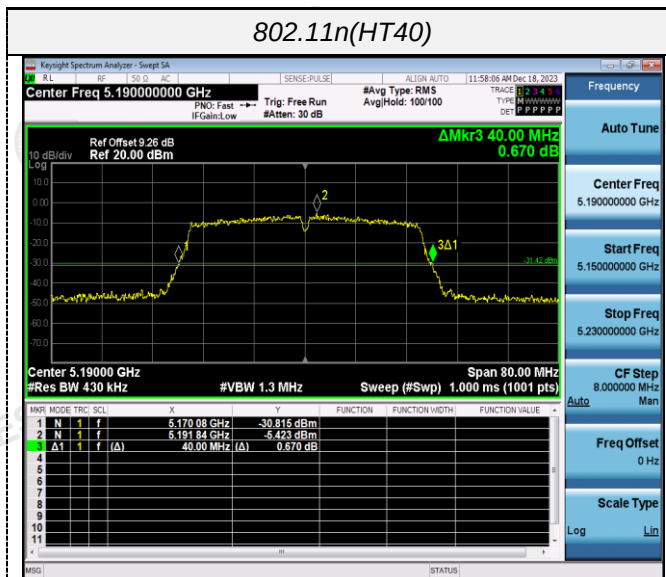
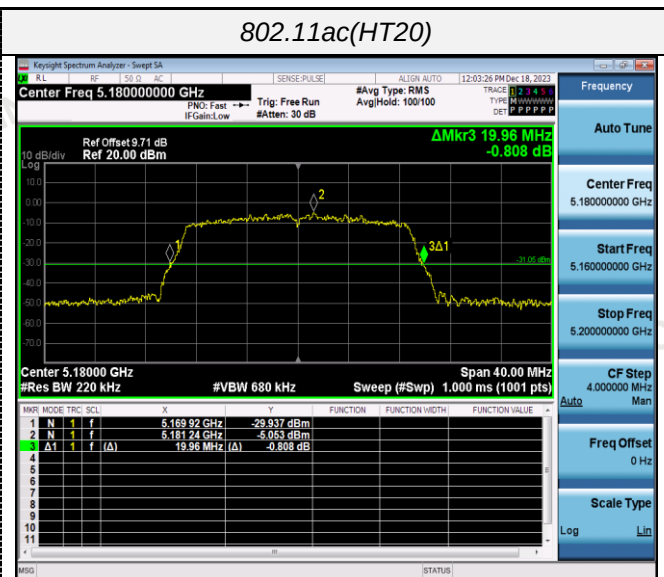


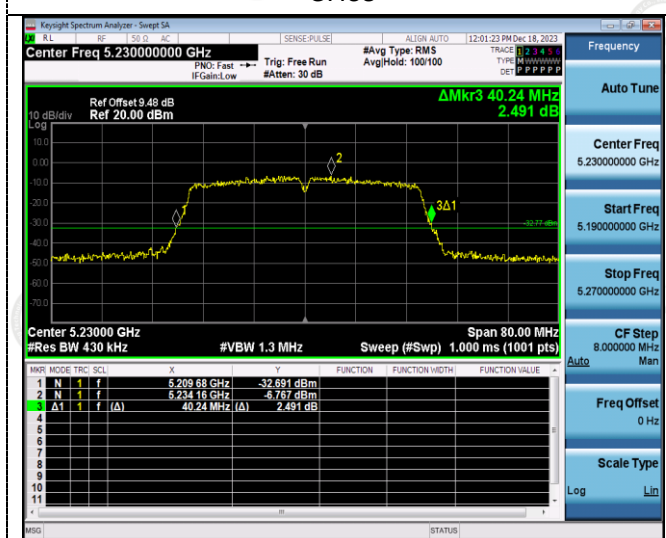
802.11n(HT40)



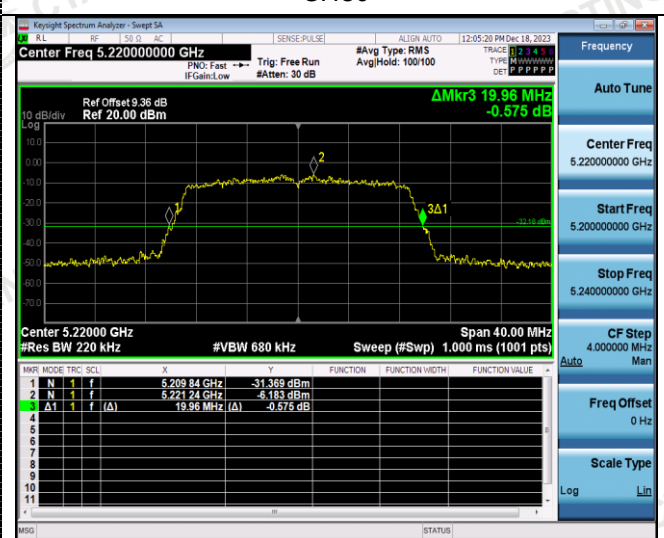
802.11ac(HT20)



CH38



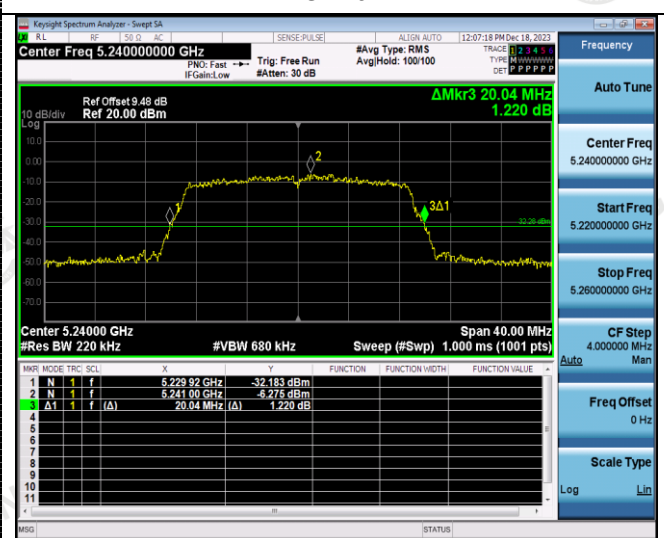
CH36



CH46



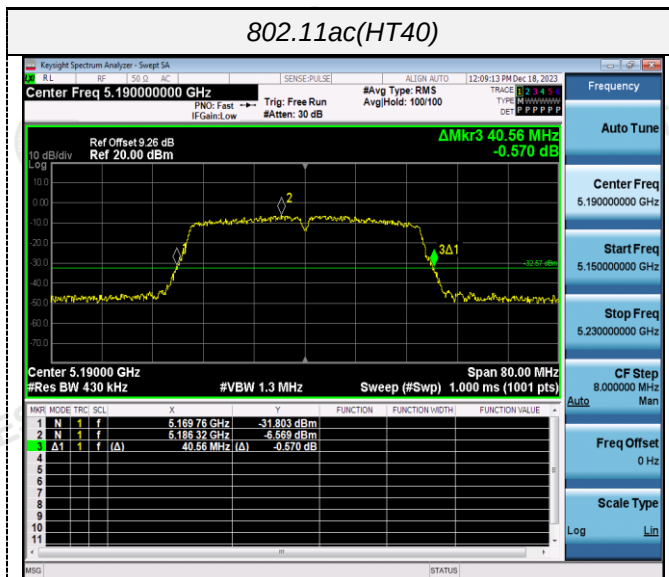
CH40



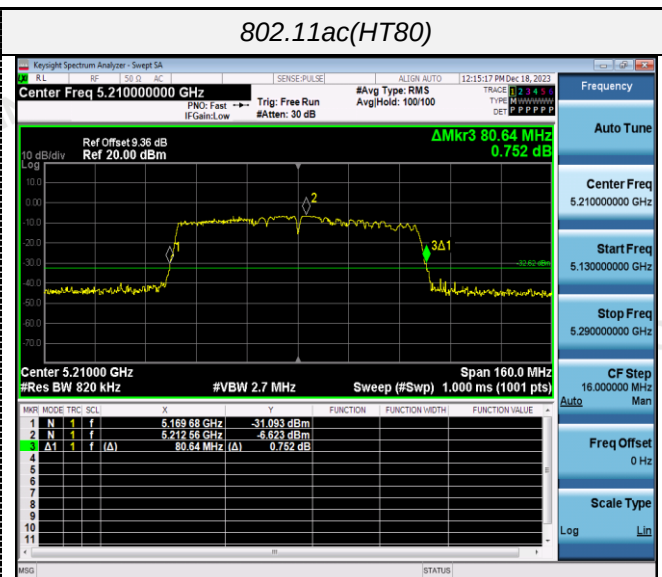
CH48



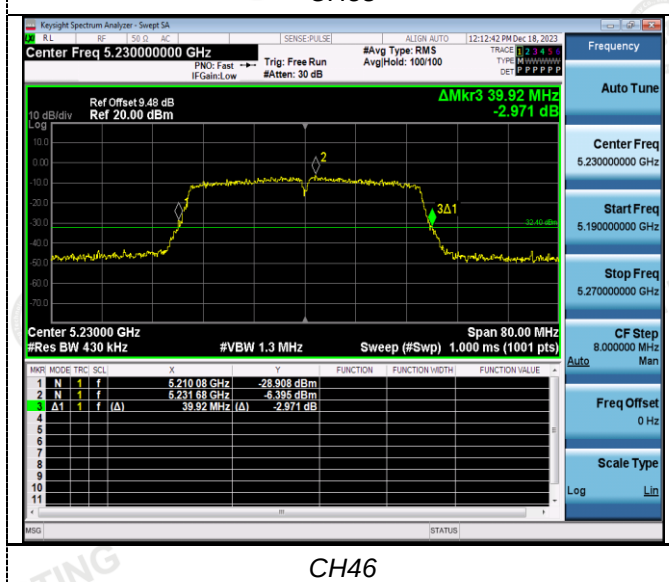
802.11ac(HT40)



802.11ac(HT80)



CH38



CH46

CH42

4.6 Minimum Emission Bandwidth (6dB Bandwidth)

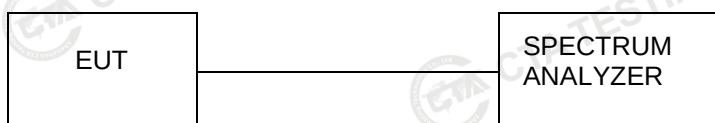
Limit

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

ANT 1

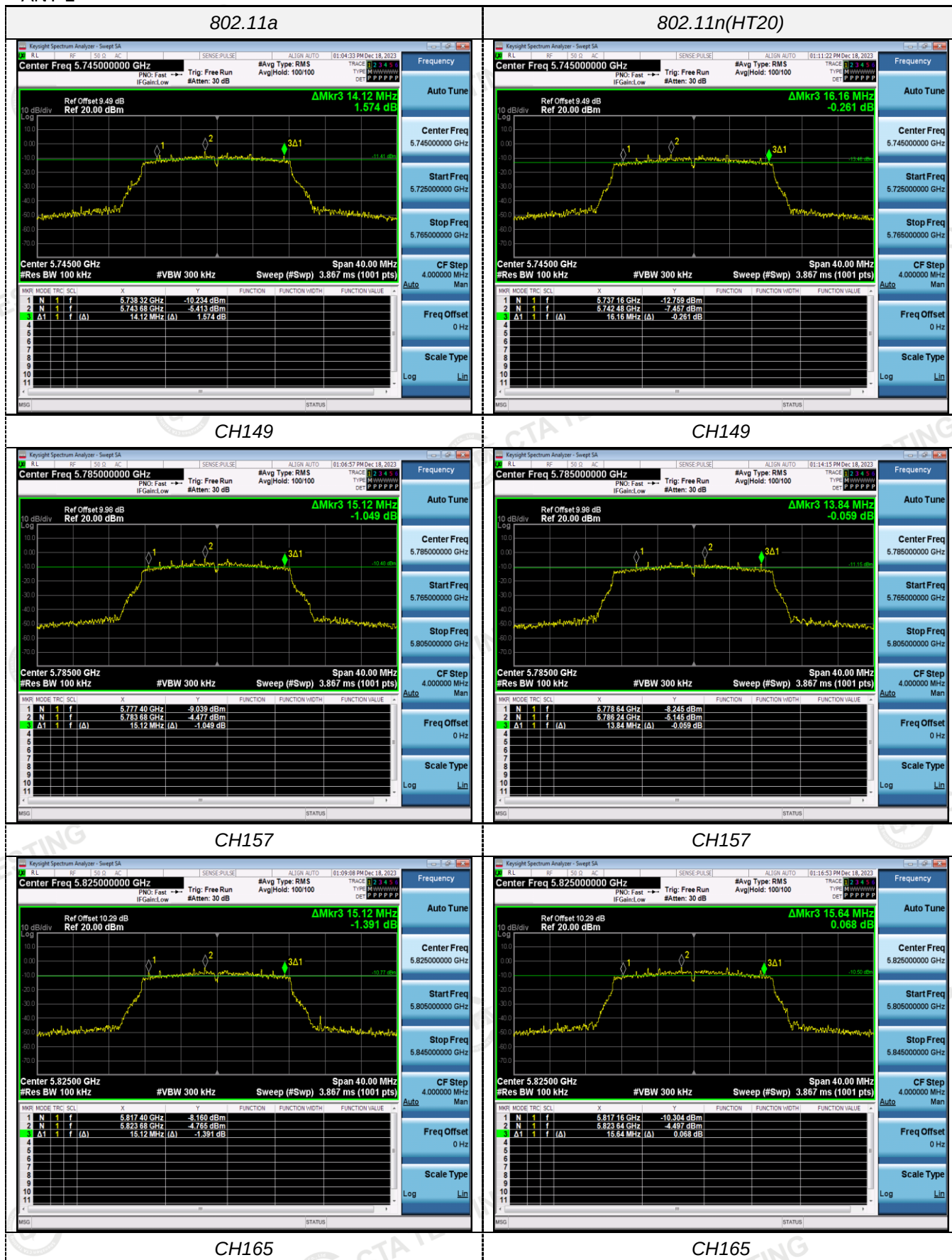
Type	Bands	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	U-NII 3	149	14.120	≥500KHz	Pass
		157	15.120		
		165	15.120		
802.11n(HT20)	U-NII 3	149	16.160		
		157	13.840		
		165	15.640		
802.11n(HT40)	U-NII 3	151	35.040		
		159	35.040		
802.11ac(HT20)	U-NII 3	149	13.840		
		157	13.720		
		165	15.120		
802.11ac(HT40)	U-NII 3	151	35.120		
		159	35.040		
802.11ac(HT80)	U-NII 3	155	75.040		

ANT 2

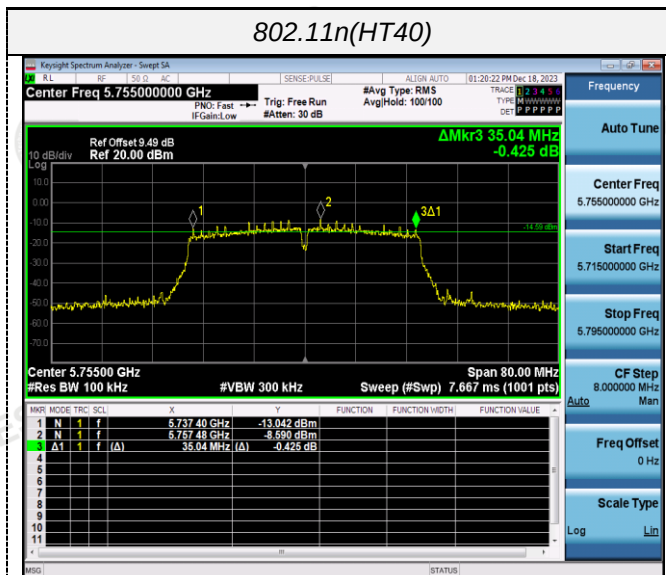
Type	Bands	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	U-NII 3	149	13.120	≥500KHz	Pass
		157	15.120		
		165	12.920		
802.11n(HT20)	U-NII 3	149	15.040		
		157	15.360		
		165	15.040		
802.11n(HT40)	U-NII 3	151	35.040		
		159	35.040		
802.11ac(HT20)	U-NII 3	149	13.000		
		157	15.440		
		165	14.680		
802.11ac(HT40)	U-NII 3	151	35.040		
		159	35.120		
802.11ac(HT80)	U-NII 3	155	72.640		

Test plot as follows:

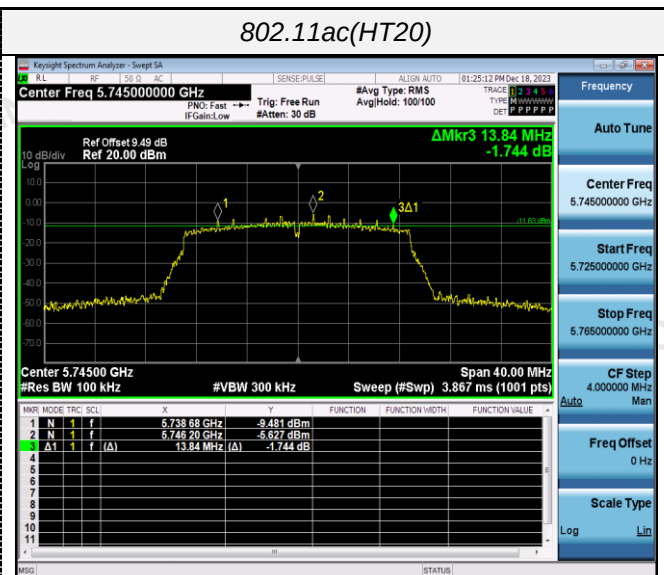
ANT 1



802.11n(HT40)



802.11ac(HT20)



CH151



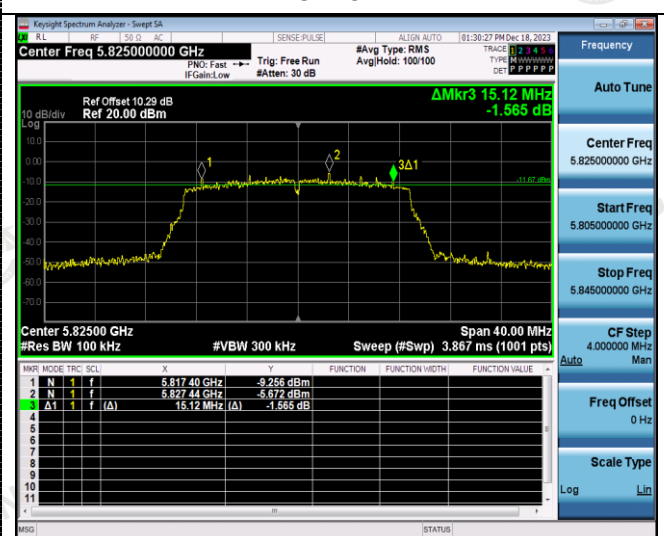
CH149



CH159

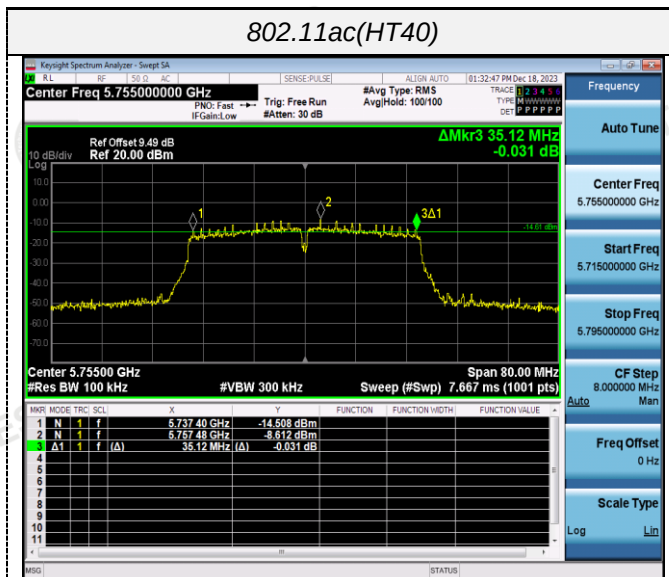


CH157



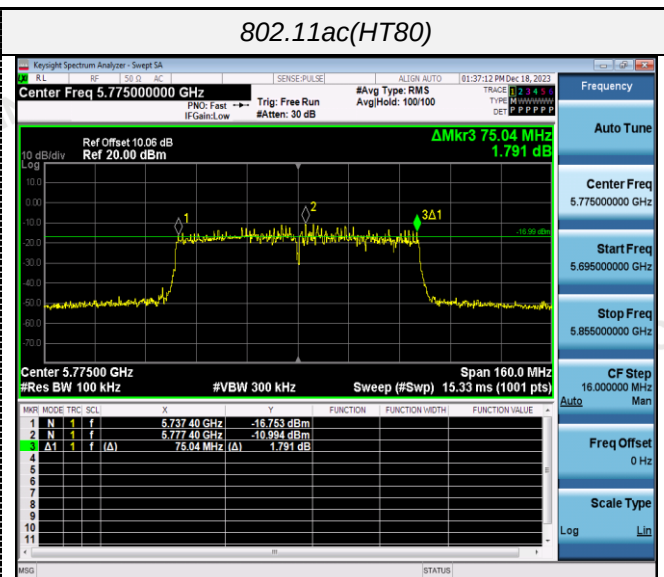
CH165

802.11ac(HT40)

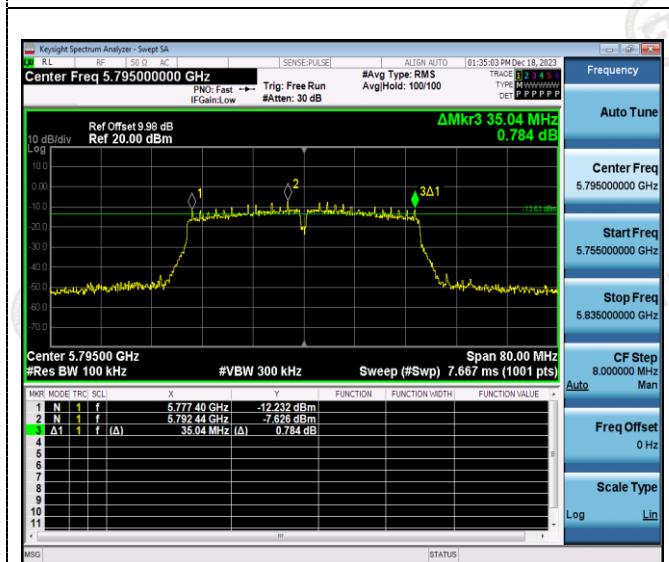


CH151

802.11ac(HT80)

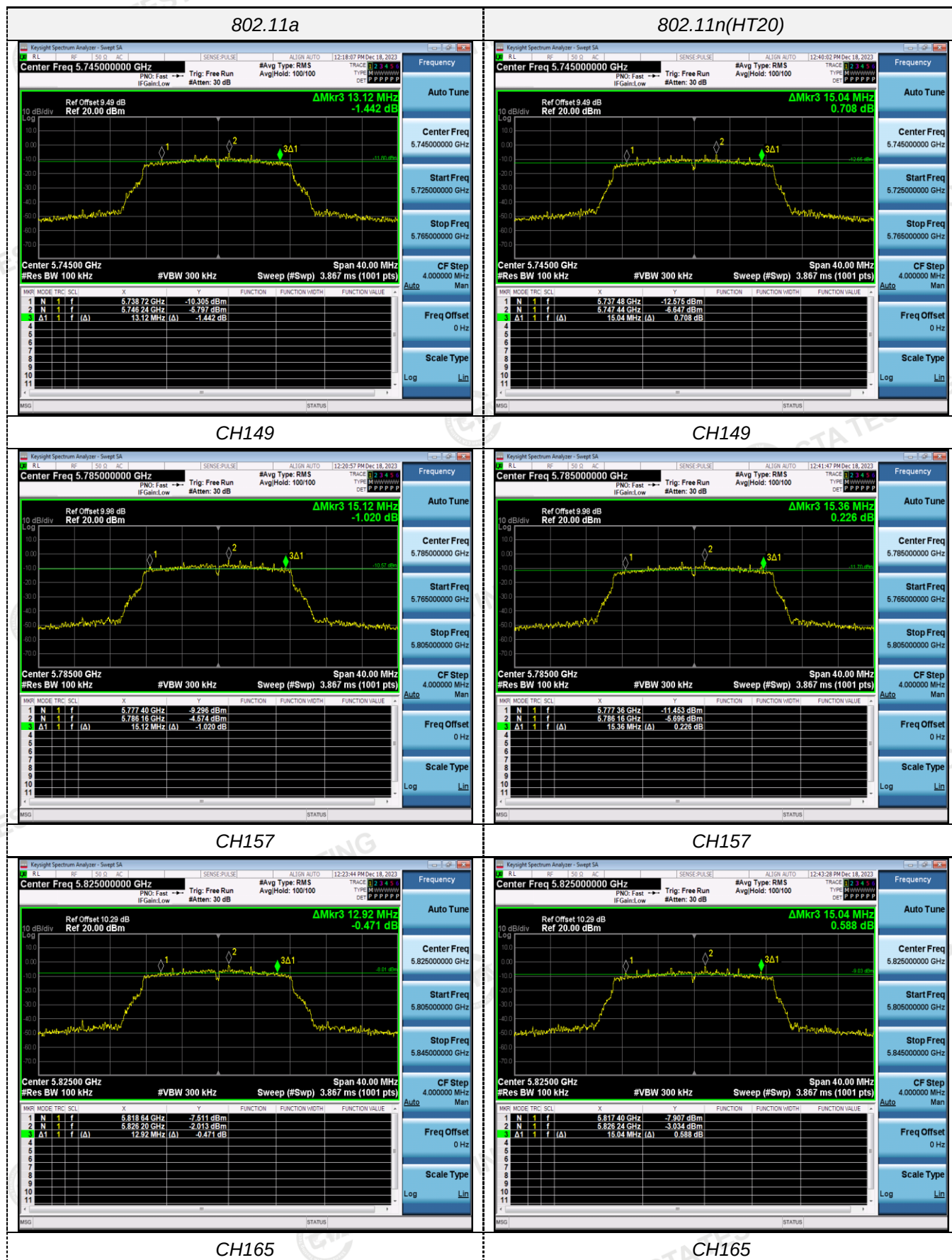


CH155

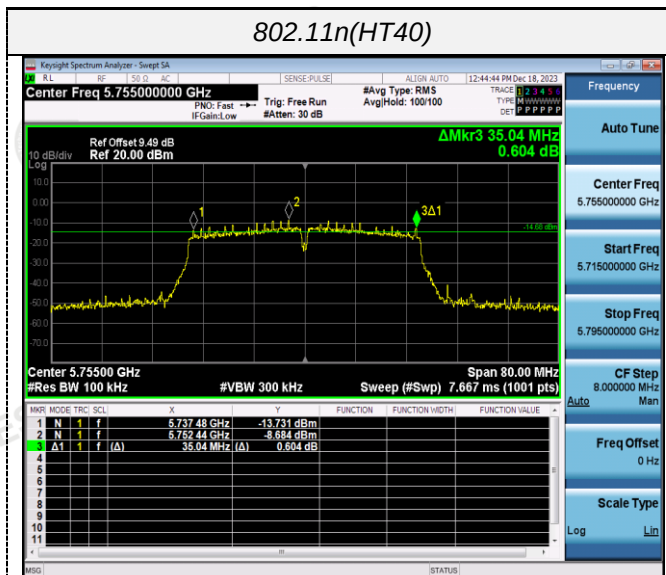


CH159

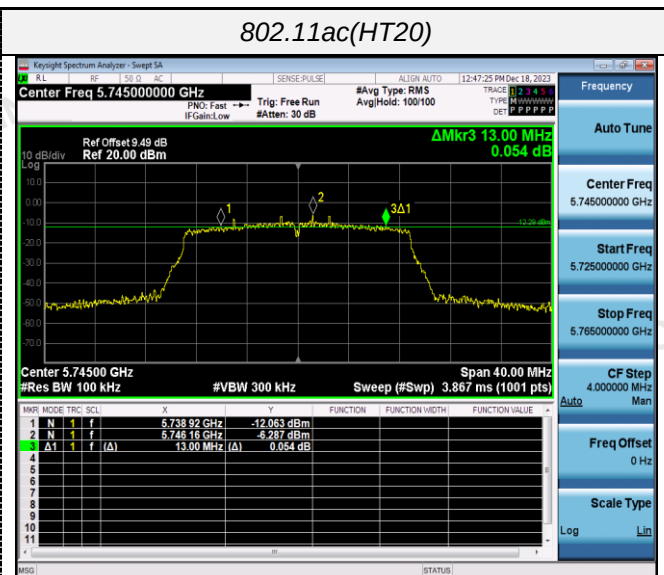
ANT 2



802.11n(HT40)



802.11ac(HT20)



CH151



CH149



CH159

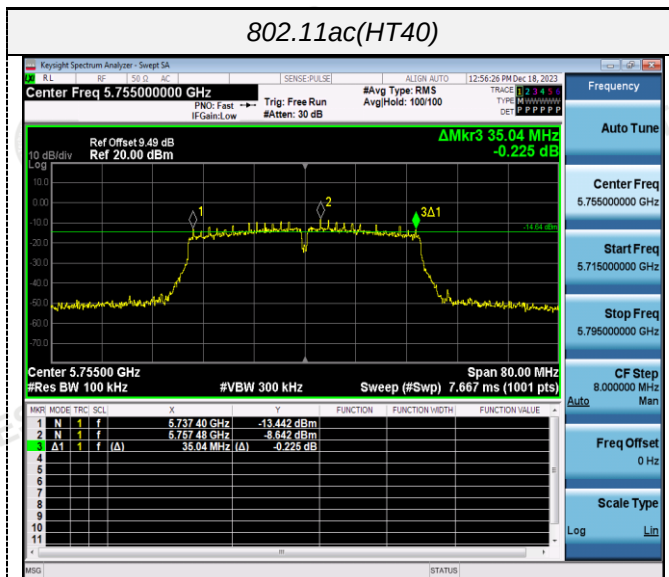


CH157



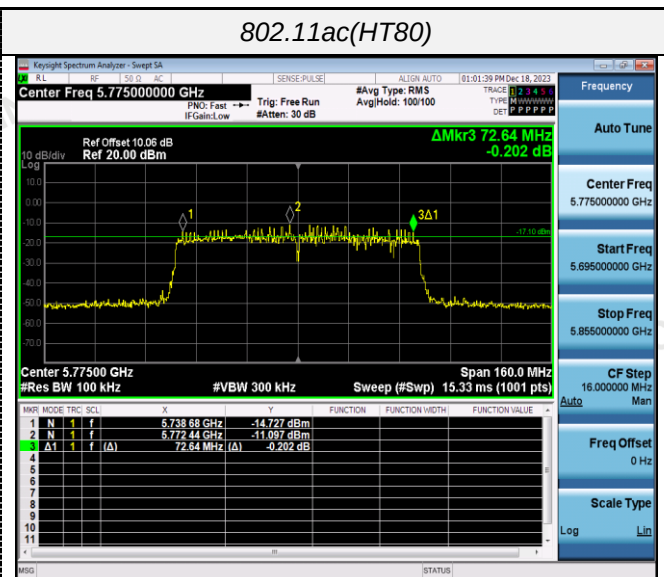
CH165

802.11ac(HT40)

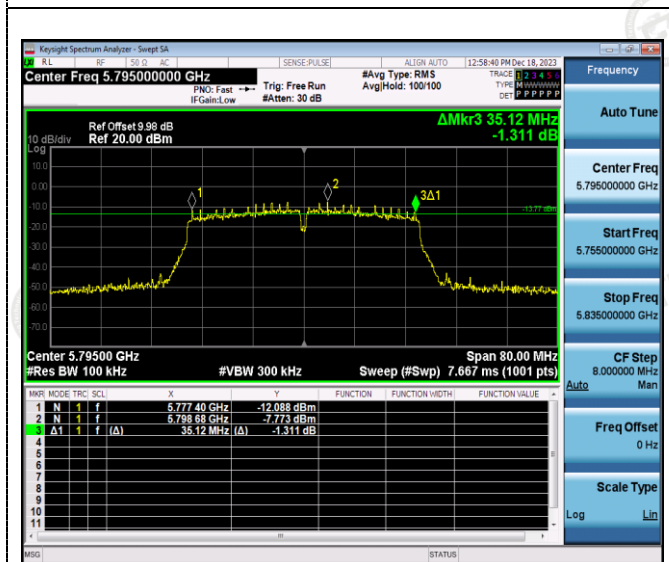


CH151

802.11ac(HT80)



CH155



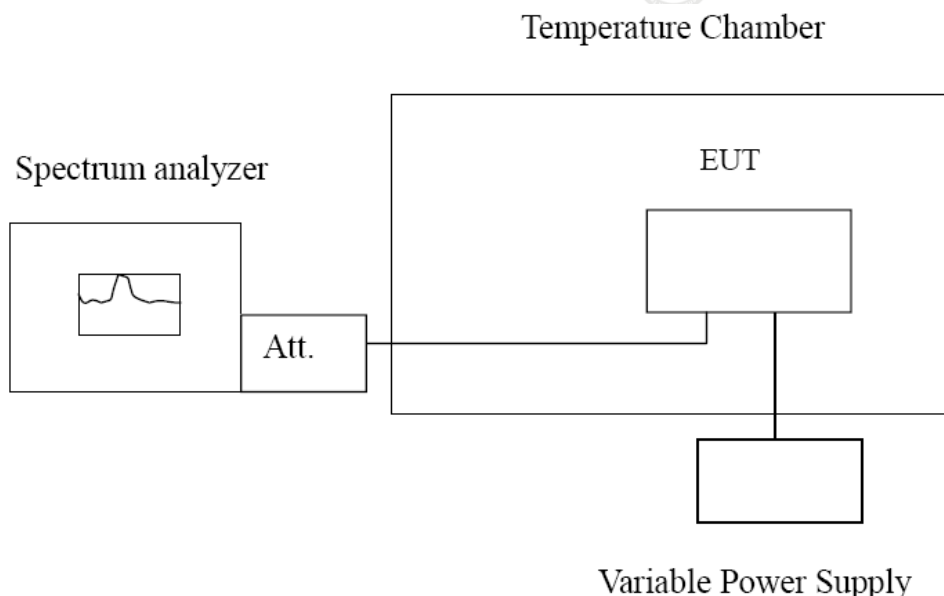
CH159

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°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

Frequency Stability under Voltage Variations:

Set chamber temperature to 20°C. 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 ($\pm 15\%$) and endpoint, record the maximum frequency change.

TEST RESULTS

Record worst case as below:

Ant1:

Reference Frequency: 802.11ac channel=36 frequency=5180MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
AC 120	-30	110.52	0.021336	Within the band of operation	Pass
	-20	174.72	0.033730		
	-10	145.58	0.028104		
	0	146.43	0.028268		
	10	145.96	0.028178		
	20	99.35	0.019180		
	30	167.39	0.032315		
	40	129.30	0.024961		
	50	128.77	0.024859		
AC 132	25	195.64	0.037768	Within the band of operation	Pass
AC 108	25	118.84	0.022942		

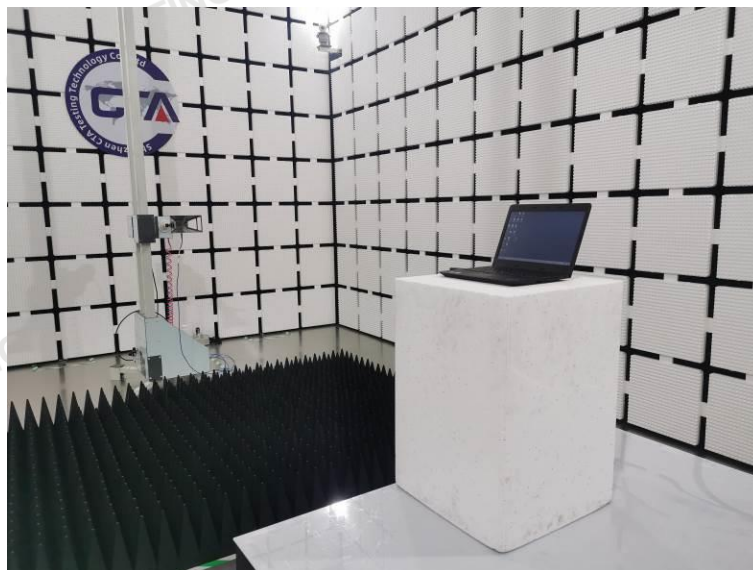
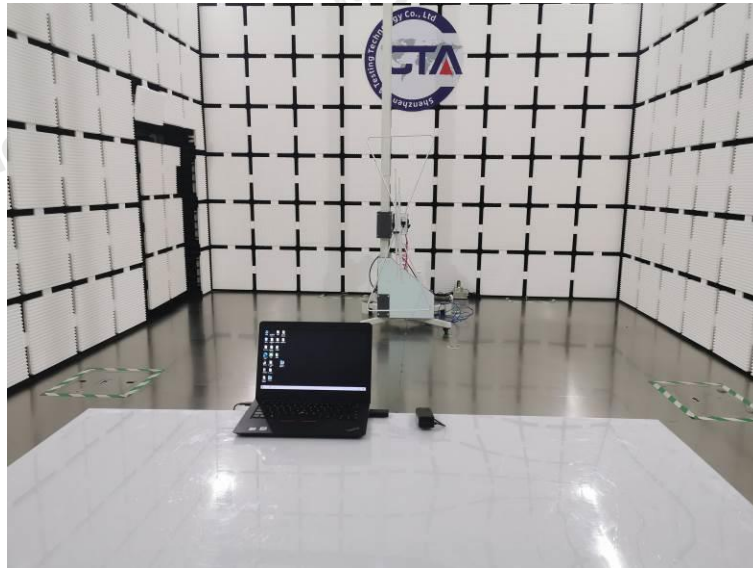
Reference Frequency: 802.11ac channel=149 frequency=5745MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
AC 120	-30	135.62	0.023607	Within the band of operation	Pass
	-20	129.26	0.022500		
	-10	167.12	0.029090		
	0	169.88	0.029570		
	10	136.27	0.023720		
	20	144.80	0.025205		
	30	116.82	0.020334		
	40	168.44	0.029319		
	50	160.77	0.027984		
AC 132	25	150.71	0.026233	Within the band of operation	Pass
AC 108	25	129.94	0.022618		

Ant2:

Reference Frequency: 802.11ac channel=36 frequency=5180MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
AC 120	-30	110.43	0.021319	Within the band of operation	Pass
	-20	174.80	0.033745		
	-10	145.59	0.028106		
	0	146.60	0.028301		
	10	146.05	0.028195		
	20	99.77	0.019261		
	30	167.57	0.032349		
	40	129.70	0.025039		
	50	128.85	0.024875		
AC 132	25	195.82	0.037803	Within the band of operation	Pass
AC 108	25	118.72	0.022919		

Reference Frequency: 802.11ac channel=149 frequency=5745MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
AC 120	-30	135.54	0.023593	Within the band of operation	Pass
	-20	129.60	0.022559		
	-10	167.37	0.029133		
	0	169.67	0.029534		
	10	136.63	0.023782		
	20	144.74	0.025194		
	30	116.54	0.020285		
	40	168.42	0.029316		
	50	160.61	0.027956		
AC 132	25	150.98	0.026280	Within the band of operation	Pass
AC 108	25	129.55	0.022550		

5 Test Setup Photos of the EUT



6 Photos of the EUT

Reference to the test report No. CTA23113000201.

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