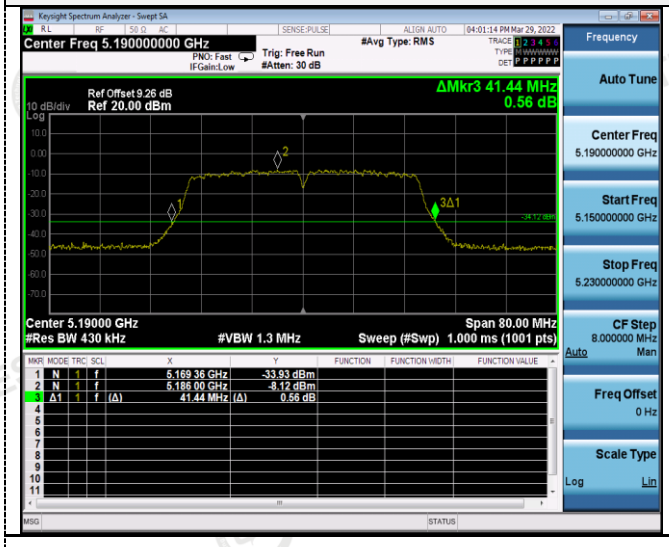
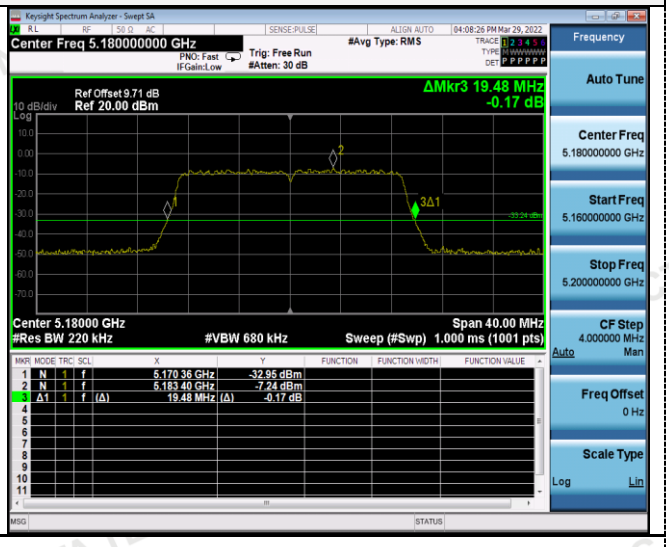
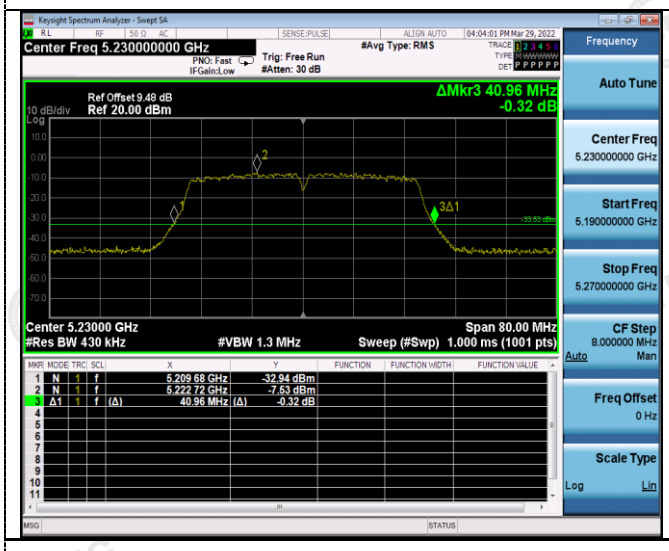
802.11n(HT40)



802.11ac(HT20)



CH38



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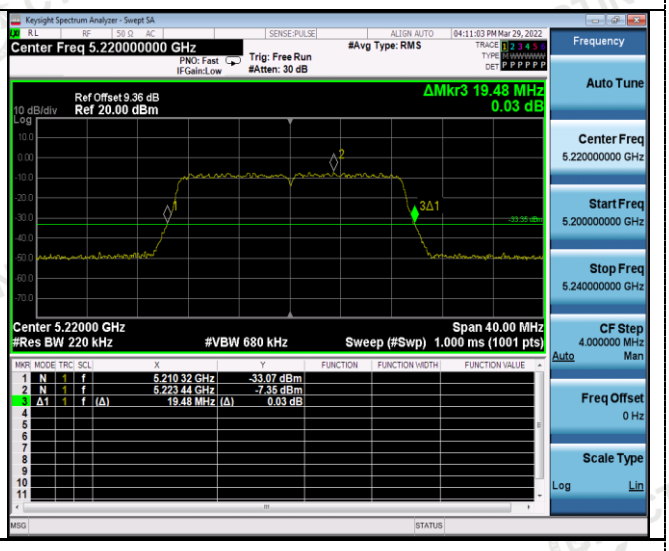
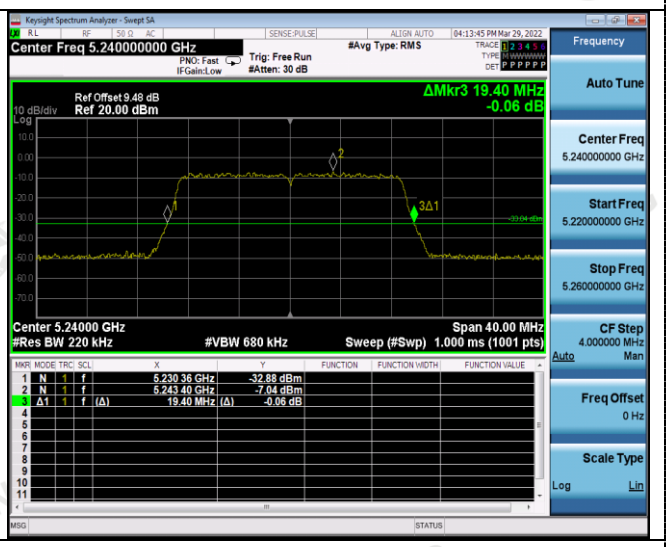


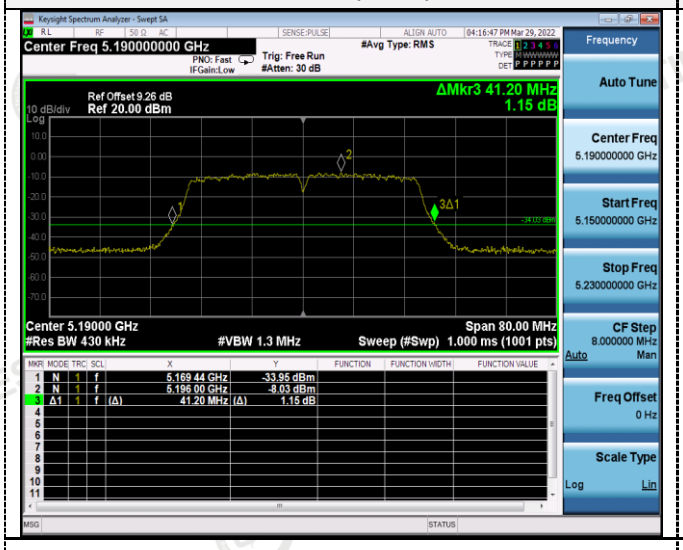
CH46

CH40



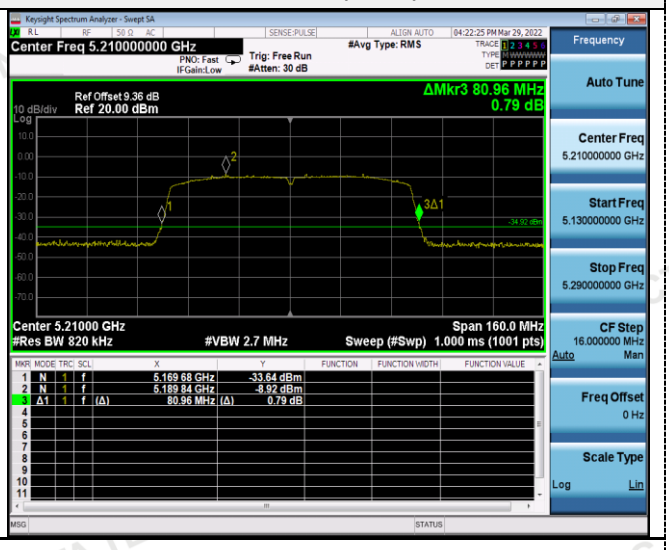
CH48

802.11ac(HT40)



CH38

802.11ac(HT80)



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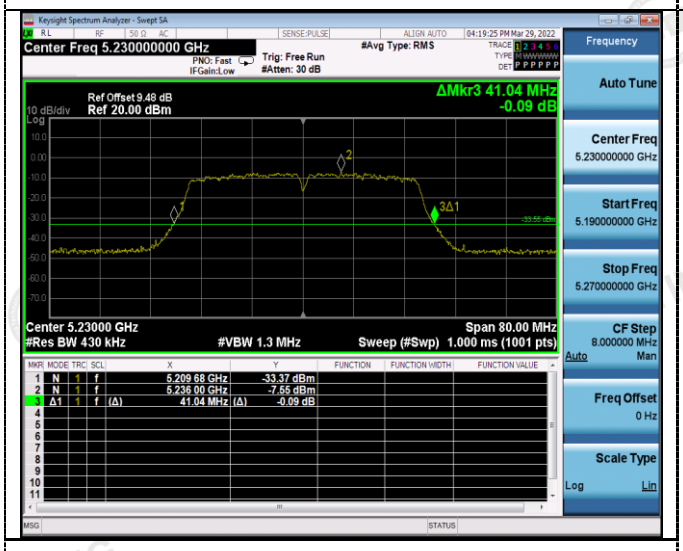


CH46

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

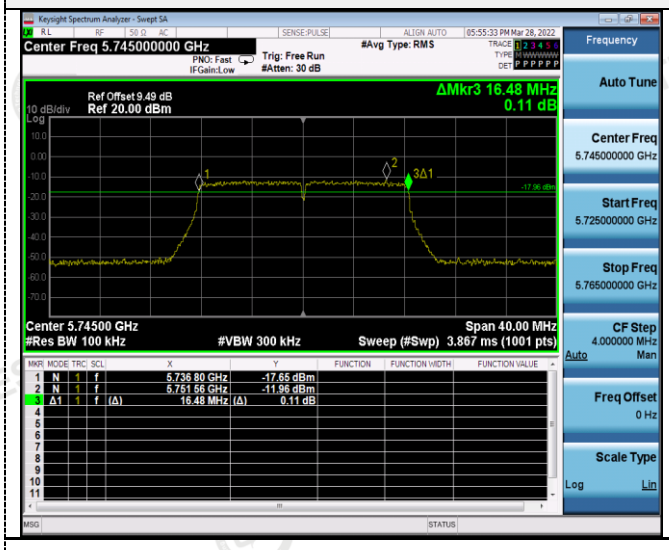
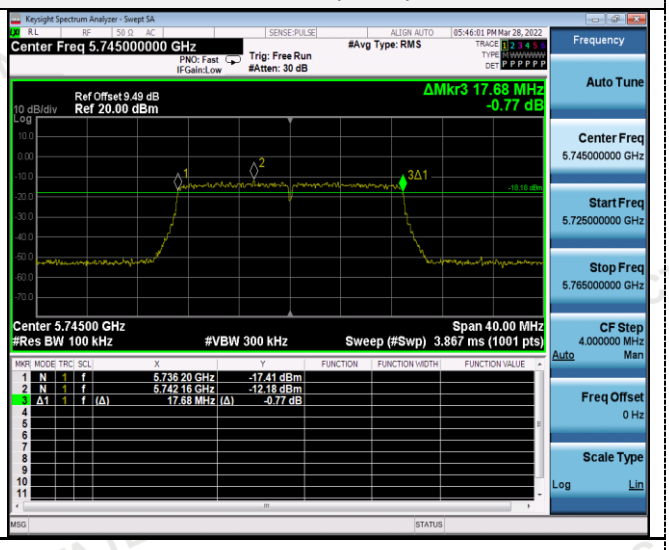
Type	Bands	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	U-NII 3	149	16.480	≥500KHz	Pass
		157	16.520		
		165	16.480		
802.11n(HT20)	U-NII 3	149	17.680		
		157	17.640		
		165	17.680		
802.11n(HT40)	U-NII 3	151	36.400		
		159	36.400		
802.11ac(HT20)	U-NII 3	149	17.680		
		157	17.640		
		165	17.680		
802.11ac(HT40)	U-NII 3	151	36.400		
		159	36.400		
802.11ac(HT80)	U-NII 3	155	74.720		

ANT 2

Type	Bands	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	U-NII 3	149	16.480	≥500KHz	Pass
		157	16.520		
		165	16.480		
802.11n(HT20)	U-NII 3	149	17.640		
		157	17.640		
		165	17.640		
802.11n(HT40)	U-NII 3	151	36.400		
		159	36.400		
802.11ac(HT20)	U-NII 3	149	17.680		
		157	17.640		
		165	17.680		
802.11ac(HT40)	U-NII 3	151	36.400		
		159	36.400		
802.11ac(HT80)	U-NII 3	155	74.560		

Test plot as follows:

ANT 1

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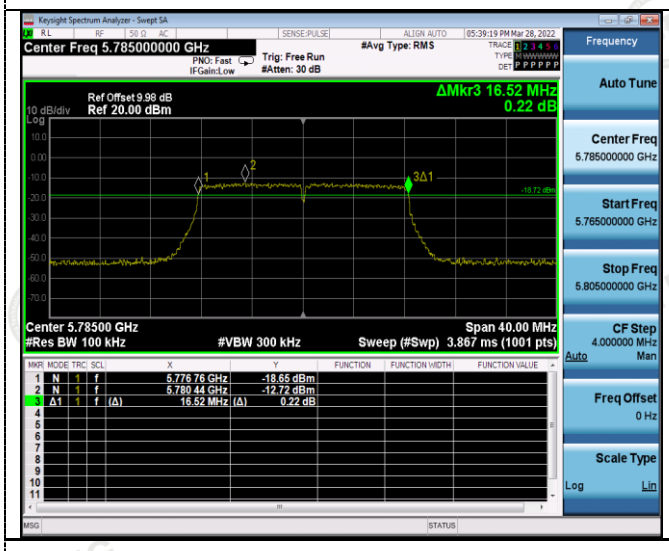
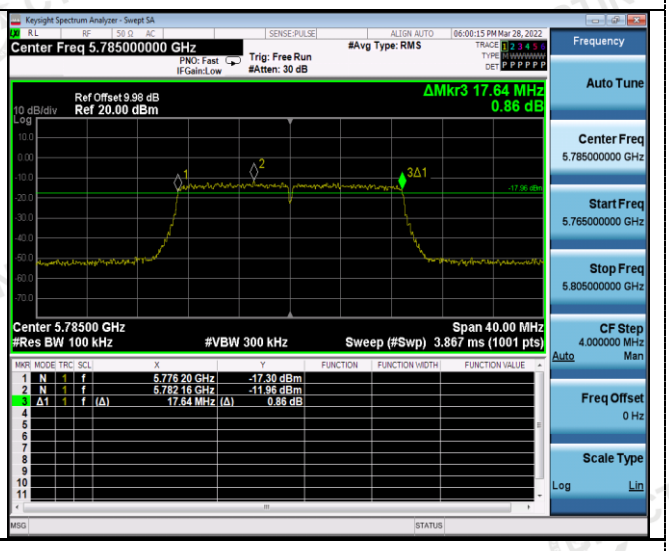
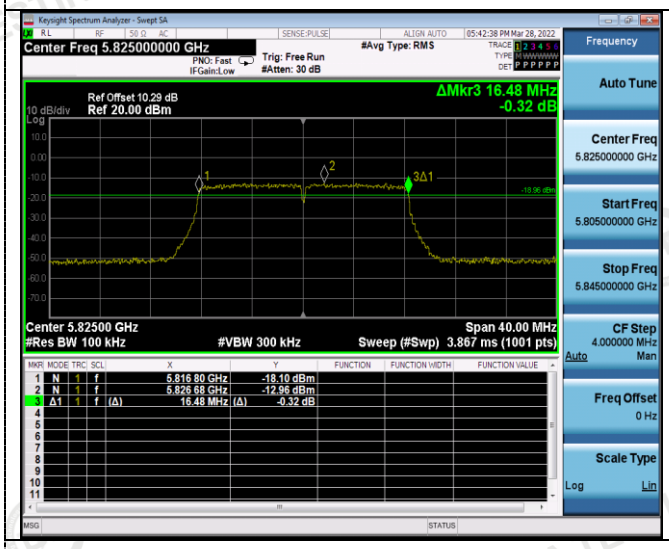
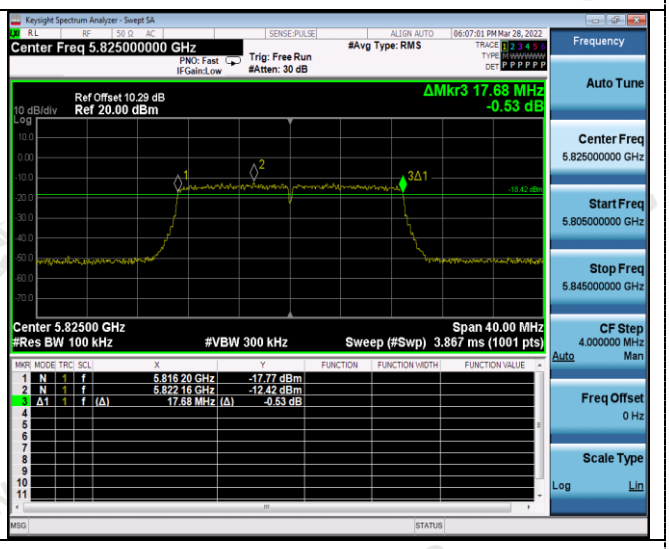
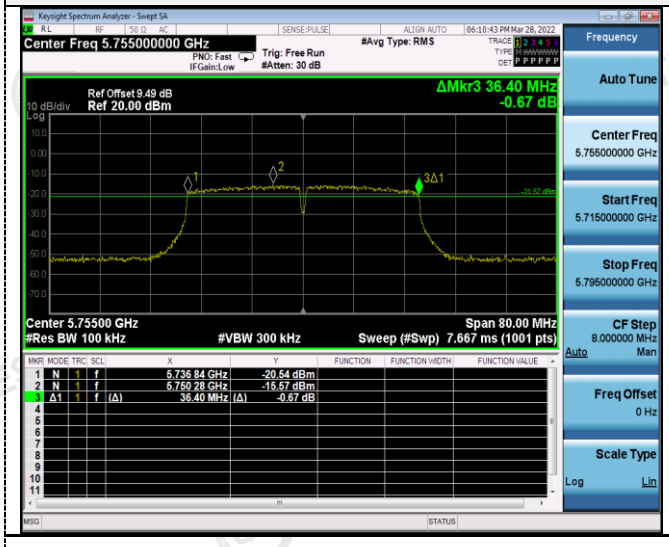
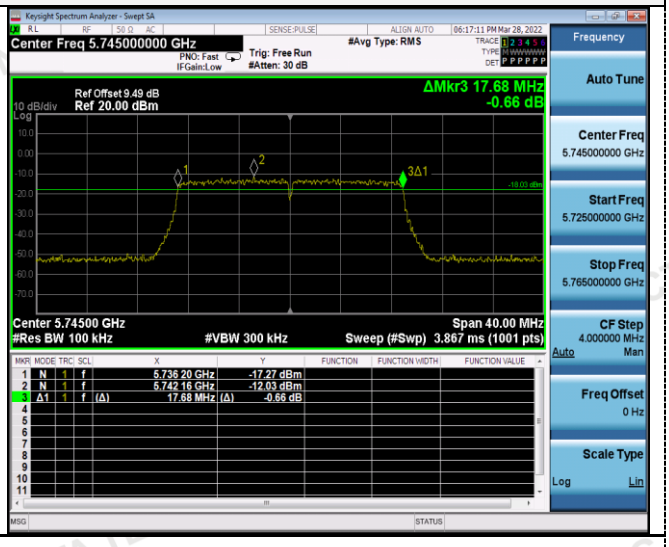
	
CH157	*CH157*
	
CH165	*CH165*

802.11n(HT40)



CH151

802.11ac(HT20)



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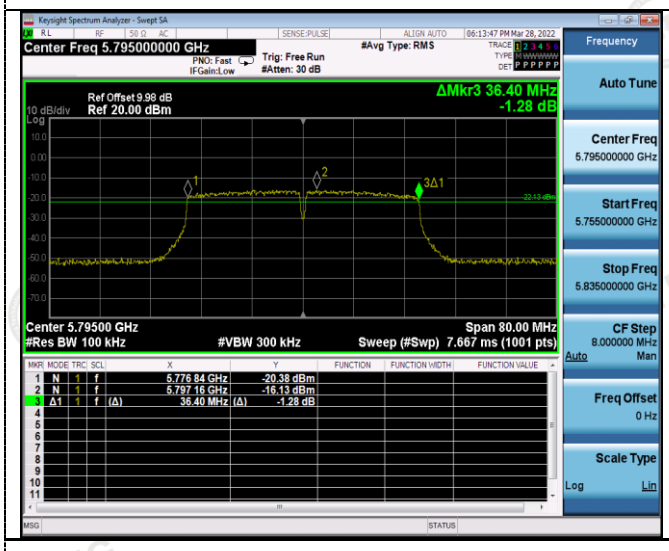
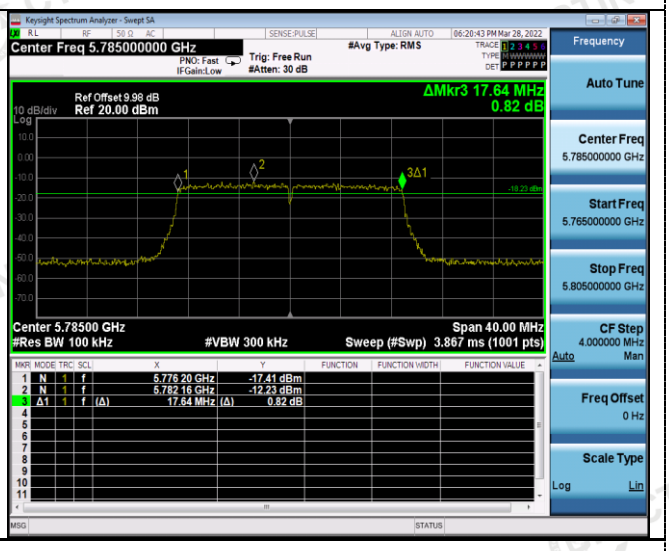


CH159



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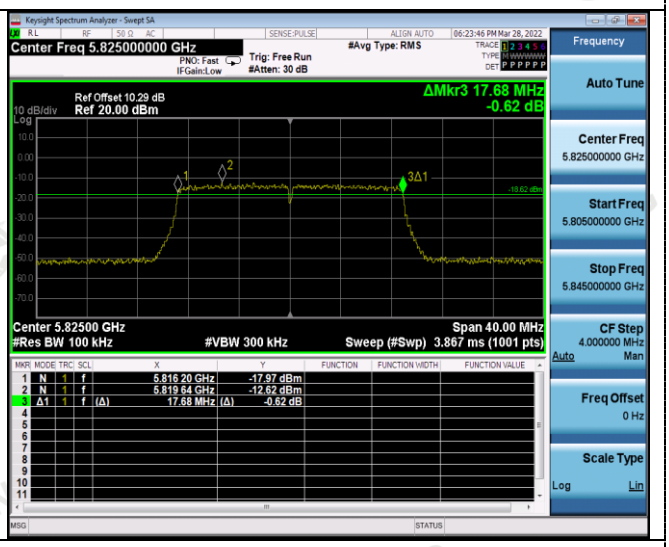
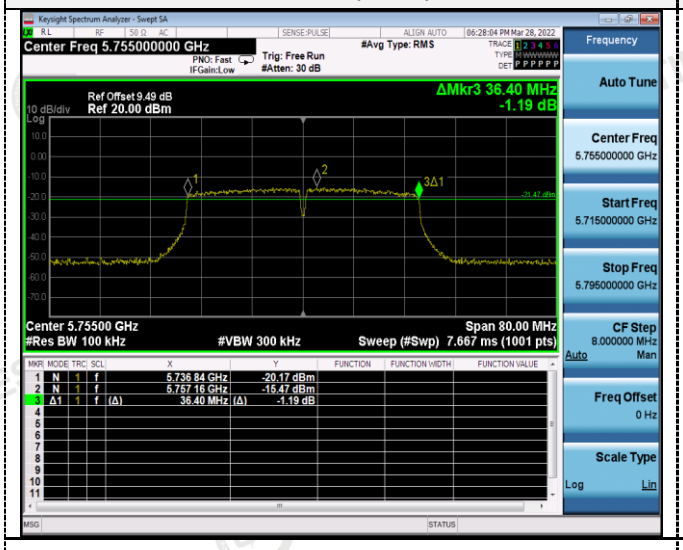
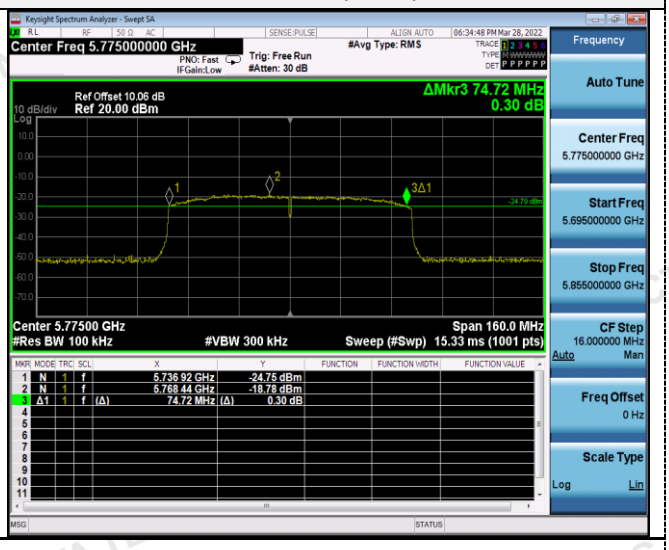


CH165

802.11ac(HT40)

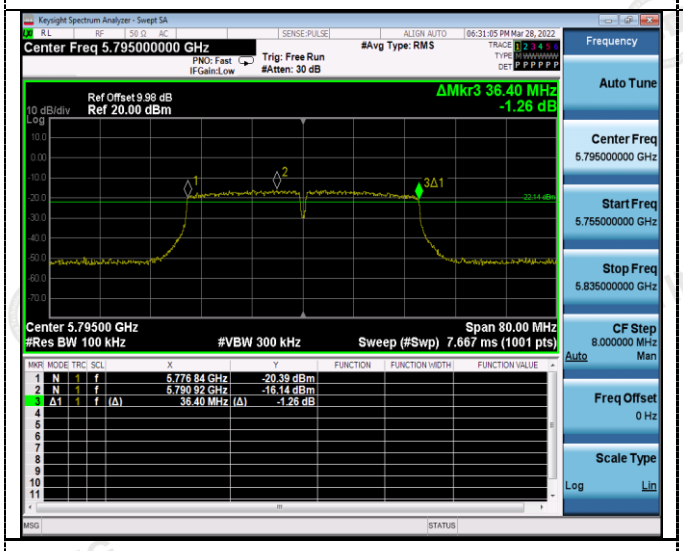


802.11ac(HT80)



CH151

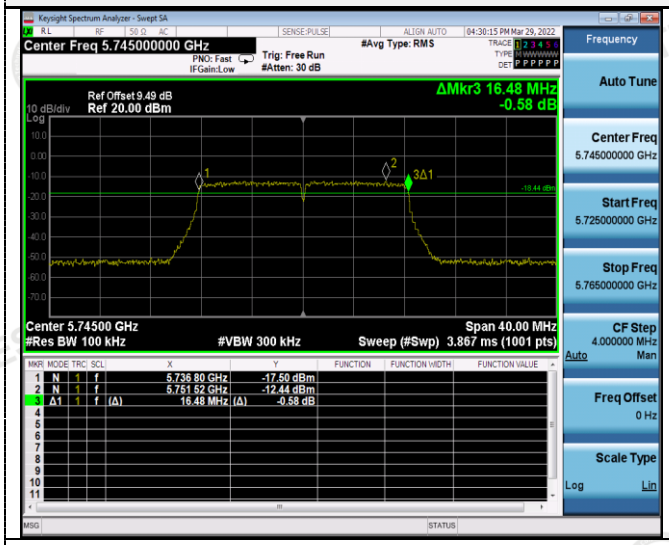
CH155



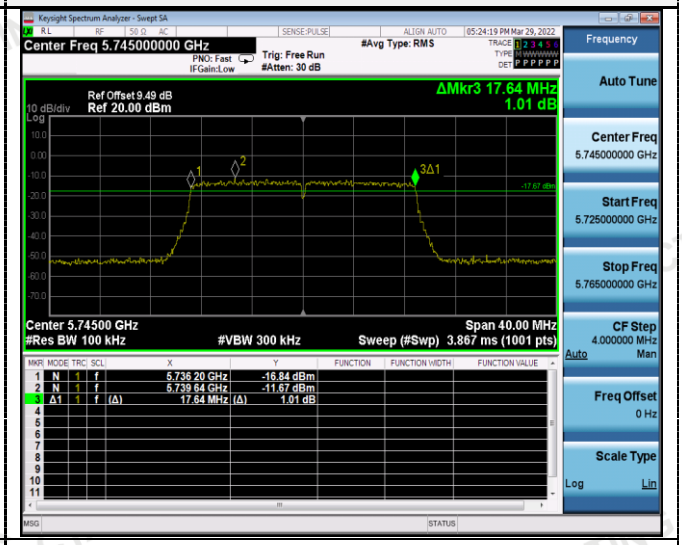
CH159

ANT 2

802.11a

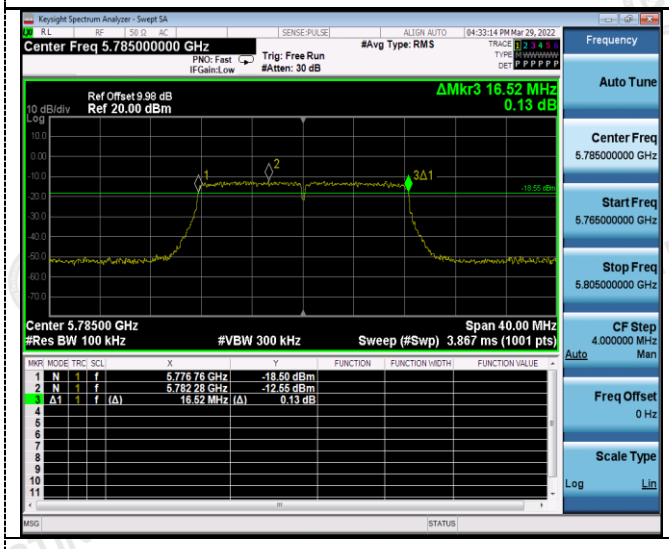


802.11n(HT20)



CH149

CH149



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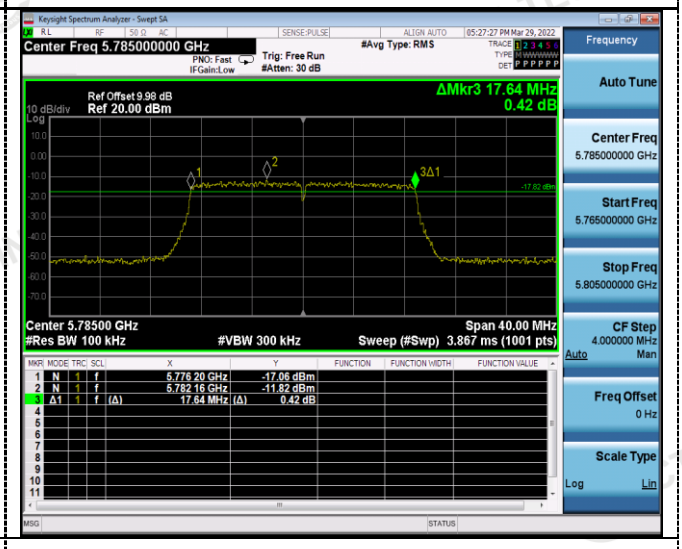

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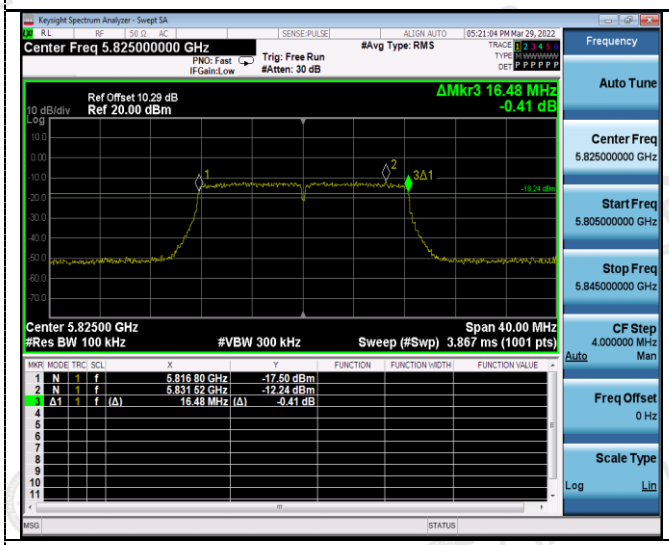

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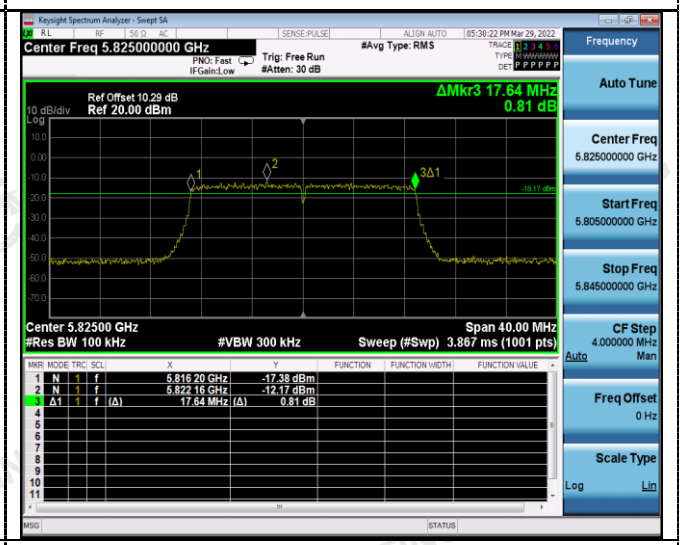
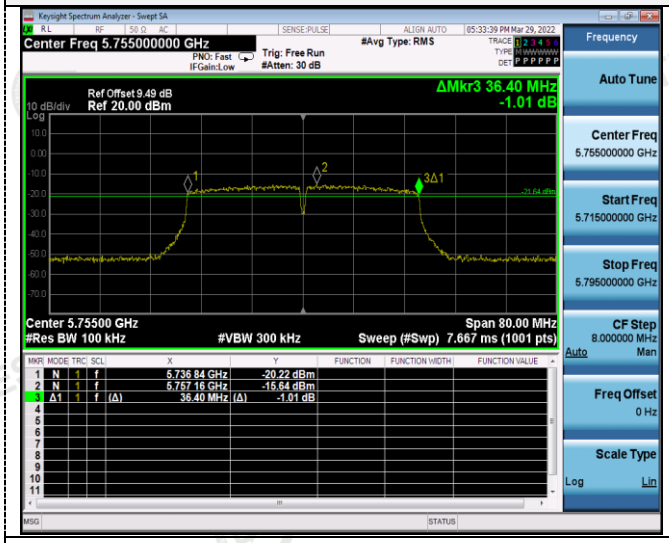


CH165

802.11n(HT40)



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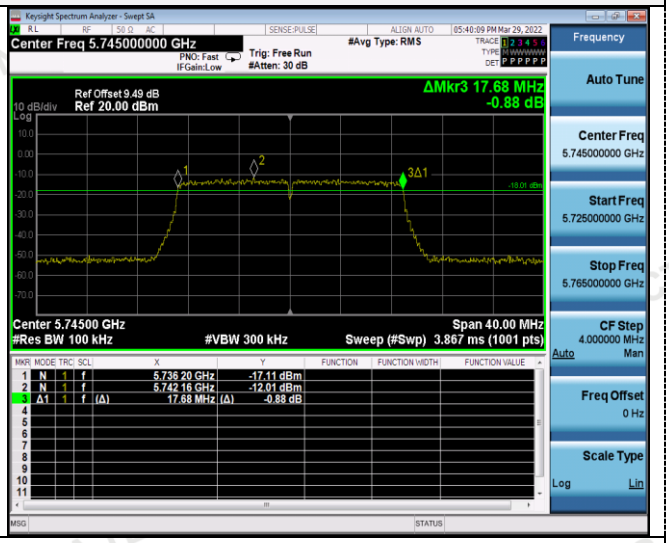
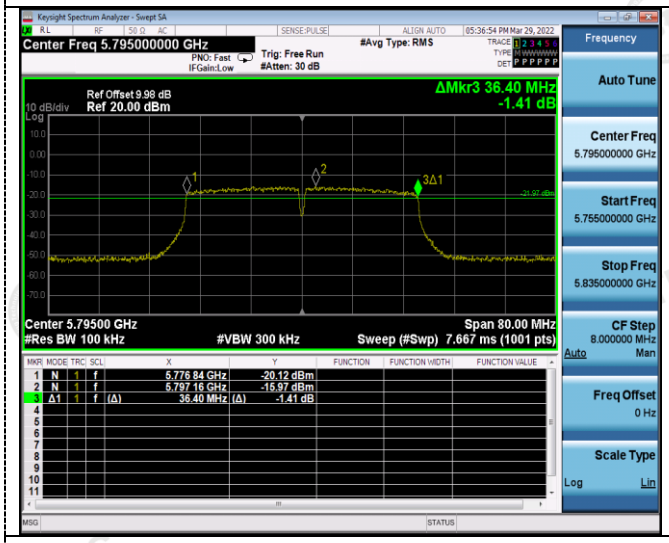
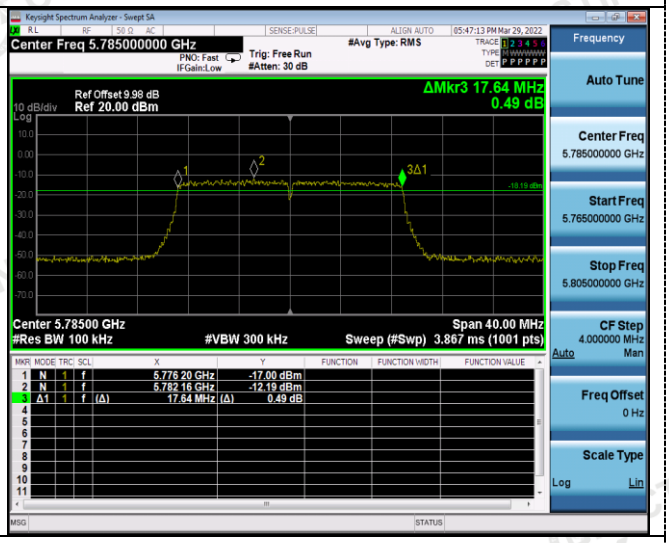


CH151

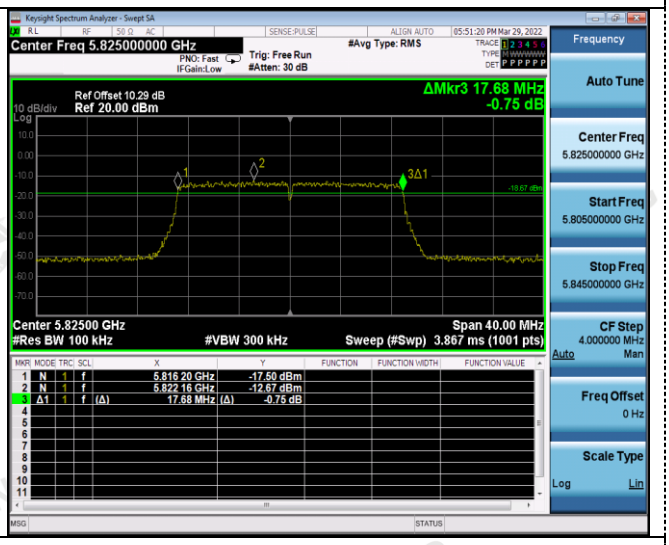
CH149





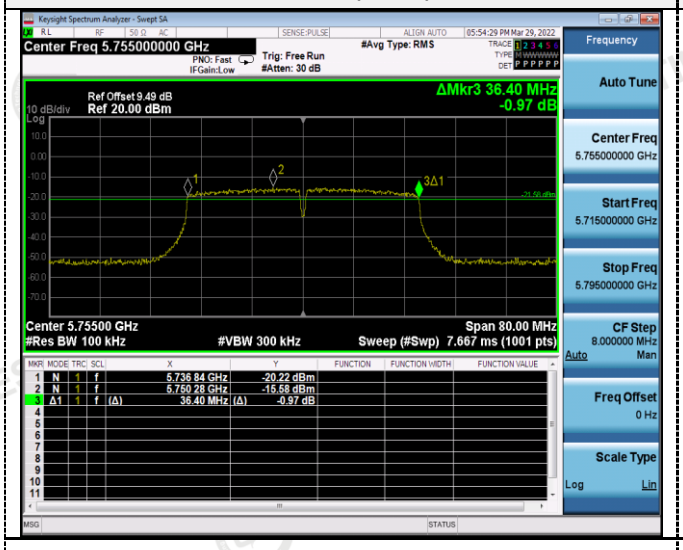
CH159

CH157



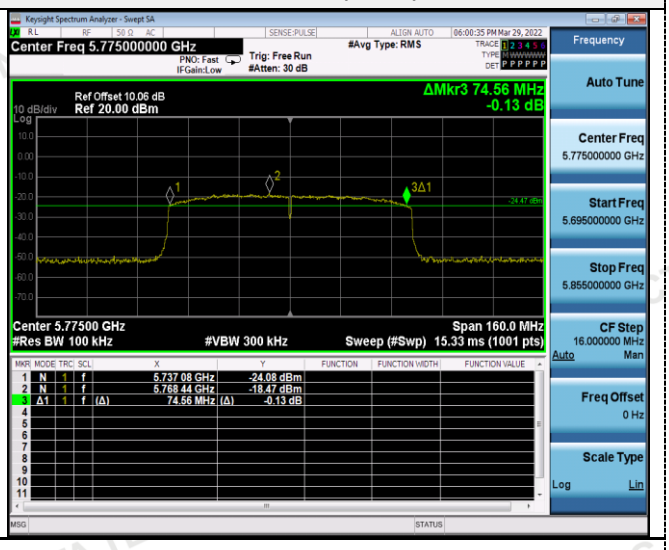
CH165

802.11ac(HT40)

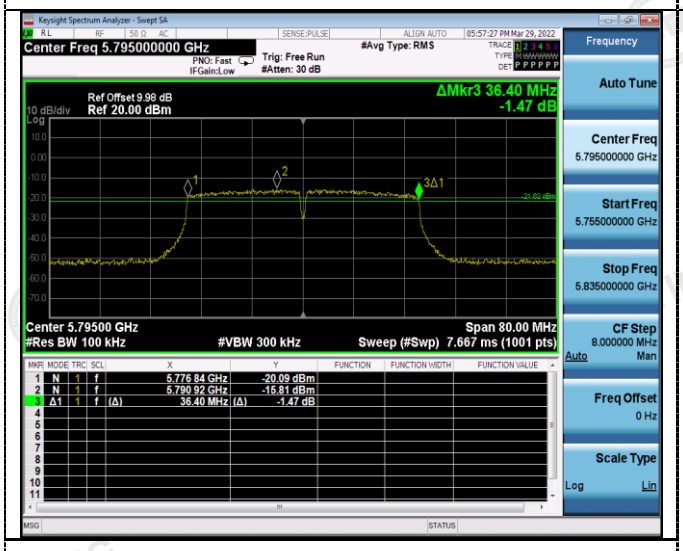


CH151

802.11ac(HT80)



CH155



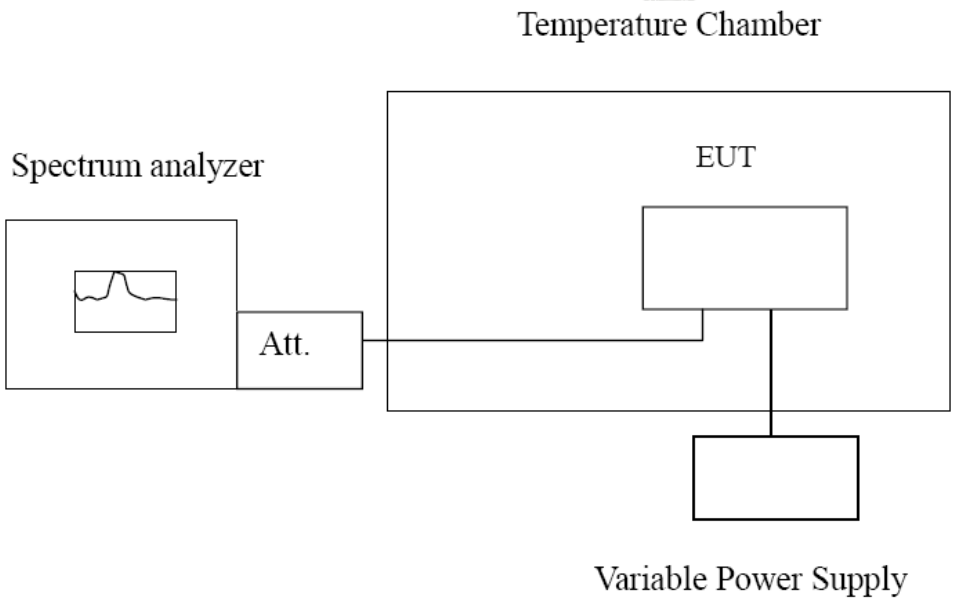
CH159

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℃ 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.

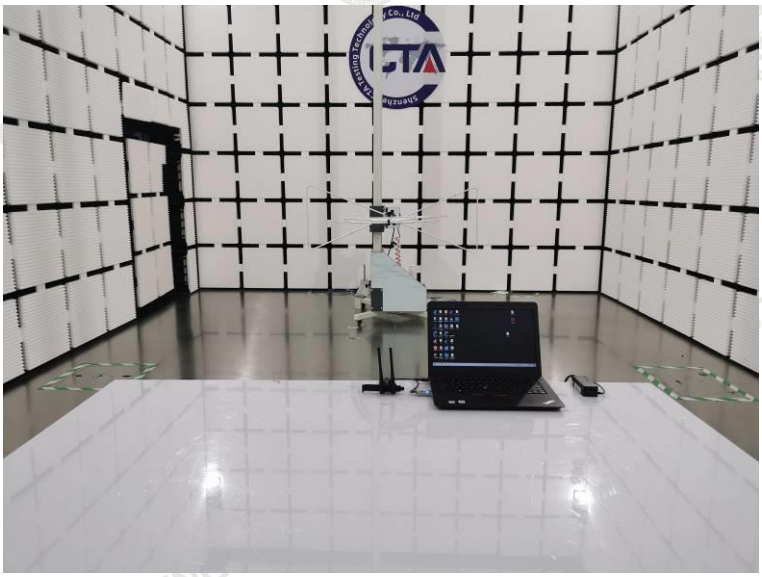
TEST RESULTS

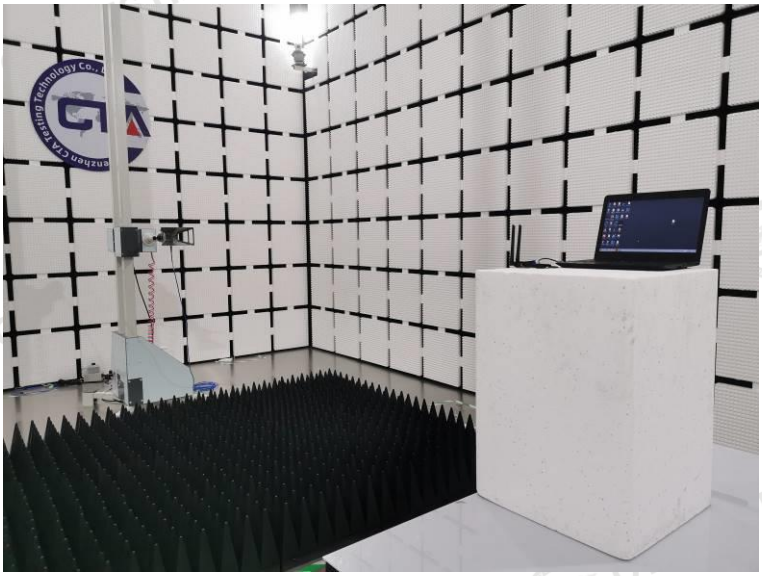
Record worst case as below:

Reference Frequency: 802.11ac channel=36 frequency=5180MHz					
Voltage (V)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
AC230	-30	112.64	0.02175	Within the band of operation	Pass
	-20	168.28	0.03249		
	-10	142.58	0.02753		
	0	113.49	0.02191		
	10	128.63	0.02483		
	20	102.57	0.01980		
	30	135.53	0.02616		
	40	127.47	0.02461		
	50	136.28	0.02631		
AC264.5	25	166.38	0.03212		
AC195.5	25	149.52	0.02886		

Reference Frequency: 802.11ac channel=149 frequency=5745MHz					
Voltage (V)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
AC230	-30	153.53	0.02672	Within the band of operation	Pass
	-20	138.67	0.02414		
	-10	149.63	0.02605		
	0	147.56	0.02568		
	10	139.42	0.02427		
	20	123.84	0.02156		
	30	119.41	0.02079		
	40	164.75	0.02868		
	50	158.42	0.02758		
AC264.5	25	139.42	0.02427		
AC195.5	25	128.54	0.02237		

5 Test Setup Photos of the EUT





6 Photos of the EUT

Reference to the test report No. **CTA22032100101**

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