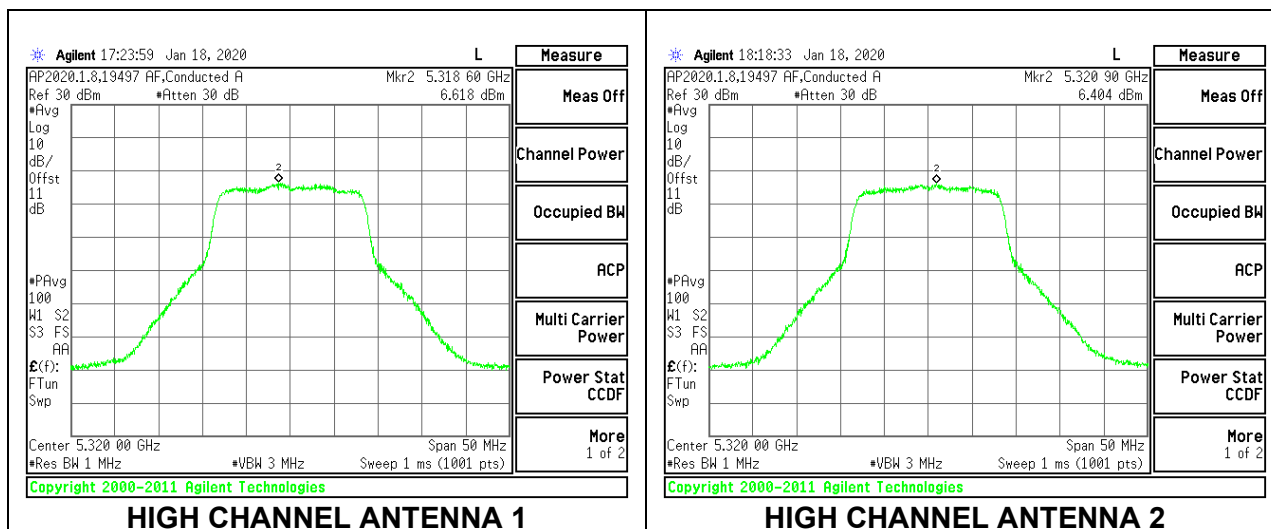


HIGH CHANNEL



2TX Antenna 1 + Antenna 2 CDD MODE (IC)

Test Engineer:	19497 AF & 40882 JC
Test Date:	03/13/2020 & 4/15/2020

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Low	5260	16.408	1.20	4.21	23.15	11.00
Mid	5300	16.409	1.20	4.21	23.15	11.00
High	5320	16.396	1.20	4.21	23.15	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
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Output Power Results

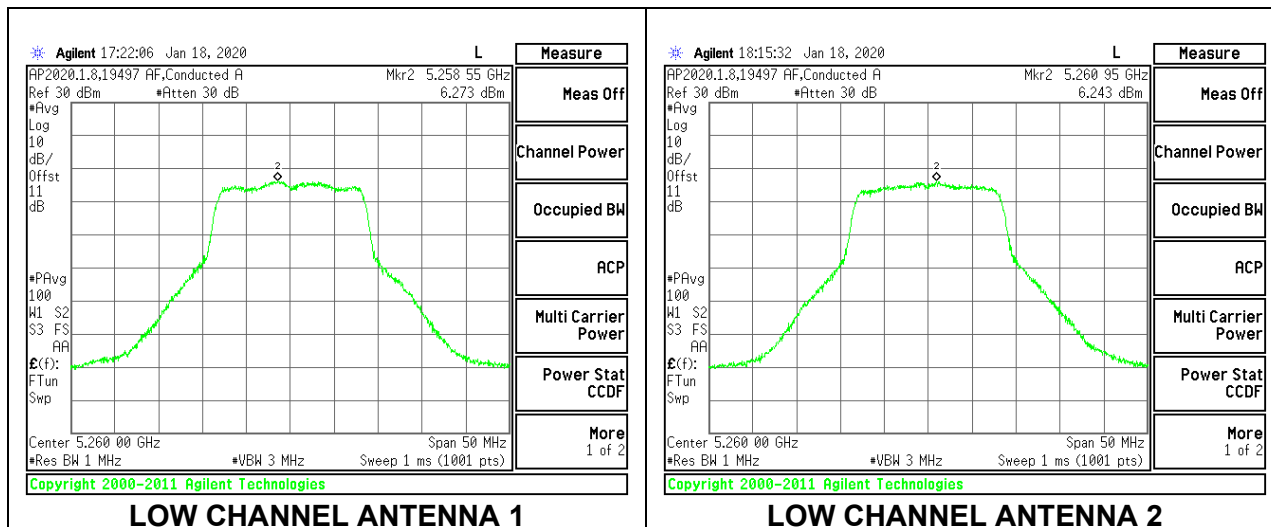
Channel	Frequency (MHz)	Ant 1 Meas Power (dBm)	Ant 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	15.09	14.64	17.88	23.15	-5.27
Mid	5300	15.12	15.35	18.25	23.15	-4.90
High	5320	15.05	15.24	18.16	23.15	-4.99

PSD Results

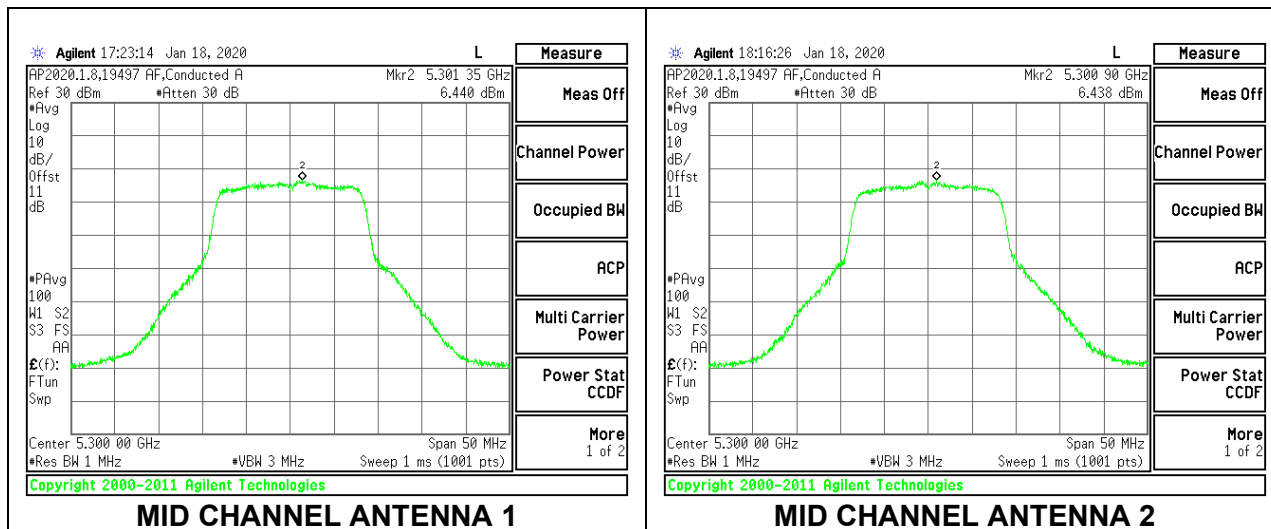
Channel	Frequency (MHz)	Ant 1 Meas PSD (dBm/1MHz)	Ant 2 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5260	6.27	6.24	9.27	11.00	-1.73
Mid	5300	6.44	6.44	9.45	11.00	-1.55
High	5320	6.62	6.40	9.52	11.00	-1.48

PSD Results were performed at an output power that is greater than the measured output power thus worst case and provides margin to the limit.

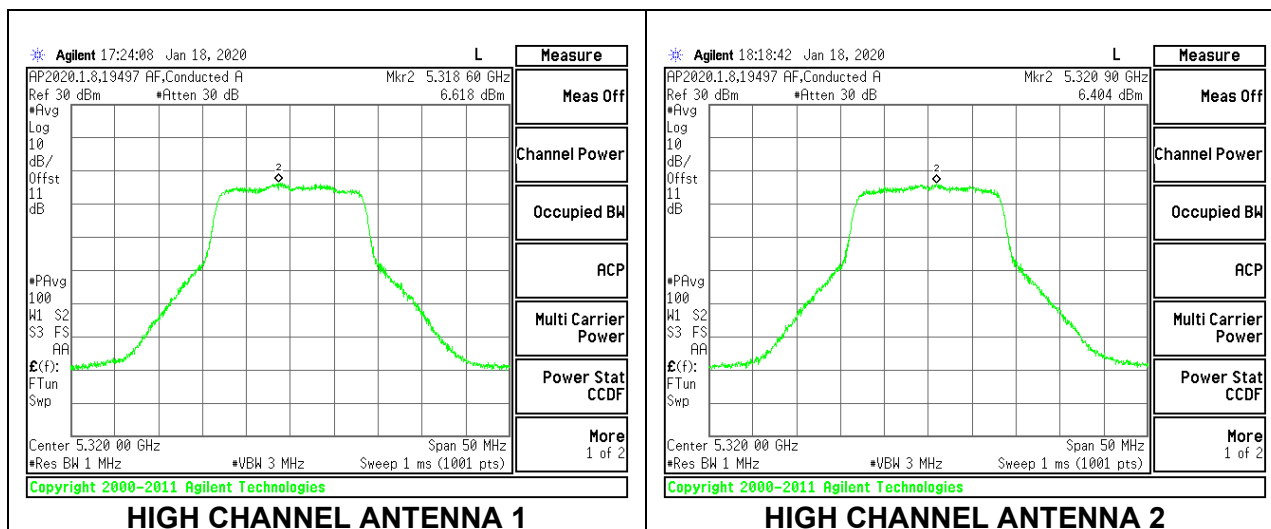
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



9.5.6. 802.11n HT20 MODE IN THE 5.3 GHz BAND

2TX Antenna 1 + Antenna 2 CDD MODE (FCC)

Test Engineer:	19497 AF & 40882 JC
Test Date:	03/13/2020 & 4/15/2020

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Low	5260	21.10	1.20	4.21	24.00	11.00
Mid	5300	21.05	1.20	4.21	24.00	11.00
High	5320	21.50	1.20	4.21	24.00	11.00

Duty Cycle CF (dB)	0.09	Included in Calculations of Corr'd PSD
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Output Power Results

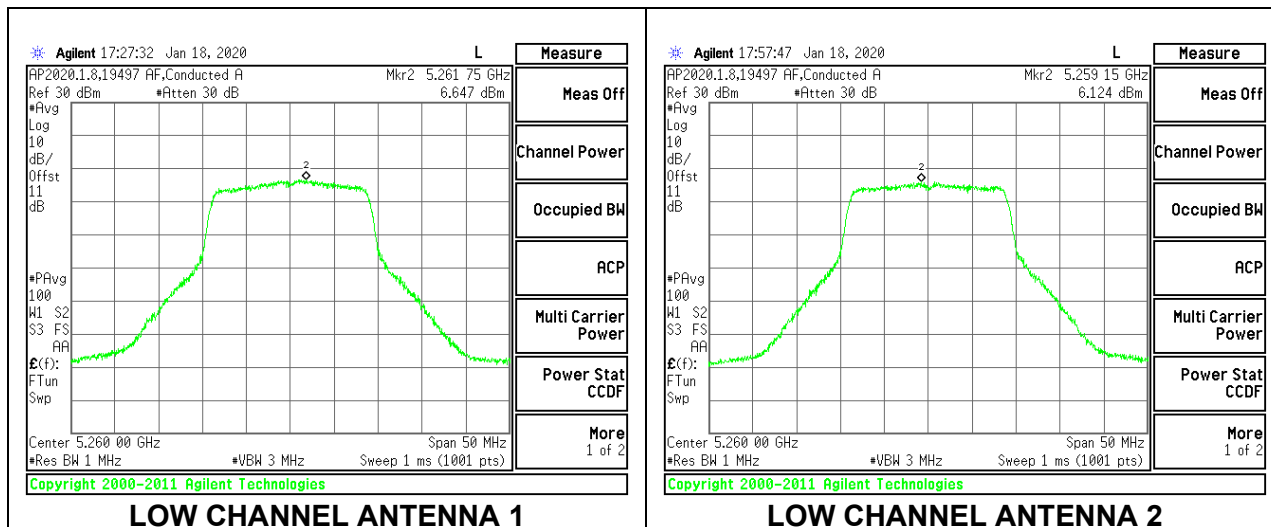
Channel	Frequency (MHz)	Ant 1 Meas Power (dBm)	Ant 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	14.60	14.55	17.59	24.00	-6.41
Mid	5300	15.00	14.91	17.97	24.00	-6.03
High	5320	14.77	14.78	17.79	24.00	-6.21

PSD Results

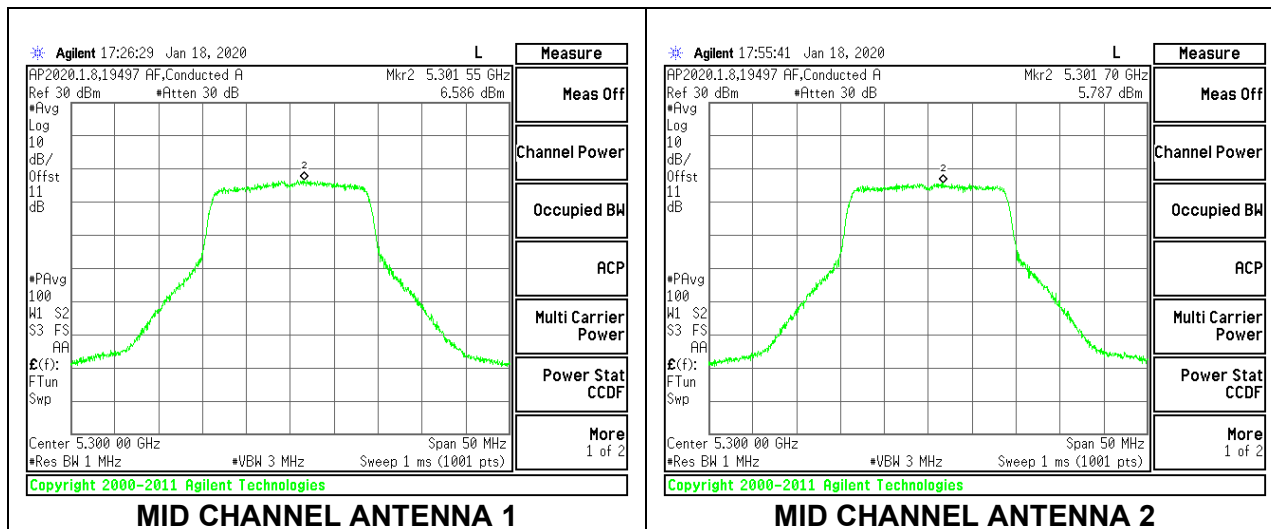
Channel	Frequency (MHz)	Ant 1 Meas PSD (dBm/1MHz)	Ant 2 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5260	6.65	6.12	9.49	11.00	-1.51
Mid	5300	6.59	5.79	9.31	11.00	-1.69
High	5320	6.86	5.76	9.44	11.00	-1.56

PSD Results were performed at an output power that is greater than the measured output power thus worst case and provides margin to the limit.

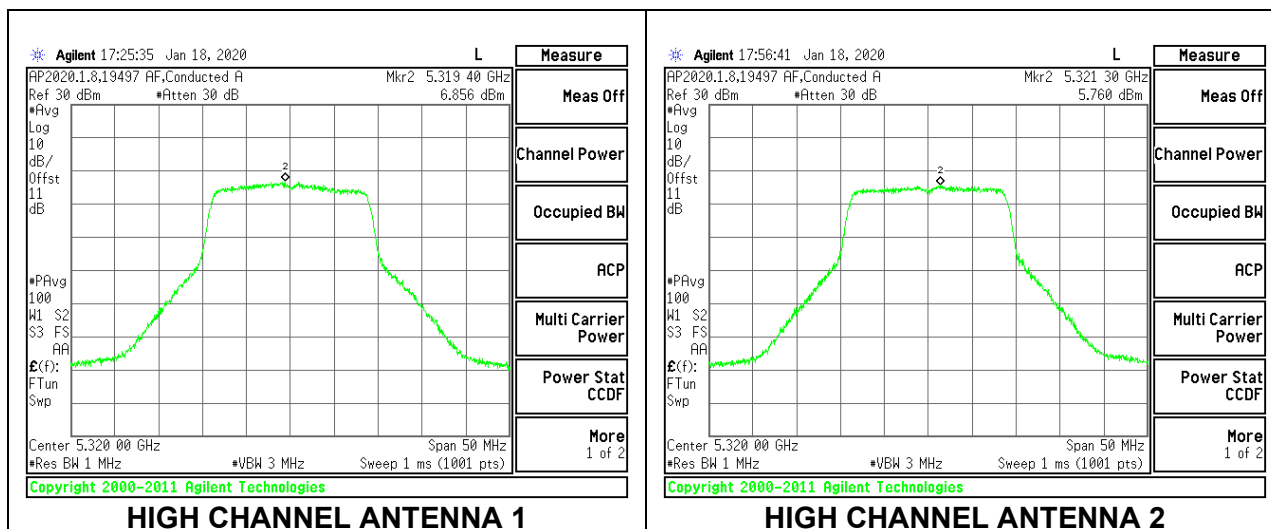
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



2TX Antenna 1 + Antenna 2 CDD MODE (IC)

Test Engineer:	19497 AF & 40882 JC
Test Date:	03/13/2020 & 4/15/2020

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Low	5260	17.580	1.20	4.21	23.45	11.00
Mid	5300	17.590	1.20	4.21	23.45	11.00
High	5320	17.640	1.20	4.21	23.46	11.00

Duty Cycle CF (dB)	0.09	Included in Calculations of Corr'd PSD
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Output Power Results

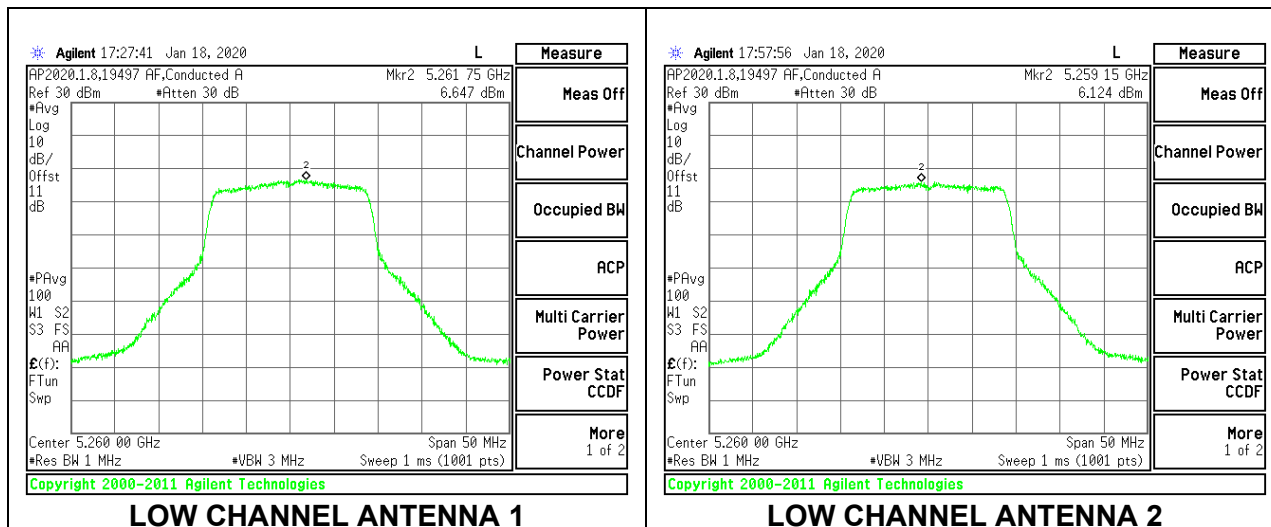
Channel	Frequency (MHz)	Ant 1 Meas Power (dBm)	Ant 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	14.60	14.55	17.59	23.45	-5.86
Mid	5300	15.00	14.91	17.97	23.45	-5.49
High	5320	14.77	14.78	17.79	23.46	-5.68

PSD Results

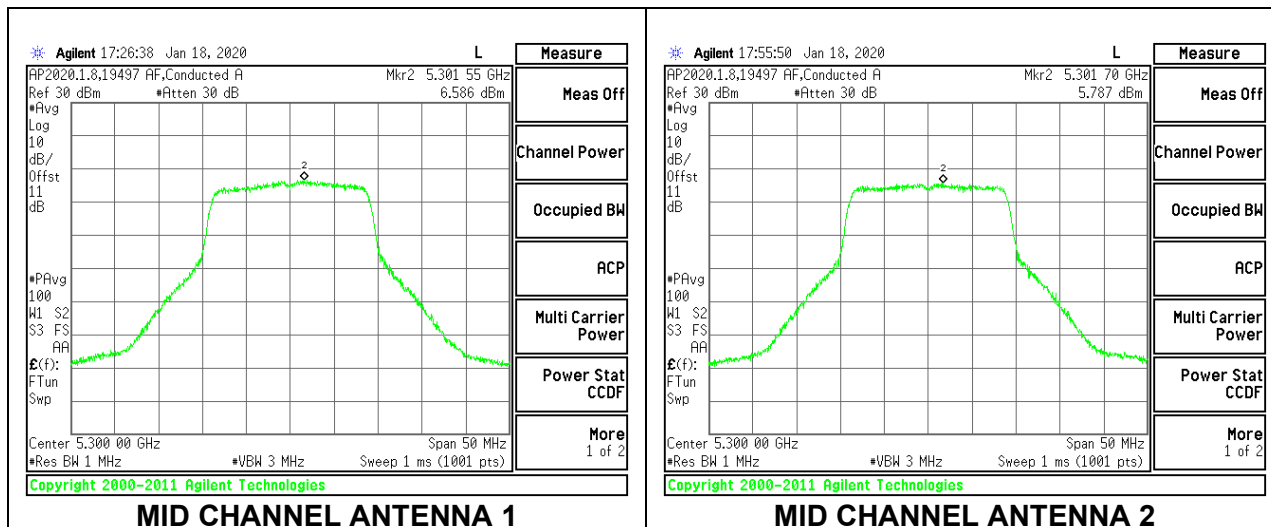
Channel	Frequency (MHz)	Ant 1 Meas PSD (dBm/1MHz)	Ant 2 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5260	6.65	6.12	9.49	11.00	-1.51
Mid	5300	6.59	5.79	9.31	11.00	-1.69
High	5320	6.86	5.76	9.44	11.00	-1.56

PSD Results were performed at an output power that is greater than the measured output power thus worst case and provides margin to the limit.

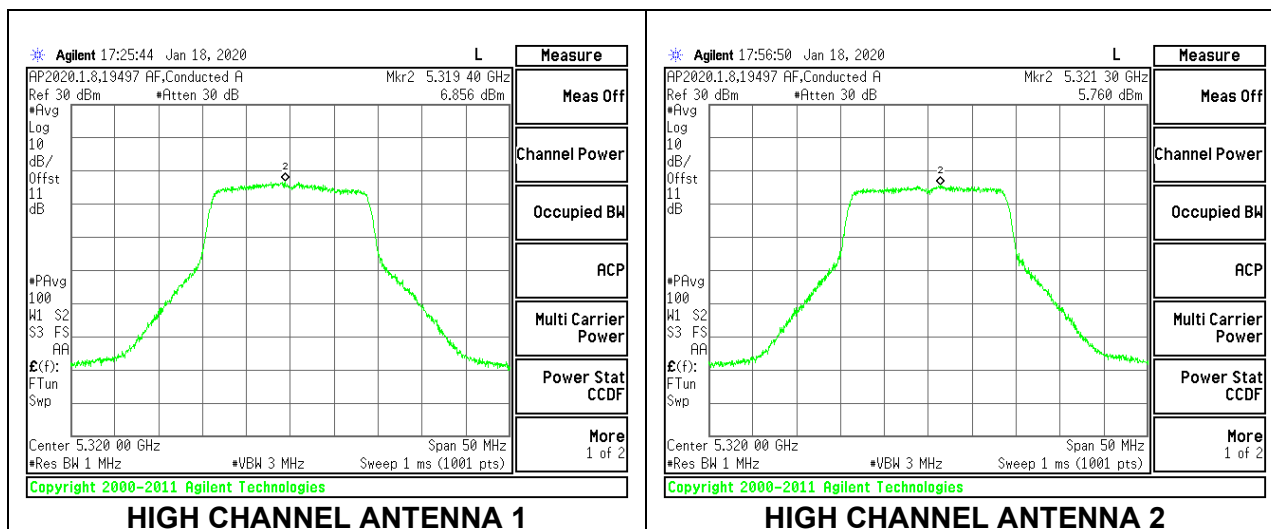
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



9.5.7. 802.11n HT40 MODE IN THE 5.3 GHz BAND

2TX Antenna 1 + Antenna 2 CDD MODE (FCC)

Test Engineer:	19497 AF & 40882 JC
Test Date:	03/13/2020 & 4/15/2020

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Low	5270	40.20	1.20	4.21	24.00	11.00
High	5310	39.50	1.20	4.21	24.00	11.00

Duty Cycle CF (dB)	0.18	Included in Calculations of Corr'd PSD
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Output Power Results

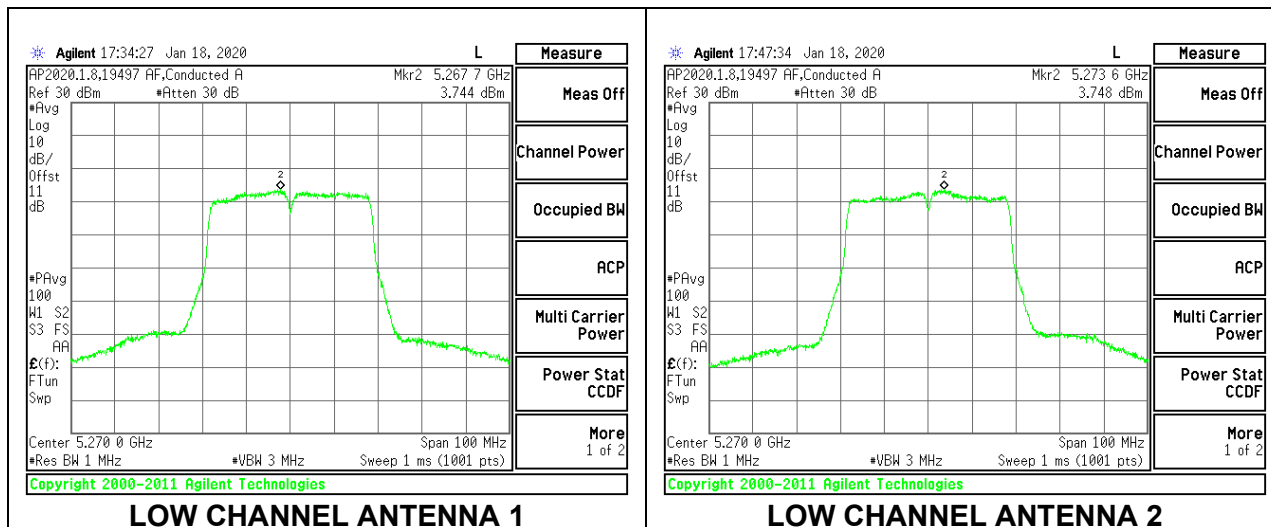
Channel	Frequency (MHz)	Ant 1 Meas Power (dBm)	Ant 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5270	14.96	14.84	17.91	24.00	-6.09
High	5310	15.39	15.20	18.31	24.00	-5.69

PSD Results

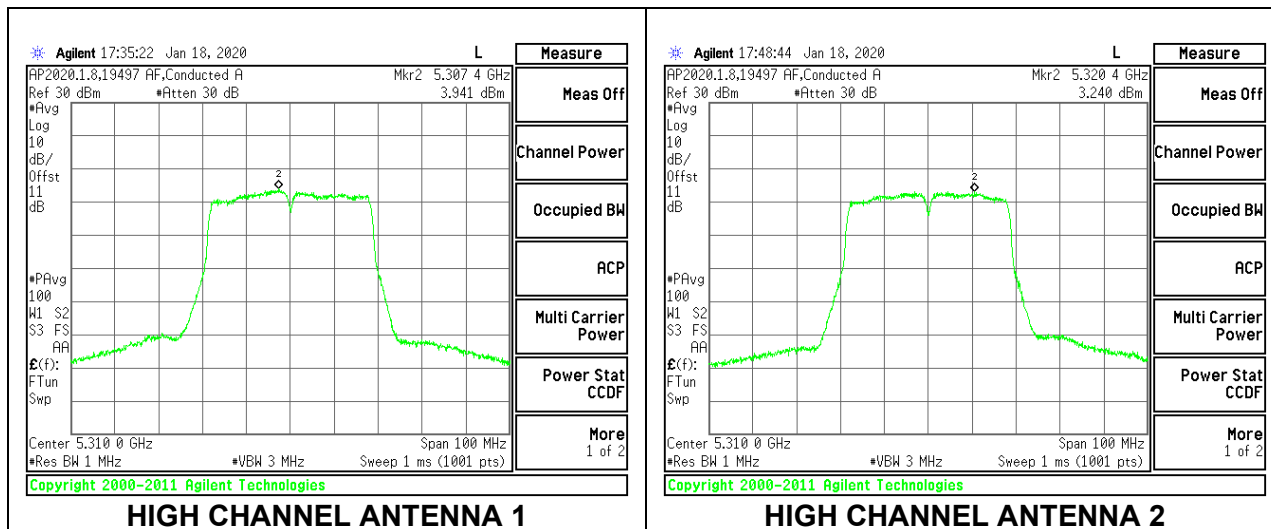
Channel	Frequency (MHz)	Ant 1 Meas PSD (dBm/1MHz)	Ant 2 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5270	3.74	3.75	6.94	11.00	-4.06
High	5310	3.94	3.24	6.79	11.00	-4.21

PSD Results were performed at an output power that is greater than the measured output power thus worst case and provides margin to the limit.

LOW CHANNEL



HIGH CHANNEL



2TX Antenna 1 + Antenna 2 CDD MODE (IC)

Test Engineer:	19497 AF & 40882 JC
Test Date:	03/13/2020 & 4/15/2020

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Low	5270	36.0900	1.20	4.21	24.00	11.00
High	5310	36.0550	1.20	4.21	24.00	11.00

Duty Cycle CF (dB)	0.18	Included in Calculations of Corr'd PSD
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Output Power Results

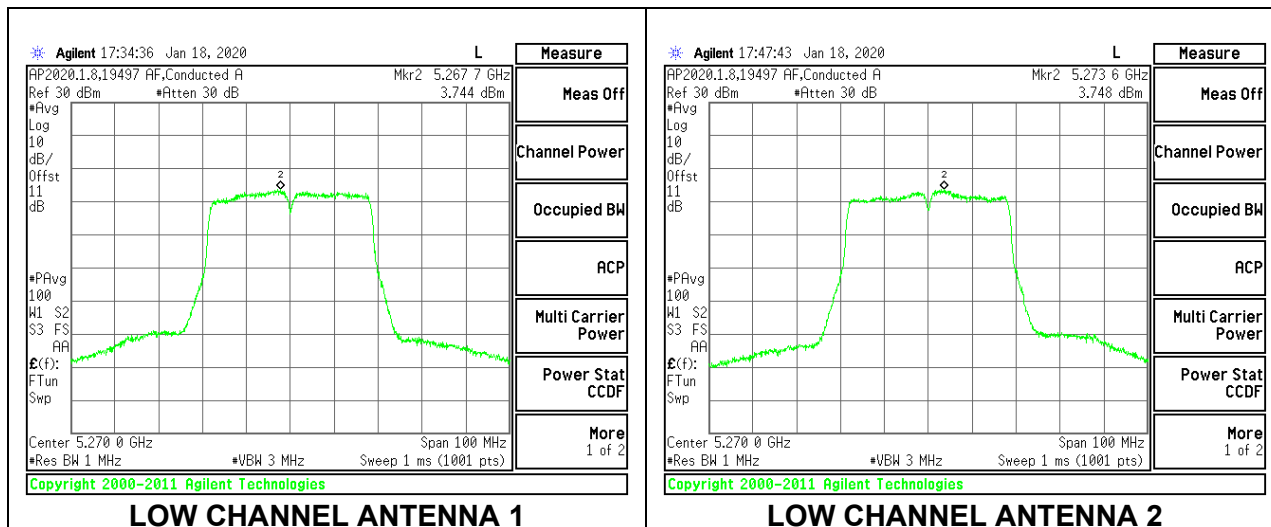
Channel	Frequency (MHz)	Ant 1 Meas Power (dBm)	Ant 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5270	14.96	14.84	17.91	24.00	-6.09
High	5310	15.39	15.20	18.31	24.00	-5.69

PSD Results

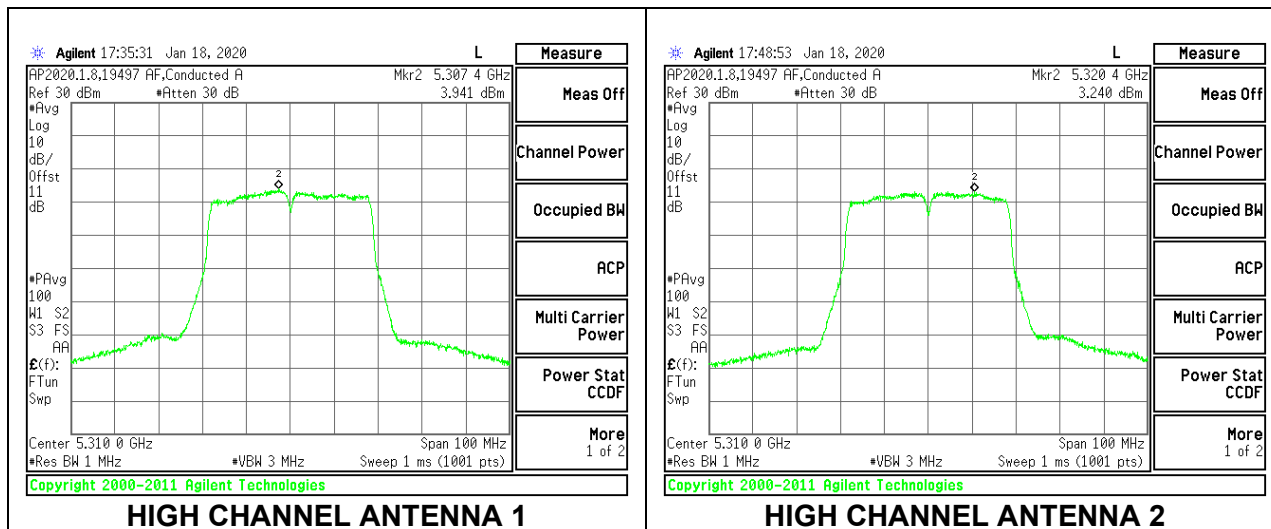
Channel	Frequency (MHz)	Ant 1 Meas PSD (dBm/1MHz)	Ant 2 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Low	5270	3.74	3.75	6.94	11.00	-4.06
High	5310	3.94	3.24	6.79	11.00	-4.21

PSD Results were performed at an output power that is greater than the measured output power thus worst case and provides margin to the limit.

LOW CHANNEL



HIGH CHANNEL



9.5.8. 802.11ac VHT80 MODE IN THE 5.3 GHz BAND

2TX Antenna 1 + Antenna 2 CDD MODE (FCC)

Test Engineer:	19497 AF & 40882 JC
Test Date:	03/13/2020 & 4/15/2020

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Mid	5290	80.60	1.20	4.21	24.00	11.00

Duty Cycle CF (dB)	0.33	Included in Calculations of Corr'd PSD
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Output Power Results

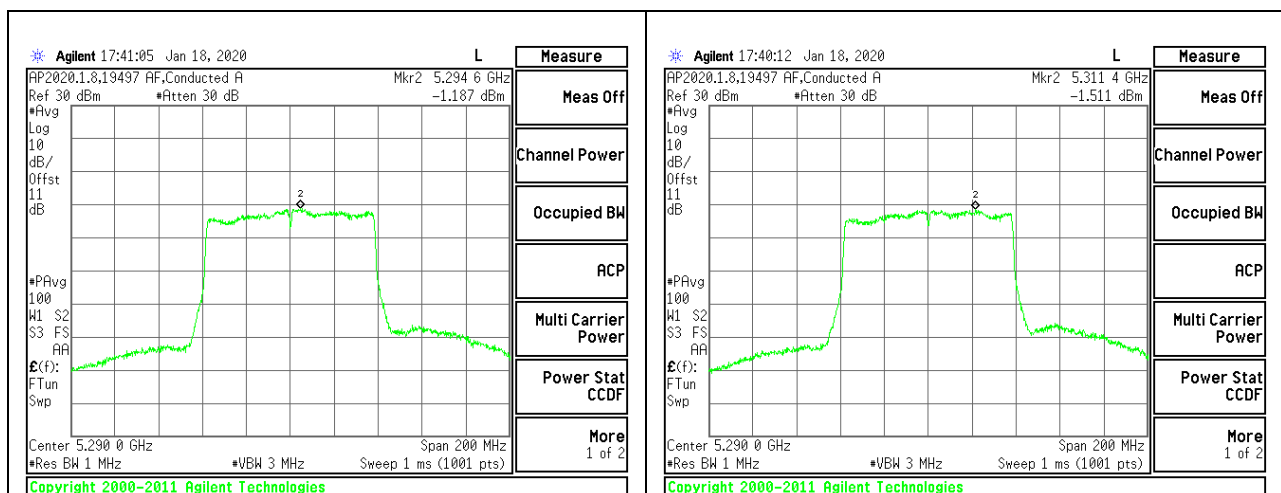
Channel	Frequency (MHz)	Ant 1 Meas Power (dBm)	Ant 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5290	15.23	15.09	18.17	24.00	-5.83

PSD Results

Channel	Frequency (MHz)	Ant 1 Meas PSD (dBm/1MHz)	Ant 2 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Mid	5290	-1.19	-1.51	1.99	11.00	-9.01

PSD Results were performed at an output power that is greater than the measured output power thus worst case and provides margin to the limit.

MID CHANNEL



MID CHANNEL ANTENNA 1	MID CHANNEL ANTENNA 2
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2TX Antenna 1 + Antenna 2 CDD MODE (IC)

Test Engineer:	19497 AF & 40882 JC
Test Date:	03/13/2020 & 4/15/2020

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/1MHz)
Mid	5290	74.538	1.20	4.21	24.00	11.00

Duty Cycle CF (dB)	0.33	Included in Calculations of Corr'd PSD
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Output Power Results

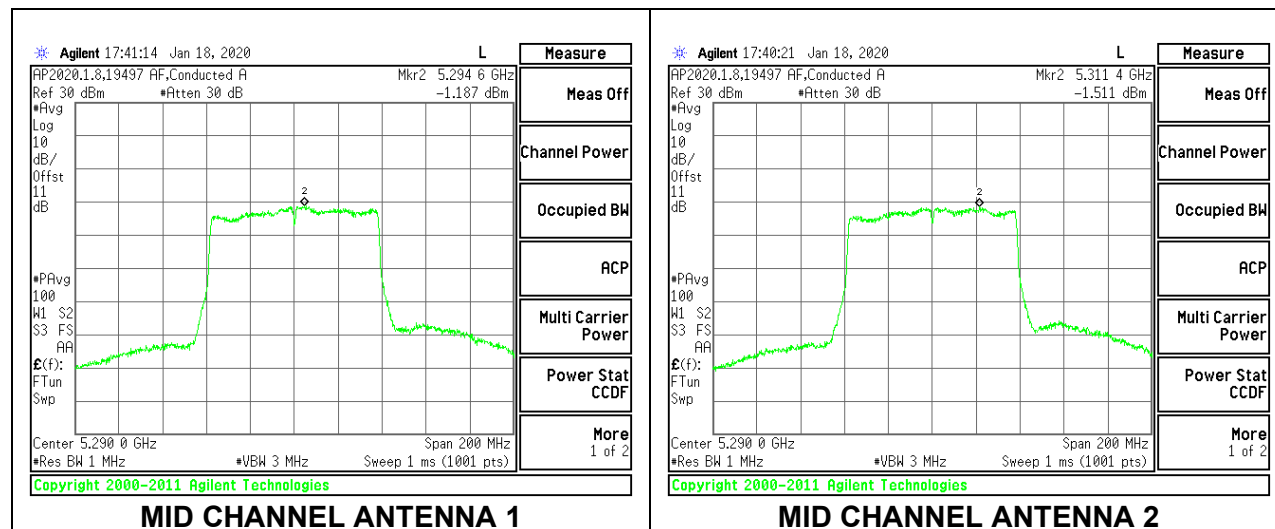
Channel	Frequency (MHz)	Ant 1 Meas Power (dBm)	Ant 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5290	15.23	15.09	18.17	24.00	-5.83

PSD Results

Channel	Frequency (MHz)	Ant 1 Meas PSD (dBm/1MHz)	Ant 2 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/1MHz)	PSD Margin (dB)
Mid	5290	-1.19	-1.51	1.99	11.00	-9.01

PSD Results were performed at an output power that is greater than the measured output power thus worst case and provides margin to the limit.

MID CHANNEL



9.5.9. 802.11a MODE IN THE 5.6 GHz BAND

2TX Antenna 1 + Antenna 2 CDD MODE (FCC+IC)

Test Engineer:	19497 AF & 40882 JC
Test Date:	03/13/2020 & 4/15/2020

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Direction Gain for PSD (dBi)
Low	5500	22.35	16.427	1.55	4.56
Mid	5580	22.35	16.496	1.55	4.56
High	5700	22.20	16.465	1.55	4.56
144	5720	16.85	13.260	1.55	4.56

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm/1MHz)	ISED PSD Limit (dBm/1MHz)
Low	5500	24.00	23.16	29.16	23.16	11.00	11.00
Mid	5580	24.00	23.17	29.17	23.17	11.00	11.00
High	5700	24.00	23.17	29.17	23.17	11.00	11.00
144	5720	23.27	22.23	28.23	22.23	11.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PSD
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Output Power Results

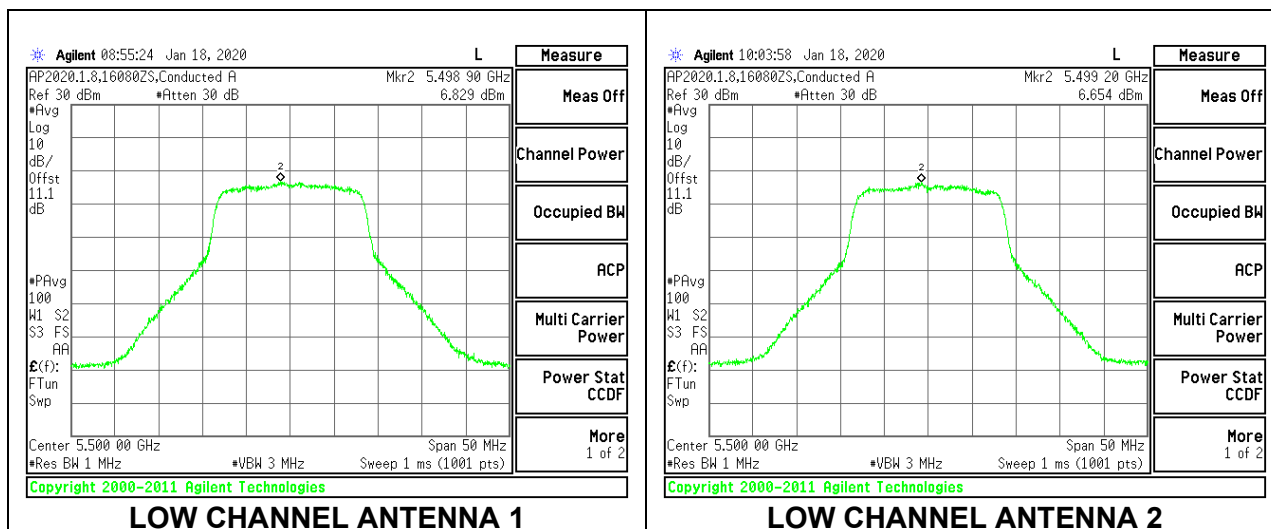
Channel	Frequency (MHz)	Ant 1 Meas Power (dBm)	Ant 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	12.37	12.41	15.40	23.16	-7.76
Mid	5580	12.18	12.35	15.28	23.17	-7.90
High	5700	12.27	12.29	15.29	23.17	-7.88
144	5720	12.19	12.42	15.32	22.23	-6.91

PSD Results

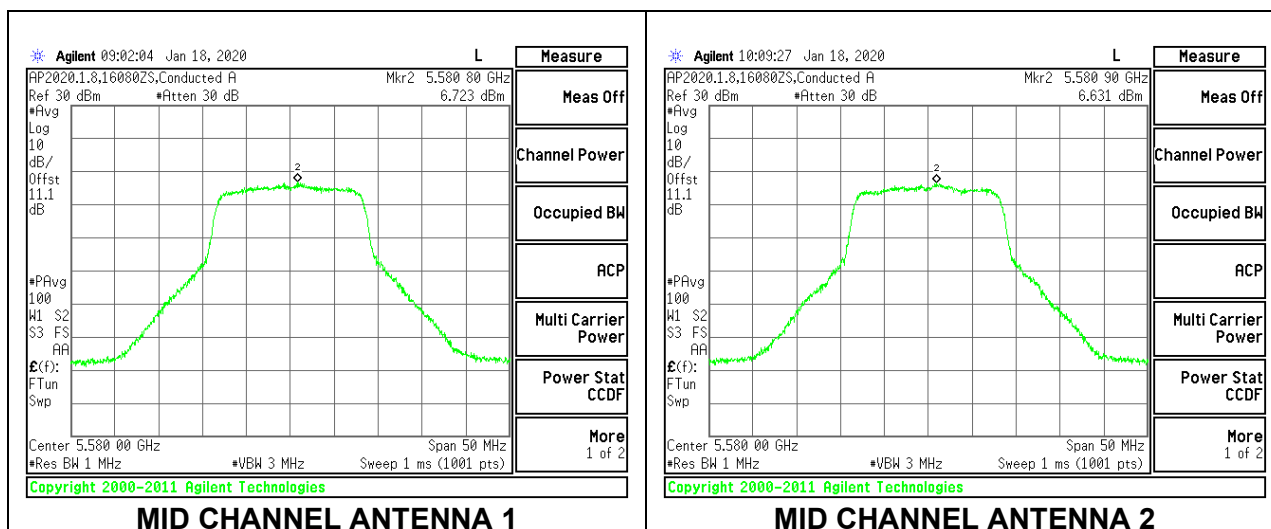
Channel	Frequency (MHz)	Ant 1 Meas PSD (dBm/ 1MHz)	Ant 2 Meas PSD (dBm/ 1MHz)	Total Corr'd PSD (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5500	6.829	6.654	9.753	11.00	-1.25
Mid	5580	6.723	6.631	9.688	11.00	-1.31
High	5700	6.785	5.794	9.328	11.00	-1.67
144	5720	6.650	6.701	9.686	11.00	-1.31

PSD Results were performed at an output power that is greater than the measured output power thus worst case and provides margin to the limit.

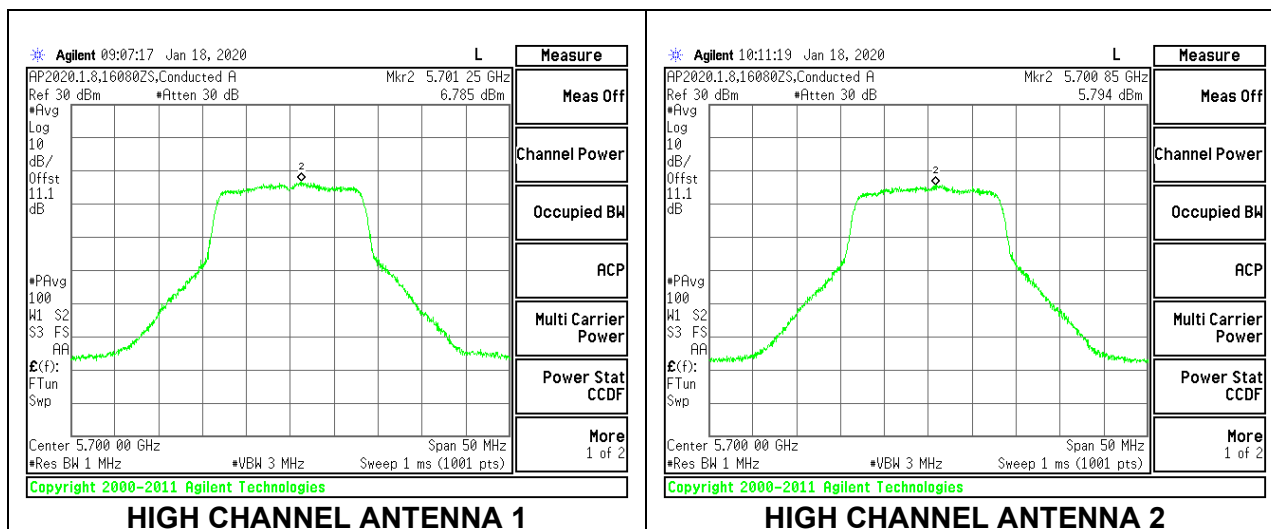
LOW CHANNEL



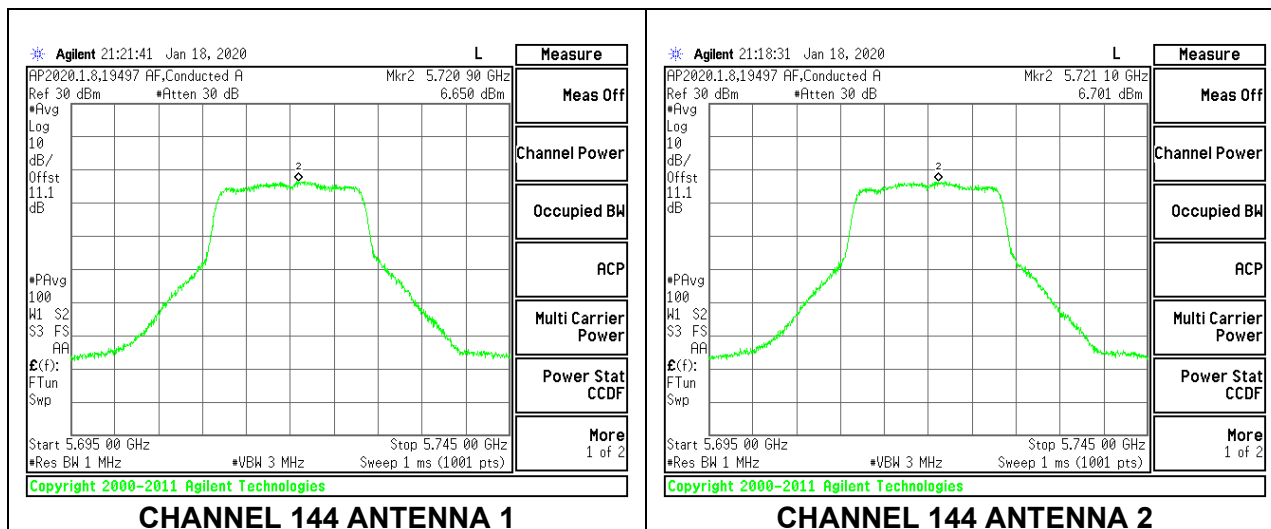
MID CHANNEL



HIGH CHANNEL



CHANNEL 144



9.5.10. 802.11n HT20 MODE IN THE 5.6 GHz BAND

2TX Antenna 1 + Antenna 2 CDD MODE (FCC+IC)

Test Engineer:	19497 AF & 40882 JC
Test Date:	03/13/2020 & 4/15/2020

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)
Low	5500	23.40	17.672	1.55	4.56
Mid	5580	23.45	17.647	1.55	4.56
High	5700	23.25	17.638	1.55	4.56
144	5720	17.72	13.890	1.55	4.56

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm/ 1MHz)	ISED PSD Limit (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)
Low	5500	24.00	23.47	29.47	23.47	11.00	11.00	11.00
Mid	5580	24.00	23.47	29.47	23.47	11.00	11.00	11.00
High	5700	24.00	23.46	29.46	23.46	11.00	11.00	11.00
144	5720	23.48	22.43	28.43	22.43	11.00	11.00	11.00

Duty Cycle CF (dB)	0.09	Included in Calculations of Corr'd Power & PSD
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Output Power Results

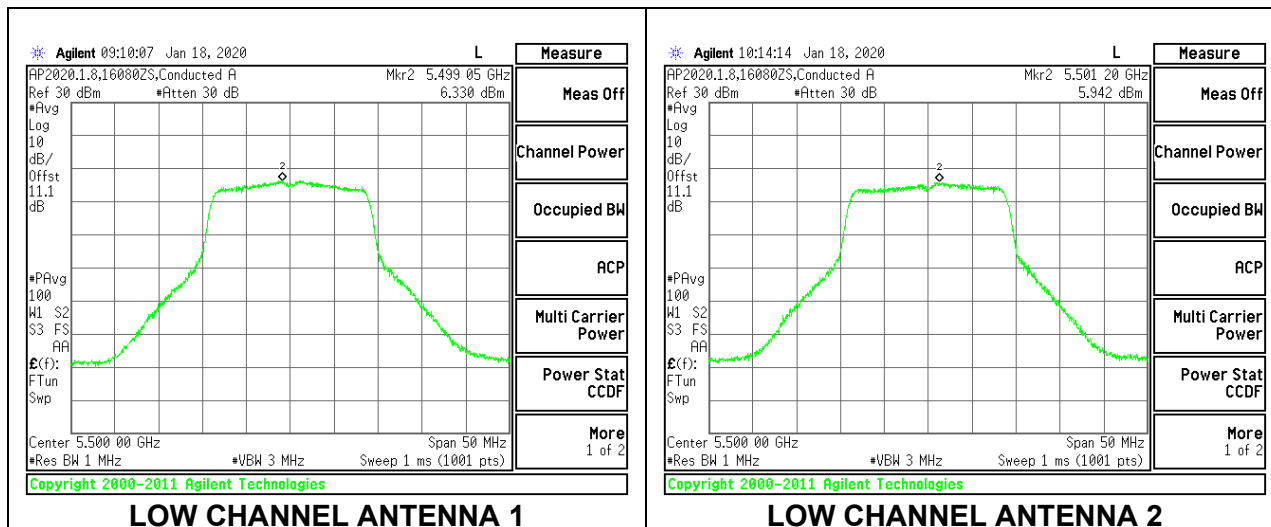
Channel	Frequency (MHz)	Ant 1 Meas Power (dBm)	Ant 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	12.33	12.34	15.35	23.47	-8.13
Mid	5580	12.41	12.23	15.33	23.47	-8.14
High	5700	12.35	12.40	15.39	23.46	-8.08
144	5720	12.30	12.11	15.31	22.43	-7.12

PSD Results

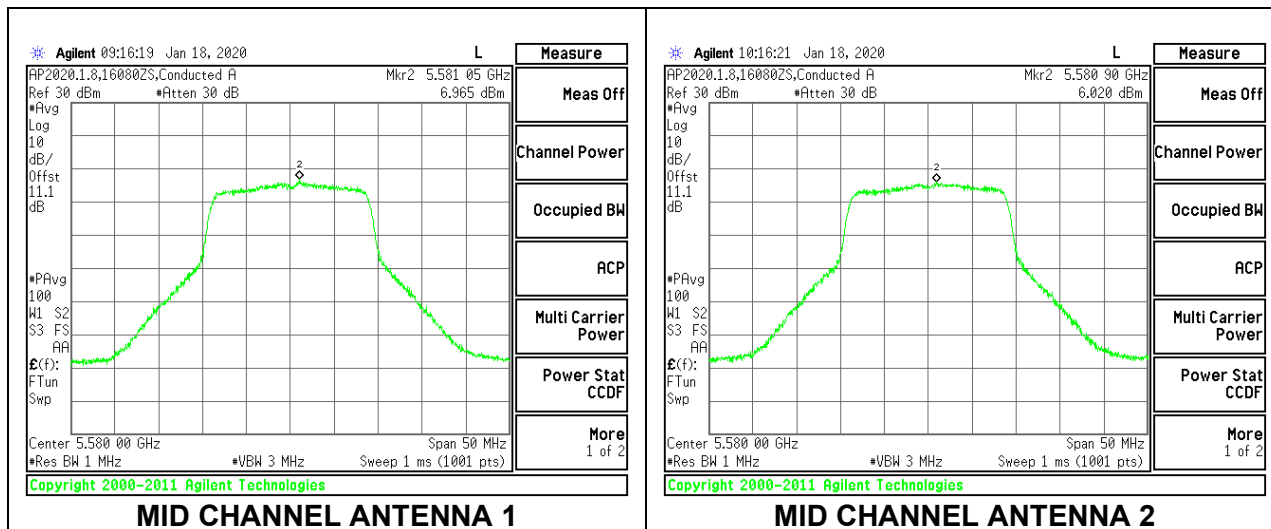
Channel	Frequency (MHz)	Ant 1 Meas PSD (dBm/ 1MHz)	Ant 2 Meas PSD (dBm/ 1MHz)	Total Corr'd PSD (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5500	6.330	5.942	9.241	11.00	-1.76
Mid	5580	6.965	6.020	9.618	11.00	-1.38
High	5700	6.835	5.539	9.335	11.00	-1.66
144	5720	6.255	6.045	9.252	11.00	-1.75

PSD Results were performed at an output power that is greater than the measured output power thus worst case and provides margin to the limit.

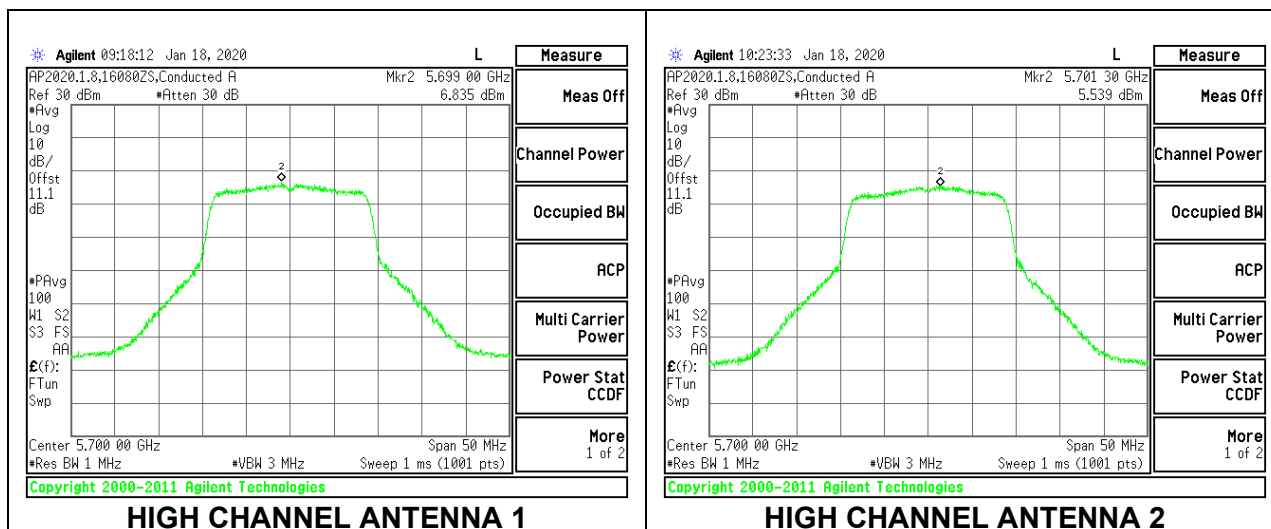
LOW CHANNEL



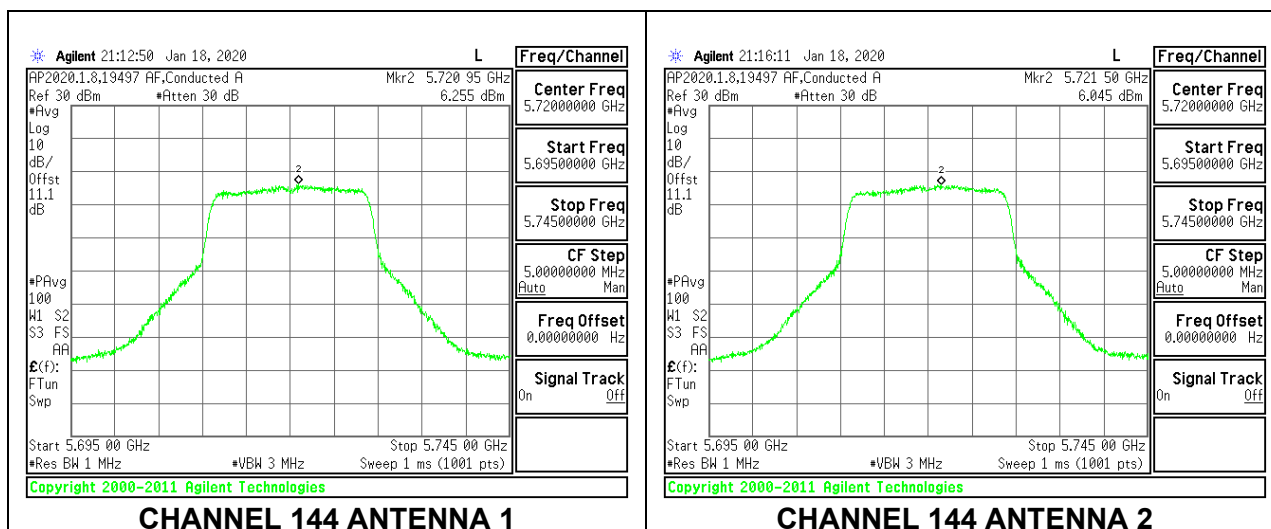
MID CHANNEL



HIGH CHANNEL



CHANNEL 144



9.5.11. 802.11n HT40 MODE IN THE 5.6 GHz BAND

2TX Antenna 1 + Antenna 2 CDD MODE (FCC+IC)

Test Engineer:	19497 AF & 40882 JC
Test Date:	03/13/2020 & 4/15/2020

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)
Low	5510	41.80	36.141	1.55	4.56
Mid	5550	41.90	36.127	1.55	4.56
High	5670	42.00	36.088	1.55	4.56
142	5710	36.00	33.100	1.55	4.56

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm/ 1MHz)	ISED PSD Limit (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)
Low	5510	24.00	24.00	30.00	24.00	11.00	11.00	11.00
Mid	5550	24.00	24.00	30.00	24.00	11.00	11.00	11.00
High	5670	24.00	24.00	30.00	24.00	11.00	11.00	11.00
142	5710	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB)	0.18	Included in Calculations of Corr'd Power & PSD
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Output Power Results

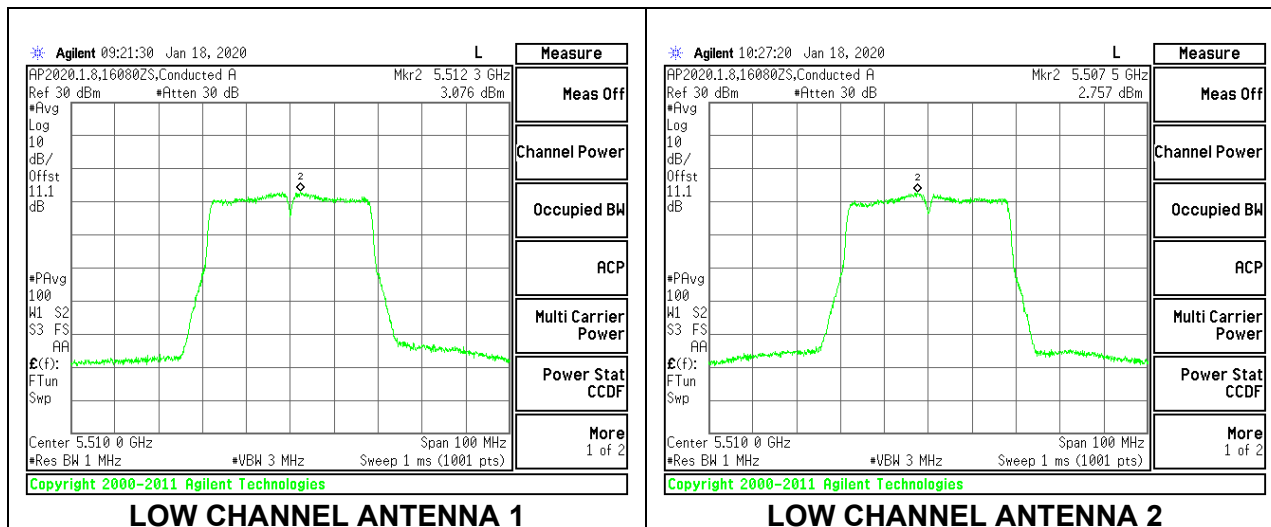
Channel	Frequency (MHz)	Ant 1 Meas Power (dBm)	Ant 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5510	12.64	12.43	15.55	24.00	-8.45
Mid	5550	12.56	12.27	15.43	24.00	-8.57
High	5670	12.49	12.58	15.55	24.00	-8.45
142	5710	12.71	12.62	15.86	24.00	-8.14

PSD Results

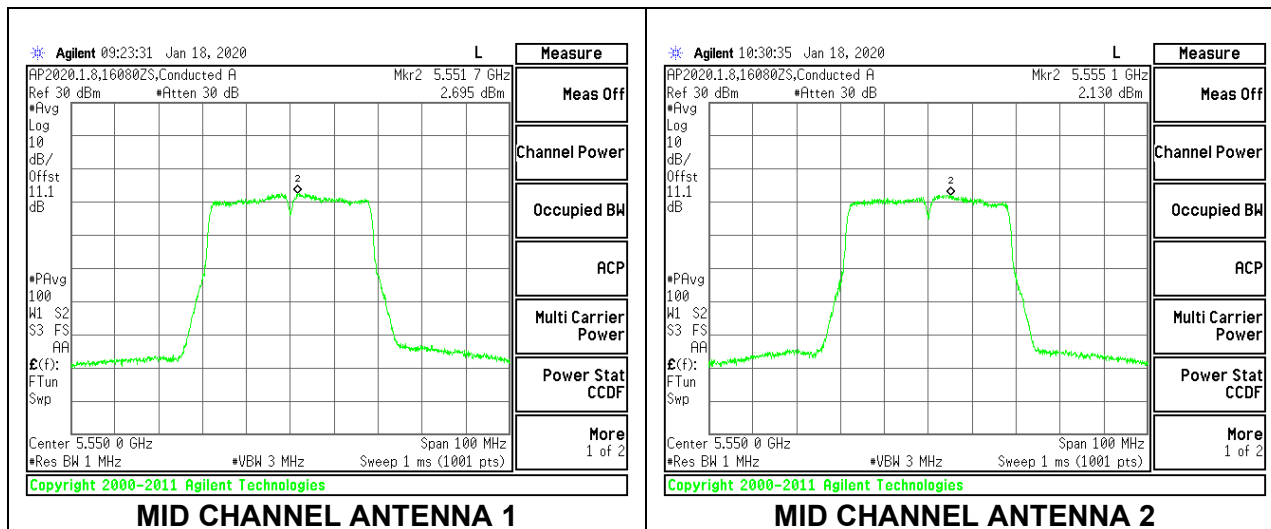
Channel	Frequency (MHz)	Ant 1 Meas PSD (dBm/ 1MHz)	Ant 2 Meas PSD (dBm/ 1MHz)	Total Corr'd PSD (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5510	3.08	2.76	6.11	11.00	-4.89
Mid	5550	2.70	2.13	5.61	11.00	-5.39
High	5670	2.77	1.87	5.53	11.00	-5.47
142	5710	3.16	2.86	6.20	11.00	-4.80

PSD Results were performed at an output power that is greater than the measured output power thus worst case and provides margin to the limit.

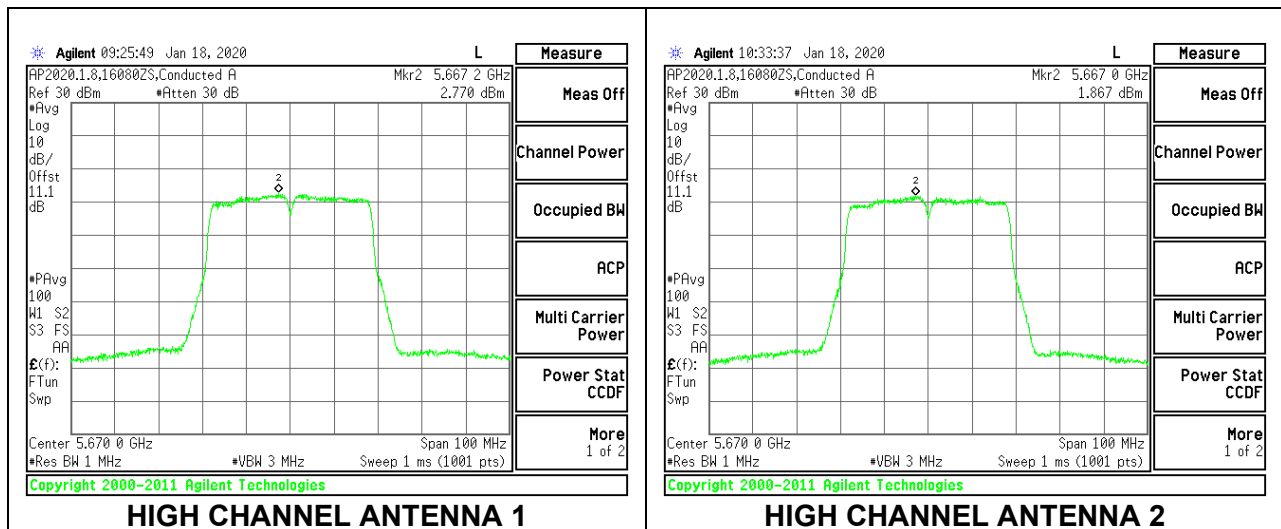
LOW CHANNEL



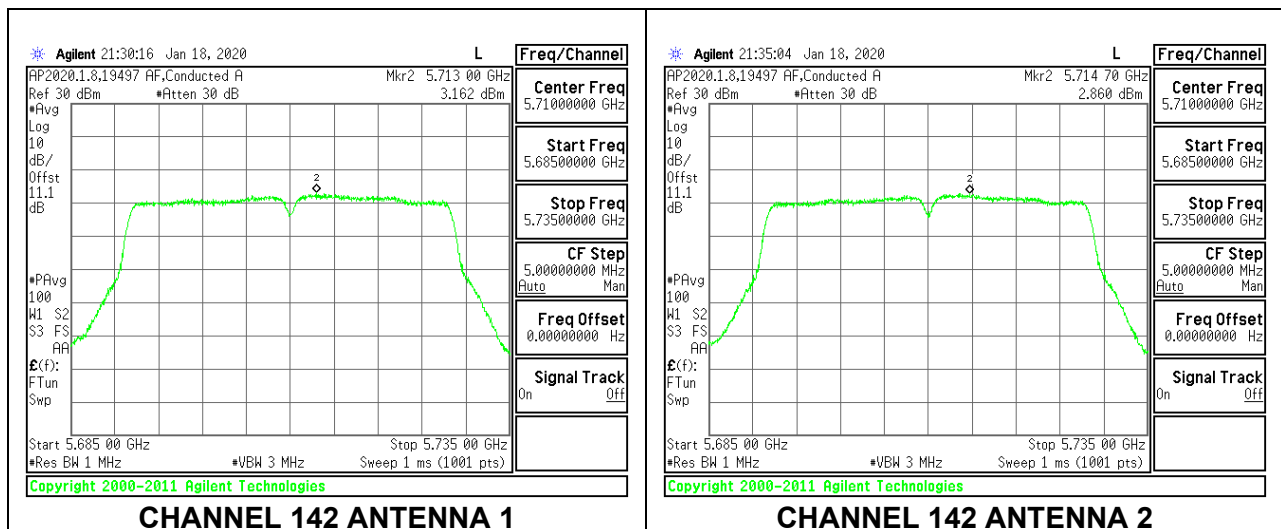
MID CHANNEL



HIGH CHANNEL



CHANNEL 142



9.5.12. 802.11ac VHT80 MODE IN THE 5.6 GHz BAND

2TX Antenna 1 + Antenna 2 CDD MODE (FCC+IC)

Test Engineer:	19497 AF & 40882 JC
Test Date:	03/13/2020 & 4/15/2020

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)
Low	5530	83.80	75.280	1.55	4.56
High	5610	83.80	75.555	1.55	4.56
138	5690	77.40	72.700	1.55	4.56

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	ISED Power Limit (dBm)	ISED EIRP Limit (dBm)	Power Limit (dBm)	FCC PSD Limit (dBm/ 1MHz)	ISED PSD Limit (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)
Low	5530	24.00	24.00	30.00	24.00	11.00	11.00	11.00
High	5610	24.00	24.00	30.00	24.00	11.00	11.00	11.00
138	5690	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB)	0.33	Included in Calculations of Corr'd Power & PSD
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Output Power Results

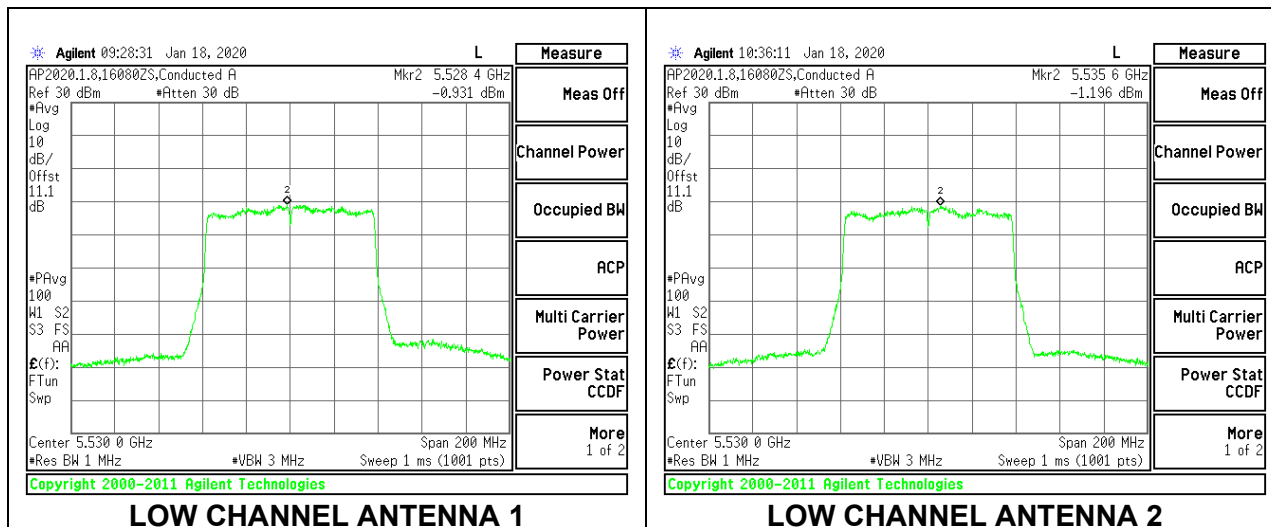
Channel	Frequency (MHz)	Ant 1 Meas Power (dBm)	Ant 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5530	12.41	12.51	15.47	24.00	-8.53
High	5610	12.38	12.41	15.41	24.00	-8.59
138	5690	12.55	12.31	15.77	24.00	-8.23

PSD Results

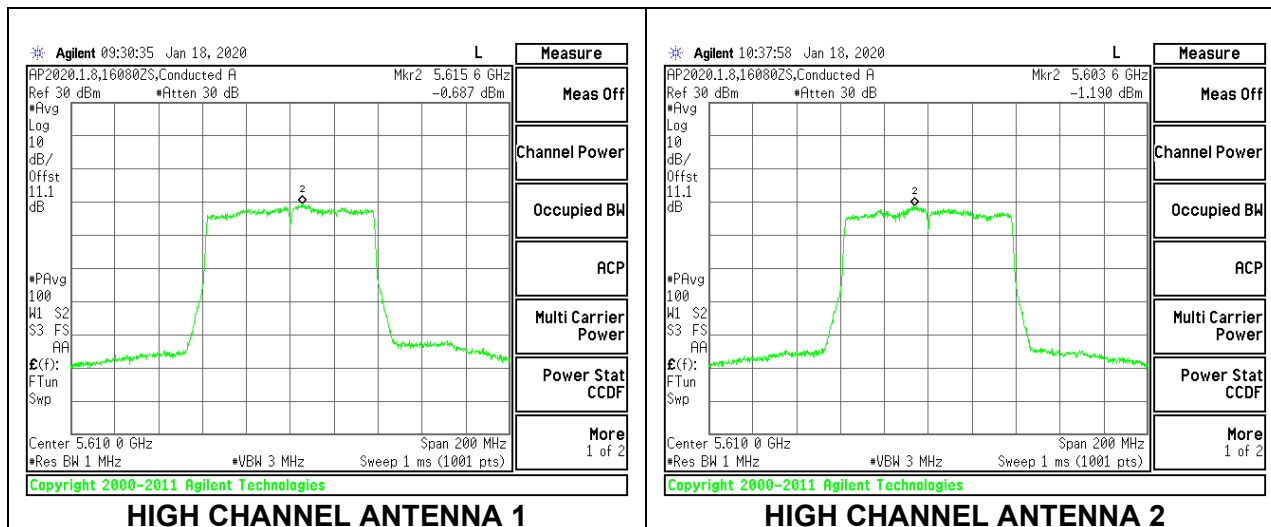
Channel	Frequency (MHz)	Ant 1 Meas PSD (dBm/ 1MHz)	Ant 2 Meas PSD (dBm/ 1MHz)	Total Corr'd PSD (dBm/ 1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5530	-0.931	-1.196	2.279	11.00	-8.72
High	5610	-0.687	-1.190	2.409	11.00	-8.59
138	5690	-0.688	-0.994	2.502	11.00	-8.50

PSD Results were performed at an output power that is greater than the measured output power thus worst case and provides margin to the limit.

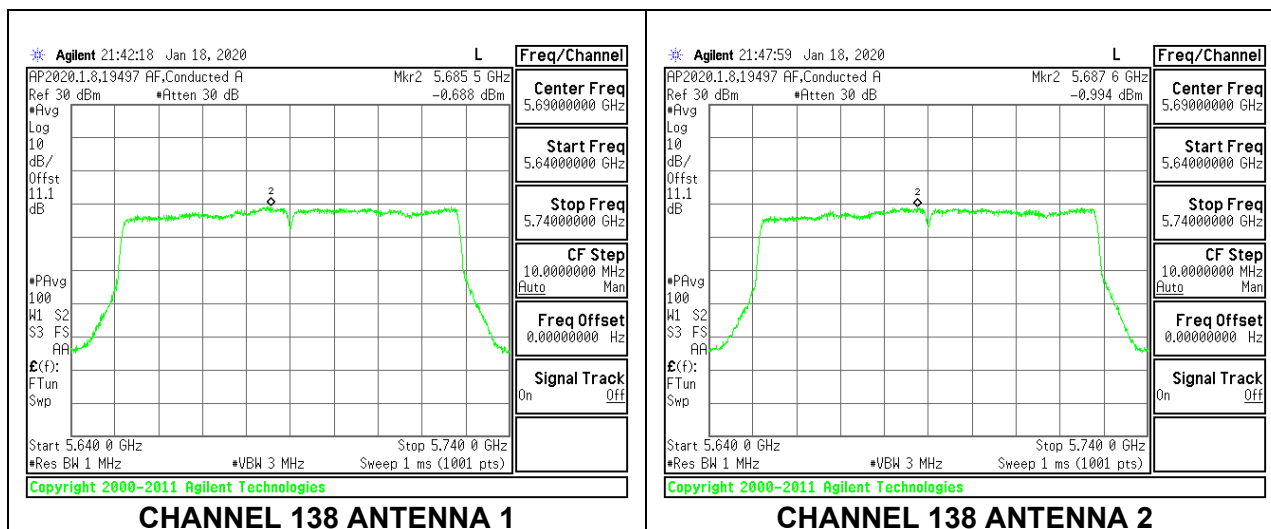
LOW CHANNEL



HIGH CHANNEL



CHANNEL 138



9.5.13. 802.11a MODE IN THE 5.8 GHz BAND

2TX Antenna 1 + Antenna 2 CDD MODE (FCC+IC)

Test Engineer:	19497 AF & 40882 JC
Test Date:	03/13/2020 & 4/15/2020

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBm)	FCC/ISED Power Limit (dBm)	FCC/ISED PSD Limit (dBm/ 500KHz)
Low	5745	1.30	4.31	30.00	30.00
Mid	5785	1.30	4.31	30.00	30.00
High	5825	1.30	4.31	30.00	30.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PSD
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Output Power Results

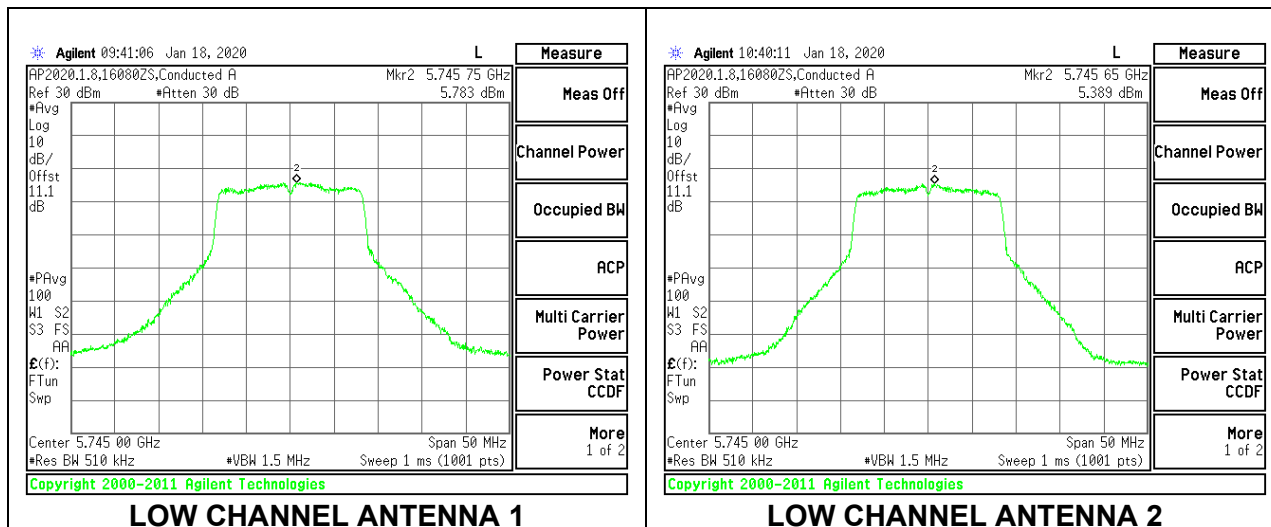
Channel	Frequency (MHz)	Ant 1 Meas Power (dBm)	Ant 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	13.18	12.69	15.95	30.00	-14.05
Mid	5785	13.31	12.77	16.06	30.00	-13.94
High	5825	13.21	12.75	16.00	30.00	-14.00

PSD Results

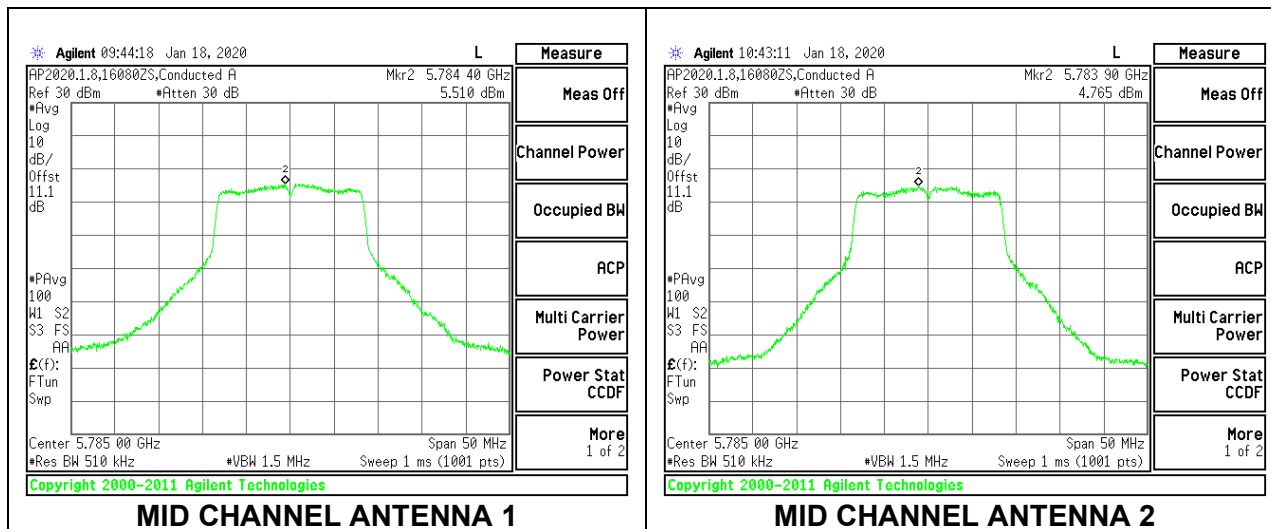
Channel	Frequency (MHz)	Ant 1 Meas PSD (dBm/ 500KHz)	Ant 2 Meas PSD (dBm/ 500KHz)	Total Corr'd PSD (dBm/ 500KHz)	PSD Limit (dBm/ 500KHz)	PSD Margin (dB)
Low	5745	5.783	5.389	8.601	30.00	-21.40
Mid	5785	5.510	4.765	8.164	30.00	-21.84
High	5825	5.585	5.615	8.610	30.00	-21.39

PSD Results were performed at an output power that is greater than the measured output power thus worst case and provides margin to the limit.

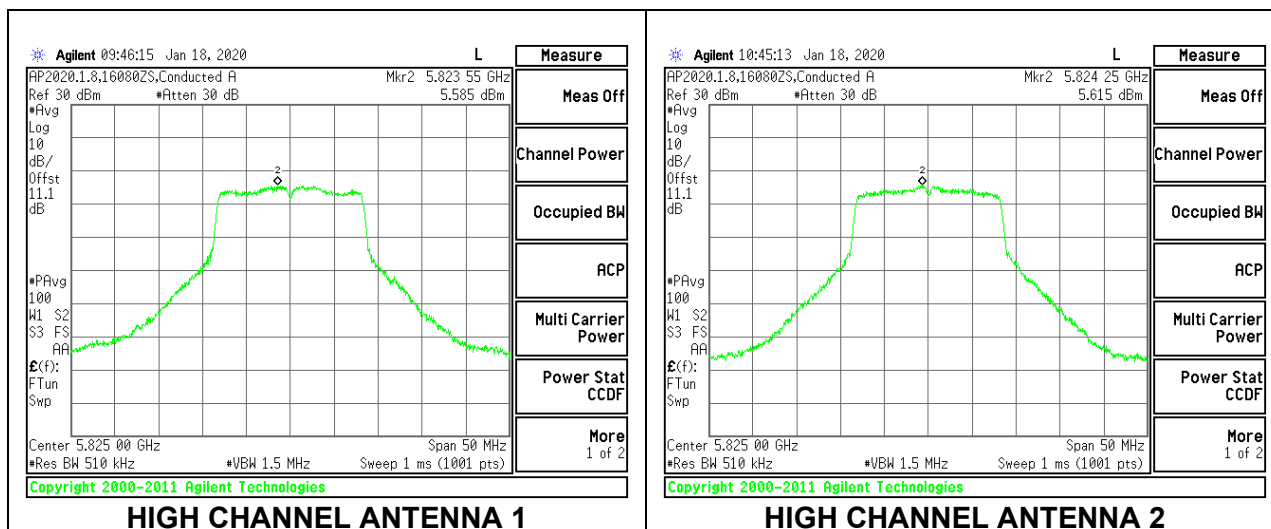
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



9.5.14. 802.11n HT20 MODE IN THE 5.8 GHz BAND

2TX Antenna 1 + Antenna 2 CDD MODE (FCC+IC)

Test Engineer:	19497 AF & 40882 JC
Test Date:	03/13/2020 & 4/15/2020

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBm)	FCC/ISED Power Limit (dBm)	FCC/ISED PSD Limit (dBm/ 500KHz)
Low	5745	1.30	4.31	30.00	30.00
Mid	5785	1.30	4.31	30.00	30.00
High	5825	1.30	4.31	30.00	30.00

Duty Cycle CF (dB)	0.09	Included in Calculations of Corr'd Power & PSD
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Output Power Results

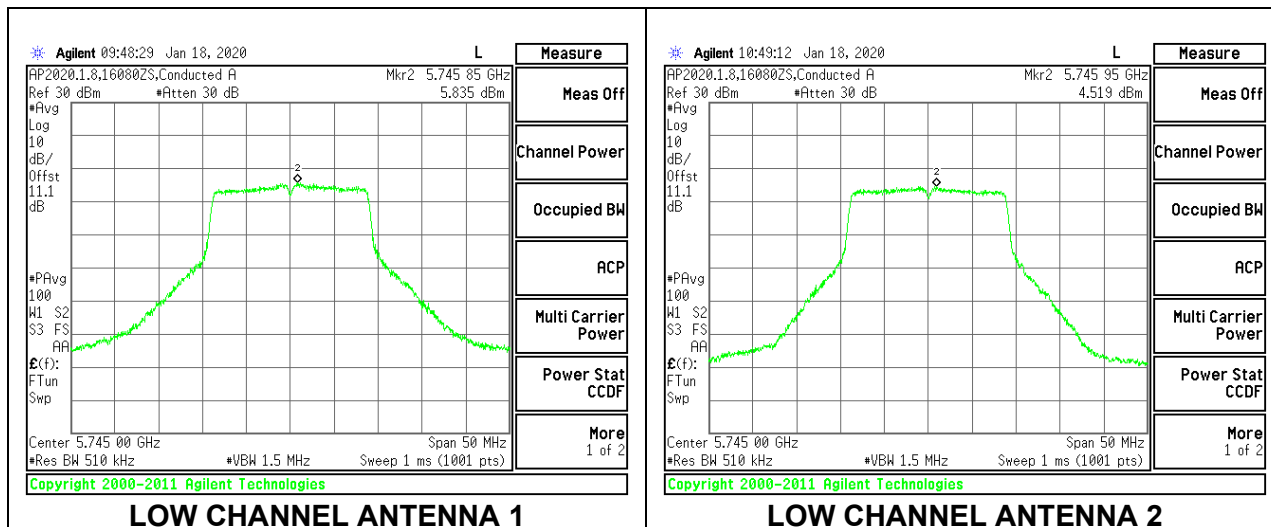
Channel	Frequency (MHz)	Ant 1 Meas Power (dBm)	Ant 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	12.97	12.35	15.68	30.00	-14.32
Mid	5785	13.25	12.57	15.93	30.00	-14.07
High	5825	13.21	12.64	15.94	30.00	-14.06

PSD Results

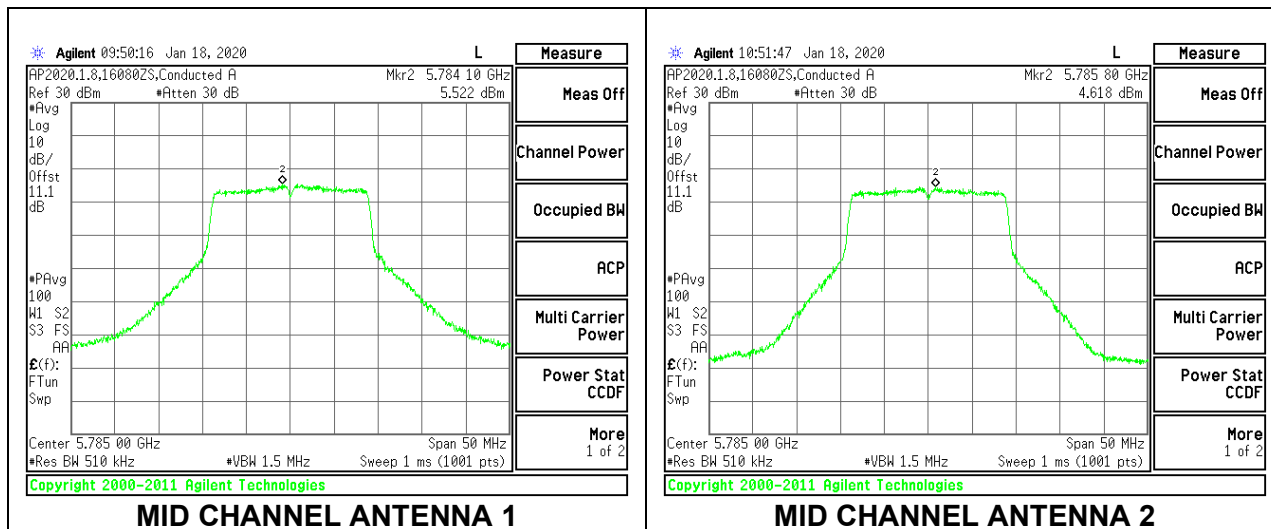
Channel	Frequency (MHz)	Ant 1 Meas PSD (dBm/ 500KHz)	Ant 2 Meas PSD (dBm/ 500KHz)	Total Corr'd PSD (dBm/ 500KHz)	PSD Limit (dBm/ 500KHz)	PSD Margin (dB)
Low	5745	5.835	4.519	8.327	30.00	-21.67
Mid	5785	5.522	4.618	8.194	30.00	-21.81
High	5825	6.157	5.675	9.023	30.00	-20.98

PSD Results were performed at an output power that is greater than the measured output power thus worst case and provides margin to the limit.

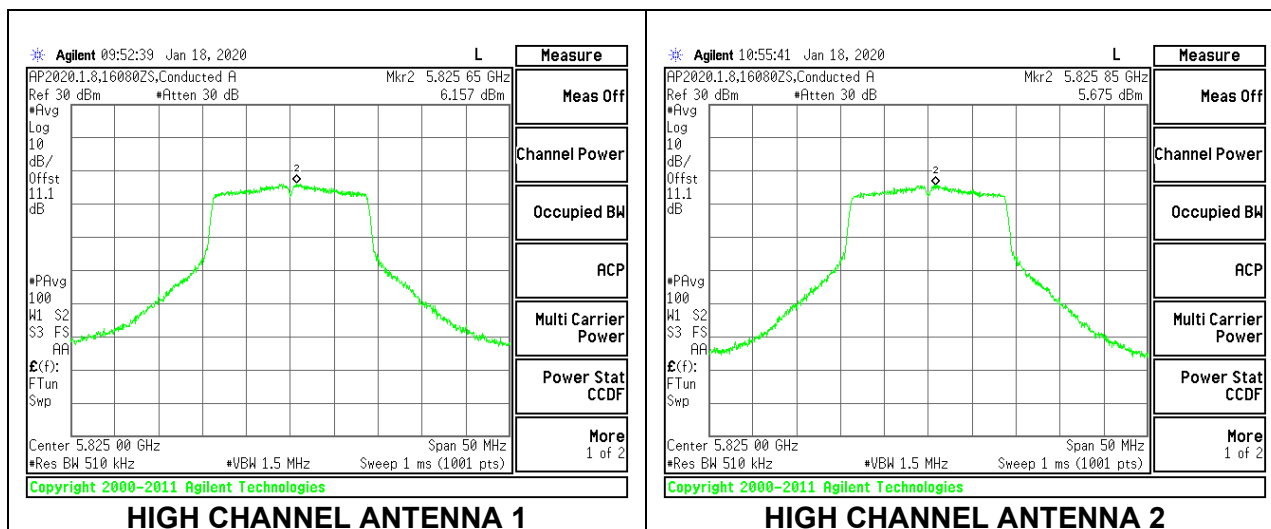
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



9.5.15. 802.11n HT40 MODE IN THE 5.8 GHz BAND

2TX Antenna 1 + Antenna 2 CDD MODE (FCC+IC)

Test Engineer:	19497 AF & 40882 JC
Test Date:	03/13/2020 & 4/15/2020

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBm)	FCC/ISED Power Limit (dBm)	FCC/ISED PSD Limit (dBm/ 500KHz)
Low	5755	1.30	4.31	30.00	30.00
High	5795	1.30	4.31	30.00	30.00

Duty Cycle CF (dB)	0.18	Included in Calculations of Corr'd Power
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Output Power Results

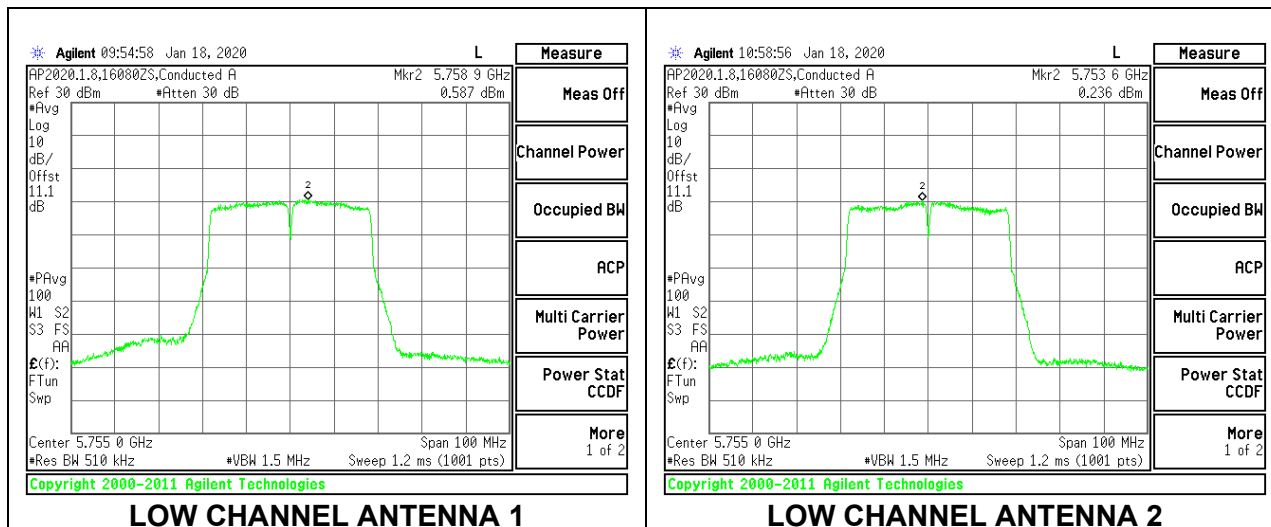
Channel	Frequency (MHz)	Ant 1 Meas Power (dBm)	Ant 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5755	12.21	12.22	15.23	30.00	-14.77
High	5795	12.44	12.19	15.33	30.00	-14.67

PSD Results

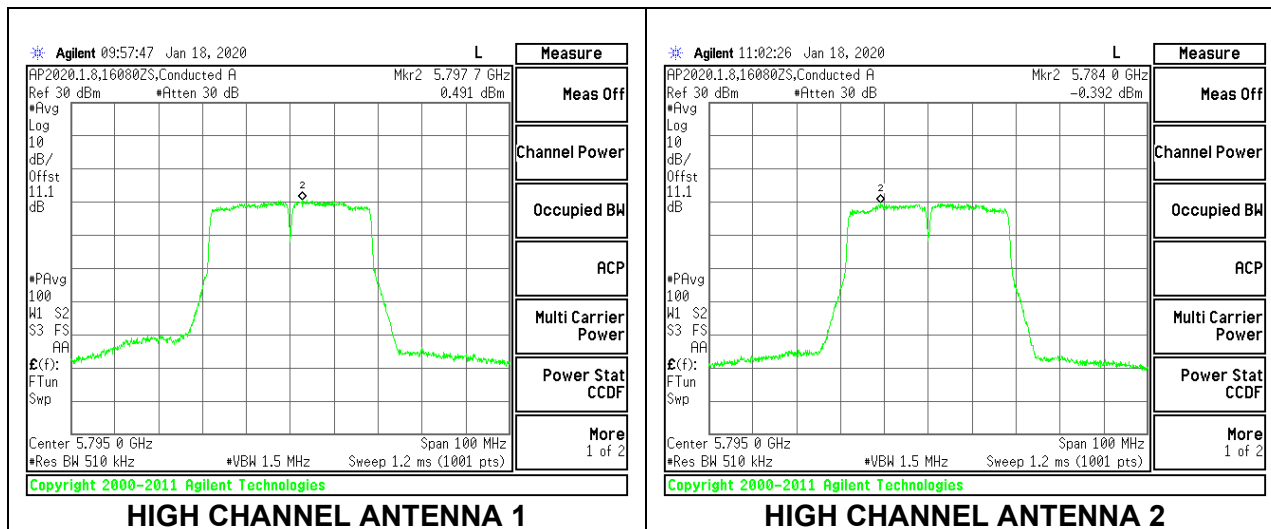
Channel	Frequency (MHz)	Ant 1 Meas PSD (dBm/ 500KHz)	Ant 2 Meas PSD (dBm/ 500KHz)	Total Corr'd PSD (dBm/ 500KHz)	PSD Limit (dBm/ 500KHz)	PSD Margin (dB)
Low	5755	0.587	0.236	3.605	30.00	-26.39
High	5795	0.491	-0.392	3.262	30.00	-26.74

PSD Results were performed at an output power that is greater than the measured output power thus worst case and provides margin to the limit.

LOW CHANNEL



HIGH CHANNEL



9.5.16. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

2TX Antenna 1 + Antenna 2 CDD MODE (FCC+IC)

Test Engineer:	19497 AF & 40882 JC
Test Date:	03/13/2020 & 4/15/2020

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBm)	FCC/ISED Power Limit (dBm)	FCC/ISED PSD Limit (dBm/ 500KHz)
Mid	5755	1.30	4.31	30.00	30.00

Duty Cycle CF (dB)	0.33	Included in Calculations of Corr'd Power
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Output Power Results

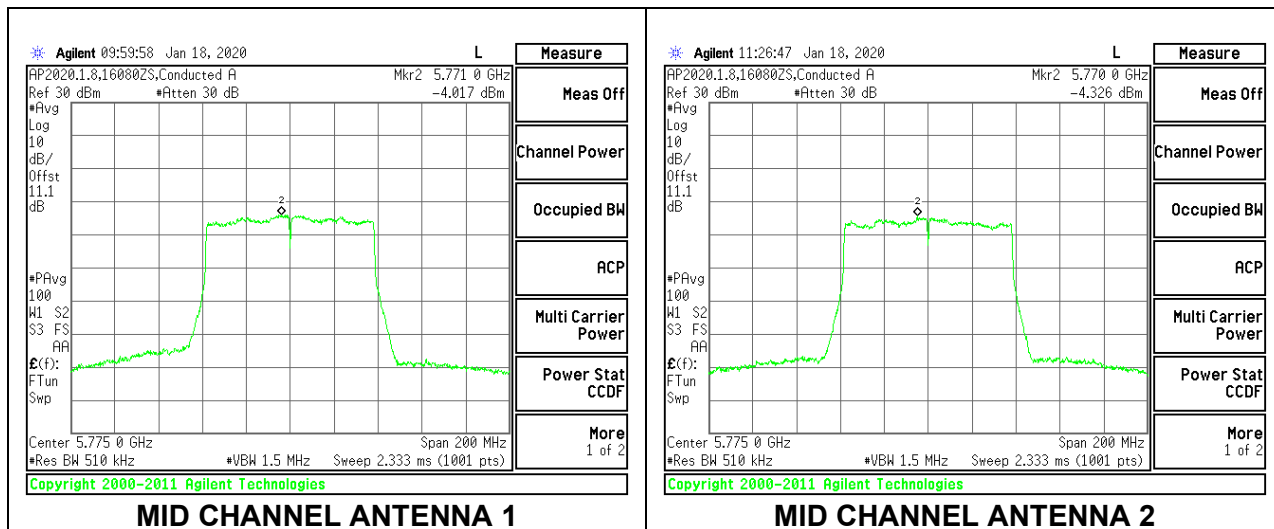
Channel	Frequency (MHz)	Ant 1 Meas Power (dBm)	Ant 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5755	12.00	12.23	15.13	30.00	-14.87

PSD Results

Channel	Frequency (MHz)	Ant 1 Meas PSD (dBm/ 500KHz)	Ant 2 Meas PSD (dBm/ 500KHz)	Total Corr'd PSD (dBm/ 500KHz)	PSD Limit (dBm/ 500KHz)	PSD Margin (dB)
Mid	5775	-4.017	-4.326	-0.828	30.00	-30.83

PSD Results were performed at an output power that is greater than the measured output power thus worst case and provides margin to the limit.

MID CHANNEL



10. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209 -Restricted bands

FCC §15.407(b)(1-3) -Un-Restricted bands

After January 01, 2019 for Outside of the Restricted Bands Emissions

RSS 247 Issue 2 Sections

6.2.1.2 (for 5150-5250 MHz band)

6.2.2.2 (for 5250-5350 MHz band)

6.2.3.2 (for 5470-5600 MHz and 5650-5725 MHz bands)

6.2.4.2 (for 5725-5850 MHz band)

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For pre-scans above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 KHz for peak measurements.

For final measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and as applicable for average measurements.

The spectrum from below 30MHz, below 1GHz and 18GHz to 40 GHz is investigated with the transmitter set to transmit at the channel with highest output power as worst-case scenario. 1GHz to 18GHz was set to the lowest, middle, and highest channels in the 5 GHz bands.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

2D antenna use - For below 30MHz testing, investigation was done on three antenna orientations (parallel, perpendicular, and ground-parallel), parallel and perpendicular are the worst orientations, therefore testing was performed on these two orientations only.

KDB 414788 Open Field Site(OFS) and Chamber Correlation Justification

Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

OFS and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

The limits in CFR 47, Part 15, Subpart C, paragraph 15.209(a), are identical to those in RSS-Gen section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table), using the free space impedance of 377 Ohms. For example the measurement at frequency X kHz resulted in a level of Y dBuV/m, which is equivalent to $Y - 51.5 = Z$ dBuA/m, which has the same margin, W dB, to the corresponding RSS-Gen Table 6 limit as it has to 15.209(a) limit.

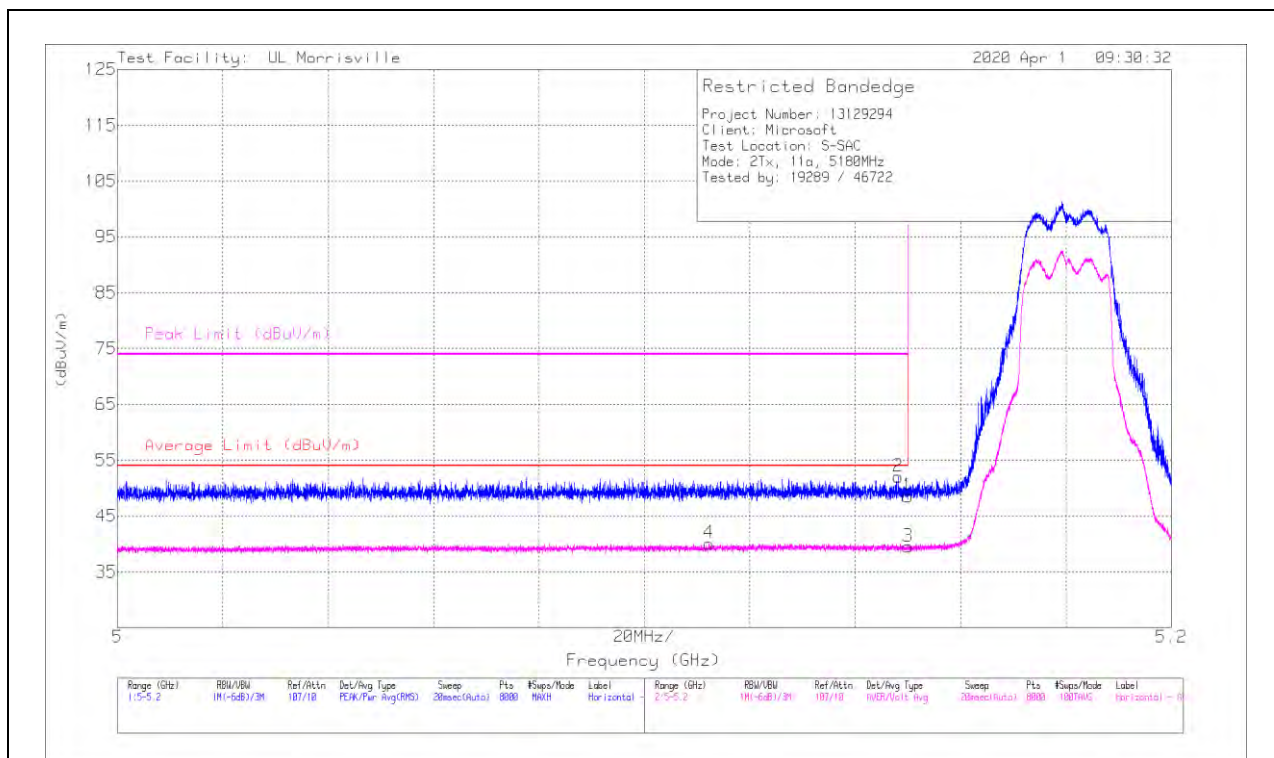
10.1. TRANSMITTER ABOVE 1 GHz

10.1.1. TX ABOVE 1 GHz 802.11a MODE IN THE 5.2 GHz BAND

2TX Antenna 1 + Antenna 2 CDD MODE

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dBm)	Amp/Cbl/Fit r/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.14999	36.37	Pk	34.3	-22.1	48.57	-	-	74	-25.43	3	144	H
2	* 5.14812	39.85	Pk	34.3	-22.1	52.05	-	-	74	-21.95	3	144	H
3	* 5.14999	27.33	ADV	34.3	-22.1	39.53	54	-14.47	-	-	3	144	H
4	* 5.11226	27.98	ADV	34.2	-22.1	40.08	54	-13.92	-	-	3	144	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

ADV - U-NII AD primary method, Linear Voltage Average

Test Facility: UL Morrisville

2020 Apr 1 09:18:36

Restricted Bandedge

Project Number: 13129294
Client: Microsoft
Test Location: S-SAC
Mode: 2Tx, 11a, 5180MHz
Tested by: 19289 / 46722

Peak Limit (dBuV/m)

Average Limit (dBuV/m)

dBuV/m

Frequency (GHz)

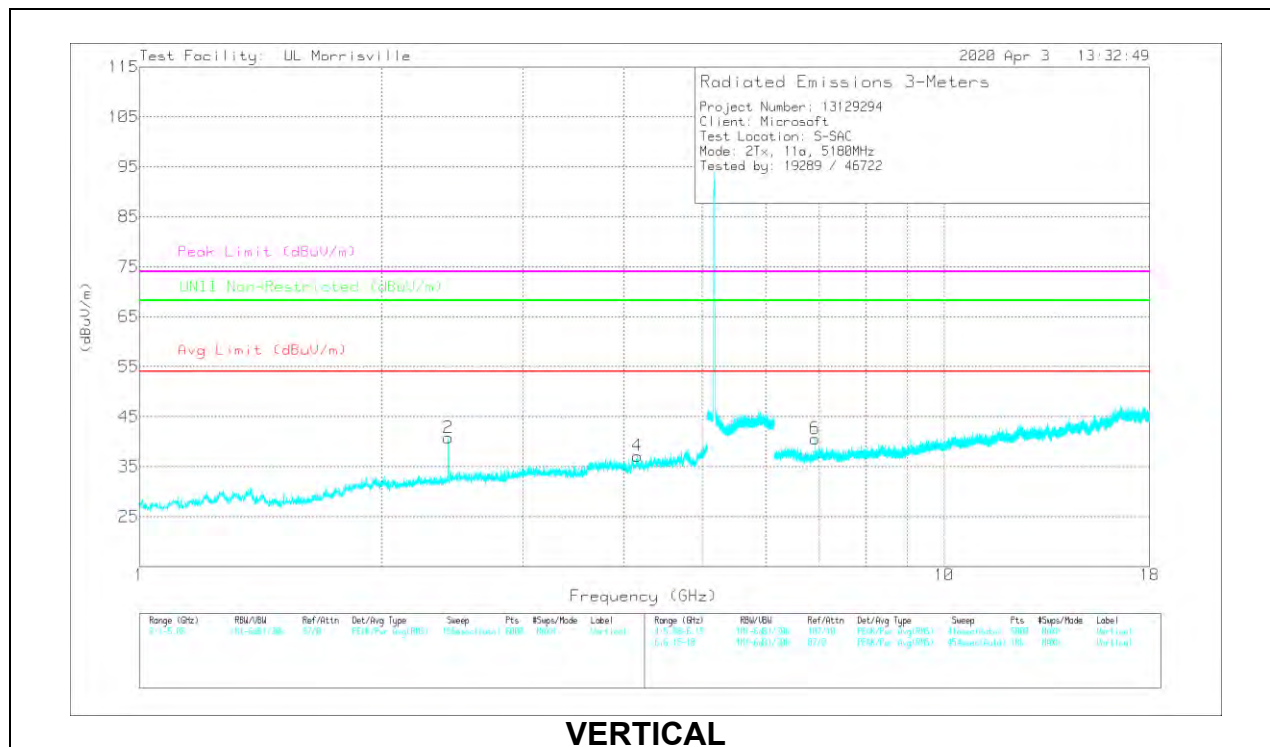
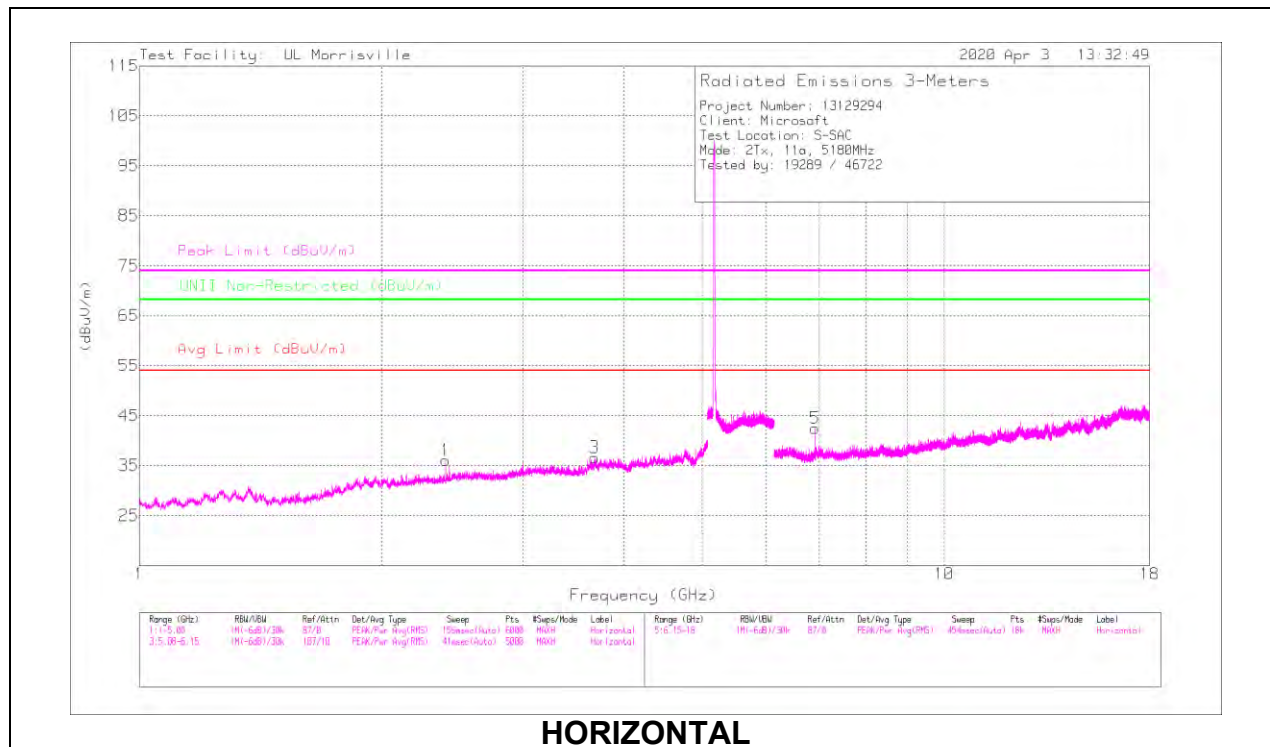
Range (GHz)	RBW/VBW	Ref/Att	Det/Avg Type	Sweep	Pts	#Sps/Node	Label	Range (GHz)	RBW/VBW	Ref/Att	Det/Avg Type	Sweep	Pts	#Sps/Node	Label
1.55-2	10-600/30	107/10	FERA-Per Avg(PRS)	30sec/Std	4000	1000	Vertical - 1	1.55-2	10-600/30	107/10	FERA-Per Avg	30sec/Std	4000	1000	Vertical - 1

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Ch/Filt r/rPad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.14999	37.23	Pk	34.3	-22.1	49.43	-	-	74	-24.57	272	378	V
2	* 5.06651	40.8	Pk	34.2	-22	53	-	-	74	-21	272	378	V
3	* 5.14999	27.37	ADV	34.3	-22.1	39.57	54	-14.43	-	-	272	378	V
4	* 5.07311	27.82	ADV	34.2	-22	40.02	54	-13.98	-	-	272	378	V

ADV - U-NII AD primary method, Linear Voltage Average

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



RADIATED EMISSIONS

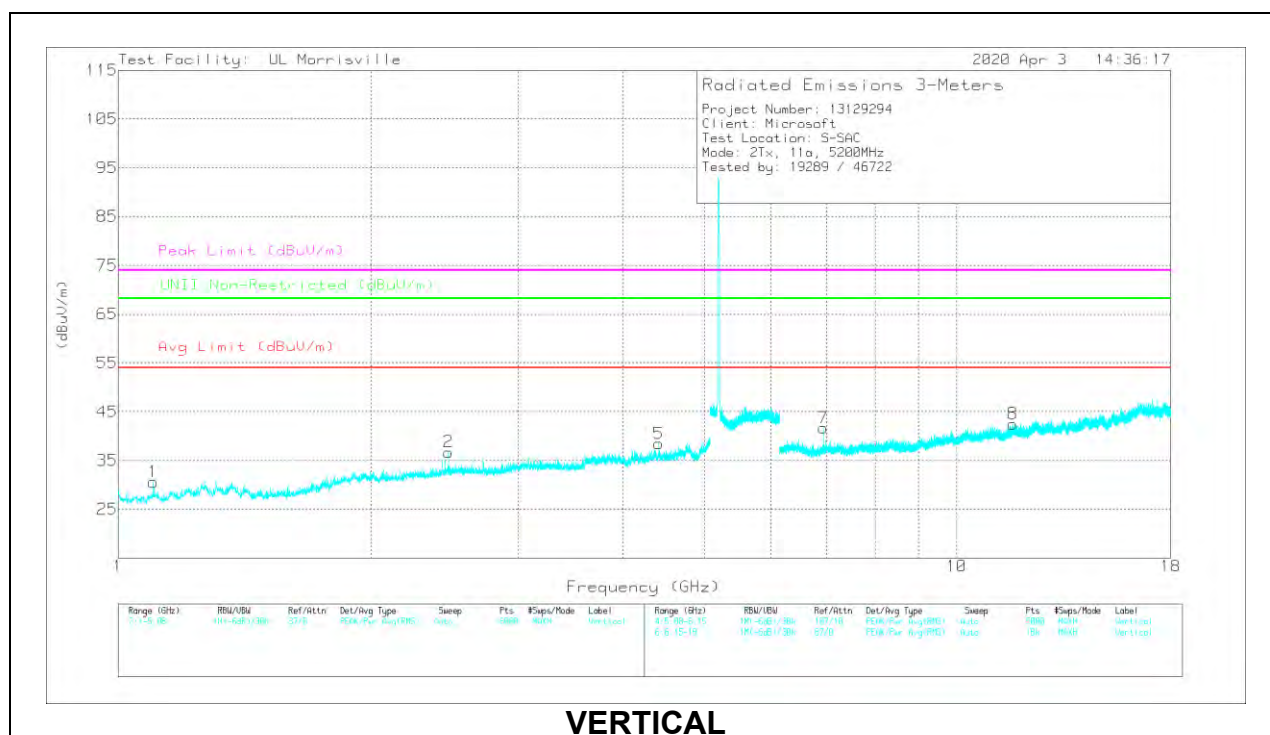
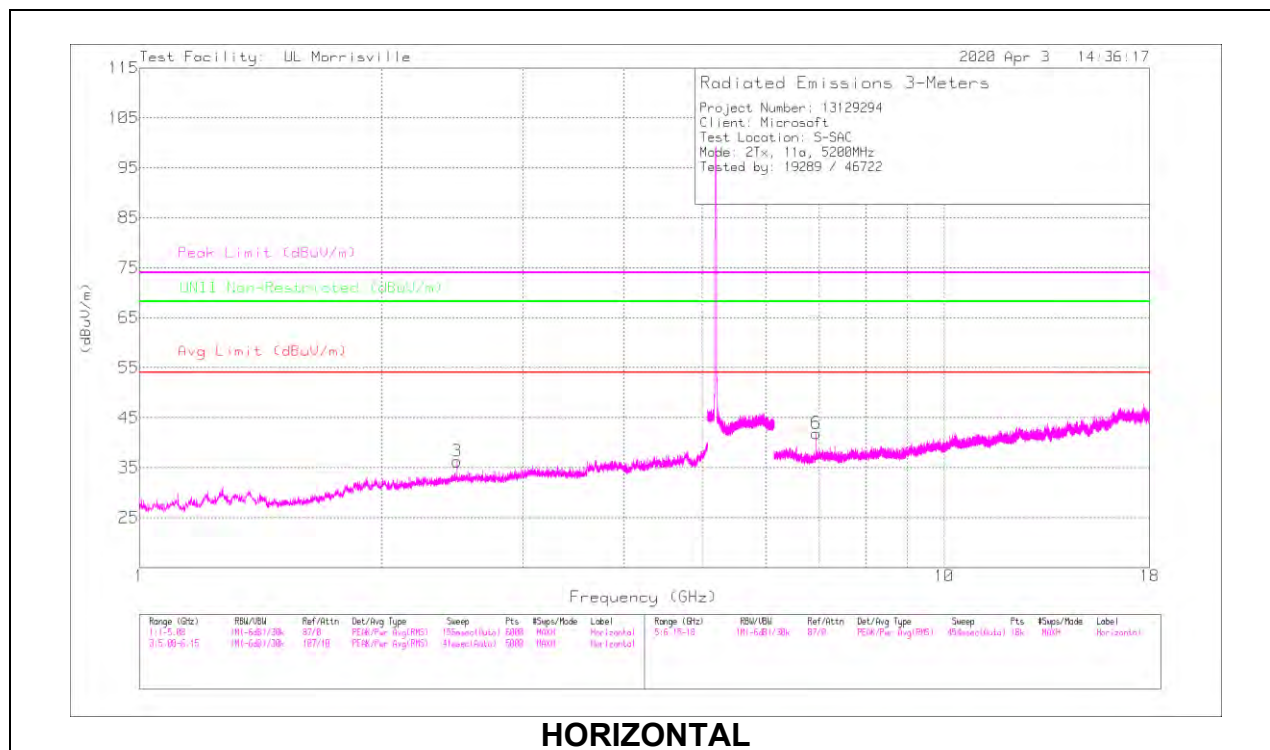
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl/Ftr/P ad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 3.67818	41.47	PK-U	32.9	-31.8	42.57	-	-	74	-31.43	-	-	2	308	H
	* 3.67882	28.33	ADV	32.9	-31.8	29.43	54	-24.57	-	-	-	-	2	308	H
4	* 4.15859	40.31	PK-U	33.4	-31	42.71	-	-	74	-31.29	-	-	287	209	V
	* 4.15845	27.79	ADV	33.4	-31	30.19	54	-23.81	-	-	-	-	287	209	V
1	2.40217	44.53	PK-U	31.9	-33.9	42.53	-	-	-	-	68.2	-25.67	18	229	H
2	2.42066	42.61	PK-U	32	-33.8	40.81	-	-	-	-	68.2	-27.39	187	311	V
5	6.90674	40.82	PK-U	35.6	-28.1	48.32	-	-	-	-	68.2	-19.88	230	152	H
6	6.90674	38.48	PK-U	35.6	-28.1	45.98	-	-	-	-	68.2	-22.22	356	123	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

ADV - U-NII AD primary method, Linear Voltage Average

MID CHANNEL RESULTS



RADIATED EMISSIONS

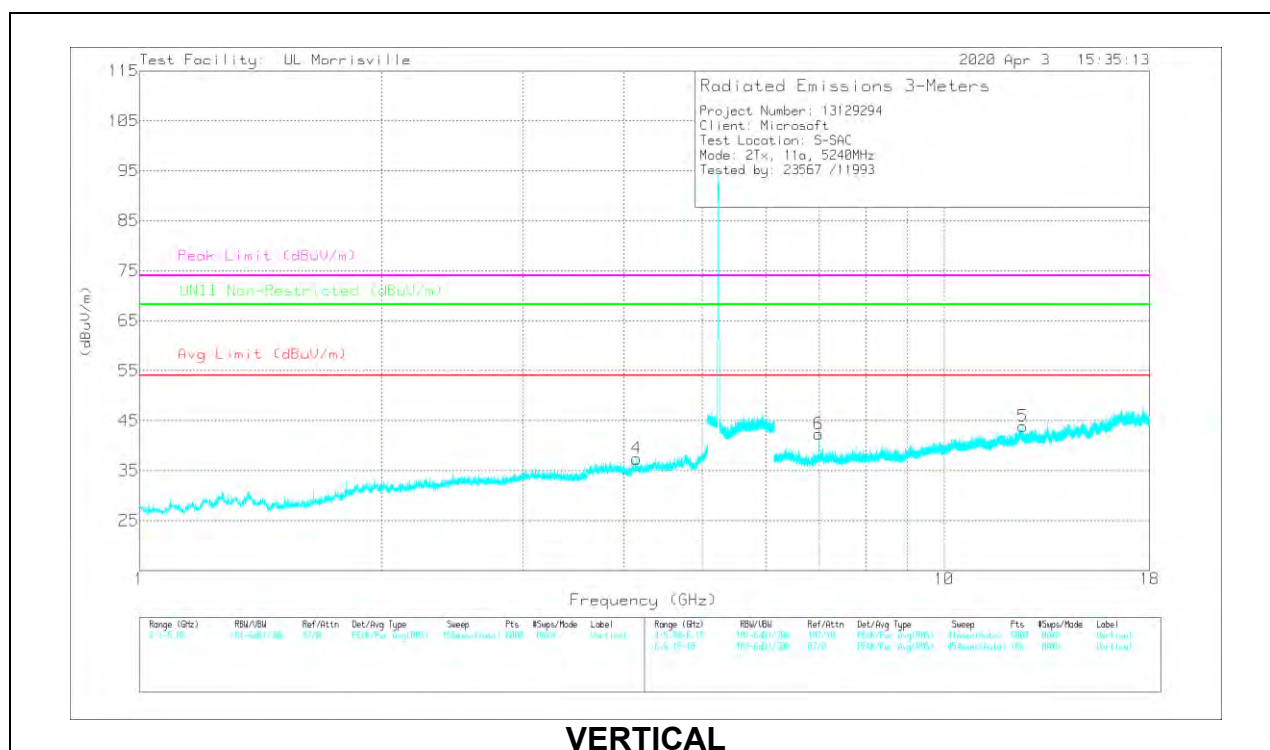
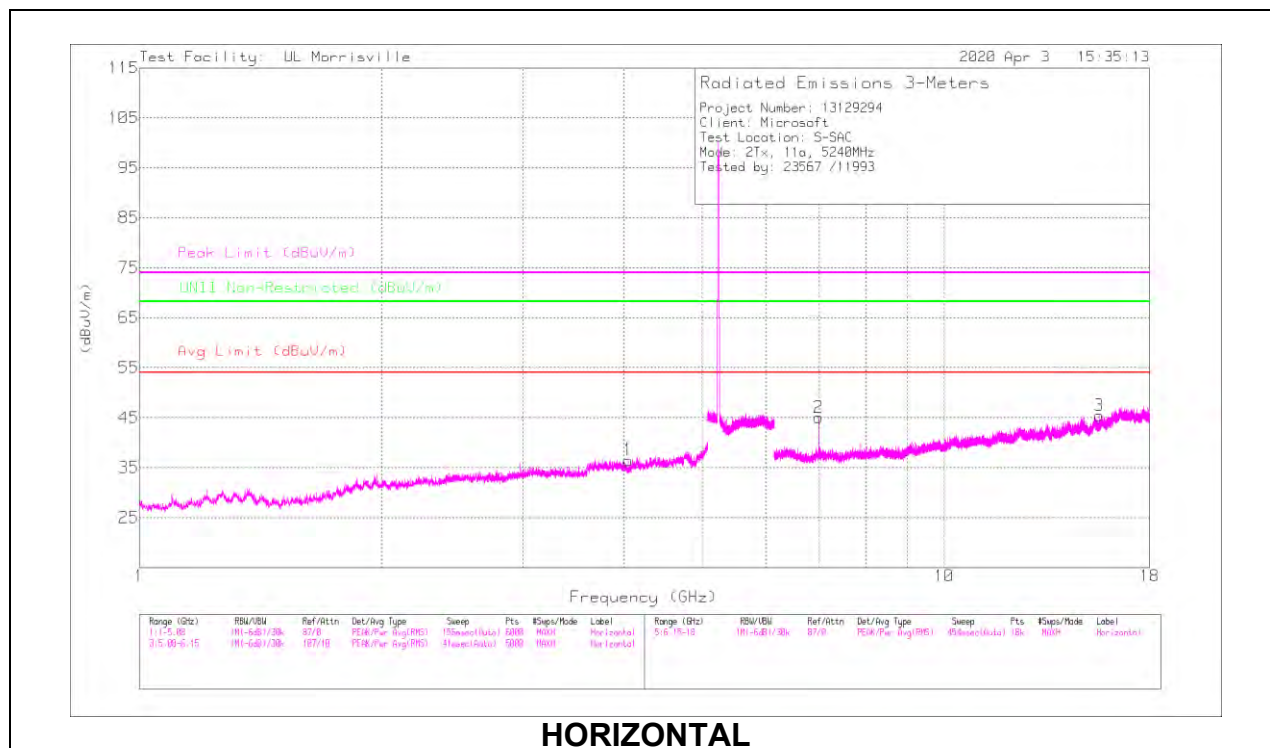
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dBm)	Amp/Cbl/Fit/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.10406	42.79	PK-U	27.7	-35	35.49	-	-	74	-38.51	-	-	115	237	V
	* 1.10057	29.75	ADV	27.7	-35	22.45	54	-31.55	-	-	-	-	115	237	V
8	* 11.6771	33.58	PK-U	38.4	-23.8	48.18	-	-	74	-25.82	-	-	48	123	V
	* 11.67879	20.89	ADV	38.4	-23.8	35.49	54	-18.51	-	-	-	-	48	123	V
2	2.47683	42.61	PK-U	32.3	-33.6	41.31	-	-	-	-	68.2	-26.89	98	236	V
3	2.47899	41.58	PK-U	32.3	-33.6	40.28	-	-	-	-	68.2	-27.92	268	271	H
5	4.4181	40.16	PK-U	33.6	-30.7	43.06	-	-	-	-	68.2	-25.14	22	399	V
7	6.93318	39.45	PK-U	35.6	-27.7	47.35	-	-	-	-	68.2	-20.85	227	237	V
6	6.93346	39.08	PK-U	35.6	-27.7	46.98	-	-	-	-	68.2	-21.22	196	393	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

ADV - U-NII AD primary method, Linear Voltage Average

HIGH CHANNEL RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	A10072 (dBm)	Amp/Cbl/Ftr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.04606	40.99	PK-U	33.4	-32.4	41.99	-	-	74	-32.01	-	-	73	155	H
	* 4.04749	27.97	ADV	33.4	-32.4	28.97	54	-25.03	-	-	-	-	73	155	H
4	* 4.14796	40.63	PK-U	33.4	-31	43.03	-	-	74	-30.97	-	-	246	102	V
	* 4.14704	27.55	ADV	33.4	-31	29.95	54	-24.05	-	-	-	-	246	102	V
3	* 15.58549	34.4	PK-U	40	-23.5	50.9	-	-	74	-23.1	-	-	217	138	H
	* 15.58568	21.15	ADV	40	-23.5	37.65	54	-16.35	-	-	-	-	217	138	H
5	* 12.52131	33.71	PK-U	39	-23.5	49.21	-	-	74	-24.79	-	-	1	336	V
	* 12.52071	20.7	ADV	39	-23.5	36.2	54	-17.8	-	-	-	-	1	336	V
2	6.9866	41.08	PK-U	35.7	-27.5	49.28	-	-	-	-	68.2	-18.92	232	163	H
6	6.98665	39.95	PK-U	35.7	-27.5	48.15	-	-	-	-	68.2	-20.05	220	219	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

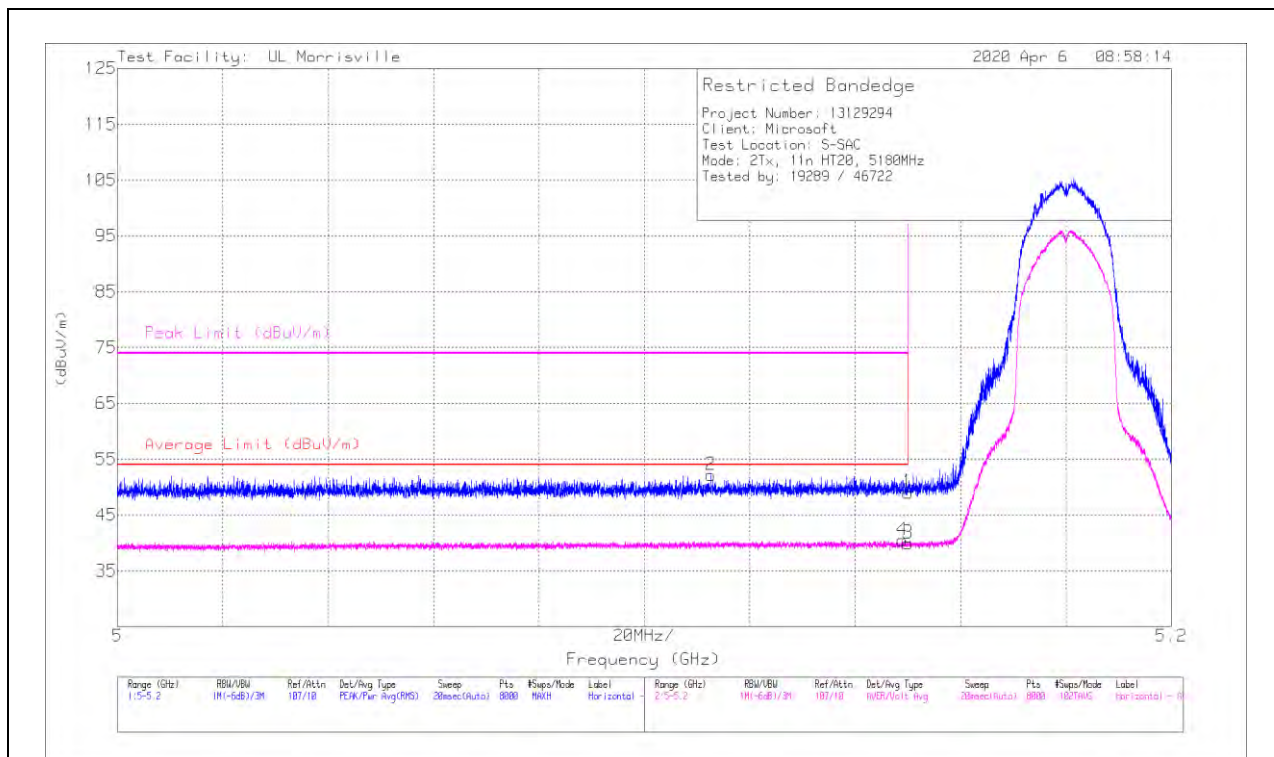
ADV - U-NII AD primary method, Linear Voltage Average

10.1.2. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.2 GHz BAND

2TX Antenna 1 + Antenna 2 CDD MODE

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



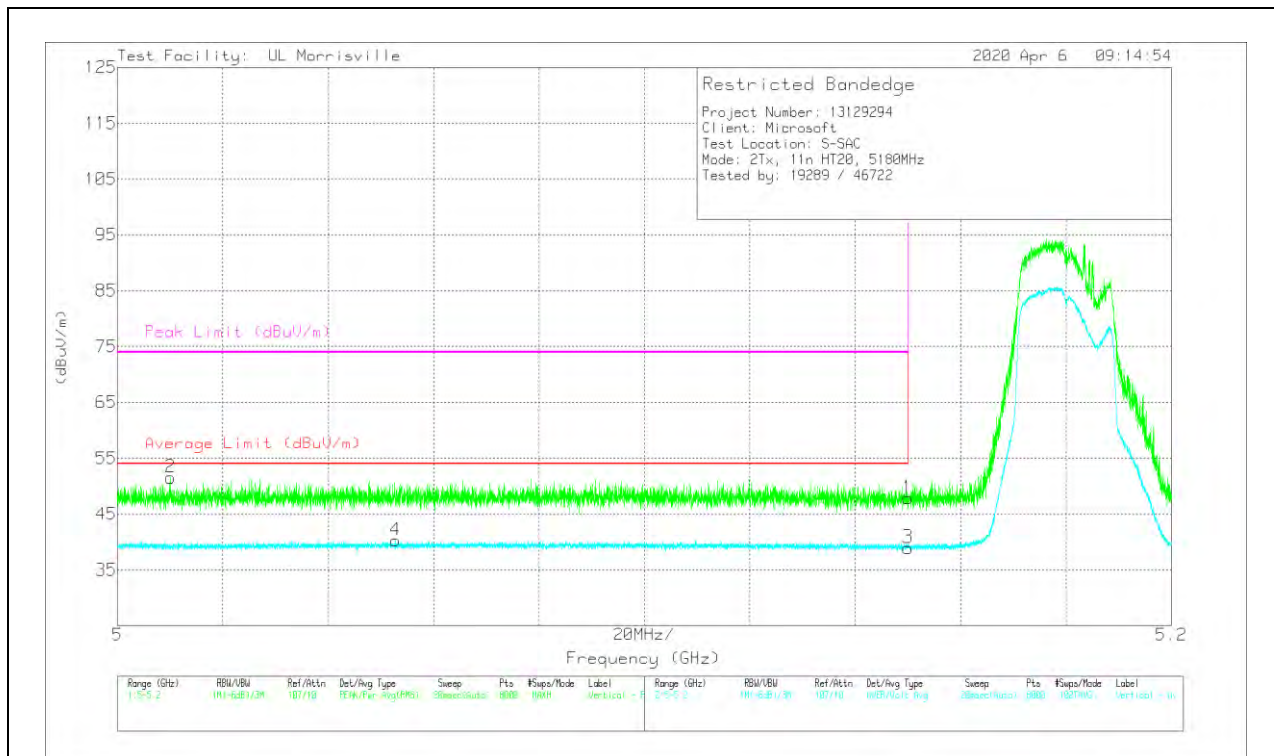
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dBm)	Amp/Cbl/Ftr/P ad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	* 5.14999	36.53	Pk	34.3	-22.1	0	49.03	-	-	74	-24.97	222	206	H
2	* 5.11256	40.1	Pk	34.2	-22.1	0	52.2	-	-	74	-21.8	222	206	H
3	* 5.14999	27.55	ADV	34.3	-22.1	.18	39.93	54	-14.07	-	-	222	206	H
4	* 5.14892	28.09	ADV	34.3	-22.1	.18	40.47	54	-13.53	-	-	222	206	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

ADV - U-NII AD primary method, Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dBm)	Amp/Cali/Freq/ad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Acimuth (Degs)	Height (cm)	Polarity
1	* 5.14999	35.68	Pk	34.3	-22.1	0	47.88	-	-	74	-26.12	12	378	V
2	* 5.01008	39.13	Pk	34.2	-21.8	0	51.53	-	-	74	-22.47	12	378	V
3	* 5.14999	26.58	ADV	34.3	-22.1	.18	38.96	54	-15.04	-	-	12	378	V
4	* 5.05273	27.9	ADV	34.2	-22	.18	40.28	54	-13.72	-	-	12	378	V

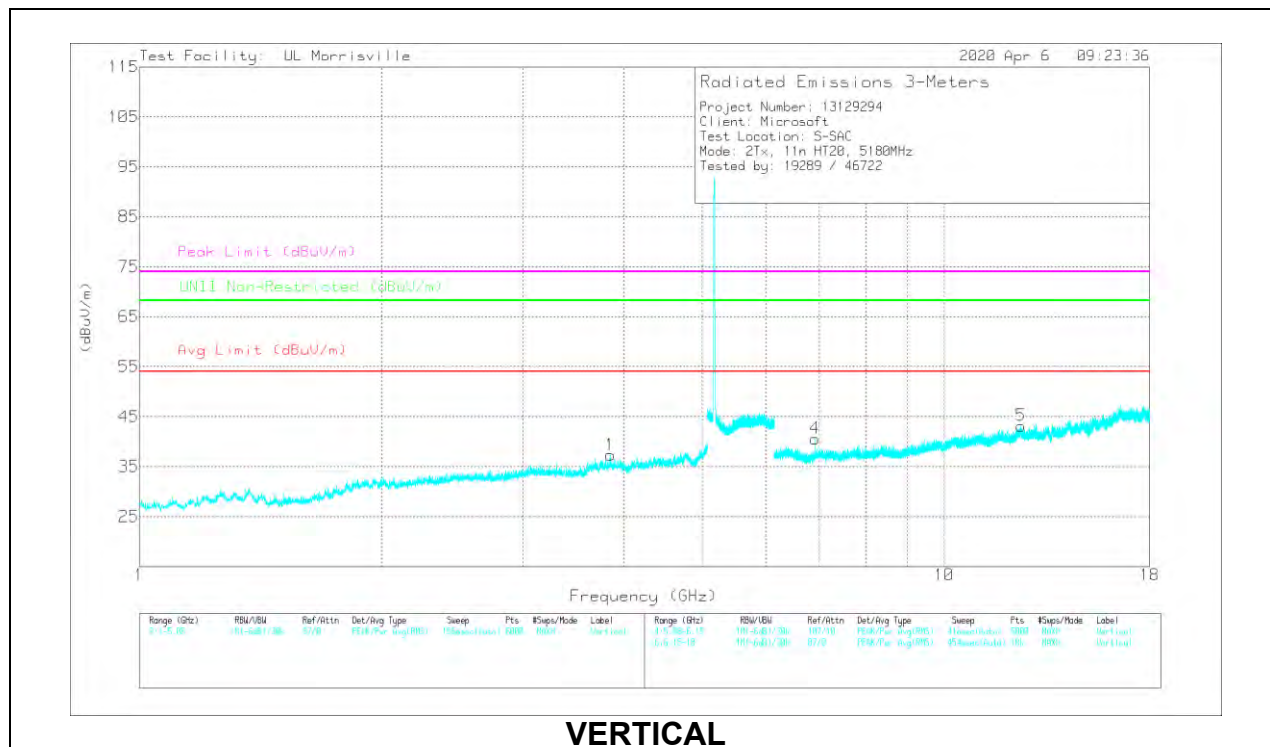
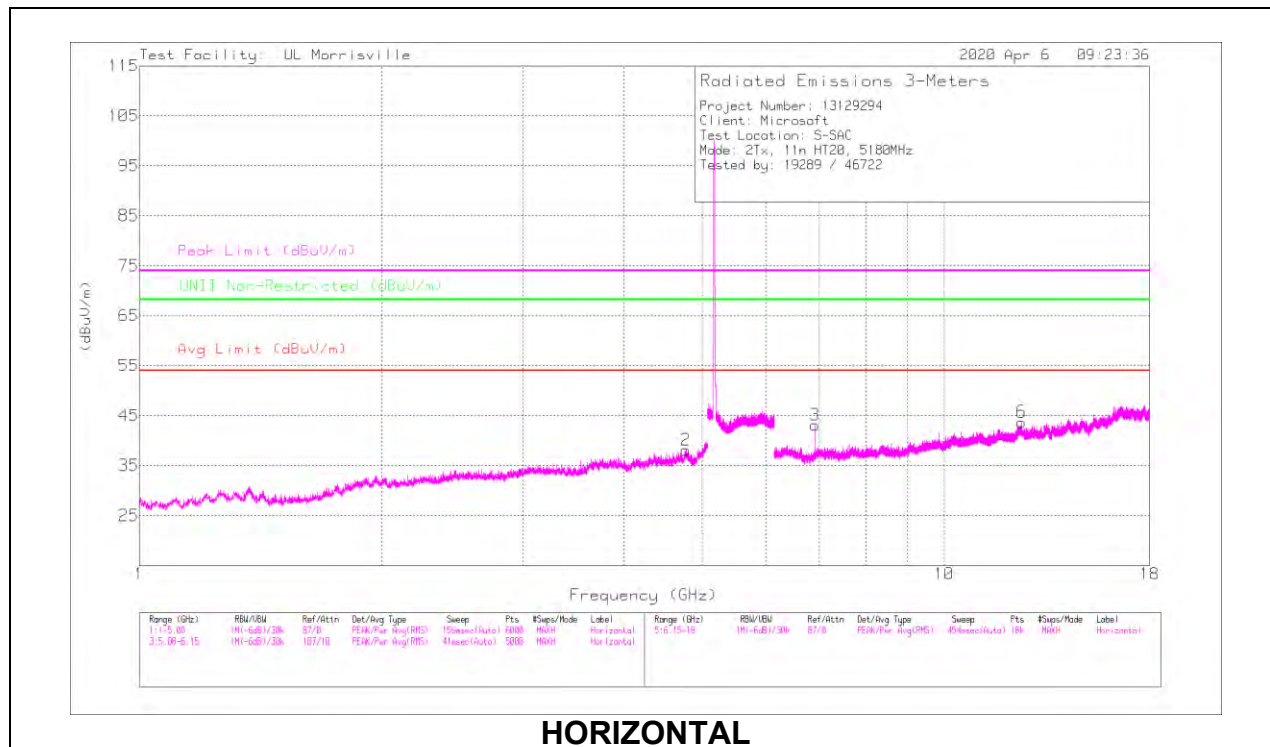
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

ADV - U-NII AD primary method, Linear Voltage Average

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



RADIATED EMISSIONS

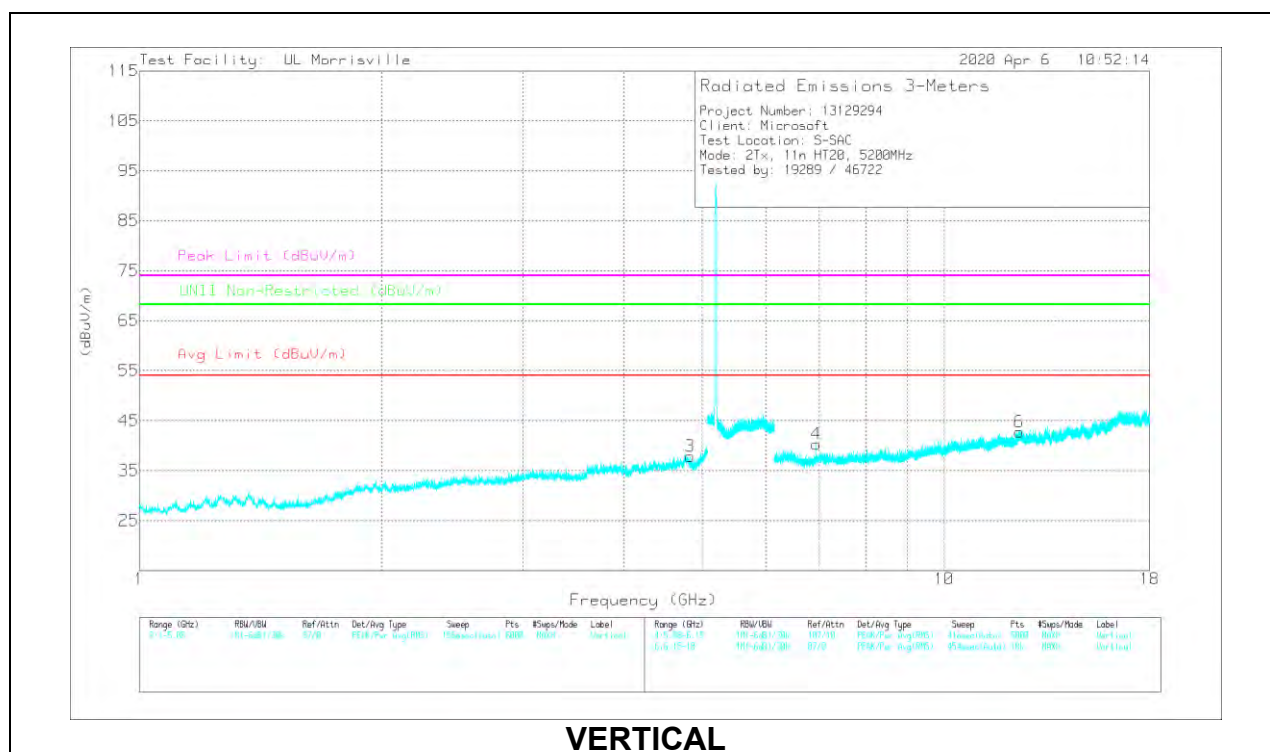
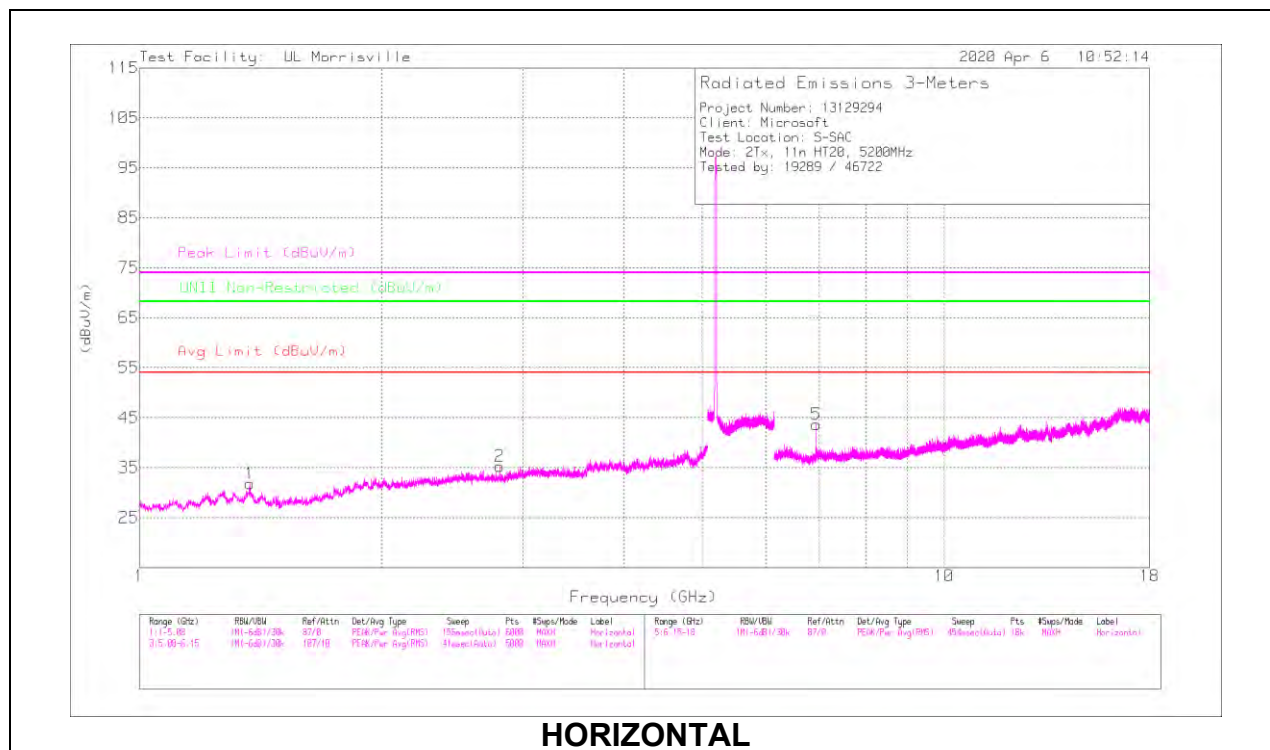
Marker	Frequency (GHz)	Motor Reading (dBuV)	Det	A19072 (dBm)	AmpCdbFilt (Pad (dB))	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	U-NII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 4.77634	40.43	PK-U	34.1	-30.7	0	43.83	-	-	74	-30.17	-	-	322	367	H
	* 4.77842	27.9	ADV	34.1	-30.7	.18	31.48	54	-22.52	-	-	-	-	322	367	H
1	* 3.94572	41.56	PK-U	33.5	-32.2	0	42.86	-	-	74	-31.14	-	-	50	163	V
	* 3.84853	28.43	ADV	33.5	-32.2	.18	29.91	54	-24.09	-	-	-	-	50	163	V
6	* 12.48554	33.98	PK-U	38.9	-23.1	0	49.78	-	-	74	-24.22	-	-	31	289	H
	* 12.48565	20.46	ADV	38.9	-23.1	.18	36.44	54	-17.56	-	-	-	-	31	289	H
5	* 12.45723	33.97	PK-U	38.9	-23	0	49.87	-	-	74	-24.13	-	-	165	264	V
	* 12.45791	20.55	ADV	38.9	-23.1	.18	36.53	54	-17.47	-	-	-	-	165	264	V
4	6.90668	39.05	PK-U	35.6	-28.1	0	46.55	-	-	-	-	68.2	-21.65	213	206	V
3	6.90672	40.69	PK-U	35.6	-28.1	0	48.19	-	-	-	-	68.2	-20.01	231	162	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

ADV - U-NII AD primary method, Linear Voltage Average

MID CHANNEL RESULTS



RADIATED EMISSIONS

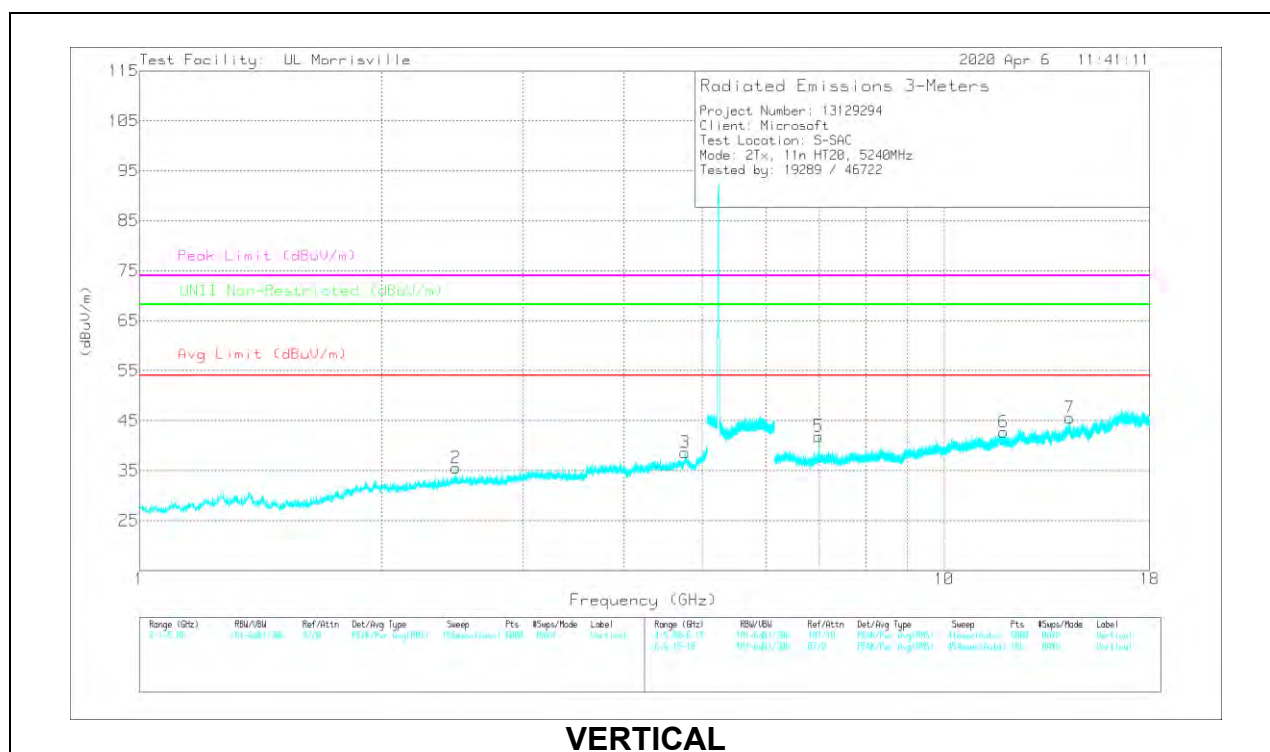
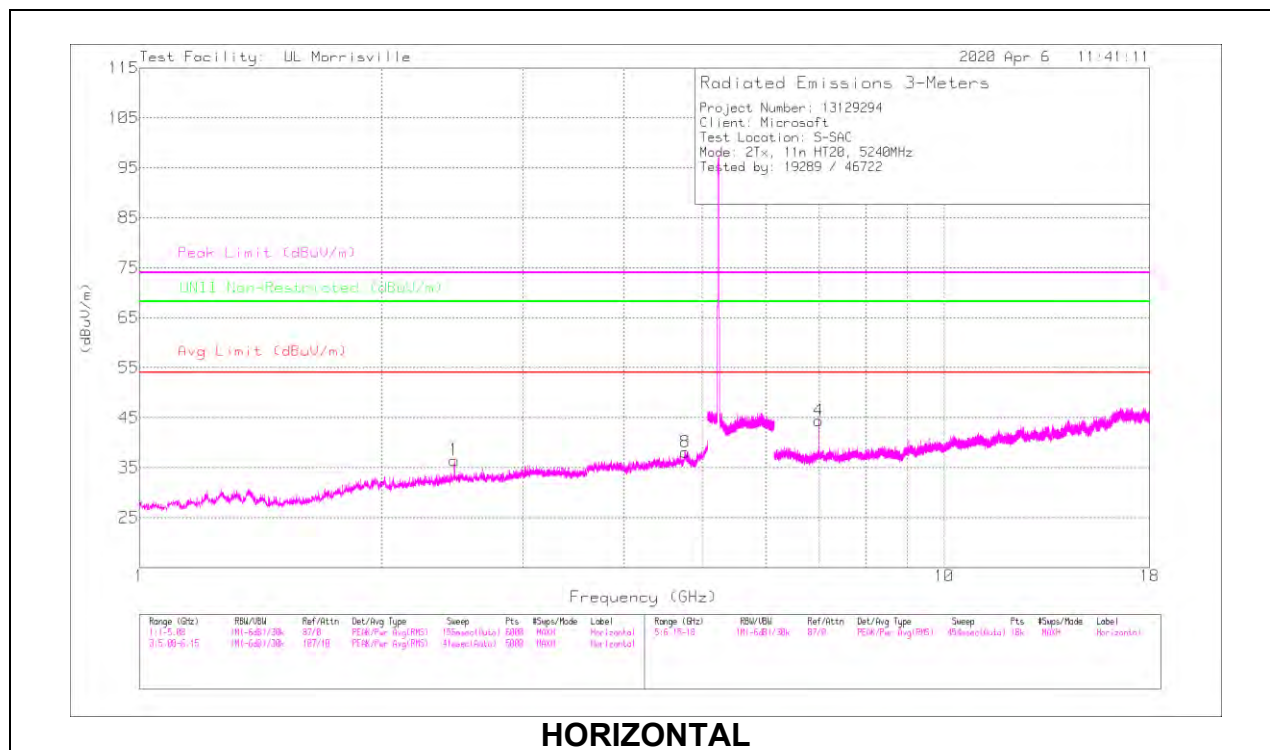
Marker	Frequency (GHz)	Motor Reading (dBuV)	Det	A19072 (dBm)	AmpCdbFilt (Pad (dB))	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	U-NII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.37181	42.63	PK-U	29.2	-34.4	0	37.43	-	-	74	-36.57	-	-	25	312	H
	* 1.3727	29.37	ADV	29.2	-34.4	.18	24.35	54	-29.65	-	-	-	-	25	312	H
2	* 2.80194	41.23	PK-U	32.2	-33.3	0	40.13	-	-	74	-33.87	-	-	58	132	H
	* 2.80132	28.1	ADV	32.2	-33.3	.18	27.18	54	-26.82	-	-	-	-	58	132	H
3	* 4.83211	40.23	PK-U	34.1	-30.3	0	44.03	-	-	74	-29.97	-	-	62	138	V
	* 4.8325	27.15	ADV	34.1	-30.3	.18	31.13	54	-22.87	-	-	-	-	62	138	V
6	* 12.39956	33.6	PK-U	38.8	-23.1	0	49.3	-	-	74	-24.7	-	-	250	107	V
	* 12.39964	20.48	ADV	38.8	-23.1	.18	36.36	54	-17.64	-	-	-	-	250	107	V
5	6.93331	41.01	PK-U	35.6	-27.7	0	48.91	-	-	-	-	68.2	-19.29	222	109	H
4	6.93353	39.03	PK-U	35.6	-27.7	0	46.93	-	-	-	-	68.2	-21.27	356	112	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

ADV - U-NII AD primary method, Linear Voltage Average

HIGH CHANNEL RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dBm)	Amp/Cbl/Ftr/Pa d (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Altitude (feet)	Height (cm)	Polarity
8	* 4.76911	41.36	PK-U	34.1	-30.8	0	44.68	-	-	74	-29.32	-	-	108	370	H
	* 4.76873	28.4	ADV	34.1	-30.8	18	31.88	54	-22.12	-	-	-	-	108	370	H
3	* 4.76361	41.99	PK-U	34.1	-30.8	0	45.28	-	-	74	-28.72	-	-	123	231	V
	* 4.76413	28.68	ADV	34.1	-30.8	18	32.16	54	-21.84	-	-	-	-	123	231	V
6	* 11.85047	33.73	PK-U	38.6	-24.1	0	48.23	-	-	74	-25.77	-	-	329	330	V
	* 11.85006	20.58	ADV	38.6	-24.1	18	35.26	54	-18.74	-	-	-	-	329	330	V
1	2.46209	42.52	PK-U	32.3	-33.7	0	41.12	-	-	-	-	68.2	-27.08	87	251	H
2	2.47212	42.61	PK-U	32.3	-33.6	0	41.31	-	-	-	-	68.2	-26.89	267	247	V
5	6.98662	39.44	PK-U	35.7	-27.5	0	47.64	-	-	-	-	68.2	-20.56	11	111	V
4	6.98672	41.42	PK-U	35.7	-27.5	0	49.62	-	-	-	-	68.2	-18.58	226	110	H
7	14.32288	34.64	PK-U	39.1	-22.1	0	51.64	-	-	-	-	68.2	-16.56	184	388	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

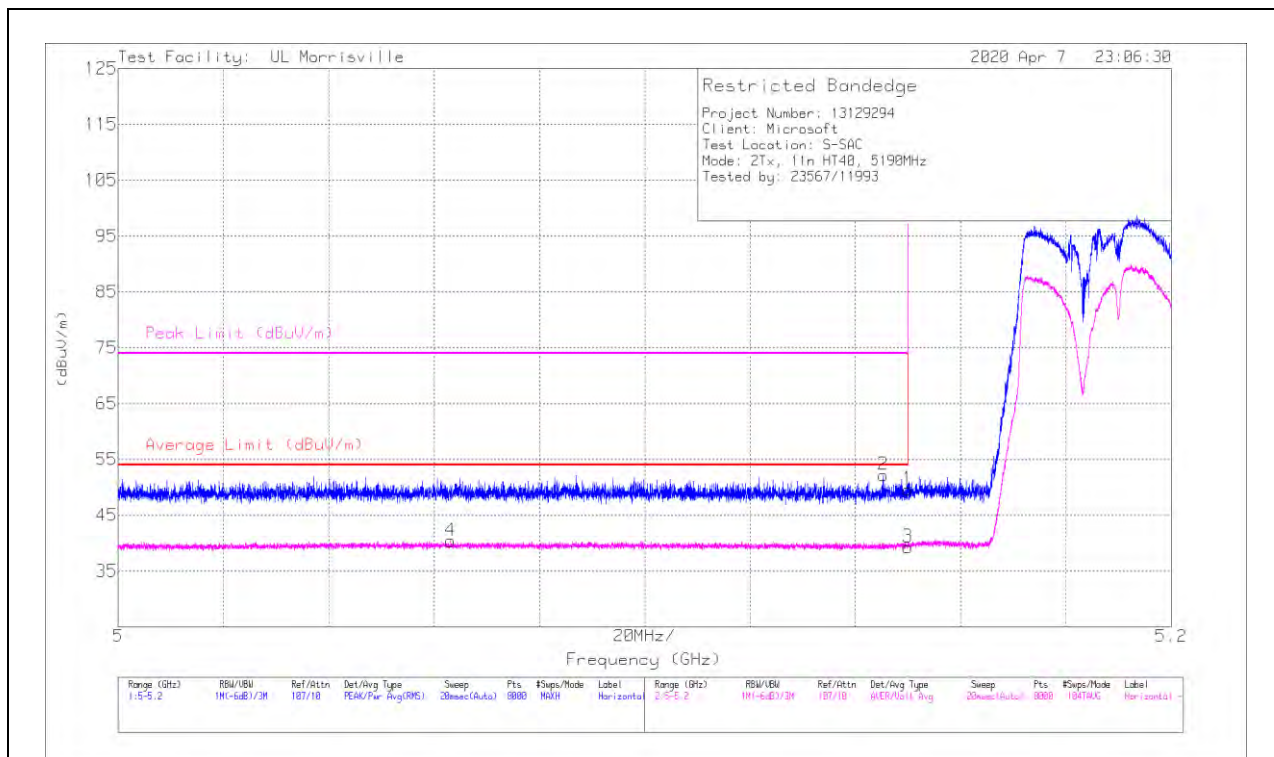
ADV - U-NII AD primary method, Linear Voltage Average

10.1.3. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.2 GHz BAND

2TX Antenna 1 + Antenna 2 CDD MODE

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



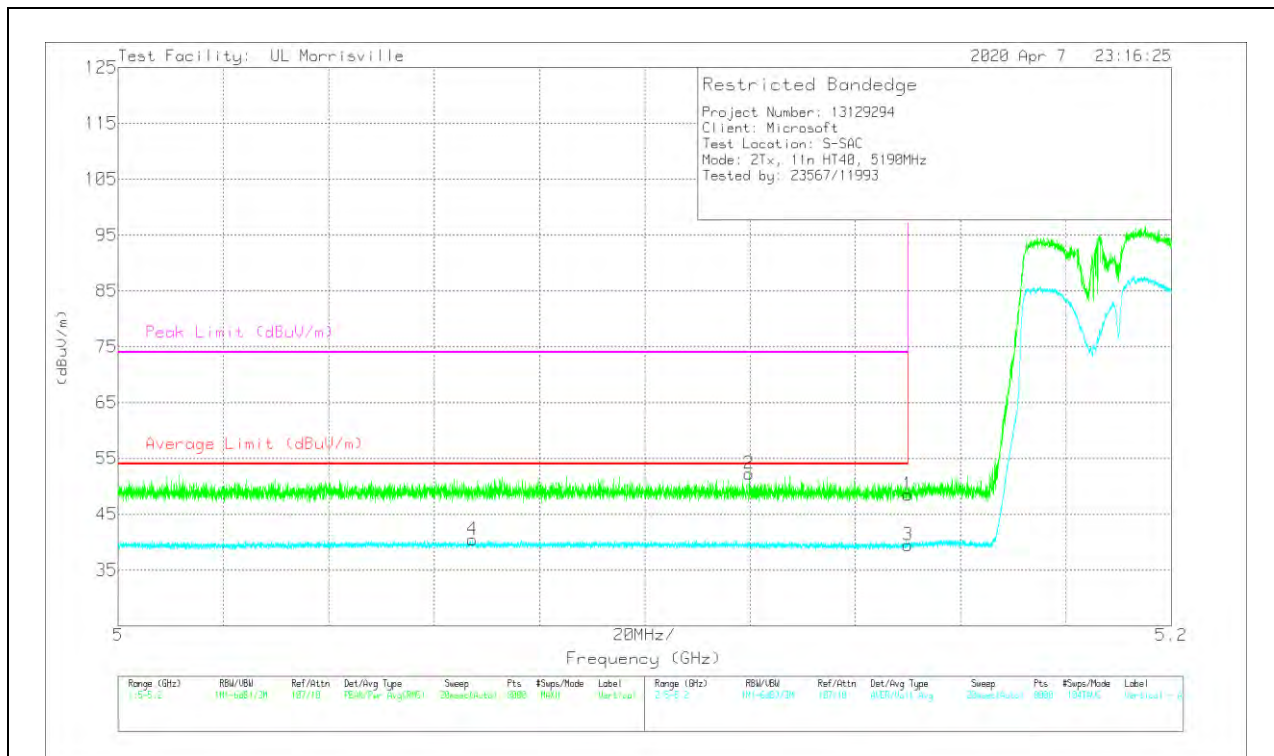
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dBm)	Amp/Cbl/Ftr/P ad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	* 5.14999	37.41	Pk	34.3	-22.1	0	49.61	-	-	74	-24.39	306	372	H
2	* 5.14527	40	Pk	34.3	-22.1	0	52.2	-	-	74	-21.8	306	372	H
3	* 5.14999	26.72	ADV	34.3	-22.1	.36	39.28	54	-14.72	-	-	306	372	H
4	* 5.06308	27.85	ADV	34.2	-22	.36	40.41	54	-13.59	-	-	306	372	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

ADV - U-NII AD primary method, Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dBm)	Amp/Cali/Filt/P ad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Acimuth (Degs)	Height (cm)	Polarity
1	* 5.14999	36.26	PK	34.3	-22.1	0	48.46	-	-	74	-25.54	245	393	V
2	* 5.11984	40.15	PK	34.2	-22.1	0	52.25	-	-	74	-21.75	245	393	V
3	* 5.14999	26.91	ADV	34.3	-22.1	.36	39.47	54	-14.53	-	-	245	393	V
4	* 5.06731	27.89	ADV	34.2	-22	.36	40.45	54	-13.55	-	-	245	393	V

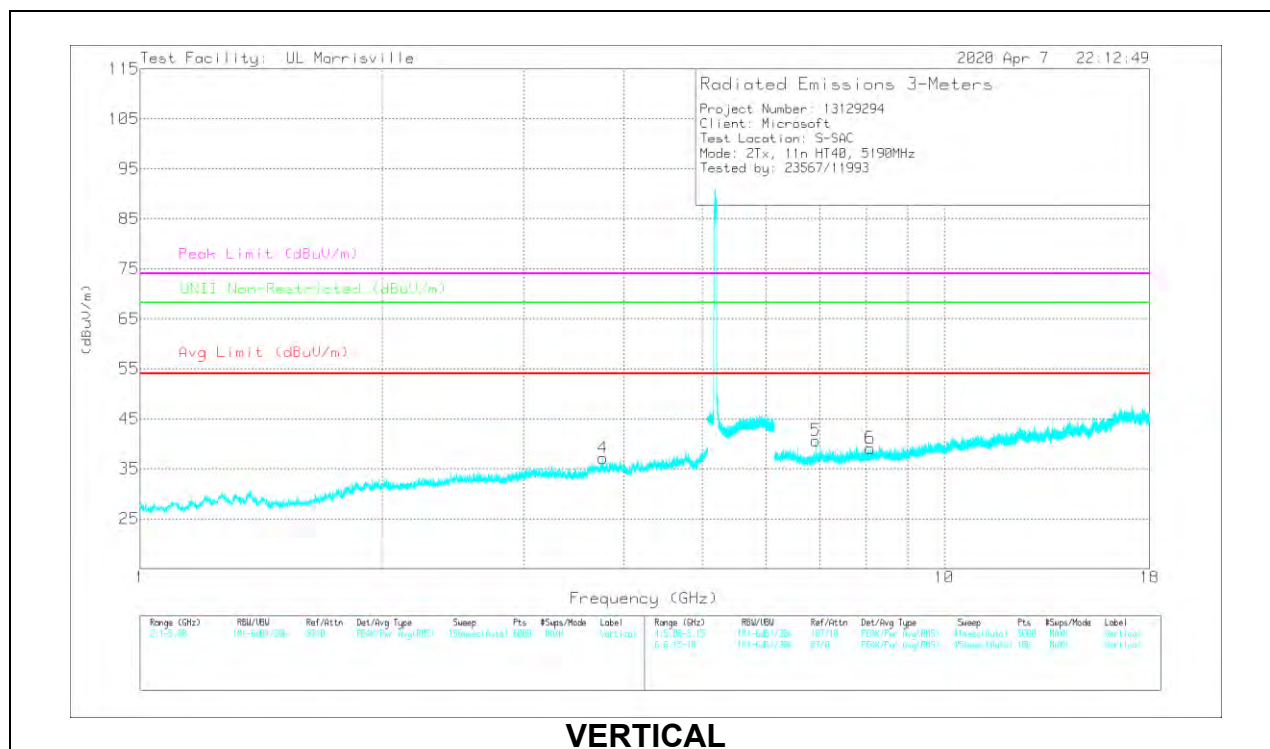
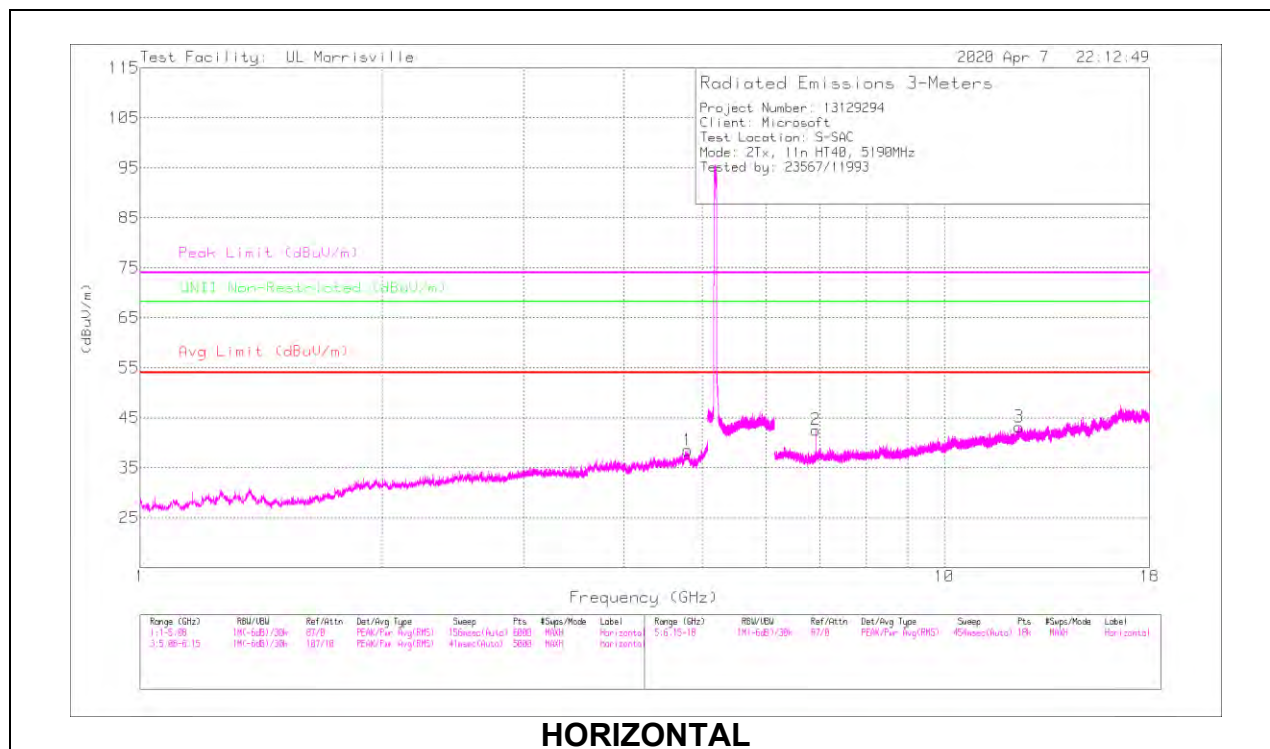
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK - Peak detector

ADV - U-NII AD primary method, Linear Voltage Average

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



RADIATED EMISSIONS

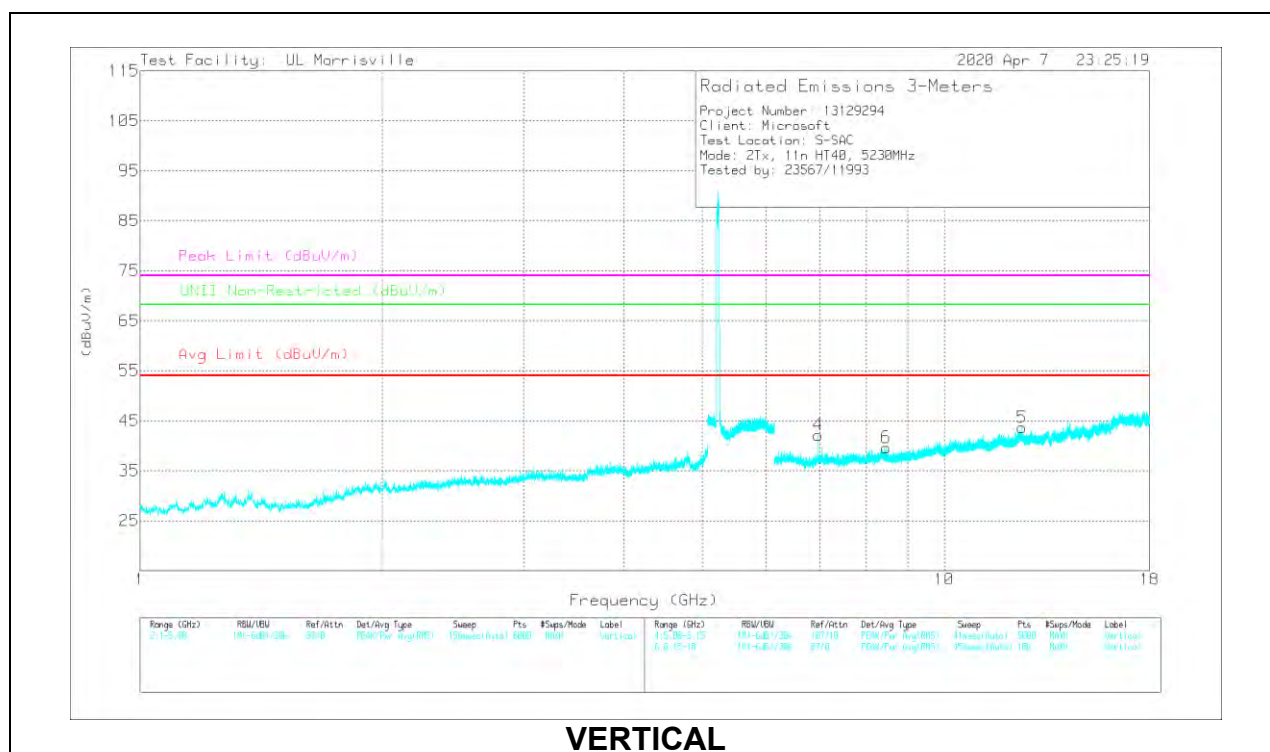
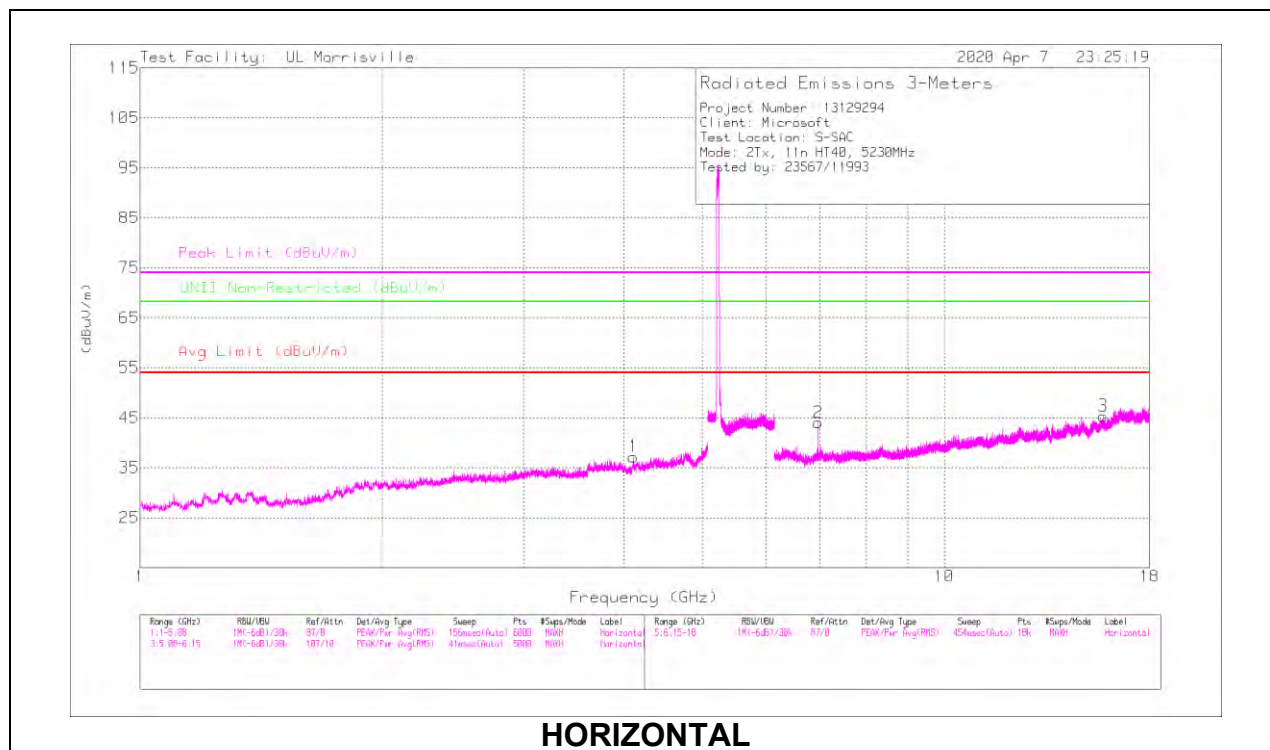
Marker	Frequency (kHz)	Meas Reading (dBuV)	Det	AT6072 (dBm)	Amp/Ctrl/Filt/Pa d (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.7939	41.25	PK-U	34.2	-30.5	0	44.95	-	-	74	-29.05	-	-	263	188	H
	* 4.79408	27.74	ADV	34.2	-30.5	-36	31.8	54	-22.2	-	-	-	-	263	188	H
4	* 3.75997	41.15	PK-U	33.3	-32.3	0	42.15	-	-	74	-31.85	-	-	89	257	V
	* 3.7615	28.3	ADV	33.3	-32.4	-36	29.56	54	-24.44	-	-	-	-	89	257	V
3	* 12.37906	33.72	PK-U	38.8	-23.4	0	49.12	-	-	74	-24.88	-	-	302	119	H
	* 12.37907	20.53	ADV	38.8	-23.4	-36	36.29	54	-17.71	-	-	-	-	302	119	H
6	* 8.08813	36.17	PK-U	36	-27	0	45.17	-	-	74	-28.83	-	-	2	101	V
	* 8.08778	22.85	ADV	36	-27	-36	32.21	54	-21.79	-	-	-	-	2	101	V
2	6.92005	40.91	PK-U	35.6	-28	0	48.51	-	-	-	-	68.2	-19.69	221	102	H
5	6.92013	36.96	PK-U	35.6	-28	0	44.56	-	-	-	-	68.2	-23.64	0	355	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

ADV - U-NII AD primary method, Linear Voltage Average

HIGH CHANNEL RESULTS



RADIATED EMISSIONS

Marker	Frequency (kHz)	Meter Reading (dBuV)	Det	AT5072 (dBm)	Amp/Cbl/Filtr/Pa d (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.10536	40.57	PK-U	33.5	-31.5	0	42.57	-	-	74	-31.43	-	-	227	258	H
	* 4.10567	27.64	ADV	33.5	-31.5	-36	30	54	-24	-	-	-	-	227	258	H
3	* 15.7732	33.46	PK-U	40.3	-22.4	0	51.36	-	-	74	-22.64	-	-	323	351	H
	* 15.77356	20.21	ADV	40.3	-22.4	-36	38.47	54	-15.53	-	-	-	-	323	351	H
5	* 12.49324	34.64	PK-U	39	-23.2	0	50.44	-	-	74	-23.56	-	-	183	137	V
	* 12.49376	20.26	ADV	39	-23.2	-36	36.42	54	-17.58	-	-	-	-	183	137	V
6	* 8.46715	36.23	PK-U	36	-27	0	45.23	-	-	74	-28.77	-	-	50	257	V
	* 8.46569	23.05	ADV	36	-27	-36	32.41	54	-21.59	-	-	-	-	50	257	V
2	6.97323	40.83	PK-U	35.7	-27.6	0	48.93	-	-	-	-	68.2	-19.27	222	107	H
4	6.97323	38.28	PK-U	35.7	-27.6	0	46.38	-	-	-	-	68.2	-21.82	352	122	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

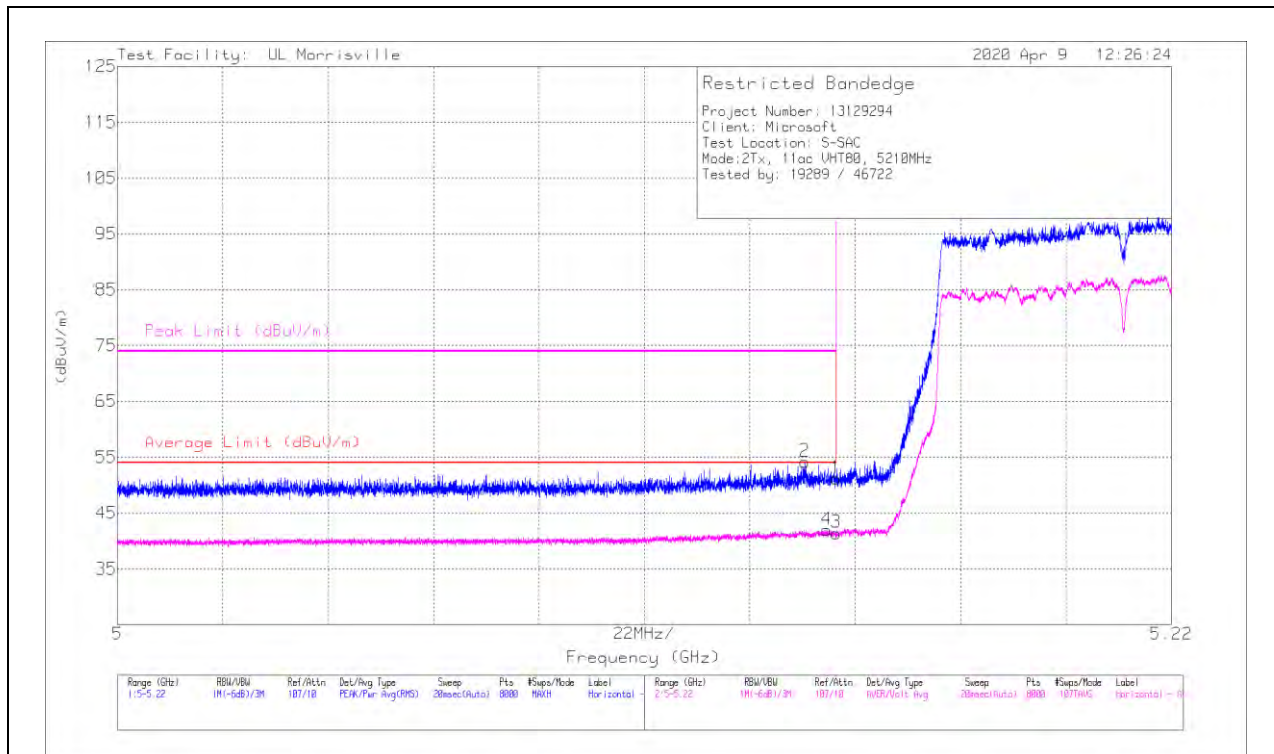
ADV - U-NII AD primary method, Linear Voltage Average

10.1.4. TX ABOVE 1 GHz 802.11ac VHT80 MODE IN THE 5.2 GHz BAND

2TX Antenna 1 + Antenna 2 CDD MODE

BANDEDGE (MID CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dBm)	Amp/Cb/Ftr/P ad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Acimuth (Degs)	Height (cm)	Polarity
1	* 5.14997	39.01	Pk	34.3	-22.1	0	51.21	-	-	74	-22.79	221	109	H
2	* 5.14348	41.99	Pk	34.3	-22.1	0	54.19	-	-	74	-19.81	221	109	H
3	* 5.14997	28.57	ADV	34.3	-22.1	.66	41.43	54	-12.57	-	-	221	109	H
4	* 5.1481	29.14	ADV	34.3	-22.1	.66	42	54	-12	-	-	221	109	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

ADV - U-NII AD primary method, Linear Voltage Average

Test Facility: UL Morrisville

2020 Apr 9 12:36:39

Restricted Bandedge

Project Number: 13129294
Client: Microsoft
Test Location: S-SAC
Mode: 2Tx, 11ac UHT80, 5210MHz
Tested by: 19289 / 46722

dBuV/m

Peak Limit (dBuV/m)

Average Limit (dBuV/m)

22MHz/
Frequency (GHz)

Range (GHz)	RBW/VBW	Ref/Att'n	Det/Avg Type	Sweep	Pts	#Swepts/Mode	Label
1.35-5.22	100-640/120	107/10	TEF/Pk-Avg (PSS)	500sec/100Hz	4000	1000	Vertical - 5

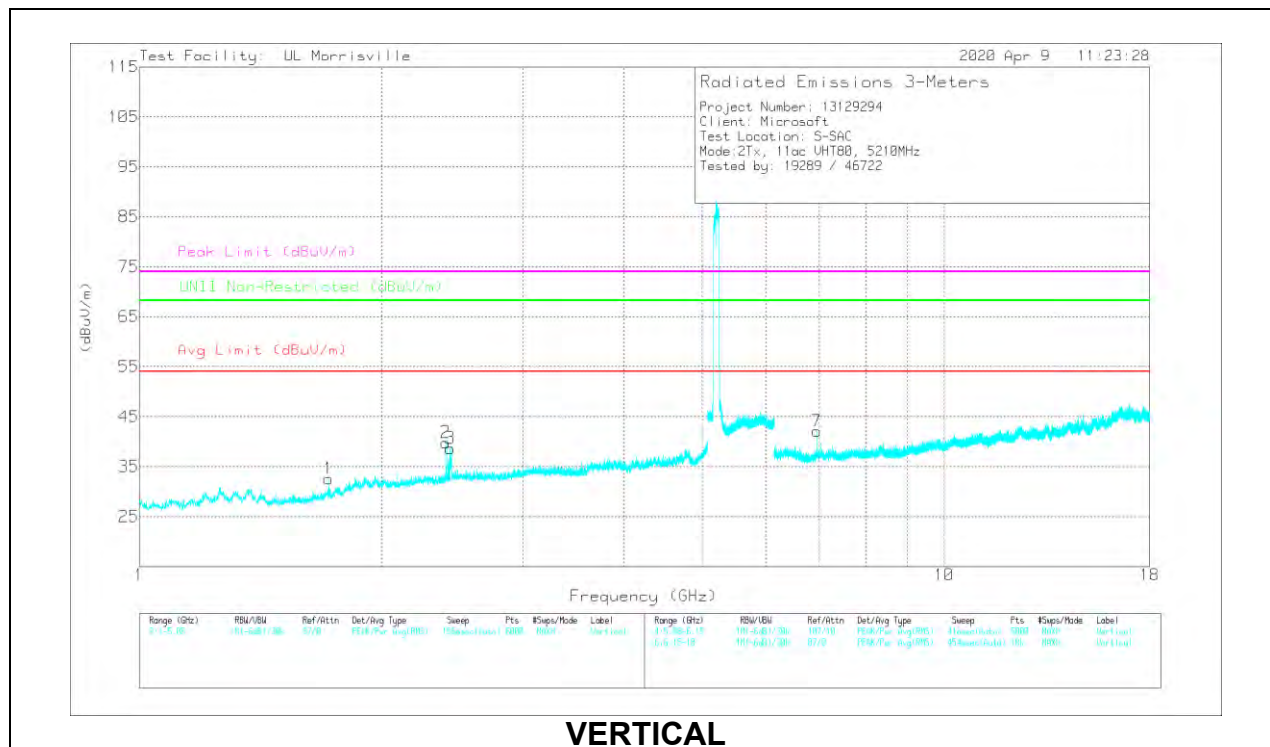
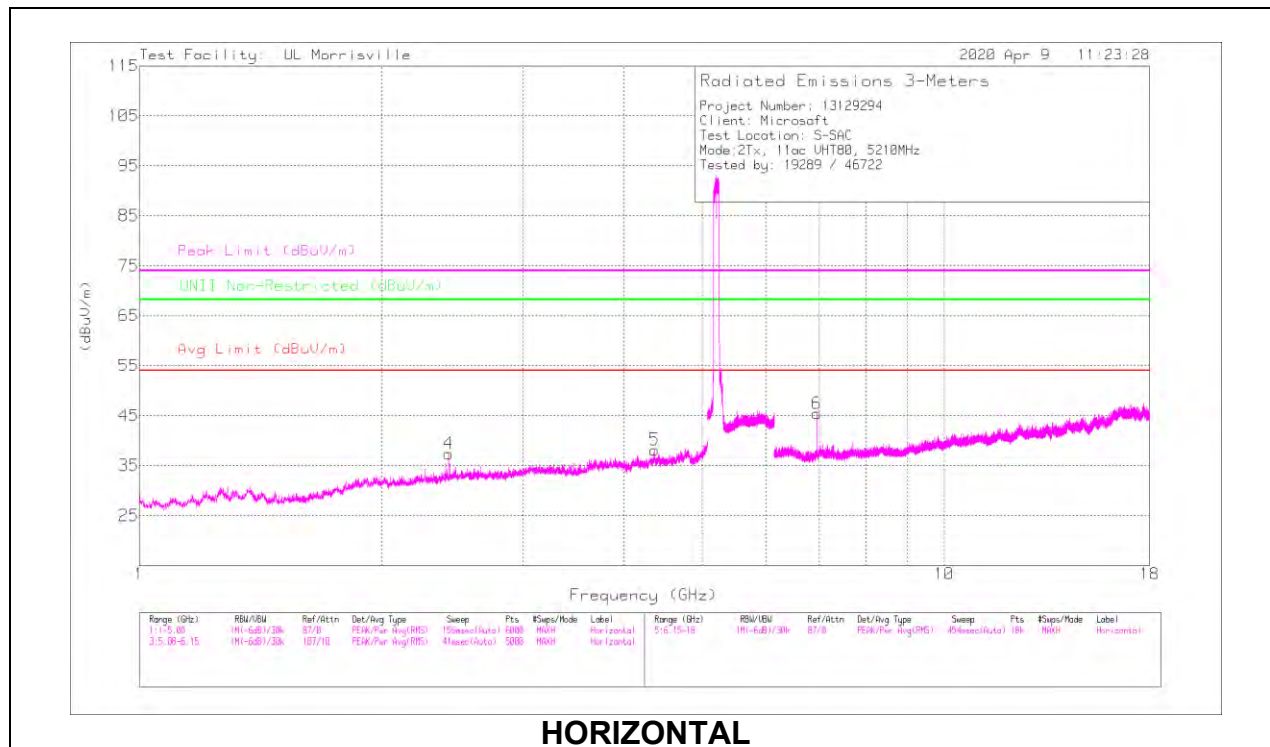
Range (GHz)	RBW/VBW	Ref/Att'n	Det/Avg Type	Sweep	Pts	#Swepts/Mode	Label
1.35-5.22	100-640/120	107/10	NOISE/Noise Avg	500sec/100Hz	4000	1000	Vertical - 10

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dBm)	Amp/Cbl/Filtr/P ad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.14997	37.85	Pk	34.3	-22.1	0	50.05	-	-	74	-23.95	37	350	V
2	* 5.12728	40.47	Pk	34.2	-22	0	52.67	-	-	74	-21.33	37	350	V
3	* 5.14997	27.1	ADV	34.3	-22.1	.66	39.96	54	-14.04	-	-	37	350	V
4	* 5.14197	28.23	ADV	34.3	-22.1	.66	41.09	54	-12.91	-	-	37	350	V

PK - Peak detector
ADV - U-NII AD primary method, Linear Voltage Average

HARMONICS AND SPURIOUS EMISSIONS

MID CHANNEL RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	A10072 (dBm)	AmpCbiPfr/Pa d (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Unit Non-Restricted (dBuV/m)	PK Margin (dB)	Asimuth (Degs)	Height (cm)	Polarity
5	* 4.36908	41.18	PK-U	33.6	-30.5	0	44.28	-	-	74	-29.72	-	-	153	284	H
	* 4.36939	27.58	ADV	33.6	-30.5	66	31.34	54	-22.66	-	-	-	-	153	284	H
1	* 1.71976	41.94	PK-U	29.2	-34.3	0	36.84	-	-	74	-37.16	-	-	166	221	V
	* 1.71884	28.92	ADV	29.1	-34.3	66	24.38	54	-29.62	-	-	-	-	166	221	V
2	2.40164	48.3	PK-U	31.9	-33.9	0	46.3	-	-	-	-	68.2	-21.9	156	224	V
4	2.42127	41.76	PK-U	32	-33.8	0	39.96	-	-	-	-	68.2	-28.24	110	235	H
3	2.43269	49.2	PK-U	32.1	-33.8	0	47.5	-	-	-	-	68.2	-20.7	103	325	V
6	6.94665	41.42	PK-U	35.6	-27.6	0	49.42	-	-	-	-	68.2	-18.78	248	326	H
7	6.94671	40.95	PK-U	35.6	-27.6	0	48.95	-	-	-	-	68.2	-19.25	238	252	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

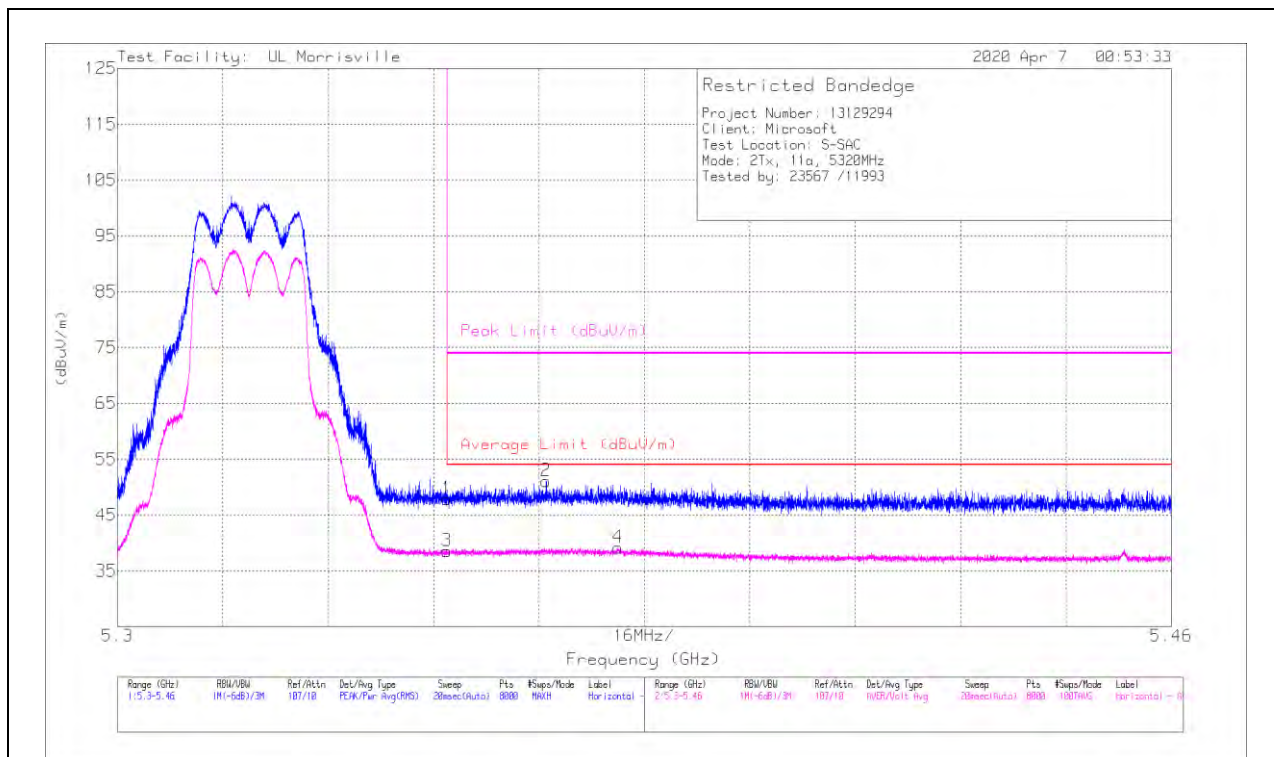
ADV - U-NII AD primary method, Linear Voltage Average

10.1.5. TX ABOVE 1 GHz 802.11a MODE IN THE 5.3 GHz BAND

2TX Antenna 1 + Antenna 2 CDD MODE

BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT



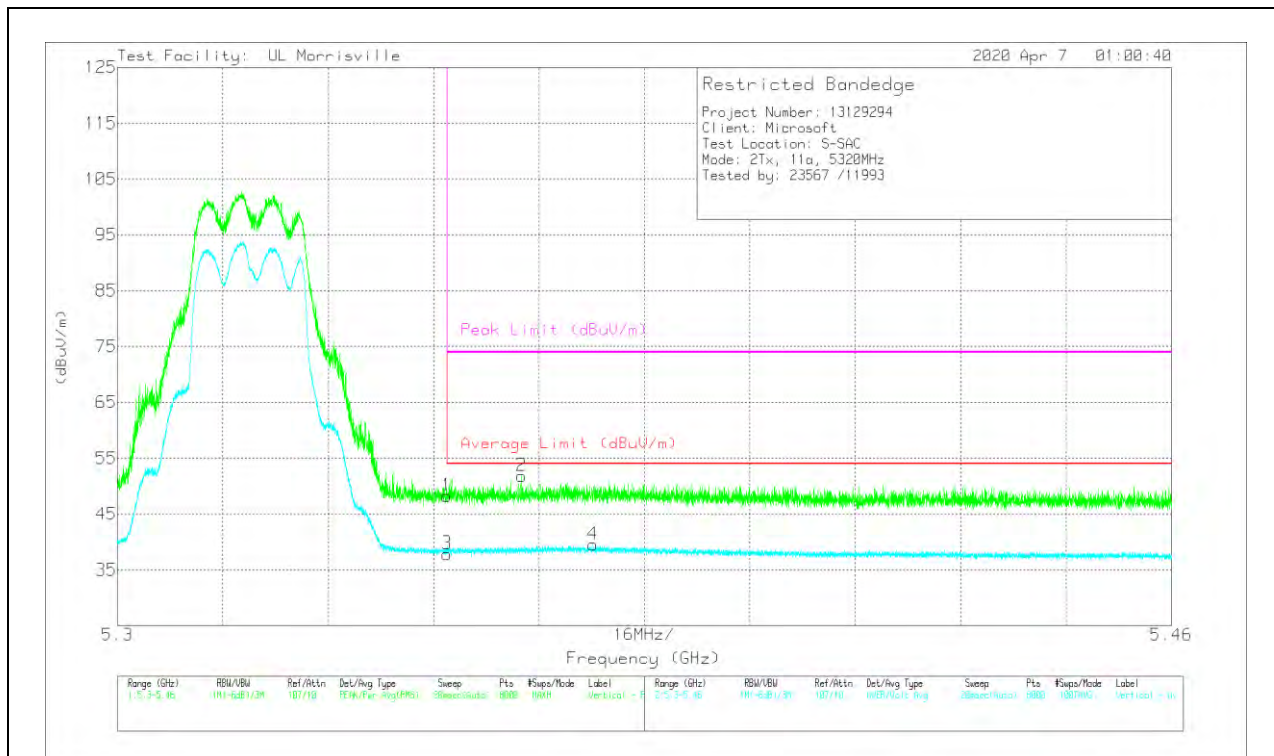
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl/Filt r/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35001	36.06	Pk	34.4	-22.6	47.86	-	-	74	-26.14	335	175	H
2	* 5.36509	39.34	Pk	34.4	-22.7	51.04	-	-	74	-22.96	335	175	H
3	* 5.35001	26.76	ADV	34.4	-22.6	38.56	54	-15.44	-	-	335	175	H
4	* 5.37601	27.47	ADV	34.4	-22.7	39.17	54	-14.83	-	-	335	175	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

ADV - U-NII AD primary method, Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dBm)	Ampl/Cbl/Fit n/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35001	36.44	Pk	34.4	-22.6	48.24	-	-	74	-25.76	220	293	V
2	* 5.36133	40.11	Pk	34.4	-22.7	51.81	-	-	74	-22.19	220	293	V
3	* 5.35001	26.04	ADV	34.4	-22.6	37.84	54	-16.16	-	-	220	293	V
4	* 5.37221	27.83	ADV	34.4	-22.7	39.53	54	-14.47	-	-	220	293	V

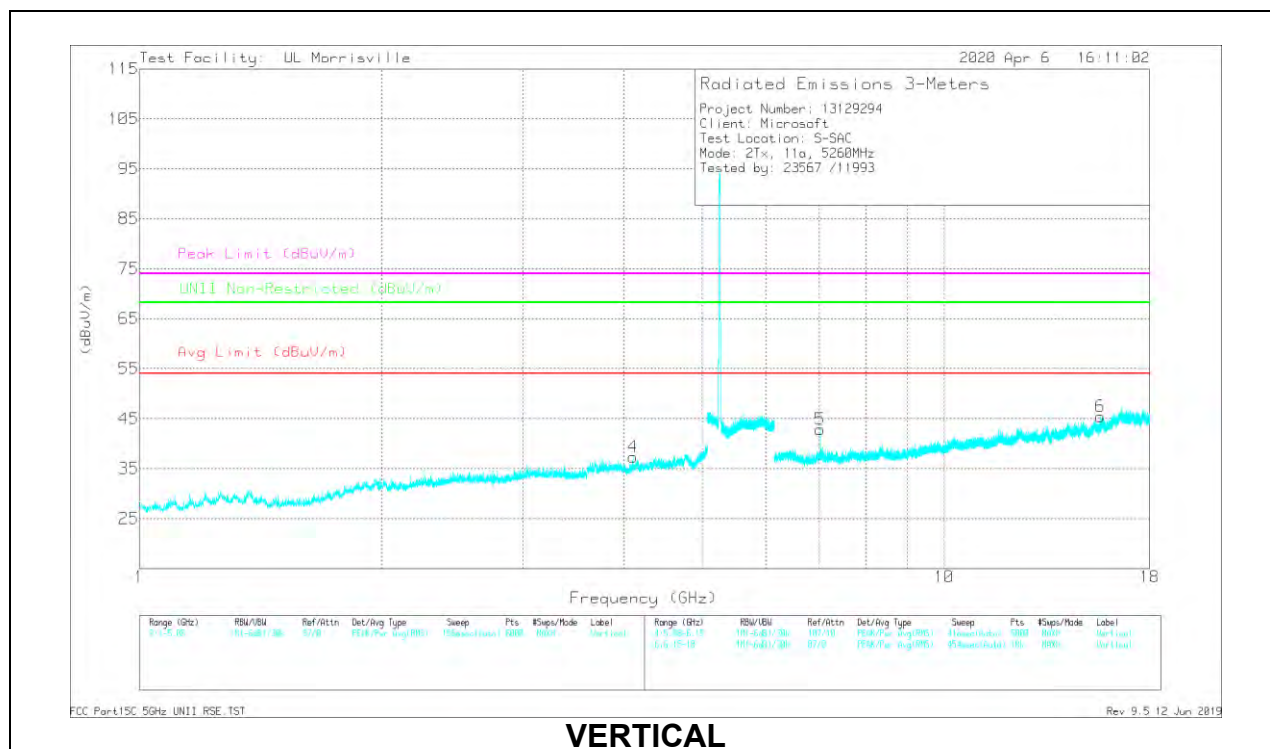
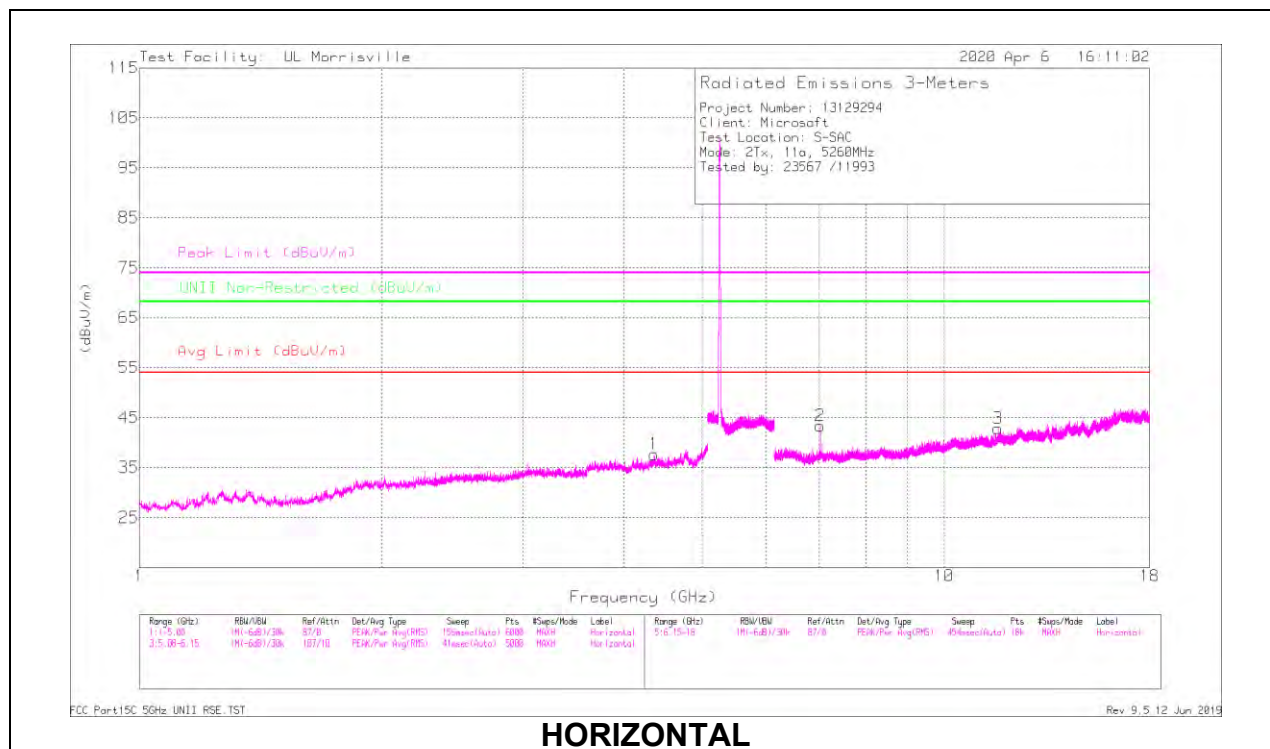
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

ADV - U-NII AD primary method, Linear Voltage Average

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



RADIATED EMISSIONS

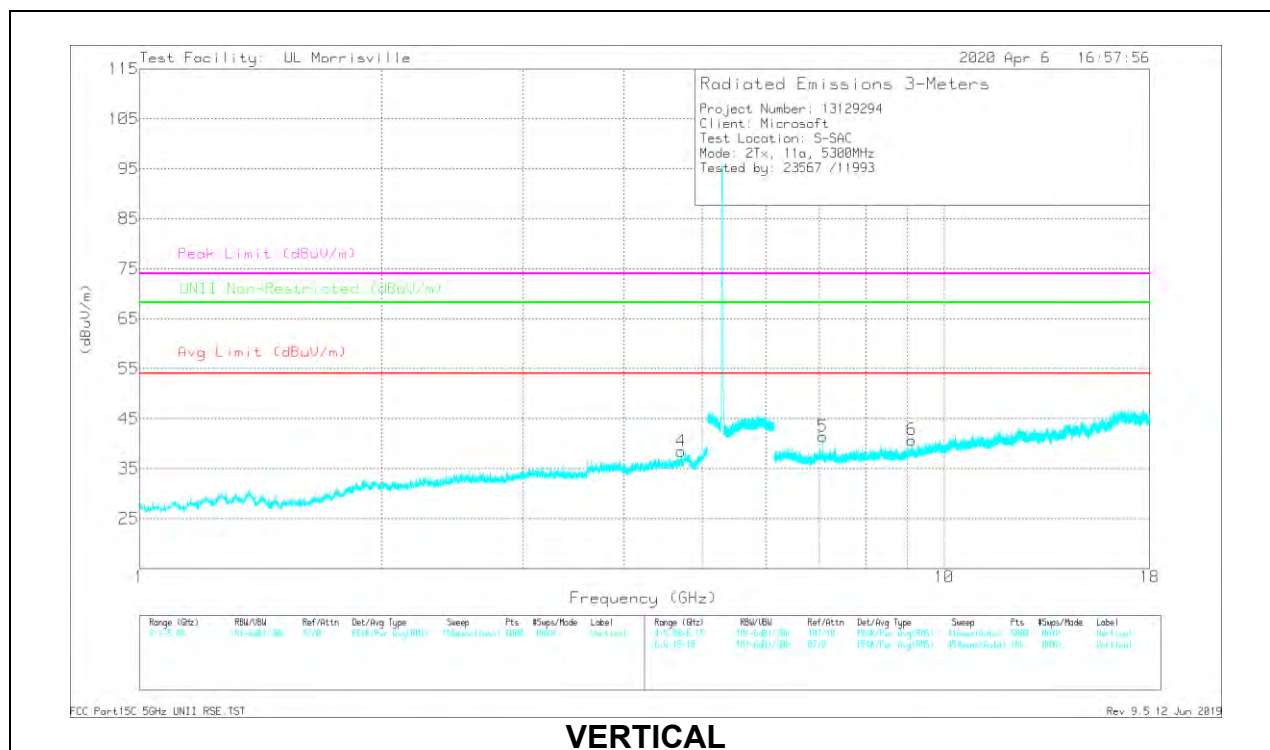
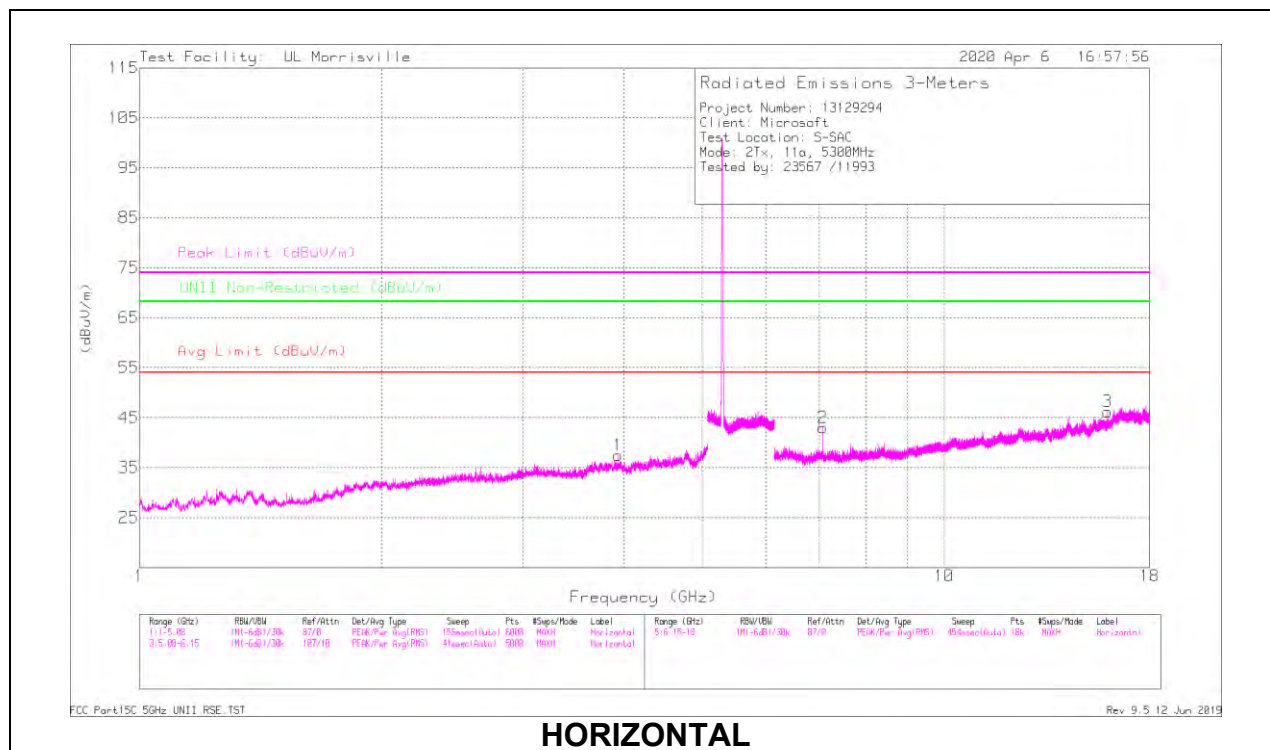
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	A10072 (dBm)	Amp/Cbl/Ftr/P ad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.36149	40.64	PK-U	33.7	-30.7	43.64	-	-	74	-30.36	-	-	225	159	H
	* 4.36044	27.69	ADV	33.7	-30.8	30.59	54	-23.41	-	-	-	-	225	159	H
4	* 4.10727	40.74	PK-U	33.5	-31.5	42.74	-	-	74	-31.26	-	-	170	176	V
	* 4.10723	27.78	ADV	33.5	-31.5	29.78	54	-24.22	-	-	-	-	170	176	V
3	* 11.66211	33.65	PK-U	38.4	-23.9	48.15	-	-	74	-25.85	-	-	212	122	H
	* 11.66151	20.47	ADV	38.4	-23.9	34.97	54	-19.03	-	-	-	-	212	122	H
6	* 15.63518	34.58	PK-U	40.1	-22.7	51.98	-	-	74	-22.02	-	-	63	280	V
	* 15.63415	20.89	ADV	40.1	-22.7	38.29	54	-15.71	-	-	-	-	63	280	V
5	7.01324	38.01	PK-U	35.7	-27.6	46.11	-	-	-	-	68.2	-22.09	0	148	V
2	7.01335	41.22	PK-U	35.7	-27.6	49.32	-	-	-	-	68.2	-18.88	226	135	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

ADV - U-NII AD primary method, Linear Voltage Average

MID CHANNEL RESULTS



RADIATED EMISSIONS

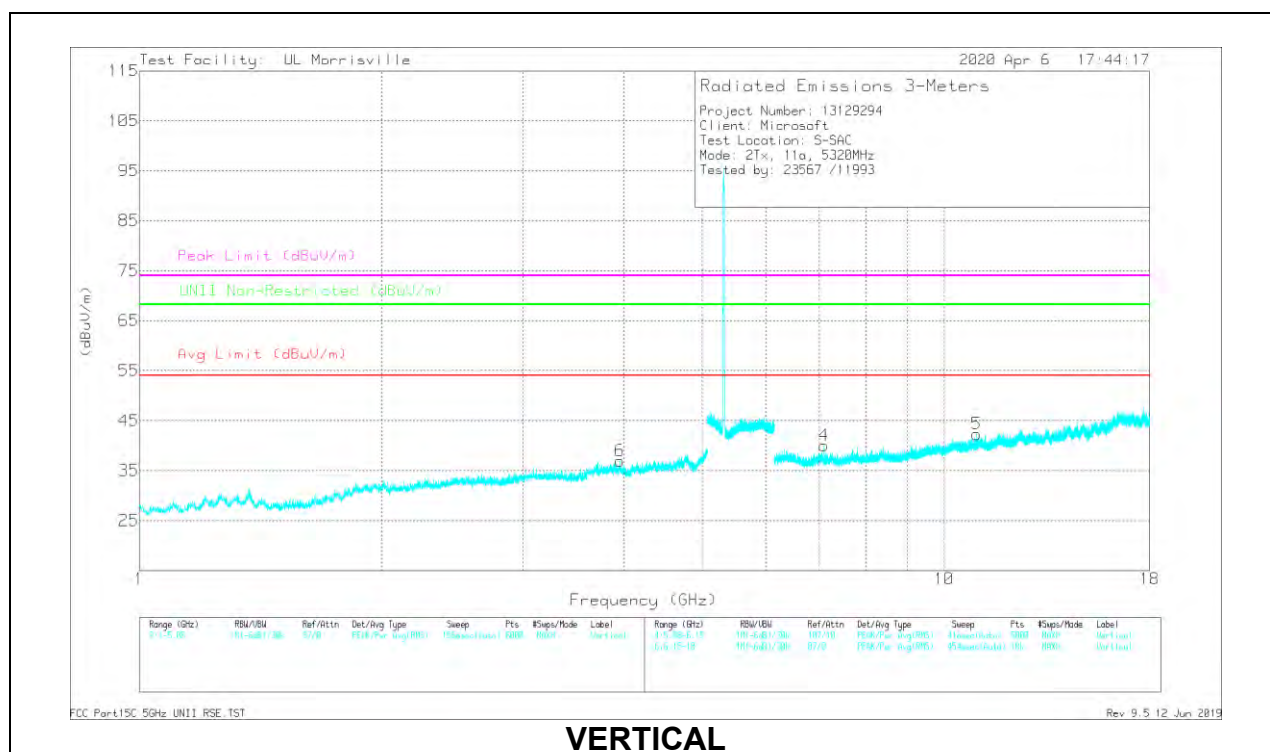
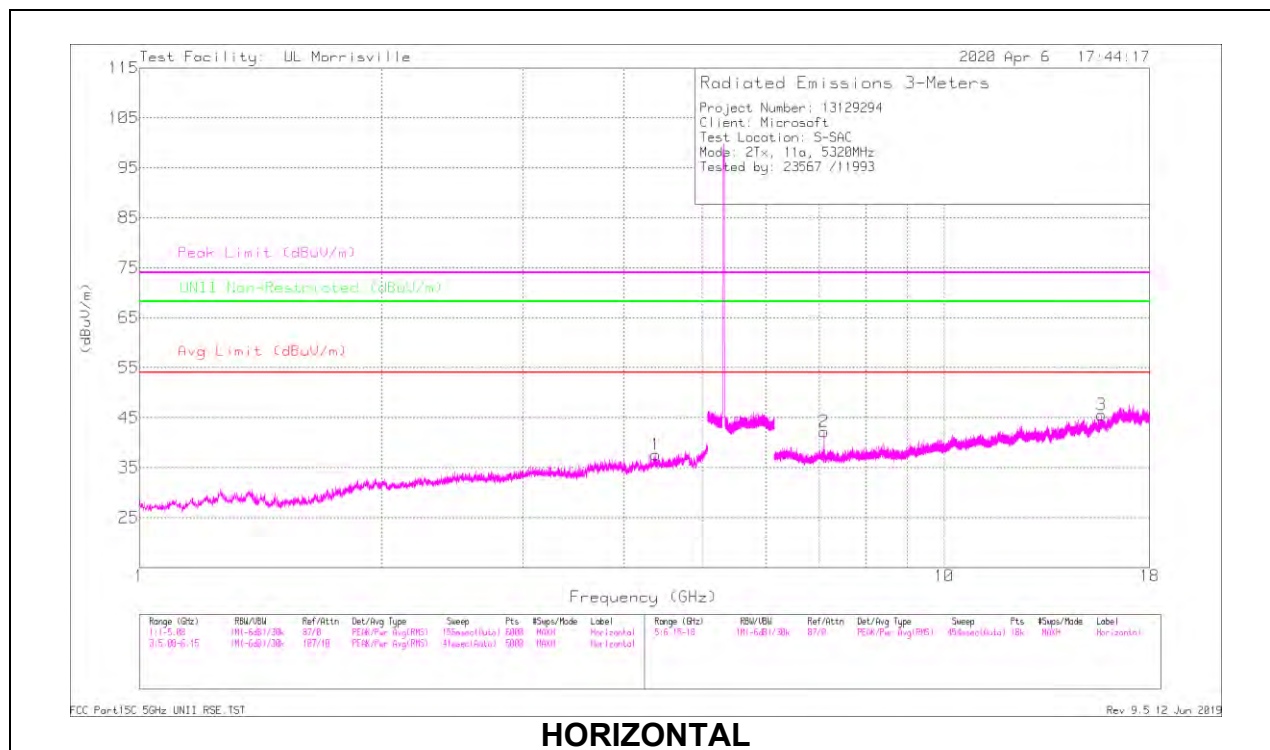
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	A10072 (dBm)	Amp/Cbl/Fit/P ad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.93218	40.98	PK-U	33.4	-31.6	42.78	-	-	74	-31.22	-	-	277	347	H
	* 3.93229	27.78	ADV	33.4	-31.6	29.58	54	-24.42	-	-	-	-	277	347	H
4	* 4.71481	40.53	PK-U	34	-30.6	43.93	-	-	74	-30.07	-	-	76	248	V
	* 4.71433	27.69	ADV	34	-30.6	31.09	54	-22.91	-	-	-	-	76	248	V
3	* 15.95359	34.45	PK-U	40.6	-23.4	51.65	-	-	74	-22.35	-	-	145	340	H
	* 15.95393	21.24	ADV	40.6	-23.4	38.44	54	-15.56	-	-	-	-	145	340	H
6	* 9.11826	35.21	PK-U	36.6	-26	45.81	-	-	74	-28.19	-	-	298	280	V
	* 9.11765	21.86	ADV	36.6	-26	32.46	54	-21.54	-	-	-	-	298	280	V
5	7.0666	40.01	PK-U	35.7	-28.1	47.61	-	-	-	-	68.2	-20.59	10	109	V
2	7.06665	40.27	PK-U	35.7	-28.1	47.87	-	-	-	-	68.2	-20.33	219	103	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

ADV - U-NII AD primary method, Linear Voltage Average

HIGH CHANNEL RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	A10072 (dBm)	Amp/Cbl/Ftr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.37869	40.5	PK-U	33.6	-30.6	43.5	-	-	74	-30.5	-	-	142	184	H
	* 4.3782	27.27	ADV	33.6	-30.6	30.27	54	-23.73	-	-	-	-	142	184	H
6	* 3.95321	41.06	PK-U	33.4	-31.4	43.06	-	-	74	-30.94	-	-	215	150	V
	* 3.95264	27.74	ADV	33.4	-31.5	29.64	54	-24.36	-	-	-	-	215	150	V
3	* 15.68838	34.13	PK-U	40.2	-22.7	51.63	-	-	74	-22.37	-	-	97	271	H
	* 15.68739	20.89	ADV	40.2	-22.8	38.29	54	-15.71	-	-	-	-	97	271	H
5	* 10.96626	33.96	PK-U	37.9	-24.1	47.76	-	-	74	-26.24	-	-	28	356	V
	* 10.96606	20.95	ADV	37.9	-24.1	34.75	54	-19.25	-	-	-	-	28	356	V
4	7.0932	39.12	PK-U	35.7	-28.3	46.52	-	-	-	-	68.2	-21.68	2	105	V
2	7.09342	40.95	PK-U	35.7	-28.3	48.35	-	-	-	-	68.2	-19.85	223	113	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

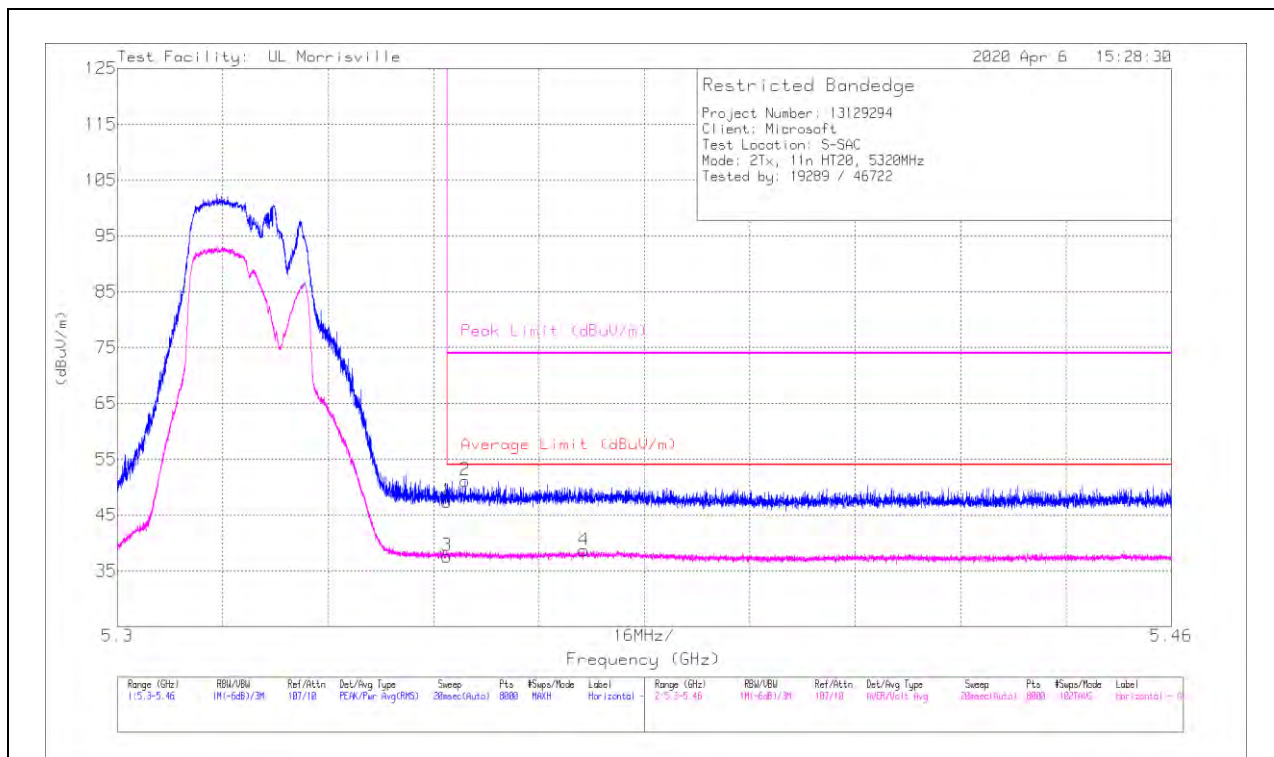
ADV - U-NII AD primary method, Linear Voltage Average

10.1.6. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.3 GHz BAND

2TX Antenna 1 + Antenna 2 CDD MODE

BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT



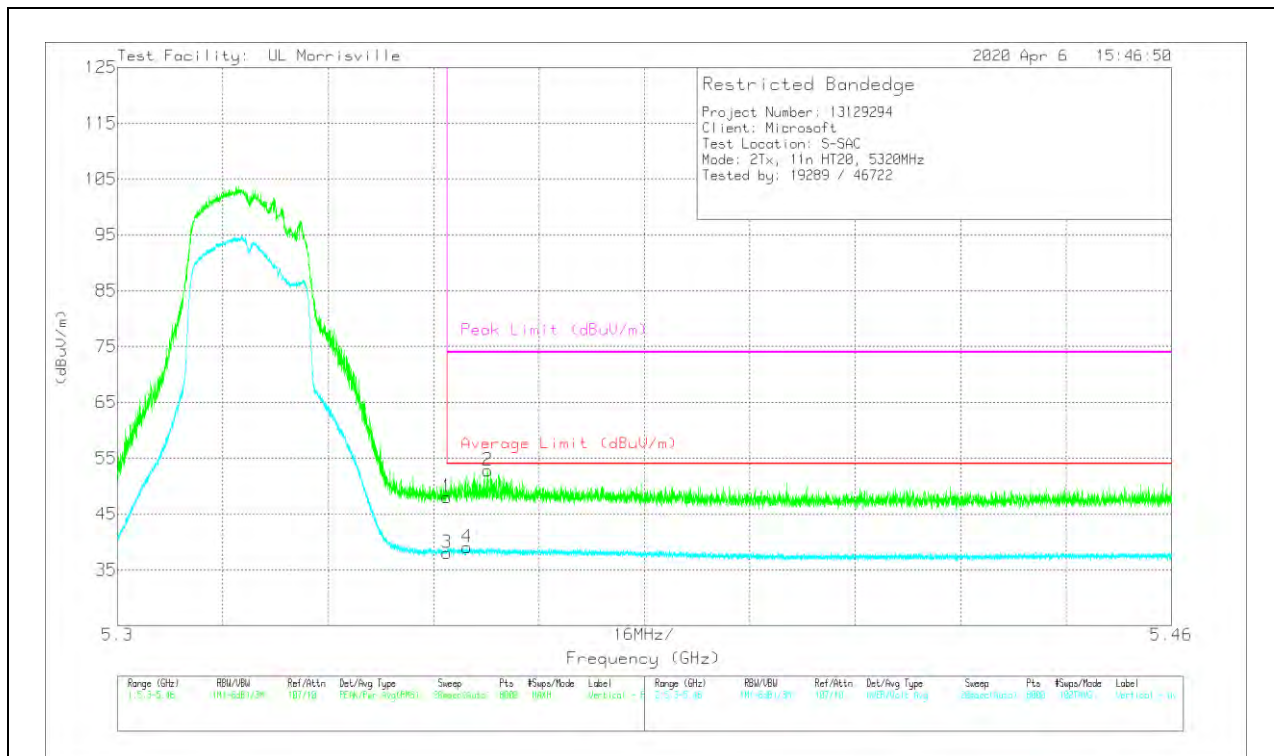
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dBm)	Amp/Cbl/Ftr/P ad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	* 5.35001	35.63	Pk	34.4	-22.6	0	47.43	-	-	74	-26.57	255	173	H
2	* 5.35281	39.44	Pk	34.4	-22.7	0	51.14	-	-	74	-22.86	255	173	H
3	* 5.35001	25.66	ADV	34.4	-22.6	.18	37.64	54	-16.36	-	-	255	173	H
4	* 5.37081	26.75	ADV	34.4	-22.7	.18	38.63	54	-15.37	-	-	255	173	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

ADV - U-NII AD primary method, Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dBm)	Amp/Cal/Freq/ad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Acimuth (Degs)	Height (cm)	Polarity
1	* 5.35001	36.24	Pk	34.4	-22.6	0	48.04	-	-	74	-25.96	201	257	V
2	* 5.35623	41.19	Pk	34.4	-22.8	0	52.79	-	-	74	-21.21	201	257	V
3	* 5.35001	26.05	ADV	34.4	-22.6	.18	38.03	54	-15.97	-	-	201	257	V
4	* 5.35305	27.13	ADV	34.4	-22.7	.18	39.01	54	-14.99	-	-	201	257	V

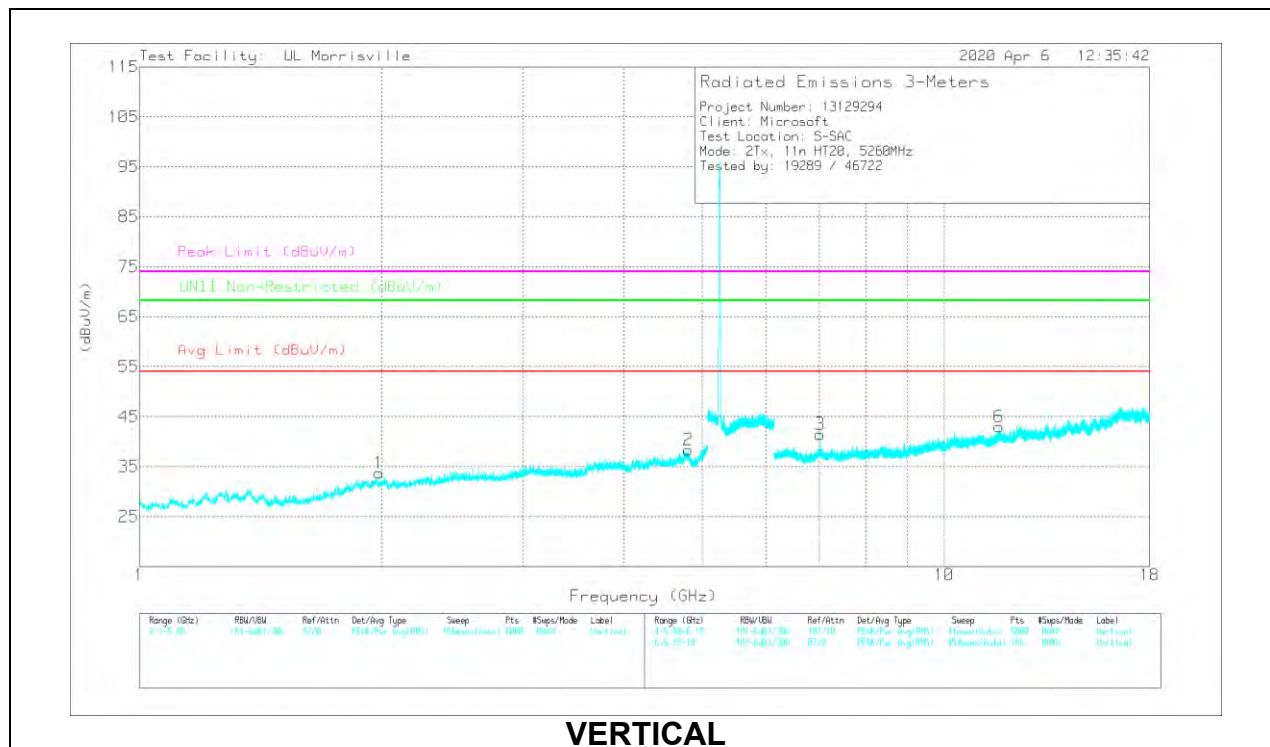
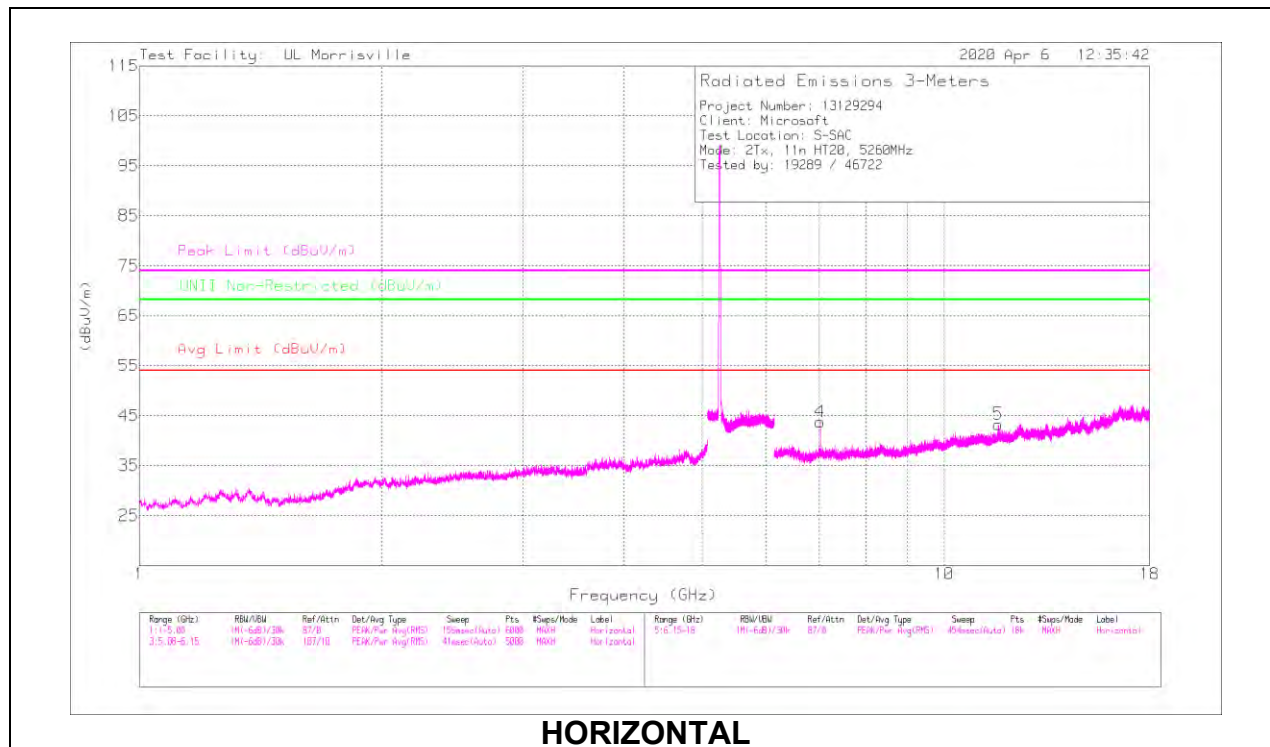
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

ADV - U-NII AD primary method, Linear Voltage Average

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



RADIATED EMISSIONS

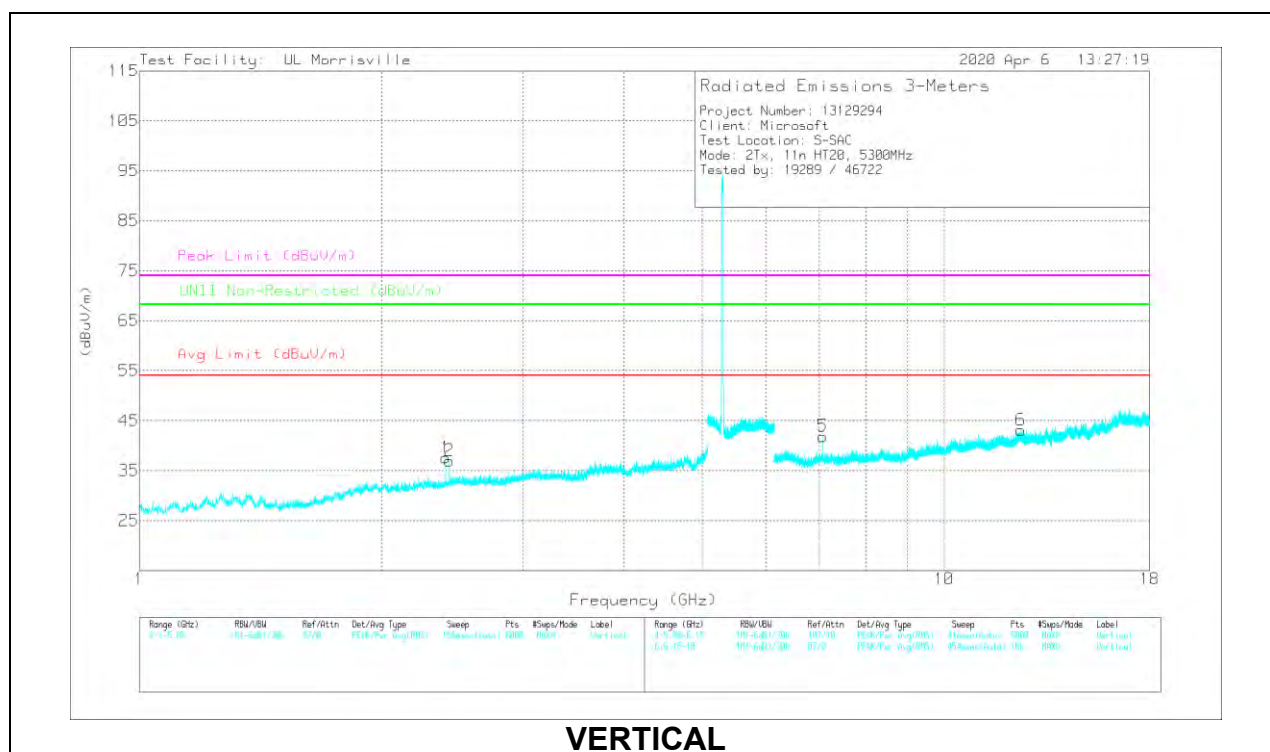
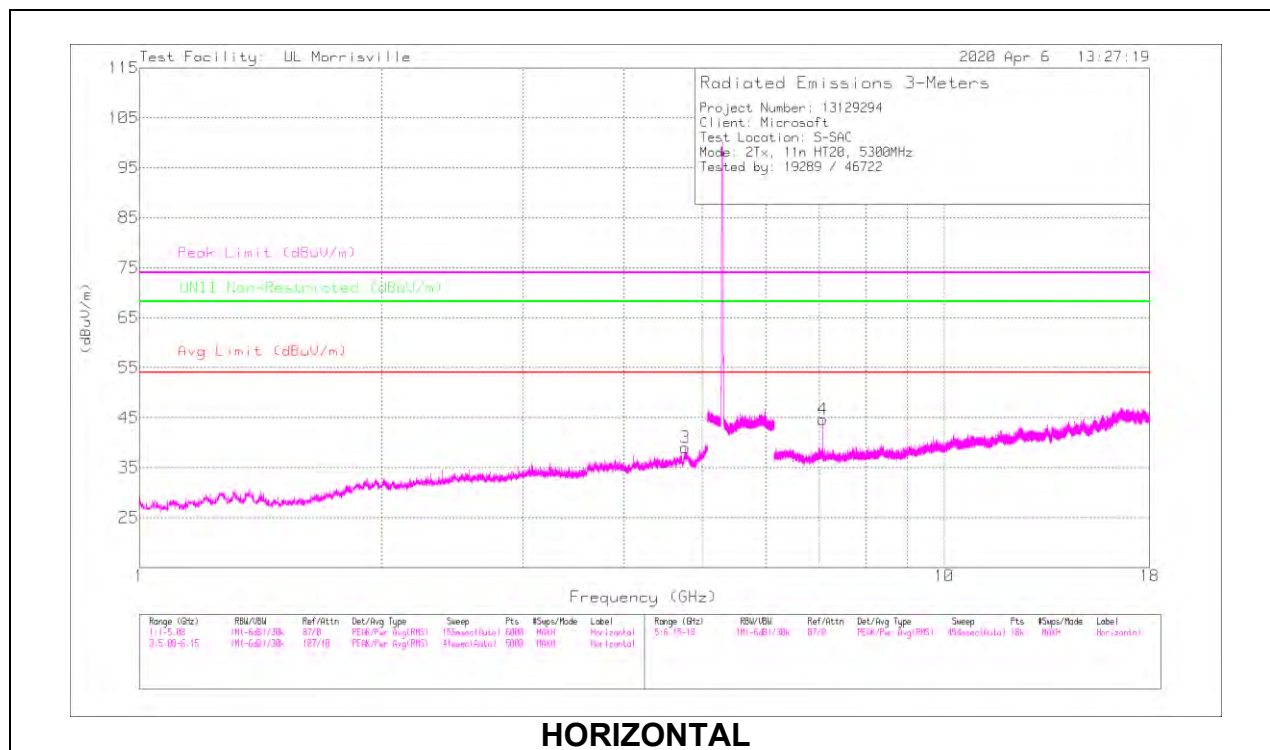
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dBm)	Amp/CbI/Fir/PA d (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 4.8108	40.83	PK-U	34.2	-30.3	0	44.73	-	-	74	-29.27	-	-	107	362	V
	* 4.81018	27.86	ADV	34.2	-30.3	18	31.94	54	-22.06	-	-	-	-	107	362	V
5	* 11.67257	33.82	PK-U	38.4	-23.8	0	48.42	-	-	74	-25.58	-	-	338	172	H
	* 11.67272	20.6	ADV	38.4	-23.8	18	35.38	54	-18.62	-	-	-	-	338	172	H
6	* 11.70456	34.03	PK-U	38.4	-23.6	0	48.83	-	-	74	-25.17	-	-	111	237	V
	* 11.70442	20.62	ADV	38.4	-23.6	18	35.6	54	-18.4	-	-	-	-	111	237	V
1	1.98519	41.63	PK-U	31.4	-33.8	0	39.23	-	-	-	-	68.2	-28.97	150	357	V
3	7.01323	39.17	PK-U	35.7	-27.6	0	47.27	-	-	-	-	68.2	-20.93	353	119	V
4	7.0133	41.07	PK-U	35.7	-27.6	0	49.17	-	-	-	-	68.2	-19.03	227	148	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

ADV - U-NII AD primary method, Linear Voltage Average

MID CHANNEL RESULTS



RADIATED EMISSIONS

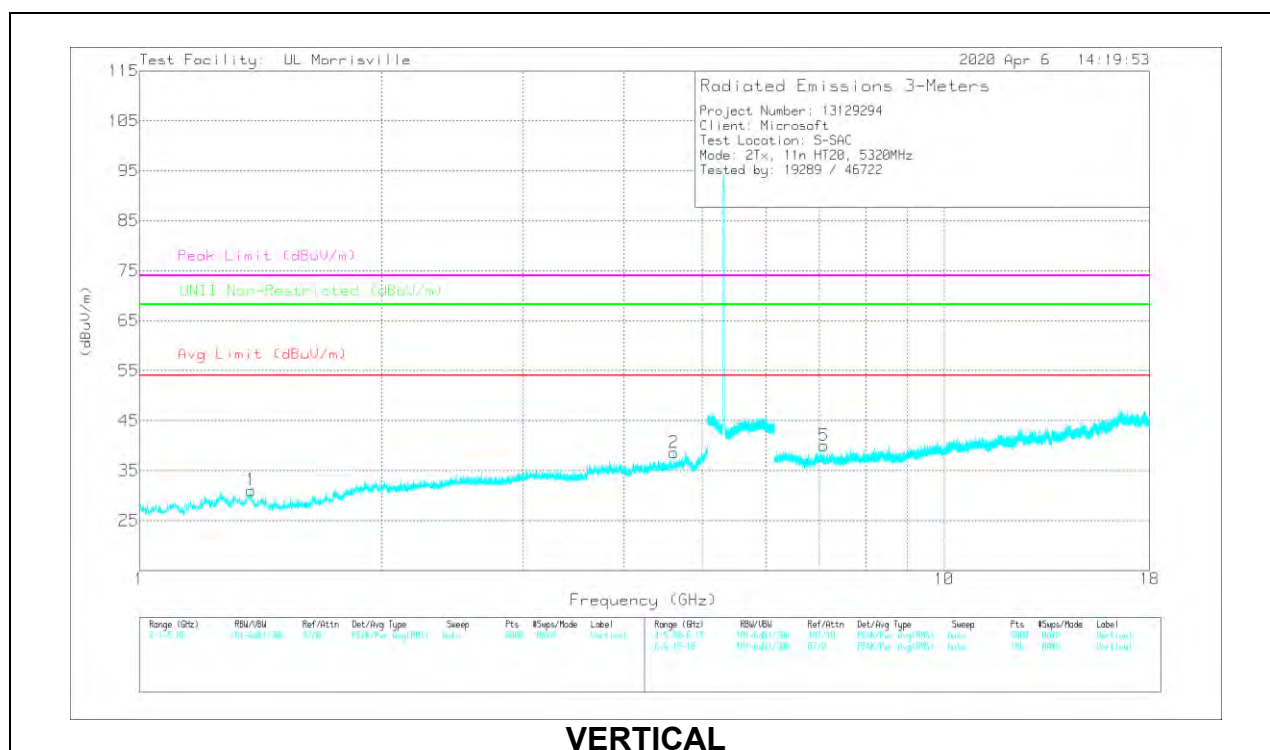
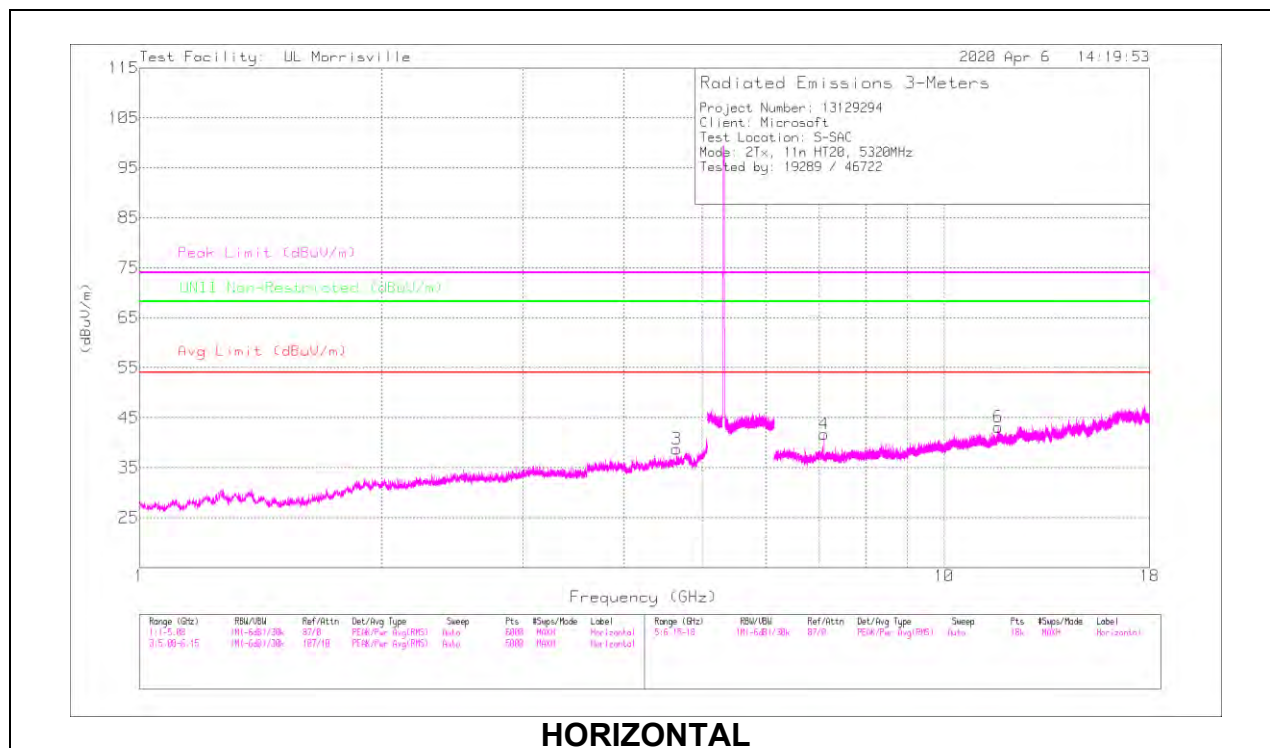
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dBm)	Amp/Cbl/Ftr/Pa d (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Altitude (Feet)	Height (cm)	Polarity
3	* 4.7678	41.79	PK-U	34.1	-30.8	0	45.09	-	-	74	-28.91	-	-	262	166	H
	* 4.76785	28.4	ADV	34.1	-30.8	18	31.88	54	-22.12	-	-	-	-	262	166	H
6	* 12.4506	33.69	PK-U	38.9	-23.1	0	49.49	-	-	74	-24.51	-	-	32	220	V
	* 12.45075	20.57	ADV	38.9	-23.1	18	36.55	54	-17.45	-	-	-	-	32	220	V
1	2.40226	47.68	PK-U	31.9	-33.9	0	45.68	-	-	-	-	68.2	-22.52	123	134	V
2	2.42652	43.71	PK-U	32.1	-33.8	0	42.01	-	-	-	-	68.2	-26.19	136	209	V
4	7.06657	41.79	PK-U	35.7	-28.1	0	49.39	-	-	-	-	68.2	-18.81	233	178	H
5	7.06678	40.83	PK-U	35.7	-28.1	0	48.43	-	-	-	-	68.2	-19.77	223	215	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

ADV - U-NII AD primary method, Linear Voltage Average

HIGH CHANNEL RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dBm)	Amp/CbI/Fir/Pa d (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 4.65093	40.25	PK-U	34.1	-30.7	0	43.65	-	-	74	-30.35	-	-	91	333	H
	* 4.65046	27.11	ADV	34.1	-30.7	18	30.69	54	-23.31	-	-	-	-	91	333	H
1	* 1.37513	44.58	PK-U	29.2	-34.4	0	39.38	-	-	74	-34.62	-	-	103	270	V
	* 1.37535	29.33	ADV	29.2	-34.4	18	24.31	54	-29.69	-	-	-	-	103	270	V
2	* 4.61344	40.3	PK-U	34.1	-30.7	0	43.7	-	-	74	-30.3	-	-	228	275	V
	* 4.61416	27.25	ADV	34.1	-30.7	18	30.83	54	-23.17	-	-	-	-	228	275	V
6	* 11.67612	33.58	PK-U	38.4	-23.8	0	48.18	-	-	74	-25.82	-	-	128	377	H
	* 11.67622	21.51	ADV	38.4	-23.8	18	36.29	54	-17.71	-	-	-	-	128	377	H
4	7.09329	40.6	PK-U	35.7	-28.3	0	48	-	-	-	-	68.2	-20.2	225	103	H
5	7.09343	39.84	PK-U	35.7	-28.3	0	47.24	-	-	-	-	68.2	-20.96	10	114	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

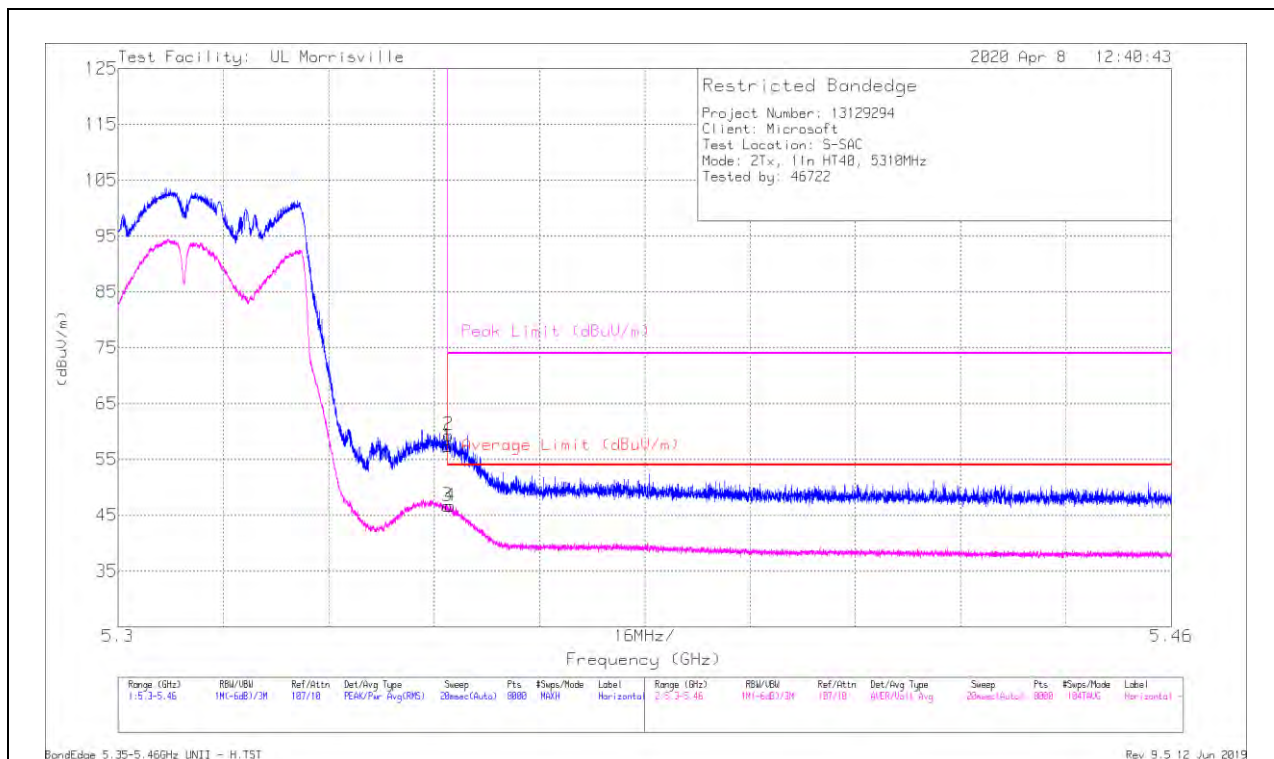
ADV - U-NII AD primary method, Linear Voltage Average

10.1.7. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.3 GHz BAND

2TX Antenna 1 + Antenna 2 CDD MODE

BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT



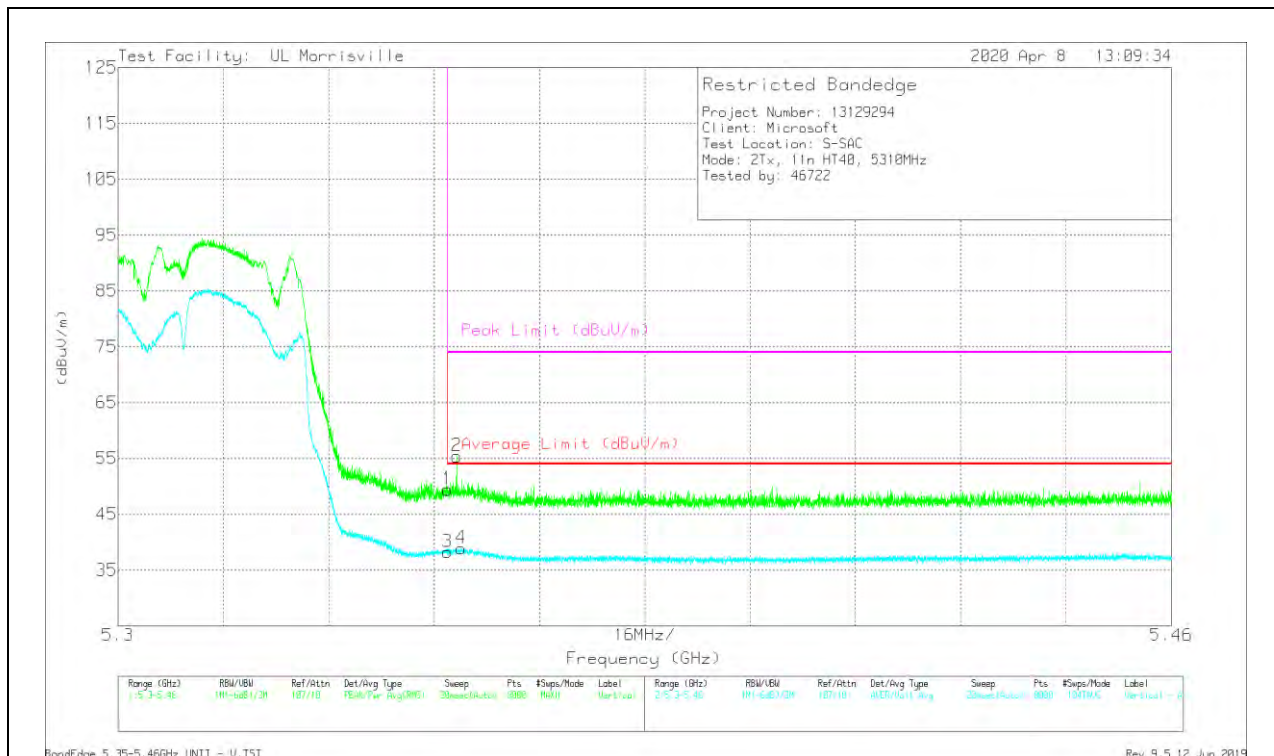
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dBm)	Amp/Cb1/Ftr/Ps d (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35001	45.58	Pk	34.4	-22.6	0	57.38	-	-	74	-16.62	219	154	H
2	* 5.35023	47.58	Pk	34.4	-22.6	0	59.38	-	-	74	-14.62	219	154	H
3	* 5.35001	34.53	ADV	34.4	-22.6	-36	46.69	54	-7.31	-	-	219	154	H
4	* 5.35049	34.5	ADV	34.4	-22.6	-36	46.66	54	-7.34	-	-	219	154	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

ADV - U-NII AD primary method, Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dBm)	Amp/Cali/Filt/PA (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Acimuth (Degs)	Height (cm)	Polarity
1	* 5.35001	37.62	Pk	34.4	-22.6	0	49.42	-	-	74	-24.58	306	300	V
2	* 5.35143	43.69	Pk	34.4	-22.7	0	55.39	-	-	74	-18.61	306	300	V
3	* 5.35001	26.09	ADV	34.4	-22.6	.36	38.25	54	-15.75	-	-	306	300	V
4	* 5.35211	26.82	ADV	34.4	-22.7	.36	38.88	54	-15.12	-	-	306	300	V

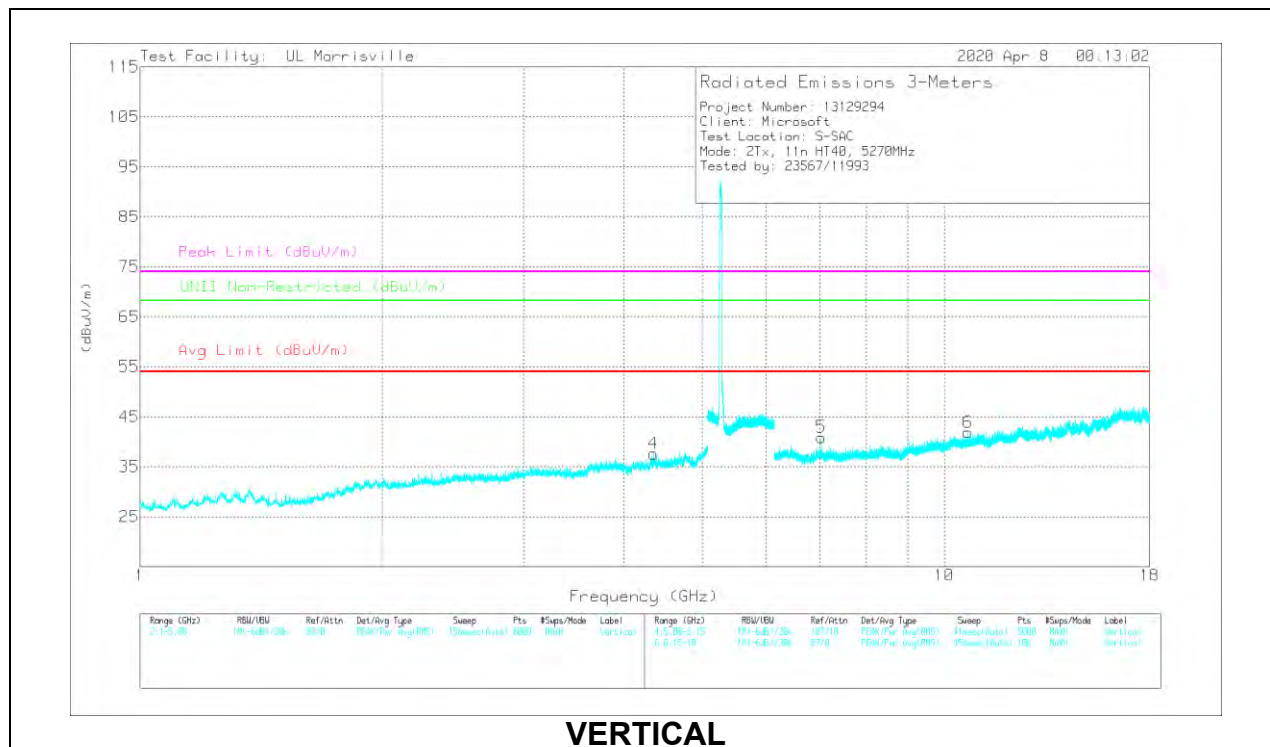
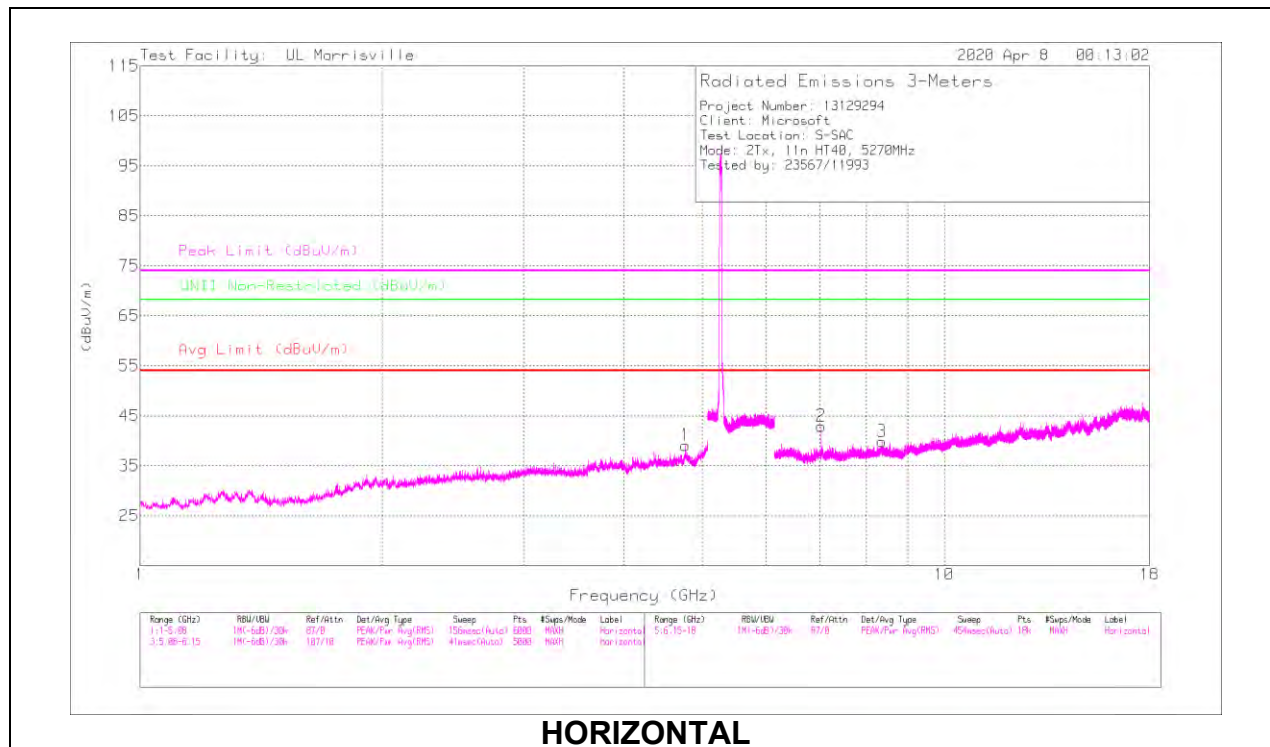
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

ADV - U-NII AD primary method, Linear Voltage Average

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



RADIATED EMISSIONS

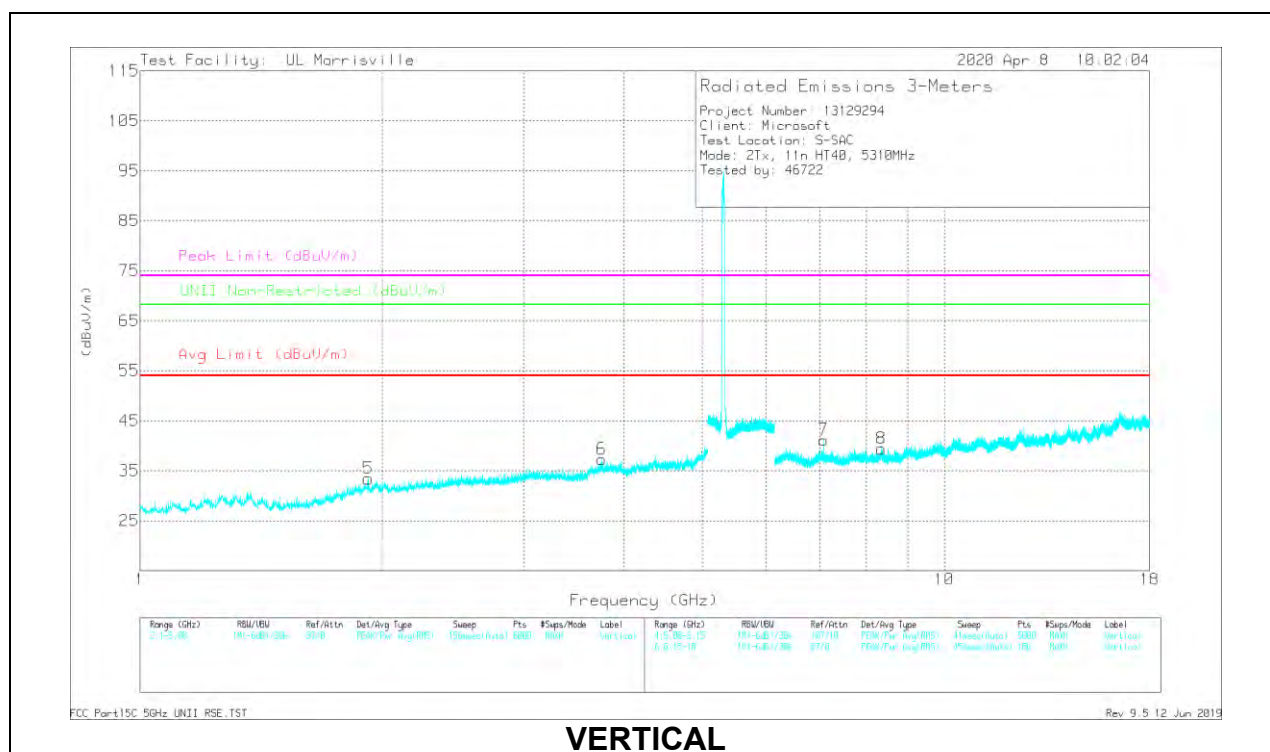
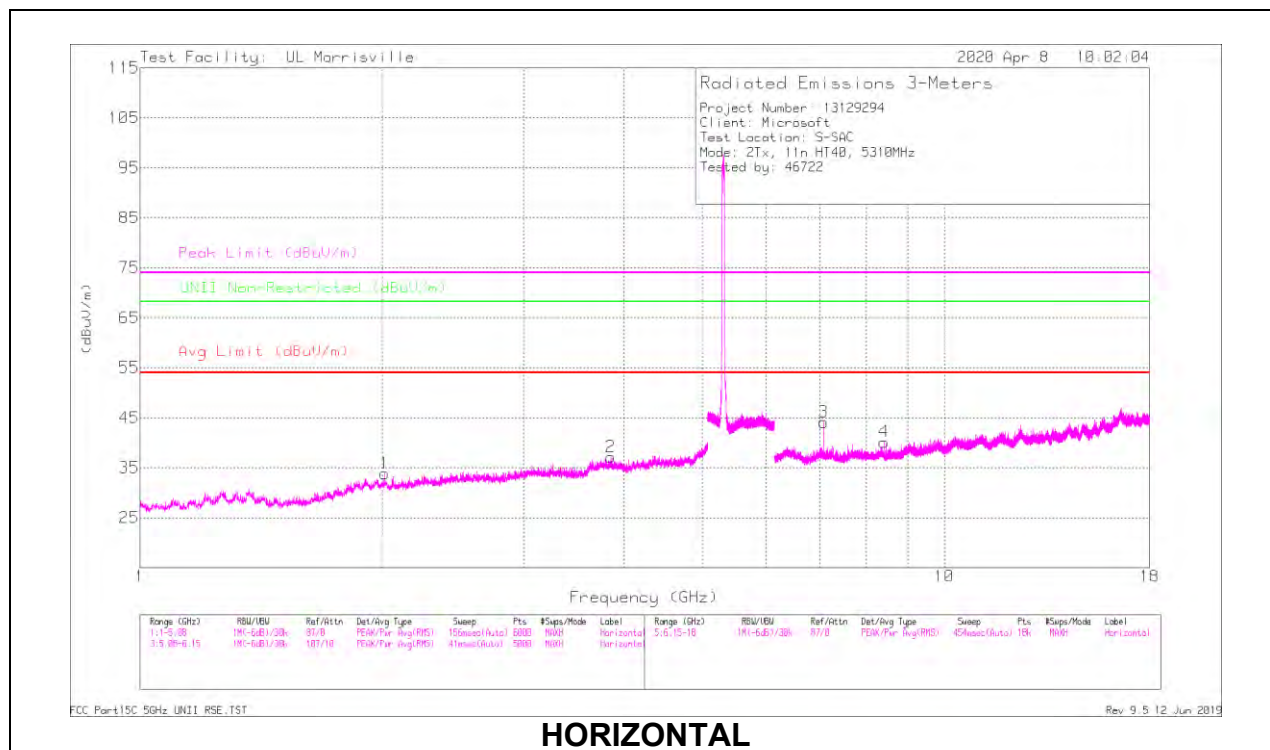
Marker	Frequency (kHz)	Meter Reading (dBuV)	Det	AT6072 (dBm)	Amp/Cbl/Filt/PA d (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.76529	41.52	PK-U	34.1	-30.8	0	44.82	-	-	74	-29.18	-	-	239	332	H
	* 4.76536	28.41	ADV	34.1	-30.8	-36	32.07	54	-21.93	-	-	-	-	239	332	H
4	* 4.35076	40.46	PK-U	33.7	-31	0	43.16	-	-	74	-30.84	-	-	172	365	V
	* 4.3508	27.46	ADV	33.7	-31	-36	30.52	54	-23.48	-	-	-	-	172	365	V
3	* 8.3605	36.95	PK-U	36	-26.6	0	46.35	-	-	74	-27.65	-	-	170	376	H
	* 8.35941	23.13	ADV	36	-26.6	-36	32.89	54	-21.11	-	-	-	-	170	376	H
6	* 10.70142	33.61	PK-U	37.7	-24.4	0	46.91	-	-	74	-27.09	-	-	235	252	V
	* 10.7009	20.85	ADV	37.7	-24.4	-36	34.51	54	-19.49	-	-	-	-	235	252	V
5	7.02664	38.29	PK-U	35.8	-27.8	0	47.29	-	-	-	-	68.2	-20.91	3	103	V
2	7.0267	40.46	PK-U	35.8	-27.8	0	48.46	-	-	-	-	68.2	-19.74	219	101	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

ADV - U-NII AD primary method, Linear Voltage Average

HIGH CHANNEL RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	At0072 (dBm)	AmpChdFtr/ Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Unit Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.01083	42.04	PK-U	31.4	-33.9	0	39.54	-	-	-	-	68.2	-28.66	139	253	H
2	* 3.84467	41.09	PK-U	33.5	-32.3	0	42.29	-	-	74	-31.71	-	-	348	302	H
	* 3.84551	28.51	ADV	33.5	-32.3	36	30.07	54	-23.93	-	-	-	-	348	302	H
5	1.92276	41.73	PK-U	31.2	-33.8	0	39.13	-	-	-	-	68.2	-29.07	134	252	V
6	* 3.75015	40.98	PK-U	33.3	-32.2	0	42.08	-	-	74	-31.92	-	-	163	327	V
	* 3.74887	28.41	ADV	33.3	-32.2	36	29.87	54	-24.13	-	-	-	-	163	327	V
4	* 8.41584	35.66	PK-U	36.1	-26.8	0	44.96	-	-	74	-29.04	-	-	324	247	H
	* 8.41511	22.96	ADV	36.1	-26.8	36	32.62	54	-21.38	-	-	-	-	324	247	H
8	* 8.35347	35.78	PK-U	36	-26.6	0	45.18	-	-	74	-28.82	-	-	229	170	V
	* 8.35009	23.26	ADV	36	-26.7	36	32.92	54	-21.08	-	-	-	-	229	170	V
3	7.07982	39.94	PK-U	35.7	-28.3	0	47.34	-	-	-	-	68.2	-20.86	222	103	H
7	7.07979	39.06	PK-U	35.7	-28.3	0	46.46	-	-	-	-	68.2	-21.74	356	116	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

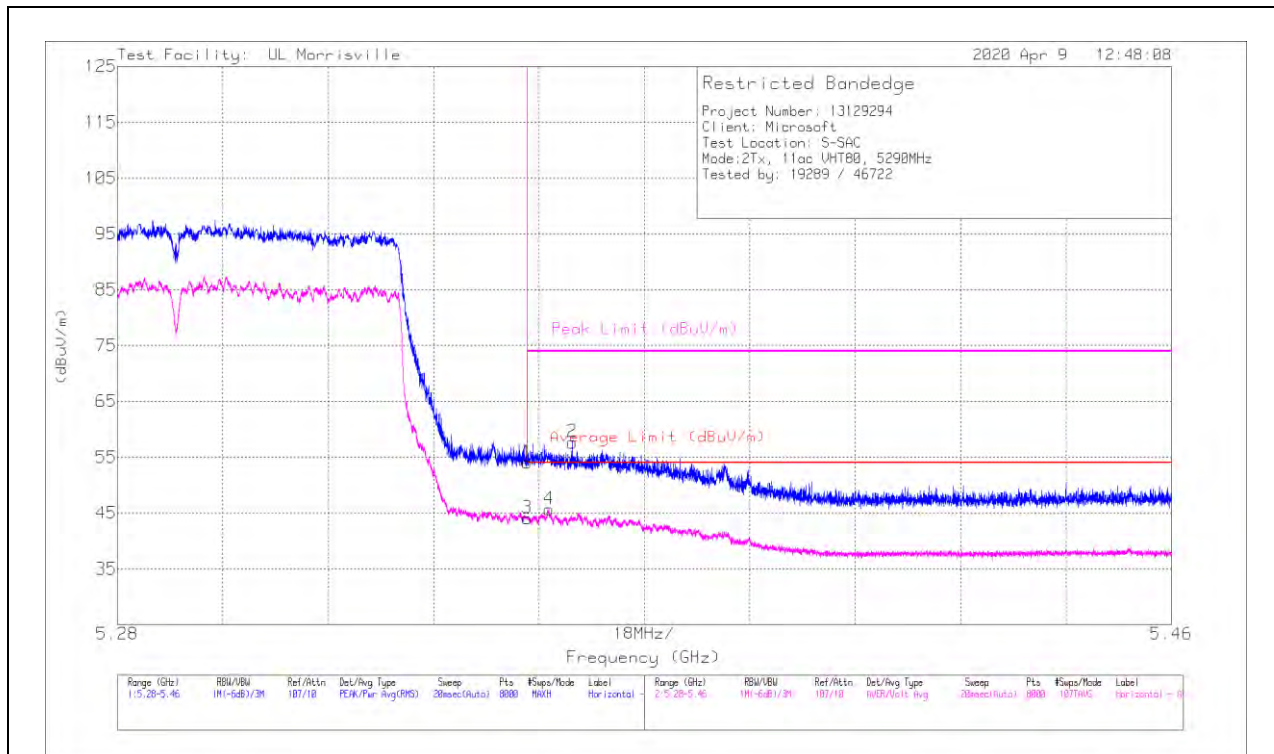
ADV - U-NII AD primary method, Linear Voltage Average

10.1.8. TX ABOVE 1 GHz 802.11ac VHT80 MODE IN THE 5.3 GHz BAND

2TX Antenna 1 + Antenna 2 CDD MODE

BANDEDGE (MID CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dBm)	Amp/Cb/Ftr/Pa 4 (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35001	42.22	PK	34.4	-22.6	0	54.02	-	-	74	-19.98	283	165	H
2	* 5.35768	45.97	PK	34.4	-22.7	0	57.67	-	-	74	-16.33	283	165	H
3	* 5.35001	31.6	ADV	34.4	-22.6	.66	44.06	54	-9.94	-	-	283	165	H
4	* 5.3537	33.3	ADV	34.4	-22.7	.66	45.66	54	-8.34	-	-	283	165	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK - Peak detector

ADV - U-NII AD primary method, Linear Voltage Average

Test Facility: UL Morrisville

2020 Apr 9 12:59:28

Restricted Bandedge

Project Number: 13129294
Client: Microsoft
Test Location: S-SAC
Mode: 2Tx, 11ac UHT80, 5290MHz
Tested by: 19289 / 46722

Peak Limit (dBuV/m)

Average Limit (dBuV/m)

dBuV/m

Frequency (GHz)

Range (GHz)	RBW/VBW	Ref/Att	Det/Avg Type	Sweep	Pts	#Sweeps/Mode	Label
5.28-5.46	100kHz/300Hz	107/10	PEAK/Max	3000000000	1000	1000	Vertical -1

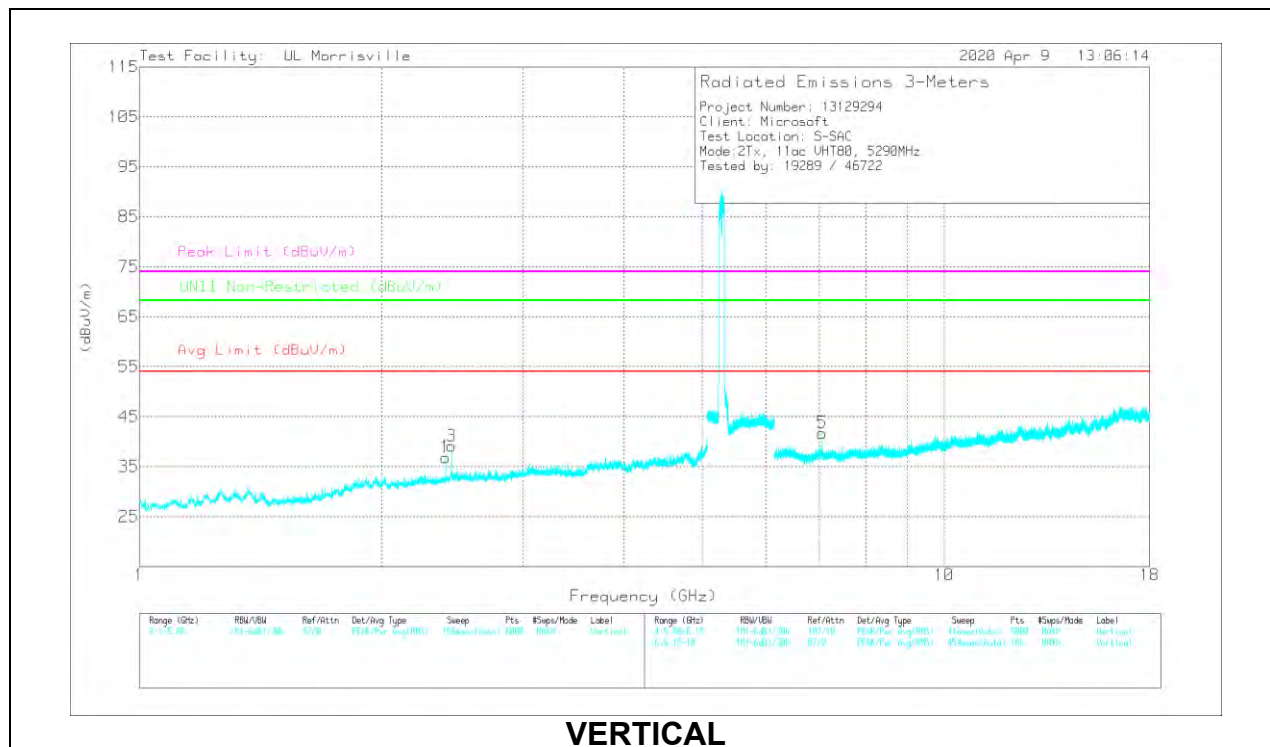
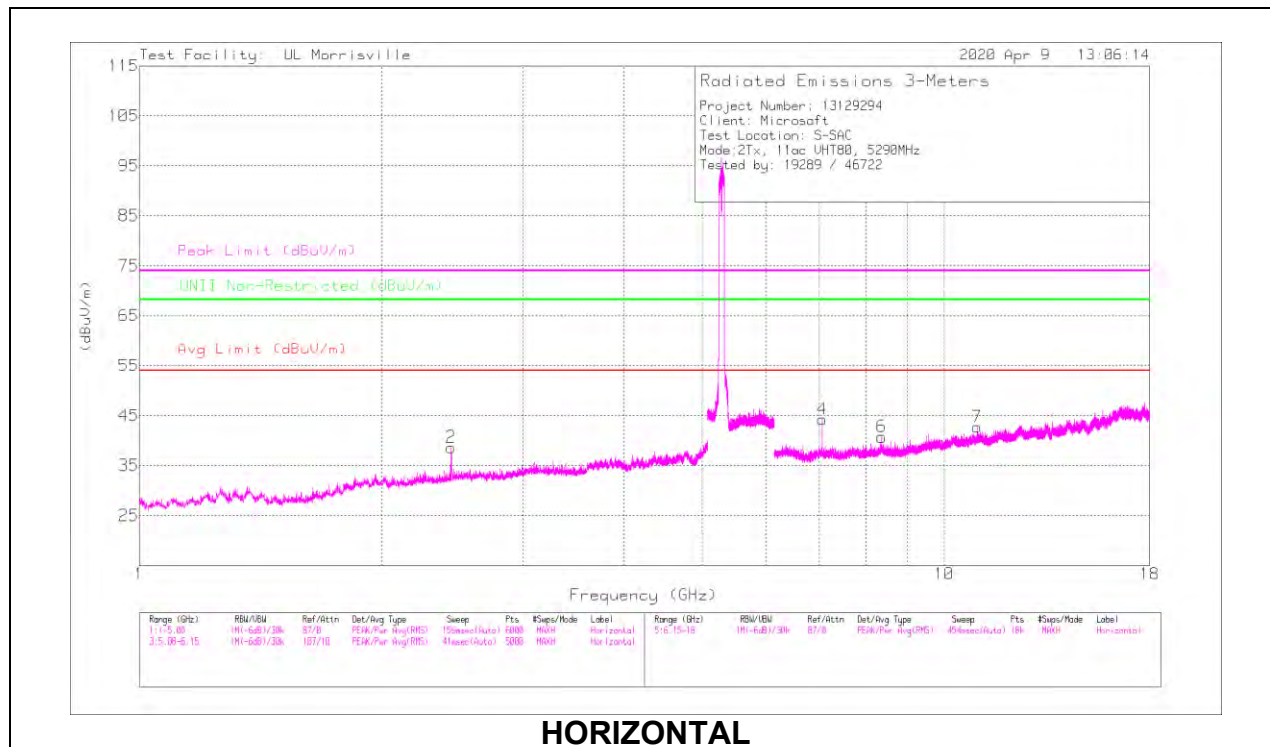
Range (GHz)	RBW/VBW	Ref/Att	Det/Avg Type	Sweep	Pts	#Sweeps/Mode	Label
5.28-5.46	100kHz/300Hz	107/10	PEAK/Max	3000000000	1000	1000	Vertical -1

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dBm)	Amp/Cb/IFtrPa d (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35001	44.2	Pk	34.4	-22.6	0	56	-	-	74	-18	194	243	V
2	* 5.35084	47.19	Pk	34.4	-22.7	0	58.89	-	-	74	-15.11	194	243	V
3	* 5.35001	33.06	ADV	34.4	-22.6	.66	45.52	54	-8.48	-	-	194	243	V
4	* 5.35388	34.76	ADV	34.4	-22.7	.66	47.12	54	-6.88	-	-	194	243	V

ADV - U-NII AD primary method, Linear Voltage Average

HARMONICS AND SPURIOUS EMISSIONS

MID CHANNEL RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dBm)	Amp/CbI/Fir/PA d (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Altitude (Feet)	Height (cm)	Polarity
6	* 8.36023	37.03	PK-U	36	-26.6	0	46.43	-	-	74	-27.57	-	-	358	212	H
	* 8.36033	23.2	ADV	36	-26.6	66	33.26	54	-20.74	-	-	-	-	358	212	H
7	* 10.9864	34.19	PK-U	37.9	-24.2	0	47.89	-	-	74	-26.11	-	-	253	224	H
	* 10.98605	20.86	ADV	37.9	-24.2	66	35.22	54	-18.78	-	-	-	-	253	224	H
1	2.40223	48.59	PK-U	31.9	-33.9	0	46.59	-	-	-	-	68.2	-21.61	48	207	V
2	2.4407	48.42	PK-U	32.1	-33.7	0	46.82	-	-	-	-	68.2	-21.38	115	378	H
3	2.44201	49.39	PK-U	32.1	-33.7	0	47.79	-	-	-	-	68.2	-20.41	309	231	V
4	7.05331	41.85	PK-U	35.8	-28	0	49.65	-	-	-	-	68.2	-18.55	229	137	H
5	7.05333	40.71	PK-U	35.8	-28	0	48.51	-	-	-	-	68.2	-19.69	224	233	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

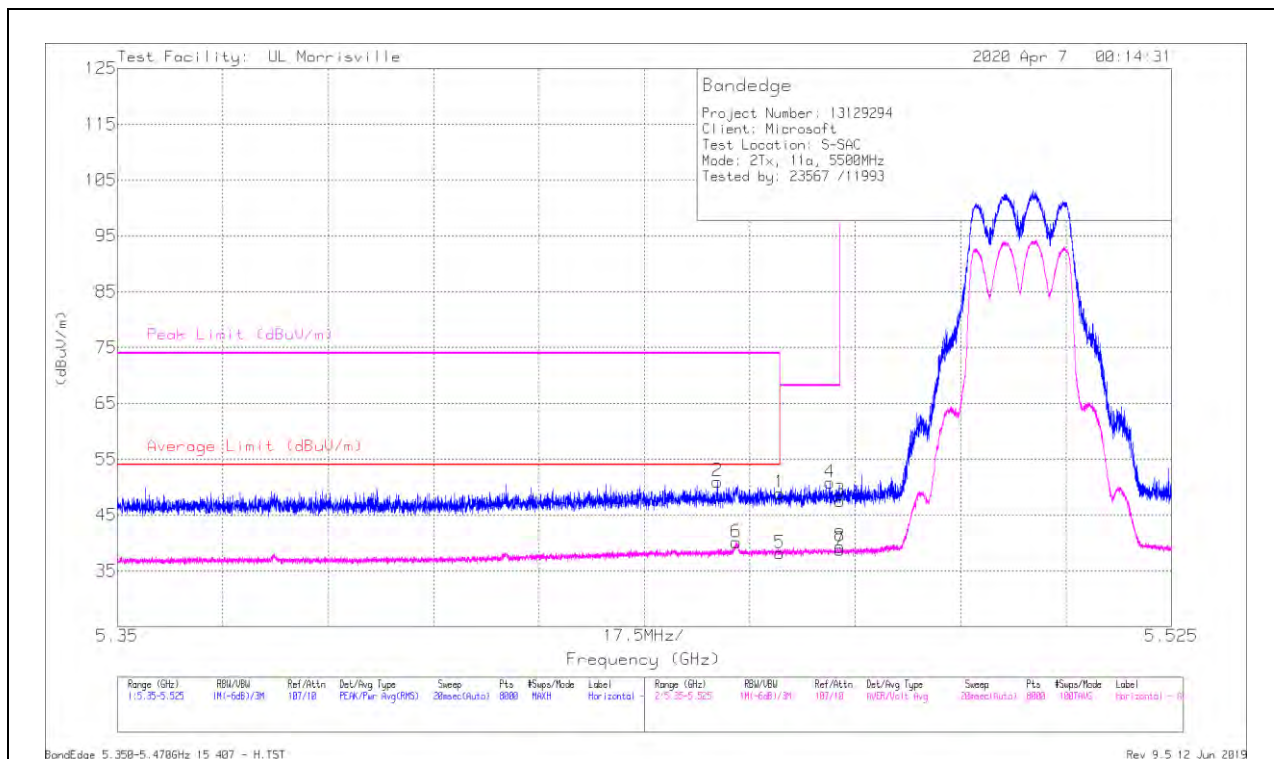
ADV - U-NII AD primary method, Linear Voltage Average

10.1.9. TX ABOVE 1 GHz 802.11a MODE IN THE 5.6 GHz BAND

2TX Antenna 1 + Antenna 2 CDD MODE

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



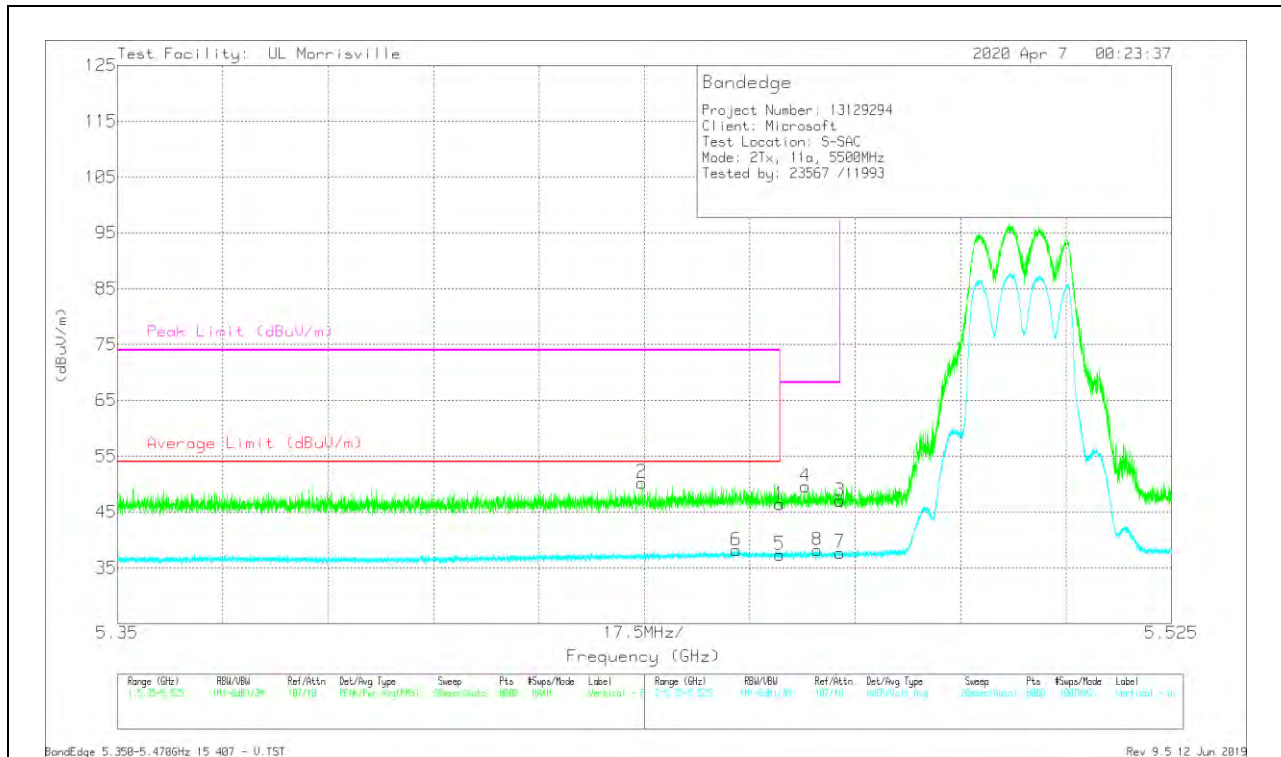
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl/Filt r/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.45998	37.43	Pk	34.5	-23	48.93	-	-	74	-25.07	24	118	H
2	* 5.44961	39.42	Pk	34.5	-22.9	51.02	-	-	74	-22.98	24	118	H
5	* 5.45998	26.7	ADV	34.5	-23	38.2	54	-15.8	-	-	24	118	H
6	* 5.45274	28.64	ADV	34.5	-23	40.14	54	-13.86	-	-	24	118	H
4	5.46832	39.32	Pk	34.5	-23	50.82	-	-	68.2	-17.38	24	118	H
8	5.46994	27.85	ADV	34.5	-23	39.35	-	-	-	-	24	118	H
3	5.46998	36	Pk	34.5	-23	47.5	-	-	68.2	-20.7	24	118	H
7	5.46998	27.27	ADV	34.5	-23	38.77	-	-	-	-	24	118	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

ADV - U-NII AD primary method, Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dBm)	Ampl/Cbl/Fit n/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.45998	34.87	Pk	34.5	-23	46.37	-	-	74	-27.63	61	251	V
2	* 5.43705	38.67	Pk	34.5	-22.9	50.27	-	-	74	-23.73	61	251	V
5	* 5.45998	25.86	ADV	34.5	-23	37.36	54	-16.64	-	-	61	251	V
6	* 5.45274	26.69	ADV	34.5	-23	38.19	54	-15.81	-	-	61	251	V
4	5.46425	38.18	Pk	34.5	-23.1	49.58	-	-	68.2	-18.62	61	251	V
8	5.46617	26.65	ADV	34.5	-23	38.15	-	-	-	-	61	251	V
3	5.46998	35.49	Pk	34.5	-23	46.99	-	-	68.2	-21.21	61	251	V
7	5.46998	26.24	ADV	34.5	-23	37.74	-	-	-	-	61	251	V

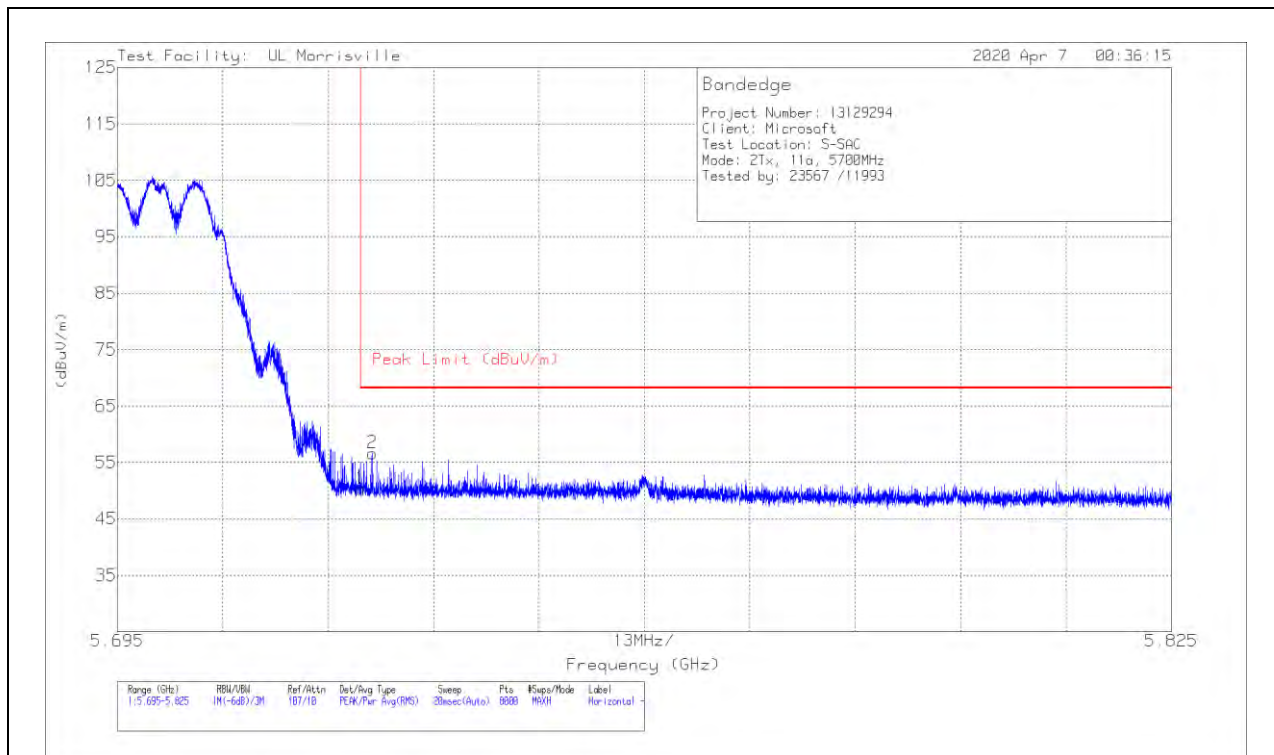
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

ADV - U-NII AD primary method, Linear Voltage Average

BANDEDGE (HIGH CHANNEL)

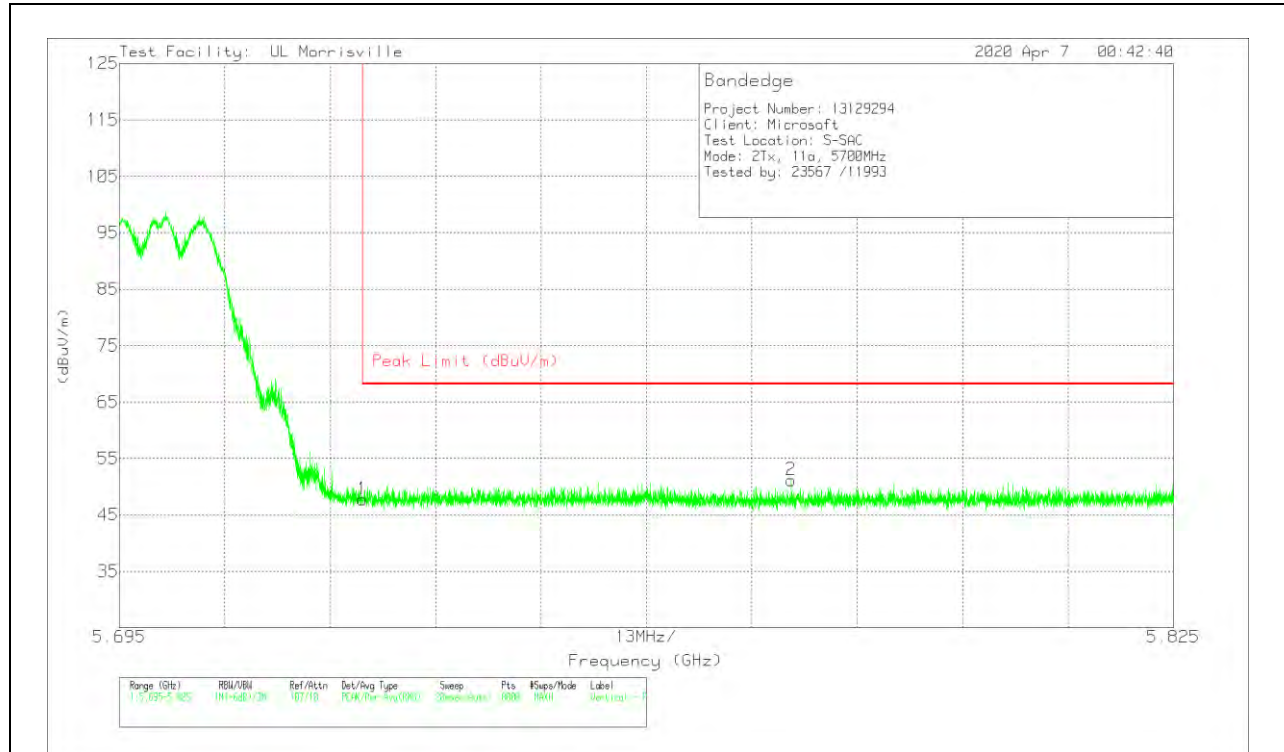
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl/Filtr/ Pad (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	38.44	Pk	34.7	-22.8	50.34	68.2	-17.86	16	125	H
2	5.72643	44.72	Pk	34.7	-22.8	56.62	68.2	-11.58	16	125	H

Pk - Peak detector

VERTICAL RESULT

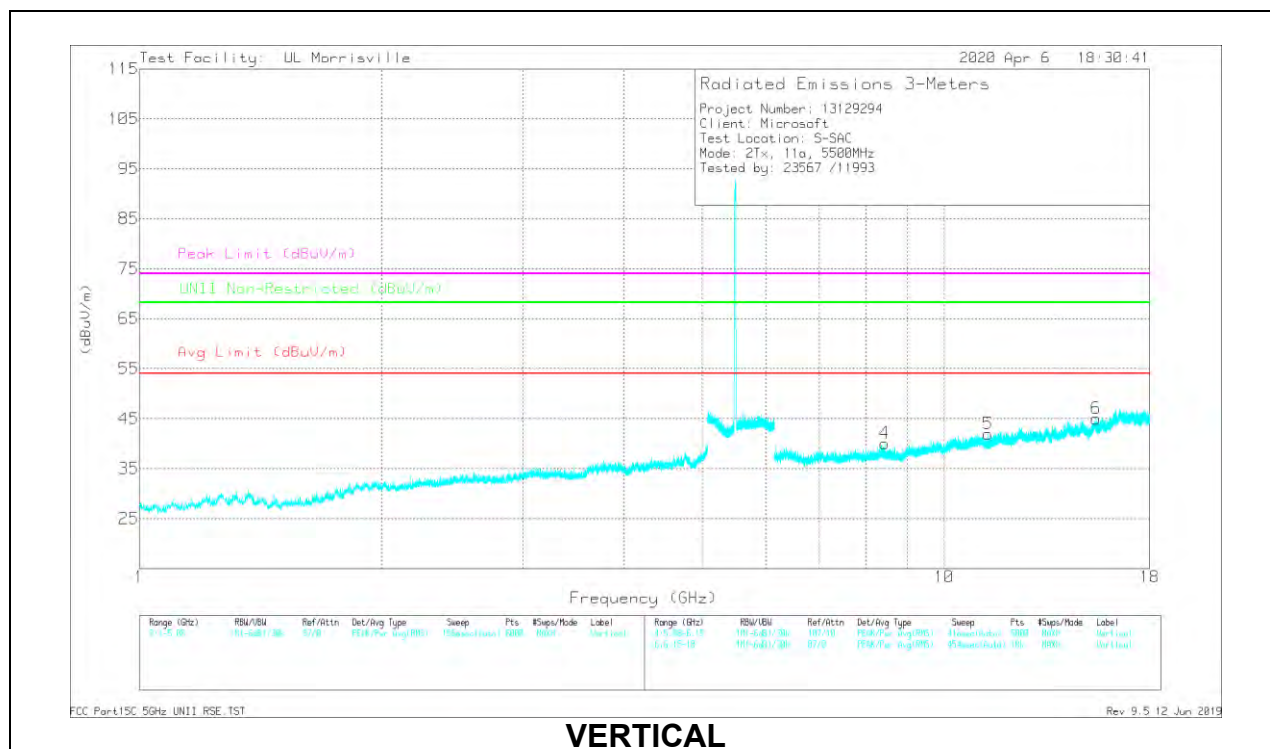
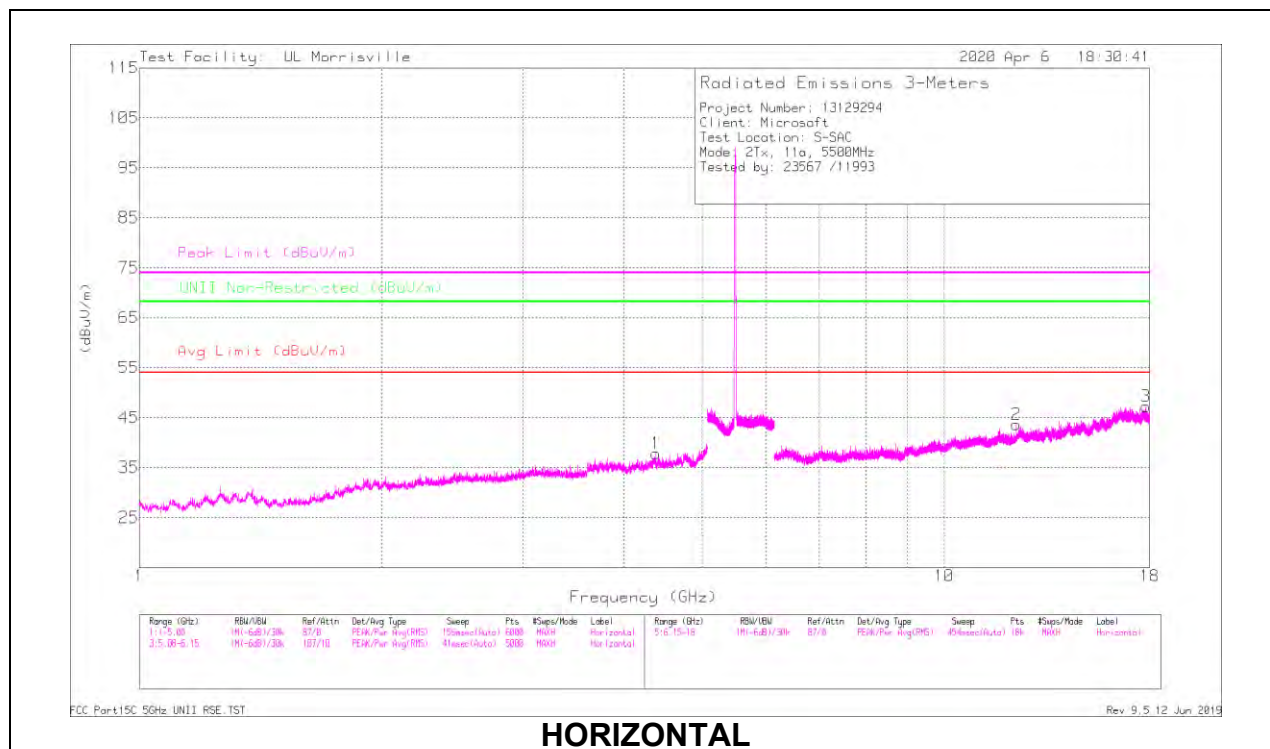


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Amp/Cbl/Fitr/ Pad (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	35.81	Pk	34.7	-22.8	47.71	68.2	-20.49	54	272	V
2	5.77784	39.24	Pk	34.8	-22.9	51.14	68.2	-17.06	54	272	V

Pk - Peak detector

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	A10072 (dBm)	Amp/Cbl/Fit/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.38365	40.49	PK-U	33.6	-30.6	43.49	-	-	74	-30.51	-	-	48	336	H
	* 4.3834	27.1	ADV	33.6	-30.6	30.1	54	-23.9	-	-	-	-	48	336	H
2	* 12.29539	33.7	PK-U	38.8	-23.7	48.8	-	-	74	-25.2	-	-	222	199	H
	* 12.29402	20.42	ADV	38.8	-23.8	35.42	54	-18.58	-	-	-	-	222	199	H
3	* 17.80519	33.3	PK-U	41.2	-21.5	53	-	-	74	-21	-	-	99	391	H
	* 17.80507	20.28	ADV	41.2	-21.5	39.98	54	-14.02	-	-	-	-	99	391	H
4	* 8.43546	36.23	PK-U	36.1	-26.8	45.53	-	-	74	-28.47	-	-	348	213	V
	* 8.43544	23.04	ADV	36.1	-26.8	32.34	54	-21.66	-	-	-	-	348	213	V
5	* 11.33723	33.33	PK-U	38	-23.9	47.43	-	-	74	-26.57	-	-	139	347	V
	* 11.33731	20.12	ADV	38	-23.9	34.22	54	-19.78	-	-	-	-	139	347	V
6	* 15.45662	32.93	PK-U	39.9	-21.6	51.23	-	-	74	-22.77	-	-	171	331	V
	* 15.45492	19.56	ADV	39.9	-21.6	37.86	54	-16.14	-	-	-	-	171	331	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK-U - U-NII: Maximum Peak

ADV - U-NII AD primary method, Linear Voltage Average

MID CHANNEL RESULTS

