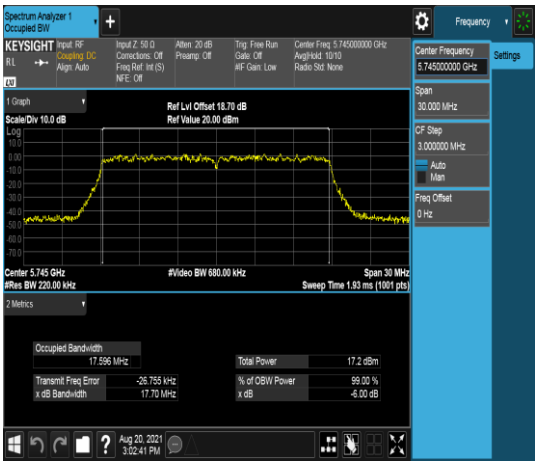
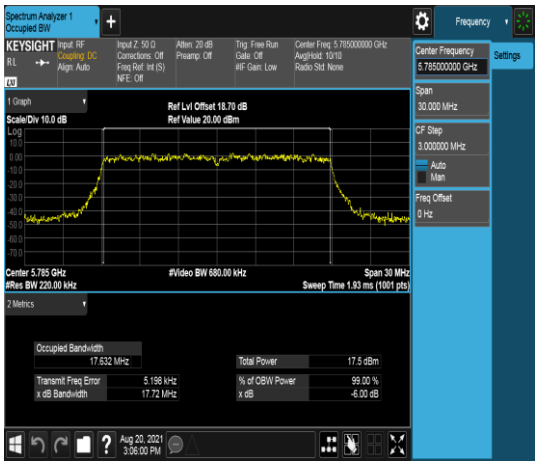
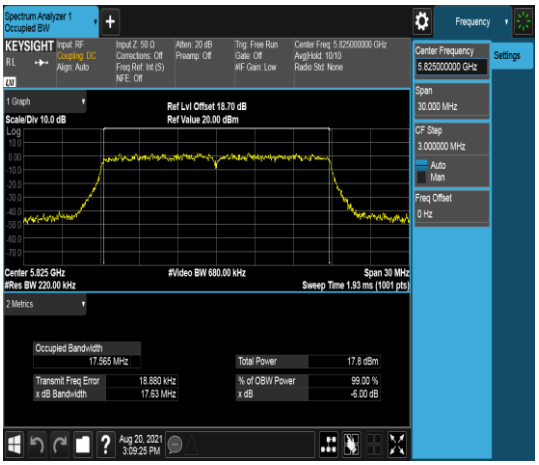
UNII-3 IEEE 802.11n HT20 mode- Chain 1	
Low CH	**Mid CH**
	
High CH	
	

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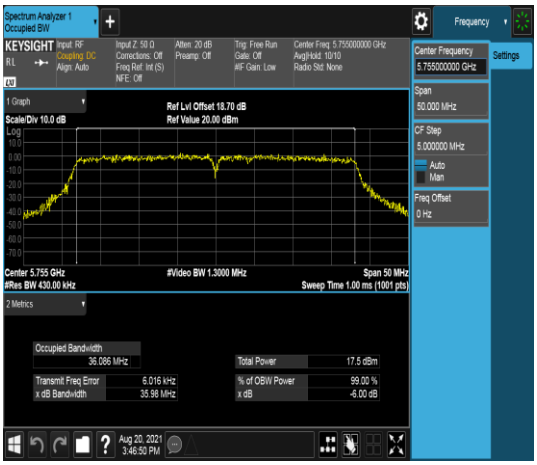
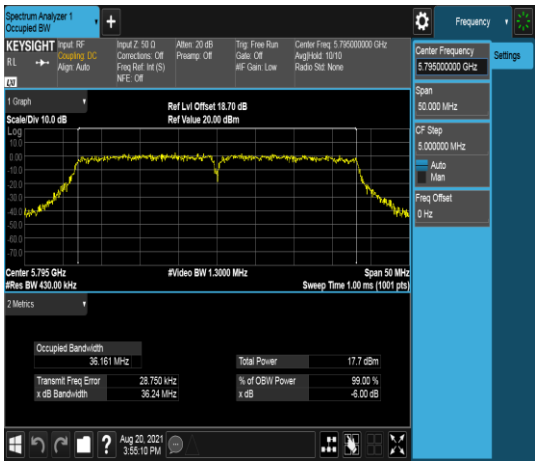
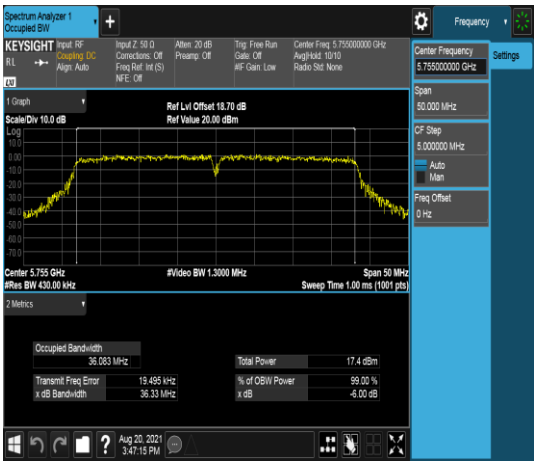
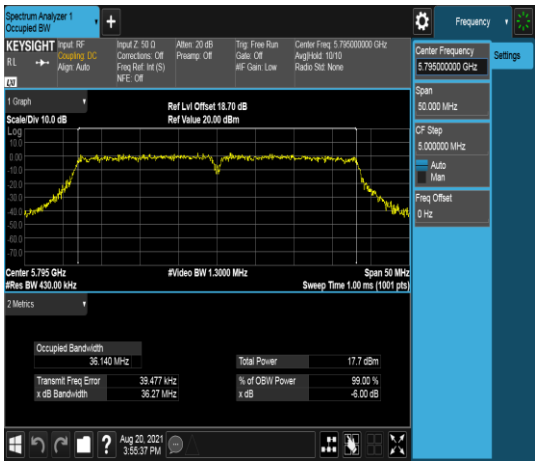
UNII-3 IEEE 802.11n HT40 mode- Chain 0	
Low CH	**High CH**
	
UNII-3 IEEE 802.11n HT40 mode- Chain 1	
Low CH	**High CH**
	

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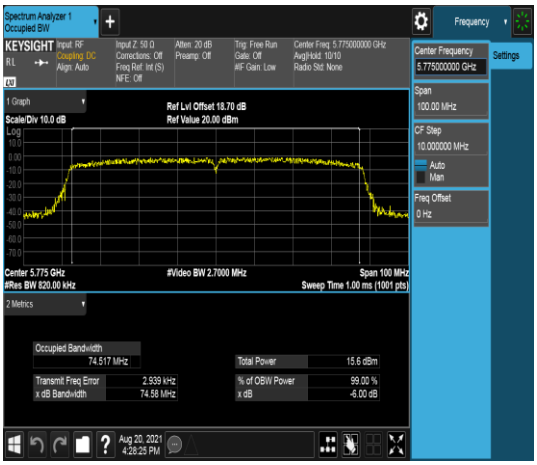
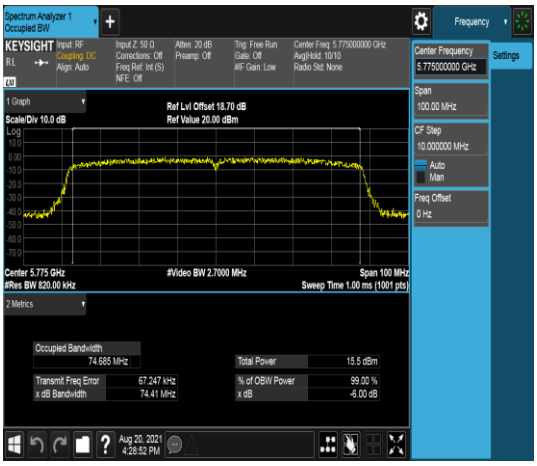
UNII-3 IEEE 802.11ac VHT80 mode- Chain 0	
Low CH	
	
UNII-3 IEEE 802.11ac VHT80 mode- Chain 1	
Low CH	
	

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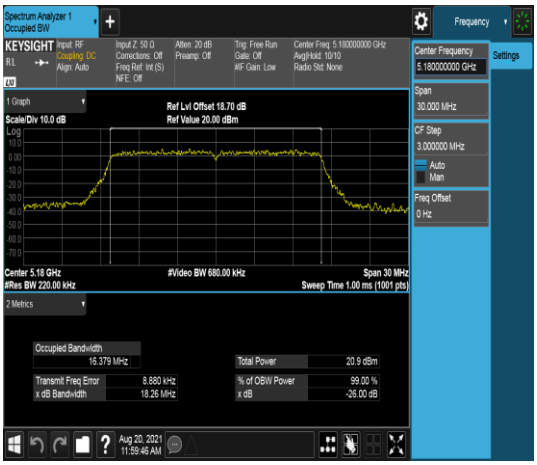
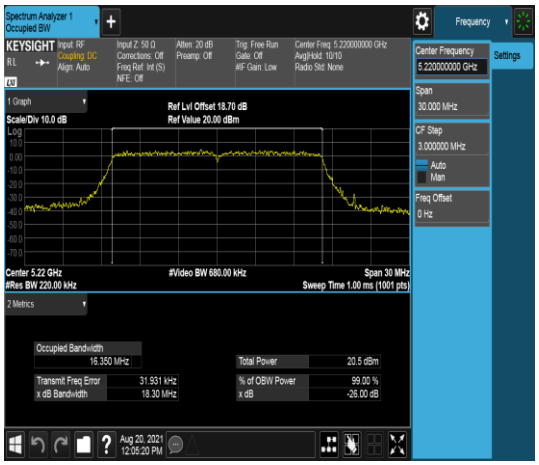
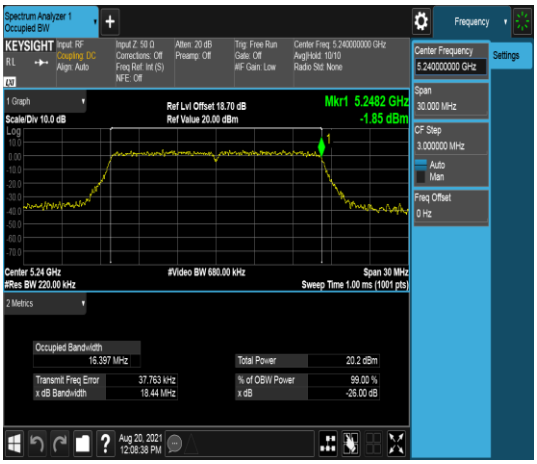
Test Data (26dB BANDWIDTH)

UNII-1 IEEE 802.11a mode- Chain 0	
Low CH	**Mid CH**
	
High CH	
	

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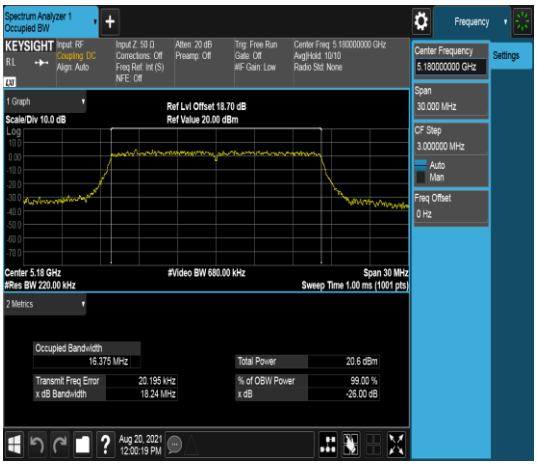
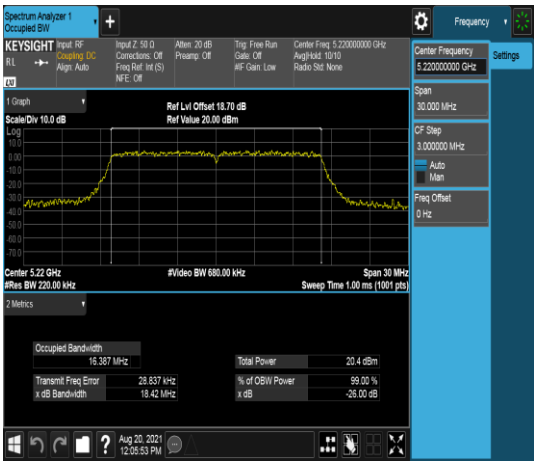
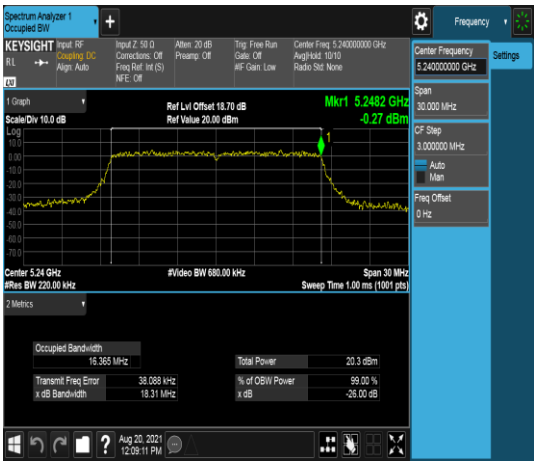
UNII-1 IEEE 802.11a mode- Chain 1	
Low CH	**Mid CH**
	
High CH	
	

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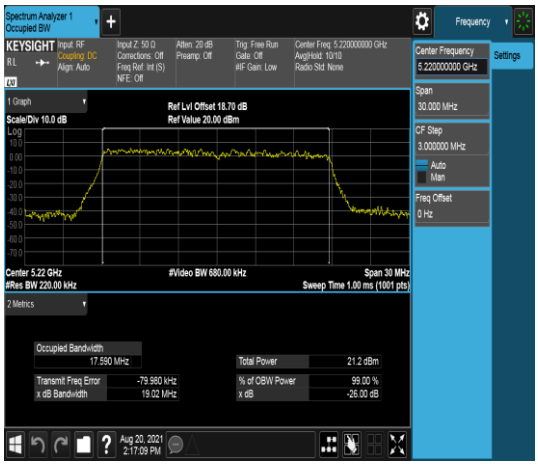
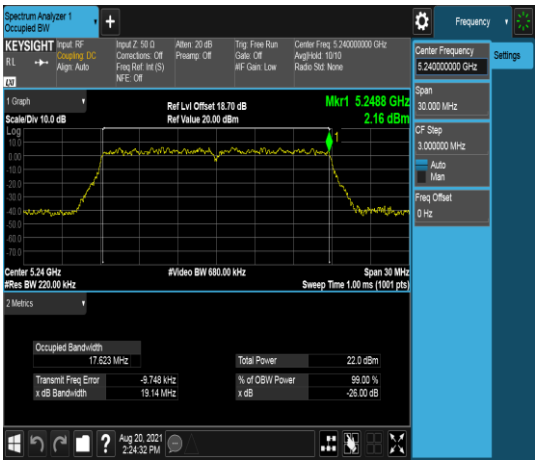
UNII-1 IEEE 802.11n HT20 mode- Chain 0	
Low CH	**Mid CH**
	
High CH	
	

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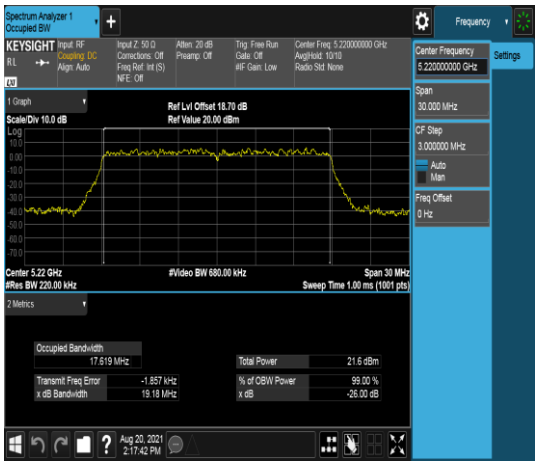
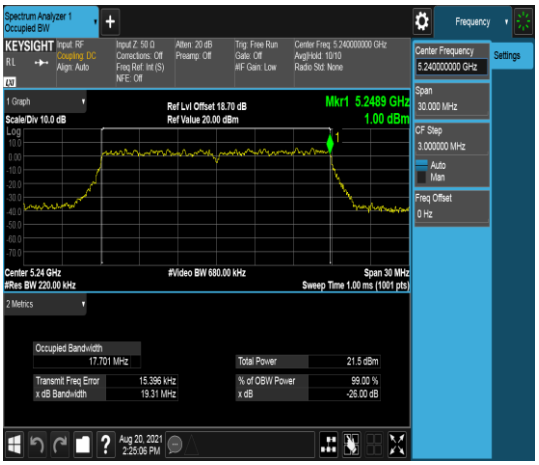
UNII-1 IEEE 802.11n HT20 mode- Chain 1	
Low CH	**Mid CH**
	
High CH	
	

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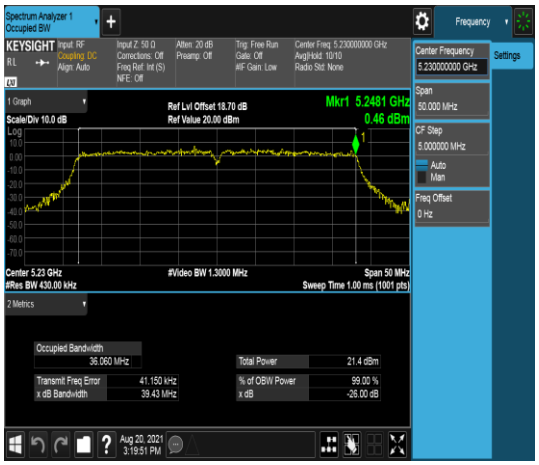
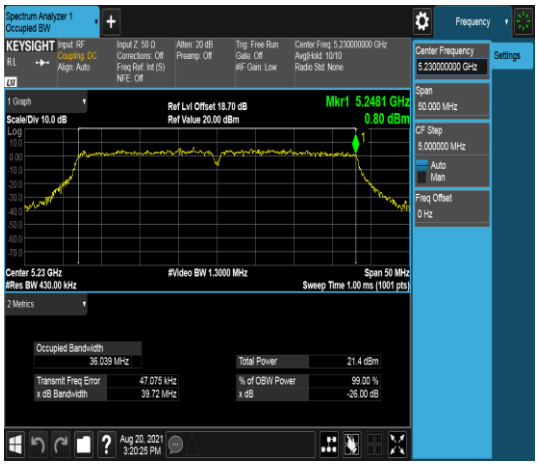
UNII-1 IEEE 802.11n HT40 mode- Chain 0	
Low CH	**High CH**
	

UNII-1 IEEE 802.11n HT40 mode- Chain 1	
Low CH	**High CH**
	

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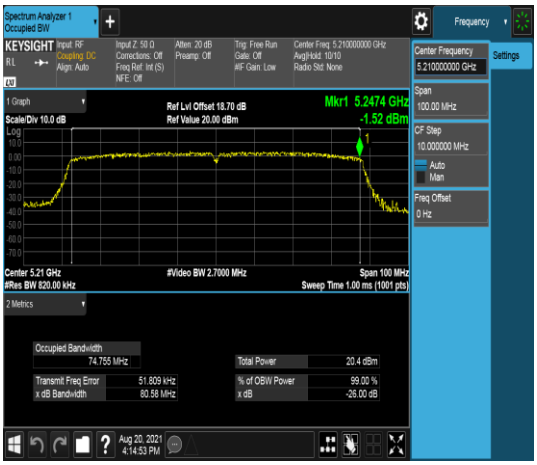
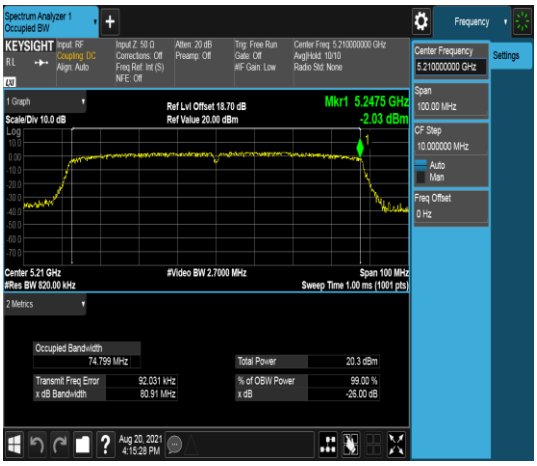
UNII-1 IEEE 802.11ac VHT80 mode- Chain 0	
Low CH	
	
UNII-1 IEEE 802.11ac VHT80 mode- Chain 1	
Low CH	
	

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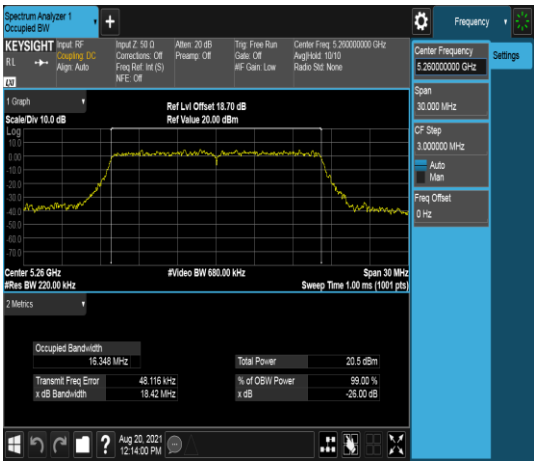
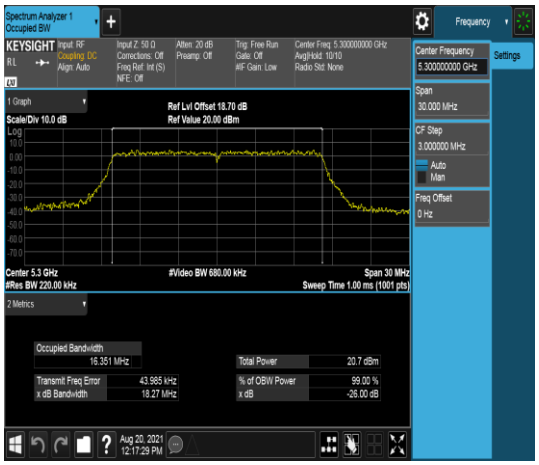
Test Data (26dB BANDWIDTH)

UNII-2a IEEE 802.11a mode- Chain 0	
Low CH	**Mid CH**
	
High CH	

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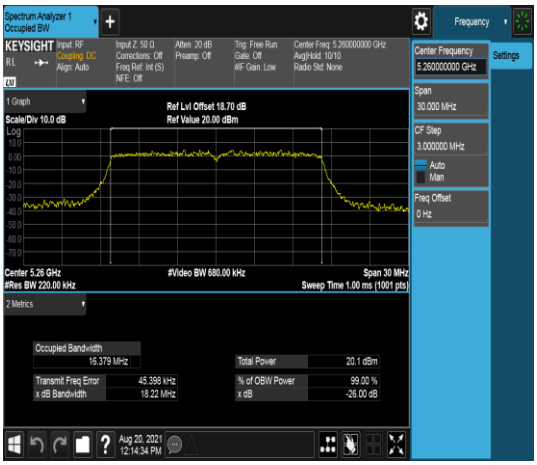
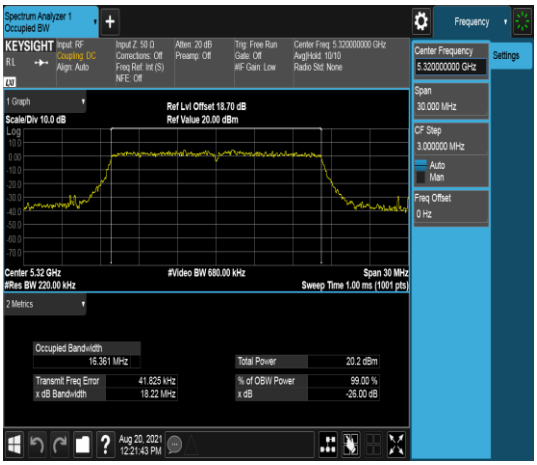
UNII-2a IEEE 802.11a mode- Chain 1	
Low CH	**Mid CH**
	
High CH	
	

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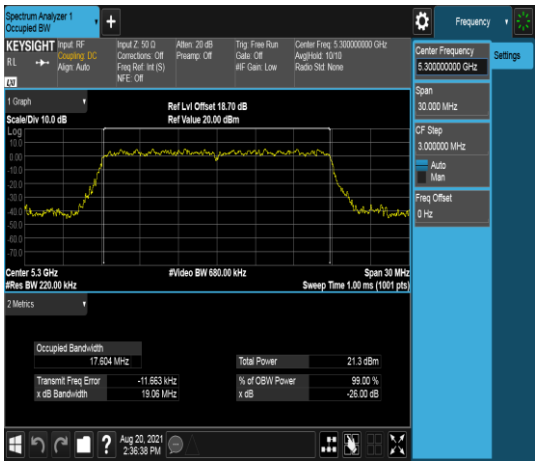
UNII-2a IEEE 802.11n HT20 mode- Chain 0	
Low CH	**Mid CH**
	
High CH	

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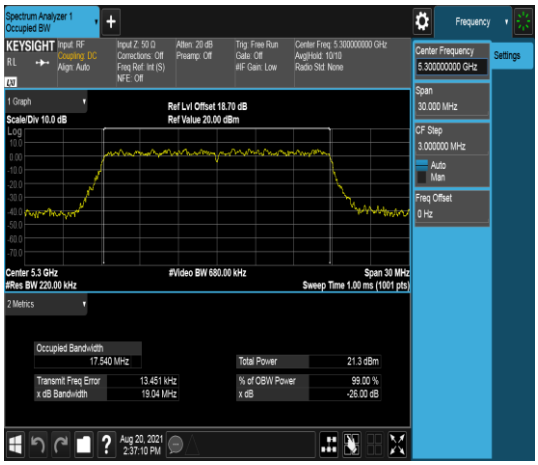
UNII-2a IEEE 802.11n HT20 mode- Chain 1	
Low CH	**Mid CH**
	
High CH	

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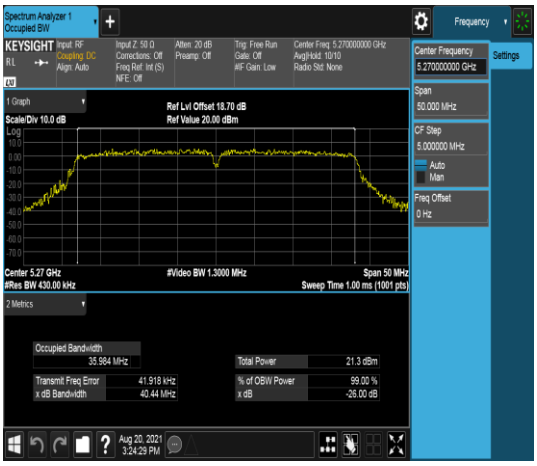
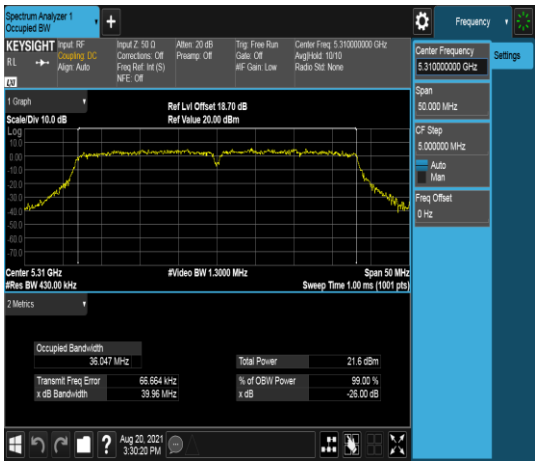
UNII-2a IEEE 802.11n HT40 mode- Chain 0	
Low CH	**High CH**
UNII-2a IEEE 802.11n HT40 mode- Chain 1	
Low CH	**High CH**
	

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UNII-2a IEEE 802.11ac VHT80 mode- Chain 0	
Low CH	

UNII-2a IEEE 802.11ac VHT80 mode- Chain 1	
Low CH	

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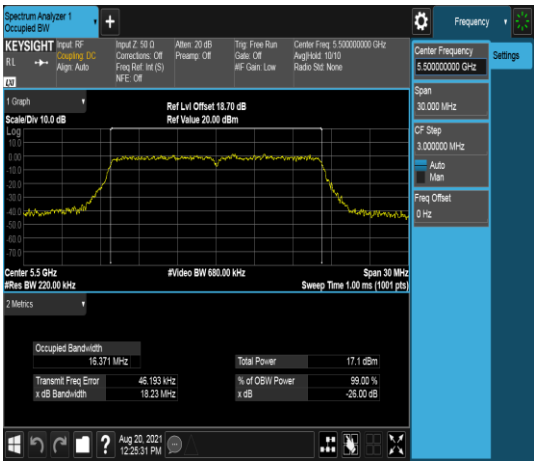
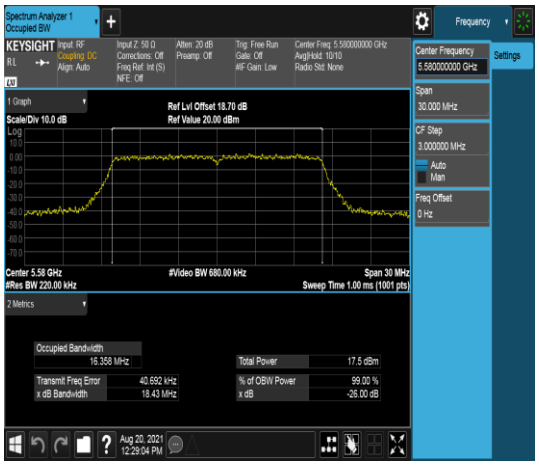
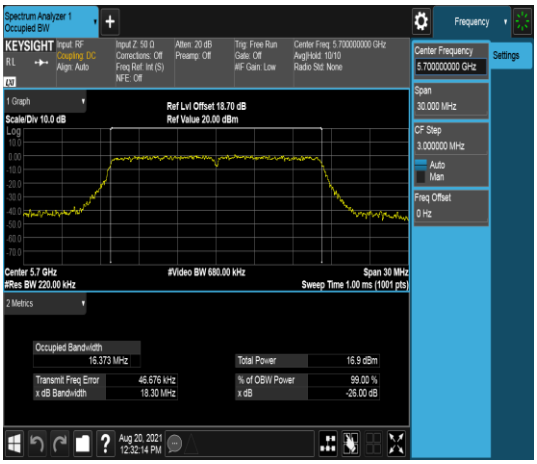
Test Data (26dB BANDWIDTH)

UNII-2c IEEE 802.11a mode- Chain 0	
Low CH	**Mid CH**
	
High CH	
	

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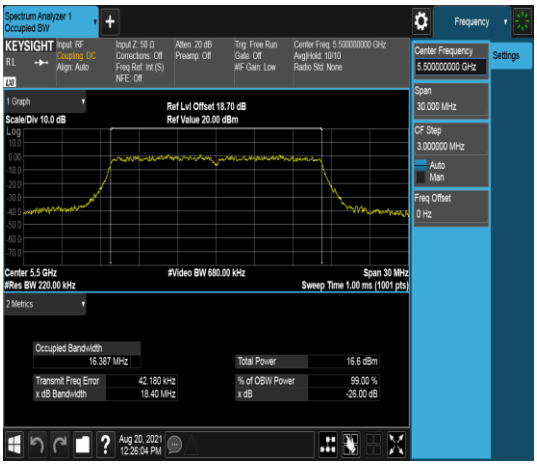
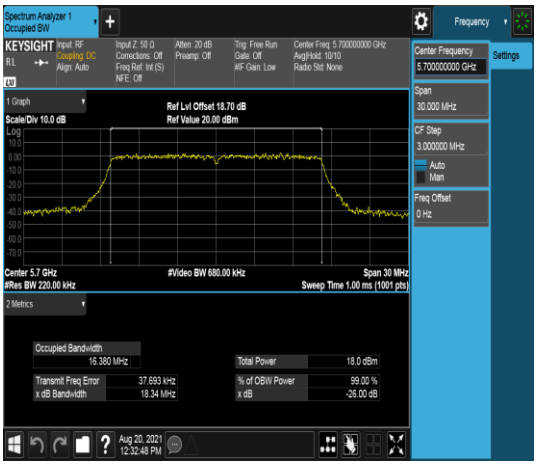
UNII-2c IEEE 802.11a mode- Chain 1	
Low CH	**Mid CH**
	
High CH	
	

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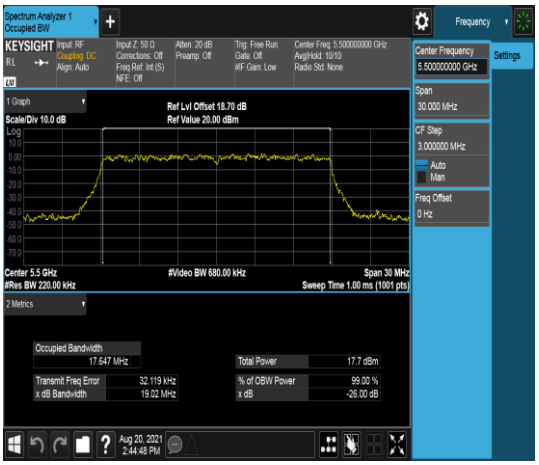
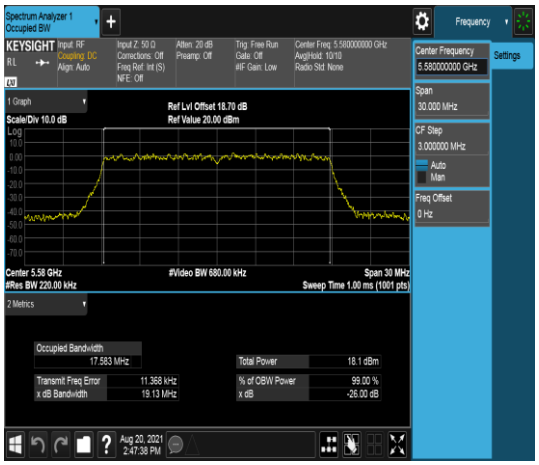
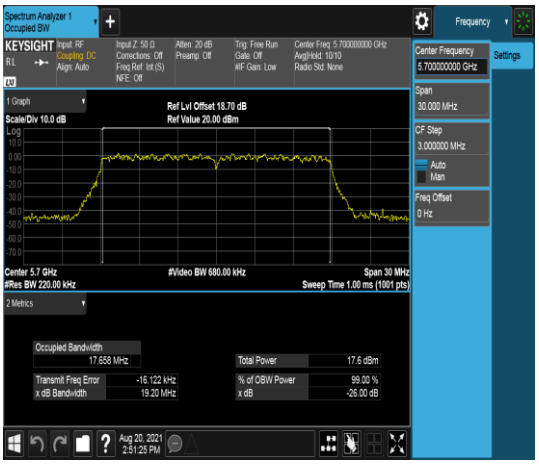
UNII-2c IEEE 802.11n HT20 mode- Chain 0	
Low CH	**Mid CH**
	
High CH	
	

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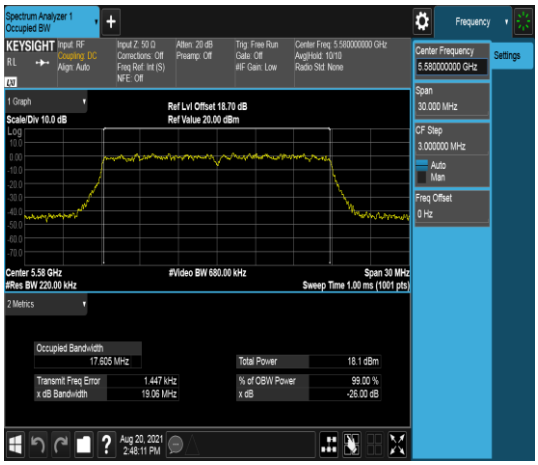
UNII-2c IEEE 802.11n HT20 mode- Chain 1	
Low CH	**Mid CH**
	
High CH	

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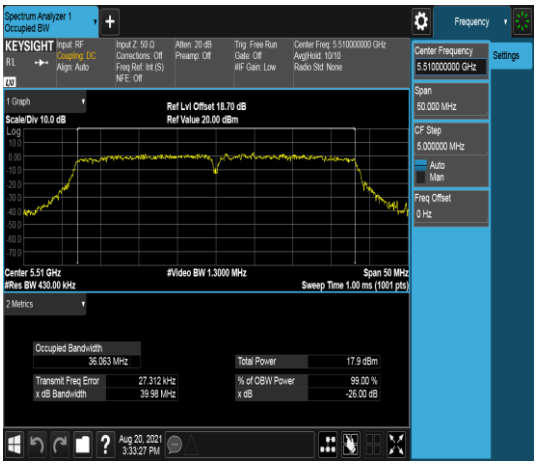
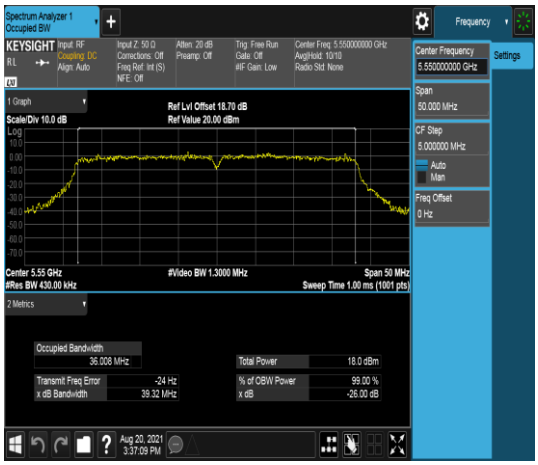
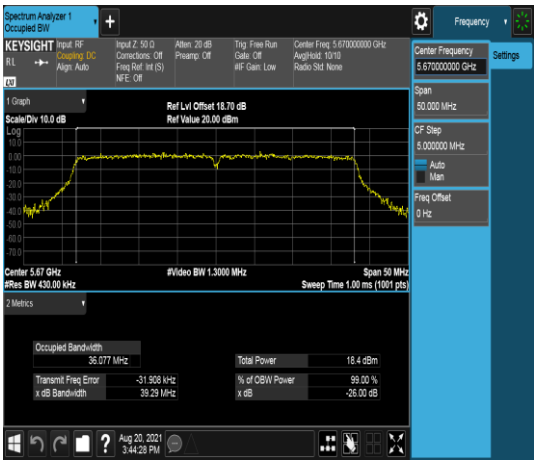
UNII-2c IEEE 802.11n HT40 mode- Chain 0	
Low CH	**Mid CH**
	
High CH	
	

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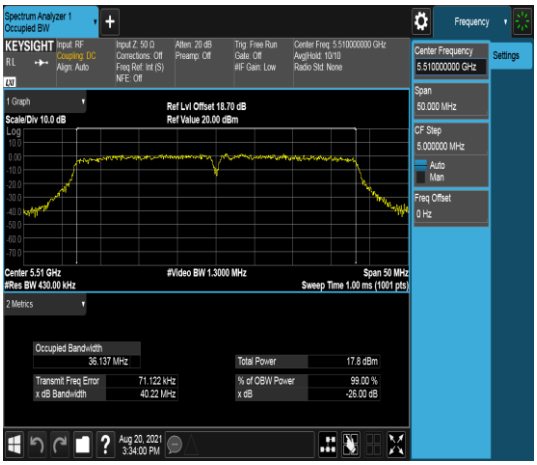
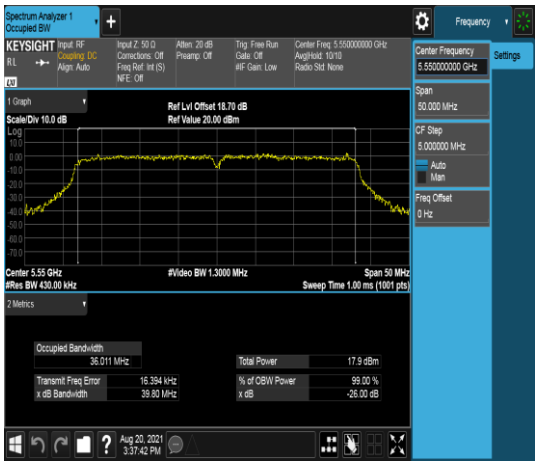
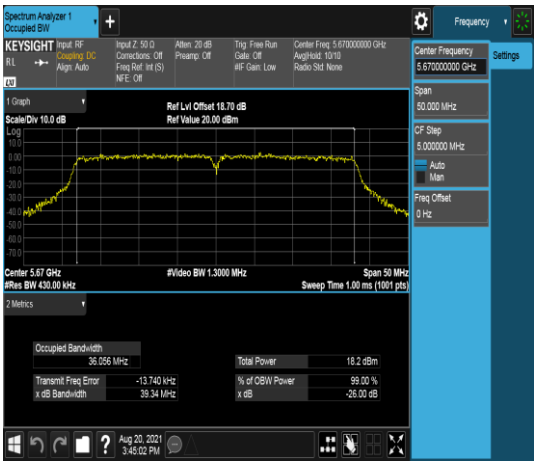
UNII-2c IEEE 802.11n HT40 mode- Chain 1	
Low CH	**Mid CH**
	
High CH	
	

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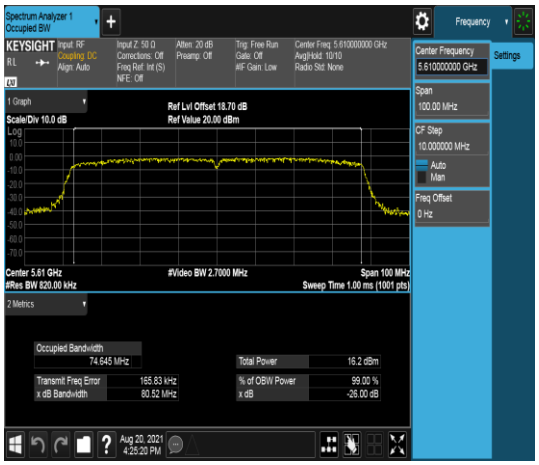
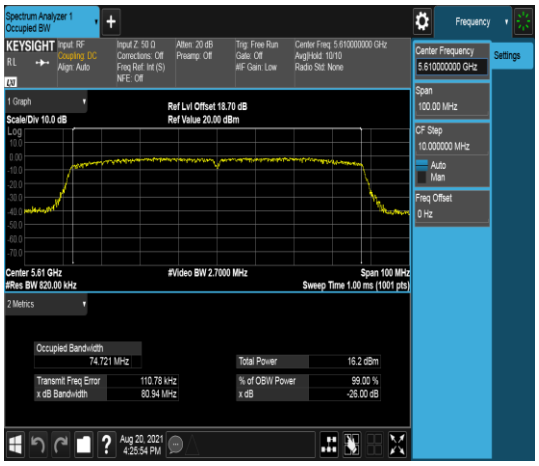
UNII-2c IEEE 802.11ac VHT80 mode- Chain 0	
Low CH	**High CH**
	

UNII-2c IEEE 802.11ac VHT80 mode- Chain 1	
Low CH	**High CH**
	

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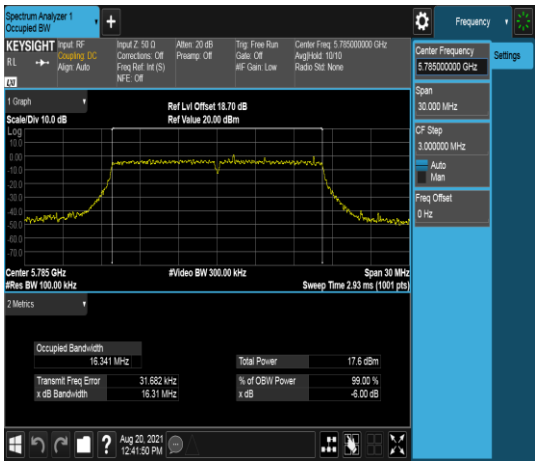
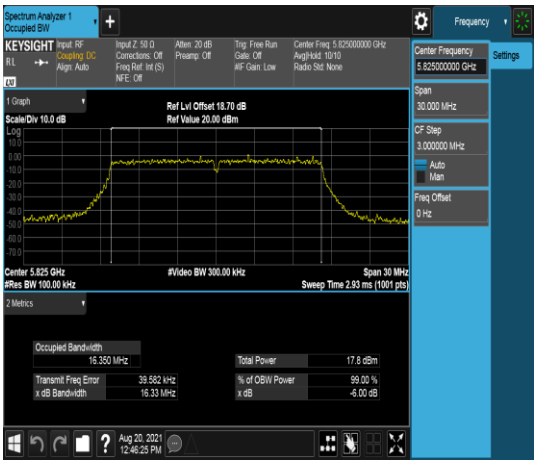
Test Data (6dB BANDWIDTH)

UNII-3 IEEE 802.11a mode- Chain 0	
Low CH	**Mid CH**
	
High CH	
	

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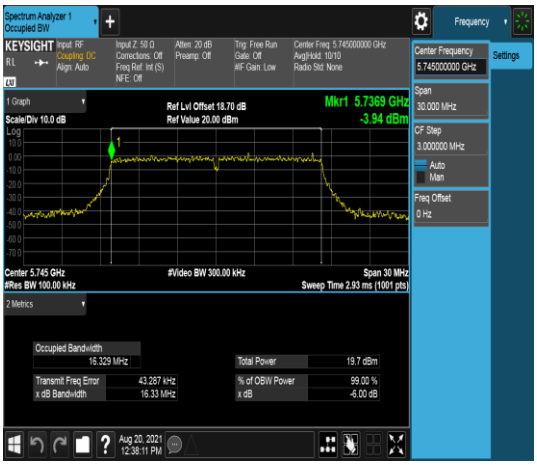
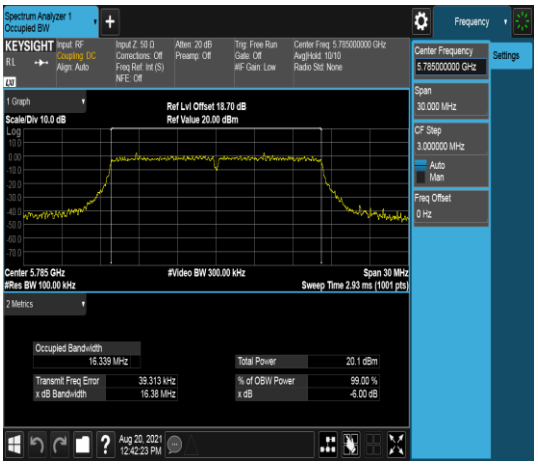
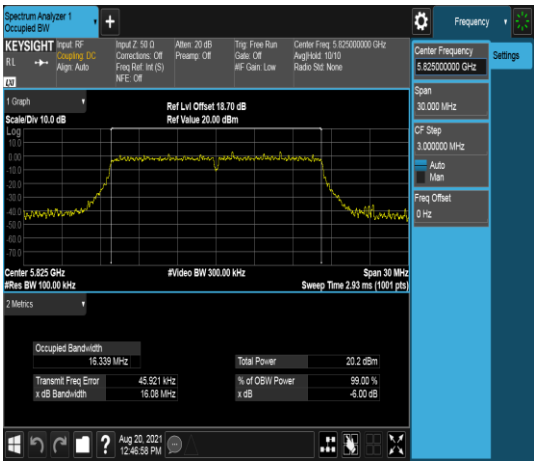
UNII-3 IEEE 802.11a mode- Chain 1	
Low CH	**Mid CH**
	
High CH	
	

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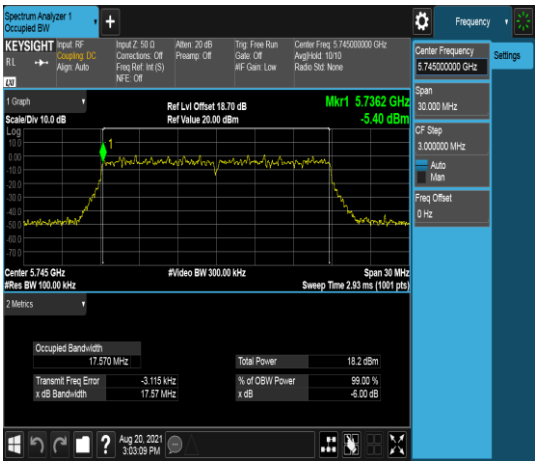
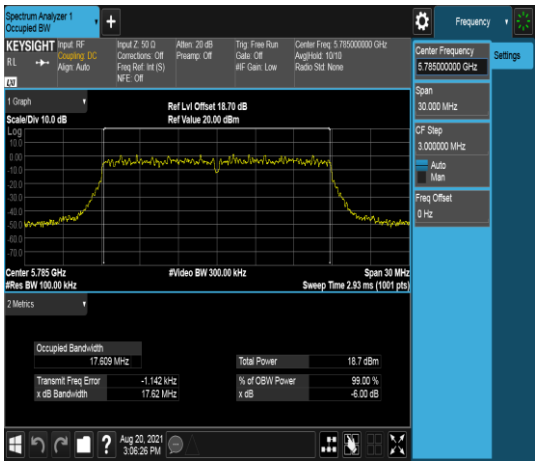
UNII-3 IEEE 802.11n HT20 mode- Chain 0	
Low CH	**Mid CH**
	
High CH	

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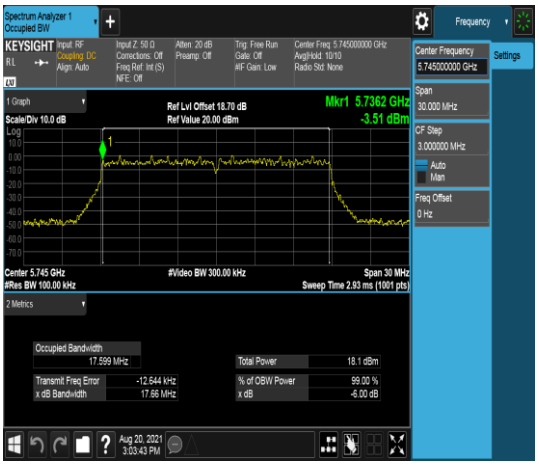
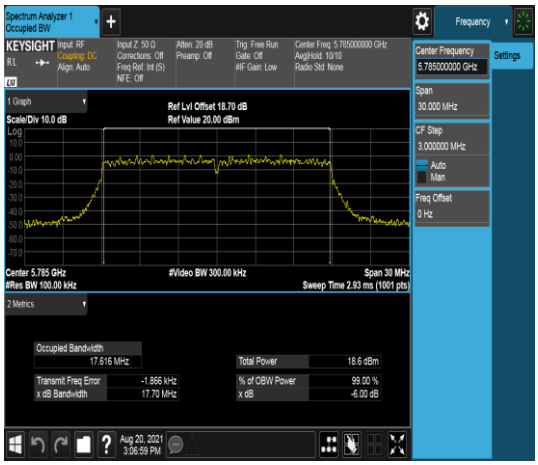
UNII-3 IEEE 802.11n HT20 mode- Chain 1	
Low CH	**Mid CH**
	
High CH	

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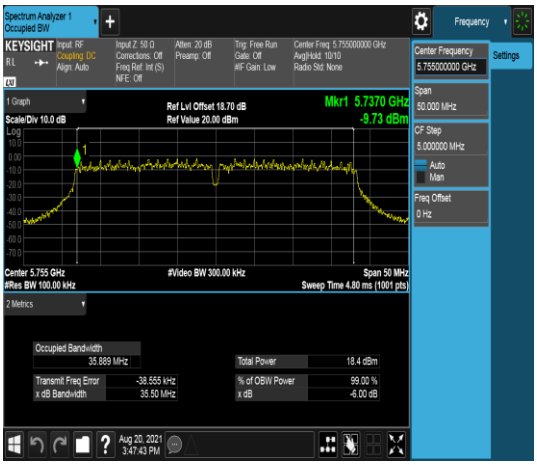
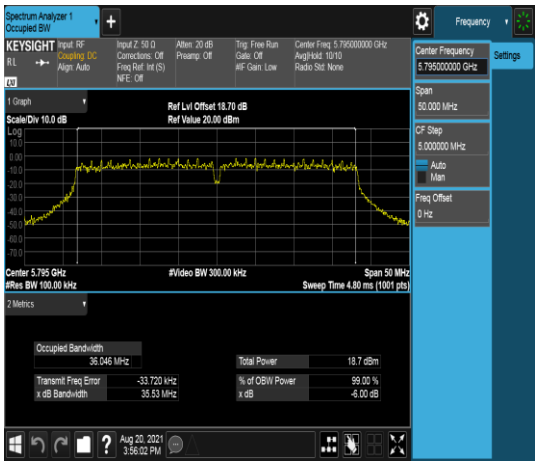
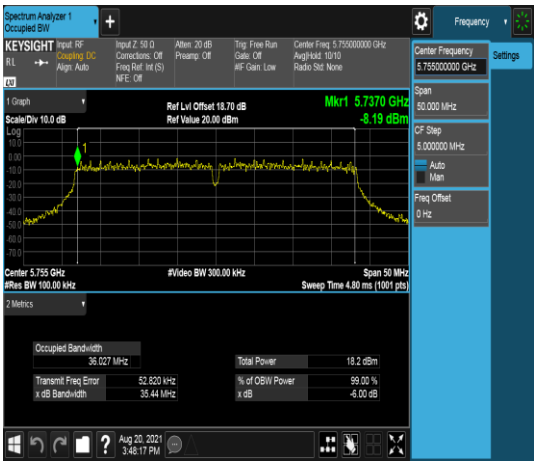
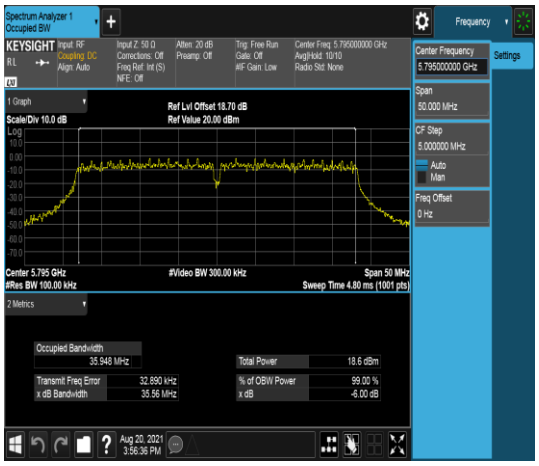
UNII-3 IEEE 802.11n HT40 mode- Chain 0	
Low CH	**High CH**
	

UNII-3 IEEE 802.11n HT40 mode- Chain 1	
Low CH	**High CH**
	

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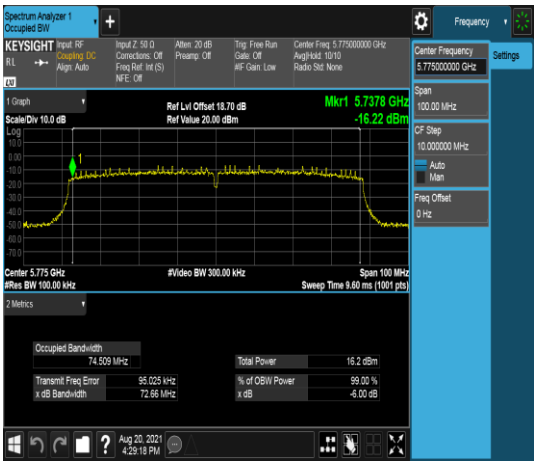
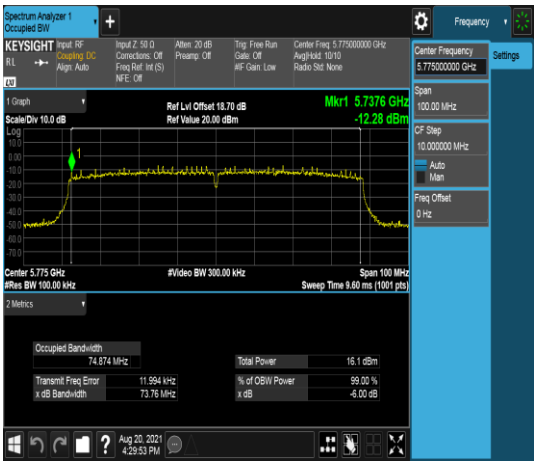
UNII-3 IEEE 802.11ac VHT80 mode- Chain 0	
Low CH	
	
UNII-3 IEEE 802.11ac VHT80 mode- Chain 1	
Low CH	
	

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4.3 OUTPUT POWER MEASUREMENT

4.3.1 Test Limit

According to §15.407 (a)(1), 15.407(a)(2) and 15.407(a)(3), and RSS-247 section 6.2.1.1, section 6.2.2.1, section 6.2.3.1 and section 6.2.4.1

FCC:

UNII-1 :

For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW(24 dBm), provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

UNII-2a and 2c:

the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

UNII-3:

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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IC:

UNII-1 :

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or 1.76 + 10 log10B, dBm, whichever is less. Devices shall implement transmitter power control (TPC) in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.

For other devices, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10B, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

UNII-2a and 2c:

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or 1.76 + 10 log10B, dBm, whichever is less. Devices shall implement TPC in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.

Devices, other than devices installed in vehicles, shall comply with the following:

The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band;

The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log10B, 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.

UNII-2c (5470-5600 MHz and 5650-5725 MHz)

The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log10B, 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.

UNII-3:

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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UNII-1 Limit	☒ Antenna not exceed 6 dBi：24dBm ☒ 200mW or 10 + 10 log10B for IC ☐ Antenna with DG greater than 6 dBi： [Limit = 24 – (DG – 6)]
UNII-2a/2c Limit	☒ Antenna not exceed 6 dBi：24dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 24 – (DG – 6)]
UNII-3 Limit	☐ Antenna not exceed 6 dBi：30dBm ☒ Antenna with DG greater than 6 dBi： [Limit = 30 – (DG – 6)]

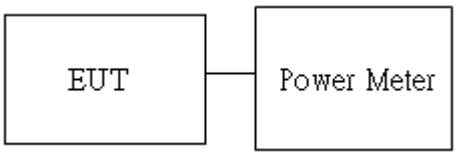
4.3.2 Test Procedure

Test method Refer as KDB 789033 D02, Section E.3.b for BW 20MHz and 40MHz, E.2.b for BW 80MHz.

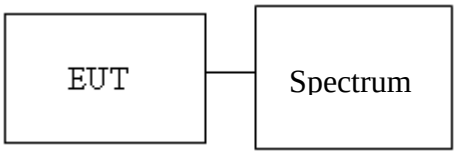
1. The EUT RF output connected to the power meter or spectrum by RF cable.
2. Setting maximum power transmit of EUT.
3. The path loss was compensated to the results for each measurement.
4. Measure and record the result of Average output power. in the test report.

4.3.3 Test Setup

For BW 20MHz and 40MHz



For BW 80MHz



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4.3.4 Test Result

Temperature: 20.3 ~ 25.8℃ **Humidity:** 54 ~ 61% RH

Tested by: Lance Chen **Test date:** August 19 ~ 23, 2021

FCC AVG Power：

802.11a_2TX

CH	Frequency (MHz)	Data Rate	Power set	Avg. POWER (dBm)		TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
				CH 0	CH 1				
36	5180	6	66	11.04	11.52	14.74	29.789	23.98	PASS
44	5220	6	66	11.9	12.31	**15.56**	36.006	23.98	PASS
48	5240	6	66	11.71	12.05	15.34	34.176	23.98	PASS
52	5260	6	default	17.27	16.15	**20.20**	104.711	23.61	PASS
60	5300	6	default	16.89	16.23	20.03	100.610	23.62	PASS
64	5320	6	default	16.81	16.19	19.96	99.196	23.61	PASS
100	5500	6	default	13.08	12.78	16.39	43.516	23.61	PASS
116	5580	6	default	12.89	12.62	16.21	41.793	23.62	PASS
140	5700	6	default	14.26	13.58	**17.39**	54.792	23.62	PASS
149	5745	6	default	13.31	14.78	17.56	57.027	29.97	PASS
157	5785	6	default	13.58	15.34	18.00	63.131	29.97	PASS
165	5825	6	default	14.03	15.32	**18.18**	65.715	29.97	PASS

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