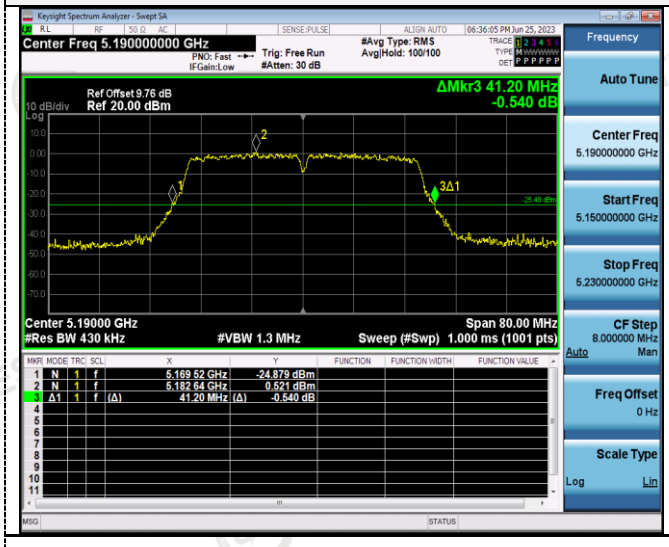
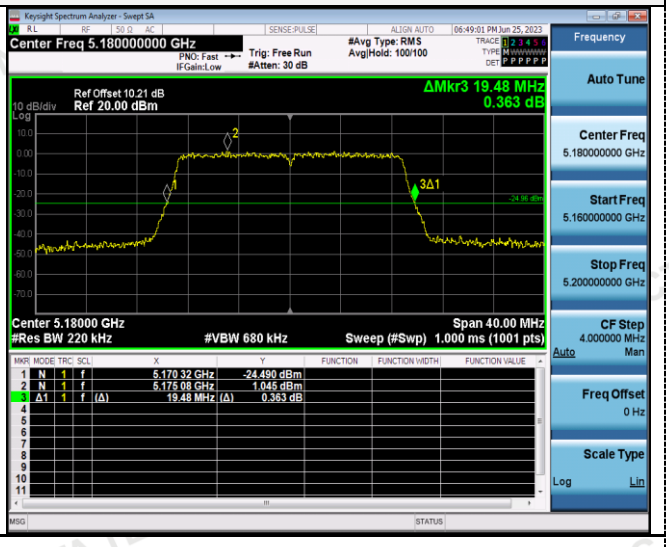
802.11n(HT40)

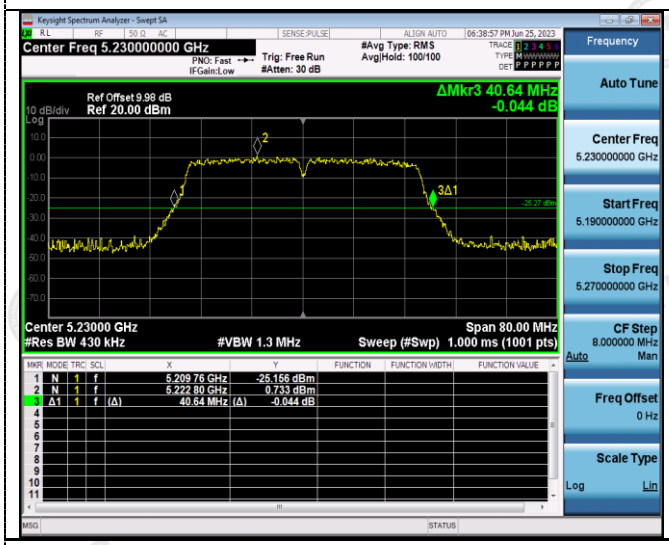


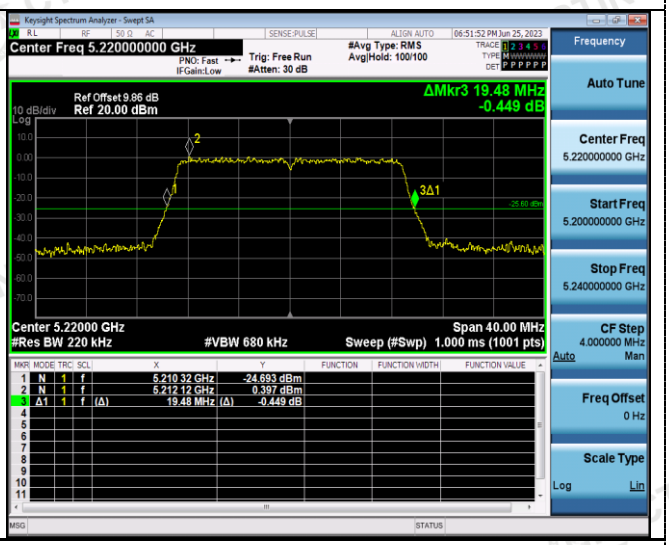
802.11ac(HT20)



CH38

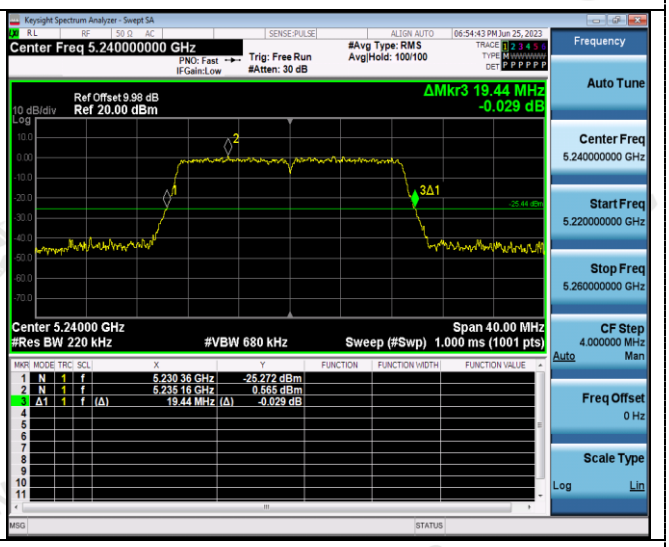
CH36





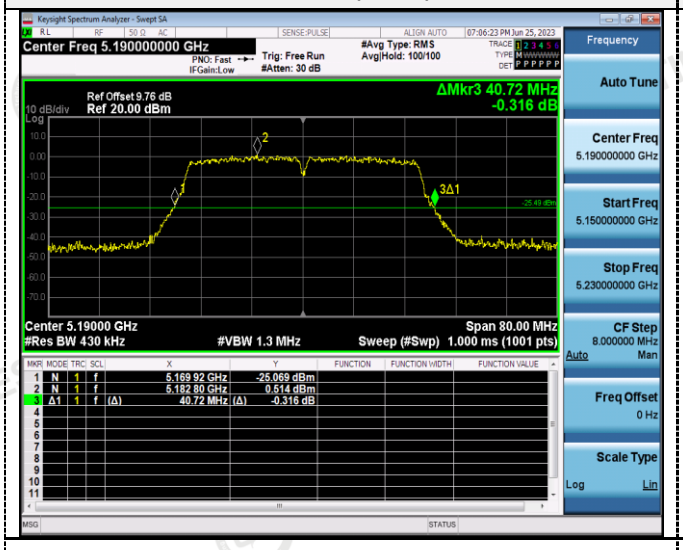
CH46

CH40

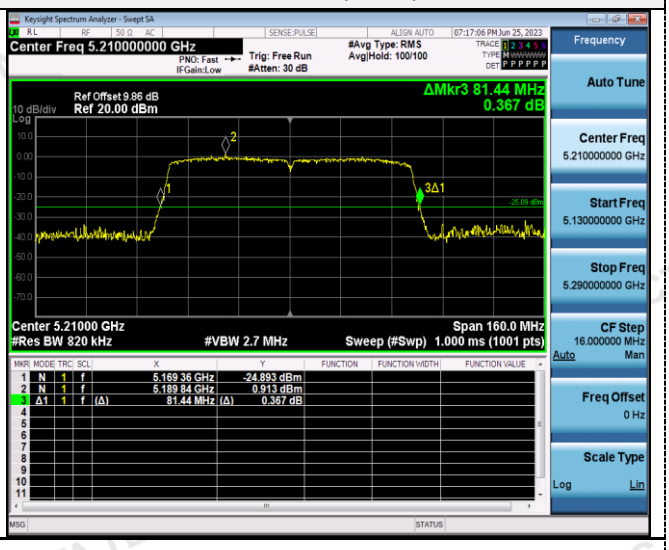


CH48

802.11ac(HT40)

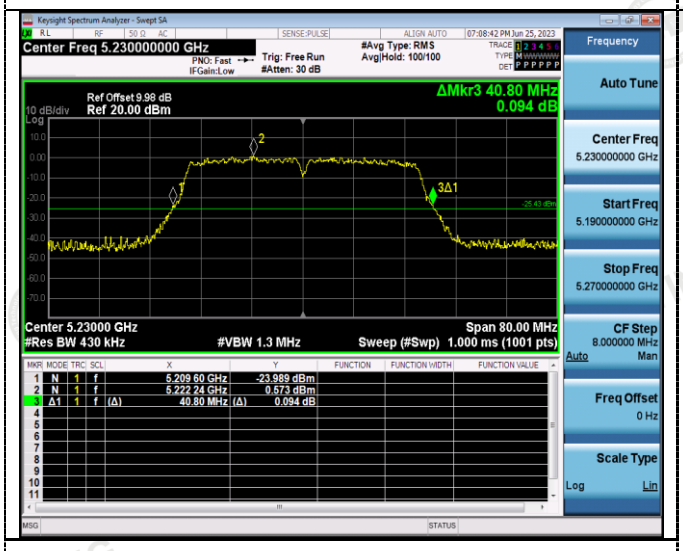


802.11ac(HT80)



CH38

CH42



CH46

4.6 Minimum Emission Bandwidth (6dB Bandwidth)

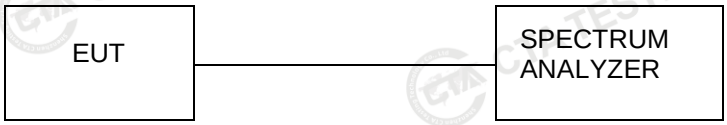
Limit

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

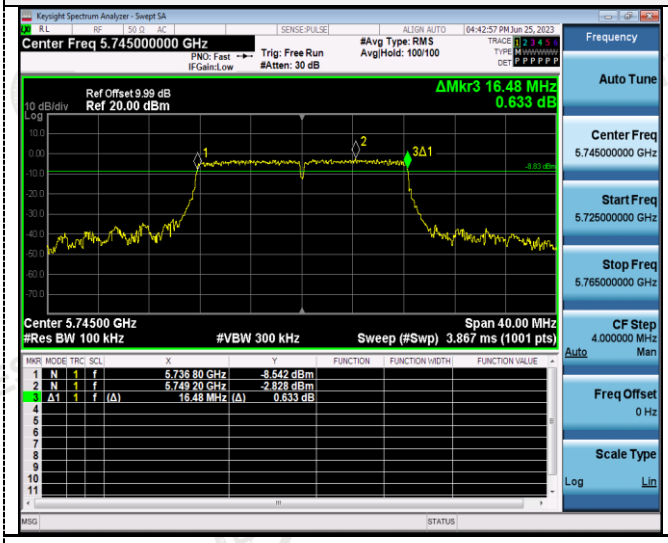
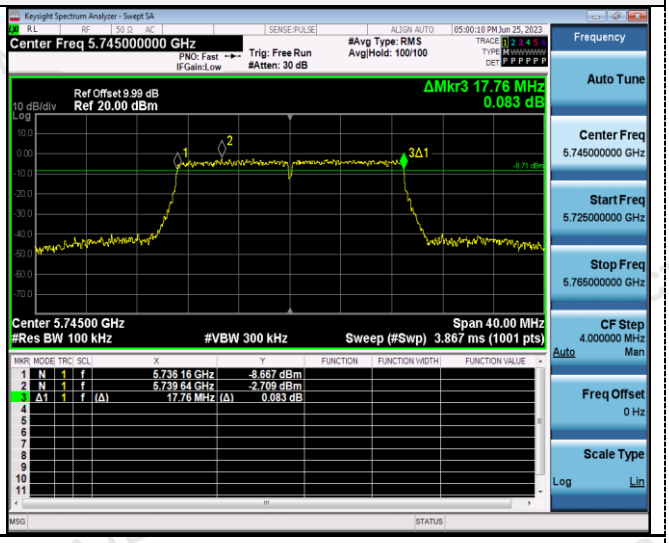
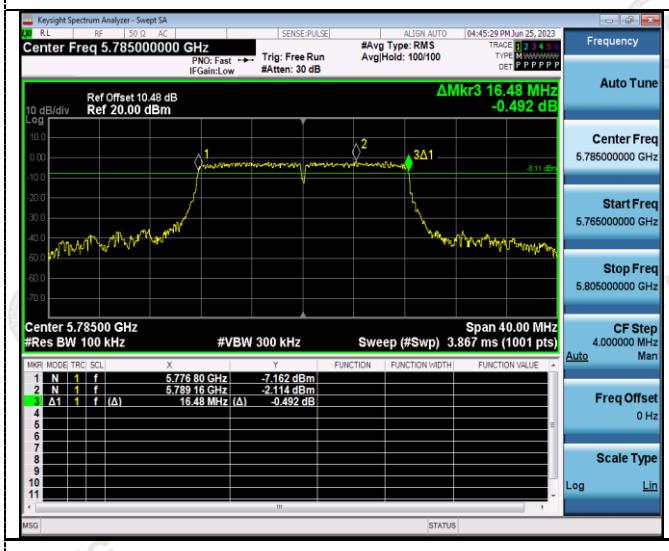
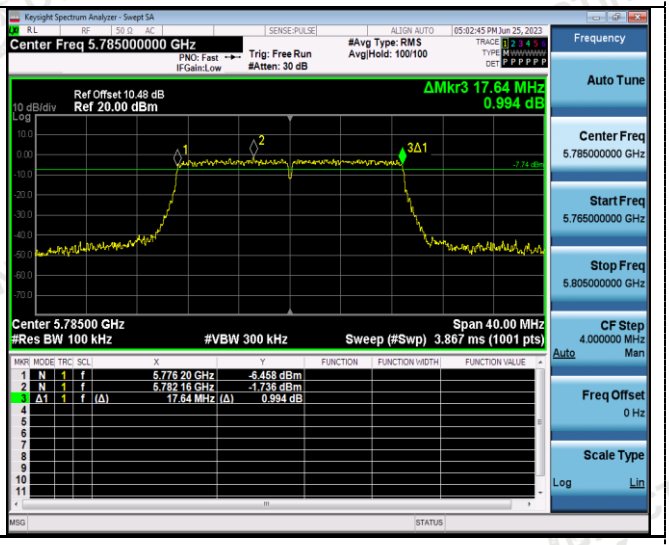
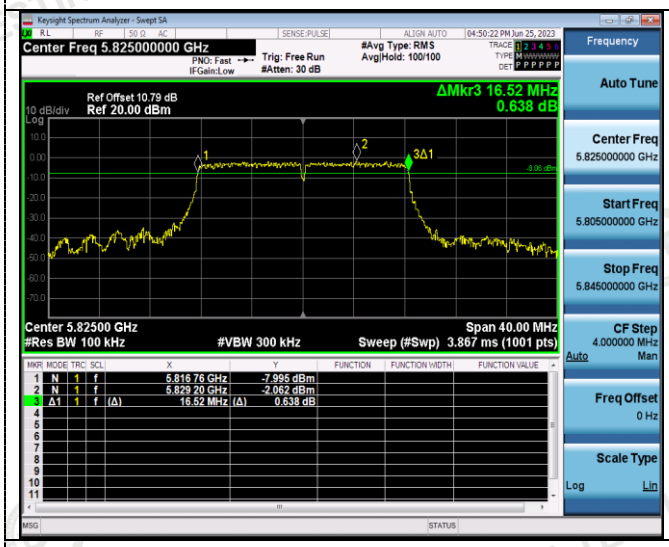
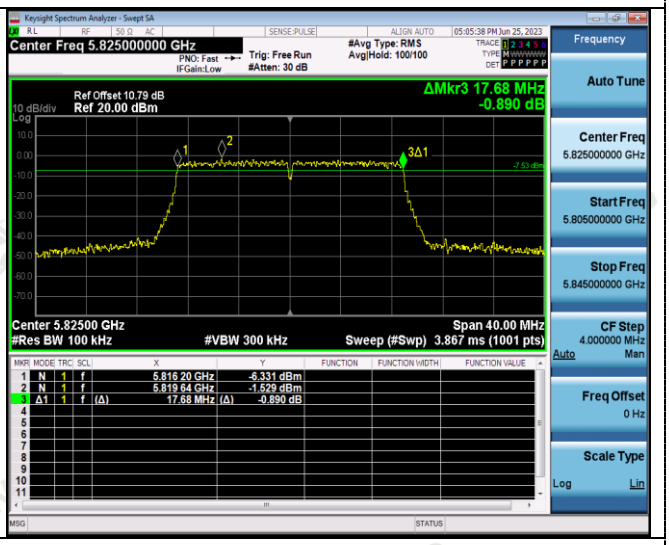
Type	Bands	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	U-NII 3	149	16.480	≥500KHz	Pass
		157	16.480		
		165	16.520		
802.11n(HT20)	U-NII 3	149	17.760		
		157	17.640		
		165	17.680		
802.11n(HT40)	U-NII 3	151	36.400		
		159	36.400		
802.11ac(HT20)	U-NII 3	149	17.720		
		157	17.680		
		165	17.680		
802.11ac(HT40)	U-NII 3	151	36.400		
		159	36.400		
802.11ac(HT80)	U-NII 3	155	76.320		

ANT 2

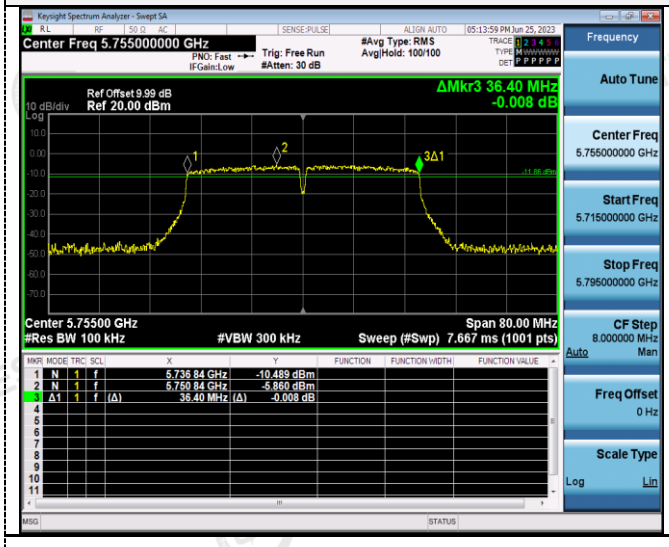
	Bands	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	U-NII 3	149	16.520	≥500KHz	Pass
		157	16.520		
		165	16.480		
802.11n(HT20)	U-NII 3	149	17.680		
		157	17.720		
		165	17.720		
802.11n(HT40)	U-NII 3	151	36.400		
		159	36.400		
802.11ac(HT20)	U-NII 3	149	17.680		
		157	17.680		
		165	17.760		
802.11ac(HT80)	U-NII 3	155	36.400		

Test plot as follows:

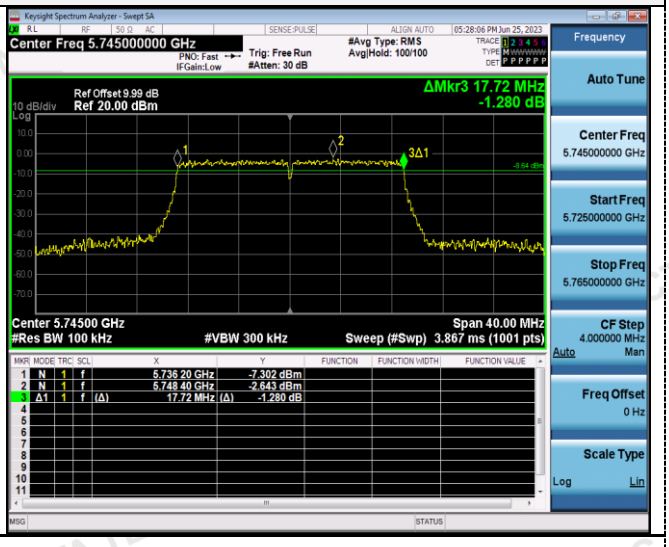
ANT 1

802.11a	802.11n(HT20)
	
CH149	CH149
	
CH157	CH157
	
CH165	CH165

802.11n(HT40)

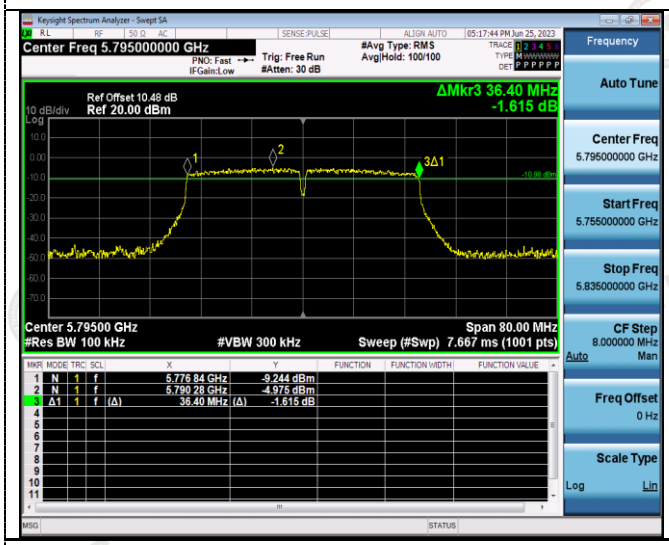


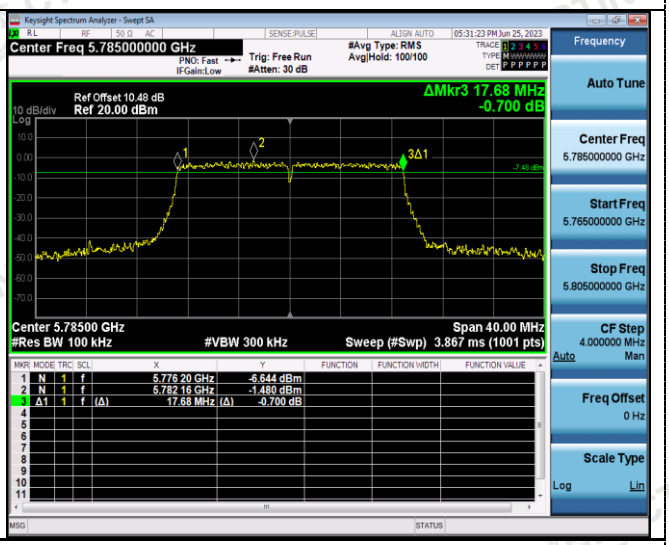
802.11ac(HT20)



CH151

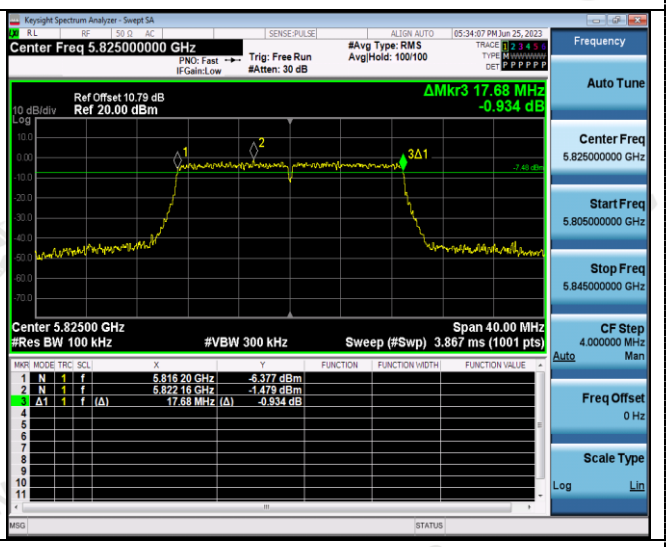
CH149





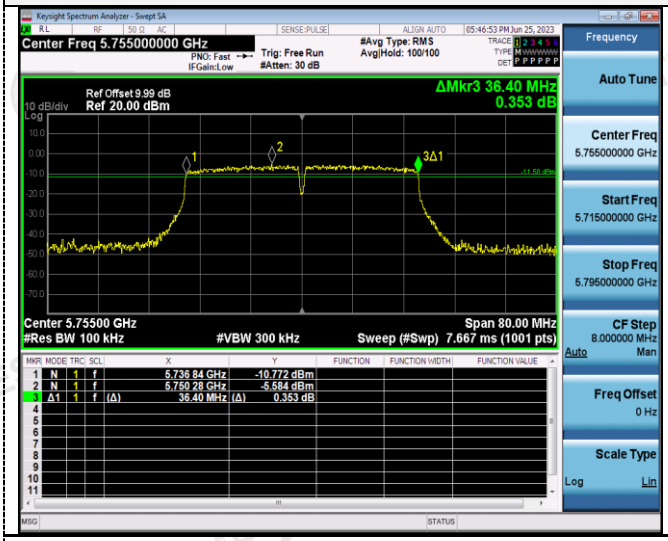
CH159

CH157



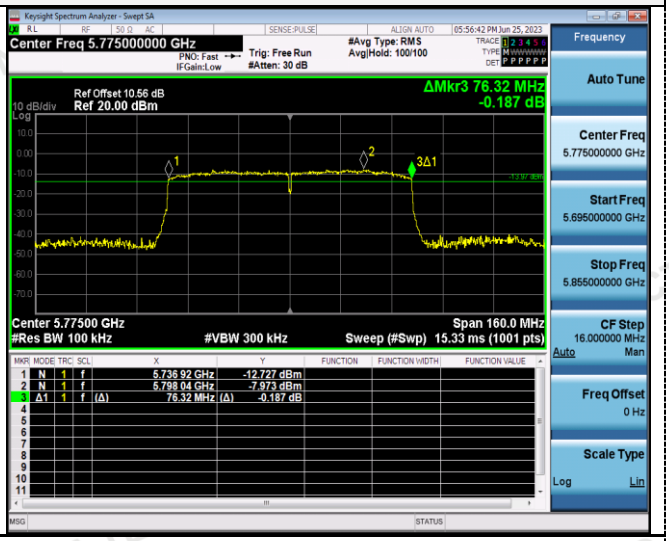
CH165

802.11ac(HT40)

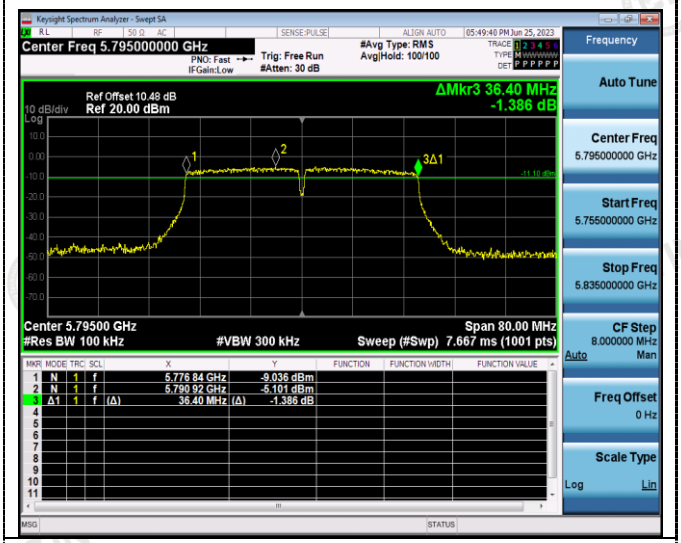


CH151

802.11ac(HT80)

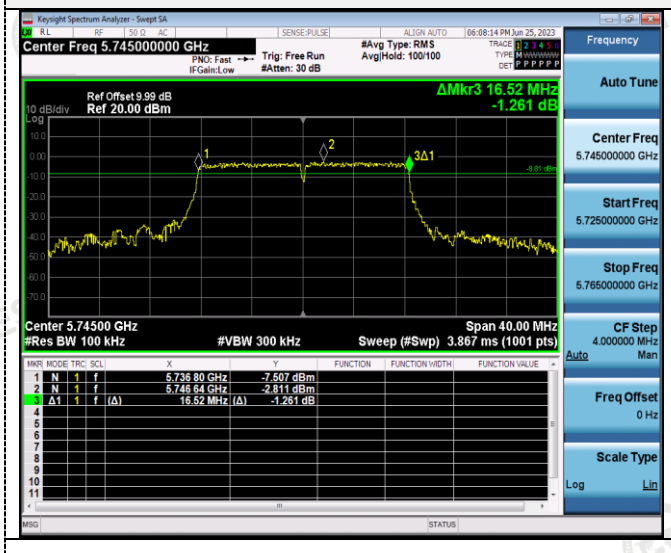
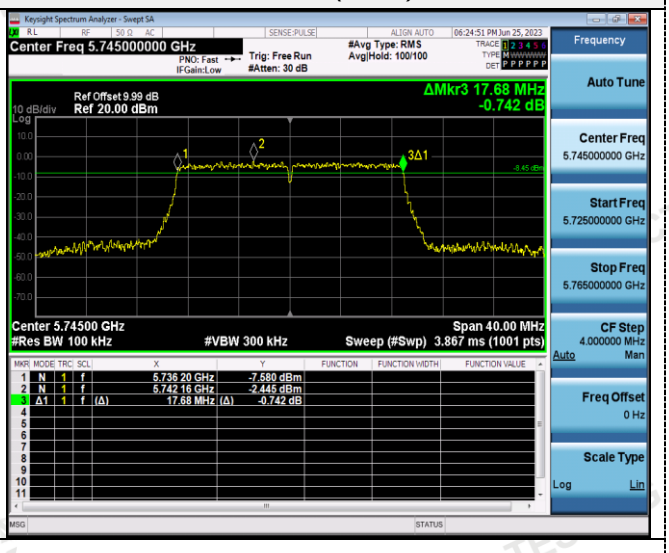
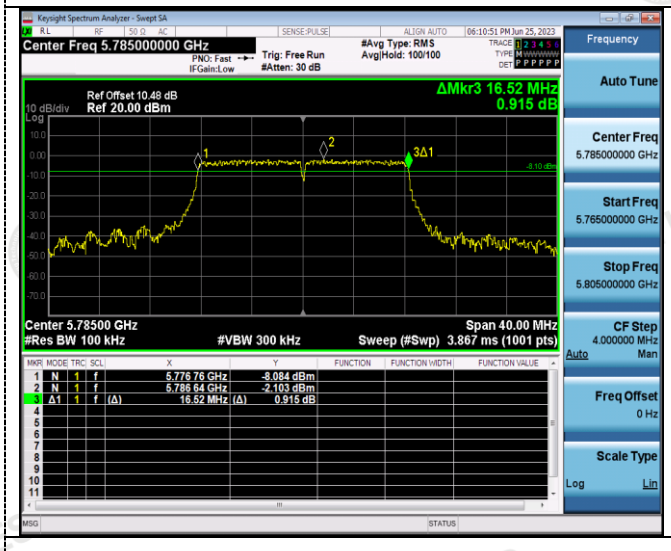
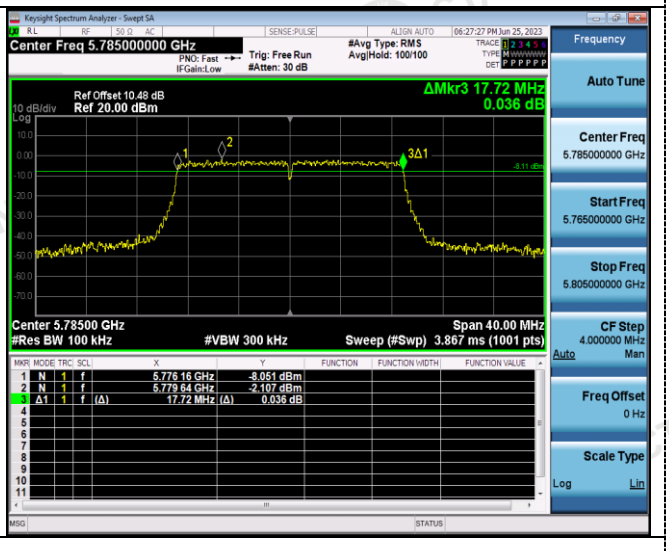
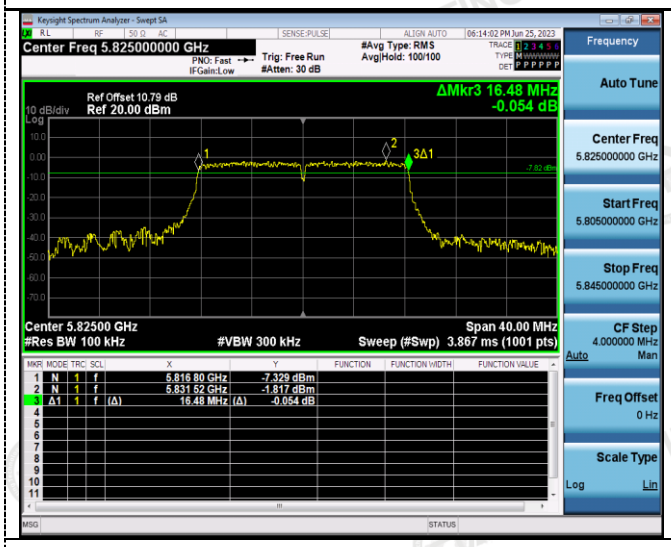
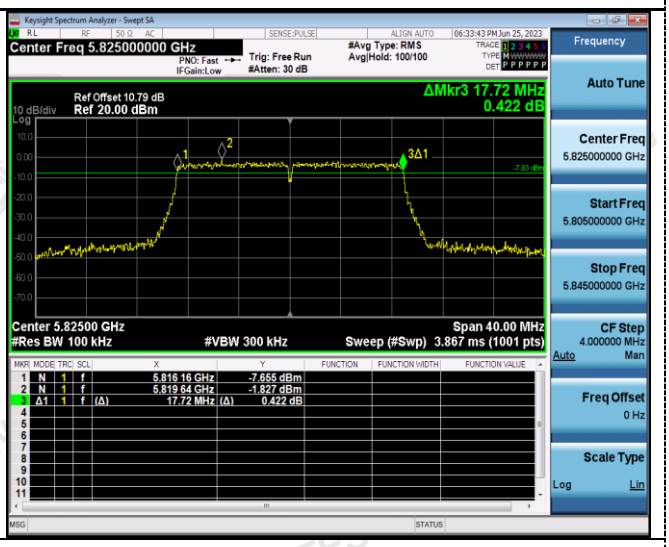


CH155

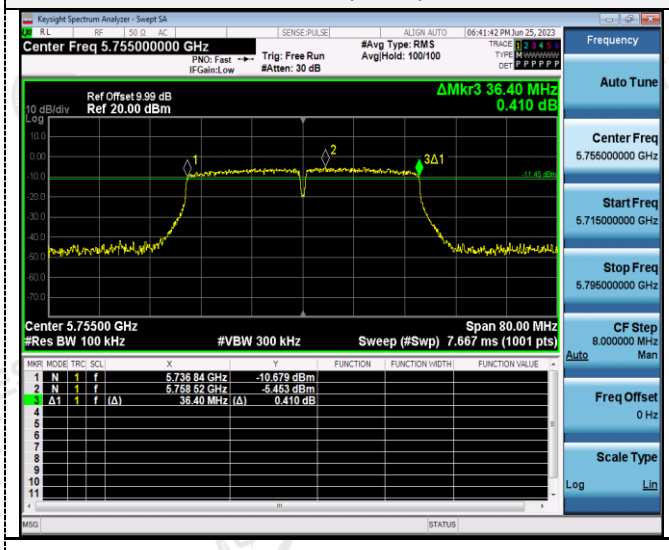


CH159

ANT 2

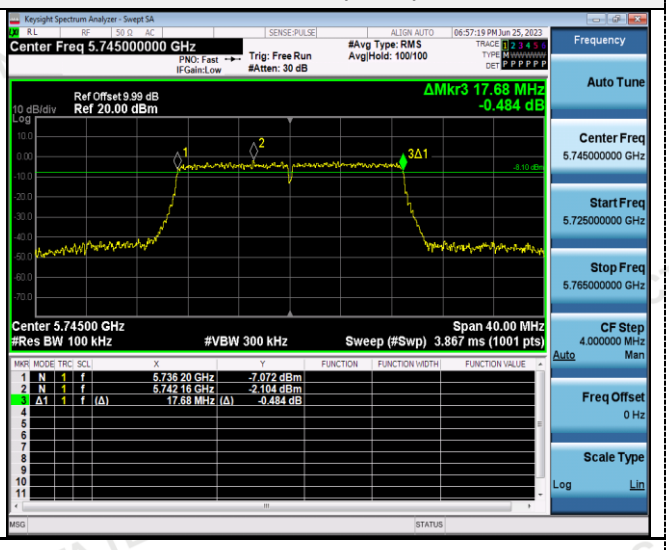
5 802.11a	802.11n(HT20)
	
CH149	CH149
	
CH157	CH157
	
CH165	CH165

802.11n(HT40)

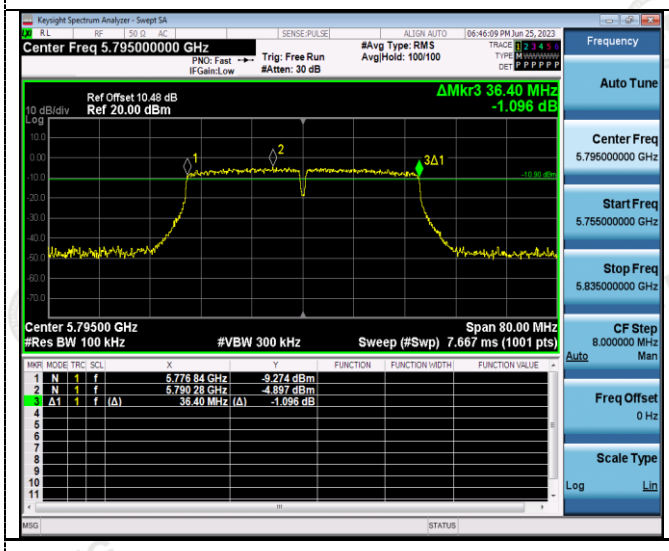


CH151

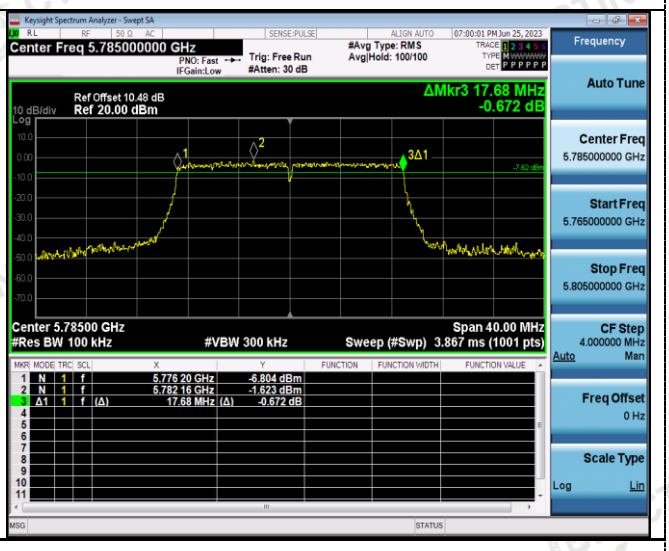
802.11ac(HT20)



CH149



CH159



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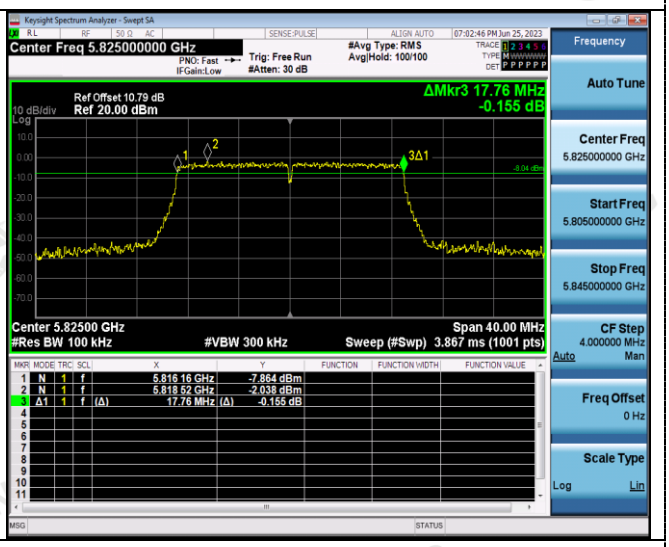
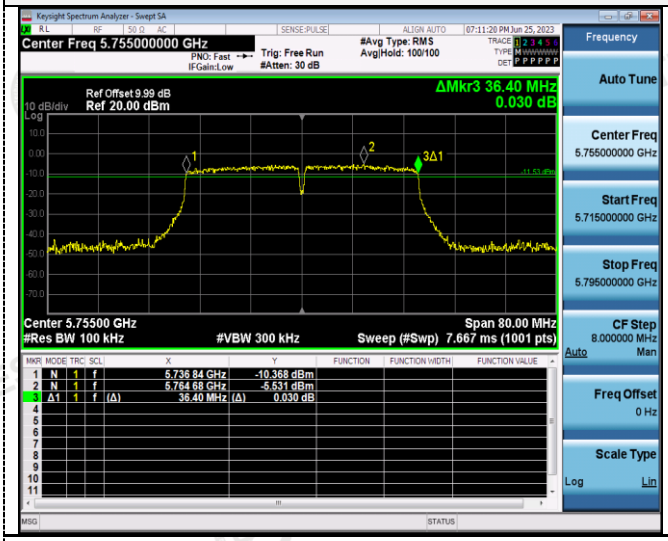


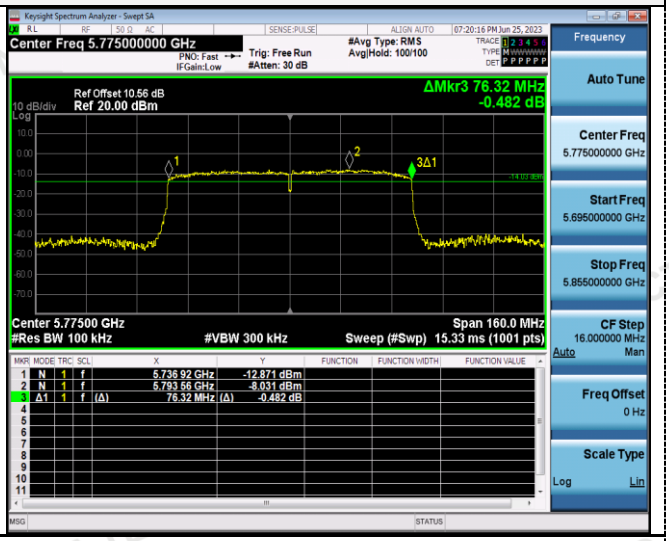
CH165

802.11ac(HT40)

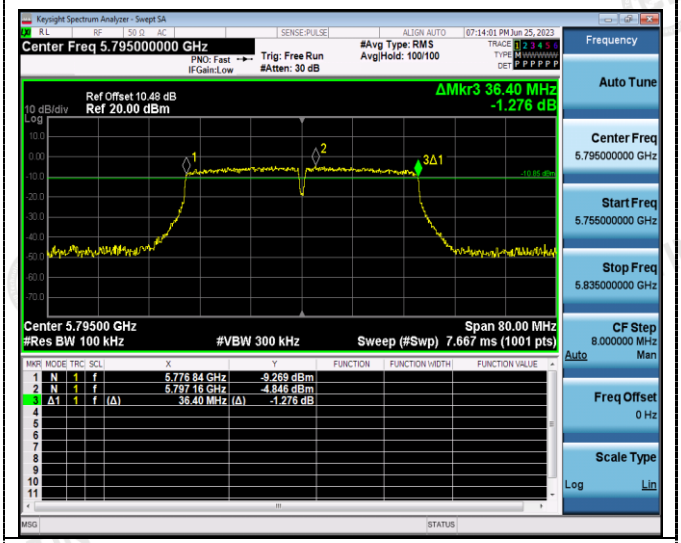


CH151

802.11ac(HT80)



CH155



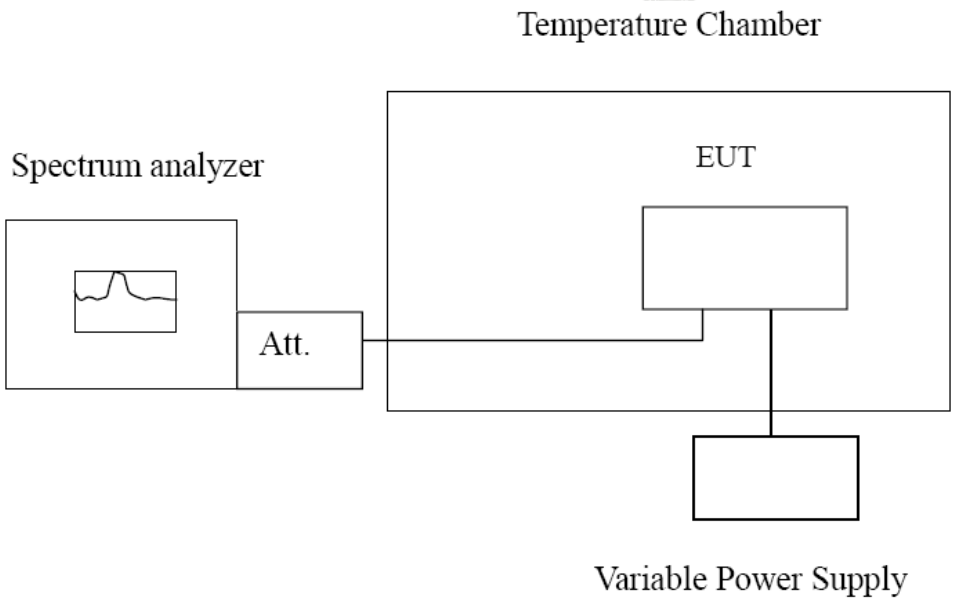
CH159

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

Frequency Stability under Voltage Variations:
Set chamber temperature to 20℃. 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 (±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 (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
DC 3.7	-30	110.70	0.021371	Within the band of operation	Pass
	-20	174.23	0.033635		
	-10	145.51	0.028091		
	0	146.68	0.028317		
	10	145.42	0.028073		
	20	99.79	0.019264		
	30	167.86	0.032405		
	40	129.84	0.025066		
	50	128.76	0.024857		
DC 4.2	25	195.41	0.037724		
DC 3.4	25	118.22	0.022822		

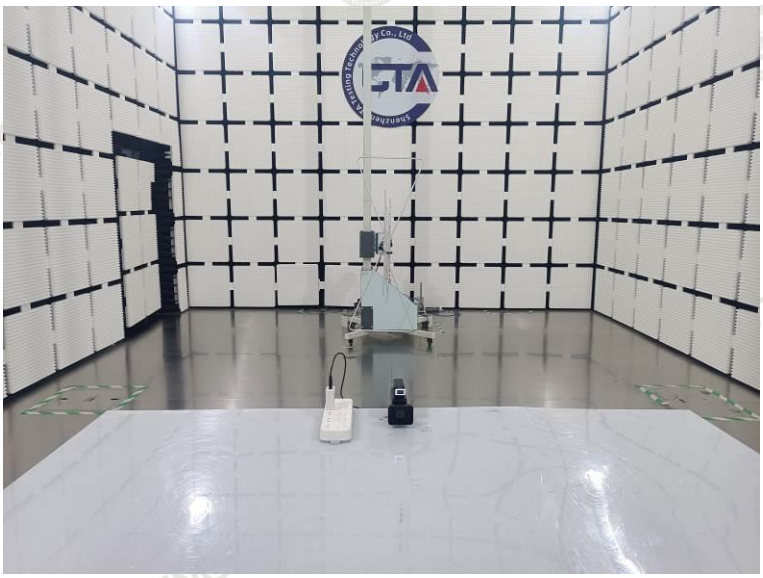
Reference Frequency: 802.11ac channel=149 frequency=5745MHz					
Voltage (V)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
DC 3.7	-30	135.35	0.023560	Within the band of operation	Pass
	-20	129.47	0.022536		
	-10	167.08	0.029083		
	0	169.19	0.029450		
	10	136.70	0.023795		
	20	144.23	0.025105		
	30	116.42	0.020265		
	40	168.61	0.029349		
	50	160.74	0.027979		
DC 4.2	25	150.45	0.026188		
DC 3.4	25	129.13	0.022477		

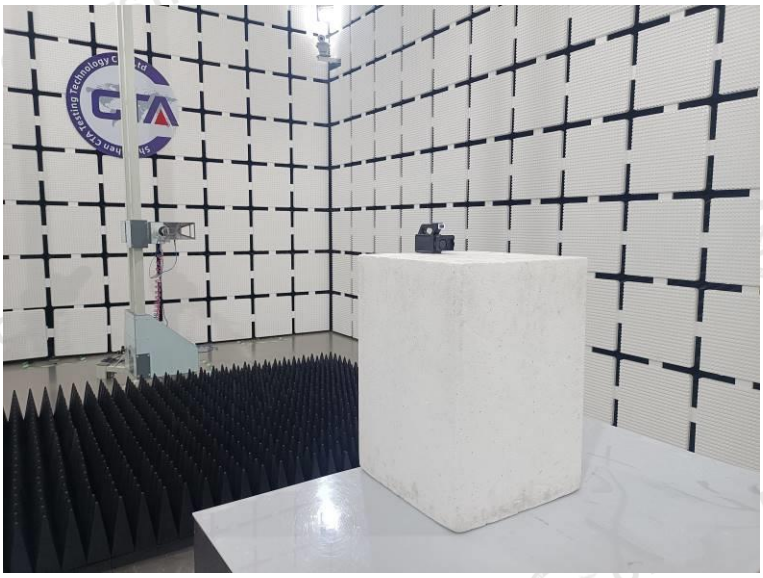
Ant2:

Reference Frequency: 802.11ac channel=36 frequency=5180MHz					
Voltage (V)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
DC 3.7	-30	110.43	0.021319	Within the band of operation	Pass
	-20	173.06	0.033409		
	-10	145.13	0.028017		
	0	146.52	0.028286		
	10	145.27	0.028044		
	20	98.74	0.019062		
	30	166.53	0.032149		
	40	129.93	0.025083		
	50	128.54	0.024815		
DC 4.2	25	195.07	0.037658		
DC 3.4	25	117.80	0.022741		

Reference Frequency: 802.11ac channel=149 frequency=5745MHz					
Voltage (V)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
DC 3.7	-30	134.86	0.023474	Within the band of operation	Pass
	-20	129.14	0.022479		
	-10	167.52	0.029159		
	0	168.99	0.029415		
	10	136.42	0.023746		
	20	143.26	0.024936		
	30	116.19	0.020225		
	40	168.60	0.029347		
	50	159.24	0.027718		
DC 4.2	25	150.69	0.026230		
DC 3.4	25	129.85	0.022602		

6 Test Setup Photos of the EUT





7 Photos of the EUT

Reference to the test report No. **CTA23060800401**

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