

4.6 Minimum Emission Bandwidth (6dB Bandwidth)

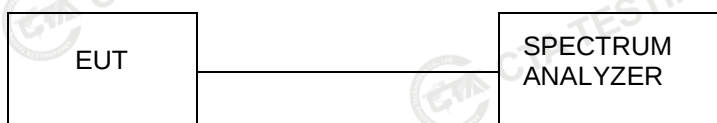
Limit

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

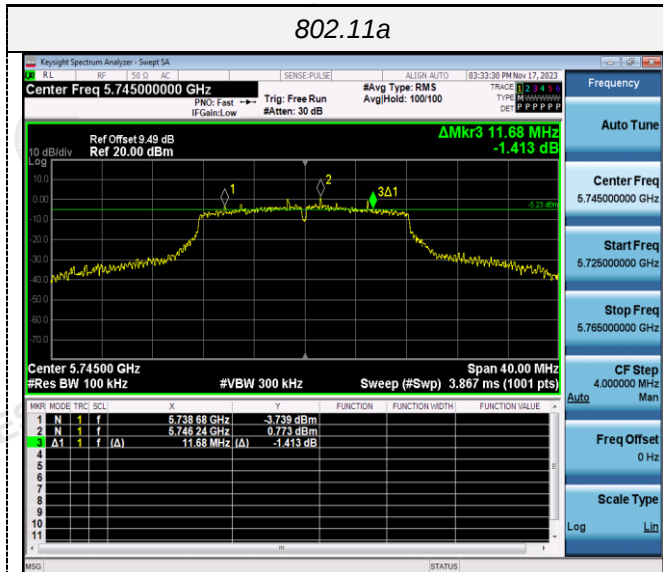


Test Results

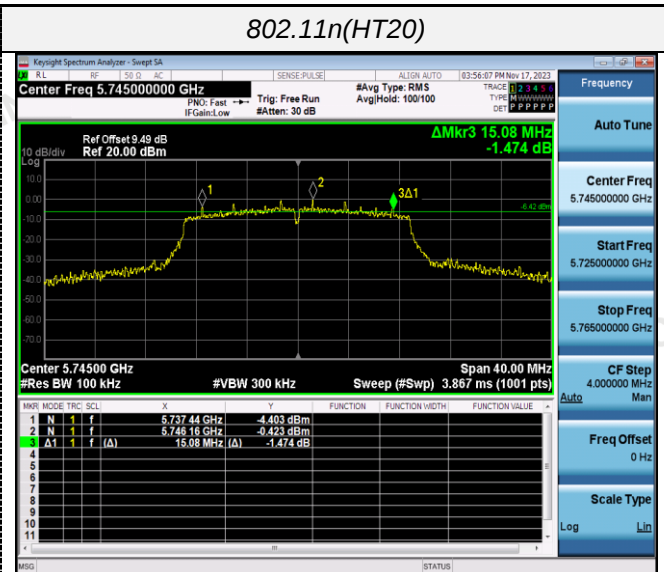
Type	Bands	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	U-NII 3	149	11.680	≥500KHz	Pass
		157	15.200		
		165	13.880		
802.11n(HT20)	U-NII 3	149	15.080		
		157	15.040		
		165	13.800		
802.11n(HT40)	U-NII 3	151	31.360		
		159	33.840		
802.11ac(HT20)	U-NII 3	149	15.080		
		157	14.960		
		165	15.080		
802.11ac(HT40)	U-NII 3	151	34.880		
		159	35.040		
802.11ac(HT80)	U-NII 3	155	73.760		

Test plot as follows:

802.11a



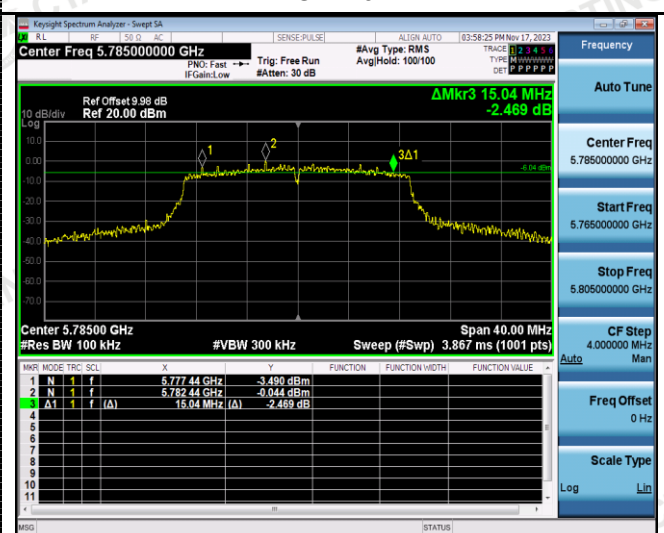
802.11n(HT20)



CH149



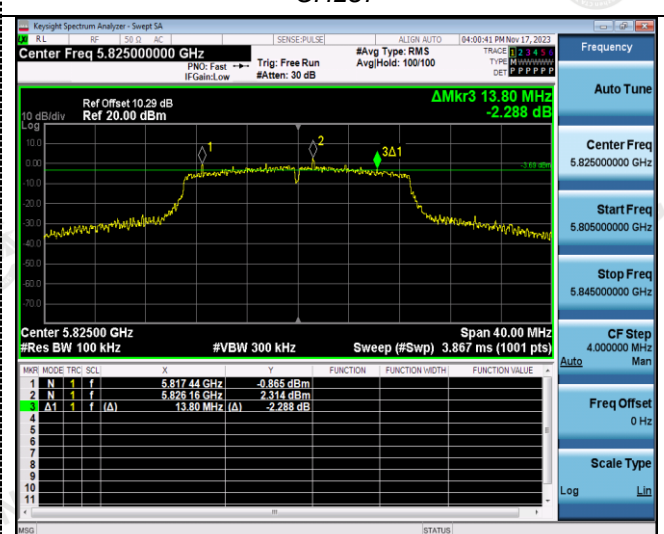
CH149



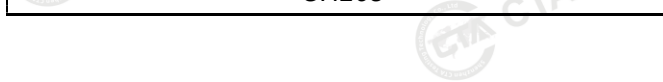
CH157



CH157



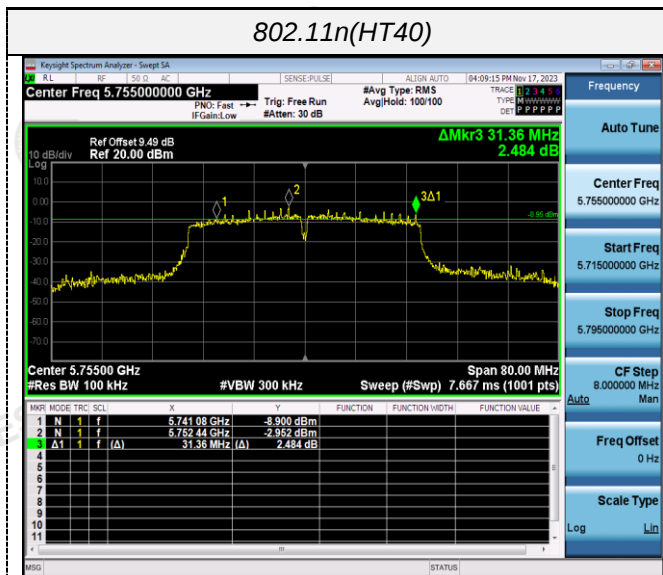
CH165



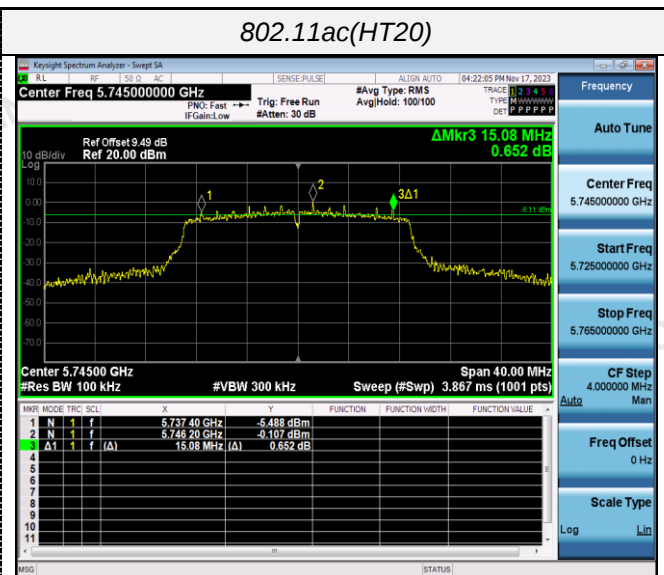
CH165



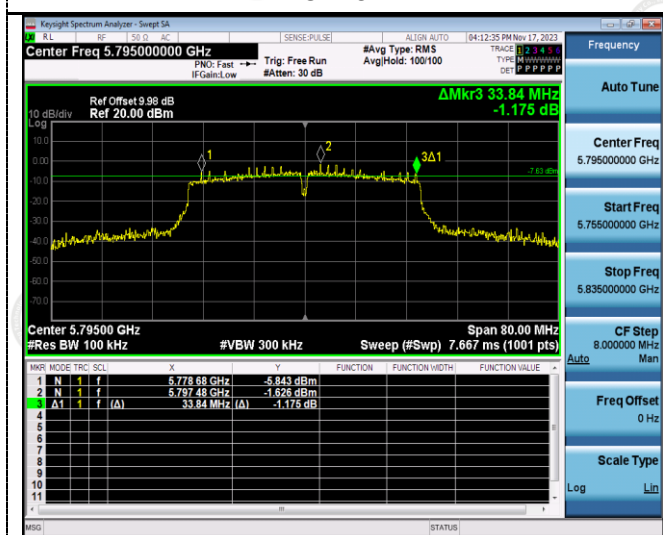
802.11n(HT40)



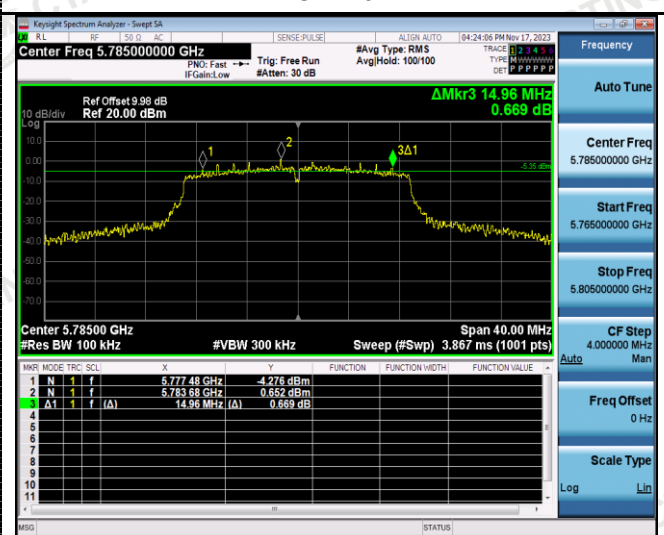
802.11ac(HT20)



CH151



CH149



CH159

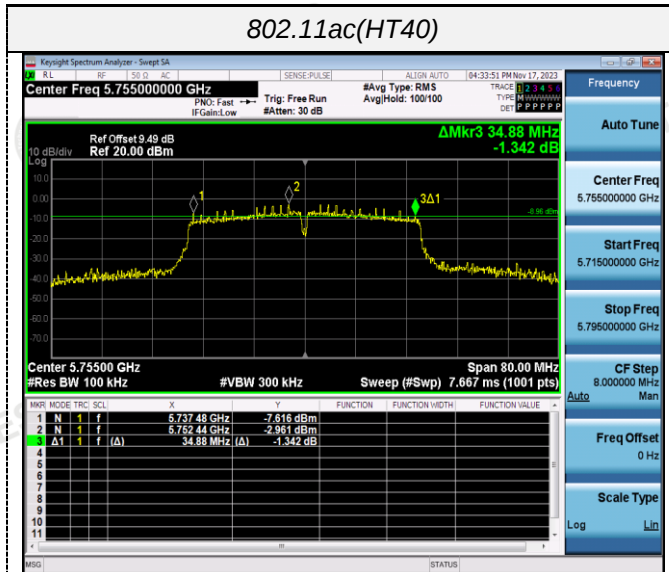


CH157



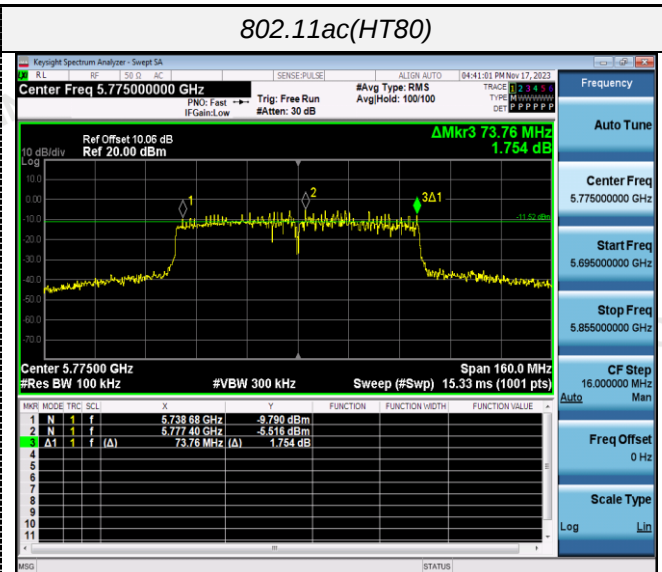
CH165

802.11ac(HT40)

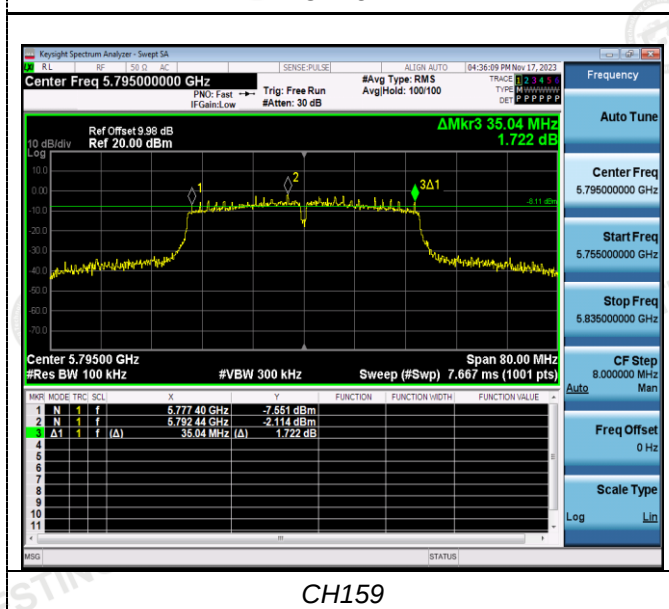


CH151

802.11ac(HT80)



CH155



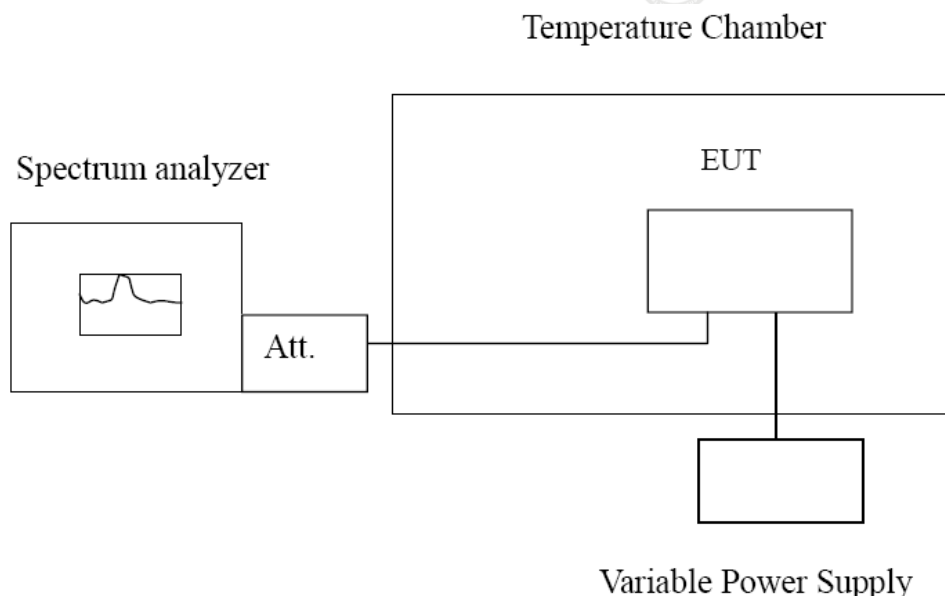
CH159

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:

Reference Frequency: 802.11ac channel=36 frequency=5180MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
DC 3.70	-30	110.70	0.021371	Within the band of operation	Pass
	-20	174.63	0.033712		
	-10	145.30	0.028050		
	0	146.47	0.028276		
	10	145.77	0.028141		
	20	99.51	0.019210		
	30	167.11	0.032261		
	40	129.70	0.025039		
	50	128.73	0.024851		
DC 4.20	25	195.83	0.037805	Within the band of operation	Pass
DC 3.40	25	118.68	0.022911		

Reference Frequency: 802.11ac channel=149 frequency=5745MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
DC 3.70	-30	135.61	0.023605	Within the band of operation	Pass
	-20	129.32	0.022510		
	-10	167.36	0.029131		
	0	169.63	0.029527		
	10	136.41	0.023744		
	20	145.02	0.025243		
	30	116.34	0.020251		
	40	168.53	0.029335		
	50	160.69	0.027970		
DC 4.20	25	150.86	0.026259	Within the band of operation	Pass
DC 3.40	25	129.55	0.022550		

5 Test Setup Photos of the EUT



6 Photos of the EUT

Reference to the test report No. CTA23110900501.

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