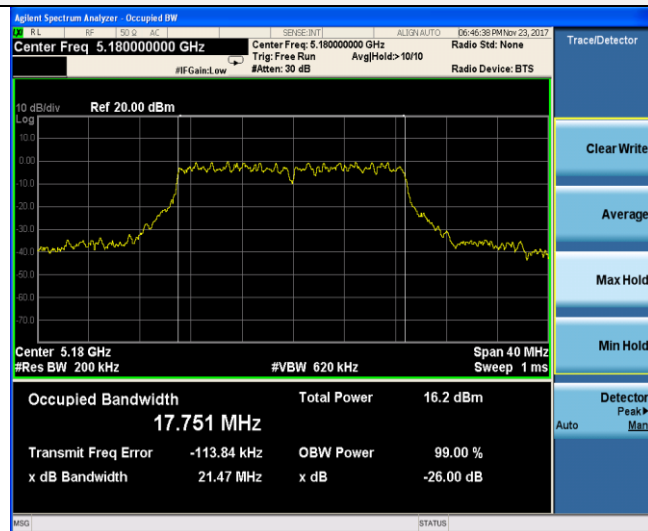
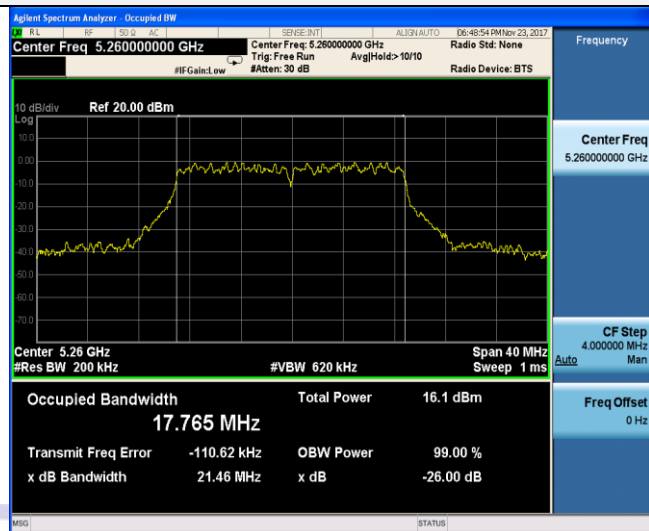


802.11ac(HT20)

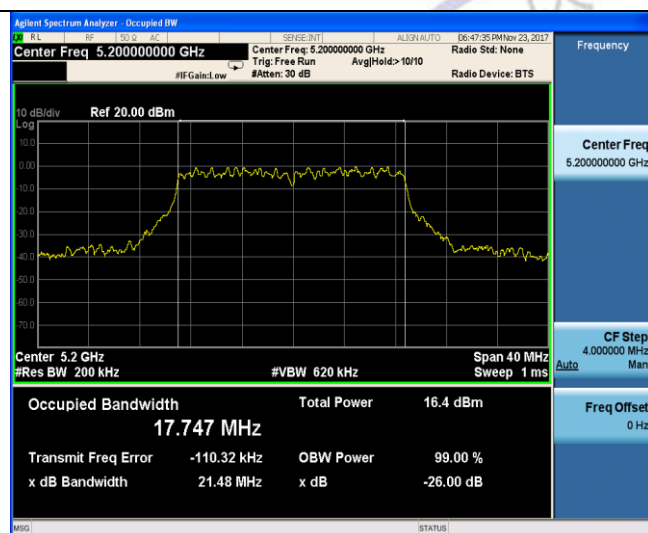
U-NII 1



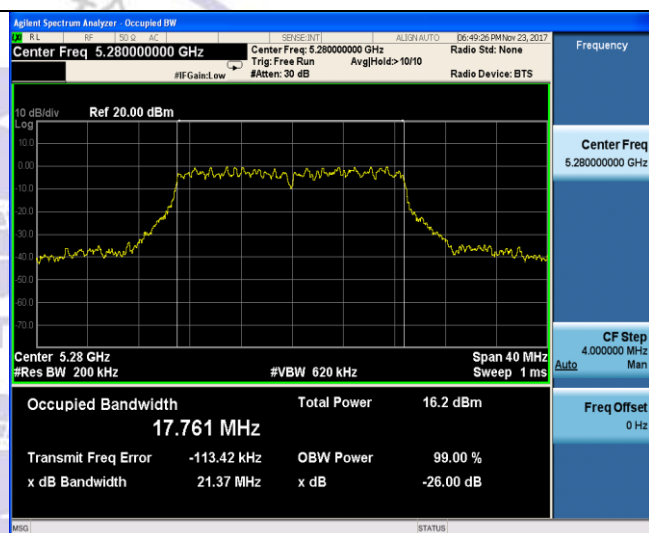
U-NII 2A



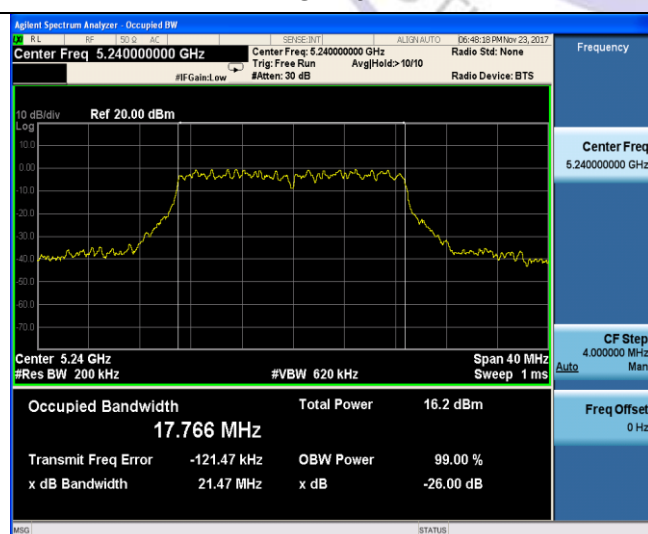
CH36



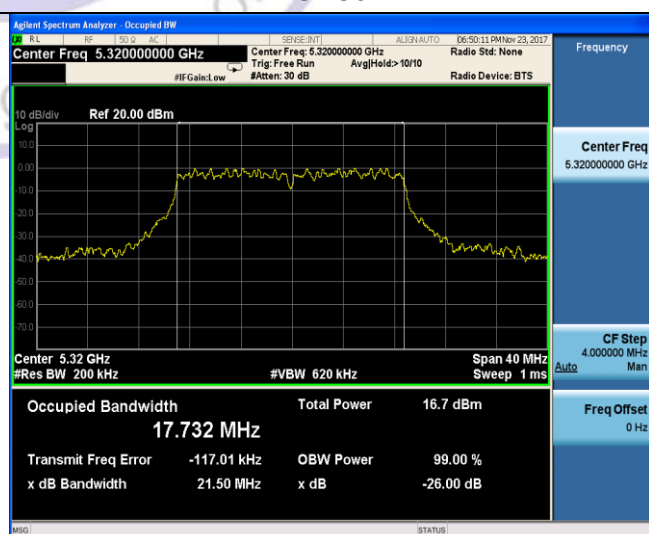
CH52



CH40

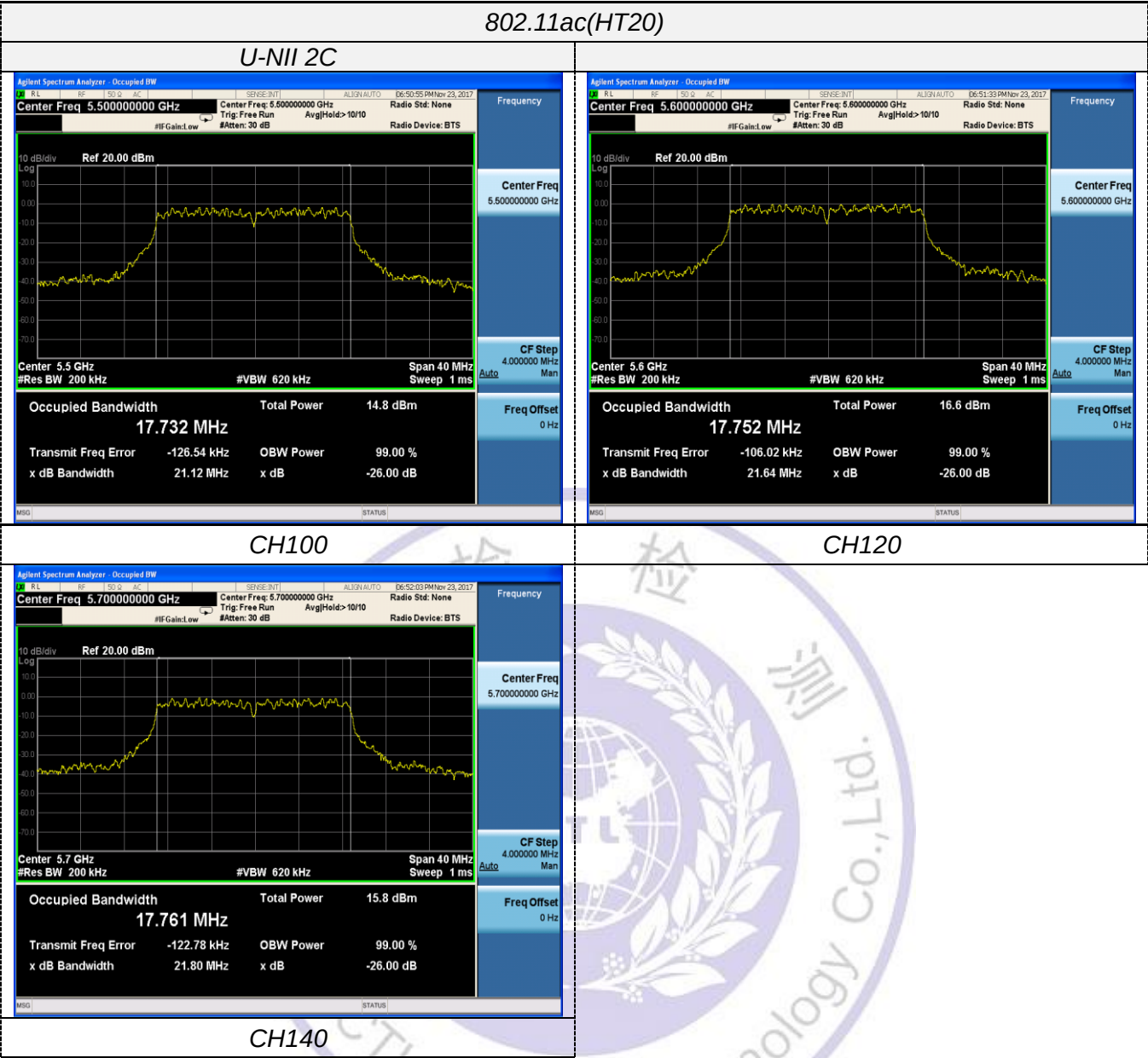


CH56



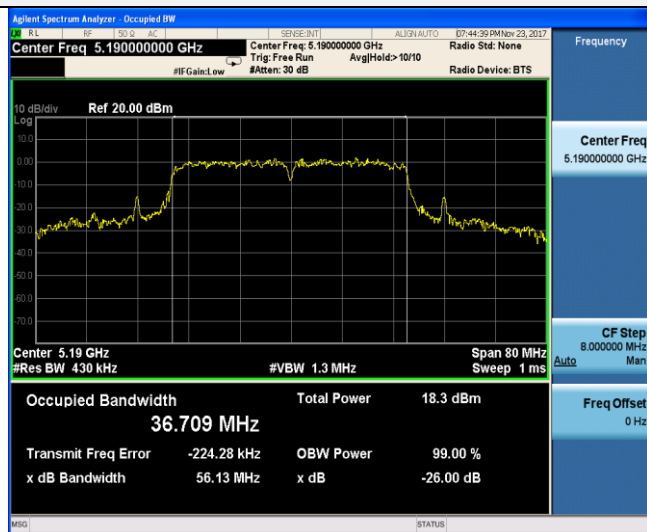
CH48

CH64

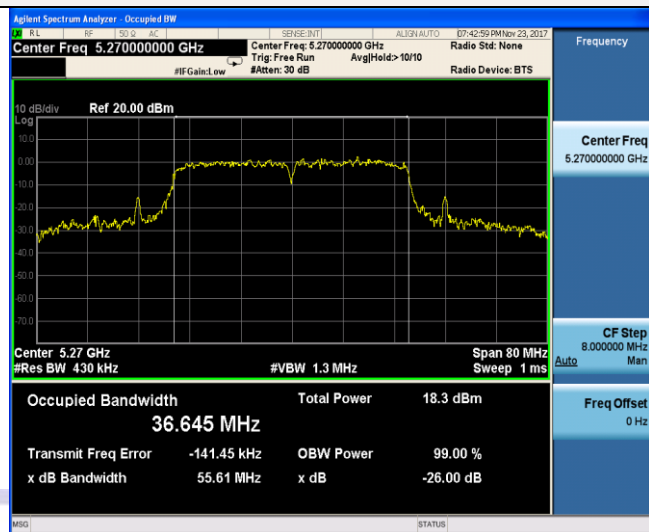


802.11ac(HT40)

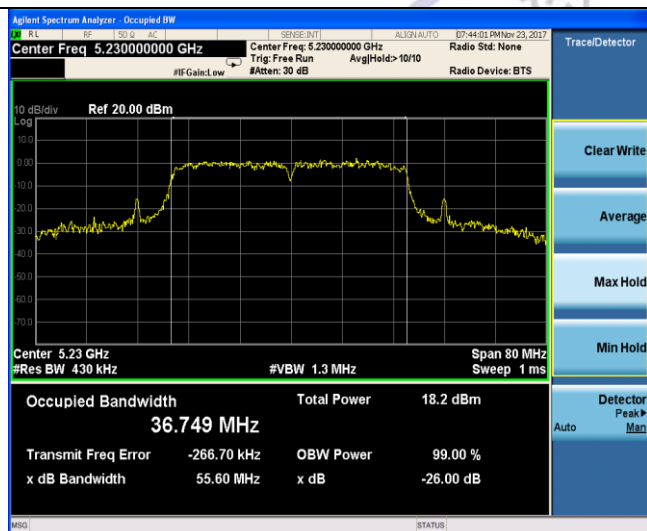
U-NII 1



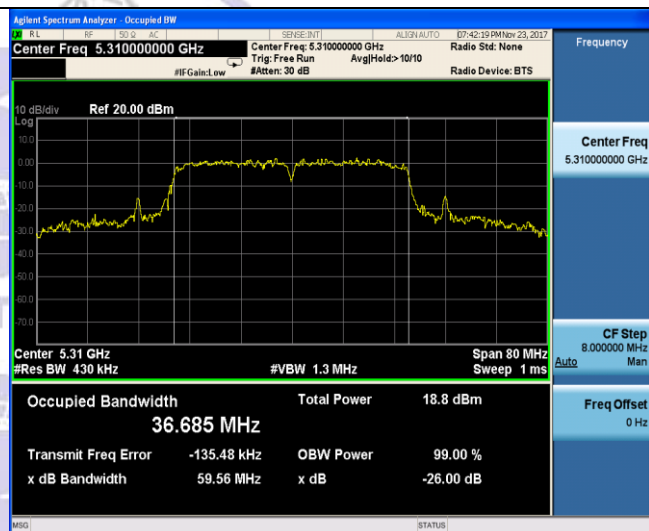
U-NII 2A



CH38



CH54

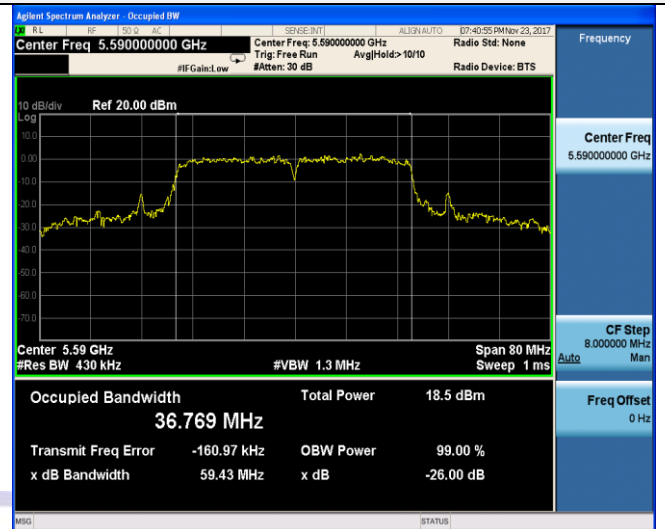
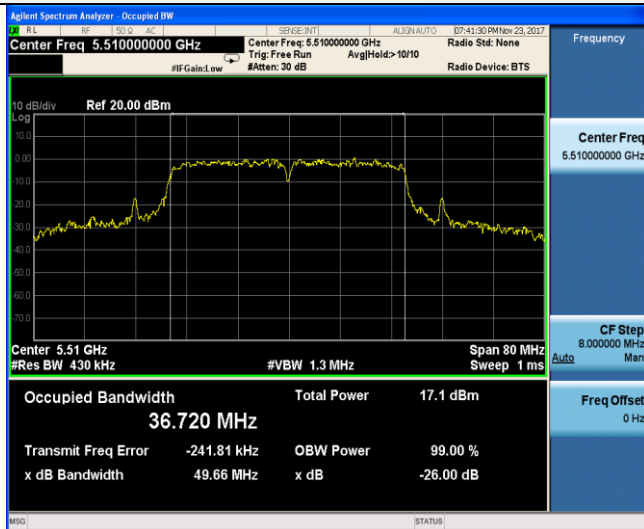


CH46

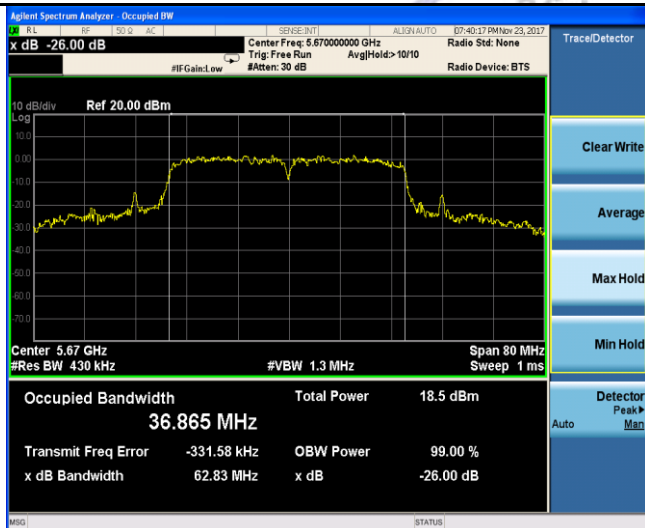
CH62

802.11ac(HT40)

U-NII 2C

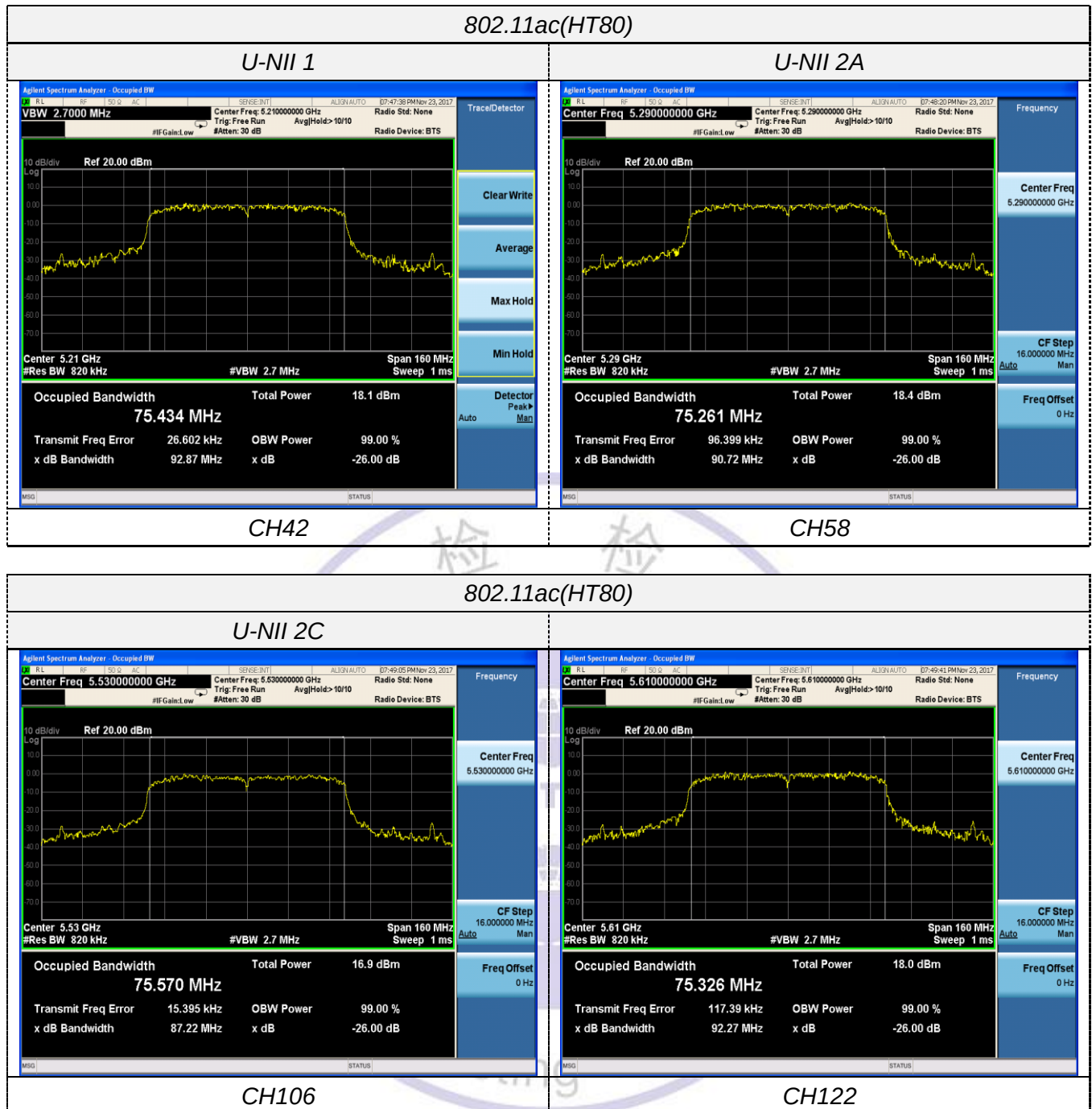


CH102



CH118

CH134



3.6. 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

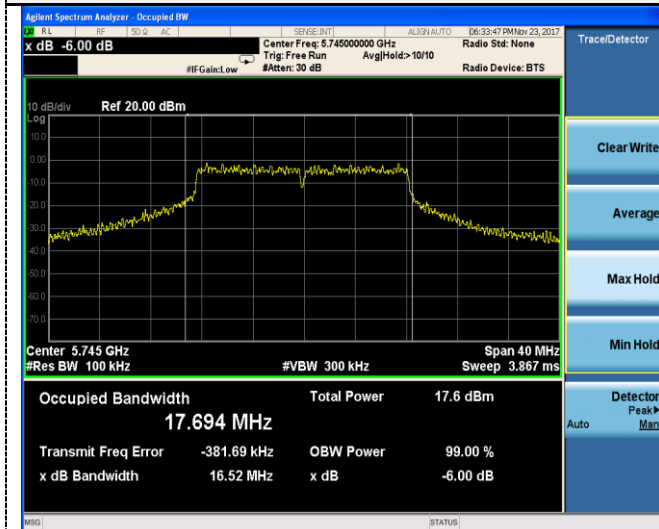


Test Results

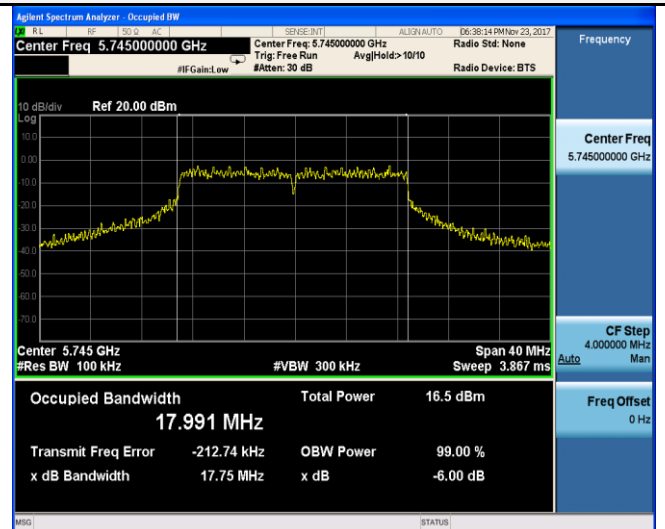
Type	Bands	Channel	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (KHz)	Result
802.11a	U-NII 3	149	16.52	17.690	≥500KHz	Pass
		157	16.55	17.060		
		165	16.49	17.101		
802.11n(HT20)	U-NII 3	149	17.75	17.991		
		157	17.72	17.815		
		165	17.78	17.815		
802.11n(HT40)	U-NII 3	151	35.24	36.615		
		159	35.25	36.450		
802.11ac(HT20)	U-NII 3	149	17.67	17.898		
		157	17.60	17.832		
		165	17.61	17.843		
802.11ac(HT40)	U-NII 3	151	35.25	36.544		
		159	35.25	36.407		
802.11ac(HT80)	U-NII 3	155	75.14	75.340		

Test plot as follows:

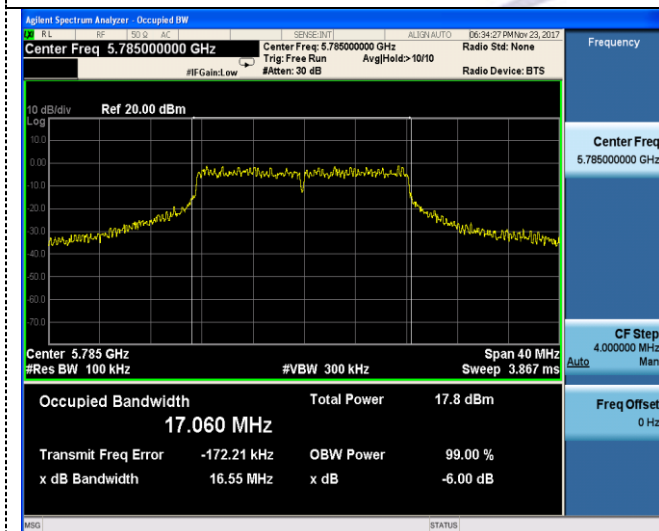
802.11a



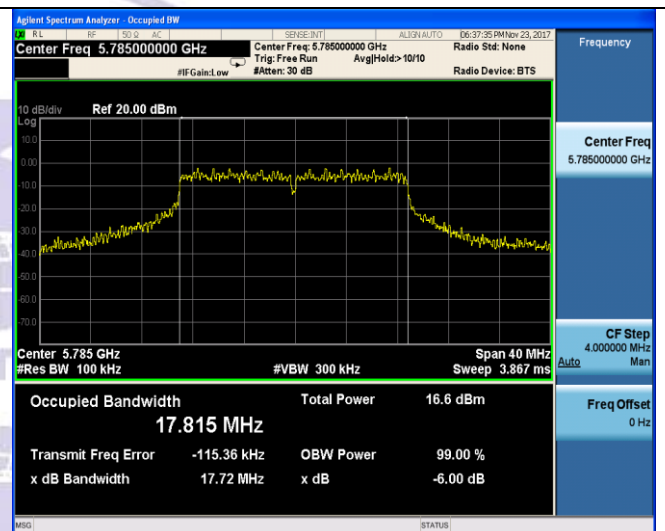
802.11n(HT20)



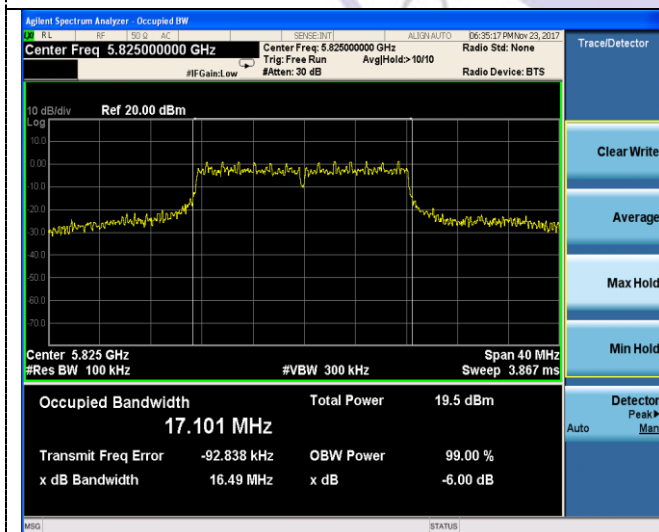
CH149



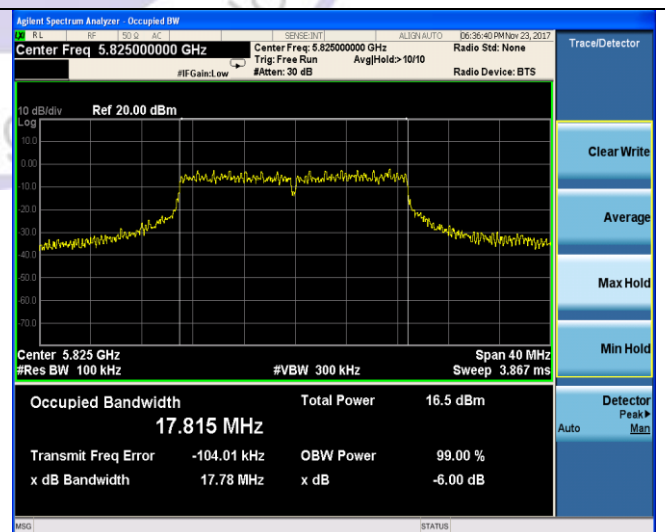
CH149



CH157



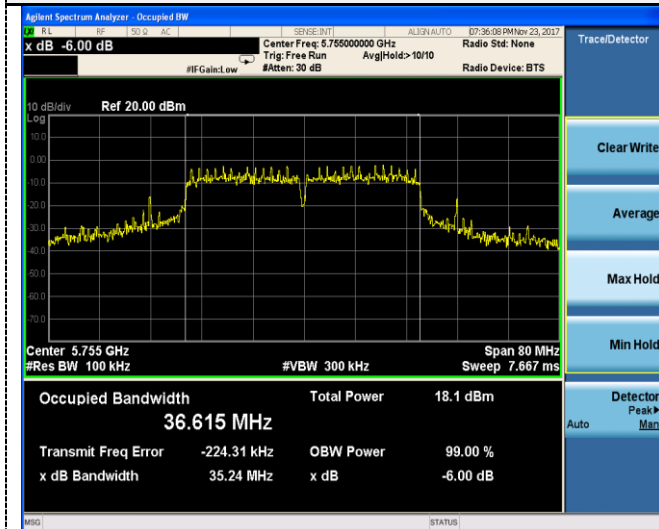
CH157



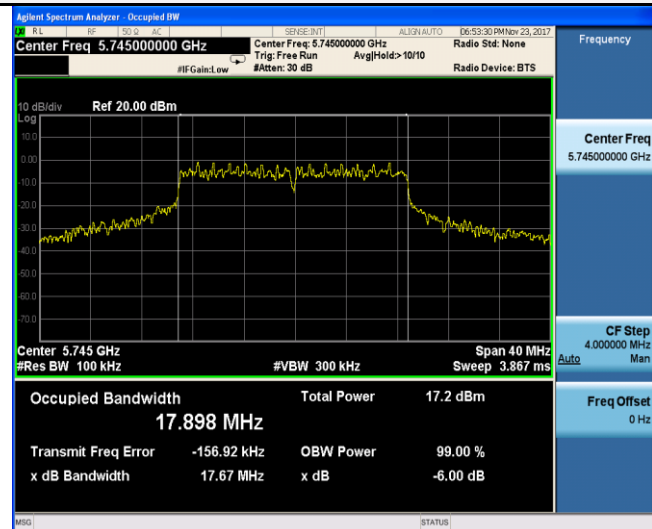
CH165

CH165

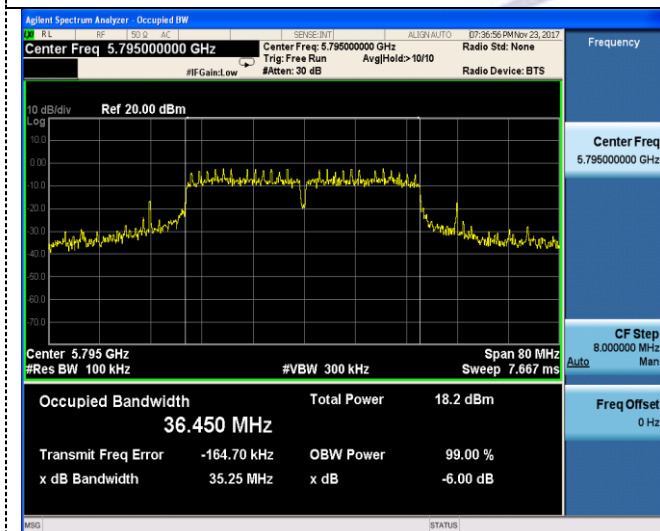
802.11n(HT40)



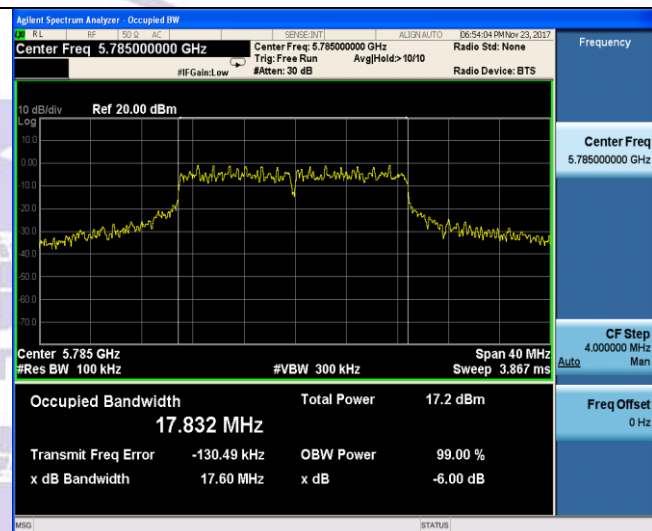
802.11ac(HT20)



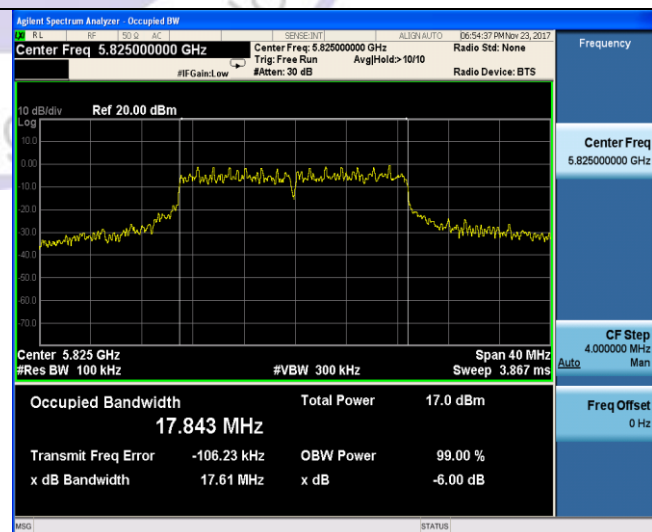
CH151



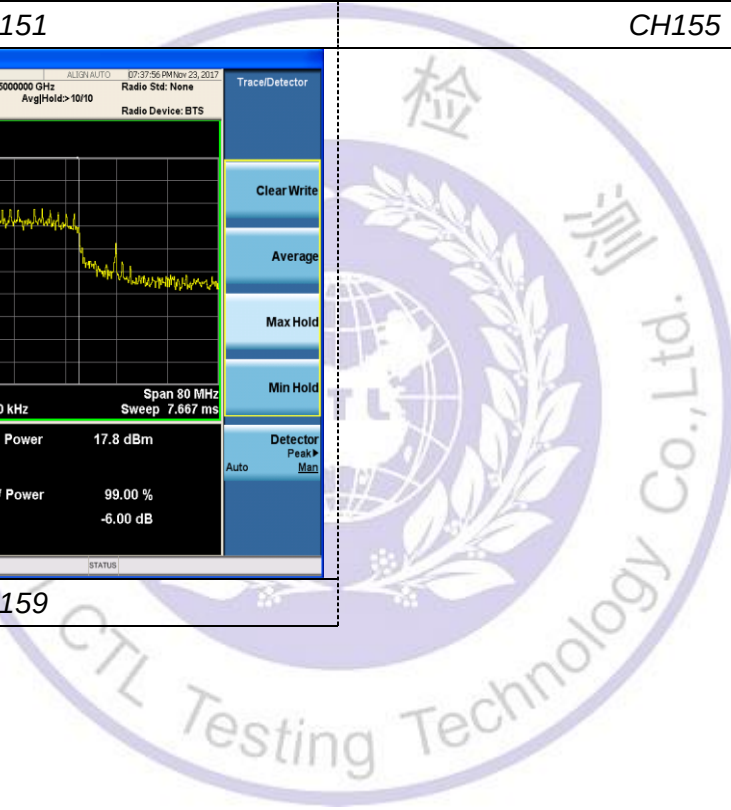
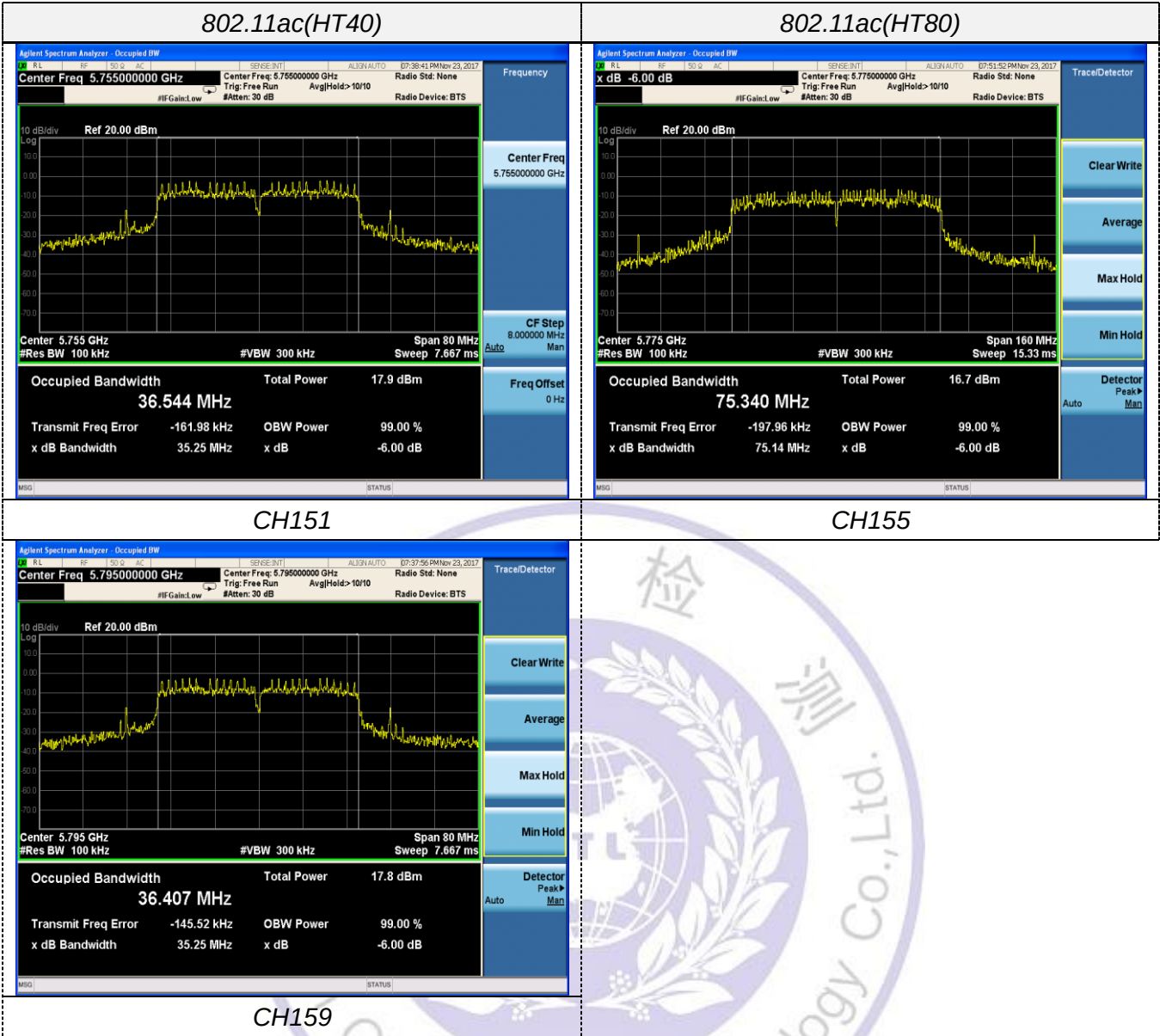
CH149



CH159



CH165

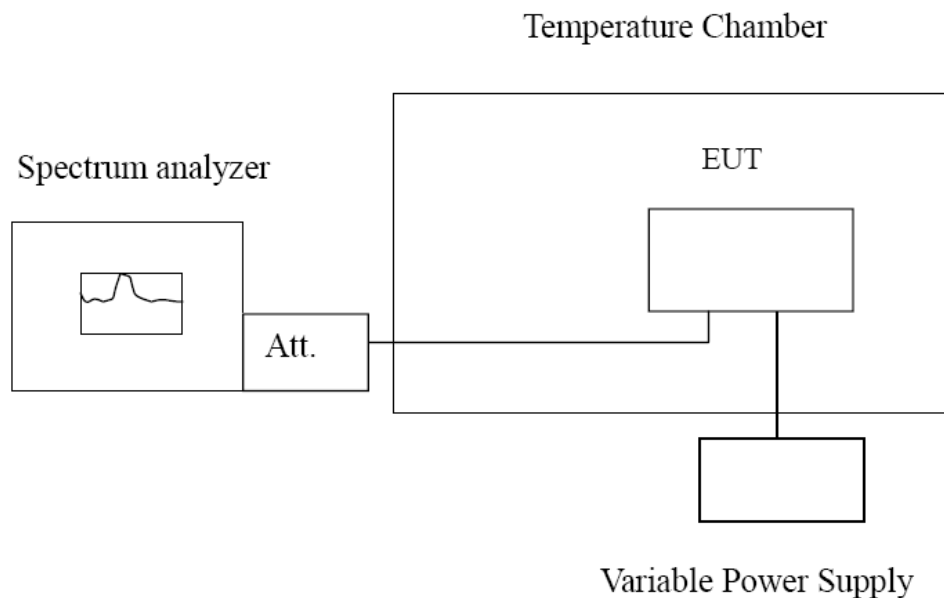


3.7. Frequency Stability

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		
12.00	-30	487	0.09	Within the band of operation	Pass
	-20	825	0.16		
	-10	635	0.12		
	0	669	0.13		
	10	741	0.14		
	20	785	0.15		
	30	714	0.14		
	40	635	0.12		
	50	658	0.13		
13.80	25	641	0.12		
10.20	25	682	0.13		

Reference Frequency: 802.11ac channel=52 frequency=5260MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
12.00	-30	754	0.14	Within the band of operation	Pass
	-20	748	0.14		
	-10	698	0.13		
	0	825	0.16		
	10	655	0.12		
	20	745	0.14		
	30	587	0.11		
	40	725	0.14		
	50	678	0.13		
13.80	25	625	0.12		
10.20	25	865	0.16		

Reference Frequency: 802.11ac channel=100 frequency=5500MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
12.00	-30	898	0.16	Within the band of operation	Pass
	-20	855	0.16		
	-10	724	0.13		
	0	874	0.16		
	10	652	0.12		
	20	563	0.10		
	30	841	0.15		
	40	663	0.12		
	50	689	0.13		
13.80	25	754	0.14		
10.20	25	889	0.16		

Reference Frequency: 802.11ac channel=149 frequency=5745MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
12.00	-30	754	0.013	Within the band of operation	Pass
	-20	585	0.010		
	-10	745	0.013		
	0	825	0.014		
	10	526	0.009		
	20	558	0.010		
	30	636	0.011		
	40	744	0.013		
	50	525	0.009		
13.80	25	789	0.014	Within the band of operation	Pass
10.20	25	821	0.014		



4. Test Setup Photos of the EUT



CTL Testing Technology

5. Photos of the EUT

Reference to the photo documents.

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

