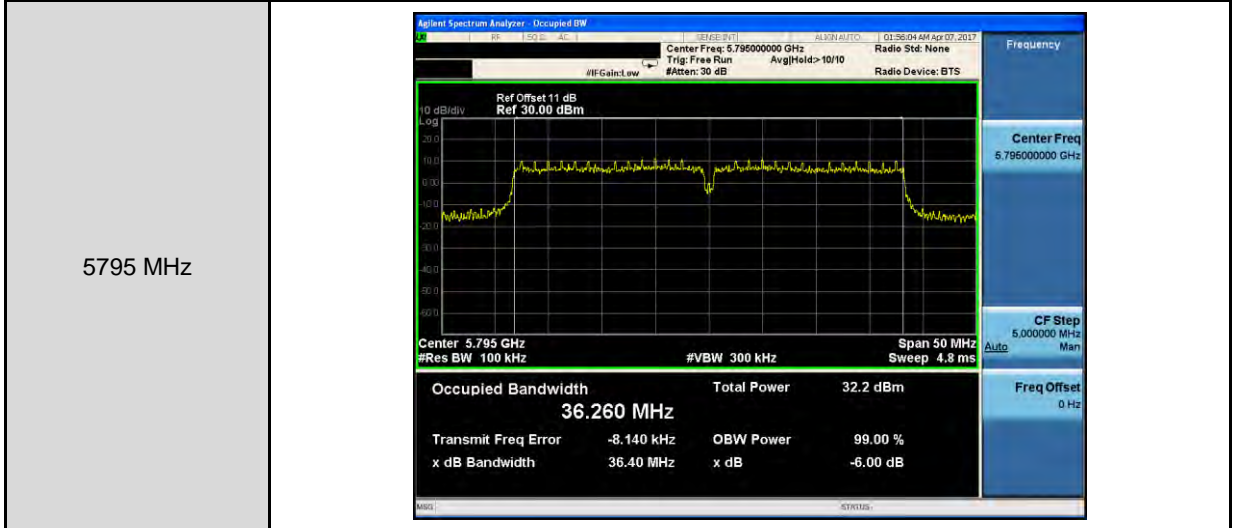
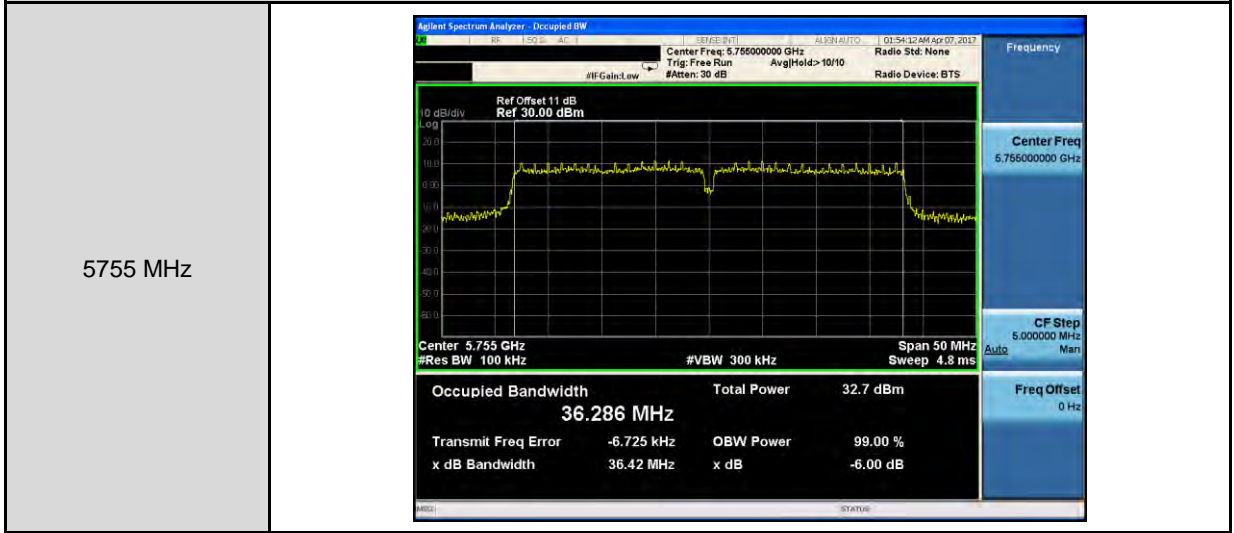
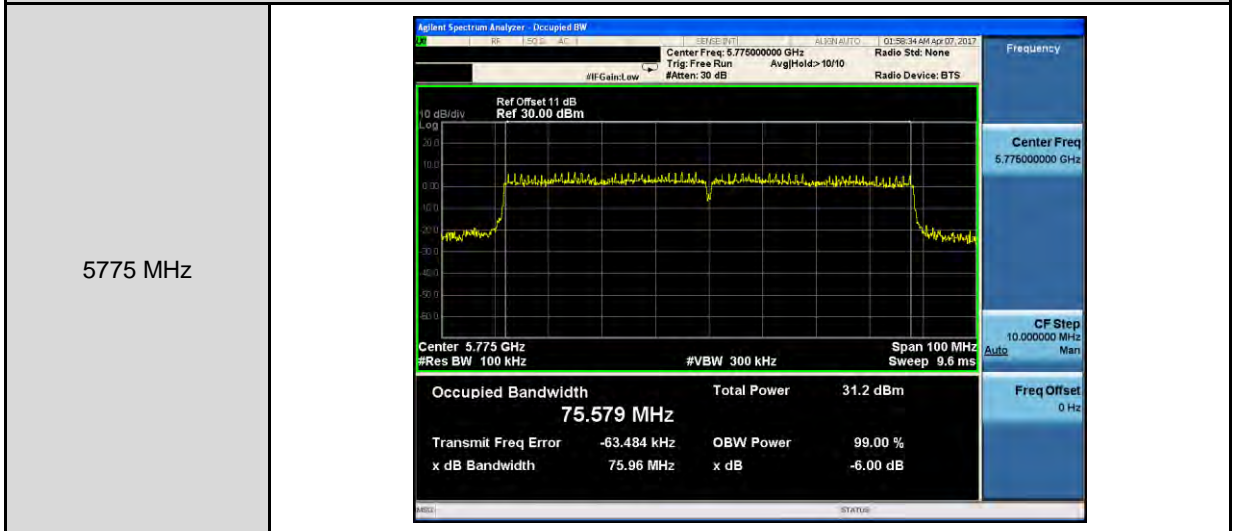




Mode 4: IEEE 802.11ac 40MHz Continuous TX mode_ANT-1



Mode 5: IEEE 802.11ac 80MHz Continuous TX mode_ANT-1





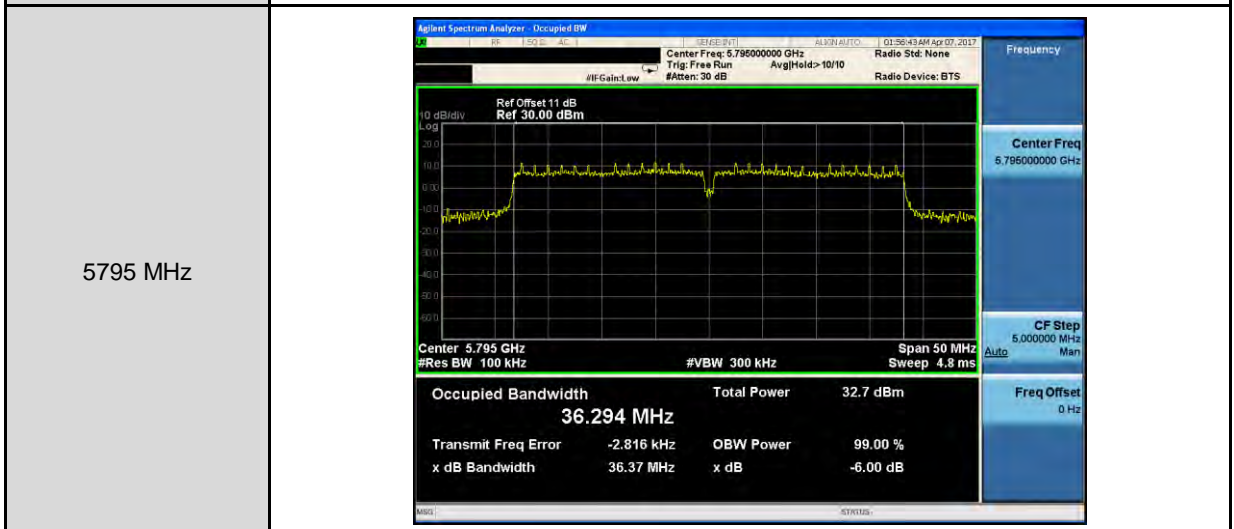
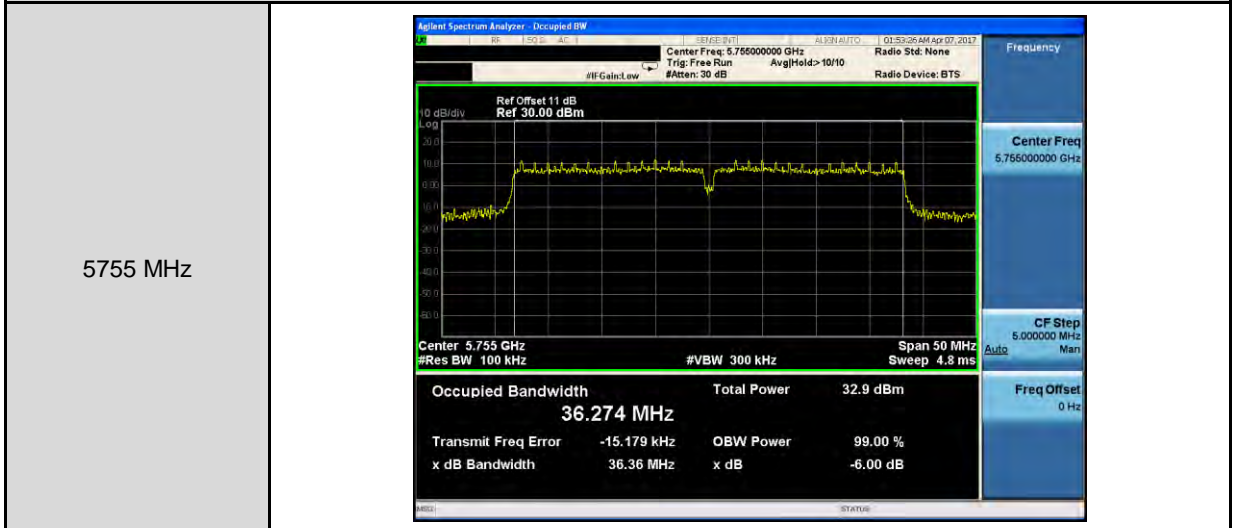
Mode 2: IEEE 802.11a Continuous TX mode_ANT-2																			
5745 MHz	<p>Agilent Spectrum Analyzer - Decoupled BW</p> <p>Center Freq: 5.745000000 GHz</p> <p>Ref Offset 11 dB Ref 30.00 dBm</p> <p>Center 5.745 GHz #Res BW 100 kHz</p> <p>Span 30 MHz #VBW 300 kHz Sweep 2.933 ms</p> <table border="1"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>32.5 dBm</td> </tr> <tr> <td>16.724 MHz</td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>6.274 kHz</td> <td>x dB</td> <td>-6.00 dB</td> </tr> <tr> <td>x dB Bandwidth</td> <td></td> <td></td> </tr> <tr> <td>16.37 MHz</td> <td></td> <td></td> </tr> </table>	Occupied Bandwidth	Total Power	32.5 dBm	16.724 MHz			Transmit Freq Error	OBW Power	99.00 %	6.274 kHz	x dB	-6.00 dB	x dB Bandwidth			16.37 MHz		
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x dB Bandwidth																			
16.37 MHz																			
5785 MHz	<p>Agilent Spectrum Analyzer - Decoupled BW</p> <p>Center Freq: 5.785000000 GHz</p> <p>Ref Offset 11 dB Ref 30.00 dBm</p> <p>Center 5.785 GHz #Res BW 100 kHz</p> <p>Span 30 MHz #VBW 300 kHz Sweep 2.933 ms</p> <table border="1"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>32.6 dBm</td> </tr> <tr> <td>16.935 MHz</td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>-28.567 kHz</td> <td>x dB</td> <td>-6.00 dB</td> </tr> <tr> <td>x dB Bandwidth</td> <td></td> <td></td> </tr> <tr> <td>16.36 MHz</td> <td></td> <td></td> </tr> </table>	Occupied Bandwidth	Total Power	32.6 dBm	16.935 MHz			Transmit Freq Error	OBW Power	99.00 %	-28.567 kHz	x dB	-6.00 dB	x dB Bandwidth			16.36 MHz		
Occupied Bandwidth	Total Power	32.6 dBm																	
16.935 MHz																			
Transmit Freq Error	OBW Power	99.00 %																	
-28.567 kHz	x dB	-6.00 dB																	
x dB Bandwidth																			
16.36 MHz																			
5825 MHz	<p>Agilent Spectrum Analyzer - Decoupled BW</p> <p>Center Freq: 5.825000000 GHz</p> <p>Ref Offset 11 dB Ref 30.00 dBm</p> <p>Center 5.825 GHz #Res BW 100 kHz</p> <p>Span 30 MHz #VBW 300 kHz Sweep 2.933 ms</p> <table border="1"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>31.7 dBm</td> </tr> <tr> <td>16.708 MHz</td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>4.877 kHz</td> <td>x dB</td> <td>-6.00 dB</td> </tr> <tr> <td>x dB Bandwidth</td> <td></td> <td></td> </tr> <tr> <td>16.36 MHz</td> <td></td> <td></td> </tr> </table>	Occupied Bandwidth	Total Power	31.7 dBm	16.708 MHz			Transmit Freq Error	OBW Power	99.00 %	4.877 kHz	x dB	-6.00 dB	x dB Bandwidth			16.36 MHz		
Occupied Bandwidth	Total Power	31.7 dBm																	
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Transmit Freq Error	OBW Power	99.00 %																	
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x dB Bandwidth																			
16.36 MHz																			



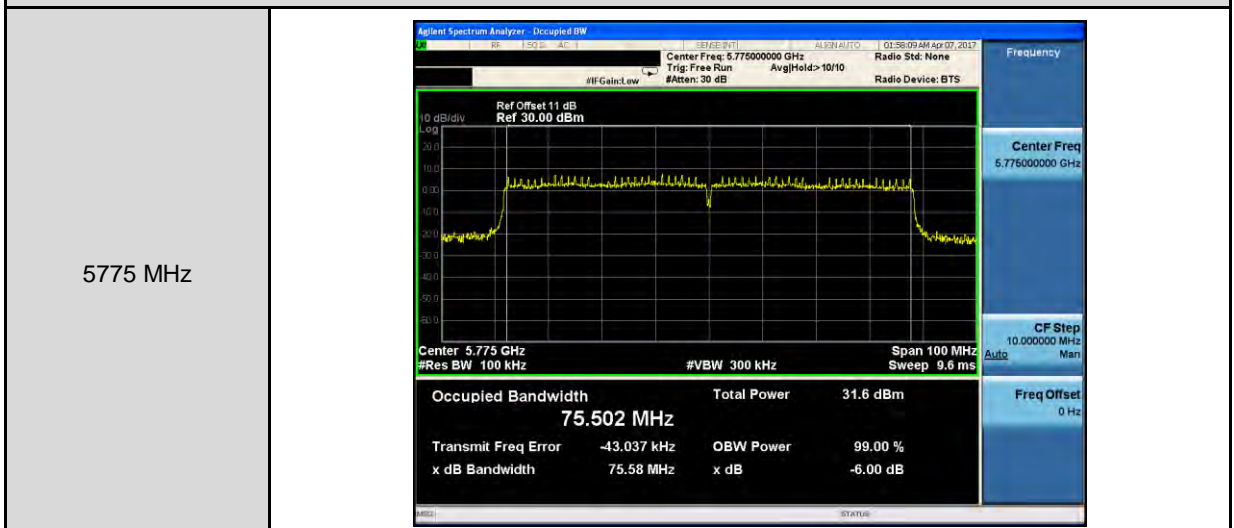
Mode 3: IEEE 802.11ac 20MHz Continuous TX mode_ANT-2	
5745 MHz	<p>Agilent Spectrum Analyzer - Decoupled BW</p> <p>Center Freq: 5.74500000 GHz</p> <p>Ref Offset 11 dB Ref 30.00 dBm</p> <p>Center 5.745 GHz #Res BW 100 kHz</p> <p>Span 30 MHz Sweep 2.933 ms</p> <p>Occupied Bandwidth 17.850 MHz</p> <p>Total Power 33.1 dBm</p> <p>Transmit Freq Error -8.088 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 17.60 MHz</p> <p>x dB -6.00 dB</p>
5785 MHz	<p>Agilent Spectrum Analyzer - Decoupled BW</p> <p>Center Freq: 5.78500000 GHz</p> <p>Ref Offset 11 dB Ref 30.00 dBm</p> <p>Center 5.785 GHz #Res BW 100 kHz</p> <p>Span 30 MHz Sweep 2.933 ms</p> <p>Occupied Bandwidth 17.773 MHz</p> <p>Total Power 32.0 dBm</p> <p>Transmit Freq Error -16.126 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 17.59 MHz</p> <p>x dB -6.00 dB</p>
5825 MHz	<p>Agilent Spectrum Analyzer - Decoupled BW</p> <p>Center Freq: 5.82500000 GHz</p> <p>Ref Offset 11 dB Ref 30.00 dBm</p> <p>Center 5.825 GHz #Res BW 100 kHz</p> <p>Span 30 MHz Sweep 2.933 ms</p> <p>Occupied Bandwidth 17.778 MHz</p> <p>Total Power 31.7 dBm</p> <p>Transmit Freq Error 1.660 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 17.61 MHz</p> <p>x dB -6.00 dB</p>



Mode 4: IEEE 802.11ac 40MHz Continuous TX mode_ANT-2



Mode 5: IEEE 802.11ac 80MHz Continuous TX mode_ANT-2





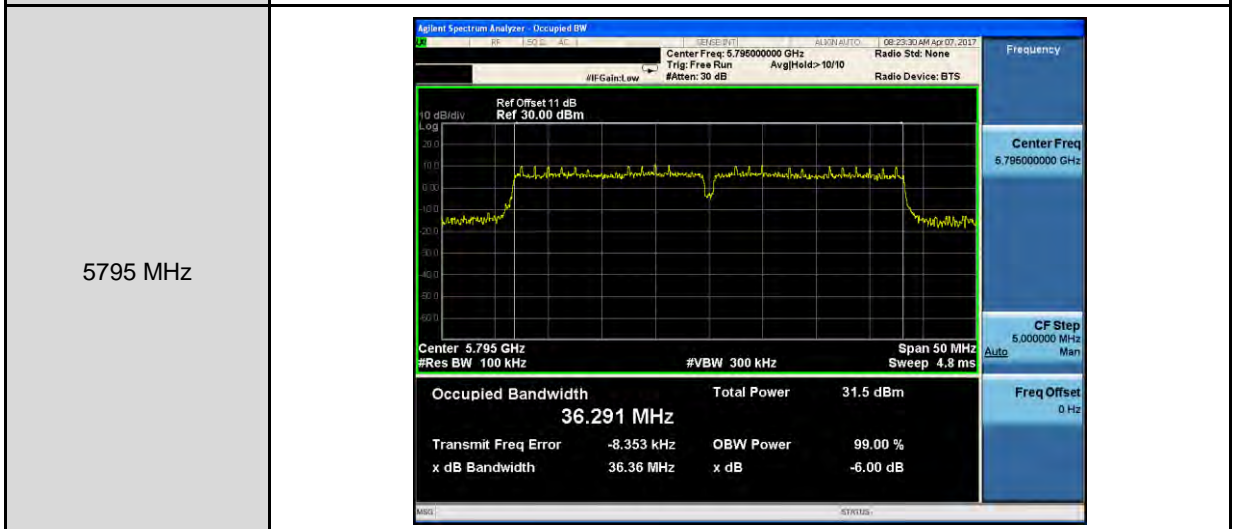
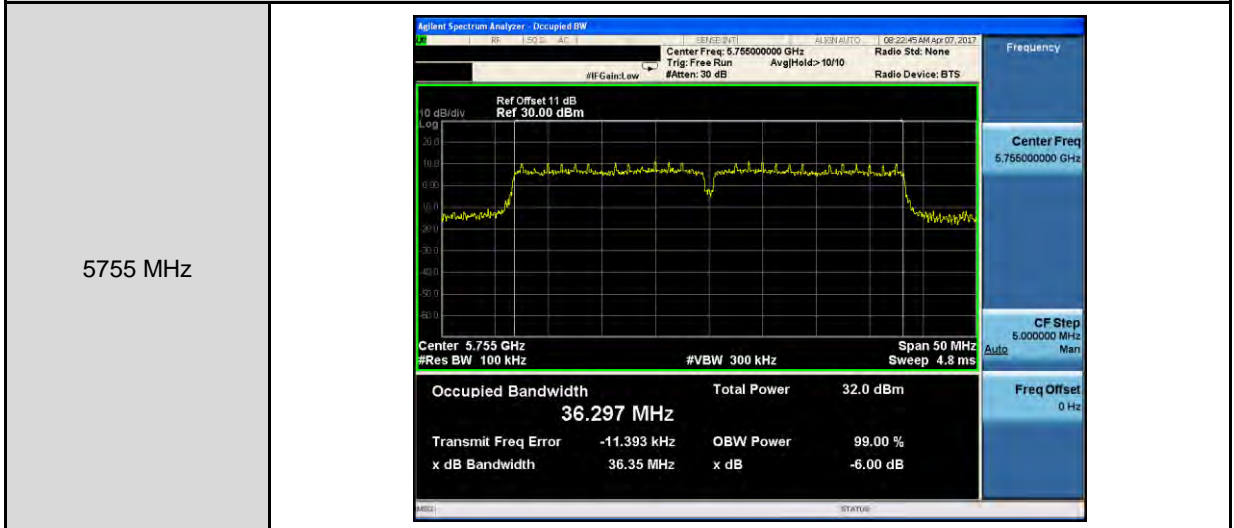
Beamforming on

Mode 3: IEEE 802.11ac 20MHz Continuous TX mode_ANT-0

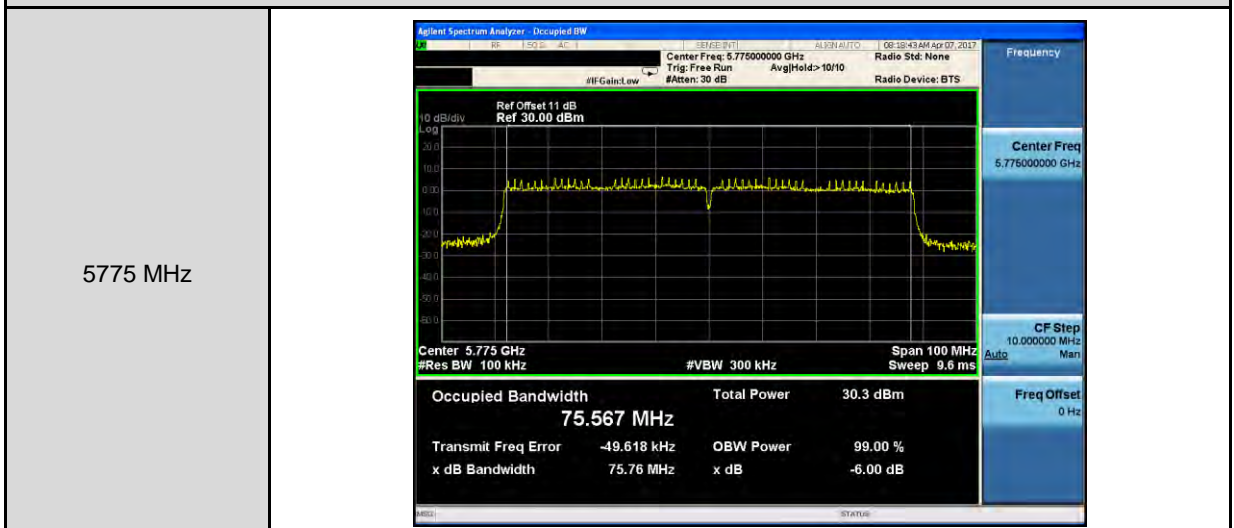
<p>5745 MHz</p>	
<p>5785 MHz</p>	
<p>5825 MHz</p>	



Mode 4: IEEE 802.11ac 40MHz Continuous TX mode_ANT-0



Mode 5: IEEE 802.11ac 80MHz Continuous TX mode_ANT-0

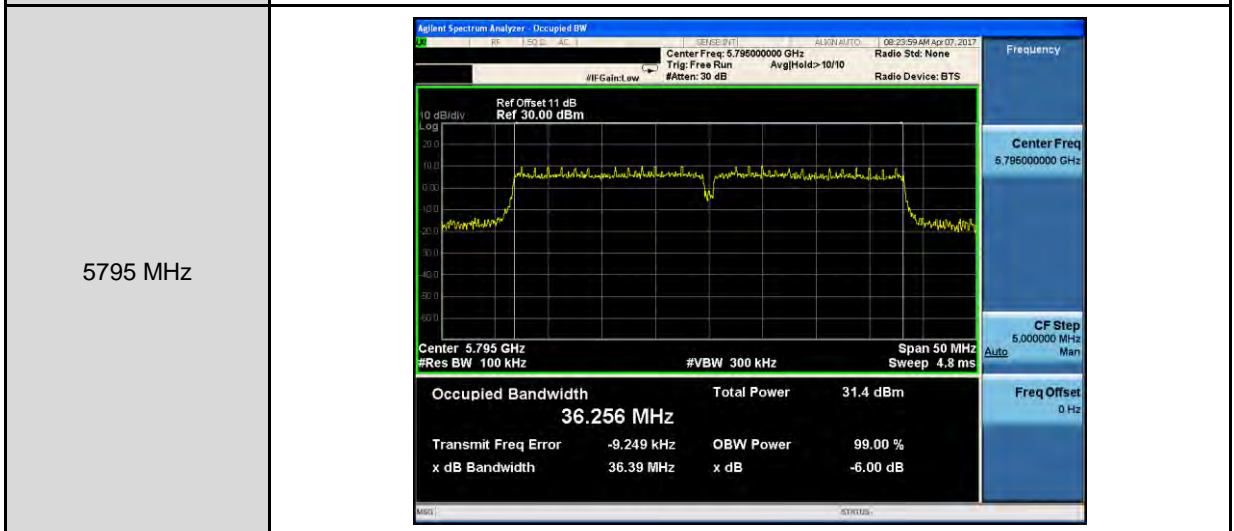
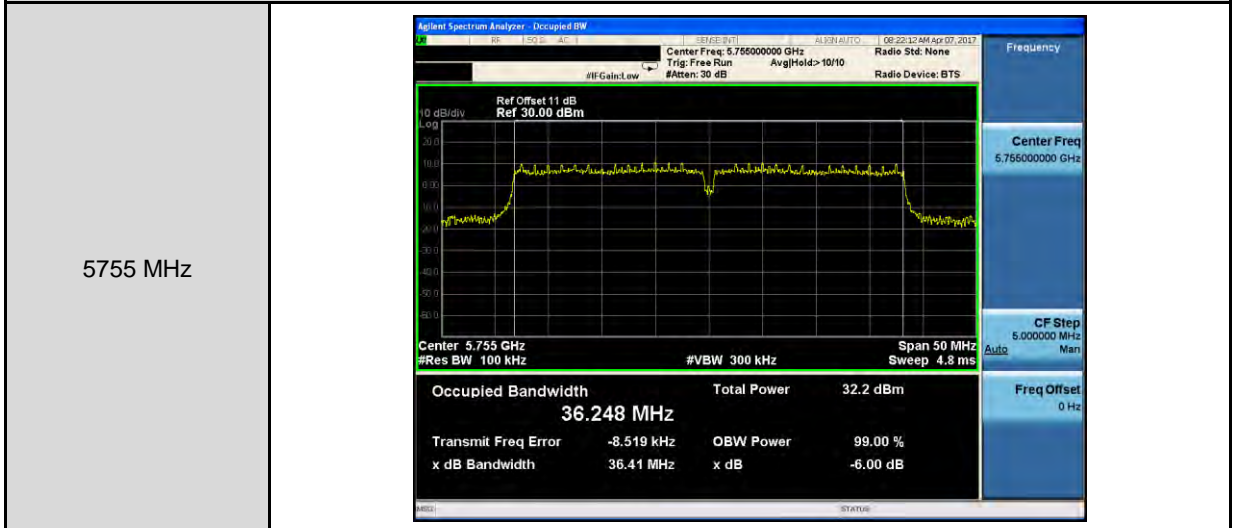




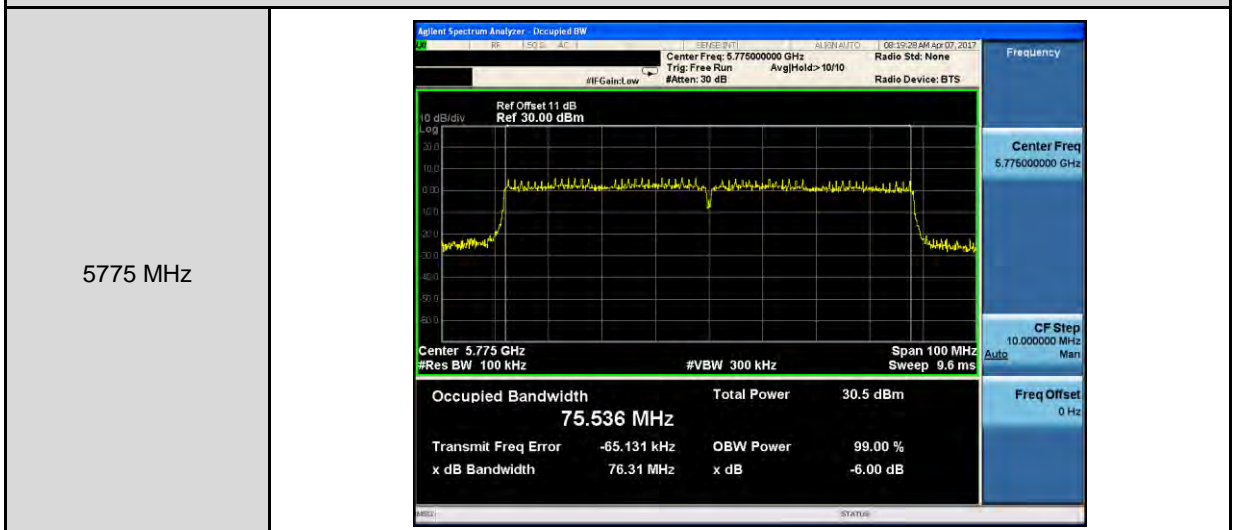
Mode 3: IEEE 802.11ac 20MHz Continuous TX mode_ANT-1	
5745 MHz	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 5.745000000 GHz Trig: Free Run Avg/Hold: 10/10 #IFGain: Low #Atten: 30 dB</p> <p>Ref Offset 11 dB Ref 30.00 dBm</p> <p>Center: 5.745 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 30 MHz Sweep: 2.933 ms</p> <p>Occupied Bandwidth: 17.696 MHz Total Power: 31.3 dBm</p> <p>Transmit Freq Error: -9.311 kHz OBW Power: 99.00 % x dB Bandwidth: 17.63 MHz x dB: -6.00 dB</p> <p>Center Freq: 5.74500000 GHz CF Step: 3.000000 MHz Freq Offset: 0 Hz</p>
5785 MHz	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 5.785000000 GHz Trig: Free Run Avg/Hold: 10/10 #IFGain: Low #Atten: 30 dB</p> <p>Ref Offset 11 dB Ref 30.00 dBm</p> <p>Center: 5.785 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 30 MHz Sweep: 2.933 ms</p> <p>Occupied Bandwidth: 17.728 MHz Total Power: 30.8 dBm</p> <p>Transmit Freq Error: -20.508 kHz OBW Power: 99.00 % x dB Bandwidth: 17.62 MHz x dB: -6.00 dB</p> <p>Center Freq: 5.785000000 GHz CF Step: 3.000000 MHz Freq Offset: 0 Hz</p>
5825 MHz	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 5.825000000 GHz Trig: Free Run Avg/Hold: 10/10 #IFGain: Low #Atten: 30 dB</p> <p>Ref Offset 11 dB Ref 30.00 dBm</p> <p>Center: 5.825 GHz #Res BW: 100 kHz #VBW: 300 kHz Span: 30 MHz Sweep: 2.933 ms</p> <p>Occupied Bandwidth: 17.715 MHz Total Power: 31.0 dBm</p> <p>Transmit Freq Error: 5.809 kHz OBW Power: 99.00 % x dB Bandwidth: 17.62 MHz x dB: -6.00 dB</p> <p>Center Freq: 5.825000000 GHz CF Step: 3.000000 MHz Freq Offset: 0 Hz</p>



Mode 4: IEEE 802.11ac 40MHz Continuous TX mode_ANT-1



Mode 5: IEEE 802.11ac 80MHz Continuous TX mode_ANT-1

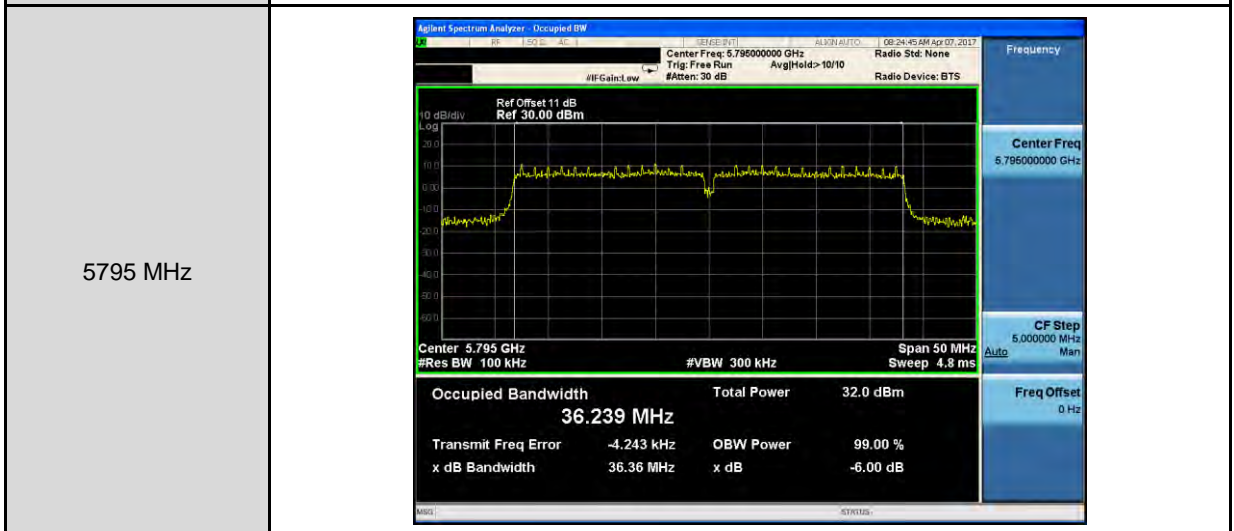
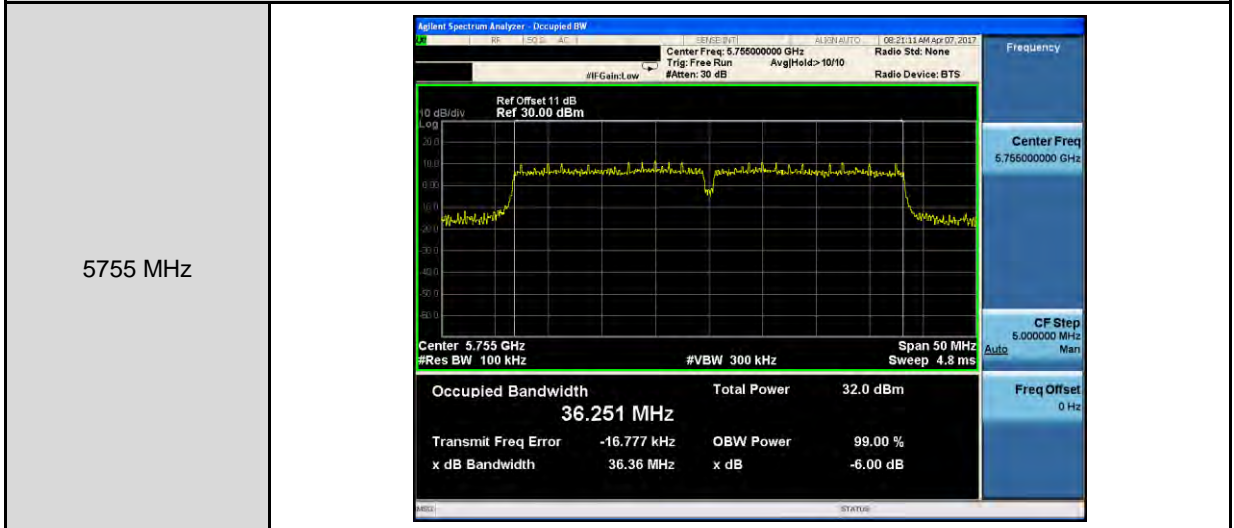




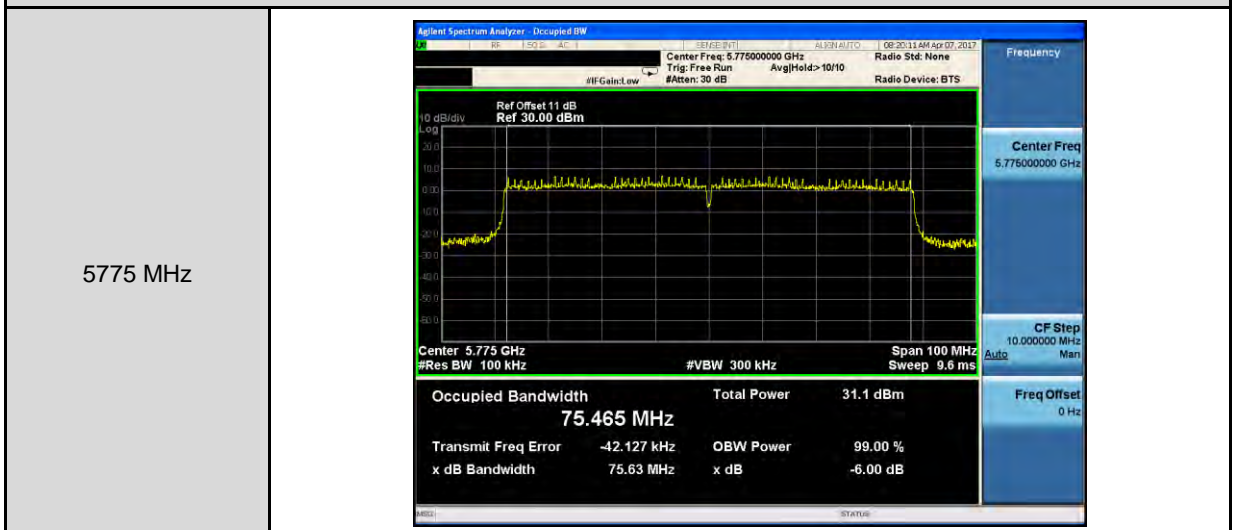
Mode 3: IEEE 802.11ac 20MHz Continuous TX mode_ANT-2																			
5745 MHz	<p>Agilent Spectrum Analyzer - Decoupled BW</p> <p>Center Freq: 5.745000000 GHz</p> <p>Ref Offset 11 dB Ref 30.00 dBm</p> <p>Center 5.745 GHz #Res BW 100 kHz</p> <p>Span 30 MHz #VBW 300 kHz Sweep 2.933 ms</p> <table border="1"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>31.3 dBm</td> </tr> <tr> <td>17.730 MHz</td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>293 Hz</td> <td>x dB</td> <td>-6.00 dB</td> </tr> <tr> <td>x dB Bandwidth</td> <td></td> <td></td> </tr> <tr> <td>17.39 MHz</td> <td></td> <td></td> </tr> </table>	Occupied Bandwidth	Total Power	31.3 dBm	17.730 MHz			Transmit Freq Error	OBW Power	99.00 %	293 Hz	x dB	-6.00 dB	x dB Bandwidth			17.39 MHz		
Occupied Bandwidth	Total Power	31.3 dBm																	
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5785 MHz	<p>Agilent Spectrum Analyzer - Decoupled BW</p> <p>Center Freq: 5.785000000 GHz</p> <p>Ref Offset 11 dB Ref 30.00 dBm</p> <p>Center 5.785 GHz #Res BW 100 kHz</p> <p>Span 30 MHz #VBW 300 kHz Sweep 2.933 ms</p> <table border="1"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>31.8 dBm</td> </tr> <tr> <td>17.774 MHz</td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>-344 Hz</td> <td>x dB</td> <td>-6.00 dB</td> </tr> <tr> <td>x dB Bandwidth</td> <td></td> <td></td> </tr> <tr> <td>17.61 MHz</td> <td></td> <td></td> </tr> </table>	Occupied Bandwidth	Total Power	31.8 dBm	17.774 MHz			Transmit Freq Error	OBW Power	99.00 %	-344 Hz	x dB	-6.00 dB	x dB Bandwidth			17.61 MHz		
Occupied Bandwidth	Total Power	31.8 dBm																	
17.774 MHz																			
Transmit Freq Error	OBW Power	99.00 %																	
-344 Hz	x dB	-6.00 dB																	
x dB Bandwidth																			
17.61 MHz																			
5825 MHz	<p>Agilent Spectrum Analyzer - Decoupled BW</p> <p>Center Freq: 5.825000000 GHz</p> <p>Ref Offset 11 dB Ref 30.00 dBm</p> <p>Center 5.825 GHz #Res BW 100 kHz</p> <p>Span 30 MHz #VBW 300 kHz Sweep 2.933 ms</p> <table border="1"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>31.2 dBm</td> </tr> <tr> <td>17.748 MHz</td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>5.753 kHz</td> <td>x dB</td> <td>-6.00 dB</td> </tr> <tr> <td>x dB Bandwidth</td> <td></td> <td></td> </tr> <tr> <td>17.60 MHz</td> <td></td> <td></td> </tr> </table>	Occupied Bandwidth	Total Power	31.2 dBm	17.748 MHz			Transmit Freq Error	OBW Power	99.00 %	5.753 kHz	x dB	-6.00 dB	x dB Bandwidth			17.60 MHz		
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x dB Bandwidth																			
17.60 MHz																			



Mode 4: IEEE 802.11ac 40MHz Continuous TX mode_ANT-2



Mode 5: IEEE 802.11ac 80MHz Continuous TX mode_ANT-2



4.7. Peak Power Spectral Density Measurement

■ Limit

Conducted power spectral density

Frequency Range (MHz)	FCC Limit
	Master
5.150 ~ 5.250 GHz	17 dBm/MHz
5.725 ~ 5.850 GHz	30 dBm/500KHz

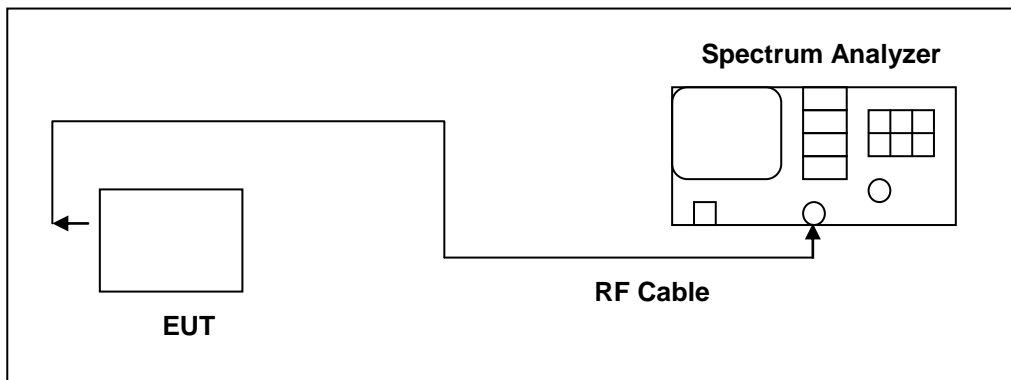
According FCC KDB 662911 D01 v02r01 – for power spectral density measurements on IEEE802.11 devices,

* MIMO mode : Directional Gain = $10 \cdot \log\{[10^{(G1/20)} + 10^{(G2/20)} + \dots + 10^{(Gn/20)}]^2 / NANT\}$ = 7.67 dBi > 6dBi

* CDD/Beamforming on mode power limit shall be reduced = $17 - 1.67 = 15.33$ dBm/MHz (5.150 ~ 5.250 GHz)

* CDD/Beamforming on mode power limit shall be reduced = $30 - 1.67 = 28.33$ dBm/500KHz (5.725 ~ 5.850 GHz)

■ Test Setup



■ Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/19/2016	1 year
Test Site	ATL	TE05	TE05	N.C.R.	-----

Note: N.C.R. = No Calibration Request.

**■ Test Procedure**

The test is performed in accordance with KDB789033: D02 General UNII Test Procedures New Rules v01r04, Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RBW	1 MHz (5725 ~ 5850MHz use 100 kHz)
VBW	3 MHz (5725 ~ 5850MHz use 300 kHz)
Detector	RMS
Trace	AVERAGE
Sweep Time	Auto
Trace Average	100 times
Note: If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10\log(500\text{kHz}/100\text{kHz})$ to the measured result.	



■ Test Result

Test Item	Conducted power spectral density			
Test Mode	Mode 2: IEEE 802.11a Continuous TX mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5180	9.401	0.184	9.585	≤ 15.33
5200	10.349	0.184	10.533	
5240	10.410	0.184	10.594	
Frequency (MHz)	ANT-1			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5180	9.021	0.184	9.205	≤ 15.33
5200	10.143	0.184	10.327	
5240	10.098	0.184	10.282	
Frequency (MHz)	ANT-2			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5180	9.997	0.184	10.181	≤ 15.33
5200	10.566	0.184	10.750	
5240	10.587	0.184	10.771	

Test Item	Power Spectral Density and E.I.R.P. Spectral Density		
Test Mode	Mode 2: IEEE 802.11a Continuous TX mode		
Frequency (MHz)	ANT-0+1+2		Limit
	(dBm/MHz)		
5180.0	14.447		≤ 15.33
5200.0	15.311		
5240.0	15.325		

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.



Test Item	Conducted power spectral density			
Test Mode	Mode 2: IEEE 802.11a Continuous TX mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5745	4.94	0.184	12.12	≤ 28.33
5785	4.60	0.184	11.77	
5825	3.84	0.184	11.01	
Frequency (MHz)	ANT-1			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5745	4.45	0.184	11.62	≤ 28.33
5785	4.25	0.184	11.42	
5825	3.45	0.184	10.62	
Frequency (MHz)	ANT-2			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5745	4.90	0.184	12.07	≤ 28.33
5785	4.88	0.184	12.05	
5825	4.25	0.184	11.43	
Frequency (MHz)	ANT-0+1+2			Limit (dBm/500KHz)
	Calculated (dBm/500KHz)			
5745	16.71			≤ 28.33
5785	16.53			
5825	15.80			

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.

Conversion ratio = 10*Log(500k/100k)



Test Item	Conducted power spectral density			
Test Mode	Mode 3: IEEE 802.11ac 20MHz Continuous TX mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5180	8.340	0.505	8.845	≤ 15.33
5200	10.180	0.505	10.685	
5240	9.980	0.505	10.485	
Frequency (MHz)	ANT-1			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5180	8.052	0.505	8.557	≤ 15.33
5200	9.801	0.505	10.306	
5240	9.702	0.505	10.207	
Frequency (MHz)	ANT-2			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5180	8.569	0.505	9.074	≤ 15.33
5200	10.011	0.505	10.516	
5240	10.297	0.505	10.802	

Test Item	Power Spectral Density and E.I.R.P. Spectral Density		
Test Mode	Mode 3: IEEE 802.11ac 20MHz Continuous TX mode		
Frequency (MHz)	ANT-0+1+2		Limit
	(dBm/MHz)		
5180.0	13.601		≤ 15.33
5200.0	15.276		
5240.0	15.276		

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.



Test Item	Conducted power spectral density				
Test Mode	Mode 3: IEEE 802.11ac 20MHz Continuous TX mode				
Frequency (MHz)	ANT-0				
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)	
	5745	4.83	12.33	≤ 28.33	
	5785	4.39	11.89		
5825	4.24	11.73			
Frequency (MHz)	ANT-1				
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)	
	5745	4.76	12.25	≤ 28.33	
	5785	4.68	12.18		
5825	3.28	10.77			
Frequency (MHz)	ANT-2				
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)	
	5745	4.32	11.82	≤ 28.33	
	5785	4.07	11.56		
5825	4.35	11.84			
Frequency (MHz)	ANT-0+1+2			Limit (dBm/500KHz)	
	Calculated (dBm/500KHz)				
	5745				≤ 28.33
	5785				
5825					

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.

Conversion ratio = 10*Log(500k/100k)



Test Item	Conducted power spectral density			
Test Mode	Mode 4: IEEE 802.11ac 40MHz Continuous TX mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5190	0.066	0.909	0.975	≤ 15.33
5230	7.933	0.909	8.842	
Frequency (MHz)	ANT-1			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5190	-0.390	0.909	0.519	≤ 15.33
5230	7.344	0.909	8.253	
Frequency (MHz)	ANT-2			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5190	-0.669	0.909	0.240	≤ 15.33
5230	8.240	0.909	9.149	

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.

Test Item	Conducted power spectral density	
Test Mode	Mode 4: IEEE 802.11ac 40MHz Continuous TX mode	
Frequency (MHz)	ANT-0+1+2	
	(dBm/MHz)	
5190.0	5.360	
5230.0	13.535	
	≤ 15.33	

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.



Test Item	Conducted power spectral density			
Test Mode	Mode 4: IEEE 802.11ac 40MHz Continuous TX mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5755	1.72	0.909	9.62	≤ 28.33
5795	1.88	0.909	9.78	
Frequency (MHz)	ANT-1			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5755	1.57	0.909	9.47	≤ 28.33
5795	1.20	0.909	9.10	
Frequency (MHz)	ANT-2			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5755	0.81	0.909	8.71	≤ 28.33
5795	0.99	0.909	8.89	
Frequency (MHz)	ANT-0+1+2			Limit (dBm/500KHz)
	Calculated (dBm/500KHz)			
5755	14.05			≤ 28.33
5795	14.05			

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.

Conversion ratio = 10*Log(500k/100k)



Test Item	Conducted power spectral density			
Test Mode	Mode 5: IEEE 802.11ac 80MHz Continuous TX mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5210	-3.759	0.164	-3.595	≤ 15.33
Frequency (MHz)	ANT-1			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5210	-3.430	0.164	-3.266	≤ 15.33
Frequency (MHz)	ANT-1			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5210	-3.644	0.164	-3.480	≤ 15.33
Frequency (MHz)	ANT-0+1+2			Limit
	(dBm/MHz)			
5210.0	1.326			≤ 15.33

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.



Test Item	Conducted power spectral density			
Test Mode	Mode 5: IEEE 802.11ac 80MHz Continuous TX mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/MHz)
5775	-3.03	0.164	4.12	≤ 28.33
Frequency (MHz)	ANT-1			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/MHz)
5775	-3.02	0.164	4.13	≤ 28.33
Frequency (MHz)	ANT-2			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/MHz)
5775	-3.61	0.164	3.54	≤ 28.33
Frequency (MHz)	ANT-0+1+2			Limit (dBm/MHz)
	Calculated (dBm/500KHz)			Limit (dBm/MHz)
5775	8.74			≤ 28.33

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.

Conversion ratio = 10*Log(500k/100k)



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Test Item	Conducted power spectral density			
Test Mode	Mode 3: IEEE 802.11ac 20MHz Continuous TX mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5180	5.861	0.949	6.810	≤ 15.33
5200	9.100	0.949	10.049	
5240	9.142	0.949	10.091	
Frequency (MHz)	ANT-1			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5180	5.122	0.949	6.071	≤ 15.33
5200	9.958	0.949	10.907	
5240	9.527	0.949	10.476	
Frequency (MHz)	ANT-2			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5180	6.368	0.949	7.317	≤ 15.33
5200	9.540	0.949	10.489	
5240	9.929	0.949	10.878	

Test Item	Power Spectral Density and E.I.R.P. Spectral Density		
Test Mode	Mode 3: IEEE 802.11ac 20MHz Continuous TX mode		
Frequency (MHz)	ANT-0+1+2		Limit
	(dBm/MHz)		
5180.0	11.534		≤ 15.33
5200.0	15.267		
5240.0	15.265		

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.



Test Item	Conducted power spectral density			
Test Mode	Mode 3: IEEE 802.11ac 20MHz Continuous TX mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5745	4.66	0.949	12.60	≤ 28.33
5785	4.18	0.949	12.12	
5825	3.89	0.949	11.83	
Frequency (MHz)	ANT-1			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5745	3.28	0.949	11.22	≤ 28.33
5785	4.56	0.949	12.50	
5825	4.47	0.949	12.40	
Frequency (MHz)	ANT-2			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5745	3.47	0.949	11.41	≤ 28.33
5785	1.90	0.949	9.84	
5825	1.45	0.949	9.39	
Frequency (MHz)	ANT-0+1+2			Limit (dBm/500KHz)
	Calculated (dBm/500KHz)			
5745	16.56			≤ 28.33
5785	16.41			
5825	16.16			

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.

Conversion ratio = 10*Log(500k/100k)



Test Item	Conducted power spectral density			
Test Mode	Mode 4: IEEE 802.11ac 40MHz Continuous TX mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5190	-2.885	2.583	-0.302	≤ 15.33
5230	7.581	2.583	10.164	
Frequency (MHz)	ANT-1			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5190	-1.480	2.583	1.103	≤ 15.33
5230	7.878	2.583	10.461	
Frequency (MHz)	ANT-2			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5190	-5.002	2.583	-2.419	≤ 15.33
5230	8.299	2.583	10.882	

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.

Test Item	Conducted power spectral density	
Test Mode	Mode 4: IEEE 802.11ac 40MHz Continuous TX mode	
Frequency (MHz)	ANT-0+1+2	
	(dBm/MHz)	
5190.0	4.463	
5230.0	15.283	
	≤ 15.33	

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.



Test Item	Conducted power spectral density			
Test Mode	Mode 4: IEEE 802.11ac 40MHz Continuous TX mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5755	0.29	2.583	9.86	≤ 28.33
5795	0.65	2.583	10.22	
Frequency (MHz)	ANT-1			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5755	0.85	2.583	10.42	≤ 28.33
5795	0.82	2.583	10.39	
Frequency (MHz)	ANT-2			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/500KHz)
5755	-0.71	2.583	8.87	≤ 28.33
5795	0.80	2.583	10.38	
Frequency (MHz)	ANT-0+1+2			Limit (dBm/500KHz)
	Calculated (dBm/500KHz)			
5755	14.53			≤ 28.33
5795	15.10			

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.

Conversion ratio = 10*Log(500k/100k)



Test Item	Conducted power spectral density			
Test Mode	Mode 5: IEEE 802.11ac 80MHz Continuous TX mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5210	-6.391	3.944	-2.447	≤ 15.33
Frequency (MHz)	ANT-1			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5210	-5.800	3.944	-1.856	≤ 15.33
Frequency (MHz)	ANT-1			
	Measurement (dBm/MHz)	Duty Factor (dB)	Calculated (dBm/MHz)	Limit (dBm/MHz)
5210	-6.193	3.944	-2.249	≤ 15.33
Frequency (MHz)	ANT-0+1+2			Limit
	(dBm/MHz)			
5210.0	2.594			≤ 15.33

Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.



Test Item	Conducted power spectral density			
Test Mode	Mode 5: IEEE 802.11ac 80MHz Continuous TX mode			
Frequency (MHz)	ANT-0			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/MHz)
5775	-2.43	3.944	8.51	≤ 28.33
Frequency (MHz)	ANT-1			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/MHz)
5775	-1.56	3.944	9.37	≤ 28.33
Frequency (MHz)	ANT-2			
	Measurement (dBm/100KHz)	Duty Factor (dB)	Calculated (dBm/500KHz)	Limit (dBm/MHz)
5775	-4.44	3.944	6.49	≤ 28.33
Frequency (MHz)	ANT-0+1+2			Limit (dBm/MHz)
	Calculated (dBm/500KHz)			Limit (dBm/MHz)
5775	13.05			≤ 28.33

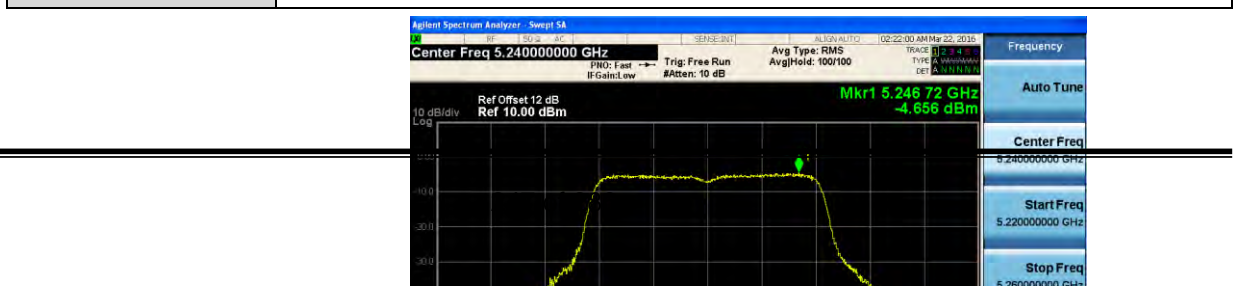
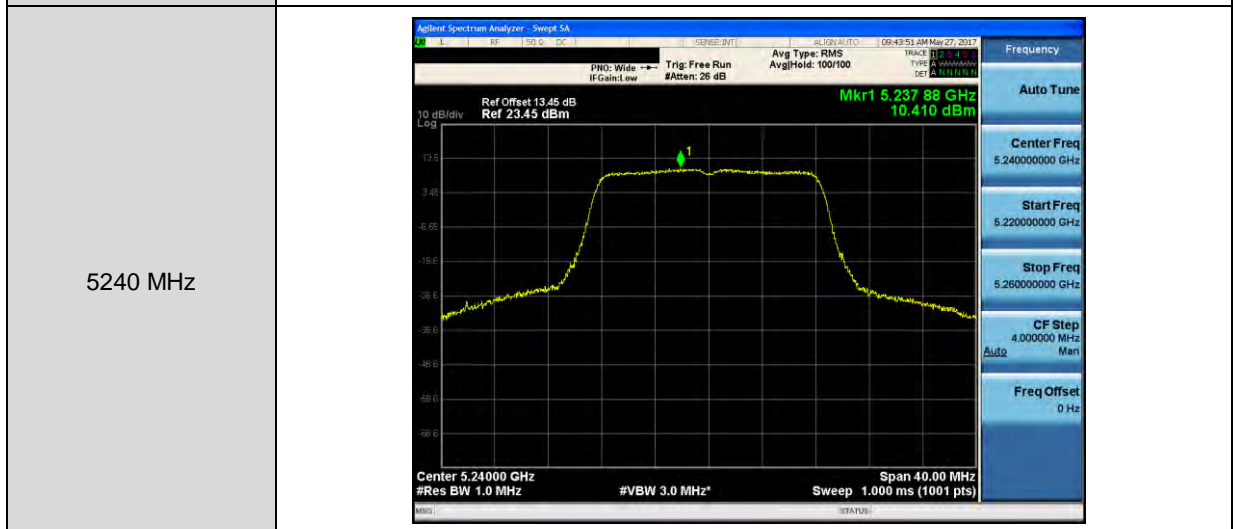
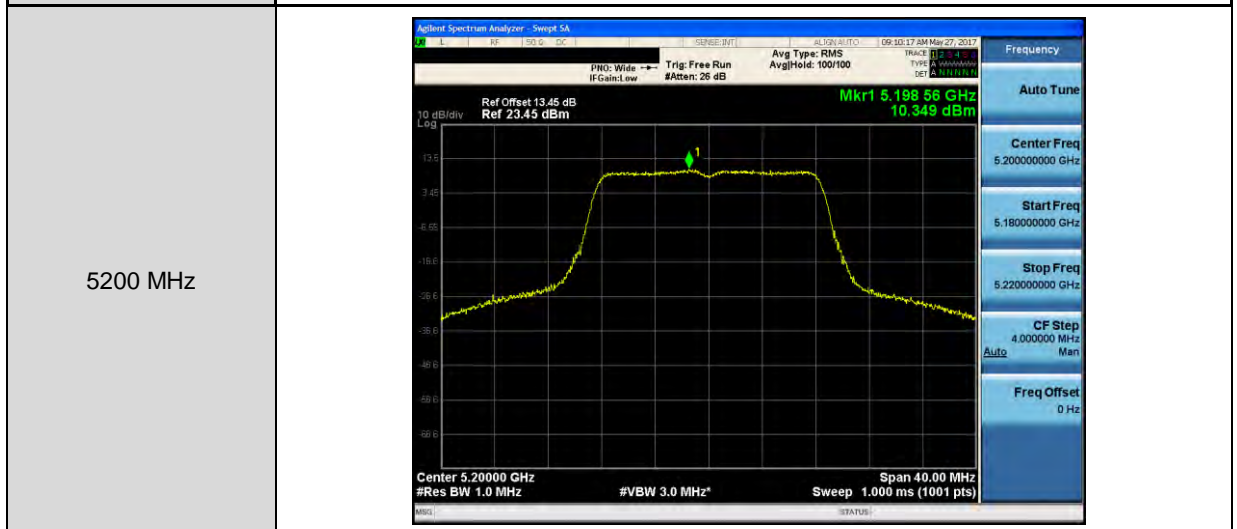
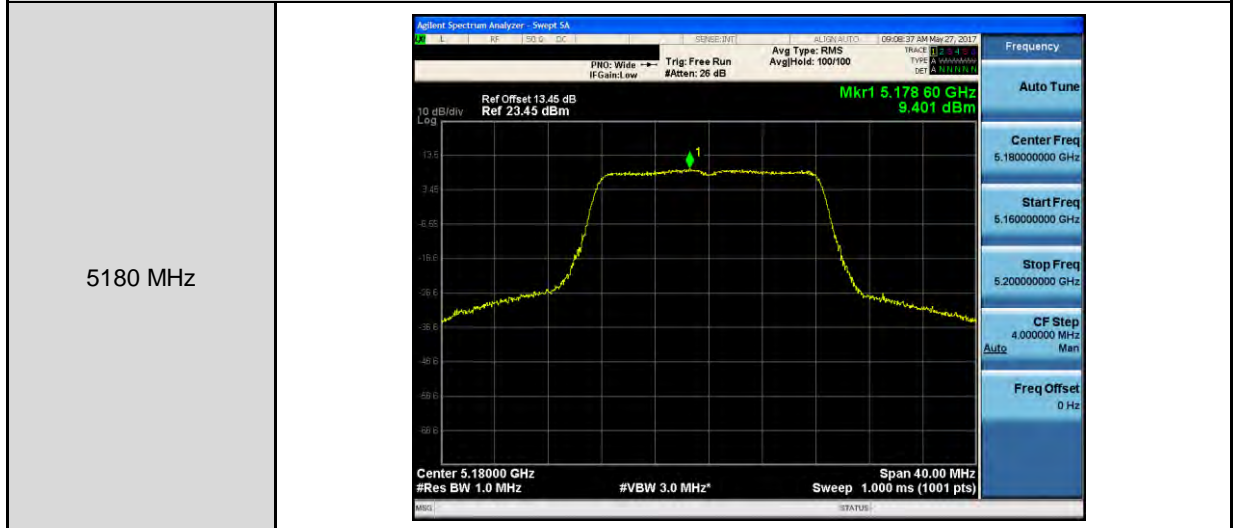
Note: Method SA-2, Power density = measured result + 10log(1/duty cycle) + Conversion ratio = measured result + duty factor.

Conversion ratio = 10*Log(500k/100k)



■ Test Graphs

Mode 2: IEEE 802.11a Continuous TX mode_ ANT-0



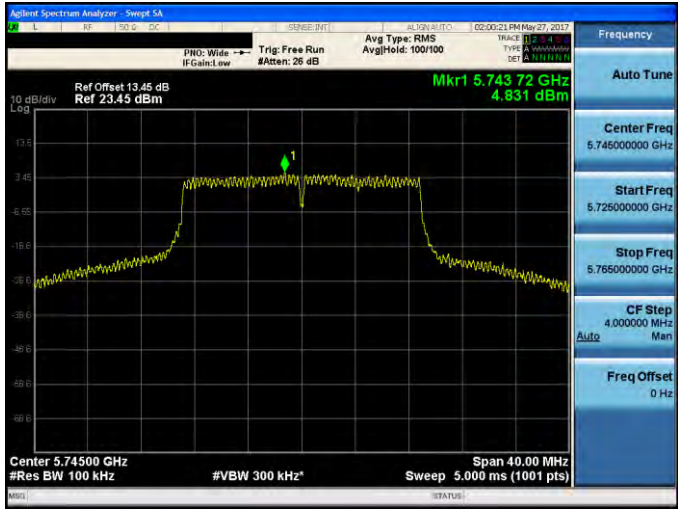
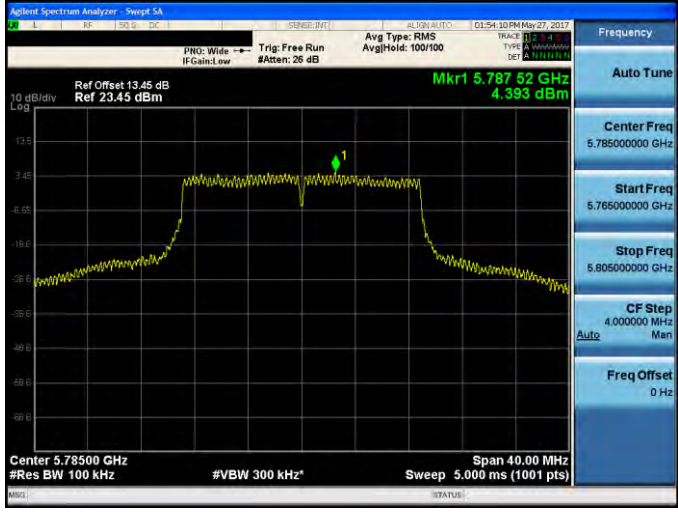
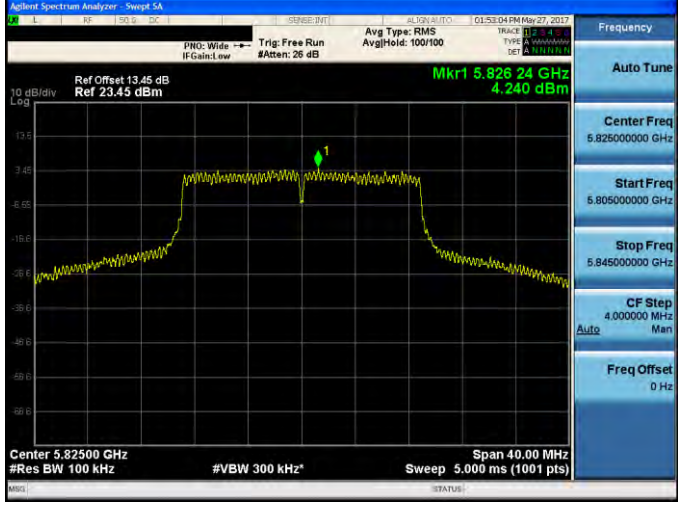


Mode 2: IEEE 802.11a Continuous TX mode_ ANT-0	
5745 MHz	
5785 MHz	
5825 MHz	

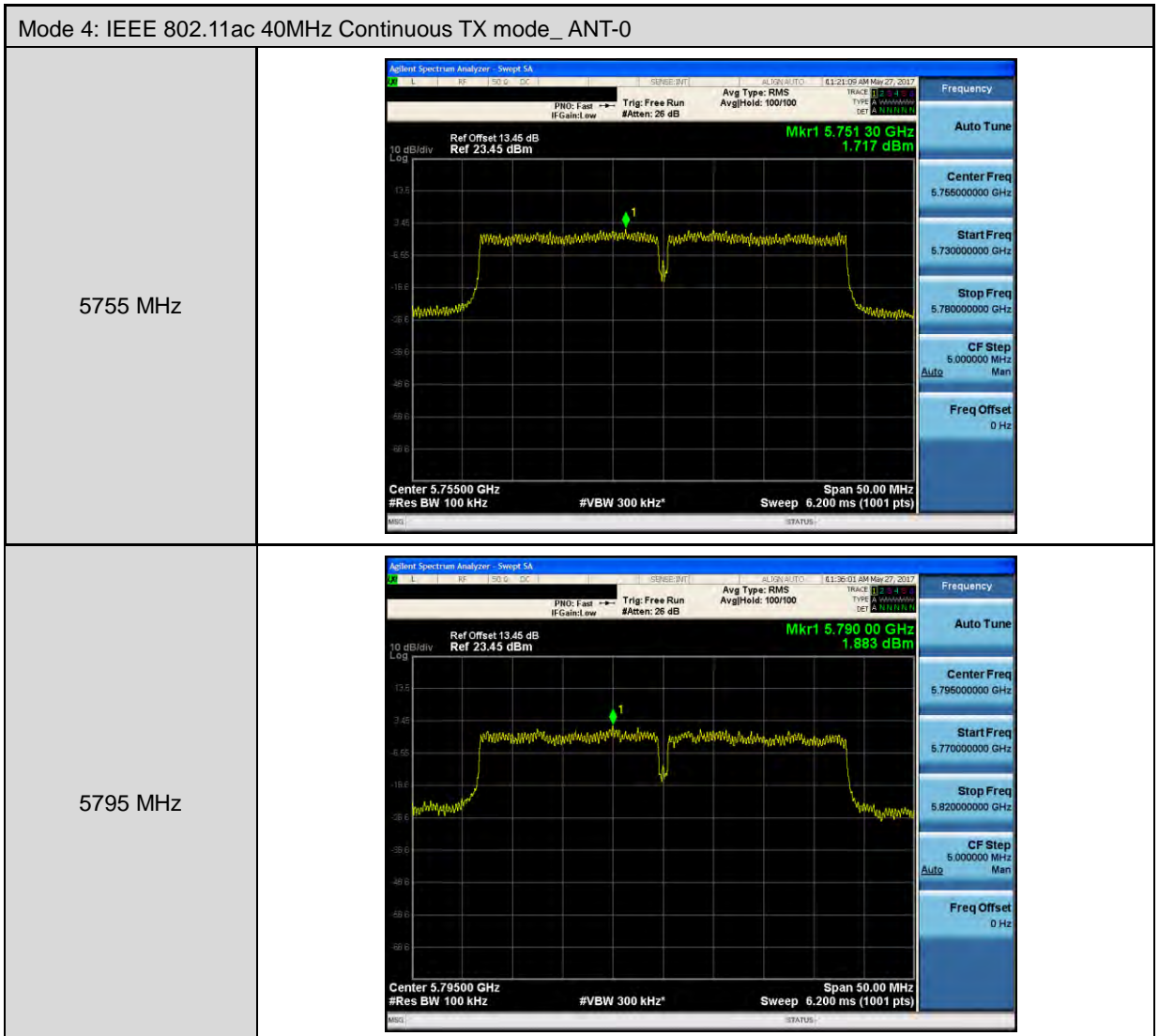


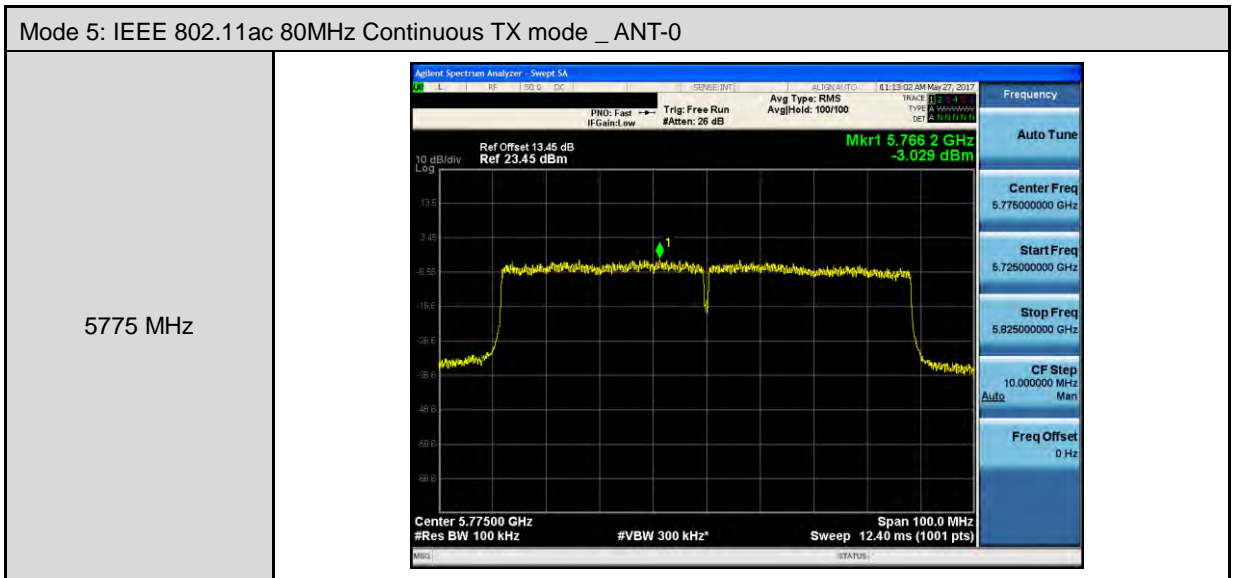
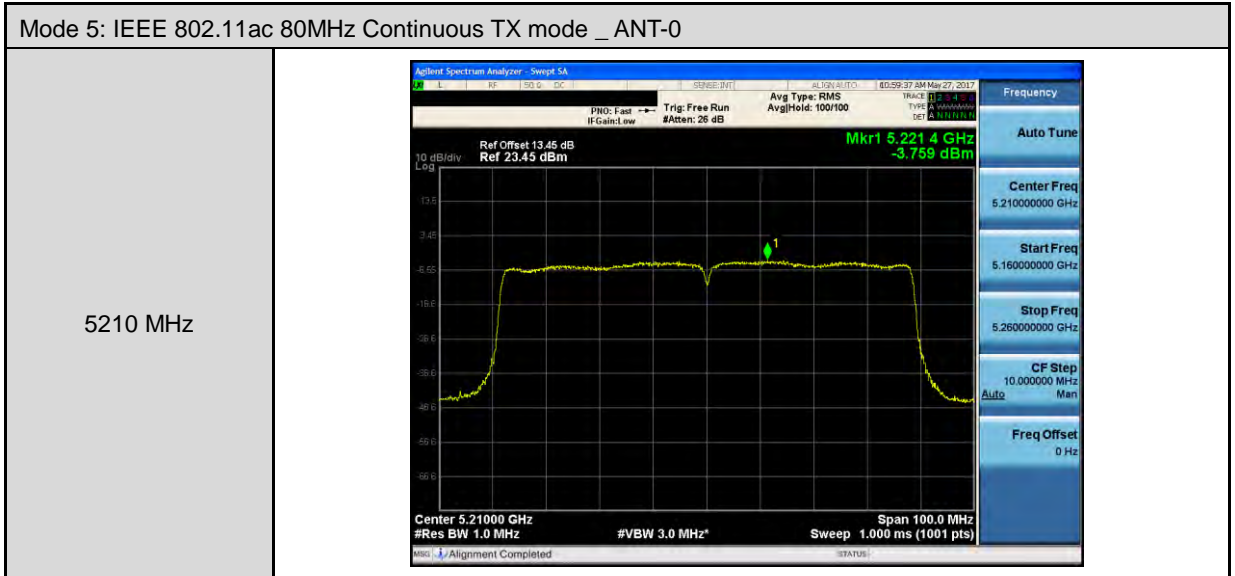
Mode 3: IEEE 802.11ac 20MHz Continuous TX mode _ ANT-0	
5180 MHz	<p>Ref Offset 13.45 dB Ref 23.45 dBm Mkr1 5.182 40 GHz 8.340 dBm Center 5.18000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz* Span 40.00 MHz Sweep 1.000 ms (1001 pts)</p>
5200 MHz	<p>Ref Offset 13.45 dB Ref 23.45 dBm Mkr1 5.201 24 GHz 10.180 dBm Center 5.20000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz* Span 40.00 MHz Sweep 1.000 ms (1001 pts)</p>
5240 MHz	<p>Ref Offset 13.45 dB Ref 23.45 dBm Mkr1 5.243 04 GHz 9.980 dBm Center 5.24000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz* Span 40.00 MHz Sweep 1.000 ms (1001 pts)</p>



Mode 3: IEEE 802.11ac 20MHz Continuous TX mode _ANT-0	
5745 MHz	 <p>Ref Offset 13.45 dB Ref 23.45 dBm</p> <p>Mkr1 5.743 72 GHz 4.831 dBm</p> <p>Center 5.74500 GHz #Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 40.00 MHz Sweep 5.000 ms (1001 pts)</p>
5785 MHz	 <p>Ref Offset 13.45 dB Ref 23.45 dBm</p> <p>Mkr1 5.787 52 GHz 4.393 dBm</p> <p>Center 5.78500 GHz #Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 40.00 MHz Sweep 5.000 ms (1001 pts)</p>
5825 MHz	 <p>Ref Offset 13.45 dB Ref 23.45 dBm</p> <p>Mkr1 5.826 24 GHz 4.240 dBm</p> <p>Center 5.82500 GHz #Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 40.00 MHz Sweep 5.000 ms (1001 pts)</p>









Mode 2: IEEE 802.11a Continuous TX mode_ ANT-1	
5180 MHz	
5200 MHz	
5240 MHz	



Mode 2: IEEE 802.11a Continuous TX mode_ ANT-1	
5745 MHz	<p>Ref Offset 13.45 dB Ref 23.45 dBm Mkr1 5.74376 GHz 4.449 dBm</p> <p>Center 5.74500 GHz #Res BW 100 kHz #VBW 300 kHz* Span 40.00 MHz Sweep 5.000 ms (1001 pts)</p>
5785 MHz	<p>Ref Offset 13.45 dB Ref 23.45 dBm Mkr1 5.78312 GHz 4.249 dBm</p> <p>Center 5.78500 GHz #Res BW 100 kHz #VBW 300 kHz* Span 40.00 MHz Sweep 5.000 ms (1001 pts)</p>
5825 MHz	<p>Ref Offset 13.45 dB Ref 23.45 dBm Mkr1 5.82344 GHz 3.446 dBm</p> <p>Center 5.82500 GHz #Res BW 100 kHz #VBW 300 kHz* Span 40.00 MHz Sweep 5.000 ms (1001 pts)</p>



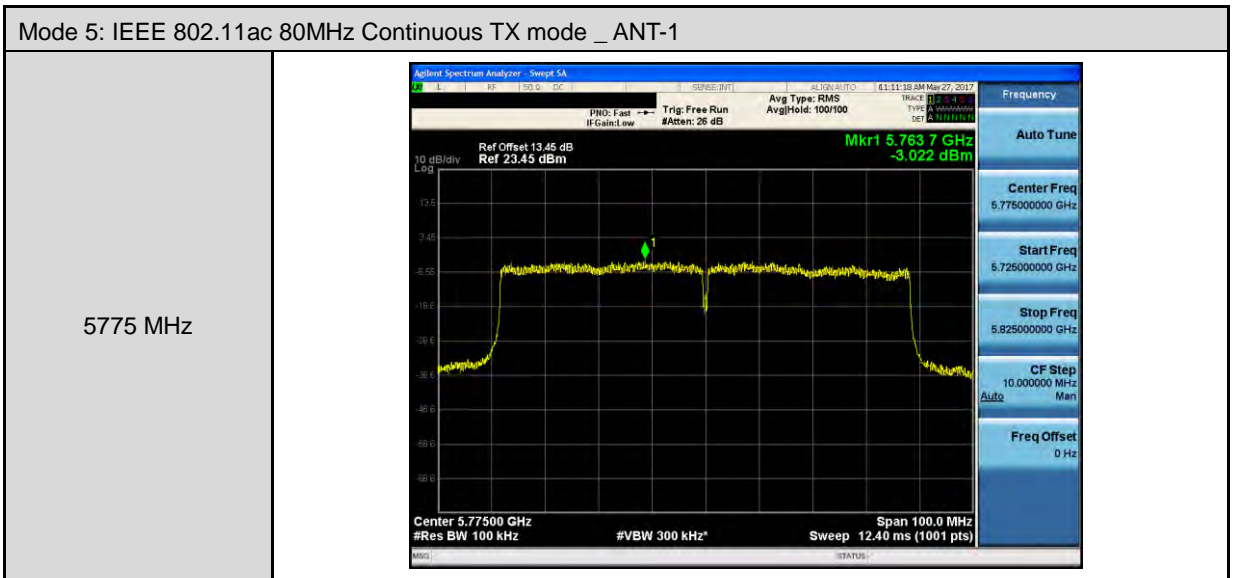
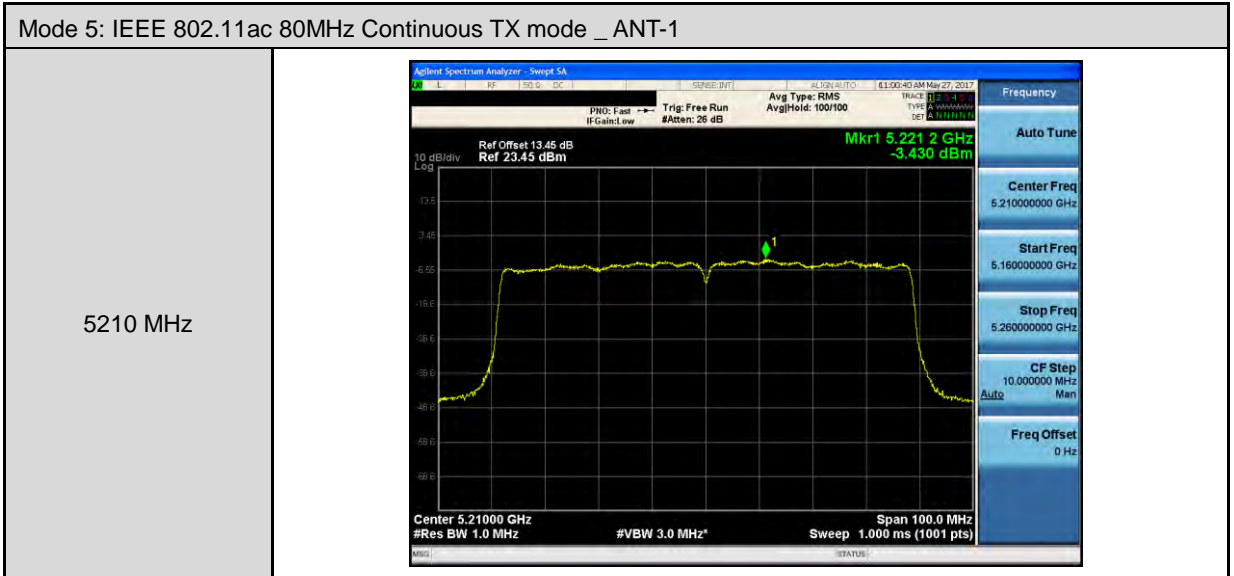
Mode 3: IEEE 802.11ac 20MHz Continuous TX mode _ANT-1	
5180 MHz	
5200 MHz	
5240 MHz	



Mode 3: IEEE 802.11ac 20MHz Continuous TX mode _ANT-1	
5745 MHz	<p>Ref Offset 13.45 dB Ref 23.45 dBm Mkr1 5.74376 GHz 4.758 dBm</p> <p>Center 5.74500 GHz #Res BW 100 kHz #VBW 300 kHz* Span 40.00 MHz Sweep 5.000 ms (1001 pts)</p>
5785 MHz	<p>Ref Offset 13.45 dB Ref 23.45 dBm Mkr1 5.78436 GHz 4.682 dBm</p> <p>Center 5.78500 GHz #Res BW 100 kHz #VBW 300 kHz* Span 40.00 MHz Sweep 5.000 ms (1001 pts)</p>
5825 MHz	<p>Ref Offset 13.45 dB Ref 23.45 dBm Mkr1 5.82312 GHz 3.278 dBm</p> <p>Center 5.82500 GHz #Res BW 100 kHz #VBW 300 kHz* Span 40.00 MHz Sweep 5.000 ms (1001 pts)</p>

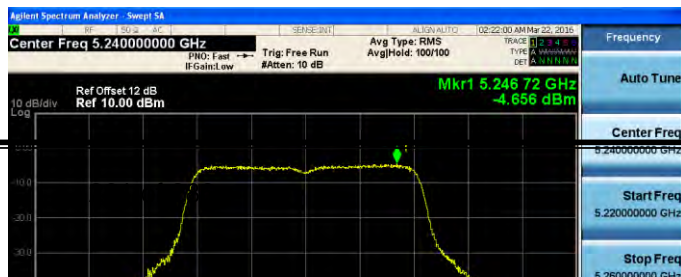




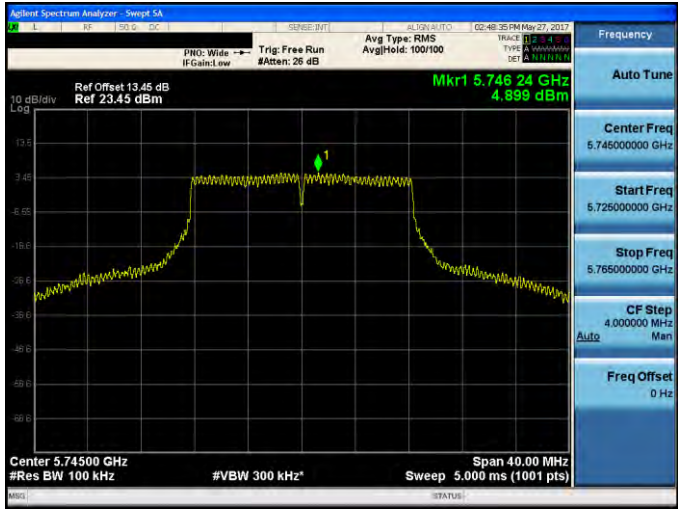
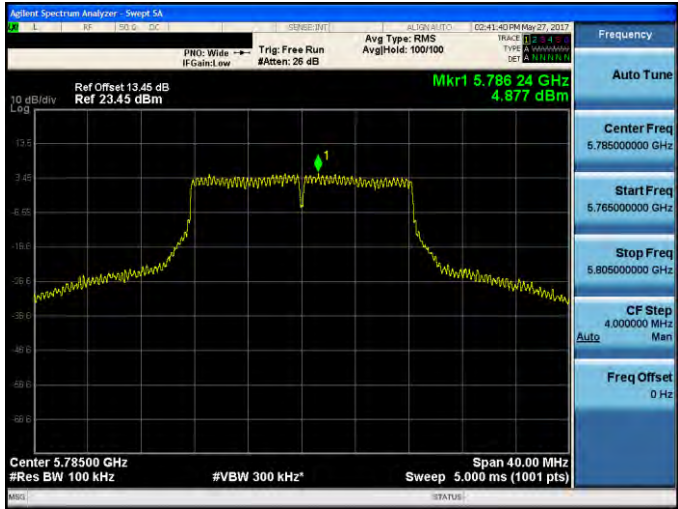
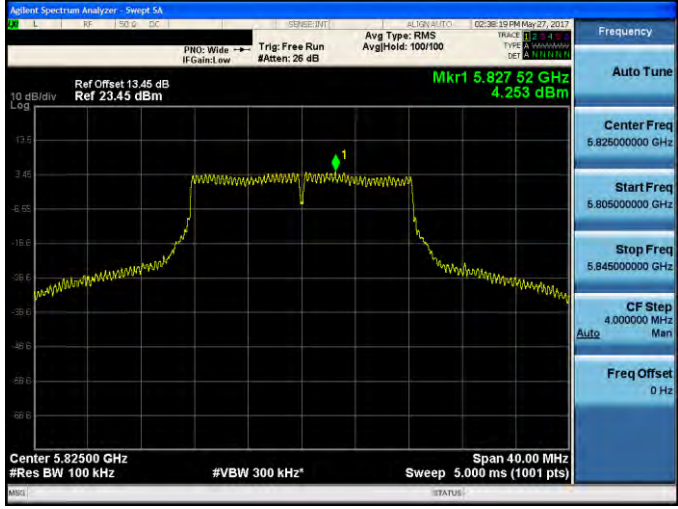





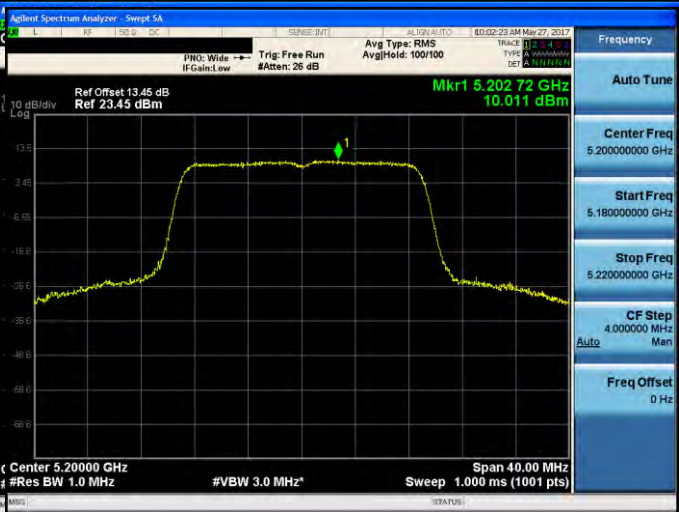

Mode 2: IEEE 802.11a Continuous TX mode_ ANT-2	
5180 MHz	<p>Agilent Spectrum Analyzer - Swept SA PNO: Wide IF Gain: Low Trig: Free Run #Atten: 26 dB Avg Type: RMS Avg/Hold: 100/100 Ref Offset 13.45 dB Ref 23.45 dBm Mkr1 5.181 12 GHz 9.997 dBm Center 5.18000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz* Span 40.00 MHz Sweep 1.000 ms (1001 pts)</p>
5200 MHz	<p>Agilent Spectrum Analyzer - Swept SA PNO: Wide IF Gain: Low Trig: Free Run #Atten: 26 dB Avg Type: RMS Avg/Hold: 100/100 Ref Offset 13.45 dB Ref 23.45 dBm Mkr1 5.201 40 GHz 10.566 dBm Center 5.20000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz* Span 40.00 MHz Sweep 1.000 ms (1001 pts)</p>
5240 MHz	<p>Agilent Spectrum Analyzer - Swept SA PNO: Wide IF Gain: Low Trig: Free Run #Atten: 26 dB Avg Type: RMS Avg/Hold: 100/100 Ref Offset 13.45 dB Ref 23.45 dBm Mkr1 5.238 88 GHz 10.587 dBm Center 5.24000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz* Span 40.00 MHz Sweep 1.000 ms (1001 pts)</p>



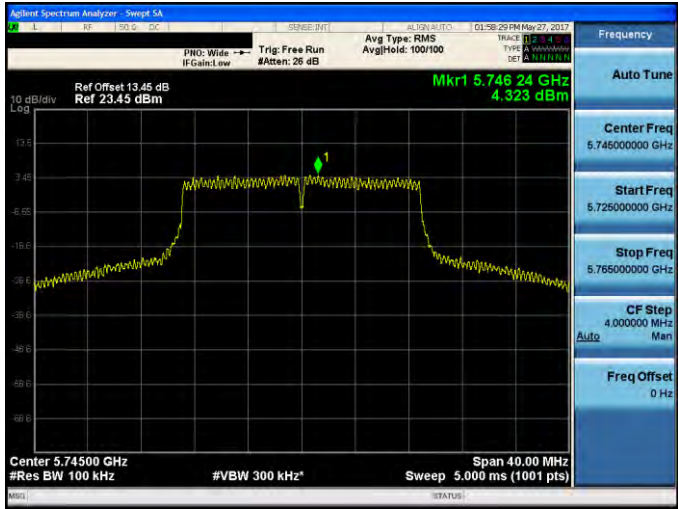



Mode 2: IEEE 802.11a Continuous TX mode_ ANT-2	
5745 MHz	 <p>Ref Offset 13.45 dB Ref 23.45 dBm</p> <p>Mkr1 5.746 24 GHz 4.899 dBm</p> <p>Center 5.74500 GHz #Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 40.00 MHz Sweep 5.000 ms (1001 pts)</p> <p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 5.74500000 GHz</p> <p>Start Freq 5.72500000 GHz</p> <p>Stop Freq 5.76500000 GHz</p> <p>CF Step 4.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p>
5785 MHz	 <p>Ref Offset 13.45 dB Ref 23.45 dBm</p> <p>Mkr1 5.786 24 GHz 4.877 dBm</p> <p>Center 5.78500 GHz #Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 40.00 MHz Sweep 5.000 ms (1001 pts)</p> <p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 5.78500000 GHz</p> <p>Start Freq 5.76500000 GHz</p> <p>Stop Freq 5.80500000 GHz</p> <p>CF Step 4.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p>
5825 MHz	 <p>Ref Offset 13.45 dB Ref 23.45 dBm</p> <p>Mkr1 5.827 52 GHz 4.253 dBm</p> <p>Center 5.82500 GHz #Res BW 100 kHz</p> <p>#VBW 300 kHz</p> <p>Span 40.00 MHz Sweep 5.000 ms (1001 pts)</p> <p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 5.82500000 GHz</p> <p>Start Freq 5.80500000 GHz</p> <p>Stop Freq 5.84500000 GHz</p> <p>CF Step 4.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p>

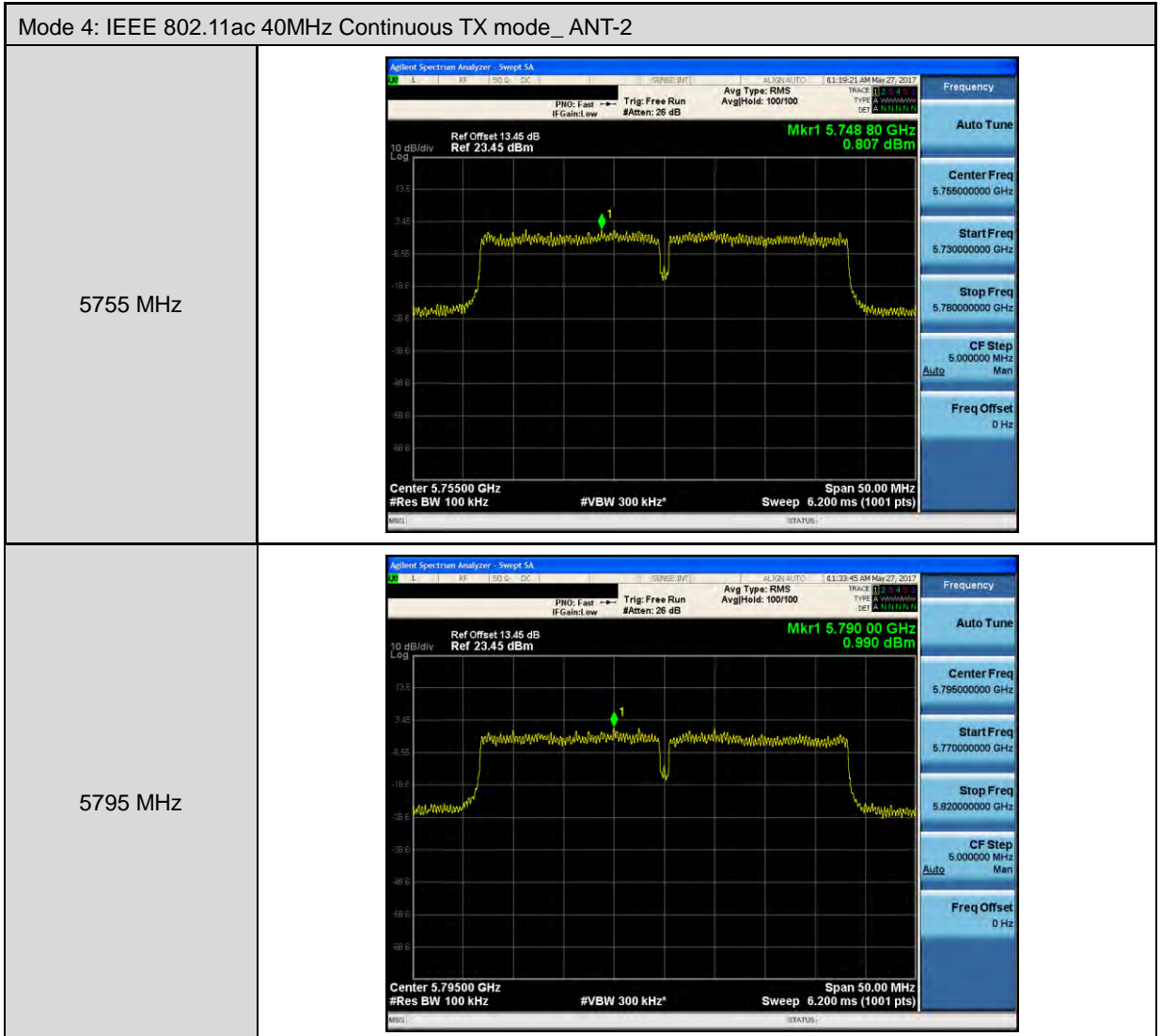


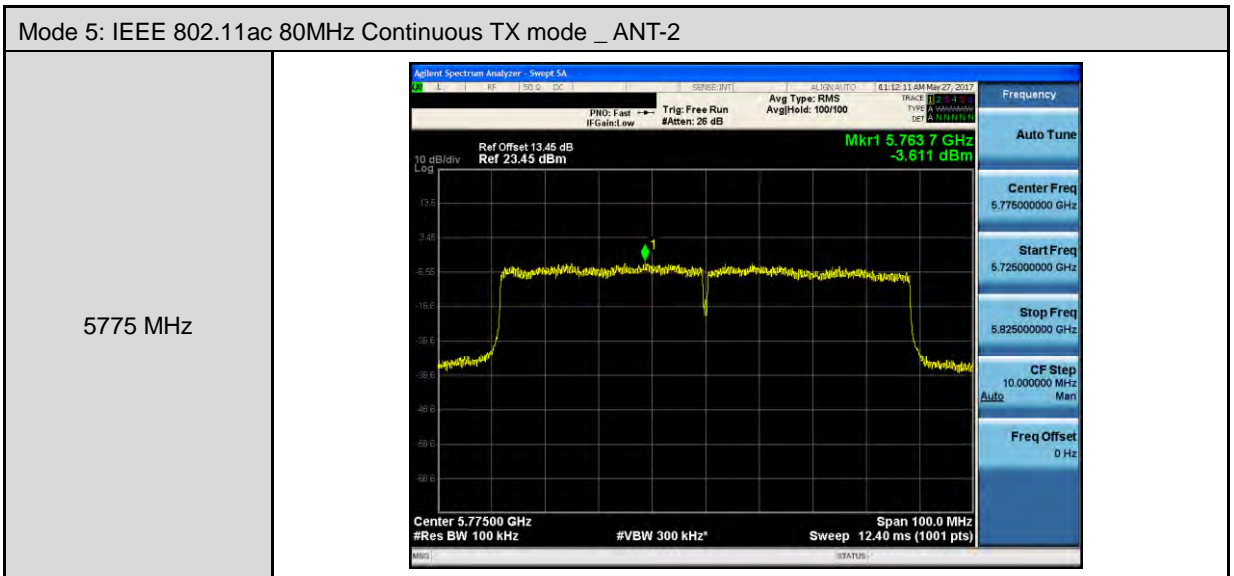
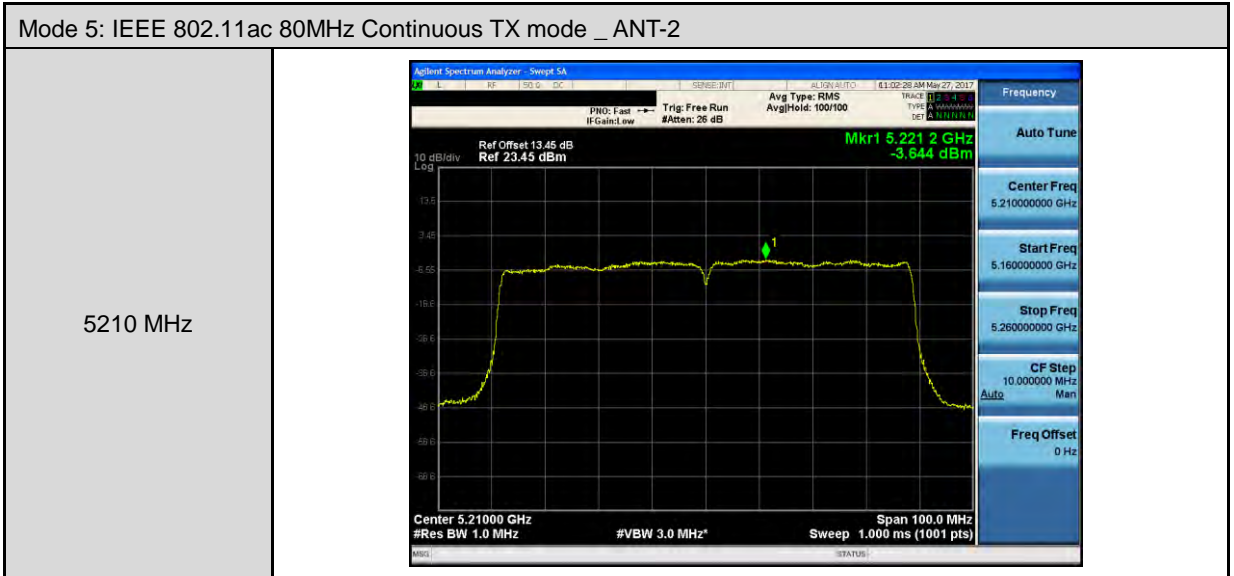
Mode 3: IEEE 802.11ac 20MHz Continuous TX mode _ANT-2	
5180 MHz	
5200 MHz	
5240 MHz	



Mode 3: IEEE 802.11ac 20MHz Continuous TX mode _ANT-2	
5745 MHz	 <p>Ref Offset 13.45 dB Ref 23.45 dBm Mkr1 5.746 24 GHz 4.323 dBm</p> <p>Center 5.74500 GHz #Res BW 100 kHz #VBW 300 kHz* Span 40.00 MHz Sweep 5.000 ms (1001 pts)</p>
5785 MHz	 <p>Ref Offset 13.45 dB Ref 23.45 dBm Mkr1 5.780 00 GHz 4.065 dBm</p> <p>Center 5.78500 GHz #Res BW 100 kHz #VBW 300 kHz* Span 40.00 MHz Sweep 5.000 ms (1001 pts)</p>
5825 MHz	 <p>Ref Offset 13.45 dB Ref 23.45 dBm Mkr1 5.823 76 GHz 4.349 dBm</p> <p>Center 5.82500 GHz #Res BW 100 kHz #VBW 300 kHz* Span 40.00 MHz Sweep 5.000 ms (1001 pts)</p>







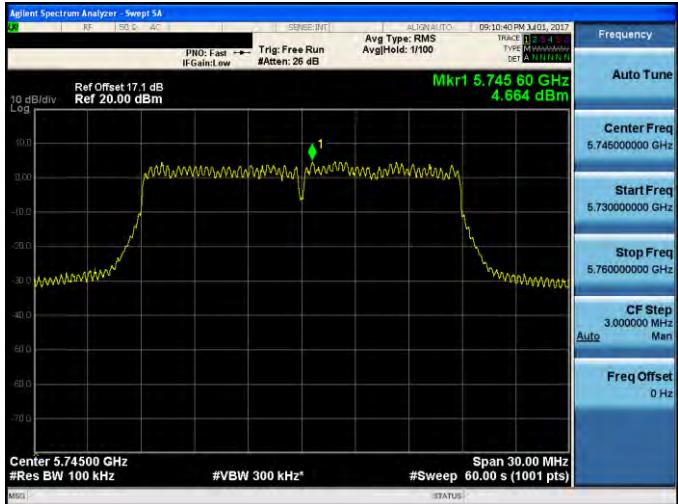
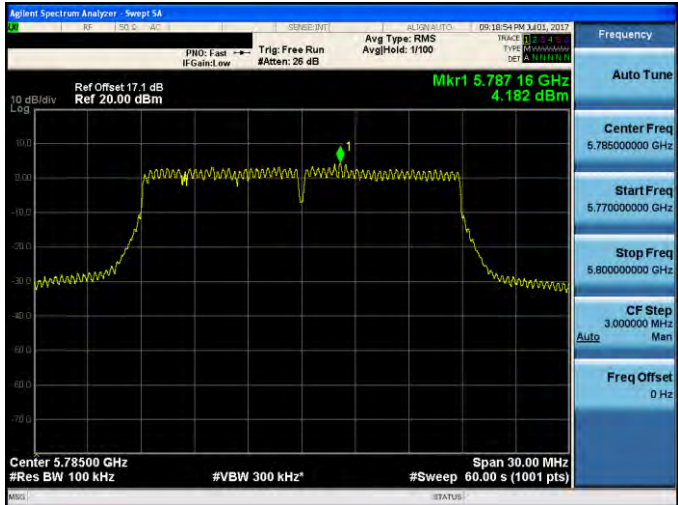
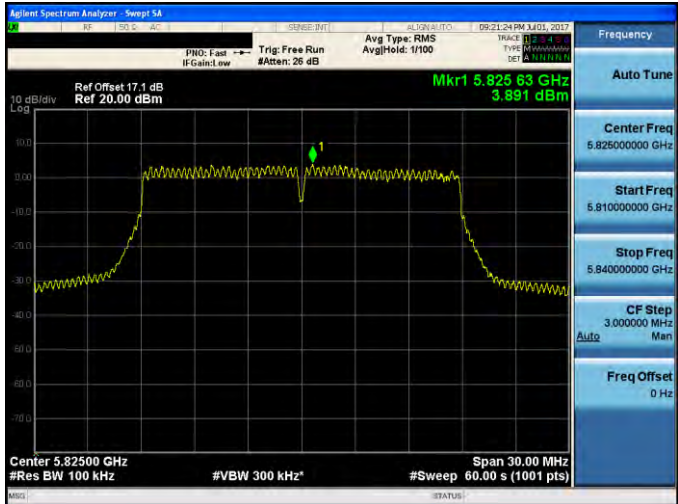


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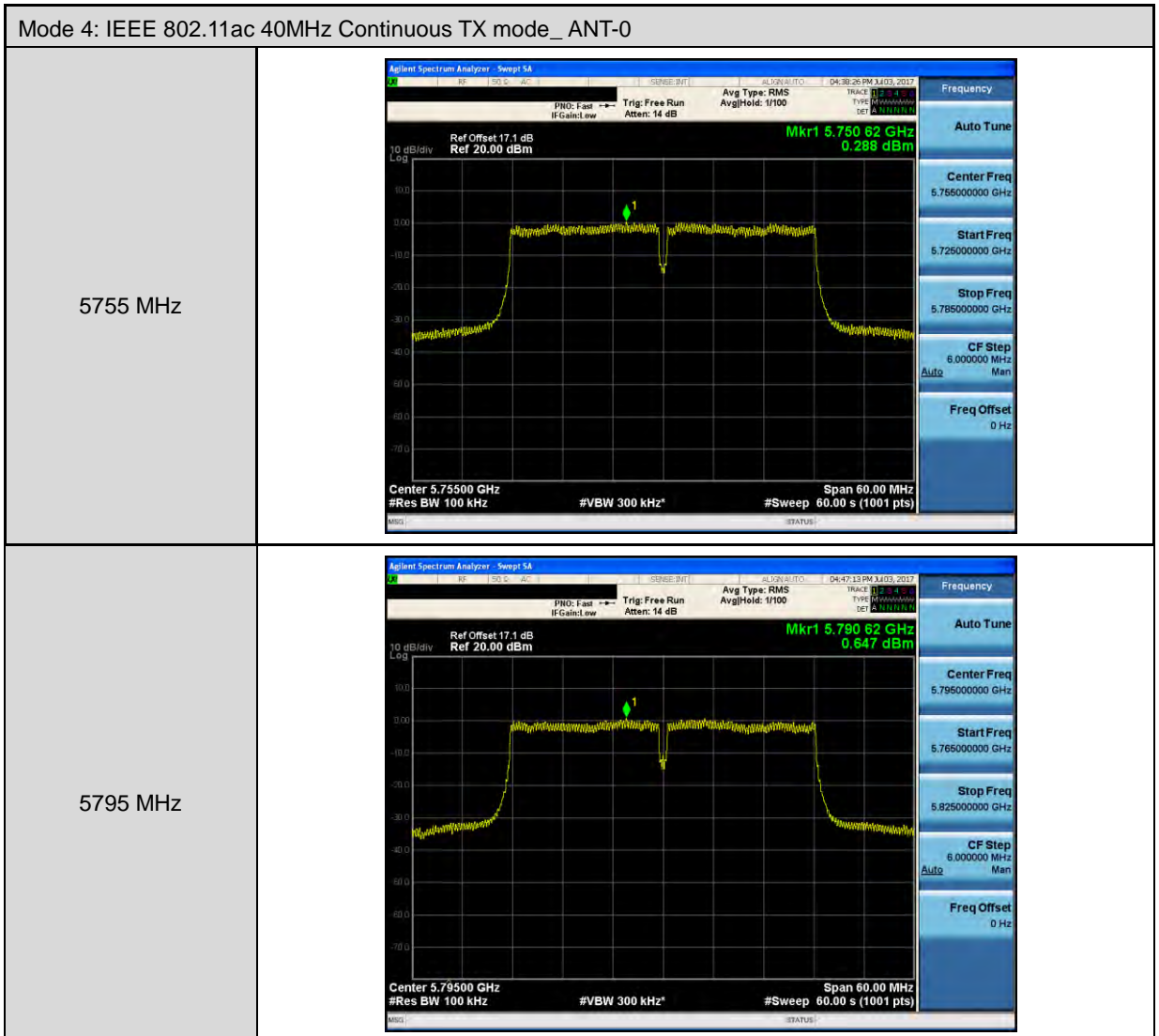
Mode 3: IEEE 802.11ac 20MHz Continuous TX mode _ ANT-0

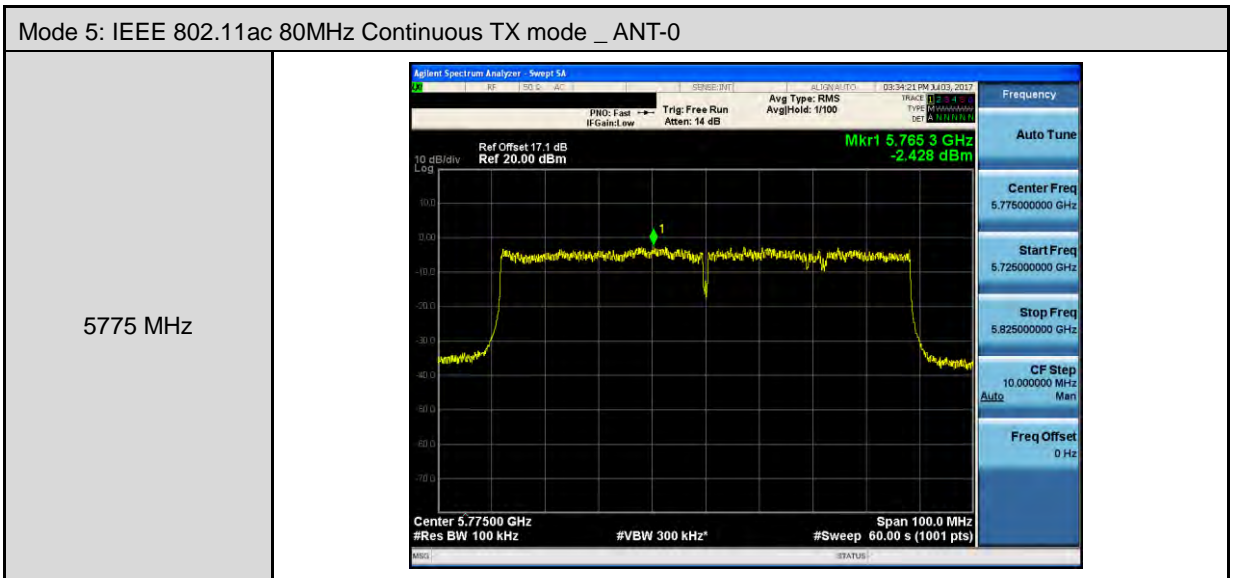
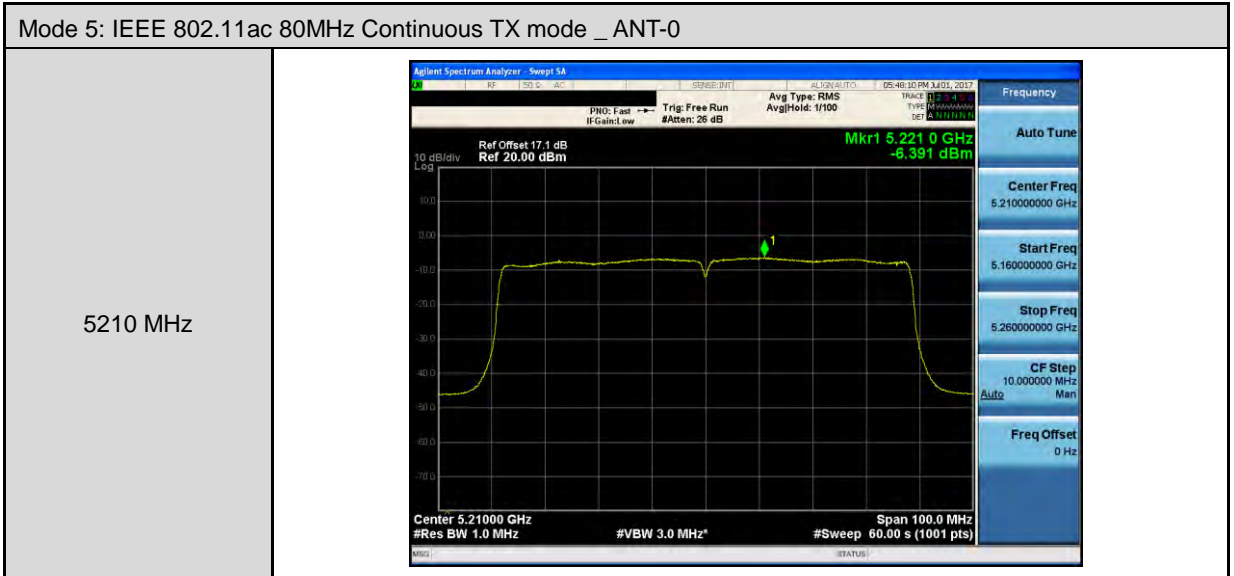
<p>5180 MHz</p>	
<p>5200 MHz</p>	
<p>5240 MHz</p>	



Mode 3: IEEE 802.11ac 20MHz Continuous TX mode _ ANT-0	
5745 MHz	 <p>Ref Offset 17.1 dB Ref 20.00 dBm</p> <p>Mkr1 5.745 60 GHz 4.684 dBm</p> <p>Center 5.74500 GHz #Res BW 100 kHz #VBW 300 kHz* #Sweep 60.00 s (1001 pts)</p> <p>Span 30.00 MHz</p> <p>Frequency: 5.74500000 GHz Center Freq: 5.74500000 GHz Start Freq: 5.73000000 GHz Stop Freq: 5.76000000 GHz CF Step: 3.000000 MHz Freq Offset: 0 Hz</p>
5785 MHz	 <p>Ref Offset 17.1 dB Ref 20.00 dBm</p> <p>Mkr1 5.787 16 GHz 4.182 dBm</p> <p>Center 5.78500 GHz #Res BW 100 kHz #VBW 300 kHz* #Sweep 60.00 s (1001 pts)</p> <p>Span 30.00 MHz</p> <p>Frequency: 5.78500000 GHz Center Freq: 5.78500000 GHz Start Freq: 5.77000000 GHz Stop Freq: 5.80000000 GHz CF Step: 3.000000 MHz Freq Offset: 0 Hz</p>
5825 MHz	 <p>Ref Offset 17.1 dB Ref 20.00 dBm</p> <p>Mkr1 5.825 63 GHz 3.891 dBm</p> <p>Center 5.82500 GHz #Res BW 100 kHz #VBW 300 kHz* #Sweep 60.00 s (1001 pts)</p> <p>Span 30.00 MHz</p> <p>Frequency: 5.82500000 GHz Center Freq: 5.82500000 GHz Start Freq: 5.81000000 GHz Stop Freq: 5.84000000 GHz CF Step: 3.000000 MHz Freq Offset: 0 Hz</p>



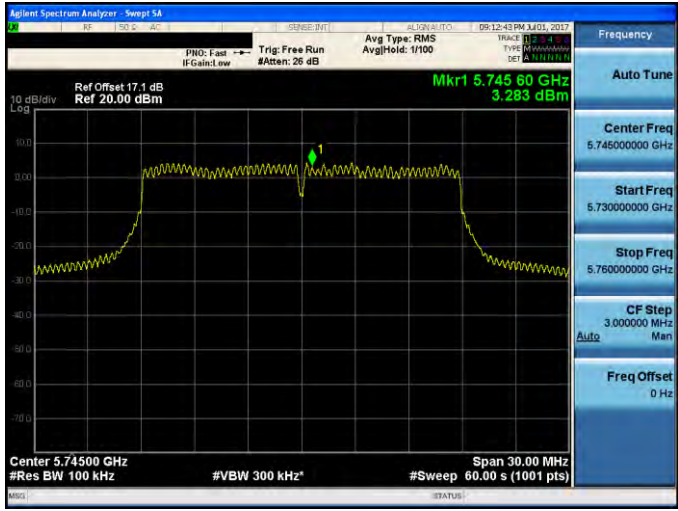
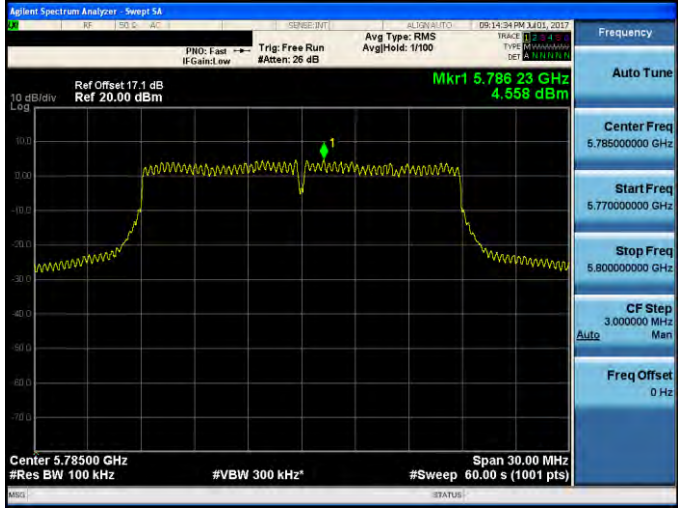
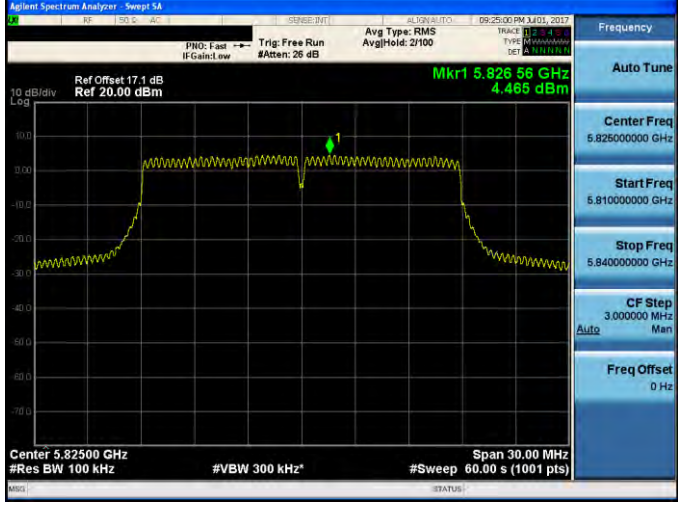




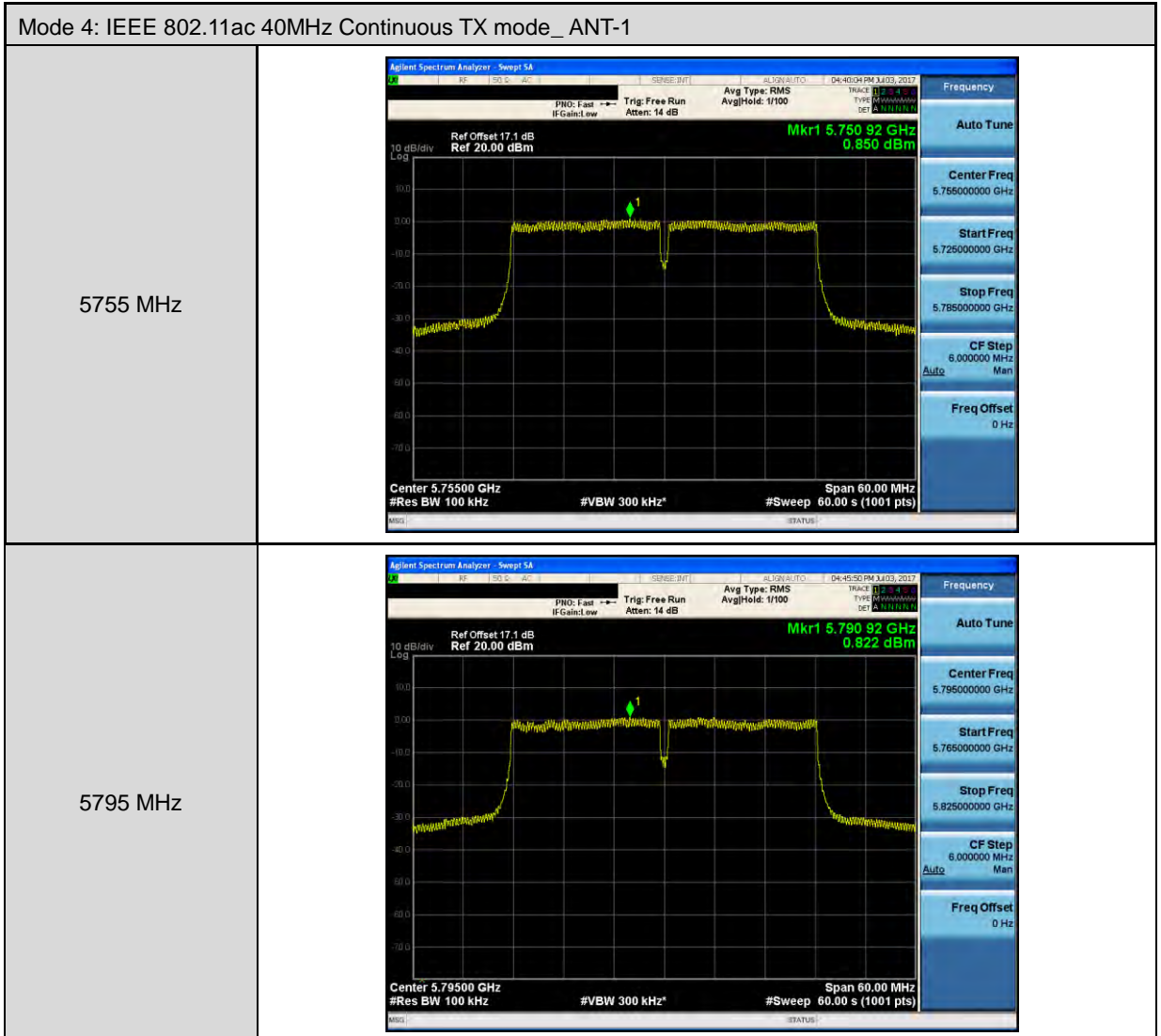


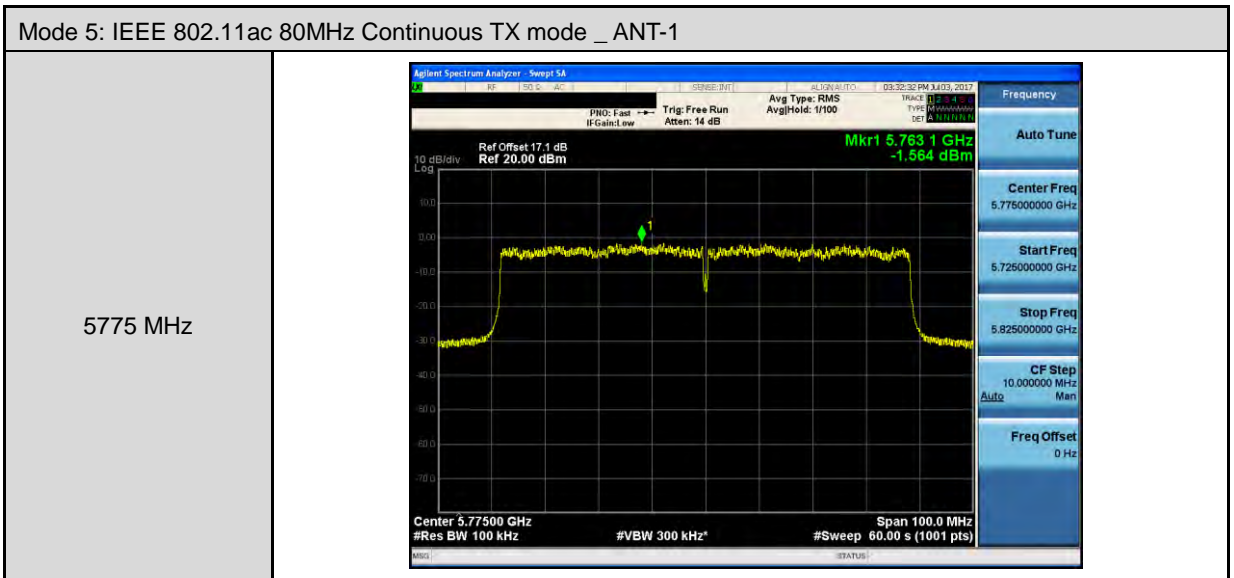
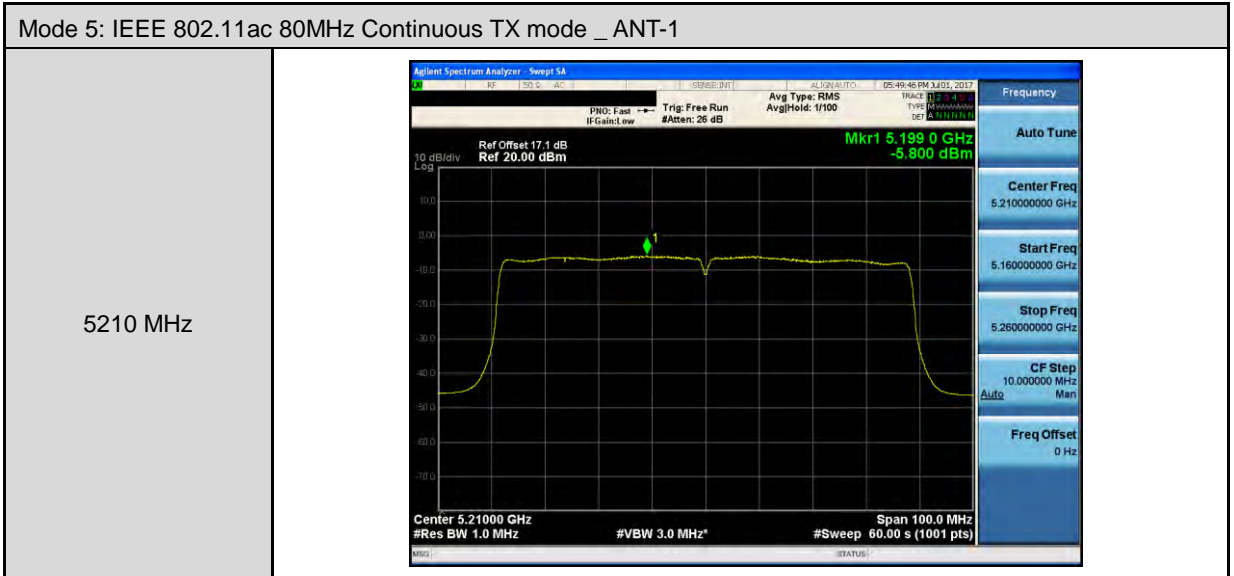
Mode 3: IEEE 802.11ac 20MHz Continuous TX mode _ ANT-1	
5180 MHz	
5200 MHz	
5240 MHz	



Mode 3: IEEE 802.11ac 20MHz Continuous TX mode _ANT-1	
5745 MHz	
5785 MHz	
5825 MHz	



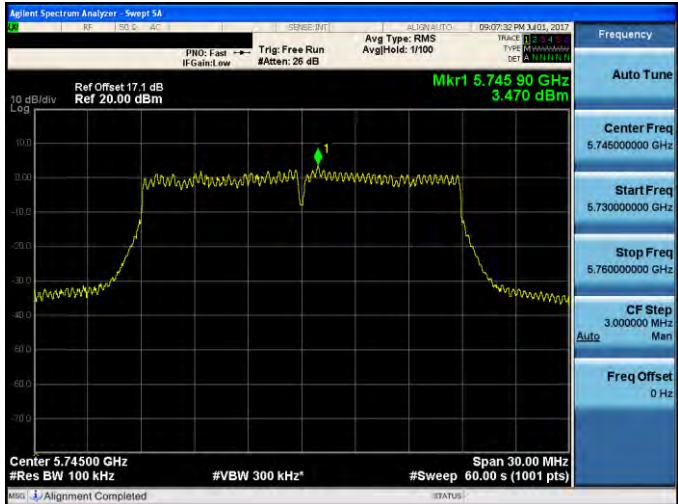
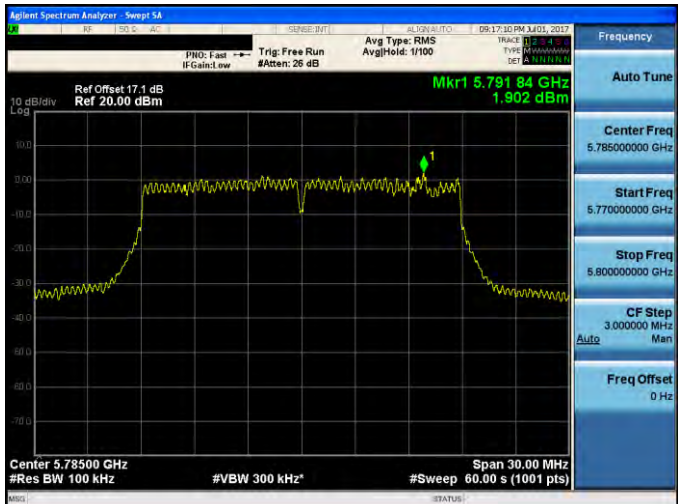
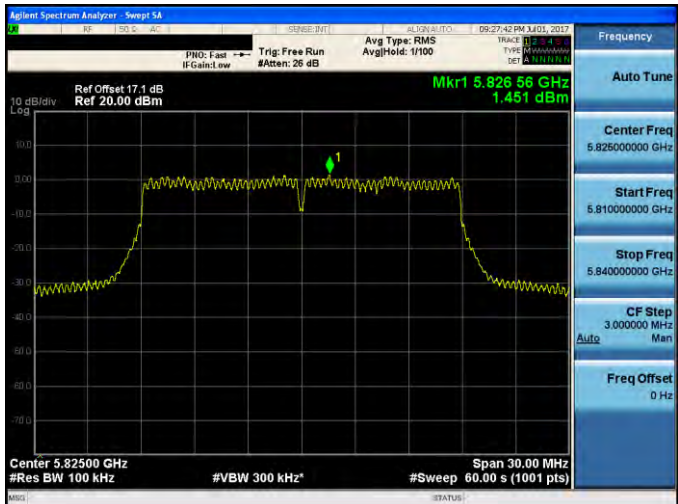




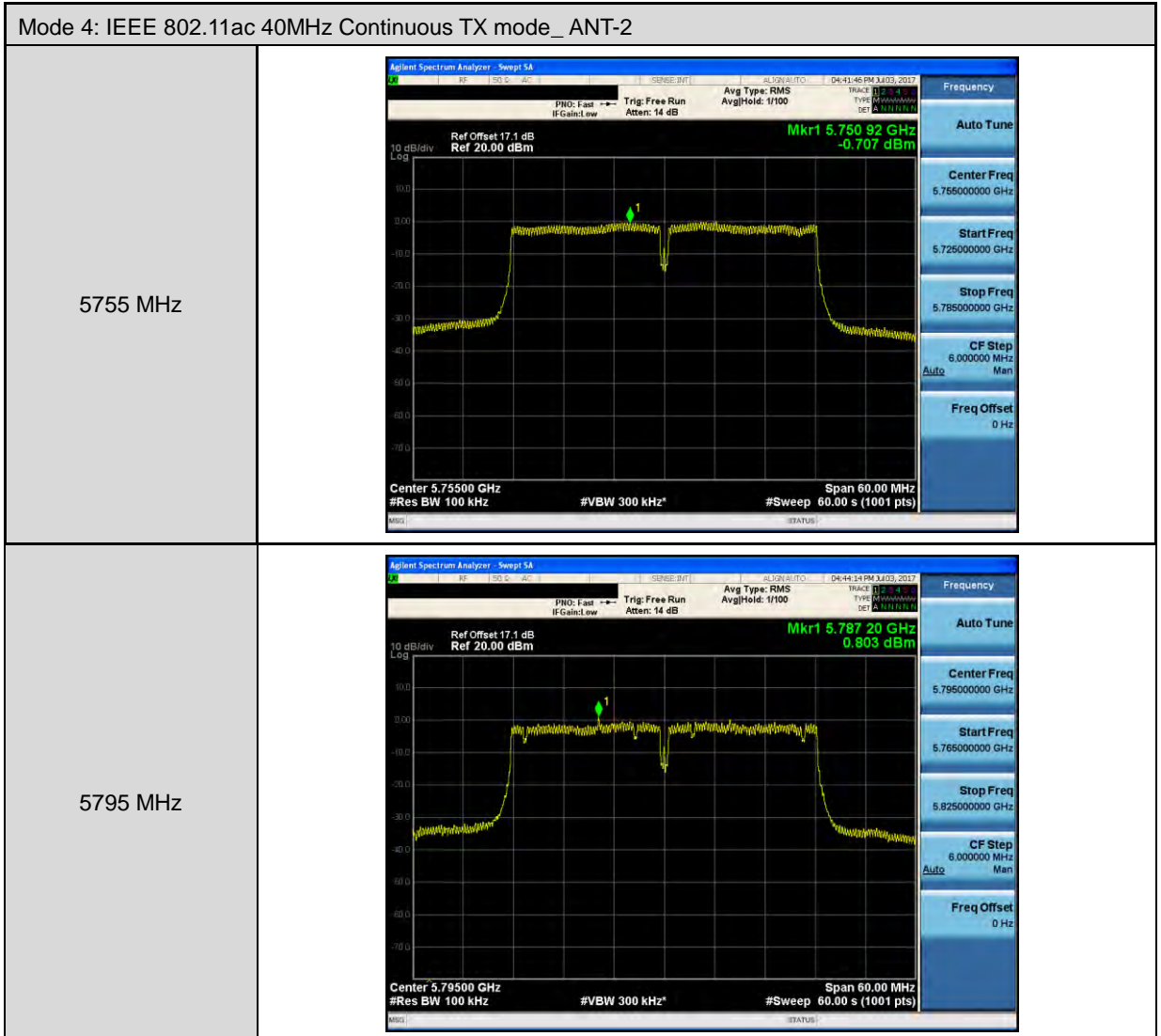


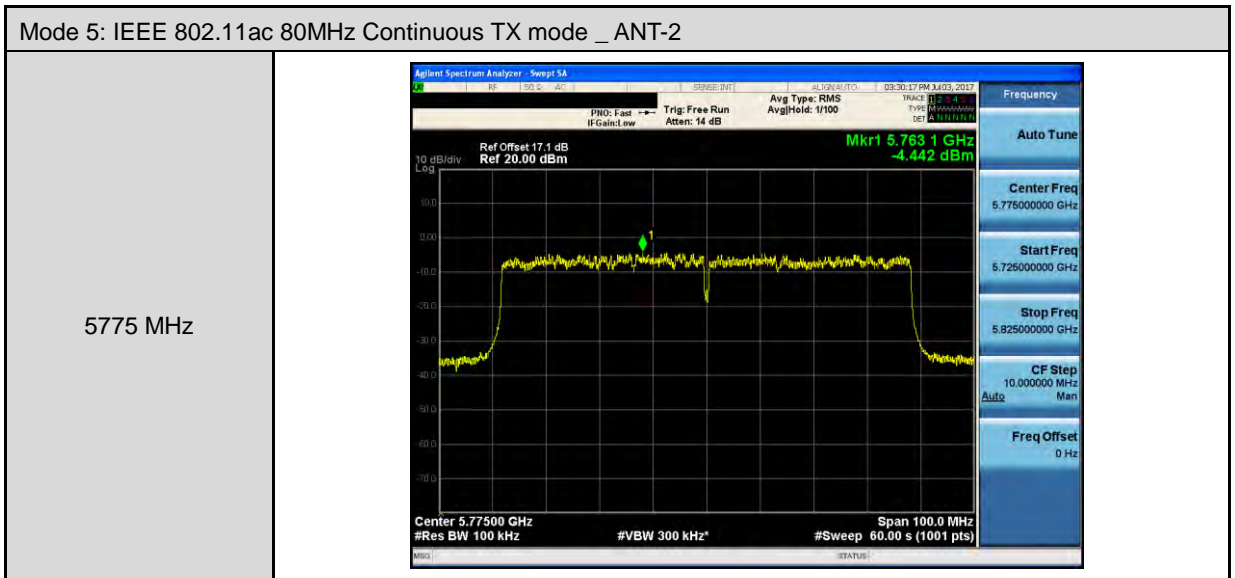
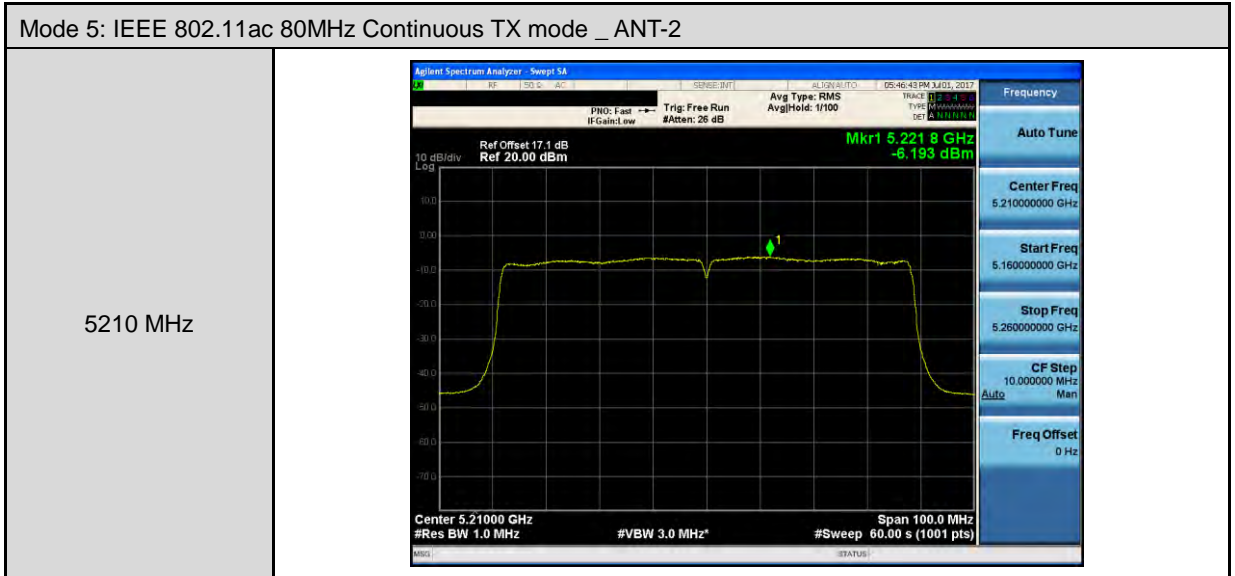
Mode 3: IEEE 802.11ac 20MHz Continuous TX mode _ ANT-2	
5180 MHz	<p>Ref Offset 17.1 dB Ref 20.00 dBm Mkr1 5.178 98 GHz 6.368 dBm</p> <p>Center 5.18000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz* Span 40.00 MHz #Sweep 60.00 s (1001 pts)</p>
5200 MHz	<p>Ref Offset 17.1 dB Ref 20.00 dBm Mkr1 5.198 92 GHz 9.540 dBm</p> <p>Center 5.20000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz* Span 40.00 MHz #Sweep 60.00 s (1001 pts)</p>
5240 MHz	<p>Ref Offset 17.1 dB Ref 20.00 dBm Mkr1 5.238 08 GHz 9.929 dBm</p> <p>Center 5.24000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz* Span 40.00 MHz #Sweep 60.00 s (1001 pts)</p>



Mode 3: IEEE 802.11ac 20MHz Continuous TX mode _ ANT-2	
5745 MHz	
5785 MHz	
5825 MHz	





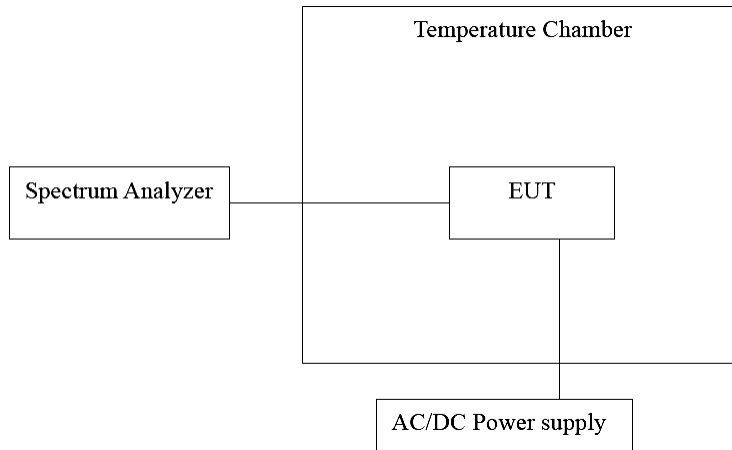


4.8. Frequency Stability Measurement

■ Limit

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

■ Test Setup



■ Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4408B	MY45107753	08/08/2016	1 year
Temperature & Humidity Chamber	TAICHY	MHU-225LA	980729	04/17/2017	1 year
Test Site	ATL	TE05	TE05	N.C.R.	-----

Note: N.C.R. = No Calibration Request.

■ Test Procedure

1. The EUT was placed inside the environmental test chamber and powered by nominal AC/DC voltage.
2. Turn the EUT on and couple its output to a spectrum analyzer.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize.
5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
6. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.



■ Test Result

Temperature Variations

Test Item	Frequency Stability					
Frequency	Temp. (°C)	Voltage (Vac)	Measured Freq. (MHz)	Delta Freq. (Hz)	Tolerance (ppm)	Result (Pass/Fail)
5200 MHz	0	120	5199.971	-29000	-5.577	Pass
	10		5199.9883	-11700	-2.250	Pass
	20		5199.9934	-6600	-1.269	Pass
	30		5200.0034	3400	0.654	Pass
	40		5200.013	13000	2.500	Pass
5785 MHz	0	120	5784.9761	-23900	-4.131	Pass
	10		5784.9816	-18400	-3.181	Pass
	20		5784.9919	-8100	-1.400	Pass
	30		5785.0082	8200	1.417	Pass
	40		5785.019	19000	3.284	Pass

Voltage Variations

Test Item	Frequency Stability					
Frequency	Temp. (°C)	Voltage (Vac)	Measured Freq. (MHz)	Delta Freq. (Hz)	Tolerance (ppm)	Result (Pass/Fail)
5200 MHz	20	138.00	5199.9857	-14300	-2.750	Pass
		120.00	5199.9934	-6600	-1.269	Pass
		102.00	5200.0073	7300	1.404	Pass
5785 MHz	20	138.00	5784.9849	-15100	-2.610	Pass
		120.00	5784.9919	-8100	-1.400	Pass
		102.00	5785.0084	8400	1.452	Pass

Note: The manufacturer's frequency stability specification is better than 20ppm.



Beamforming on

Temperature Variations

Test Item	Frequency Stability					
Frequency	Temp. (°C)	Voltage (Vac)	Measured Freq. (MHz)	Delta Freq. (Hz)	Tolerance (ppm)	Result (Pass/Fail)
5200 MHz	0	120	5199.971	-29000	-5.577	Pass
	10		5199.9883	-11700	-2.250	Pass
	20		5199.9934	-6600	-1.269	Pass
	30		5200.0034	3400	0.654	Pass
	40		5200.013	13000	2.500	Pass
5785 MHz	0	120	5784.9761	-23900	-4.131	Pass
	10		5784.9816	-18400	-3.181	Pass
	20		5784.9919	-8100	-1.400	Pass
	30		5785.0082	8200	1.417	Pass
	40		5785.019	19000	3.284	Pass

Voltage Variations

Test Item	Frequency Stability					
Frequency	Temp. (°C)	Voltage (Vac)	Measured Freq. (MHz)	Delta Freq. (Hz)	Tolerance (ppm)	Result (Pass/Fail)
5200 MHz	20	138.00	5199.9857	-14300	-2.750	Pass
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5785 MHz	20	138.00	5784.9849	-15100	-2.610	Pass
		120.00	5784.9919	-8100	-1.400	Pass
		102.00	5785.0084	8400	1.452	Pass

Note: The manufacturer's frequency stability specification is better than 20ppm.



4.9. Antenna Requirement

■ Limit

For intentional device, according to 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And According to 15.407 (a), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

■ Antenna Connector Construction

See section 2 – antenna information.

■ Directional Gain Calculated

Directional Gain = $10 \cdot \log\{[10^{(G1/20)} + 10^{(G2/20)} + \dots + 10^{(Gn/20)}]^2 / NANT\}$ = 7.67 dBi > 6dBi

Operate Freq. Band		Directional Gain (dBi)
IEEE 802.11ac 20MHz	U-NII Band I	7.67
	U-NII Band III	7.67
IEEE 802.11ac 40MHz	U-NII Band I	7.67
	U-NII Band III	7.67
IEEE 802.11ac 80MHz	U-NII Band I	7.67
	U-NII Band III	7.67