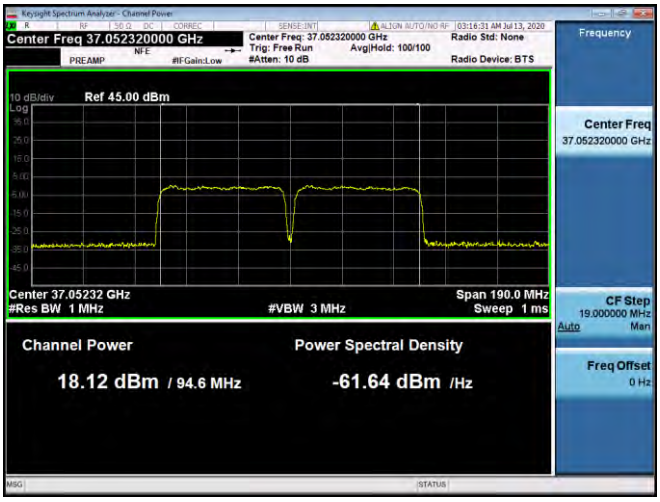
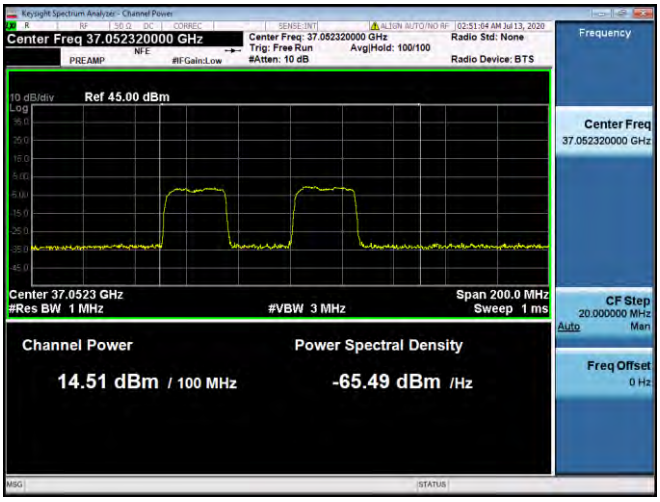
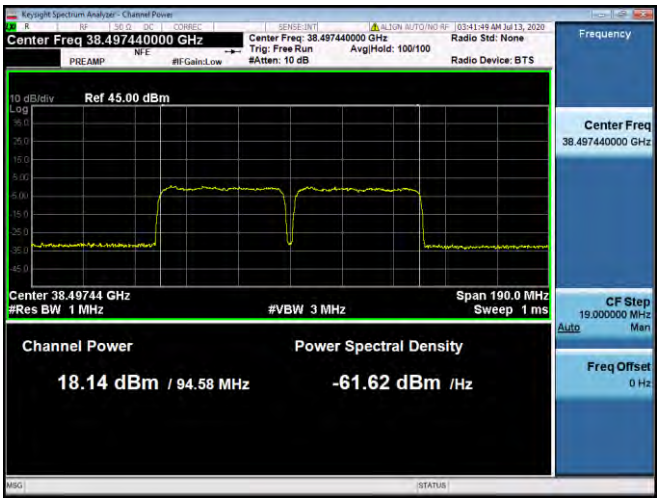
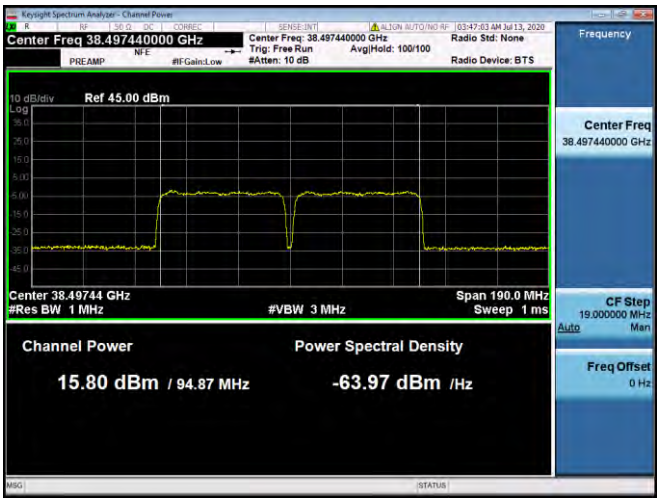
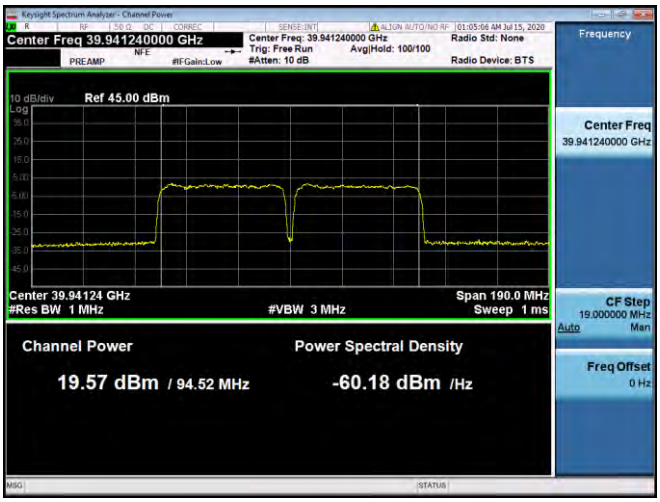
50 MHz, 2CC SISO

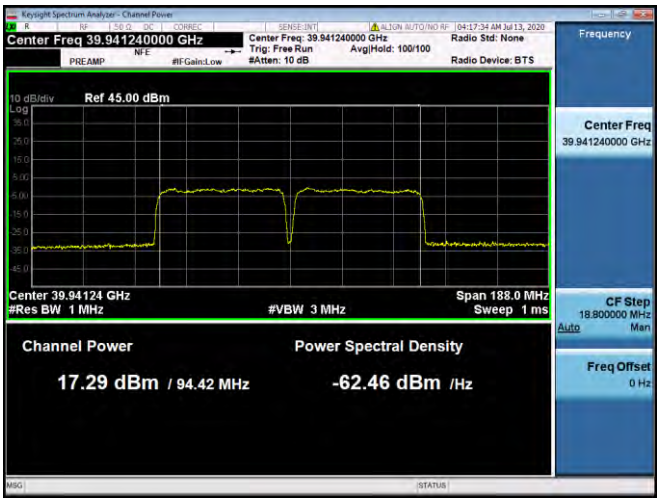




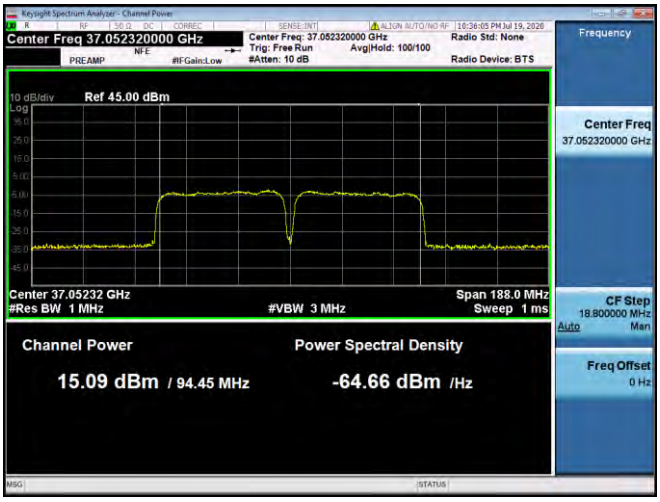


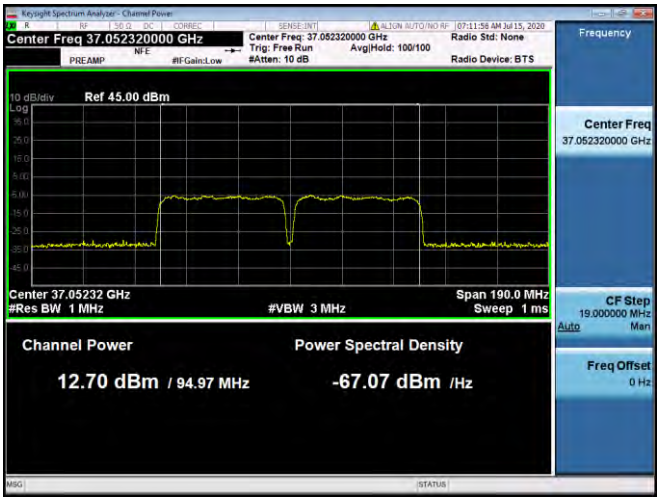


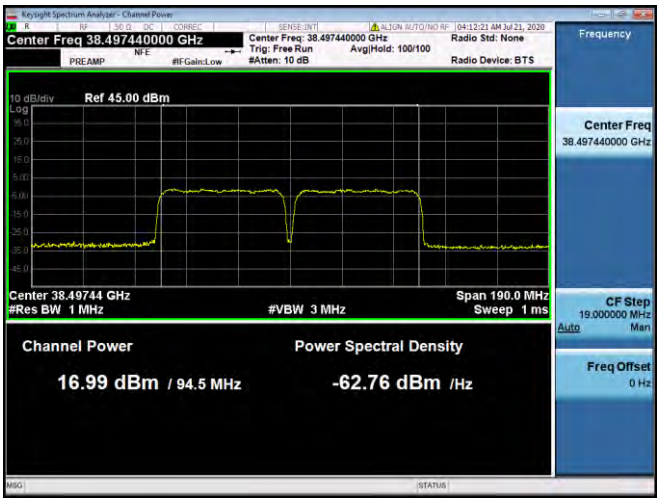


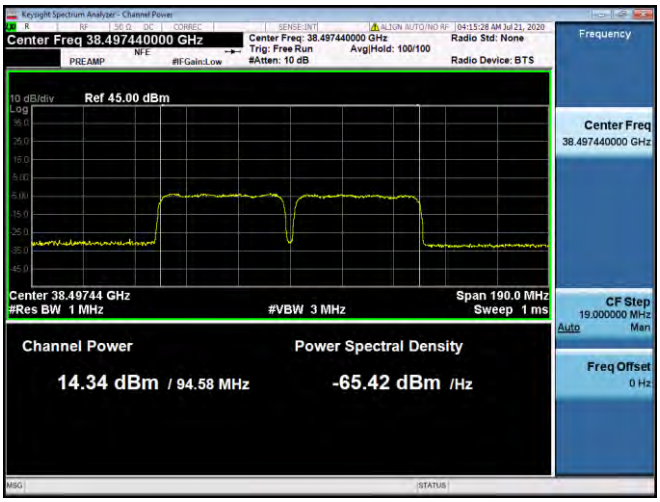


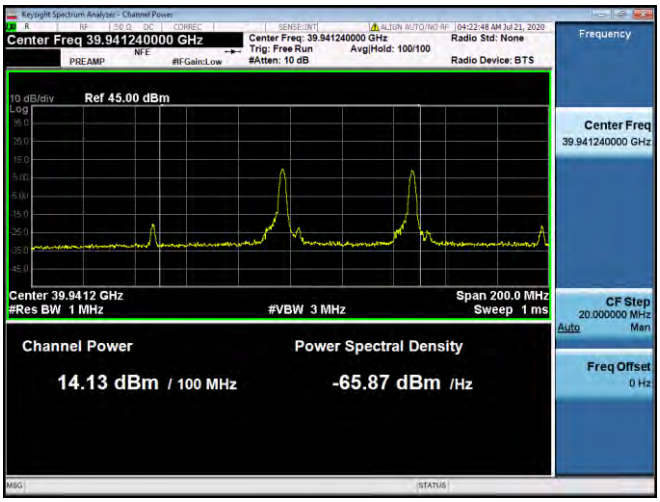
50 MHz, 2CC MIMO

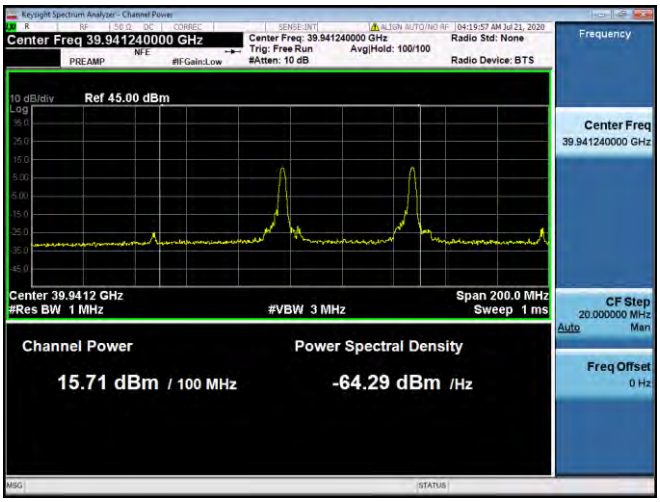




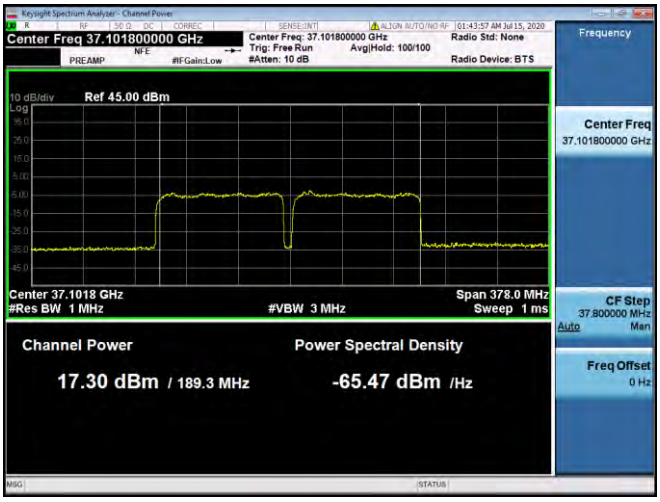


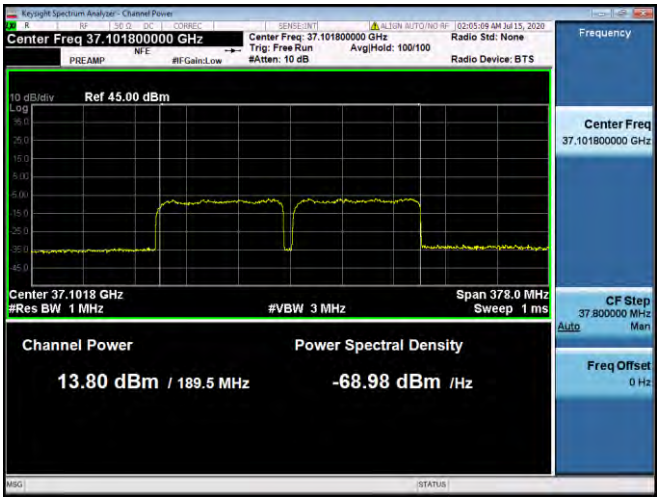


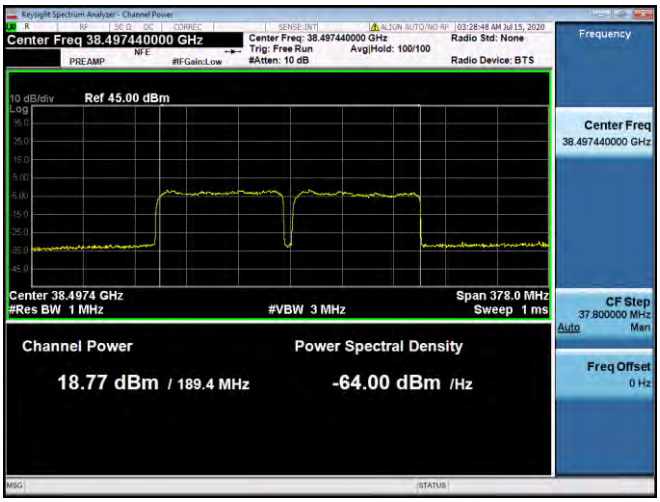


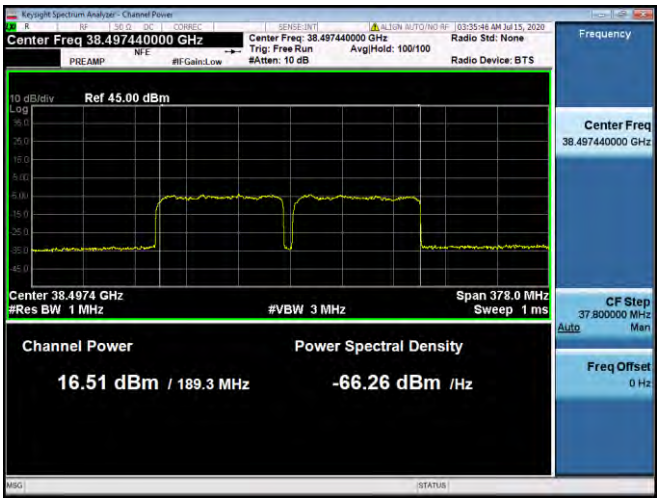


100 MHz, 2CC SISO

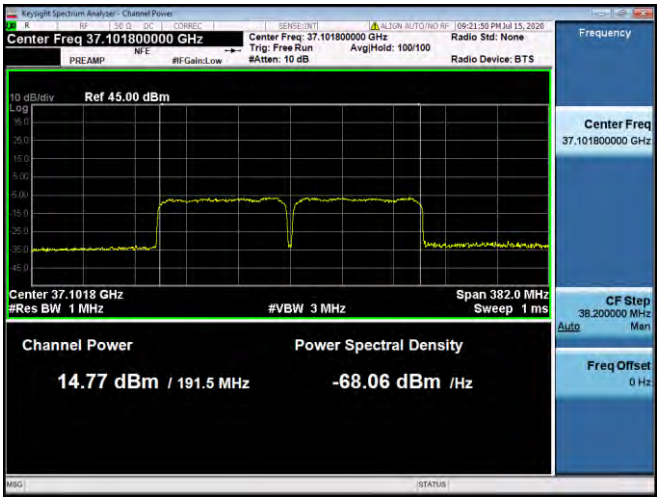


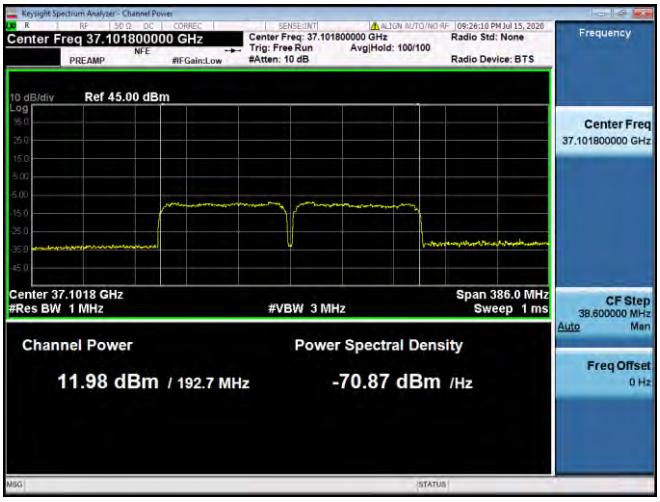


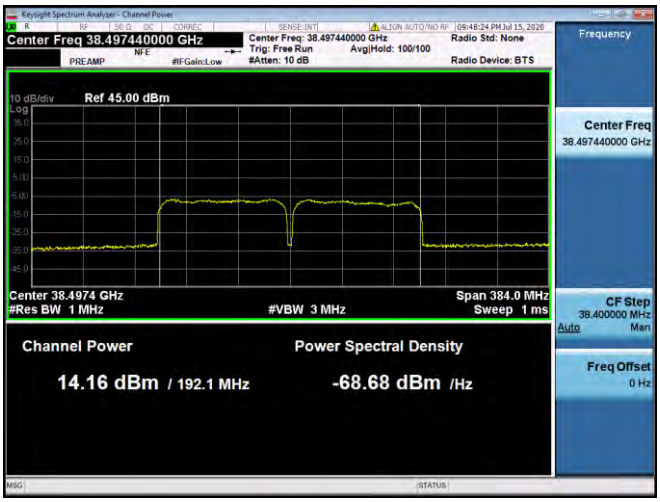


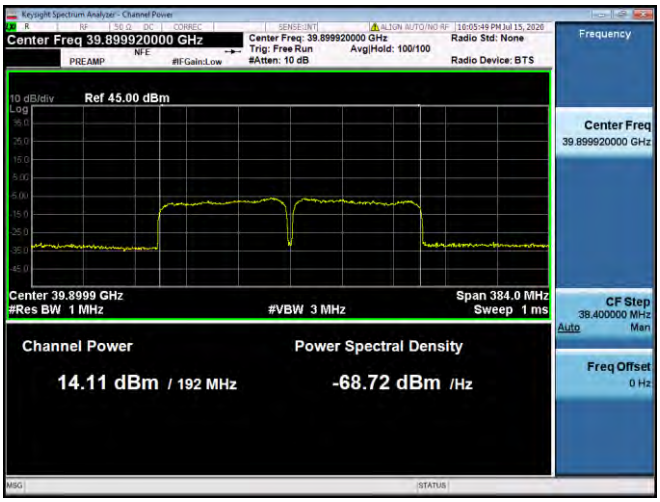


100 MHz, 2CC MIMO

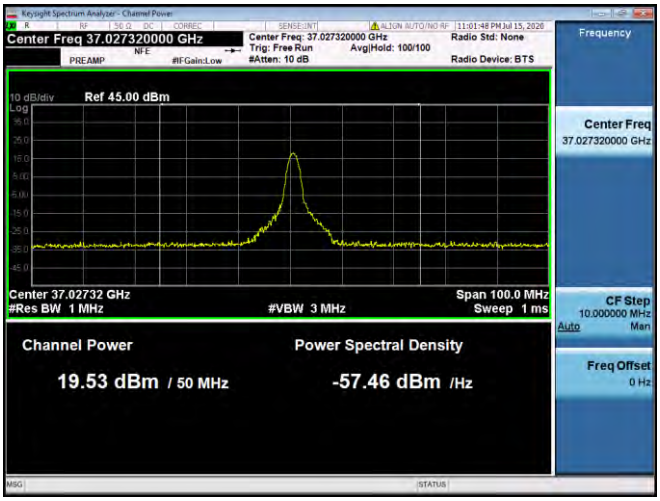
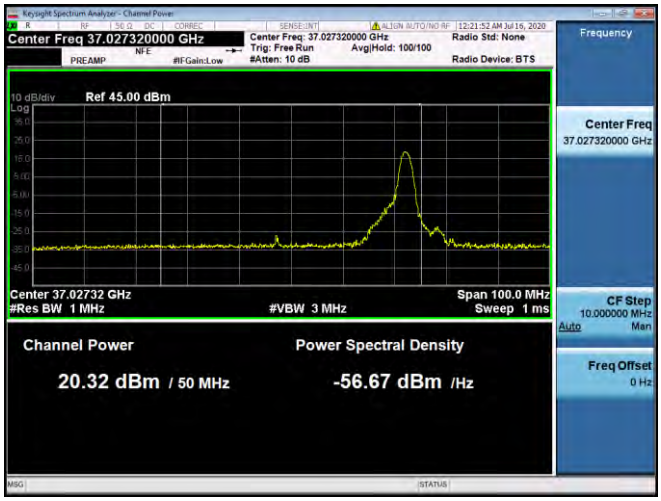
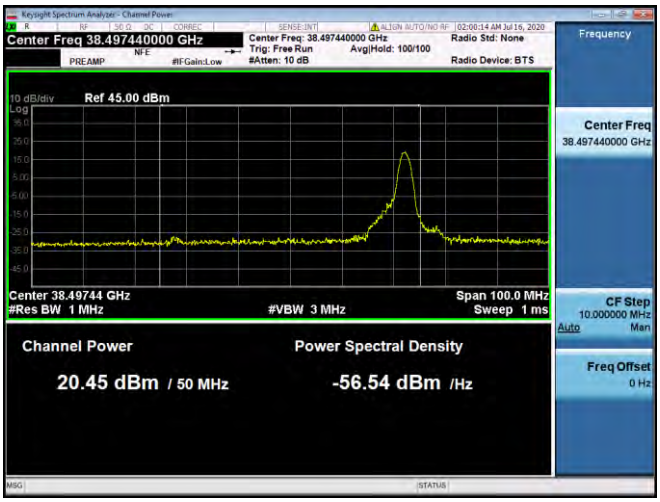
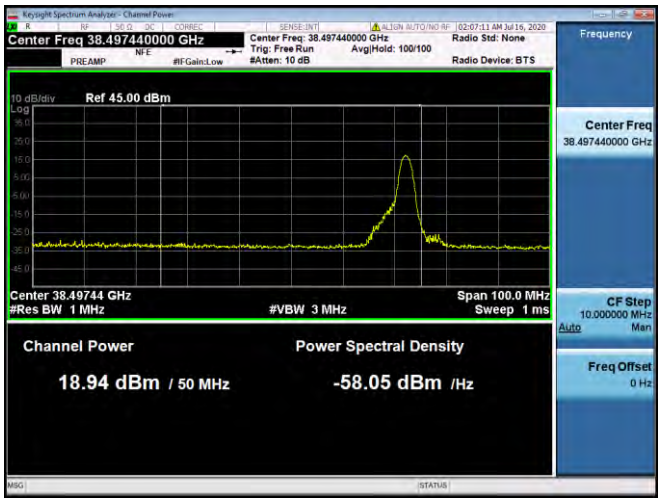
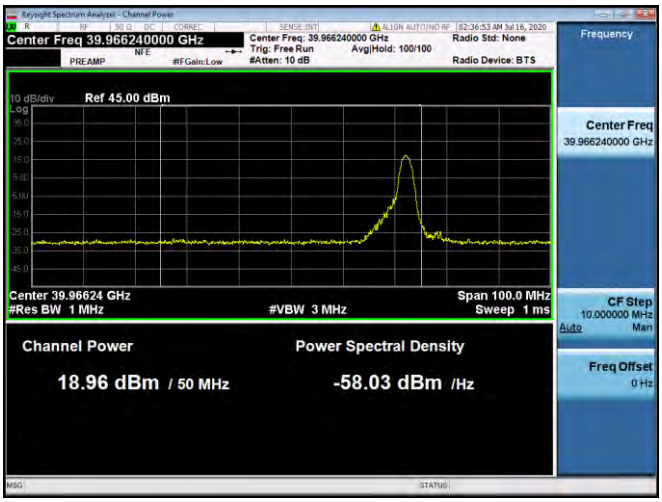
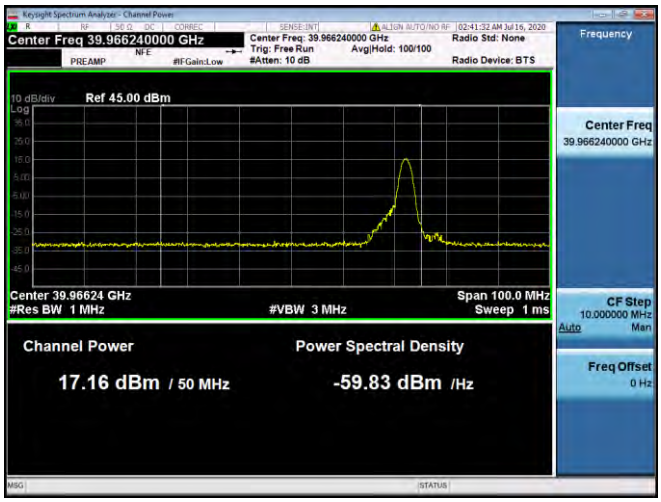


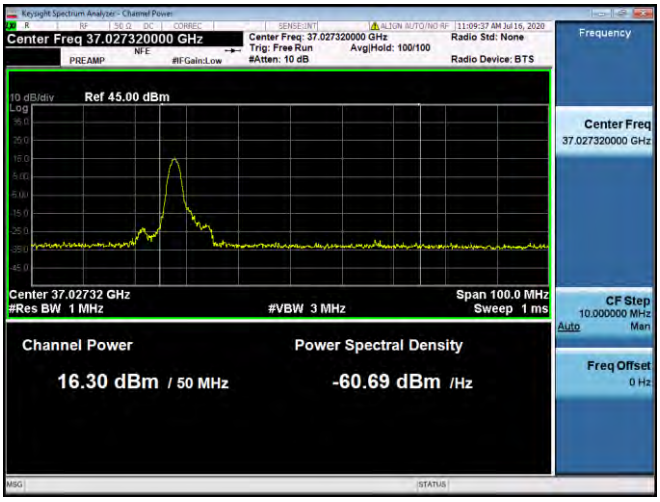
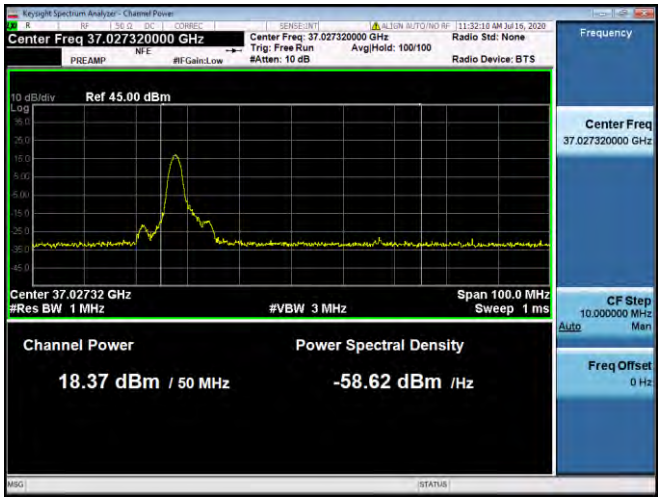
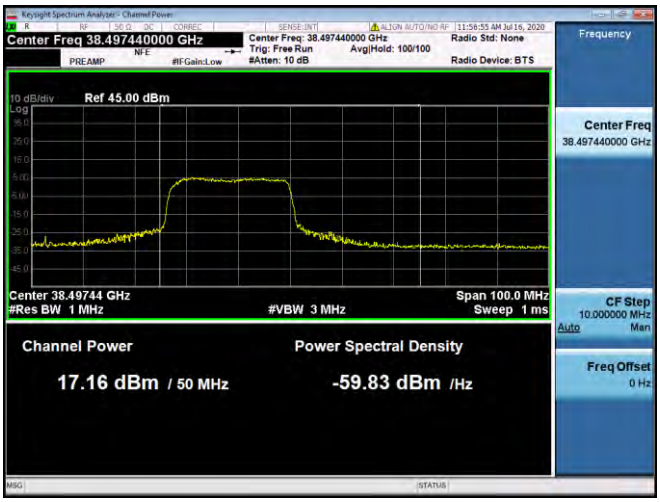
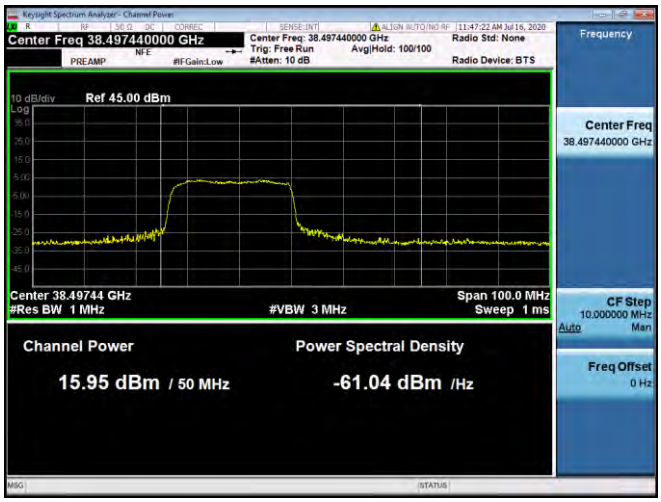
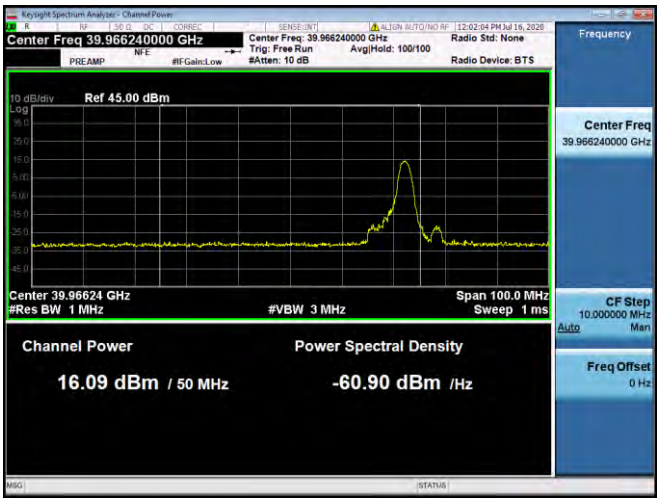
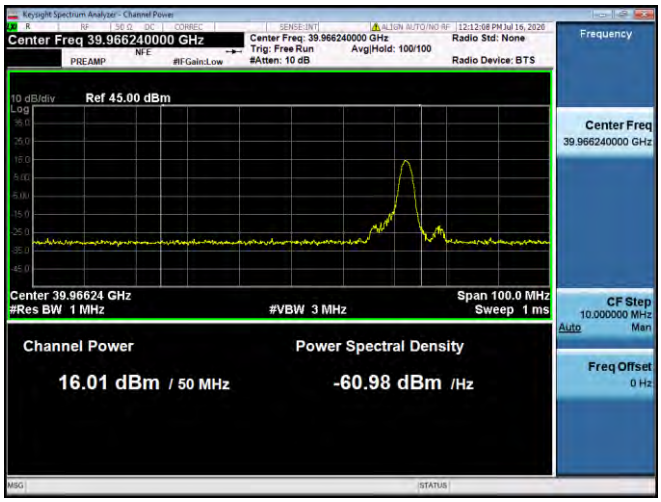




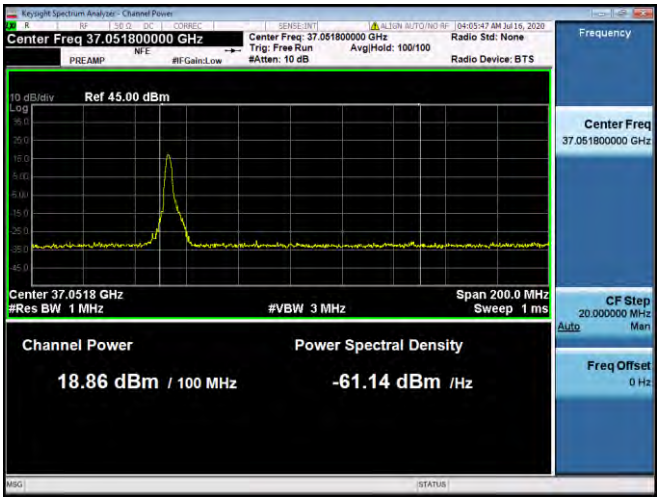


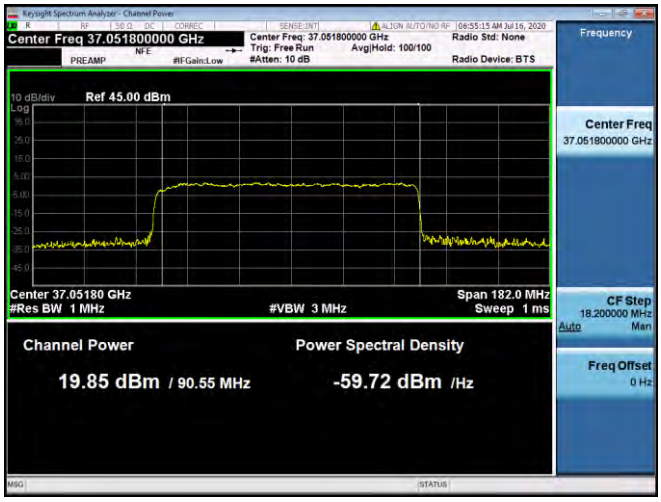
4. Antenna 1(L patch), n260

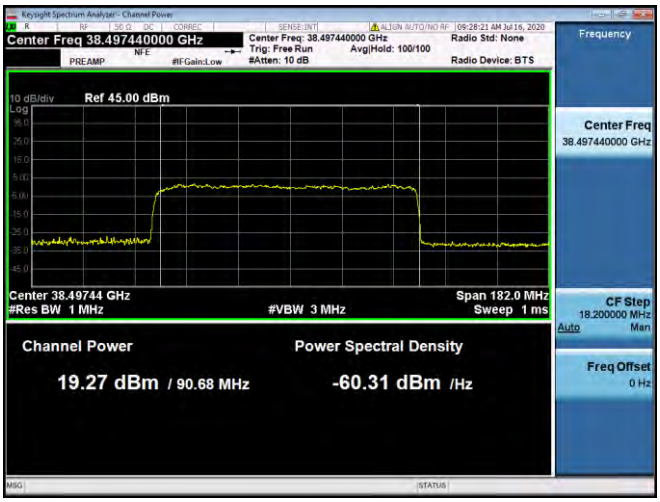
50 MHz, 1CC SISO	
	
	
	

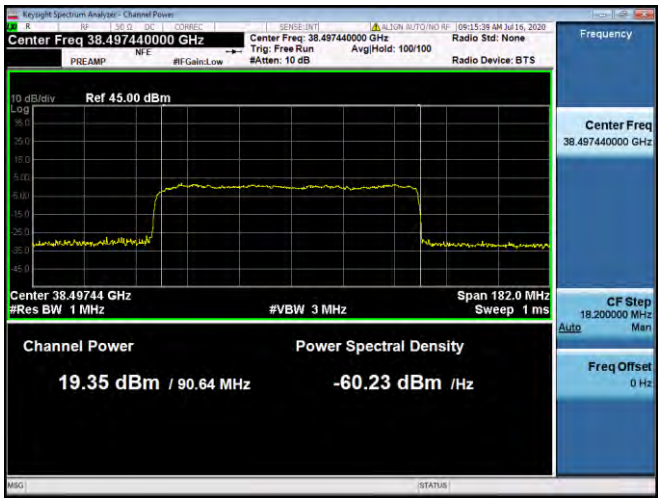
50 MHz, 1CC MIMO	
	
	
	

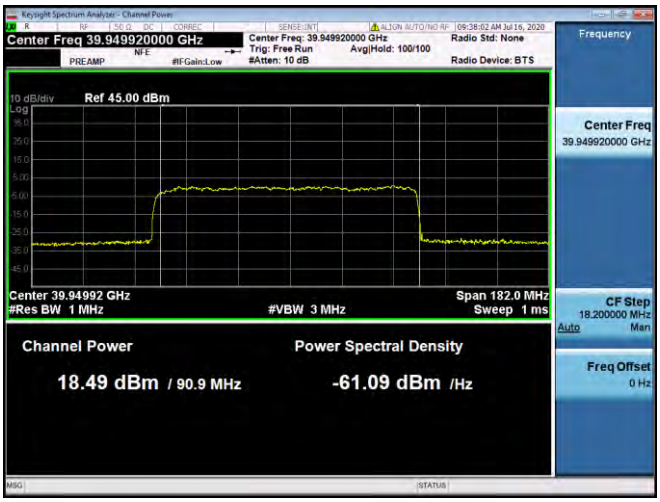
100 MHz, 1CC SISO

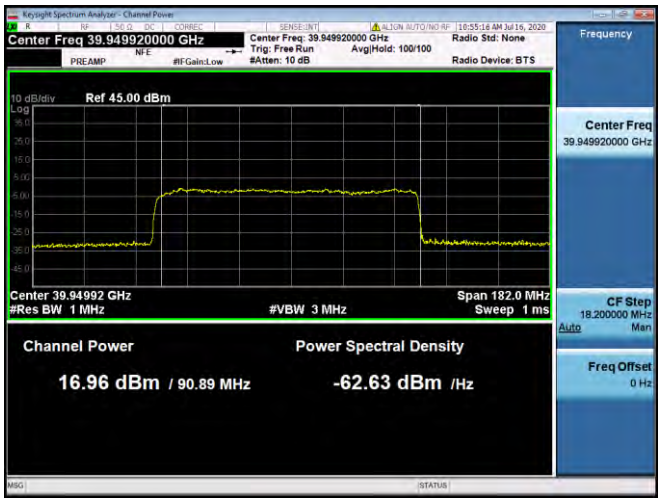




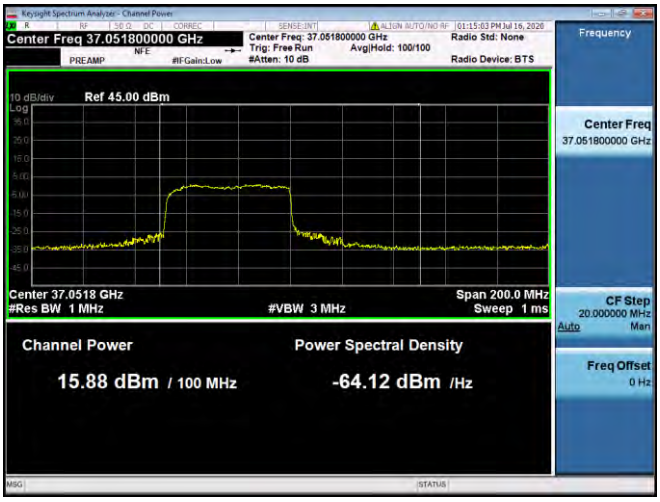


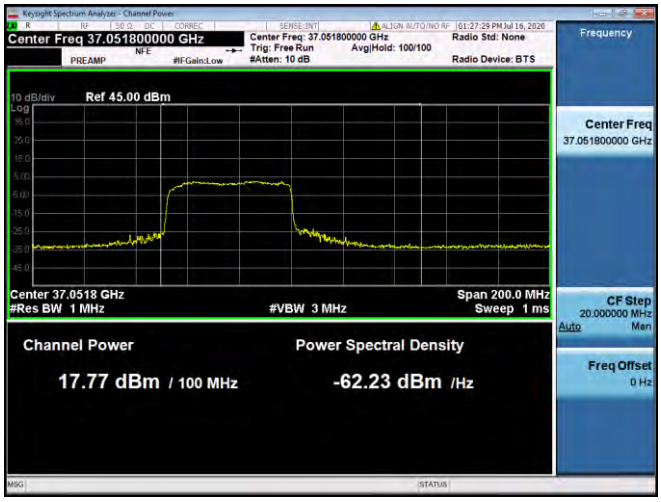


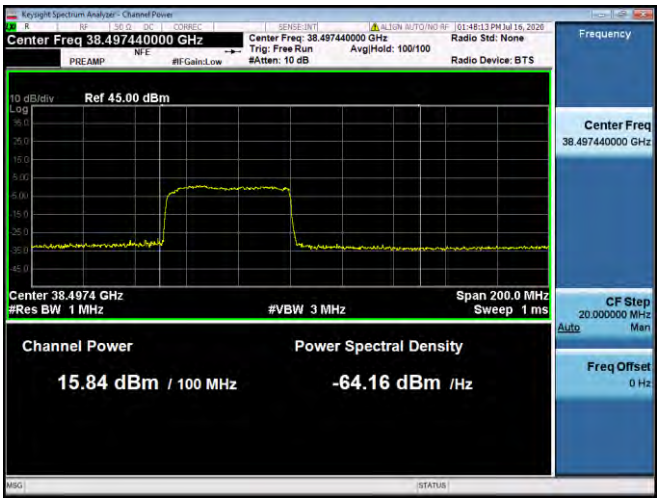


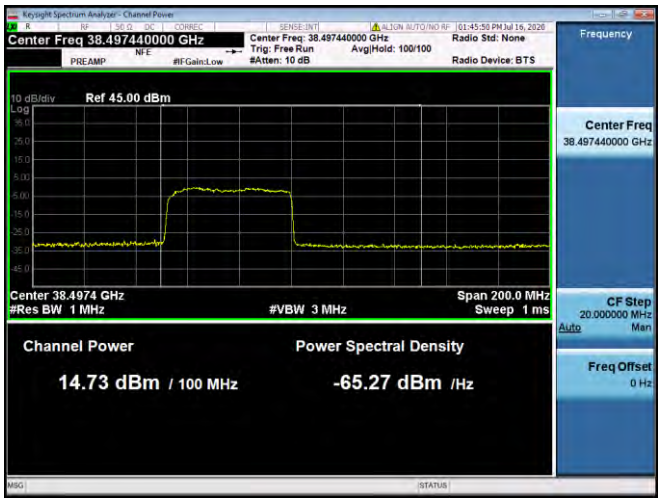


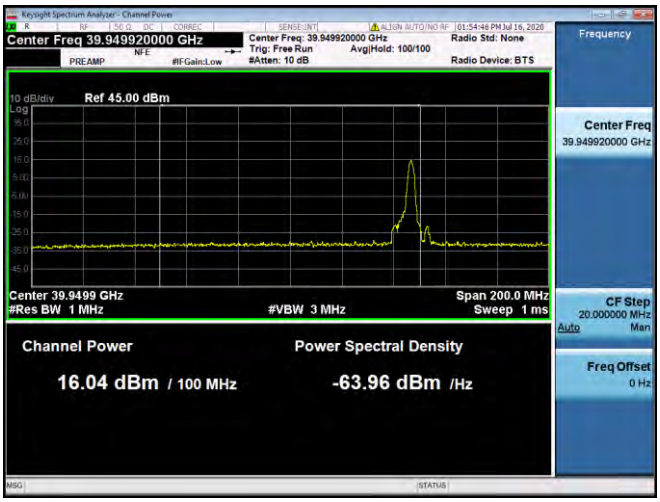
100 MHz, 1CC MIMO

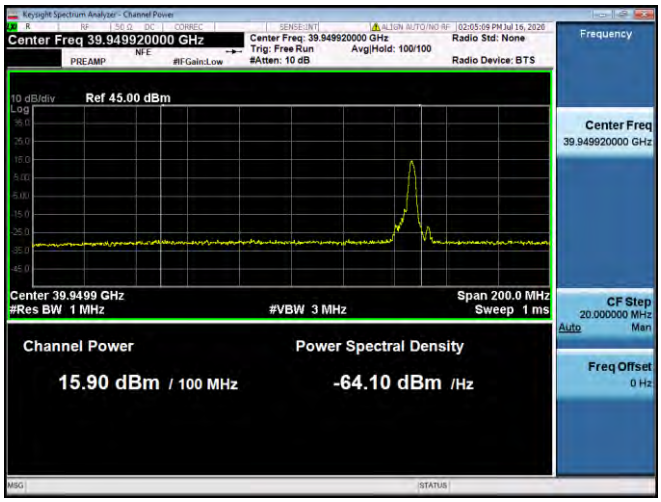




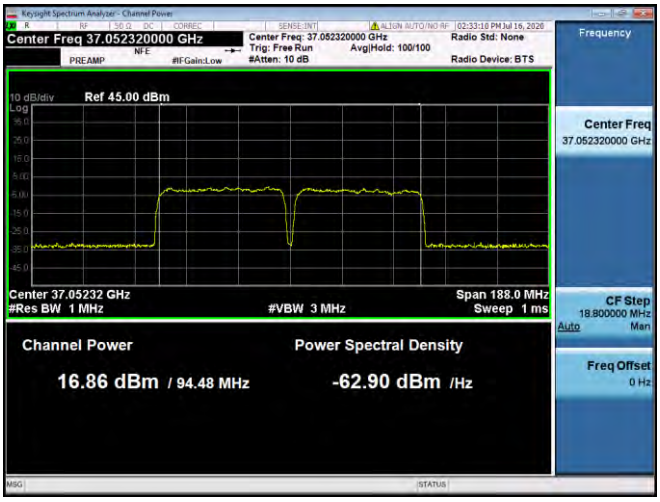


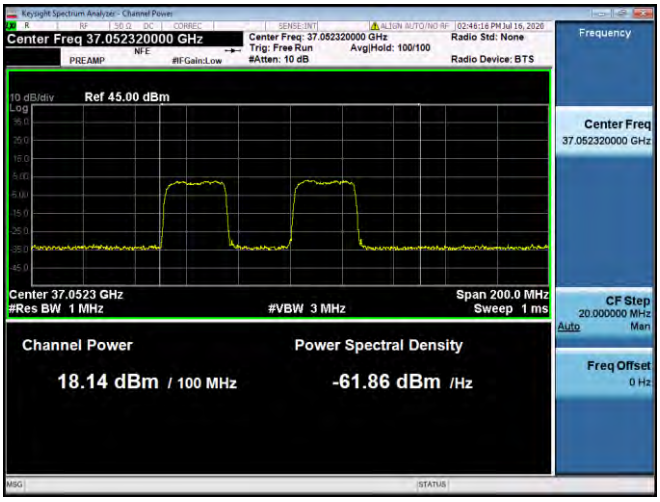


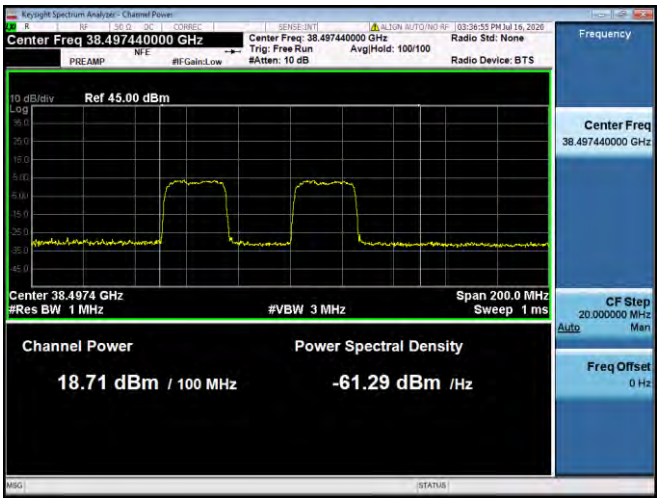


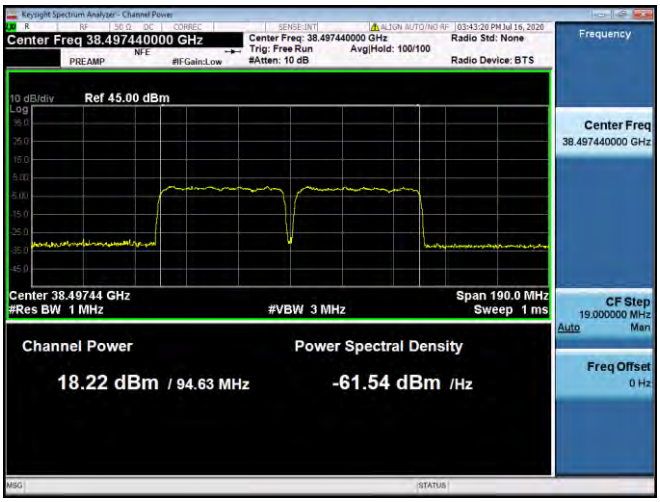


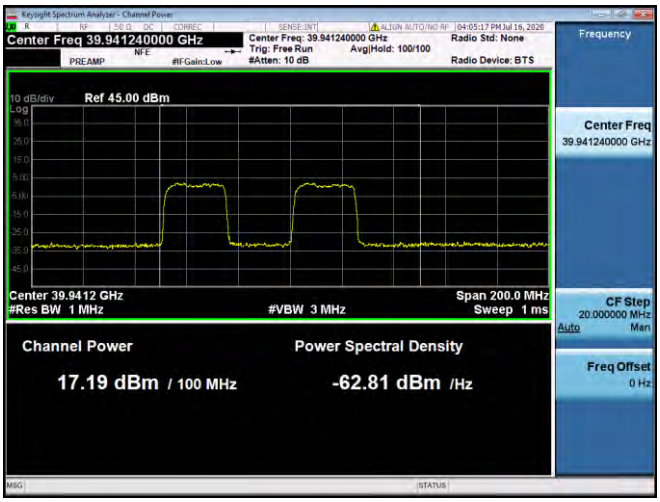
50 MHz, 2CC SISO

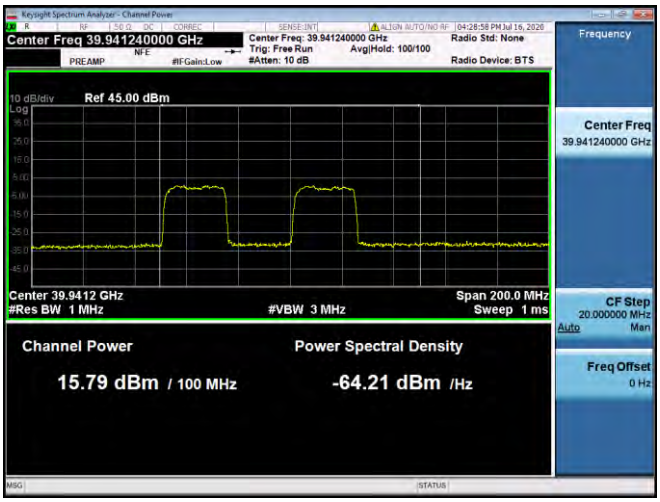




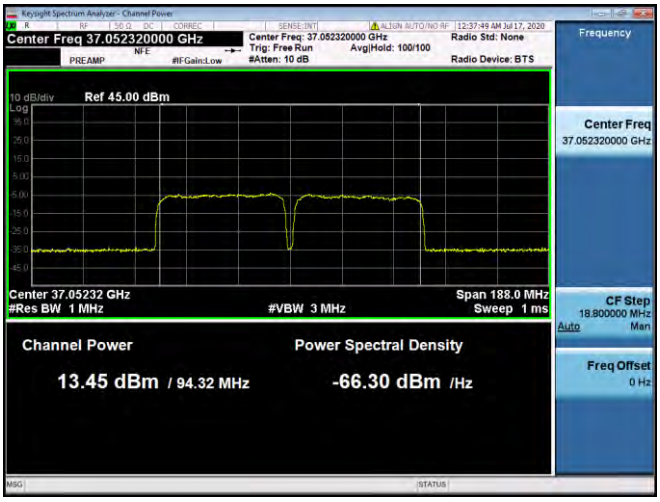


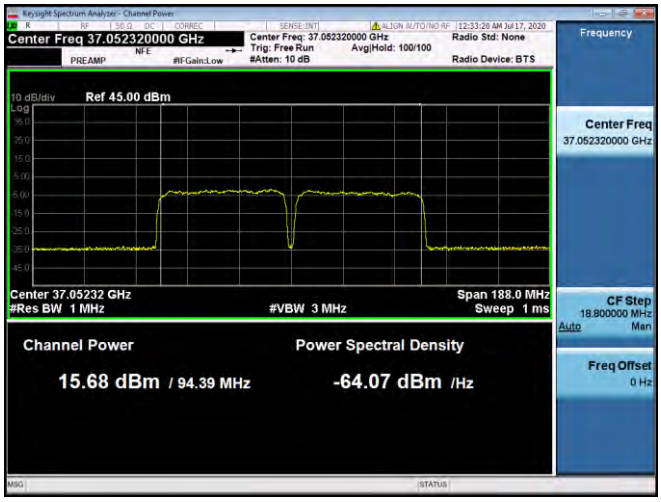


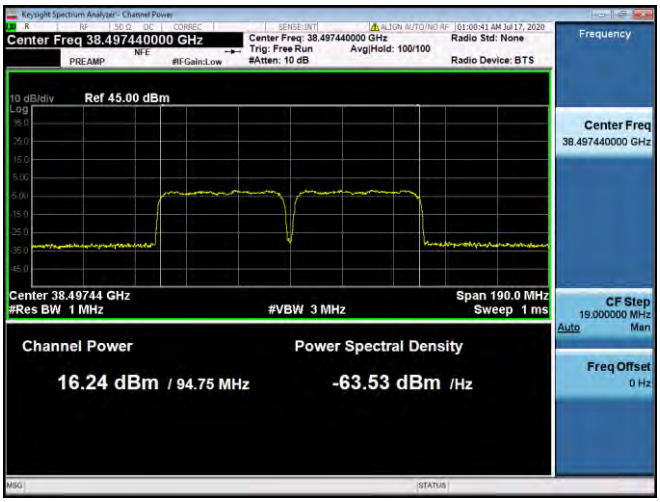


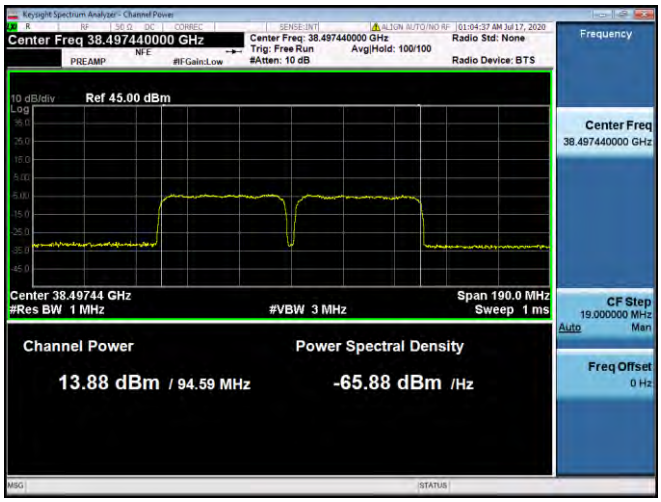


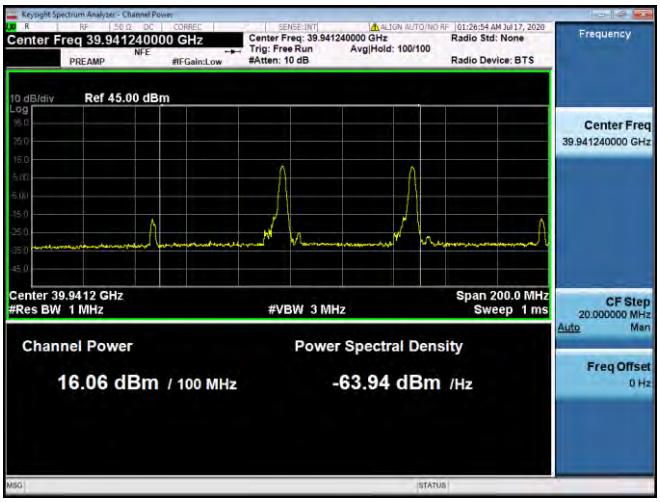
50 MHz, 2CC MIMO

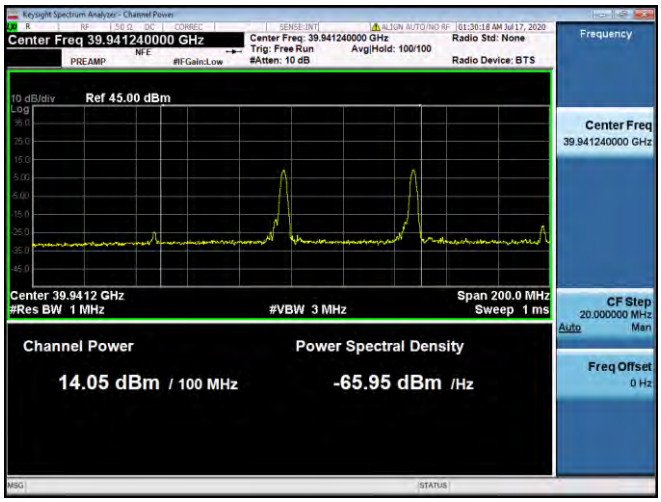




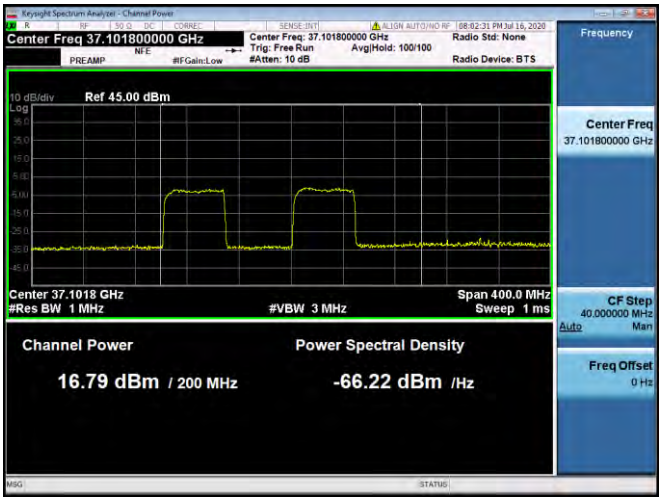


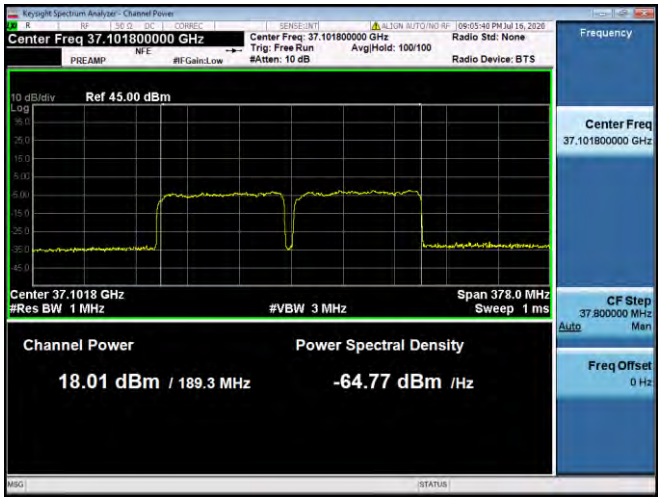


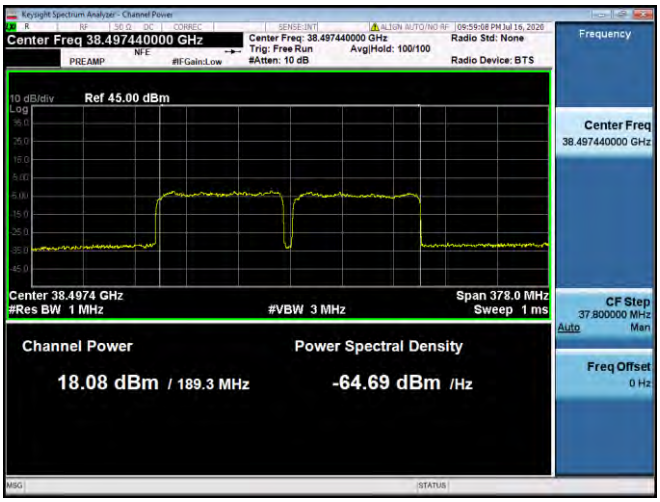


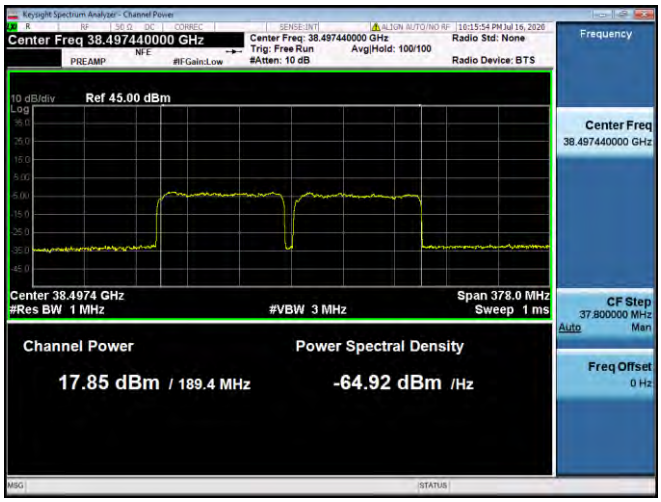


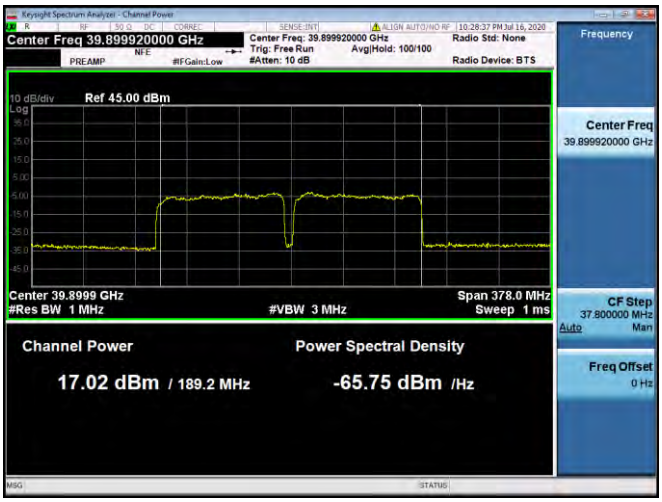
100 MHz, 2CC SISO

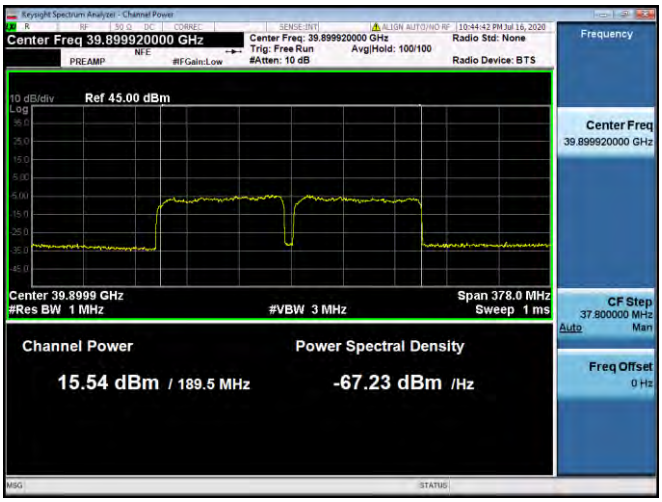




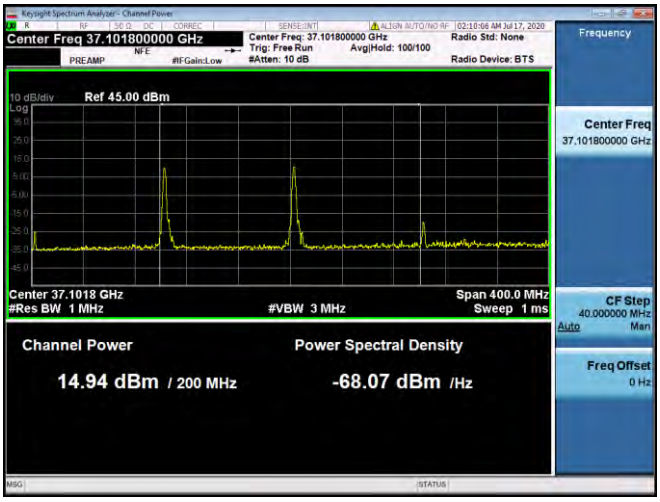


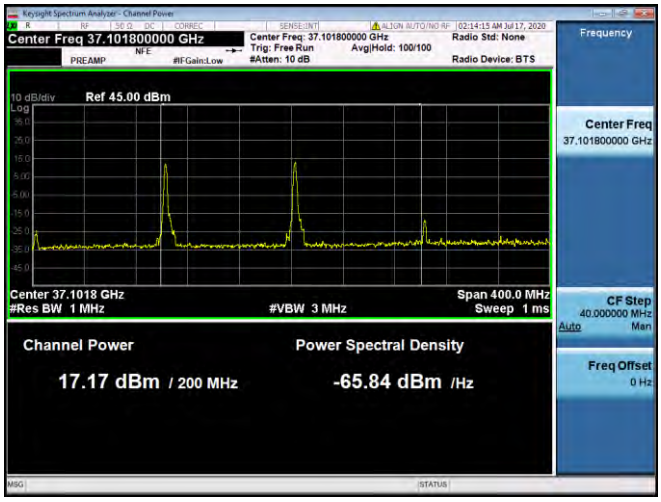


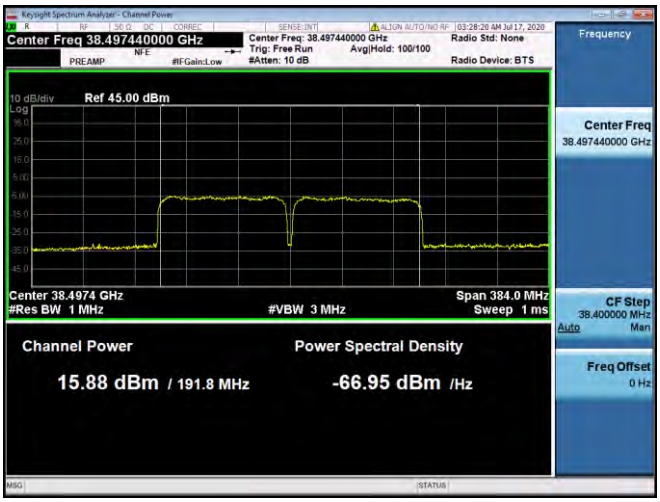


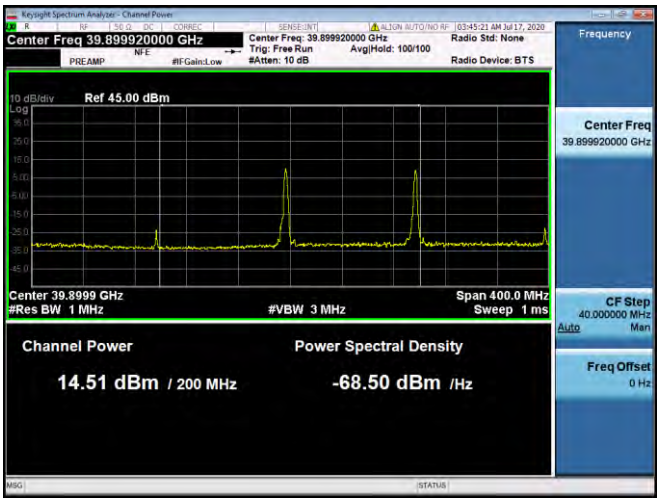


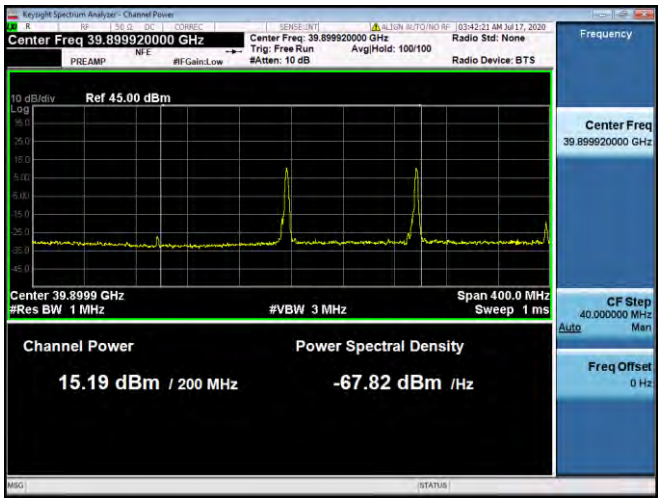
100 MHz, 2CC MIMO











5.3. BAND EDGE

Test Overview

All out of band emissions are measured in a radiated setup while the EUT is operating at maximum power, and at the appropriate frequencies. All modulations were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

The minimum permissible attenuation level of any spurious emission is -13dBm/1MHz. However, in the bands immediately outside and adjacent to the licensee's frequency block, having a bandwidth equal to 10 percent of the channel bandwidth, the conductive power or the total radiated power of any emission shall be −5 dBm/MHz or lower.

FCC Rules

Test Requirements:

§ 30.203 Emission limits.

(a) The conductive power or the total radiated power of any emission outside a licensee's frequency block shall be −13 dBm/MHz or lower. However, in the bands immediately outside and adjacent to the licensee's frequency block, having a bandwidth equal to 10 percent of the channel bandwidth, the conductive power or the total radiated power of any emission shall be −5 dBm/MHz or lower.

(b)(1) Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater.

(2) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the licensee's frequency block edges as the design permits.

(3) The measurements of emission power can be expressed in peak or average values.

Test Procedures:

The measurement is performed in accordance with Section 5.7.3 of ANSI C63.26.

5.7.3 Out-of-band unwanted emissions measurements

a) Set the spectrum analyzer center frequency to the block, band, or channel edge frequency.

b) Set the span wide enough to capture the fundamental emission closest to the authorized block or band edge, and to include all modulation products that spill into the immediately adjacent frequency band. In some cases, it may be possible to set the center frequency and span so as to encompass the fundamental emission and the unwanted out-of-band (band-edge) emissions on either side of the authorized block, band, or channel. This can be accomplished with a single (slow) sweep, if adequate overload protection and sufficient dynamic range can be maintained.

c) Set the number of points in sweep ≥ 2 × span / RBW.

d) Sweep time should be auto for peak detection. For rms detection the sweep time should be set as follows:

1), 2) Omitted

3) If the device cannot be configured to transmit continuously (duty cycle < 98%) and a free running sweep must be used, set the sweep time so that the averaging is performed over multiple on/off cycles by setting the sweep time > (number of points in sweep) × (transmitter period) (i.e., the transmit on-time + the off-time). The spectrum analyzer readings shall subsequently be corrected by [10 log (1/duty cycle)]. This assumes that the transmission period and duty cycle is relatively constant (duty cycle variation ≤ ±2%).

4) Omitted

e) The test report shall include the plots of the measuring instrument display and the measured data.

f) See Annex I for example emission mask plots.

Test Results:

Antenna 0(K patch), n261

CCs active	BW	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol [H/V]	RB Size/Offset	Band Edge [dBm]	SUM [dBm]
1	50 MHz	27534.84	Low	MIMO	QPSK	H	1/0	-33.731	-29.676
		27534.84	Low	MIMO	QPSK	V		-31.844	
		27534.84	Low	MIMO	QPSK	H	32/0	-25.780	-21.686
		27534.84	Low	MIMO	QPSK	V		-23.830	
		28319.52	High	MIMO	QPSK	H	1/31	-28.339	-25.076
		28319.52	High	MIMO	QPSK	V		-27.847	
		28319.52	High	MIMO	QPSK	H	32/0	-23.847	-20.478
		28319.52	High	MIMO	QPSK	V		-23.157	
	100 MHz	27559.32	Low	MIMO	QPSK	H	1/0	-33.881	-29.380
		27559.32	Low	MIMO	QPSK	V		-31.282	
		27559.32	Low	MIMO	16QAM	H	66/0	-27.844	-24.260
		27559.32	Low	MIMO	16QAM	V		-26.763	
		28292.16	High	MIMO	16QAM	H	1/65	-30.389	-26.271
		28292.16	High	MIMO	16QAM	V		-28.400	
		28292.16	High	MIMO	16QAM	H	66/0	-27.156	-23.670
		28292.16	High	MIMO	16QAM	V		-26.252	
2	50 MHz	27559.84	Low	MIMO	QPSK	H	1/0	-16.533	-13.738※
		27559.84	Low	MIMO	QPSK	V		-16.975	
		27559.84	Low	MIMO	QPSK	H	32/0	-31.816	-28.523
		27559.84	Low	MIMO	QPSK	V		-31.267	
		28294.52	High	MIMO	QPSK	H	1/31	-22.981	-19.324
		28294.52	High	MIMO	QPSK	V		-21.772	
		28294.52	High	MIMO	QPSK	H	32/0	-32.024	-29.055
		28294.52	High	MIMO	QPSK	V		-32.108	
	100 MHz	27609.32	Low	MIMO	QPSK	H	1/0	-19.655	-15.361※
		27609.32	Low	MIMO	QPSK	V		-17.382	
		27609.32	Low	MIMO	QPSK	H	66/0	-33.421	-29.502
		27609.32	Low	MIMO	QPSK	V		-31.762	
		28242.16	High	MIMO	QPSK	H	1/65	-24.916	-24.636
		28242.16	High	MIMO	QPSK	V		-36.678	
		28242.16	High	MIMO	QPSK	H	66/0	-32.551	-29.909
		28242.16	High	MIMO	QPSK	V		-33.322	

※**Note:** For Band Edge used uncorrelated gain to comply conductive limit.
Band Edge(-13.738 dBm) - Peak Ant. Gain(7.98 (dBi)) = **-21.718 dBm**
Band Edge(-15.361 dBm) - Peak Ant. Gain(7.98 (dBi)) = **-23.341 dBm**

Antenna 1(L patch), n261

CCs active	BW	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol [H/V]	RB Size/Offset	Band Edge [dBm]	SUM [dBm]
1	50 MHz	27534.84	Low	MIMO	QPSK	H	1/0	-37.457	-30.972
		27534.84	Low	MIMO	QPSK	V		-32.077	
		27534.84	Low	MIMO	QPSK	H	32/0	-24.369	-21.745
		27534.84	Low	MIMO	QPSK	V		-25.179	
		28319.52	High	MIMO	QPSK	H	1/31	-31.280	-28.935
		28319.52	High	MIMO	QPSK	V		-32.731	
		28319.52	High	MIMO	QPSK	H	32/0	-21.858	-20.567
		28319.52	High	MIMO	QPSK	V		-26.464	
	100 MHz	27559.32	Low	MIMO	QPSK	H	1/0	-38.441	-30.749
		27559.32	Low	MIMO	QPSK	V		-31.559	
		27559.32	Low	MIMO	QPSK	H	66/0	-25.550	-23.315
		27559.32	Low	MIMO	QPSK	V		-27.269	
		28292.16	High	MIMO	QPSK	H	1/65	-34.937	-32.548
		28292.16	High	MIMO	QPSK	V		-36.283	
		28292.16	High	MIMO	QPSK	H	66/0	-24.920	-23.210
		28292.16	High	MIMO	QPSK	V		-28.085	
2	50 MHz	27559.84	Low	MIMO	QPSK	H	1/0	-18.518	-16.455
		27559.84	Low	MIMO	QPSK	V		-20.679	
		27559.84	Low	MIMO	QPSK	H	32/0	-31.999	-29.678
		27559.84	Low	MIMO	QPSK	V		-33.507	
		28294.52	High	MIMO	QPSK	H	1/31	-21.117	-19.161
		28294.52	High	MIMO	QPSK	V		-23.566	
		28294.52	High	MIMO	QPSK	H	32/0	-31.944	-30.494
		28294.52	High	MIMO	QPSK	V		-35.964	
	100 MHz	27609.32	Low	MIMO	QPSK	H	1/0	-17.562	-15.704※
		27609.32	Low	MIMO	QPSK	V		-20.287	
		27609.32	Low	MIMO	QPSK	H	66/0	-33.687	-31.069
		27609.32	Low	MIMO	QPSK	V		-34.511	
		28242.16	High	MIMO	QPSK	H	1/65	-20.177	-18.876
		28242.16	High	MIMO	QPSK	V		-24.747	
		28242.16	High	MIMO	QPSK	H	66/0	-34.157	-32.583
		28242.16	High	MIMO	QPSK	V		-37.753	

※**Note:** For Band Edge used uncorrelated gain to comply conductive limit.
Band Edge(-15.704 dBm) - Peak Ant. Gain(9.41 (dBi)) = **-25.114 dBm**

Antenna 0(K patch), n260

CCs active	BW	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol [H/V]	RB Size/Offset	Band Edge [dBm]	SUM [dBm]
1	50 MHz	37027.32	Low	MIMO	QPSK	H	1/0	-21.606	-19.321
		37027.32	Low	MIMO	QPSK	V		-23.203	
		37027.32	Low	MIMO	QPSK	H	32/0	-26.023	-23.835
		37027.32	Low	MIMO	QPSK	V		-27.860	
		39966.24	High	MIMO	QPSK	H	1/31	-28.998	-24.453
		39966.24	High	MIMO	QPSK	V		-26.332	
		39966.24	High	MIMO	QPSK	H	32/0	-25.211	-21.998
		39966.24	High	MIMO	QPSK	V		-24.814	
	100 MHz	37051.80	Low	MIMO	QPSK	H	1/0	-21.558	-19.404
		37051.80	Low	MIMO	QPSK	V		-23.483	
		37051.80	Low	MIMO	QPSK	H	66/0	-30.192	-27.934
		37051.80	Low	MIMO	QPSK	V		-31.855	
		39949.92	High	MIMO	QPSK	H	1/65	-18.719	-14.592※
		39949.92	High	MIMO	QPSK	V		-16.715	
		39949.92	High	MIMO	QPSK	H	66/0	-26.517	-23.453
		39949.92	High	MIMO	QPSK	V		-26.410	
2	50 MHz	37052.32	Low	MIMO	QPSK	H	1/0	-25.992	-24.616
		37052.32	Low	MIMO	QPSK	V		-30.278	
		37052.32	Low	MIMO	QPSK	H	32/0	-33.437	-32.044
		37052.32	Low	MIMO	QPSK	V		-37.662	
		39941.24	High	MIMO	QPSK	H	1/31	-20.378	-17.760
		39941.24	High	MIMO	QPSK	V		-21.201	
		39941.24	High	MIMO	QPSK	H	32/0	-33.580	-31.217
		39941.24	High	MIMO	QPSK	V		-34.989	
	100 MHz	37101.80	Low	MIMO	QPSK	H	1/0	-24.978	-23.581
		37101.80	Low	MIMO	QPSK	V		-29.188	
		37101.80	Low	MIMO	QPSK	H	66/0	-39.077	-36.716
		37101.80	Low	MIMO	QPSK	V		-40.490	
		39899.92	High	MIMO	QPSK	H	1/65	-22.256	-18.590
		39899.92	High	MIMO	QPSK	V		-21.030	
		39899.92	High	MIMO	QPSK	H	66/0	-35.258	-31.781
		39899.92	High	MIMO	QPSK	V		-34.370	

※**Note:** Limit: -5 dBm

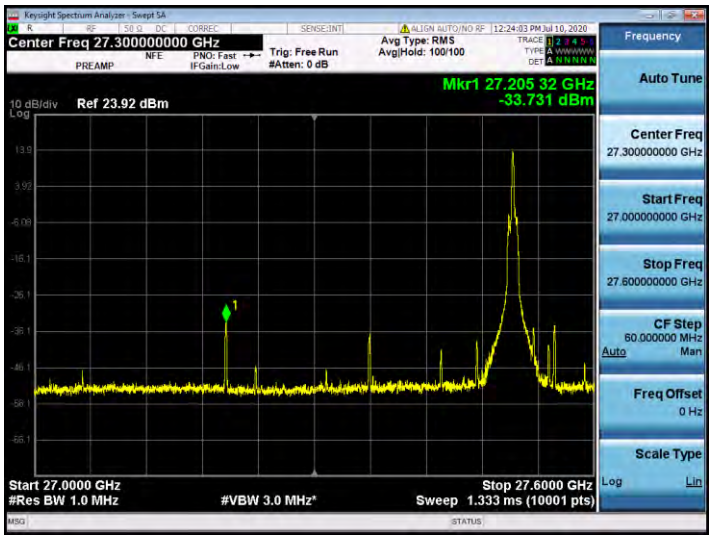
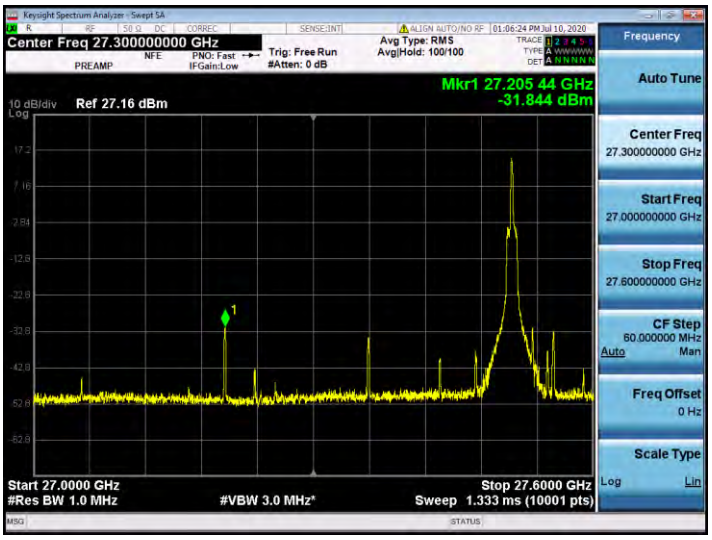
Antenna 1(L patch), n260

CCs active	BW	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol [H/V]	RB Size/Offset	Band Edge [dBm]	SUM [dBm]
1	50 MHz	37027.32	Low	MIMO	QPSK	H	1/0	-23.943	-20.347
		37027.32	Low	MIMO	QPSK	V		-22.841	
		37027.32	Low	MIMO	QPSK	H	32/0	-26.231	-21.747
		37027.32	Low	MIMO	QPSK	V		-23.659	
		39966.24	High	MIMO	QPSK	H	1/31	-34.236	-30.945
		39966.24	High	MIMO	QPSK	V		-33.691	
		39966.24	High	MIMO	QPSK	H	32/0	-26.777	-24.436
		39966.24	High	MIMO	QPSK	V		-28.238	
	100 MHz	37051.80	Low	MIMO	QPSK	H	1/0	-24.715	-20.716
		37051.80	Low	MIMO	QPSK	V		-22.921	
		37051.80	Low	MIMO	QPSK	H	66/0	-29.233	-25.131
		37051.80	Low	MIMO	QPSK	V		-27.270	
		39949.92	High	MIMO	QPSK	H	1/65	-21.245	-18.120
		39949.92	High	MIMO	QPSK	V		-21.019	
		39949.92	High	MIMO	QPSK	H	66/0	-27.027	-23.723
		39949.92	High	MIMO	QPSK	V		-26.459	
2	50 MHz	37052.32	Low	MIMO	QPSK	H	1/0	-26.756	-21.853
		37052.32	Low	MIMO	QPSK	V		-23.549	
		37052.32	Low	MIMO	QPSK	H	32/0	-40.608	-37.464
		37052.32	Low	MIMO	QPSK	V		-40.344	
		39941.24	High	MIMO	QPSK	H	1/31	-17.121	-15.433※
		39941.24	High	MIMO	QPSK	V		-20.354	
		39941.24	High	MIMO	QPSK	H	32/0	-33.461	-29.817
		39941.24	High	MIMO	QPSK	V		-32.275	
	100 MHz	37101.80	Low	MIMO	QPSK	H	1/0	-24.939	-19.983
		37101.80	Low	MIMO	QPSK	V		-21.655	
		37101.80	Low	MIMO	QPSK	H	66/0	-38.835	-35.862
		37101.80	Low	MIMO	QPSK	V		-38.910	
		39899.92	High	MIMO	QPSK	H	1/65	-20.658	-16.641
		39899.92	High	MIMO	QPSK	V		-18.834	
		39899.92	High	MIMO	QPSK	H	66/0	-34.634	-31.794
		39899.92	High	MIMO	QPSK	V		-34.982	

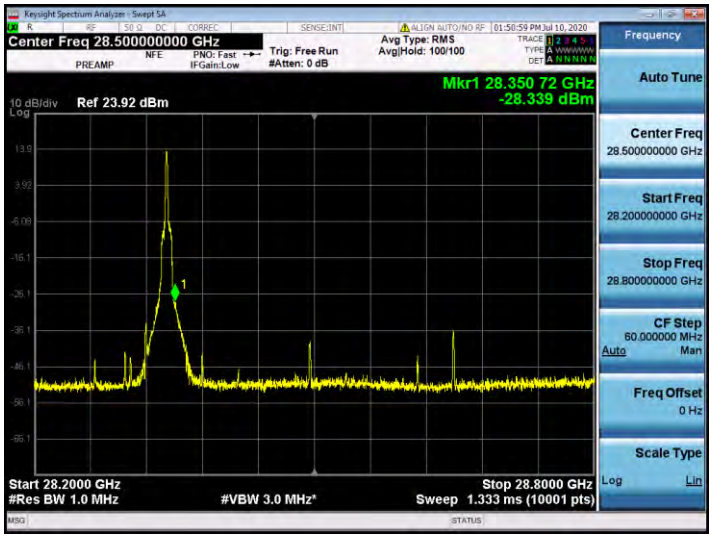
※**Note:** For Band Edge used uncorrelated gain to comply conductive limit.
Band Edge(-15.433 dBm) - Peak Ant. Gain(8.71 (dBi)) = **-24.143 dBm**

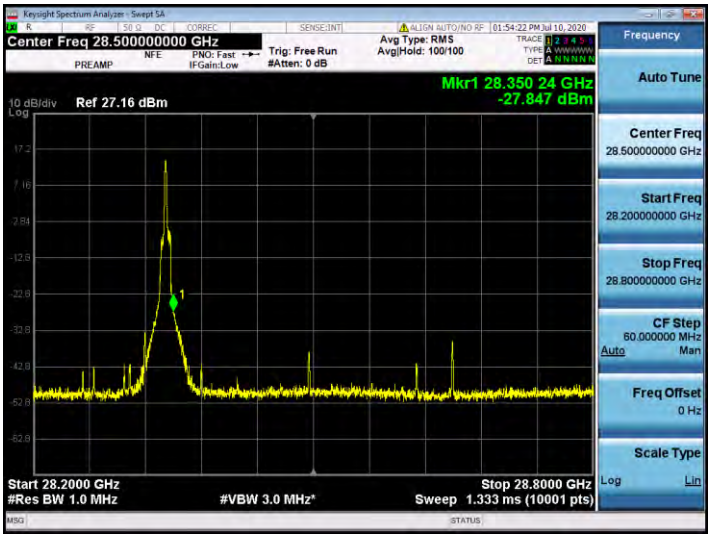
Plot data of Band Edge

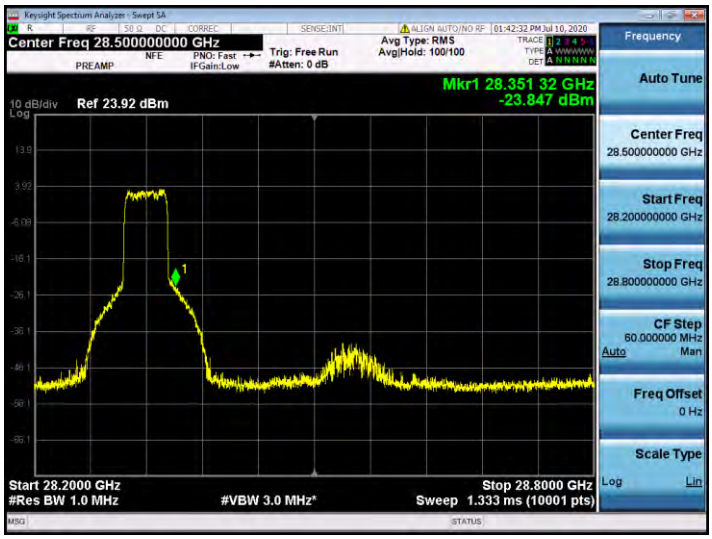
5. Antenna 0(K patch), n261

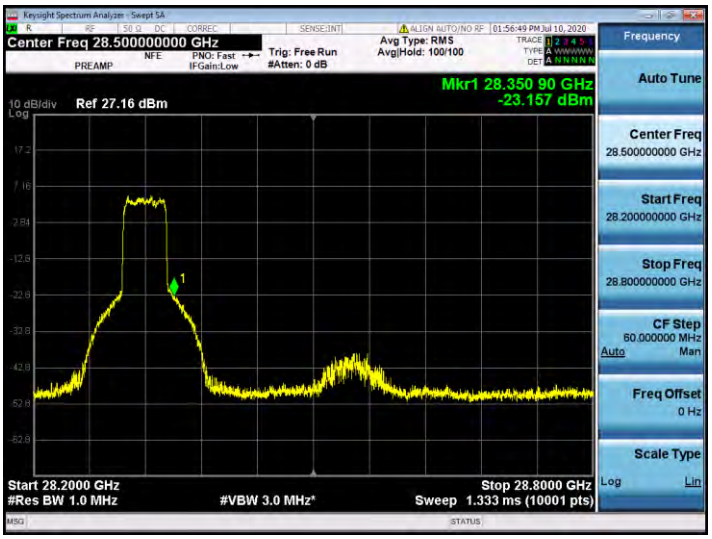
50 MHz, 1CC MIMO	
	

50 MHz, 1CC MIMO

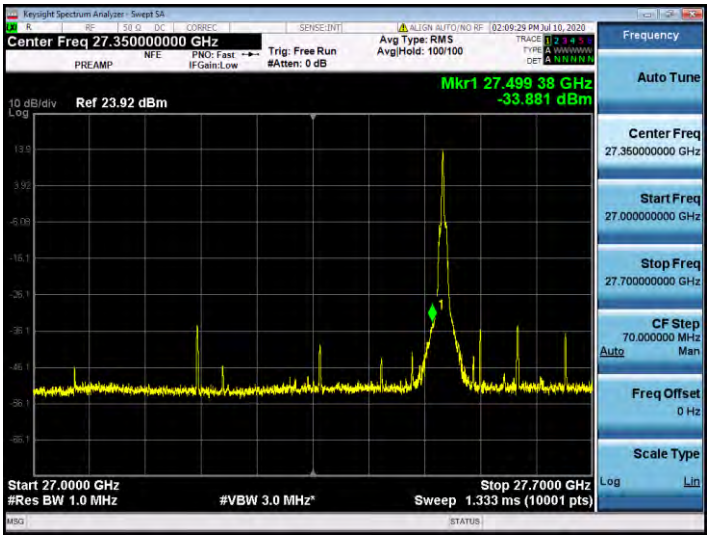


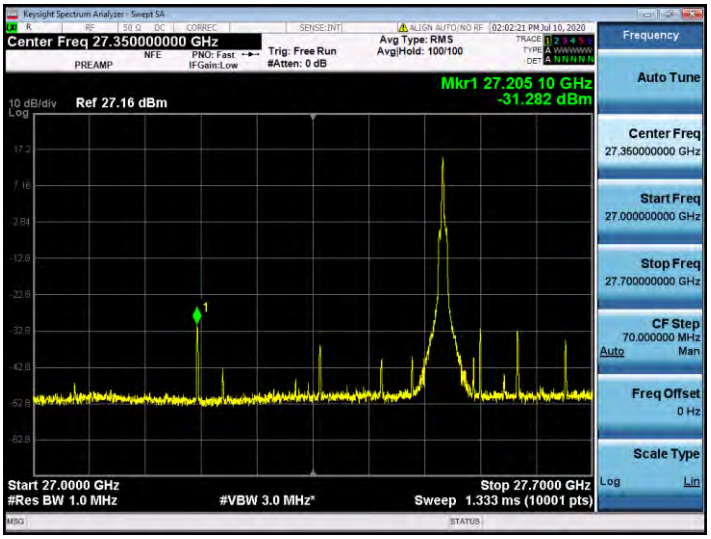


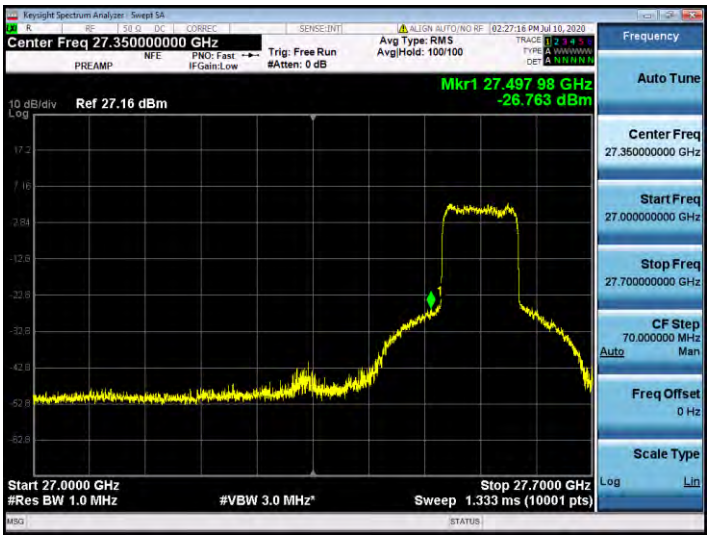


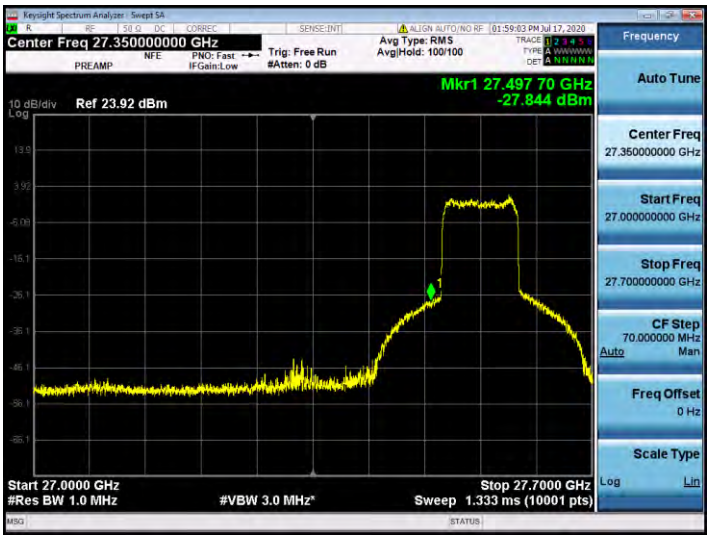


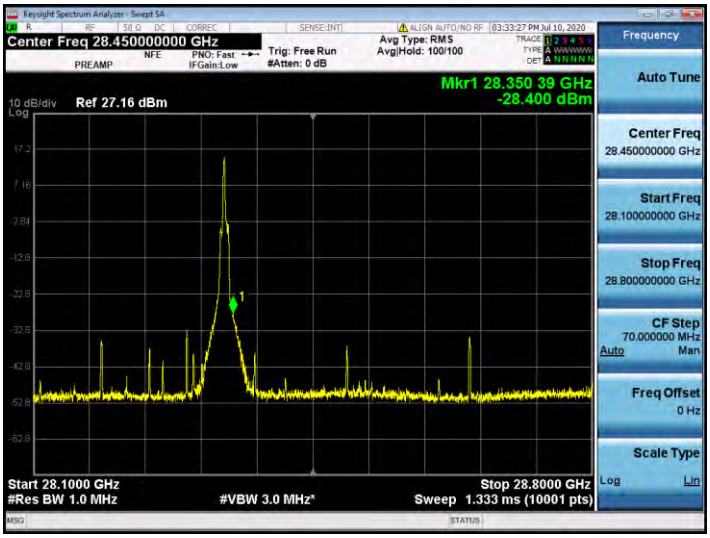
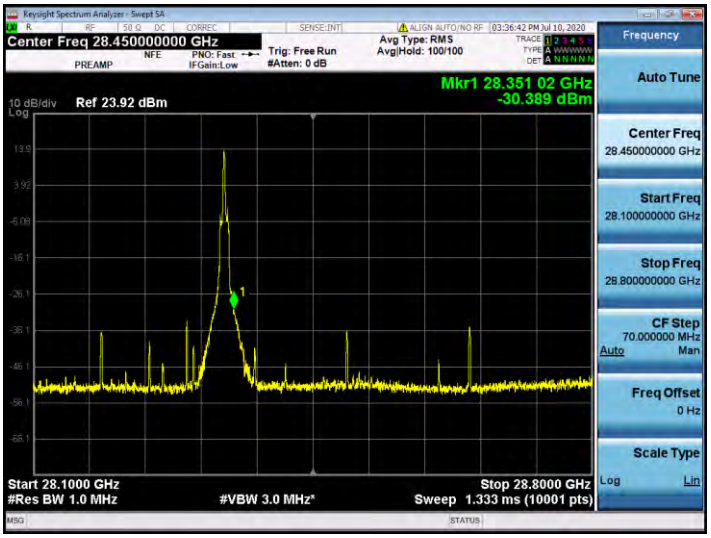
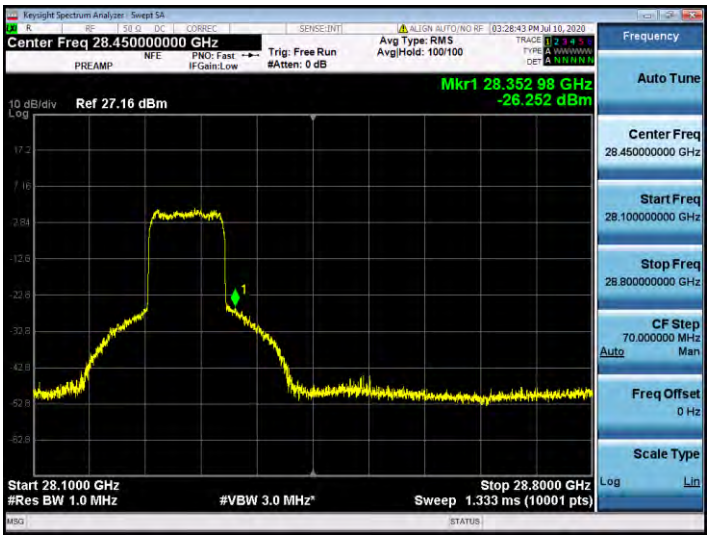
100 MHz, 1CC MIMO



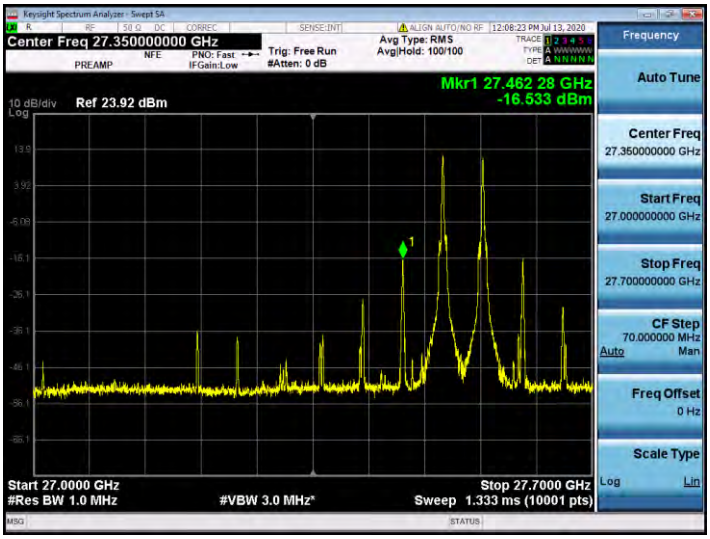


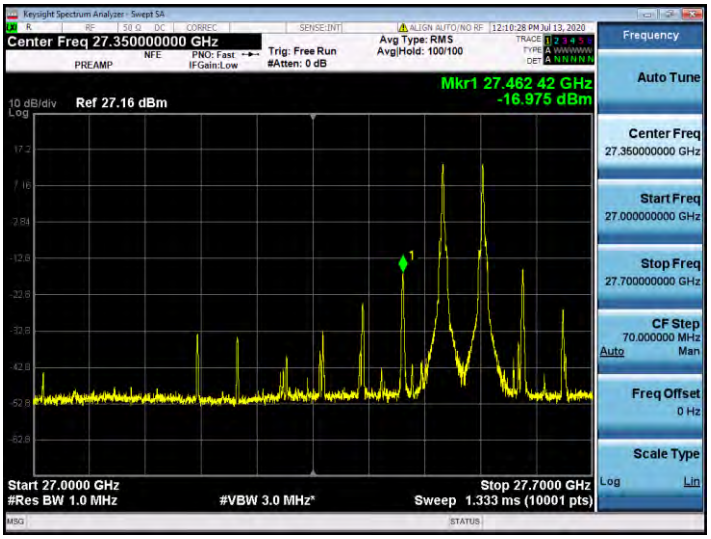


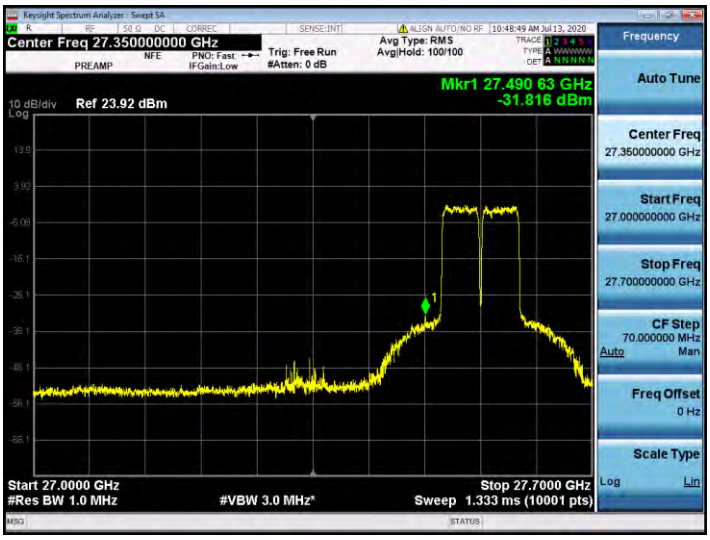


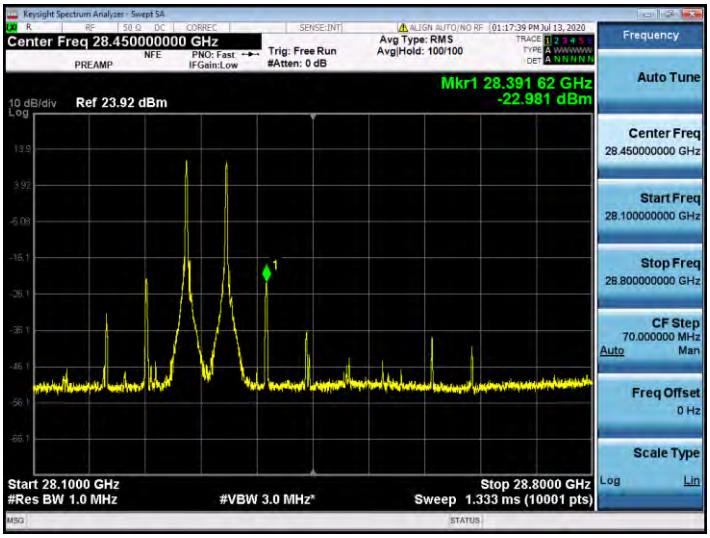
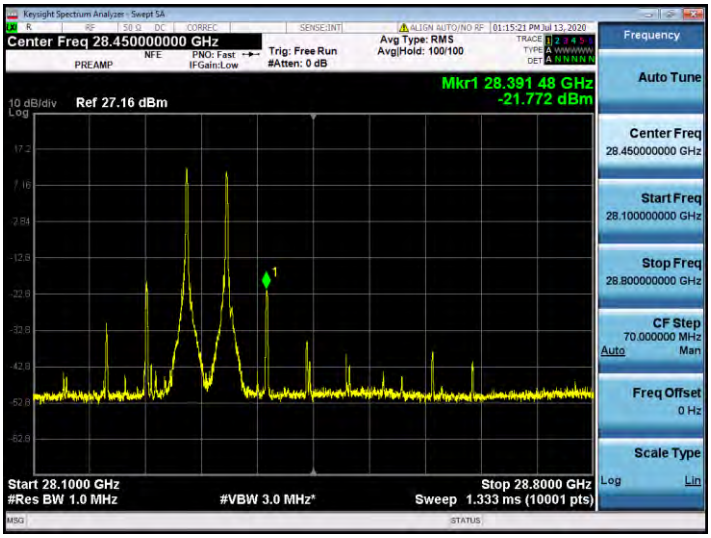
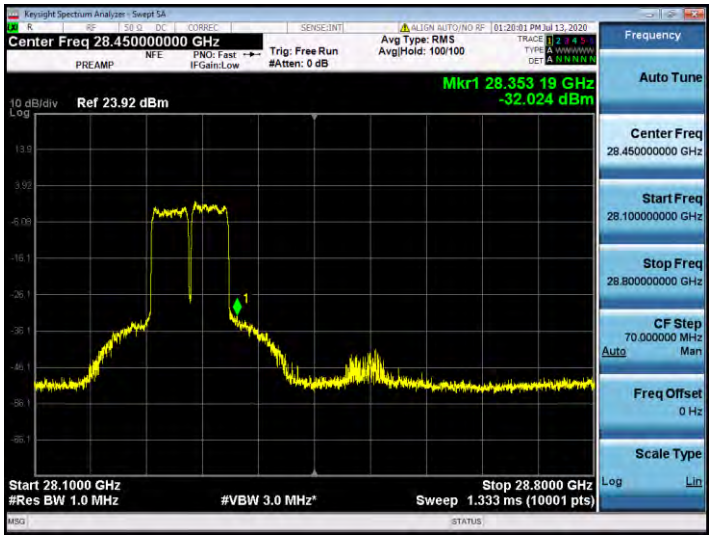
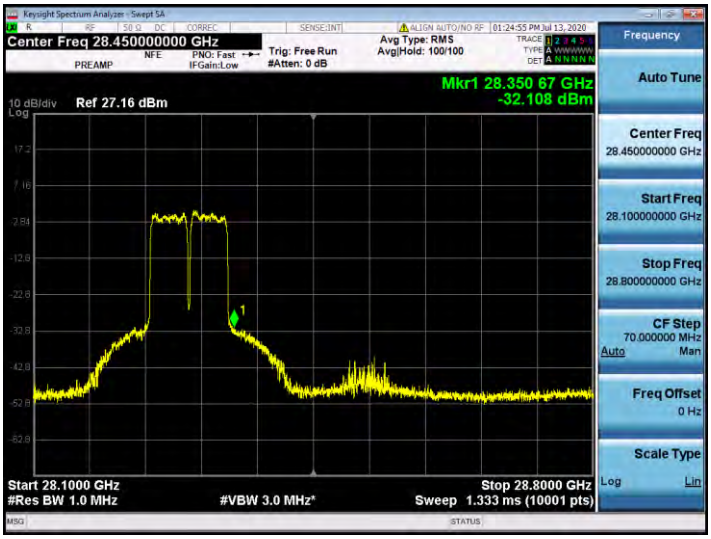
100 MHz, 1CC MIMO	
	
	

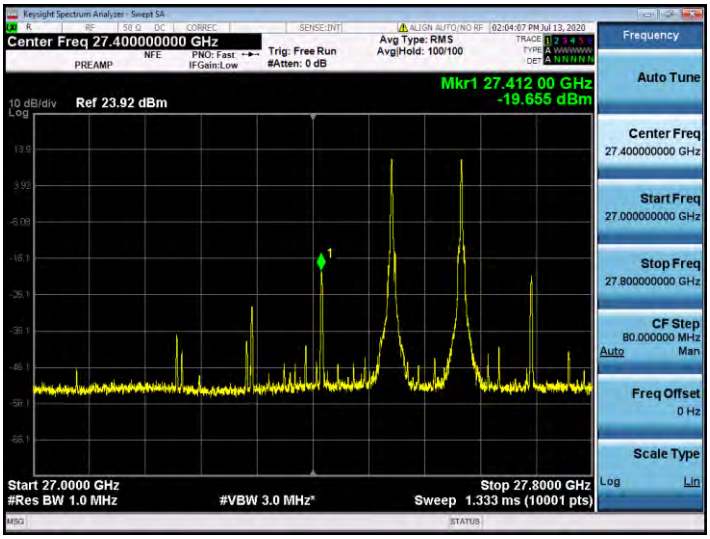
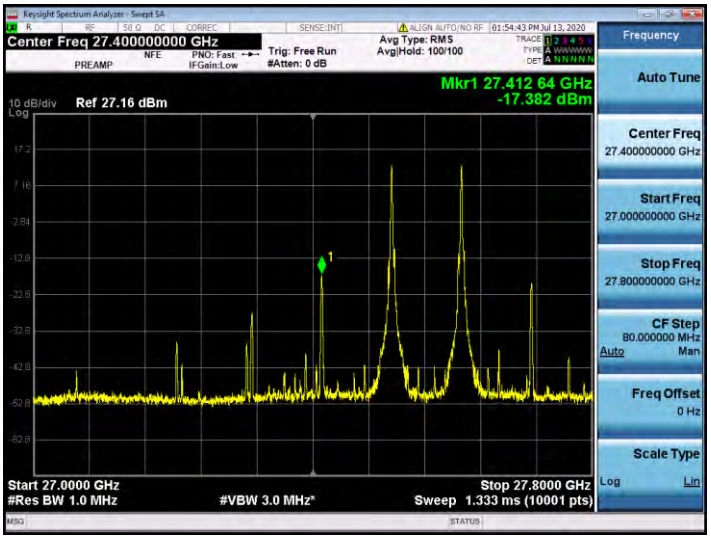
50 MHz, 2CC MIMO

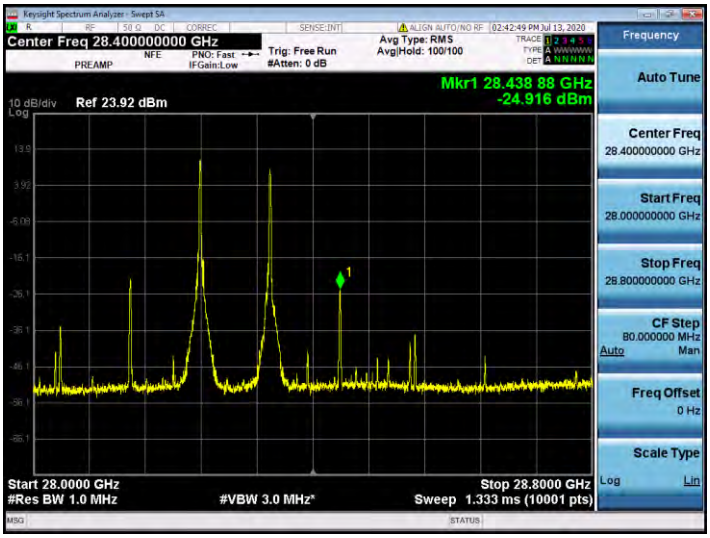
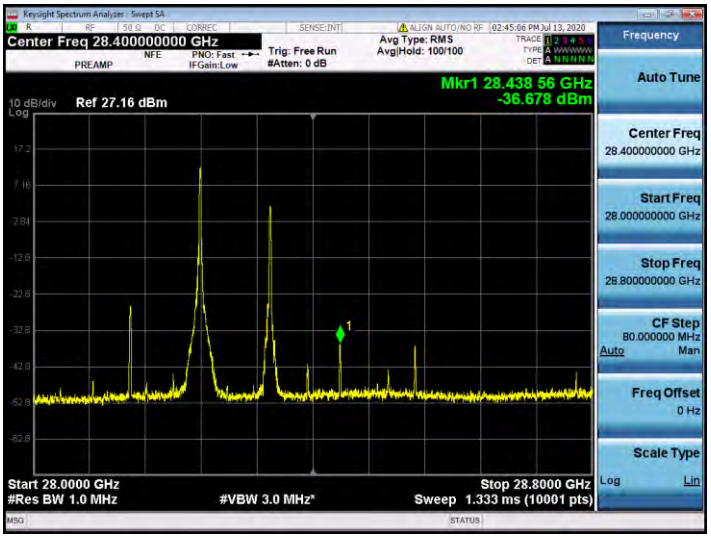
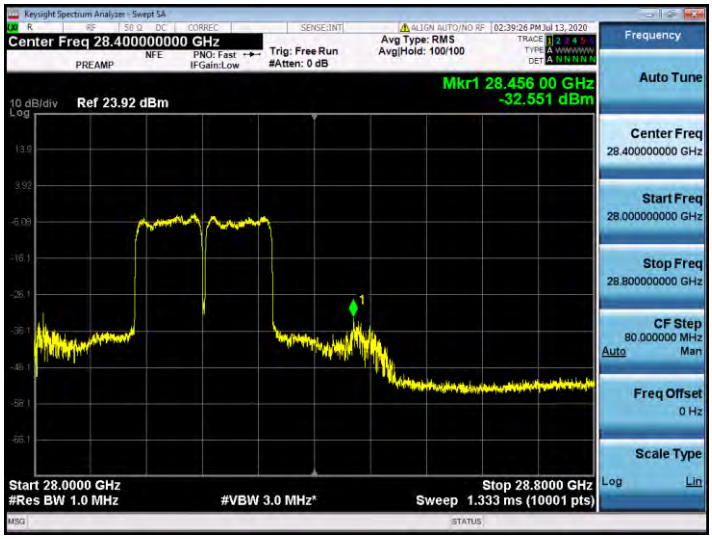




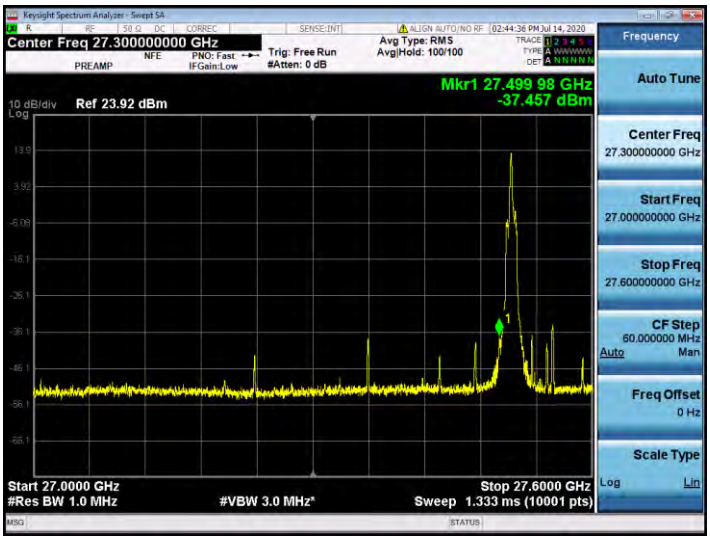
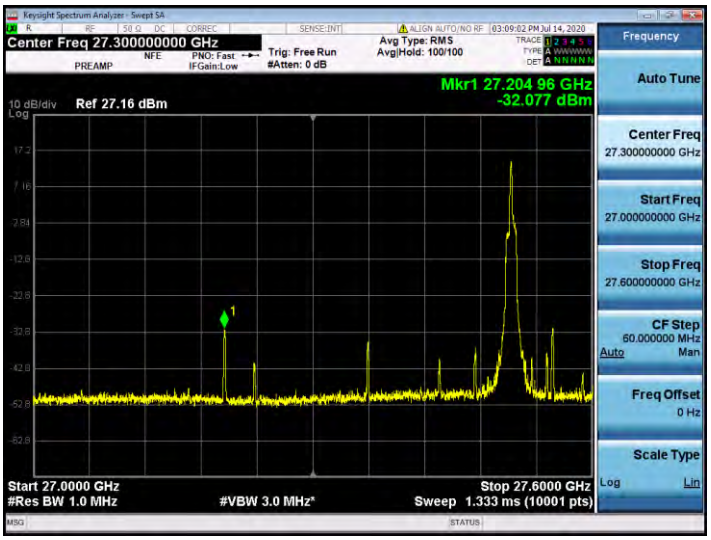
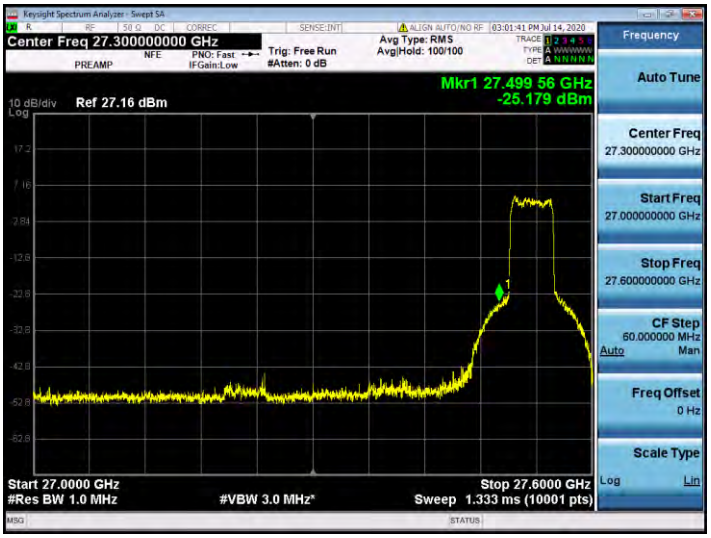


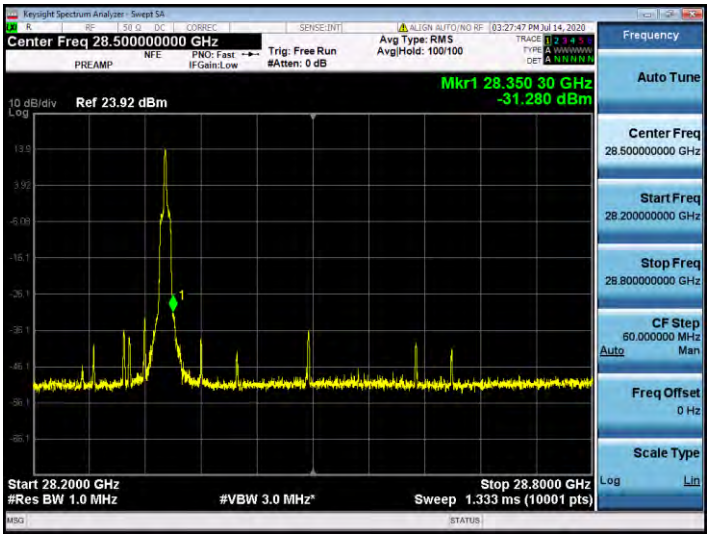
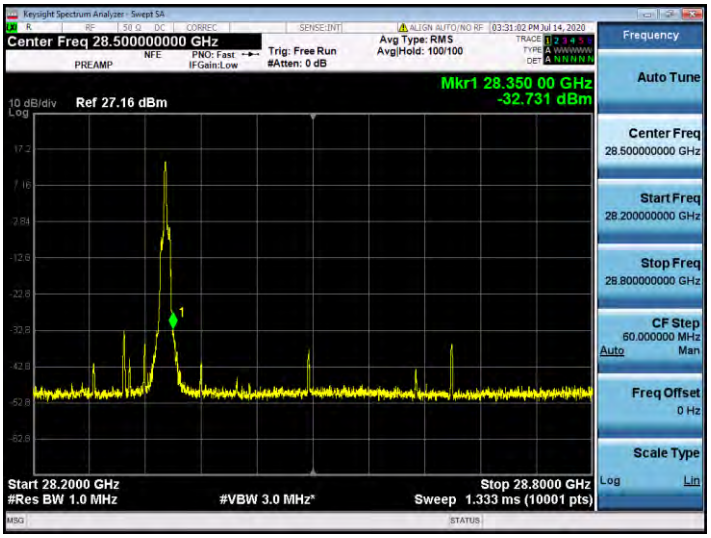
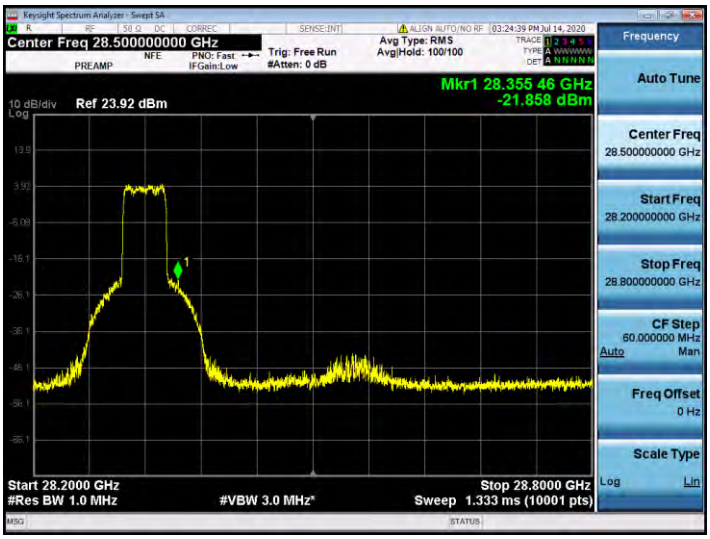
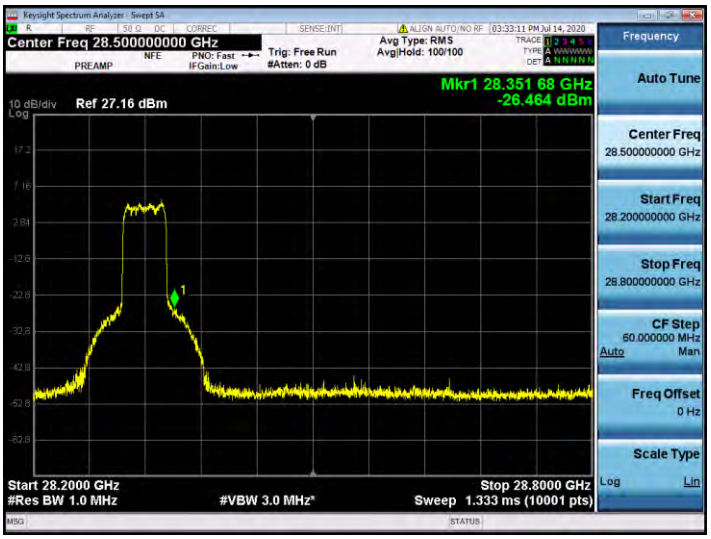
50 MHz, 2CC MIMO	
	
	

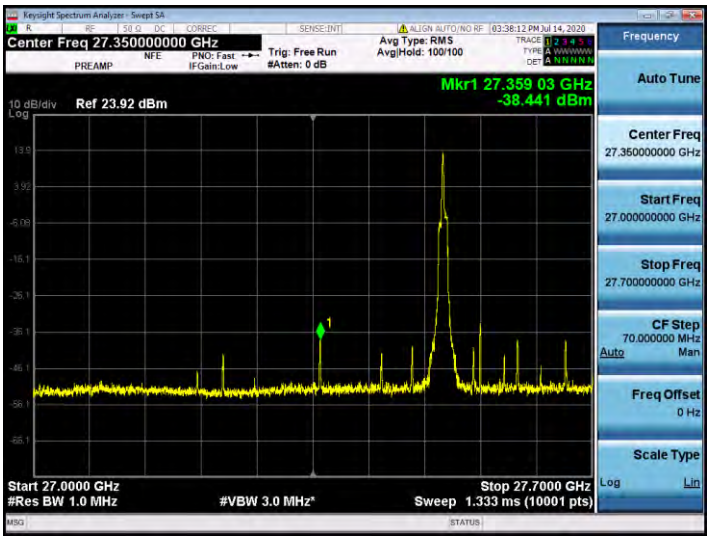
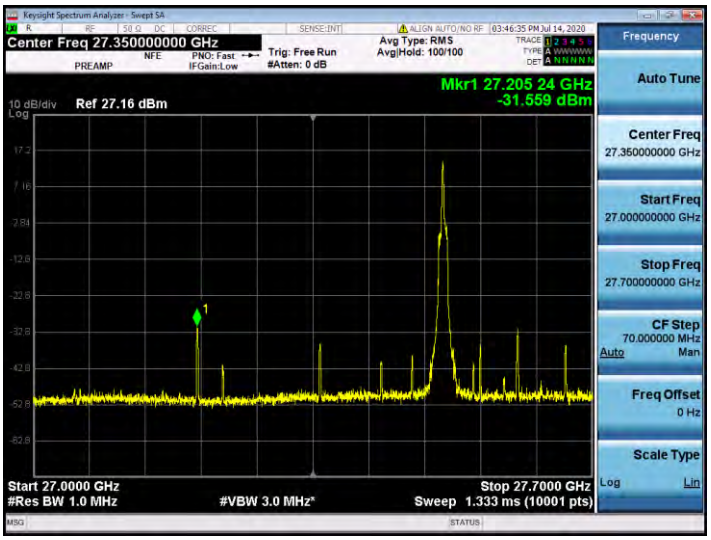
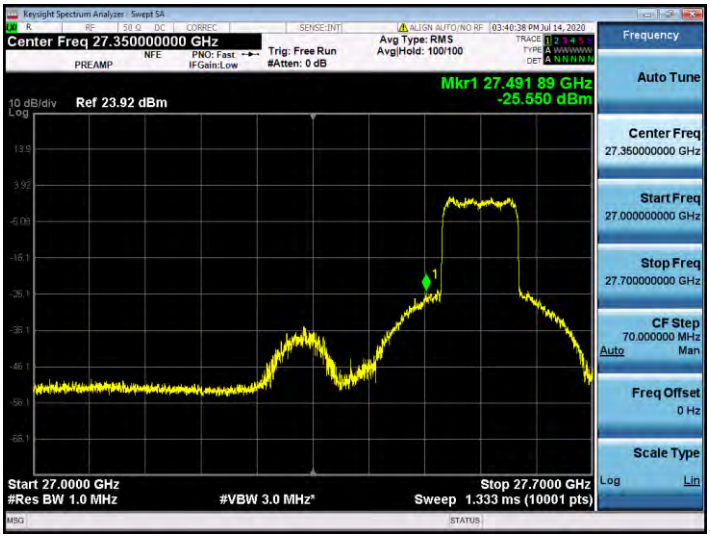
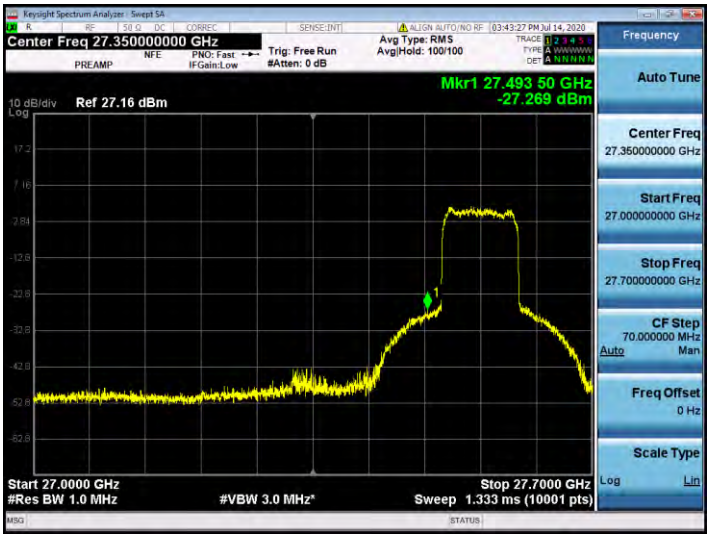
100 MHz, 2CC MIMO	
	

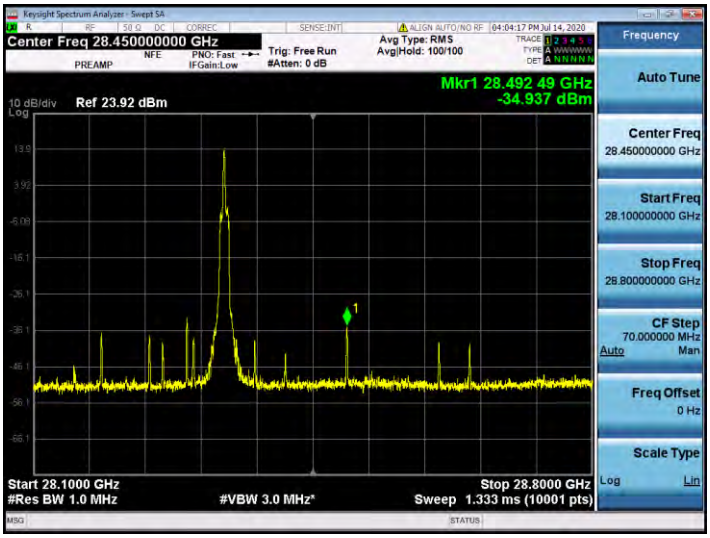
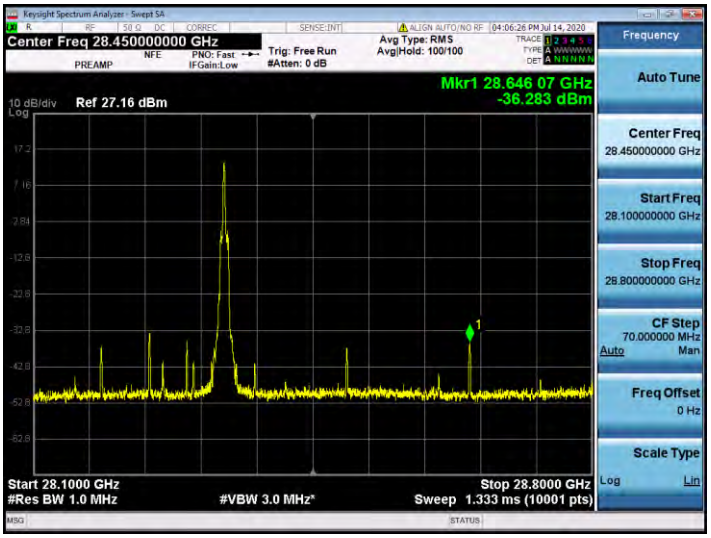
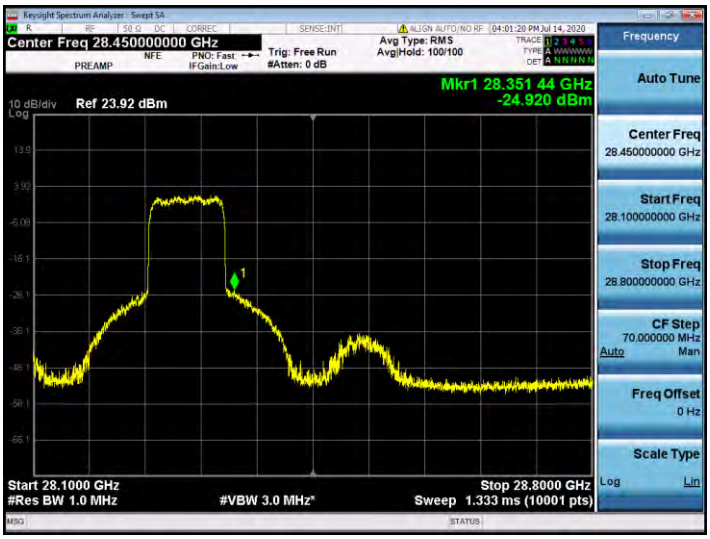
100 MHz, 2CC MIMO	
	
	

6. Antenna 1(L patch), n261

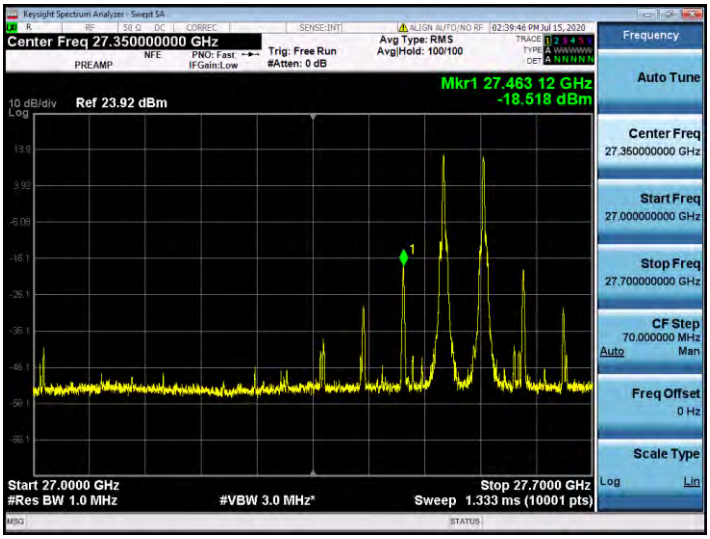
50 MHz, 1CC MIMO	
	
	

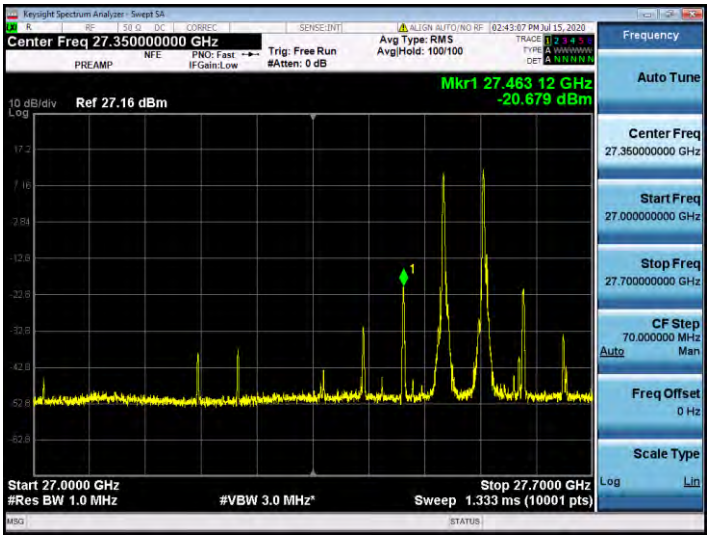
50 MHz, 1CC MIMO	
	
	

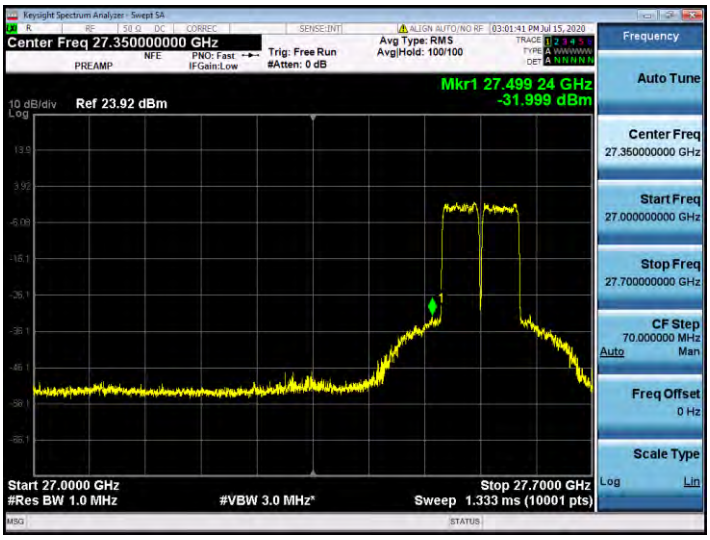
100 MHz, 1CC MIMO	
	
	

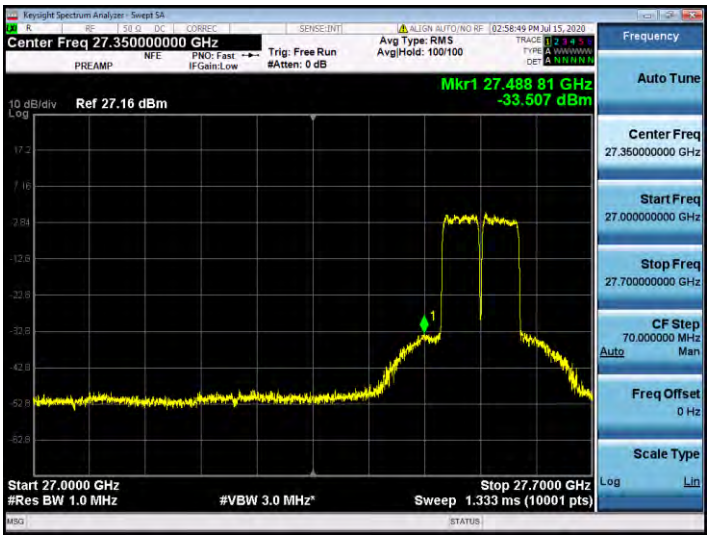
100 MHz, 1CC MIMO	
	
	

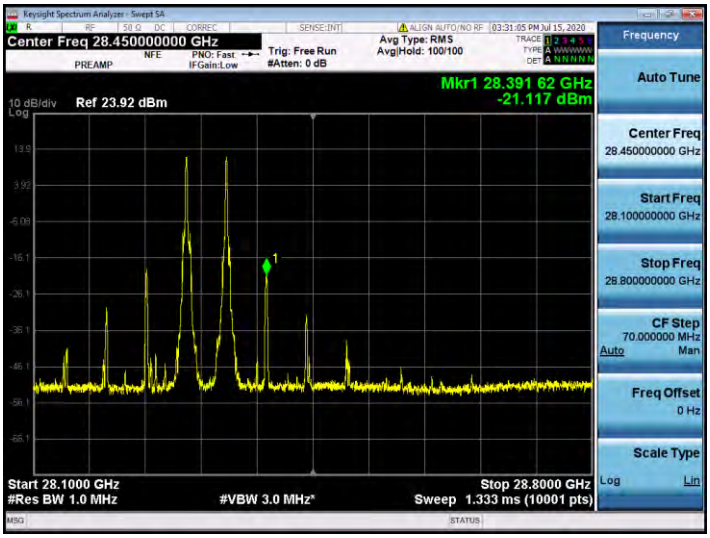
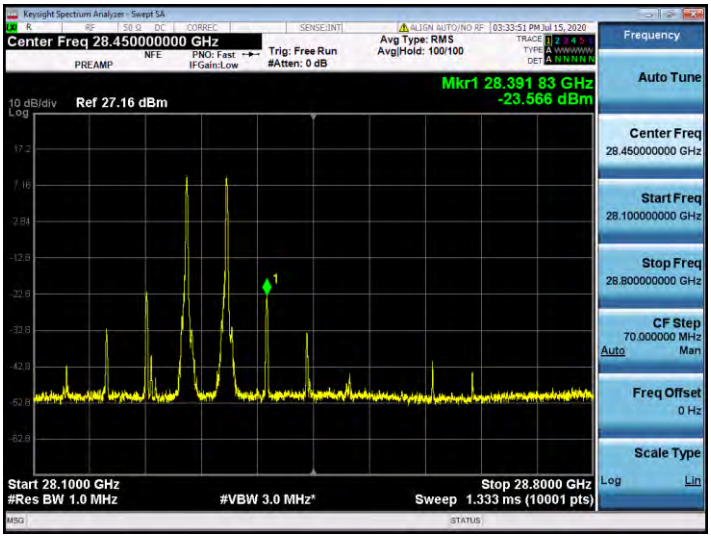
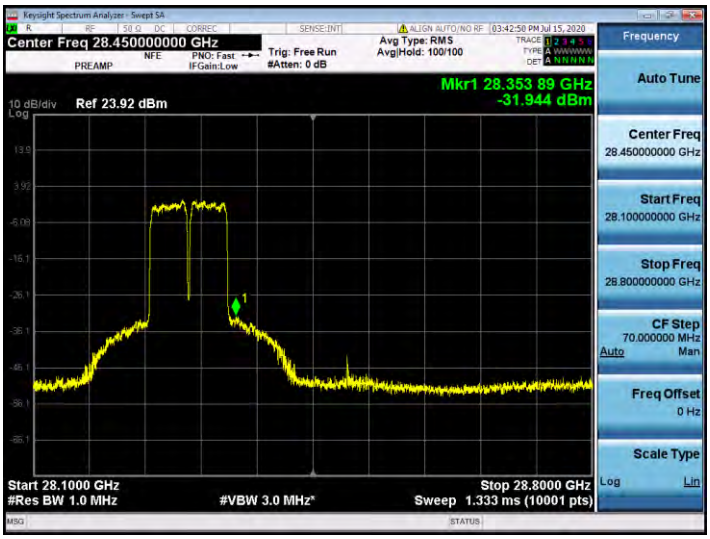
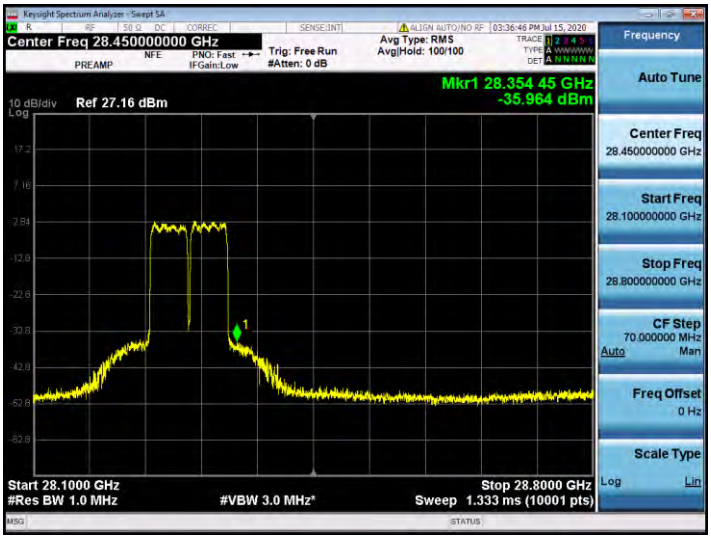
50 MHz, 2CC MIMO

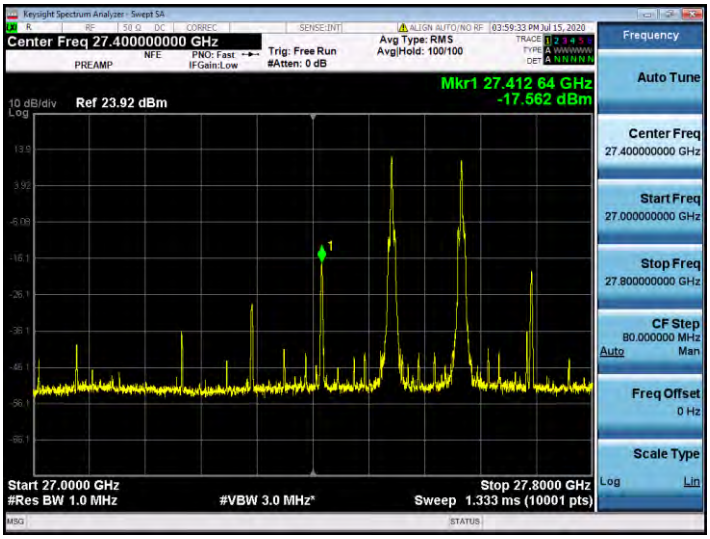
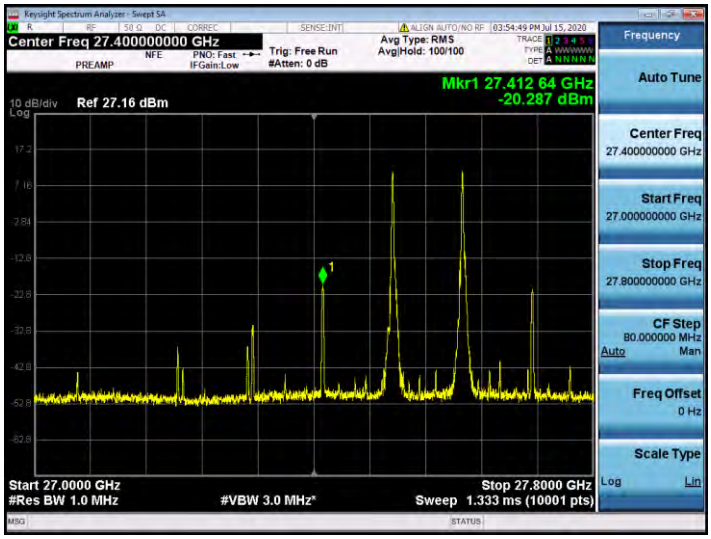


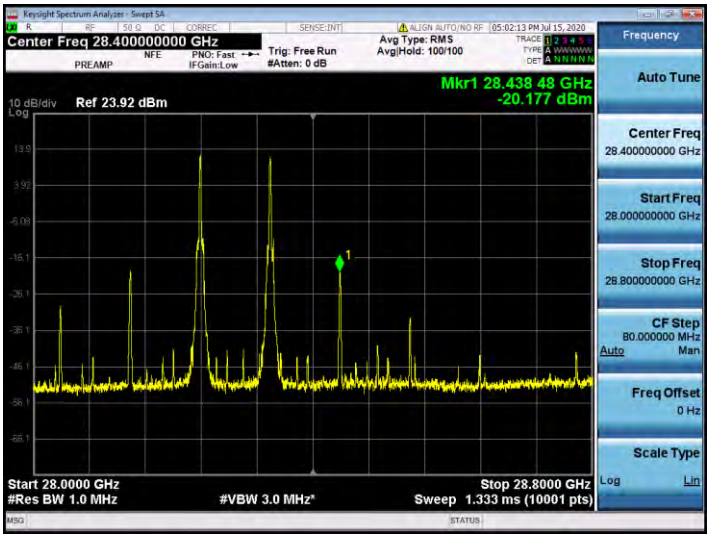
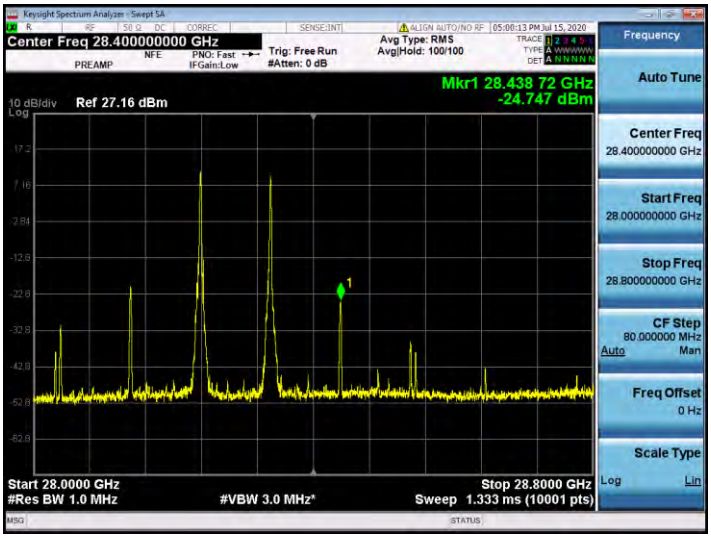
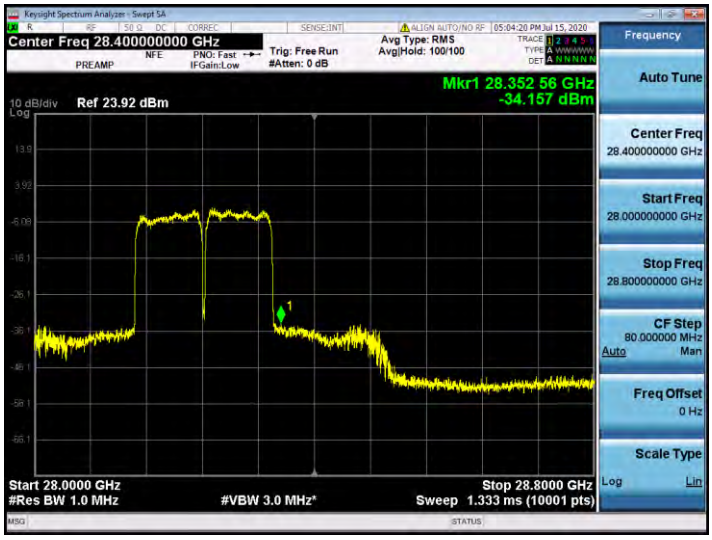




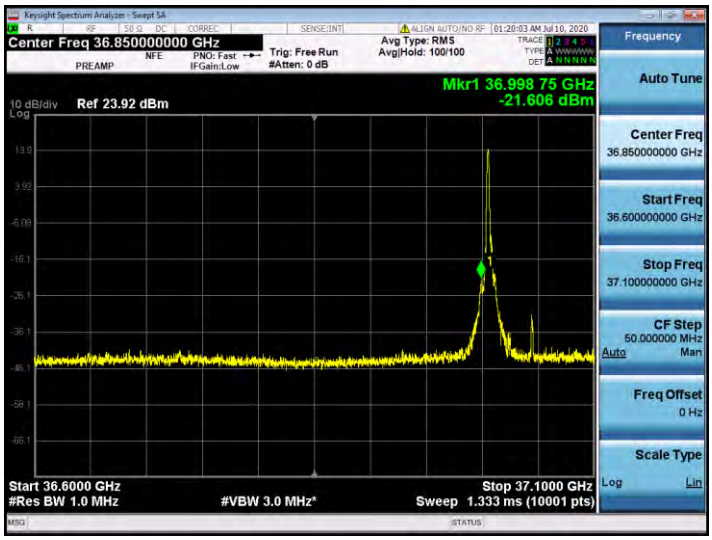
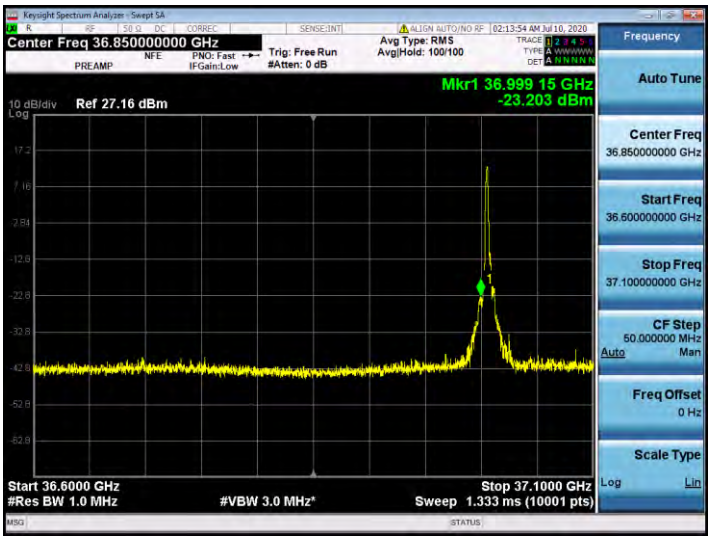
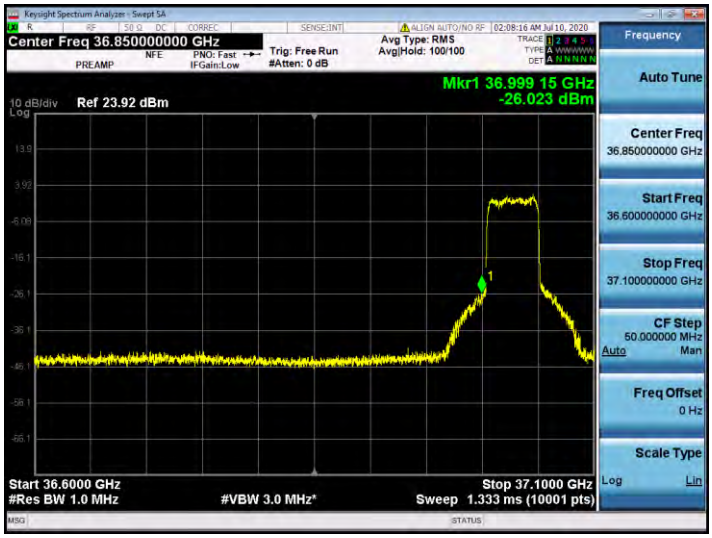
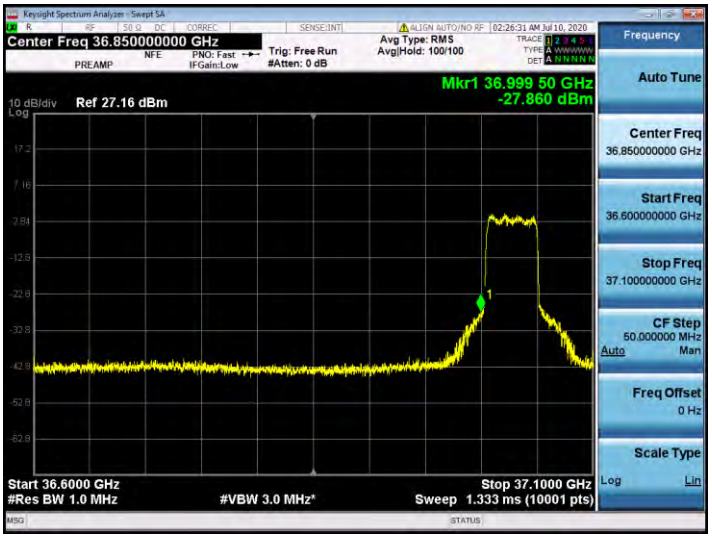


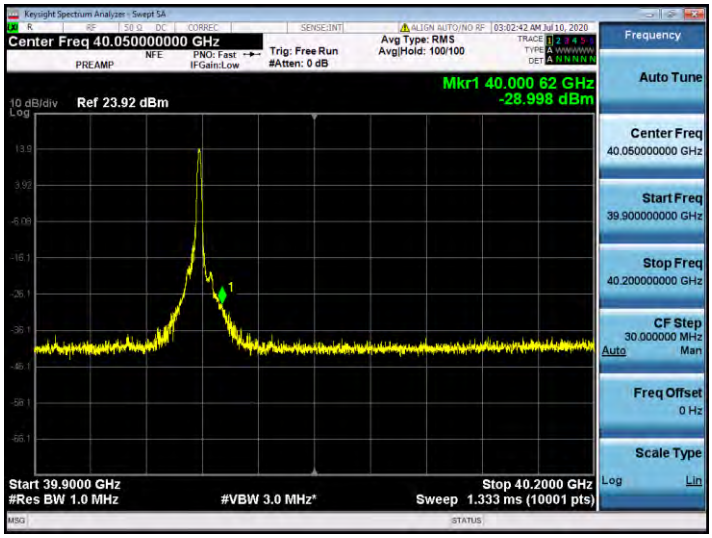
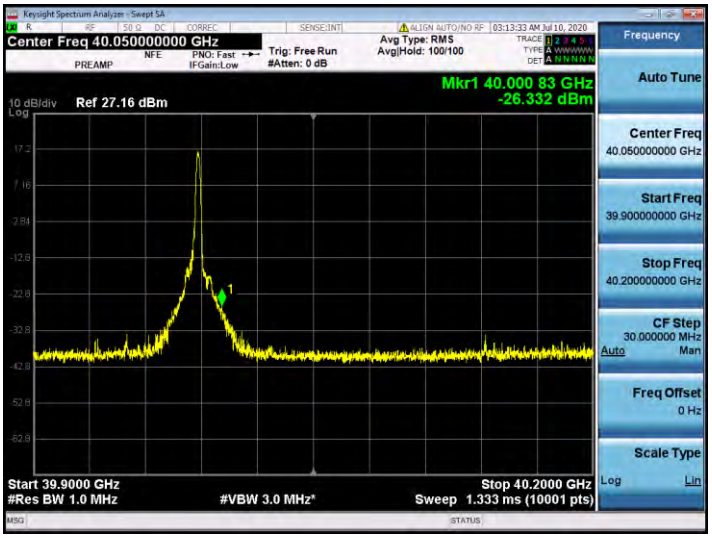
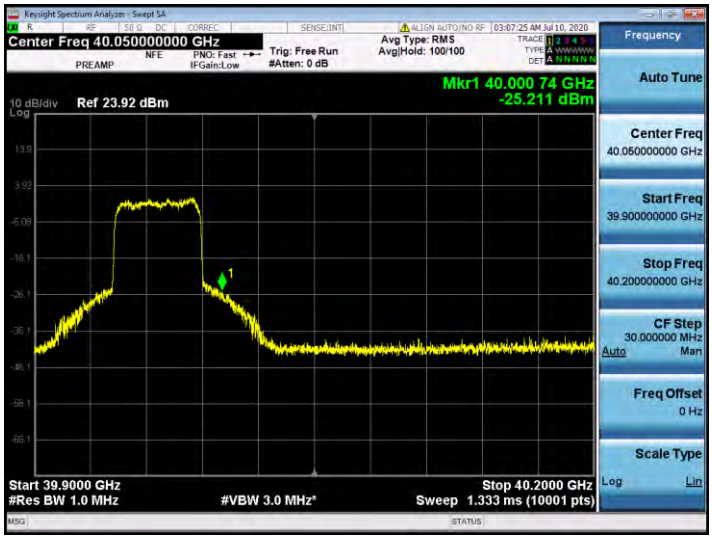
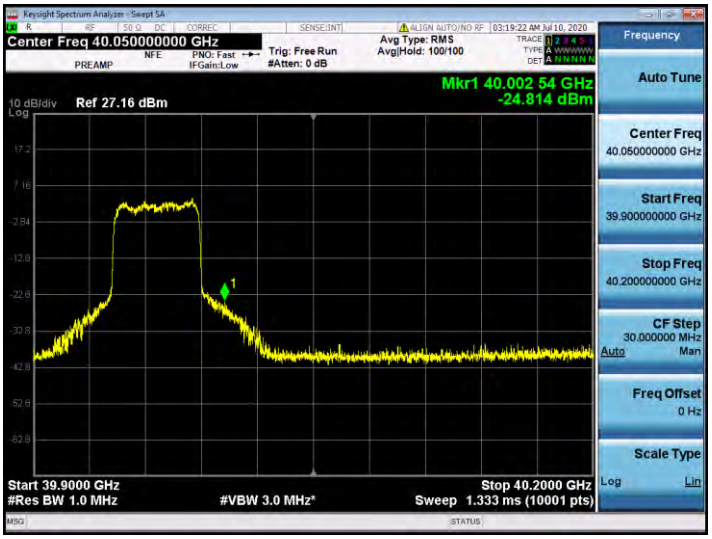
50 MHz, 2CC MIMO	
	
	

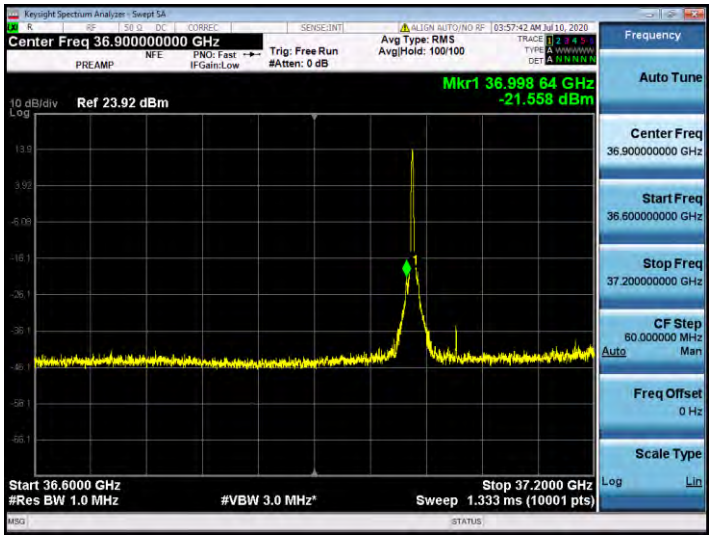
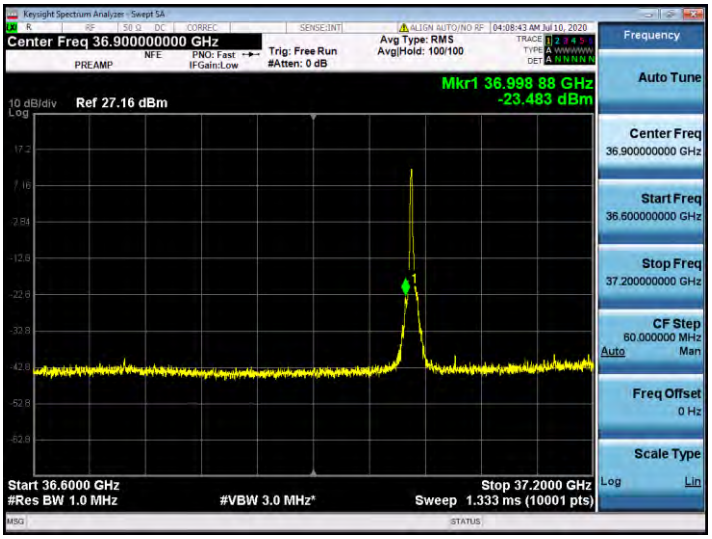
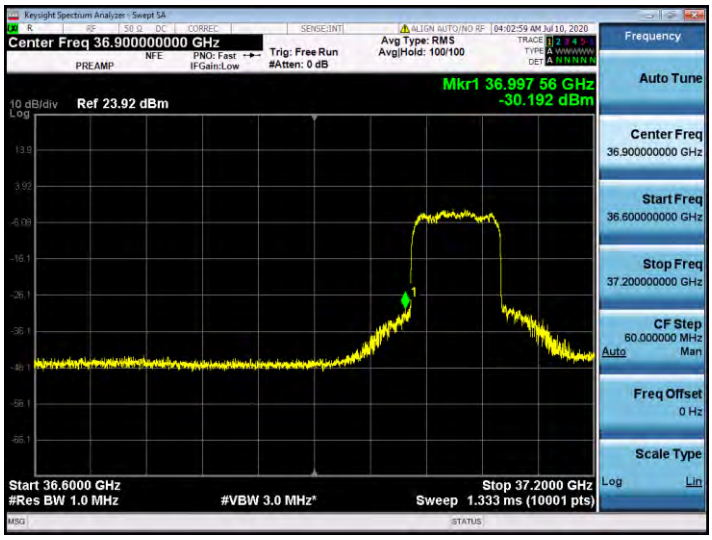
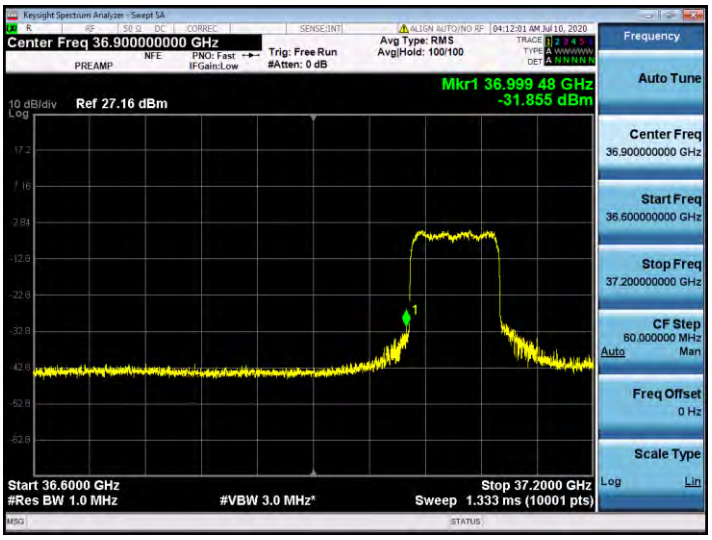
100 MHz, 2CC MIMO	
	

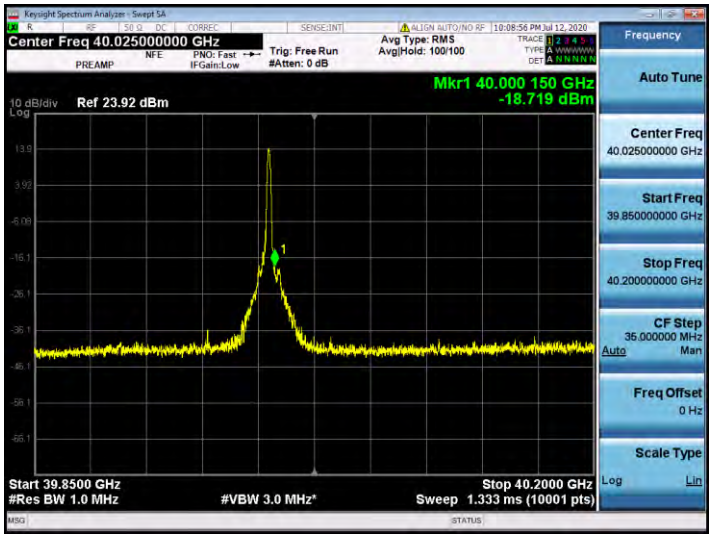
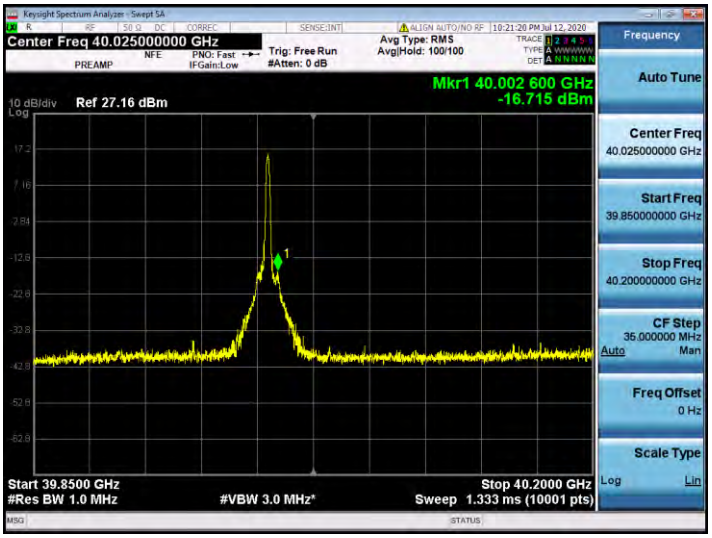
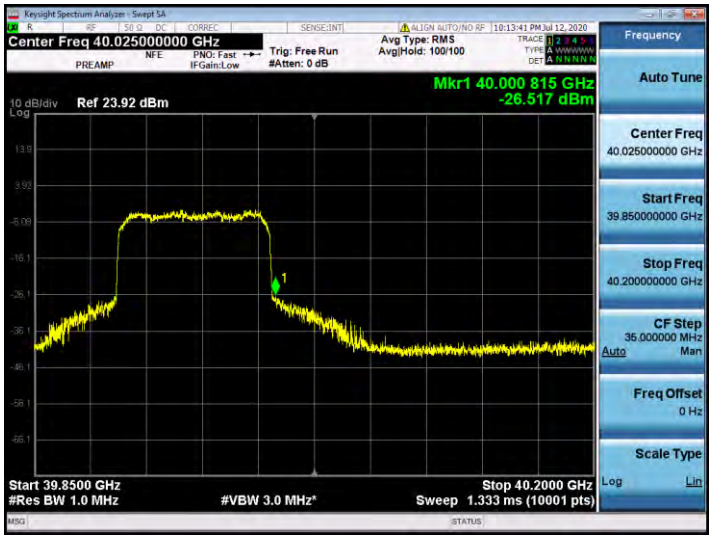
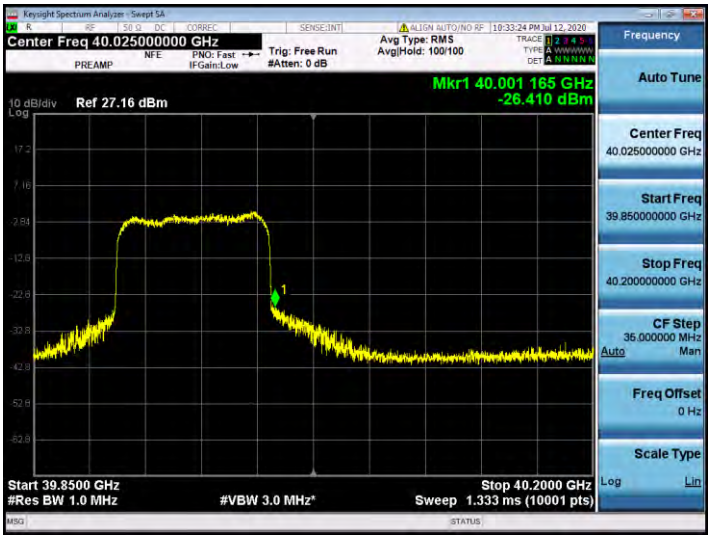
100 MHz, 2CC MIMO	
	
	

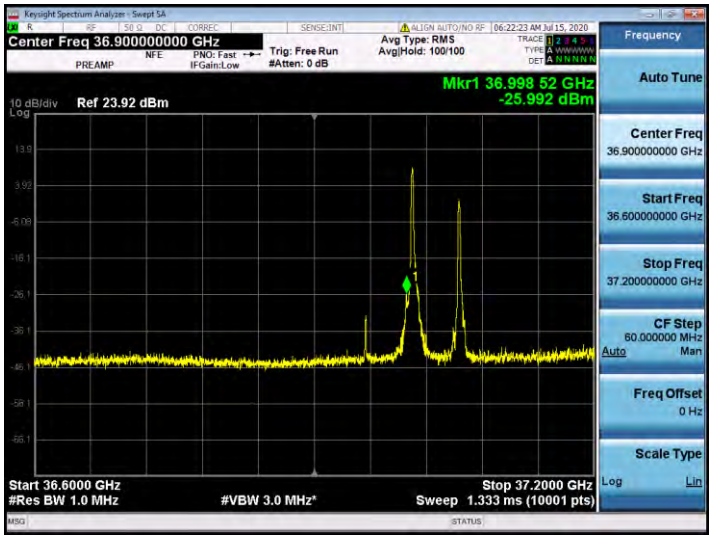
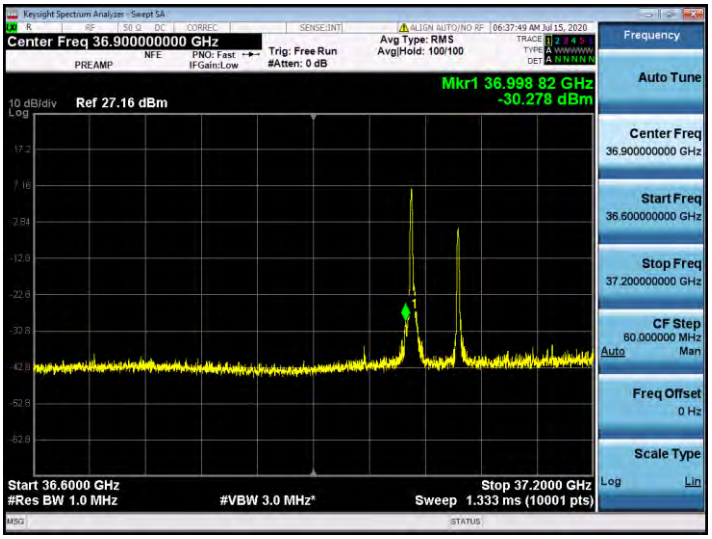
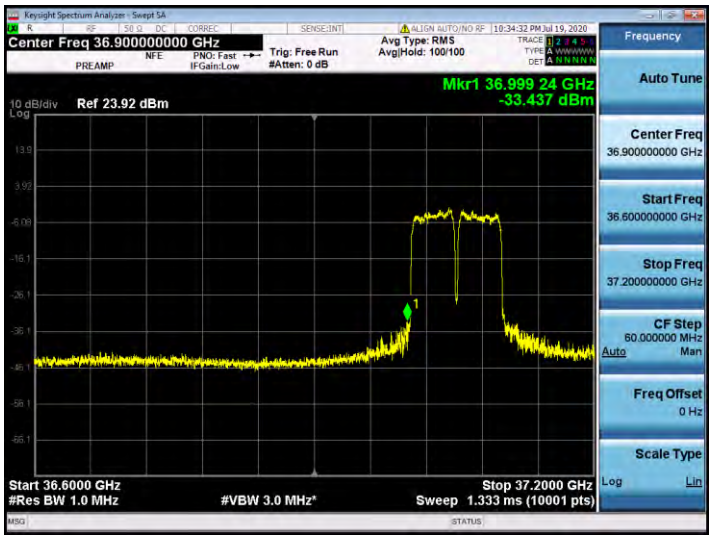
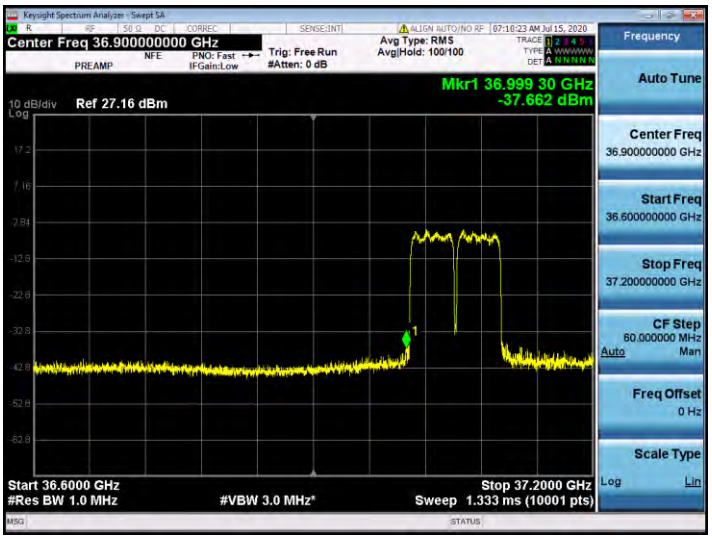
3. Antenna 0(K patch), n260

50 MHz, 1CC MIMO	
	
	

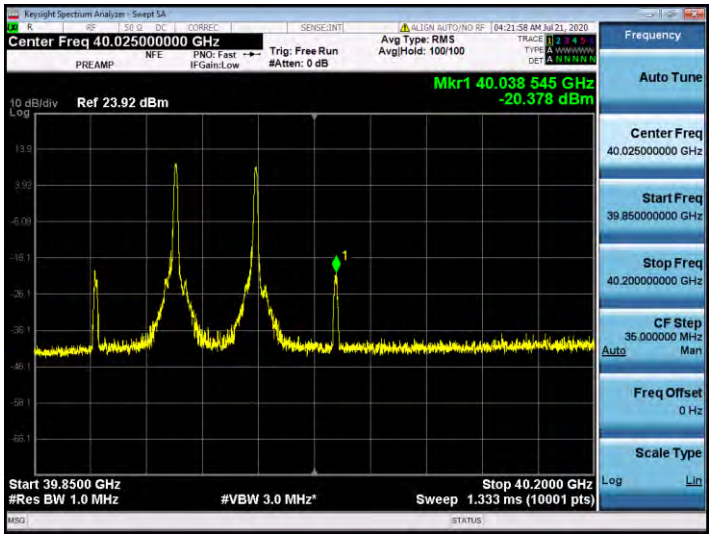
50 MHz, 1CC MIMO	
	
	

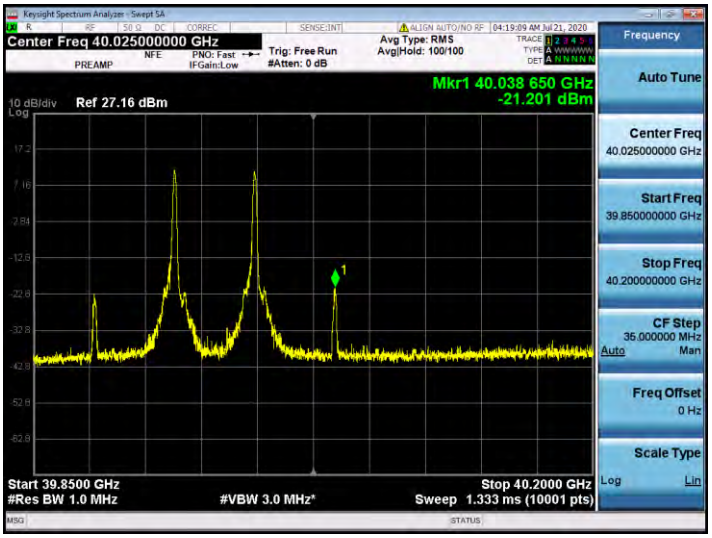
100 MHz, 1CC MIMO	
	
	

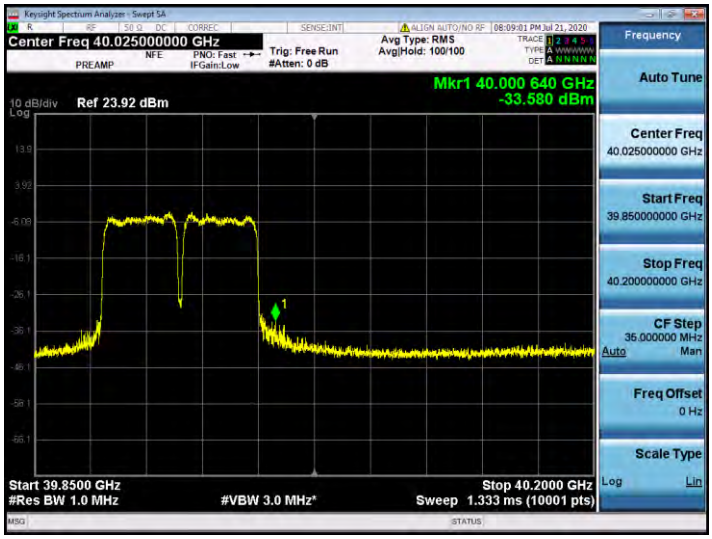
100 MHz, 1CC MIMO	
	
	

50 MHz, 2CC MIMO	
	
	

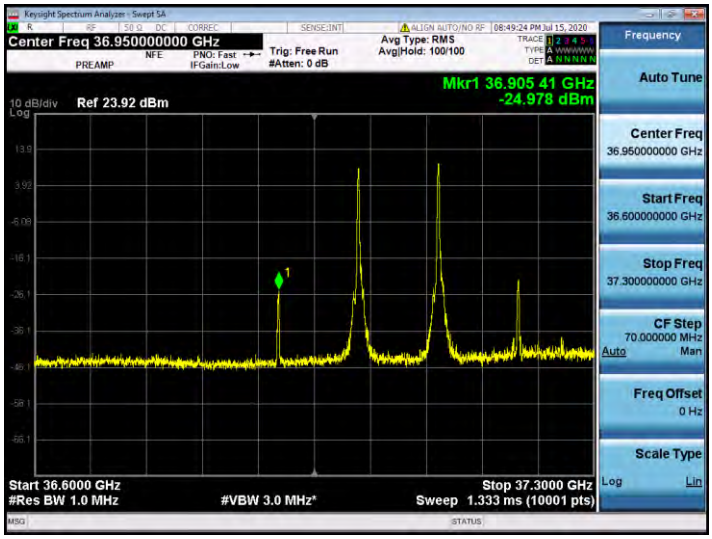
50 MHz, 2CC MIMO

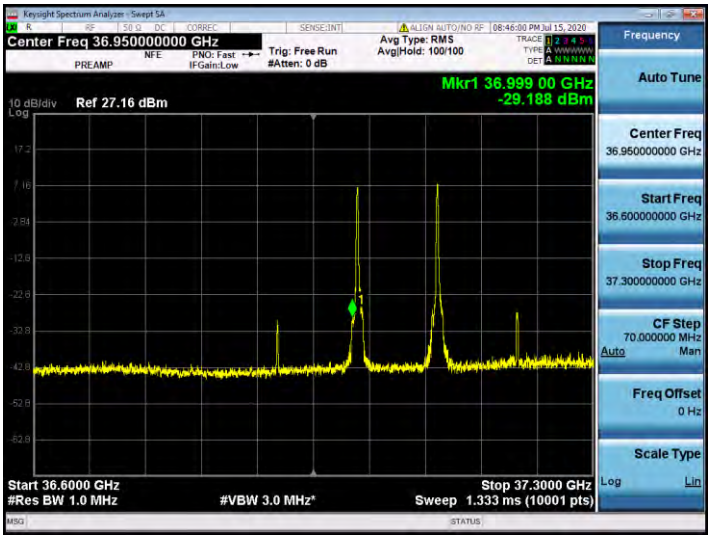


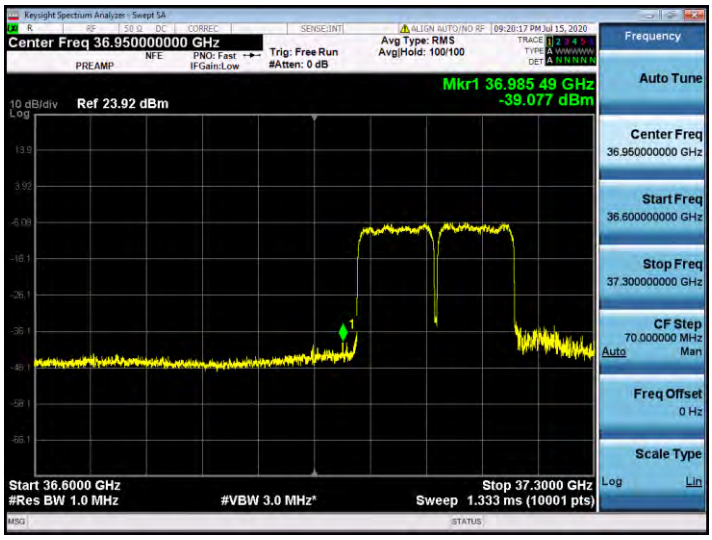


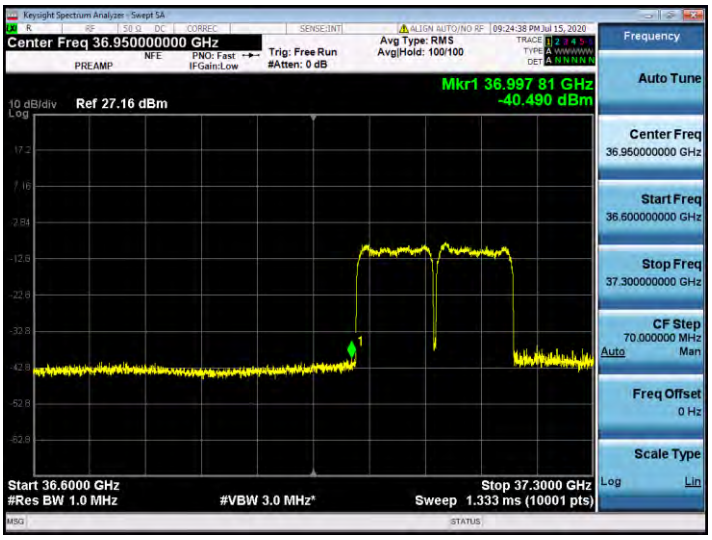


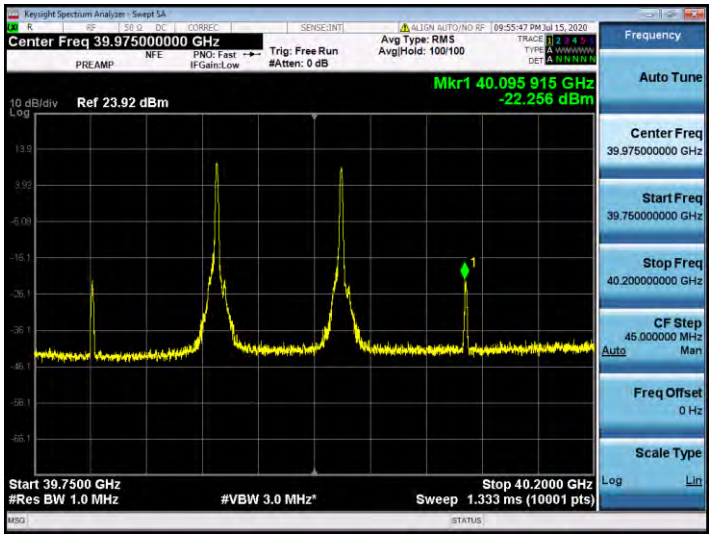
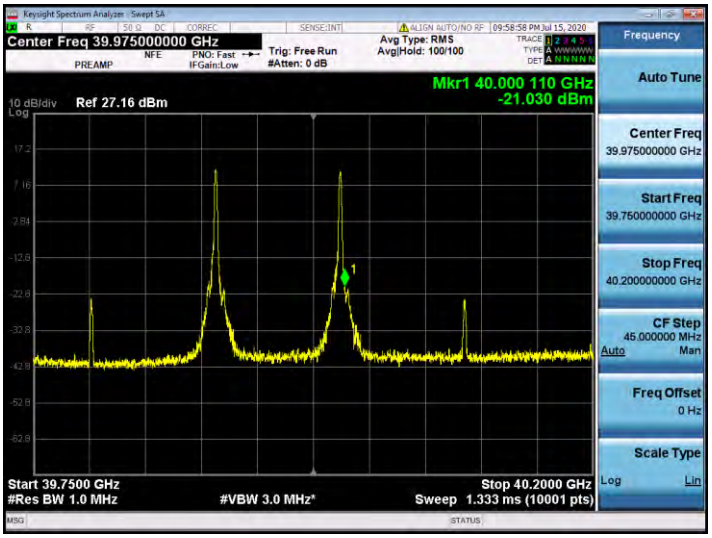
100 MHz, 2CC MIMO



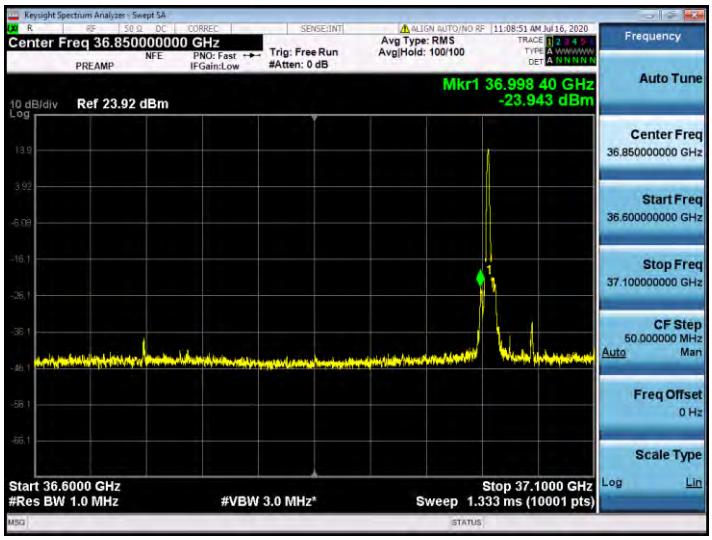
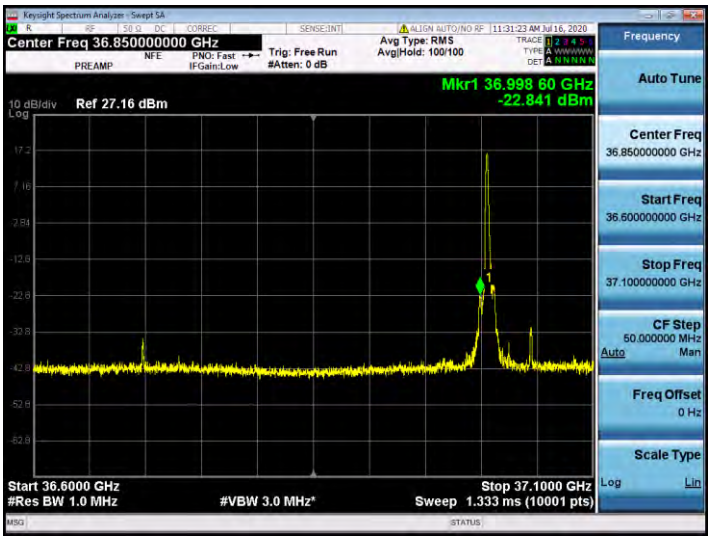
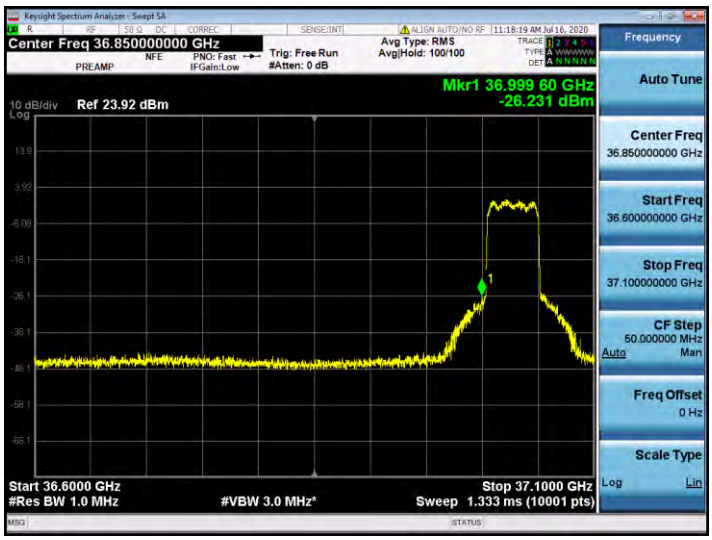
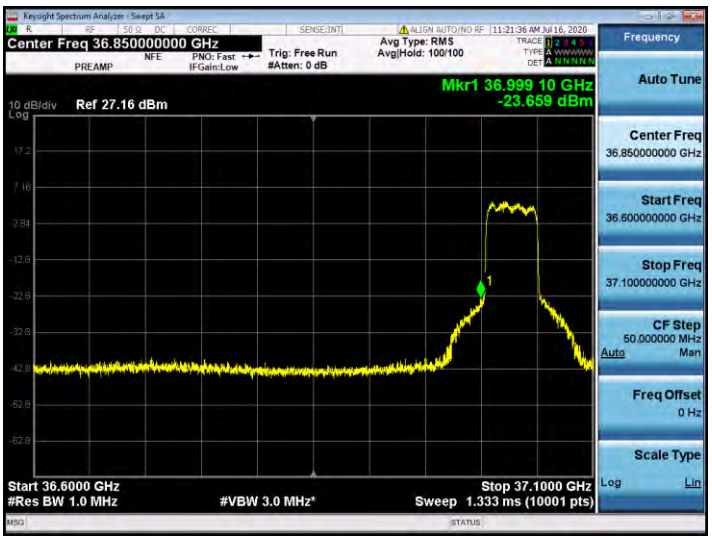
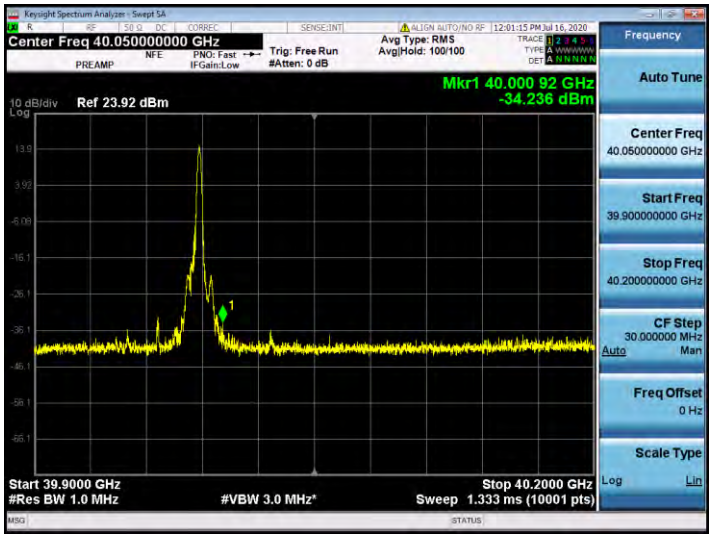
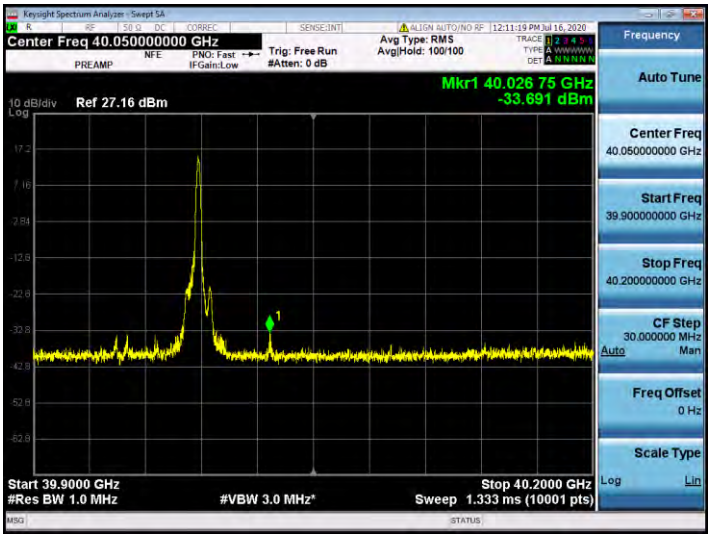
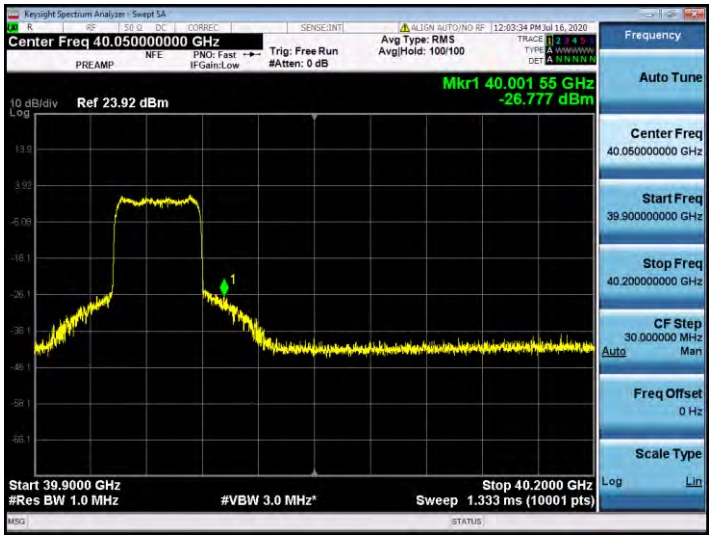






100 MHz, 2CC MIMO	
	

4. Antenna 1(L patch), n260

50 MHz, 1CC MIMO	
	
	

50 MHz, 1CC MIMO