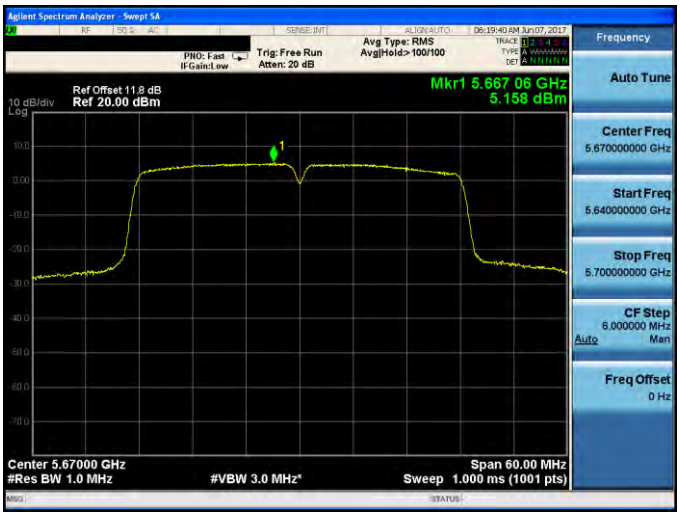
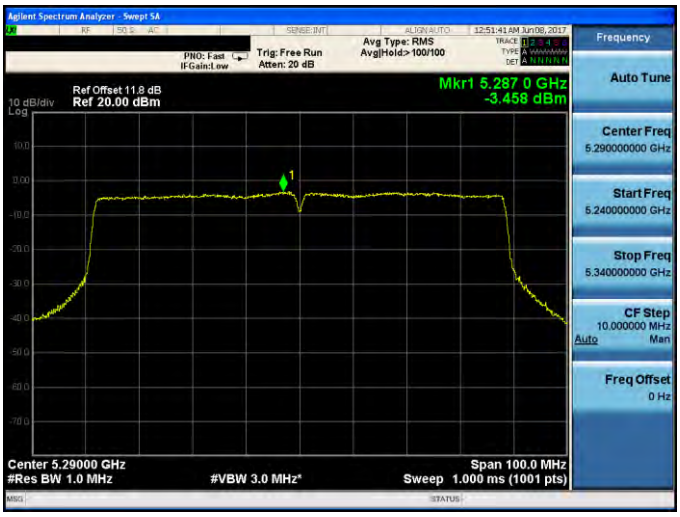
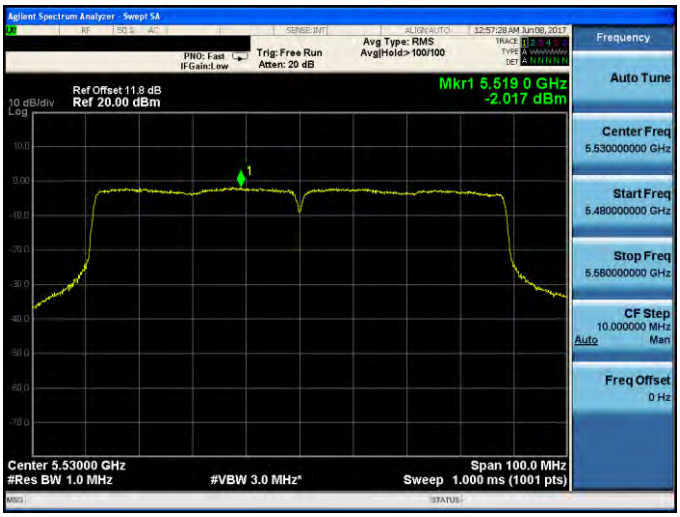
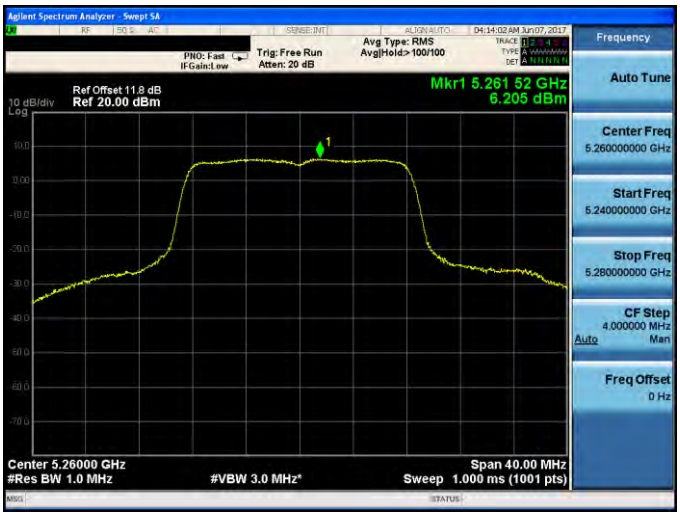
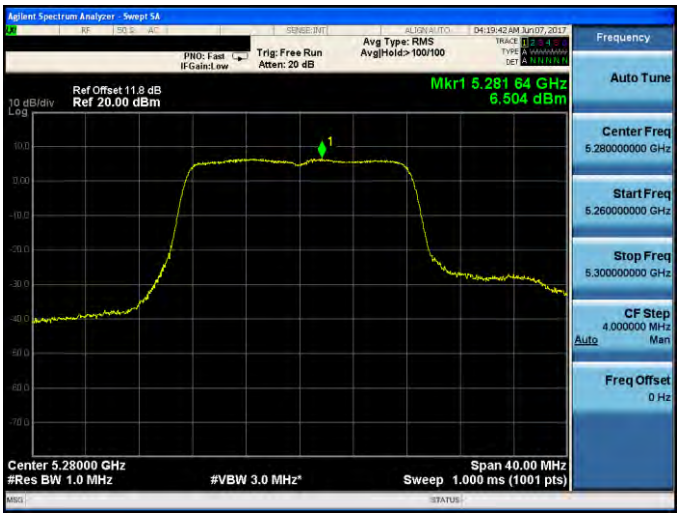
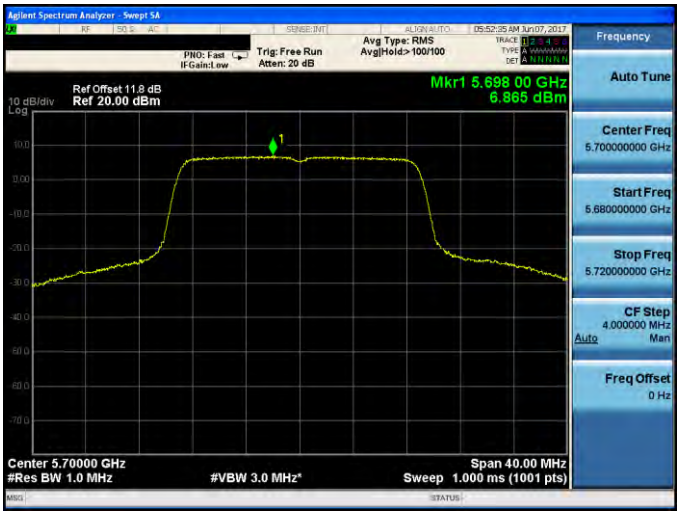
Mode 4: IEEE 802.11ac 40MHz Continuous TX mode_ANT-0	
5510	
5550	
5670	

Mode 5: IEEE 802.11ac 80MHz Continuous TX mode_ANT-0	
5290	
5530	
5610	

Mode 2: IEEE 802.11a Continuous TX mode_ANT-1	
5260	
5280	
5320	

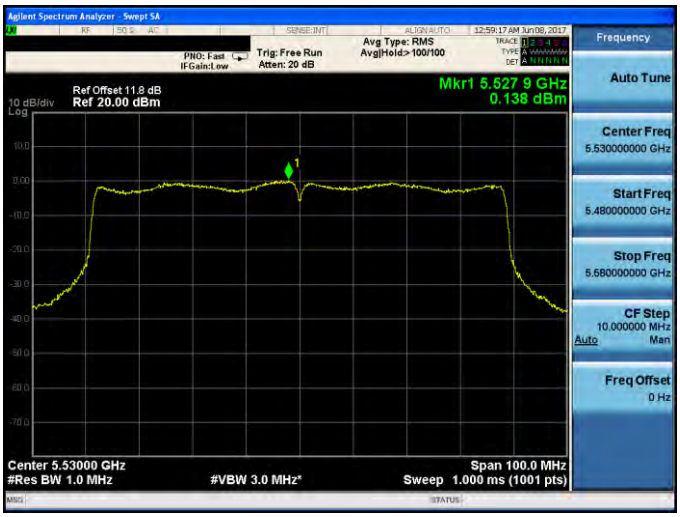
Mode 2: IEEE 802.11a Continuous TX mode_ANT-1	
5500	
5560	
5700	

Mode 3: IEEE 802.11ac 20MHz Continuous TX mode_ANT-1	
5260	
5280	
5320	

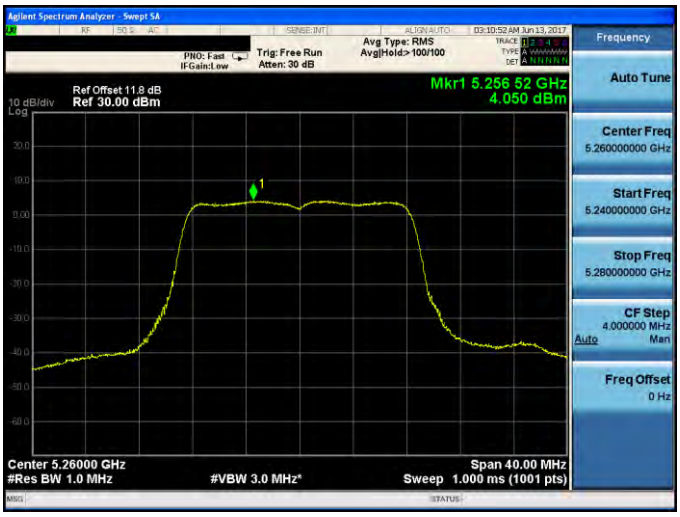
Mode 3: IEEE 802.11ac 20MHz Continuous TX mode_ANT-1	
5500	
5560	
5700	

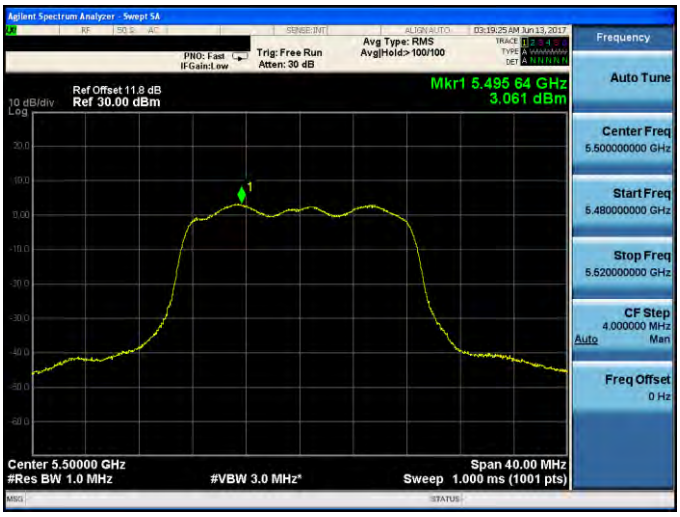
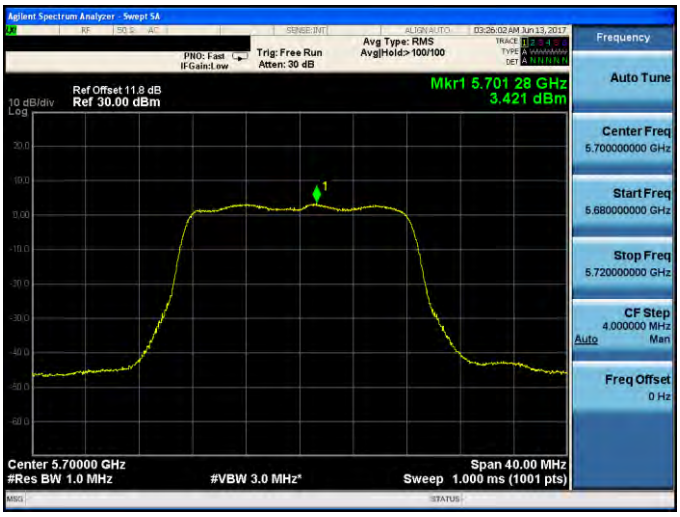
Mode 4: IEEE 802.11ac 40MHz Continuous TX mode_ANT-1	
5270	
5310	

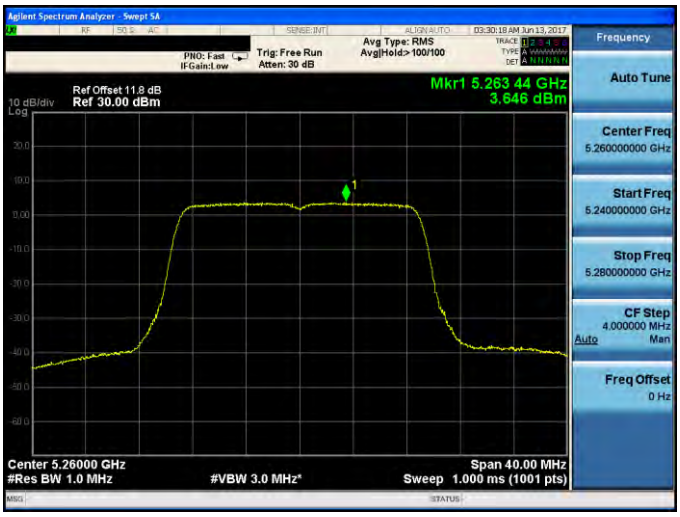
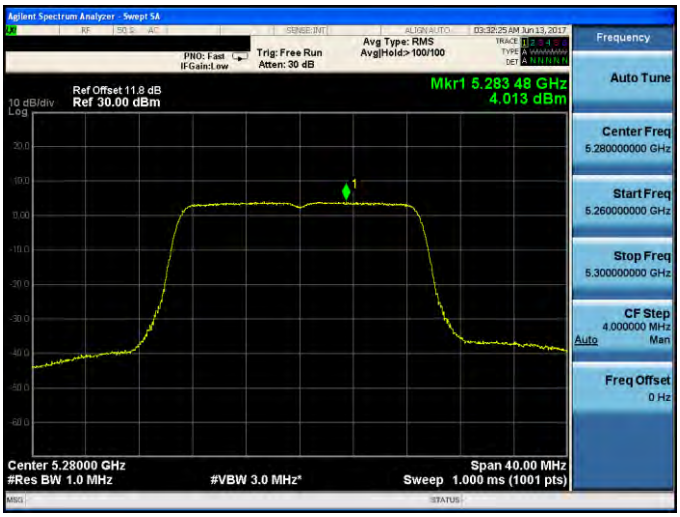
Mode 4: IEEE 802.11ac 40MHz Continuous TX mode_ANT-1	
5510	
5550	
5670	

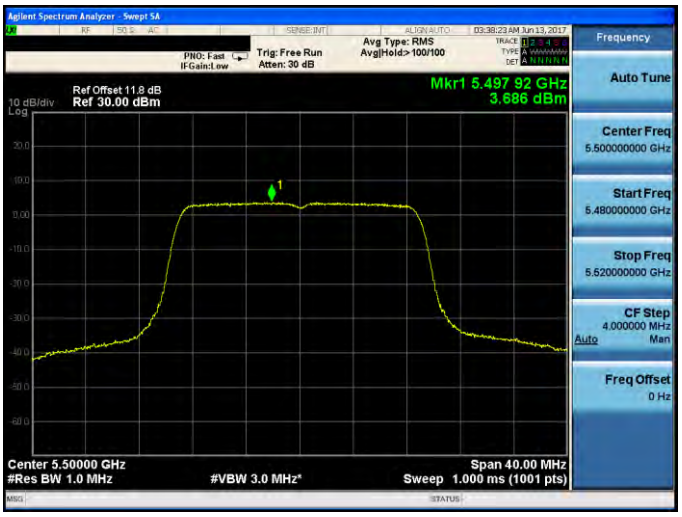
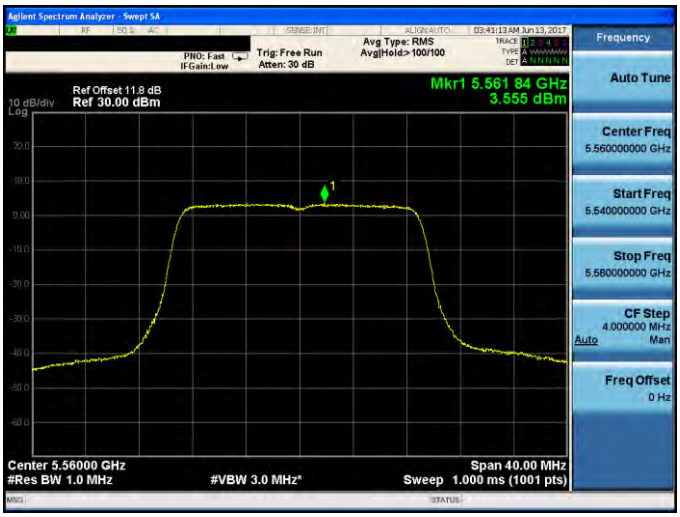
Mode 5: IEEE 802.11ac 80MHz Continuous TX mode_ANT-1	
5290	
5530	
5610	

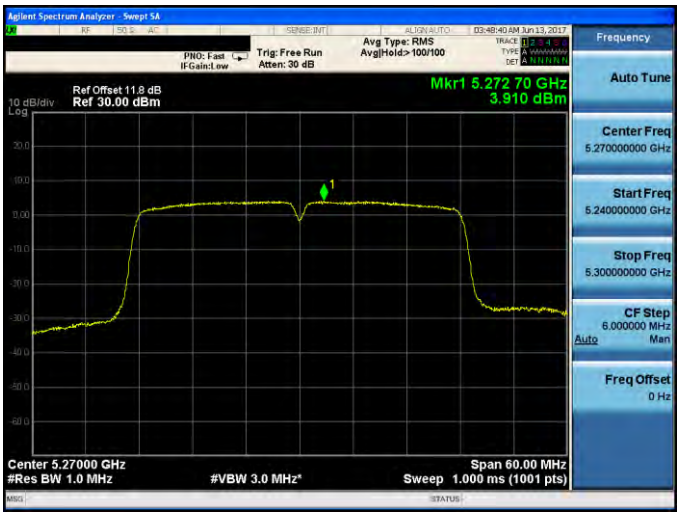
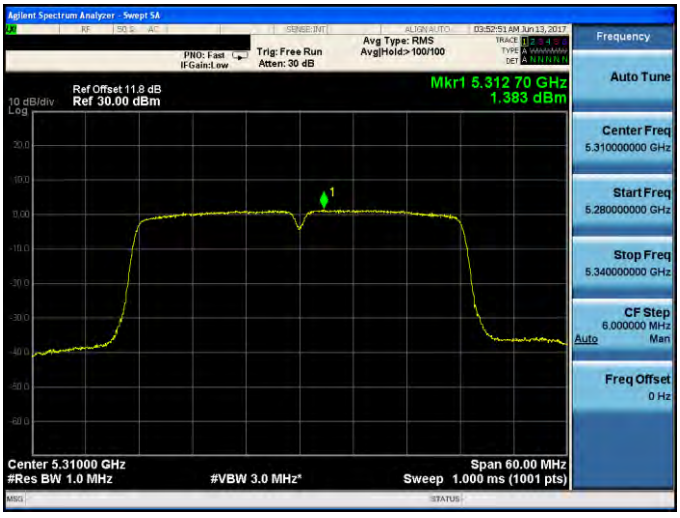
Beamforming on

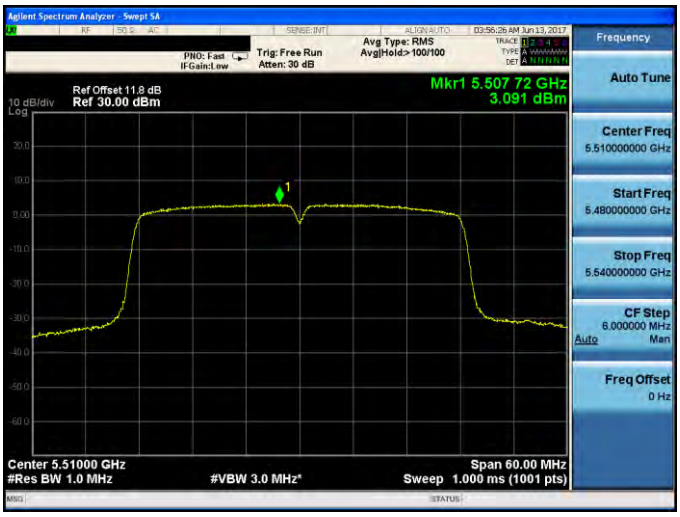
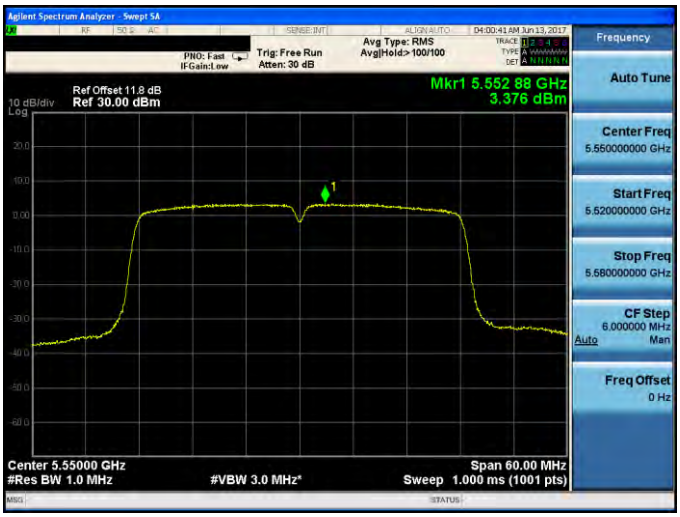
Mode 2: IEEE 802.11a Continuous TX mode_ANT-0	
5260	
5280	
5320	

Mode 2: IEEE 802.11a Continuous TX mode_ANT-0	
5500	
5560	
5700	

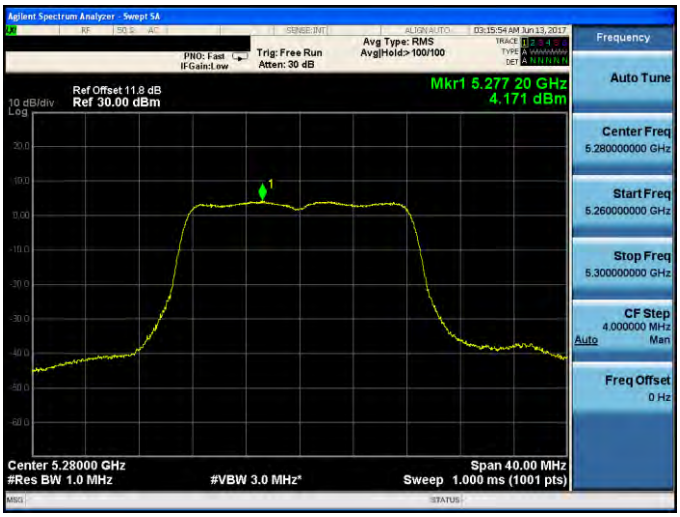
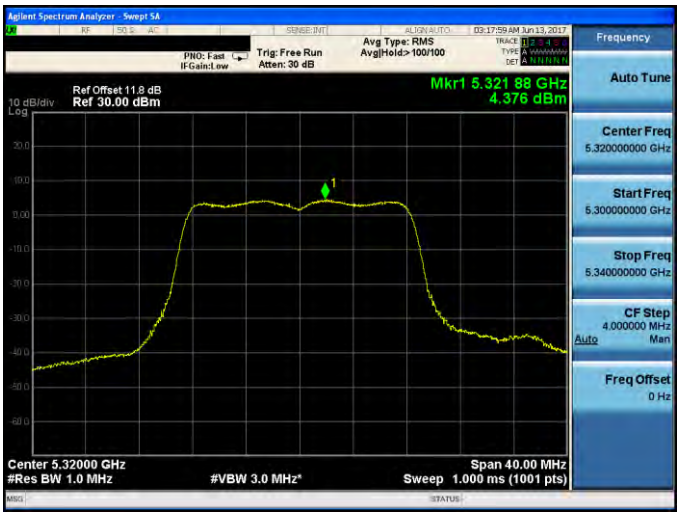
Mode 3: IEEE 802.11ac 20MHz Continuous TX mode_ANT-0	
5260	
5280	
5320	

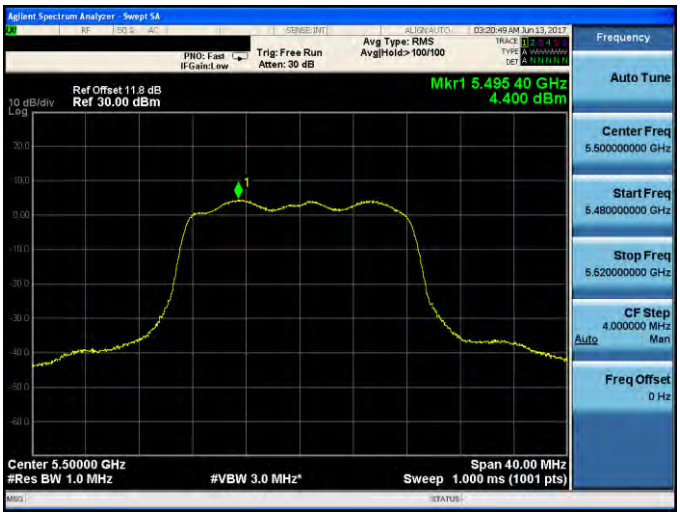
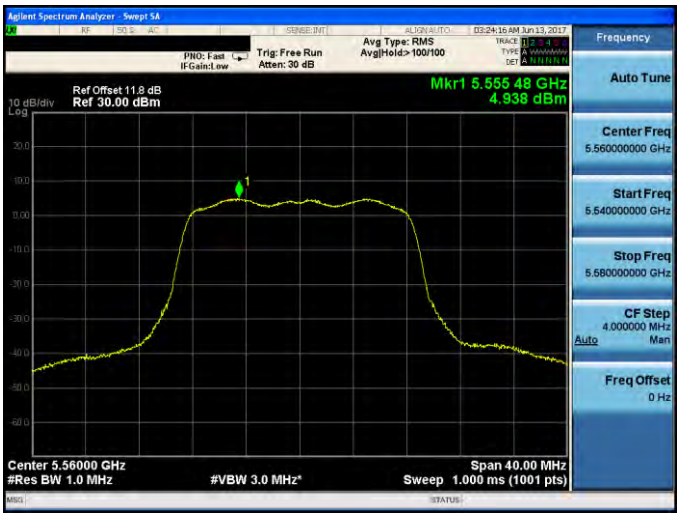
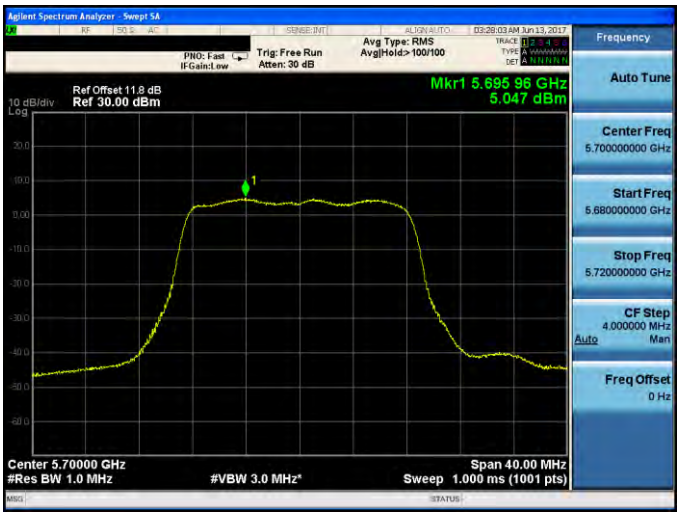
Mode 3: IEEE 802.11ac 20MHz Continuous TX mode_ANT-0	
5500	
5560	
5700	

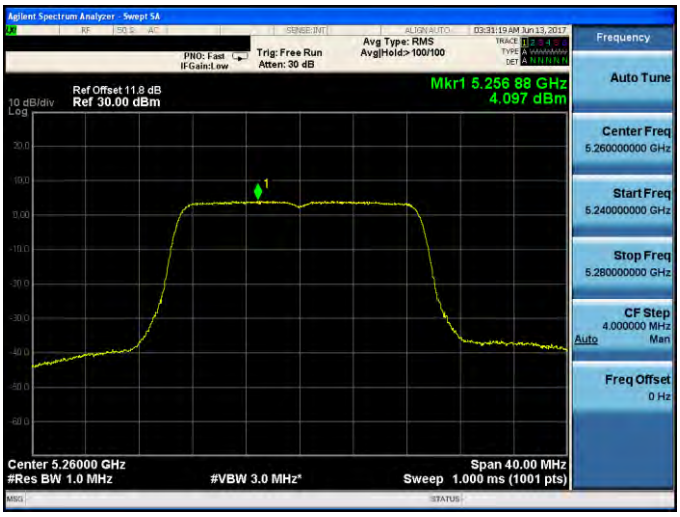
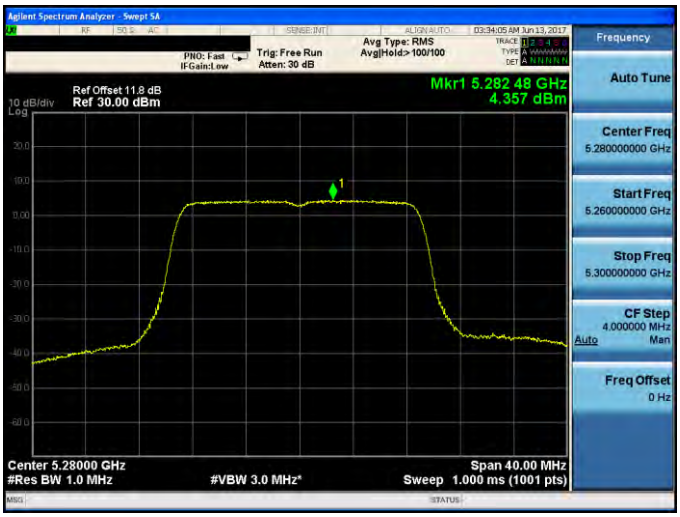
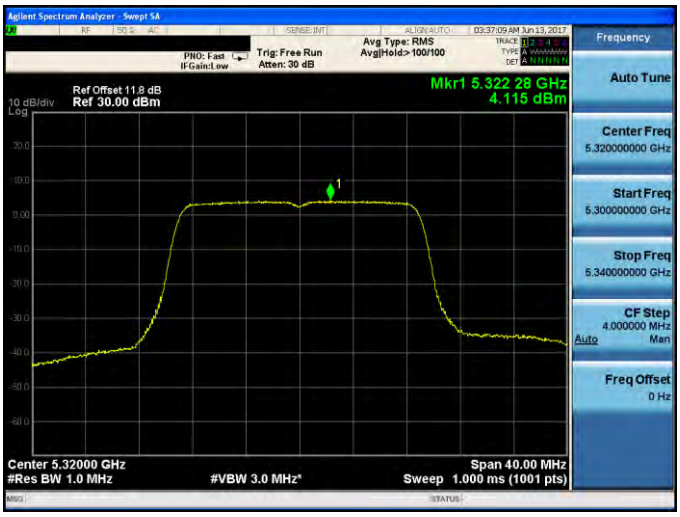
Mode 4: IEEE 802.11ac 40MHz Continuous TX mode_ANT-0	
5270	
5310	

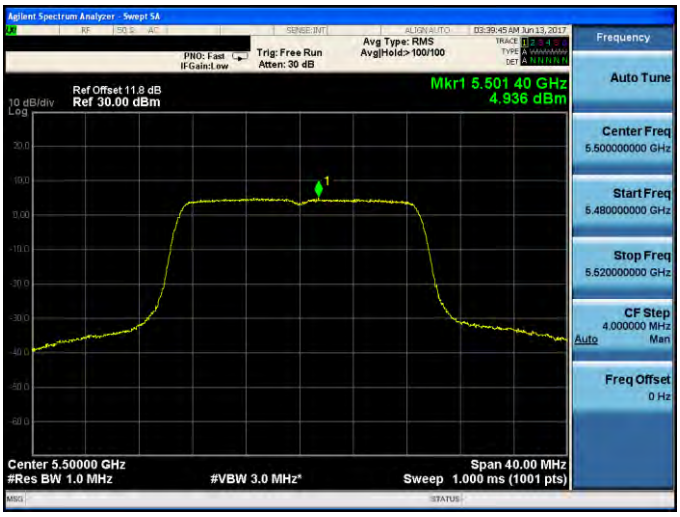
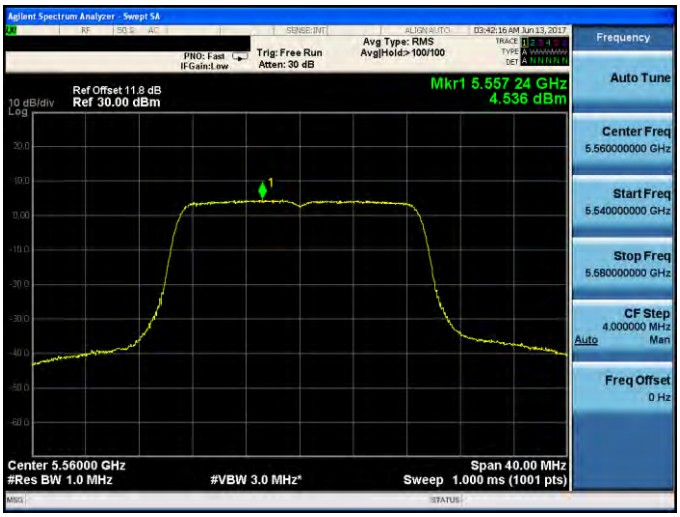
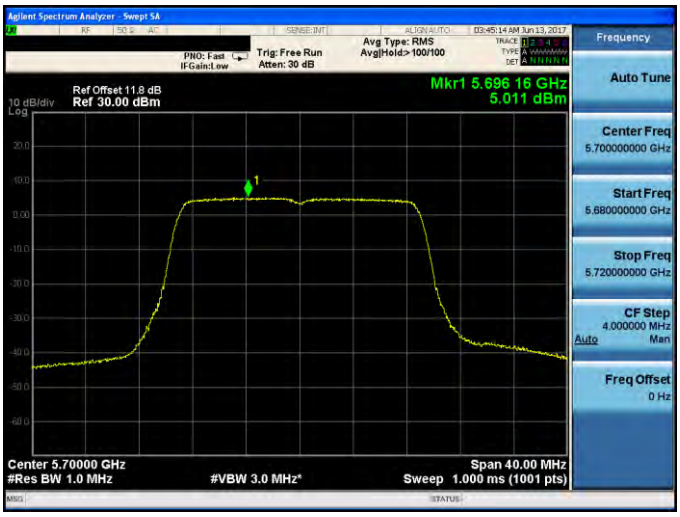
Mode 4: IEEE 802.11ac 40MHz Continuous TX mode_ANT-0	
5510	
5550	
5670	

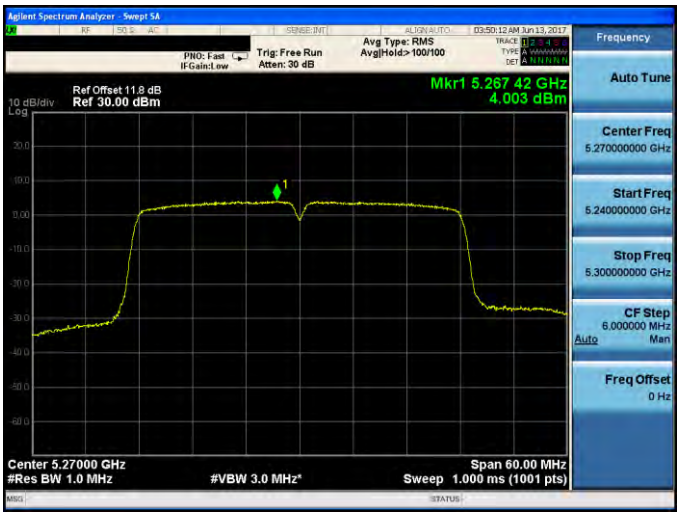
Mode 5: IEEE 802.11ac 80MHz Continuous TX mode_ANT-0	
5290	
5530	
5610	

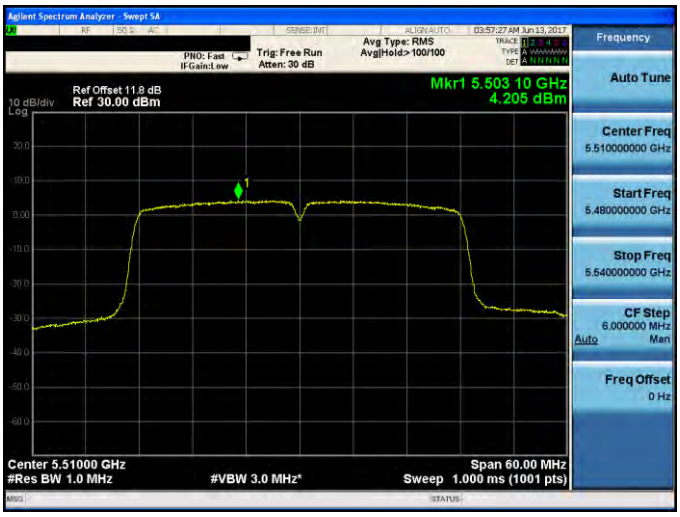
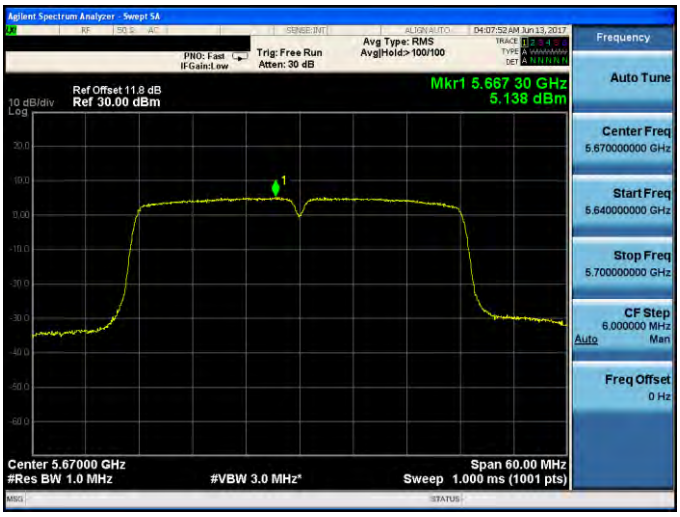
Mode 2: IEEE 802.11a Continuous TX mode_ANT-1	
5260	
5280	
5320	

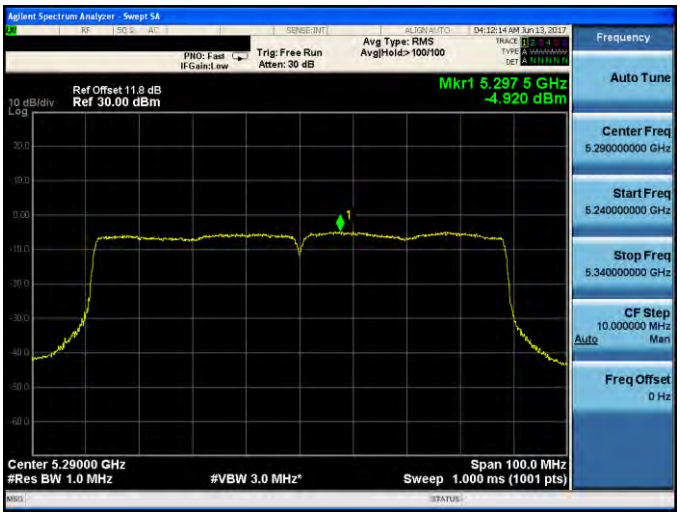
Mode 2: IEEE 802.11a Continuous TX mode_ANT-1	
5500	
5560	
5700	

Mode 3: IEEE 802.11ac 20MHz Continuous TX mode_ANT-1	
5260	
5280	
5320	

Mode 3: IEEE 802.11ac 20MHz Continuous TX mode_ANT-1	
5500	
5560	
5700	

Mode 4: IEEE 802.11ac 40MHz Continuous TX mode_ANT-1	
5270	
5310	

Mode 4: IEEE 802.11ac 40MHz Continuous TX mode_ANT-1	
5510	
5550	
5670	

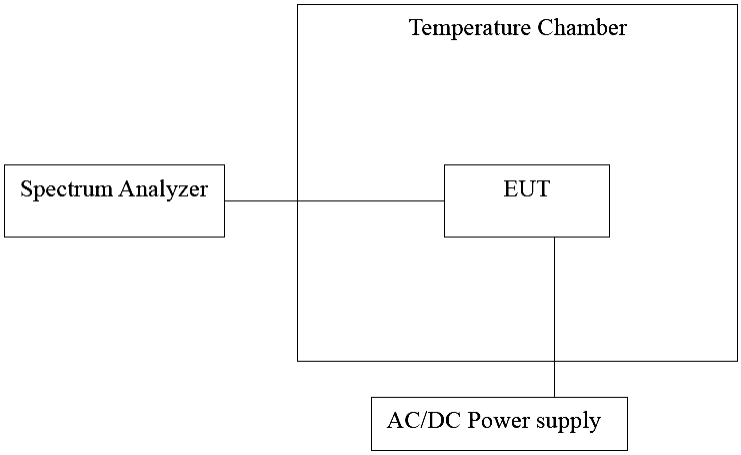
Mode 5: IEEE 802.11ac 80MHz Continuous TX mode_ANT-1	
5290	
5530	
5610	

4.6. Frequency Stability Measurement

■ **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 Setup**



■ **Test Instruments**

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
Spectrum Analyzer	Agilent	E4408B	MY45107753	08/08/2016	1 year
Temperature & Humidity Chamber	TAICHY	MHU-225LA	980729	04/17/2017	1 year
Test Site	ATL	TE05	TE05	N.C.R.	-----

Note: N.C.R. = No Calibration Request.

4.7. Test Procedure

1. The EUT was placed inside the environmental test chamber and powered by nominal AC/DC voltage.
2. Turn the EUT on and couple its output to a spectrum analyzer.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize.
5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
6. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

■ **Test Result**

Temperature Variations

Test Item	Frequency Stability					
Frequency	Temp. (°C)	Voltage (Vac)	Measured Freq. (MHz)	Delta Freq. (Hz)	Tolerance (ppm)	Result (Pass/Fail)
5280 MHz	0	120	5279.9981	-1900	-0.360	Pass
	10		5279.99	-10000	-1.894	Pass
	20		5279.9854	-14600	-2.765	Pass
	30		5279.9887	-11300	-2.140	Pass
	40		5279.991	-9000	-1.705	Pass
5560 MHz	0	120	5559.9915	-8500	-1.529	Pass
	10		5559.9862	-13800	-2.482	Pass
	20		5559.9801	-19900	-3.579	Pass
	30		5559.9817	-18300	-3.291	Pass
	40		5559.9898	-10200	-1.835	Pass

Voltage Variations

Test Item	Frequency Stability					
Frequency	Temp. (°C)	Voltage (Vac)	Measured Freq. (MHz)	Delta Freq. (Hz)	Tolerance (ppm)	Result (Pass/Fail)
5280 MHz	20	138.00	5279.9888	-11200	-2.121	Pass
		120.00	5279.9854	-14600	-2.765	Pass
		102.00	5279.9935	-6500	-1.231	Pass
5560 MHz	20	138.00	5559.9867	-13300	-2.392	Pass
		120.00	5559.9801	-19900	-3.579	Pass
		102.00	5559.9934	-6600	-1.187	Pass

Note: The manufacturer's frequency stability specification is better then 20ppm.

Beamforming on

Temperature Variations

Test Item	Frequency Stability					
Frequency	Temp. (°C)	Voltage (Vac)	Measured Freq. (MHz)	Delta Freq. (Hz)	Tolerance (ppm)	Result (Pass/Fail)
5280 MHz	0	120	5279.9981	-1900	-0.360	Pass
	10		5279.99	-10000	-1.894	Pass
	20		5279.9854	-14600	-2.765	Pass
	30		5279.9887	-11300	-2.140	Pass
	40		5279.991	-9000	-1.705	Pass
5560 MHz	0	120	5559.9915	-8500	-1.529	Pass
	10		5559.9862	-13800	-2.482	Pass
	20		5559.9801	-19900	-3.579	Pass
	30		5559.9817	-18300	-3.291	Pass
	40		5559.9898	-10200	-1.835	Pass

Voltage Variations

Test Item	Frequency Stability					
Frequency	Temp. (°C)	Voltage (Vac)	Measured Freq. (MHz)	Delta Freq. (Hz)	Tolerance (ppm)	Result (Pass/Fail)
5280 MHz	20	138.00	5279.9888	-11200	-2.121	Pass
		120.00	5279.9854	-14600	-2.765	Pass
		102.00	5279.9935	-6500	-1.231	Pass
5560 MHz	20	138.00	5559.9867	-13300	-2.392	Pass
		120.00	5559.9801	-19900	-3.579	Pass
		102.00	5559.9934	-6600	-1.187	Pass

Note: The manufacturer's frequency stability specification is better then 20ppm.

4.8. Antenna Requirement

■ **Requirement**

For intentional device, according to 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And According to 15.407 (a), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

■ **Antenna Connector Construction**

See section 2 – antenna information.

■ **Directional Gain Calculated**

Directional Gain = 10*log{[10^(G1/20)+10^(G2/20)+…+10^(Gn/20)]^2/NANT} = 7.36 dBi > 6dBi

Operate Freq. Band		Directional Gain (dBi)
IEEE 802.11a	U-NII Band II-A	7.36
	U-NII Band II-C	7.36
IEEE 802.11ac 20MHz	U-NII Band II-A	7.36
	U-NII Band II-C	7.36
IEEE 802.11ac 40MHz	U-NII Band II-A	7.36
	U-NII Band II-C	7.36
IEEE 802.11ac 80MHz	U-NII Band II-A	7.36
	U-NII Band II-C	7.36