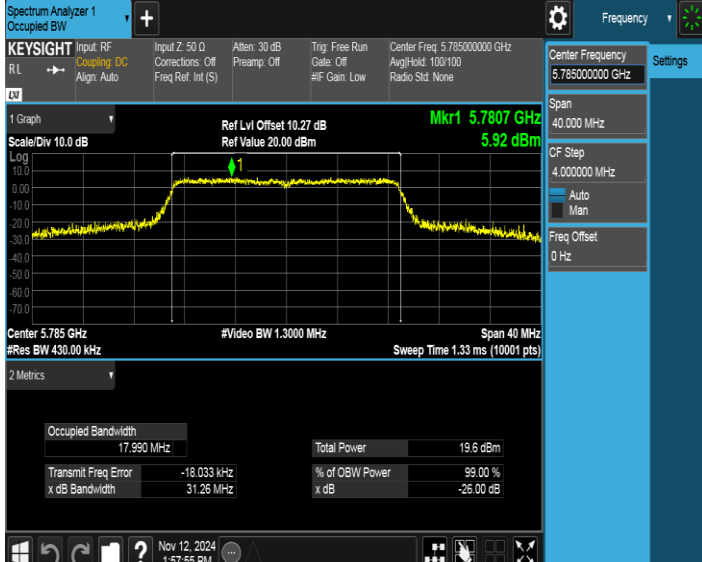
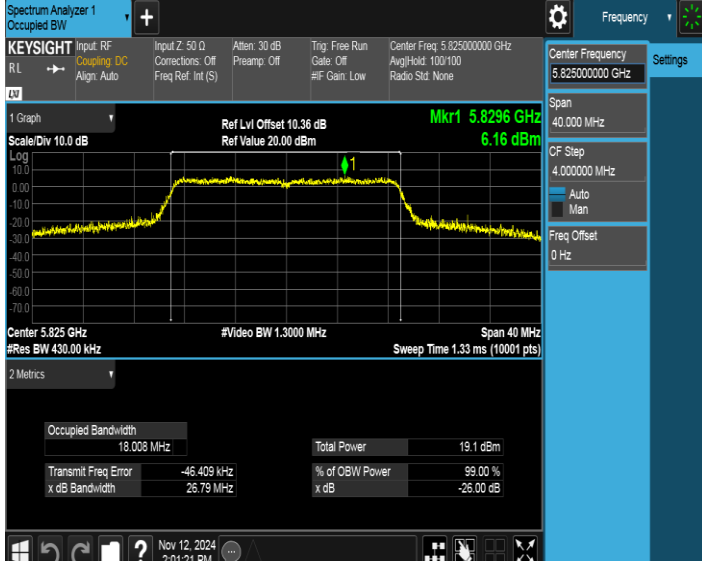
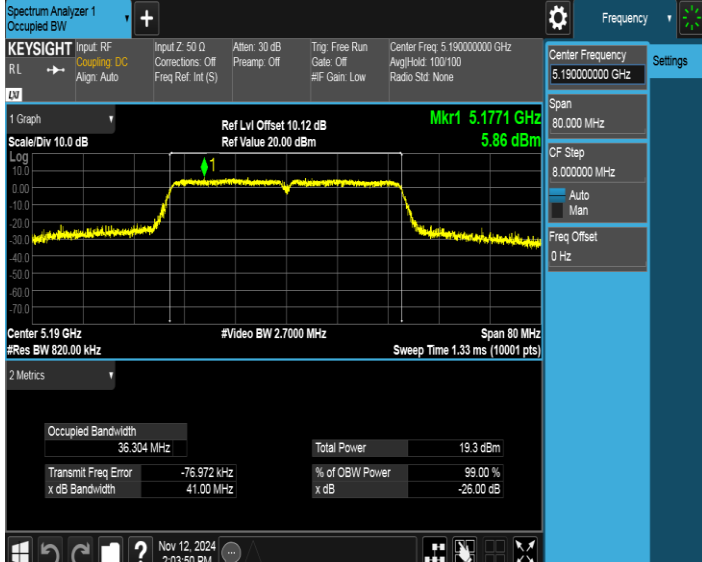
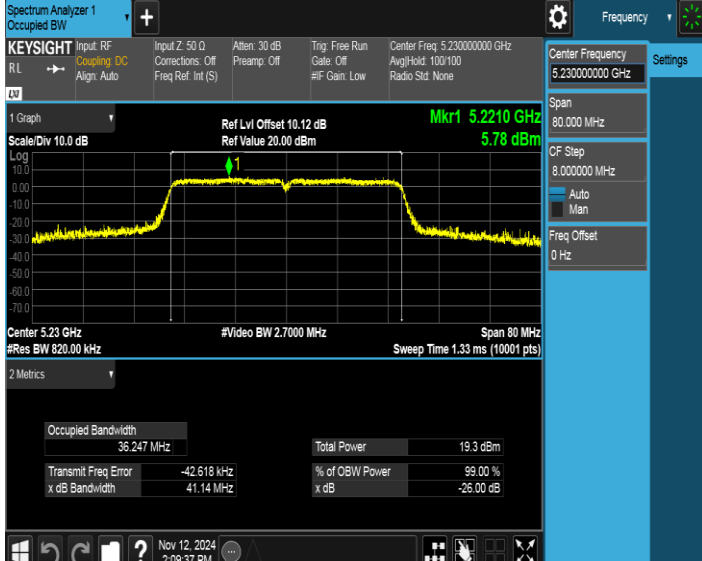


Test Mode	Test Channel	Verdict
11ac VHT20	5785	PASS
		

Test Mode	Test Channel	Verdict
11ac VHT20	5825	PASS
		

Test Mode	Test Channel	Verdict
11ac VHT40	5190	PASS
		

Test Mode	Test Channel	Verdict
11ac VHT40	5230	PASS
		

Test Mode	Test Channel	Verdict
11ac VHT40	5270	PASS

Spectrum Analyzer 1
Occupied BW

KEYSIGHT

Input: RF
Coupling: DC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)

Atten: 30 dB
Preamp: Off

Trig: Free Run
Gate: Off
#F Gain: Low

Center Freq: 5.27000000 GHz
Avg/Hold: 100/100
Radio Std: None

1 Graph

Scale/Div 10.0 dB

Log

0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0

Ref Lvl Offset 10.19 dB
Ref Value 20.00 dBm

Mkr1 5.2680 GHz
6.04 dBm

Center 5.27 GHz
#Res BW 820.00 kHz

#Video BW 2.7000 MHz

Span 80 MHz
Sweep Time 1.33 ms (10001 pts)

2 Metrics

Occupied Bandwidth
36.267 MHz

Total Power
19.3 dBm

Transmit Freq Error
-35.331 kHz

% of OBW Power
99.00 %

x dB Bandwidth
40.82 MHz

x dB
-26.00 dB

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2:11:49 PM

Test Mode	Test Channel	Verdict
11ac VHT40	5310	PASS

Spectrum Analyzer 1
Occupied BW

KEYSIGHT

Input: RF
Coupling: DC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)

Atten: 30 dB
Preamp: Off

Trig: Free Run
Gate: Off
#F Gain: Low

Center Freq: 5.31000000 GHz
Avg/Hold: 100/100
Radio Std: None

1 Graph

Scale/Div 10.0 dB

Log

Ref Lvl Offset 10.19 dB
Ref Value 20.00 dBm

Mkr1 5.3021 GHz
6.89 dBm

Center 5.31 GHz
#Res BW 820.00 kHz

#Video BW 2.7000 MHz

Span 80 MHz
Sweep Time 1.33 ms (10001 pts)

2 Metrics

Occupied Bandwidth
36.239 MHz

Total Power
19.6 dBm

Transmit Freq Error
x dB Bandwidth -57.549 kHz
41.03 MHz

% of OBW Power
x dB 99.00 %
-26.00 dB

Frequency

Settings

Center Frequency
5.310000000 GHz

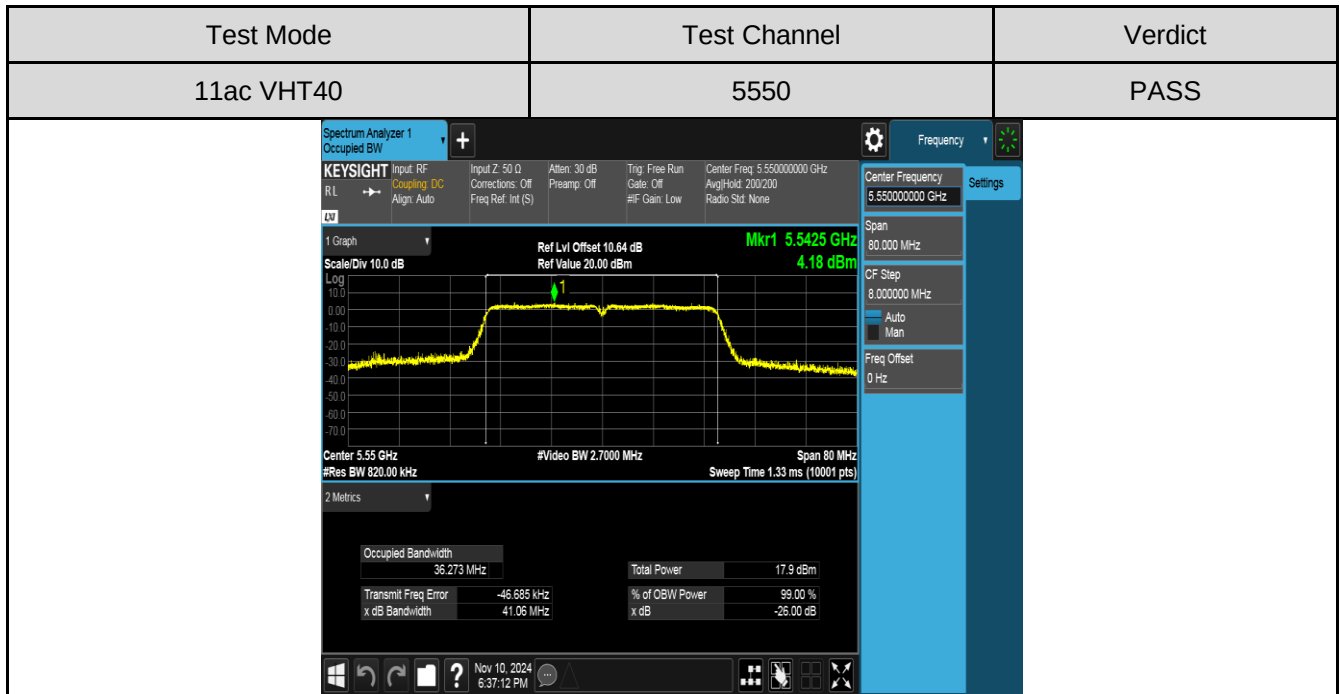
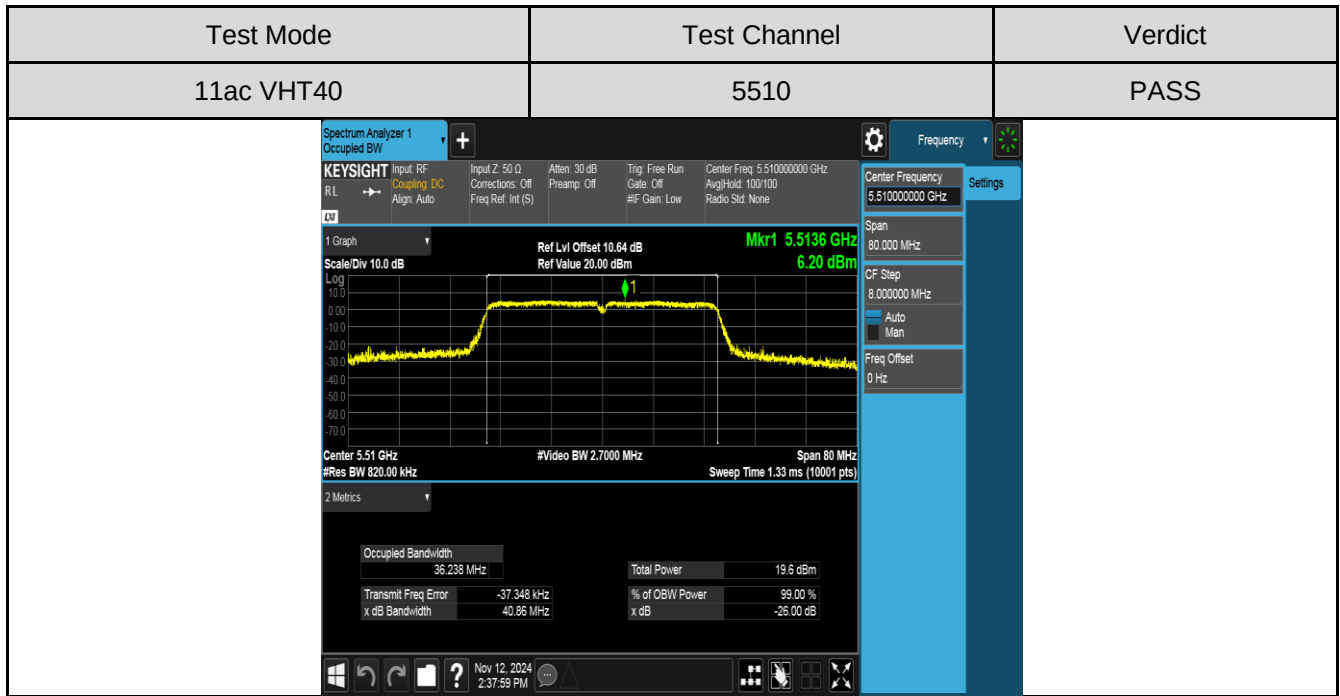
Span
80.000 MHz

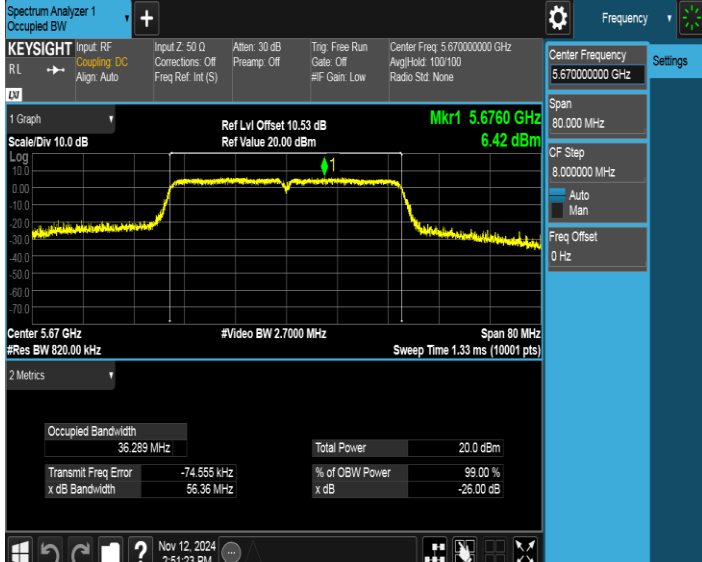
CF Step
8.000000 MHz

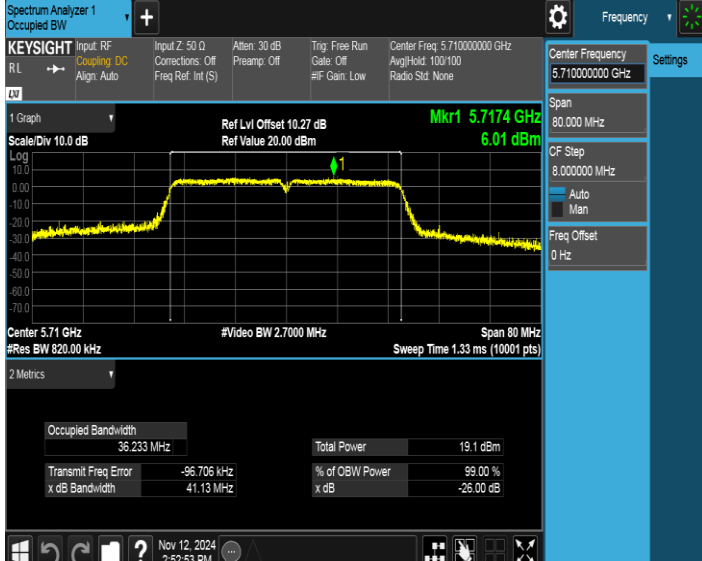
Auto
Man

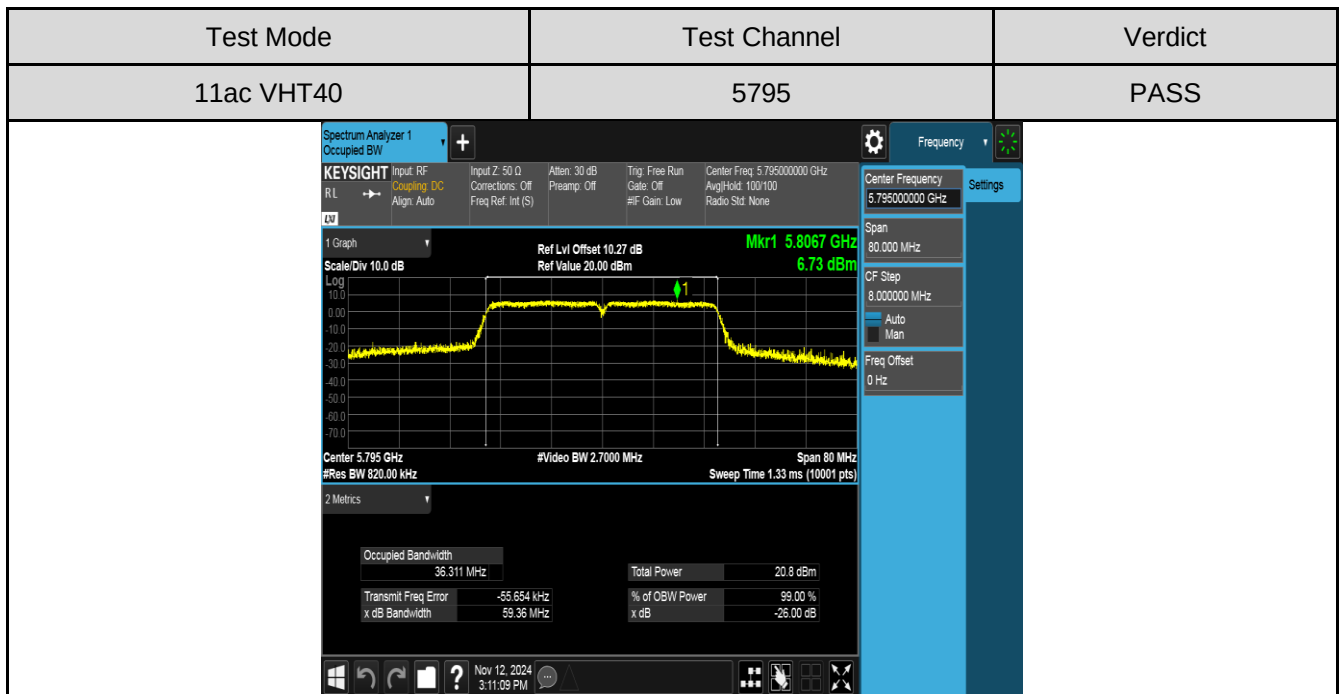
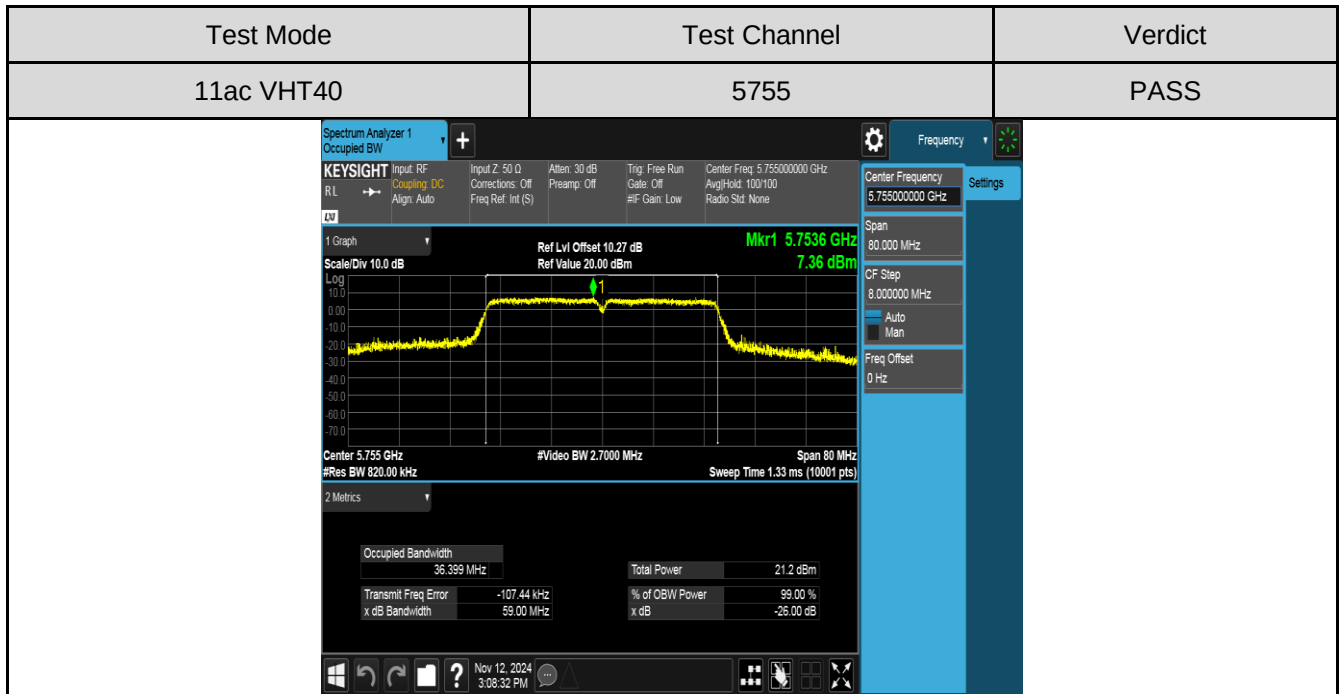
Freq Offset
0 Hz

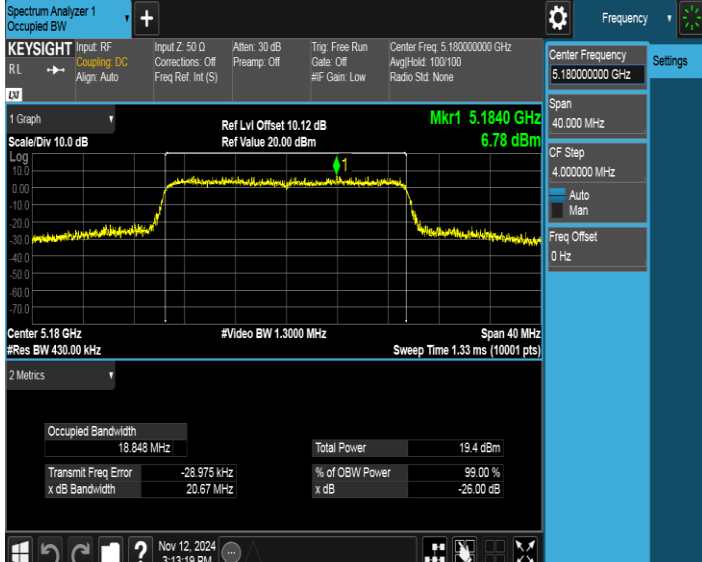
Nov 12, 2024
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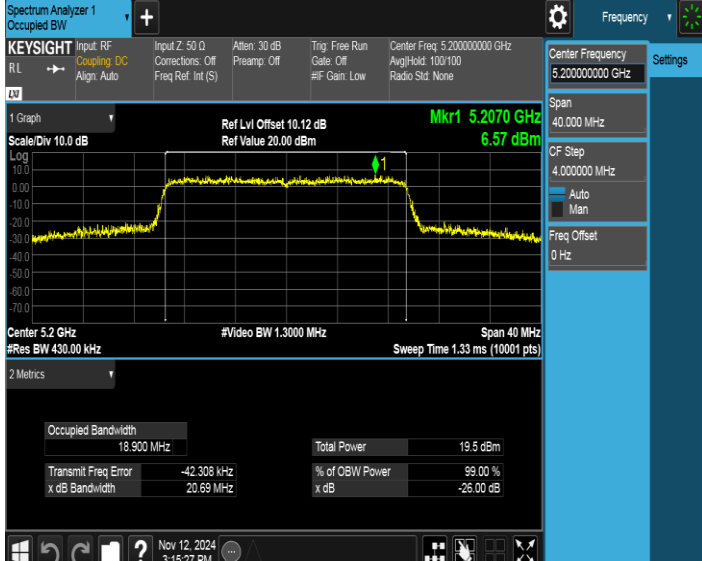


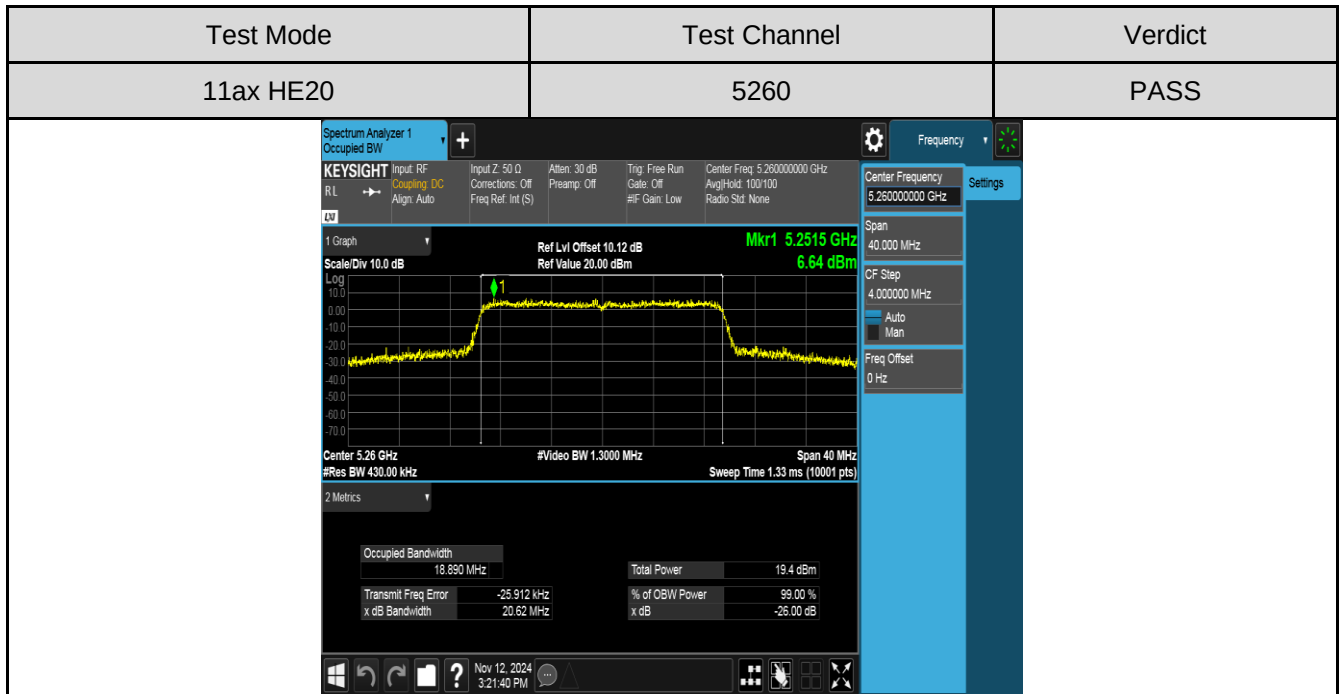
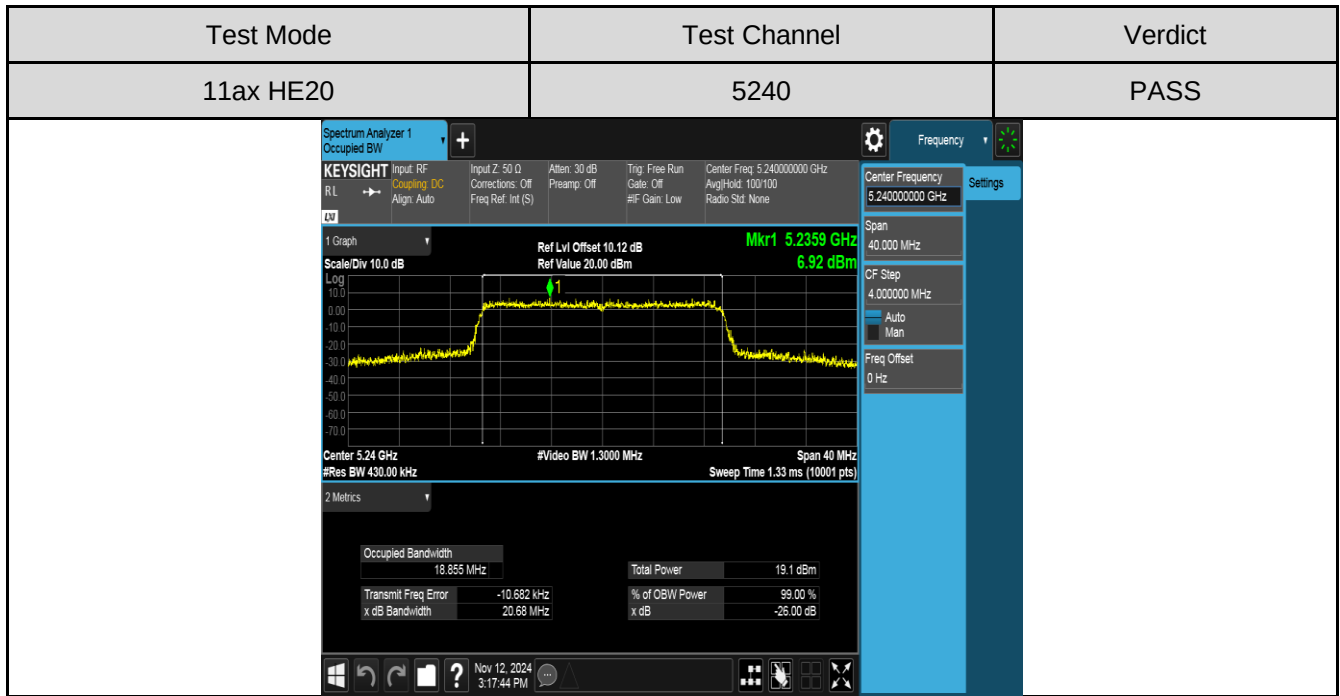
Test Mode	Test Channel	Verdict
11ac VHT40	5670	PASS
		

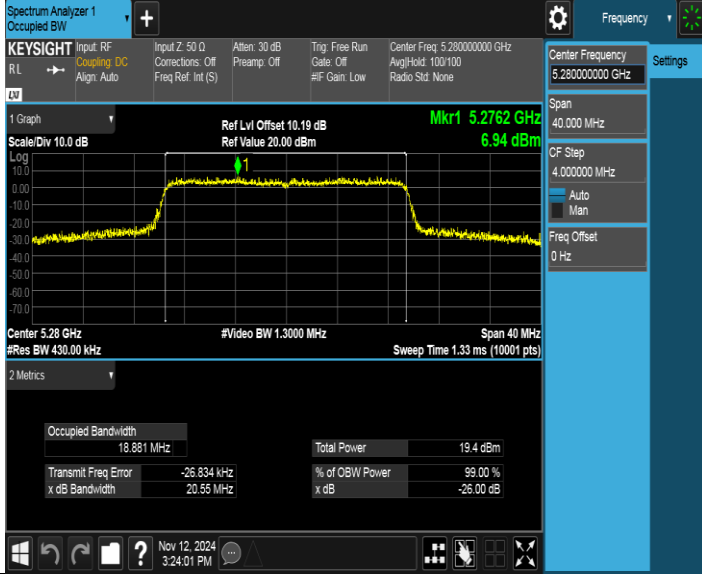
Test Mode	Test Channel	Verdict
11ac VHT40	5710	PASS
		

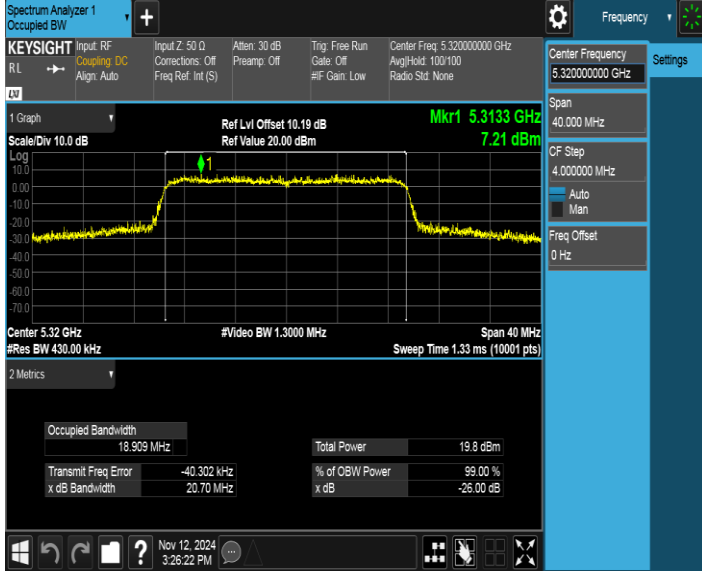


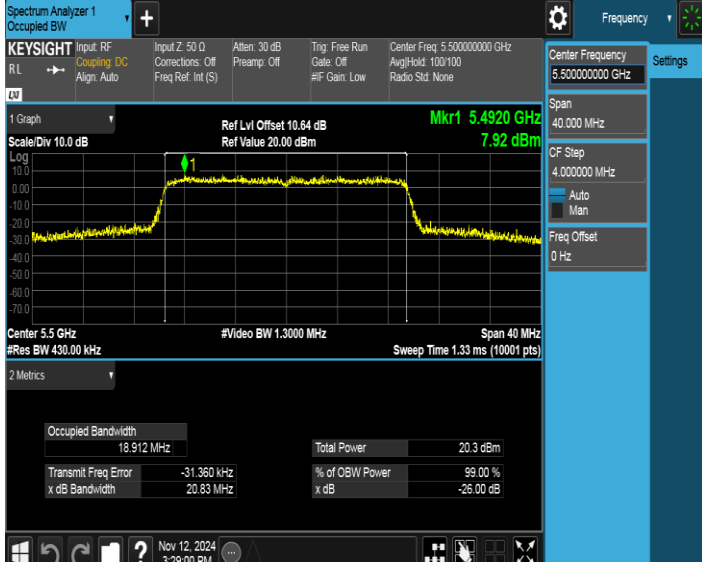
Test Mode	Test Channel	Verdict
11ax HE20	5180	PASS
		

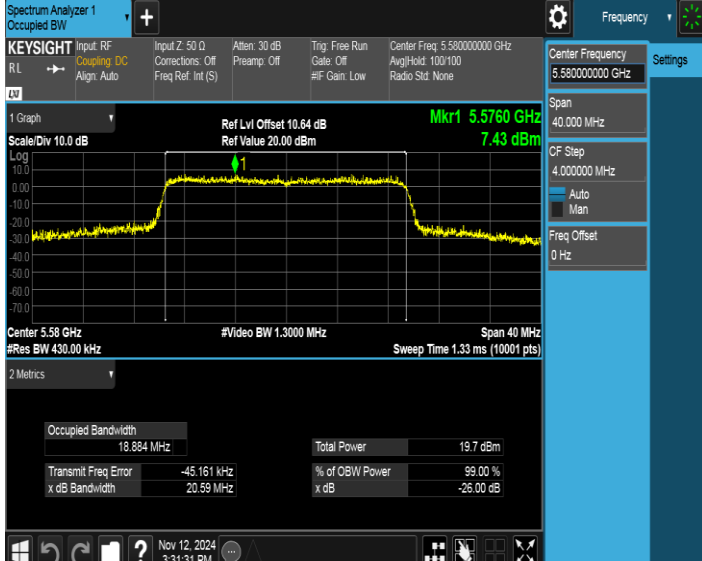
Test Mode	Test Channel	Verdict
11ax HE20	5200	PASS
		

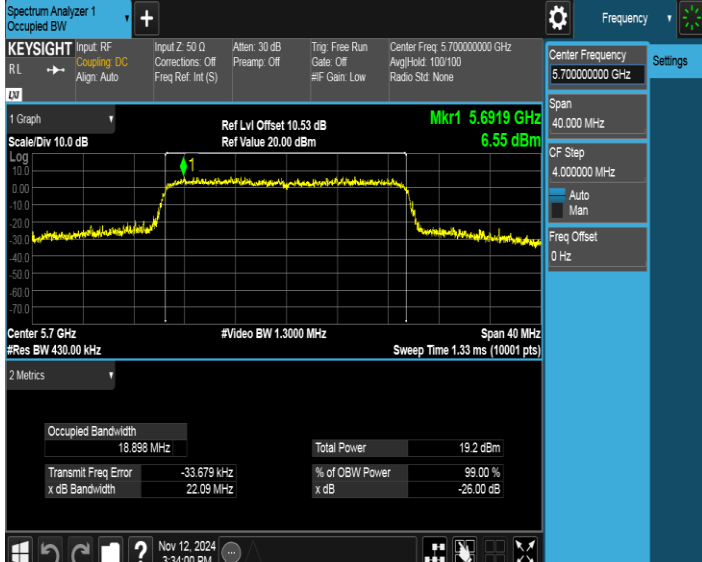


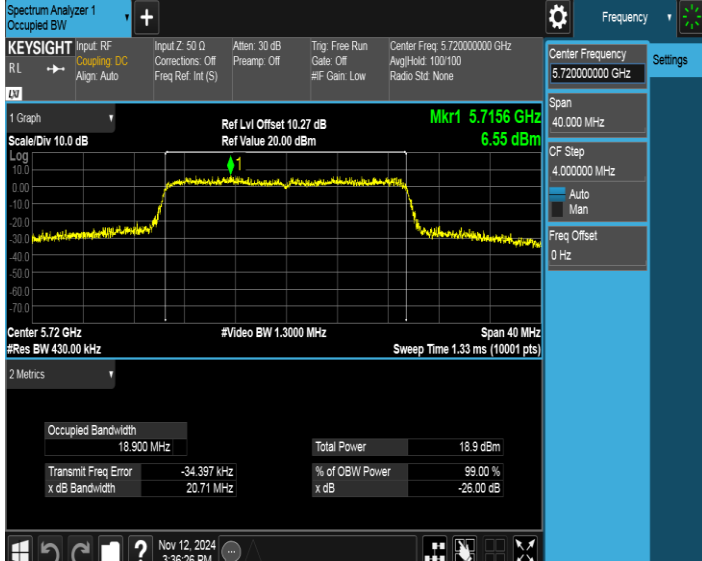
Test Mode	Test Channel	Verdict
11ax HE20	5280	PASS
		

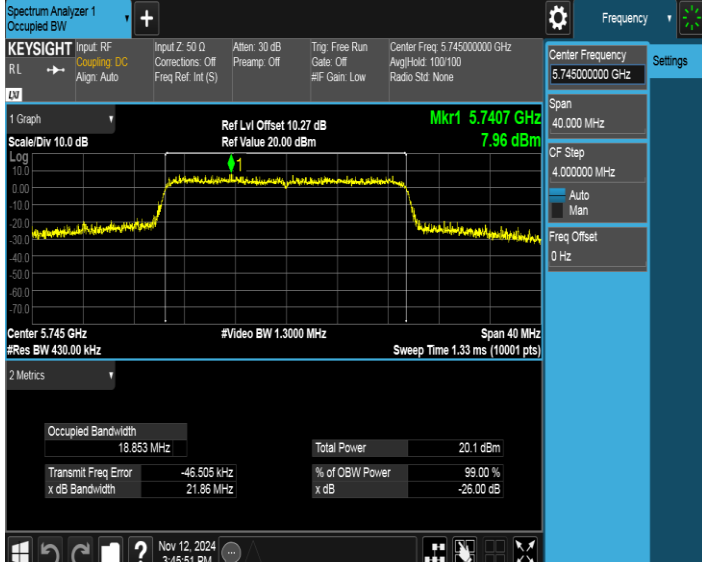
Test Mode	Test Channel	Verdict
11ax HE20	5320	PASS
		

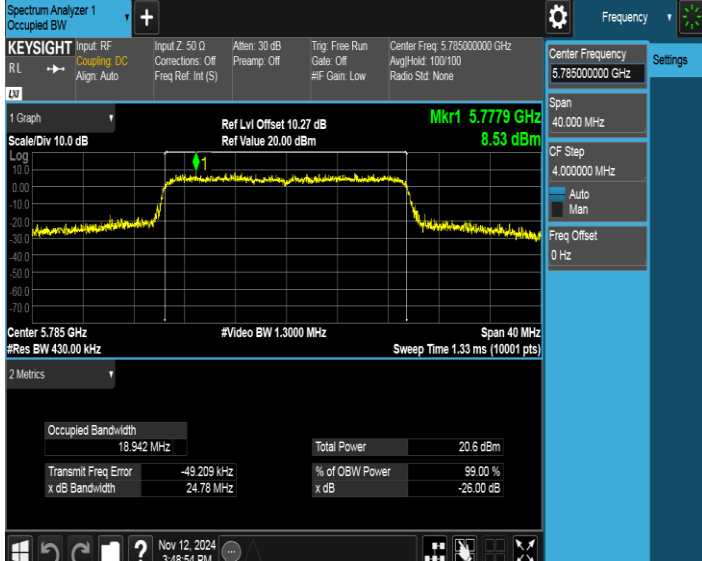
Test Mode	Test Channel	Verdict
11ax HE20	5500	PASS
		

Test Mode	Test Channel	Verdict
11ax HE20	5580	PASS
		

Test Mode	Test Channel	Verdict
11ax HE20	5700	PASS
		

Test Mode	Test Channel	Verdict
11ax HE20	5720	PASS
		

Test Mode	Test Channel	Verdict
11ax HE20	5745	PASS
 Test Channel 5745 Results: - Center Frequency: 5.745 GHz - Span: 40.000 MHz - CF Step: 4.000000 MHz - Freq Offset: 0 Hz - Ref Lvl Offset: 10.27 dB - Ref Value: 20.00 dBm - Mkr1: 5.7407 GHz, 7.96 dBm - Occupied Bandwidth: 18.853 MHz - Total Power: 20.1 dBm - Transmit Freq Error: -46.505 kHz - x dB Bandwidth: 21.86 MHz % of OBW Power: 99.00 % - x dB: -26.00 dB		

Test Mode	Test Channel	Verdict
11ax HE20	5785	PASS
 Test Channel 5785 Results: - Center Frequency: 5.785 GHz - Span: 40.000 MHz - CF Step: 4.000000 MHz - Freq Offset: 0 Hz - Ref Lvl Offset: 10.27 dB - Ref Value: 20.00 dBm - Mkr1: 5.7779 GHz, 8.53 dBm - Occupied Bandwidth: 18.942 MHz - Total Power: 20.6 dBm - Transmit Freq Error: -49.209 kHz - x dB Bandwidth: 24.78 MHz % of OBW Power: 99.00 % - x dB: -26.00 dB		

Test Mode	Test Channel	Verdict
11ax HE20	5825	PASS
Spectrum Analyzer 1 Occupied BW + KEYSIGHT Input: RF Coupling: DC Align: Auto Input Z: 50 Ω Corrections: Off Freq Ref: Int (S) Atten: 30 dB Preamp: Off Trig: Free Run Gate: Off #F Gain: Low Center Freq: 5.82500000 GHz Avg/Hold: 100/100 Radio Std: None Frequency Settings Center Frequency 5.825000000 GHz Span 40.000 MHz CF Step 4.0000000 MHz Auto Man Freq Offset 0 Hz 1 Graph Scale/Div 10.0 dB Log Ref Lvl Offset 10.36 dB Ref Value 20.00 dBm Mkr1 5.8290 GHz 7.59 dBm Center 5.825 GHz #Video BW 1.3000 MHz Span 40 MHz #Res BW 430.00 kHz Sweep Time 1.33 ms (10001 pts) 2 Metrics Occupied Bandwidth 18.888 MHz Total Power 20.0 dBm Transmit Freq Error -27.800 kHz % of OBW Power 99.00 % x dB Bandwidth 22.50 MHz x dB -26.00 dB Nov 12, 2024 3:51:37 PM		

Test Mode	Test Channel	Verdict
11ax HE40	5190	PASS

Spectrum Analyzer 1

Occupied BW

KEYSIGHT

Input: RF

Coupling: DC

Align: Auto

Input Z: 50 Ω

Corrections: Off

Freq Ref: Int (S)

Atten: 30 dB

Preamp: Off

Trig: Free Run

Gate: Off

#F Gain: Low

Center Freq: 5.19000000 GHz

Avg/Hold: 100/100

Radio Std: None

1 Graph

Scale/Div 10.0 dB

Log

Ref Lvl Offset 10.12 dB

Ref Value 20.00 dBm

Mkr1 5.1796 GHz

8.17 dBm

Center 5.19 GHz

#Res BW 820.00 kHz

#Video BW 2.7000 MHz

Sweep Time 1.33 ms (10001 pts)

Span 80 MHz

2 Metrics

Occupied Bandwidth

37.544 MHz

Total Power

19.8 dBm

Transmit Freq Error

-5.547 kHz

% of OBW Power

99.00 %

x dB Bandwidth

40.72 MHz

x dB

-26.00 dB

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Frequency

Settings

Center Frequency

5.19000000 GHz

Span

80.000 MHz

CF Step

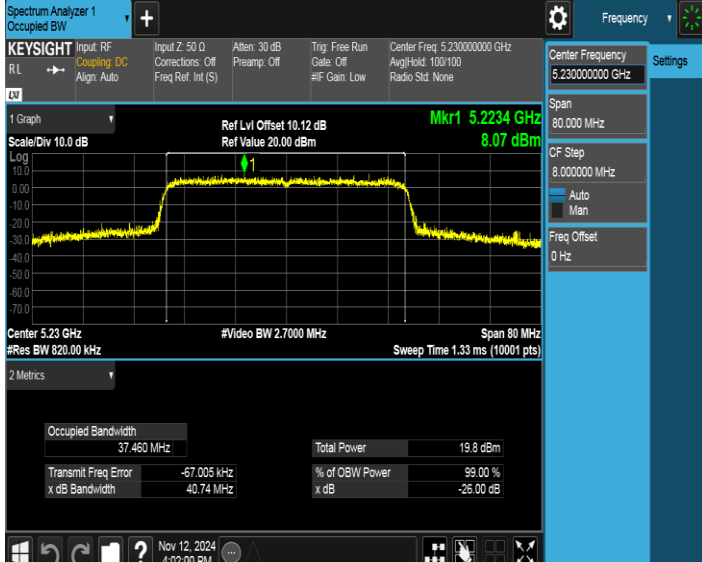
8.000000 MHz

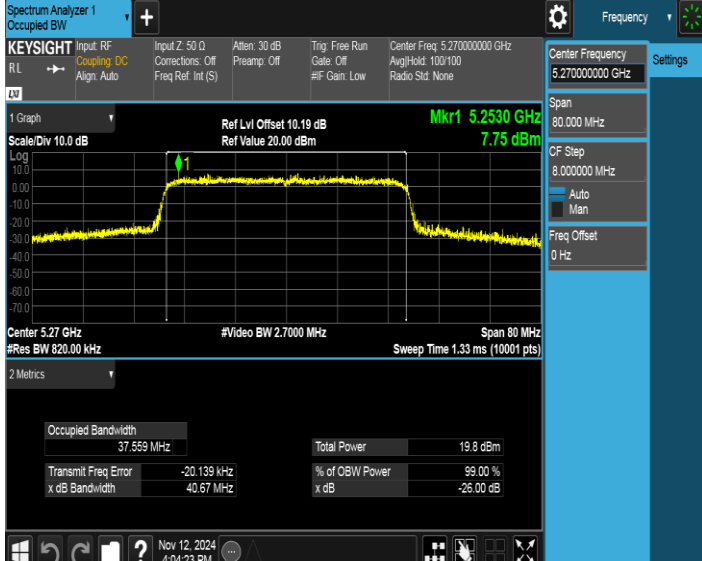
Auto

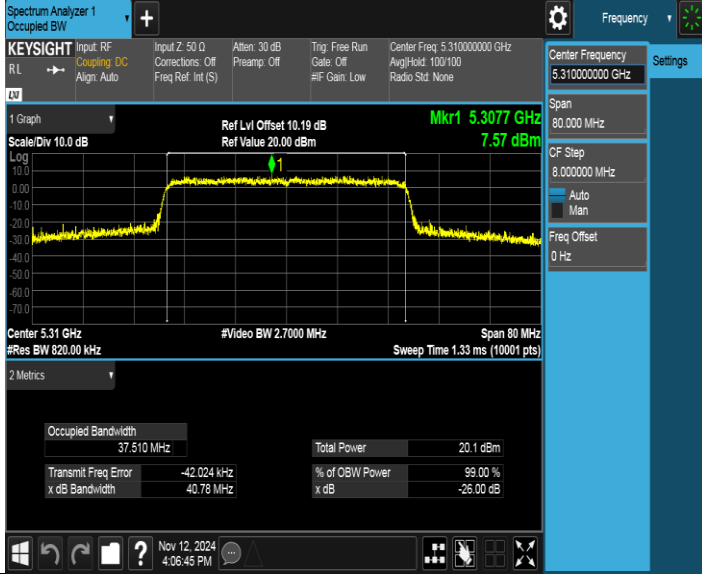
Man

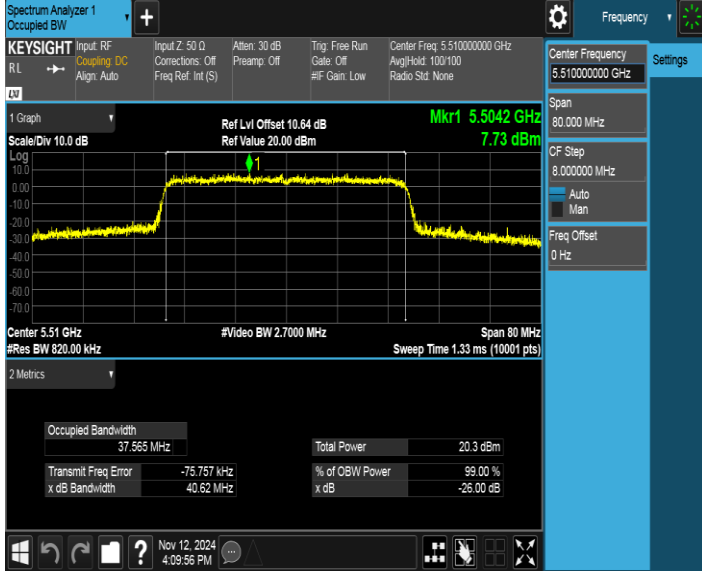
Freq Offset

0 Hz

Test Mode	Test Channel	Verdict
11ax HE40	5230	PASS
		

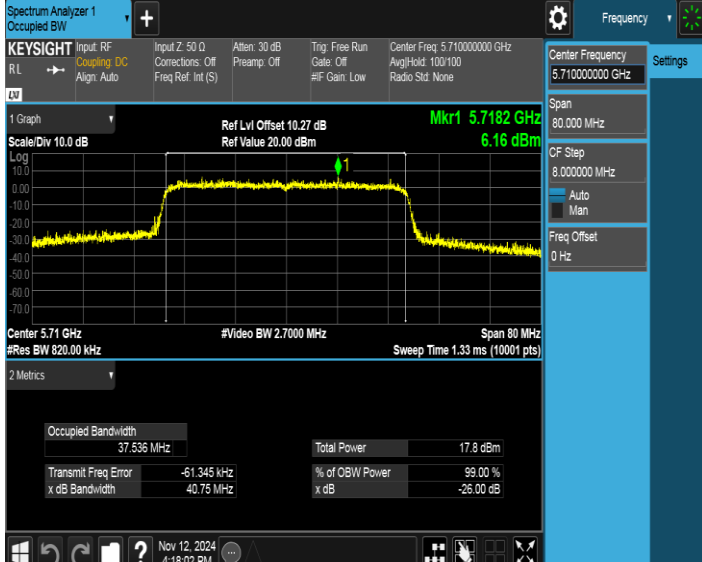
Test Mode	Test Channel	Verdict
11ax HE40	5270	PASS
		

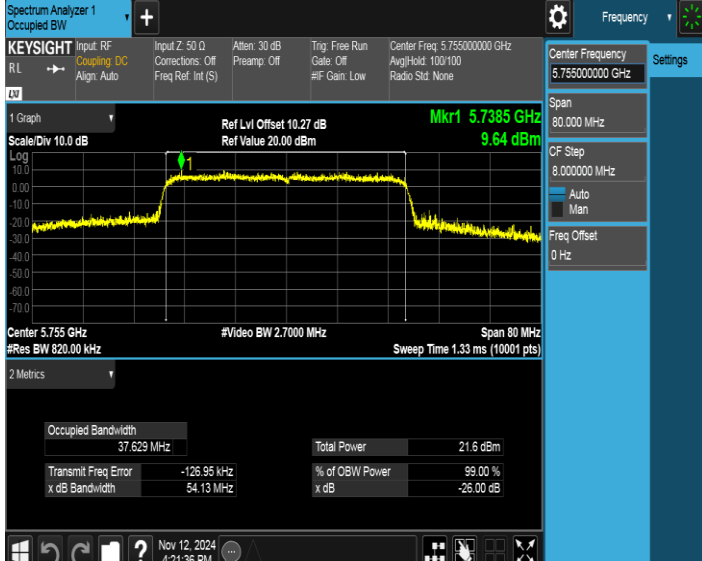
Test Mode	Test Channel	Verdict
11ax HE40	5310	PASS
		

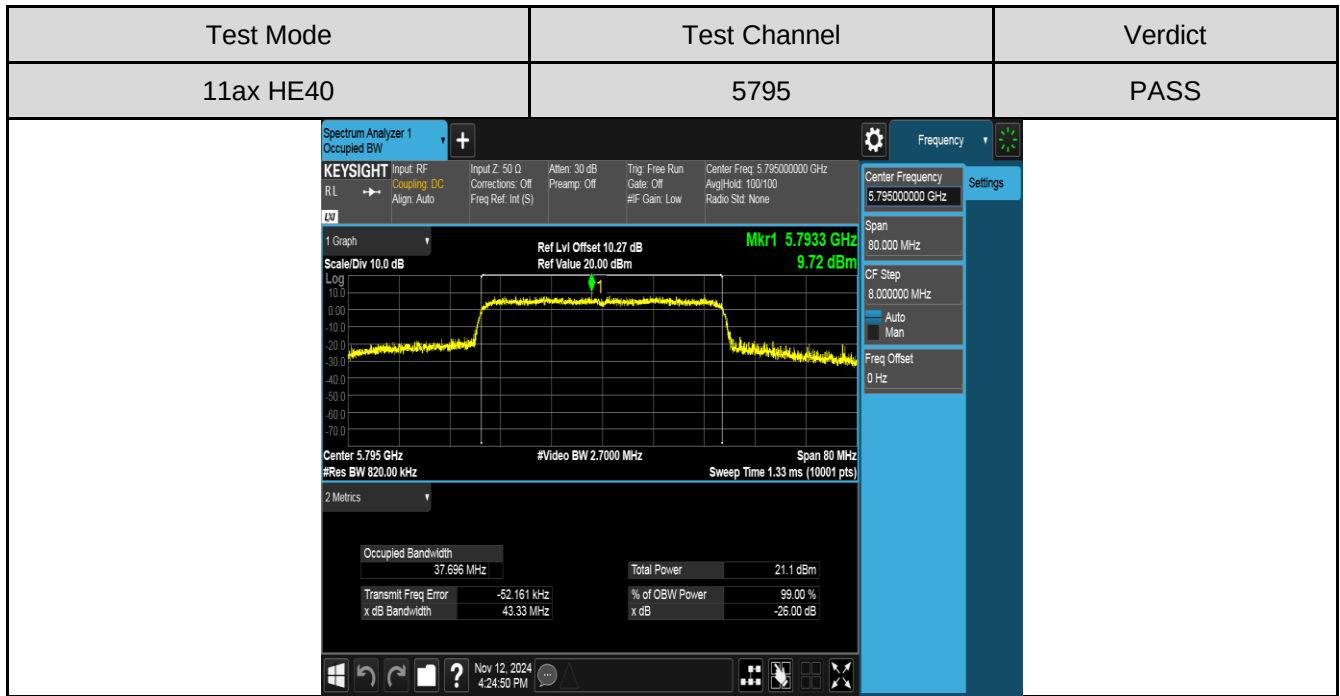
Test Mode	Test Channel	Verdict
11ax HE40	5510	PASS
		

Test Mode	Test Channel	Verdict
11ax HE40	5550	PASS
Spectrum Analyzer 1 Occupied BW + KEYSIGHT Input: RF Coupling: DC Align: Auto Input Z: 50 Ω Corrections: Off Freq Ref: Int (S) Atten: 30 dB Preamp: Off Trig: Free Run Gate: Off #F Gain: Low Center Freq: 5.55000000 GHz Avg/Hold: 100/100 Radio Std: None 1 Graph Scale/Div 10.0 dB Log 10.0 0.00 -10.0 -20.0 -30.0 -40.0 -50.0 -60.0 -70.0 Ref Lvl Offset 10.64 dB Ref Value 20.00 dBm Mkr1 5.5392 GHz 9.29 dBm Center 5.55 GHz #Video BW 2.7000 MHz Span 80 MHz #Res BW 820.00 kHz Sweep Time 1.33 ms (10001 pts) 2 Metrics Occupied Bandwidth 37.532 MHz Total Power 20.8 dBm Transmit Freq Error -89.514 kHz % of OBW Power 99.00 % x dB Bandwidth 40.87 MHz x dB -26.00 dB Frequency Settings Center Frequency 5.550000000 GHz Span 80.000 MHz CF Step 8.0000000 MHz Auto Man Freq Offset 0 Hz Nov 12, 2024 4:13:07 PM		

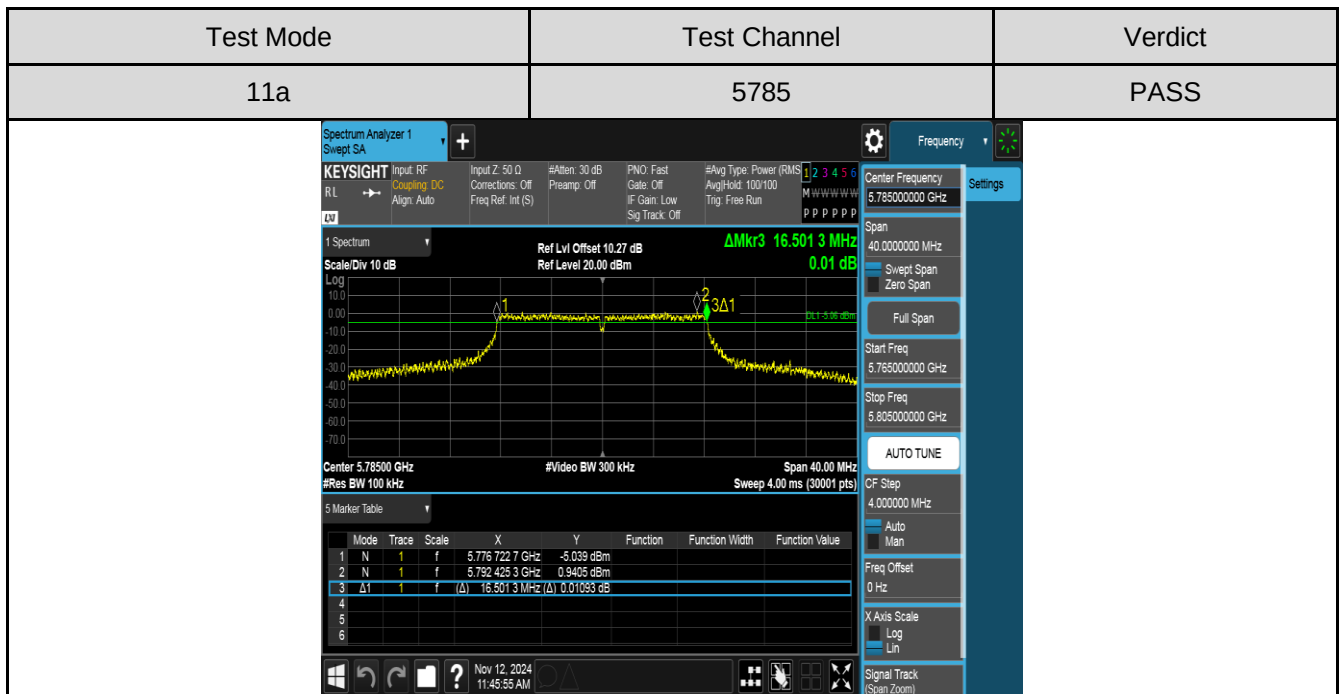
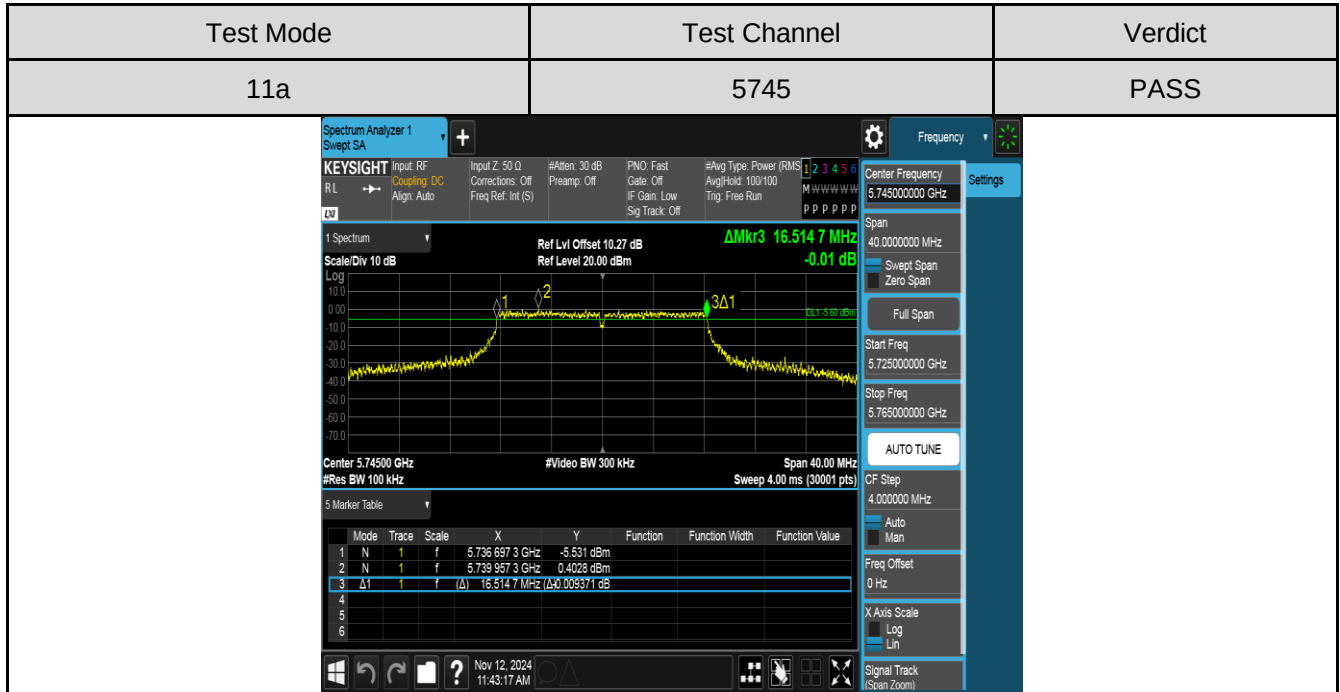
Test Mode	Test Channel	Verdict
11ax HE40	5670	PASS
Spectrum Analyzer 1 Occupied BW + KEYSIGHT Input: RF Coupling: DC Align: Auto Input Z: 50 Ω Corrections: Off Freq Ref: Int (S) Atten: 30 dB Preamp: Off Trig: Free Run Gate: Off #F Gain: Low Center Freq: 5.67000000 GHz Avg/Hold: 100/100 Radio Std: None 1 Graph Scale/Div 10.0 dB Log 10.0 0.00 -10.0 -20.0 -30.0 -40.0 -50.0 -60.0 -70.0 Ref Lvl Offset 10.53 dB Ref Value 20.00 dBm Mkr1 5.6682 GHz 8.48 dBm Center 5.67 GHz #Res BW 820.00 kHz #Video BW 2.7000 MHz Span 80 MHz Sweep Time 1.33 ms (10001 pts) 2 Metrics Occupied Bandwidth 37.566 MHz Total Power 20.4 dBm Transmit Freq Error -30.335 kHz % of OBW Power 99.00 % x dB Bandwidth 45.79 MHz x dB -26.00 dB Nov 12, 2024 4:15:25 PM Frequency Settings Center Frequency 5.670000000 GHz Span 80.000 MHz CF Step 8.0000000 MHz Auto Man Freq Offset 0 Hz		

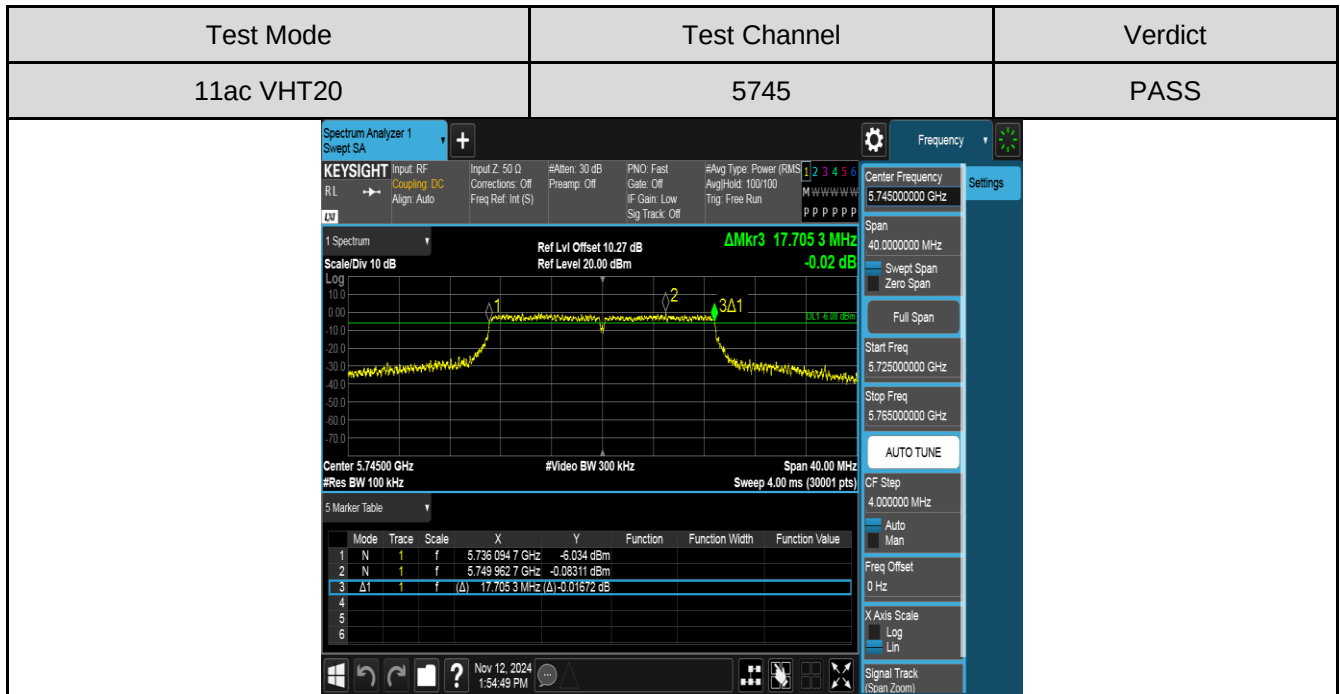
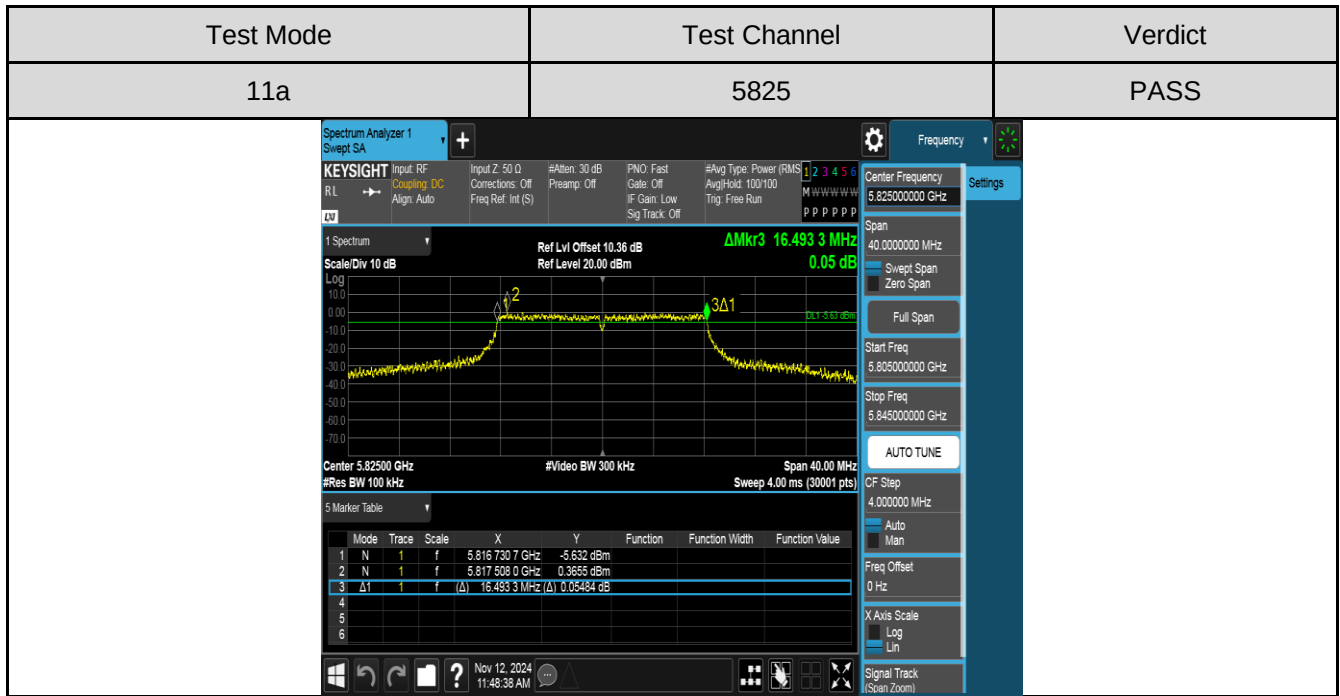
Test Mode	Test Channel	Verdict
11ax HE40	5710	PASS
		

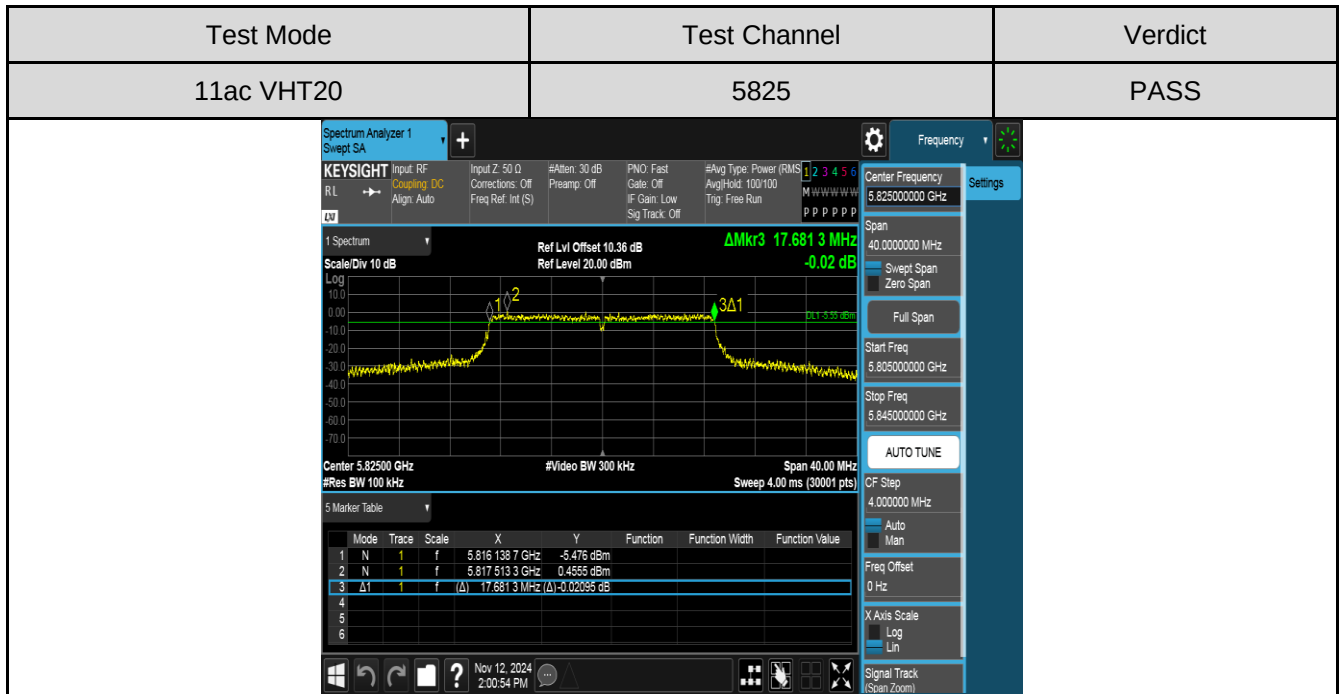
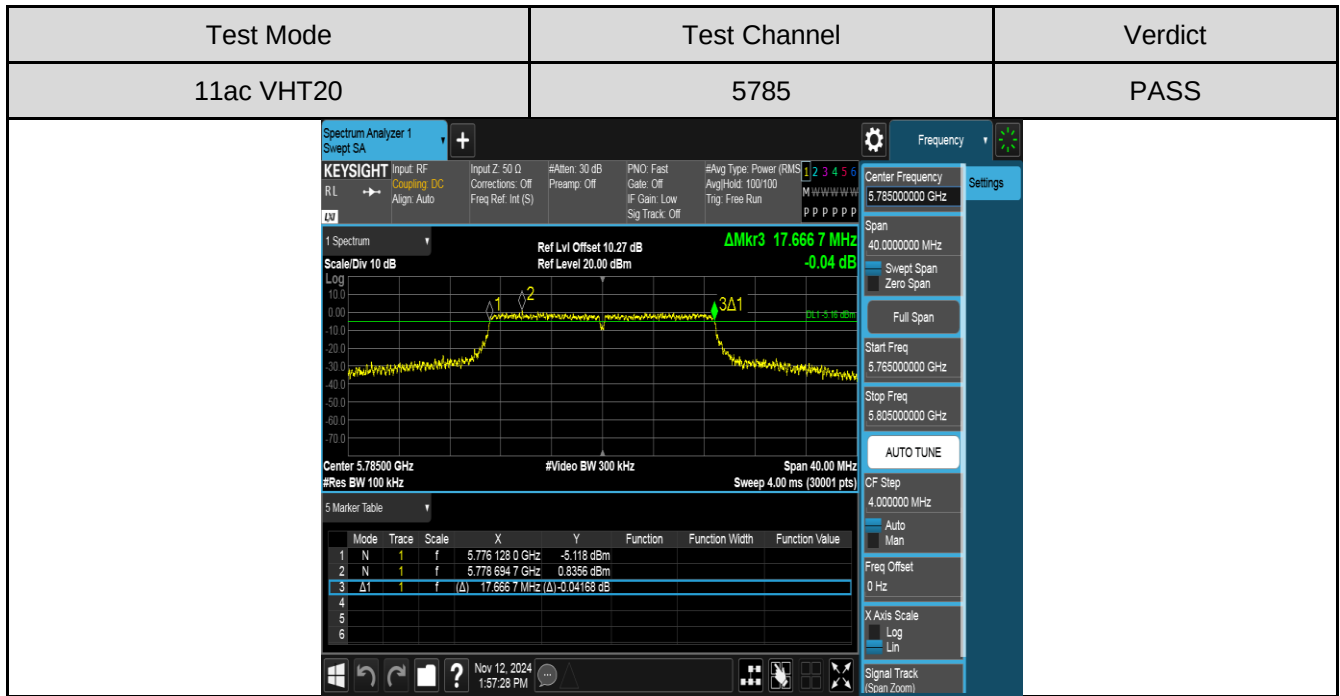
Test Mode	Test Channel	Verdict
11ax HE40	5755	PASS
		

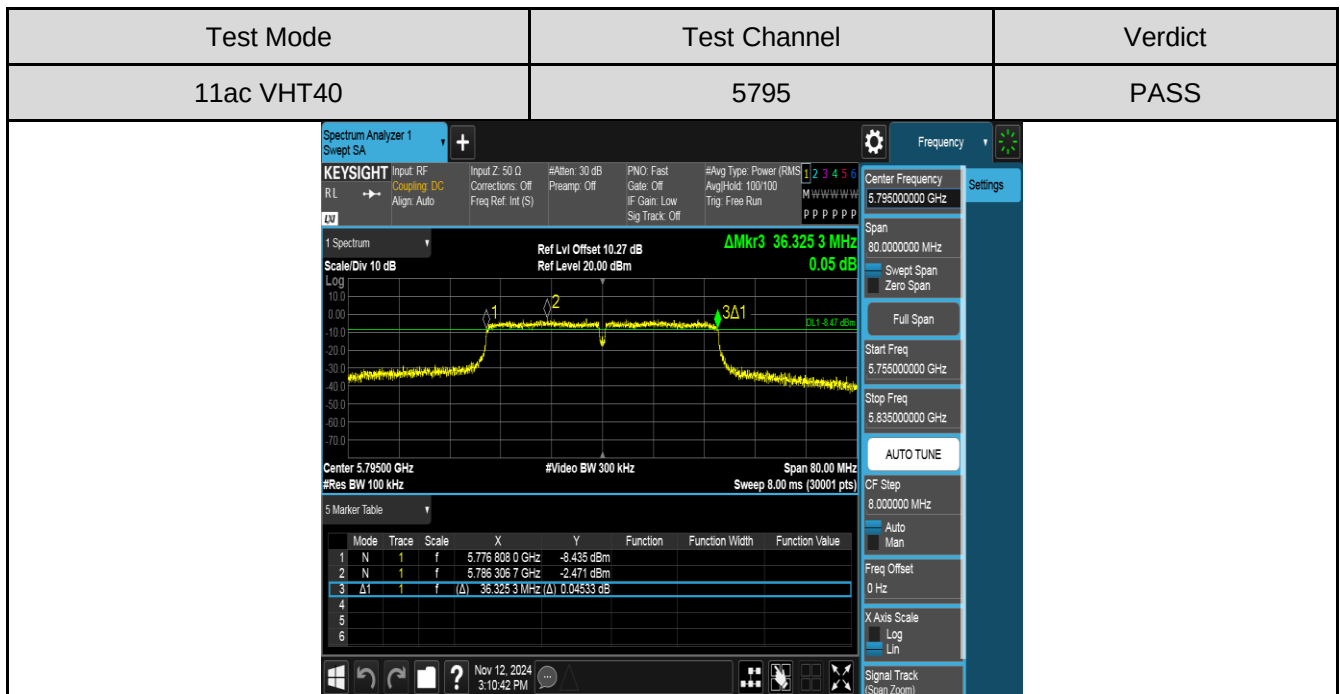
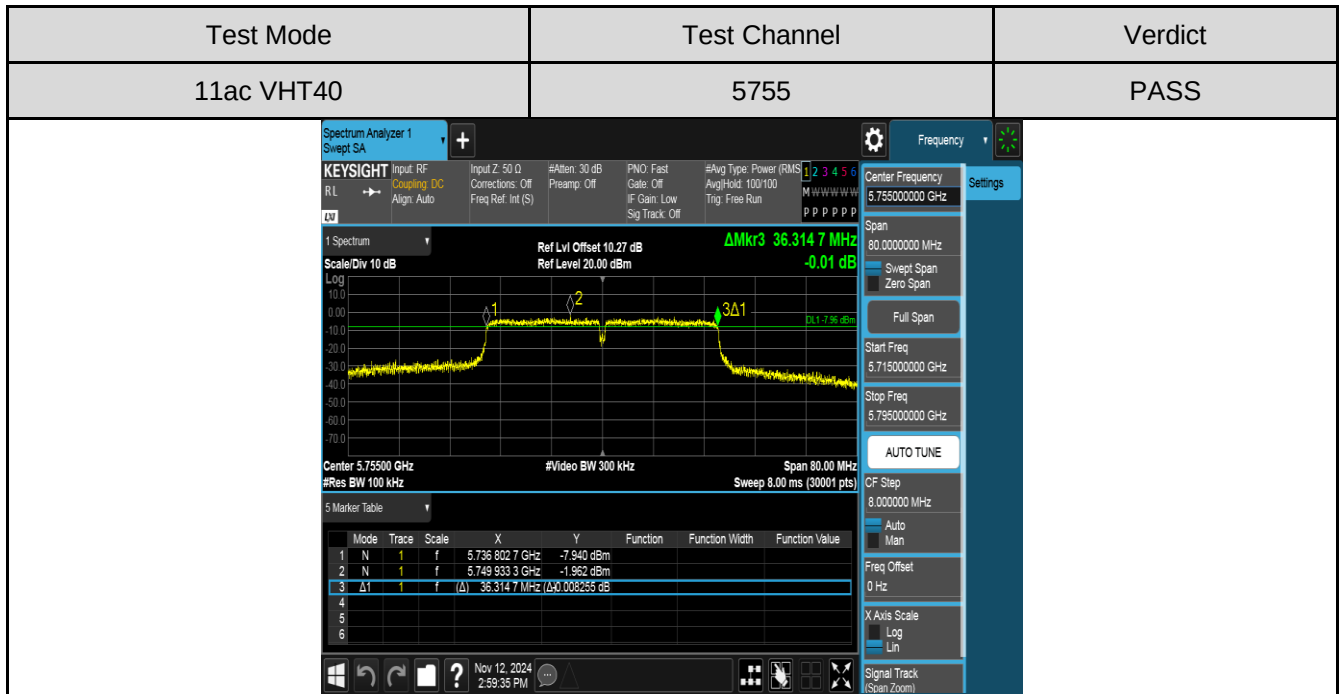


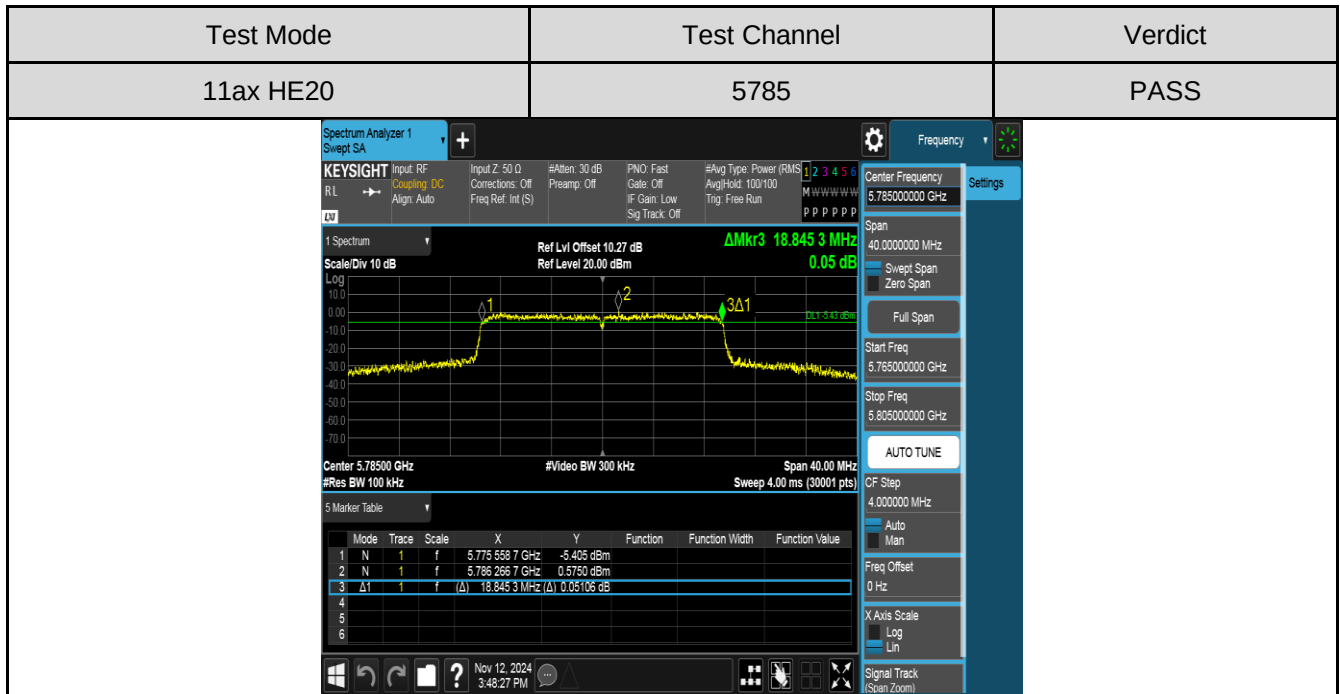
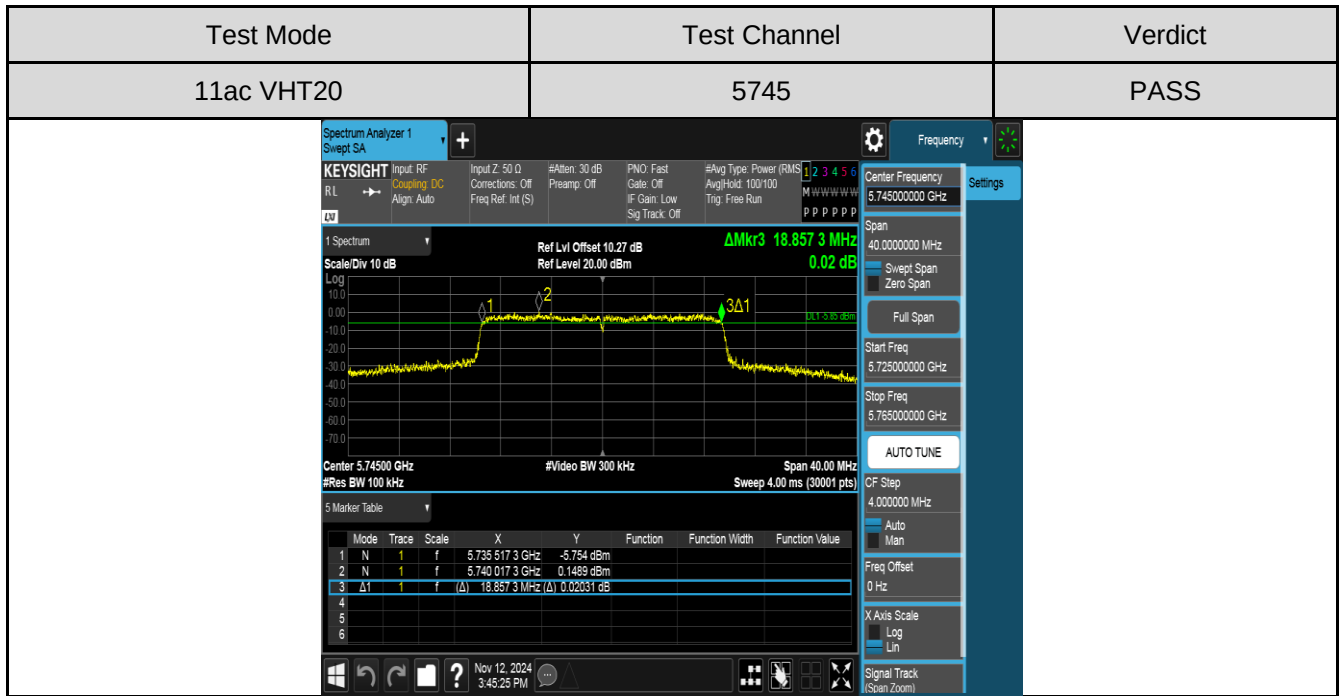
For 6 dB Emission Bandwidth Part:

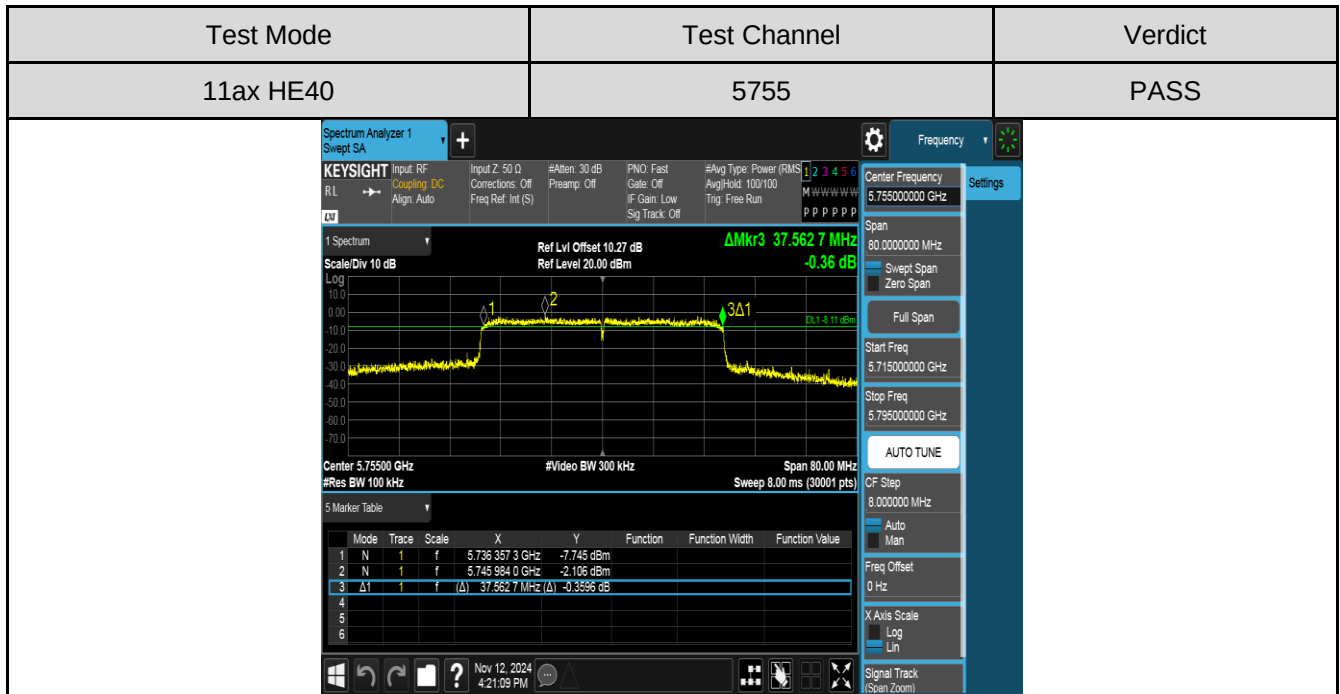
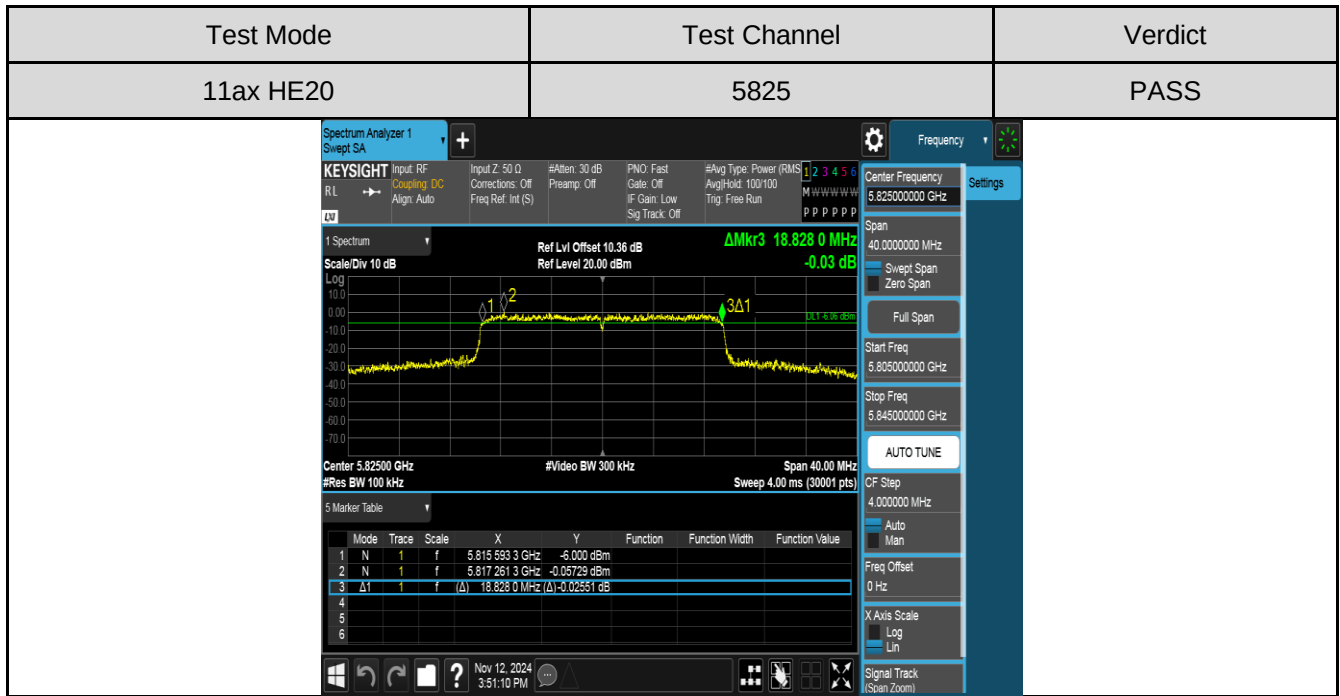


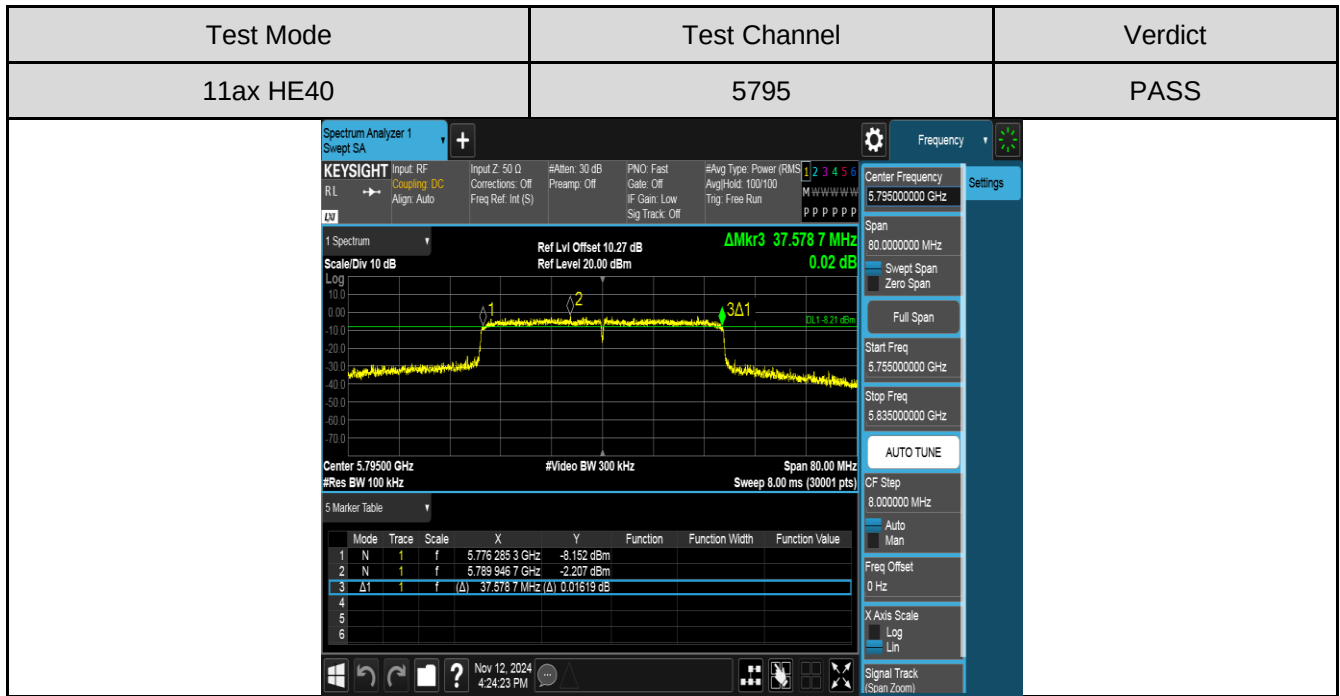












6.3. MAXIMUM CONDUCTED AVERAGE OUTPUT POWER

LIMITS

CFR 47 FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Conducted Output Power	☐ Outdoor Access Point: 1 W (30 dBm) ☐ Indoor Access Point: 1 W (30 dBm) ☐ Fixed Point-To-Point Access Points: 1 W (30 dBm) ☒ Client Devices: 250 mW (24 dBm)	5150 ~ 5250
	Shall not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.	5250 ~ 5350 5470 ~ 5725
	Shall not exceed 1 Watt (30 dBm).	5725 ~ 5850

ISED RSS-247 ISSUE 3		
Test Item	Limit	Frequency Range (MHz)
Conducted Output Power or e.i.r.p.	The maximum e.i.r.p. shall not exceed 200 mW (23 dBm) or 10 + 10 log ₁₀ B, dBm, whichever power is less. B is the 99 % emission bandwidth in megahertz.	5150 ~ 5250
	a. The maximum conducted output power shall not exceed 250 mW (24 dBm) or 11 + 10 log ₁₀ B dBm, whichever is less. b. The maximum e.i.r.p. shall not exceed 1.0 W (30 dBm) or 17 + 10 log ₁₀ B dBm, whichever is less. B is the 99 % emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.	5250 ~ 5350 5470 ~ 5600 5650 ~ 5725
	Shall not exceed 1 Watt (30 dBm). The e.i.r.p. shall not exceed 4 W	5725 ~ 5850

Note:

The above limits are based upon the maximum antenna gain does not exceed 6 dBi.

If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

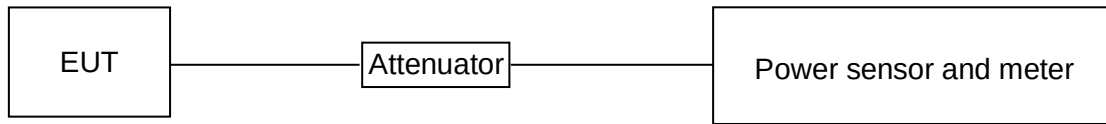
TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.E.

Method AVGSA-2 (trace averaging across ON and OFF times of the EUT transmissions, followed by duty cycle correction):

- a) Measure the duty cycle D of the transmitter output signal as described in 11.6.
- b) Set span to at least 1.5 times the OBW.
- c) Set RBW = 1% to 5% of the OBW, not to exceed 1 MHz.
- d) Set VBW $\geq [3 \times \text{RBW}]$.
- e) Number of points in sweep $\geq [2 \times \text{span} / \text{RBW}]$. (This gives bin-to-bin spacing $\leq \text{RBW} / 2$, so that narrowband signals are not lost between frequency bins.)
- f) Sweep time = auto.
- g) Detector = RMS (i.e., power averaging), if available. Otherwise, use the sample detector mode.
- h) Do not use sweep triggering. Allow the sweep to “free run.”
- i) Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 as needed such that the average accurately represents the true average over the ON and OFF periods of the transmitter.
- j) Compute power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function with band limits set equal to the OBW band edges. If the instrument does not have a band power function, then sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.
- k) Add $[10 \log (1 / D)]$, where D is the duty cycle, to the measured power to compute the average power during the actual transmission times (because the measurement represents an average over both the ON and OFF times of the transmission). For example, add $[10 \log (1/0.25)] = 6 \text{ dB}$ if the duty cycle is 25%.

TEST SETUP



TEST ENVIRONMENT

Environment Parameter	Selected Values During Tests
Relative Humidity	60%
Atmospheric Pressure:	101kPa
Temperature	22.2°C
Test Voltage	AC 120V
Test Date	11/12/2024

TEST RESULT TABLE

Mode	Frequency	Measurement Output Power	Duty Cycle Correction Factor	Average Conducted Output Power	FCC Power Limit	ISED Power Limit	Antenna Gain	EIRP	ISED EIRP Limit
	MHz	dBm	dB	dBm	dBm	dBm	dBi	dBm	dBm
11a	5180	13.20	0	13.20	24.00	/	2.66	15.86	22.31
	5200	13.35	0	13.35	24.00	/	2.66	16.01	22.31
	5240	12.93	0	12.93	24.00	/	2.66	15.59	22.31
	5260	13.25	0	13.25	24.00	23.32	2.66	15.91	29.32
	5280	13.16	0	13.16	24.00	23.31	2.66	15.82	29.31
	5320	13.54	0	13.54	24.00	23.32	2.66	16.20	29.32
	5500	13.66	0	13.66	24.00	23.31	2.66	16.32	29.31
	5580	12.85	0	12.85	24.00	23.31	2.66	15.51	29.31
	5700	12.54	0	12.54	24.00	23.31	2.66	15.20	29.31
	5720_ UNII-2C	11.11	0	11.11	22.82	22.32	2.66	13.77	28.32
	5720_ UNII-3	4.98	0	4.98	30.00	/	2.66	7.64	36.00
	5745	13.26	0	13.26	30.00	/	2.66	15.92	36.00
	5785	13.91	0	13.91	30.00	/	2.66	16.57	36.00
	5825	13.38	0	13.38	30.00	/	2.66	16.04	36.00

Mode	Frequency	Measurement Output Power	Duty Cycle Correction Factor	Average Conducted Output Power	FCC Power Limit	ISED Power Limit	Antenna Gain	EIRP	ISED EIRP Limit
	MHz	dBm	dB	dBm	dBm	dBm	dB	dBm	dBm
11ac VHT20	5180	13.49	0	13.49	24.00	/	2.66	16.15	22.54
	5200	13.60	0	13.60	24.00	/	2.66	16.26	22.55
	5240	13.16	0	13.16	24.00	/	2.66	15.82	22.53
	5260	13.46	0	13.46	24.00	23.54	2.66	16.12	29.54
	5280	13.36	0	13.36	24.00	23.53	2.66	16.02	29.53
	5320	13.72	0	13.72	24.00	23.54	2.66	16.38	29.54
	5500	13.69	0	13.69	24.00	23.54	2.66	16.35	29.54
	5580	13.04	0	13.04	24.00	23.54	2.66	15.70	29.54
	5700	12.72	0	12.72	24.00	23.53	2.66	15.38	29.53
	5720_UNII-2C	11.12	0	11.12	22.93	22.47	2.66	13.78	28.47
	5720_UNII-3	5.52	0	5.52	30.00	/	2.66	8.180	36.00
	5745	13.39	0	13.39	30.00	/	2.66	16.05	36.00
	5785	14.02	0	14.02	30.00	/	2.66	16.68	36.00
	5825	13.51	0	13.51	30.00	/	2.66	16.17	36.00

Mode	Frequency	Measurement Output Power	Duty Cycle Correction Factor	Average Conducted Output Power	FCC Power Limit	ISED Power Limit	Antenna Gain	EIRP	ISED EIRP Limit
	MHz	dBm	dB	dBm	dBm	dBm	dB	dBm	dBm
11ac VHT40	5190	12.66	0	12.66	24.00	24.00	2.66	15.32	23.00
	5230	13.01	0	13.01	24.00	24.00	2.66	15.67	23.00
	5270	13.11	0	13.11	24.00	24.00	2.66	15.77	30.00
	5310	13.48	0	13.48	24.00	24.00	2.66	16.14	30.00
	5510	13.25	0	13.25	24.00	24.00	2.66	15.91	30.00
	5550	13.59	0	13.59	24.00	24.00	2.66	16.25	30.00
	5670	12.89	0	12.89	24.00	24.00	2.66	15.55	30.00
	5710_UNII-2C	11.49	0	11.49	24.00	24.00	2.66	14.15	30.00
	5710_UNII-3	0.31	0	0.31	30.00	/	2.66	2.97	36.00
	5755	13.96	0	13.96	30.00	/	2.66	16.62	36.00
	5795	13.70	0	13.70	30.00	/	2.66	16.36	36.00

Mode	Frequency	Measurement Output Power	Duty Cycle Correction Factor	Average Conducted Output Power	FCC Power Limit	ISED Power Limit	Antenna Gain	EIRP	ISED EIRP Limit
	MHz	dBm	dB	dBm	dBm	dBm	dB	dBm	dBm
11ax HE20	5180	12.96	0	12.96	24.00	/	2.66	15.62	22.75
	5200	13.17	0	13.17	24.00	/	2.66	15.83	22.76
	5240	12.78	0	12.78	24.00	/	2.66	15.44	22.75
	5260	13.10	0	13.10	24.00	23.76	2.66	15.76	29.76
	5280	13.03	0	13.03	24.00	23.76	2.66	15.69	29.76
	5320	13.43	0	13.43	24.00	23.77	2.66	16.09	29.77
	5500	13.57	0	13.57	24.00	23.77	2.66	16.23	29.77
	5580	12.78	0	12.78	24.00	23.76	2.66	15.44	29.76
	5700	12.41	0	12.41	24.00	23.76	2.66	15.07	29.76
	5720_UNII-2C	10.91	0	10.91	22.85	22.61	2.66	13.57	28.61
	5720_UNII-3	5.54	0	5.54	30.00	/	2.66	8.20	36.00
	5745	13.17	0	13.17	30.00	/	2.66	15.83	36.00
	5785	13.84	0	13.84	30.00	/	2.66	16.50	36.00
	5825	13.31	0	13.31	30.00	/	2.66	15.97	36.00

Mode	Frequency	Measurement Output Power	Duty Cycle Correction Factor	Average Conducted Output Power	FCC Power Limit	ISED Power Limit	Antenna Gain	EIRP	ISED EIRP Limit
	MHz	dBm	dB	dBm	dBm	dBm	dB	dBm	dBm
11ax HE40	5190	12.77	0	12.77	24.00	24.00	2.66	15.43	23.00
	5230	12.90	0	12.90	24.00	24.00	2.66	15.56	23.00
	5270	13.01	0	13.01	24.00	24.00	2.66	15.67	30.00
	5310	13.38	0	13.38	24.00	24.00	2.66	16.04	30.00
	5510	13.18	0	13.18	24.00	24.00	2.66	15.84	30.00
	5550	13.59	0	13.59	24.00	24.00	2.66	16.25	30.00
	5670	12.89	0	12.89	24.00	24.00	2.66	15.55	30.00
	5710_UNII-2C	9.83	0	9.83	24.00	24.00	2.66	12.49	30.00
	5710_UNII-3	-1.14	0	-1.14	30.00	/	2.66	1.52	36.00
	5755	13.92	0	13.92	30.00	/	2.66	16.58	36.00
	5795	13.74	0	13.74	30.00	/	2.66	16.40	36.00

TEST GRAPHS

