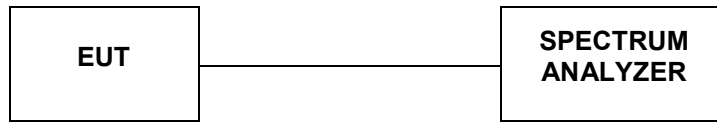


4.6. 6dB Bandwidth

TEST CONFIGURATION



TEST PROCEDURE

According to KDB789033 D02 General U-NII Test Procedures New Rules v02r01 for one of the following procedures may be used for section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.715-5.85 GHz. The following procedure shall be used for measuring this bandwidth:

- Set RBW = 100 kHz.
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW
- Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Allow the trace to stabilize
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Note: The automatic bandwidth measurement capability of a spectrum analyzer or EMI receiver may be employed if it implements the functionality described above.

LIMIT

For Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.715-5.85 GHz

TEST RESULTS

Temperature	23.6°C	Humidity	55.7%
Test Engineer	Oliver Ou	Configurations	IEEE 802.11a/n/ac

Antenna 0:

Type	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	149	16.440	>500	Pass
	157	16.440		
	165	16.440		
802.11nHT20	149	16.440	>500	Pass
	157	16.440		
	165	16.440		
802.11n40	151	35.920	>500	Pass
	159	36.000		
802.11ac20	149	17.200	>500	Pass
	157	17.400		
	165	17.600		
802.11ac40	151	36.240	>500	Pass
	159	36.000		
802.11ac80	155	76.160	>500	Pass

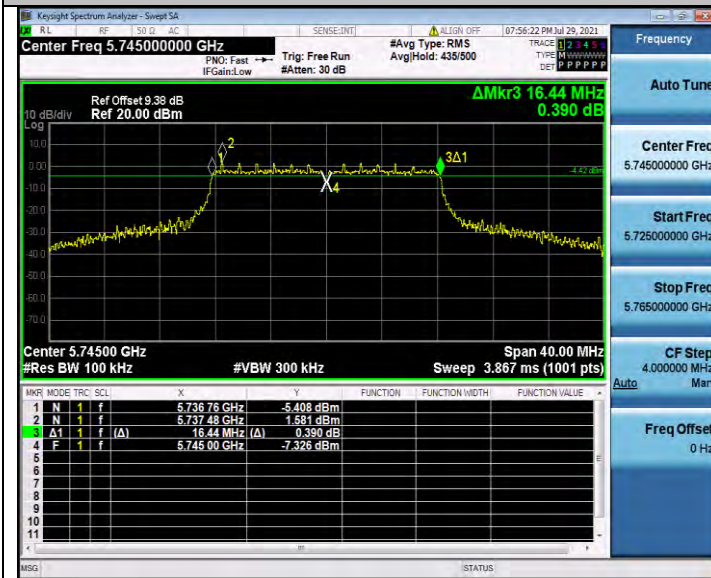
Antenna 1:

Type	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	149	15.200	>500	Pass
	157	15.160		
	165	15.120		
802.11nHT20	149	14.880	>500	Pass
	157	15.200		
	165	15.200		
802.11n40	151	35.200	>500	Pass
	159	35.200		
802.11ac20	149	15.200	>500	Pass
	157	15.200		
	165	15.360		
802.11ac40	151	35.280	>500	Pass
	159	35.200		
802.11ac80	155	75.520	>500	Pass

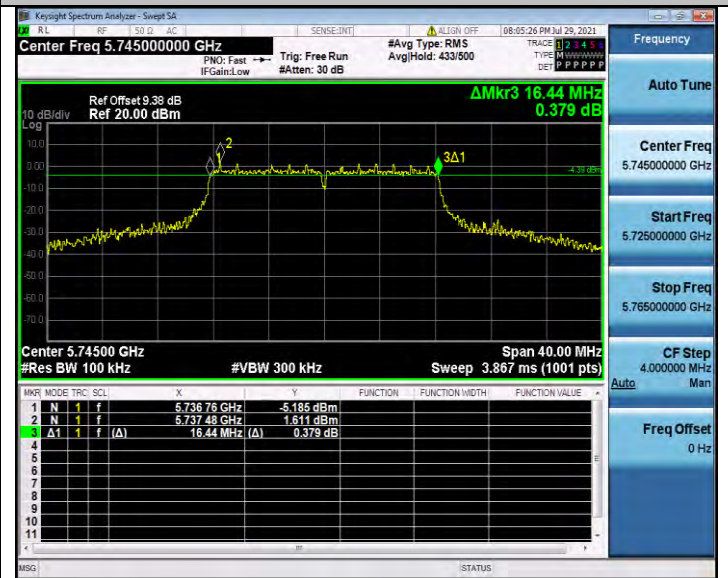
Antenna 0:

6dB Bandwidth

802.11a



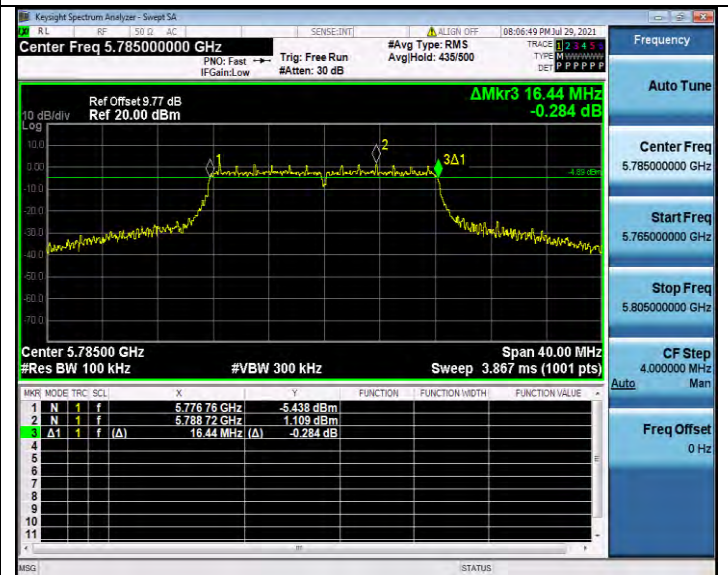
802.11n HT20



CH149



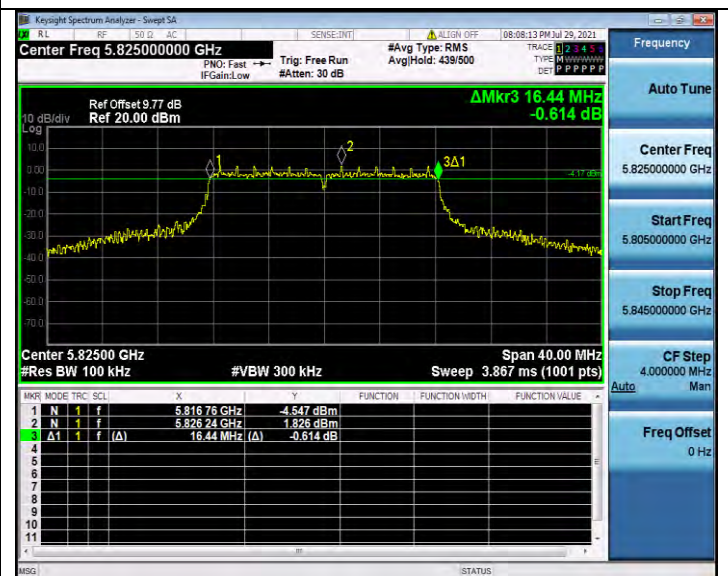
CH149



CH157

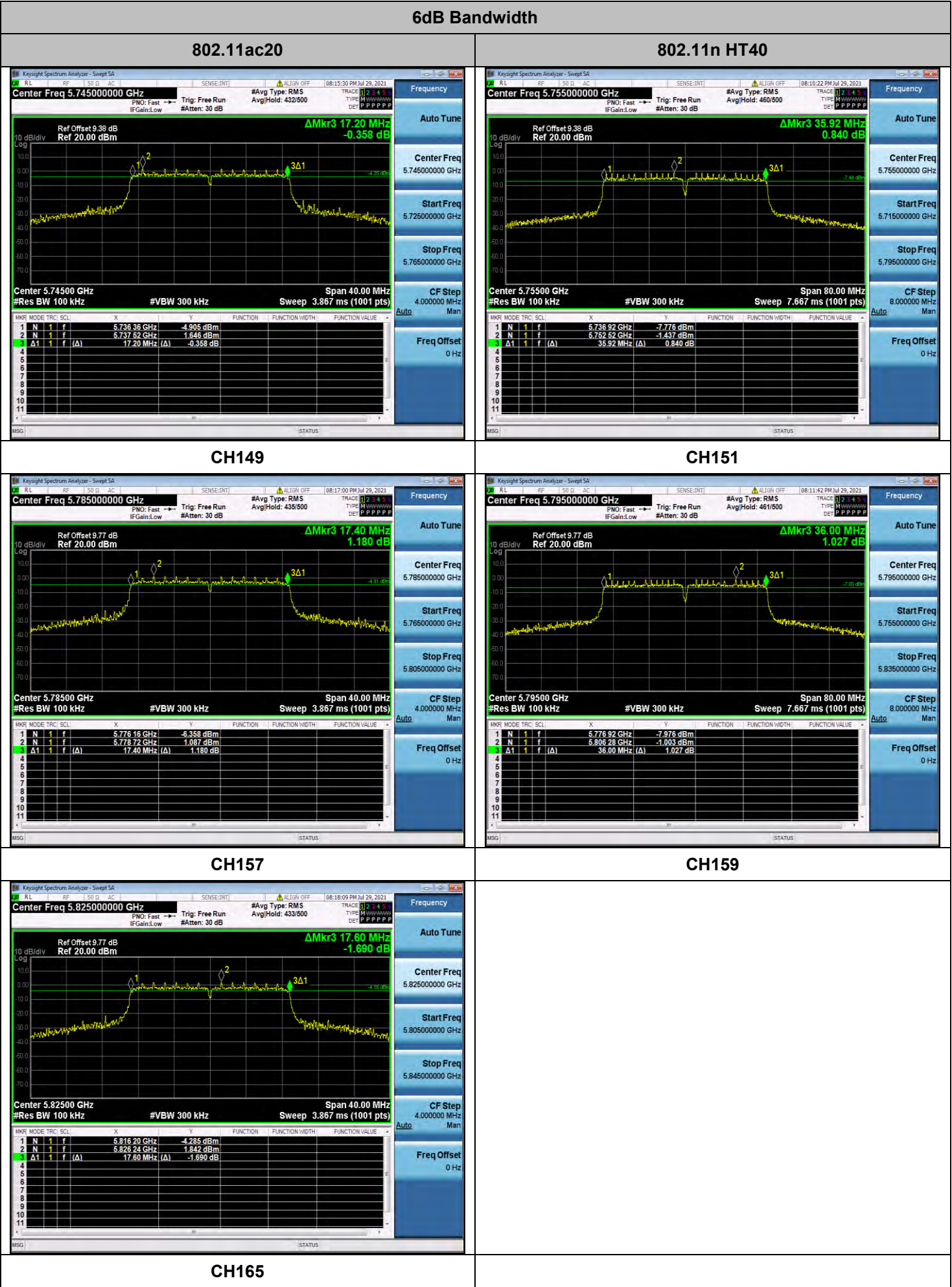


CH157



CH165

CH165



CH157

Keysight Spectrum Analyzer - Swept SA

Center Freq 5.825000000 GHz

Ref Offset 9.77 dB

Ref 20.00 dBm

ΔMkr3 17.60 MHz

-1.690 dB

Center Freq 5.82500 GHz

#Res BW 100 kHz

#VBW 300 kHz

Span 40.00 MHz

Sweep 3.867 ms (1001 pts)

1 N 1 f 5.816 20 GHz -4.285 dBm

2 N 1 f 5.829 24 GHz 1.642 dBm

Δ1 1 f (Δ) 17.60 MHz (Δ) -1.690 dB

Frequency

Auto Tune

Center Freq 5.825000000 GHz

Start Freq 5.805000000 GHz

Stop Freq 5.845000000 GHz

CF Step 4.000000 MHz

Freq Offset 0 Hz

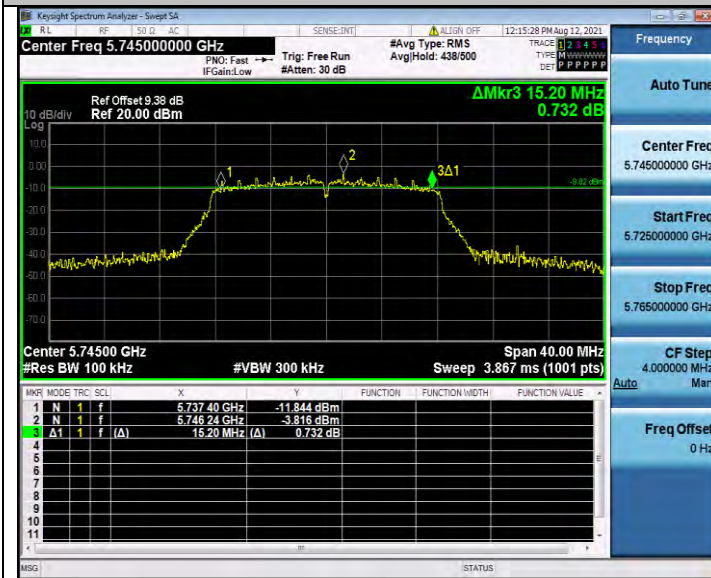
CH165



Antenna 1:

6dB Bandwidth

802.11a



802.11n HT20



CH149



CH149



CH157



CH157



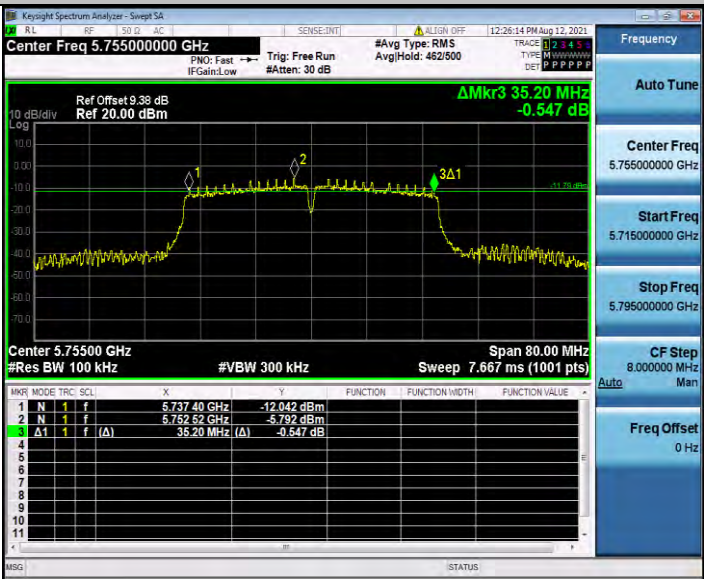
CH165

CH165

6dB Bandwidth

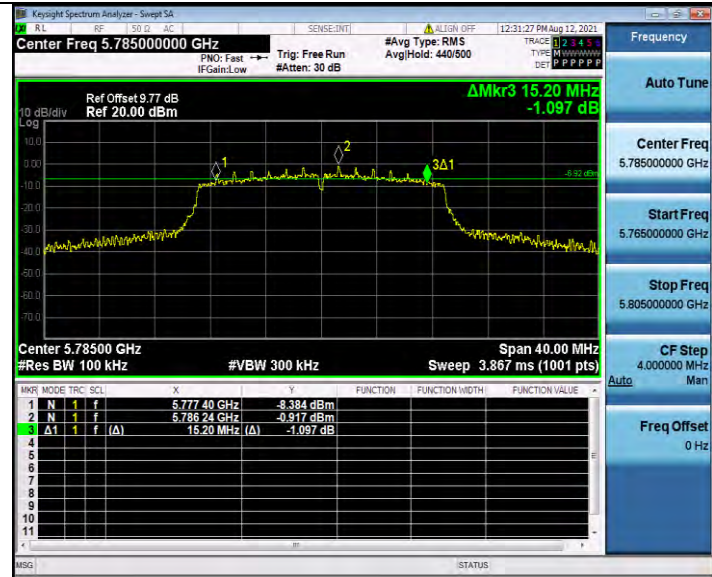
802.11ac20

802.11n HT40



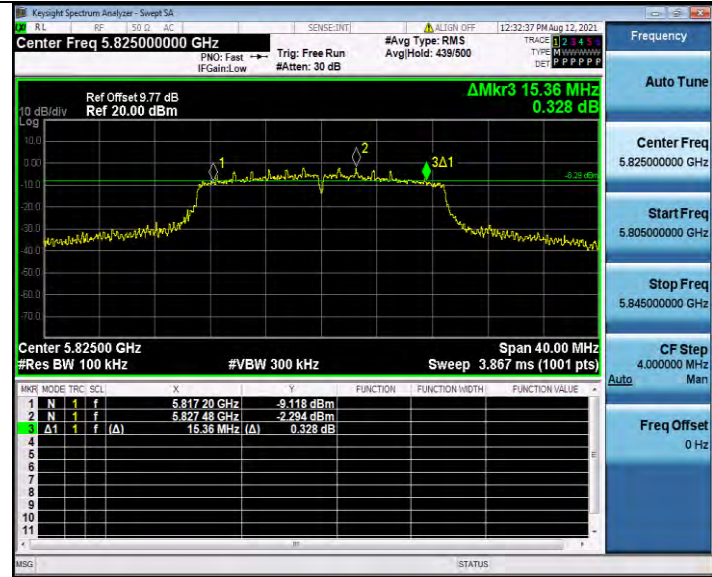
CH149

CH151



CH157

CH159

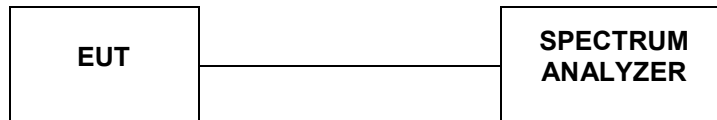


CH165



4.7. 26dBc Bandwidth

TEST CONFIGURATION



TEST PROCEDURE

According to KDB789033 D02 General U-NII Test Procedures New Rules v02r01 for one of the following procedures may be used for Emission Bandwidth (EBW) measurement:

- Set RBW = 220 kHz/430 kHz /820 kHz (approximately 1% of the emission bandwidth).
- Set the video bandwidth (VBW) = 3* RBW
- Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Allow the trace to stabilize
- 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%.

Note: The automatic bandwidth measurement capability of a spectrum analyzer or EMI receiver may be employed if it implements the functionality described above.

LIMIT

No Limits for 26dBc Bandwidth

TEST RESULTS

Temperature	23.6°C	Humidity	55.7%
Test Engineer	Oliver Ou	Configurations	IEEE 802.11a/n/ac

Antenna 0:

Type	Channel	99%Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	36	17.219	19.680	-	Pass
	40	17.174	28.880		
	48	17.236	26.440		
802.11nHT20	36	18.070	28.800	-	Pass
	40	17.999	26.520		
	48	18.093	27.400		
802.11n40	38	36.535	53.360	-	Pass
	46	36.448	44.000		
802.11ac20	36	18.027	27.440	-	Pass
	40	18.000	27.640		
	48	18.048	30.080		
802.11ac40	38	36.632	39.760	-	Pass
	46	36.409	46.560		
802.11ac80	42	75.746	113.280	-	Pass

Antenna 1:

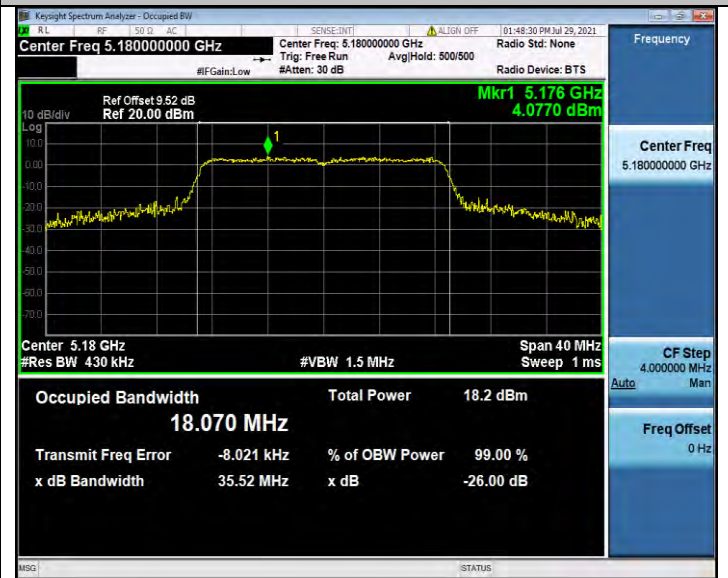
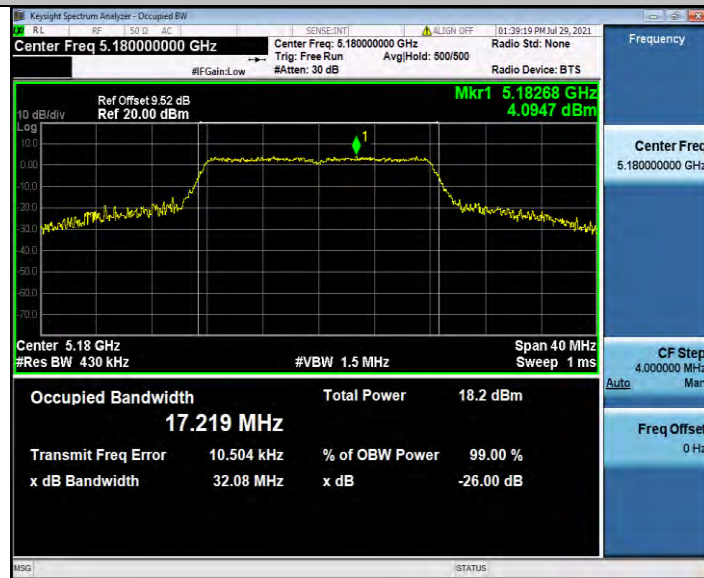
Type	Channel	99%Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	36	17.024	19.840	-	Pass
	40	16.927	19.800		
	48	16.971	19.880		
802.11nHT20	36	17.930	20.240	-	Pass
	40	17.856	20.240		
	48	17.853	20.280		
802.11n40	38	36.415	40.560	-	Pass
	46	36.385	40.320		
802.11ac20	36	17.956	20.200	-	Pass
	40	17.858	20.000		
	48	17.897	20.240		
802.11ac40	38	36.306	40.240	-	Pass
	46	36.214	40.480		
802.11ac80	42	75.196	80.960	-	Pass

Antenna 0:

99%Bandwidth

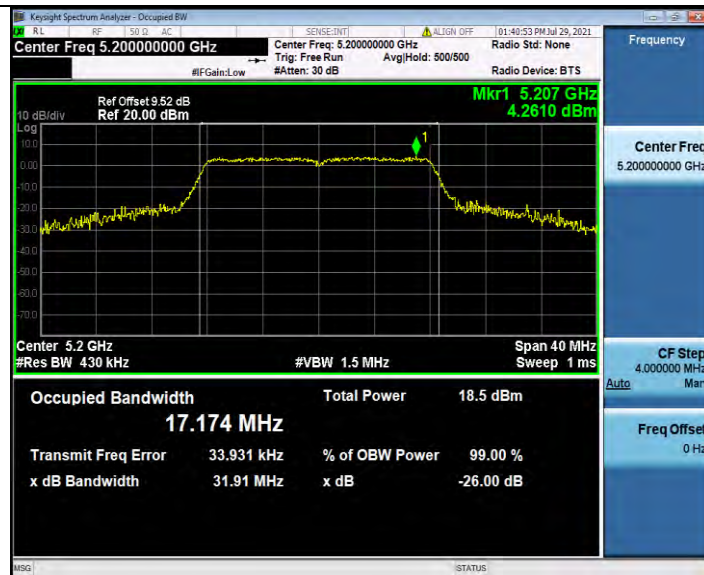
802.11a

802.11n HT20



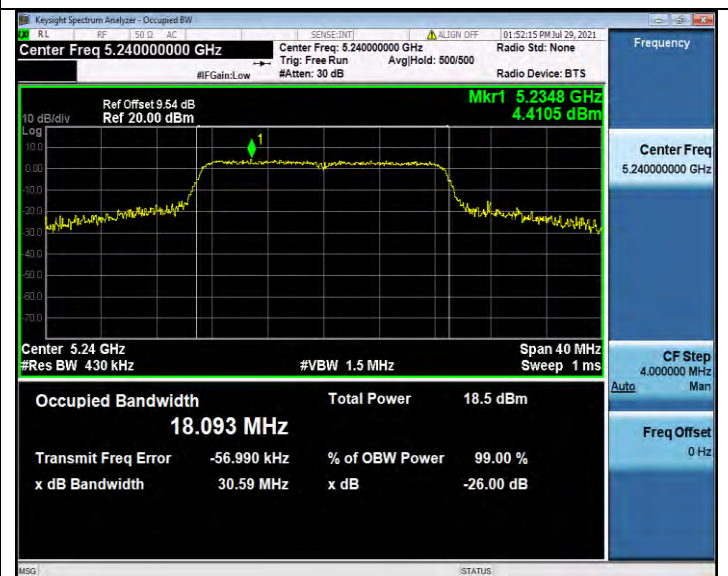
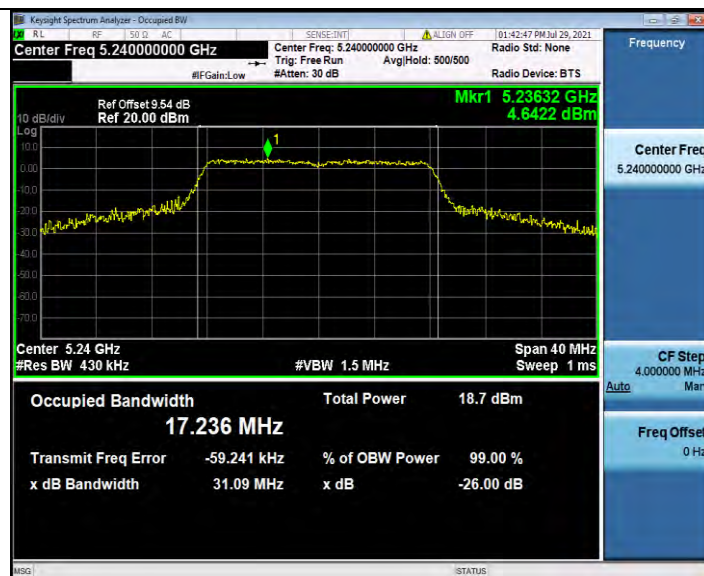
CH36

CH36



CH40

CH40

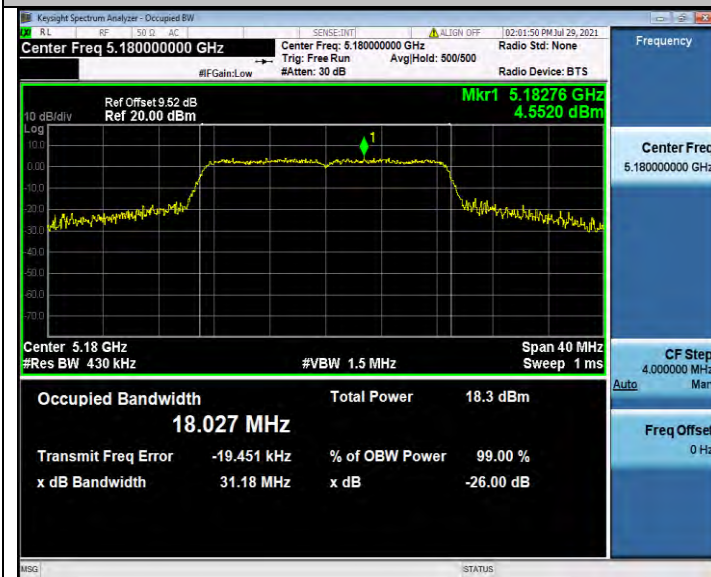


CH48

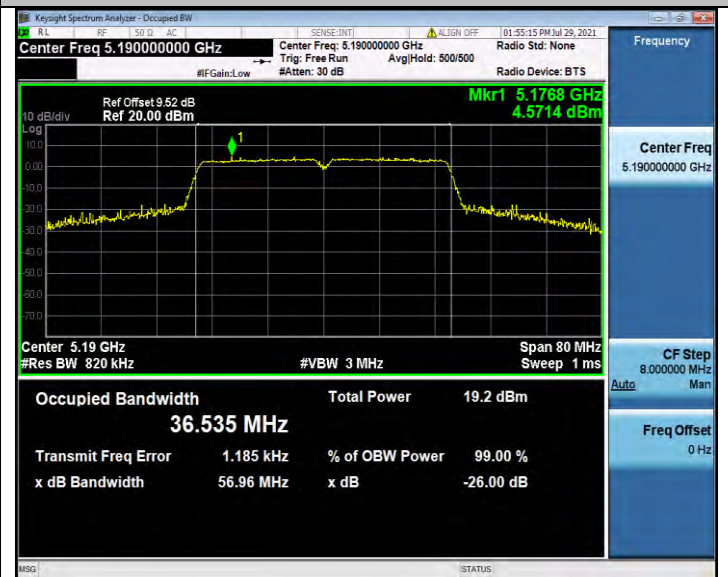
CH48

99%Bandwidth

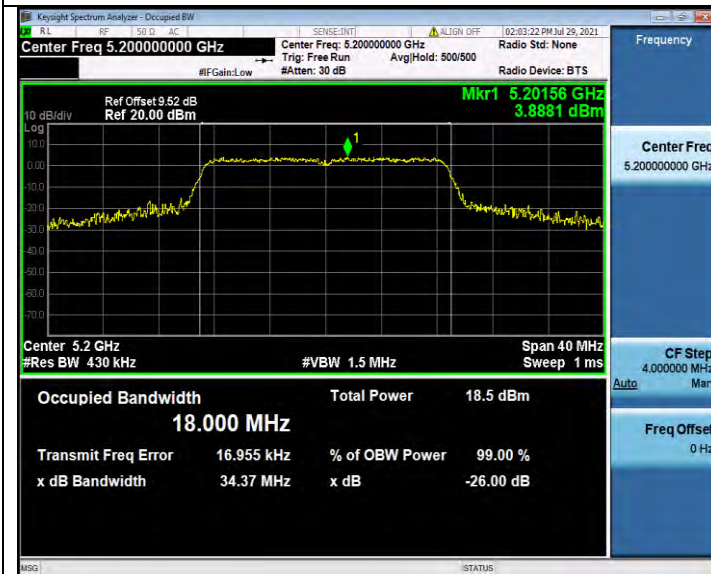
802.11ac20



802.11n HT40



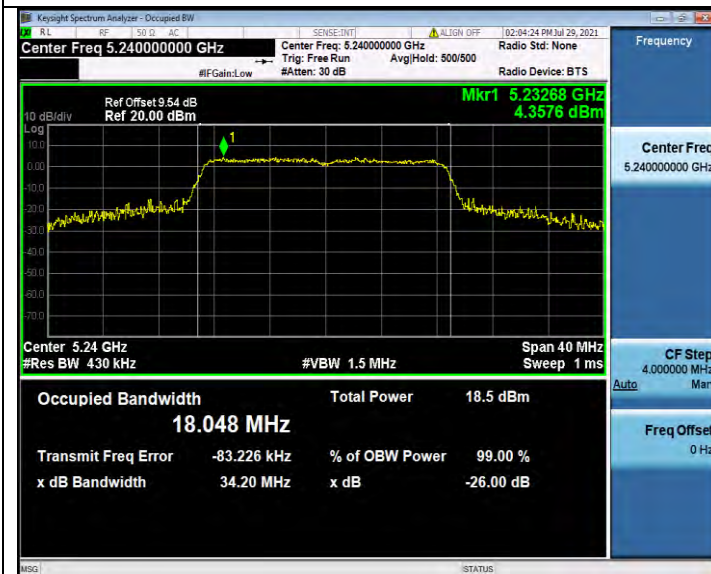
CH36



CH38



CH40



CH46



CH48



26dB Bandwidth

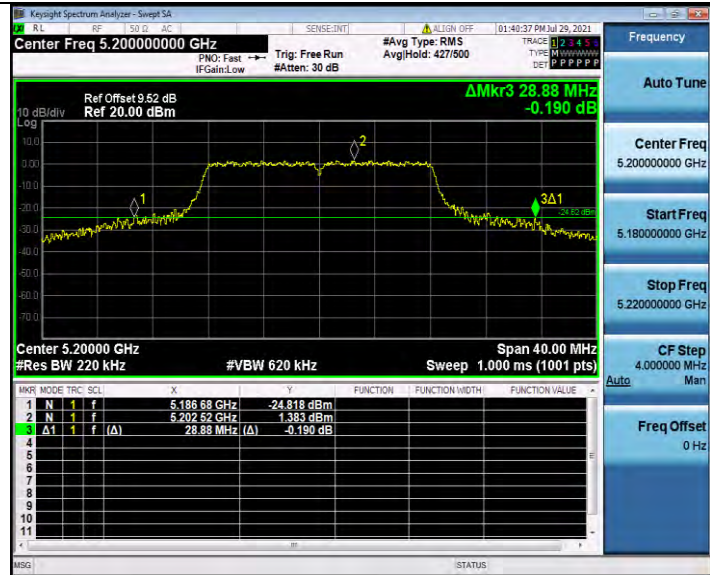
802.11a



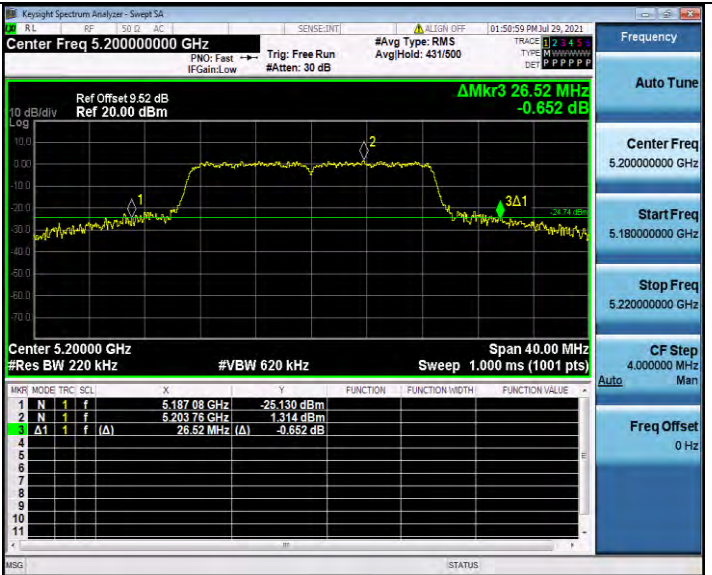
802.11n HT20



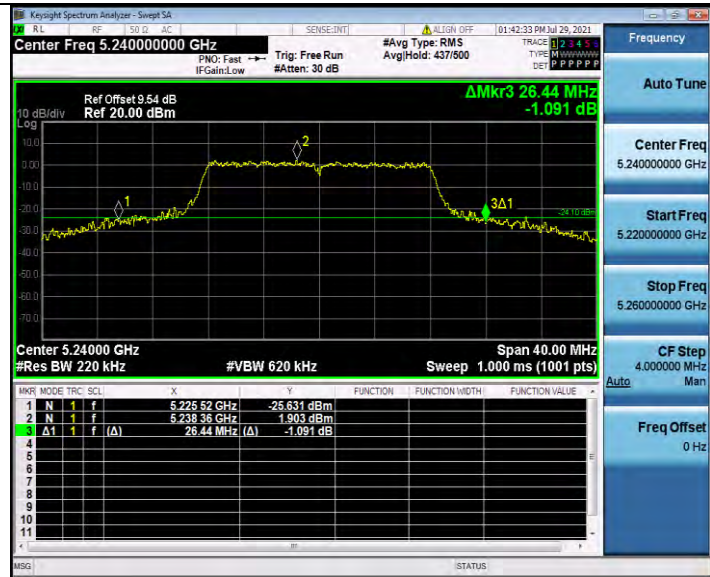
CH36



CH36



CH40



CH40



CH48

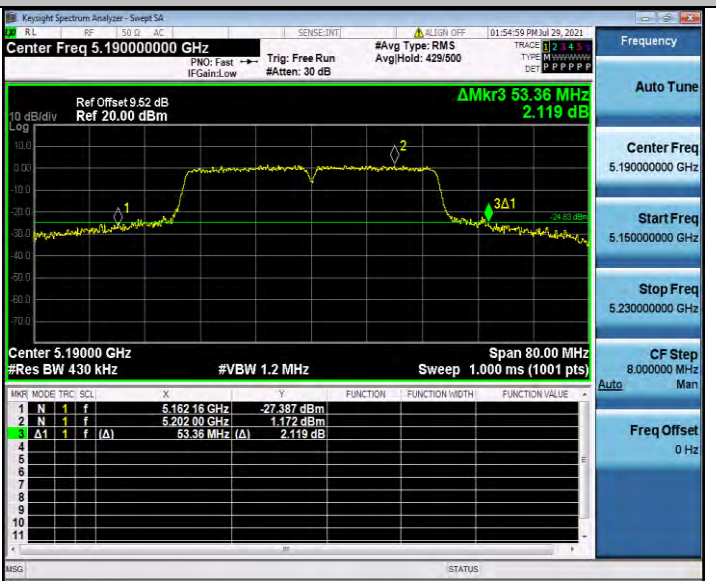
CH48

26dB Bandwidth

802.11ac20



802.11n HT40



CH36



CH38



CH40

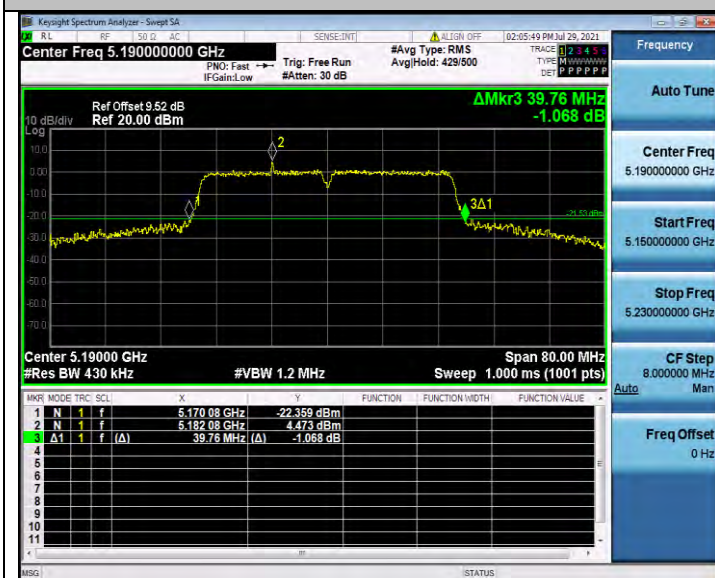


CH46

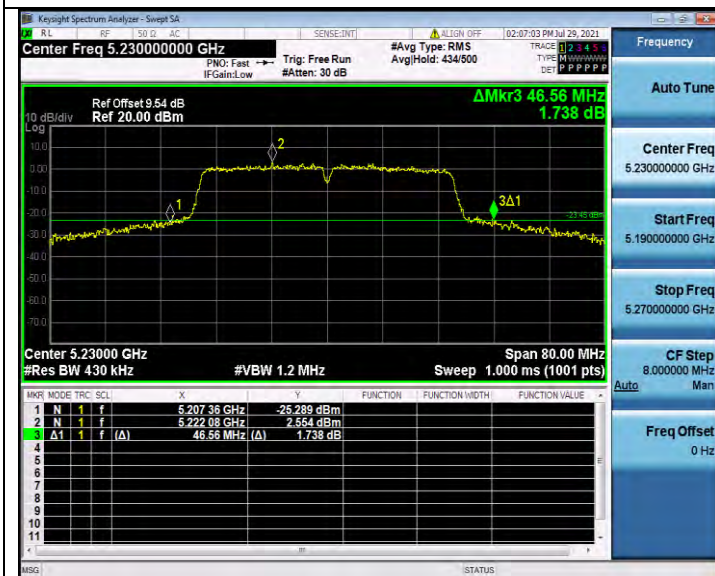


CH48

802.11ac40

[illegible]

CH42



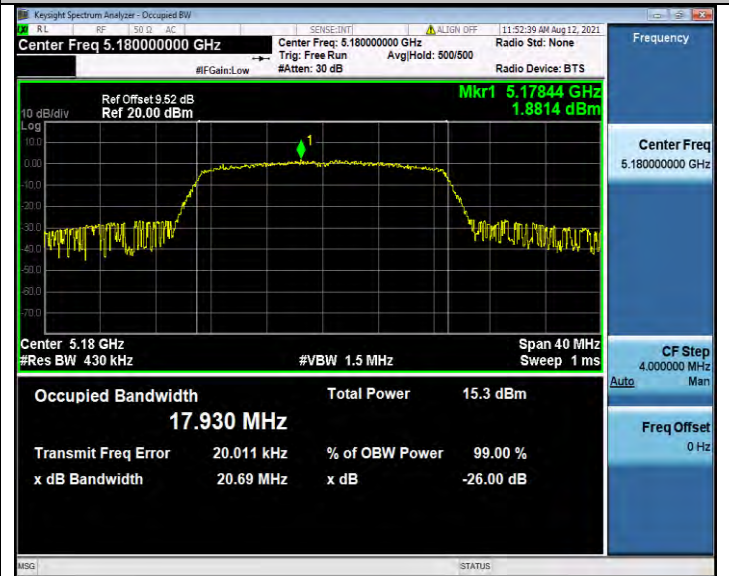
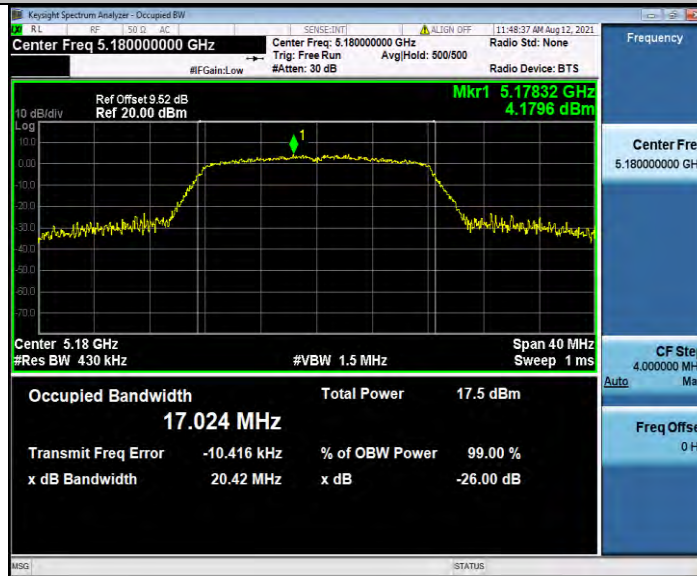
CH46

Antenna 1:

99%Bandwidth

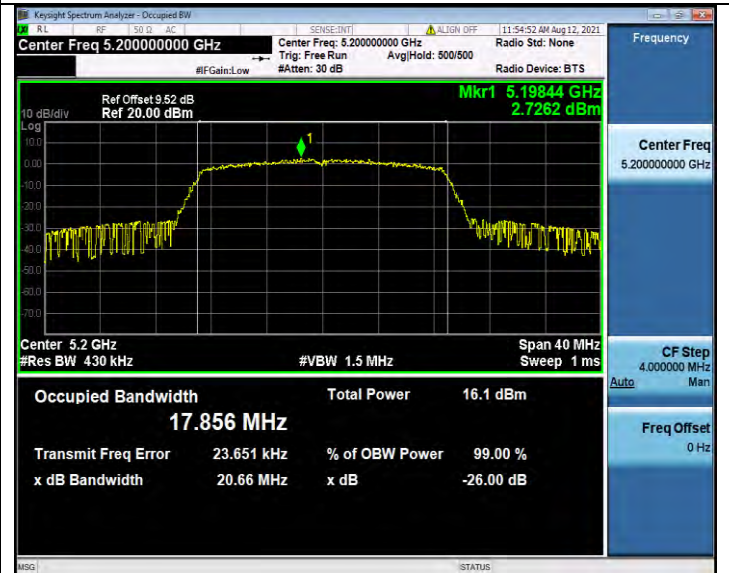
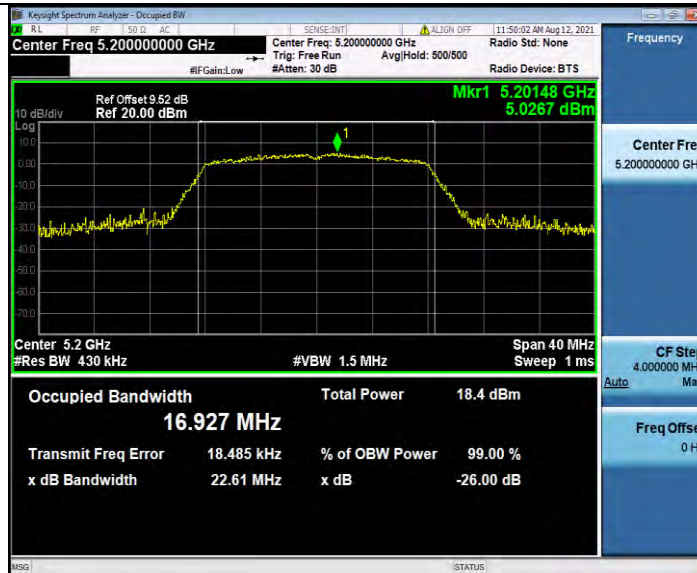
802.11a

802.11n HT20



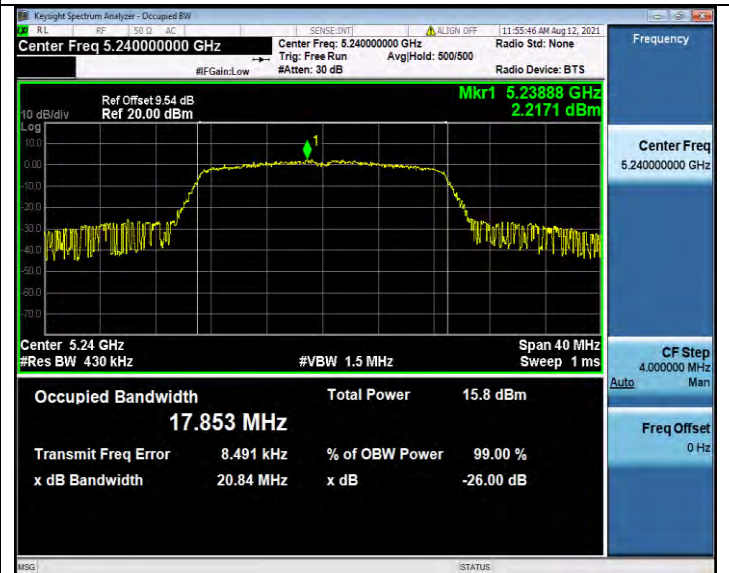
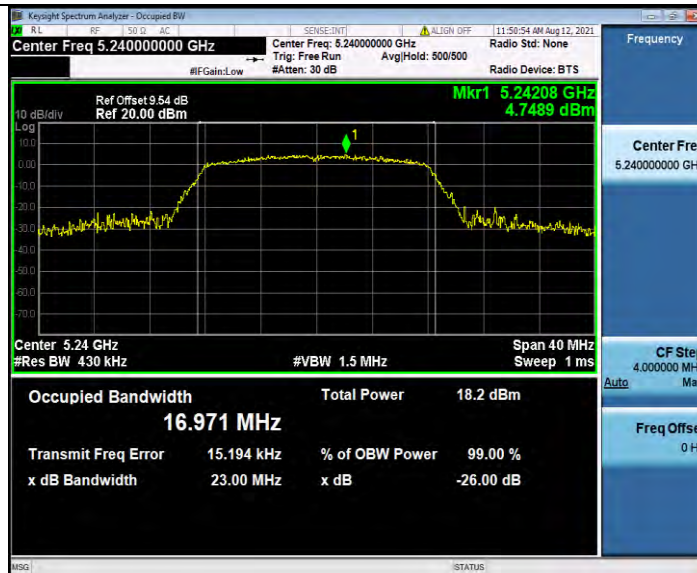
CH36

CH36



CH40

CH40

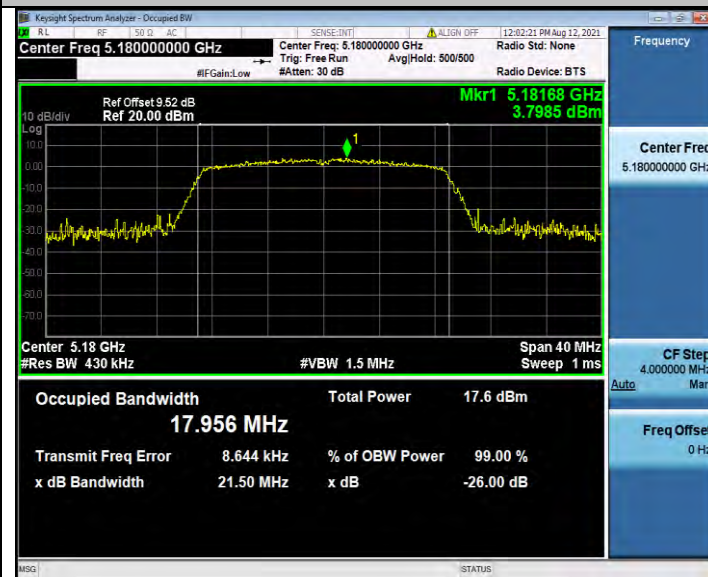


CH48

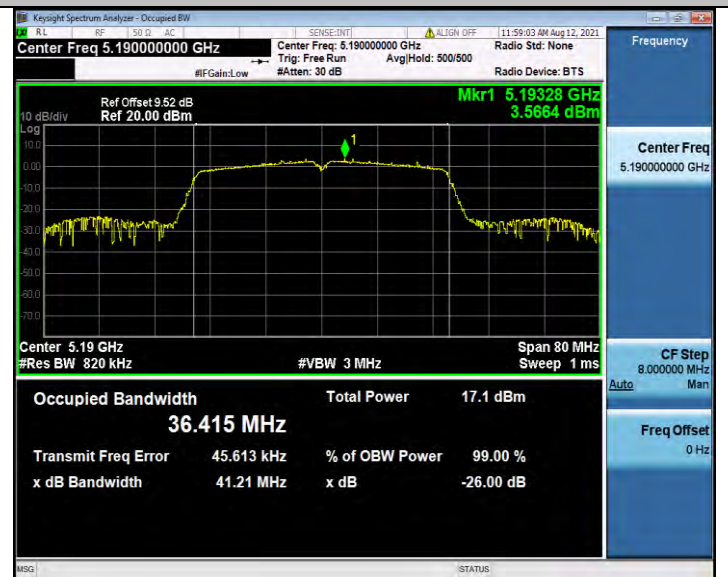
CH48

99%Bandwidth

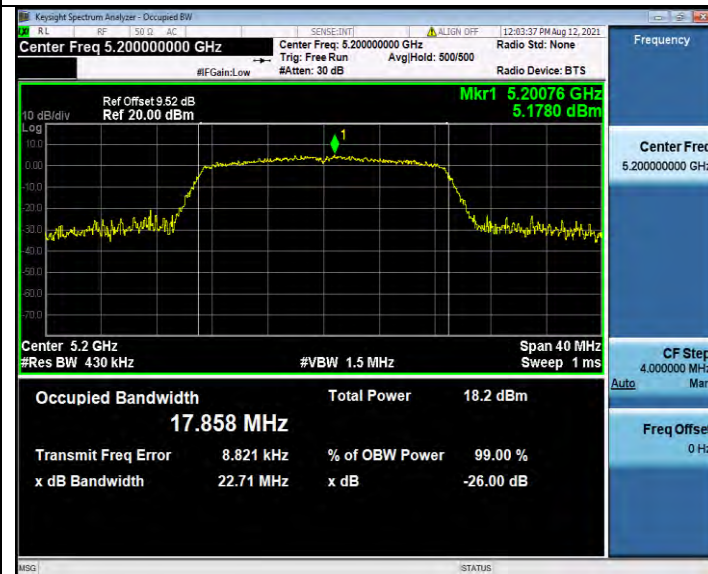
802.11ac20



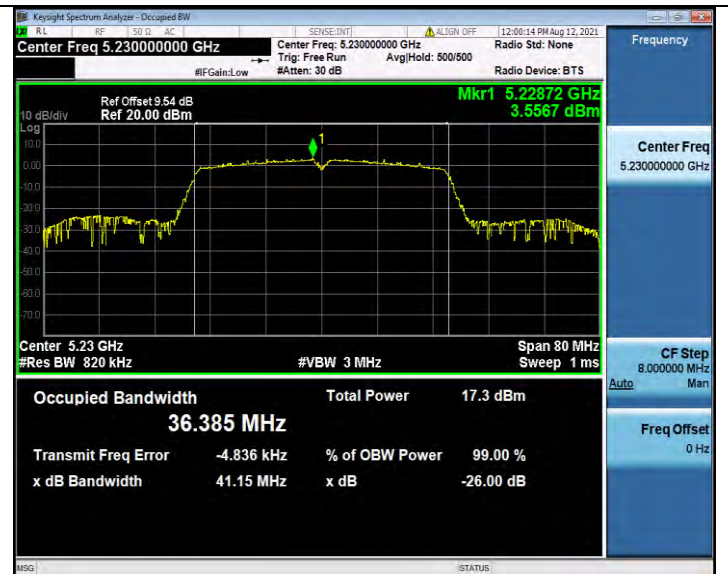
802.11n HT40



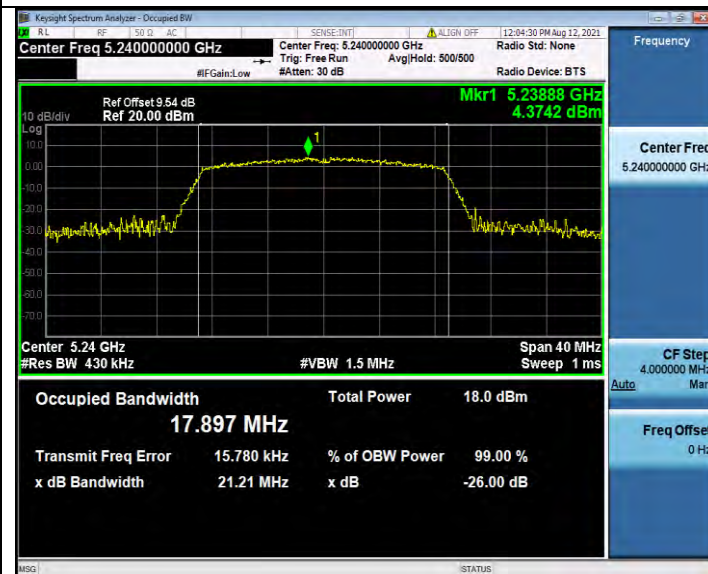
CH36



CH38



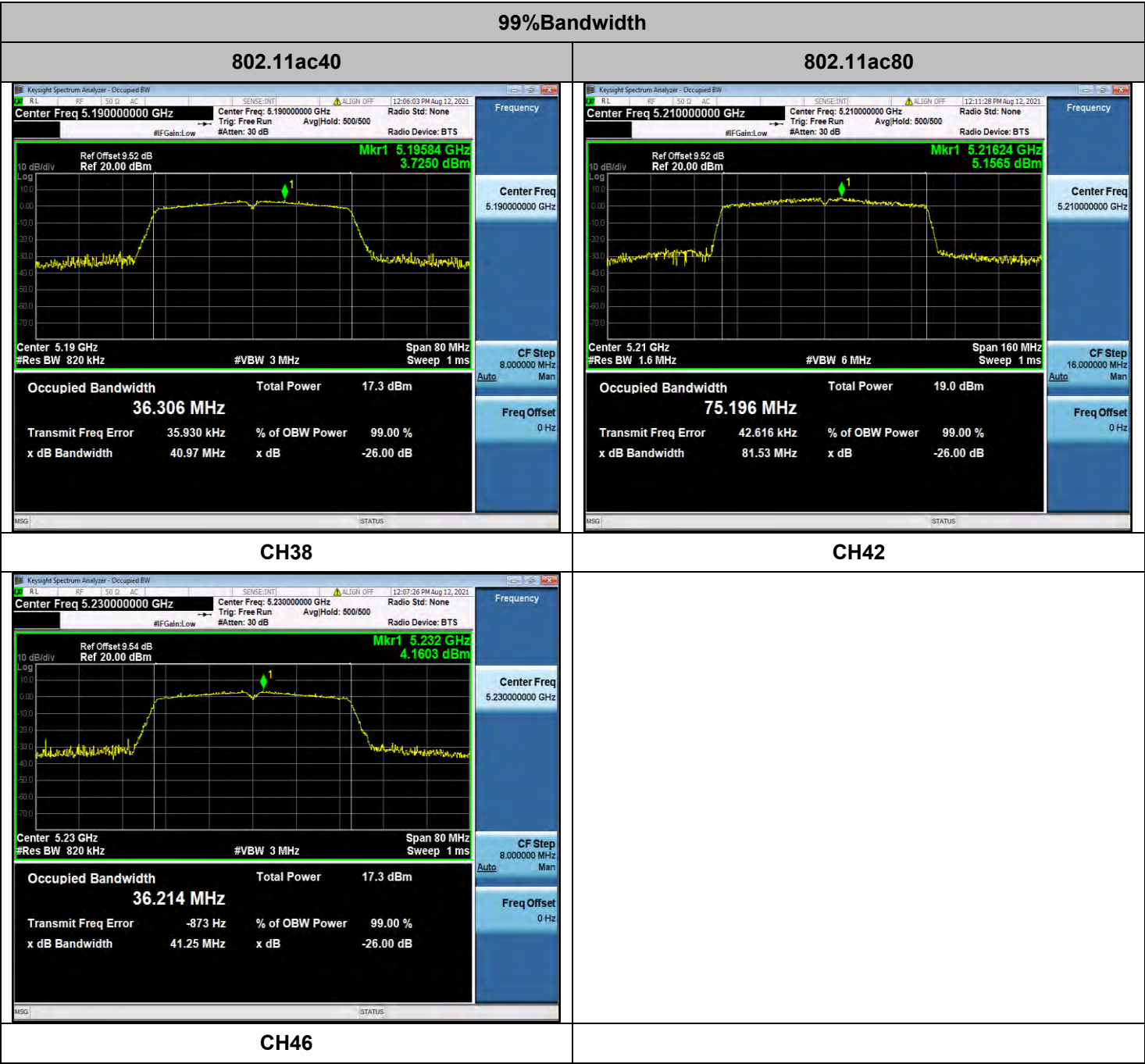
CH40



CH46



CH48



CH46

KeySight Spectrum Analyzer - Occupied BW

Center Freq 5.250000000 GHz

Center Freq: 5.250000000 GHz

Trig: Free Run

Avg/Hold: 500/500

Radio Std: None

Radio Device: BTS

Ref Offset 9.54 dB

Ref 20.00 dBm

Mkr1 5.252 GHz

4.1603 dBm

10 dB/div

Log

Center Freq 5.25 GHz

#Res BW 820 kHz

#VBW 3 MHz

Span 80 MHz

Sweep 1 ms

CF Step 8.000000 MHz

Auto

Man

Frequency

Center Freq 5.25000000 GHz

Occupied Bandwidth 36.214 MHz

Total Power 17.3 dBm

Transmit Freq Error -873 Hz

% of OBW Power 99.00 %

x dB Bandwidth 41.25 MHz

x dB -26.00 dB

MSO

STATUS

26dB Bandwidth

802.11a



802.11n HT20



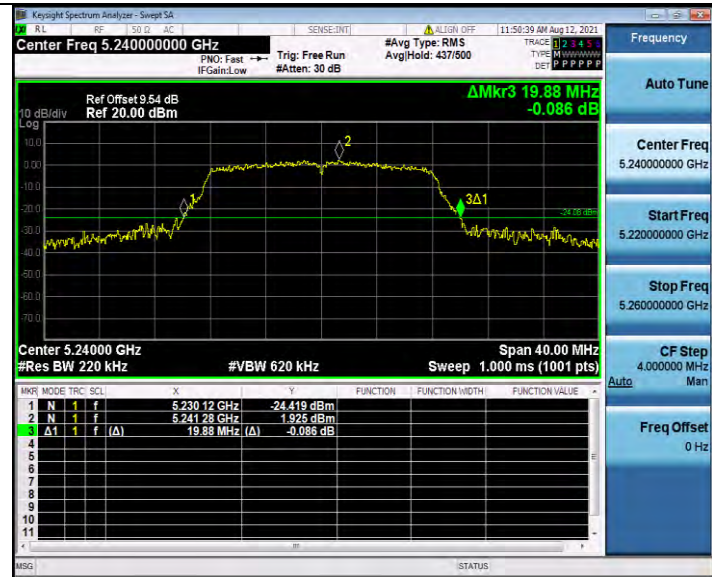
CH36



CH36



CH40



CH40



CH48

CH48



