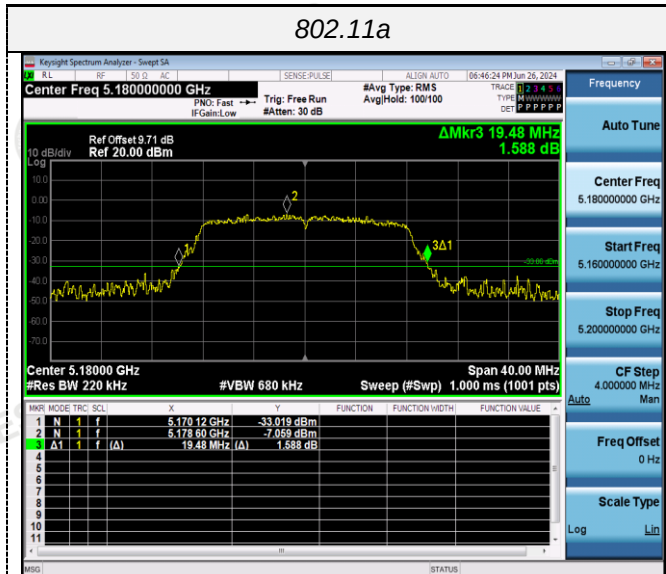
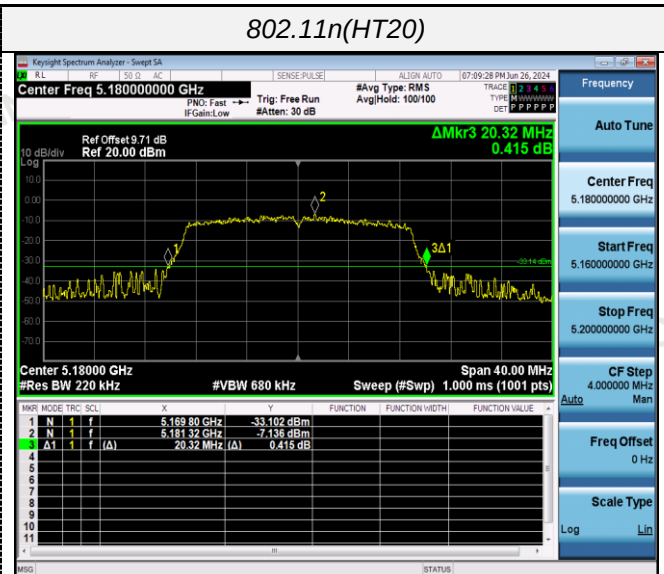


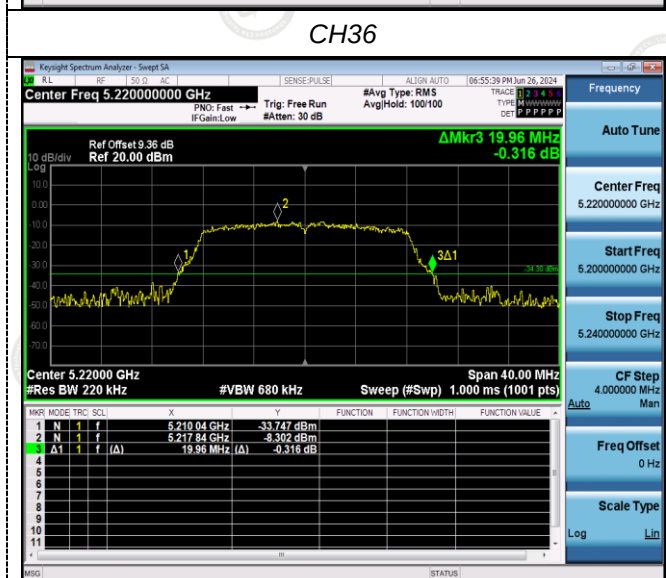
802.11a



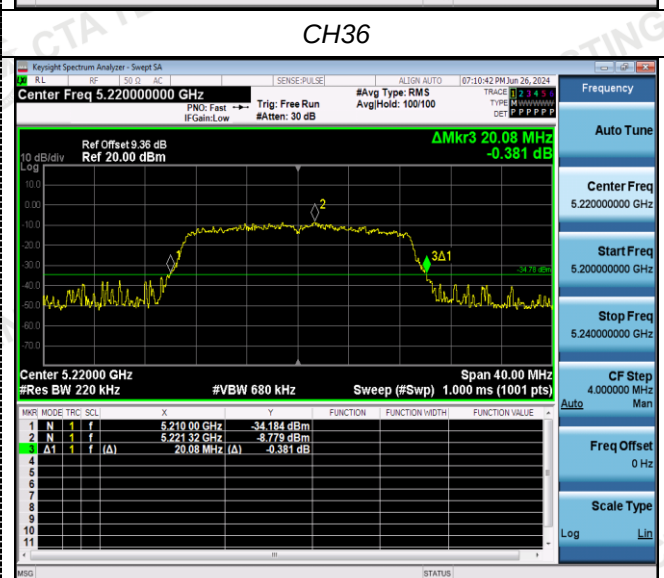
802.11n(HT20)



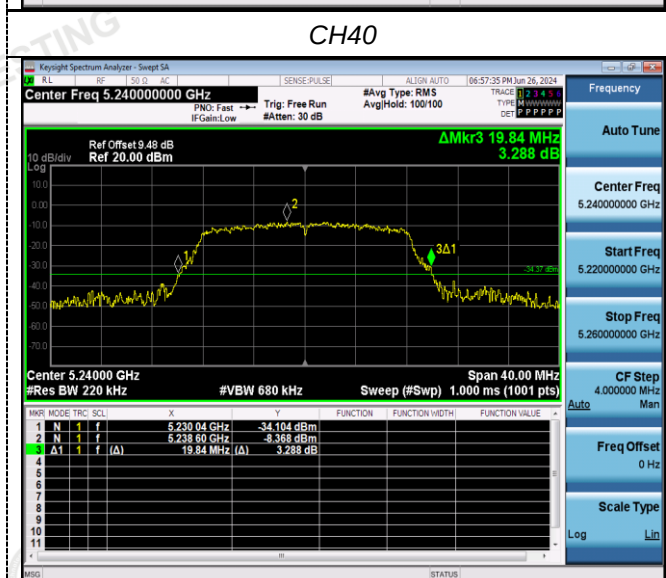
CH36



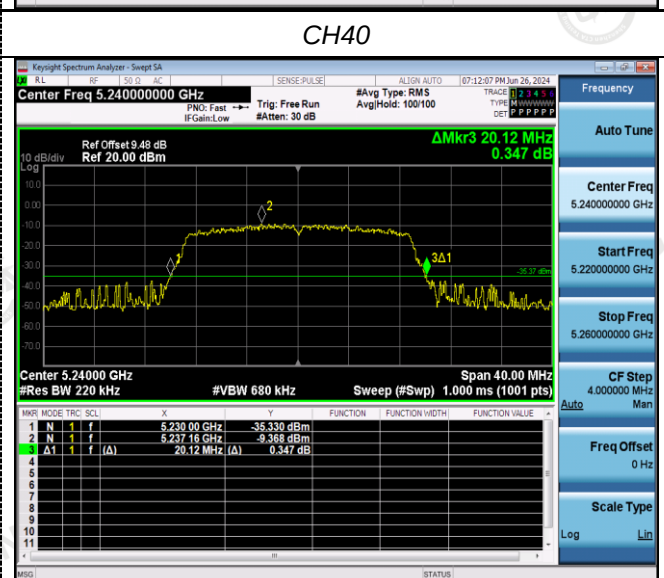
CH36



CH40



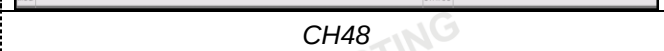
CH40



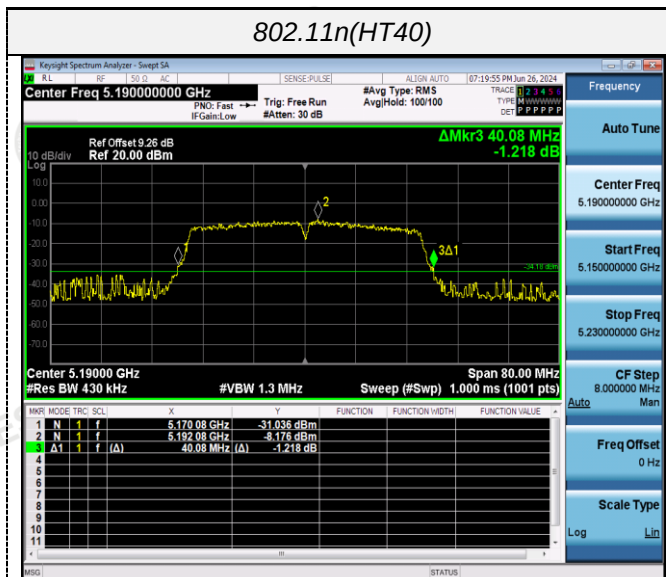
CH48



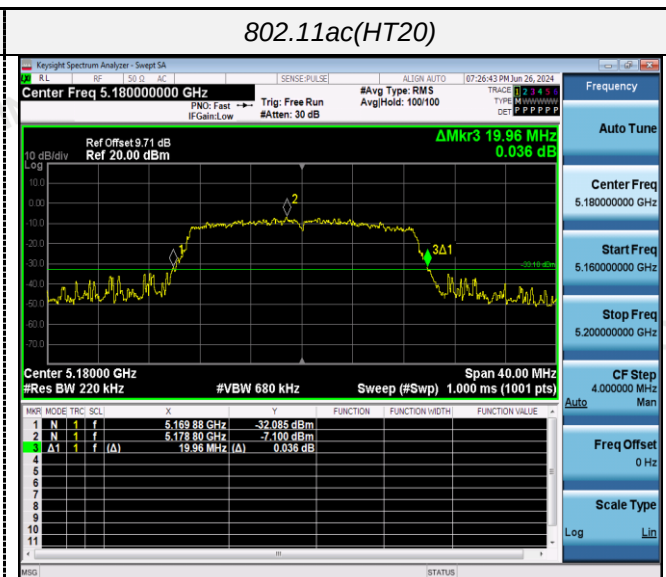
CH48



802.11n(HT40)



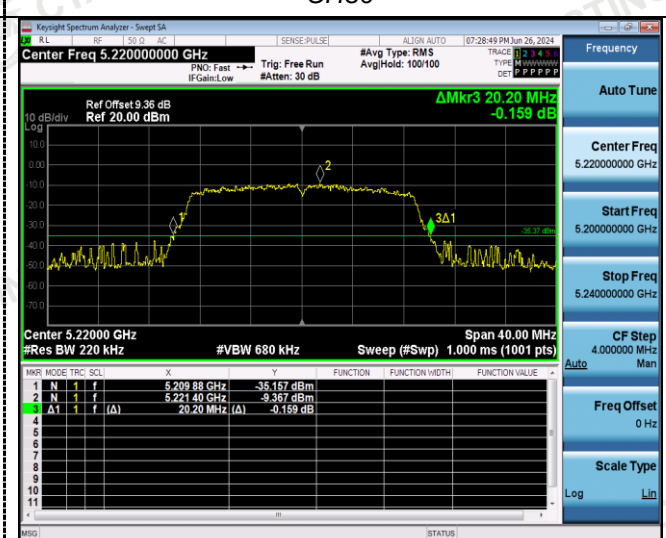
802.11ac(HT20)



CH38



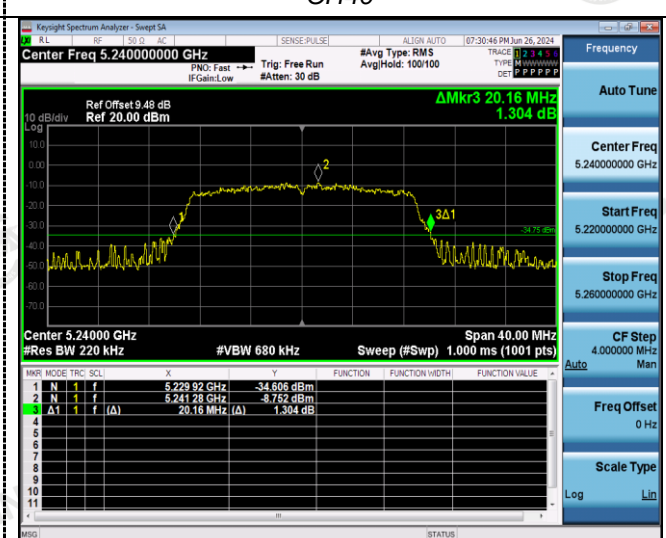
CH36



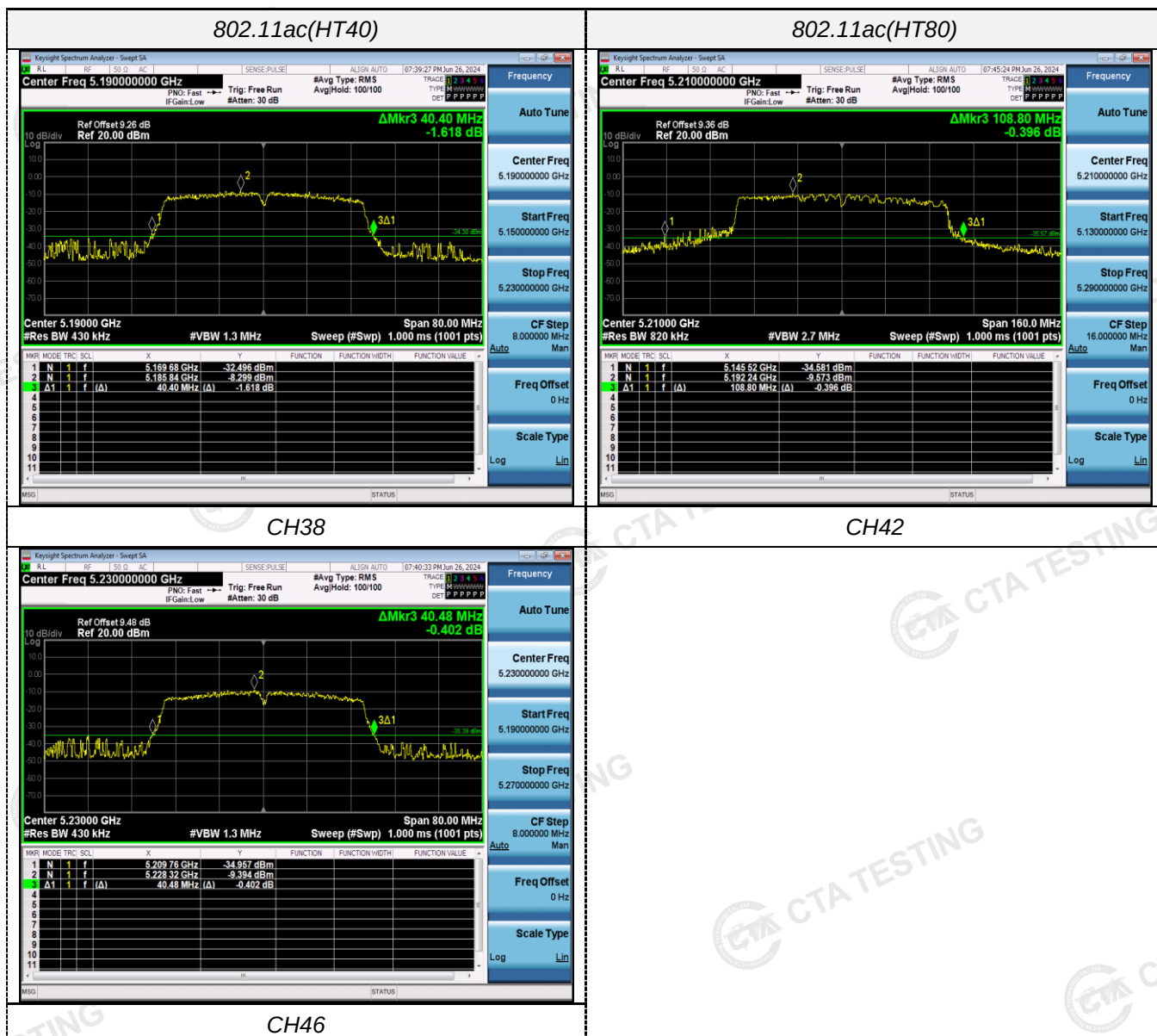
CH46



CH40



CH48



4.6 Minimum Emission Bandwidth (6dB Bandwidth)

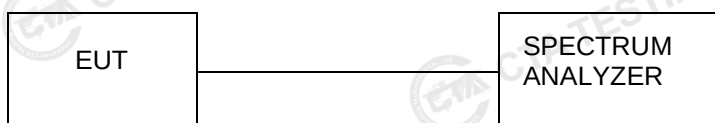
Limit

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.

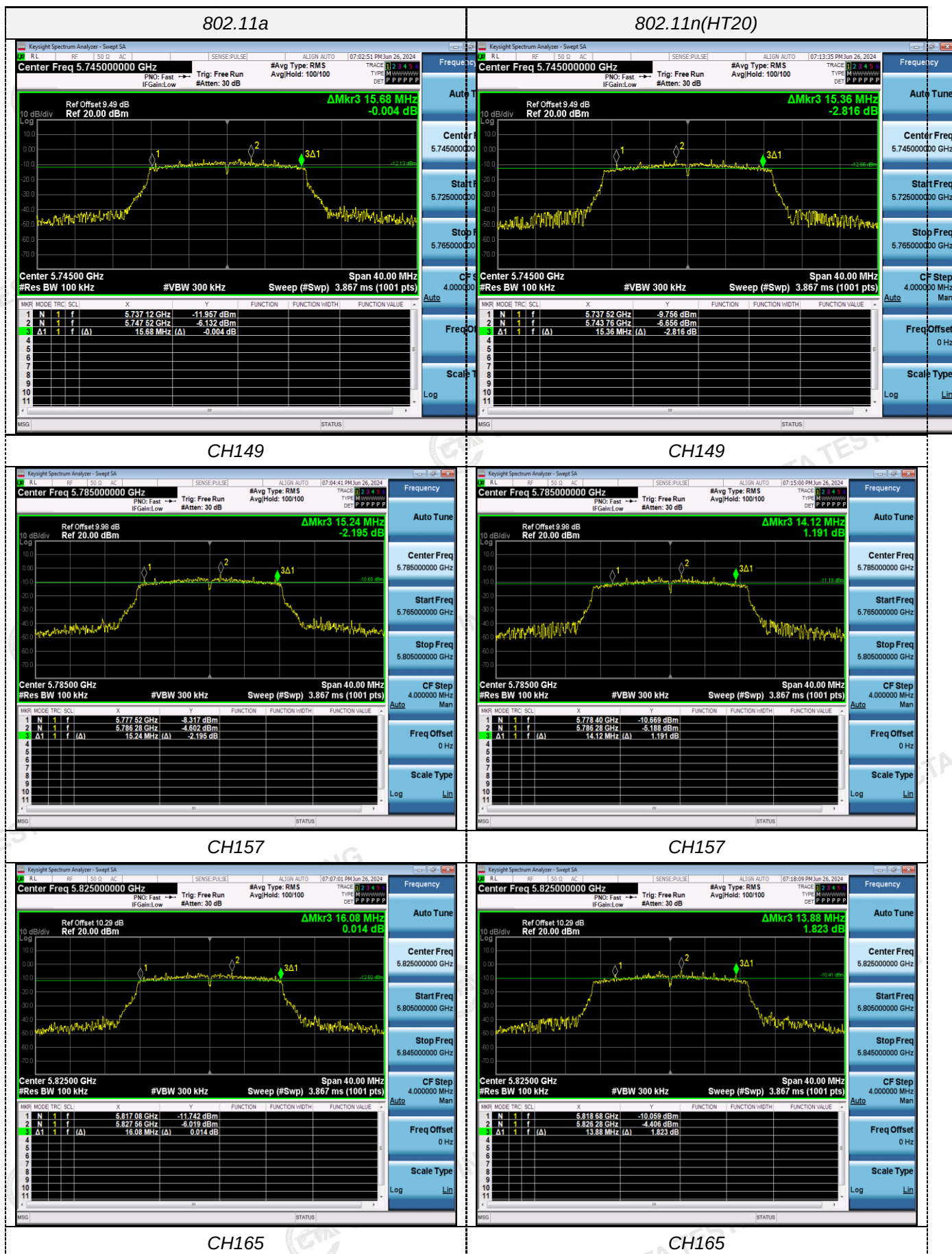
Test Configuration



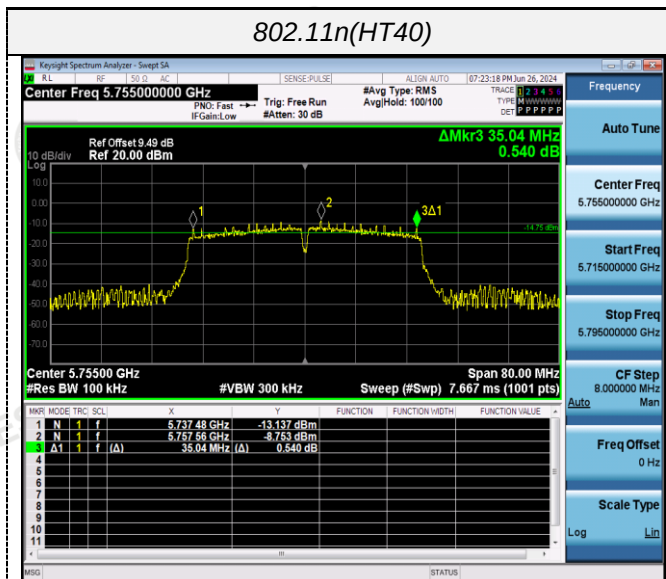
Test Results

Type	Bands	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	U-NII 3	149	15.680	≥500KHz	Pass
		157	15.240		
		165	16.080		
802.11n(HT20)	U-NII 3	149	15.360		
		157	14.120		
		165	13.880		
802.11n(HT40)	U-NII 3	151	35.040		
		159	33.760		
802.11ac(HT20)	U-NII 3	149	15.240		
		157	15.400		
		165	15.920		
802.11ac(HT40)	U-NII 3	151	35.040		
		159	35.040		
802.11ac(HT80)	U-NII 3	155	72.640		

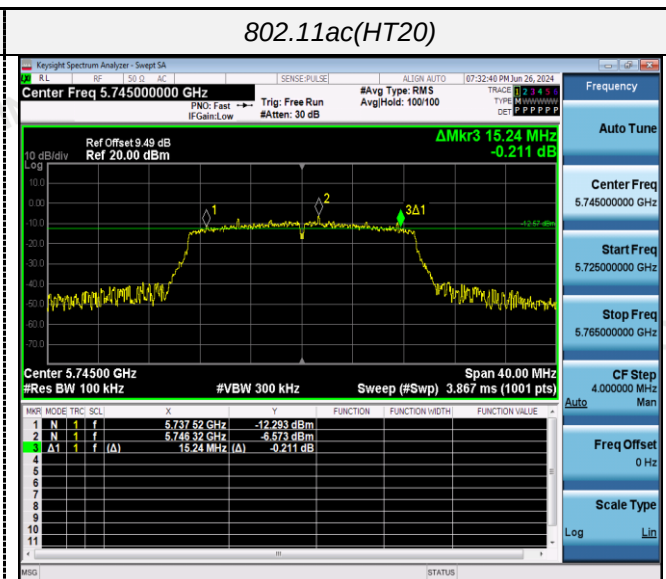
Test plot as follows:



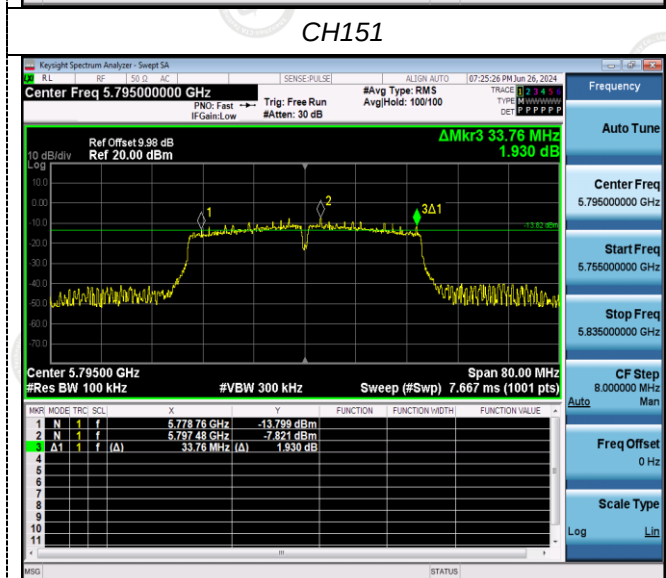
802.11n(HT40)



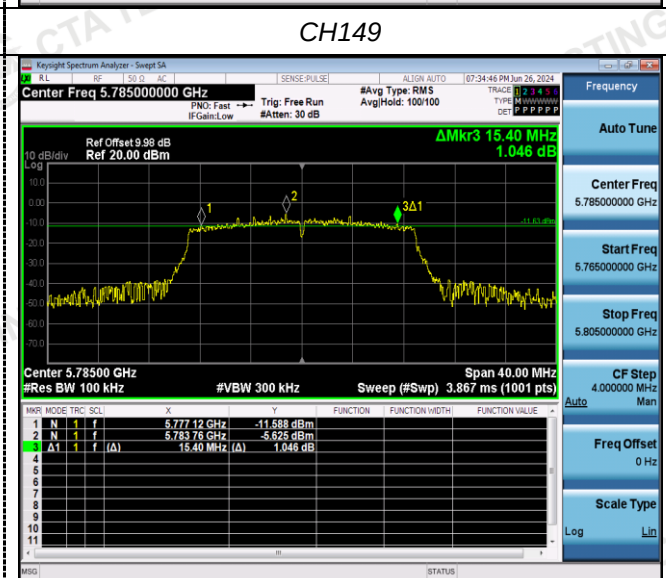
802.11ac(HT20)



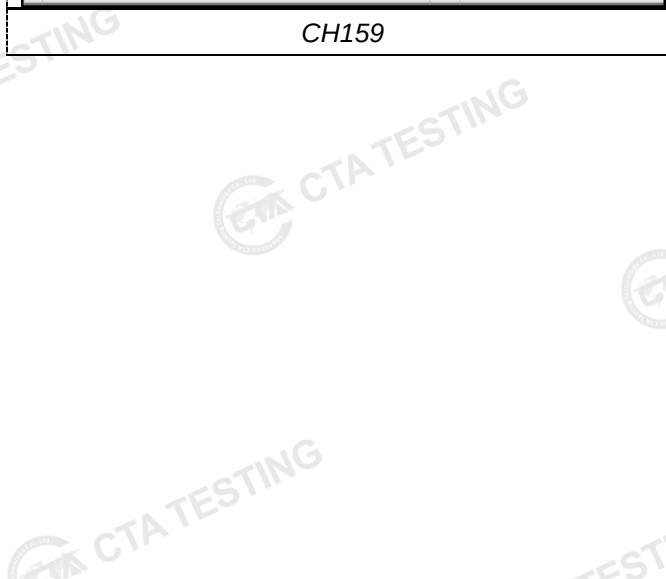
CH151



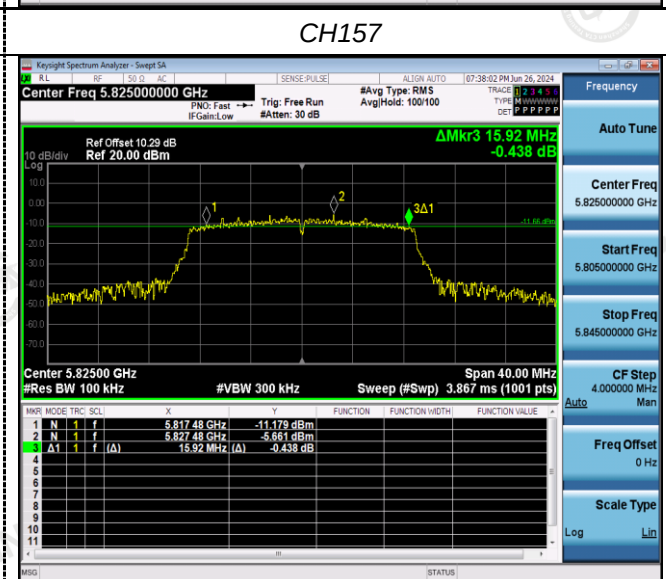
CH149



CH159

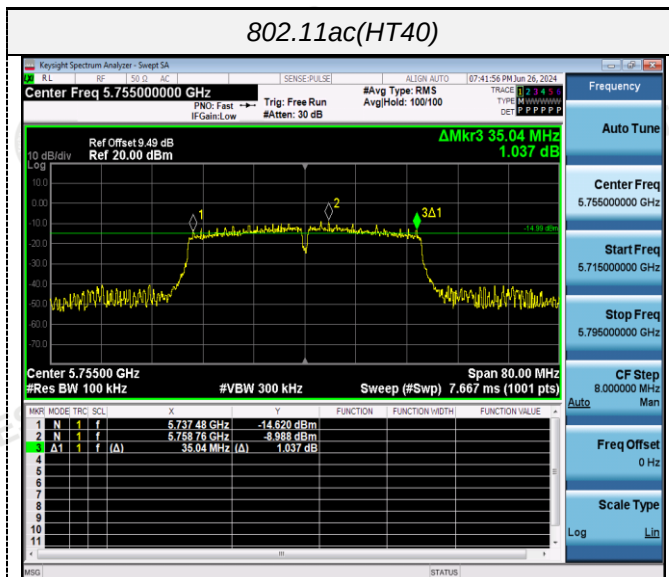


CH157



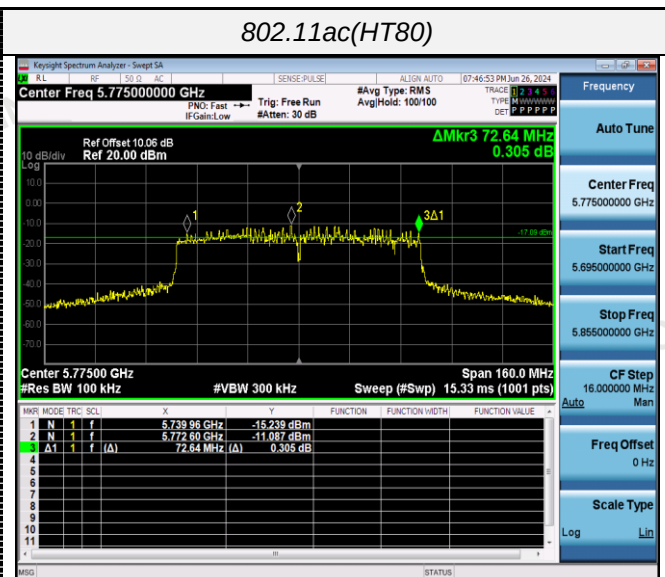
CH165

802.11ac(HT40)

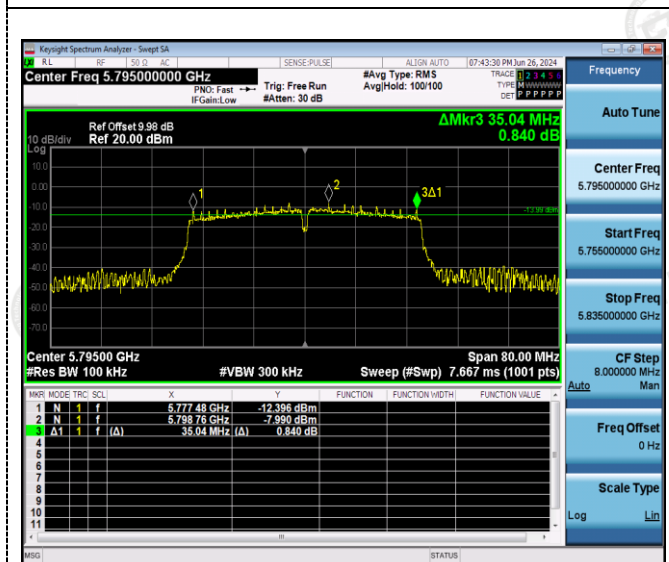


CH151

802.11ac(HT80)



CH155



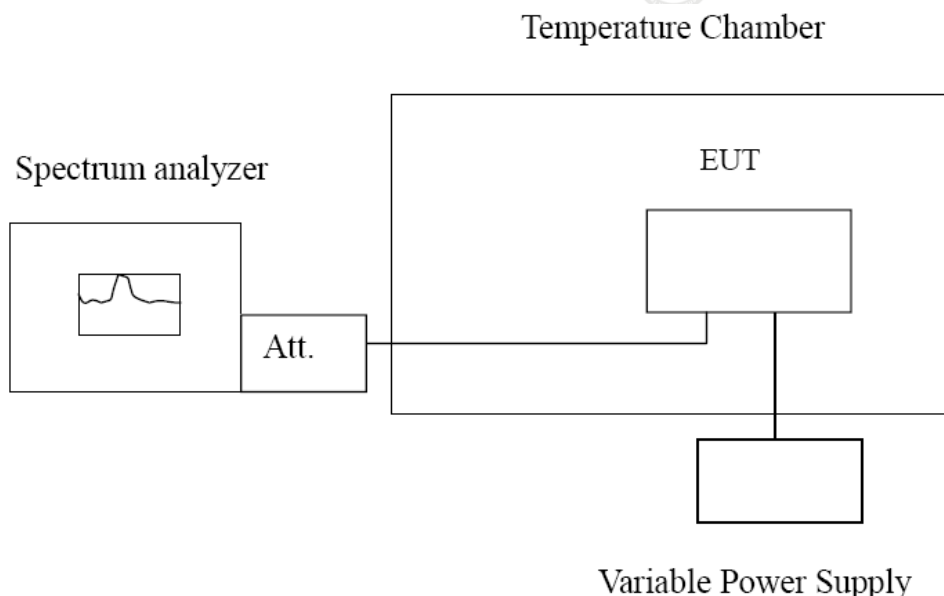
CH159

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.

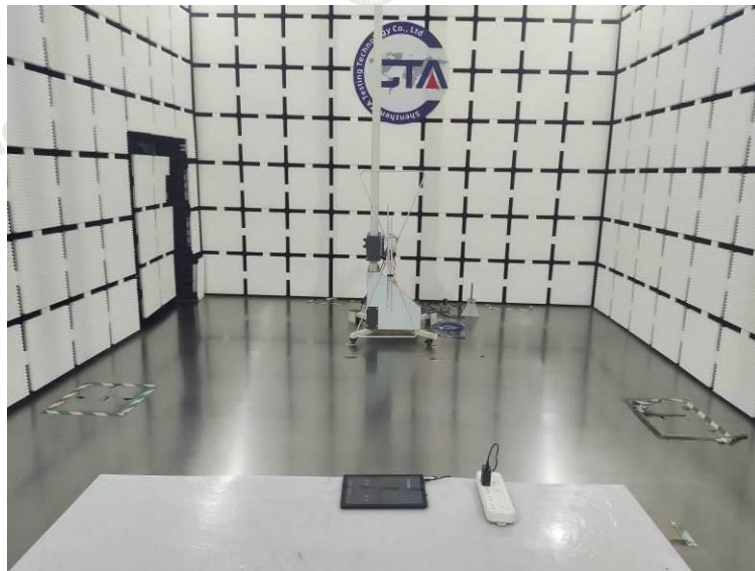
TEST RESULTS

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 3.7V	-30	110.29	0.021292	Within the band of operation	Pass
	-20	174.88	0.033761		
	-10	145.19	0.028029		
	0	146.45	0.028272		
	10	145.36	0.028062		
	20	99.27	0.019164		
	30	167.71	0.032376		
	40	129.06	0.024915		
	50	128.30	0.024768		
DC 4.2V	25	195.44	0.037730	Within the band of operation	Pass
DC 3,7V	25	118.39	0.022855		

Reference Frequency: 802.11ac channel=149 frequency=5745MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
DC 3.7V	-30	135.44	0.023575	Within the band of operation	Pass
	-20	129.35	0.022515		
	-10	167.12	0.029090		
	0	169.41	0.029488		
	10	136.26	0.023718		
	20	144.18	0.025097		
	30	116.29	0.020242		
	40	168.50	0.029330		
	50	160.29	0.027901		
DC 4.2V	25	150.99	0.026282	Within the band of operation	Pass
DC 3,7V	25	129.87	0.022606		

5 Test Setup Photos of the EUT



6 Photos of the EUT

Reference to the test report No. CTA24062101501

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