

**IEEE 802.11ac 80 mode / 5530MHz****Antenna 0:**

1. Operating Frequency: 5530MHz
2. CH: 5530MHz
3. 26dB bandwidth: CH: 81.83MHz
4. Frequency Range: 5489.0850MHz, 5570.9150MHz

Antenna 1:

1. Operating Frequency: 5530MHz
2. CH: 5530MHz
3. 26dB bandwidth: CH: 81.99MHz
4. Frequency Range: 5489. 0050MHz, 5570.9950MHz

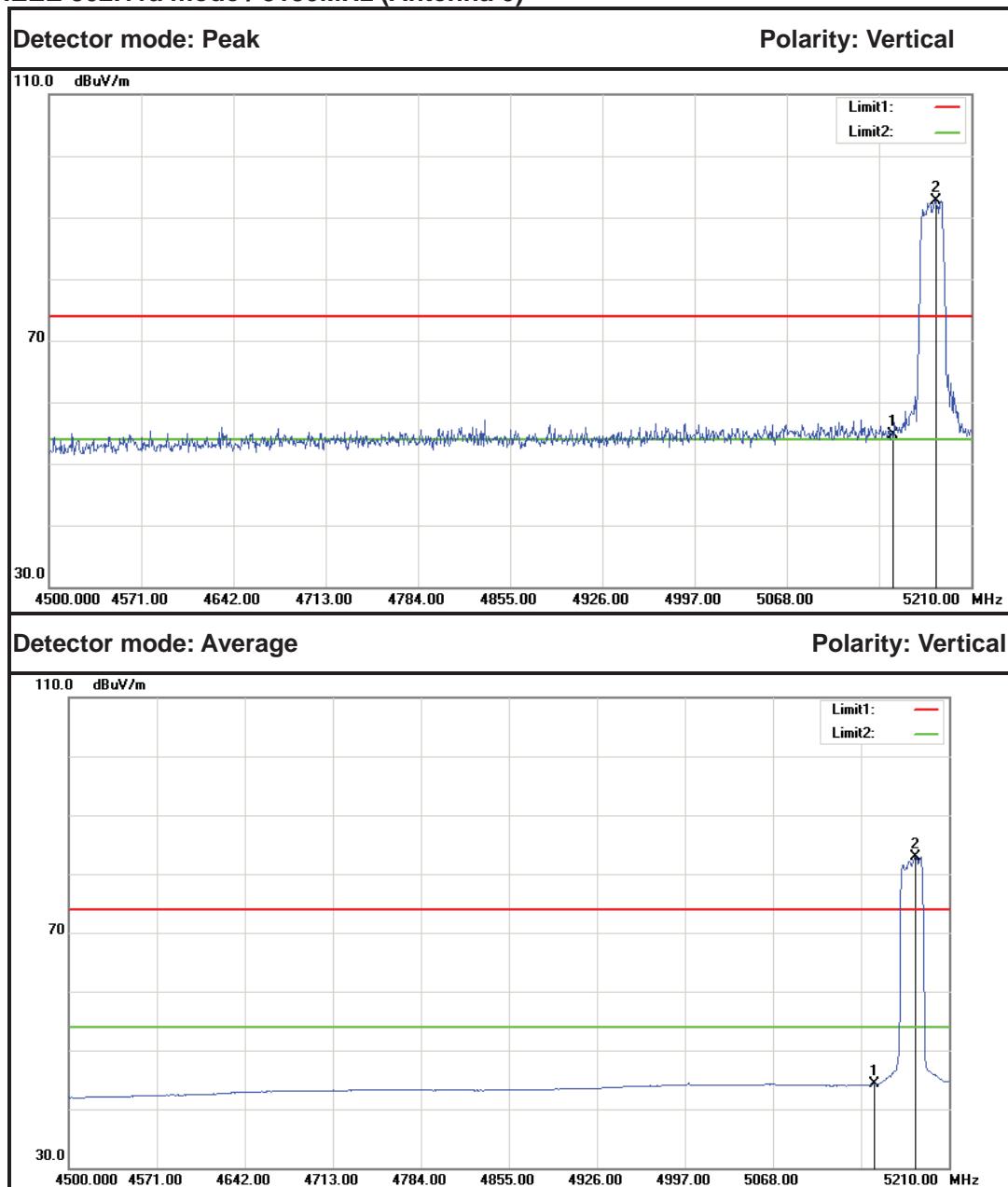
IEEE 802.11ac 80 mode / 5775MHz**Antenna 0:**

1. Operating Frequency: 5775MHz
2. CH: 5775MHz
3. 26dB bandwidth: CH: 81.50MHz
4. Frequency Range: 5734.2500MHz, 5815.7500MHz

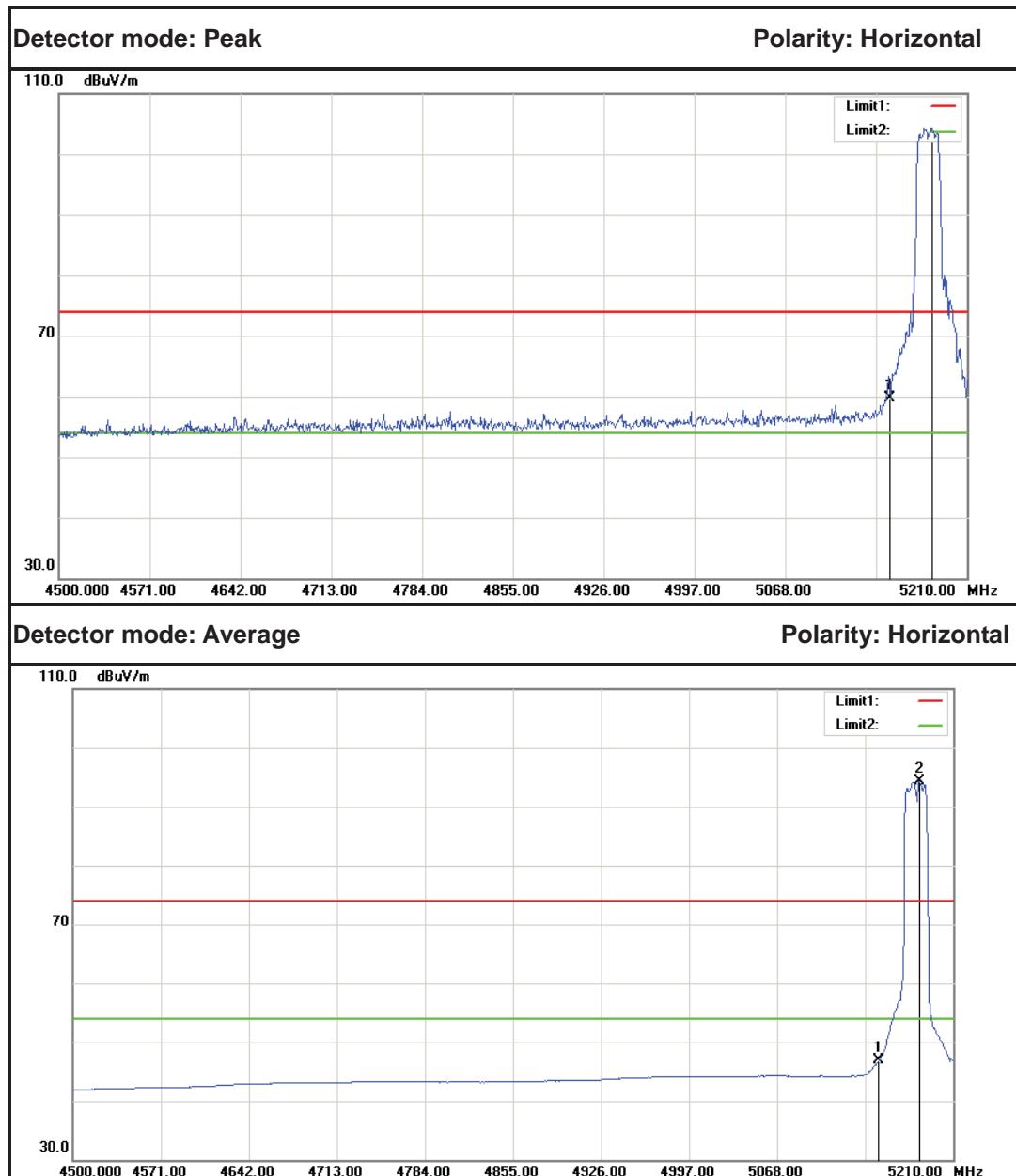
Antenna 1:

1. Operating Frequency: 5775MHz
2. CH: 5775MHz
3. 26dB bandwidth: CH: 81.85MHz
4. Frequency Range: 5734.0750MHz, 5815.9250MHz

Because the mentioned conditions the Fundamental Frequency Range was far away from the restricted bands in the table published in 15.205, the test is not applicable.

**Test Plot****IEEE 802.11a mode / 5180MHz (Antenna 0)**

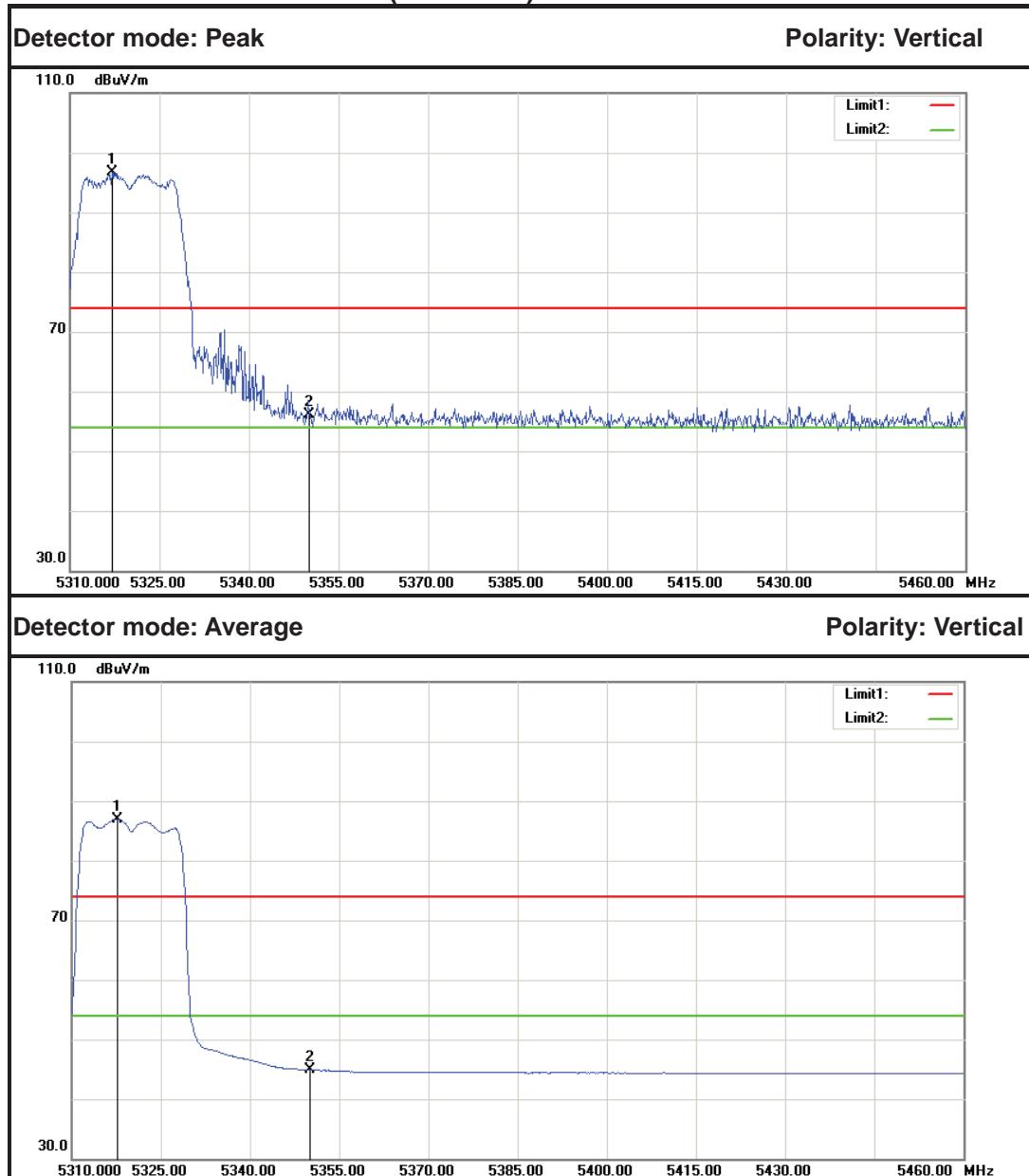
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5150.000	49.37	5.25	54.62	74.00	-19.38	Peak	Vertical
2	5183.020	87.41	5.31	92.72	---	---	Peak	Vertical
1	5150.000	39.01	5.25	44.26	54.00	-9.74	Average	Vertical
2	5183.020	77.58	5.31	82.89	---	---	Average	Vertical



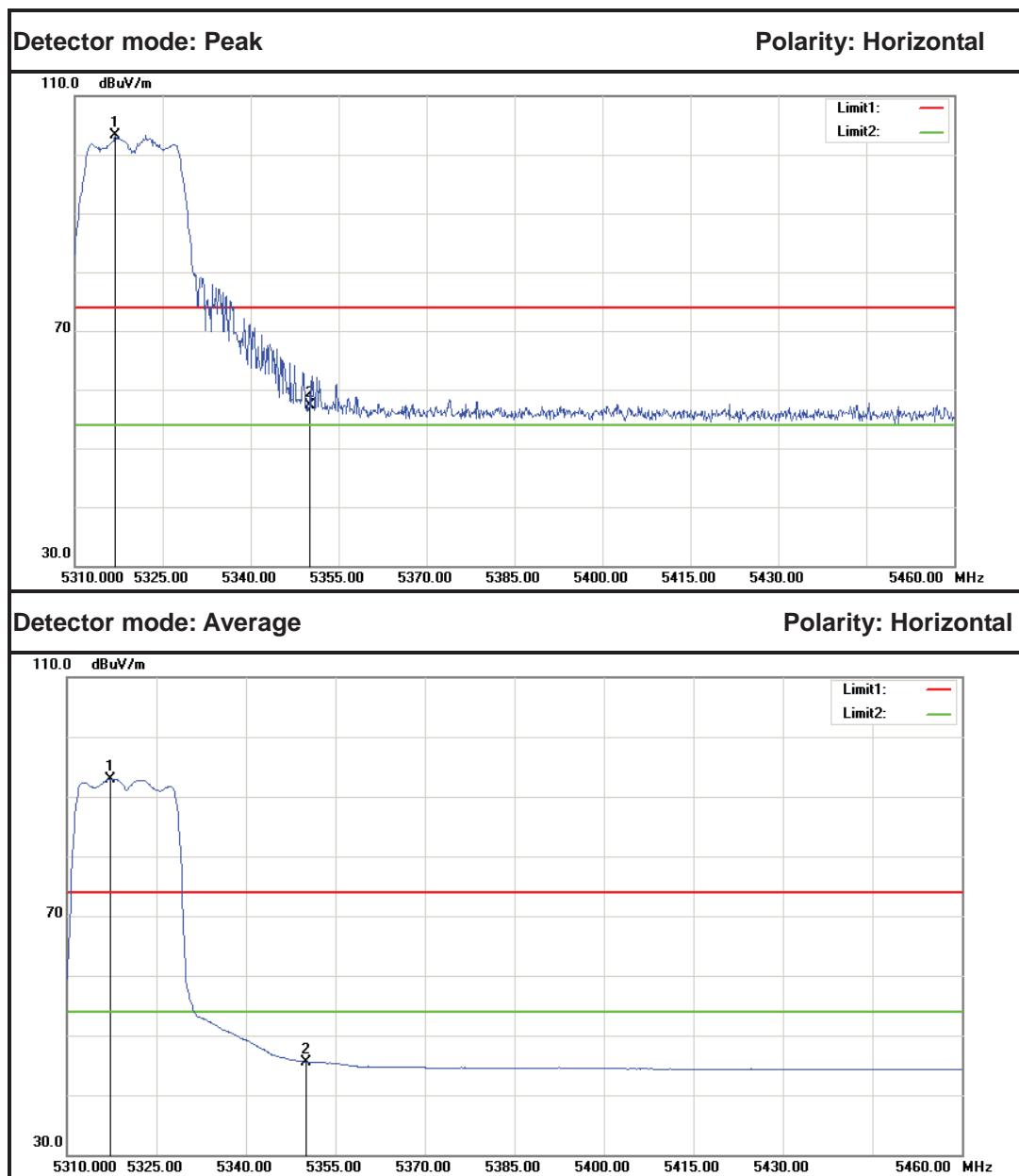
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5150.000	54.40	5.25	59.65	74.00	-14.35	Peak	Horizontal
2	5183.020	99.06	5.31	104.37	---	---	Peak	Horizontal
1	5150.000	41.59	5.25	46.84	74.00	-27.16	Average	Horizontal
2	5183.020	88.94	5.31	94.25	---	---	Average	Horizontal



IEEE 802.11a mode / 5320MHz (Antenna 0)



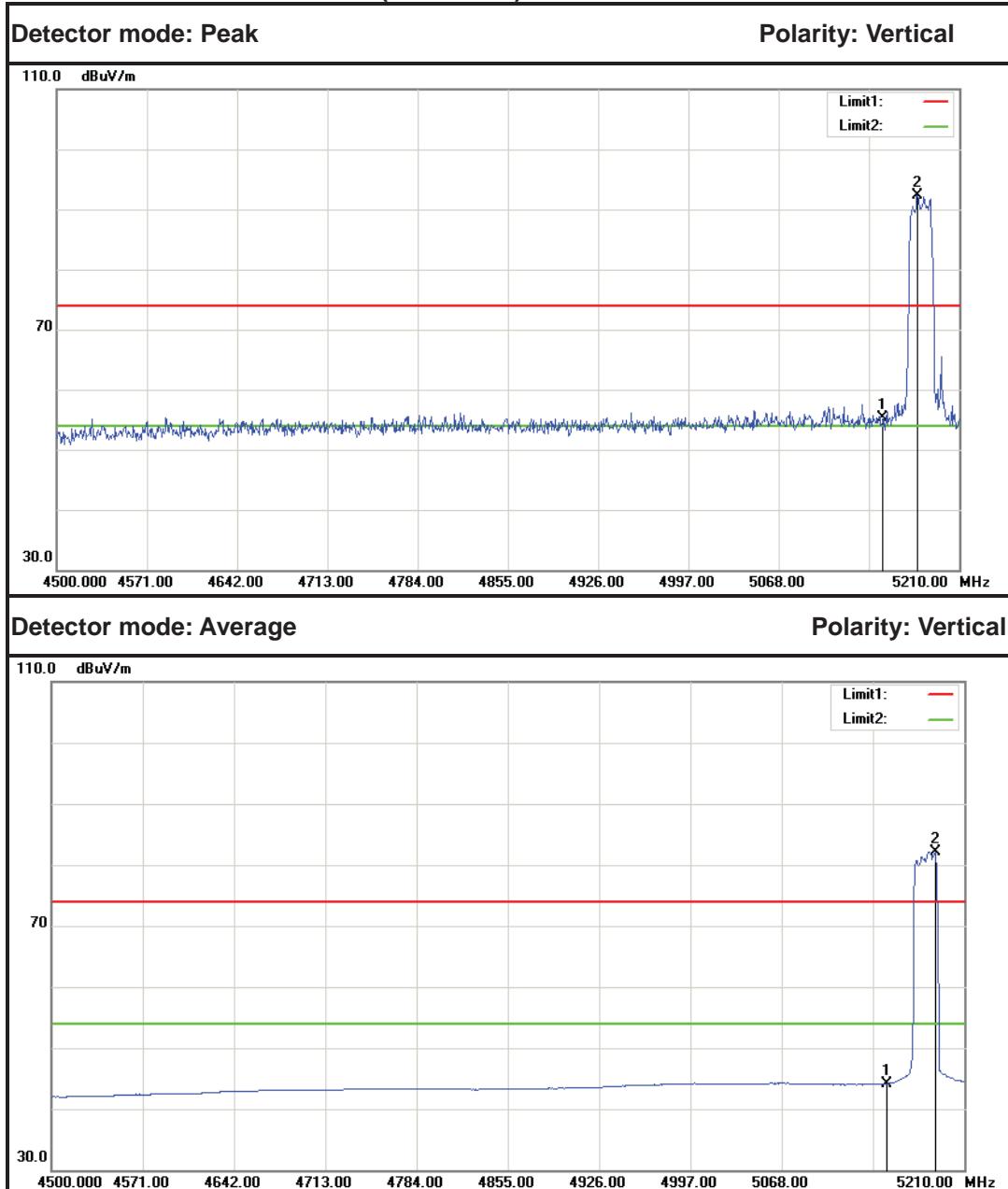
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5317.050	91.11	5.54	96.65	---	---	Peak	Vertical
2	5350.000	50.44	5.60	56.04	74.00	-17.96	Peak	Vertical
1	5317.650	81.35	5.55	86.90	---	---	Average	Vertical
2	5350.000	39.26	5.60	44.86	54.00	-9.14	Average	Vertical



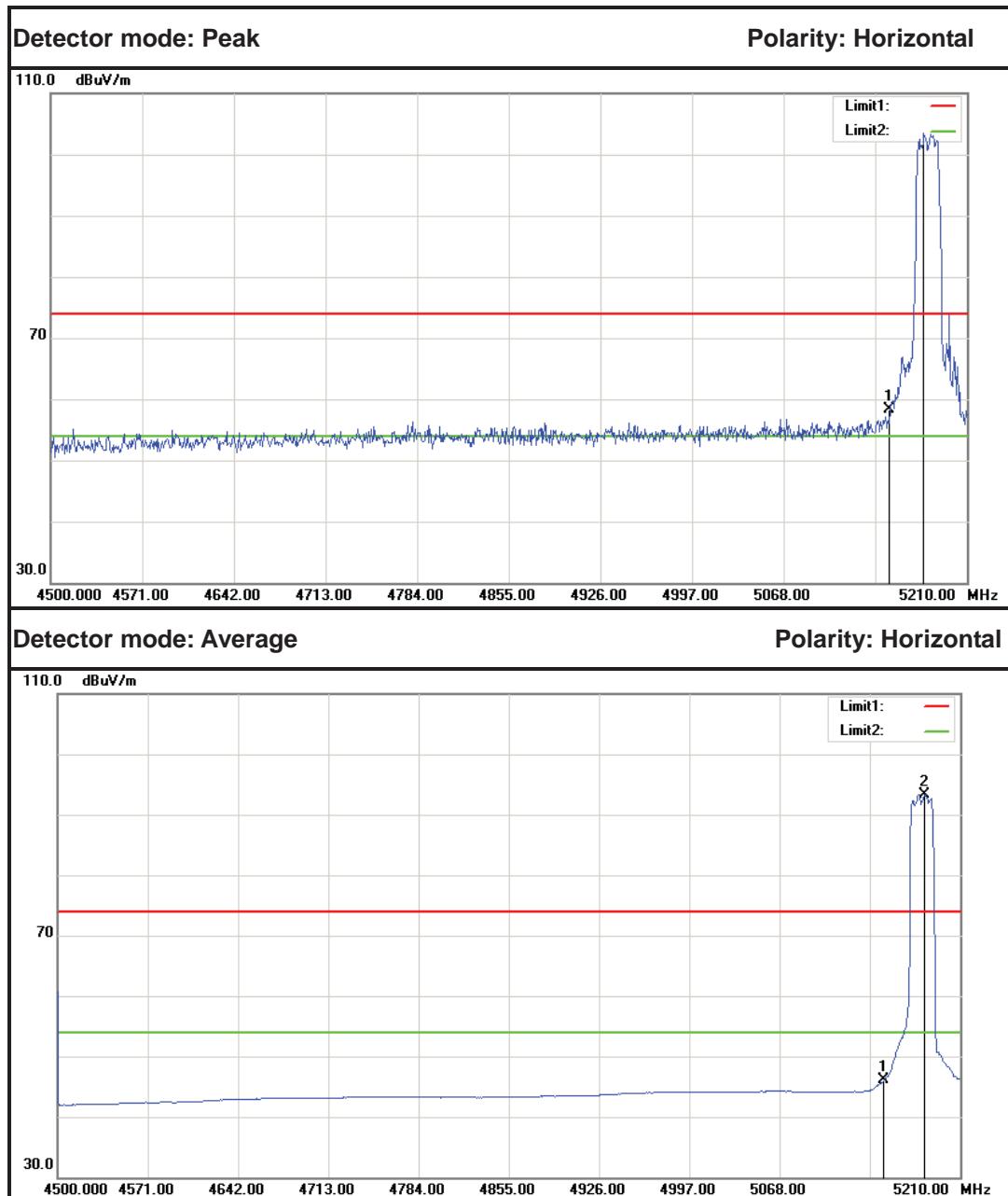
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5316.900	97.81	5.54	103.35	---	---	Peak	Horizontal
2	5350.000	51.80	5.60	57.40	74.00	-16.60	Peak	Horizontal
1	5317.350	87.46	5.54	93.00	---	---	Average	Horizontal
2	5350.000	39.92	5.60	45.52	54.00	-8.48	Average	Horizontal



IEEE 802.11a mode / 5180MHz (Antenna 1)



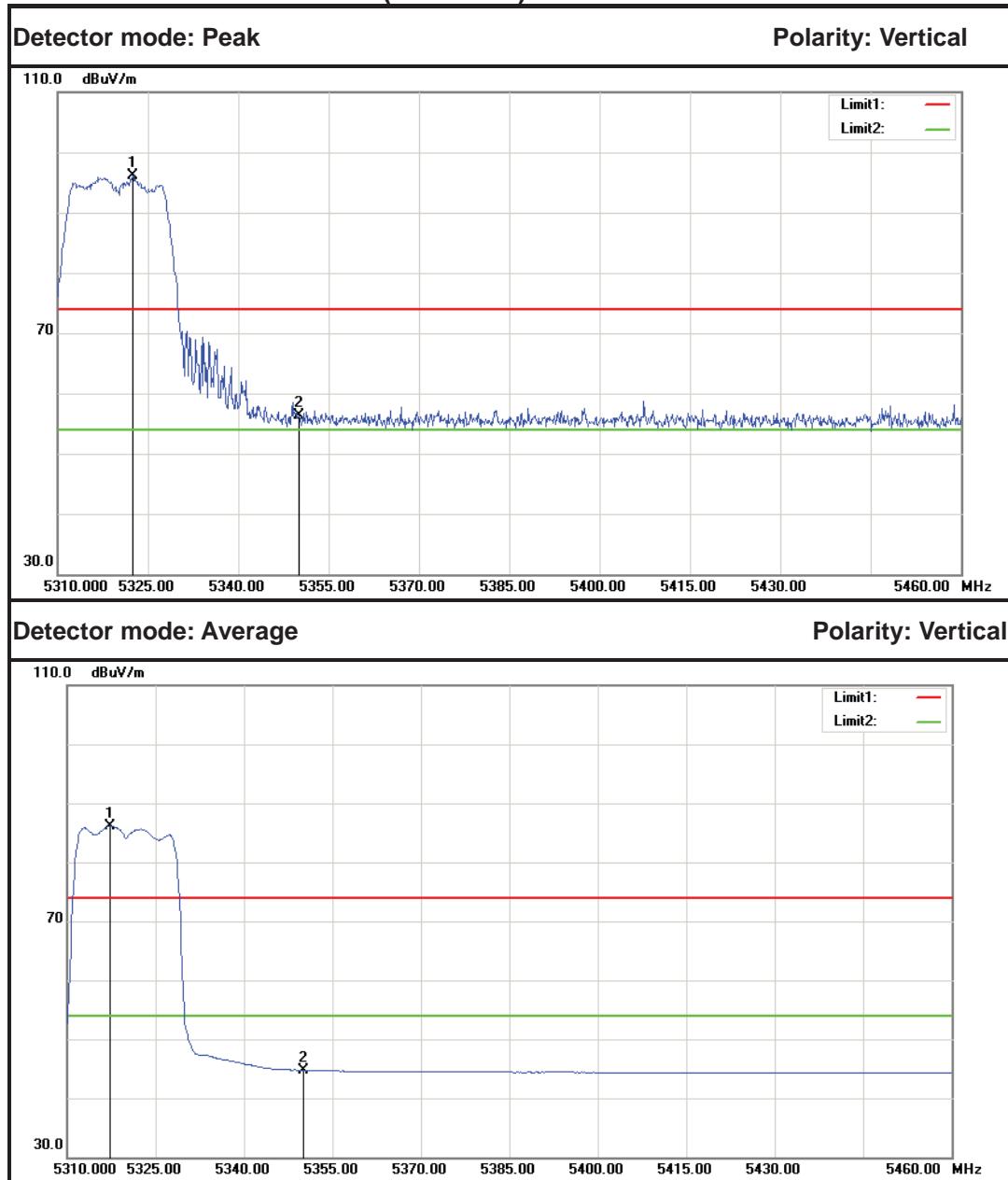
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5150.000	50.09	5.25	55.34	74.00	-18.66	Peak	Vertical
2	5177.340	86.95	5.30	92.25	---	---	Peak	Vertical
1	5150.000	38.93	5.25	44.18	54.00	-9.82	Average	Vertical
2	5187.280	76.78	5.31	82.09	---	---	Average	Vertical



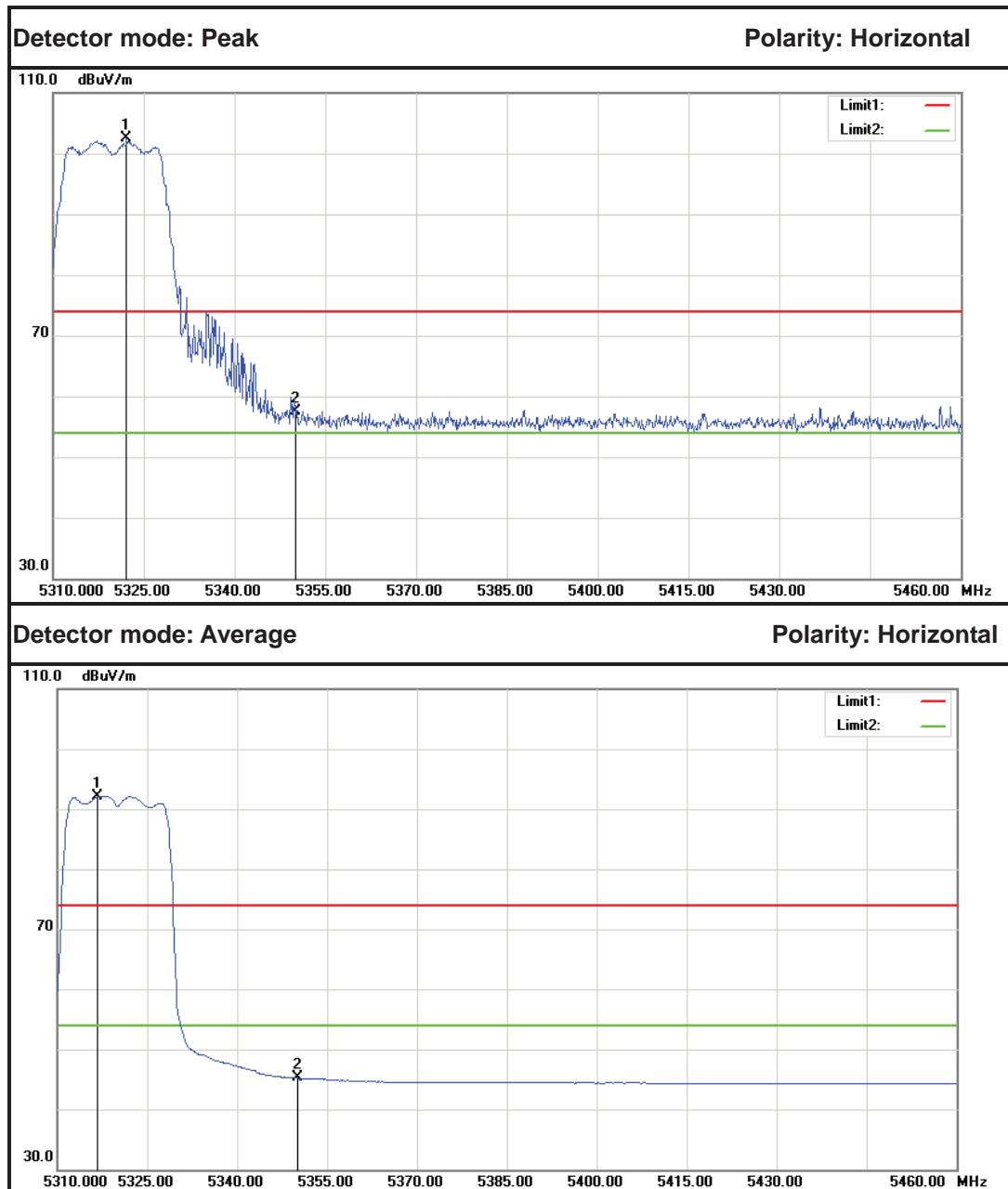
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5150.000	52.98	5.25	58.23	74.00	-15.77	Peak	Horizontal
2	5176.630	98.15	5.29	103.44	---	---	Peak	Horizontal
1	5150.000	40.77	5.25	46.02	54.00	-7.98	Average	Horizontal
2	5182.310	88.08	5.30	93.38	---	---	Average	Horizontal



IEEE 802.11a mode / 5320MHz (Antenna 1)



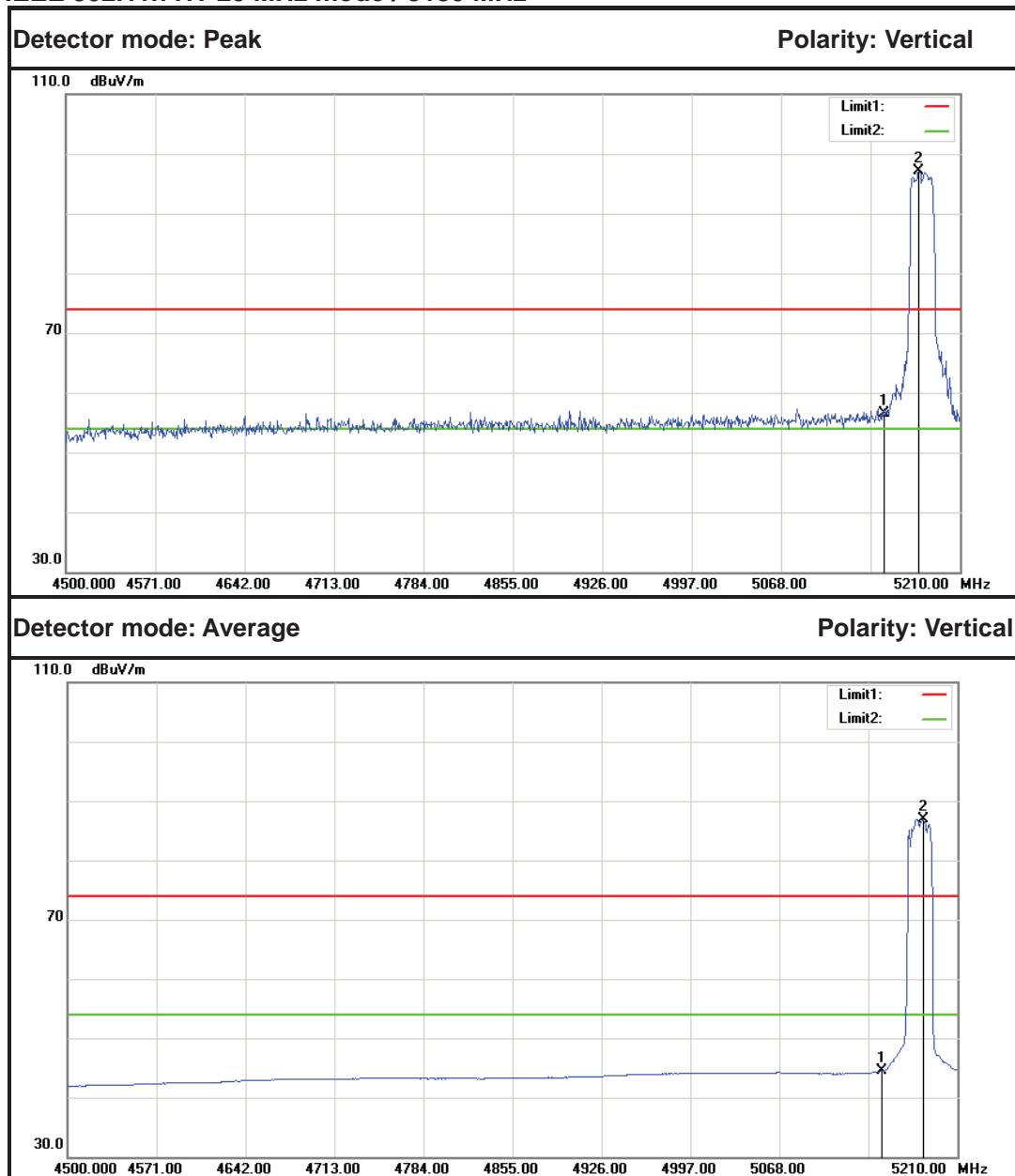
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5322.450	90.57	5.55	96.12	----	---	Peak	Vertical
2	5350.000	50.65	5.60	56.25	74.00	-17.75	Peak	Vertical
1	5317.350	80.62	5.54	86.16	----	---	Average	Vertical
2	5350.000	39.14	5.60	44.74	54.00	-9.26	Average	Vertical



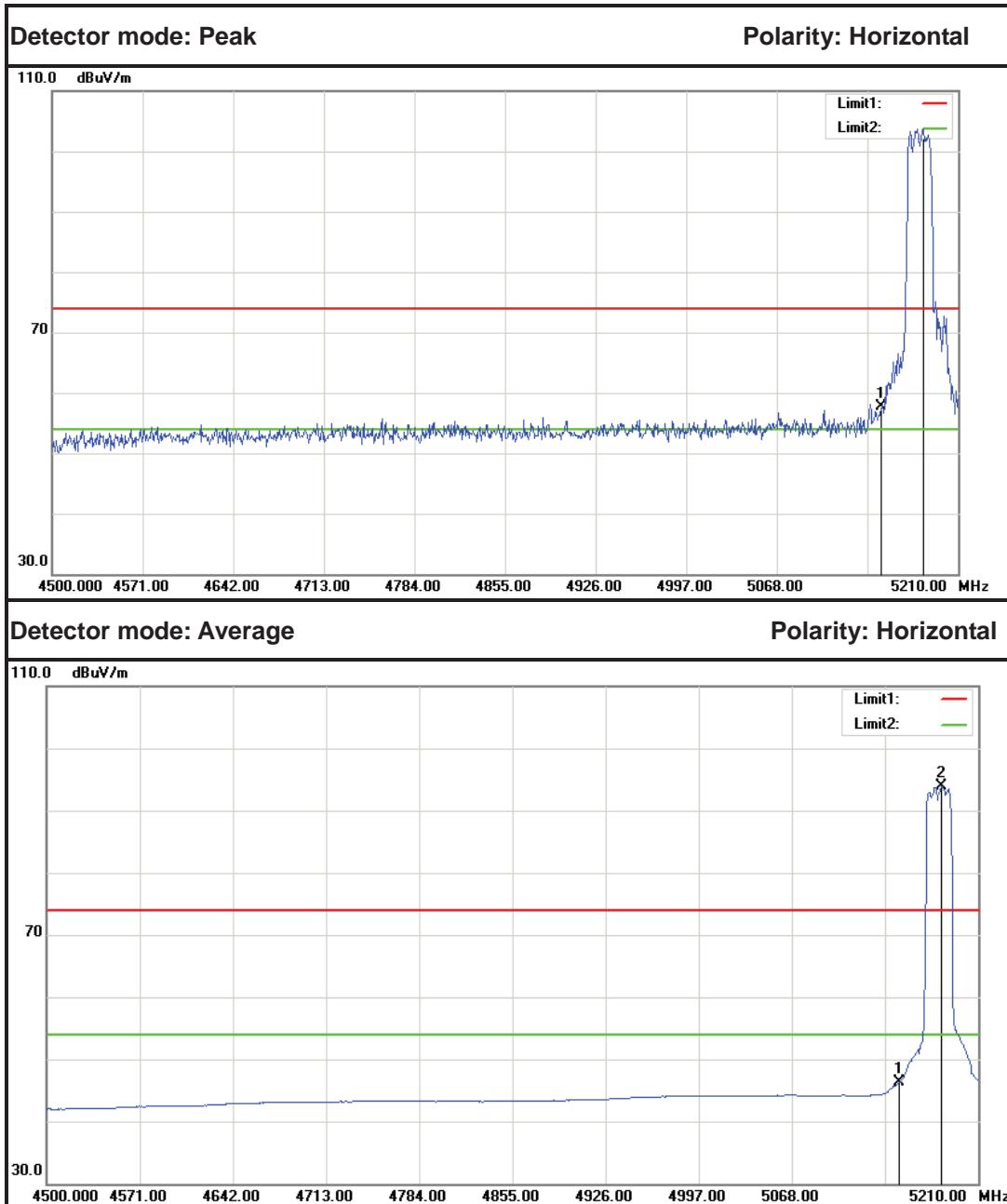
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5322.150	97.01	5.55	102.56	---	---	Peak	Horizontal
2	5350.000	51.88	5.60	57.48	74.00	-16.52	Peak	Horizontal
1	5316.750	86.64	5.54	92.18	---	---	Average	Horizontal
2	5350.000	39.62	5.60	45.22	54.00	-8.78	Average	Horizontal



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



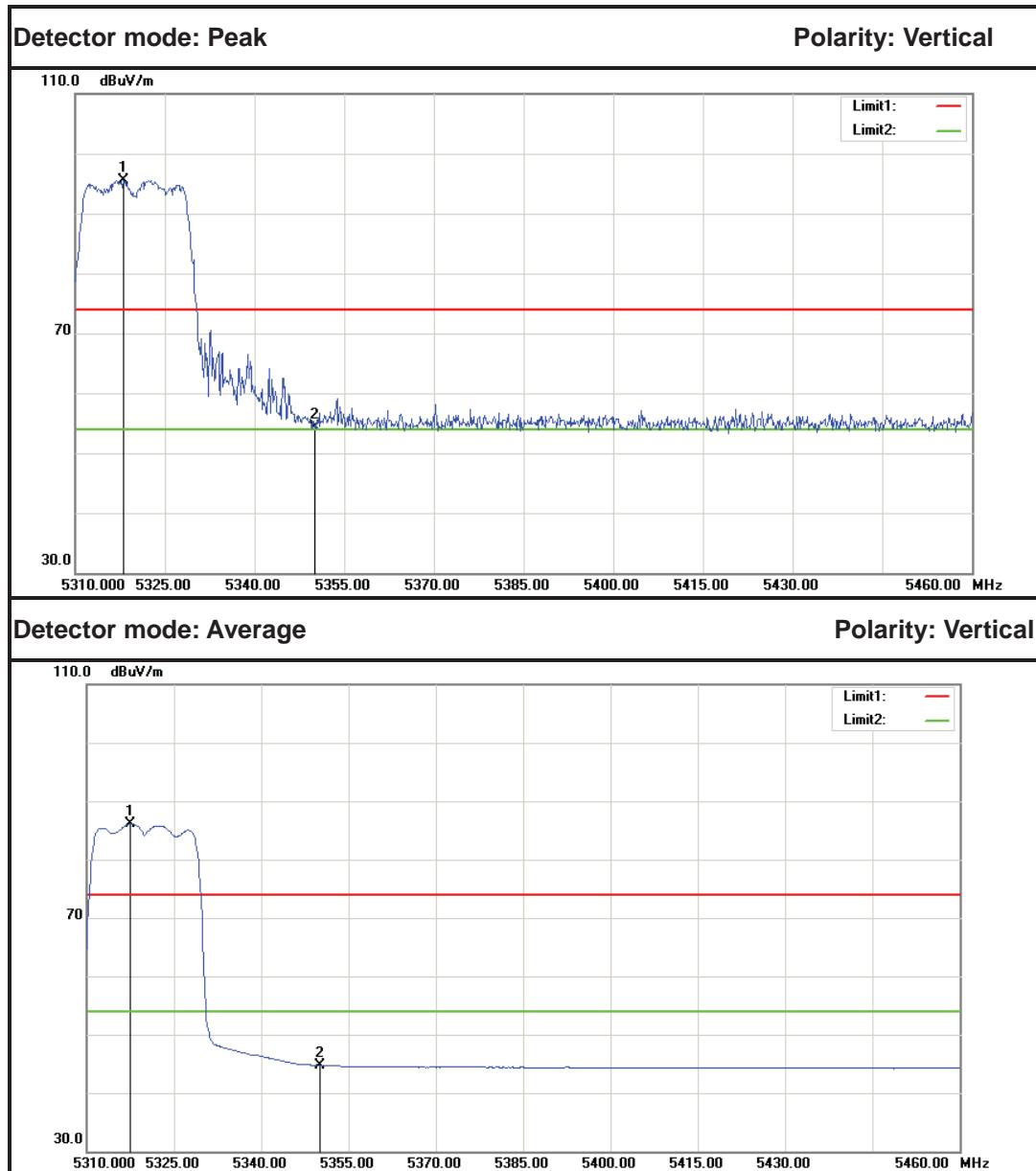
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5150.000	51.16	5.25	56.41	74.00	-17.59	Peak	Vertical
2	5177.340	91.77	5.30	97.07	—	---	Peak	Vertical
1	5150.000	39.27	5.25	44.52	54.00	-9.48	Average	Vertical
2	5183.020	81.54	5.31	86.85	—	---	Average	Vertical



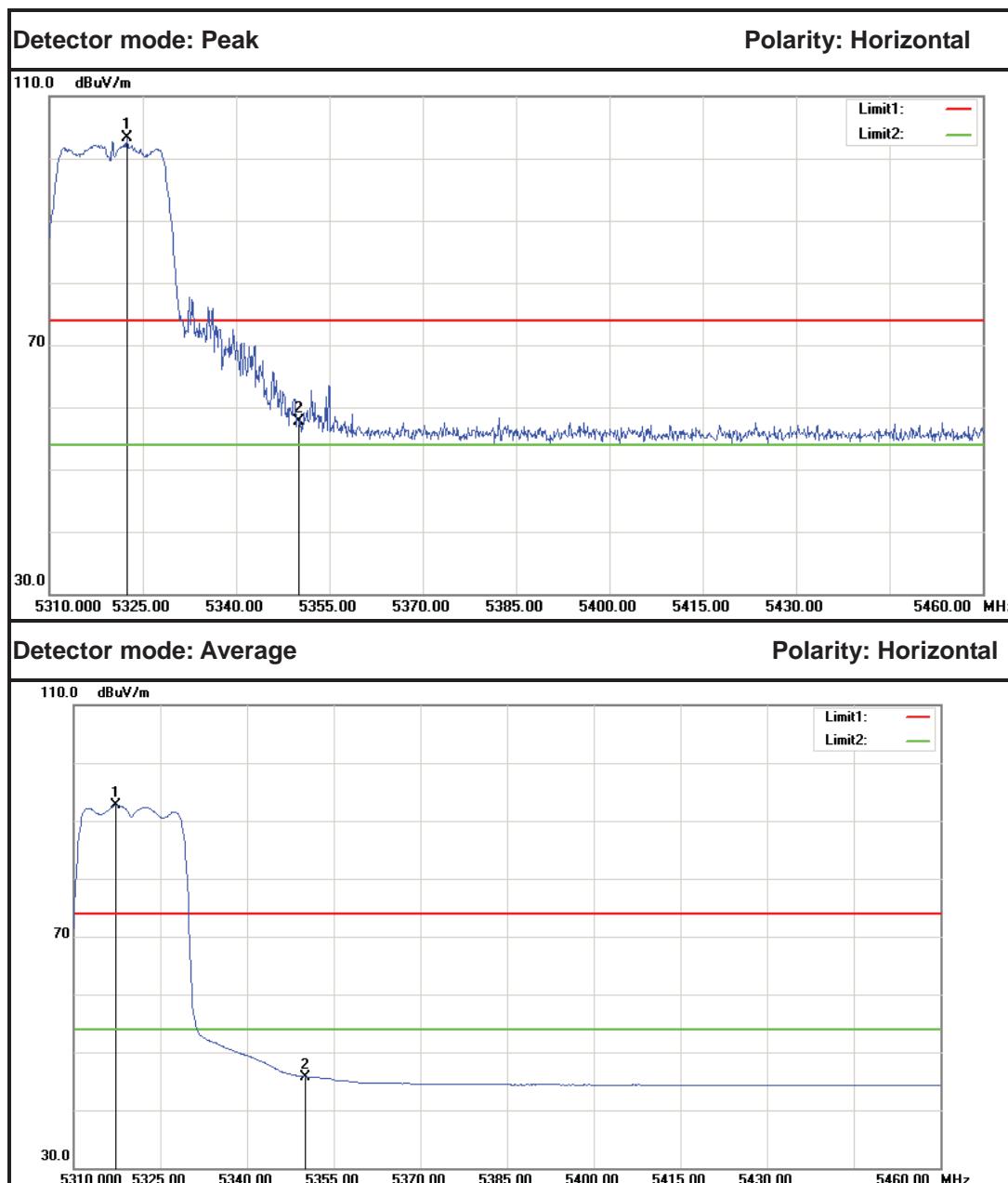
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5150.000	52.42	5.25	57.67	74.00	-16.33	Peak	Horizontal
2	5183.020	98.47	5.31	103.78	---	---	Peak	Horizontal
1	5150.000	41.05	5.25	46.30	54.00	-7.70	Average	Horizontal
2	5182.310	88.61	5.30	93.91	---	---	Average	Horizontal



IEEE 802.11n HT 20 MHz mode / 5320 MHz



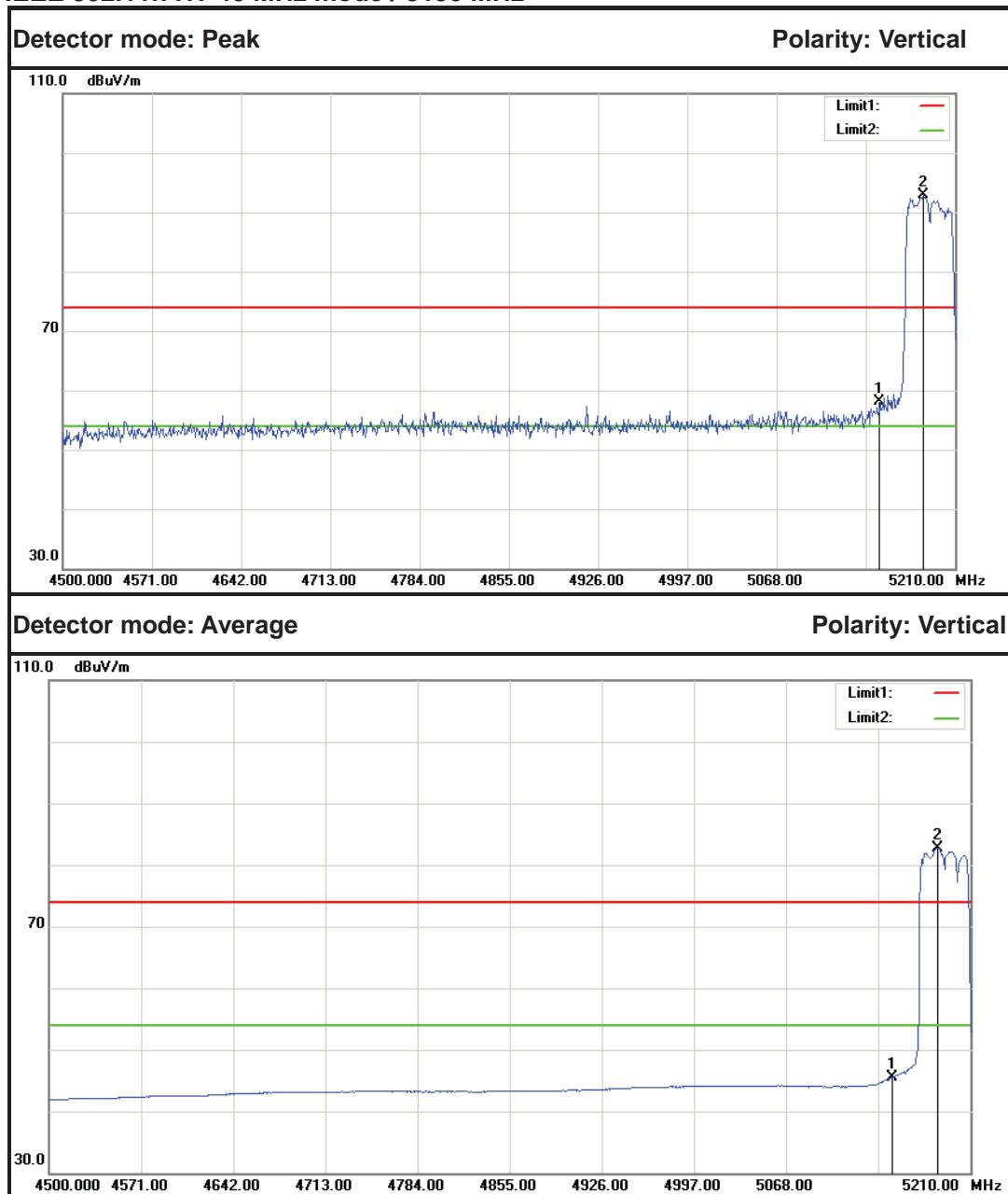
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5318.100	90.01	5.55	95.56	----	---	Peak	Vertical
2	5350.000	48.79	5.60	54.39	74.00	-19.61	Peak	Vertical
1	5317.500	80.53	5.55	86.08	----	---	Average	Vertical
2	5350.000	39.13	5.60	44.73	54.00	-9.27	Average	Vertical



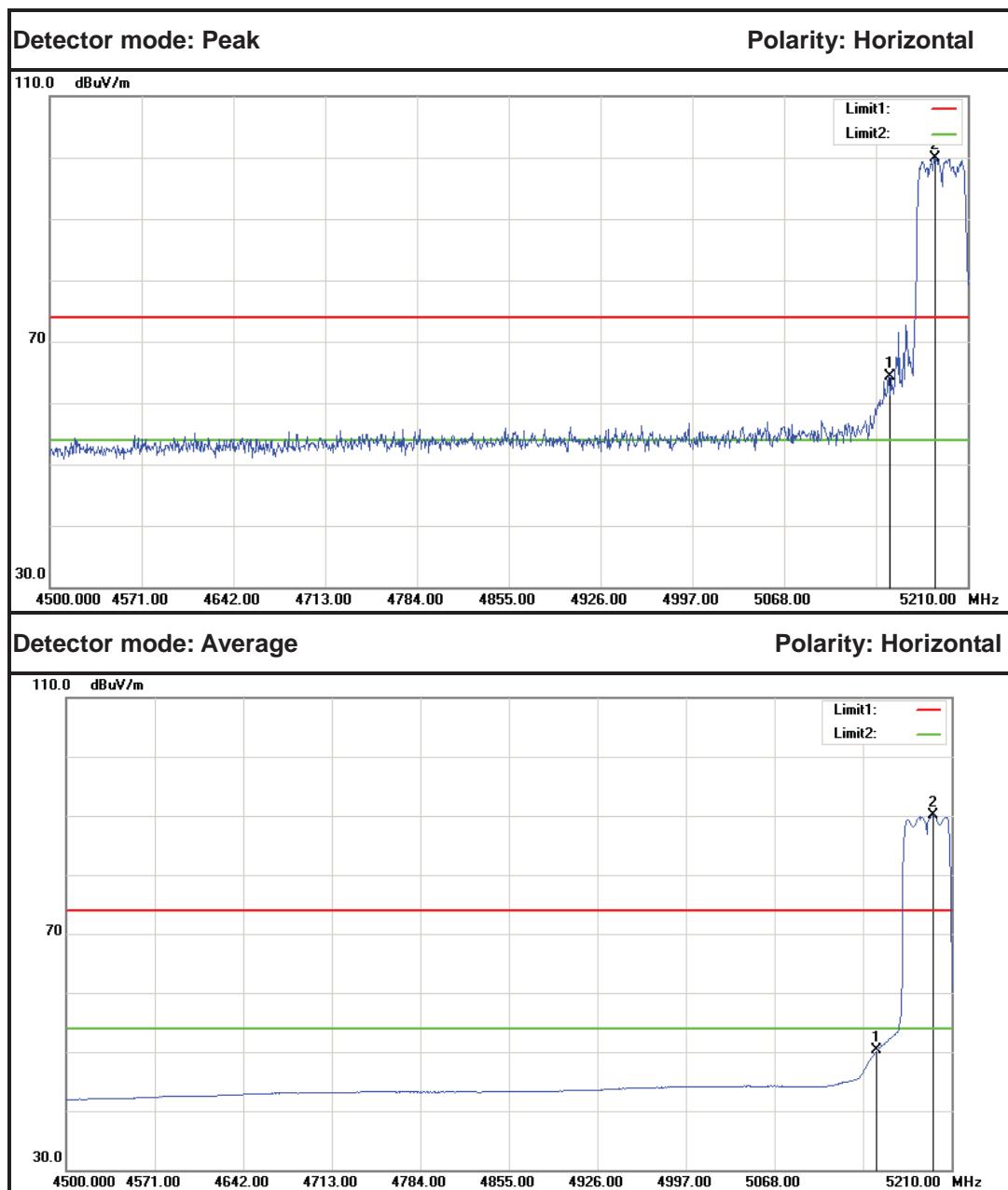
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5322.450	97.78	5.55	103.33	---	---	Peak	Horizontal
2	5350.000	52.02	5.60	57.62	74.00	-16.38	Peak	Horizontal
1	5317.200	87.12	5.54	92.66	---	---	Average	Horizontal
2	5350.000	40.20	5.60	45.80	54.00	-8.20	Average	Horizontal



IEEE 802.11n HT 40 MHz mode / 5190 MHz



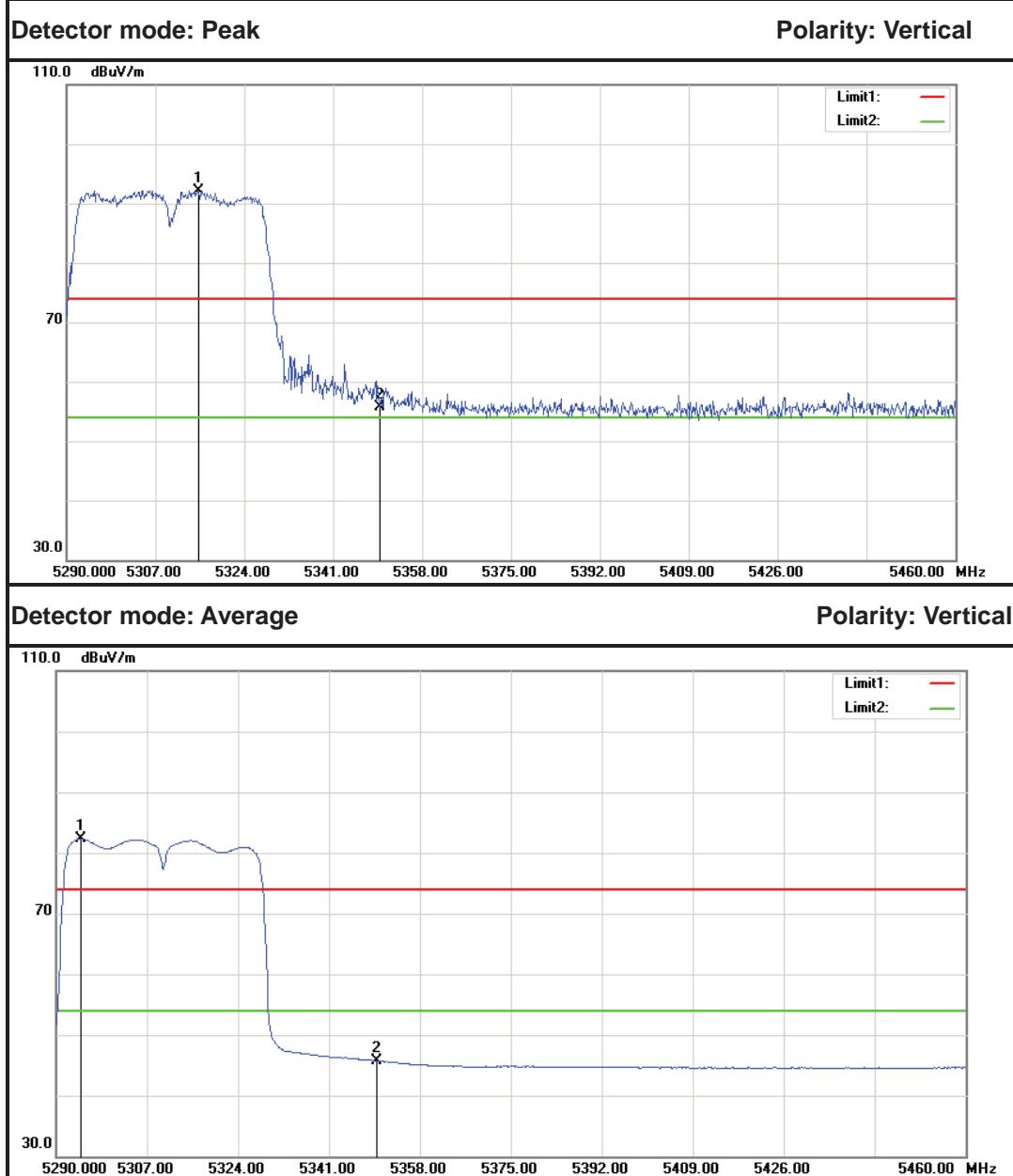
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5150.000	52.91	5.25	58.16	74.00	-15.84	Peak	Vertical
2	5184.440	87.57	5.31	92.88	---	---	Peak	Vertical
1	5150.000	40.35	5.25	45.60	54.00	-8.40	Average	Vertical
2	5185.150	77.40	5.31	82.71	---	---	Average	Vertical



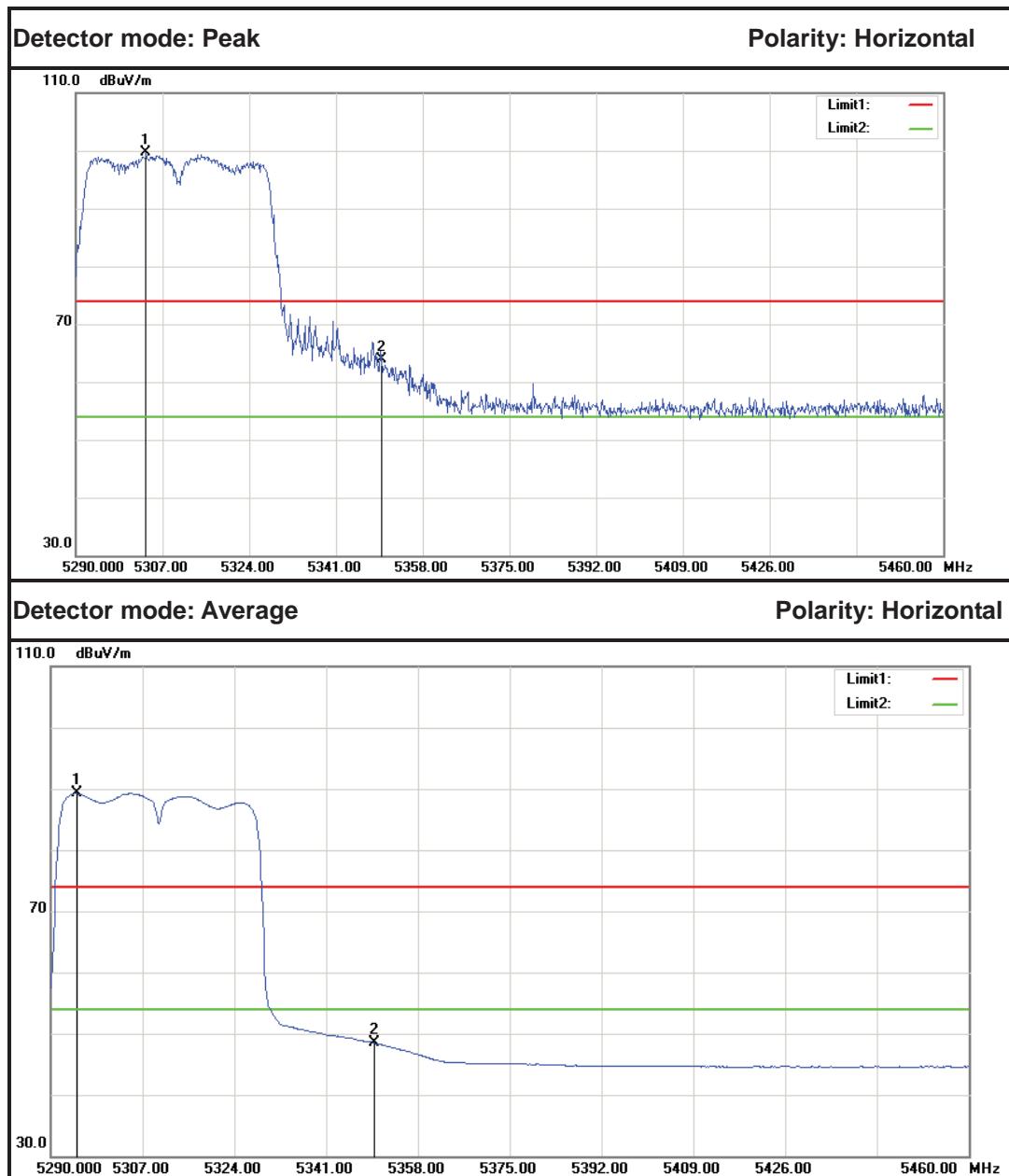
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5150.000	59.05	5.25	64.30	74.00	-9.70	Peak	Horizontal
2	5185.150	94.65	5.31	99.96	---	---	Peak	Horizontal
1	5150.000	44.99	5.25	50.24	74.00	-23.76	Average	Horizontal
2	5195.090	84.74	5.33	90.07	---	---	Average	Horizontal



IEEE 802.11n HT 40 MHz mode / 5310 MHz



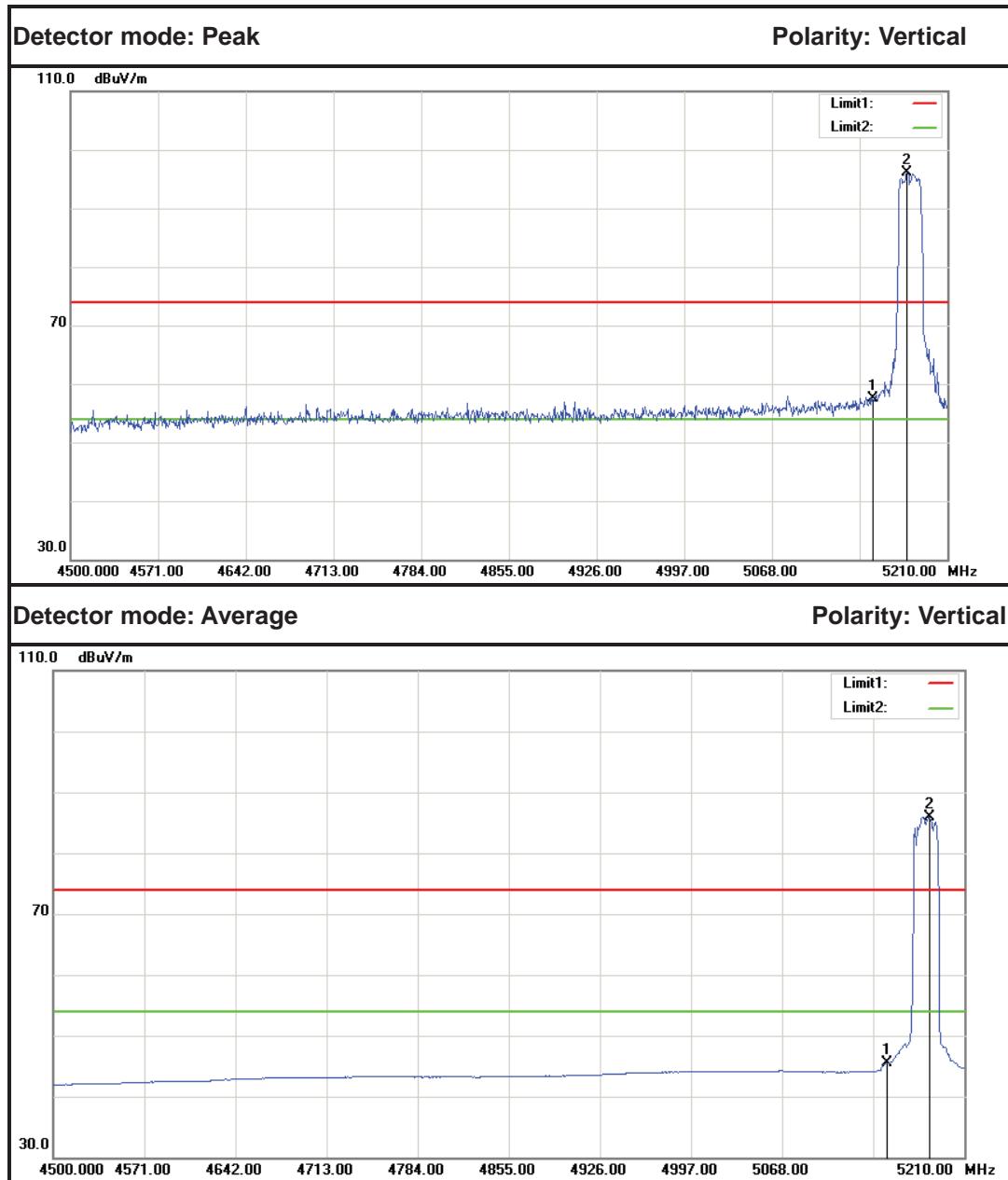
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5315.160	86.66	5.54	92.20	---	---	Peak	Vertical
2	5350.000	50.10	5.60	55.70	74.00	-18.30	Peak	Vertical
1	5294.590	76.82	5.50	82.32	---	---	Average	Vertical
2	5350.000	40.11	5.60	45.71	54.00	-8.29	Average	Vertical



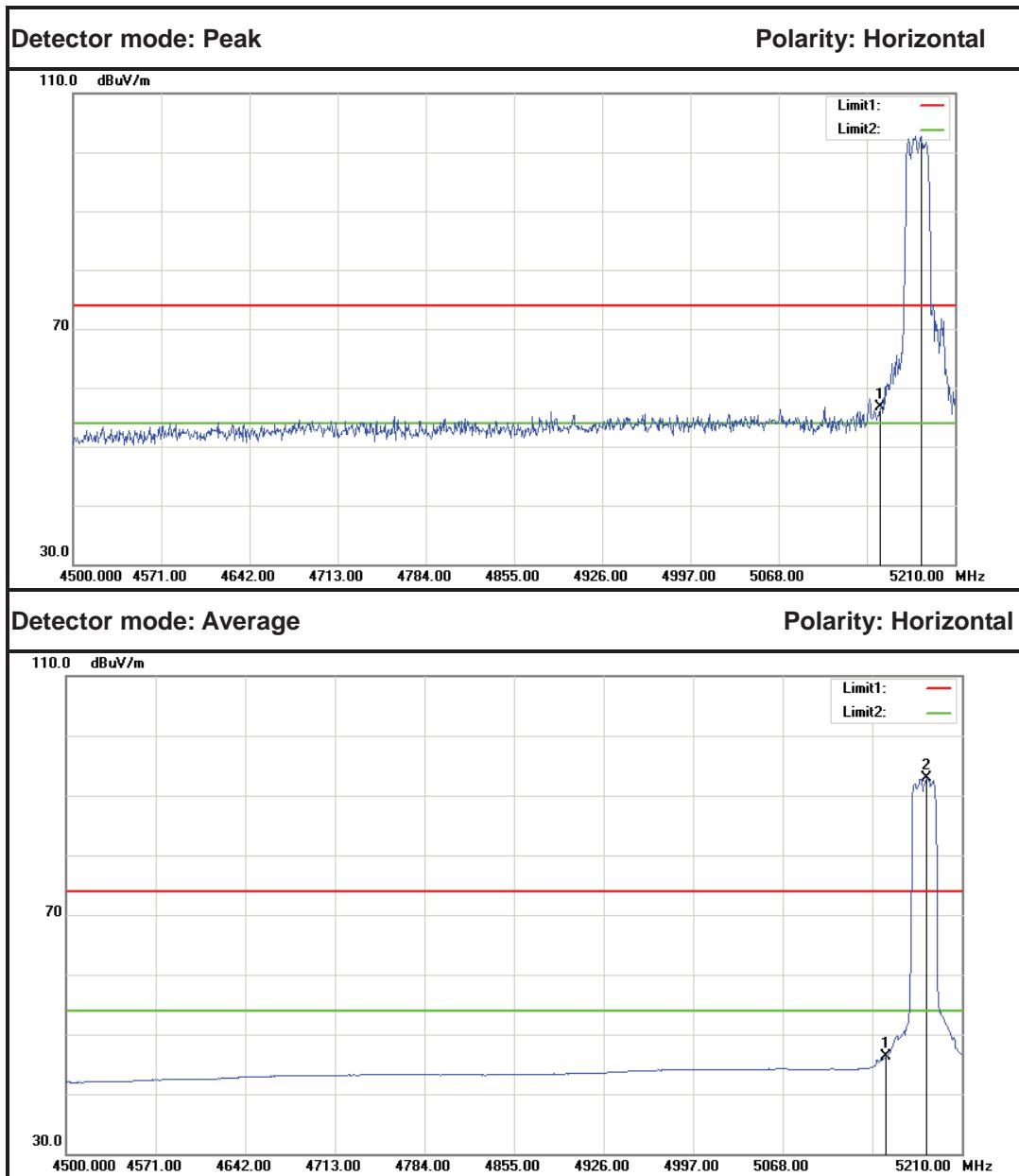
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5303.770	94.09	5.52	99.61	---	---	Peak	Horizontal
2	5350.000	58.22	5.60	63.82	74.00	-10.18	Peak	Horizontal
1	5294.760	83.73	5.50	89.23	---	---	Average	Horizontal
2	5350.000	42.83	5.60	48.43	54.00	-5.57	Average	Horizontal



IEEE 802.11ac 20 mode / 5180 MHz



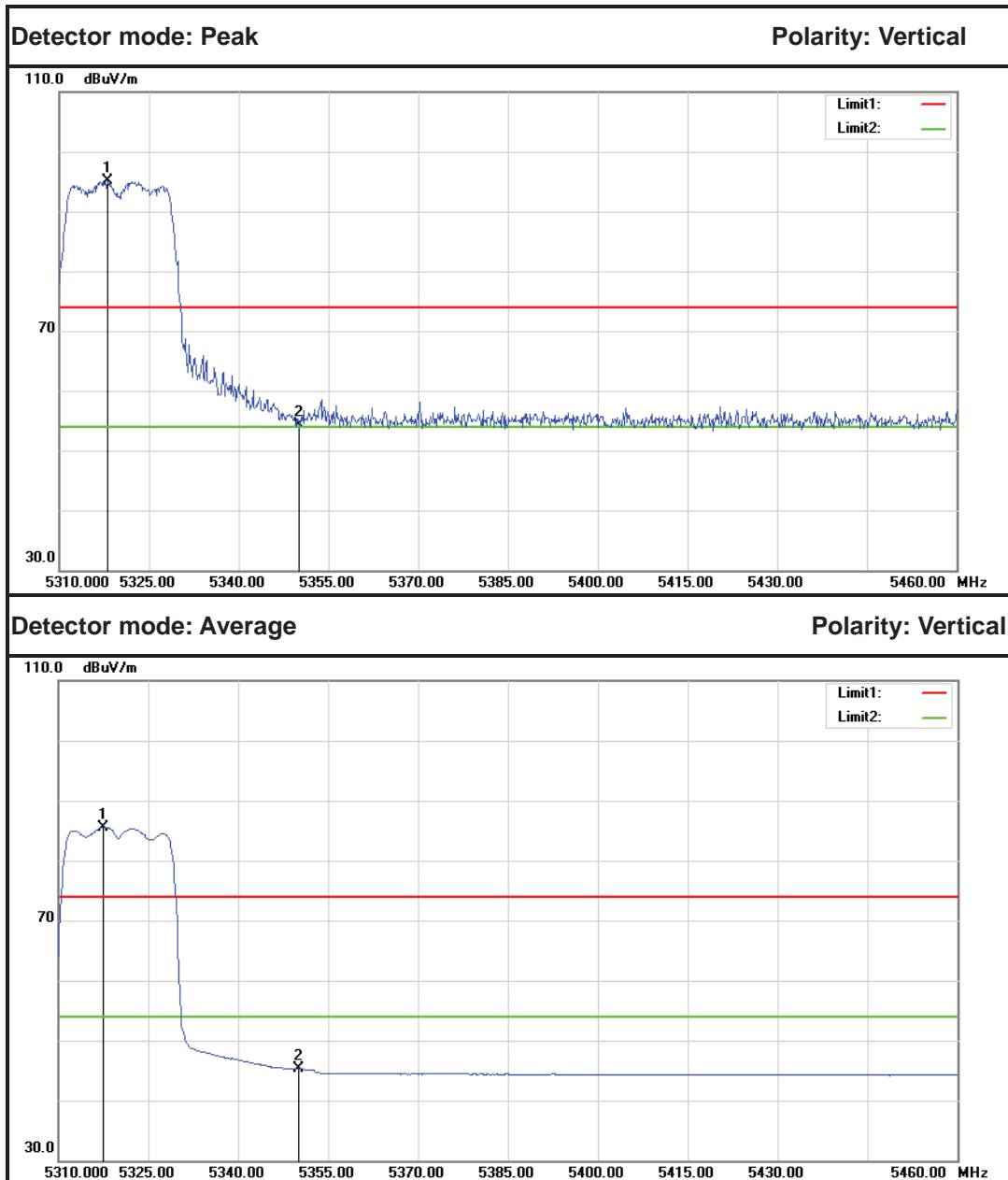
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5150.000	52.16	5.25	57.41	74.00	-16.59	Peak	Vertical
2	5177.340	90.77	5.30	96.07	---	---	Peak	Vertical
1	5150.000	40.27	5.25	45.52	54.00	-8.48	Average	Vertical
2	5183.020	80.54	5.31	85.85	---	---	Average	Vertical



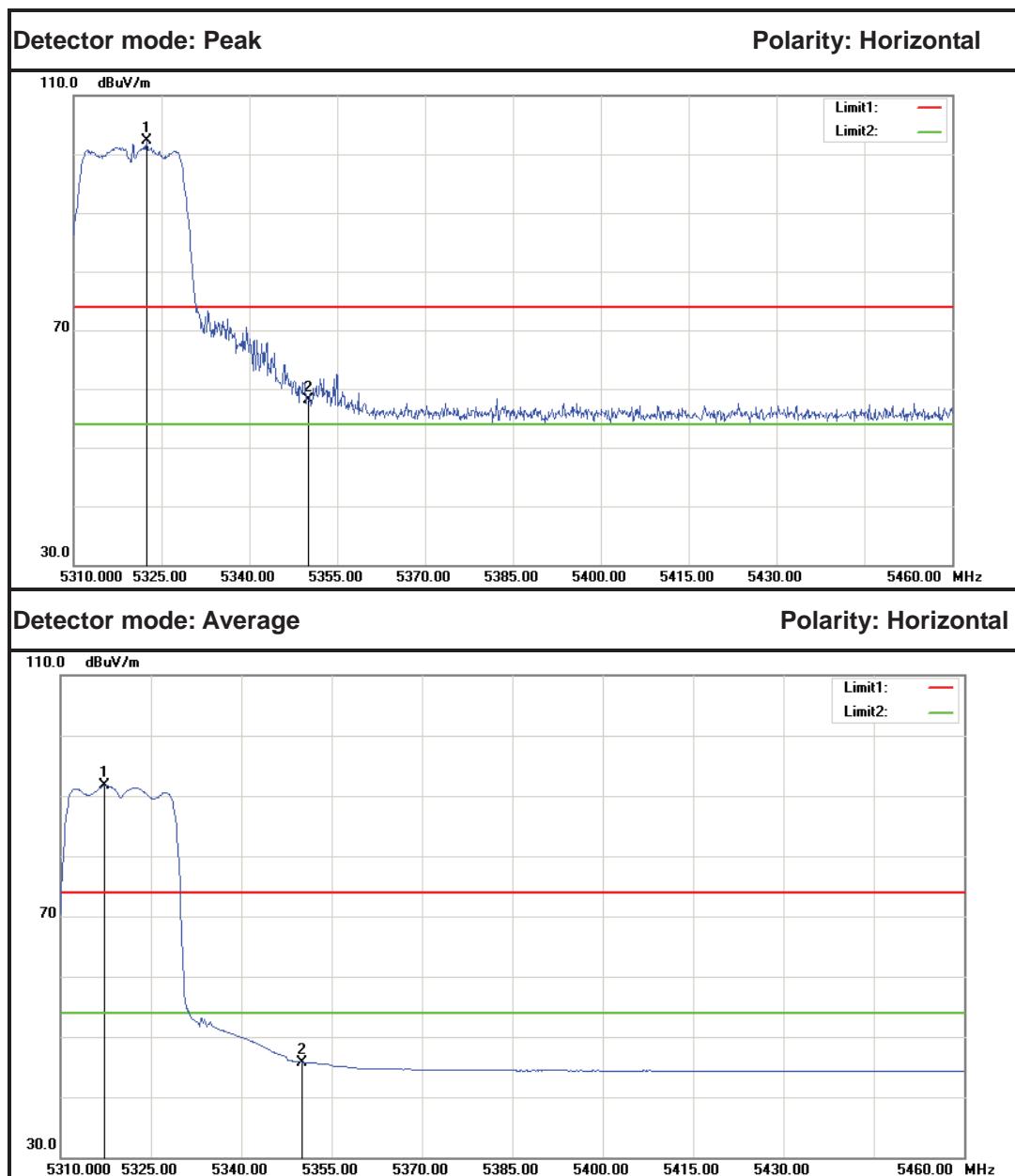
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5150.000	51.42	5.25	56.67	74.00	-17.33	Peak	Horizontal
2	5183.020	97.47	5.31	102.78	---	---	Peak	Horizontal
1	5150.000	41.05	5.25	46.30	54.00	-7.70	Average	Horizontal
2	5182.310	87.61	5.30	92.91	---	---	Average	Horizontal



IEEE 802.11ac 20 mode / 5320 MHz



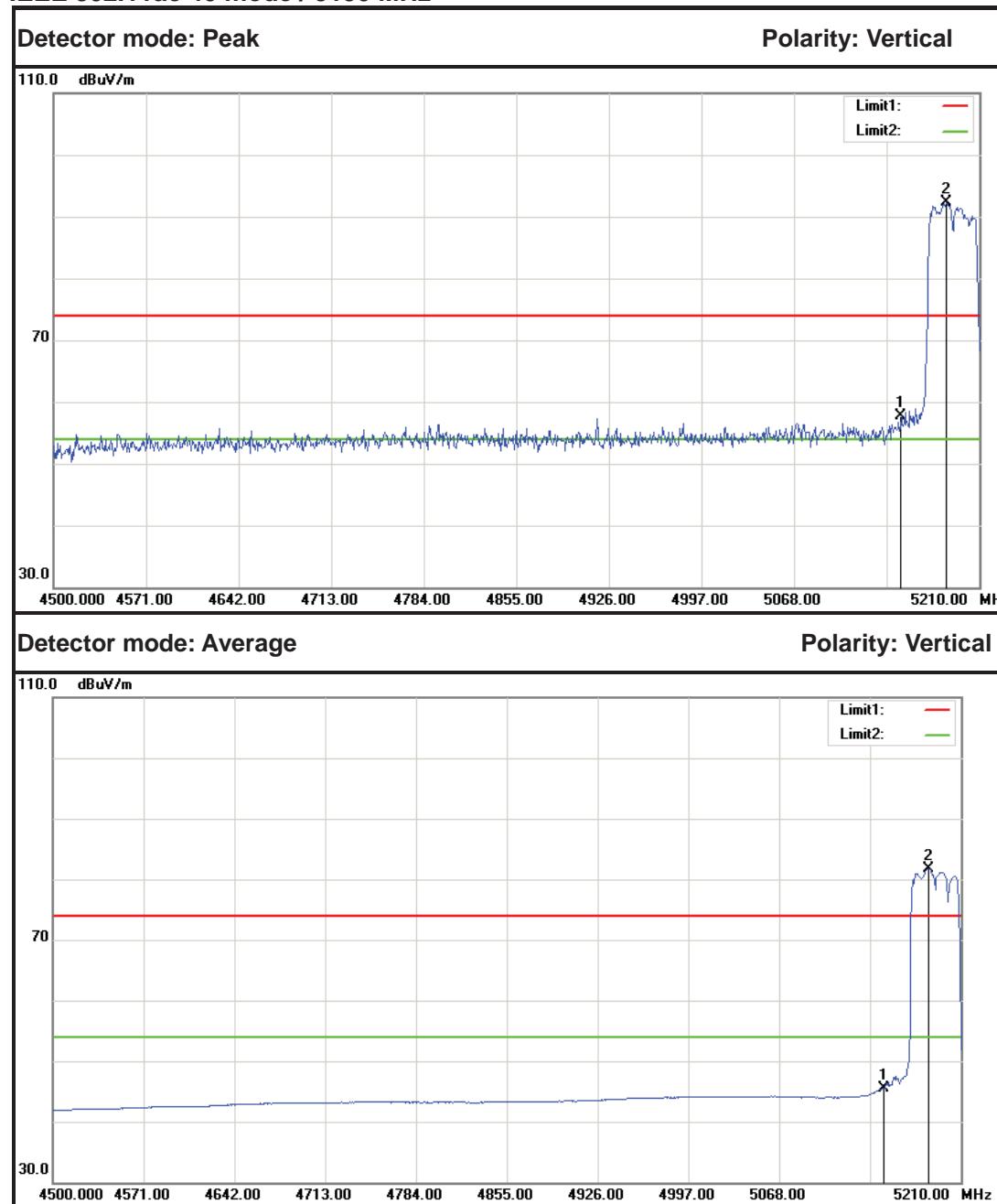
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5318.100	89.51	5.55	95.06	----	---	Peak	Vertical
2	5350.000	48.79	5.60	54.39	74.00	-19.61	Peak	Vertical
1	5317.500	80.03	5.55	85.58	----	---	Average	Vertical
2	5350.000	39.63	5.60	45.23	54.00	-8.77	Average	Vertical



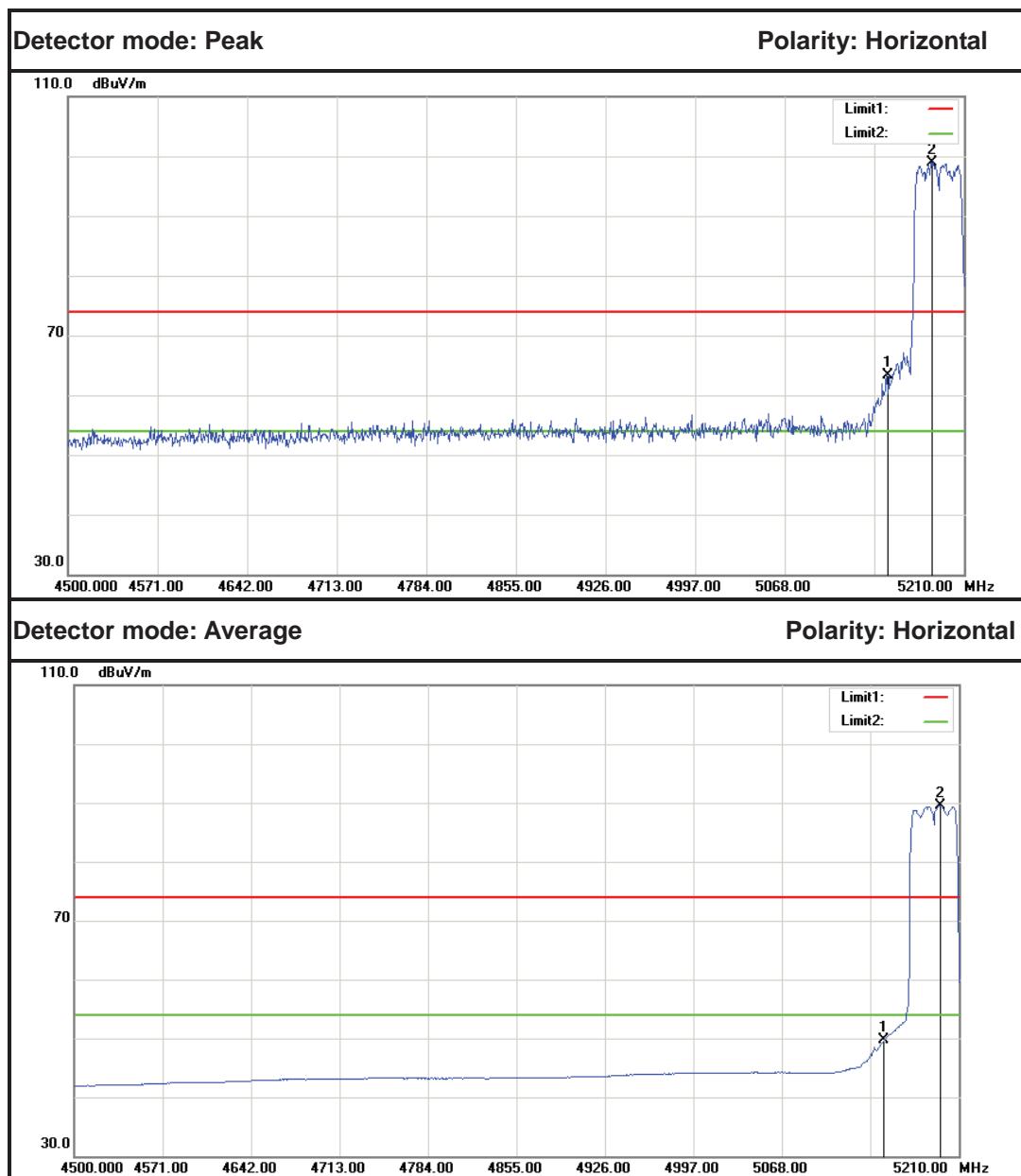
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5322.450	96.78	5.55	102.33	---	---	Peak	Horizontal
2	5350.000	52.52	5.60	58.12	74.00	-15.88	Peak	Horizontal
1	5317.200	86.12	5.54	91.66	---	---	Average	Horizontal
2	5350.000	40.20	5.60	45.80	54.00	-8.20	Average	Horizontal



IEEE 802.11ac 40 mode / 5190 MHz



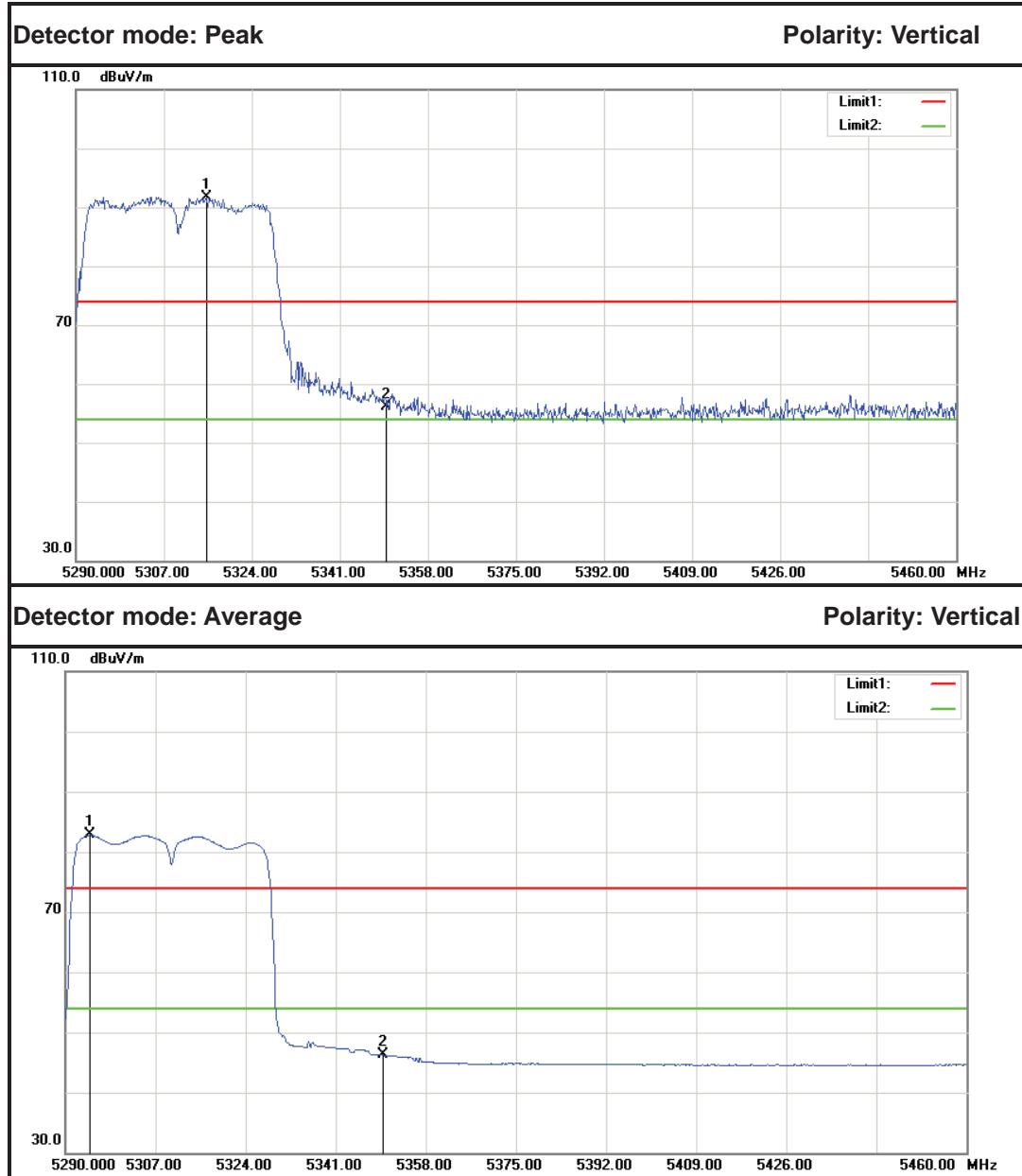
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5150.000	52.41	5.25	57.66	74.00	-16.34	Peak	Vertical
2	5184.440	87.07	5.31	92.38	---	---	Peak	Vertical
1	5150.000	40.35	5.25	45.60	54.00	-8.40	Average	Vertical
2	5185.150	76.40	5.31	81.71	---	---	Average	Vertical



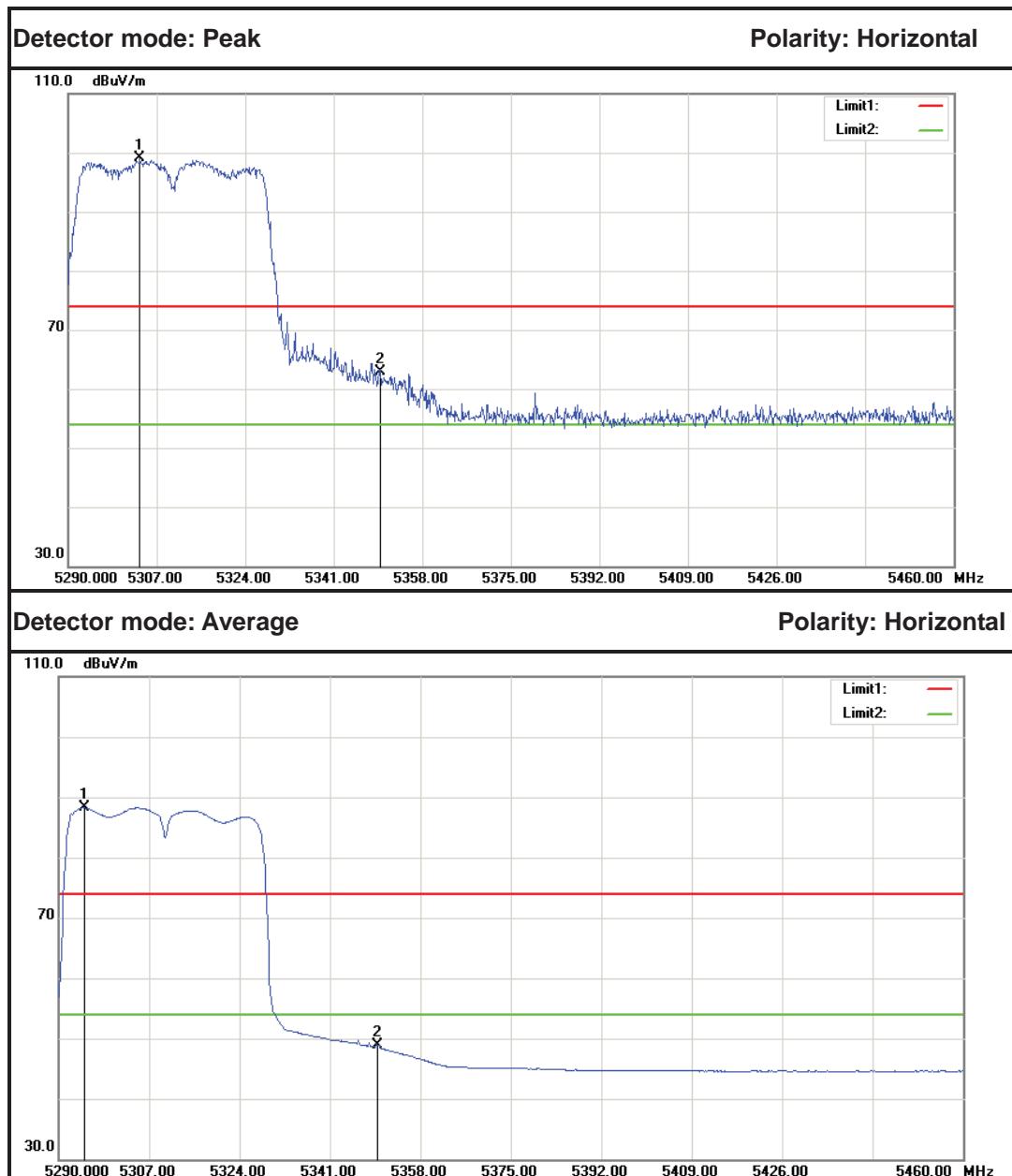
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5150.000	58.05	5.25	63.30	74.00	-10.70	Peak	Horizontal
2	5185.150	93.65	5.31	98.96	---	---	Peak	Horizontal
1	5150.000	44.49	5.25	49.74	54.00	-4.26	Average	Horizontal
2	5195.090	84.24	5.33	89.57	---	---	Average	Horizontal



IEEE 802.11ac 40 mode / 5310 MHz



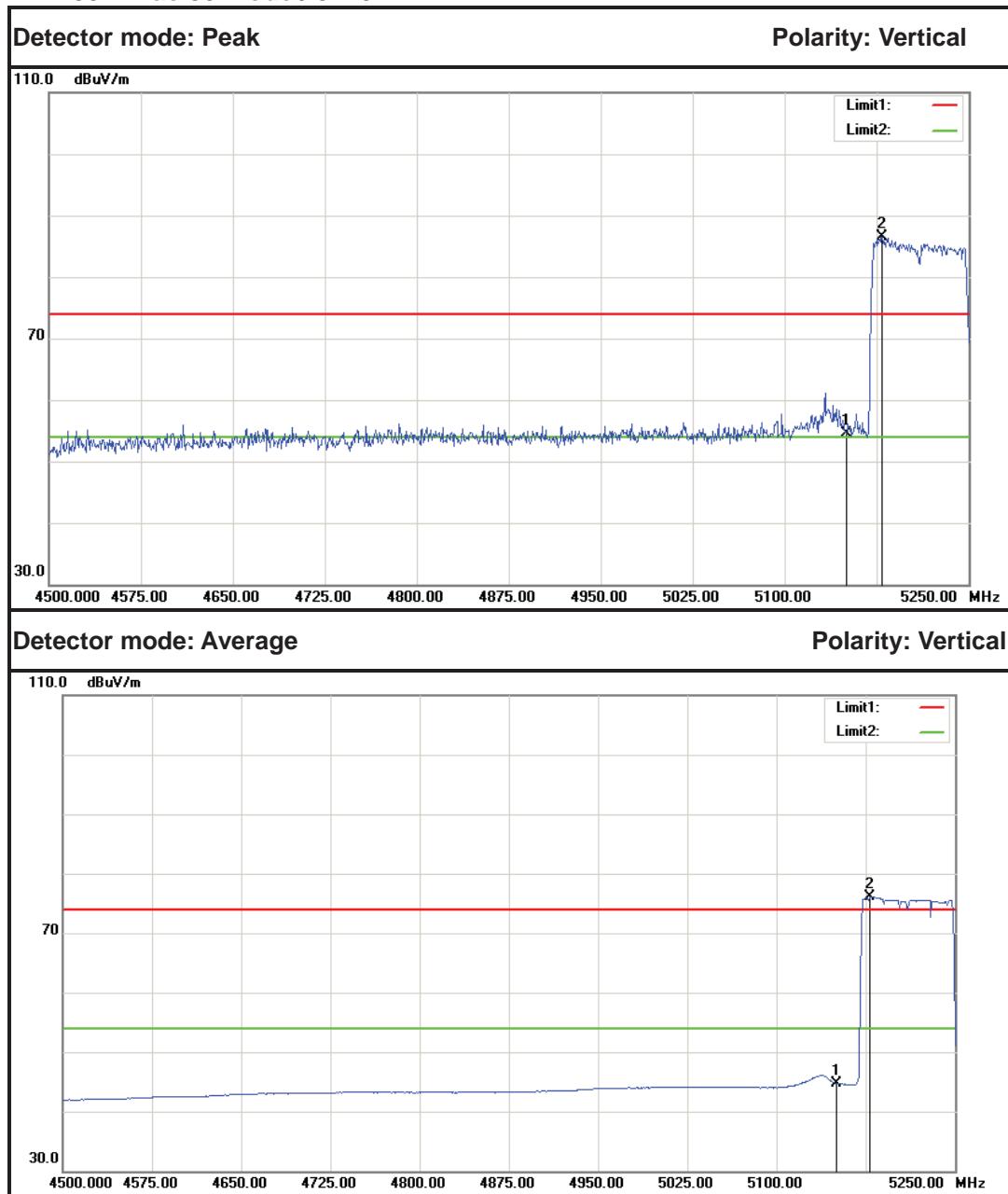
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5315.160	86.16	5.54	91.70	---	---	Peak	Vertical
2	5350.000	50.60	5.60	56.20	74.00	-17.80	Peak	Vertical
1	5294.590	77.32	5.50	82.82	---	---	Average	Vertical
2	5350.000	40.61	5.60	46.21	54.00	-7.79	Average	Vertical



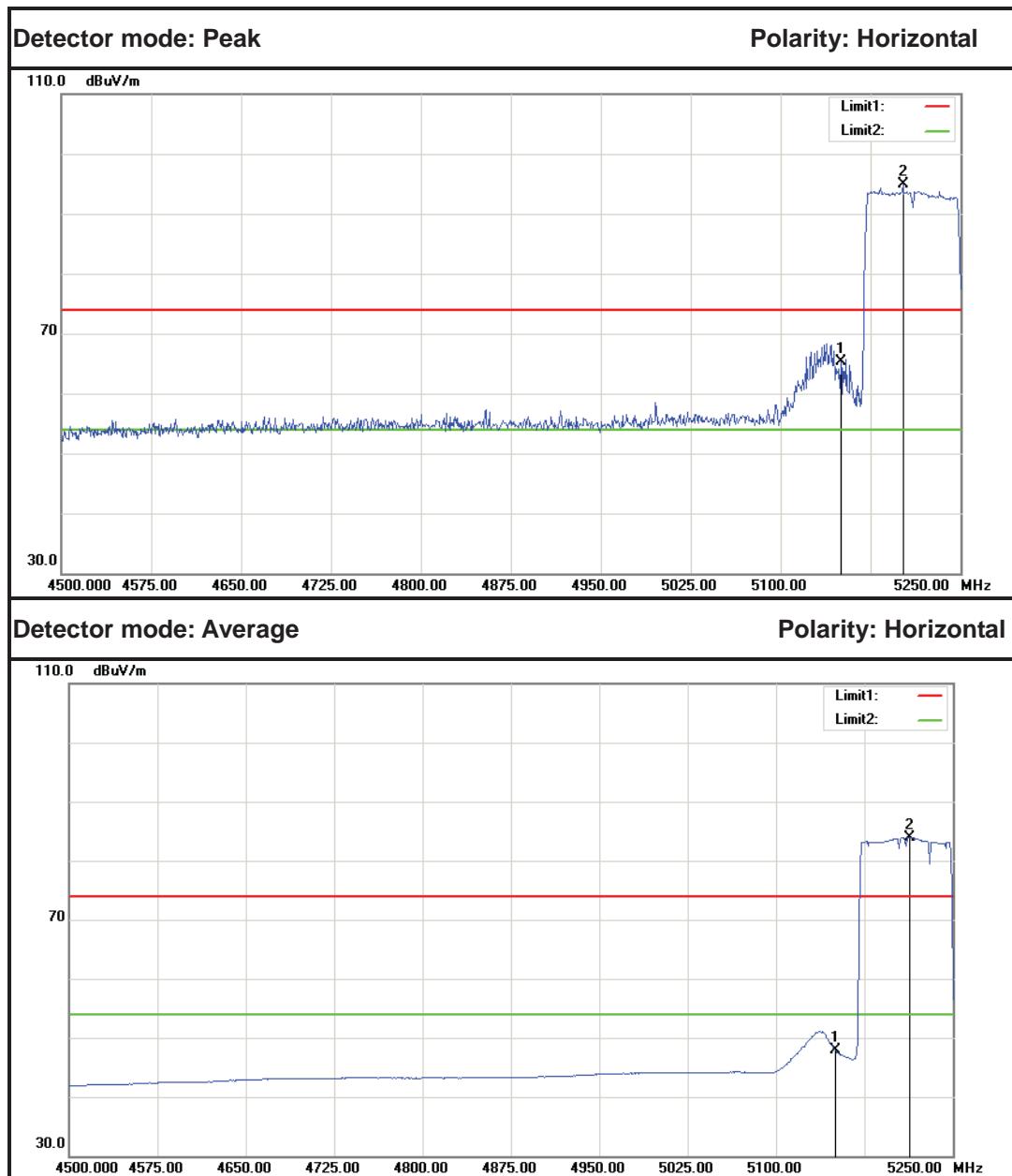
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5303.770	93.59	5.52	99.11	---	---	Peak	Horizontal
2	5350.000	57.22	5.60	62.82	74.00	-11.18	Peak	Horizontal
1	5294.760	82.73	5.50	88.23	---	---	Average	Horizontal
2	5350.000	43.33	5.60	48.93	54.00	-5.07	Average	Horizontal



IEEE 802.11ac 80 mode / 5210 MHz



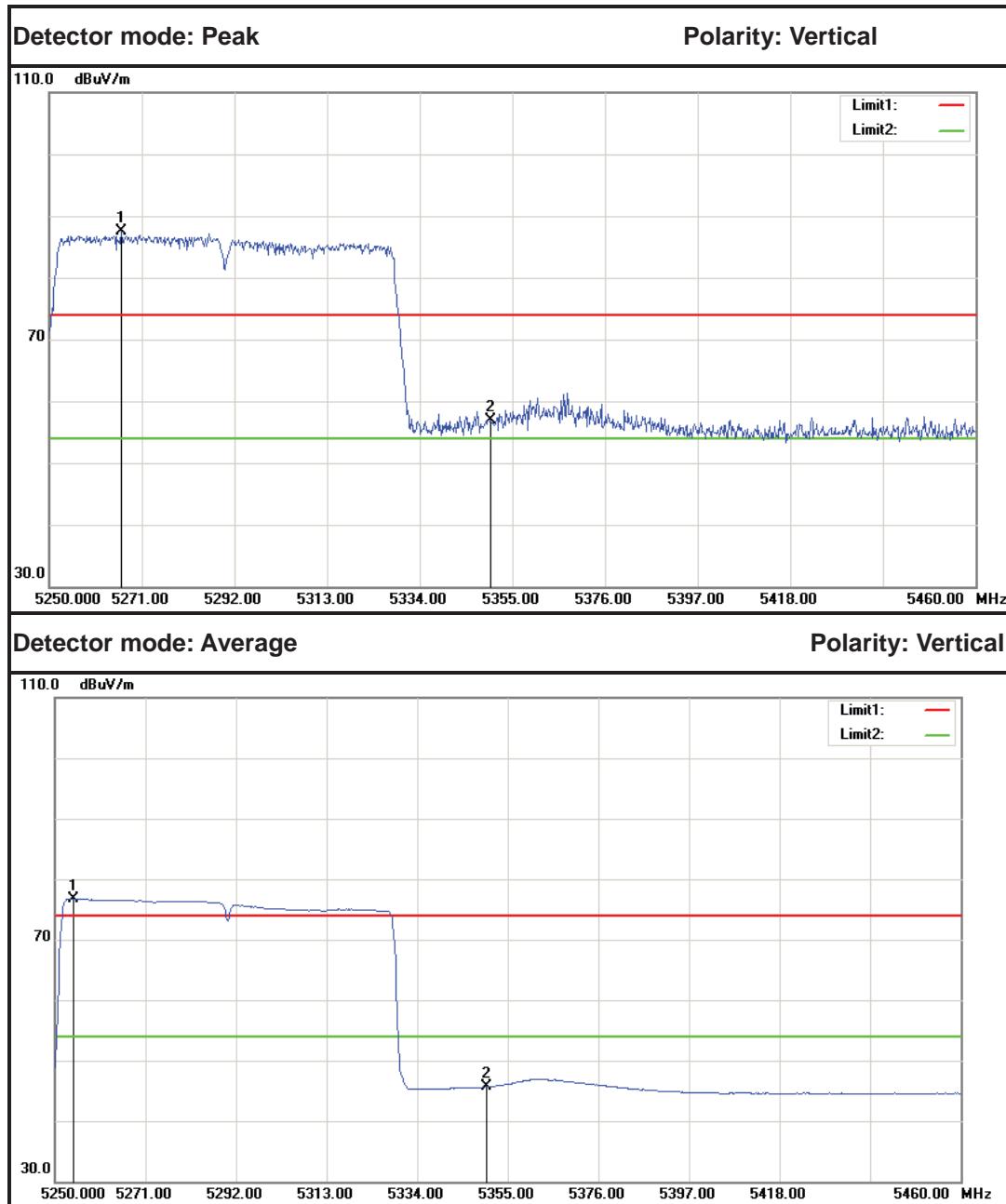
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5150.000	49.31	5.25	54.56	74.00	-19.44	Peak	Vertical
2	5179.500	81.22	5.30	86.52	---	---	Peak	Vertical
1	5150.000	39.51	5.25	44.76	54.00	-9.24	Average	Vertical
2	5178.750	70.82	5.30	76.12	---	---	Average	Vertical



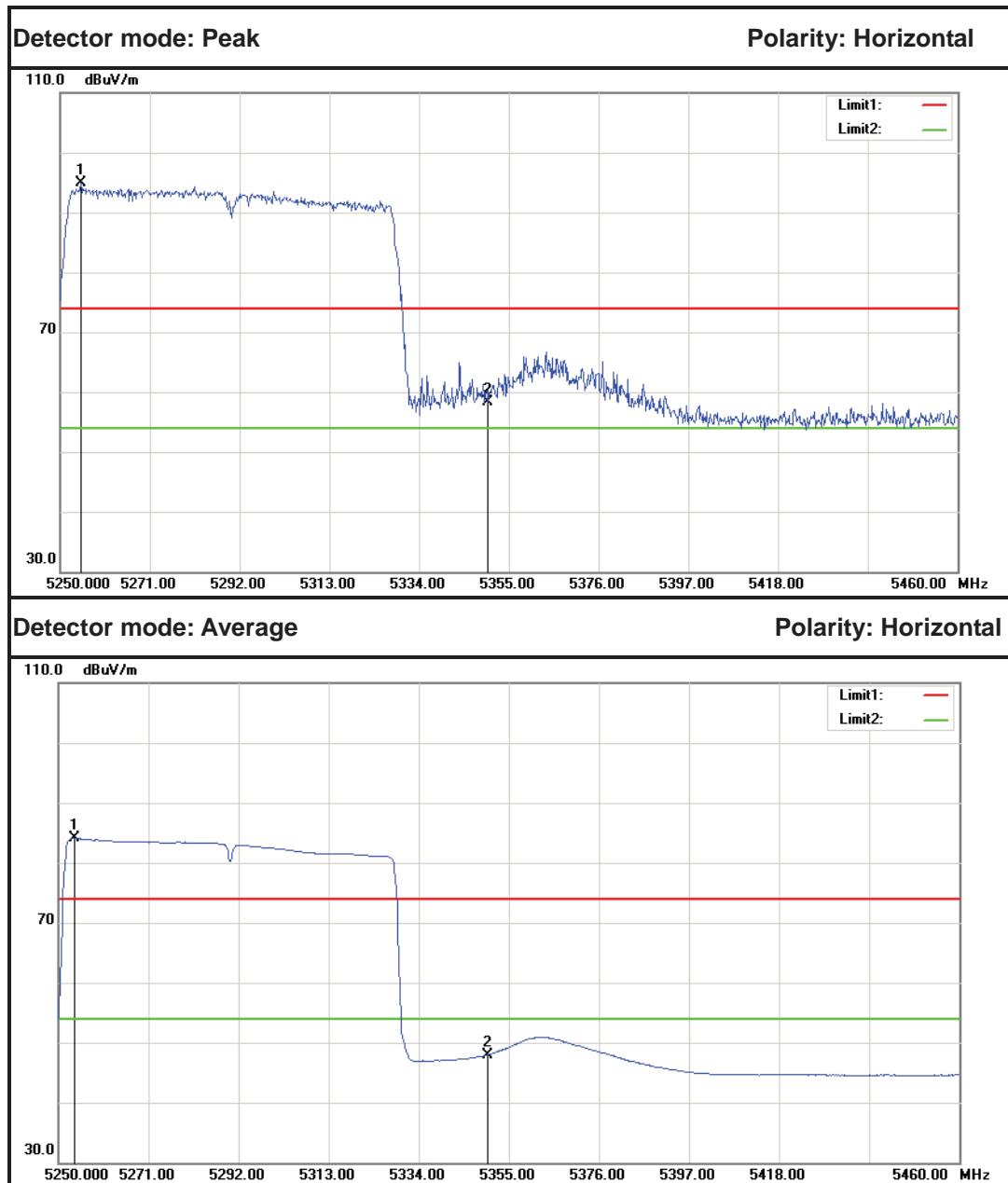
No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5150.000	60.11	5.25	65.36	74.00	-8.64	Peak	Horizontal
2	5202.000	89.52	5.34	94.86	---	---	Peak	Horizontal
1	5150.000	42.70	5.25	47.95	54.00	-6.05	Average	Horizontal
2	5213.250	78.56	5.36	83.92	---	---	Average	Horizontal



IEEE 802.11ac 80 mode / 5290 MHz



No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5266.380	81.97	5.45	87.42	---	---	Peak	Vertical
2	5350.000	51.31	5.60	56.91	74.00	-17.09	Peak	Vertical
1	5254.200	71.32	5.43	76.75	---	---	Average	Vertical
2	5350.000	40.03	5.60	45.63	54.00	-8.37	Average	Vertical



No.	Frequency (MHz)	Reading (dB)	Factor (dB/m)	Result (dB/m)	Limit (dB/m)	Margin (dB)	Remark	Antenna Polar
1	5254.830	89.47	5.43	94.90	---	---	Peak	Horizontal
2	5350.000	52.77	5.60	58.37	74.00	-15.63	Peak	Horizontal
1	5253.780	78.64	5.43	84.07	---	---	Average	Horizontal
2	5350.000	42.40	5.60	48.00	54.00	-6.00	Average	Horizontal



6.6 PEAK POWER SPECTRAL 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 $11 \text{ dBm} + 10 \log B$, 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.

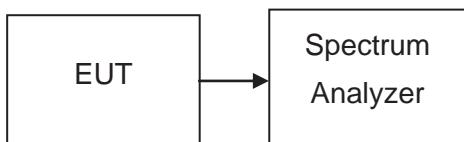
6.6.2 MEASUREMENT EQUIPMENT USED

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 0	Antenna 1	
Low	5180	-0.516	-3.735	11	-11.516	-14.735	PASS
Mid	5200	-0.668	-3.501		-11.668	-14.501	PASS
High	5240	-0.206	-3.369		-11.206	-14.369	PASS

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

Channel	Frequency (MHz)	PPSD (dBm)		Limit (dBm)		Margain	Result
		Antenna 0	Antenna 1			Antenna 0	
Low	5260	0.511	-2.878	11	-10.489	-13.878	PASS
Mid	5300	0.429	-2.534		-10.571	-13.534	PASS
High	5320	0.430	-2.727		-10.570	-13.727	PASS

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

Channel	Frequency (MHz)	PPSD (dBm)		Limit (dBm)		Margain	Result
		Antenna 0	Antenna 1			Antenna 0	
Low	5500	-0.728	-3.944	11	-11.728	-14.944	PASS
Mid	5580	2.206	-1.042		-8.794	-12.042	PASS
High	5700	-2.987	-5.867		-13.987	-16.867	PASS

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

Channel	Frequency (MHz)	PPSD (dBm)		factor	Limit (dBm)		Margain	Result
		Antenna 0	Antenna 1				Antenna 0	
Low	5745	-1.190	-4.452	0.27	30	-30.920	-34.182	PASS
Mid	5785	-1.626	-5.097	0.27		-31.356	-34.827	PASS
High	5825	-1.545	-3.748	0.27		-35.293	-33.478	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)	Margin	Result
		Antenna 0	Antenna 1				
Low	5180	-1.002	-3.617	0.895	9.41	-8.515	PASS
Mid	5200	-0.339	-3.735	1.297		-8.113	PASS
High	5240	-0.571	-3.261	1.299		-8.111	PASS

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

Channel	Frequency (MHz)	PPSD (dBm)		Total (dBm)	Limit (dBm)	Margin	Result
		Antenna 0	Antenna 1				
Low	5260	0.189	-3.019	1.885	9.41	-7.525	PASS
Mid	5300	0.712	-2.570	2.384		-7.026	PASS
High	5320	1.016	-2.894	2.497		-6.913	PASS

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

Channel	Frequency (MHz)	PPSD (dBm)		Total (dBm)	Limit (dBm)	Margin	Result
		Antenna 0	Antenna 1				
Low	5500	2.673	0.255	4.640	9.41	-4.770	PASS
Mid	5580	2.094	-0.759	3.908		-5.502	PASS
High	5700	0.506	-2.639	2.222		-7.188	PASS

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

Channel	Frequency (MHz)	PPSD (dBm)		factor	Total (dBm)	Limit (dBm)	Margin	Result
		Antenna 0	Antenna 1					
Low	5745	-0.764	-4.606	0.27	1.007	28.51	-27.503	PASS
Mid	5785	-1.742	-5.251	0.27	0.129		-28.381	PASS
High	5825	-1.042	-3.929	0.27	1.030		-27.480	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)	Margin	Result
		Antenna 0	Antenna 1				
Low	5190	-4.785	-7.958	-3.078	9.41	-12.488	PASS
High	5230	-3.971	-6.898	-2.182		-11.592	PASS

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

Channel	Frequency (MHz)	PPSD (dBm)		Total (dBm)	Limit (dBm)	Margin	Result
		Antenna 0	Antenna 1				
Low	5270	-3.315	-6.970	-1.759	9.41	-11.169	PASS
High	5310	-3.402	-6.460	-1.657		-11.067	PASS

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

Channel	Frequency (MHz)	PPSD (dBm)		Total (dBm)	Limit (dBm)	Margin	Result
		Antenna 0	Antenna 1				
Low	5510	-6.470	-7.396	-3.898	9.41	-13.308	PASS
Mid	5550	-1.428	-4.334	0.368		-9.042	PASS
High	5670	-8.542	-9.973	-6.189		-15.599	PASS

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

Channel	Frequency (MHz)	PPSD (dBm)		factor	Total (dBm)	Limit (dBm)	Margin	Result
		Antenna 0	Antenna 1					
Low	5755	-4.675	-8.193	0.27	-2.807	28.51	-31.317	PASS
High	5795	-10.414	-11.845	0.27	-7.791		-36.301	PASS

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

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

Channel	Frequency (MHz)	PPSD (dBm)		Total (dBm)	Limit (dBm)	Margin	Result
		Antenna 0	Antenna 1				
Low	5180	-0.196	-3.338	1.521	9.41	-7.889	PASS
Mid	5200	-0.168	-3.419	1.514		-7.896	PASS
High	5240	0.192	-2.611	2.023		-7.387	PASS

Test mode: IEEE 802.11ac 20 mode / 5260~ 5320MHz

Channel	Frequency (MHz)	PPSD (dBm)		Total (dBm)	Limit (dBm)	Margin	Result
		Antenna 0	Antenna 1				
Low	5260	0.944	-2.455	2.579	9.41	-6.831	PASS
Mid	5300	1.104	-1.916	2.862		-6.548	PASS
High	5320	1.089	-2.117	2.786		-6.624	PASS

Test mode: IEEE 802.11ac 20 mode / 5500 ~ 5700MHz

Channel	Frequency (MHz)	PPSD (dBm)		Total (dBm)	Limit (dBm)	Margin	Result
		Antenna 0	Antenna 1				
Low	5500	-0.138	-3.439	1.528	9.41	-7.882	PASS
Mid	5580	1.859	-0.704	3.774		-5.636	PASS
High	5700	-1.929	-5.155	-0.239		-9.649	PASS

Test mode: IEEE 802.11ac 20 mode / 5745 ~ 5825MHz

Channel	Frequency (MHz)	PPSD (dBm)		factor	Total (dBm)	Limit (dBm)	Margin	Result
		Antenna 0	Antenna 1					
Low	5745	-1.108	-4.142	0.27	0.915	28.51	-27.595	PASS
Mid	5785	-2.219	-5.163	0.27	-0.166		-28.676	PASS
High	5825	-0.784	-4.068	0.27	1.158		-27.352	PASS

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

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

Channel	Frequency (MHz)	PPSD (dBm)		Total (dBm)	Limit (dBm)	Margin	Result
		Antenna 0	Antenna 1				
Low	5190	-3.939	-4.387	-1.147	9.41	-10.557	PASS
High	5230	-3.171	-3.774	-0.452		-9.862	PASS

Test mode: IEEE 802.11ac 40 mode / 5270 ~ 5310MHz

Channel	Frequency (MHz)	PPSD (dBm)		Total (dBm)	Limit (dBm)	Margin	Result
		Antenna 0	Antenna 1				
Low	5270	-2.634	-4.343	-0.395	9.41	-9.805	PASS
High	5310	-2.298	-5.899	-0.725		-10.135	PASS

Test mode: IEEE 802.11ac 40 mode / 5510 ~ 5670MHz

Channel	Frequency (MHz)	PPSD (dBm)		Total (dBm)	Limit (dBm)	Margin	Result
		Antenna 0	Antenna 1				
Low	5510	-7.092	-9.455	-5.104	9.41	-14.514	PASS
Mid	5550	-1.414	-3.767	0.577		-8.833	PASS
High	5670	-8.805	-11.356	-6.886		-16.296	PASS

Test mode: IEEE 802.11ac 40 mode / 5755 ~ 5795MHz

Channel	Frequency (MHz)	PPSD (dBm)		factor	Total (dBm)	Limit (dBm)	Margin	Result
		Antenna 0	Antenna 1					
Low	5755	-4.591	-5.781	0.27	-1.865	28.51	-30.375	PASS
High	5795	-5.922	-6.605	0.27	-2.970		-31.480	PASS

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

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

Channel	Frequency (MHz)	PPSD (dBm)		Total (dBm)	Limit (dBm)	Margin	Result
		Antenna 0	Antenna 1				
	5210	-13.543	-16.794	-11.861	9.41	-21.271	PASS

Test mode: IEEE 802.11ac 80 mode / 5290MHz

Channel	Frequency (MHz)	PPSD (dBm)		Total (dBm)	Limit (dBm)	Margin	Result
		Antenna 0	Antenna 1				
	5290	-14.327	-16.957	-12.436	9.41	-21.846	PASS

Test mode: IEEE 802.11ac 80 mode / 5530MHz

Channel	Frequency (MHz)	PPSD (dBm)		Total (dBm)	Limit (dBm)	Margin	Result
		Antenna 0	Antenna 1				
	5530	-14.649	-14.662	-11.645	9.41	-21.055	PASS

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



Test Plot

IEEE 802.11a mode / 5180 ~ 5240MHz

PPSD (CH Low)

Antenna 0



PPSD (CH Mid)

Antenna 0



**PPSD (CH High)**

Antenna 0

**IEEE 802.11a mode / 5260~ 5320MHz****PPSD (CH Low)**

Antenna 0





PPSD (CH Mid)

Antenna 0



PPSD (CH High)

Antenna 0



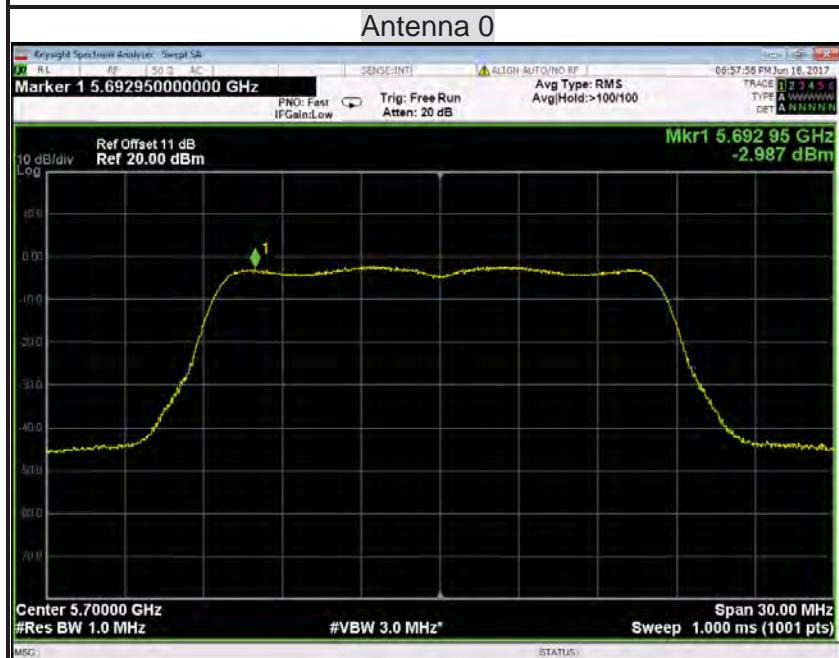
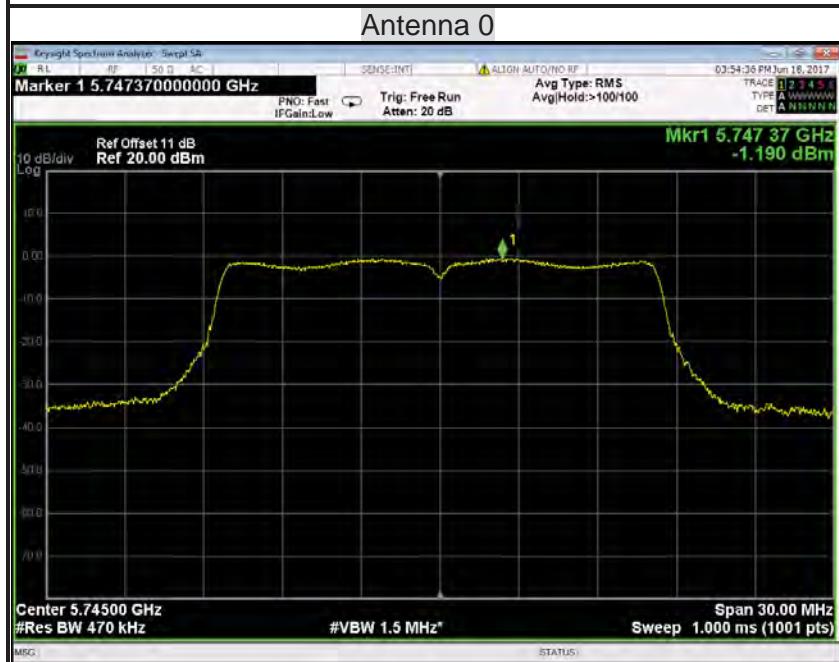
**IEEE 802.11a mode / 5500 ~ 5700MHz****PPSD (CH Low)**

Antenna 0

**PPSD (CH Mid)**

Antenna 0



**PPSD (CH High)****IEEE 802.11a mode / 5745 ~ 5825MHz****PPSD (CH Low)**



PPSD (CH Mid)

Antenna 0



PPSD (CH High)

Antenna 0



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

Antenna 1

**PPSD (CH Mid)**

Antenna 1



**PPSD (CH High)****Antenna 1****IEEE 802.11a mode / 5260~ 5320MHz****PPSD (CH Low)****Antenna 1**



PPSD (CH Mid)

Antenna 1



PPSD (CH High)

Antenna 1



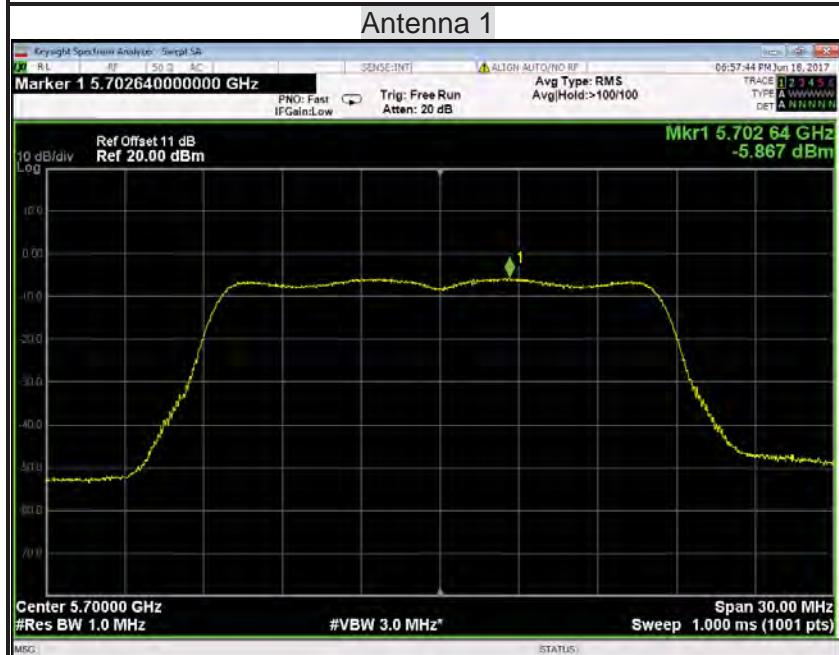
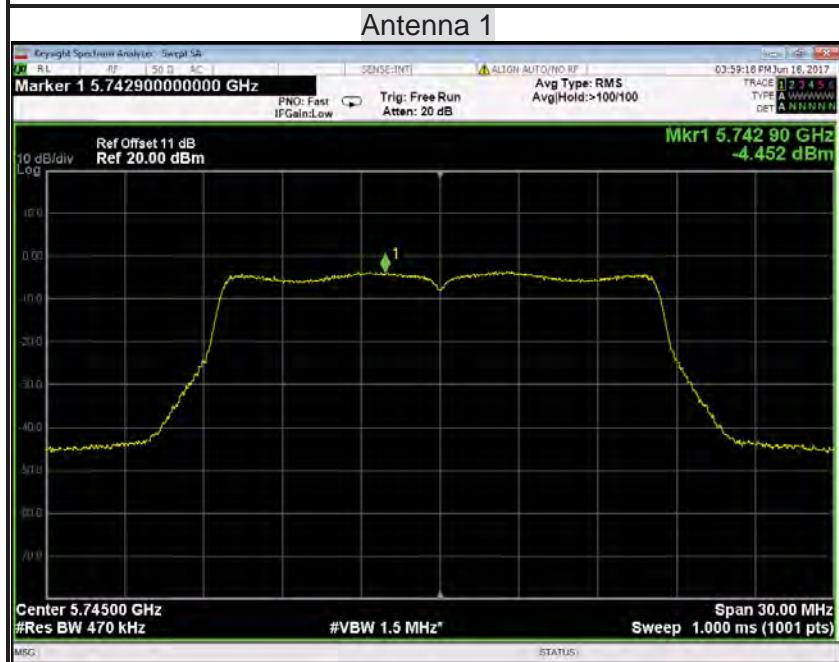
**IEEE 802.11a mode / 5500 ~ 5700MHz****PPSD (CH Low)**

Antenna 1

**PPSD (CH Mid)**

Antenna 1



**PPSD (CH High)****IEEE 802.11a mode / 5745 ~ 5825MHz****PPSD (CH Low)**



PPSD (CH Mid)

Antenna 1



PPSD (CH High)

Antenna 1



**IEEE 802.11n HT 20 MHz mode / 5180 ~ 5240MHz****PPSD (CH Low)**

Antenna 0

**PPSD (CH Mid)**

Antenna 0



**PPSD (CH High)****Antenna 0****IEEE 802.11n HT 20 MHz mode / 5260~ 5320MHz****PPSD (CH Low)****Antenna 0**



PPSD (CH Mid)

Antenna 0



PPSD (CH High)

Antenna 0



**IEEE 802.11n HT 20 MHz mode / 5500 ~ 5700MHz****PPSD (CH Low)**

Antenna 0

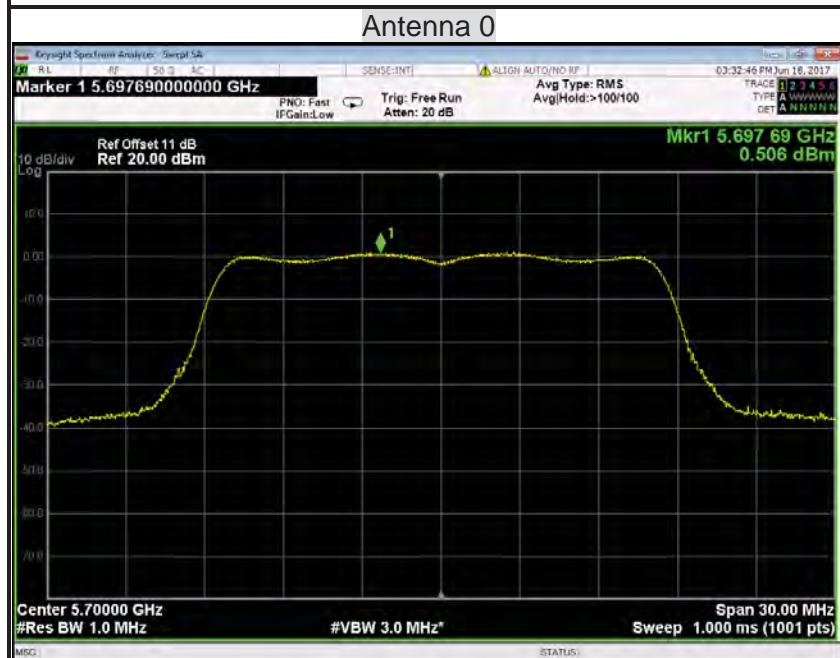
**PPSD (CH Mid)**

Antenna 0



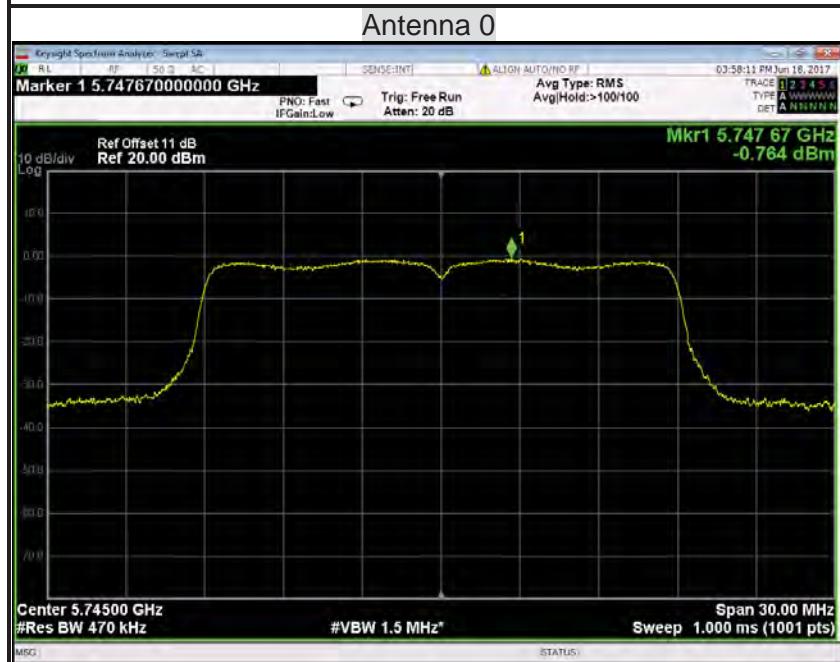


PPSD (CH High)



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

PPSD (CH Low)





PPSD (CH Mid)

Antenna 0



PPSD (CH High)

Antenna 0



**IEEE 802.11n HT 20 MHz mode / 5180 ~ 5240MHz****PPSD (CH Low)**

Antenna 1

**PPSD (CH Mid)**

Antenna 1



**PPSD (CH High)****Antenna 1****IEEE 802.11n HT 20 MHz mode / 5260~ 5320MHz****PPSD (CH Low)****Antenna 1**



PPSD (CH Mid)

Antenna 1



PPSD (CH High)

Antenna 1



**IEEE 802.11n HT 20 MHz mode / 5500 ~ 5700MHz****PPSD (CH Low)**

Antenna 1

**PPSD (CH Mid)**

Antenna 1



**PPSD (CH High)**

Antenna 1

**IEEE 802.11n HT 20 MHz mode / 5745 ~ 5825MHz****PPSD (CH Low)**

Antenna 1





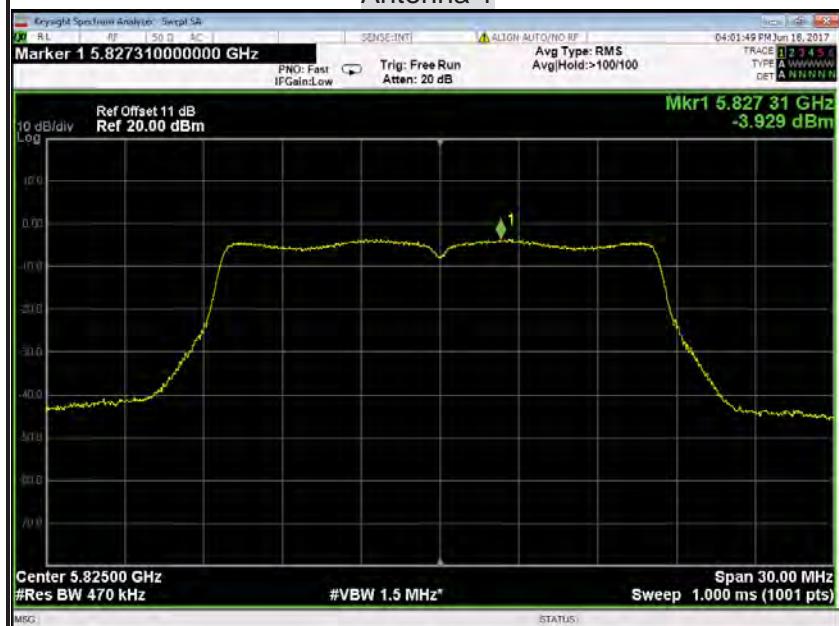
PPSD (CH Mid)

Antenna 1



PPSD (CH High)

Antenna 1



**IEEE 802.11n HT 40 MHz mode / 5190 ~ 5230MHz****PPSD (CH Low)**

Antenna 0

**PPSD (CH High)**

Antenna 0



**IEEE 802.11n HT 40 MHz mode / 5270 ~ 5310MHz****PPSD (CH Low)**

Antenna 0

**PPSD (CH High)**

Antenna 0



**IEEE 802.11n HT 40 MHz mode / 5510 ~ 5670MHz****PPSD (CH Low)**

Antenna 0

**PPSD (CH Mid)**

Antenna 0



**PPSD (CH High)****Antenna 0****IEEE 802.11n HT 40 MHz mode / 5755 ~ 5795MHz****PPSD (CH Low)****Antenna 0**



PPSD (CH High)



**IEEE 802.11n HT 40 MHz mode / 5190 ~ 5230MHz****PPSD (CH Low)**

Antenna 1

**PPSD (CH High)**

Antenna 1



**IEEE 802.11n HT 40 MHz mode / 5270 ~ 5310MHz****PPSD (CH Low)**

Antenna 1

**PPSD (CH High)**

Antenna 1

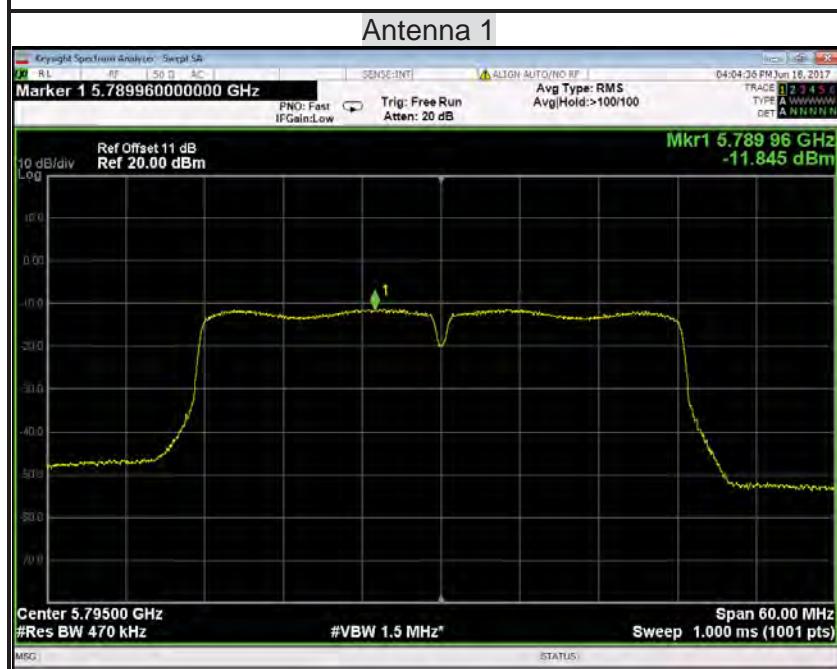


**IEEE 802.11n HT 40 MHz mode / 5510 ~ 5670MHz****PPSD (CH Low)****Antenna 1****PPSD (CH Mid)****Antenna 1**

**PPSD (CH High)****Antenna 1****IEEE 802.11n HT 40 MHz mode / 5755 ~ 5795MHz****PPSD (CH Low)****Antenna 1**

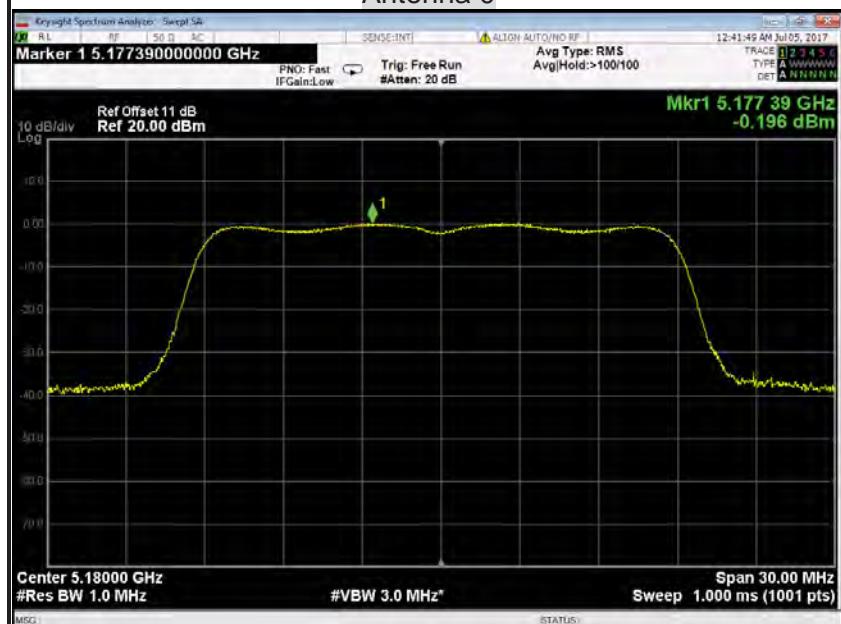


26dB Bandwidth (CH High)

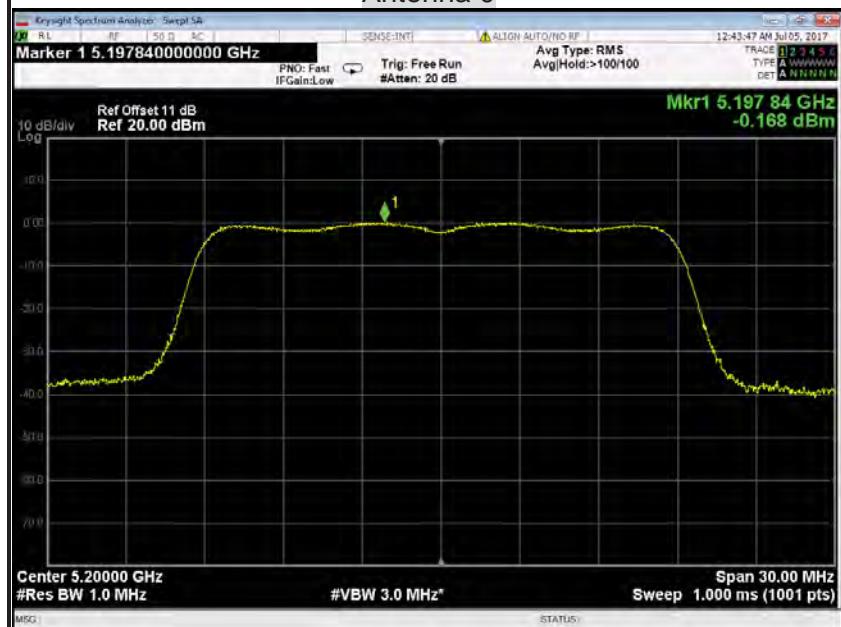


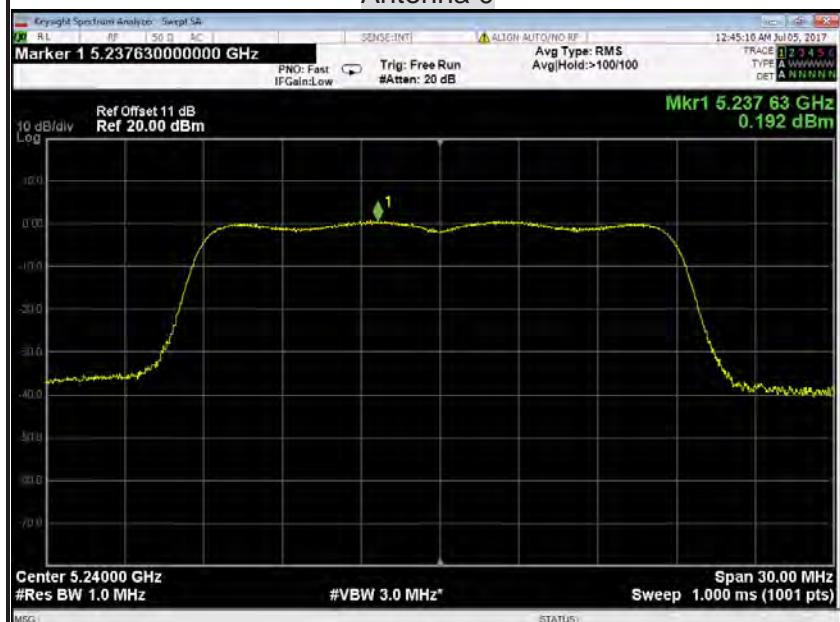
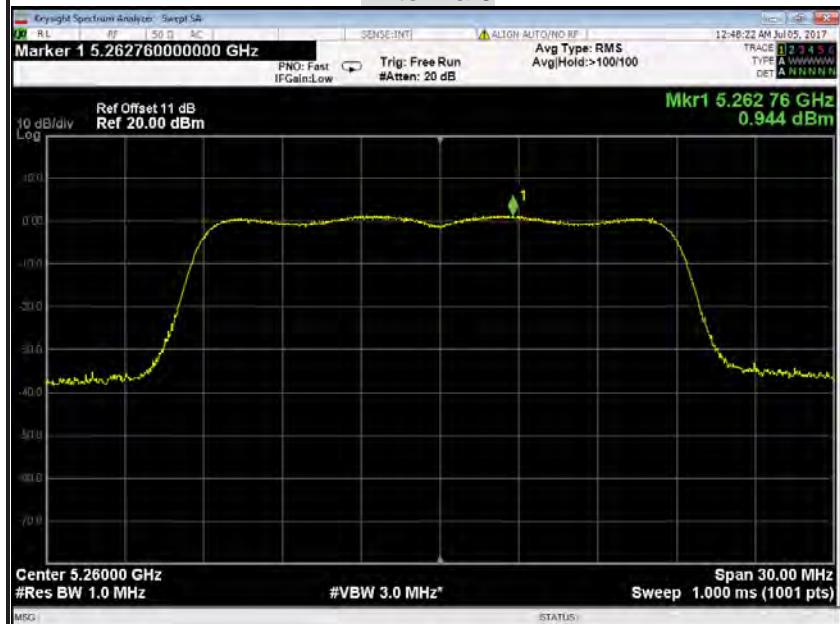
**IEEE 802.11ac 20 mode / 5180 ~ 5240MHz****PPSD (CH Low)**

Antenna 0

**PPSD (CH Mid)**

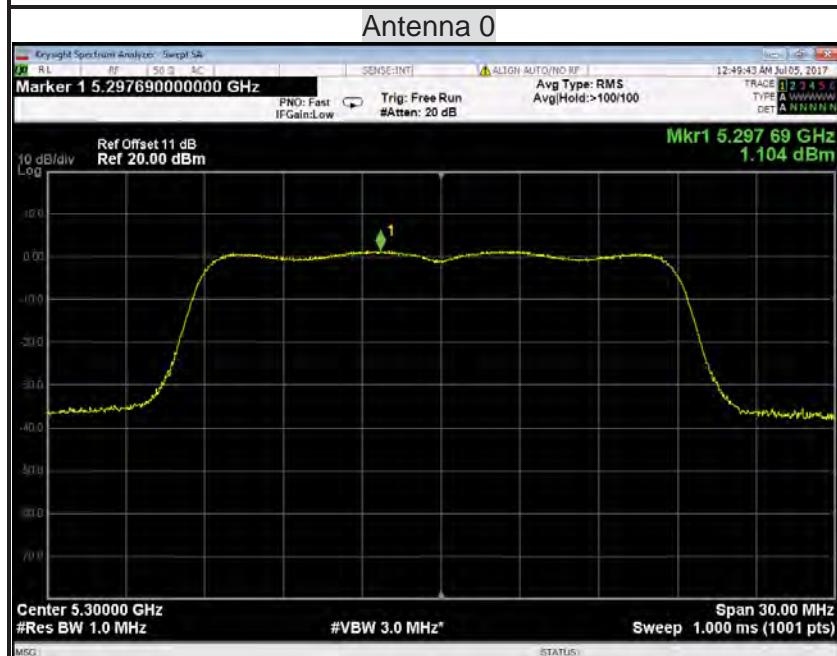
Antenna 0



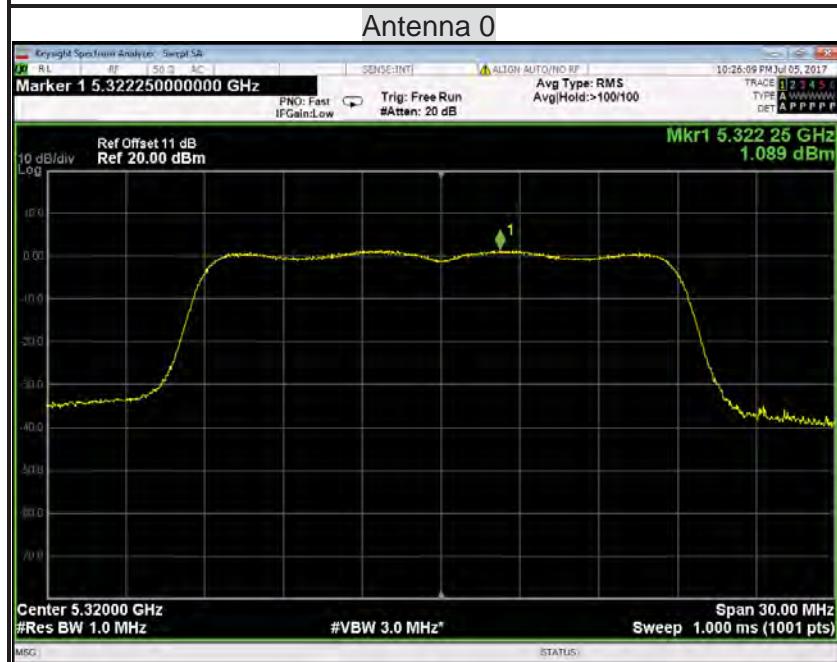
**PPSD (CH High)****Antenna 0****IEEE 802.11ac 20 mode / 5260~ 5320MHz****PPSD (CH Low)****Antenna 0**

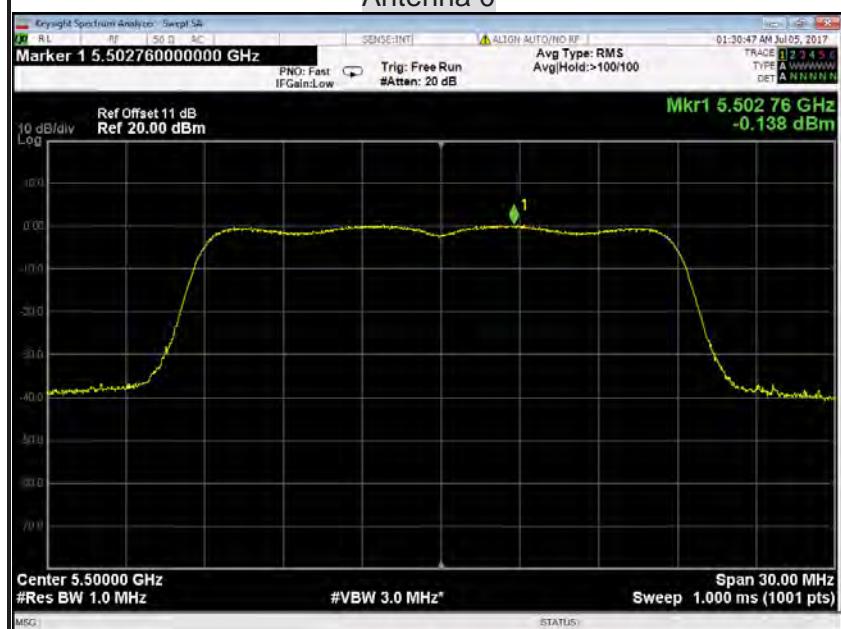
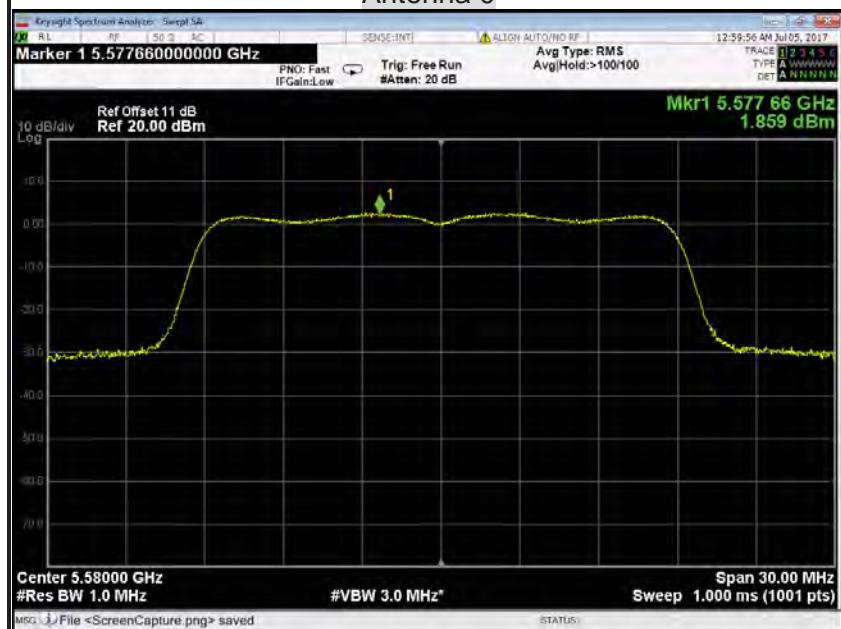


PPSD (CH Mid)



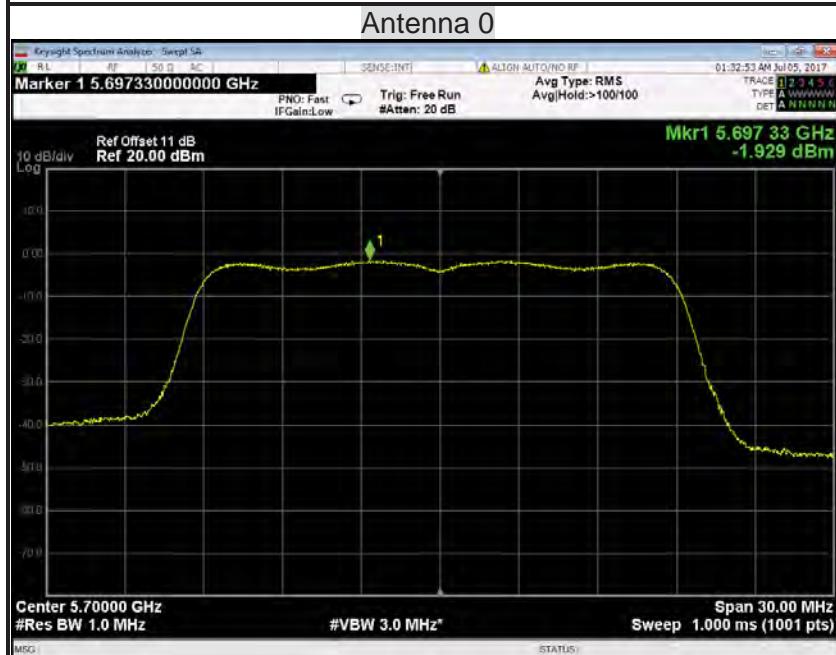
PPSD (CH High)



**IEEE 802.11ac 20 mode / 5500 ~ 5700MHz****PPSD (CH Low)****Antenna 0****PPSD (CH Mid)****Antenna 0**

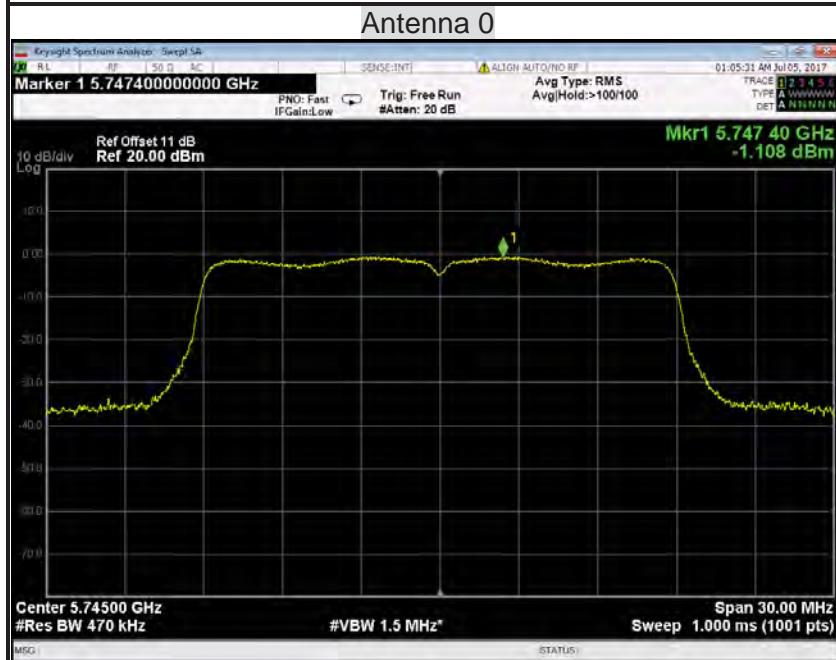


PPSD (CH High)



IEEE 802.11ac 20 mode / 5745 ~ 5825MHz

PPSD (CH Low)





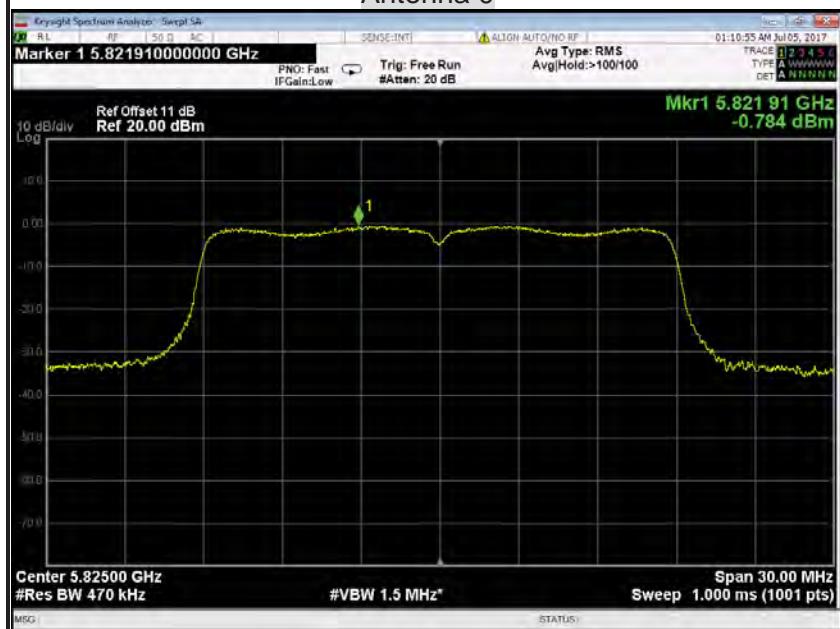
PPSD (CH Mid)

Antenna 0



PPSD (CH High)

Antenna 0



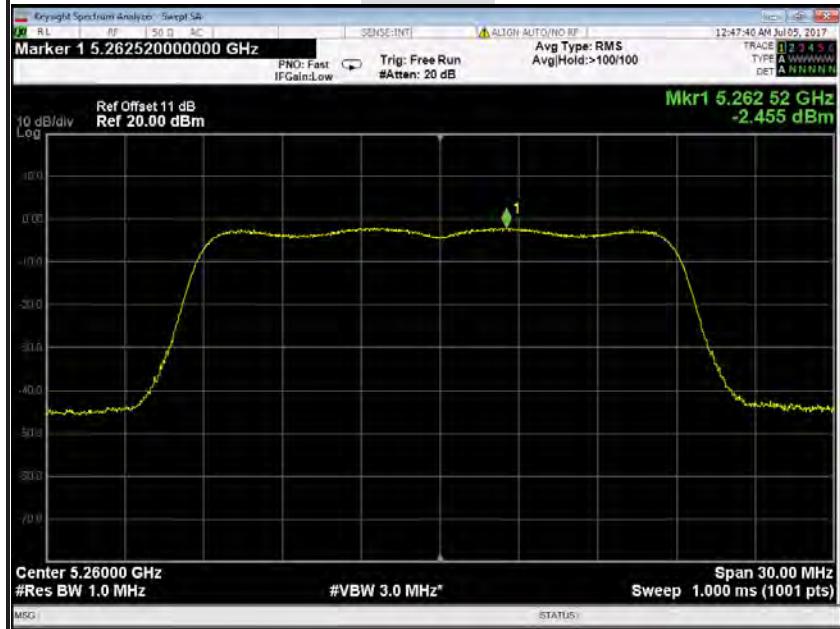
**IEEE 802.11ac 20 mode / 5180 ~ 5240MHz****PPSD (CH Low)**

Antenna 1

**PPSD (CH Mid)**

Antenna 1



**PPSD (CH High)****Antenna 1****IEEE 802.11ac 20 mode / 5260~ 5320MHz****PPSD (CH Low)****Antenna 1**



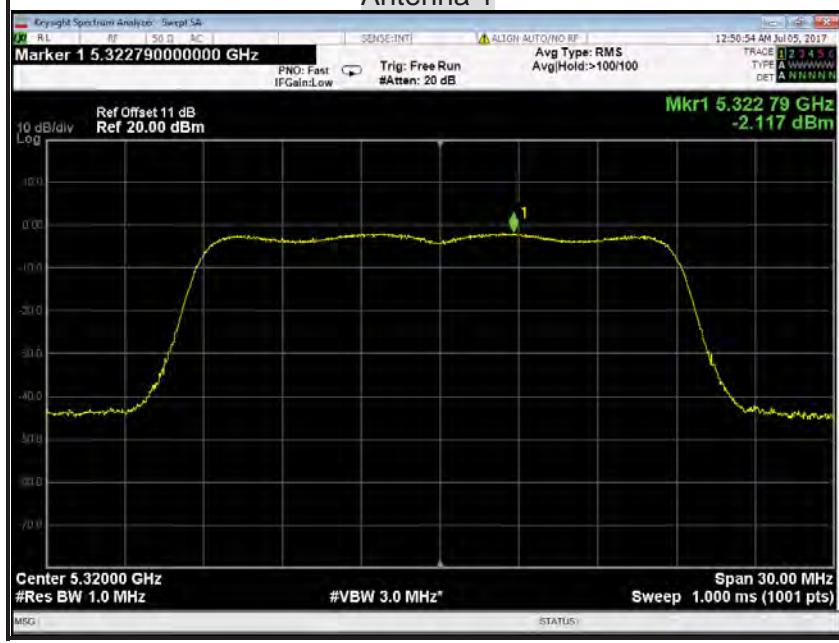
PPSD (CH Mid)

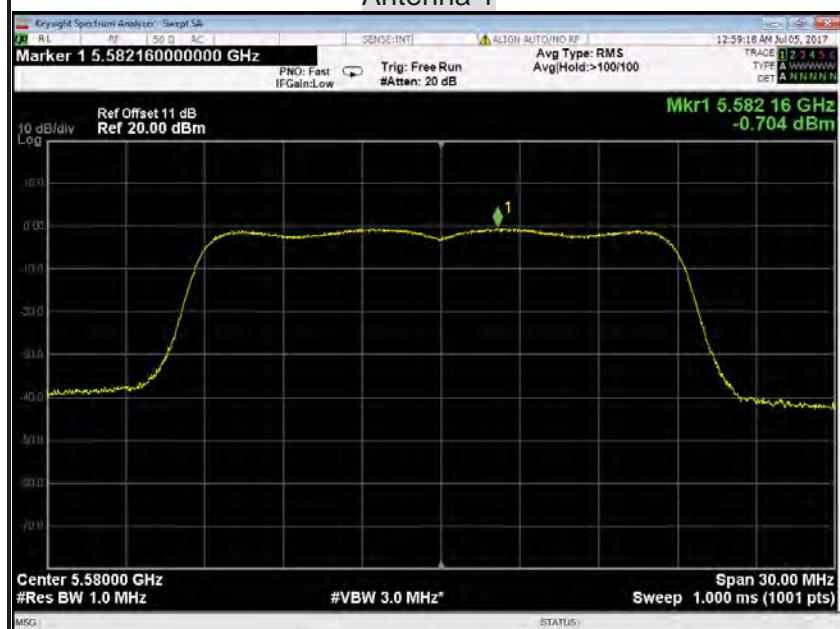
Antenna 1

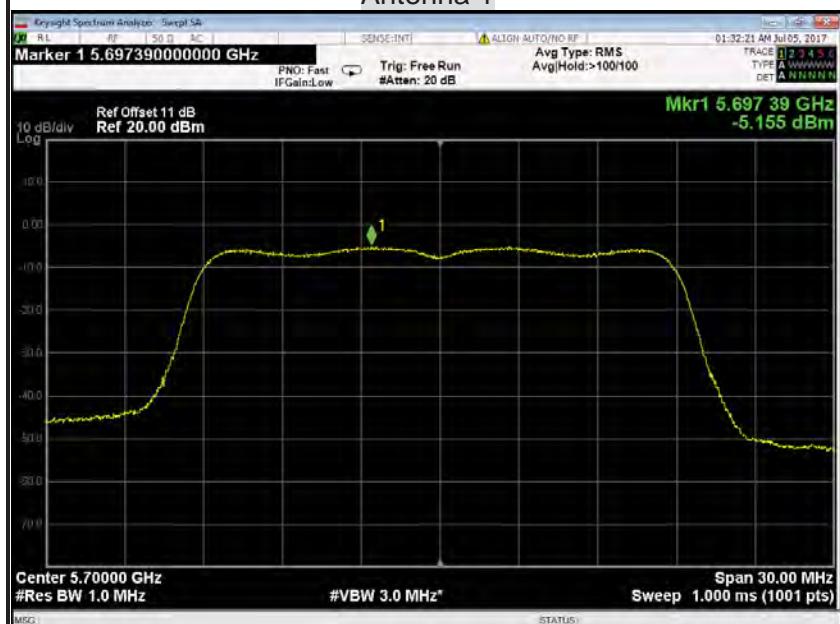


PPSD (CH High)

Antenna 1



**IEEE 802.11ac 20 mode / 5500 ~ 5700MHz****PPSD (CH Low)****Antenna 1****PPSD (CH Mid)****Antenna 1**

**PPSD (CH High)****Antenna 1****IEEE 802.11ac 20 mode / 5745 ~ 5825MHz****PPSD (CH Low)****Antenna 1**



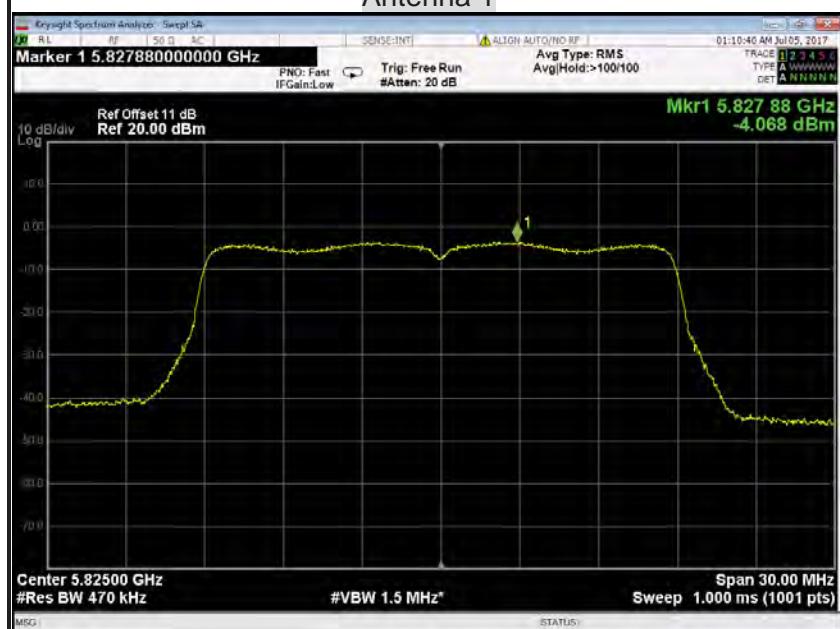
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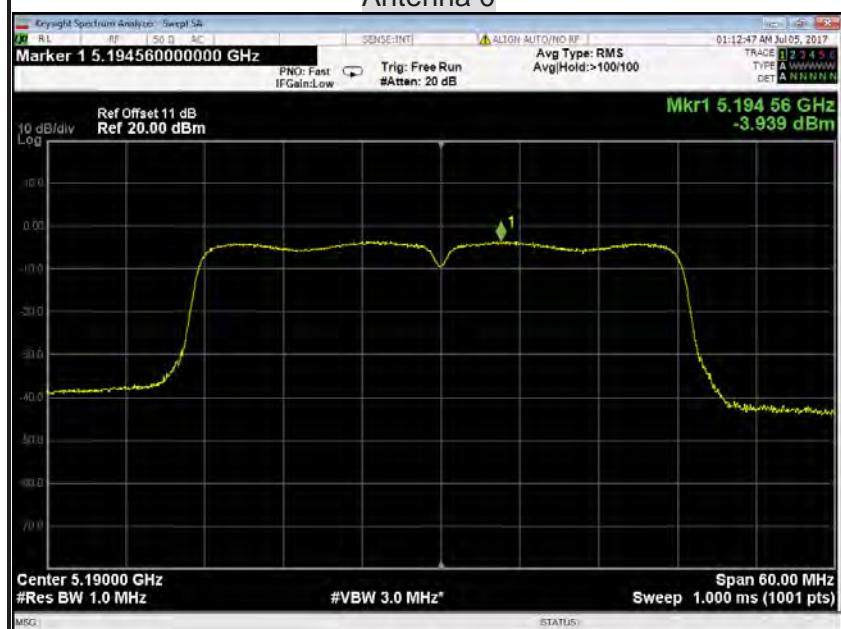
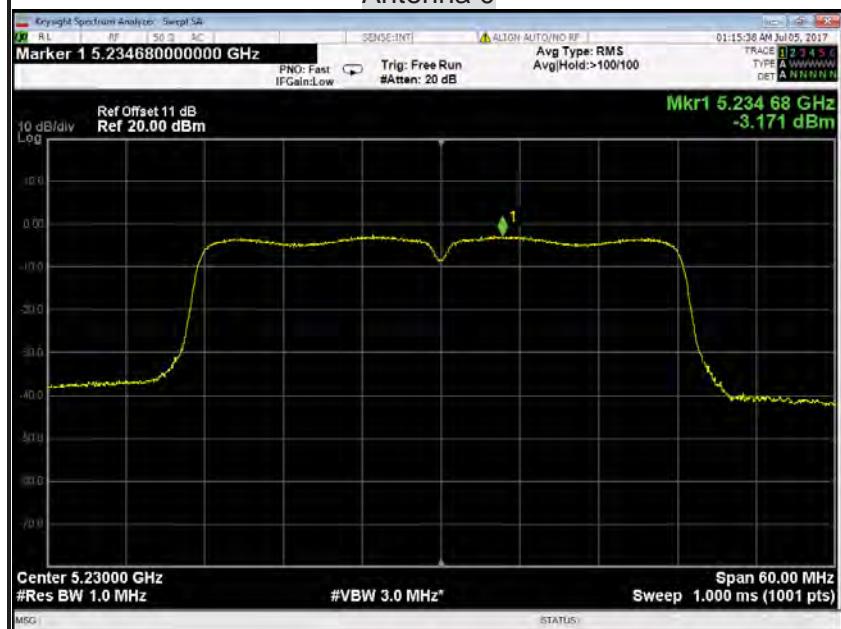
Antenna 1



PPSD (CH High)

Antenna 1



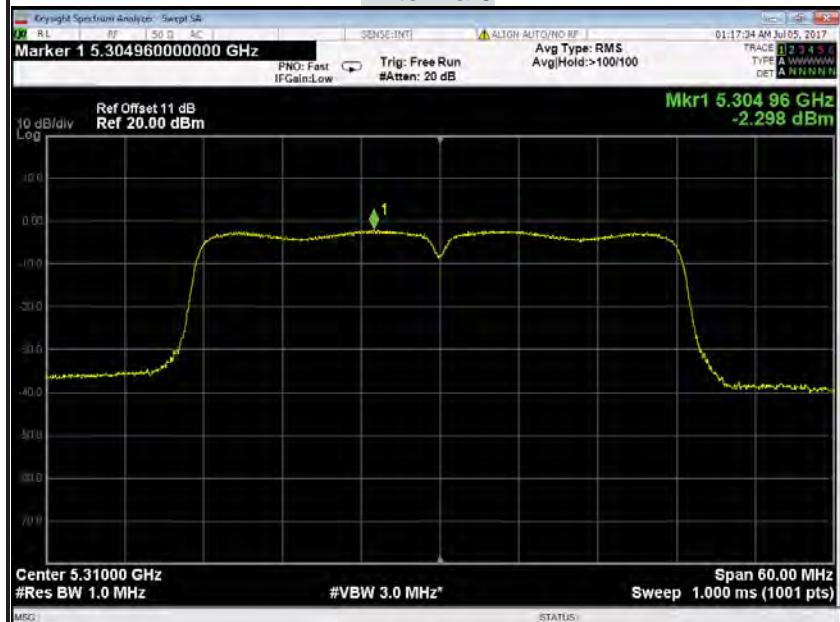
**IEEE 802.11n HT 40 MHz mode / 5190 ~ 5230MHz****PPSD (CH Low)****Antenna 0****PPSD (CH High)****Antenna 0**

**IEEE 802.11ac 40 mode / 5270 ~ 5310MHz****PPSD (CH Low)**

Antenna 0

**PPSD (CH High)**

Antenna 0



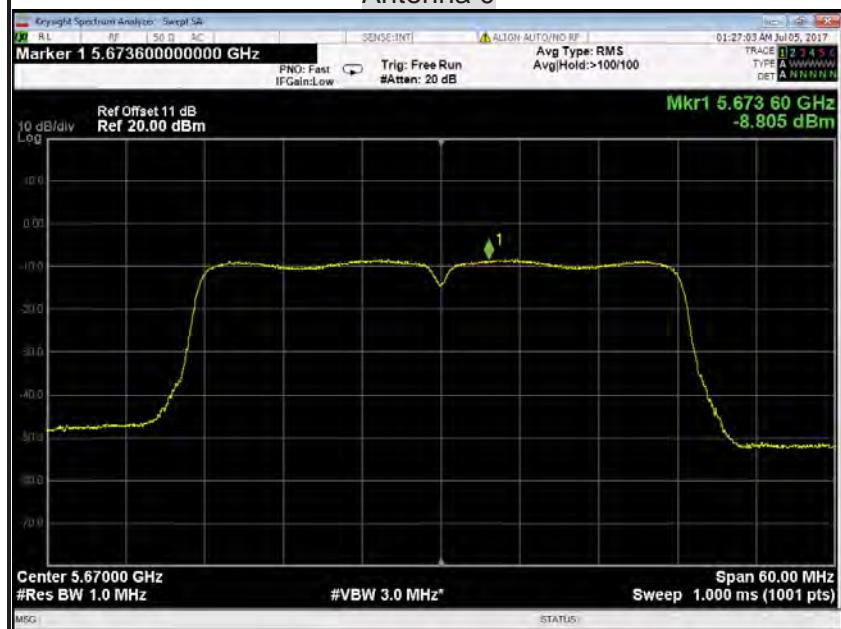
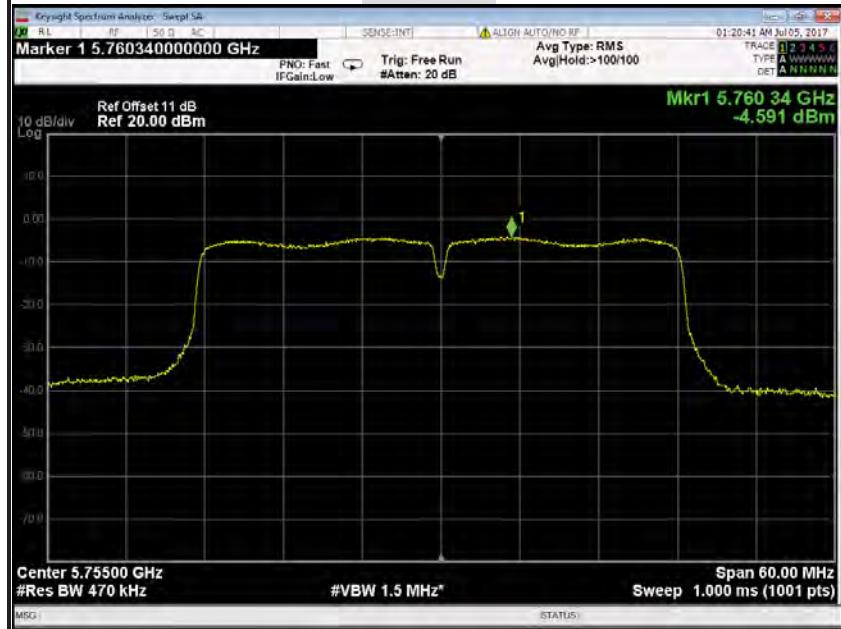
**IEEE 802.11ac 40 mode / 5510 ~ 5670MHz****PPSD (CH Low)**

Antenna 0

**PPSD (CH Mid)**

Antenna 0



**PPSD (CH High)****Antenna 0****IEEE 802.11ac 40 mode / 5755 ~ 5795MHz****PPSD (CH Low)****Antenna 0**



PPSD (CH High)

Antenna 0



**IEEE 802.11ac 40 mode / 5190 ~ 5230MHz****PPSD (CH Low)**

Antenna 1

**PPSD (CH High)**

Antenna 1



**IEEE 802.11ac 40 mode / 5270 ~ 5310MHz****PPSD (CH Low)**

Antenna 1

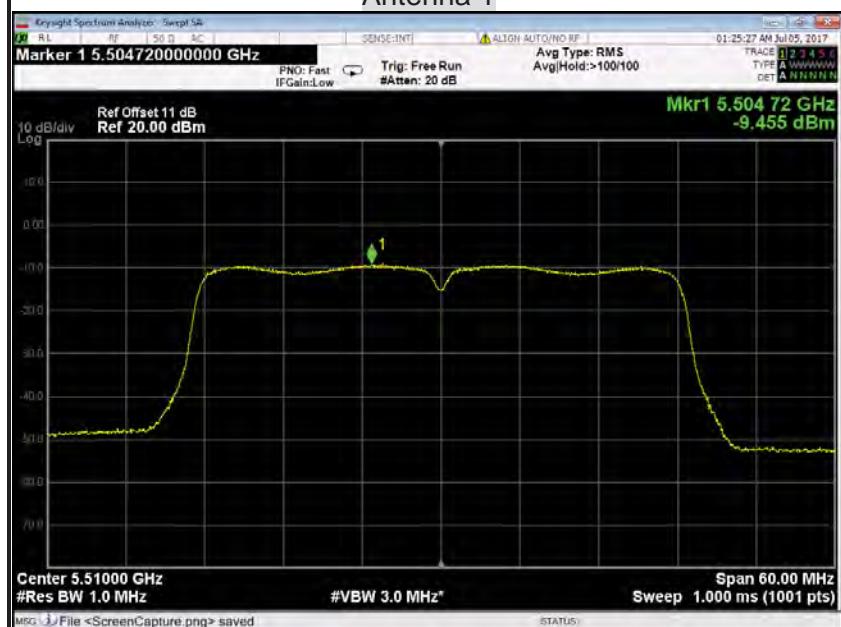
**PPSD (CH High)**

Antenna 1

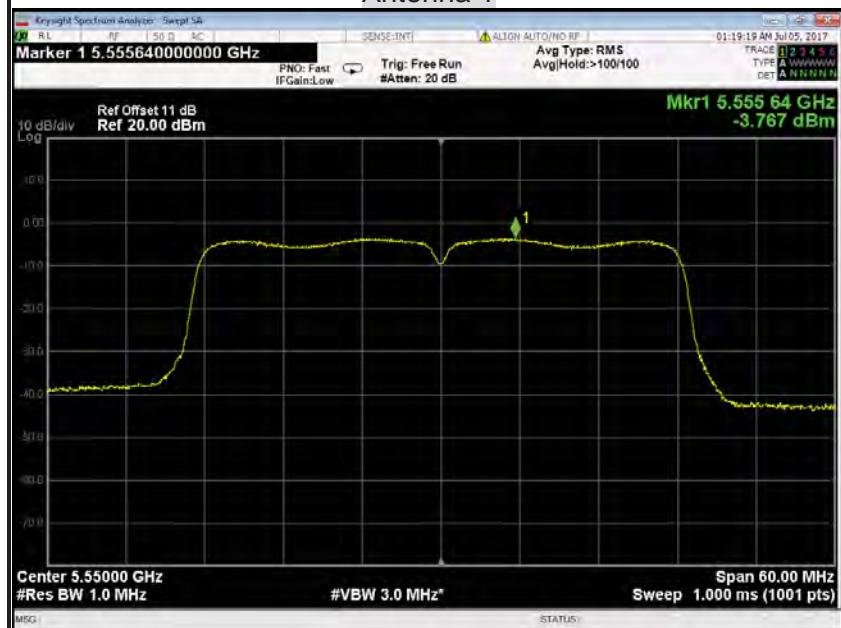


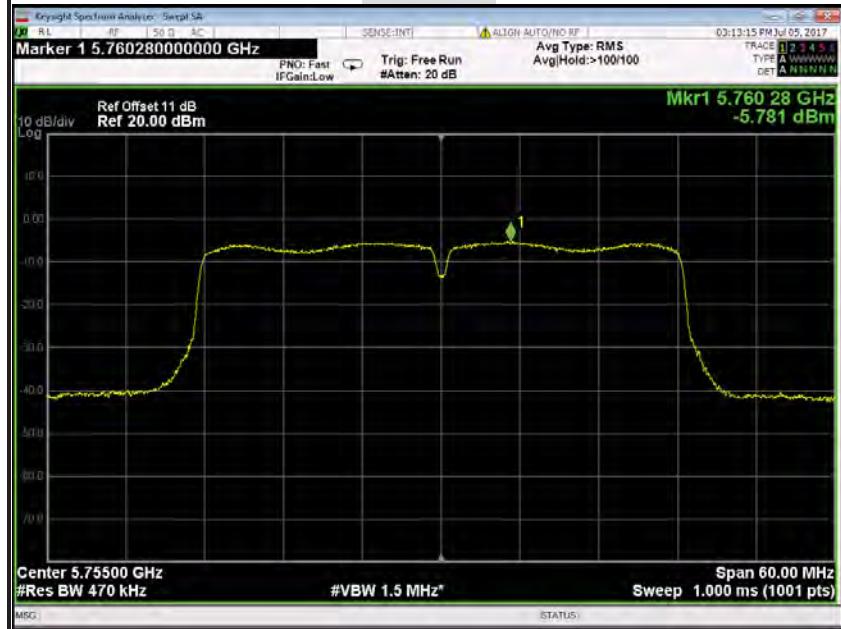
**IEEE 802.11ac 40 mode / 5510 ~ 5670MHz****PPSD (CH Low)**

Antenna 1

**PPSD (CH Mid)**

Antenna 1



**PPSD (CH High)****Antenna 1****IEEE 802.11ac 40 mode / 5755 ~ 5795MHz****PPSD (CH Low)****Antenna 1**



PPSD (CH High)

Antenna 1



**IEEE 802.11ac 80 mode / 5210MHz****PPSD****Antenna 0****IEEE 802.11ac 80 mode / 5290MHz****PPSD****Antenna 0**

**IEEE 802.11ac 80 mode / 5530MHz****PPSD**

Antenna 0

**IEEE 802.11ac 80 mode / 5775MHz****PPSD**

Antenna 0



**IEEE 802.11ac 80 mode / 5210MHz****PPSD**

Antenna 1

**IEEE 802.11ac 80 mode / 5290MHz****PPSD**

Antenna 1



**IEEE 802.11ac 80 mode / 5530MHz****PPSD**

Antenna 1

**IEEE 802.11ac 80 mode / 5775MHz****PPSD**

Antenna 1





6.7 RADIATED UNDESIRABLE EMISSION

6.7.1 LIMIT

- 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 (μ V/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.

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

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



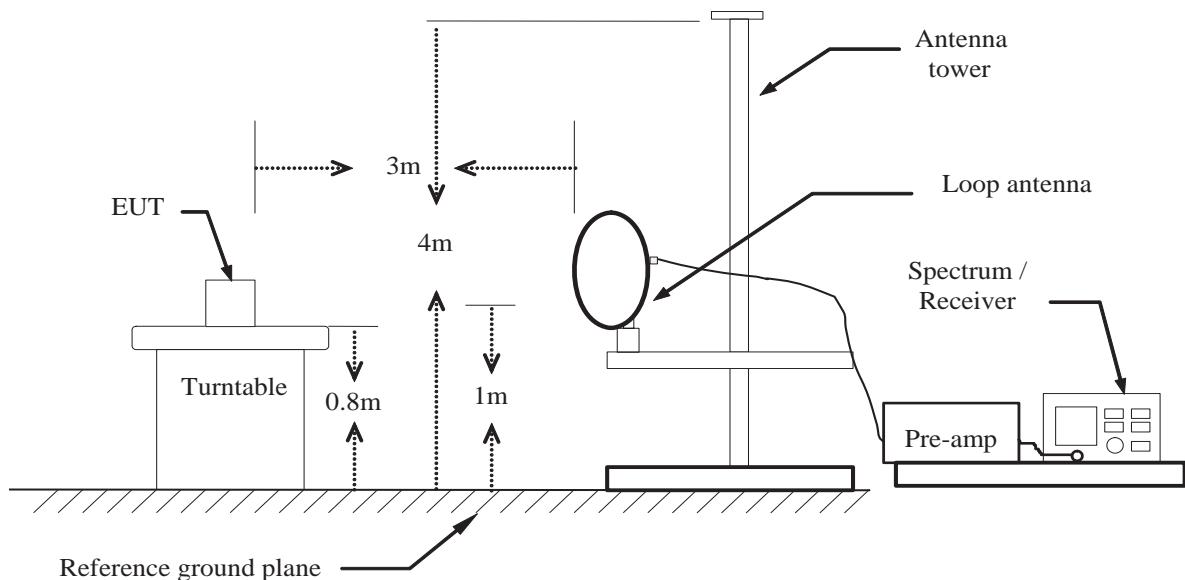
6.7.2 TEST INSTRUMENTS

Radiated Emission Test Site 966 (2)					
Name of Equipment	Manufacturer	Model Number	Serial Number	Last Calibration	Due Calibration
PSA Series Spectrum Analyzer	Agilent	N9010A	MY52221469	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
Loop Antenna	COM-POWER	AL-130	121044	09/25/2016	09/24/2017
Bilog Antenna	SCHAFFNER	CBL6143	5082	02/21/2017	02/20/2018
Horn Antenna	SCHWARZBECK	BBHA9120	D286	02/27/2017	02/27/2018
Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170-497	02/27/2017	02/27/2018
Turn Table	N/A	N/A	N/A	N.C.R	N.C.R
Antenna Tower	SUNOL	TLT2	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
Test S/W	FARAD	LZ-RF / CCS-SZ-3A2			

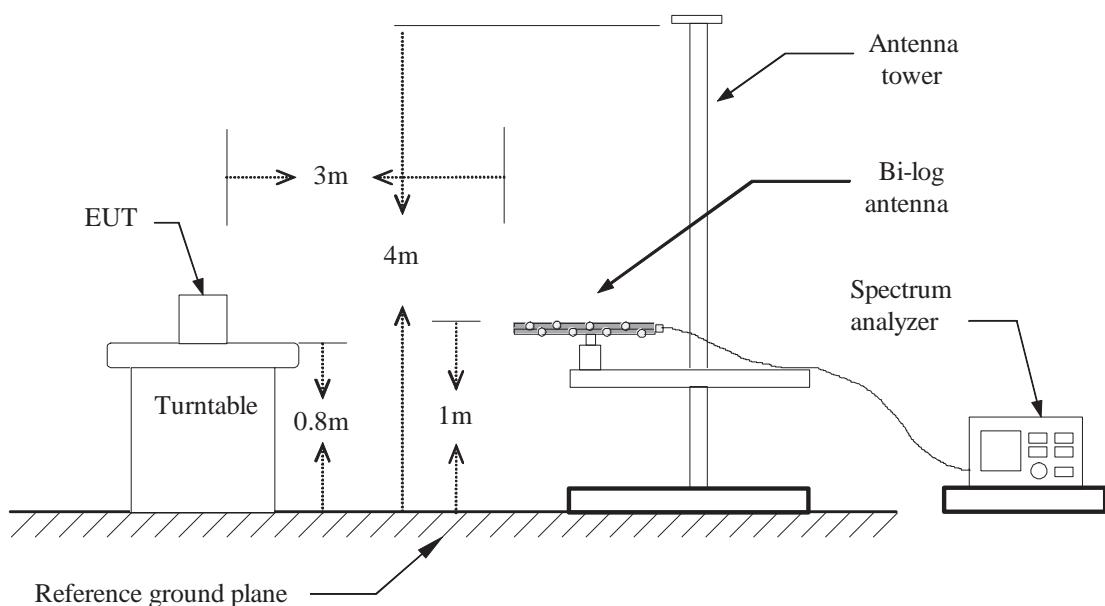
6.7.3 TEST CONFIGURATION



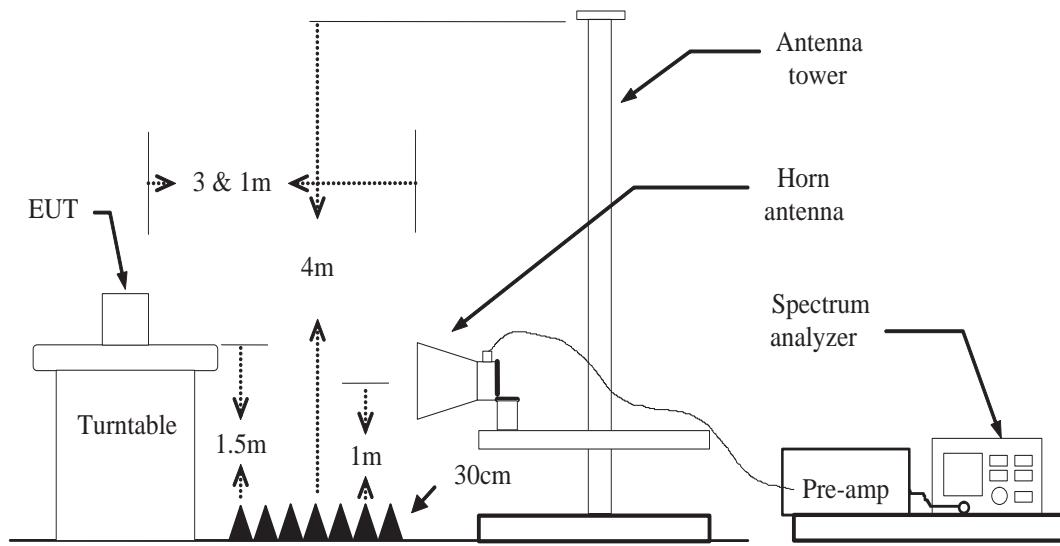
Below 30MHz



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 ($\pm 45^\circ$) 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 1 GHz to 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 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 ($\pm 45^\circ$) 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 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.



6.7.6 DATA SAMPLE

Below 1GHz

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
XXX.XXXX	36.37	-12.20	24.17	40.00	-15.83	V	QP

Frequency (MHz) = Emission frequency in MHz
 Reading (dBuV) = Uncorrected Analyzer / Receiver reading
 Correct Factor (dB/m) = Antenna factor + Cable loss – Amplifier gain
 Result (dBuV/m) = Reading (dBuV) + Corr. Factor (dB/m)
 Limit (dBuV/m) = Limit stated in standard
 Margin (dB) = Result (dBuV/m) – Limit (dBuV/m)
 Q.P. = Quasi-peak Reading

Above 1GHz

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
XXXX.XXXX	62.09	-11.42	50.67	74.00	-23.33	V	Peak
XXXX.XXXX	49.78	-11.42	38.36	54.00	-15.64	V	AVG

Frequency (MHz) = Emission frequency in MHz
 Reading (dBuV) = Uncorrected Analyzer / Receiver reading
 Correction Factor (dB/m) = Antenna factor + Cable loss – Amplifier gain
 Result (dBuV/m) = Reading (dBuV) + Corr. Factor (dB/m)
 Limit (dBuV/m) = Limit stated in standard
 Margin (dB) = Result (dBuV/m) – Limit (dBuV/m)
 Peak = Peak Reading
 AVG = Average Reading

Calculation Formula

Margin (dB) = Result (dBuV/m) – Limits (dBuV/m)
 Result (dBuV/m) = Reading (dBuV) + Correction Factor



6.7.7 TEST RESULTS

Below 1 GHz

Test Mode: TX / IEEE 802.11a / 5180MHz /(CH Low)

Tested by: Sam Zeng

Ambient temperature: 24°C **Relative humidity:** 52% RH

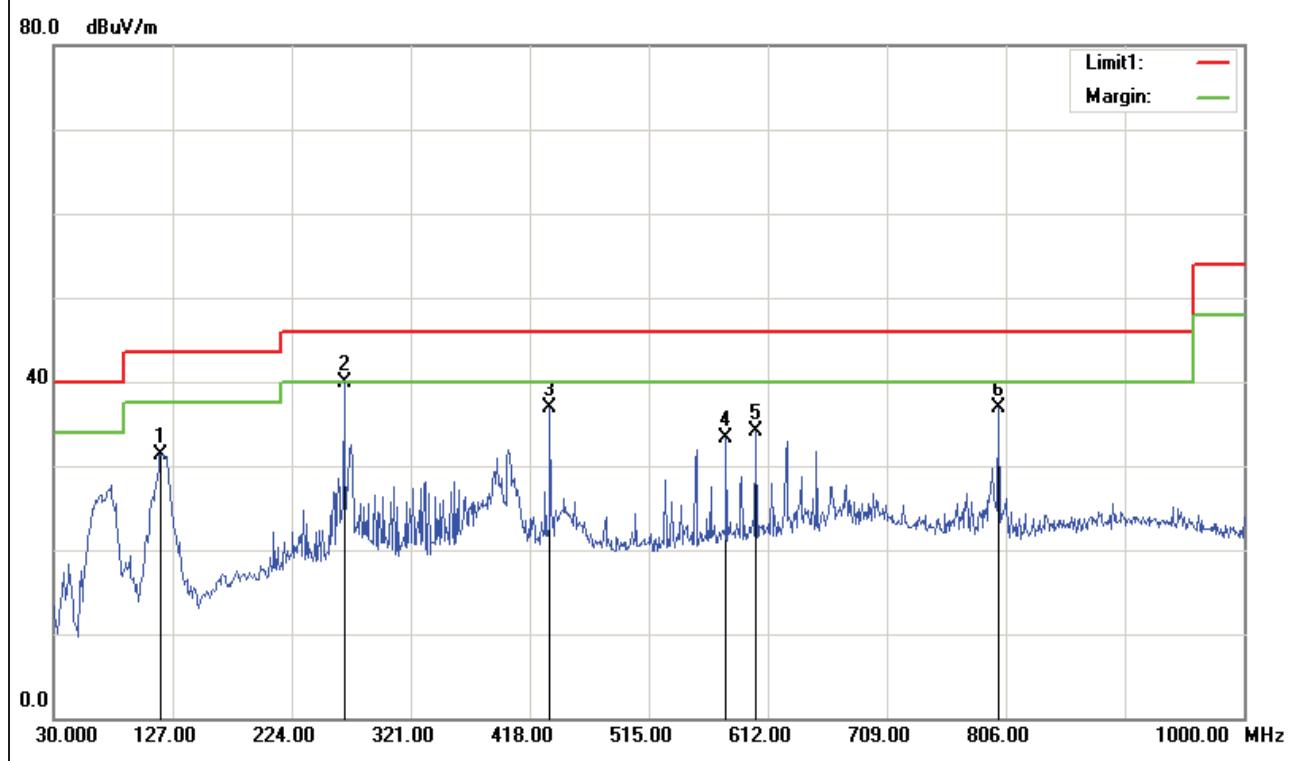
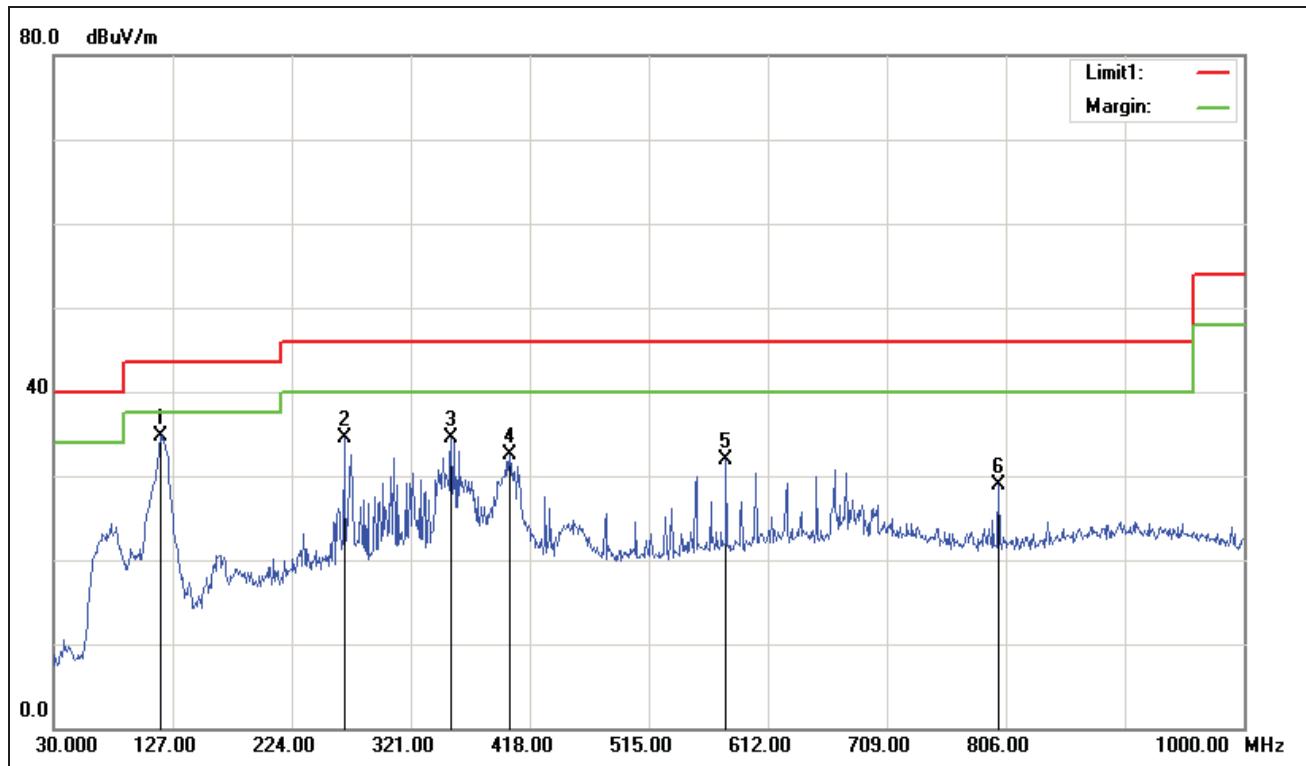
Date: June 21, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
117.3000	45.78	-14.42	31.36	43.50	-12.14	V	QP
266.6800	48.78	-8.79	39.99	46.00	-6.01	V	QP
434.4900	42.41	-5.55	36.86	46.00	-9.14	V	QP
578.0500	37.83	-4.51	33.32	46.00	-12.68	V	QP
602.3000	38.17	-3.98	34.19	46.00	-11.81	V	QP
800.1800	40.89	-4.08	36.81	46.00	-9.19	V	QP
117.3000	49.10	-14.42	34.68	43.50	-8.82	H	QP
266.6800	43.23	-8.79	34.44	46.00	-11.56	H	QP
353.9800	42.47	-7.97	34.50	46.00	-11.50	H	QP
401.5100	38.87	-6.44	32.43	46.00	-13.57	H	QP
578.0500	36.38	-4.51	31.87	46.00	-14.13	H	QP
800.1800	32.97	-4.08	28.89	46.00	-17.11	H	QP

Pre-scan all mode and recorded the worst case results in this report (802.11a (Low Mid)).

Remark:

1. No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz)
2. Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using peak/quasi-peak detector mode.
3. Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit.
4. Data of measurement within this frequency range shown “ --- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with “ N/A ” remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Quasi-peak limit (dBuV/m).

**Vertical****Horizontal**

**Above 1 GHz****1GHz~6GHz****Test Mode:** TX / IEEE 802.11a / 5180MHz /(CH Low)**Tested by:** Sam Zeng**Ambient temperature:** 24°C **Relative humidity:** 52% RH**Date:** June 3, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1240.000	51.00	-7.64	43.36	74.00	-30.64	V	peak
1465.000	50.54	-6.94	43.60	74.00	-30.40	V	peak
1660.000	50.82	-6.57	44.25	74.00	-29.75	V	peak
2200.000	47.61	-3.90	43.71	74.00	-30.29	V	peak
3375.000	43.28	-0.73	42.55	74.00	-31.45	V	peak
4960.000	42.16	4.85	47.01	74.00	-26.99	V	peak
1400.000	51.66	-7.06	44.60	74.00	-29.40	H	Peak
1800.000	47.88	-6.27	41.61	74.00	-32.39	H	Peak
2500.000	45.84	-2.26	43.58	74.00	-30.42	H	Peak
3200.000	43.65	-1.02	42.63	74.00	-31.37	H	peak
4070.000	42.60	1.84	44.44	74.00	-29.56	H	peak
4725.000	42.55	4.08	46.63	74.00	-27.37	H	peak

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit.
4. Data of measurement within this frequency range shown “ --- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with “ N/A ” remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).