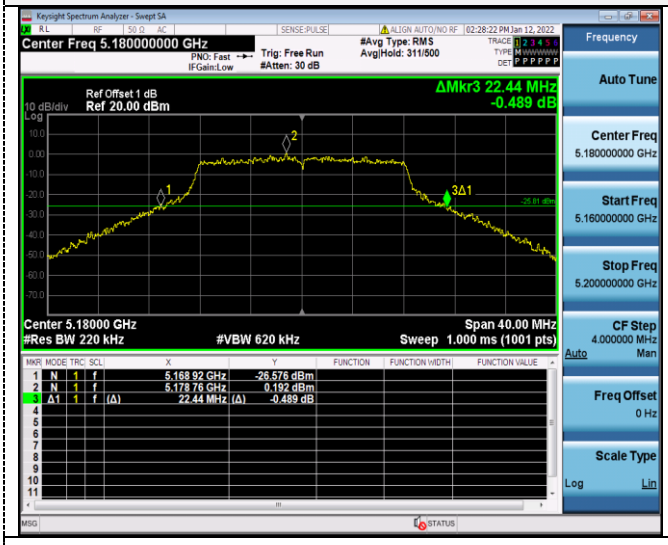
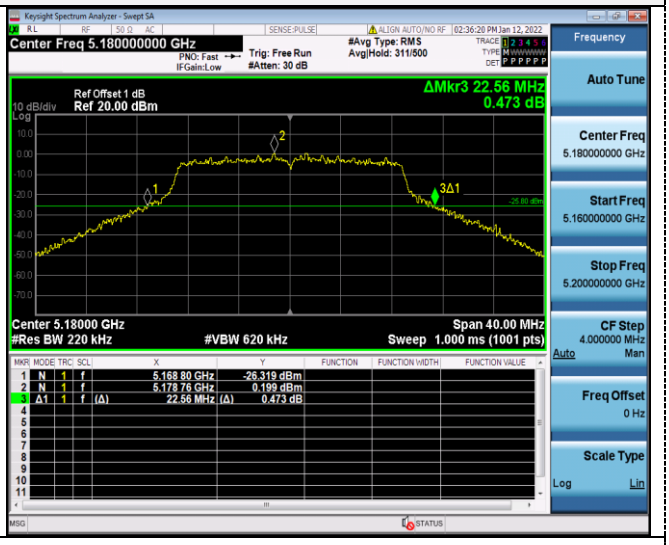
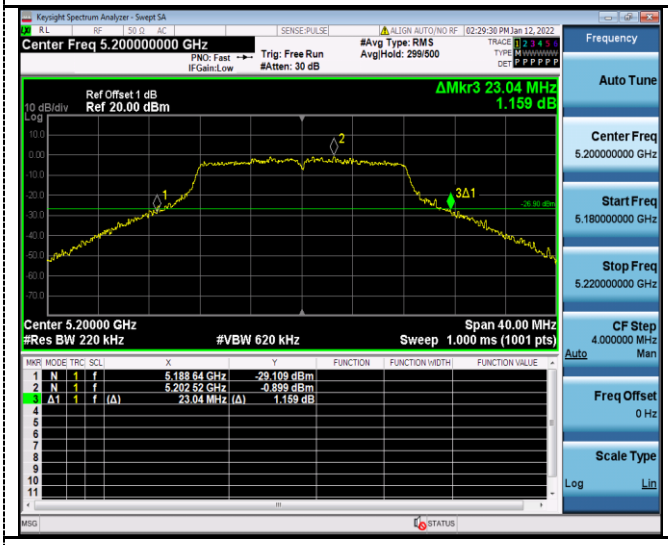
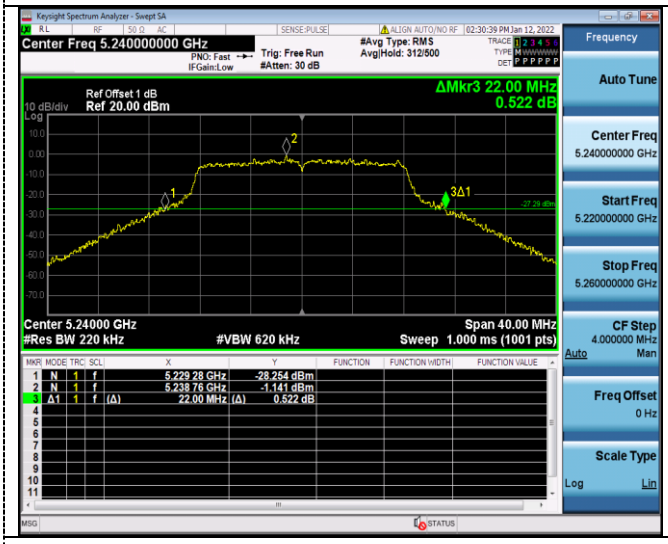
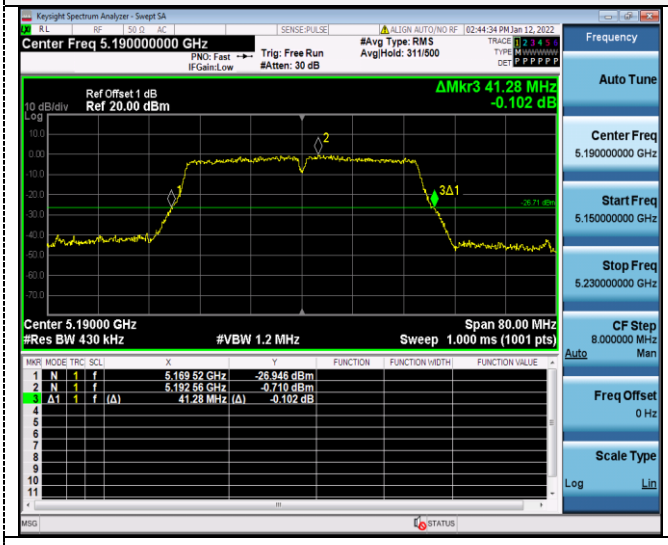
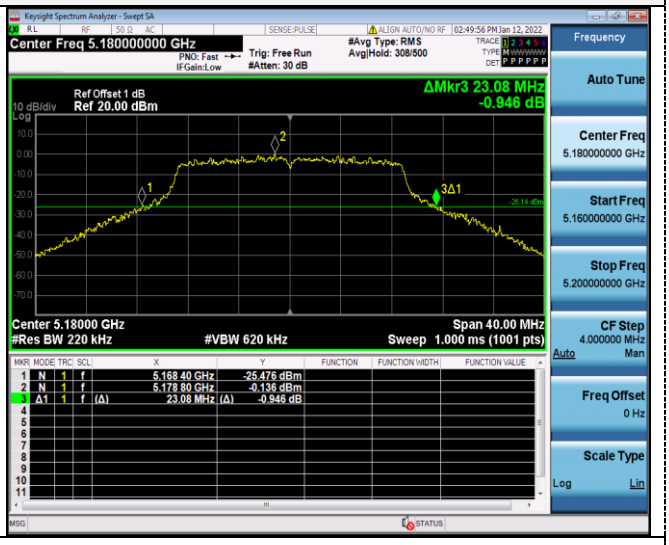
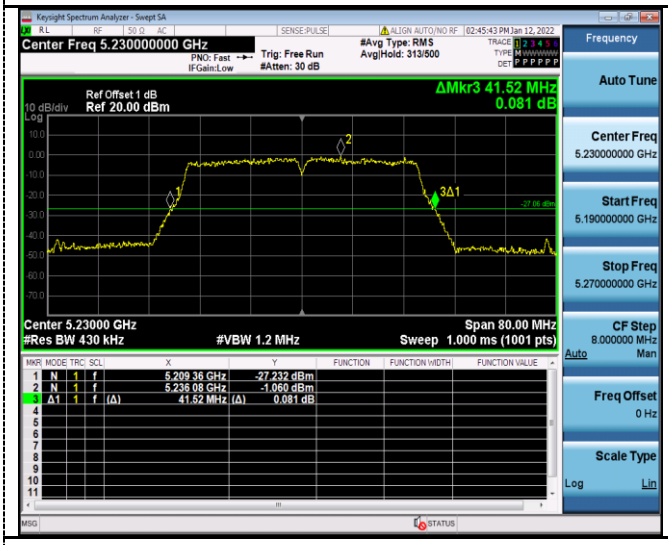
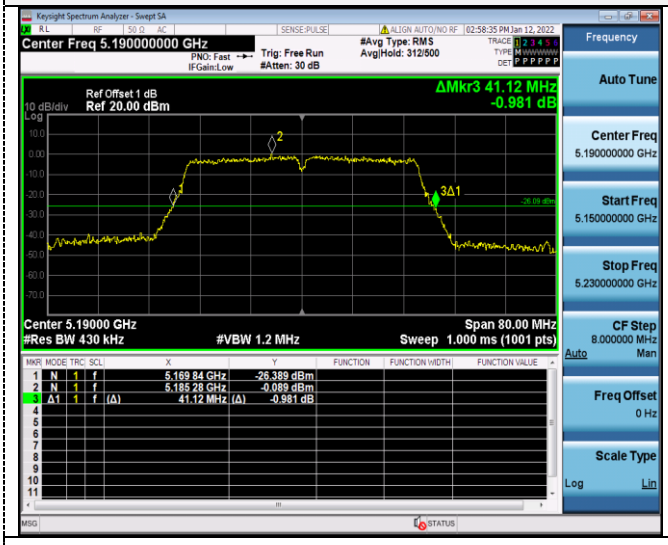
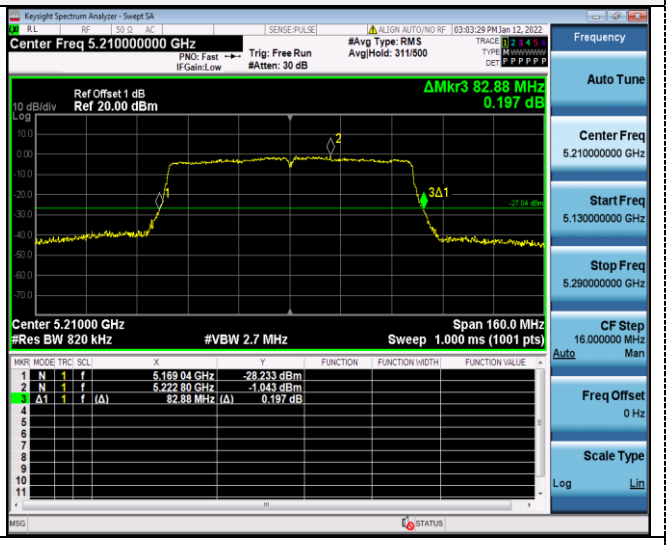
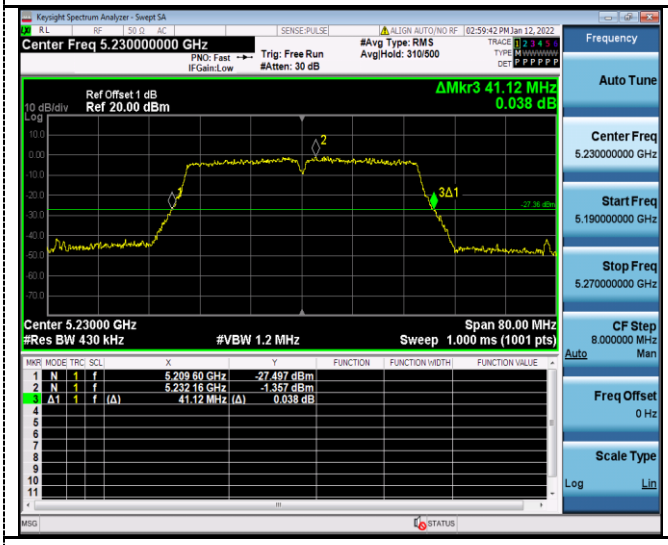
802.11a	*802.11n(HT20)*
	
CH36	*CH36*
	
CH40	*CH40*
	
CH48	*CH48*

802.11n(HT40)	*802.11ac(HT20)*
	
CH38	*CH36*
	
CH46	*CH40*
	
	CH48

802.11ac(HT40)	*802.11ac(HT80)*
	
CH38	*CH42*
	
CH46	

4.6 Minimum Emission Bandwidth (6dBm Bandwidth)

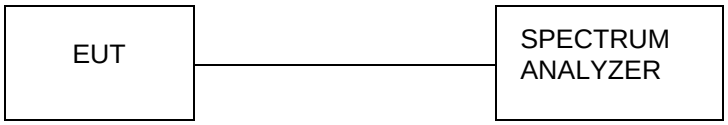
Limit

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

Test Procedure

1. Set resolution bandwidth (RBW) = 100 kHz
2. Set the video bandwidth 3 x RBW.
3. Detector = Peak.
4. Trace mode = Max hold.
5. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Test Configuration

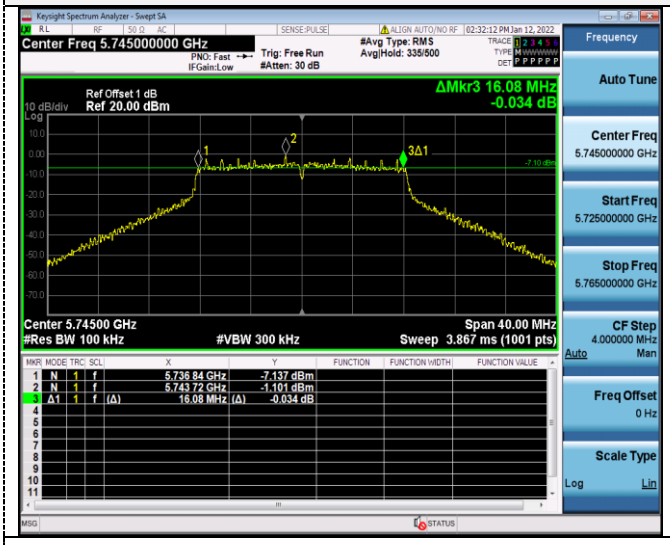
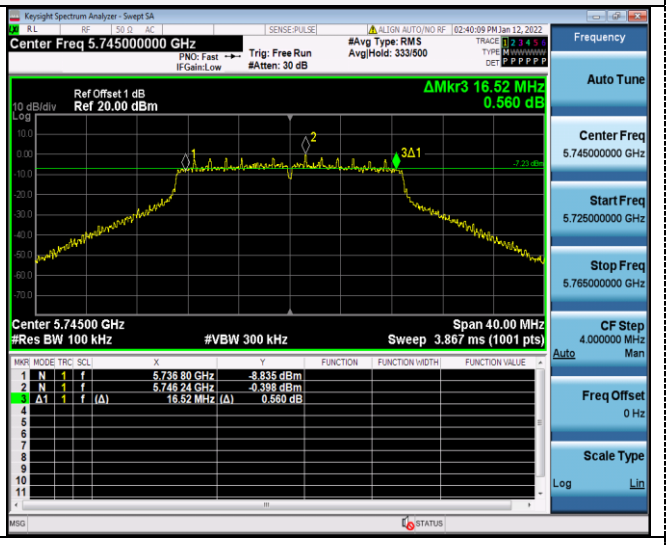
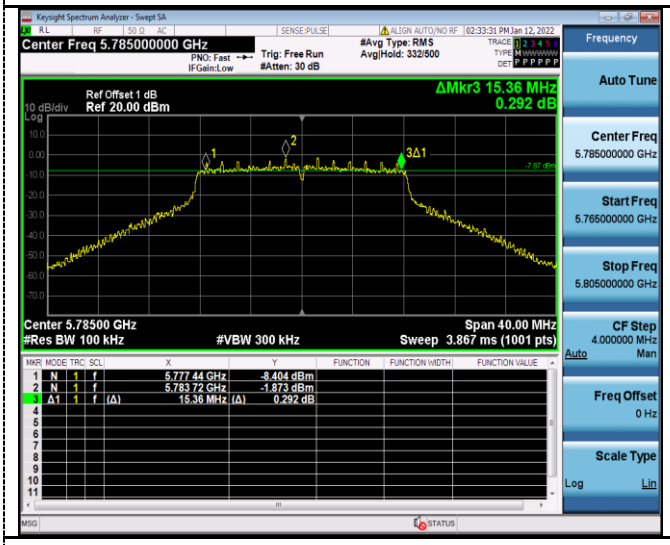
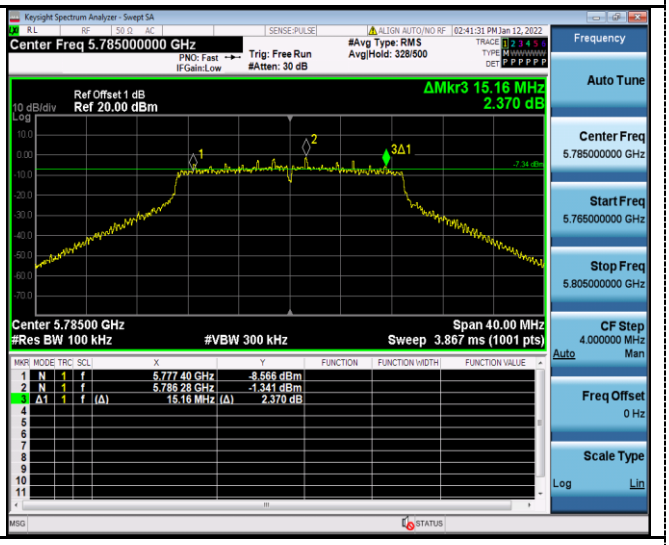
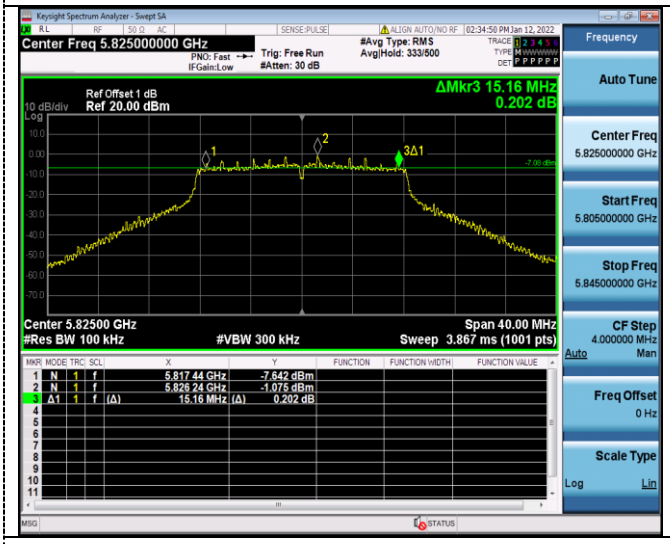


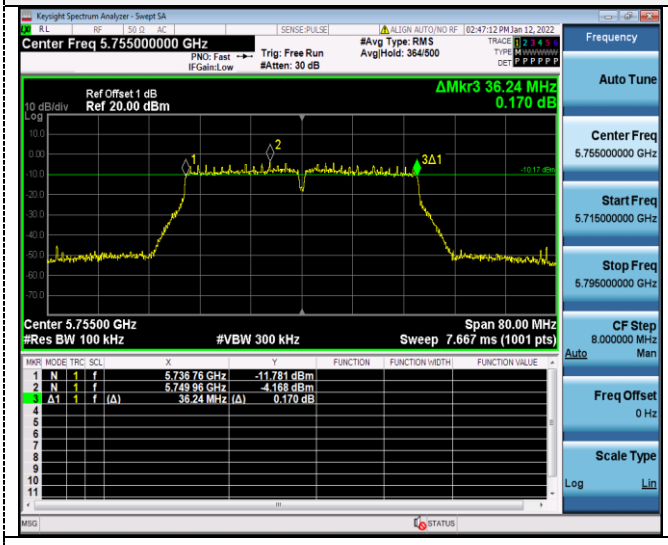
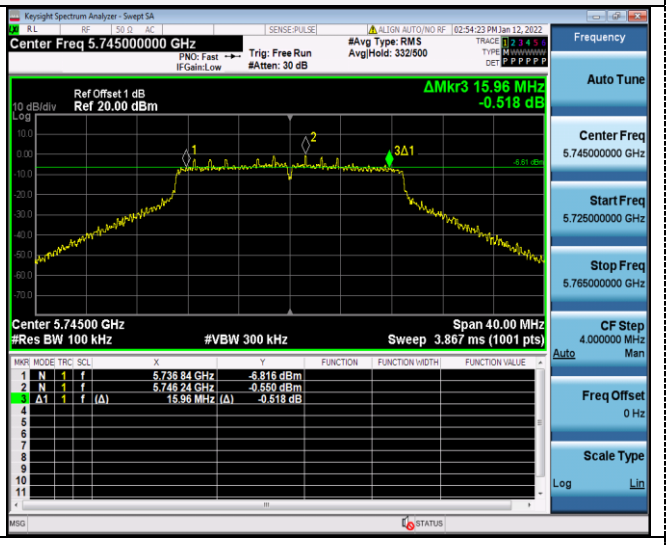
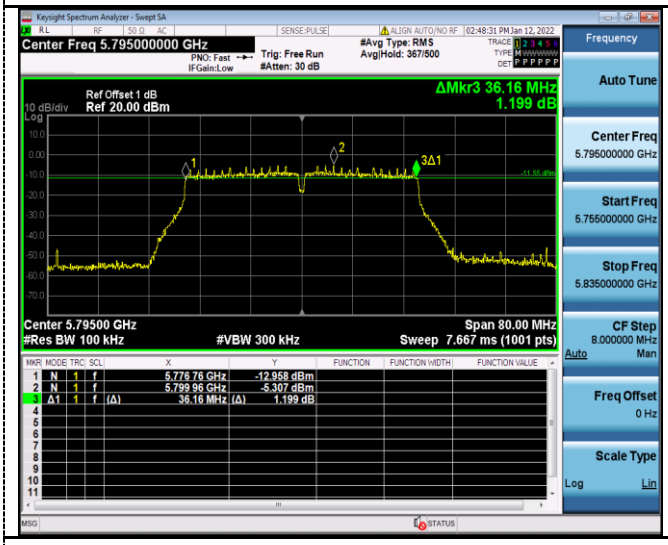
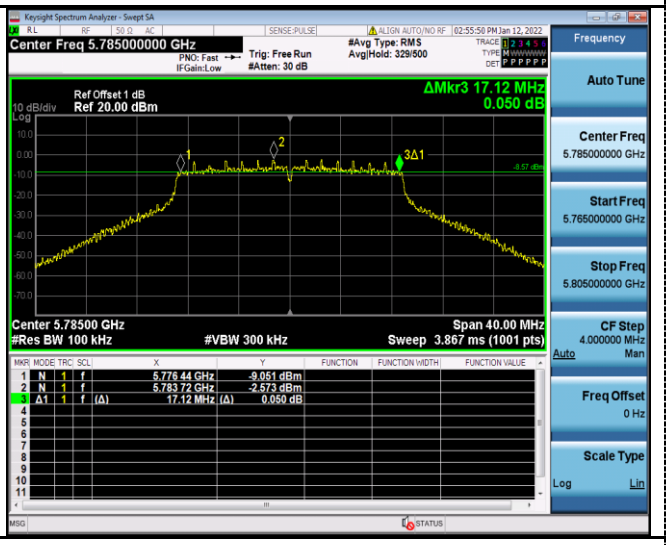
Test Results

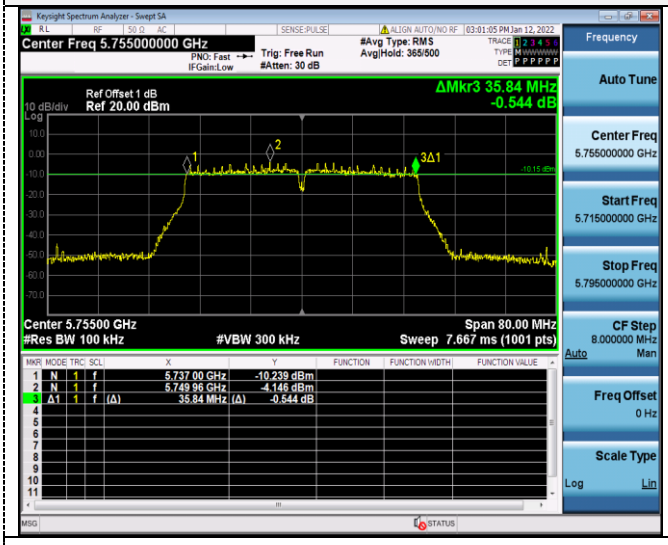
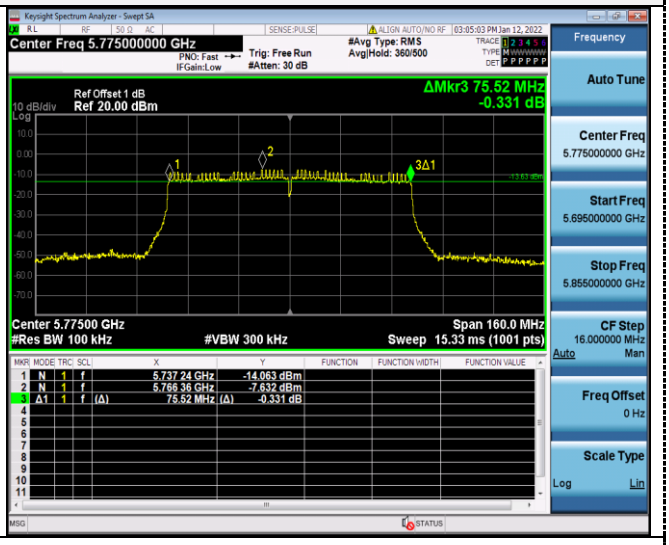
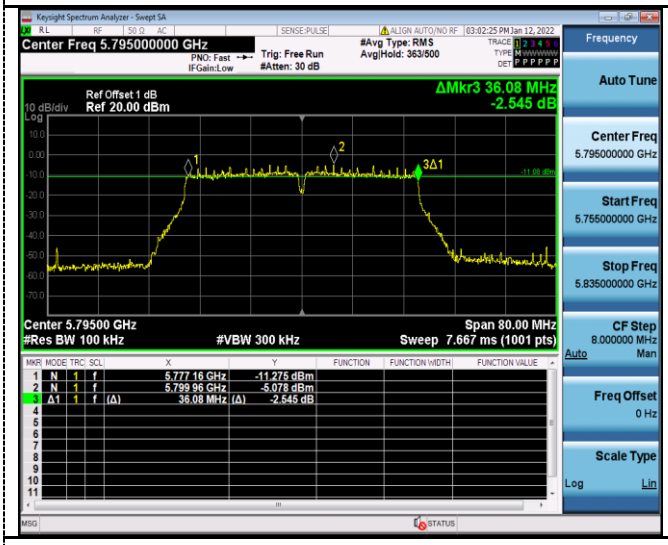
Temperature	22.8℃	Humidity	56%
Test Engineer	Moon Tan	Configurations	WLAN 5G

Type	Bands	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	U-NII 3	149	16.080	≥500KHz	Pass
		157	15.360		
		165	15.160		
802.11n(HT20)	U-NII 3	149	16.520		
		157	15.160		
		165	13.280		
802.11n(HT40)	U-NII 3	151	36.240		
		159	36.160		
802.11ac(HT20)	U-NII 3	149	15.960		
		157	17.120		
		165	15.200		
802.11ac(HT40)	U-NII 3	151	35.840		
		159	36.080		
802.11ac(HT80)	U-NII 3	155	75.520		

Test plot as follows:

802.11a	802.11n(HT20)
	
CH149	CH149
	
CH157	CH157
	
CH165	CH165

802.11n(HT40)	802.11ac(HT20)
	
CH151	CH149
	
CH159	CH157
	
	CH165

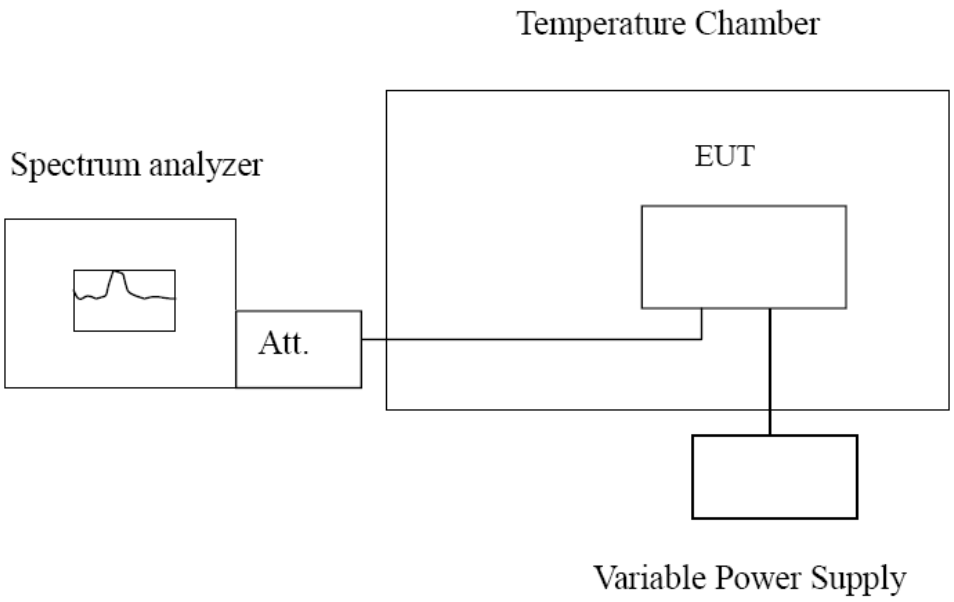
802.11ac(HT40)	*802.11ac(HT80)*
	
CH151	*CH155*
	
CH159	

4.7 Frequency Stability

LIMIT

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

TEST CONFIGURATION



TEST PROCEDURE

Frequency Stability under Temperature Variations:
The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20℃ operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30℃. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10℃ increased per stage until the highest temperature of +50℃ reached.

Frequency Stability under Voltage Variations:
Set chamber temperature to 20℃. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.
Reduce the input voltage to specify extreme voltage variation (±15%) and endpoint, record the maximum frequency change.

TEST RESULTS

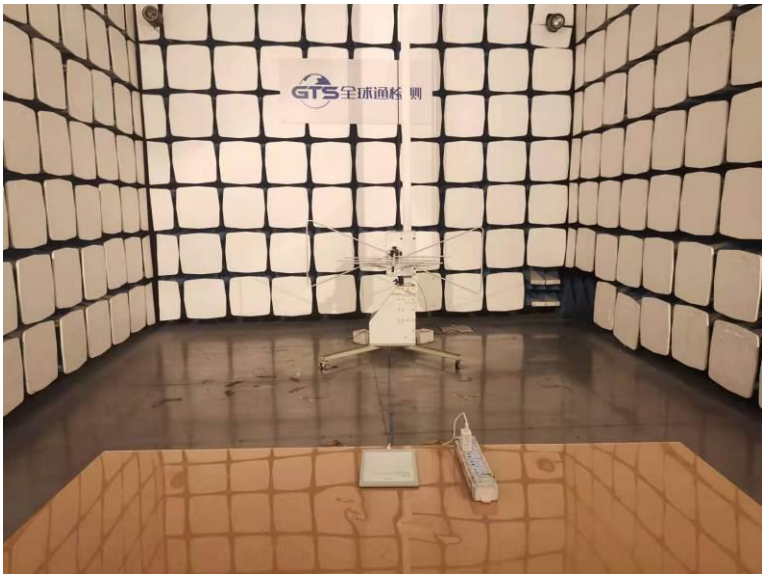
Temperature	22.8℃	Humidity	56%
Test Engineer	Moon Tan	Configurations	WLAN 5G

Record worst case as below:

Reference Frequency: 802.11ac channel=36 frequency=5180MHz					
Voltage (V)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.80	-30	96.47	0.019	Within the band of operation	Pass
	-20	39.32	0.008		
	-10	97.05	0.019		
	0	51.87	0.010		
	10	30.65	0.006		
	20	73.82	0.014		
	30	62.23	0.012		
	40	99.24	0.019		
	50	43.16	0.008		
4.37	25	72.92	0.014		
3.23	25	91.32	0.018		

Reference Frequency: 802.11ac channel=149 frequency=5745MHz					
Voltage (V)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.80	-30	63.51	0.011	Within the band of operation	Pass
	-20	89.82	0.016		
	-10	93.85	0.016		
	0	35.16	0.006		
	10	49.33	0.009		
	20	58.04	0.010		
	30	44.43	0.008		
	40	98.82	0.017		
	50	99.39	0.017		
4.37	25	70.11	0.012		
3.23	25	51.34	0.009		

5 Test Setup Photos of the EUT



6 Photos of the EUT

Reference to the test report No. GTS20220301008-1-1

********** End of Report **********