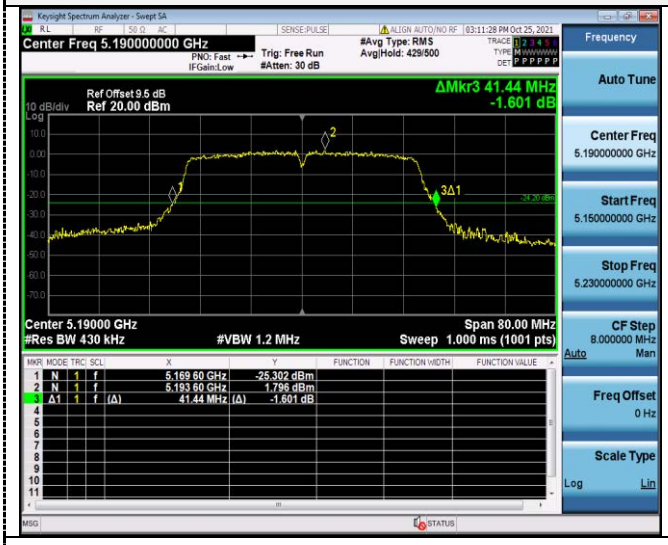
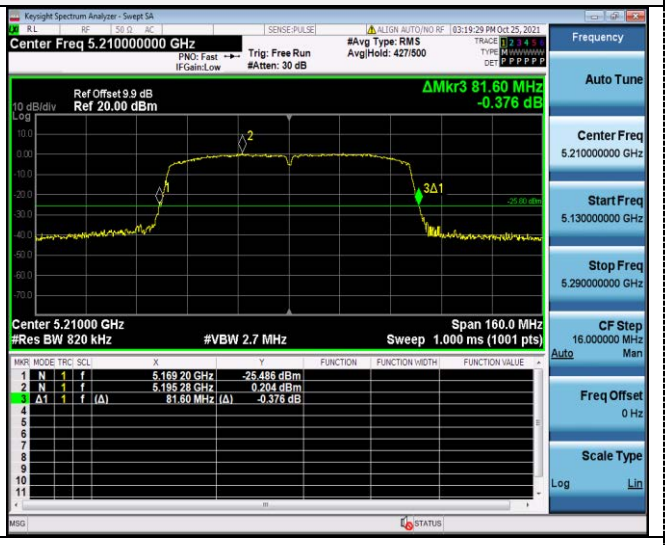
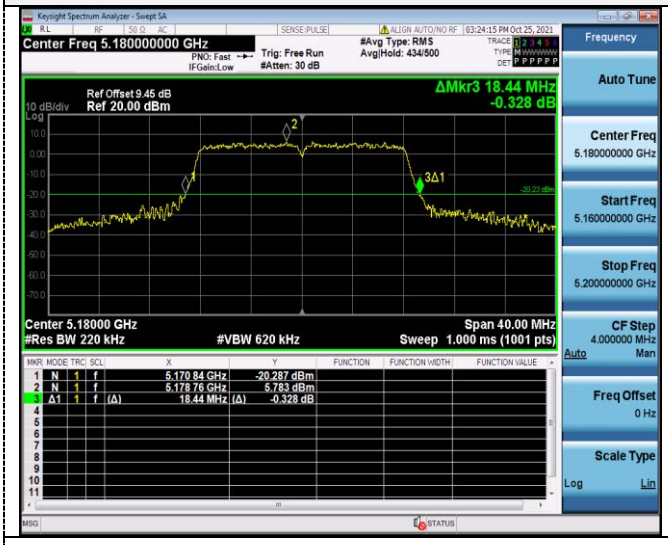
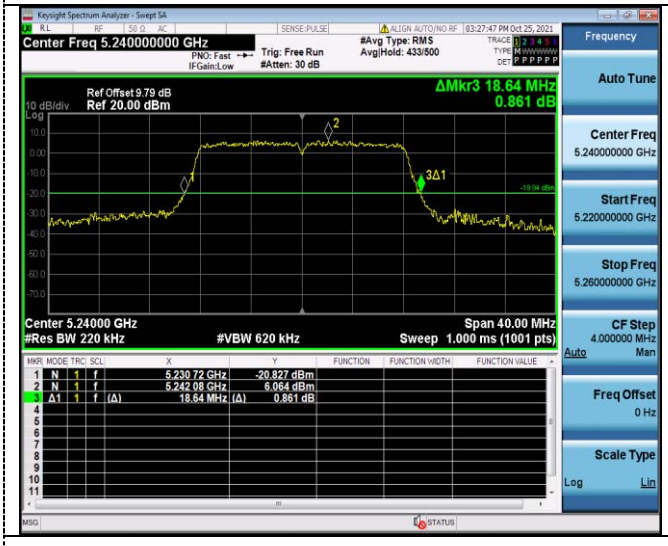
802.11ac(HT40)	802.11ac(HT80)
	
CH38	CH42
	
CH46	

ANT2

802.11a	*802.11n(HT20)*
	
CH36	*CH36*
	
CH40	*CH40*
	
CH48	*CH48*

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)

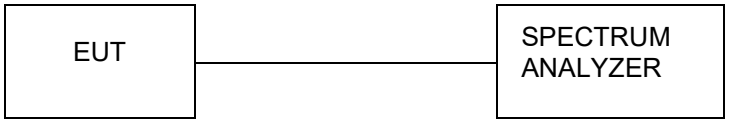
Limit

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

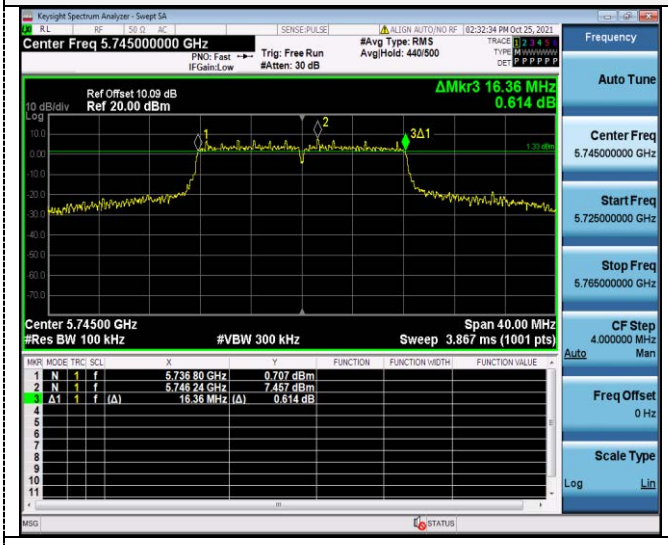
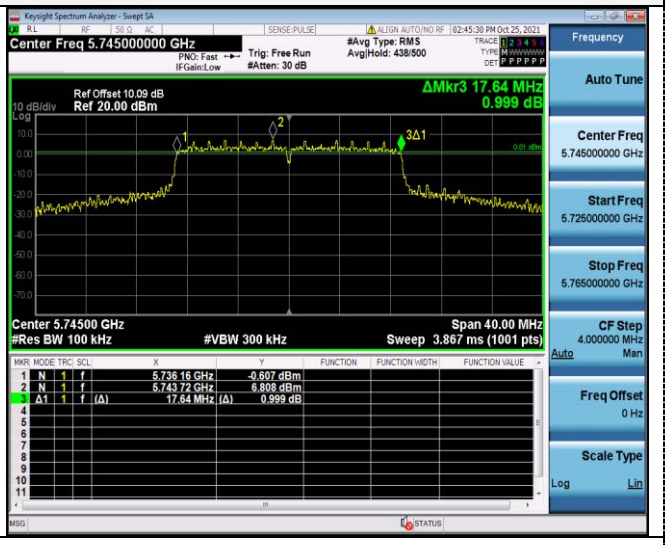
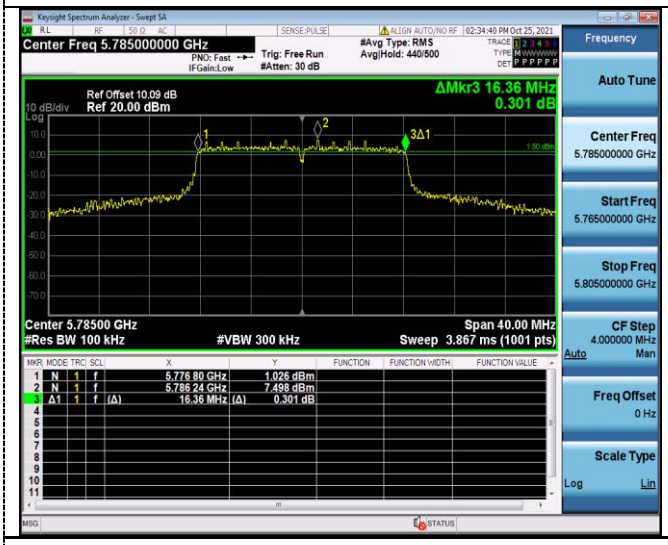
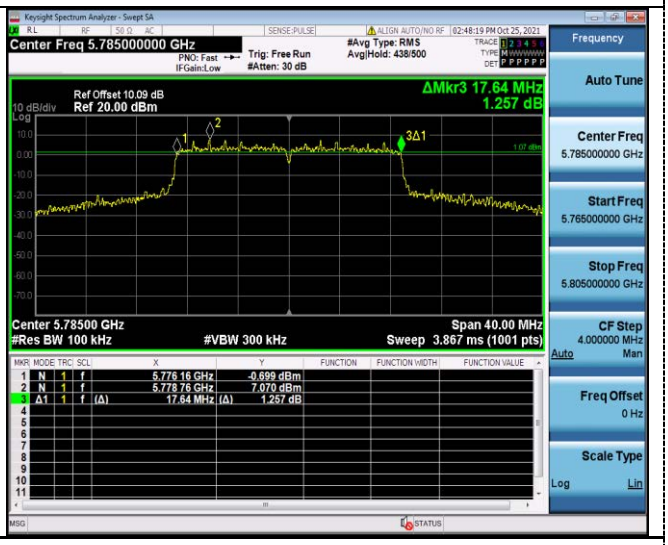
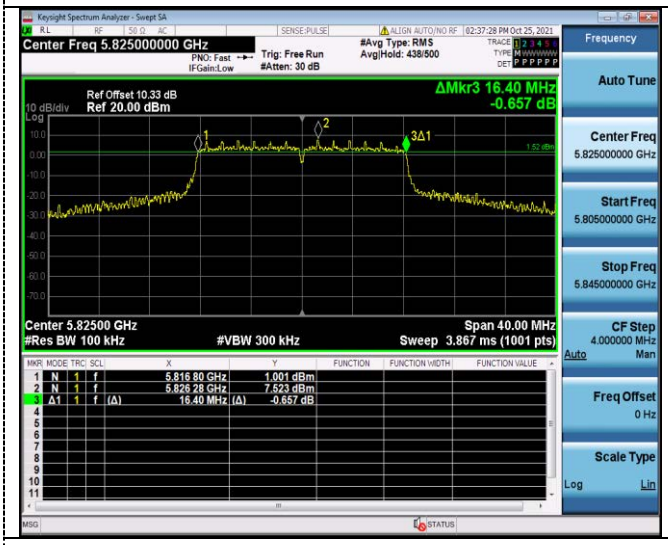
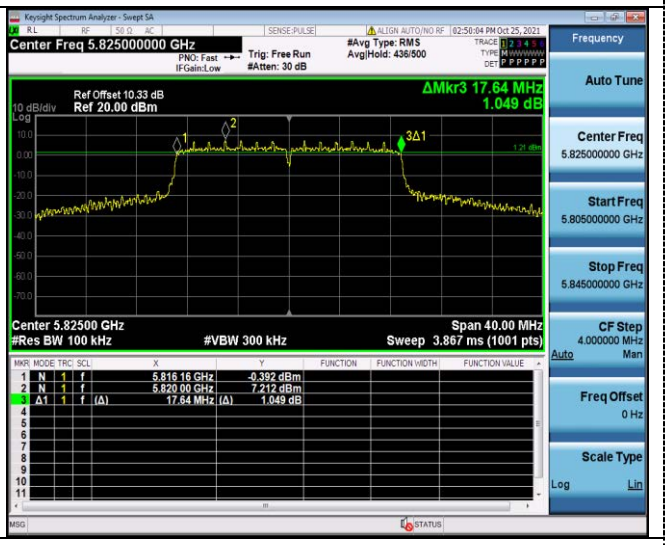
Temperature	22.8℃	Humidity	56%
Test Engineer	Moon Tan	Configurations	WLAN 5G

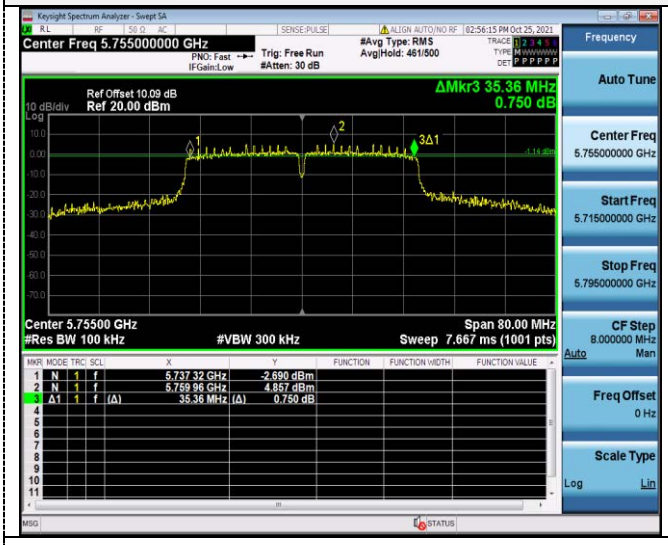
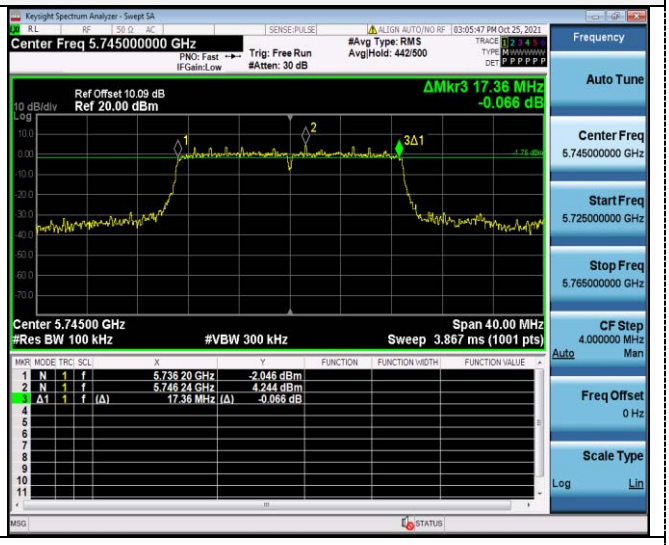
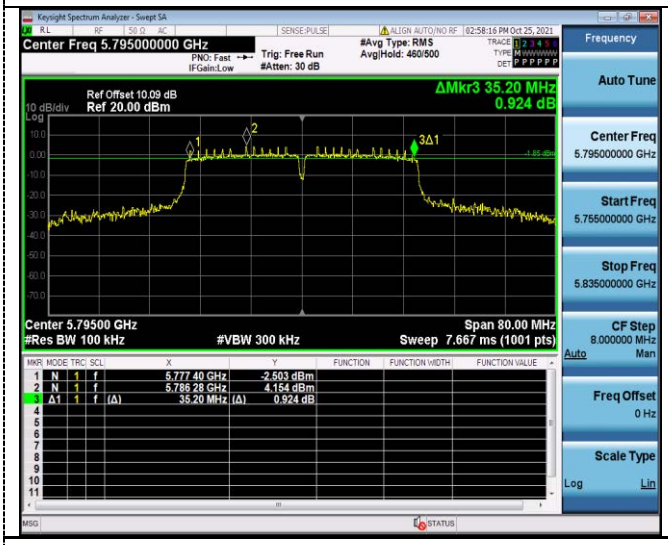
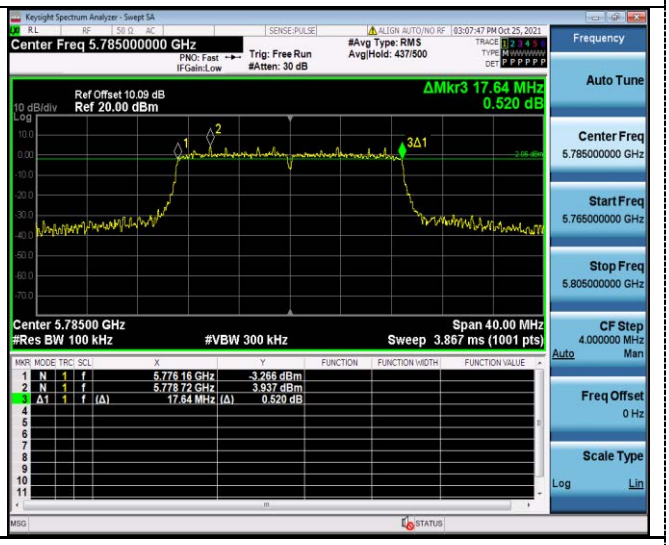
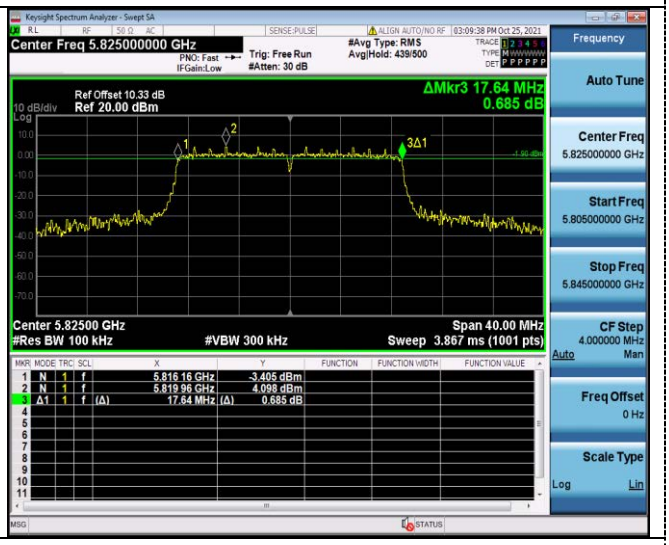
Type	Bands	Channel	6dB Bandwidth (MHz)		Limit (KHz)	Result
			Ant. 1	Ant. 2		
802.11a	U-NII 3	149	16.36	16.40	≥500KHz	Pass
		157	16.36	16.40		
		165	16.40	16.36		
802.11n(HT20)	U-NII 3	149	17.64	17.28		
		157	17.64	17.32		
		165	17.64	17.16		
802.11n(HT40)	U-NII 3	151	35.36	35.28		
		159	35.20	35.44		
802.11ac(HT20)	U-NII 3	149	17.36	17.64		
		157	17.64	17.32		
		165	17.64	17.28		
802.11ac(HT40)	U-NII 3	151	35.36	35.36		
		159	35.28	35.36		
802.11ac(HT80)	U-NII 3	155	75.52	75.52		

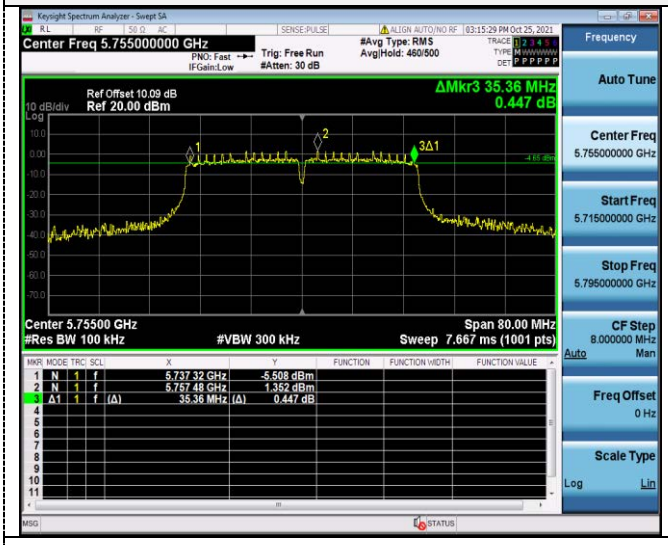
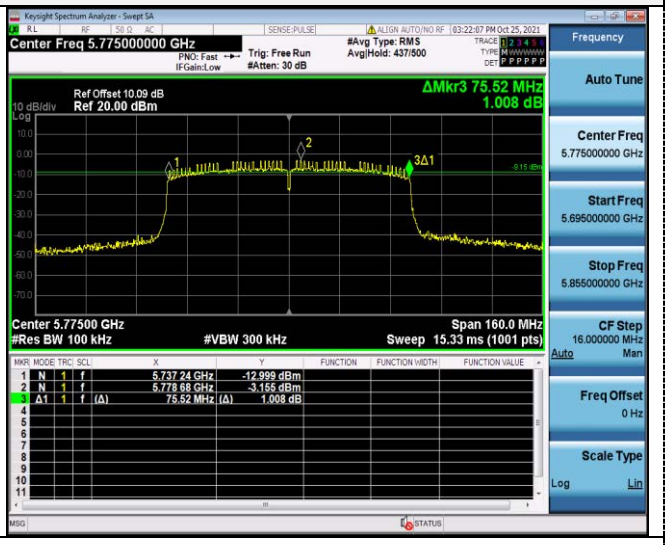
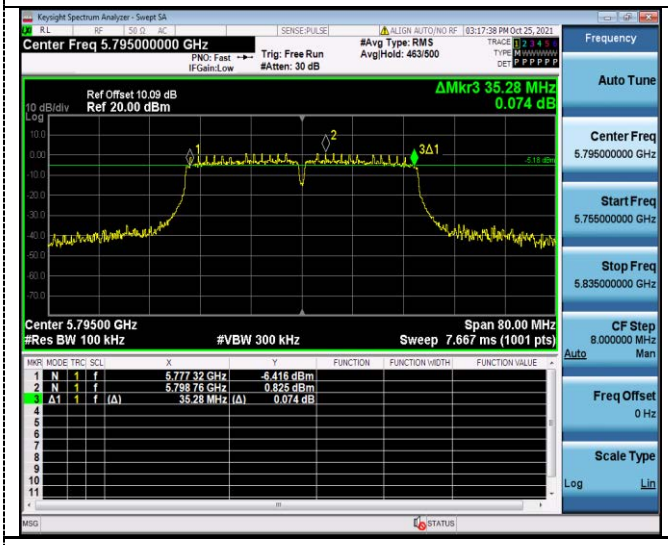
Note:

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;*

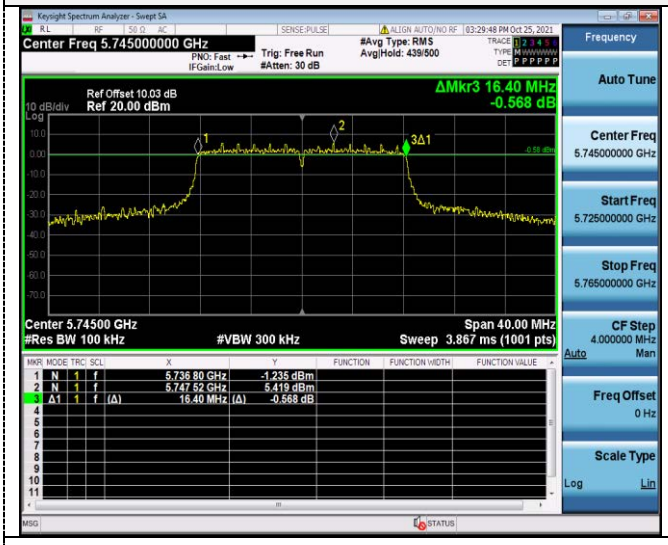
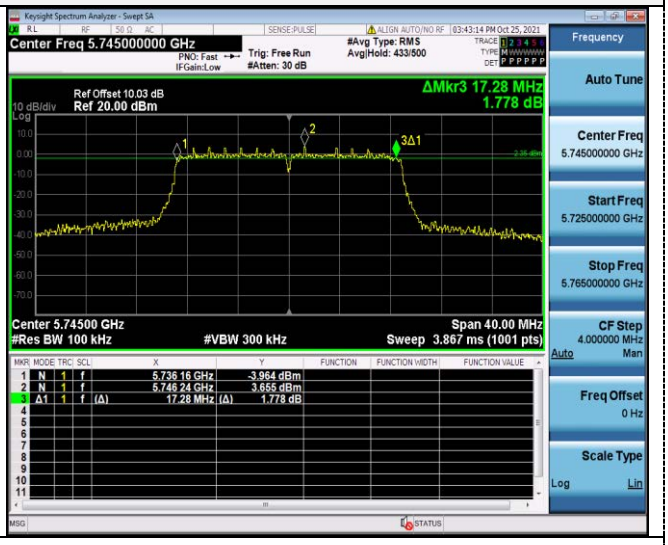
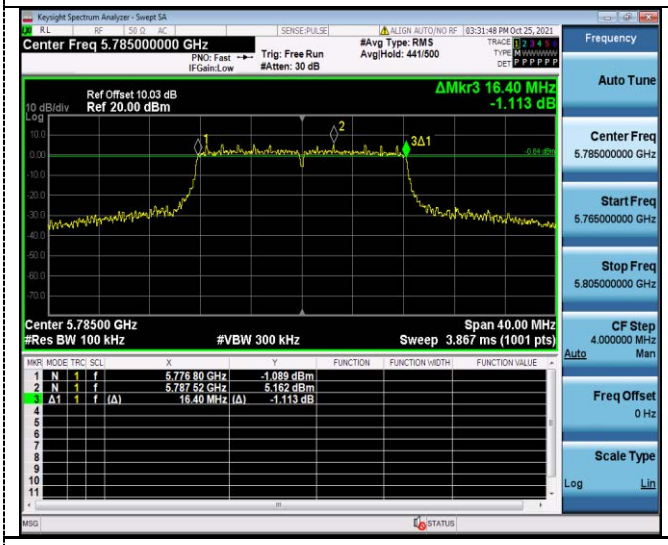
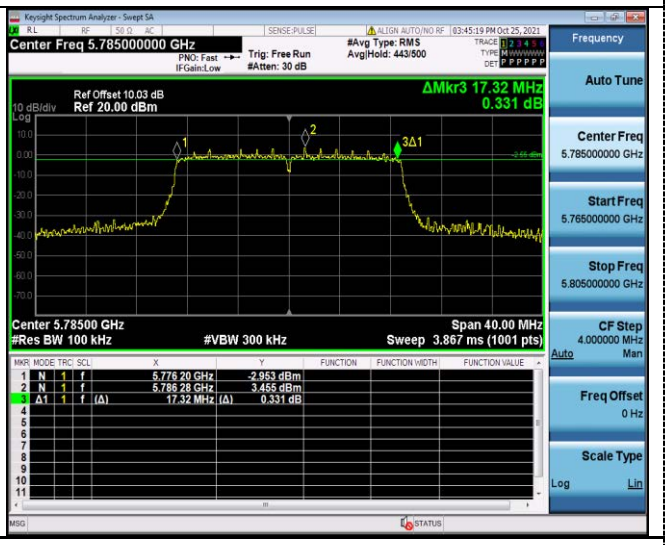
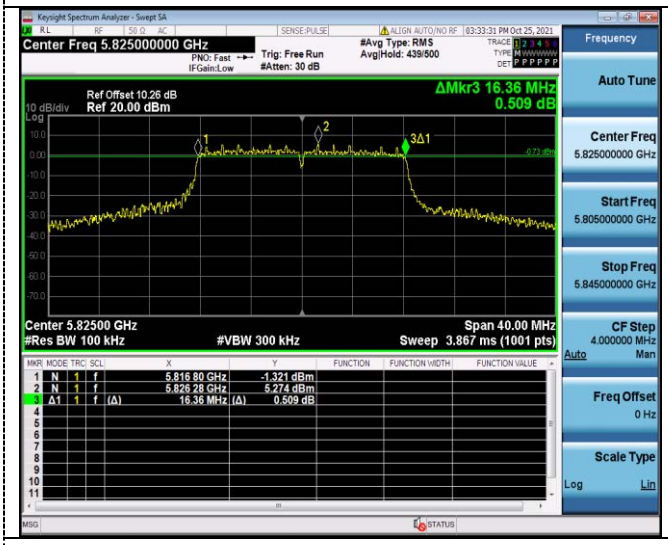
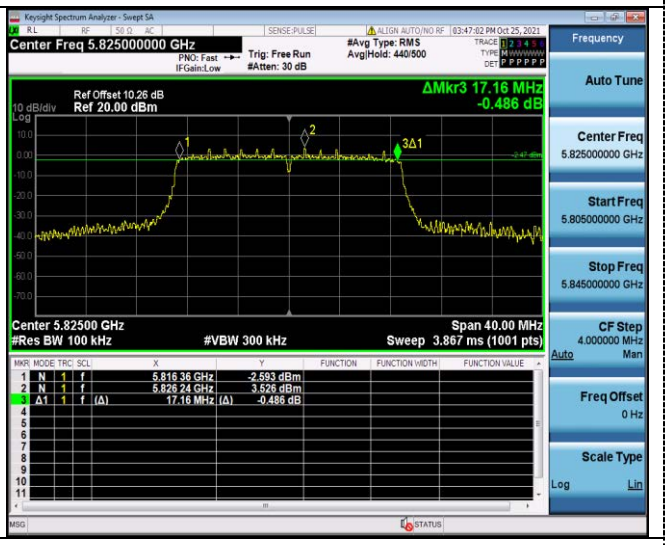
ANT1

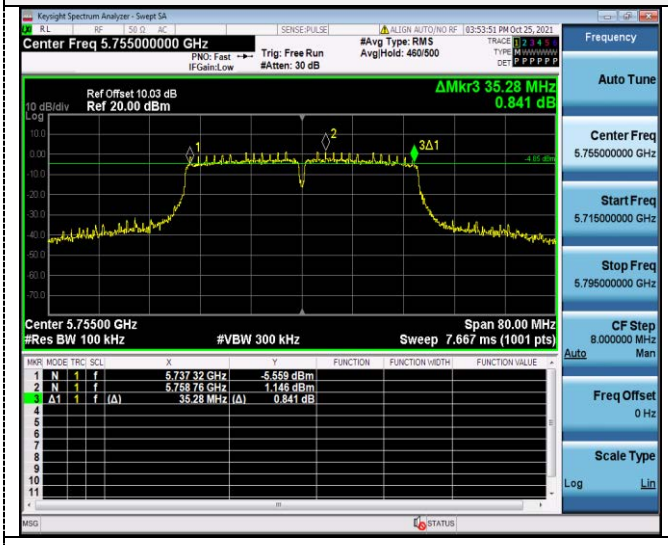
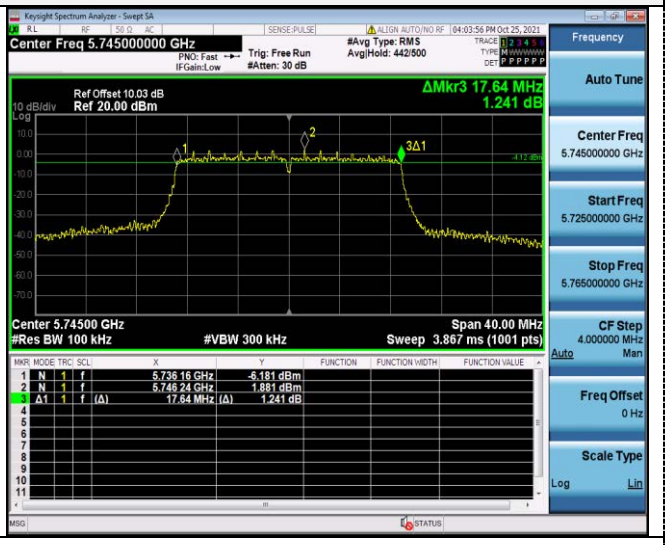
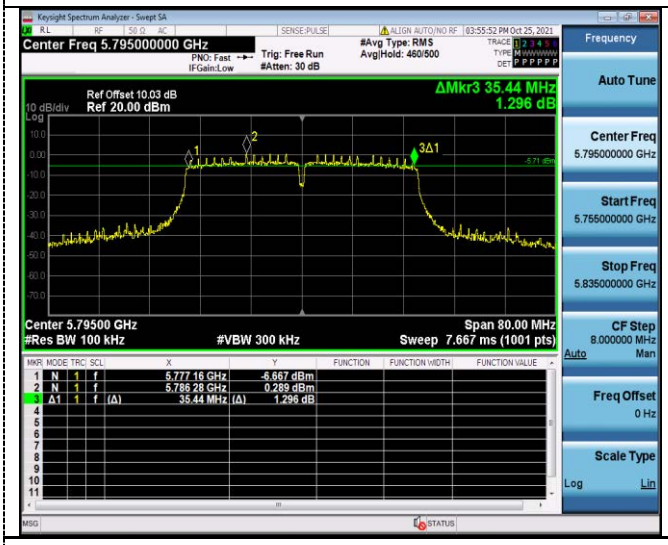
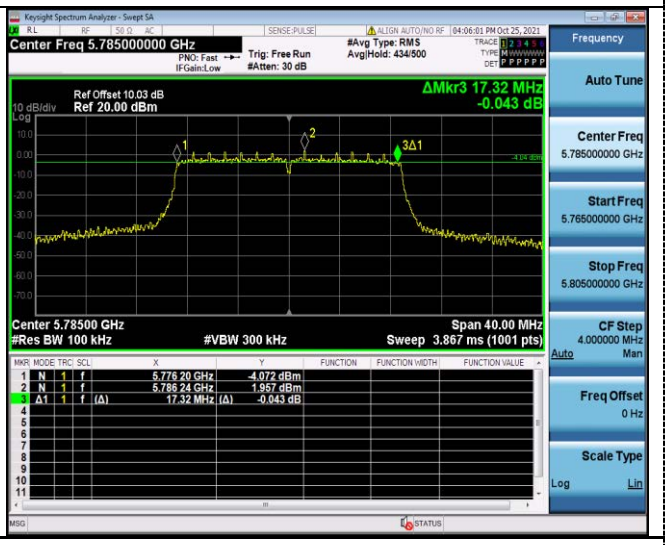
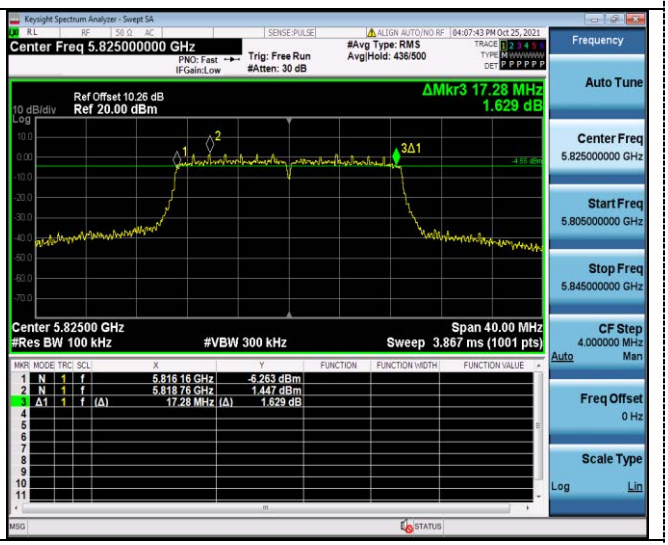
802.11a	*802.11n(HT20)*
	
CH149	*CH149*
	
CH157	*CH157*
	
CH165	*CH165*

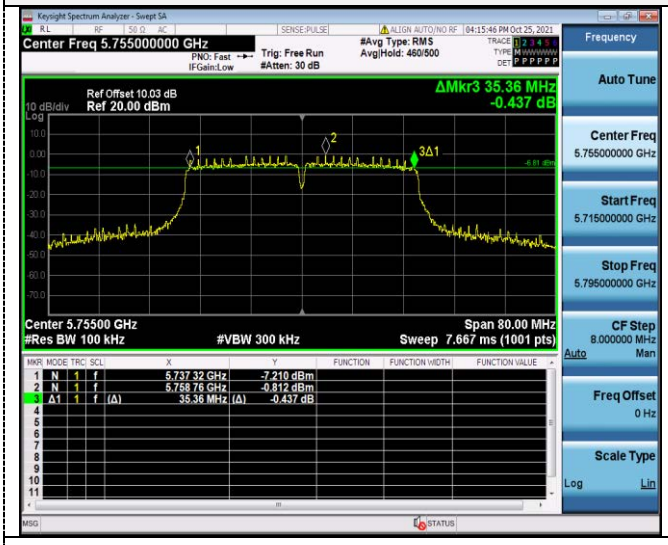
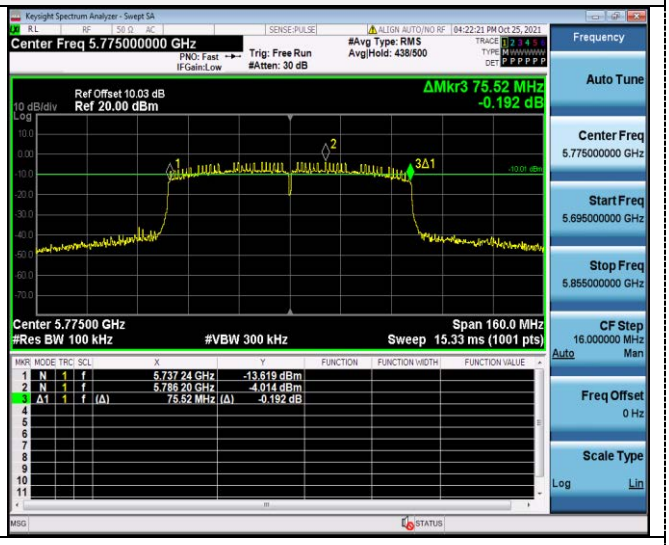
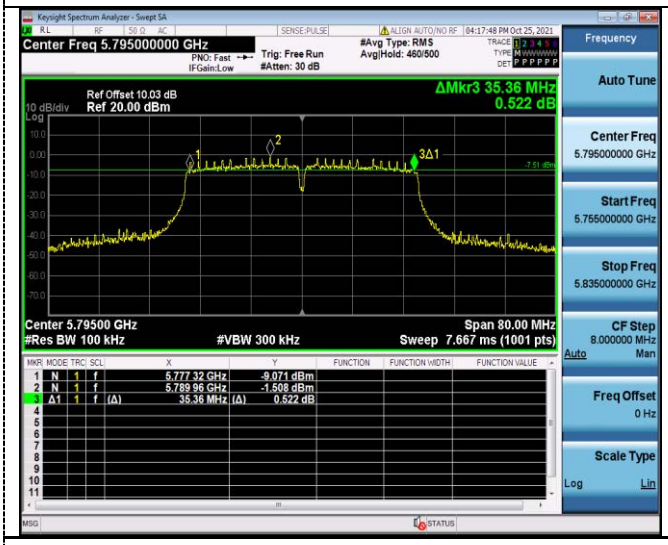
802.11n(HT40)	802.11ac(HT20)
	
CH151	CH149
	
CH159	CH157
	
	CH165

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

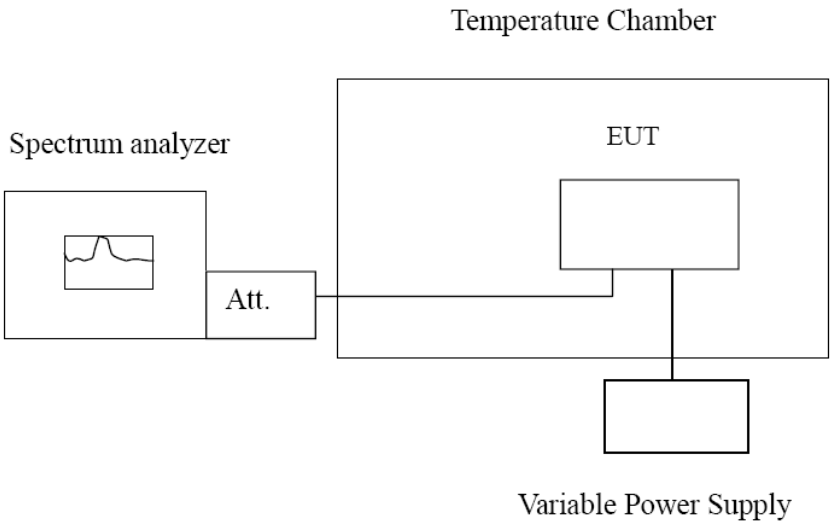
802.11ac(HT40)	*802.11ac(HT80)*
	
CH151	*CH155*
	
CH159	

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℃ 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

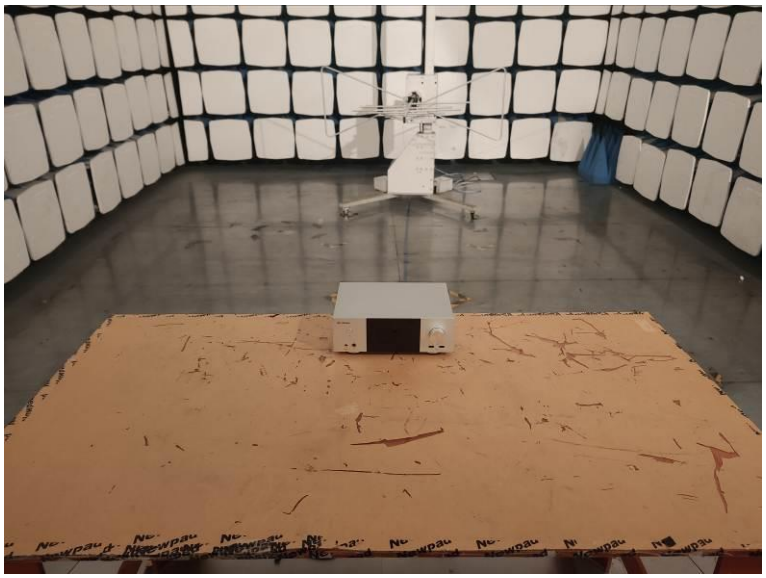
Temperature	22.8℃	Humidity	56%
Test Engineer	Moon Tan	Configurations	WLAN 5G

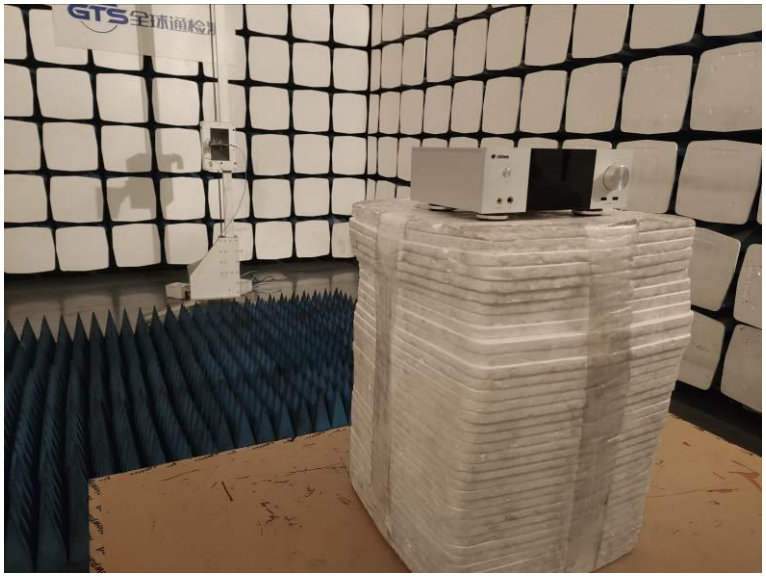
Record worst case (802.11a) as below:

Reference Frequency: 802.11a channel=36 frequency=5180MHz					
Voltage (V)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
120	-30	35.82	0.007	Within the band of operation	Pass
	-20	54.09	0.010		
	-10	60.70	0.012		
	0	68.96	0.013		
	10	62.08	0.012		
	20	72.07	0.014		
	30	95.54	0.018		
	40	47.17	0.009		
	50	77.12	0.015		
138	25	92.28	0.018		
102	25	36.77	0.007		

Reference Frequency: 802.11a channel=149 frequency=5745MHz					
Voltage (V)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
120	-30	51.09	0.009	Within the band of operation	Pass
	-20	51.91	0.009		
	-10	82.53	0.014		
	0	58.56	0.010		
	10	63.21	0.011		
	20	50.97	0.009		
	30	39.73	0.007		
	40	53.92	0.009		
	50	85.30	0.015		
138	25	40.14	0.007		
102	25	74.53	0.013		

5 Test Setup Photos of the EUT





6 Photos of the EUT

Reference to the test report No. GTS20211014005-1-1

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