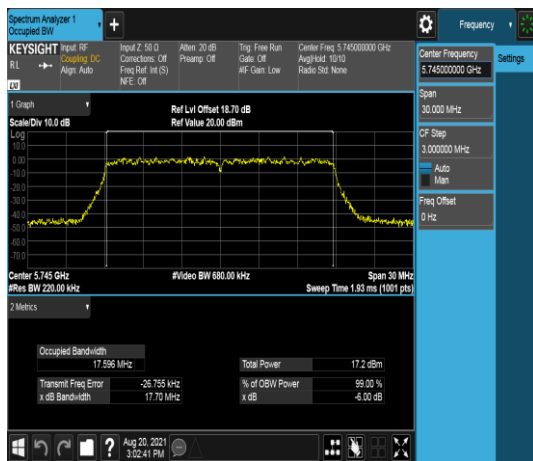


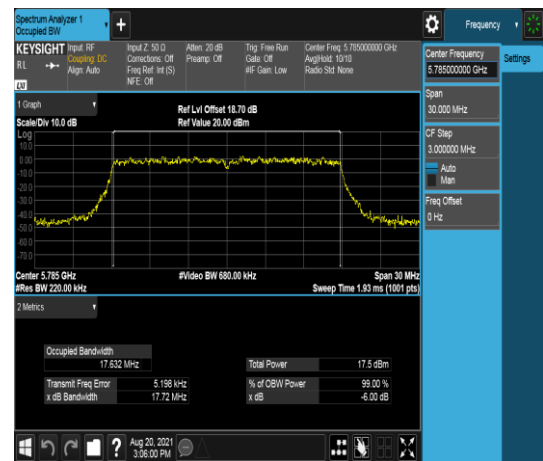
Report No.: TMWK2108000371KR

UNII-3 IEEE 802.11n HT20 mode- Chain 1

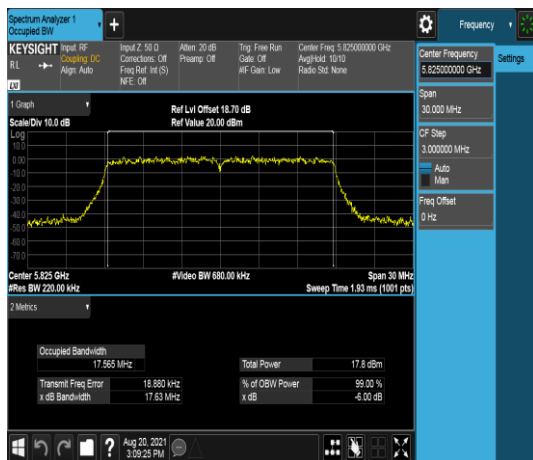
Low CH



Mid CH



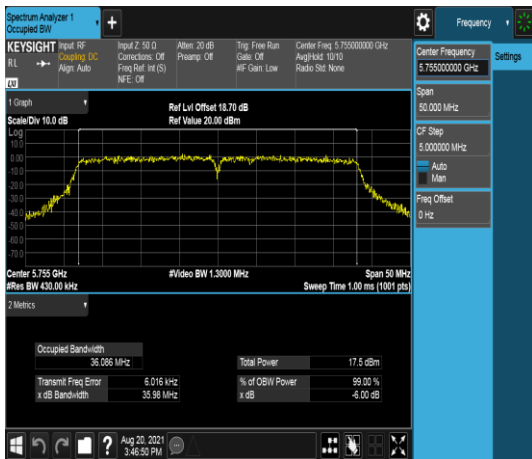
High CH



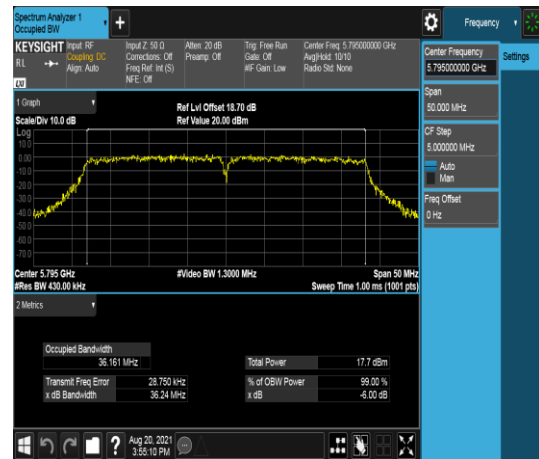
Report No.: TMWK2108000371KR

UNII-3 IEEE 802.11n HT40 mode- Chain 0

Low CH

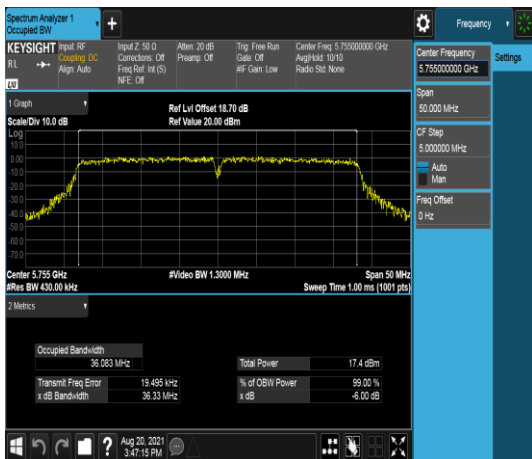


High CH

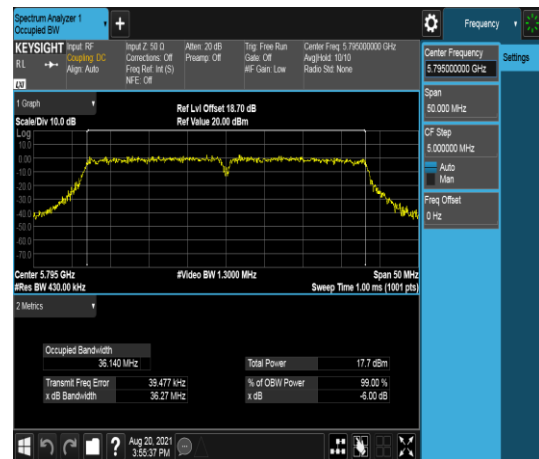


UNII-3 IEEE 802.11n HT40 mode- Chain 1

Low CH



High CH



Report No.: TMWK2108000371KR

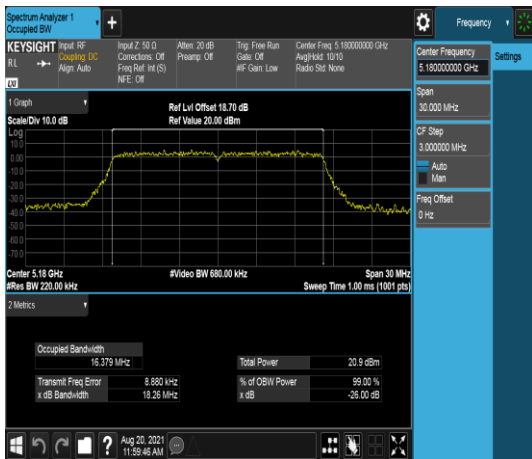
UNII-3 IEEE 802.11ac VHT80 mode- Chain 0	
Low CH	
<p>Keysight Spectrum Analyzer 1 - Occupied BW</p> <p>Center Frequency: 5.77500000 GHz</p> <p>Span: 100.00 MHz</p> <p>CF Step: 10.000000 MHz</p> <p>Ref Lvl Offset: 18.70 dB</p> <p>Ref Value: 20.00 dBm</p> <p>Occupied Bandwidth: 74.517 MHz</p> <p>Total Power: 15.6 dBm</p> <p>Transmit Freq Error: 2.639 kHz</p> <p>% of OBW Power: 99.00 %</p> <p>x dB Bandwidth: 74.58 MHz</p> <p>x dB: -6.00 dB</p>	
UNII-3 IEEE 802.11ac VHT80 mode- Chain 1	
Low CH	
<p>Keysight Spectrum Analyzer 1 - Occupied BW</p> <p>Center Frequency: 5.77500000 GHz</p> <p>Span: 100.00 MHz</p> <p>CF Step: 10.000000 MHz</p> <p>Ref Lvl Offset: 18.70 dB</p> <p>Ref Value: 20.00 dBm</p> <p>Occupied Bandwidth: 74.685 MHz</p> <p>Total Power: 15.6 dBm</p> <p>Transmit Freq Error: 67.247 kHz</p> <p>% of OBW Power: 99.00 %</p> <p>x dB Bandwidth: 74.41 MHz</p> <p>x dB: -6.00 dB</p>	

Report No.: TMWK2108000371KR

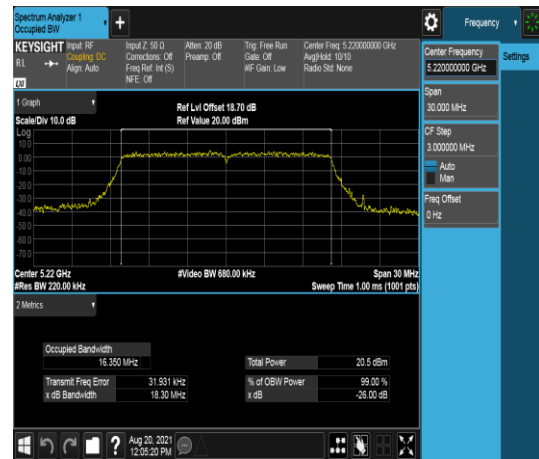
Test Data (26dB BANDWIDTH)

UNII-1 IEEE 802.11a mode- Chain 0

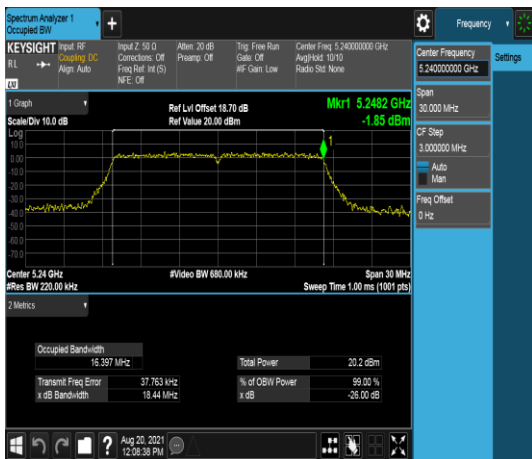
Low CH



Mid CH



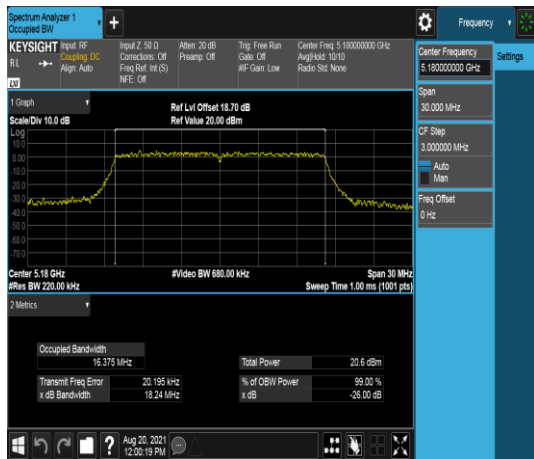
High CH



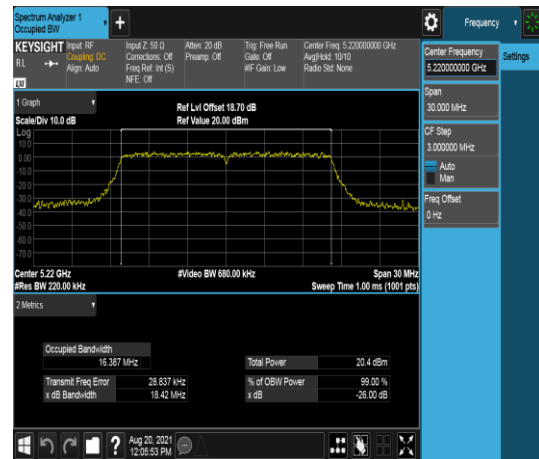
Report No.: TMWK2108000371KR

UNII-1 IEEE 802.11a mode- Chain 1

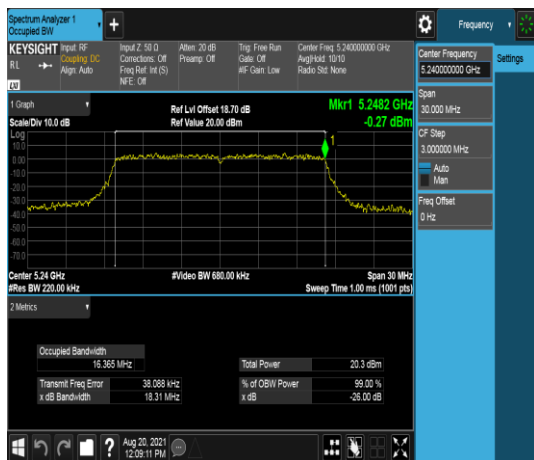
Low CH



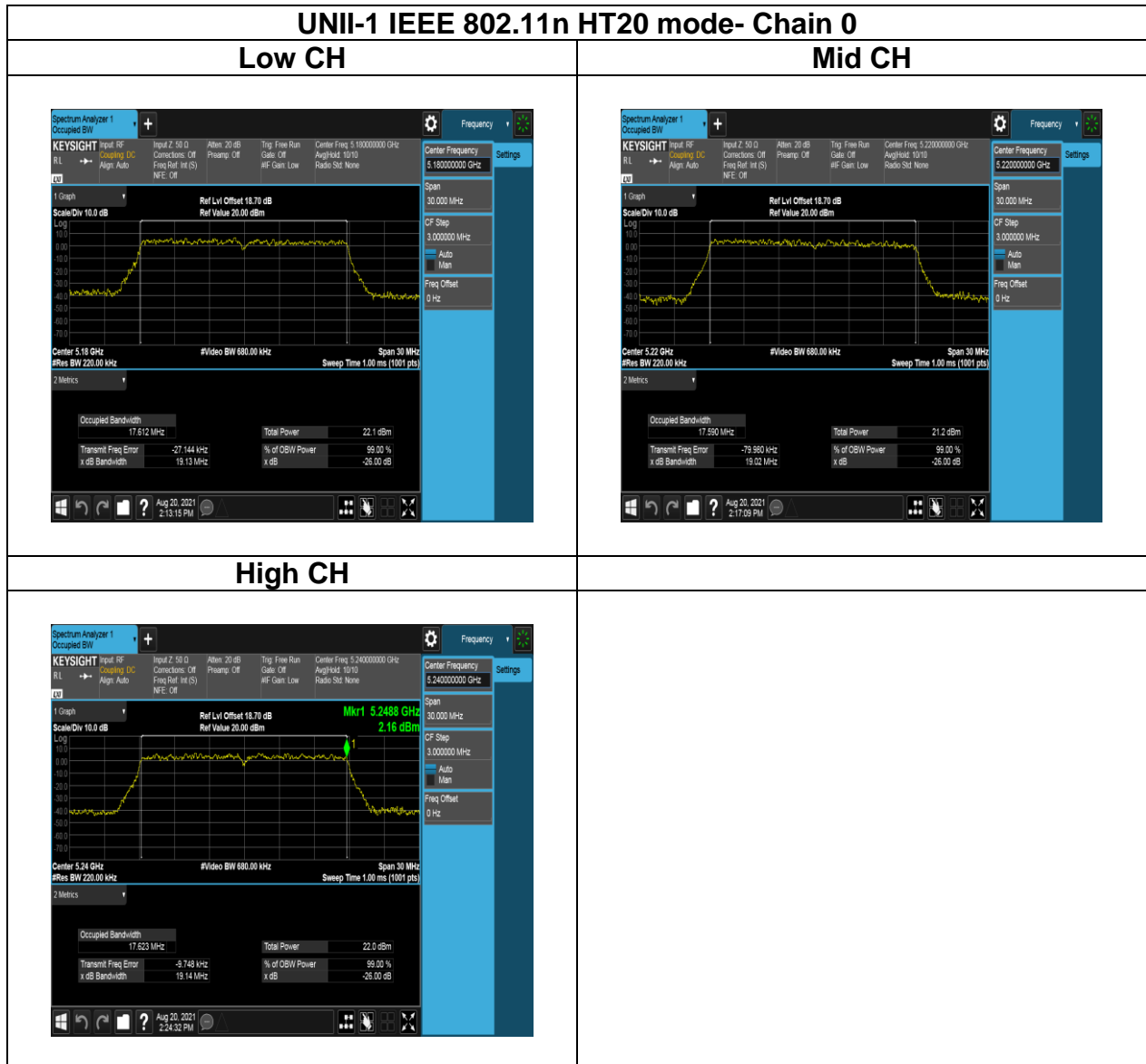
Mid CH



High CH



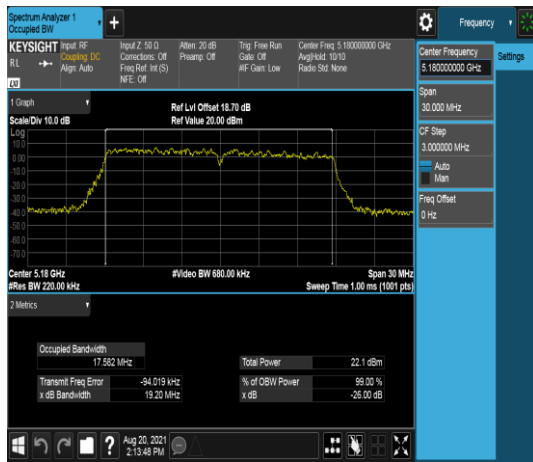
Report No.: TMWK2108000371KR



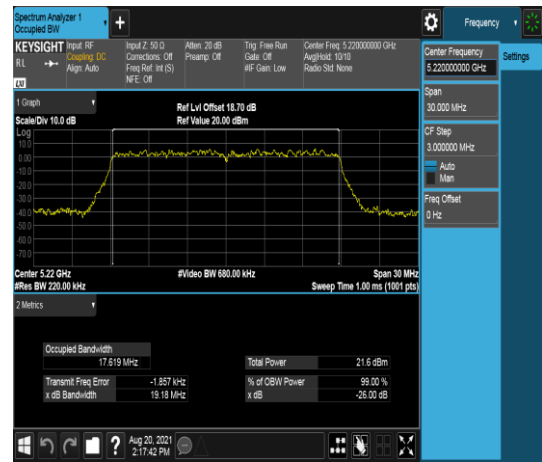
Report No.: TMWK2108000371KR

UNII-1 IEEE 802.11n HT20 mode- Chain 1

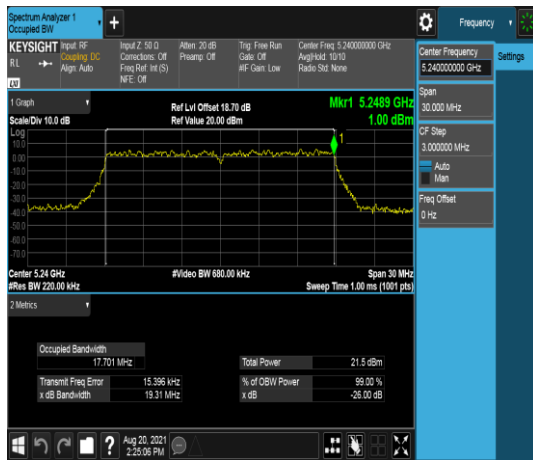
Low CH



Mid CH



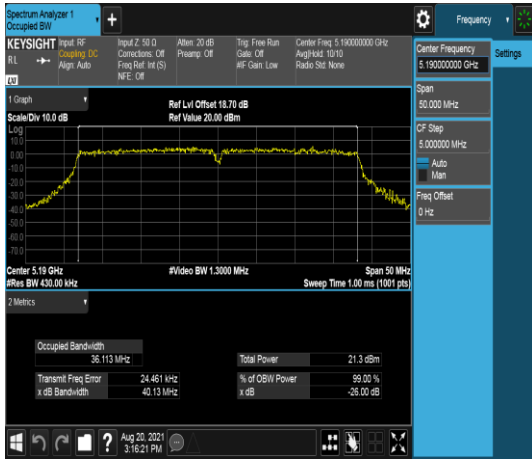
High CH



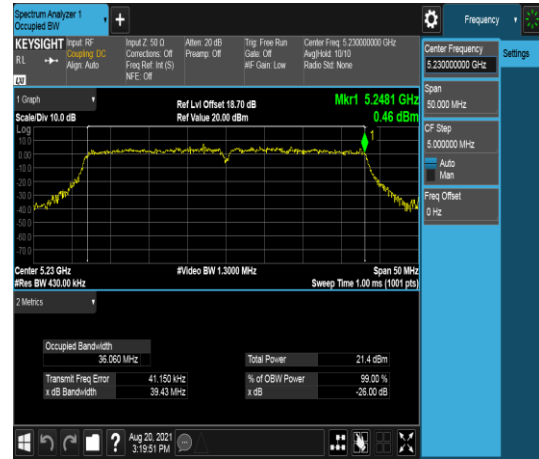
Report No.: TMWK2108000371KR

UNII-1 IEEE 802.11n HT40 mode- Chain 0

Low CH



High CH

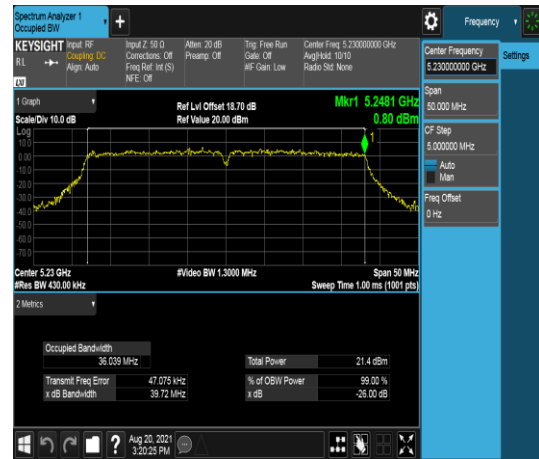


UNII-1 IEEE 802.11n HT40 mode- Chain 1

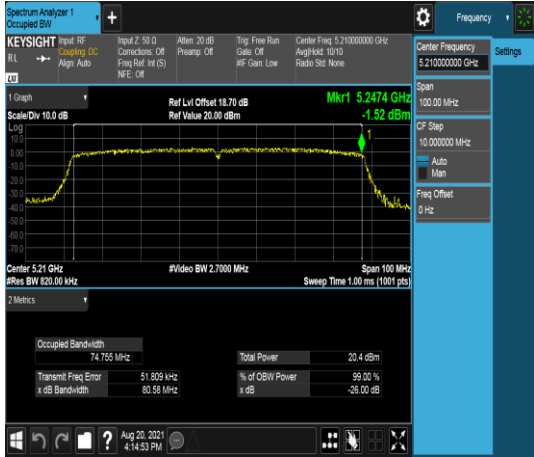
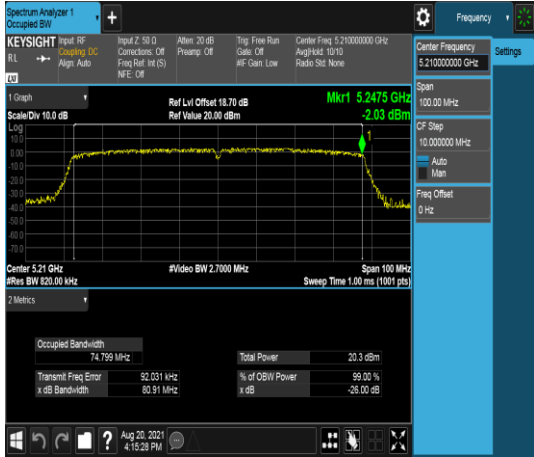
Low CH



High CH

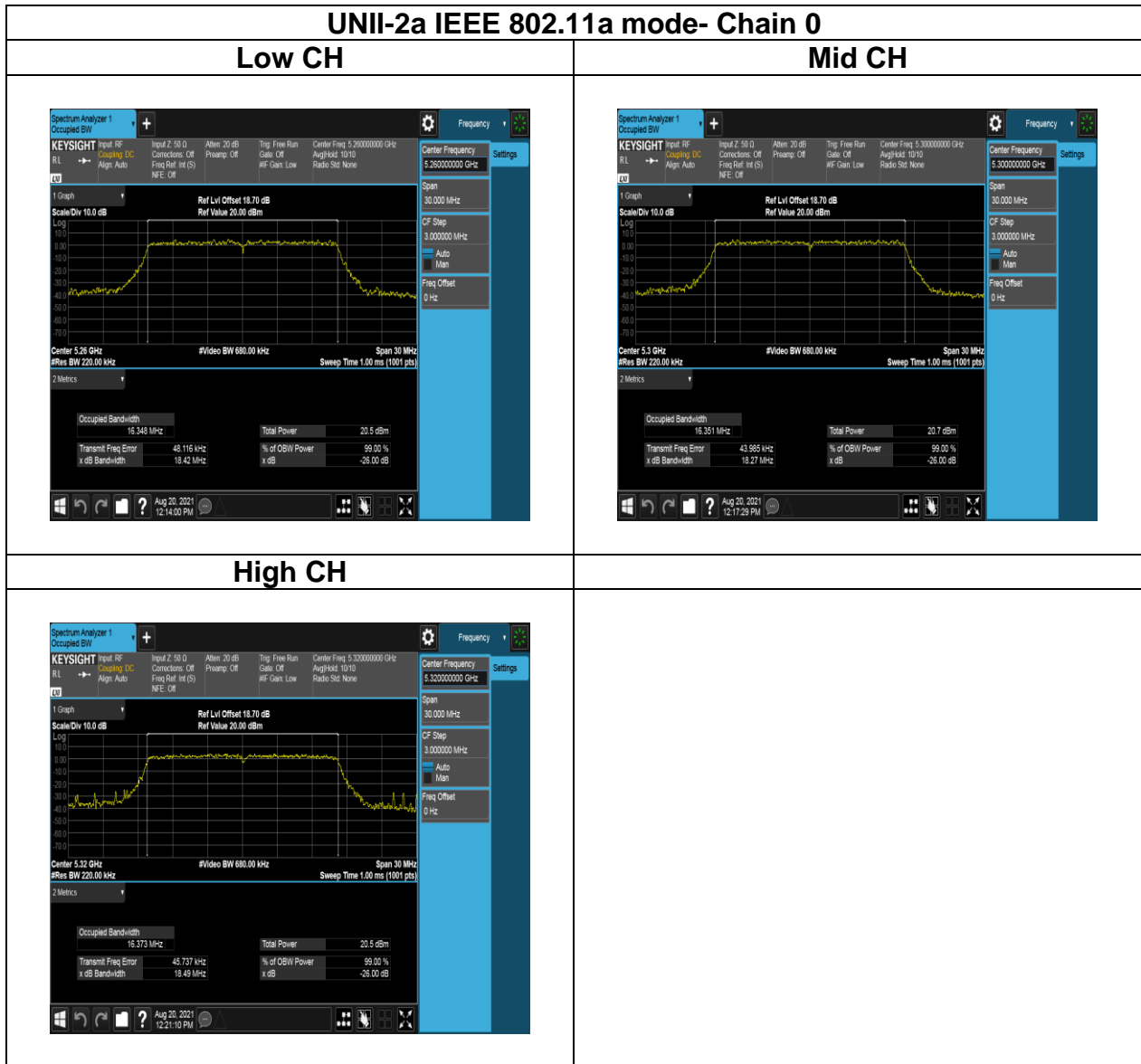


Report No.: TMWK2108000371KR

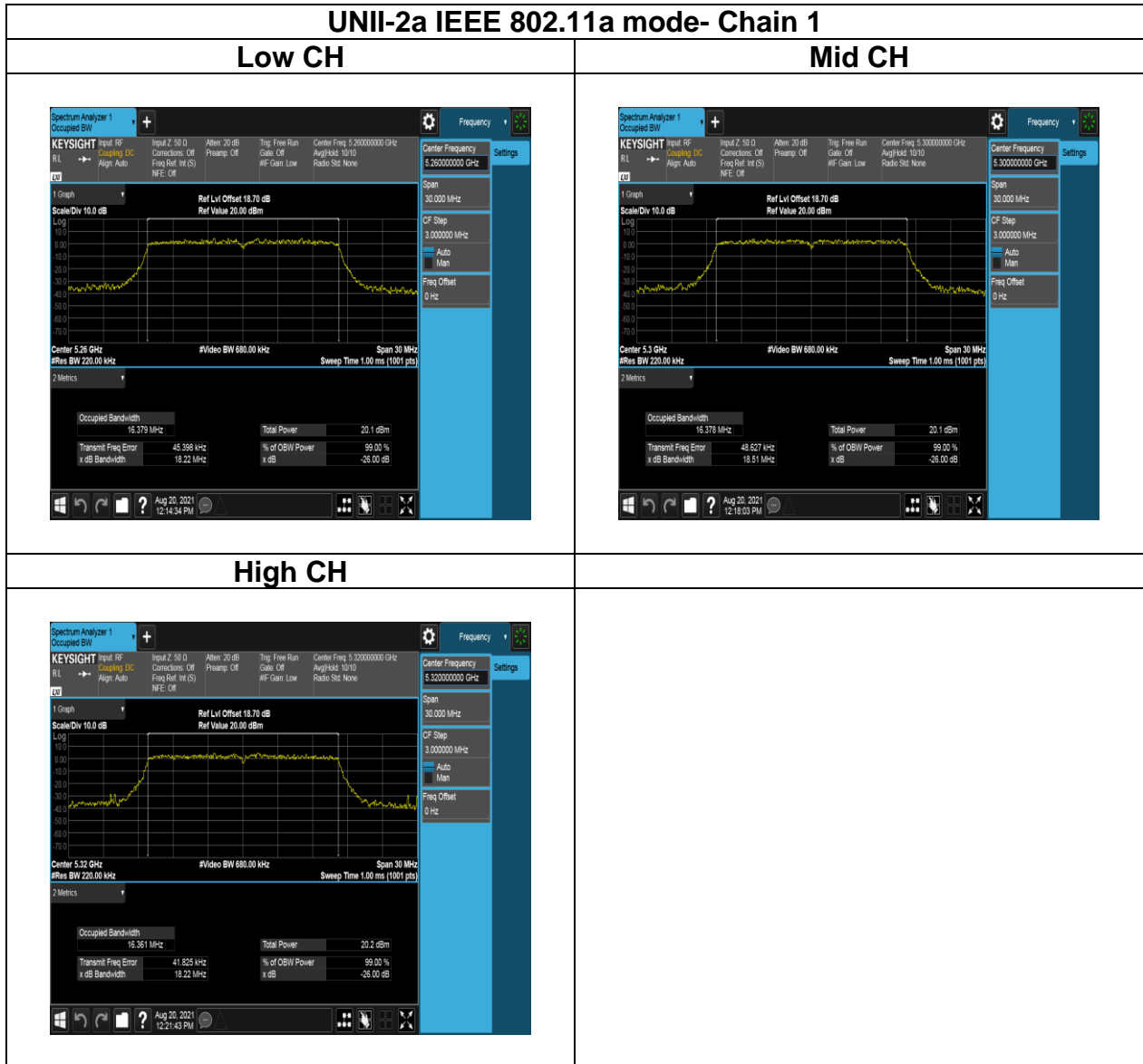
UNII-1 IEEE 802.11ac VHT80 mode- Chain 0													
Low CH													
 <p>Chain 0 Metrics:</p> <table border="1"> <tr> <td>Occupied Bandwidth</td> <td>74.755 MHz</td> <td>Total Power</td> <td>20.4 dBm</td> </tr> <tr> <td>Transmit Freq Error</td> <td>51.805 kHz</td> <td>% of OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>x dB Bandwidth</td> <td>80.98 MHz</td> <td>x dB</td> <td>-26.00 dB</td> </tr> </table>	Occupied Bandwidth	74.755 MHz	Total Power	20.4 dBm	Transmit Freq Error	51.805 kHz	% of OBW Power	99.00 %	x dB Bandwidth	80.98 MHz	x dB	-26.00 dB	
Occupied Bandwidth	74.755 MHz	Total Power	20.4 dBm										
Transmit Freq Error	51.805 kHz	% of OBW Power	99.00 %										
x dB Bandwidth	80.98 MHz	x dB	-26.00 dB										
UNII-1 IEEE 802.11ac VHT80 mode- Chain 1													
Low CH													
 <p>Chain 1 Metrics:</p> <table border="1"> <tr> <td>Occupied Bandwidth</td> <td>74.799 MHz</td> <td>Total Power</td> <td>20.3 dBm</td> </tr> <tr> <td>Transmit Freq Error</td> <td>52.031 kHz</td> <td>% of OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>x dB Bandwidth</td> <td>80.91 MHz</td> <td>x dB</td> <td>-26.00 dB</td> </tr> </table>	Occupied Bandwidth	74.799 MHz	Total Power	20.3 dBm	Transmit Freq Error	52.031 kHz	% of OBW Power	99.00 %	x dB Bandwidth	80.91 MHz	x dB	-26.00 dB	
Occupied Bandwidth	74.799 MHz	Total Power	20.3 dBm										
Transmit Freq Error	52.031 kHz	% of OBW Power	99.00 %										
x dB Bandwidth	80.91 MHz	x dB	-26.00 dB										

Report No.: TMWK2108000371KR

Test Data (26dB BANDWIDTH)



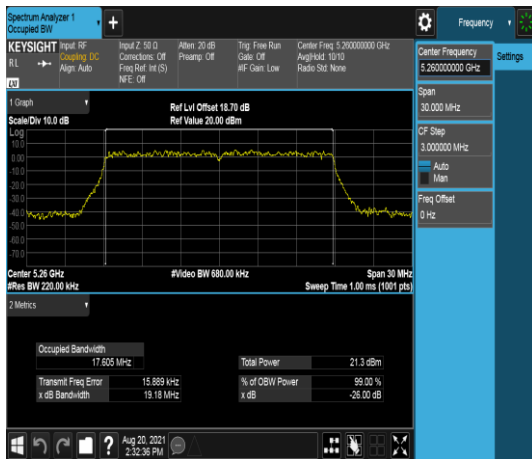
Report No.: TMWK2108000371KR



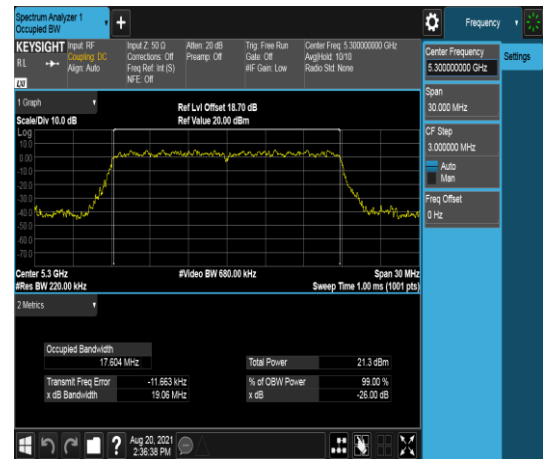
Report No.: TMWK2108000371KR

UNII-2a IEEE 802.11n HT20 mode- Chain 0

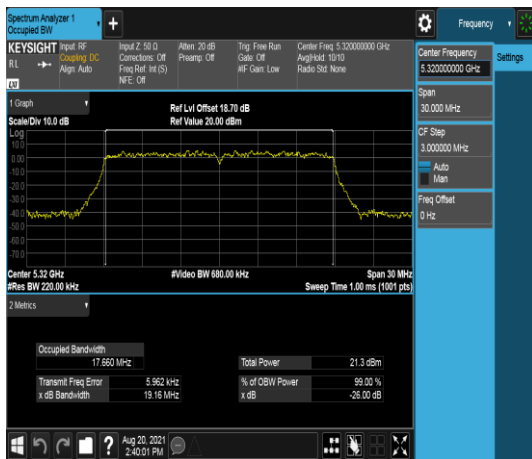
Low CH



Mid CH



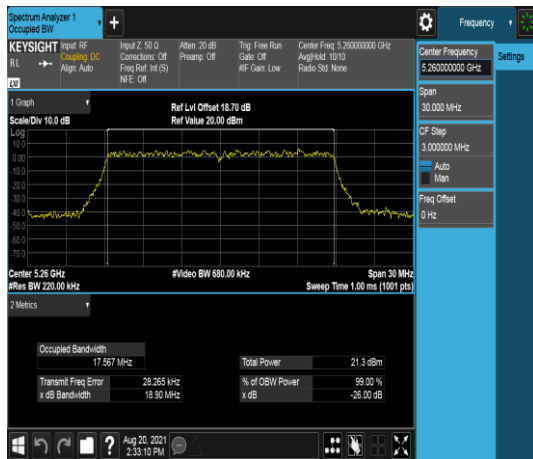
High CH



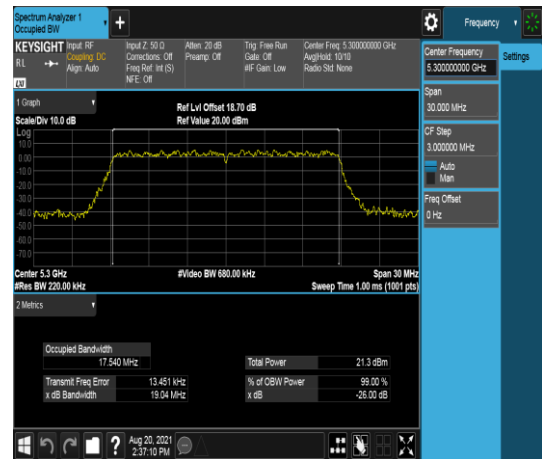
Report No.: TMWK2108000371KR

UNII-2a IEEE 802.11n HT20 mode- Chain 1

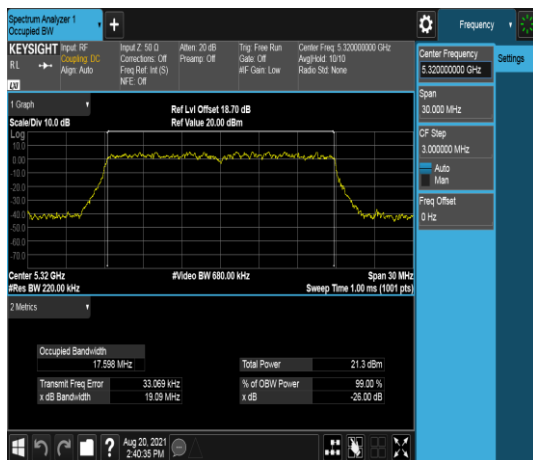
Low CH



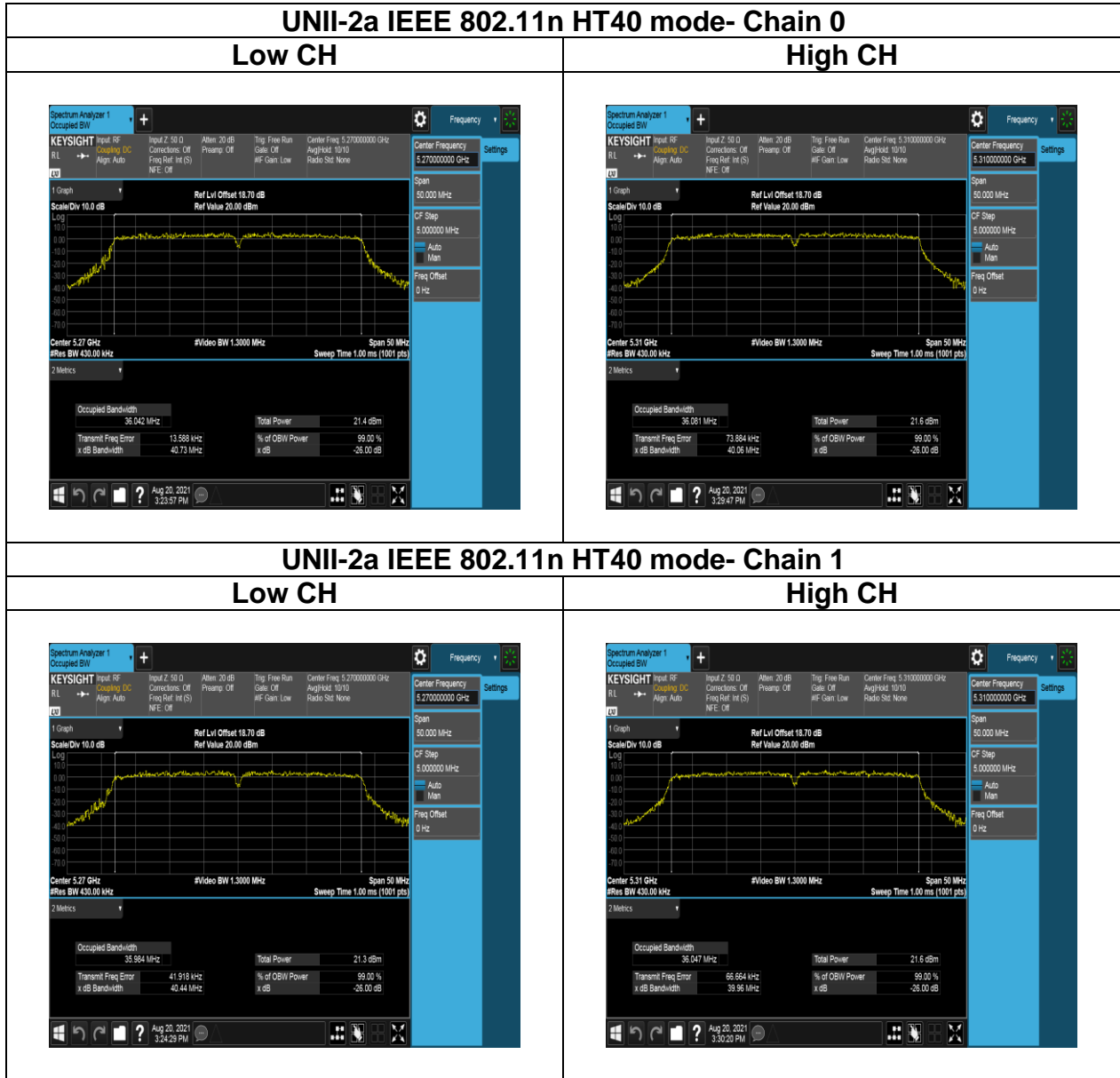
Mid CH



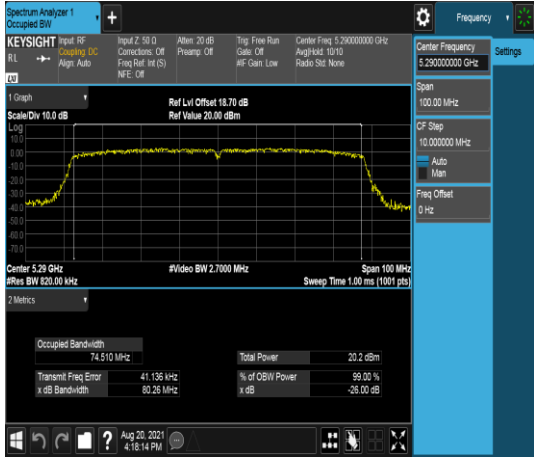
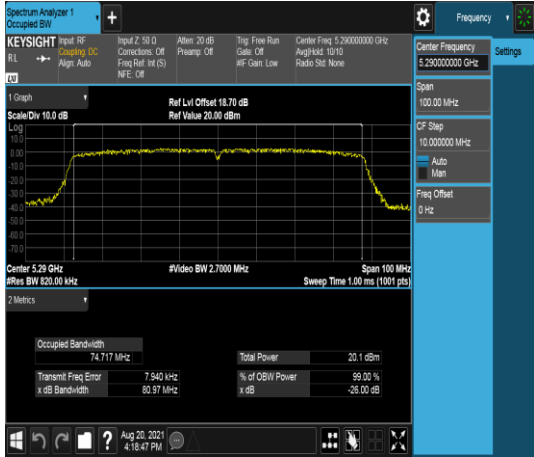
High CH



Report No.: TMWK2108000371KR

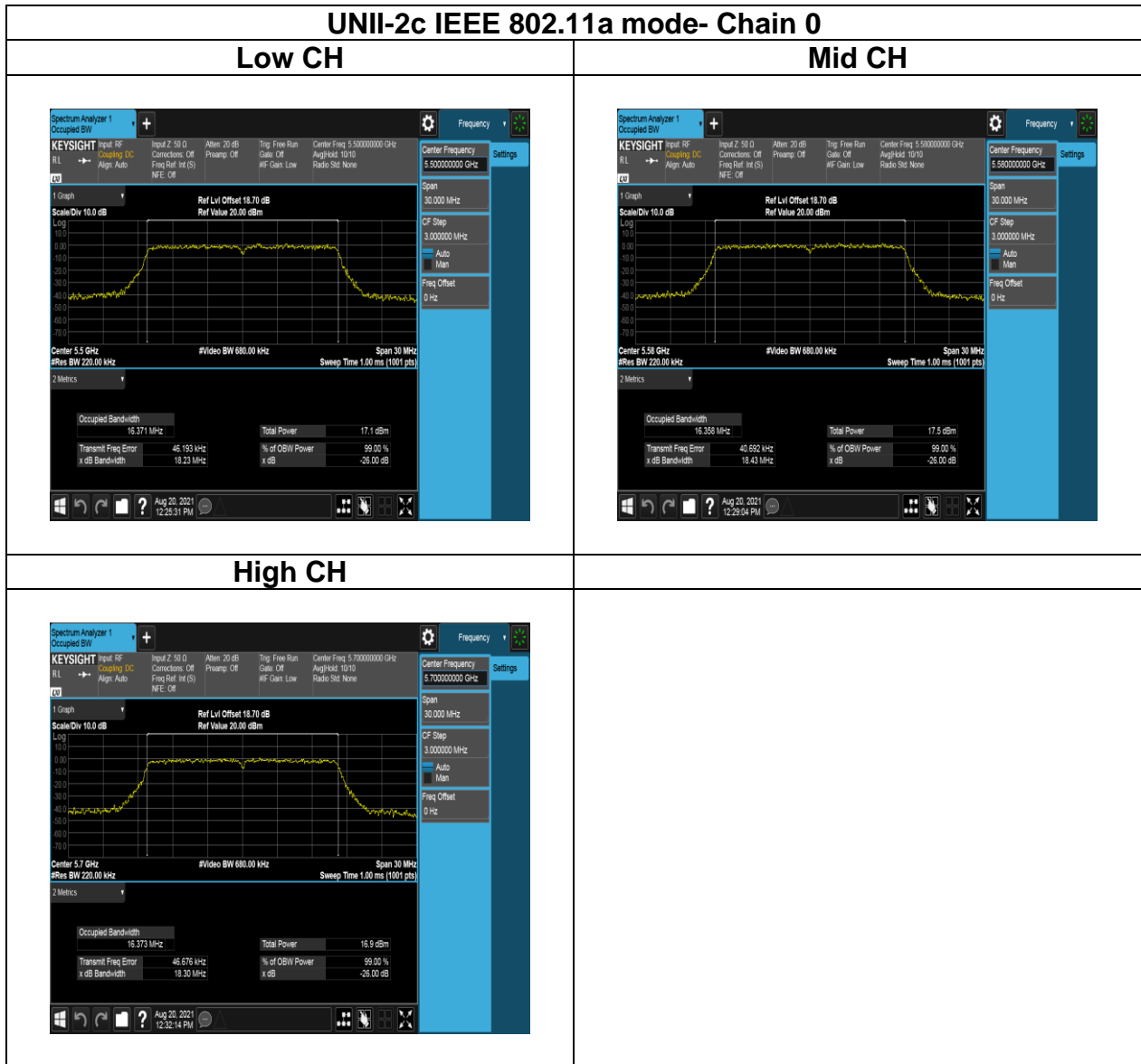


Report No.: TMWK2108000371KR

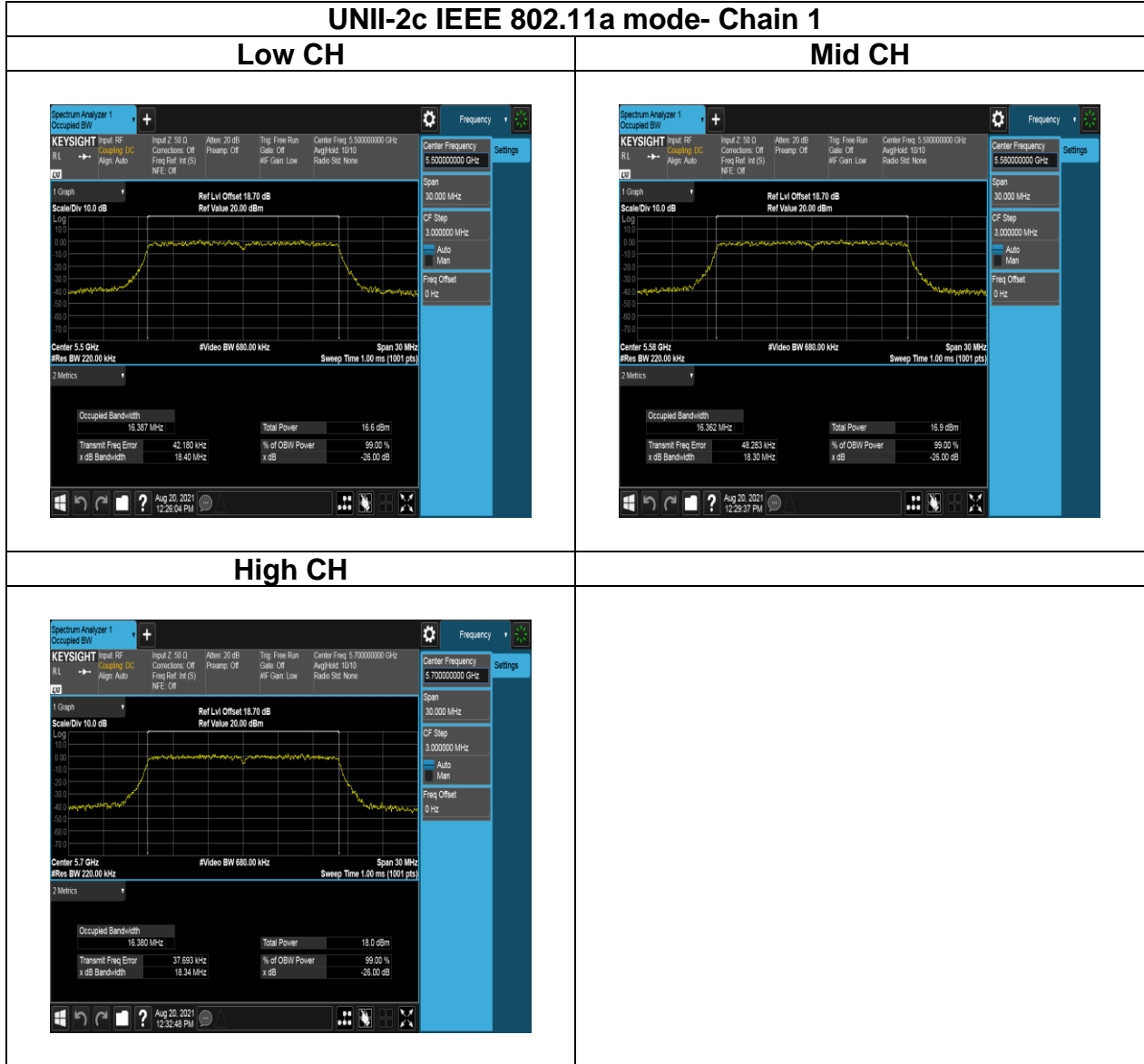
UNII-2a IEEE 802.11ac VHT80 mode- Chain 0	
Low CH	
	
UNII-2a IEEE 802.11ac VHT80 mode- Chain 1	
Low CH	
	

Report No.: TMWK2108000371KR

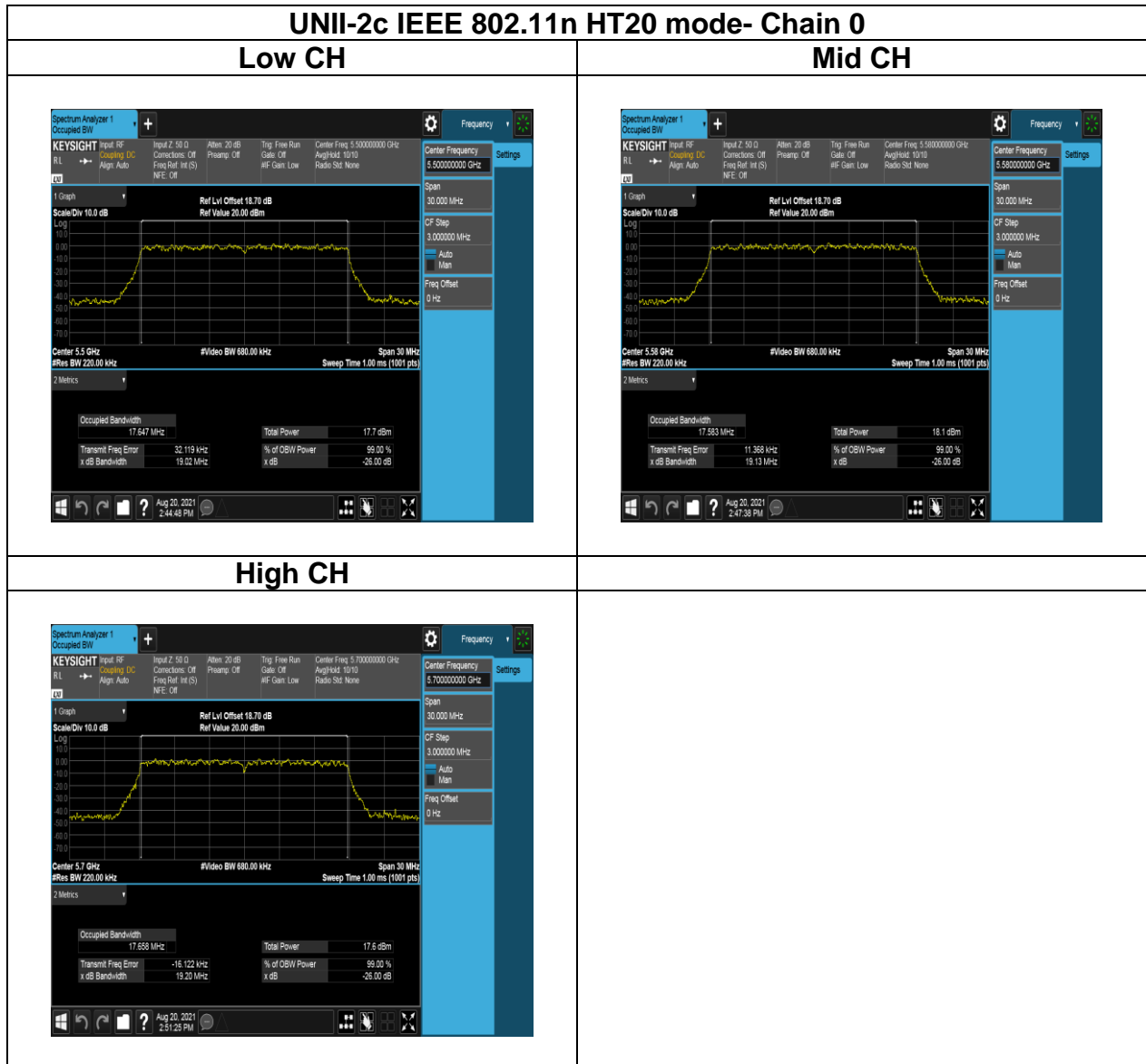
Test Data (26dB BANDWIDTH)



Report No.: TMWK2108000371KR



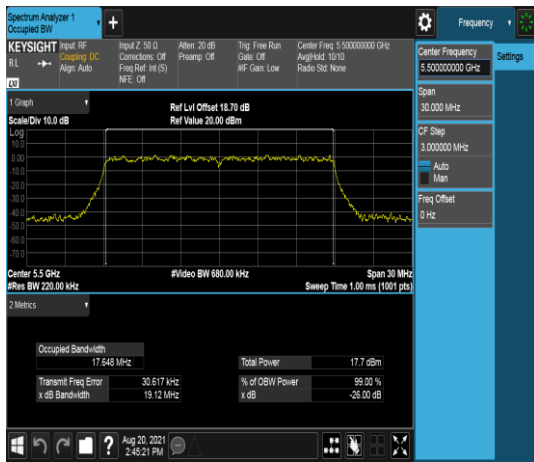
Report No.: TMWK2108000371KR



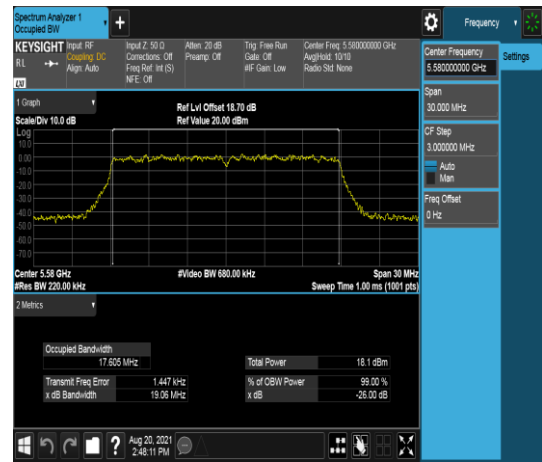
Report No.: TMWK2108000371KR

UNII-2c IEEE 802.11n HT20 mode- Chain 1

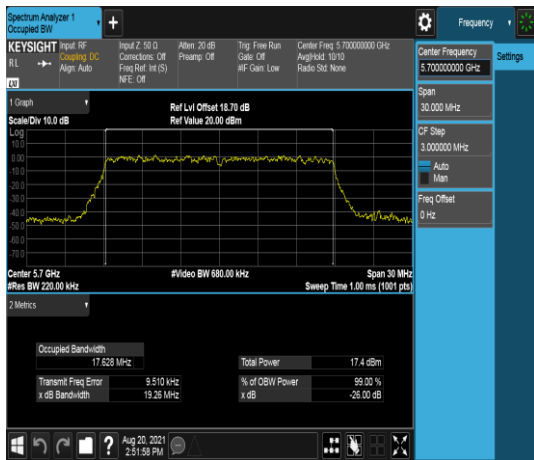
Low CH



Mid CH



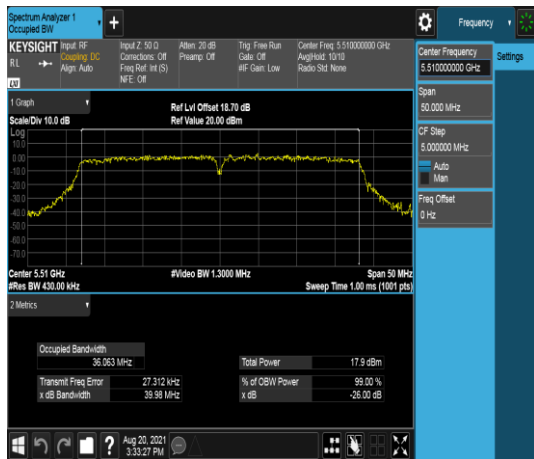
High CH



Report No.: TMWK2108000371KR

UNII-2c IEEE 802.11n HT40 mode- Chain 0

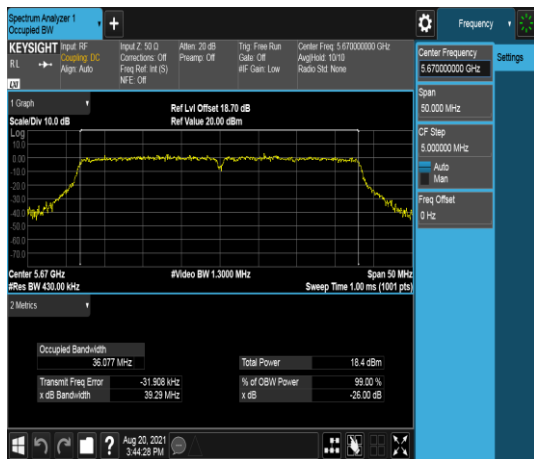
Low CH



Mid CH



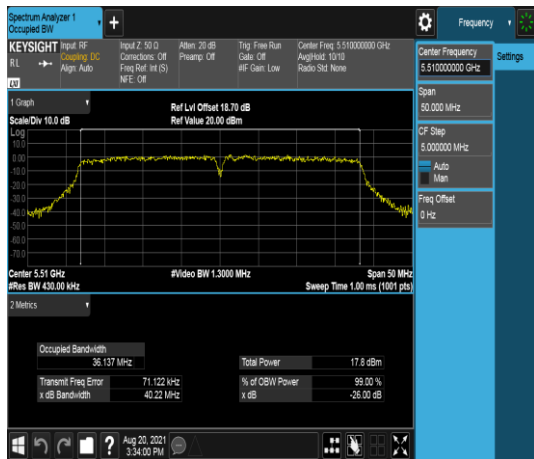
High CH



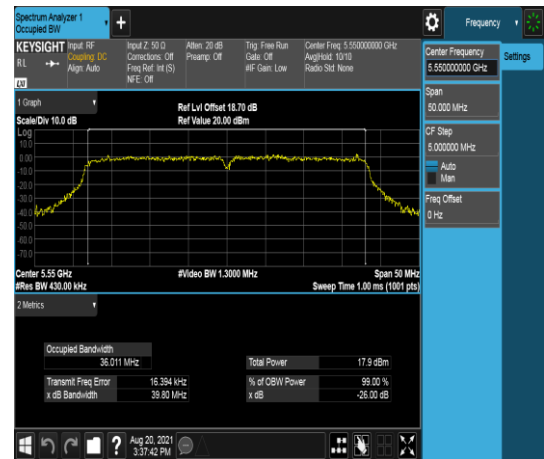
Report No.: TMWK2108000371KR

UNII-2c IEEE 802.11n HT40 mode- Chain 1

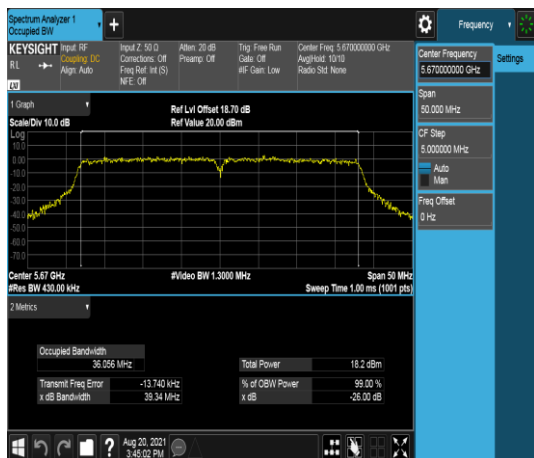
Low CH



Mid CH



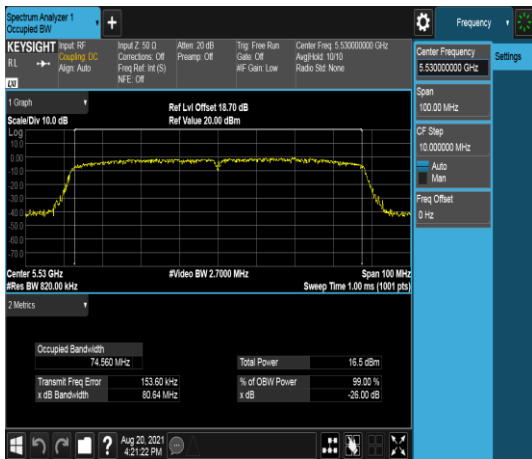
High CH



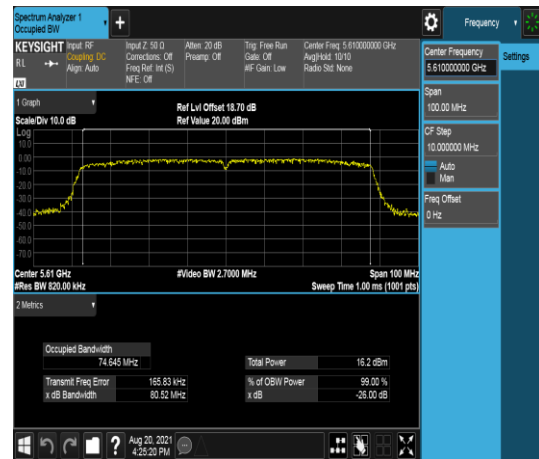
Report No.: TMWK2108000371KR

UNII-2c IEEE 802.11ac VHT80 mode- Chain 0

Low CH

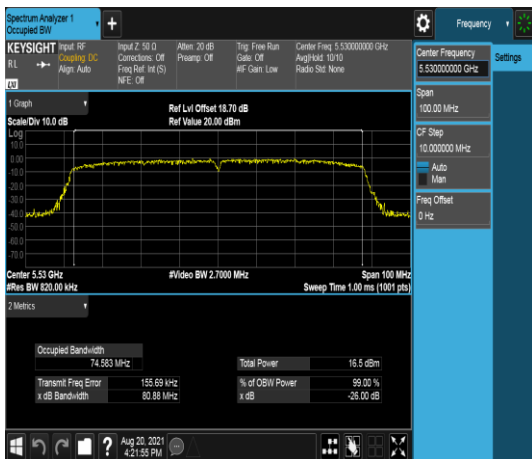


High CH

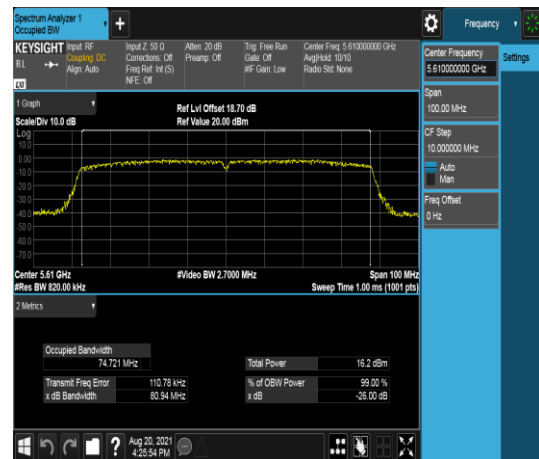


UNII-2c IEEE 802.11ac VHT80 mode- Chain 1

Low CH

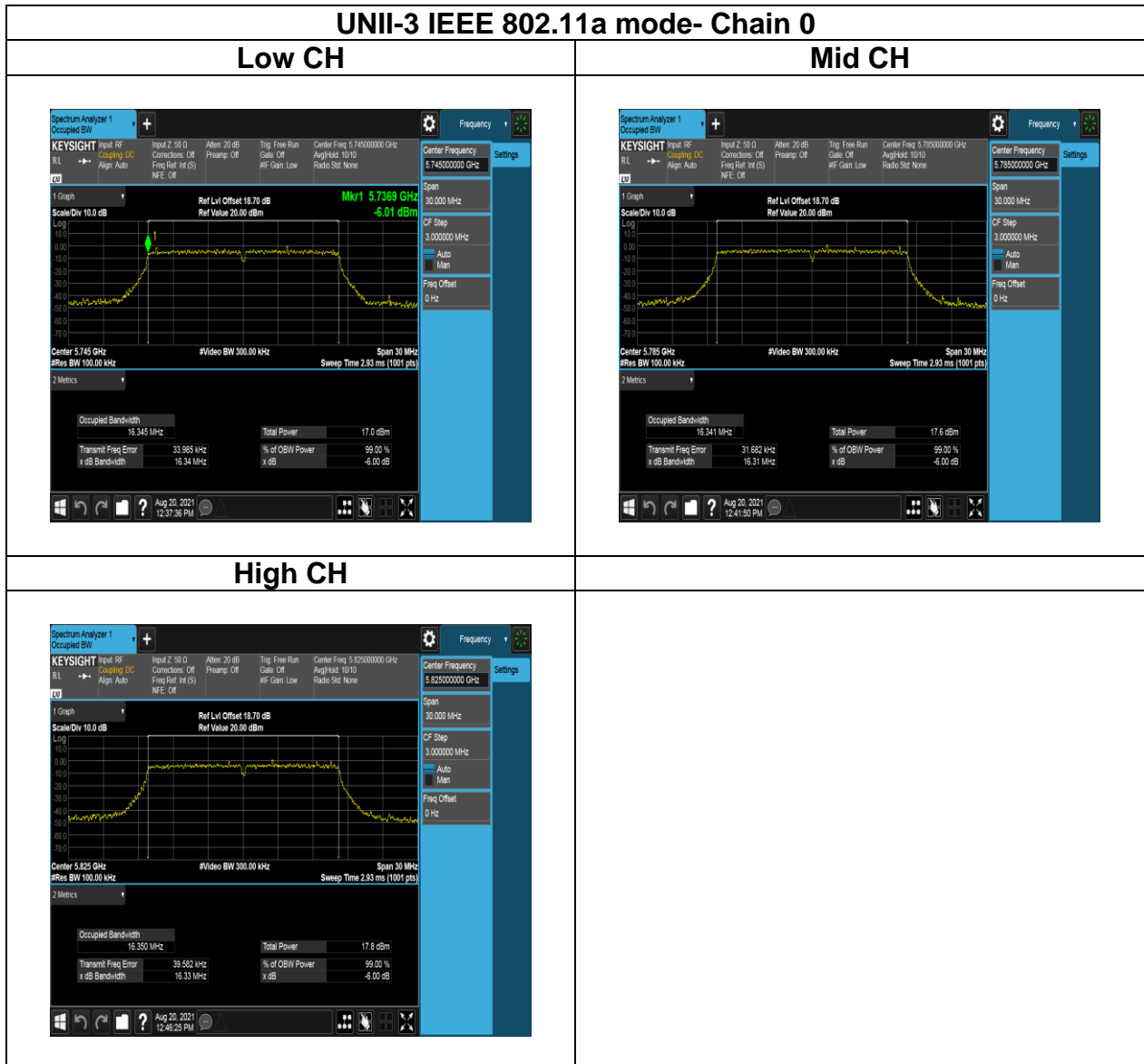


High CH



Report No.: TMWK2108000371KR

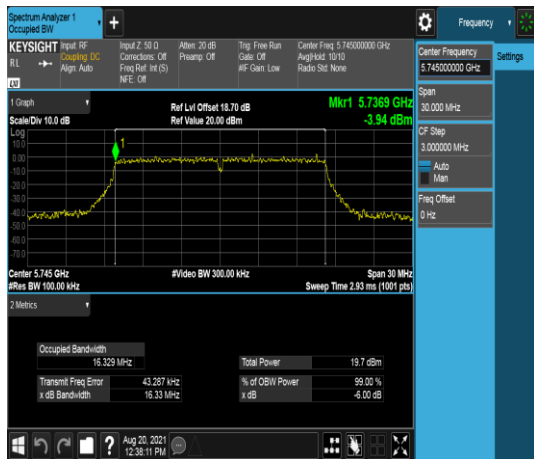
Test Data (6dB BANDWIDTH)



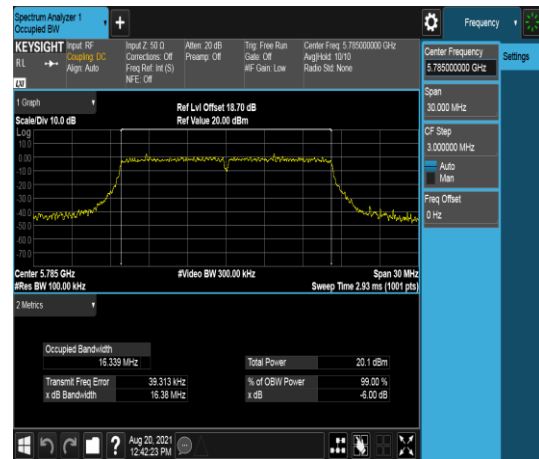
Report No.: TMWK2108000371KR

UNII-3 IEEE 802.11a mode- Chain 1

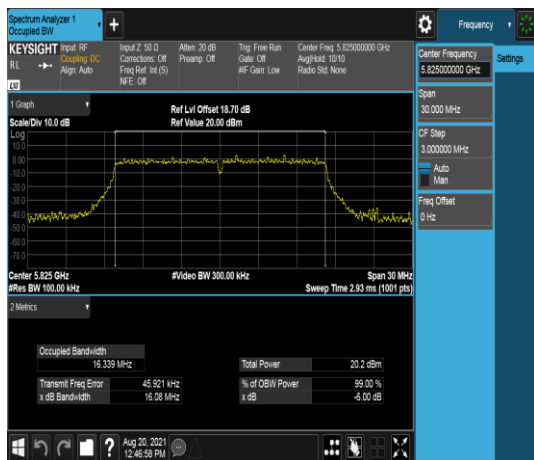
Low CH



Mid CH



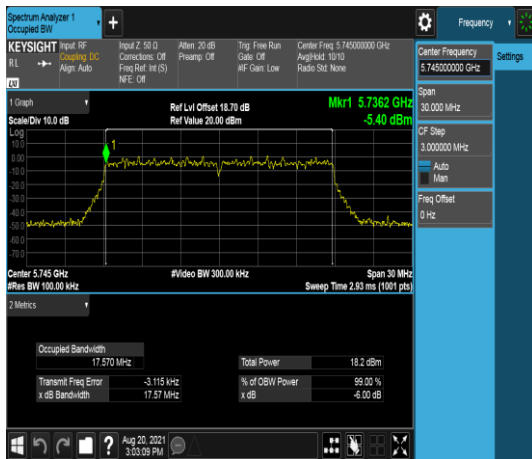
High CH



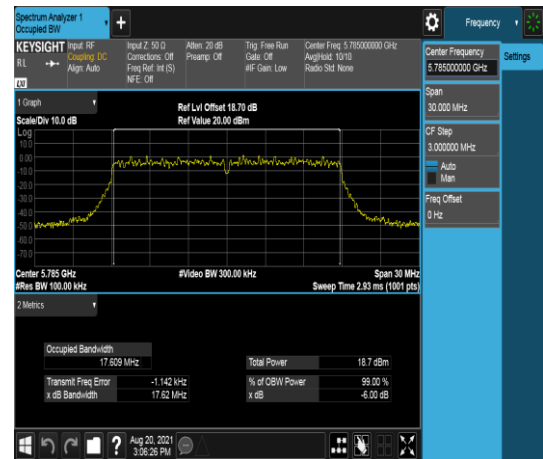
Report No.: TMWK2108000371KR

UNII-3 IEEE 802.11n HT20 mode- Chain 0

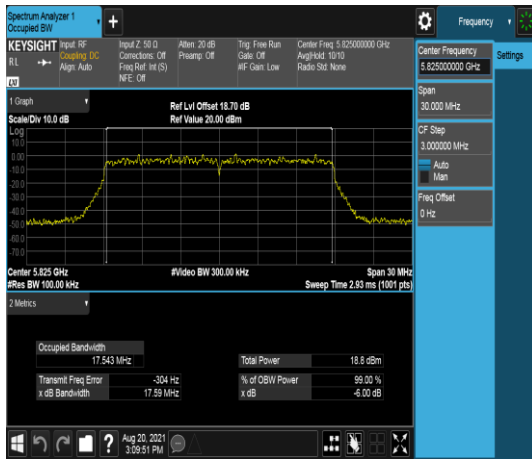
Low CH



Mid CH



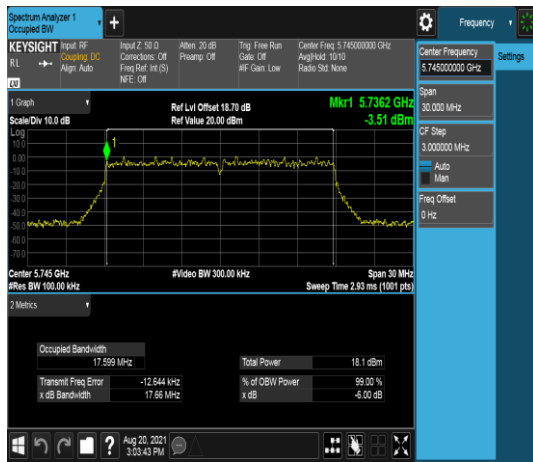
High CH



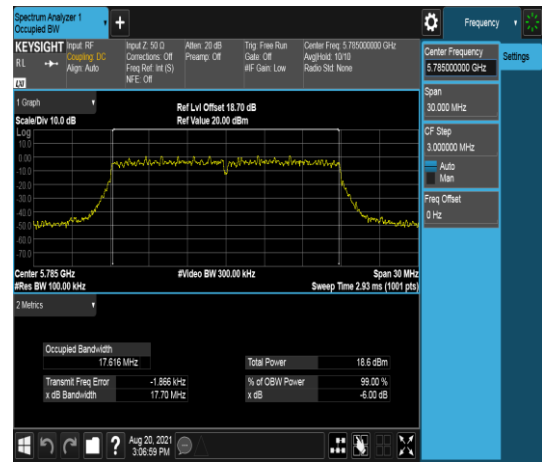
Report No.: TMWK2108000371KR

UNII-3 IEEE 802.11n HT20 mode- Chain 1

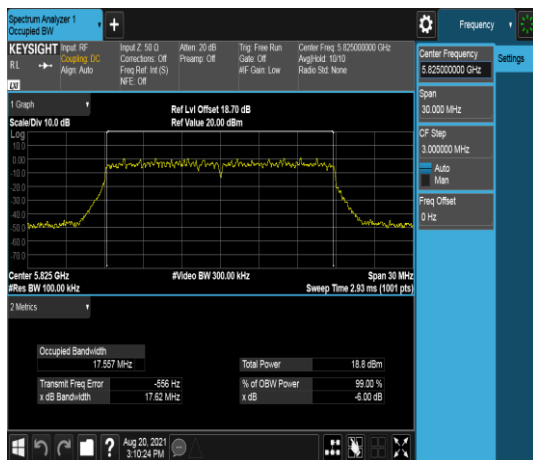
Low CH



Mid CH



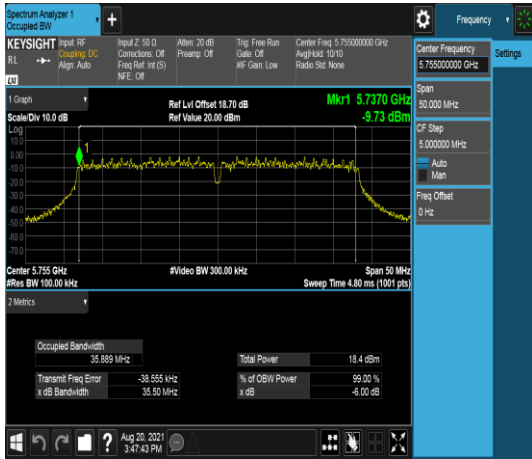
High CH



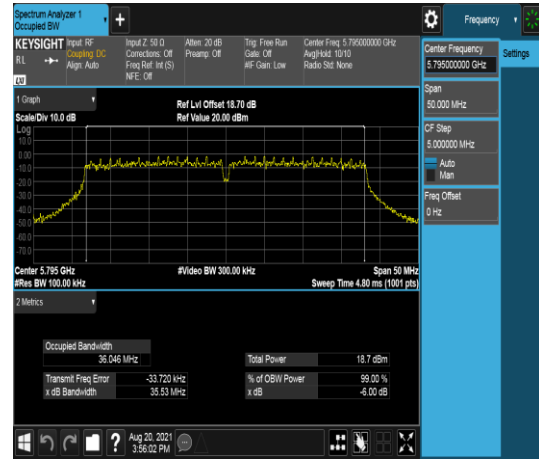
Report No.: TMWK2108000371KR

UNII-3 IEEE 802.11n HT40 mode- Chain 0

Low CH

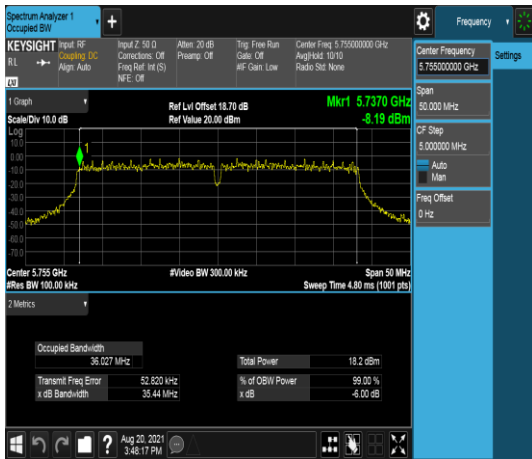


High CH

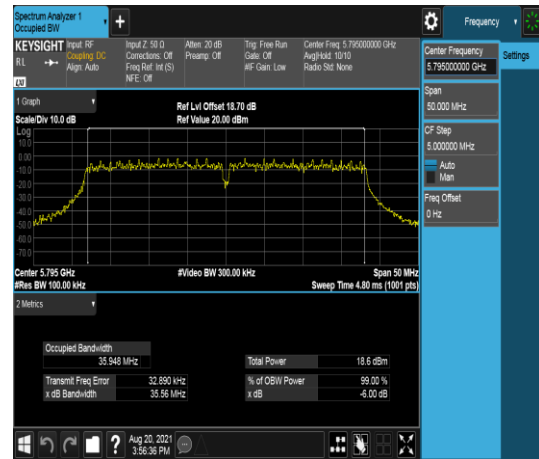


UNII-3 IEEE 802.11n HT40 mode- Chain 1

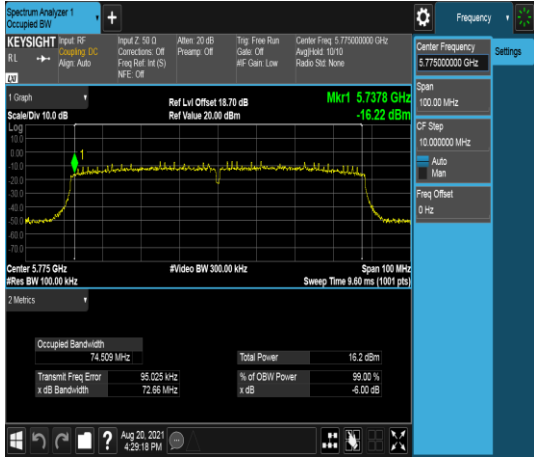
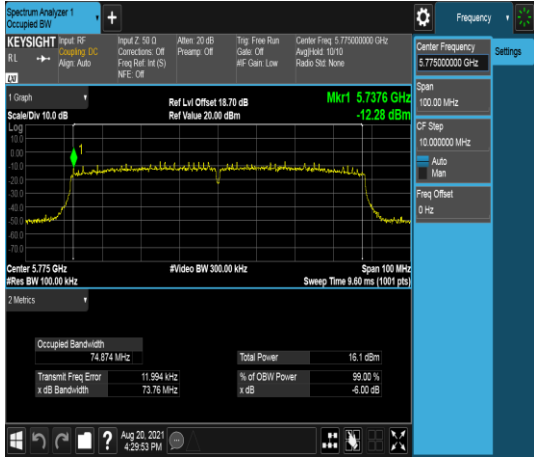
Low CH



High CH



Report No.: TMWK2108000371KR

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

Report No.: TMWK2108000371KR

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 $11 \text{ dBm} + 10 \log B$, 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.

Report No.: TMWK2108000371KR

IC:

UNII-1 :

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or $1.76 + 10 \log_{10} B$, 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 $10 + 10 \log_{10} B$, 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 $1.76 + 10 \log_{10} B$, 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 $11 + 10 \log_{10} B$, 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 $17 + 10 \log_{10} B$, 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.

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

The maximum conducted output power shall not exceed 250 mW or $11 + 10 \log_{10} B$, 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 $17 + 10 \log_{10} B$, 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.

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.

Report No.: TMWK2108000371KR

UNII-1 Limit	<input checked="" type="checkbox"/> Antenna not exceed 6 dBi : 24dBm <input checked="" type="checkbox"/> 200mW or $10 + 10 \log_{10} B$ for IC <input type="checkbox"/> Antenna with DG greater than 6 dBi : [Limit = $24 - (DG - 6)$]
UNII-2a/2c Limit	<input checked="" type="checkbox"/> Antenna not exceed 6 dBi : 24dBm <input type="checkbox"/> Antenna with DG greater than 6 dBi : [Limit = $24 - (DG - 6)$]
UNII-3 Limit	<input type="checkbox"/> Antenna not exceed 6 dBi : 30dBm <input checked="" type="checkbox"/> Antenna with DG greater than 6 dBi : [Limit = $30 - (DG - 6)$]

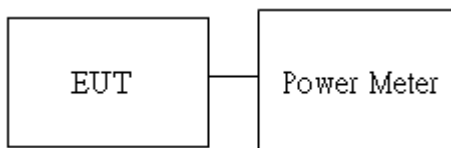
4.3.2 Test Procedure

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

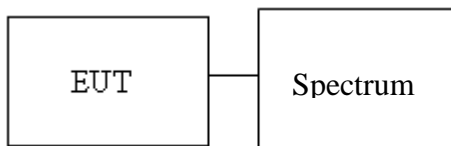
1. The EUT RF output connected to the power meter or spectrum by RF cable.
2. Setting maximum power transmit of EUT.
3. The path loss was compensated to the results for each measurement.
4. Measure and record the result of Average output power. in the test report.

4.3.3 Test Setup

For BW 20MHz and 40MHz



For BW 80MHz



Report No.: TMWK2108000371KR

4.3.4 Test Result

Temperature: 20.3 ~ 25.8°C

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