

4.6 Minimum Emission Bandwidth (6dB Bandwidth)

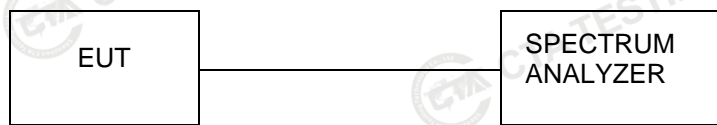
Limit

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

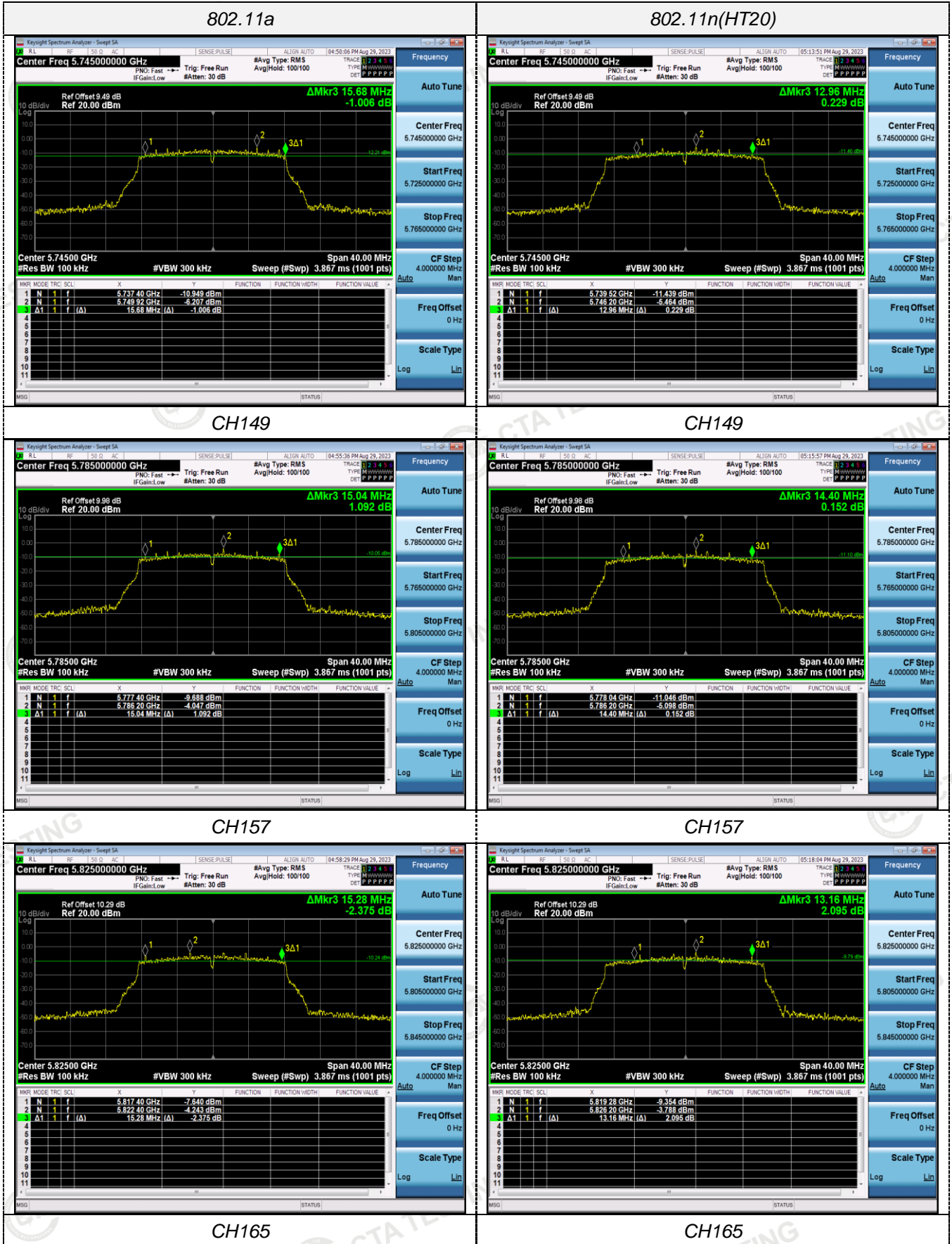
Type	Bands	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	U-NII 3	149	15.680	≥500KHz	Pass
		157	15.040		
		165	15.280		
802.11n(HT20)	U-NII 3	149	12.960		
		157	14.400		
		165	13.160		
802.11n(HT40)	U-NII 3	151	35.040		
		159	35.200		
802.11ac(HT20)	U-NII 3	149	15.720		
		157	15.600		
		165	16.640		
802.11ac(HT40)	U-NII 3	151	35.040		
		159	35.040		
802.11ac(HT80)	U-NII 3	155	72.640		

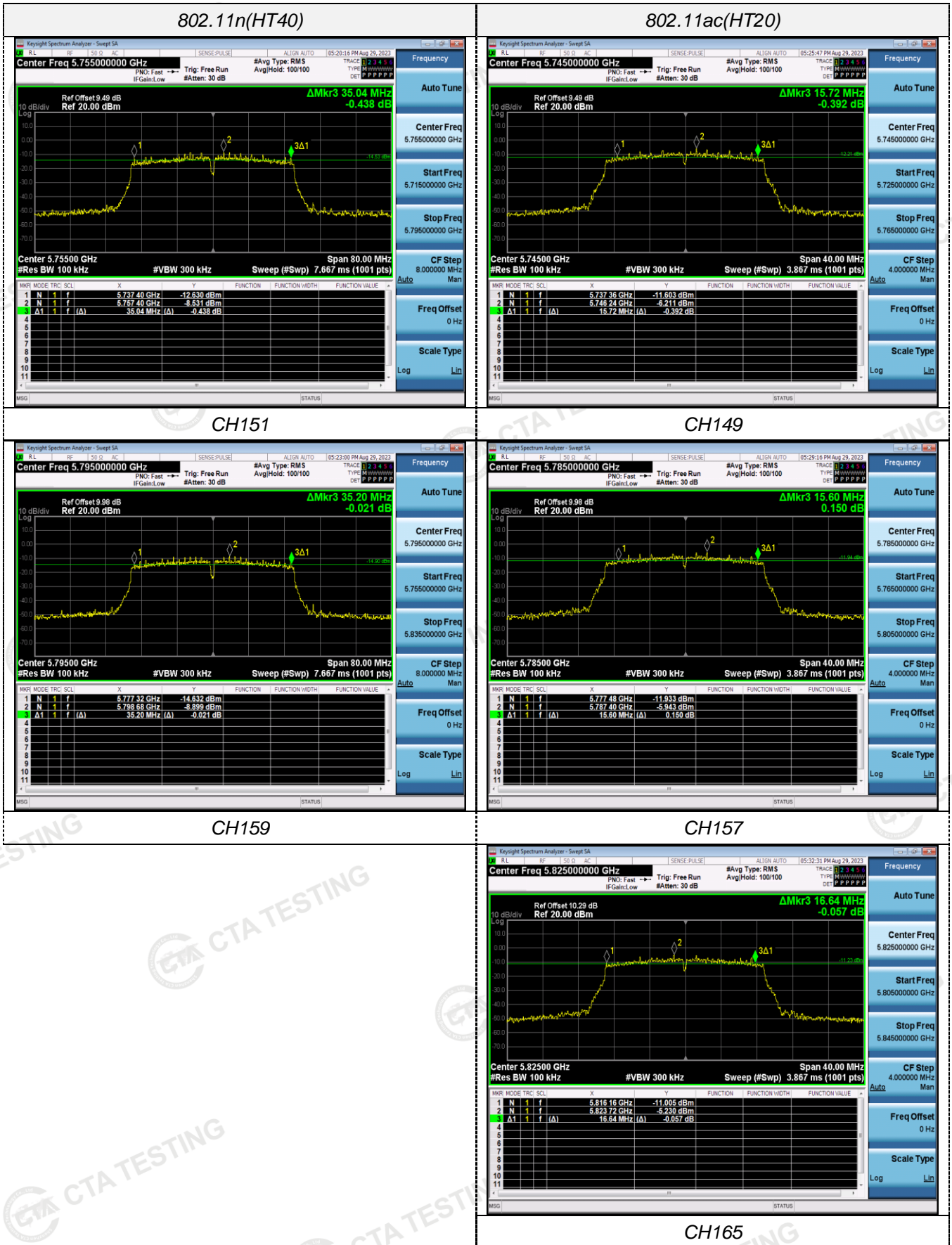
ANT 2

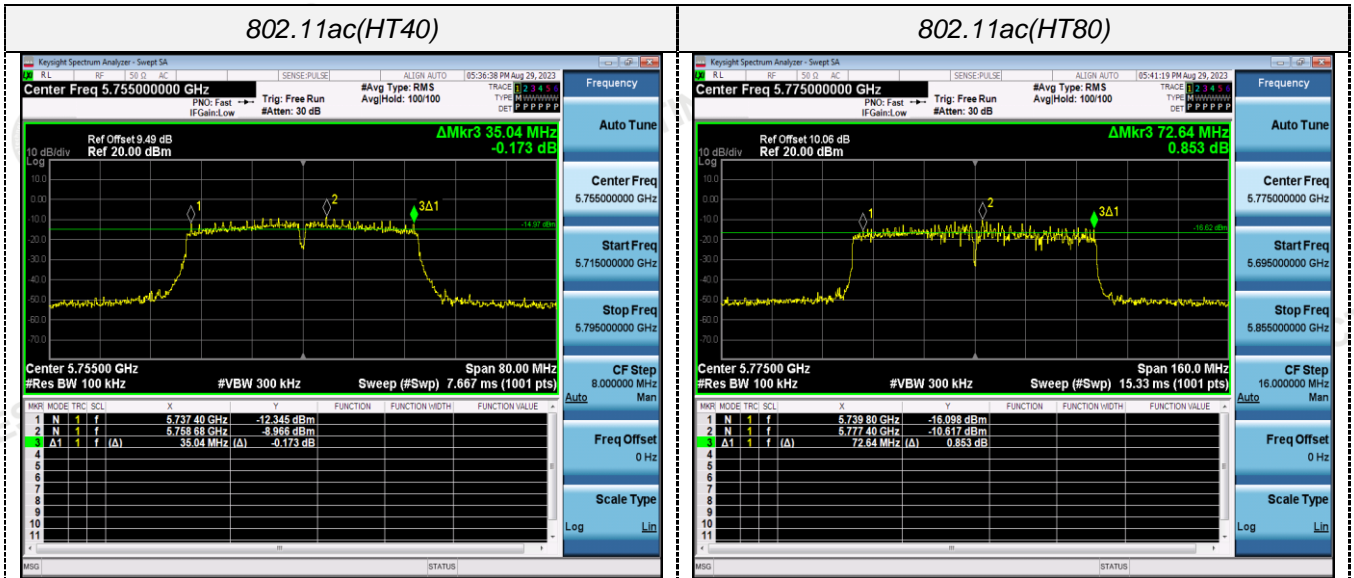
Type	Bands	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	U-NII 3	149	15.120	≥500KHz	Pass
		157	14.440		
		165	15.680		
802.11n(HT20)	U-NII 3	149	15.120		
		157	16.320		
		165	15.080		
802.11n(HT40)	U-NII 3	151	33.840		
		159	35.040		
802.11ac(HT20)	U-NII 3	149	16.240		
		157	15.720		
		165	13.560		
802.11ac(HT40)	U-NII 3	151	33.840		
		159	33.840		
802.11ac(HT80)	U-NII 3	155	73.760		

Test plot as follows:

ANT 1

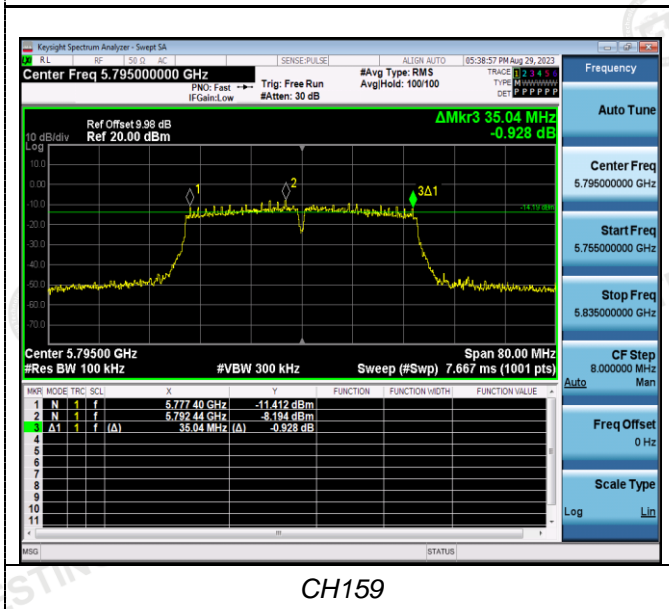






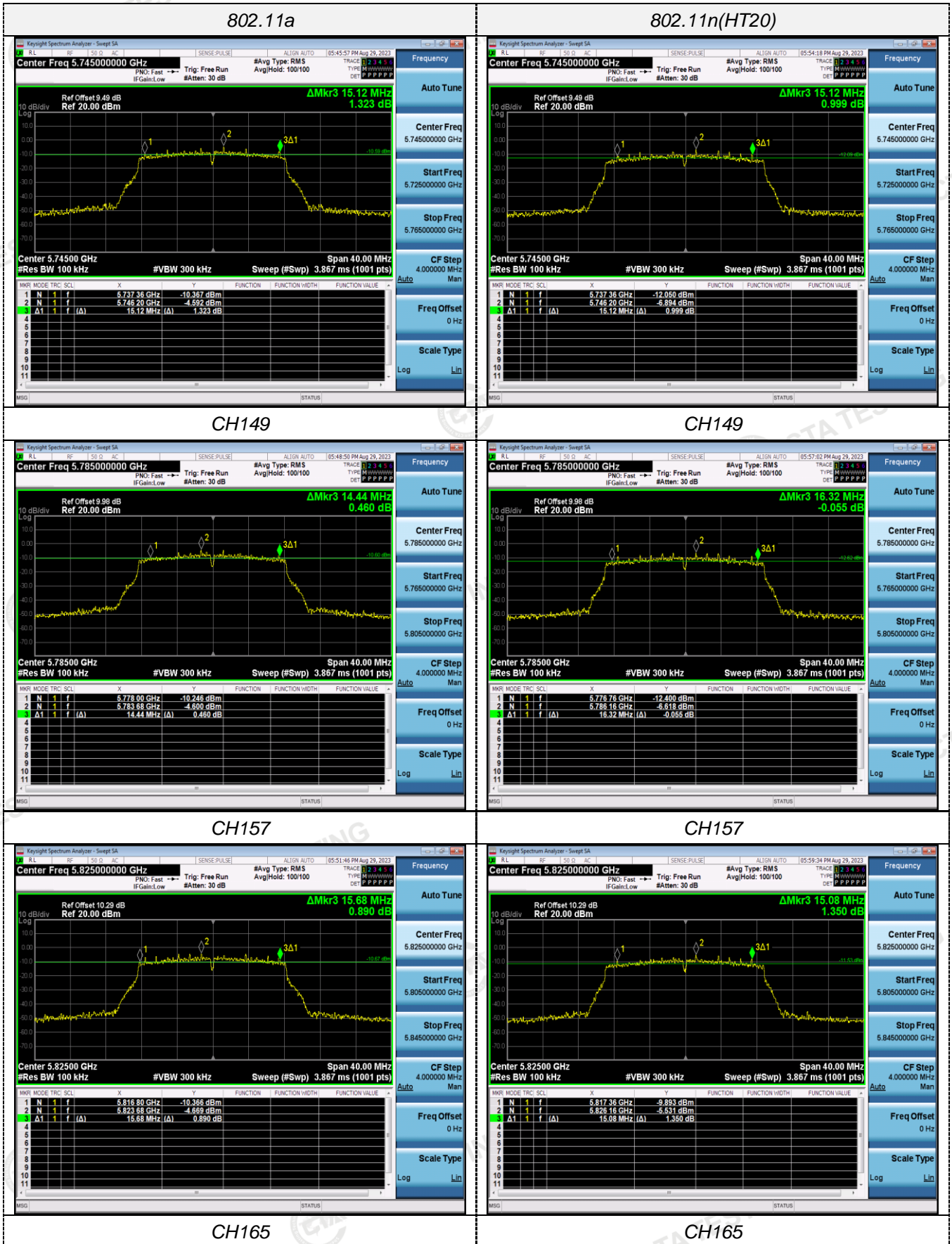
CH151

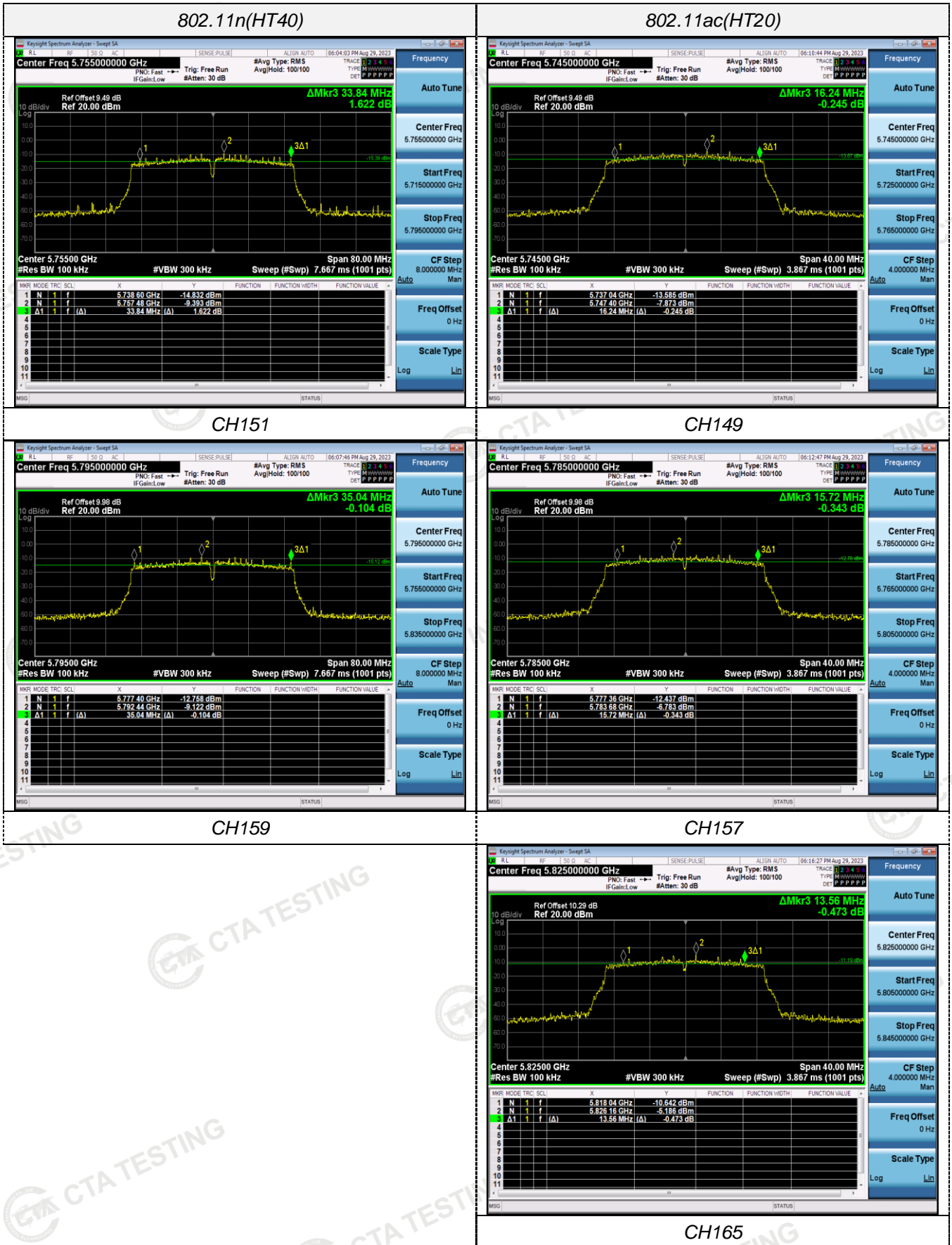
CH155

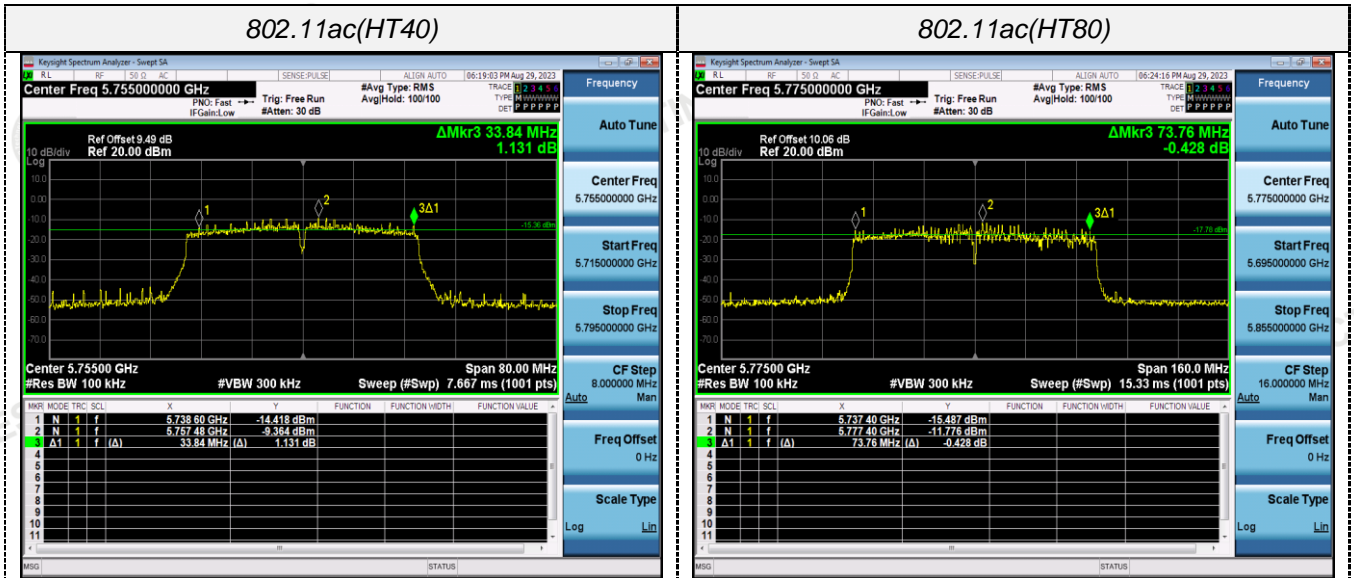


CH159

ANT 2

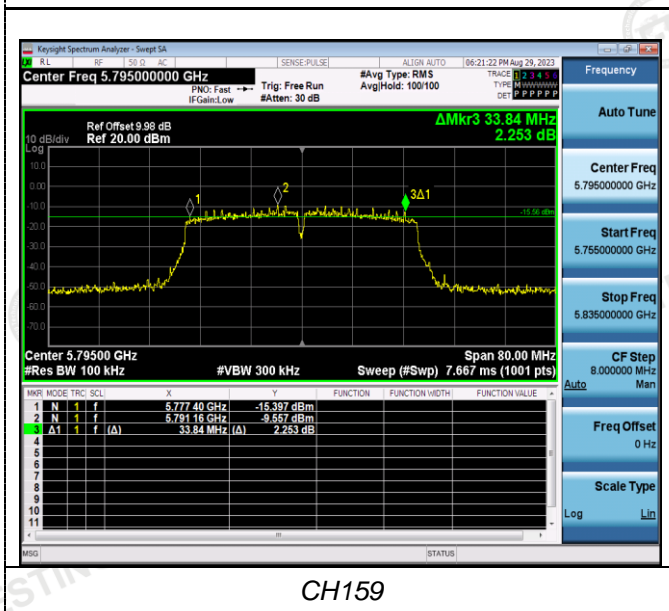






CH151

CH155



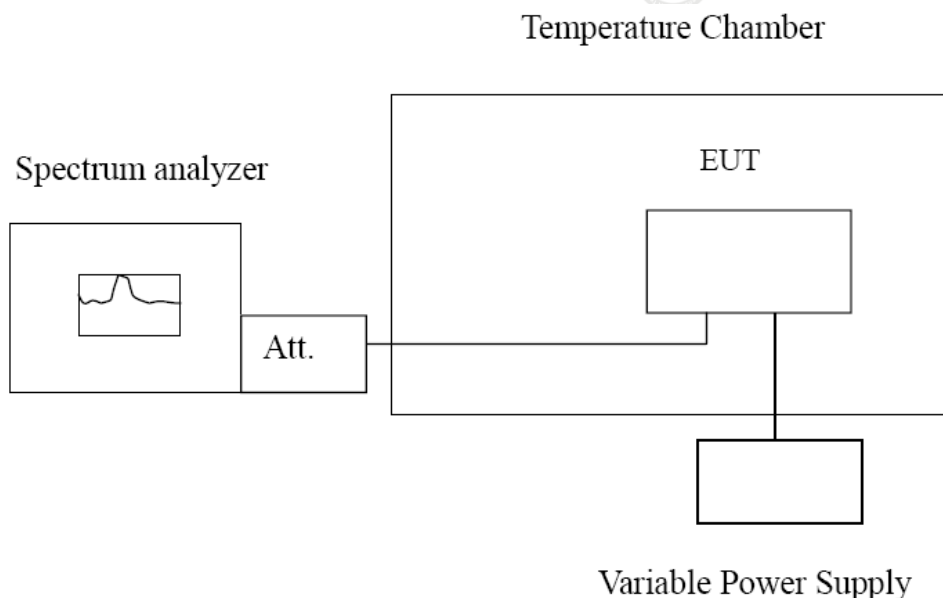
CH159

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°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		
DC 11.4	-30	110.77	0.021384	Within the band of operation	Pass
	-20	174.56	0.033699		
	-10	145.44	0.028077		
	0	146.38	0.028259		
	10	146.22	0.028228		
	20	99.73	0.019253		
	30	167.39	0.032315		
	40	129.65	0.025029		
DC 12.54	25	195.75	0.037790		
DC 10.26	25	118.61	0.022898		

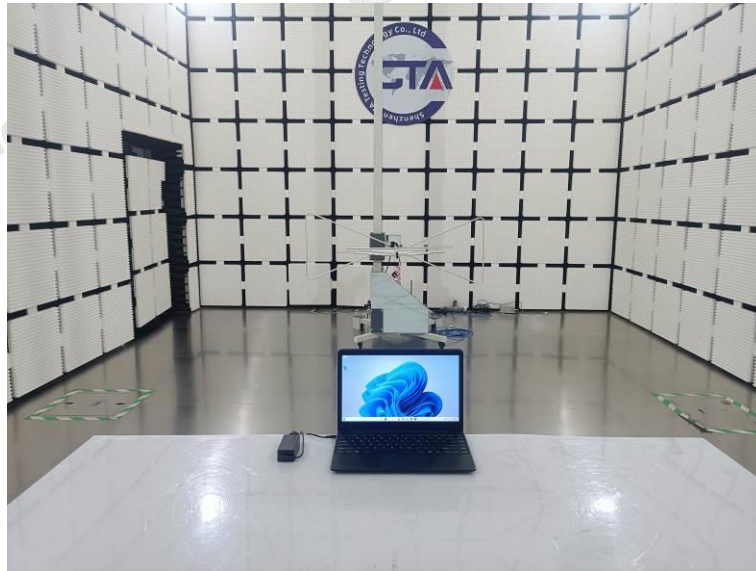
Reference Frequency: 802.11ac channel=149 frequency=5745MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
DC 11.4	-30	135.60	0.023603	Within the band of operation	Pass
	-20	129.33	0.022512		
	-10	167.23	0.029109		
	0	169.61	0.029523		
	10	136.77	0.023807		
	20	144.94	0.025229		
	30	116.48	0.020275		
	40	168.30	0.029295		
DC 12.54	25	150.86	0.026259		
DC 10.26	25	129.64	0.022566		

Ant2:

Reference Frequency: 802.11ac channel=36 frequency=5180MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
DC 11.4	-30	110.68	0.021367	Within the band of operation	Pass
	-20	174.44	0.033676		
	-10	145.23	0.028037		
	0	146.57	0.028295		
	10	146.18	0.028220		
	20	99.64	0.019236		
	30	167.47	0.032330		
	40	129.43	0.024986		
	50	128.61	0.024828		
DC 12.5	25	195.42	0.037726		
DC 10.3	25	118.73	0.022921		

Reference Frequency: 802.11ac channel=149 frequency=5745MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
DC 11.4	-30	135.79	0.023636	Within the band of operation	Pass
	-20	129.65	0.022567		
	-10	167.47	0.029151		
	0	169.67	0.029534		
	10	136.76	0.023805		
	20	144.91	0.025224		
	30	116.62	0.020299		
	40	168.64	0.029354		
	50	160.80	0.027990		
DC 12.5	25	150.69	0.026230		
DC 10.3	25	129.63	0.022564		

5 Test Setup Photos of the EUT



6 Photos of the EUT

Reference to the test report No. CTA23082800401.

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