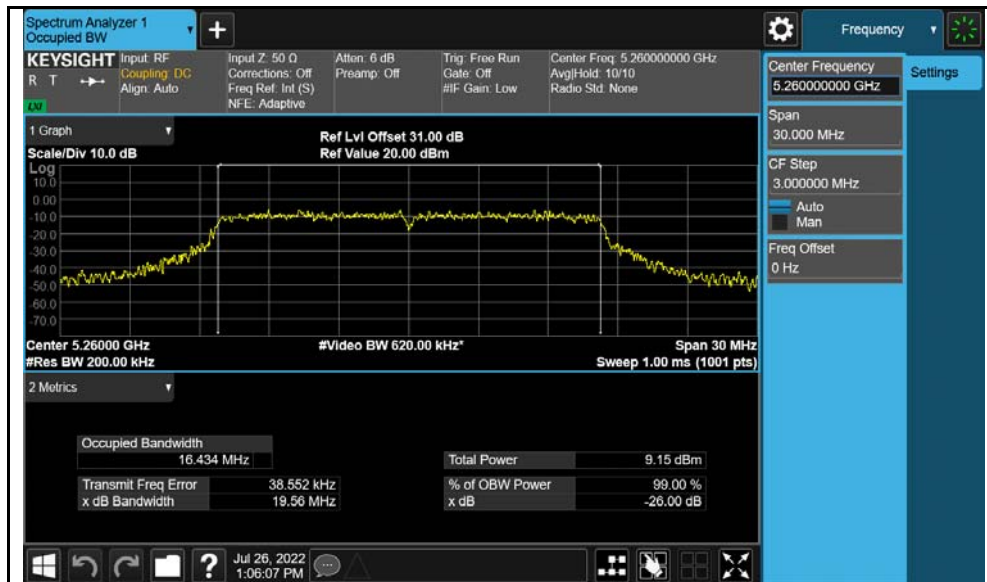
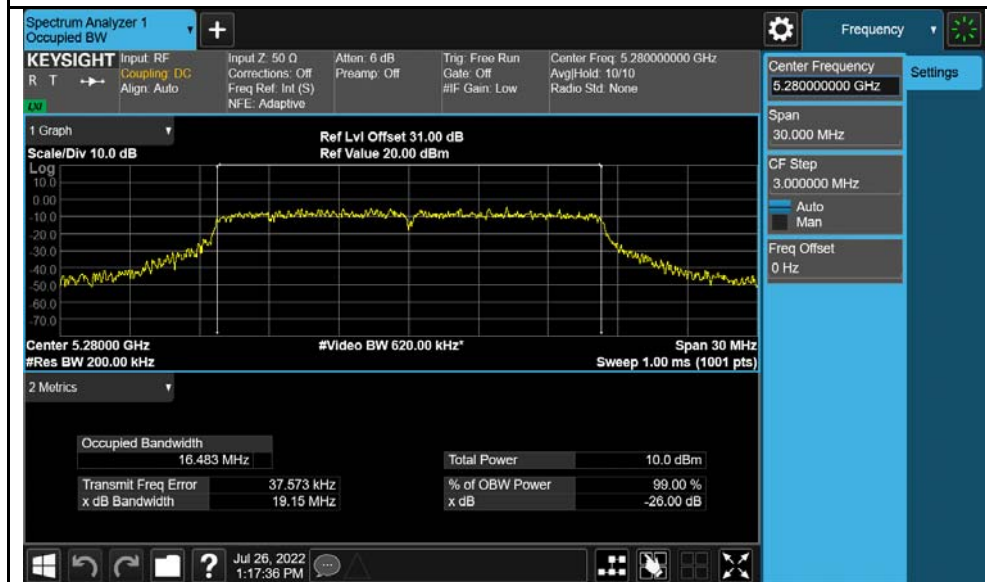


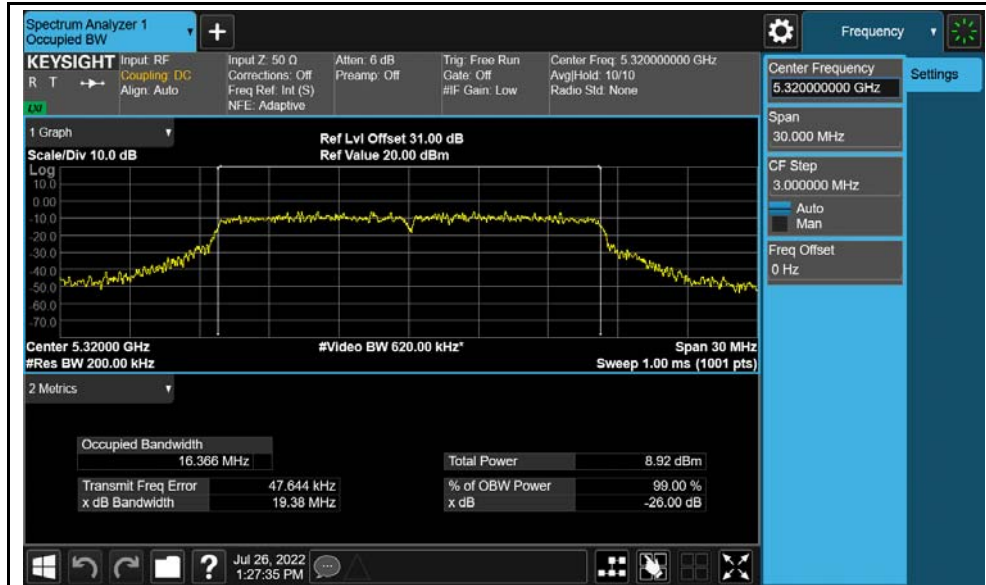
UNII-2 Band



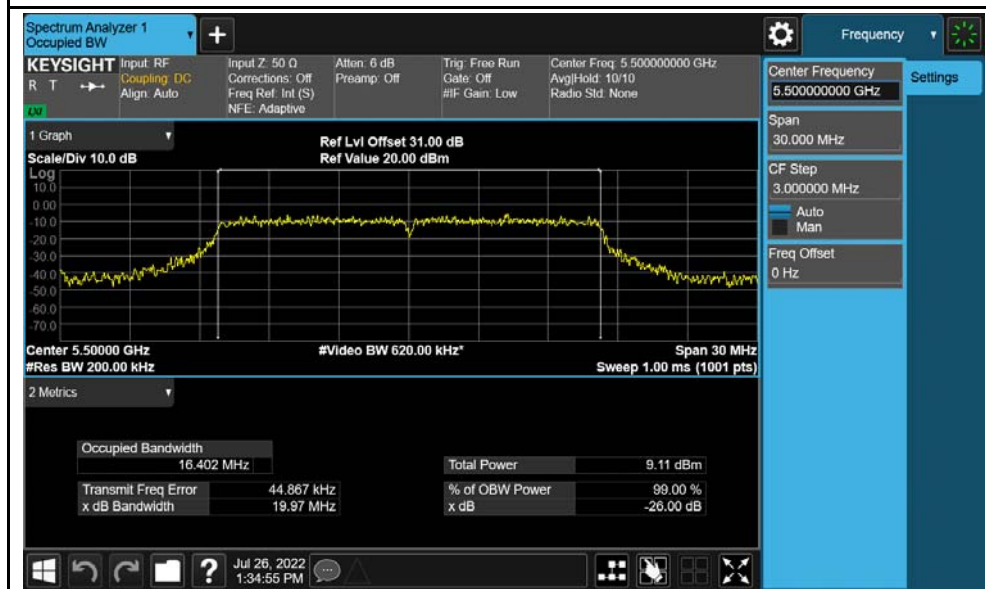
802.11a-5260MHz



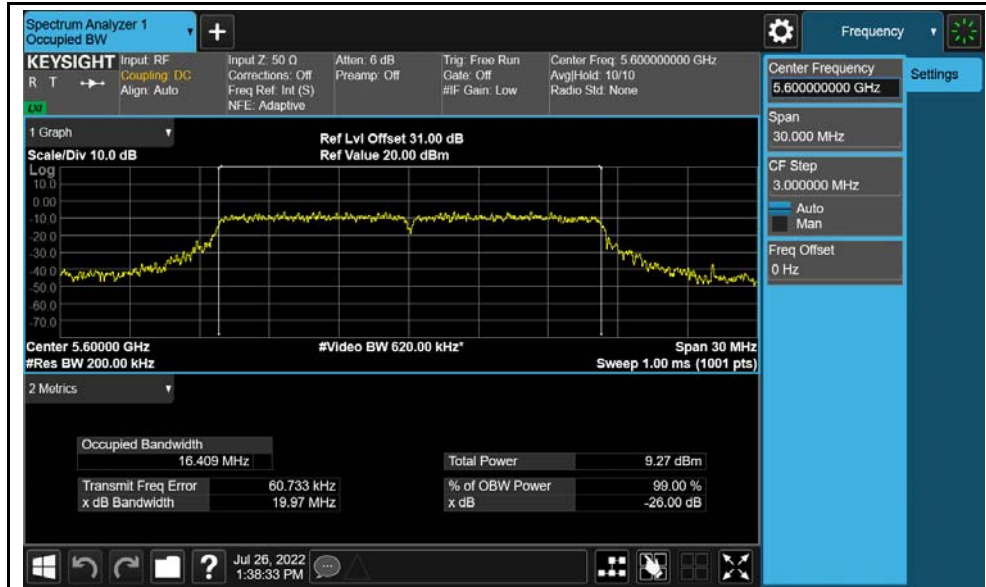
802.11a-5280MHz



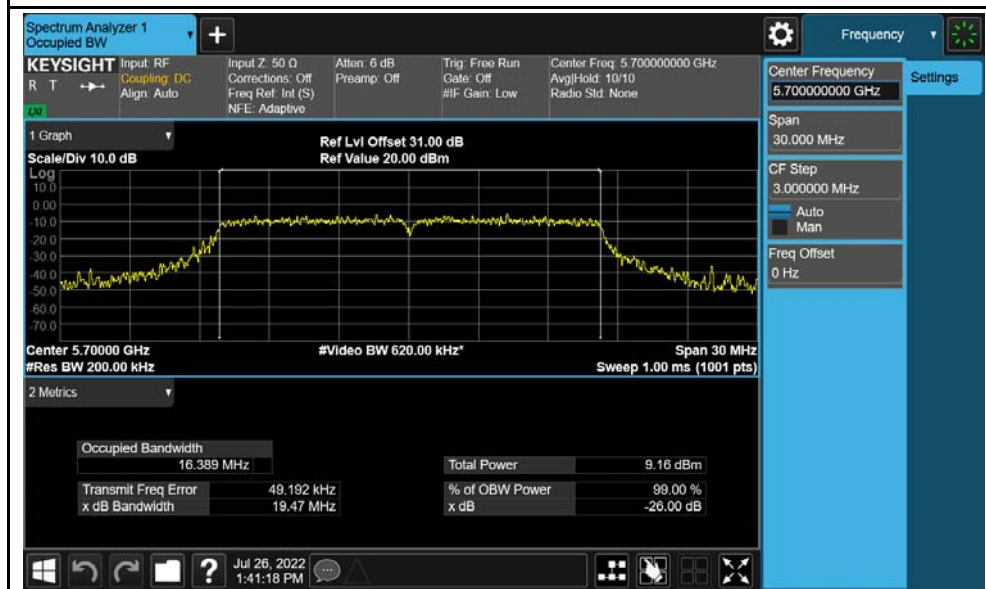
802.11a-5320MHz



802.11a-5500MHz



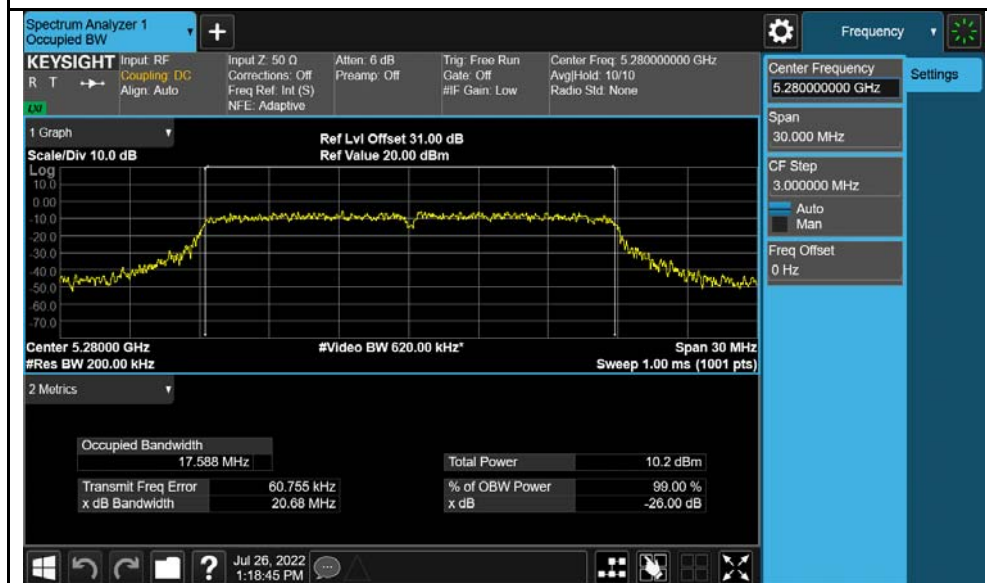
802.11a-5600MHz



802.11a-5700MHz



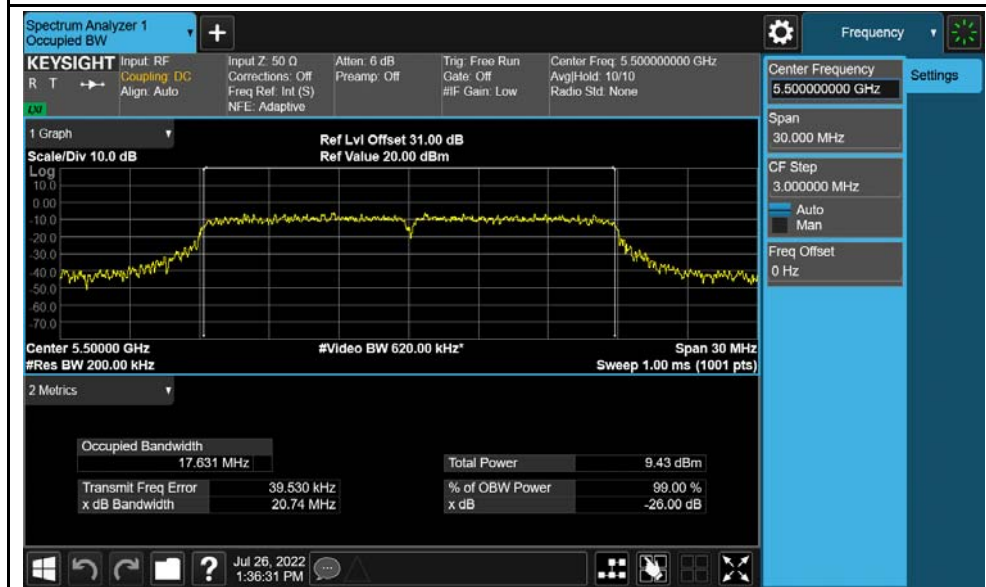
802.11n HT20-5260MHz



802.11n HT20-5280MHz



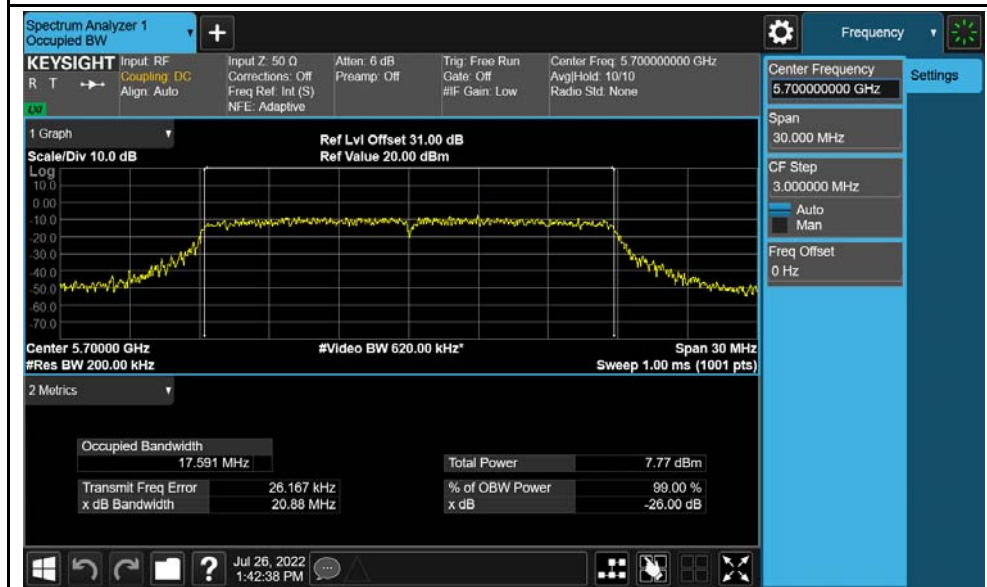
802.11n HT20-5320MHz



802.11n HT20-5500MHz

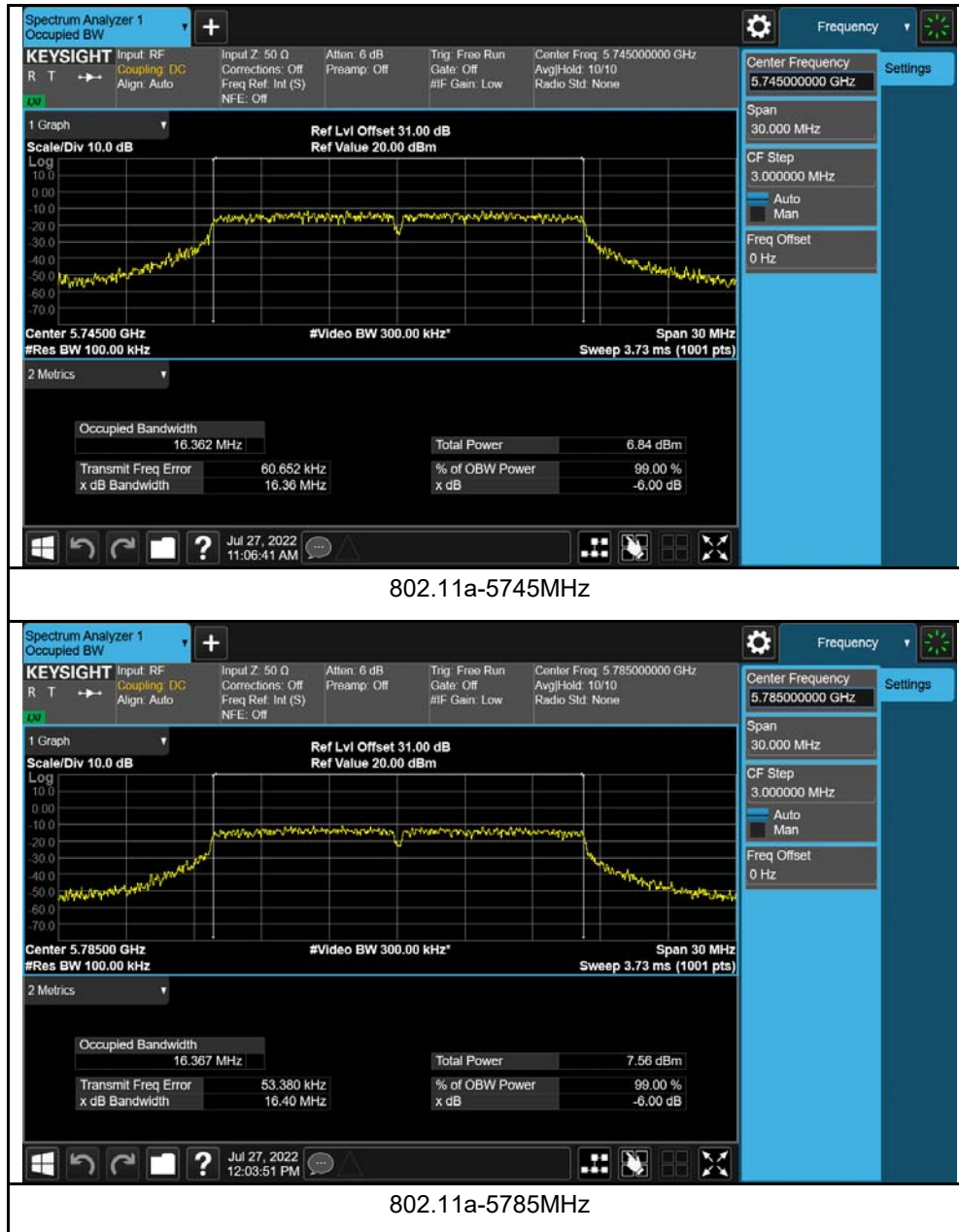


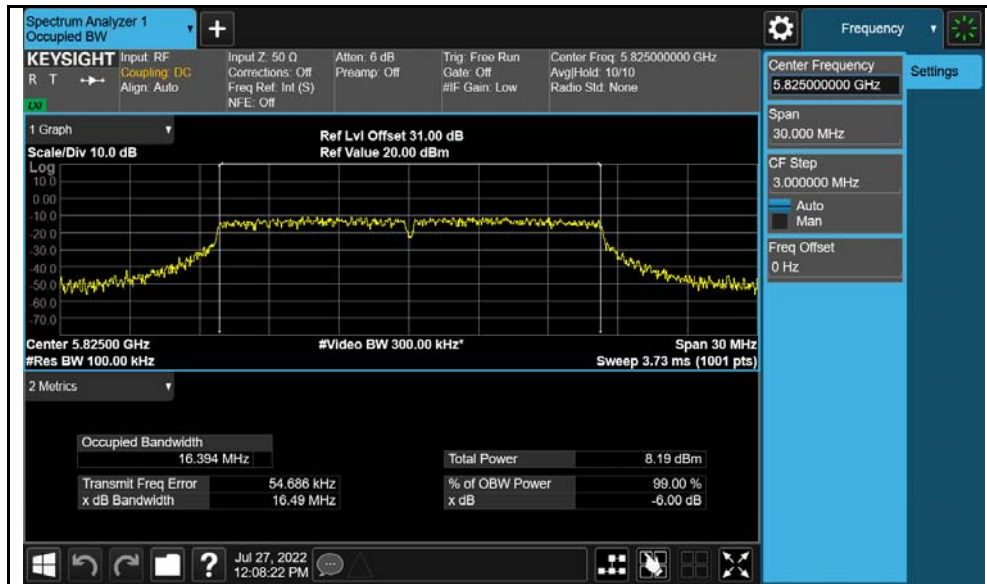
802.11n HT20-5600MHz



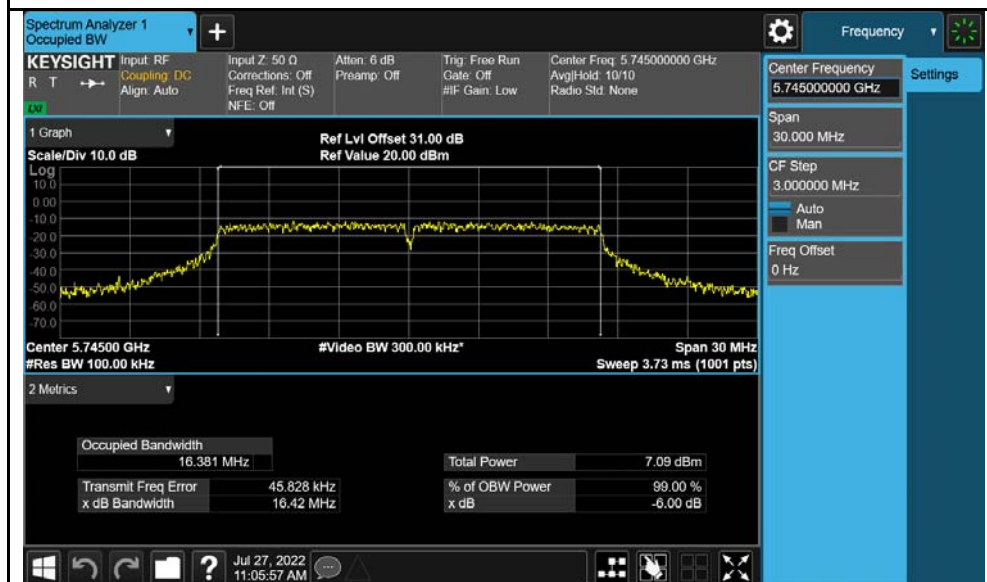
802.11n HT20-5700MHz

6dB Bandwidth Test Plots
U-NII-3 Band:





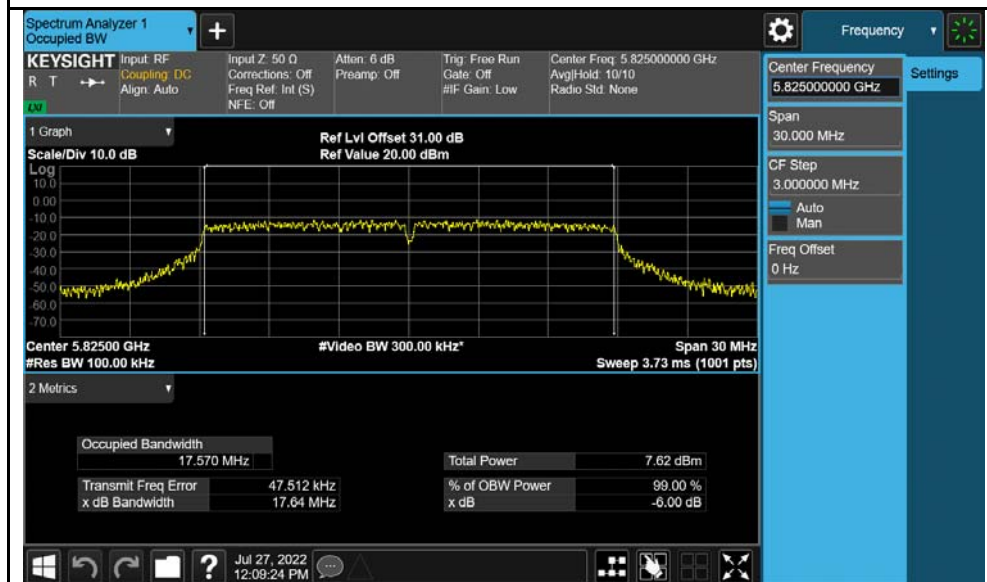
802.11a-5825MHz



802.11n-HT20-5745MHz



802.11n-HT20-5785MHz



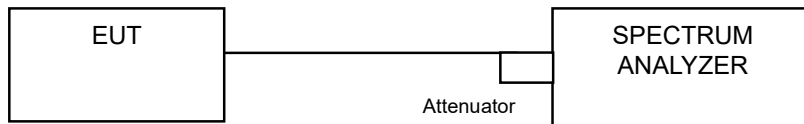
802.11n-HT20-5825MHz

3.6 Peak Power Spectral Density Measurement

3.6.1 Limits of Peak Power Spectral Density Measurement

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	17dBm/ MHz
		Fixed point-to-point Access Point	
		Indoor Access Point	
	√	Client device	11dBm/ MHz
U-NII-2A		√	11dBm/ MHz
U-NII-2C		√	11dBm/ MHz
U-NII-3		√	30dBm/ 500kHz

3.6.2 Test Setup



3.6.3 Test Instruments

MET Asset #	Equipment	Manufacturer	Model	Last Cal Date	Cal Due Date
1S2003	EMI Test Receiver	Keysight	N9030B	10/08/2021	10/08/2022

3.6.4 Test Procedure

For U-NII-1, U-NII-2A, U-NII-2C band:

Using method SA-1

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS
3. Sweep time = auto, trigger set to “free run”.
4. Trace average at least 100 traces in power averaging mode.
5. Record the max value

For U-NII-3:

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 300 kHz, Set VBW ≥ 1 MHz, Detector = RMS
3. Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(500\text{ kHz}/300\text{kHz})$
5. Sweep time = auto, trigger set to “free run”.
6. Trace average at least 100 traces in power averaging mode.
7. Record the max value

3.6.5 Deviation from Test Standard

No deviation.

3.6.6 EUT Operating Condition

Same as Item 4.3.6.

3.6.7 Test Results

PSD measurement result for UNII-1 Band

Type	Test mode	Freq (MHz)	CH	Conducted PSD (dBm/MHz)	Limit (dBm/MHz)	Result
Output Power	802.11a	5180	Low	-4.995	11	Pass
		5200	Mid	-4.466	11	Pass
		5240	High	-5.572	11	Pass
	802.11n-HT20	5180	Low	-5.148	11	Pass
		5200	Mid	-4.356	11	Pass
		5240	High	-5.284	11	Pass

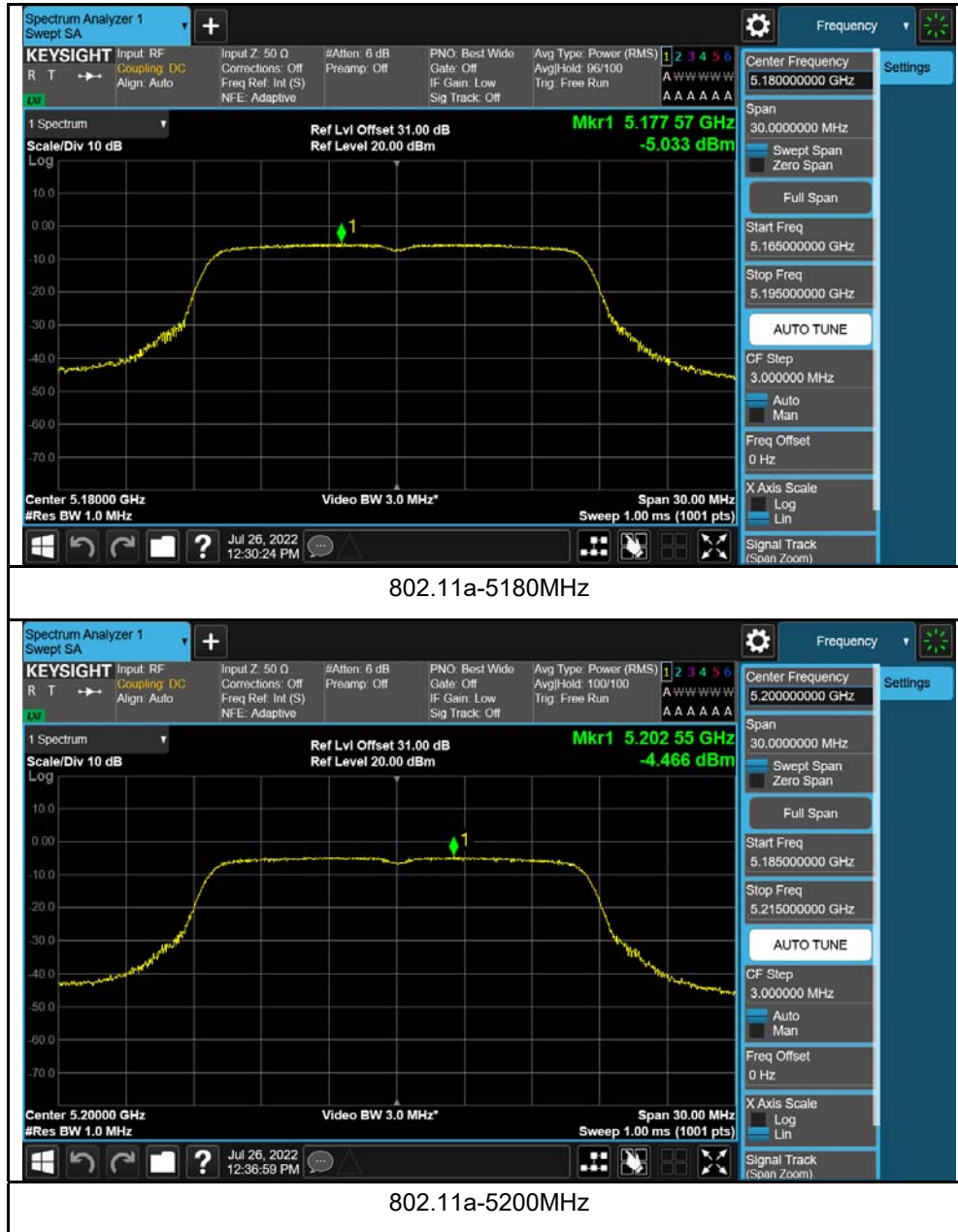
PSD measurement result for UNII-2 Band

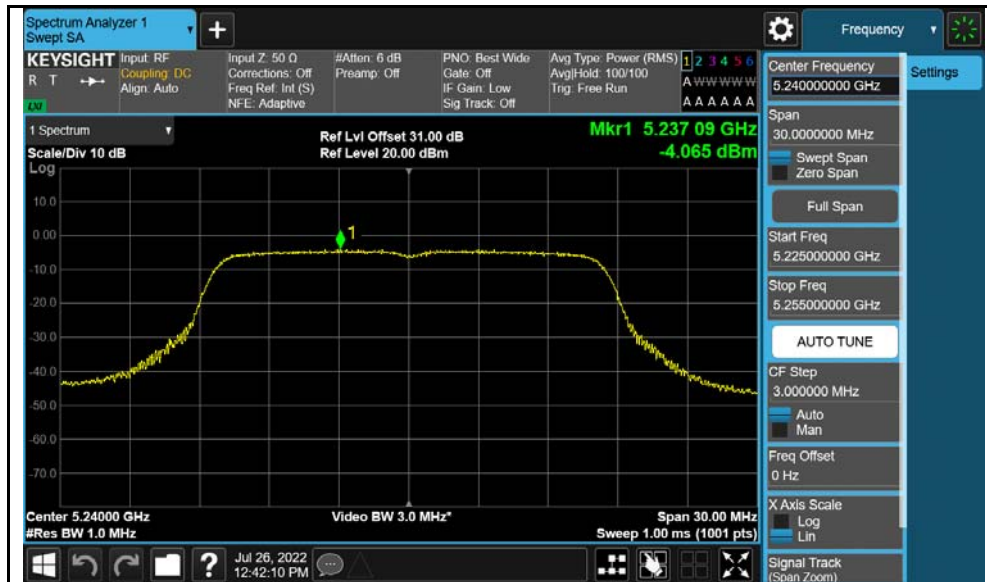
Type	Test mode	Freq (MHz)	CH	Conducted PSD (dBm/MHz)	Limit (dBm/MHz)	Result
Output Power	802.11a	5260	Low	-5.300	11	Pass
		5280	Mid	-4.338	11	Pass
		5320	High	-5.535	11	Pass
		5500	Low	-5.217	11	Pass
		5600	Mid	-5.014	11	Pass
		5700	High	-5.206	11	Pass
		5260	Low	-4.619	11	Pass
	802.11n-HT20	5280	Mid	-4.342	11	Pass
		5320	High	-6.149	11	Pass
		5500	Low	-5.303	11	Pass
		5600	Mid	-5.618	11	Pass
		5700	High	-6.540	11	Pass

PSD measurement result for UNII-3 Band

Type	Test mode	Freq (MHz)	CH	Conducted PSD (dBm/MHz)	Correction factor (dB)	Correction PSD (dBm/MHz)	Limit (dBm/MHz)	Result
Output Power	802.11a	5745	Low	-15.827	6.99	-8.837	30	Pass
		5785	Mid	-15.543	6.99	-8.553	30	Pass
		5825	High	-14.725	6.99	-7.735	30	Pass
	802.11n-HT20	5745	Low	-16.257	6.99	-9.267	30	Pass
		5785	Mid	-15.897	6.99	-8.907	30	Pass
		5825	High	-14.991	6.99	-8.001	30	Pass
NOTE	BW correction factor = 10log (500kHz/RBW), RBW was set to 100kHz during test.							

Test Plot for UNII-1 Band:

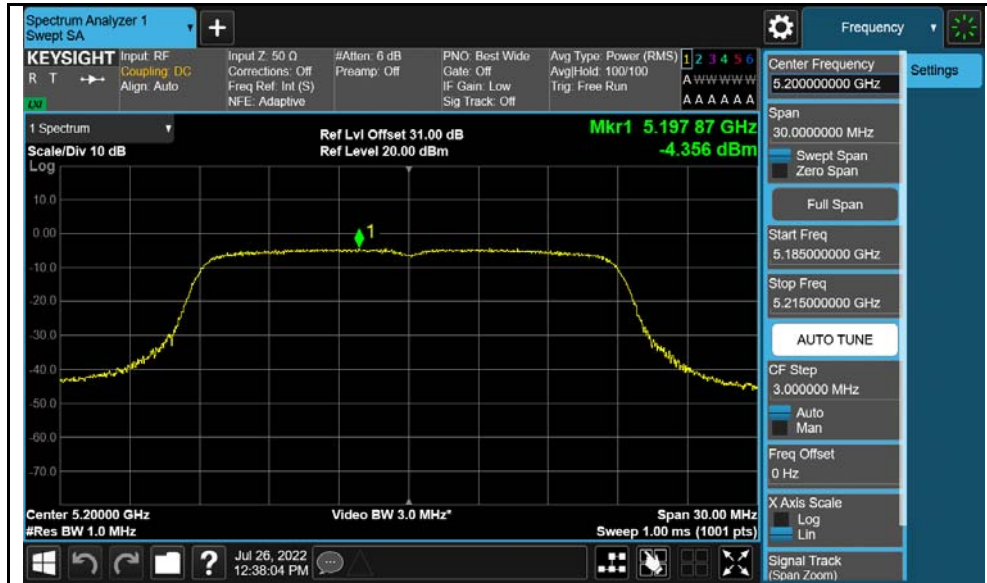




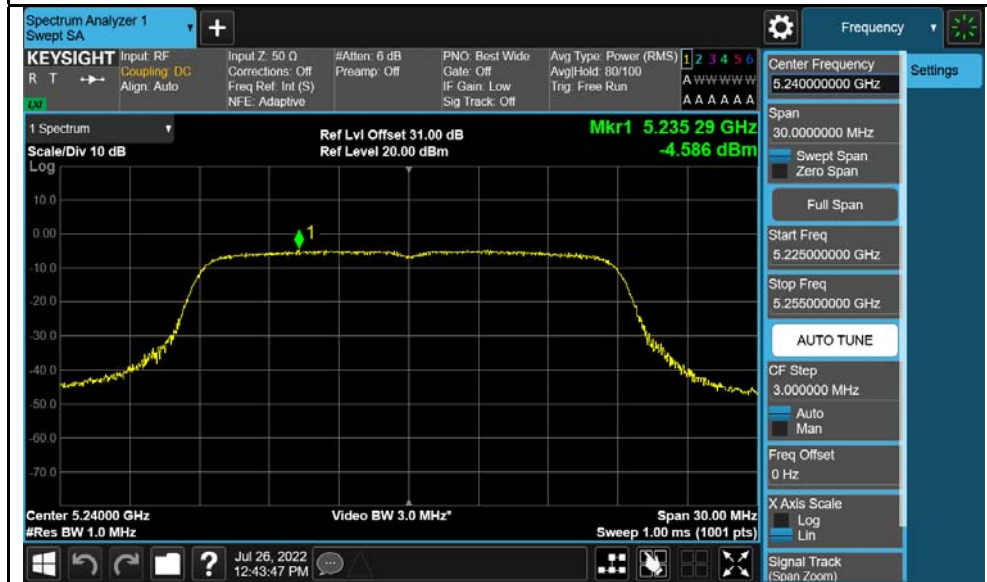
802.11a-5240MHz



802.11n-HT20-5180MHz

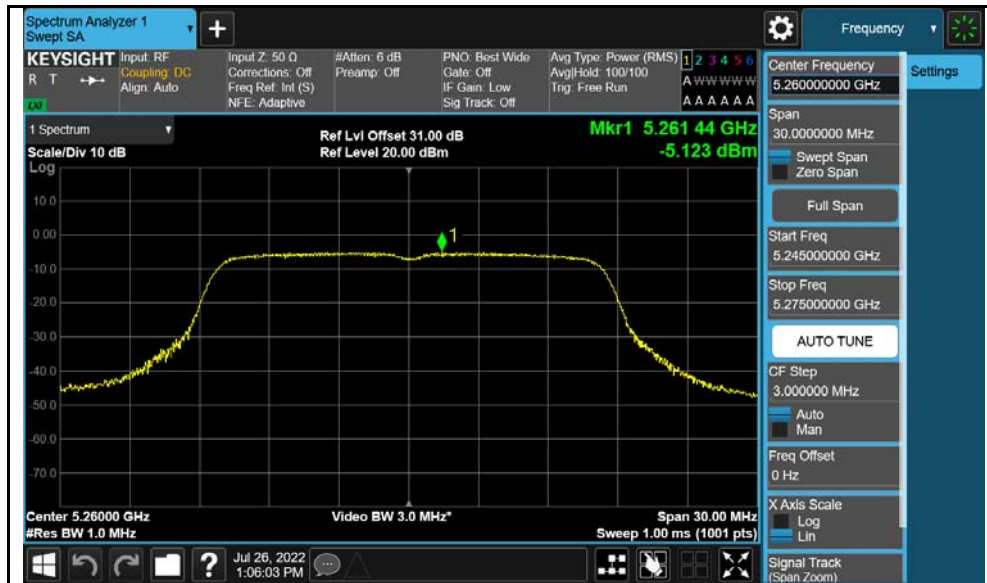


802.11n-HT20-5200MHz

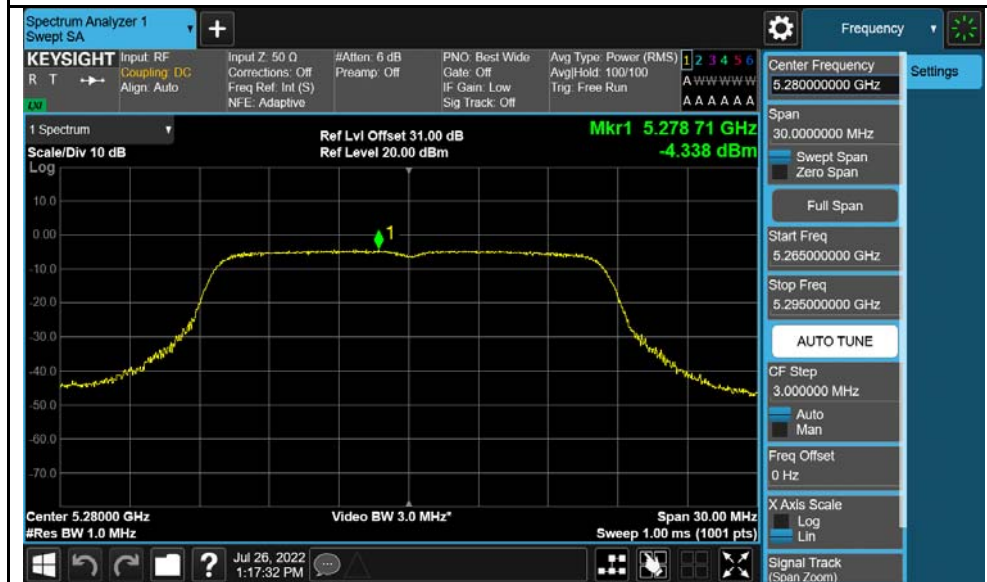


802.11n-HT20-5240MHz

UNII-2 Band



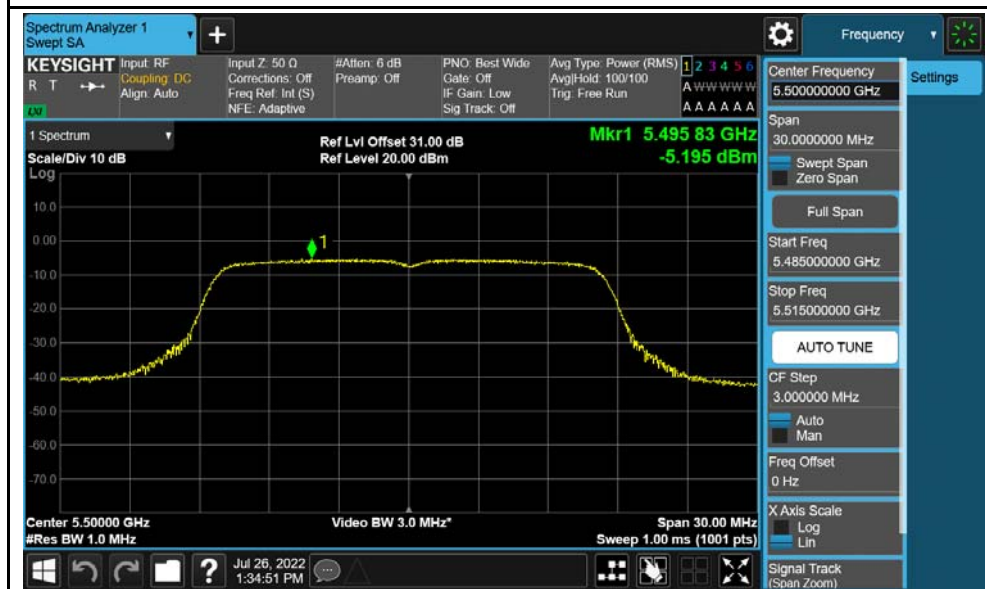
802.11a-5260MHz



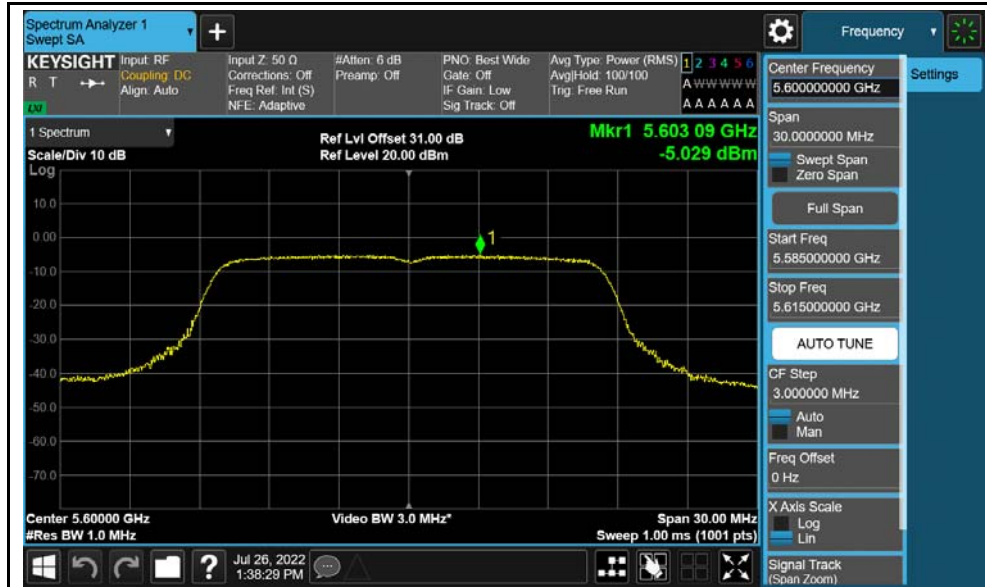
802.11a-5280MHz



802.11a-5320MHz



802.11a-5500MHz



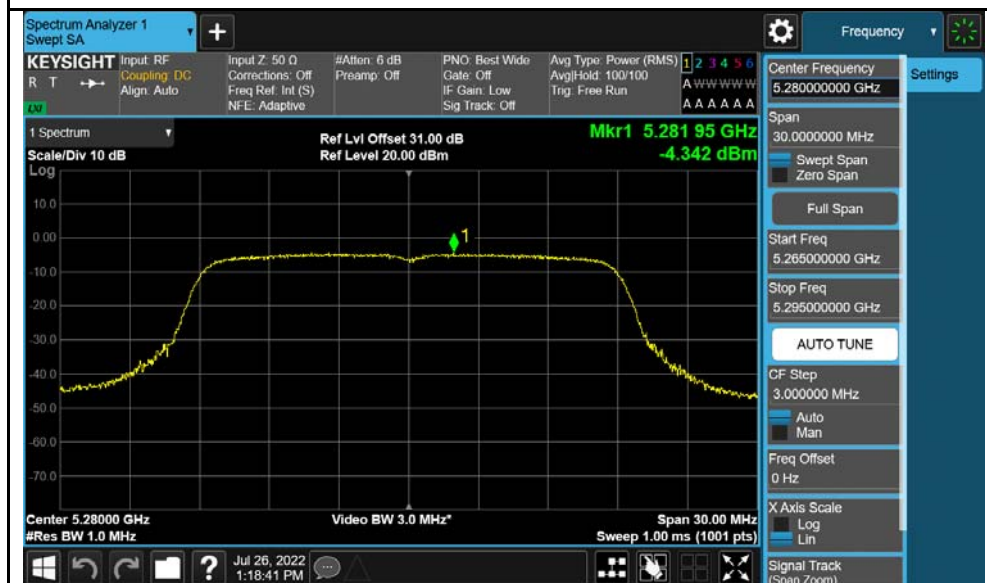
802.11a-5600MHz



802.11a-5700MHz



802.11n HT20-5260MHz



802.11n HT20-5280MHz



802.11n HT20-5320MHz



802.11n HT20-5500MHz

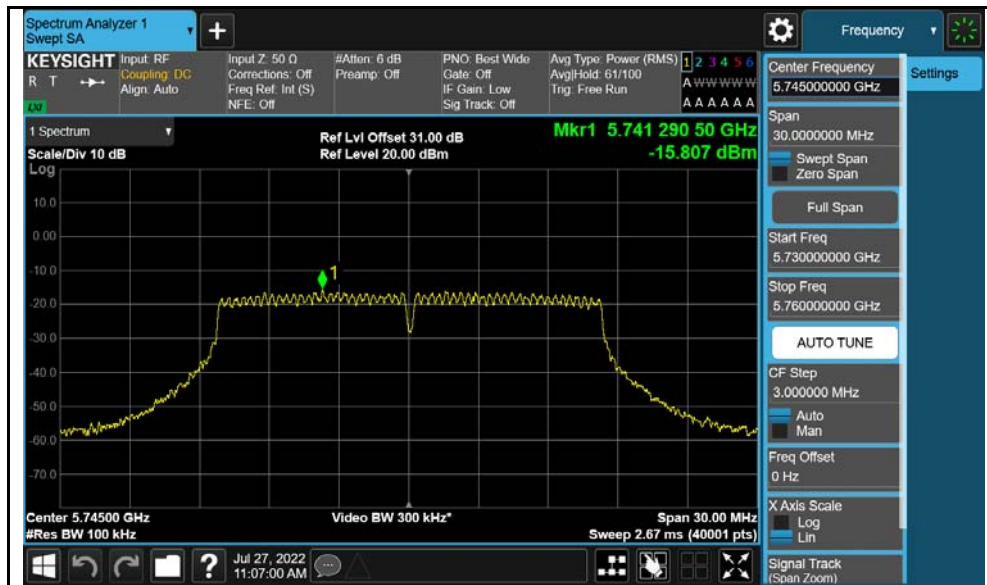


802.11n HT20-5600MHz

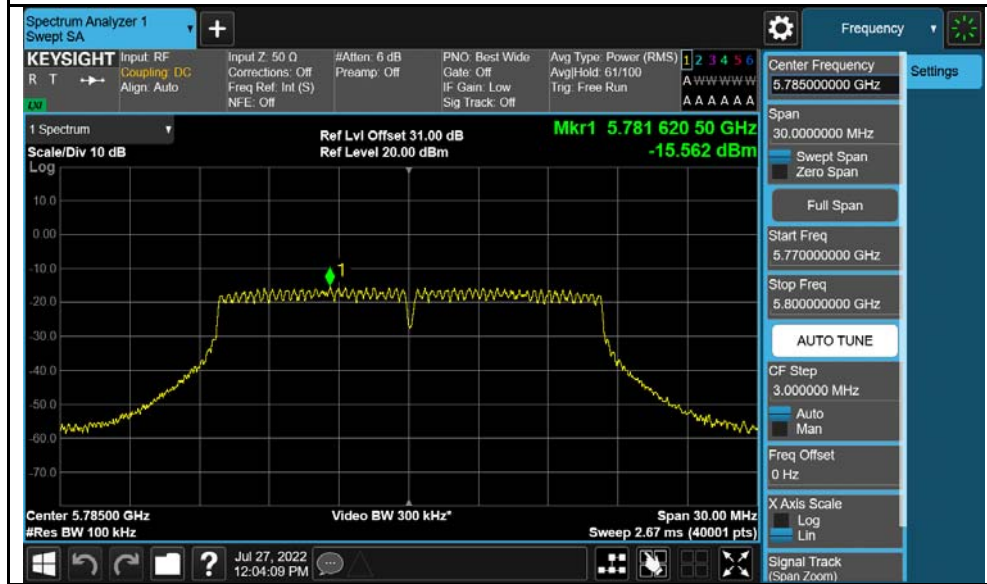


802.11n HT20-5700MHz

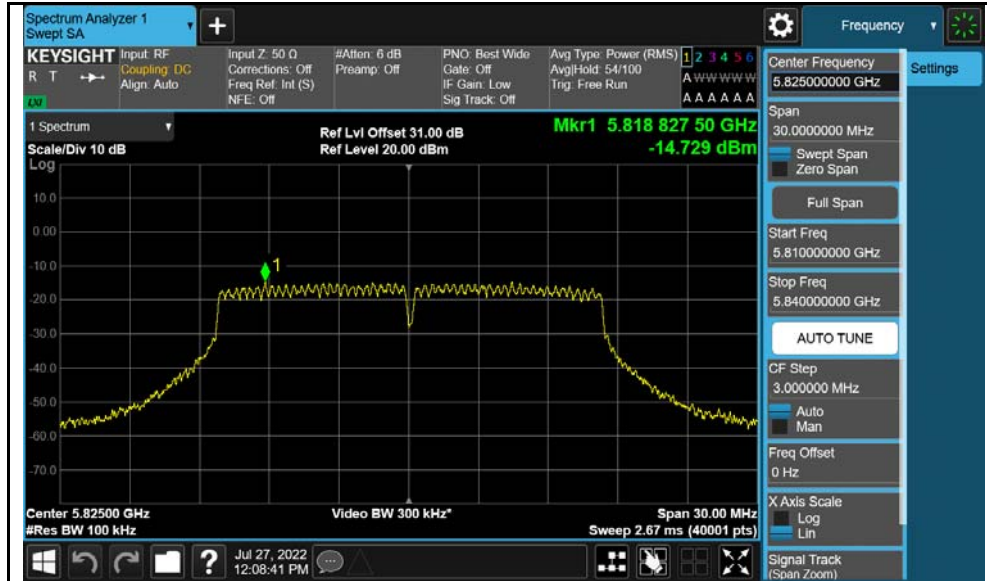
Test Plot for UNII-3 Band:



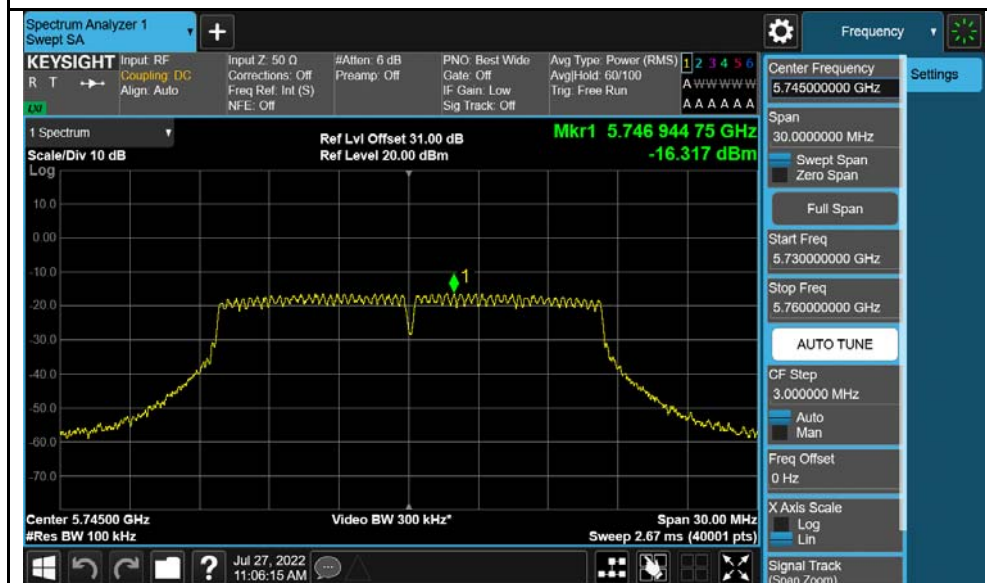
802.11a-5745MHz



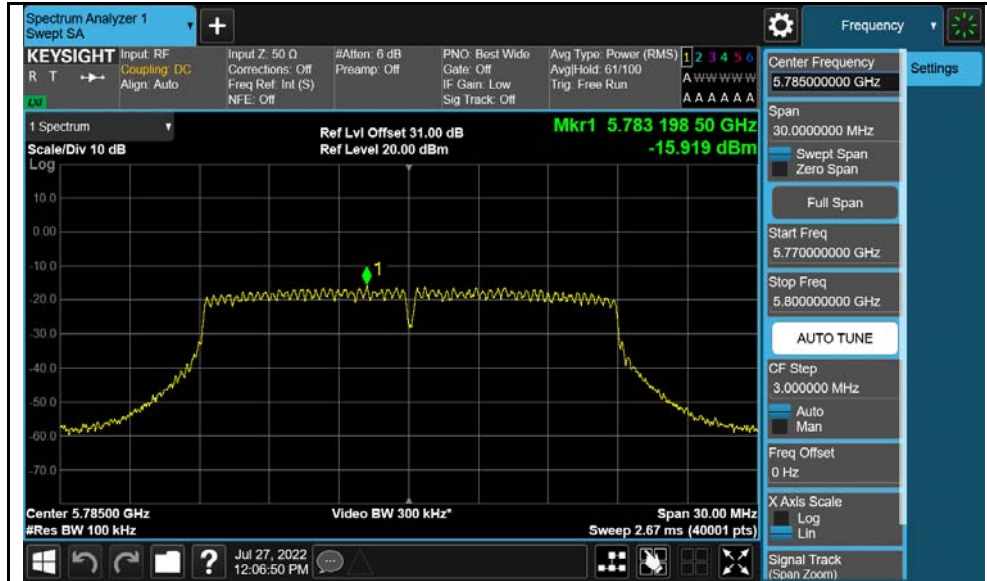
802.11a-5785MHz



802.11a-5825MHz



802.11n-HT20-5745MHz



802.11n-HT20-5785MHz



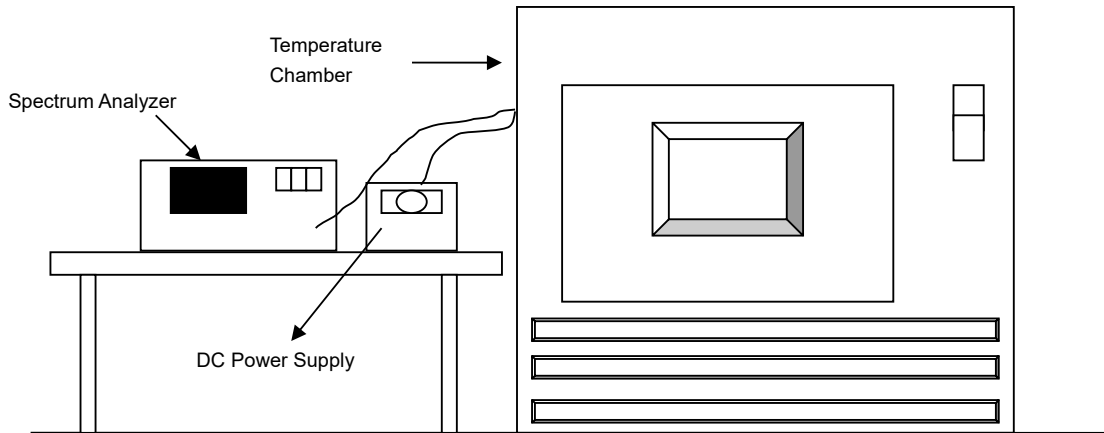
802.11n-HT20-5825MHz

3.7 Frequency Stability Measurement

3.7.1 Limits of Frequency Stability Measurement

The frequency of the carrier signal shall be maintained within band of operation.

3.7.2 Test Setup



3.7.3 Test Instruments

MET Asset #	Equipment	Manufacturer	Model	Last Cal Date	Cal Due Date
1S2003	EMI Test Receiver	Keysight	N9030B	10/08/2021	10/08/2022
1S2776	Temperature Chambers	Lunaire	BTC	10/ 20 /2020	04/ 20 /2022

3.7.4 Test Procedure

- a. The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
- b. Turn the EUT on and couple its output to a spectrum analyzer.
- c. Turn the EUT off and set the chamber to the highest temperature specified.
- d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 Minutes.
- e. Repeat step (d) with the temperature chamber set to the next desired temperature until measurements down to the lowest specified temperature have been completed..
- f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 Minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

3.7.5 Deviation from Test Standard

No deviation.

3.7.6 EUT Operating Condition

Set the EUT transmit at un-modulation mode to test frequency stability.

3.7.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
TEMP. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
50	12	5179.973	Pass	5180.06234	Pass	5179.98167	Pass	5179.98913	Pass
40	12	5180.050	Pass	5179.99516	Pass	5180.00110	Pass	5180.00202	Pass
30	12	5179.991	Pass	5180.00249	Pass	5179.99216	Pass	5179.99117	Pass
20	12	5179.994	Pass	5180.00197	Pass	5179.99441	Pass	5180.00916	Pass
10	12	5179.976	Pass	5179.97193	Pass	5179.998421	Pass	5180.00841	Pass
0	12	5180.003	Pass	5180.00419	Pass	5179.97138	Pass	5180.98419	Pass
-10	12	5179.974	Pass	5179.98167	Pass	5179.97419	Pass	5179.99555	Pass
-20	12	5179.905	Pass	5179.99128	Pass	5180.00298	Pass	5180.00916	Pass
-30	12	5180.004	Pass	5179.98792	Pass	5179.99110	Pass	5179.99188	Pass

Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
TEMP. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
20	13.8	5180.010	Pass	5179.980	Pass	5180.009	Pass	5180.0023	Pass
	12	5179.986	Pass	5179.916	Pass	5180.023	Pass	5180.0018	Pass
	10.2	5180.120	Pass	5180.012	Pass	5179.889	Pass	5179.9812	Pass

4 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

--- END ---