 11 & 12 to reflect actual channels used in the End Product.