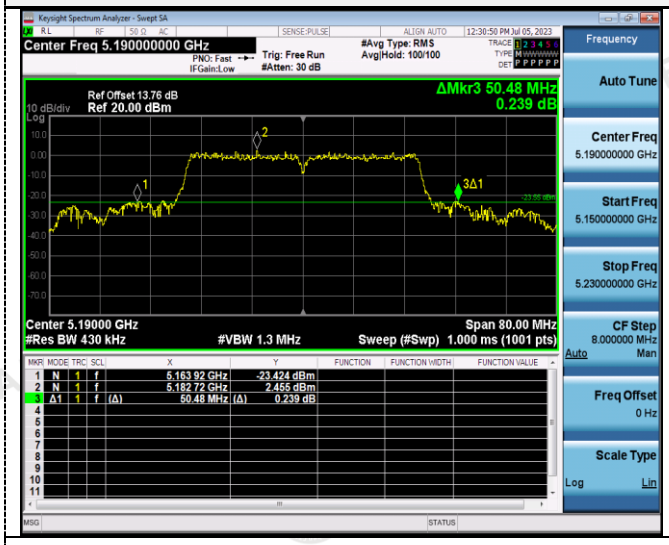
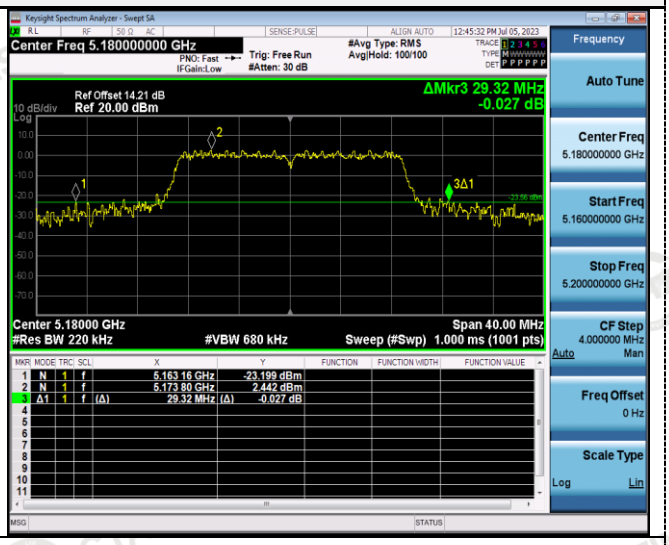
802.11n(HT40)

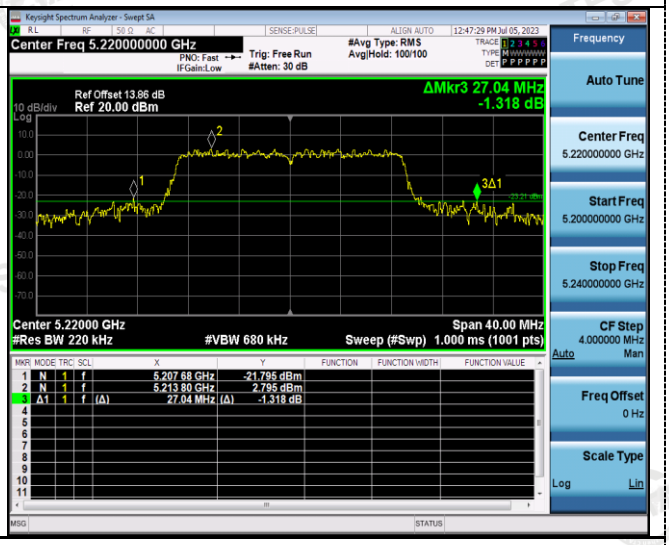


802.11ac(HT20)



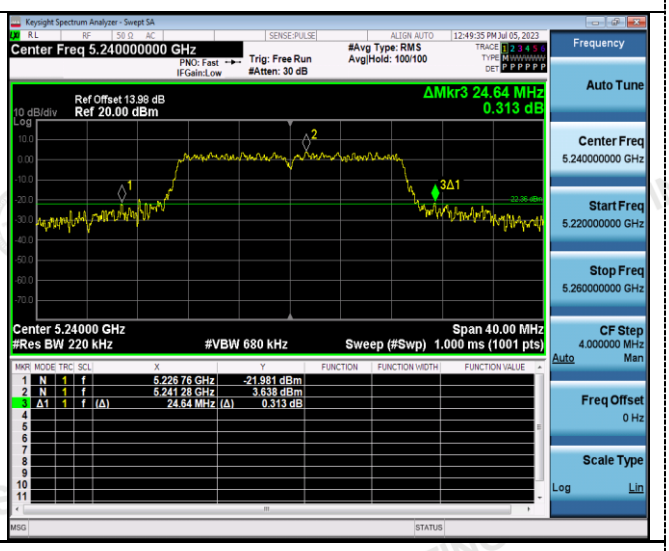
CH38

CH36



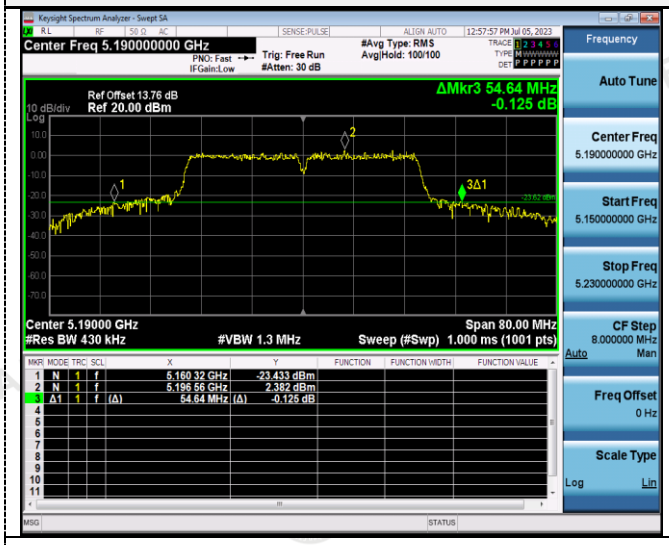
CH46

CH40



CH48

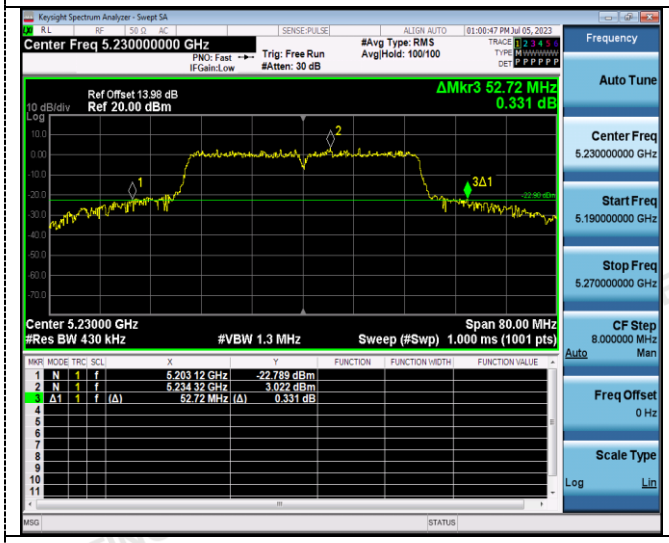
802.11ac(HT40)



CH38

802.11ac(HT80)

CH42



CH46

4.6 Minimum Emission Bandwidth (6dB Bandwidth)

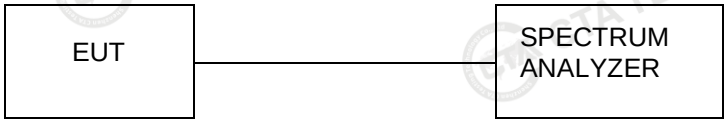
Limit

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.

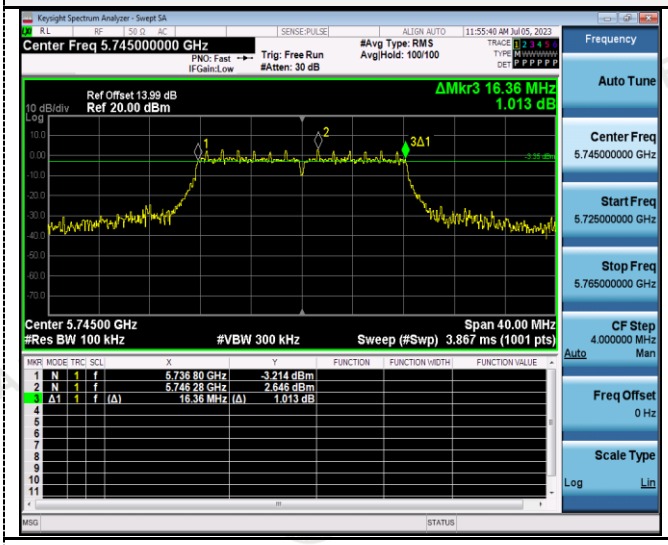
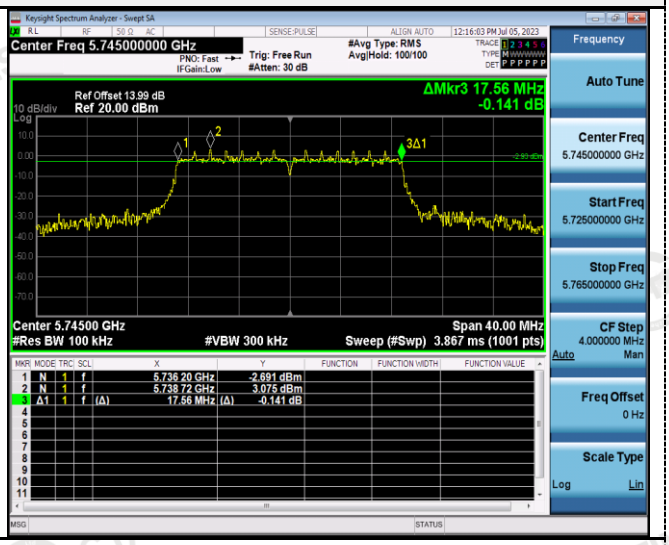
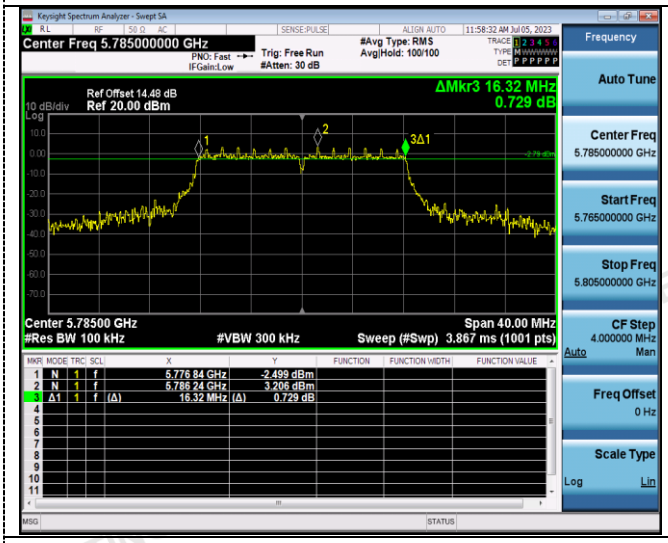
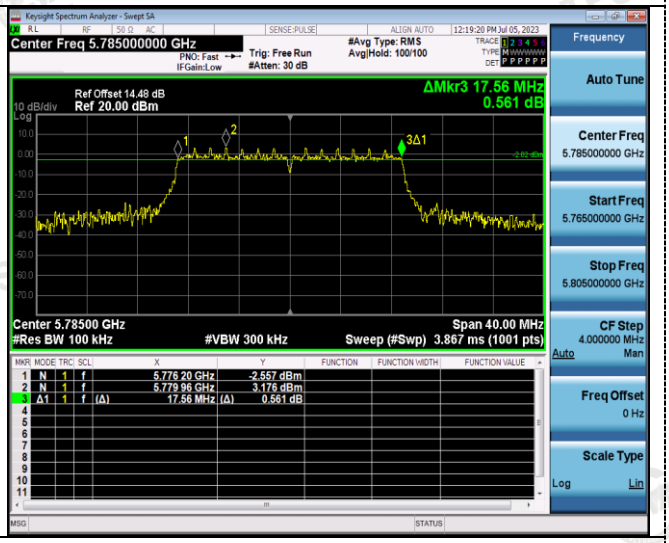
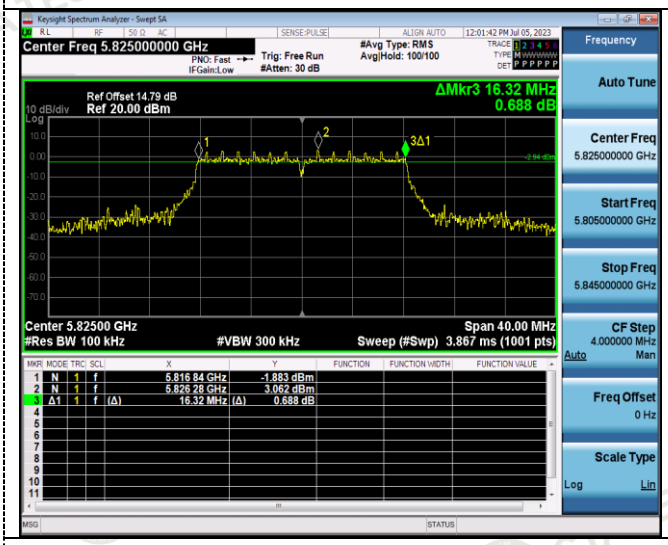
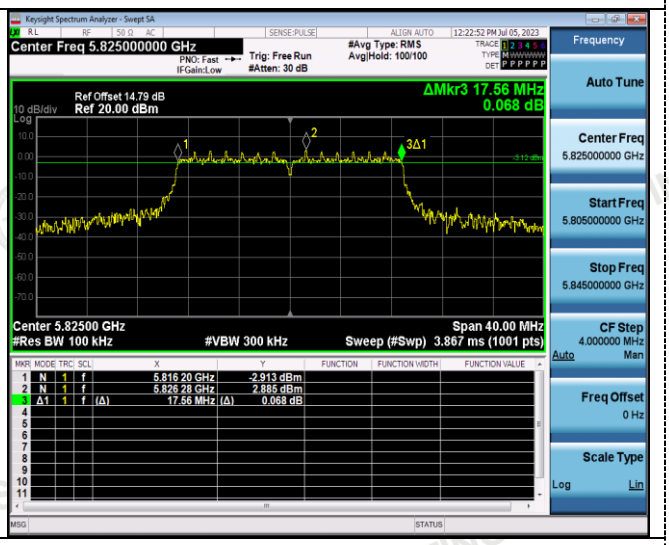
Test Configuration



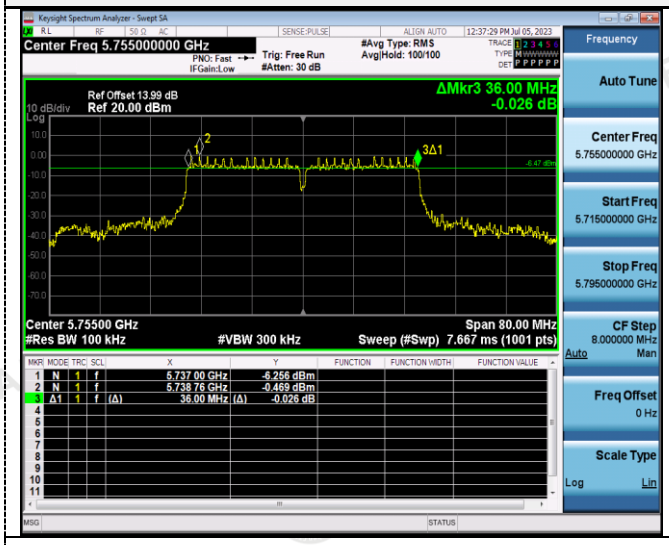
Test Results

Type	Bands	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	U-NII 3	149	16.360	≥500KHz	Pass
		157	16.320		
		165	16.320		
802.11n(HT20)	U-NII 3	149	17.560		
		157	17.560		
		165	17.560		
802.11n(HT40)	U-NII 3	151	36.000		
		159	36.160		
802.11ac(HT20)	U-NII 3	149	17.520		
		157	17.520		
		165	17.560		
802.11ac(HT40)	U-NII 3	151	35.920		
		159	35.840		
802.11ac(HT80)	U-NII 3	155	75.680		

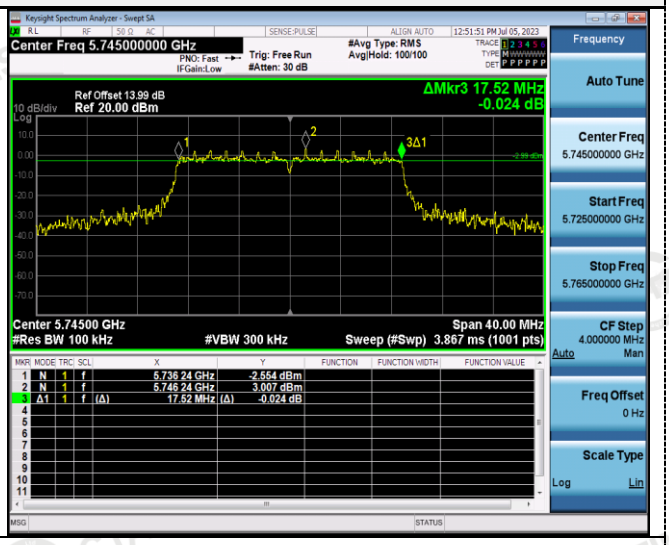
Test plot as follows:

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

802.11n(HT40)

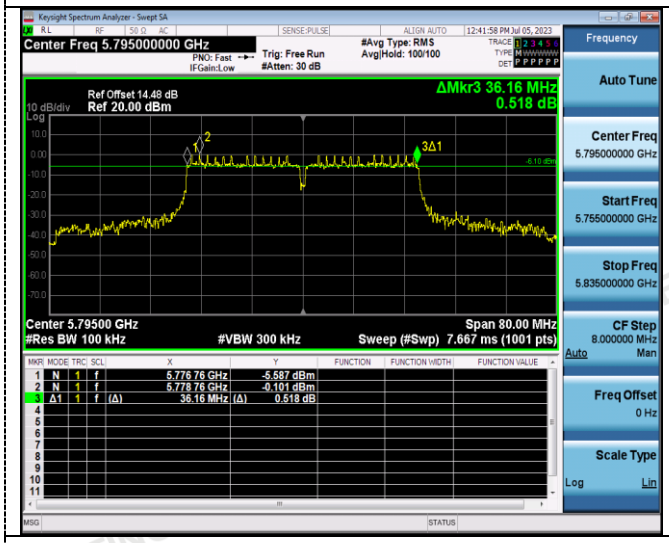


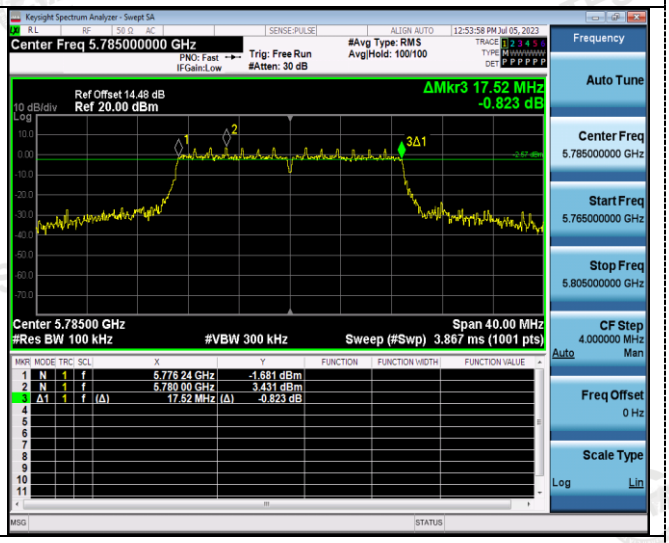
802.11ac(HT20)



CH151

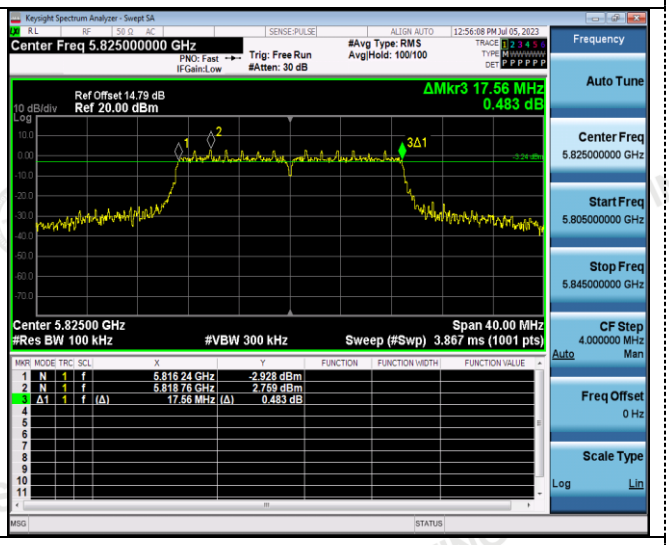
CH149





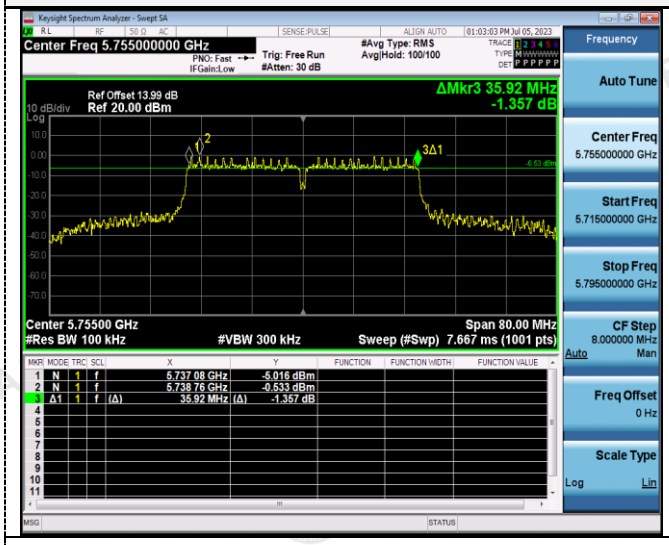
CH159

CH157



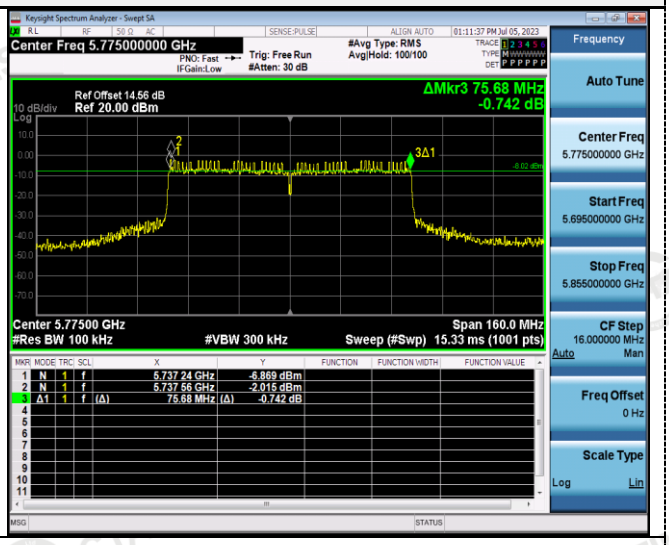
CH165

802.11ac(HT40)

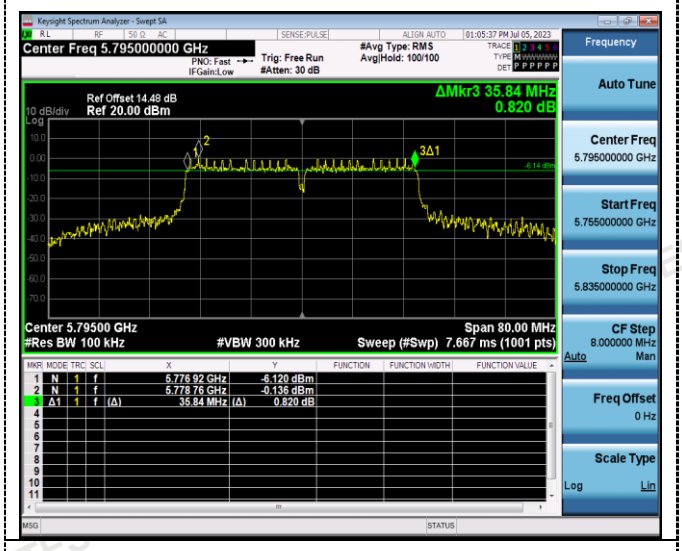


CH151

802.11ac(HT80)



CH155



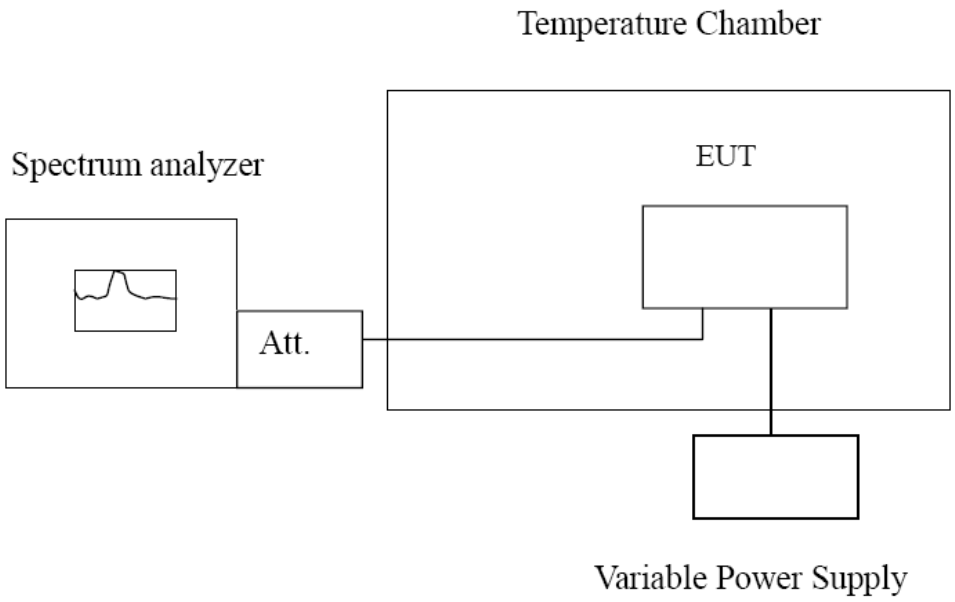
CH159

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.

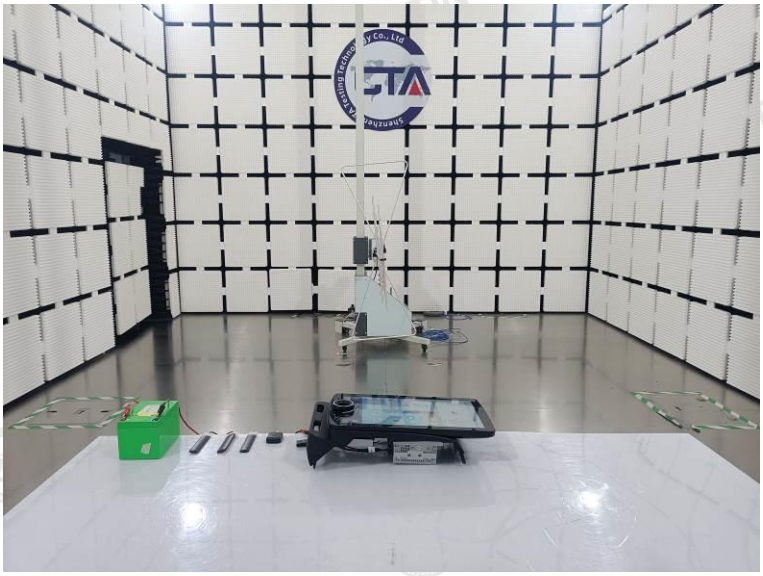
TEST RESULTS

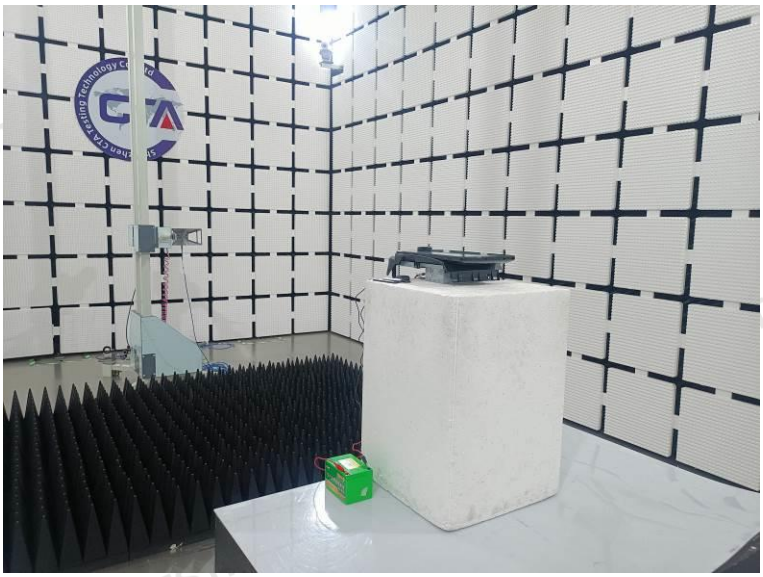
Record worst case as below:

Reference Frequency: 802.11ac channel=36 frequency=5180MHz					
Voltage (V)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
DC 12.0	-30	110.07	0.021249	Within the band of operation	Pass
	-20	171.85	0.033176		
	-10	138.43	0.026724		
	0	111.28	0.021483		
	10	142.79	0.027566		
	20	97.52	0.018826		
	30	164.63	0.031782		
	40	127.84	0.024680		
	50	126.73	0.024465		
DC 13.2	25	192.43	0.037149		
DC 10.8	25	114.94	0.022189		

Reference Frequency: 802.11ac channel=149 frequency=5745MHz					
Voltage (V)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
DC 12.0	-30	135.45	0.023577	Within the band of operation	Pass
	-20	127.43	0.022181		
	-10	165.26	0.028766		
	0	166.10	0.028912		
	10	133.74	0.023279		
	20	129.28	0.022503		
	30	112.82	0.019638		
	40	168.46	0.029323		
	50	157.40	0.027398		
DC 13.2	25	148.33	0.025819		
DC 10.8	25	117.12	0.020386		

5 Test Setup Photos of the EUT





6 Photos of the EUT

Reference to the test report No. **CTA23070300701**

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