

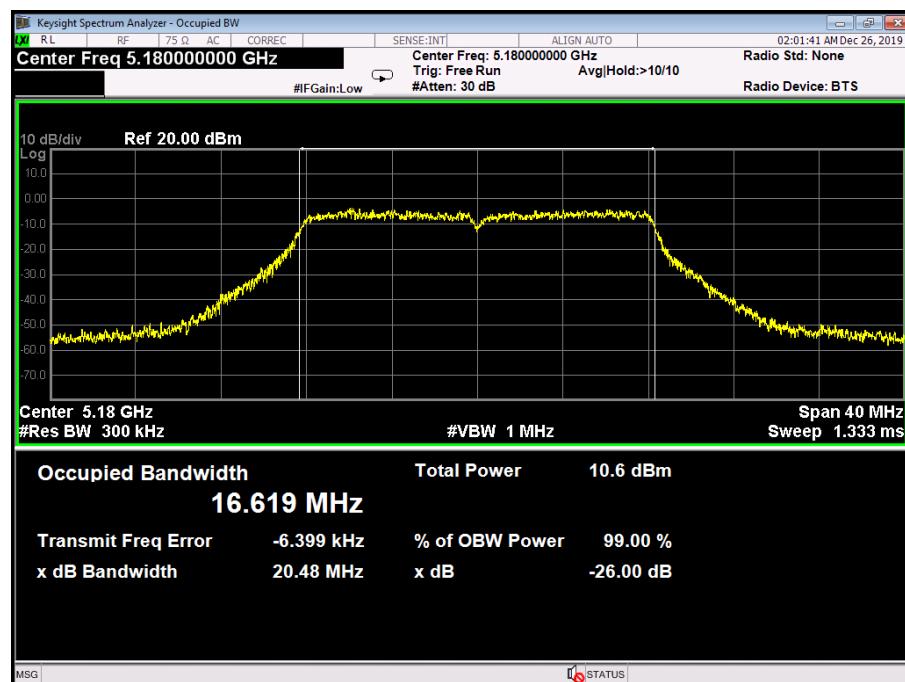
Attachment D-- Bandwidth Test Data

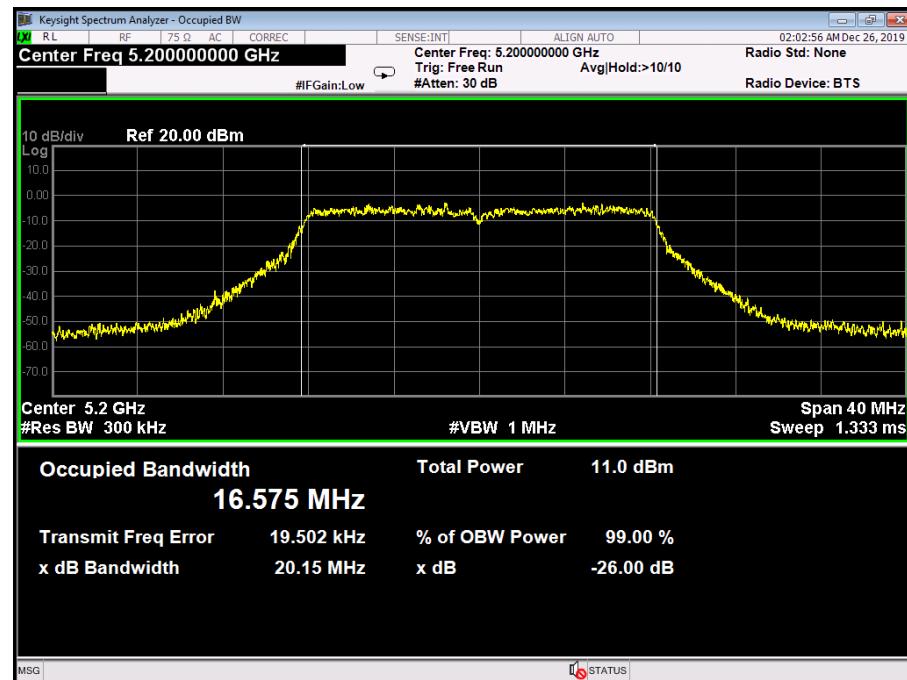
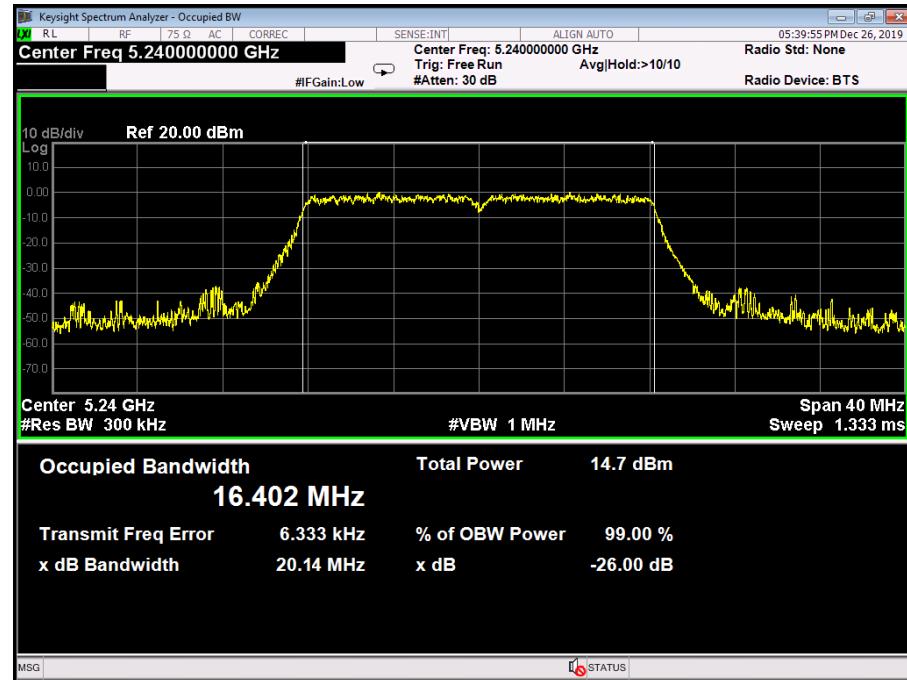
ANT 0:

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Test Mode:	TX 802.11a Mode (U-NII-1)		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
36	5180	20.48	16.619
40	5200	20.15	16.575
48	5240	20.14	16.402

802.11a Mode

5180 MHz

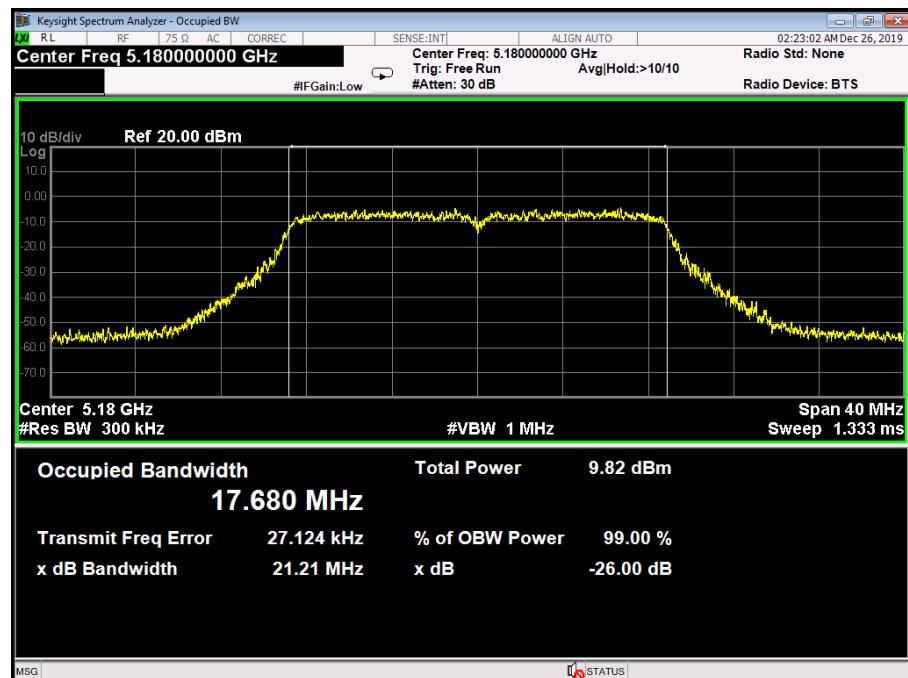


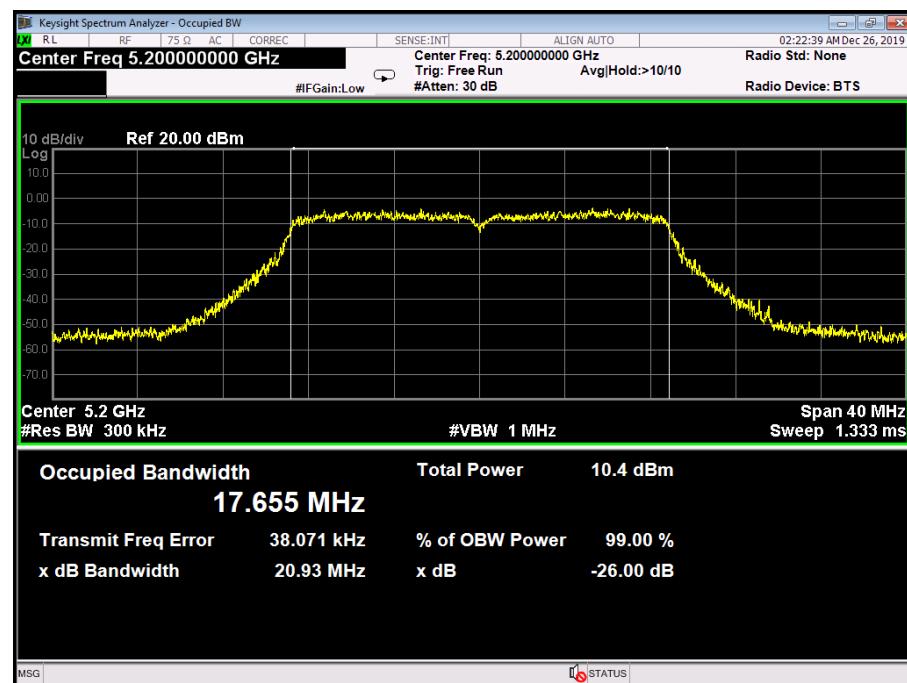
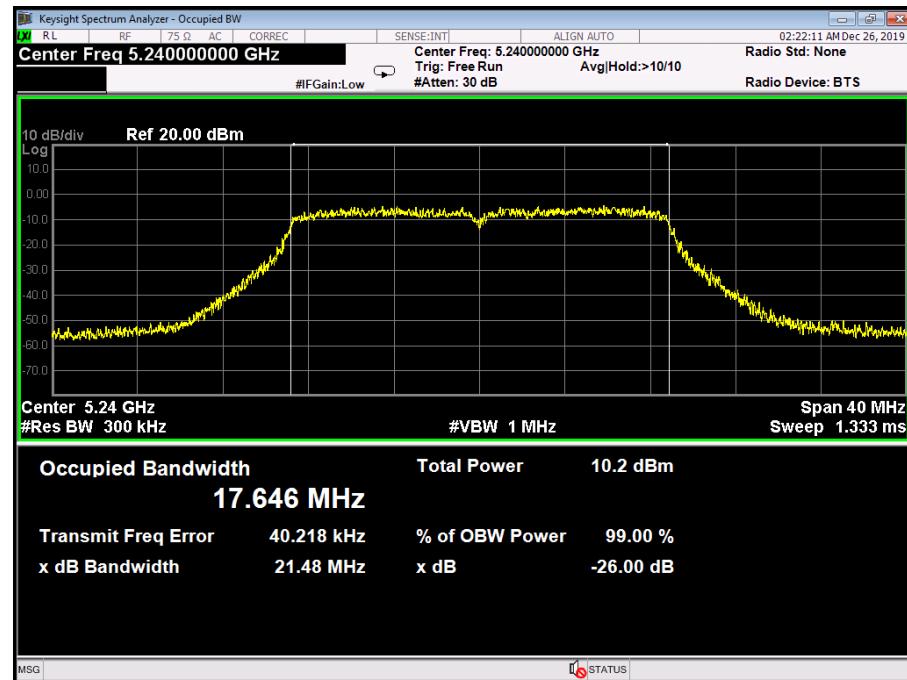
802.11a Mode**5200 MHz****802.11a Mode****5240 MHz**

ANT 0:

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Test Mode:	TX 802.11n(HT20) Mode (U-NII-1)		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
36	5180	21.21	17.680
40	5200	20.92	17.655
48	5240	21.48	17.646

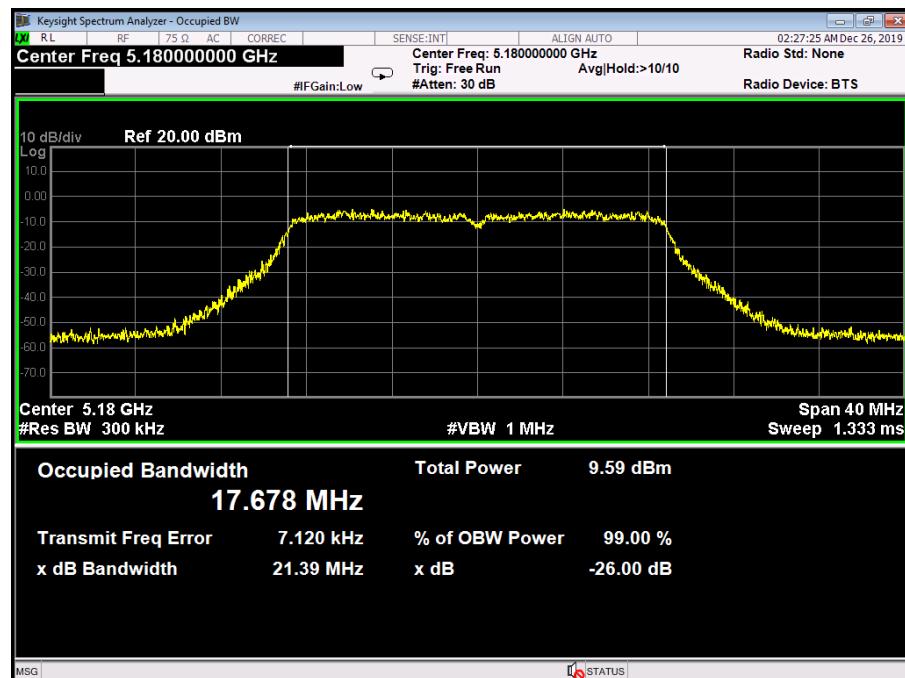
802.11n(HT20) Mode
5180 MHz

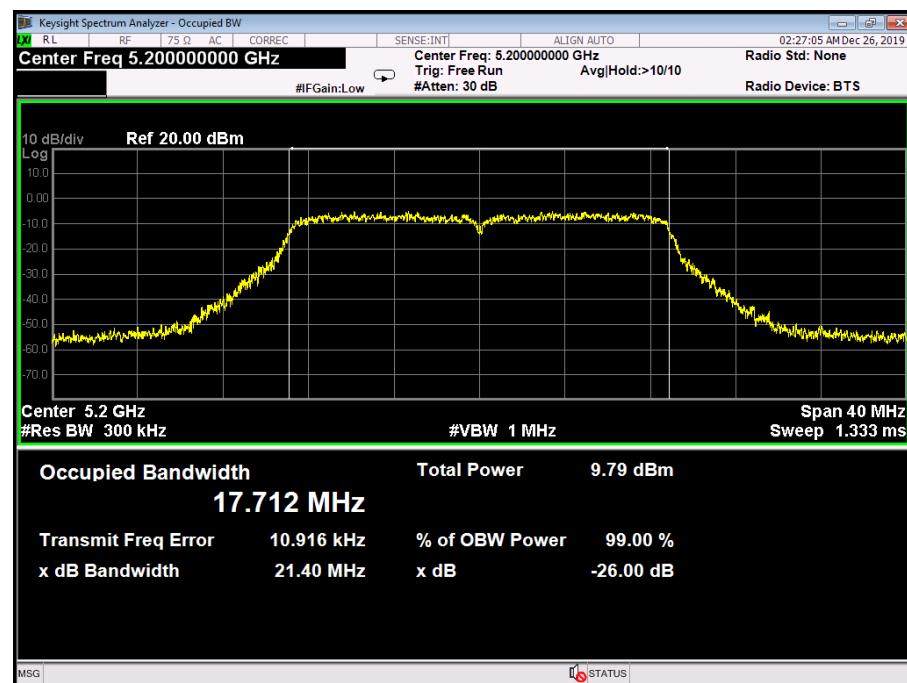
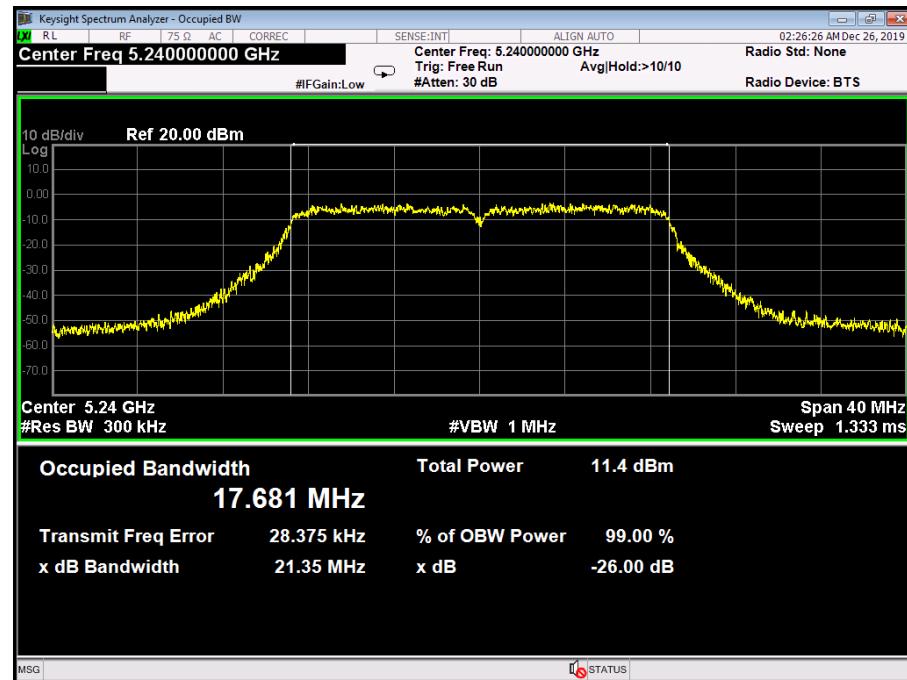


802.11n(HT20) Mode**5200 MHz****802.11n(HT20) Mode****5240 MHz**

ANT 0:

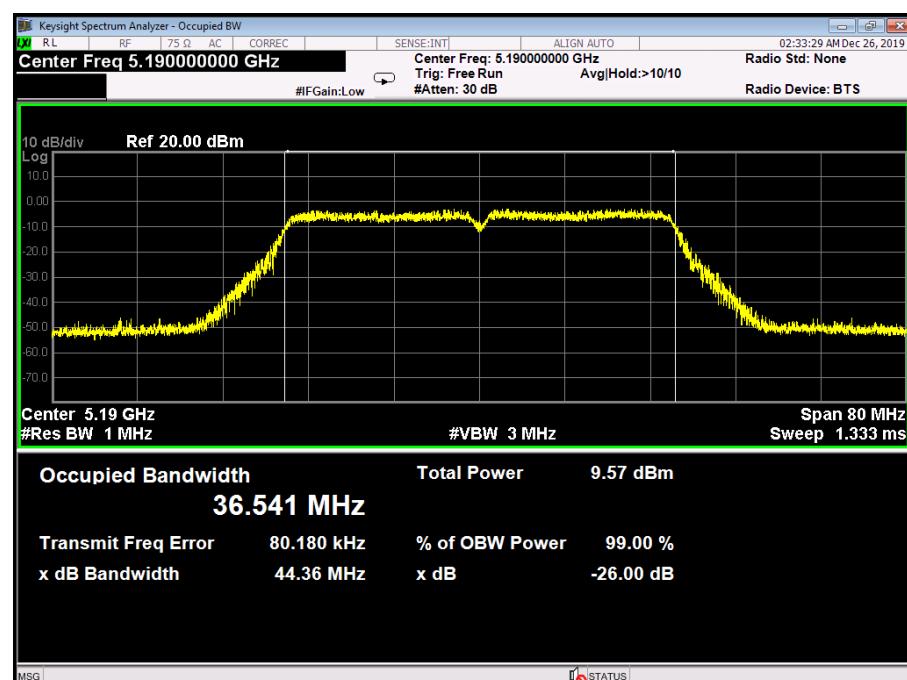
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Test Mode:	TX 802.11ac(VHT20) Mode (U-NII-1)		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
36	5180	21.39	17.678
40	5200	21.40	17.712
48	5240	21.35	17.681

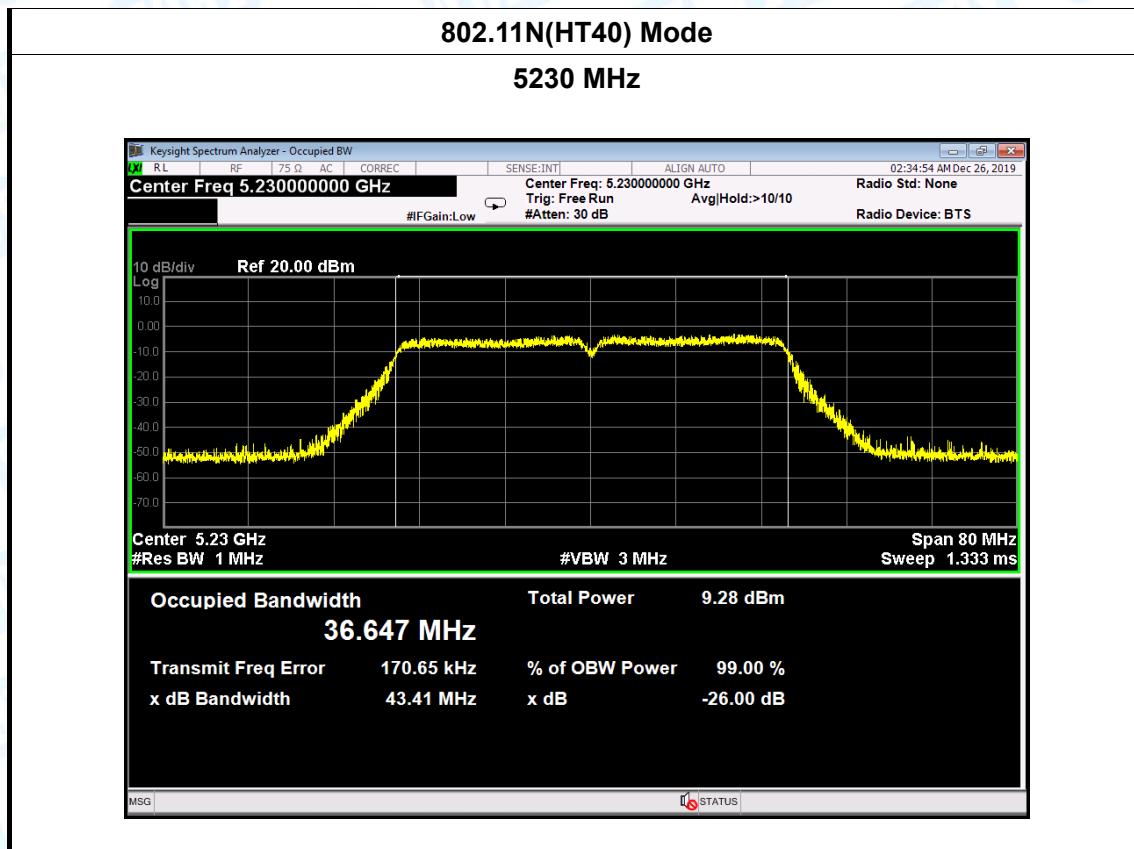
802.11ac(VHT20) Mode**5180 MHz**

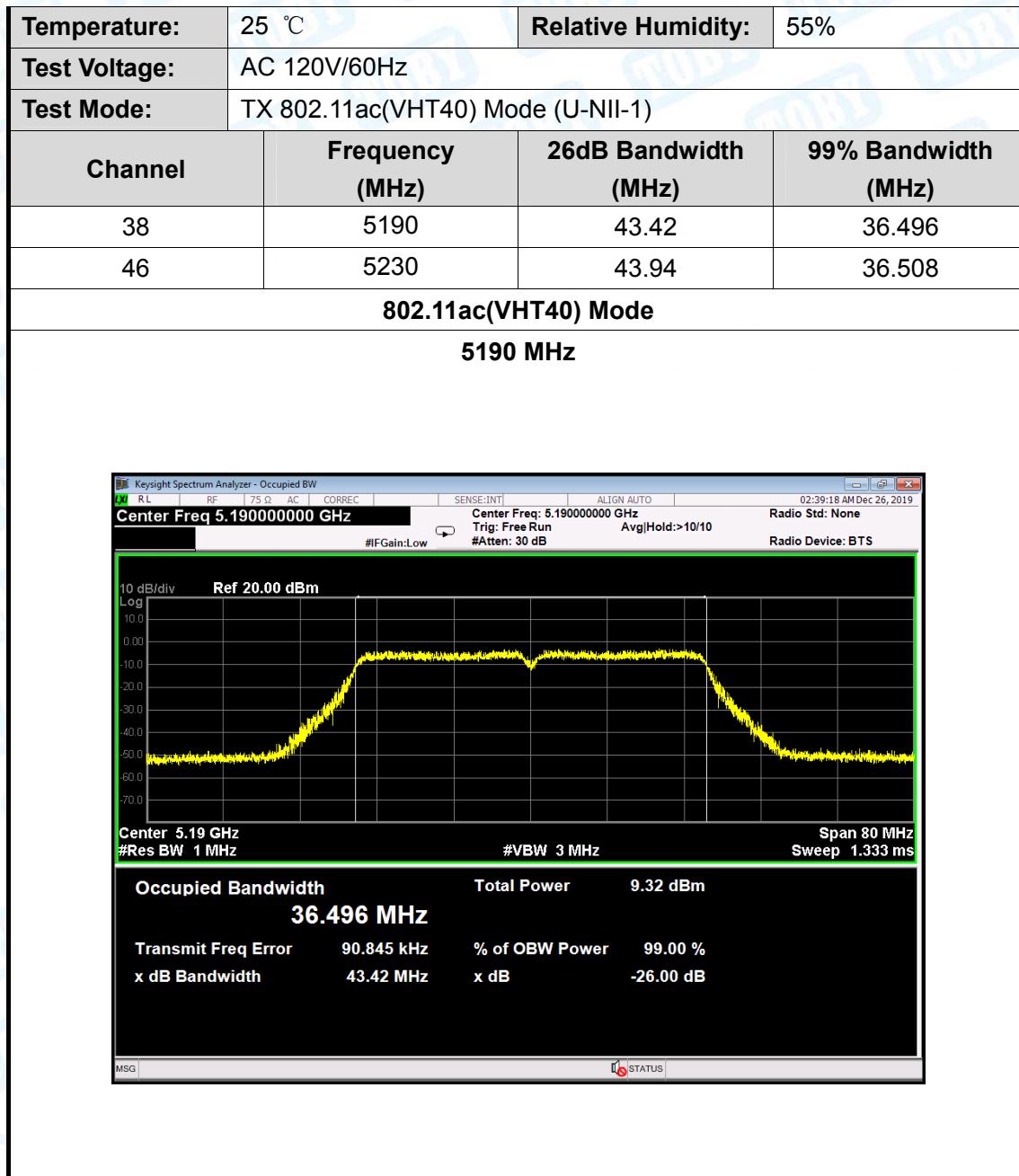
802.11ac(VHT20) Mode**5200 MHz****802.11ac(VHT20) Mode****5240 MHz**

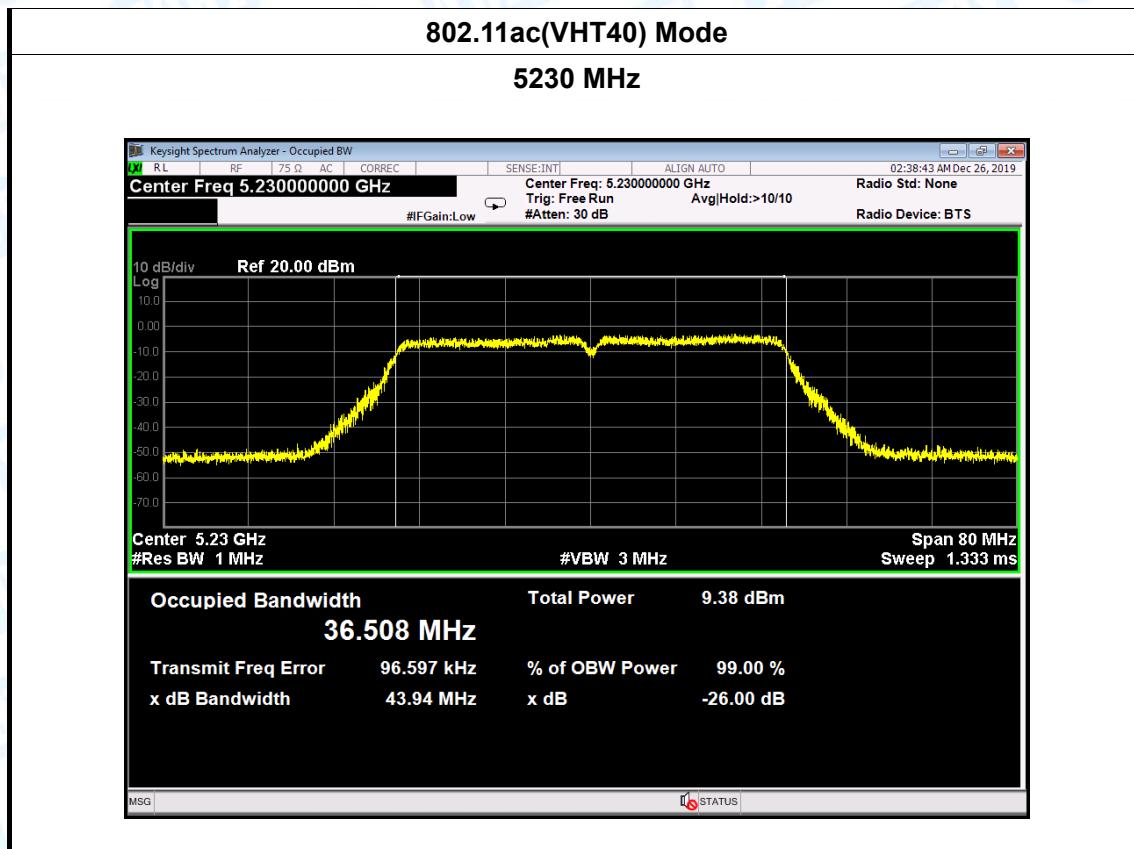
ANT 0:

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Test Mode:	TX 802.11N(HT40) Mode (U-NII-1)		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
38	5190	44.36	36.541
46	5230	43.41	36.647

802.11N(HT40) Mode**5190 MHz**

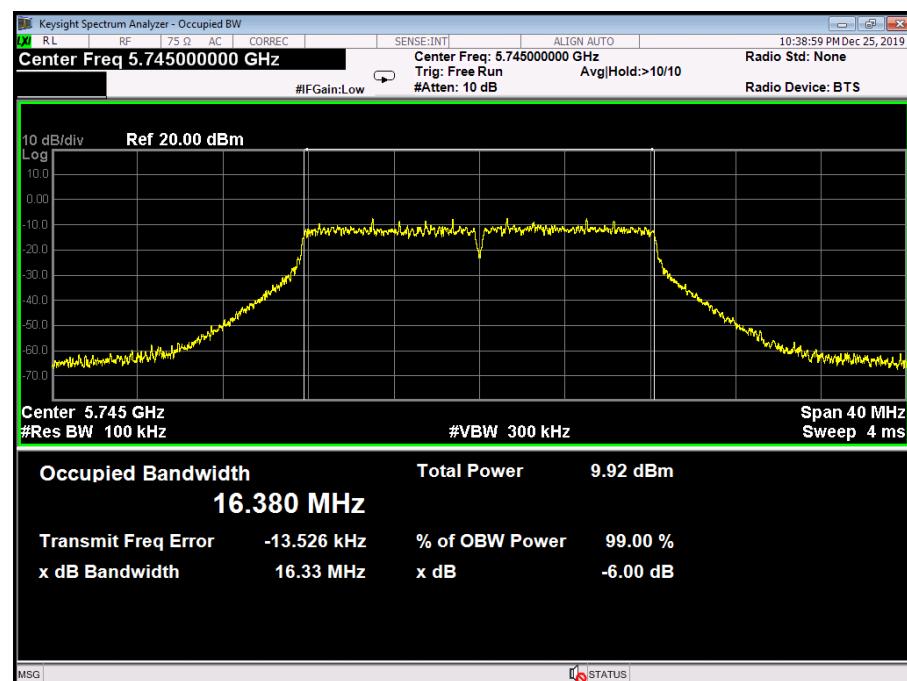


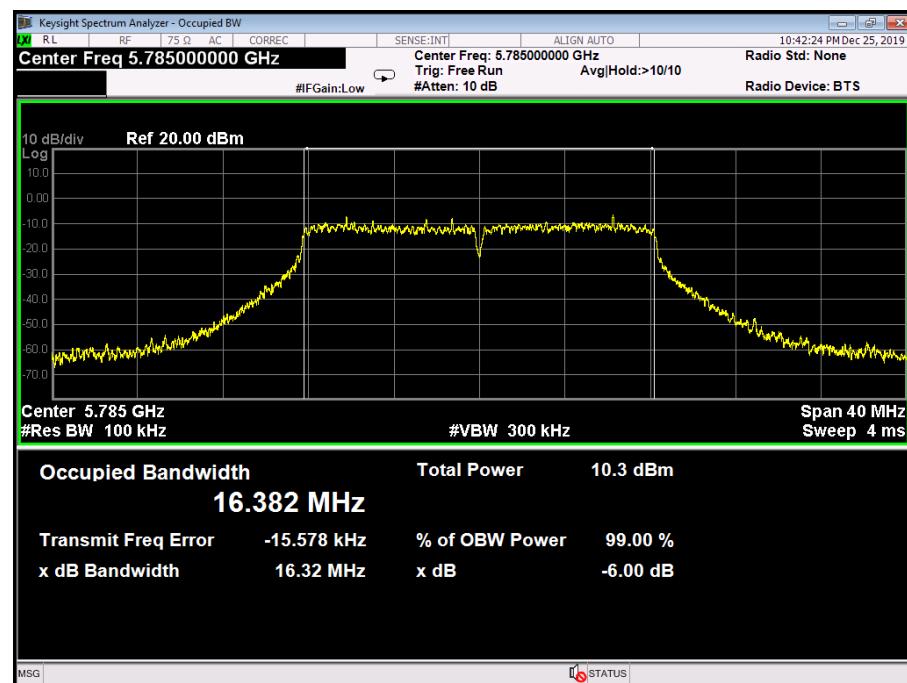
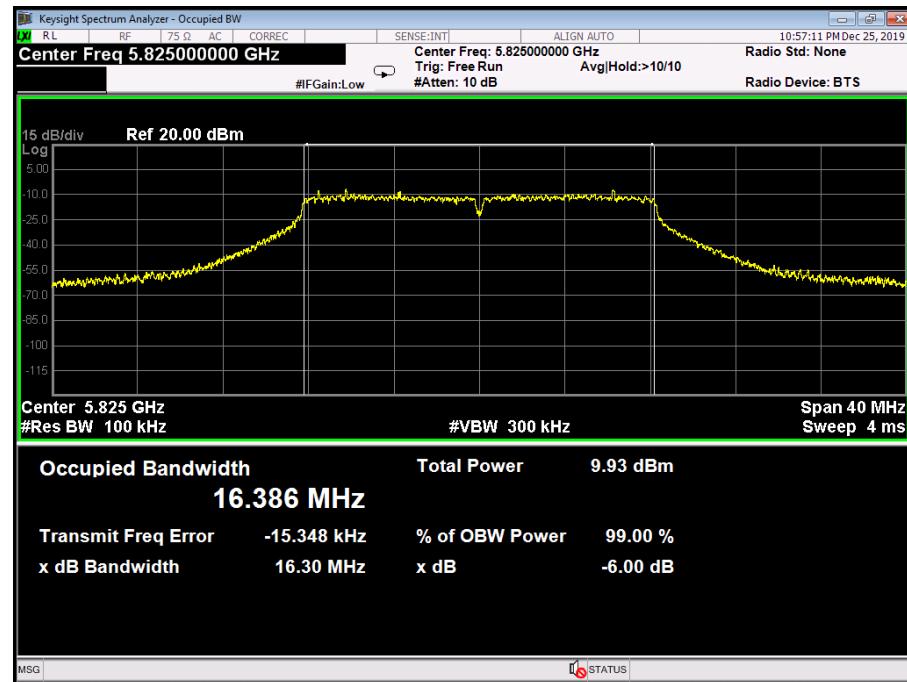
ANT 0:



ANT 0:

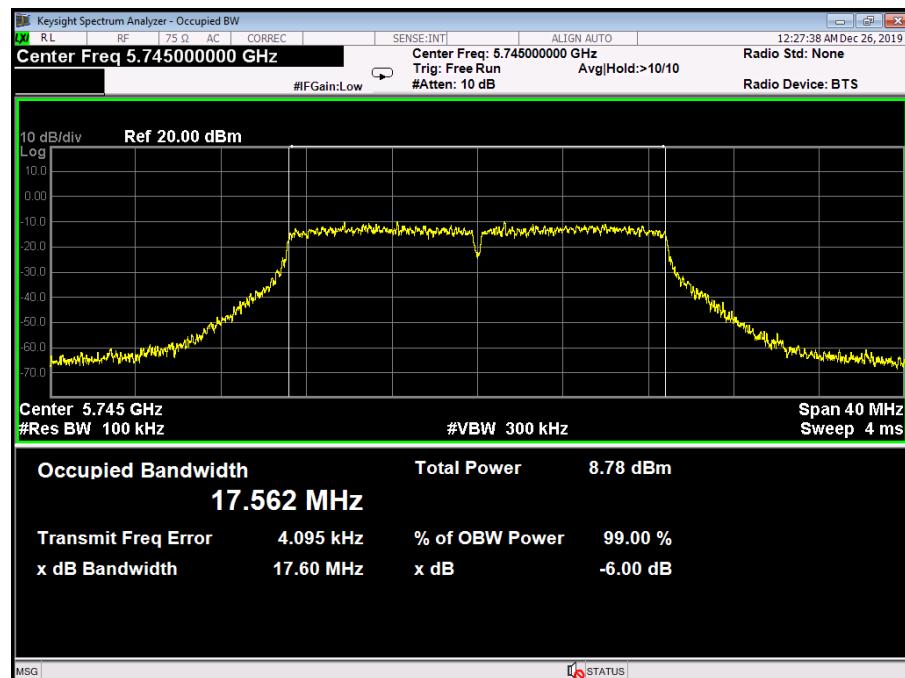
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Test Mode:	TX 802.11a Mode (U-NII-3)		
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
149	5745	16.33	16.380
157	5785	16.32	16.382
165	5825	16.30	16.386

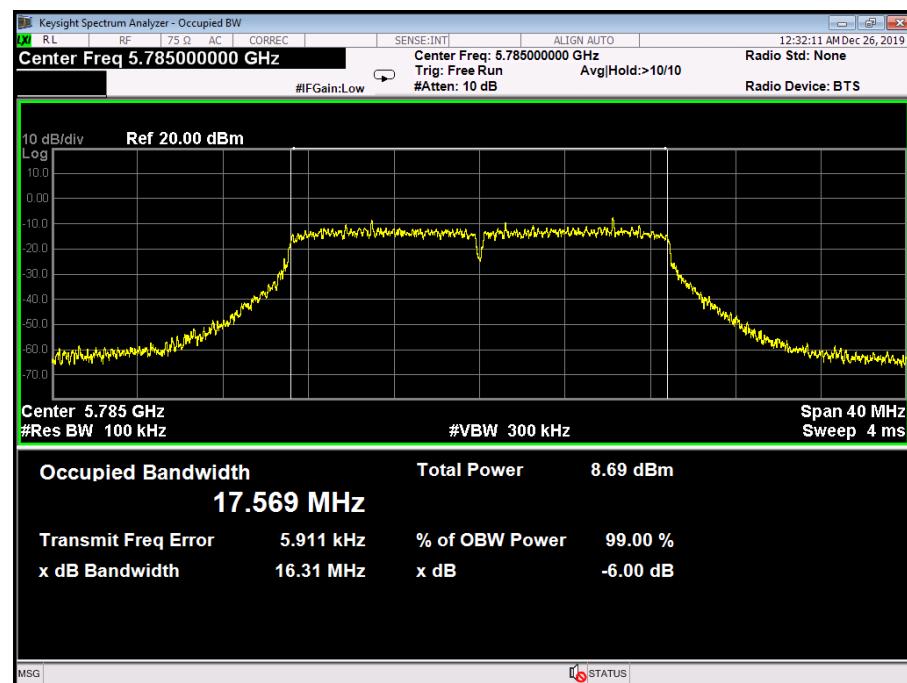
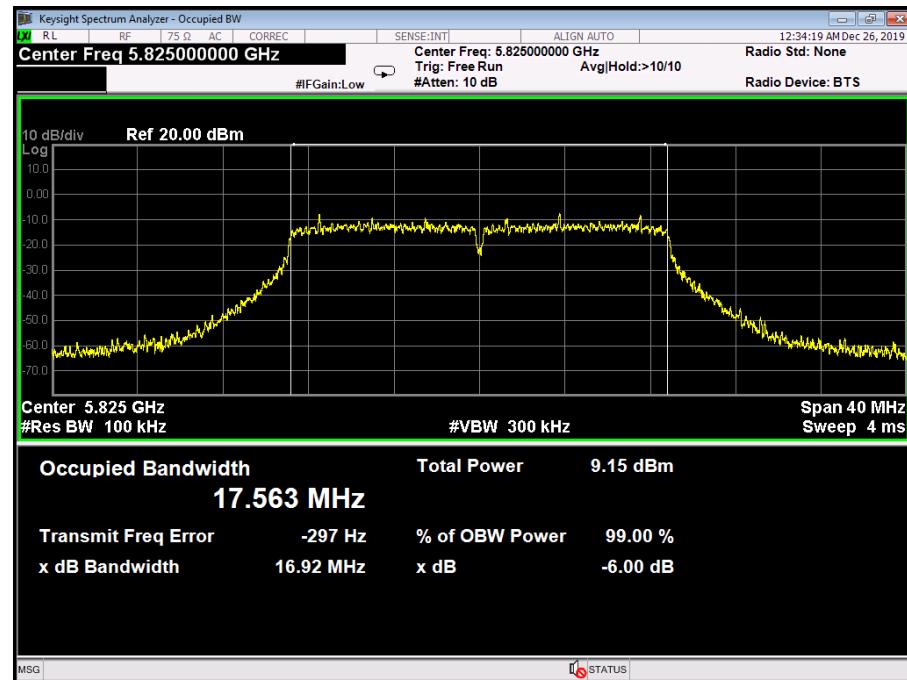
802.11a Mode**5745 MHz**

802.11a Mode**5785 MHz****802.11a Mode****5825 MHz**

ANT 0:

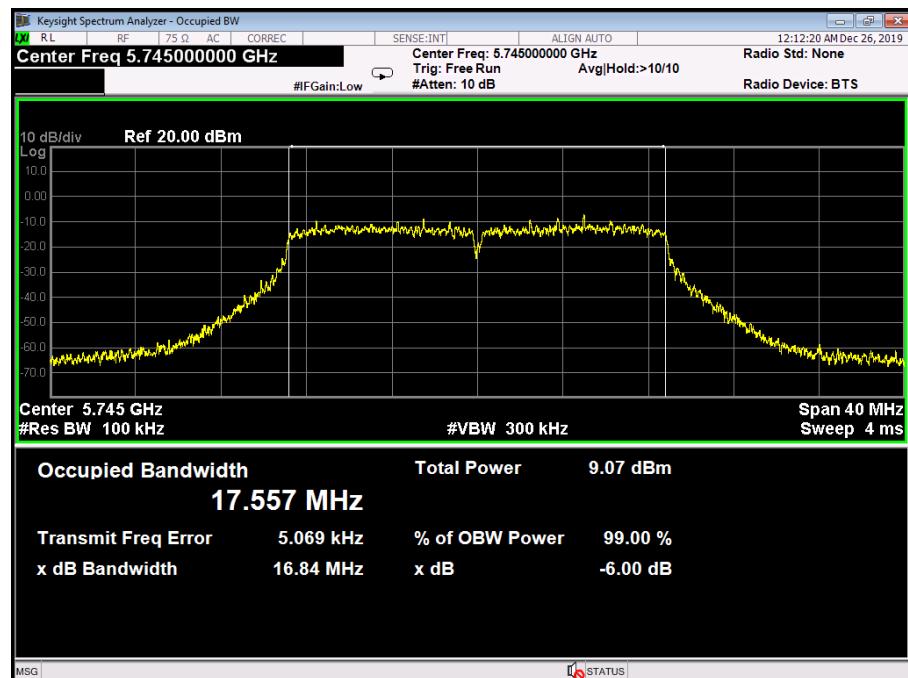
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Test Mode:	TX 802.11n(20) Mode (U-NII-3)		
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
149	5745	17.60	17.562
157	5785	16.31	17.569
165	5825	16.92	17.563

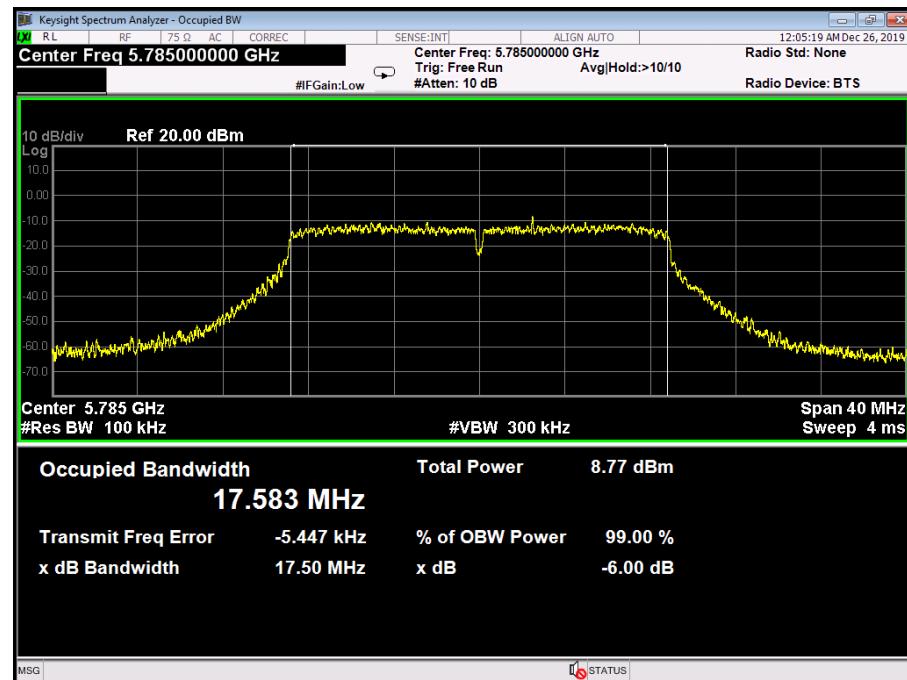
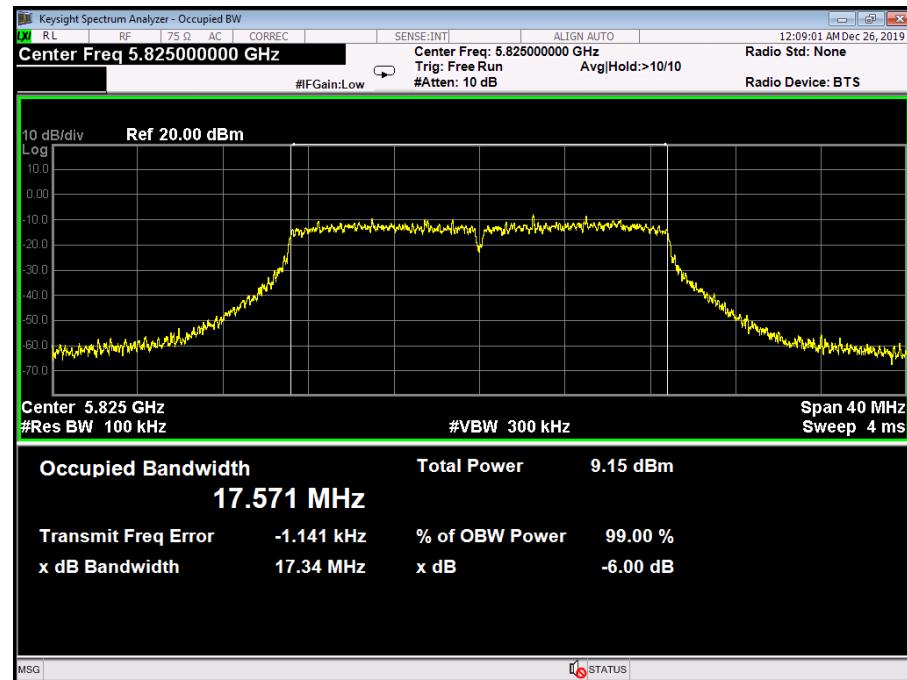
802.11n(HT20) Mode**5745 MHz**

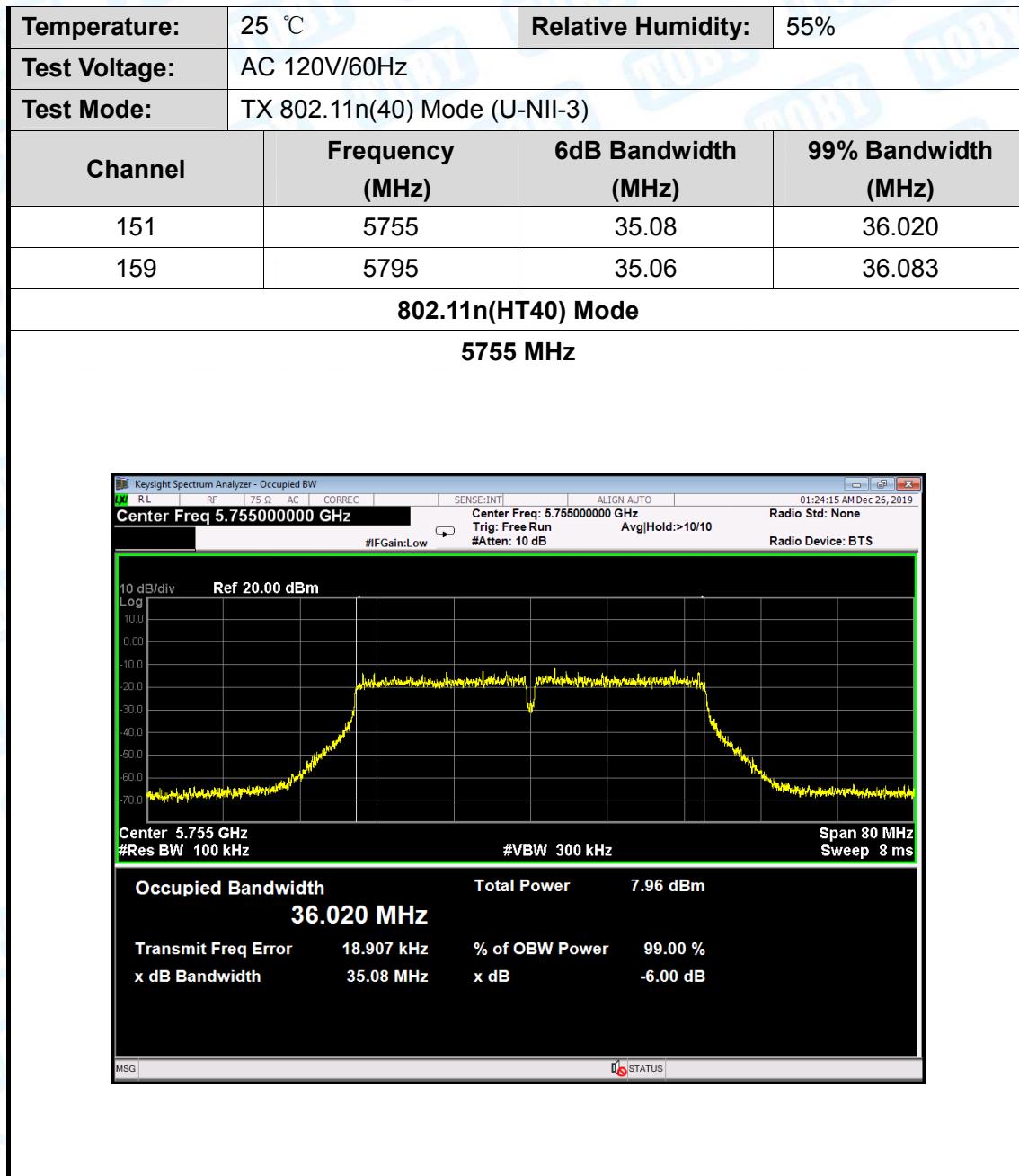
802.11n(HT20) Mode**5785 MHz****802.11n(HT20) Mode****5825 MHz**

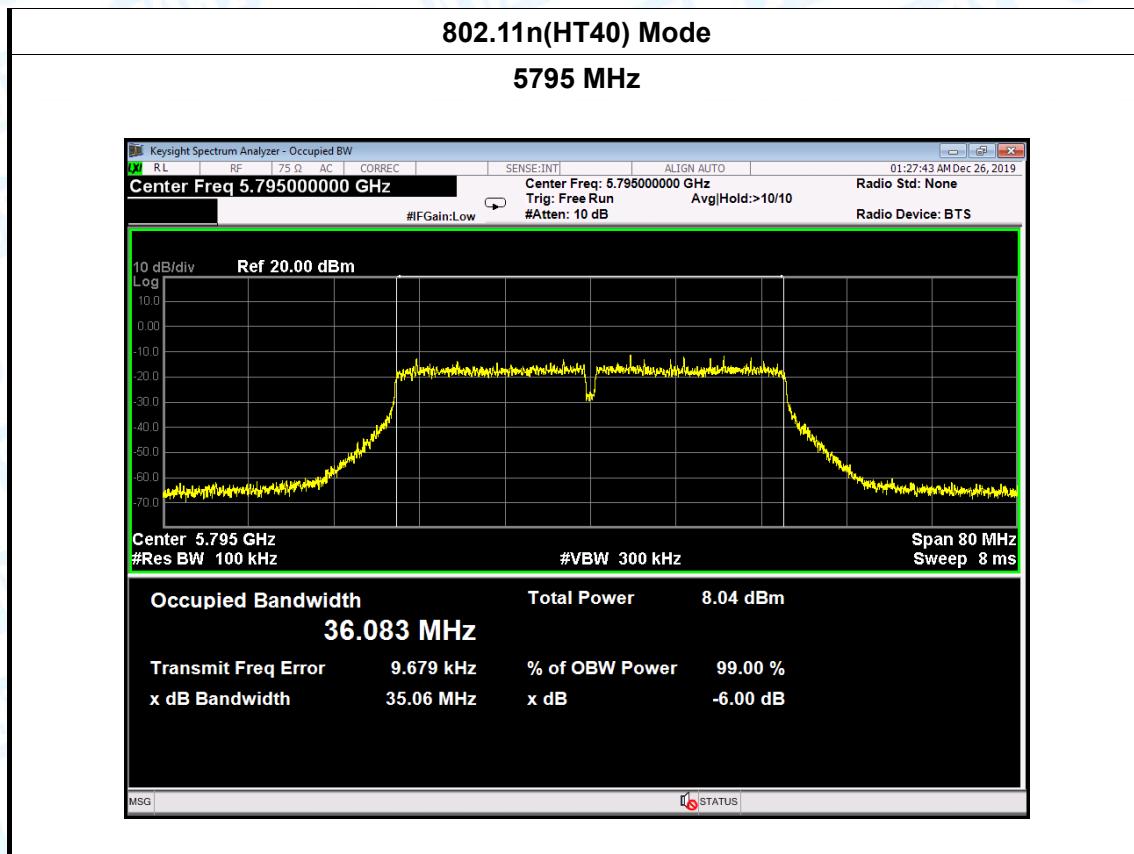
ANT 0:

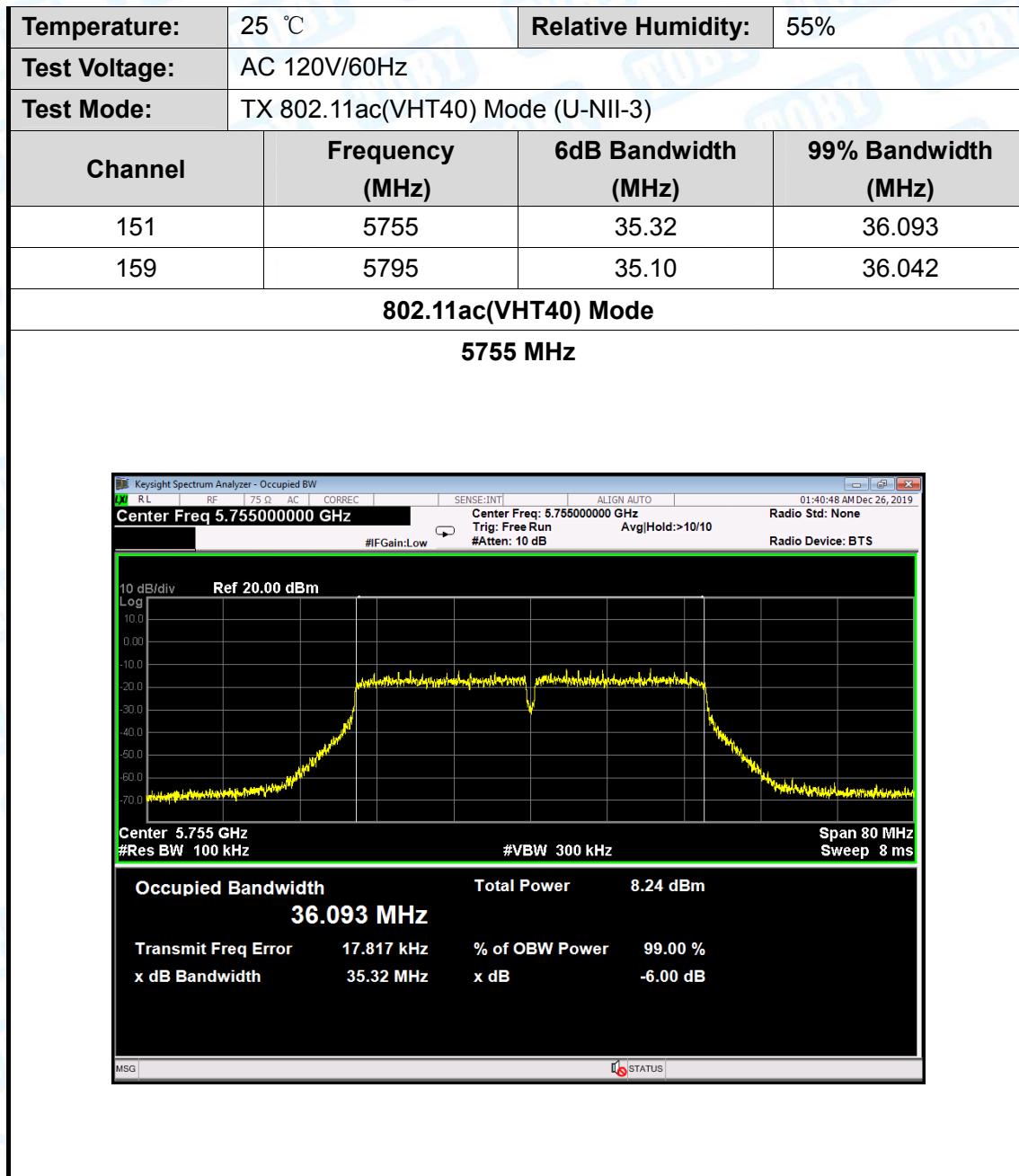
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Test Mode:	TX 802.11ac(VHT20) Mode (U-NII-3)		
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
149	5745	16.84	17.557
157	5785	17.50	17.583
165	5825	17.34	17.571

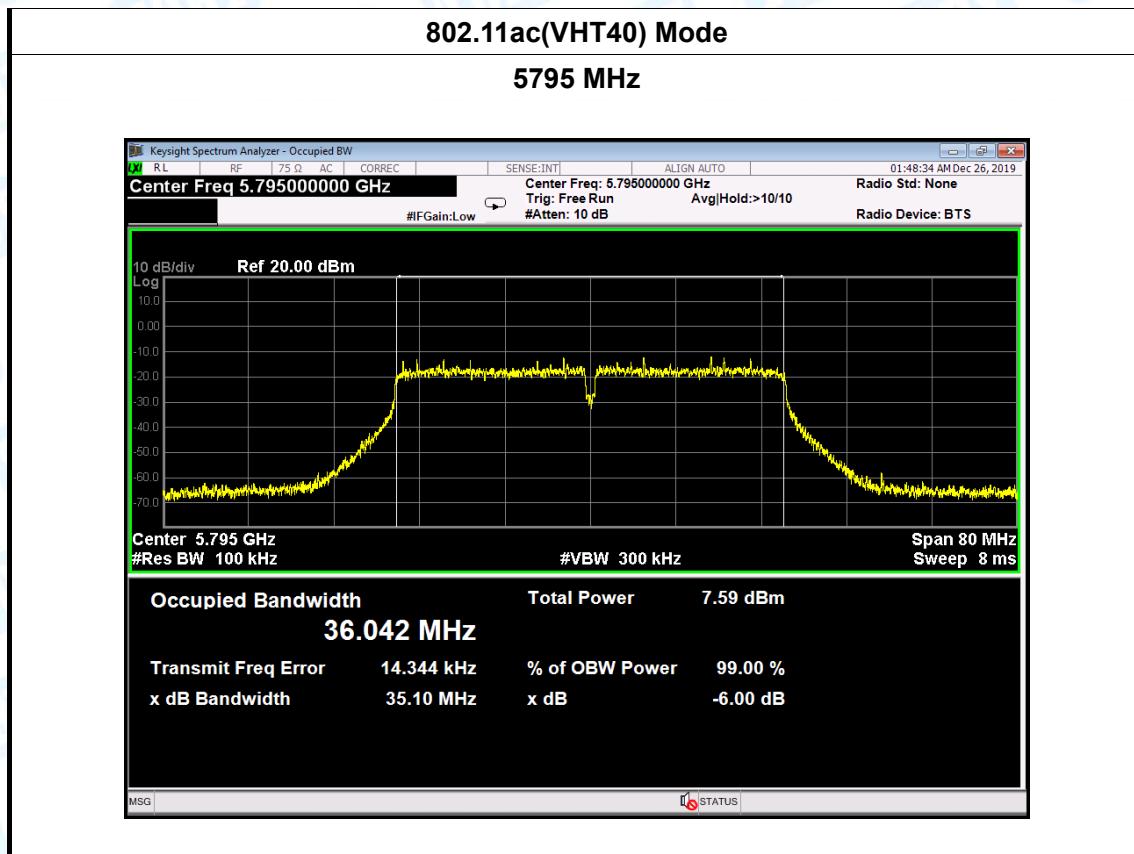
802.11ac(VHT20) Mode**5745 MHz**

802.11ac(VHT20) Mode**5785 MHz****802.11ac(VHT20) Mode****5825 MHz**

ANT 0:

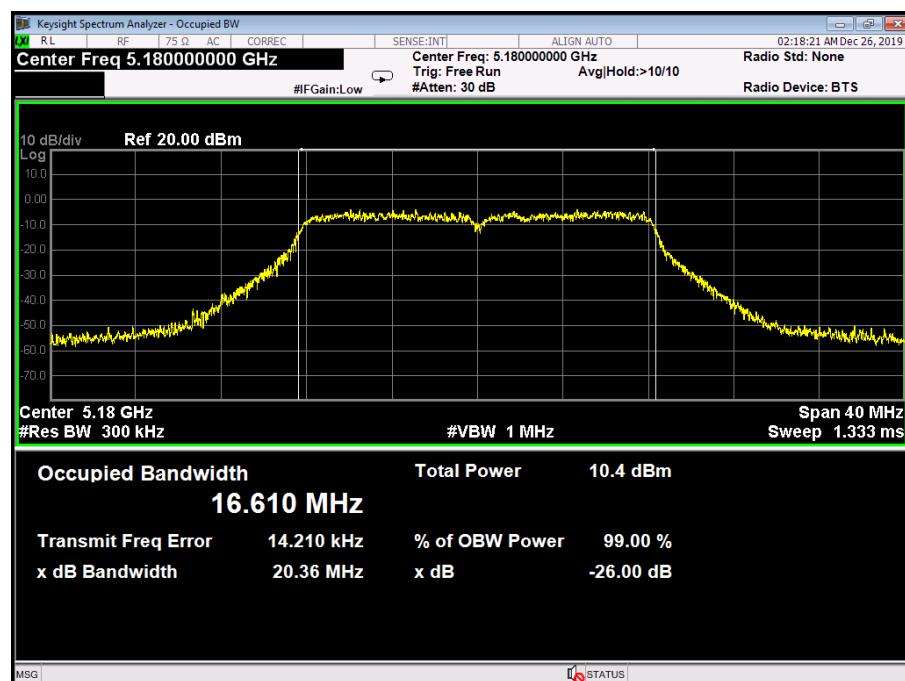


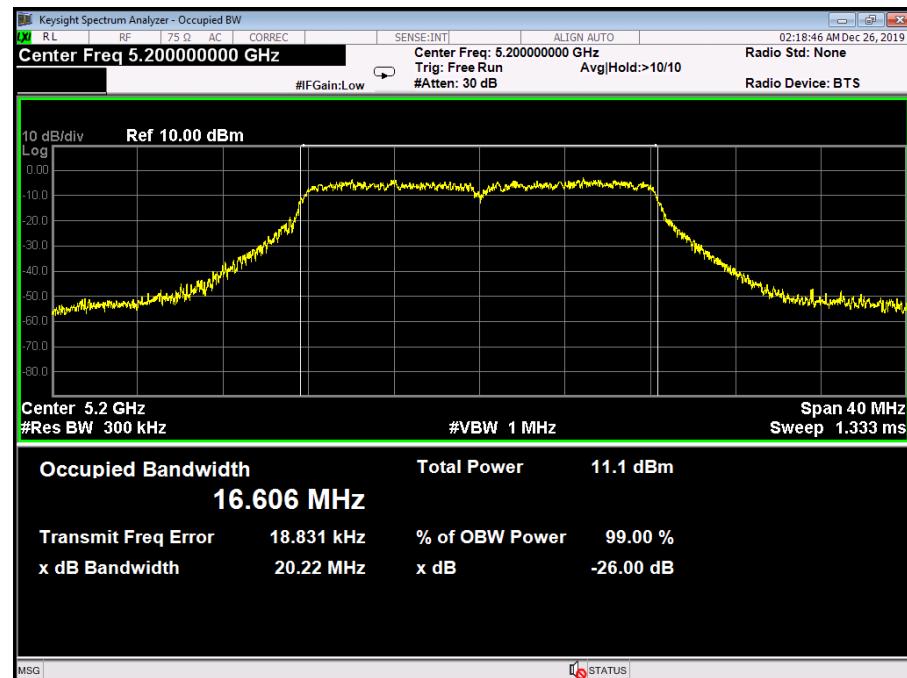
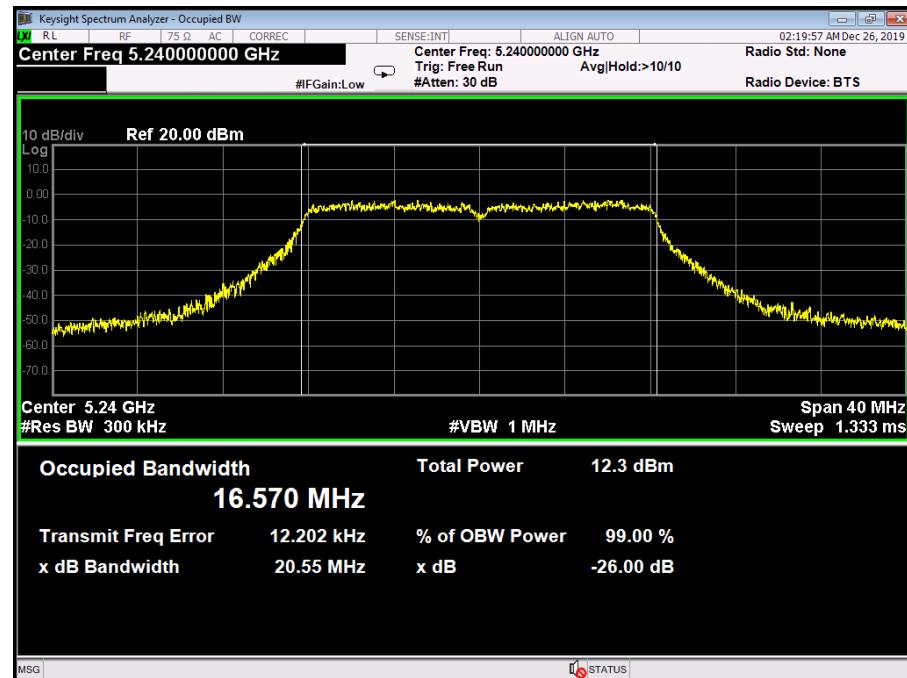
ANT 0:



ANT 1:

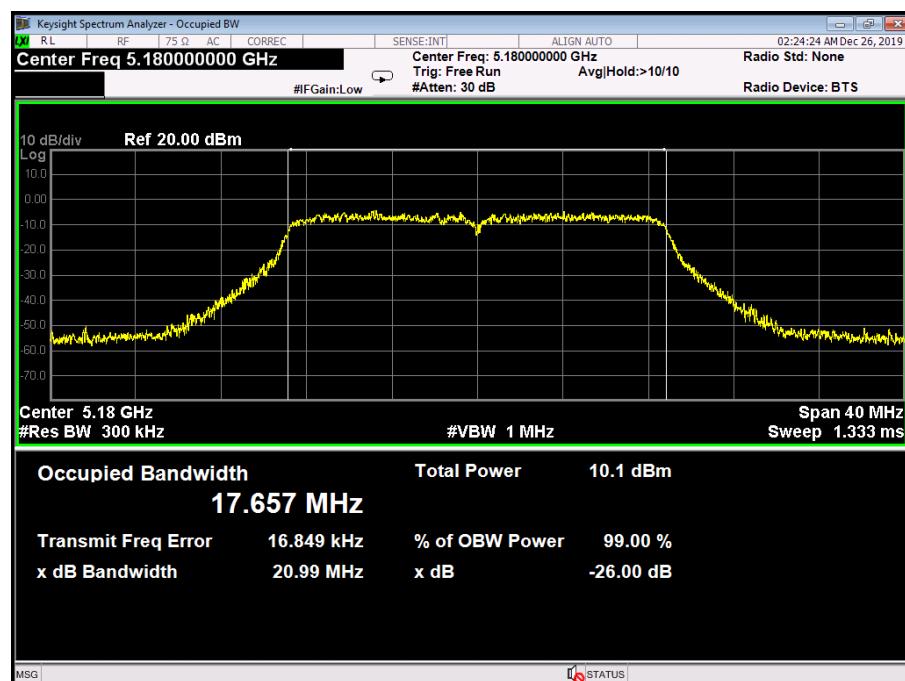
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Test Mode:	TX 802.11a Mode (U-NII-1)		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
36	5180	20.36	16.610
40	5200	20.22	16.606
48	5240	20.55	16.570

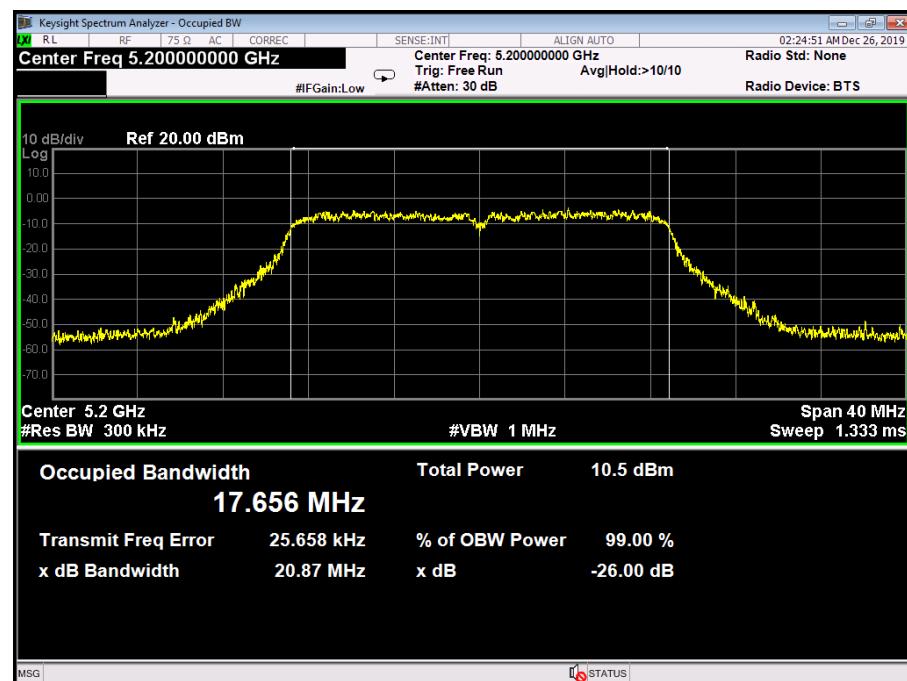
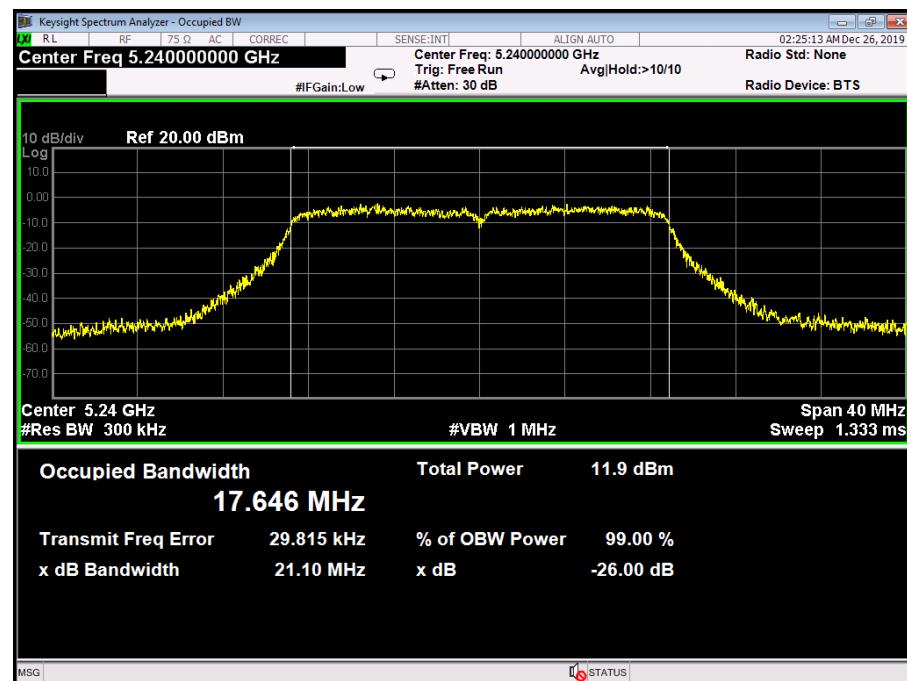
802.11a Mode**5180 MHz**

802.11a Mode**5200 MHz****802.11a Mode****5240 MHz**

ANT 1:

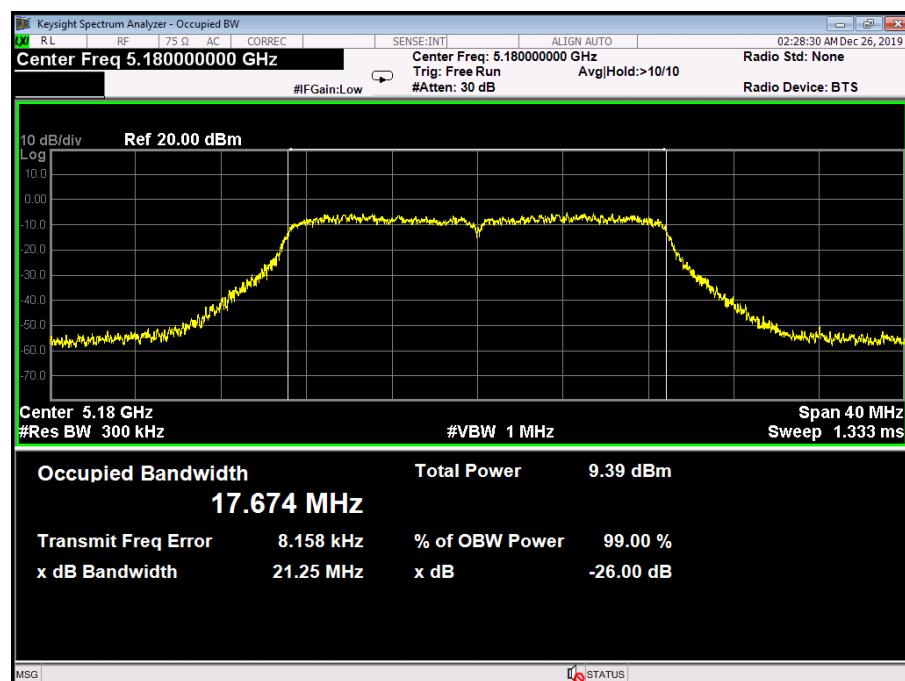
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Test Mode:	TX 802.11n(HT20) Mode (U-NII-1)		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
36	5180	20.99	17.657
40	5200	20.87	17.656
48	5240	21.10	17.646
802.11n(HT20) Mode			
5180 MHz			

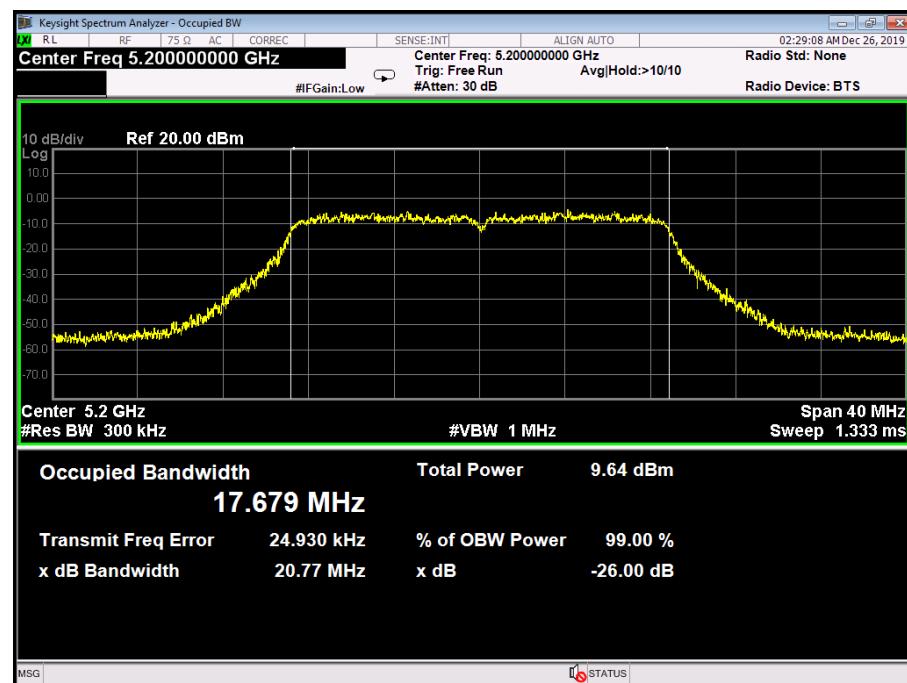
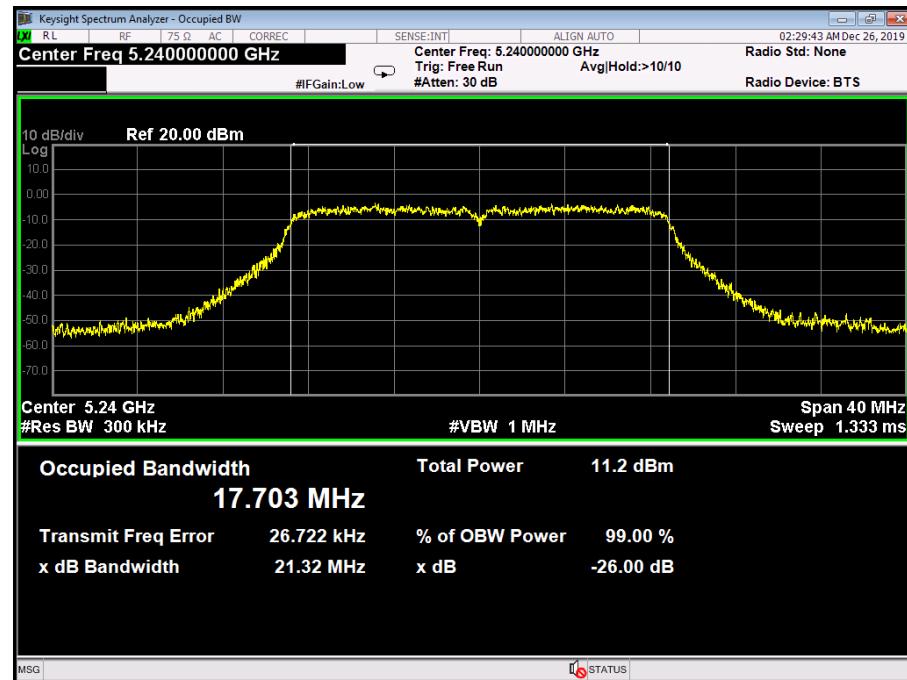


802.11n(HT20) Mode**5200 MHz****802.11n(HT20) Mode****5240 MHz**

ANT 1:

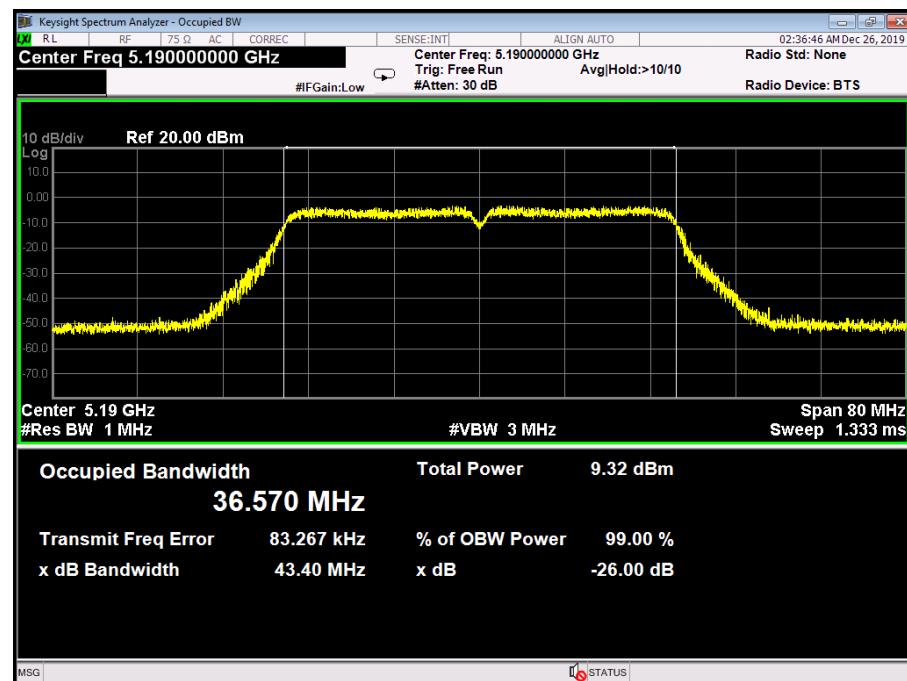
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Test Mode:	TX 802.11ac(VHT20) Mode (U-NII-1)		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
36	5180	21.25	17.674
40	5200	20.77	17.679
48	5240	21.32	17.703

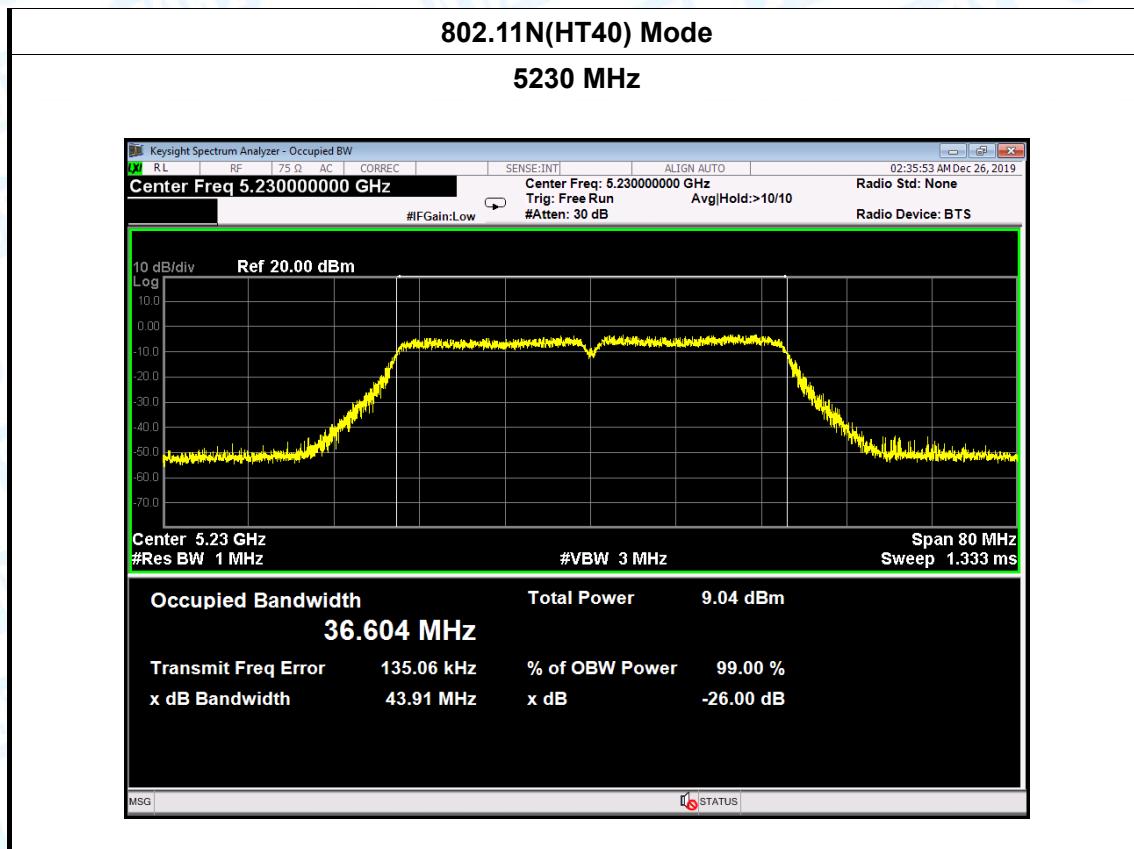
802.11ac(VHT20) Mode**5180 MHz**

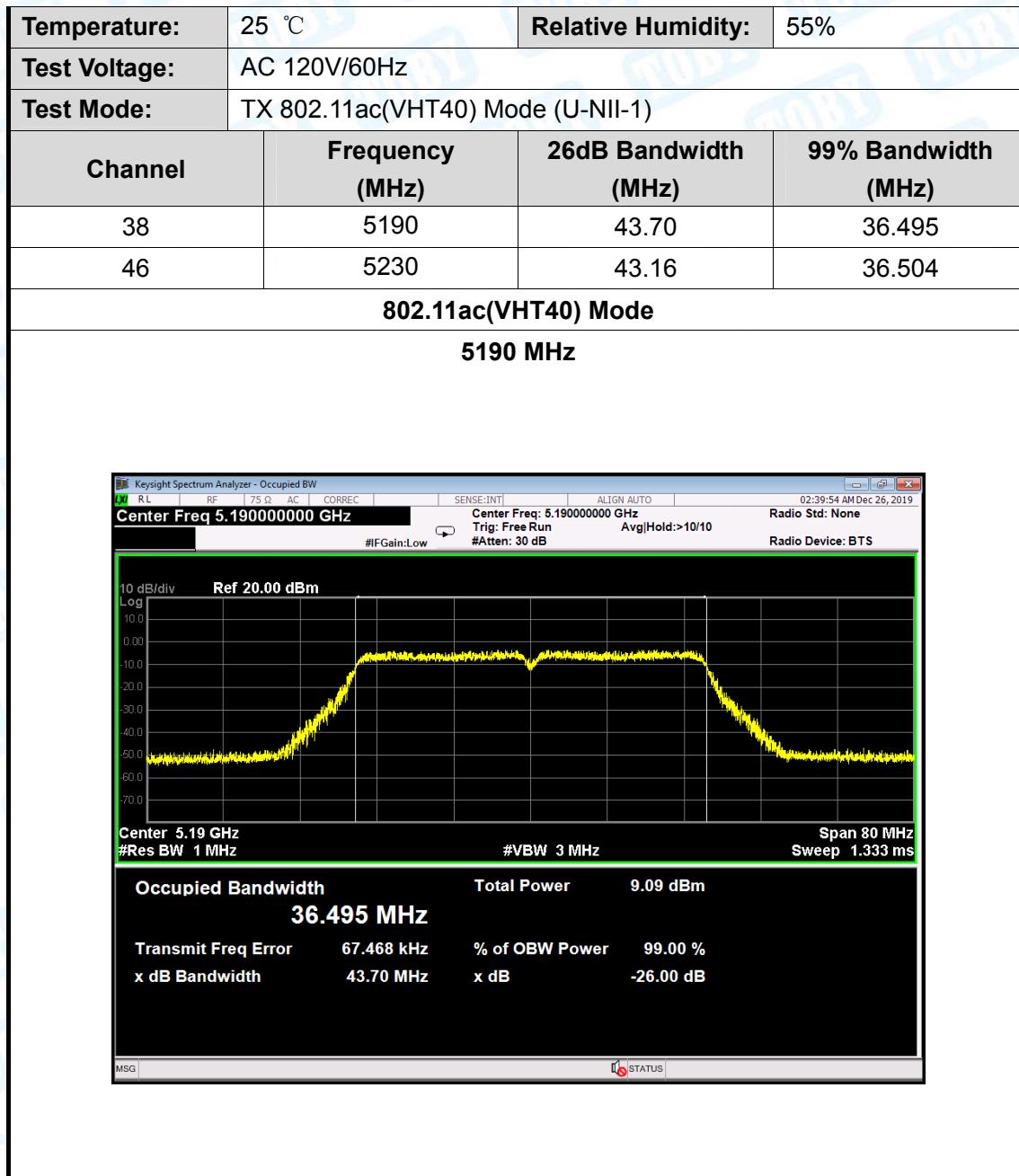
802.11ac(VHT20) Mode**5200 MHz****802.11ac(VHT20) Mode****5240 MHz**

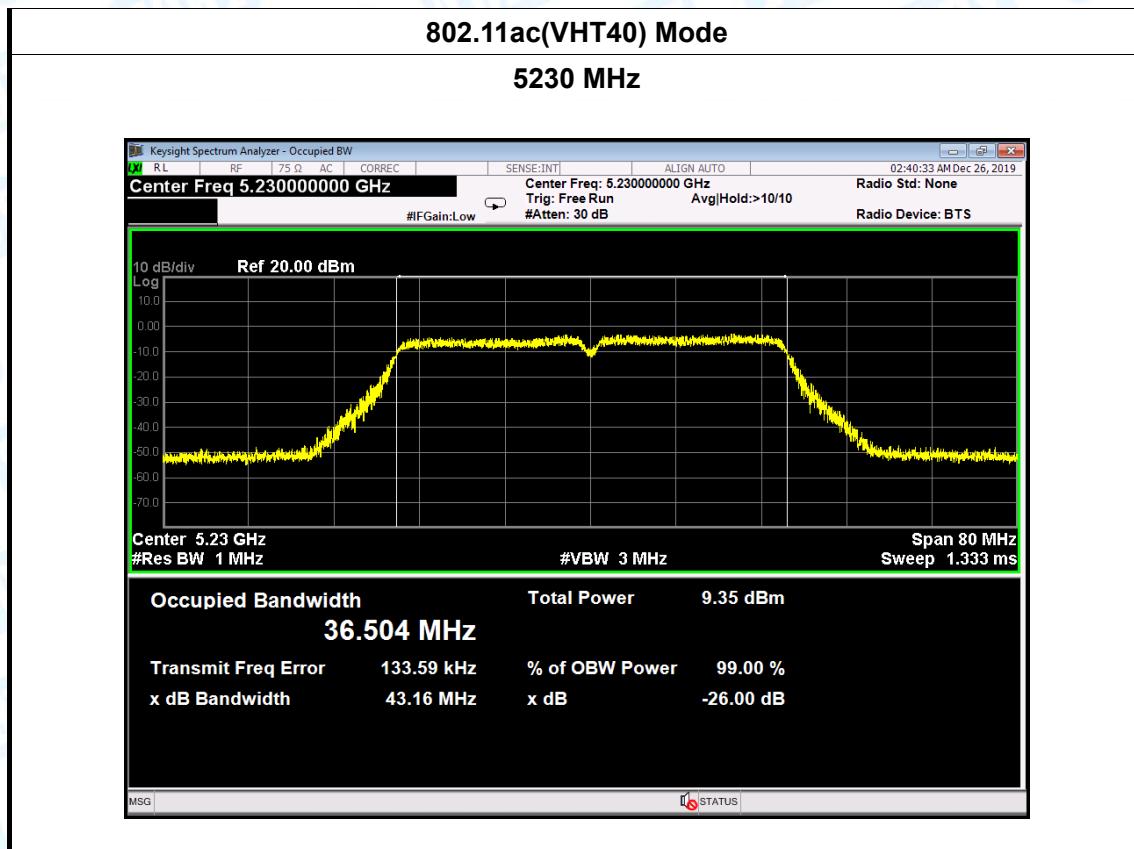
ANT 1:

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Test Mode:	TX 802.11N(HT40) Mode (U-NII-1)		
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
38	5190	43.40	36.570
46	5230	43.91	36.604
802.11N(HT40) Mode			
5190 MHz			



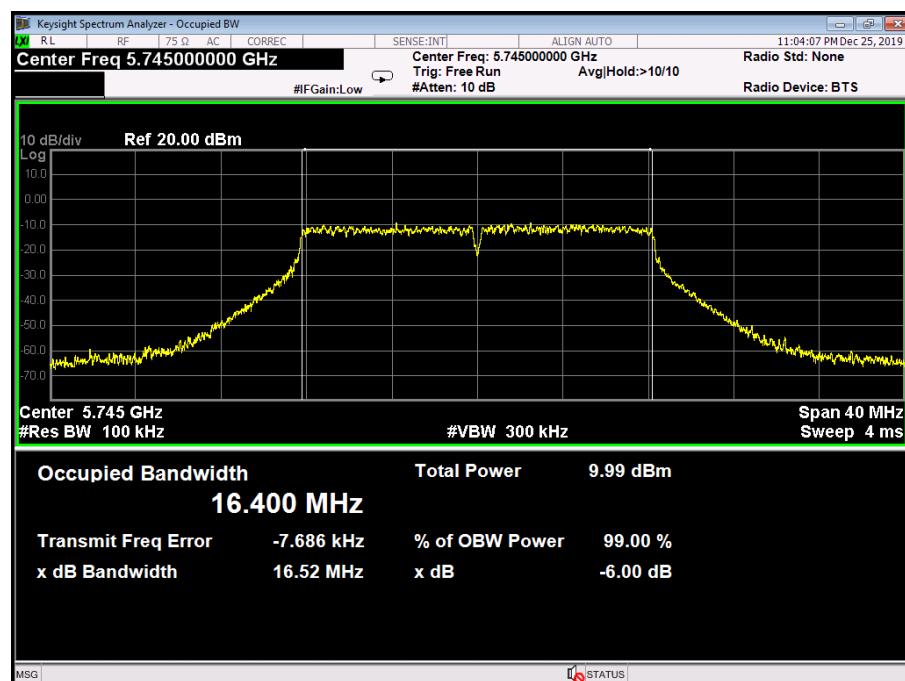


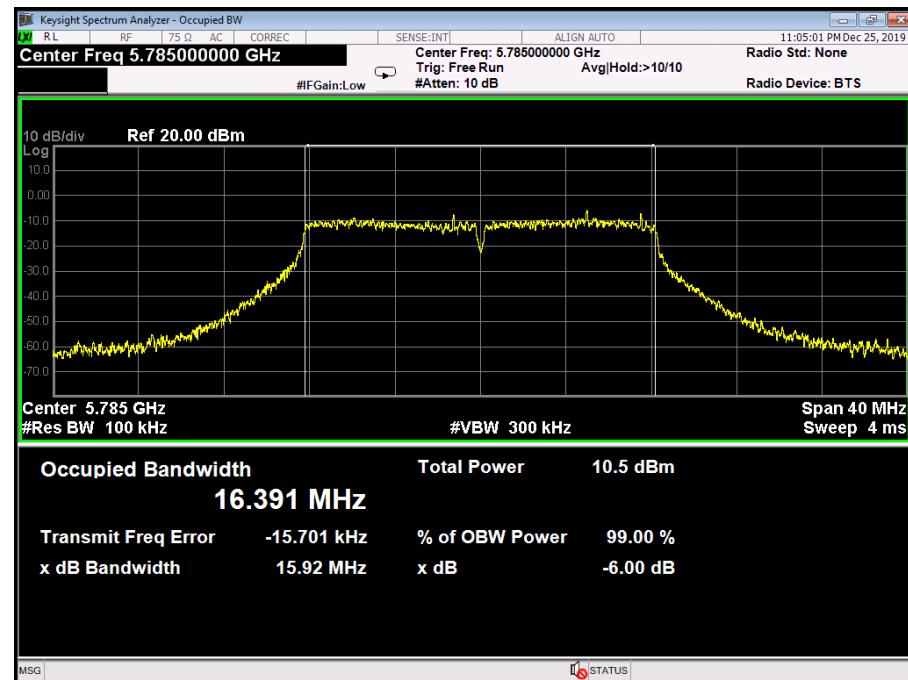
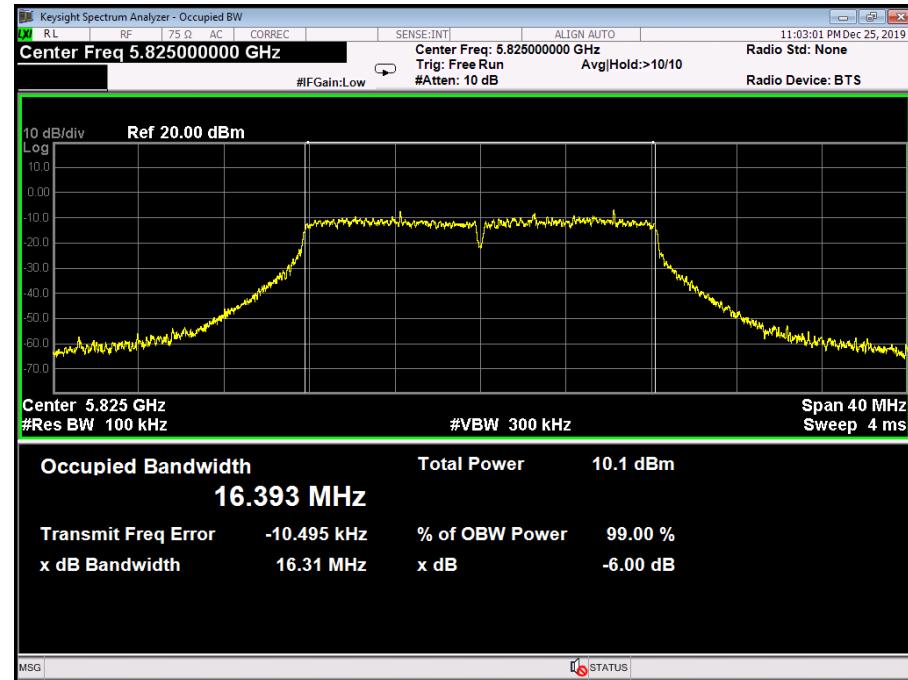
ANT 1:



ANT 1:

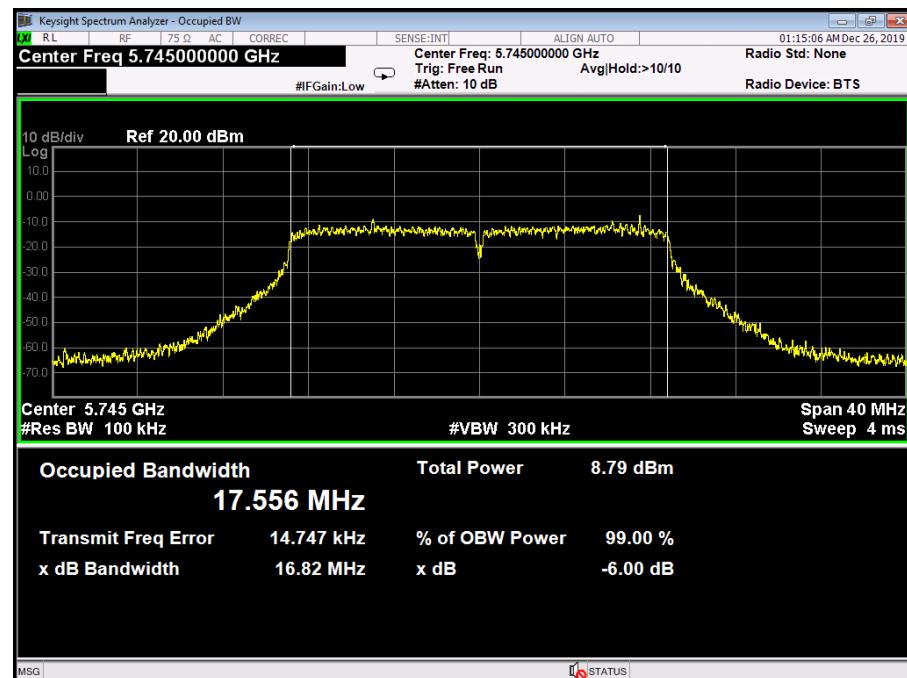
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Test Mode:	TX 802.11a Mode (U-NII-3)		
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
149	5745	16.52	16.400
157	5785	15.92	16.391
165	5825	16.31	16.393

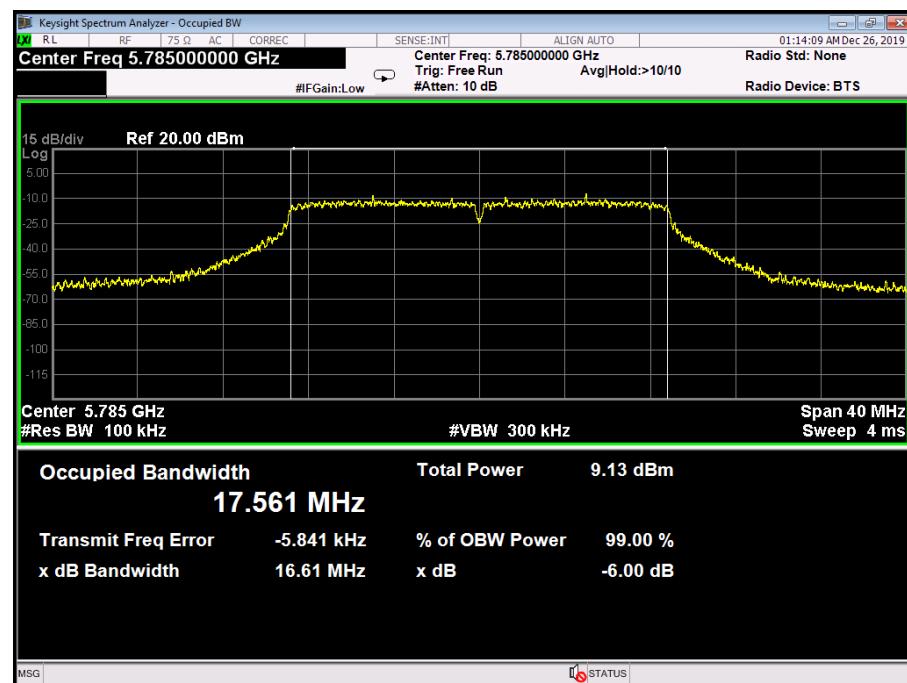
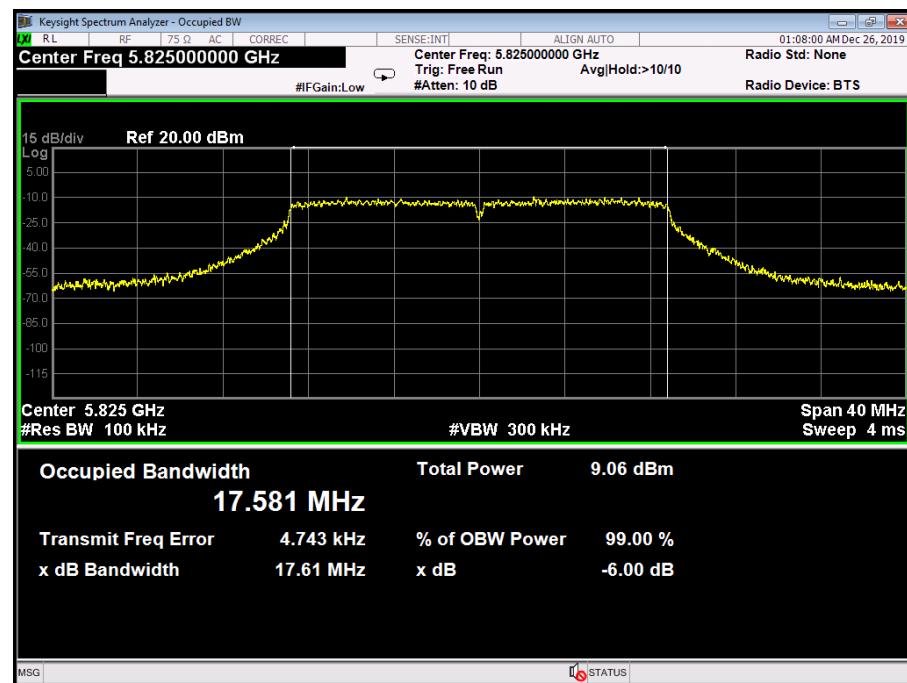
802.11a Mode**5745 MHz**

802.11a Mode**5785 MHz****802.11a Mode****5825 MHz**

ANT 1:

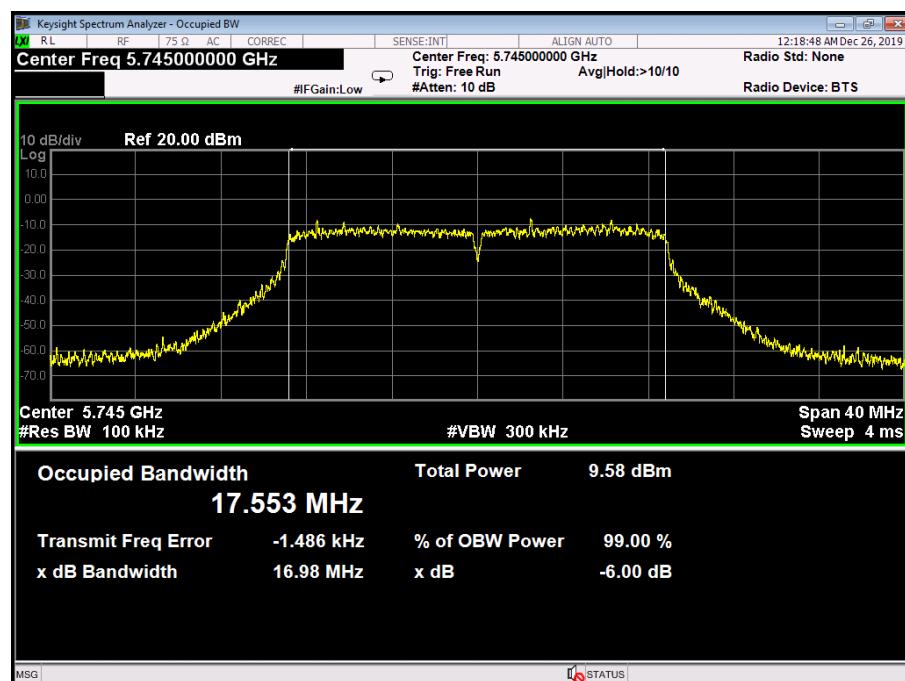
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Test Mode:	TX 802.11n(20) Mode (U-NII-3)		
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
149	5745	16.82	17.556
157	5785	16.61	17.561
165	5825	17.61	17.581

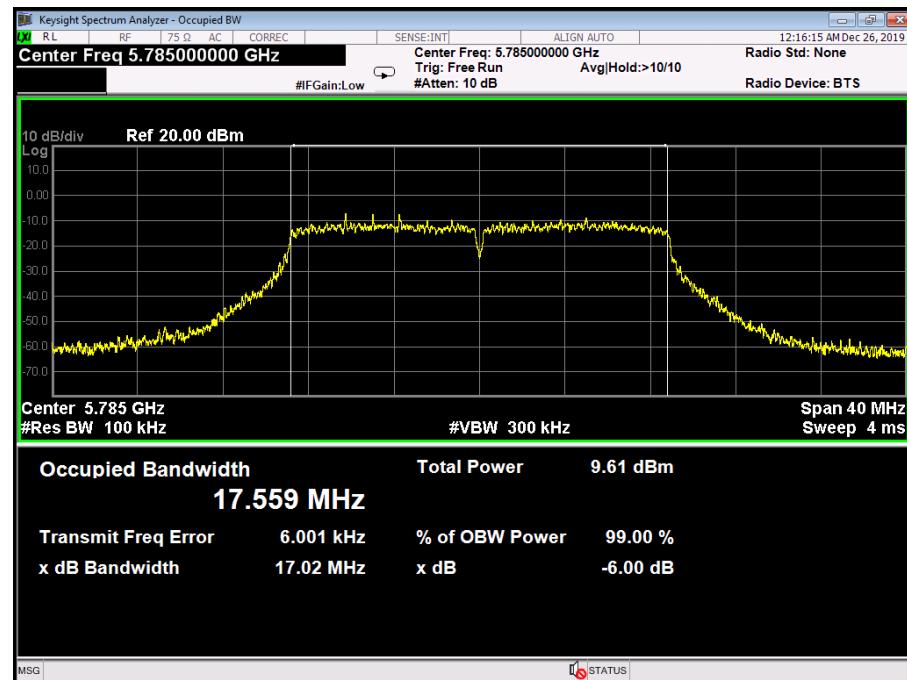
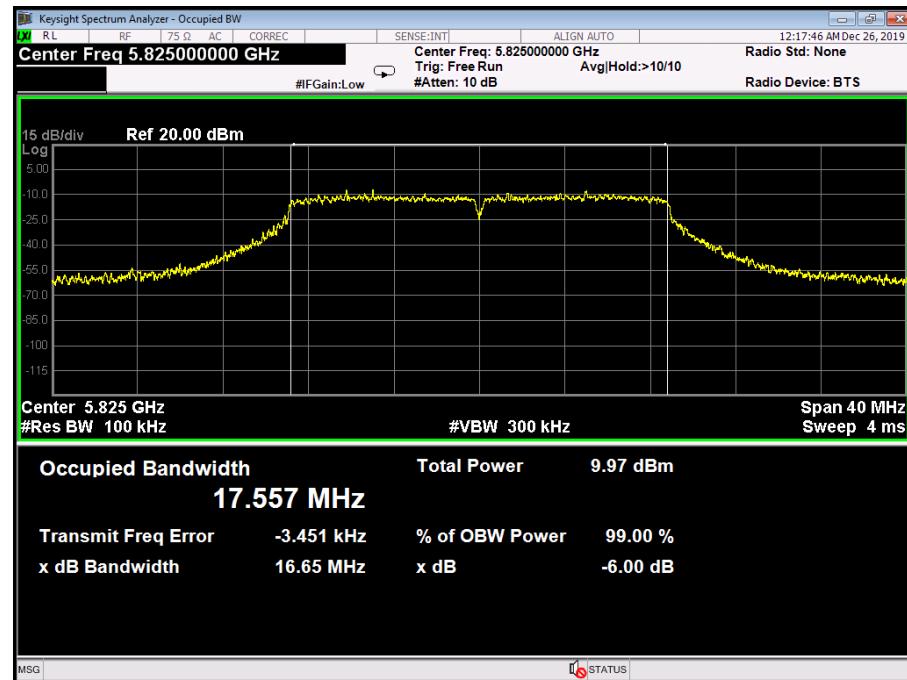
802.11n(HT20) Mode**5745 MHz**

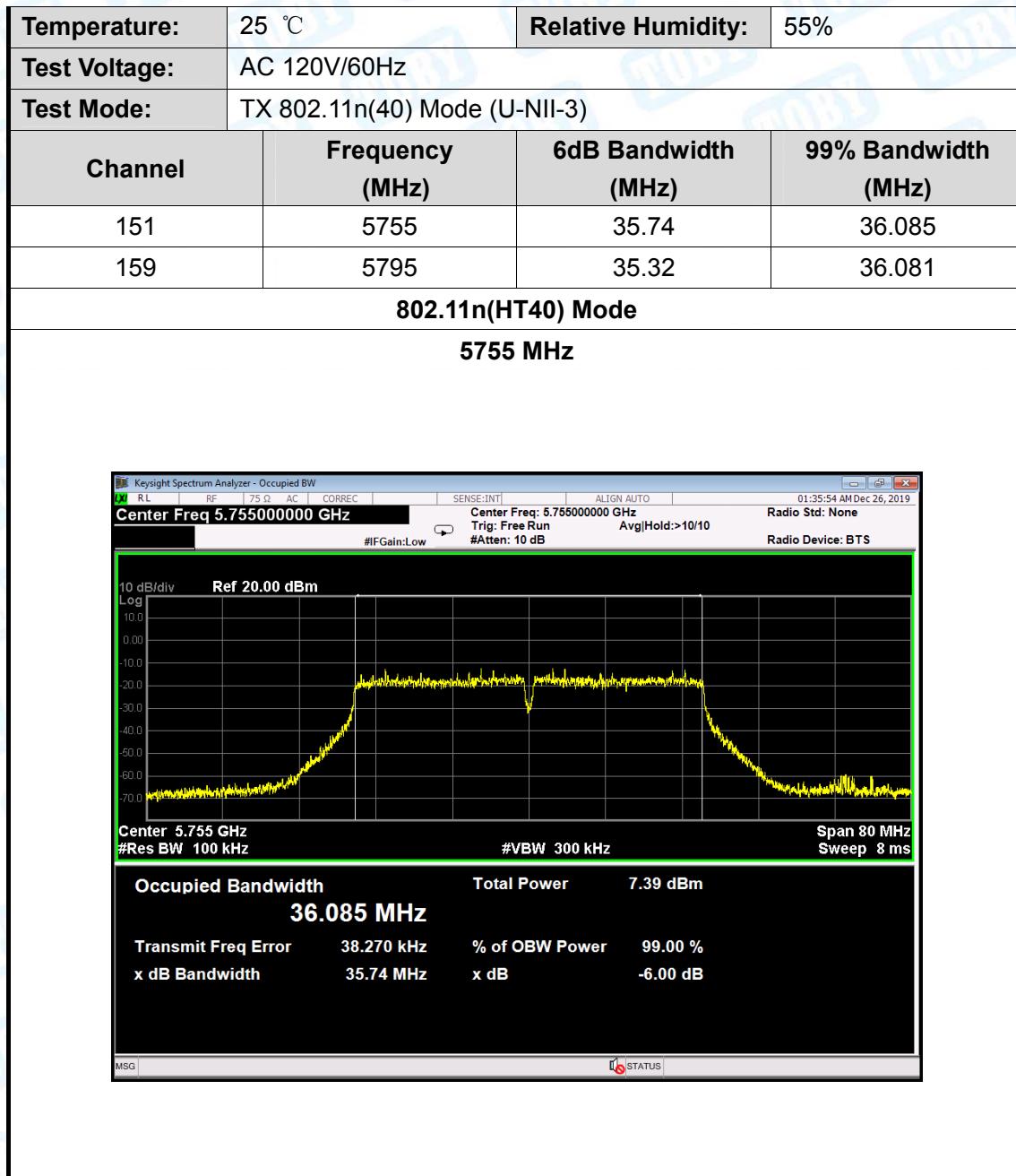
802.11n(HT20) Mode**5785 MHz****802.11n(HT20) Mode****5825 MHz**

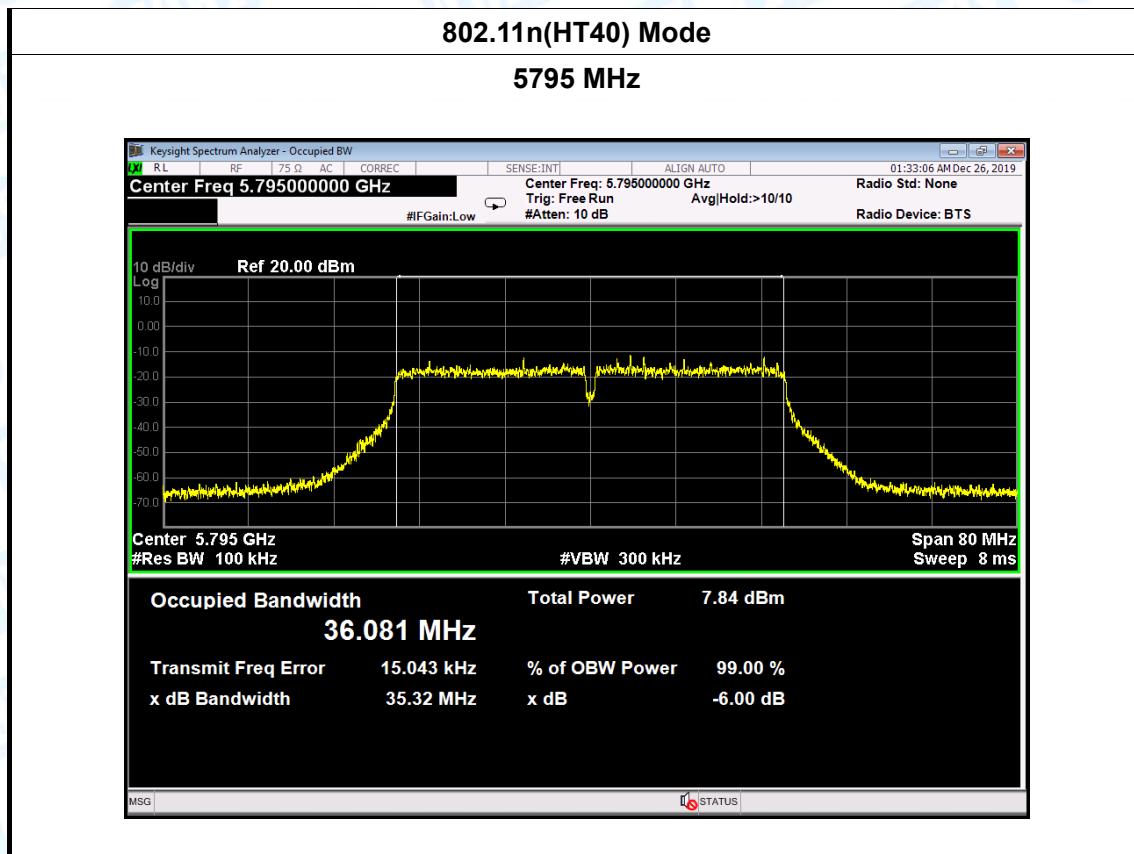
ANT 1:

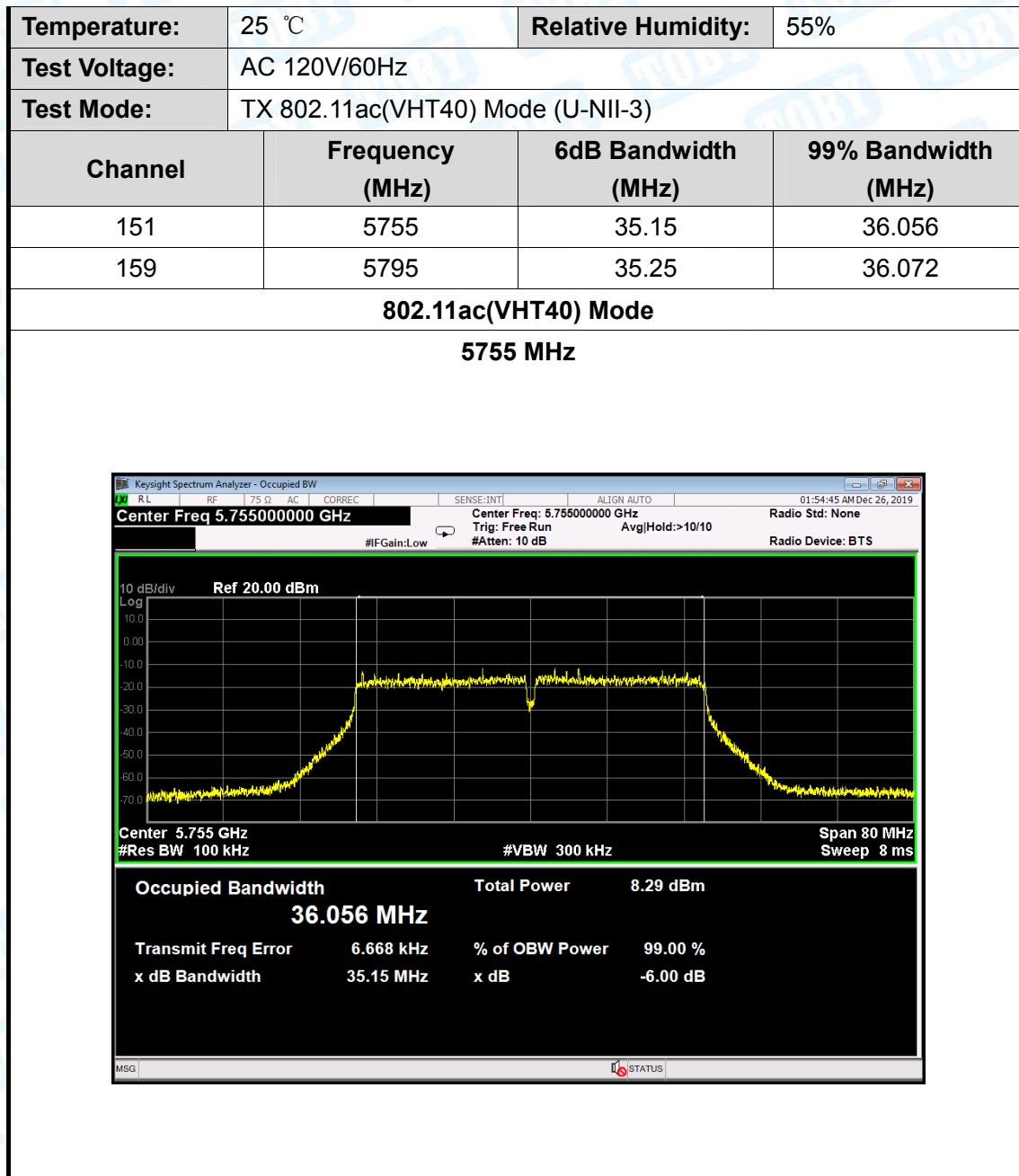
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Test Mode:	TX 802.11ac(VHT20) Mode (U-NII-3)		
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
149	5745	16.98	17.553
157	5785	17.02	17.559
165	5825	16.65	17.557

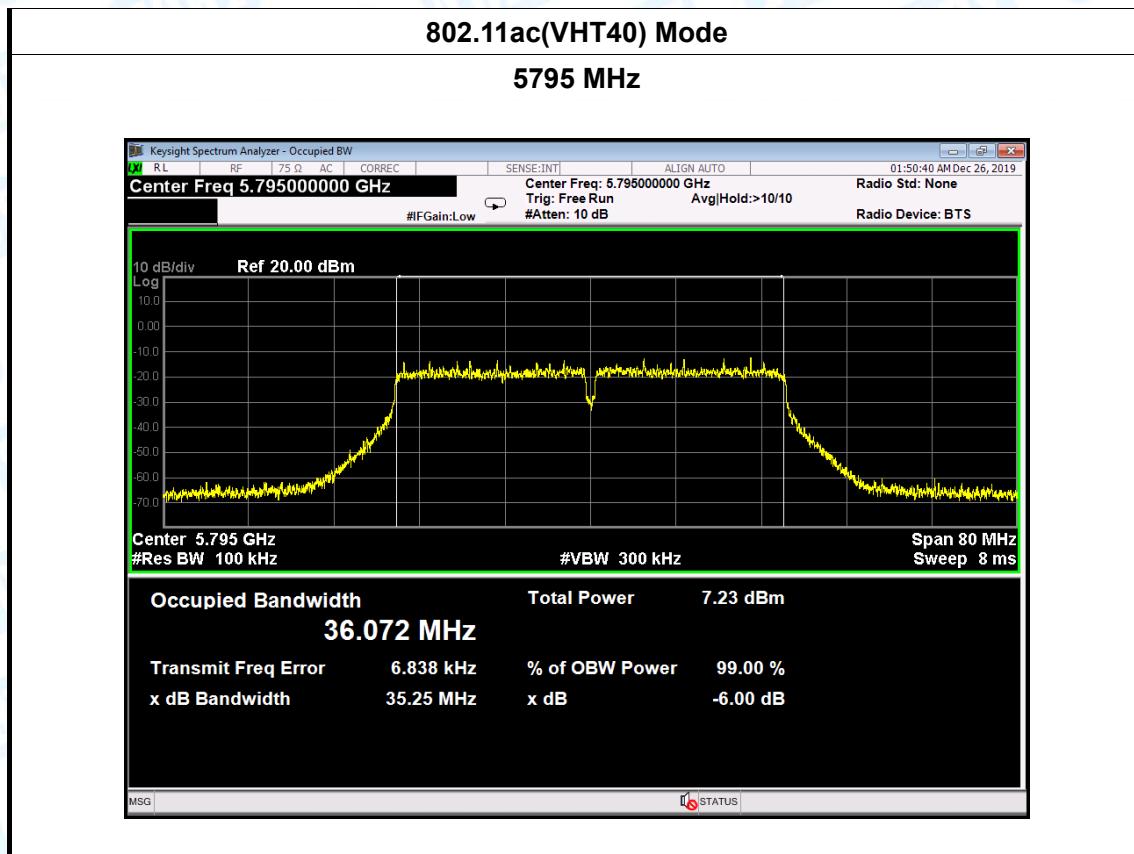
802.11ac(VHT20) Mode**5745 MHz**

802.11ac(VHT20) Mode**5785 MHz****802.11ac(VHT20) Mode****5825 MHz**

ANT 1:



ANT 1:



Attachment E-- Output Power Test Data

Note : GANT =6dBi, Array Gain=10log(NANT/NSS)=3.01dBi, Directional Gain=GANT + Array Gain=8.01dBi, 8.01dBi >6dBi

so limit=24-(8.01-6)=21.99dBm for U-NII 1MIMO ,30-(8.01-6)=27.99dBm for U-NII 3 MIMO

Type	Bands	Channel	Output power Ant 0 (dBm)	Output power Ant 1 (dBm)	Output power Total (dBm)	Limit (dBm)	Result	
802.11a	U-NII 1	36	15.431	15.473	/	24	Pass	
		40	15.733	15.268	/			
		48	15.109	15.742	/			
	U-NII 3	149	15.555	15.430	/	30		
		157	15.91	15.202	/			
		165	15.278	15.519	/			
802.11n(HT20) MIMO	U-NII 1	36	14.449	14.566	17.518	21.99	Pass	
		40	14.688	14.761	17.734			
		48	14.729	14.495	17.623			
	U-NII 3	149	14.640	14.665	17.662	27.99		
		157	14.355	14.393	17.384			
		165	14.517	14.622	17.580			
802.11n(HT40) MIMO	U-NII 1	38	13.881	13.928	16.914	21.99	Pass	
		46	13.533	13.428	16.491			
	U-NII 3	151	13.494	13.301	16.408	27.99		
		159	13.587	13.407	16.508			
802.11ac(HT20) MIMO	U-NII 1	36	14.454	14.603	17.539	21.99	Pass	
		40	14.704	14.654	17.689			
		48	14.749	14.679	17.724			
	U-NII 3	149	14.681	14.785	17.743	27.99		
		157	14.358	14.408	17.393			
		165	14.466	14.626	17.557			
802.11ac(HT40) MIMO	U-NII 1	38	13.571	13.603	16.657	21.99	Pass	
		46	13.626	13.472	16.559			
	U-NII 3	151	13.899	13.182	16.565	27.99		
		159	13.163	13.250	16.217			

Test Mode		Duty cycle
U-NII-1	802.11 a	>98%
	802.11 n(HT20)	
	802.11 ac(HT20)	
	802.11 n(HT40)	
	802.11 ac(HT40)	
U-NII-3	802.11 a	>98%
	802.11 n(HT20)	
	802.11 ac(HT20)	
	802.11 n(HT40)	
	802.11 ac(HT40)	

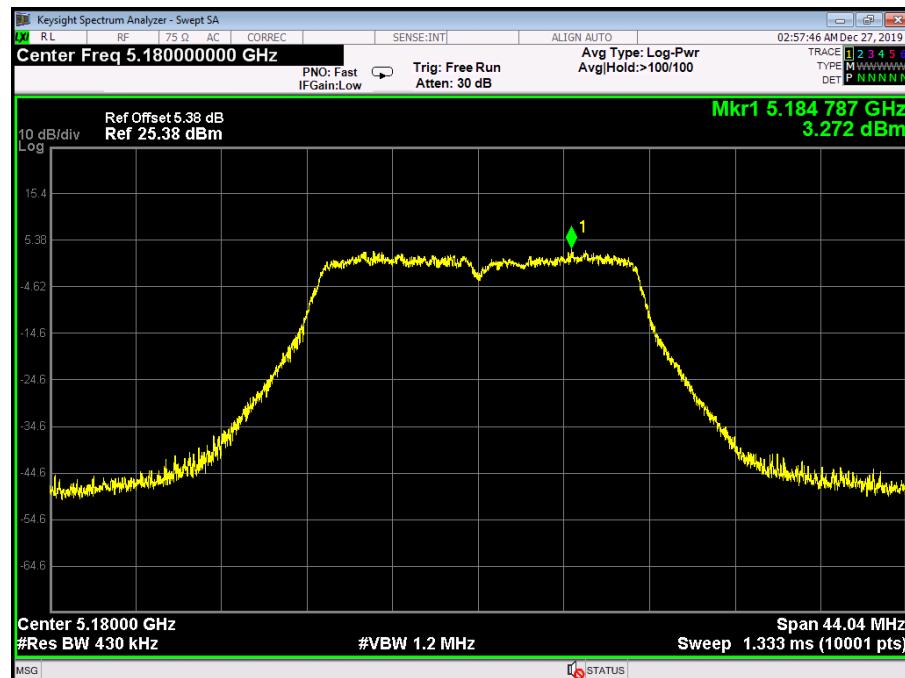
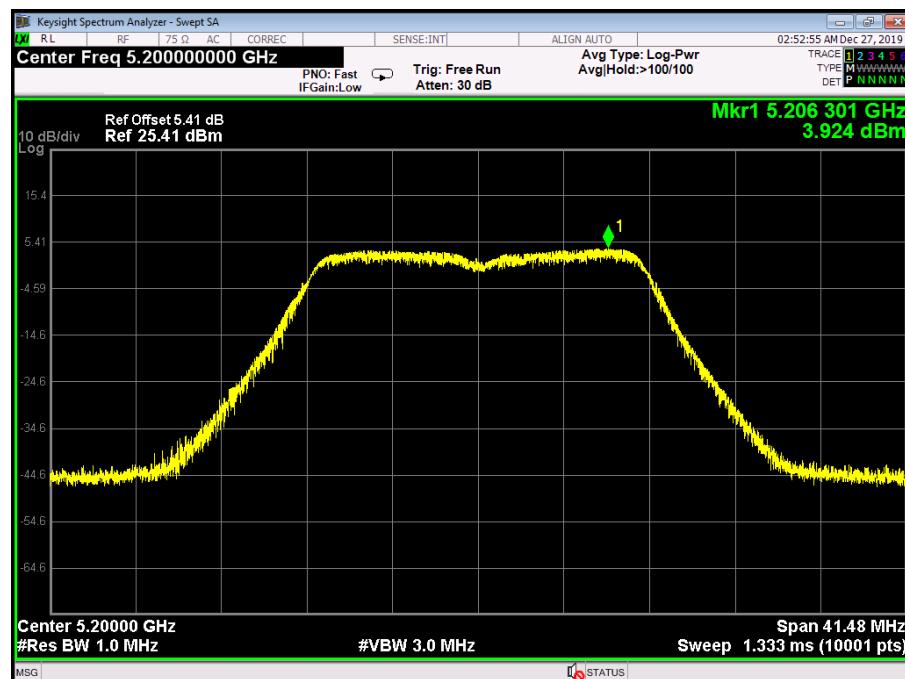
Attachment F-- Power Spectral Density Test Data

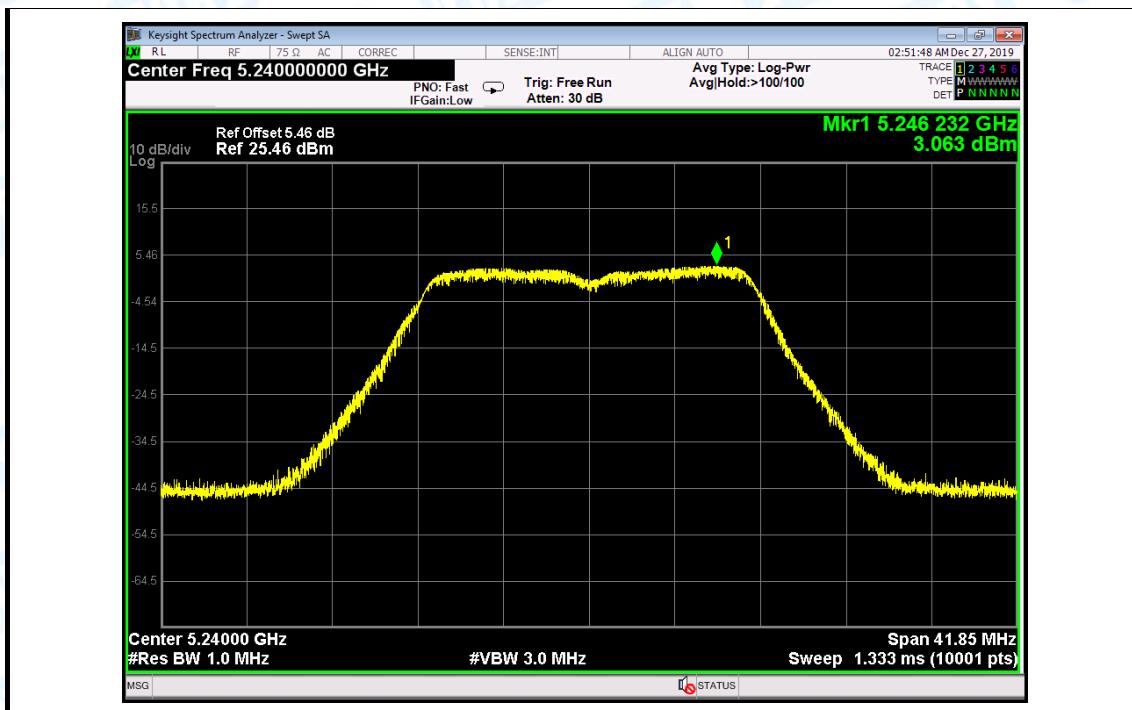
Note : GANT =6dBi, Array Gain=10log(NANT/NSS)=3.01dBi, Directional Gain=GANT + Array Gain=8.01dBi, 8.01dBi >6dBi so limit=11-(8.01-6)=8.99dBm for U-NII 1 MIMO

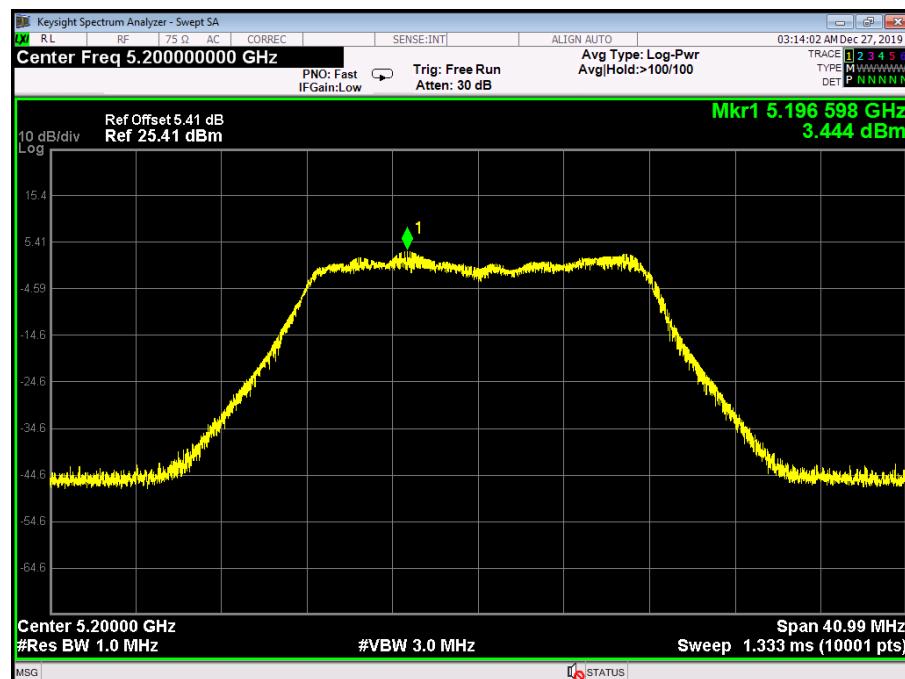
Type	Bands	Channel	Power Spectral Density Ant 0 (dBm/MHz)	Power Spectral Density Ant 1 (dBm/MHz)	Power Spectral Density Total (dBm/1MHz)	Limit (dBm/MHz)	Result
802.11a SISO	U-NII 1	36	3.272	2.924	/	11.00	Pass
		40	3.924	5.033	/		
		48	3.063	4.383	/		
802.11n (HT20) MIMO	U-NII 1	36	4.309	4.488	7.409	8.99	Pass
		40	3.444	4.536	7.034		
		48	3.915	5.278	7.66		
802.11n (HT40) MIMO	U-NII 1	38	2.736	4.545	6.744		
		46	2.582	4.134	6.437		
802.11ac (VHT20) MIMO	U-NII 1	36	3.320	3.870	6.614		
		40	3.799	4.579	7.216		
		48	4.985	4.526	7.771		
802.11ac (VHT40) MIMO	U-NII 1	38	3.235	3.331	6.293		
		46	2.889	2.635	5.774		

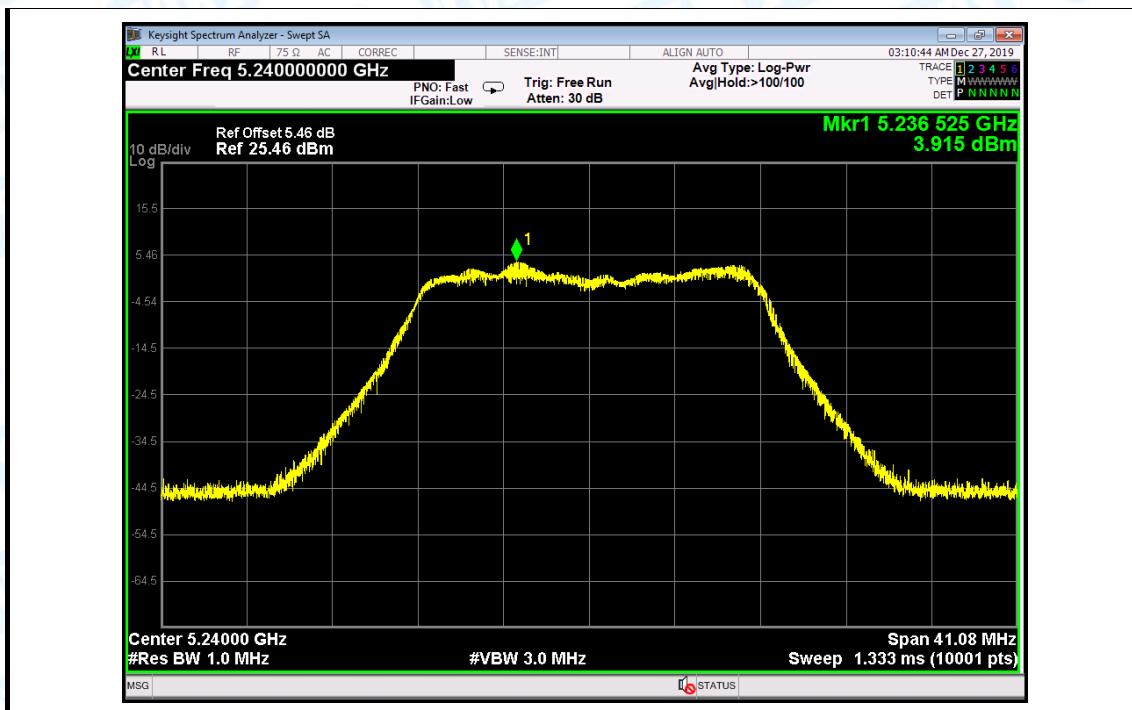
Type	Bands	Channel	Power Spectral Density Ant 0 (dBm/500KHz)	Power Spectral Density Ant 1 (dBm/500KHz)	Power Spectral Density Total (dBm/500KHz)	Limit (dBm/500KHz)	Result
802.11a SISO	U-NII 3	149	3.933	4.057	/	30.00	Pass
		157	4.784	4.20	/		
		165	4.072	4.212	/		
802.11n (HT20) MIMO	U-NII 3	149	2.904	3.118	6.022	27.99	Pass
		157	3.057	3.295	6.187		
		165	3.123	3.184	6.163		
802.11n (HT40) MIMO	U-NII 3	151	-1.155	-1.01	1.928	27.99	Pass
		159	-0.373	0.878	2.292		
802.11ac (HT20) MIMO	U-NII 3	149	3.77	4.649	7.242	27.99	Pass
		157	3.739	4.582	7.191		
		165	4.088	4.277	7.193		
802.11ac (HT40) MIMO	U-NII 3	151	-0.094	-0.395	2.768	27.99	Pass
		159	-1.323	-0.536	2.098		

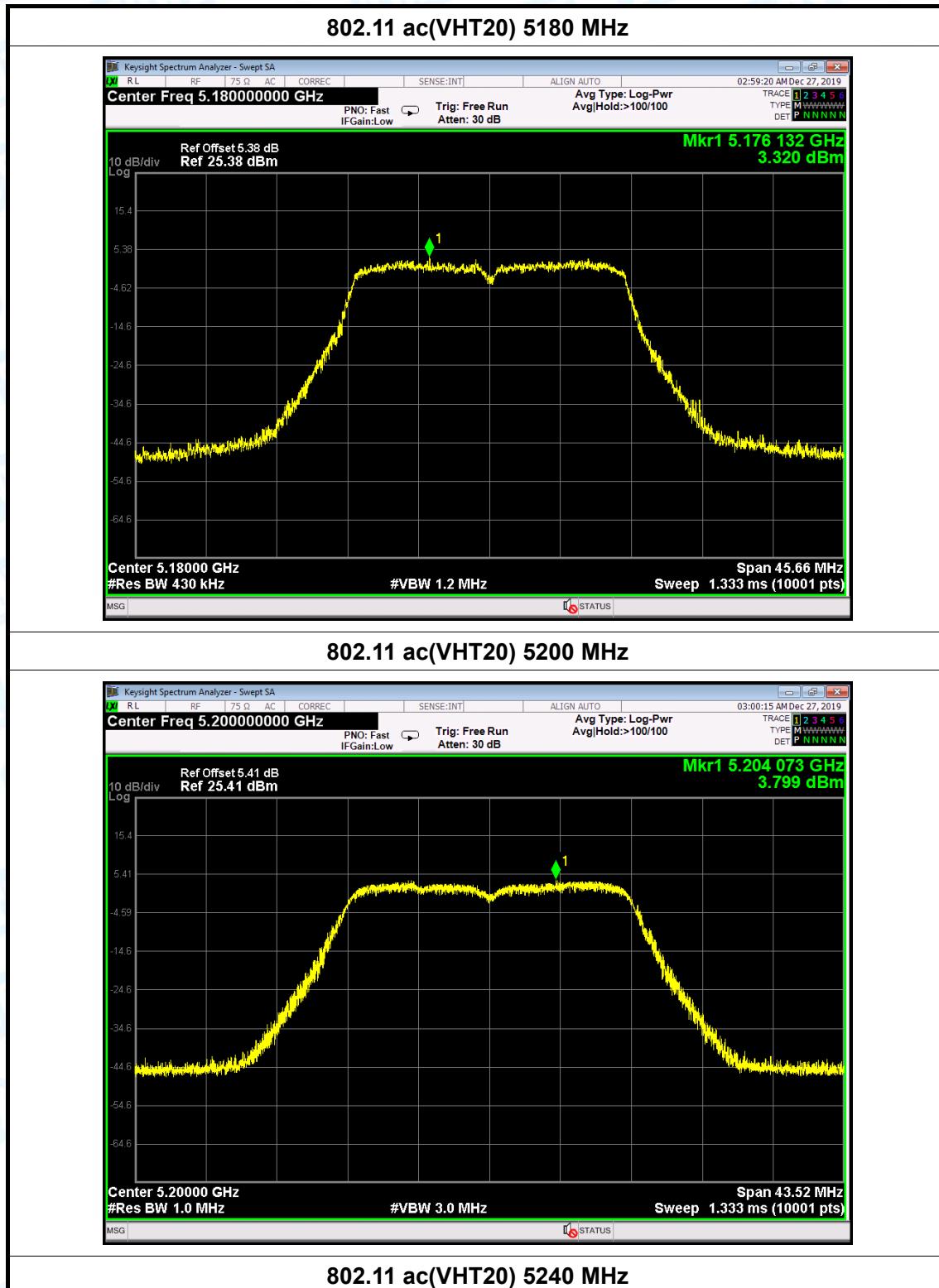
Note : GANT =6dBi, Array Gain=10log(NANT/NSS)=3.01dBi, Directional Gain=GANT + Array Gain=8.01dBi, 8.01dBi >6dBi so limit=30-(8.01-6)=27.99dBm for U-NII 3 MIMO

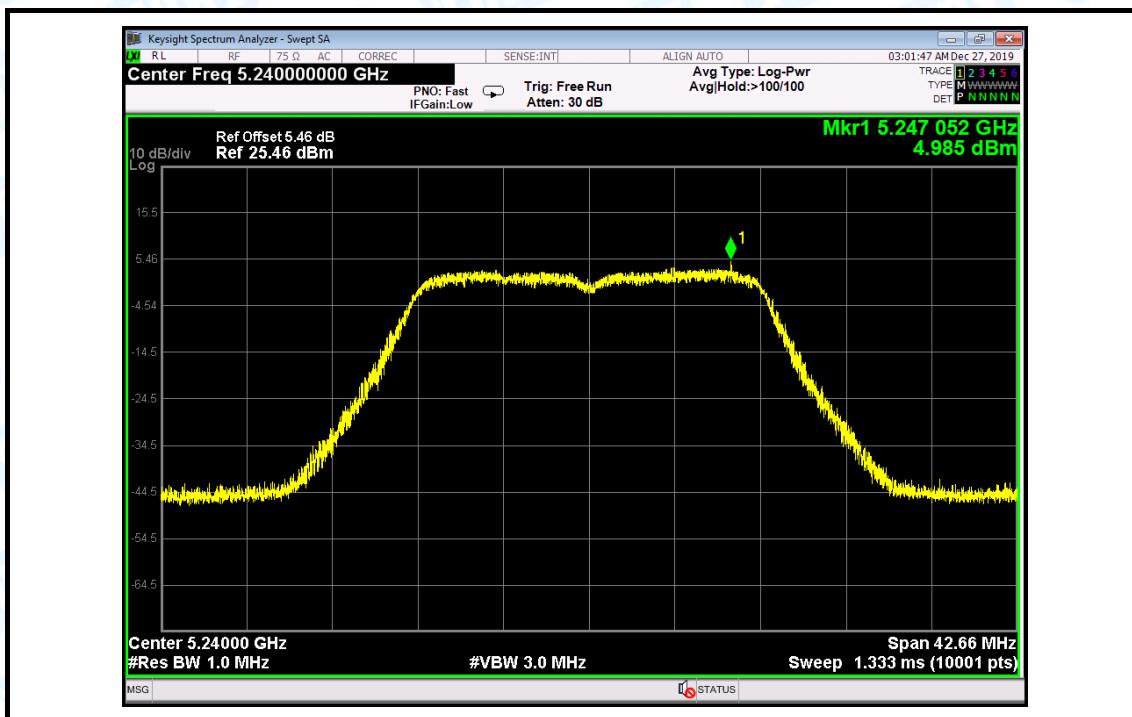
ANT 0:**802.11 a 5180 MHz****802.11 a 5200 MHz****802.11 a 5240 MHz**

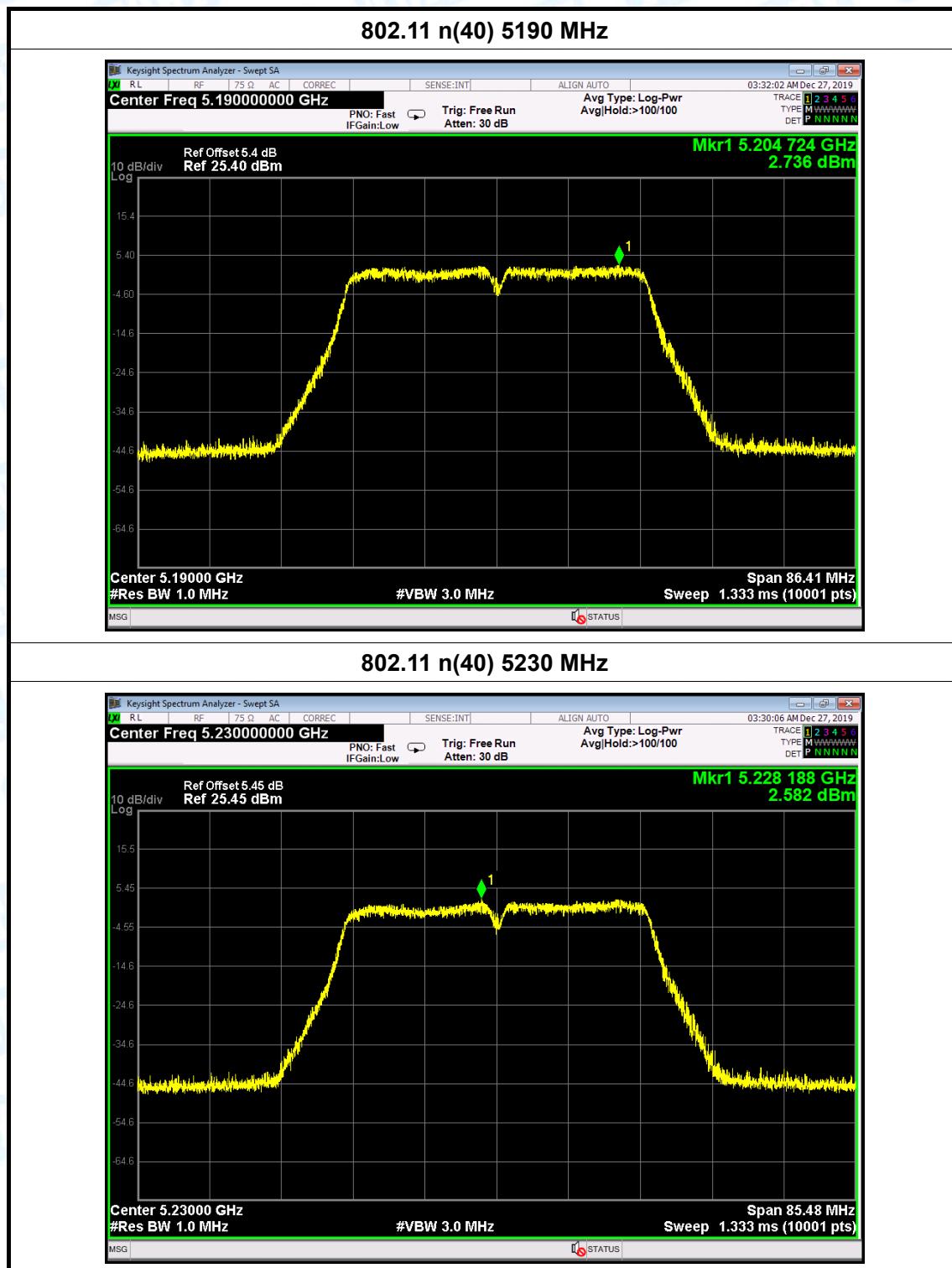


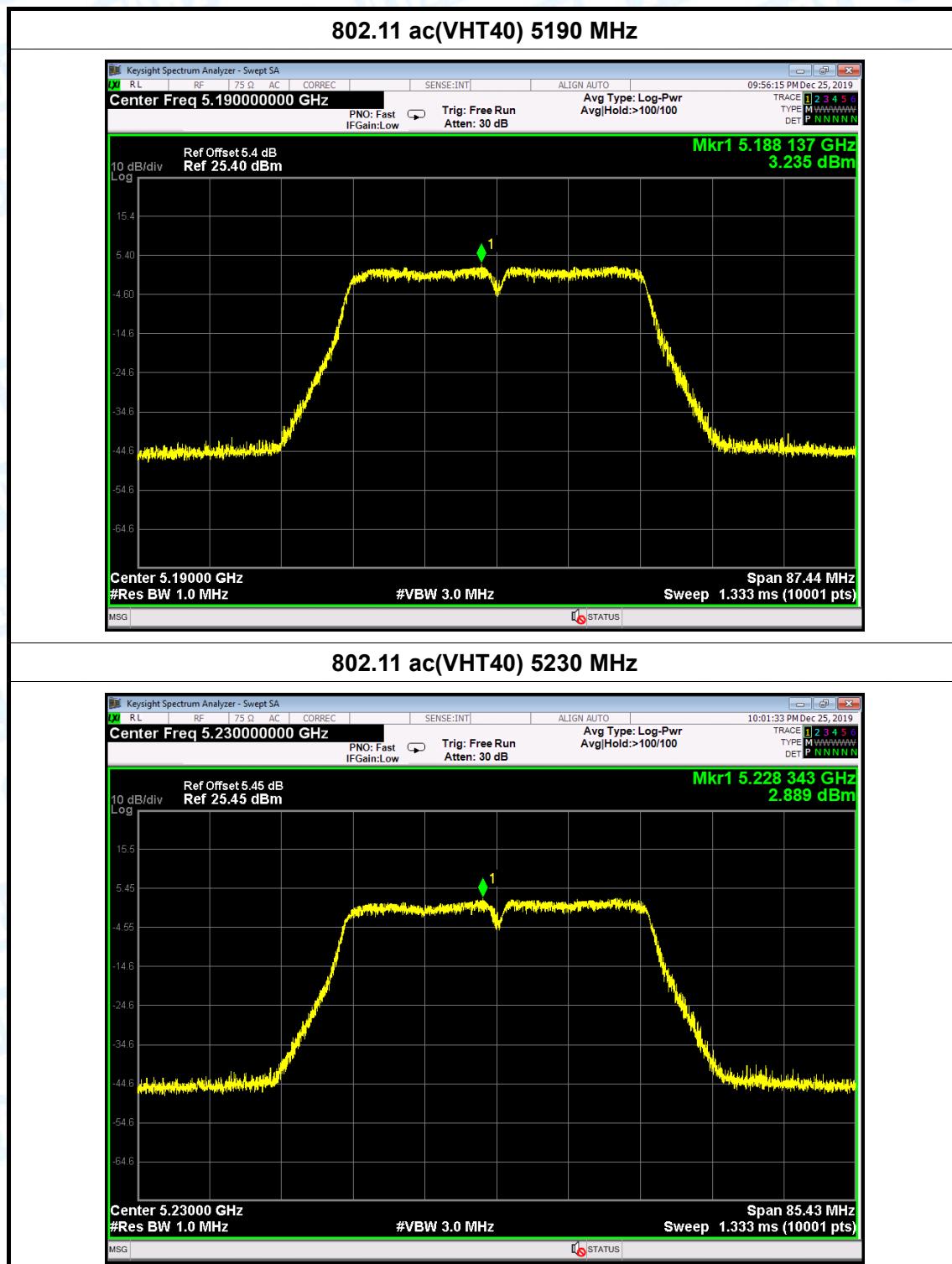
802.11 n(20) 5180 MHz**802.11 n(20) 5200 MHz****802.11 n(20) 5240 MHz**

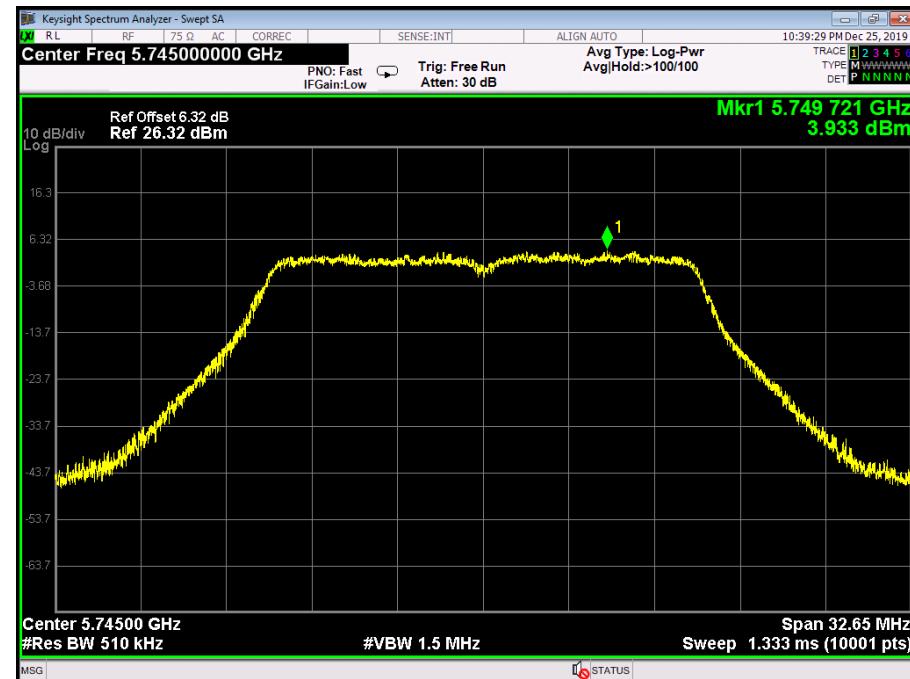




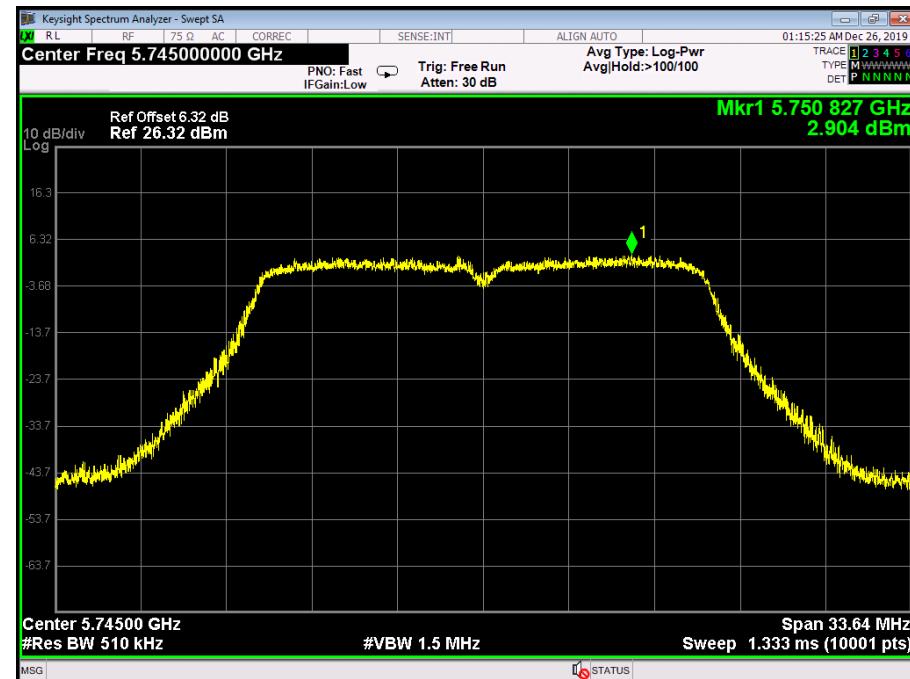
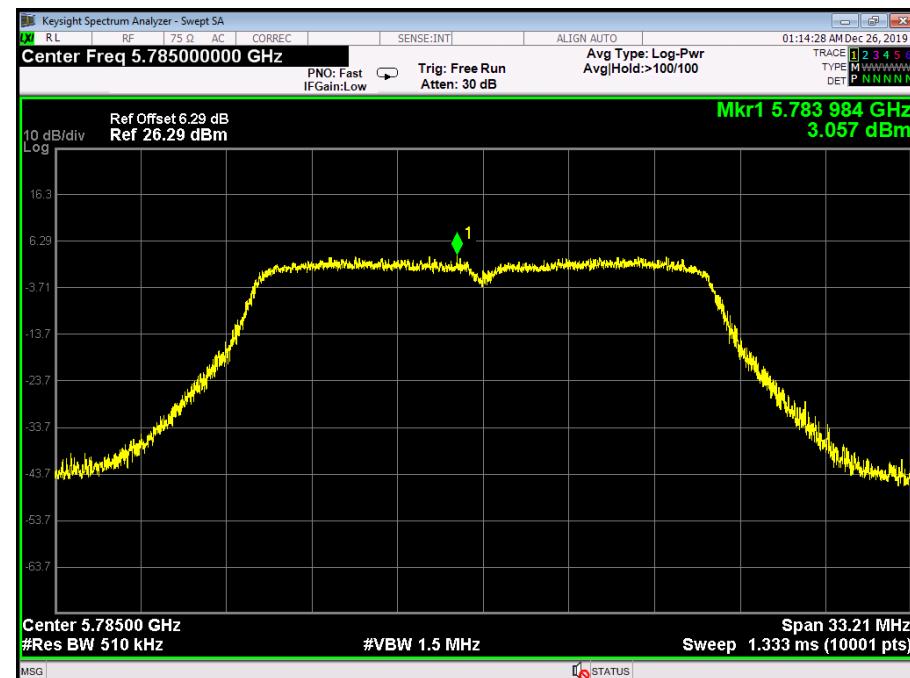




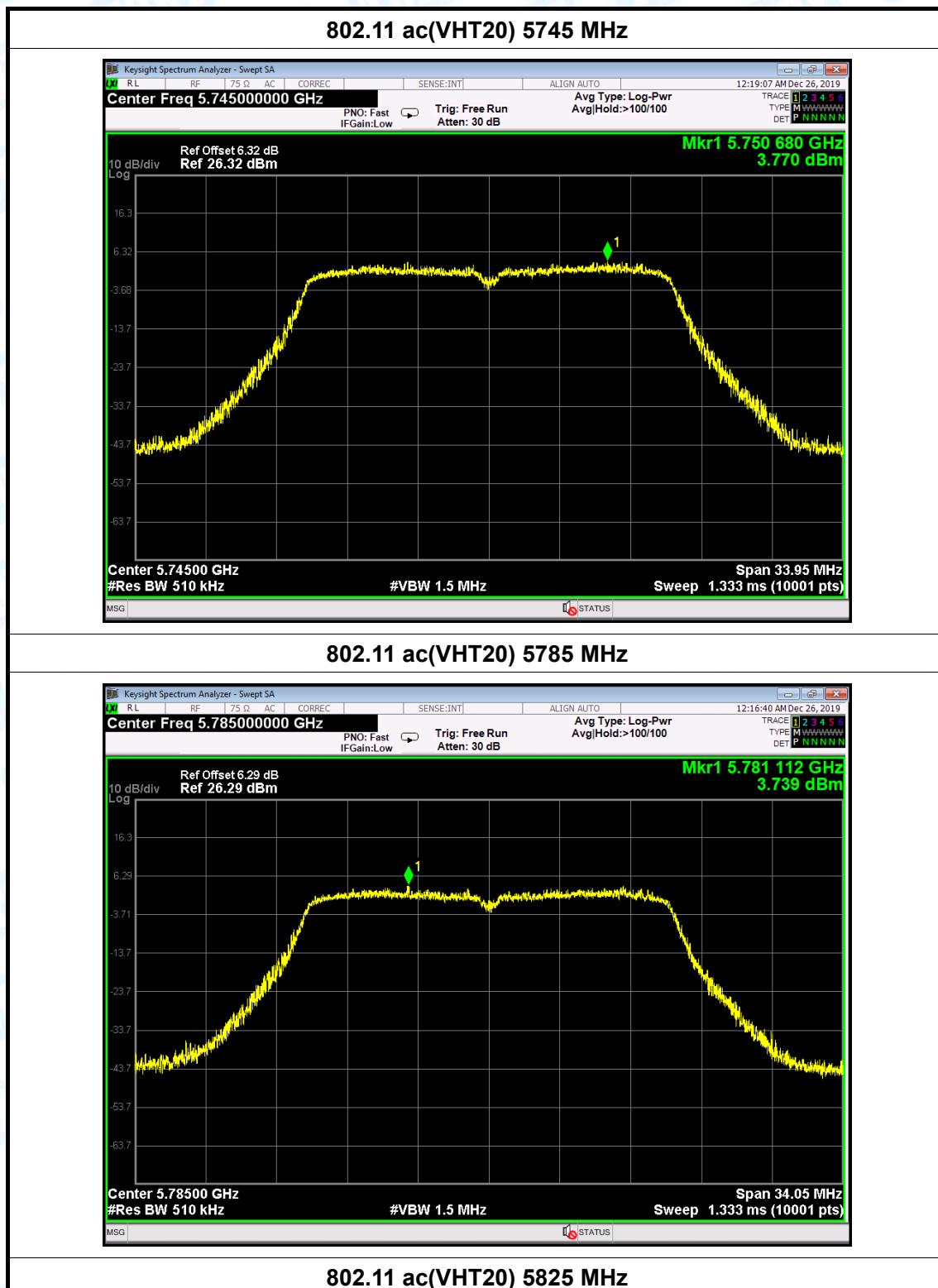


802.11 a 5745 MHz**802.11 a 5785 MHz****802.11 a 5825 MHz**

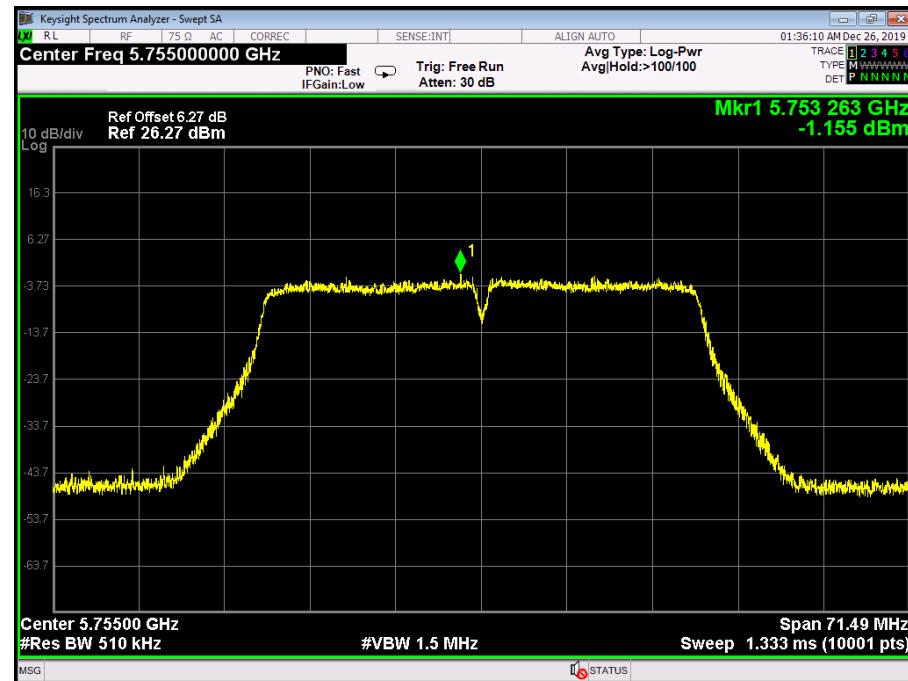
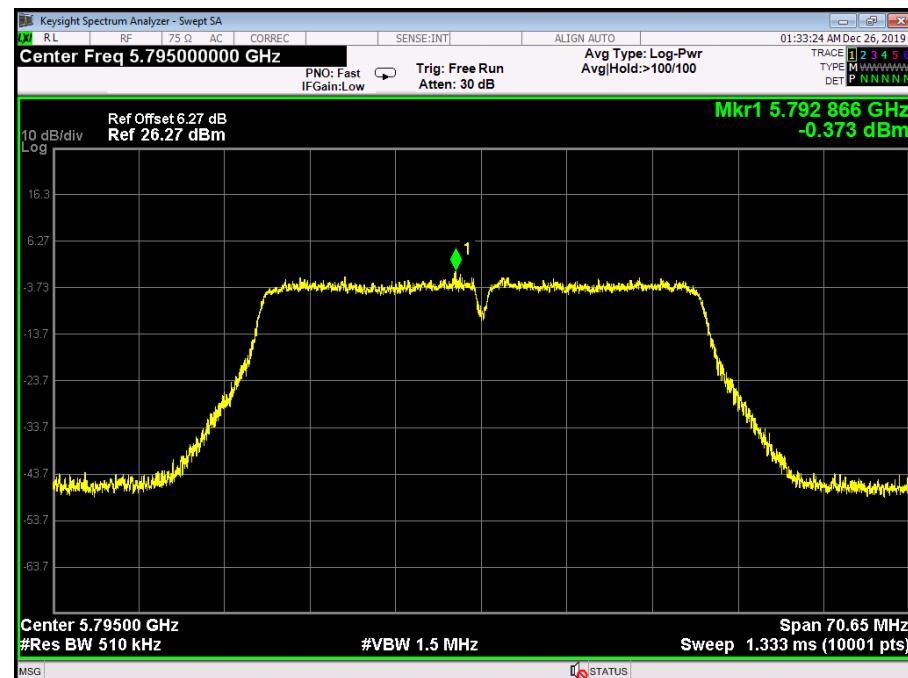


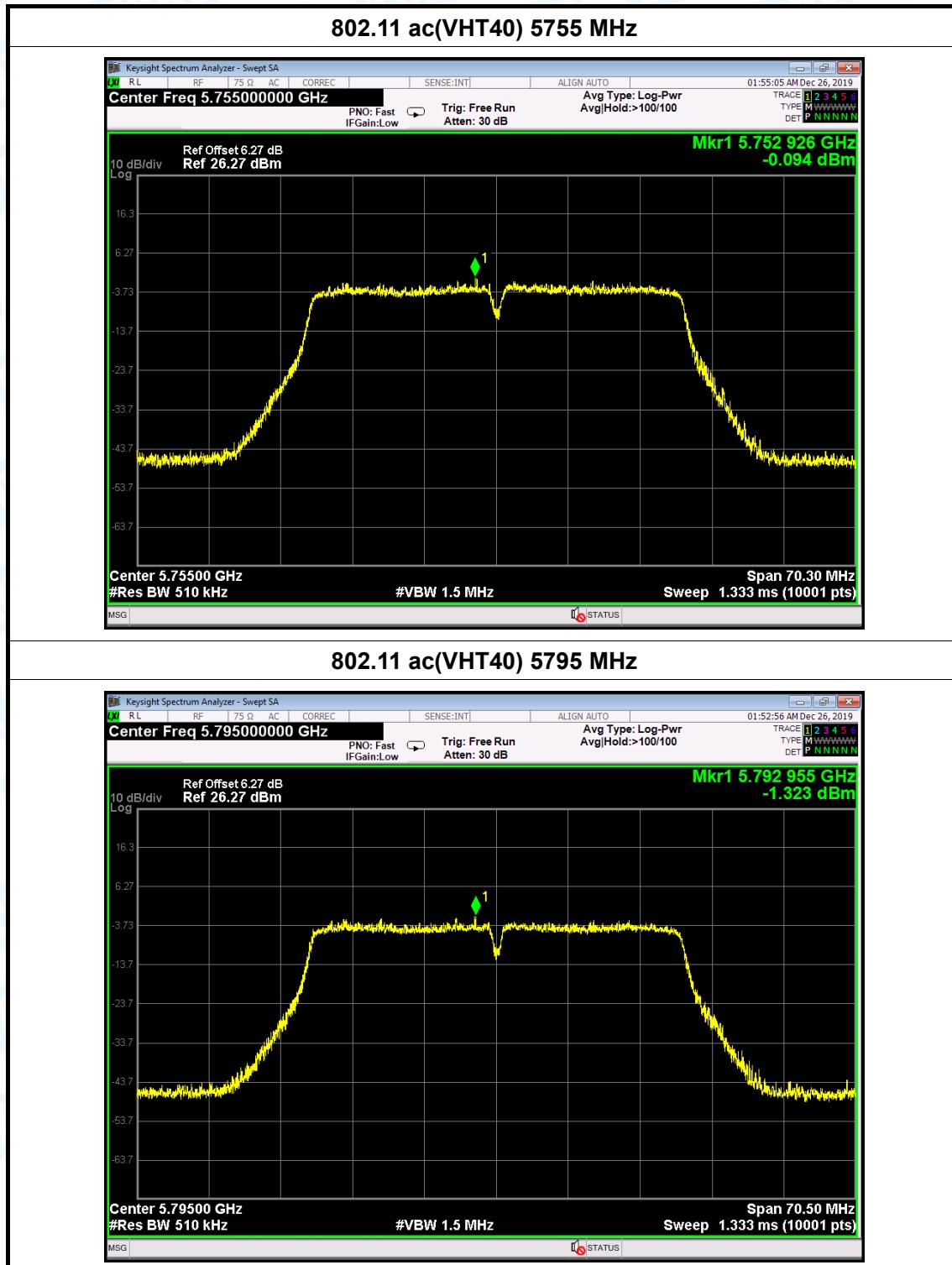
802.11 n(20) 5745 MHz**802.11 n(20) 5785 MHz****802.11 n(20) 5825 MHz**





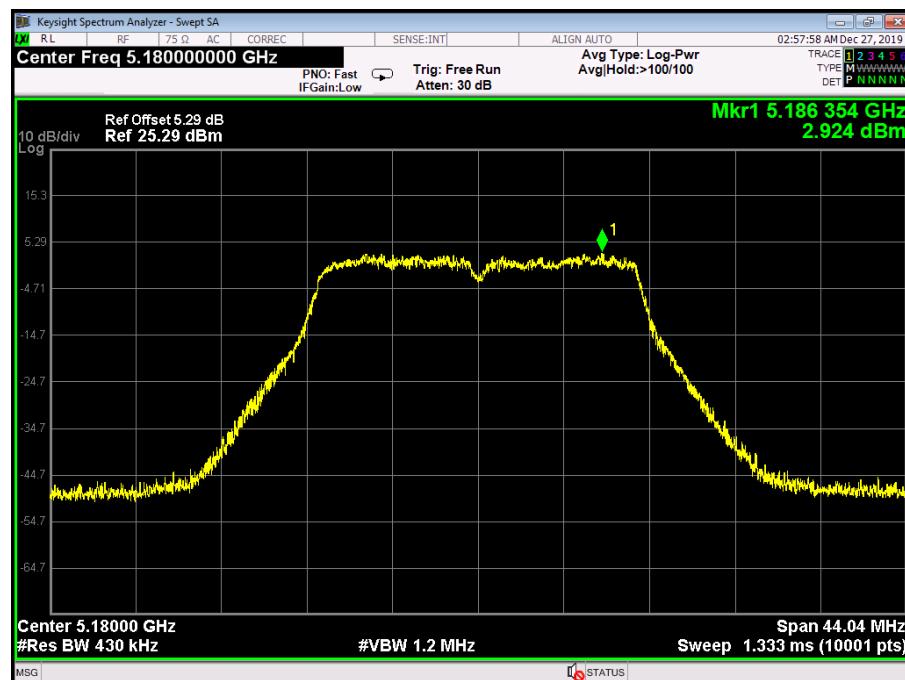


802.11 n(40) 5755 MHz**802.11 n(40) 5795 MHz**

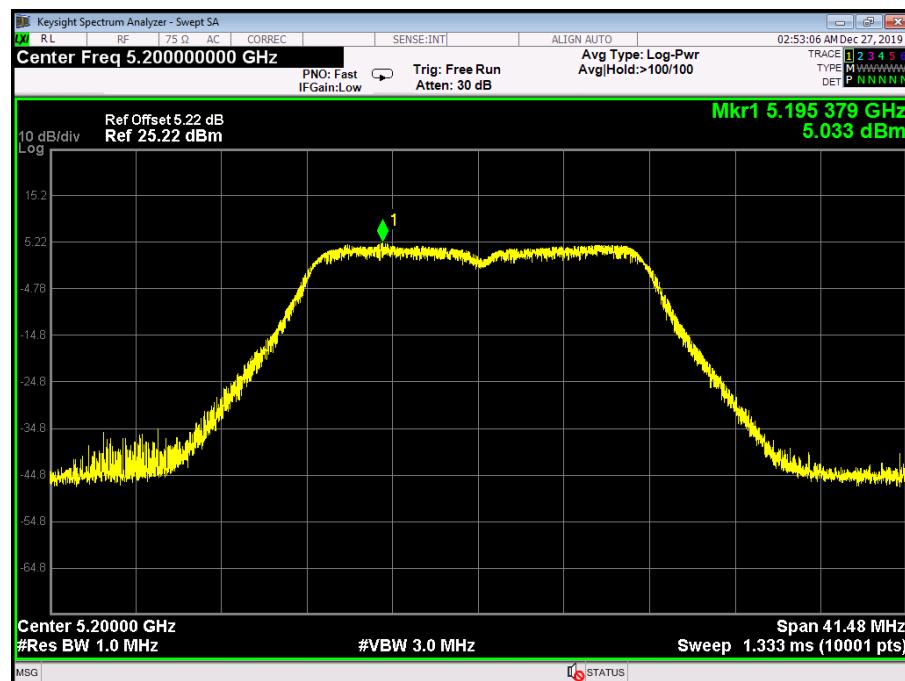


ANT 1:

802.11 a 5180 MHz

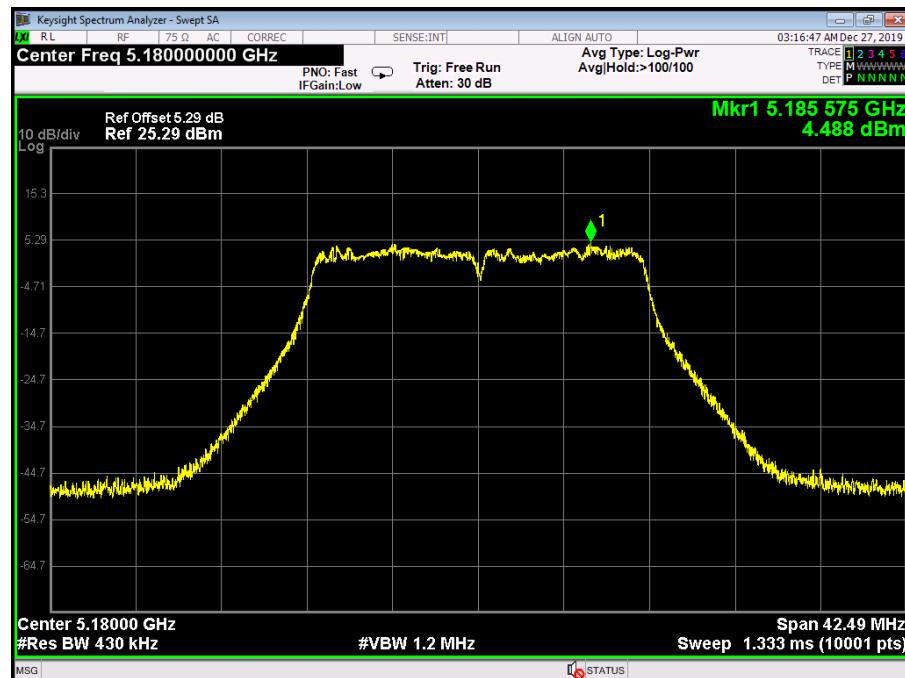
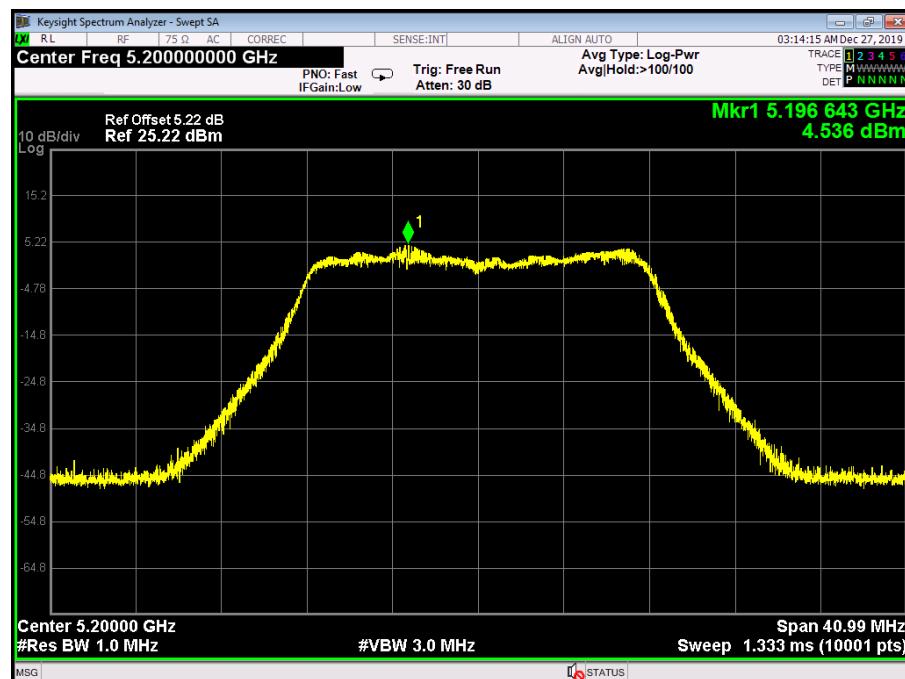


802.11 a 5200 MHz

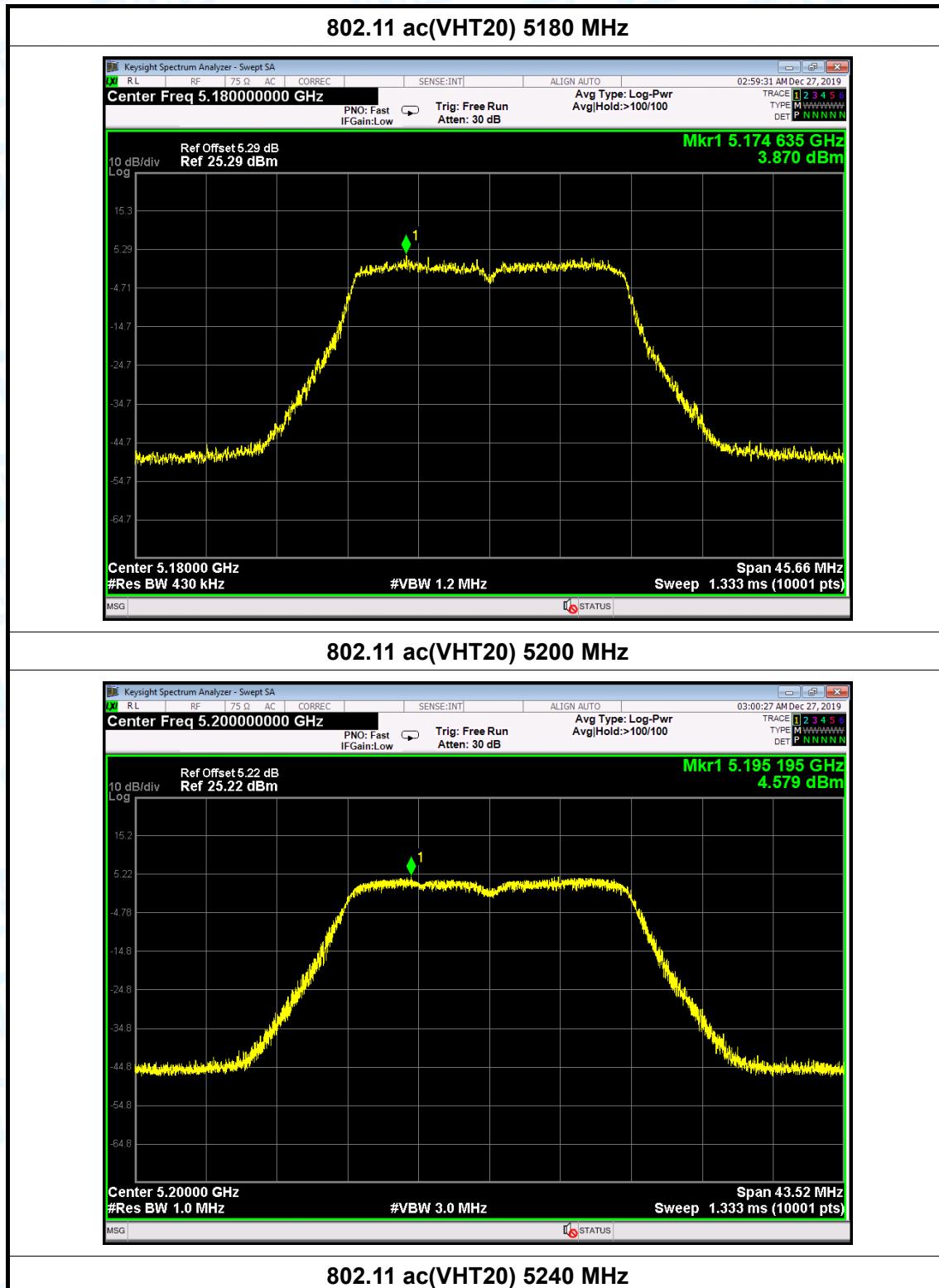


802.11 a 5240 MHz

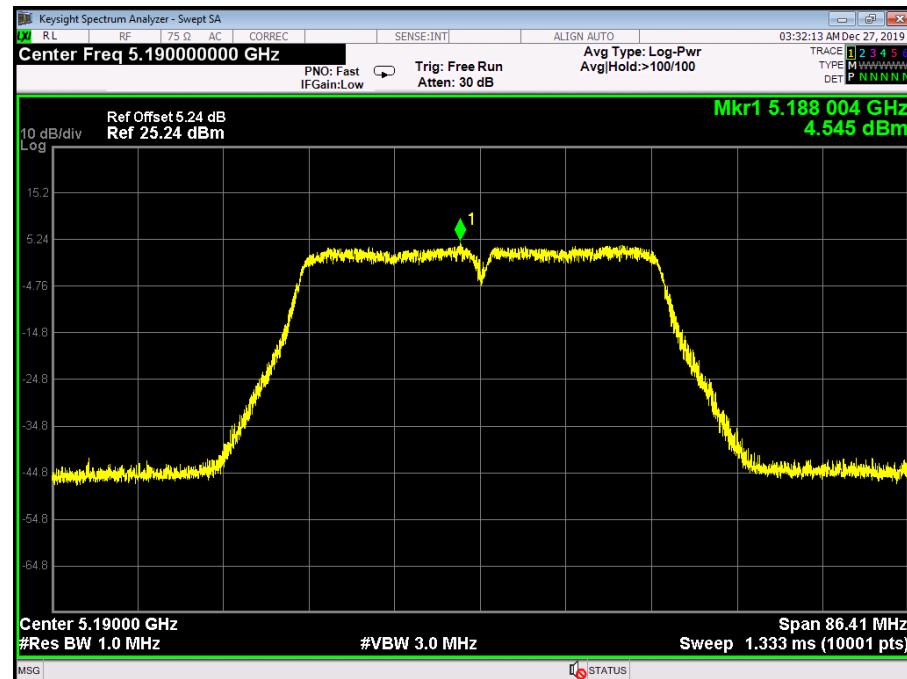
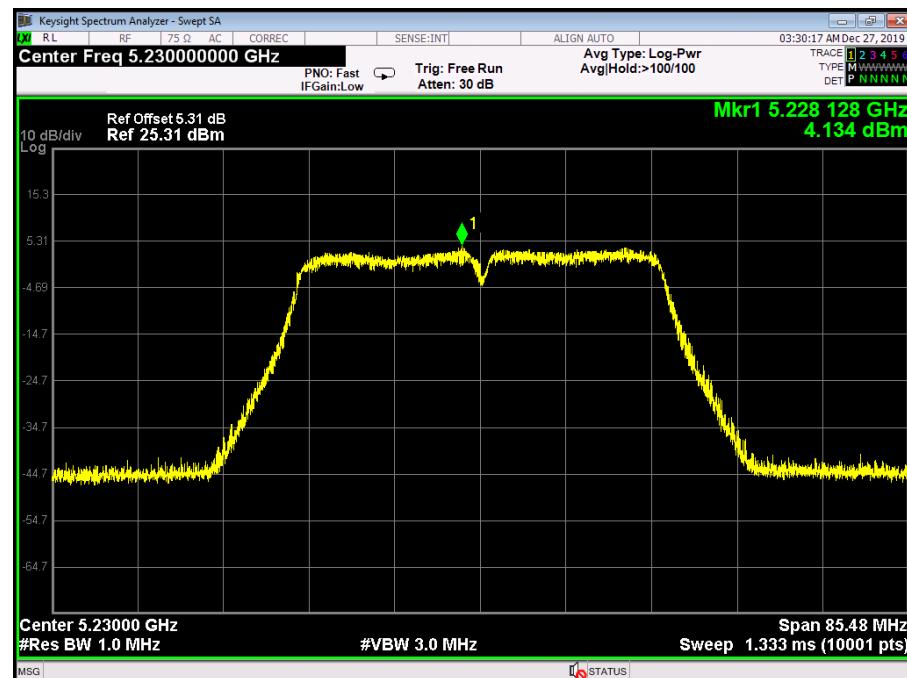


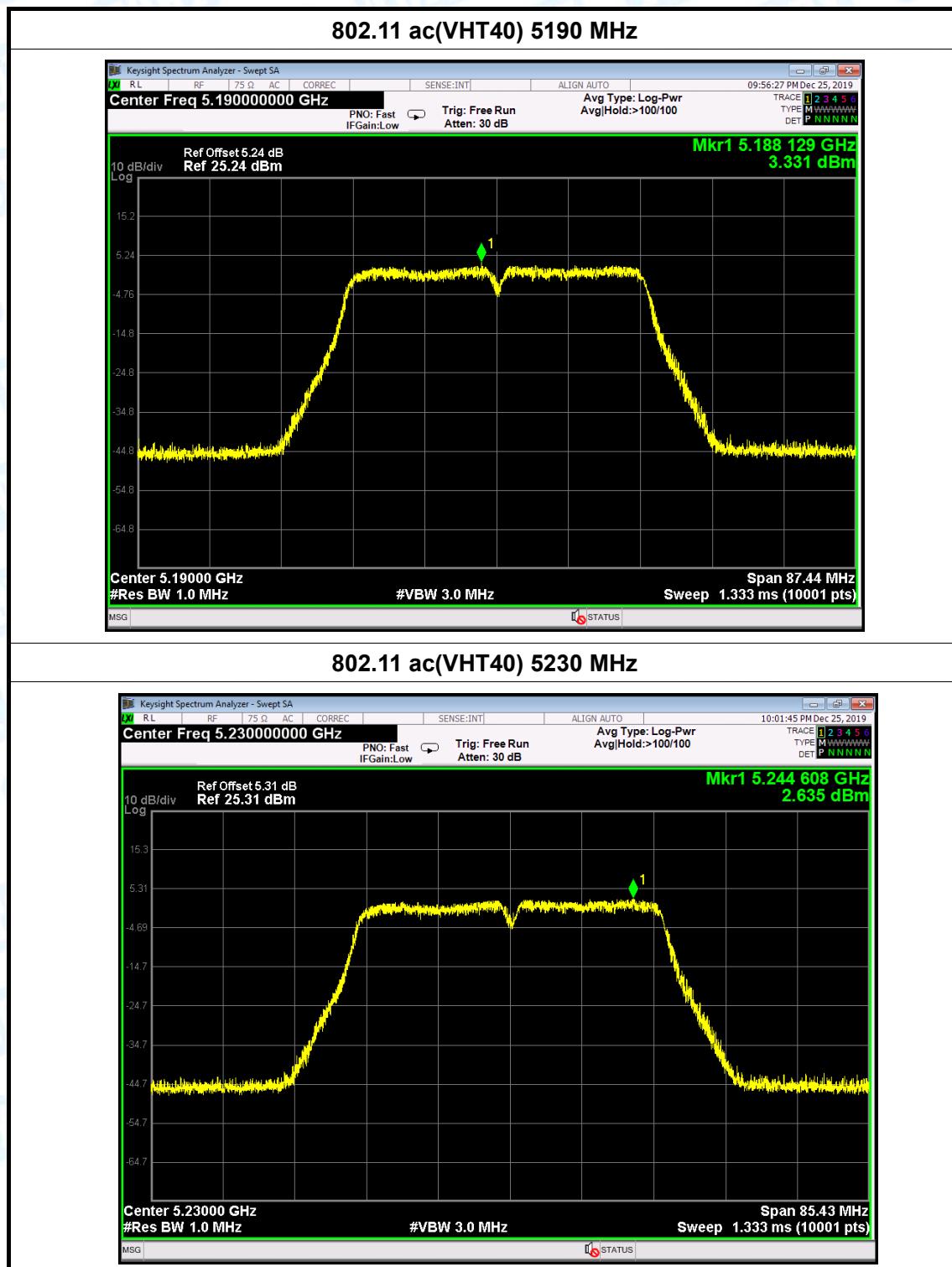
802.11 n(20) 5180 MHz**802.11 n(20) 5200 MHz****802.11 n(20) 5240 MHz**

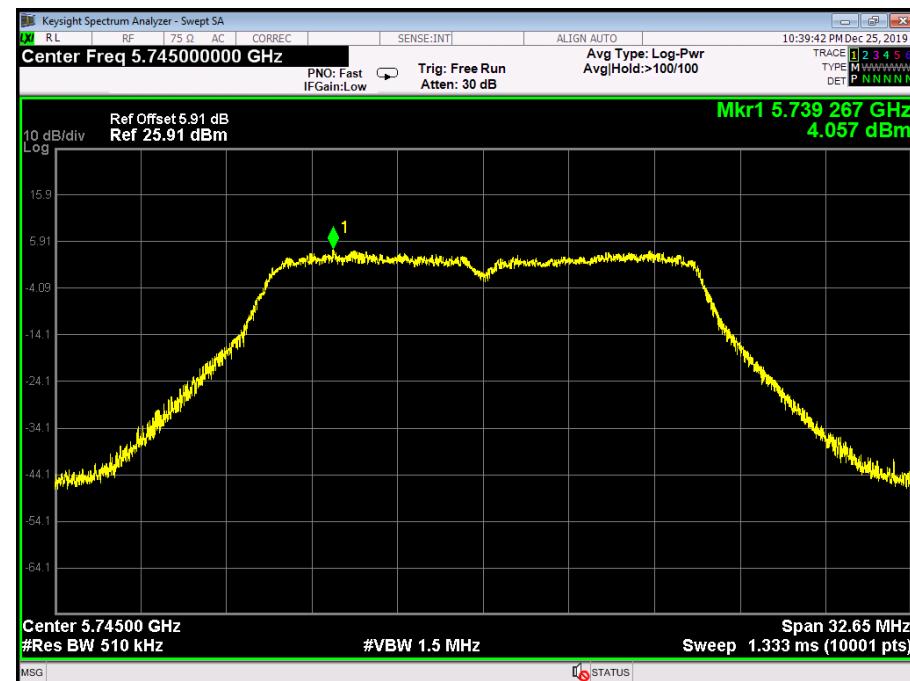




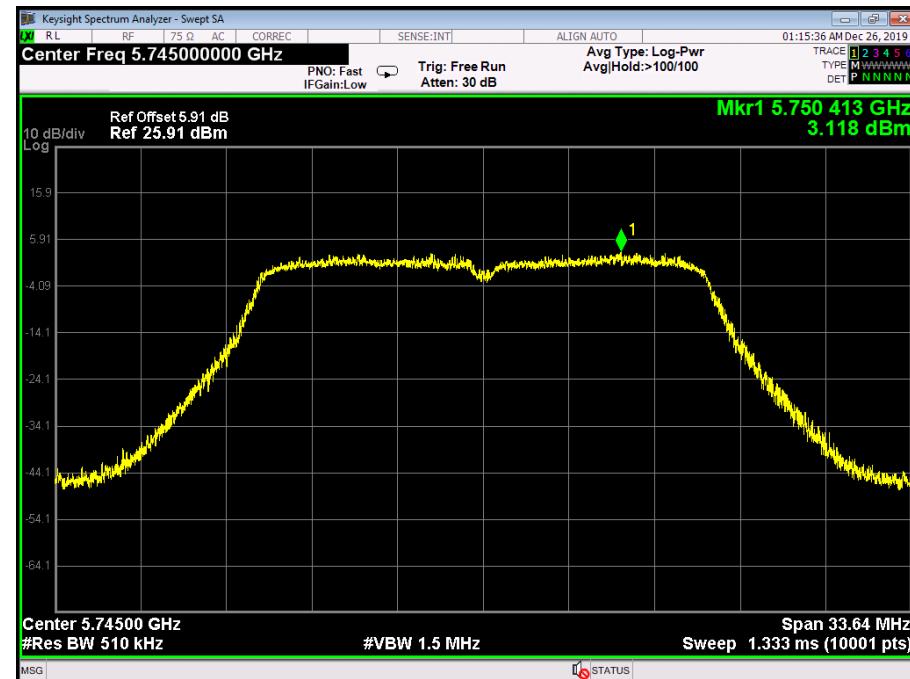
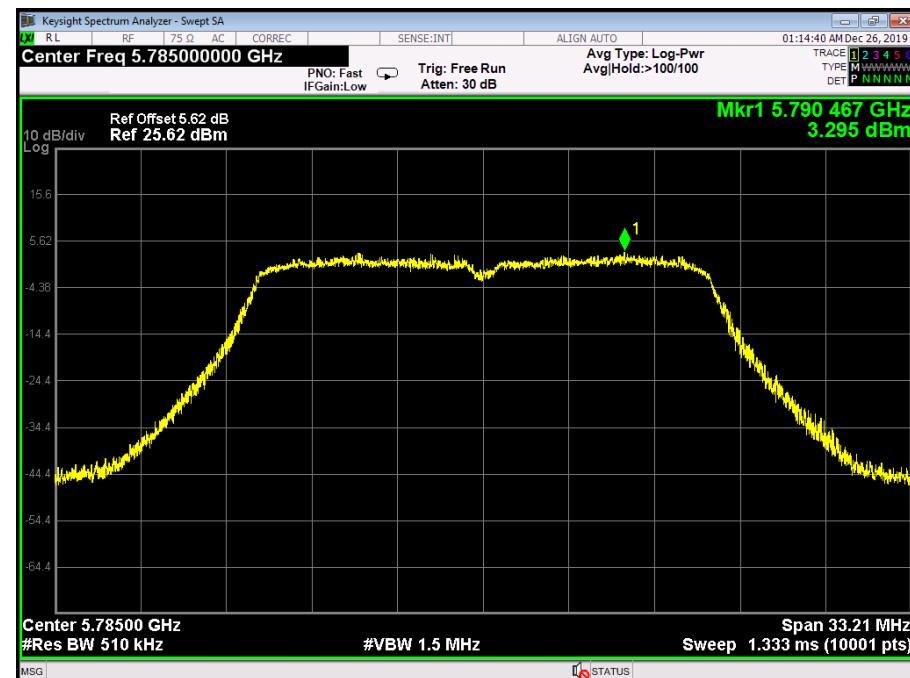


802.11 n(40) 5190 MHz**802.11 n(40) 5230 MHz**

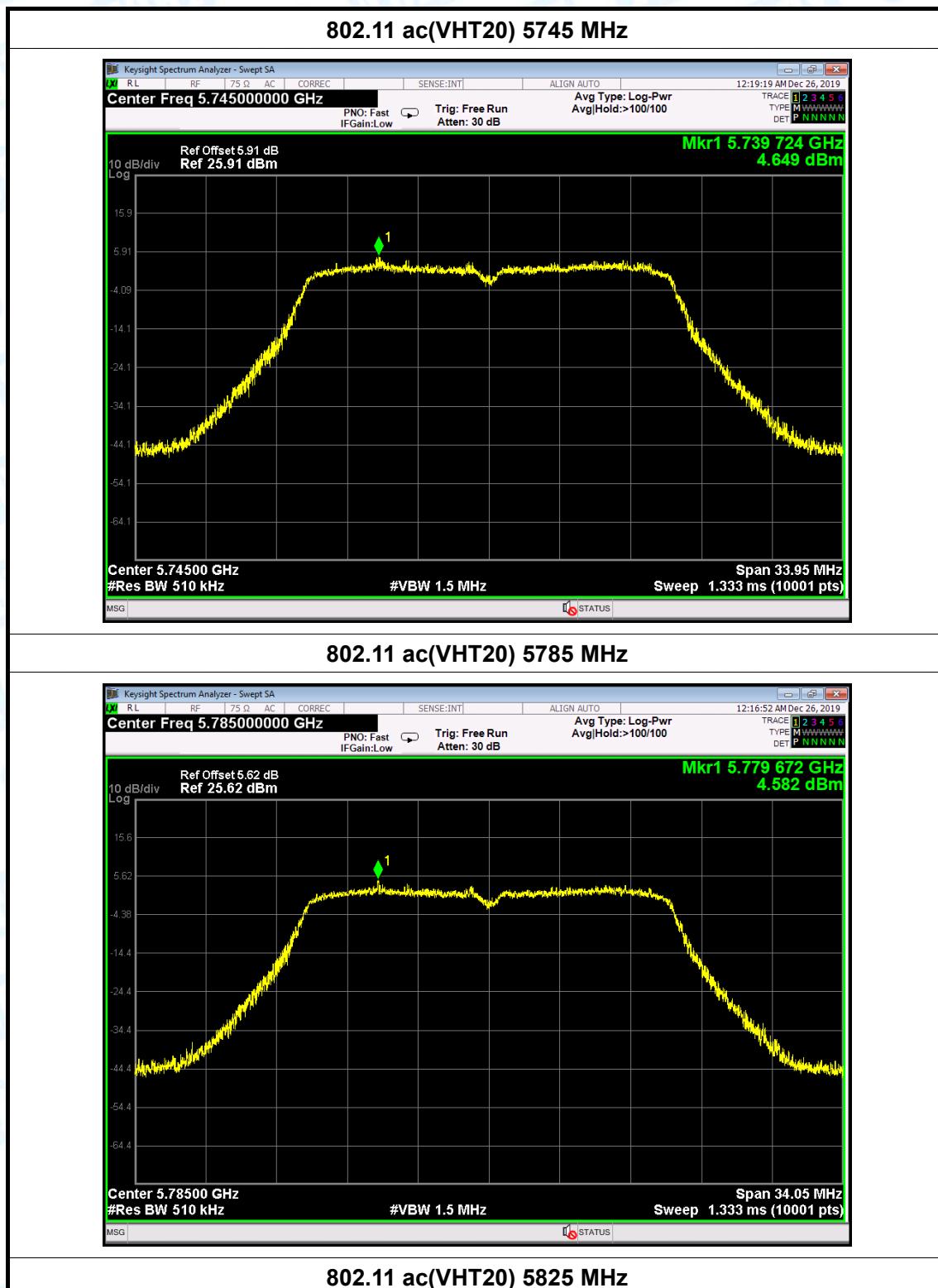


802.11 a 5745 MHz**802.11 a 5785 MHz****802.11 a 5825 MHz**

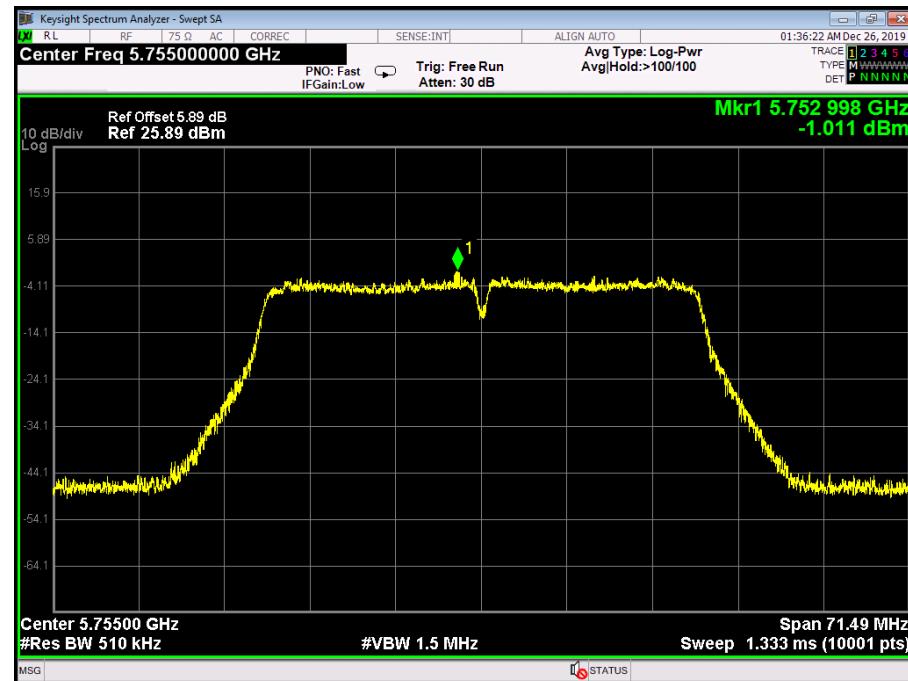
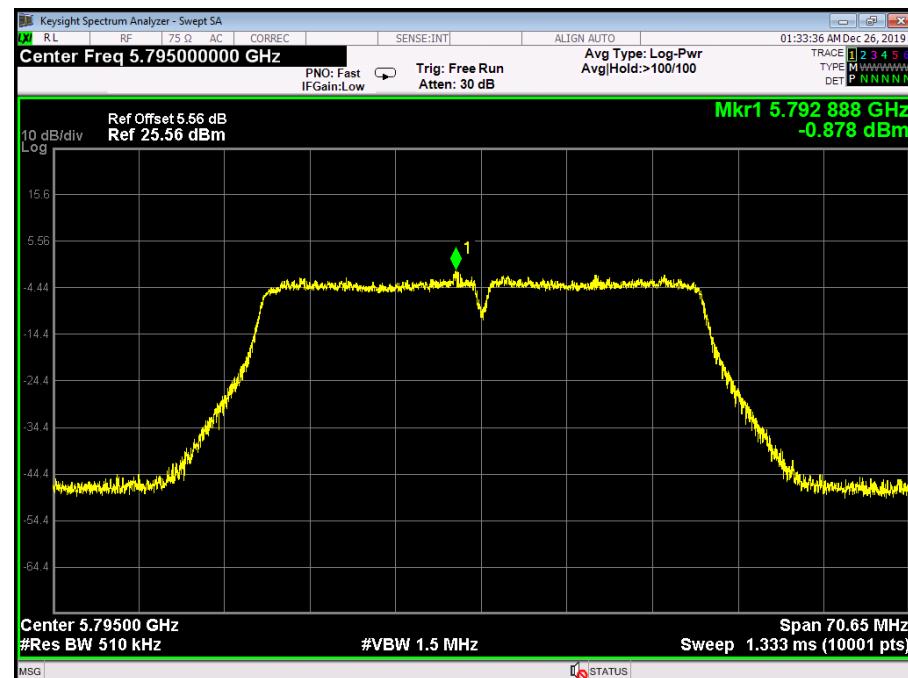


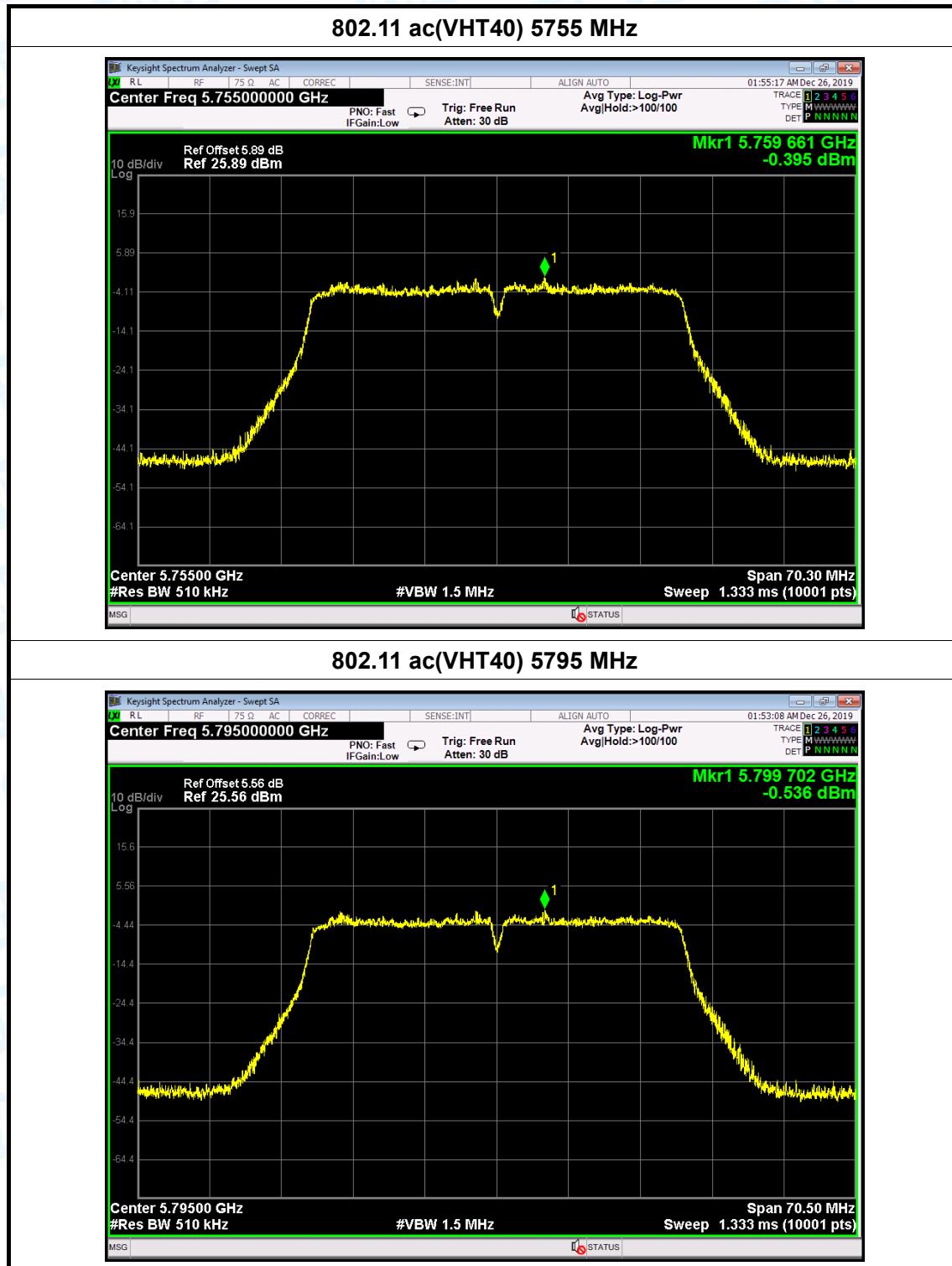
802.11 n(20) 5745 MHz**802.11 n(20) 5785 MHz****802.11 n(20) 5825 MHz**







802.11 n(40) 5755 MHz**802.11 n(40) 5795 MHz**



Attachment G-- Frequency Stability Measurement Test Data

Only show the worst case 802.11 a Mode 5180MHz.

801.11a U-NII-1: 5180 MHz	
Voltage vs. Frequency Stability	
Voltage (V)	Measurement Frequency (MHz)
132	5179.9642
120	5180.0000
118	5179.9585
Max. Deviation (MHz)	0.0415
Max. Deviation (ppm)	8.01
Temperature vs. Frequency Stability	
Temperature (°C)	Measurement Frequency (MHz)
0	5179.9752
10	5179.9743
20	5179.9725
30	5179.9765
40	5179.9735
50	5179.9785
Max. Deviation (MHz)	0.0275
Max. Deviation (ppm)	5.31
Limit (ppm)	20
Result	Pass

Only show the worst case 802.11 a Mode 5745MHz.

801.11a U-NII-3: 5745 MHz	
Voltage vs. Frequency Stability	
Voltage (V)	Measurement Frequency (MHz)
132	5744.9658
120	5745.0000
118	5744.9523
Max. Deviation (MHz)	0.0477
Max. Deviation (ppm)	8.30
Temperature vs. Frequency Stability	
Temperature (°C)	Measurement Frequency (MHz)
0	5744.9632
10	5744.9724
20	5744.9569
30	5744.9658
40	5744.9515
50	5744.9768
Max. Deviation (MHz)	0.0485
Max. Deviation (ppm)	8.44
Limit (ppm)	20
Result	Pass

-----END OF REPORT-----