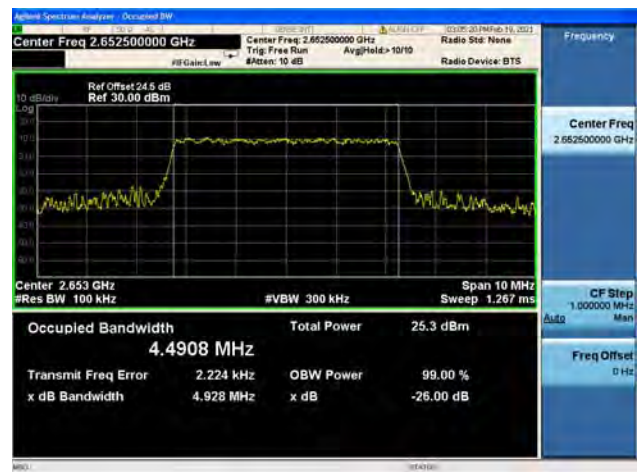




Band41 / 5MHz / High CH / QPSK



Band41 / 5MHz / High CH / 16QAM



Band41 / 5MHz / High CH / 64QAM



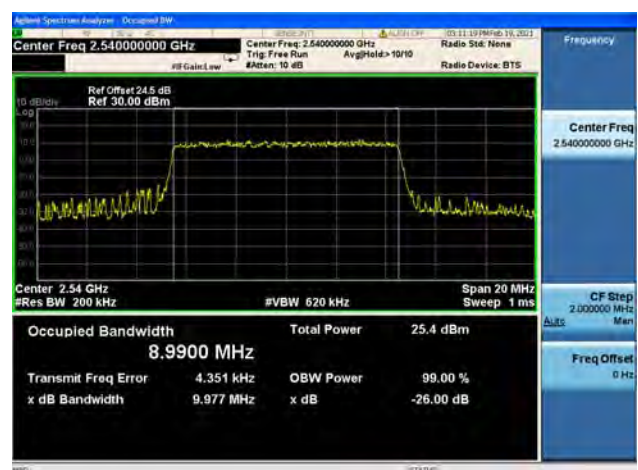
Band41 / 10MHz / Low CH / QPSK



Band41 / 10MHz / Low CH / 16QAM



Band41 / 10MHz / Low CH / 64QAM





Band41 / 10MHz / Mid CH / QPSK



Band41 / 10MHz / Mid CH / 16QAM



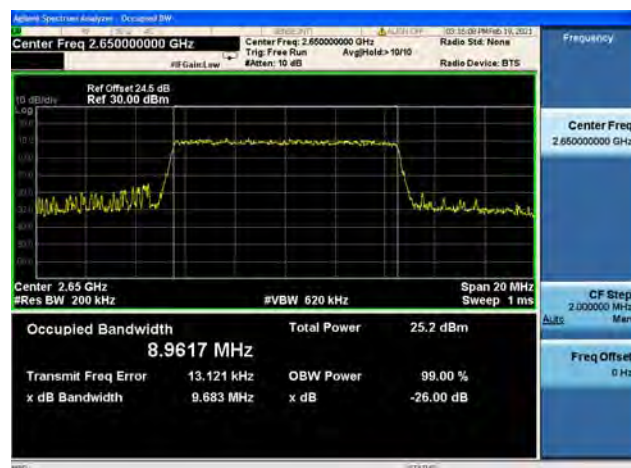
Band41 / 10MHz / Mid CH / 64QAM



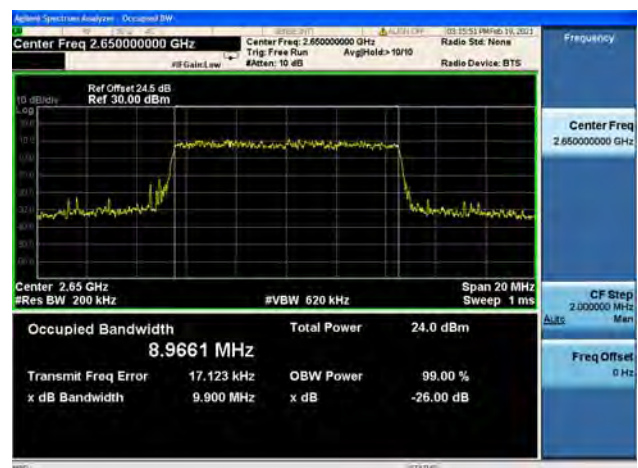
Band41 / 10MHz / High CH / QPSK



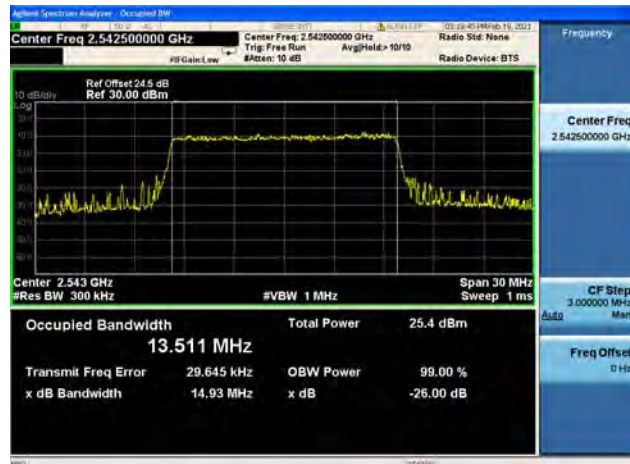
Band41 / 10MHz / High CH / 16QAM



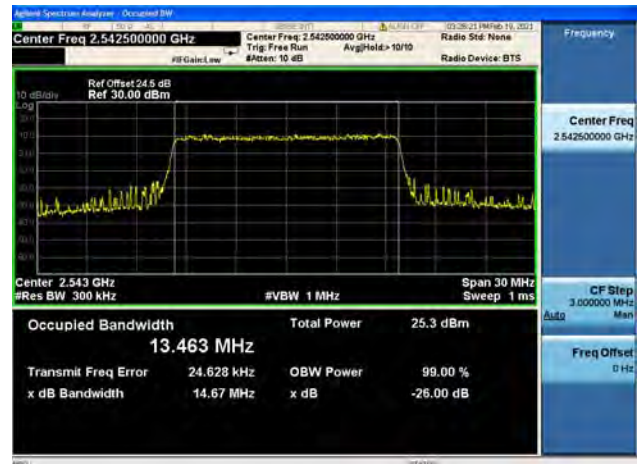
Band41 / 10MHz / High CH / 64QAM



Band41 / 15MHz / Low CH / QPSK



Band41 / 15MHz / Low CH / 16QAM



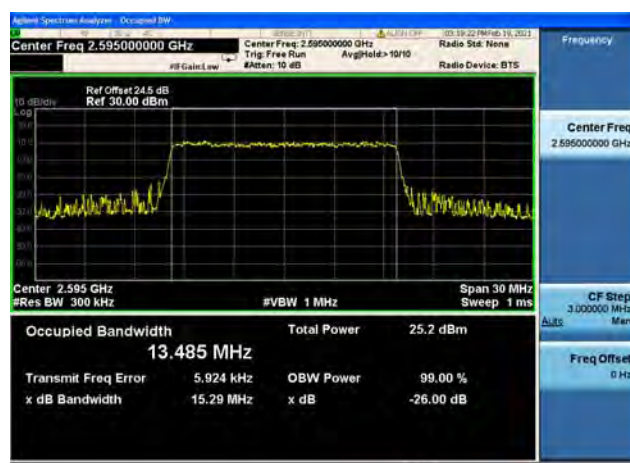
Band41 / 15MHz / Low CH / 64QAM



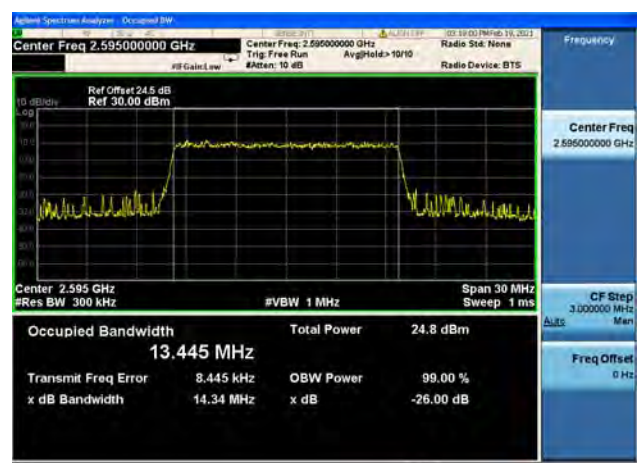
Band41 / 15MHz / Mid CH / QPSK



Band41 / 15MHz / Mid CH / 16QAM



Band41 / 15MHz / Mid CH / 64QAM



Band41 / 15MHz / High CH / QPSK



Band41 / 15MHz / High CH / 16QAM



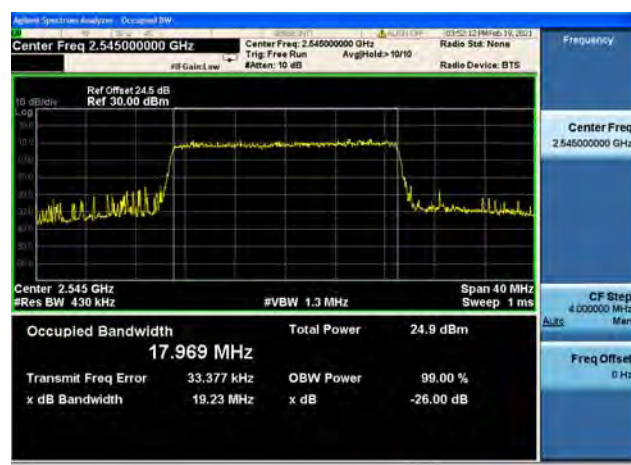
Band41 / 15MHz / High CH / 64QAM



Band41 / 20MHz / Low CH / QPSK



Band41 / 20MHz / Low CH / 16QAM

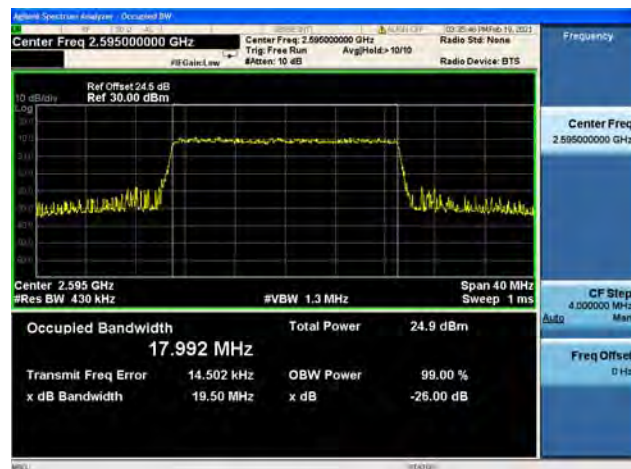


Band41 / 20MHz / Low CH / 64QAM





Band41 / 20MHz / Mid CH / QPSK



Band41 / 20MHz / Mid CH / 16QAM



Band41 / 20MHz / Mid CH / 64QAM



Band41 / 20MHz / High CH / QPSK



Band41 / 20MHz / High CH / 16QAM



Band41 / 20MHz / High CH / 64QAM



2.3. Frequency Stability

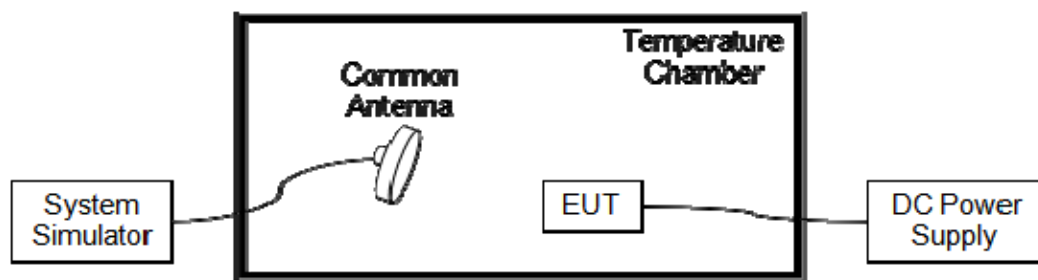
2.3.1. Requirement

According to FCC section 2.1055, 24.235, 27.54, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. According to FCC section 2.1055, the test conditions are:

- (a) The temperature is varied from -30°C to $+50^{\circ}\text{C}$ at intervals of not more than 10°C .
- (b) For hand carried battery powered equipment, the primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacture. The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

Note: The operating temperature of EUT is from 0°C to 35°C , which are specified by the applicant.

2.3.2. Test Description



The EUT which is powered by the DC Power Supply directly, is located in the Temperature Chamber. The EUT is commanded by the System Simulator (SS) to operate at the maximum output power. A call is established between the EUT and the SS via a Common Antenna.

2.3.3. Test Procedure

KDB 971168 D01v03 Section 9.0 and ANSI/TIA-603-E-2016.

**2.3.4. Test Result**

The nominal, highest and lowest extreme voltages are separately 3.87V, 4.45V and 3.45, which are specified by the applicant; the normal temperature here used is 20°C.

LTE Band 5, QPSK, Channel 20525, Frequency 836.5MHz Limit=±2.5ppm					
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.87	+20(Ref)	21	0.025	PASS
100		0	19	0.023	
100		+10	11	0.013	
100		+20	14	0.017	
100		+30	-24	-0.029	
100		+35	-19	-0.023	
115	4.45	+20	17	0.020	
85	3.45	+20	21	0.025	

LTE Band 7, QPSK, Channel 21100, Frequency 2535MHz Limit= Within Authorized Band					
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.87	+20 (Ref)	27	0.011	PASS
100		0	-14	-0.006	
100		+10	28	0.011	
100		+20	-26	-0.010	
100		+30	50	0.020	
100		+35	-17	-0.007	
115	4.45	+20	47	0.019	
85	3.45	+20	15	0.006	



LTE Band 38, QPSK, Channel 38000, Frequency 2595MHz Limit =Within Authorized Band					
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.87	+20 (Ref)	-24	-0.009	PASS
100		0	-28	-0.011	
100		+10	-29	-0.011	
100		+20	33	0.013	
100		+30	16	0.006	
100		+35	-24	-0.009	
115	4.45	+20	-17	-0.007	
85	3.45	+20	20	0.008	

LTE Band 40, Block A, QPSK, Channel 38750, Frequency 2310MHz Limit =Within Authorized Band					
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.87	+20 (Ref)	21	0.009	PASS
100		0	-12	-0.005	
100		+10	16	0.007	
100		+20	33	0.014	
100		+30	-26	-0.011	
100		+35	13	0.006	
115	4.45	+20	-30	-0.013	
85	3.45	+20	27	0.012	



LTE Band 40 Block B, QPSK, Channel 39200, Frequency 2355MHz Limit =Within Authorized Band					
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.87	+20 (Ref)	33	0.014	PASS
100		0	22	0.009	
100		+10	20	0.008	
100		+20	-26	-0.011	
100		+30	12	0.005	
100		+35	-22	-0.009	
115	4.45	+20	32	0.014	
85	3.45	+20	22	0.009	

LTE Band 41, QPSK, Channel 40640, Frequency 2595MHz Limit=±2.5ppm					
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.87	+20 (Ref)	33	0.014	PASS
100		0	22	0.009	
100		+10	20	0.008	
100		+20	-26	-0.011	
100		+30	12	0.005	
100		+35	-22	-0.009	
115	4.45	+20	32	0.014	
85	3.45	+20	22	0.009	

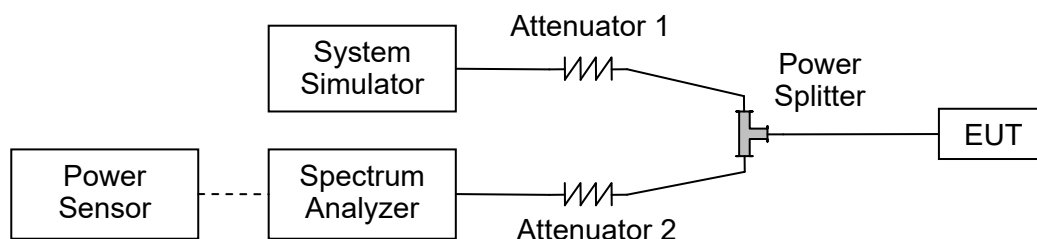
2.4. Peak to Average Ratio

2.4.1. Requirement

According to FCC section 24.232(d) and 27.50(d), the peak to average ratio (PAR) of the transmission may not exceed 13dB.

2.4.2. Test Description

Test Set:



The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ω; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power. A call is established between the EUT and the SS.

2.4.3. Test Procedure

KDB 971168 D01v03 Section 5.7 and ANSI/TIA-603-E-2016.

2.4.4. Test Result

This test case does not apply this kind of EUT.

2.5. Conducted Spurious Emissions

2.5.1. Requirement

According to FCC section 2.1051, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. This calculated to be -13dBm.

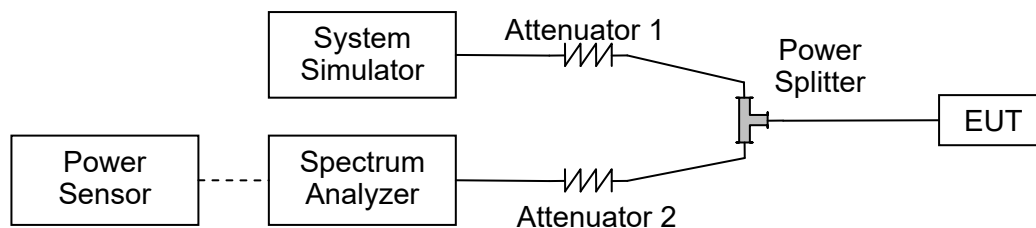
Additional requirement for LTE Band 7, 38, 41:

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $55 + 10 \log(P)$ dB. This calculated to be -25dBm.

Additional requirement for LTE Band 40:

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $70 + 10 \log(P)$ dB. This calculated to be -40dBm.

2.5.2. Test Description



The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power. A call is established between the EUT and the SS.

2.5.3. Test Procedure

KDB 971168 D01v03 Section 6.0 and ANSI/TIA-603-E-2016.



2.5.4. Test Result

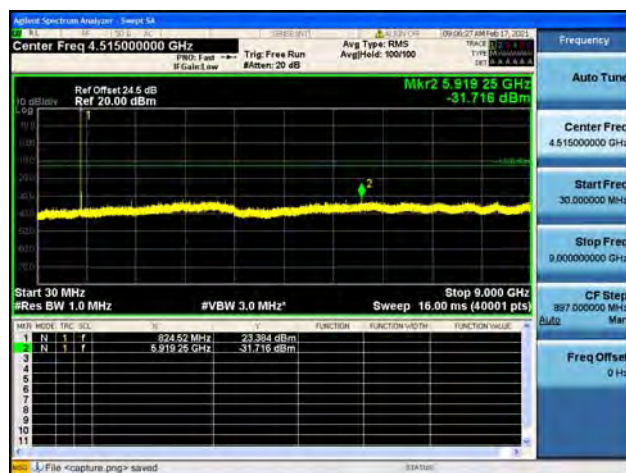
Band5 / 1.4MHz / Low CH / QPSK



Band5 / 1.4MHz / Low CH / 16QAM



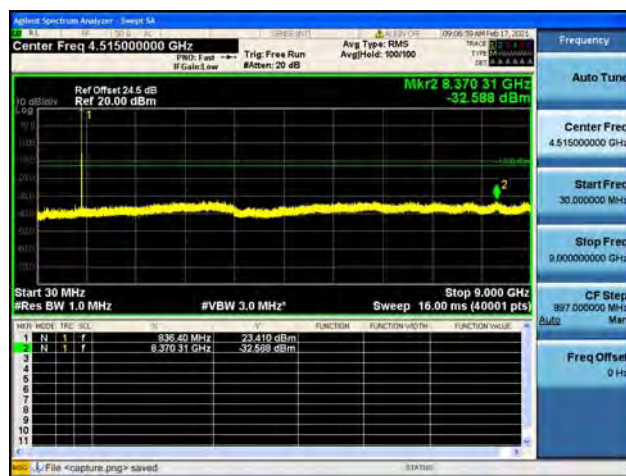
Band5 / 1.4MHz / Low CH / 64QAM



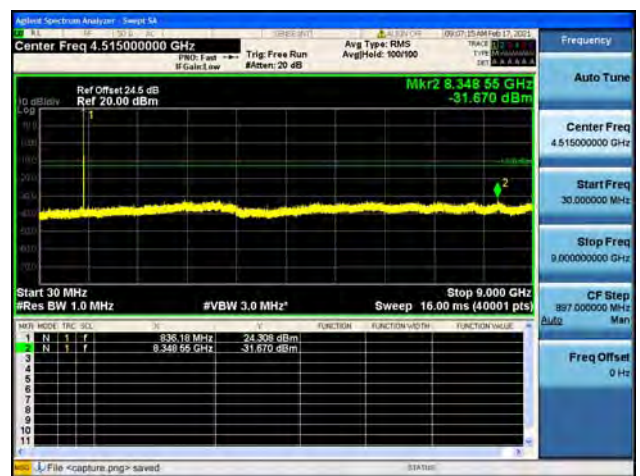
Band5 / 1.4MHz / Mid CH / QPSK



Band5 / 1.4MHz / Mid CH / 16QAM

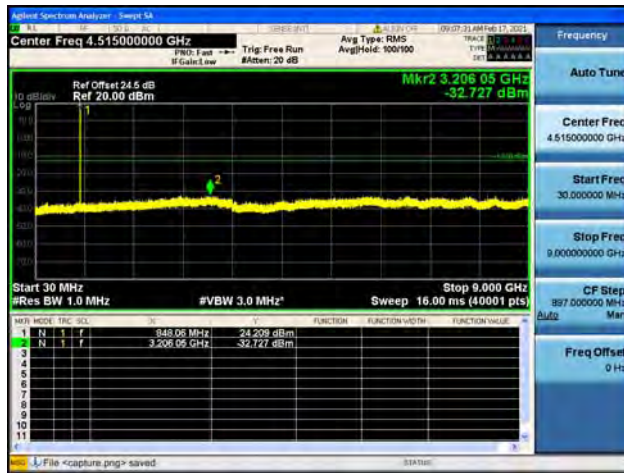


Band5 / 1.4MHz / Mid CH / 64QAM





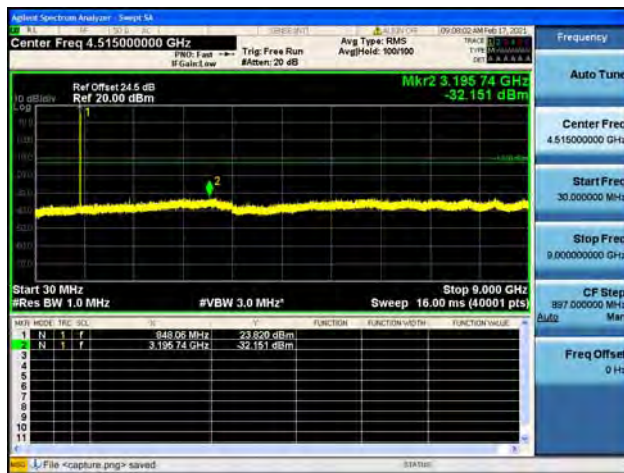
Band5 / 1.4MHz / High CH / QPSK



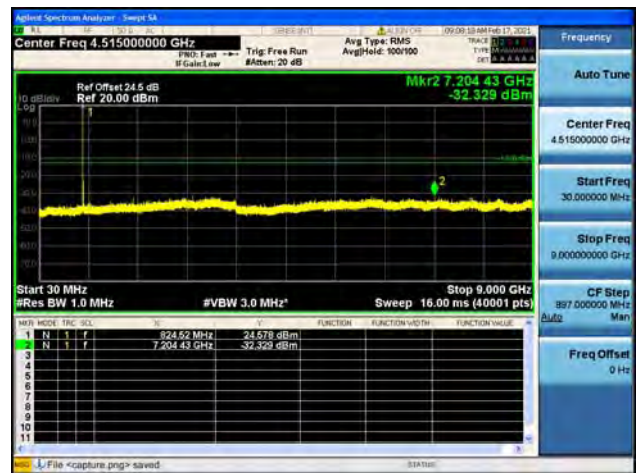
Band5 / 1.4MHz / High CH / 16QAM



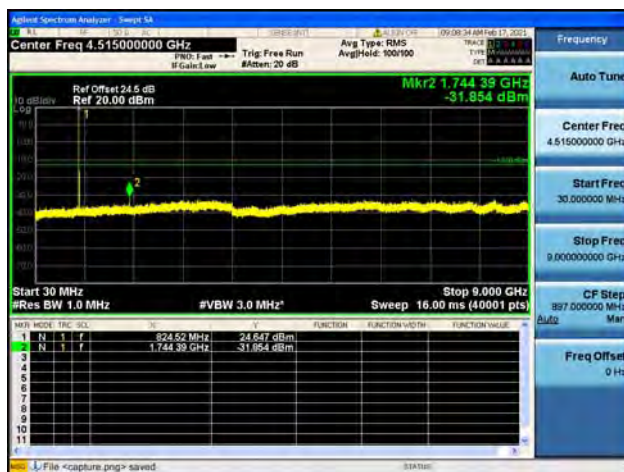
Band5 / 1.4MHz / High CH / 64QAM



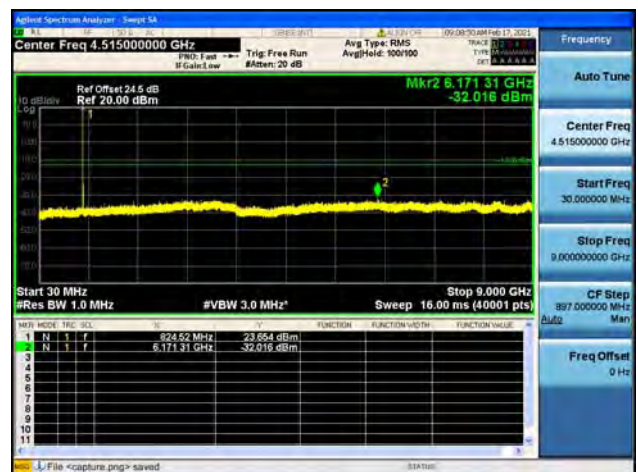
Band5 / 3MHz / Low CH / QPSK



Band5 / 3MHz / Low CH / 16QAM

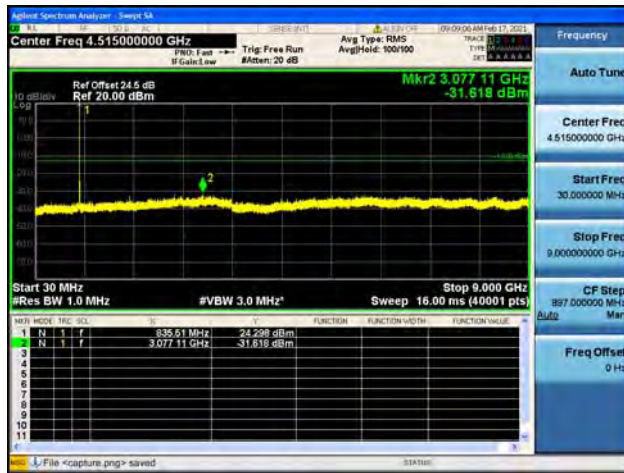


Band5 / 3MHz / Low CH / 64QAM

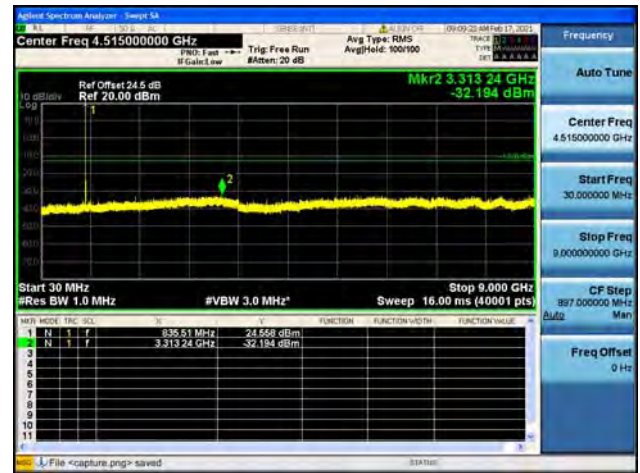




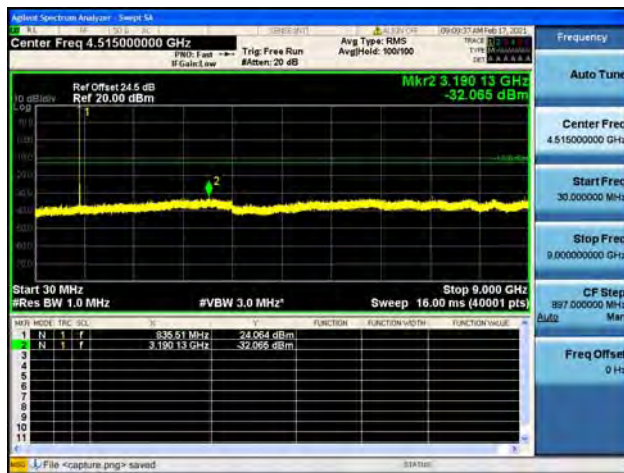
Band5 / 3MHz / Mid CH / QPSK



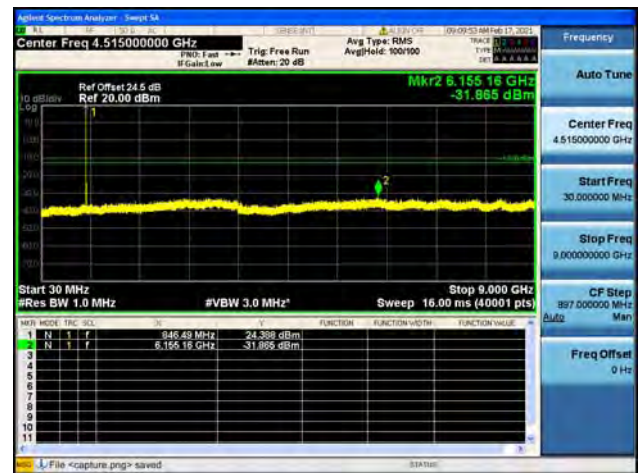
Band5 / 3MHz / Mid CH / 16QAM



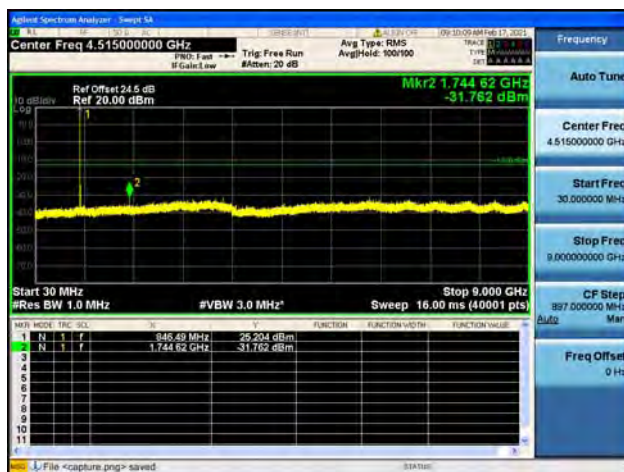
Band5 / 3MHz / Mid CH / 64QAM



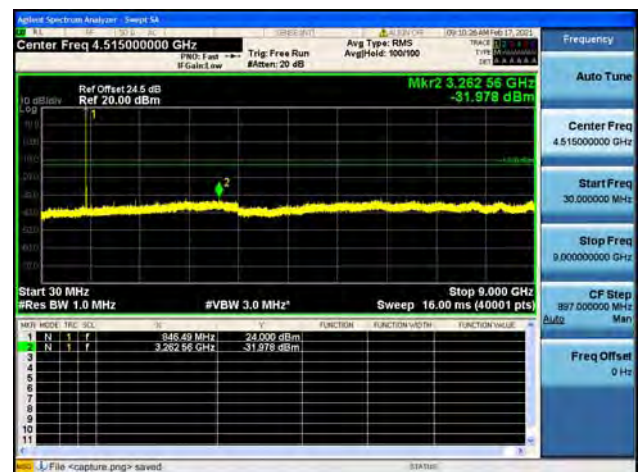
Band5 / 3MHz / High CH / QPSK



Band5 / 3MHz / High CH / 16QAM



Band5 / 3MHz / High CH / 64QAM





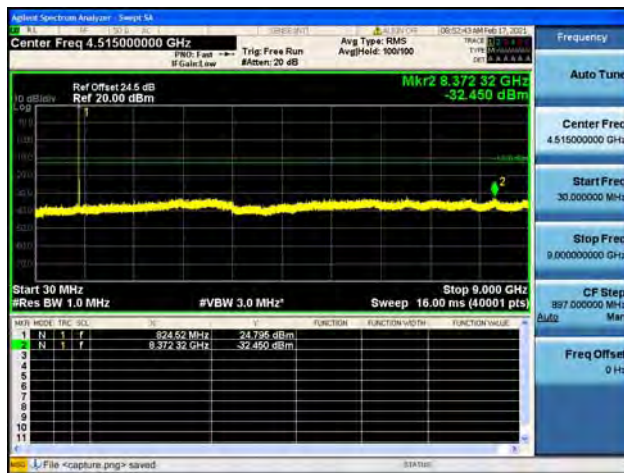
Band5 / 5MHz / Low CH / QPSK



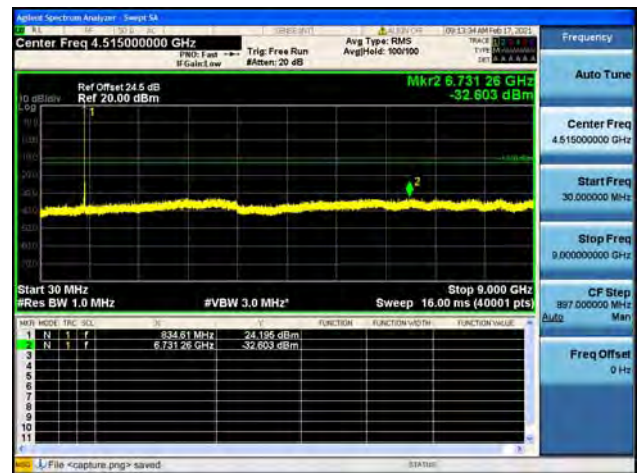
Band5 / 5MHz / Low CH / 16QAM



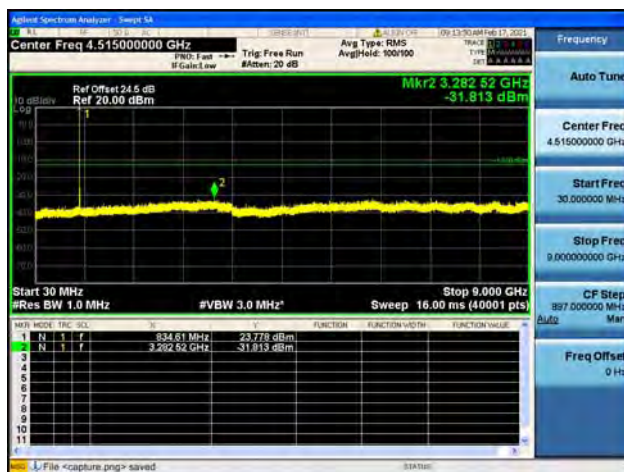
Band5 / 5MHz / Low CH / 64QAM



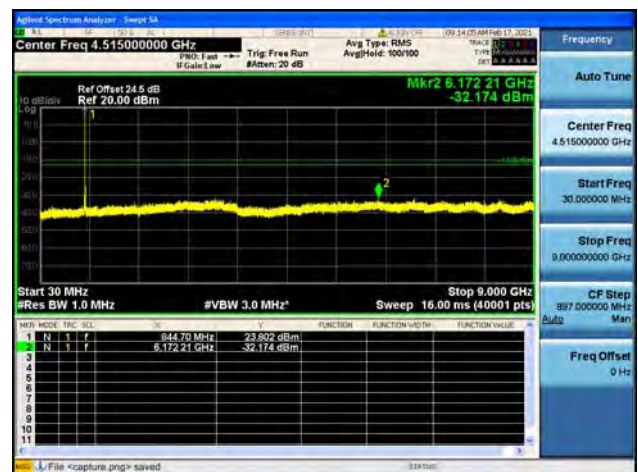
Band5 / 5MHz / Mid CH / 16QAM



Band5 / 5MHz / Mid CH / 64QAM



Band5 / 5MHz / High CH / QPSK





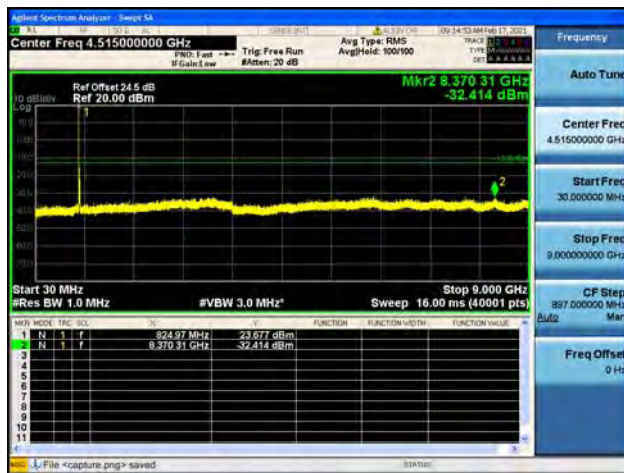
Band5 / 5MHz / High CH / 16QAM



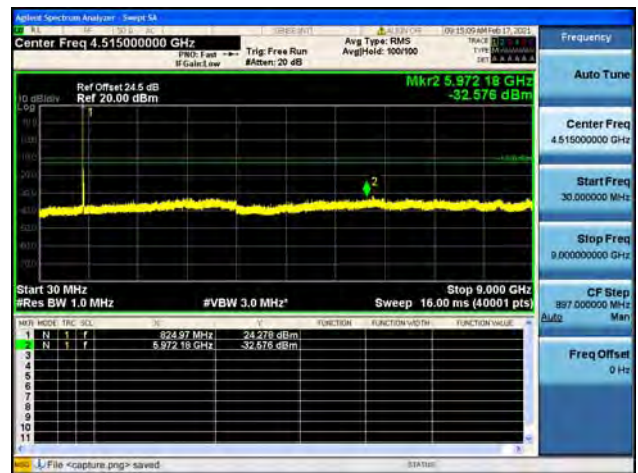
Band5 / 5MHz / High CH / 64QAM



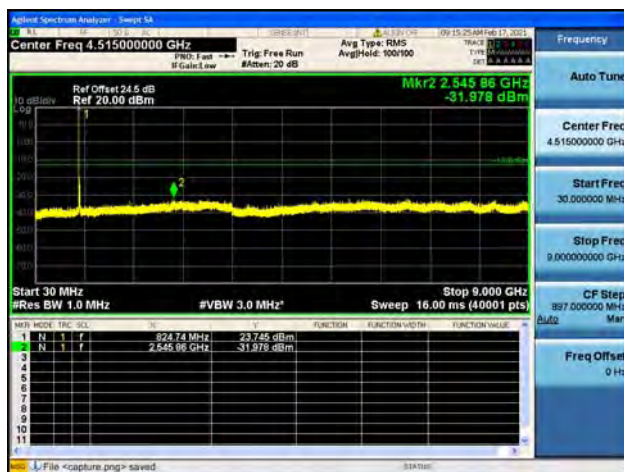
Band5 / 10MHz / Low CH / QPSK



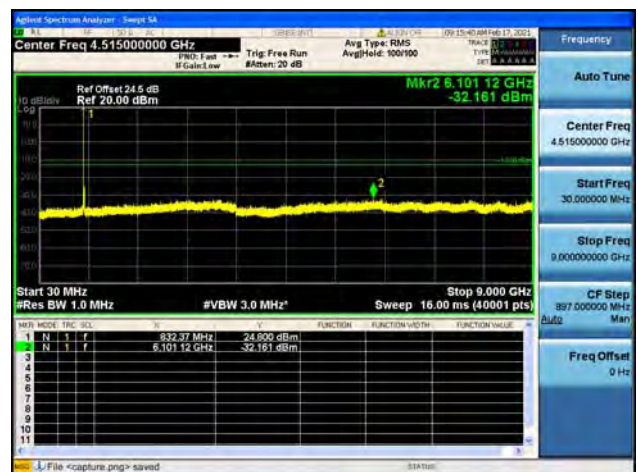
Band5 / 10MHz / Low CH / 16QAM



Band5 / 10MHz / Low CH / 64QAM

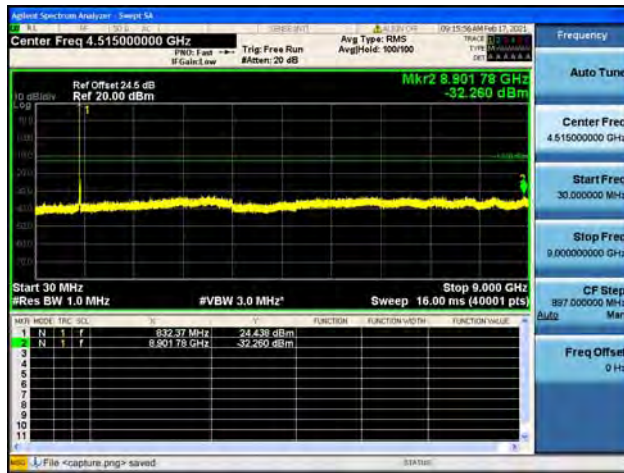


Band5 / 10MHz / Mid CH / QPSK

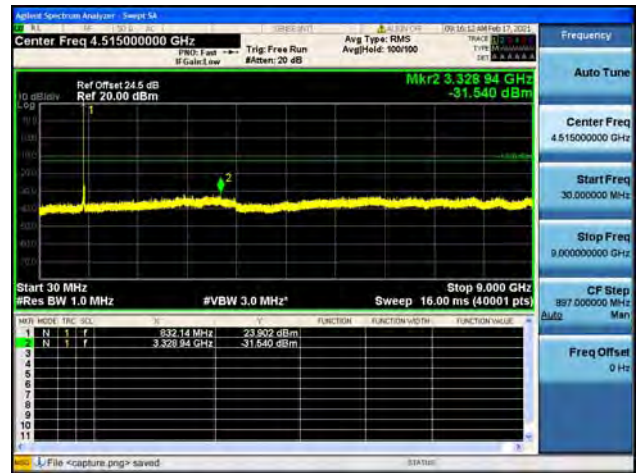




Band5 / 10MHz / Mid CH / 16QAM



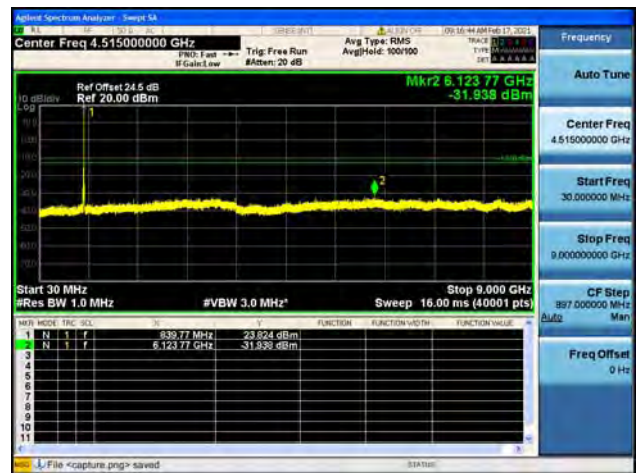
Band5 / 10MHz / Mid CH / 64QAM



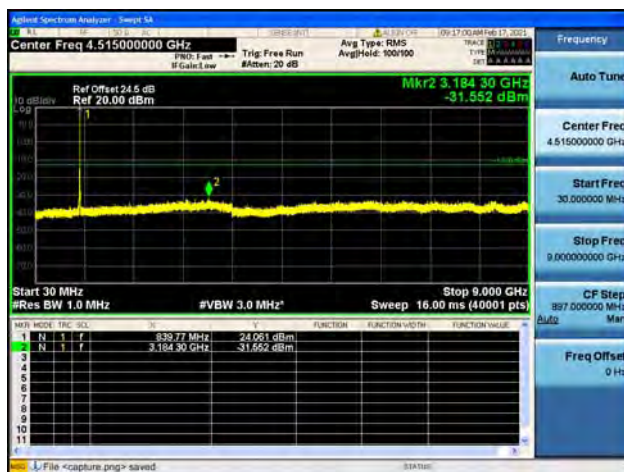
Band5 / 10MHz / High CH / QPSK



Band5 / 10MHz / High CH / 16QAM



Band5 / 10MHz / High CH / 64QAM

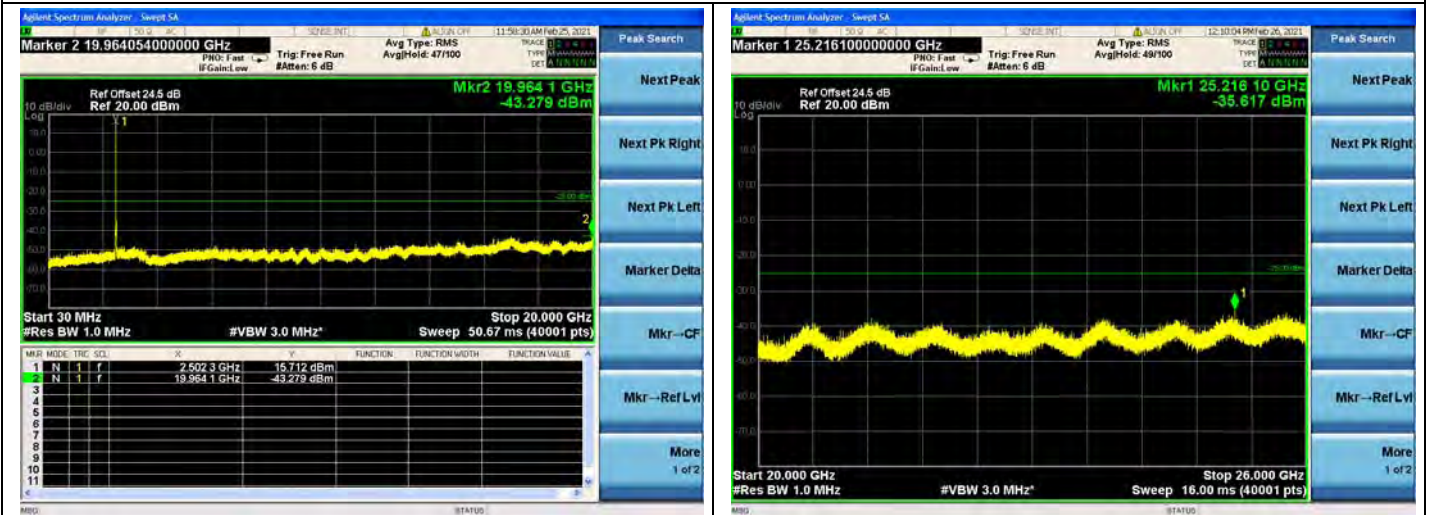




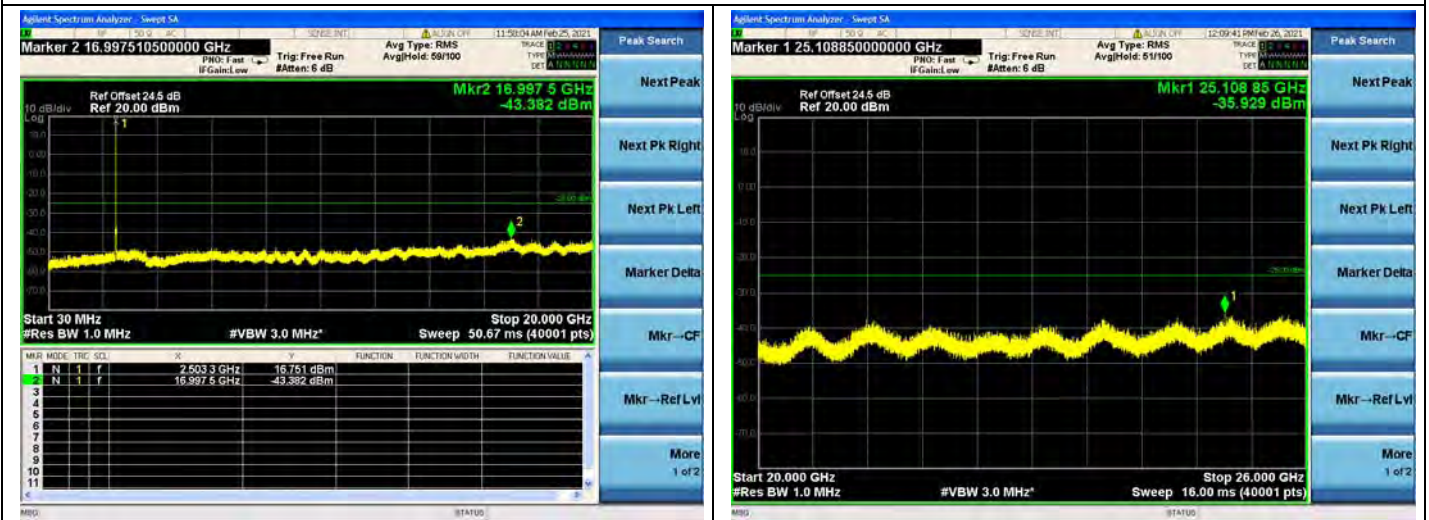
Band 7 / 5MHz / Low CH / QPSK



Band 7 / 5MHz / Low CH / 16QAM

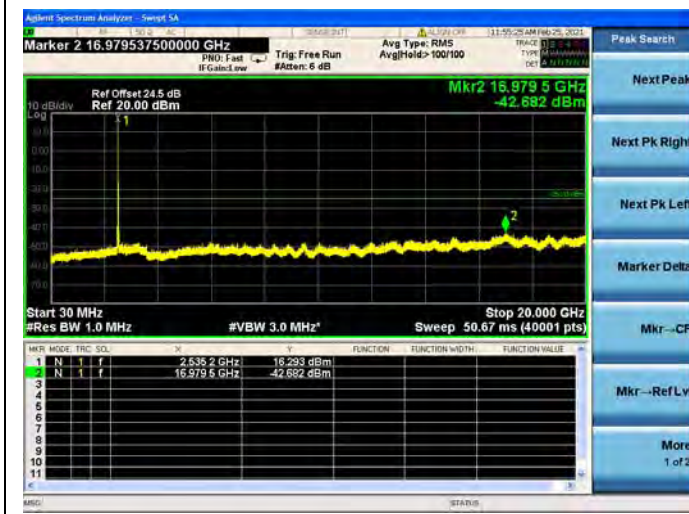


Band 7 / 5MHz / Low CH / 64QAM

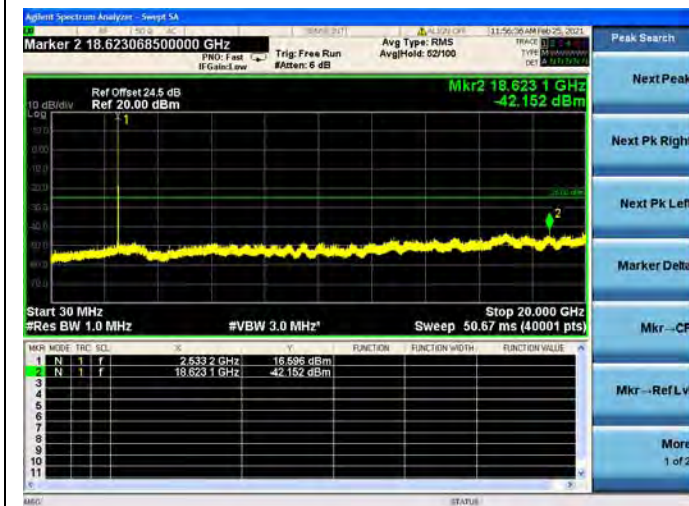




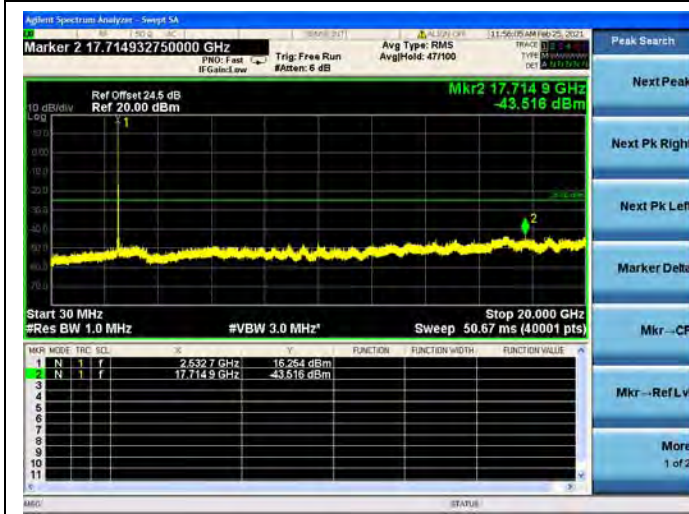
Band 7 / 5MHz / Mid CH / QPSK



Band 7 / 5MHz / Mid CH / 16QAM

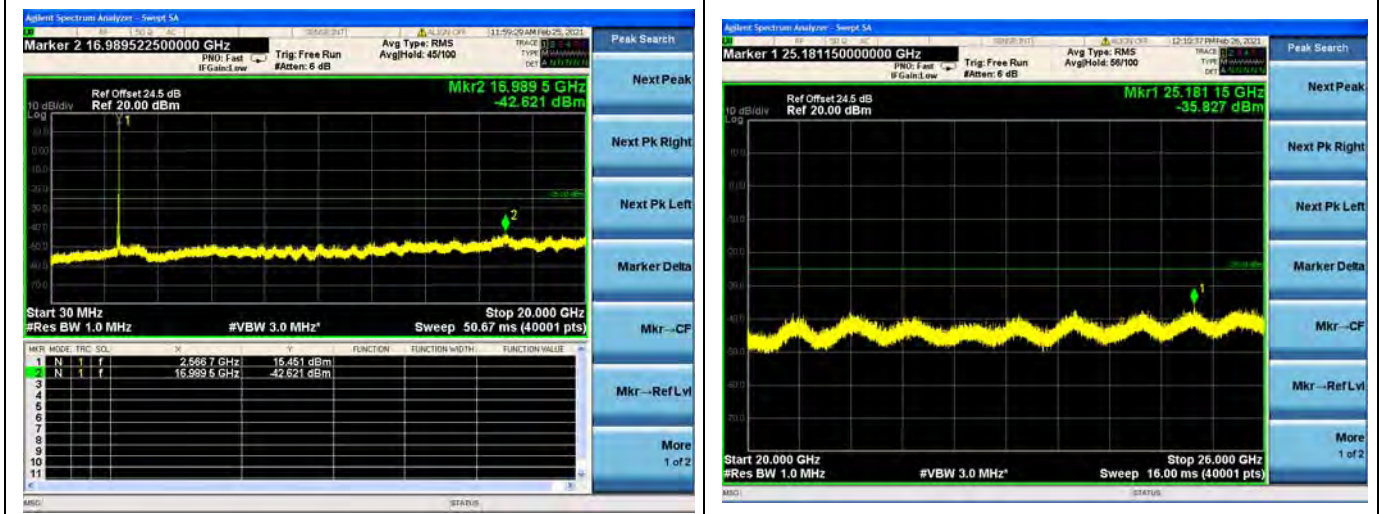


Band 7 / 5MHz / Mid CH / 64QAM

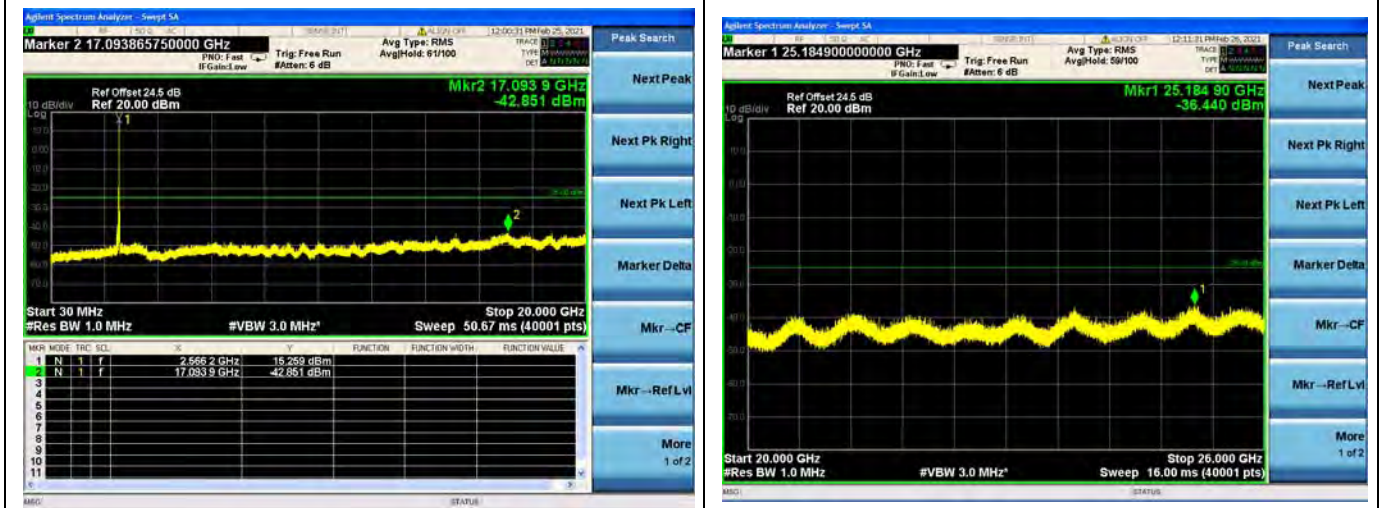




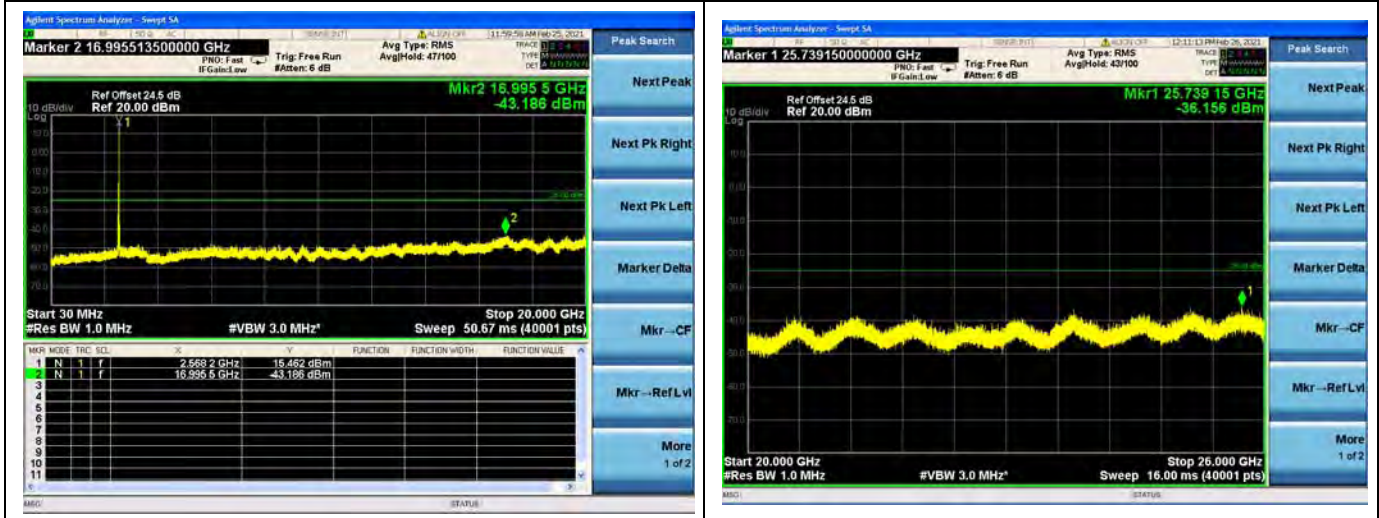
Band 7 / 5MHz / High CH / QPSK



Band 7 / 5MHz / High CH / 16QAM

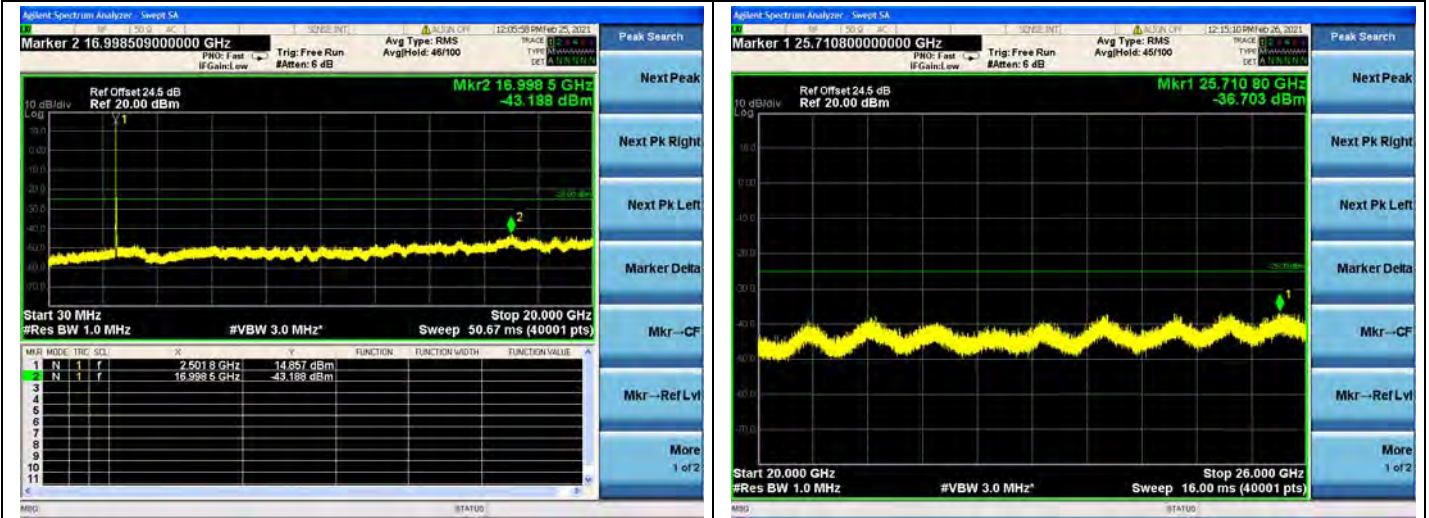


Band 7 / 5MHz / High CH / 64QAM

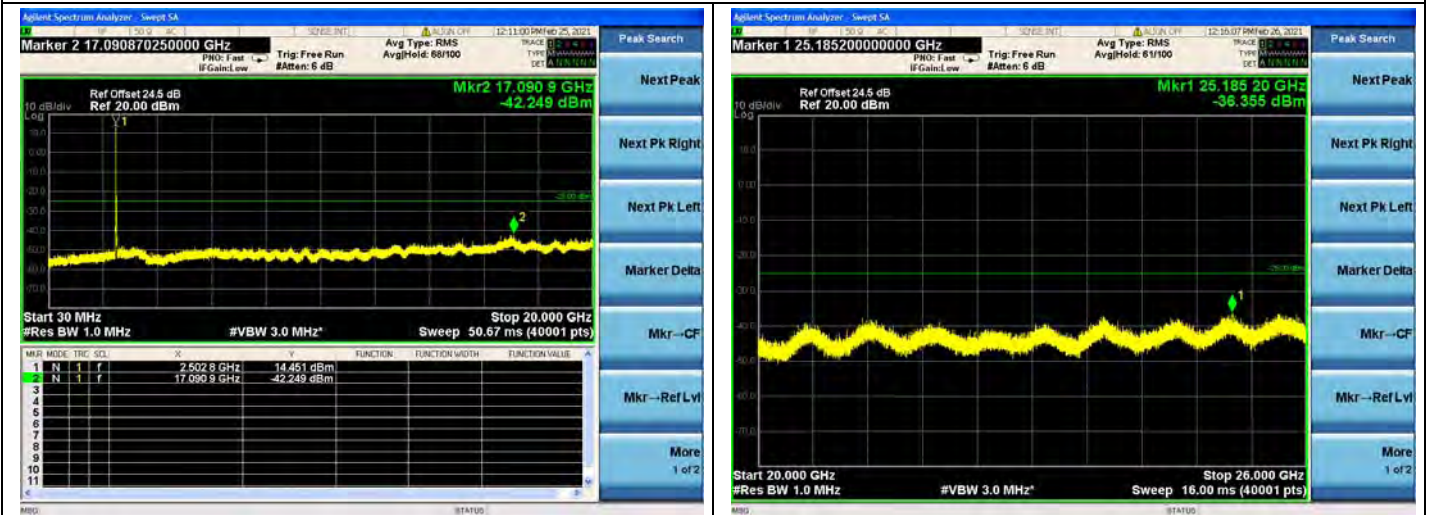




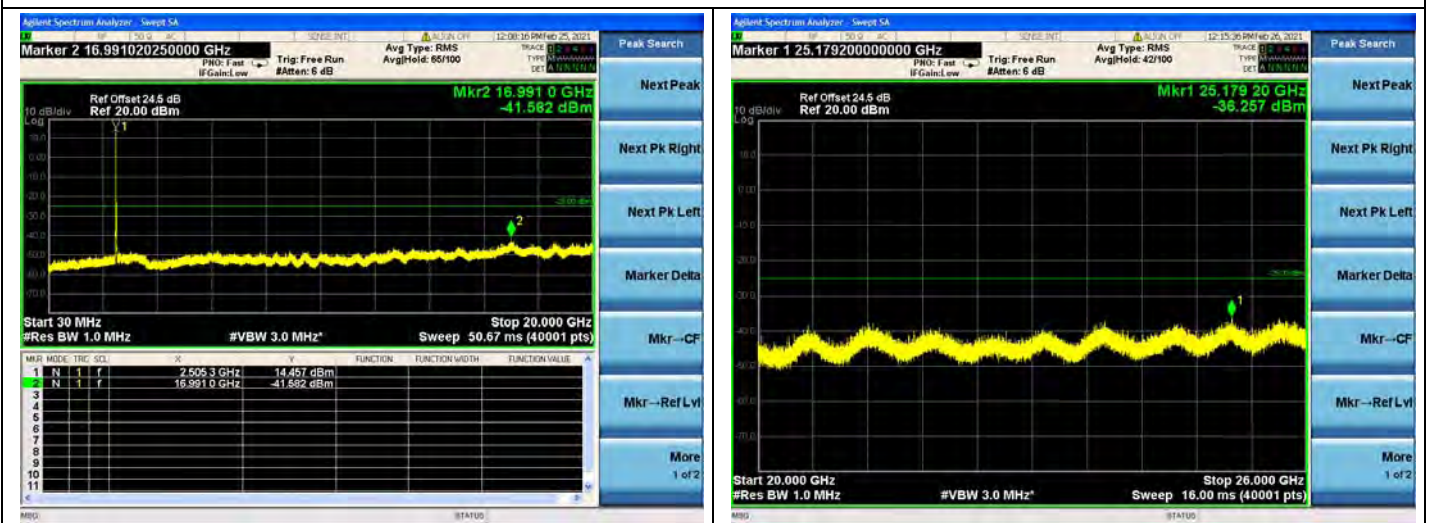
Band 7 / 10MHz / Low CH / QPSK



Band 7 / 10MHz / Low CH / 16QAM

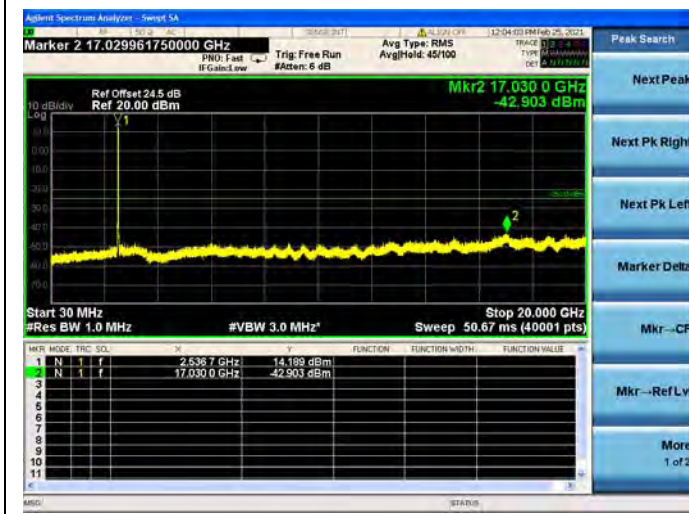


Band 7 / 10MHz / Low CH / 64QAM

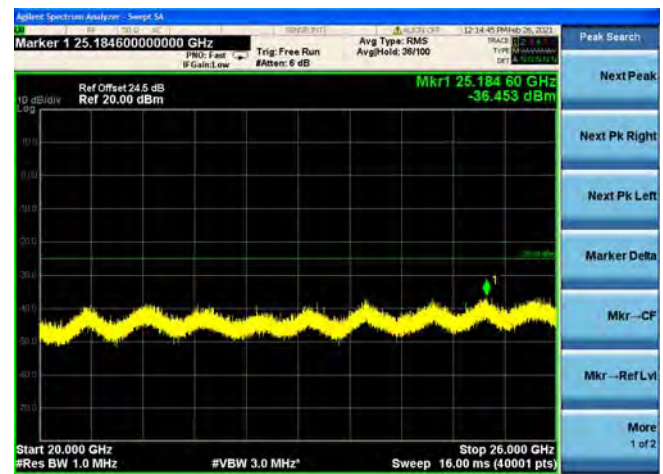
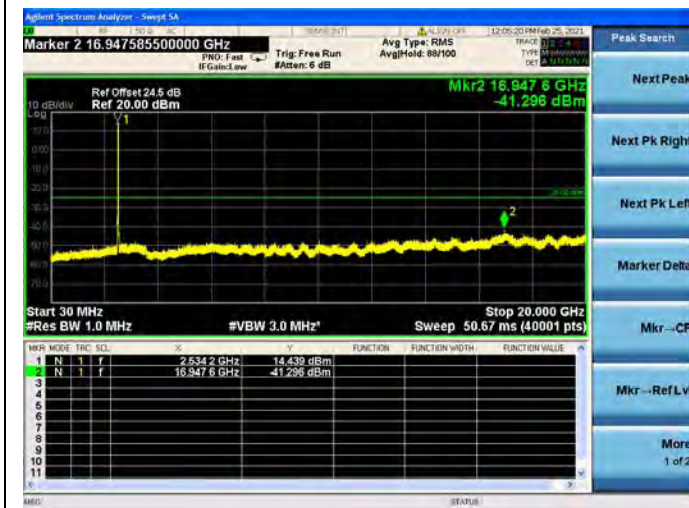




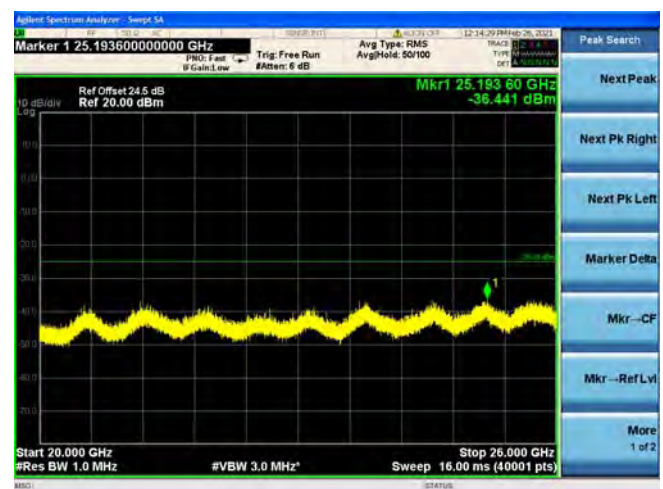
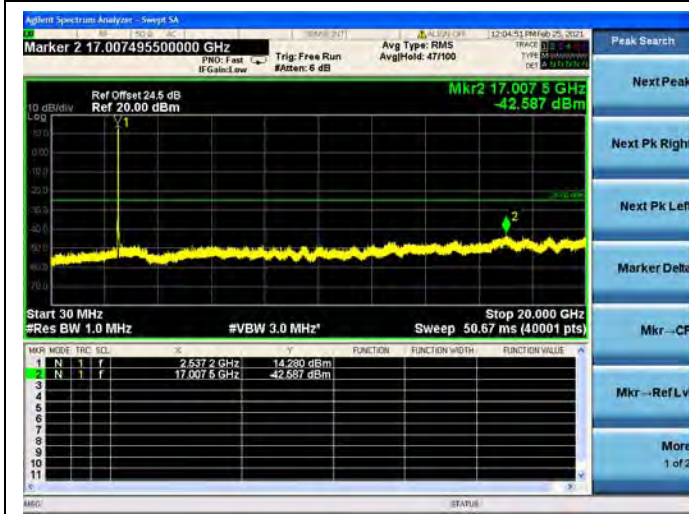
Band 7 / 10MHz / Mid CH / QPSK



Band 7 / 10MHz / Mid CH / 16QAM

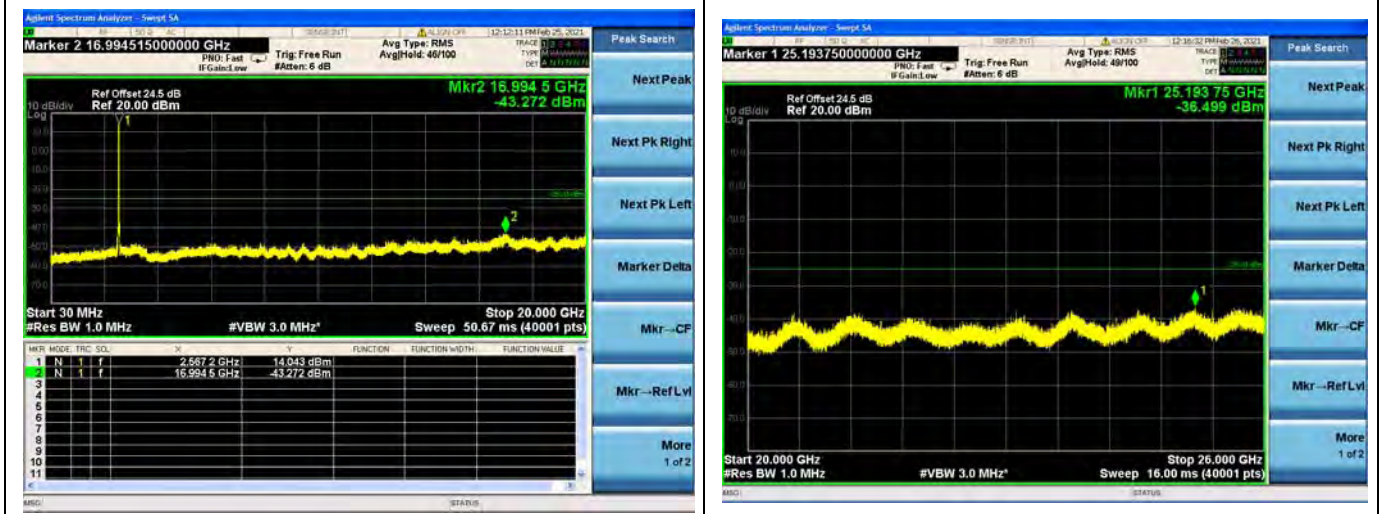


Band 7 / 10MHz / Mid CH / 64QAM

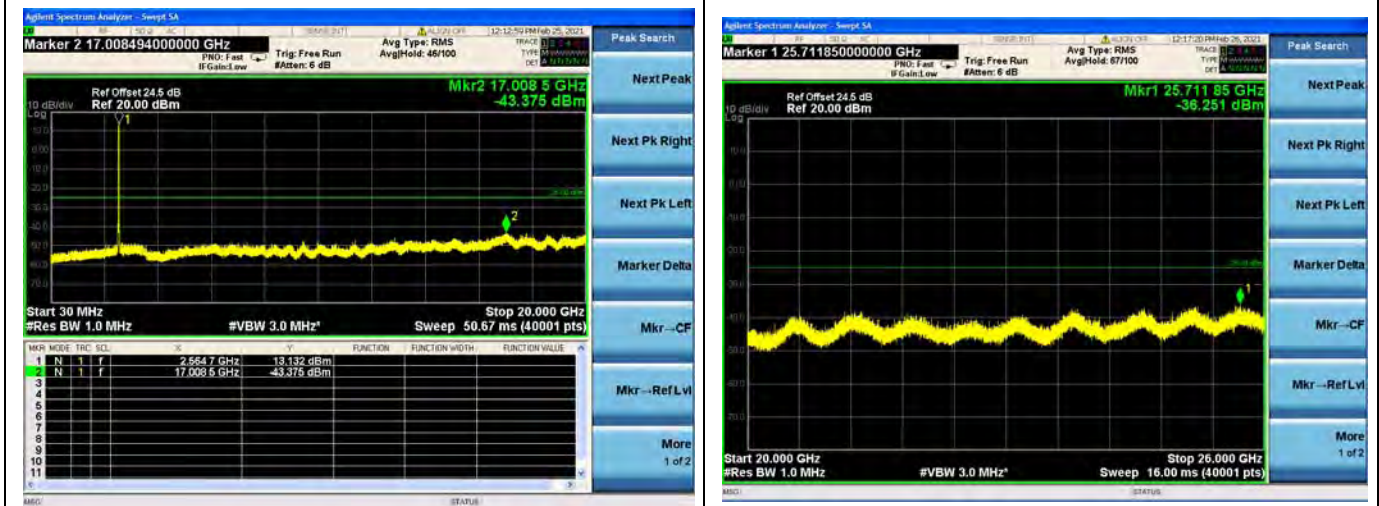




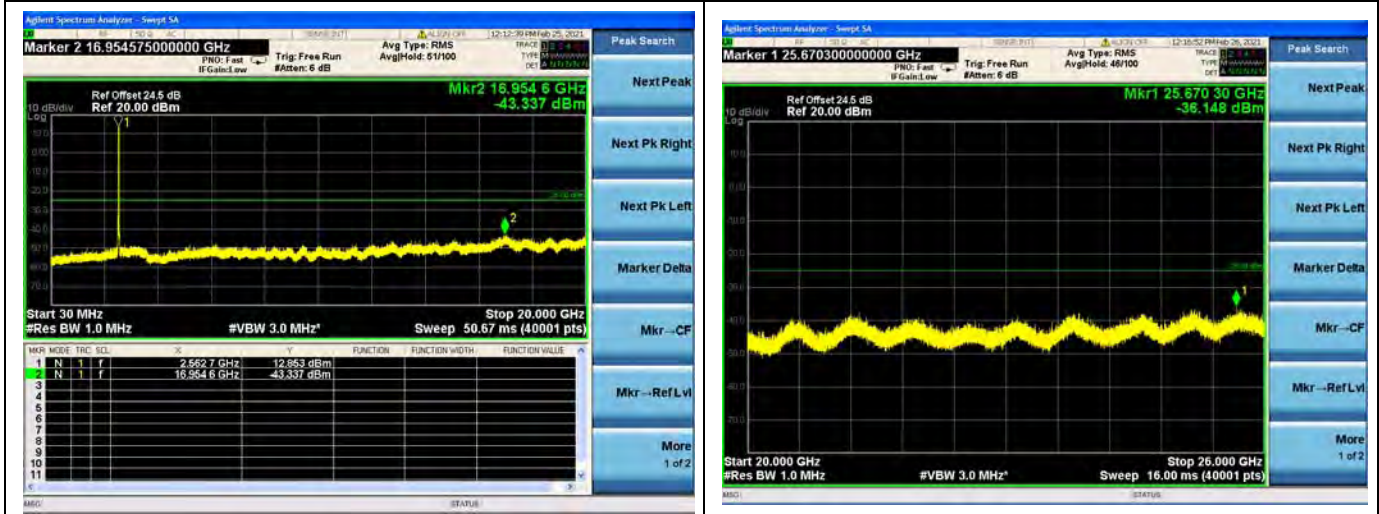
Band 7 / 10MHz / High CH / QPSK



Band 7 / 10MHz / High CH / 16QAM

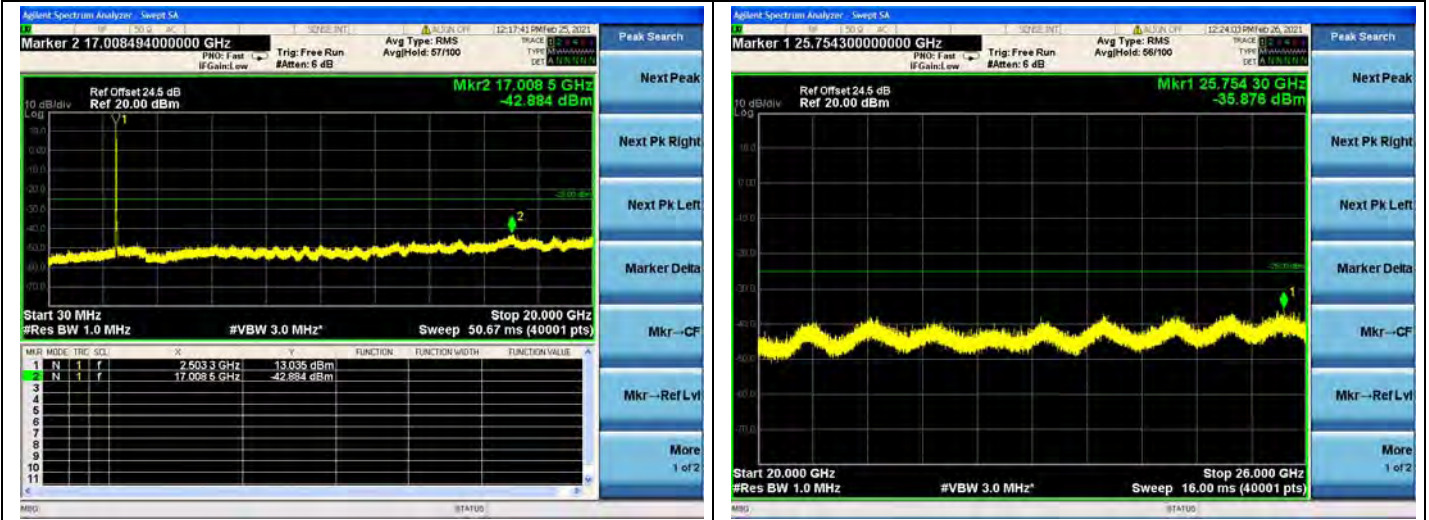


Band 7 / 10MHz / High CH / 64QAM

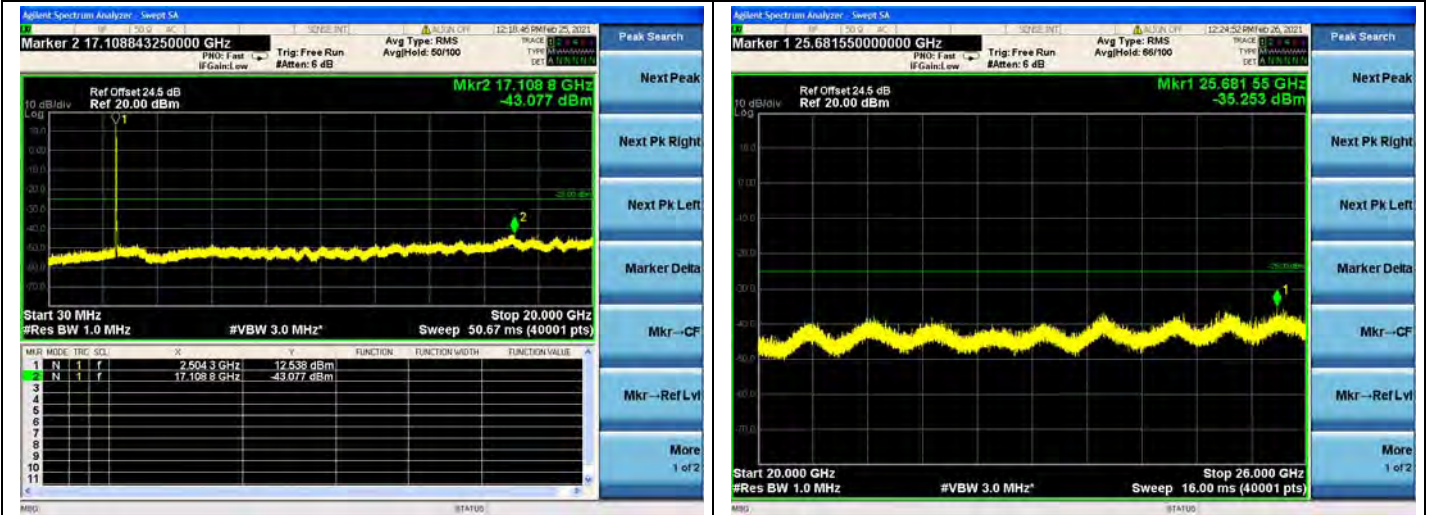




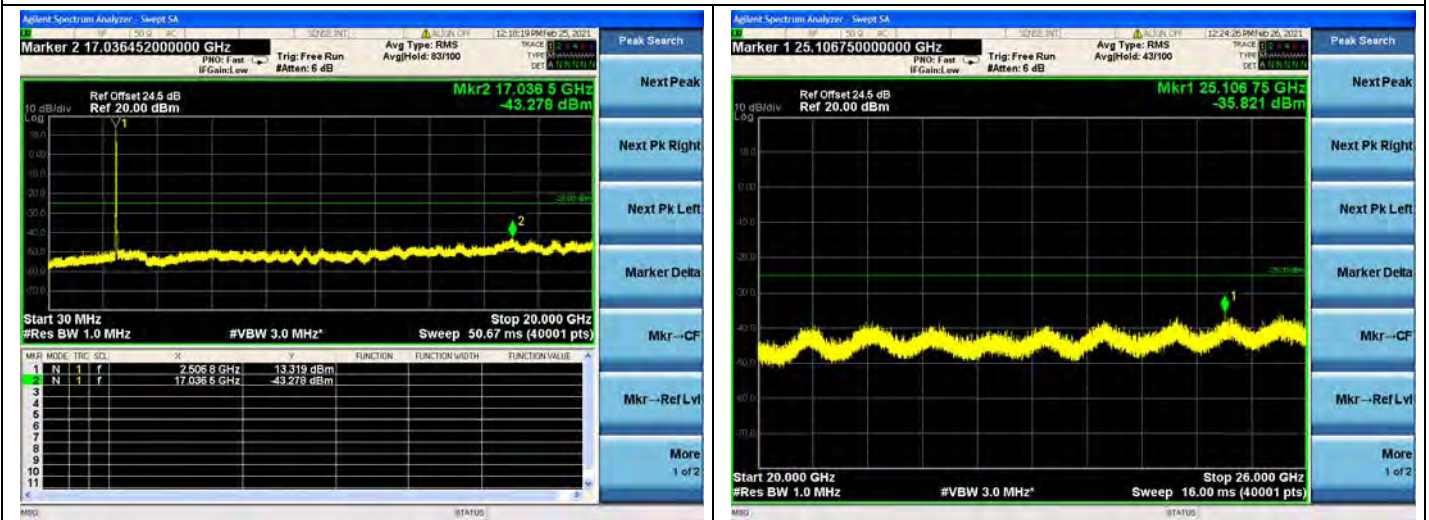
Band 7 / 15MHz / Low CH / QPSK



Band 7 / 15MHz / Low CH / 16QAM

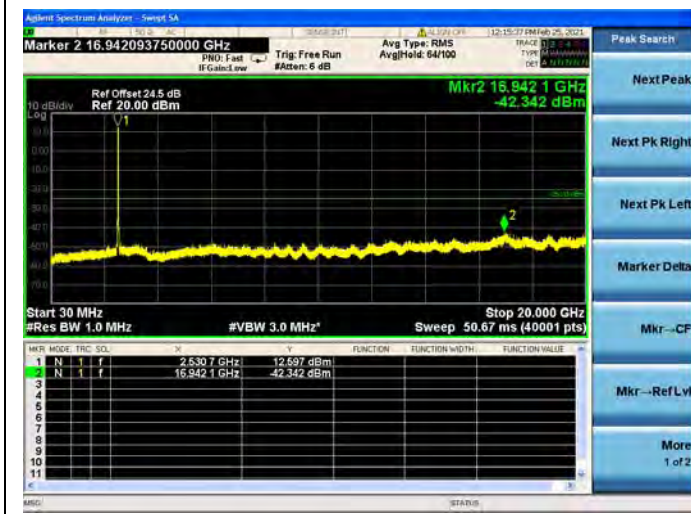


Band 7 / 15MHz / Low CH / 64QAM

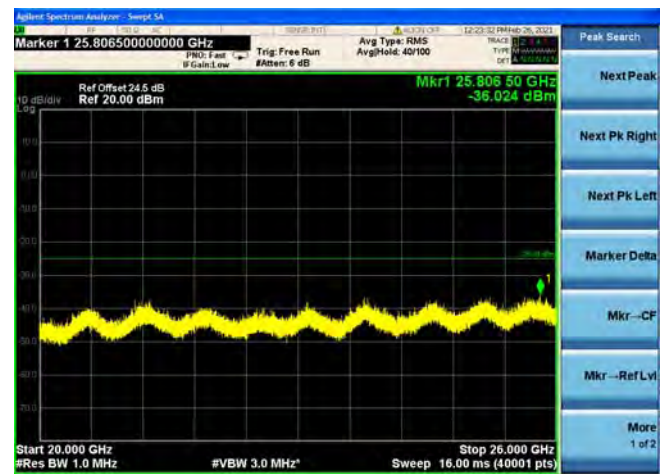
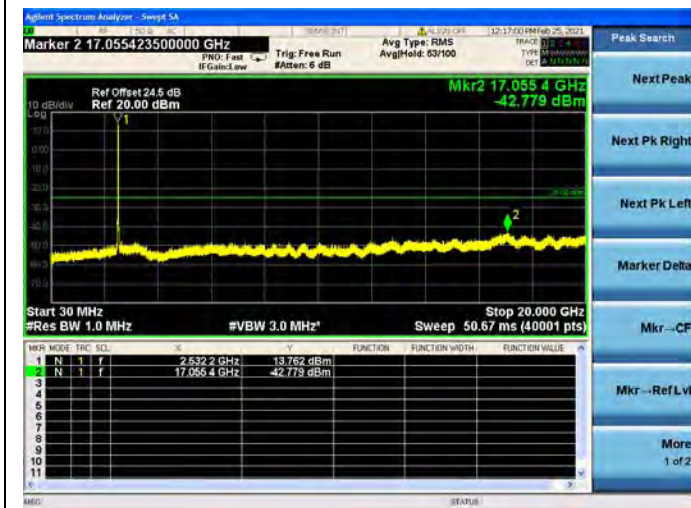




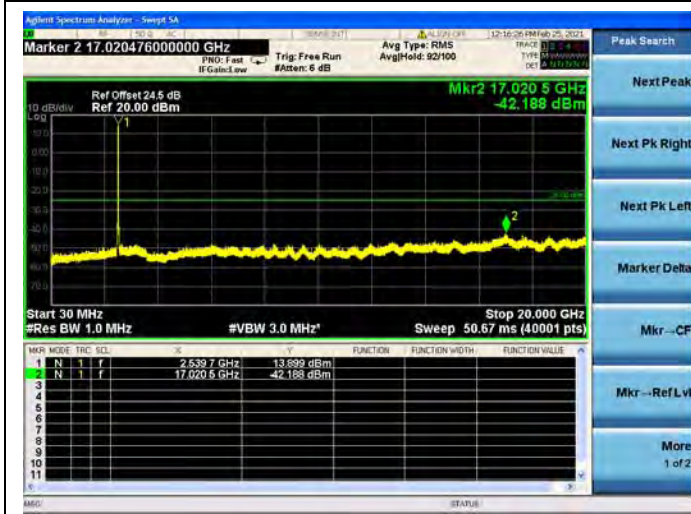
Band 7 / 15MHz / Mid CH / QPSK



Band 7 / 15MHz / Mid CH / 16QAM

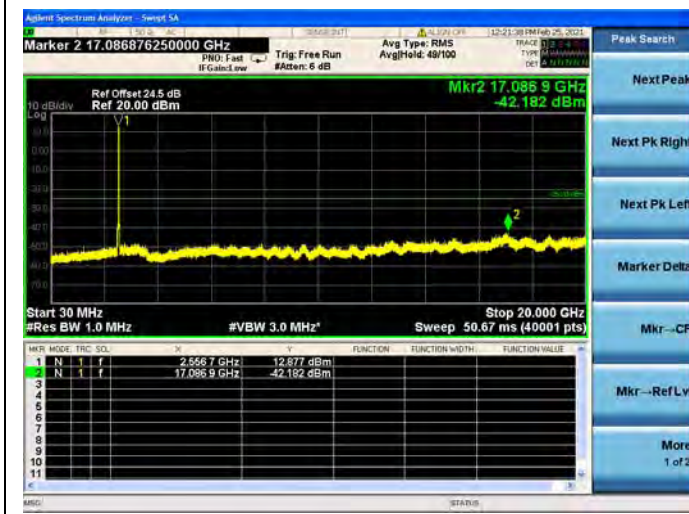


Band 7 / 15MHz / Mid CH / 64QAM

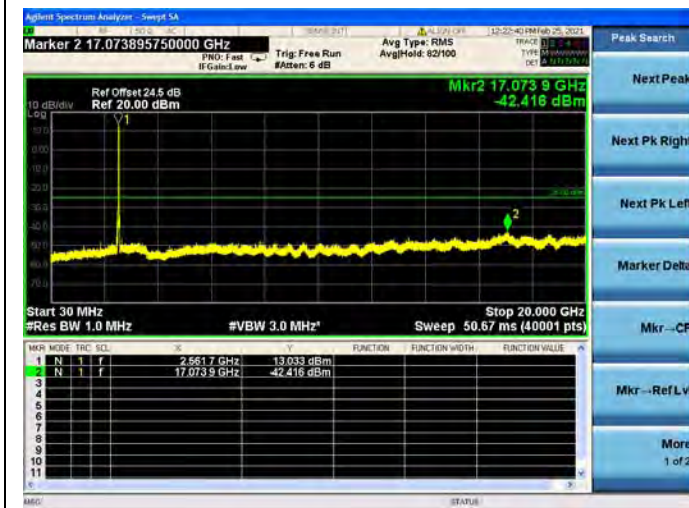




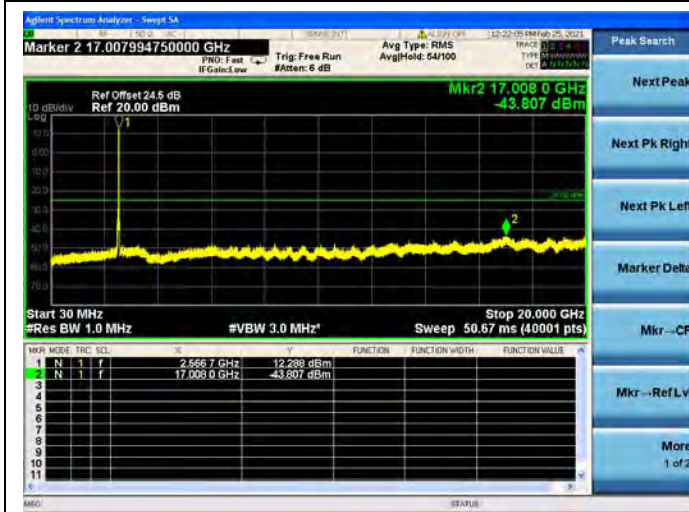
Band 7 / 15MHz / High CH / QPSK



Band 7 / 15MHz / High CH / 16QAM



Band 7 / 15MHz / High CH / 64QAM





The figure displays two side-by-side screenshots of a Spectrum Analyzer interface, showing signal peaks and a table of peak data.

Left Screenshot:

- Marker 2 17.028464000000 GHz**
- Ref Offset 24.5 dB**
- Ref 20.00 dBm**
- Mkr2 17.028 5 GHz**
- 41.583 dBm**
- Start 30 MHz**
- #Res BW 1.0 MHz**
- #VBW 3.0 MHz**
- Sweep 50.67 ms (40001 pts)**
- Stop 20.000 GHz**
- Table:**

PKR	MODE	TRIG	CO	F	F	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f			2.508 3 GHz		11.493 dBm
2	N	1	f			17.028 5 GHz		-41.583 dBm

Right Screenshot:

- Marker 1 25.188350000000 GHz**
- Ref Offset 24.5 dB**
- Ref 20.00 dBm**
- Mkr1 25.188 35 GHz**
- 36.279 dBm**
- Start 20.000 GHz**
- #Res BW 1.0 MHz**
- #VBW 3.0 MHz**
- Sweep 16.00 ms (40001 pts)**
- Stop 26.000 GHz**

The figure displays two side-by-side screenshots of a Spectrum Analyzer interface, likely from a Keysight instrument, showing spectral analysis results for two different markers.

Left Screenshot (Marker 2):

- Marker 2:** 17.042430000000 GHz, -42.731 dBm.
- Reference:** Ref Offset 24.5 dB, Ref 20.00 dBm.
- Trace:** Yellow trace showing the spectrum.
- Controls:** Marker 2, Peak Search, Next Peak, Next Pk Right, Next Pk Left, Marker Delta, Mkr--CF, Mkr--Ref LV, More 1 of 2.
- Parameters:** Start 30 MHz, Stop 20.000 GHz, #Res BW 1.0 MHz, #VBW 3.0 MHz, Sweep 50.67 ms (40001 pts).

Right Screenshot (Marker 1):

- Marker 1:** 25.178900000000 GHz, -36.089 dBm.
- Reference:** Ref Offset 24.5 dB, Ref 20.00 dBm.
- Trace:** Yellow trace showing the spectrum.
- Controls:** Marker 1, Peak Search, Next Peak, Next Pk Right, Next Pk Left, Marker Delta, Mkr--CF, Mkr--Ref LV, More 1 of 2.
- Parameters:** Start 20.000 GHz, Stop 26.000 GHz, #Res BW 1.0 MHz, #VBW 3.0 MHz, Sweep 16.00 ms (40001 pts).

The figure displays two side-by-side screenshots of a Spectrum Analyzer interface, showing signal peaks and a table of measured data.

Left Screenshot:

- Marker 2:** 17.022473000000 GHz, -42.785 dBm.
- Ref Offset:** 24.5 dB, Ref: 20.00 dBm.
- Start:** 30 MHz, #Res BW: 1.0 MHz.
- Stop:** 20.000 GHz.
- Sweep:** 50.67 ms (40001 pts).
- Table:**

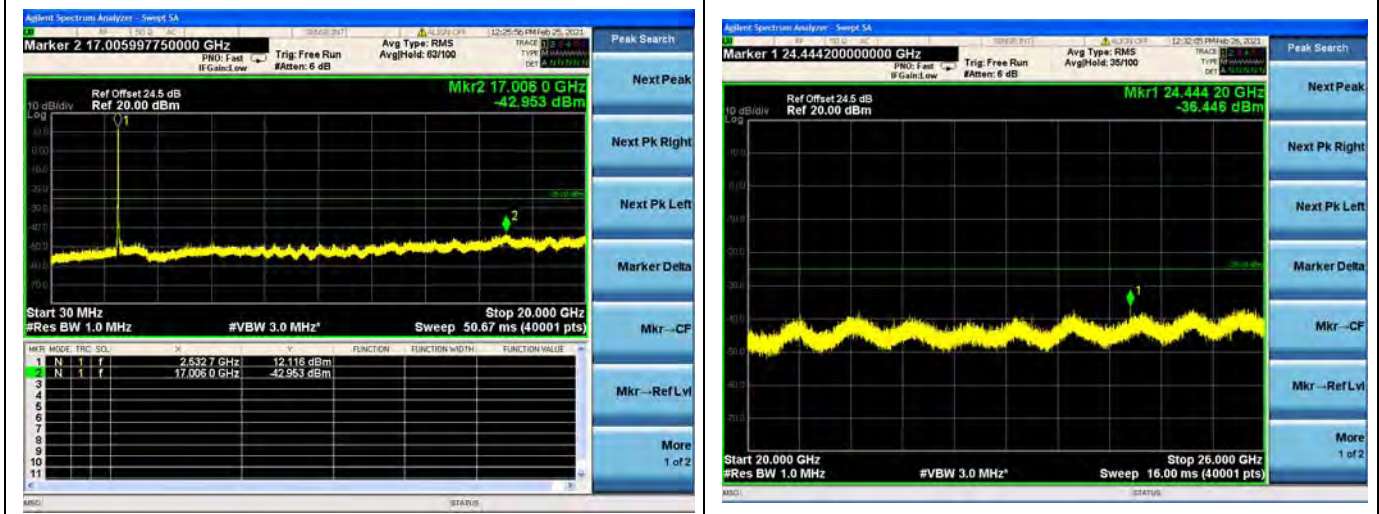
MARK	MODE	TRIG	CO.	F	F	FUNCTION	WIDTH	FUNCTION VALUE
1	N	1	f		2.516 3 GHz		12.500 dBm	
2	N	1	f		17.022 5 GHz		-42.785 dBm	

Right Screenshot:

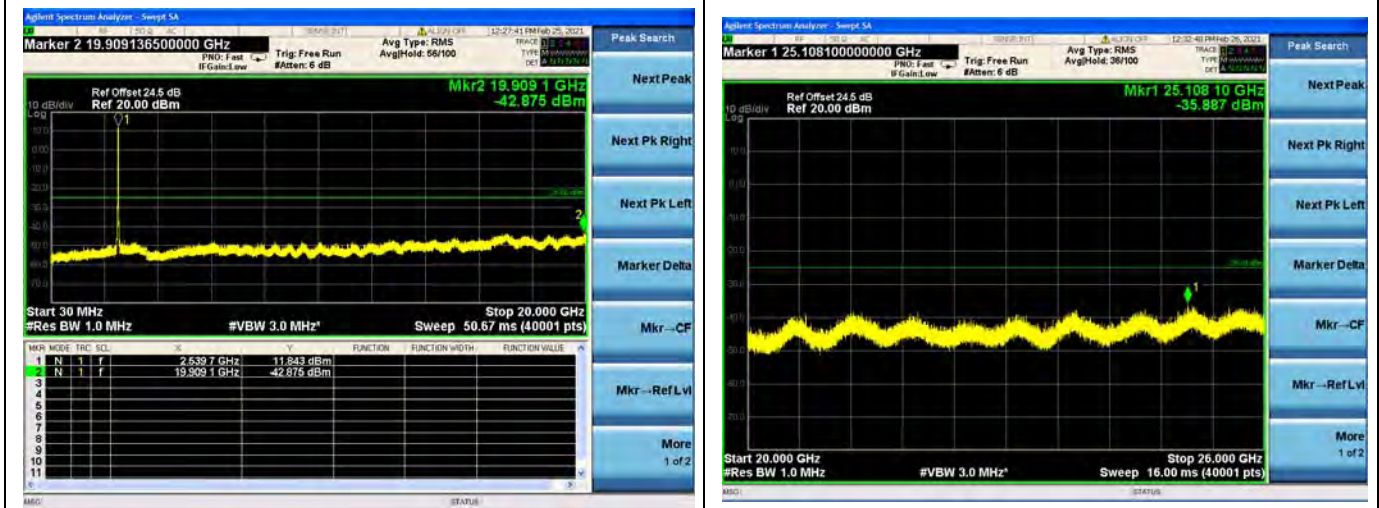
- Marker 1:** 25.743050000000 GHz, -35.991 dBm.
- Ref Offset:** 24.5 dB, Ref: 20.00 dBm.
- Start:** 20.000 GHz, #Res BW: 1.0 MHz.
- Stop:** 26.000 GHz.
- Sweep:** 16.00 ms (40001 pts).



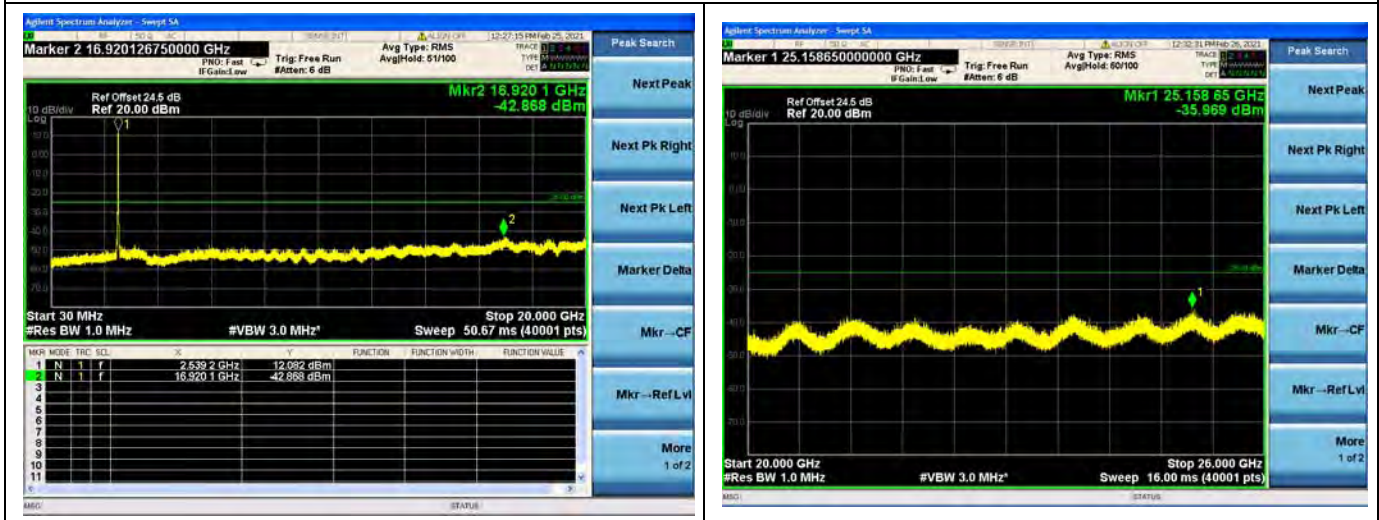
Band 7 / 20MHz / Mid CH / QPSK



Band 7 / 20MHz / Mid CH / 16QAM

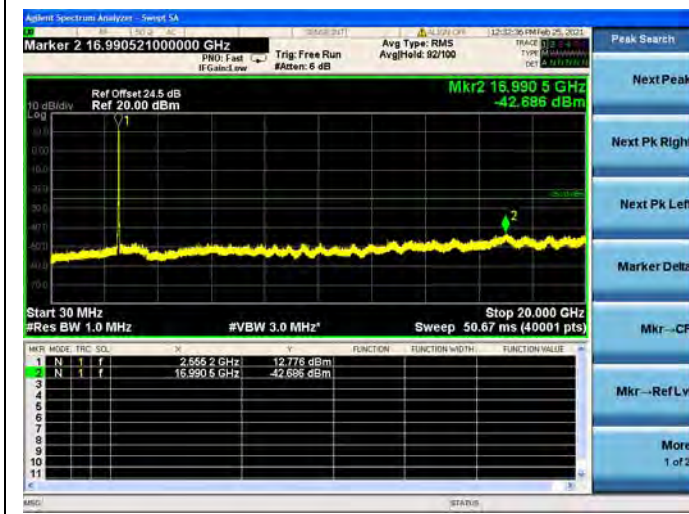


Band 7 / 20MHz / Mid CH / 64QAM

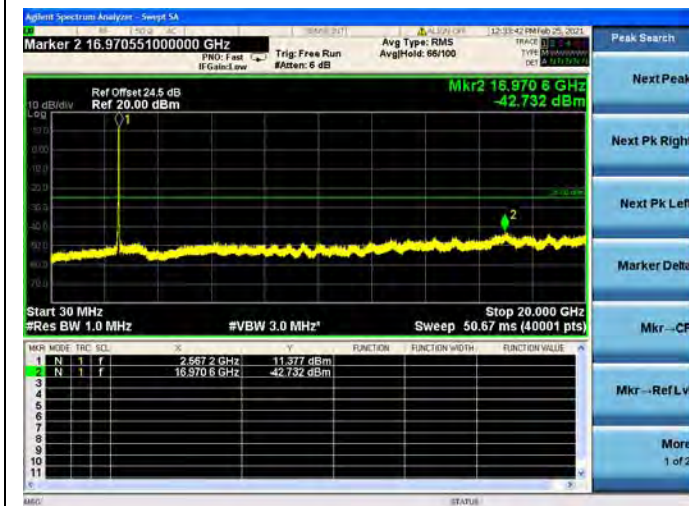




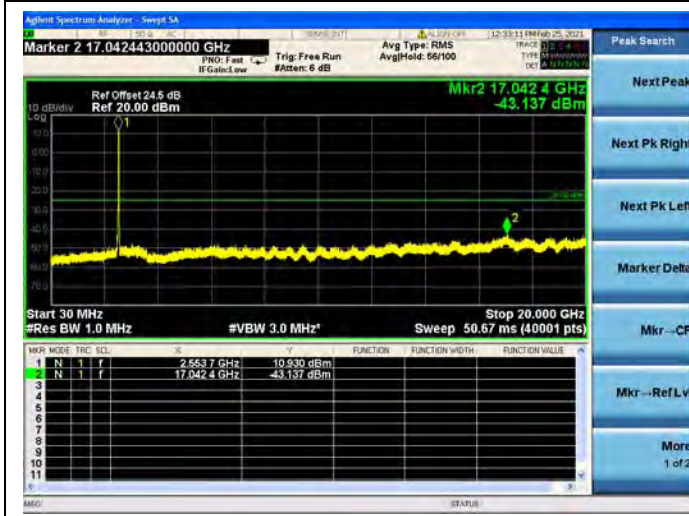
Band 7 / 20MHz / High CH / QPSK



Band 7 / 20MHz / High CH / 16QAM

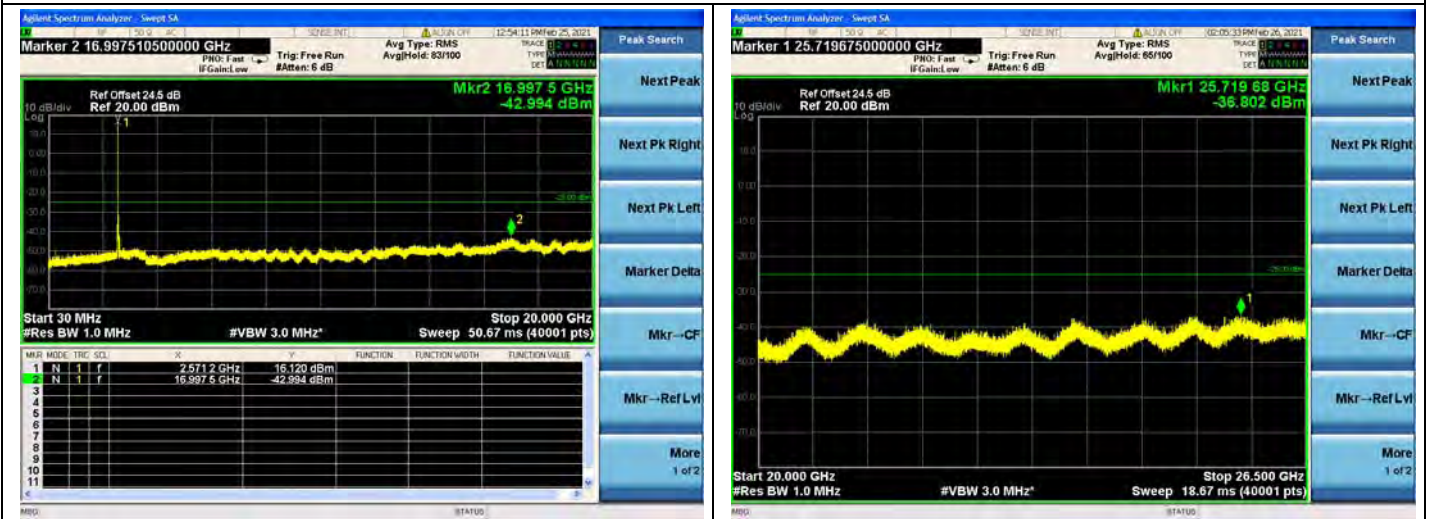


Band 7 / 20MHz / High CH / 64QAM

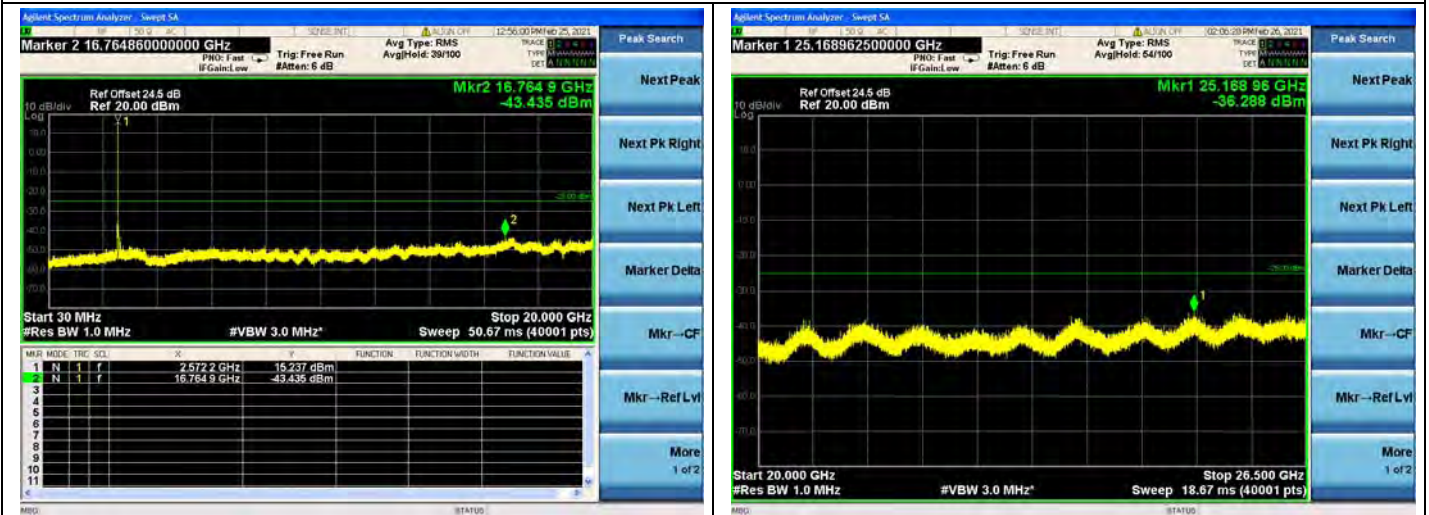




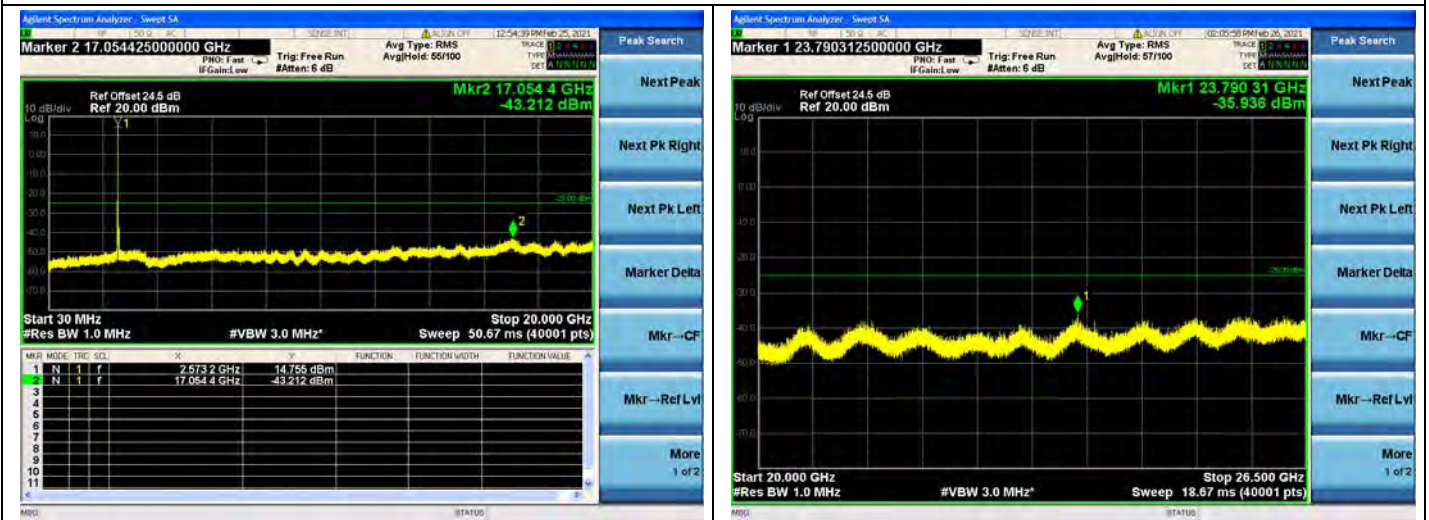
Band 38 / 5MHz / Low CH / QPSK



Band 38 / 5MHz / Low CH / 16QAM

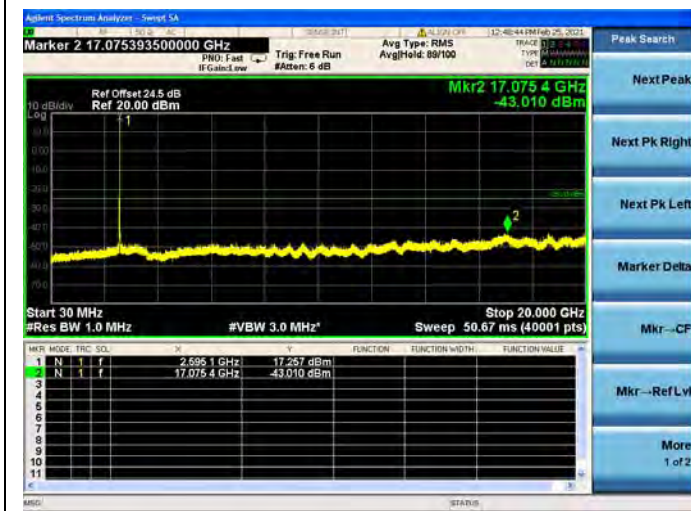


Band 38 / 5MHz / Low CH / 64QAM

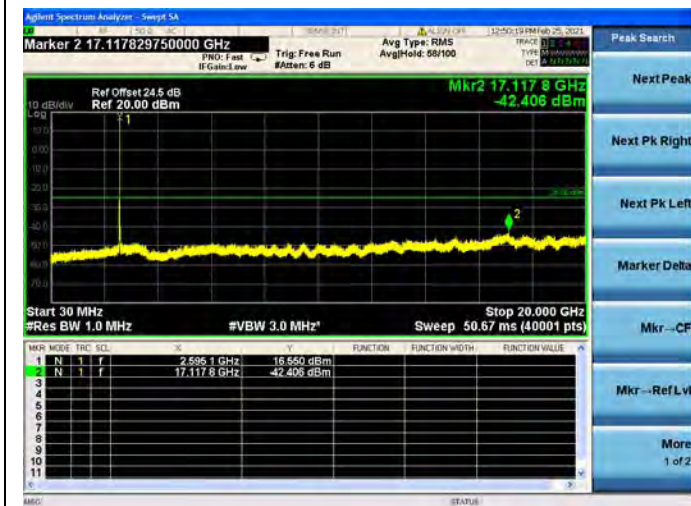




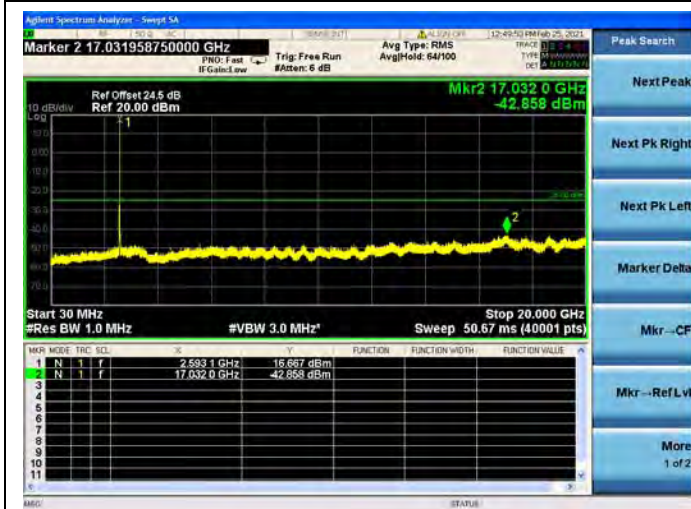
Band 38 / 5MHz / Mid CH / QPSK



Band 38 / 5MHz / Mid CH / 16QAM

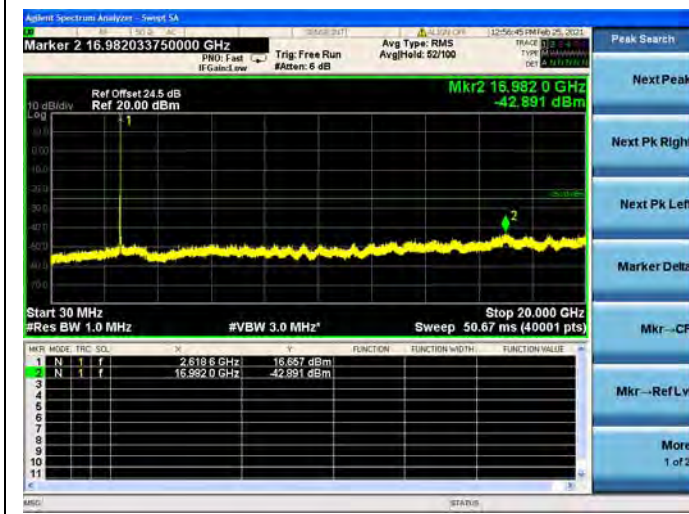


Band 38 / 5MHz / Mid CH / 64QAM

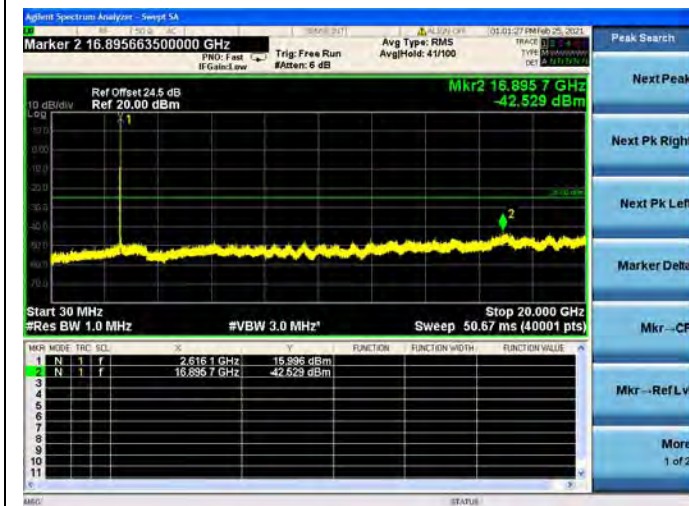




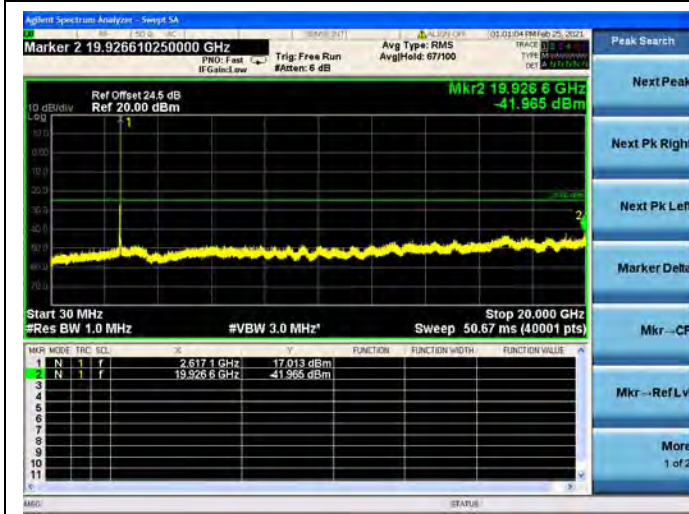
Band 38 / 5MHz / High CH / QPSK



Band 38 / 5MHz / High CH / 16QAM

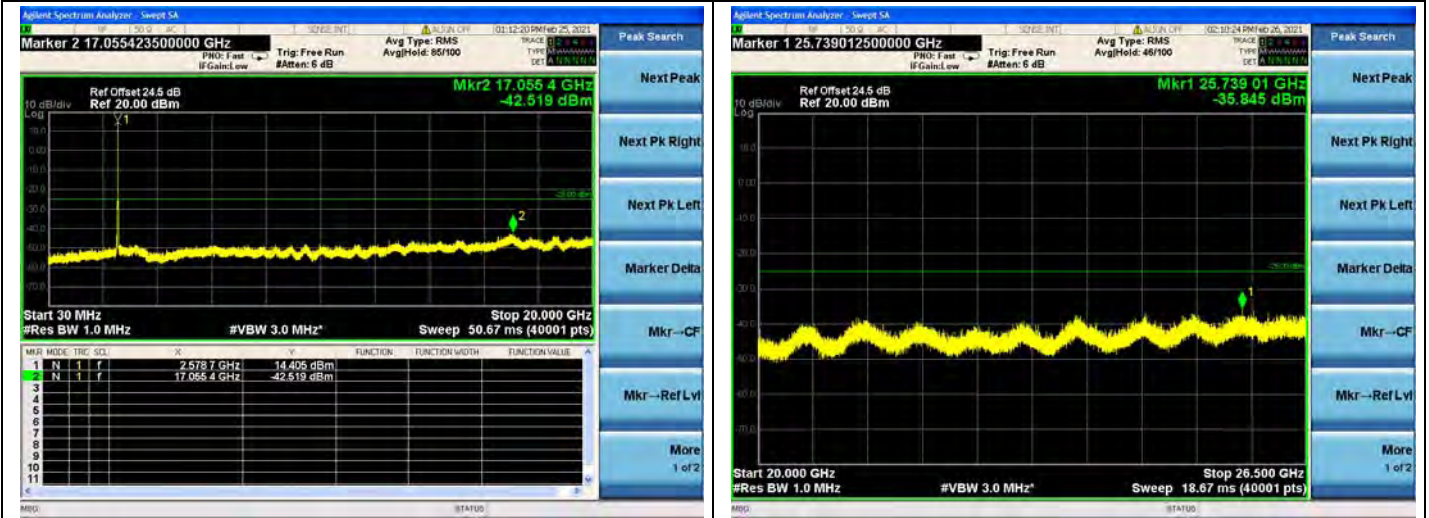


Band 38 / 5MHz / High CH / 64QAM

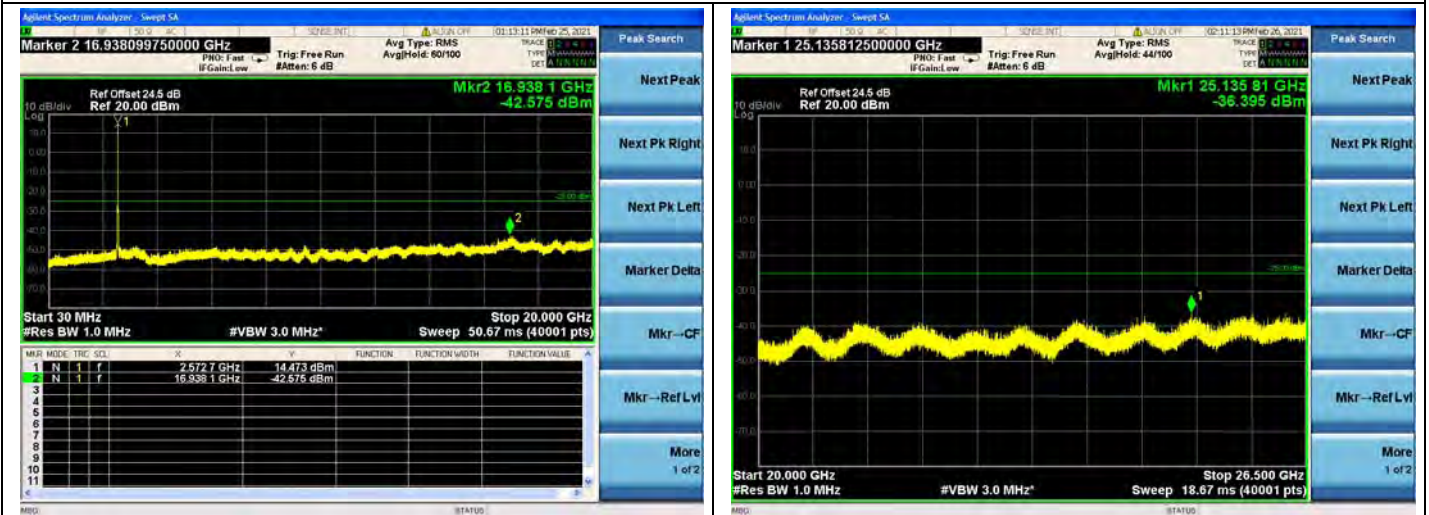




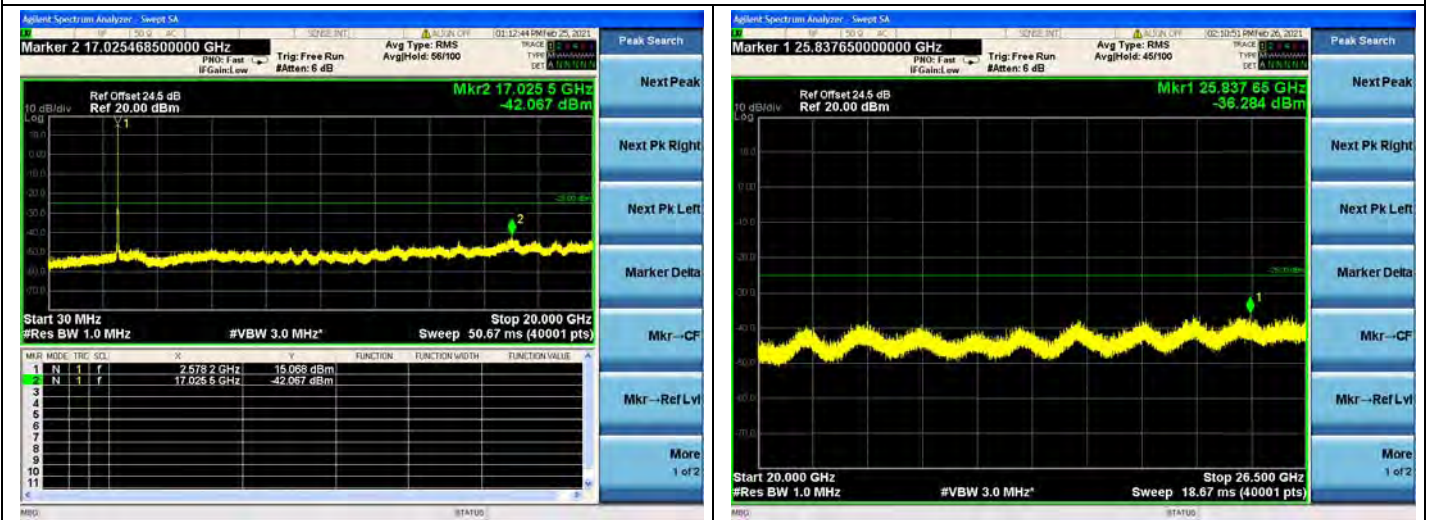
Band 38 / 10MHz / Low CH / QPSK



Band 38 / 10MHz / Low CH / 16QAM

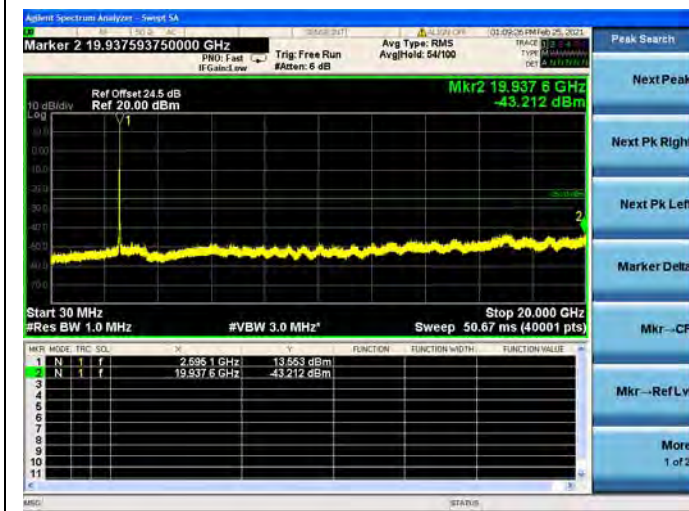


Band 38 / 10MHz / Low CH / 64QAM

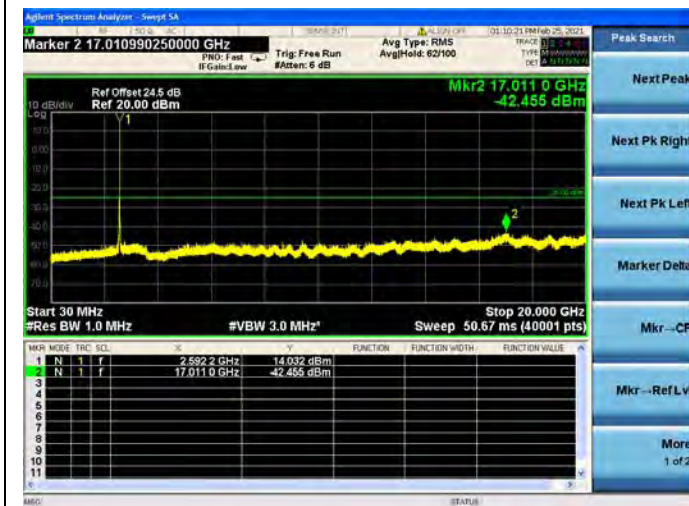




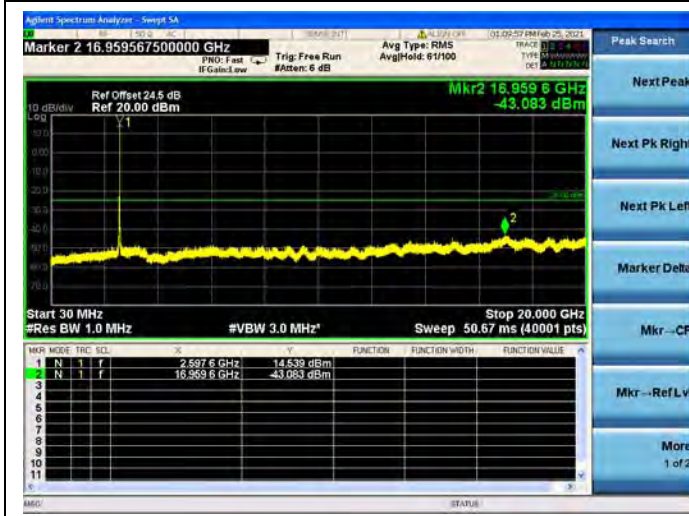
Band 38 / 10MHz / Mid CH / QPSK



Band 38 / 10MHz / Mid CH / 16QAM

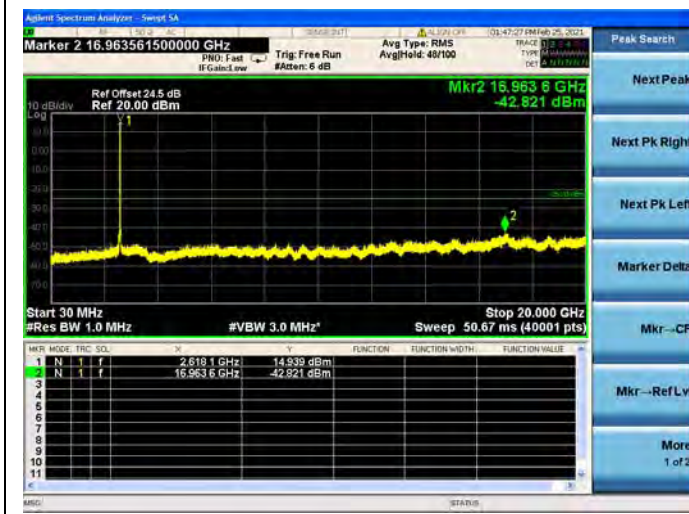


Band 38 / 10MHz / Mid CH / 64QAM

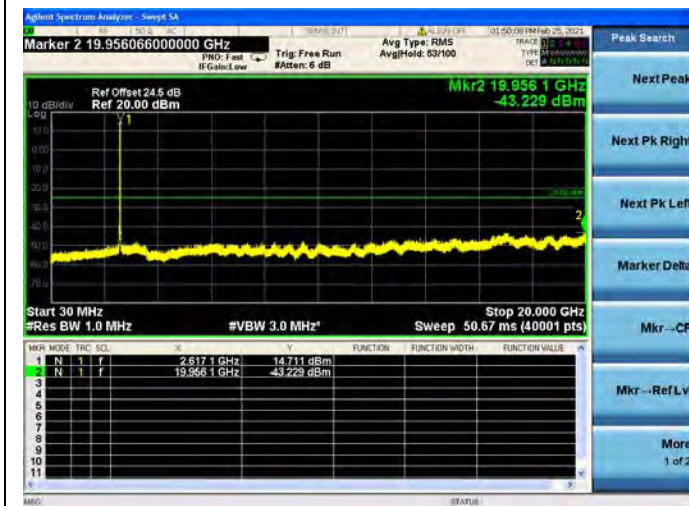




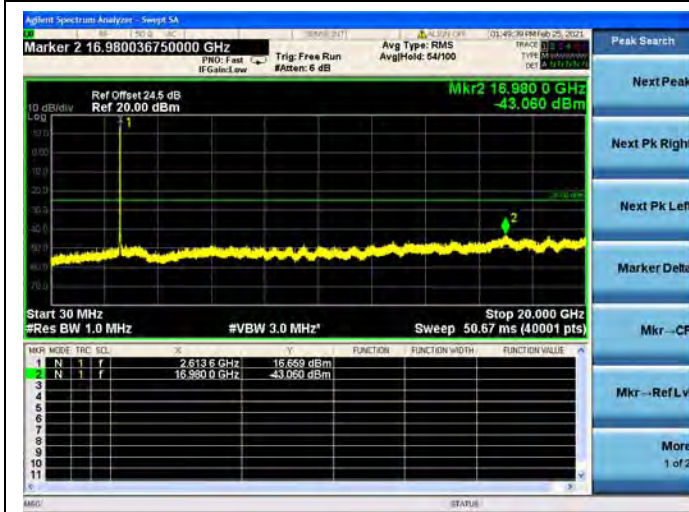
Band 38 / 10MHz / High CH / QPSK



Band 38 / 10MHz / High CH / 16QAM

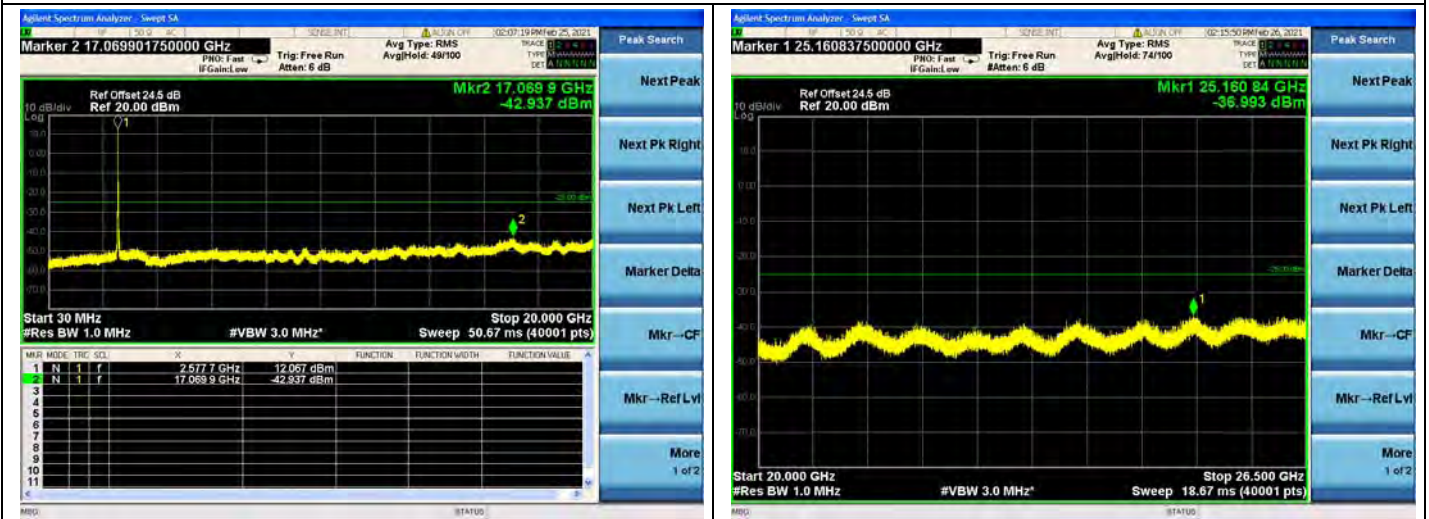


Band 38 / 10MHz / High CH / 64QAM

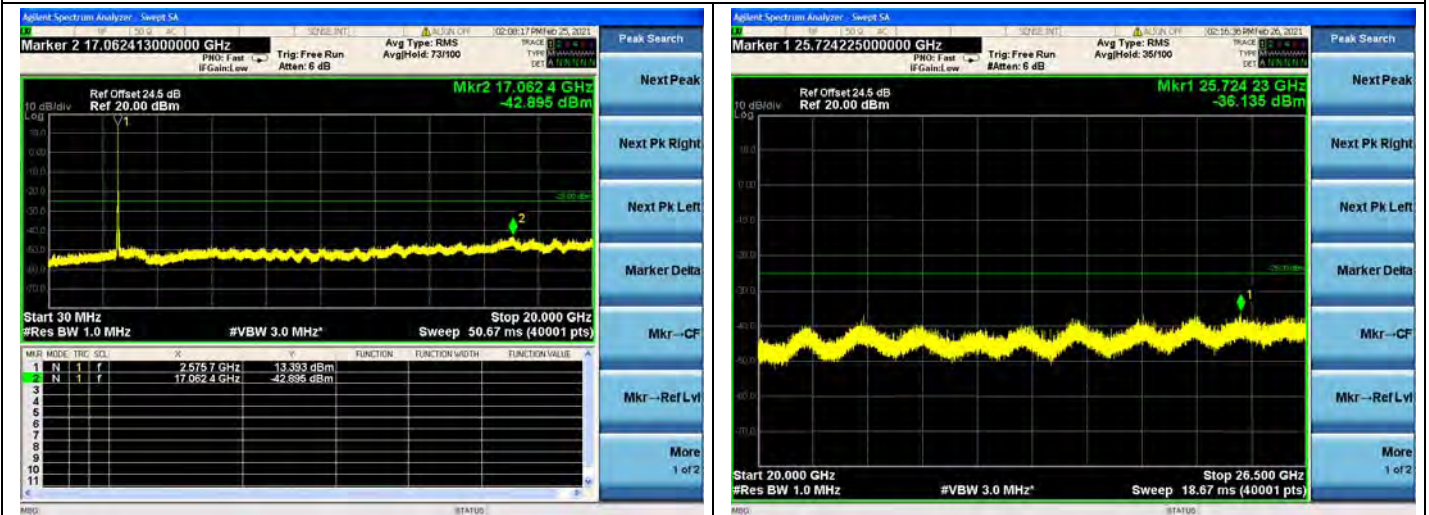




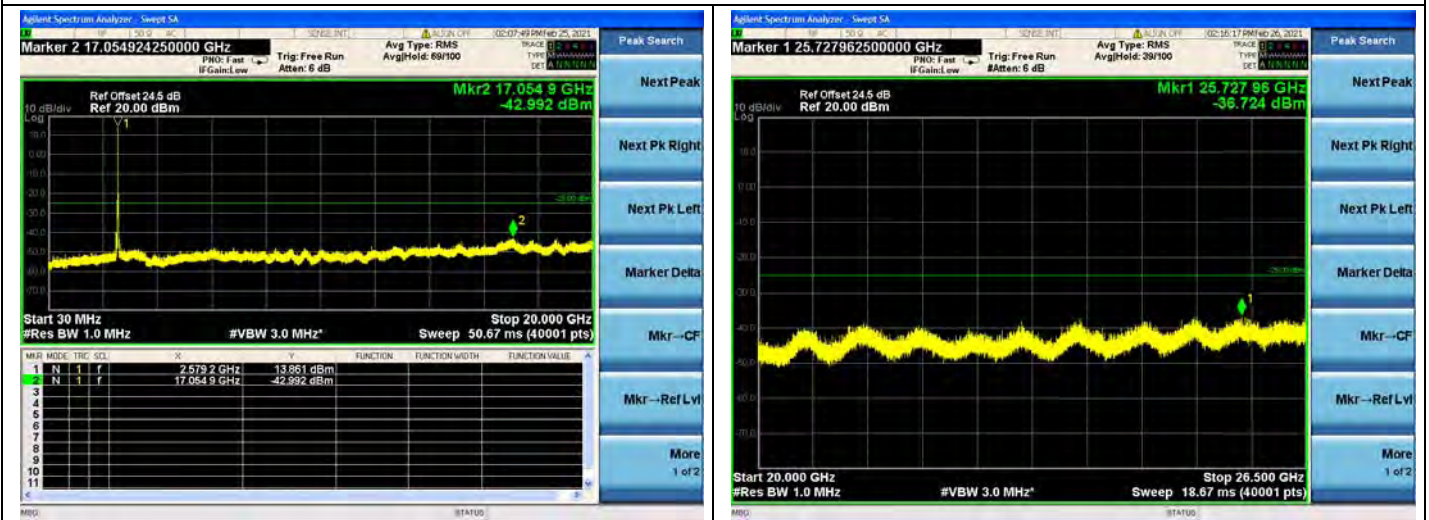
Band 38 / 15MHz / Low CH / QPSK



Band 38 / 15MHz / Low CH / 16QAM

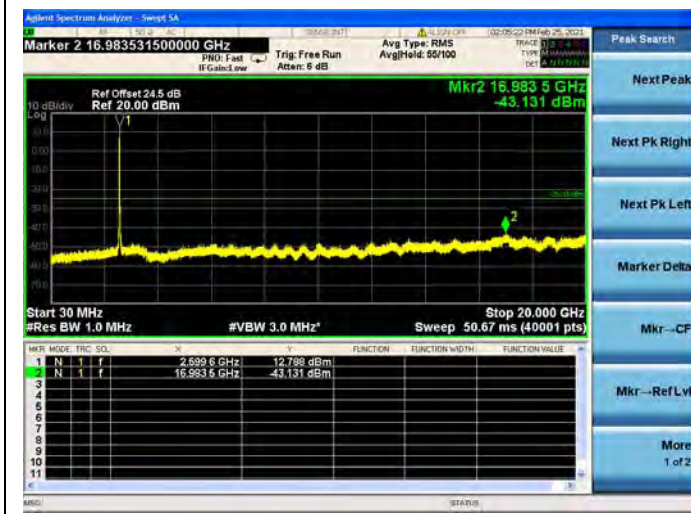


Band 38 / 15MHz / Low CH / 64QAM

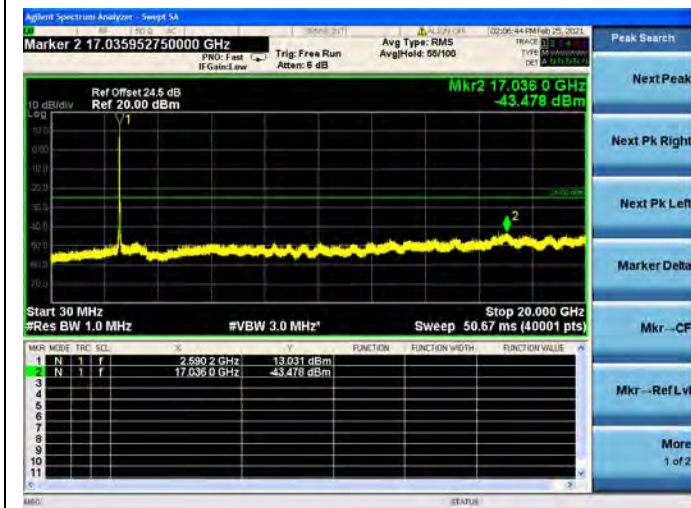




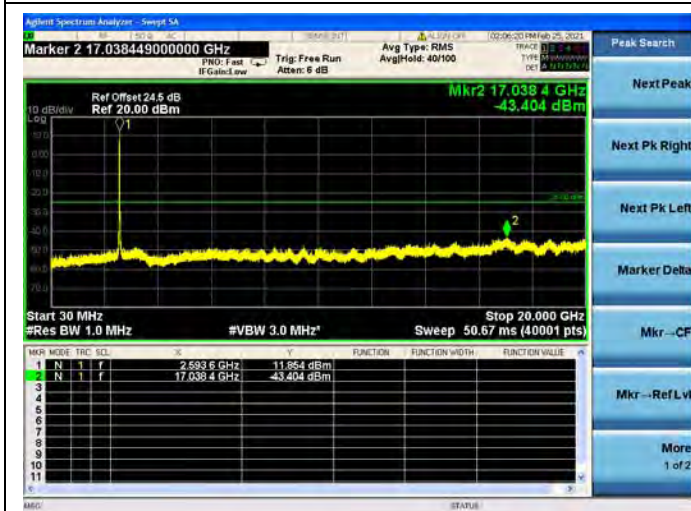
Band 38 / 15MHz / Mid CH / QPSK



Band 38 / 15MHz / Mid CH / 16QAM

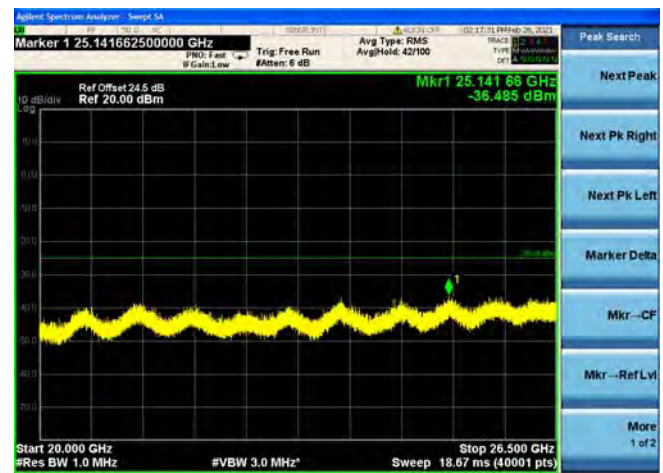
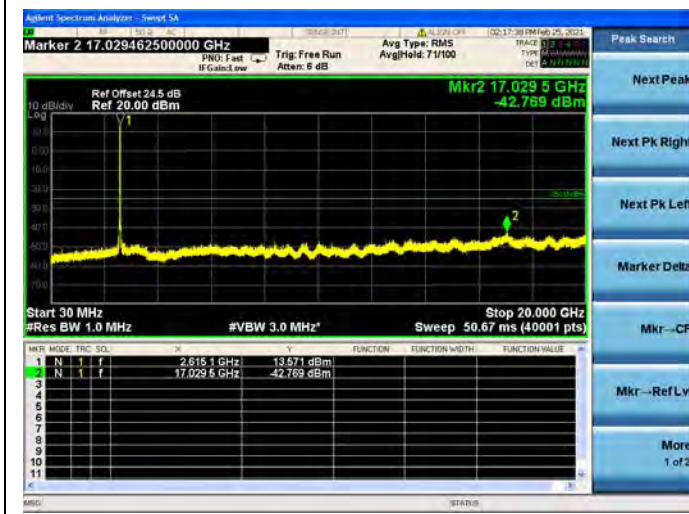


Band 38 / 15MHz / Mid CH / 64QAM

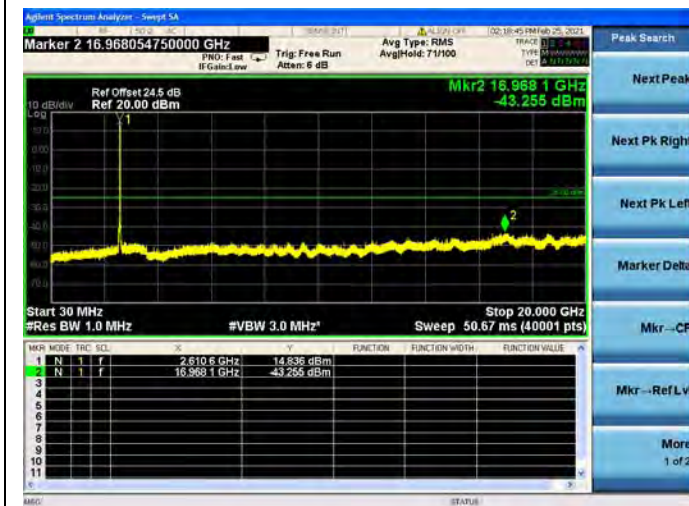




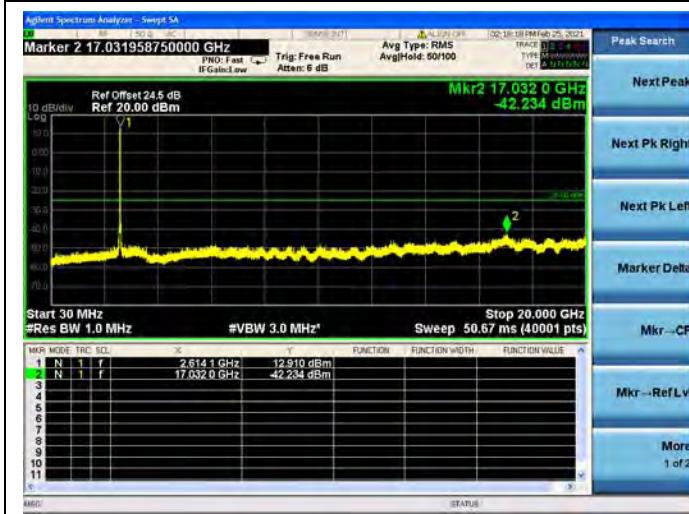
Band 38 / 15MHz / High CH / QPSK



Band 38 / 15MHz / High CH / 16QAM



Band 38 / 15MHz / High CH / 64QAM





Band 38 / 20MHz / Low CH / QPSK



Band 38 / 20MHz / Low CH / 16QAM

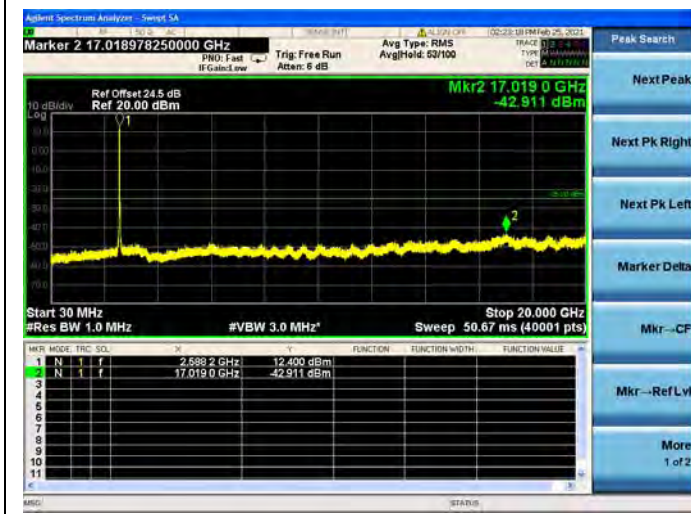


Band 38 / 20MHz / Low CH / 64QAM

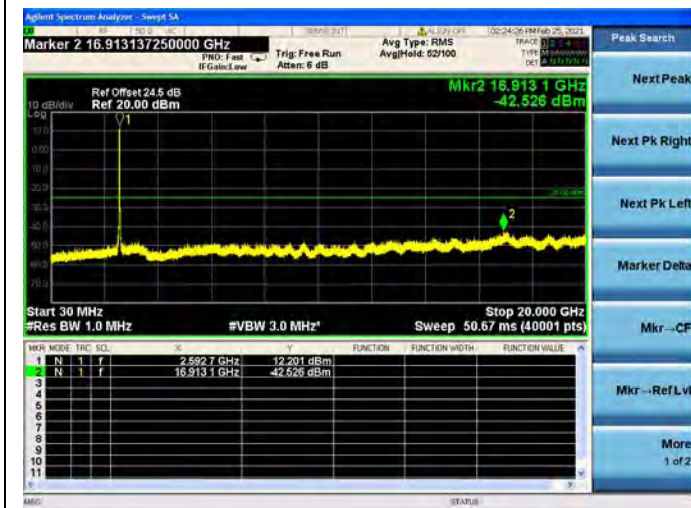




Band 38 / 20MHz / Mid CH / QPSK



Band 38 / 20MHz / Mid CH / 16QAM



Band 38 / 20MHz / Mid CH / 64QAM

