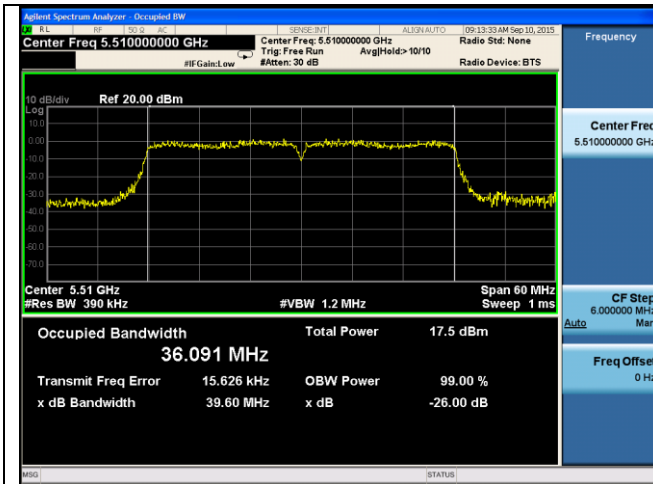
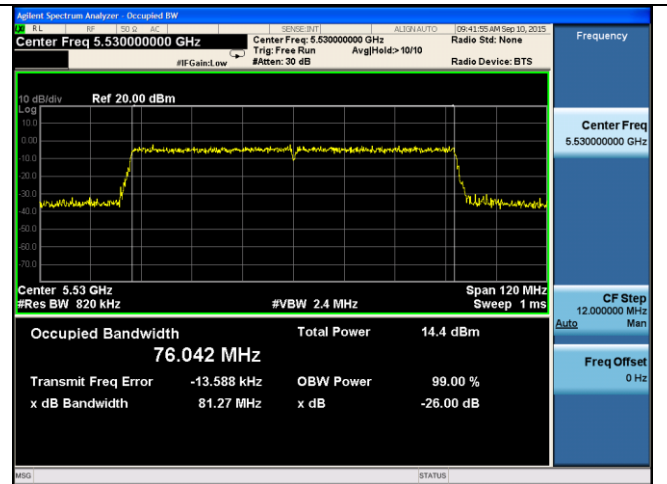
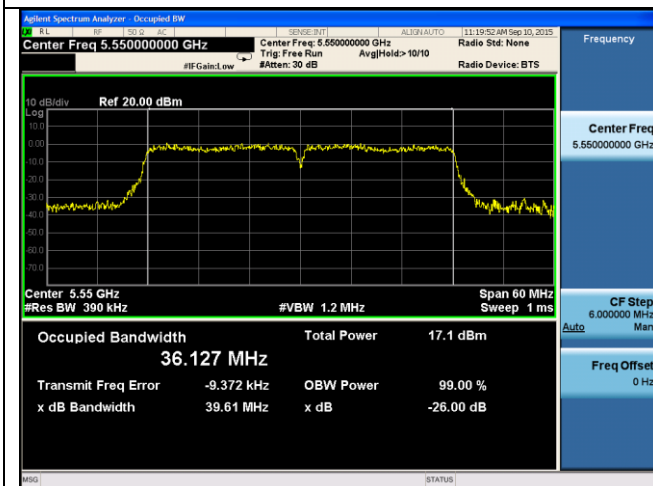




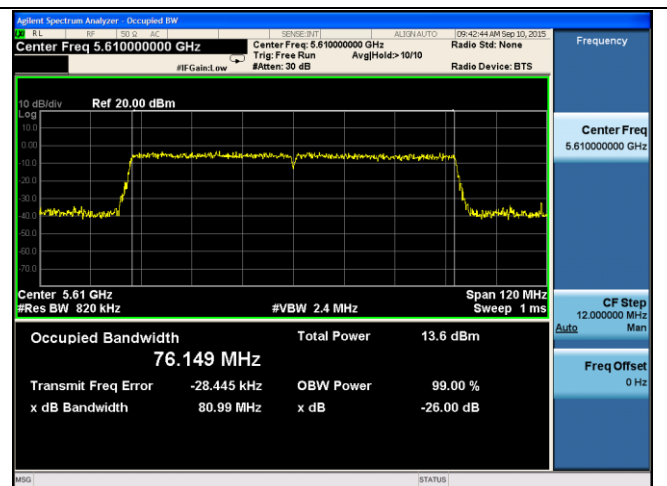
26dB BW - 802.11n40 5510MHz



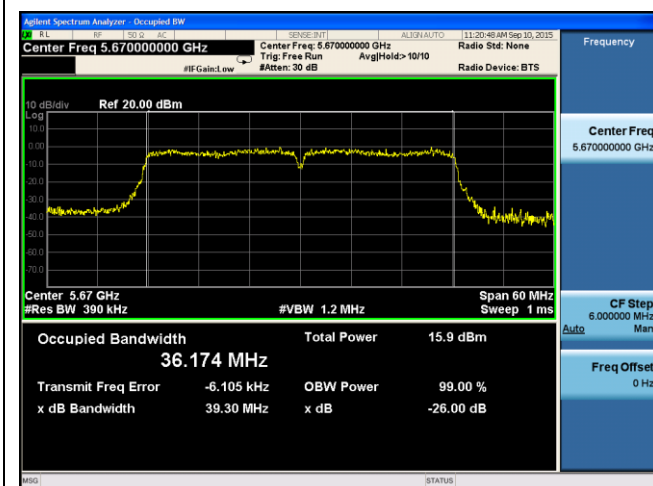
26dB BW - 802.11ac-80M 5530MHz



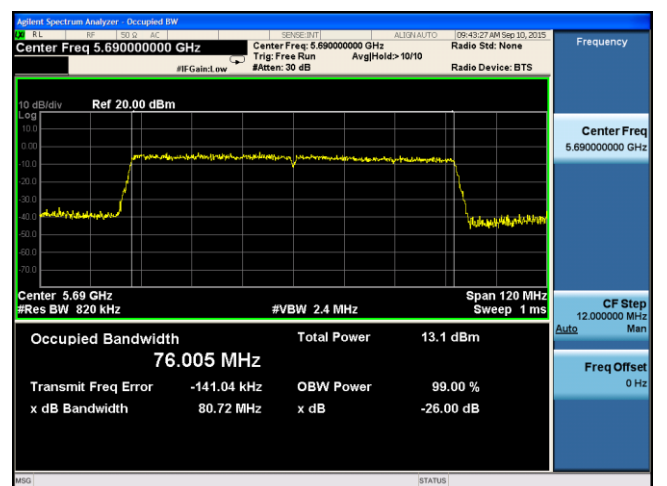
26dB BW - 802.11n40 5550MHz



26dB BW - 802.11ac-800 5610MHz

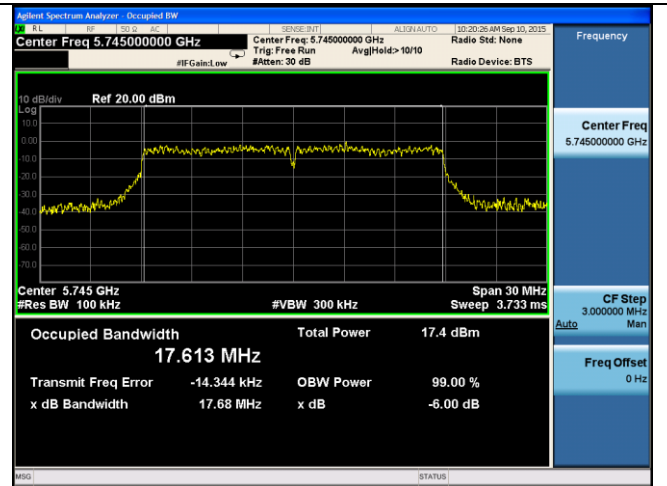
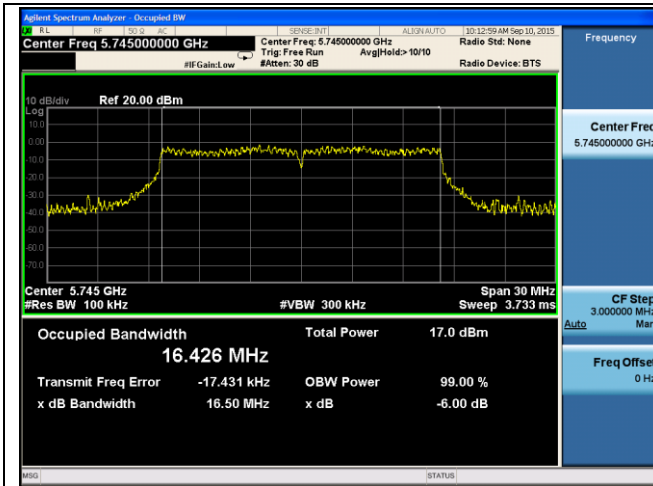


26dB BW - 802.11n-40M 5670MHz



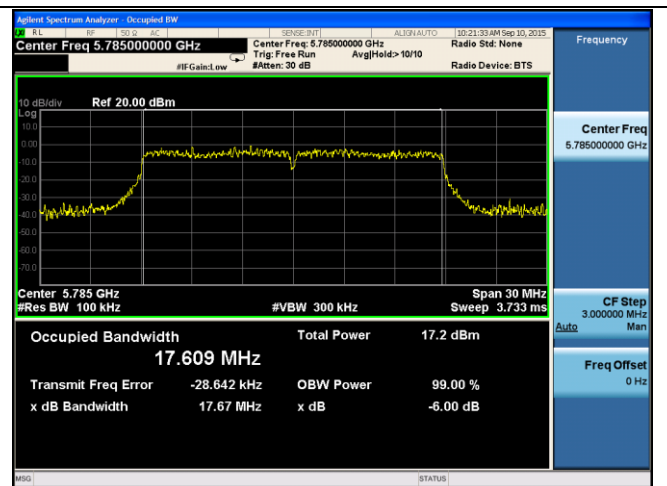
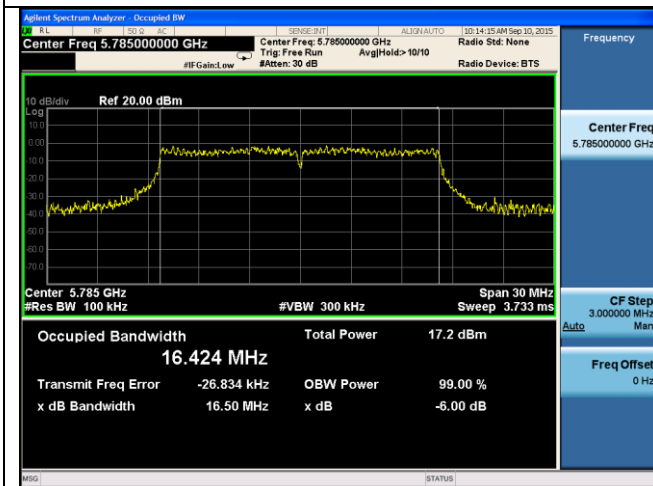
26dB BW - 802.11ac-80M 5690MHz

6dB Bandwidth Test Plots



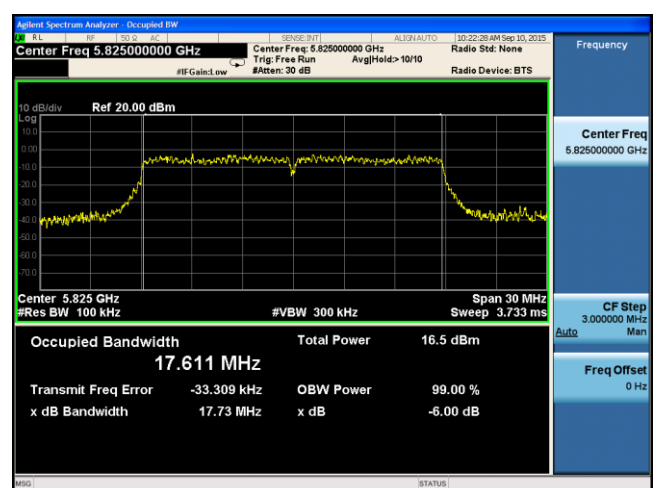
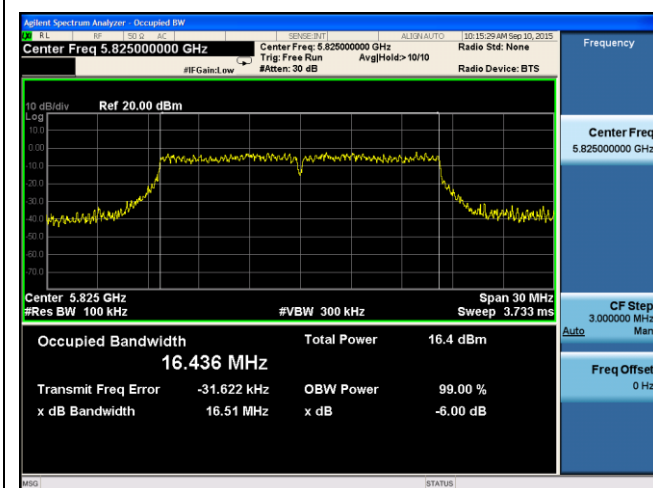
6dB BW 802.11a 5745MHz

6dB BW 802.11n-20M 5745MHz



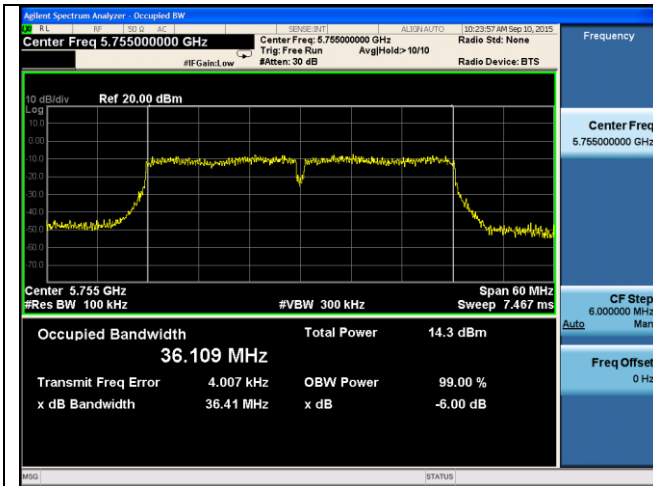
6dB BW 802.11a 5785MHz

6dB BW 802.11n-20M 5785MHz

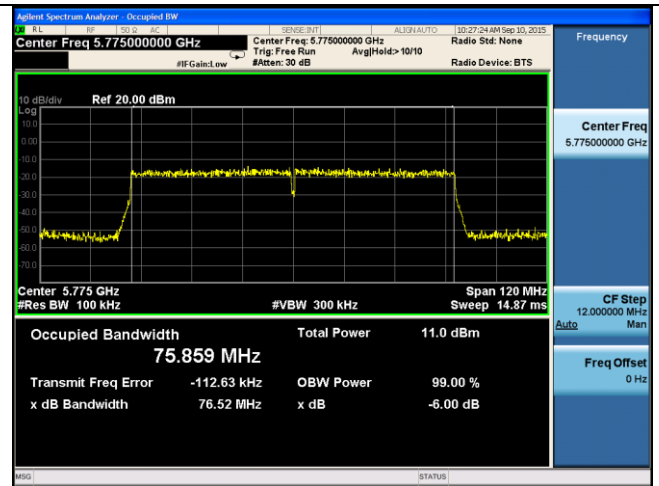


6dB BW 802.11a 5825MHz

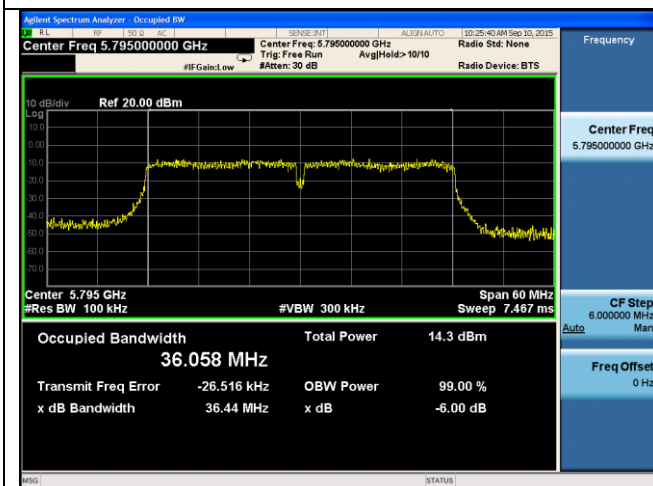
6dB BW 802.11n-20M 5825MHz



6dB BW 802.11n-40M 5755MHz



6dB BW 802.11ac-80 5775MHz



6dB BW 802.11n40 5795MHz

10.3 Peak Output Power

Requirement(s):

Spec	Item	Requirement	Applicable
§ 15.407	a)(1)(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. 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).	☐
	a)(1)(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.	☒
	a)(1)(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. 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.	☐
	a)(1)(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.	☐
	a)(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.	☒
	a)(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.	☒

Test Setup



Test Procedure

789033 D02 General UNII Test Procedures New Rules v01

Measurement using a Power Meter (PM)

Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

- Connect EUT's RF output power to power meter
- Set EUT to be continuous transmission mode
- Measurement the average output power using power meter and record the result
- Repeat above steps for different test channel and other modulation type.

Test Date	09/10/2015	Environmental condition	Temperature Relative Humidity Atmospheric Pressure	21°C 40% 1019mbar
Remark	-			
Result	☒ Pass ☐ Fail			

Test Data ☒ Yes ☐ N/A

Test Plot ☐ Yes (See below) ☒ N/A

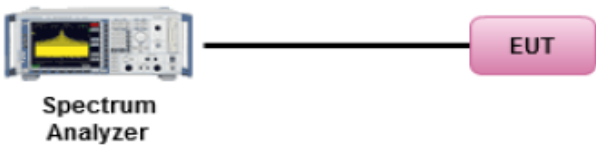
Output Power measurement result :

5.2 GHz					
Test mode	Freq(MHz)	CH	Conducted Power (dBm)	Limit (dBm)	Result
802.11a	5180	Low	11.68	30	pass
	5200	Mid	11.48	30	pass
	5240	High	11.71	30	pass
802.11n20	5180	Low	11.97	30	pass
	5200	Mid	11.73	30	pass
	5240	High	11.71	30	pass
802.11n40	5190	Low	12.21	30	pass
	5230	High	13.04	30	pass
802.11ac80	5210	Mid	7.11	30	pass
5.3 GHz					
Test mode	Freq(MHz)	CH	Conducted Power (dBm)	Limit 11dBm or 250Mw + 10logB	Result
802.11a	5260	Low	11.87	24	pass
	5280	Mid	11.69	24	pass
	5320	High	11.49	24	pass
802.11n20	5260	Low	12.12	24	pass
	5280	Mid	11.75	24	pass
	5320	High	11.80	24	pass
802.11n40	5270	Low	12.48	24	pass
	5310	High	12.14	24	pass
802.11ac80	5290	Mid	7.38	24	pass
5.5 GHz					
Test mode	Freq(MHz)	CH	Conducted Power (dBm)	Limit 11dBm or 250Mw + 10logB	Result
802.11a	5500	Low	13.95	24	pass
	5580	Mid	13.57	24	pass
	5700	High	12.15	24	pass
802.11n20	5500	Low	13.92	24	pass
	5580	Mid	13.57	24	pass
	5700	High	12.11	24	Pass
802.11n40	5510	Low	14.35	24	Pass
	5550	Mid	14.76	24	Pass
	5670	High	14.53	24	Pass
802.11ac80	5530	Low	9.59	24	Pass
	5610	High	8.77	24	Pass
	5690	High	7.84	24	Pass

5.8 GHz					
Test mode	Freq(MHz)	CH	Conducted Power (dBm)	Limit	Result
802.11a	5745	Low	11.35	30 dBm	Pass
	5785	Mid	11.59	30 dBm	Pass
	5825	High	10.87	30 dBm	Pass
802.11n20	5745	Low	11.74	30 dBm	Pass
	5785	Mid	11.53	30 dBm	Pass
	5825	High	10.89	30 dBm	Pass
802.11n40	5755	Low	12.06	30 dBm	Pass
	5795	High	11.63	30 dBm	Pass
802.11ac80	5775	Mid	7.22	30 dBm	Pass

10.4 Peak Spectral Density

Requirement(s):

Spec	Item	Requirement	Applicable
§ 15.407	a)(1)(i)	For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band.	☐
	a)(1)(ii)	For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band.	☒
	a)(2)	For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.	☒
	a)(3)	For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.	☒
Test Setup			
Test Procedure	789033 D02 General UNII Test Procedures New Rules v01, II.F. Method SA-1 <u>Maximum spectral density measurement procedure</u> - Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal. - Set RBW = 1 MHz - Set VBW ≥ 3 MHz - Detector = RMS. - Sweep time = auto couple. - Trace mode = max hold. - Trace average at least 100 traces in power averaging - Use the peak marker function to determine the maximum amplitude level within the RBW. Apply correction to the result if different RBW is used.		
Test Date	09/10/2015	Environmental condition	Temperature 22°C Relative Humidity 42% Atmospheric Pressure 1020mbar
Remark	-		
Result	☒ Pass ☐ Fail		

Equipment Setting

Test	RBW	VBW	Span	Detector	Sweep	Trace	Notes
PSD	1MHz	≥3MHz	>EBW	RMS	Auto	Max Hold	-

Test Data ☒ Yes ☐ N/A

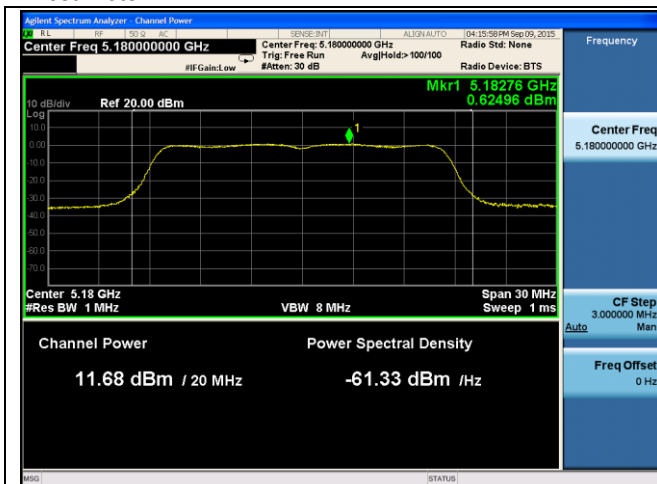
Test Plot ☒ Yes (See below) ☐ N/A

PSD measurement results :

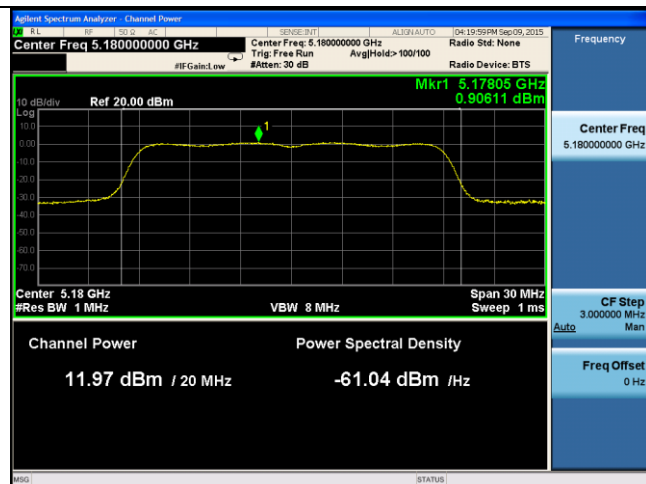
5.2 GHz					
Test mode	Freq(MHz)	CH	Conducted PSD (dBm/MHz)	Limit (dBm/MHz)	Result
802.11a	5180	Low	0.625	17	Pass
	5200	Mid	0.694	17	Pass
	5240	High	0.663	17	Pass
802.11n20	5180	Low	0.907	17	Pass
	5200	Mid	0.589	17	Pass
	5240	High	0.520	17	Pass
802.11n40	5190	Low	-8.349	17	Pass
	5230	High	-8.044	17	Pass
802.11ac80	5210	Mid	-10.903	17	Pass
5.3 GHz					
Test mode	Freq(MHz)	CH	Conducted PSD (dBm/MHz)	Limit (dBm/MHz)	Result
802.11a	5260	Low	1.015	11	Pass
	5280	Mid	0.839	11	Pass
	5320	High	0.666	11	Pass
802.11n20	5260	Low	0.836	11	Pass
	5280	Mid	0.577	11	Pass
	5320	High	0.774	11	Pass
802.11n40	5270	Low	-8.418	11	Pass
	5310	High	-8.139	11	Pass
802.11ac80	5290	Mid	-10.345	11	Pass
5.5 GHz					
Test mode	Freq(MHz)	CH	Conducted PSD (dBm/MHz)	Limit (dBm/MHz)	Result
802.11a	5500	Low	3.168	11	Pass
	5580	Mid	2.615	11	Pass
	5700	High	1.442	11	Pass
802.11n20	5500	Low	2.918	11	Pass
	5580	Mid	2.486	11	Pass
	5700	High	1.109	11	Pass
802.11n40	5510	Low	-4.894	11	Pass
	5550	Mid	-5.654	11	Pass
	5670	High	-8.361	11	Pass
802.11ac80	5530	Low	-8.427	11	Pass
	5610	High	-8.691	11	Pass
	5690	High	-9.702	11	Pass

5.8 GHz							
Test mode	Freq(MHz)	CH	Conducted PSD (dBm/100KHz)	Correction Factor*	Combined PSD (dBm/500KHz)	Limit (dBm/500KHz)	Result
802.11a	5745	Low	-8.564	6.99	-1.57	30 dBm	Pass
	5785	Mid	-8.770	6.99	-1.78	30 dBm	Pass
	5825	High	-9.076	6.99	-2.09	30 dBm	Pass
802.11n20	5745	Low	-8.714	6.99	-1.72	30 dBm	Pass
	5785	Mid	-9.241	6.99	-2.25	30 dBm	Pass
	5825	High	-9.471	6.99	-2.48	30 dBm	Pass
802.11n40	5755	Low	-14.302	6.99	-4.33	30 dBm	Pass
	5795	High	-14.306	6.99	-4.88	30 dBm	Pass
802.11ac80	5775	Mid	-19.797	6.99	-12.81	30 dBm	Pass
*Note	BW correction factor = $10\log(500\text{kHz}/\text{RBW})$						

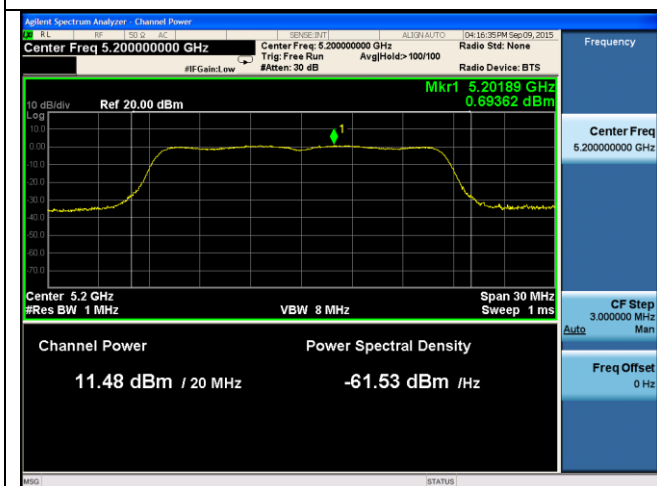
Test Plots



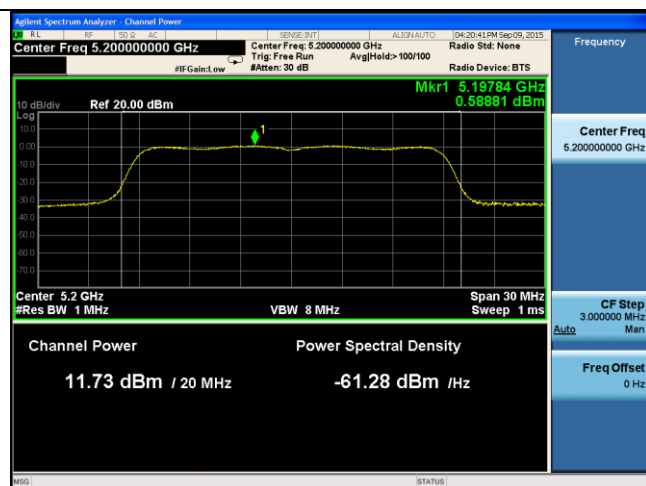
PSD-802.11a 5180MHz



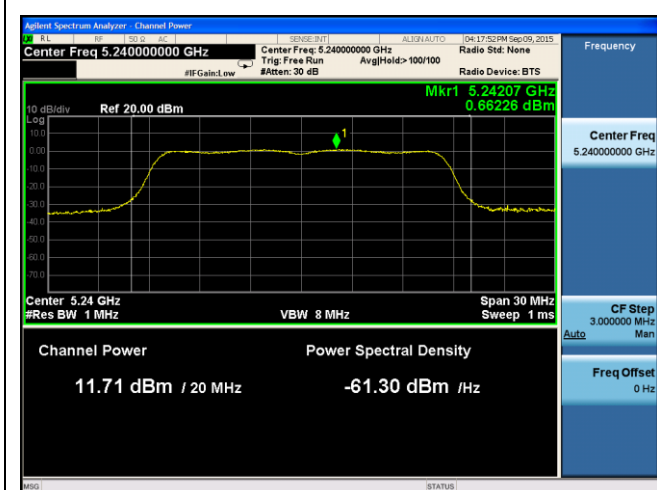
PSD-802.11n-20M 5180MHz



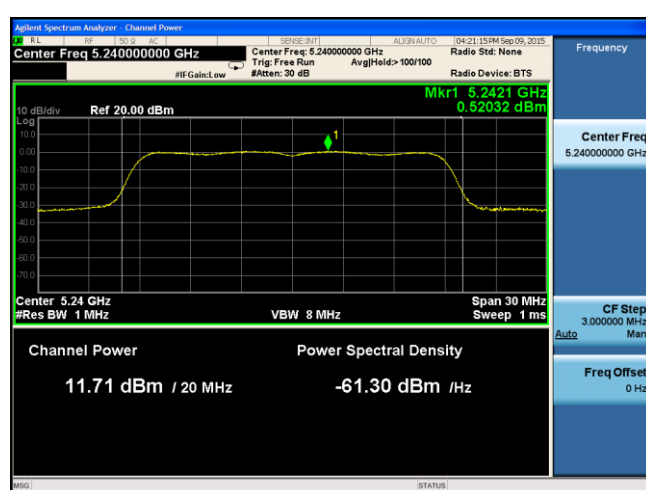
PSD-802.11a 5200MHz



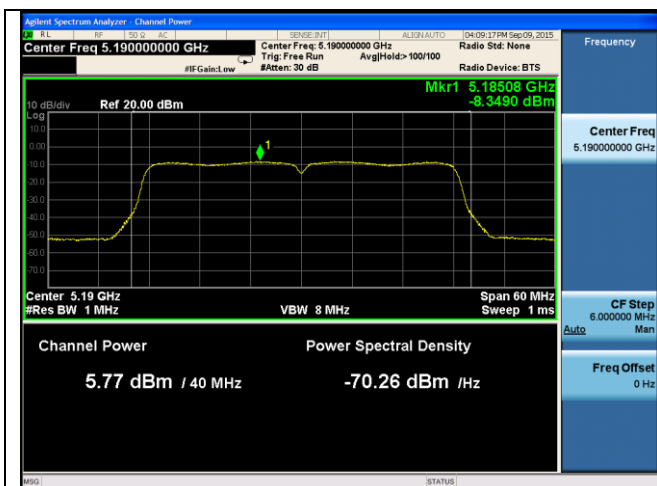
PSD-802.11n-20M 5200 MHz



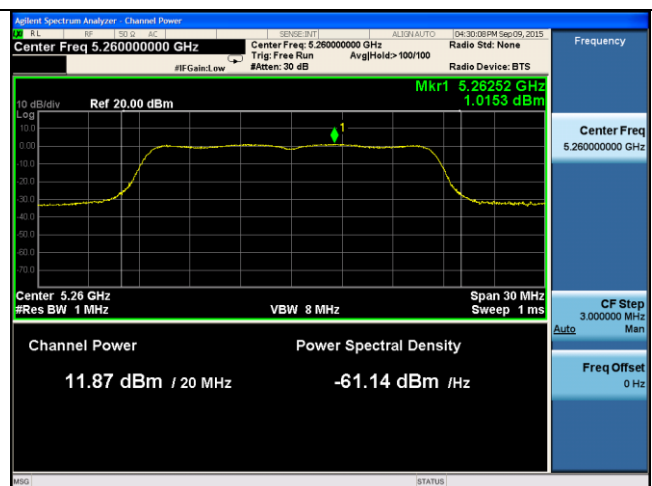
PSD-802.11a 5240MHz



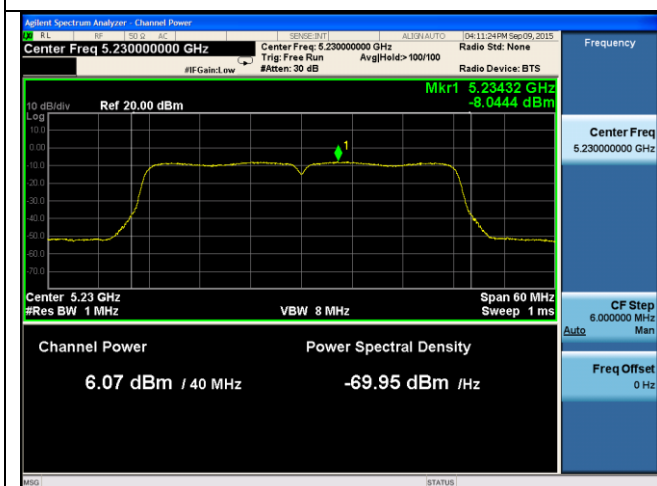
PSD-802.11n-20M 5240MHz



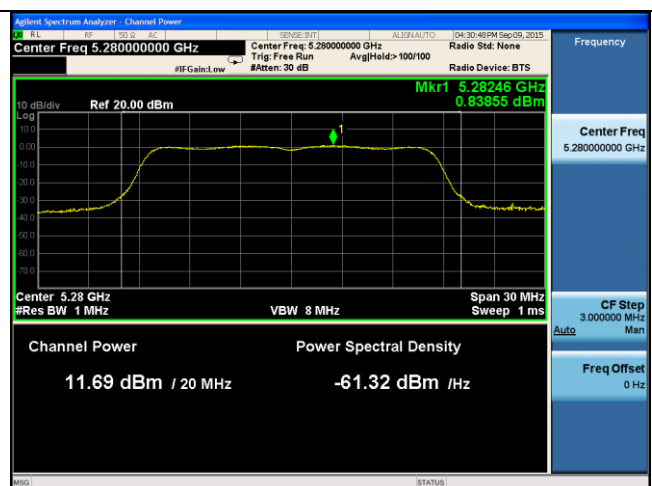
PSD-802.11n-40M 5190MHz



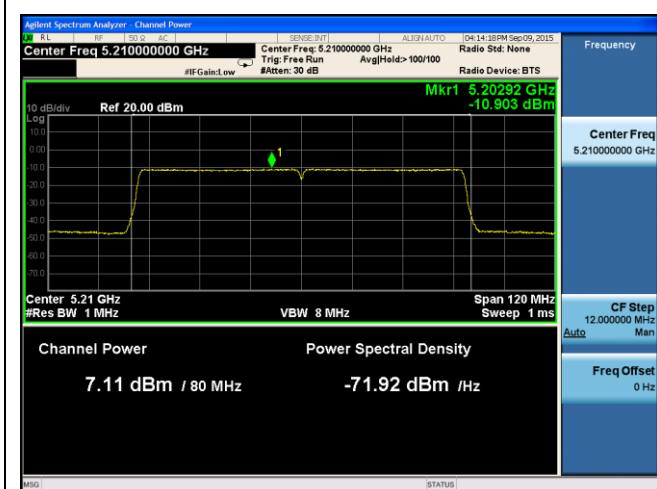
PSD-802.11a 5260MHz



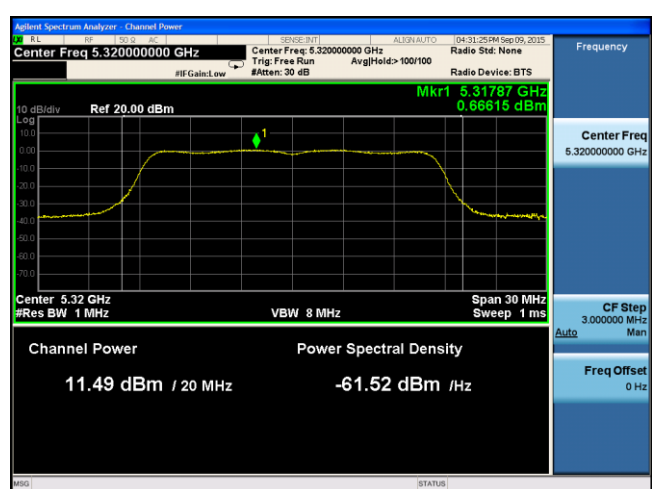
PSD-802.11n-40M 5230MHz



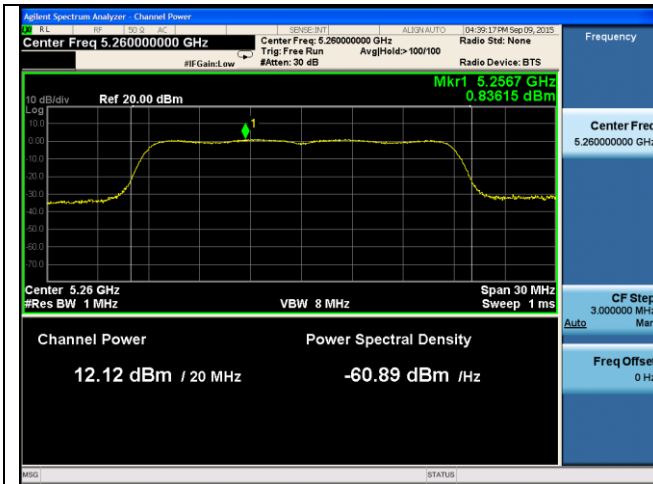
PSD-802.11a 5280MHz



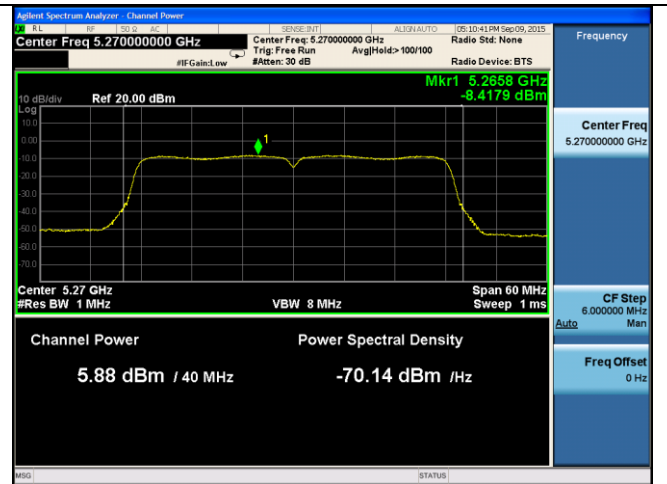
PSD-802.11ac-80M 5210MHz



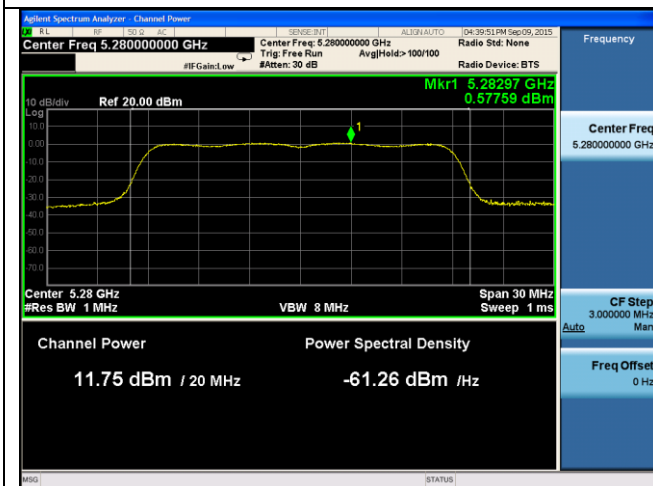
PSD-802.11a 5320MHz



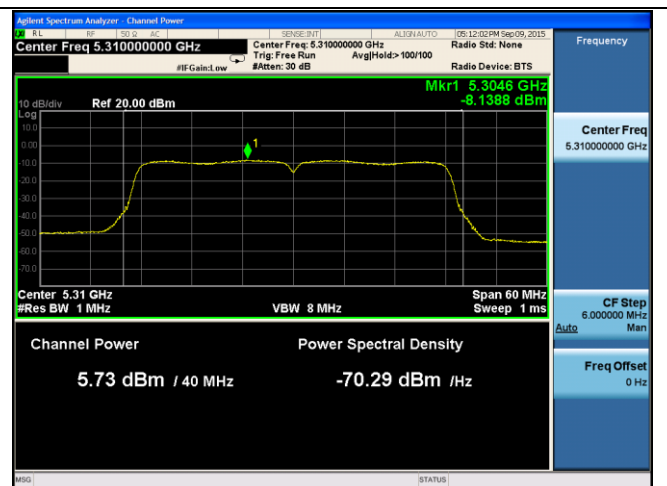
PSD-802.11n-20M 5260MHz



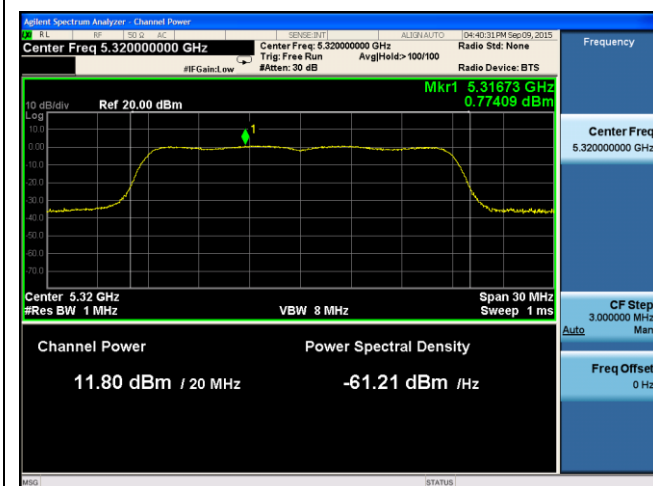
PSD-802.11n-40M 5270MHz



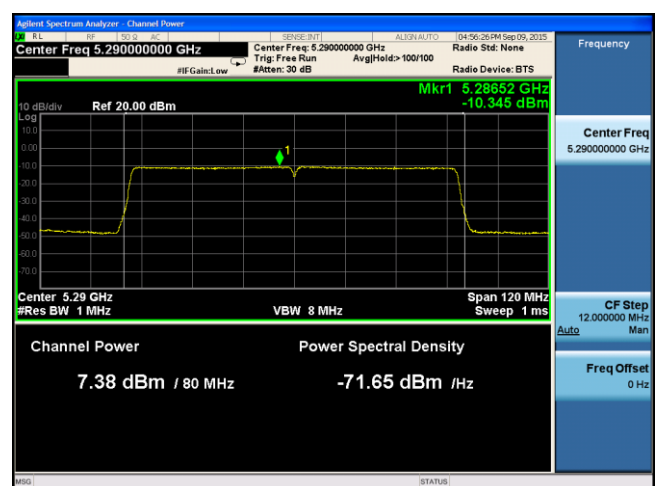
PSD-802.11n-20M 5280MHz



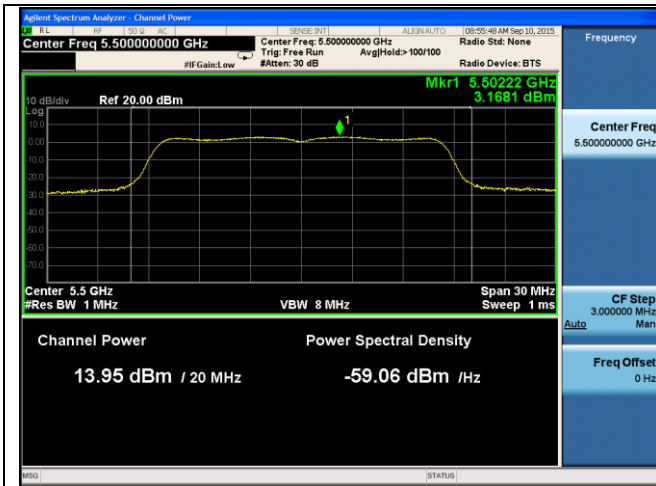
PSD-802.11n-40M 5310MHz



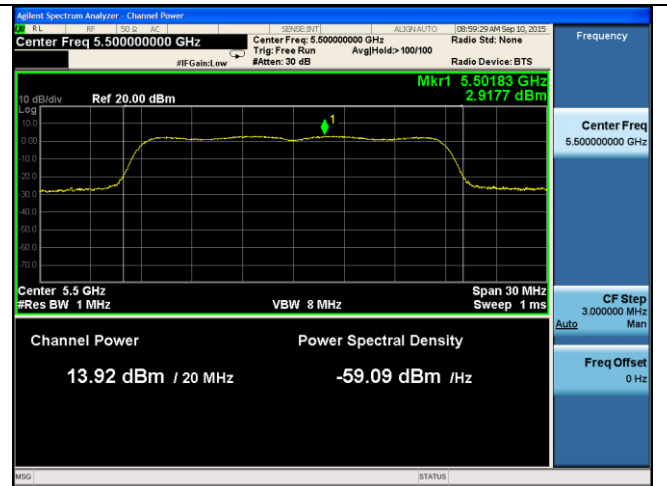
PSD-802.11n-20M 5320MHz



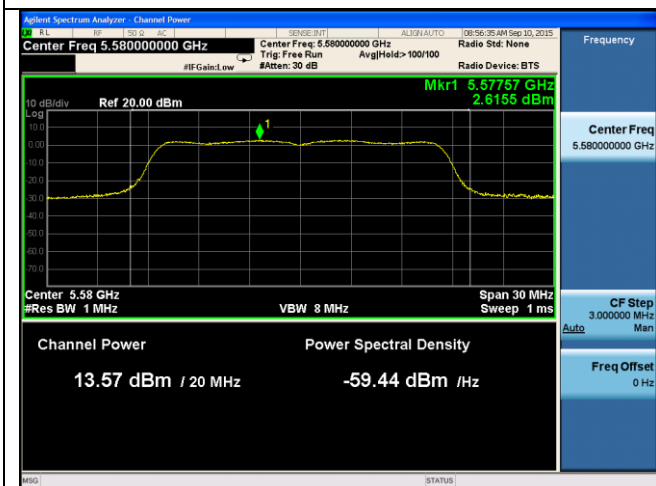
PSD-802.11ac-80M 5290MHz



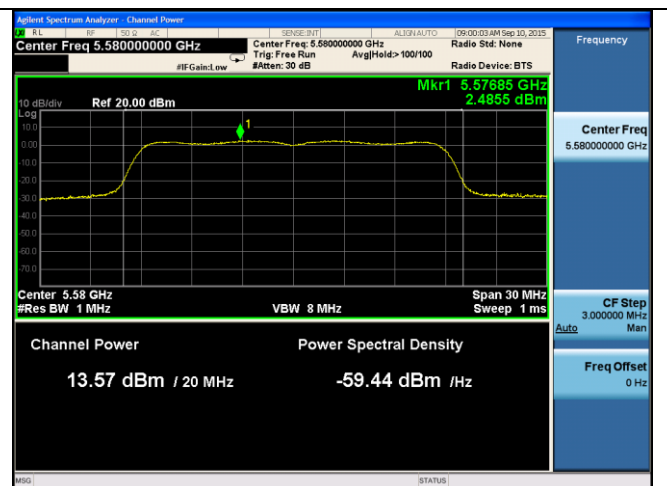
PSD-802.11a 5500MHz



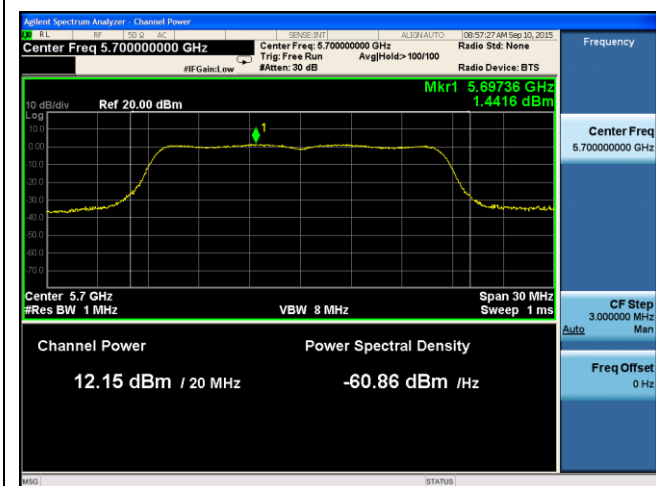
PSD-802.11n-20M 5500MHz



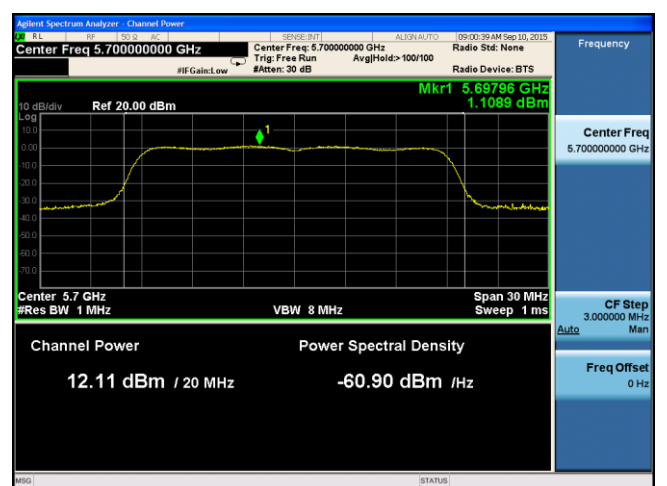
PSD-802.11a 5800MHz



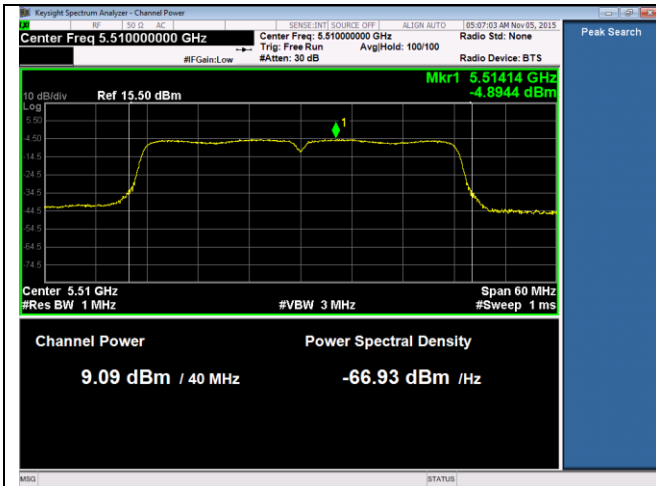
PSD-802.11n-20M 5580MHz



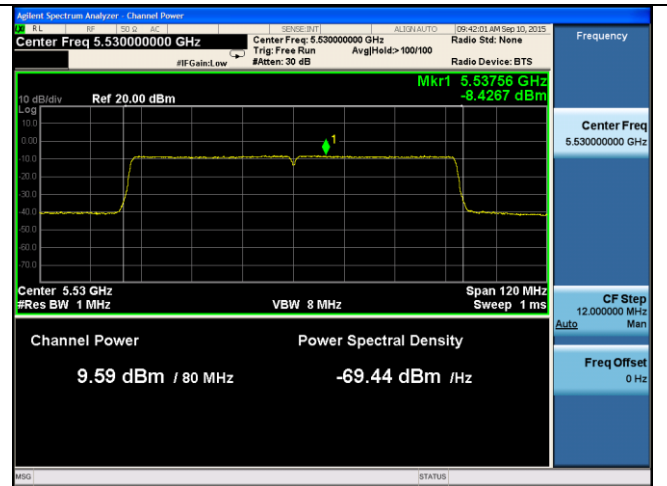
PSD-802.11a 5700MHz



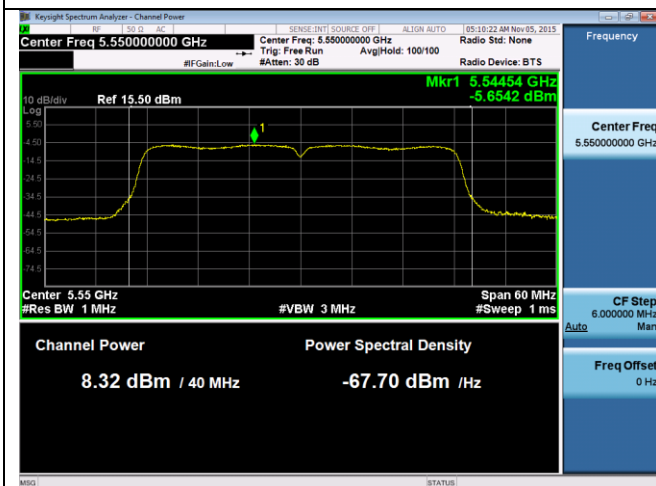
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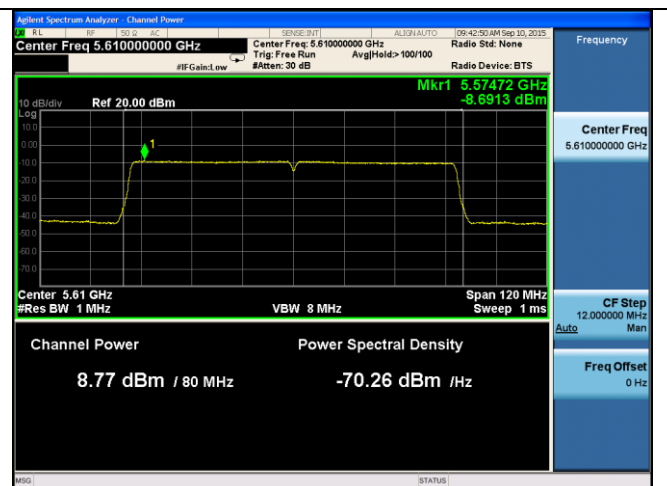
PSD-802.11n-40M 5510MHz



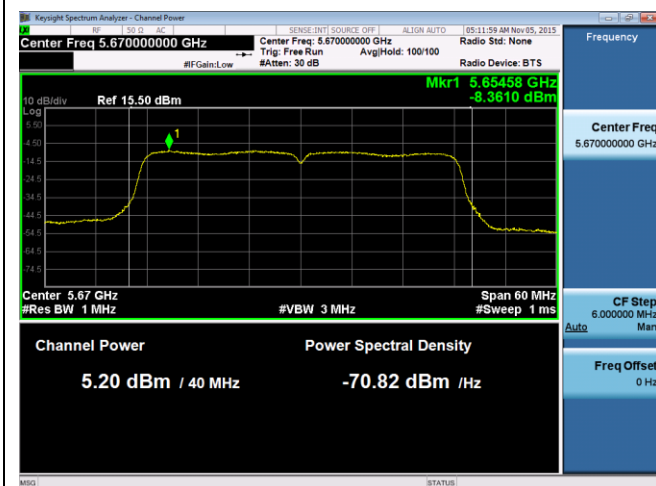
PSD-802.11ac-80M 5530MHz



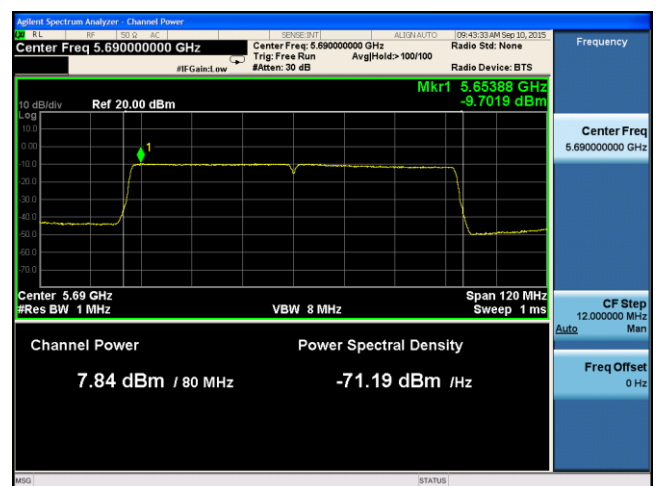
PSD-802.11n-40M 5550MHz



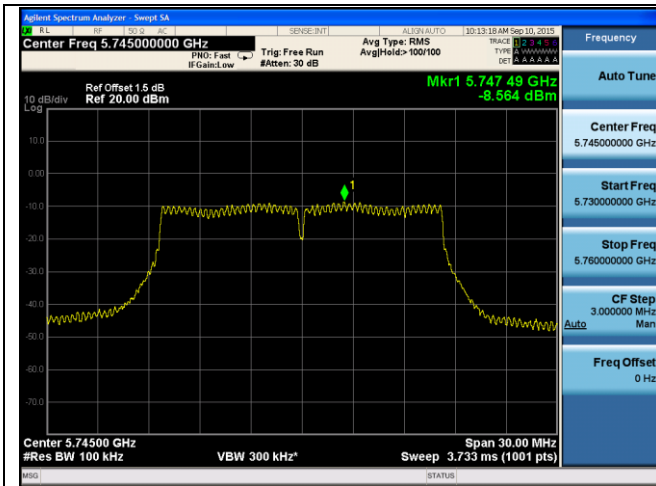
PSD-802.11ac-80M 5610MHz



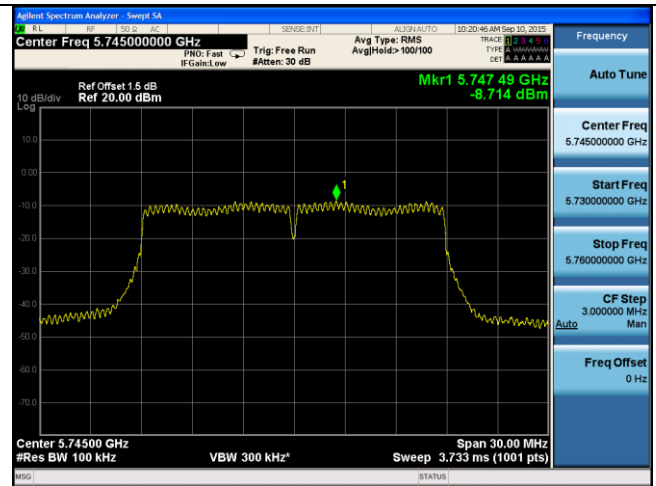
PSD-802.11n-40M 5670MHz



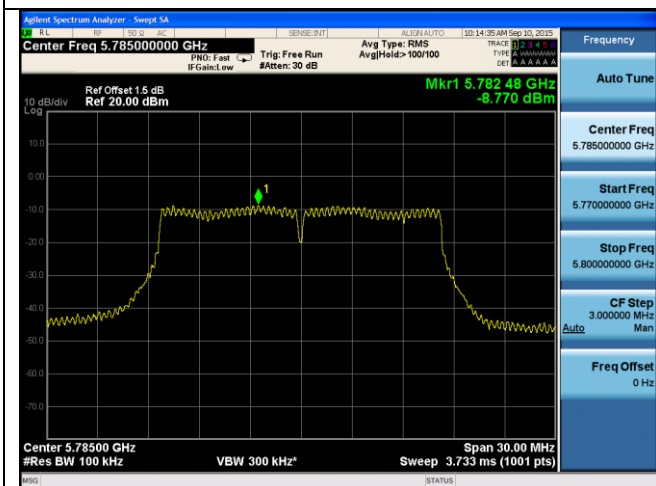
PSD-802.11ac-80M 5690MHz



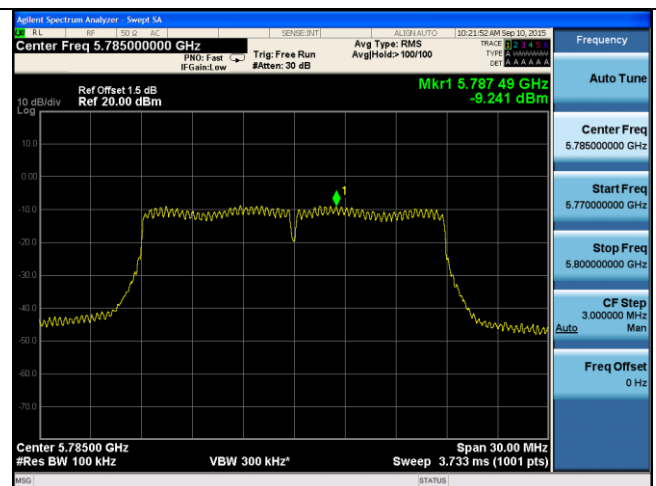
PSD-802.11a 5745MHz



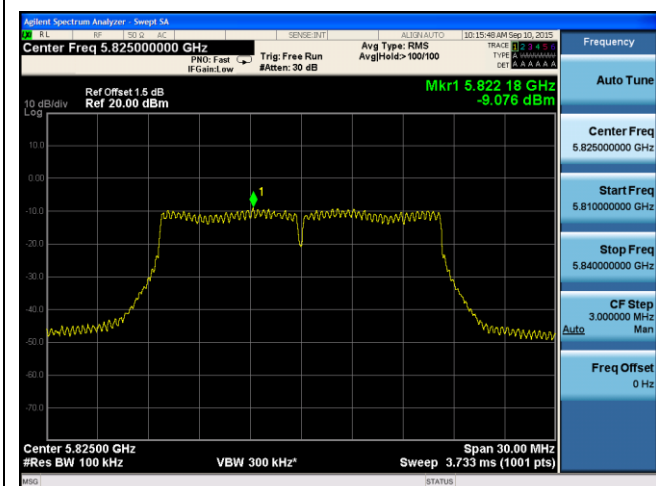
PSD-802.11n-20M 5745MHz



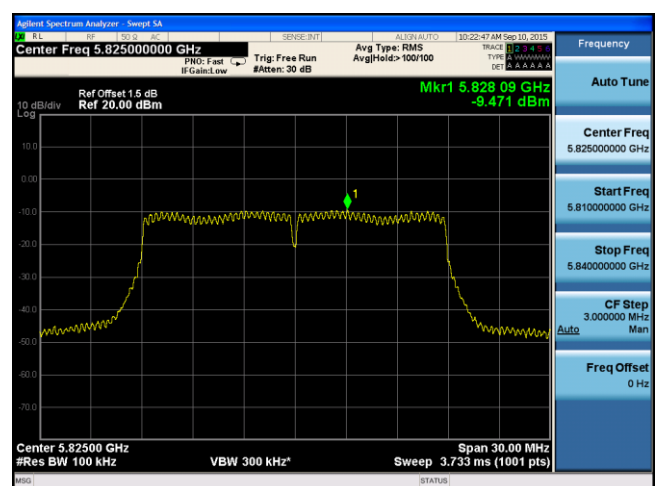
PSD-802.11a 5785MHz



PSD-802.11n-20M 5785MHz



PSD-802.11a 5825MHz



PSD-802.11n-20M 5825MHz