

6. 6dB &26dB & 99% Bandwidth Test

6.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Sep.08,18	1 Year
2.	Attenuator	Agilent	8491B	MY39269170	Oct.14,18	1 Year
3.	RF Cable	Hubersuhner	SUCOFLEX106	505239/6	Apr.23,18	1 Year
4.	RF Cable	EMCI	EMC102-KM-KM 3500	170702	May.13,19	1 Year

6.2. Limit

6dB Bandwidth should be not less than 500kHz

6.3. Test Procedure

6dB Bandwidth:

The transmitter output was connected to a spectrum analyzer. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 300 KHz VBW for signal width below 20MHz and 300KHz RBW ,1MHz VBW for Above 20MHz signal Bandwidth.

26dB Bandwidth:

- (a) Set RBW = approximately 1% of the emission bandwidth.
- (b) Set the VBW > RBW.
- (c) Detector = Peak.
- (d) Trace mode = max hold.
- (e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

99% Occupied bandwidth:

Use the test method described in ANSI C63.10 Section 6.9.2:

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. The following procedure shall be used for measuring 99% power bandwidth:

- a) The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.
- b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement.
- c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level. Specific guidance is given in 4.1.5.2.
- d) Step a) through step c) might require iteration to adjust within the specified range.
- e) Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
- f) Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.
- g) If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies.
- h) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

6.4. Test Results

5180-5240MHz Band

EUT: BCM dual band 2*2 WiFi			
M/N: 50-0102-BC-22			
Test date: 2019-01-16	Pressure: 102.5±1.0 kpa		Humidity: 53.1±3.0%
Tested by: Garry	Test site: RF site		Temperature: 22.6±0.6 °C

26dB bandwidth:

Test Mode	Frequency (MHz)	26dB Bandwidth (MHz)		Limit (KHz)
		ANT0	ANT1	
11a	5180	21.41	21.38	N/A
	5200	21.33	21.43	N/A
	5240	21.33	21.41	N/A
11n HT20	5180	21.75	21.71	N/A
	5200	21.46	21.08	N/A
	5240	21.59	21.19	N/A
11n HT40	5190	40.02	39.62	N/A
	5230	39.77	39.69	N/A
11ac VHT20	5180	21.70	21.31	N/A
	5200	21.68	21.19	N/A
	5240	21.55	21.11	N/A
11ac VHT40	5190	40.12	40.02	N/A
	5230	39.88	40.25	N/A
11ac VHT80	5210	81.58	81.56	N/A
Conclusion: PASS				

99% Occupied bandwidth:

Test Mode	Frequency (MHz)	99% bandwidth (MHz)		Limit (KHz)
		ANT0	ANT1	
11a	5180	16.865	16.873	N/A
	5200	16.892	16.777	N/A
	5240	16.857	16.805	N/A
11n HT20	5180	17.910	17.906	N/A
	5200	17.903	17.875	N/A
	5240	17.883	17.804	N/A
11n HT40	5190	36.296	36.291	N/A
	5230	36.328	36.345	N/A
11ac VHT20	5180	17.923	17.808	N/A
	5200	17.881	17.915	N/A
	5240	17.871	17.869	N/A
11ac VHT40	5190	36.312	36.361	N/A
	5230	36.309	36.337	N/A
11ac VHT80	5210	75.711	75.744	N/A
Conclusion: PASS				

5260-5320MHz Band:**26dB bandwidth**

EUT: BCM dual band 2*2 WiFi		
M/N: 50-0102-BC-22		
Test date: 2019-01-16~23	Pressure: 102.3±1.0 kpa	Humidity: 51.6±3.0%
Tested by: Garry	Test site: RF site	Temperature: 22.5±0.6 °C

Test Mode	Frequency (MHz)	26dB Bandwidth (MHz)		Limit (KHz)
		ANT0	ANT1	
11a	5260	21.30	21.07	N/A
	5300	21.33	21.38	N/A
	5320	21.33	21.26	N/A
11n HT20	5260	21.54	21.53	N/A
	5300	21.49	21.80	N/A
	5320	21.73	21.71	N/A
11n HT40	5270	39.64	40.05	N/A
	5310	39.56	40.26	N/A
11ac VHT20	5260	21.56	21.45	N/A
	5300	21.62	21.41	N/A
	5320	21.65	21.80	N/A
11ac VHT40	5270	39.86	40.14	N/A
	5310	39.83	40.03	N/A
11ac VHT80	5290	81.35	81.73	N/A
Conclusion: PASS				

5500-5700MHz Band:**26dB bandwidth**

EUT: BCM dual band 2*2 WiFi		
M/N: 50-0102-BC-22		
Test date: 2019-01-23	Pressure: 102.3±1.0 kpa	Humidity: 51.6±3.0%
Tested by: Garry	Test site: RF site	Temperature: 22.5±0.6 °C

Test Mode	Frequency (MHz)	26dB Bandwidth (MHz)		Limit (KHz)
		ANT0	ANT1	
11a	5500	21.15	21.47	N/A
	5600	21.32	21.45	N/A
	5700	21.29	21.39	N/A
11n HT20	5500	21.77	21.63	N/A
	5600	21.45	21.62	N/A
	5700	21.65	21.46	N/A
11n HT40	5510	39.66	39.92	N/A
	5590	39.49	39.99	N/A
	5670	39.66	40.13	N/A
11ac VHT20	5500	21.42	21.60	N/A
	5600	21.55	21.80	N/A
	5700	21.43	21.85	N/A
11ac VHT40	5510	39.74	39.93	N/A
	5590	39.71	40.18	N/A
	5670	39.60	40.29	N/A
11ac VHT80	5530	81.10	82.08	N/A
	5610	81.75	82.37	N/A
Conclusion: PASS				

5745-5825MHz Band:**6dB bandwidth**

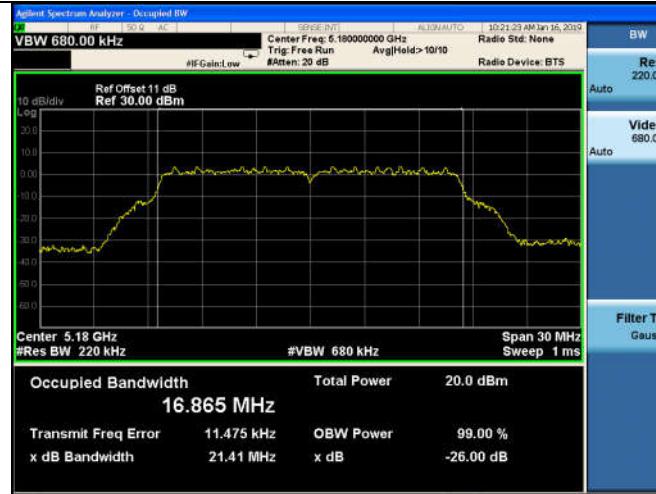
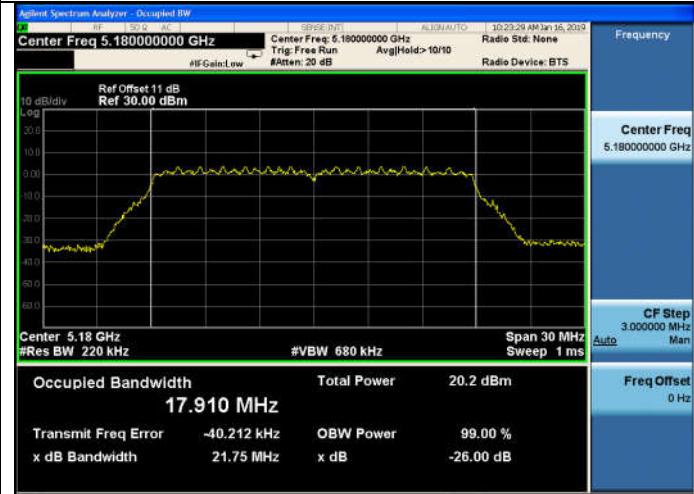
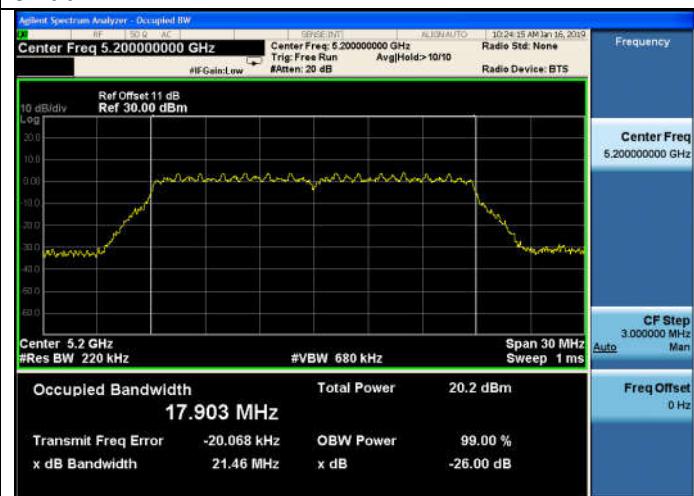
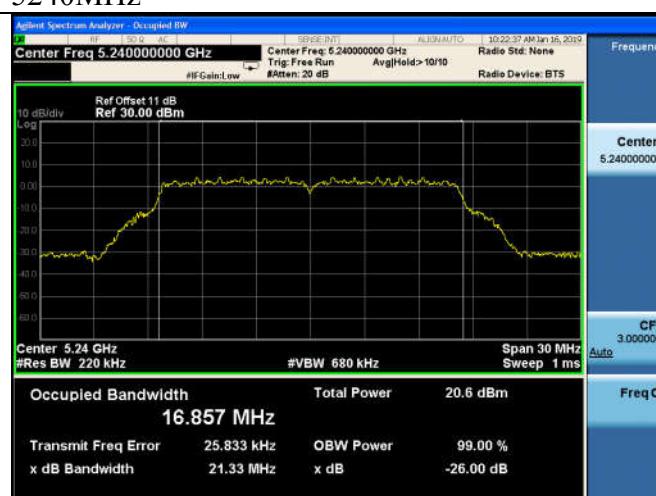
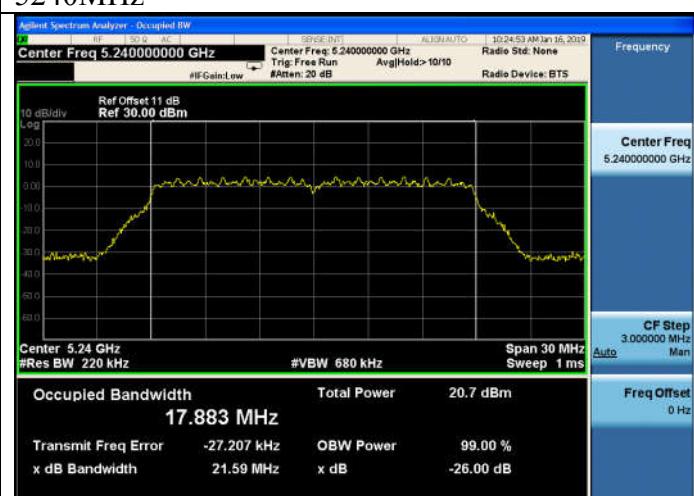
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M/N: 50-0102-BC-22		
Test date: 2019-02-19	Pressure: 102.7±1.0 kpa	Humidity: 54.1±3.0%
Tested by: Garry	Test site: RF site	Temperature: 23.4±0.6 °C

Test Mode	Frequency (MHz)	6dB Bandwidth (MHz)		Limit (KHz)
		ANT0	ANT1	
11a	5745	16.36	16.34	≥500
	5785	16.37	16.33	≥500
	5825	16.37	16.32	≥500
11n HT20	5745	17.59	17.56	≥500
	5785	17.60	17.30	≥500
	5825	17.60	17.56	≥500
11n HT40	5755	36.07	35.94	≥500
	5795	36.39	36.06	≥500
11ac VHT20	5745	17.59	17.53	≥500
	5785	17.58	17.31	≥500
	5825	17.56	17.34	≥500
11ac VHT40	5755	36.17	36.04	≥500
	5795	36.13	36.08	≥500
11ac VHT80	5775	75.62	75.41	≥500
Conclusion: PASS				

26dB bandwidth

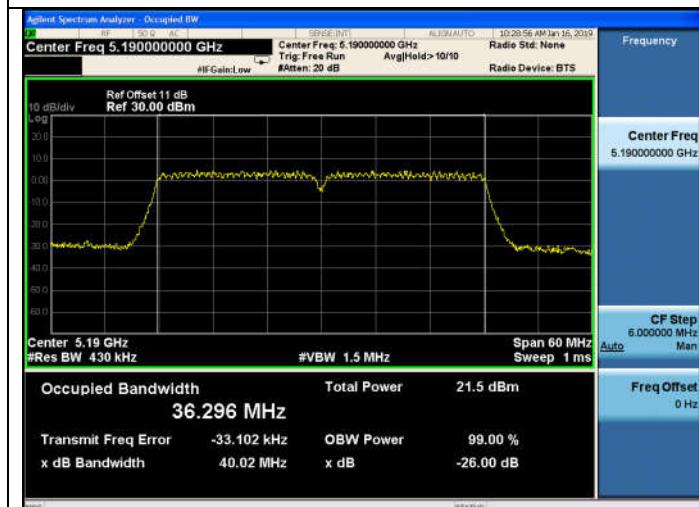
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M/N: 50-0102-BC-22			
Test date: 2019-01-23	Pressure: 102.7±1.0 kpa		Humidity: 54.1±3.0%
Tested by: Garry	Test site: RF site		Temperature: 23.4±0.6 °C

Test Mode	Frequency (MHz)	26dB Bandwidth (MHz)		Limit (KHz)
		ANT0	ANT1	
11a	5745	21.38	21.61	N/A
	5785	21.36	21.58	N/A
	5825	21.32	21.50	N/A
11n HT20	5745	21.55	21.62	N/A
	5785	21.73	21.48	N/A
	5825	21.46	21.61	N/A
11n HT40	5755	39.65	40.32	N/A
	5795	39.73	40.29	N/A
11ac VHT20	5745	21.52	21.66	N/A
	5785	21.45	21.56	N/A
	5825	21.63	21.66	N/A
11ac VHT40	5755	39.71	40.12	N/A
	5795	39.74	40.22	N/A
11ac VHT80	5775	81.39	82.11	N/A
Conclusion: PASS				

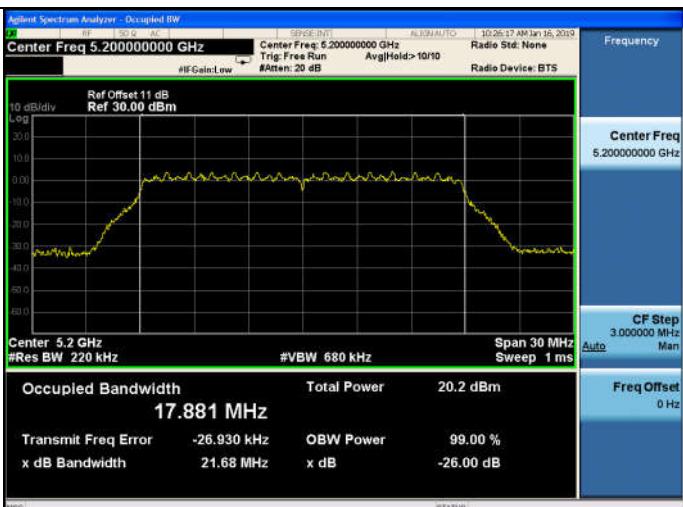
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11n HT40

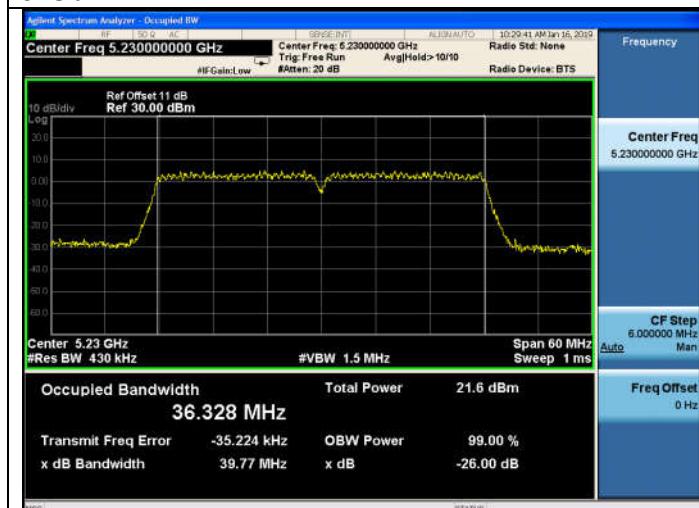
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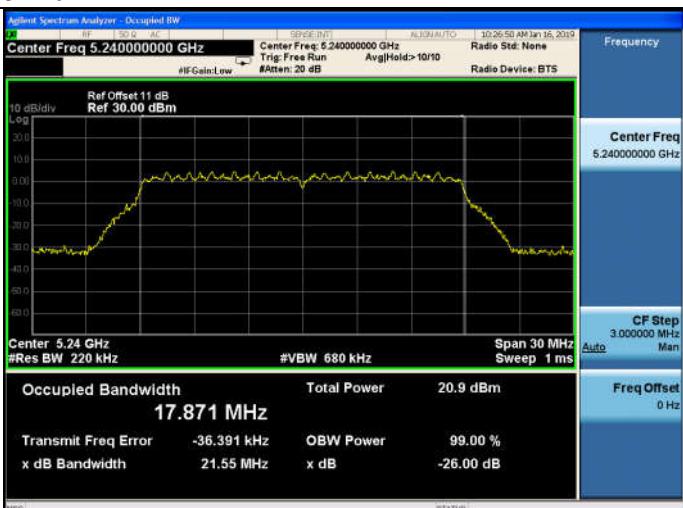
5200MHz



5230MHz

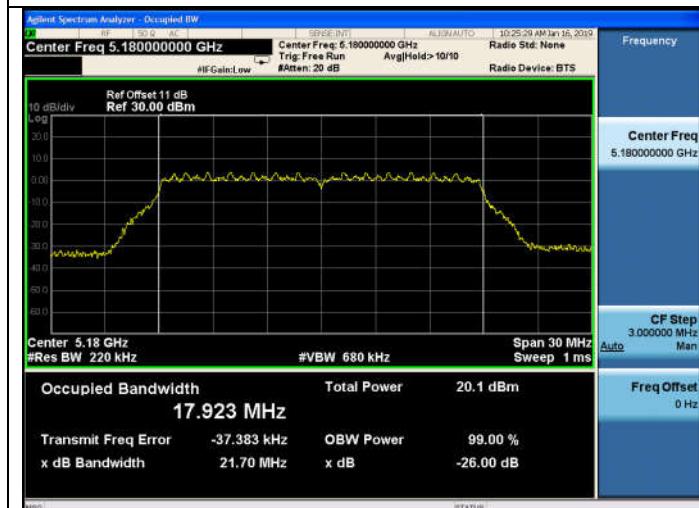


5240MHz



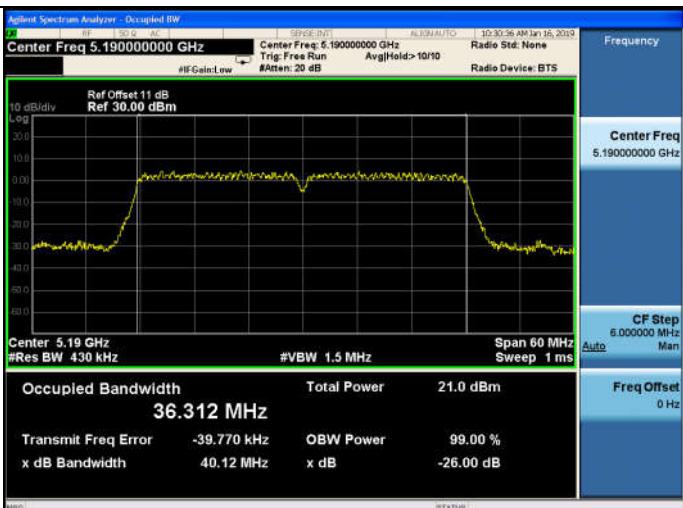
11ac VHT20

5180MHz



11ac VHT40

5190MHz



FCC ID: XVG500102BC22

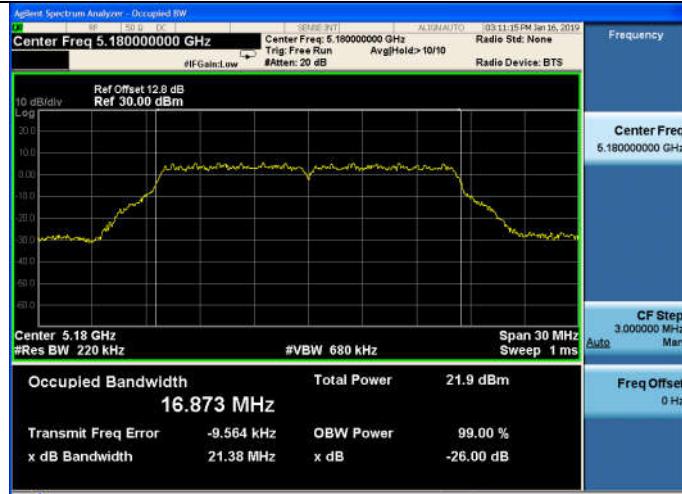
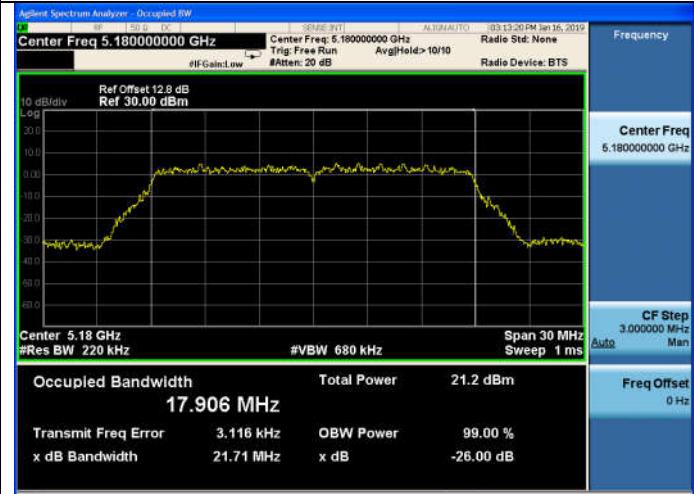
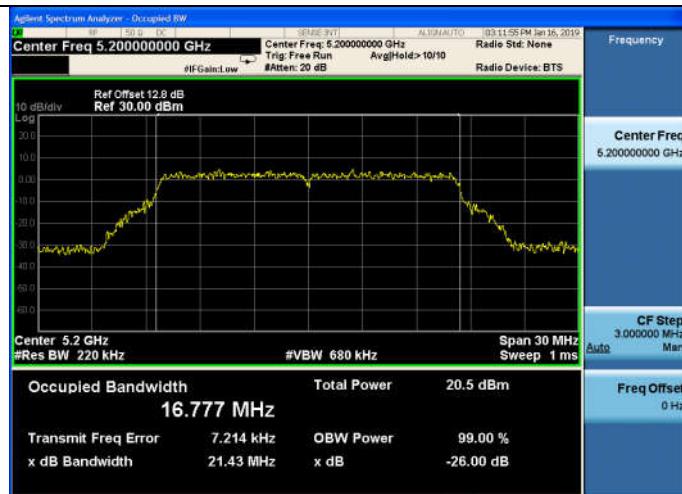
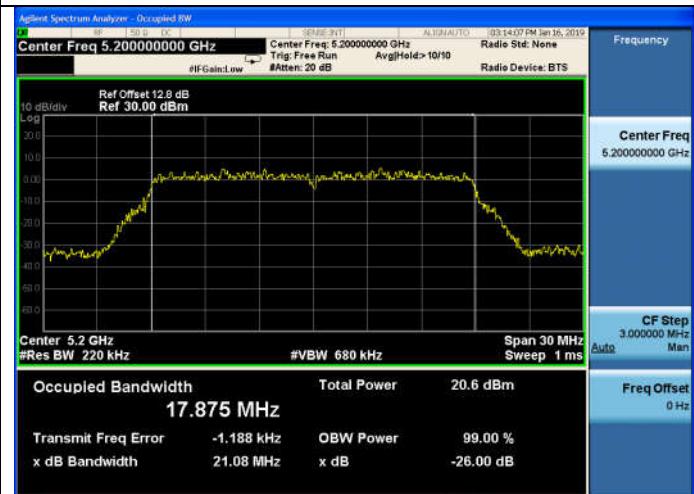
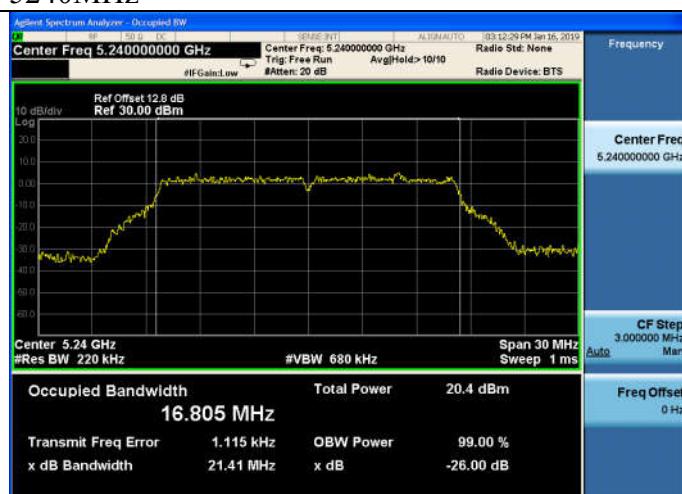
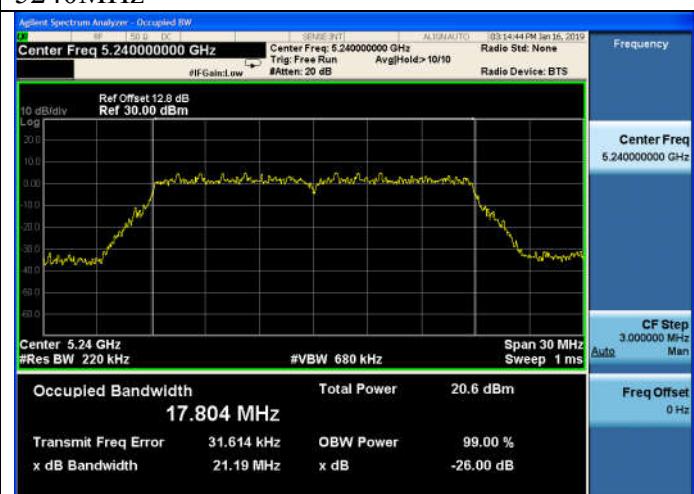
5230MHz


11ac VHT80

5210MHz



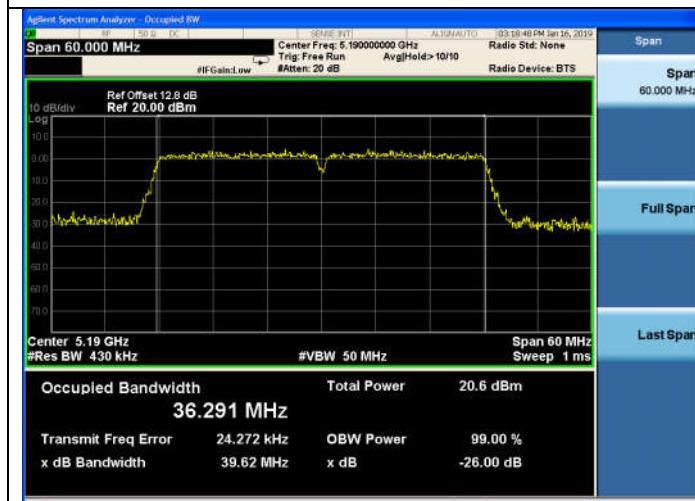
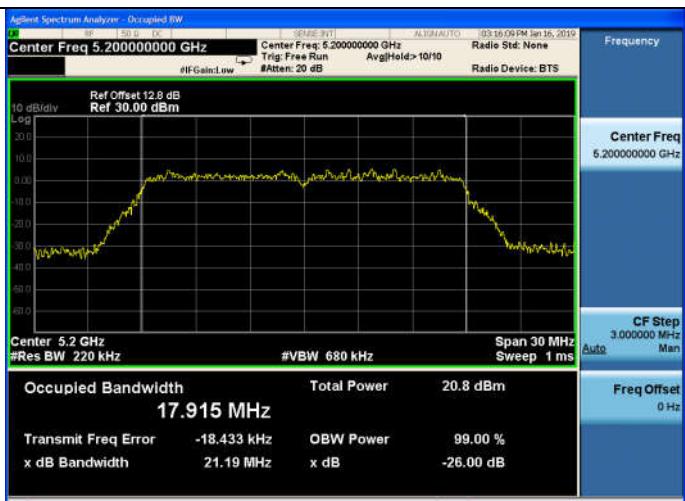
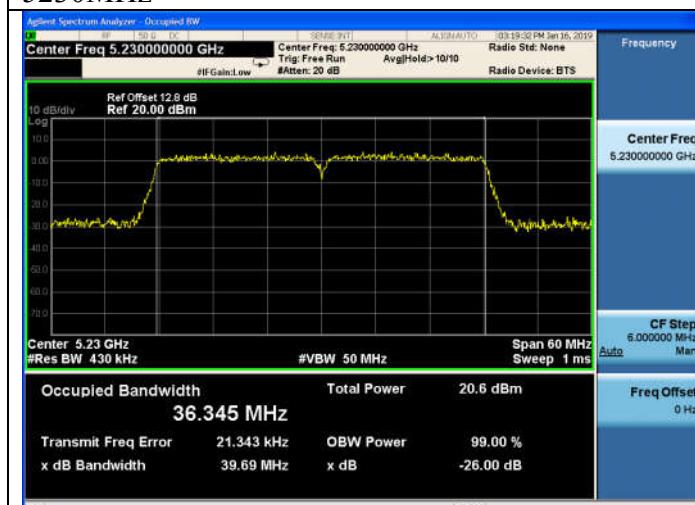
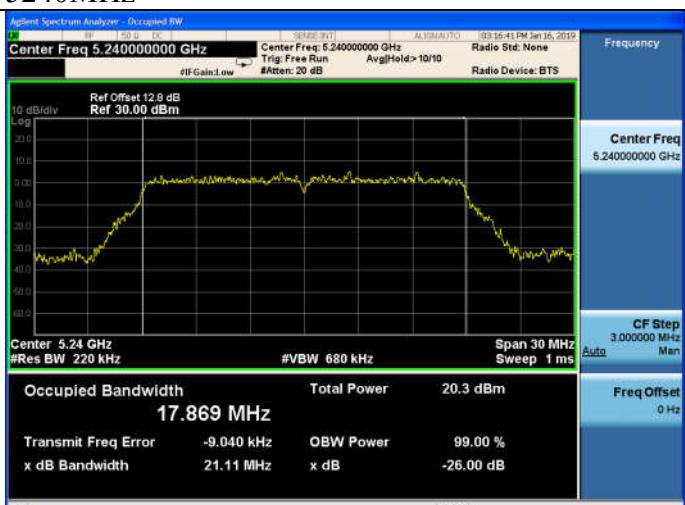
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5180-5240MHz Band:
26dB bandwidth
ANT 1
11a
5180MHz

11n HT20
5180MHz

5200MHz

5200MHz

5240MHz

5240MHz


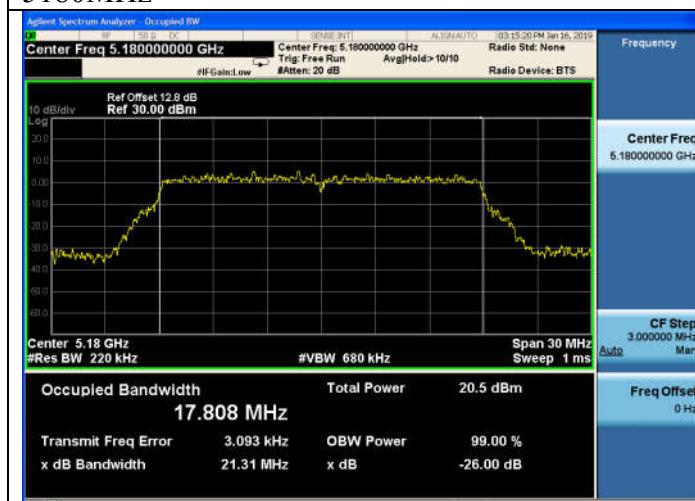
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11n HT40

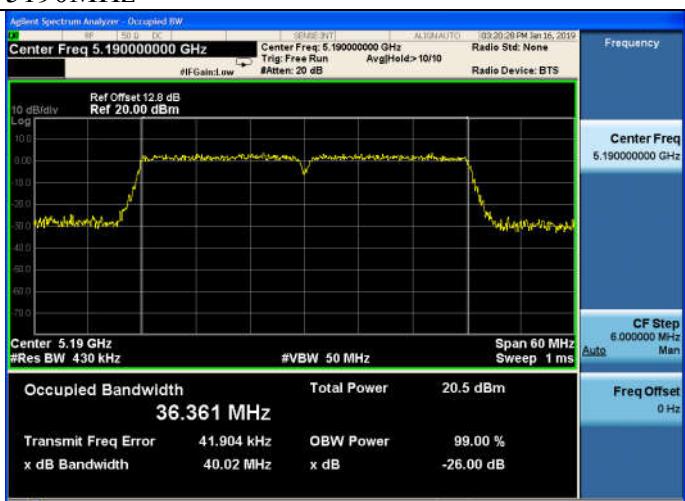
5190MHz


5200MHz

5230MHz

5240MHz

11ac VHT20

5180MHz

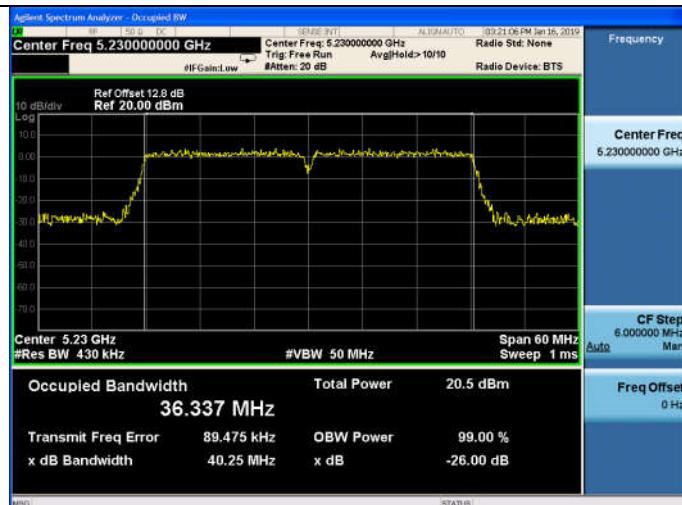

11ac VHT40

5190MHz



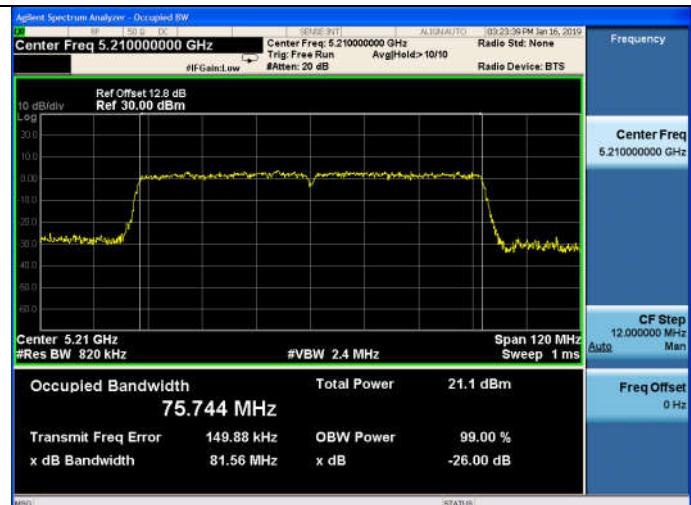
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5230MHz

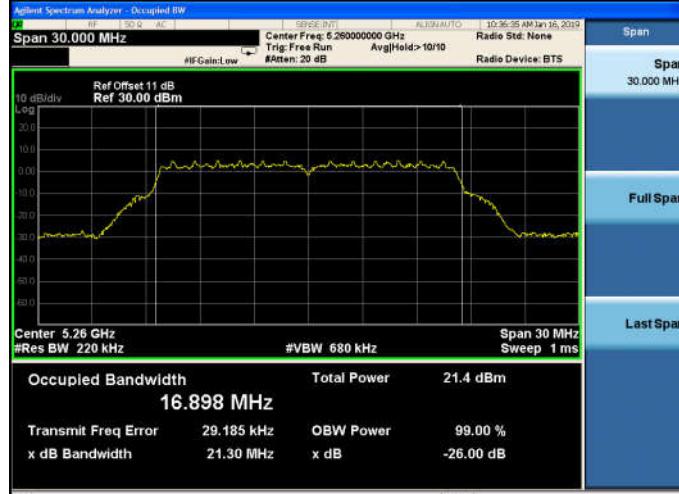
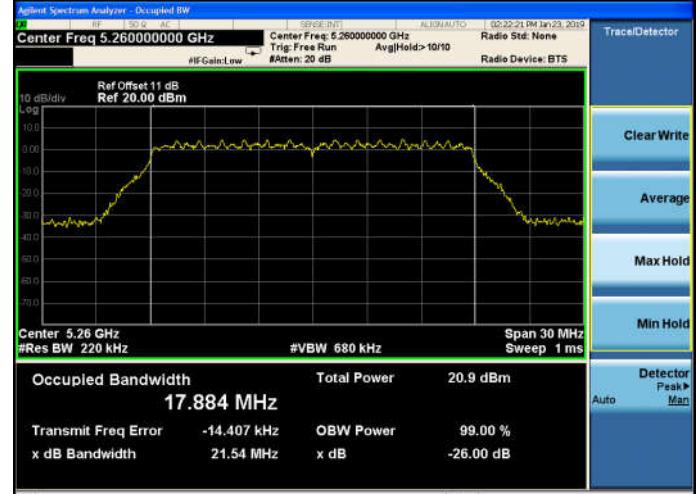
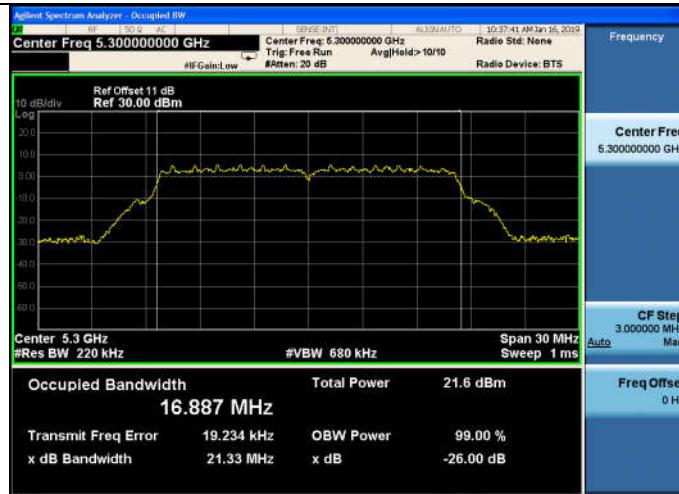
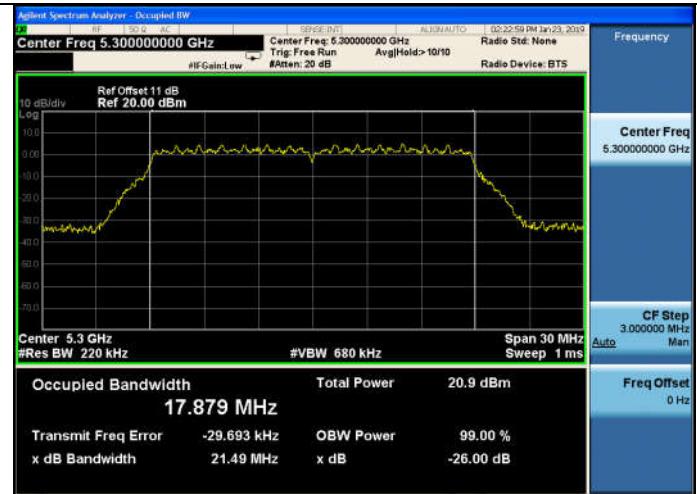
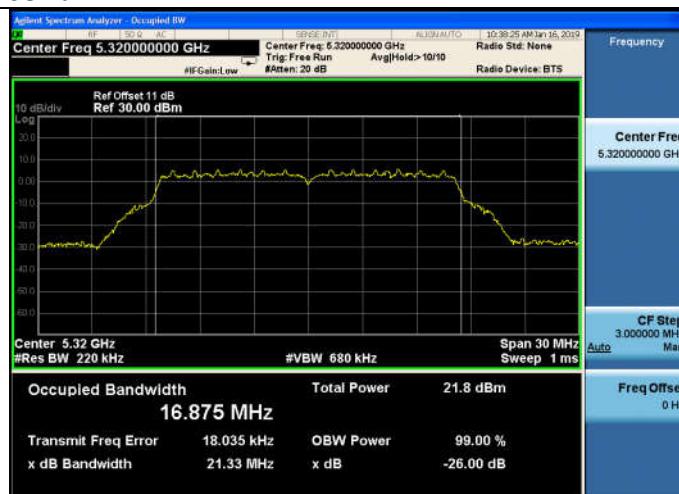
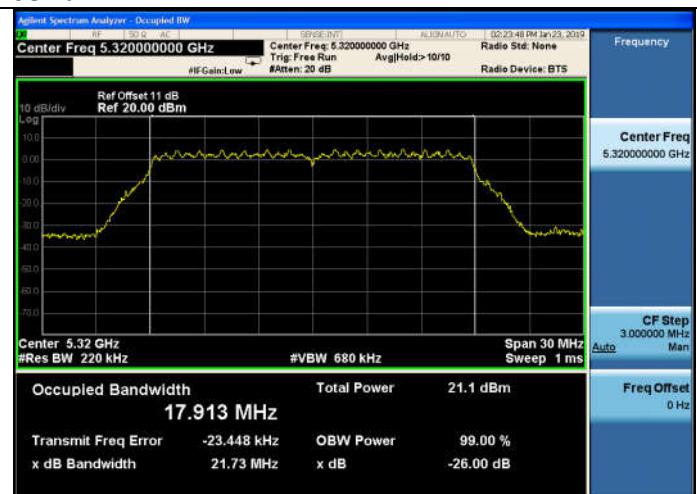


11ac VHT80

5210MHz



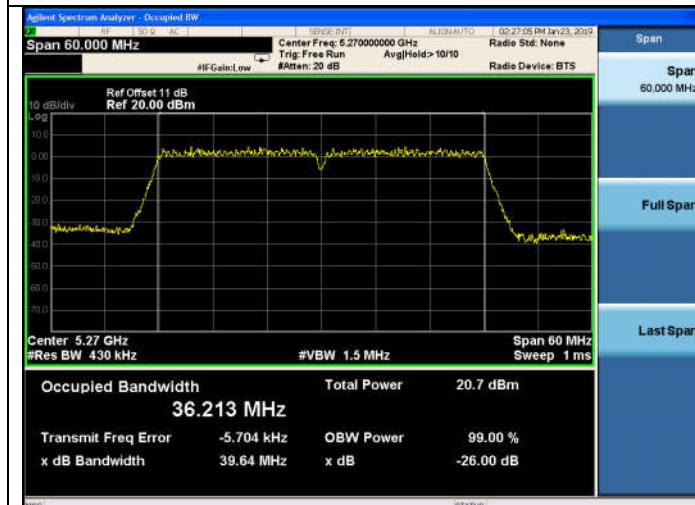
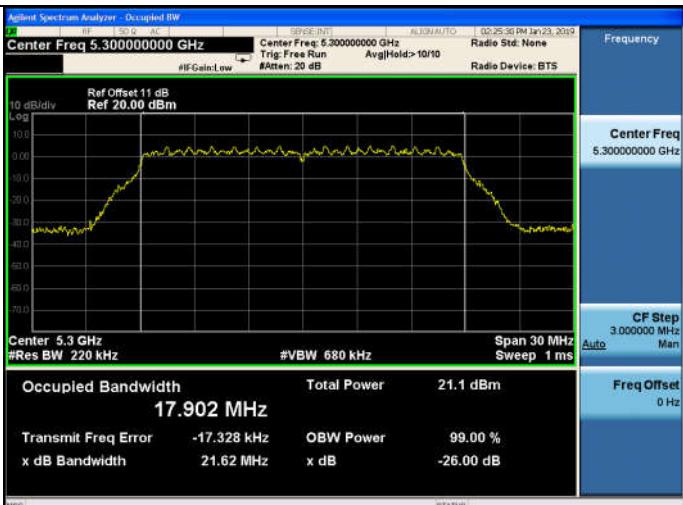
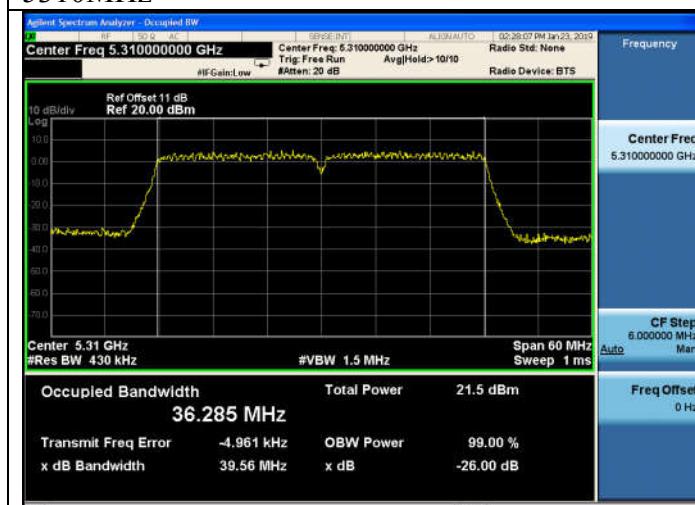
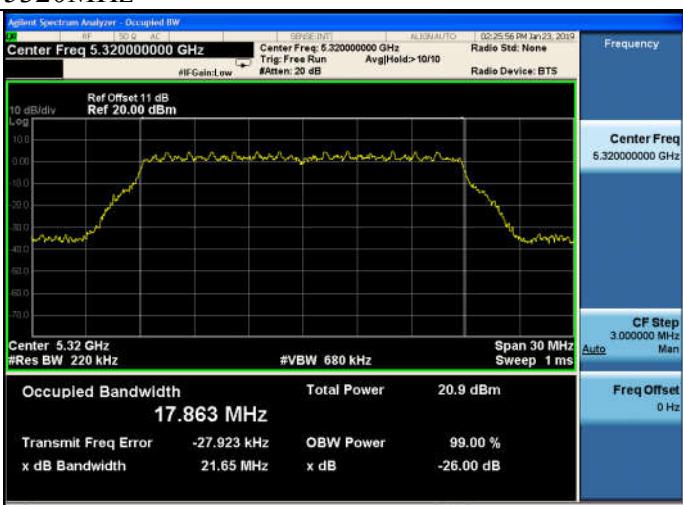
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5260-5320MHz Band:
26dB bandwidth
ANT 0
11a
5260MHz

11n HT20
5260MHz

5300MHz

5300MHz

5320MHz

5320MHz


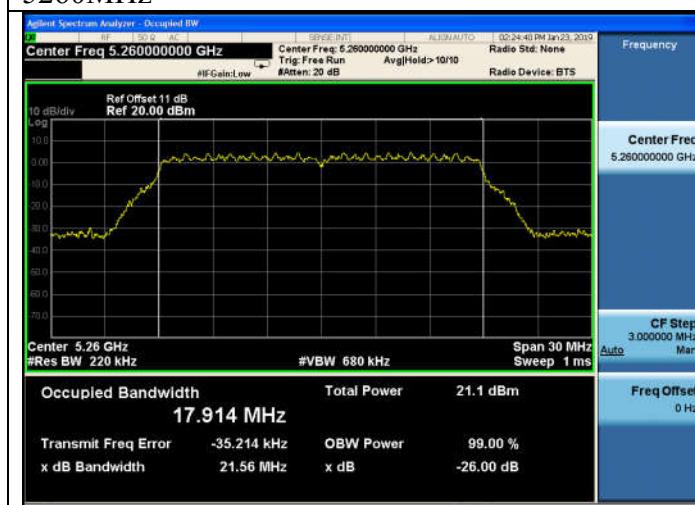
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11n HT40

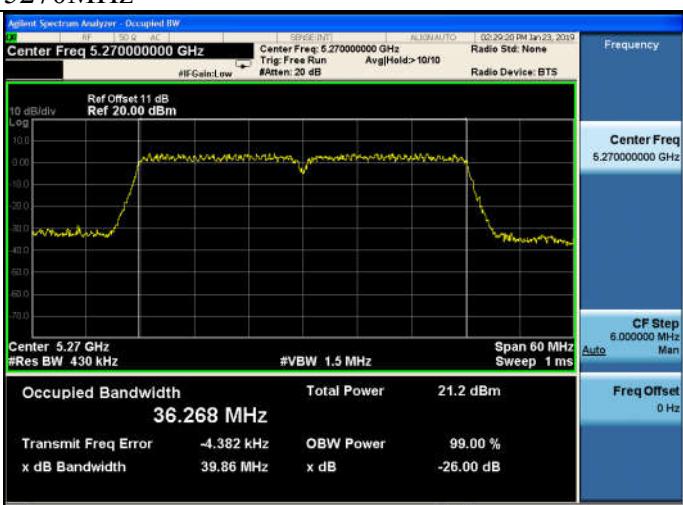
5270MHz


5300MHz

5310MHz

5320MHz

11ac VHT20

5260MHz


11ac VHT40

5270MHz



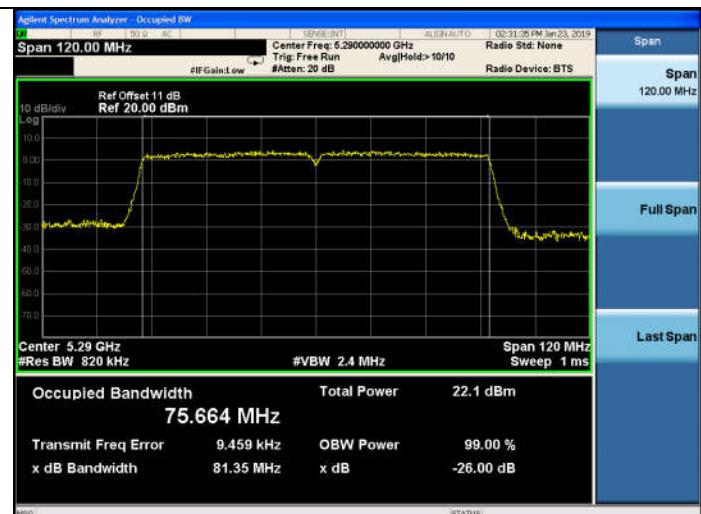
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5310MHz

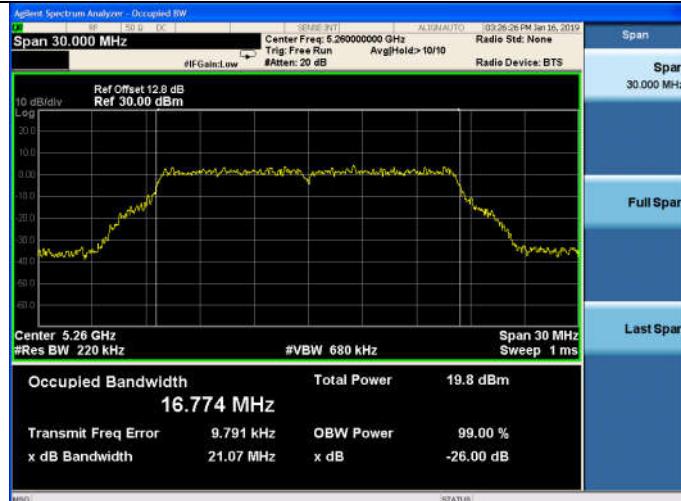
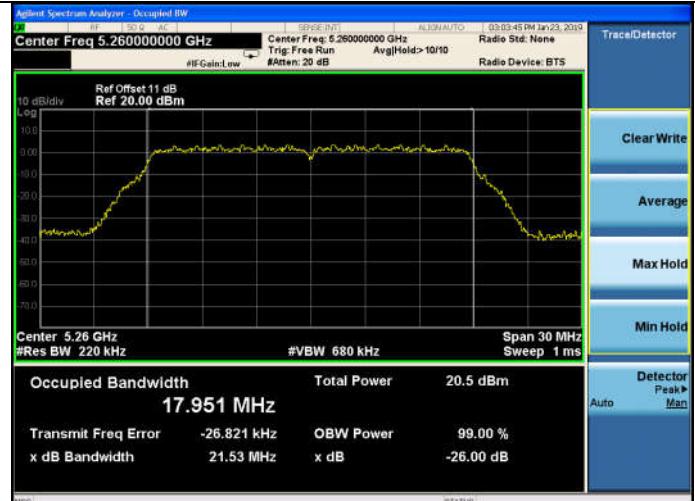
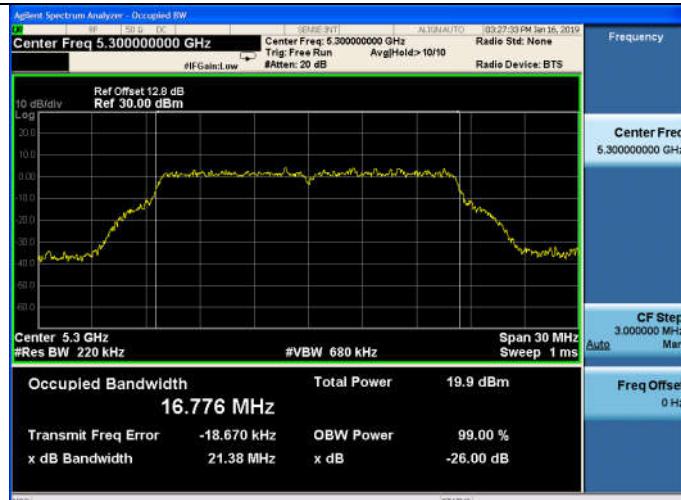


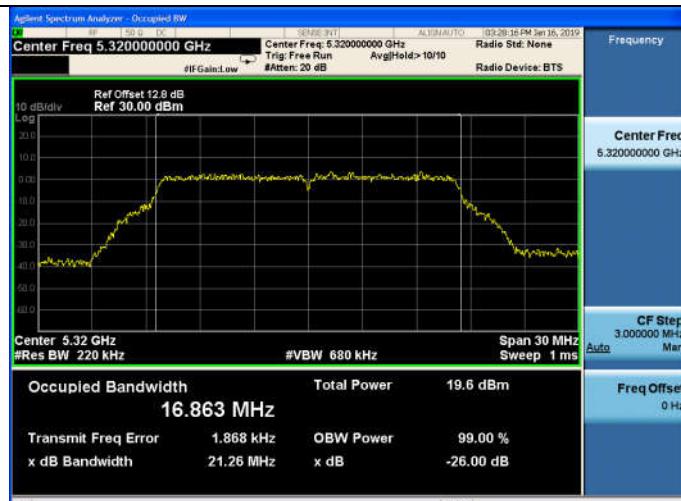
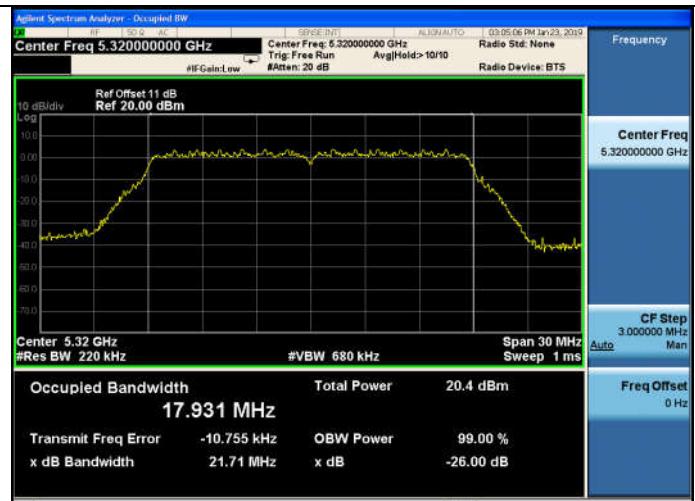
11ac VHT80

5290MHz



FCC ID: XVG500102BC22

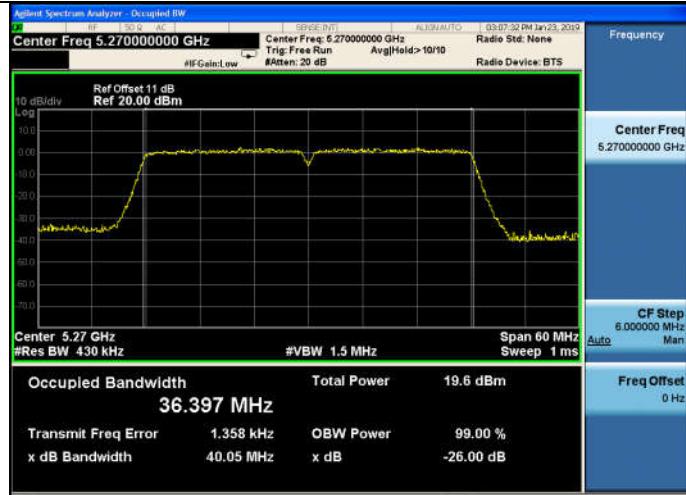
5260-5320MHz Band:
26dB bandwidth
ANT 1
11a
5260MHz

11n HT20
5260MHz

5300MHz

5300MHz

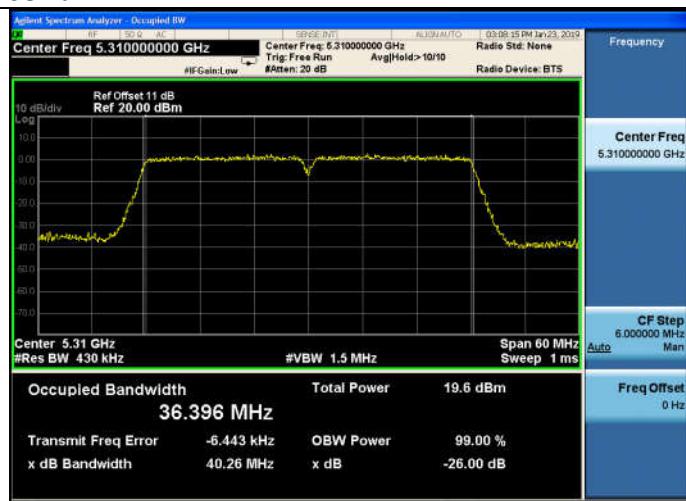
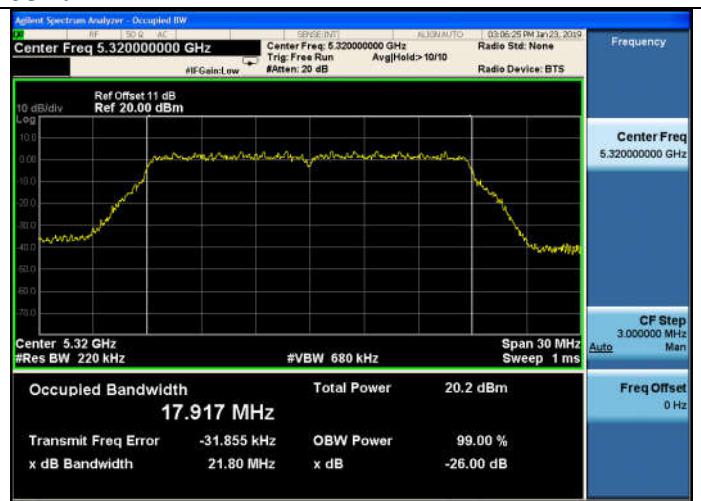
5320MHz

5320MHz


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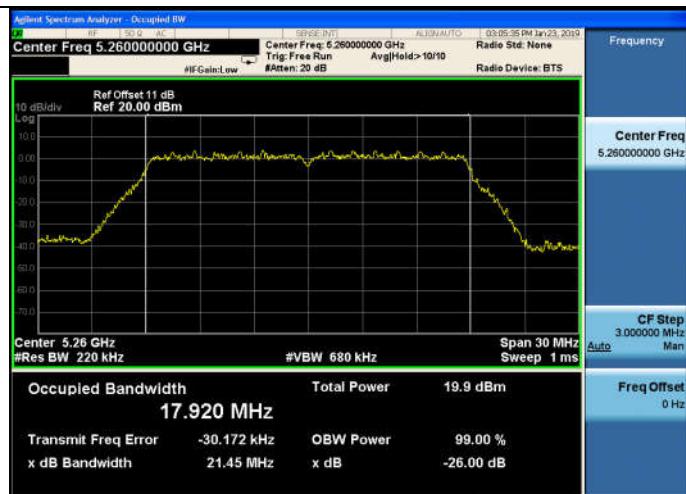
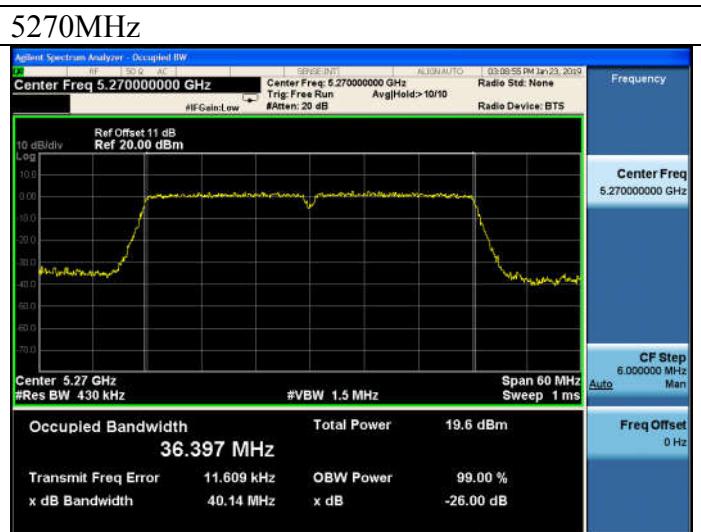
11n HT40

5270MHz


5300MHz

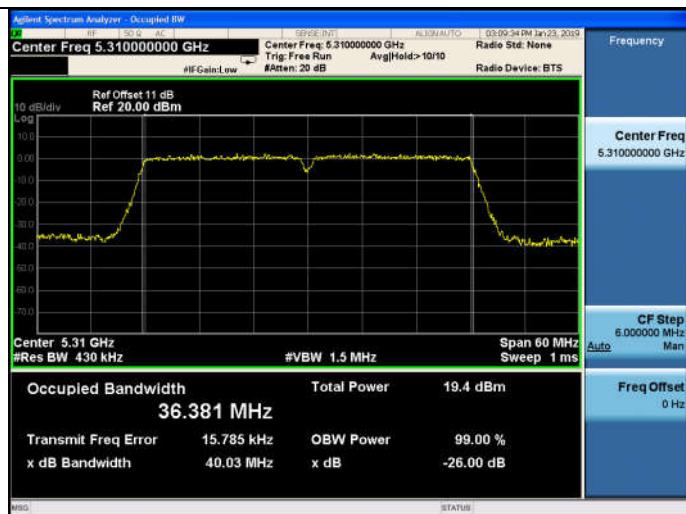
5310MHz

5320MHz

11ac VHT20

5260MHz


11ac VHT40


FCC ID: XVG500102BC22

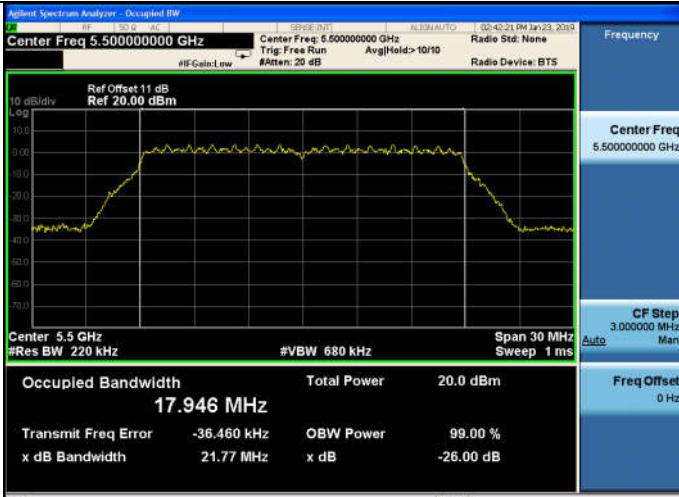
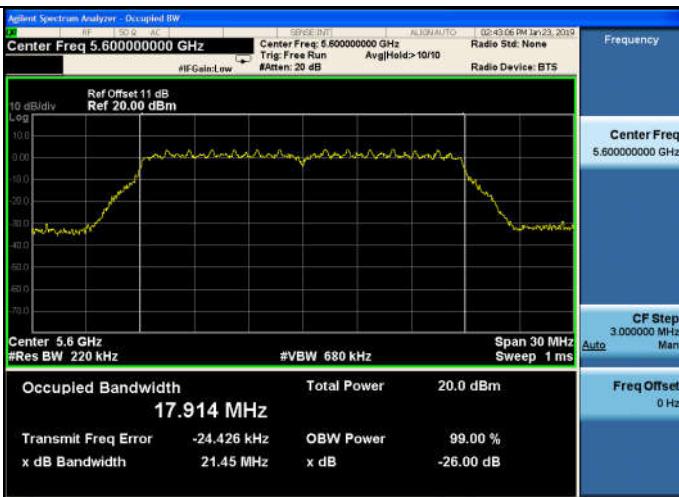
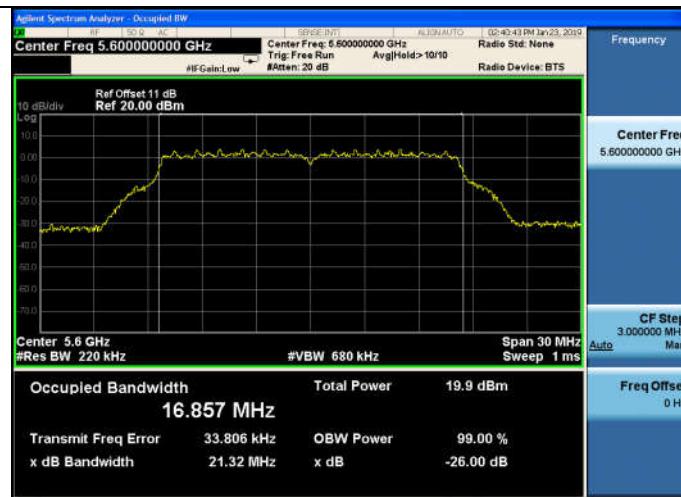
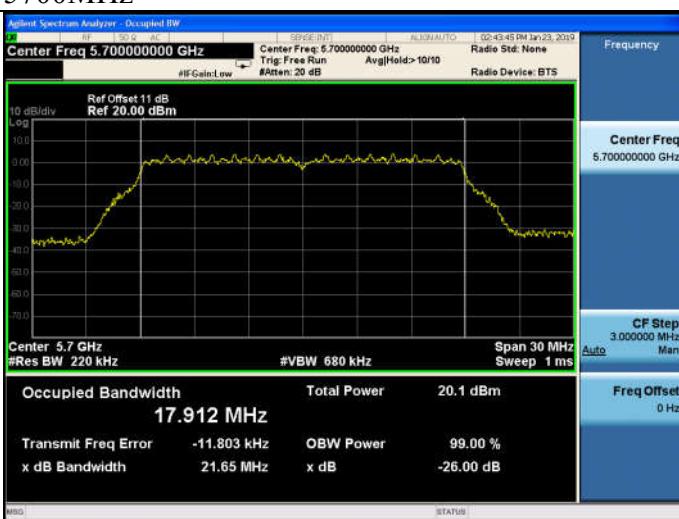
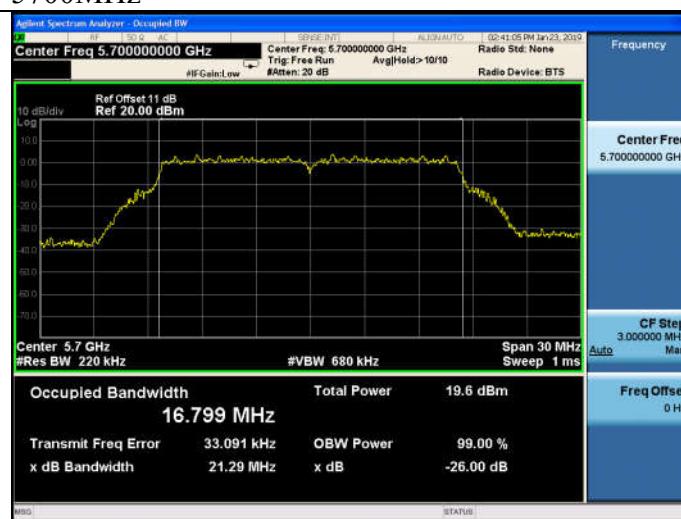
5310MHz

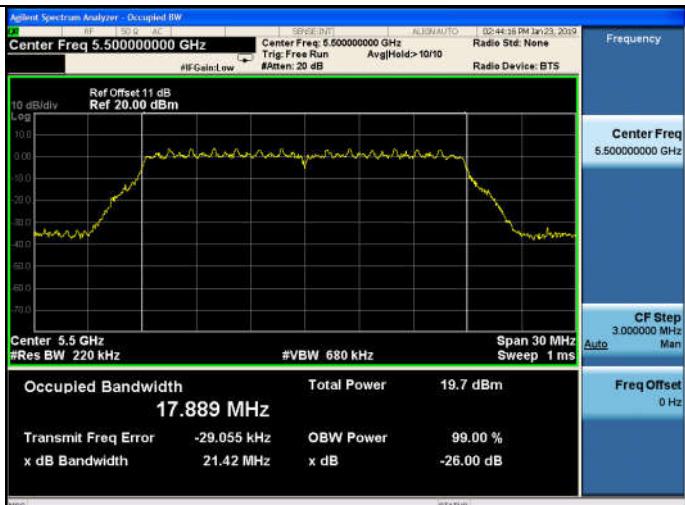
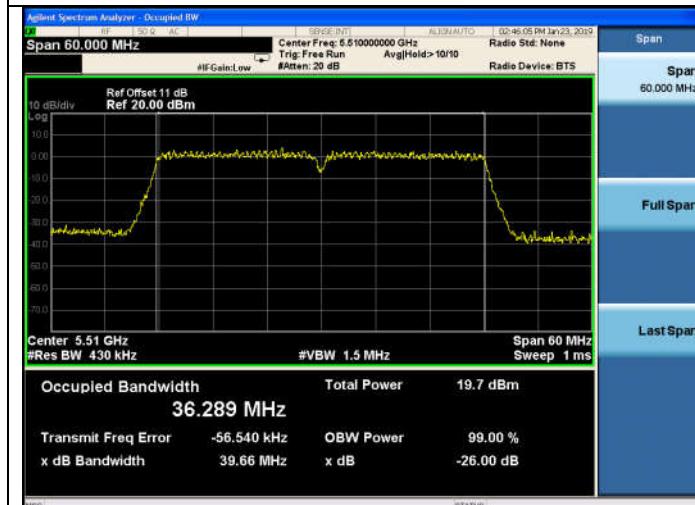
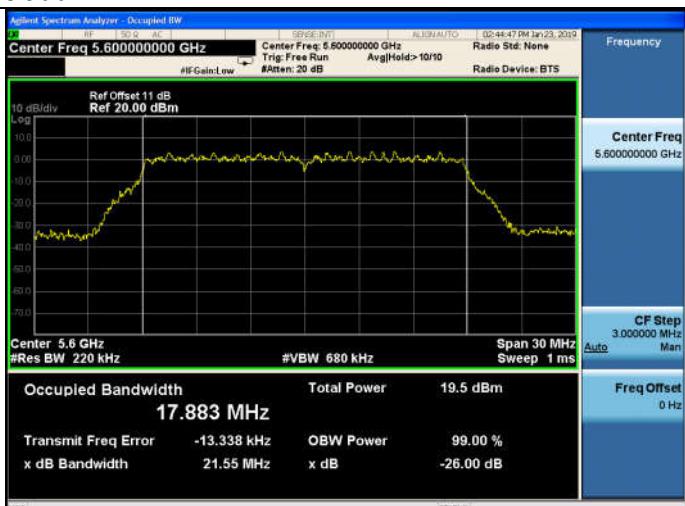
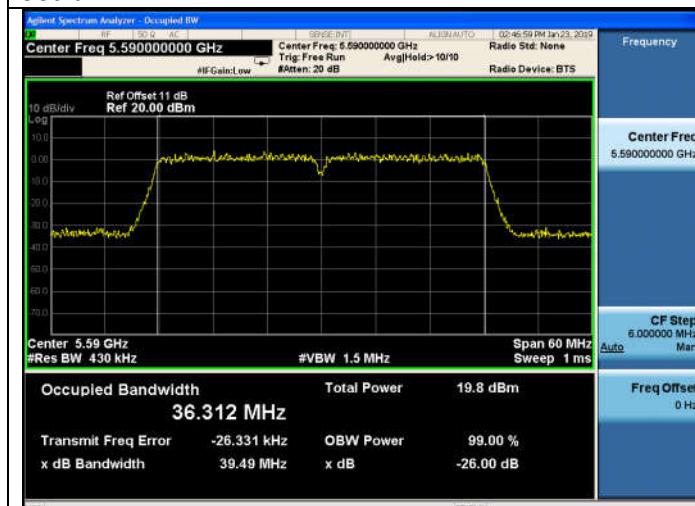
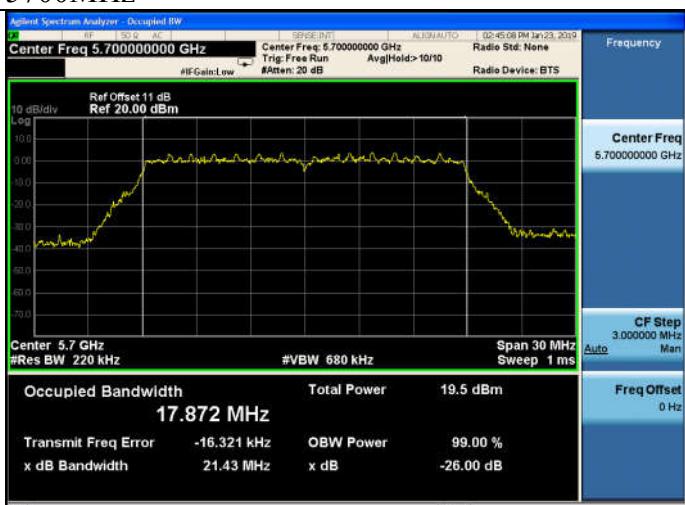
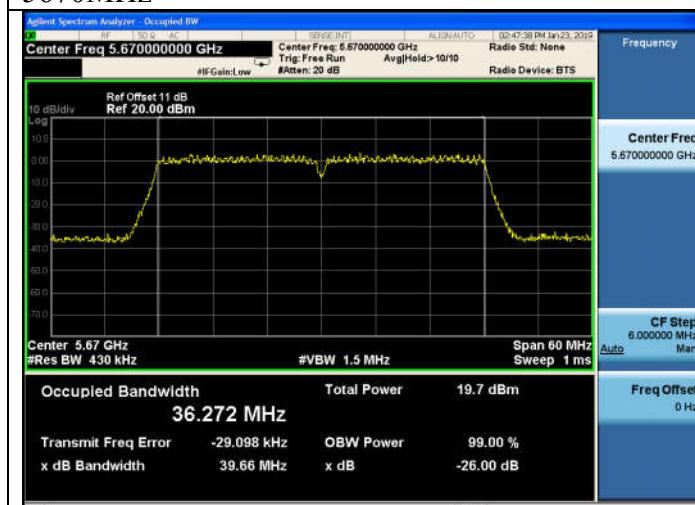


11ac VHT80

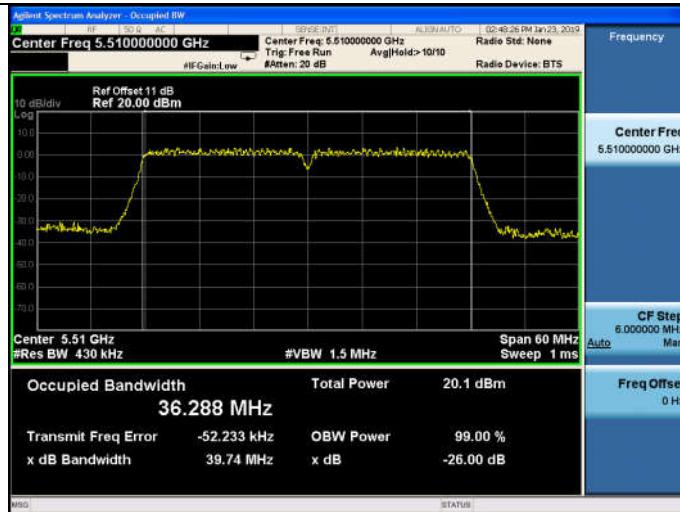
5290MHz



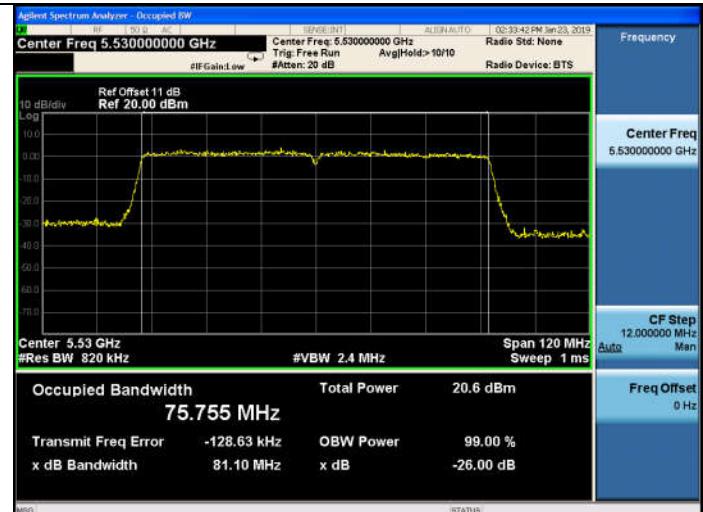
5500-5700MHz Band:**26dB bandwidth****ANT 0****11a****5500MHz****11n HT20****5500MHz****5600MHz****5600MHz****5700MHz****5700MHz**

11n HT40
5510MHz
11ac VHT20
5500MHz
**5590MHz****5600MHz****5670MHz****5700MHz**

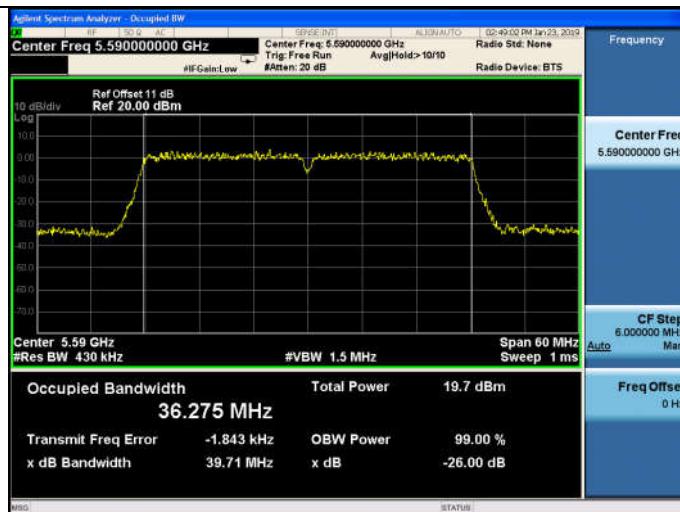
11ac VHT40 5510MHz



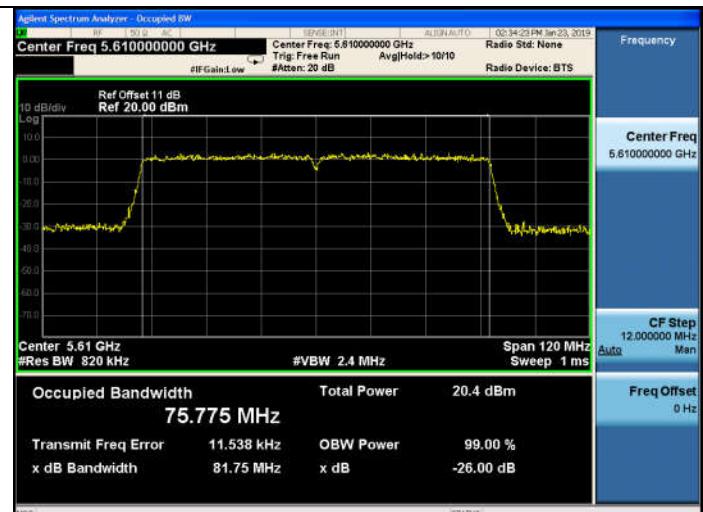
11ac VHT80 5530MHz



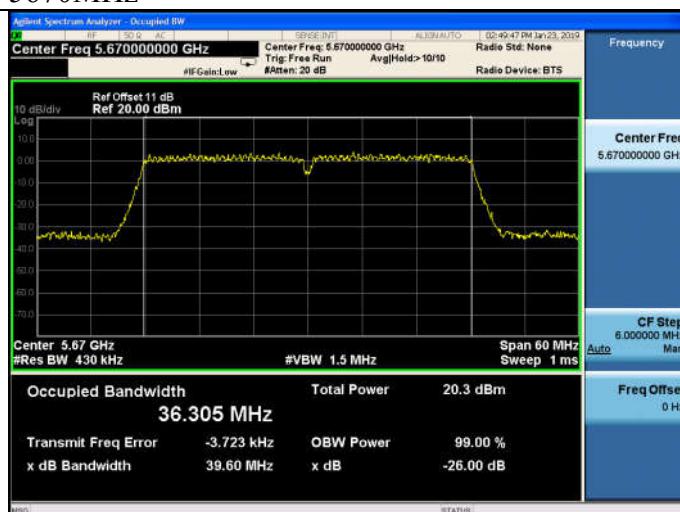
5590MHz



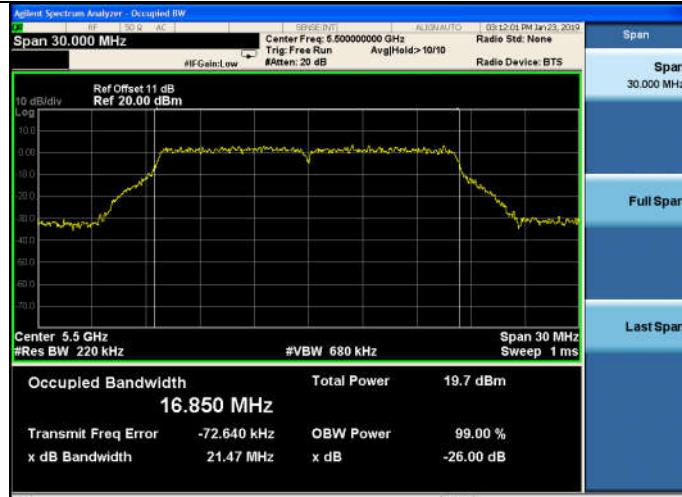
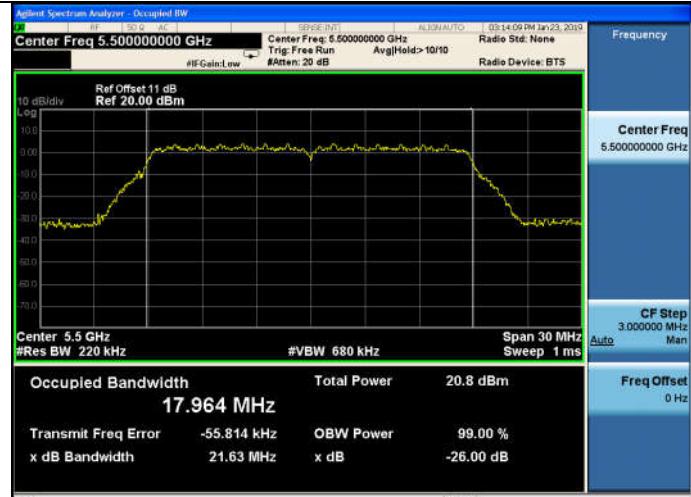
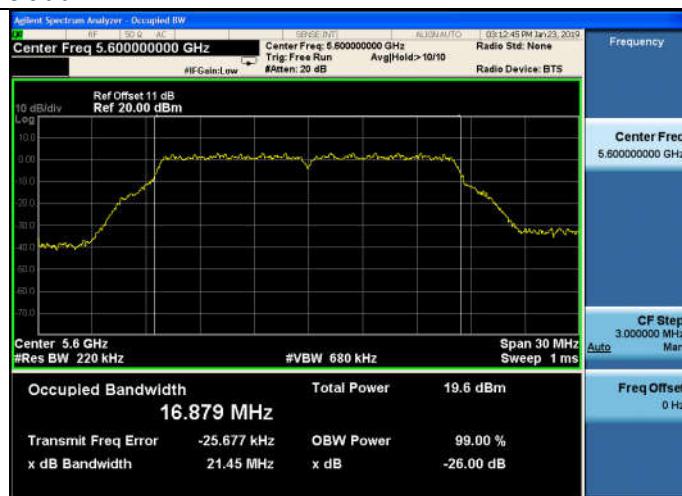
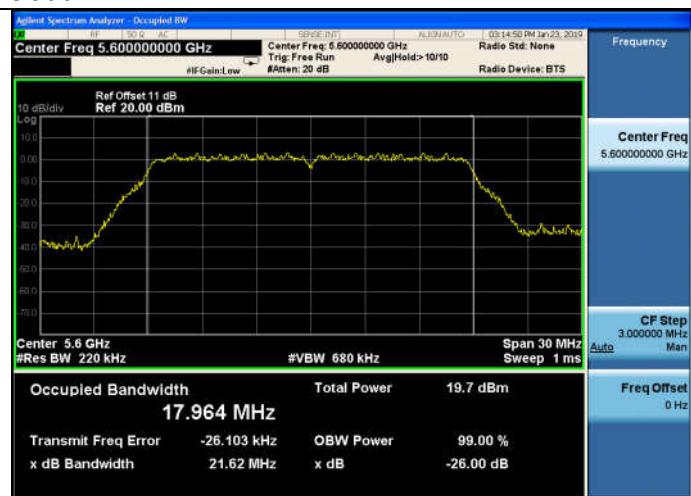
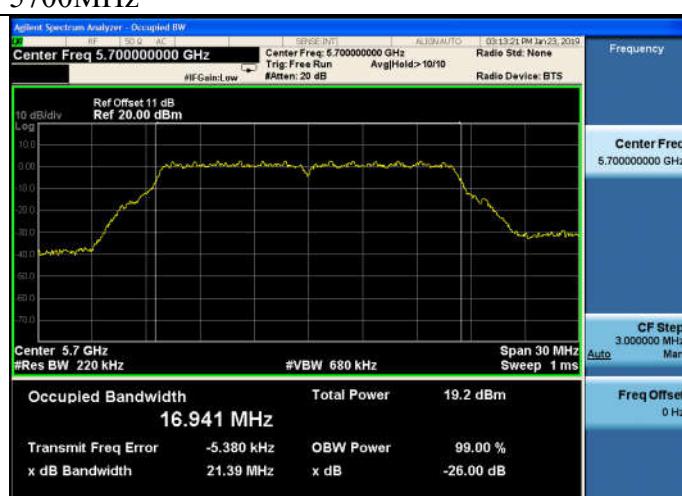
5610MHz

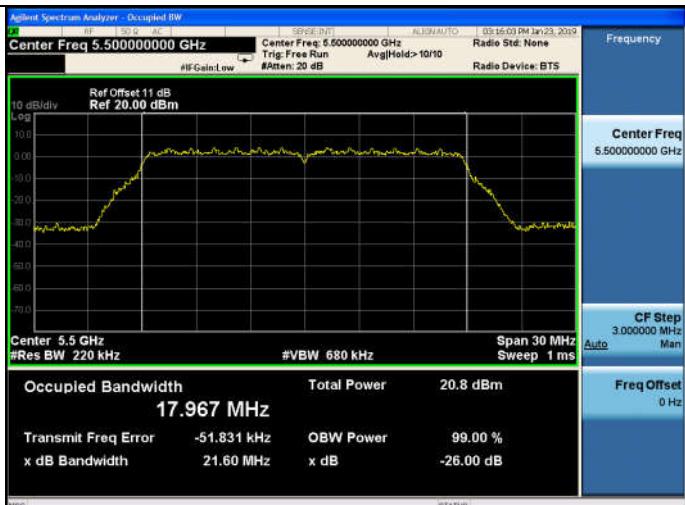
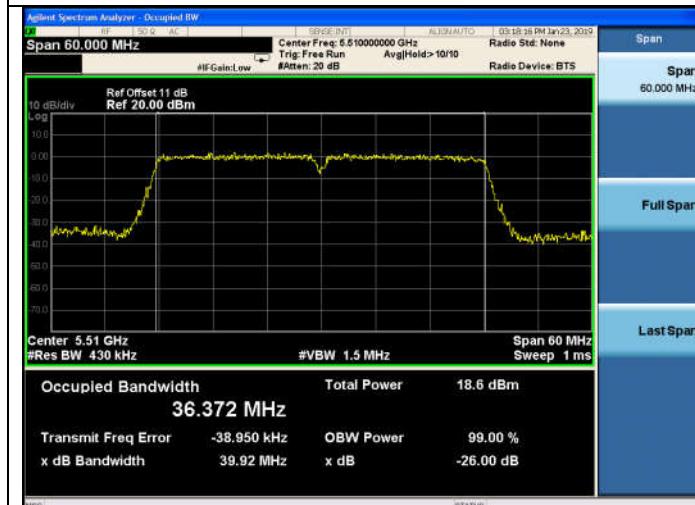
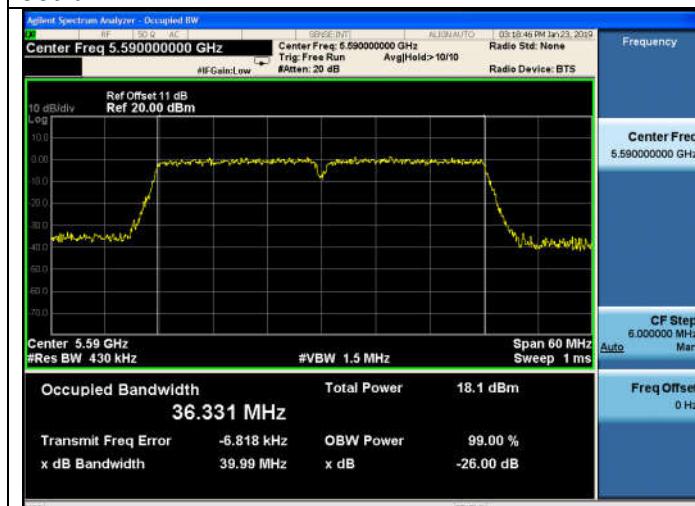
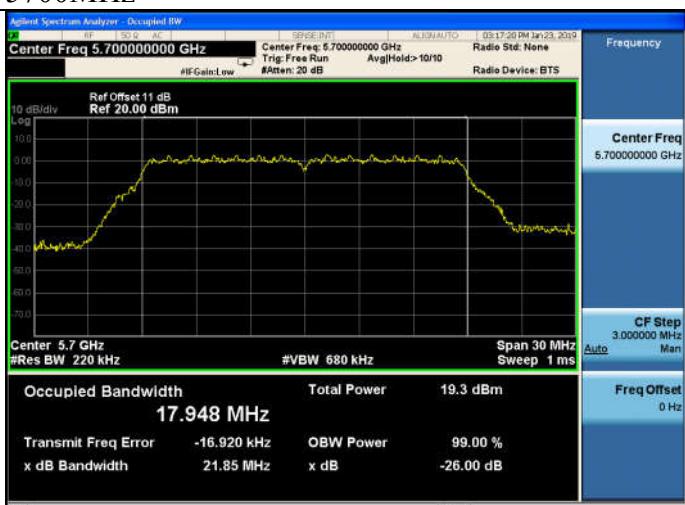
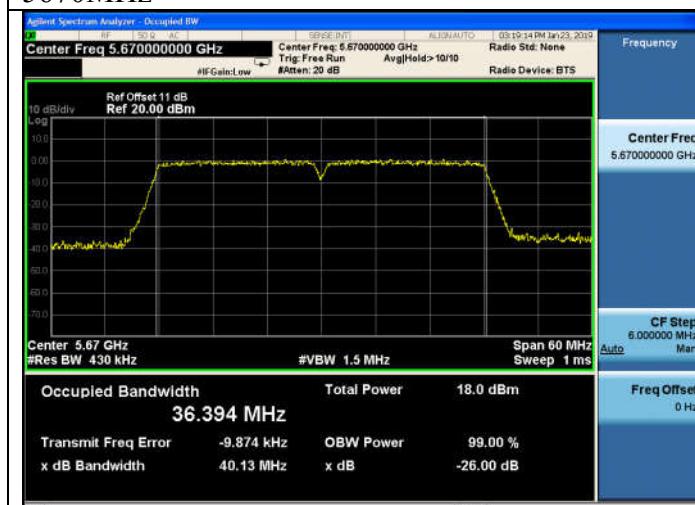


5670MHz

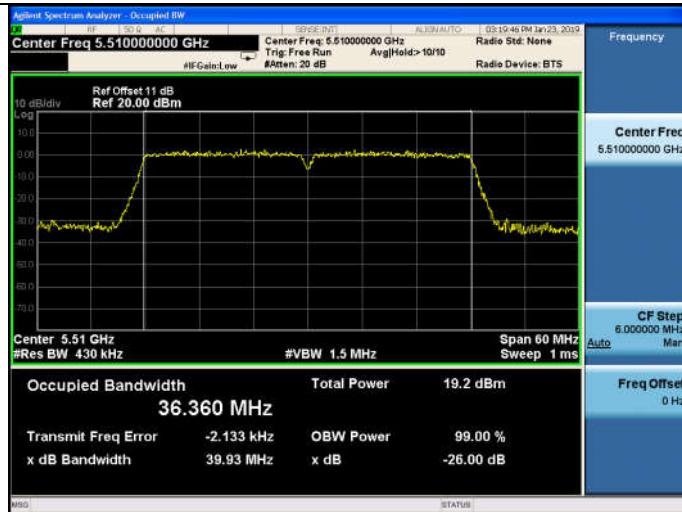


FCC ID: XVG500102BC22

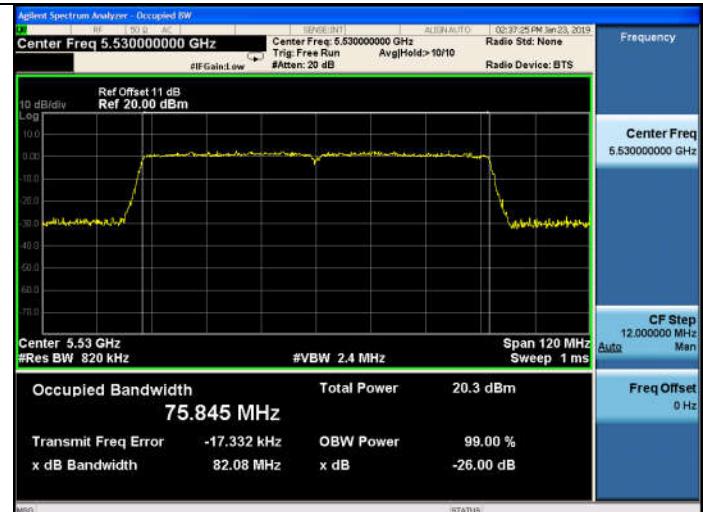
5500-5700MHz Band:
26dB bandwidth
ANT 1
11a
5500MHz

11n HT20
5500MHz

5600MHz

5600MHz

5700MHz

5700MHz


11n HT40
5510MHz
11ac VHT20
5500MHz
**5590MHz****5600MHz****5670MHz****5700MHz**

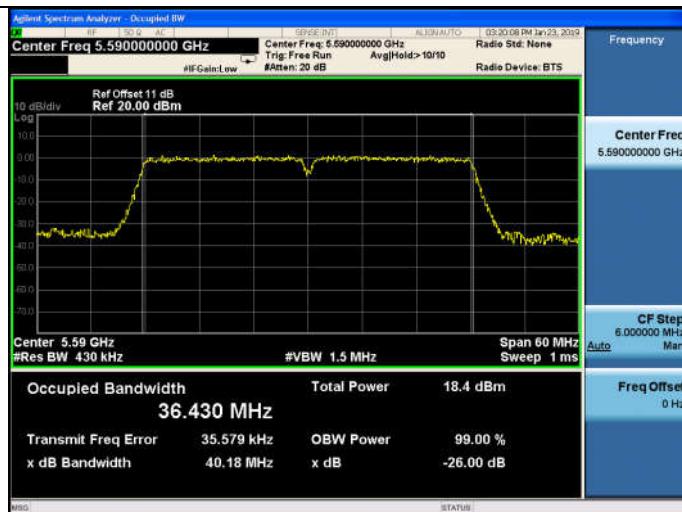
11ac VHT40 5510MHz



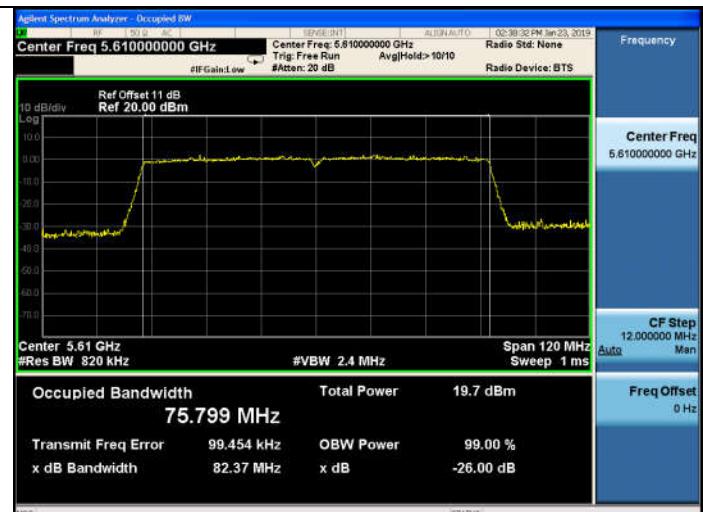
11ac VHT80 5530MHz



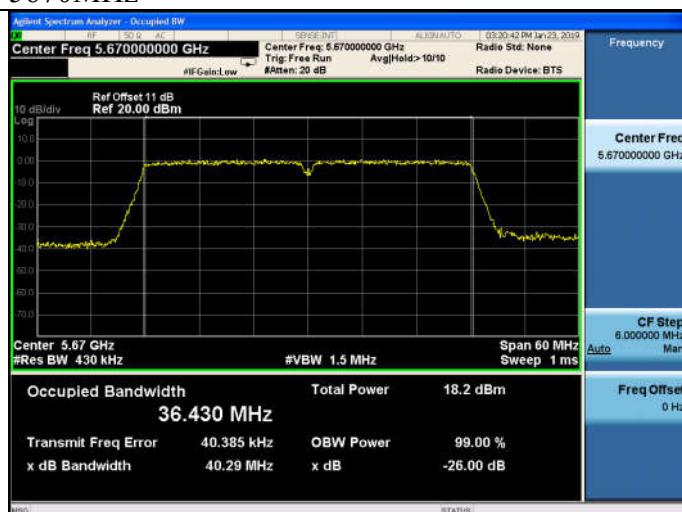
5590MHz

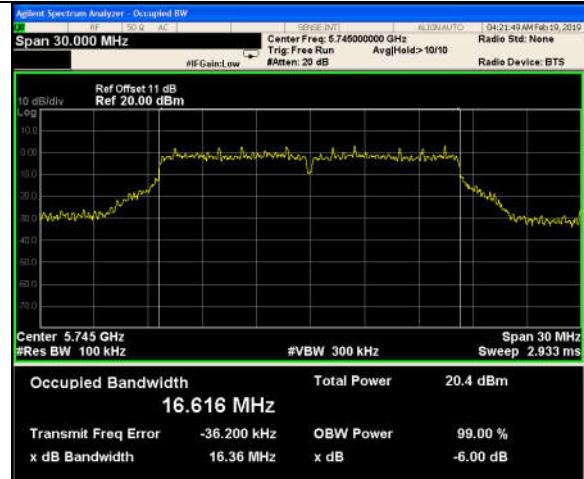


5610MHz



5670MHz

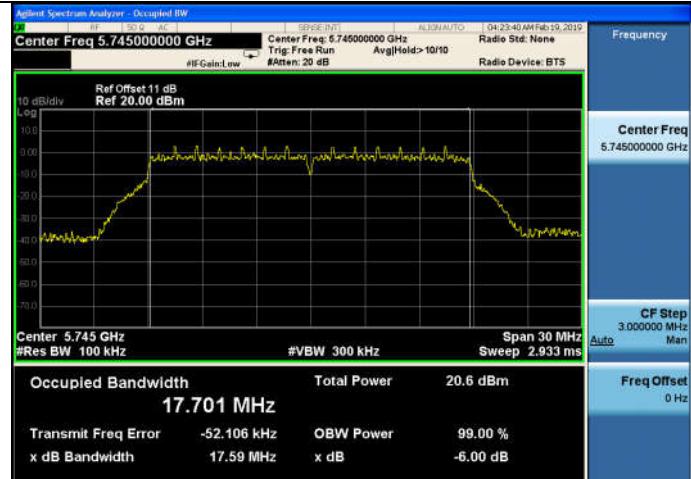


5745-5825MHz Band:**6dB bandwidth****ANT 0****11a****5745MHz**

TraceDetector

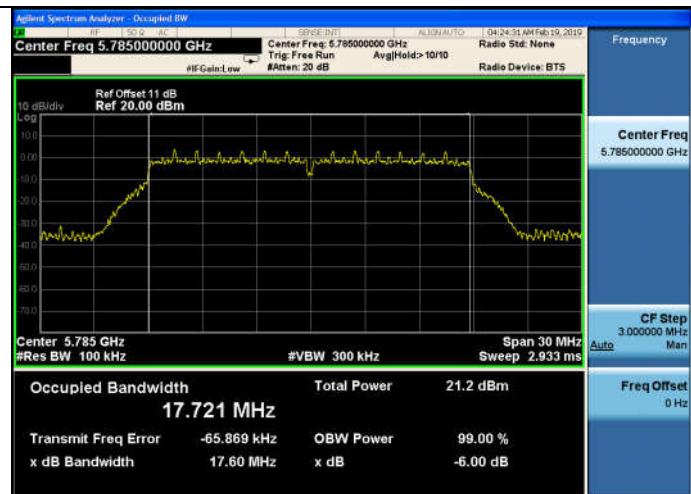
Clear Write
Average
Max Hold
Min Hold

Detector
Peak ▶
Man

11n HT20**5745MHz**

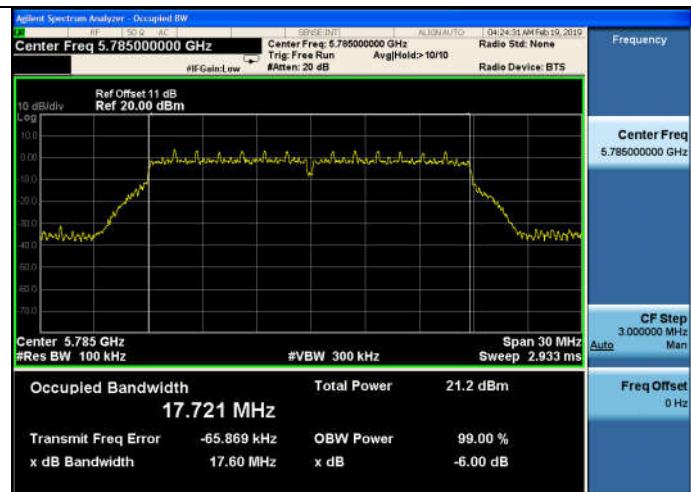
Frequency
Center Freq 5.745000000 GHz
CF Step 3.000000 MHz Auto Man

Freq Offset 0 Hz

5785MHz

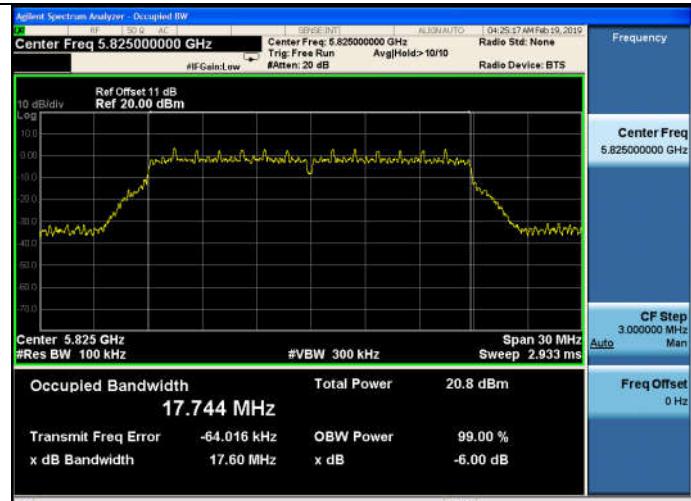
Frequency
Center Freq 5.785000000 GHz
CF Step 3.000000 MHz Auto Man

Freq Offset 0 Hz



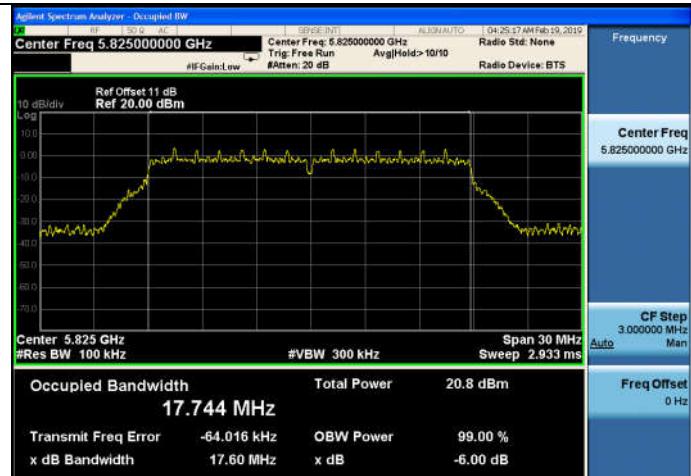
Frequency
Center Freq 5.785000000 GHz
CF Step 3.000000 MHz Auto Man

Freq Offset 0 Hz

5825MHz

Frequency
Center Freq 5.825000000 GHz
CF Step 3.000000 MHz Auto Man

Freq Offset 0 Hz



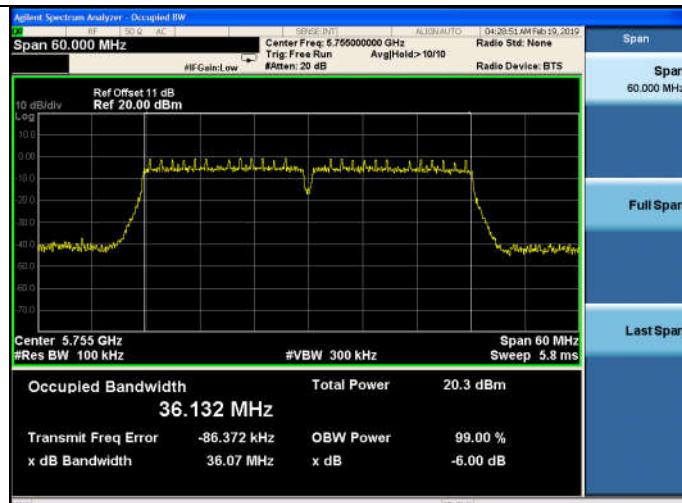
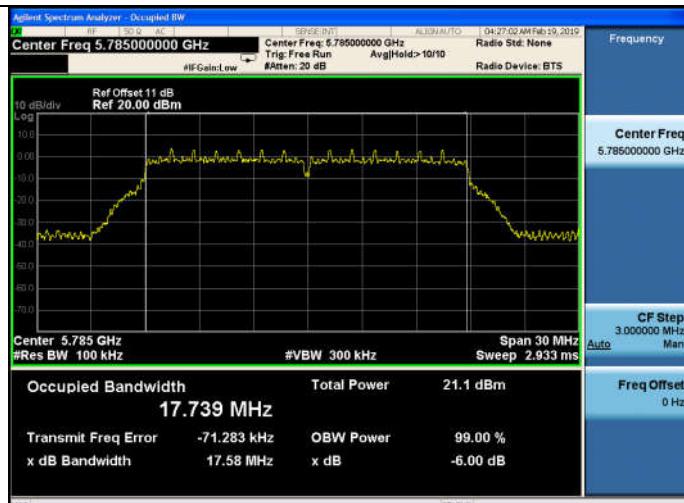
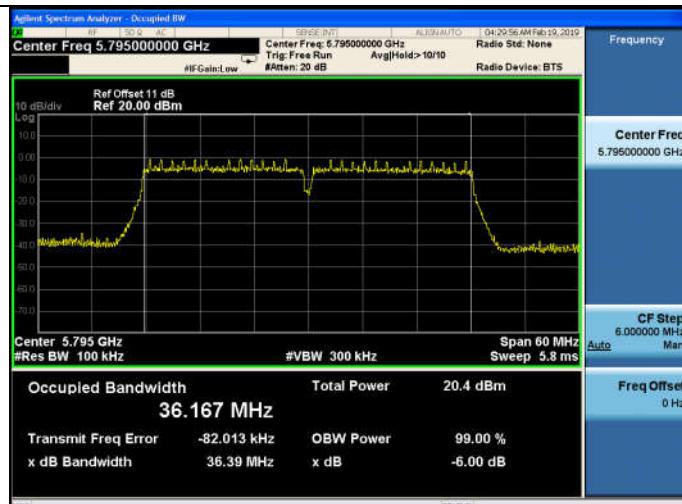
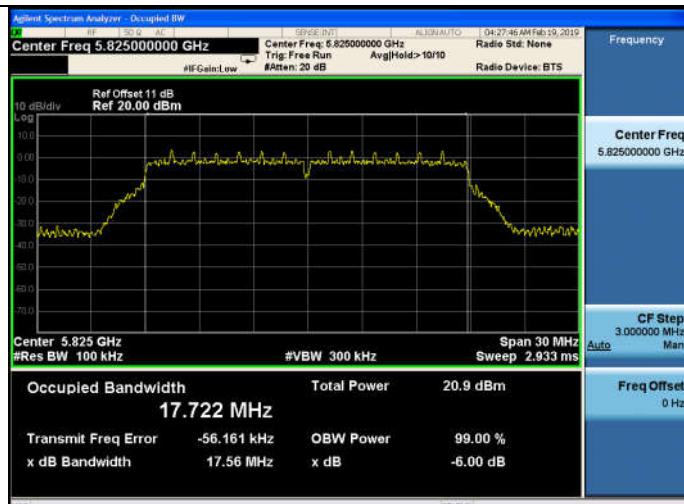
Frequency
Center Freq 5.825000000 GHz
CF Step 3.000000 MHz Auto Man

Freq Offset 0 Hz

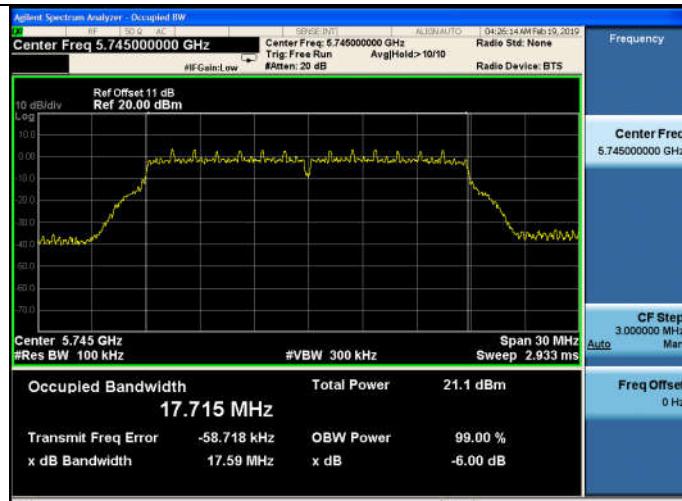
FCC ID: XVG500102BC22

11n HT40

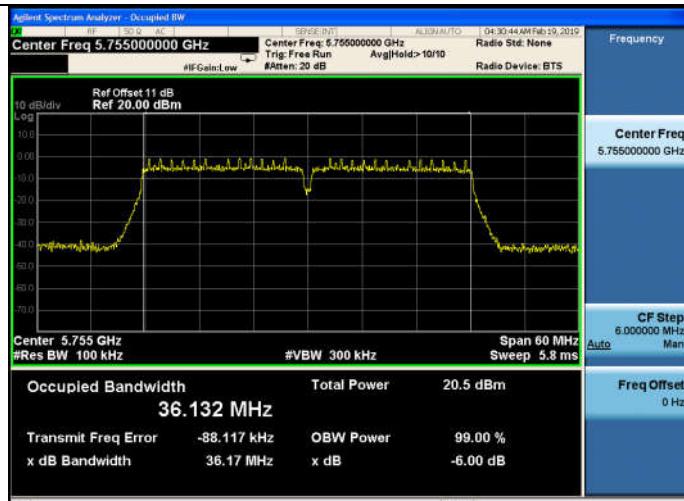
5755MHz


5785MHz

5795MHz

5825MHz

11ac VHT20

5745MHz

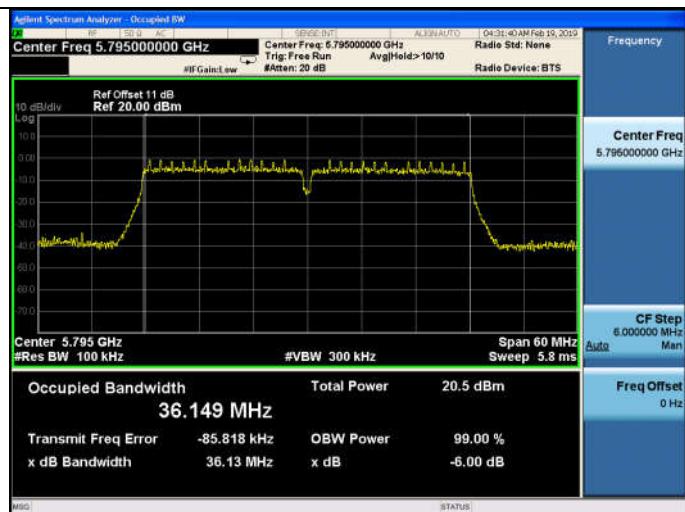

11ac VHT40

5755MHz



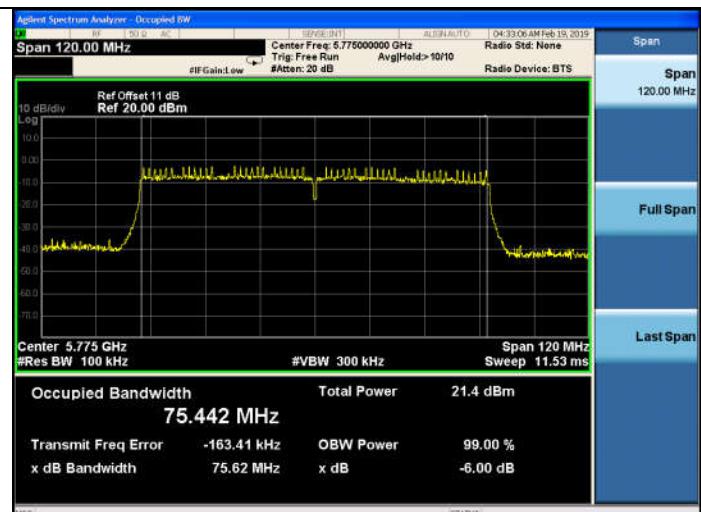
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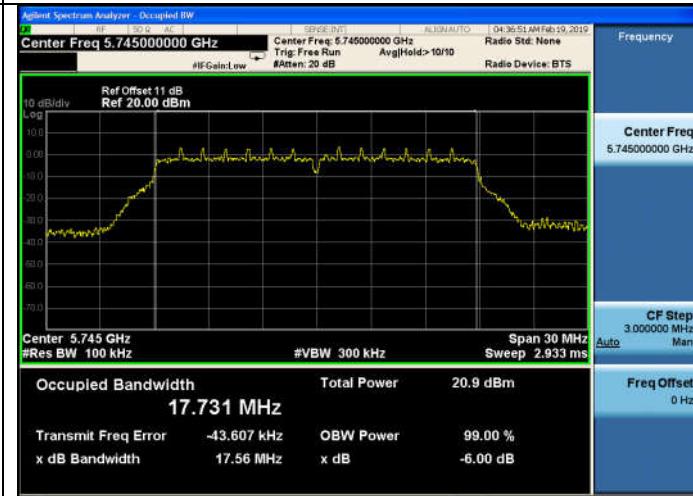
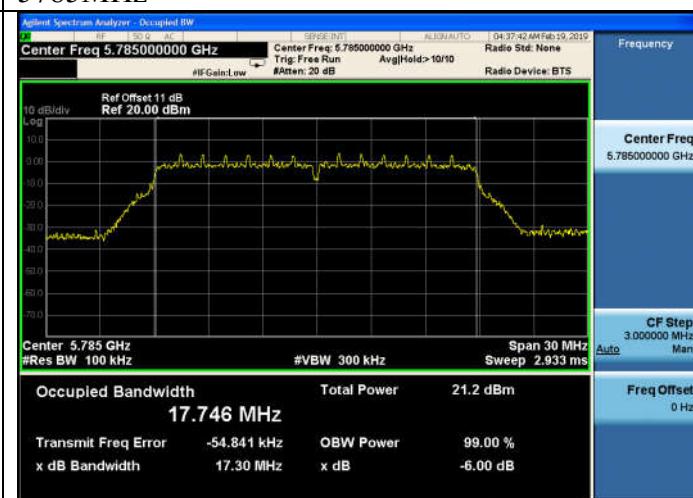
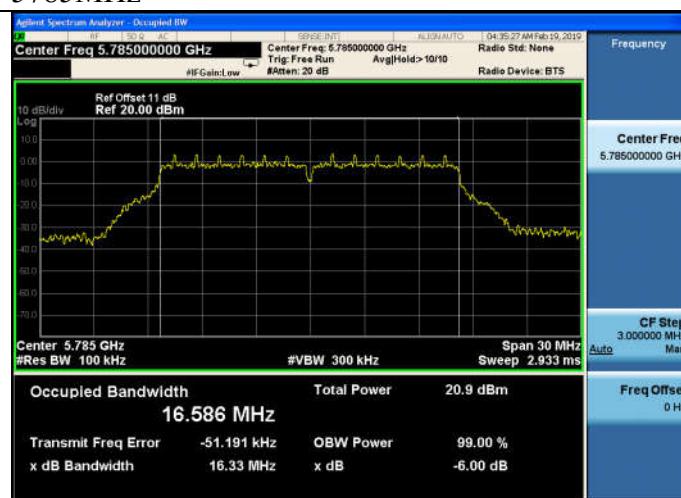
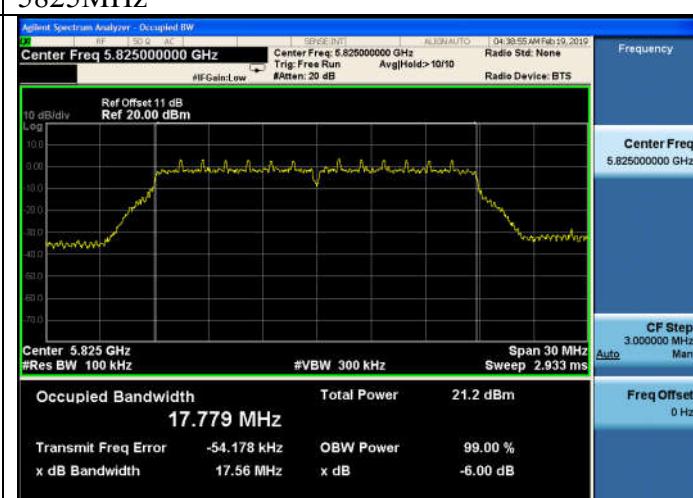
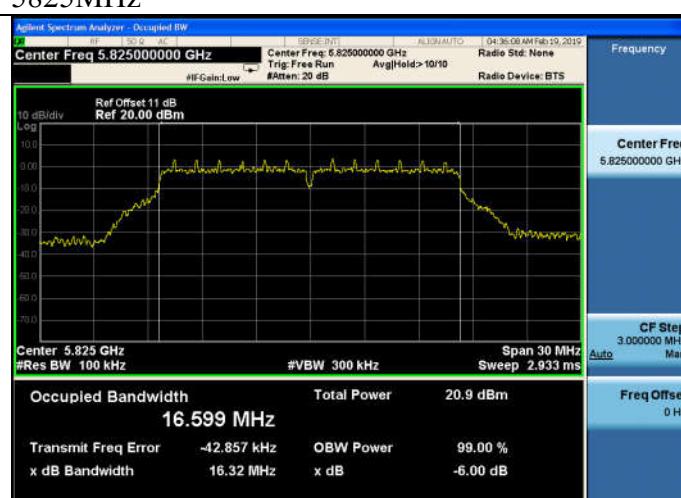
5795MHz



11ac VHT80

5775MHz

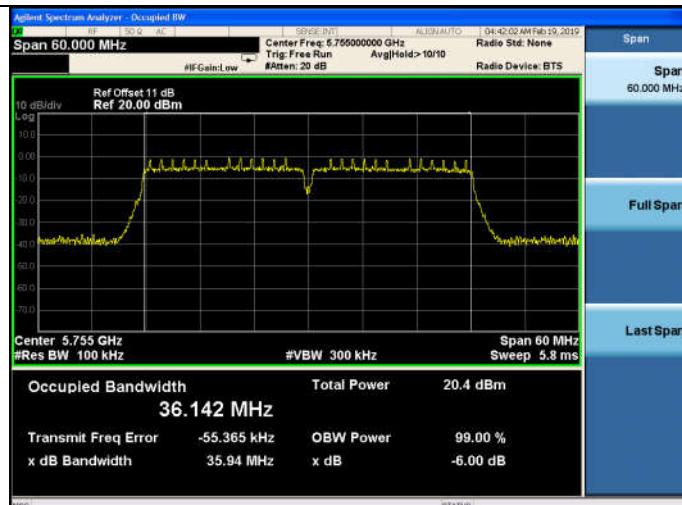


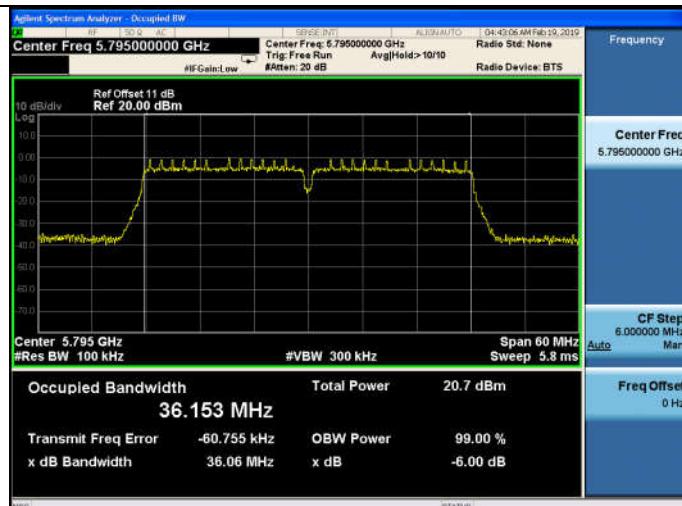
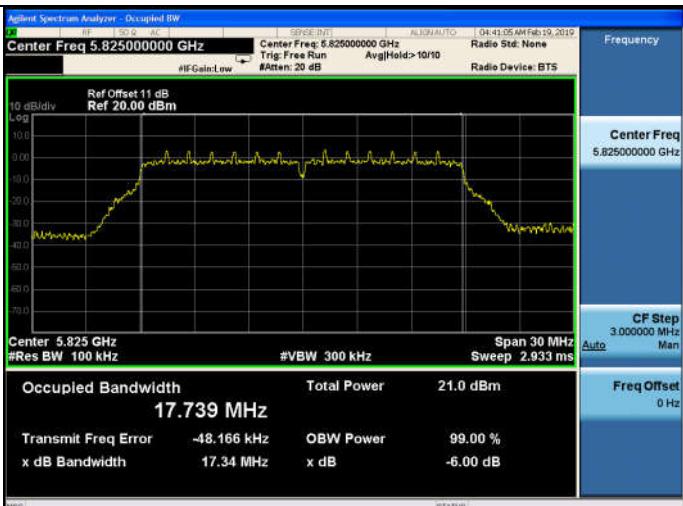
5745-5825MHz Band:**6dB bandwidth****ANT 1****11a****5745MHz****11n HT20****5745MHz****5785MHz****5785MHz****5825MHz****5825MHz**

FCC ID: XVG500102BC22

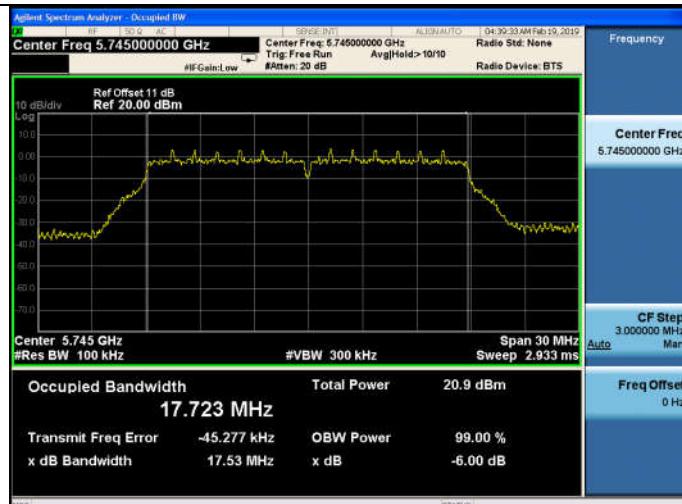
11n HT40

5755MHz

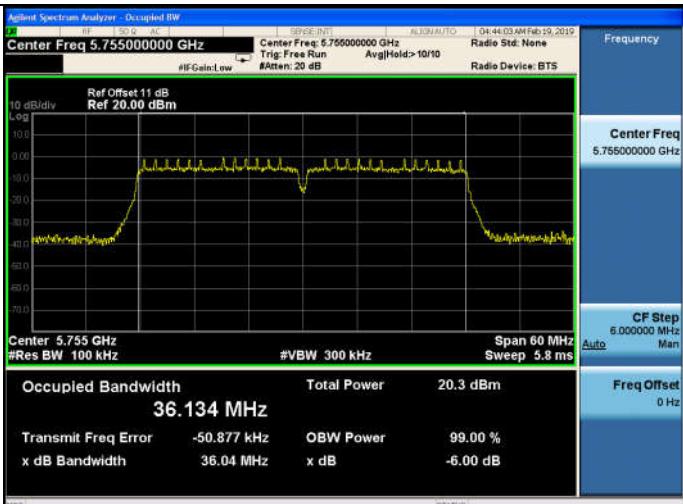

5785MHz

5795MHz

5825MHz

11ac VHT20

5745MHz


11ac VHT40

5755MHz



FCC ID: XVG500102BC22

5795MHz

11ac VHT80

5775MHz

