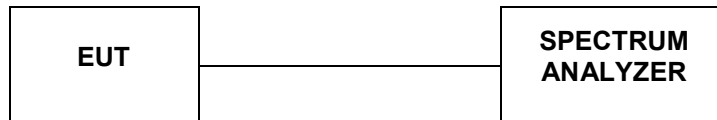


4.6. 6dB Bandwidth

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:

- a. Set RBW = 100 kHz.
- b. Set the video bandwidth (VBW) $\geq 3 \times$ RBW
- c. Detector = Peak.
- d. Trace mode = max hold.
- e. Sweep = auto couple.
- f. Allow the trace to stabilize
- g. 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	Moon Tan	Configurations	IEEE 802.11a/n/ac

Antenna 0:

Type	Channel	99%Bandwidth (MHz)	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	149	16.655	15.160	≥500	Pass
	157	16.625	15.120		
	165	16.634	15.160		
802.11nHT20	149	17.620	16.360	≥500	Pass
	157	17.603	15.800		
	165	17.596	15.520		
802.11n40	151	36.440	36.080	≥500	Pass
	159	36.536	36.480		
802.11ac20	149	17.697	15.200	≥500	Pass
	157	17.696	15.160		
	165	17.707	15.720		
802.11ac40	151	36.360	35.280	≥500	Pass
	159	36.315	35.280		
802.11ac80	155	75.889	76.640	≥500	Pass

Antenna 1:

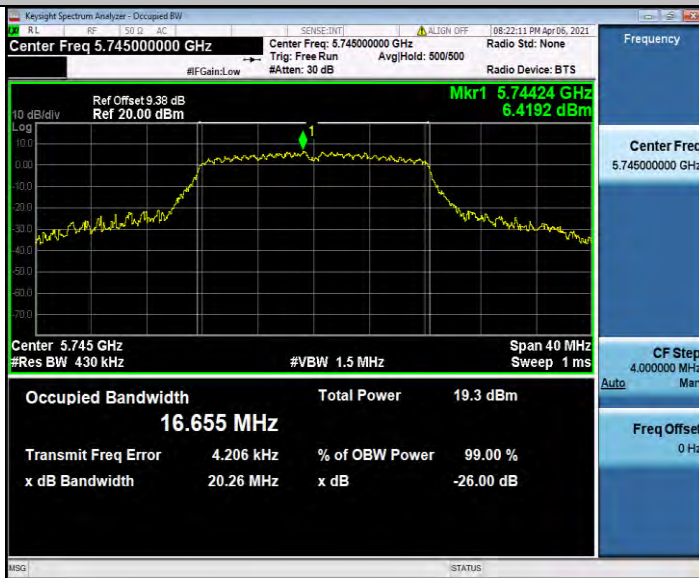
Type	Channel	99%Bandwidth (MHz)	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	149	16.640	15.200	≥500	Pass
	157	16.632	15.120		
	165	16.648	15.200		
802.11nHT20	149	17.619	16.400	≥500	Pass
	157	17.612	16.360		
	165	16.625	16.600		
802.11n40	151	36.557	36.400	≥500	Pass
	159	36.539	35.280		
802.11ac20	149	17.681	15.720	≥500	Pass
	157	17.706	15.200		
	165	17.684	15.160		
802.11ac40	151	36.209	35.520	≥500	Pass
	159	36.195	35.280		
802.11ac80	155	75.956	76.000	≥500	Pass

Antenna 0:

99%Bandwidth

802.11a

802.11n HT20



CH149

CH149



CH157

CH157

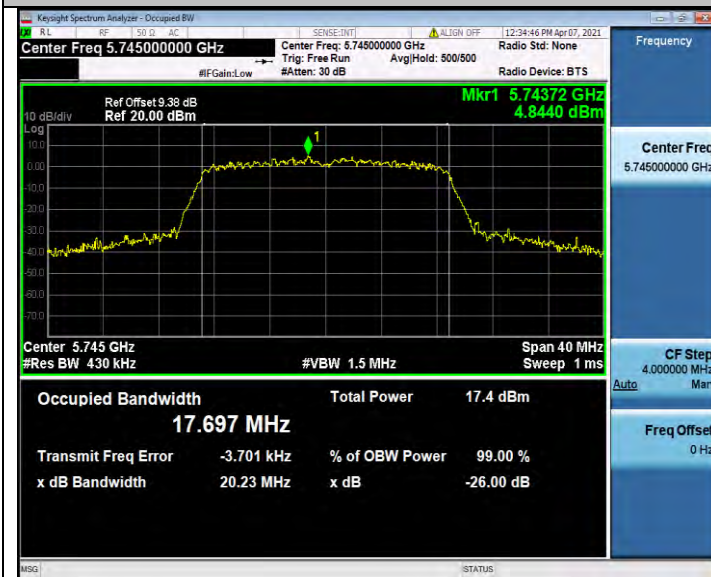


CH165

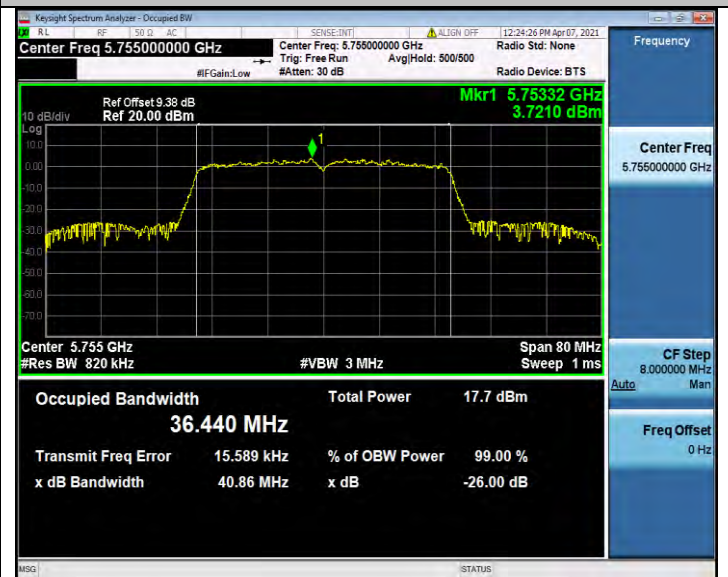
CH165

99%Bandwidth

802.11ac20



802.11n HT40



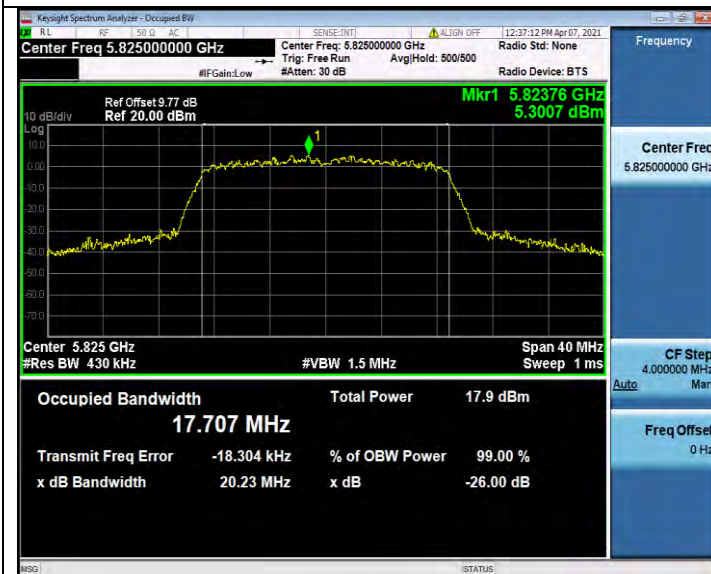
CH149



CH151



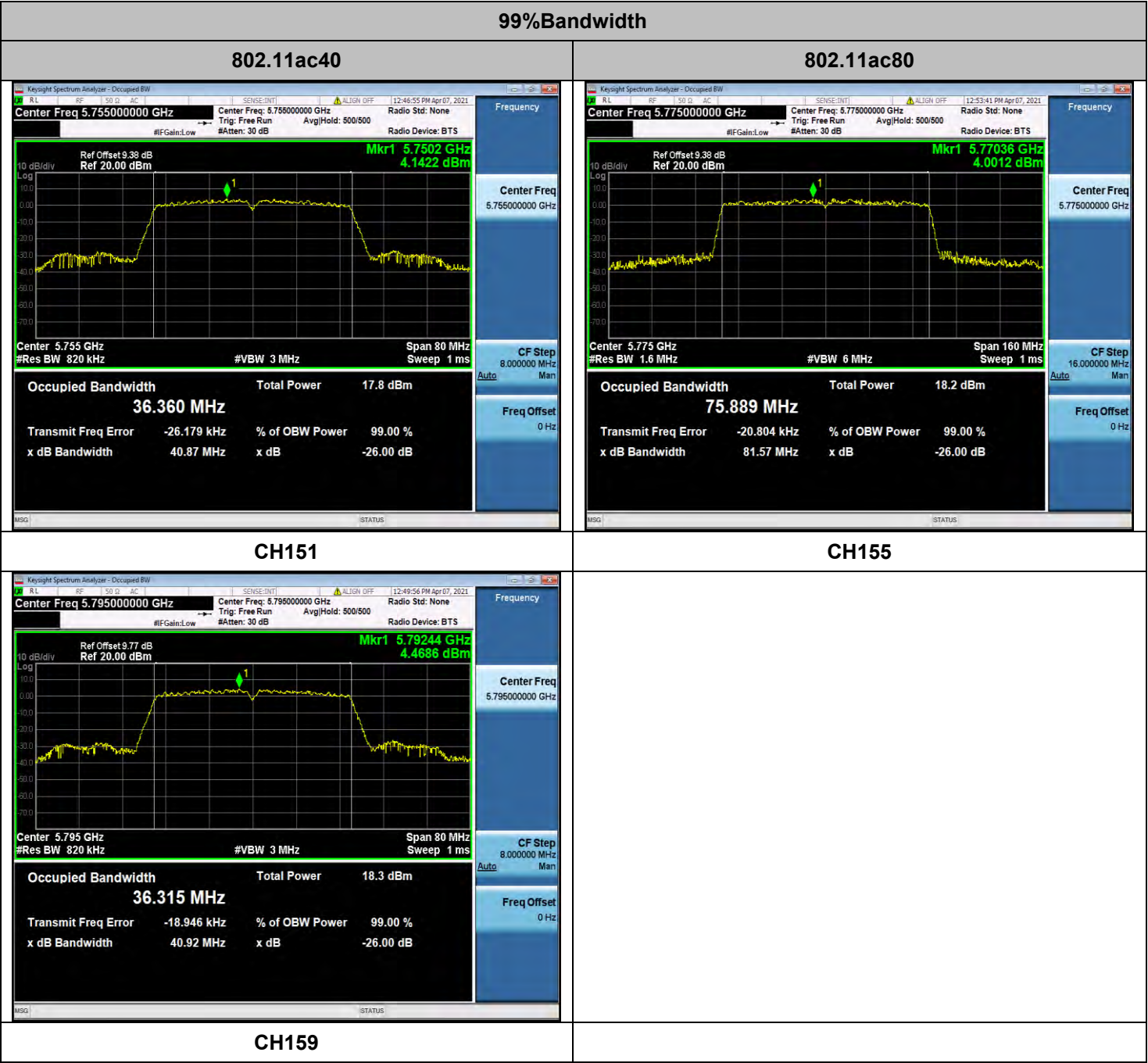
CH157



CH159



CH165



6dB Bandwidth

802.11a



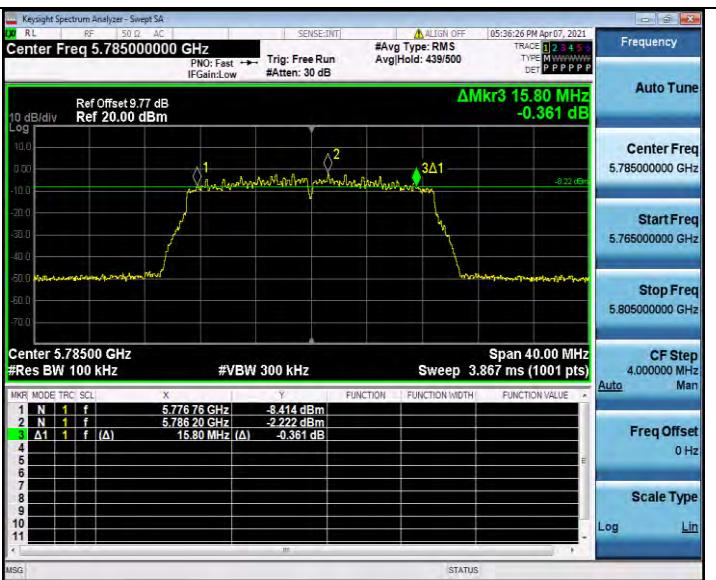
802.11n HT20



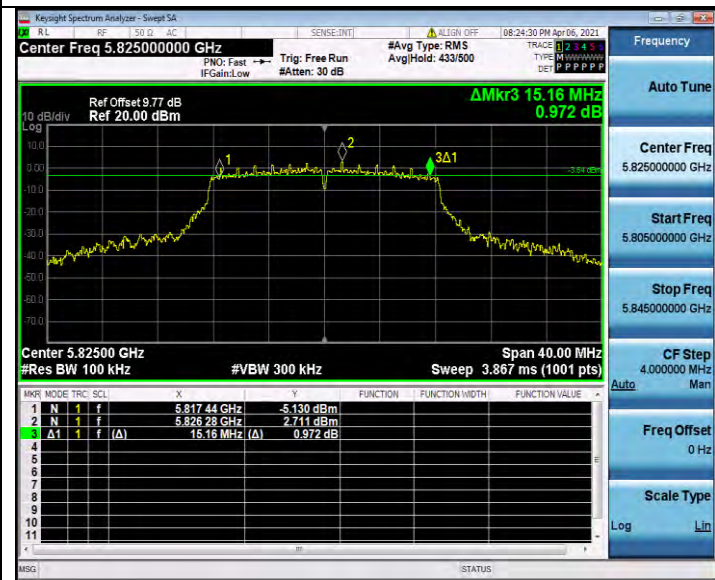
CH149



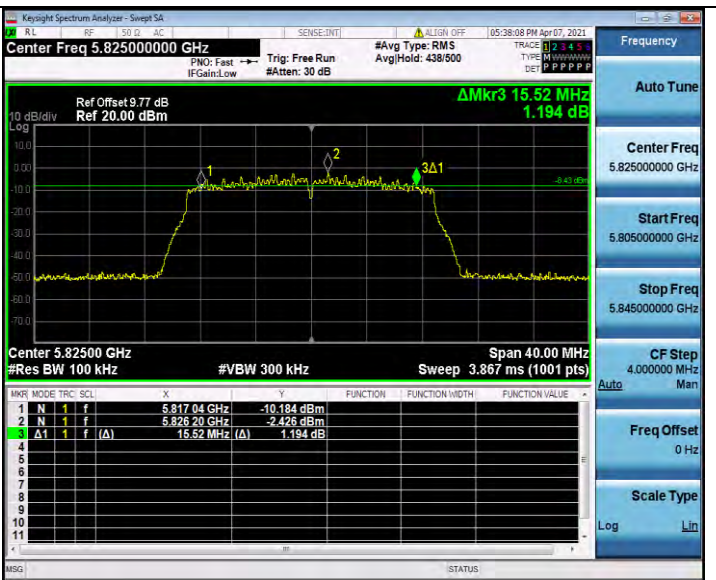
CH149



CH157



CH157

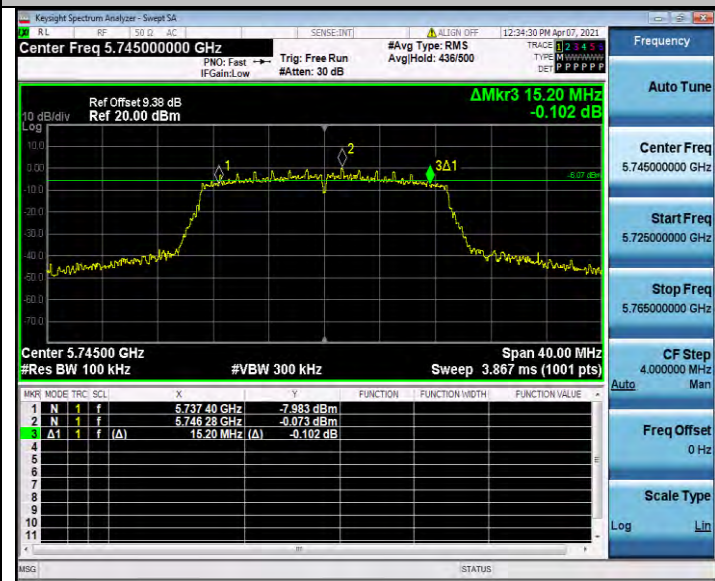


CH165

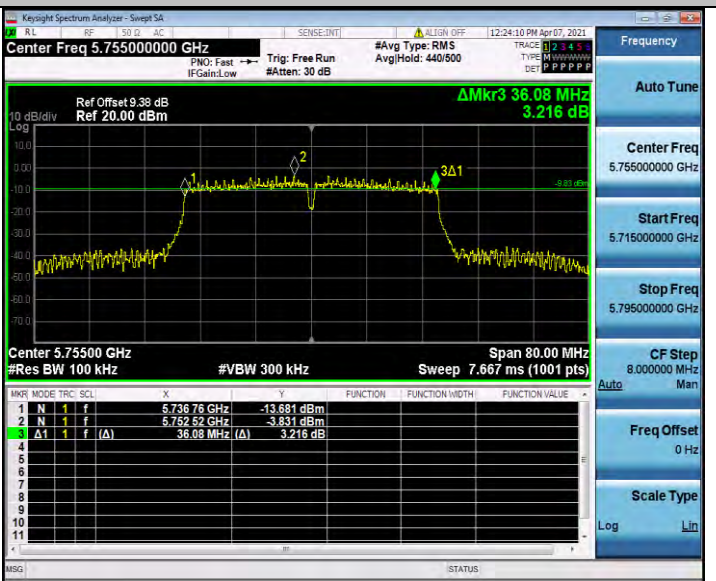
CH165

6dB Bandwidth

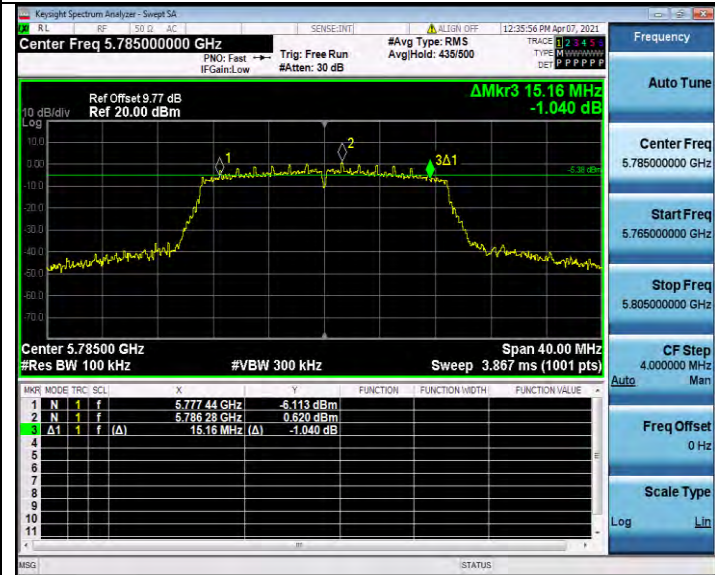
802.11ac20



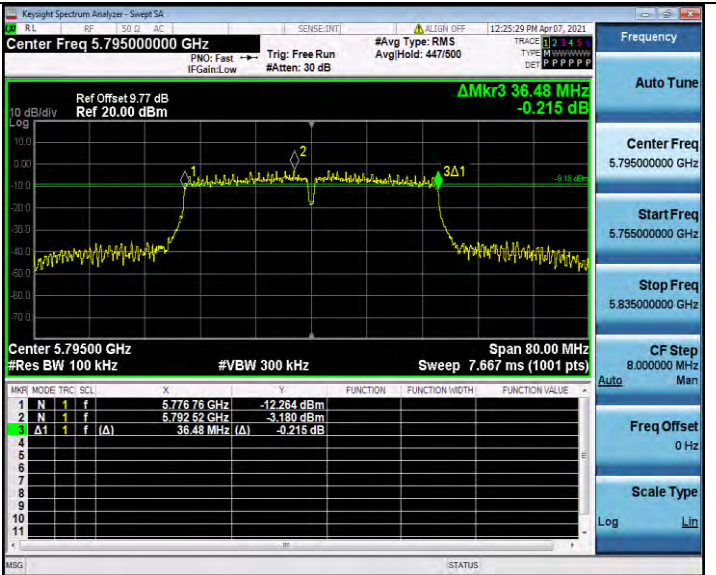
802.11n HT40



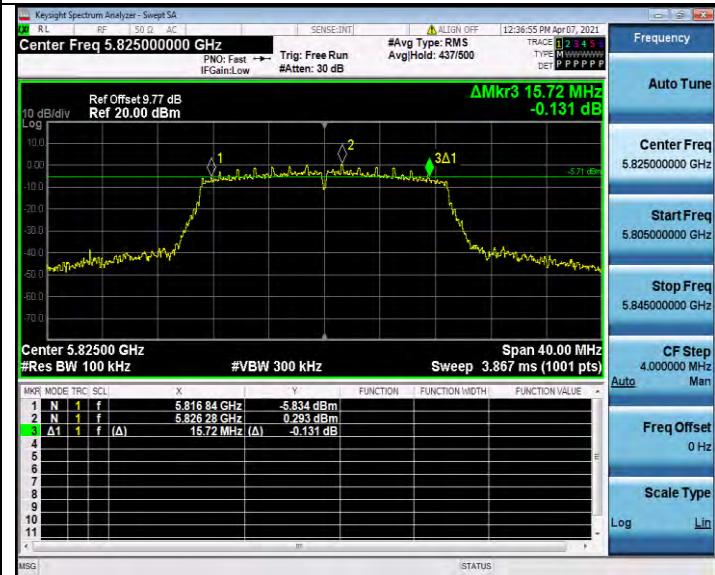
CH149



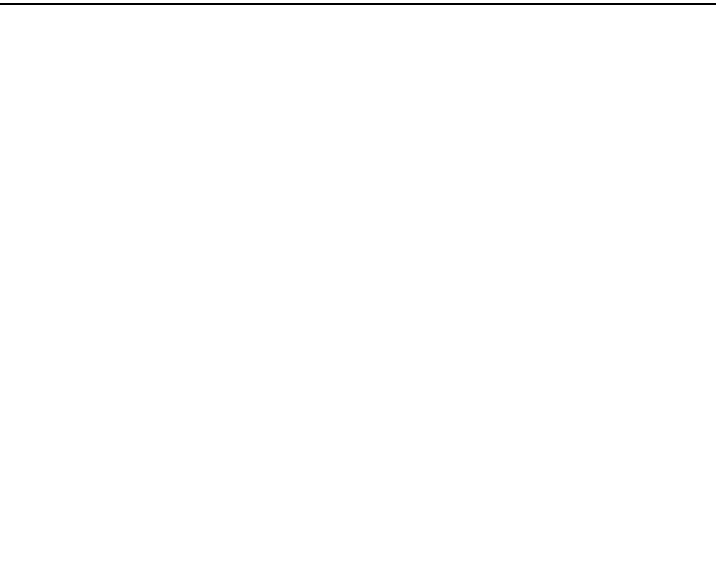
CH151



CH157



CH159



CH165



Antenna 1:

99%Bandwidth

802.11a

802.11n HT20



CH149

CH149



CH157

CH157

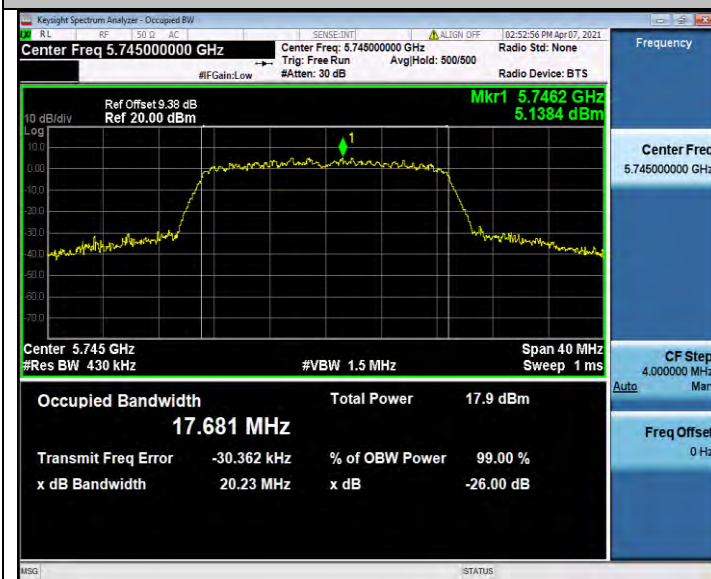


CH165

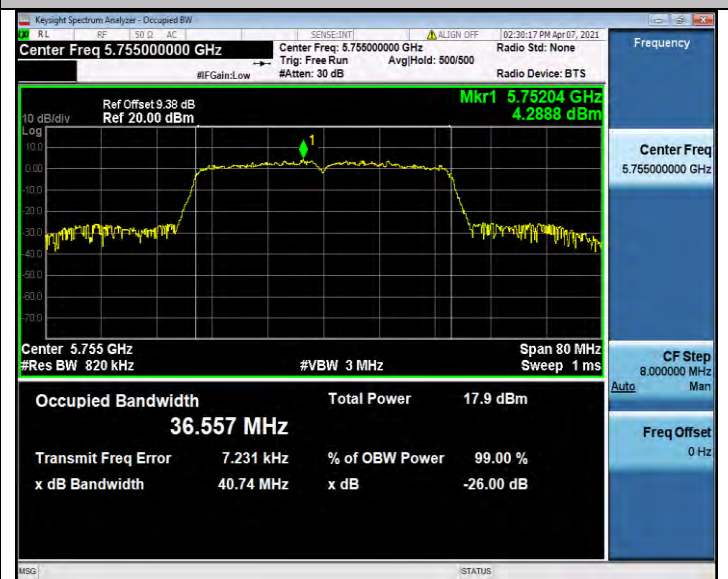
CH165

99%Bandwidth

802.11ac20



802.11n HT40



CH149



CH151



CH157



CH159



CH165



CH159

KeySight Spectrum Analyzer - Occupied BW

Center Freq 5.795000000 GHz

Center Freq: 5.795000000 GHz

Trig: Free Run

Avg/Hold: 500/500

Radio Std: None

Radio Device: BTS

Ref Offset 9.77 dB

Ref 20.00 dBm

Mkr1 5.78668 GHz

0.77406 dBm

Center Freq 5.795 GHz

#Res BW 820 kHz

#VBW 3 MHz

Span 80 MHz

Sweep 1 ms

CF Step 8.000000 MHz

Auto

Man

Frequency

Center Freq 5.795000000 GHz

Occupied Bandwidth 36.195 MHz

Total Power 14.5 dBm

Transmit Freq Error -78.083 kHz

% of OBW Power 99.00 %

x dB Bandwidth 41.38 MHz

x dB -26.00 dB

MSG

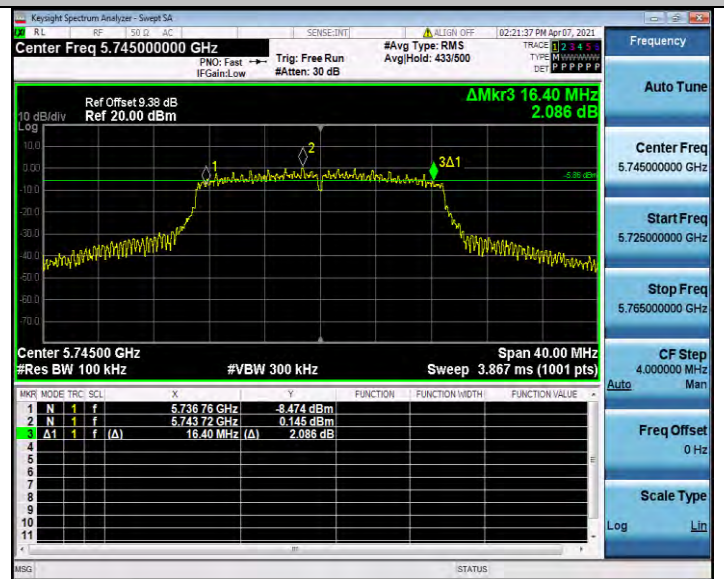
STATUS

6dB Bandwidth

802.11a



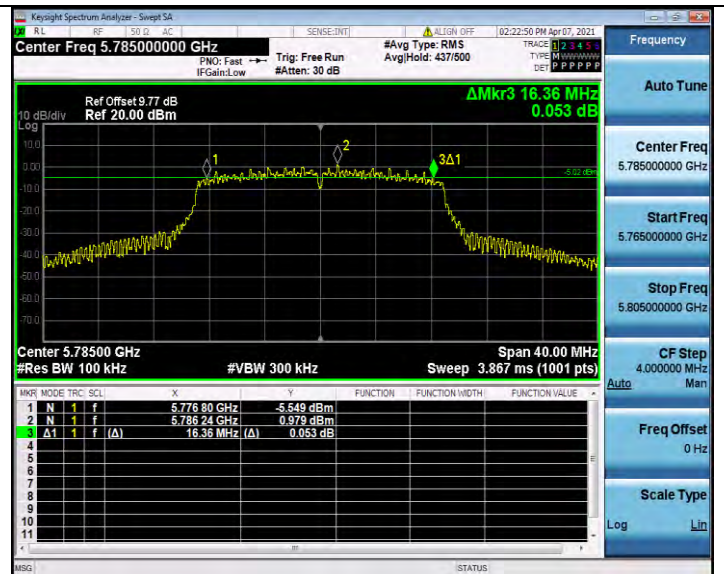
802.11n HT20



CH149



CH149



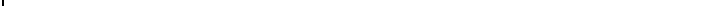
CH157



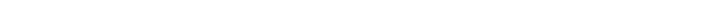
CH157



CH165

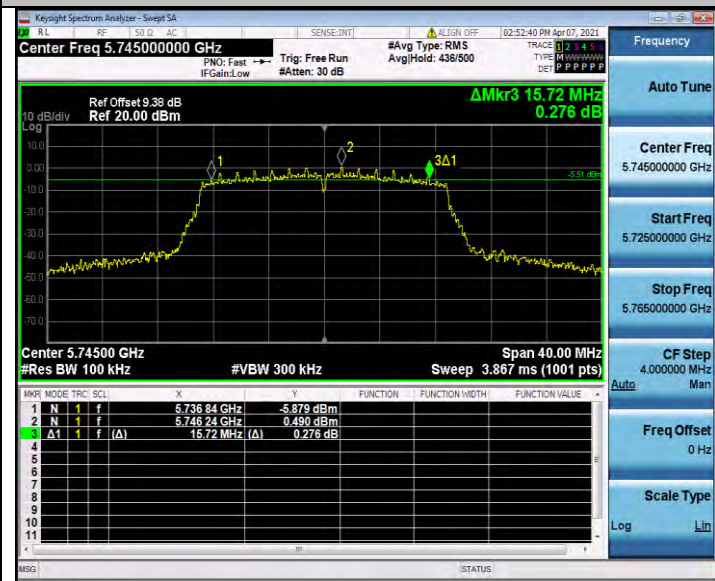


CH165

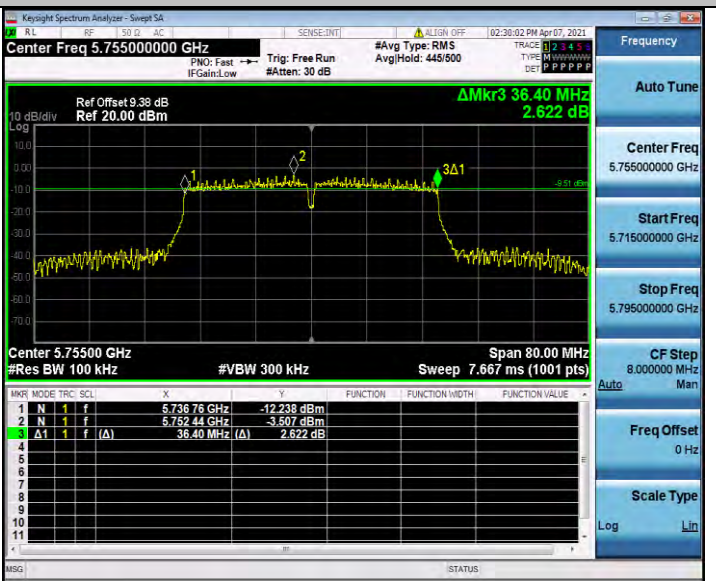


6dB Bandwidth

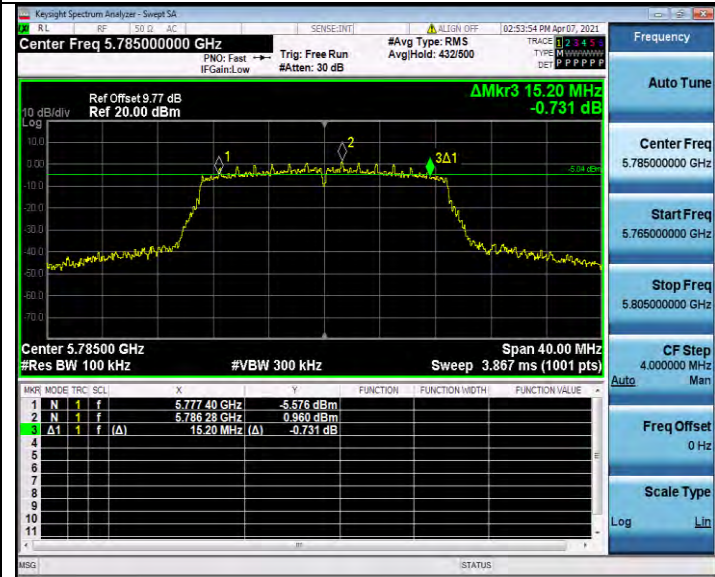
802.11ac20



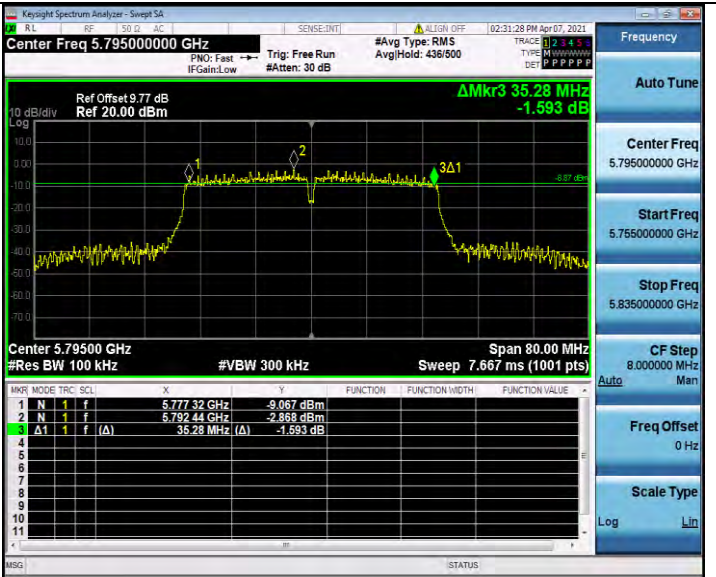
802.11n HT40



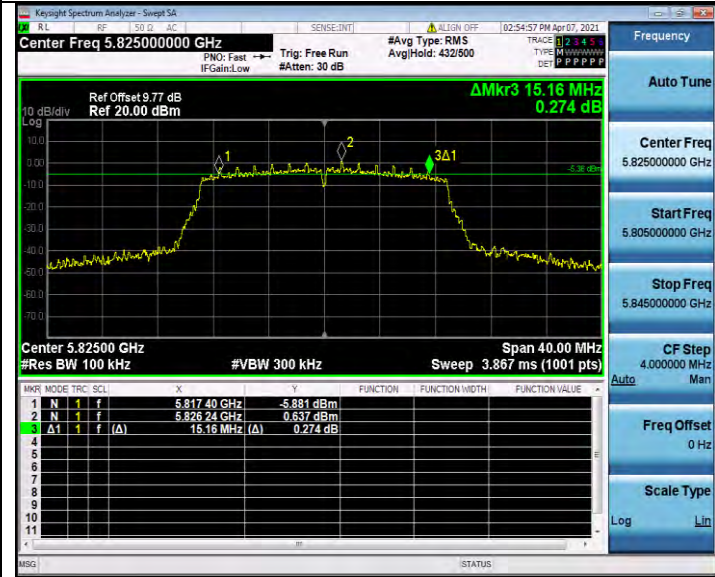
CH149



CH151



CH157



CH159

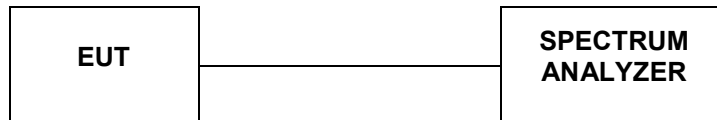


CH165



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	Moon Tan	Configurations	IEEE 802.11a/n/ac

Antenna 0:

Type	Channel	99%Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	36	16.635	19.600	-	Pass
	40	16.599	19.680		
	48	16.620	19.640		
802.11nHT20	36	17.676	20.440	-	Pass
	40	17.670	20.600		
	48	17.658	20.320		
802.11n40	38	36.651	40.240	-	Pass
	46	36.644	40.080		
802.11ac20	36	17.795	20.280	-	Pass
	40	17.770	20.960		
	48	17.764	20.240		
802.11ac40	38	36.520	40.400	-	Pass
	46	36.433	40.480		
802.11ac80	42	75.926	80.320	-	Pass

Antenna 1:

Type	Channel	99%Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	36	16.664	19.840	-	Pass
	40	16.634	19.800		
	48	16.638	19.760		
802.11nHT20	36	17.674	20.680	-	Pass
	40	17.684	21.080		
	48	17.671	20.600		
802.11n40	38	36.683	40.240	-	Pass
	46	36.592	40.160		
802.11ac20	36	17.726	20.200	-	Pass
	40	17.734	20.280		
	48	17.751	20.360		
802.11ac40	38	36.157	40.240	-	Pass
	46	36.233	40.160		
802.11ac80	42	76.194	80.320	-	Pass

Antenna 0:

99%Bandwidth

802.11a

802.11n HT20



CH36

CH36



CH40

CH40

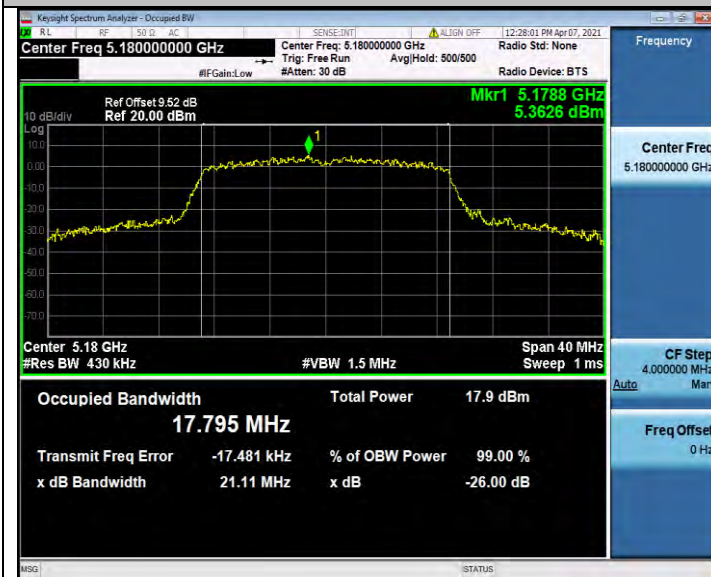


CH48

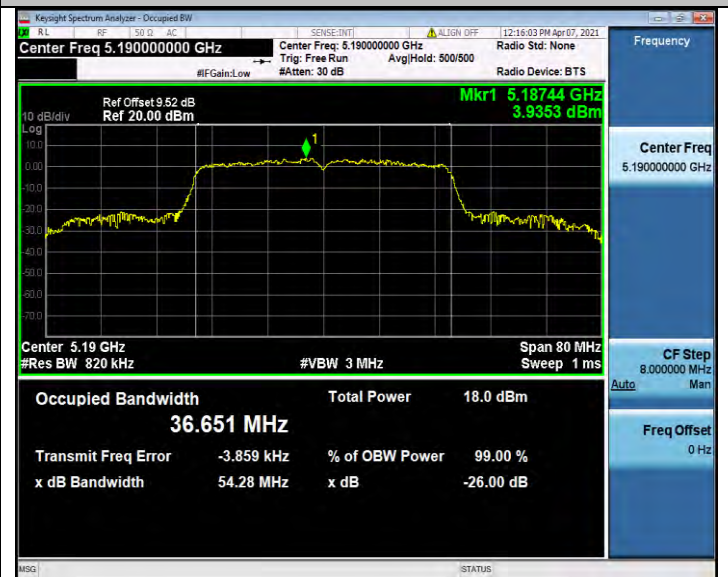
CH48

99%Bandwidth

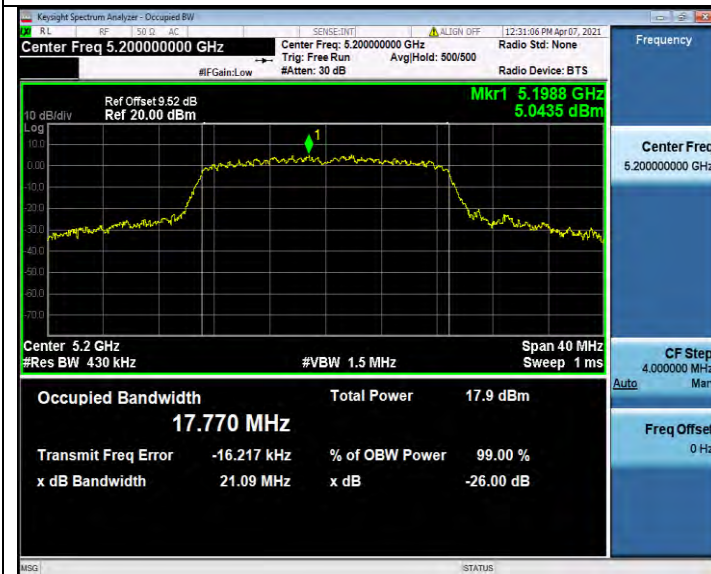
802.11ac20



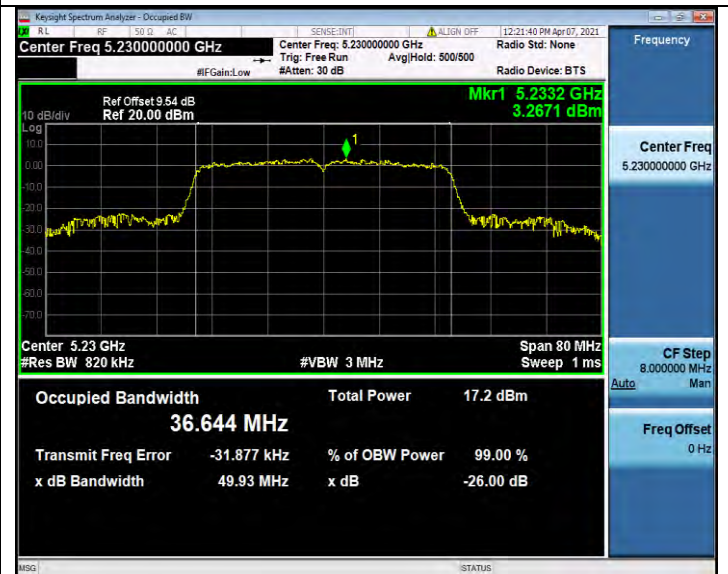
802.11n HT40



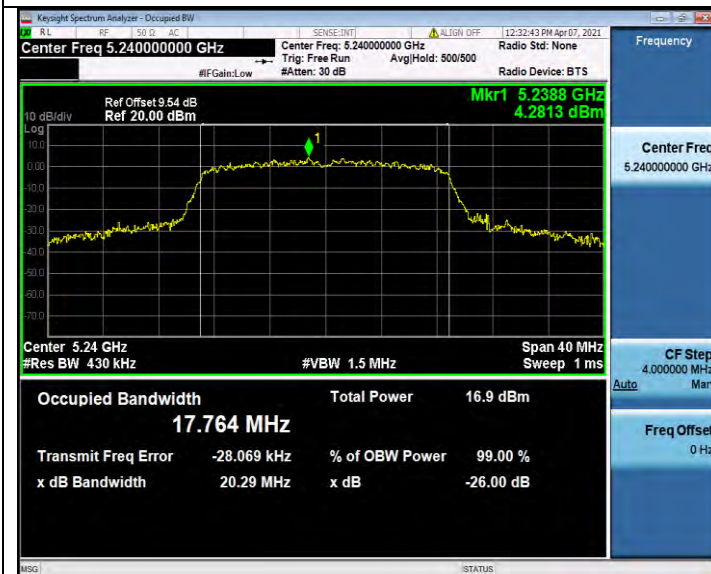
CH36



CH38



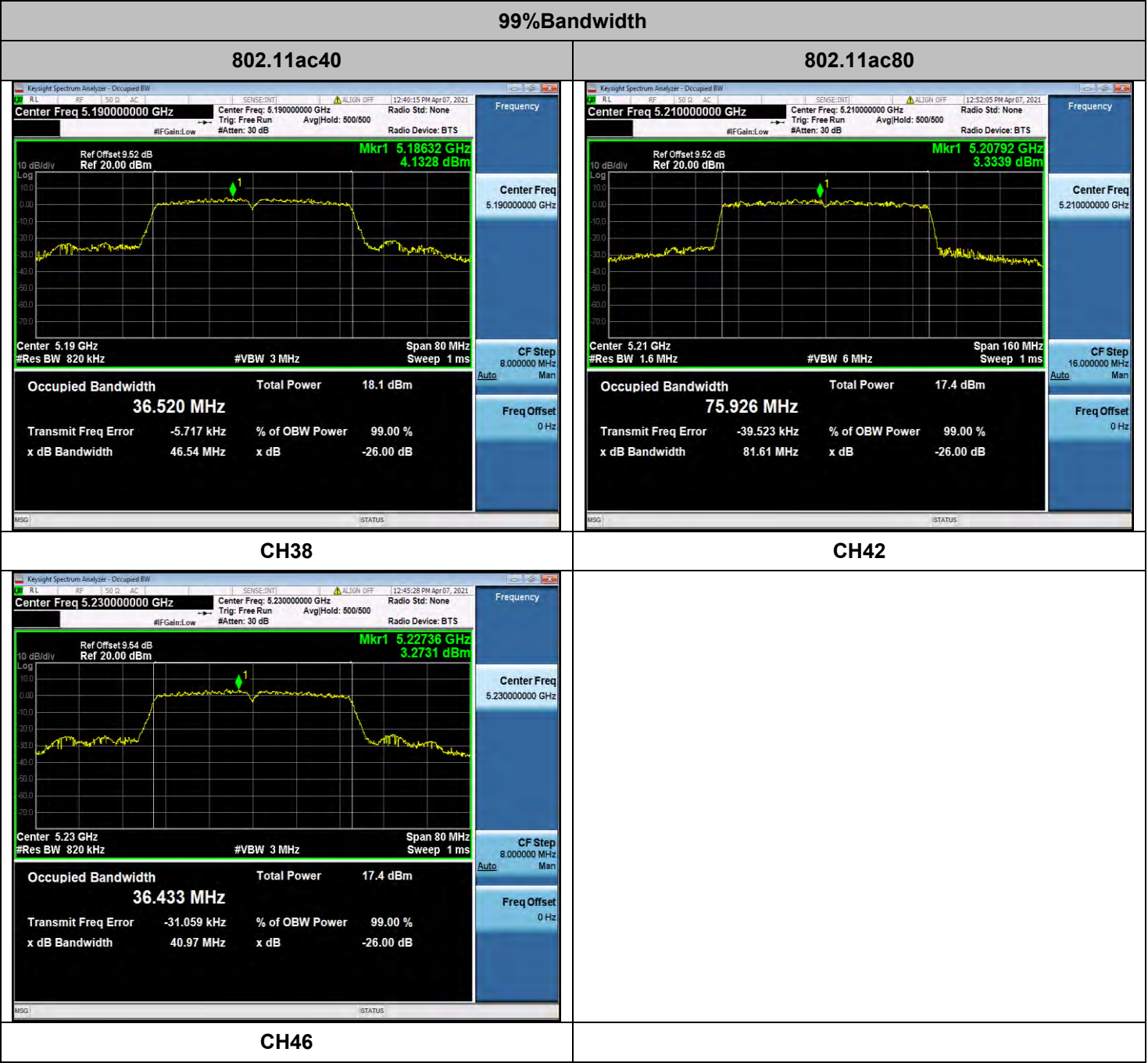
CH40



CH46



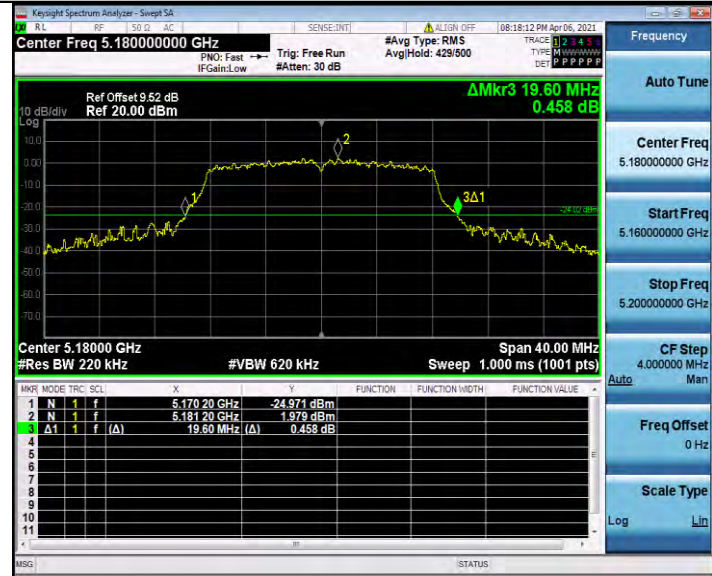
CH48



26dB Bandwidth

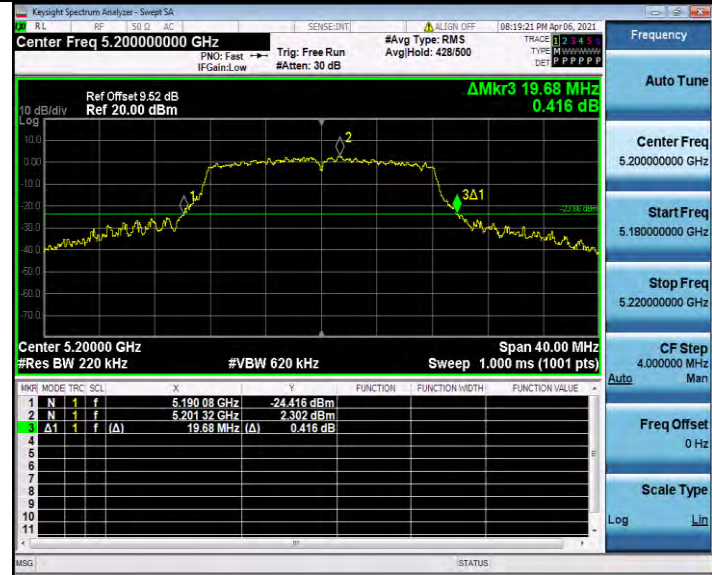
802.11a

802.11n HT20



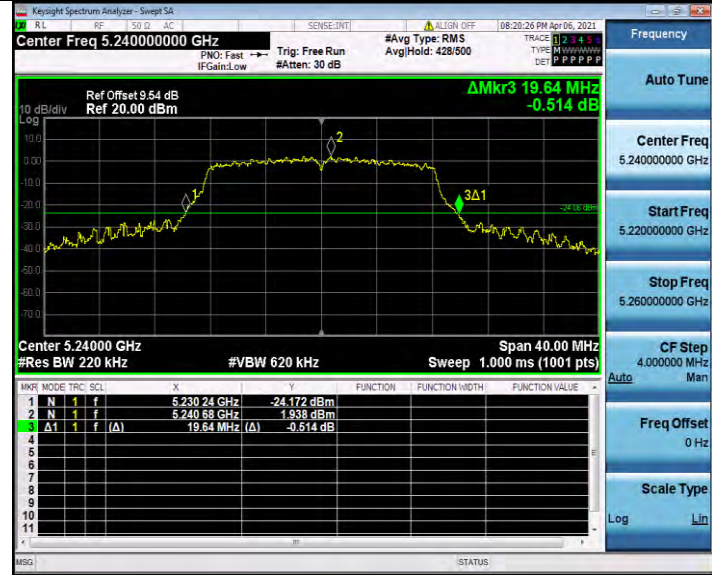
CH36

CH36



CH40

CH40



CH48

CH48



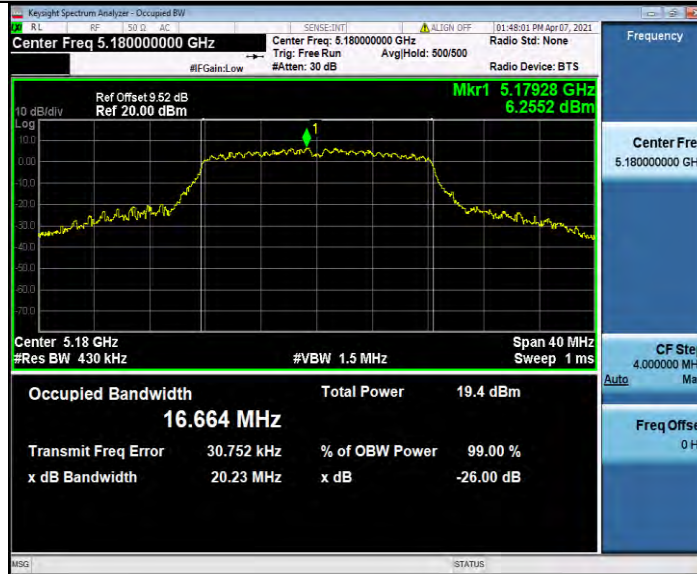


Antenna 1:

99%Bandwidth

802.11a

802.11n HT20



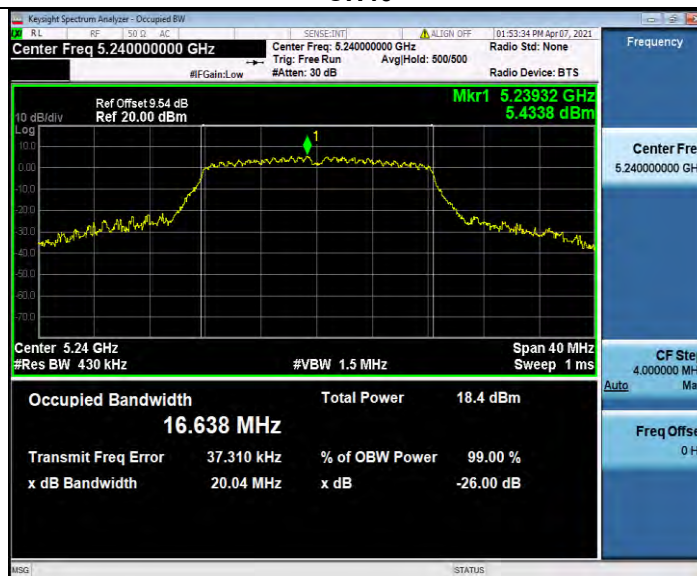
CH36

CH36



CH40

CH40

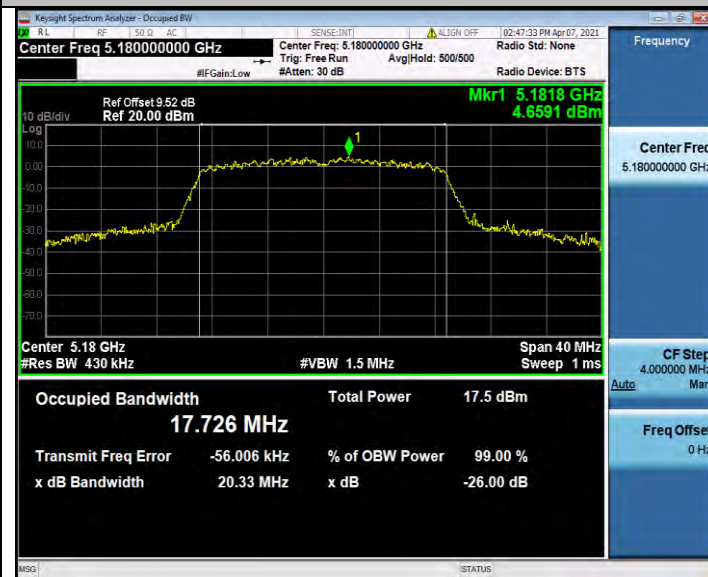


CH48

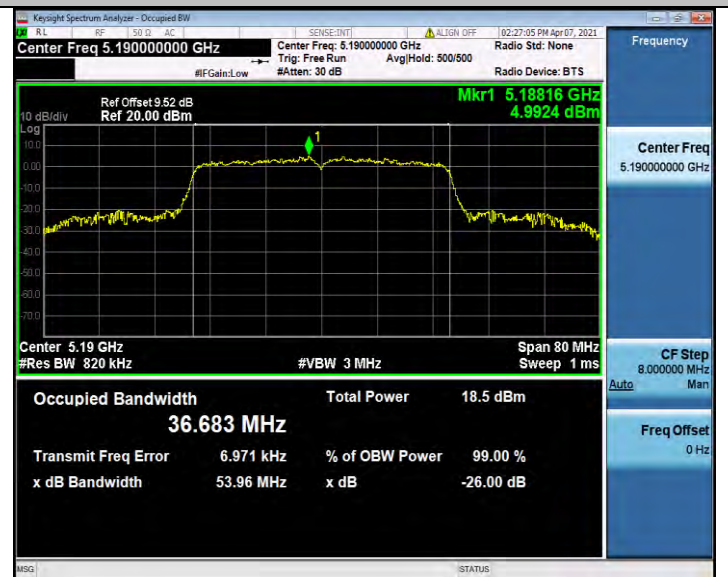
CH48

99%Bandwidth

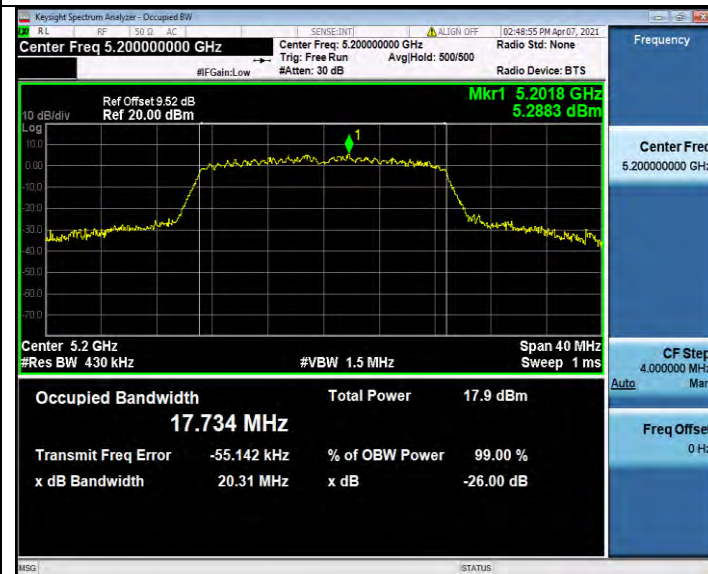
802.11ac20



802.11n HT40



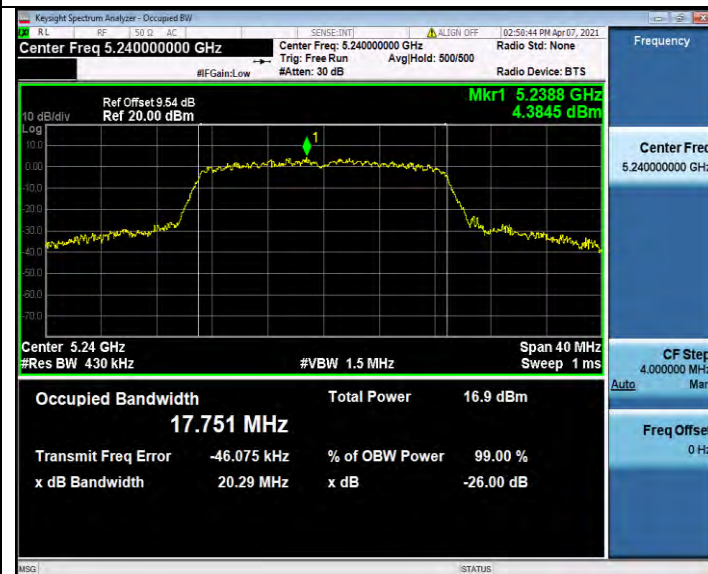
CH36



CH38



CH40



CH46

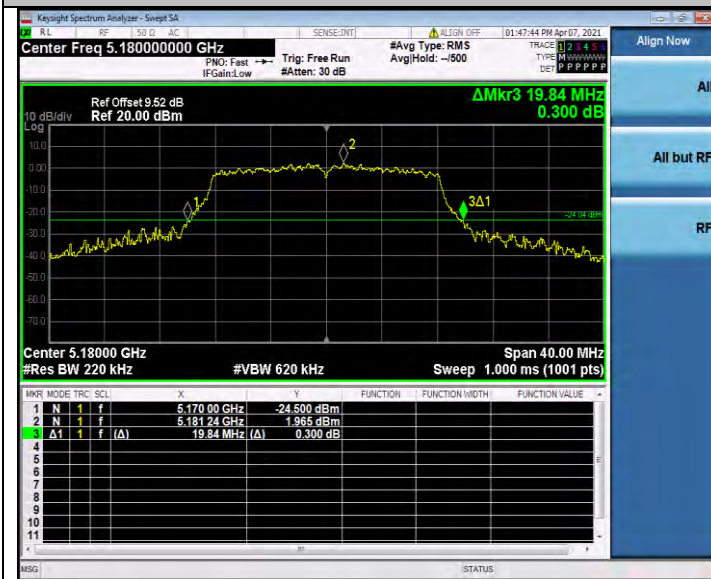


CH48



26dB Bandwidth

802.11a



802.11n HT20



CH36



CH36



CH40



CH40



CH48



CH48





