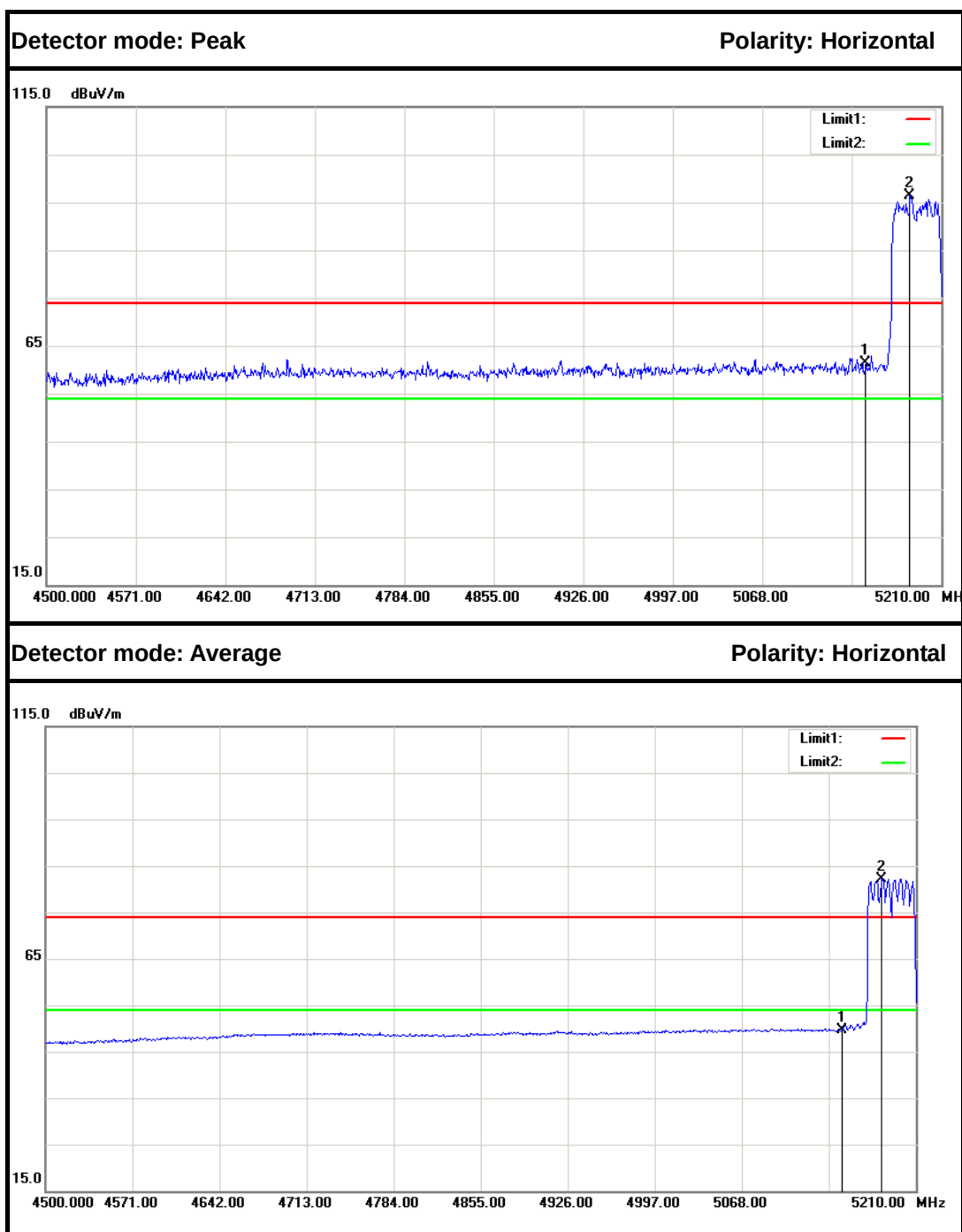
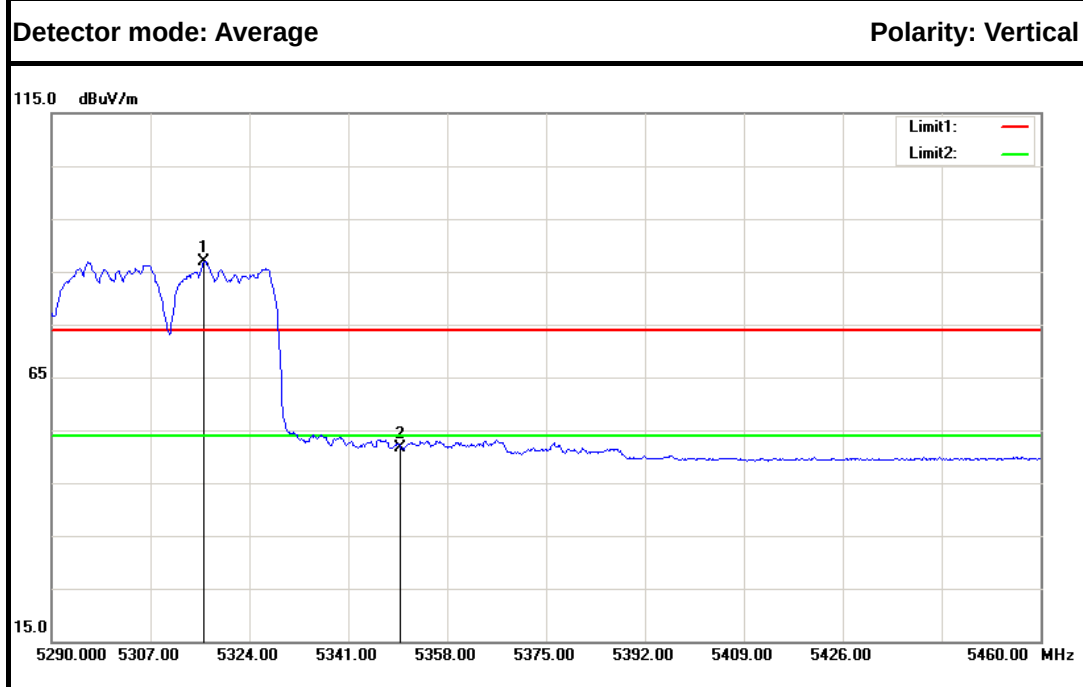
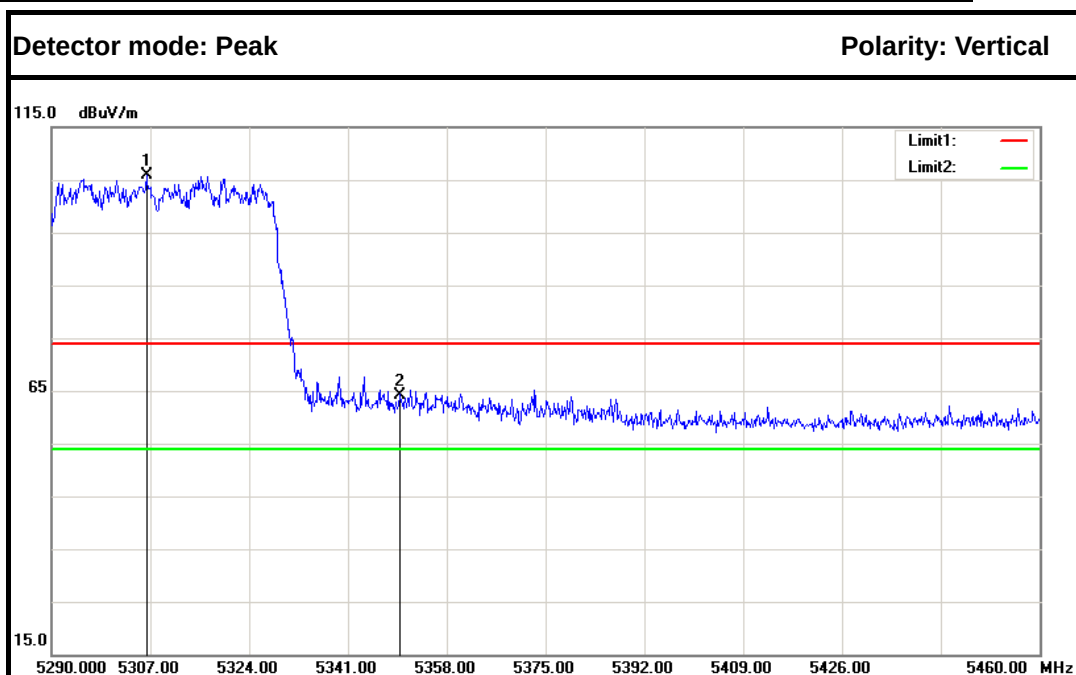




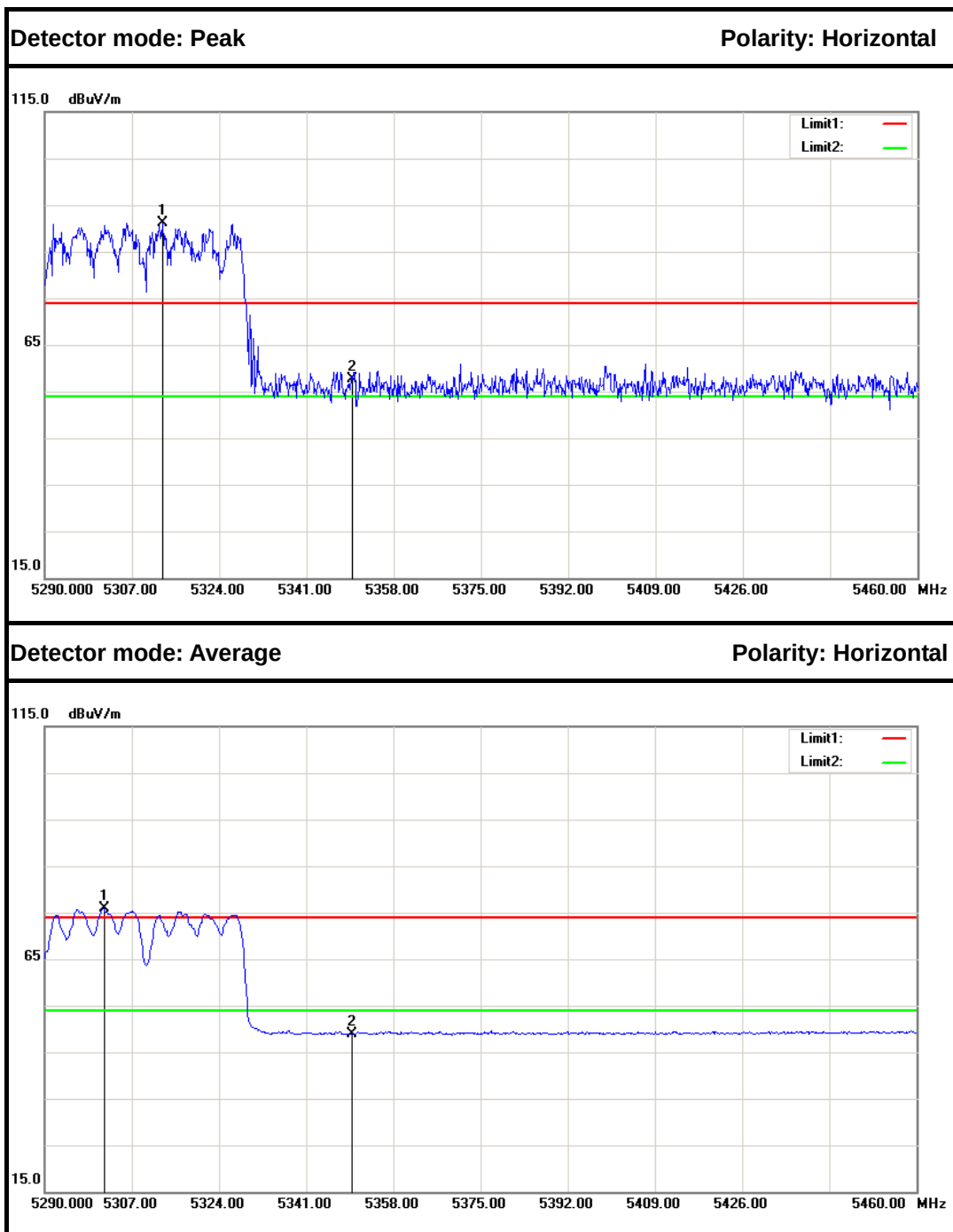
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5150.000	56.01	5.25	61.26	74.00	-12.74	Peak	Horizontal
2	5185.150	91.15	5.31	96.46	---	---	Peak	Horizontal
1	5150.000	44.44	5.25	49.69	54.00	-4.31	Average	Horizontal
2	5182.310	76.95	5.30	82.25	---	---	Average	Horizontal



IEEE 802.11n HT 40 MHz mode / 5310MHz (Antenna 0+ Antenna 1 + Antenna 2)



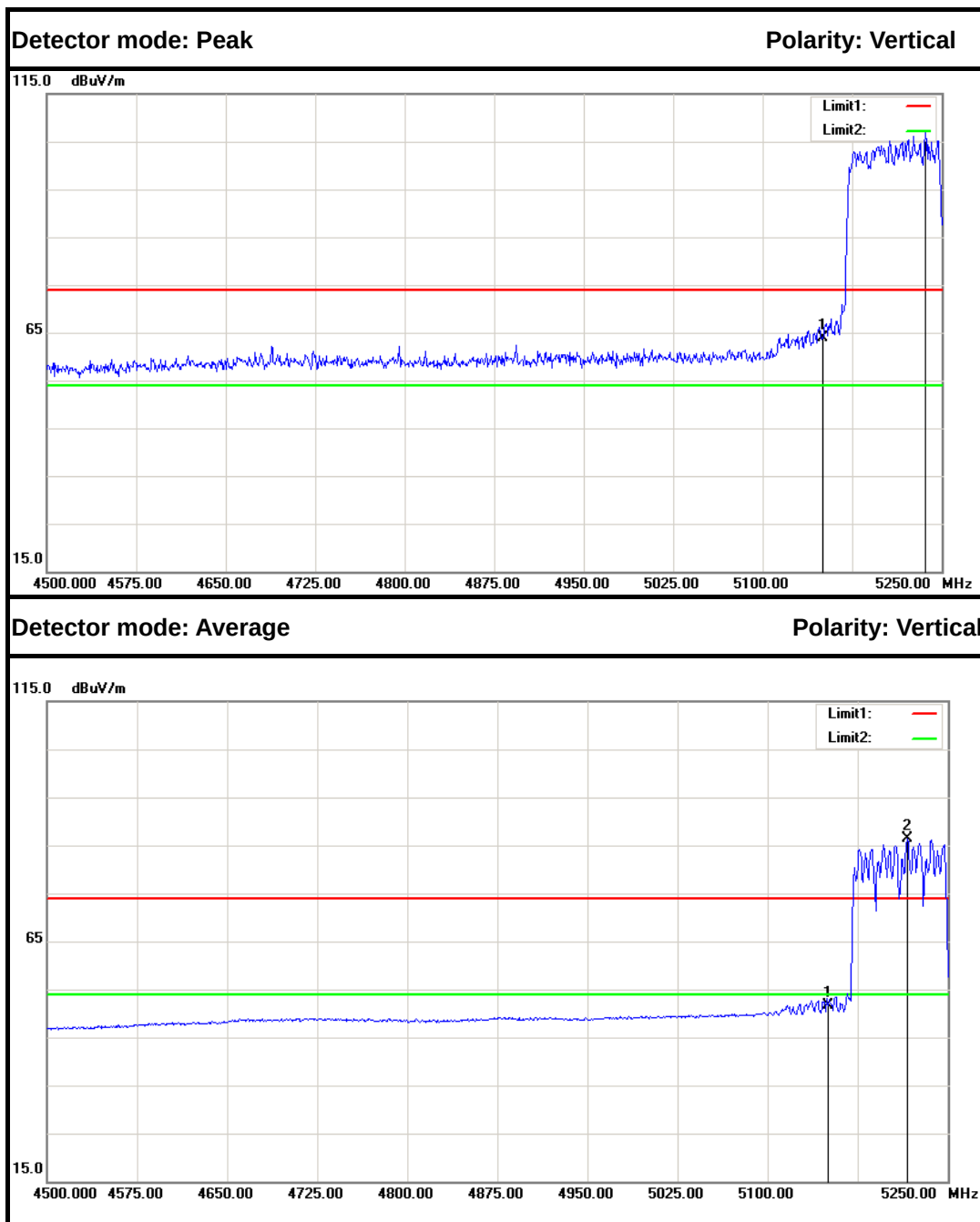
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5306.320	100.26	5.53	105.79	---	---	Peak	Vertical
2	5350.000	58.65	5.60	64.25	74.00	-9.75	Peak	Vertical
1	5316.180	81.39	5.54	86.93	---	---	Average	Vertical
2	5350.000	46.15	5.60	51.75	54.00	-2.25	Average	Vertical



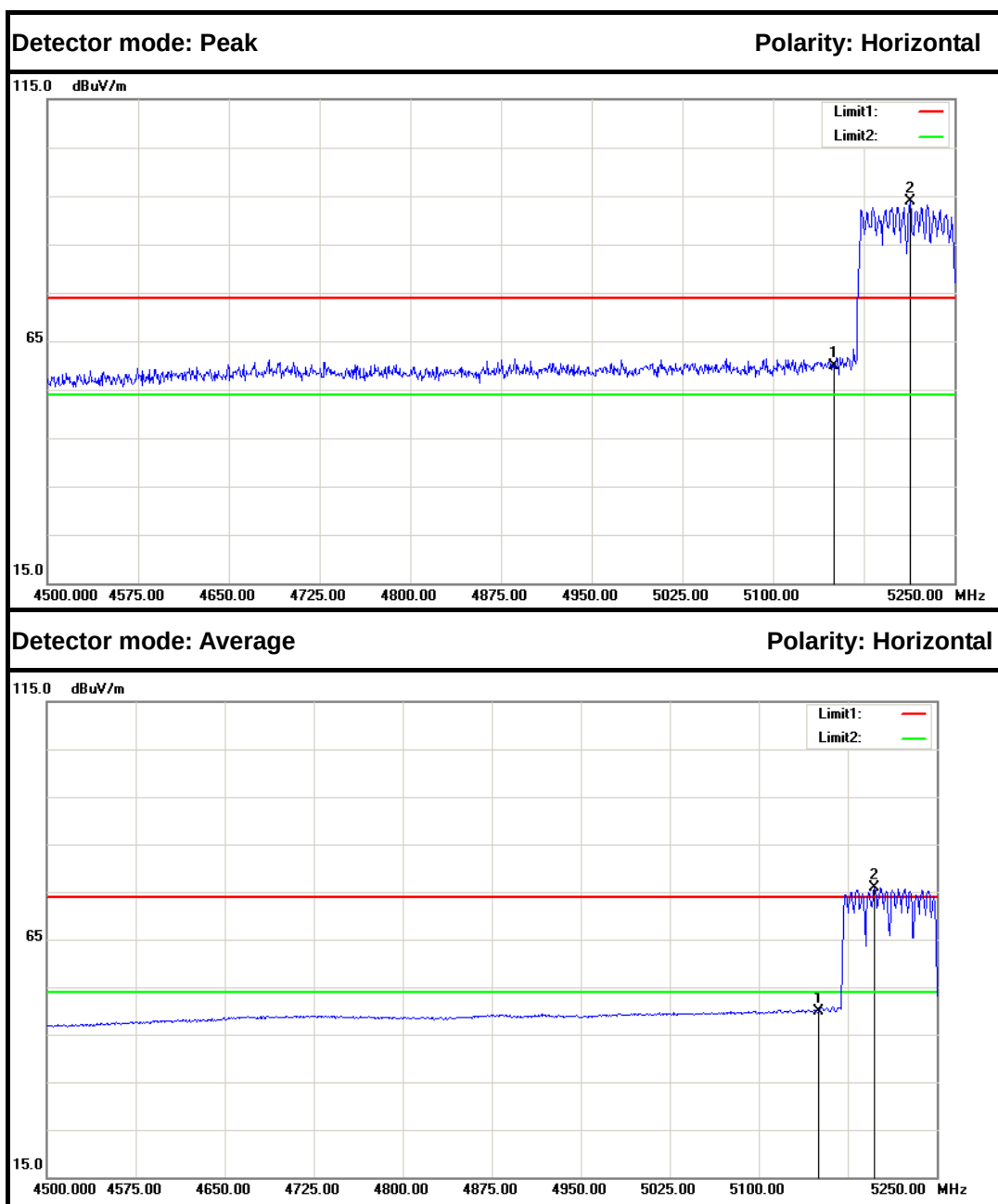
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5312.950	85.58	5.54	91.12	---	---	Peak	Horizontal
2	5350.000	51.96	5.60	57.56	74.00	-16.44	Peak	Horizontal
1	5301.560	70.35	5.52	75.87	---	---	Average	Horizontal
2	5350.000	43.31	5.60	48.91	54.00	-5.09	Average	Horizontal



IEEE 802.11ac 80 mode / 5210 MHz (Antenna 0+ Antenna 1+ Antenna 2)



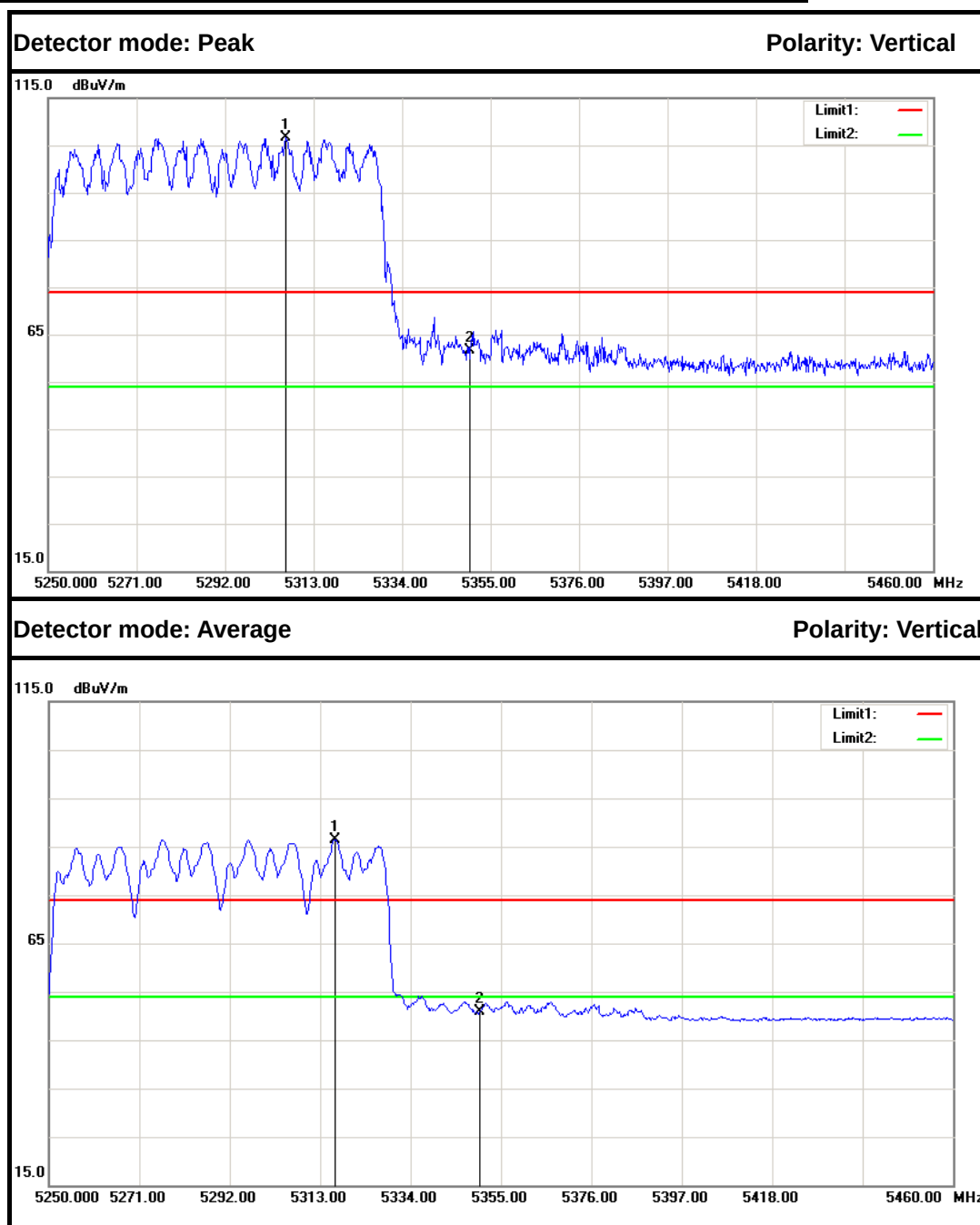
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5150.000	58.73	5.25	63.98	74.00	-10.02	Peak	Vertical
2	5236.500	101.38	5.40	106.78	---	---	Peak	Vertical
1	5150.000	46.36	5.25	51.61	54.00	-2.39	Average	Vertical
2	5216.250	80.96	5.36	86.32	---	---	Average	Vertical



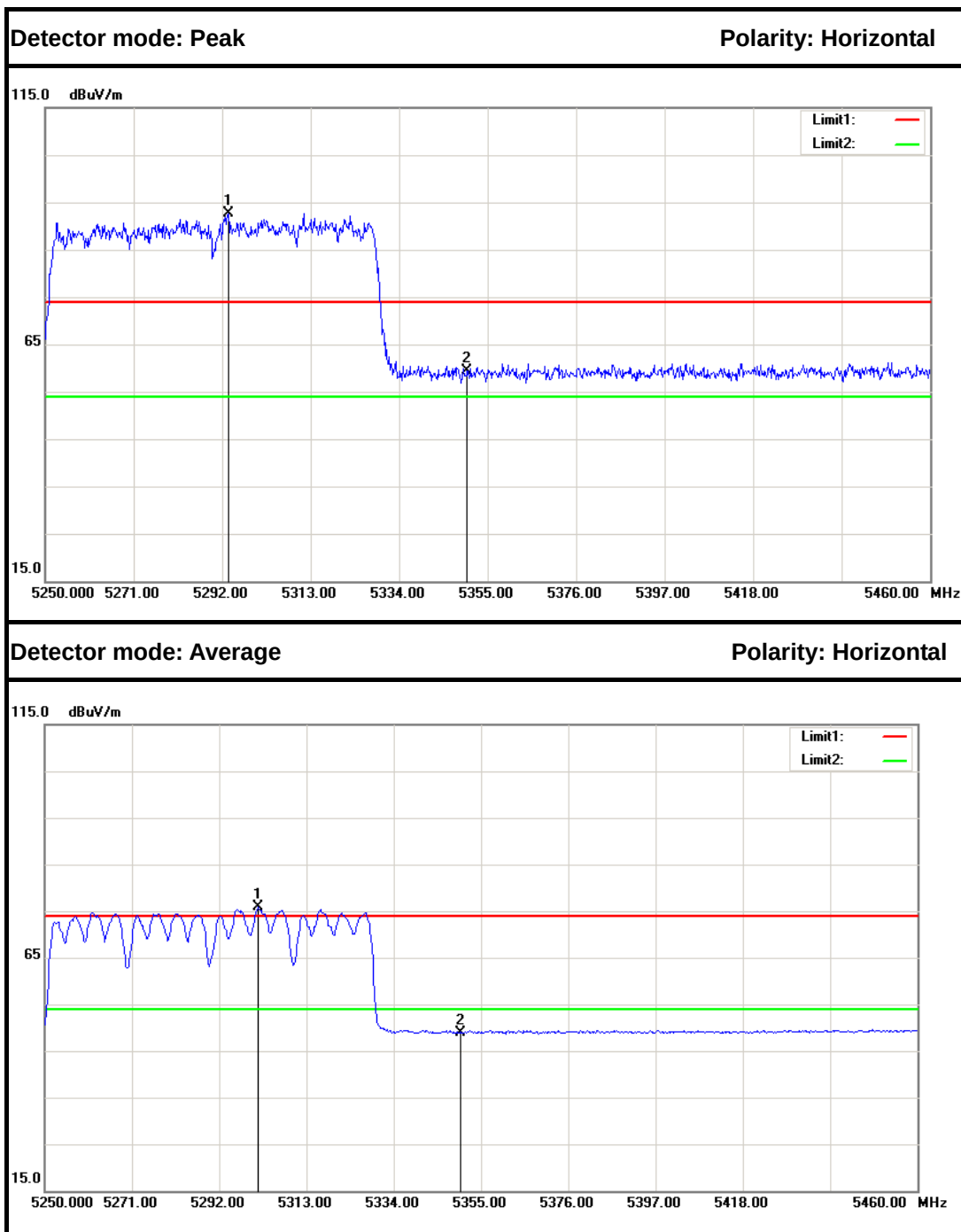
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1.	5150.000	54.58	5.25	59.83	74.00	-14.17	Peak	Horizontal
2.	5213.250	88.42	5.36	93.78	---	---	Peak	Horizontal
1.	5150.000	44.53	5.25	49.78	54.00	-4.22	Average	Horizontal
2.	5197.500	70.55	5.33	75.88	---	---	Average	Horizontal



IEEE 802.11ac 80 mode / 5290 MHz (Antenna 0+ Antenna 1+Antenna 2)



No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5306.490	101.10	5.53	106.63	---	---	Peak	Vertical
2	5350.000	56.11	5.60	61.71	74.00	-12.29	Peak	Vertical
1	5316.360	80.96	5.54	86.50	---	---	Average	Vertical
2	5350.000	45.34	5.60	50.94	54.00	-3.06	Average	Vertical



No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5293.470	87.24	5.50	92.74	---	---	Peak	Horizontal
2	5350.000	53.86	5.60	59.46	74.00	-14.54	Peak	Horizontal
1	5301.450	70.26	5.52	75.78	---	---	Average	Horizontal
2	5350.000	43.30	5.60	48.90	54.00	-5.10	Average	Horizontal



6.6 PEAK POWER SPECTAL DENSITY

6.6.1 LIMIT

According to §15.407(a) & FCC R&O FCC 14-30

(1) For the band 5.15-5.25 GHz.

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple colocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.



(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

Note to paragraph (a)(3): The Commission strongly recommends that parties employing U-NII devices to provide critical communications services should determine if there are any nearby Government radar systems that could affect their operation.

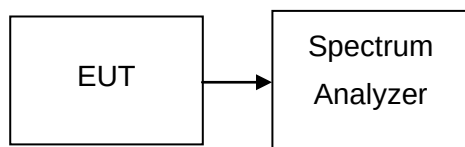
6.6.2 MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Last Calibration	Due Calibration
Spectrum Analyzer	Agilent	N9010A	MY52221469	02/21/2017	02/20/2018

Remark: Each piece of equipment is scheduled for calibration once a year.



6.6.3 TEST CONFIGURATION



6.6.4 TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. For devices operating in the bands 5.15-5.25 GHz, Set the spectrum analyzer as RBW = 1MHz, VBW = 3MHz, Span > 26dB bandwidth, Sweep=1ms
3. For devices operating in the bands 5.725-5.85 GHz, Set the spectrum analyzer as RBW = 1MHz, VBW = 3MHz, Span > 26dB bandwidth, Sweep=1ms
4. Record the max. reading.
5. Repeat the above procedure until the measurements for all frequencies are completed



6.6.5 TEST RESULTS

Test Data

Test mode: IEEE 802.11a mode / 5180 ~ 5240MHz

Channel	Frequency (MHz)	PPSD (dBm)			Limit (dBm)	Margain			Result
		Antenna 0	Antenna 1	Antenna 2		Antenna 0	Antenna 1	Antenna 2	
Low	5180	0.089	-1.769	0.177	17	-16.911	-18.769	-16.823	PASS
Mid	5200	0.082	-2.048	-0.101		-16.918	-19.048	-17.101	PASS
High	5240	0.591	-1.854	0.430		-16.409	-18.854	-16.570	PASS

Test mode: IEEE 802.11a mode / 5260~ 5320MHz

Channel	Frequency (MHz)	PPSD (dBm)			Limit (dBm)	Margain			Result
		Antenna 0	Antenna 1	Antenna 2		Antenna 0	Antenna 1	Antenna 2	
Low	5260	0.599	-2.661	1.044	11	-10.401	-13.661	-9.956	PASS
Mid	5300	0.274	-1.766	0.685		-10.726	-12.766	-10.315	PASS
High	5320	0.301	-1.561	0.282		-10.699	-12.561	-10.718	PASS

Test mode: IEEE 802.11a mode / 5500 ~ 5700MHz

Channel	Frequency (MHz)	PPSD (dBm)			Limit (dBm)	Margain			Result
		Antenna 0	Antenna 1	Antenna 2		Antenna 0	Antenna 1	Antenna 2	
Low	5500	-0.890	-1.292	-1.150	11	-11.890	-12.292	-12.150	PASS
Mid	5580	-0.676	-0.544	-0.675		-11.676	-11.544	-11.675	PASS
High	5700	-1.291	-1.945	-1.324		-12.291	-12.945	-12.324	PASS

Test mode: IEEE 802.11a mode / 5745 ~ 5825MHz

Channel	Frequency (MHz)	PPSD (dBm)			factor	Limit (dBm)	Margain			Result
		Antenna 0	Antenna 1	Antenna 2			Antenna	Antenna	Antenna	
Low	5745	-0.087	-0.654	0.258	-3.01	30	-33.097	-33.664	-32.752	PASS
Mid	5785	-0.460	-0.839	-0.100	-3.01		-33.470	-33.849	-33.110	PASS
High	5825	-0.217	-1.640	-0.445	-3.01		-33.227	-34.650	-33.455	PASS

Remark: factor = $10 \cdot \log_{10} (500/\text{RBW})$

**Test mode: IEEE 802.11n HT 20 MHz mode / 5180 ~ 5240MHz**

Channel	Frequency (MHz)	PPSD (dBm)			Total (dBm)	Limit (dBm)	Margain	Result
		Antenna 0	Antenna 1	Antenna 2				
Low	5180	-1.762	-3.555	-0.791	2.880	17.00	-14.120	PASS
Mid	5200	-1.161	-3.735	-0.847	3.035		-13.965	PASS
High	5240	-1.122	-4.142	-0.514	3.109		-13.891	PASS

Test mode: IEEE 802.11n HT 20 MHz mode / 5260~ 5320MHz

Channel	Frequency (MHz)	PPSD (dBm)			Total (dBm)	Limit (dBm)	Margain	Result
		Antenna 0	Antenna 1	Antenna 2				
Low	5260	-0.528	-3.693	-0.116	3.592	11.00	-7.408	PASS
Mid	5300	-0.604	-3.068	-0.671	3.464		-7.536	PASS
High	5320	-0.675	-2.752	-0.816	3.455		-7.545	PASS

Test mode: IEEE 802.11n HT 20 MHz mode / 5500 ~ 5700MHz

Channel	Frequency (MHz)	PPSD (dBm)			Total (dBm)	Limit (dBm)	Margain	Result
		Antenna 0	Antenna 1	Antenna 2				
Low	5500	-2.703	-3.214	-2.023	2.152	11.00	-8.848	PASS
Mid	5580	-1.741	-1.330	-1.523	3.243		-7.757	PASS
High	5700	-3.060	-2.581	-2.665	2.008		-8.992	PASS

Test mode: IEEE 802.11n HT 20 MHz mode / 5745 ~ 5825MHz

Channel	Frequency (MHz)	PPSD (dBm)			factor	Total (dBm)	Limit (dBm)	Margain	Result
		Antenna 0	Antenna 1	Antenna 2					
Low	5745	-1.758	-1.133	-0.960	-3.01	0.491	30.00	-29.509	PASS
Mid	5785	-1.646	-0.952	-1.077	-3.01	0.547		-29.453	PASS
High	5825	-1.750	-1.868	-0.767	-3.01	0.328		-29.672	PASS

Remark: factor = $10 \cdot \log_{10}(500/\text{RBW})$

**Test mode: IEEE 802.11n HT 40 MHz mode / 5190 ~ 5230MHz**

Channel	Frequency (MHz)	PPSD (dBm)			Total (dBm)	Limit (dBm)	Margain	Result
		Antenna 0	Antenna 1	Antenna 2				
Low	5190	-5.080	-8.068	-5.820	-1.377	17.00	-18.377	PASS
High	5230	-4.299	-8.083	-4.929	-0.713		-17.713	PASS

Test mode: IEEE 802.11n HT 40 MHz mode / 5270 ~ 5310MHz

Channel	Frequency (MHz)	PPSD (dBm)			Total (dBm)	Limit (dBm)	Margain	Result
		Antenna 0	Antenna 1	Antenna 2				
Low	5270	-4.106	-7.551	-4.503	-0.368	11.00	-11.368	PASS
High	5310	-4.732	-7.068	-4.894	-0.671		-11.671	PASS

Test mode: IEEE 802.11n HT 40 MHz mode / 5510 ~ 5670MHz

Channel	Frequency (MHz)	PPSD (dBm)			Total (dBm)	Limit (dBm)	Margain	Result
		Antenna 0	Antenna 1	Antenna 2				
Low	5510	-6.242	-6.914	-6.102	-1.634	11.00	-12.634	PASS
Mid	5550	-6.437	-5.536	-6.437	-1.344		-12.344	PASS
High	5670	-7.145	-6.713	-7.340	-2.287		-13.287	PASS

Test mode: IEEE 802.11n HT 40 MHz mode / 5755 ~ 5795MHz

Channel	Frequency (MHz)	PPSD (dBm)			factor	Total (dBm)	Limit (dBm)	Margain	Result
		Antenna 0	Antenna 1	Antenna 2					
Low	5755	-5.955	-5.802	-5.874	-3.01	-4.115	30.00	-34.115	PASS
High	5795	-6.274	-6.108	-5.760	-3.01	-4.281		-34.281	PASS

Remark: factor = $10 \cdot \log_{10} (500/\text{RBW})$

**Test mode: IEEE 802.11ac 80 mode / 5210MHz**

Channel	Frequency (MHz)	PPSD (dBm)			Total (dBm)	Limit (dBm)	Margain	Result
		Antenna 0	Antenna 1	Antenna 2				
	5210	-8.133	-12.459	-8.315	-4.463	17.00	-21.463	PASS

Test mode: IEEE 802.11ac 80 mode / 5290MHz

Channel	Frequency (MHz)	PPSD (dBm)			Total (dBm)	Limit (dBm)	Margain	Result
		Antenna 0	Antenna 1	Antenna 2				
	5290	-7.594	-10.321	-7.553	-3.540	11.00	-14.540	PASS

Test mode: IEEE 802.11ac 80 mode / 5530MHz

Channel	Frequency (MHz)	PPSD (dBm)			Total (dBm)	Limit (dBm)	Margain	Result
		Antenna 0	Antenna 1	Antenna 2				
	5530	-9.238	-9.975	-9.892	-4.918	11.00	-15.918	PASS

Test mode: IEEE 802.11ac 80 mode / 5775MHz

Channel	Frequency (MHz)	PPSD (dBm)			factor	Total (dBm)	Limit (dBm)	Margain	Result
		Antenna 0	Antenna 1	Antenna 2					
	5775	-8.775	-9.467	-8.590	-3.01	-7.167	30.00	-37.167	PASS

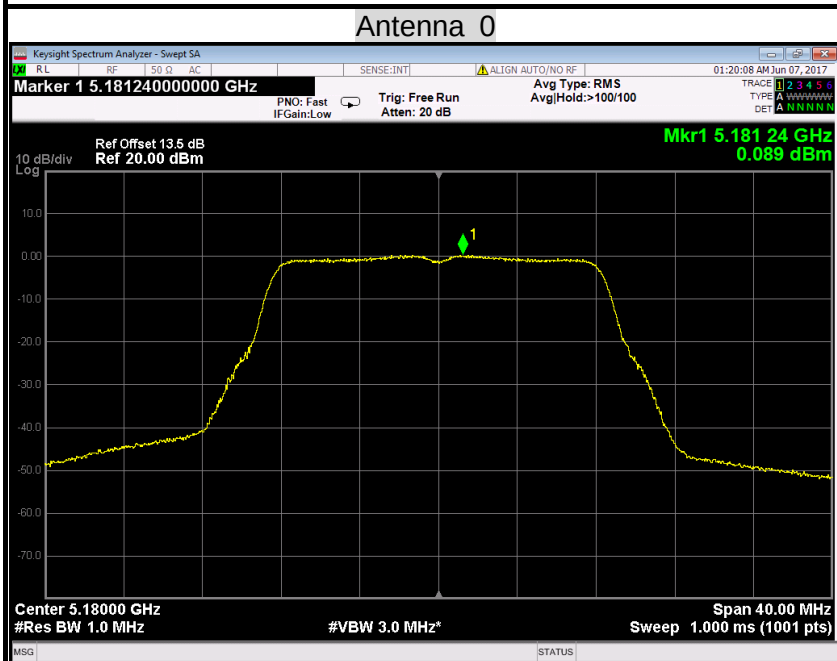
Remark: factor =10*log10 (500/RBW)



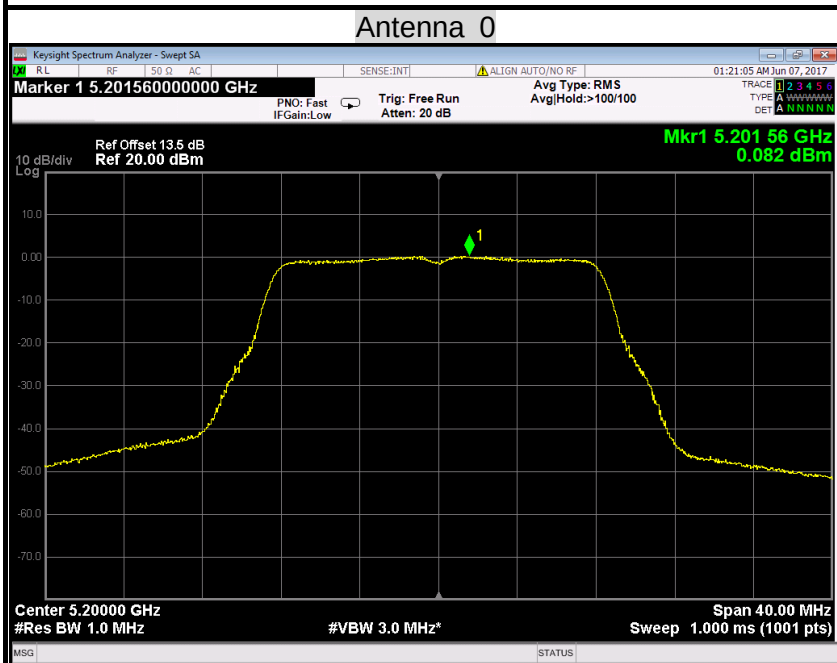
Test Plot

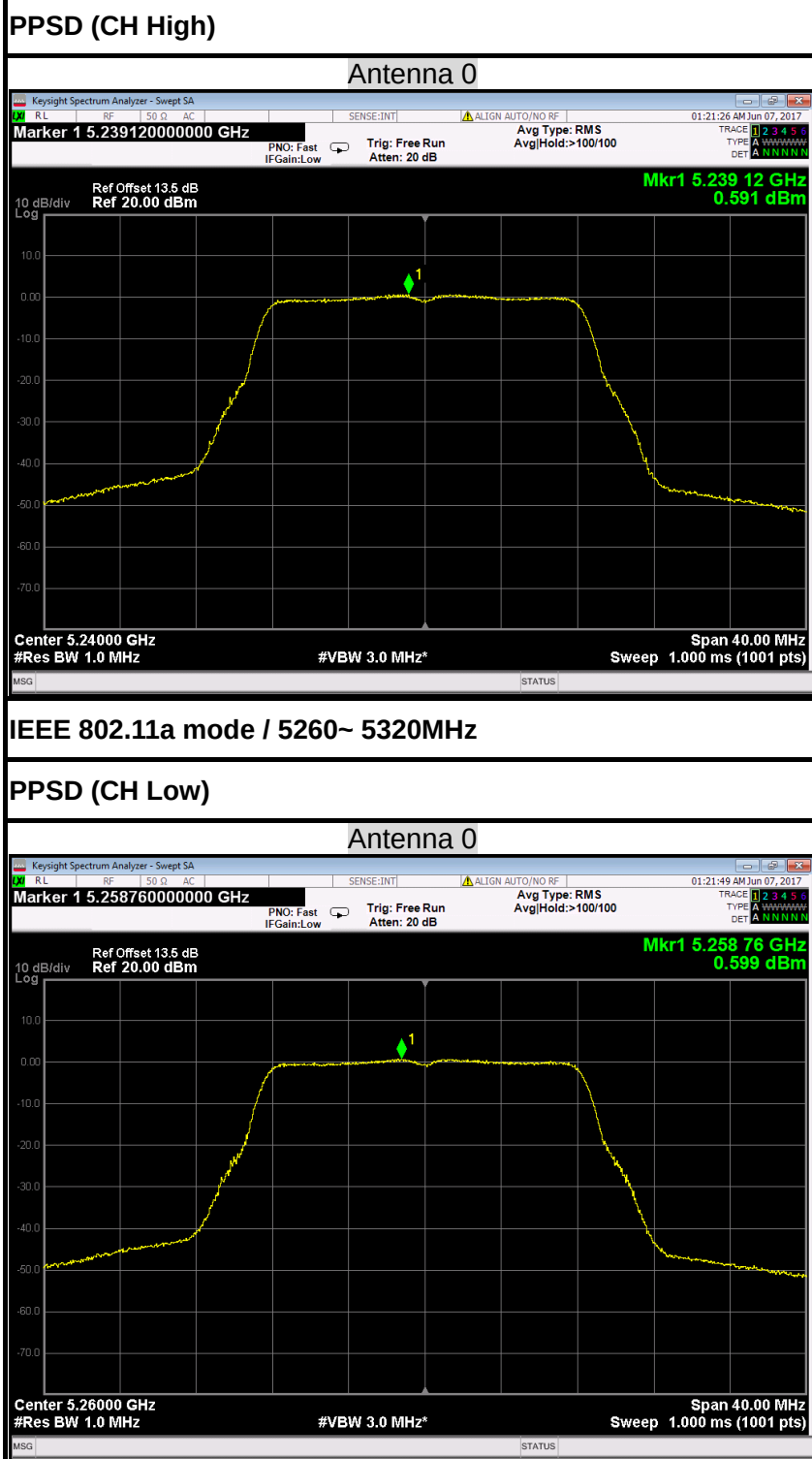
IEEE 802.11a mode / 5180 ~ 5240MHz

PPSD (CH Low)



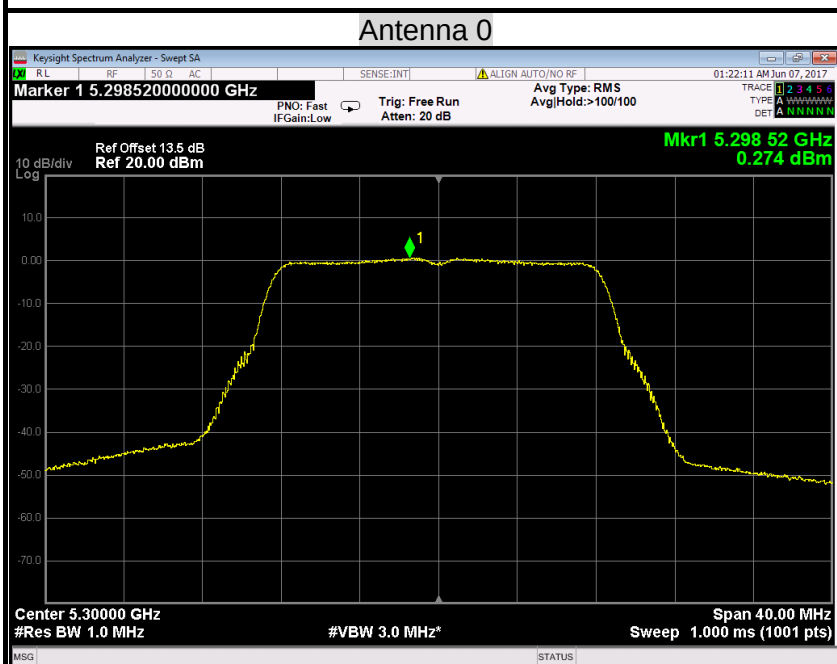
PPSD (CH Mid)



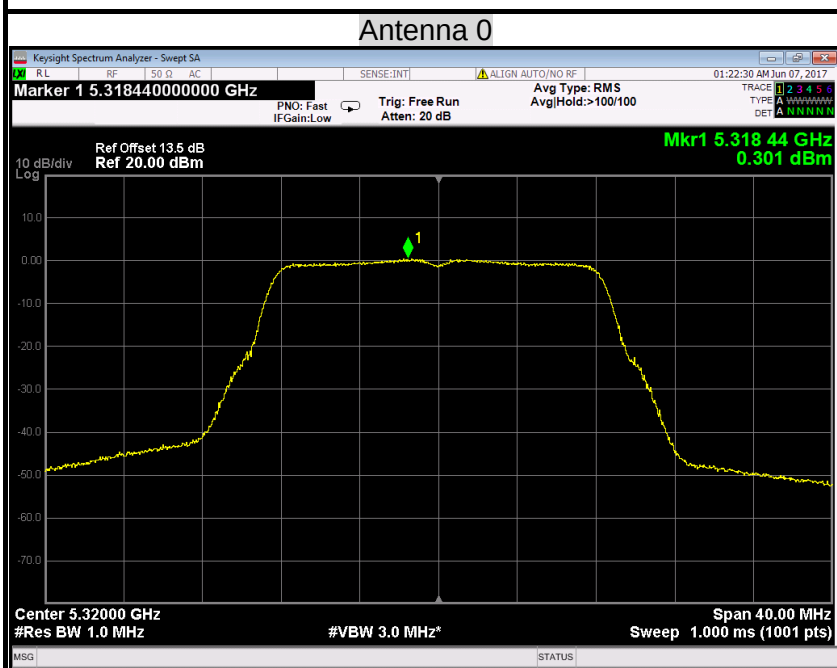




PPSD (CH Mid)



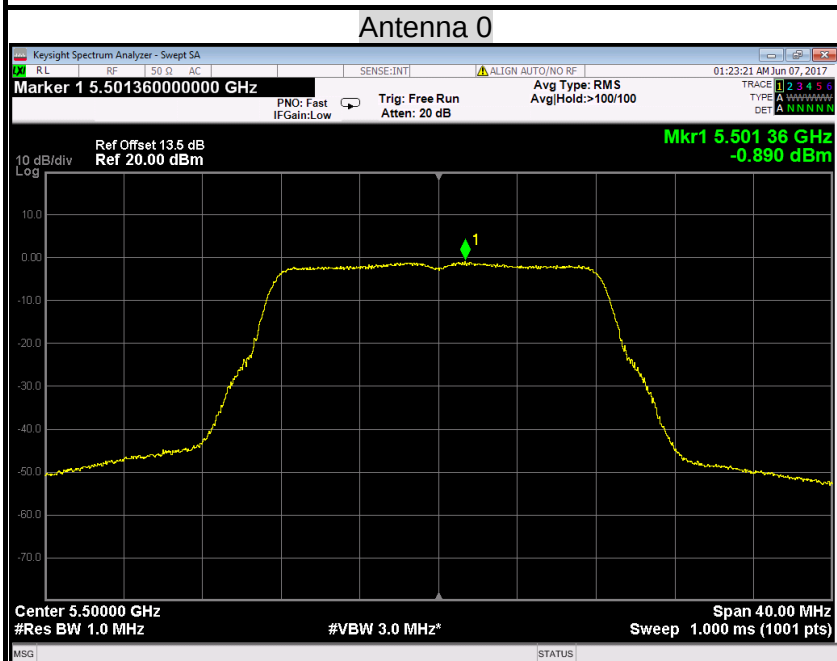
PPSD (CH High)



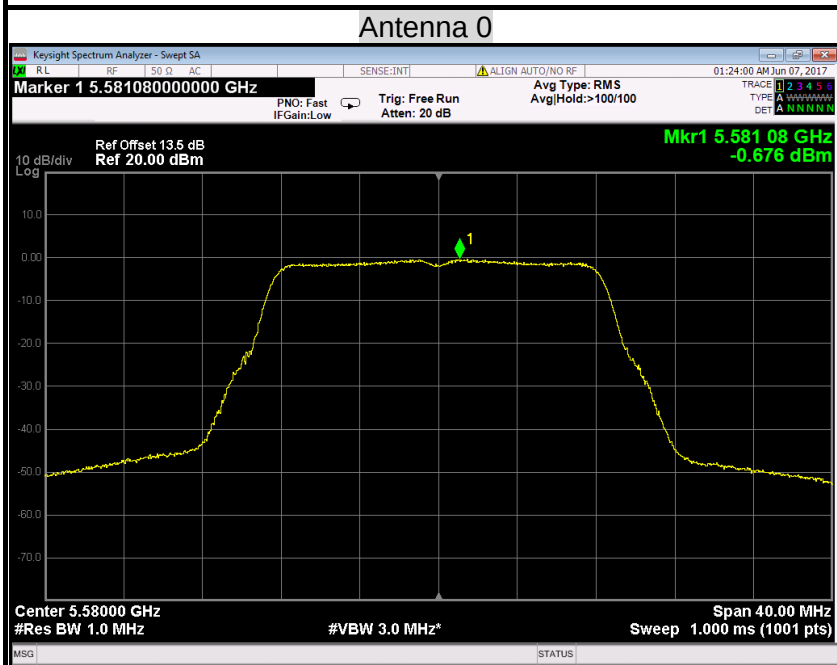


IEEE 802.11a mode / 5500 ~ 5700MHz

PPSD (CH Low)

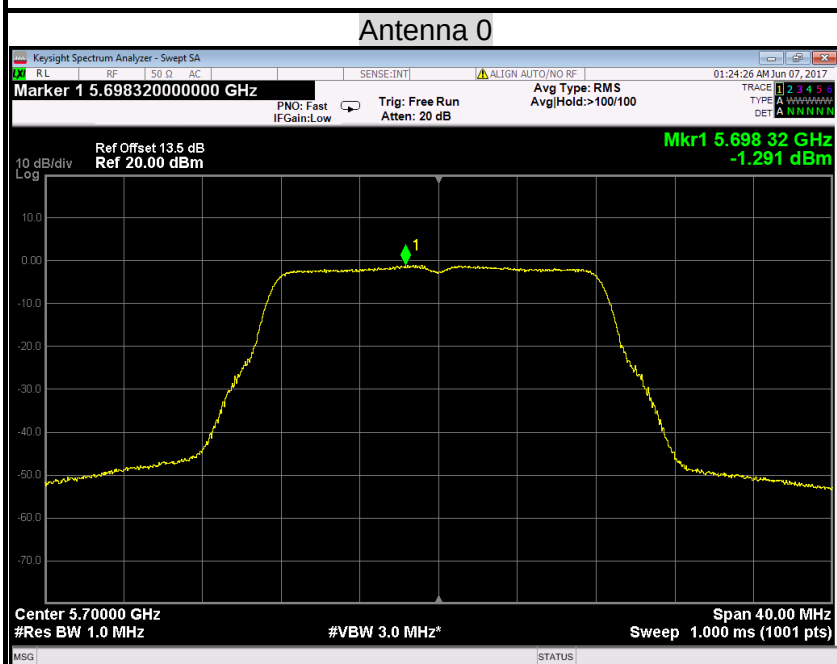


PPSD (CH Mid)



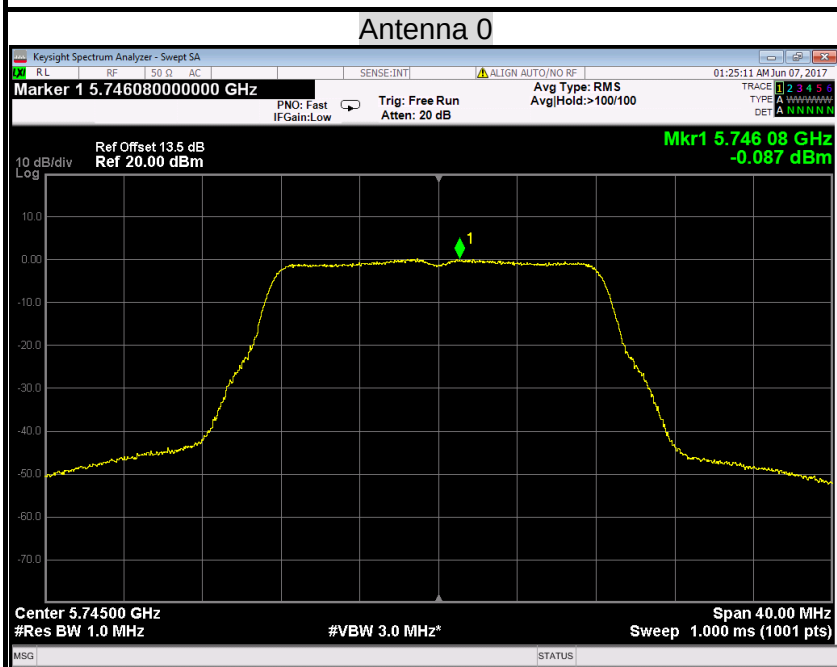


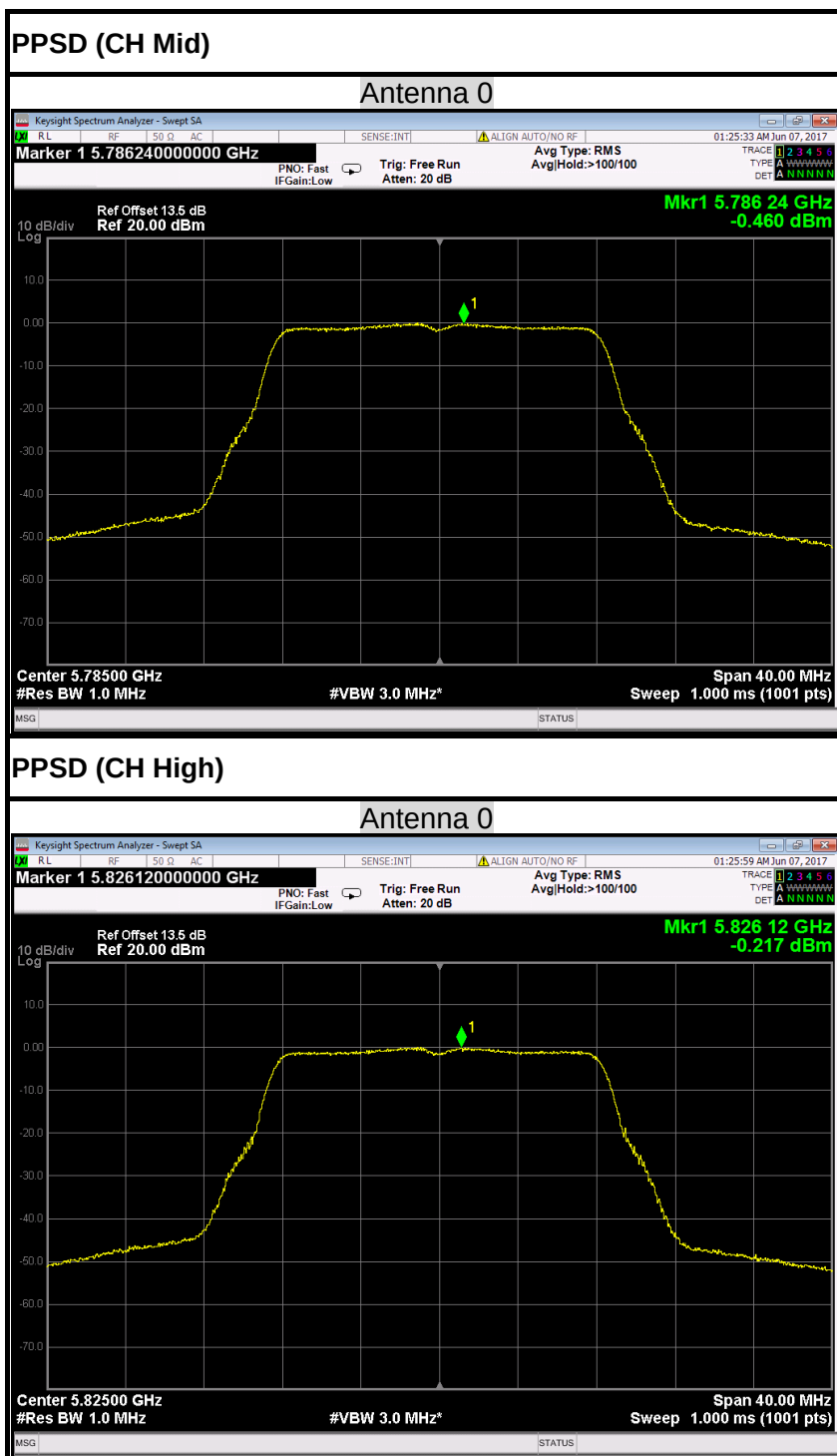
PPSD (CH High)



IEEE 802.11a mode / 5745 ~ 5825MHz

PPSD (CH Low)

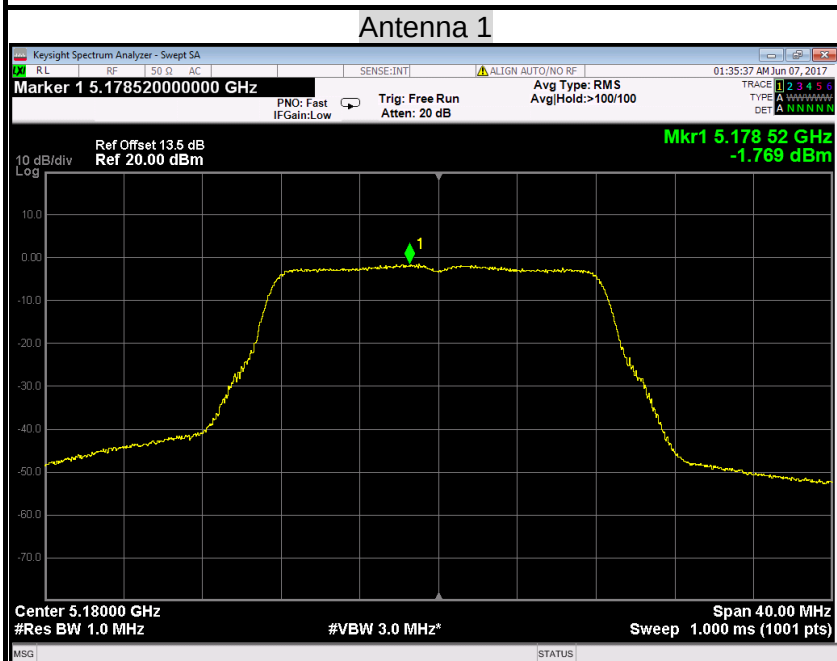




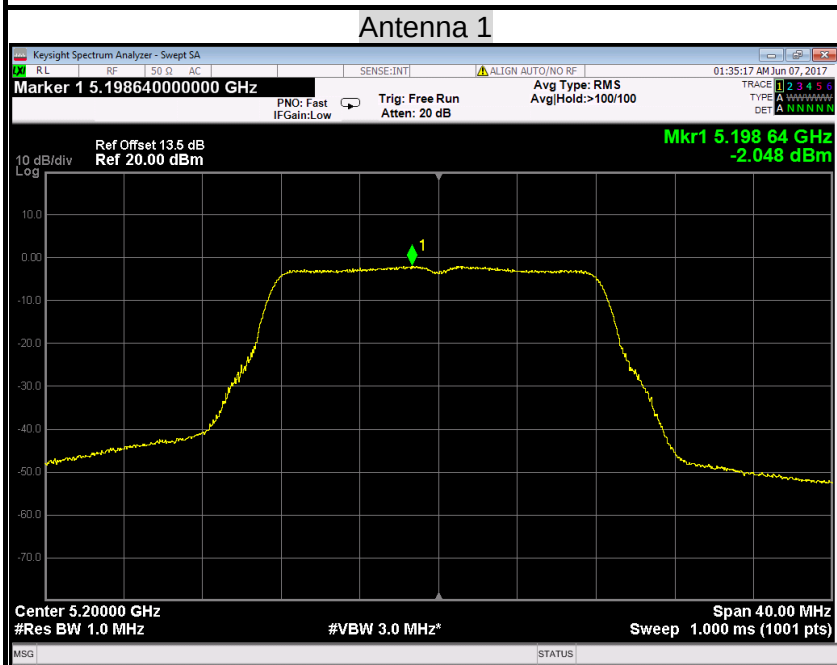


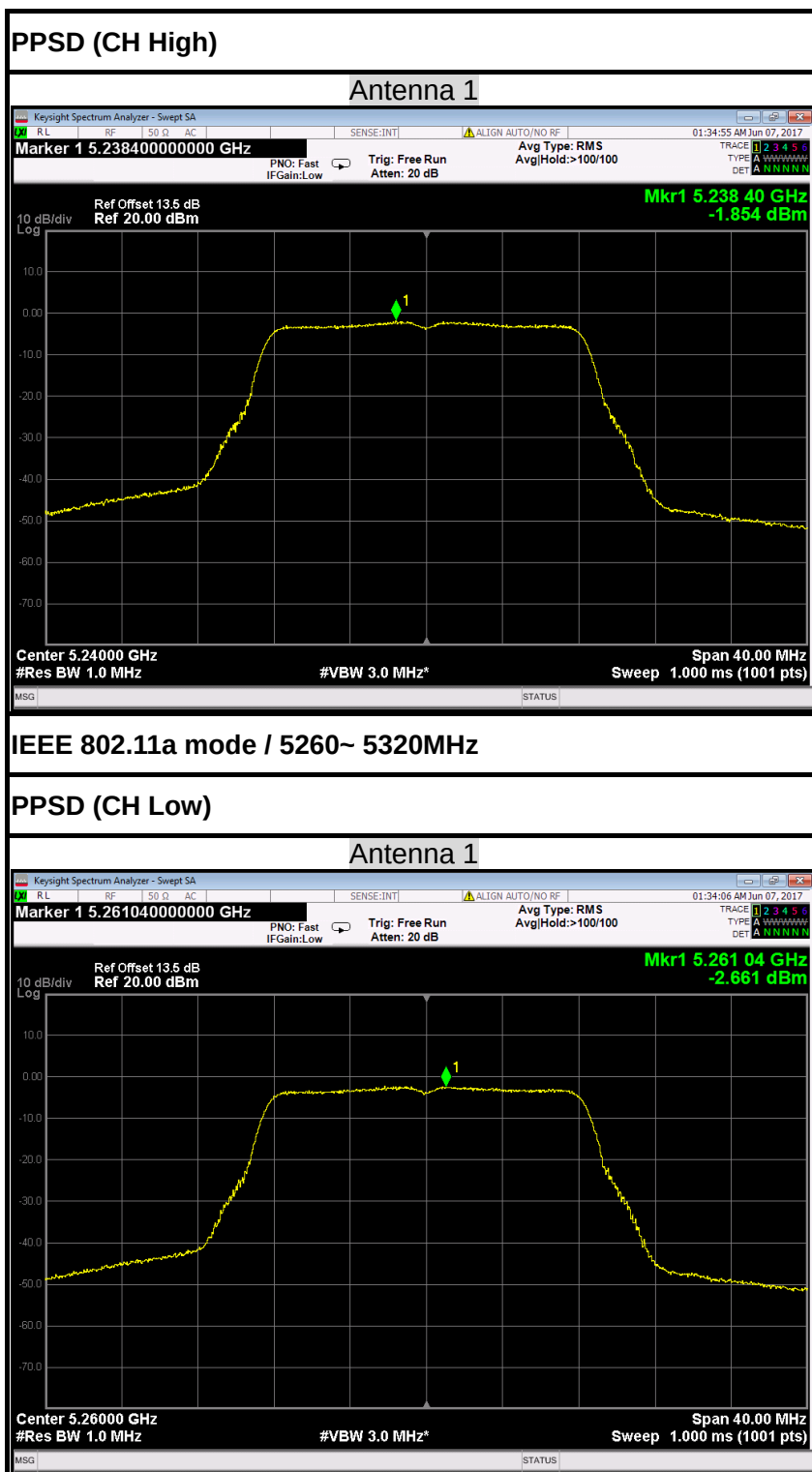
IEEE 802.11a mode / 5180 ~ 5240MHz

PPSD (CH Low)



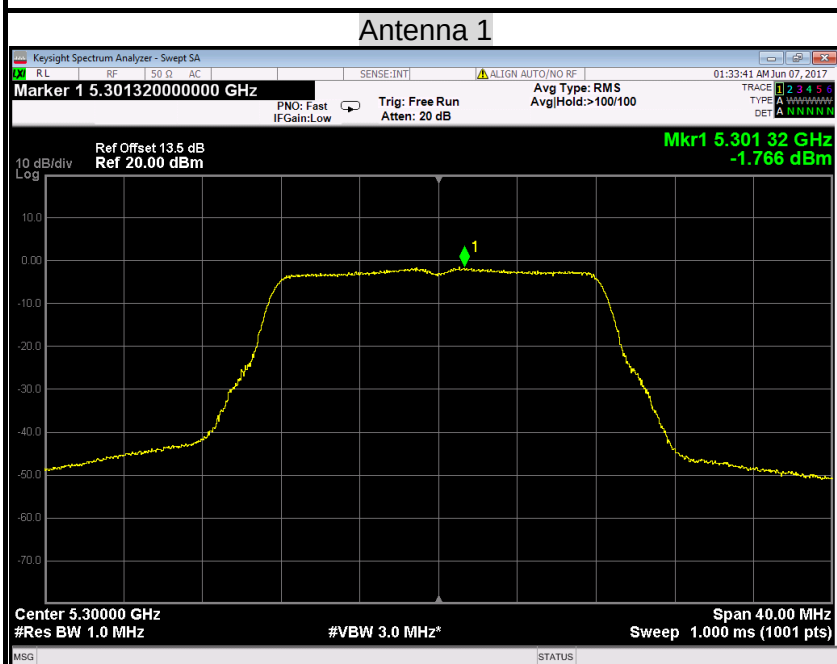
PPSD (CH Mid)



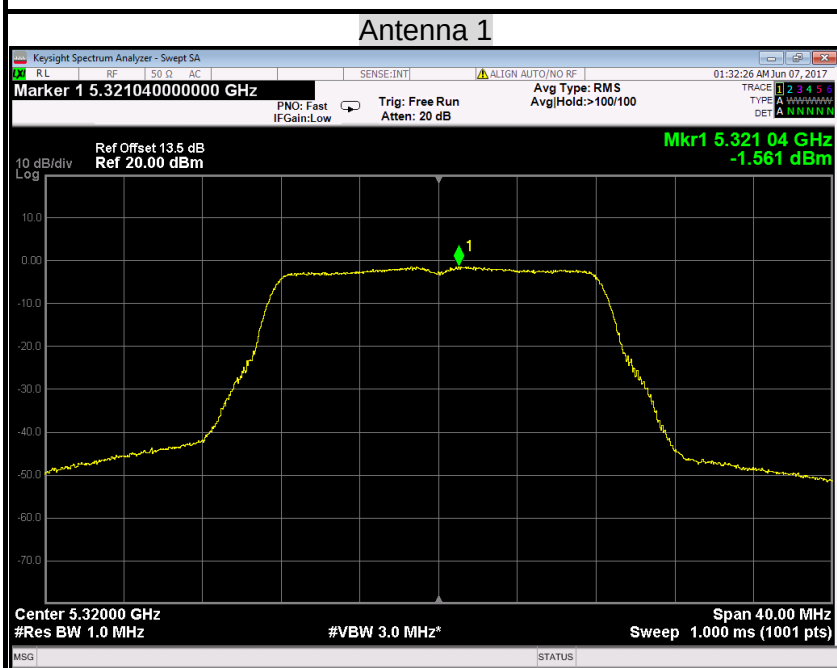




PPSD (CH Mid)



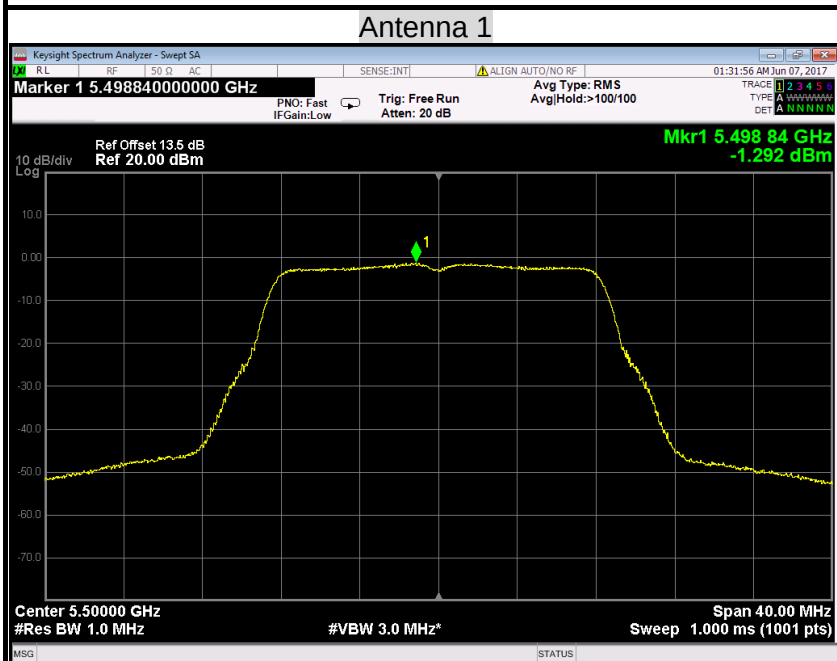
PPSD (CH High)



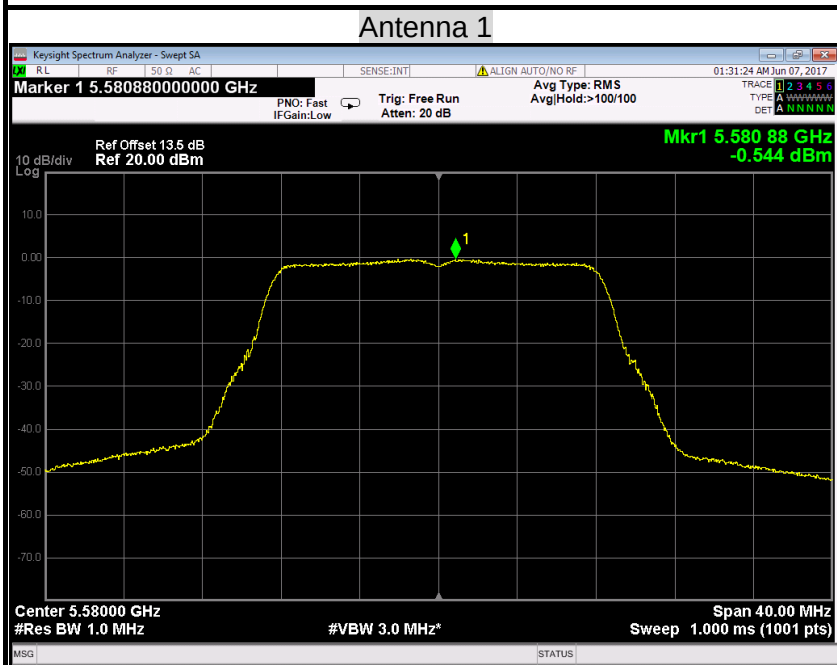


IEEE 802.11a mode / 5500 ~ 5700MHz

PPSD (CH Low)

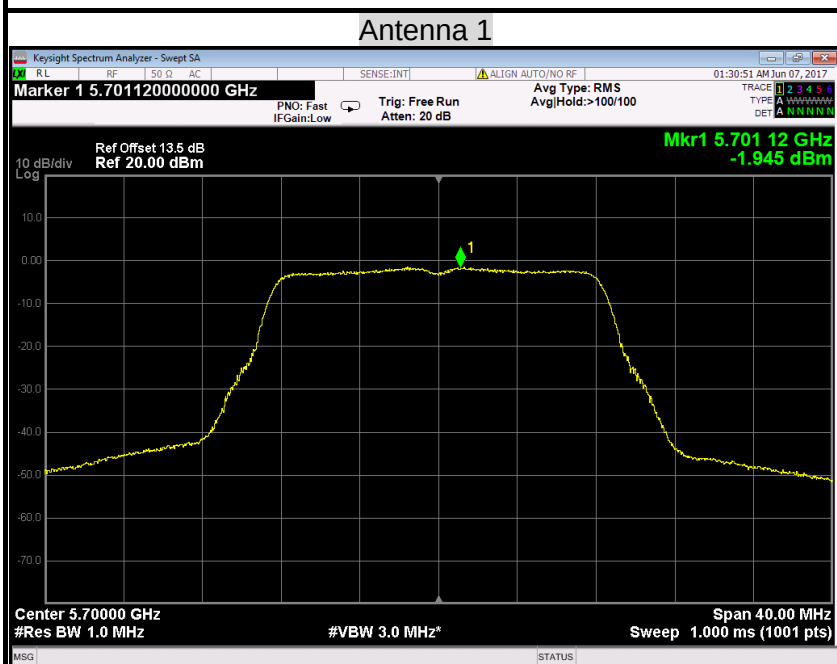


PPSD (CH Mid)



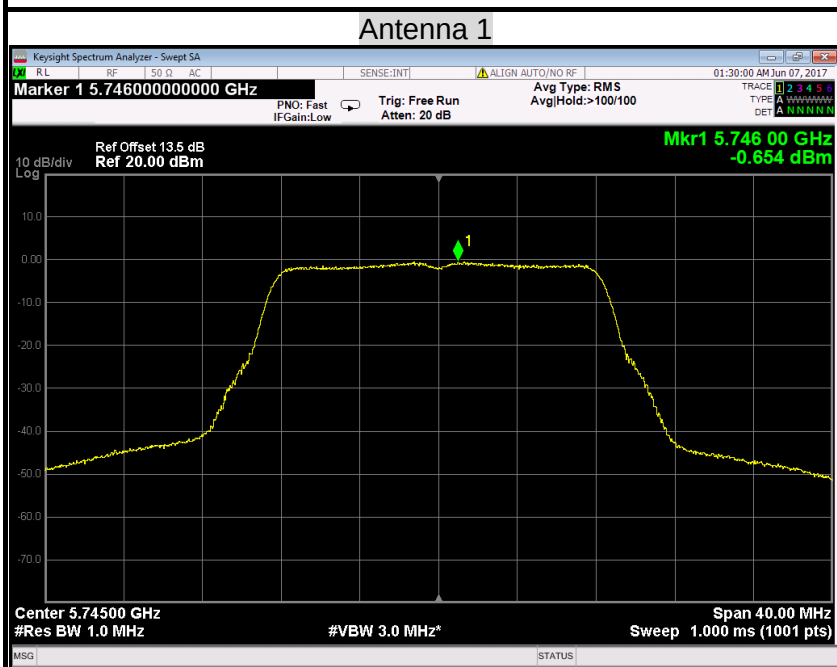


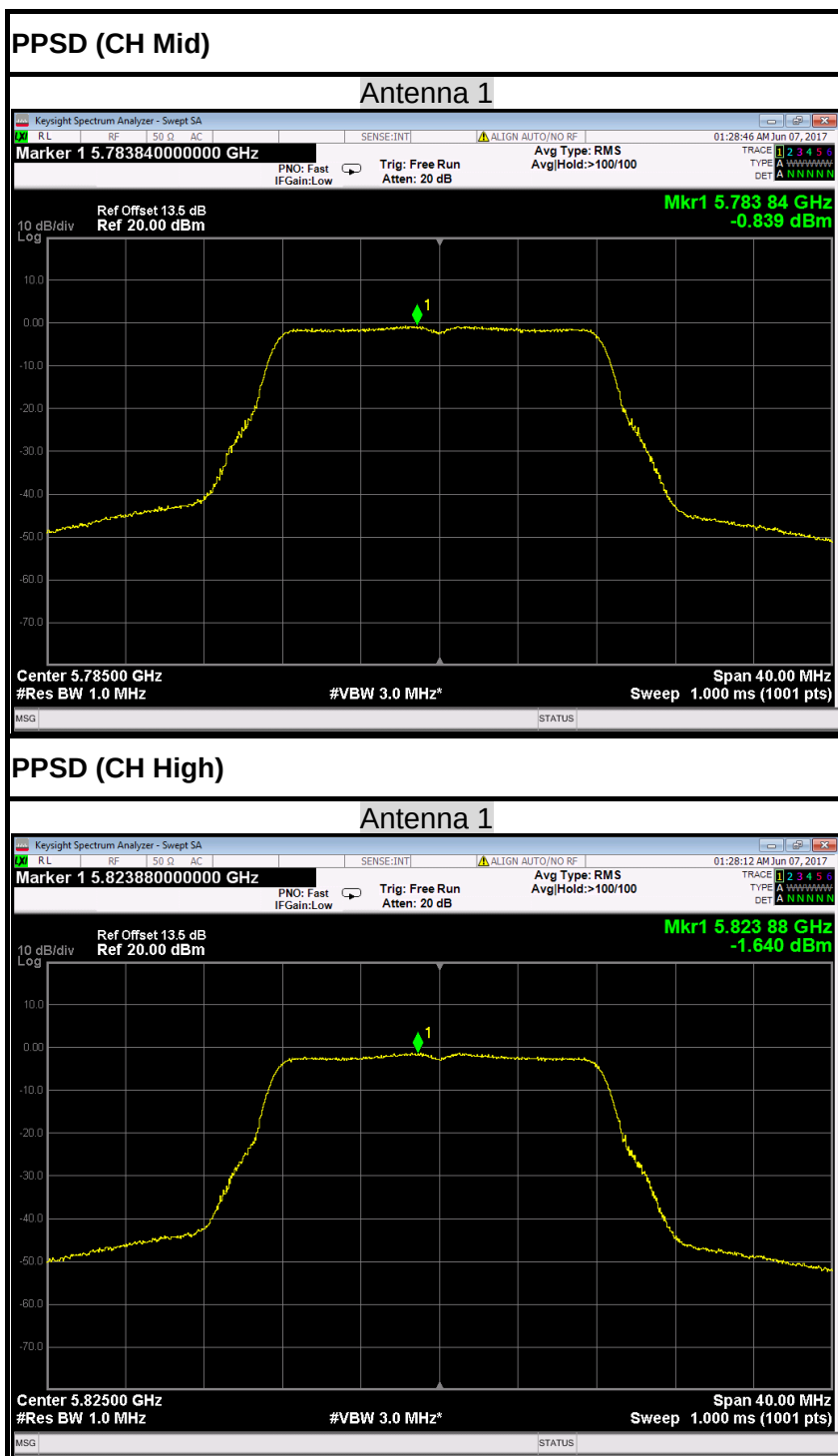
PPSD (CH High)



IEEE 802.11a mode / 5745 ~ 5825MHz

PPSD (CH Low)

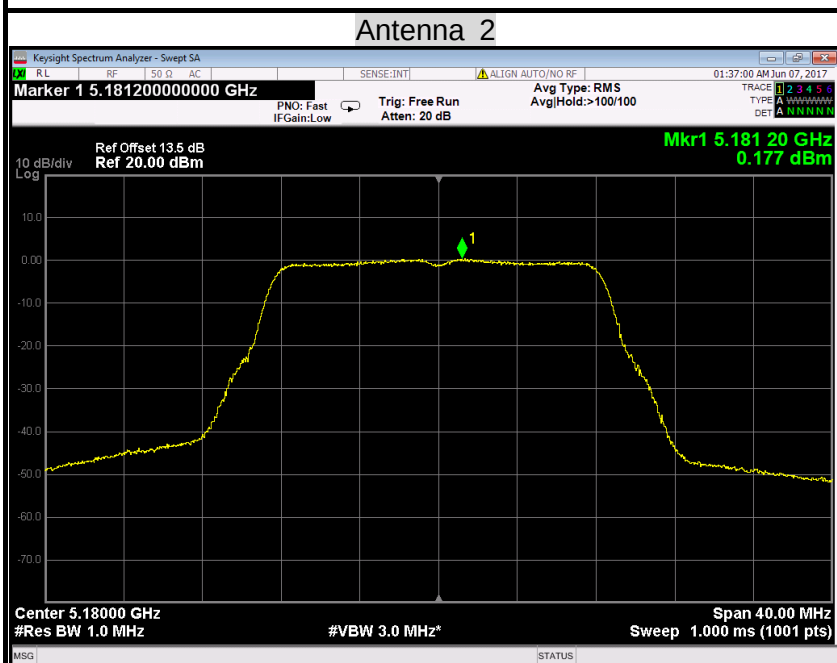




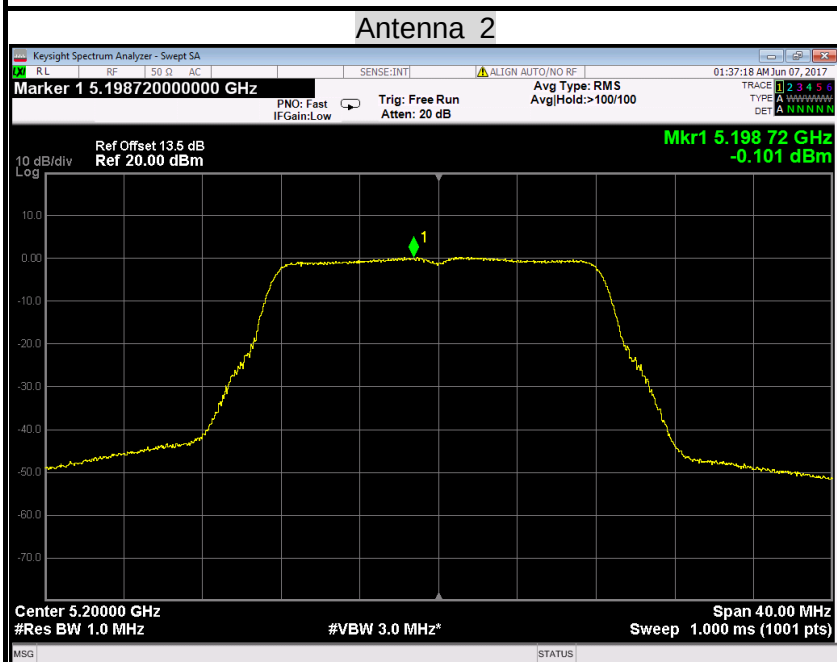


IEEE 802.11a mode / 5180 ~ 5240MHz

PPSD (CH Low)



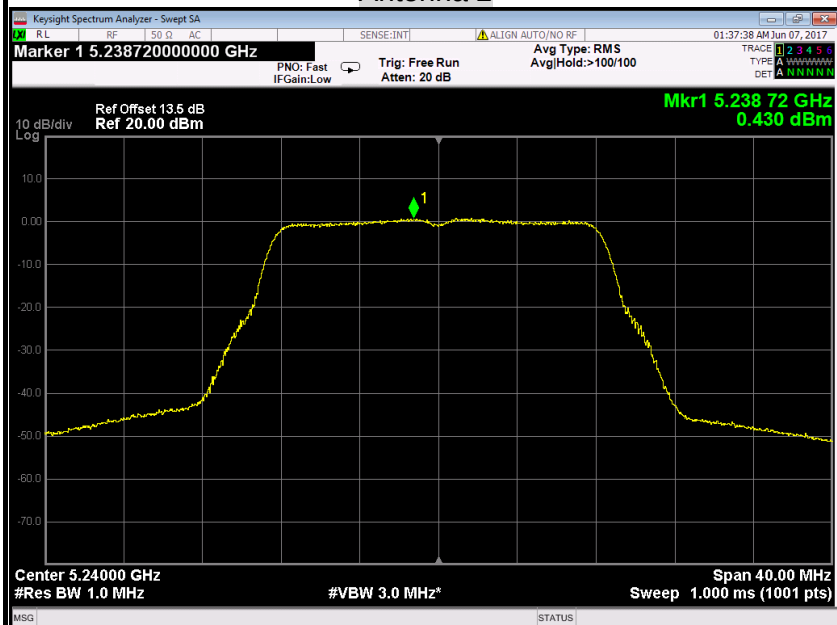
PPSD (CH Mid)





PPSD (CH High)

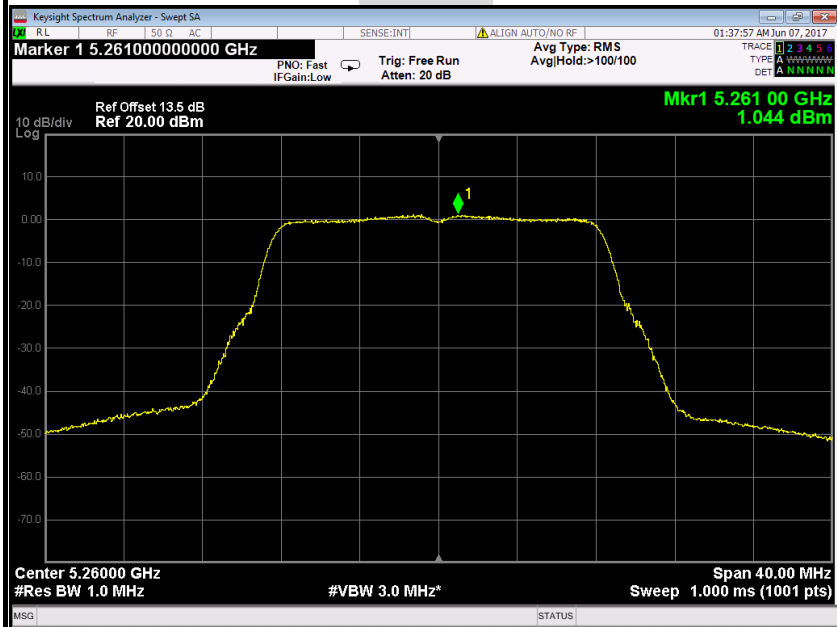
Antenna 2



IEEE 802.11a mode / 5260~ 5320MHz

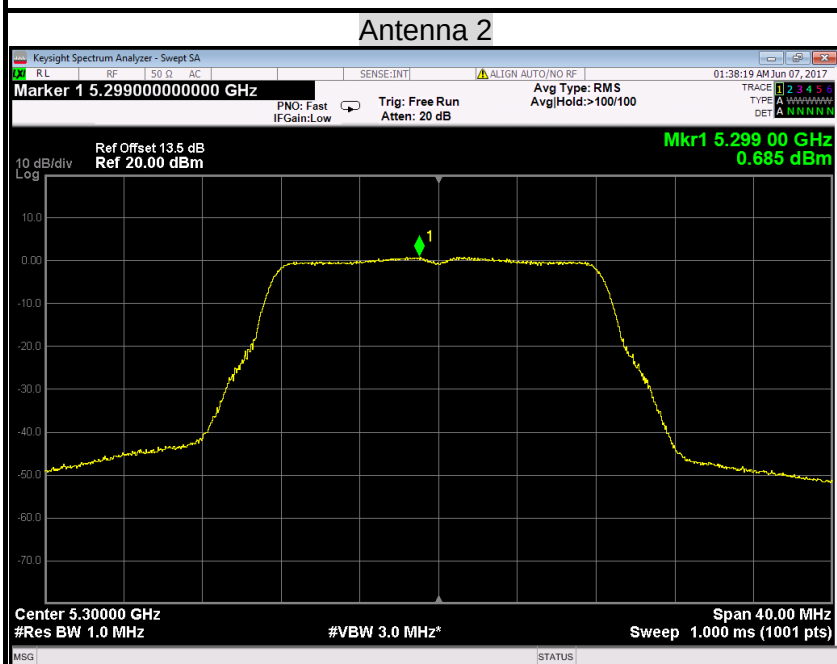
PPSD (CH Low)

Antenna 2

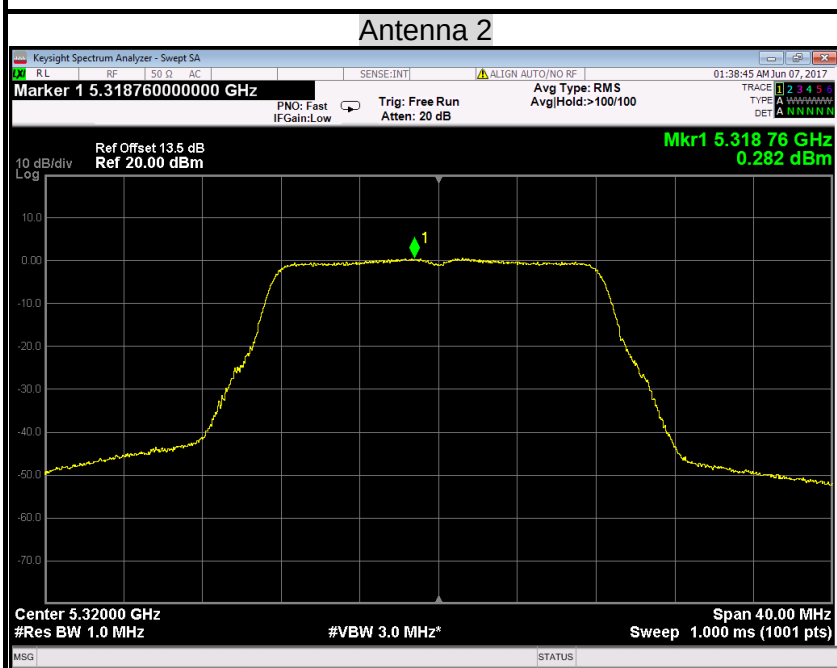




PPSD (CH Mid)



PPSD (CH High)

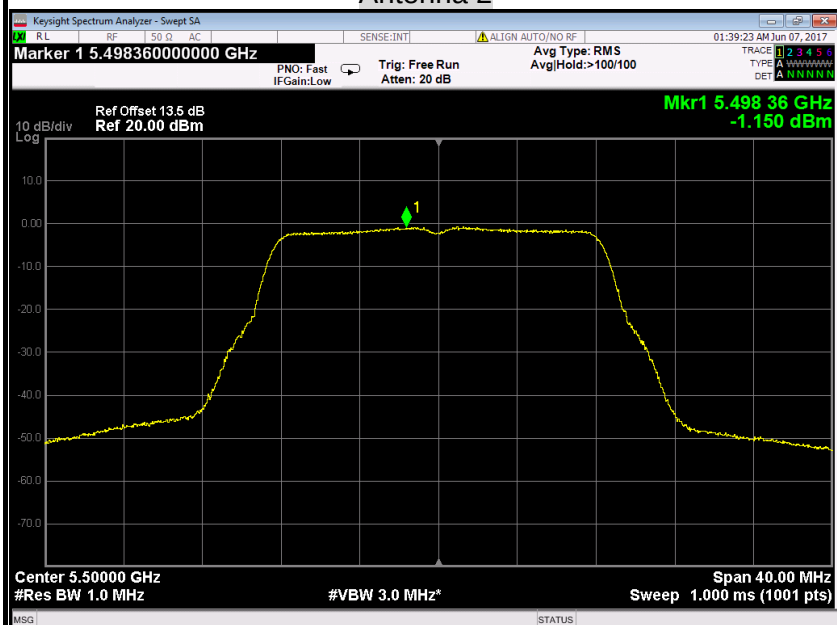




IEEE 802.11a mode / 5500 ~ 5700MHz

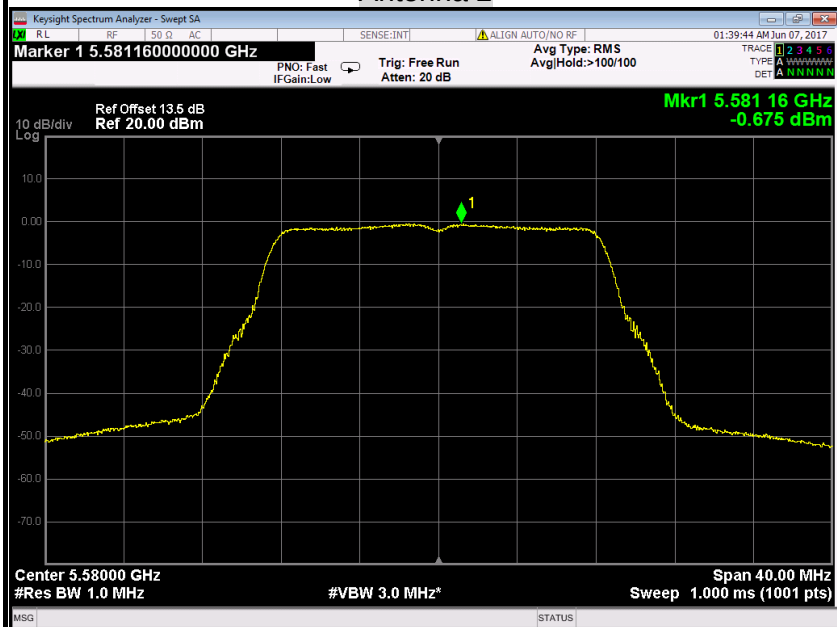
PPSD (CH Low)

Antenna 2



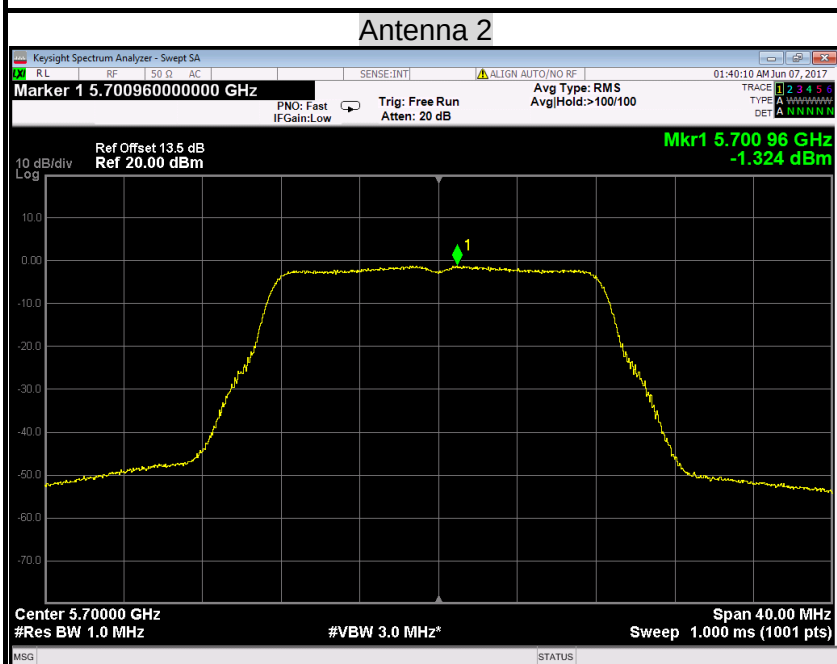
PPSD (CH Mid)

Antenna 2



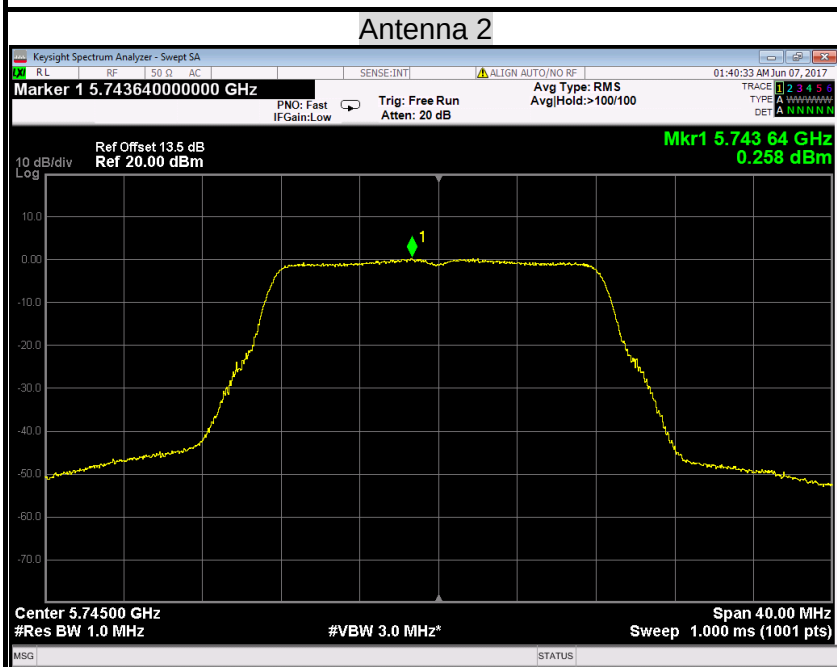


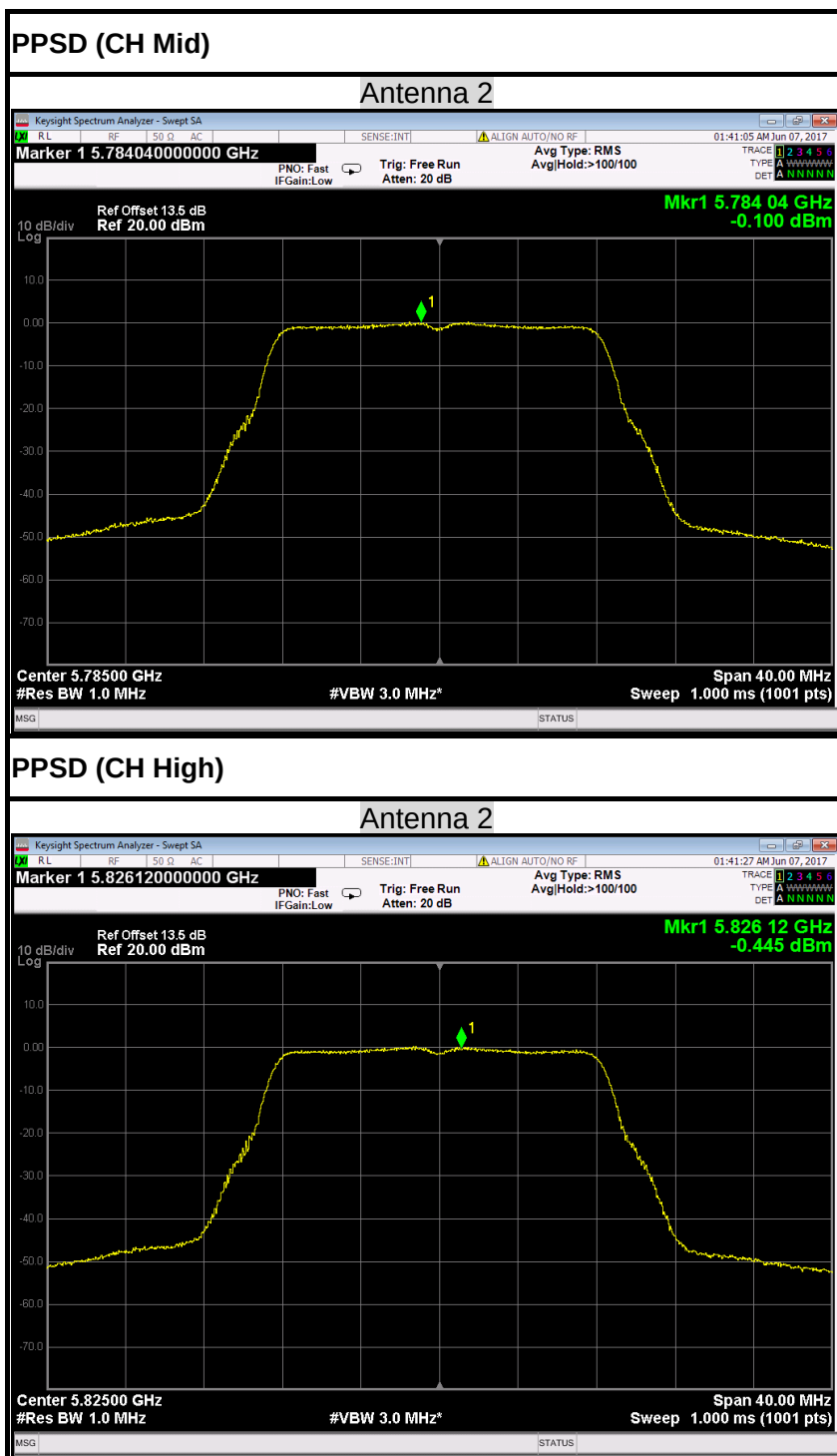
PPSD (CH High)



IEEE 802.11a mode / 5745 ~ 5825MHz

PPSD (CH Low)

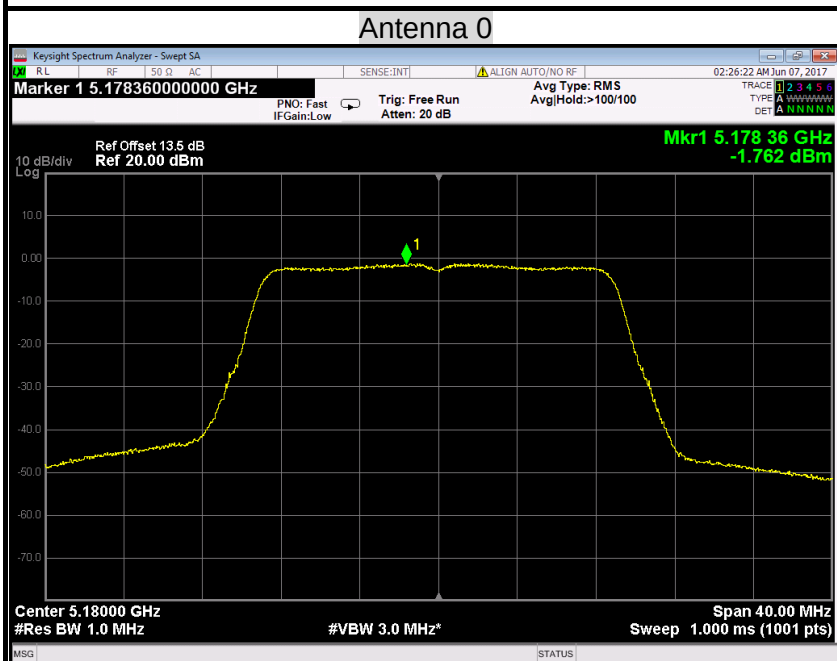




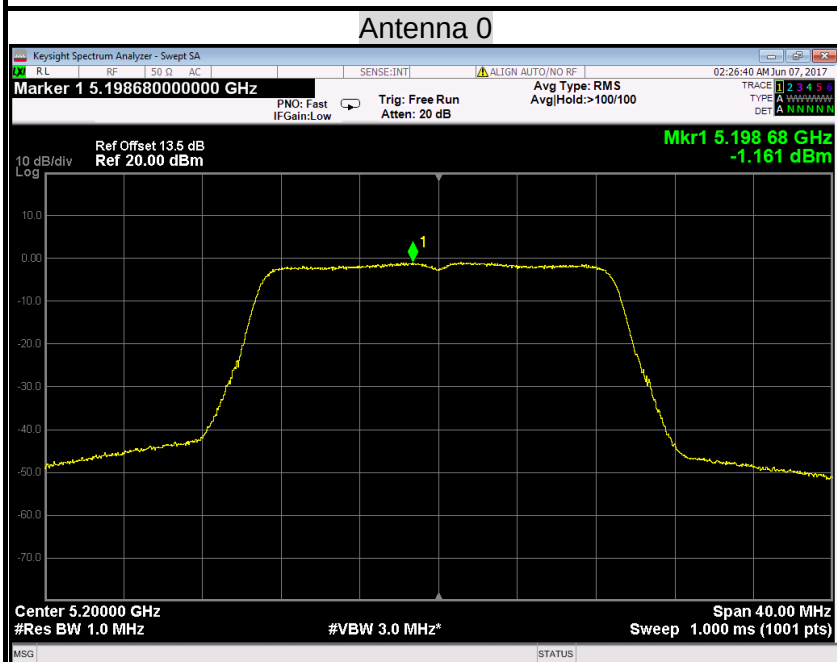


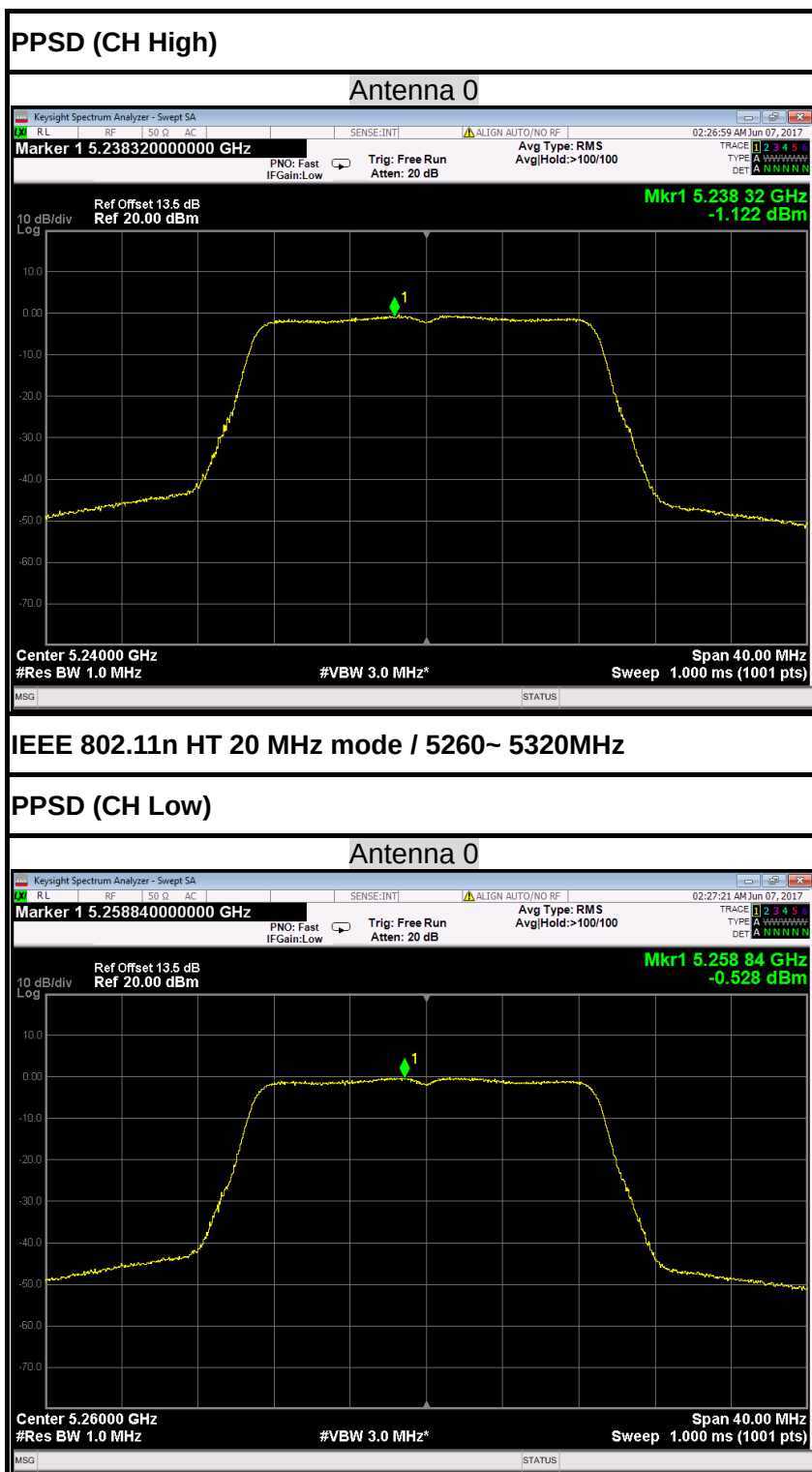
IEEE 802.11n HT 20 MHz mode / 5180 ~ 5240MHz

PPSD (CH Low)



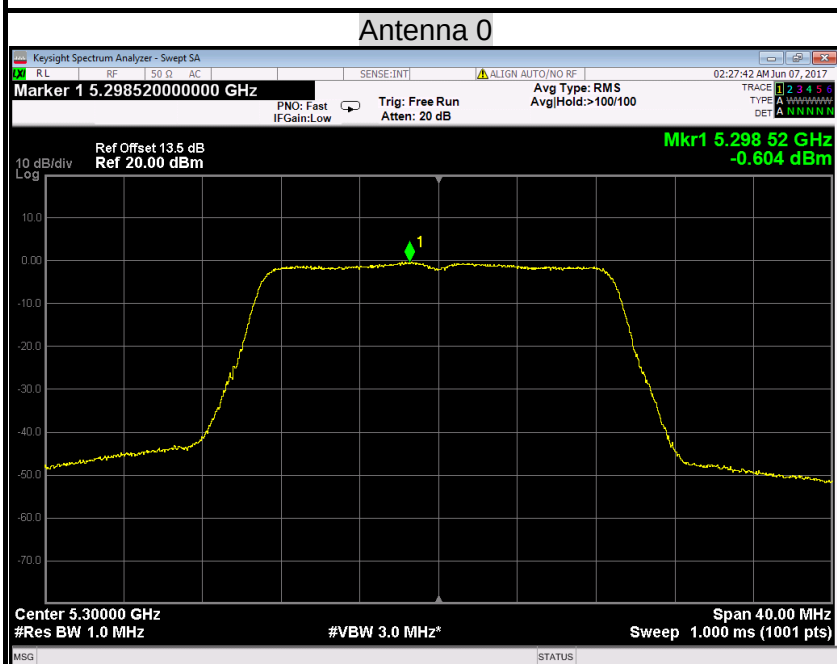
PPSD (CH Mid)



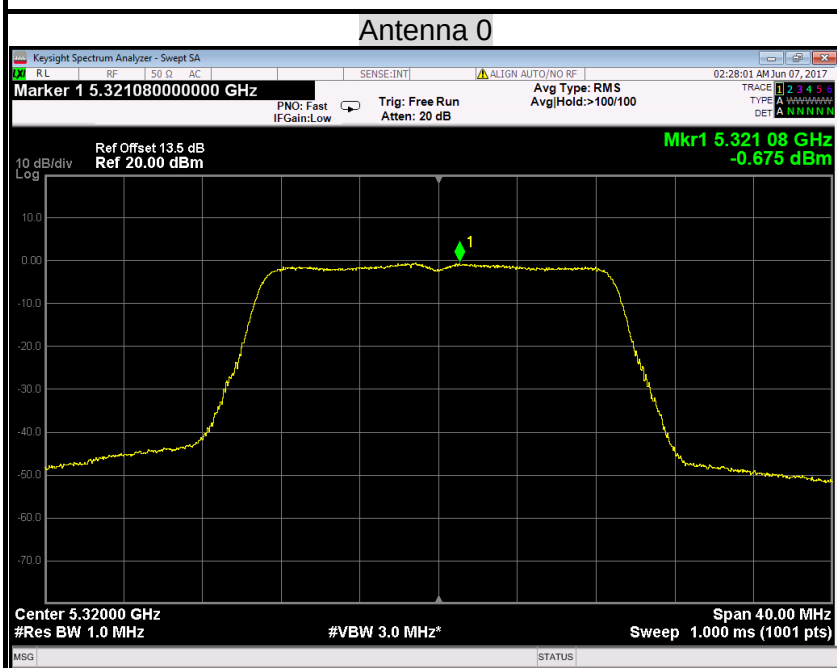




PPSD (CH Mid)



PPSD (CH High)

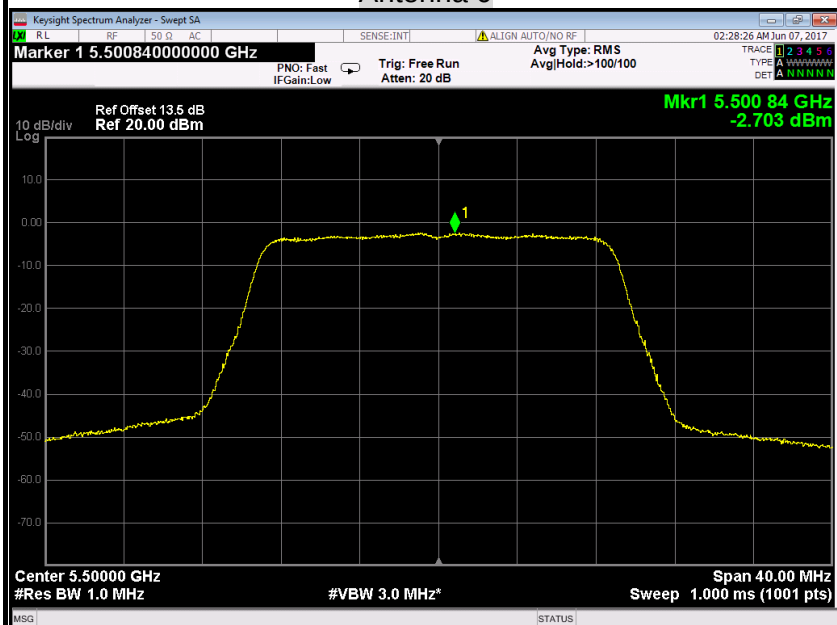




IEEE 802.11n HT 20 MHz mode / 5500 ~ 5700MHz

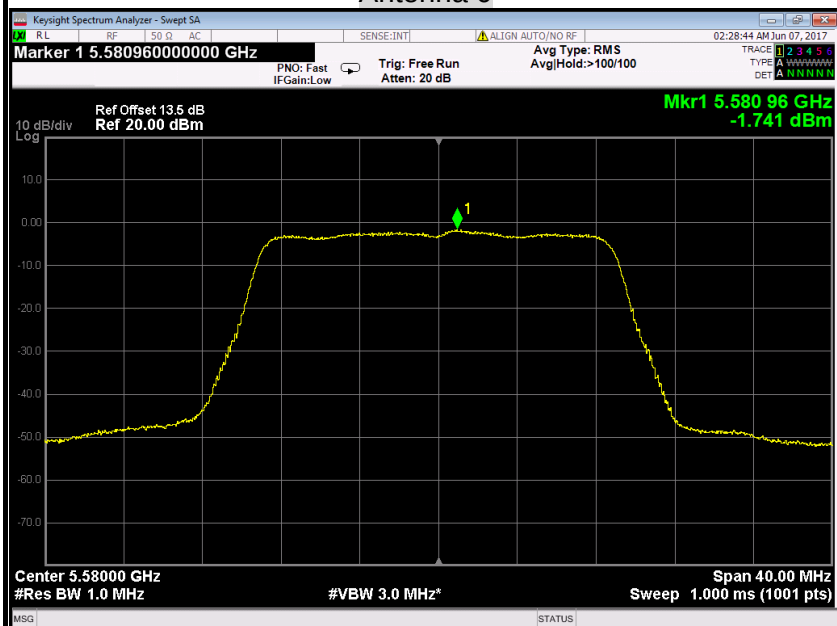
PPSD (CH Low)

Antenna 0



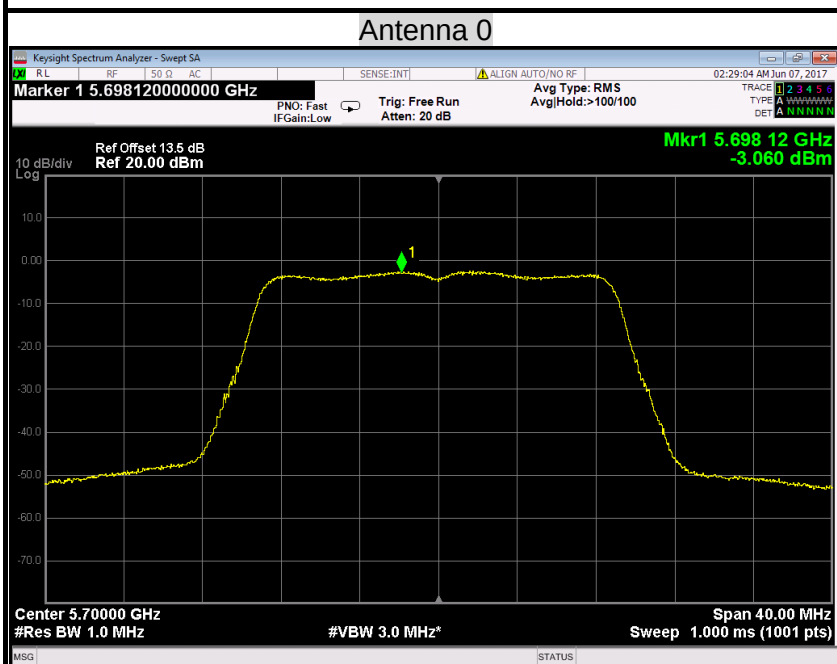
PPSD (CH Mid)

Antenna 0



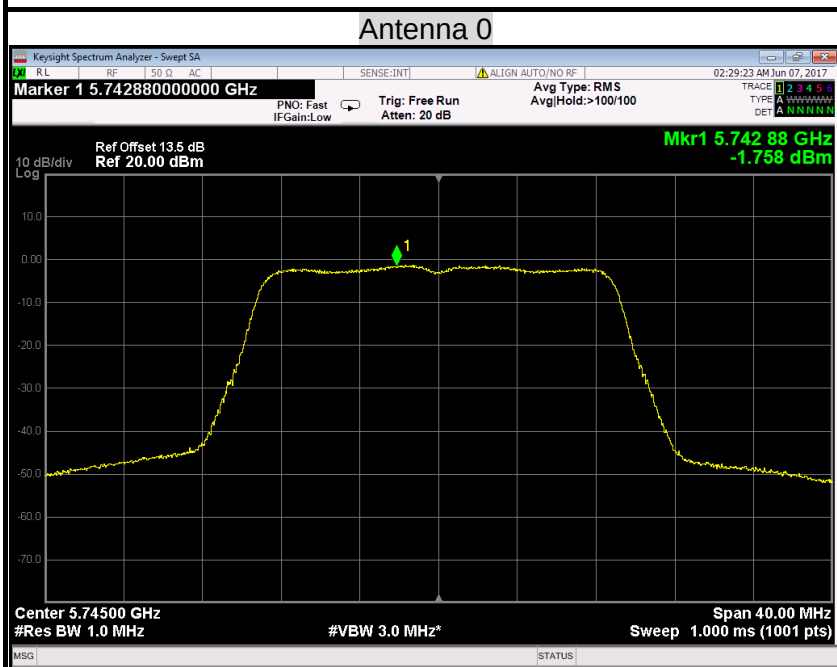


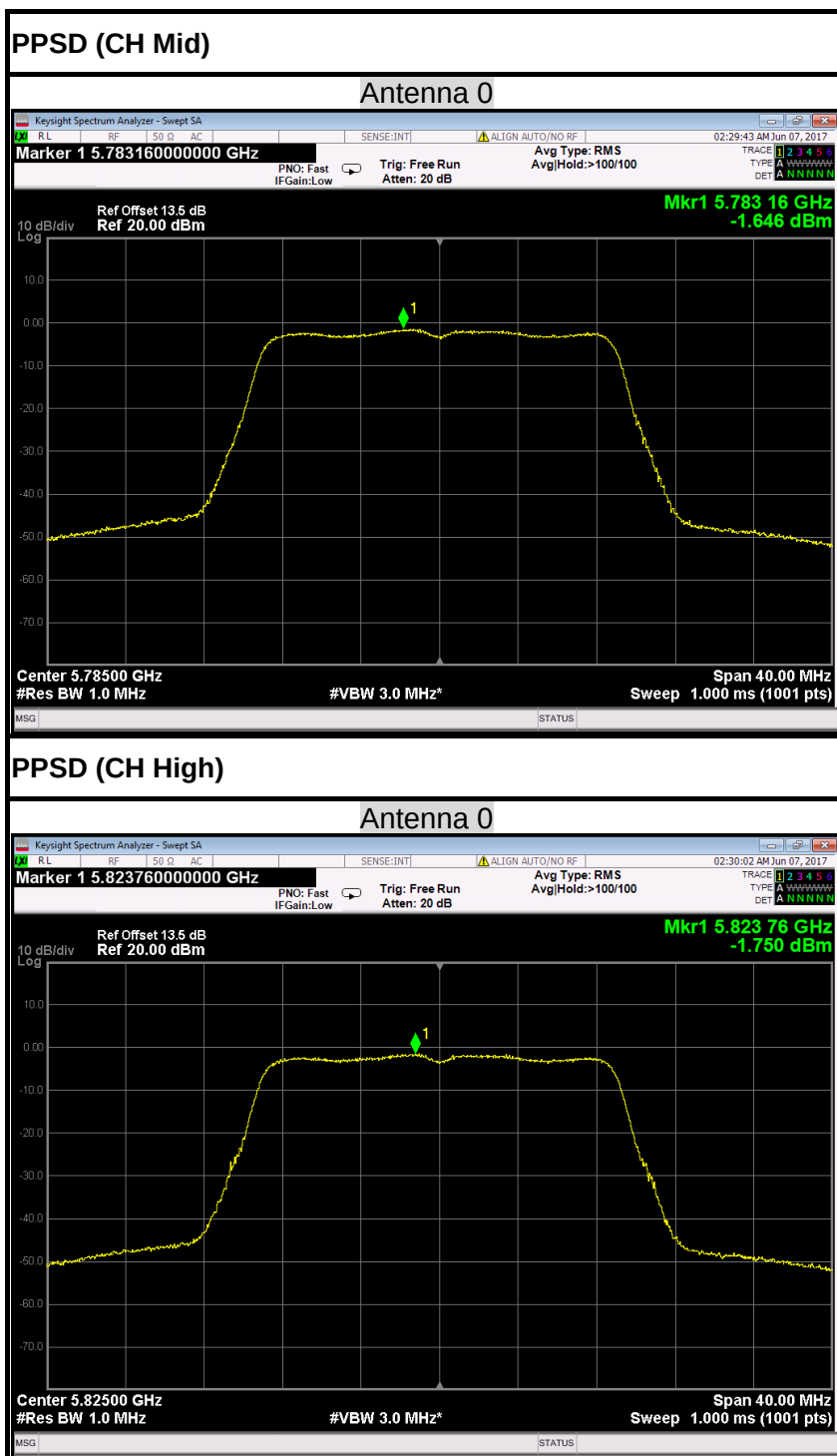
PPSD (CH High)



IEEE 802.11n HT 20 MHz mode / 5745 ~ 5825MHz

PPSD (CH Low)

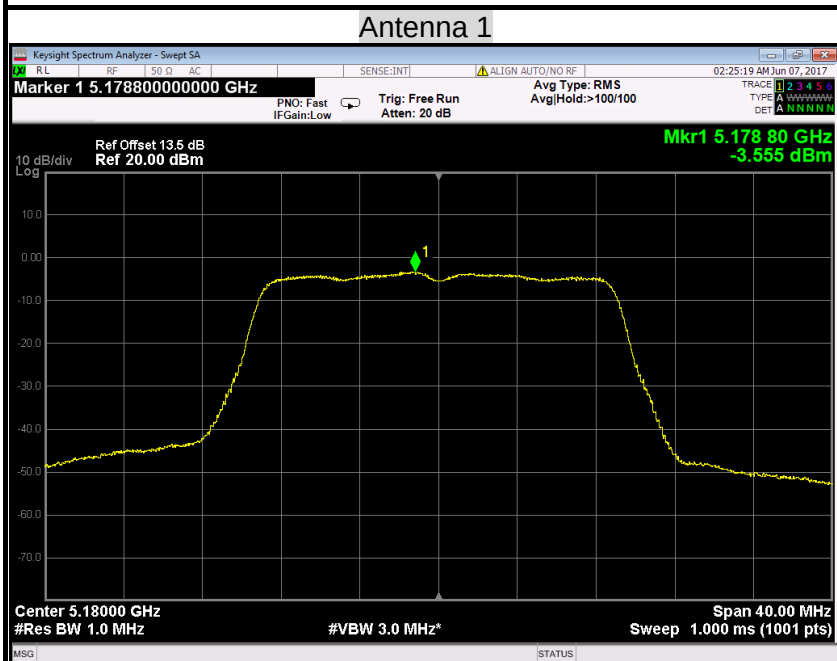




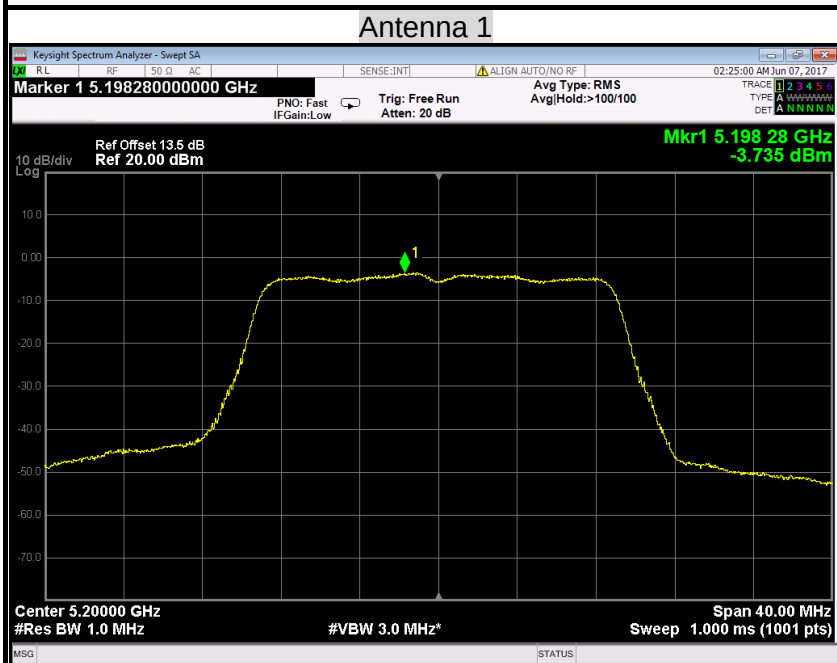


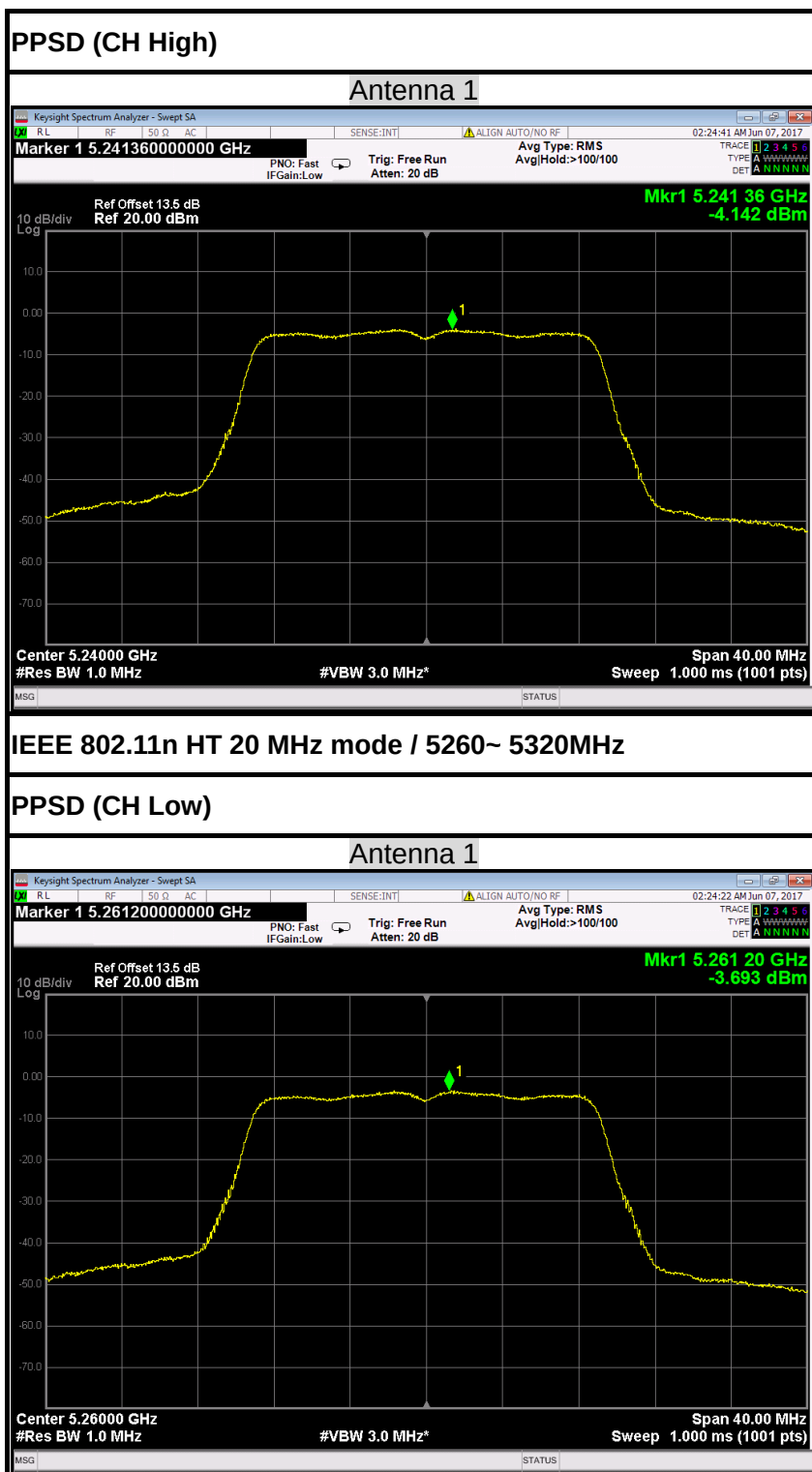
IEEE 802.11n HT 20 MHz mode / 5180 ~ 5240MHz

PPSD (CH Low)



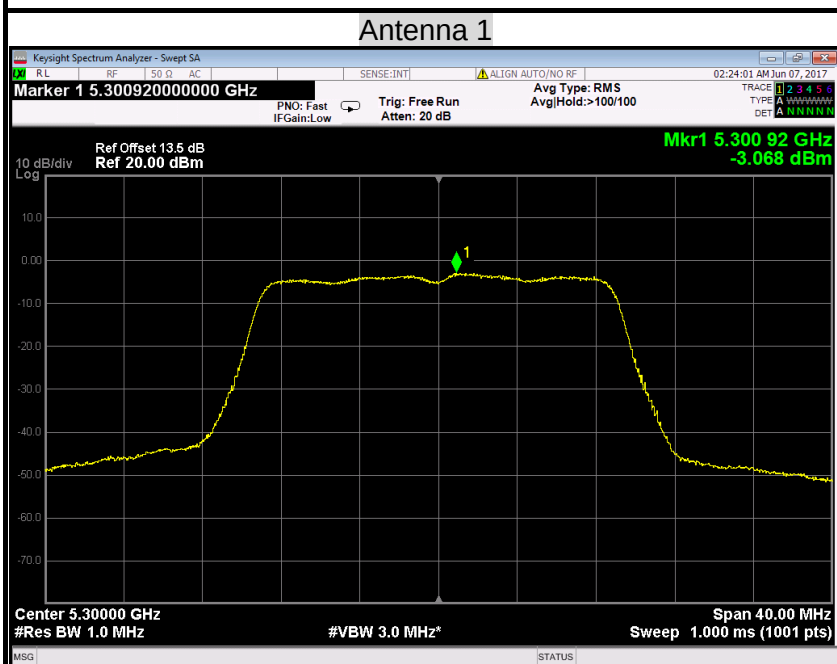
PPSD (CH Mid)



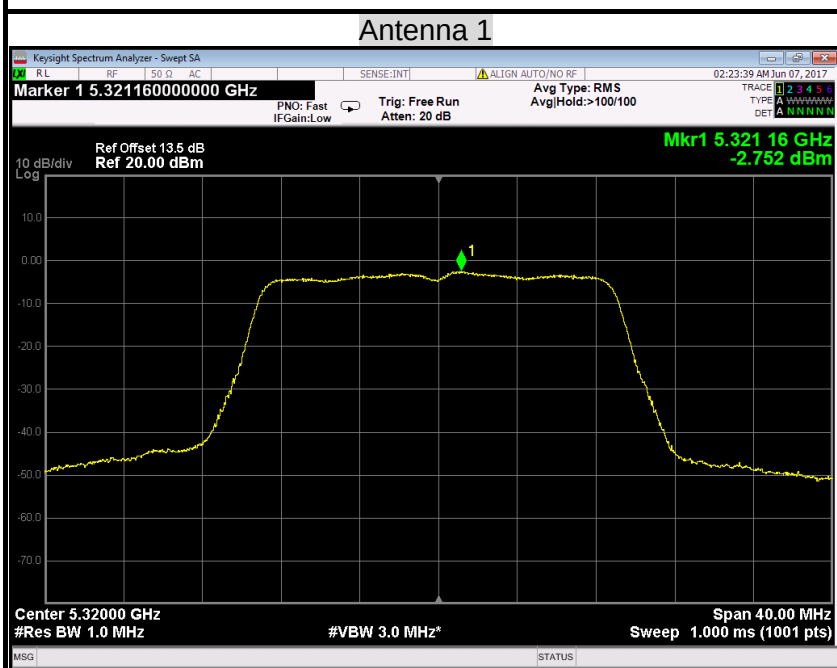




PPSD (CH Mid)



PPSD (CH High)

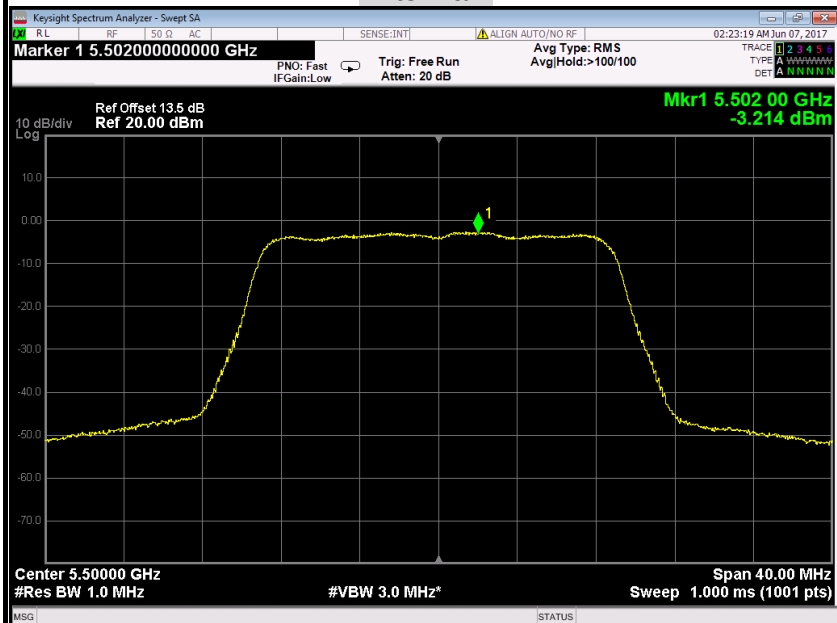




IEEE 802.11n HT 20 MHz mode / 5500 ~ 5700MHz

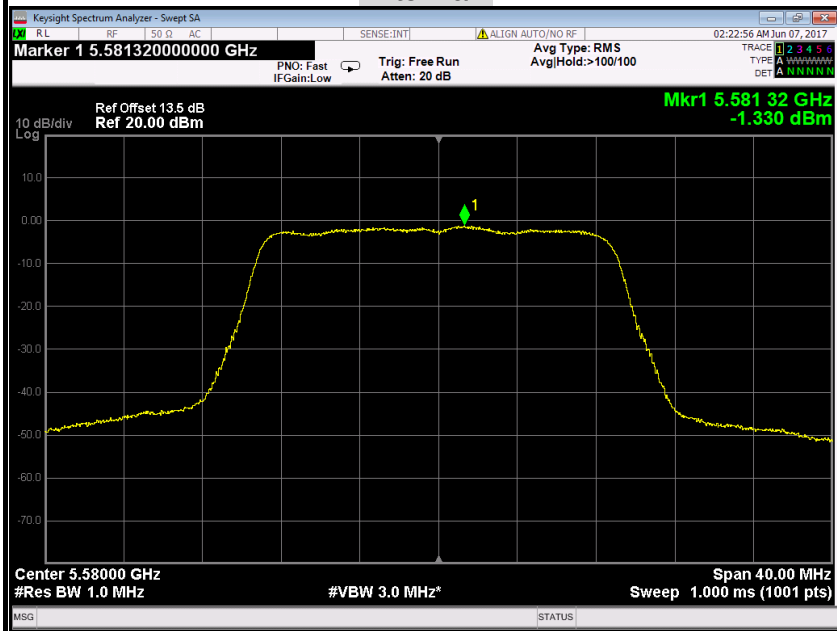
PPSD (CH Low)

Antenna 1



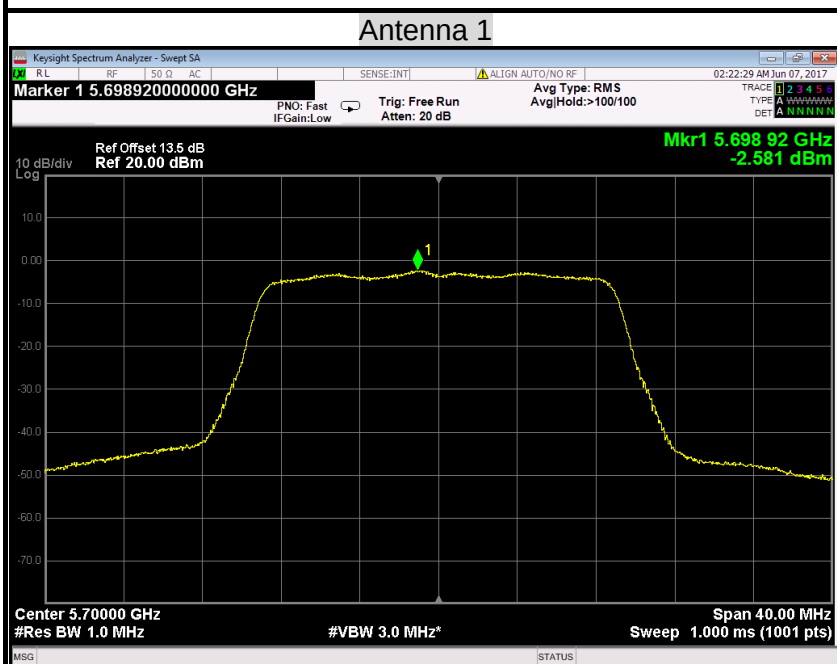
PPSD (CH Mid)

Antenna 1



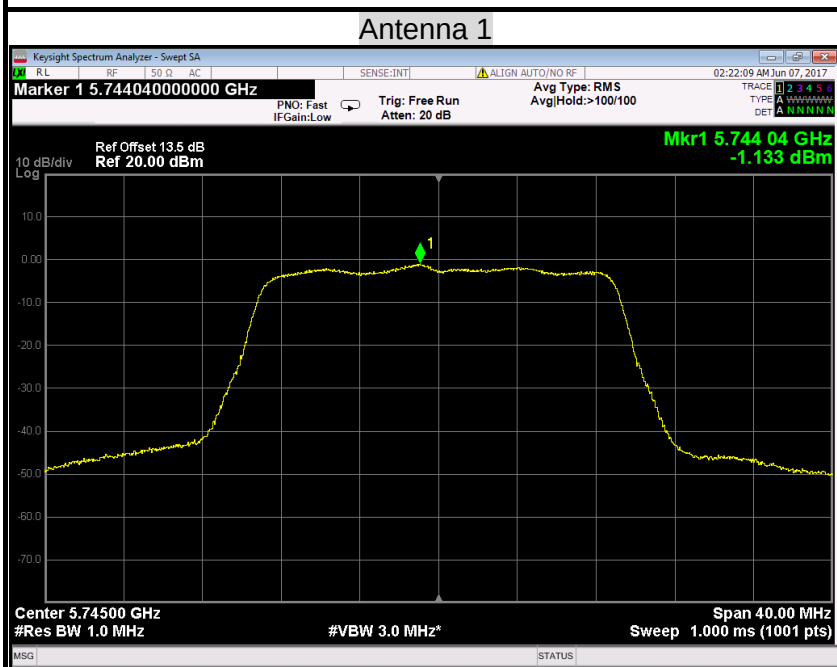


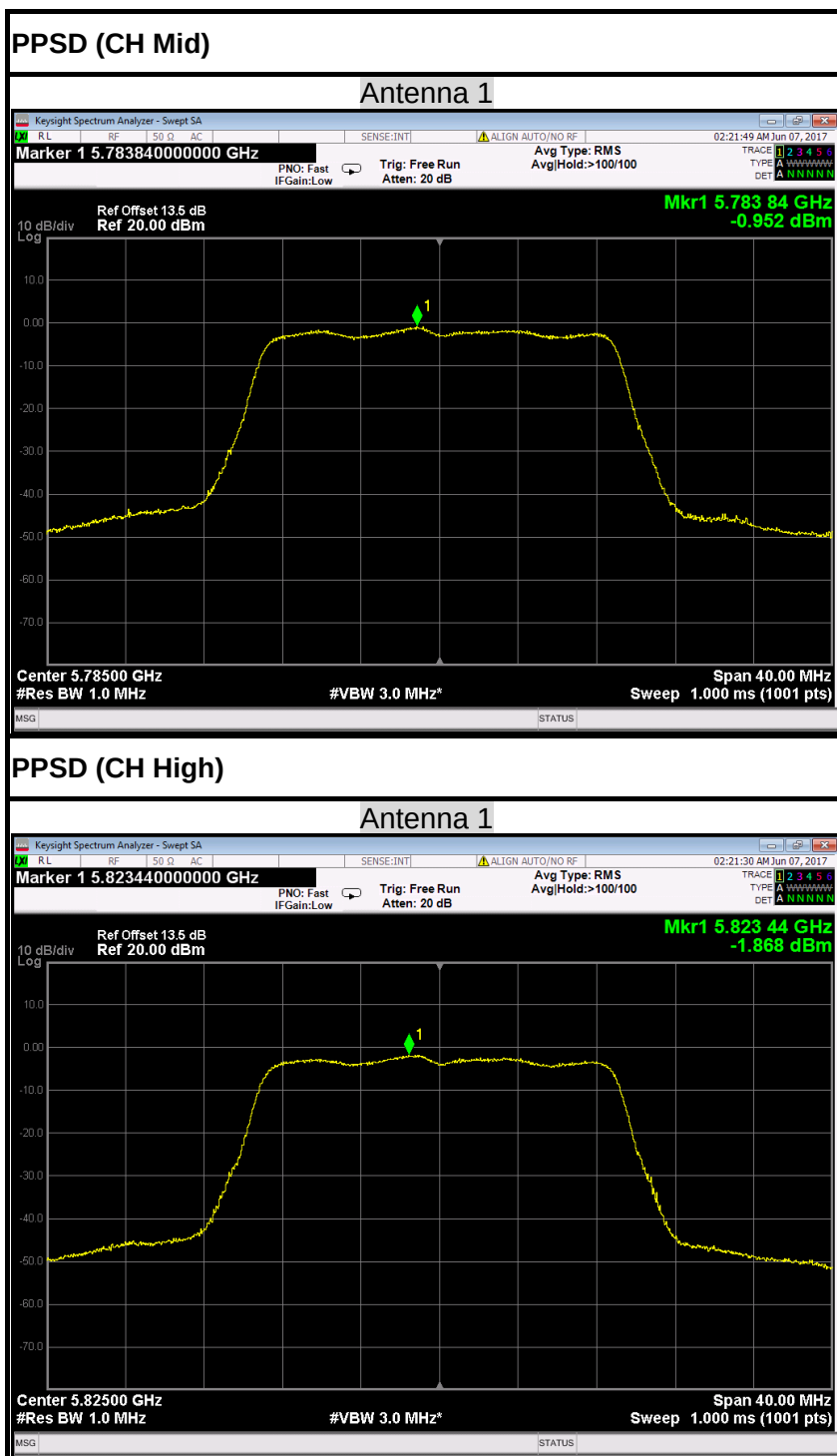
PPSD (CH High)



IEEE 802.11n HT 20 MHz mode / 5745 ~ 5825MHz

PPSD (CH Low)



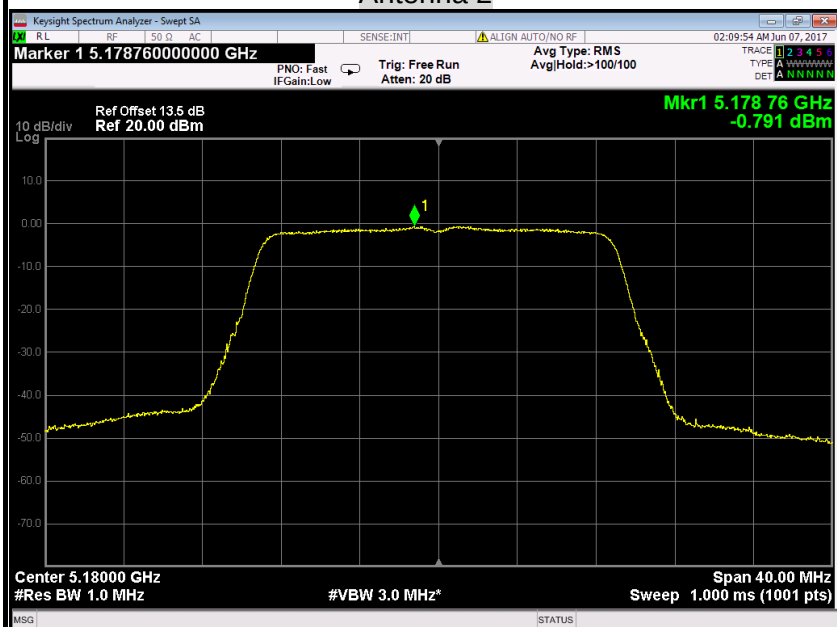




IEEE 802.11n HT 20 MHz mode / 5180 ~ 5240MHz

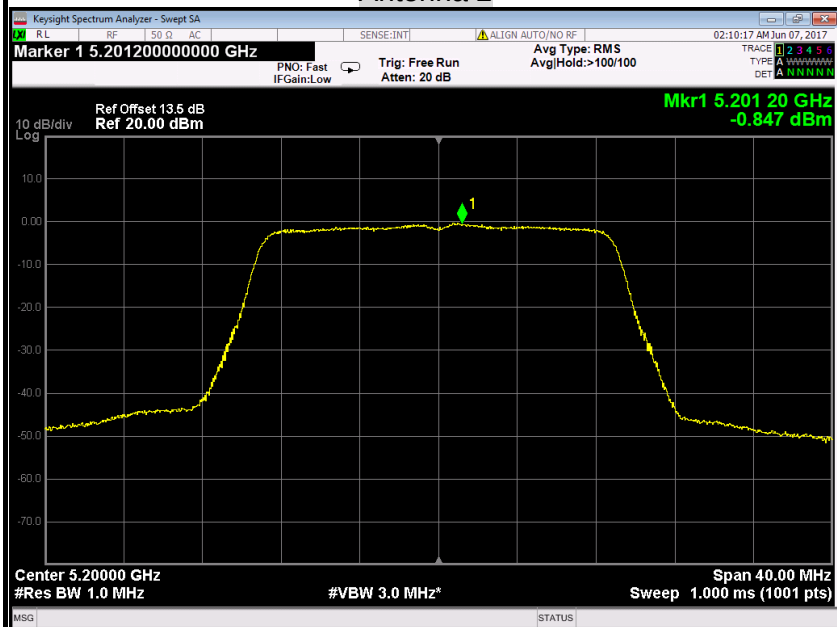
PPSD (CH Low)

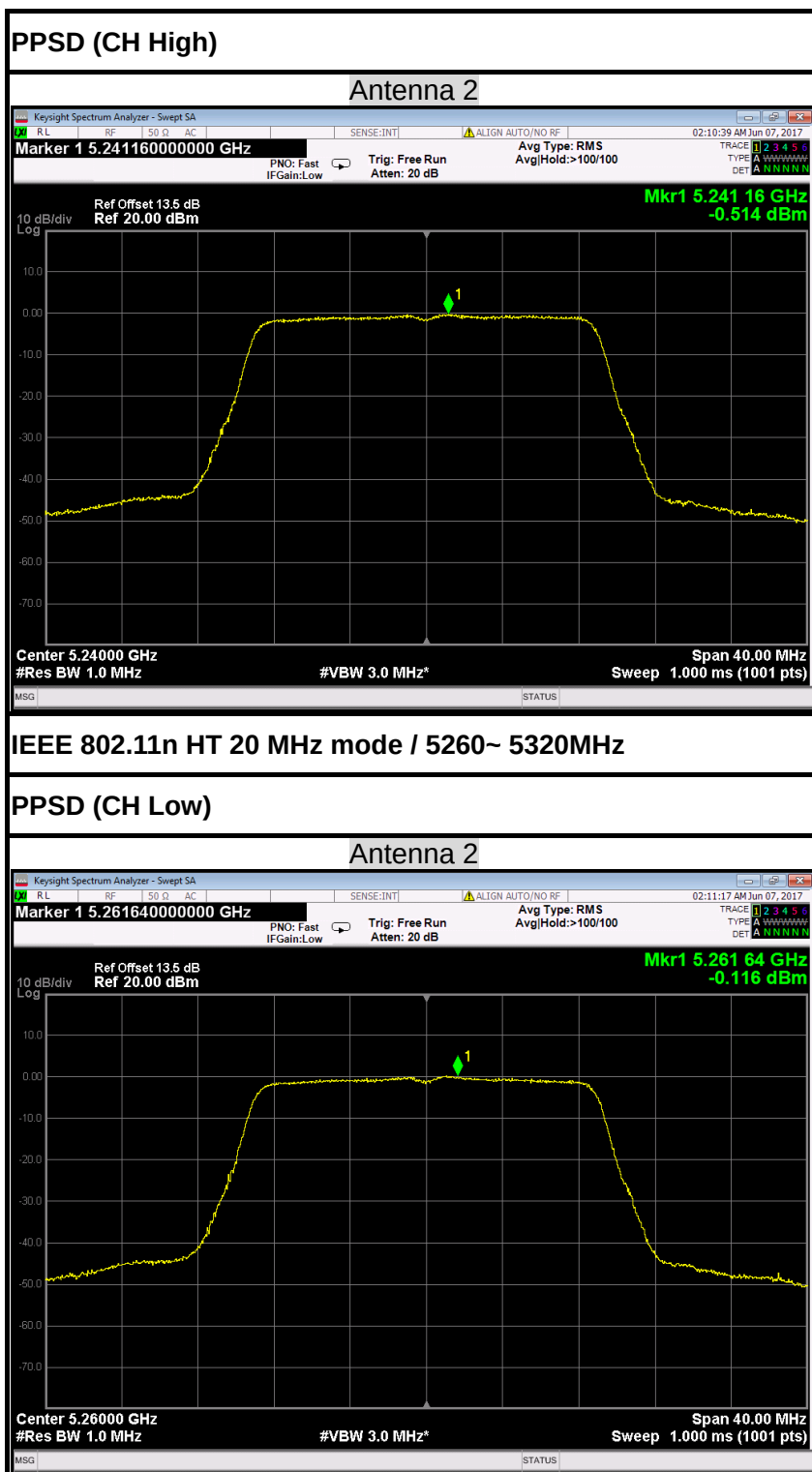
Antenna 2



PPSD (CH Mid)

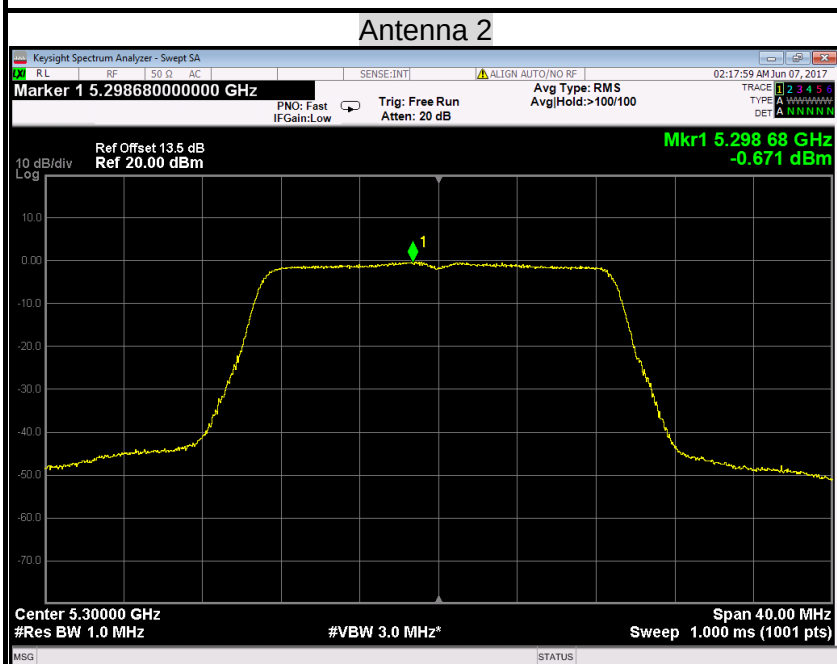
Antenna 2



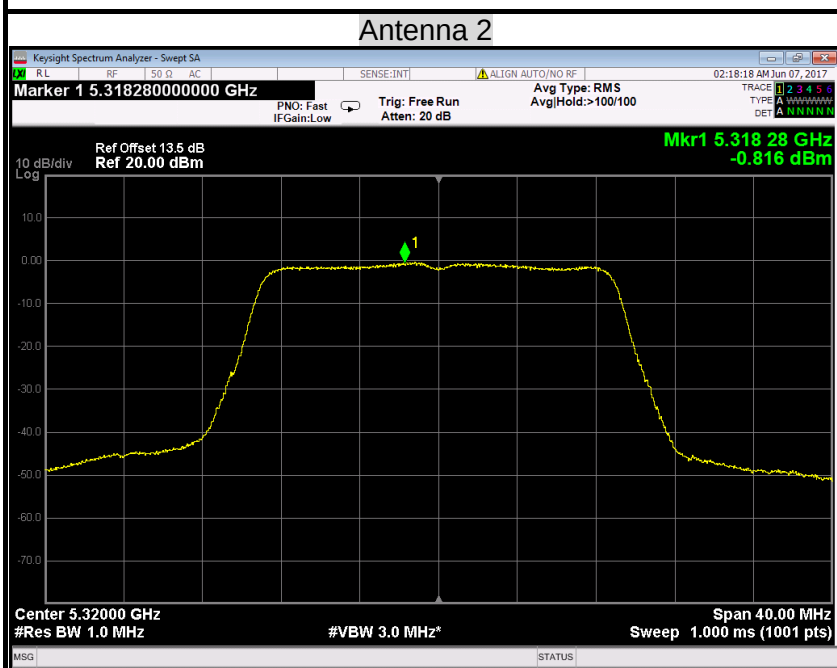




PPSD (CH Mid)



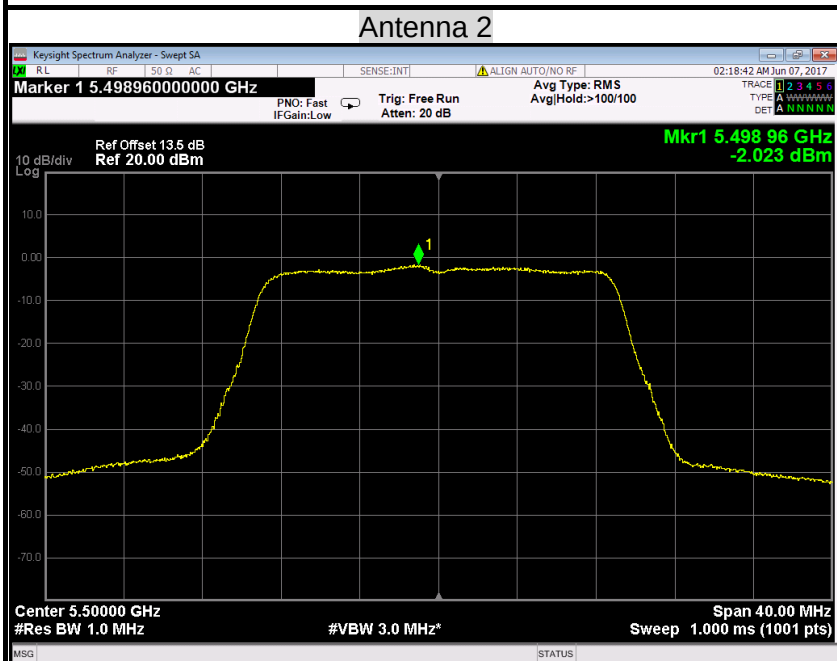
PPSD (CH High)



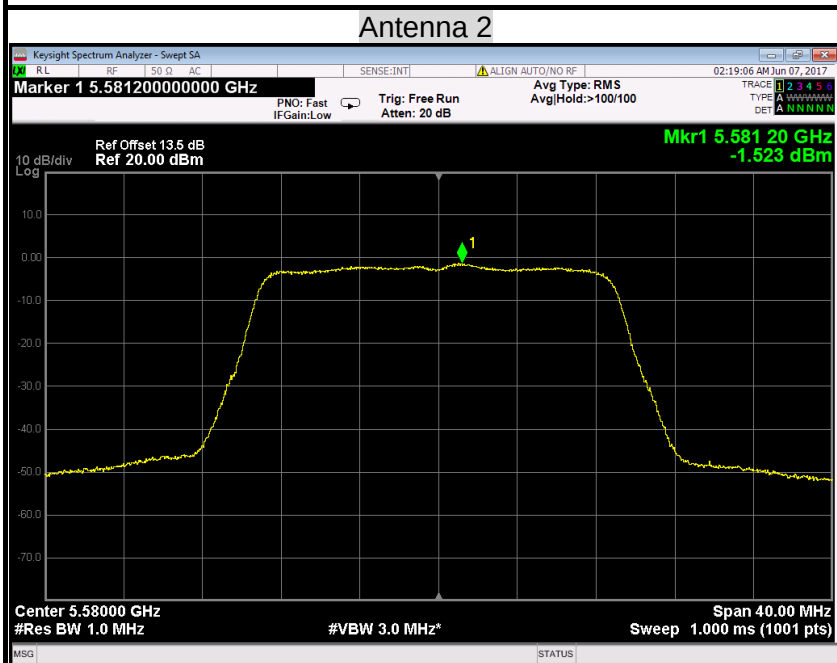


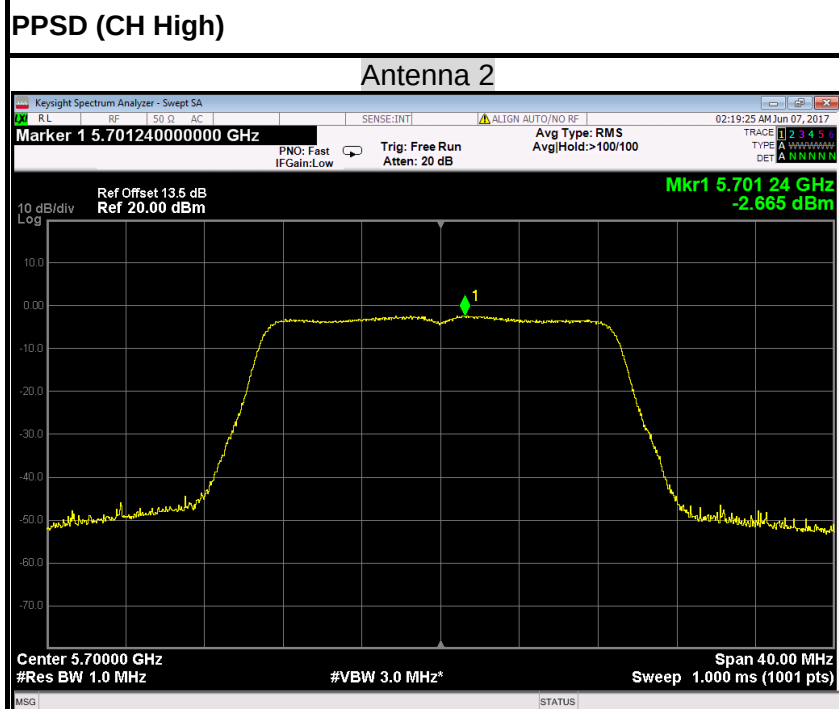
IEEE 802.11n HT 20 MHz mode / 5500 ~ 5700MHz

PPSD (CH Low)

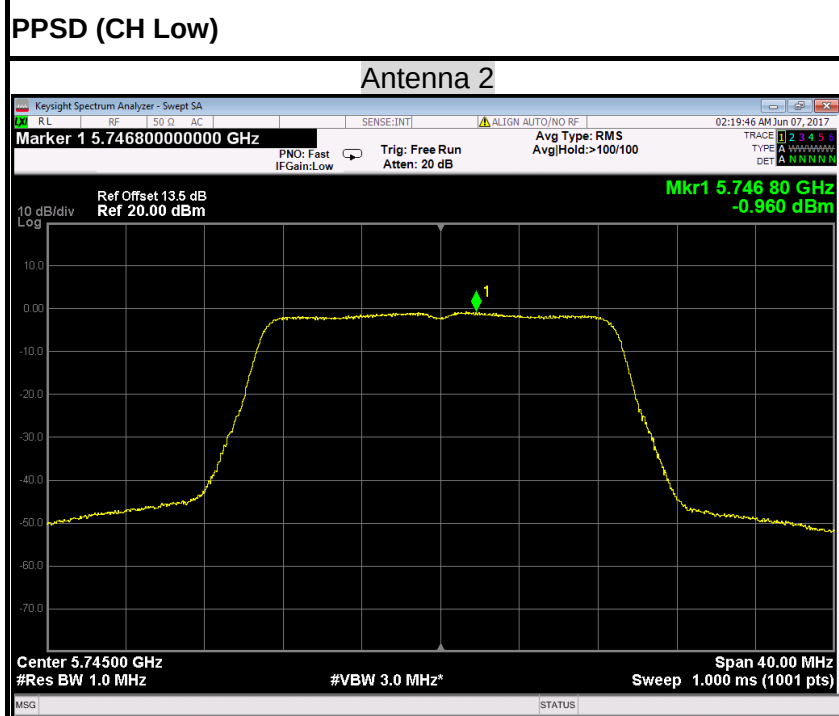


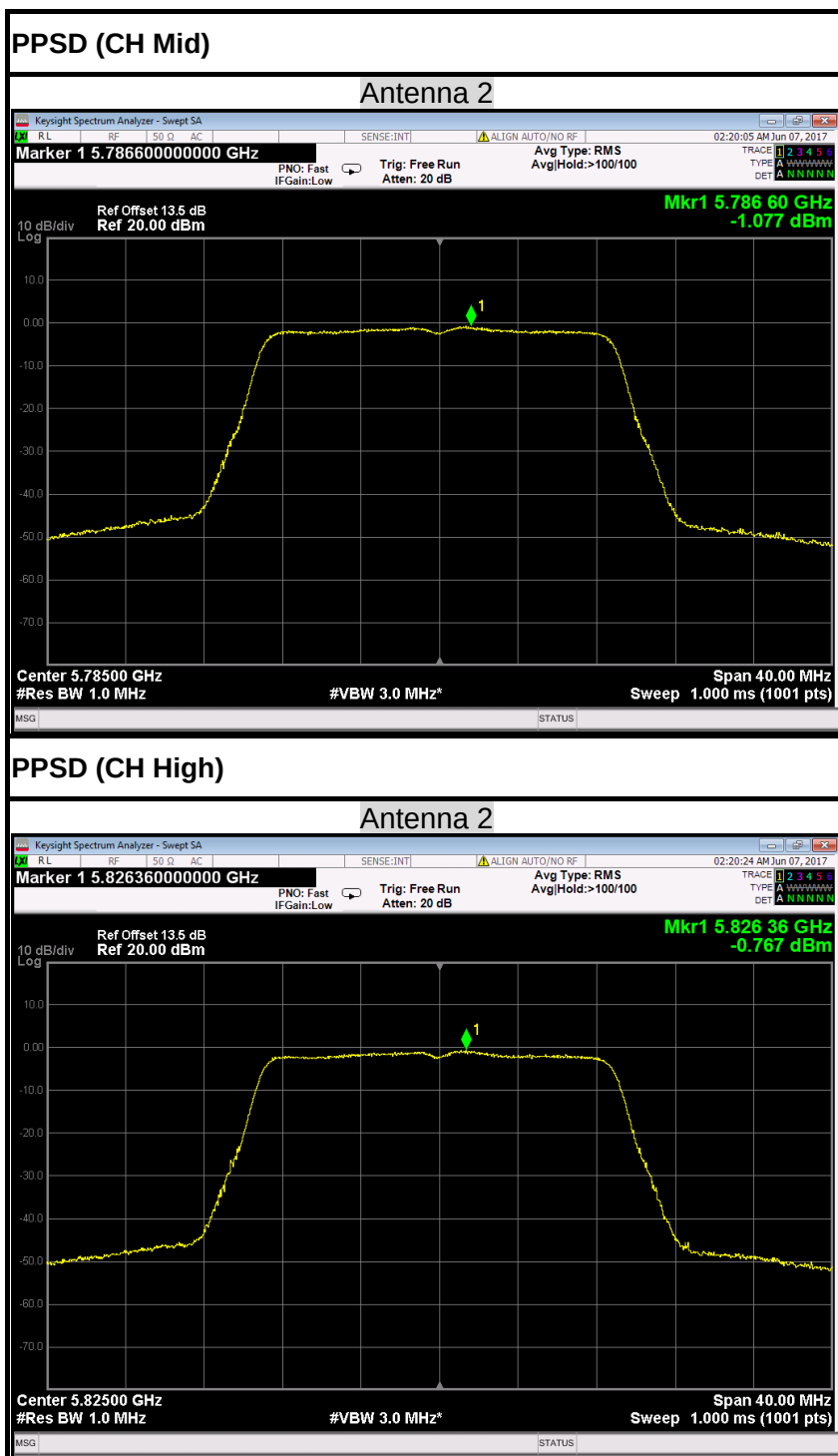
PPSD (CH Mid)





IEEE 802.11n HT 20 MHz mode / 5745 ~ 5825MHz

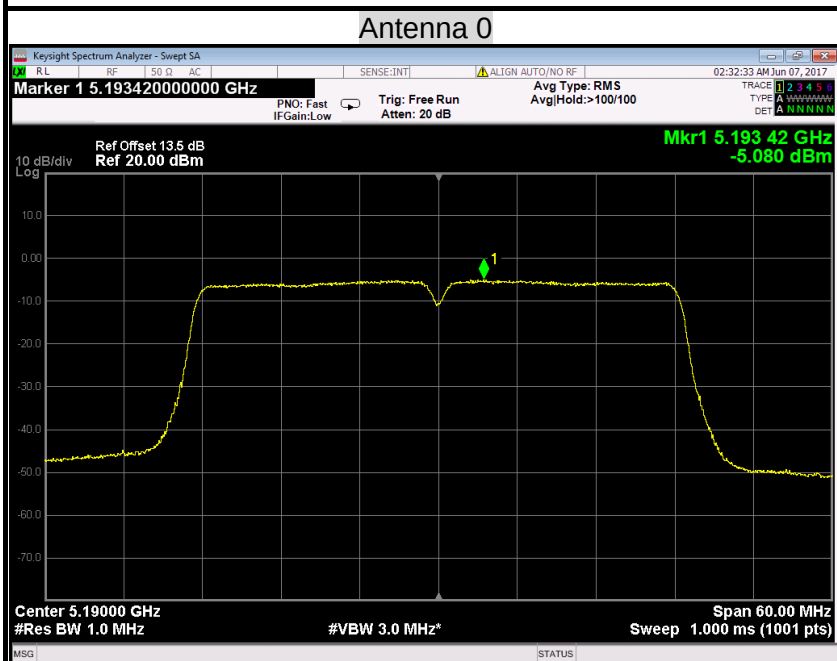




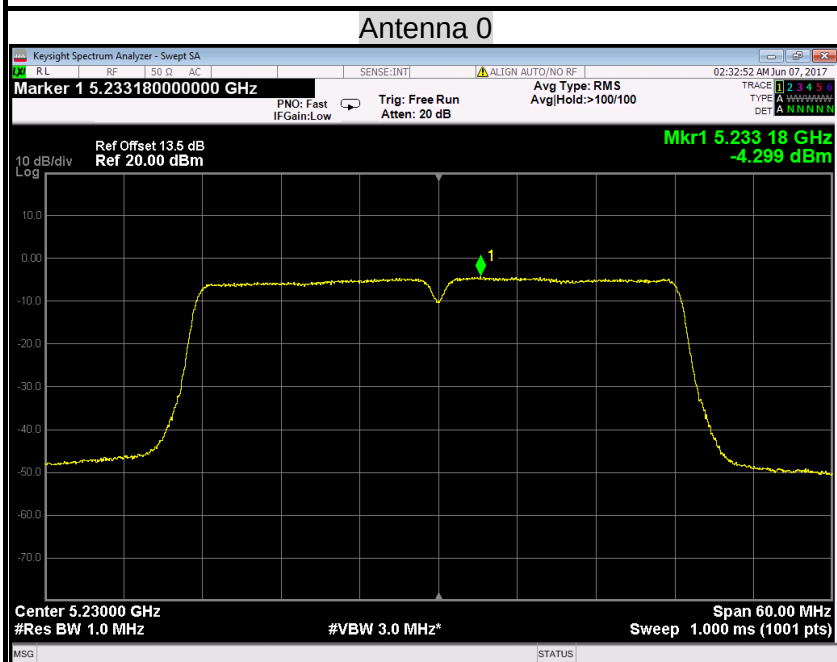


IEEE 802.11n HT 40 MHz mode / 5190 ~ 5230MHz

PPSD (CH Low)



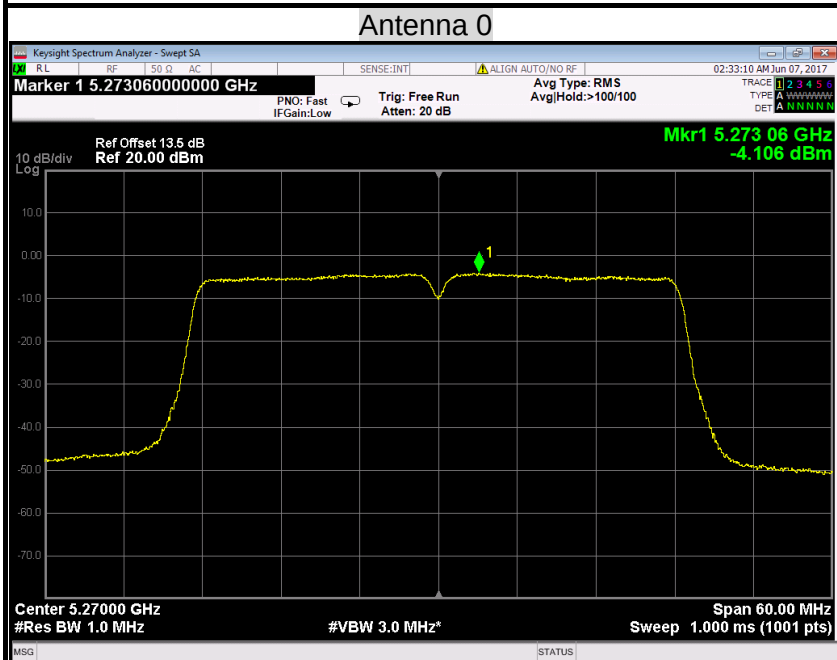
PPSD (CH High)



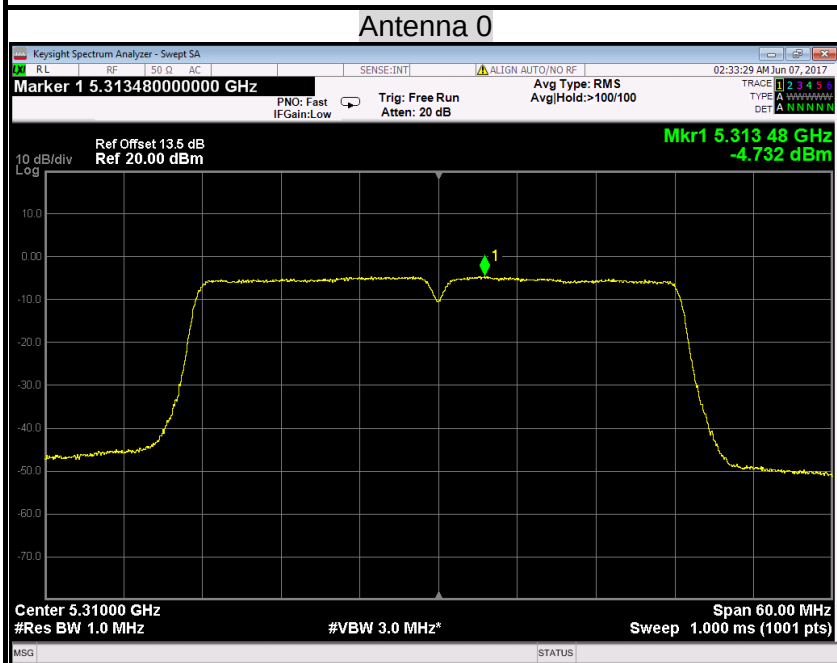


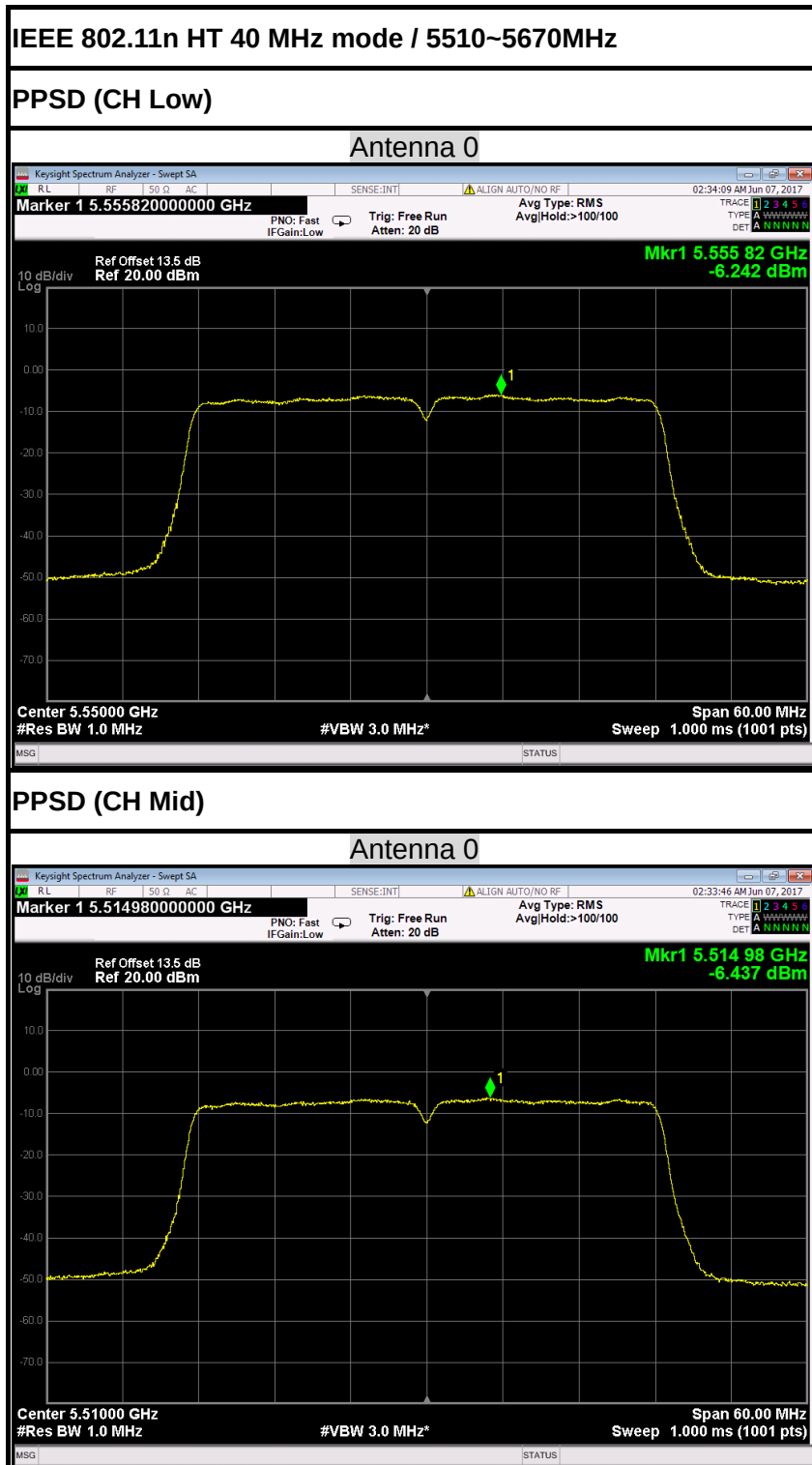
IEEE 802.11n HT 40 MHz mode / 5270 ~ 5310MHz

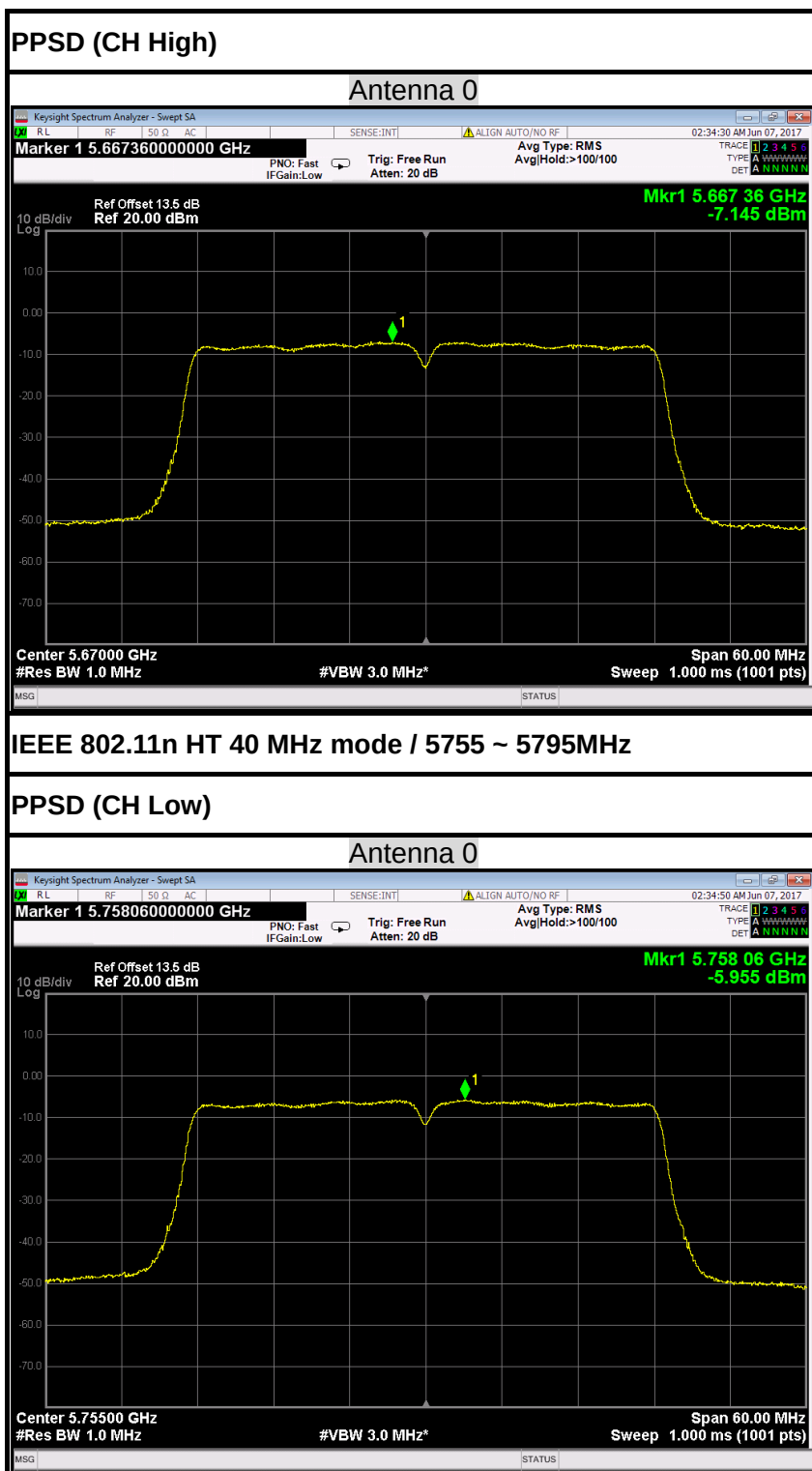
PPSD (CH Low)

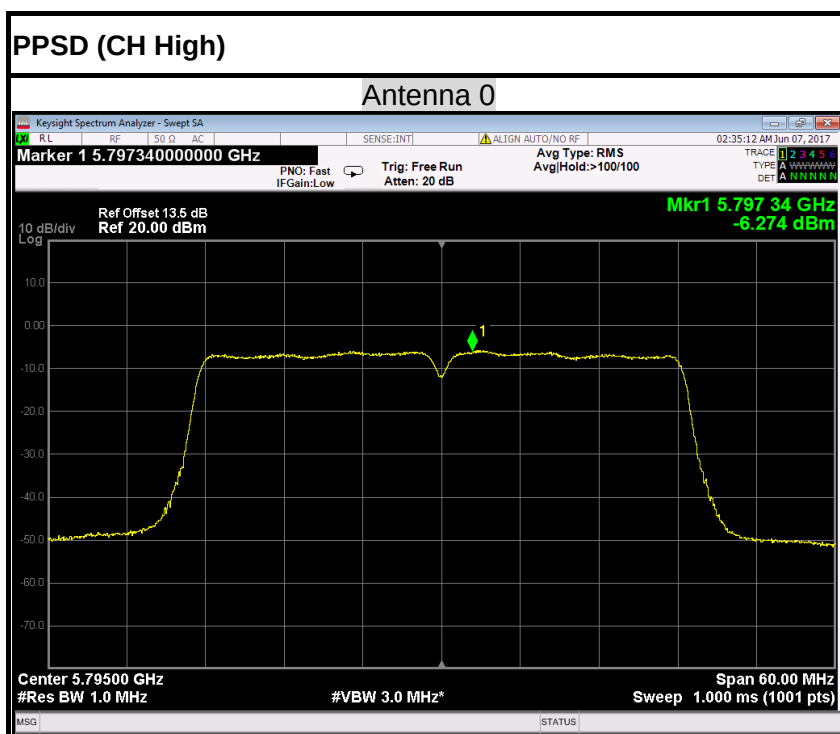


PPSD (CH High)





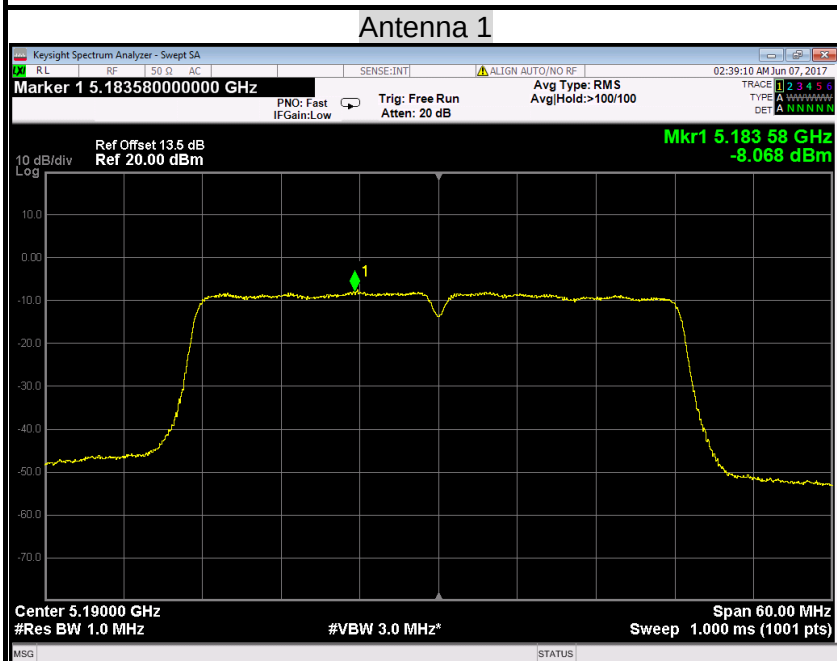




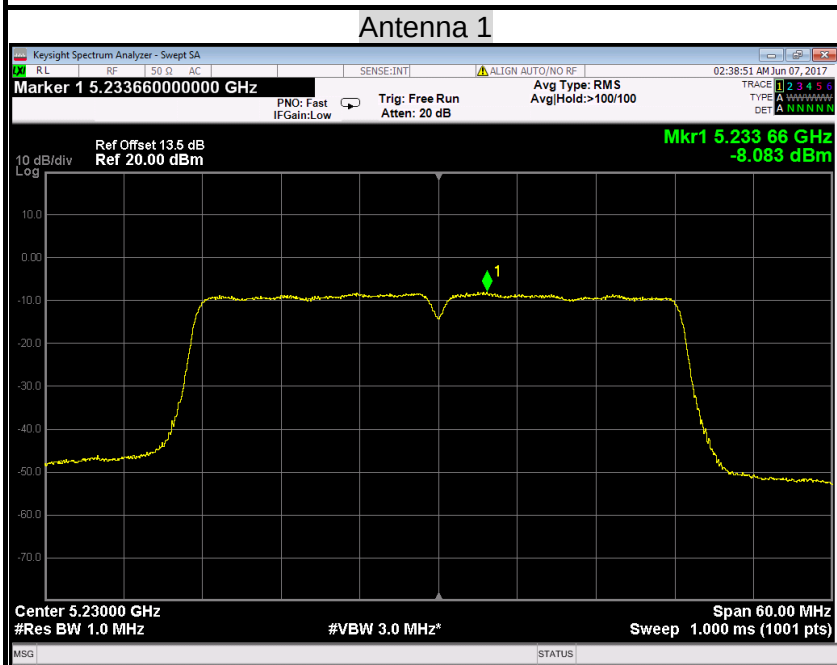


IEEE 802.11n HT 40 MHz mode / 5190 ~ 5230MHz

PPSD (CH Low)



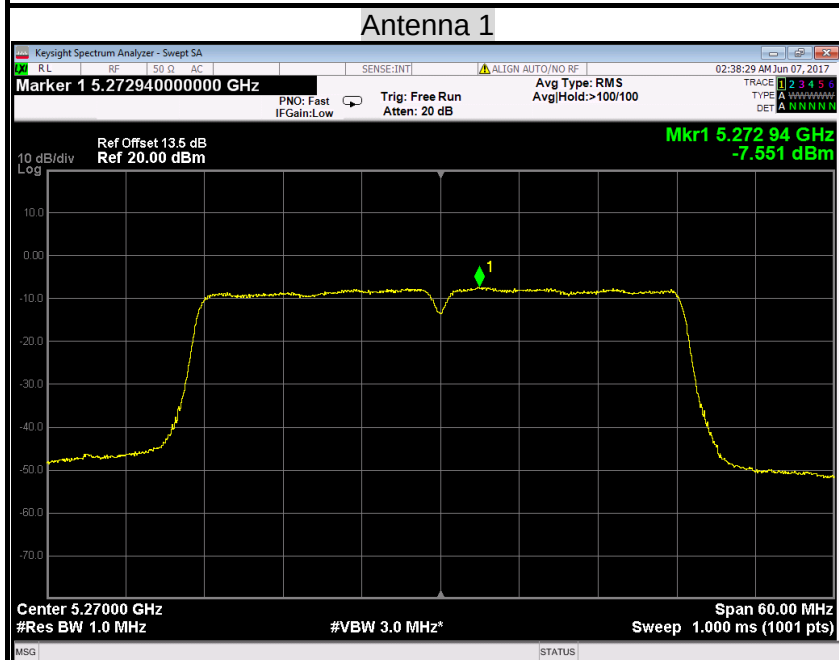
PPSD (CH High)





IEEE 802.11n HT 40 MHz mode / 5270 ~ 5310MHz

PPSD (CH Low)



PPSD (CH High)

