

802.11n(HT40)



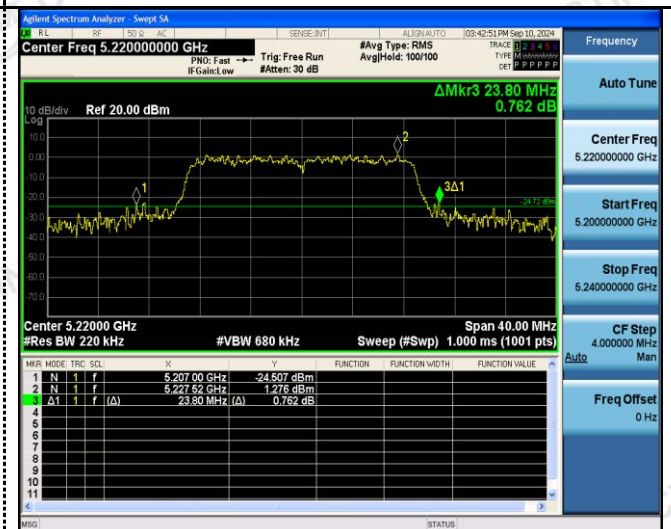
802.11ac(HT20)



CH38



CH36



CH46



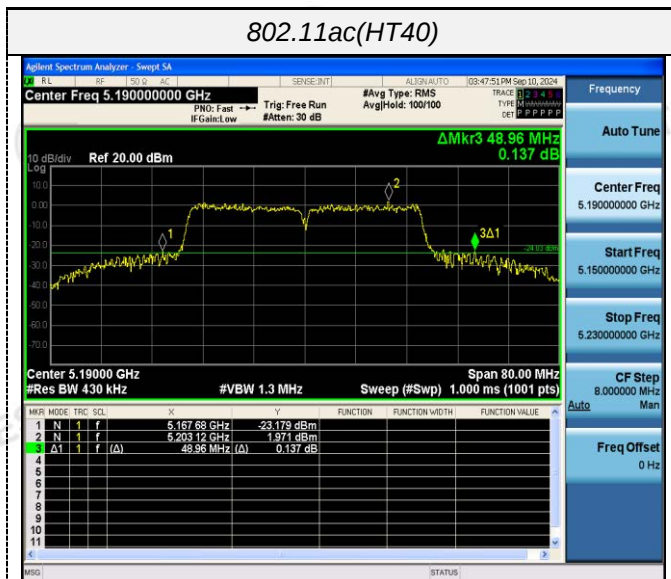
CH40



CH48



802.11ac(HT40)

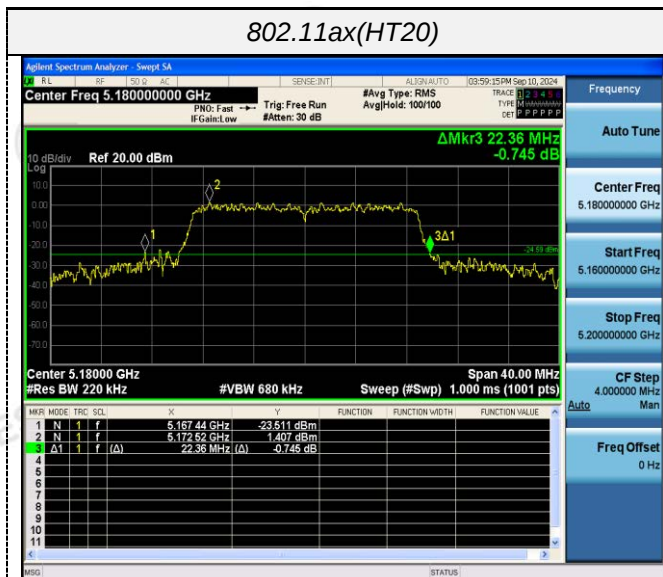


CH38

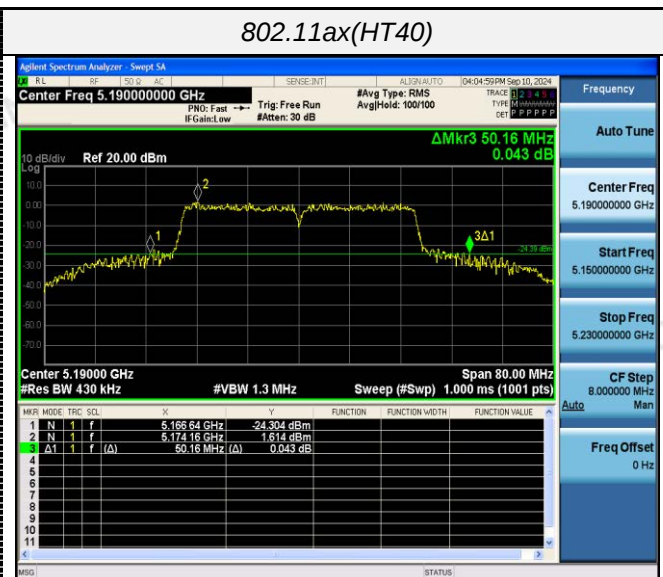


CH46

802.11ax(HT20)



802.11ax(HT40)



CH36



CH38



CH44



CH46



CH48

ANT 2

802.11a



802.11n(HT20)



CH36



CH36



CH40



CH40



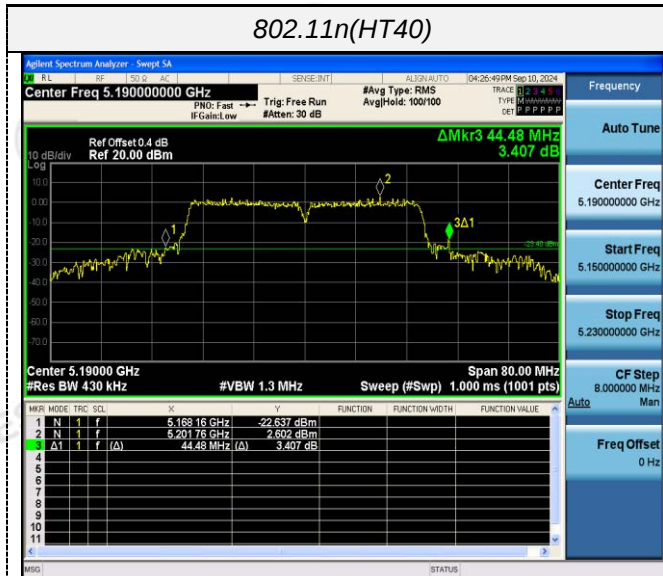
CH48



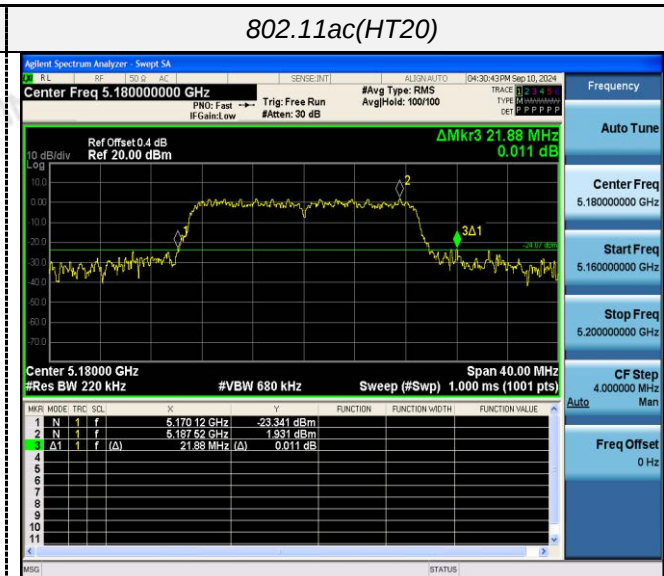
CH48



802.11n(HT40)



802.11ac(HT20)



CH38



CH36



CH46



CH40



CH48

802.11ac(HT40)

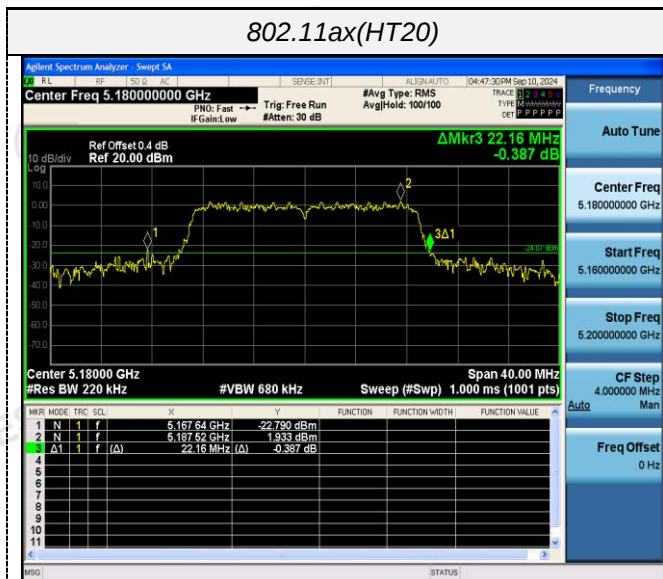


CH38

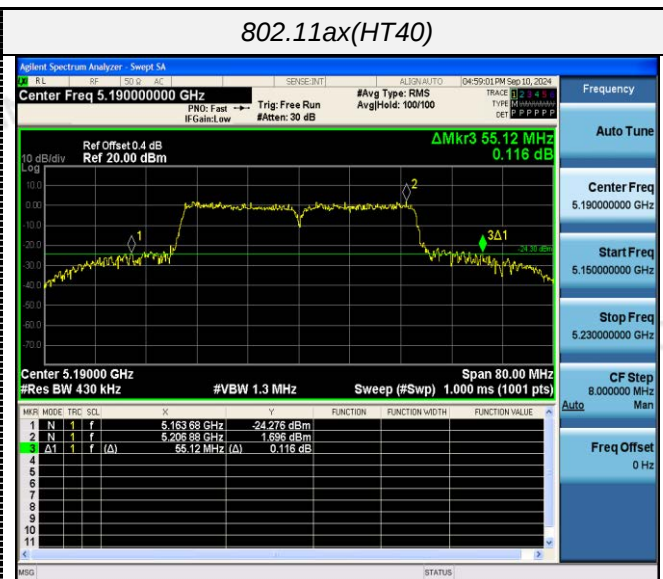


CH46

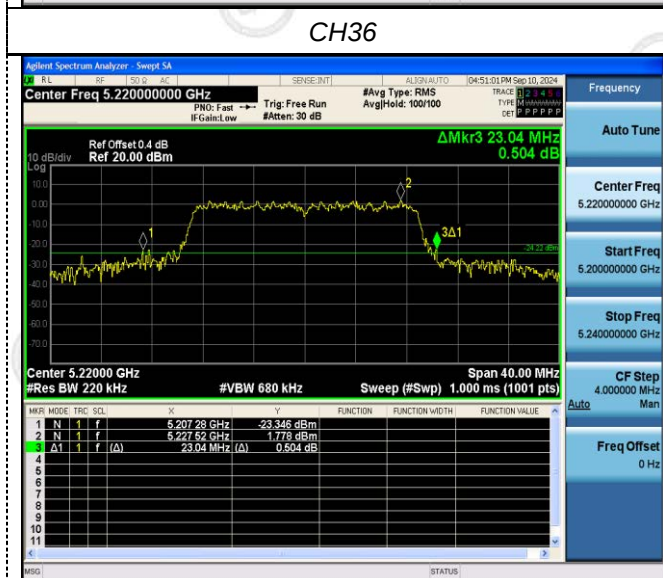
802.11ax(HT20)



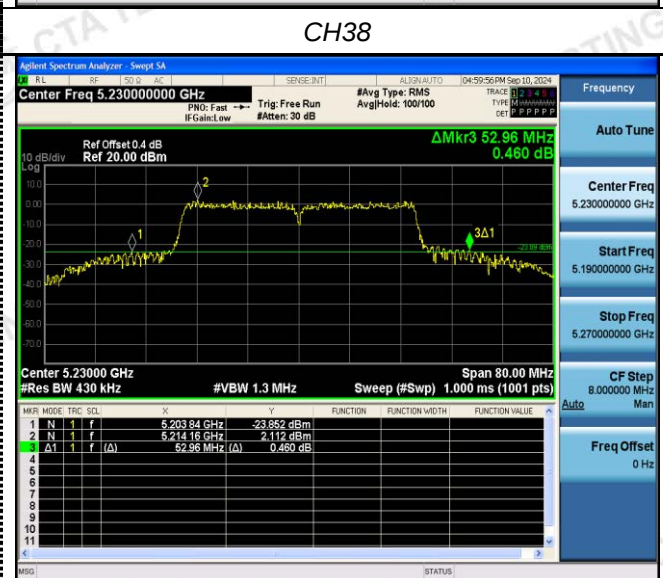
802.11ax(HT40)



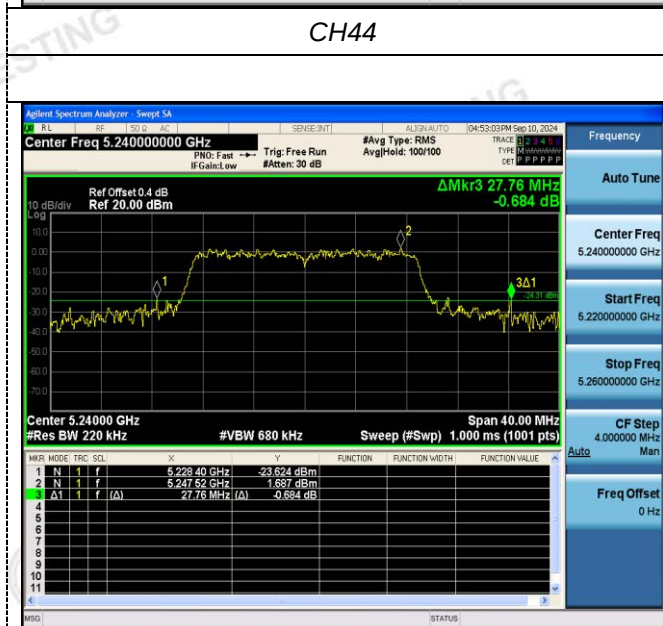
CH36



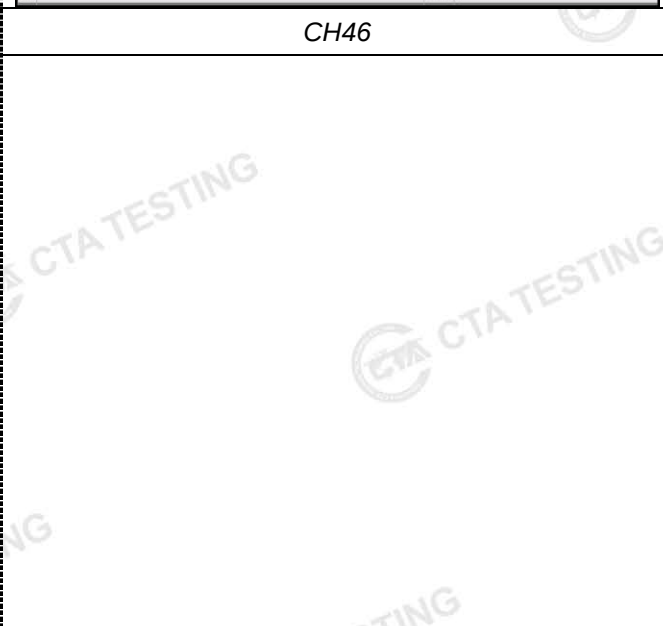
CH38



CH44



CH46



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

ANT 1

Type	Bands	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	U-NII 3	149	16.320	≥500KHz	Pass
		157	16.320		
		165	16.320		
802.11n(HT20)	U-NII 3	149	17.120		
		157	17.240		
		165	17.000		
802.11n(HT40)	U-NII 3	151	35.920		
		159	35.840		
802.11ac(HT20)	U-NII 3	149	17.080		
		157	17.120		
		165	17.240		
802.11ac(HT40)	U-NII 3	151	35.760		
		159	35.760		
802.11ax(HT20)	U-NII 3	149	16.920		
		157	16.840		
		165	16.960		
802.11ax(HT40)	U-NII 3	151	36.080		
		159	36.160		

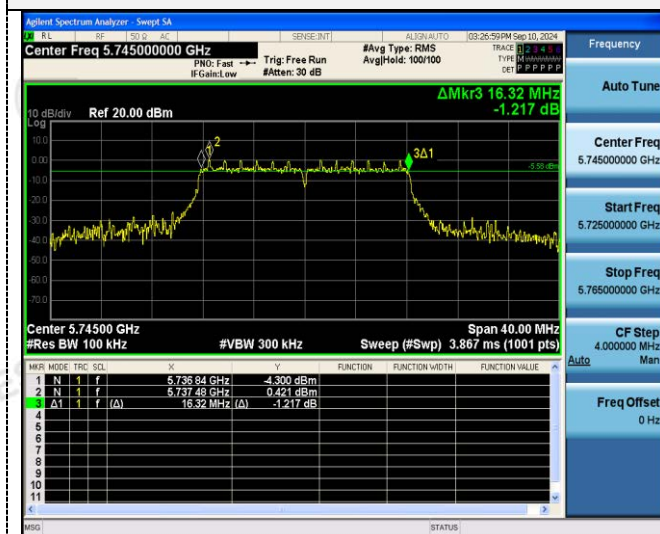
ANT 2

Type	Bands	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	U-NII 3	149	16.360	≥500KHz	Pass
		157	16.320		
		165	16.320		
802.11n(HT20)	U-NII 3	149	17.080		
		157	16.960		
		165	17.080		
802.11n(HT40)	U-NII 3	151	35.520		
		159	35.680		
802.11ac(HT20)	U-NII 3	149	17.120		
		157	16.720		
		165	17.160		
802.11ac(HT40)	U-NII 3	151	35.760		
		159	35.840		
802.11ax(HT20)	U-NII 3	149	16.800		
		157	16.880		
		165	17.120		
802.11ax(HT40)	U-NII 3	151	35.840		
		159	35.760		

Test plot as follows:

ANT 1

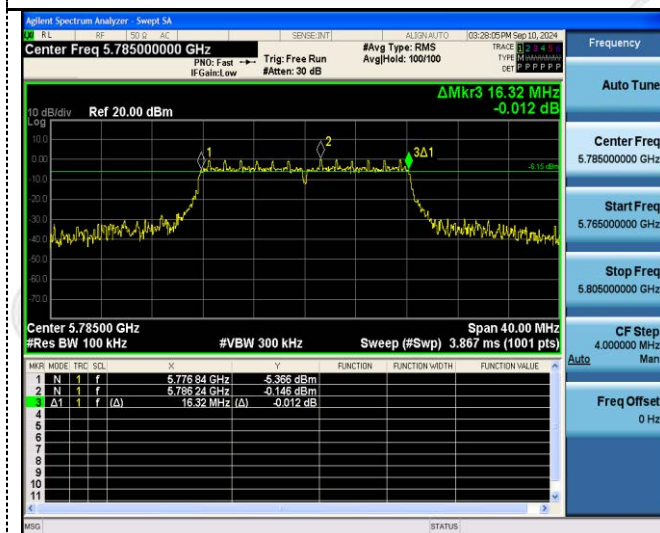
802.11a



802.11n(HT20)



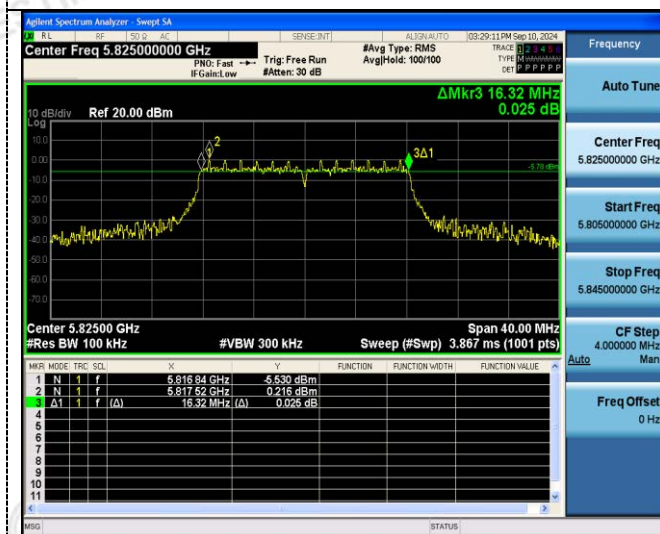
CH149



CH149



CH157



CH157



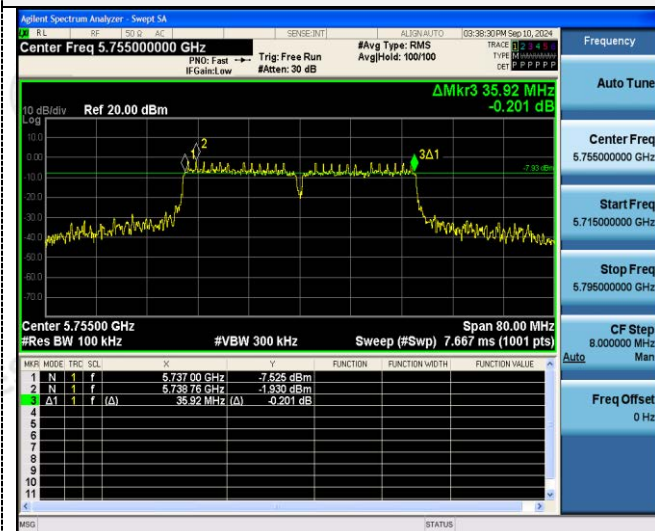
CH165



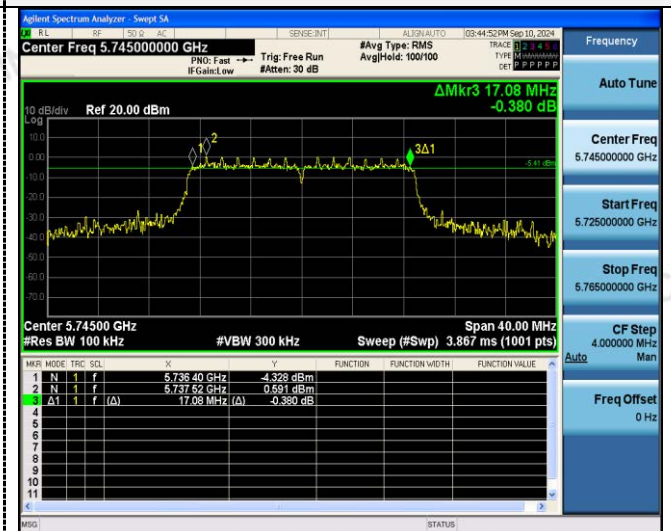
CH165



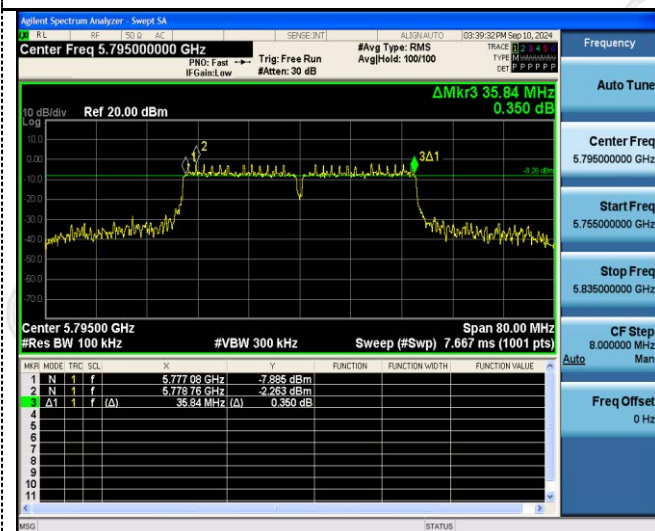
802.11n(HT40)



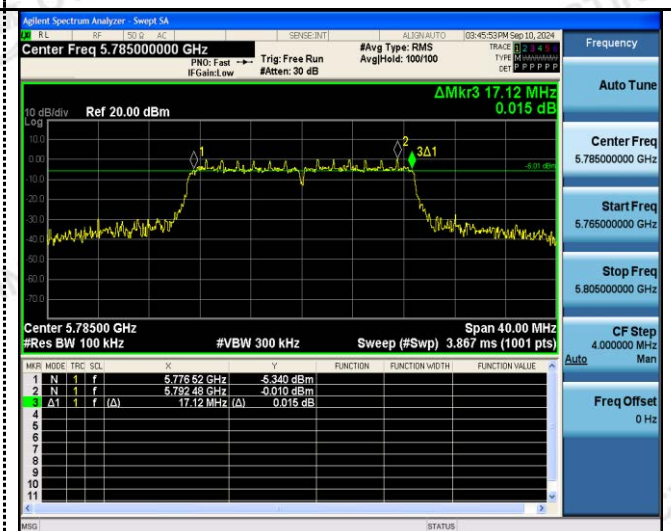
802.11ac(HT20)



CH151



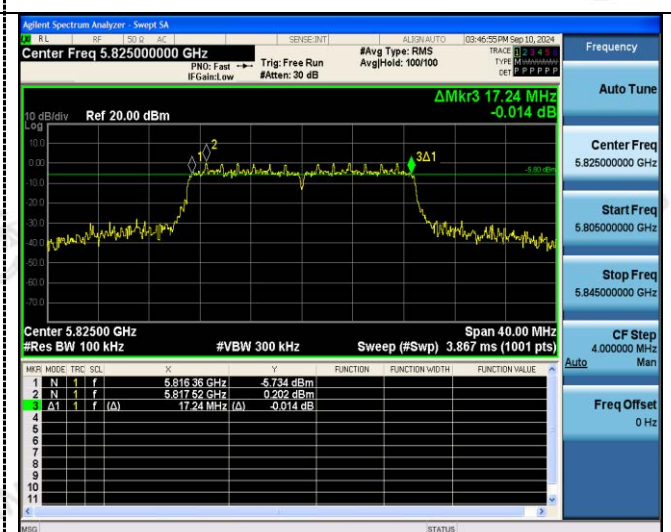
CH149



CH159

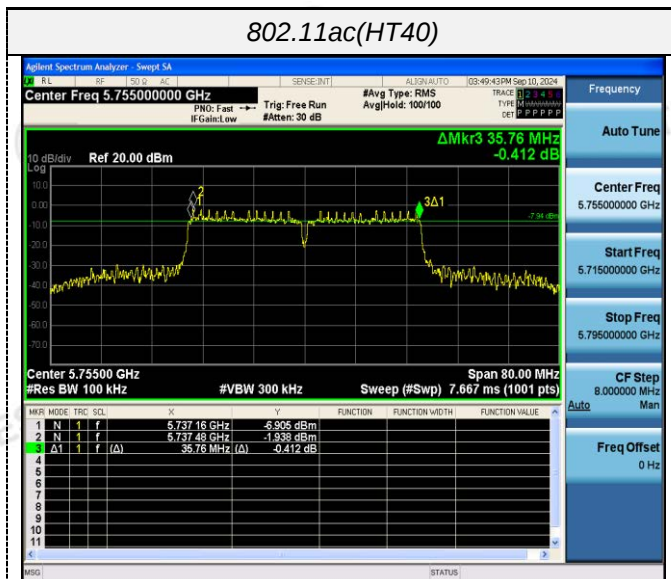


CH157

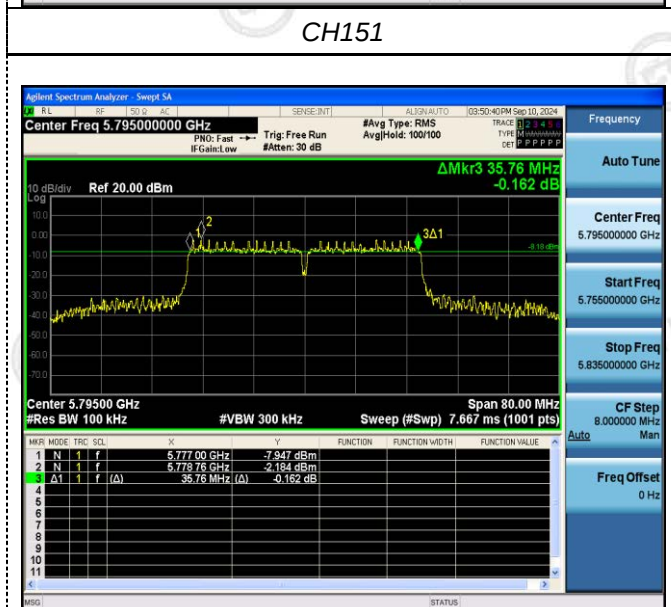


CH165

802.11ac(HT40)

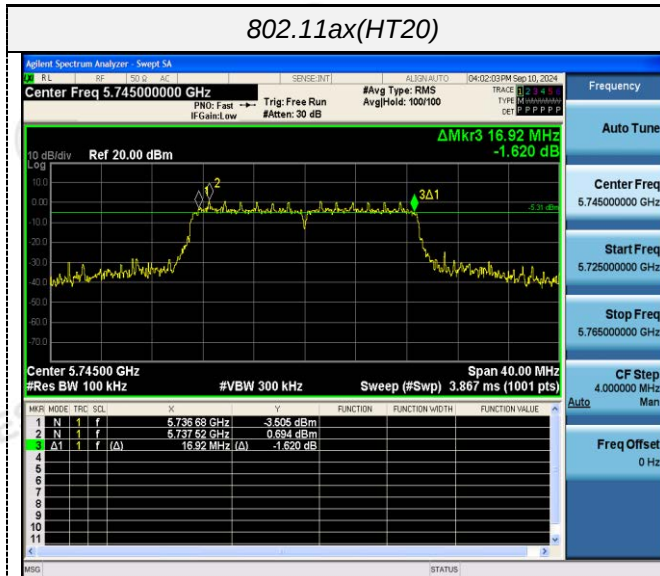


CH151

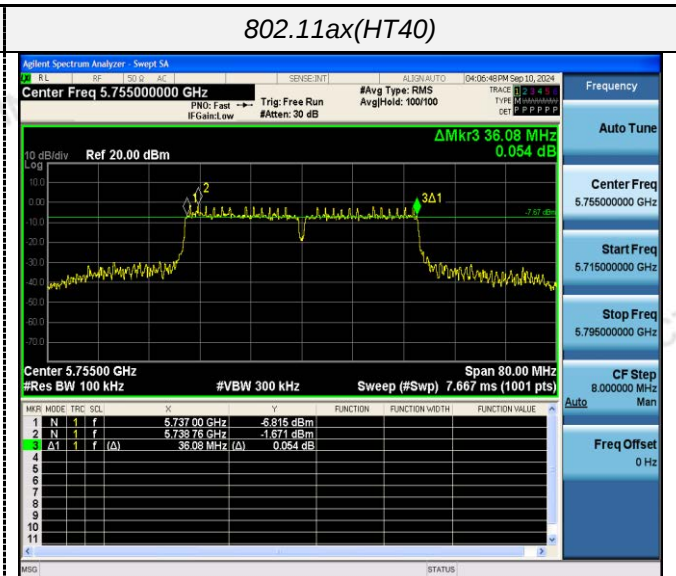


CH159

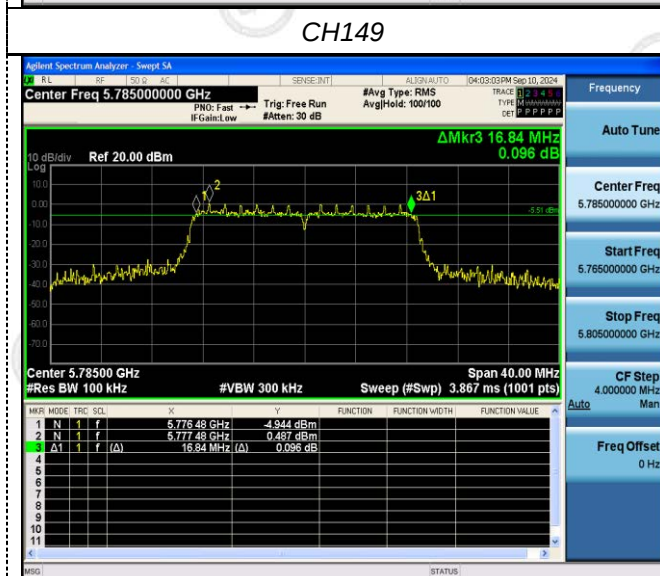
802.11ax(HT20)



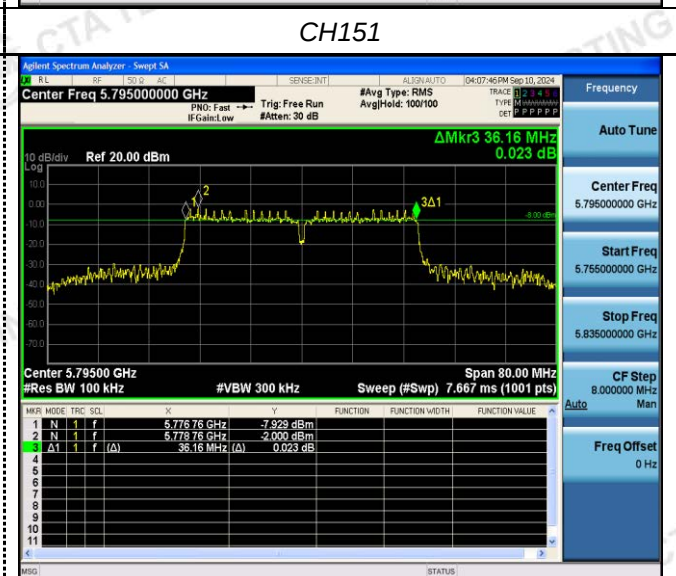
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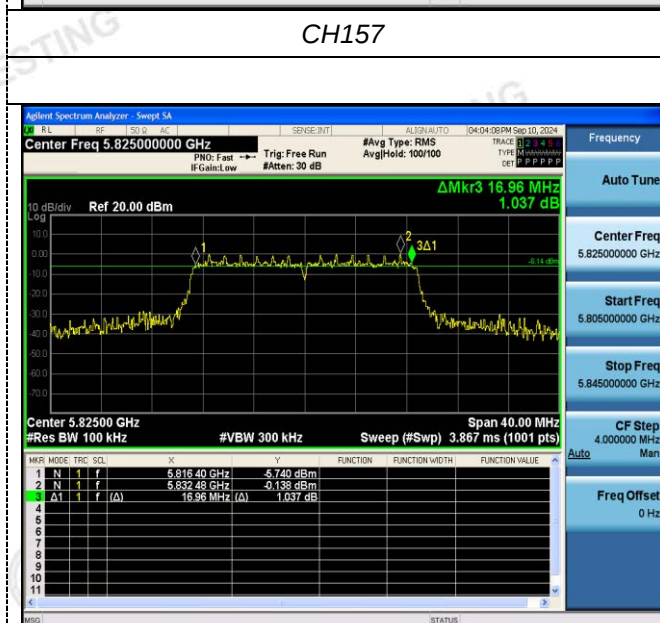
CH149



CH151



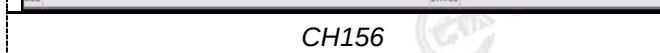
CH157



CH159

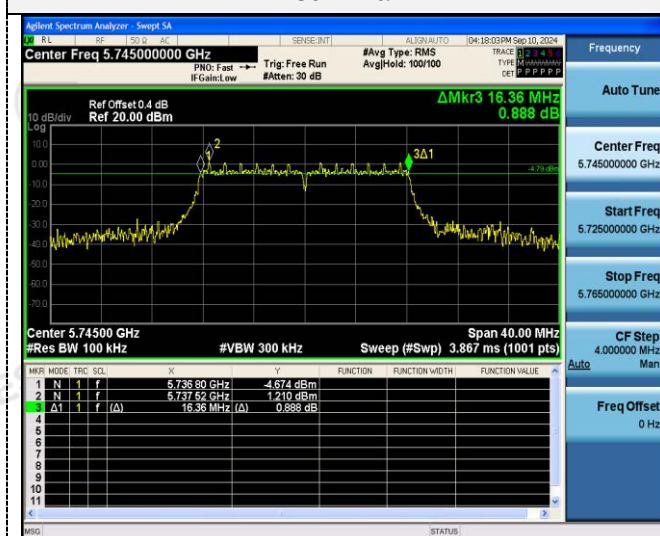


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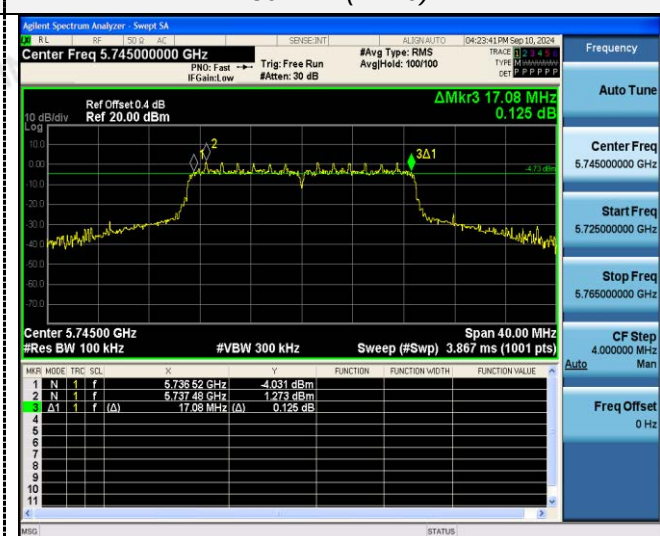


ANT 2

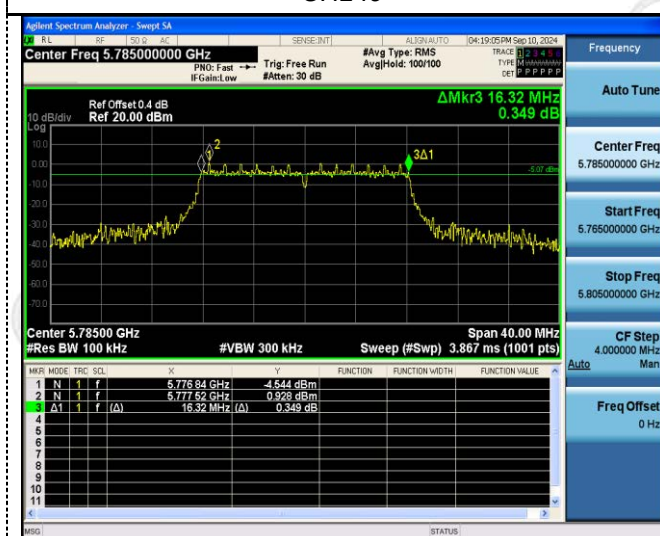
802.11a



802.11n(HT20)



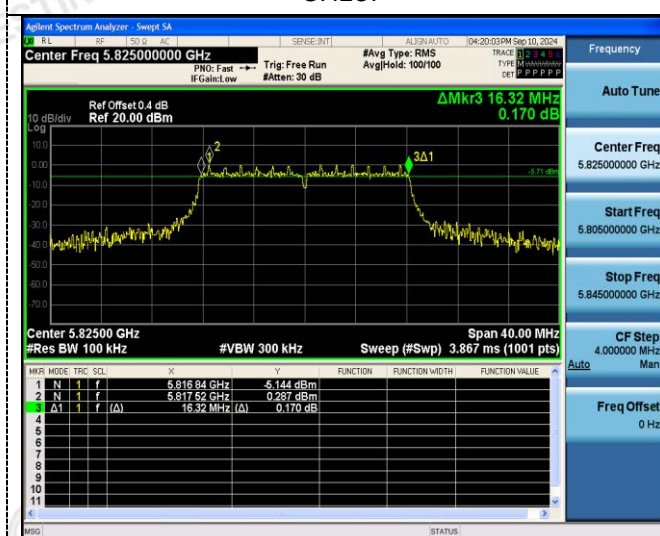
CH149



CH149



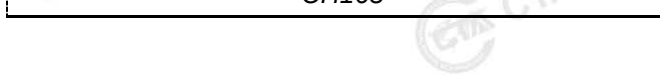
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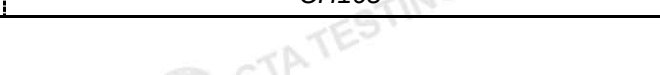
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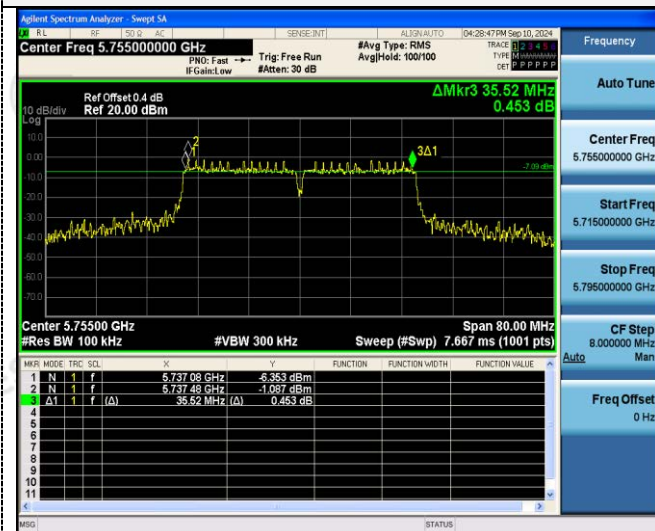
CH165



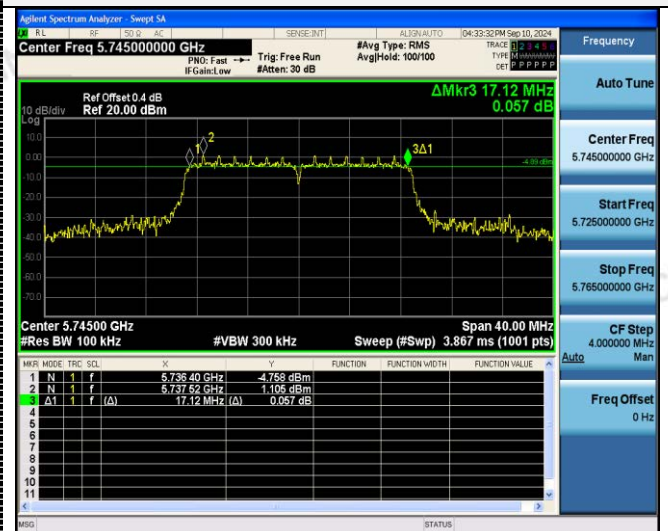
CH165



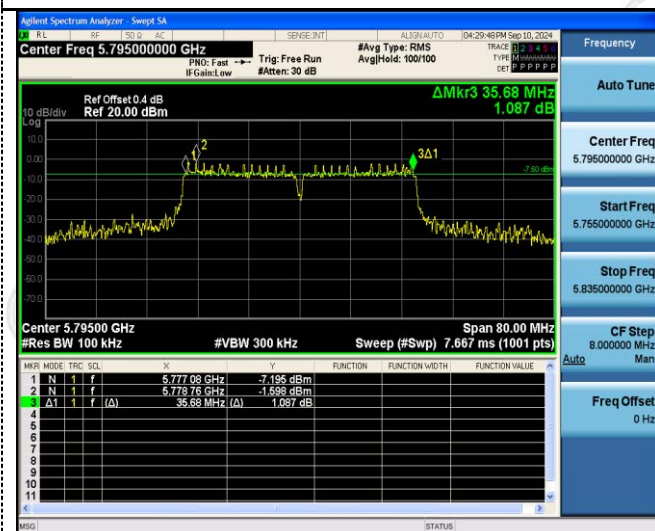
802.11n(HT40)



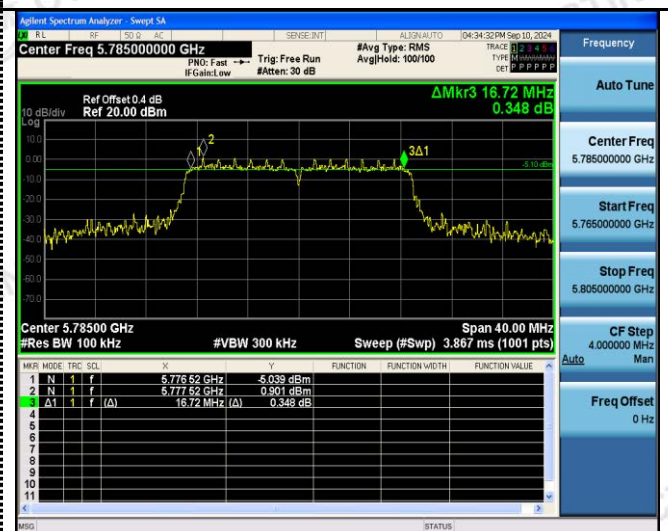
802.11ac(HT20)



CH151



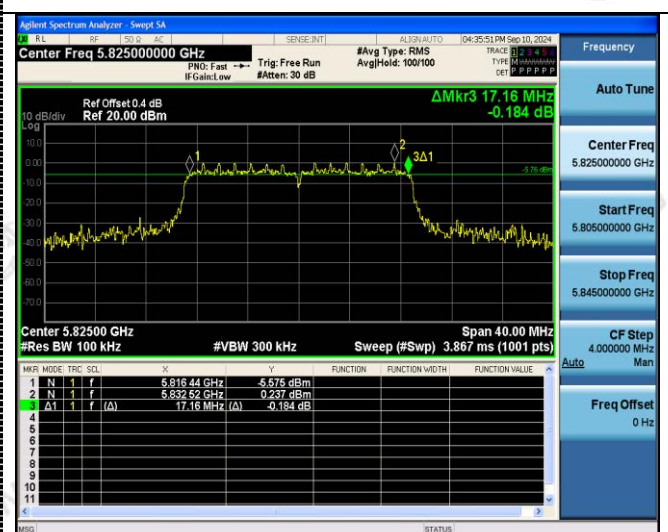
CH149



CH159

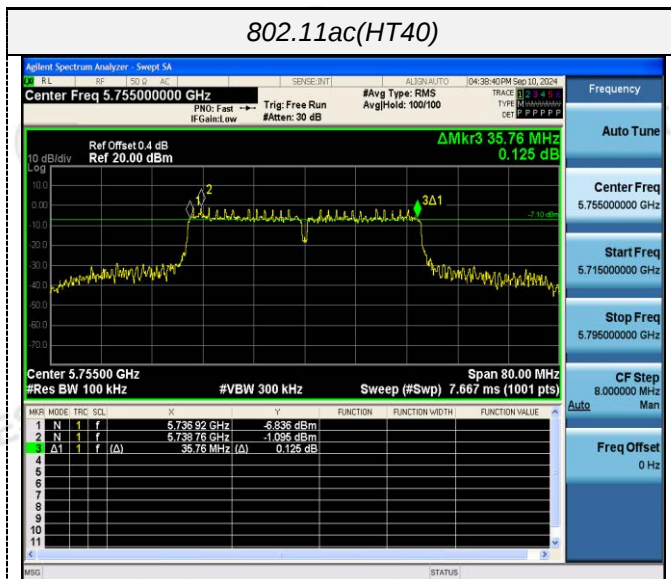


CH157

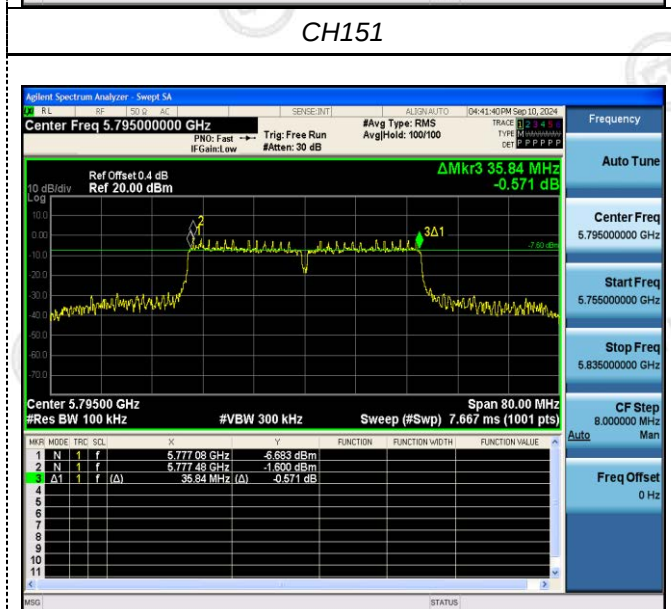


CH165

802.11ac(HT40)

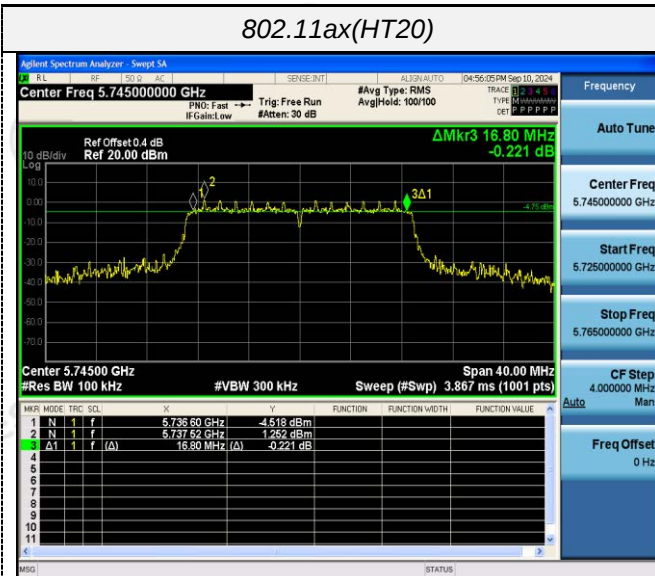


CH151

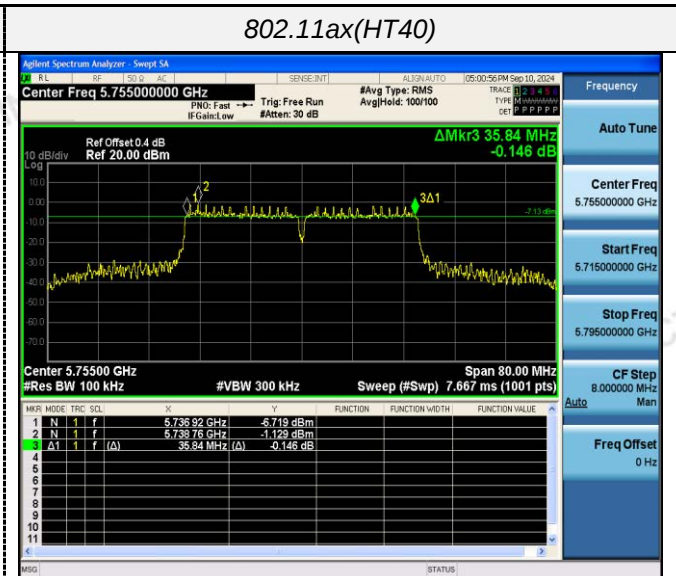


CH159

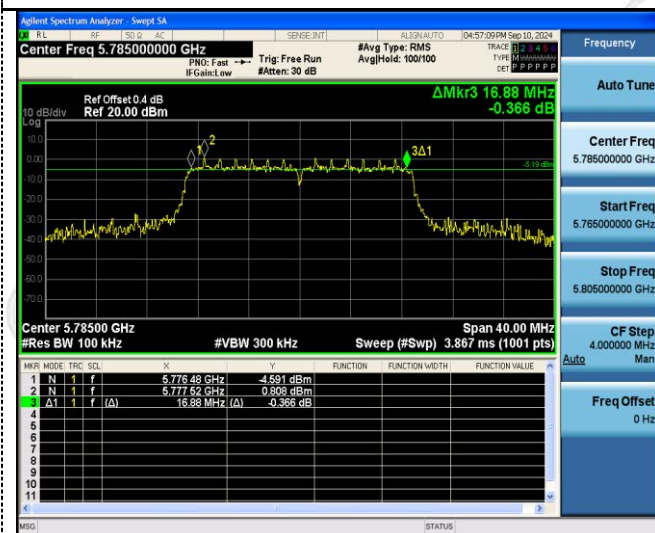
802.11ax(HT20)



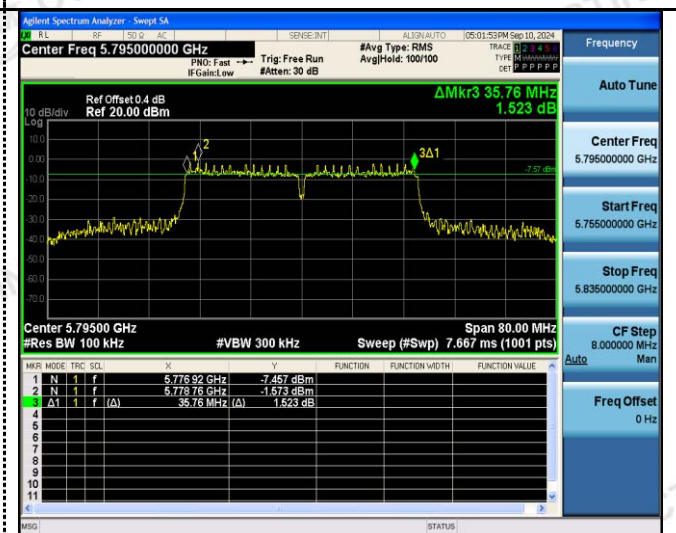
802.11ax(HT40)



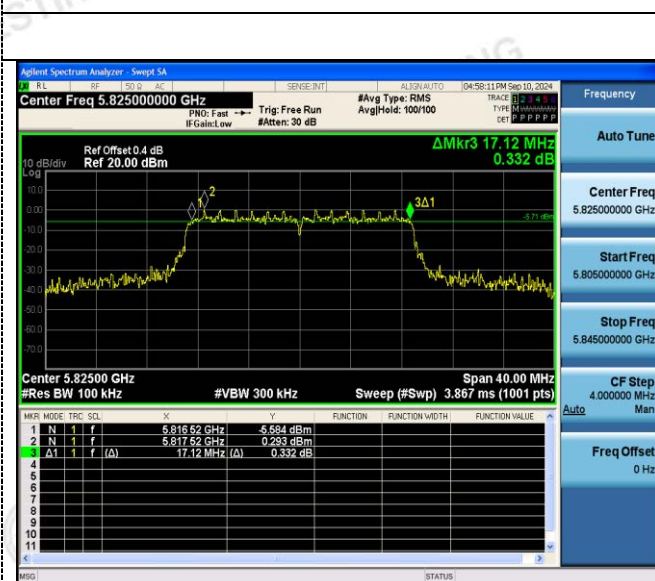
CH149



CH151



CH157



CH159



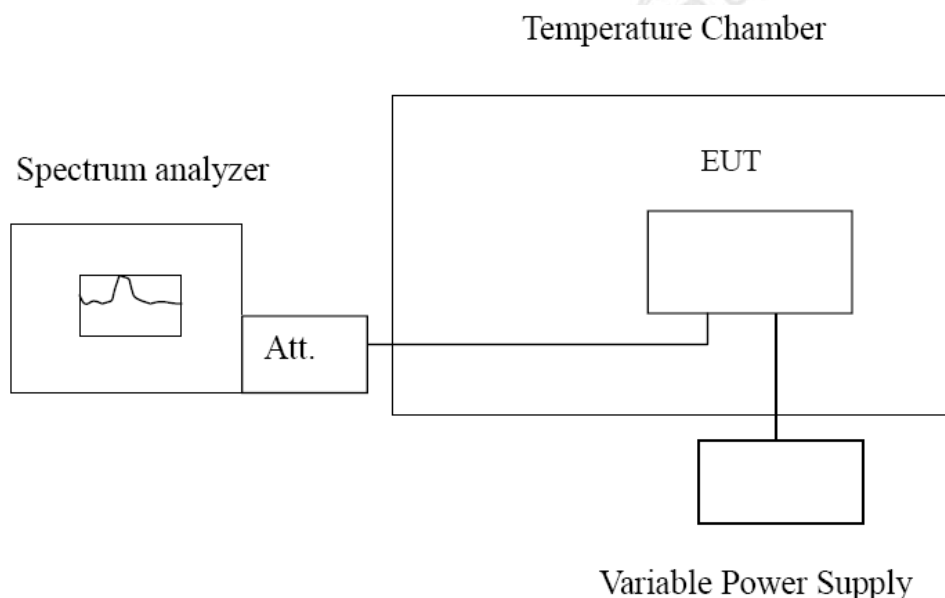
CH156

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:

Ant1:

Reference Frequency: 802.11ac channel=36 frequency=5180MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
AC 120V	-30	110.26	0.021286	Within the band of operation	Pass
	-20	174.30	0.033649		
	-10	145.61	0.028110		
	0	146.54	0.028290		
	10	145.86	0.028158		
	20	99.48	0.019205		
	30	167.63	0.032361		
	40	129.31	0.024963		
	50	128.45	0.024797		
AC 138V	25	195.79	0.037797	Within the band of operation	Pass
AC 102V	25	118.37	0.022851		

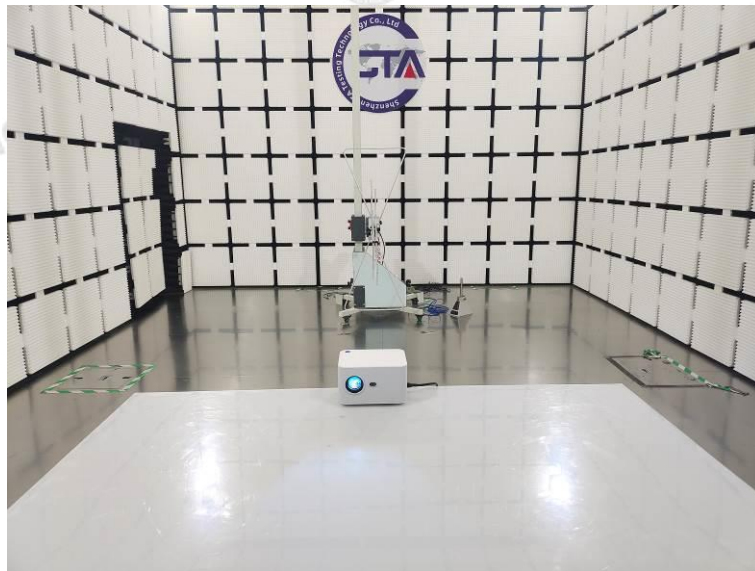
Reference Frequency: 802.11ac channel=149 frequency=5745MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
AC 120V	-30	135.41	0.023570	Within the band of operation	Pass
	-20	129.40	0.022524		
	-10	167.53	0.029161		
	0	169.52	0.029507		
	10	136.46	0.023753		
	20	144.57	0.025164		
	30	116.44	0.020268		
	40	168.39	0.029311		
	50	160.72	0.027976		
AC 138V	25	150.52	0.026200	Within the band of operation	Pass
AC 102V	25	129.85	0.022602		

Ant 2:

Reference Frequency: 802.11ac channel=36 frequency=5180MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
AC 120V	-30	110.57	0.021346	Within the band of operation	Pass
	-20	174.64	0.033714		
	-10	145.59	0.028106		
	0	146.43	0.028268		
	10	145.82	0.028151		
	20	99.38	0.019185		
	30	167.58	0.032351		
	40	129.71	0.025041		
	50	128.51	0.024809		
AC 138V	25	195.66	0.037772	Within the band of operation	Pass
AC 102V	25	118.46	0.022869		

Reference Frequency: 802.11ac channel=149 frequency=5745MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
AC 120V	-30	135.59	0.023601	Within the band of operation	Pass
	-20	129.71	0.022578		
	-10	167.25	0.029112		
	0	169.90	0.029574		
	10	136.50	0.023760		
	20	144.75	0.025196		
	30	116.55	0.020287		
	40	168.46	0.029323		
	50	160.80	0.027990		
AC 138V	25	150.71	0.026233	Within the band of operation	Pass
AC 102V	25	129.85	0.022602		

5 Test Setup Photos of the EUT



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Tel: +86-755 2322 5875 E-mail: cta@cta-test.cn Web: <http://www.cta-test.cn>

6 Photos of the EUT

Reference to the test report No. CTA24090601201.

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