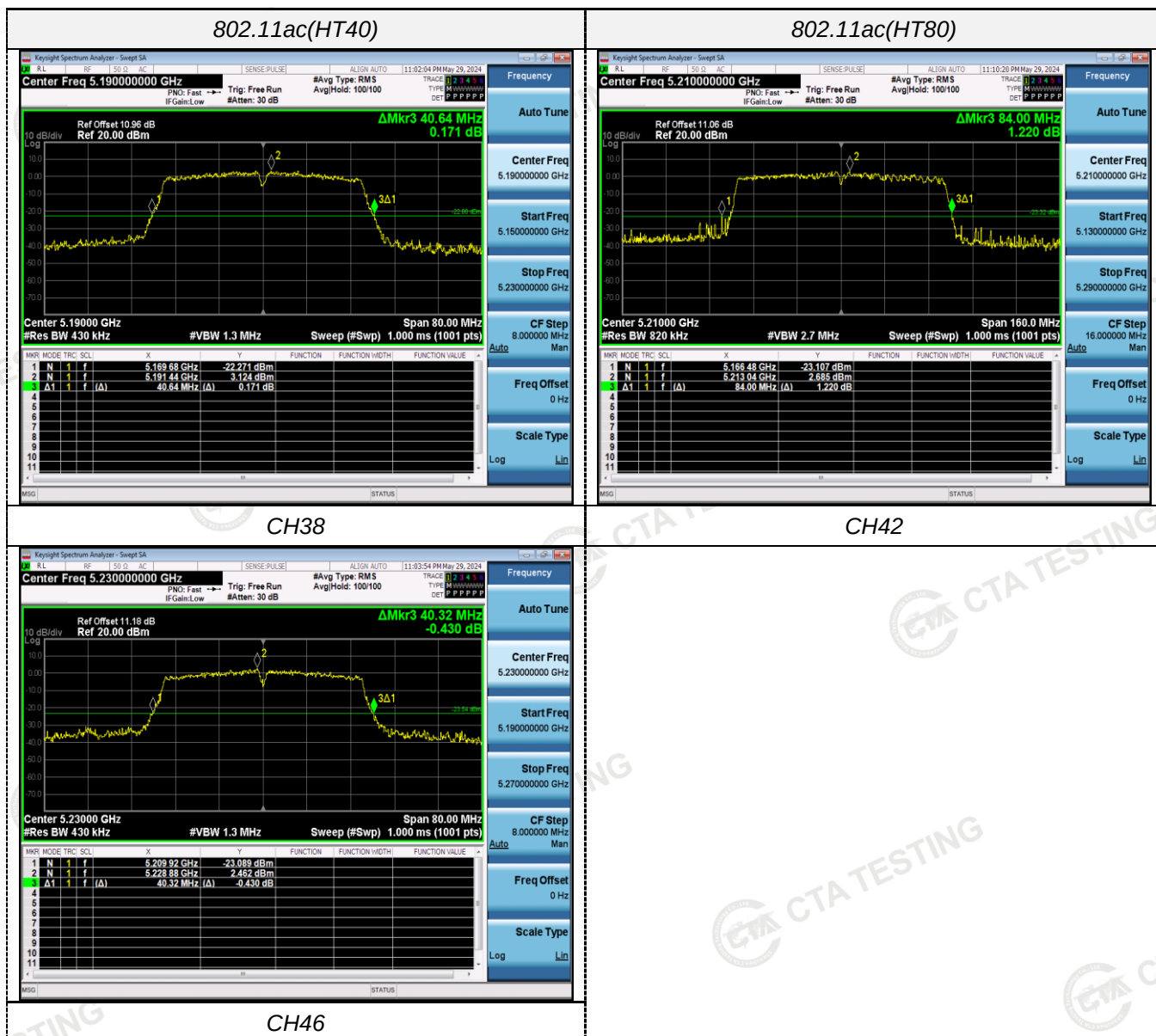




4.6 Minimum Emission Bandwidth (6dB Bandwidth)

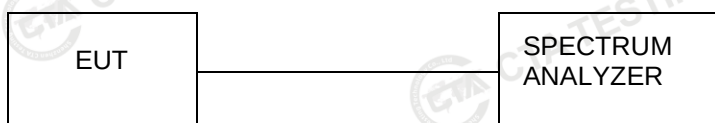
Limit

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

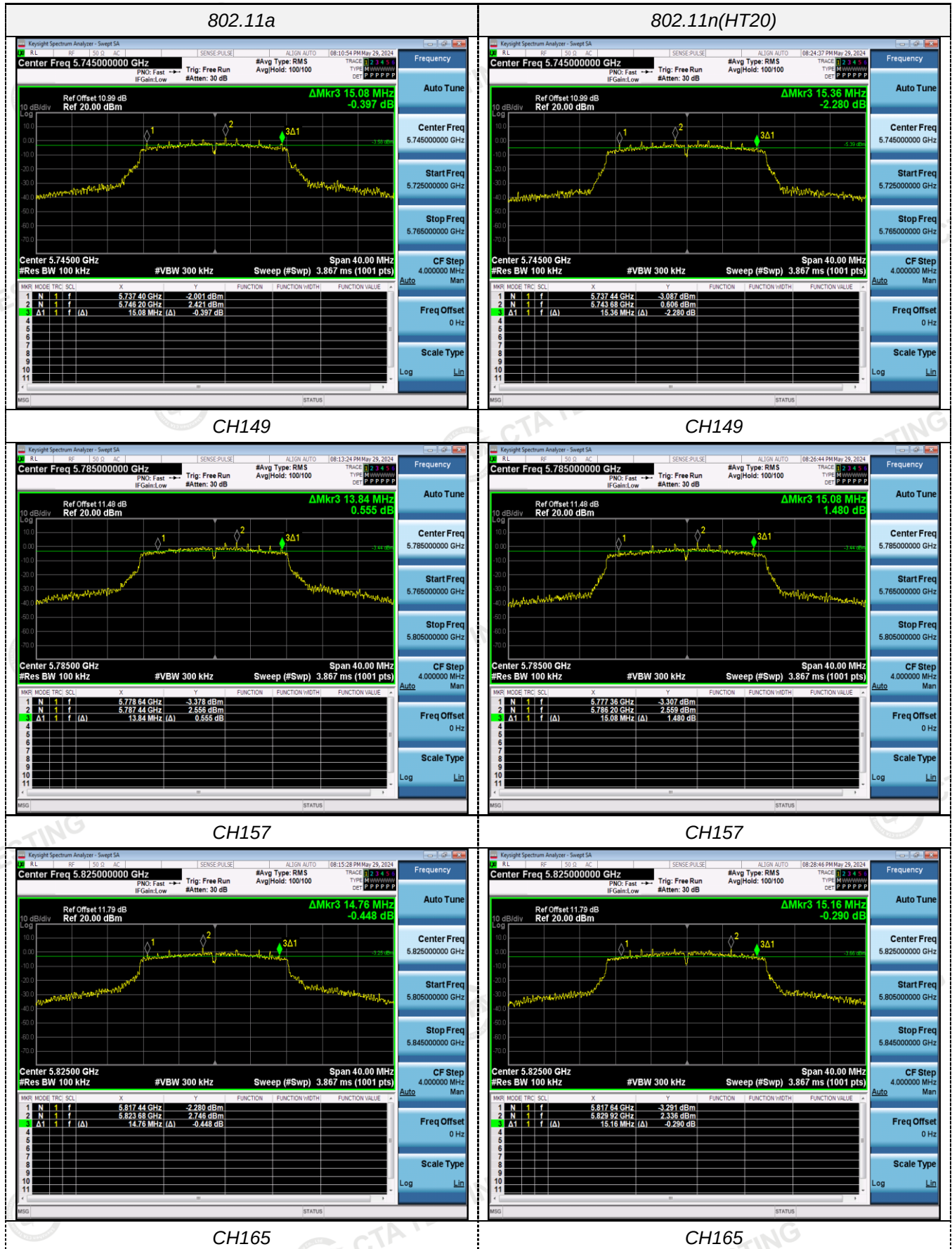
Type	Bands	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	U-NII 3	149	15.080	≥500KHz	Pass
		157	13.840		
		165	14.760		
802.11n(HT20)	U-NII 3	149	15.360		
		157	15.080		
		165	15.160		
802.11n(HT40)	U-NII 3	151	35.120		
		159	35.040		
802.11ac(HT20)	U-NII 3	149	15.960		
		157	14.800		
		165	15.000		
802.11ac(HT40)	U-NII 3	151	33.840		
		159	35.040		
802.11ac(HT80)	U-NII 3	155	73.760		

ANT 2

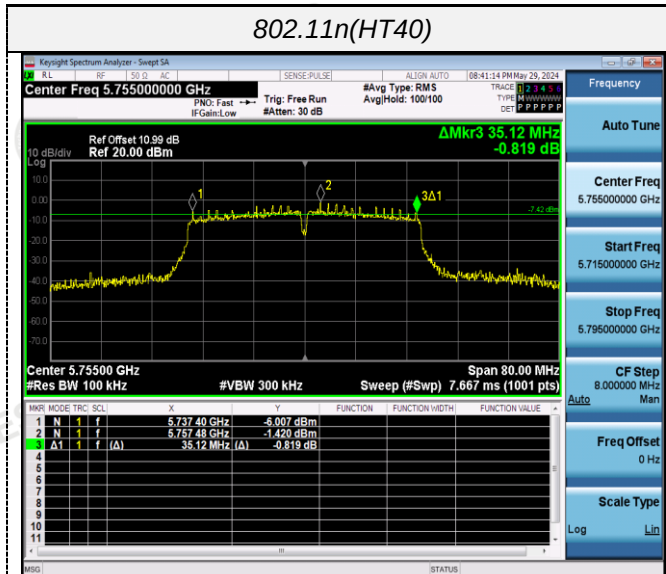
Type	Bands	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	U-NII 3	149	14.320	≥500KHz	Pass
		157	14.160		
		165	15.520		
802.11n(HT20)	U-NII 3	149	15.040		
		157	15.120		
		165	13.880		
802.11n(HT40)	U-NII 3	151	35.040		
		159	35.040		
802.11ac(HT20)	U-NII 3	149	15.120		
		157	15.040		
		165	15.120		
802.11ac(HT40)	U-NII 3	151	33.840		
		159	34.960		
802.11ac(HT80)	U-NII 3	155	75.040		

Test plot as follows:

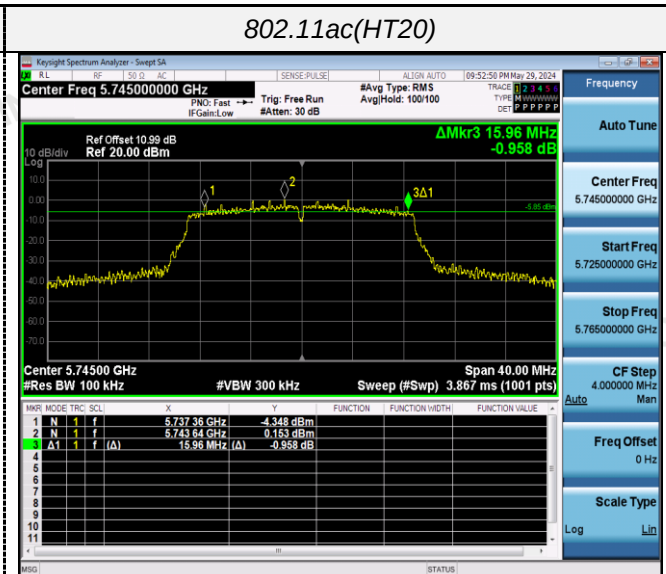
ANT 1



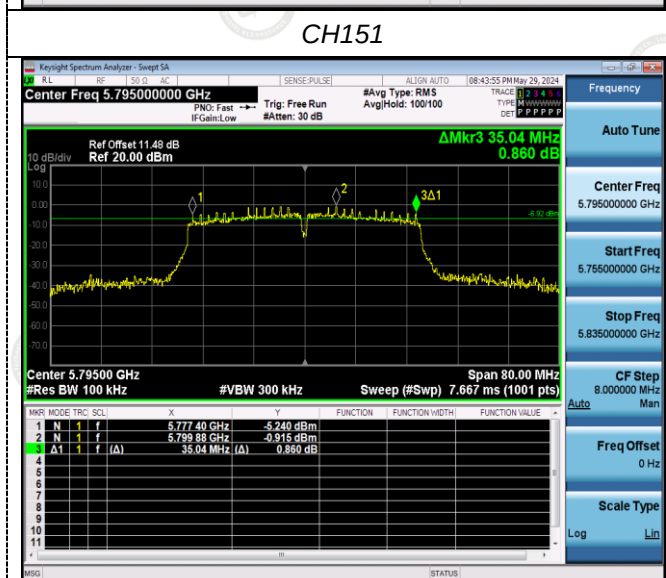
802.11n(HT40)



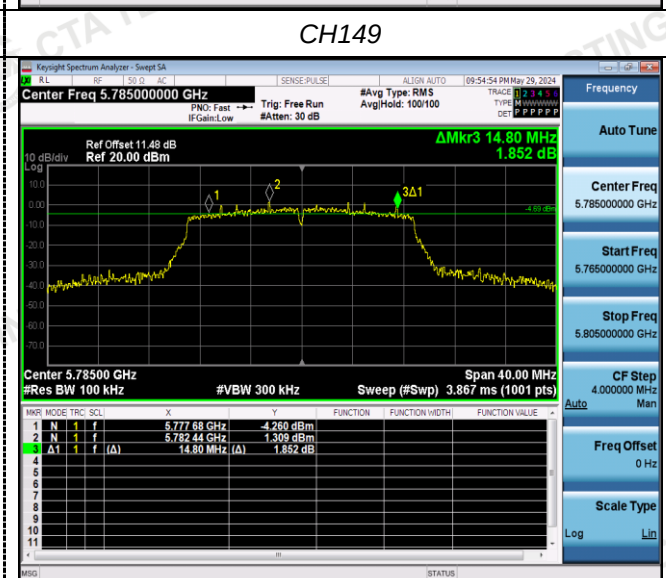
802.11ac(HT20)



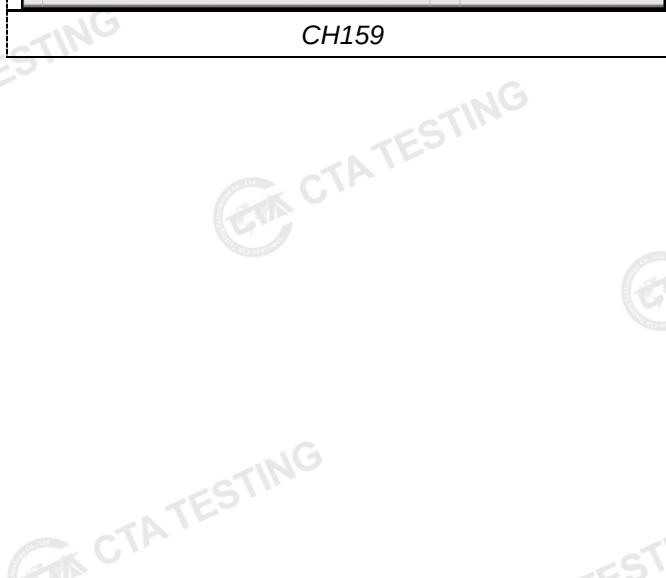
CH151



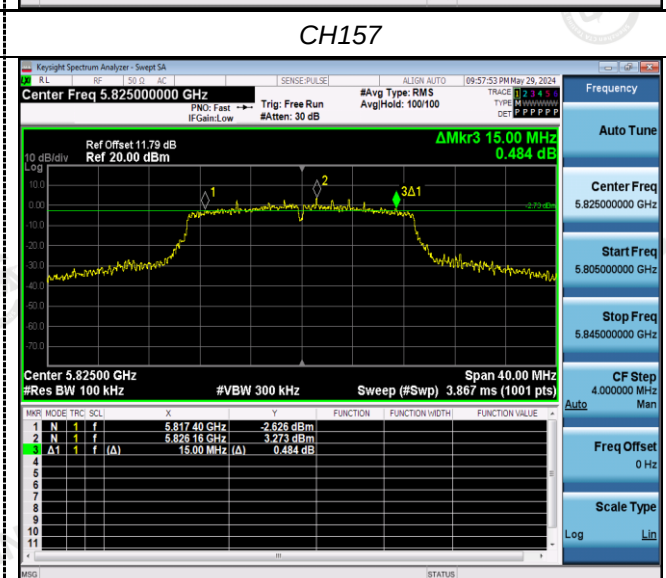
CH149



CH159

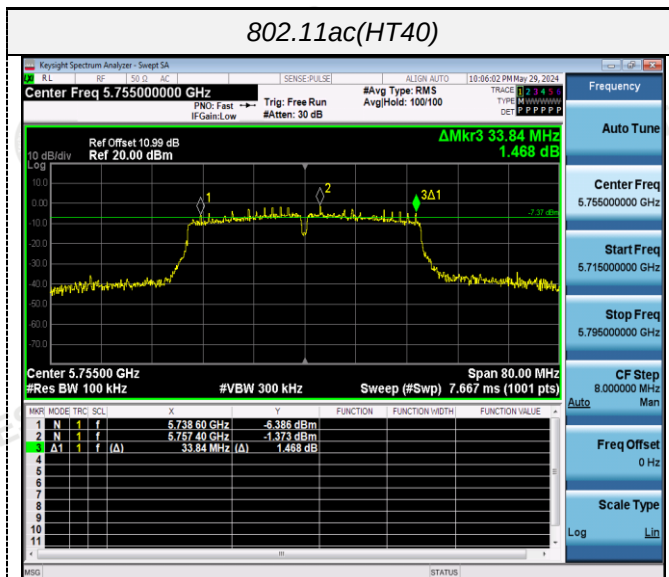


CH157



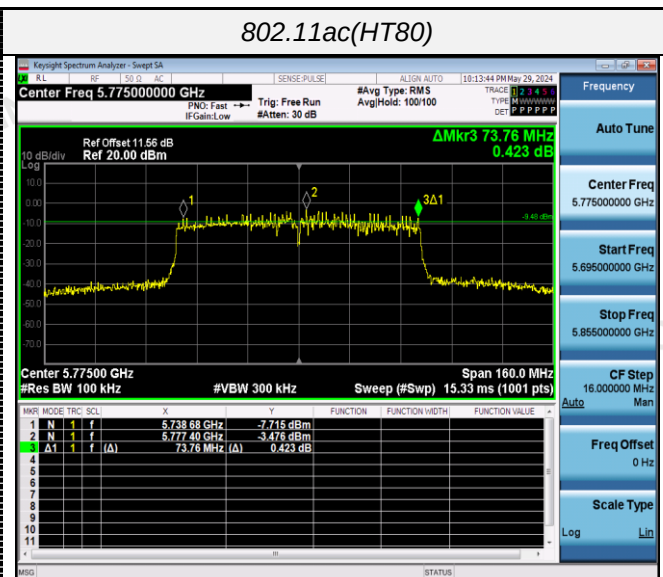
CH165

802.11ac(HT40)

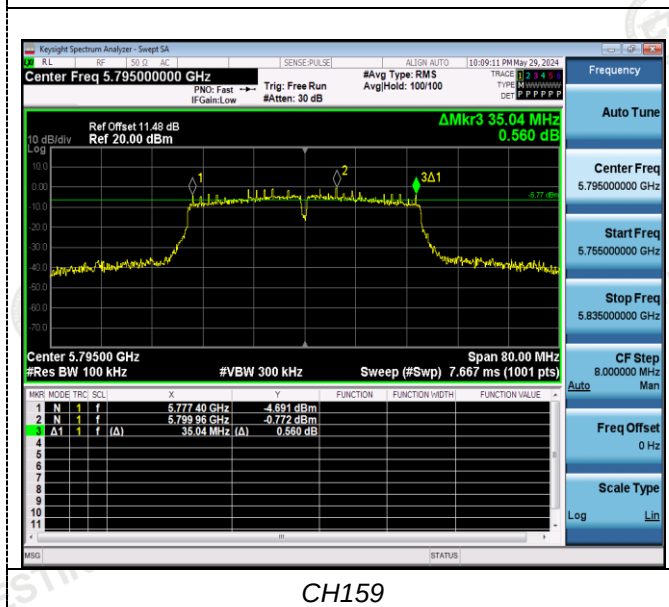


CH151

802.11ac(HT80)

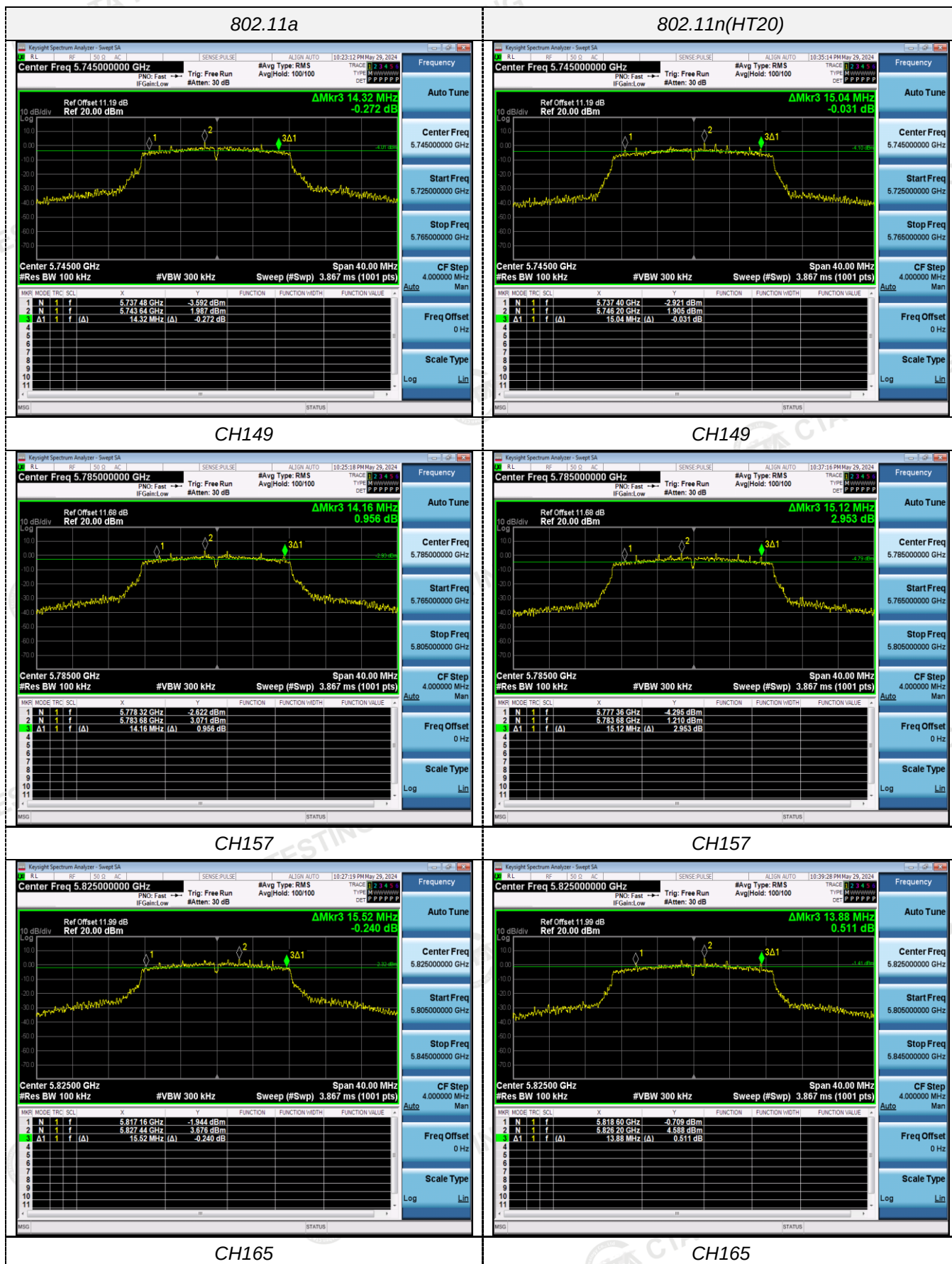


CH155

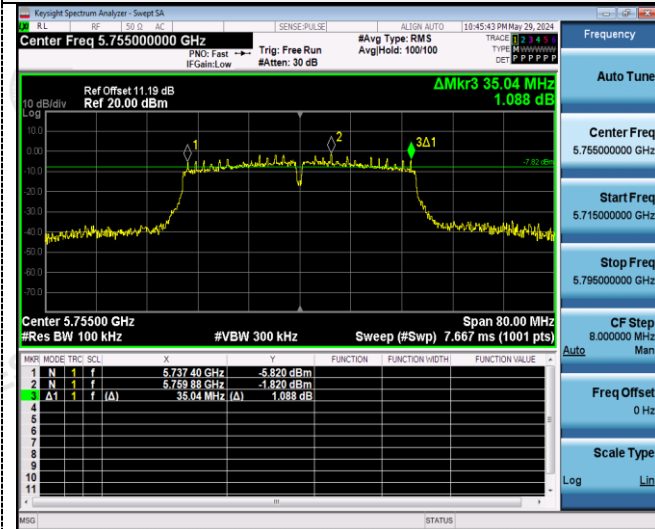


CH159

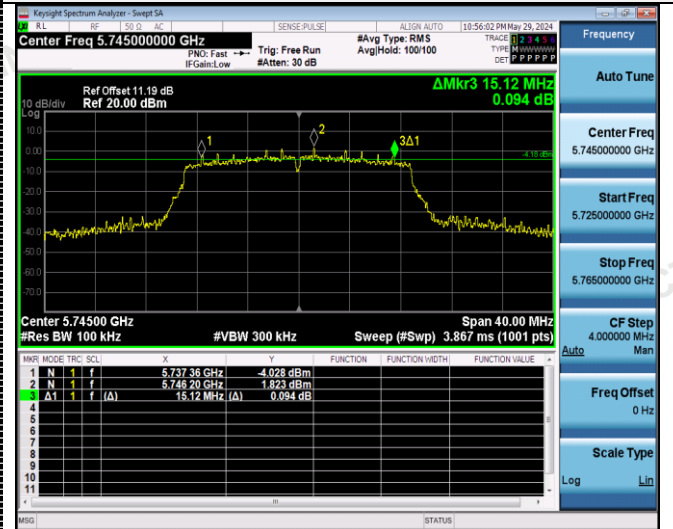
ANT 2



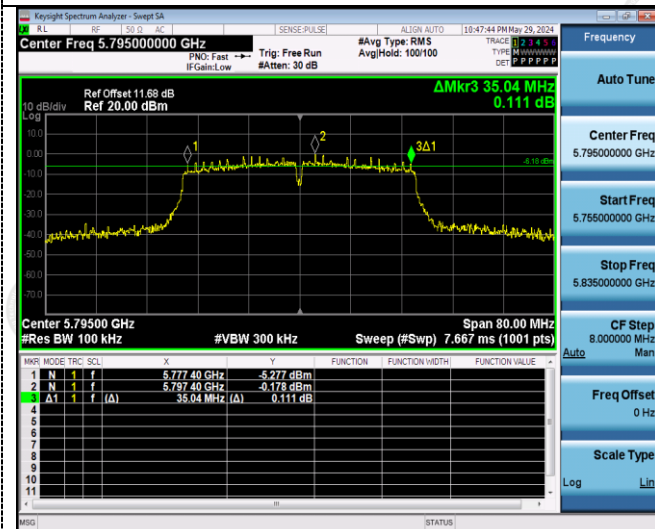
802.11n(HT40)



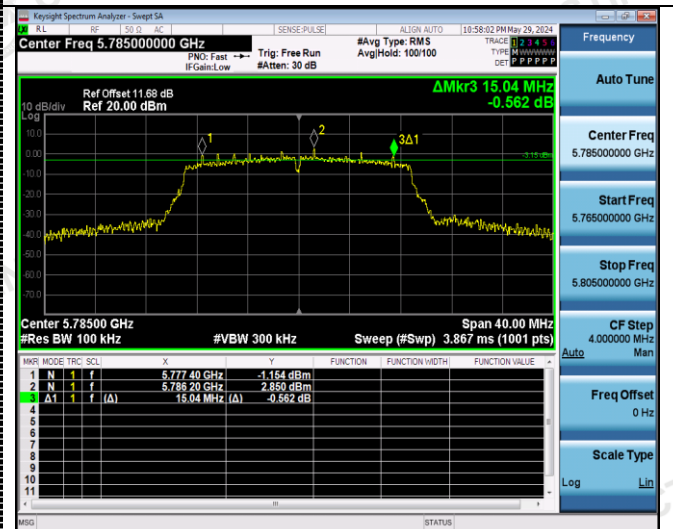
802.11ac(HT20)



CH151



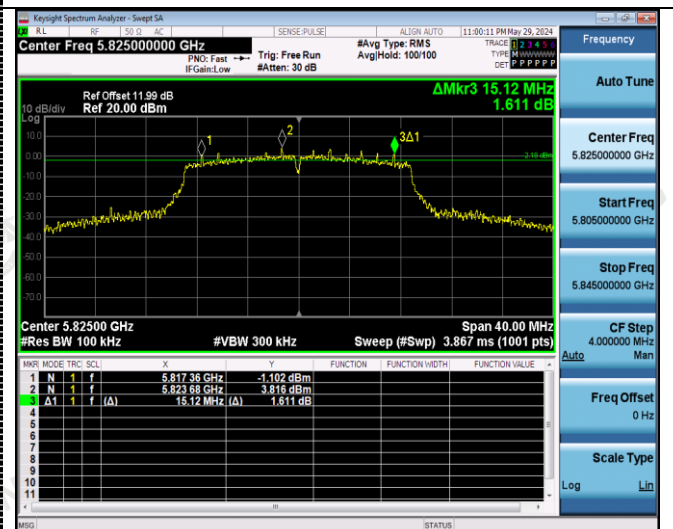
CH149



CH159

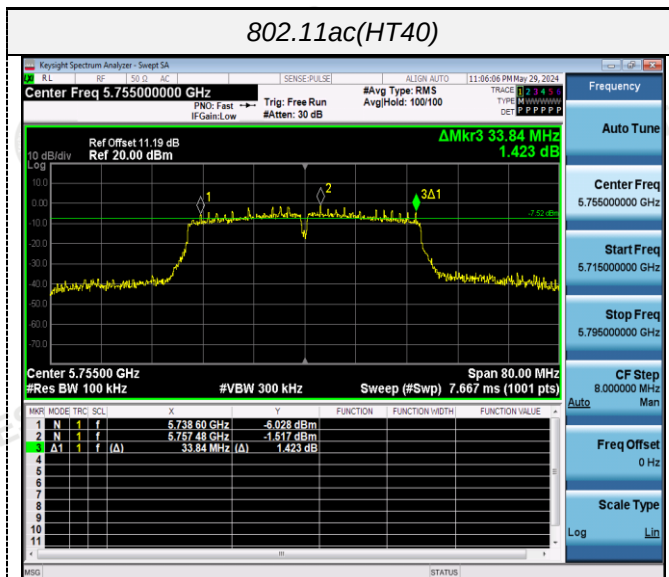


CH157



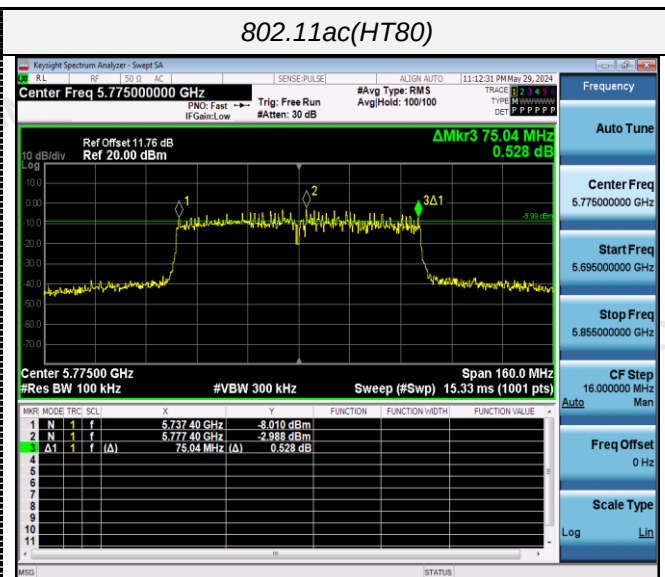
CH165

802.11ac(HT40)

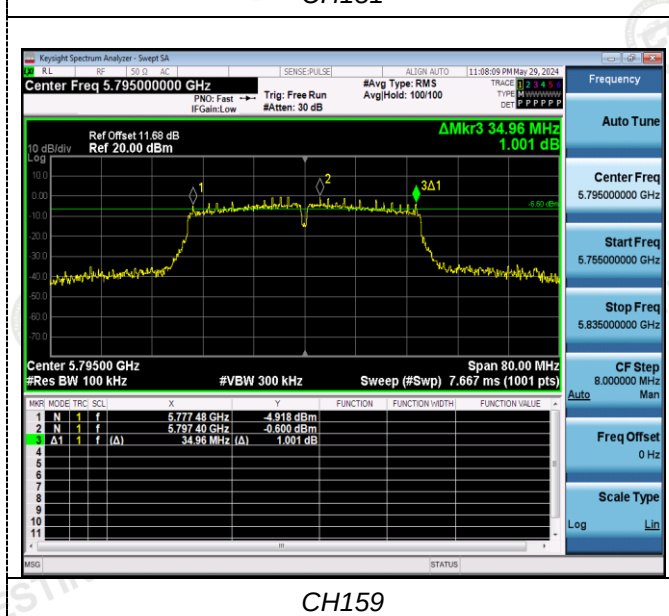


CH151

802.11ac(HT80)



CH155



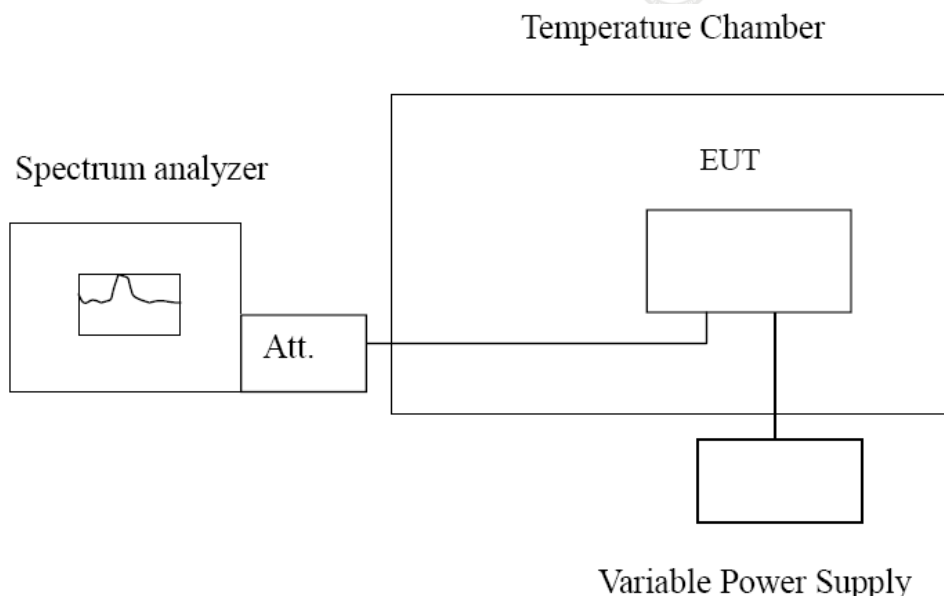
CH159

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 7.40	-30	110.54	0.021340	Within the band of operation	Pass
	-20	174.62	0.033710		
	-10	145.43	0.028075		
	0	146.47	0.028276		
	10	145.77	0.028141		
	20	99.62	0.019232		
	30	167.48	0.032332		
	40	129.28	0.024958		
	50	128.46	0.024799		
DC 8.40	25	195.83	0.037805	Within the band of operation	Pass
DC 6.80	25	118.82	0.022938		

Reference Frequency: 802.11ac channel=149 frequency=5745MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
DC 7.40	-30	135.78	0.023634	Within the band of operation	Pass
	-20	129.61	0.022560		
	-10	167.23	0.029109		
	0	169.77	0.029551		
	10	136.54	0.023767		
	20	144.94	0.025229		
	30	116.58	0.020292		
	40	168.27	0.029290		
	50	160.42	0.027923		
DC 8.40	25	150.73	0.026237	Within the band of operation	Pass
DC 6.80	25	129.94	0.022618		

Ant2:

Reference Frequency: 802.11ac channel=36 frequency=5180MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
DC 7.40	-30	110.98	0.021425	Within the band of operation	Pass
	-20	174.32	0.033653		
	-10	145.69	0.028125		
	0	146.67	0.028315		
	10	146.76	0.028332		
	20	99.38	0.019185		
	30	167.84	0.032402		
	40	129.16	0.024934		
	50	128.41	0.024790		
DC 8.40	25	195.26	0.037695	Within the band of operation	Pass
DC 6.80	25	118.74	0.022923		

Reference Frequency: 802.11ac channel=149 frequency=5745MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
DC 7.40	-30	135.53	0.023591	Within the band of operation	Pass
	-20	129.41	0.022526		
	-10	167.37	0.029133		
	0	169.72	0.029542		
	10	136.39	0.023741		
	20	144.46	0.025145		
	30	116.80	0.020331		
	40	168.35	0.029304		
	50	160.69	0.027970		
DC 8.40	25	150.97	0.026279	Within the band of operation	Pass
DC 6.80	25	129.21	0.022491		

5 Test Setup Photos of the EUT



6 Photos of the EUT

Reference to the test report No. CTA24052403101.

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