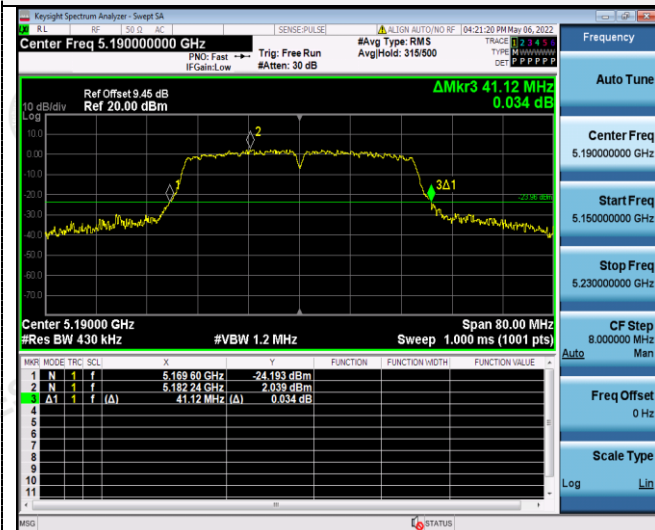


802.11n(HT40)



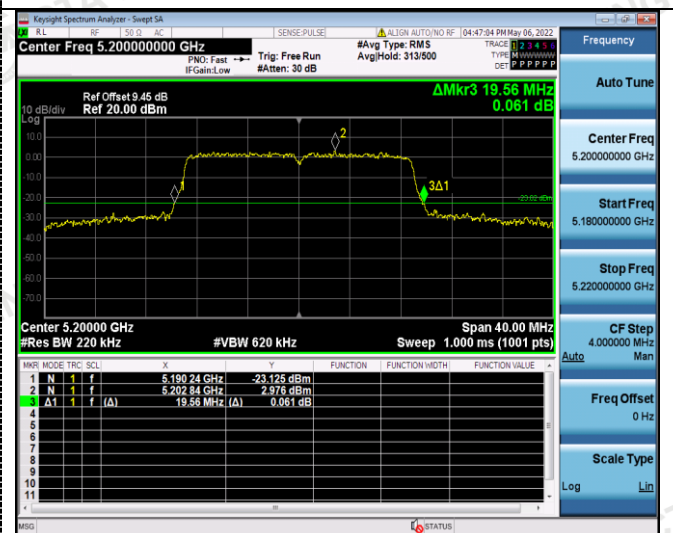
802.11ac(HT20)



CH38



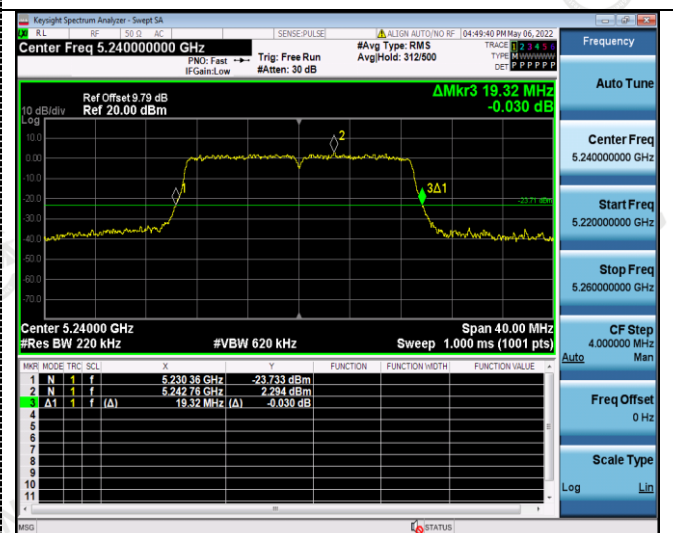
CH36



CH46



CH40

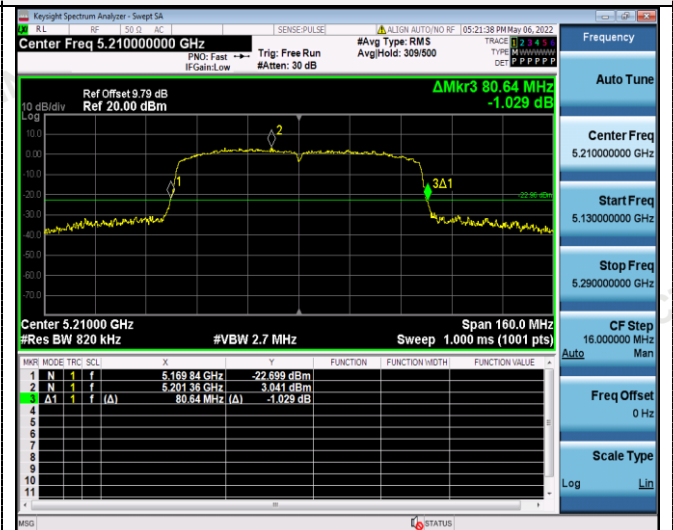


CH48

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

Type	Bands	Channel	6dB Bandwidth (MHz)		Limit (KHz)	Result
			Ant. 1	Ant. 2		
802.11a	U-NII 3	149	16.56	16.56	≥500KHz	Pass
		157	16.56	16.56		
		165	16.60	16.60		
802.11n(HT20)	U-NII 3	149	17.72	17.72		
		157	17.72	17.72		
		165	17.72	17.72		
802.11n(HT40)	U-NII 3	151	36.56	36.56		
		159	36.48	36.56		
802.11ac(HT20)	U-NII 3	149	17.84	17.84		
		157	17.80	17.80		
		165	17.80	17.80		
802.11ac(HT40)	U-NII 3	151	36.64	36.56		
		159	36.64	36.56		
802.11ac(HT80)	U-NII 3	155	75.20	72.80		

Note:

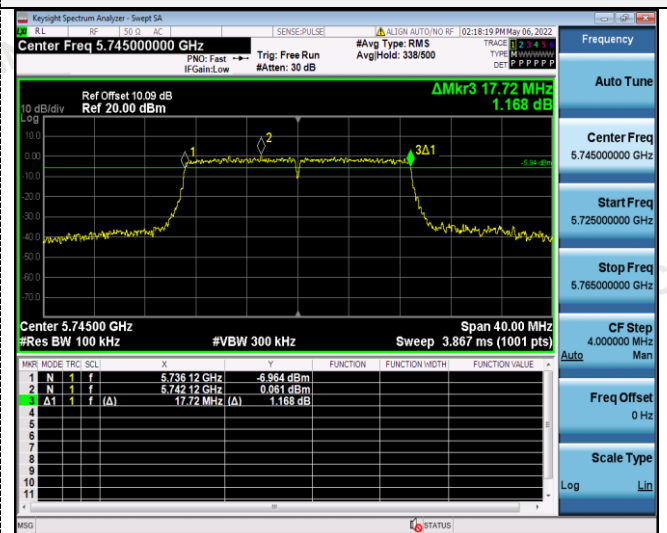
1. Measured 6dB bandwidth at difference data rate for each mode and recorded worst case for each mode.
2. Test results including cable loss;
3. Worst case data at 6Mbps at IEEE 802.11a; MCS0 at IEEE 802.11n HT20, IEEE 802.11n HT40, IEEE 802.11ac VHT20, IEEE 802.11ac VHT40 and IEEE 802.11ac VHT80;
4. Please refer to following test plots;

ANT1

802.11a



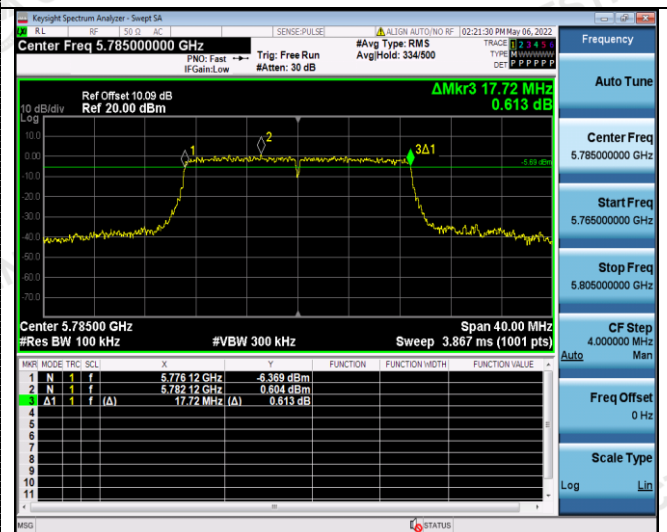
802.11n(HT20)



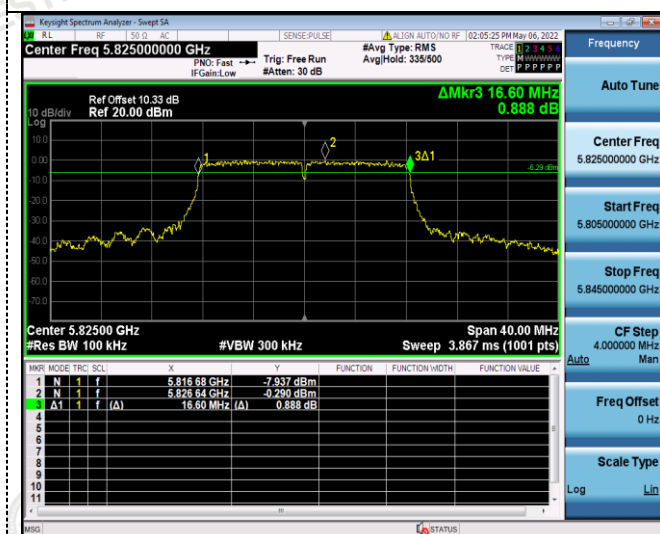
CH149



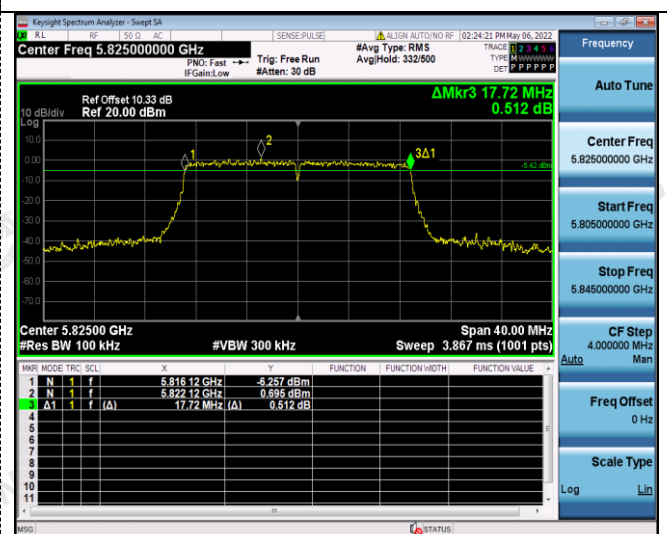
CH149



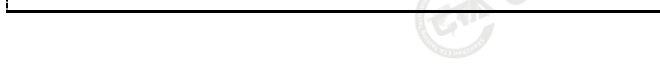
CH157



CH157



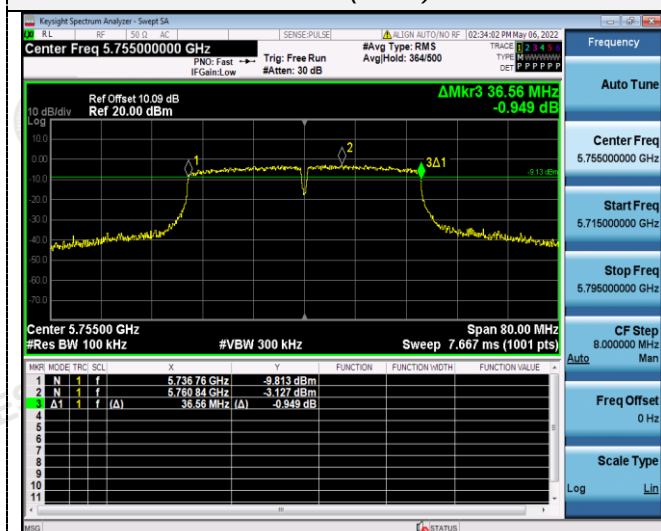
CH165



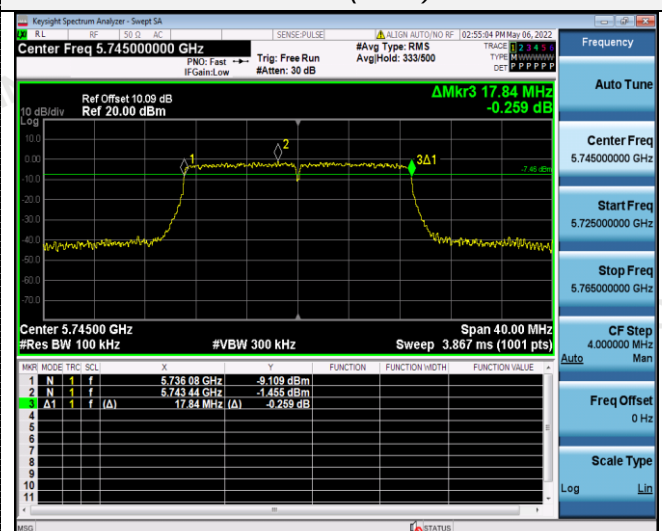
CH165



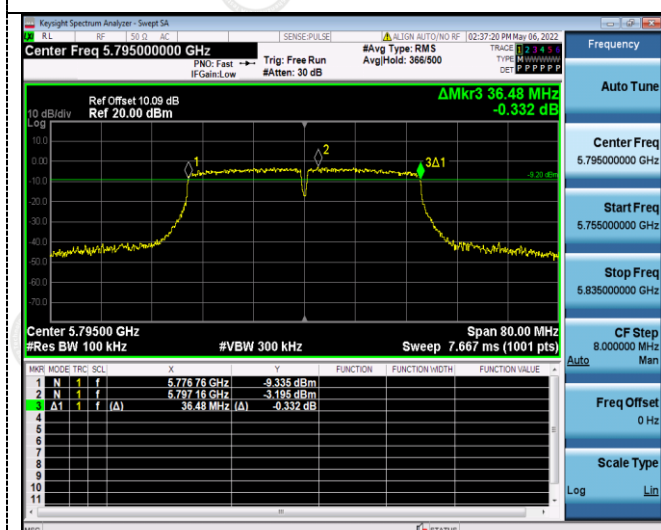
802.11n(HT40)



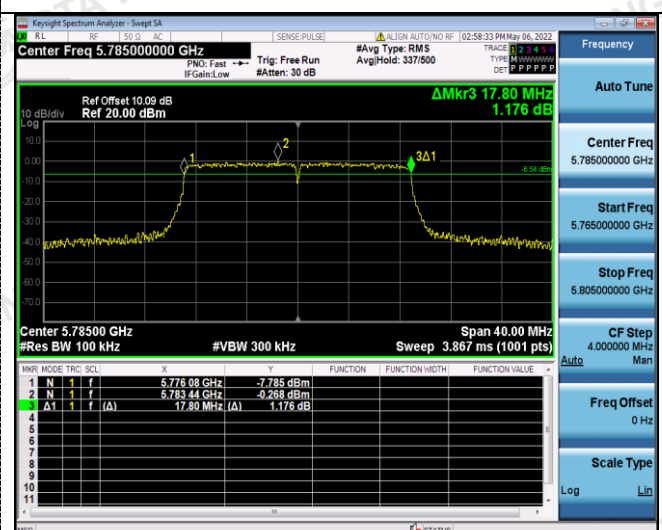
802.11ac(HT20)



CH151



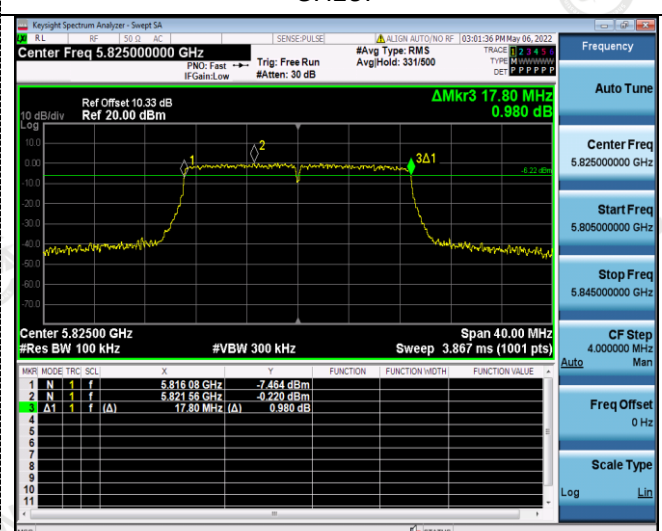
CH149



CH159

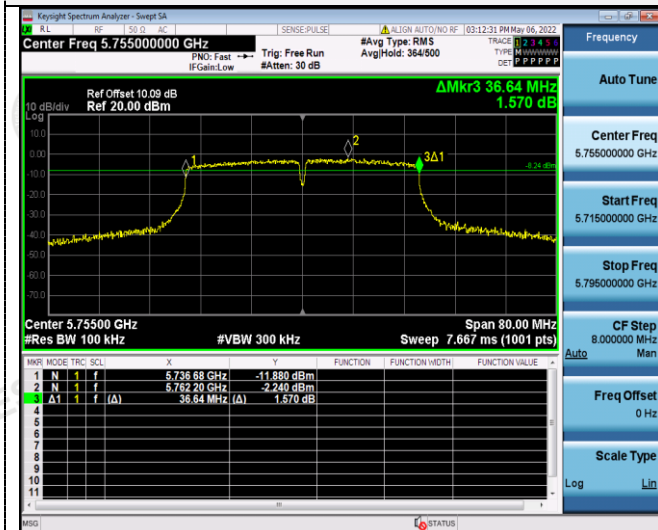


CH157

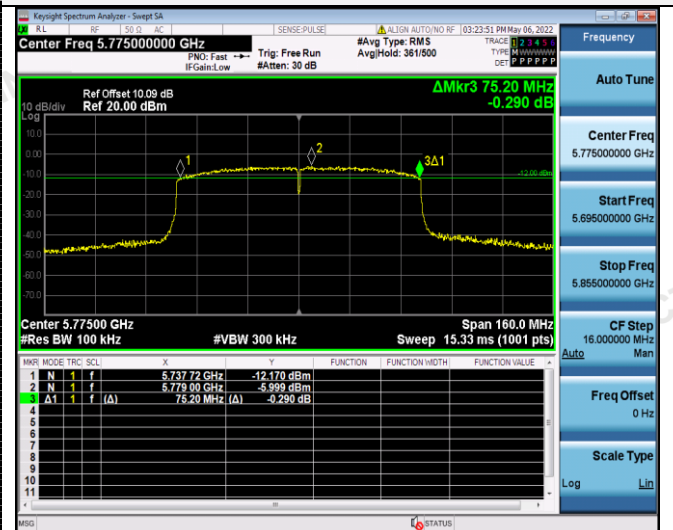


CH165

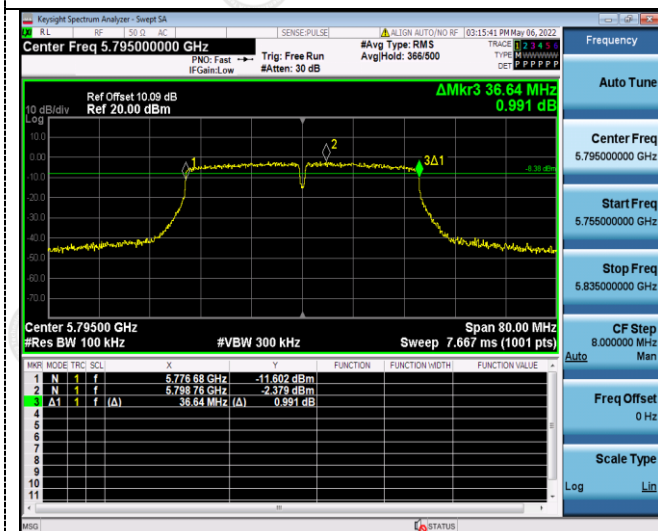
802.11ac(HT40)



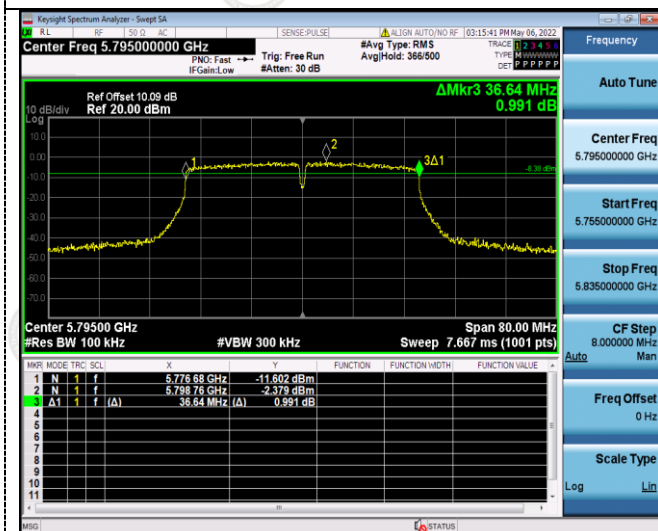
802.11ac(HT80)



CH151



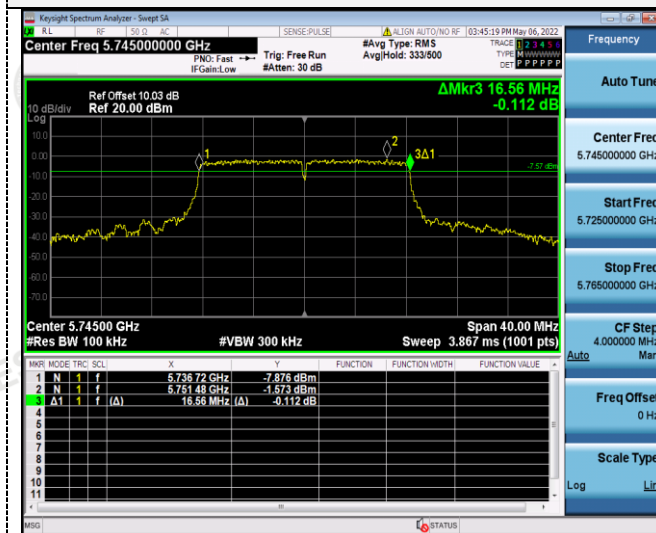
CH155



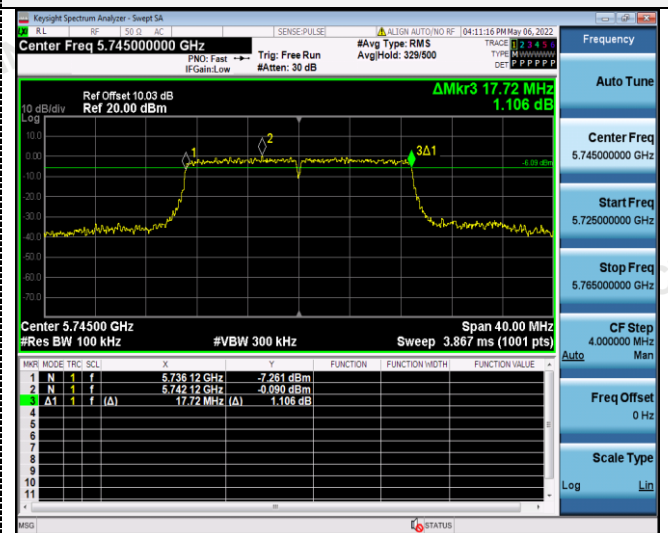
CH159

ANT2

802.11a



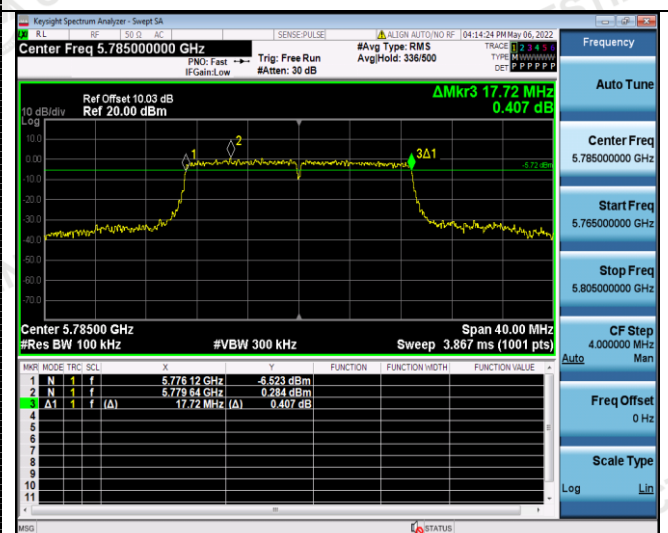
802.11n(HT20)



CH149



CH149



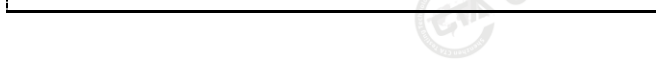
CH157



CH157



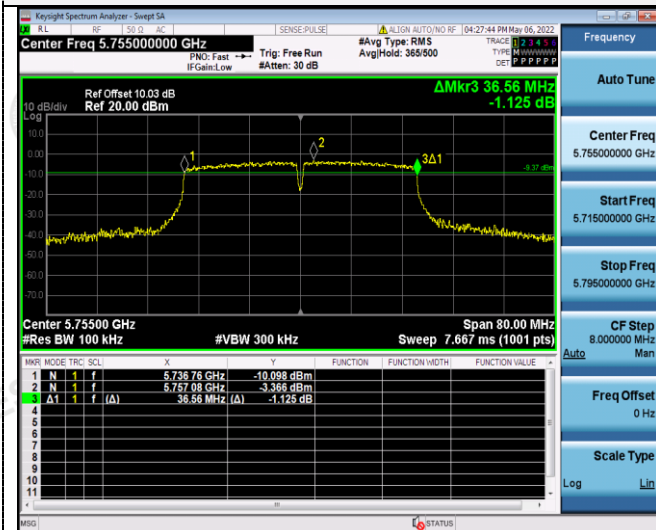
CH165



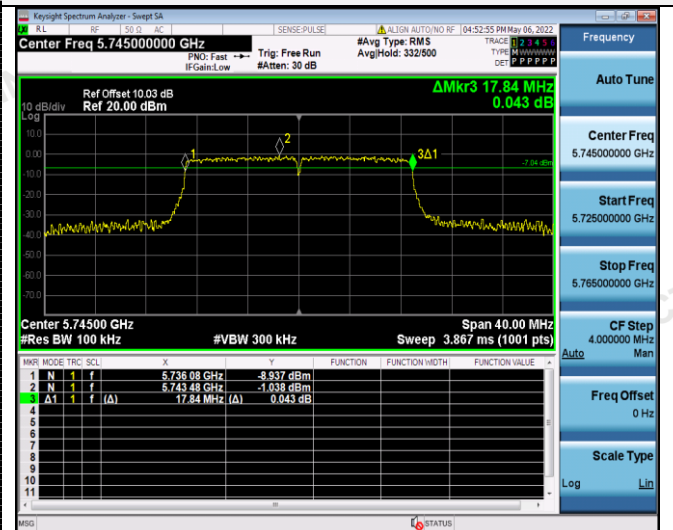
CH165



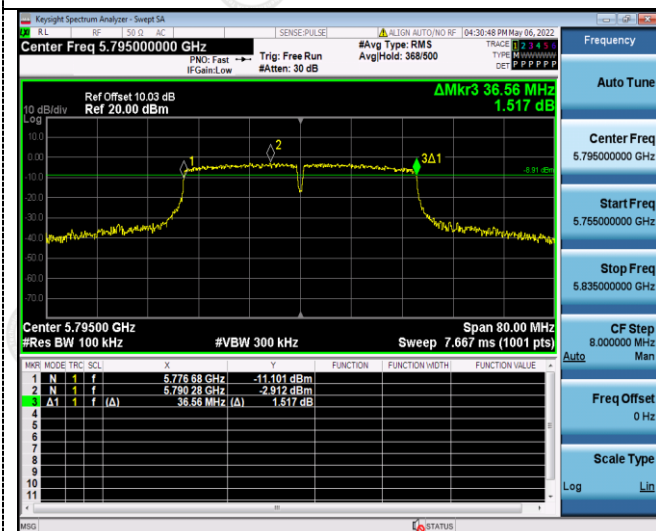
802.11n(HT40)



802.11ac(HT20)



CH151



CH149



CH159

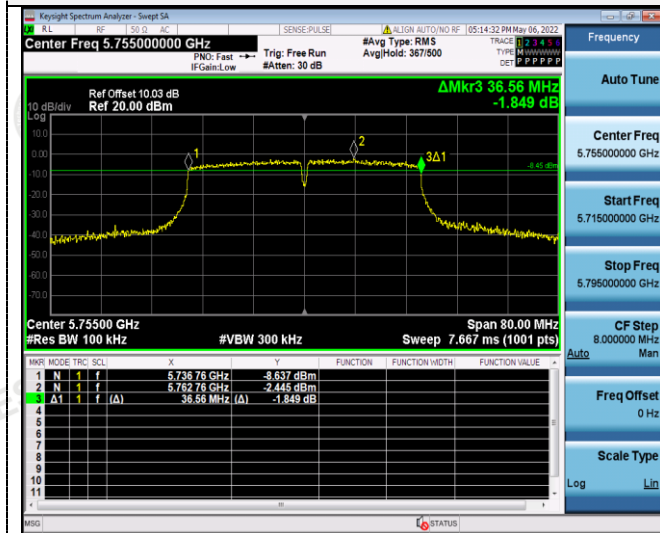


CH157

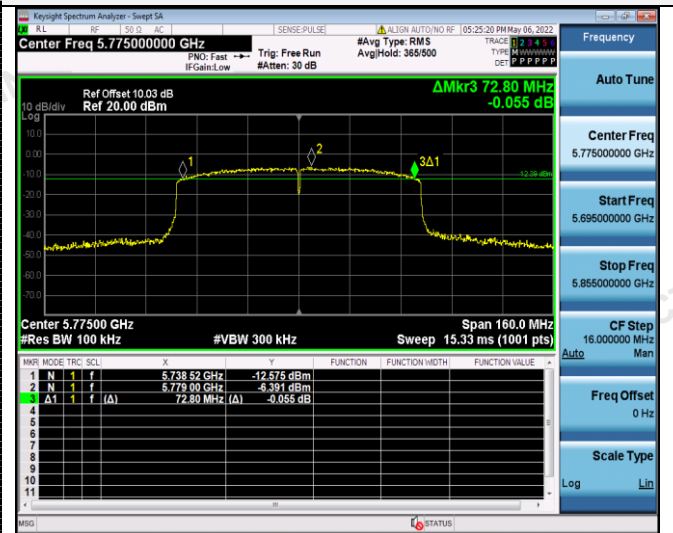


CH165

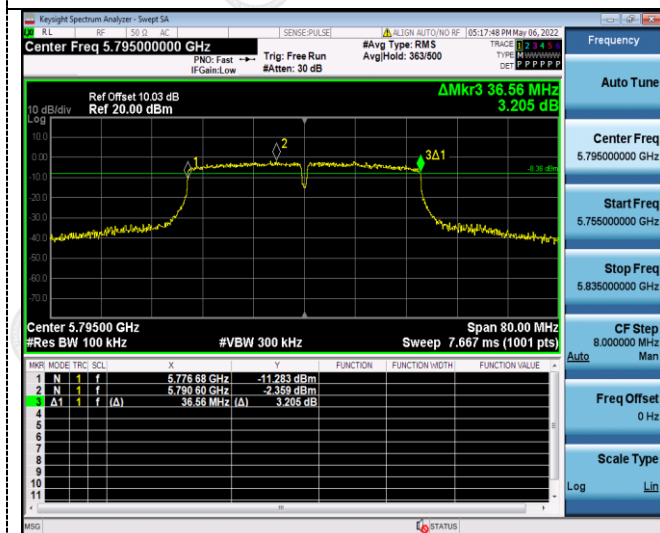
802.11ac(HT40)



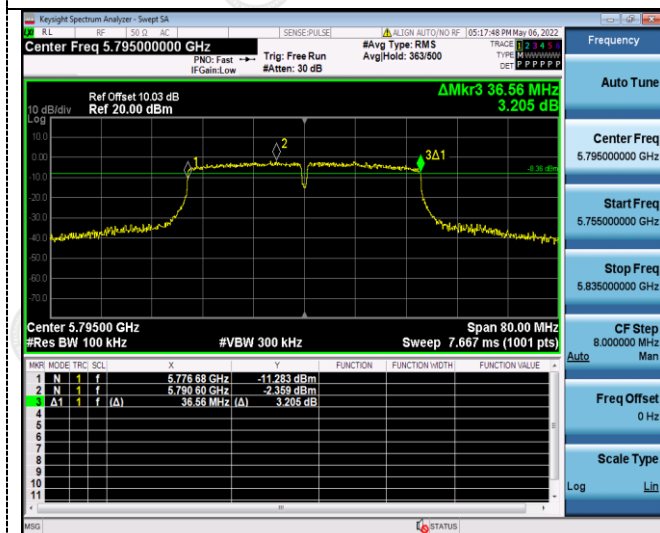
802.11ac(HT80)



CH151



CH155



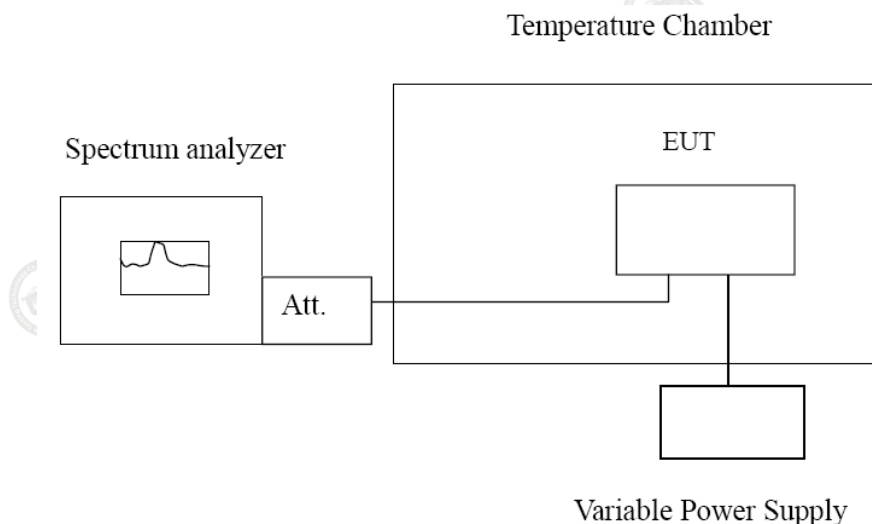
CH159

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°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.

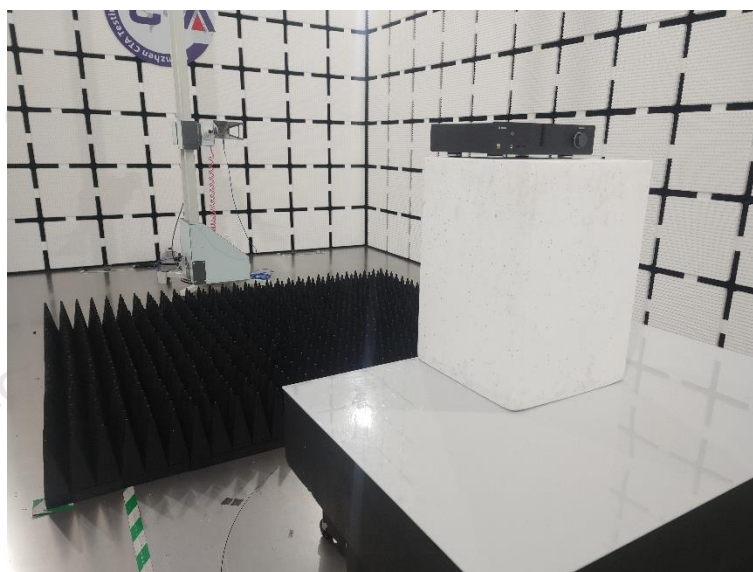
TEST RESULTS

Record worst case (802.11a) as below:

Reference Frequency: 802.11a channel=36 frequency=5180MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
120	-30	47.26	0.009	Within the band of operation	Pass
	-20	66.62	0.013		
	-10	42.35	0.008		
	0	92.84	0.018		
	10	46.57	0.009		
	20	52.38	0.010		
	30	73.70	0.014		
	40	50.54	0.010		
	50	46.71	0.009		
138	25	96.34	0.019	Within the band of operation	Pass
102	25	78.38	0.015		

Reference Frequency: 802.11a channel=149 frequency=5745MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
120	-30	93.39	0.016	Within the band of operation	Pass
	-20	48.90	0.009		
	-10	40.81	0.007		
	0	66.33	0.012		
	10	49.97	0.009		
	20	73.21	0.013		
	30	54.29	0.009		
	40	69.72	0.012		
	50	69.44	0.012		
138	25	43.97	0.008	Within the band of operation	Pass
102	25	31.79	0.006		

5 Test Setup Photos of the EUT



Shenzhen CTA Testing Technology Co., Ltd.

Room 106, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, China

Tel: +86-755 2322 5875 E-mail: cta@cta-test.cn Web: <http://www.cta-test.cn>

6 Photos of the EUT

Reference to the test report No. CTA22051800201

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