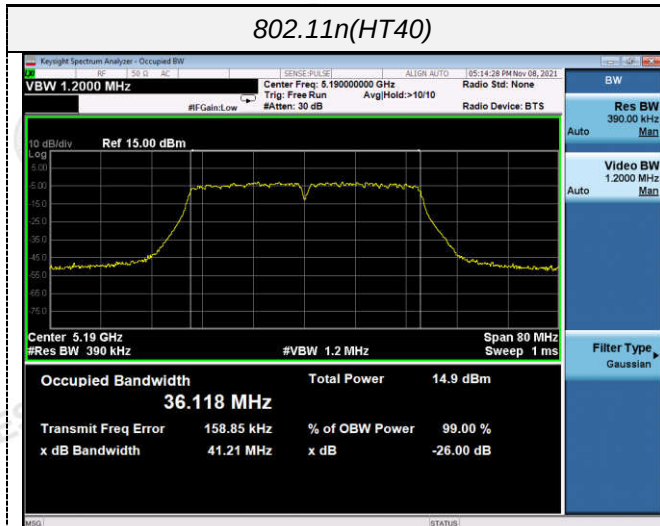
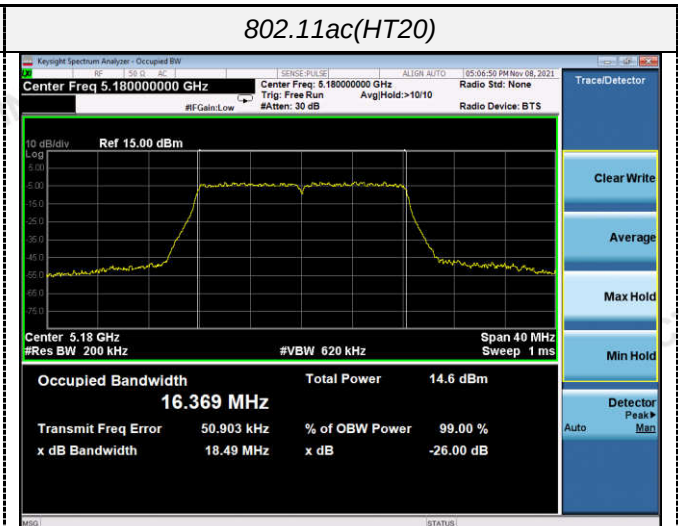


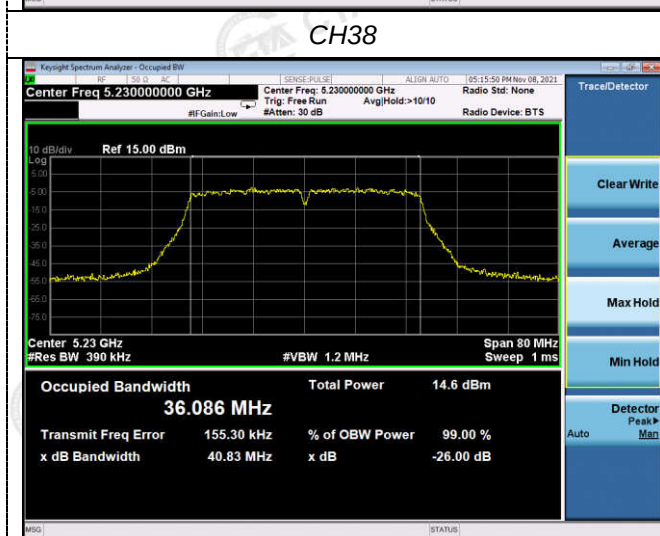
802.11n(HT40)



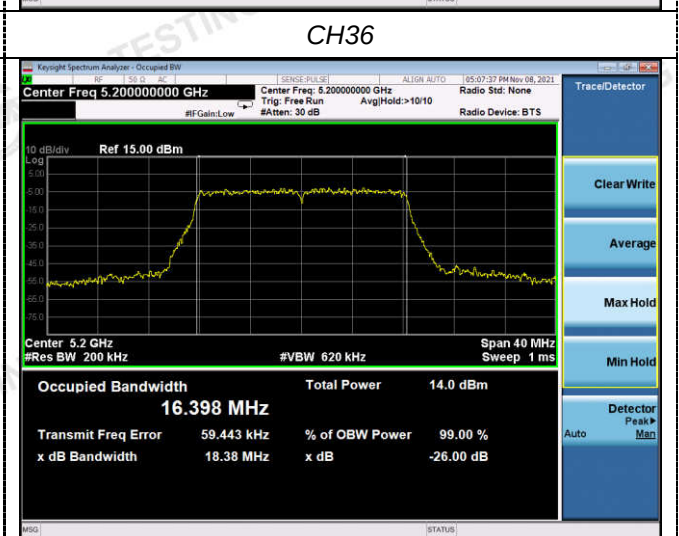
802.11ac(HT20)



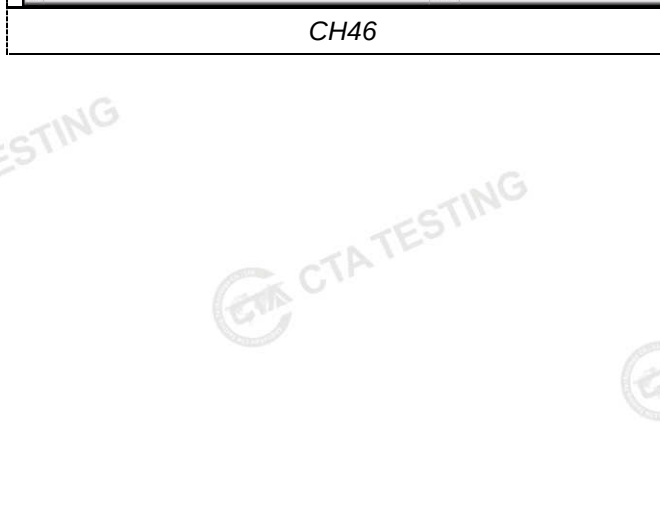
CH38



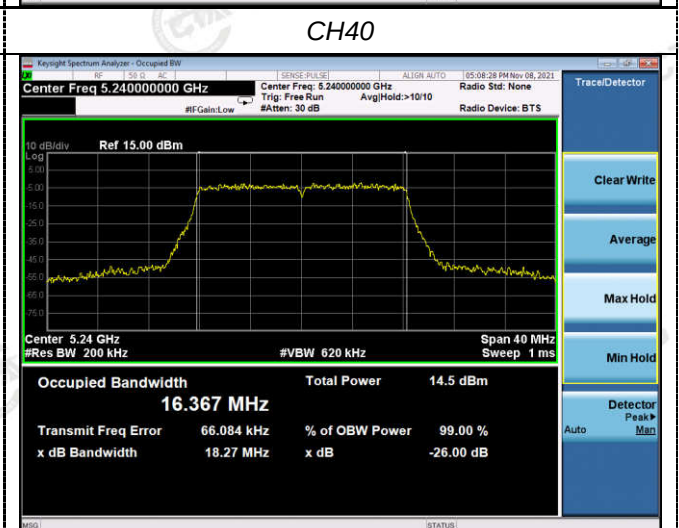
CH36



CH46

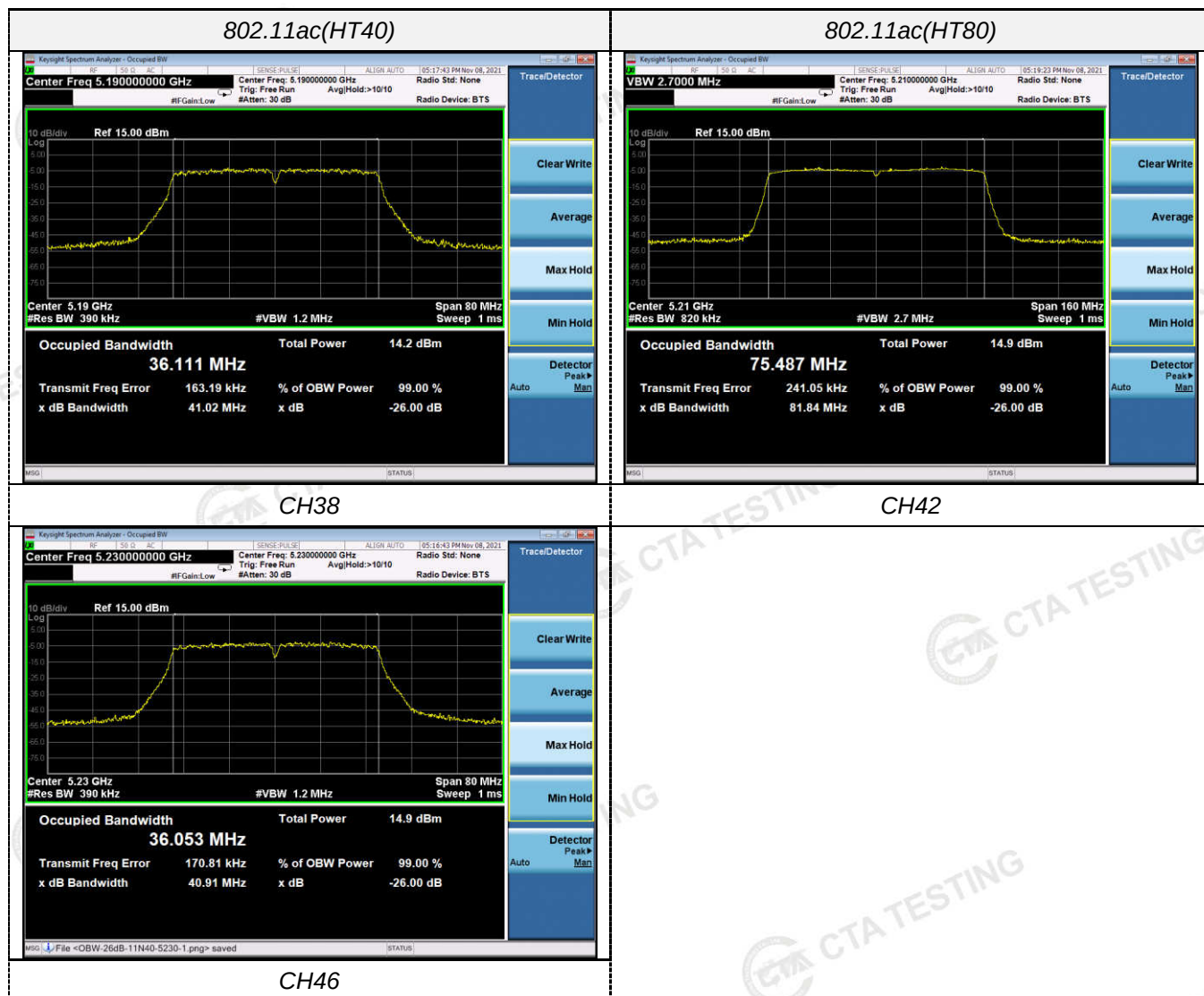


CH40

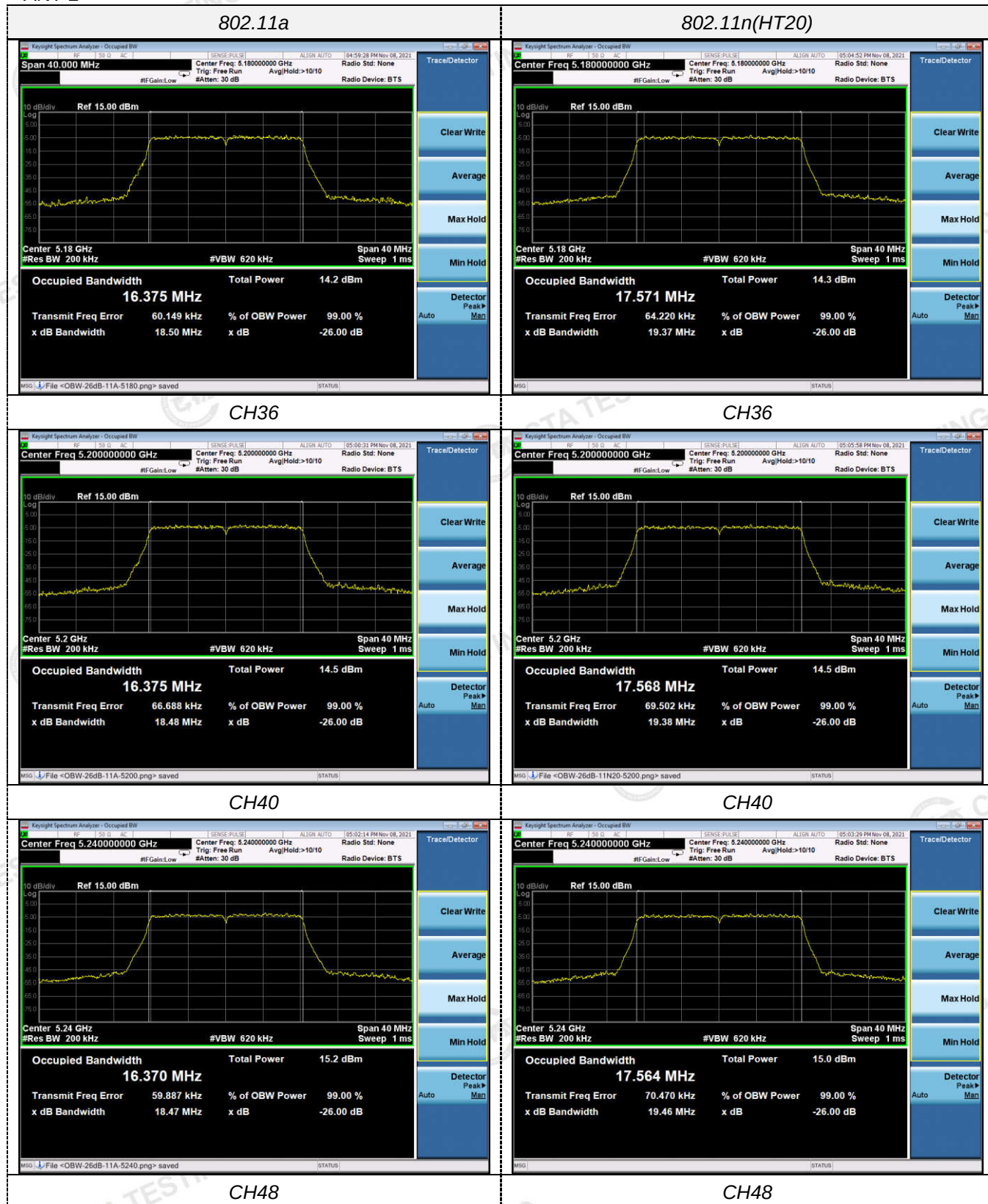


CH48

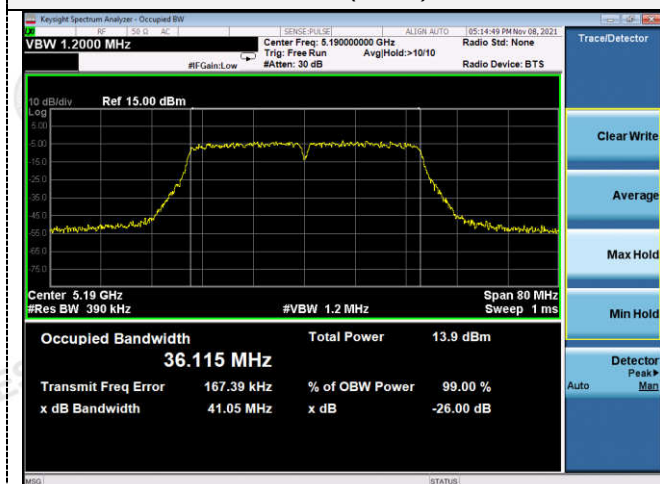




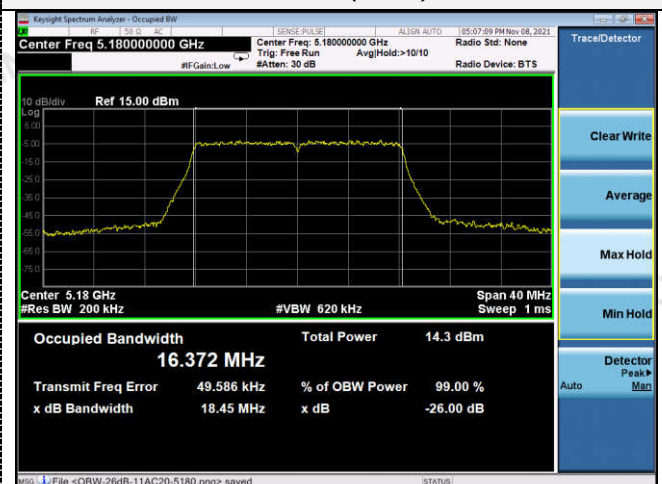
ANT 2



802.11n(HT40)



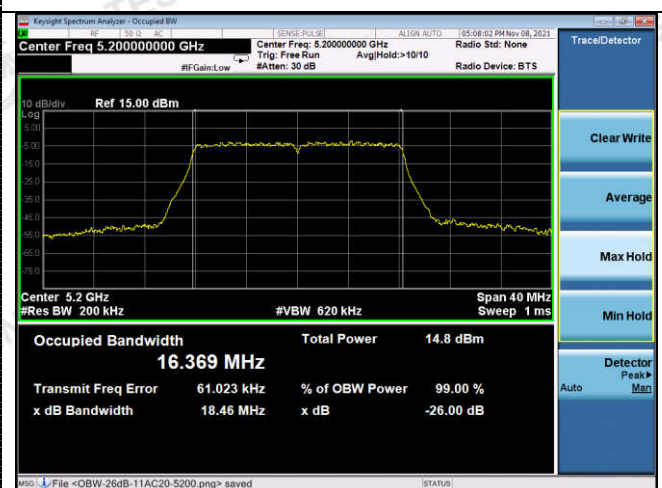
802.11ac(HT20)



CH38



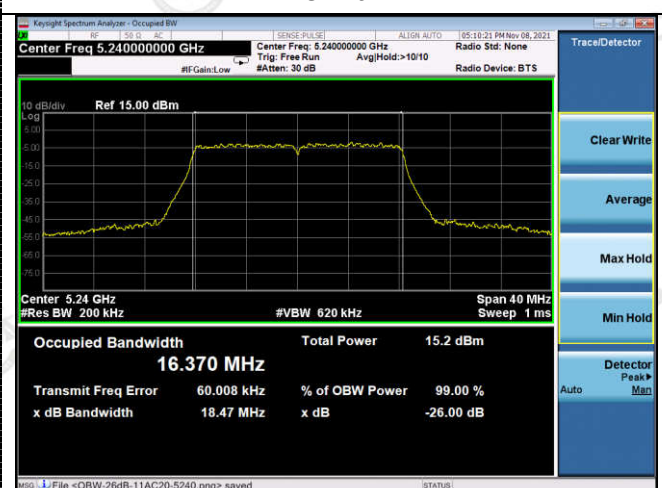
CH36



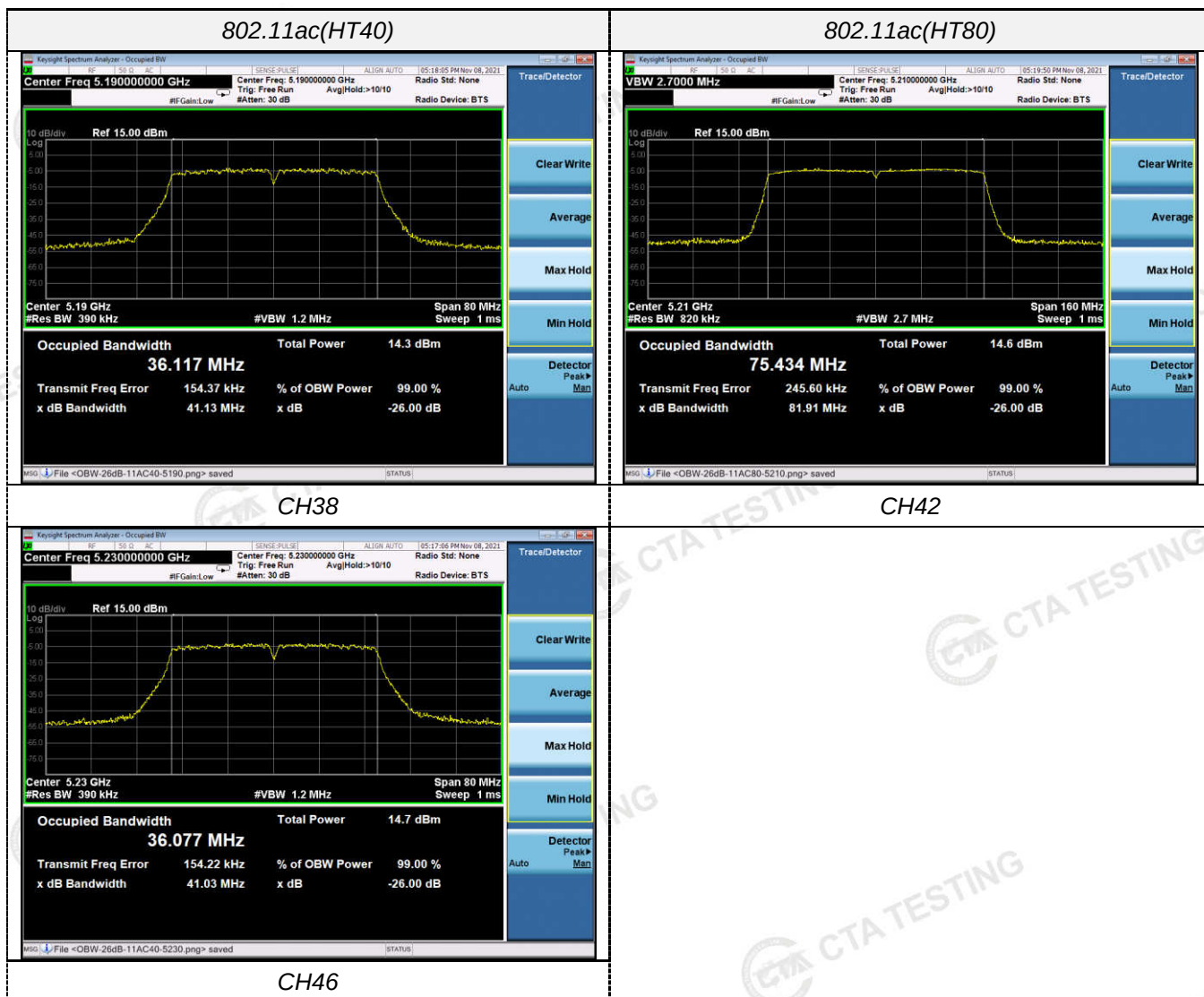
CH46



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

ANT 1

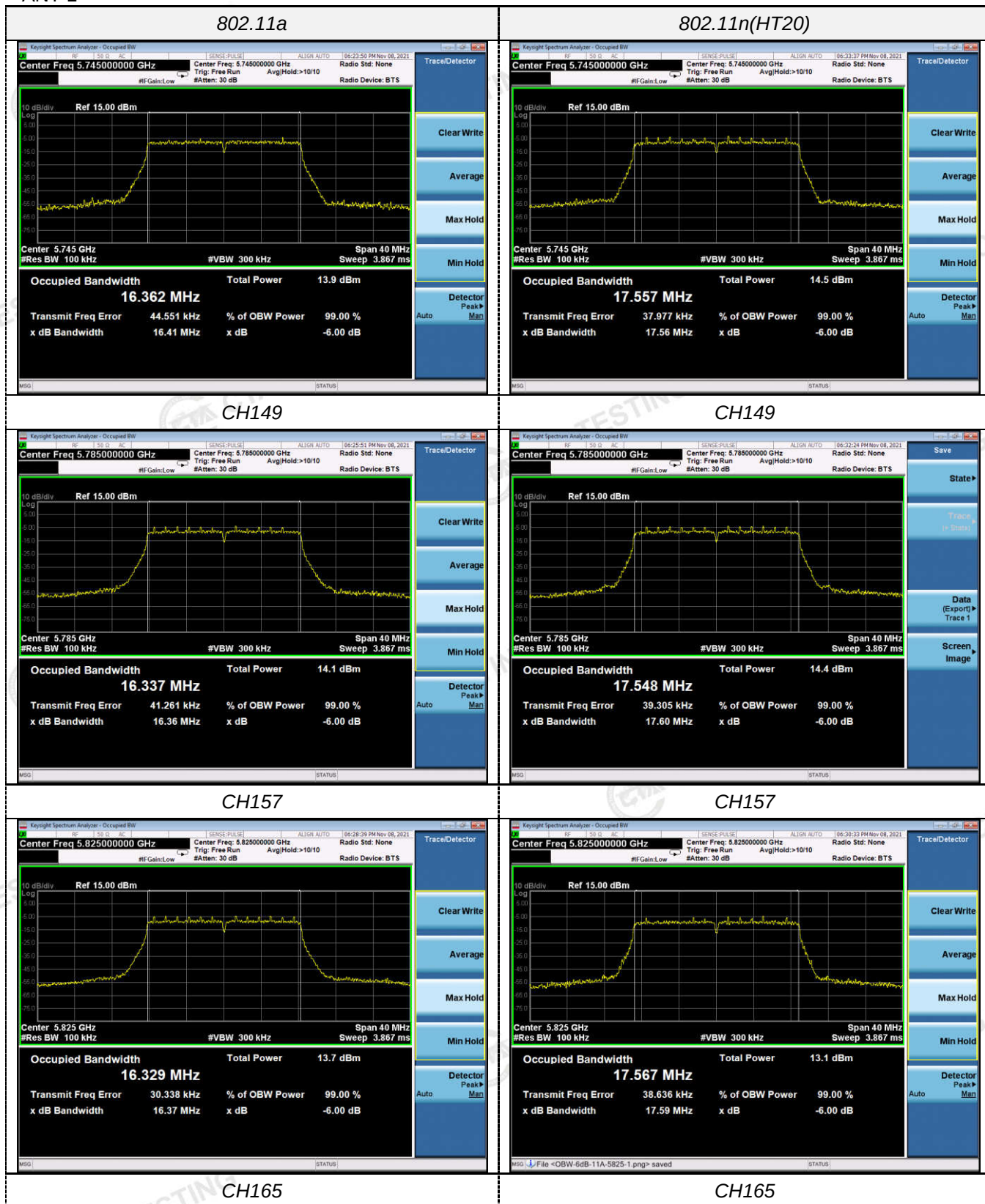
Type	Bands	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	U-NII 3	149	16.41	≥500KHz	Pass
		157	16.36		
		165	16.37		
802.11n(HT20)	U-NII 3	149	17.56		
		157	17.60		
		165	17.59		
802.11n(HT40)	U-NII 3	151	35.53		
		159	35.24		
802.11ac(HT20)	U-NII 3	149	17.57		
		157	17.56		
		165	17.59		
802.11ac(HT40)	U-NII 3	151	35.53		
		159	35.16		
802.11ac(HT80)	U-NII 3	155	75.25		

ANT 2

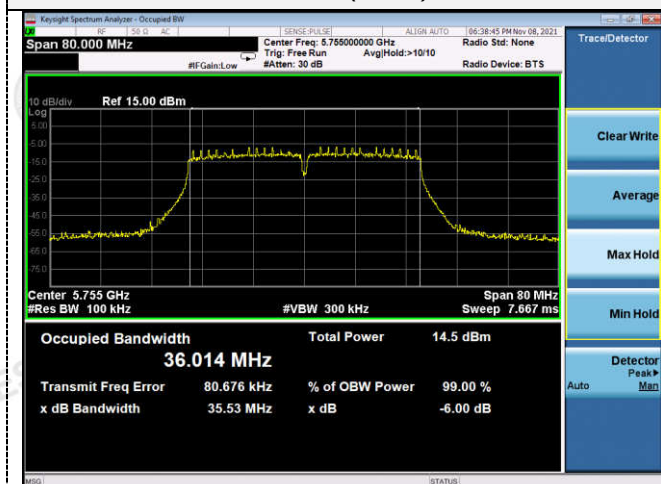
Type	Bands	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	U-NII 3	149	16.37	≥500KHz	Pass
		157	16.36		
		165	16.34		
802.11n(HT20)	U-NII 3	149	17.62		
		157	17.56		
		165	17.59		
802.11n(HT40)	U-NII 3	151	35.51		
		159	35.21		
802.11ac(HT20)	U-NII 3	149	17.58		
		157	17.57		
		165	17.58		
802.11ac(HT40)	U-NII 3	151	35.21		
		159	35.23		
802.11ac(HT80)	U-NII 3	155	75.23		

Test plot as follows:

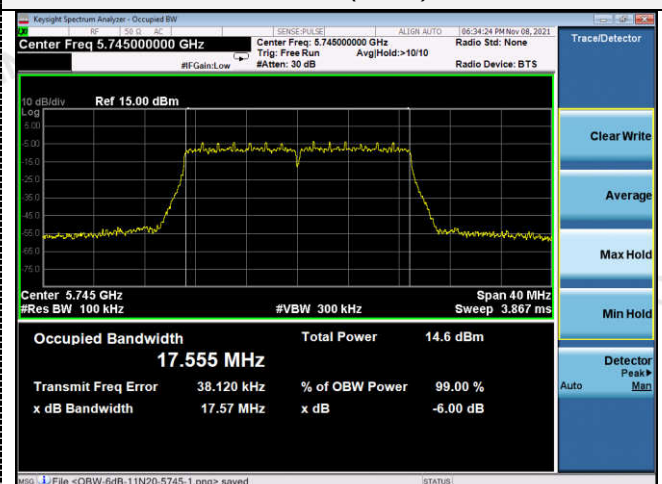
ANT 1



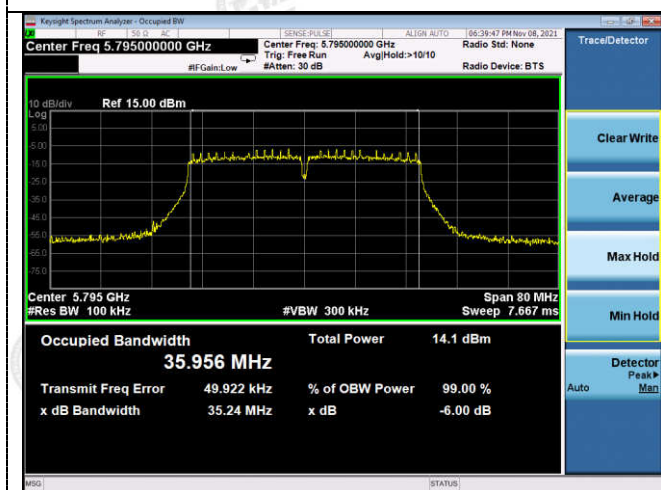
802.11n(HT40)



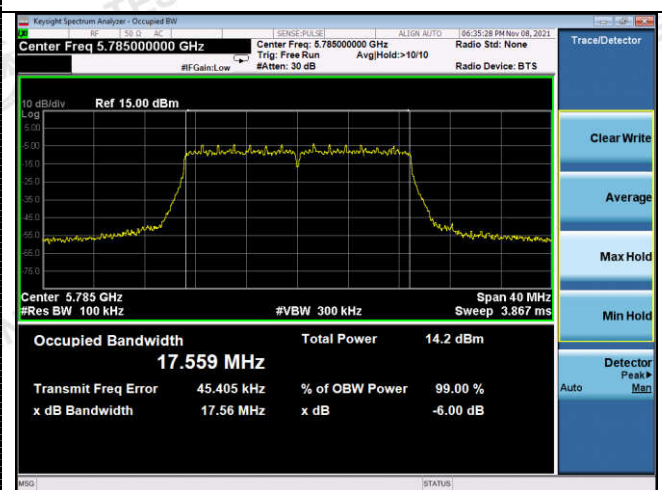
802.11ac(HT20)



CH151



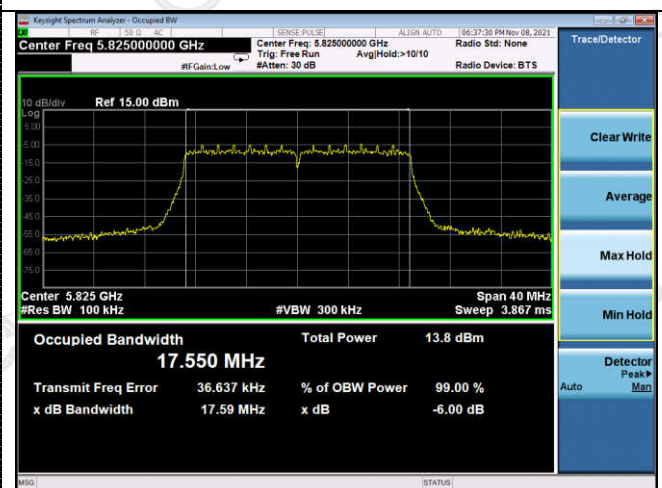
CH149



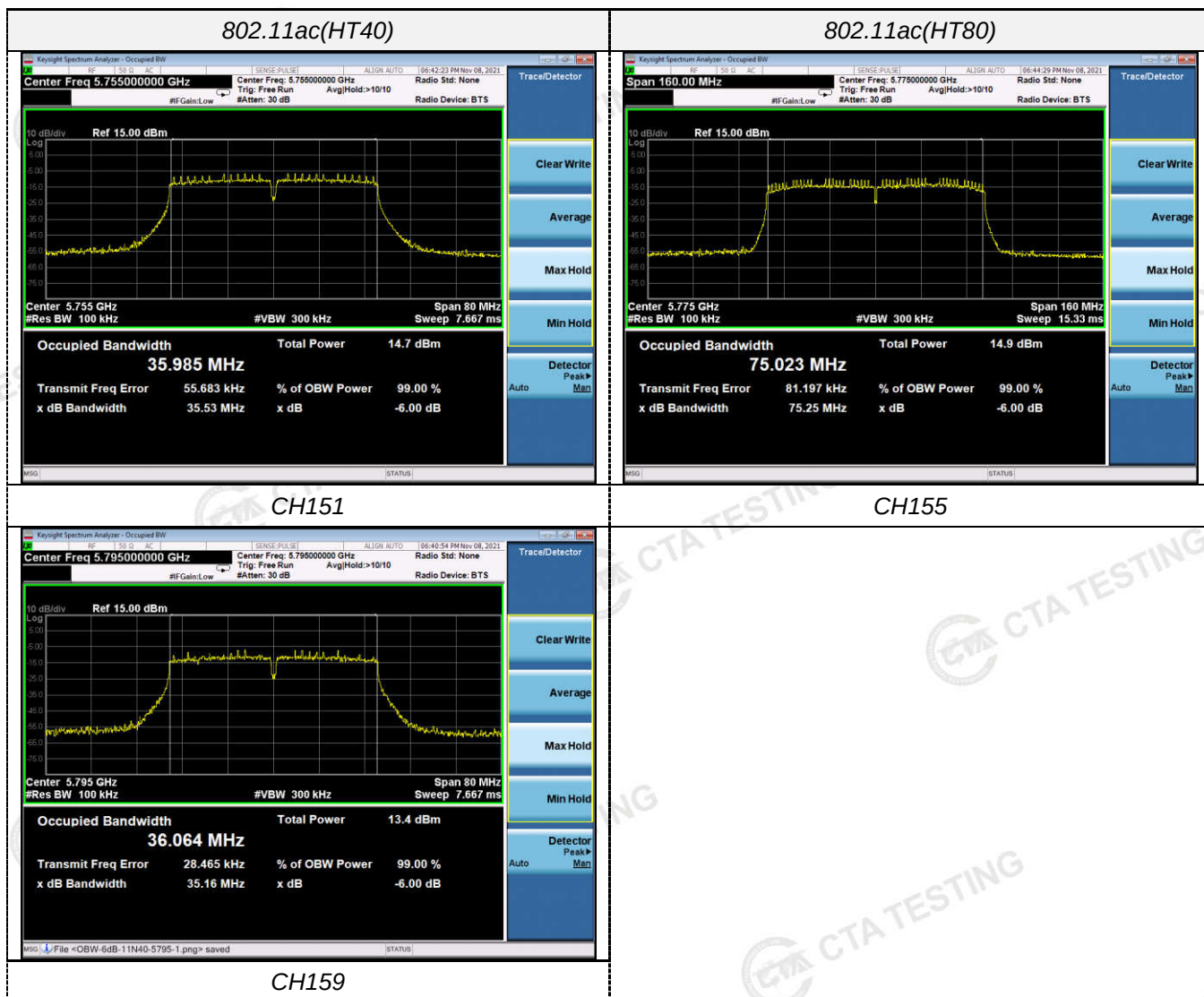
CH159



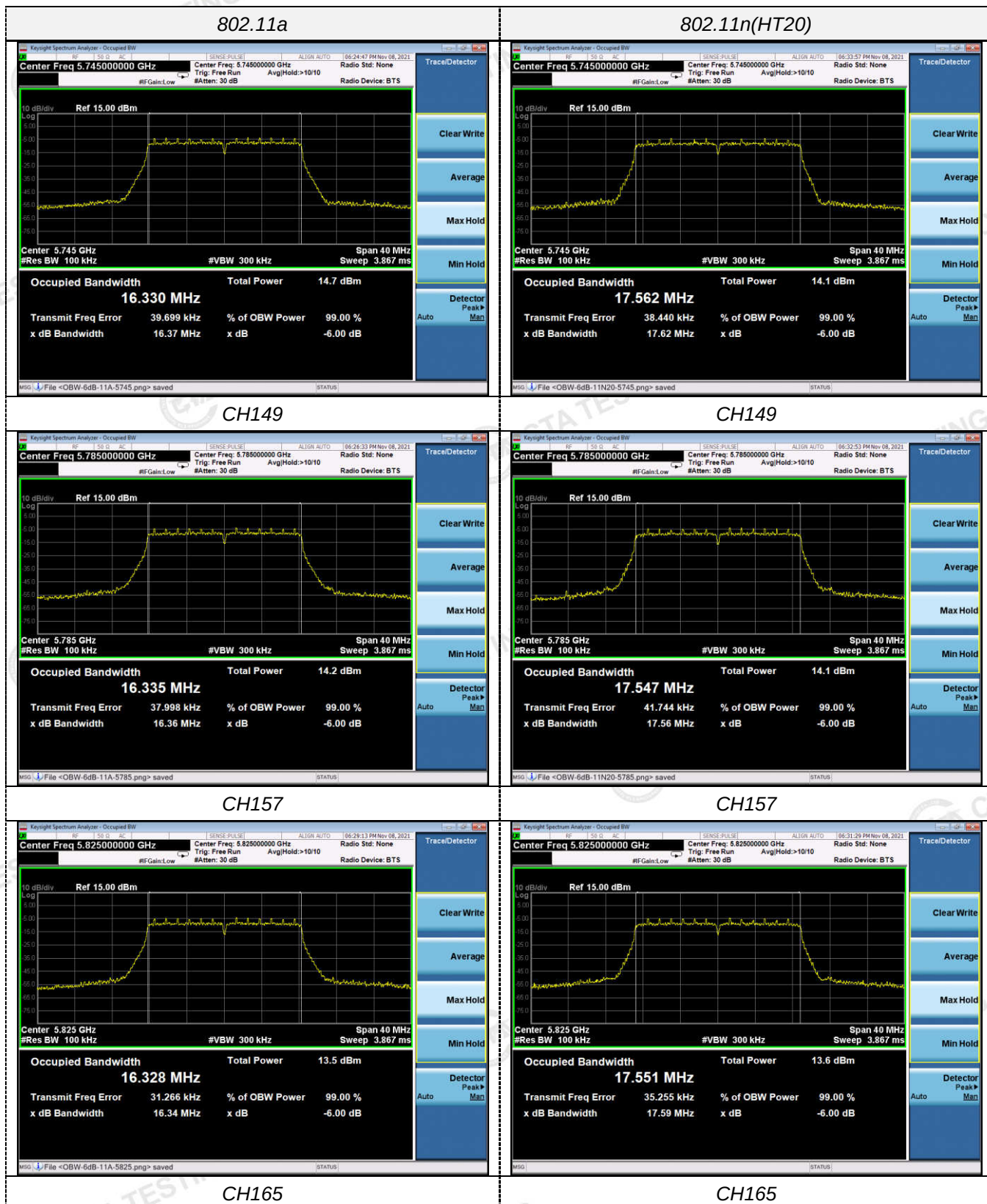
CH157



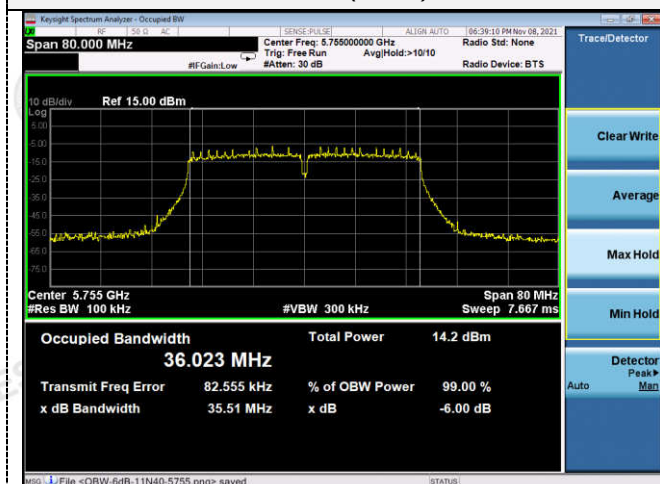
CH165



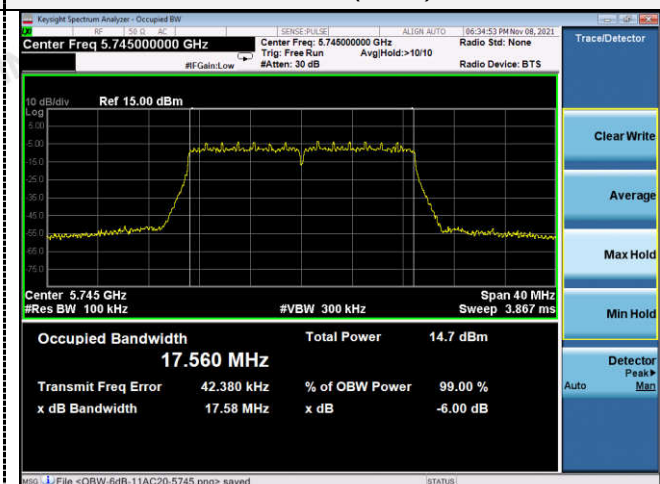
ANT 2



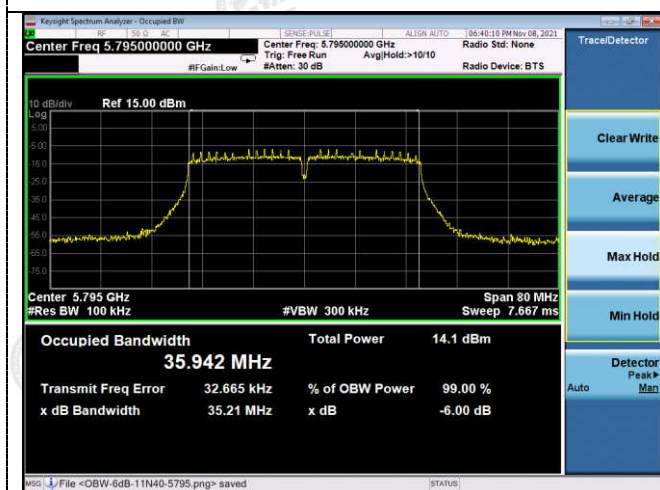
802.11n(HT40)



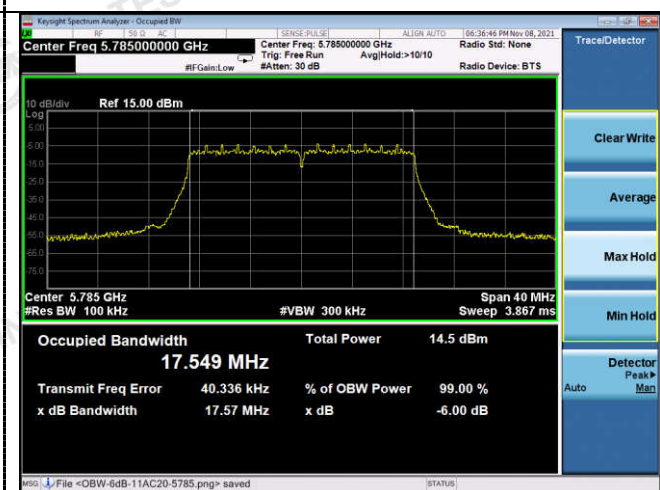
802.11ac(HT20)



CH151



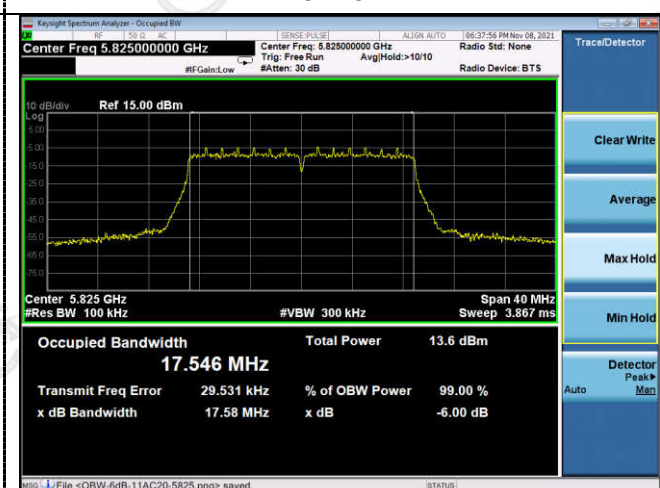
CH149



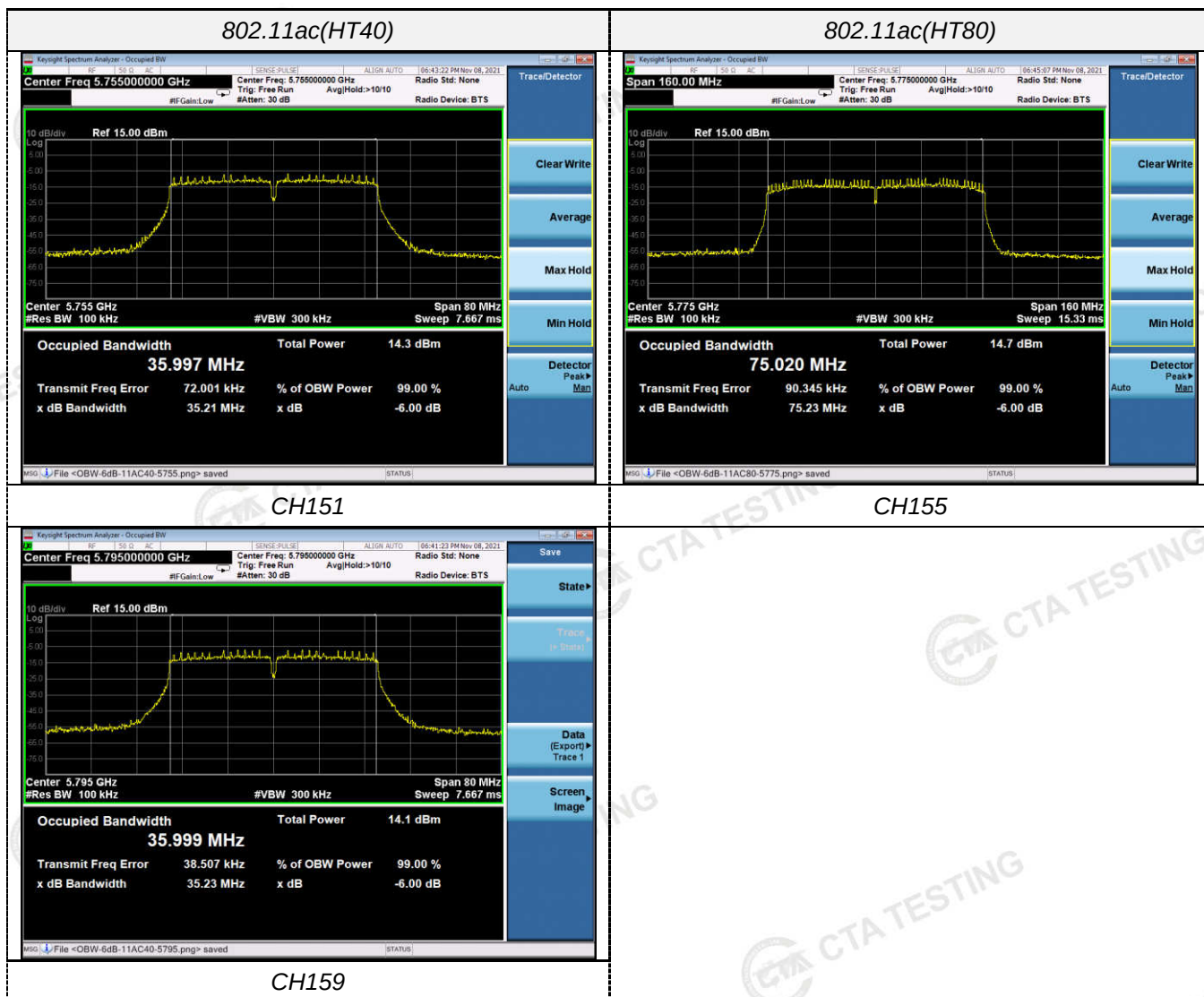
CH159



CH157



CH165

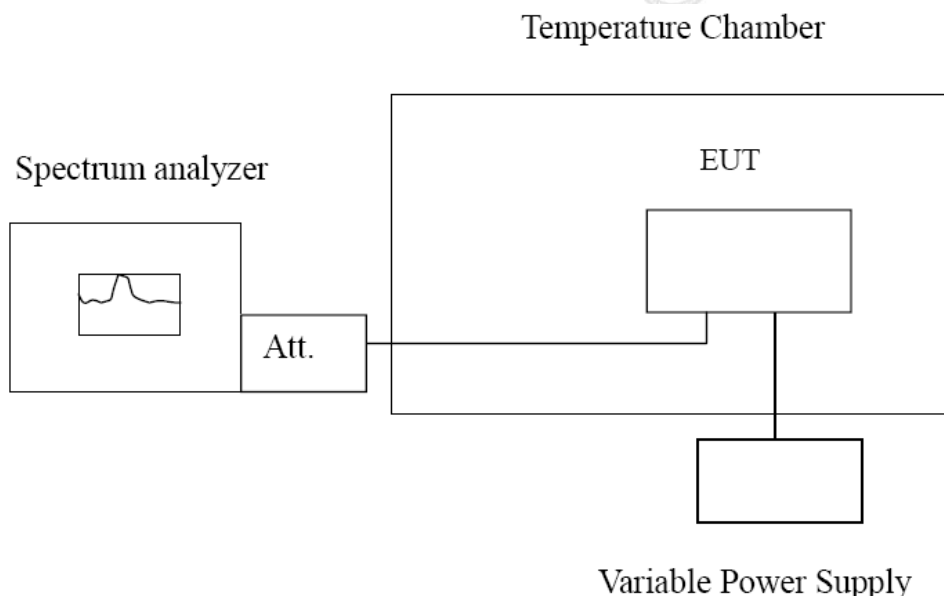


4.7 Frequency Stability

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.

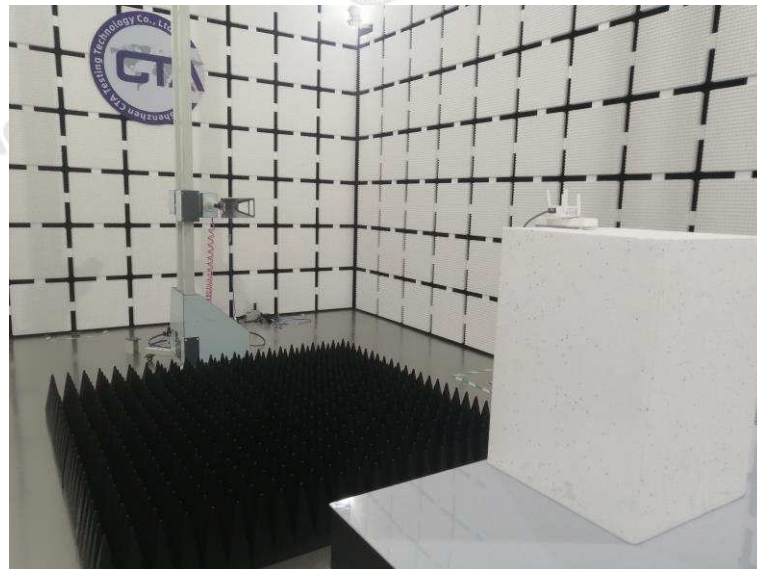
TEST RESULTS

Record worst case as below:

Reference Frequency: 802.11ac channel=36 frequency=5180MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
AC120	-30	108.64	0.020973	Within the band of operation	Pass
	-20	171.81	0.033168		
	-10	139.54	0.026938		
	0	111.74	0.021571		
	10	142.62	0.027533		
	20	97.13	0.018751		
	30	165.53	0.031956		
	40	127.83	0.024678		
	50	126.57	0.024434		
AC132	25	193.84	0.037421	Within the band of operation	Pass
AC108	25	114.39	0.022083		

Reference Frequency: 802.11ac channel=149 frequency=5745MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
AC120	-30	135.53	0.023591	Within the band of operation	Pass
	-20	127.32	0.022162		
	-10	165.97	0.028889		
	0	166.42	0.028968		
	10	133.44	0.023227		
	20	128.56	0.022378		
	30	112.75	0.019626		
	40	168.39	0.029311		
	50	156.93	0.027316		
AC132	25	148.43	0.025836	Within the band of operation	Pass
AC108	25	117.89	0.02052		

5 Test Setup Photos of the EUT



Shenzhen CTA Testing Technology Co., Ltd.

Room 106, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, China
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. **CTA21112000201**

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