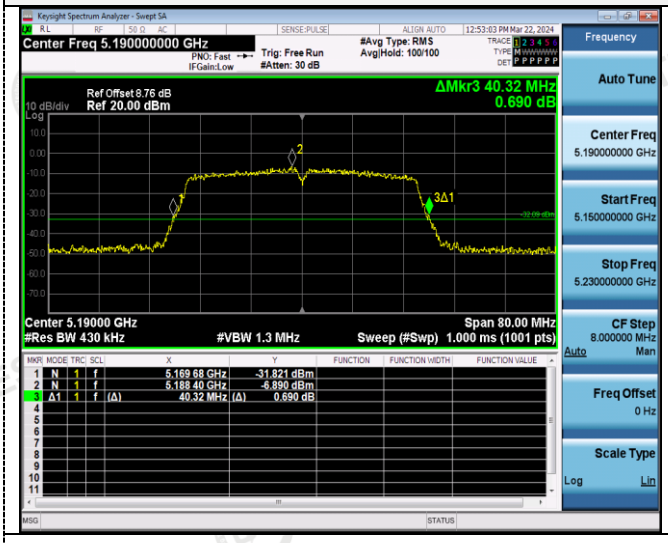
802.11n(HT40)

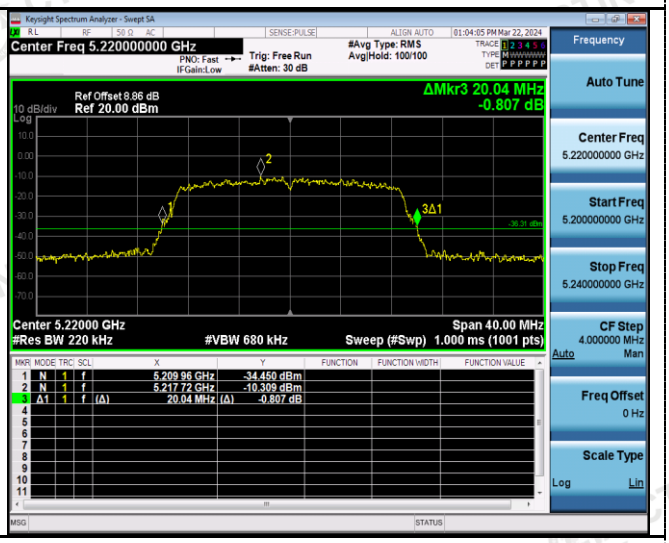


CH38

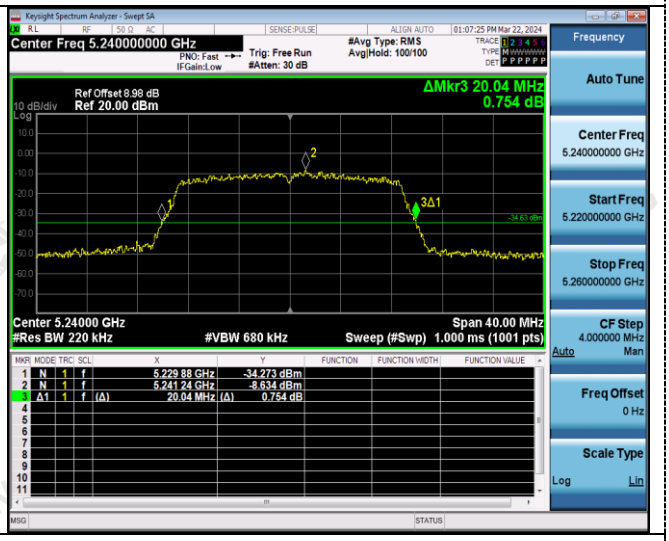
802.11ac(HT20)

CH36

CH46

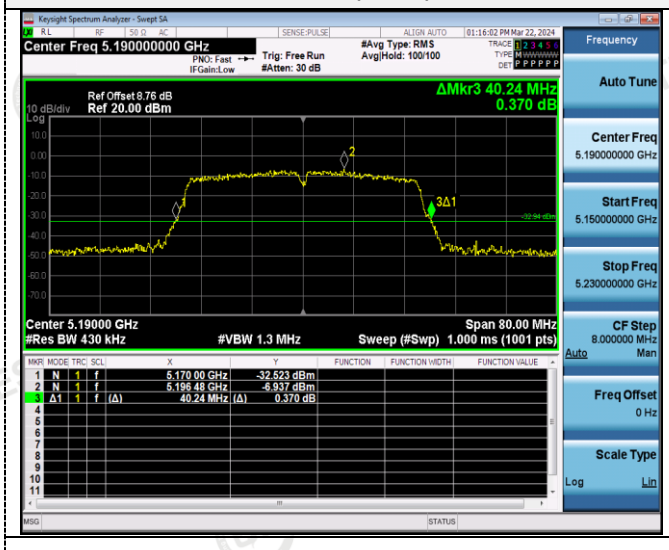


CH40



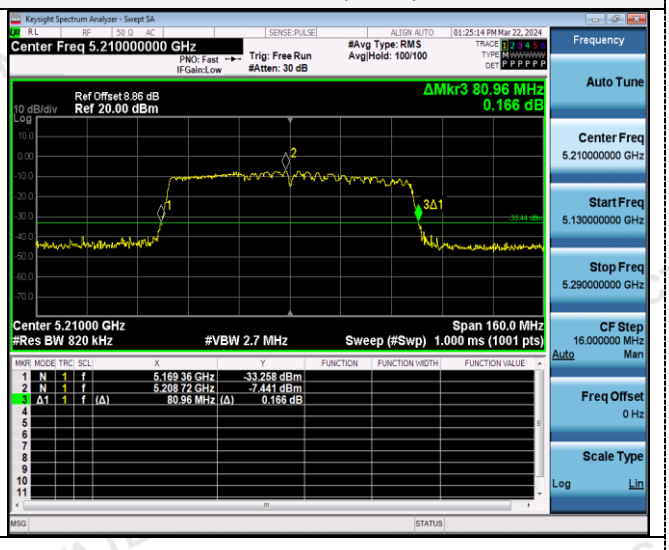
CH48

802.11ac(HT40)

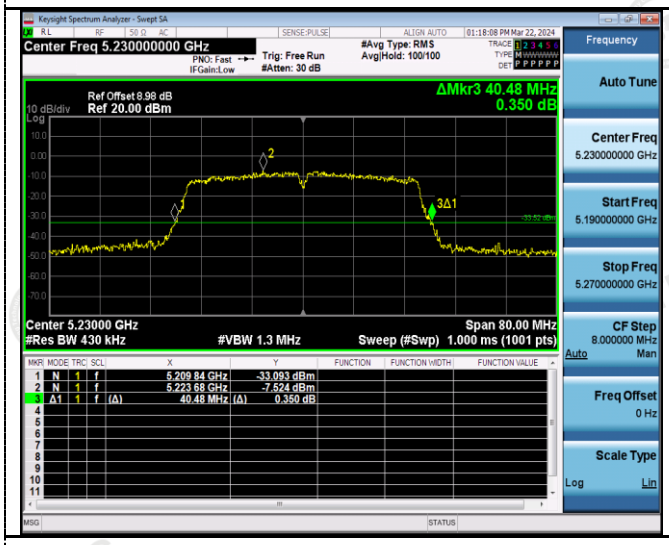


CH38

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.

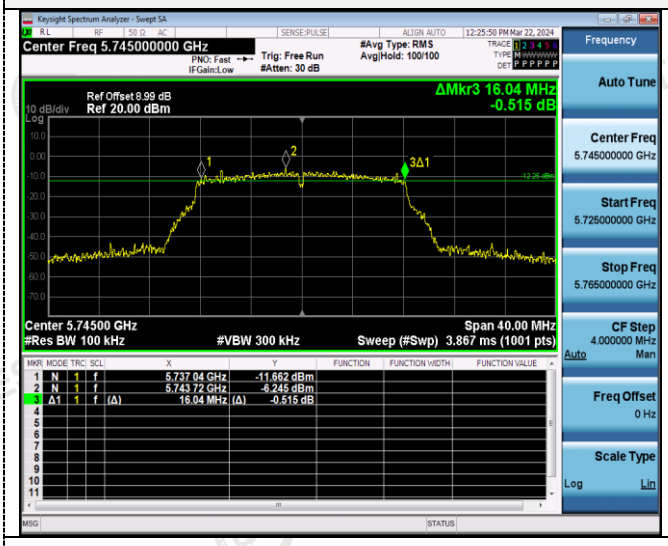
Test Configuration

Test Results

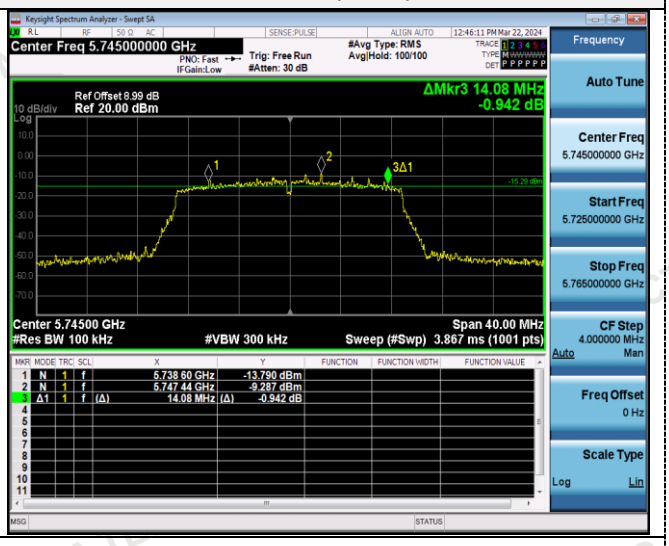
Type	Bands	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	U-NII 3	149	16.040	≥500KHz	Pass
		157	12.720		
		165	15.040		
802.11n(HT20)	U-NII 3	149	14.080		
		157	15.240		
		165	15.000		
802.11n(HT40)	U-NII 3	151	35.120		
		159	35.120		
802.11ac(HT20)	U-NII 3	149	13.760		
		157	15.080		
		165	15.120		
802.11ac(HT40)	U-NII 3	151	35.120		
		159	35.040		
802.11ac(HT80)	U-NII 3	155	73.760		

Test plot as follows:

802.11a

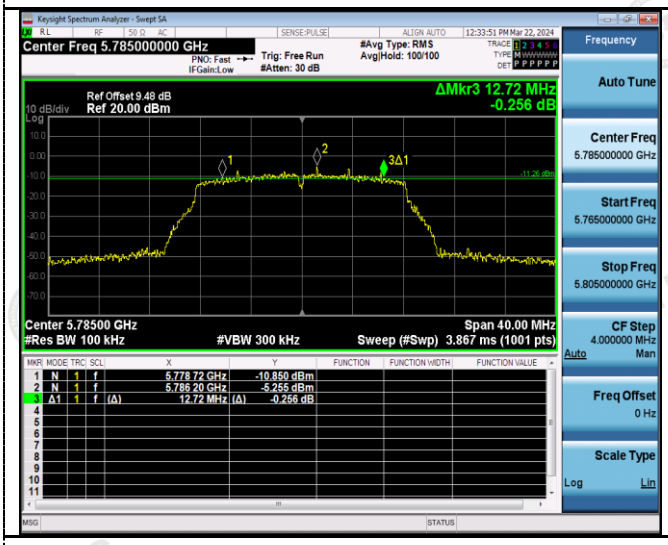


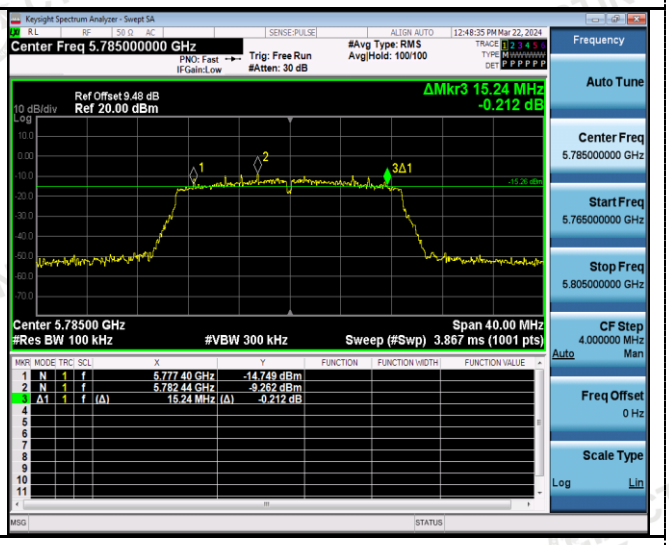
802.11n(HT20)



CH149

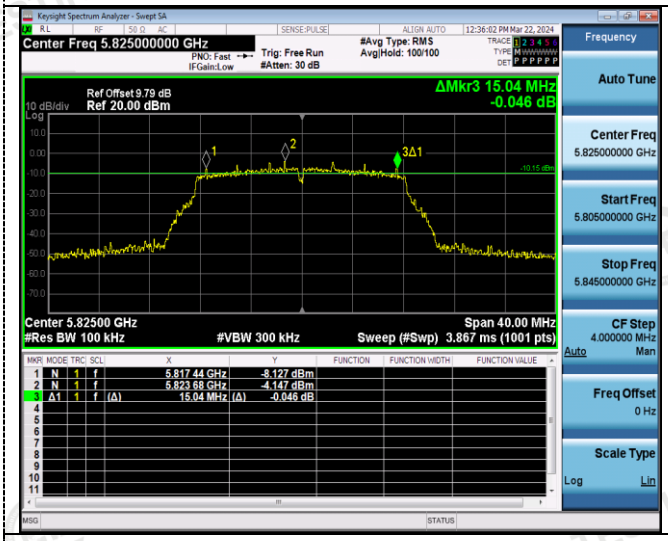
CH149

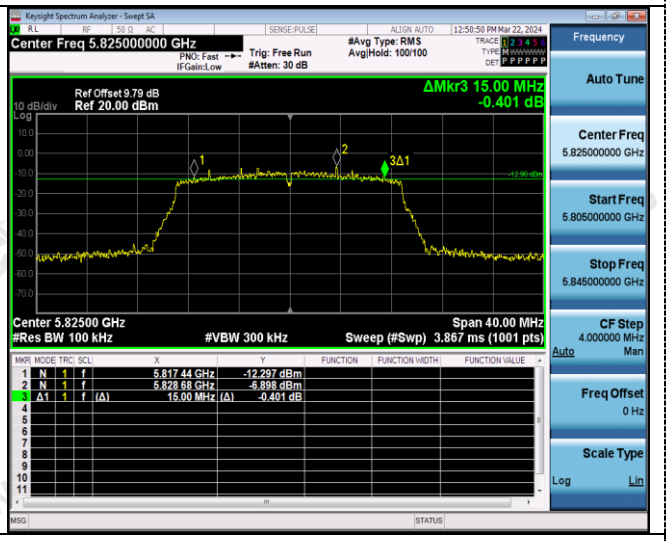




CH157

CH157

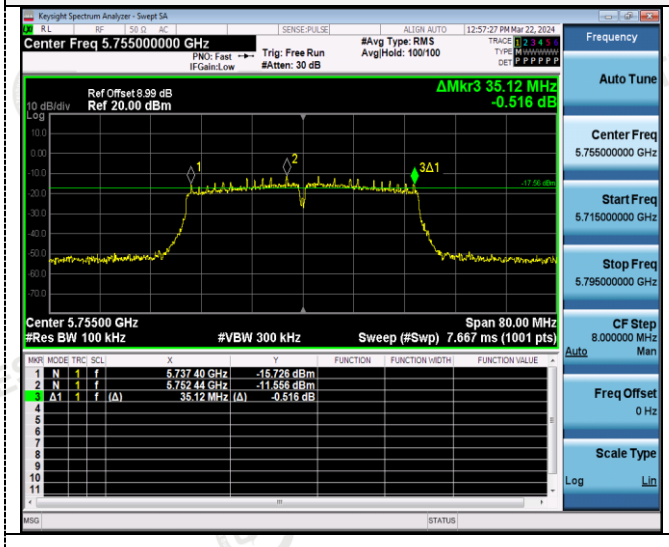




CH165

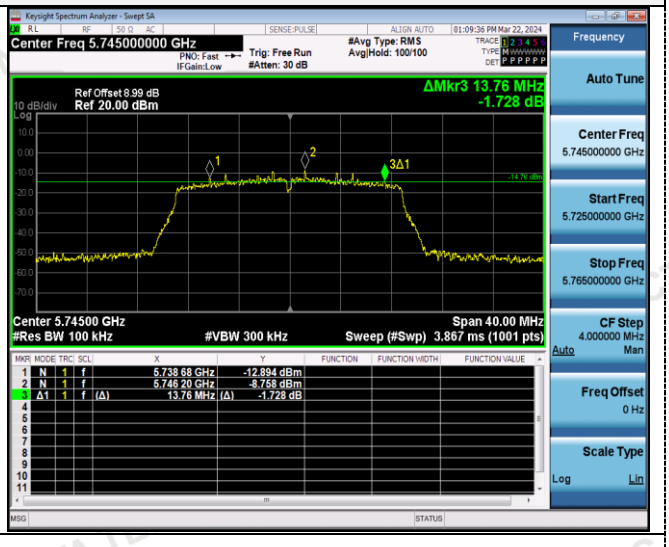
CH165

802.11n(HT40)

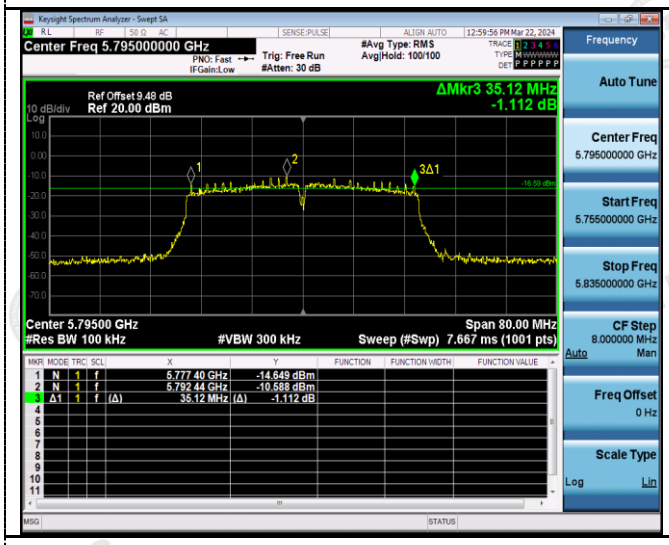


CH151

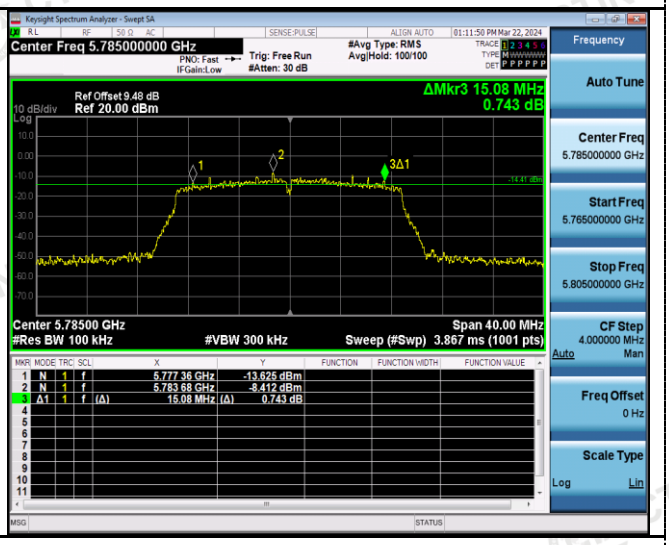
802.11ac(HT20)



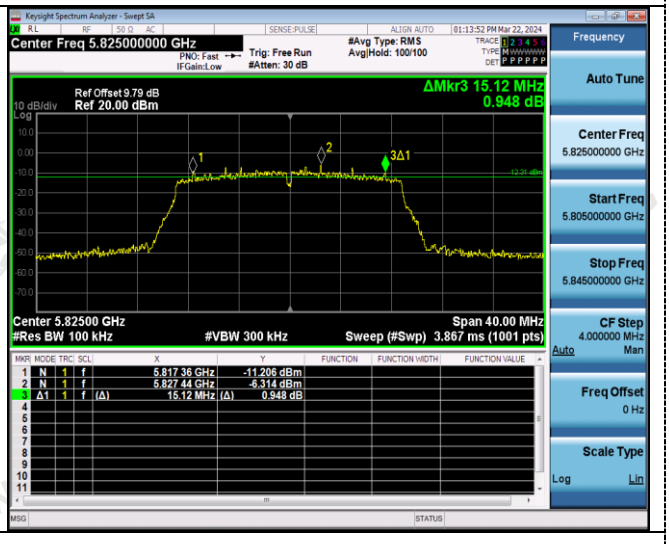
CH149



CH159

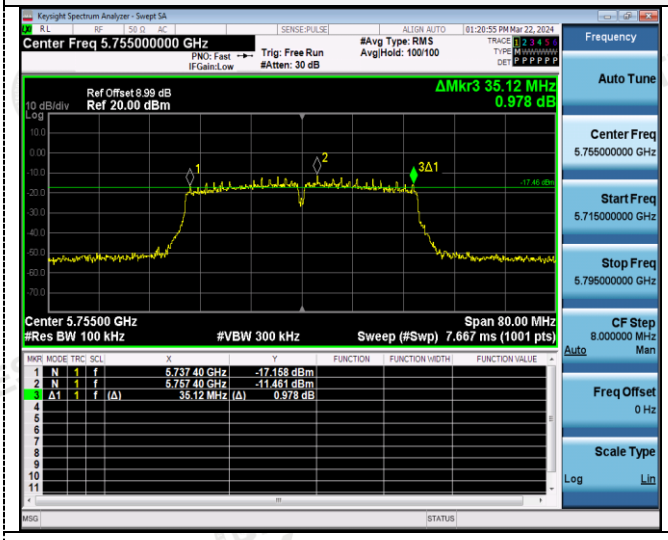


CH157



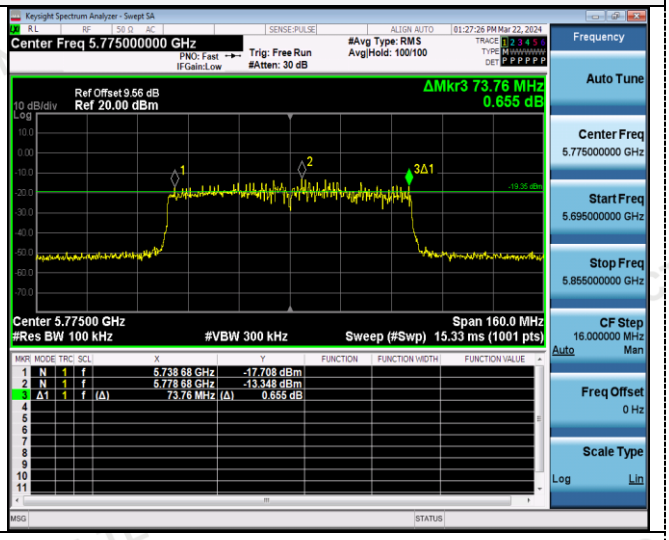
CH165

802.11ac(HT40)

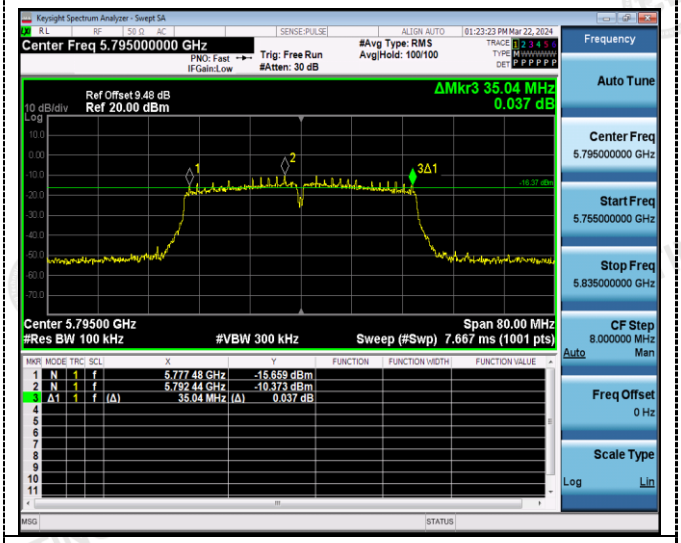


CH151

802.11ac(HT80)



CH155



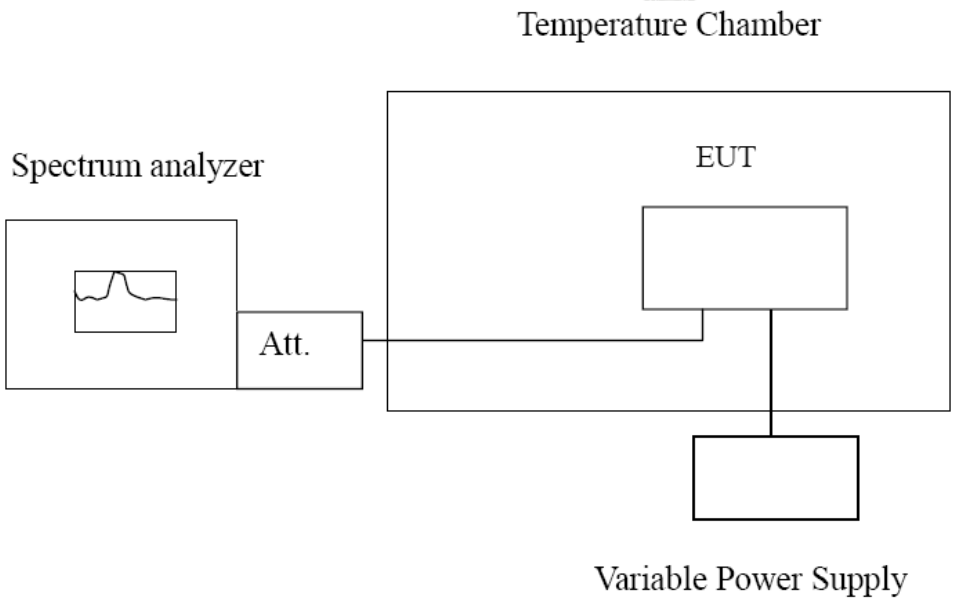
CH159

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.

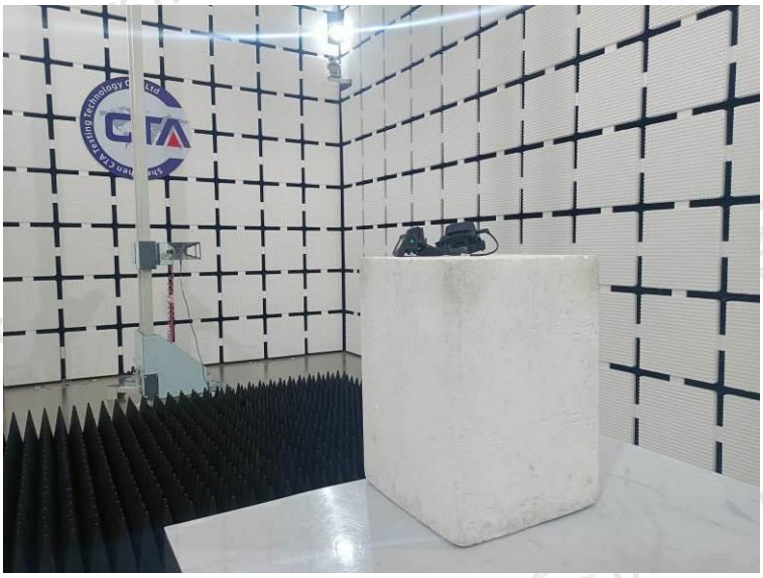
TEST RESULTS

Record worst case as below:

Reference Frequency: 802.11ac channel=36 frequency=5180MHz					
Voltage (V)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
DC 6.40	-30	110.68	0.021367	Within the band of operation	Pass
	-20	174.73	0.033732		
	-10	145.36	0.028062		
	0	146.79	0.028338		
	10	145.92	0.028170		
	20	99.47	0.019203		
	30	167.19	0.032276		
	40	129.23	0.024948		
	50	128.42	0.024792		
DC 7.36	25	195.67	0.037774		
DC 5.44	25	118.88	0.022950		

Reference Frequency: 802.11ac channel=149 frequency=5745MHz					
Voltage (V)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
DC 6.40	-30	135.88	0.023652	Within the band of operation	Pass
	-20	129.68	0.022573		
	-10	167.53	0.029161		
	0	169.69	0.029537		
	10	136.43	0.023748		
	20	144.96	0.025232		
	30	116.39	0.020259		
	40	168.16	0.029271		
	50	160.78	0.027986		
DC 7.36	25	150.66	0.026225		
DC 5.44	25	129.86	0.022604		

5 Test Setup Photos of the EUT



6 Photos of the EUT

Reference to the test report No. **CTA24030100701.**

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