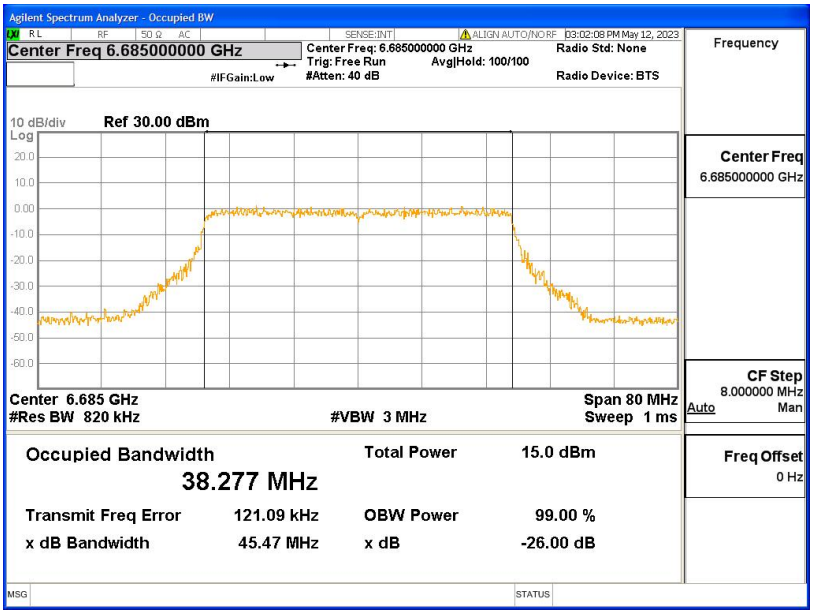
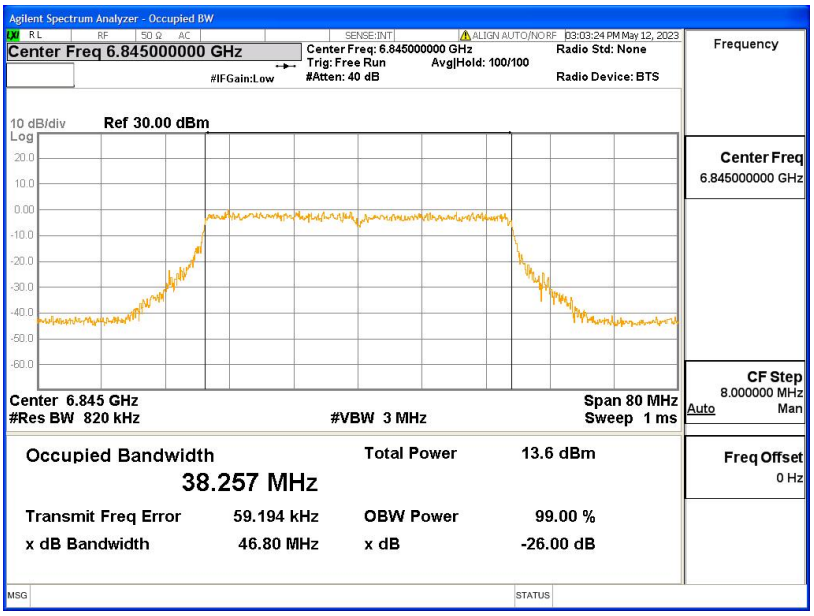
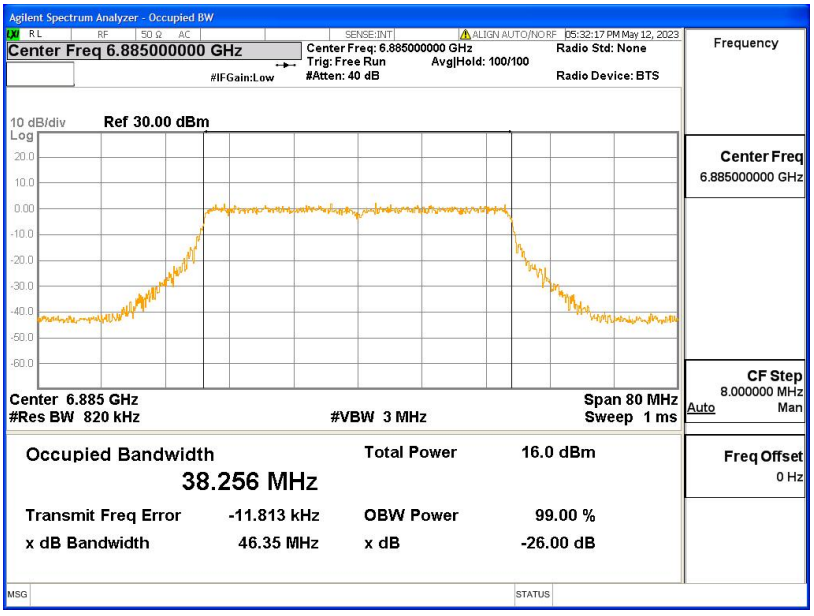


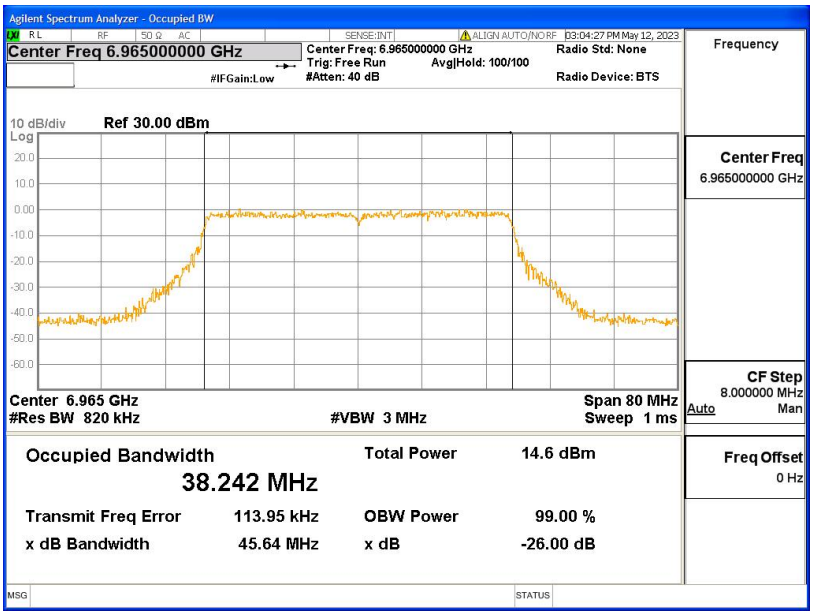
Pic9_Obw



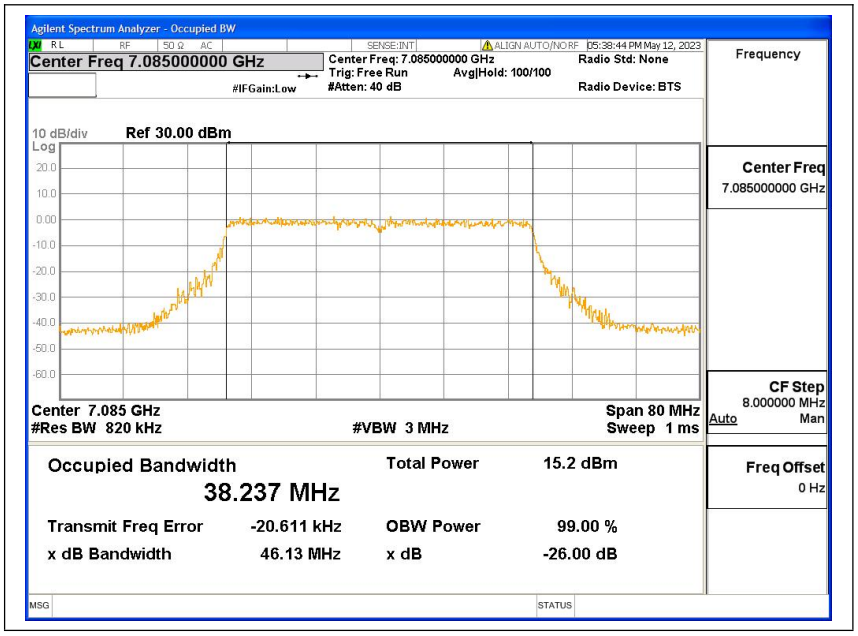
Pic10_Obw



Pic11_Obw

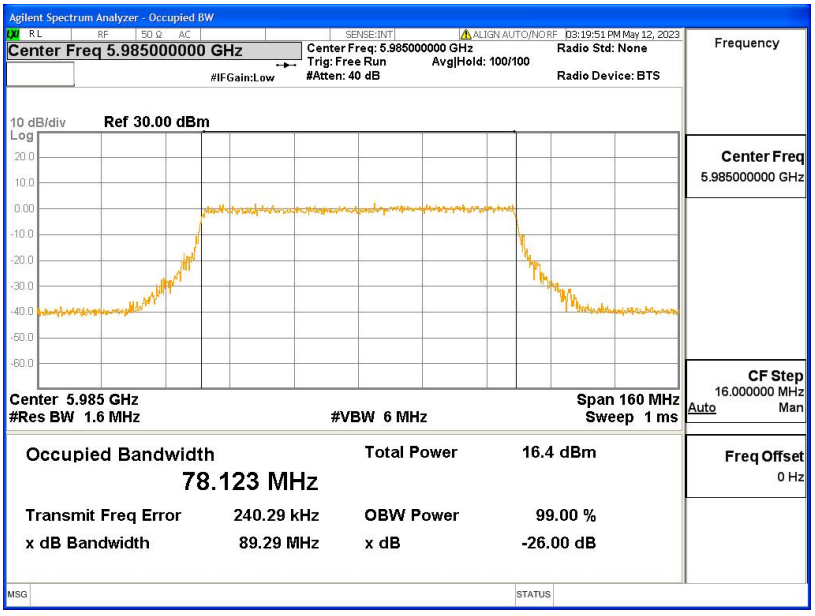


Pic12_Obw

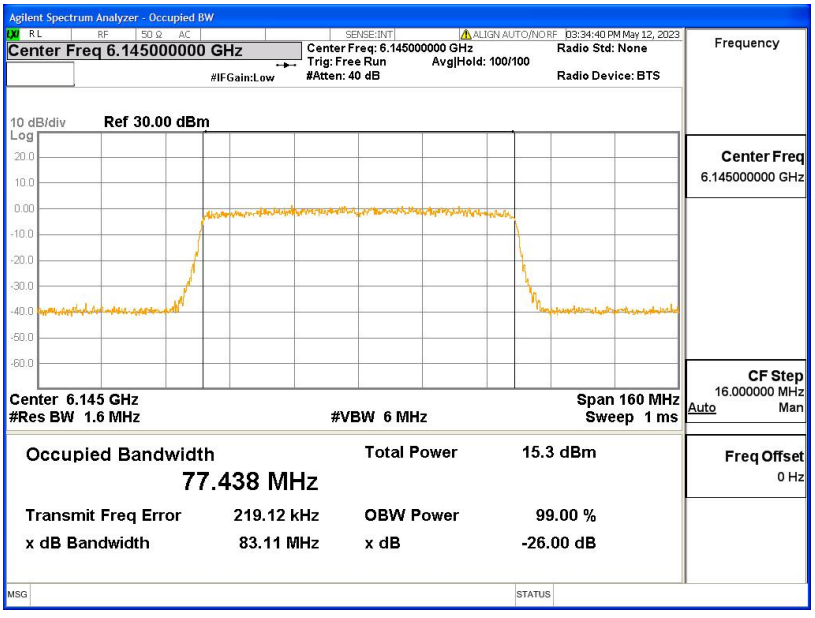


11ax-HE80:

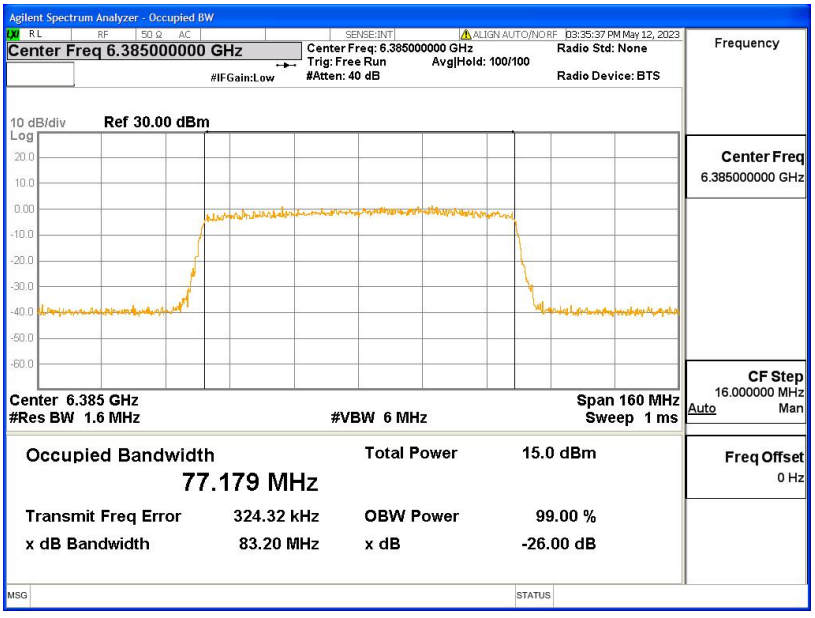
Pic1_Obw



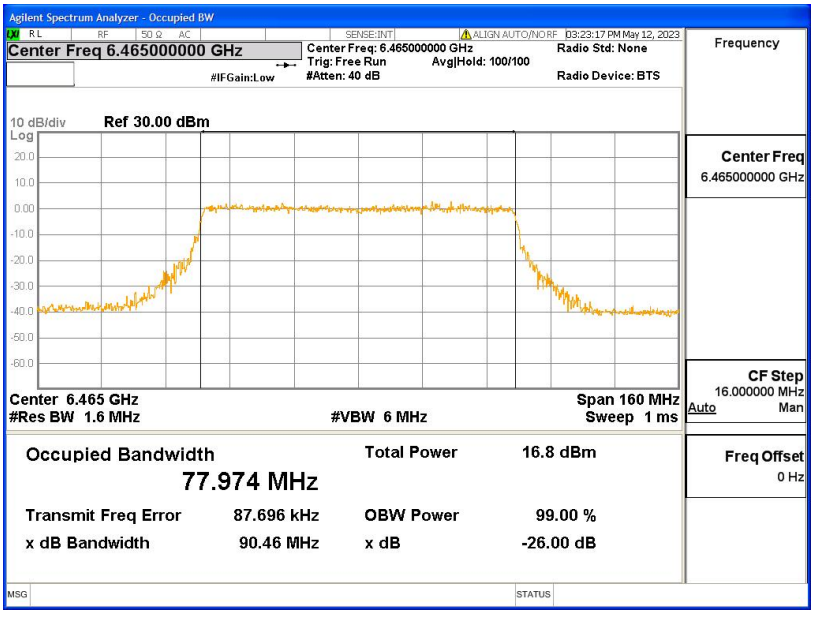
Pic2_Obw



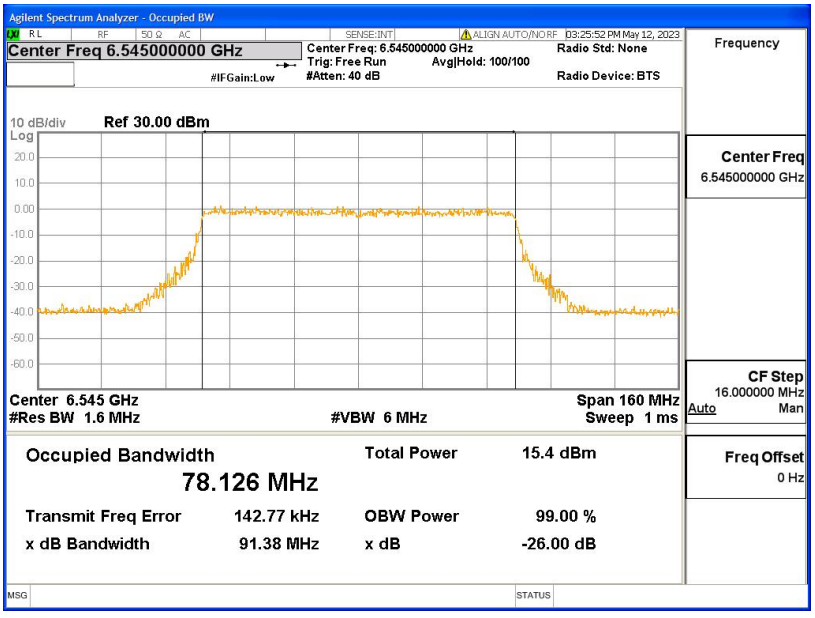
Pic3_Obw



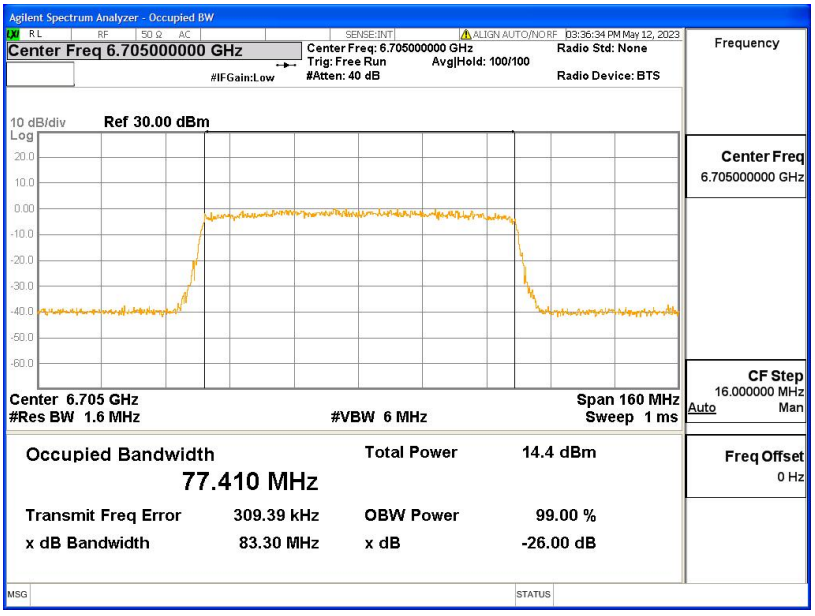
Pic4_Obw



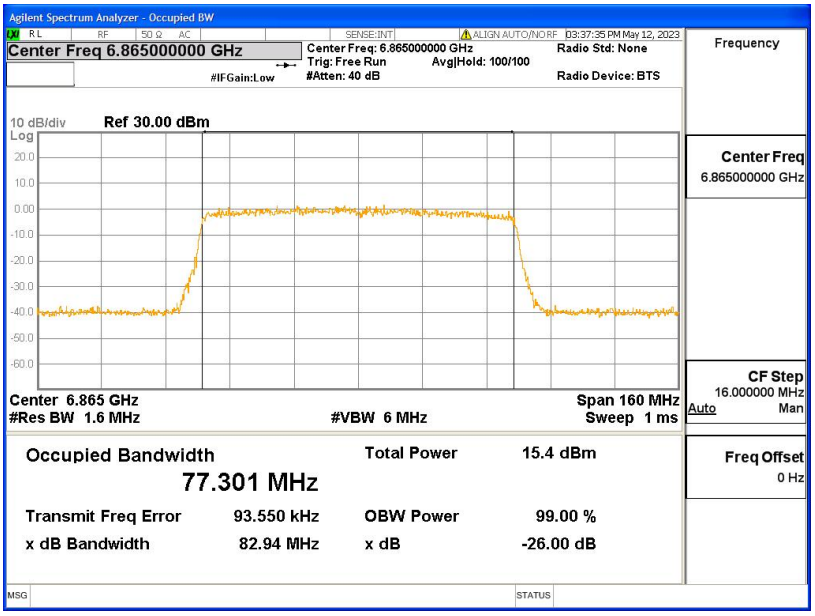
Pic5_Obw



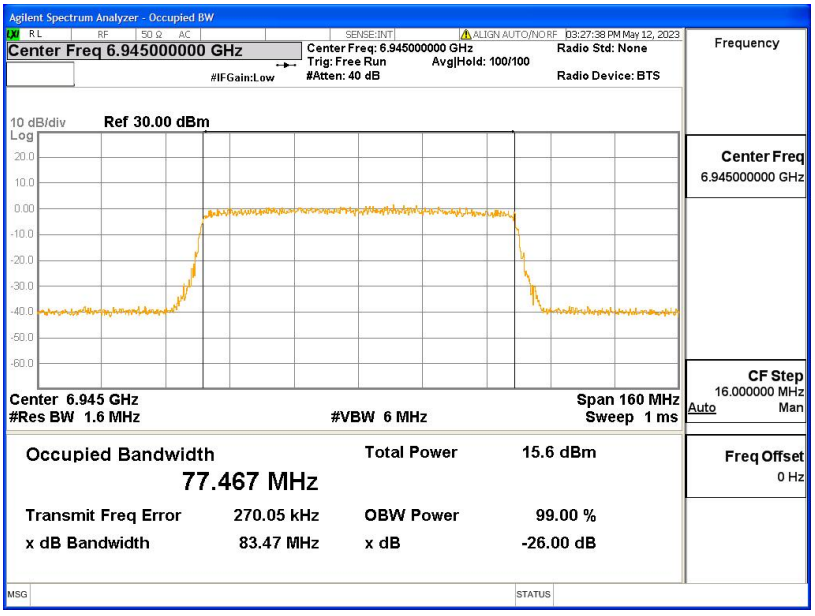
pic6_Obw



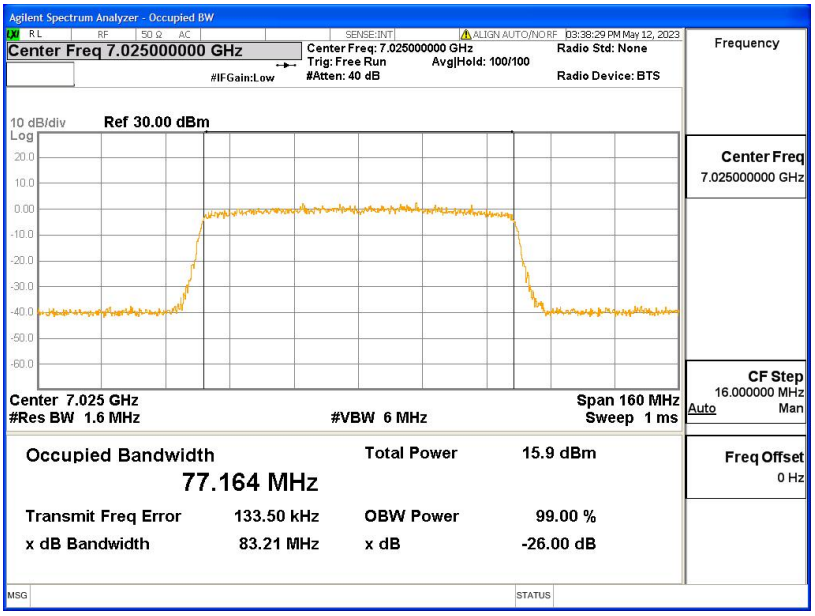
pic7_Obw



pic8_Obw

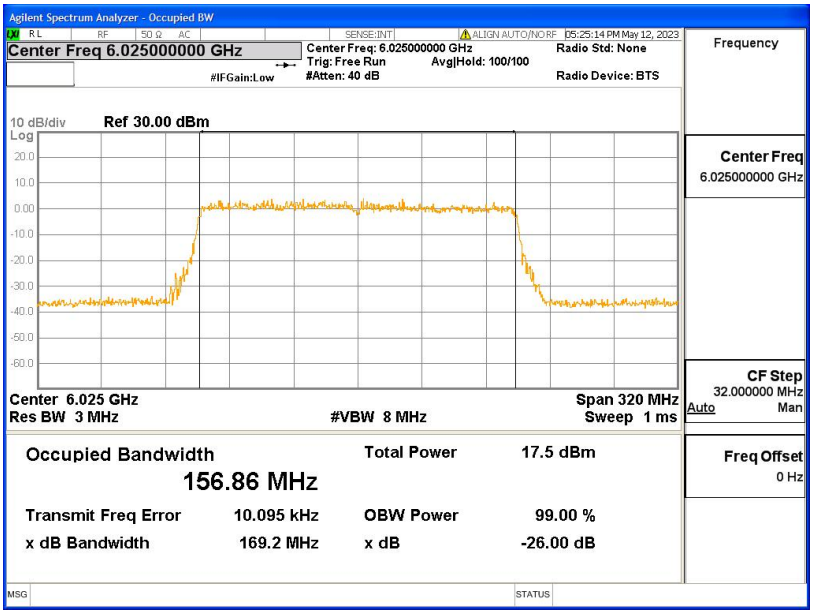


Pic9_Obw

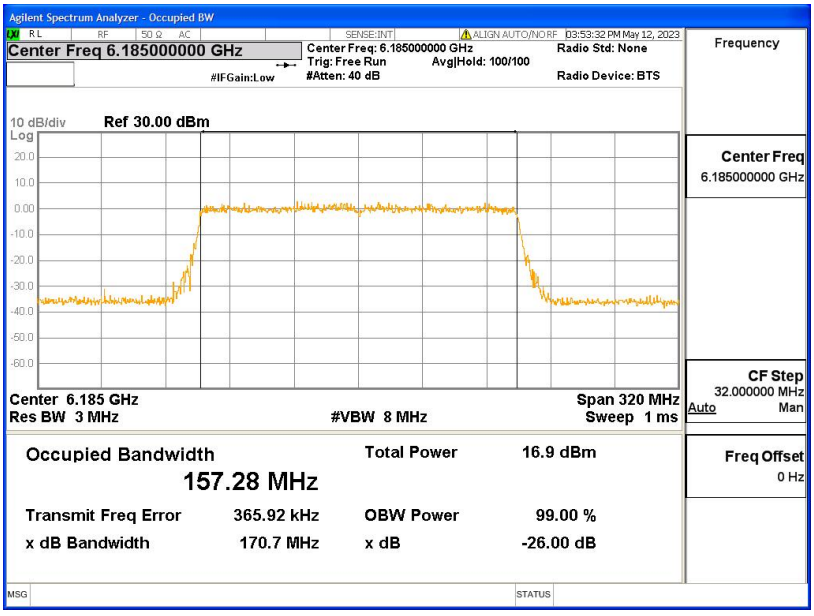


11ax-HE160:

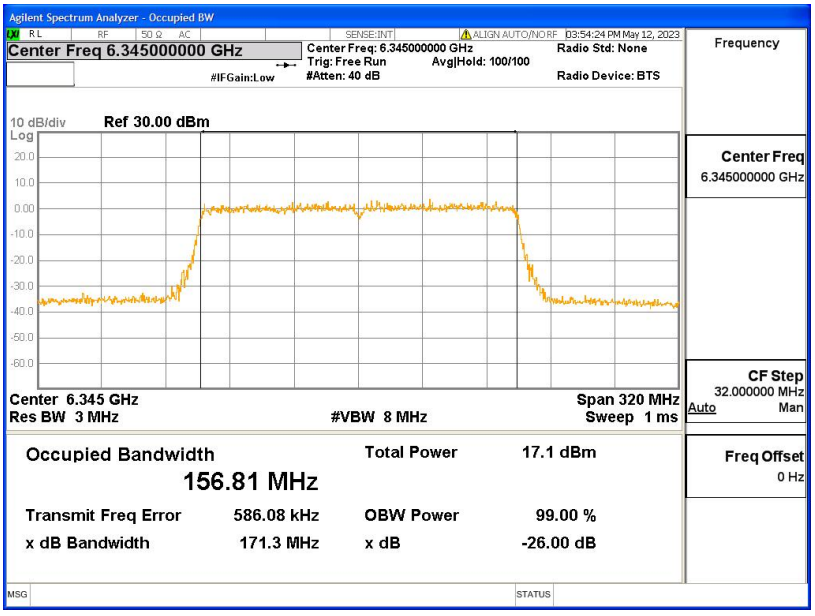
Pic1_Obw



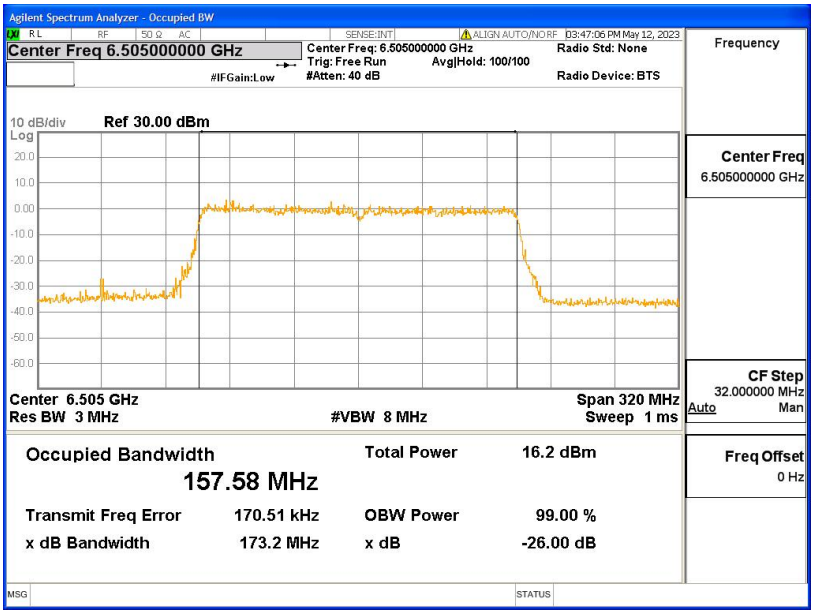
pic2_Obw



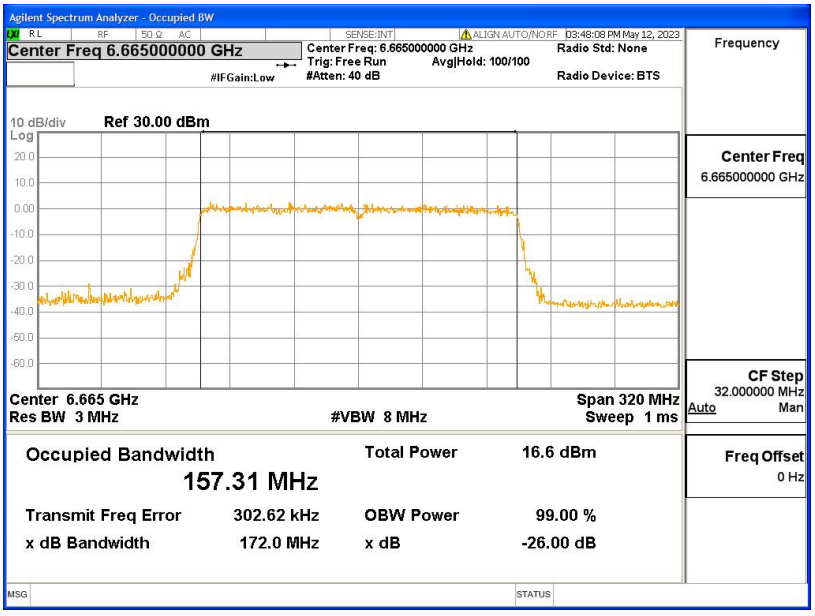
pic3_Obw



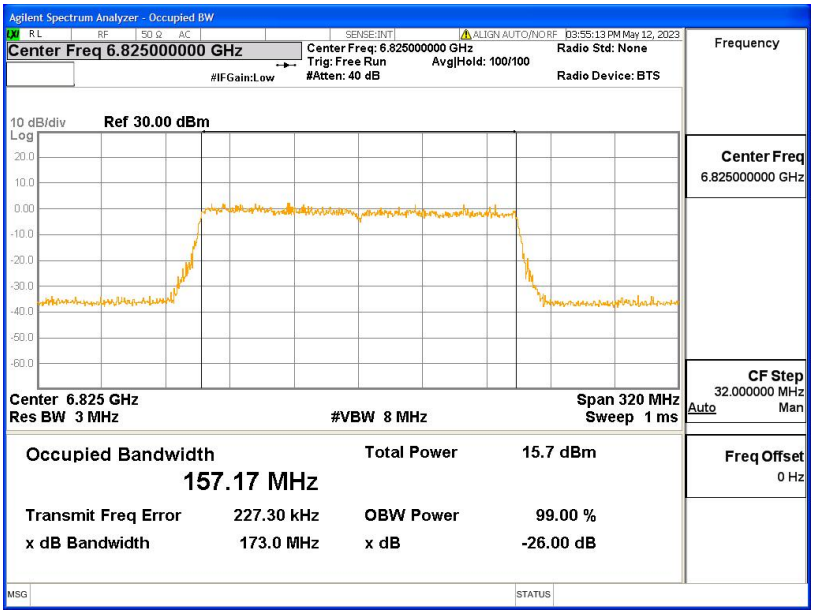
Pic4_Obw



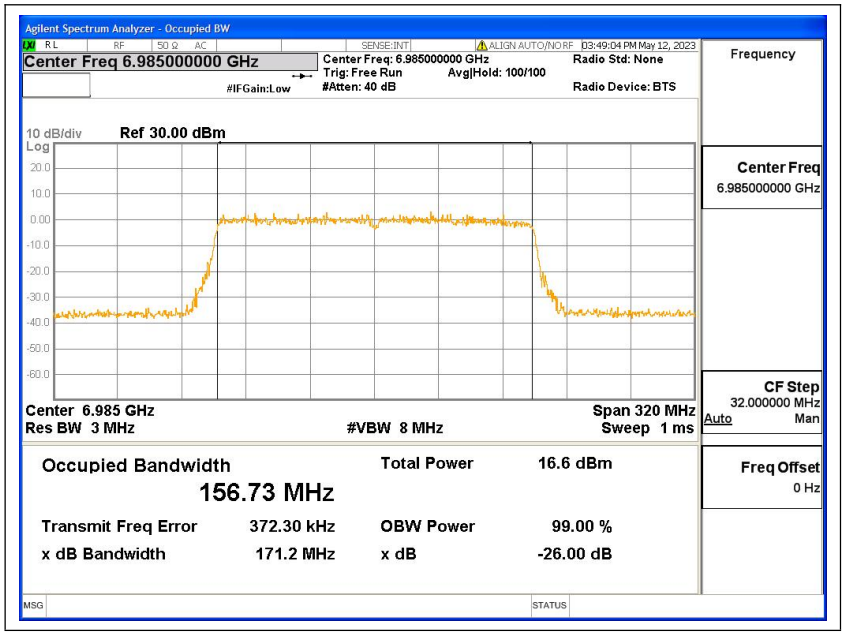
Pic5_Obw



Pic6_Obw



Pic7_Obw


Agilent Spectrum Analyzer - Occupied BW
RL
RF
50 Ω AC
SENSE:INT
ALIGN AUTO/NO RF
03:49:04 PM May 12, 2023
Center Freq 6.985000000 GHz
Center Freq: 6.985000000 GHz
Trig: Free Run
Avg|Hold: 100/100
#IFGain:Low
#Atten: 40 dB
Radio Std: None
Radio Device: BTS
Frequency
10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center Freq
6.985000000 GHz
Center 6.985 GHz
Res BW 3 MHz
#VBW 8 MHz
Span 320 MHz
Sweep 1 ms
CF Step
32.000000 MHz
Auto
Man
Occupied Bandwidth
156.73 MHz
Total Power
16.6 dBm
Freq Offset
0 Hz
Transmit Freq Error
372.30 kHz
OBW Power
99.00 %
x dB Bandwidth
171.2 MHz
x dB
-26.00 dB
MSG
STATUS

6.5. 26dB Emission Bandwidth

Specifications:	FCC Part 15.407 (a)
DUT Serial Number:	S1
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

Standard	Limit
FCC Part 15.407 (a)	The maximum transmitter channel bandwidth for U–NII devices in the 5.925–7.125 GHz band is 320 megahertz.

Measurement Uncertainty:

Measurement Uncertainty	±10.04kHz

Test Procedure

The measurement is according to ANSI C63.10 clause12.4.1

a) Set RBW = approximately 1% of the emission bandwidth.

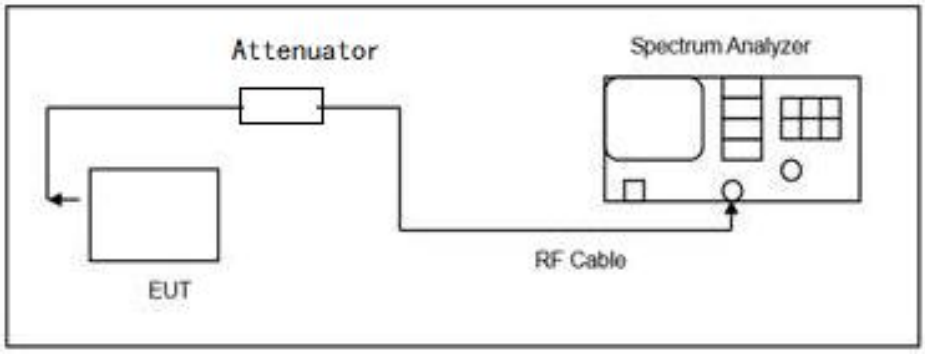
b) Set the VBW > RBW.

c) Detector = peak.

d) Trace mode = max hold.

e) Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the instrument. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

Test block diagram:



Measurement Results:

Note： Test data and screenshots refer to Chapter 6.6.

6.6. In-Band Emissions

Specifications:	FCC Part 15. 407 (b)
DUT Serial Number:	S1
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

Standard	Limit
FCC Part 15.407 (b)	For transmitters operating within the 5.925–7.125 GHz bands: Power spectral density must be suppressed by 20 dB at 1 MHz outside of channel edge, by 28 dB at one channel bandwidth from the channel center, and by 40 dB at one- and one-half times the channel bandwidth away from channel center. At frequencies between one megahertz outside an unlicensed device's channel edge and one channel bandwidth from the center of the channel, the limits must be linearly interpolated between 20 dB and 28 dB suppression, and at frequencies between one and one- and one-half times an unlicensed device's channel bandwidth, the limits must be linearly interpolated between 28 dB and 40 dB suppression. Emissions removed from the channel center by more than one- and one-half times the channel bandwidth must be suppressed by at least 40 dB.

Measurement Uncertainty:

Measurement Uncertainty	±0.8dB

Test Procedure

1. Connect output of the antenna port to a spectrum analyzer or EMI receiver, with appropriate attenuation, as to not damage the instrumentation.

2. Set the reference level of the measuring equipment in accordance with procedure 4.1.5.2 of ANSI C63.10-2013.

3. Measure the 26 dB EBW using the test procedure 12.4.1 of ANSI C63.10-2013. (This will be used to determine the channel edge.)

4. Measure the power spectral density (which will be used for emissions mask reference) using the following procedure:

a) Set the span to encompass the entire 26 dB EBW of the signal.

b) Set RBW = same RBW used for 26 dB EBW measurement.

c) Set VBW ≥ 3 X RBW

d) Number of points in sweep ≥ [2 X span / RBW].

e) Sweep time = auto.

f) Detector = RMS (i.e., power averaging)

g) Trace average at least 100 traces in power averaging (rms) mode.

h) Use the peak search function on the instrument to find the peak of the spectrum.

5. For the purposes of developing the emission mask, the channel bandwidth is defined as the 26 dB EBW.

6. Using the measuring equipment limit line function, develop the emissions mask based on the following requirements. The emissions power spectral density must be reduced below the peak power spectral density (in dB) as follows:

a. Suppressed by 20 dB at 1 MHz outside of the channel edge. (The channel edge is defined as the 26-dB point on either side of the carrier center frequency.)

b. Suppressed by 28 dB at one channel bandwidth from the channel center.

c. Suppressed by 40 dB at one- and one-half times the channel bandwidth from the channel center.

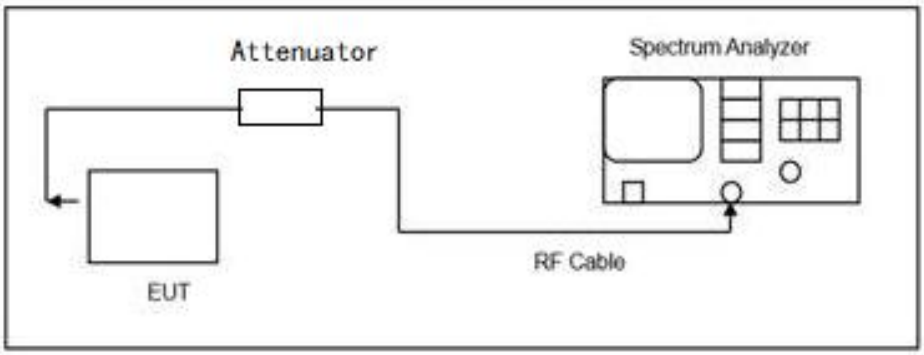
7. Adjust the span to encompass the entire mask as necessary.

8. Clear trace.

9. Trace average at least 100 traces in power averaging (rms) mode.

10. Adjust the reference level as necessary so that the crest of the channel touches the top of the emission mask.

Test block diagram:



Measurement Results:

Note: The last two sections of the plot is not within In-Band Emissions range.

Chain.0

Mode	Channel	26dB EBW	Pic	Conclusion
802.11ax-HE20	1	20.69MHz	Fig.1	PASS
	45	20.62MHz	Fig.2	PASS
	93	20.65MHz	Fig.3	PASS
	97	20.76MHz	Fig.4	PASS
	105	20.75MHz	Fig.5	PASS
	113	20.68MHz	Fig.6	PASS
	117	20.76MHz	Fig.7	PASS
	149	20.58MHz	Fig.8	PASS
	181	20.55MHz	Fig.9	PASS
	185	20.95MHz	Fig.10	PASS
	209	20.51MHz	Fig.11	PASS
	233	20.99MHz	Fig.12	PASS

Mode	Channel	26dB EBW	Pic	Conclusion
802.11ax-HE40	3	40.10MHz	Fig.1	PASS
	43	40.22MHz	Fig.2	PASS
	91	40.13MHz	Fig.3	PASS
	99	39.90MHz	Fig.4	PASS
	107	40.29MHz	Fig.5	PASS
	115	40.25MHz	Fig.6	PASS
	123	40.44MHz	Fig.7	PASS
	147	40.65MHz	Fig.8	PASS
	179	40.06MHz	Fig.9	PASS
	187	40.22MHz	Fig.10	PASS
	203	39.85MHz	Fig.11	PASS
	227	39.90MHz	Fig.12	PASS

Mode	Channel	26dB EBW	Pic	Conclusion
802.11ax-HE80	7	81.39MHz	Fig.1	PASS
	39	82.10MHz	Fig.2	PASS
	87	81.74MHz	Fig.3	PASS
	103	81.68MHz	Fig.4	PASS
	119	81.80MHz	Fig.5	PASS

	151	81.10MHz	Fig.6	PASS
	183	81.32MHz	Fig.7	PASS
	199	82.60MHz	Fig.8	PASS
	215	81.09MHz	Fig.9	PASS

Mode	Channel	26dB EBW	Pic	Conclusion
802.11ax-HE160	15	164.27MHz	Fig.1	PASS
	47	164.36MHz	Fig.2	PASS
	79	164.13MHz	Fig.3	PASS
	111	163.57MHz	Fig.4	PASS
	143	163.49MHz	Fig.5	PASS
	175	164.17MHz	Fig.6	PASS
	207	162.67MHz	Fig.7	PASS

Chain.1

Mode	Channel	26dB EBW	Pic	Conclusion
802.11ax-HE20	1	21.00MHz	Fig.13	PASS
	45	20.77MHz	Fig.14	PASS
	93	20.76MHz	Fig.15	PASS
	97	20.47MHz	Fig.16	PASS
	105	21.21MHz	Fig.17	PASS
	113	20.88MHz	Fig.18	PASS
	117	20.87MHz	Fig.19	PASS
	149	20.82MHz	Fig.20	PASS
	181	20.61MHz	Fig.21	PASS
	185	20.54MHz	Fig.22	PASS
	209	20.51MHz	Fig.23	PASS
	233	20.77MHz	Fig.24	PASS

Mode	Channel	26dB EBW	Pic	Conclusion
802.11ax-HE40	3	39.95MHz	Fig.13	PASS
	43	40.25MHz	Fig.14	PASS
	91	40.29MHz	Fig.15	PASS
	99	40.18MHz	Fig.16	PASS
	107	39.97MHz	Fig.17	PASS
	115	40.18MHz	Fig.18	PASS
	123	40.21MHz	Fig.19	PASS
	147	40.42MHz	Fig.20	PASS

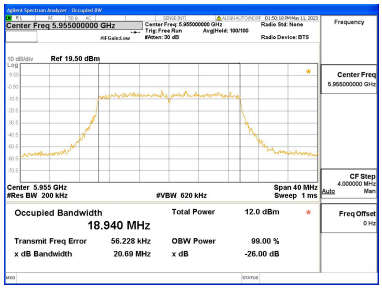
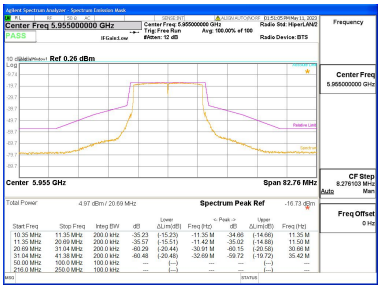
	179	39.72MHz	Fig.21	PASS
	187	40.67MHz	Fig.22	PASS
	203	40.14MHz	Fig.23	PASS
	227	39.74MHz	Fig.24	PASS

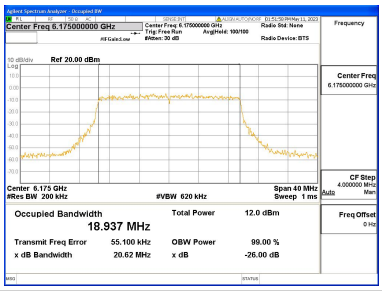
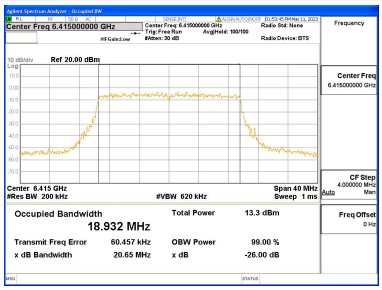
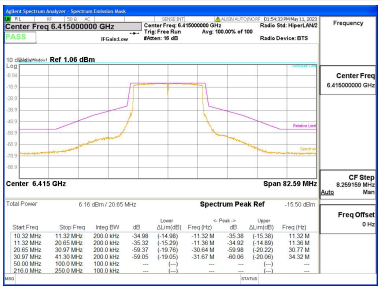
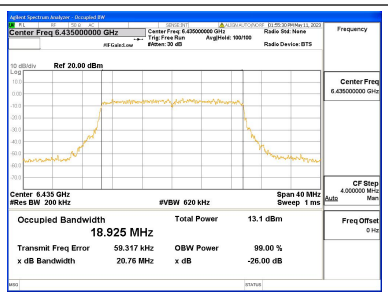
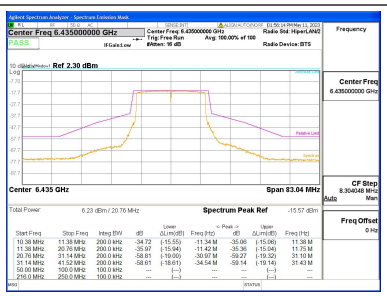
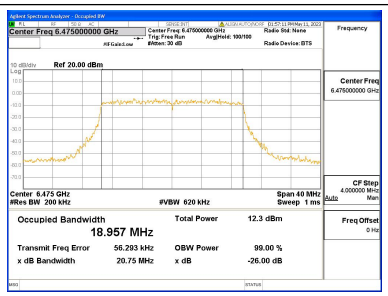
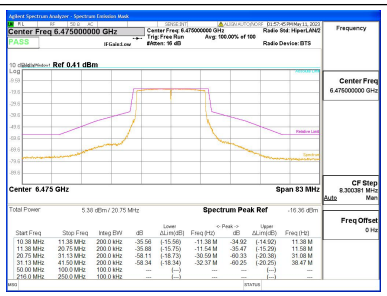
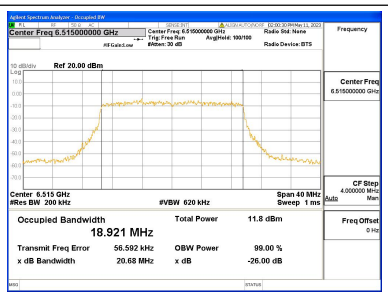
Mode	Channel	26dB EBW	Pic	Conclusion
802.11ax-HE80	7	81.52MHz	Fig.10	PASS
	39	81.85MHz	Fig.11	PASS
	87	81.35MHz	Fig.12	PASS
	103	81.56MHz	Fig.13	PASS
	119	81.35MHz	Fig.14	PASS
	151	81.67MHz	Fig.15	PASS
	183	81.43MHz	Fig.16	PASS
	199	81.70MHz	Fig.17	PASS
	215	81.43MHz	Fig.18	PASS

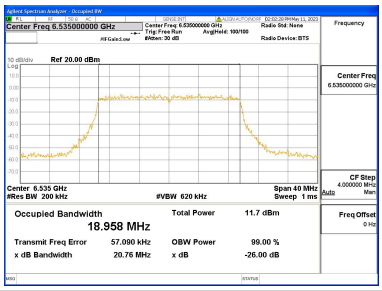
Mode	Channel	26dB EBW	Pic	Conclusion
802.11ax-HE160	15	164.02MHz	Fig.8	PASS
	47	163.84MHz	Fig.9	PASS
	79	162.91MHz	Fig.10	PASS
	111	165.30MHz	Fig.11	PASS
	143	164.63MHz	Fig.12	PASS
	175	164.23MHz	Fig.13	PASS
	207	164.74MHz	Fig.14	PASS

Test figure as below:

11ax-HE20:

pic1_ebw	pic1_inBandEmissions
	
pic2_ebw	pic2_inBandEmissions

	
pic3_ebw	pic3_inBandEmissions
	
pic4_ebw	pic4_inBandEmissions
	
pic5_ebw	pic5_inBandEmissions
	
pic6_ebw	pic6_inBandEmissions
	
pic7_ebw	pic7_inBandEmissions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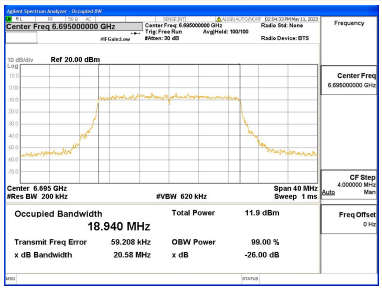
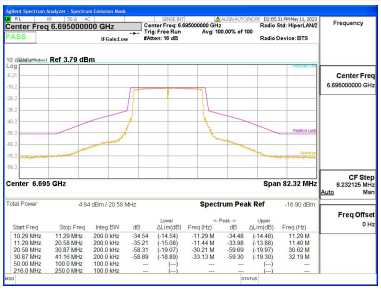
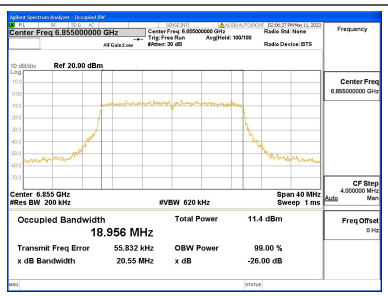
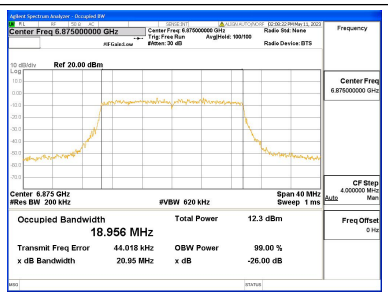
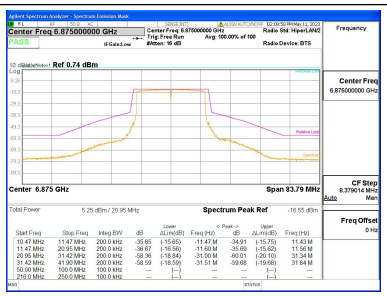
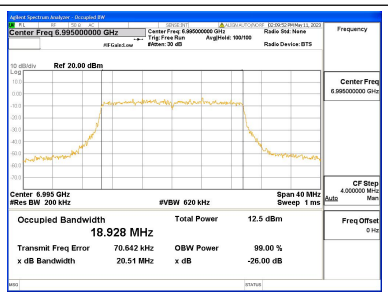
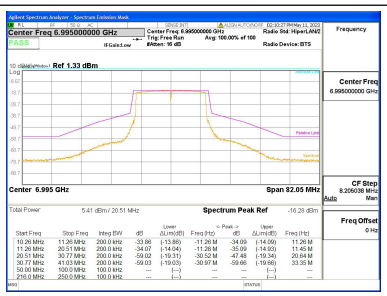
	
pic9_ebw	pic9_inBandEmissions
	
pic10_ebw	pic10_inBandEmissions
	
pic11_ebw	pic11_inBandEmissions
	
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