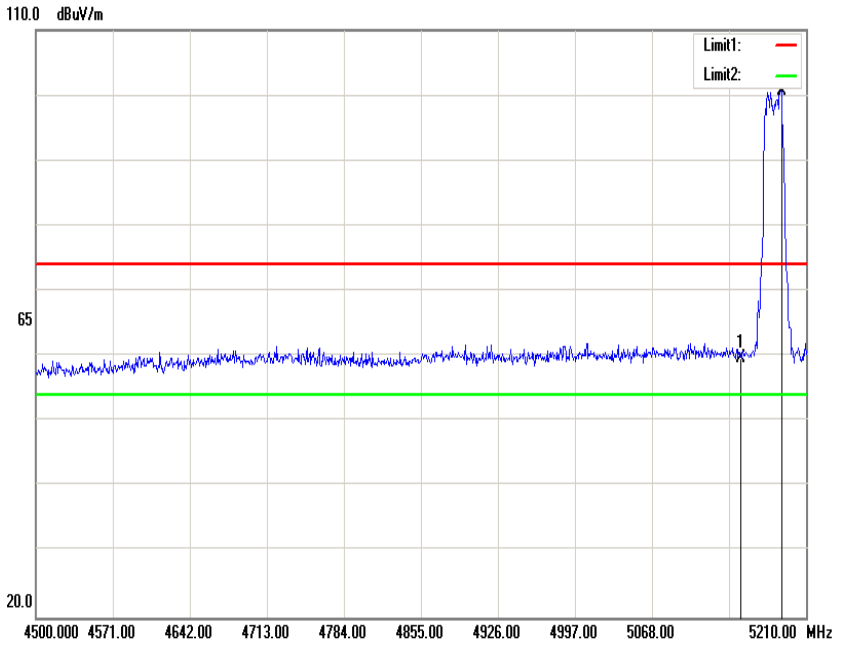
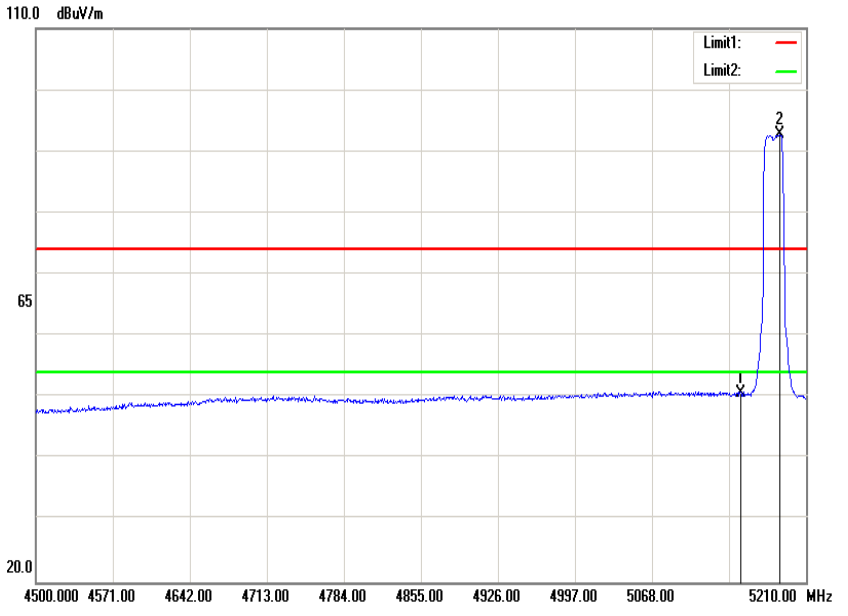
Detector mode: Peak **Polarity: Horizontal**



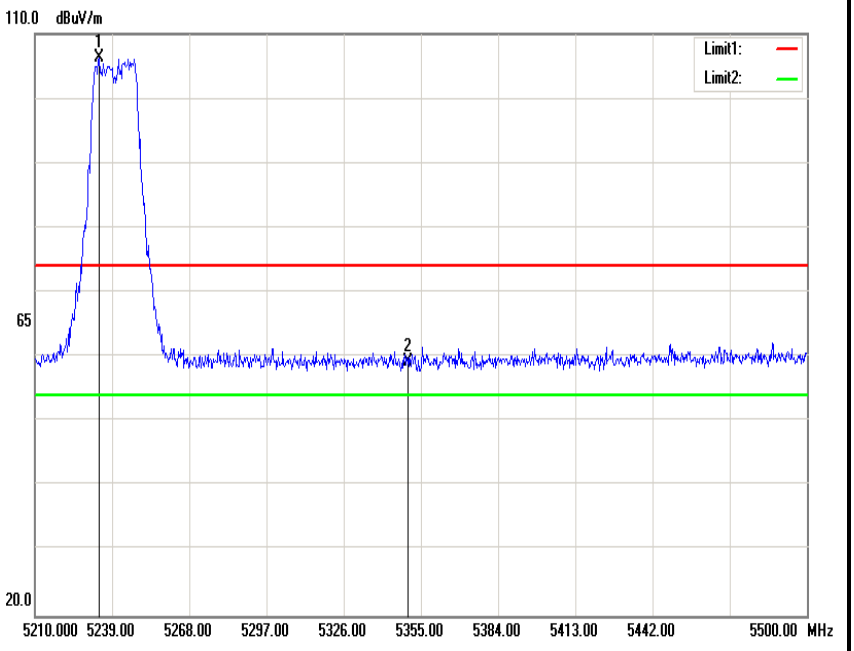
Detector mode: Average **Polarity: Horizontal**



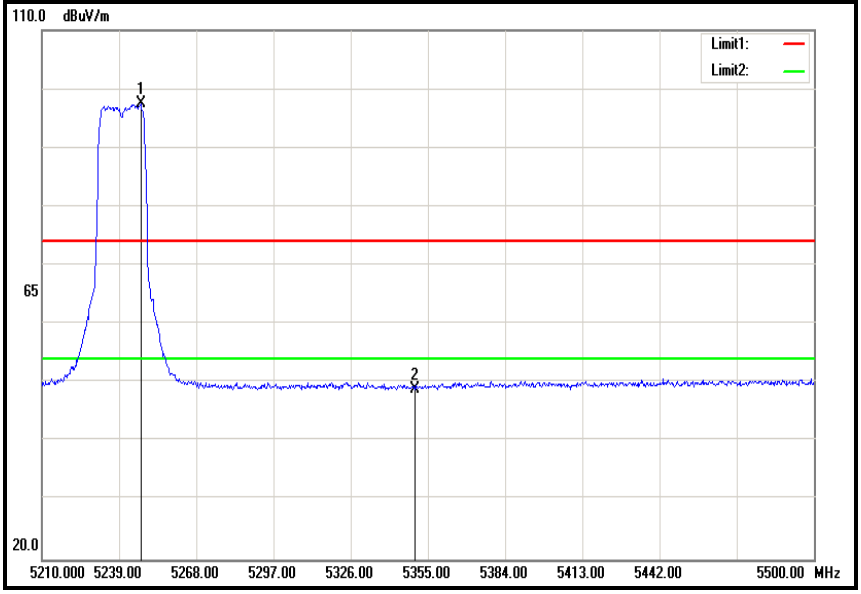
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1.	5150.000	54.56	5.25	59.81	74.00	-14.19	Peak	Horizontal
2.	5187.280	95.39	5.31	100.70	---	---	Peak	Horizontal
1.	5150.000	45.40	5.25	50.65	54.00	-3.35	Average	Horizontal
2.	5185.860	87.41	5.31	92.72	---	---	Average	Horizontal

IEEE 802.11a mode / 5240MHz

Detector mode: Peak **Polarity: Vertical**

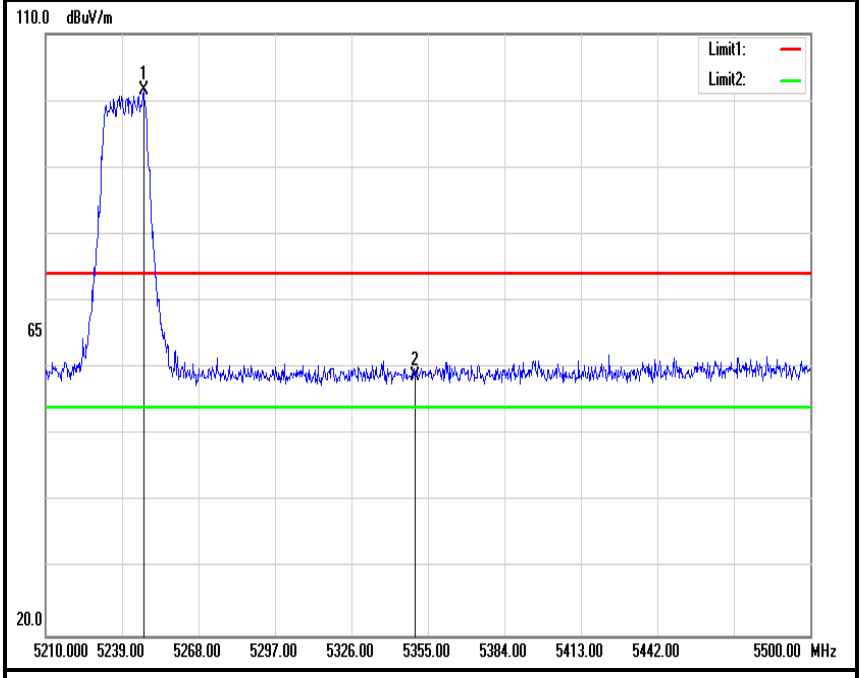


Detector mode: Average **Polarity: Vertical**

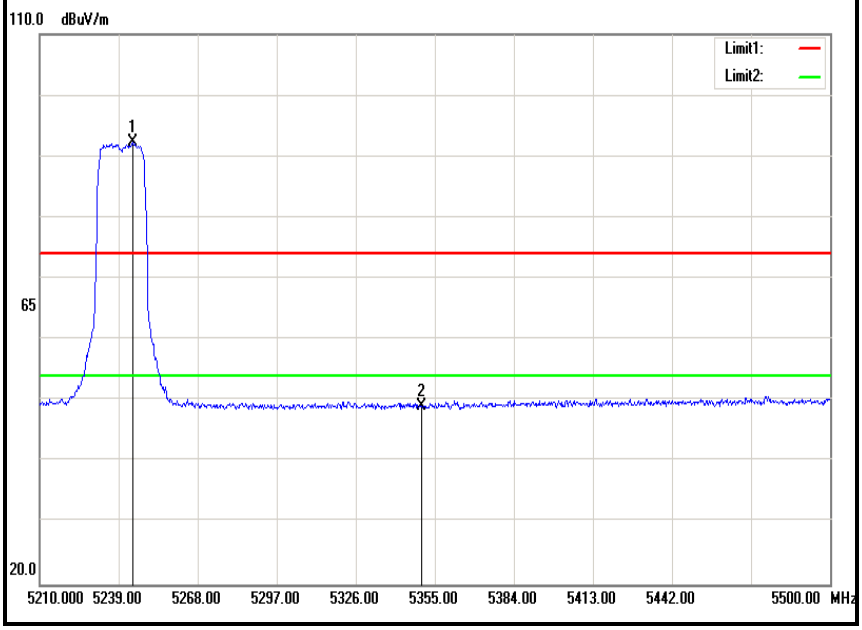


No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1.	5234.070	100.84	5.40	106.24	---	---	Peak	Vertical
2.	5350.000	53.73	5.60	59.33	74.00	-14.67	Peak	Vertical
1.	5247.120	92.05	5.42	97.47	---	---	Average	Vertical
2.	5350.000	43.42	5.60	49.02	54.00	-4.98	Average	Vertical

Detector mode: Peak **Polarity: Horizontal**



Detector mode: Average **Polarity: Horizontal**

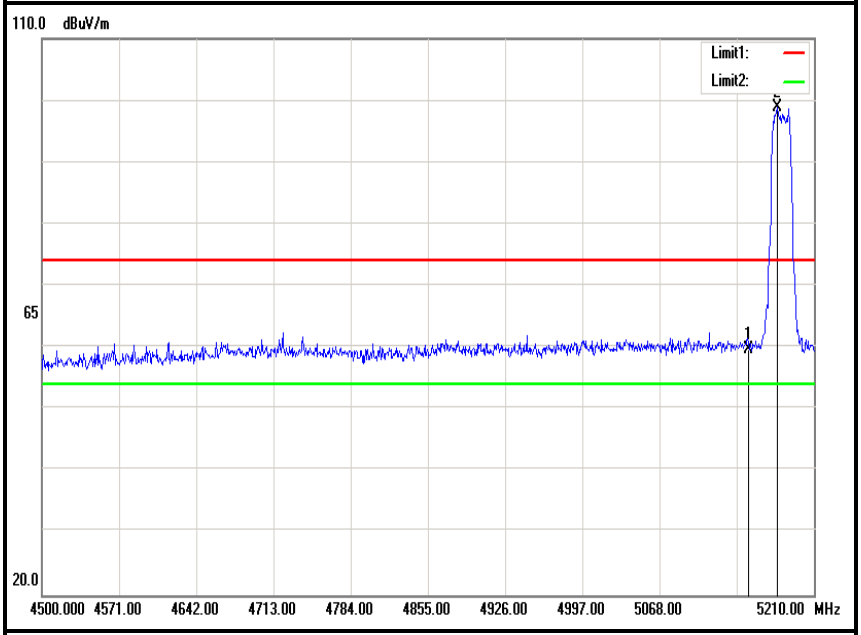


No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1.	5247.120	96.04	5.42	101.46	---	---	Peak	Horizontal
2.	5350.000	53.23	5.60	58.83	74.00	-15.17	Peak	Horizontal
1.	5244.220	86.85	5.41	92.26	---	---	Average	Horizontal
2.	5350.000	43.62	5.60	49.22	54.00	-4.78	Average	Horizontal

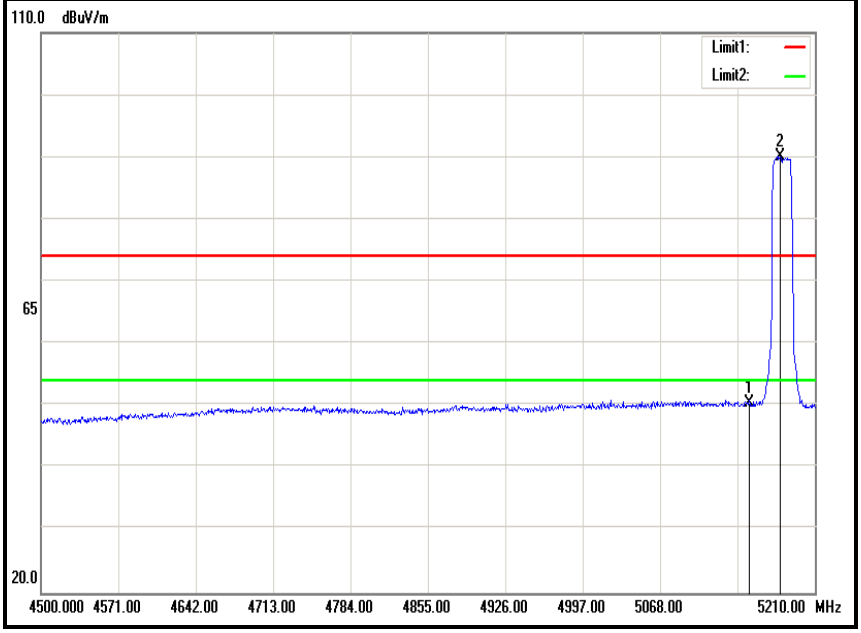
Antenna 1

IEEE 802.11a mode / 5180MHz

Detector mode: Peak **Polarity: Vertical**

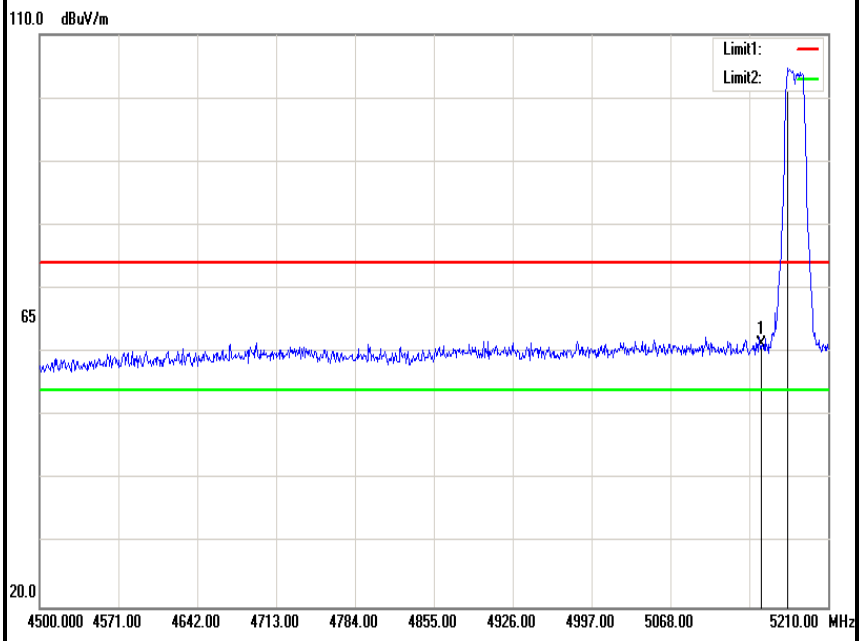


Detector mode: Average **Polarity: Vertical**

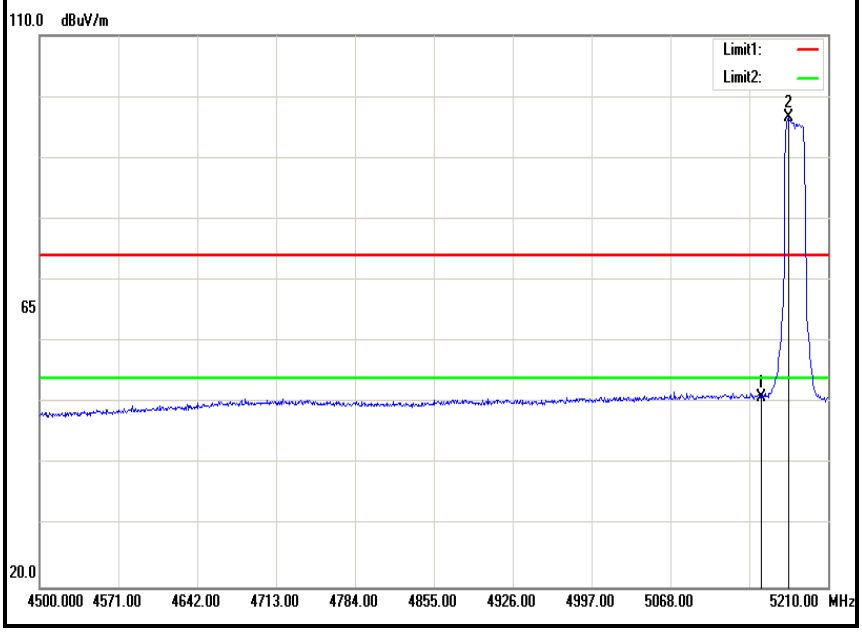


No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1.	5150.000	54.53	5.25	59.78	74.00	-14.22	Peak	Vertical
2.	5176.630	93.52	5.29	98.81	---	---	Peak	Vertical
1.	5150.000	45.14	5.25	50.39	54.00	-3.61	Average	Vertical
2.	5178.050	84.83	5.30	90.13	---	---	Average	Vertical

Detector mode: Peak **Polarity: Horizontal**



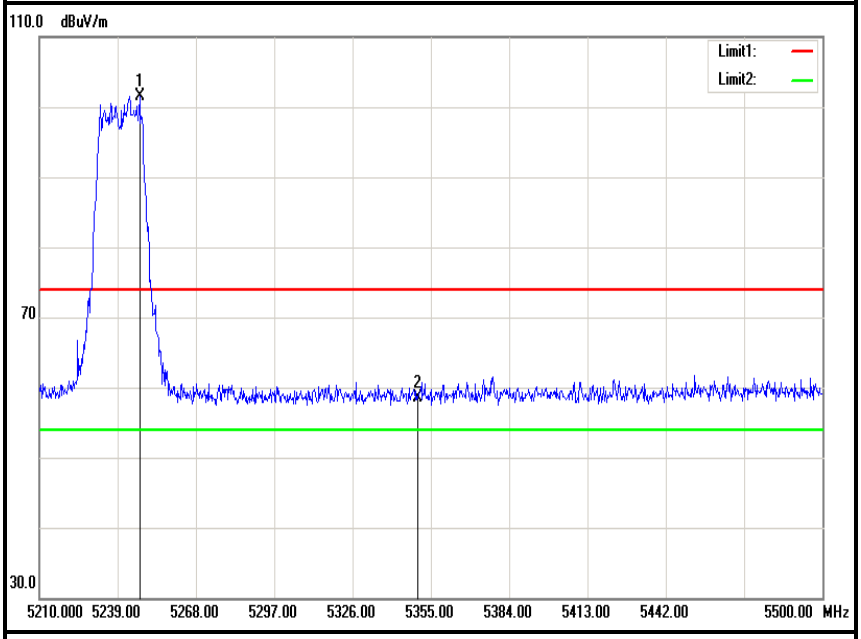
Detector mode: Average **Polarity: Horizontal**



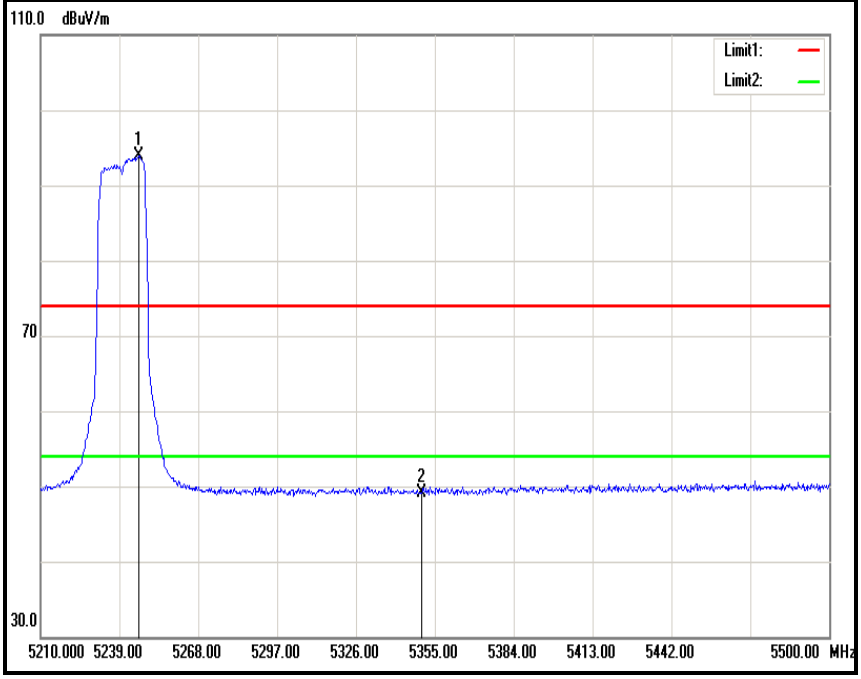
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1.	5150.000	55.94	5.25	61.19	74.00	-12.81	Peak	Horizontal
2.	5173.790	99.51	5.29	104.80	---	---	Peak	Horizontal
1.	5150.000	45.76	5.25	51.01	54.00	-2.99	Average	Horizontal
2.	5174.500	91.30	5.29	96.59	---	---	Average	Horizontal

IEEE 802.11a mode / 5240MHz

Detector mode: Peak **Polarity: Vertical**

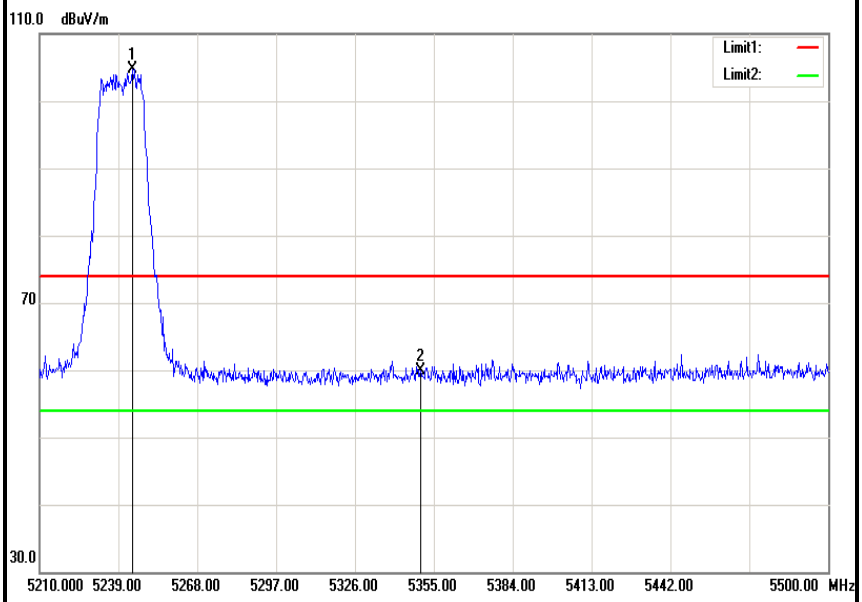


Detector mode: Average **Polarity: Vertical**

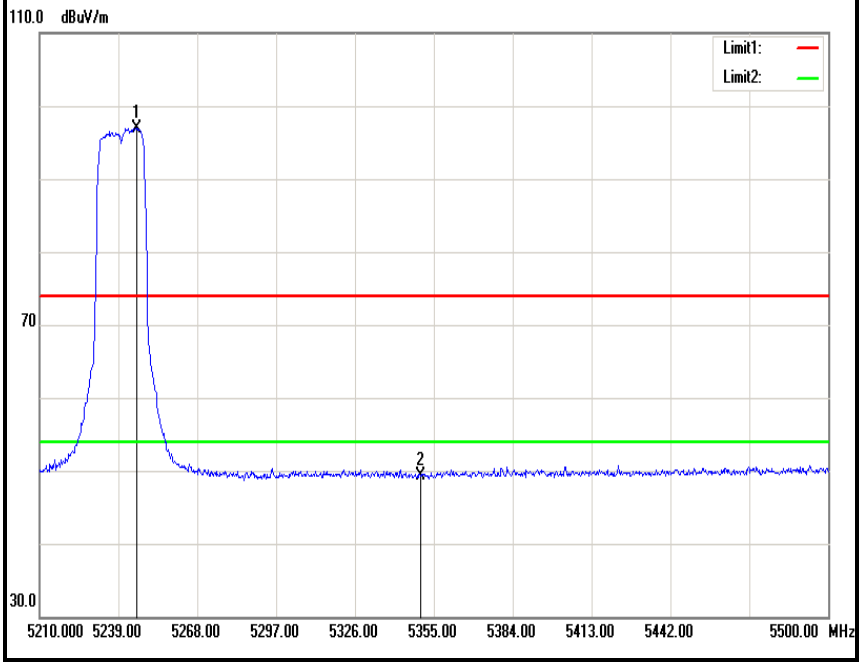


No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1.	5247.120	96.17	5.42	101.59	---	---	Peak	Vertical
2.	5350.000	52.97	5.60	58.57	74.00	-15.43	Peak	Vertical
1.	5246.250	88.51	5.42	93.93	---	---	Average	Vertical
2.	5350.000	43.58	5.60	49.18	54.00	-4.82	Average	Vertical

Detector mode: Peak **Polarity: Horizontal**



Detector mode: Average **Polarity: Horizontal**

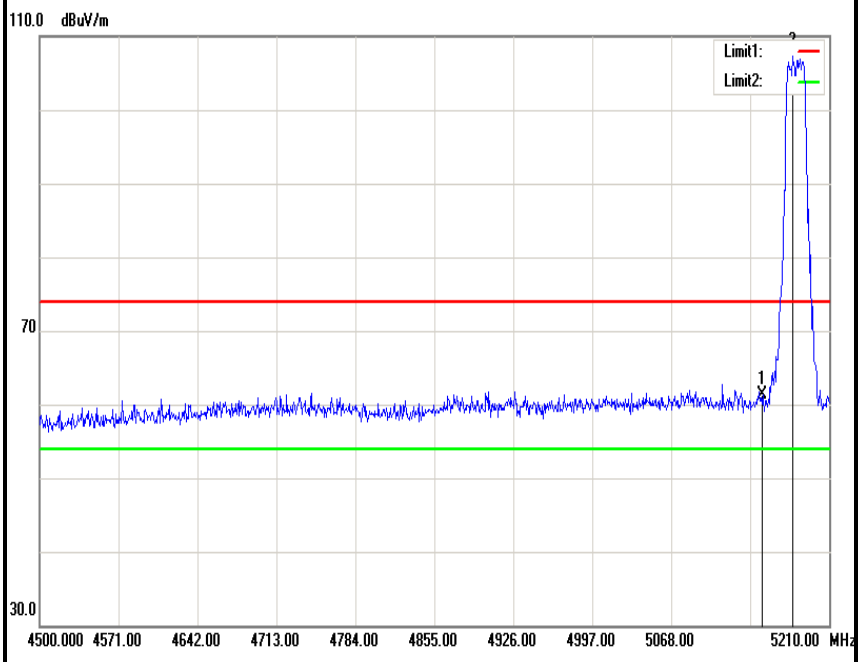


No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1.	5244.220	99.33	5.41	104.74	---	---	Peak	Horizontal
2.	5350.000	54.28	5.60	59.88	74.00	-14.12	Peak	Horizontal
1.	5245.670	91.56	5.42	96.98	---	---	Average	Horizontal
2.	5350.000	43.63	5.60	49.23	54.00	-4.77	Average	Horizontal

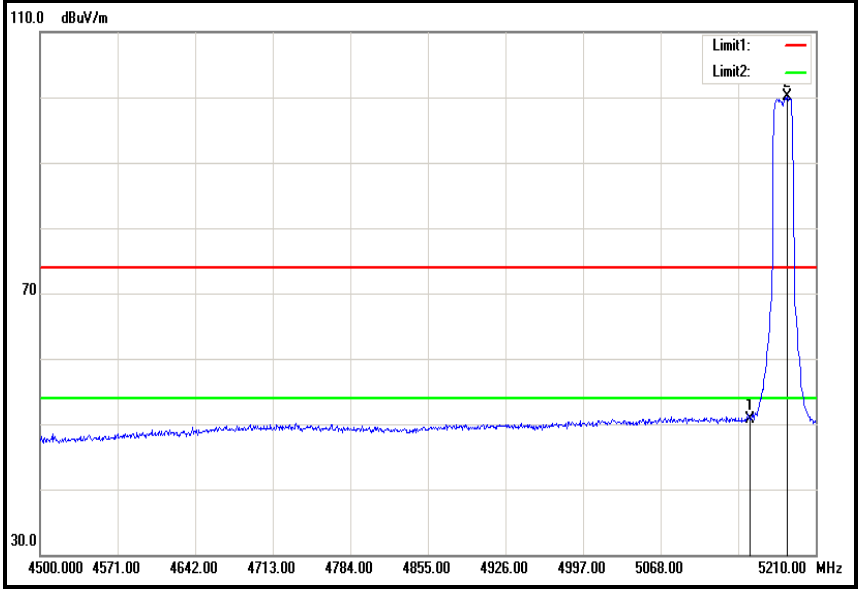
Antenna 2

IEEE 802.11a mode / 5180MHz

Detector mode: Peak **Polarity: Vertical**

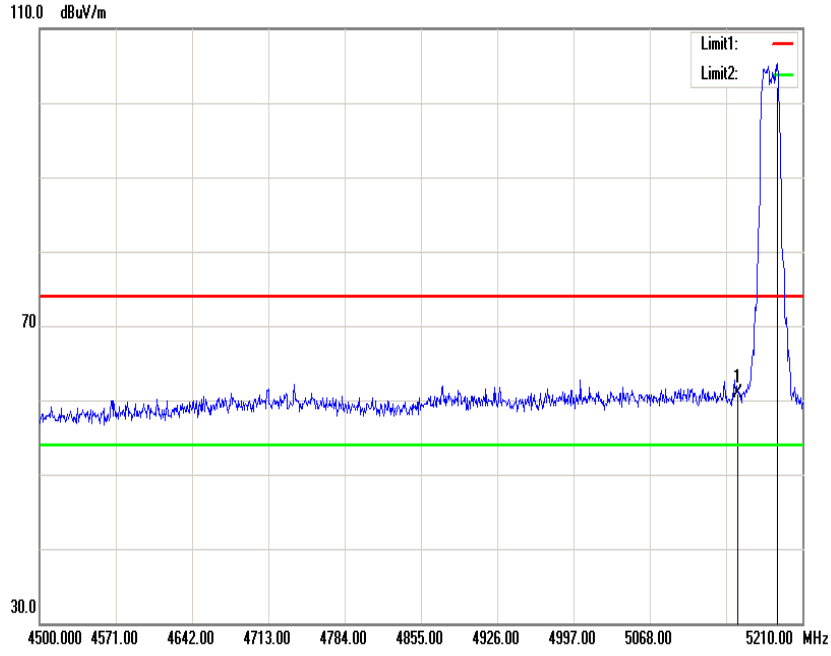


Detector mode: Average **Polarity: Vertical**

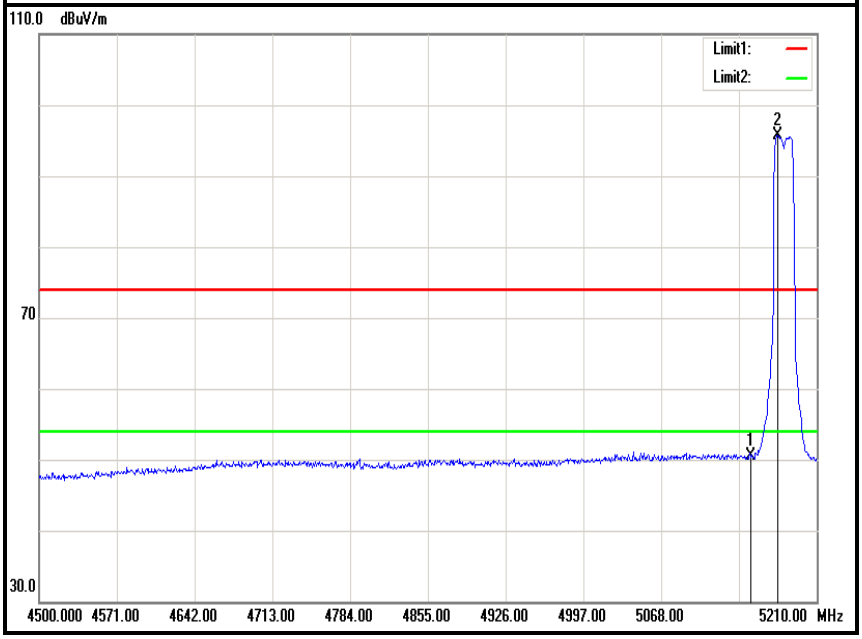


No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1.	5150.000	56.09	5.25	61.34	74.00	-12.66	Peak	Vertical
2.	5177.340	102.02	5.30	107.32	---	---	Peak	Vertical
1.	5150.000	45.41	5.25	50.66	54.00	-3.34	Average	Vertical
2.	5183.730	94.76	5.31	100.07	---	---	Average	Vertical

Detector mode: Peak **Polarity: Horizontal**



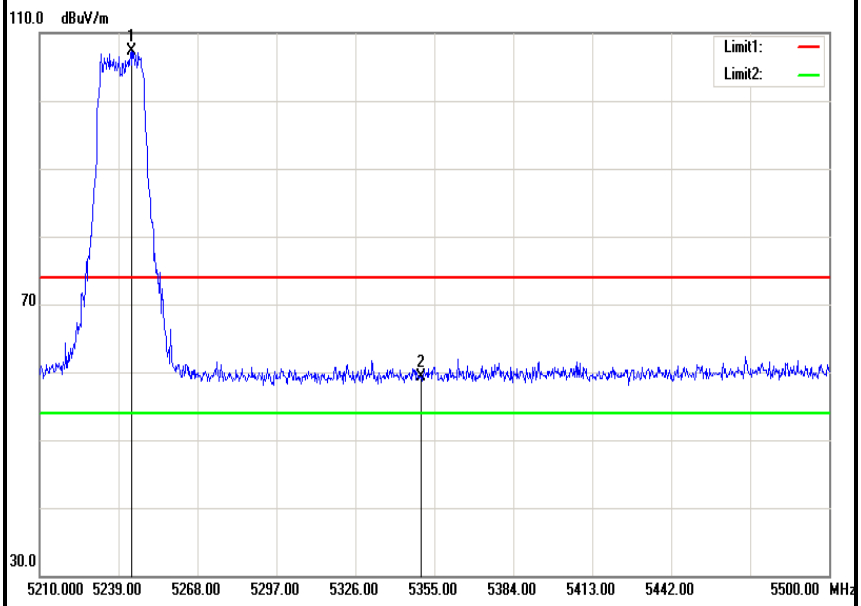
Detector mode: Average **Polarity: Horizontal**



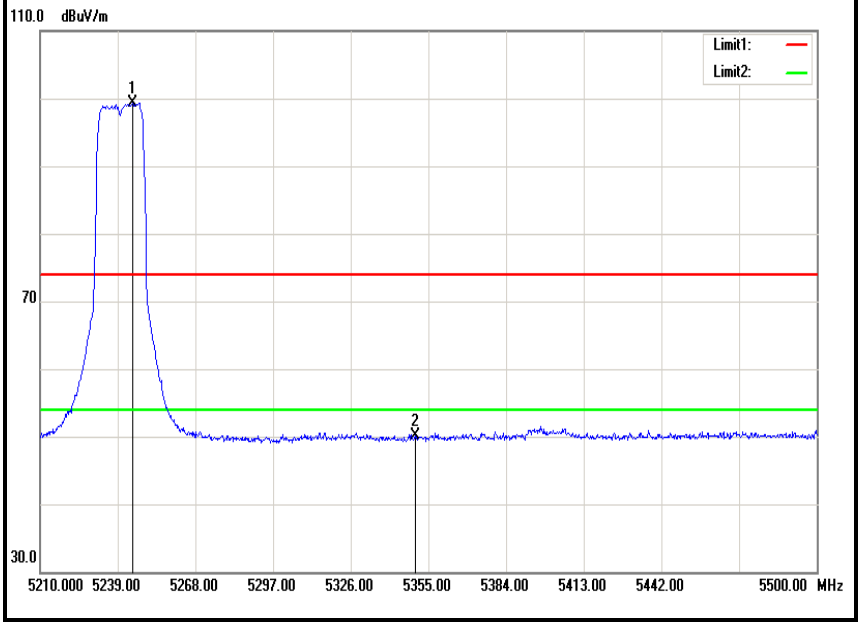
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1.	5150.000	55.59	5.25	60.84	74.00	-13.16	Peak	Horizontal
2.	5186.570	99.90	5.31	105.21	---	---	Peak	Horizontal
1.	5150.000	45.27	5.25	50.52	54.00	-3.48	Average	Horizontal
2.	5174.500	90.38	5.29	95.67	---	---	Average	Horizontal

IEEE 802.11a mode / 5240MHz

Detector mode: Peak **Polarity: Vertical**

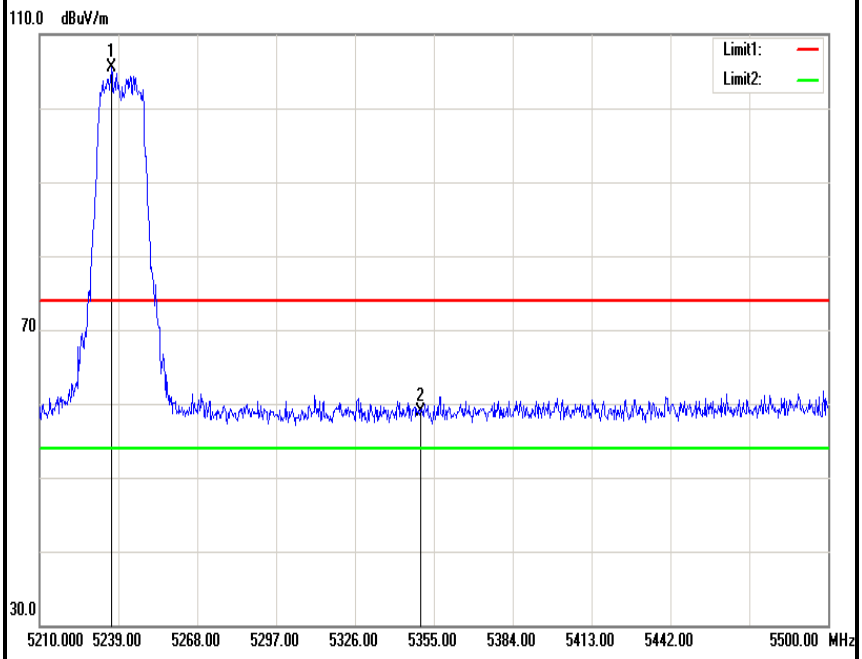


Detector mode: Average **Polarity: Vertical**

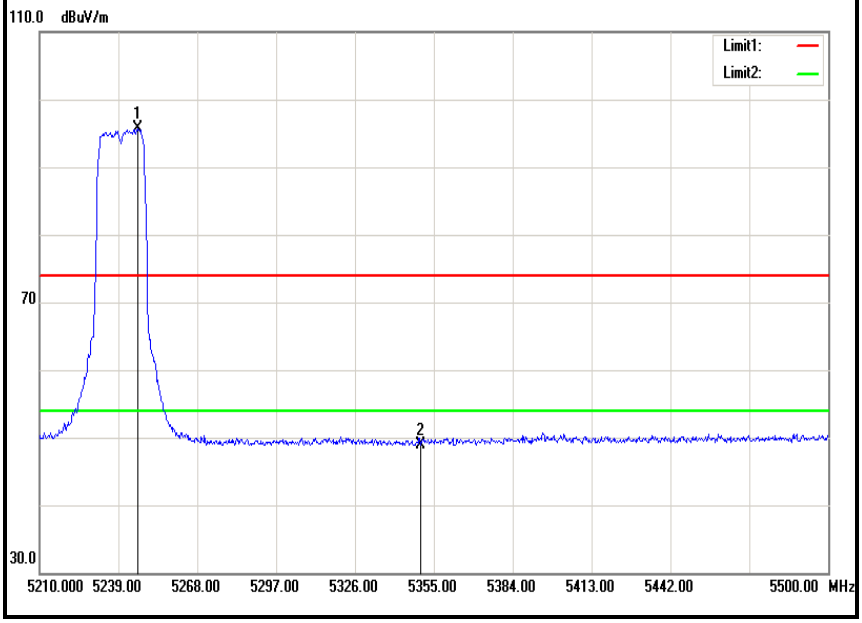


No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1.	5243.640	101.94	5.41	107.35	---	---	Peak	Vertical
2.	5350.000	53.76	5.60	59.36	74.00	-14.64	Peak	Vertical
1.	5244.510	93.88	5.42	99.30	---	---	Average	Vertical
2.	5350.000	44.57	5.60	50.17	54.00	-3.83	Average	Vertical

Detector mode: Peak **Polarity: Horizontal**



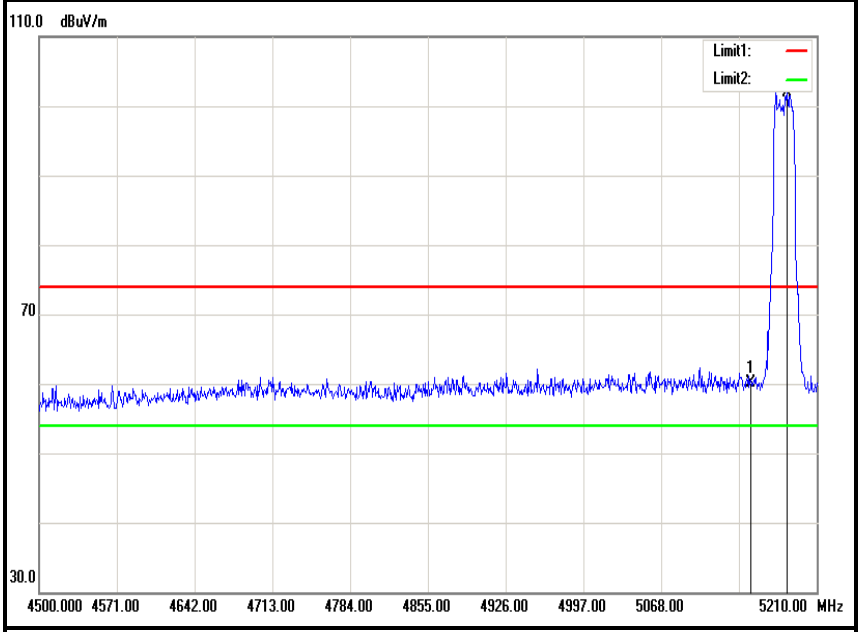
Detector mode: Average **Polarity: Horizontal**



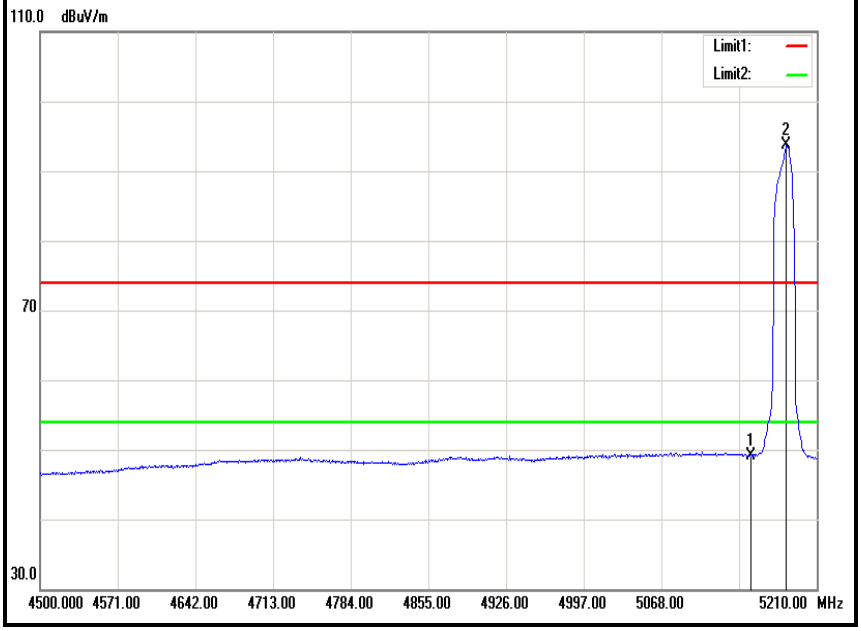
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1.	5236.390	100.04	5.40	105.44	---	---	Peak	Horizontal
2.	5350.000	53.22	5.60	58.82	74.00	-15.18	Peak	Horizontal
1.	5245.960	90.25	5.42	95.67	---	---	Average	Horizontal
2.	5350.000	43.37	5.60	48.97	54.00	-5.03	Average	Horizontal

Combine with Antenna 0 and Antenna 1 and Antenna 2
IEEE 802.11n HT 20 MHz mode / 5180 MHz

Detector mode: Peak **Polarity: Vertical**

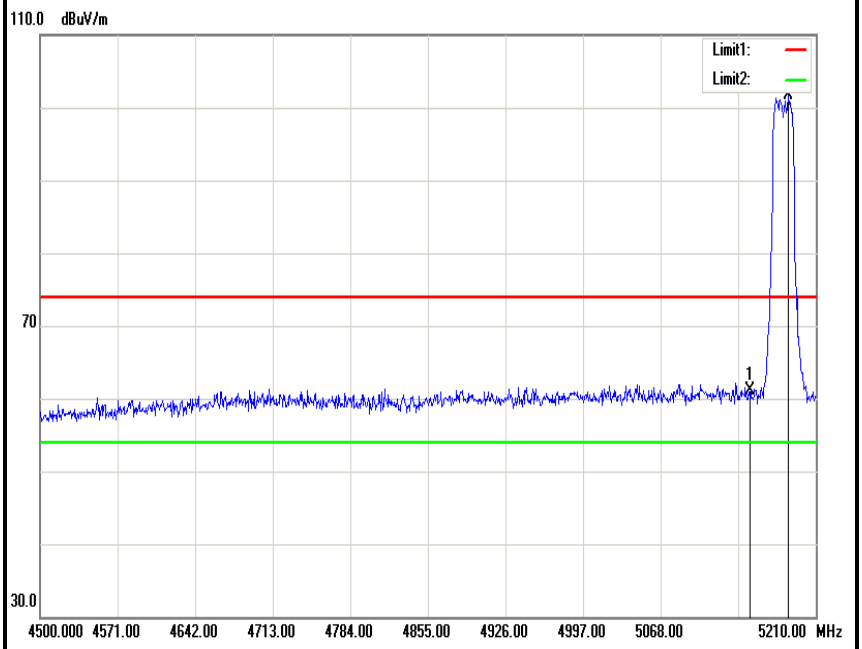


Detector mode: Average **Polarity: Vertical**

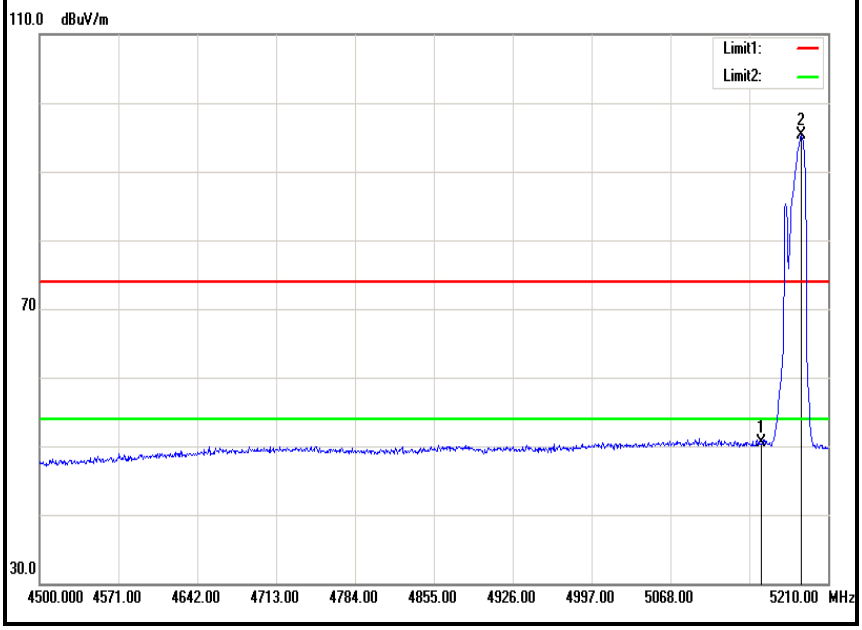


No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1.	5150.000	54.76	5.25	60.01	74.00	-13.99	Peak	Vertical
2.	5183.020	96.63	5.31	101.94	---	---	Peak	Vertical
1.	5150.000	43.89	5.25	49.14	54.00	-4.86	Average	Vertical
2.	5182.310	88.32	5.30	93.62	---	---	Average	Vertical

Detector mode: Peak **Polarity: Horizontal**



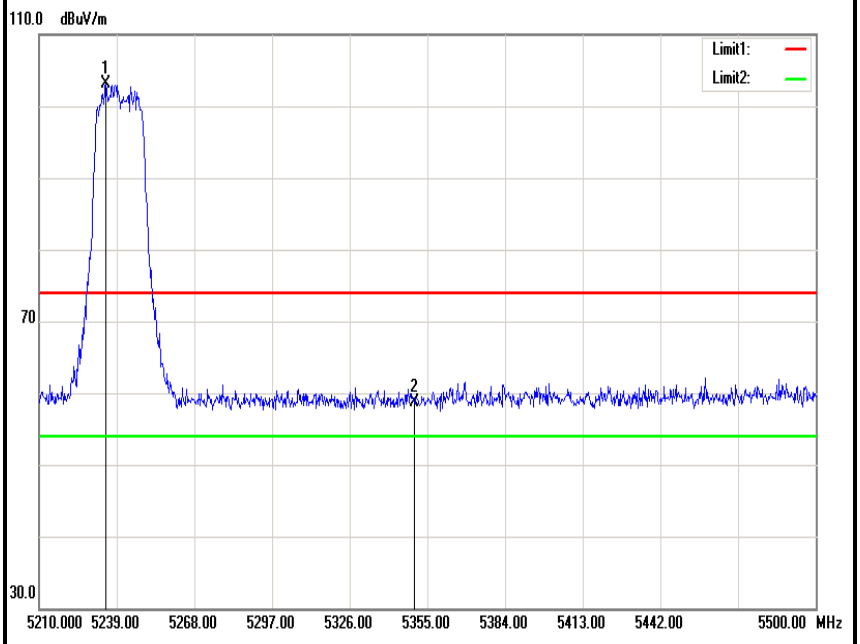
Detector mode: Average **Polarity: Horizontal**



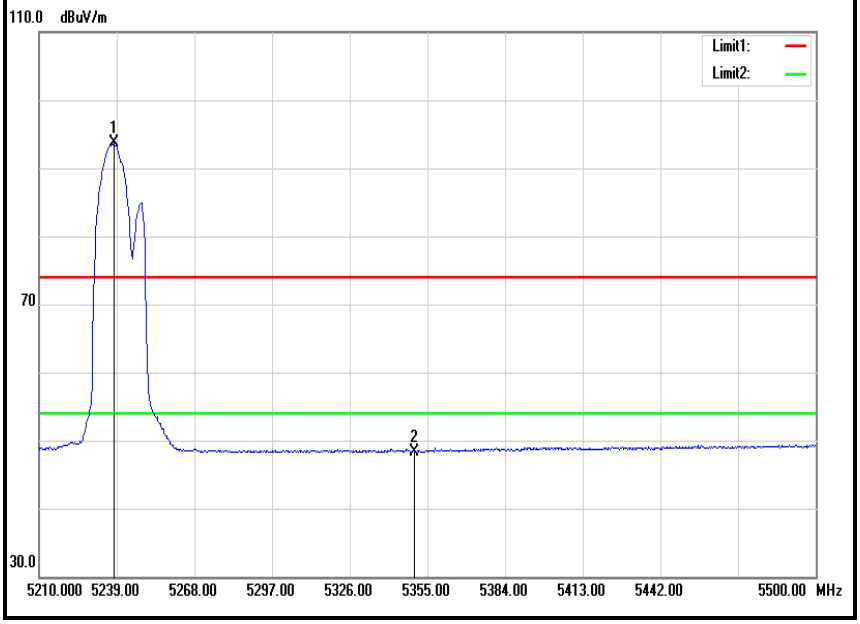
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1.	5150.000	55.76	5.25	61.01	74.00	-12.99	Peak	Horizontal
2.	5184.440	96.43	5.31	101.74	---	---	Peak	Horizontal
1.	5150.000	45.25	5.25	50.50	54.00	-3.50	Average	Horizontal
2.	5185.860	89.90	5.31	95.21	---	---	Average	Horizontal

IEEE 802.11n HT 20 MHz mode / 5240 MHz

Detector mode: Peak **Polarity: Vertical**

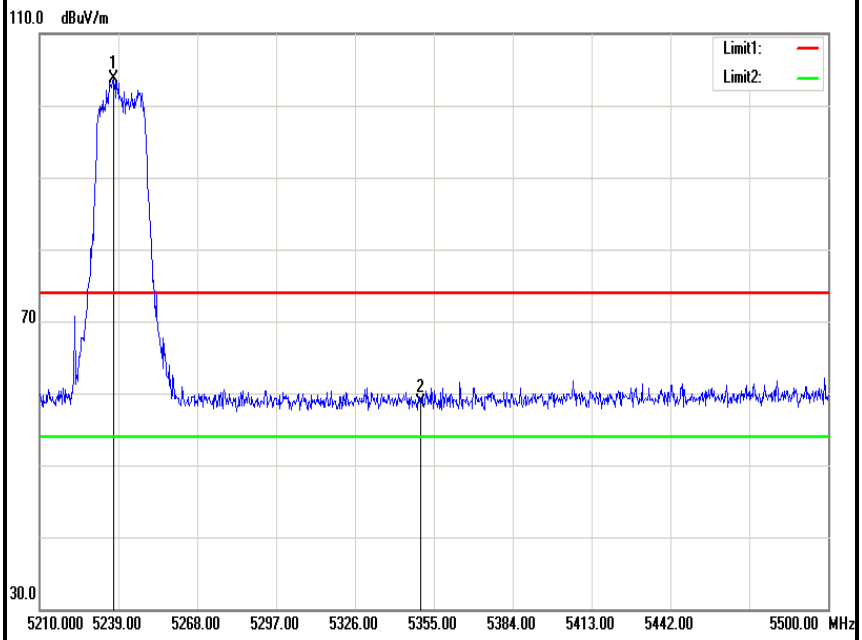


Detector mode: Average **Polarity: Vertical**

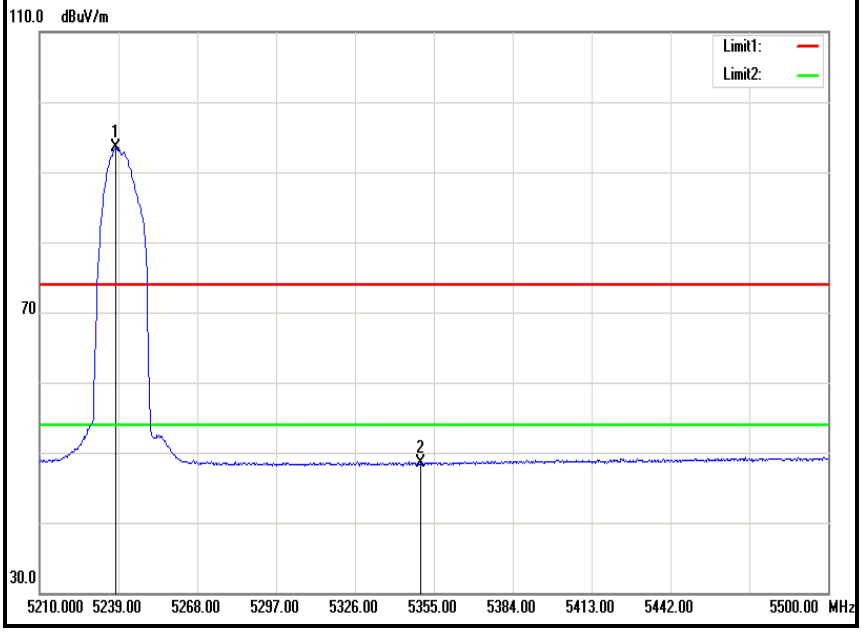


No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1.	5234.940	97.61	5.40	103.01	---	---	Peak	Vertical
2.	5350.000	53.13	5.60	58.73	74.00	-15.27	Peak	Vertical
1.	5238.130	88.37	5.40	93.77	---	---	Average	Vertical
2.	5350.000	42.74	5.60	48.34	54.00	-5.66	Average	Vertical

Detector mode: Peak **Polarity: Horizontal**



Detector mode: Average **Polarity: Horizontal**

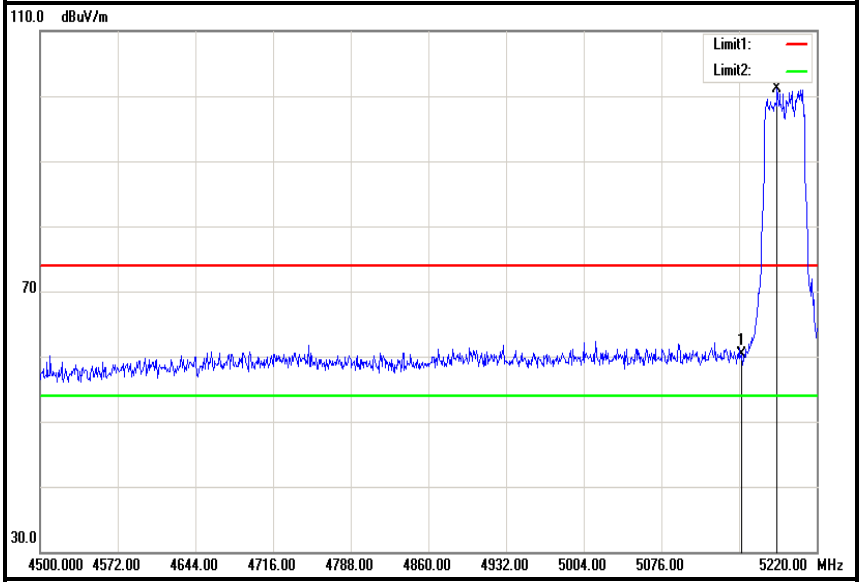


No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1.	5237.260	98.31	5.40	103.71	---	---	Peak	Horizontal
2.	5350.000	53.18	5.60	58.78	74.00	-15.22	Peak	Horizontal
1.	5237.840	88.17	5.40	93.57	---	---	Average	Horizontal
2.	5350.000	42.97	5.60	48.57	54.00	-5.43	Average	Horizontal

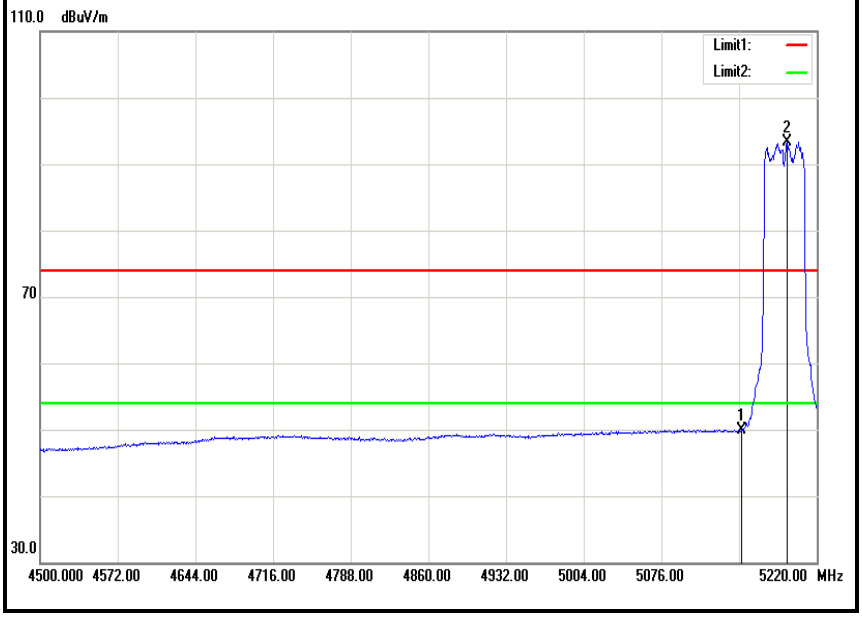
Combine with Antenna 0 and Antenna 1 and Antenna 2

IEEE 802.11n HT 40 MHz mode / 5190 MHz

Detector mode: Peak **Polarity: Vertical**

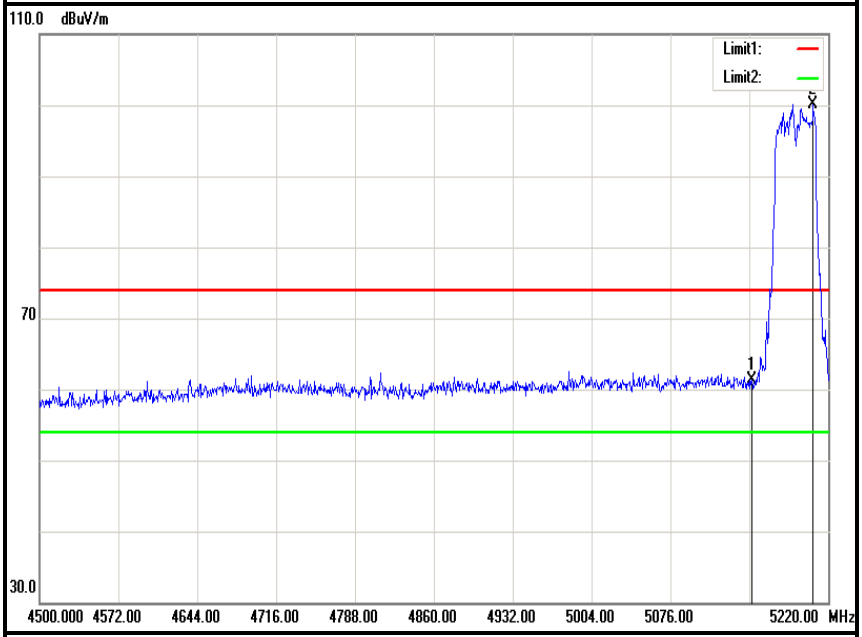


Detector mode: Average **Polarity: Vertical**

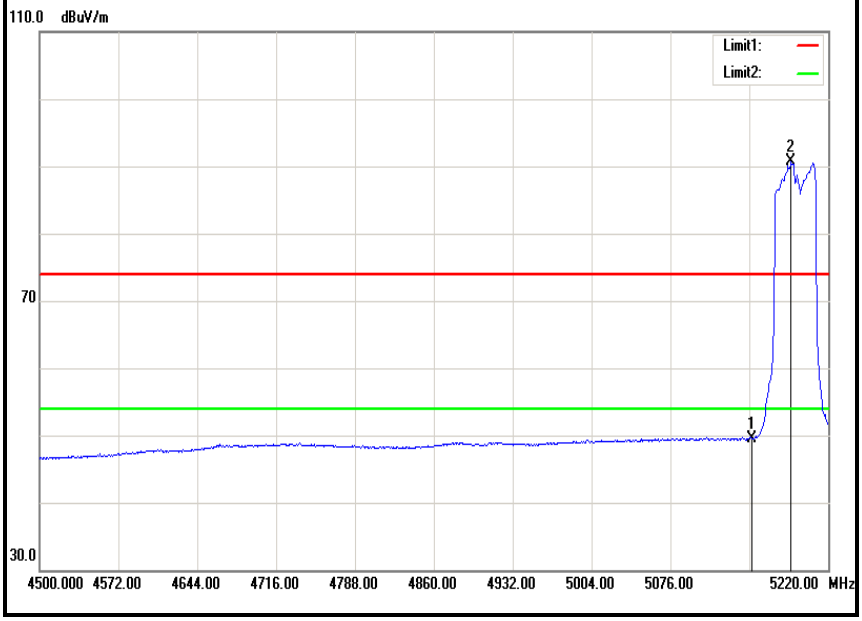


No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1.	5150.000	54.98	5.25	60.23	74.00	-13.77	Peak	Vertical
2.	5183.280	95.85	5.31	101.16	---	---	Peak	Vertical
1.	5150.000	44.61	5.25	49.86	54.00	-4.14	Average	Vertical
2.	5192.640	88.07	5.32	93.39	---	---	Average	Vertical

Detector mode: Peak **Polarity: Horizontal**



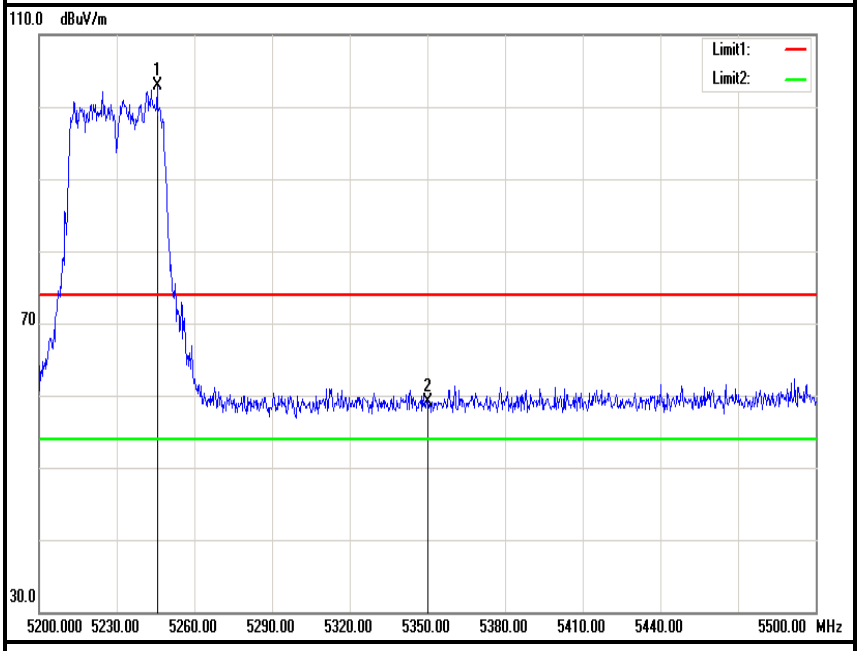
etector mode: Average **Polarity: Horizontal**



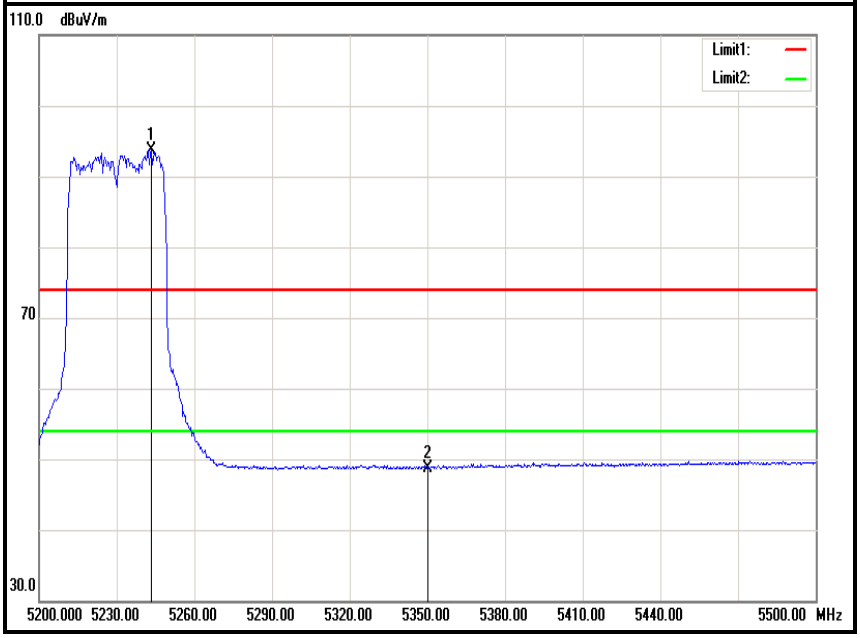
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1.	5150.000	56.08	5.25	61.33	74.00	-12.67	Peak	Horizontal
2.	5206.320	94.71	5.35	100.06	---	---	Peak	Horizontal
1.	5150.000	44.33	5.25	49.58	54.00	-4.42	Average	Horizontal
2.	5186.160	85.31	5.31	90.62	---	---	Average	Horizontal

IEEE 802.11n HT 40 MHz mode / 5230 MHz

Detector mode: Peak **Polarity: Vertical**

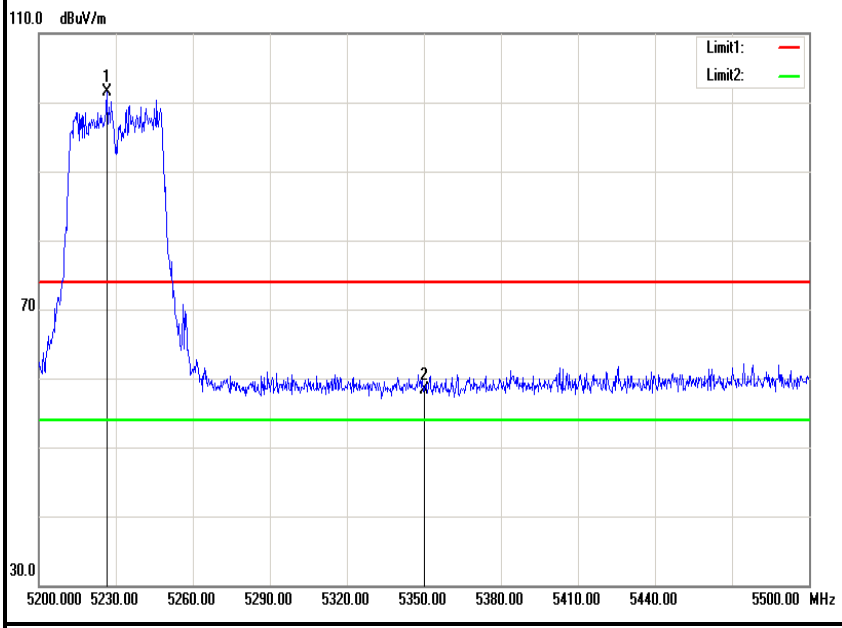


Detector mode: Average **Polarity: Vertical**

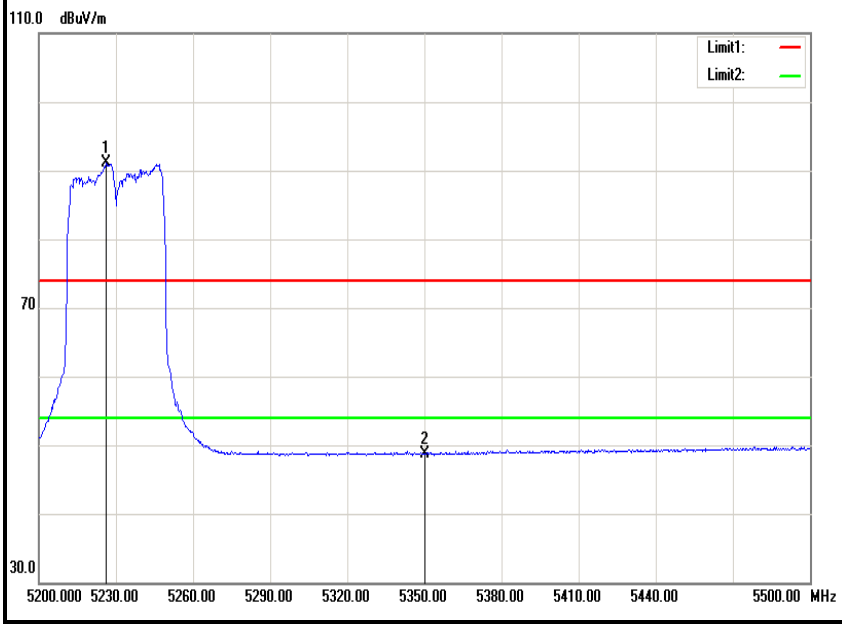


No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1.	5245.600	97.42	5.42	102.84	---	---	Peak	Vertical
2.	5350.000	53.53	5.60	59.13	74.00	-14.87	Peak	Vertical
1.	5243.500	88.36	5.41	93.77	---	---	Average	Vertical
2.	5350.000	43.17	5.60	48.77	54.00	-5.23	Average	Vertical

Detector mode: Peak **Polarity: Horizontal**



Detector mode: Average **Polarity: Horizontal**

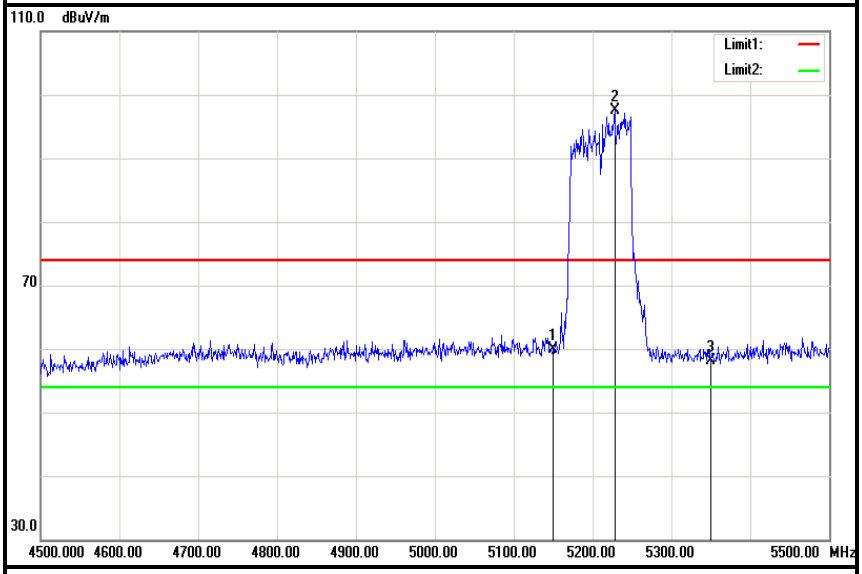


No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1.	5226.400	96.21	5.38	101.59	---	---	Peak	Horizontal
2.	5350.000	52.73	5.60	58.33	74.00	-15.67	Peak	Horizontal
1.	5226.100	85.81	5.38	91.19	---	---	Average	Horizontal
2.	5350.000	43.08	5.60	48.68	54.00	-5.32	Average	Horizontal

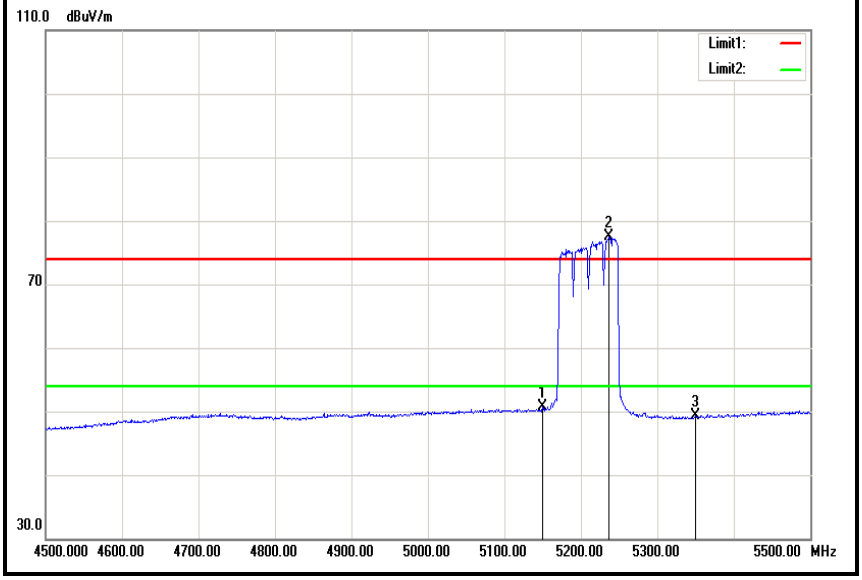
Combine with Antenna 0 and Antenna 1 and Antenna 2

IEEE 802.11ac 80 mode / 5210 MHz

Detector mode: Peak **Polarity: Vertical**

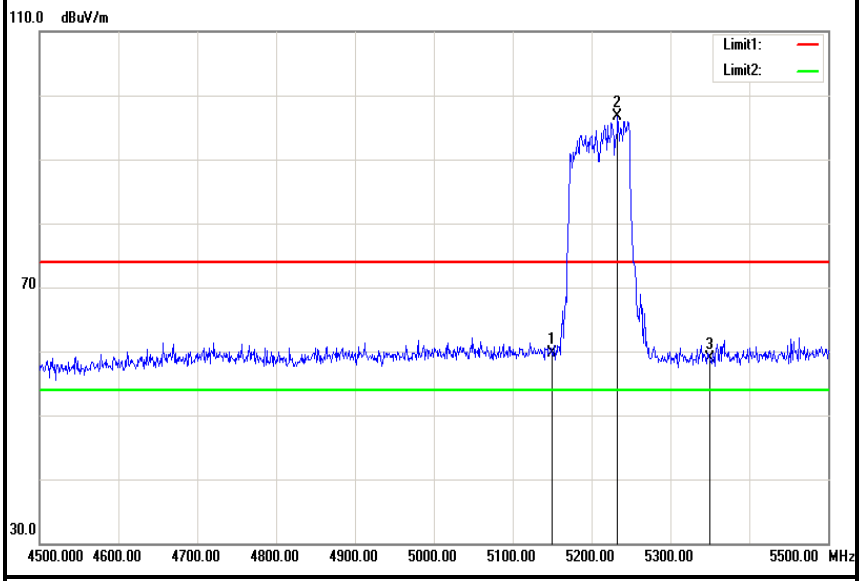


Detector mode: Average **Polarity: Vertical**

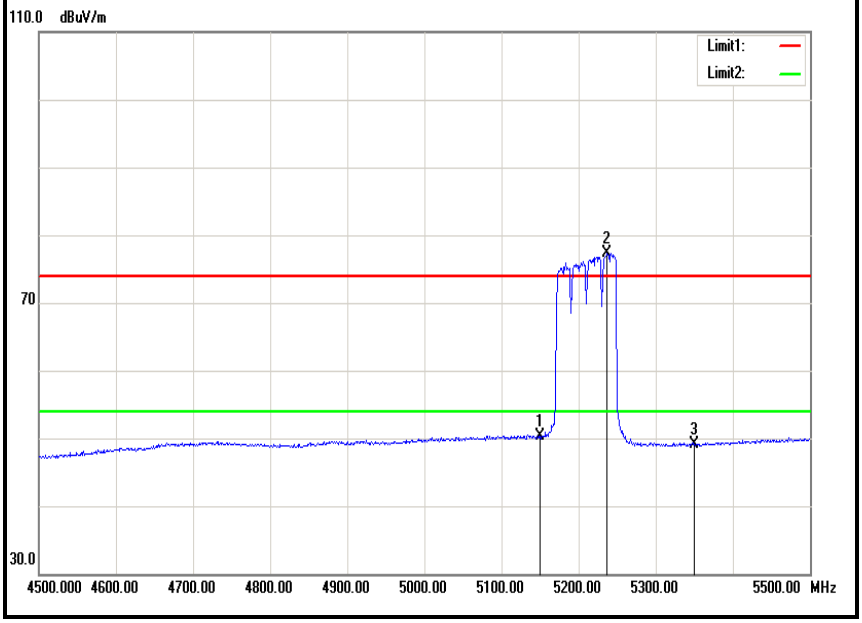


No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1.	5150.000	54.64	5.25	59.89	74.00	-14.11	Peak	Vertical
2.	5228.000	92.19	5.39	97.58	---	---	Peak	Vertical
3.	5350.000	52.46	5.60	58.06	74.00	-15.94	Peak	Vertical
1.	5150.000	45.41	5.25	50.66	54.00	-3.34	Average	Vertical
2.	5237.000	72.09	5.40	77.49	---	---	Average	Vertical
3.	5350.000	43.62	5.60	49.22	54.00	-4.78	Average	Vertical

Detector mode: Peak **Polarity: Horizontal**



Detector mode: Average **Polarity: Horizontal**



No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1.	5150.000	54.43	5.25	59.68	74.00	-14.32	Peak	Vertical
2.	5233.000	91.30	5.39	96.69	---	---	Peak	Vertical
3.	5350.000	53.28	5.60	58.88	74.00	-15.12	Peak	Vertical
1.	5150.000	45.01	5.25	50.26	54.00	-3.74	Average	Vertical
2.	5237.000	71.90	5.40	77.30	---	---	Average	Vertical
3.	5350.000	43.49	5.60	49.09	54.00	-4.91	Average	Vertical

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 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.

(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 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.

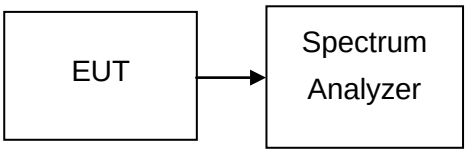
Note to paragraph (a)(3): The Commission strongly recommends that parties employing U-NII devices to provide critical communications services should determine if there are any nearby Government radar systems that could affect their operation.

6.6.2MEASUREMENT 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	0.971	2.559	2.584	17	-16.029	-14.441	-14.416	PASS
Mid	5200	1.160	3.022	1.857		-15.840	-13.978	-15.143	PASS
High	5240	1.063	2.884	1.448		-15.937	-14.116	-15.552	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 0	Antenna 1	Antenna 2	
Low	5745	4.481	-2.566	-1.888	-3.01	30	-28.529	-35.576	-34.898	PASS
Mid	5785	4.496	-2.101	-1.374	-3.01		-28.514	-35.111	-34.384	PASS
High	5825	3.528	-2.208	-1.332	-3.01		-29.482	-35.218	-34.342	PASS

Remark: factor =10*log10(500/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	-5.601	-4.229	-4.173	0.152	17.00	-16.848	PASS
Mid	5200	-4.983	-3.792	-4.379	0.414		-16.586	PASS
High	5240	-5.622	-3.686	-4.512	0.236		-16.764	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	-1.745	-5.777	-6.507	-3.01	-2.130	30.00	-32.130	PASS
Mid	5785	-2.165	-5.790	-5.350	-3.01	-2.320		-32.320	PASS
High	5825	-2.491	-6.120	-4.943	-3.01	1.078		-28.922	PASS

Remark: factor =10*log10(500/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	-8.346	-7.598	-7.397	-2.990	17.00	-19.990	PASS
High	5230	-8.410	-7.378	-8.085	-3.165		-20.165	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	-4.849	-9.145	-9.951	-3.01	-5.604	30.00	-35.604	PASS
High	5795	-5.966	-8.929	-8.426	-3.01	-5.810		-35.810	PASS

Remark: factor =10*log10(500/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	-9.711	-9.791	-10.021	-5.068	17.00	-22.068	PASS

Test mode: IEEE 802.11ac 80 mode / 5775MHz

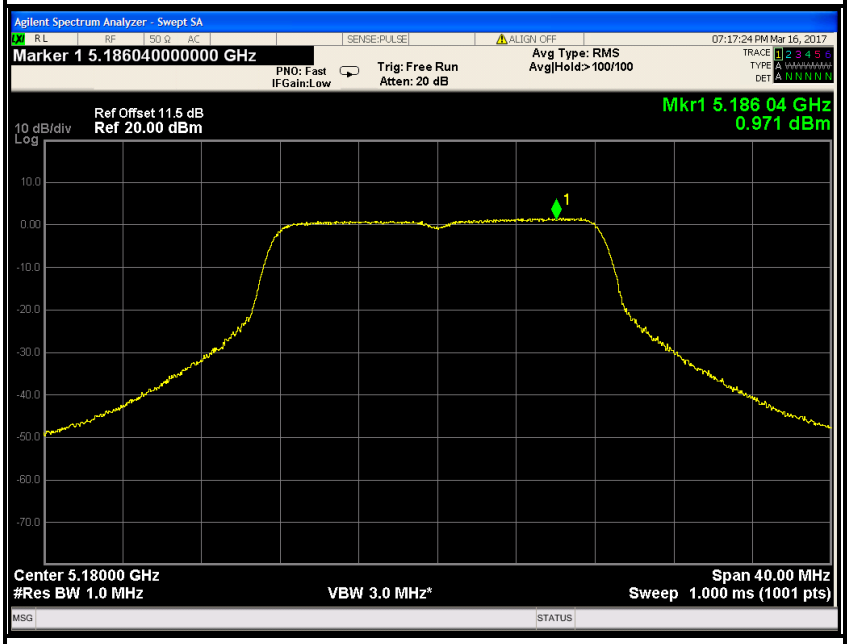
Channel	Frequency (MHz)	PPSD (dBm)			factor	Total (dBm)	Limit (dBm)	Margain	Result
		Antenna 0	Antenna 1	Antenna 2					
	5775	-6.461	-6.818	-7.173	-3.01	-5.046	30.00	-35.046	PASS

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

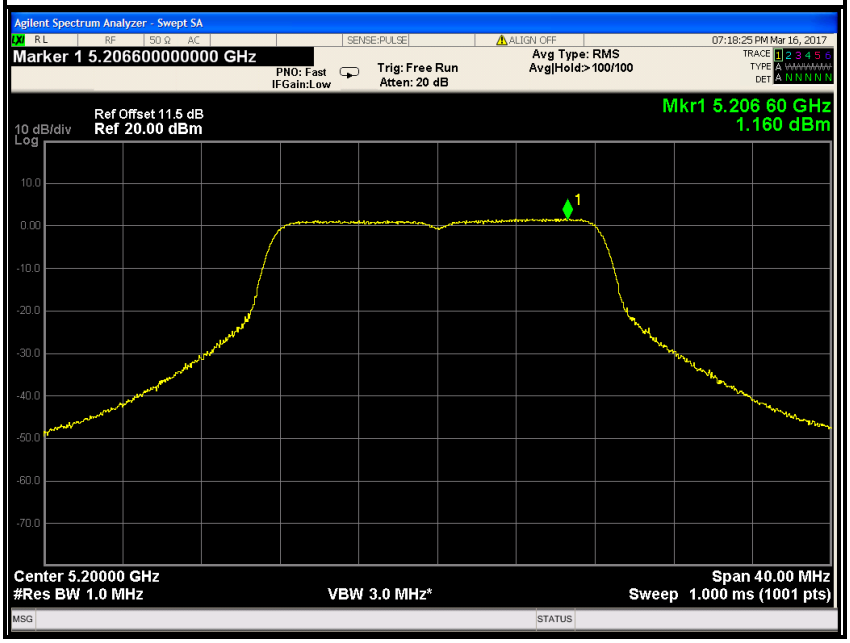
Test Plot

Antenna 0

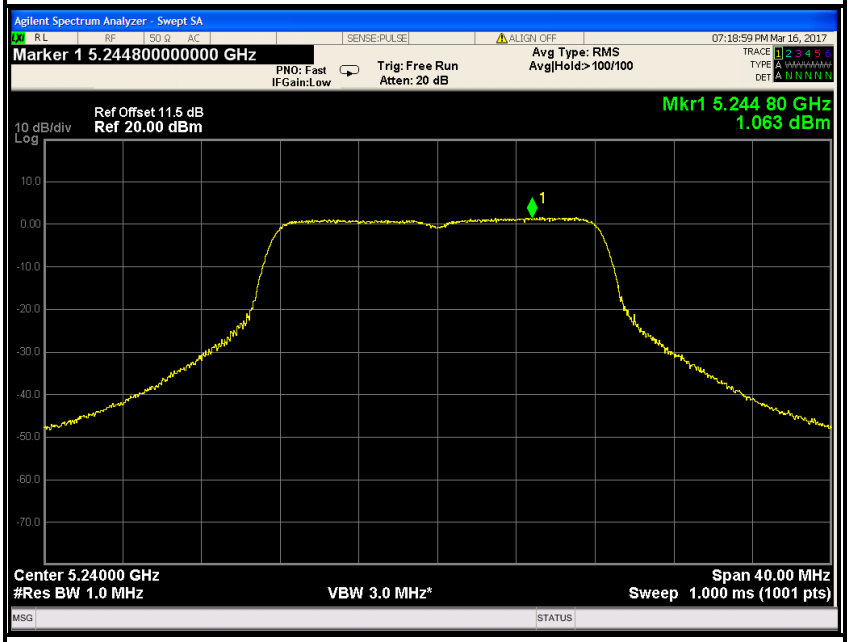
IEEE 802.11a mode / 5180 ~ 5240MHz
PPSD (CH Low)



PPSD (CH Mid)

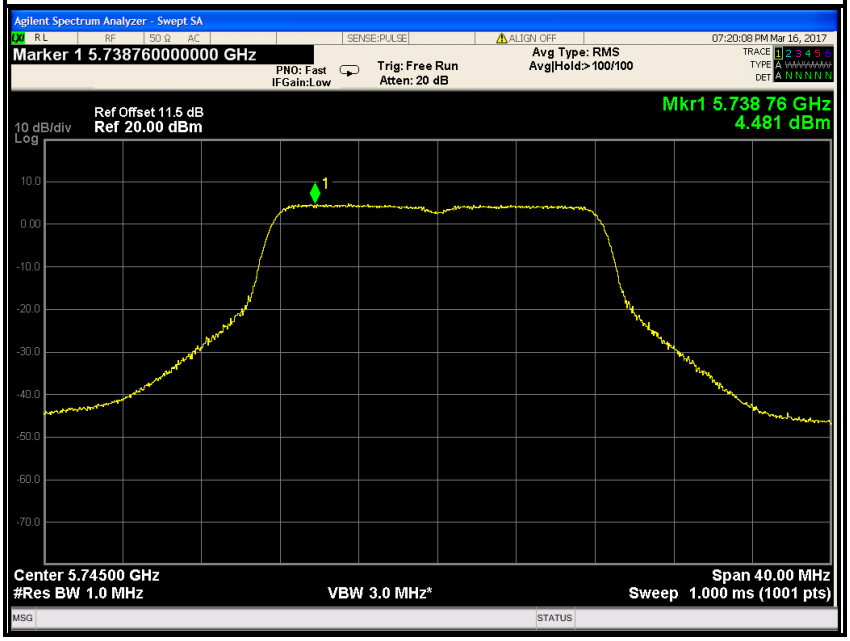


PPSD (CH High)

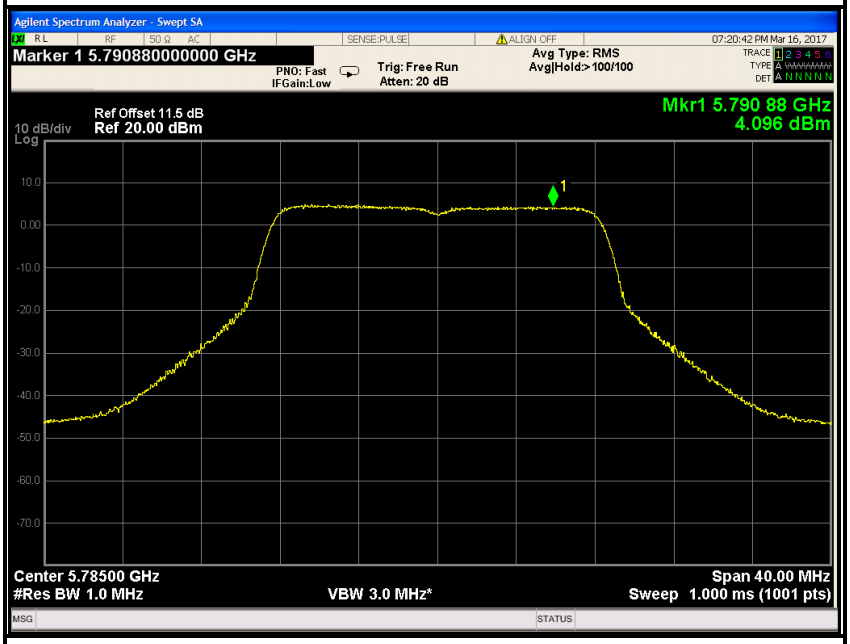


IEEE 802.11a mode / 5745 ~ 5825MHz

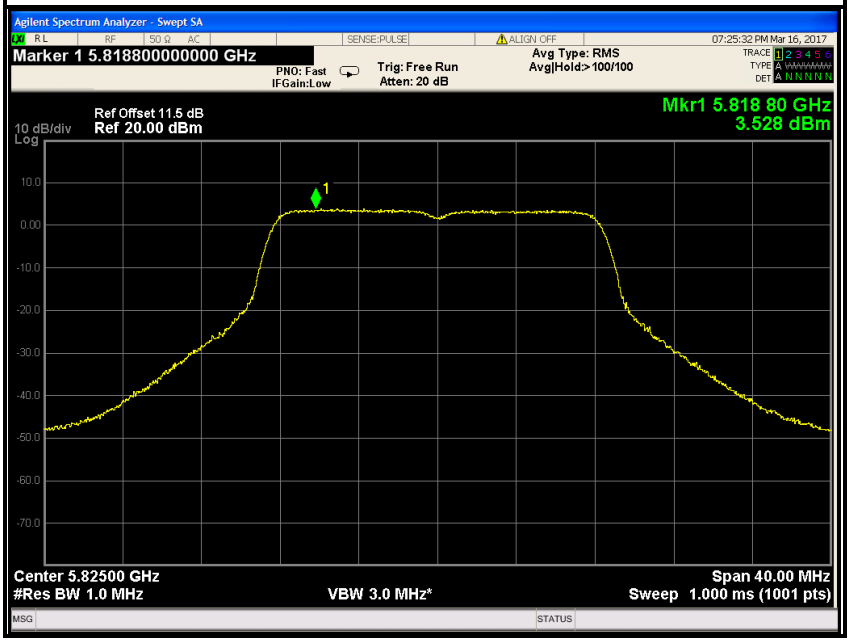
PPSD (CH Low)



PPSD (CH Mid)

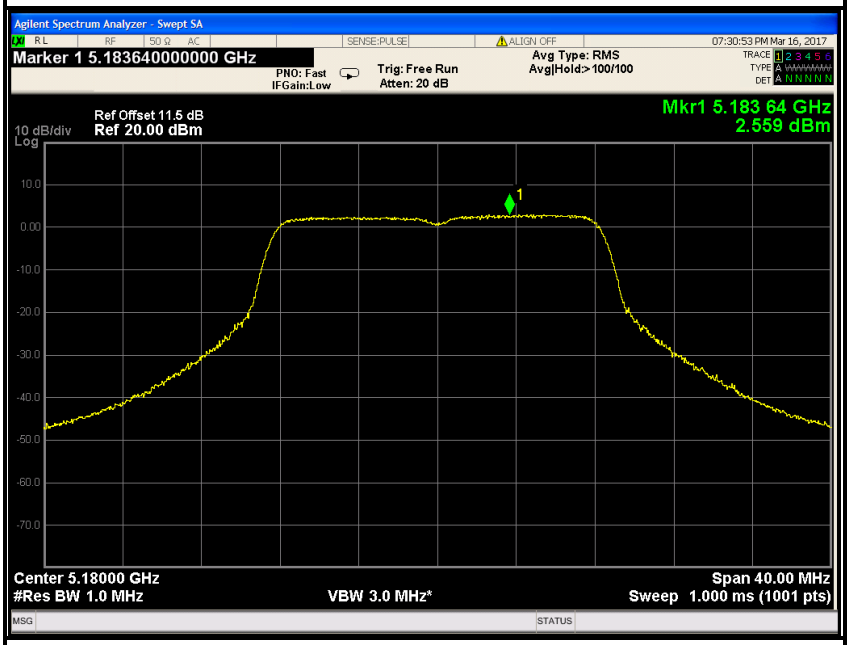


PPSD (CH High)

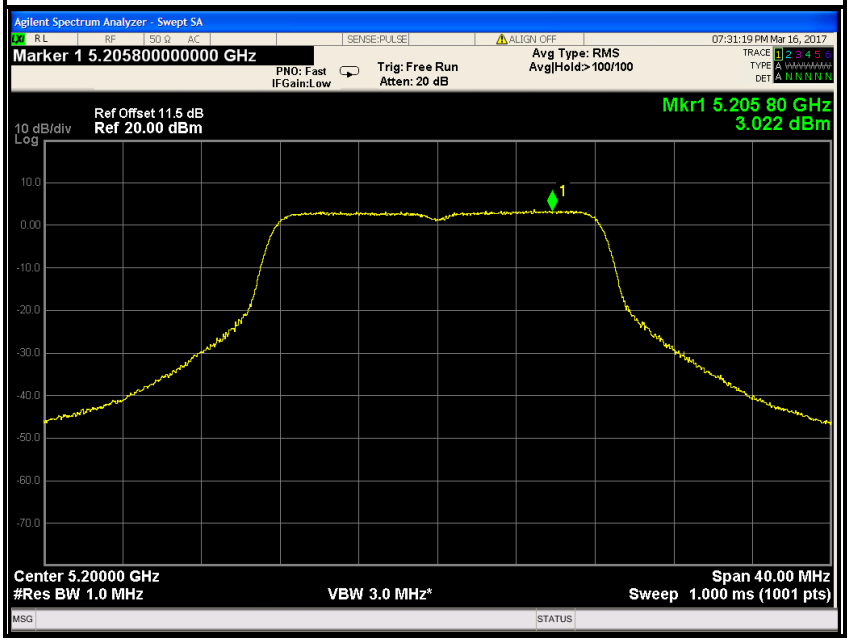


Antenna 1

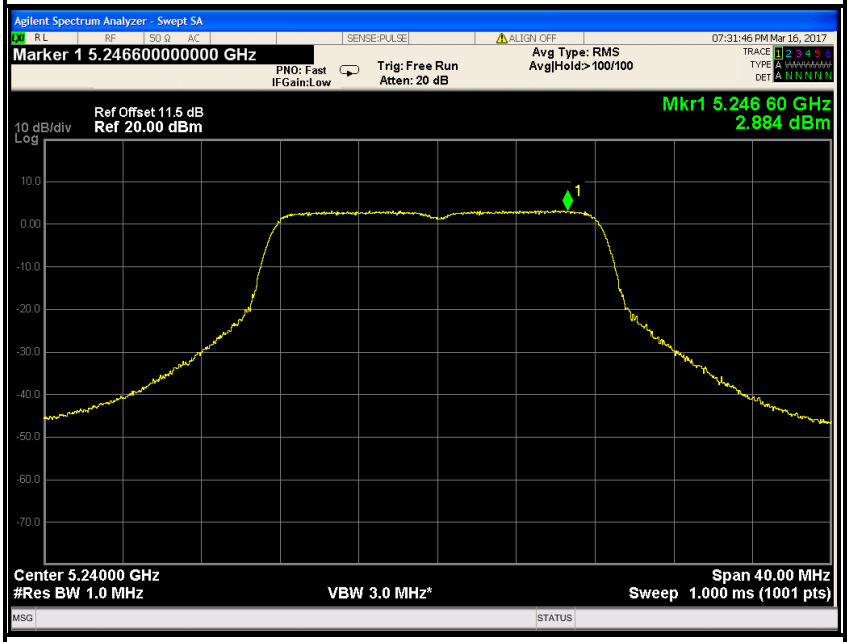
IEEE 802.11a mode / 5180 ~ 5240MHz
PPSD (CH Low)



PPSD (CH Mid)

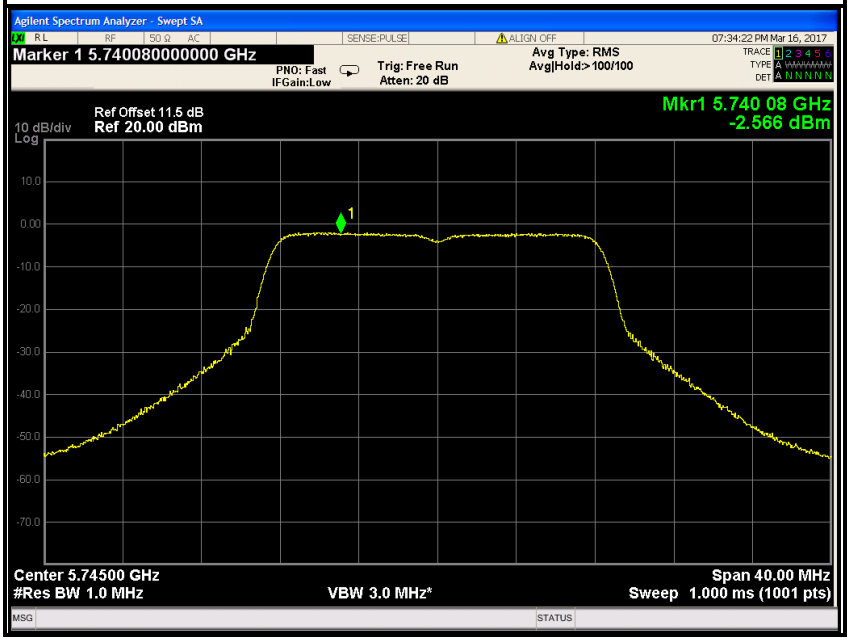


PPSD (CH High)

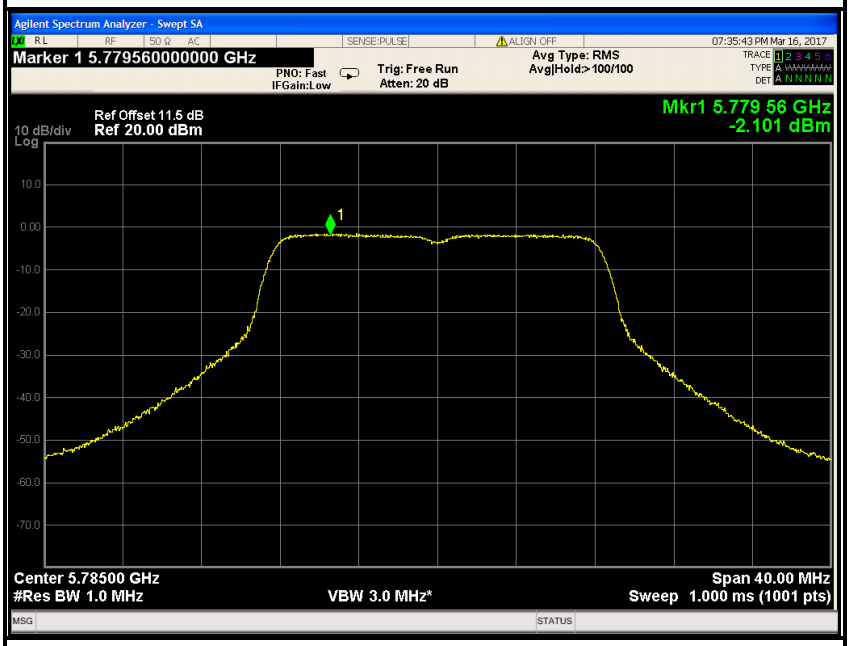


IEEE 802.11a mode / 5745 ~ 5825MHz

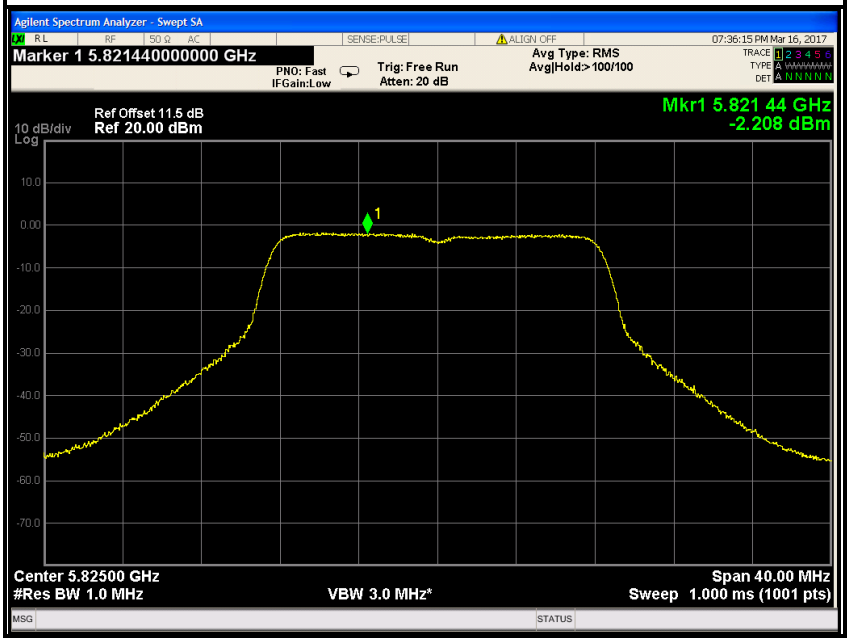
PPSD (CH Low)



PPSD (CH Mid)



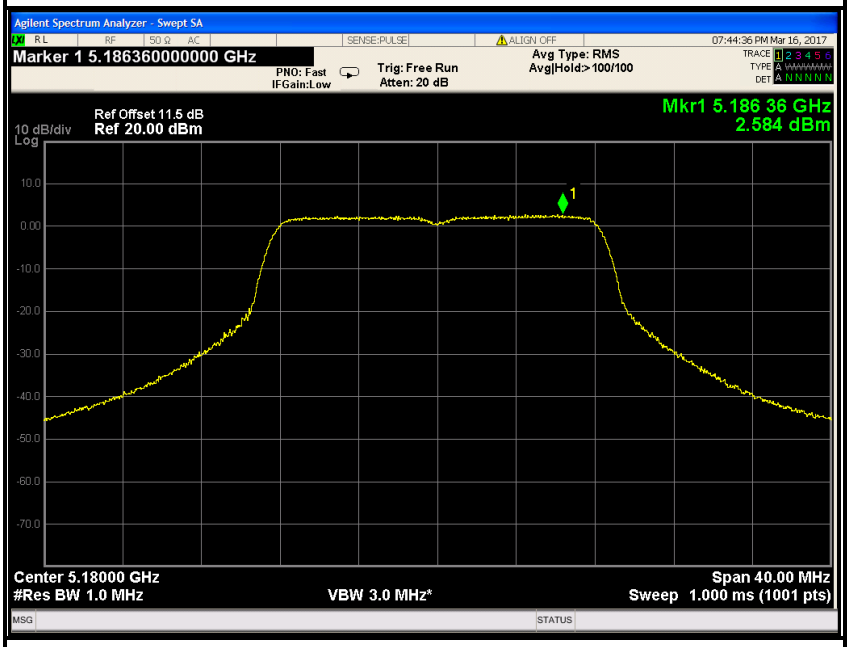
PPSD (CH High)



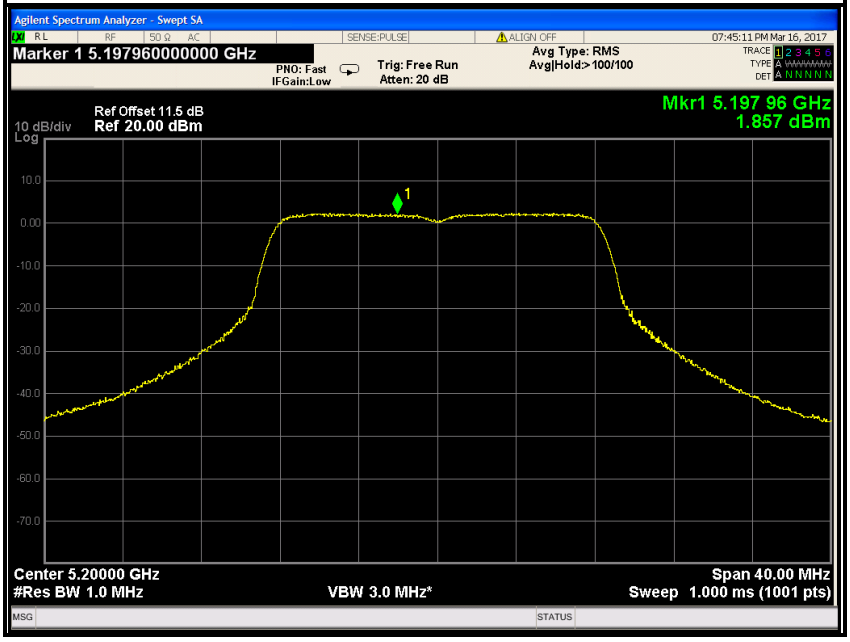
Antenna 2

IEEE 802.11a mode / 5180 ~ 5240MHz

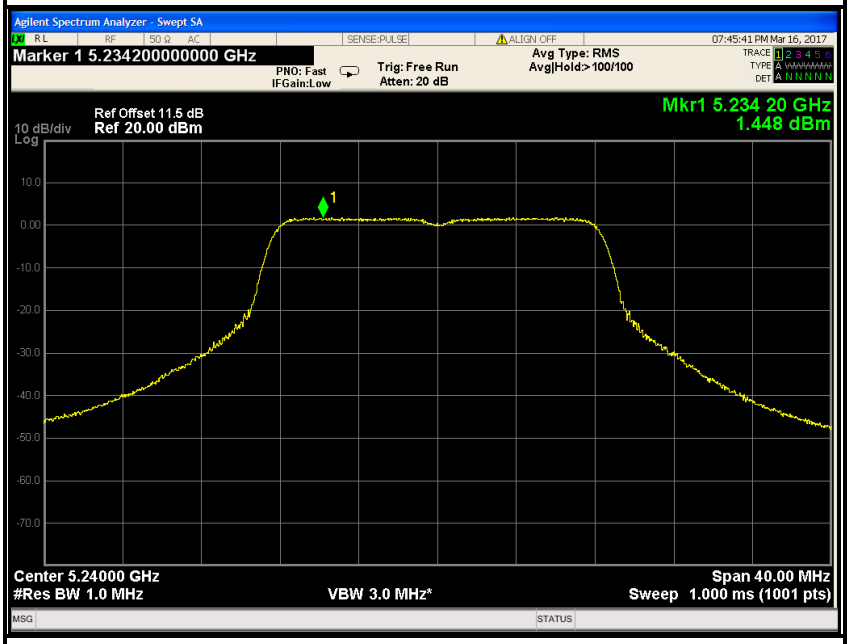
PPSD (CH Low)



PPSD (CH Mid)

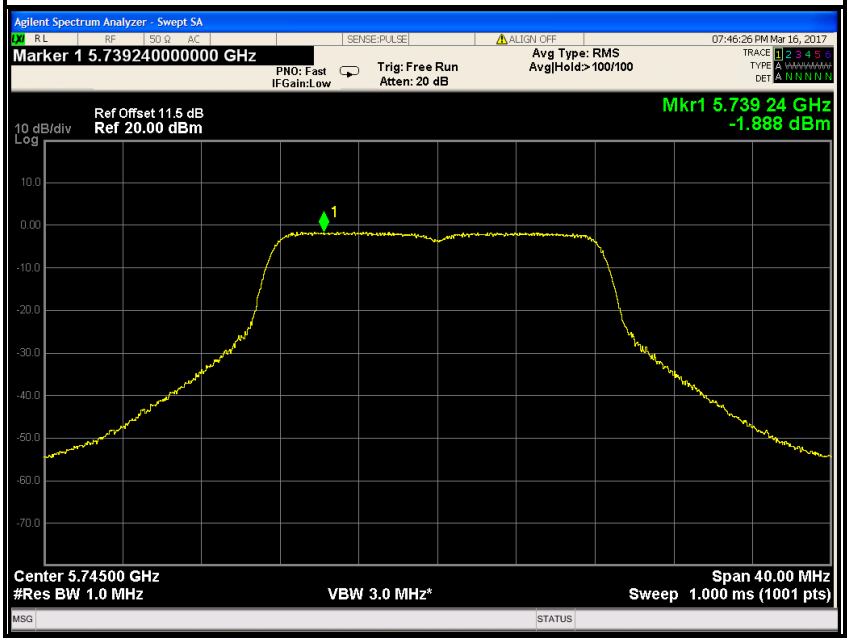


PPSD (CH High)

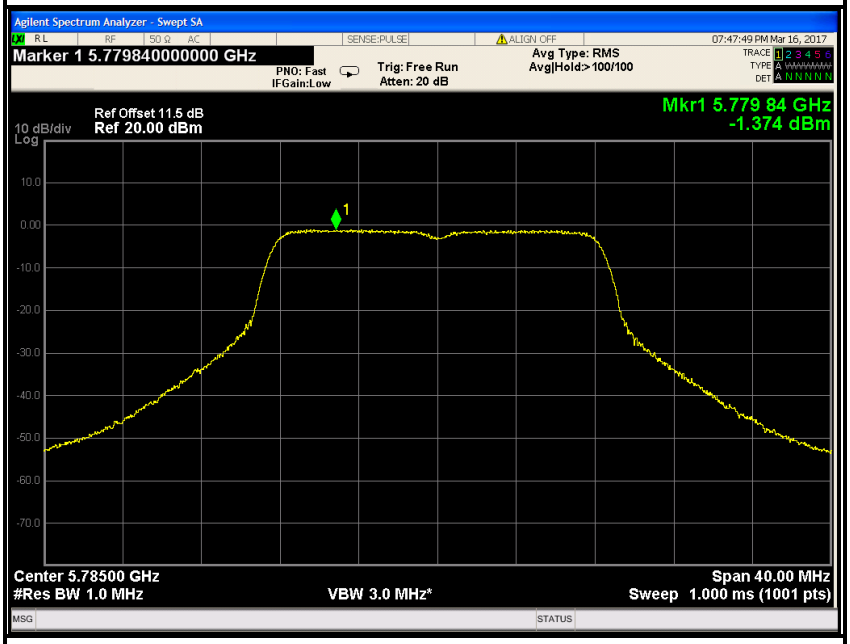


IEEE 802.11a mode / 5745 ~ 5825MHz

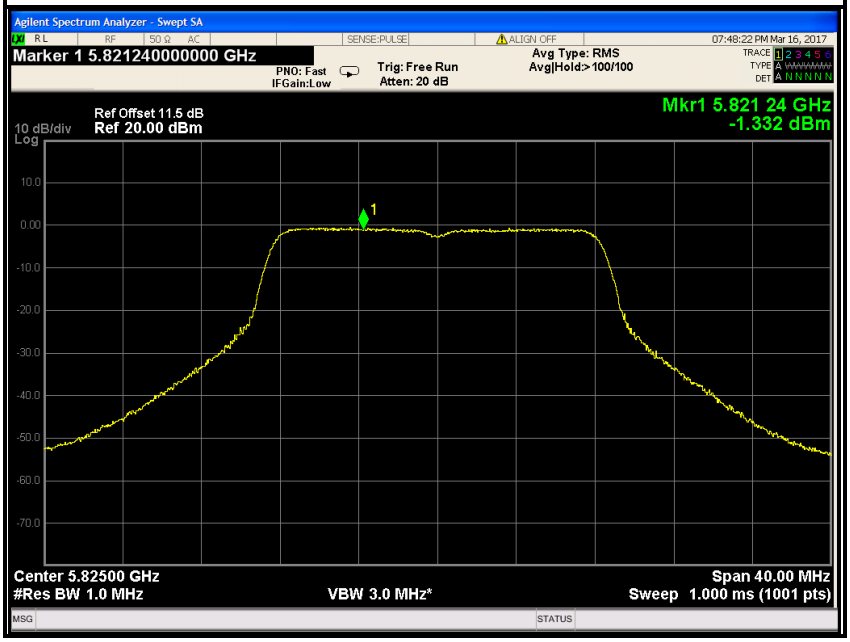
PPSD (CH Low)



PPSD (CH Mid)



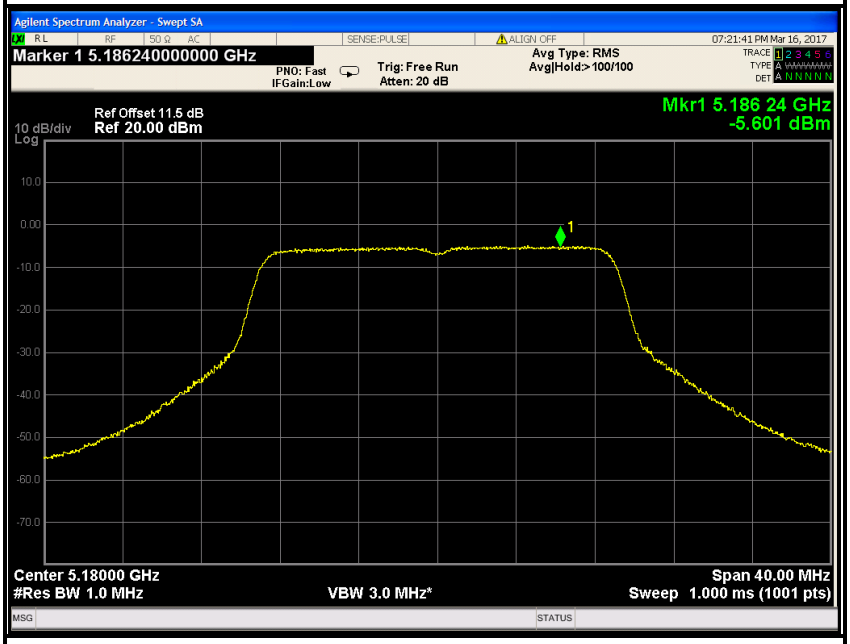
PPSD (CH High)



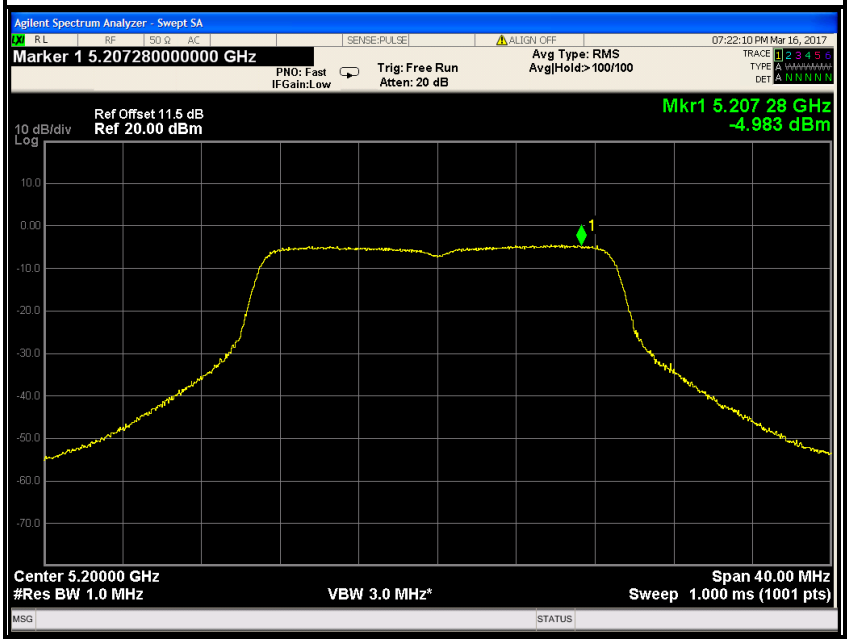
Antenna 0

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

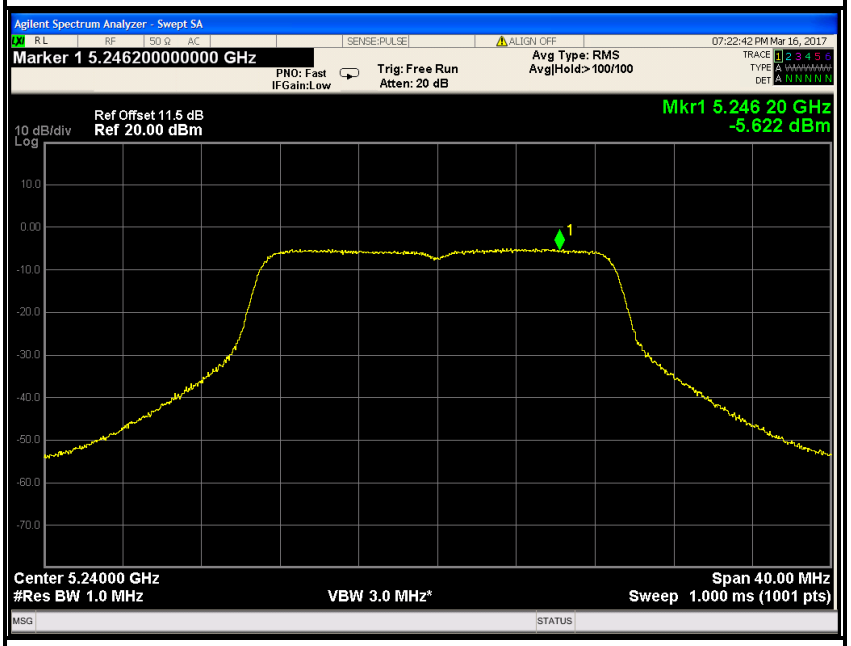
PPSD (CH Low)



PPSD (CH Mid)

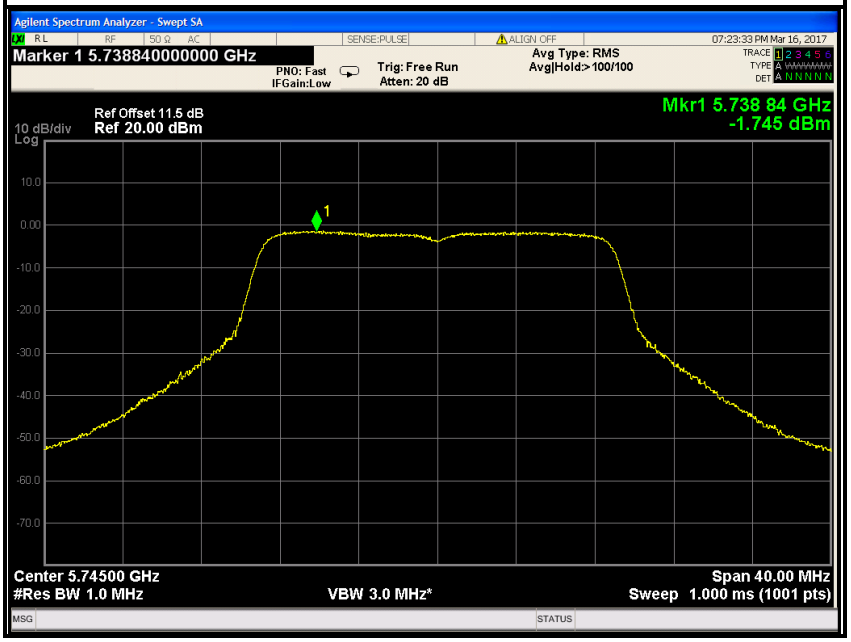


PPSD (CH High)

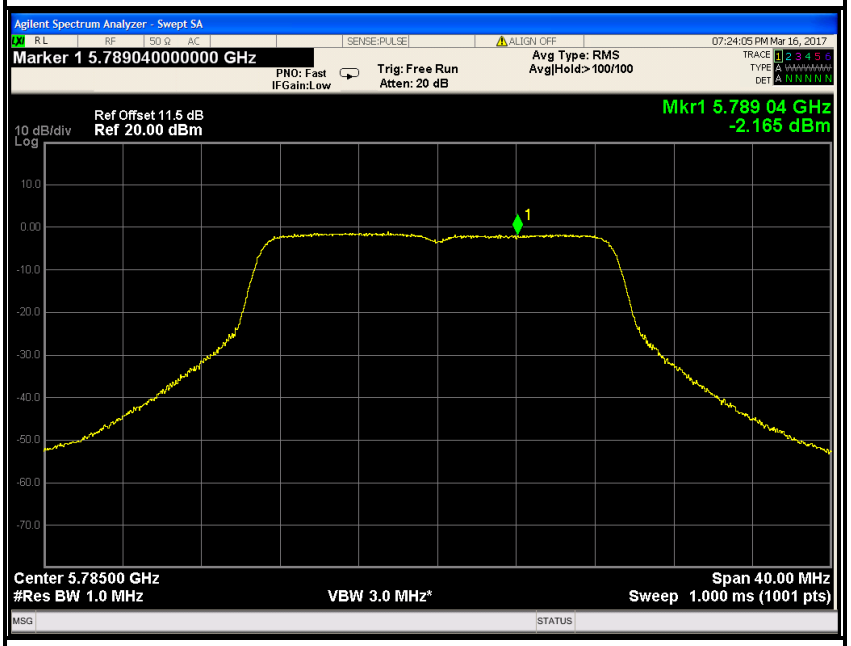


IEEE 802.11n HT 20 MHz mode / 5745 ~ 5825MHz

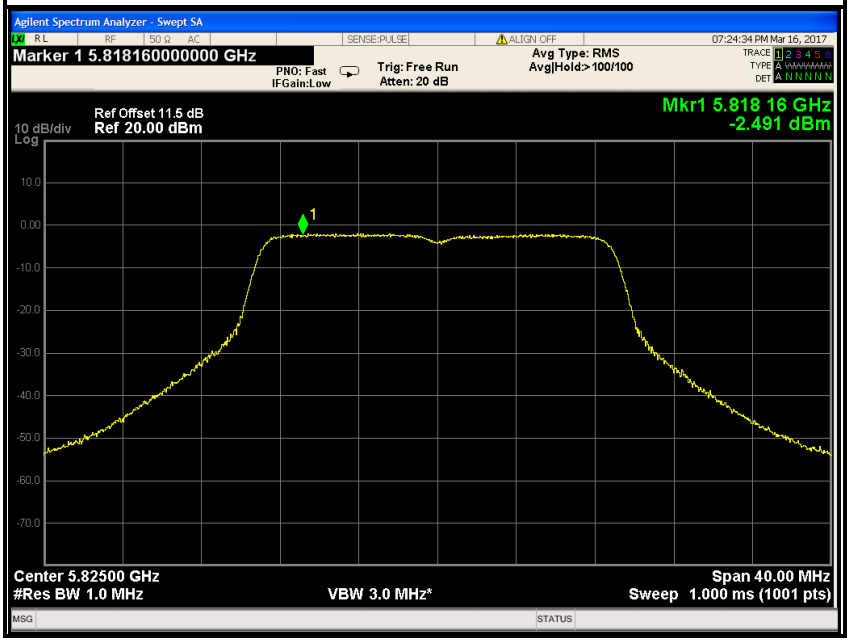
PPSD (CH Low)



PPSD (CH Mid)



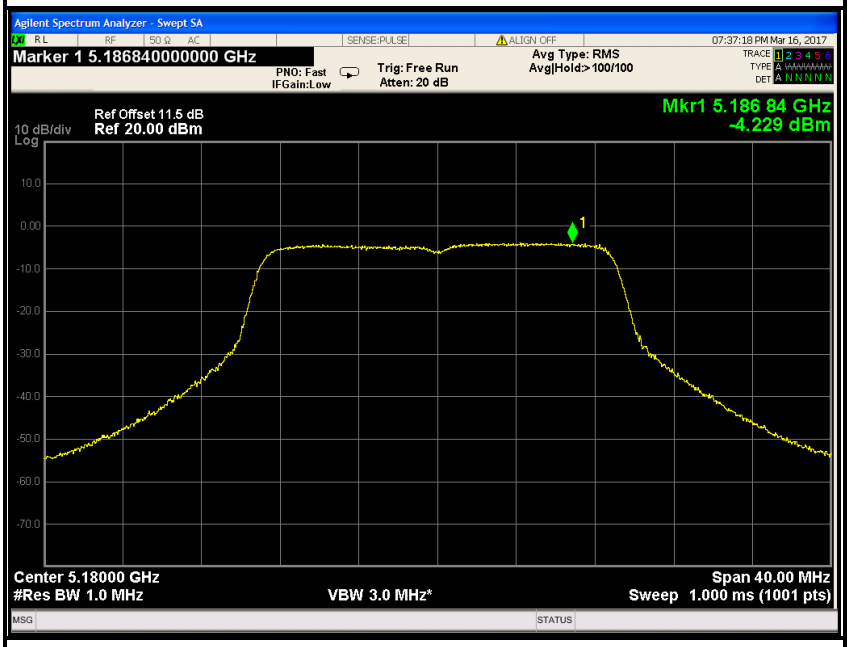
PPSD (CH High)



Antenna 1

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

PPSD (CH Low)



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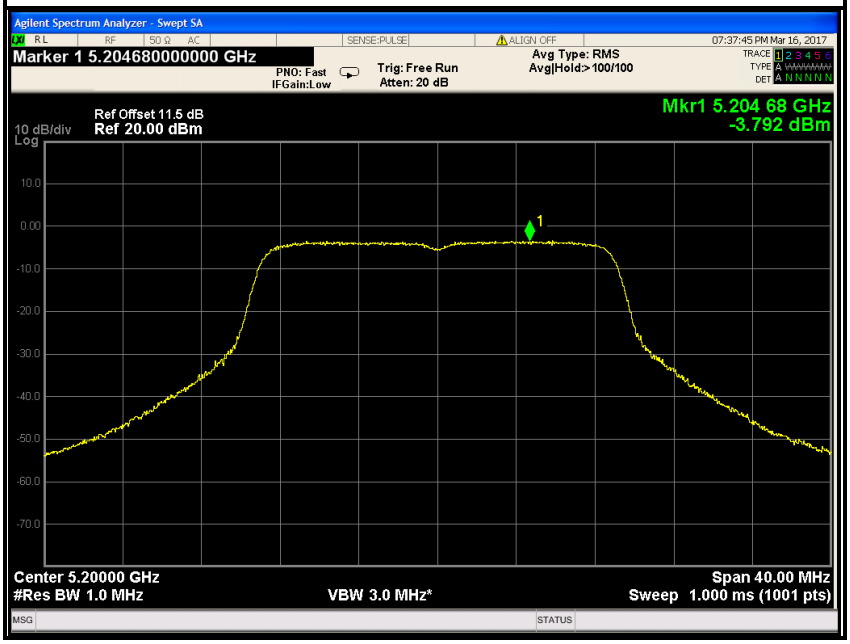
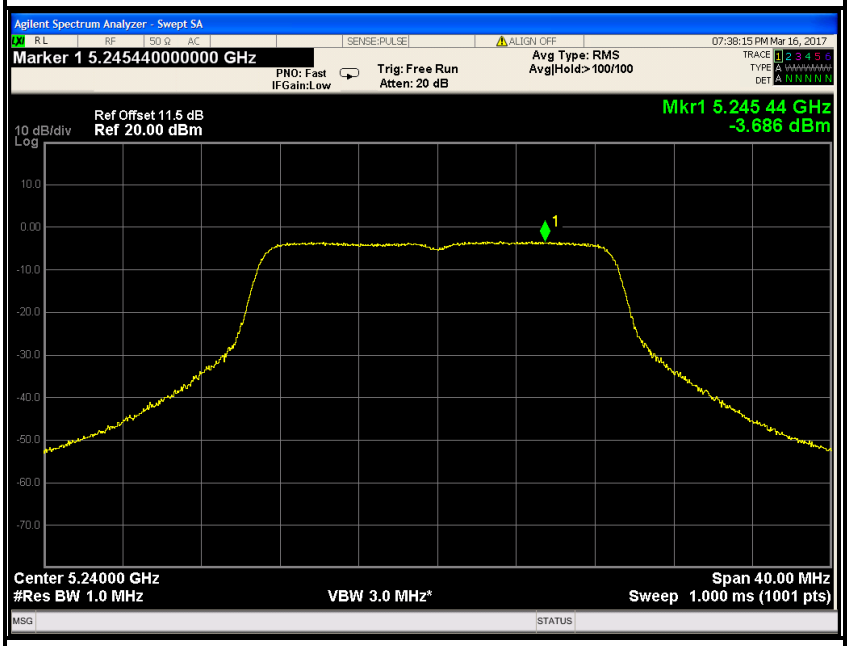
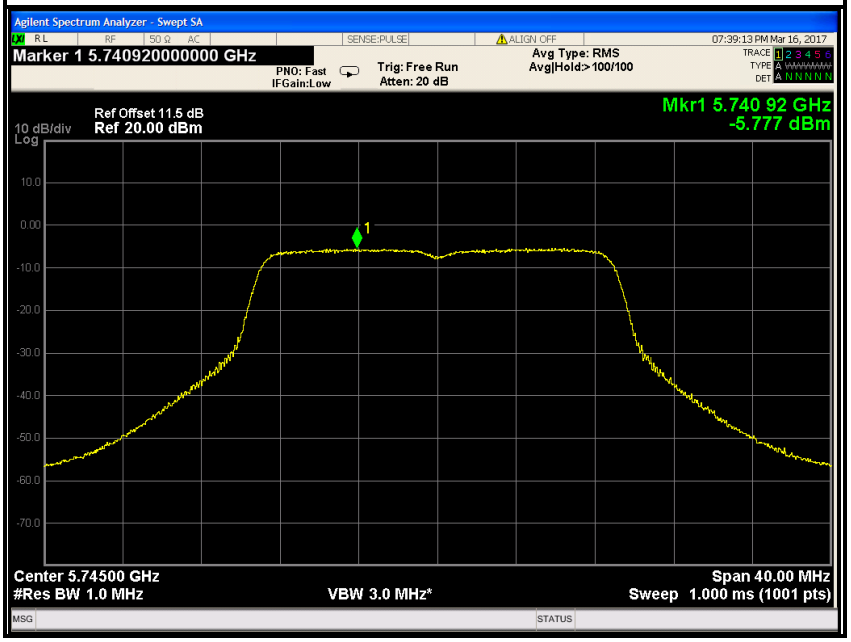


PPSD (CH High)

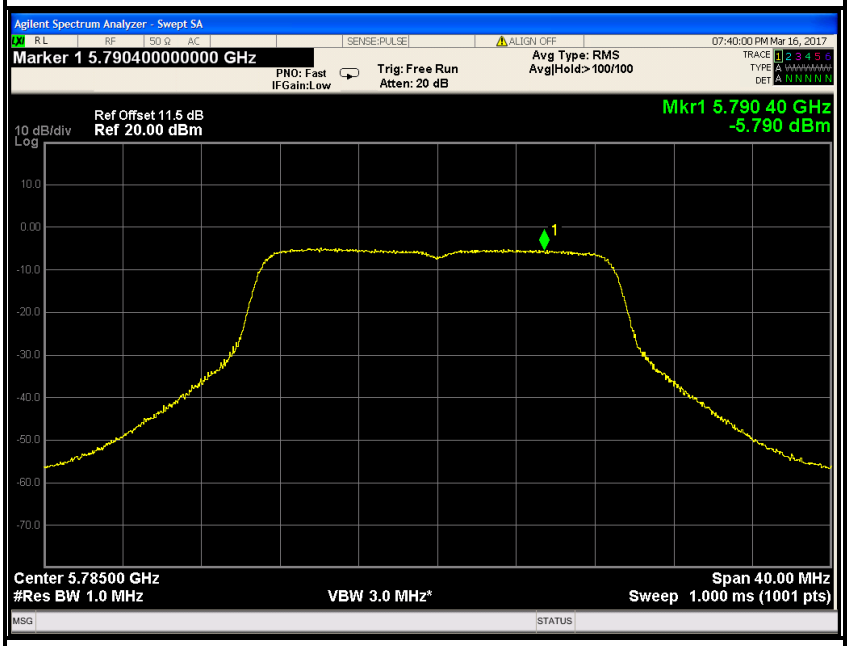


IEEE 802.11n HT 20 MHz mode / 5745 ~ 5825MHz

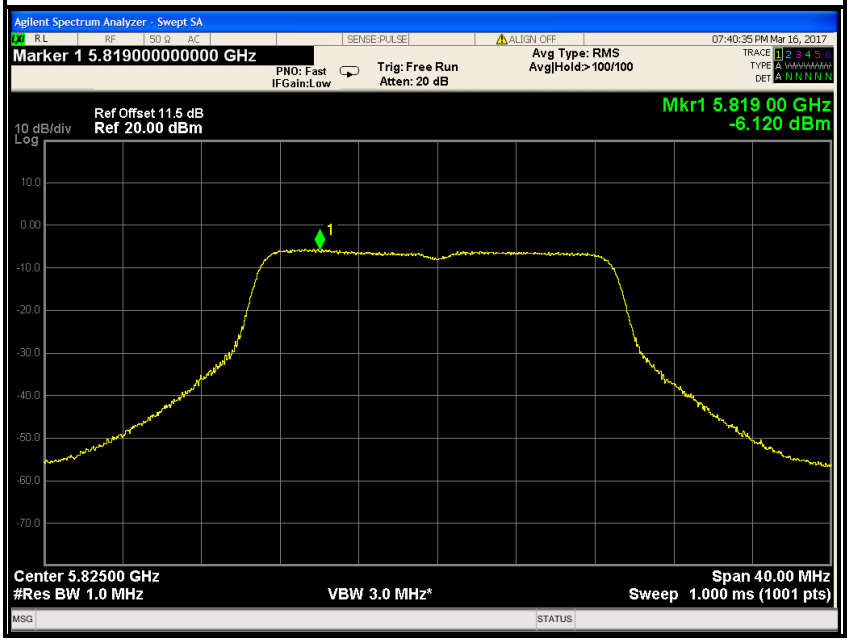
PPSD (CH Low)



PPSD (CH Mid)



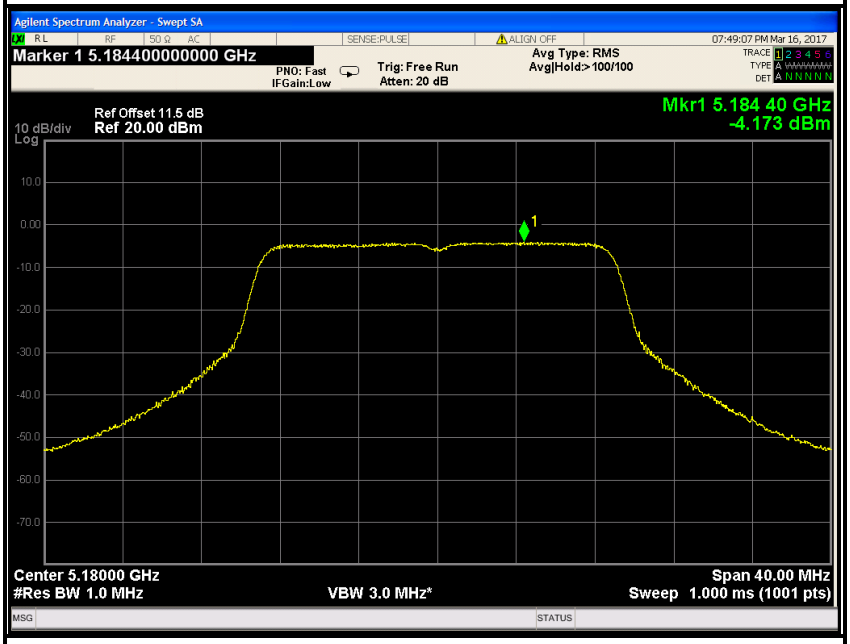
PPSD (CH High)



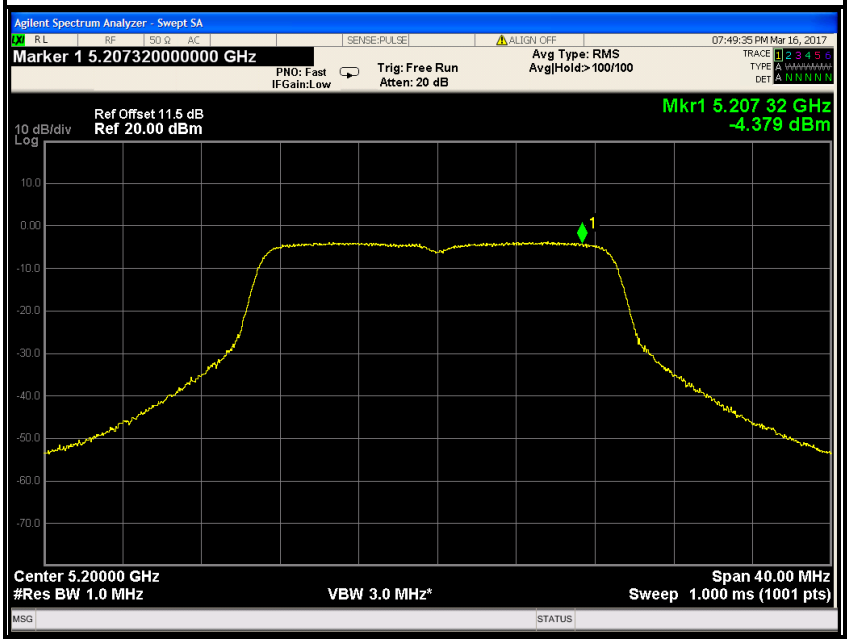
Antenna 2

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

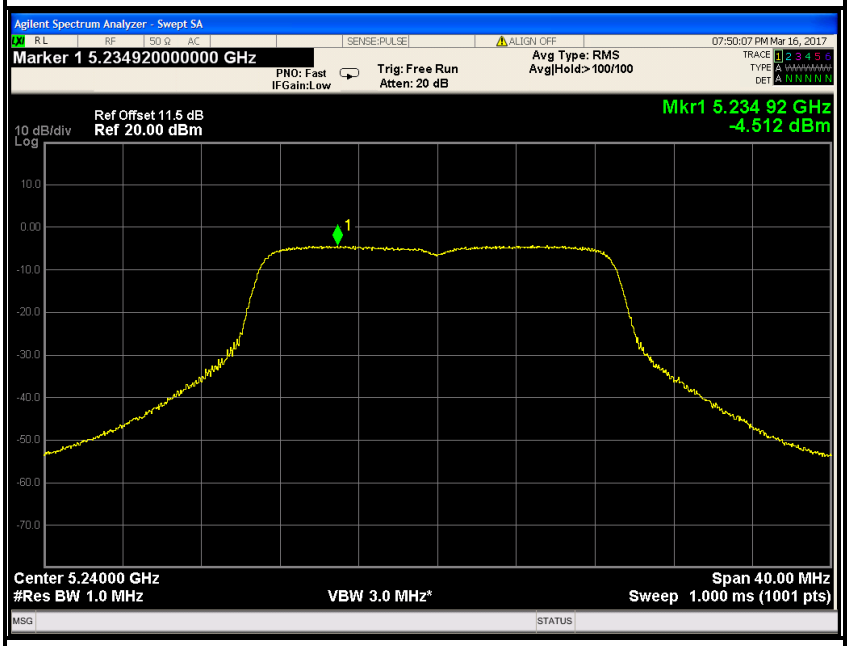
PPSD (CH Low)



PPSD (CH Mid)

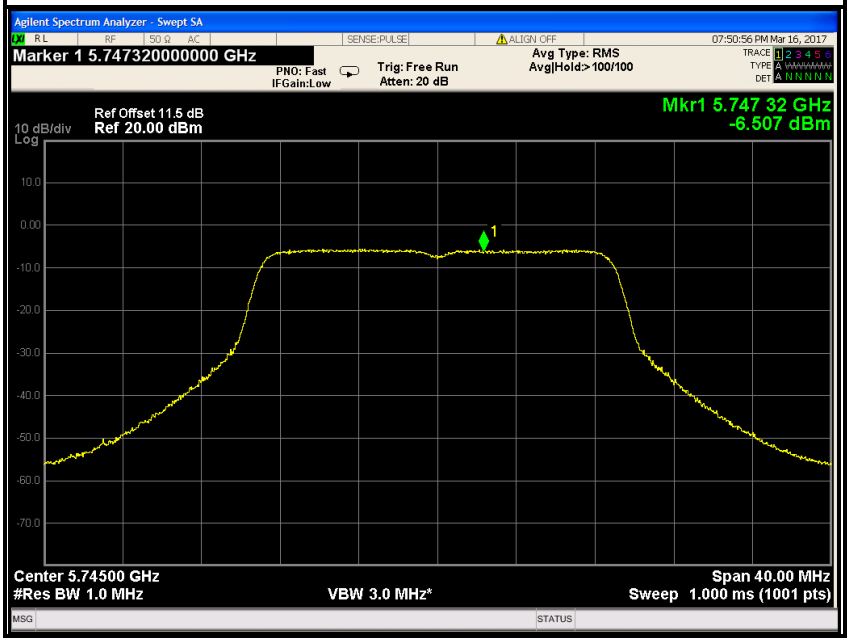


PPSD (CH High)



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

PPSD (CH Low)



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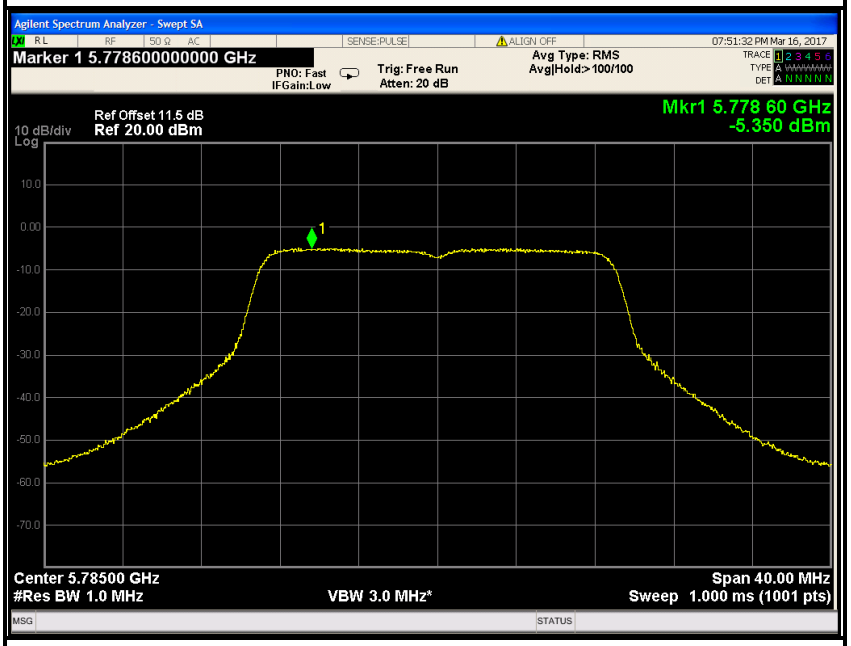
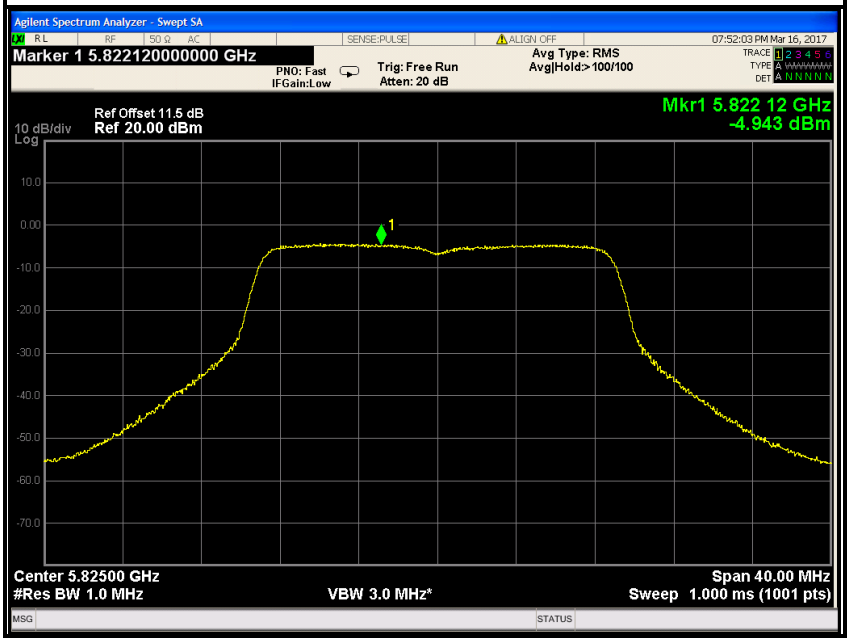


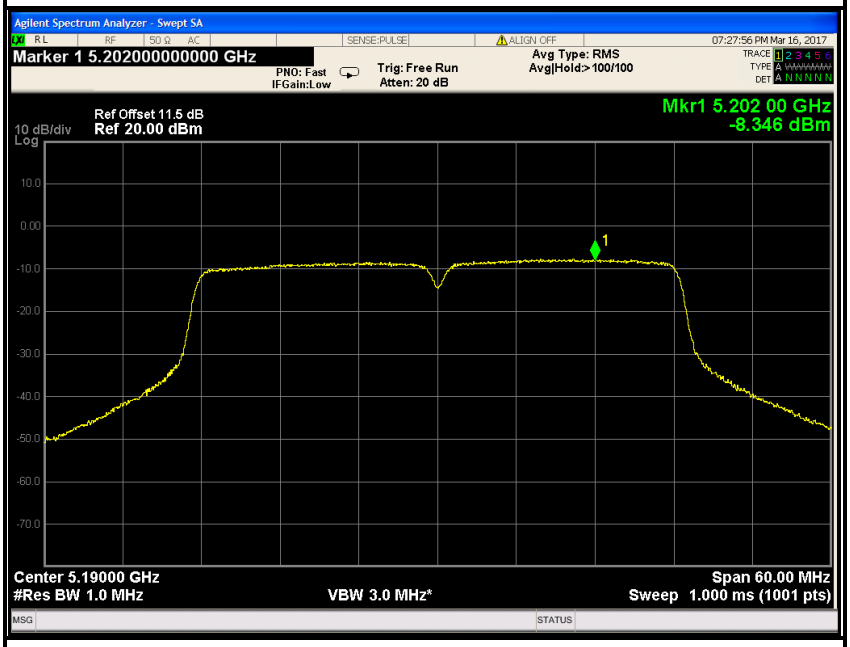
PPSD (CH High)



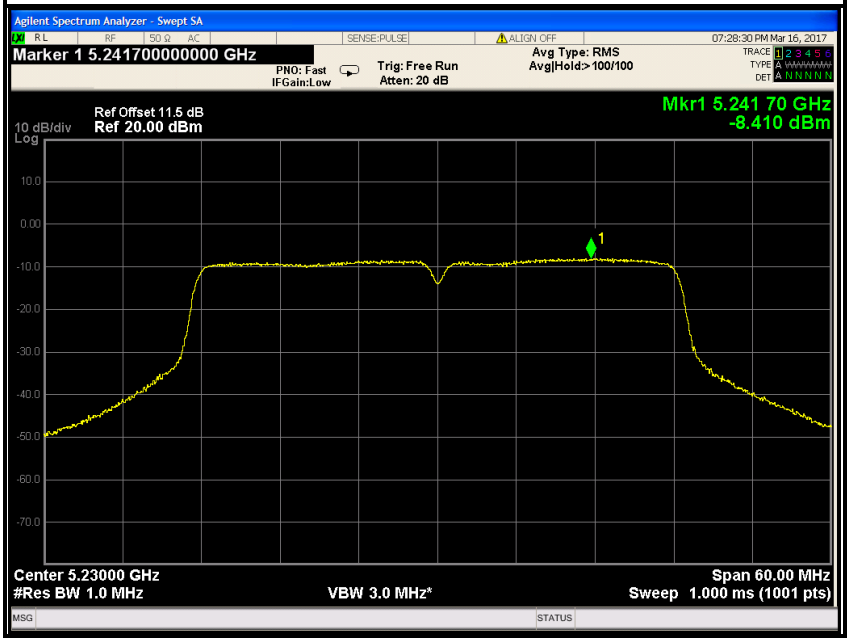
Antenna 0

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

PPSD (CH Low)

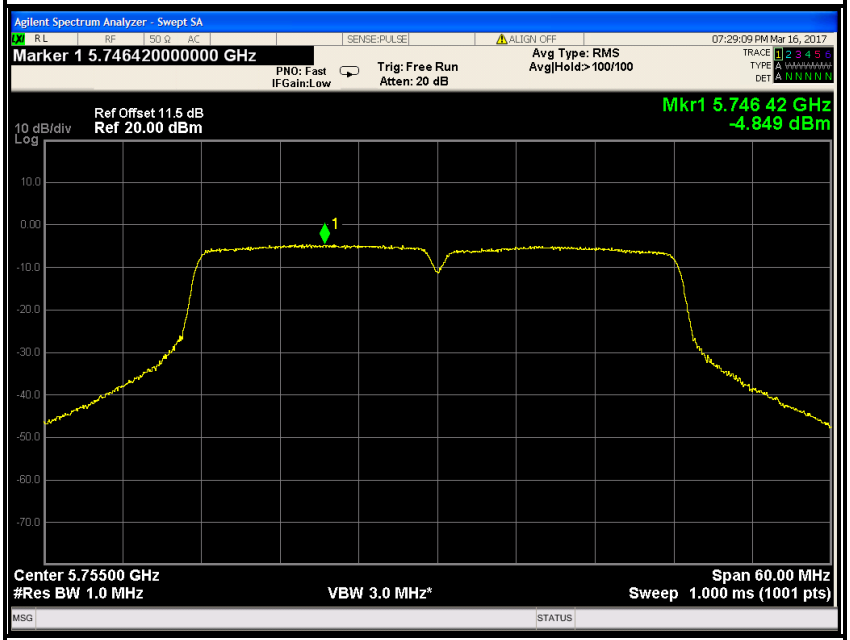


PPSD (CH High)

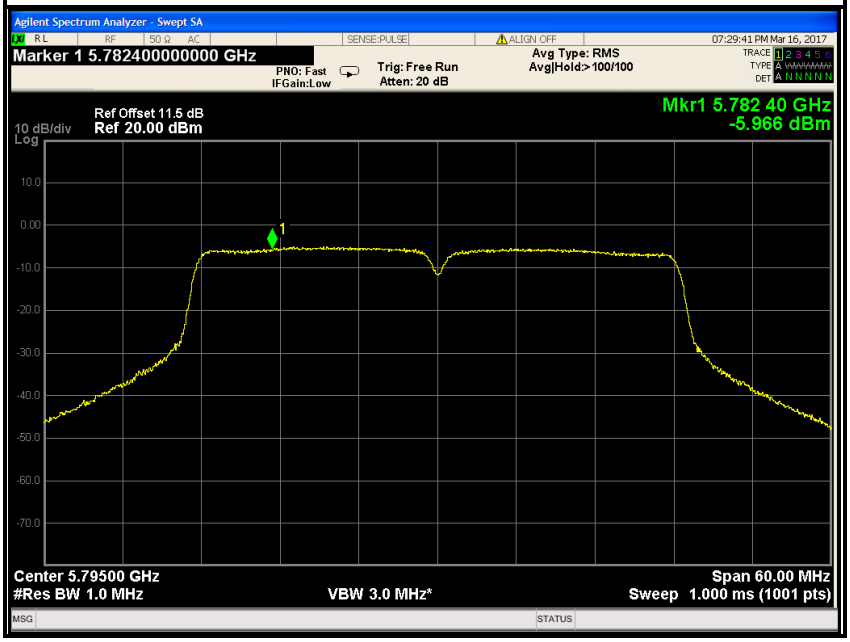


IEEE 802.11n HT 40 MHz mode / 5755 ~ 5795MHz

PPSD (CH Low)



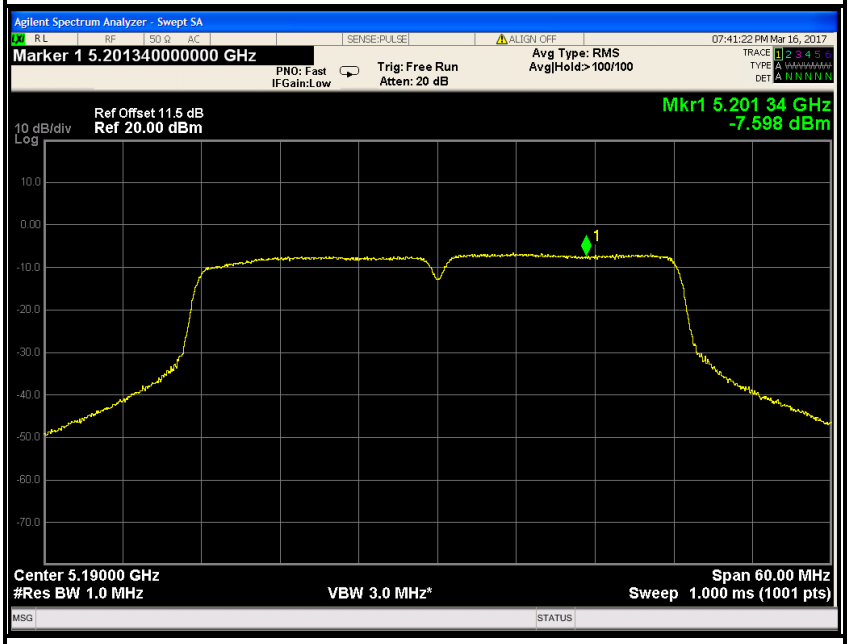
PPSD (CH High)



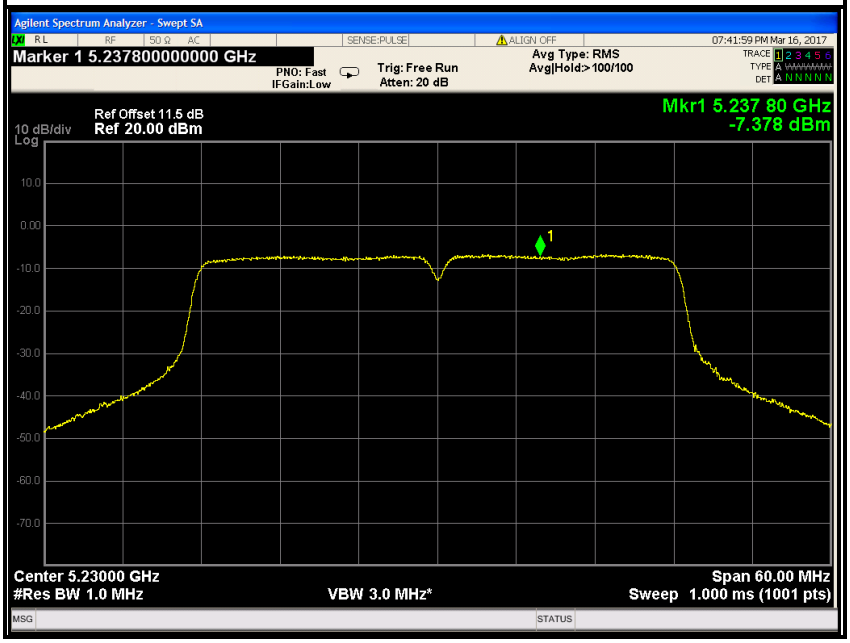
Antenna 1

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

PPSD (CH Low)

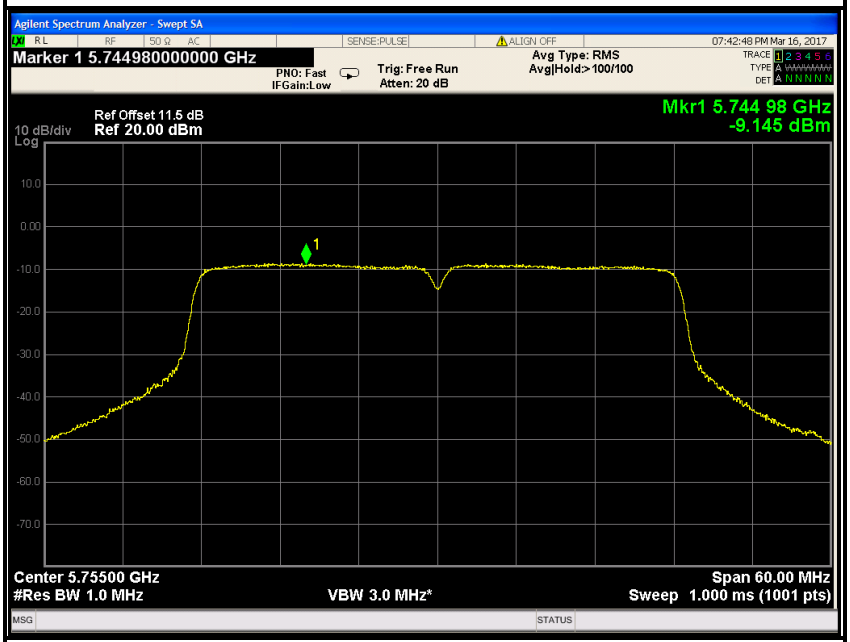


PPSD (CH High)

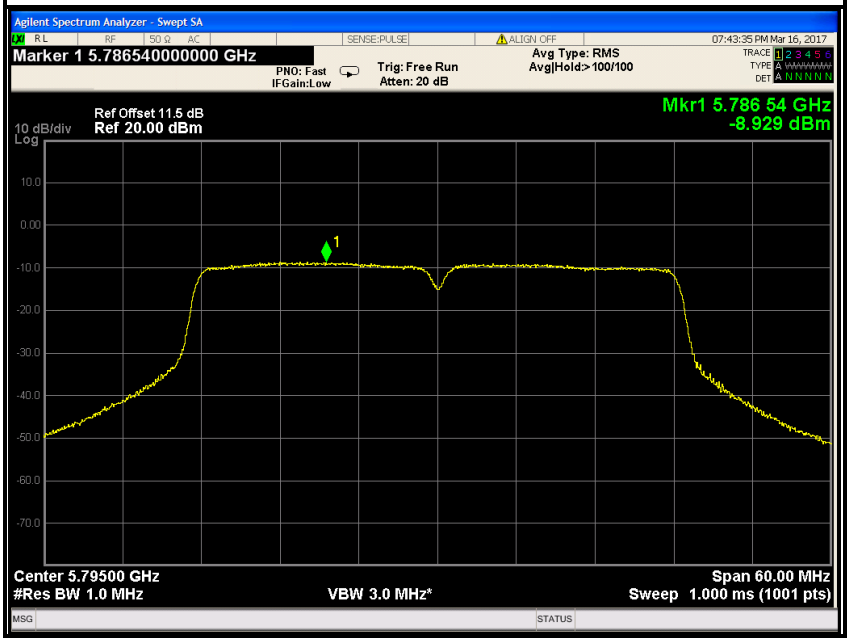


IEEE 802.11n HT 40 MHz mode / 5755 ~ 5795MHz

PPSD (CH Low)



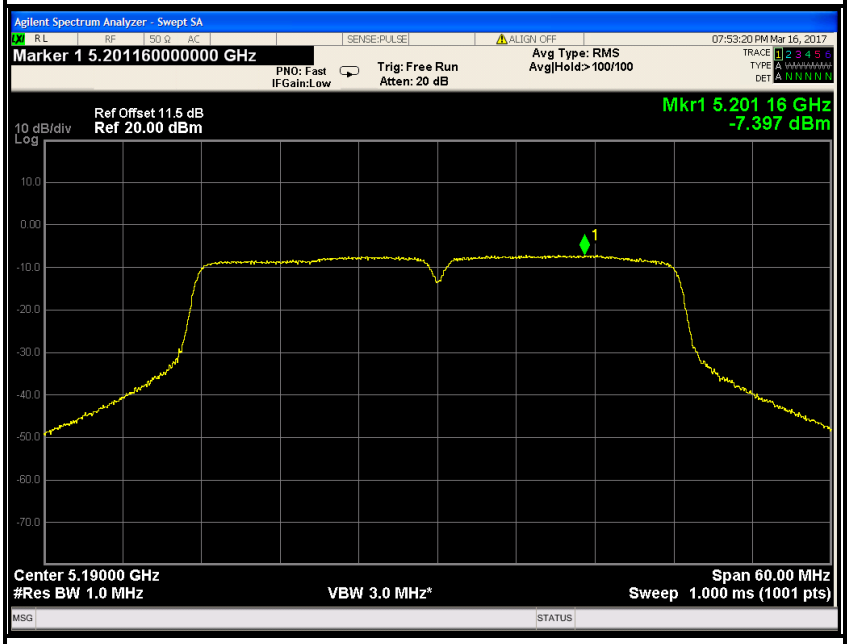
PPSD (CH High)



Antenna 2

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

PPSD (CH Low)



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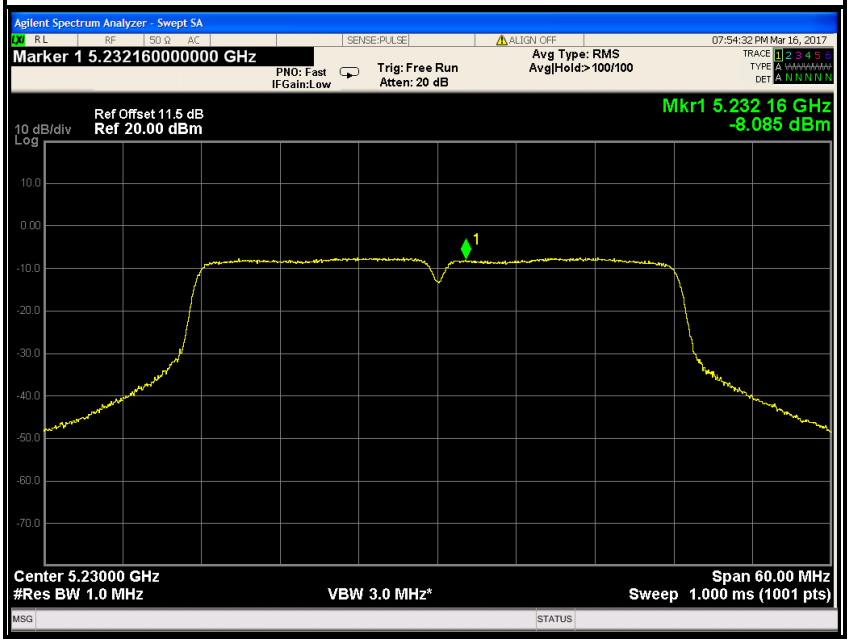
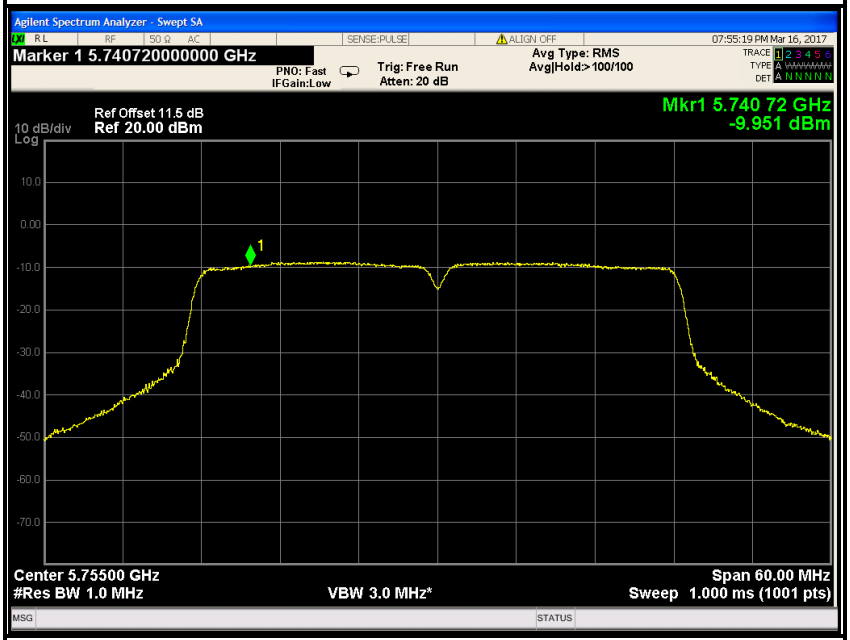
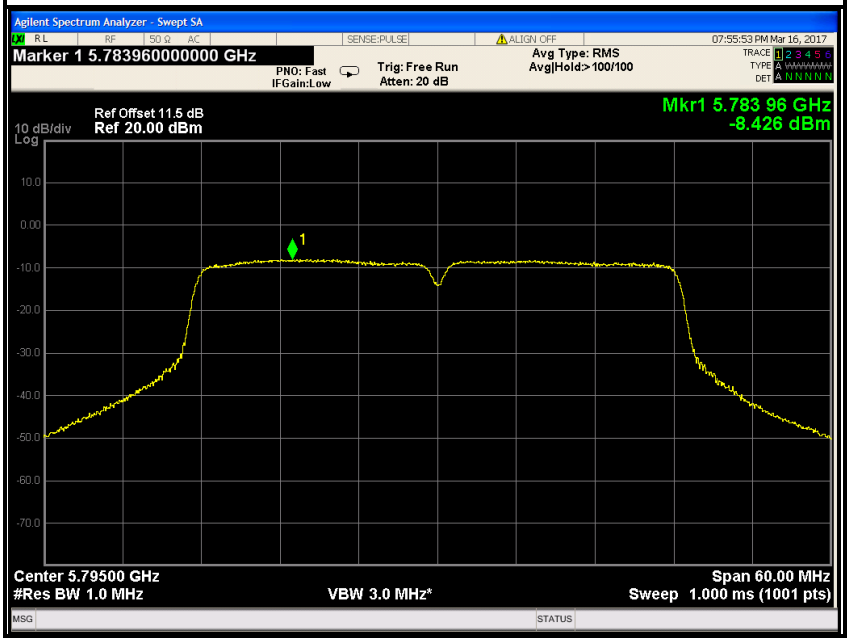


IEEE 802.11n HT 40 MHz mode / 5755 ~ 5795MHz

PPSD (CH Low)



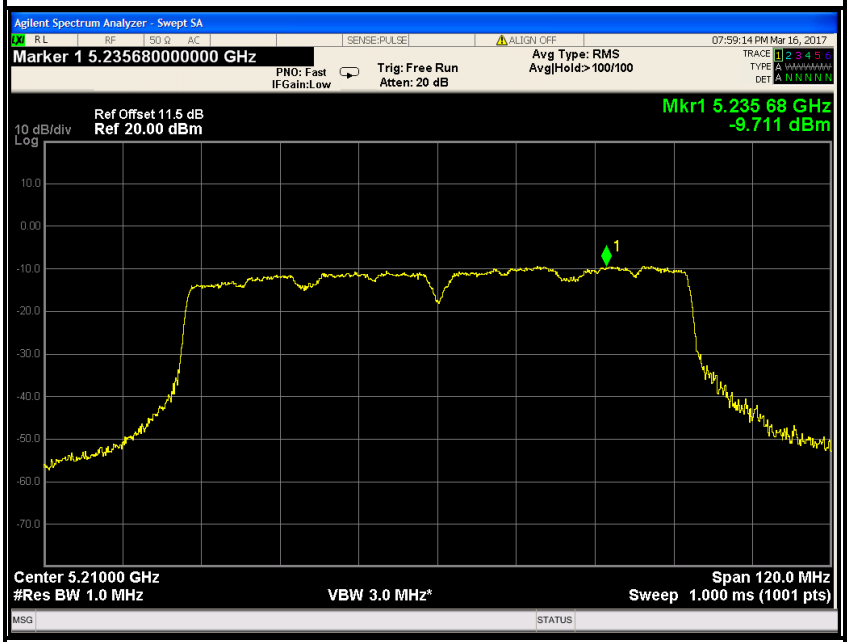
PPSD (CH High)



Antenna 0

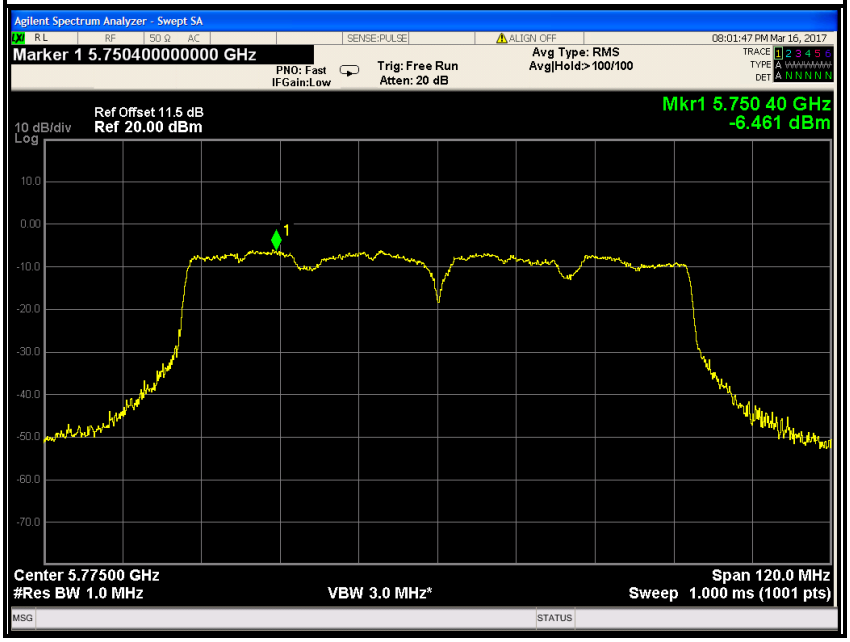
IEEE 802.11ac 80 mode / 5210MHz

PPSD



IEEE 802.11ac 80 mode / 5775MHz

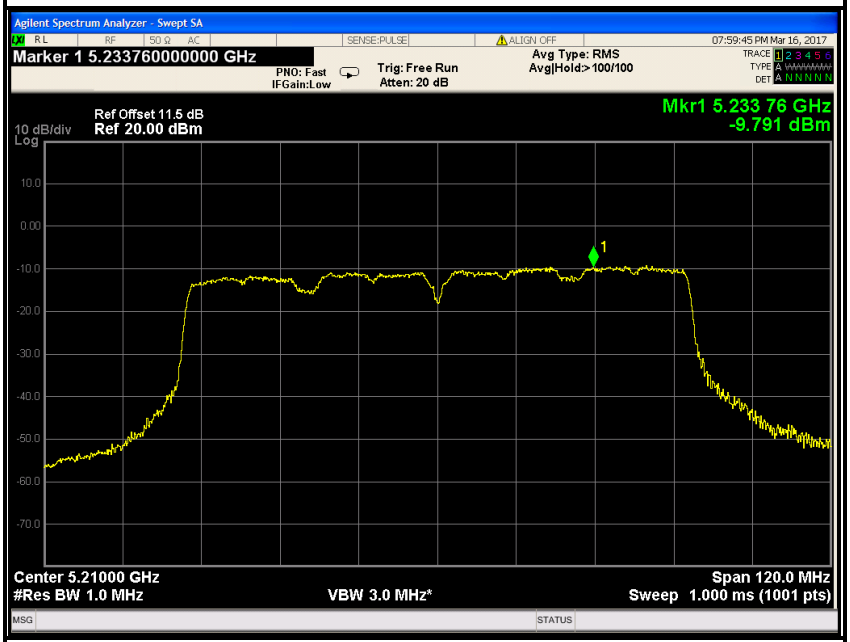
PPSD



Antenna 1

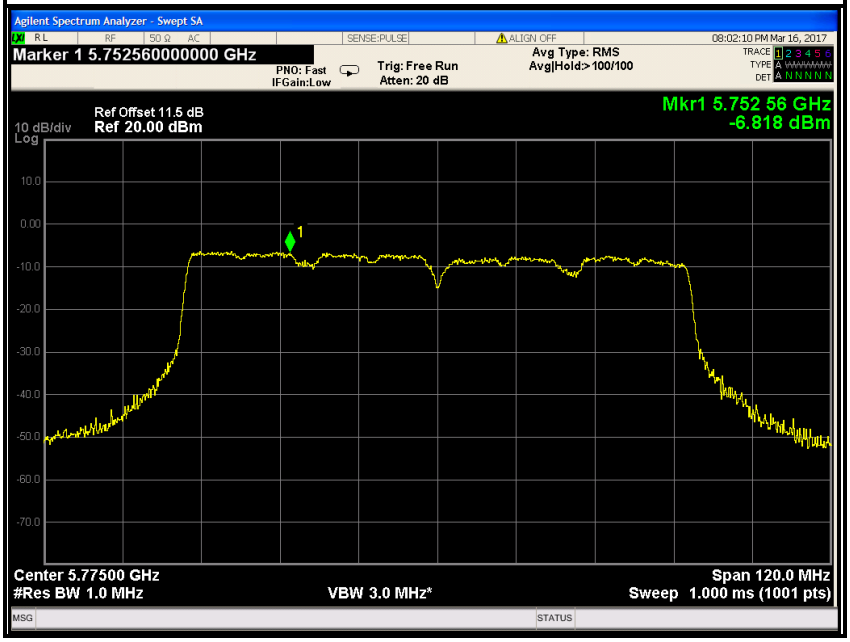
IEEE 802.11ac 80 mode / 5210MHz

PPSD



IEEE 802.11ac 80 mode / 5775MHz

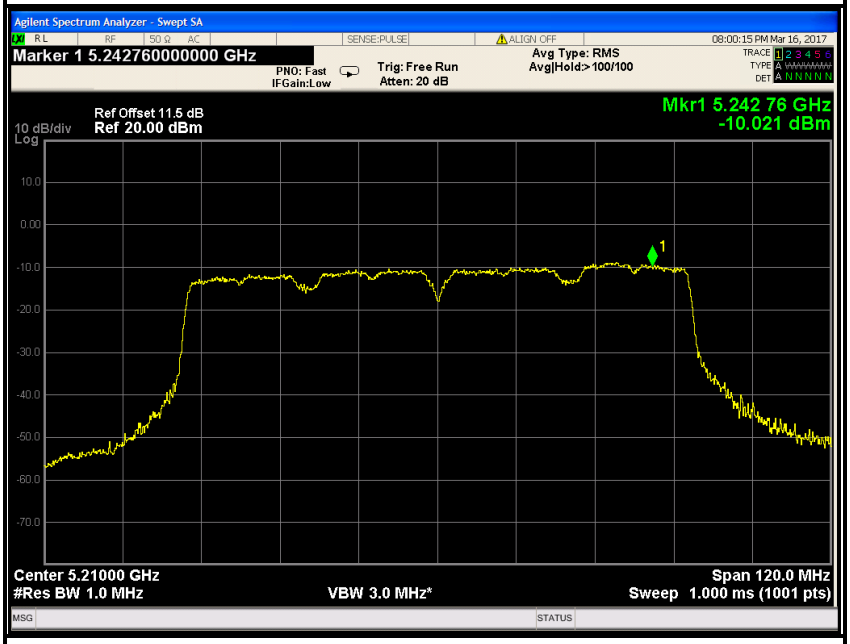
PPSD



Antenna 2

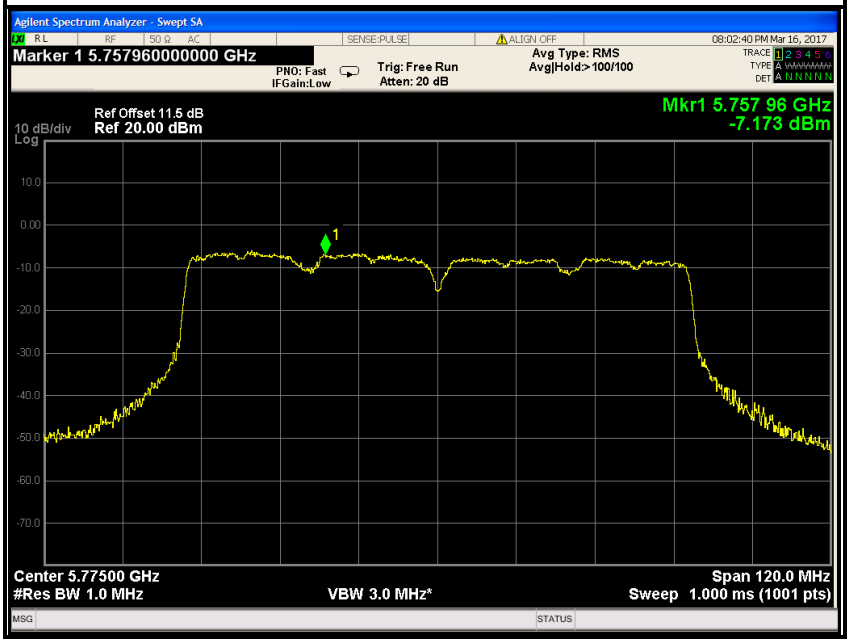
IEEE 802.11ac 80 mode / 5210MHz

PPSD



IEEE 802.11ac 80 mode / 5775MHz

PPSD



6.7 RADIATED UNDESIABLE EMISSION

6.7.1 LIMIT

1. According to §15.209(a), except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
30-88	100*	3
88-216	150*	3
216-960	200*	3
Above 960	500	3

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

2. In the emission table above, the tighter limit applies at the band edges.

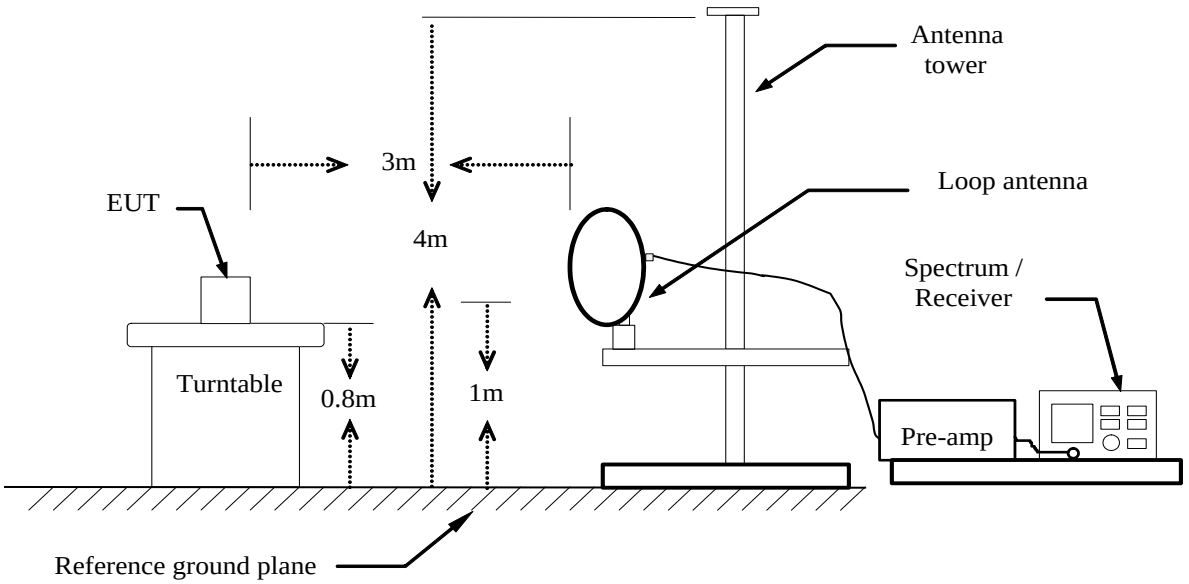
Frequency (MHz)	Field Strength (μV/m at 3-meter)	Field Strength (dBμV/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

6.7.2 TEST INSTRUMENTS

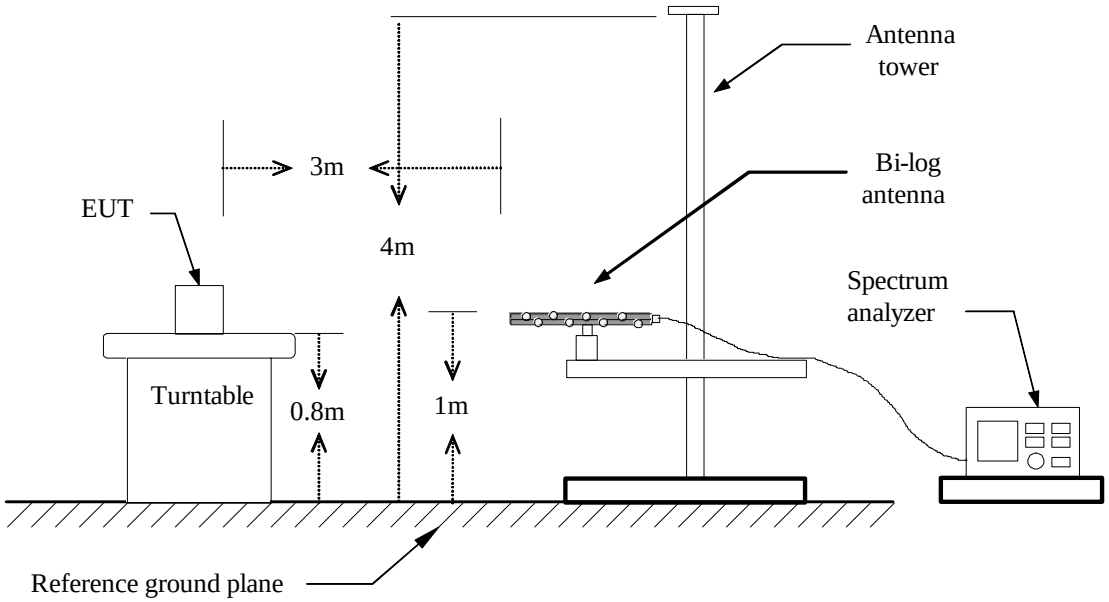
Radiated Emission Test Site 966(2)					
Name of Equipment	**Manufacturer**	**Model Number**	**Serial Number**	**Last Calibration**	**Due Calibration**
PSA Series Spectrum Analyzer	Agilent	E4446A	US44300399	02/21/2017	02/20/2018
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI	100783	02/21/2017	02/20/2018
Amplifier	EMEC	EM330	060661	03/18/2017	03/17/2018
High Noise Amplifier	Agilent	8449B	3008A01838	02/21/2017	02/20/2018
Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170-497	02/28/2017	02/27/2018
Bilog Antenna	SCHAFFNER	CBL6143	5082	02/21/2017	02/20/2018
Horn Antenna	SCHWARZBECK	BBHA9120	D286	02/28/2017	02/27/2018
Loop Antenna	COM-POWER	AL-130	121044	09/25/2016	09/24/2017
Turn Table	N/A	N/A	N/A	N.C.R	N.C.R
Controller	Sunol Sciences	SC104V	022310-1	N.C.R	N.C.R
Controller	CT	N/A	N/A	N.C.R	N.C.R
Temp. / Humidity Meter	Anymetre	JR913	N/A	02/21/2017	02/20/2018
Antenna Tower	SUNOL	TLT2	N/A	N.C.R	N.C.R
Test S/W	FARAD	LZ-RF / CCS-SZ-3A2			

6.7.3 TEST CONFIGURATION

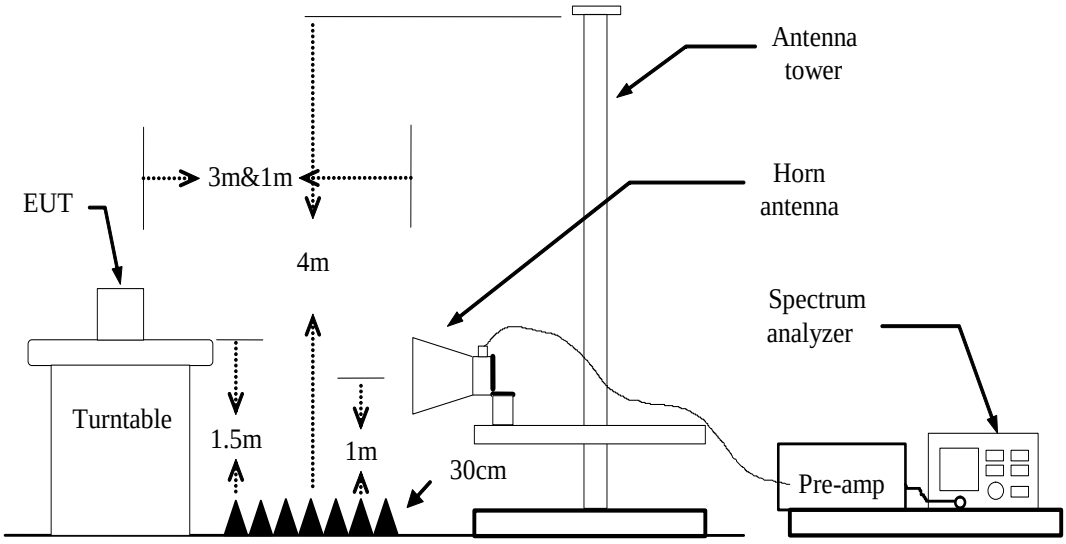
Below 30MHz



Below 1 GHz



Above 1 GHz



For the actual test configuration, please refer to the related item – Photographs of the TEST CONFIGURATION.

6.7.4 MEASURING SETTING

The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (Emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (Emission in non-restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP/AVG
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP/AVG
Start ~ Stop Frequency	30MHz~1000MHz / RB 100kHz for QP

6.7.5 TEST PROCEDURE

1) Sequence of testing 9 kHz to 30 MHz
Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 0.8 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions.

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Pre measurement:

--- The turntable rotates from 0° to 315° using 45° steps.

--- The antenna height is 0.8 meter.

--- At each turntable position the analyzer sweeps with peak detection to find the

maximum of all emissions

Final measurement:

--- Identified emissions during the pre measurement the software maximizes by rotating the turntable position (0° to 360°) and by rotating the elevation axes (0° to 360°).

--- The final measurement will be done in the position (turntable and elevation) causing the highest emissions with QPK detector.

--- The final levels, frequency, measuring time, bandwidth, turntable position, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement and the limit will be stored.

2) Sequence of testing 30 MHz to 1 GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a table with 0.8 m height is used, which is placed on the ground plane.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Pre measurement:

--- The turntable rotates from 0° to 315° using 45° steps.

--- The antenna is polarized vertical and horizontal.

--- The antenna height changes from 1 to 3 meter.

--- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.

Final measurement:

--- The final measurement will be performed with minimum the six highest peaks.

--- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position (± 45°) and antenna movement between 1 and 4 meter.

--- The final measurement will be done with QP detector with an EMI receiver.

--- The final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement with marked maximum final measurements and the limit will be stored.

3) Sequence of testing above 1 GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Pre measurement:

--- The turntable rotates from 0° to 315° using 45° steps.

--- The antenna is polarized vertical and horizontal.

--- The antenna height scan range is 1 meter to 2.5 meter.

--- At each turntable position and antenna polarization the analyzer sweeps with peak detection to find the maximum of all emissions.

Final measurement:

--- The final measurement will be performed with minimum the six highest peaks.

--- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position (± 45°) and antenna movement between 1 and 4 meter. This procedure is repeated for both antenna polarizations.

--- The final measurement will be done in the position (turntable, EUT-table and antenna polarization) causing the highest emissions with Peak and Average detector.

--- The final levels, frequency, measuring time, bandwidth, turntable position, EUT-table position, antenna polarization, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement with marked maximum final measurements and the limit will be stored.

4) Sequence of testing above 18 GHz
Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 1 &3 meter.

--- The EUT was set into operation.

Pre measurement:

--- The antenna is moved spherical over the EUT in different polarisations of the antenna.

Final measurement:

--- The final measurement will be performed at the position and antenna orientation for all detected emissions that were found during the premeasurements with Peak and Average detector.

--- The final levels, frequency, measuring time, bandwidth, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement and the limit will be stored.