

#### 4.6 Minimum Emission Bandwidth (6dB Bandwidth)

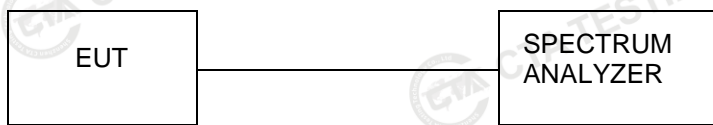
##### Limit

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

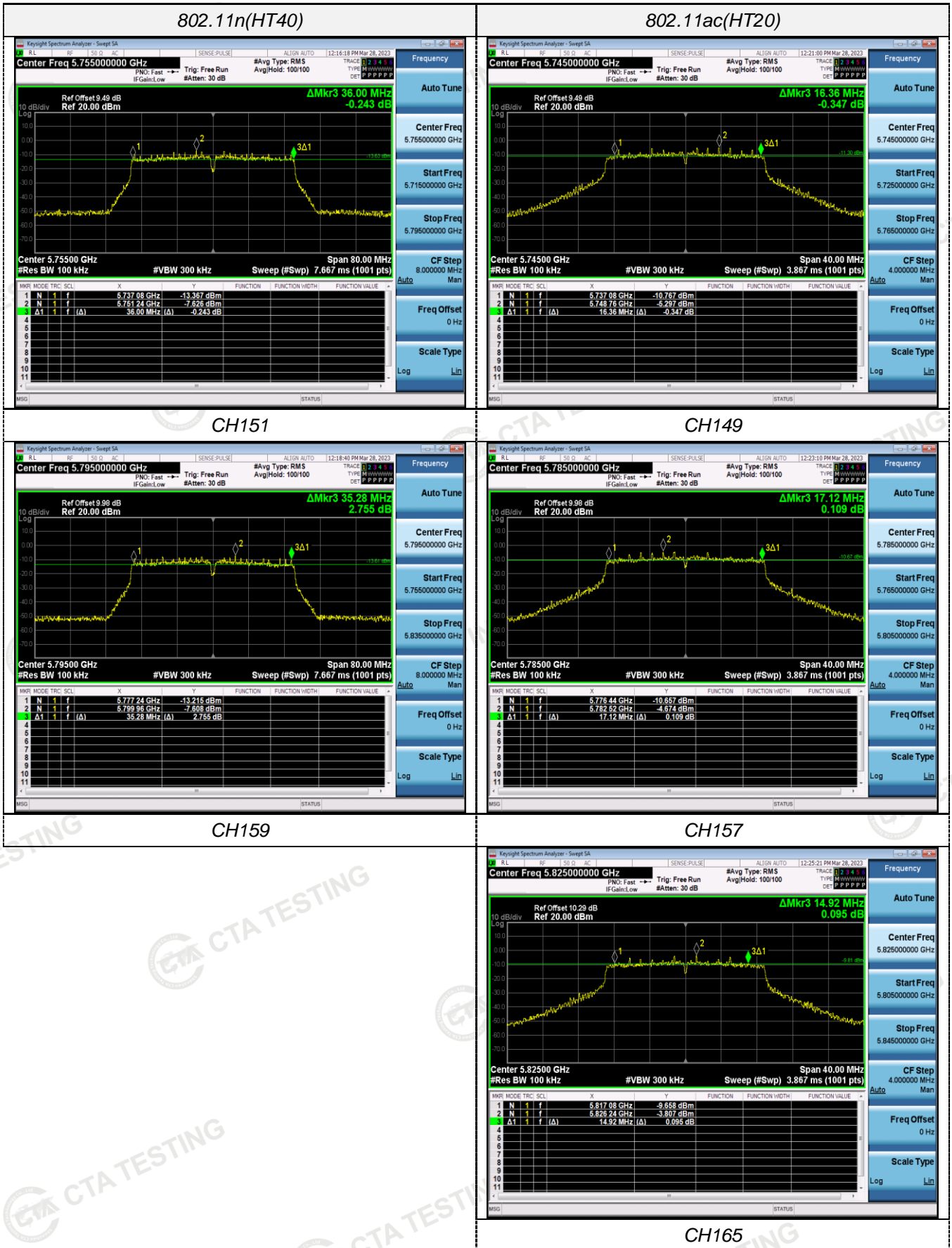


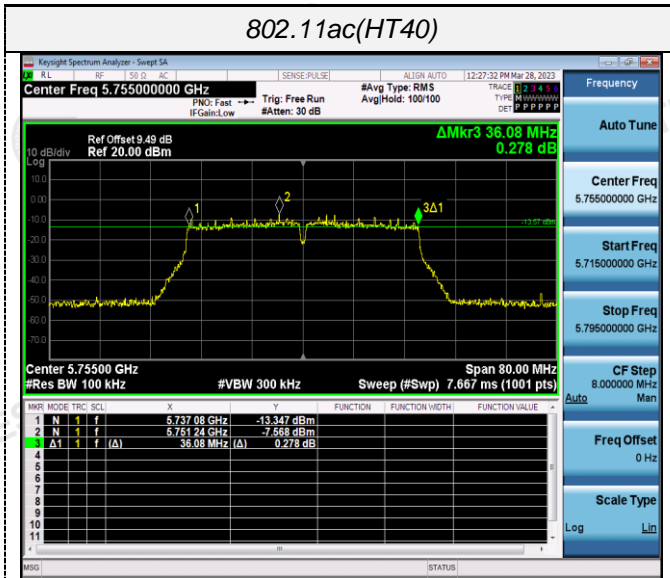
##### Test Results

Type	Bands	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	U-NII 3	149	15.680	≥500KHz	Pass
		157	15.080		
		165	16.040		
802.11n(HT20)	U-NII 3	149	15.280		
		157	14.320		
		165	16.680		
802.11n(HT40)	U-NII 3	151	36.000		
		159	35.280		
802.11ac(HT20)	U-NII 3	149	16.360		
		157	17.120		
		165	14.920		
802.11ac(HT40)	U-NII 3	151	36.080		
		159	35.360		
802.11ac(HT80)	U-NII 3	155	75.200		

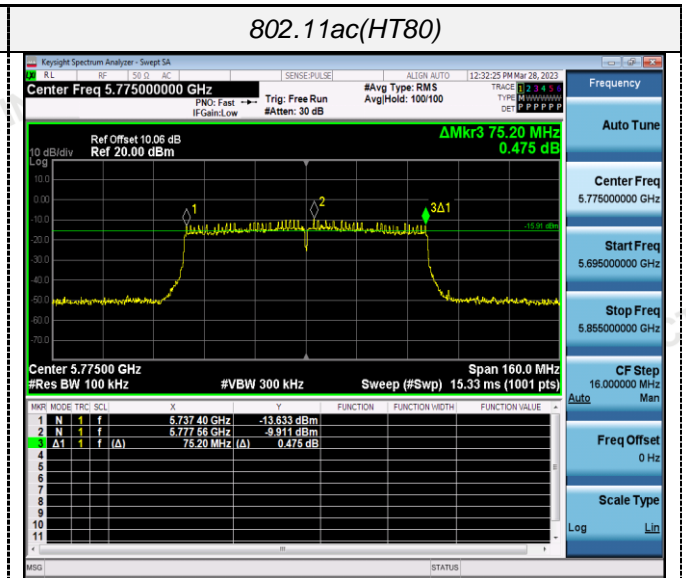
Test plot as follows:



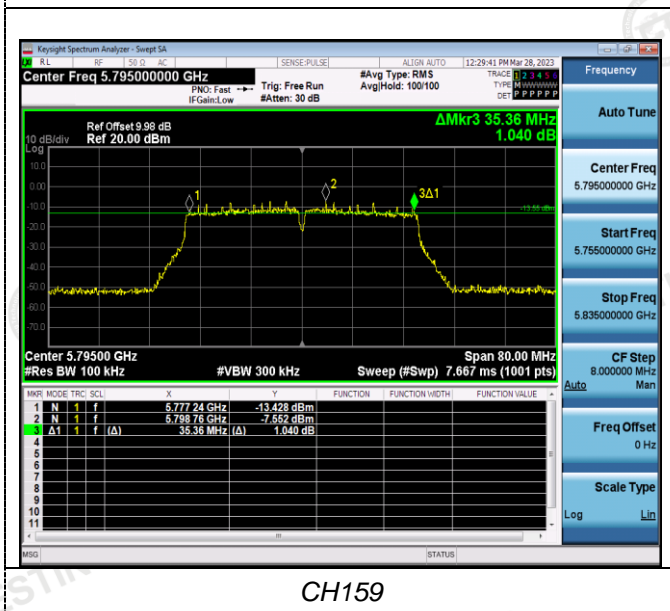




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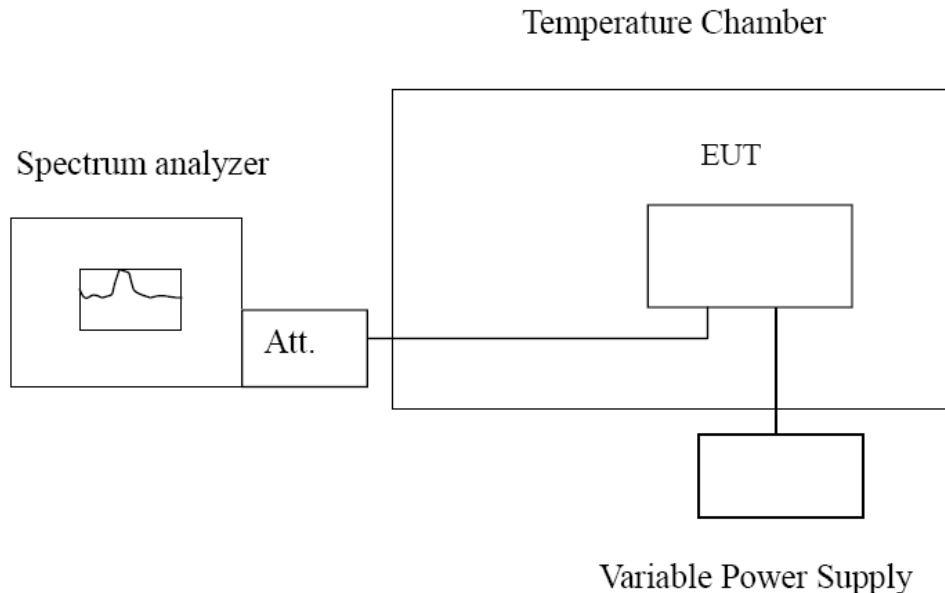
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## 4.7 Frequency Stability

### 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

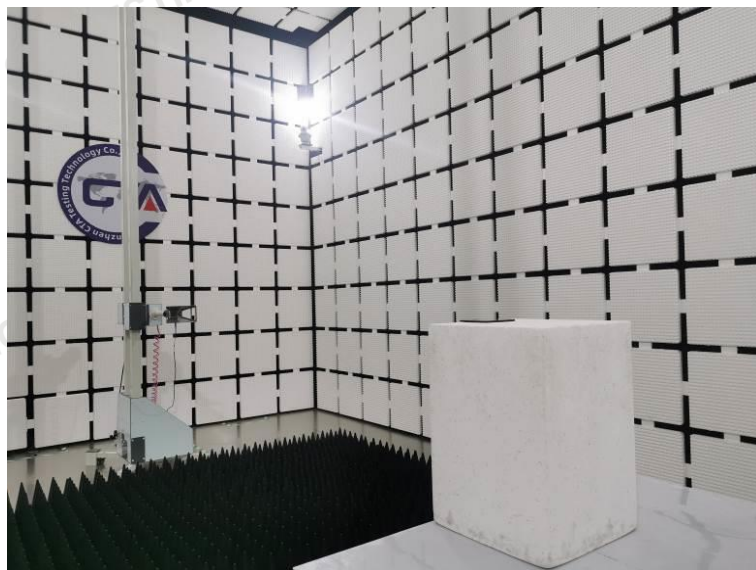
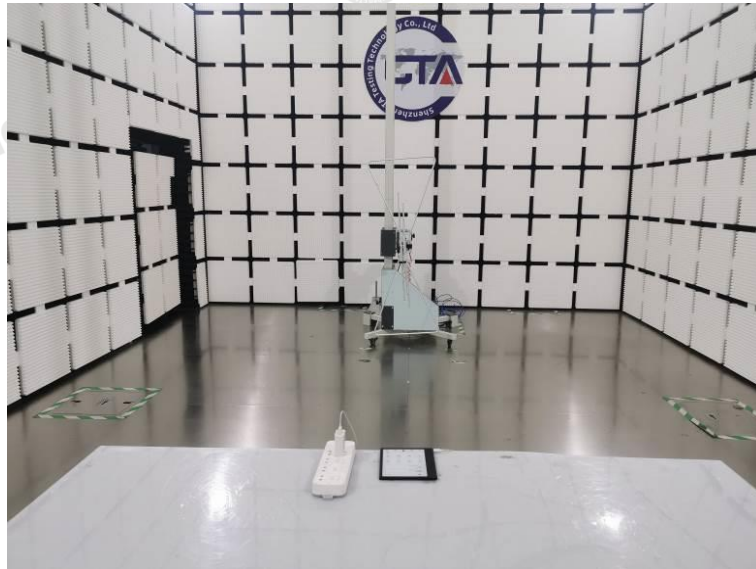
Record worst case as below:

Reference Frequency: 802.11ac channel=36 frequency=5180MHz					
Voltage ( V )	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
DC 3.85V	-30	110.69	0.021369	Within the band of operation	Pass
	-20	170.84	0.032981		
	-10	138.30	0.026699		
	0	112.72	0.021761		
	10	143.16	0.027637		
	20	99.45	0.019199		
	30	164.93	0.031840		
	40	127.46	0.024606		
DC 4.20V	25	192.18	0.037100		
DC 3.40V	25	115.47	0.022292		

Reference Frequency: 802.11ac channel=149 frequency=5745MHz					
Voltage ( V )	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
DC 3.85V	-30	135.70	0.023621	Within the band of operation	Pass
	-20	129.34	0.022513		
	-10	165.62	0.028829		
	0	166.59	0.028997		
	10	133.17	0.023180		
	20	129.88	0.022607		
	30	112.46	0.019575		
	40	167.19	0.029102		
DC 4.20V	25	148.57	0.025861		
DC 3.40V	25	116.02	0.020195		



## 5 Test Setup Photos of the EUT



## 6 Photos of the EUT

Reference to the test report No. **CTA23032701401**

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