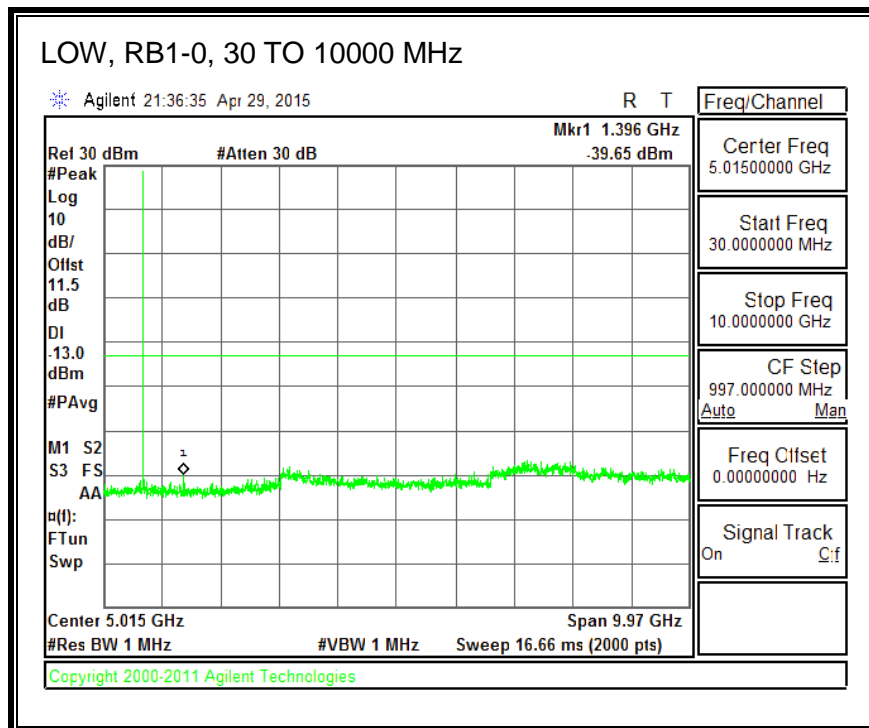
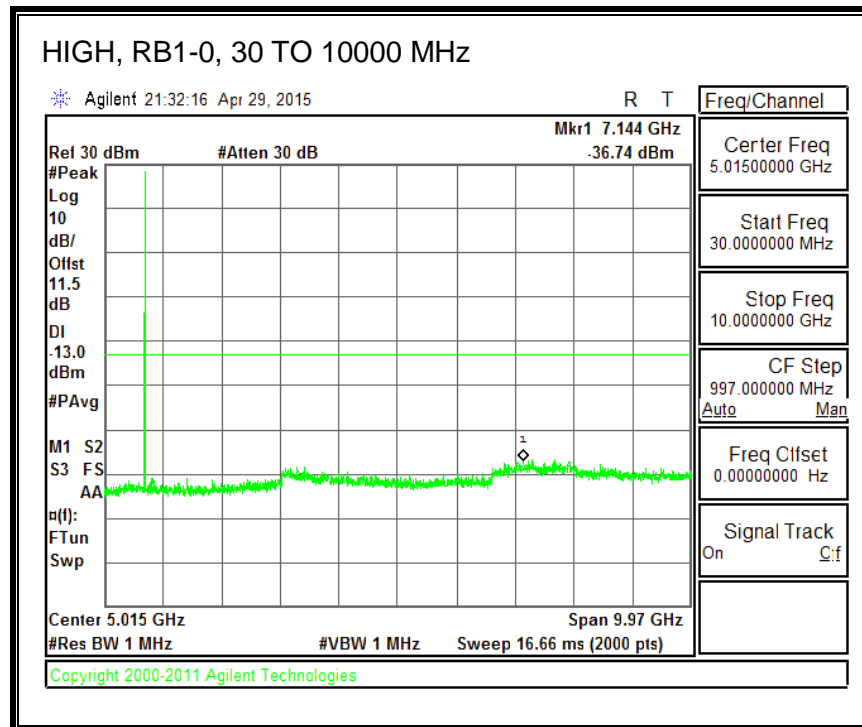
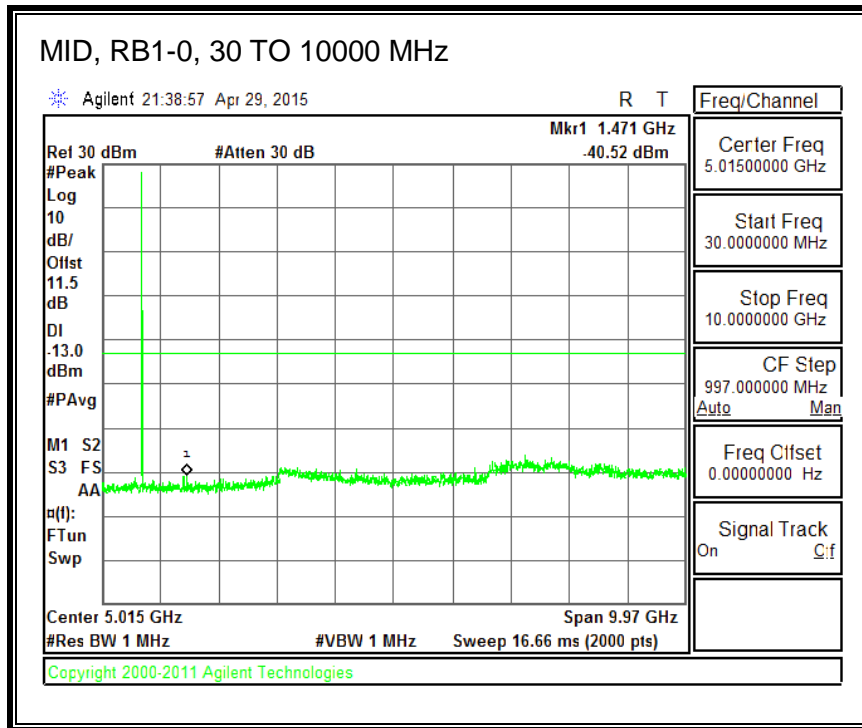
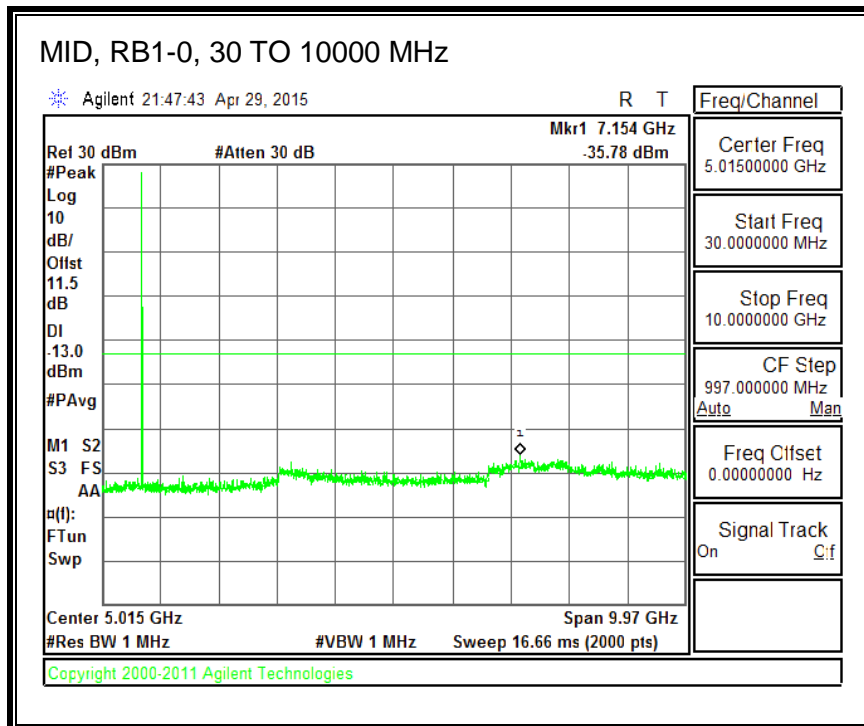
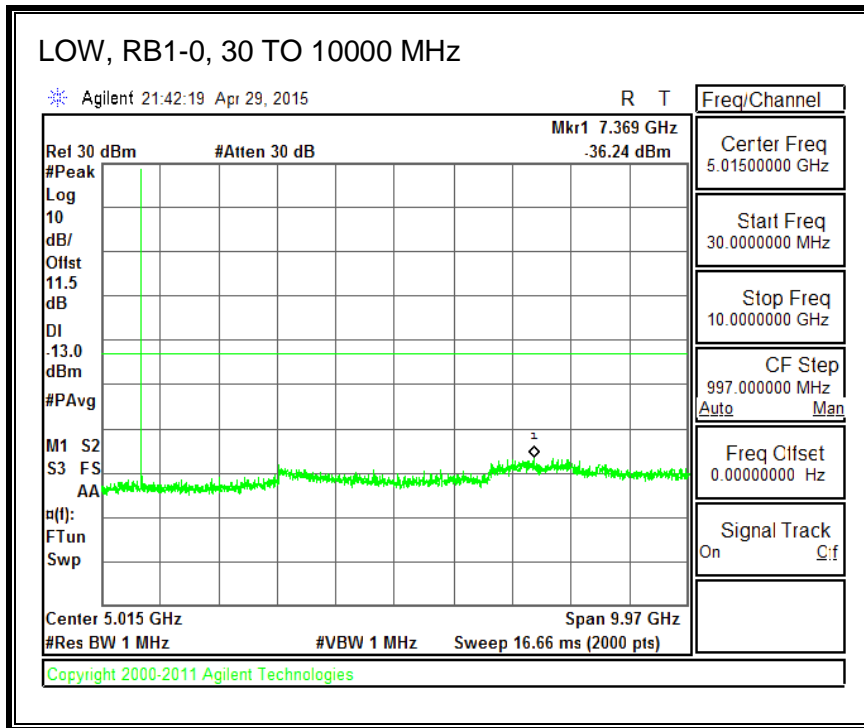


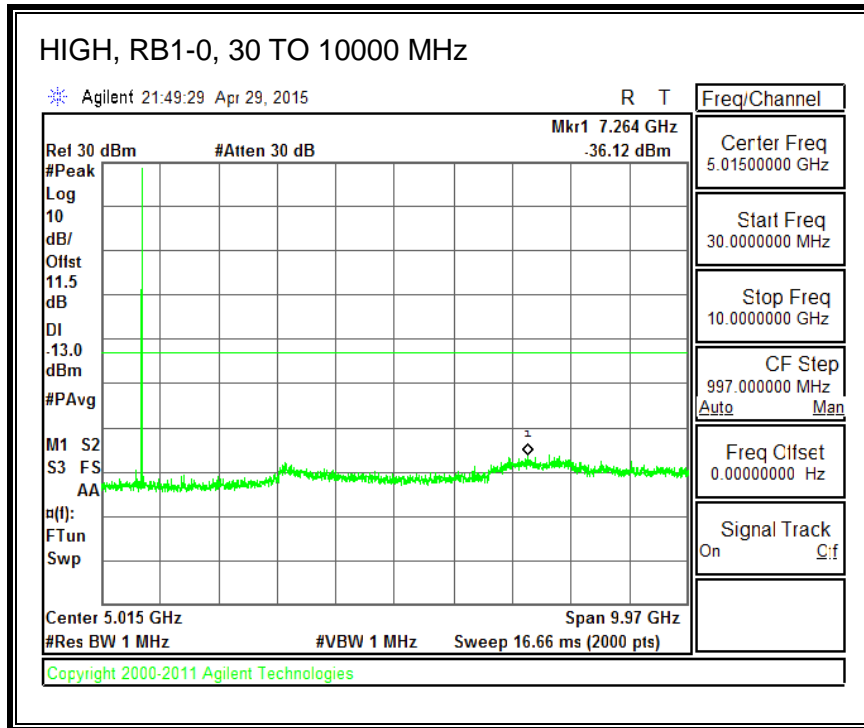
**16QAM, (1.4 MHz BAND WIDTH)**



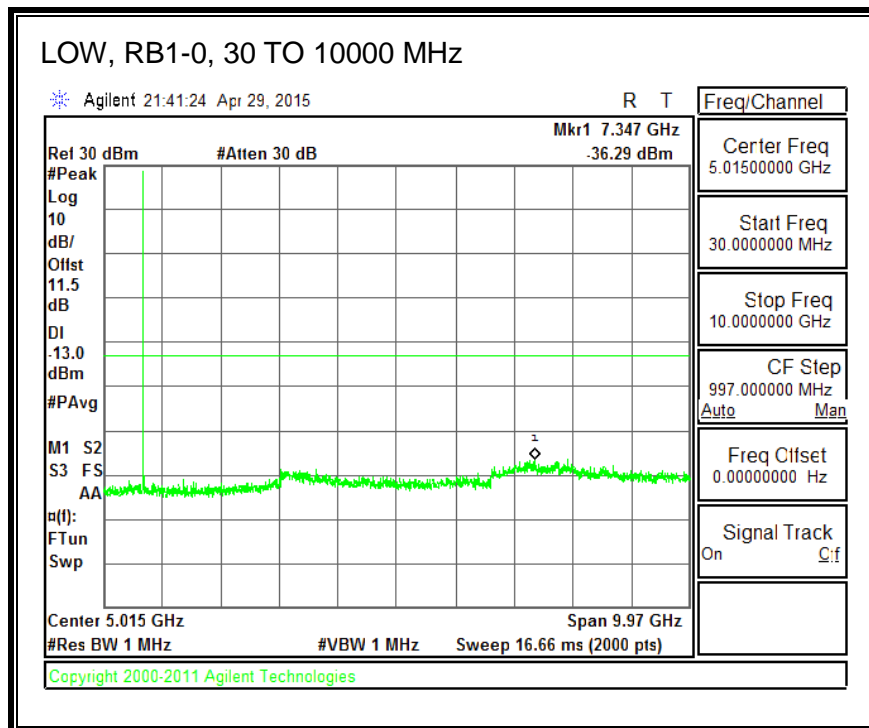


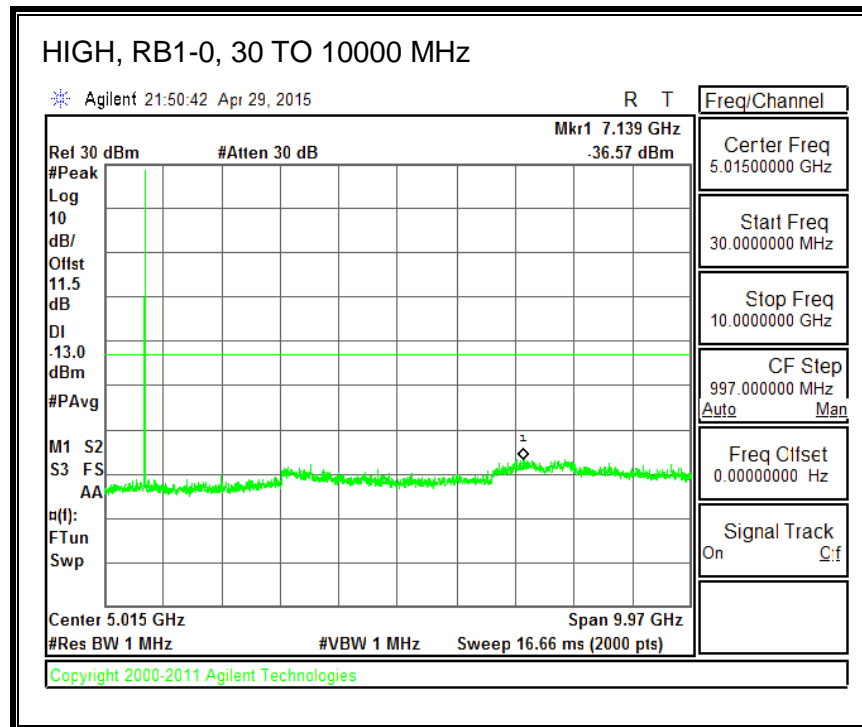
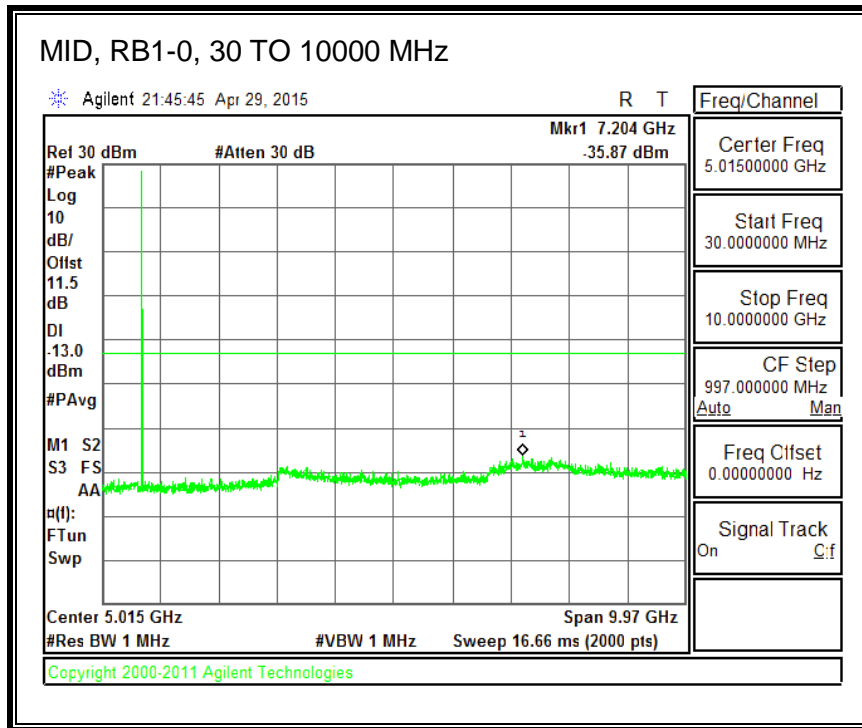
**QPSK, (3.0 MHz BAND WIDTH)**



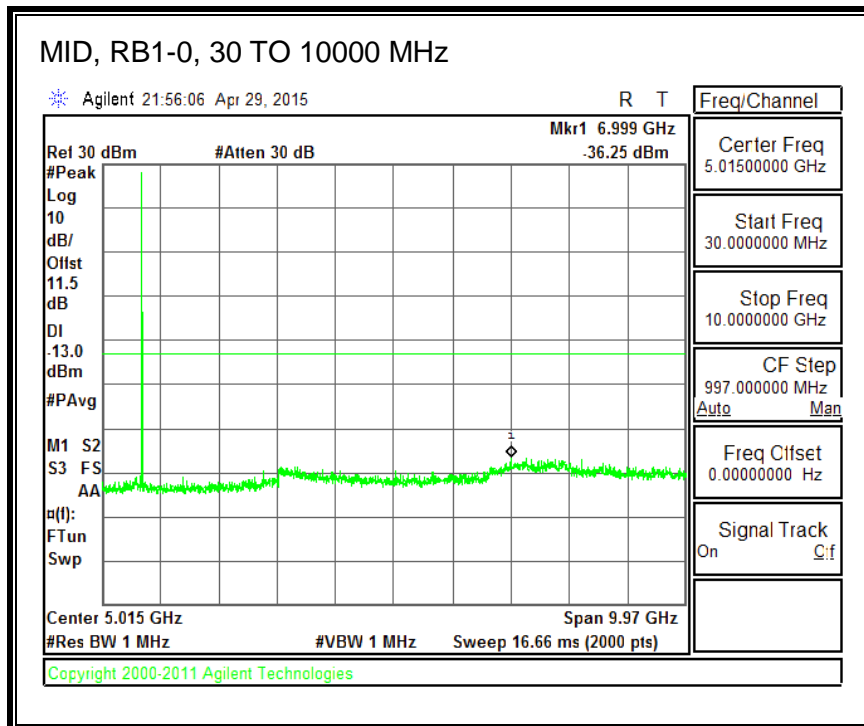
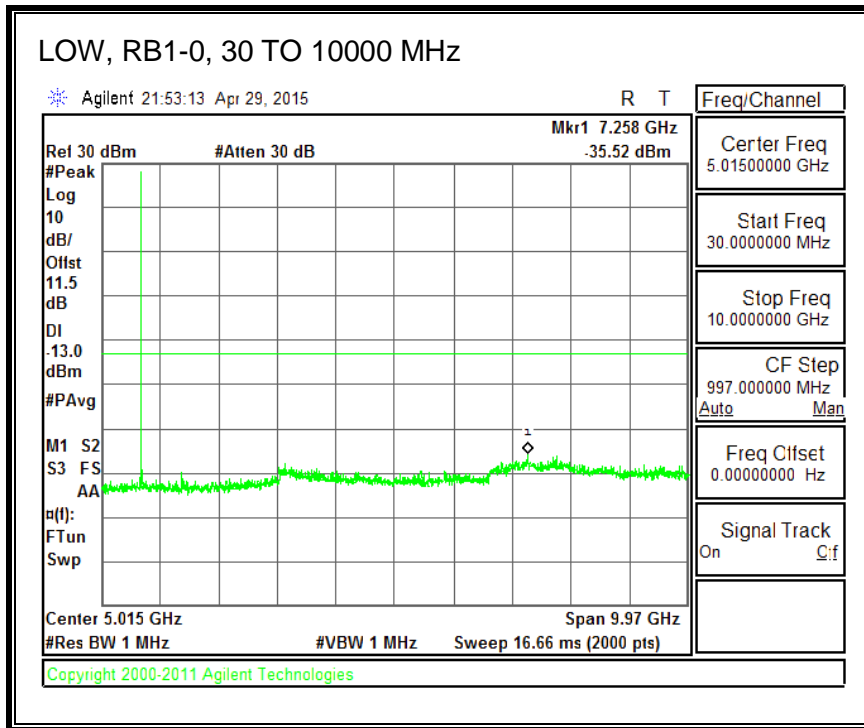


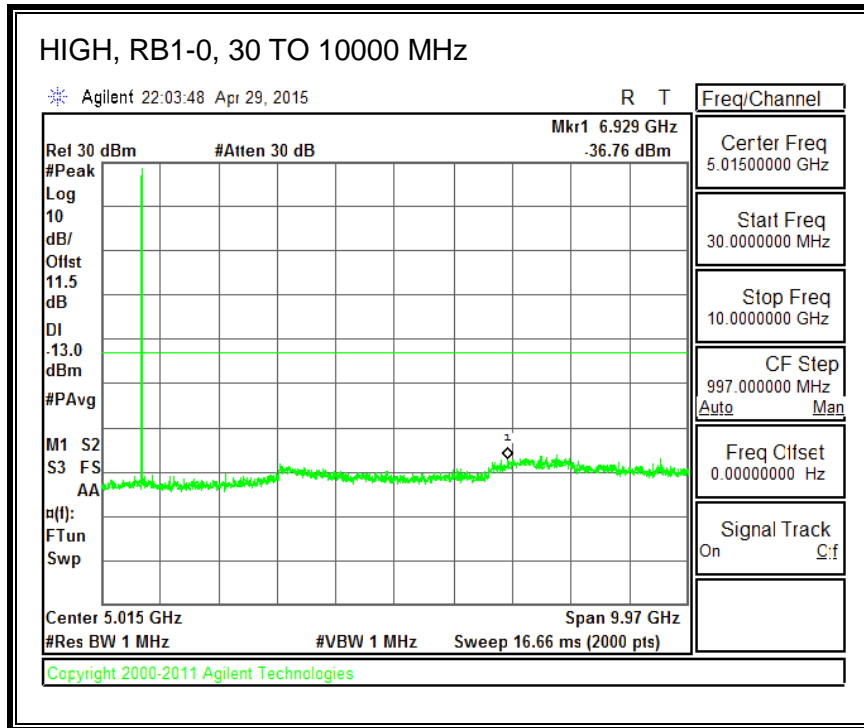
**16QAM, (3.0 MHz BAND WIDTH)**



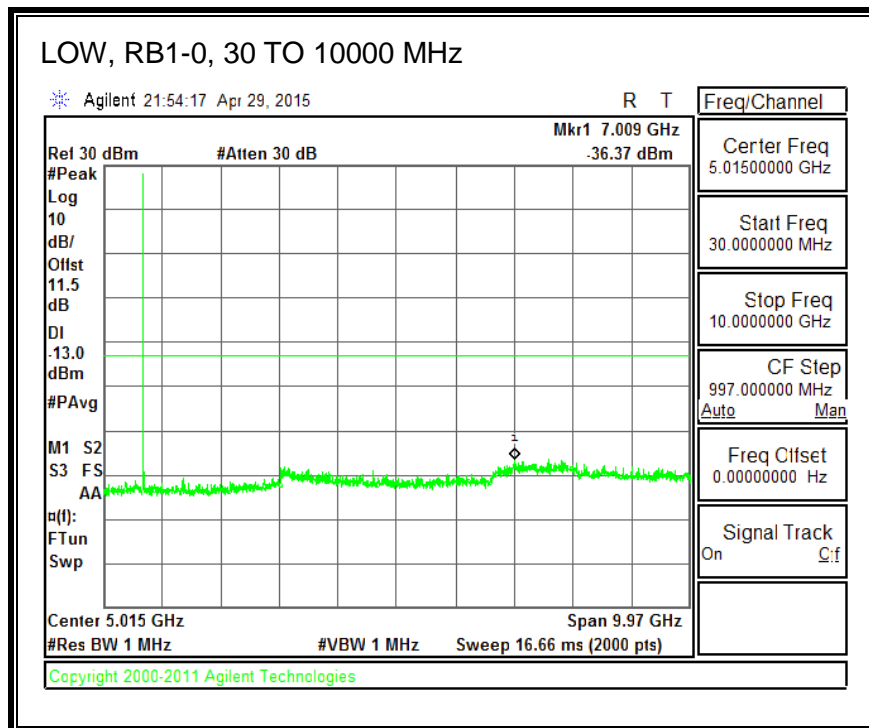


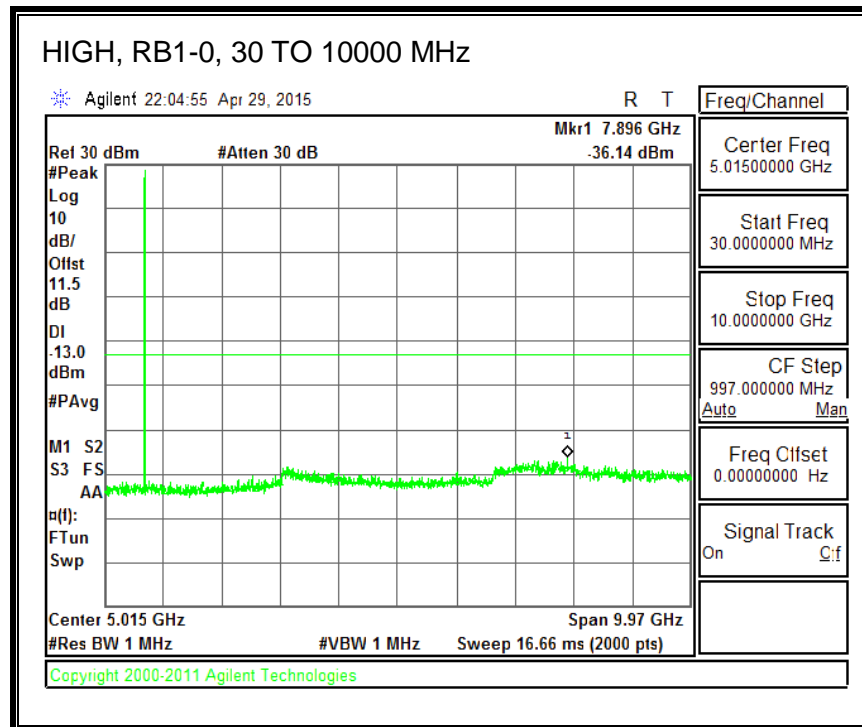
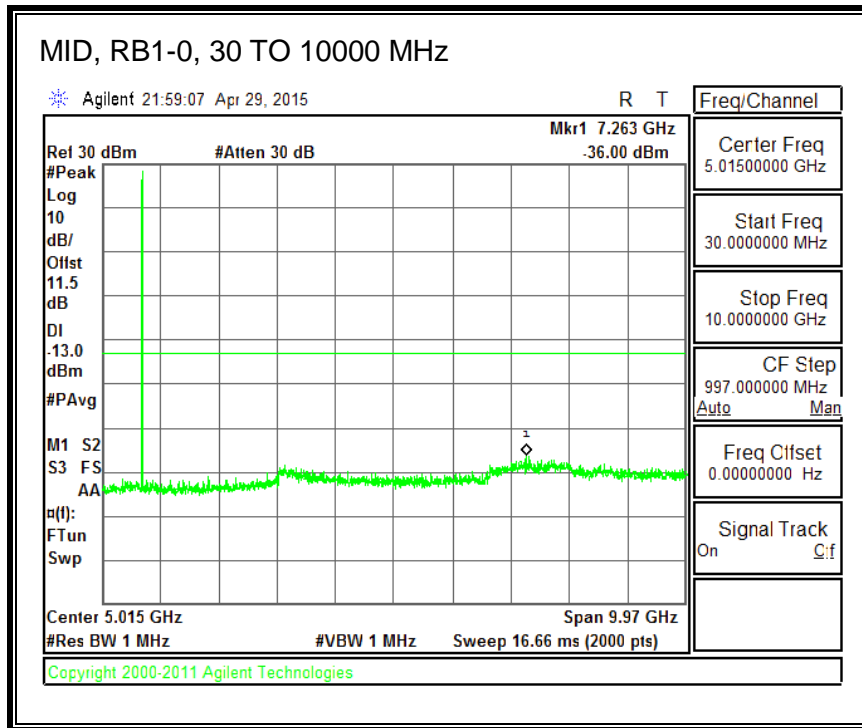
**QPSK, (5.0 MHz BAND WIDTH)**





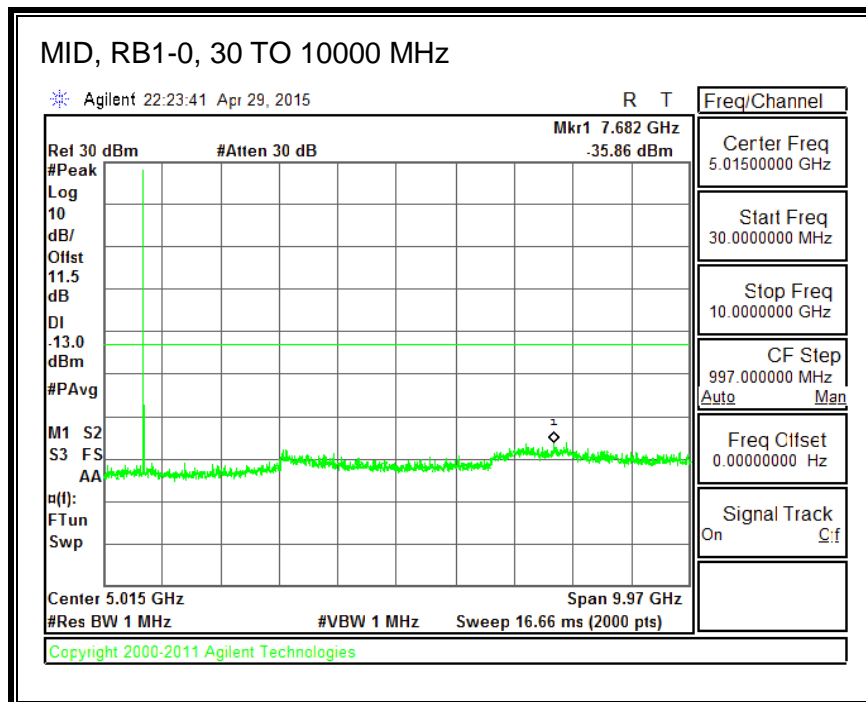
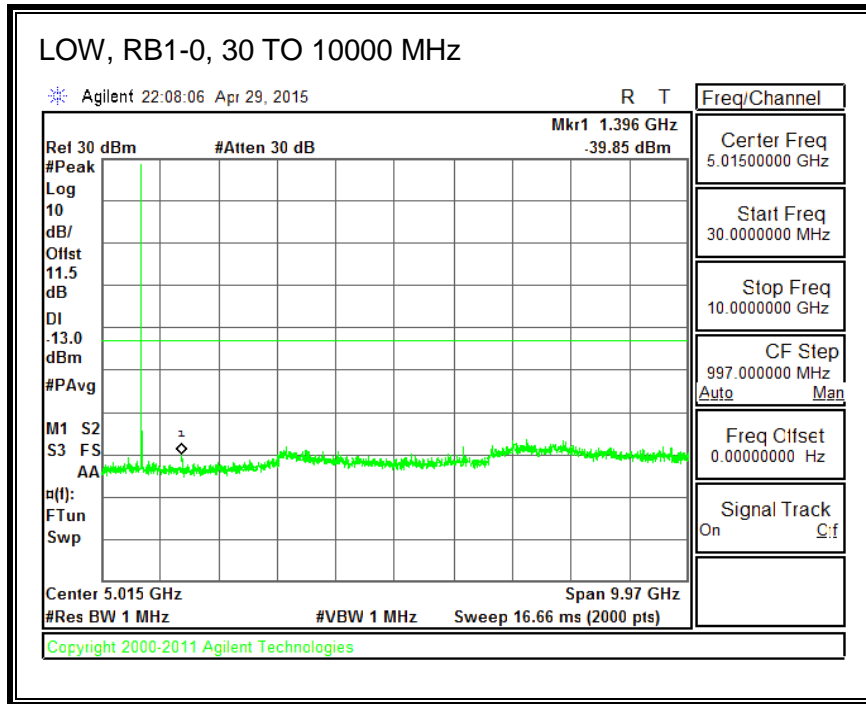
**16QAM, (5.0 MHz BAND WIDTH)**

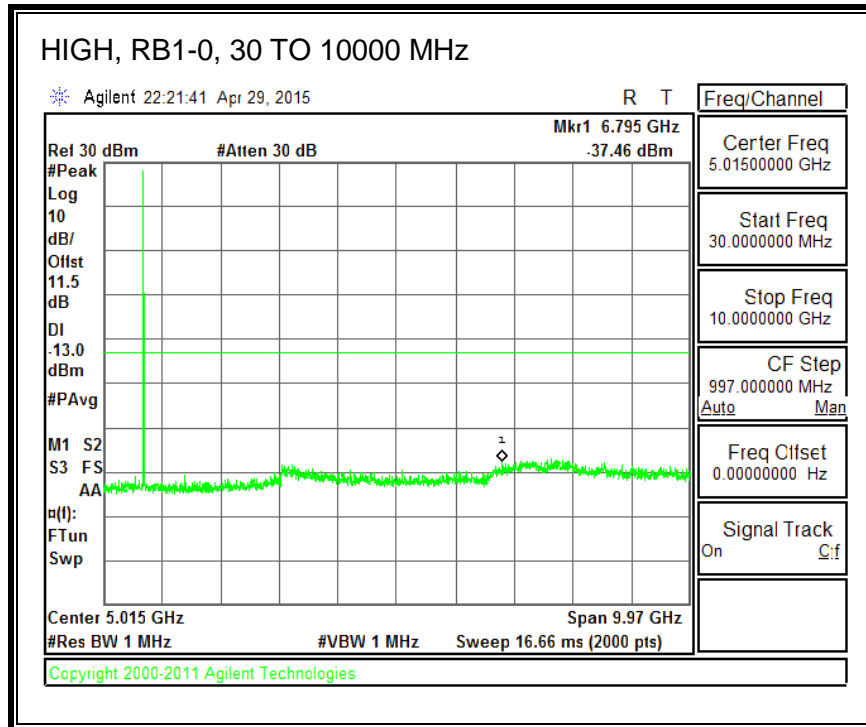




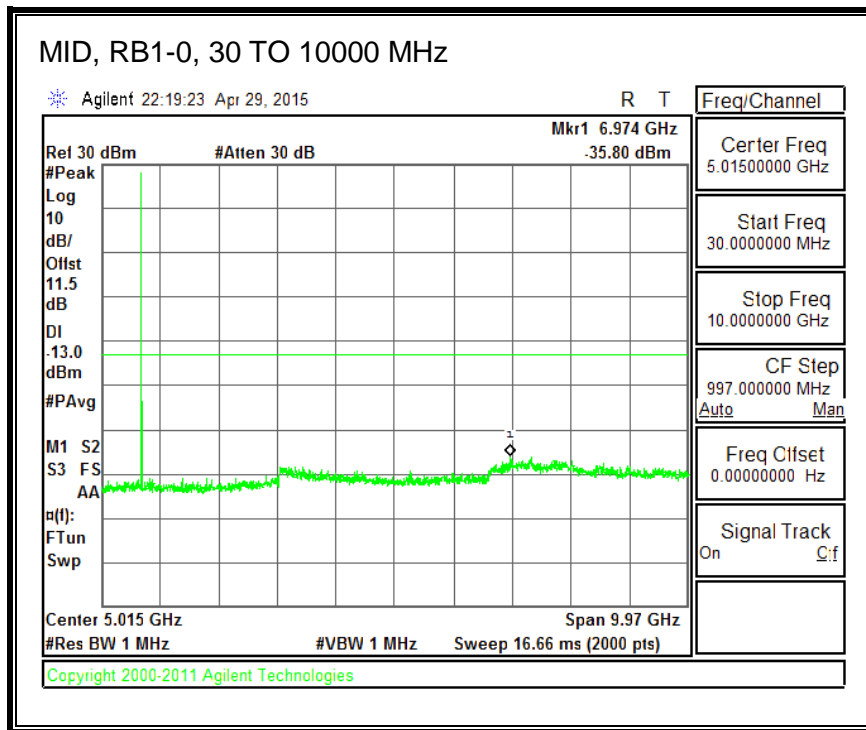
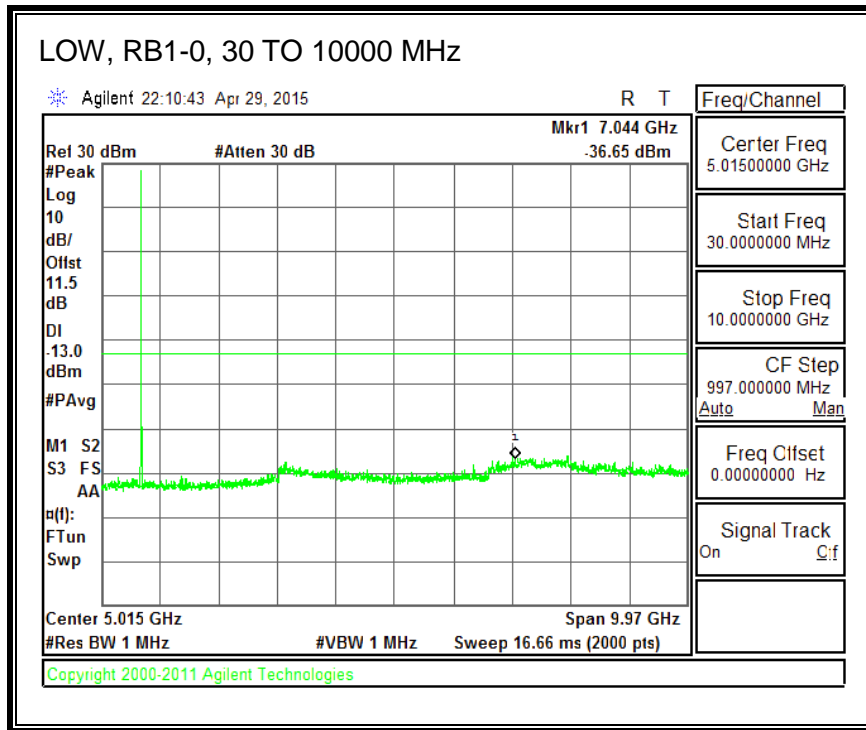


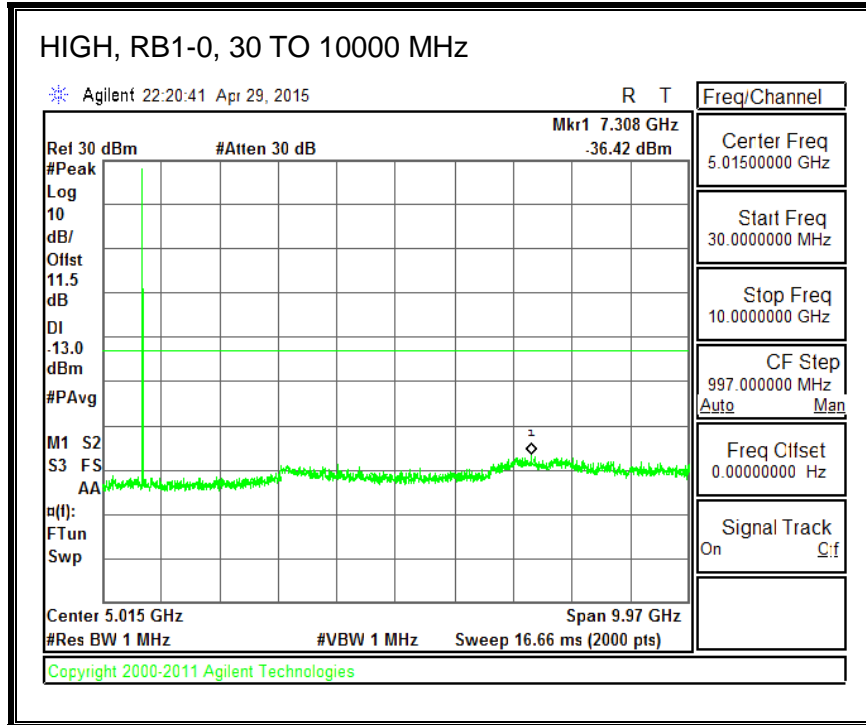
**QPSK, (10.0 MHz BAND WIDTH)**





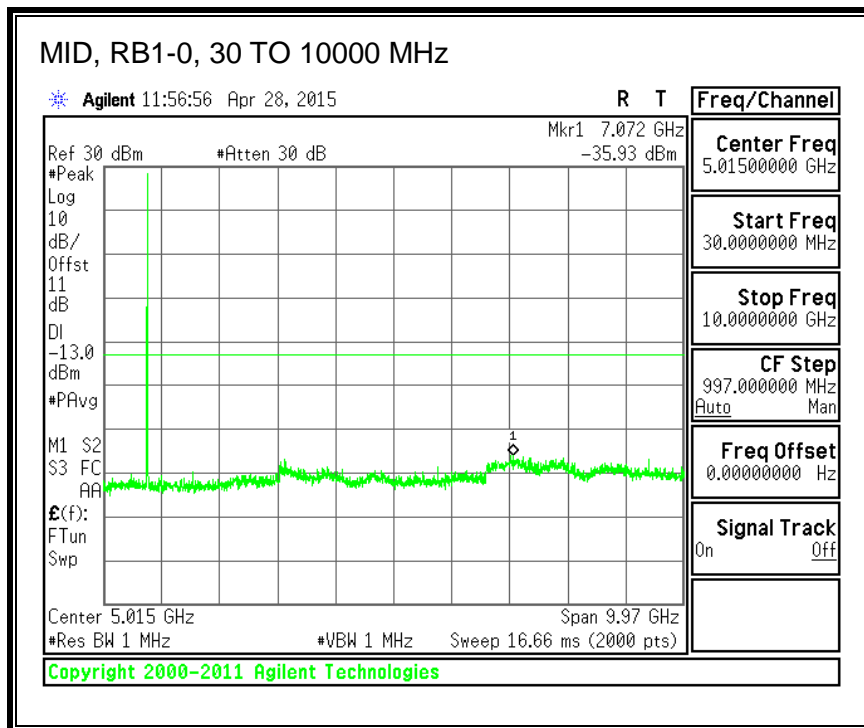
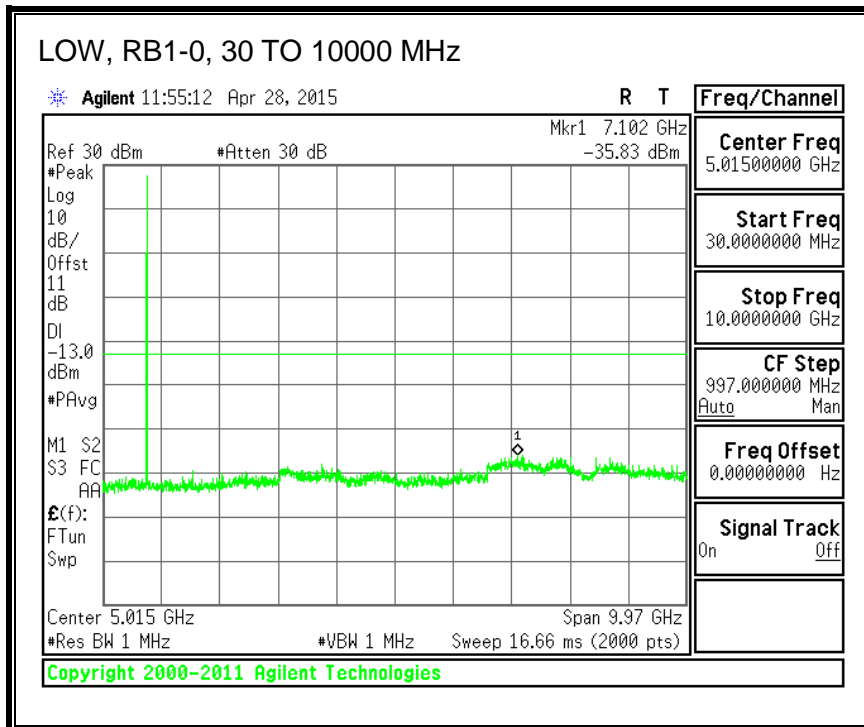
**16QAM, (10.0 MHz BAND WIDTH)**

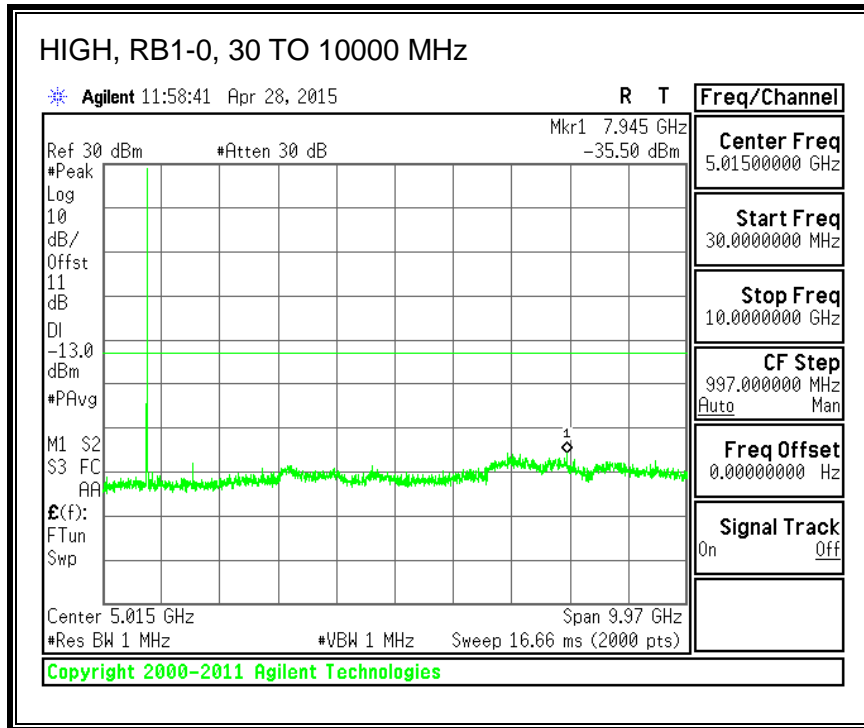




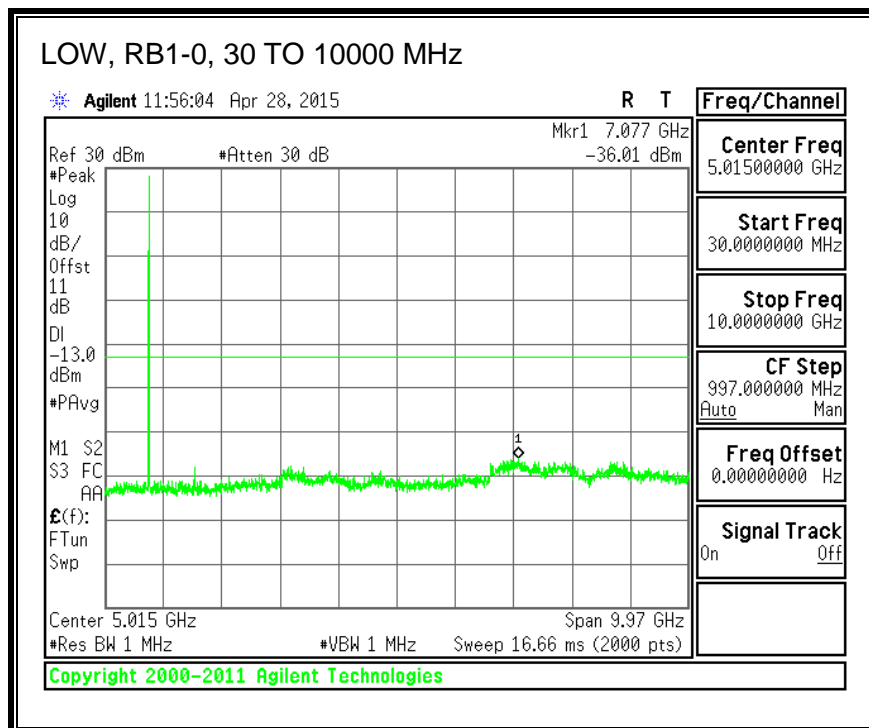
**8.5.6. LTE BAND 13**

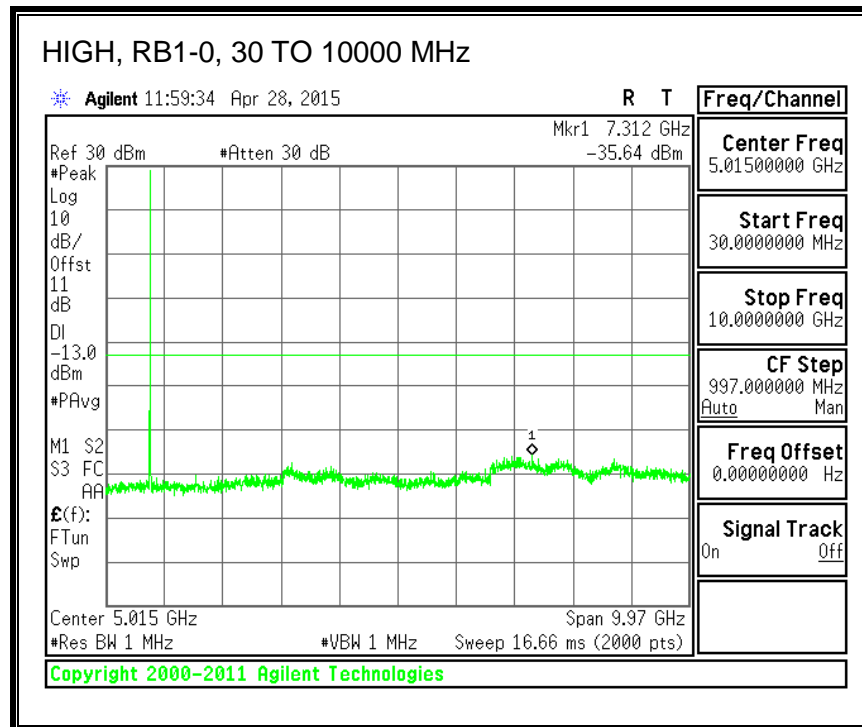
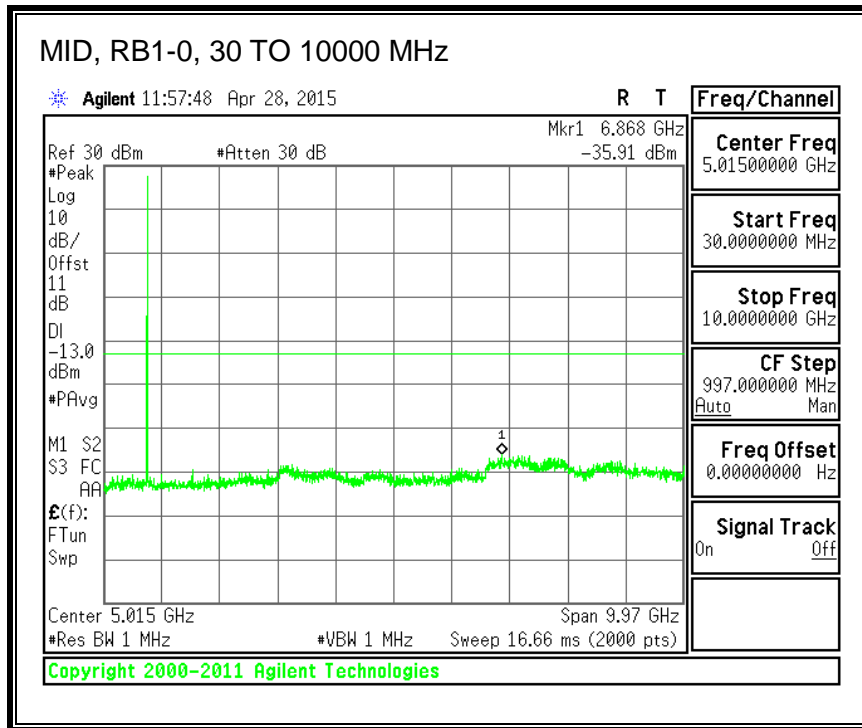
**QPSK, (5.0 MHz BAND WIDTH)**



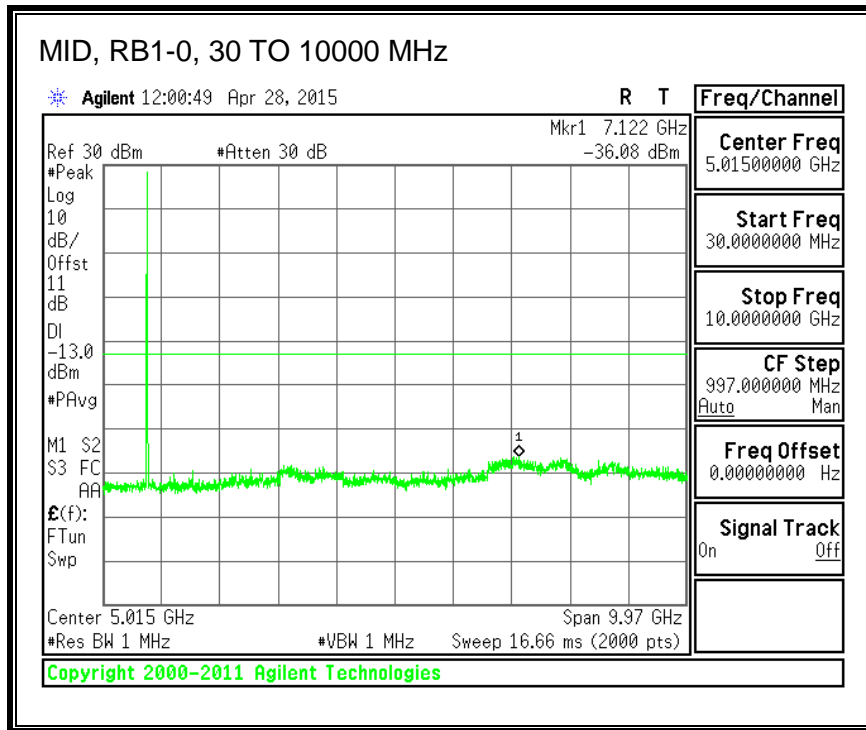


**16QAM, (5.0 MHz BAND WIDTH)**

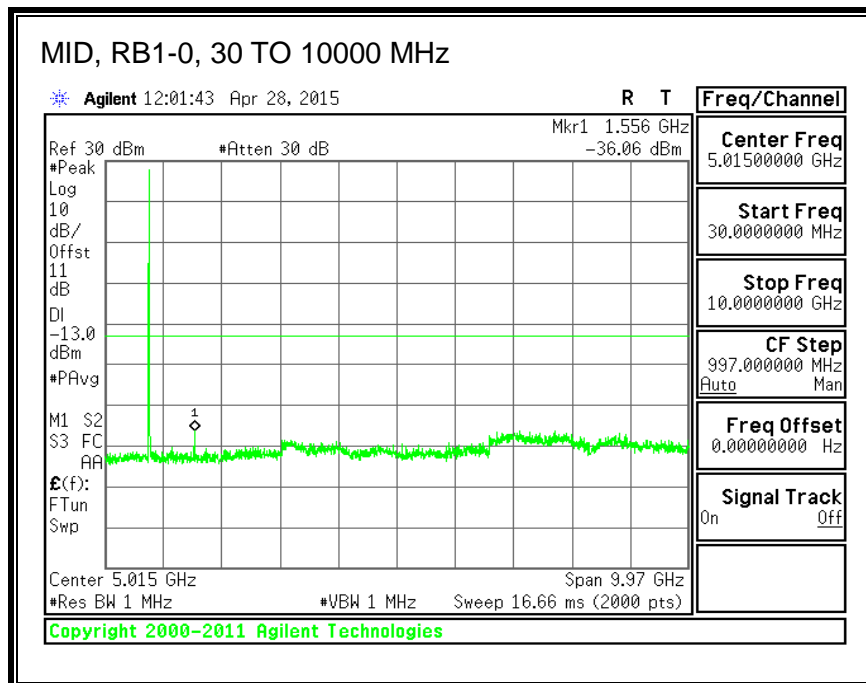




**QPSK, (10.0 MHz BAND WIDTH)**



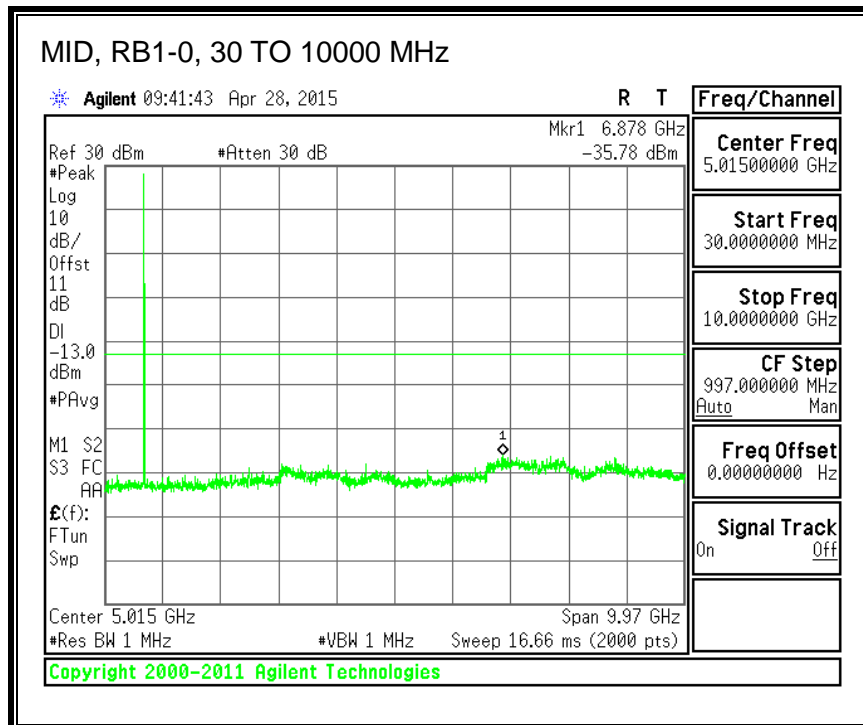
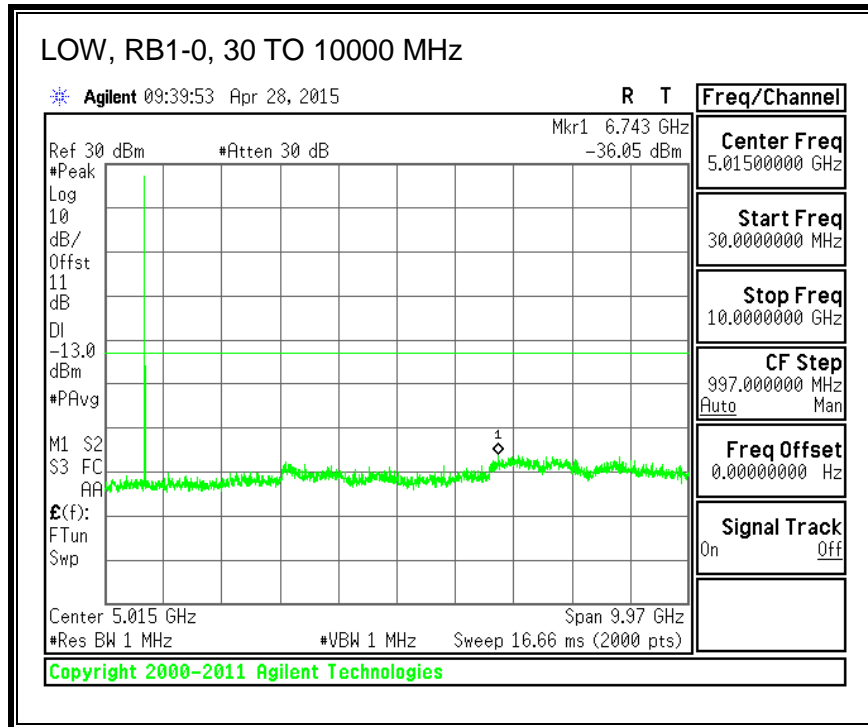
**16QAM, (10.0 MHz BAND WIDTH)**

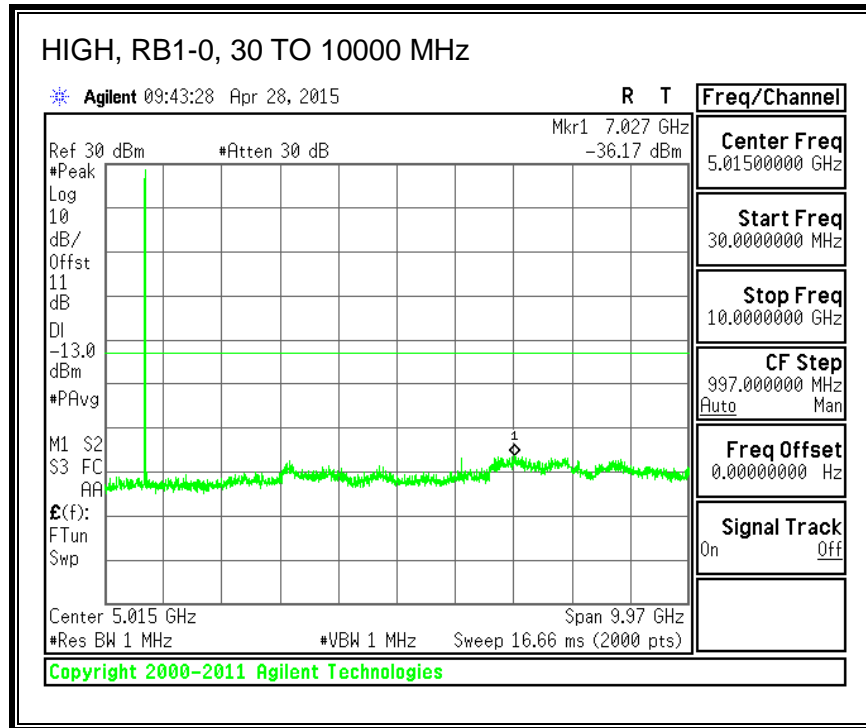




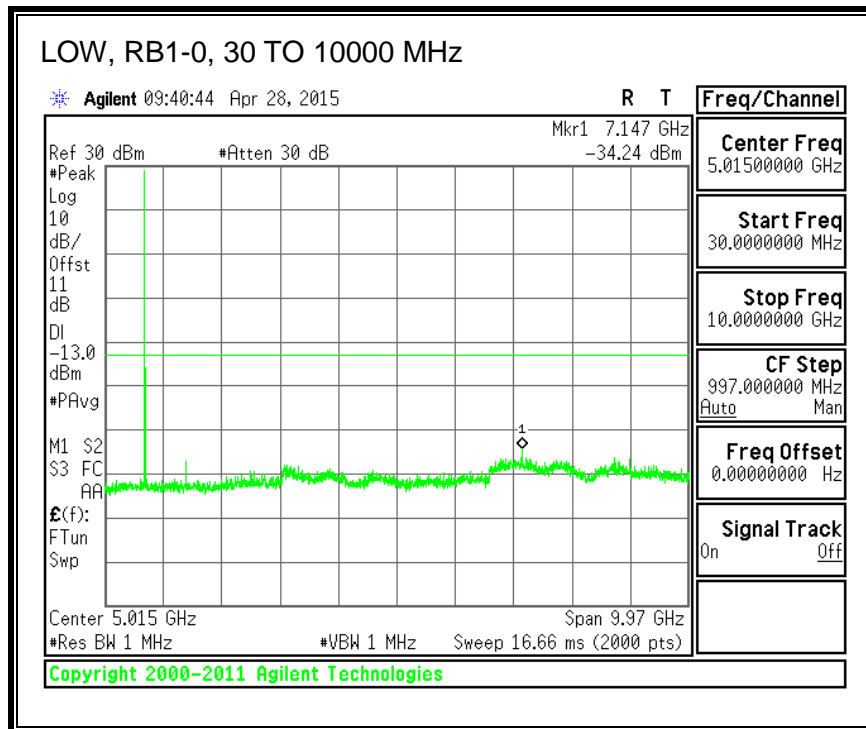
**8.5.7. LTE BAND 17**

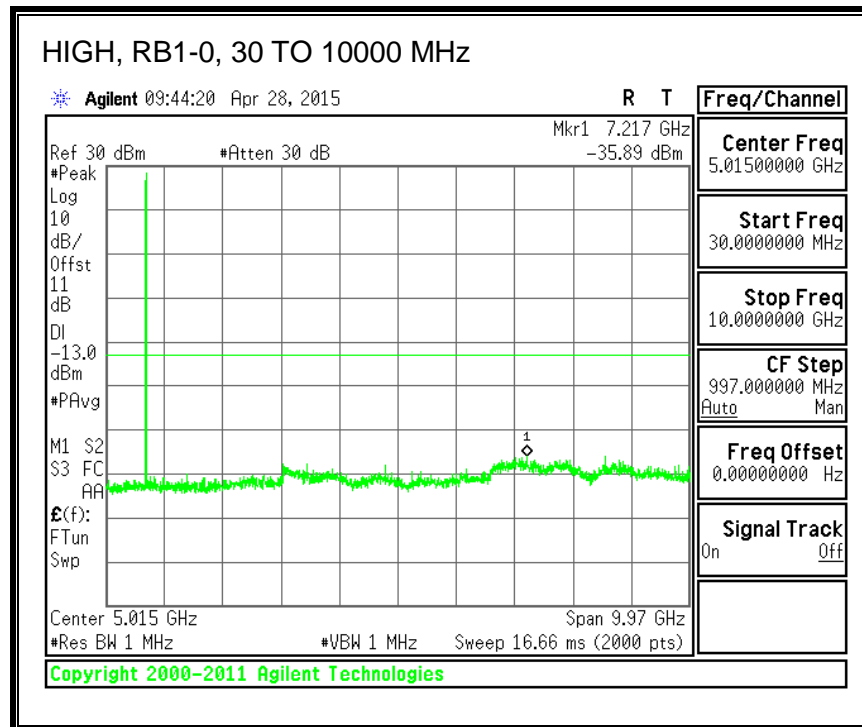
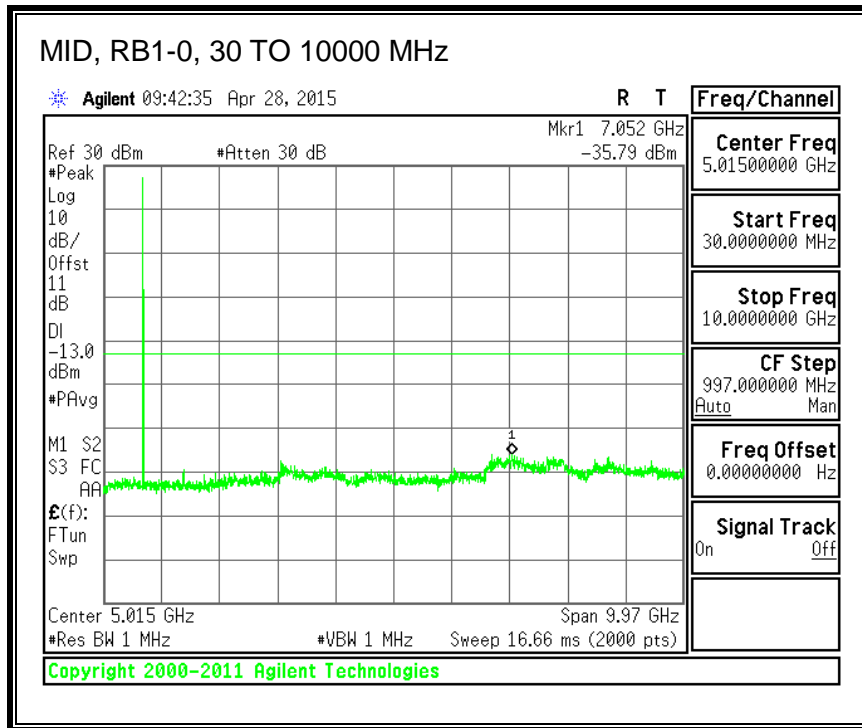
**QPSK, (5.0 MHz BAND WIDTH)**



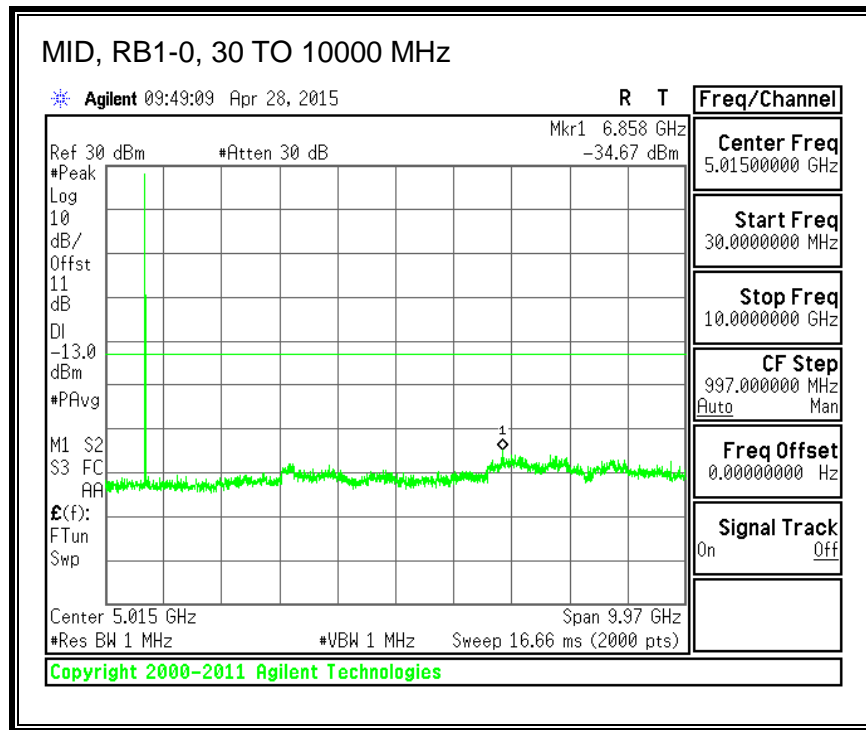
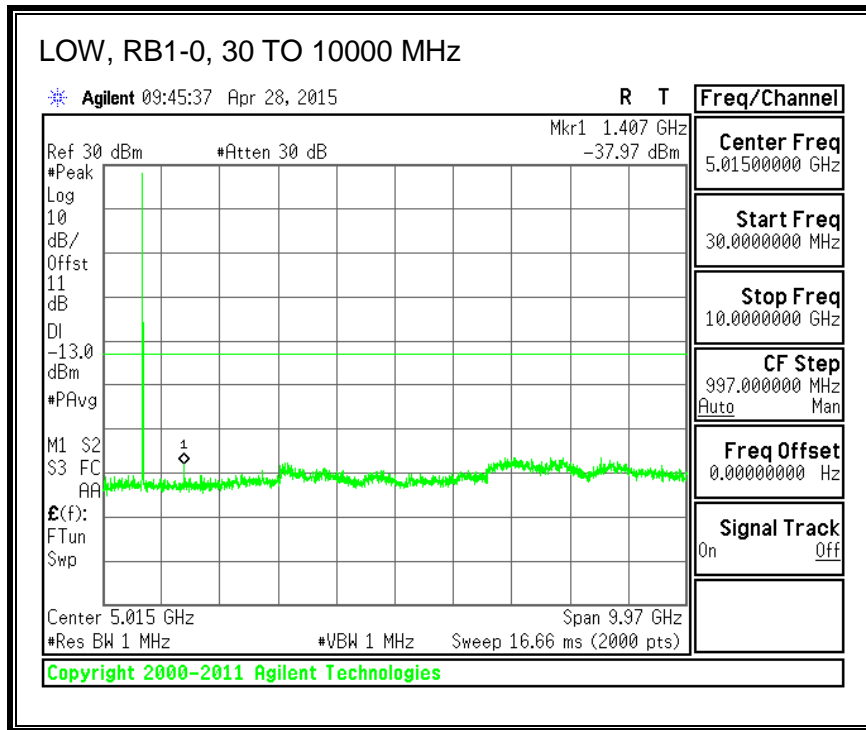


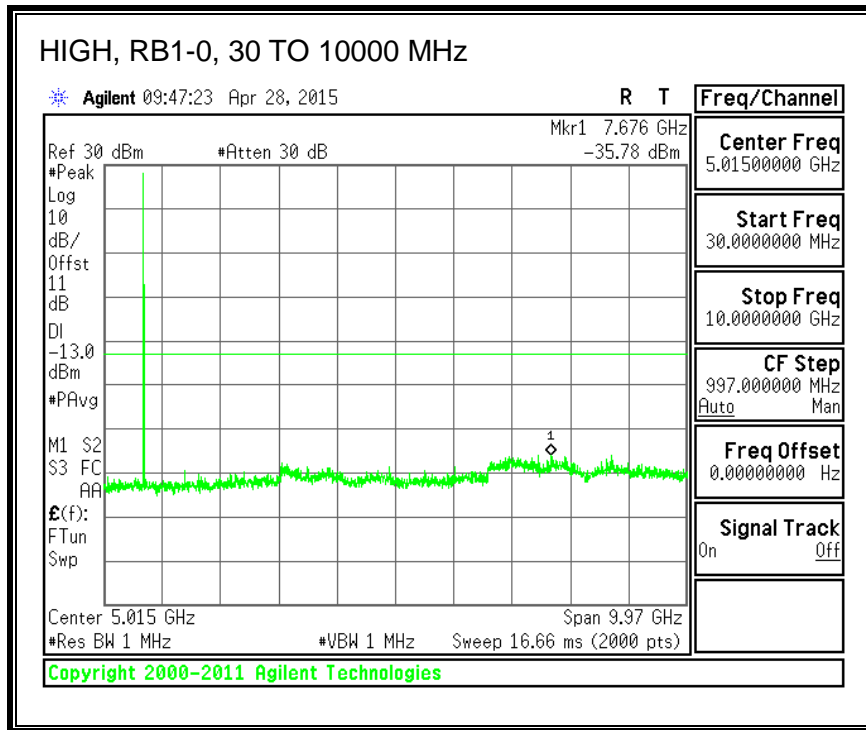
**16QAM, (5.0 MHz BAND WIDTH)**



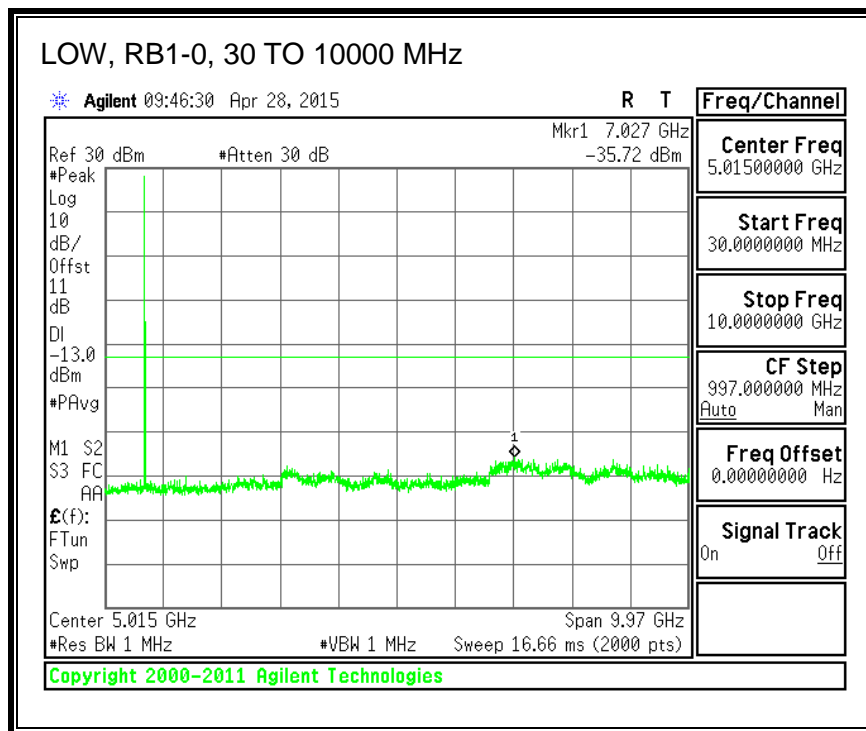


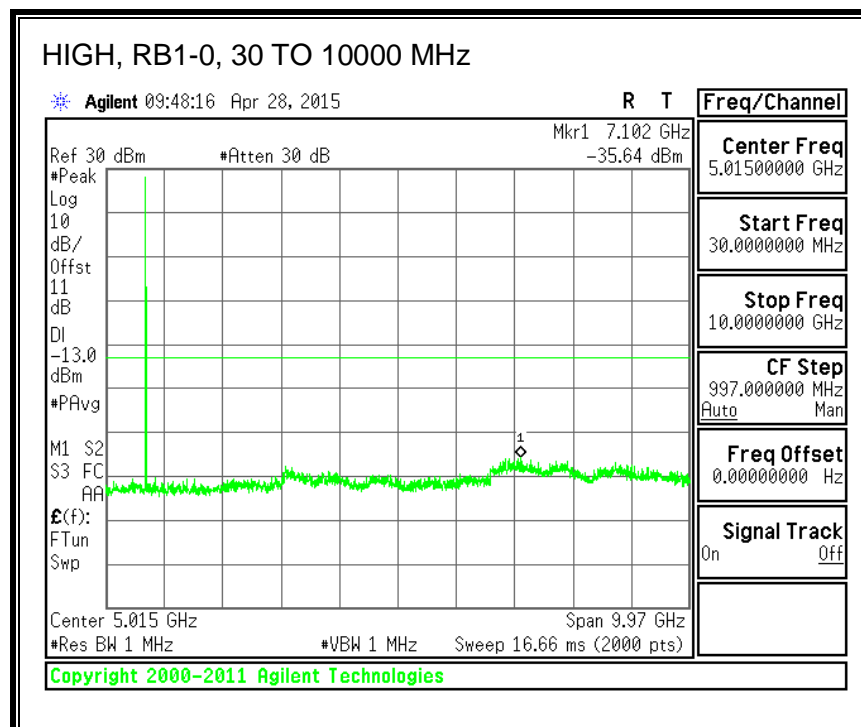
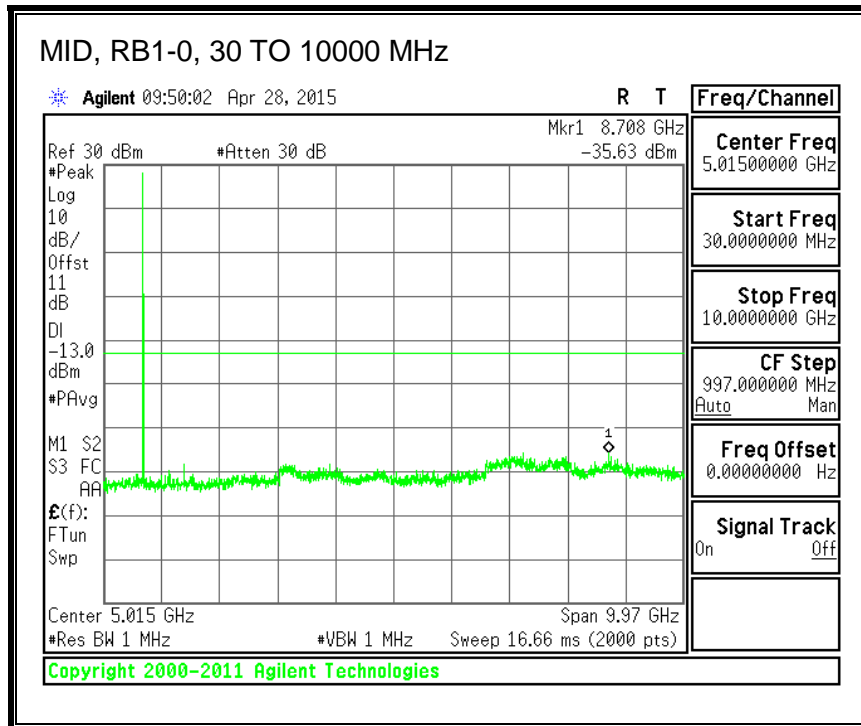
**QPSK, (10.0 MHz BAND WIDTH)**





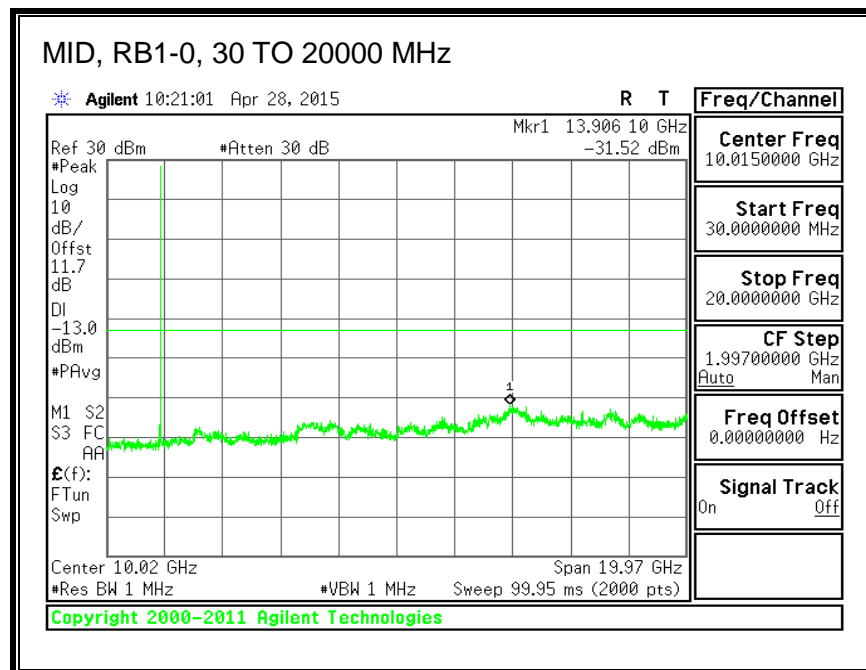
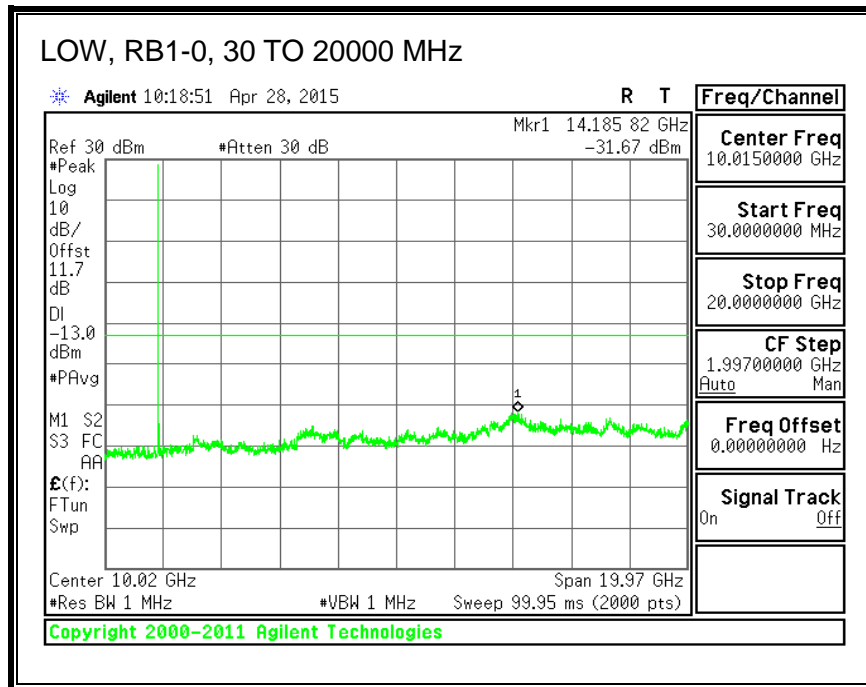
**16QAM, (10.0 MHz BAND WIDTH)**

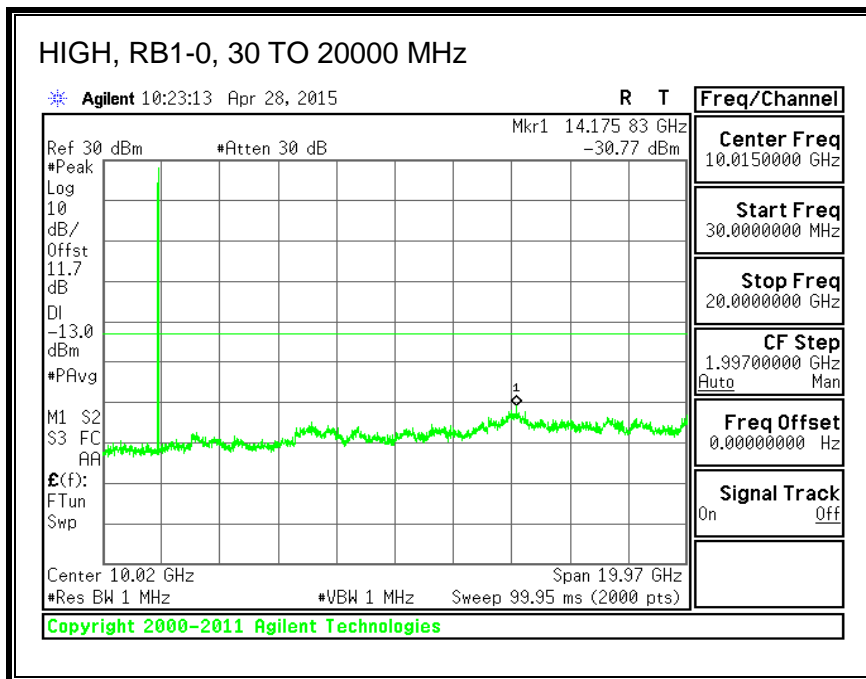




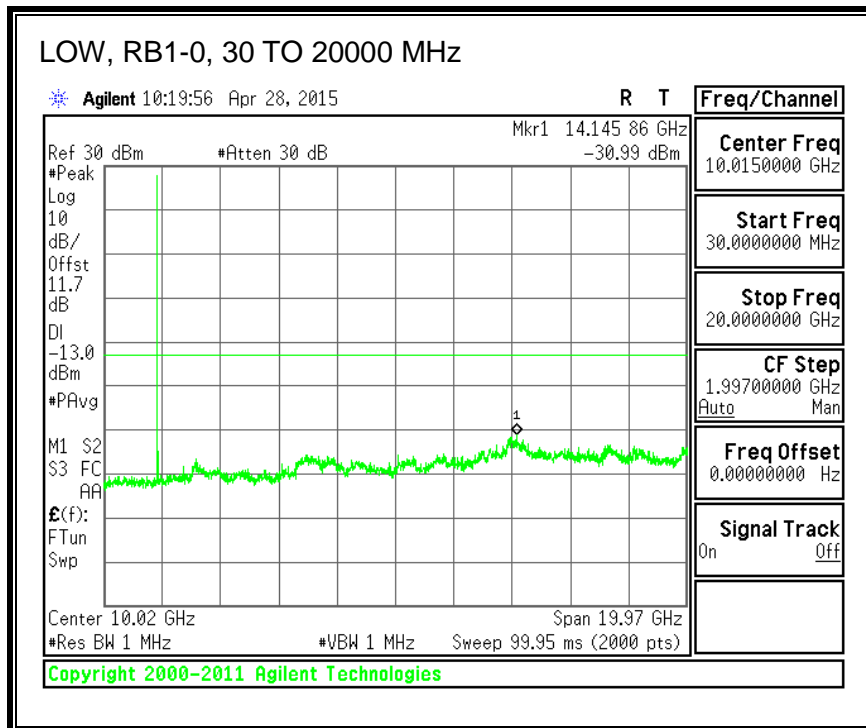
### 8.5.8. LTE BAND 25

#### QPSK, (1.4 MHz BAND WIDTH)

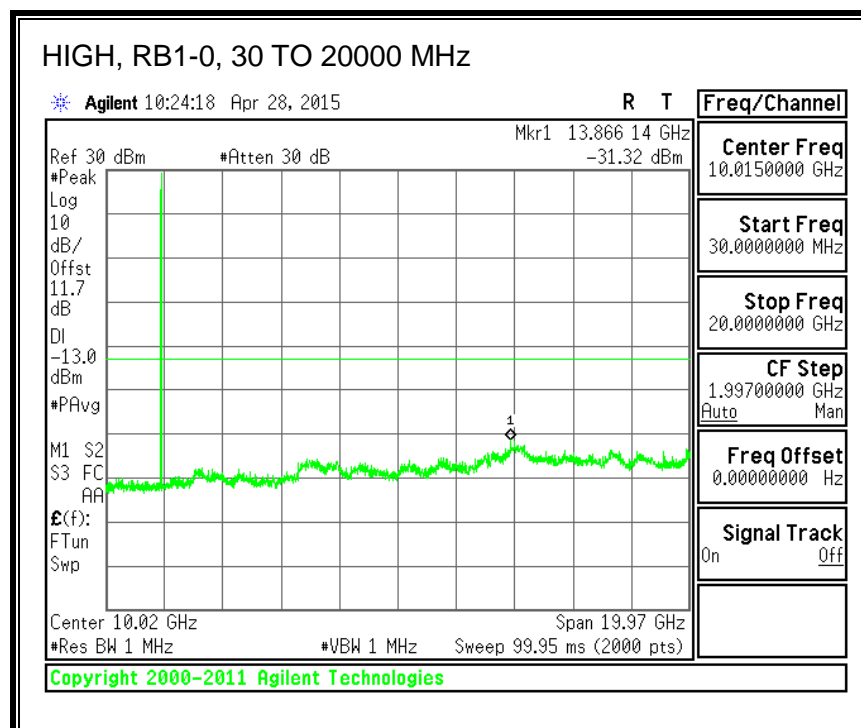
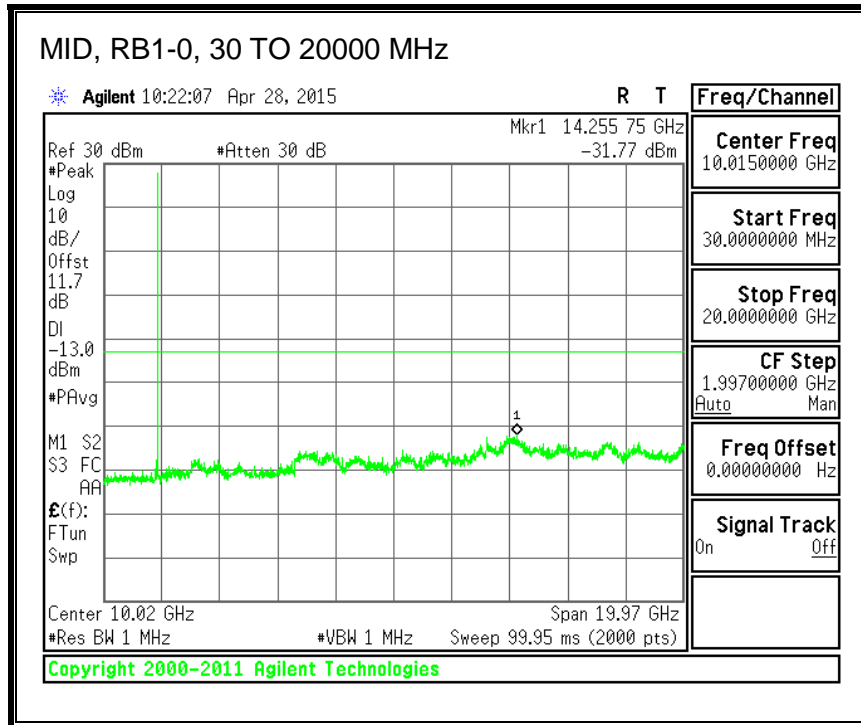




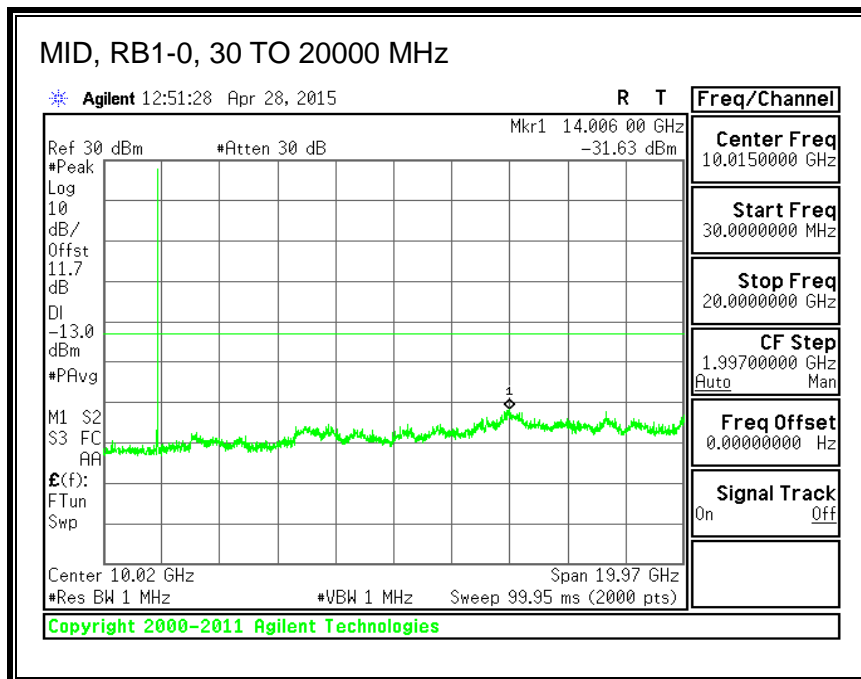
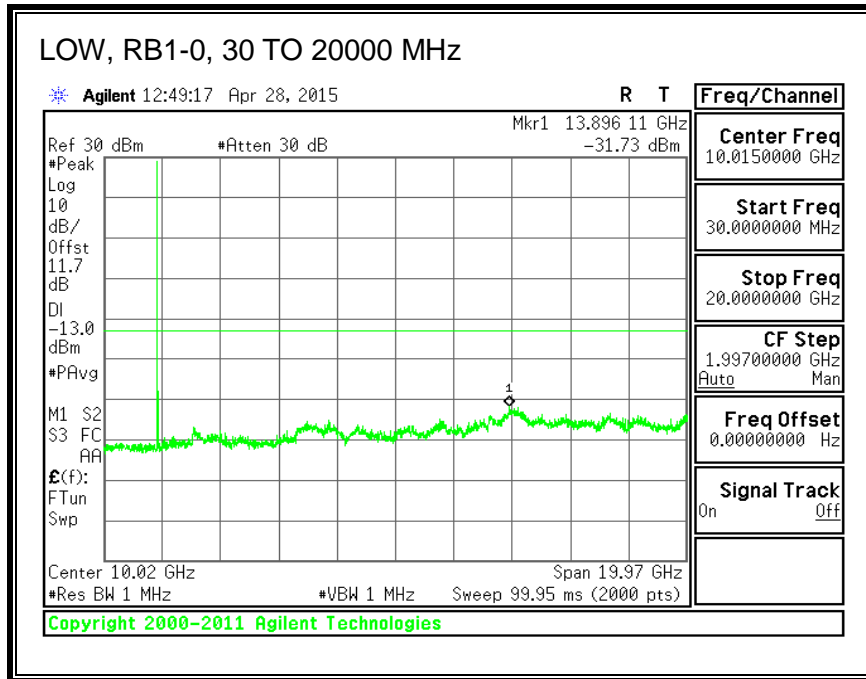
**16QAM, (1.4 MHz BAND WIDTH)**

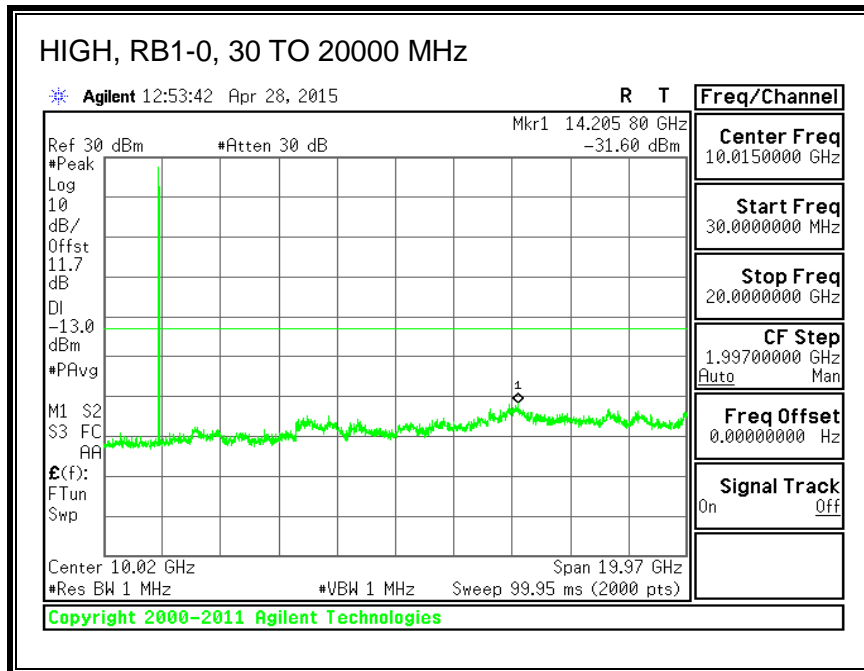




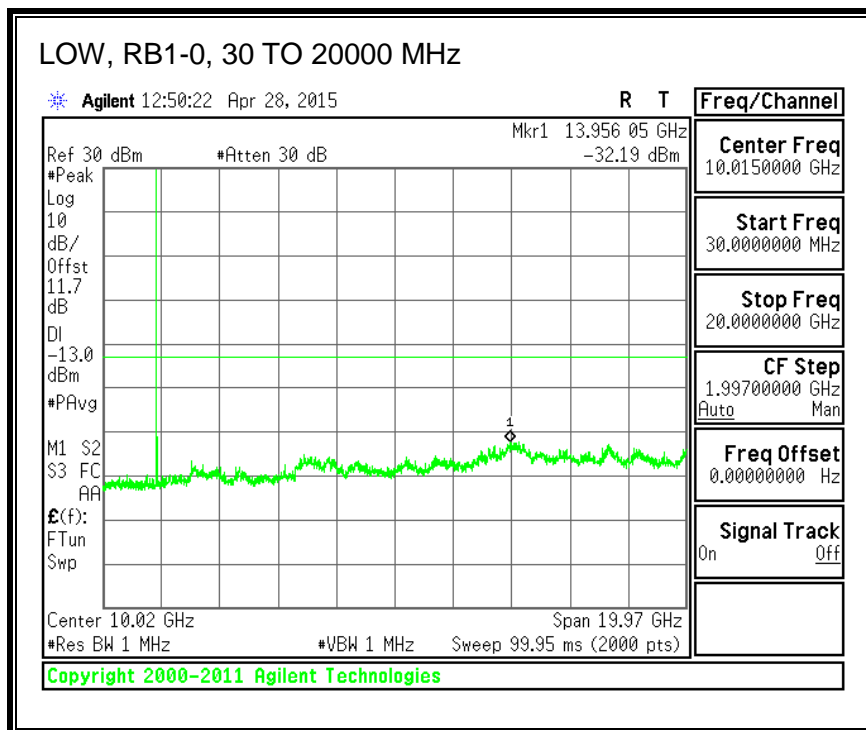


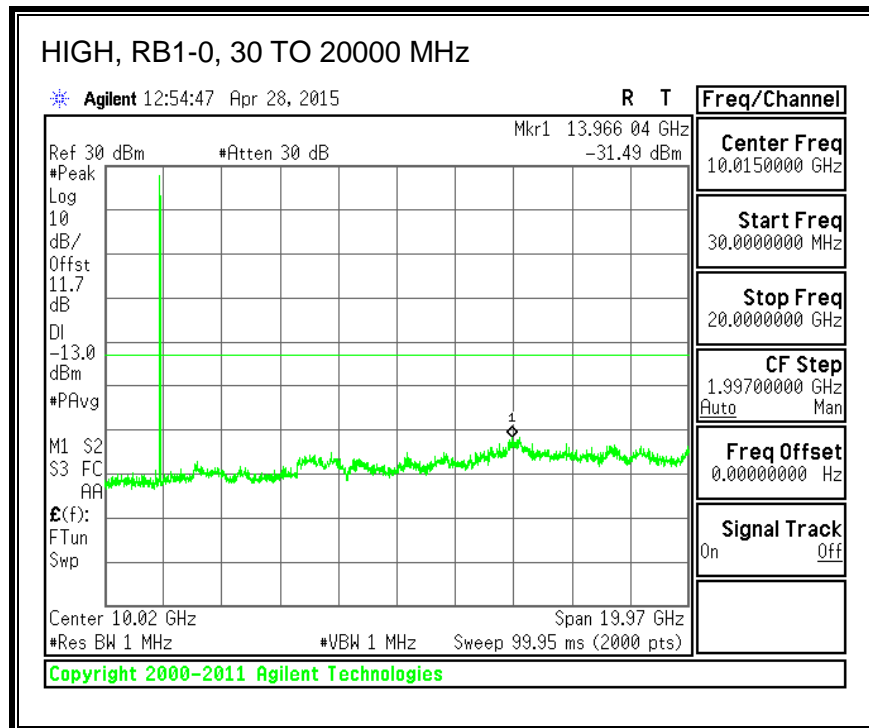
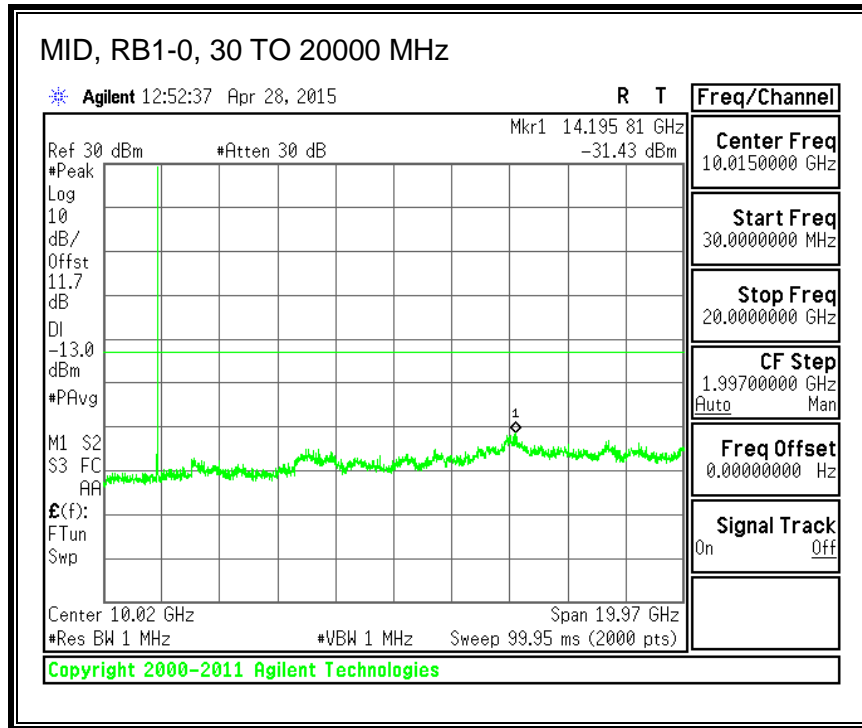
**QPSK, (3.0 MHz BAND WIDTH)**



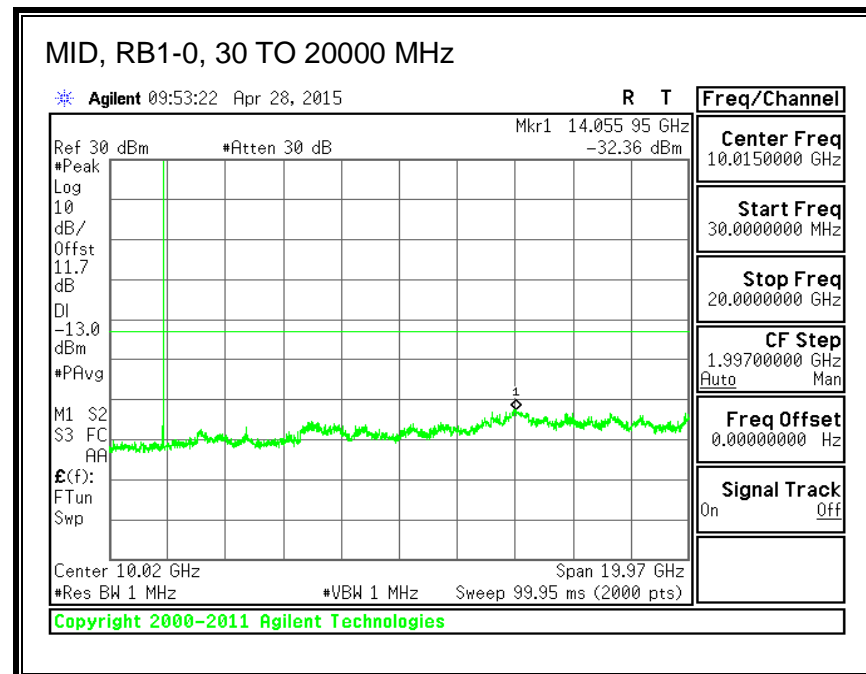
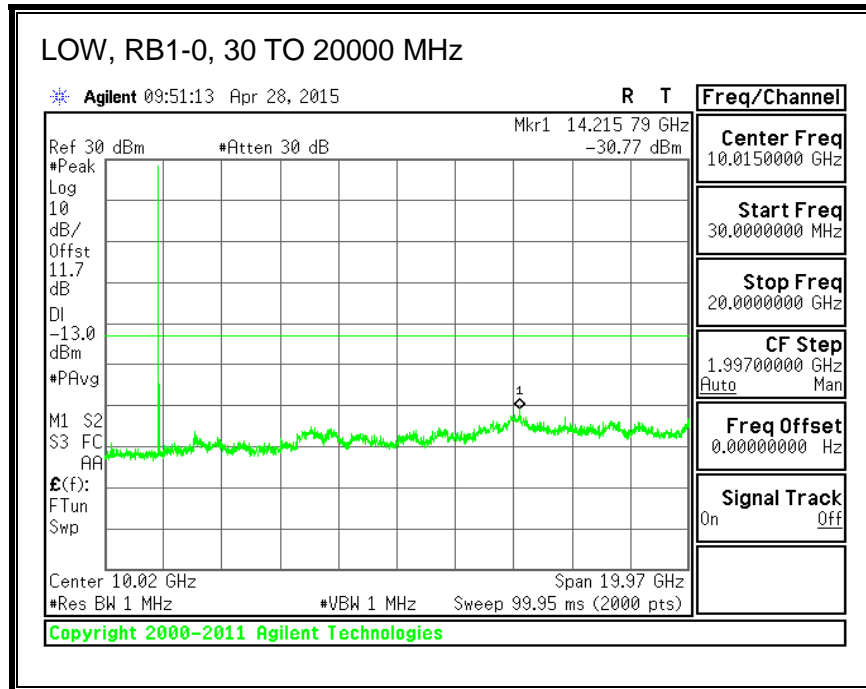


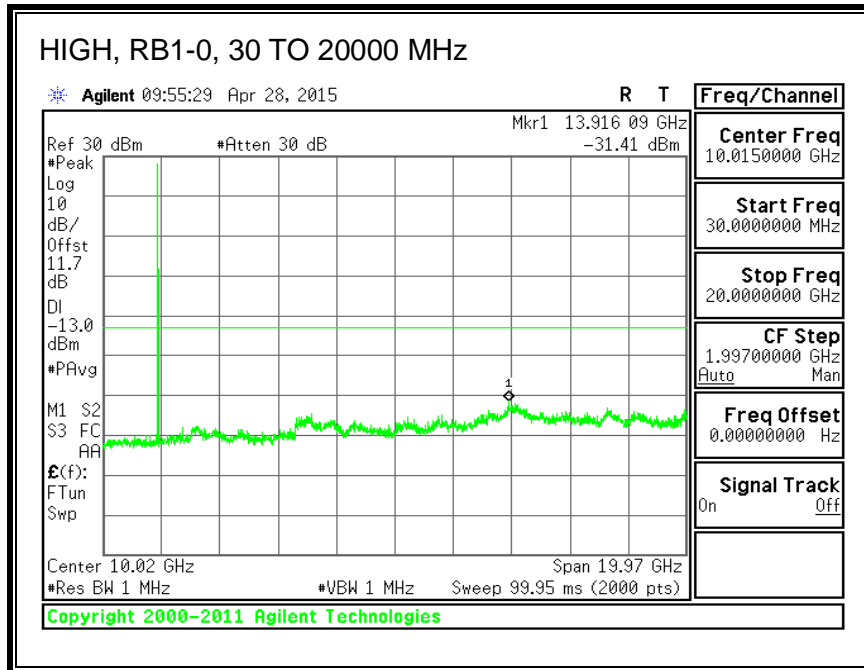
**16QAM, (3.0 MHz BAND WIDTH)**



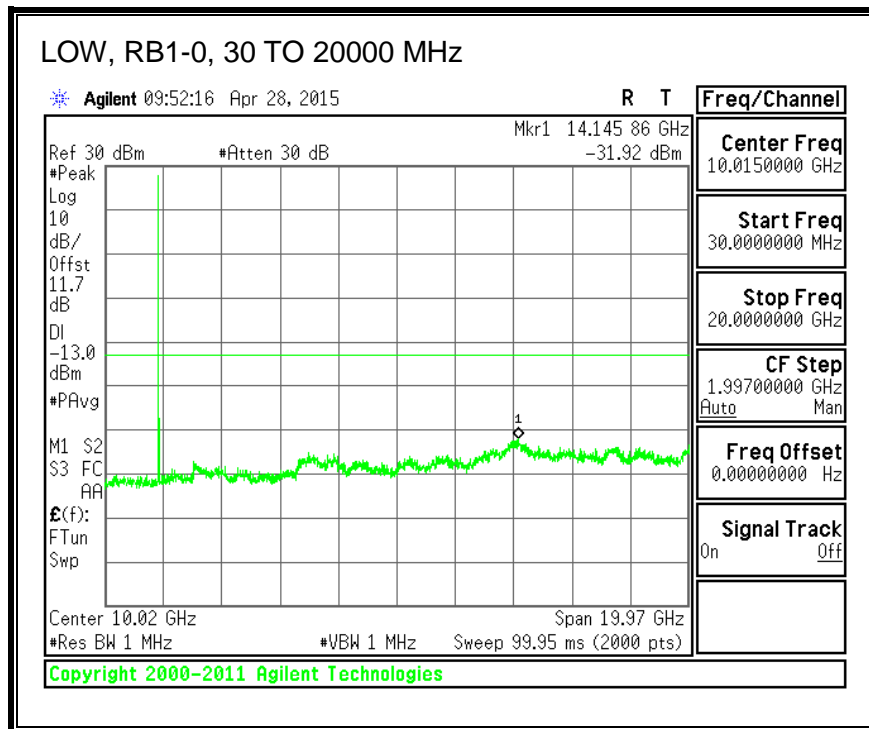


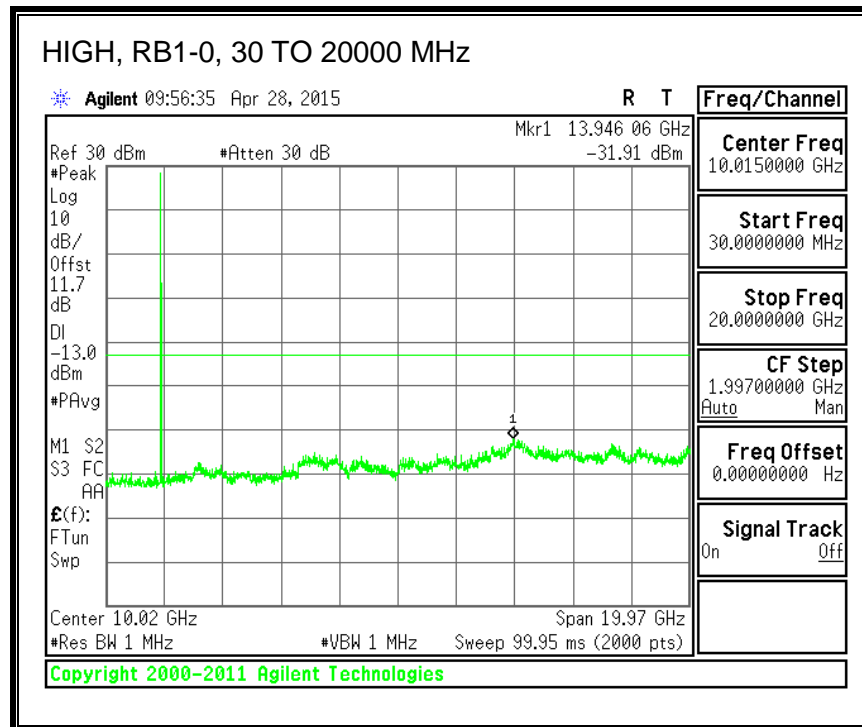
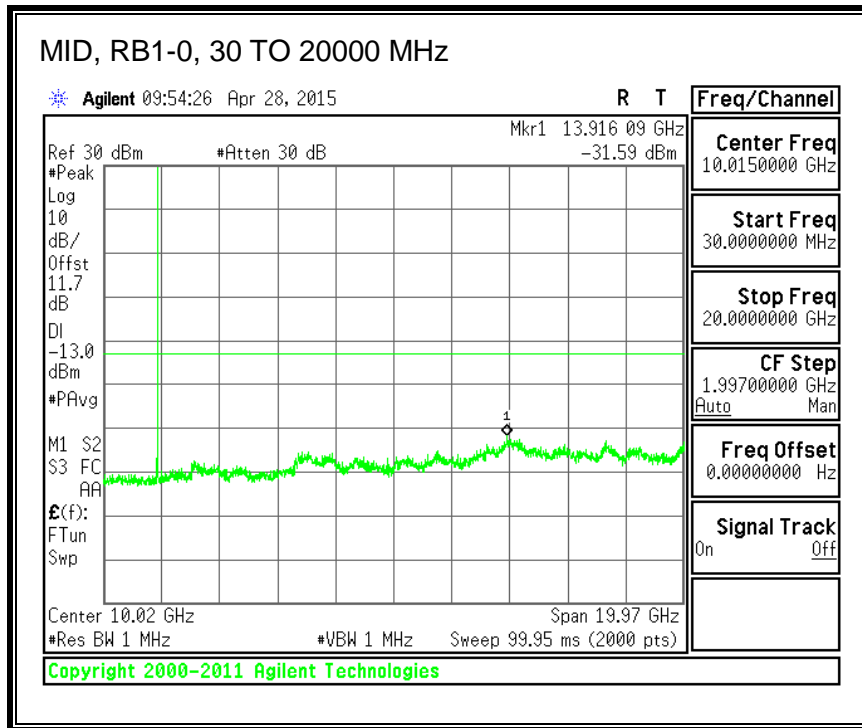
**QPSK, (5.0 MHz BAND WIDTH)**



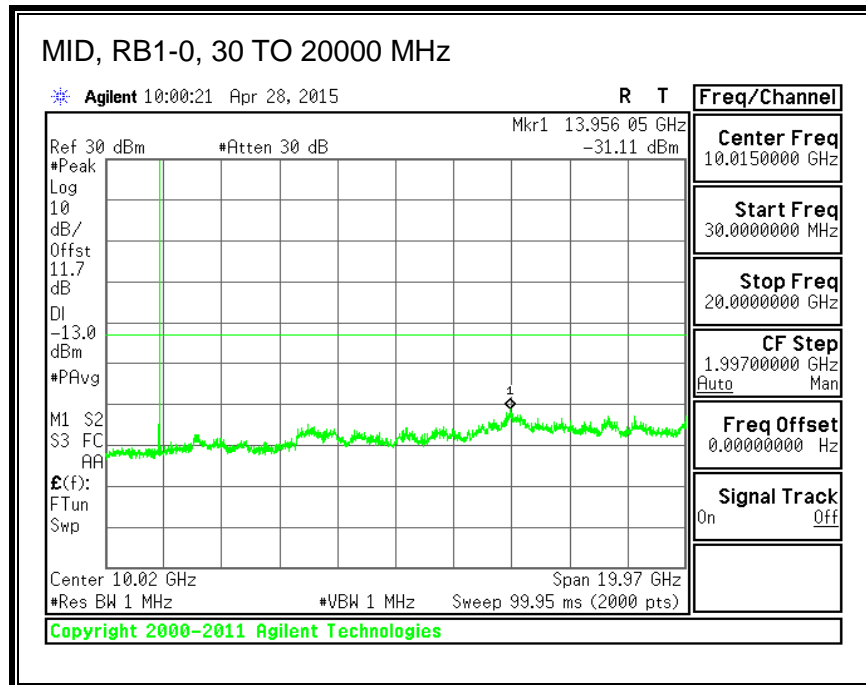
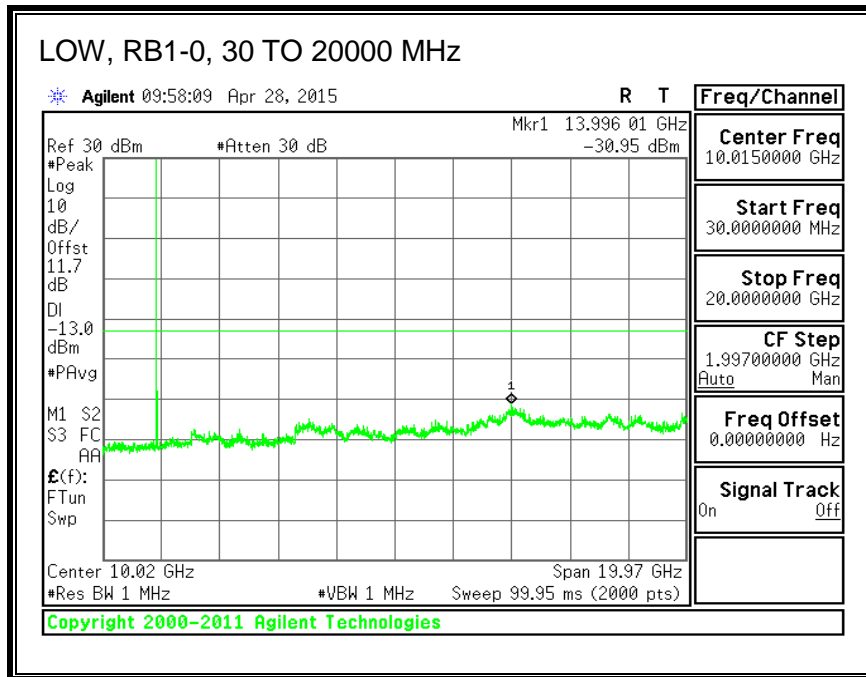


**16QAM, (5.0 MHz BAND WIDTH)**

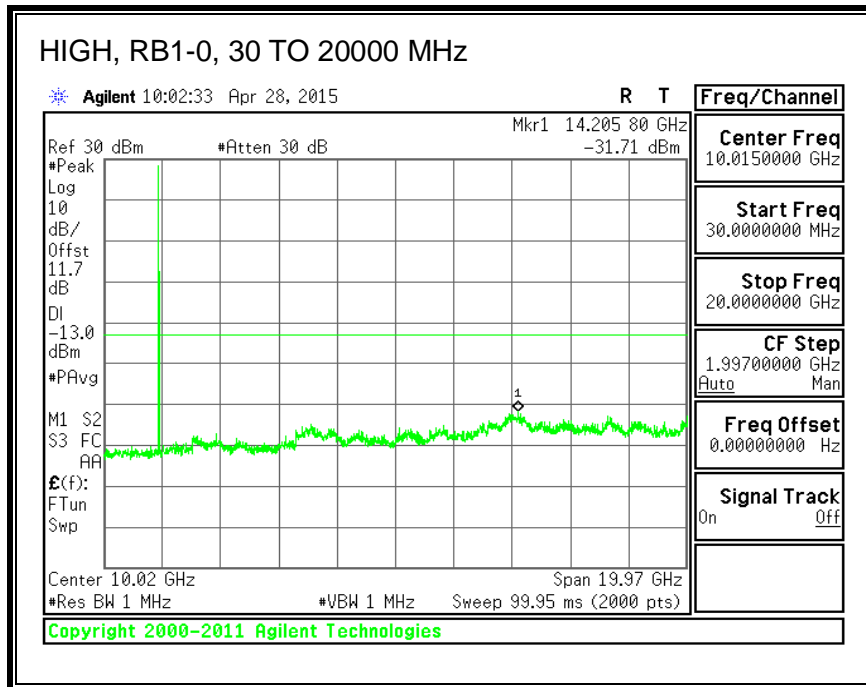




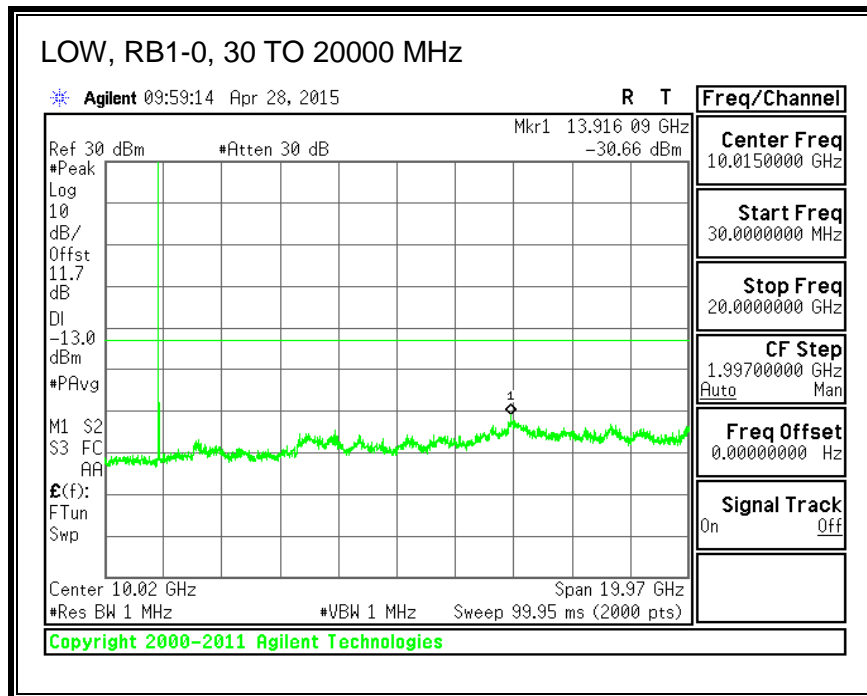
**QPSK, (10.0 MHz BAND WIDTH)**

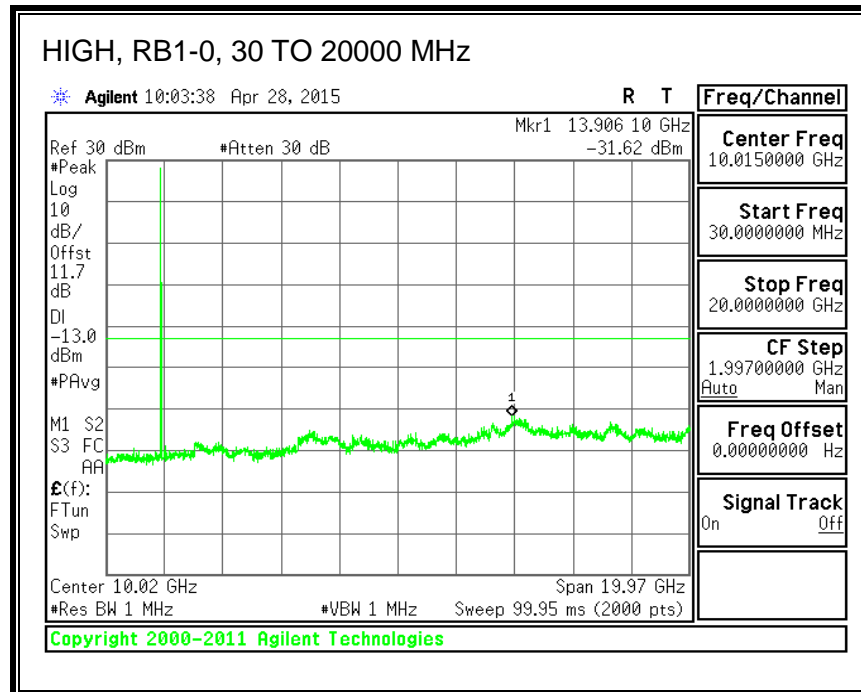
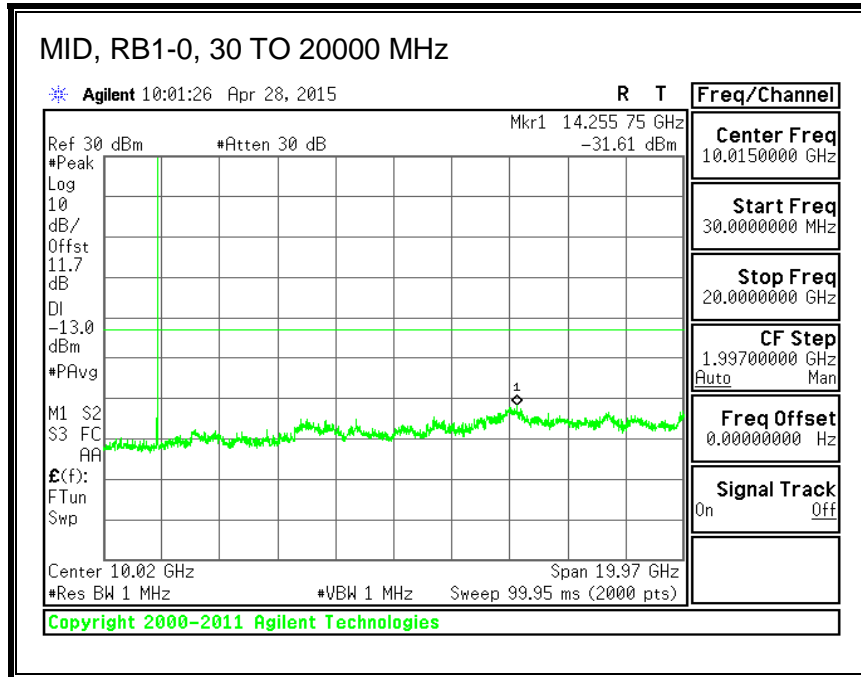




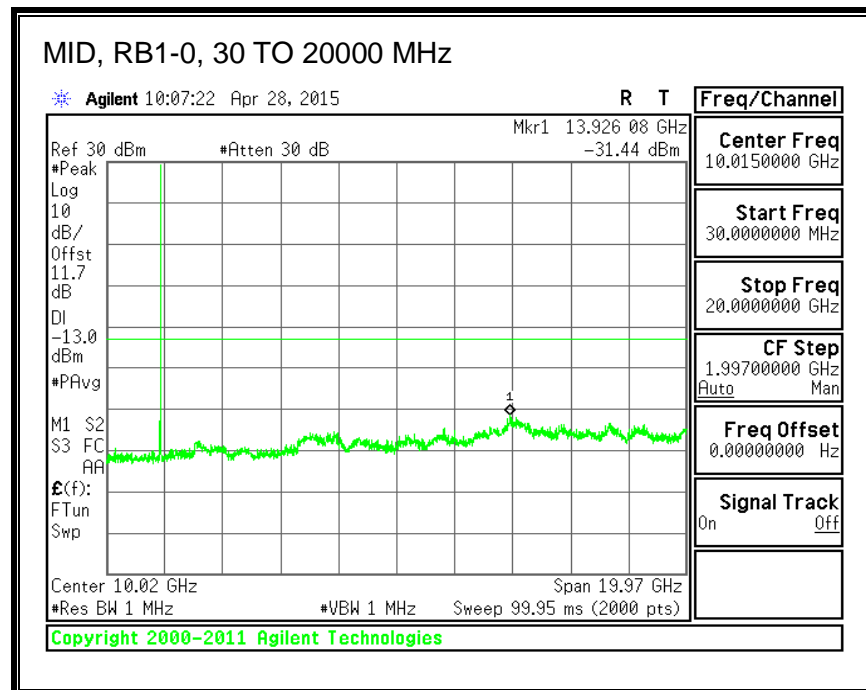
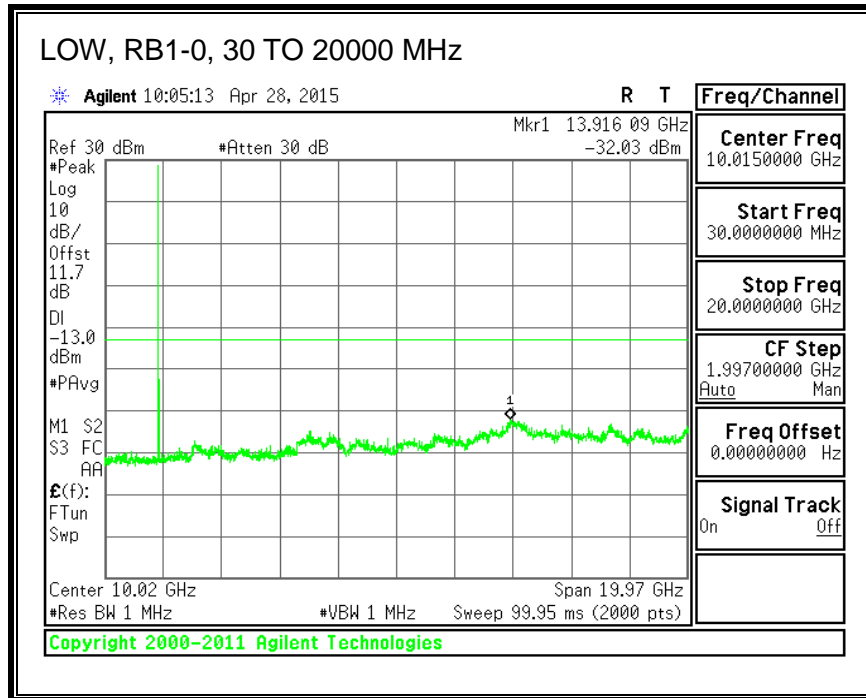


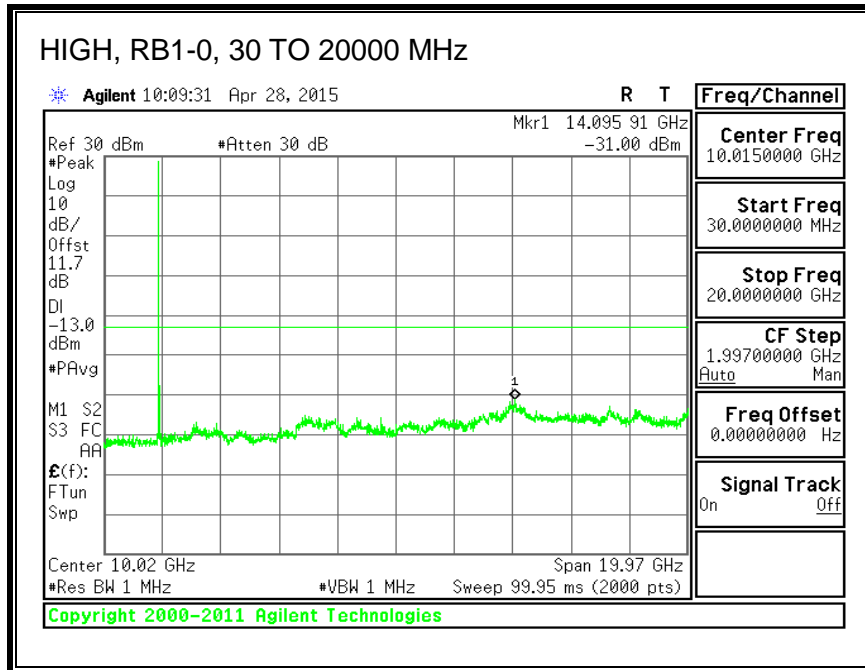
**16QAM, (10.0 MHz BAND WIDTH)**



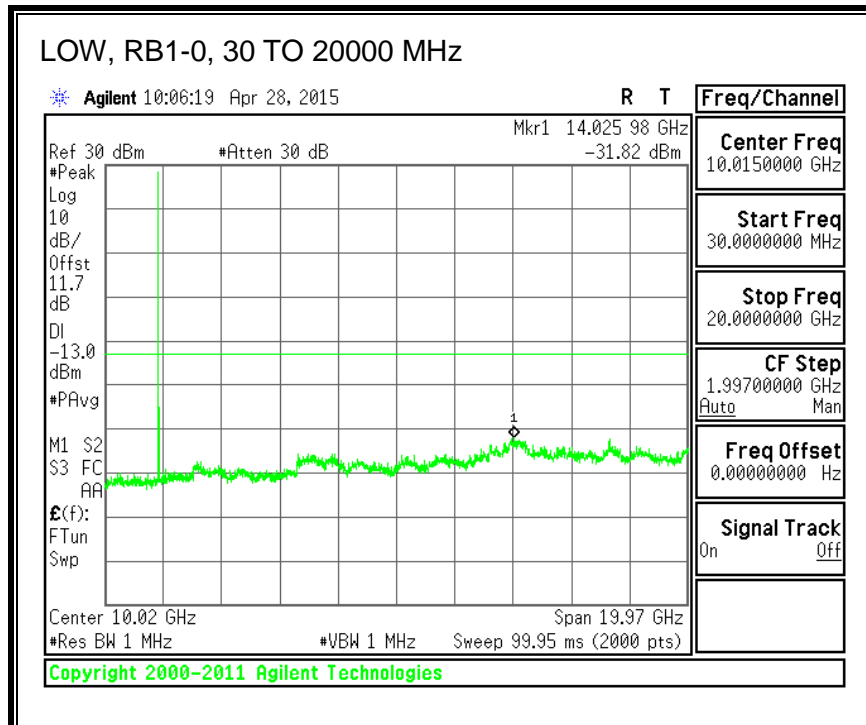


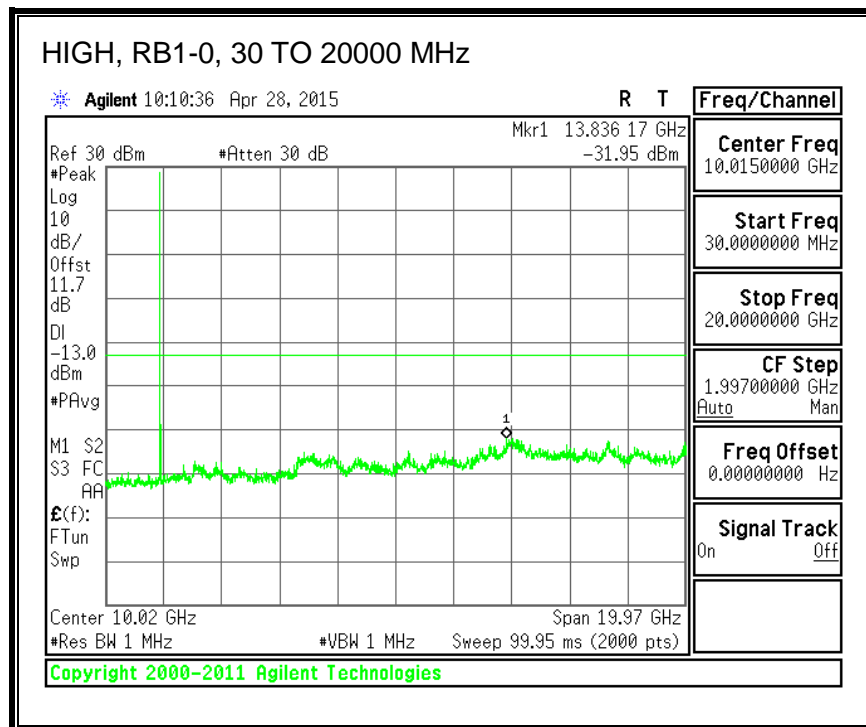
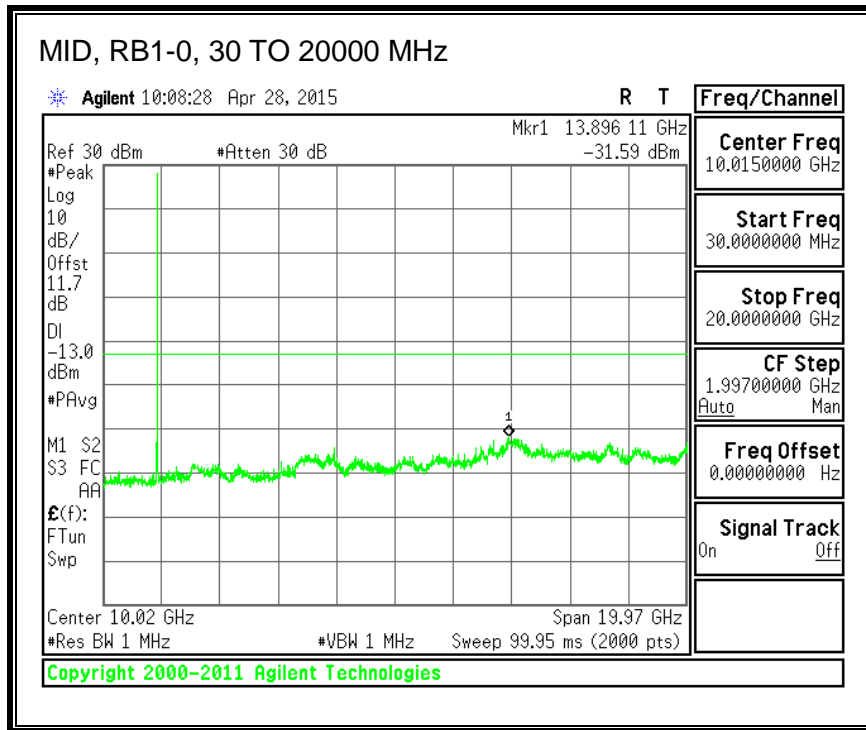
**QPSK, (15.0 MHz BAND WIDTH)**



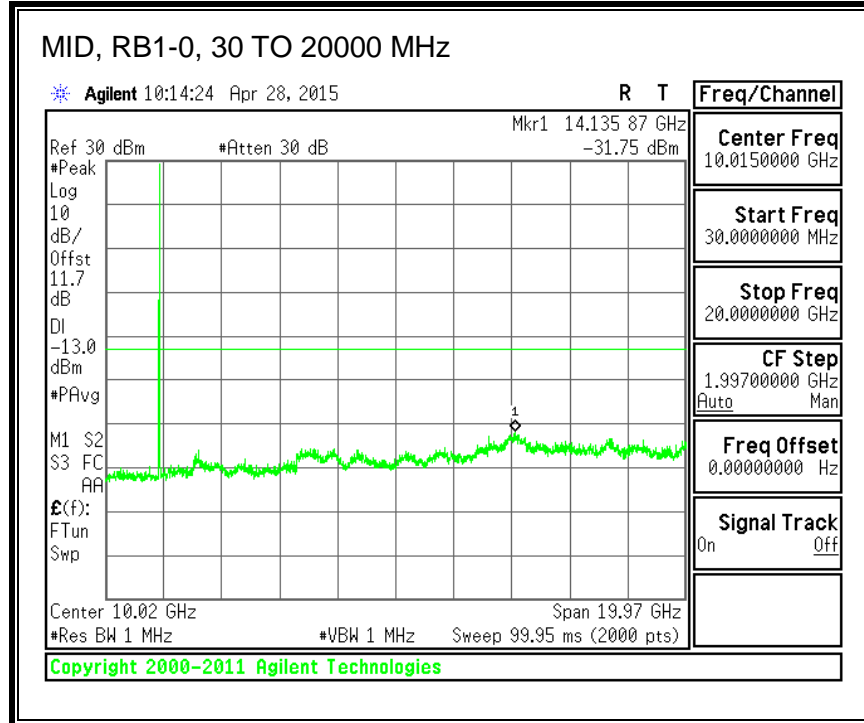
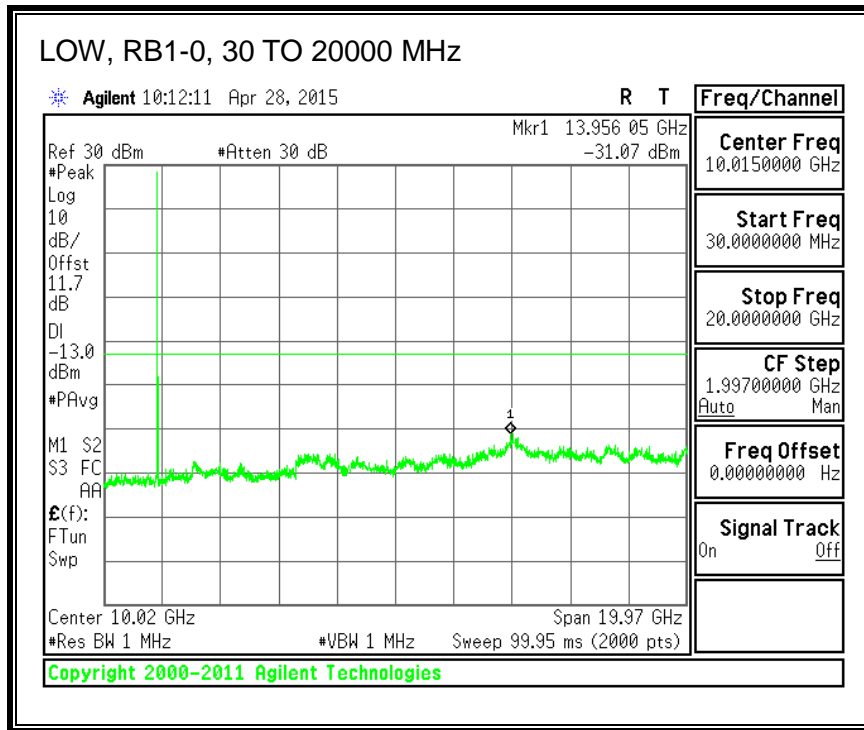


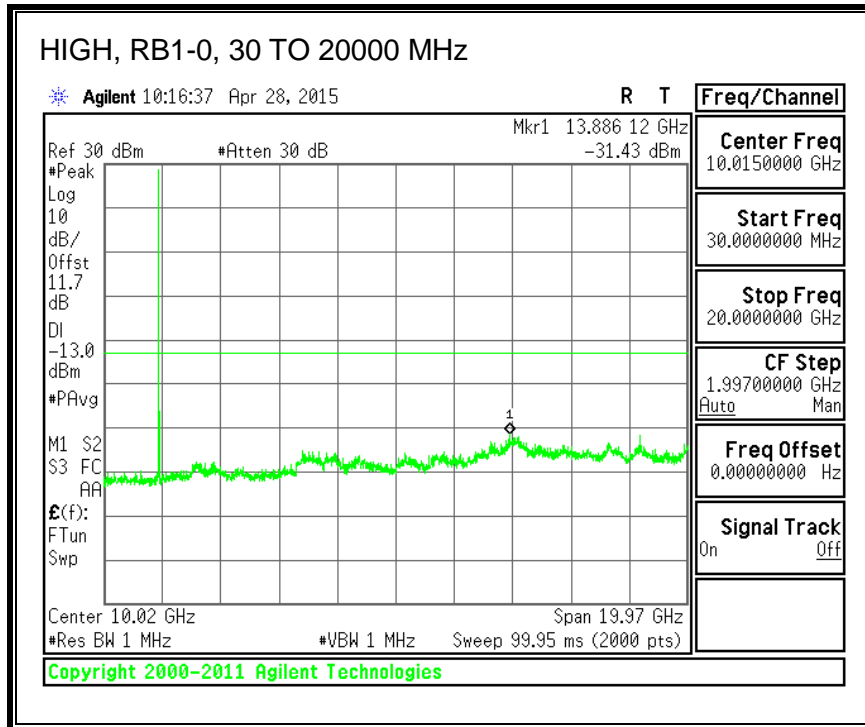
**16QAM, (15.0 MHz BAND WIDTH)**



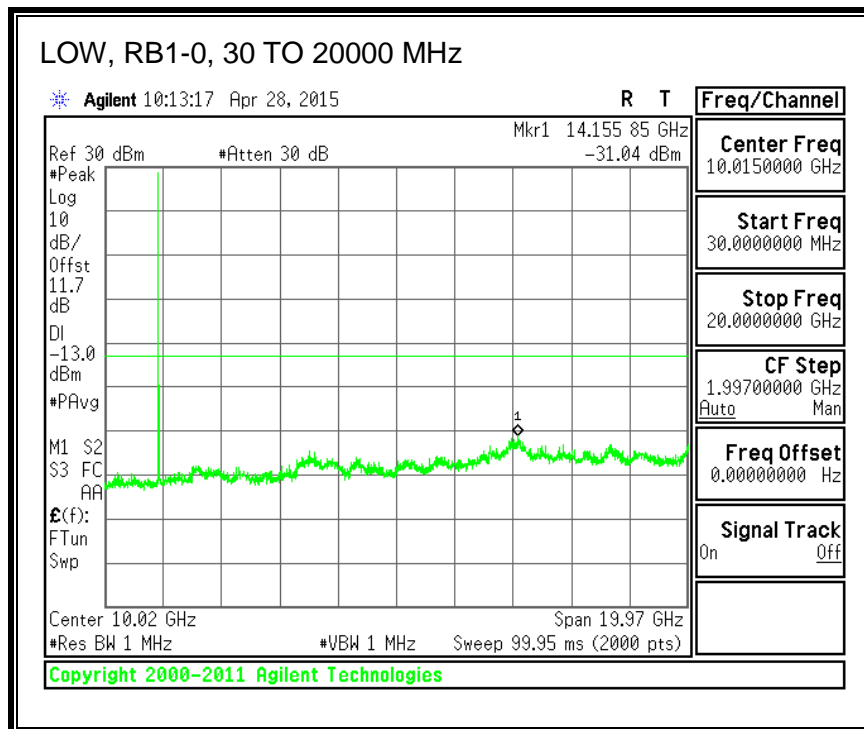


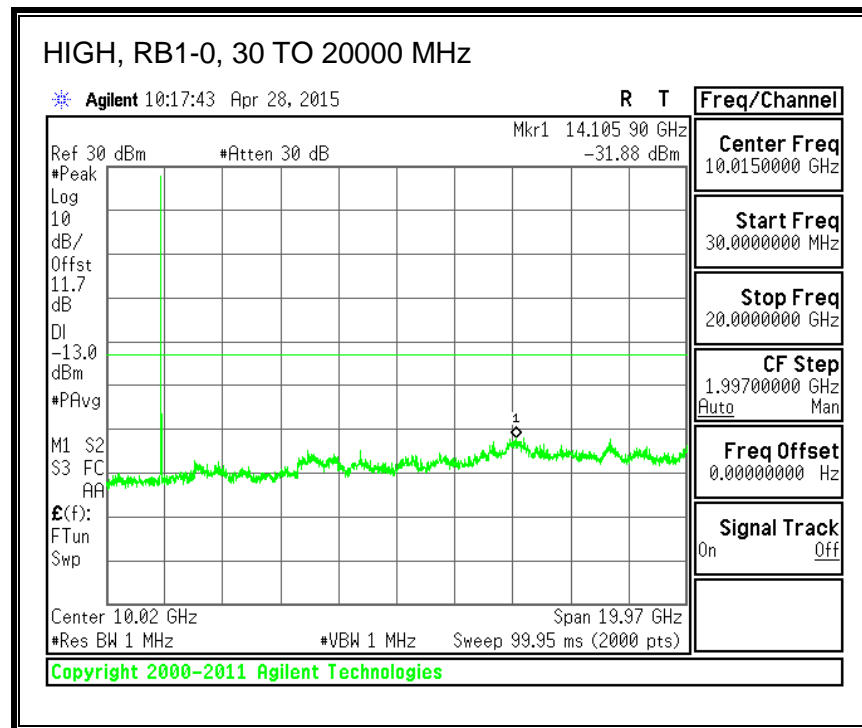
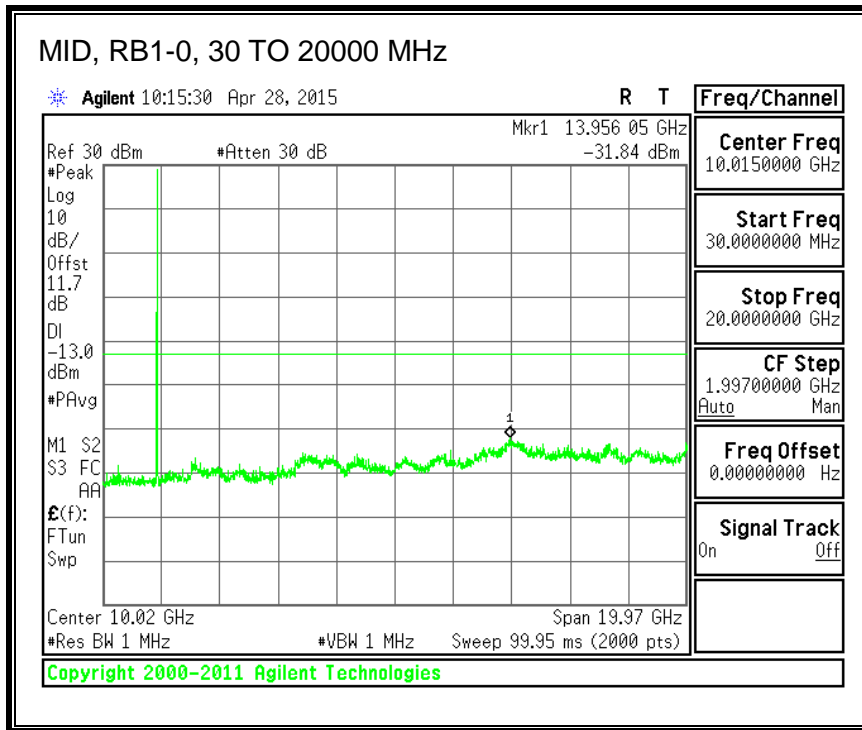
**QPSK, (20.0 MHz BAND WIDTH)**





**16QAM, (20.0 MHz BAND WIDTH)**

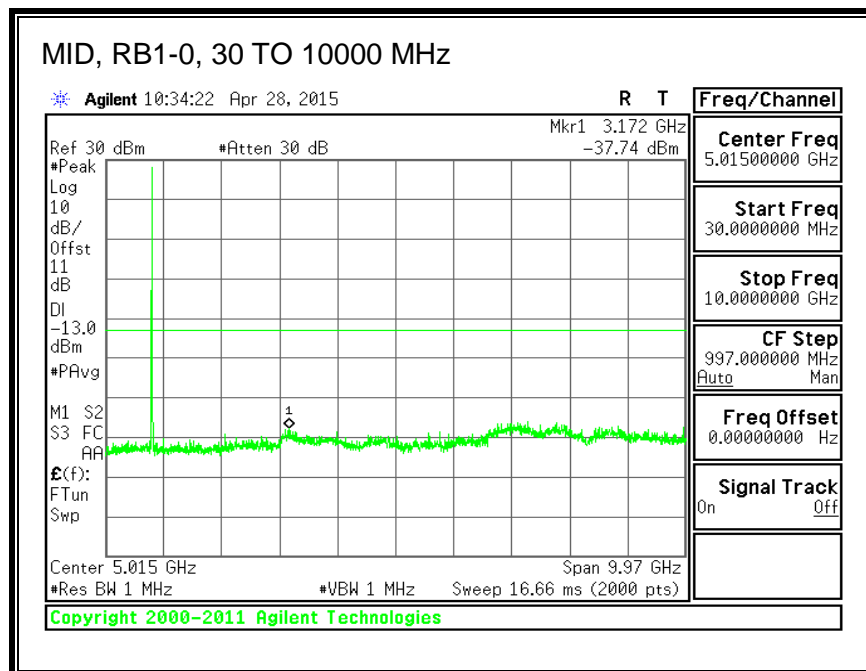
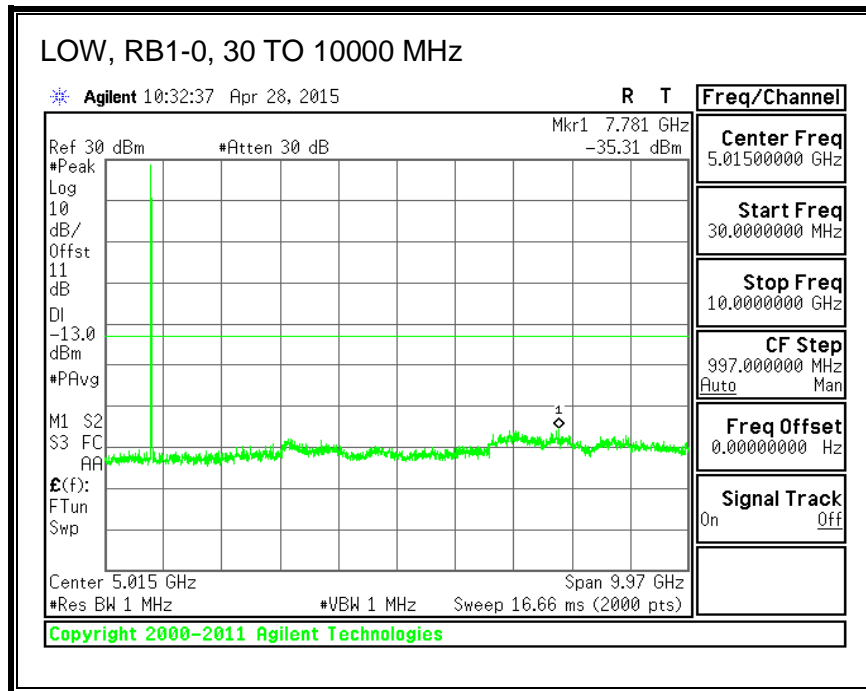


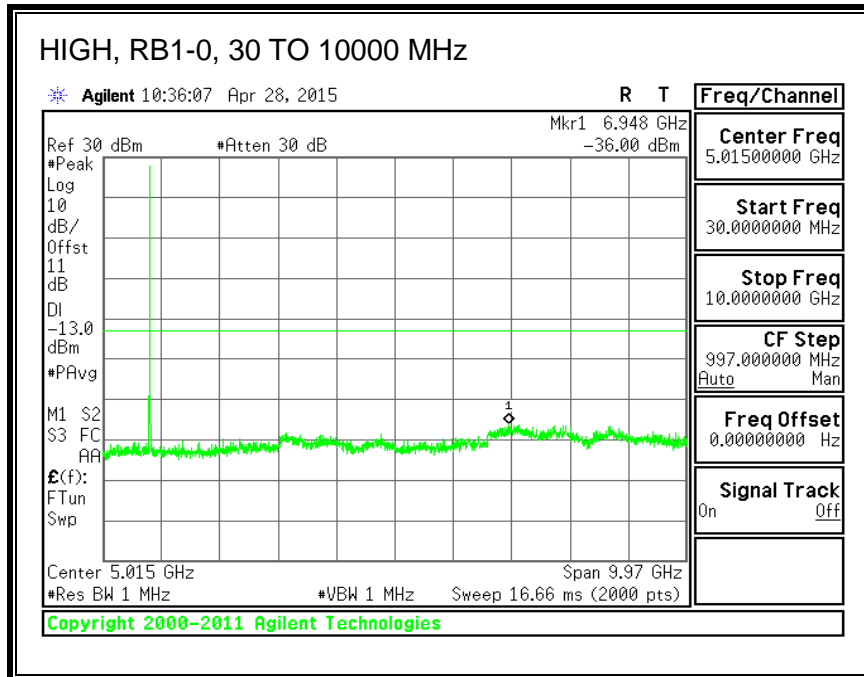




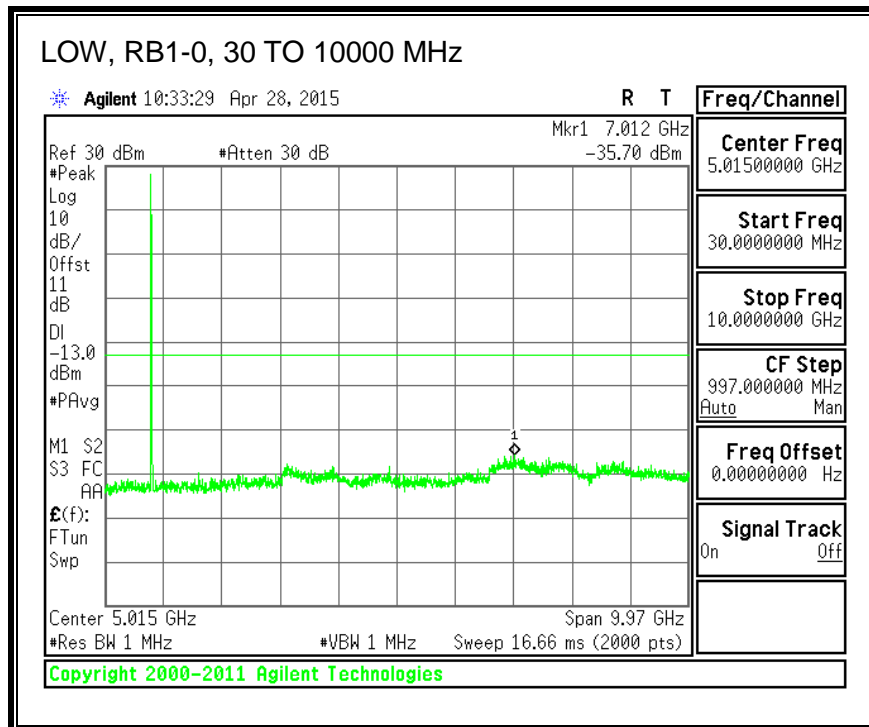
### 8.5.9. LTE BAND 26

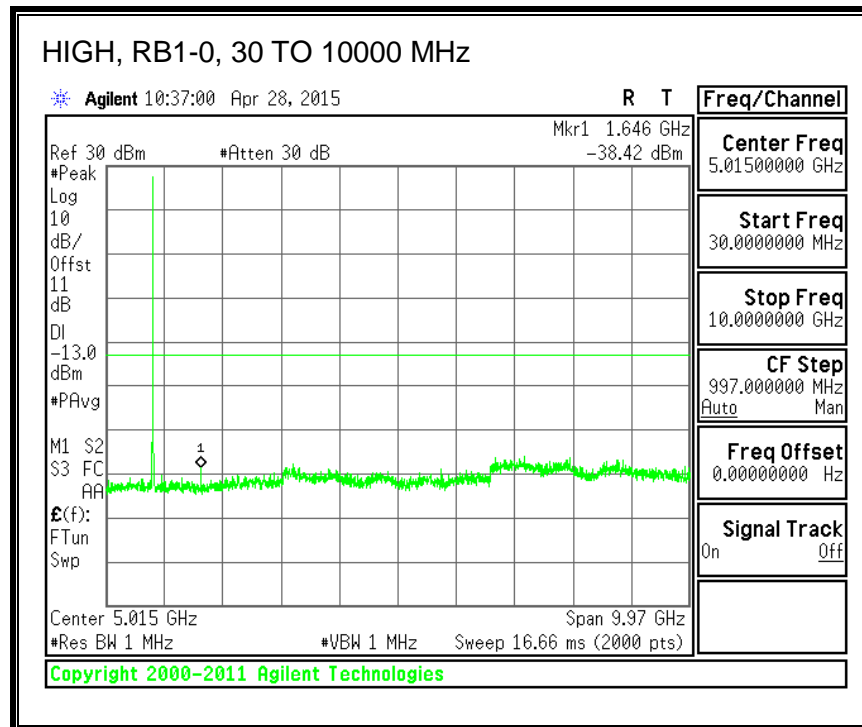
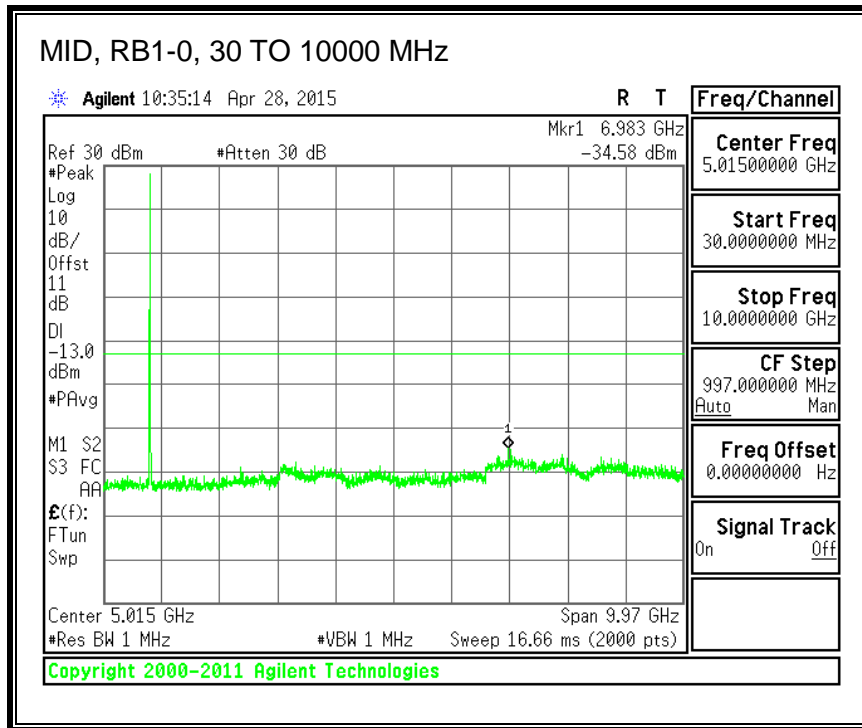
#### QPSK, (1.4 MHz BAND WIDTH)



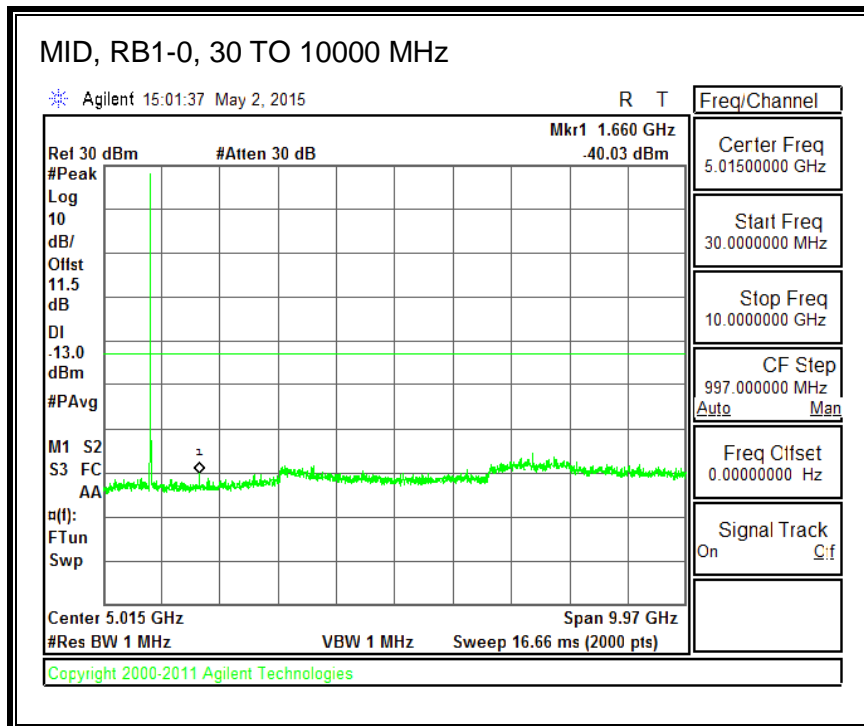
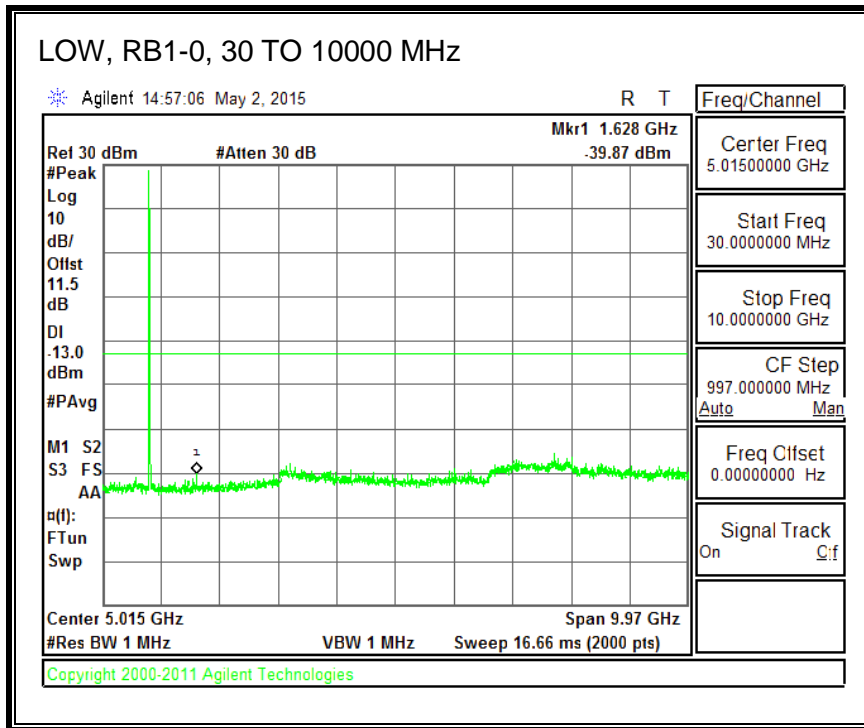


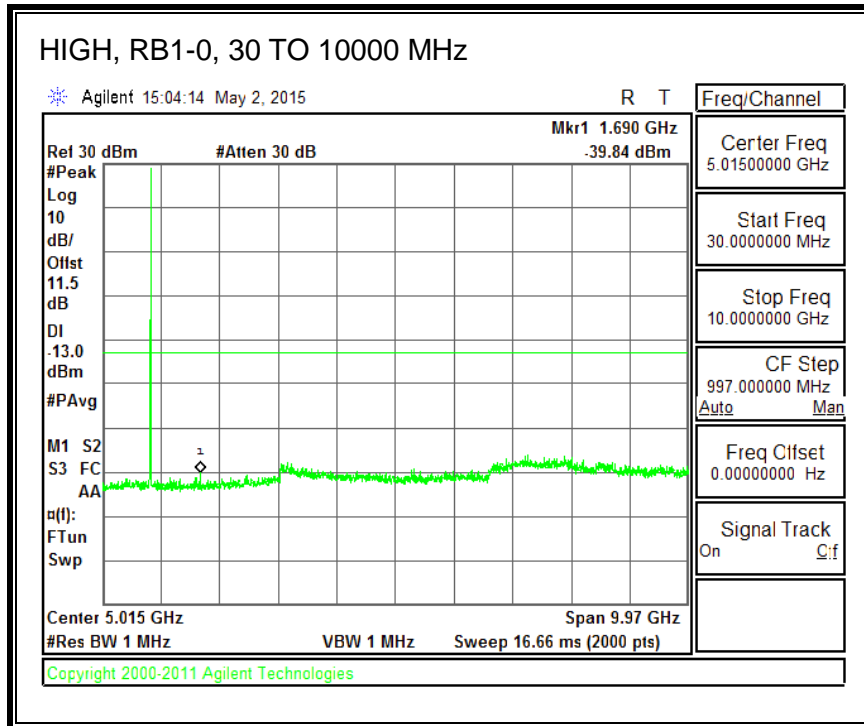
**16QAM, (1.4 MHz BAND WIDTH)**



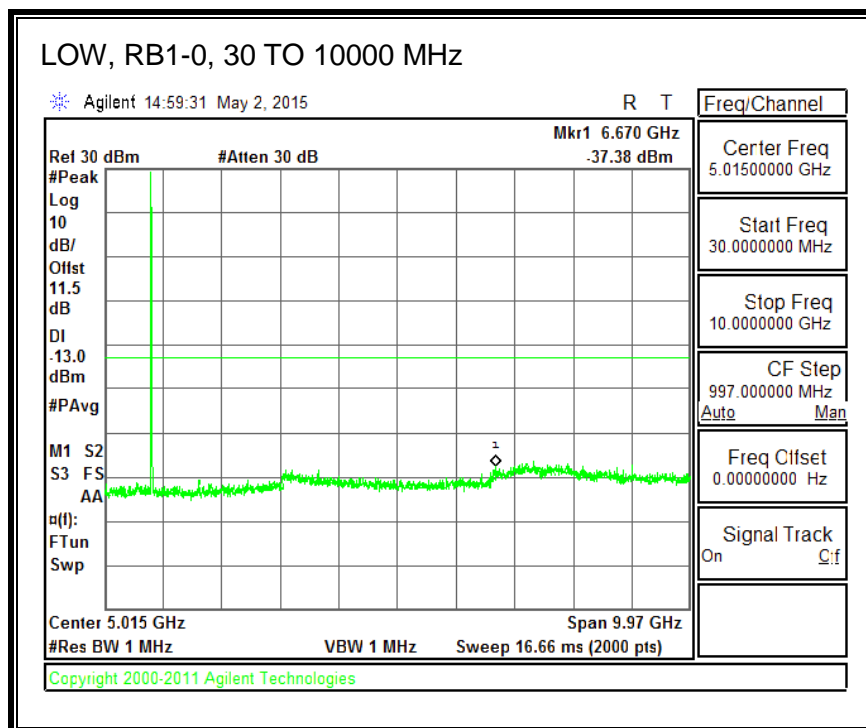


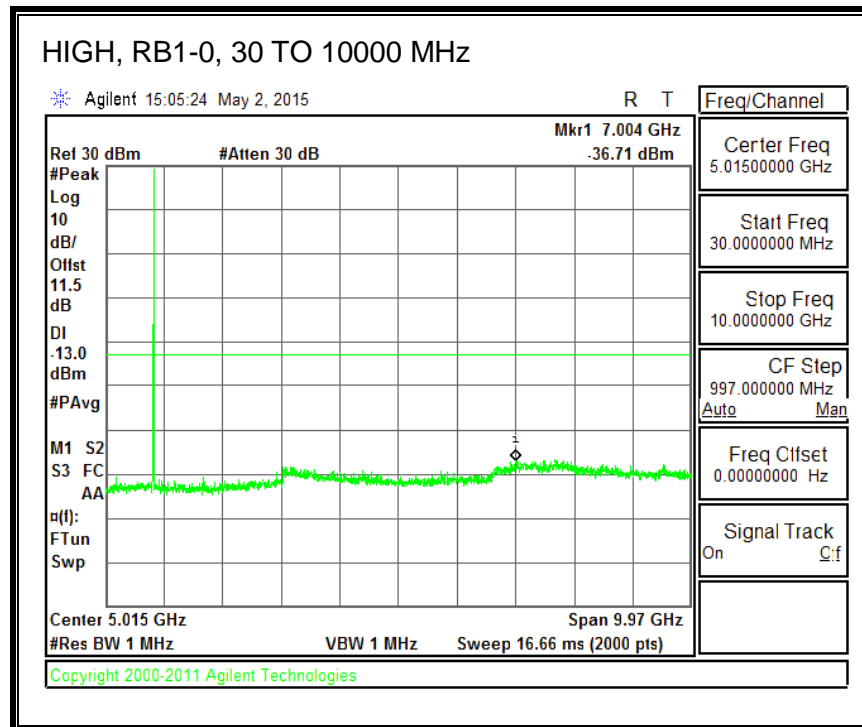
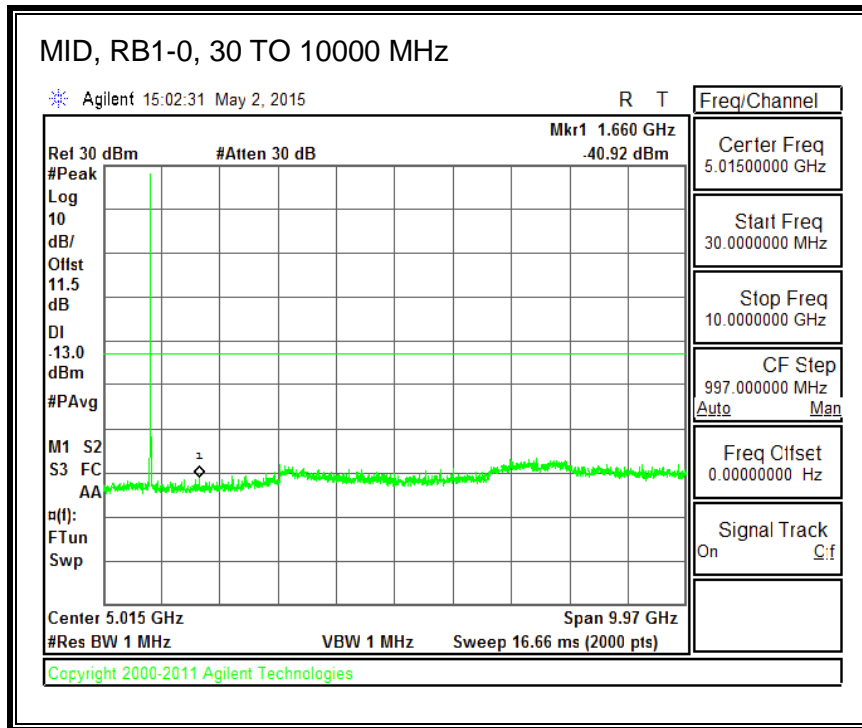
**QPSK, (3.0 MHz BAND WIDTH)**



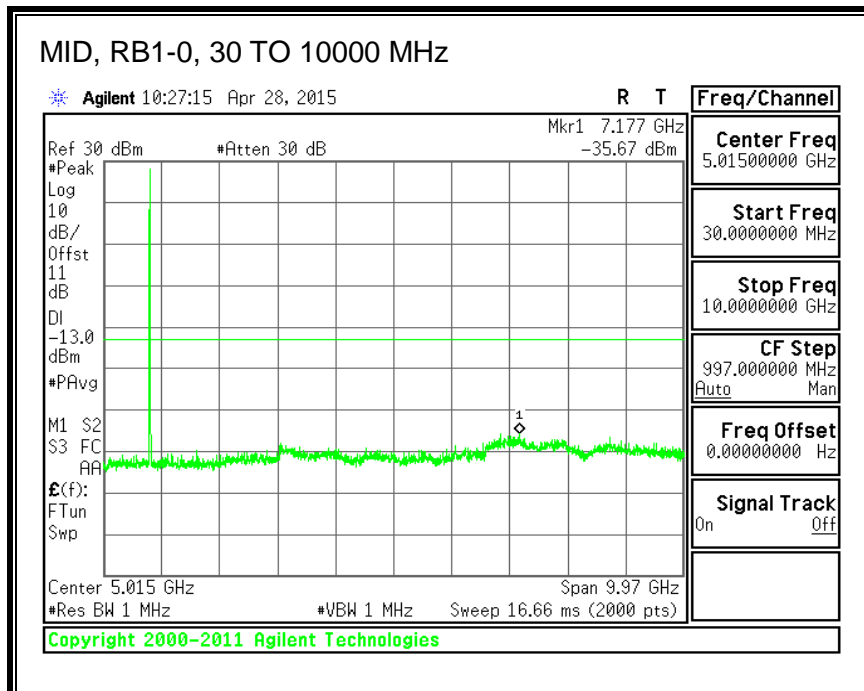
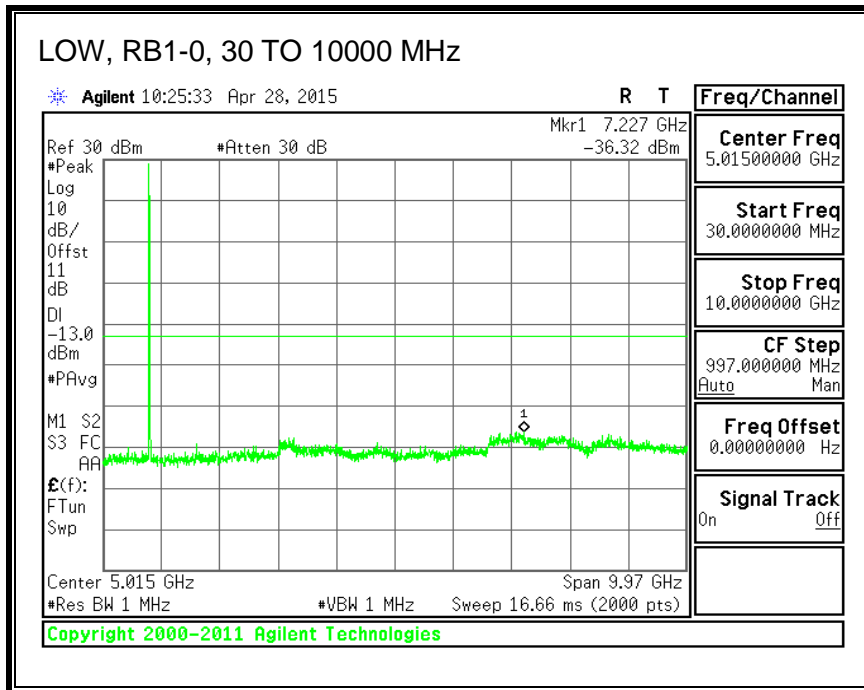


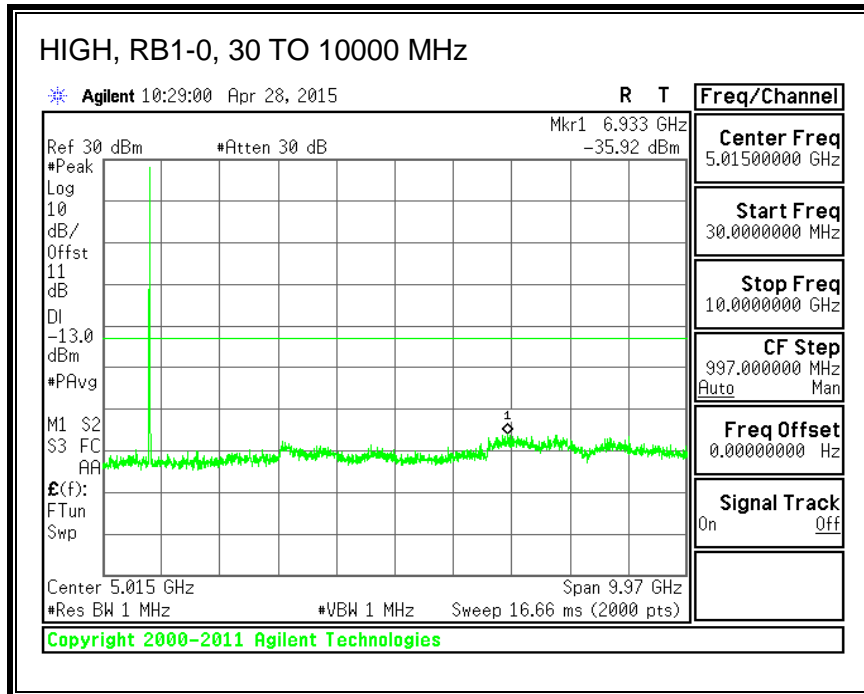
**16QAM, (3.0 MHz BAND WIDTH)**



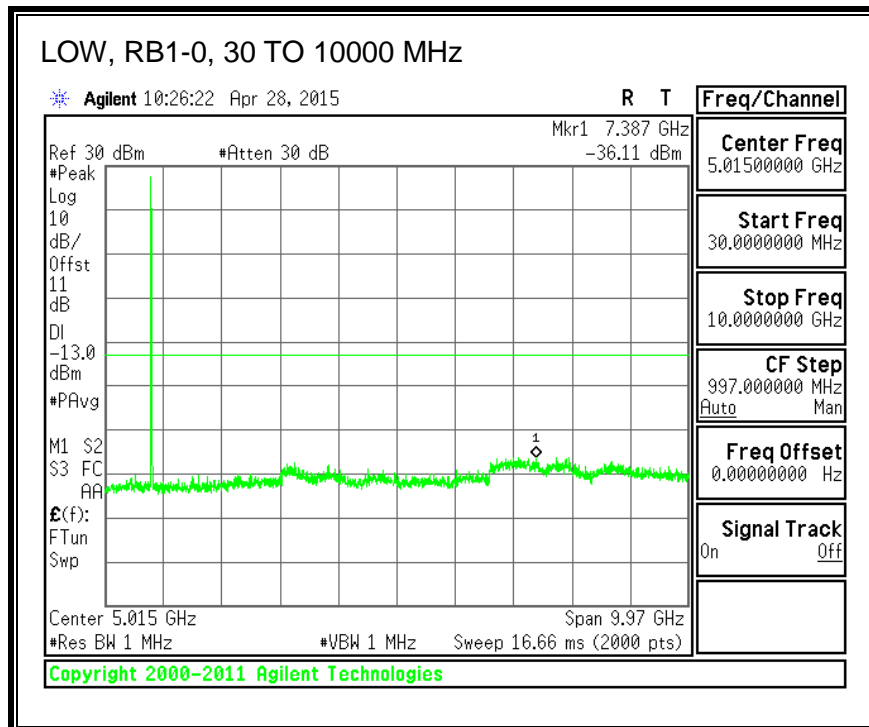


**QPSK, (5.0 MHz BAND WIDTH)**

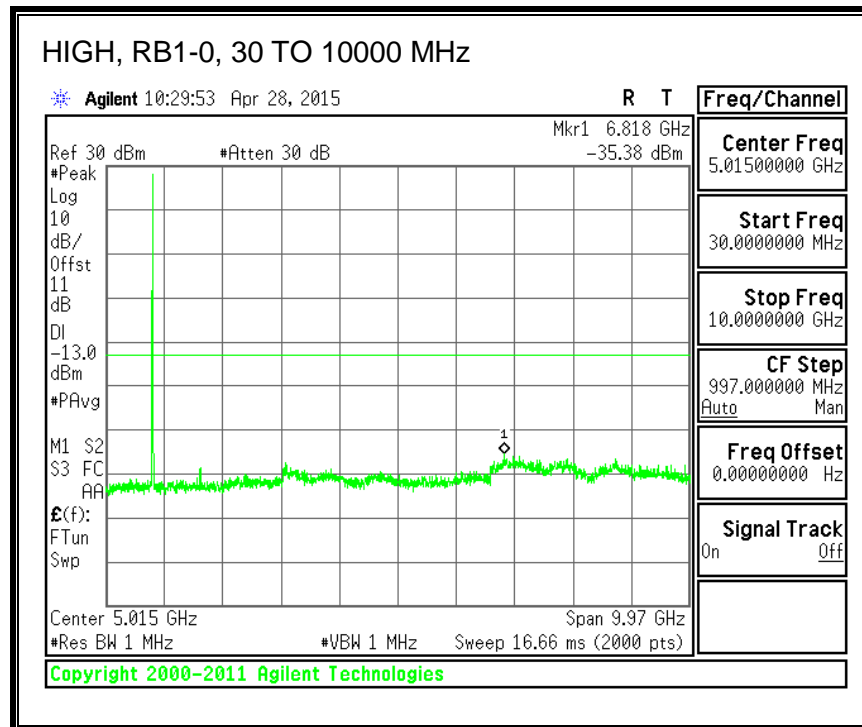
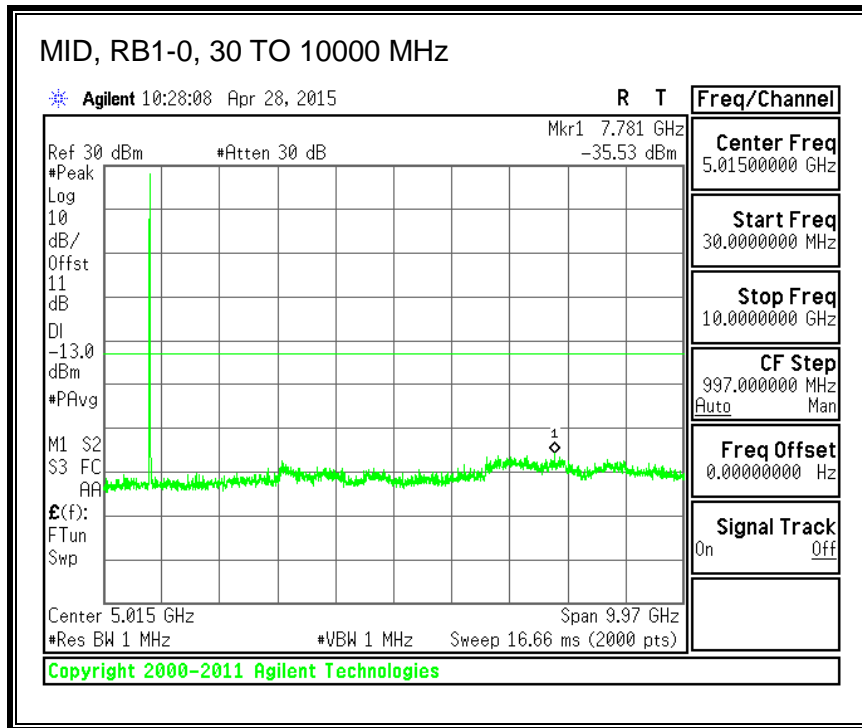




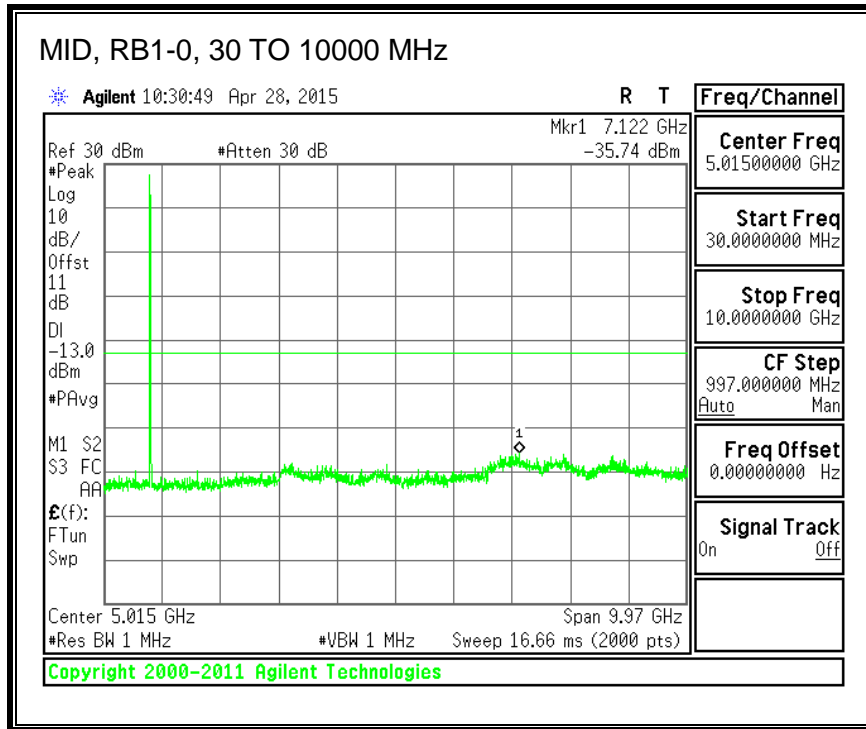
**16QAM, (5.0 MHz BAND WIDTH)**



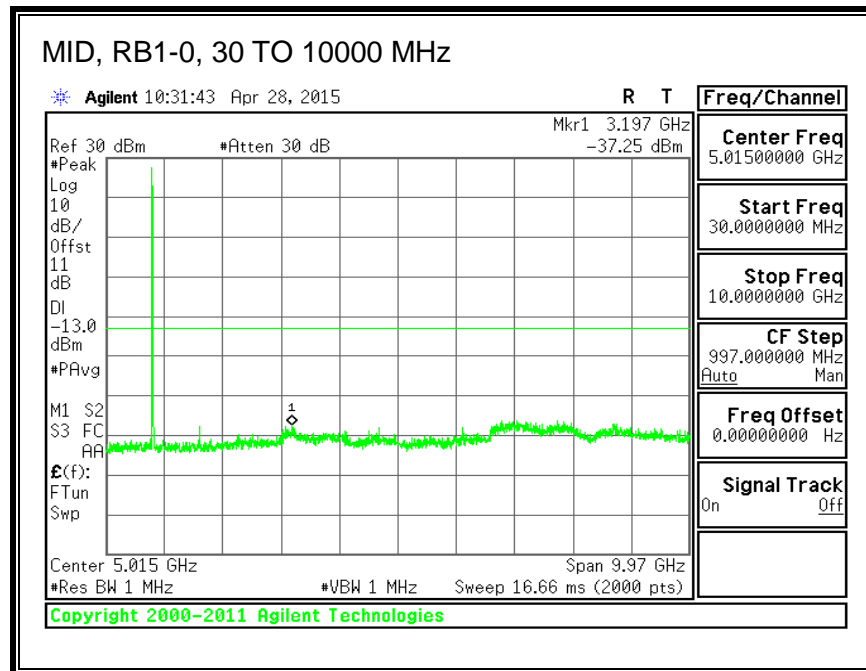




**QPSK, (10.0 MHz BAND WIDTH)**

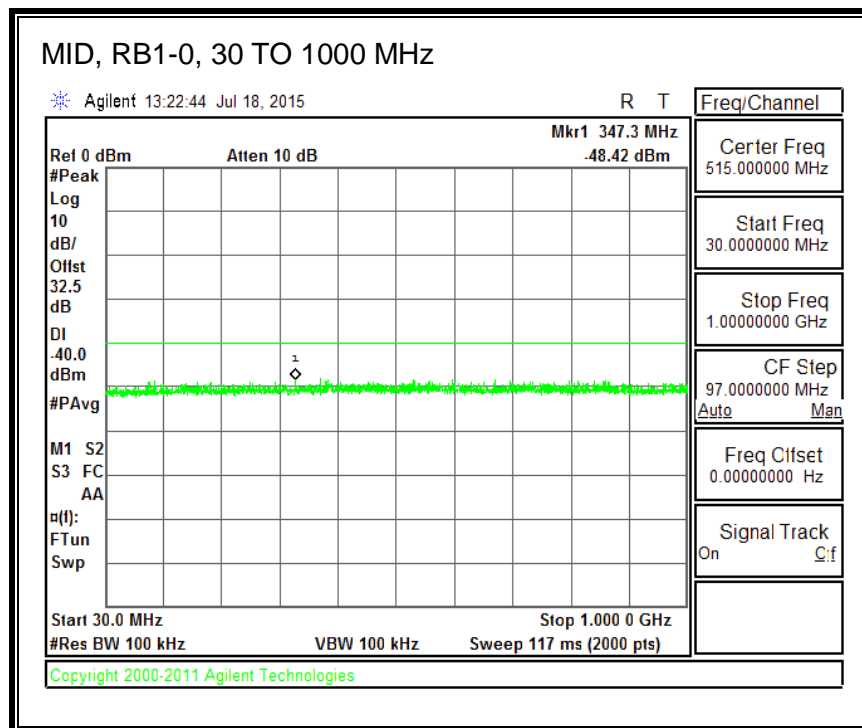
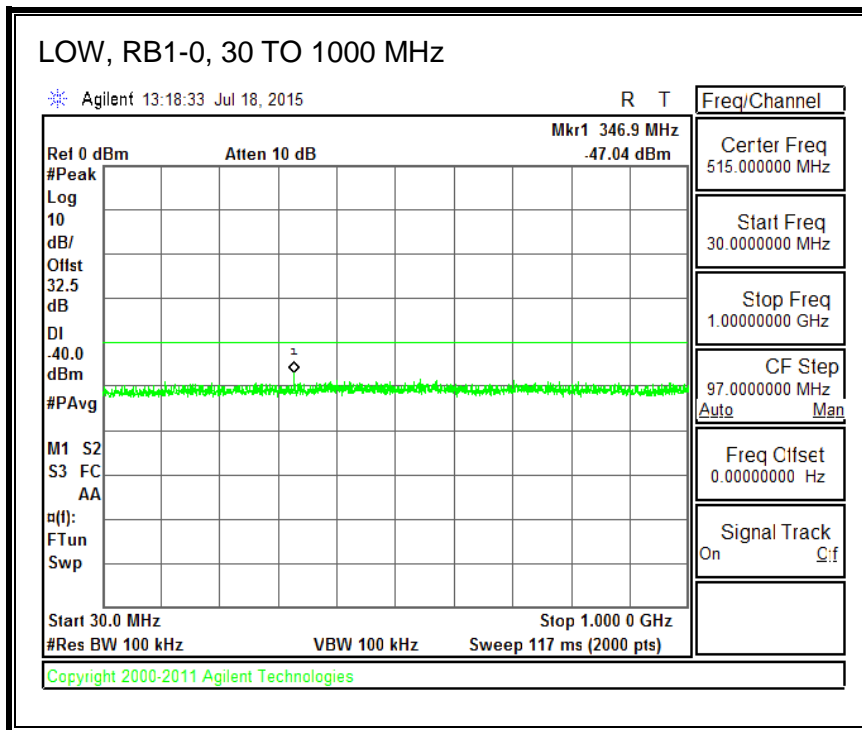


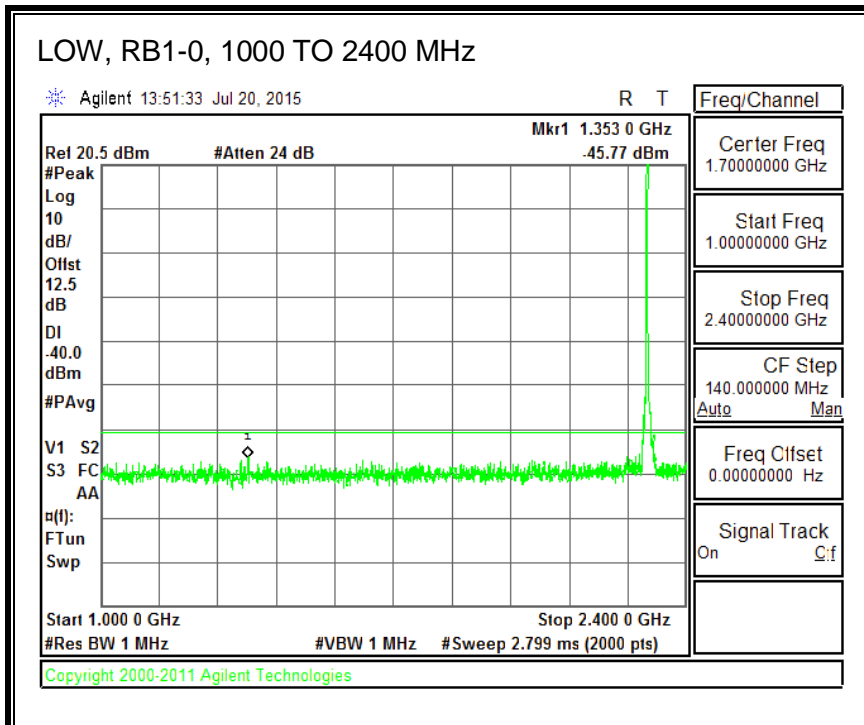
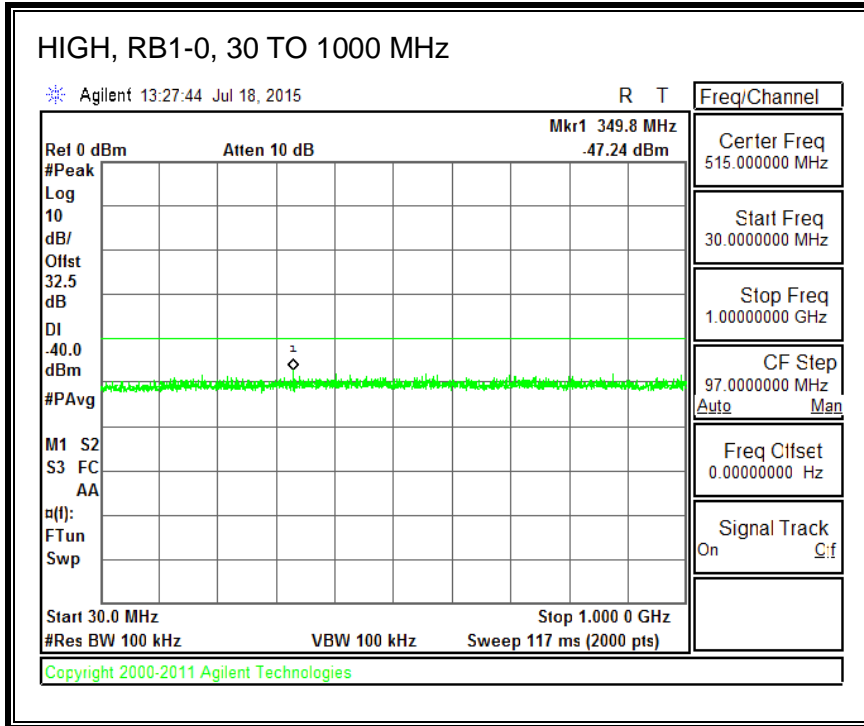
**16QAM, (10.0 MHz BAND WIDTH)**

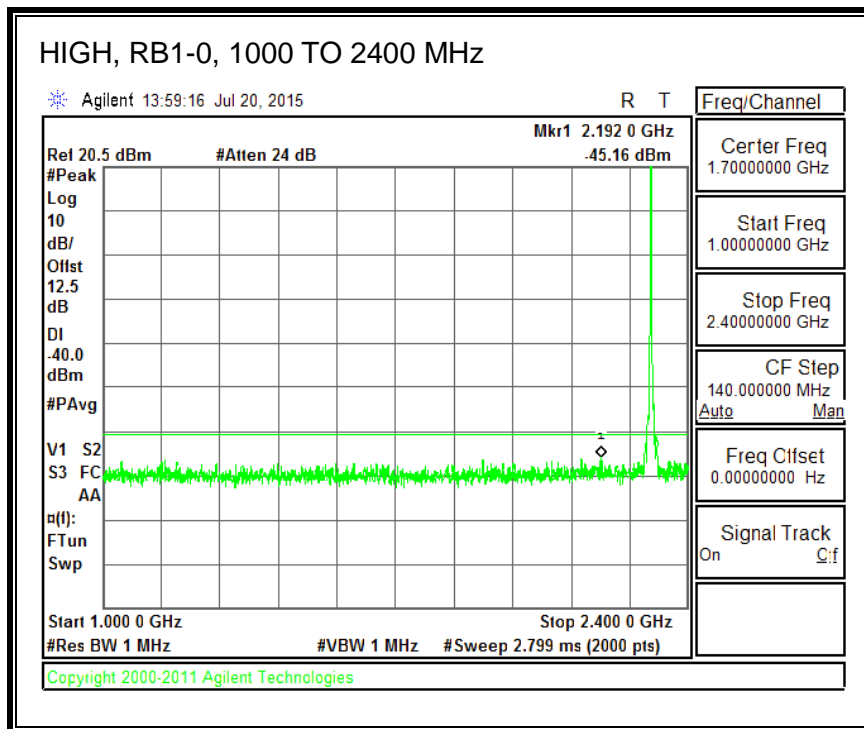
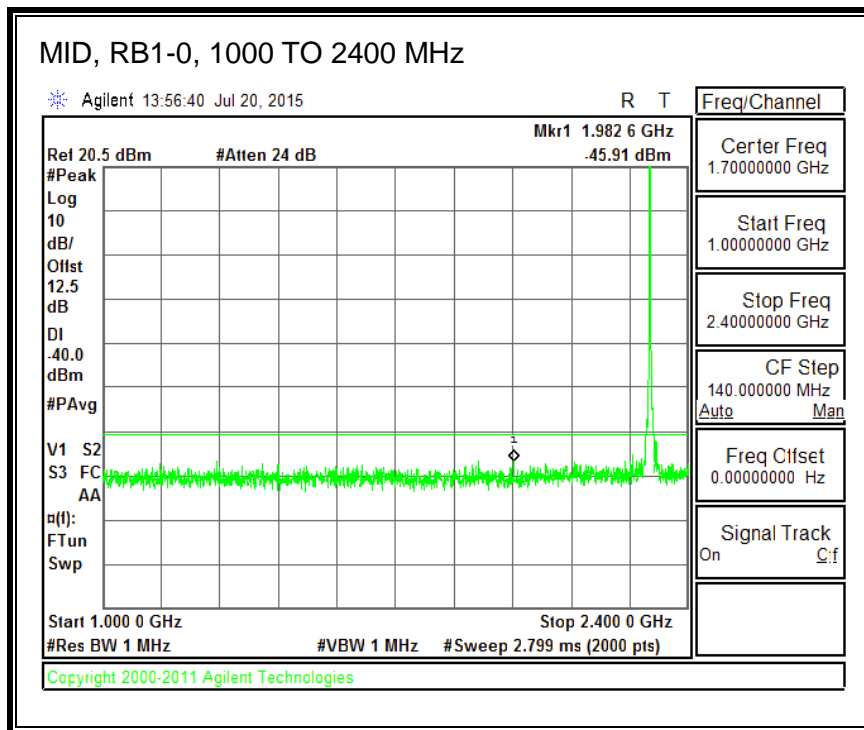


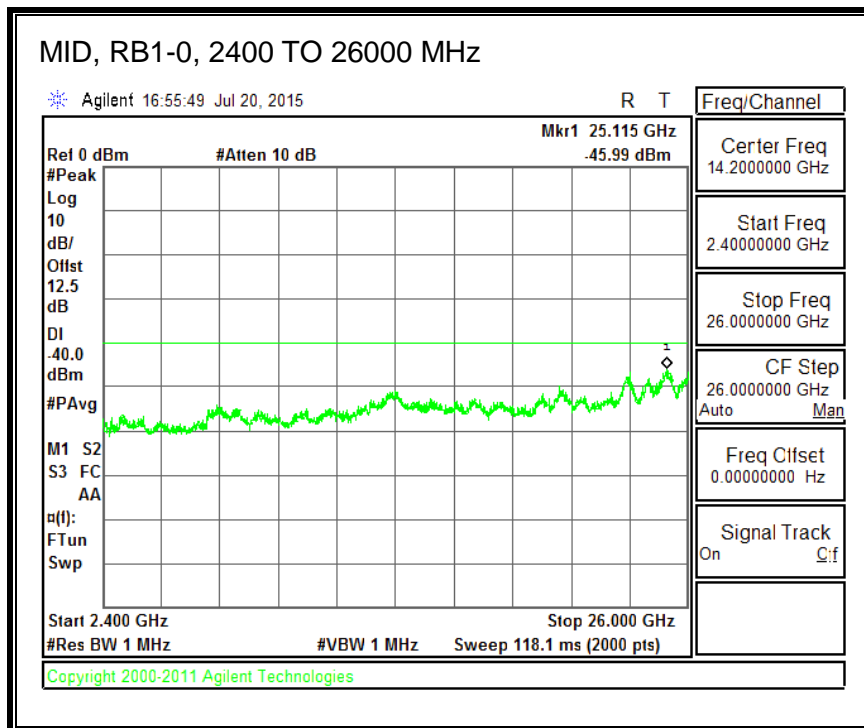
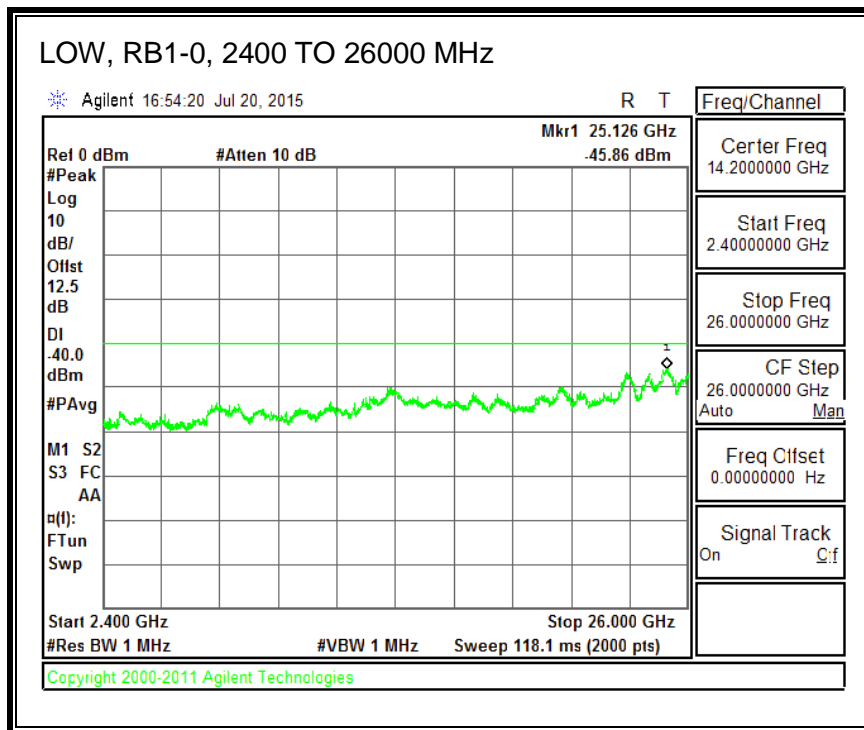
### 8.5.10. LTE BAND 30

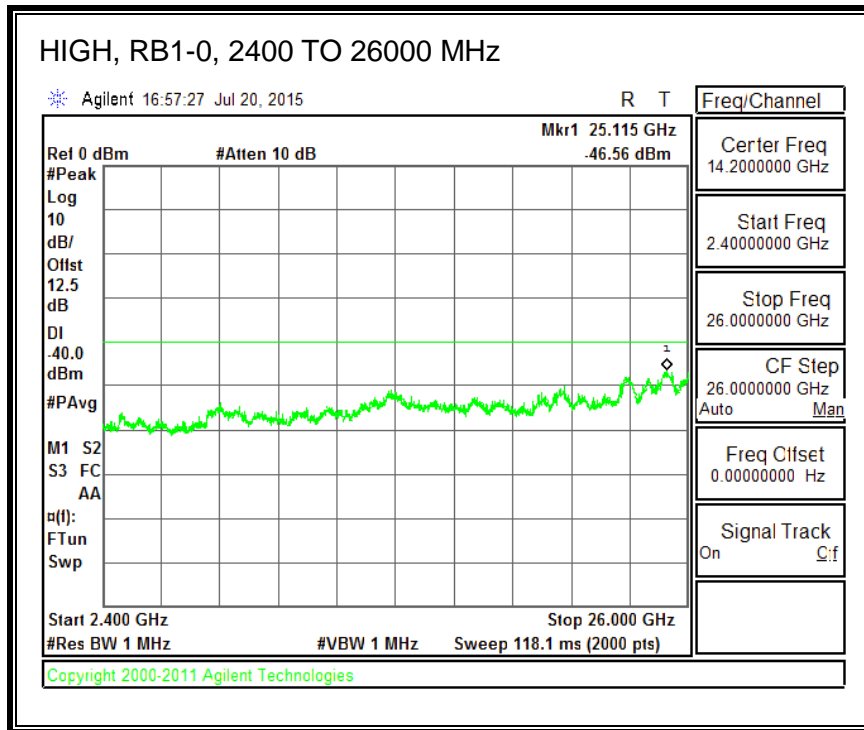
#### QPSK, (5.0 MHz BAND WIDTH)



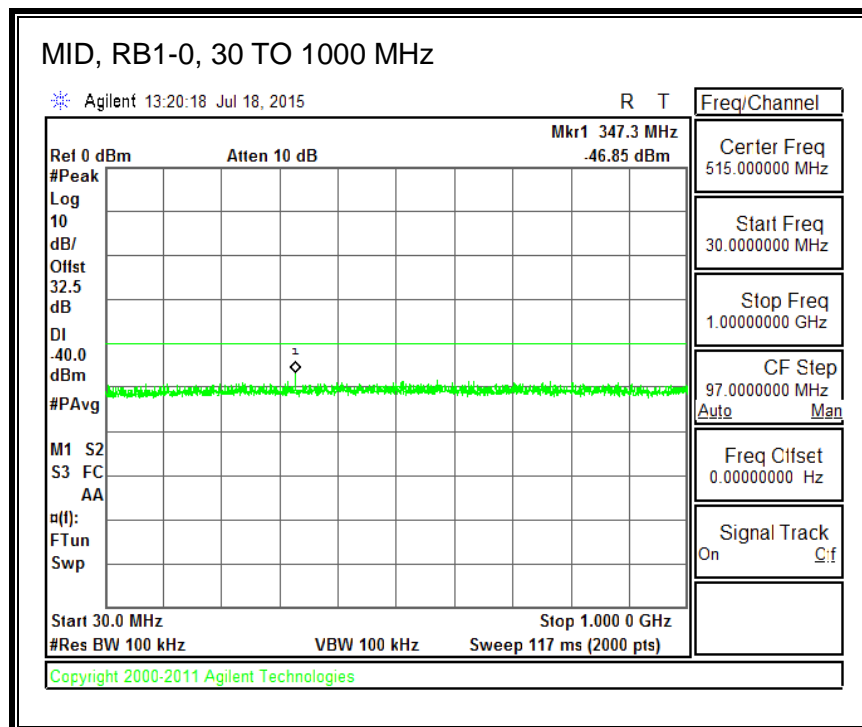
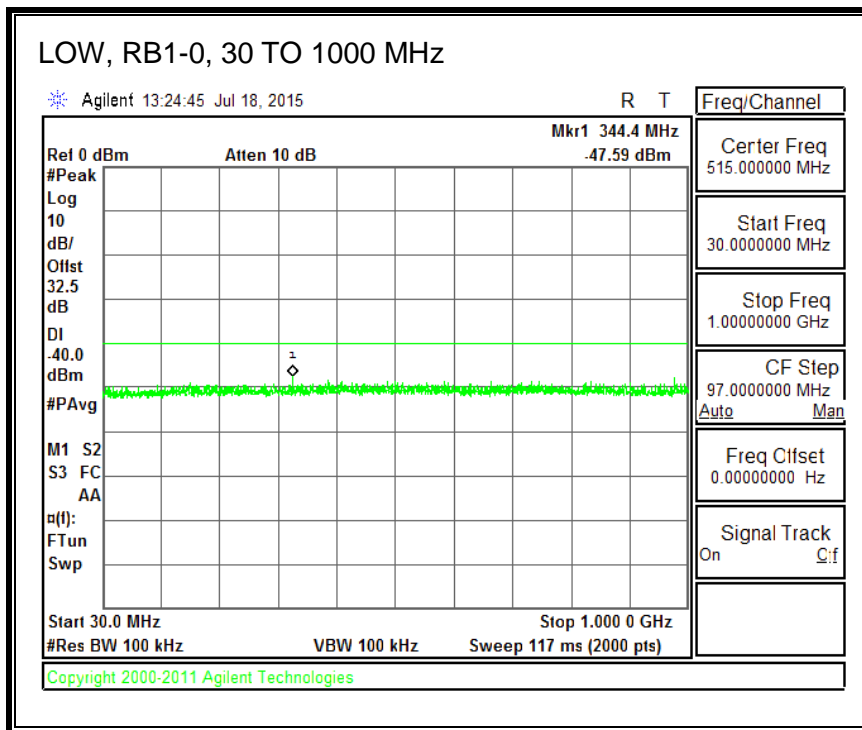




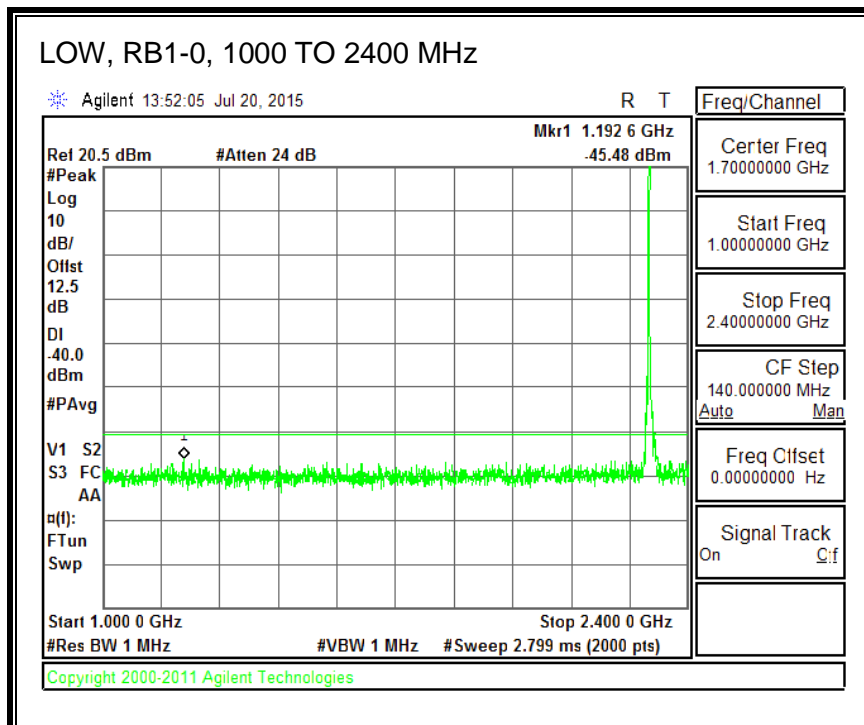
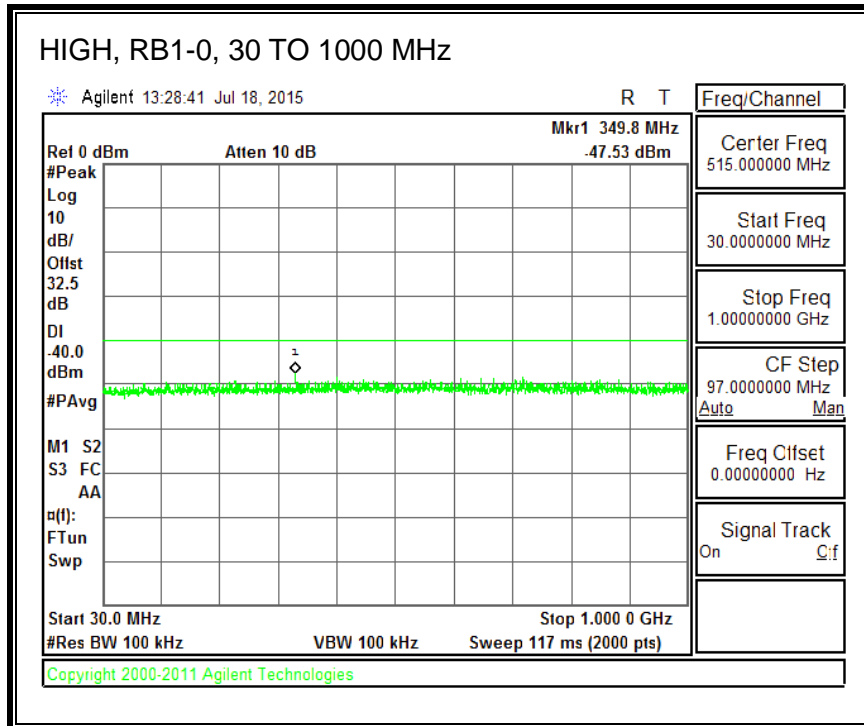


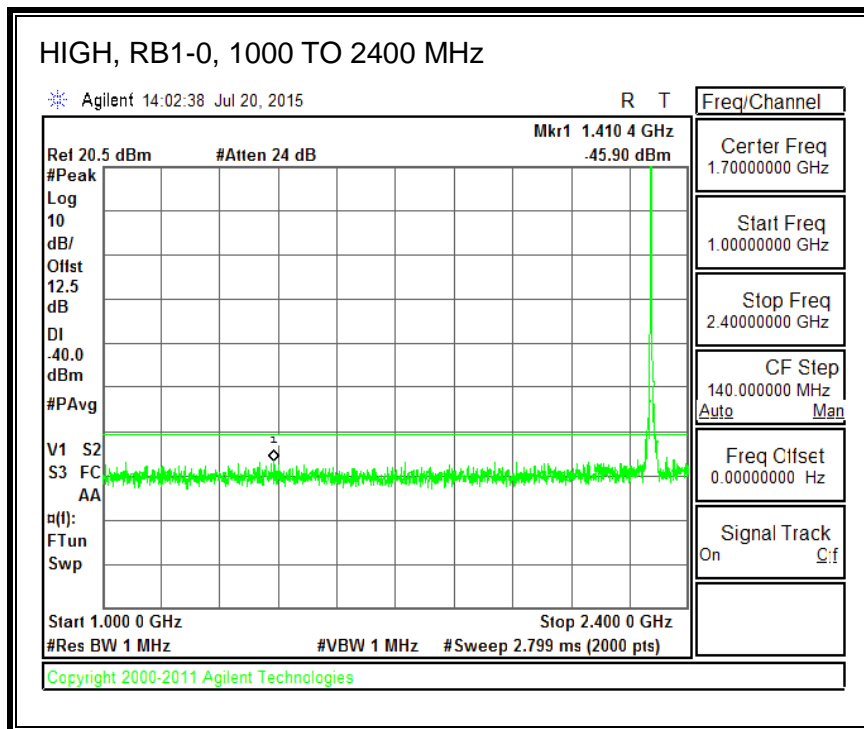
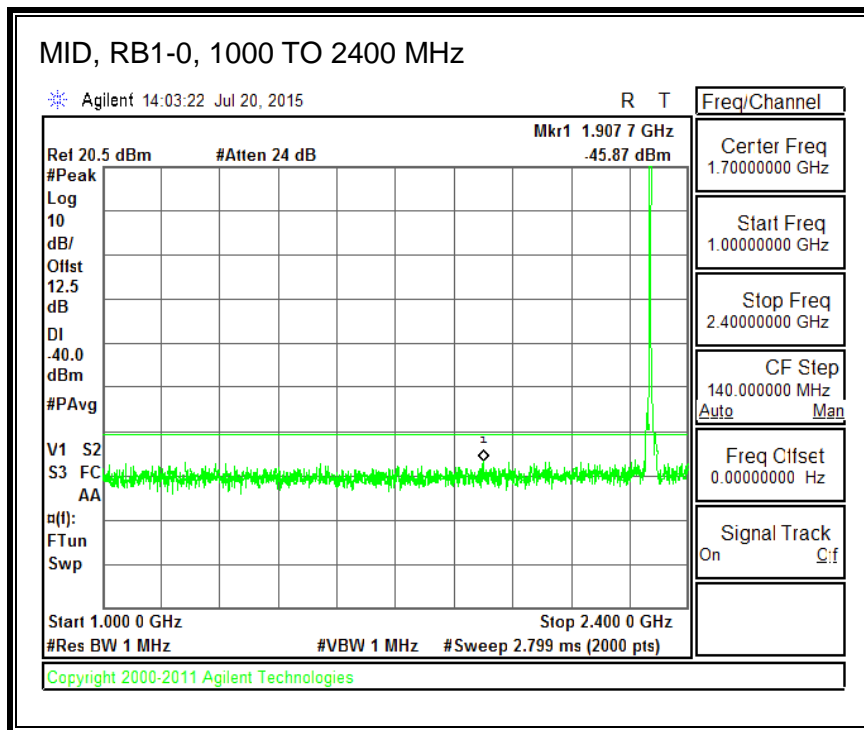


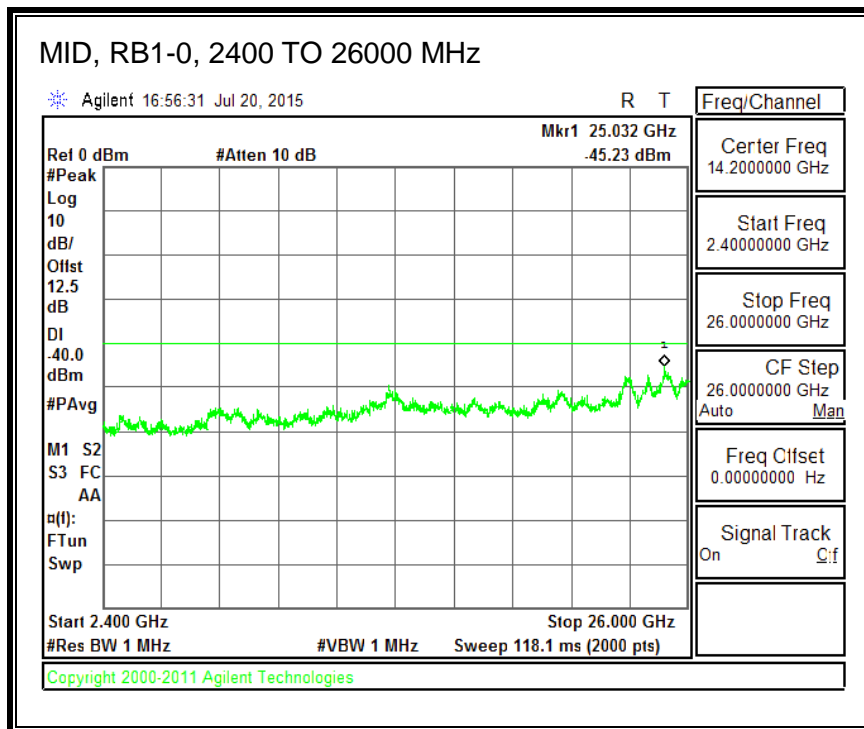
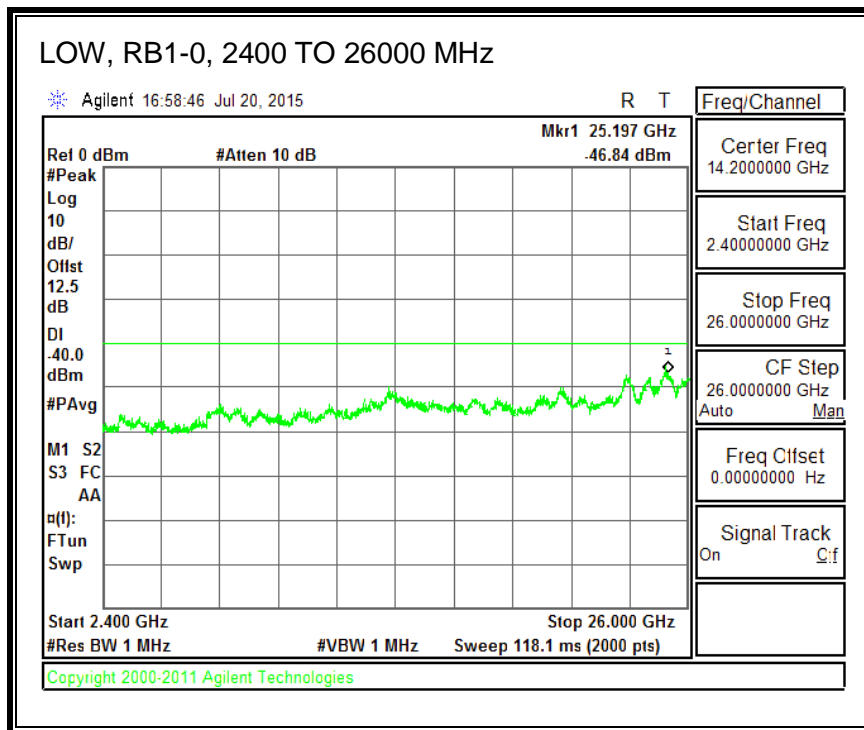
**16QAM, (5.0 MHz BAND WIDTH)**

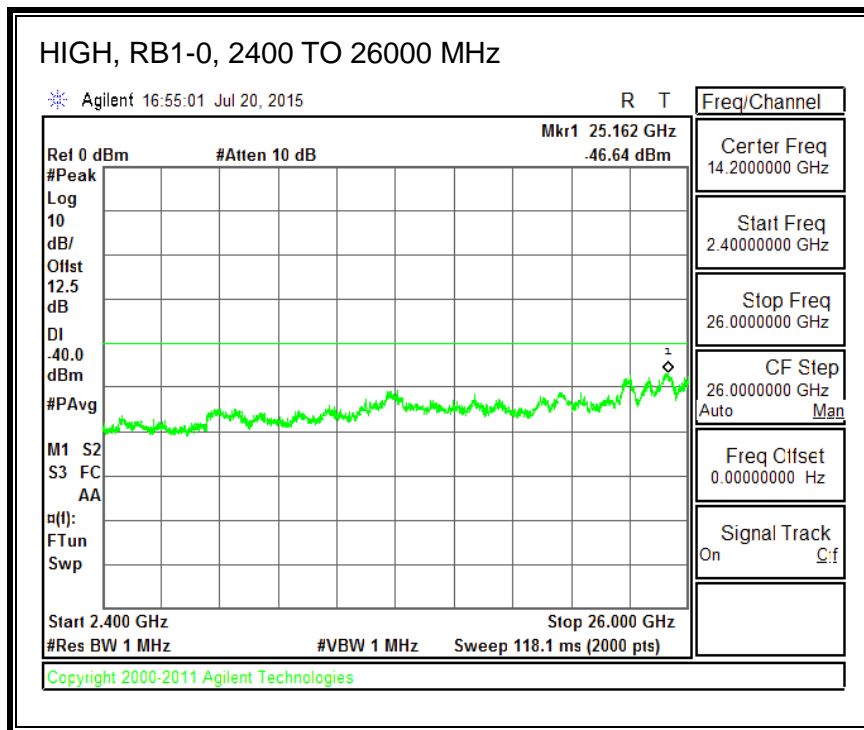




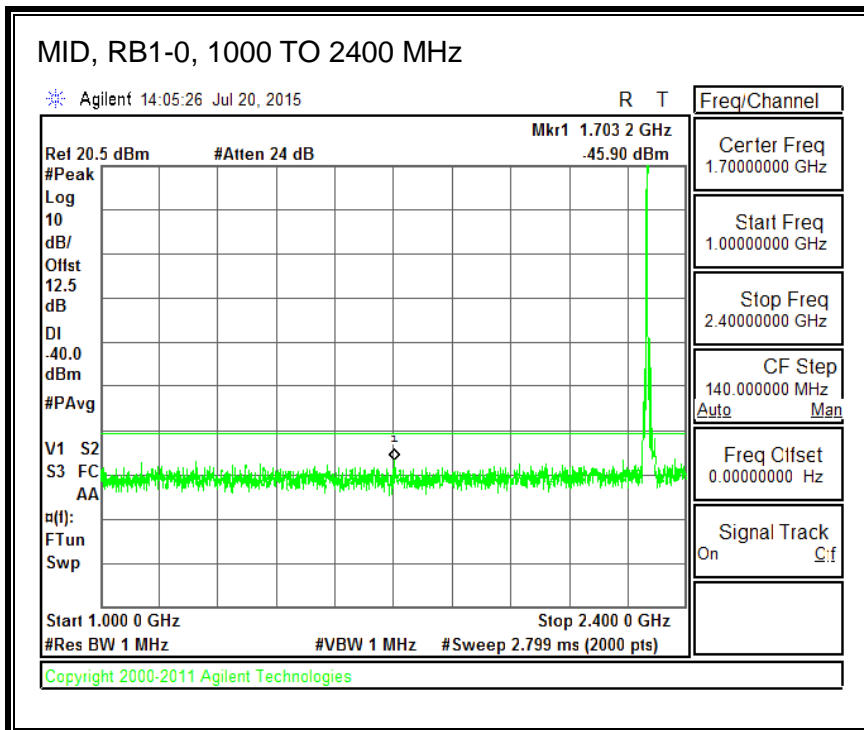
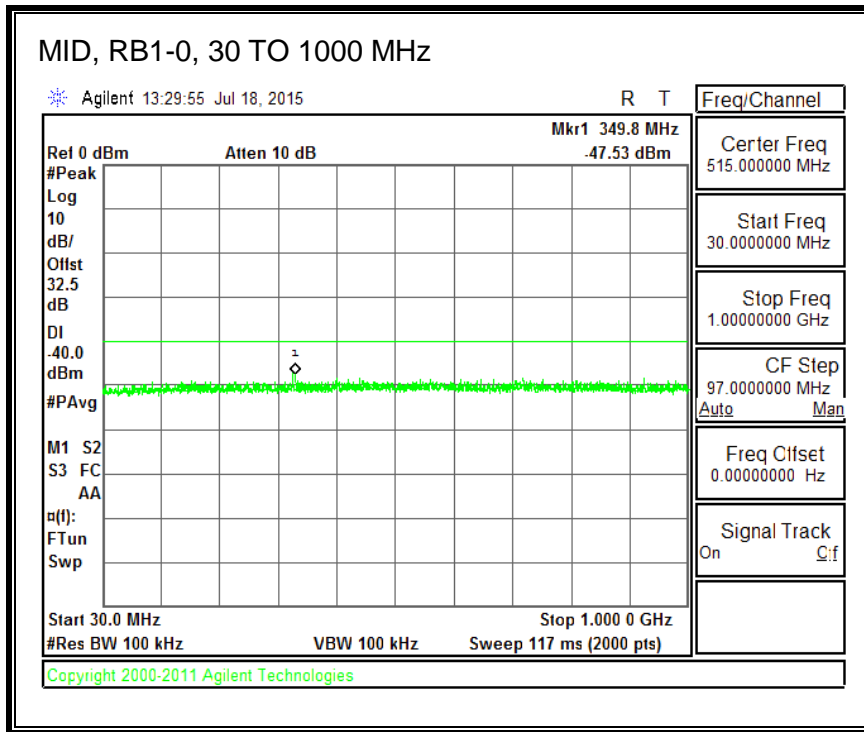


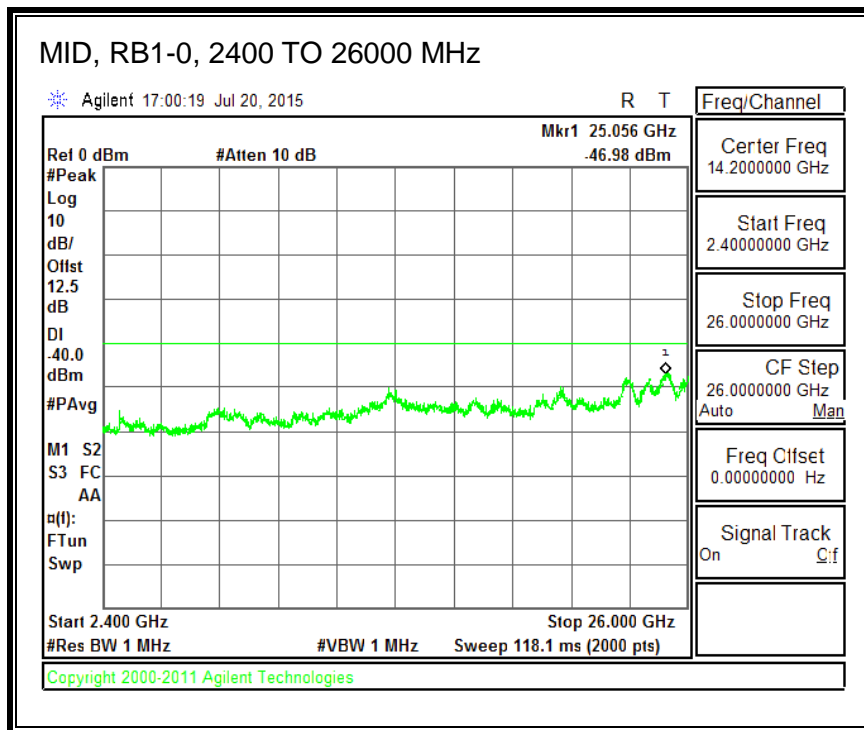




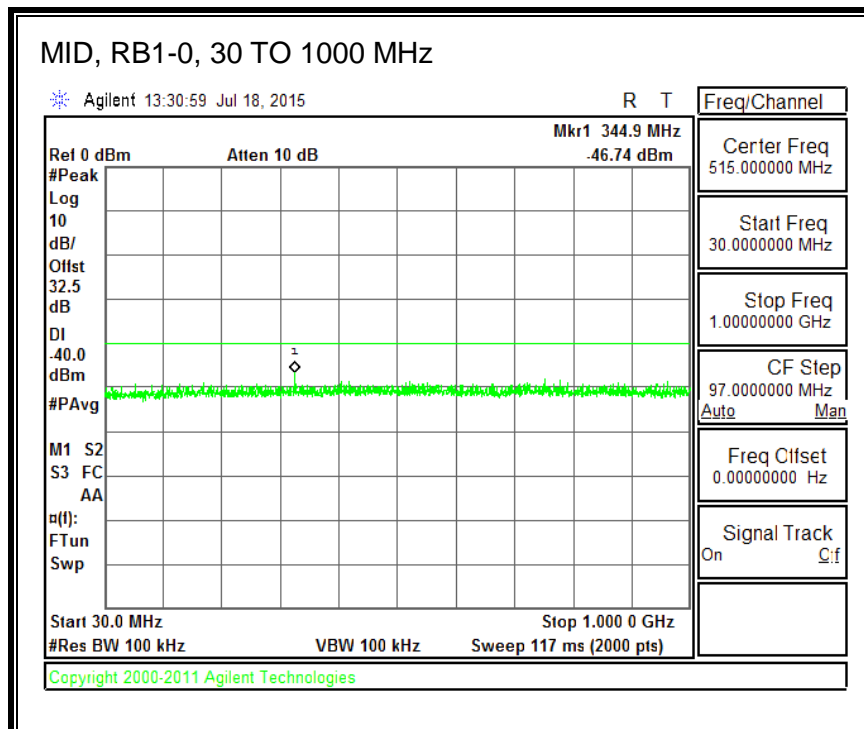


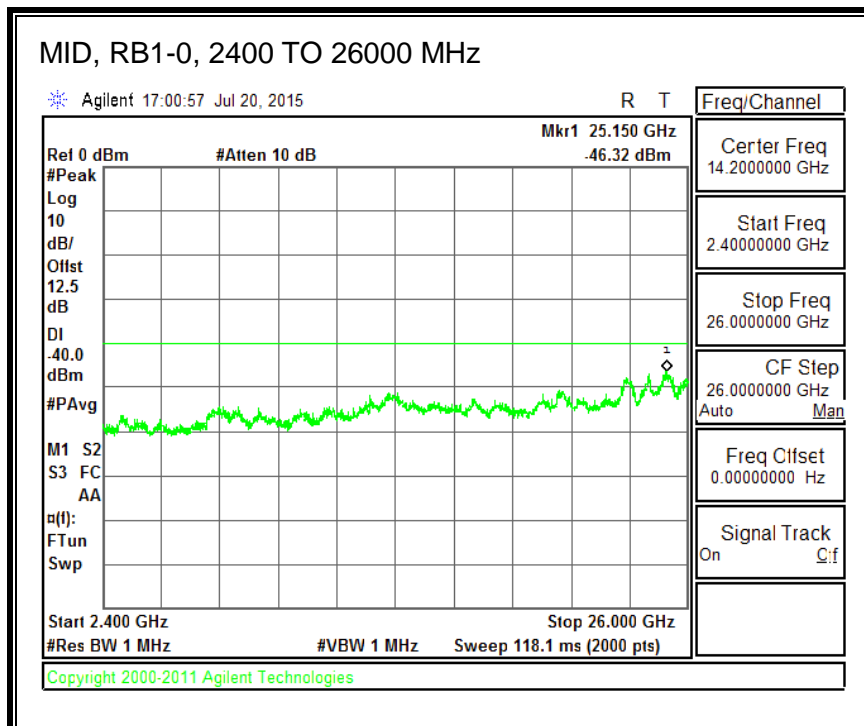
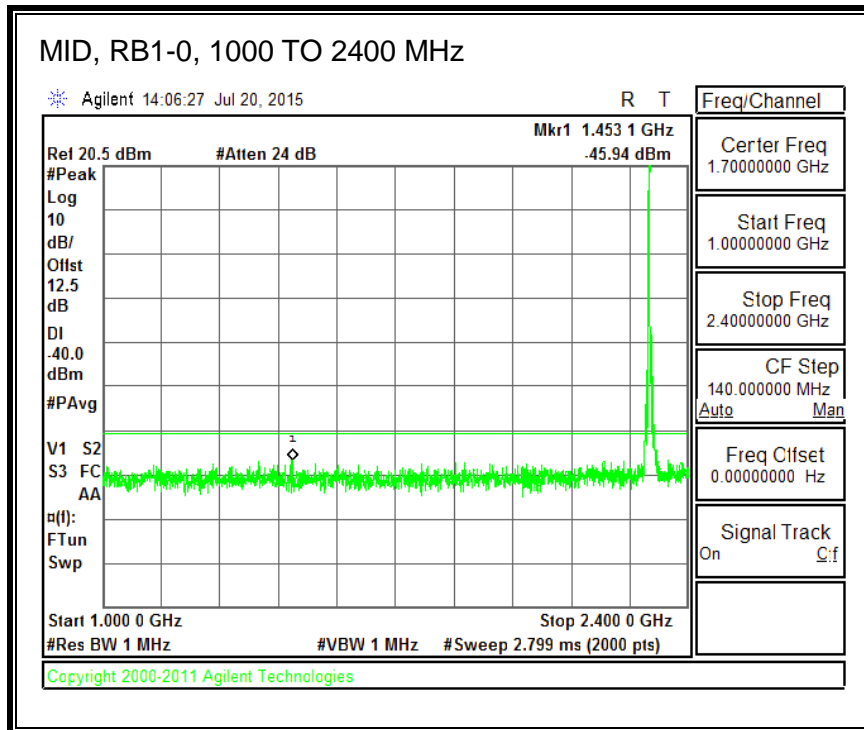
**QPSK, (10.0 MHz BAND WIDTH)**





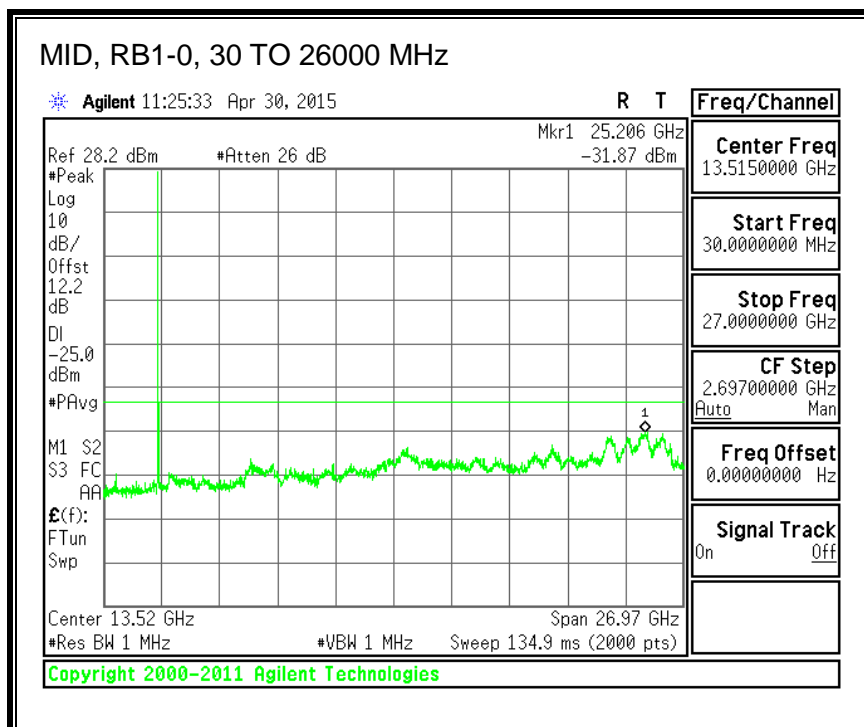
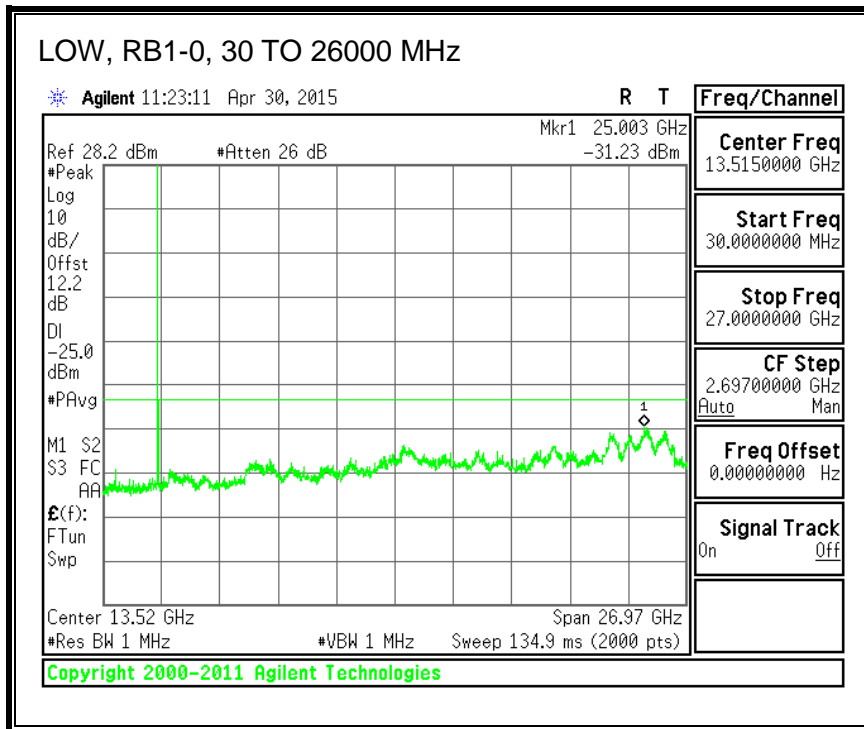
**16QAM, (10.0 MHz BAND WIDTH)**



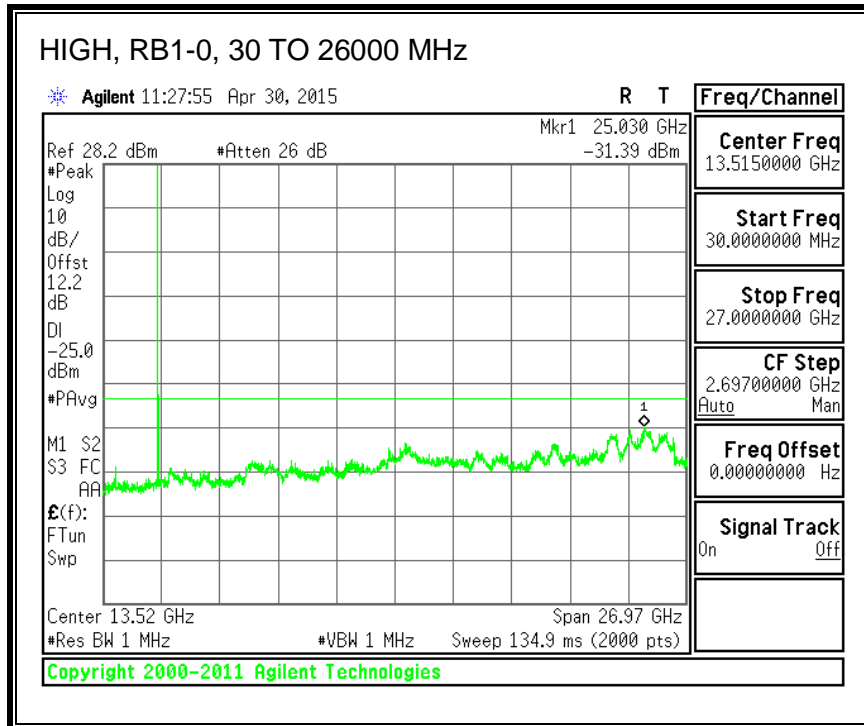


### 8.5.11. LTE BAND 41

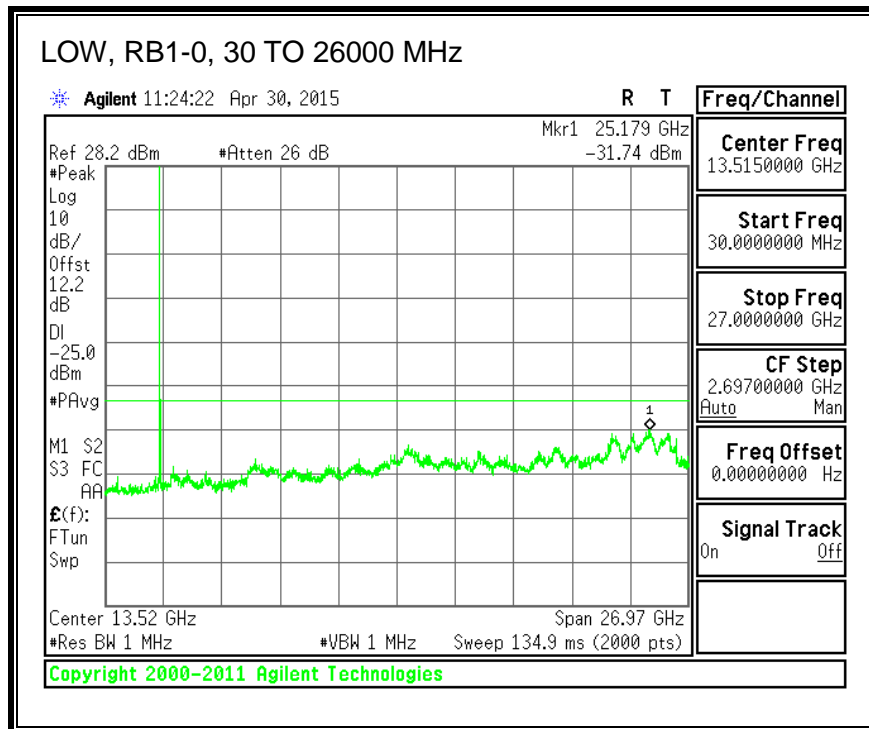
#### QPSK, (5.0 MHz BAND WIDTH)

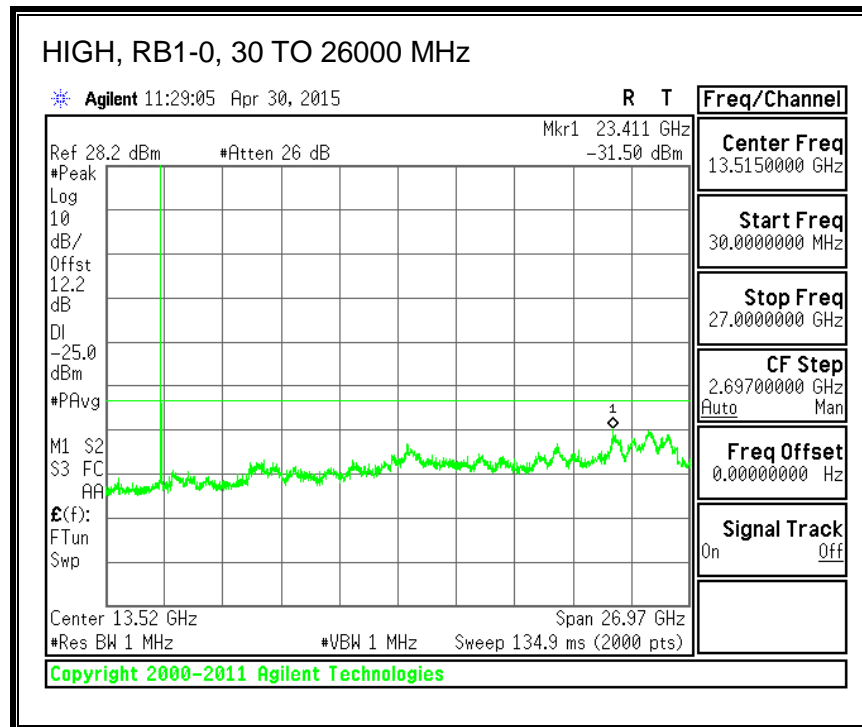
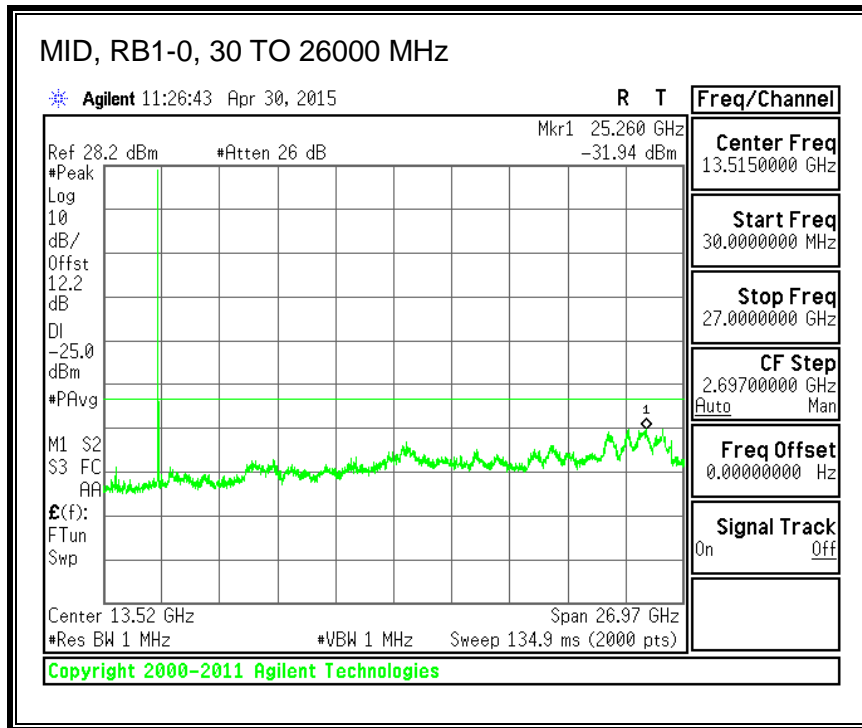




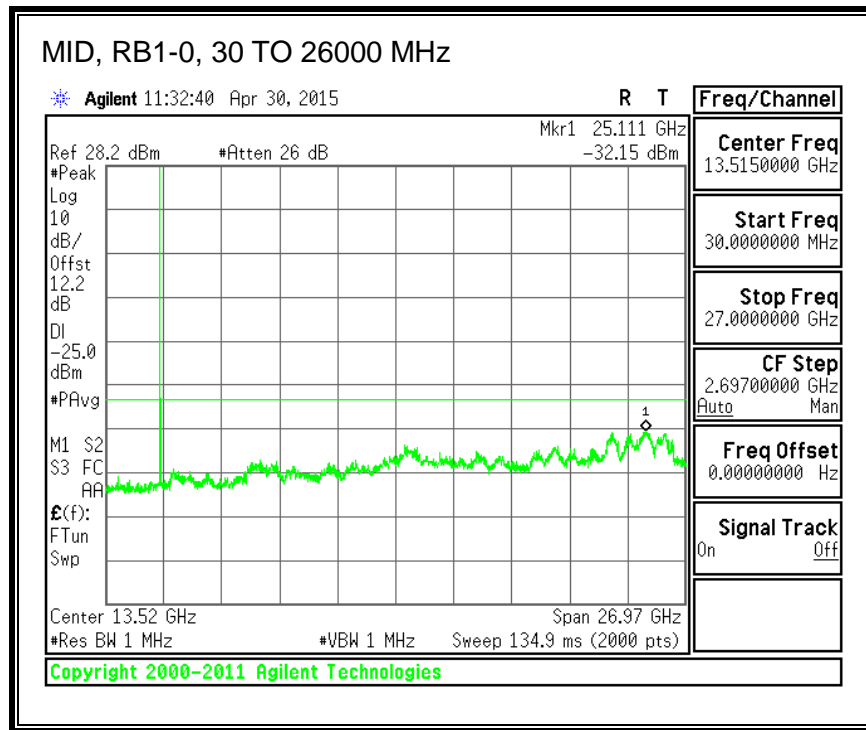
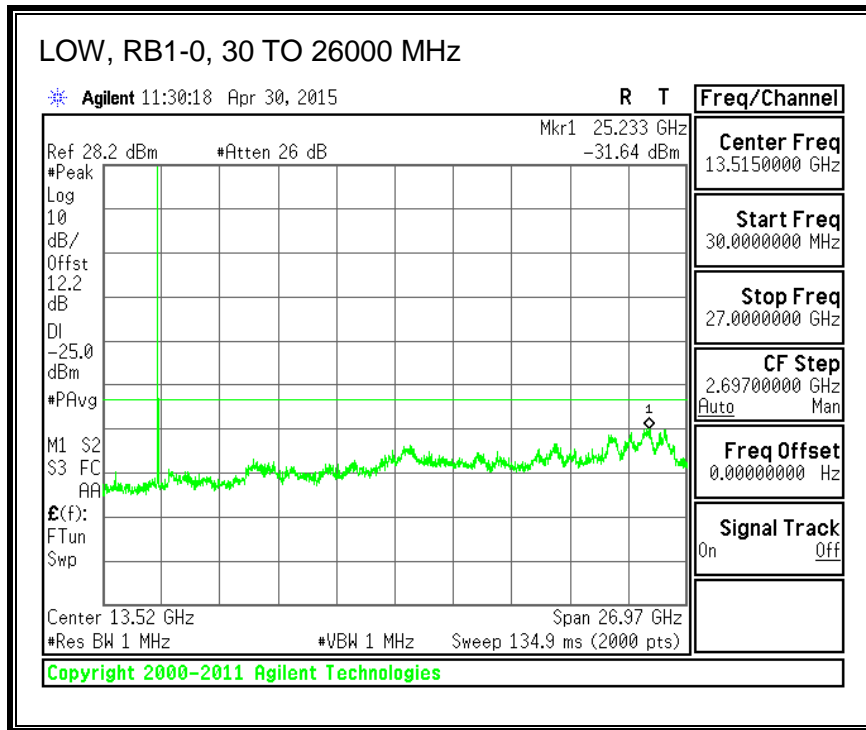


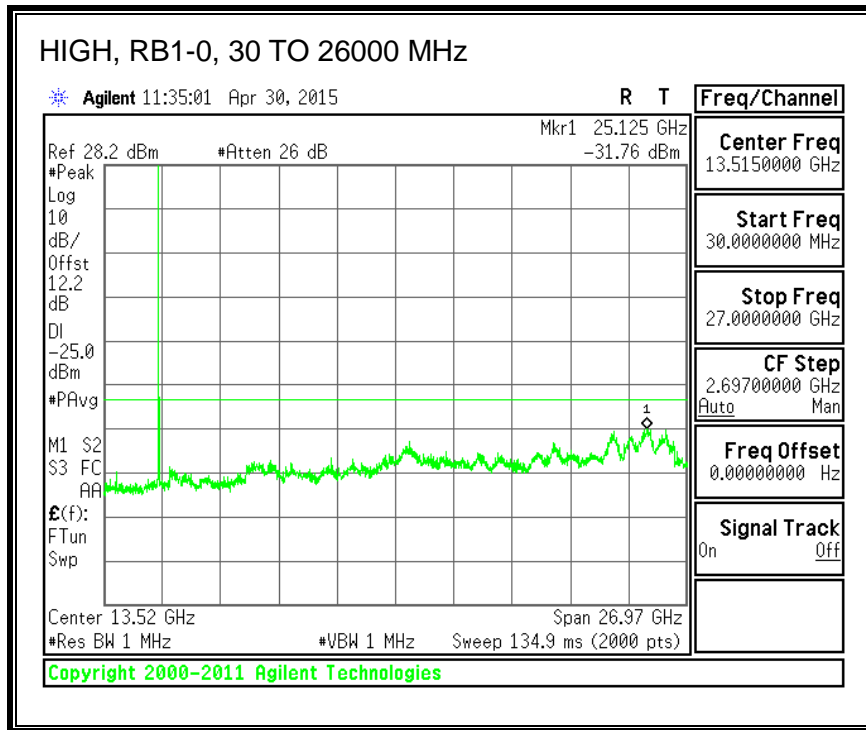
**16QAM, (5.0 MHz BAND WIDTH)**



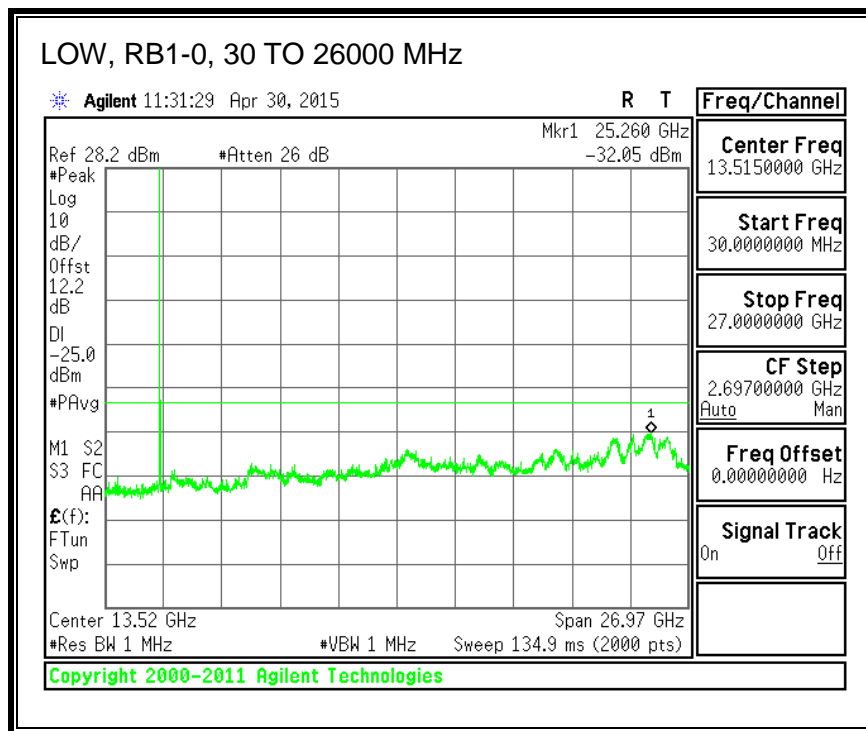


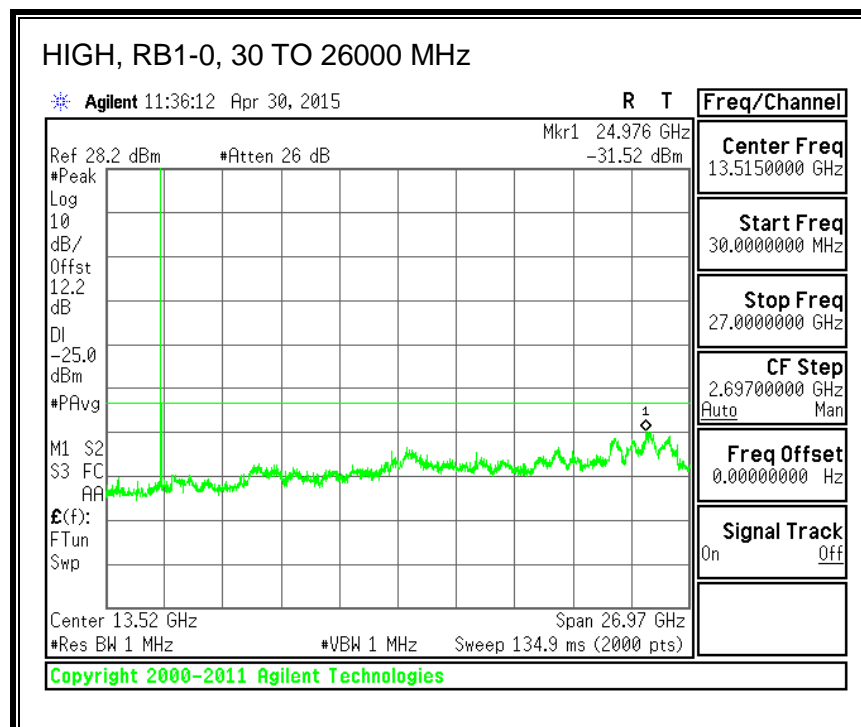
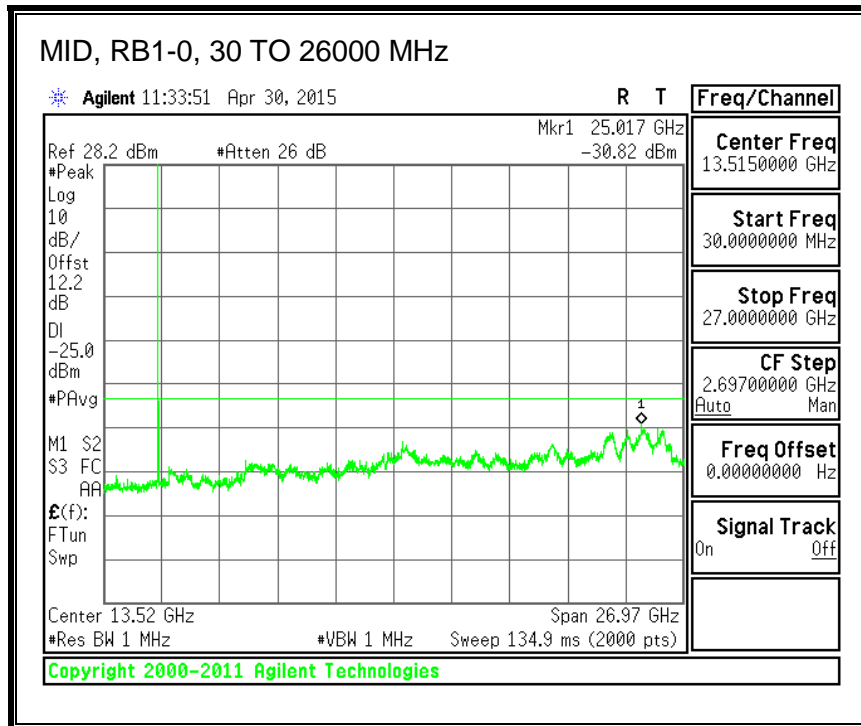
**QPSK, (10.0 MHz BAND WIDTH)**



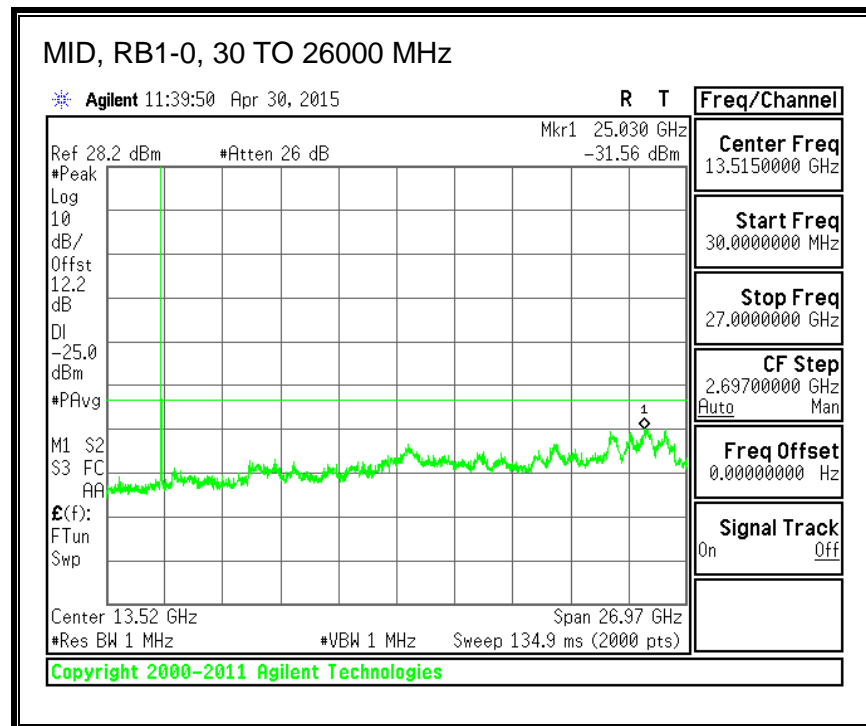
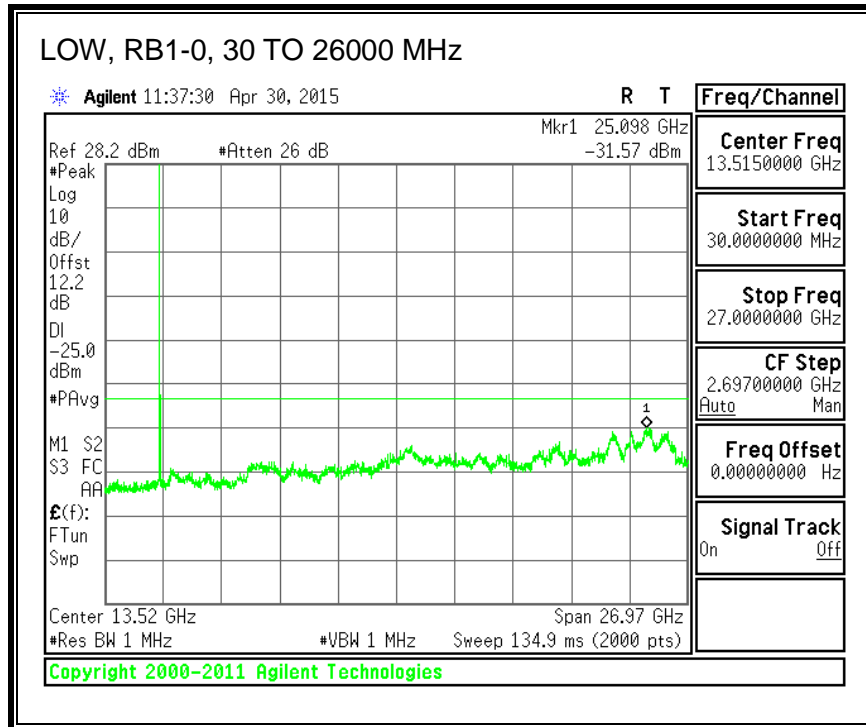


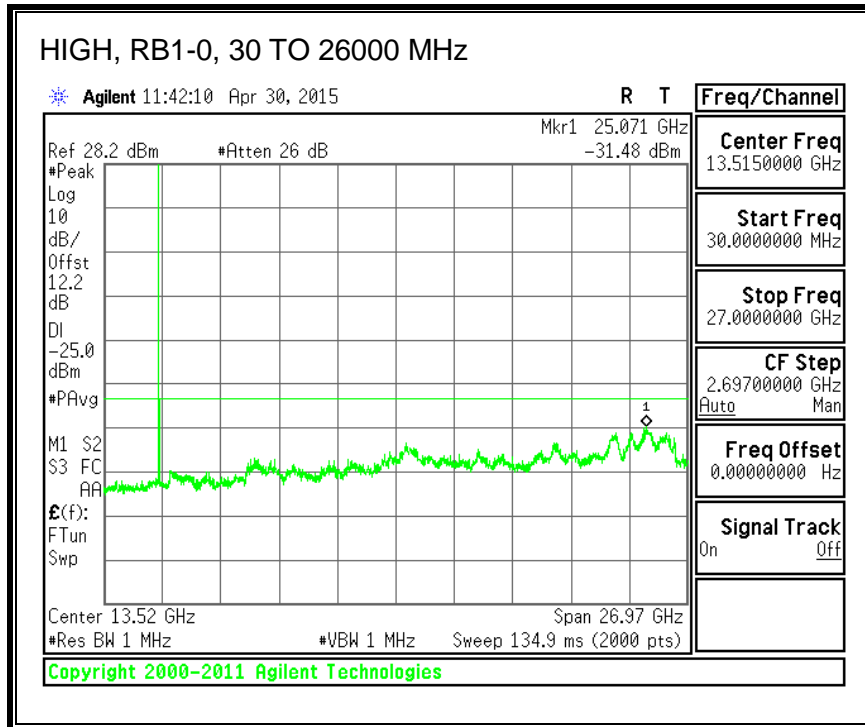
**16QAM, (10.0 MHz BAND WIDTH)**



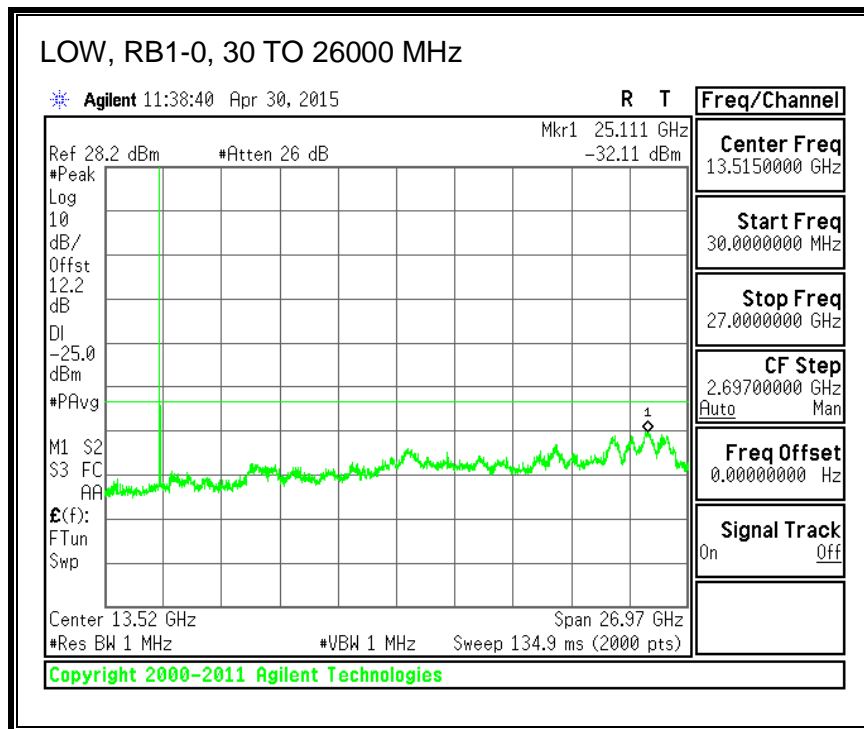


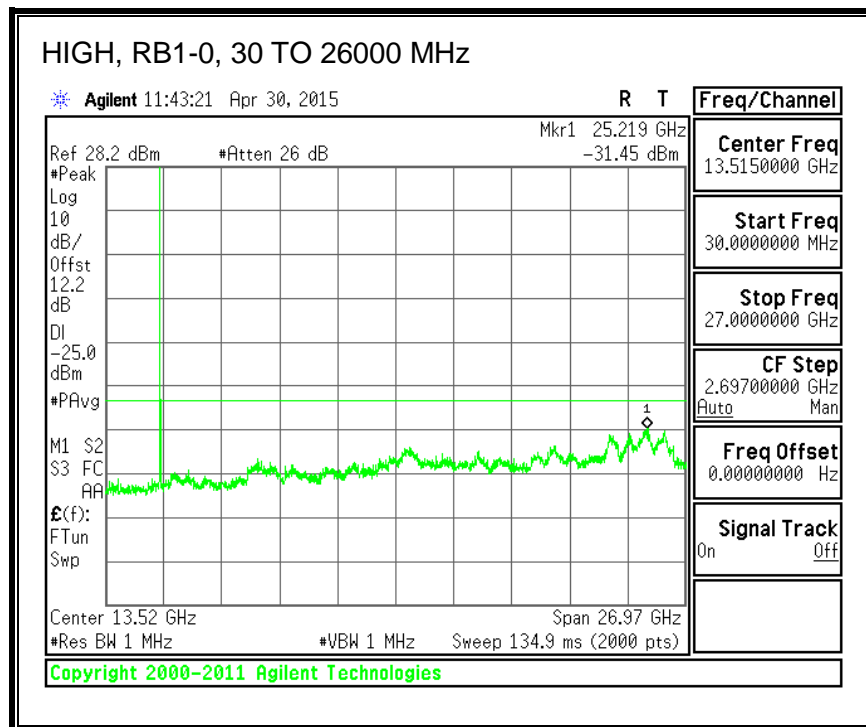
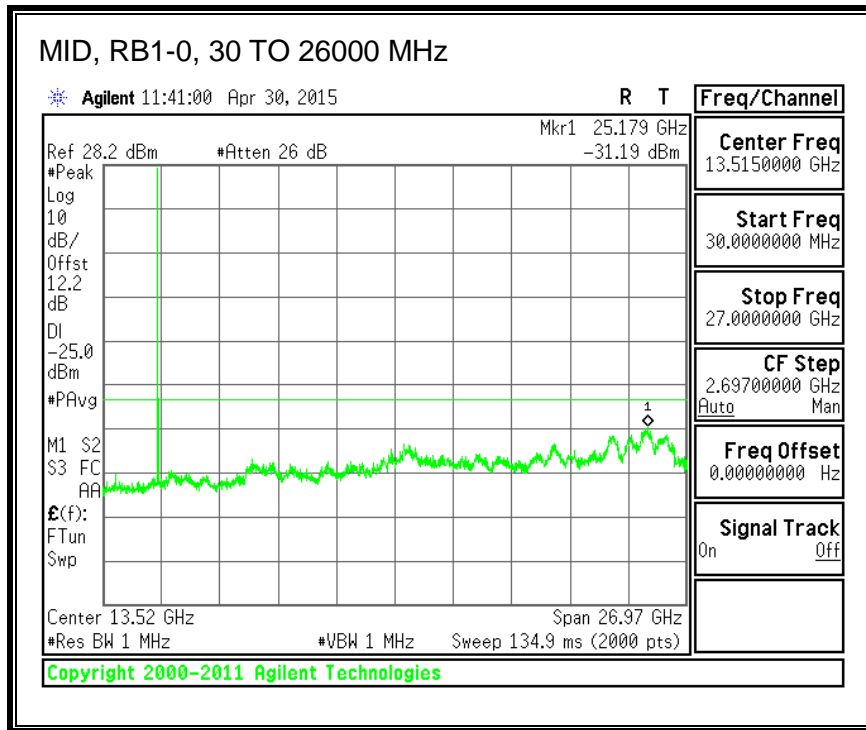
**QPSK, (15.0 MHz BAND WIDTH)**





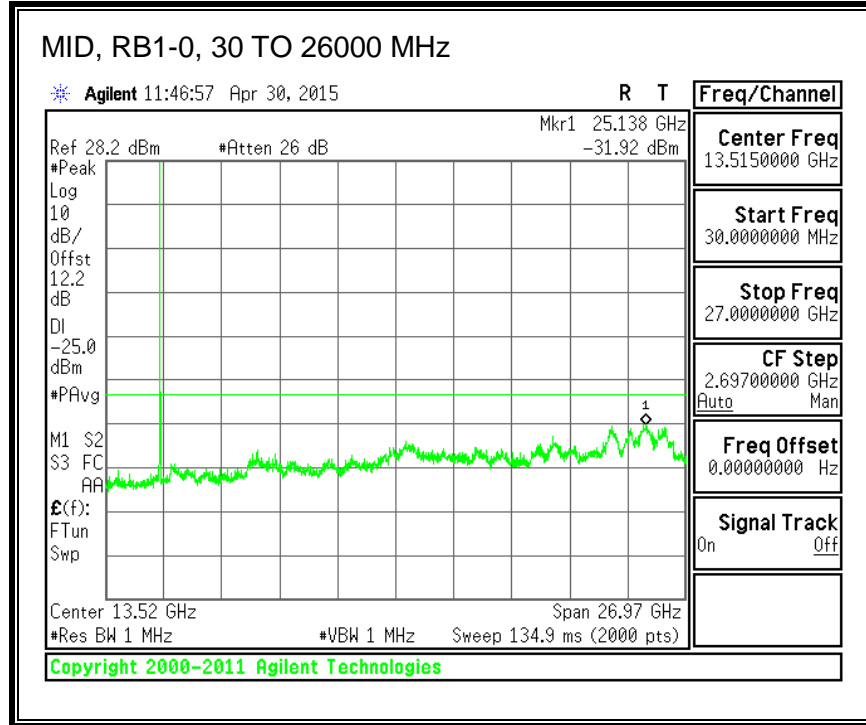
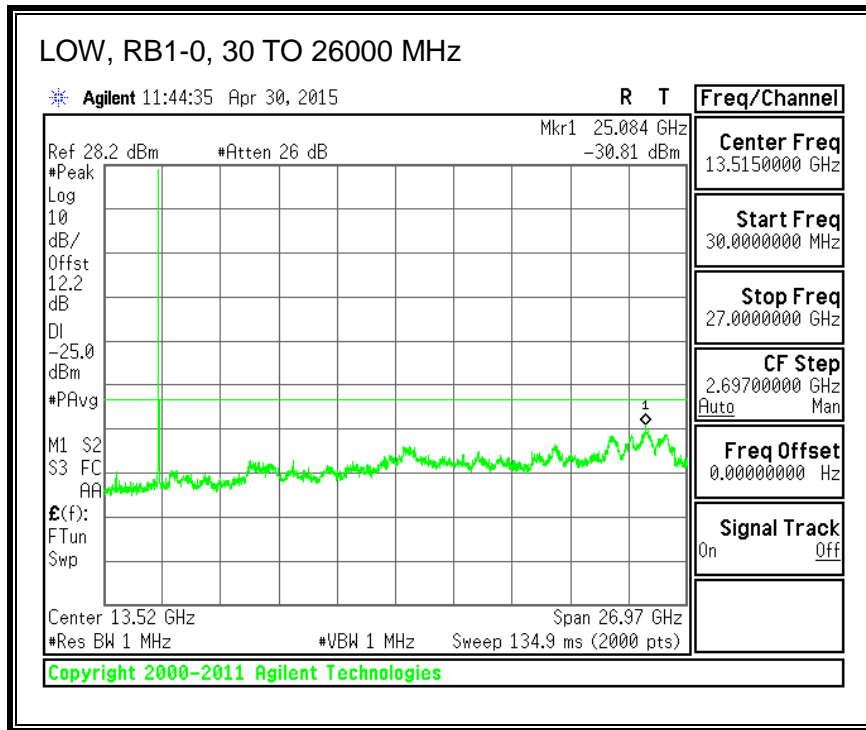
**16QAM, (15.0 MHz BAND WIDTH)**

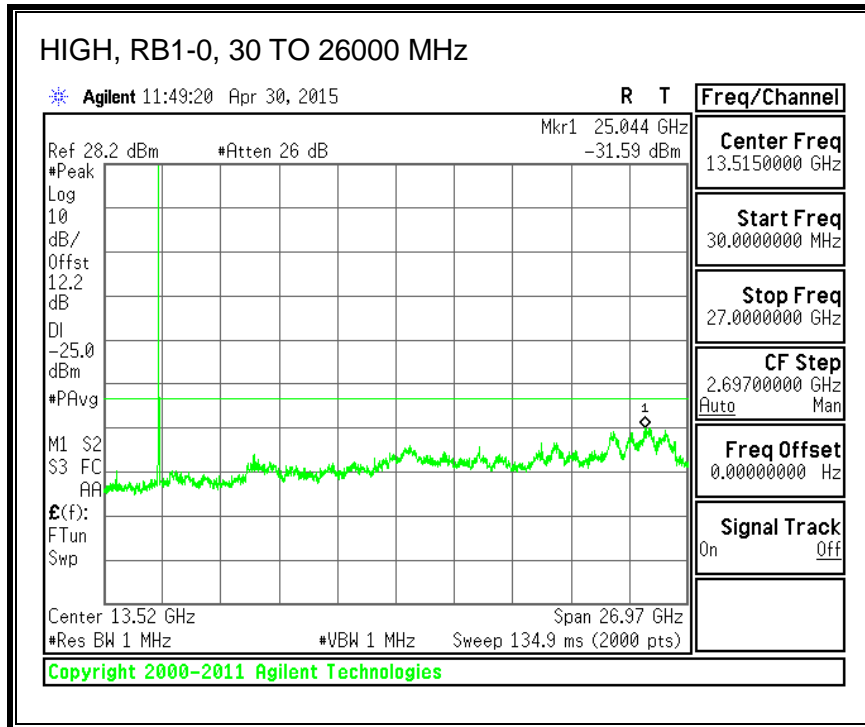




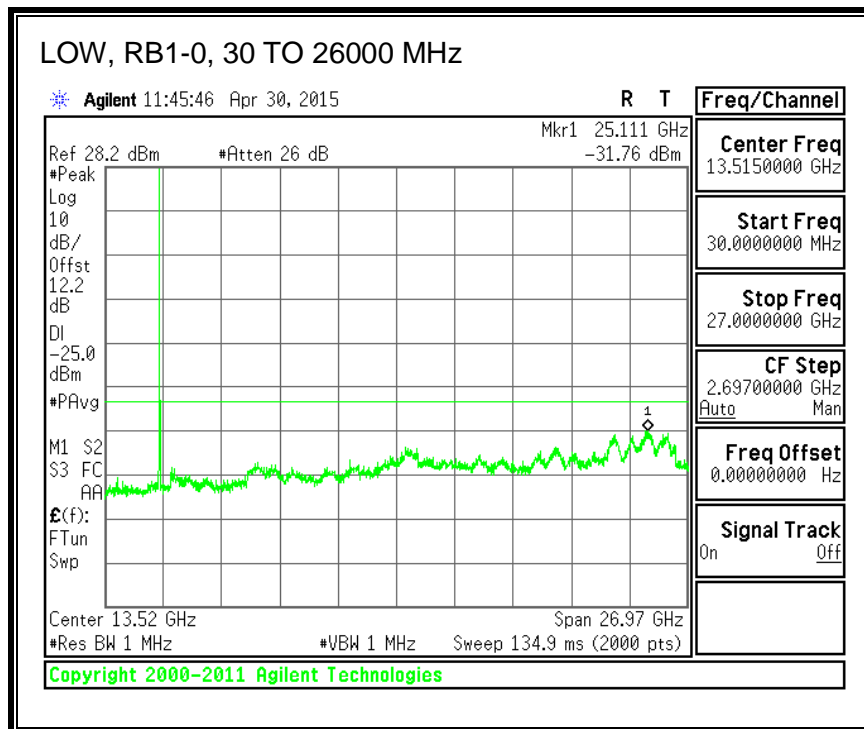


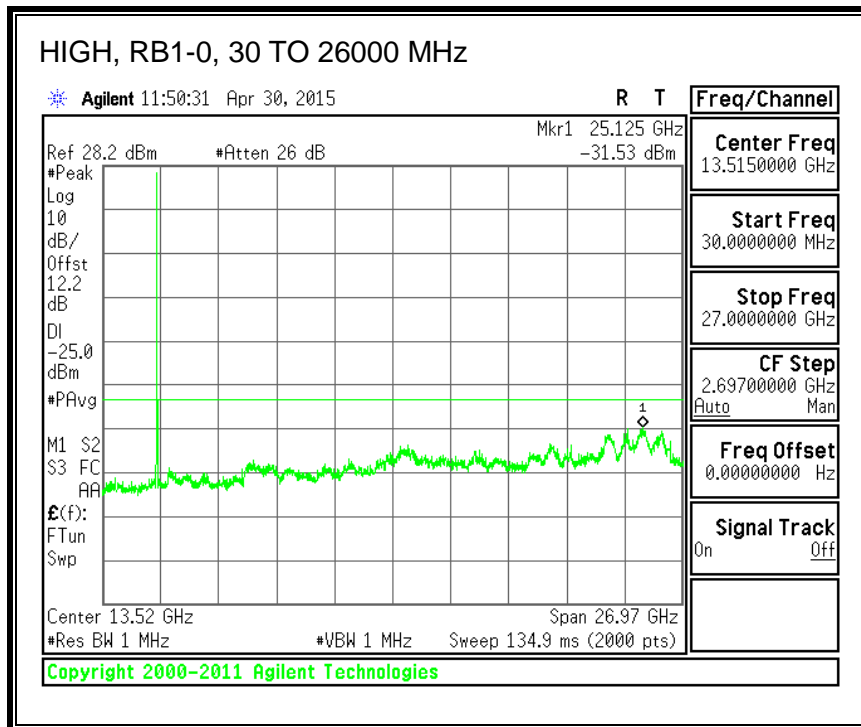
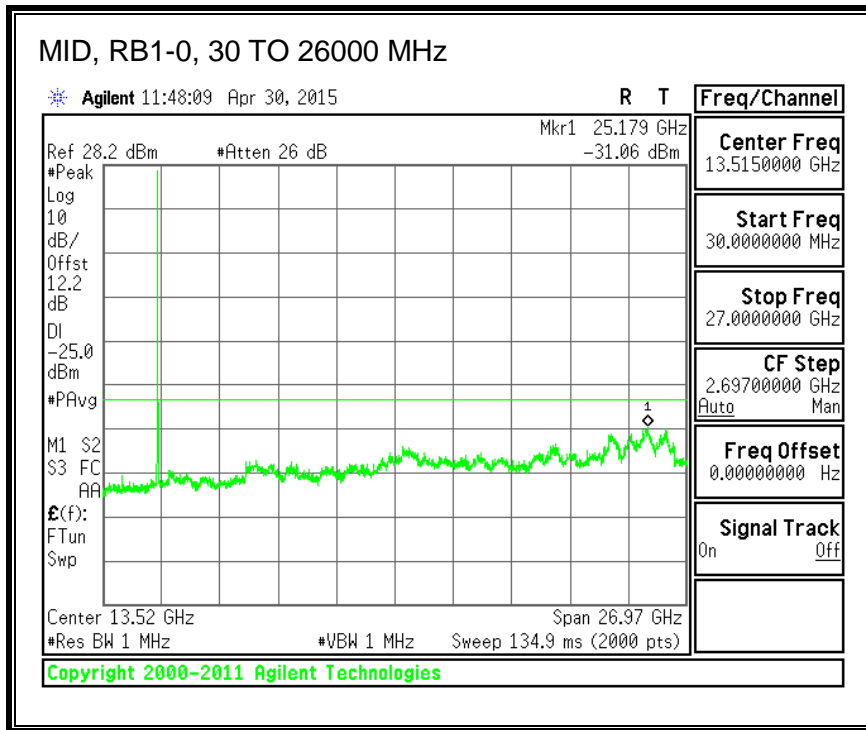
**QPSK, (20.0 MHz BAND WIDTH)**





**16QAM, (20.0 MHz BAND WIDTH)**





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## **8.6. OUT OF BAND EMISSIONS (MODEL: A1688)**

### **RULE PART(S)**

FCC: §2.1051, §22.901, §22.917, §24.238 and §27.53

### **LIMITS**

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.

### **TEST PROCEDURE**

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

For each out of band emissions measurement:

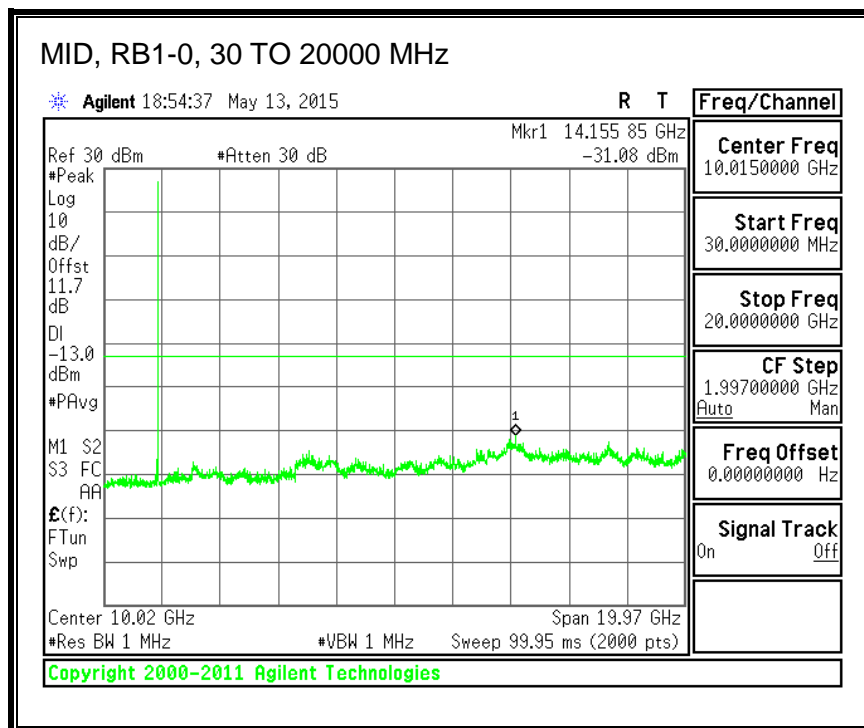
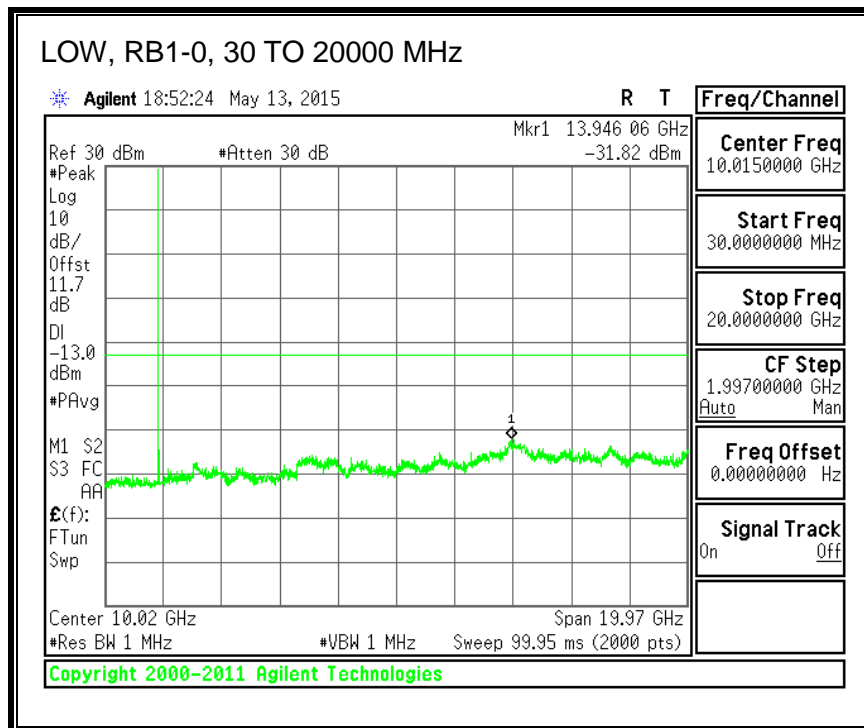
- Set display line at -13 dBm
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.

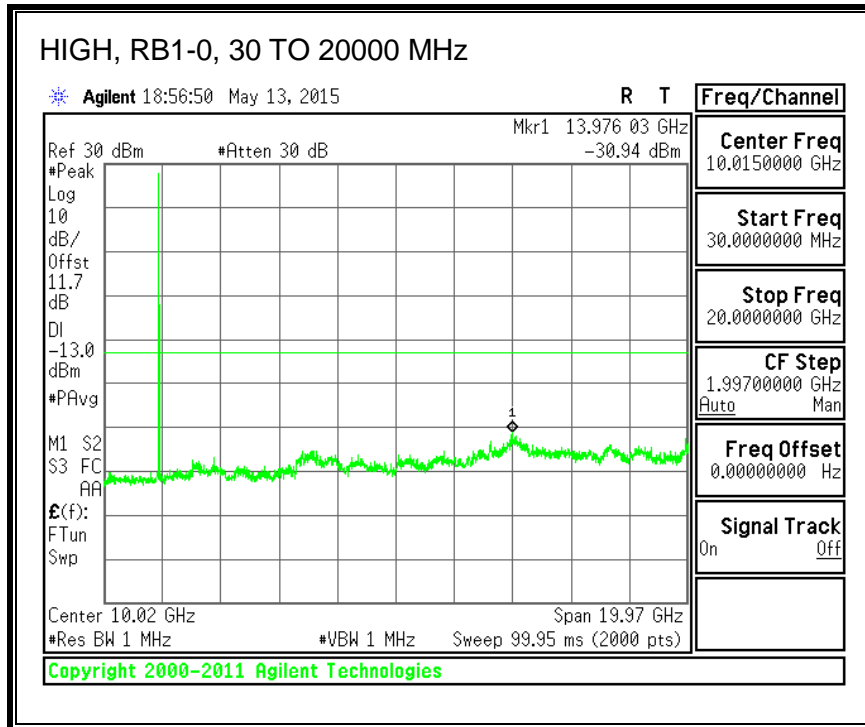
### **MODES TESTED**

- LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 17
- LTE Band 25
- LTE Band 26
- LTE Band 41

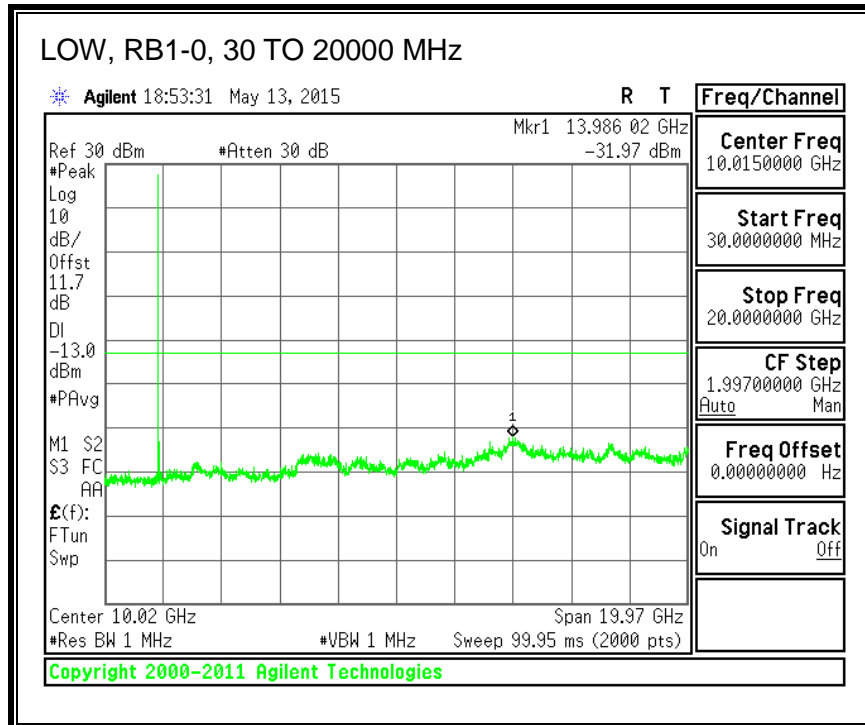
### 8.6.1. LTE BAND 2

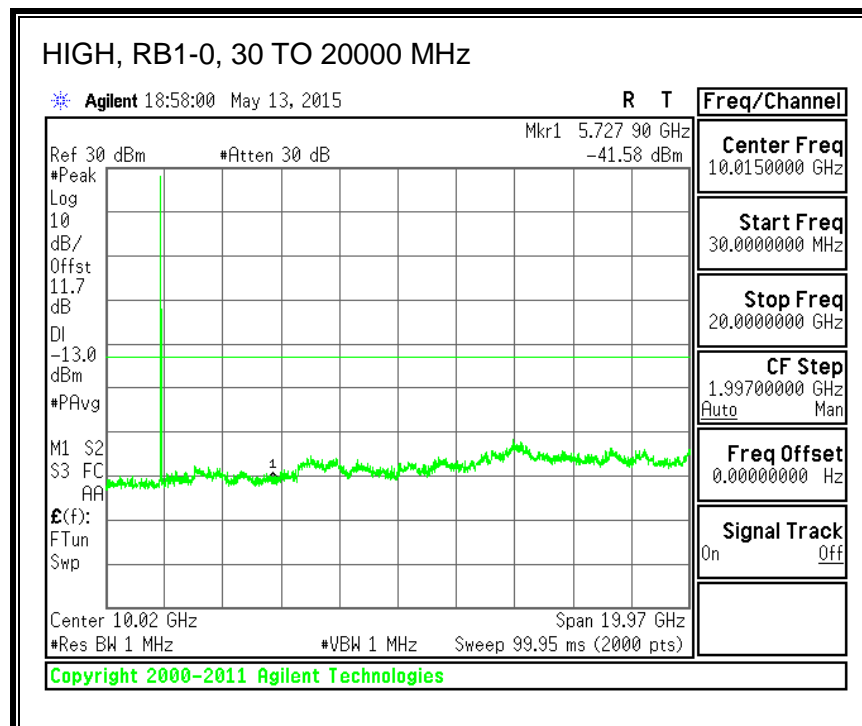
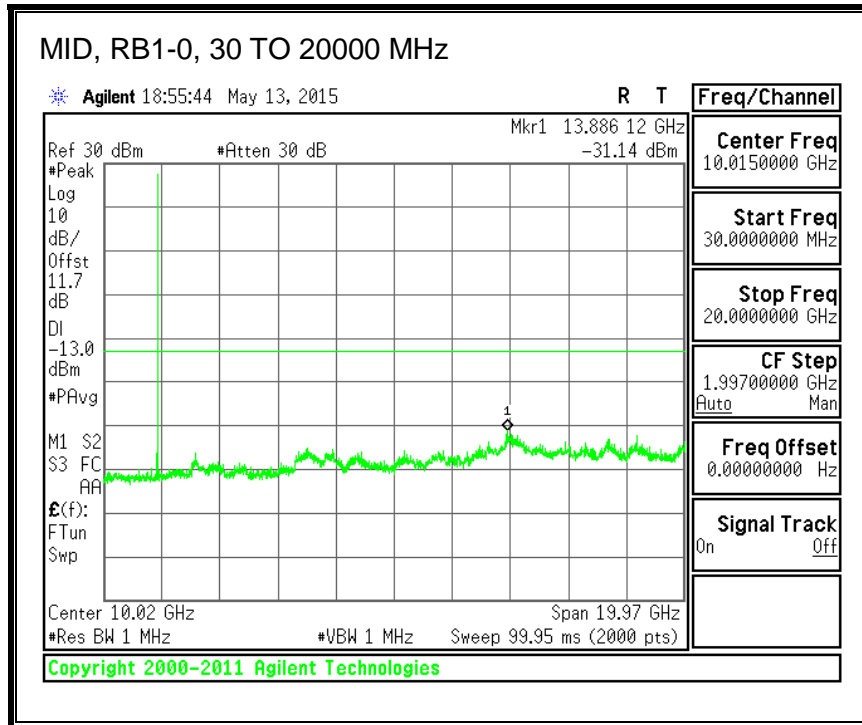
#### QPSK, (1.4 MHz BAND WIDTH)



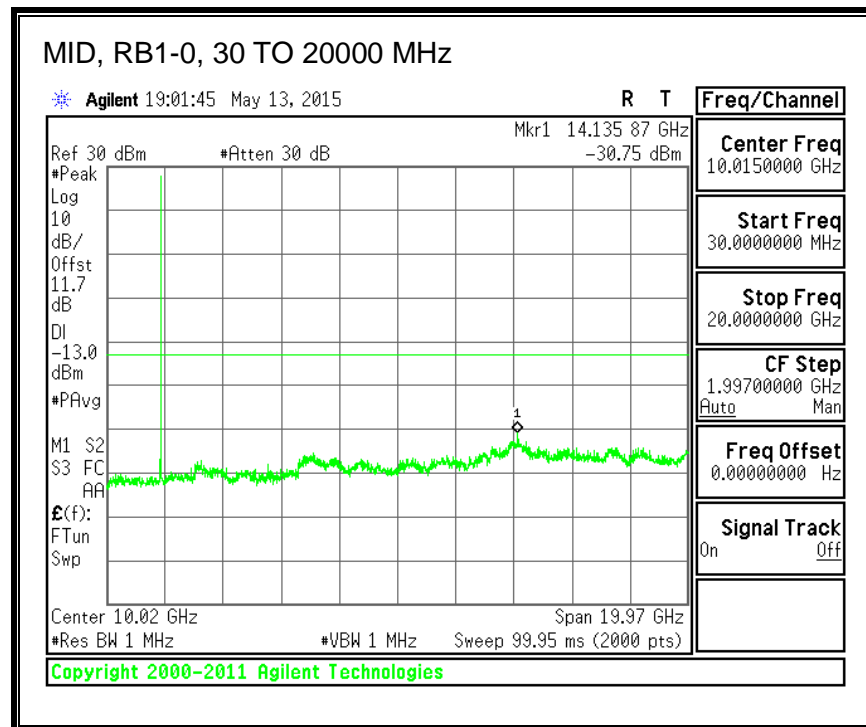
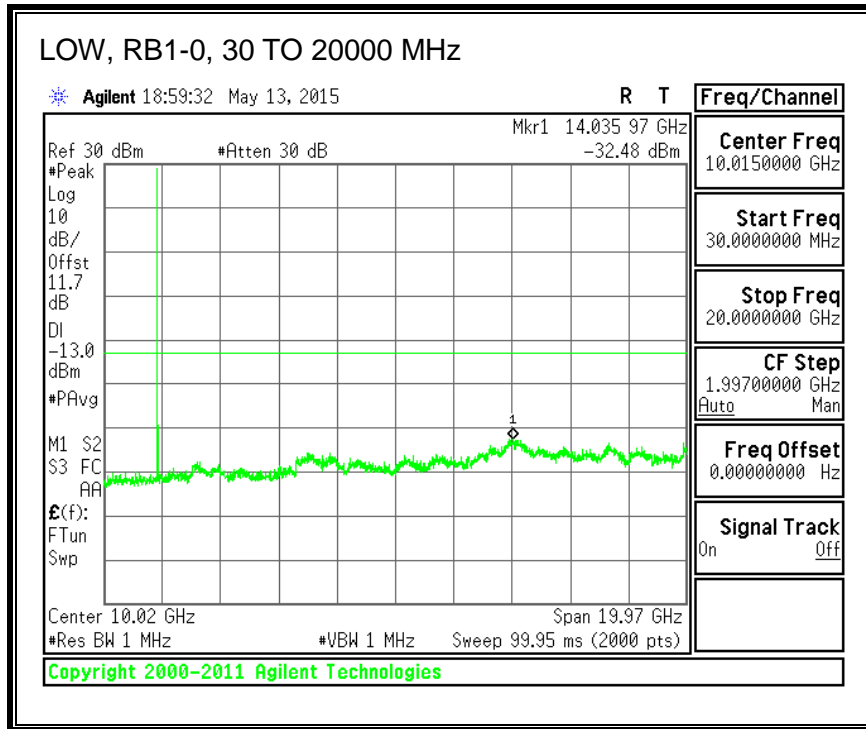


**16QAM, (1.4 MHz BAND WIDTH)**

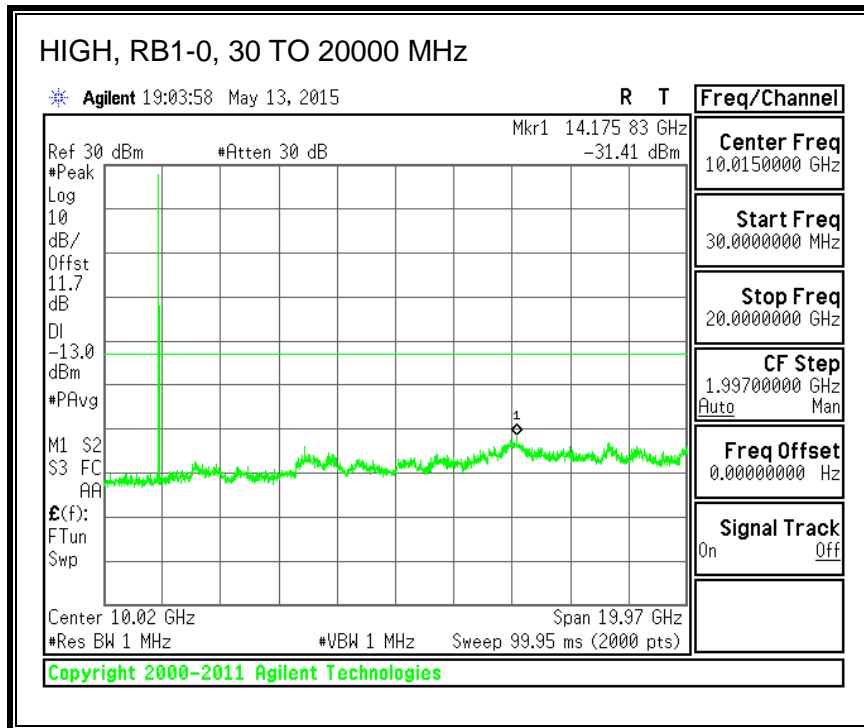




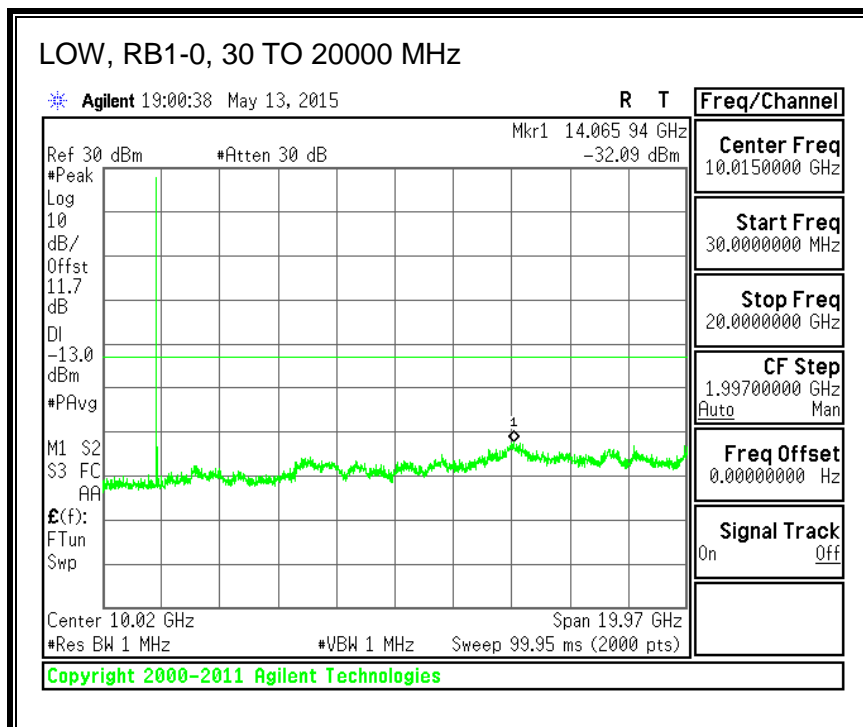
**QPSK, (3.0 MHz BAND WIDTH)**

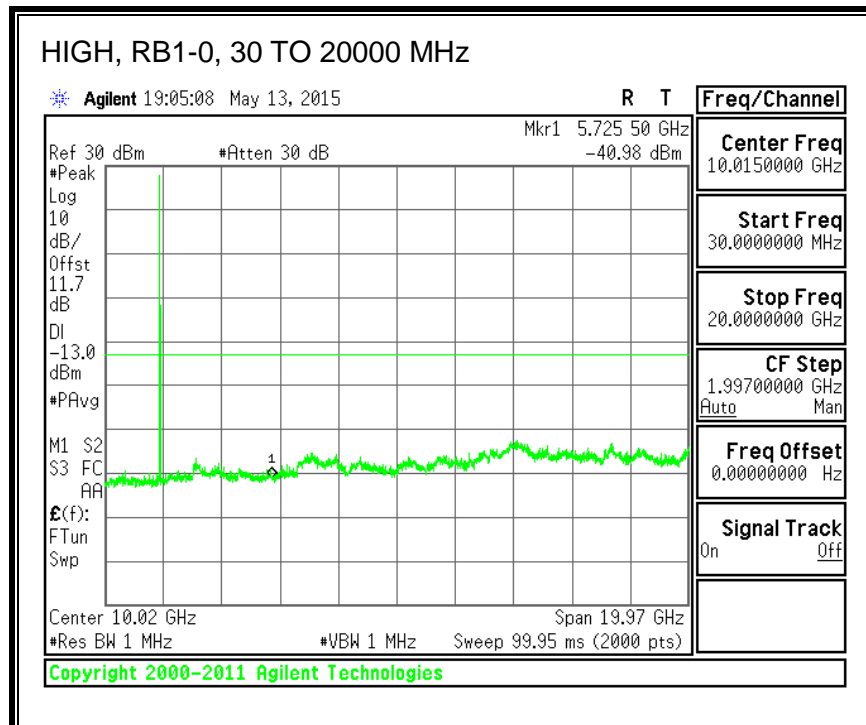
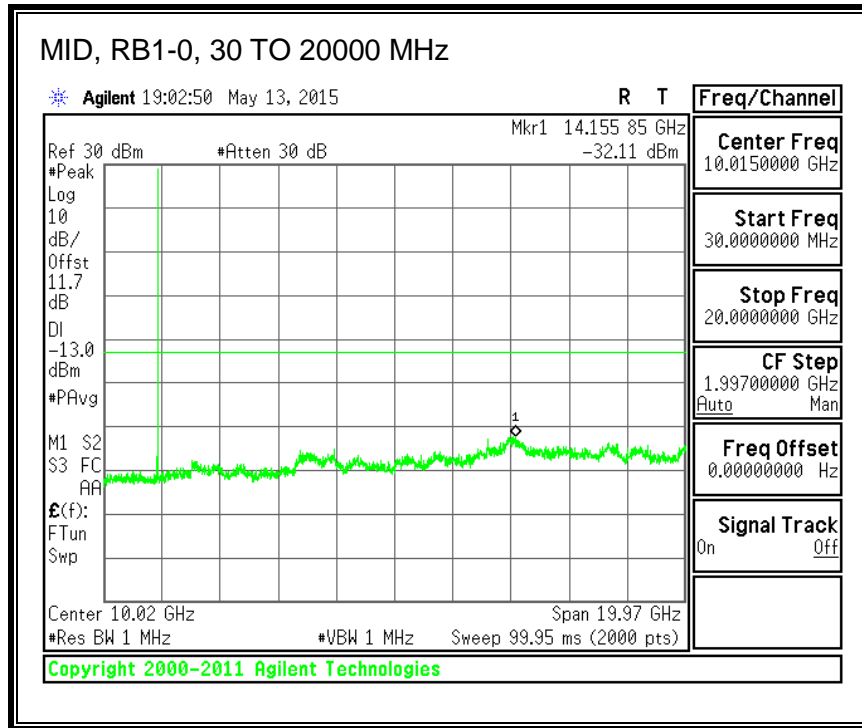




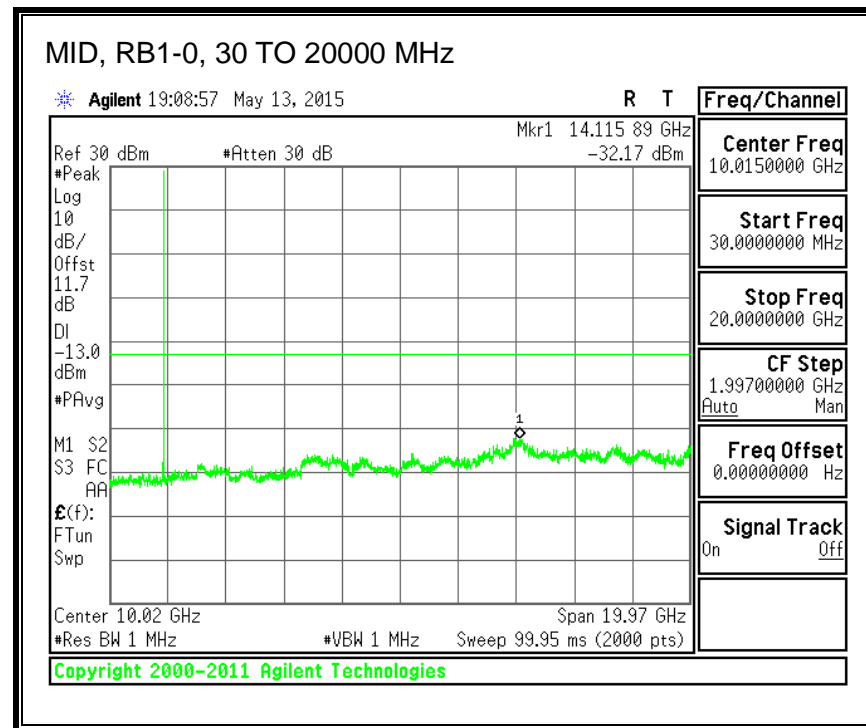
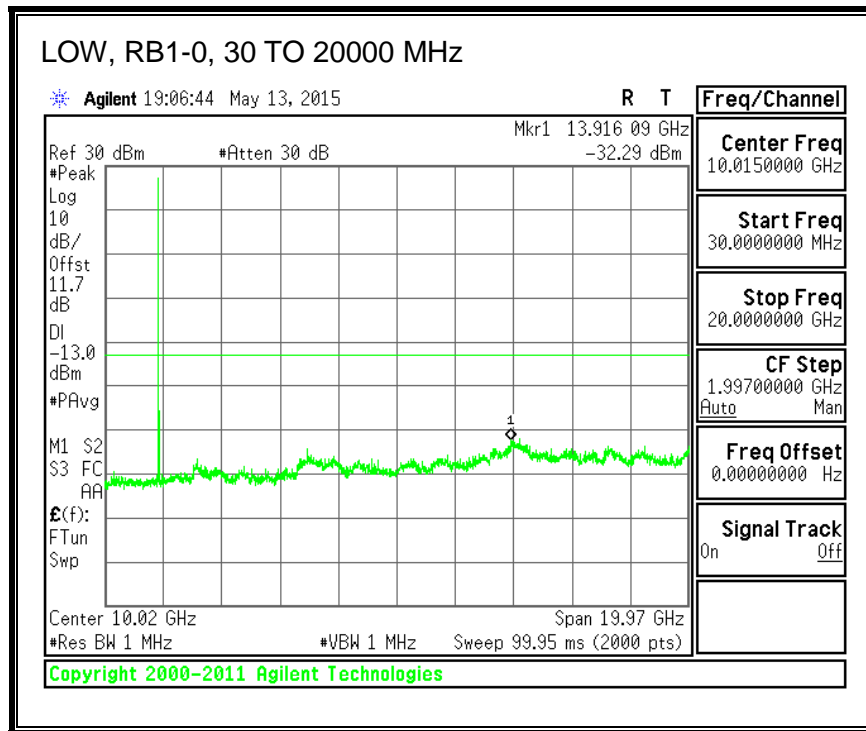


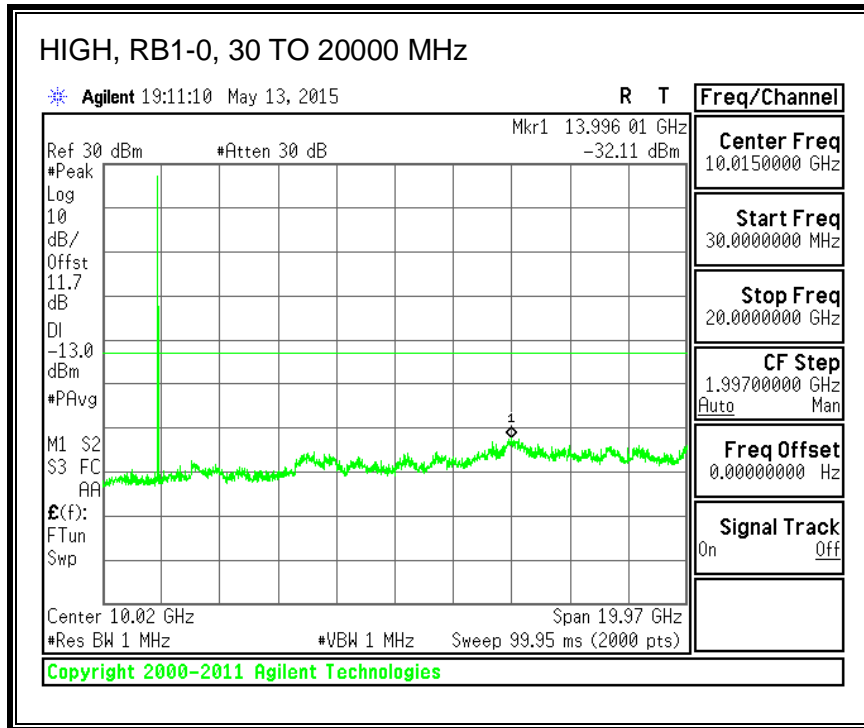
**16QAM, (3.0 MHz BAND WIDTH)**



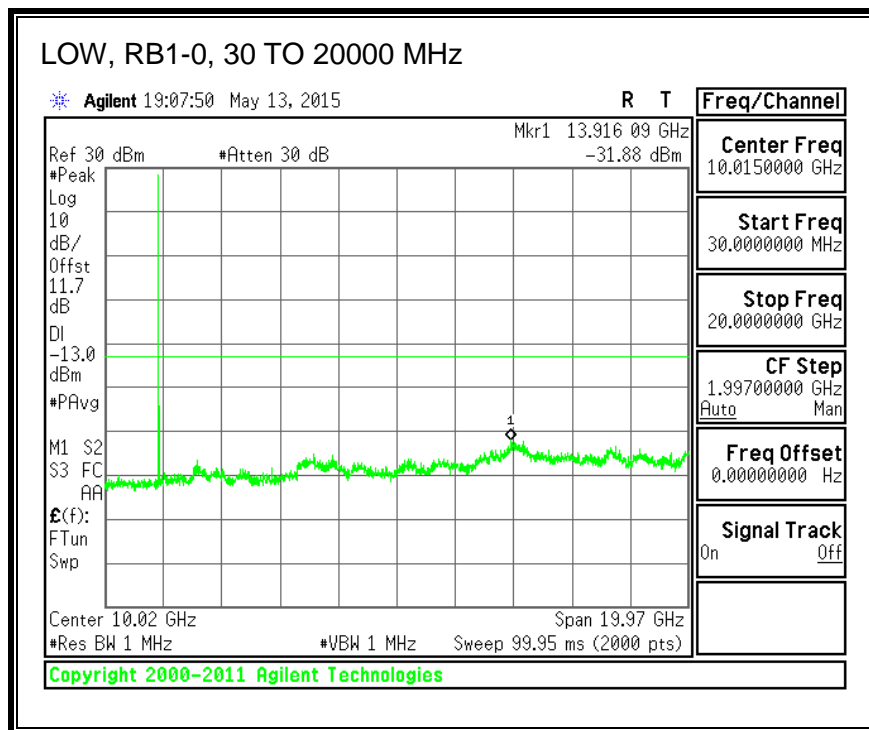


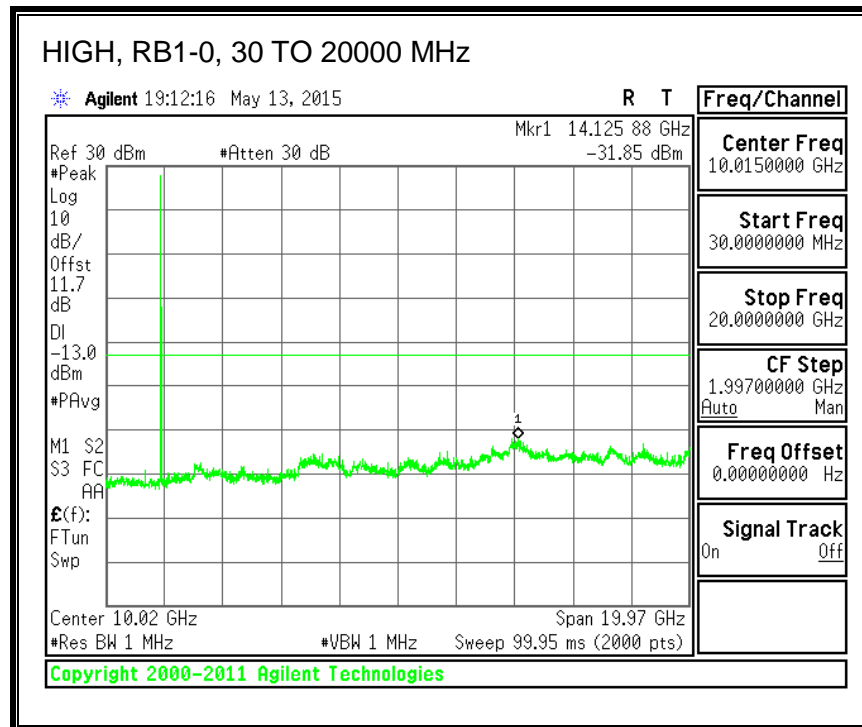
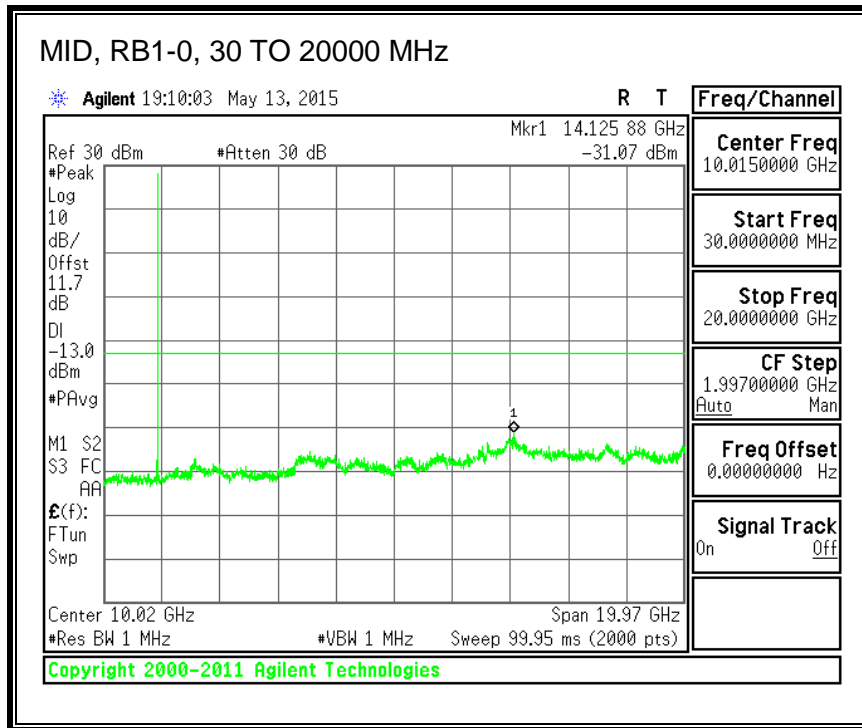
**QPSK, (5.0 MHz BAND WIDTH)**



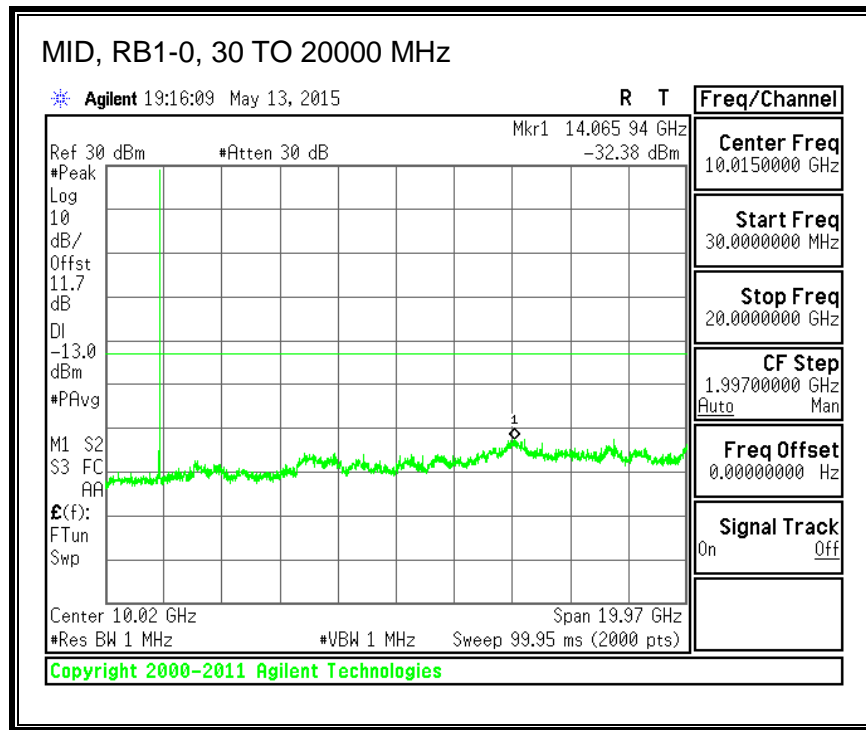
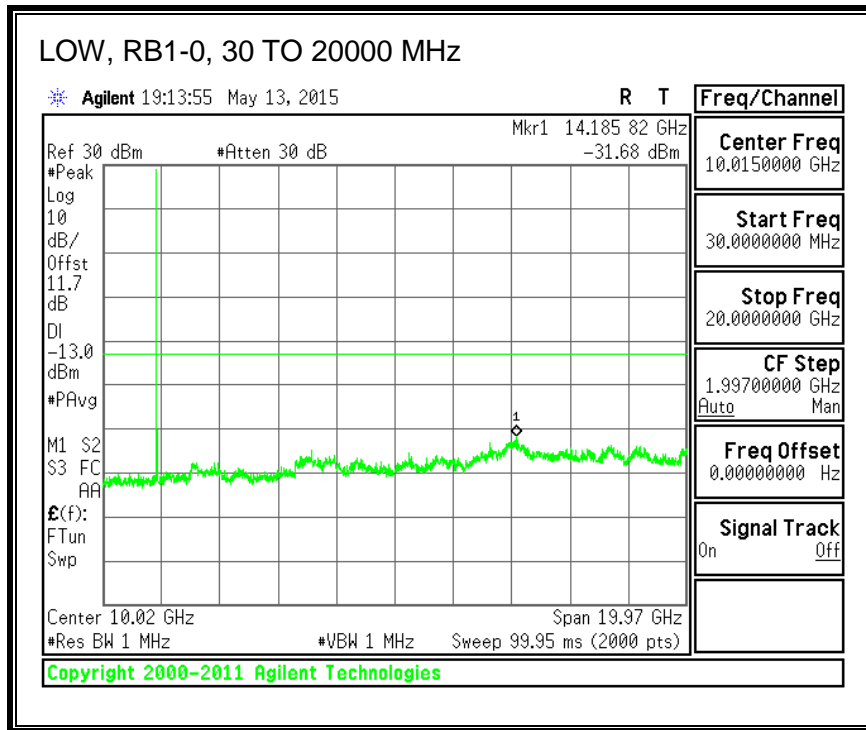


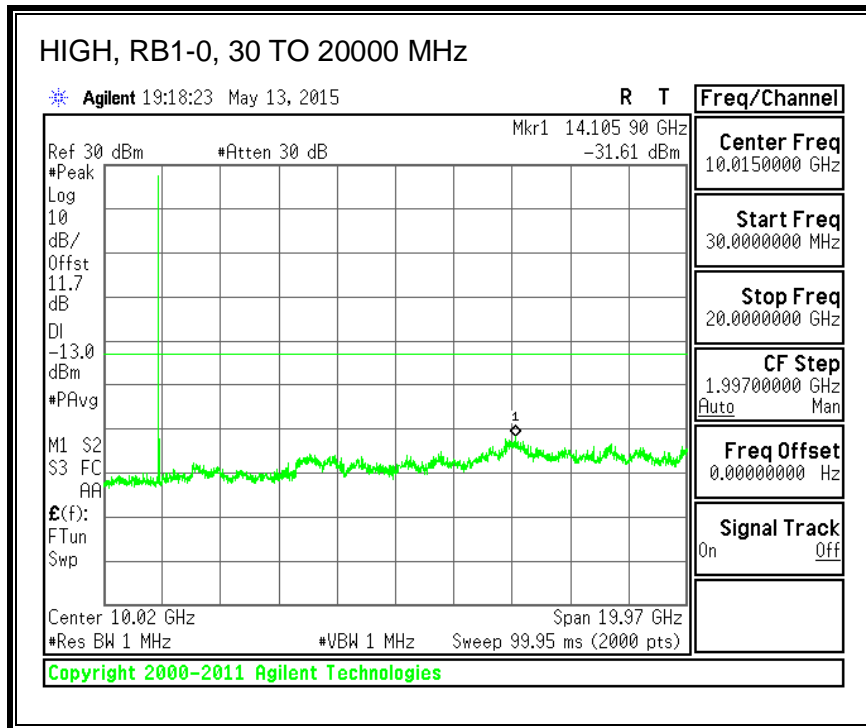
**16QAM, (5.0 MHz BAND WIDTH)**



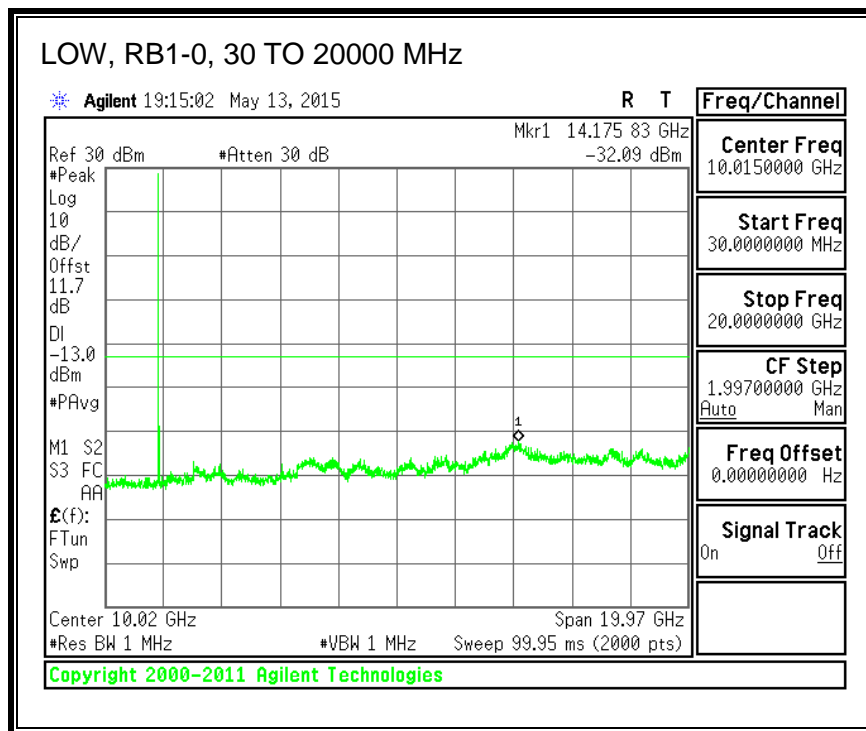


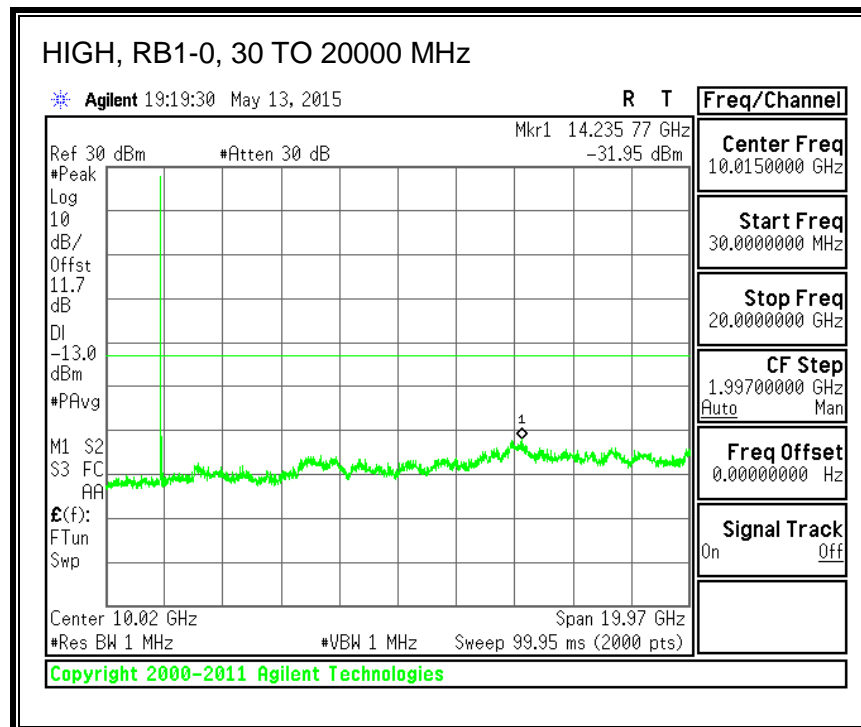
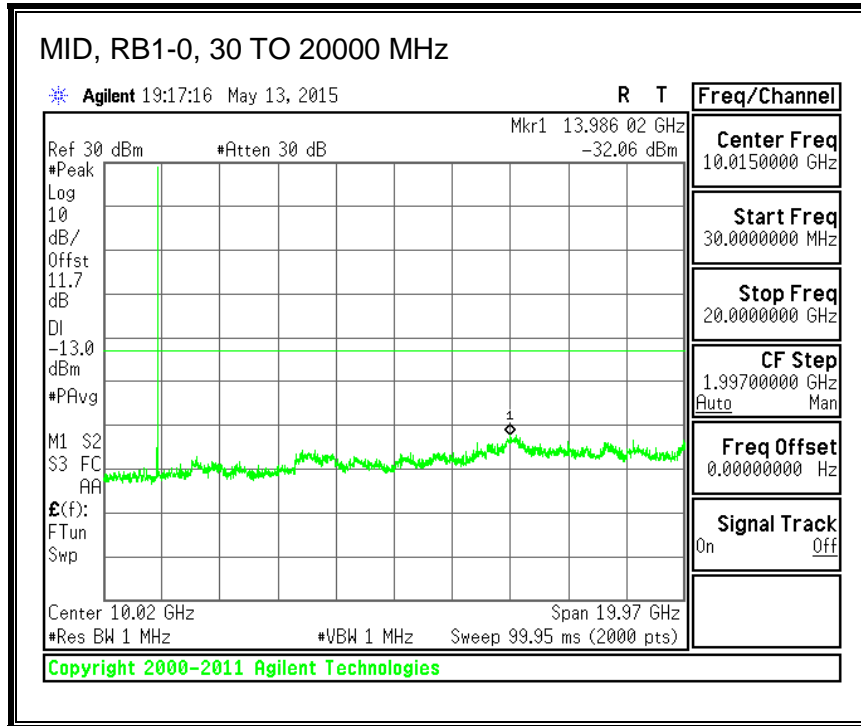
**QPSK, (10.0 MHz BAND WIDTH)**





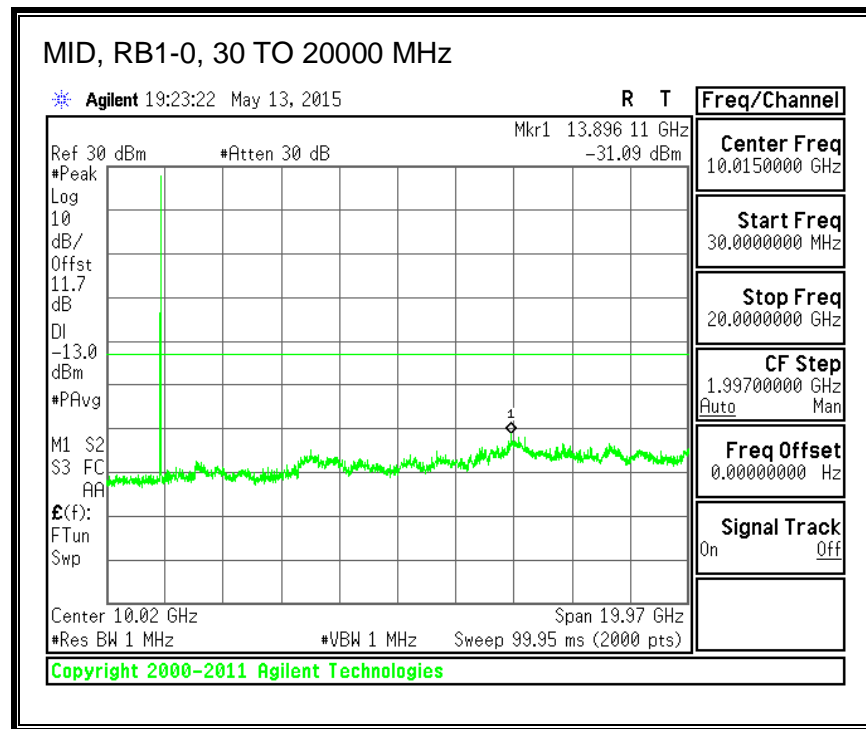
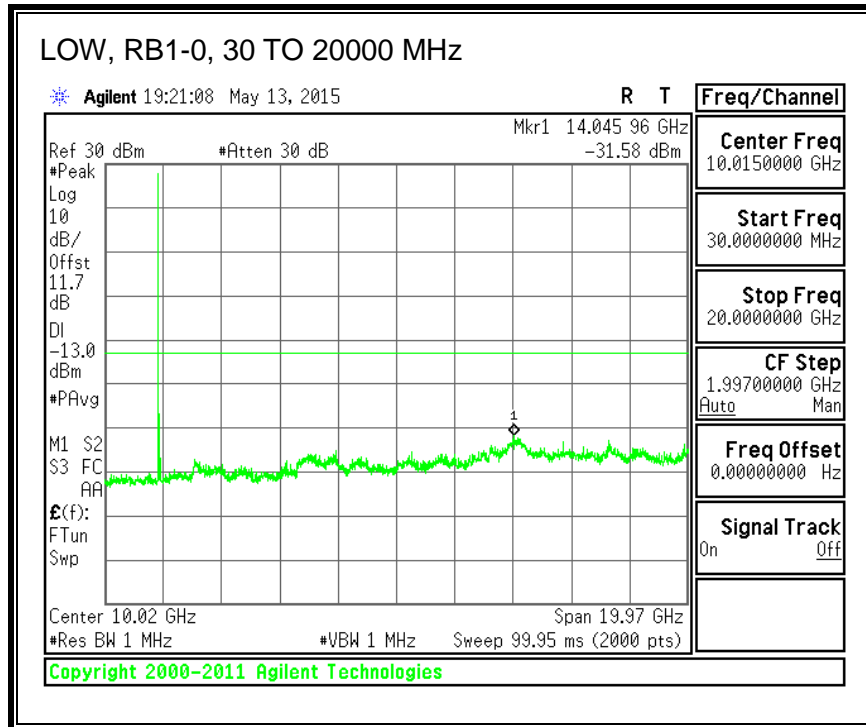
**16QAM, (10.0 MHz BAND WIDTH)**

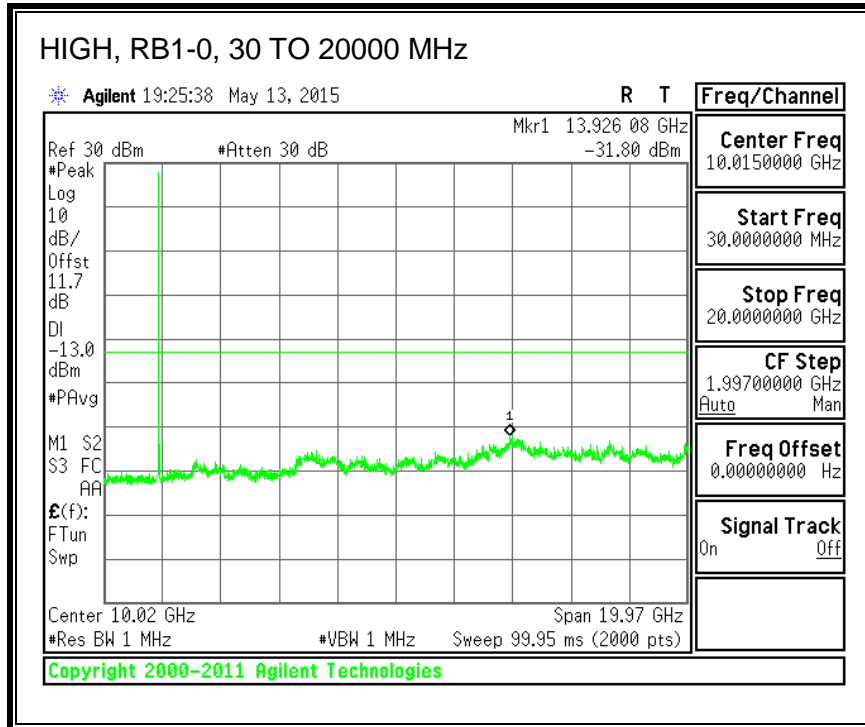




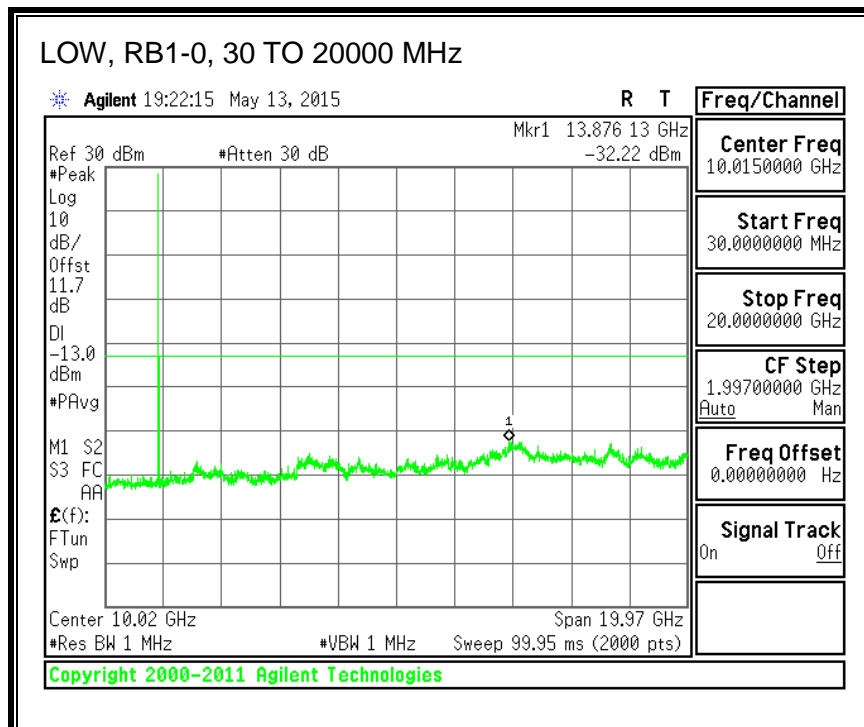


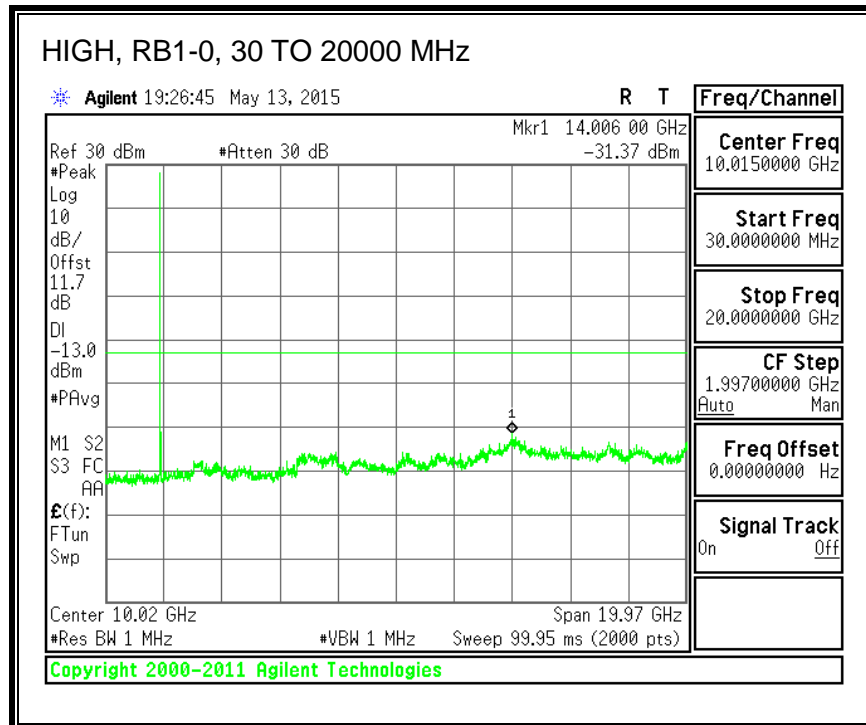
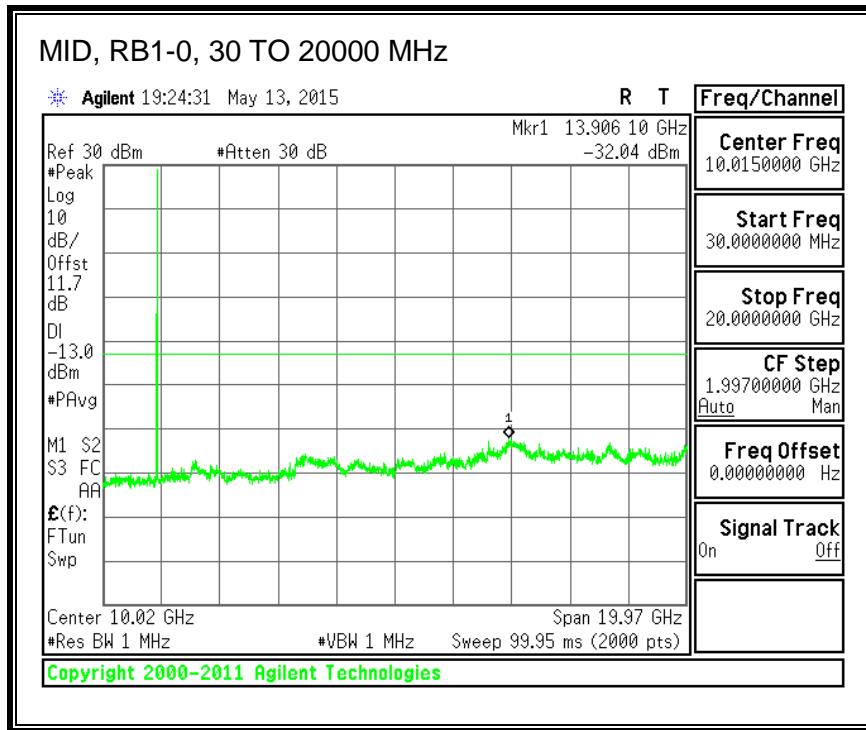
**QPSK, (15.0 MHz BAND WIDTH)**



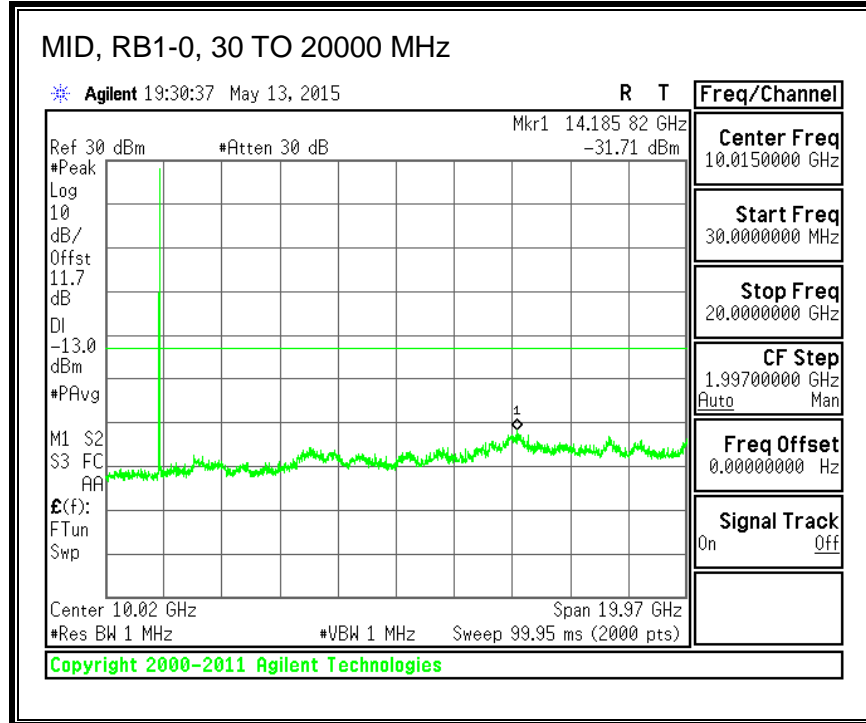
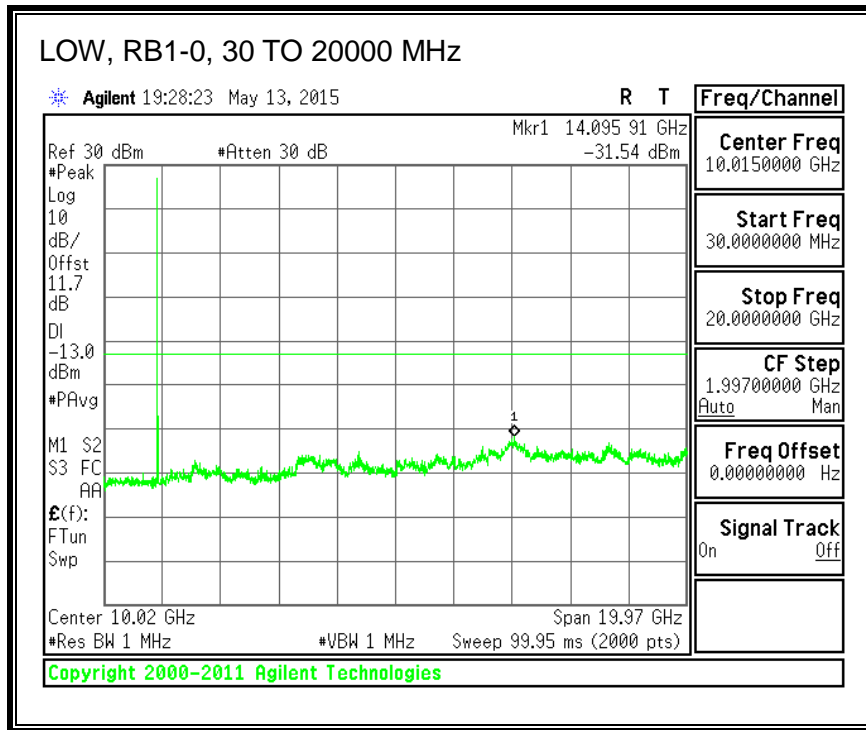


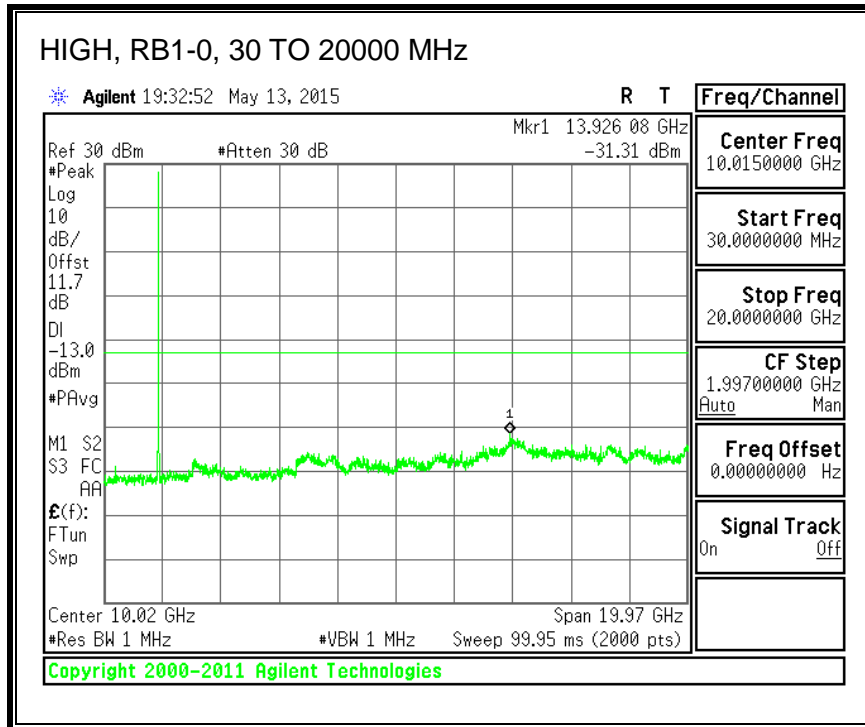
**16QAM, (15.0 MHz BAND WIDTH)**



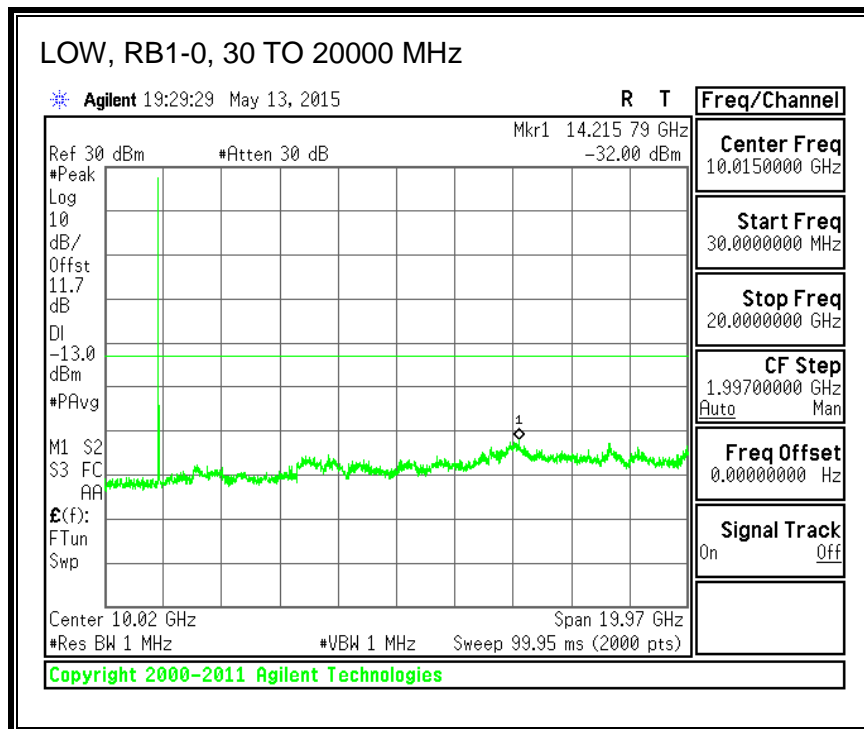


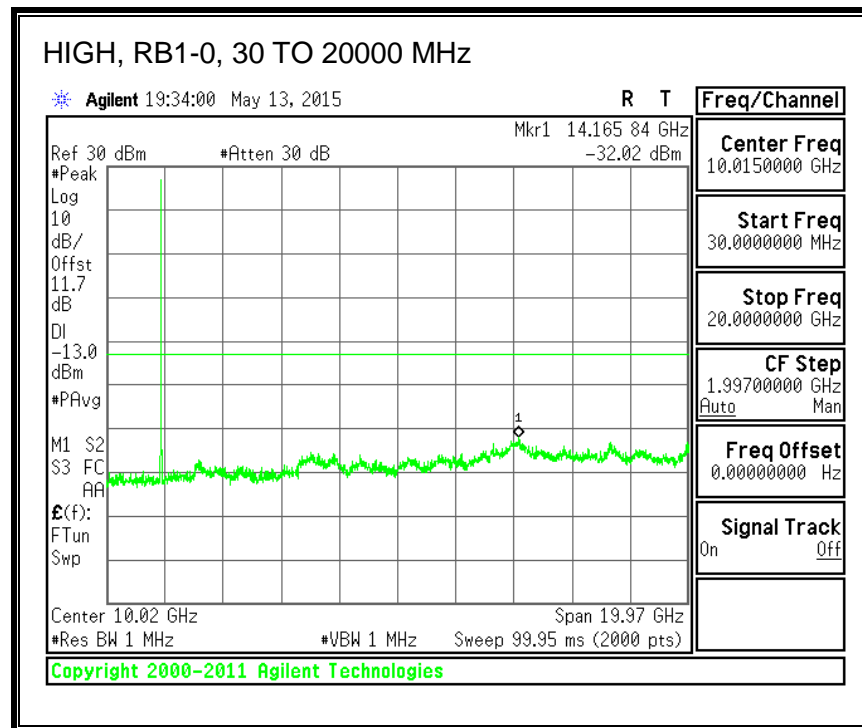
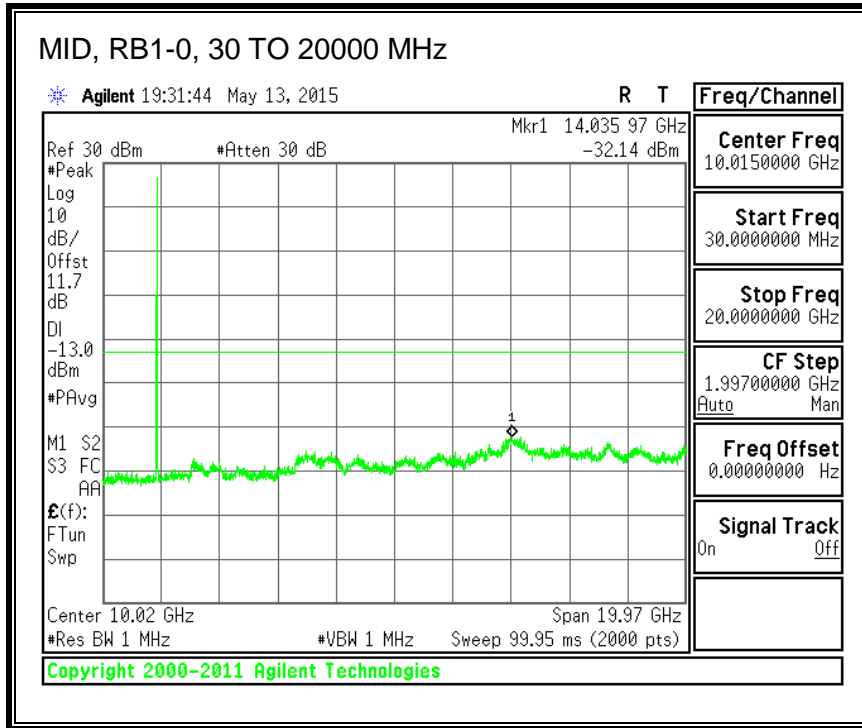
**QPSK, (20.0 MHz BAND WIDTH)**





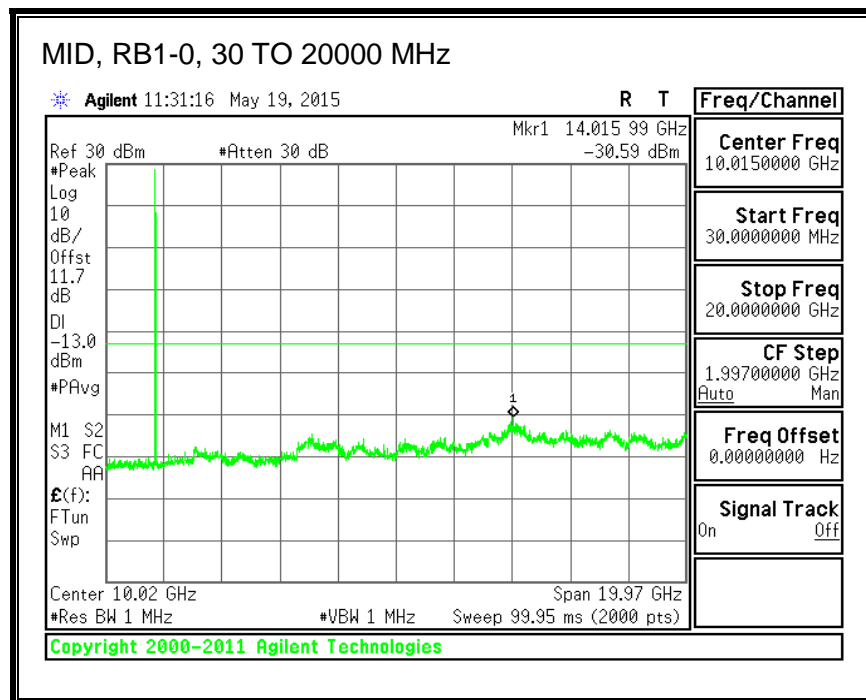
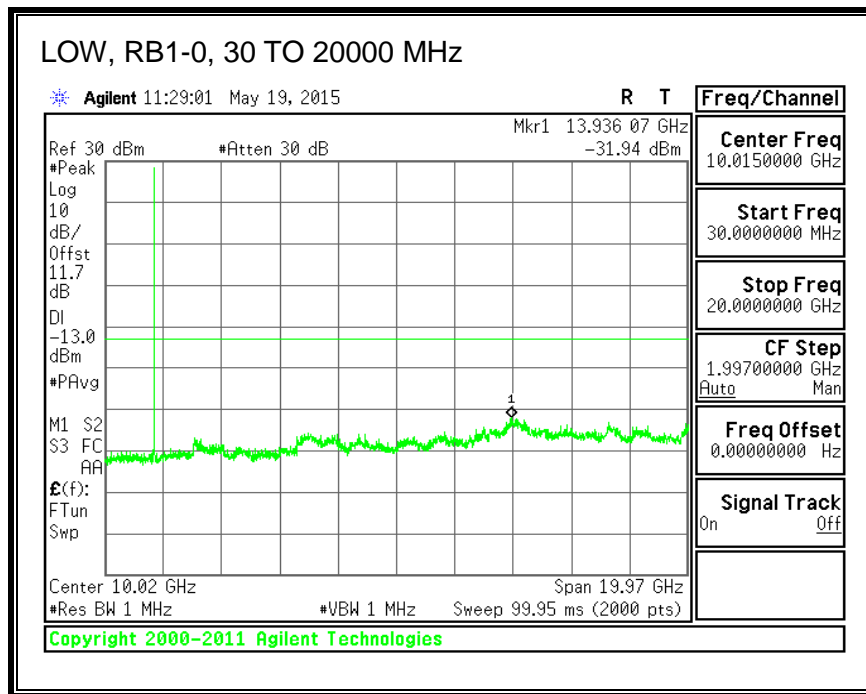
**16QAM, (20.0 MHz BAND WIDTH)**

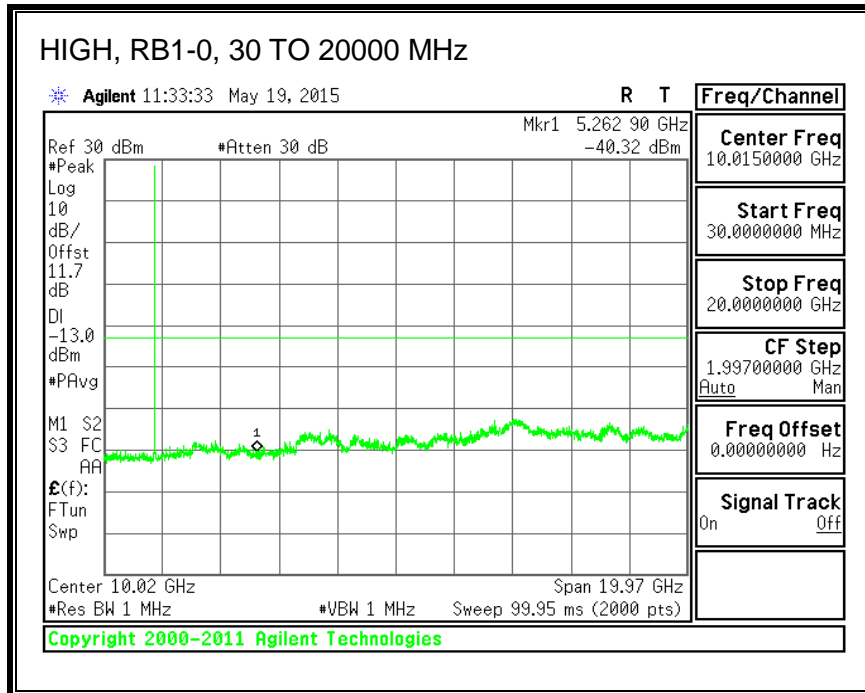




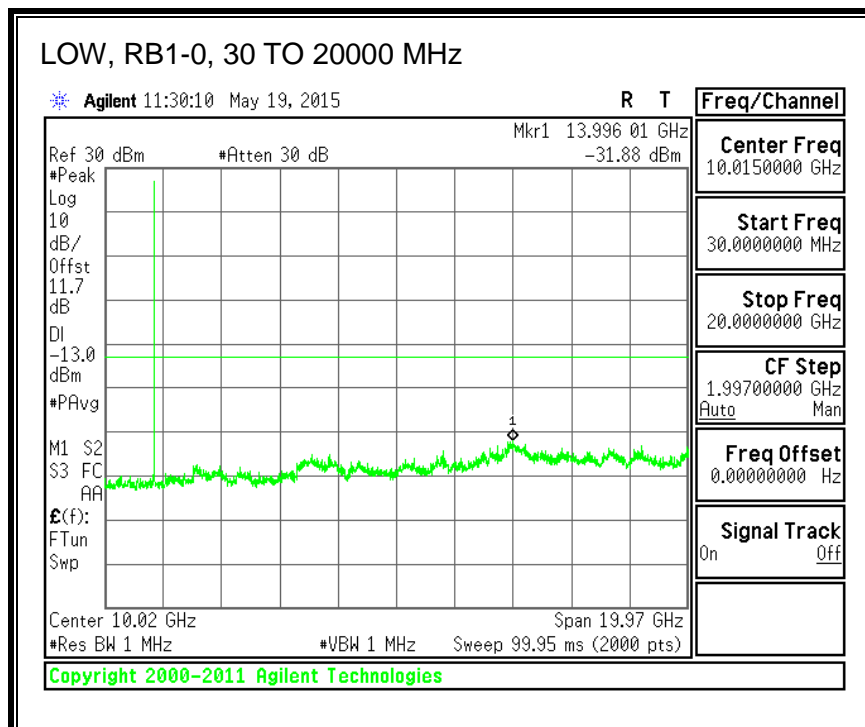
### 8.6.2. LTE BAND 4

#### QPSK, (1.4 MHz BAND WIDTH)

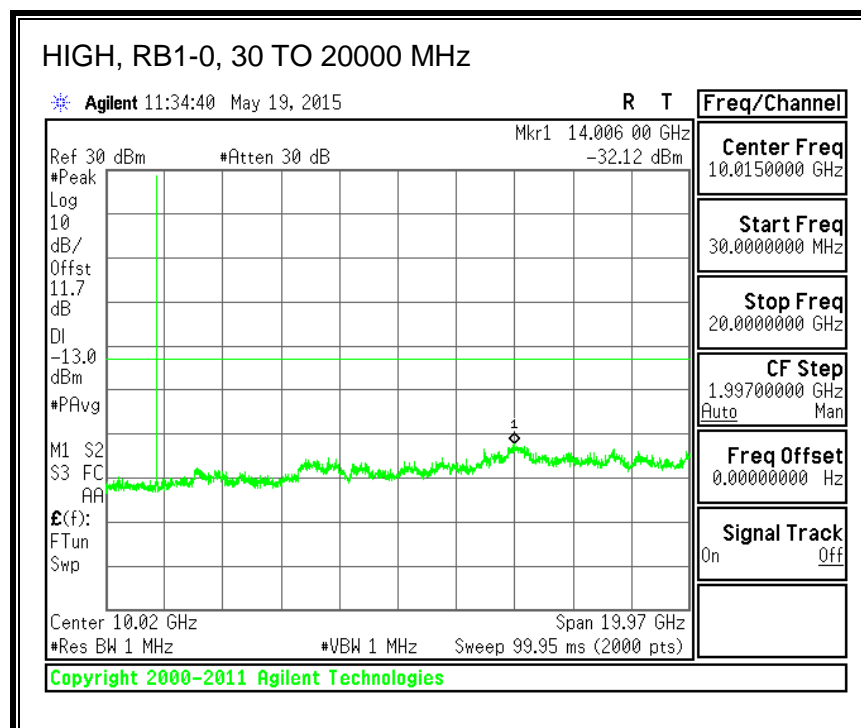
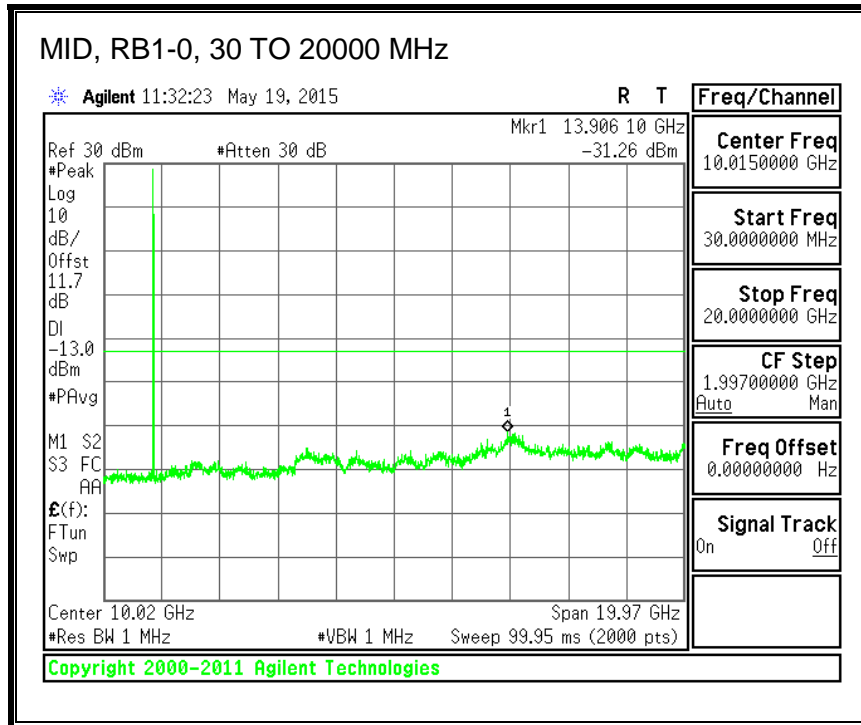




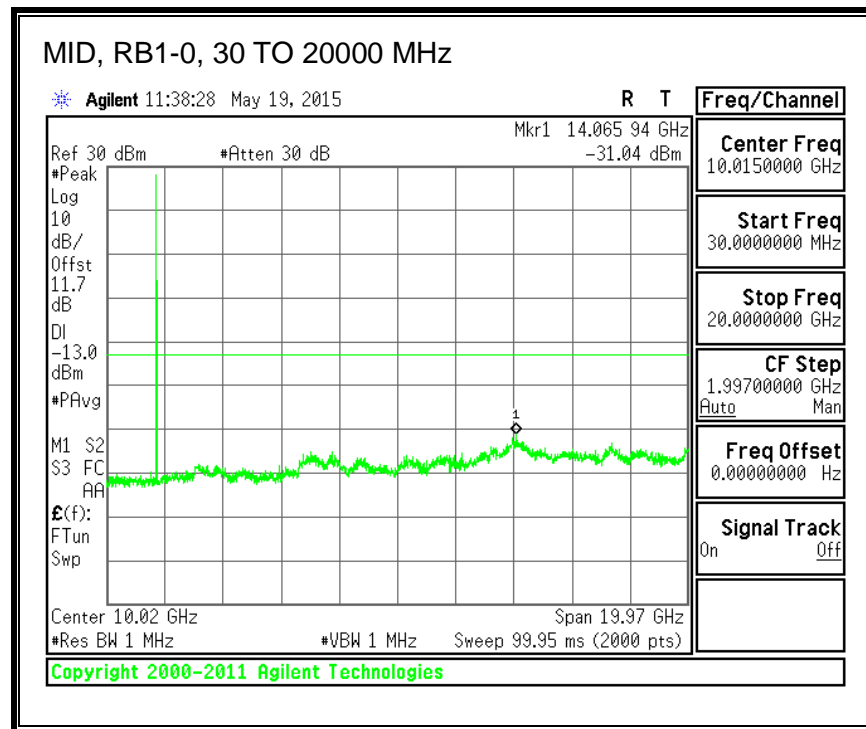
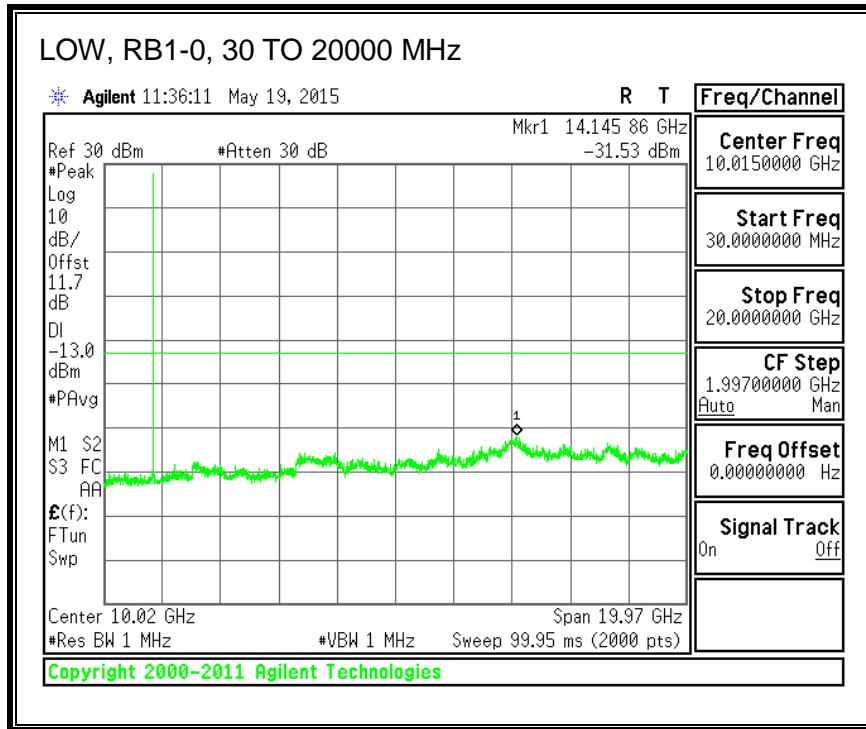
**16QAM, (1.4 MHz BAND WIDTH)**

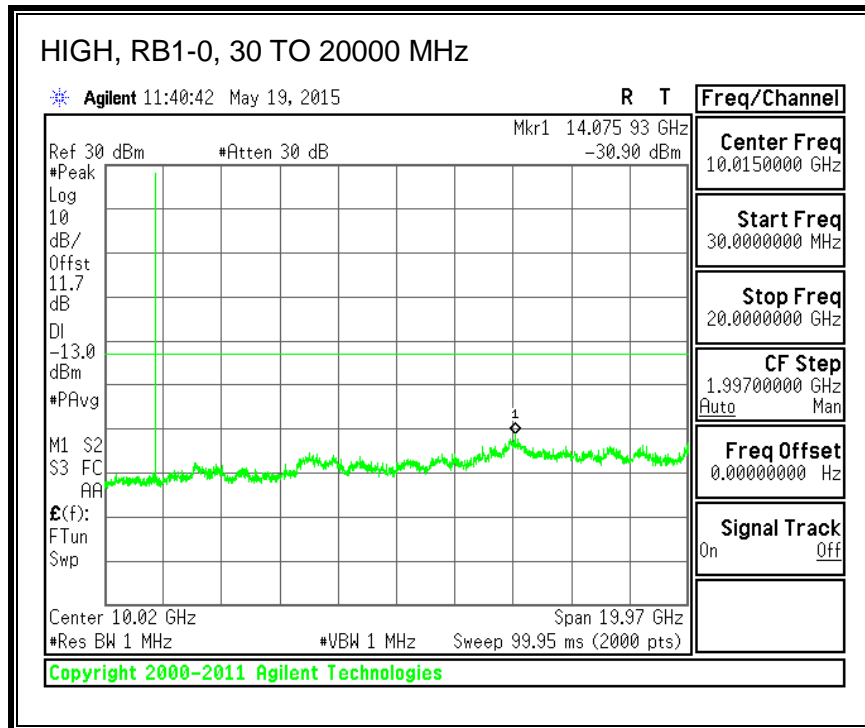




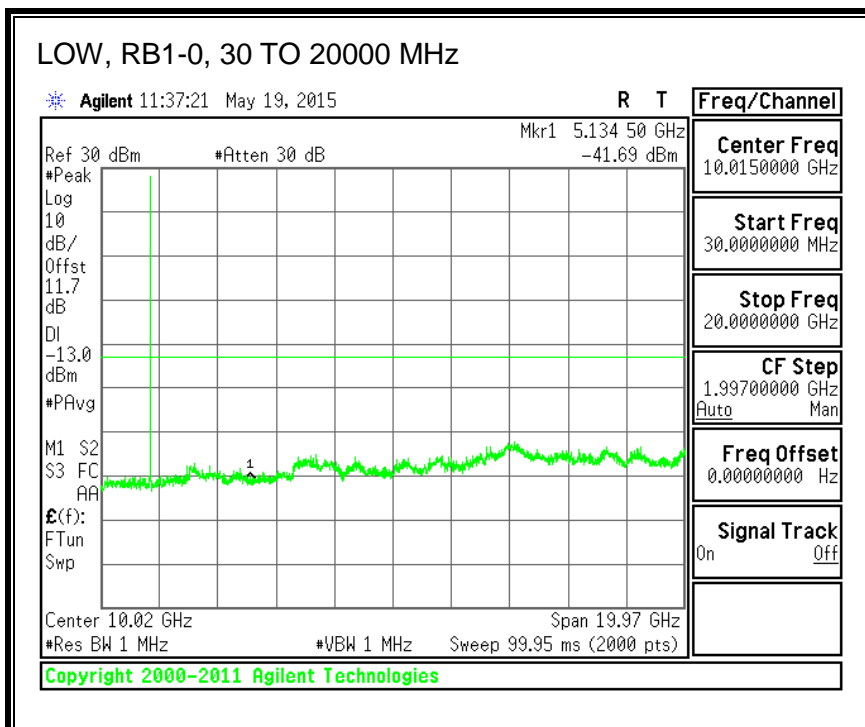


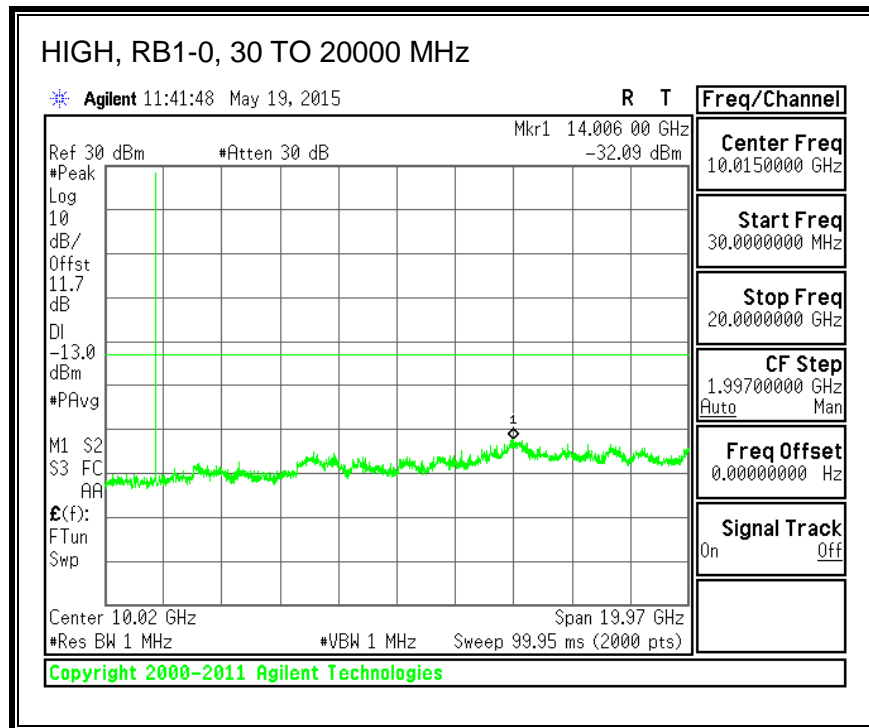
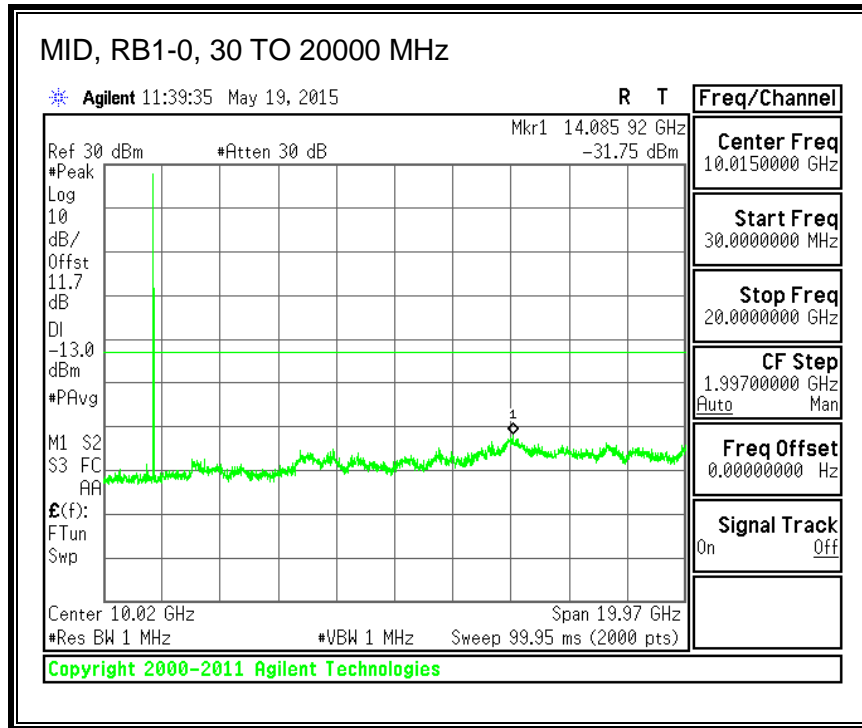
**QPSK, (3.0 MHz BAND WIDTH)**



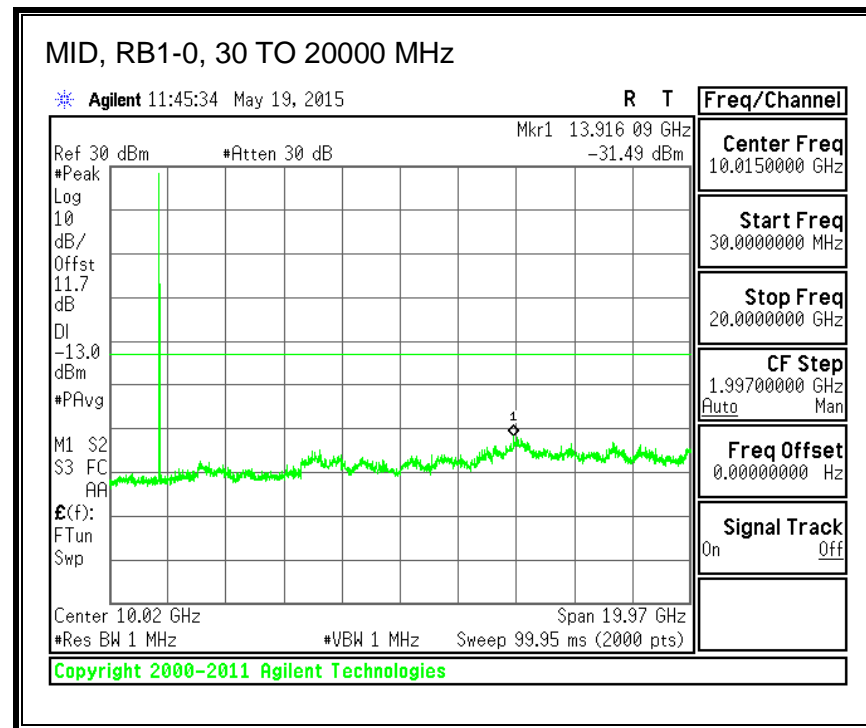
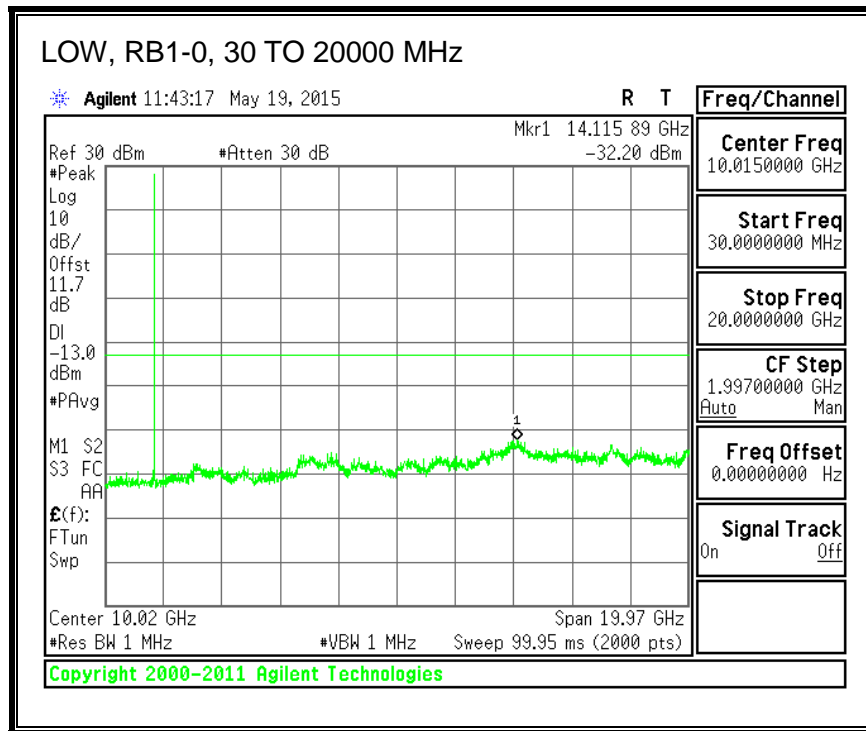


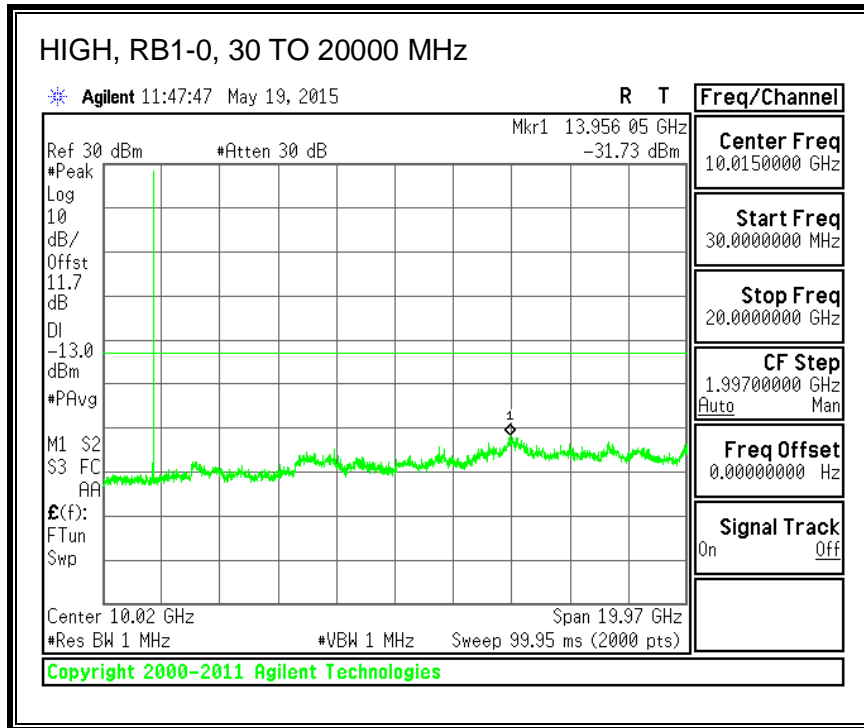
**16QAM, (3.0 MHz BAND WIDTH)**



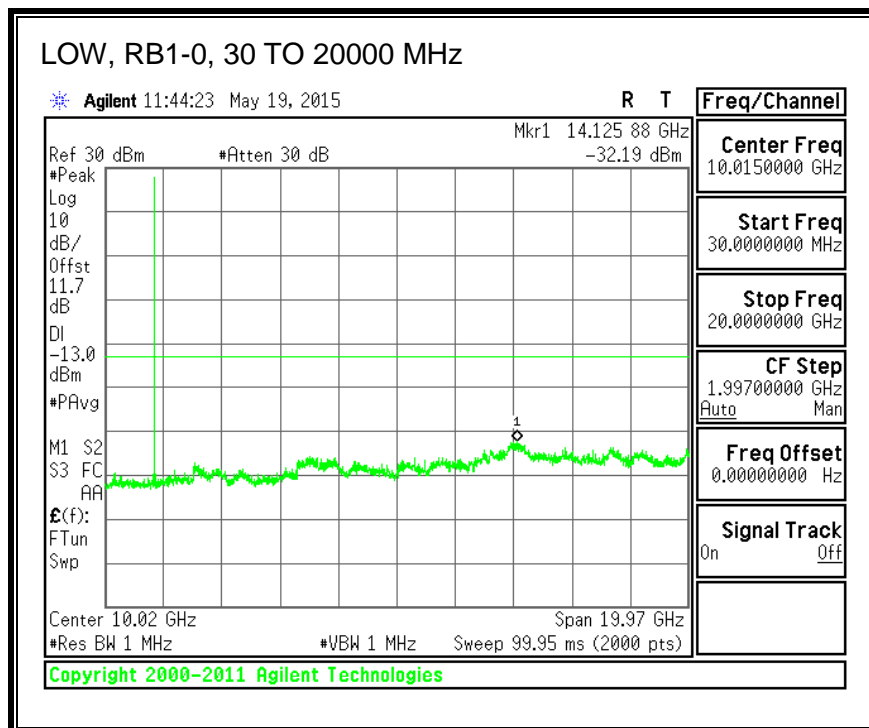


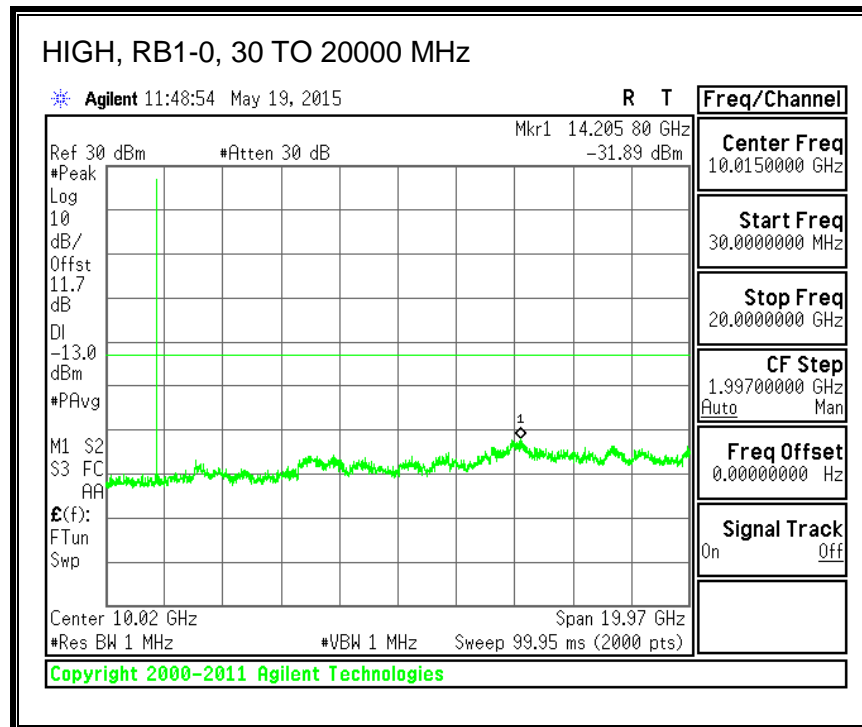
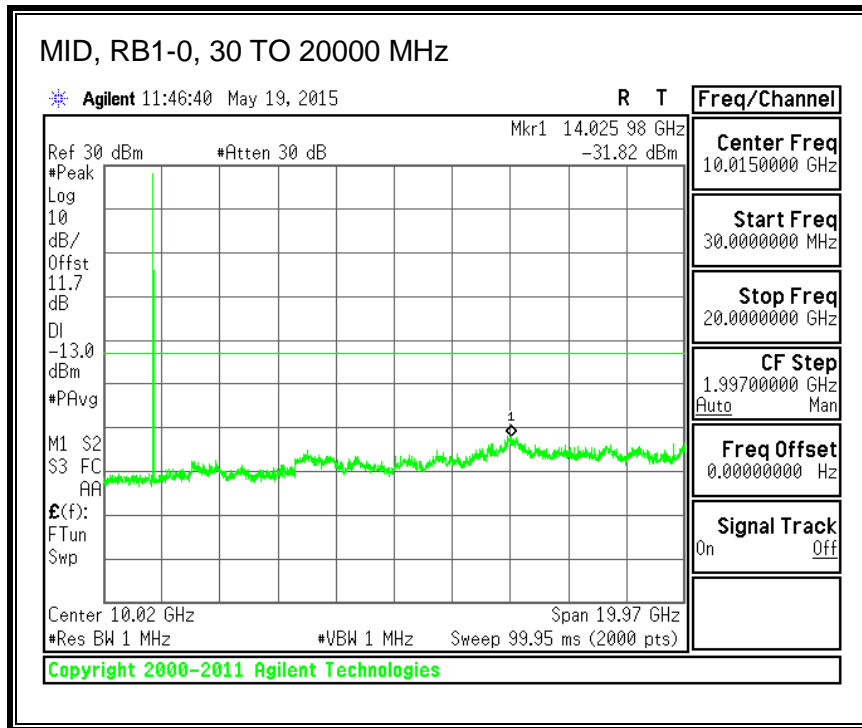
**QPSK, (5.0 MHz BAND WIDTH)**



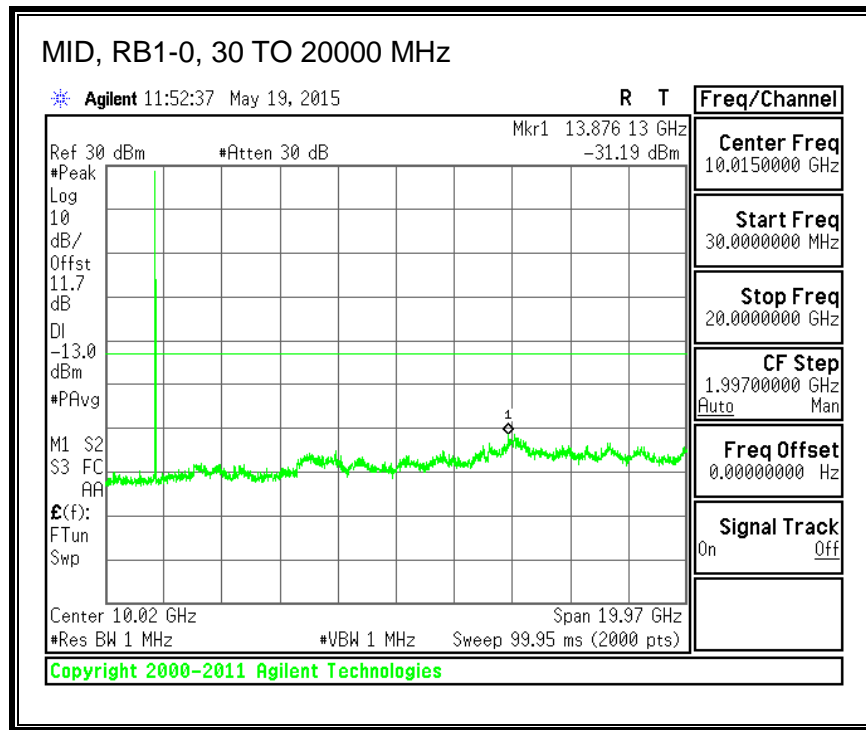
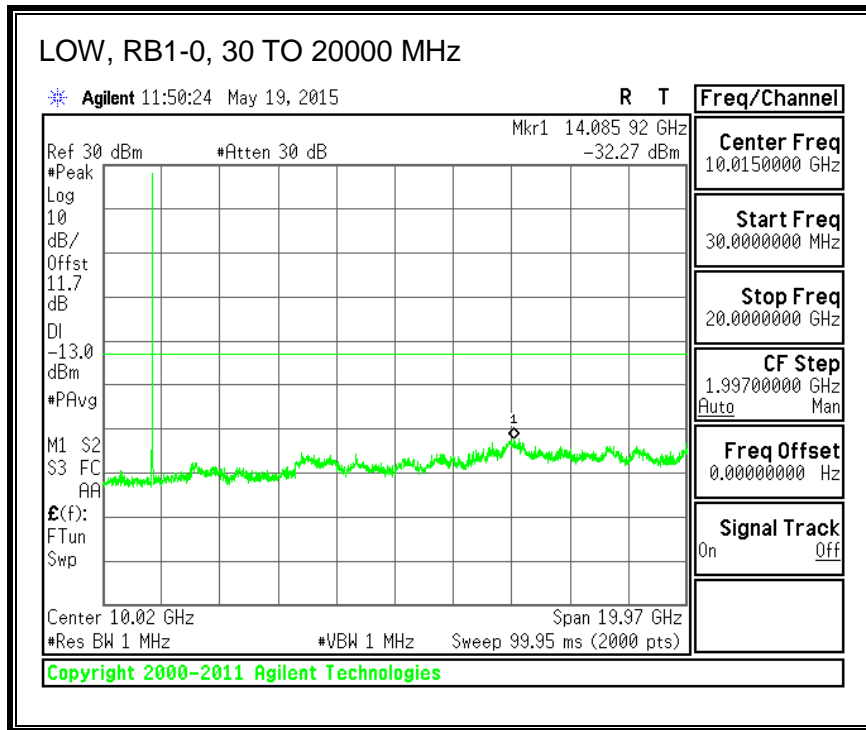


**16QAM, (5.0 MHz BAND WIDTH)**

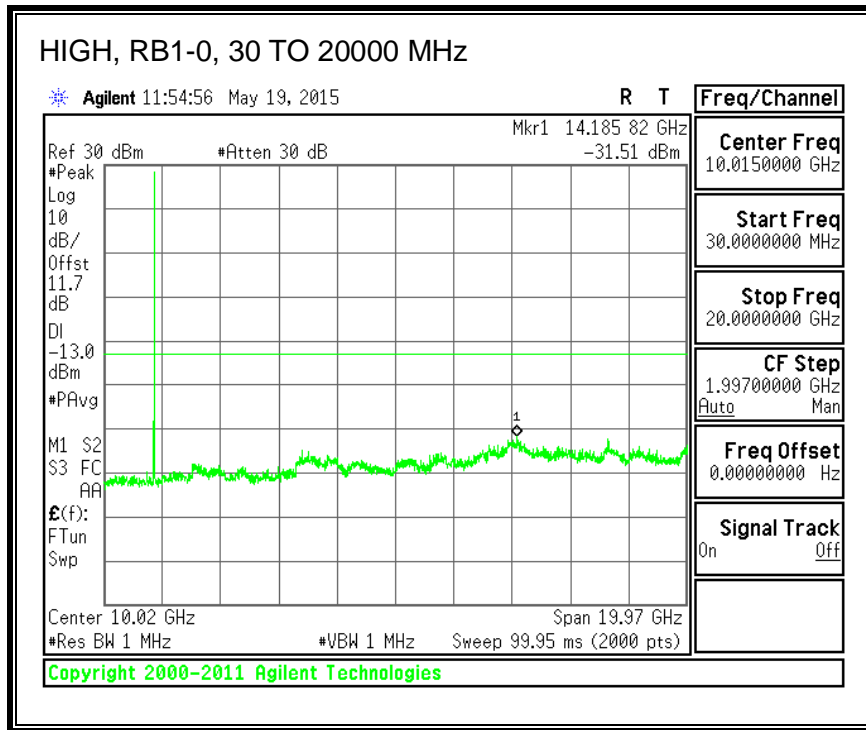




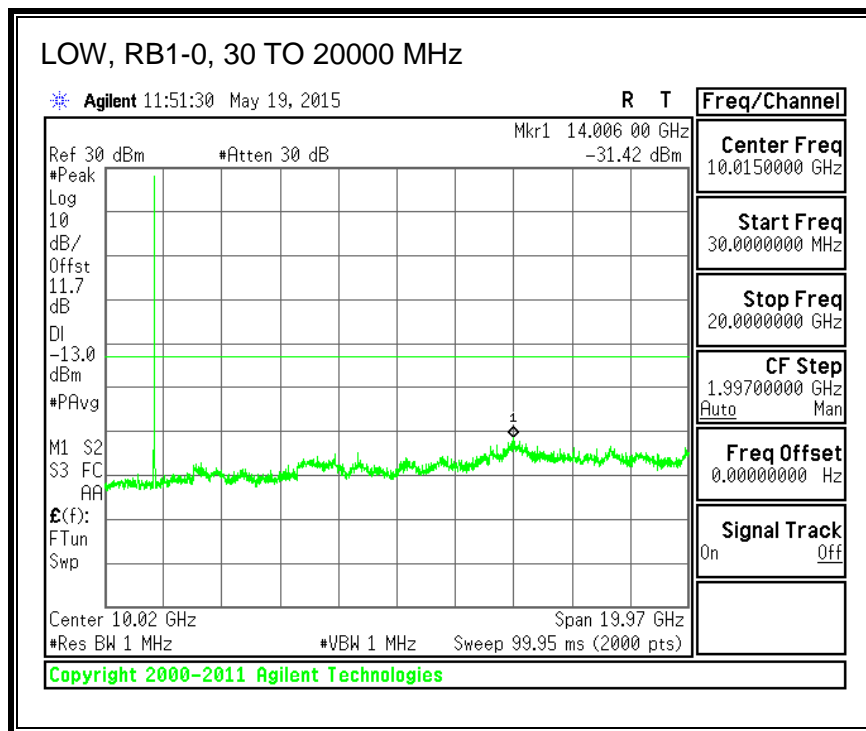
**QPSK, (10.0 MHz BAND WIDTH)**

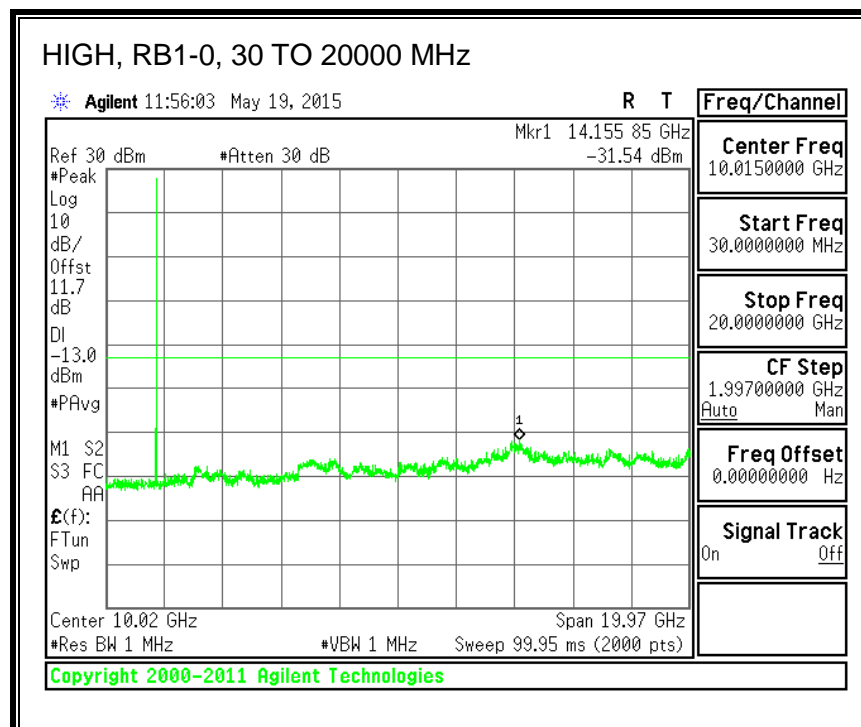
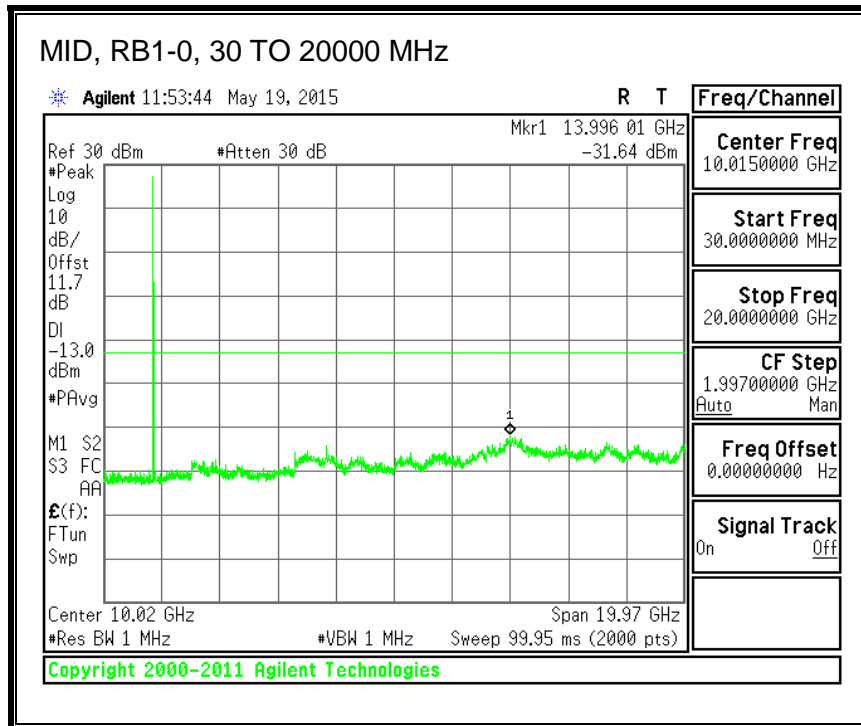




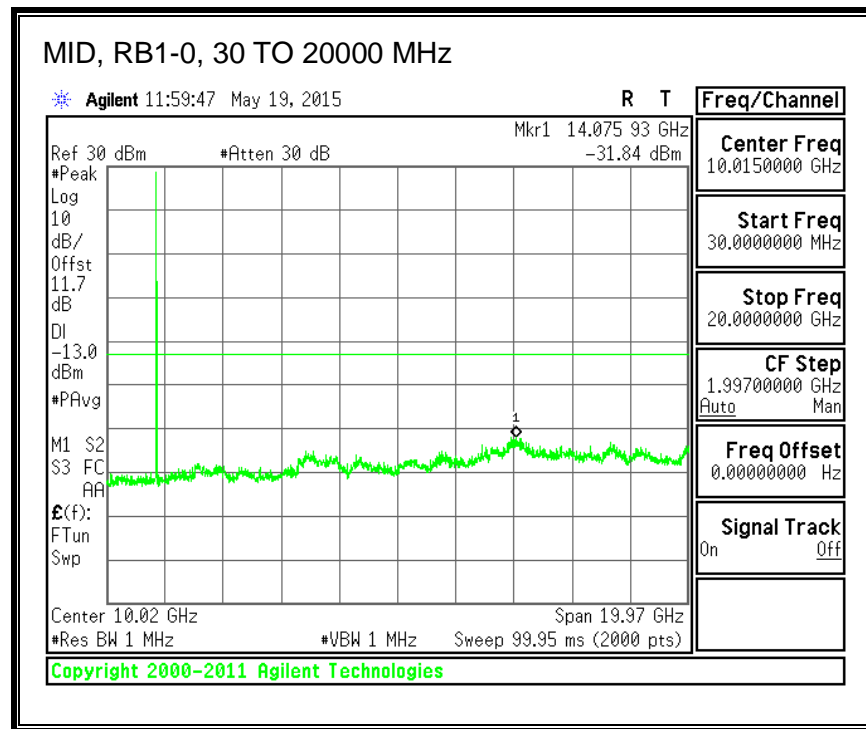
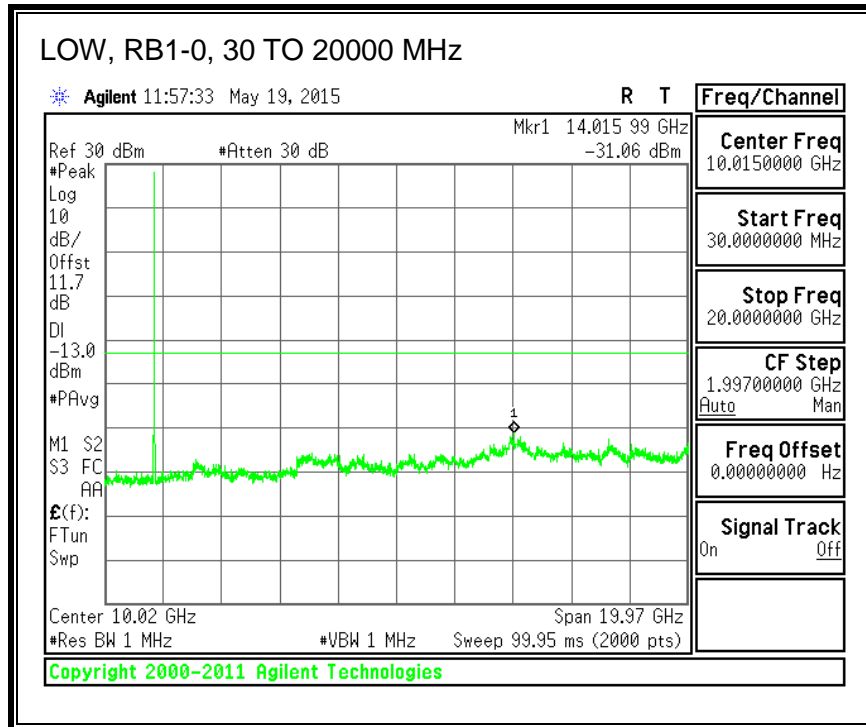


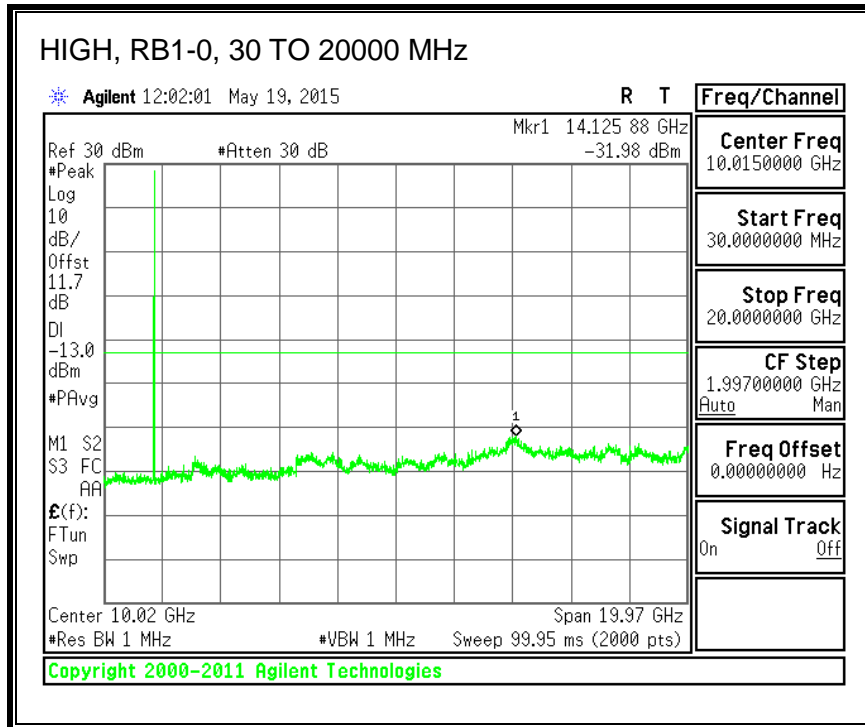
**16QAM, (10.0 MHz BAND WIDTH)**



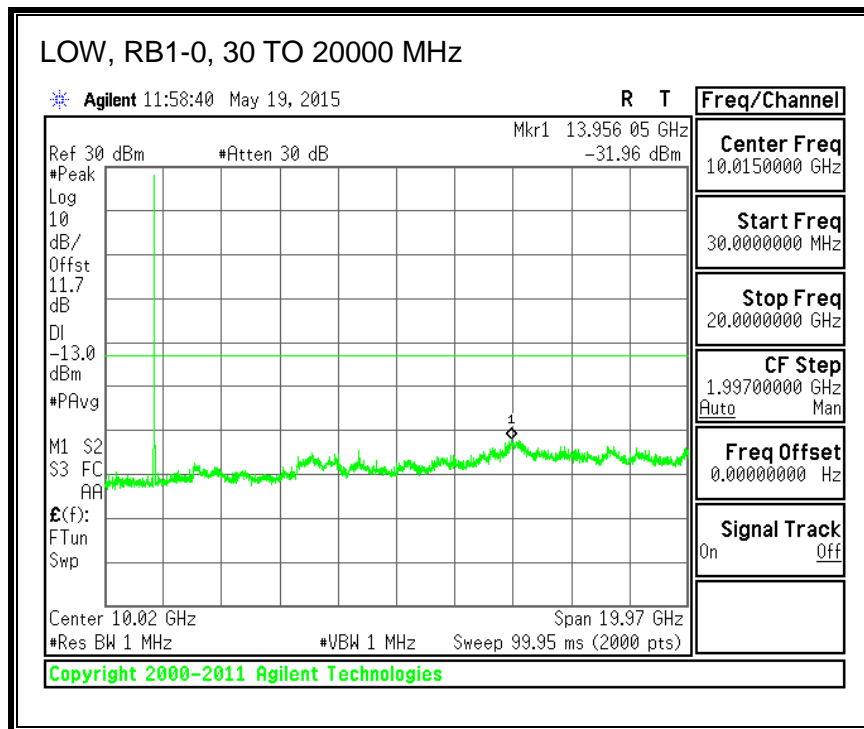


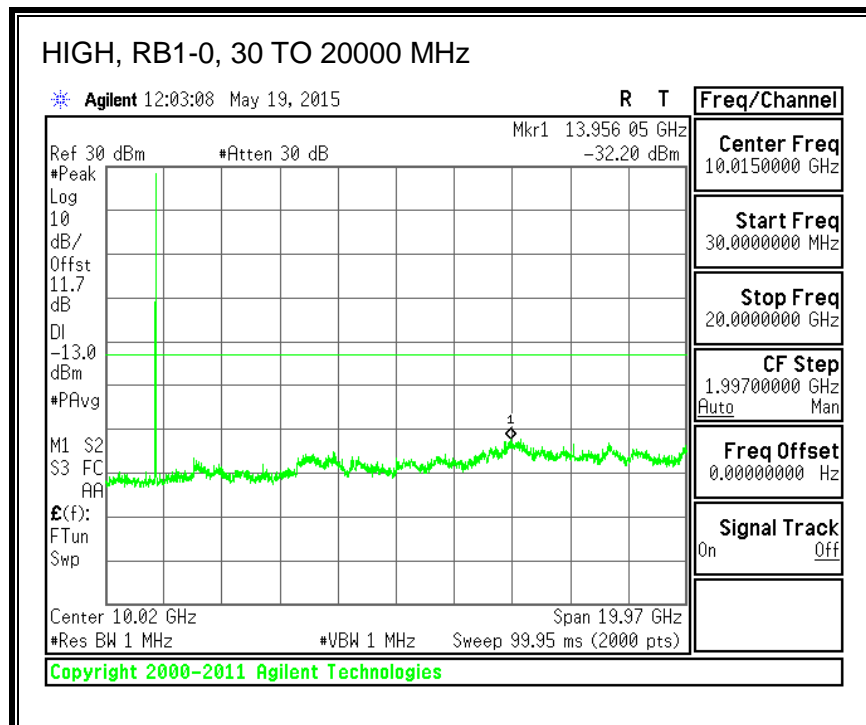
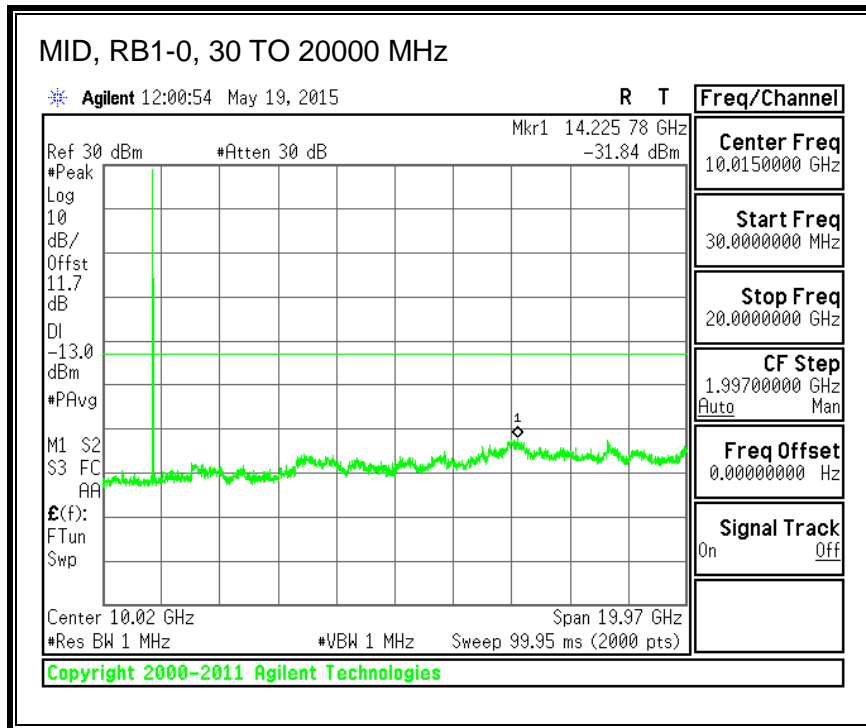
**QPSK, (15.0 MHz BAND WIDTH)**



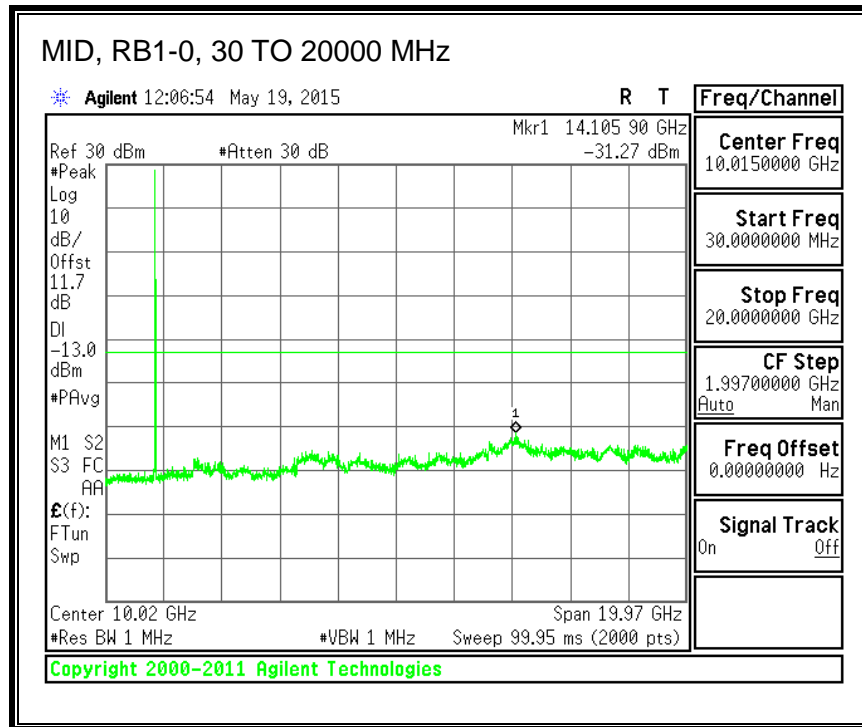
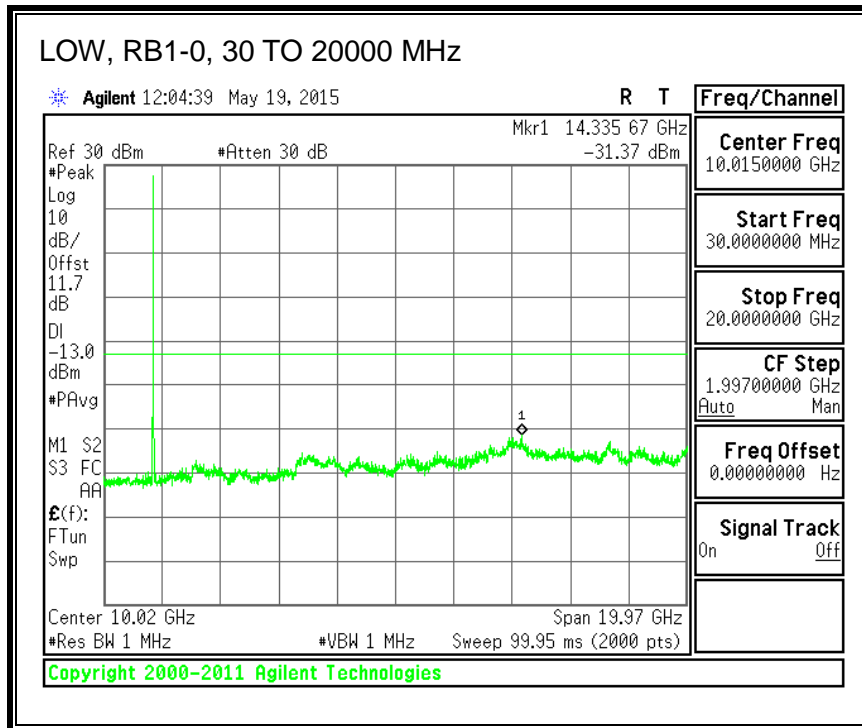


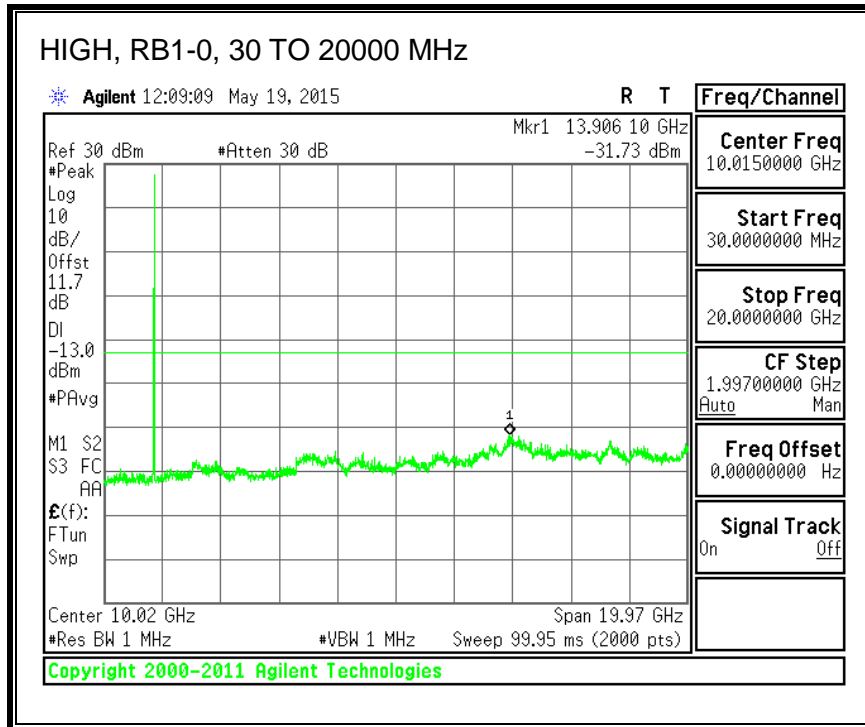
**16QAM, (15.0 MHz BAND WIDTH)**



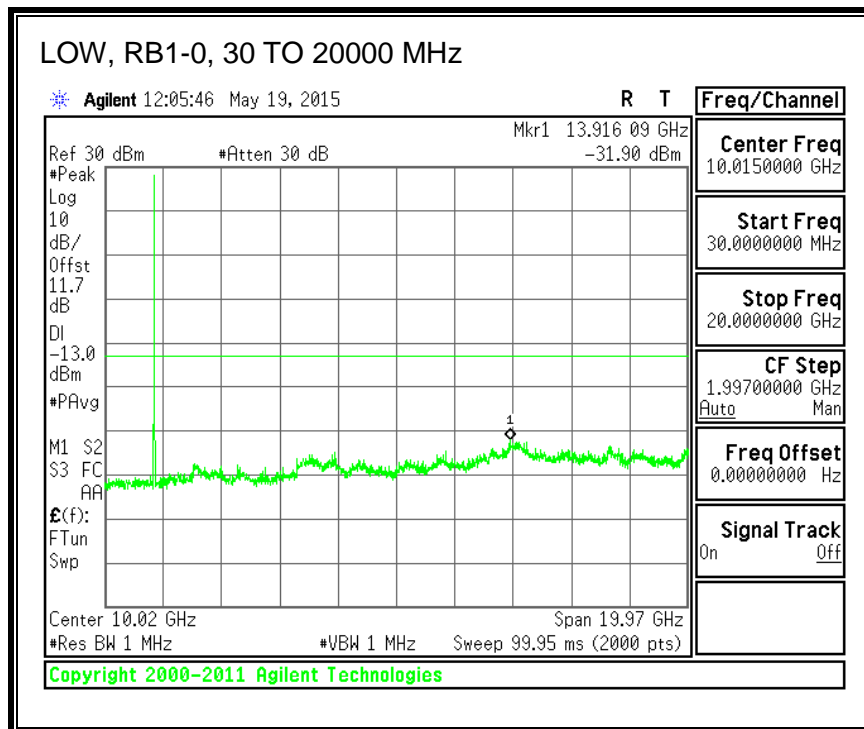


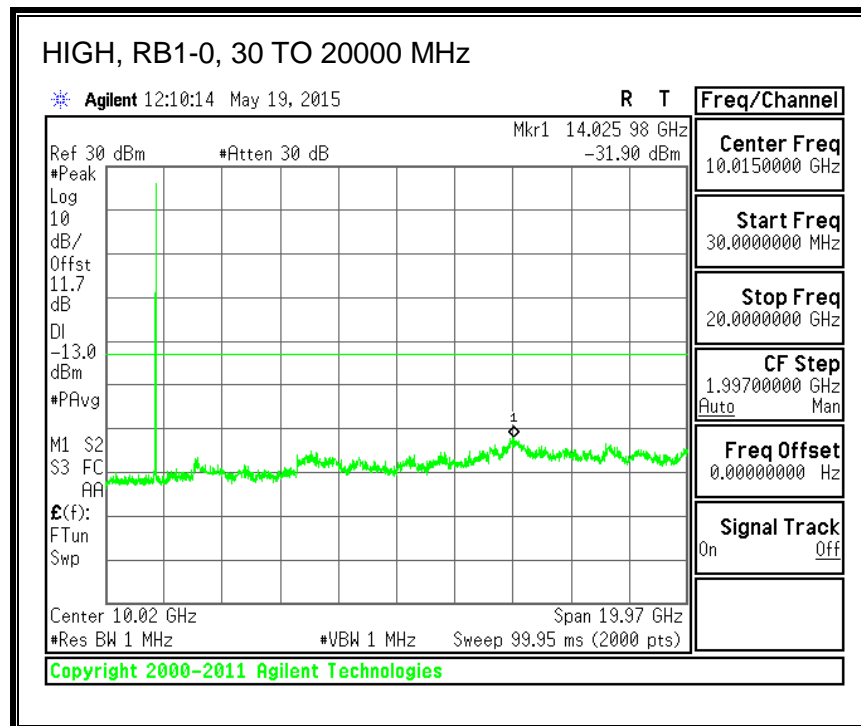
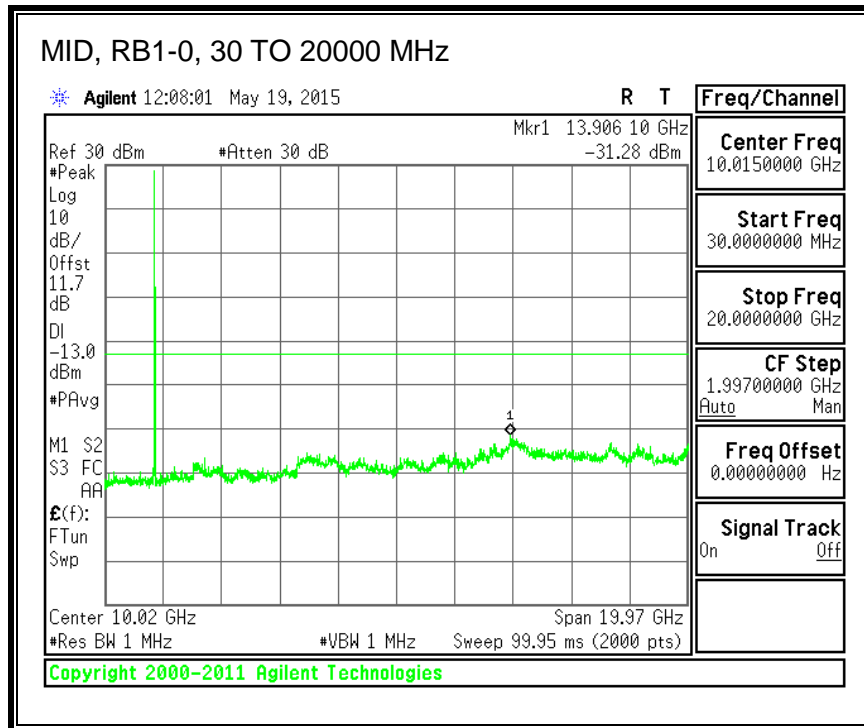
**QPSK, (20.0 MHz BAND WIDTH)**





**16QAM, (20.0 MHz BAND WIDTH)**

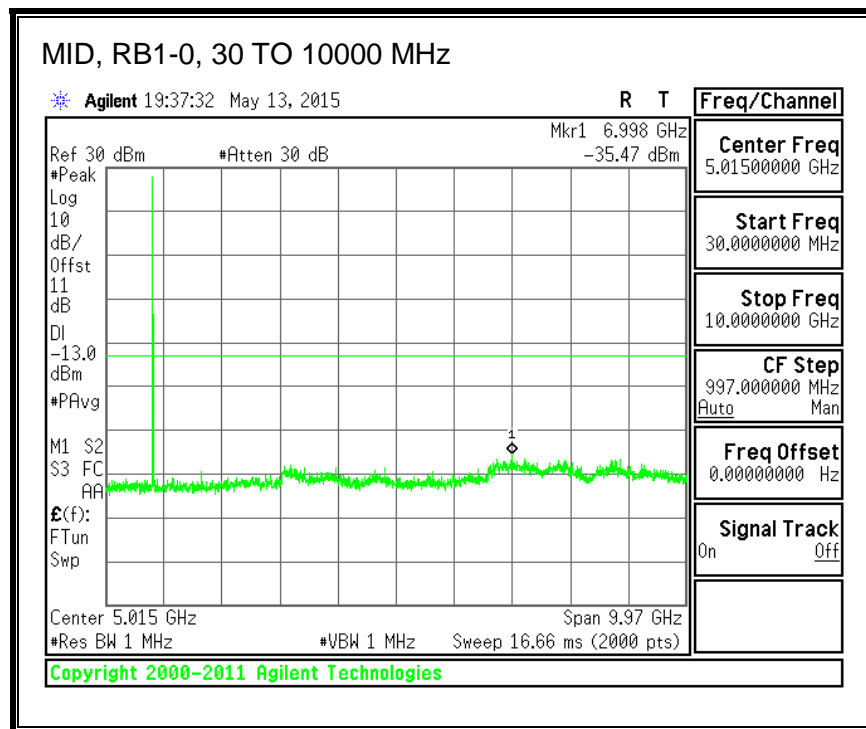
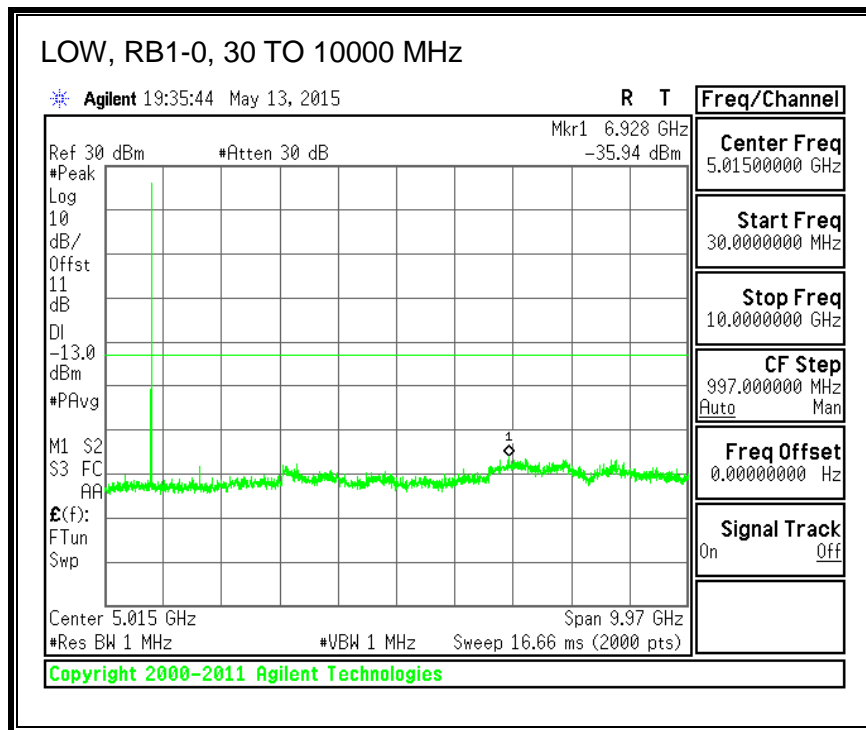


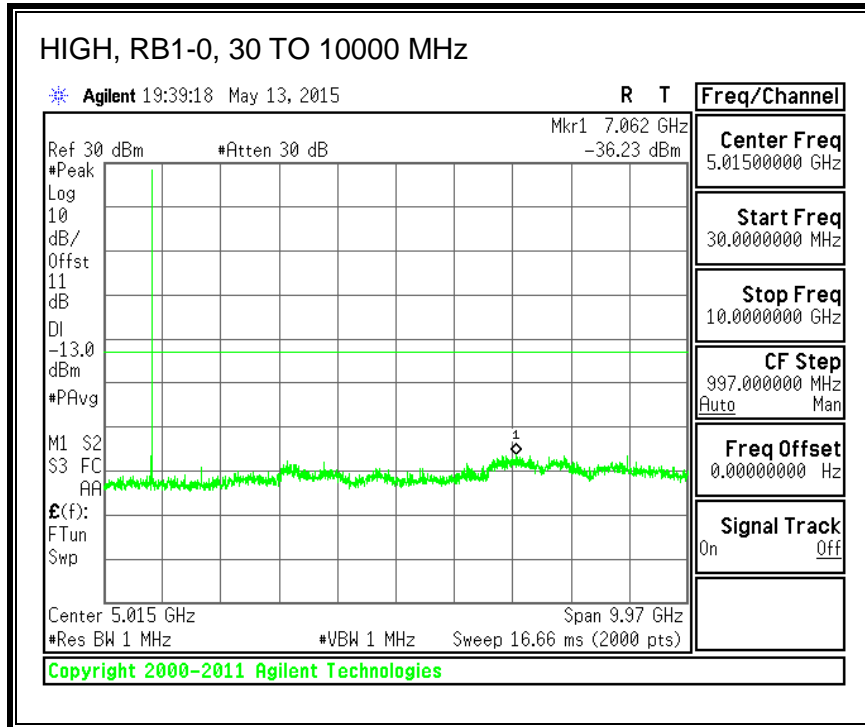




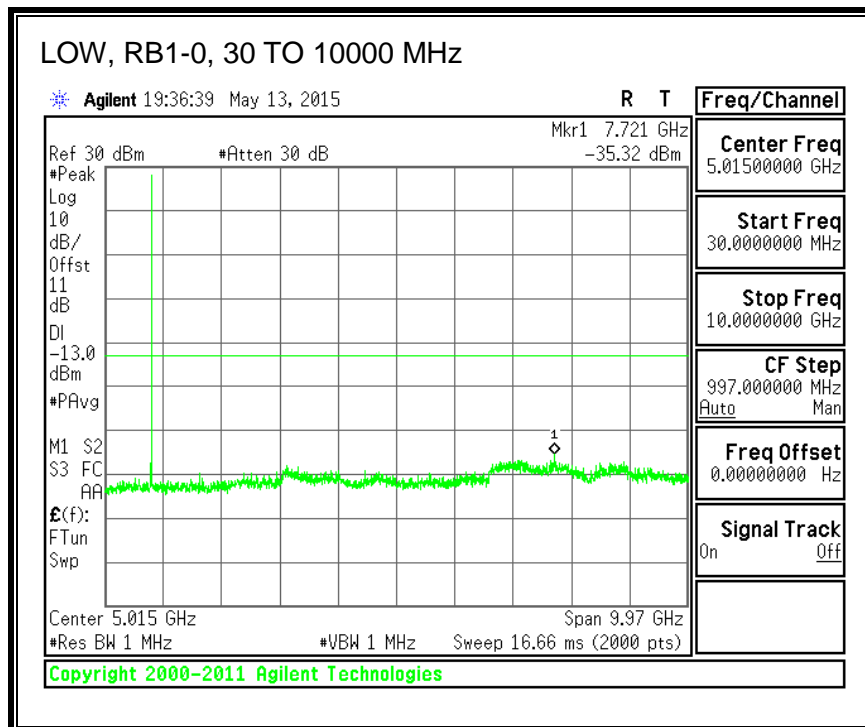
### 8.6.3. LTE BAND 5

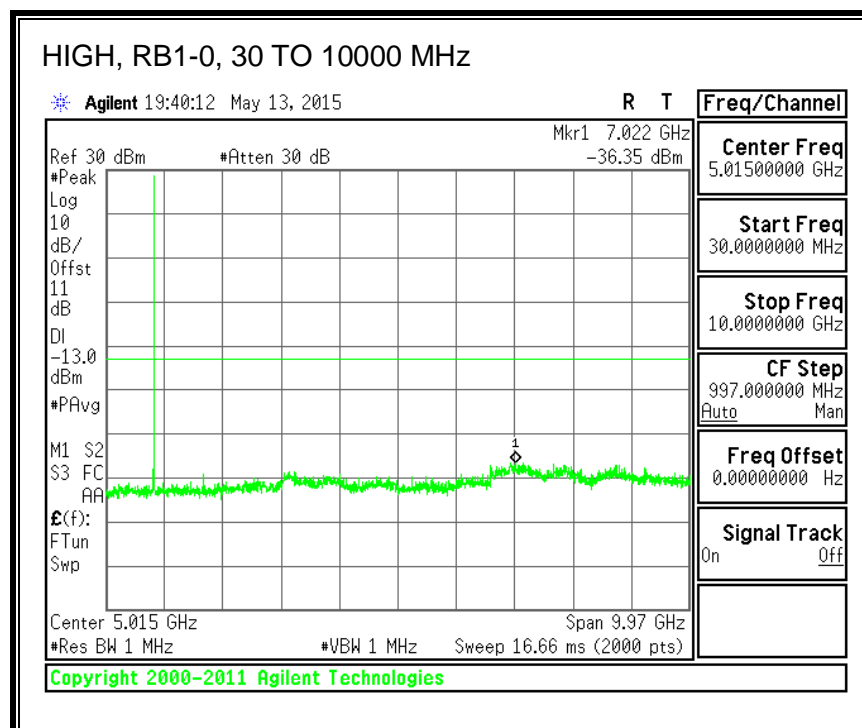
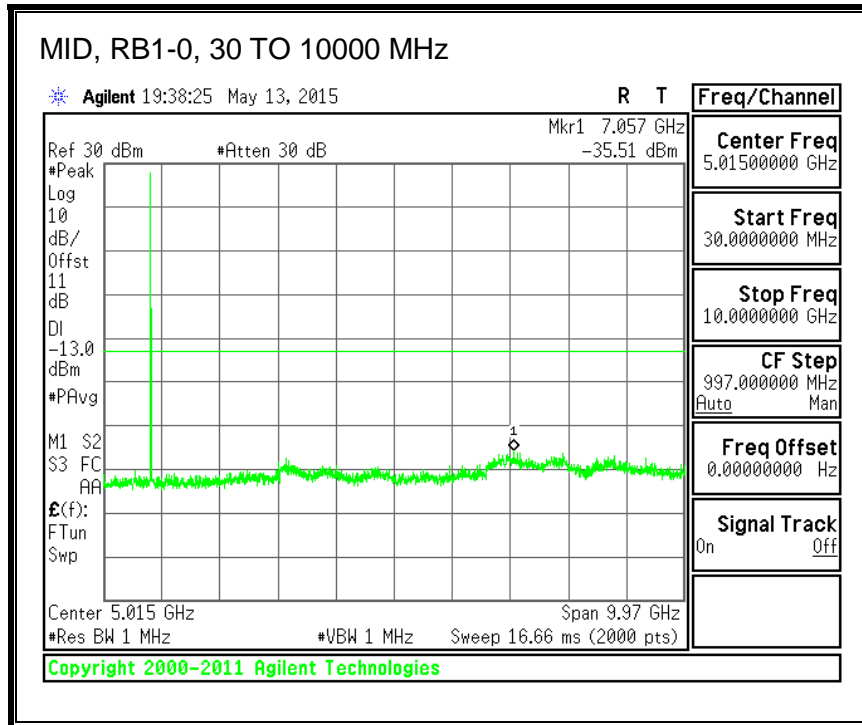
#### QPSK, (1.4 MHz BAND WIDTH)



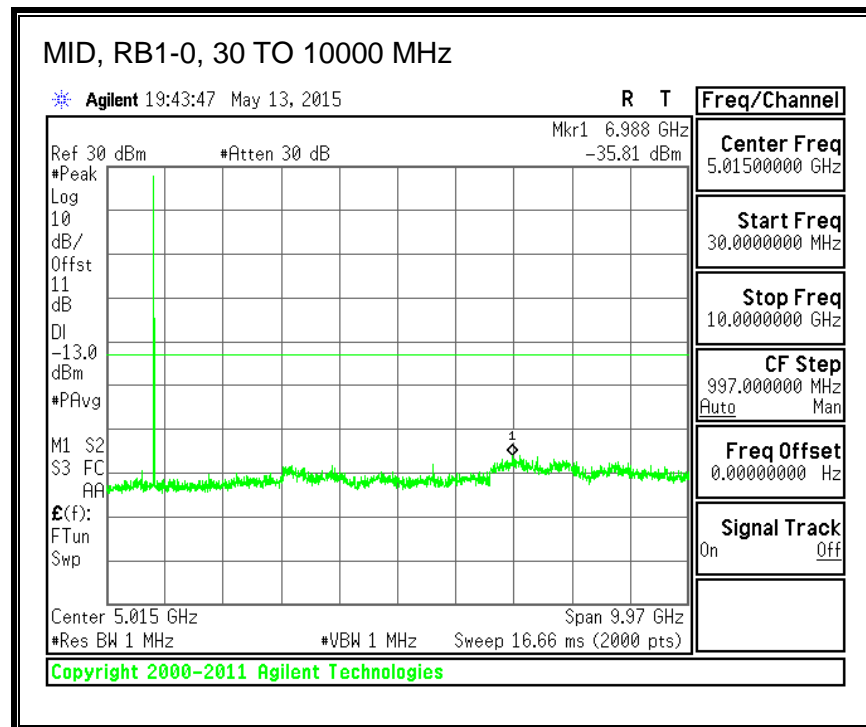
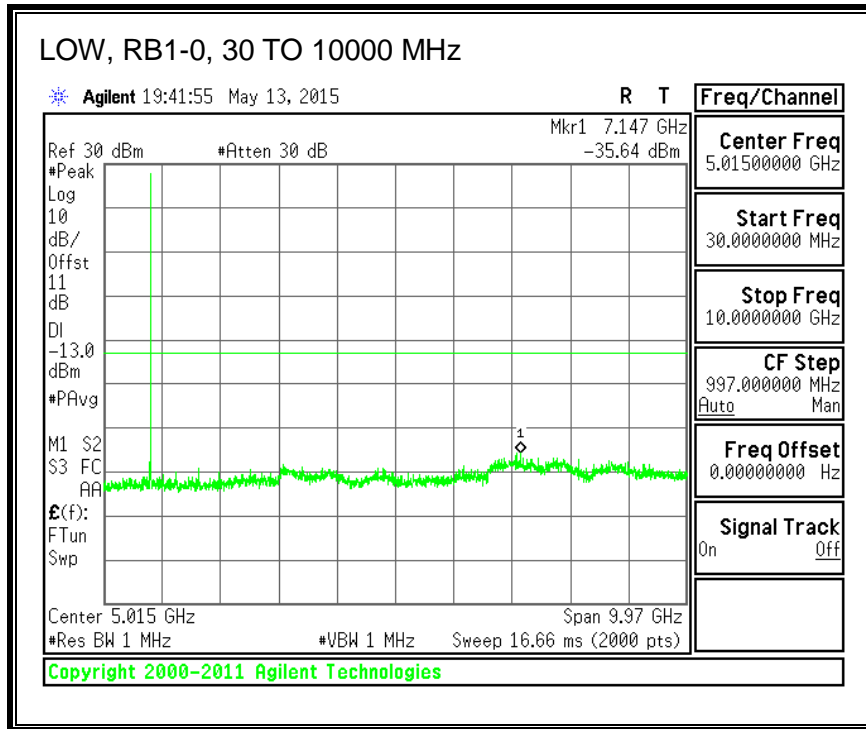


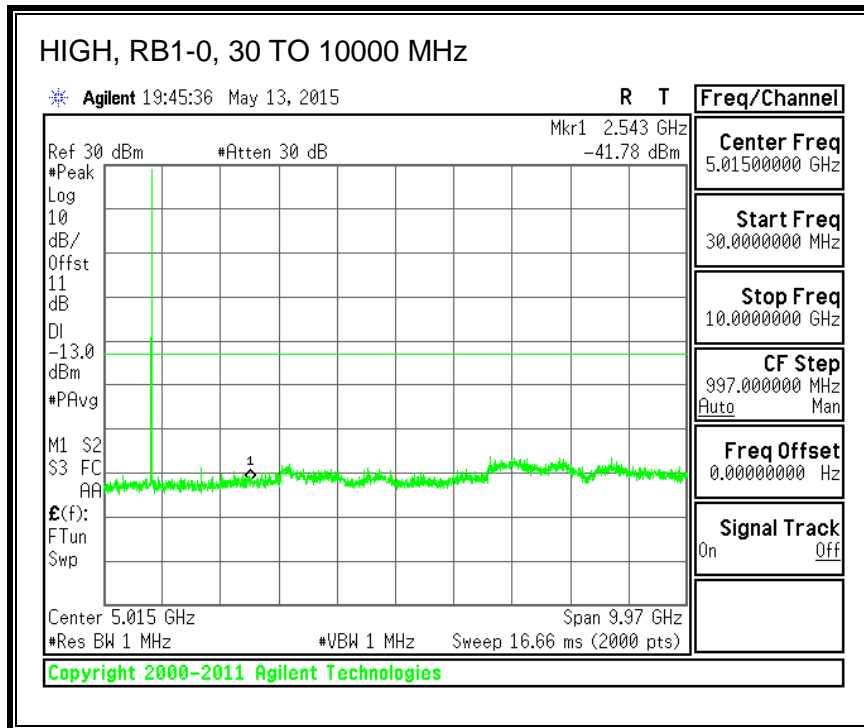
**16QAM, (1.4 MHz BAND WIDTH)**



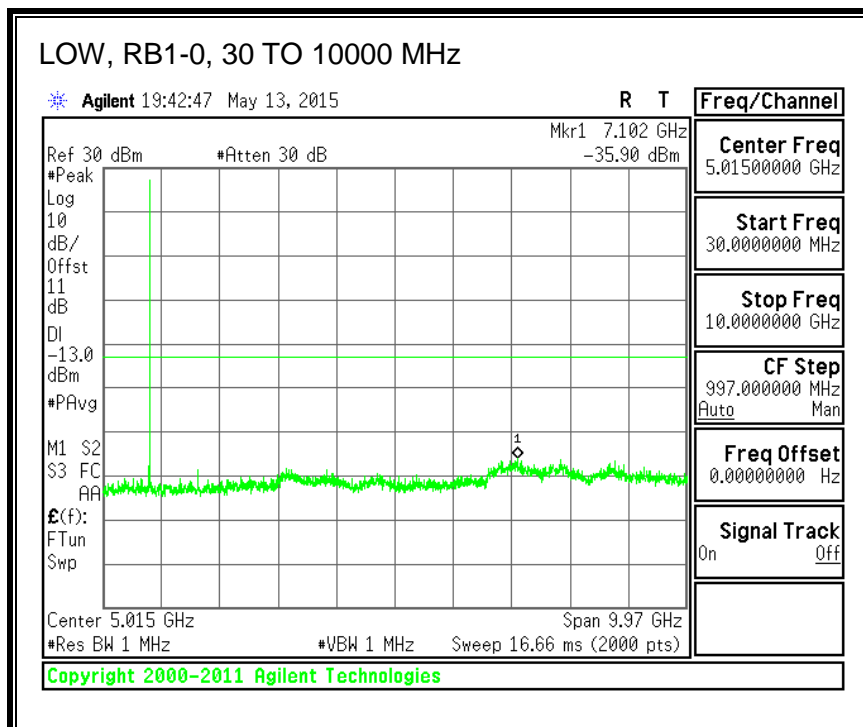


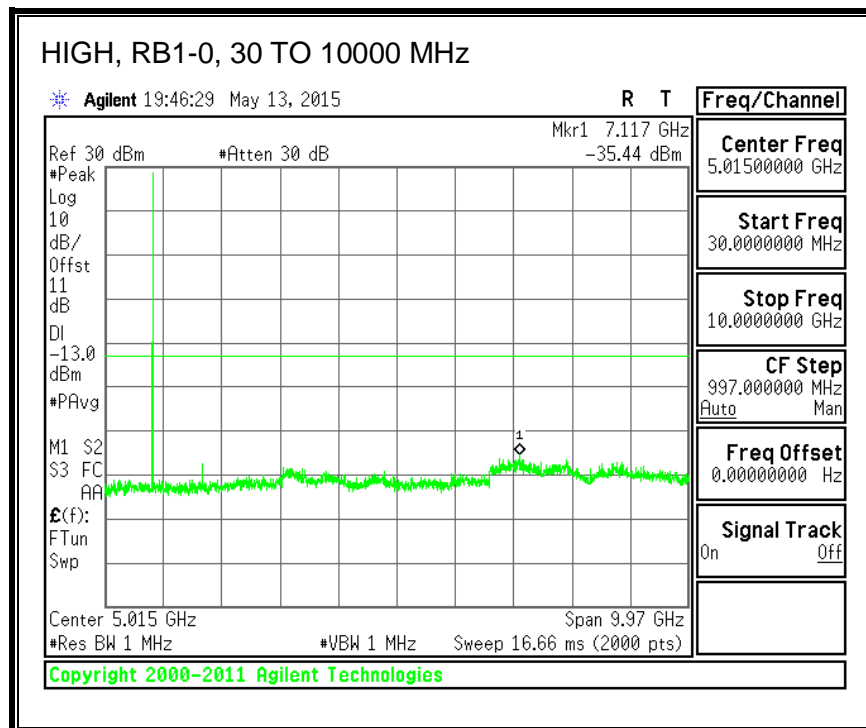
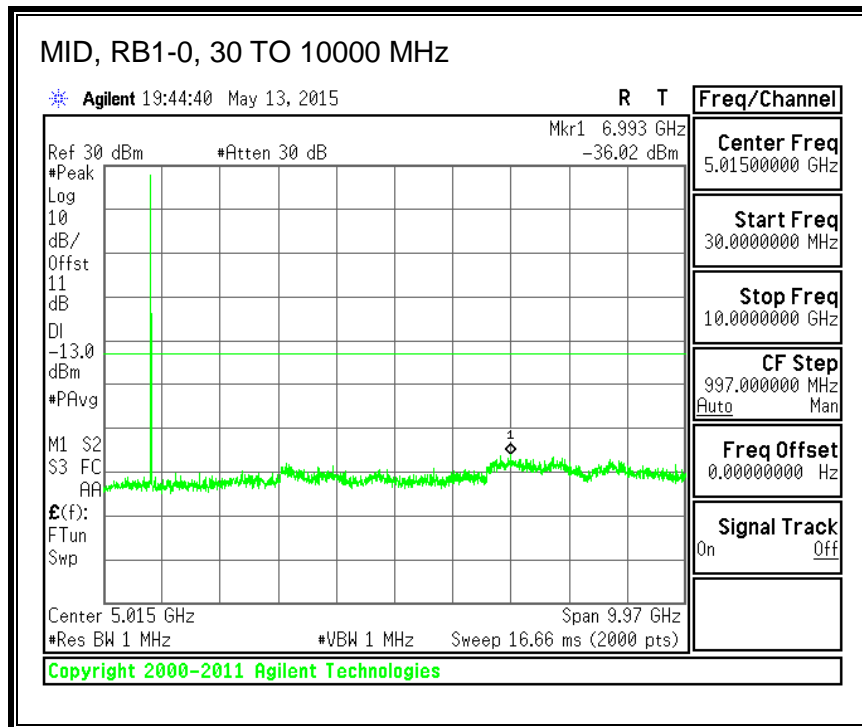
**QPSK, (3.0 MHz BAND WIDTH)**



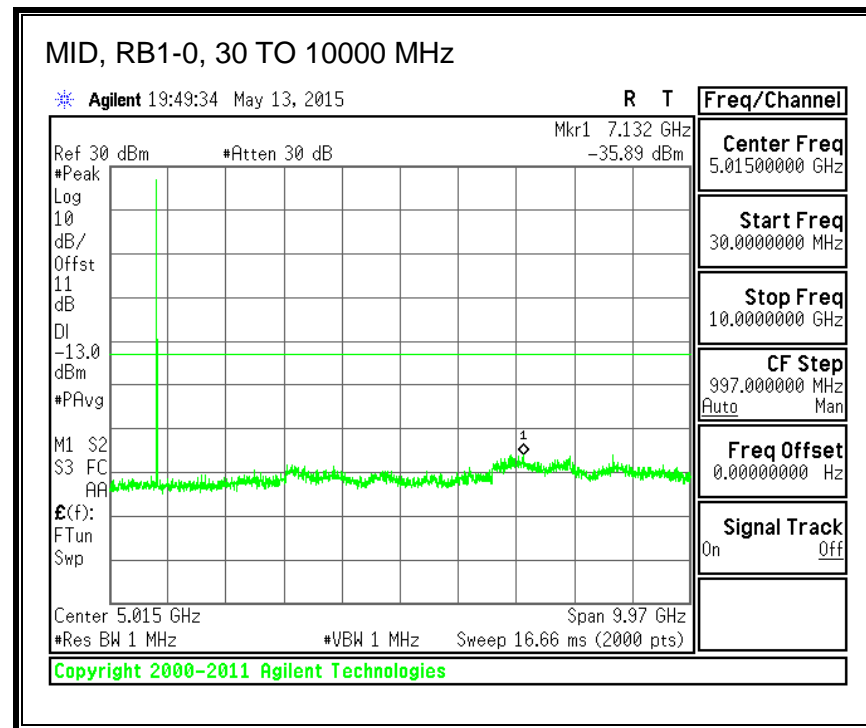
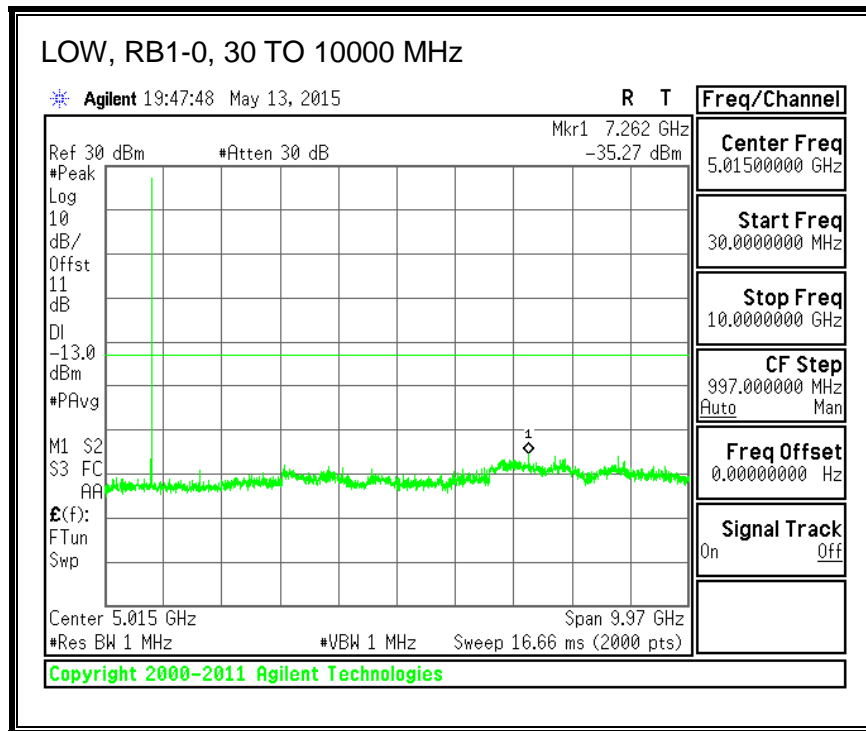


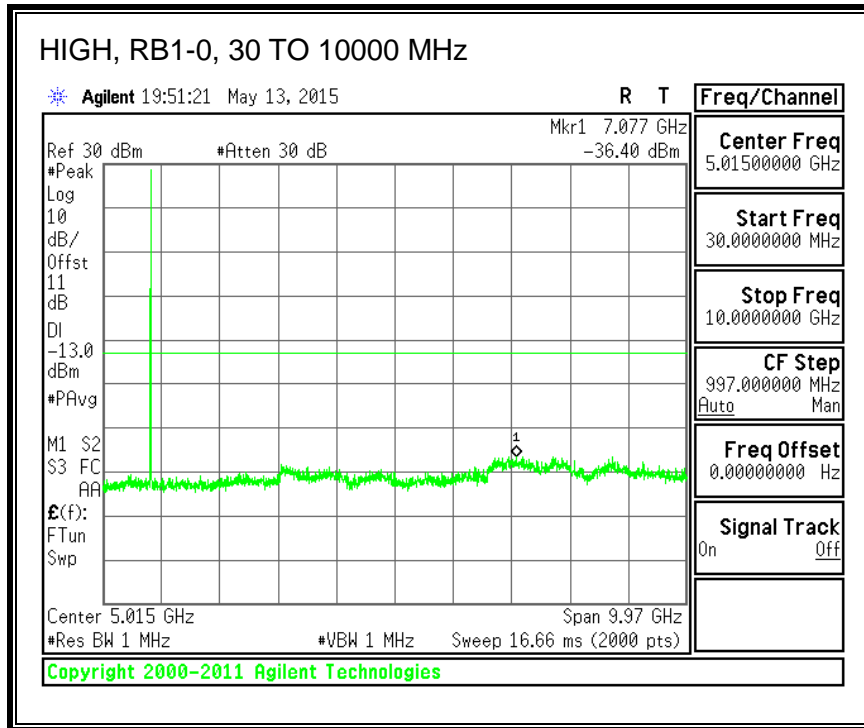
**16QAM, (3.0 MHz BAND WIDTH)**



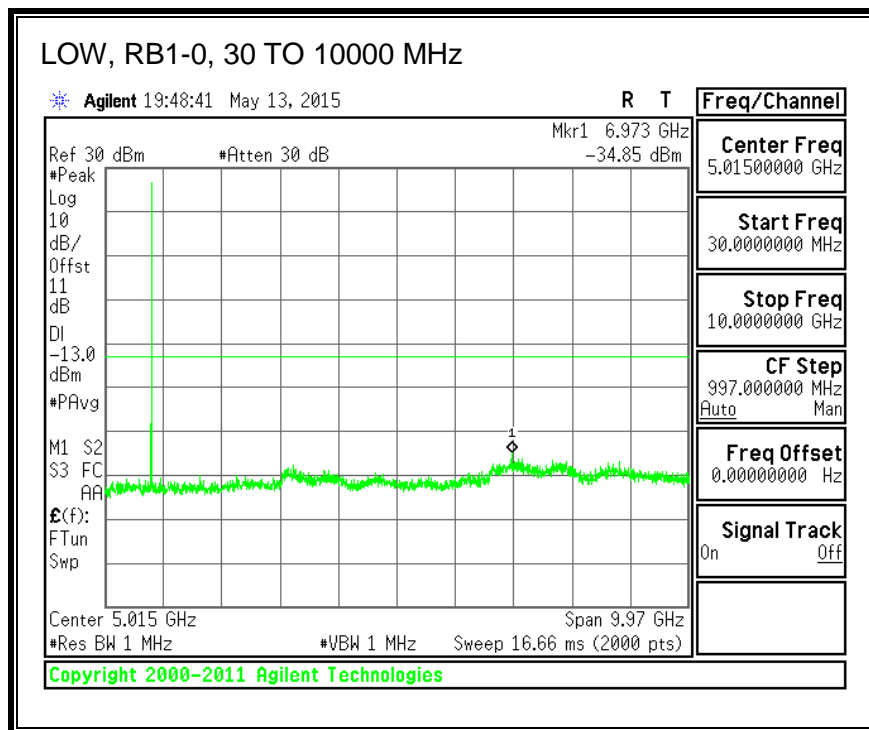


**QPSK, (5.0 MHz BAND WIDTH)**

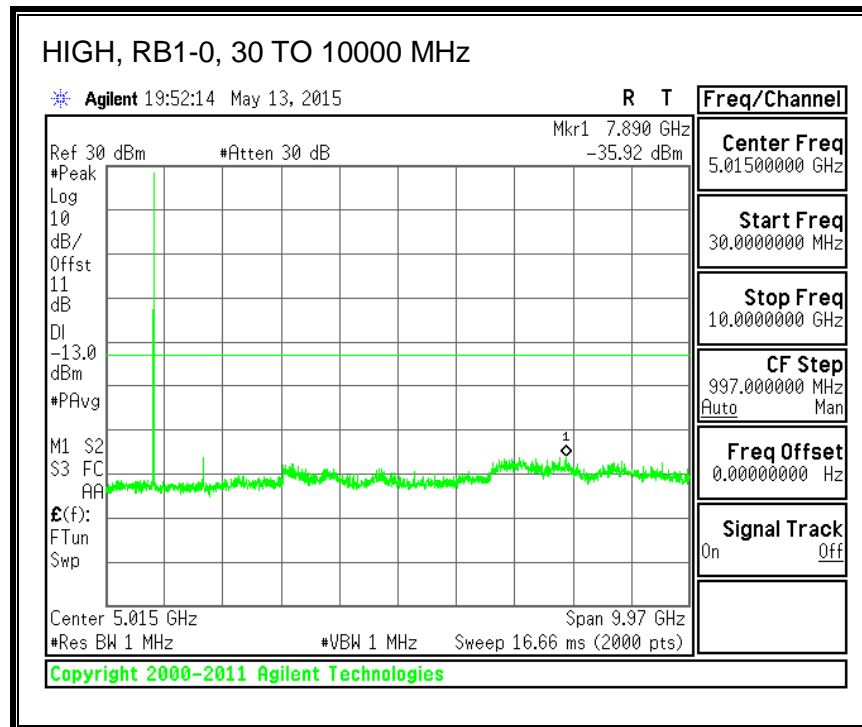
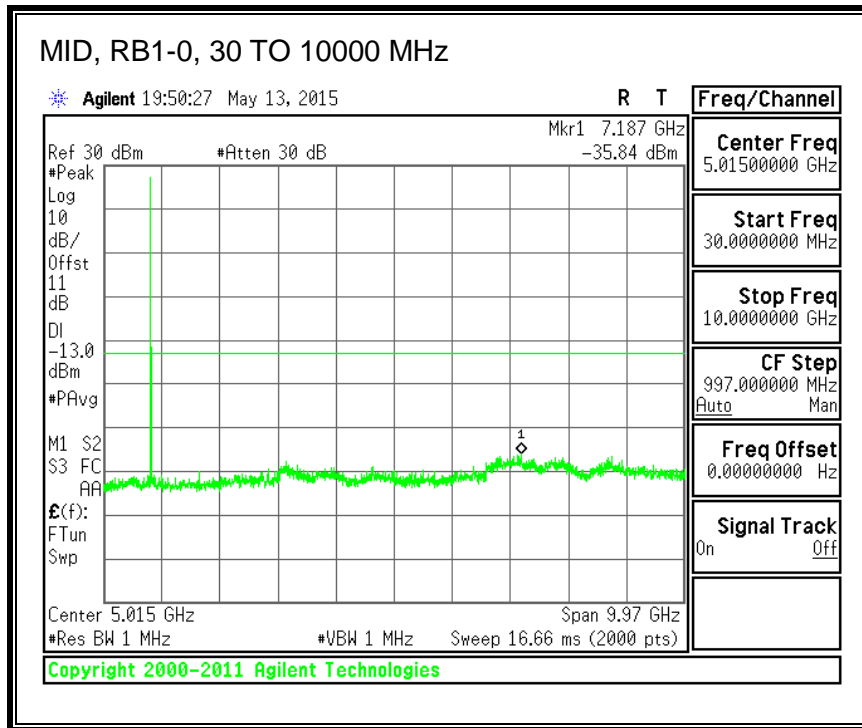




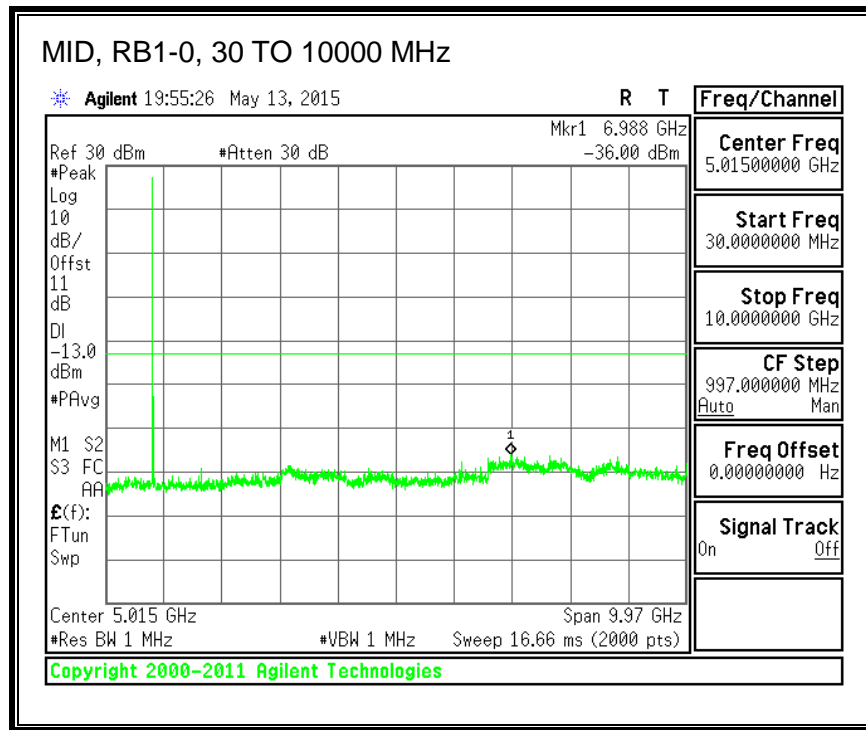
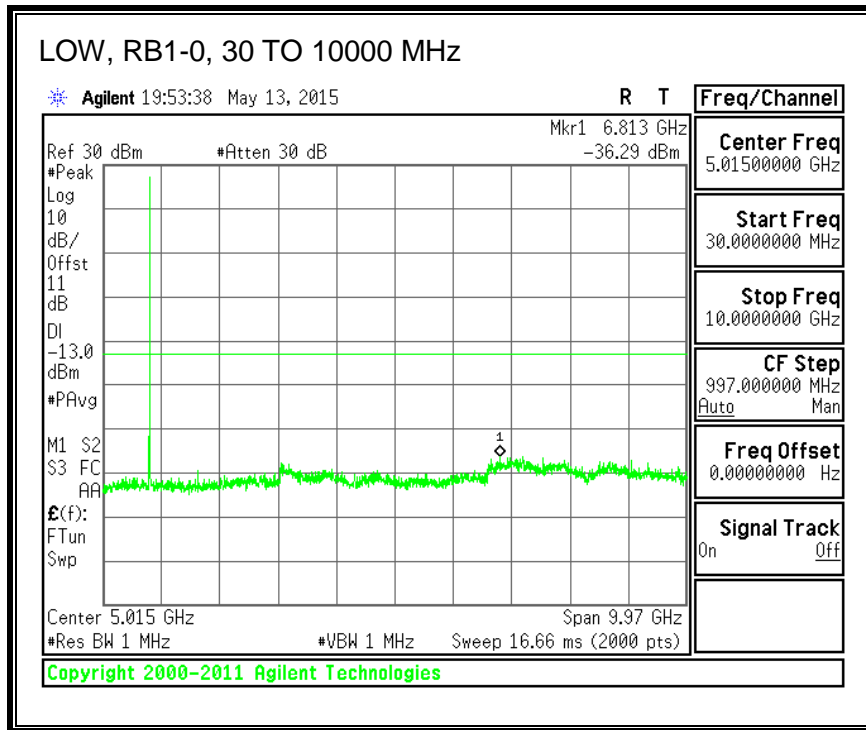
**16QAM, (5.0 MHz BAND WIDTH)**

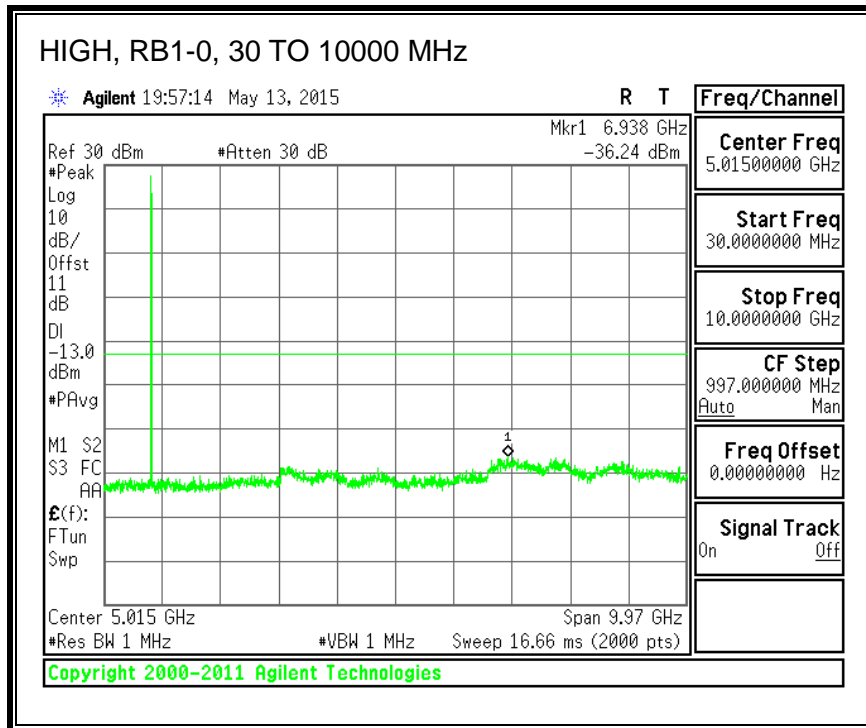




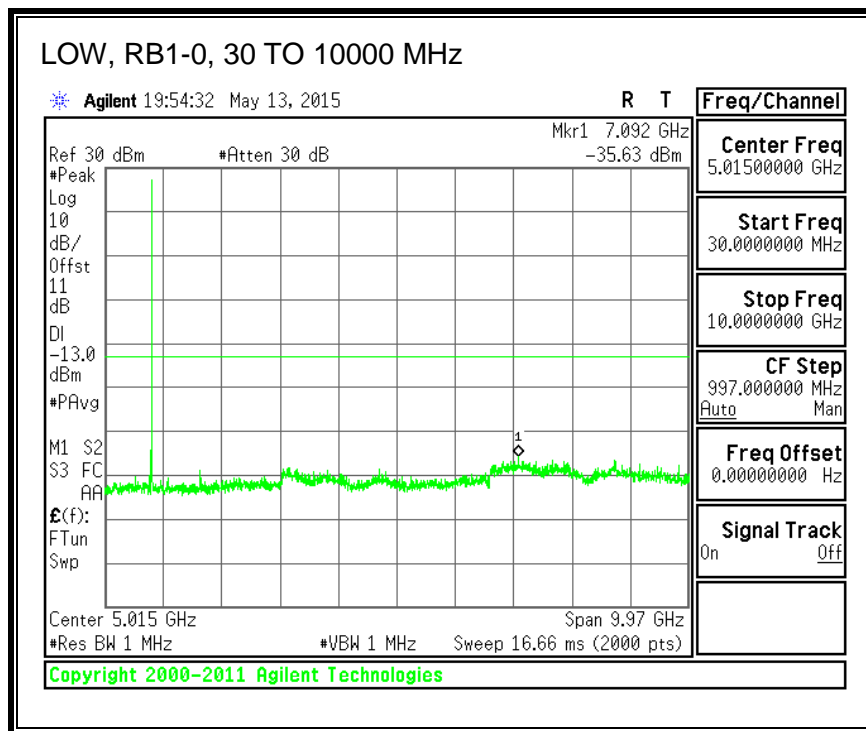


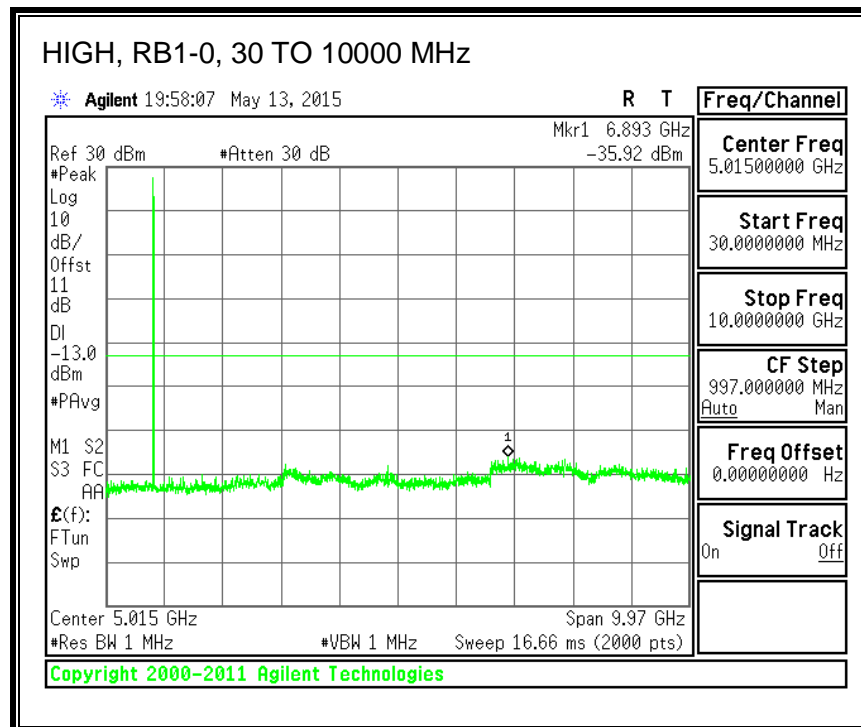
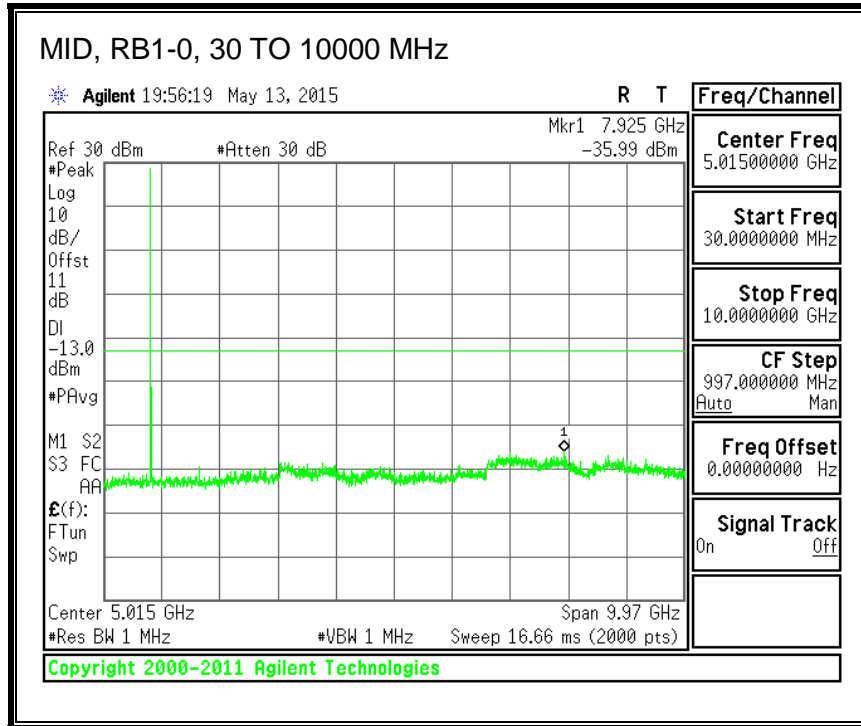
**QPSK, (10.0 MHz BAND WIDTH)**





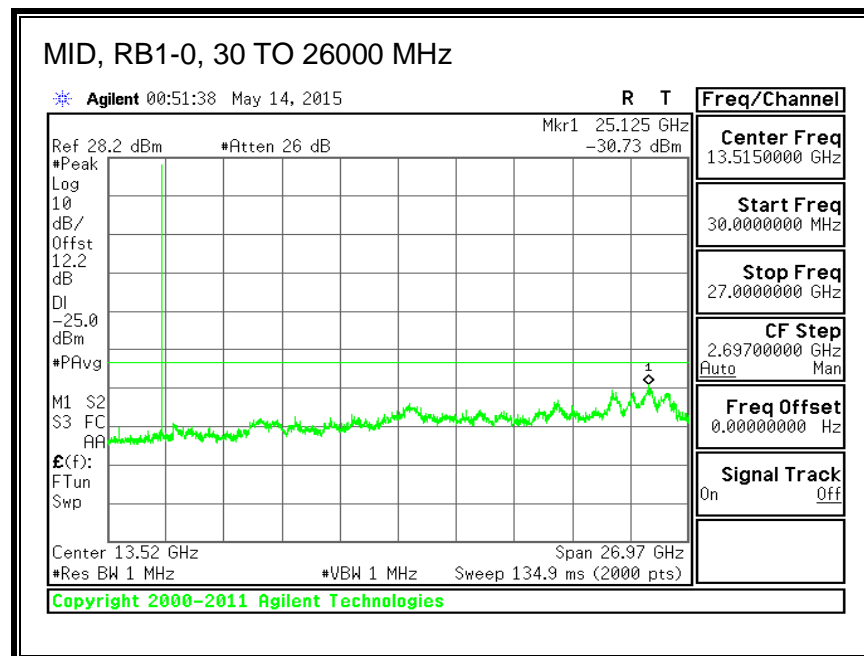
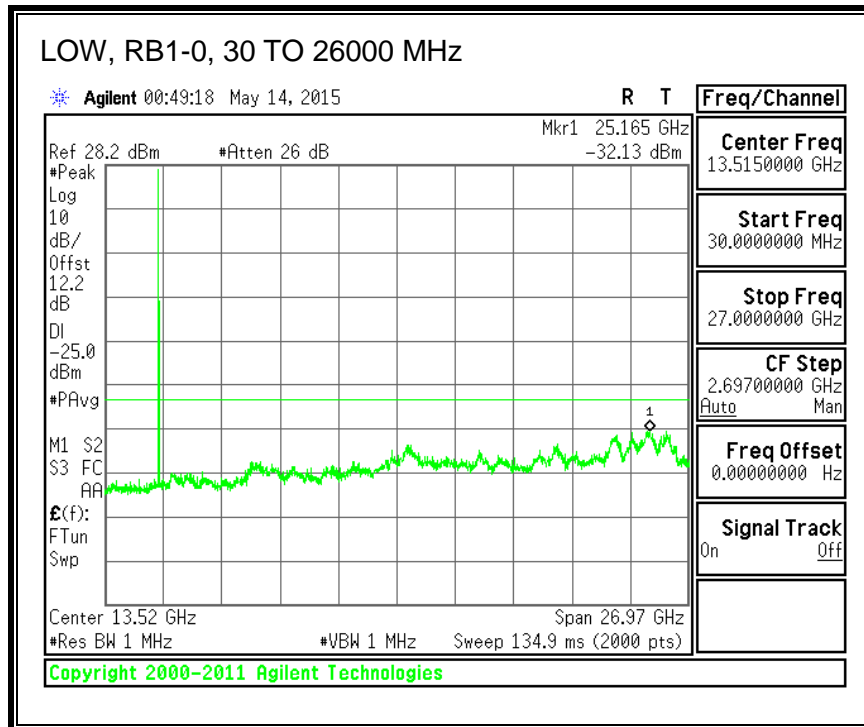
**16QAM, (10.0 MHz BAND WIDTH)**

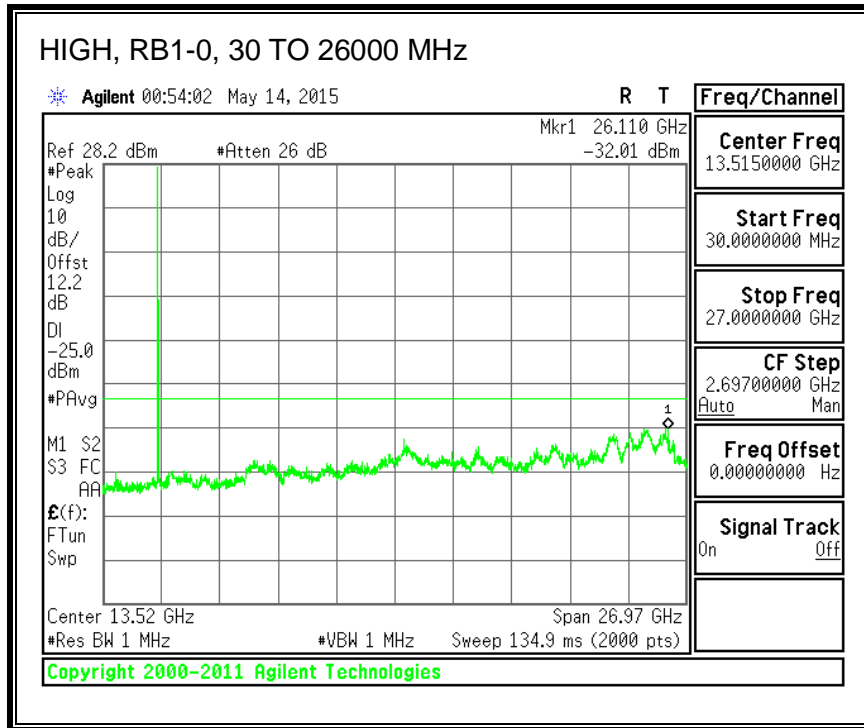




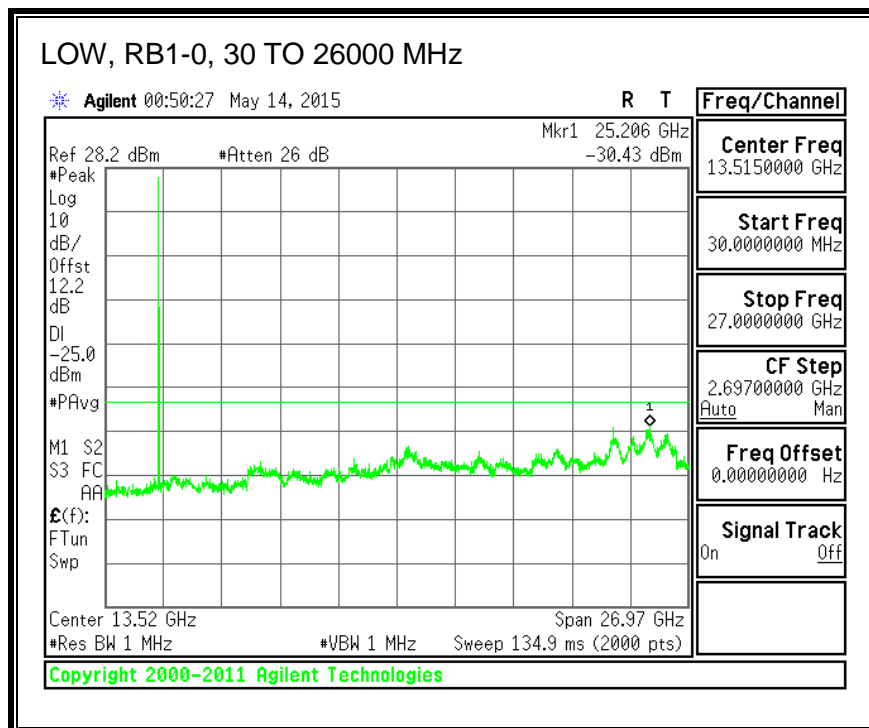
### 8.6.4. LTE BAND 7

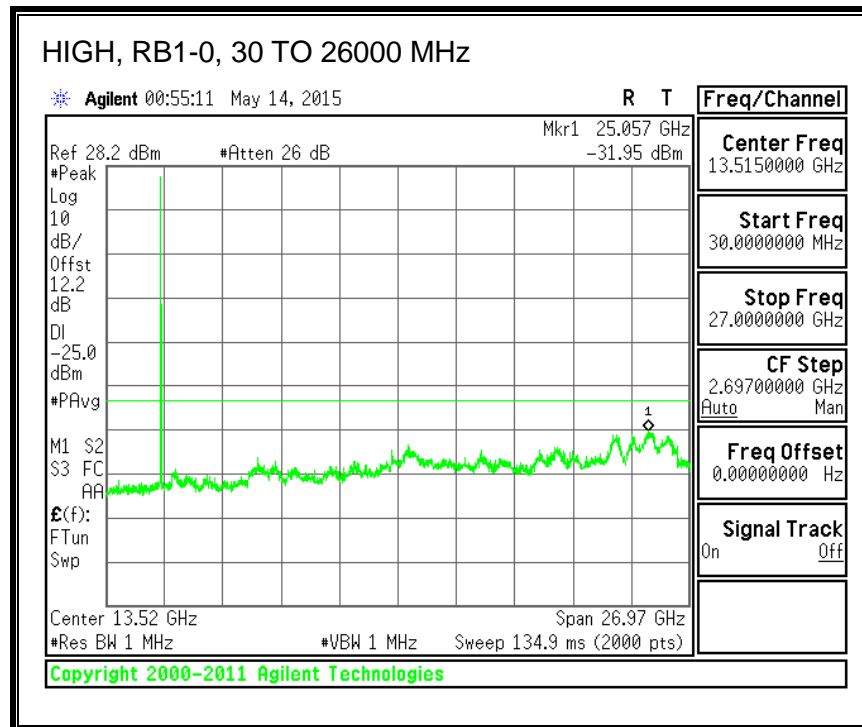
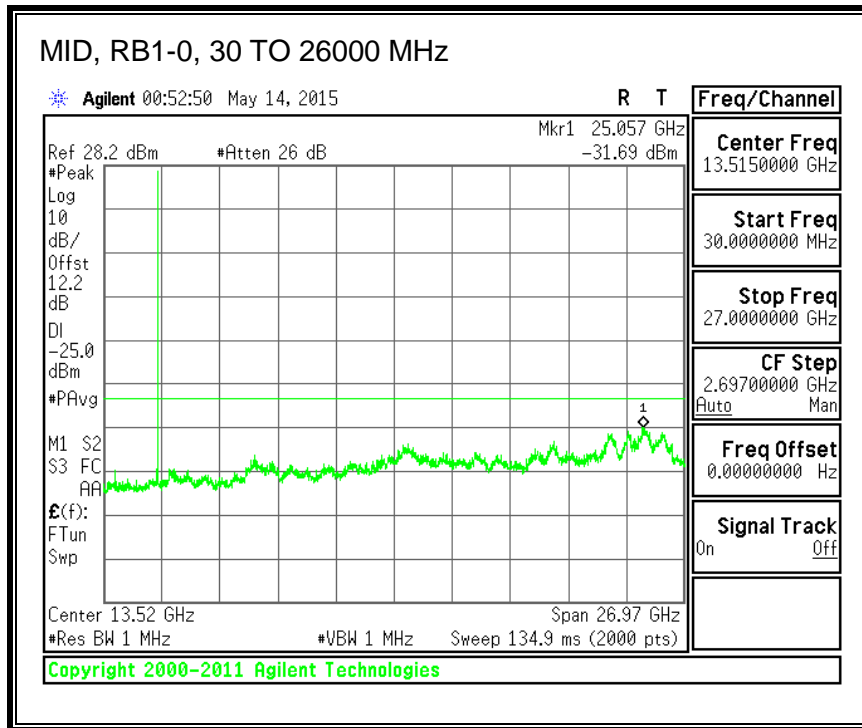
#### QPSK, (5.0 MHz BAND WIDTH)



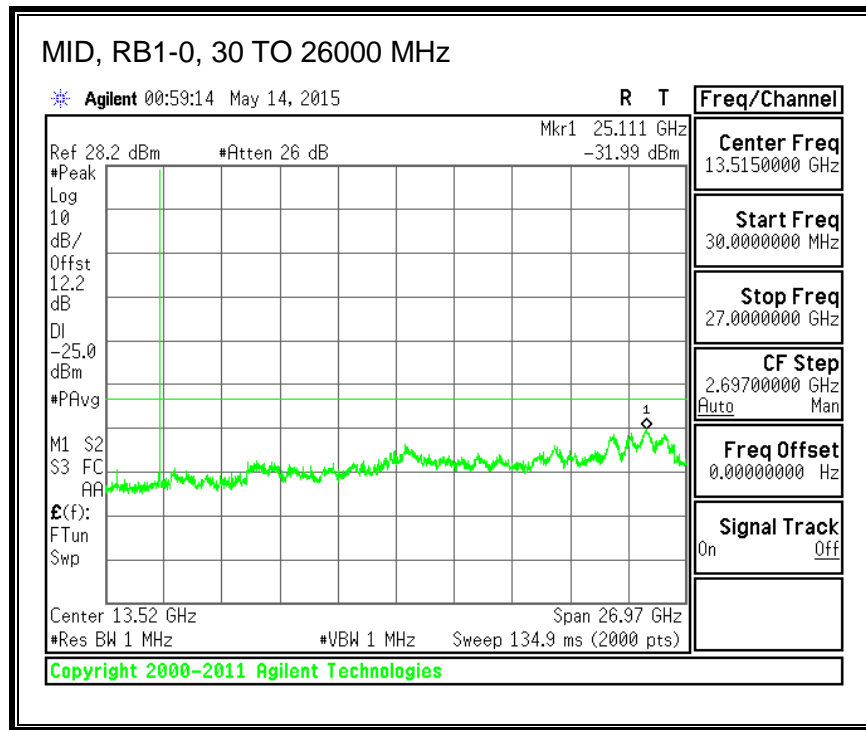
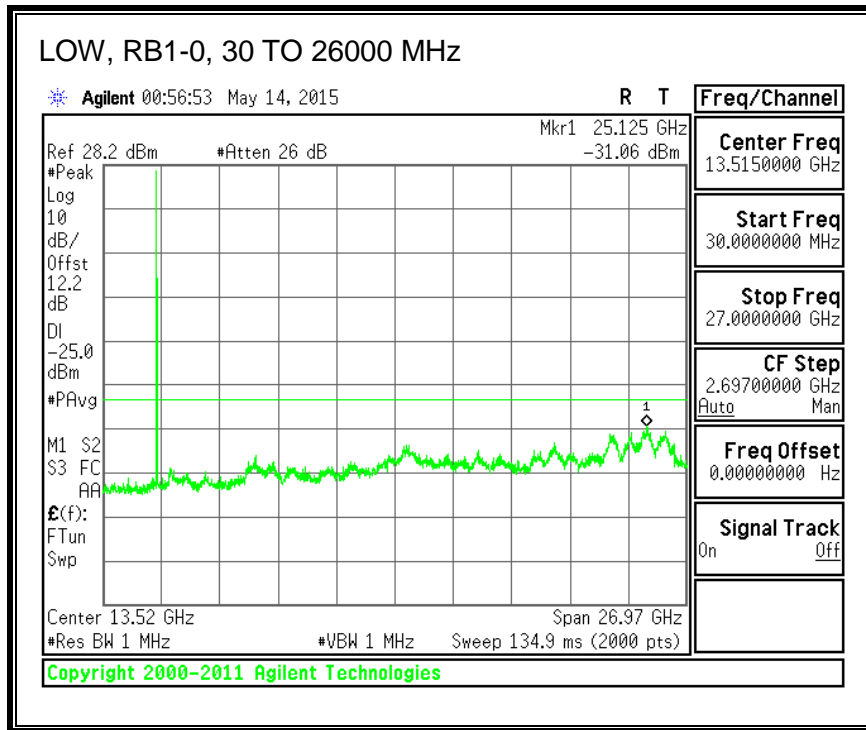


**16QAM, (5.0 MHz BAND WIDTH)**

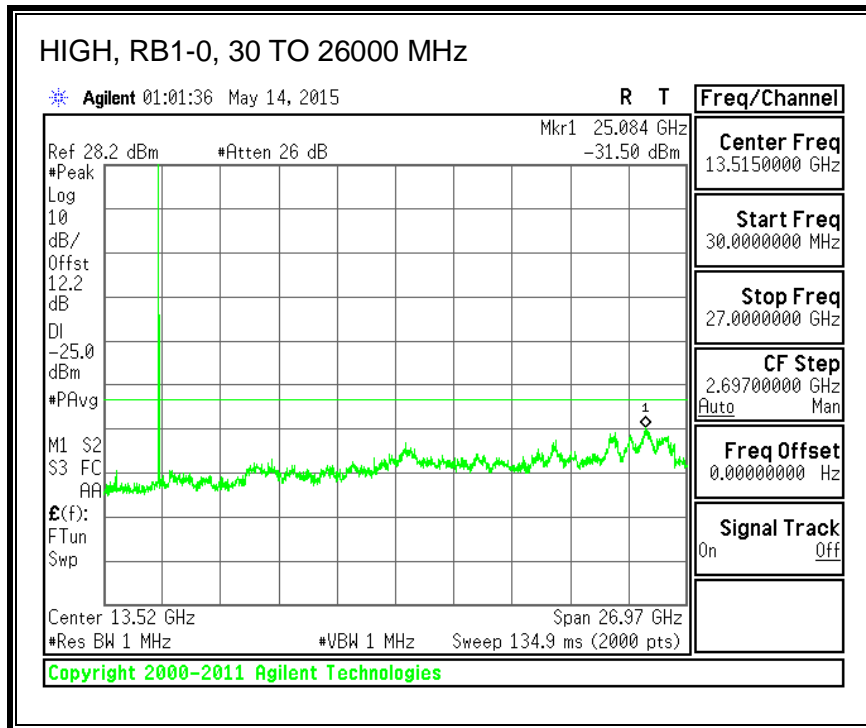




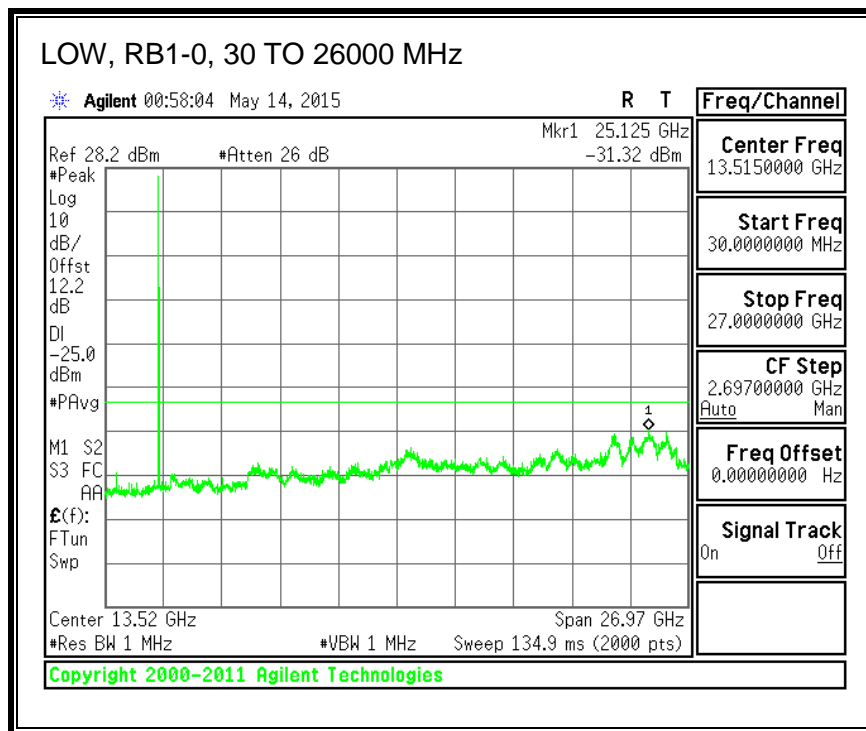
**QPSK, (10.0 MHz BAND WIDTH)**

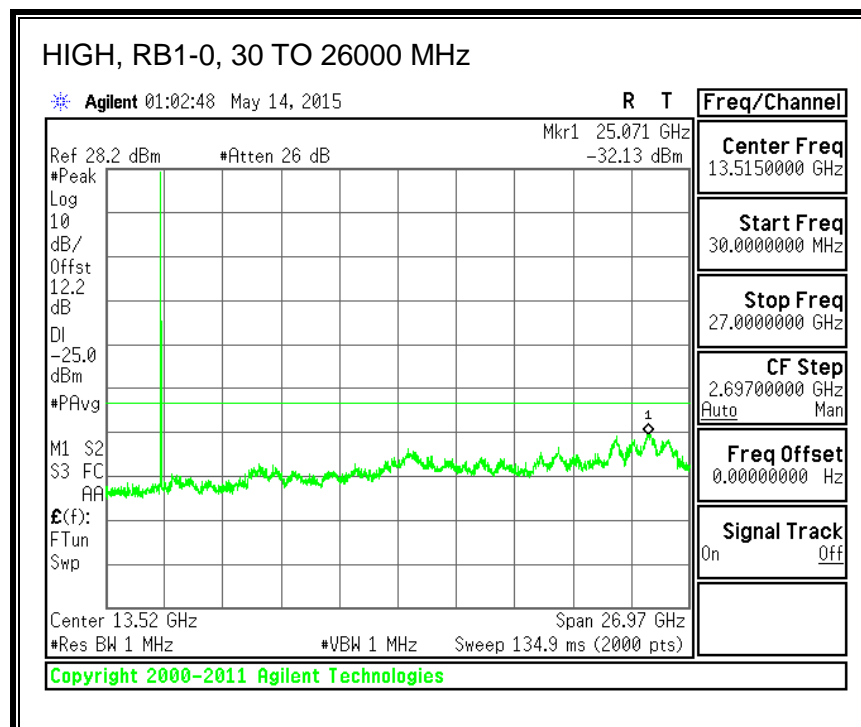
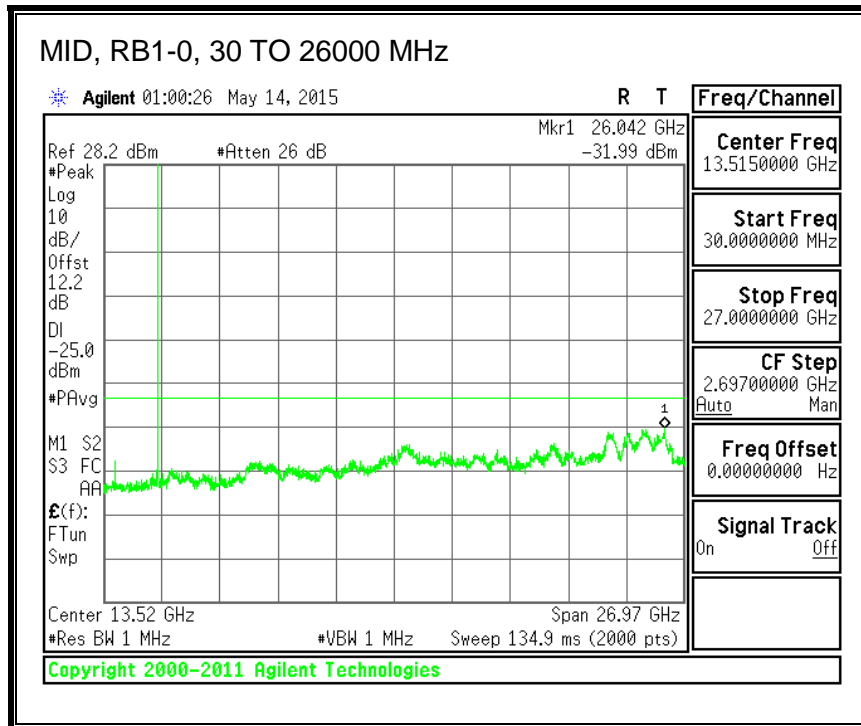




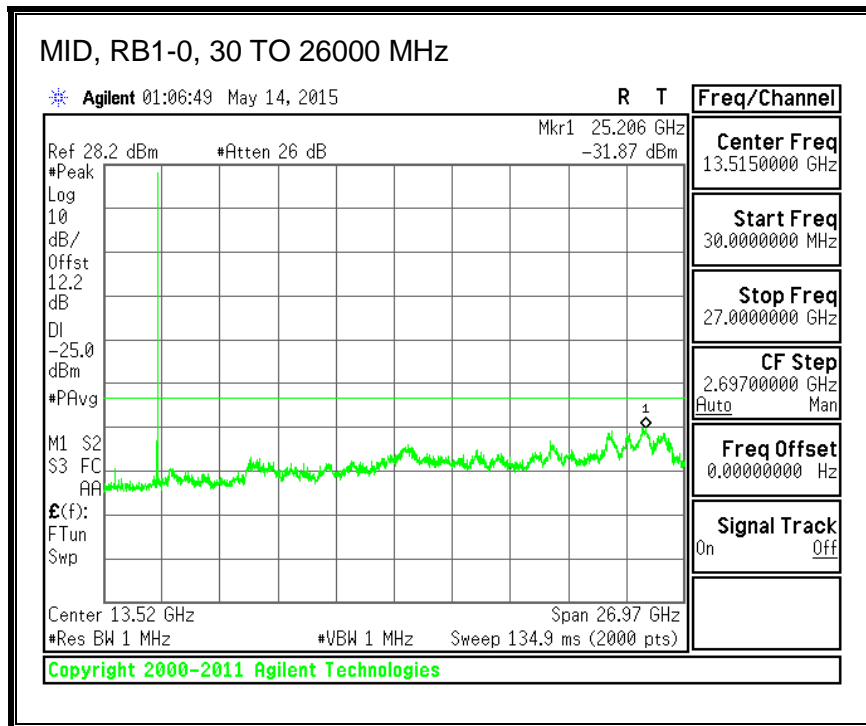
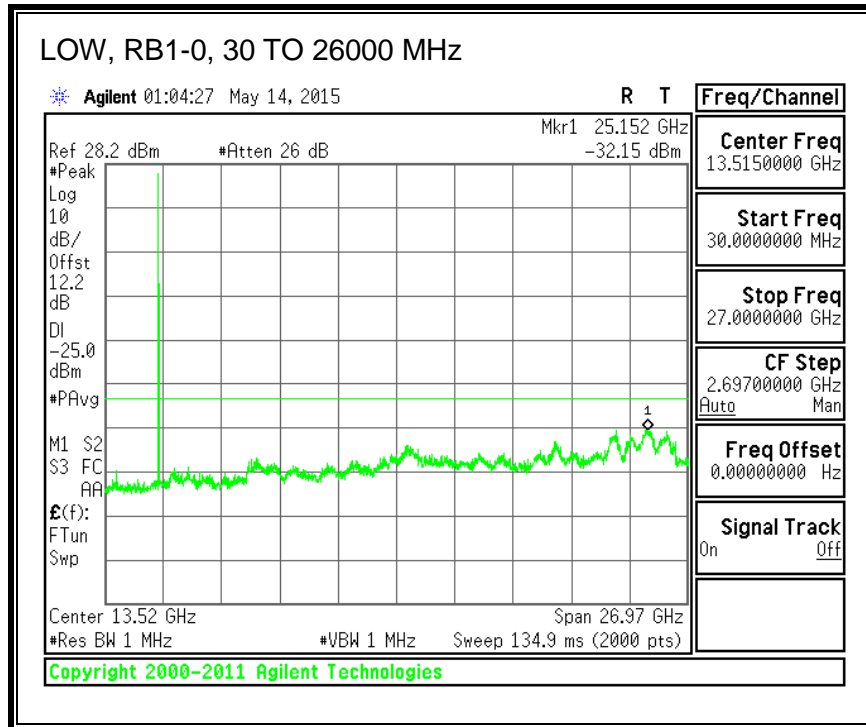


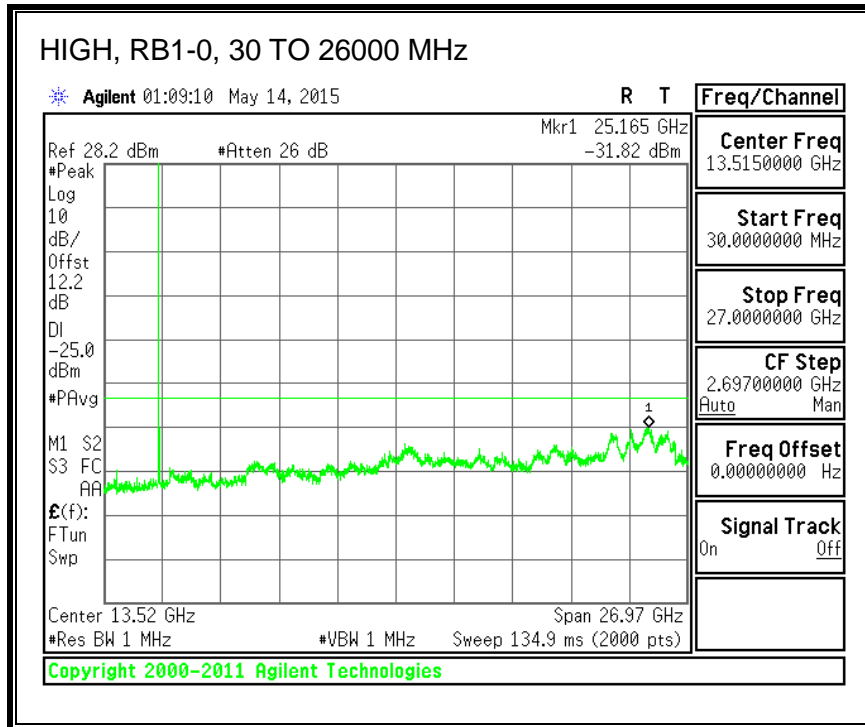
**16QAM, (10.0 MHz BAND WIDTH)**



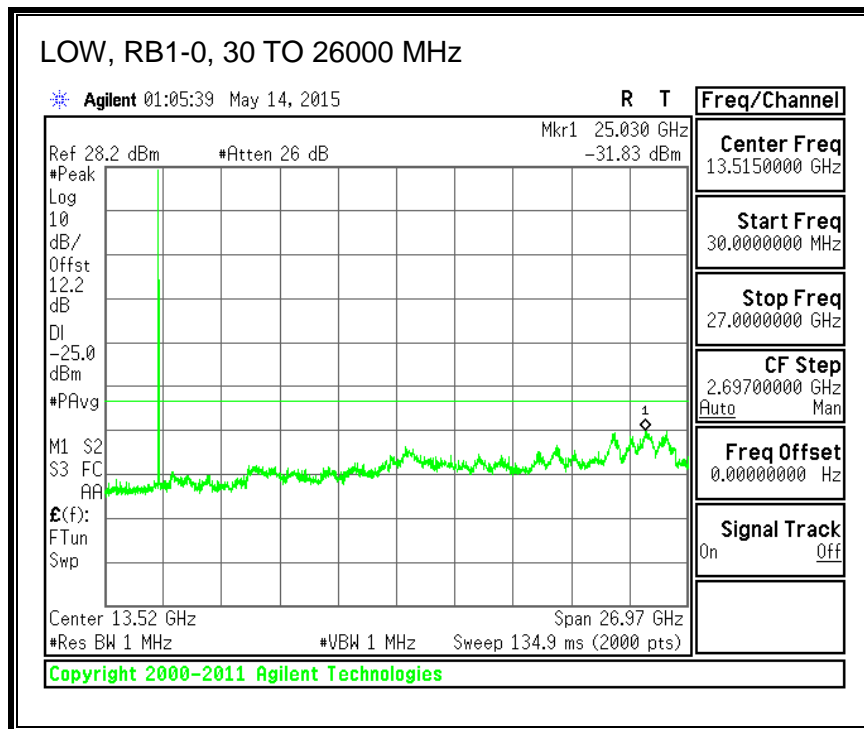


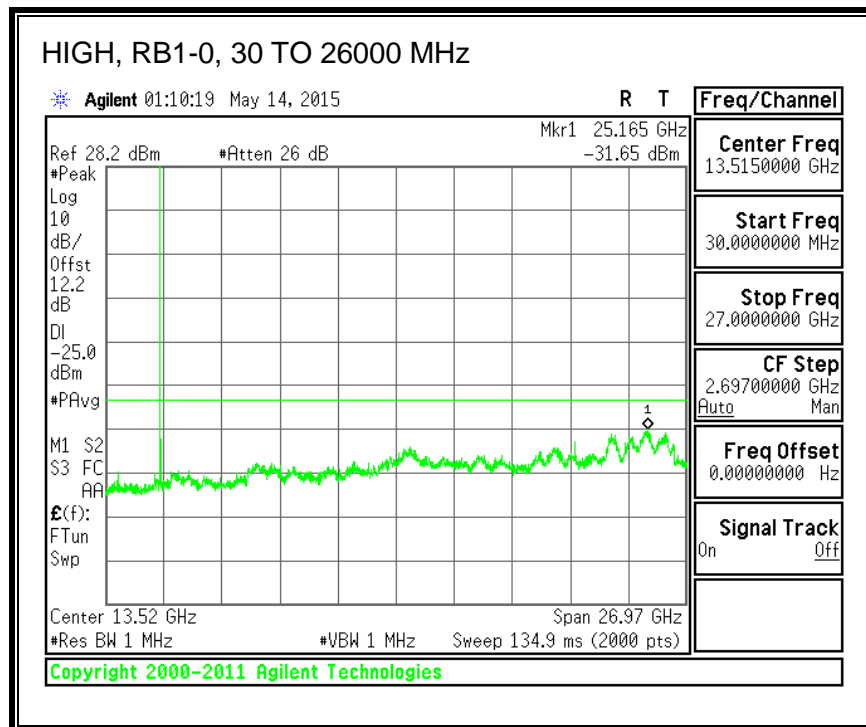
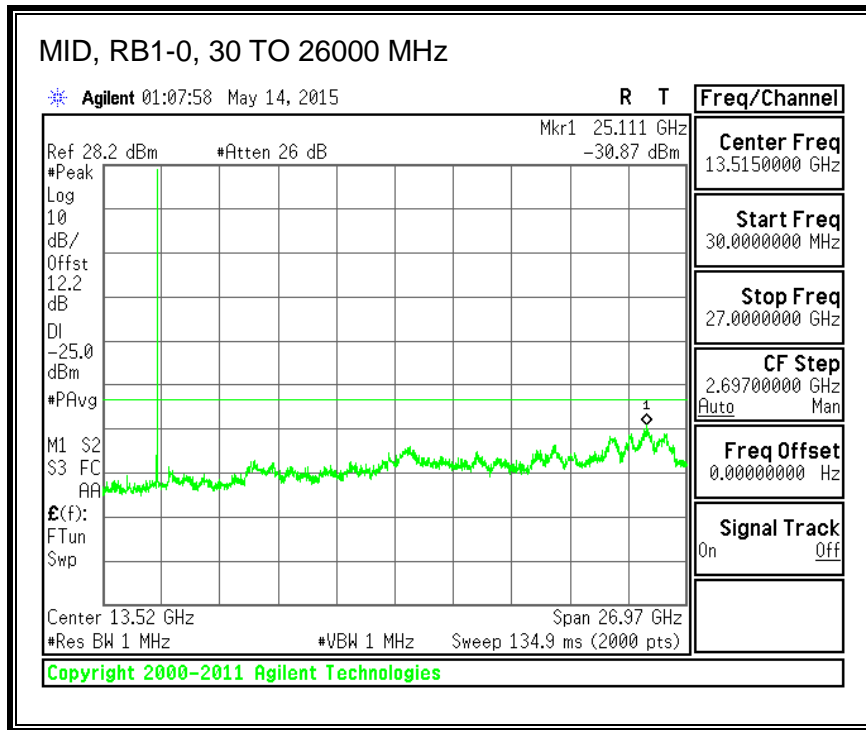
**QPSK, (15.0 MHz BAND WIDTH)**



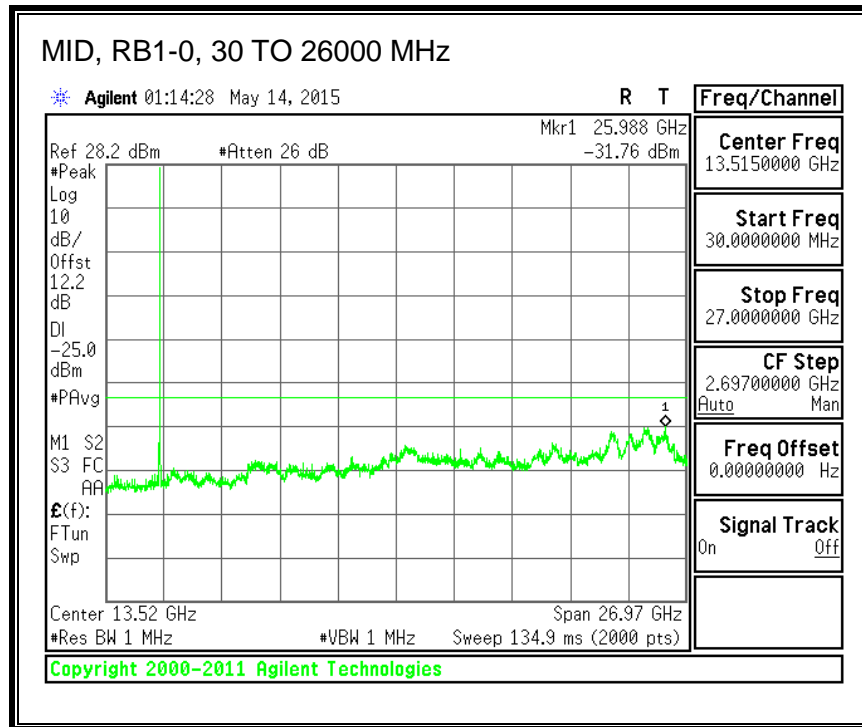
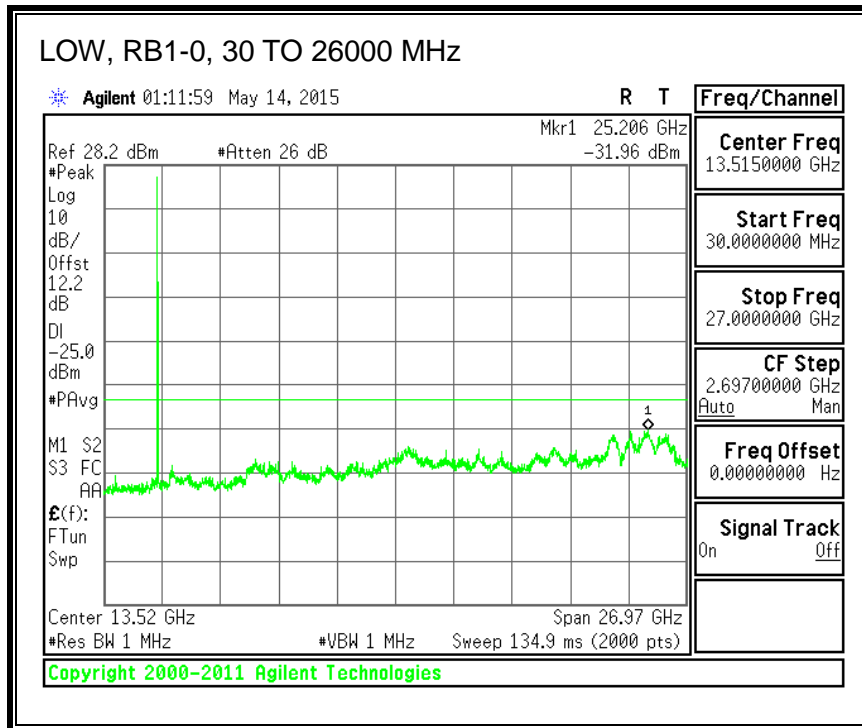


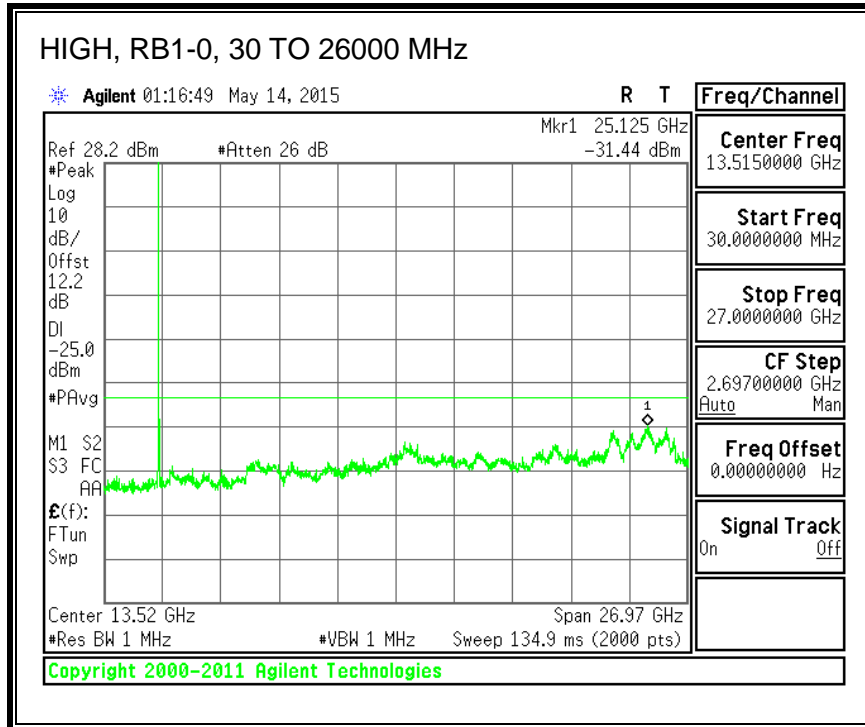
**16QAM, (15.0 MHz BAND WIDTH)**



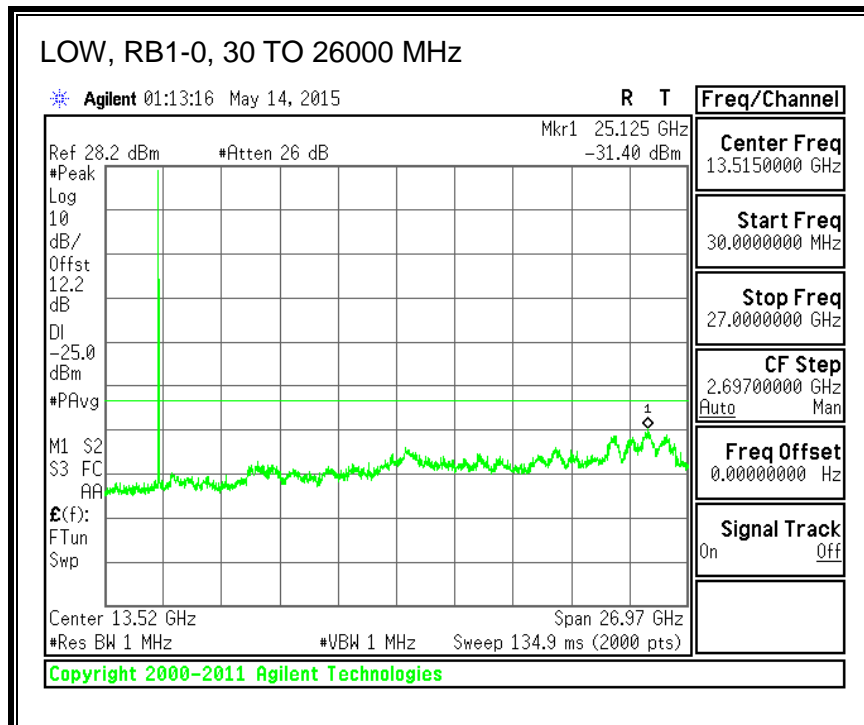


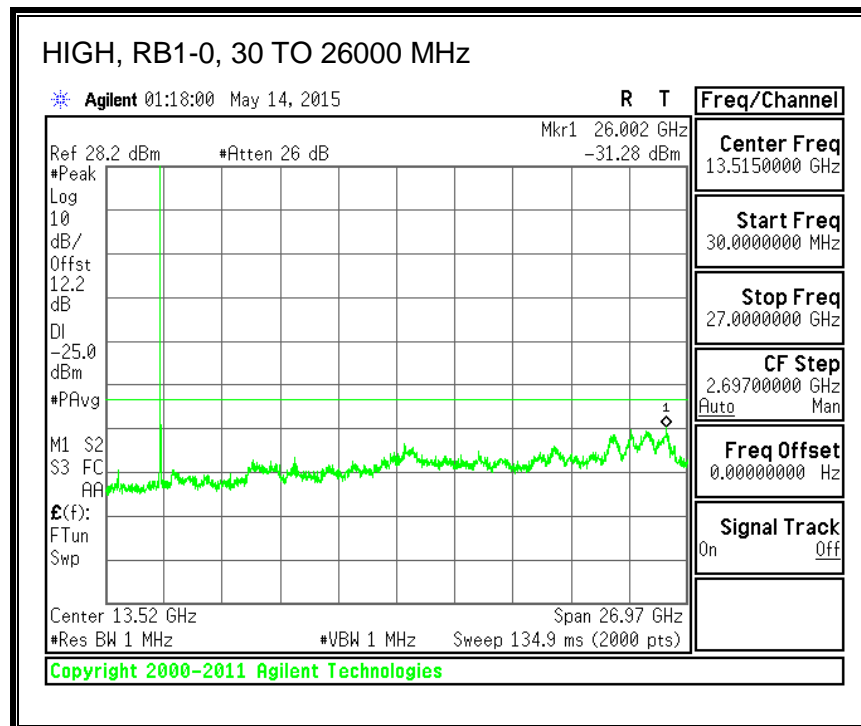
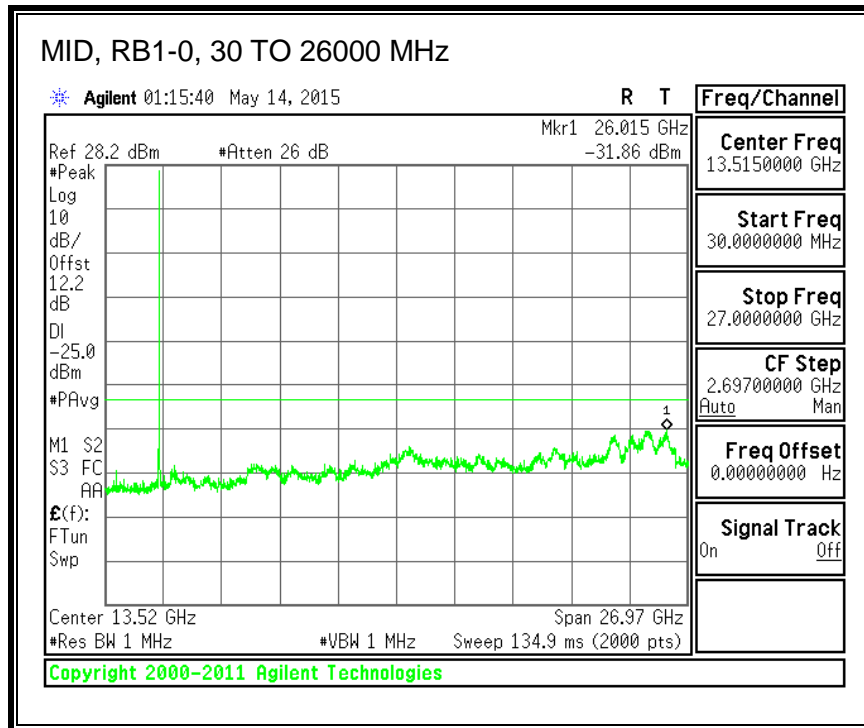
**QPSK, (20.0 MHz BAND WIDTH)**





**16QAM, (20.0 MHz BAND WIDTH)**

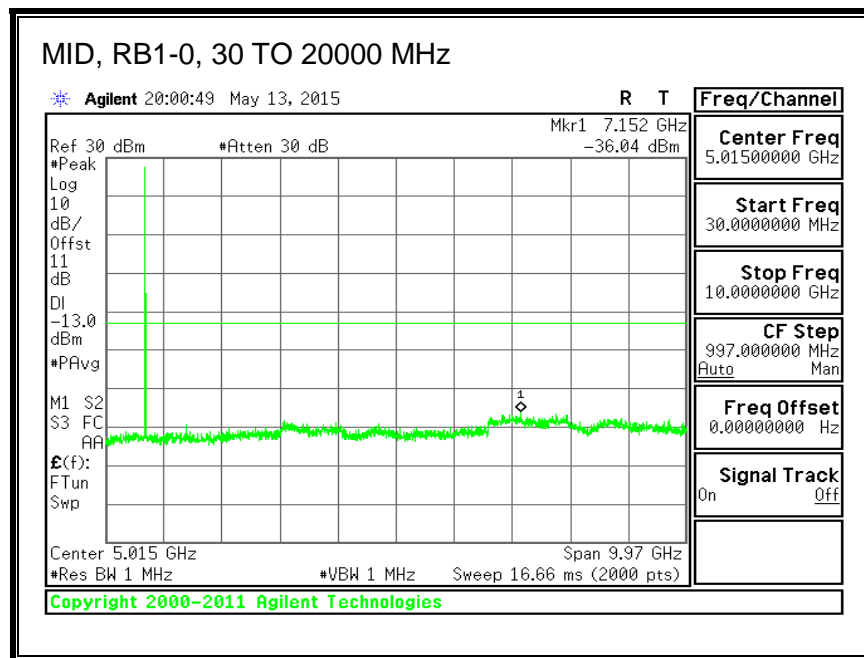
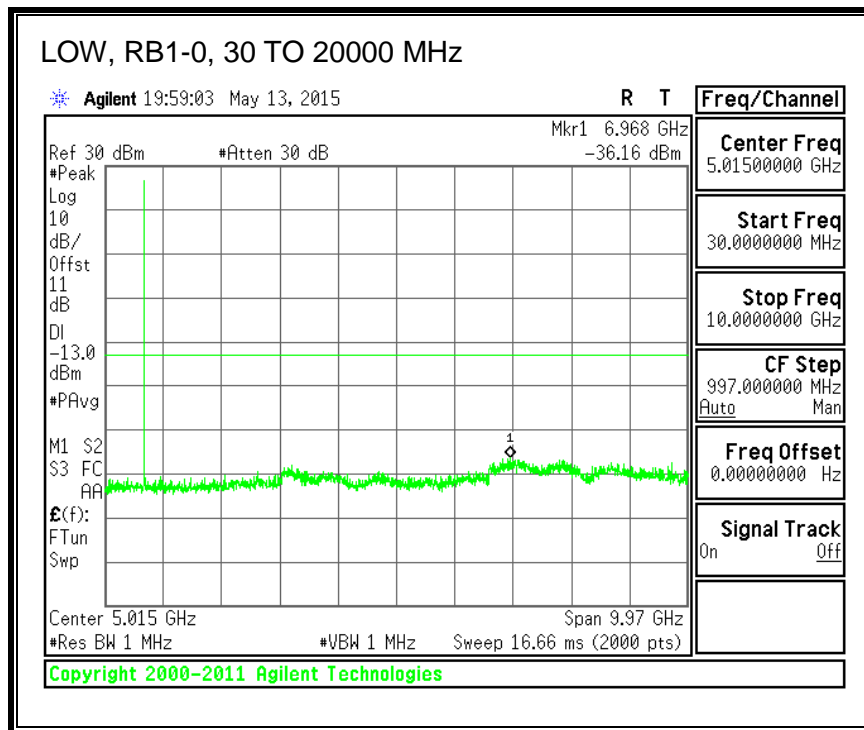


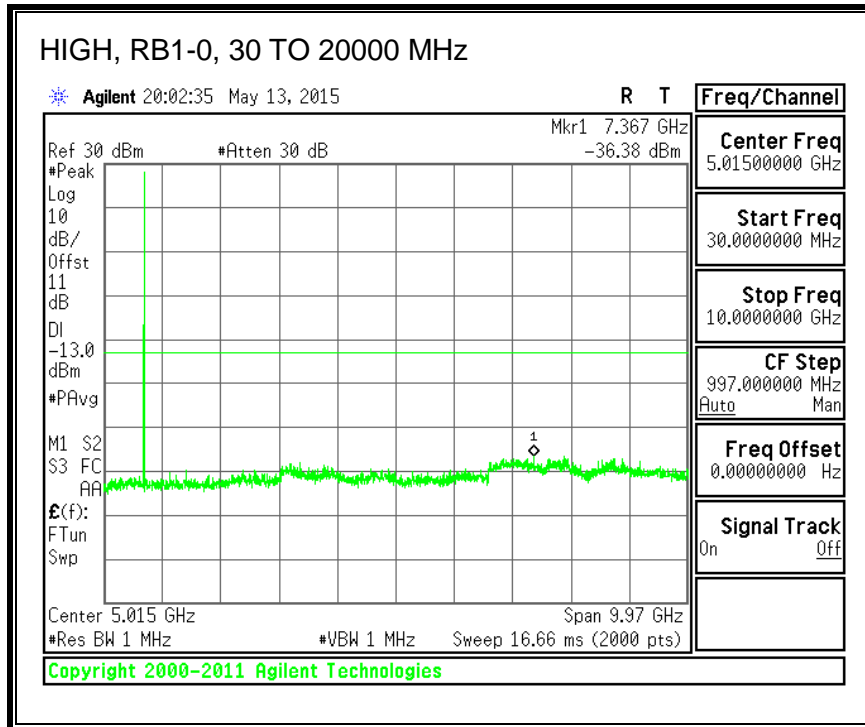




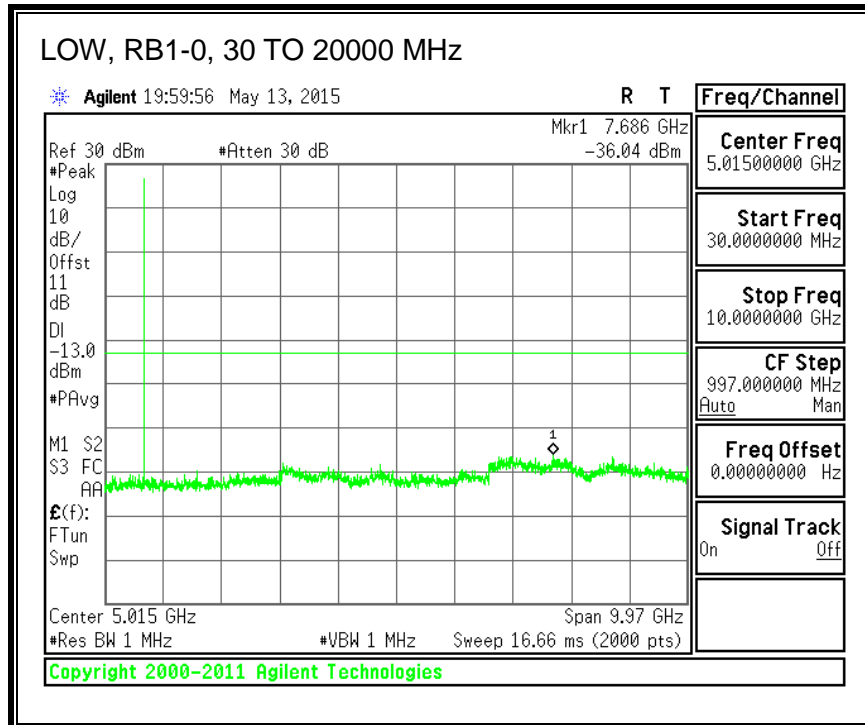
### 8.6.5. LTE BAND 12

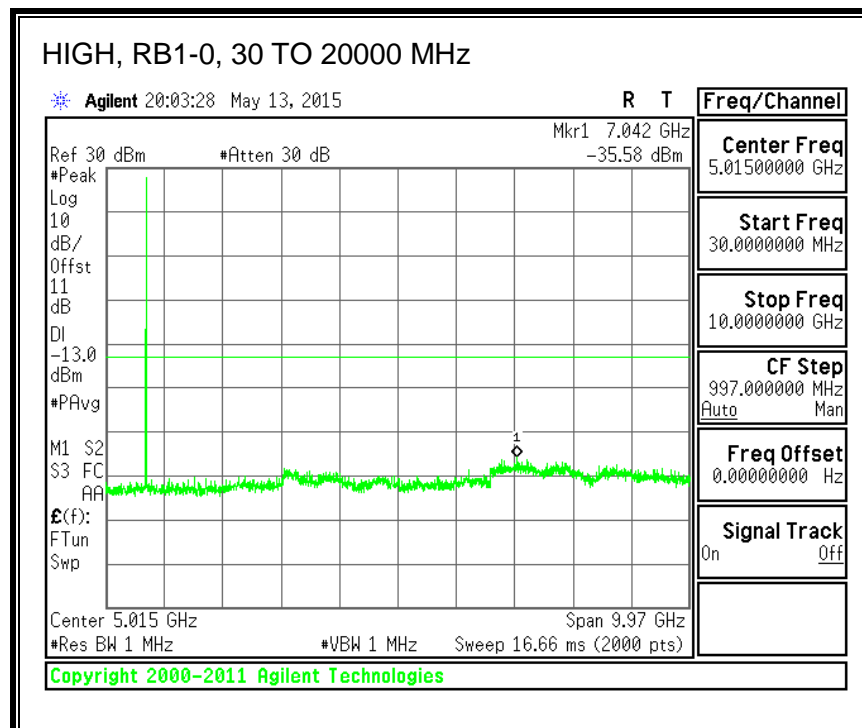
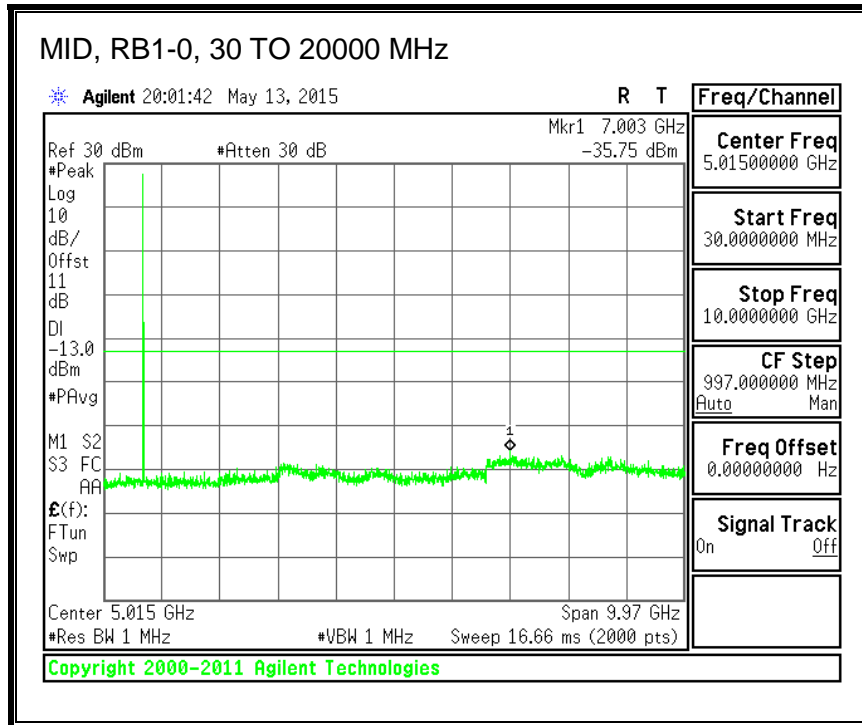
#### QPSK, (1.4 MHz BAND WIDTH)



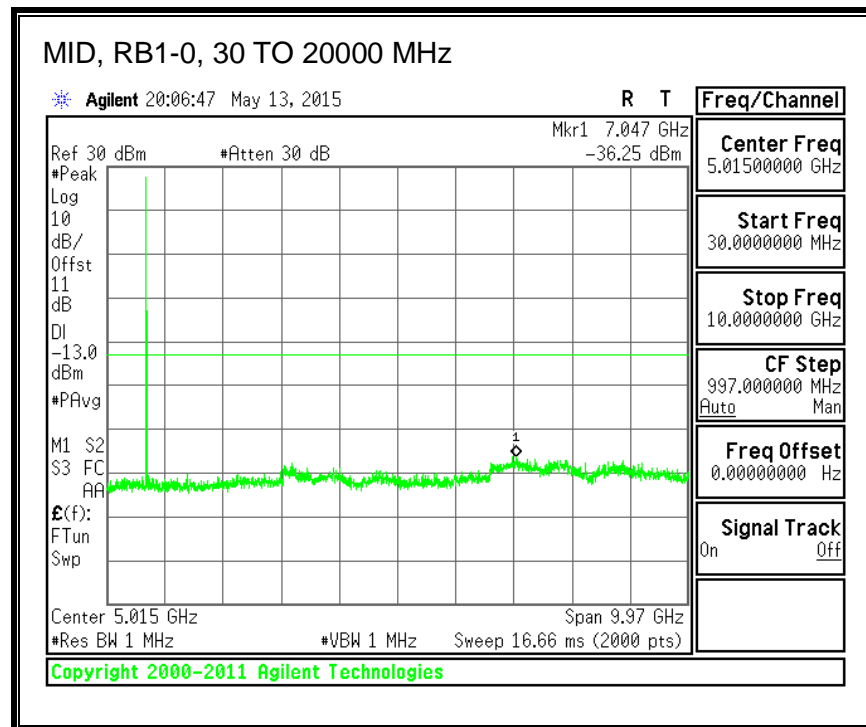
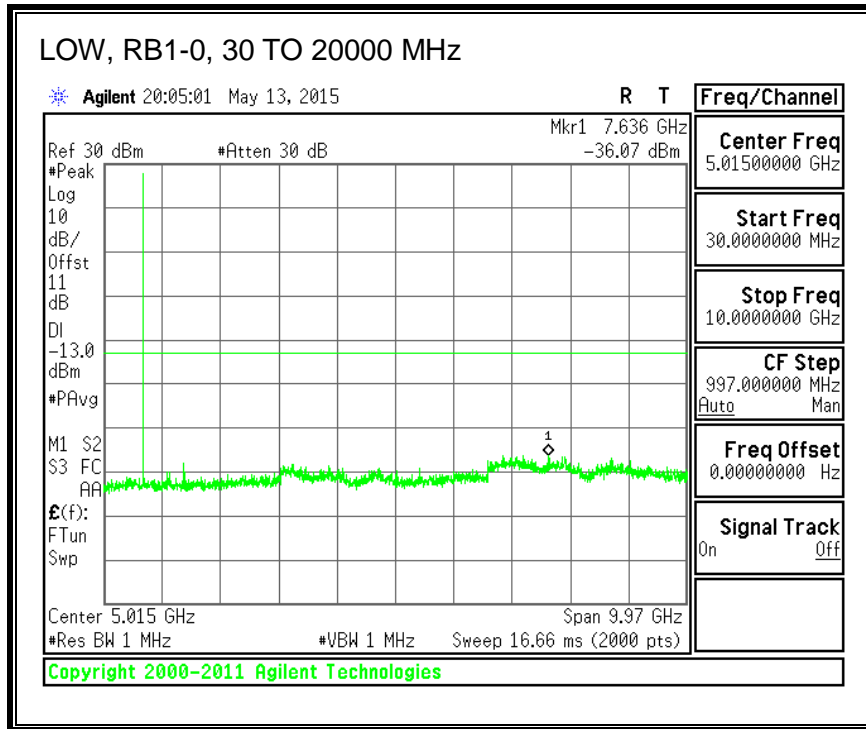


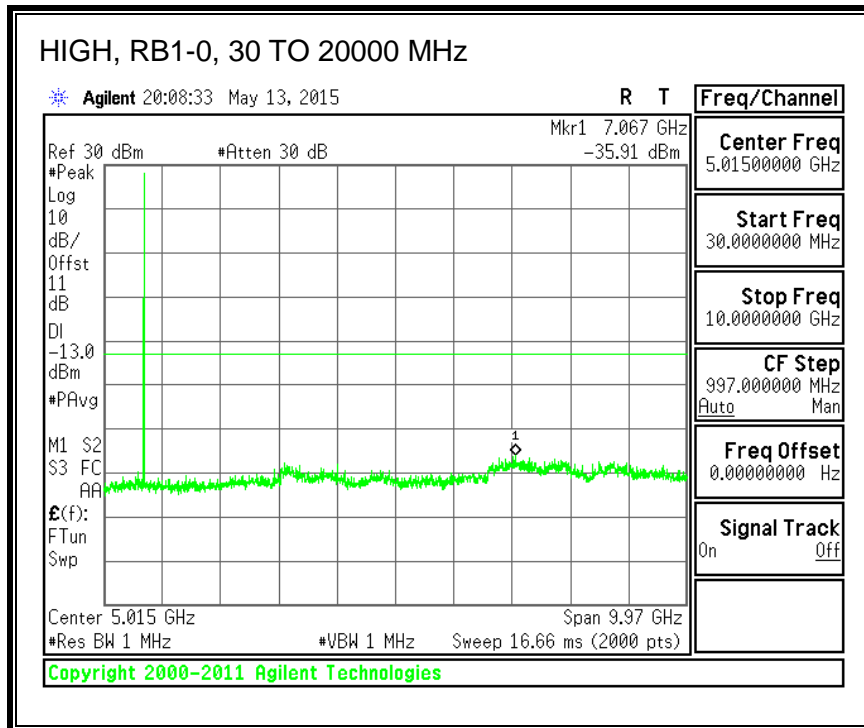
**16QAM, (1.4 MHz BAND WIDTH)**



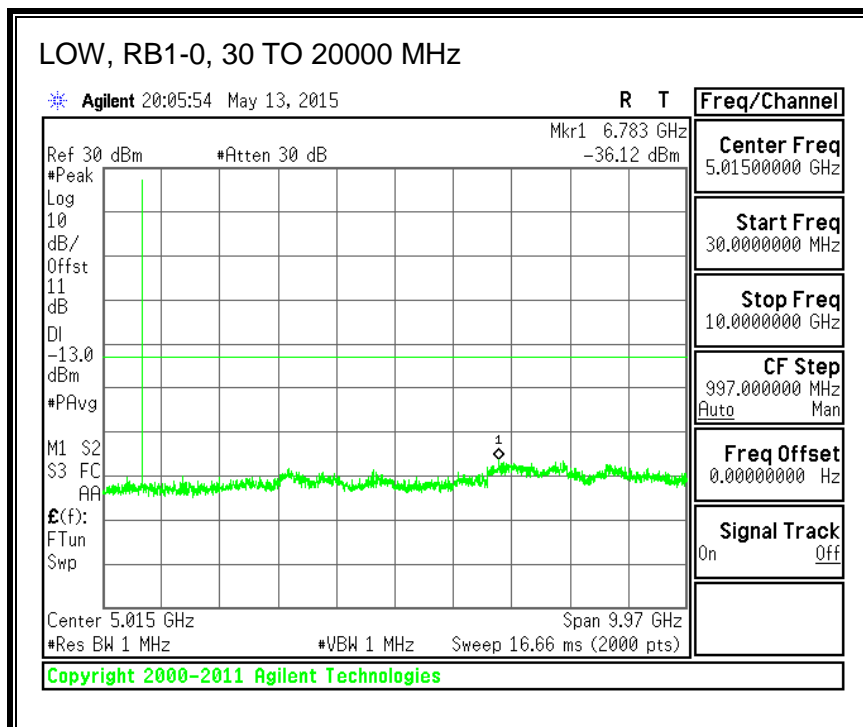


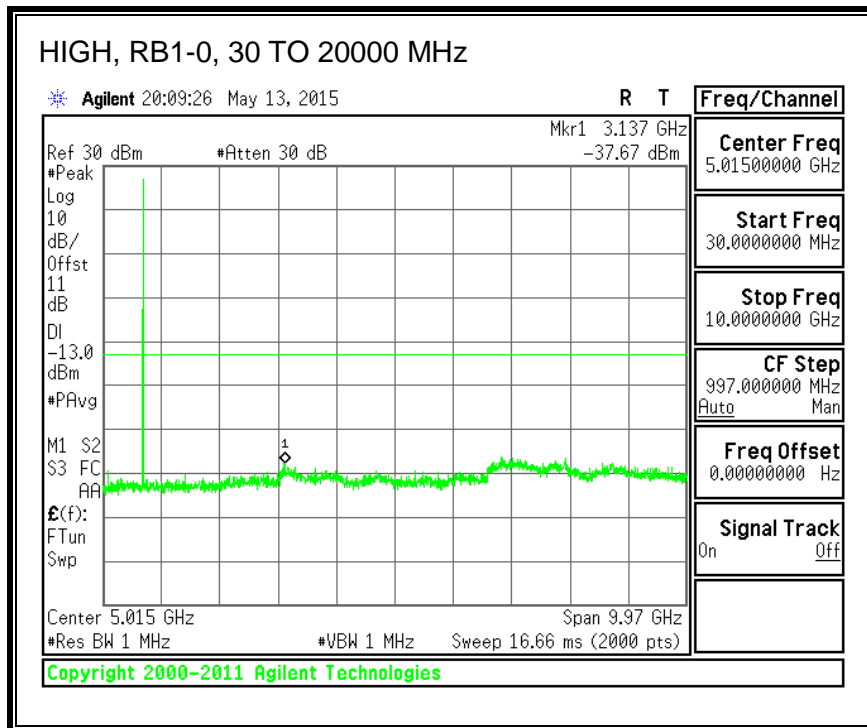
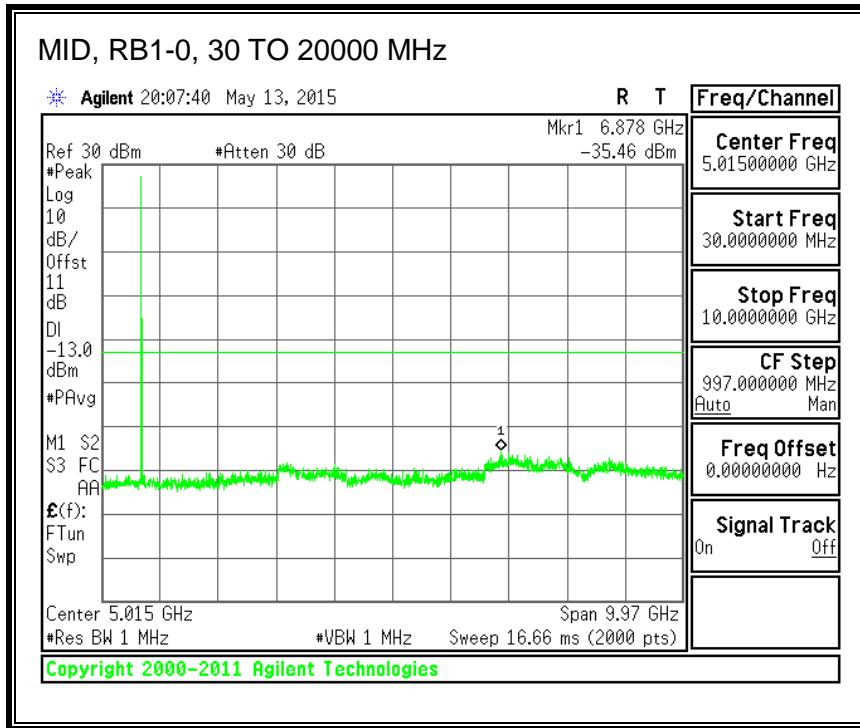
**QPSK, (3.0 MHz BAND WIDTH)**



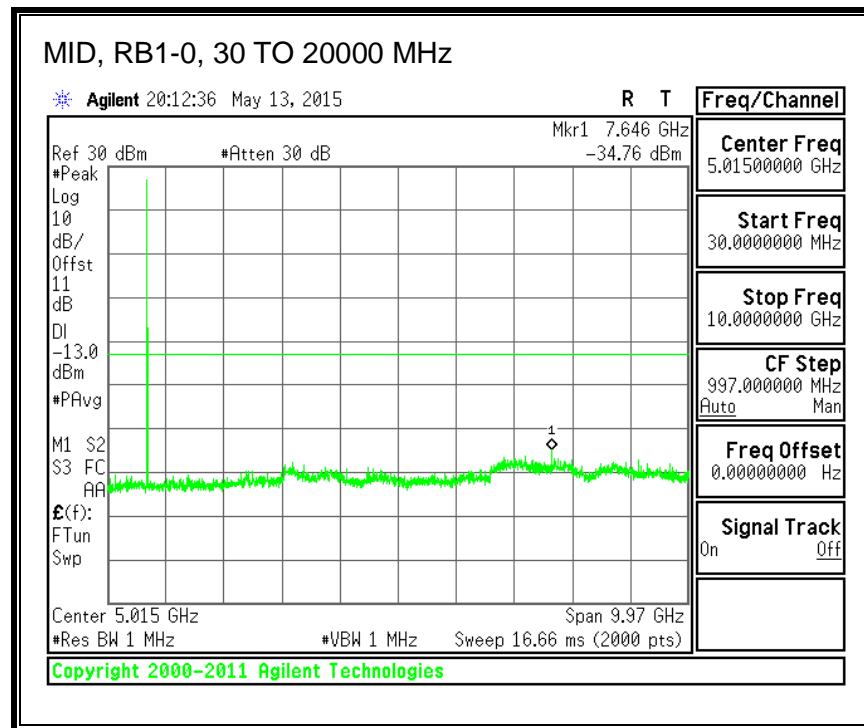
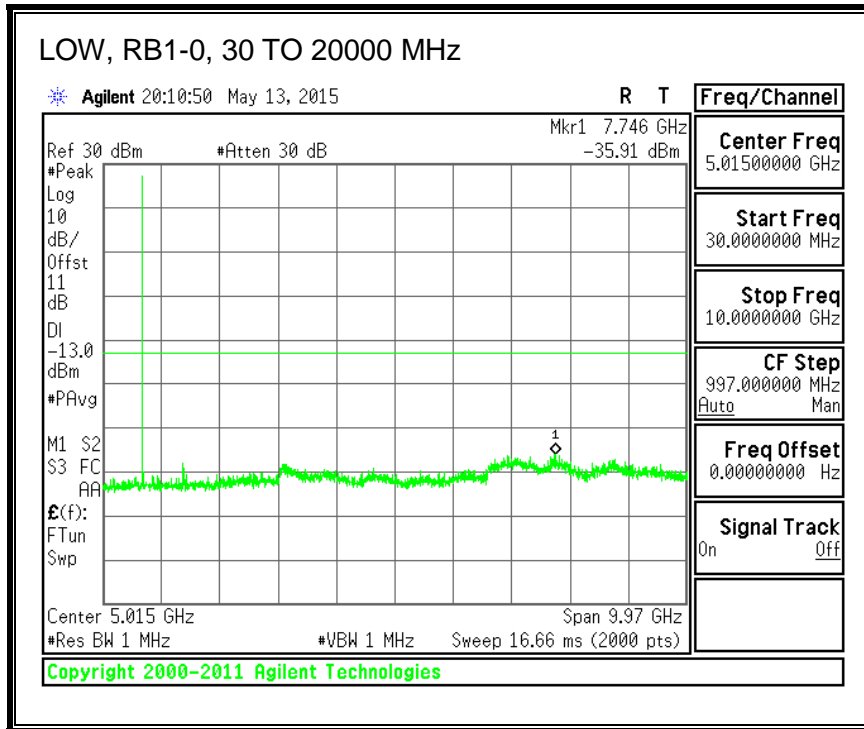


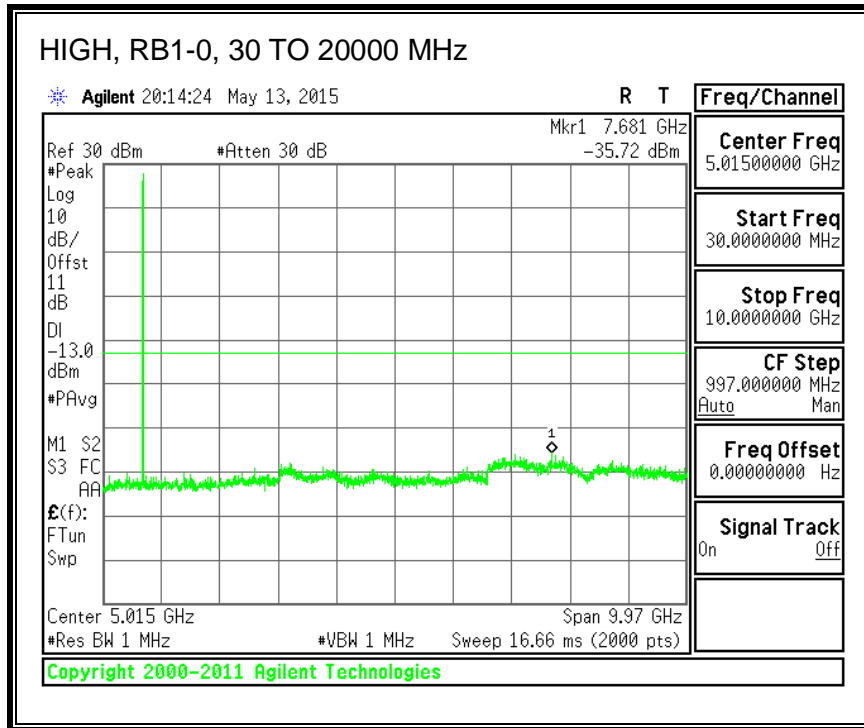
**16QAM, (3.0 MHz BAND WIDTH)**



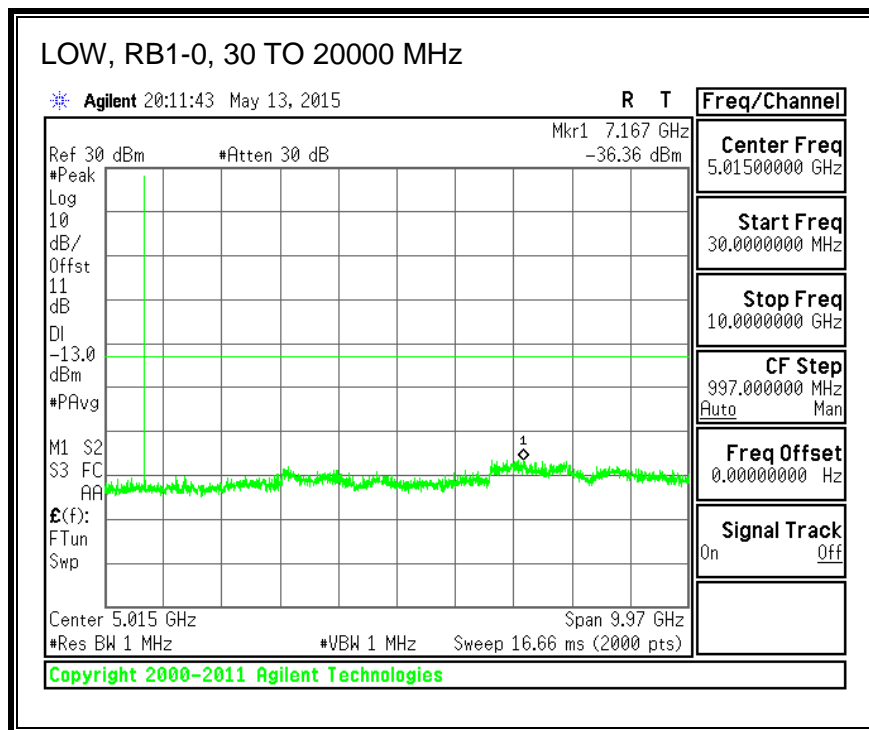


**QPSK, (5.0 MHz BAND WIDTH)**

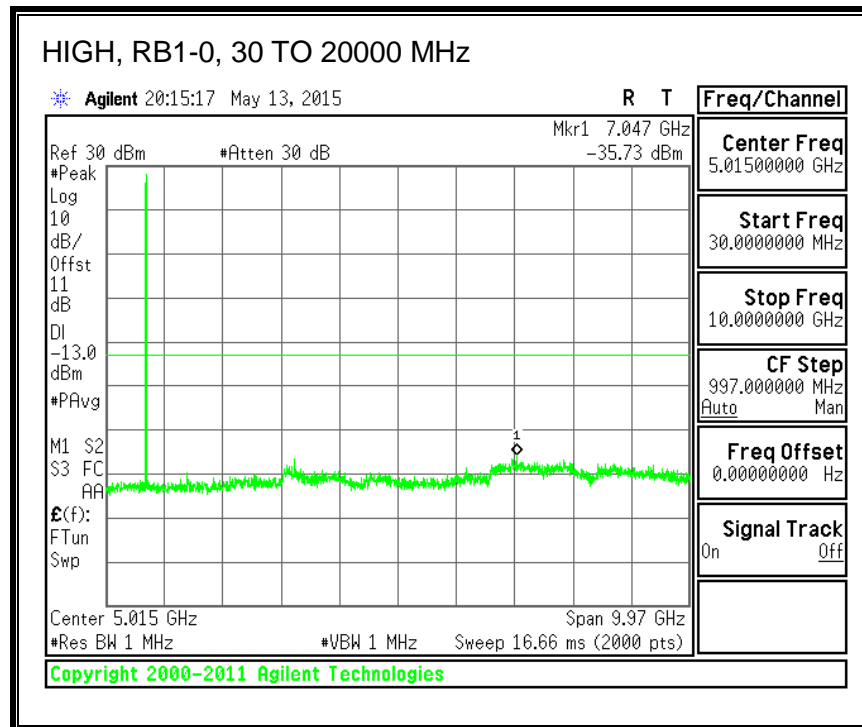
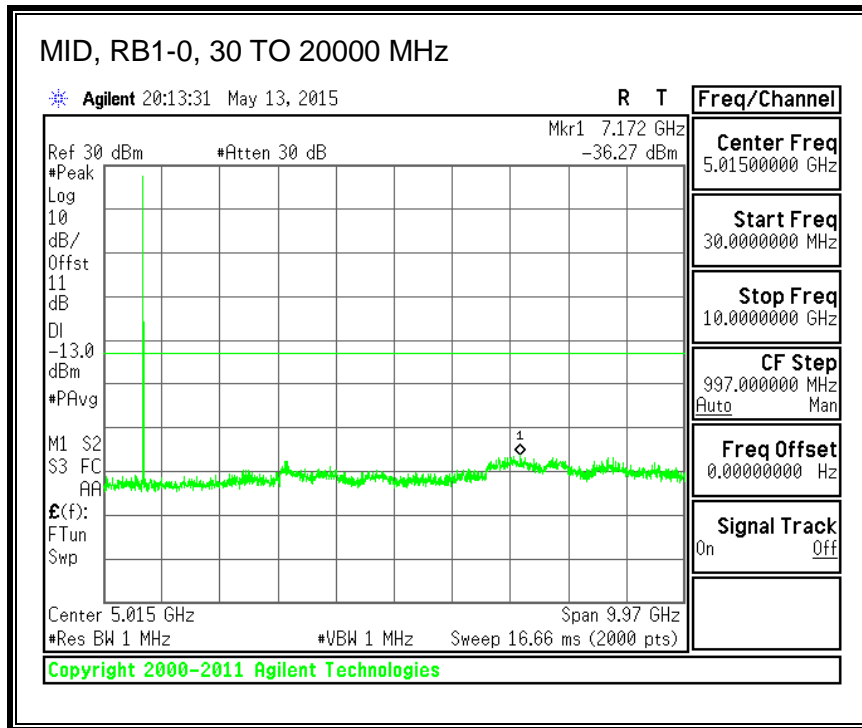




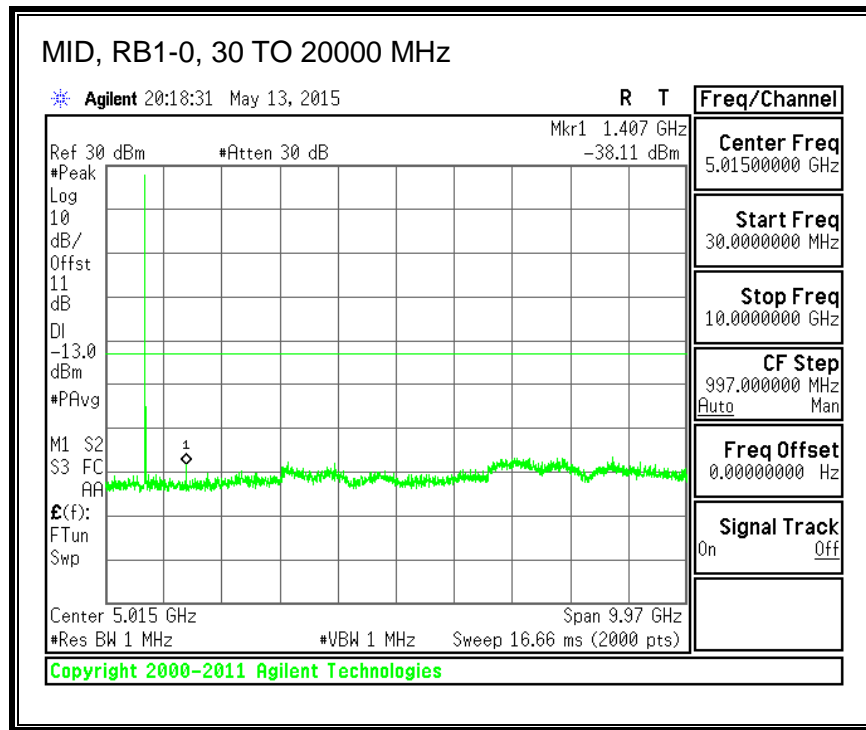
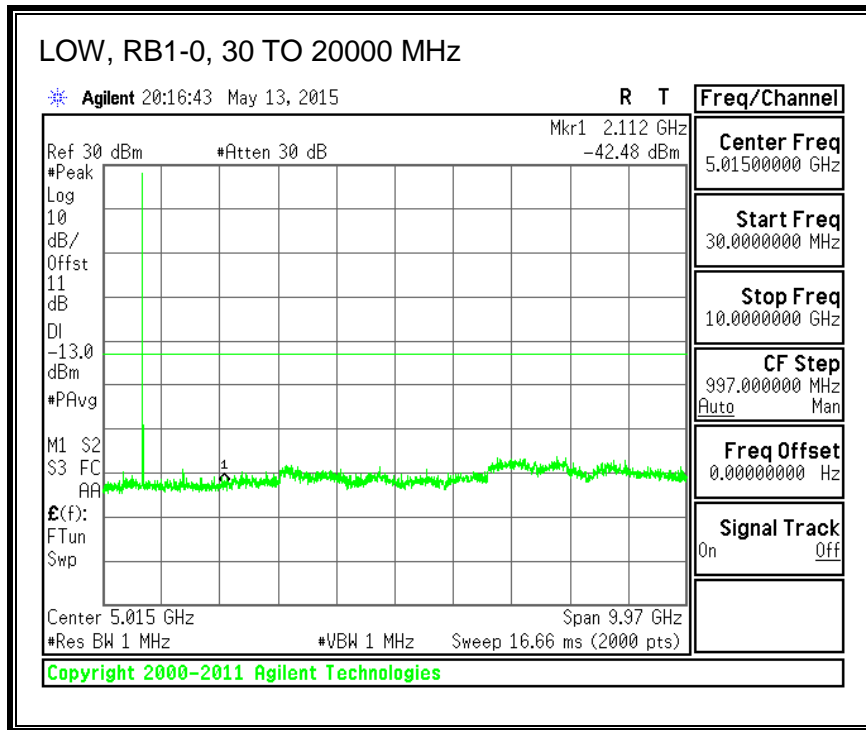
**16QAM, (5.0 MHz BAND WIDTH)**

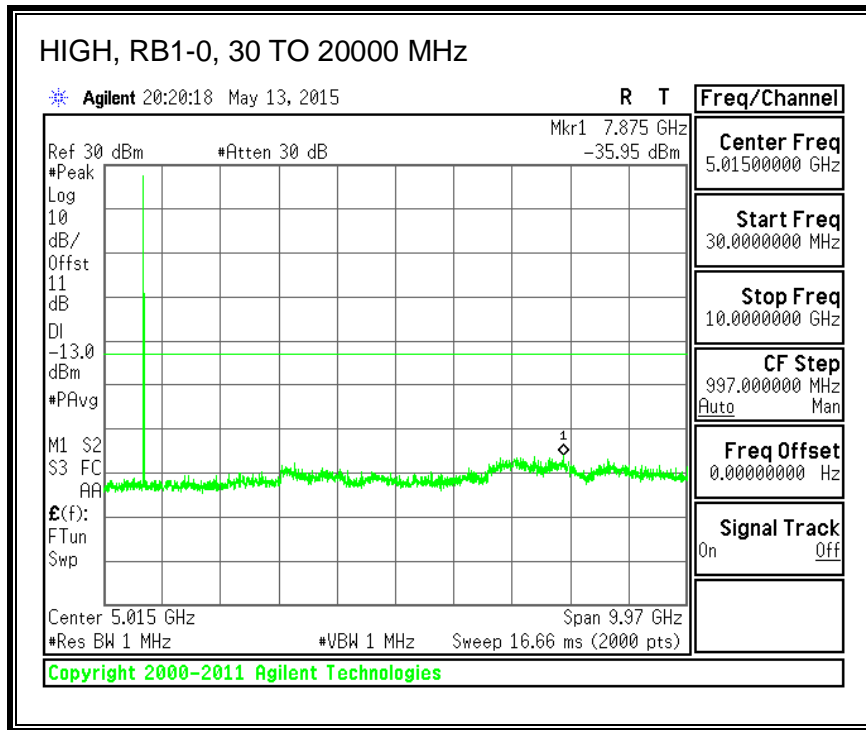




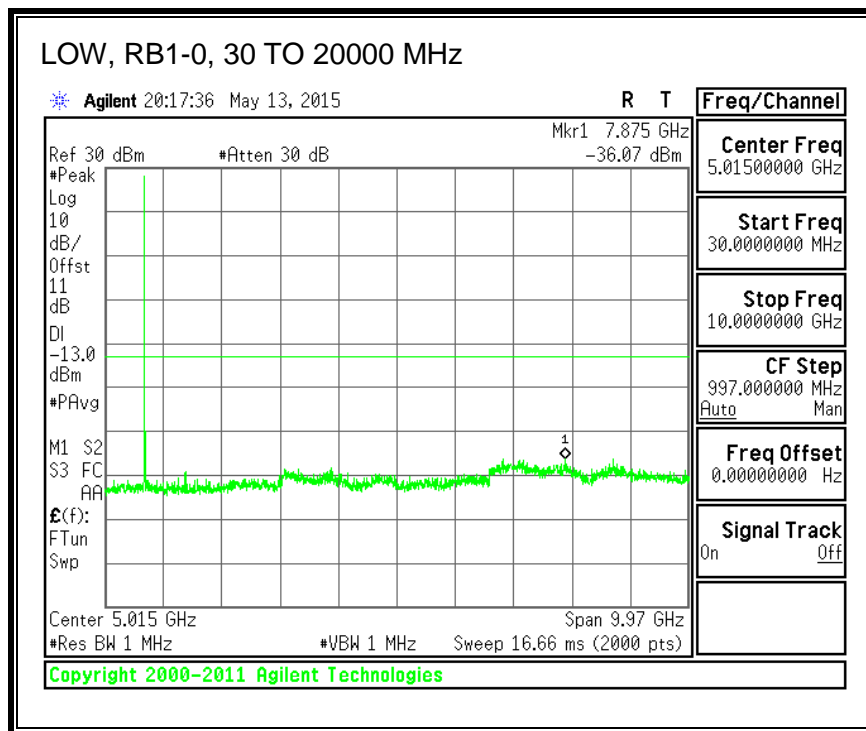


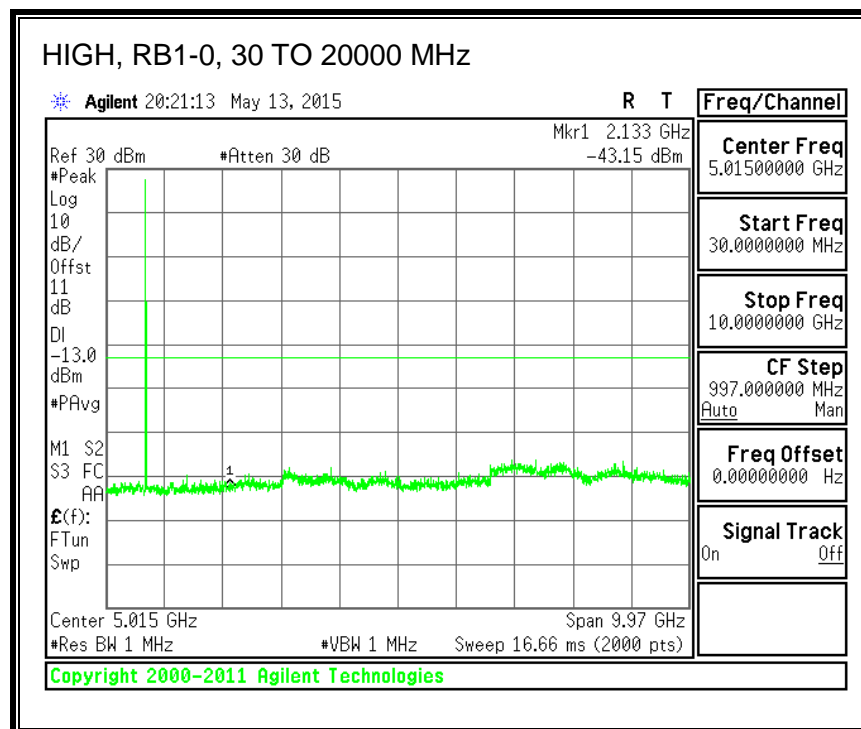
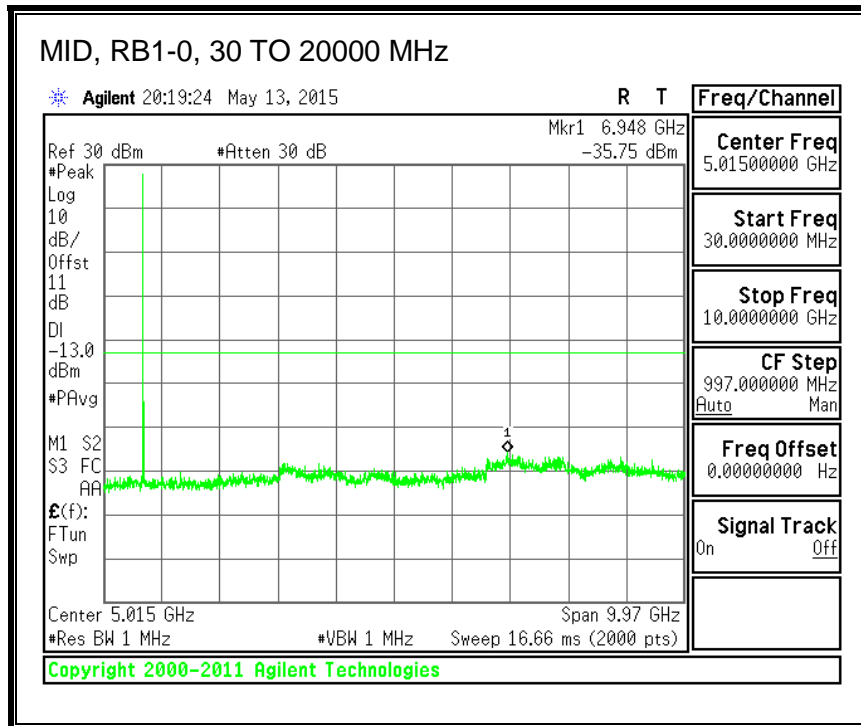
**QPSK, (10.0 MHz BAND WIDTH)**





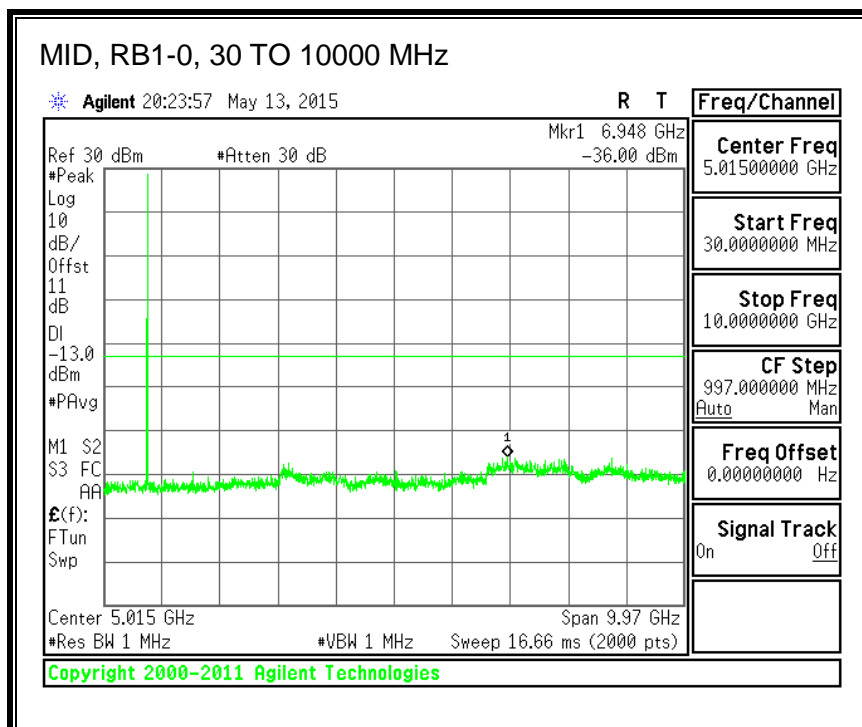
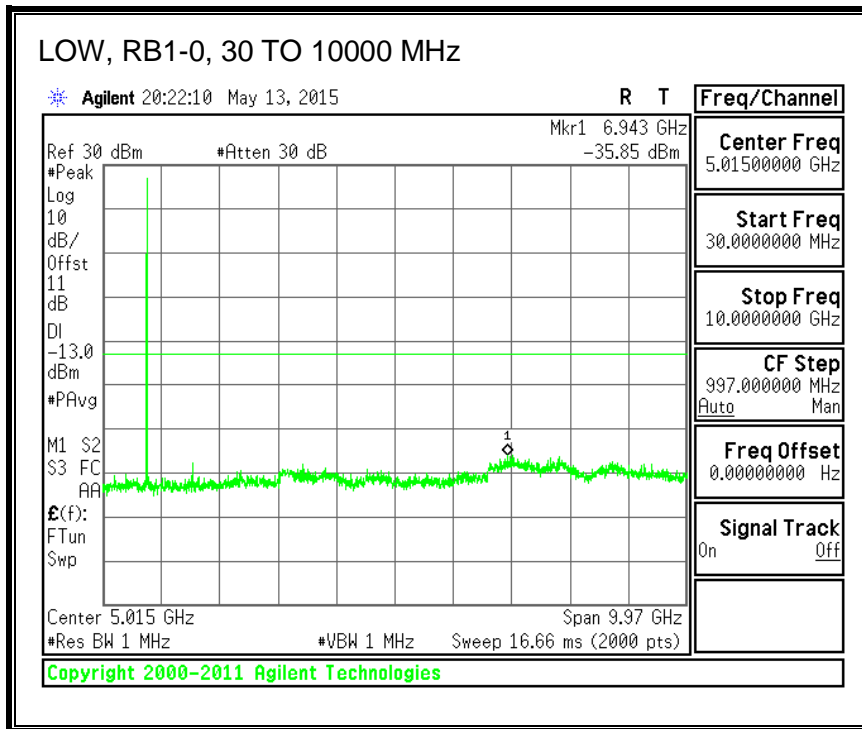
**16QAM, (10.0 MHz BAND WIDTH)**

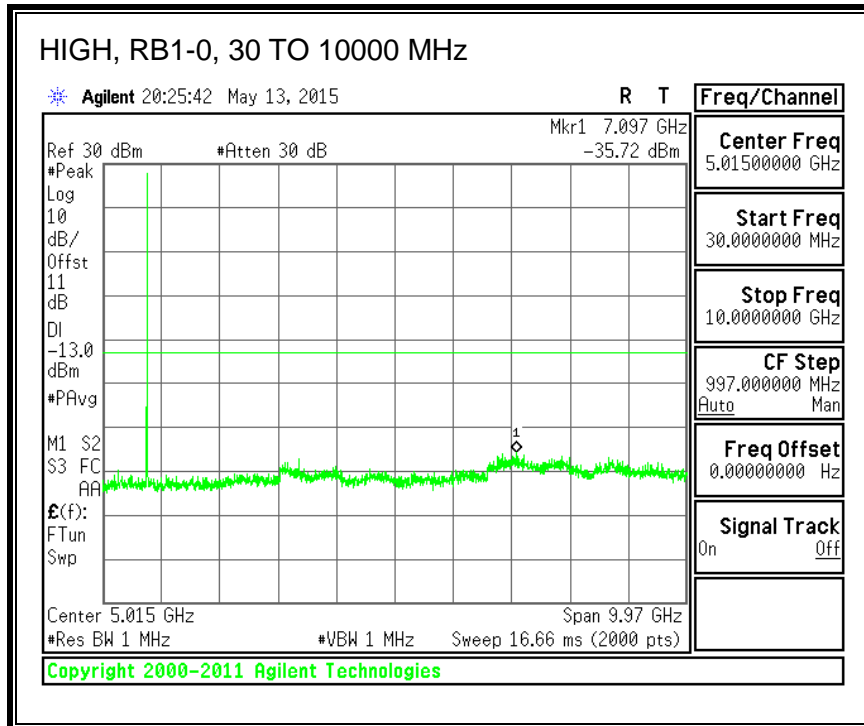




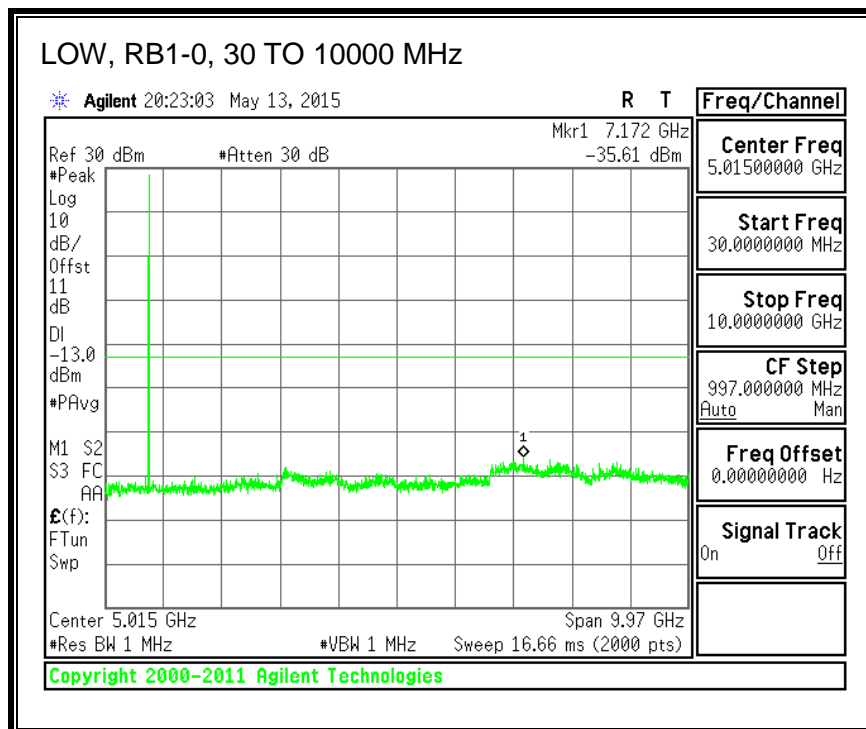
### 8.6.6. LTE BAND 13

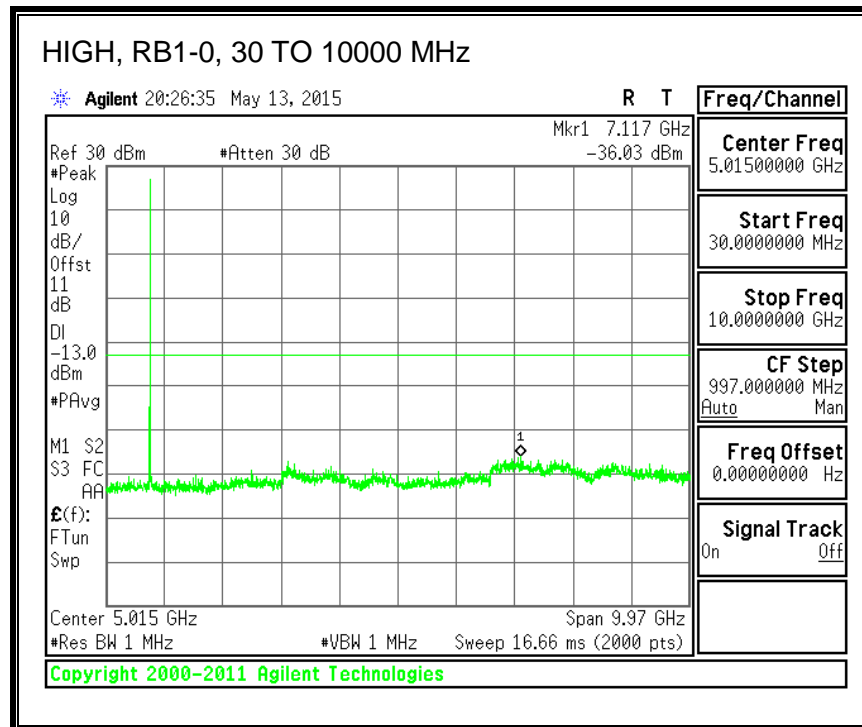
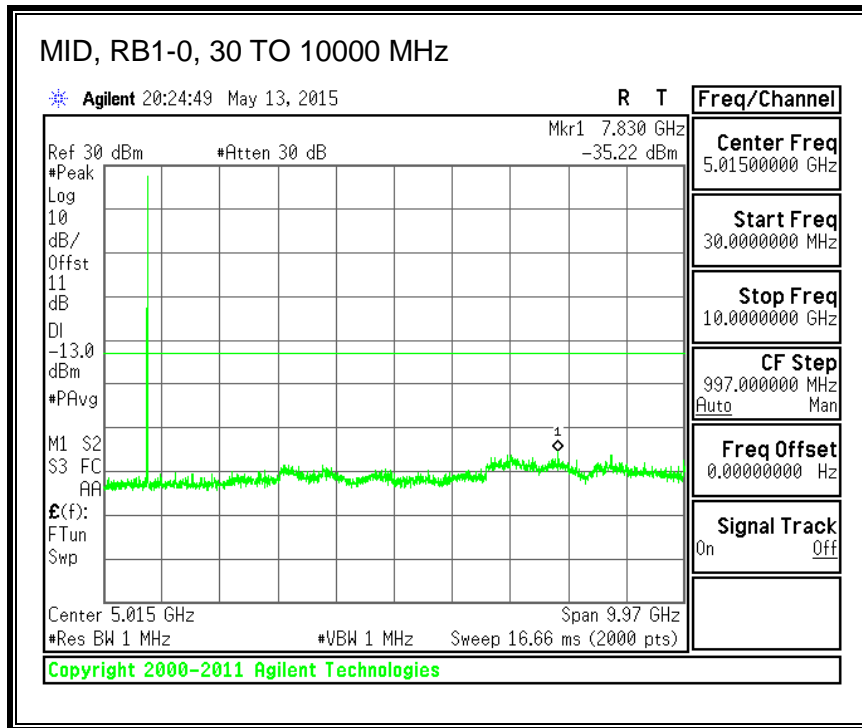
#### QPSK, (5.0 MHz BAND WIDTH)



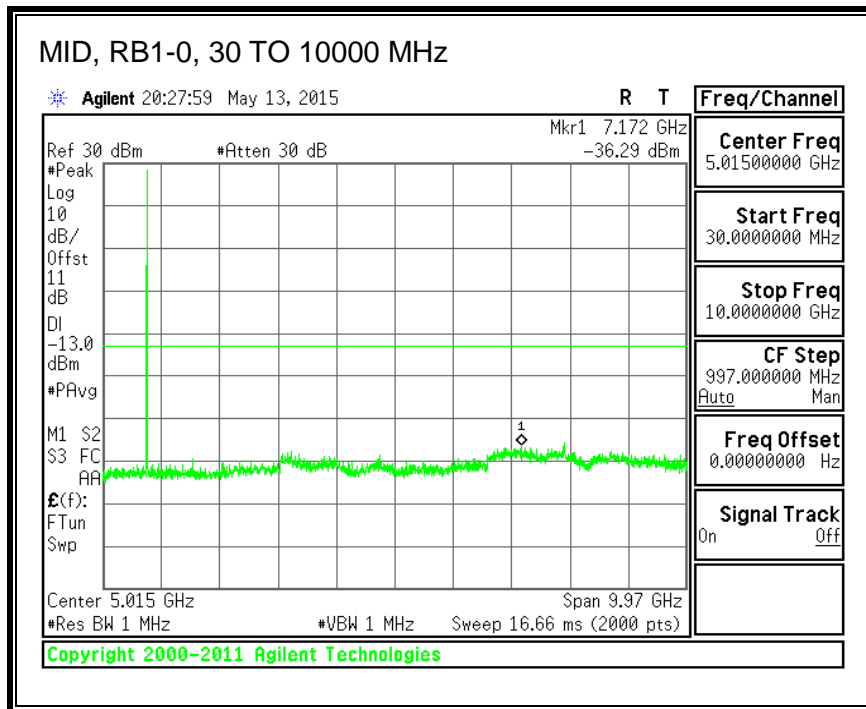


**16QAM, (5.0 MHz BAND WIDTH)**

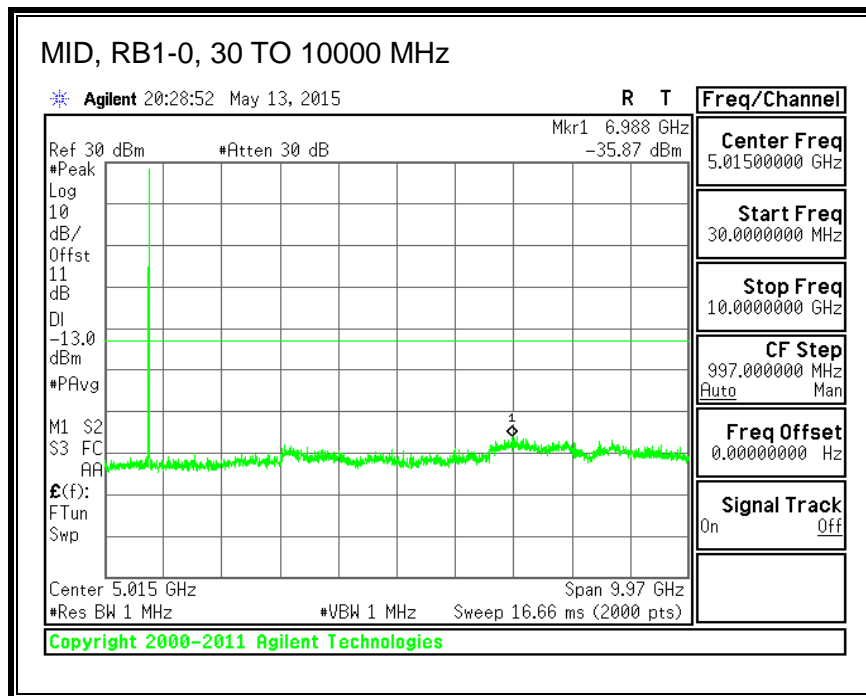




**QPSK, (10.0 MHz BAND WIDTH)**



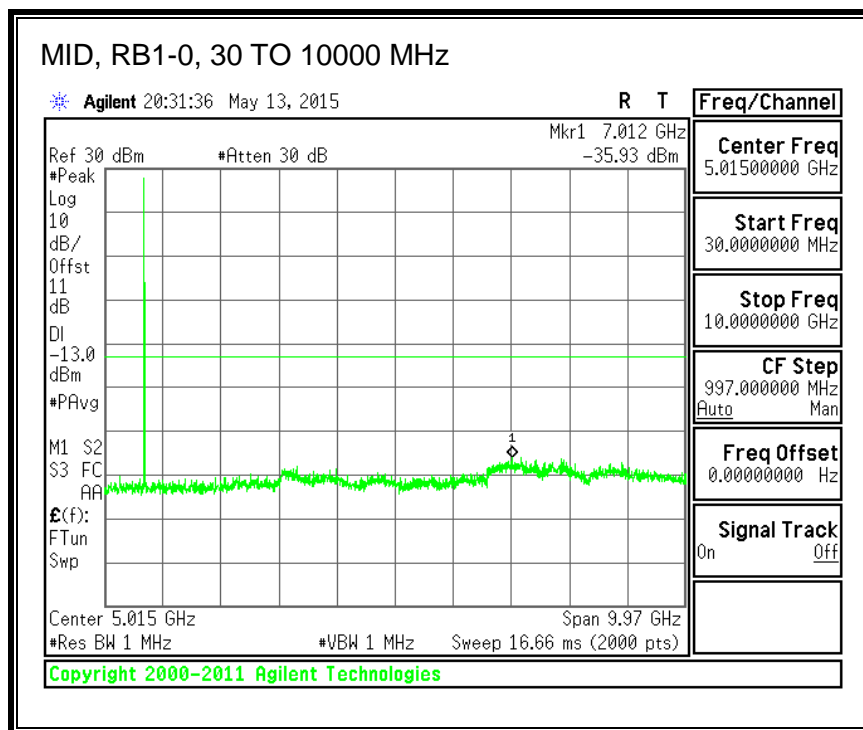
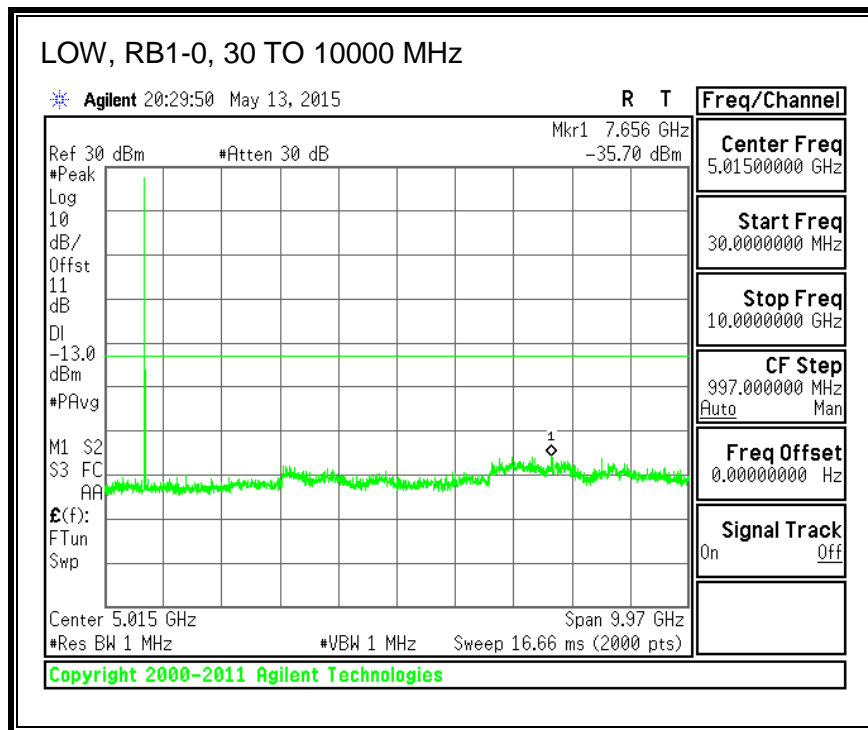
**16QAM, (10.0 MHz BAND WIDTH)**

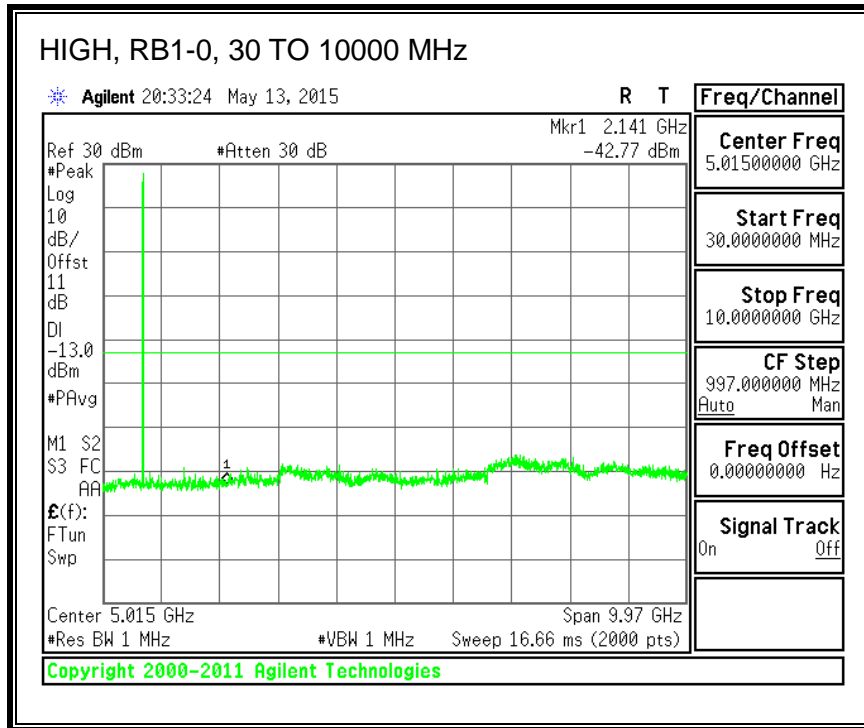




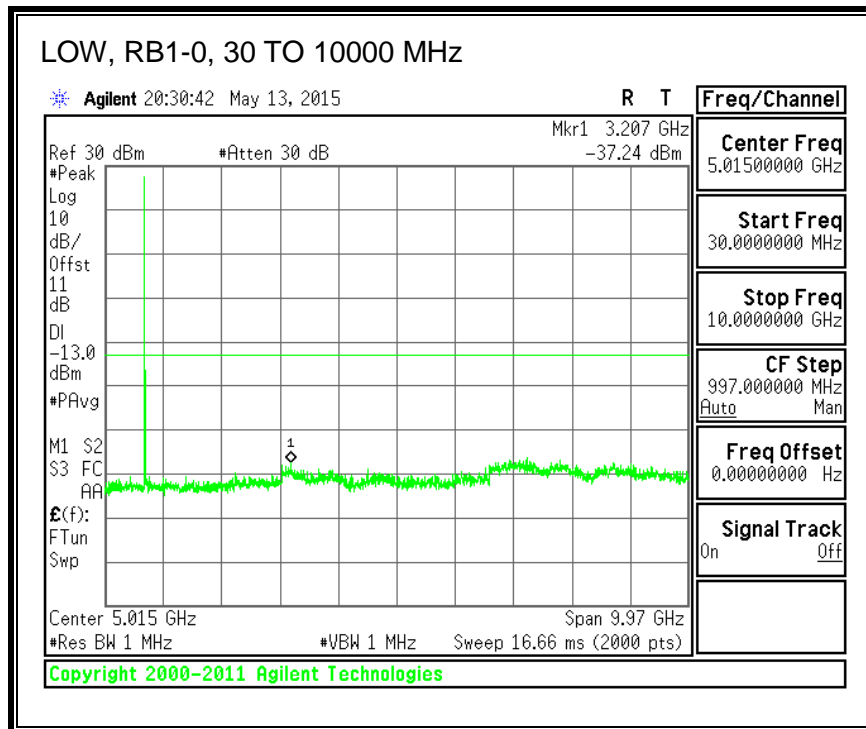
### 8.6.7. LTE BAND 17

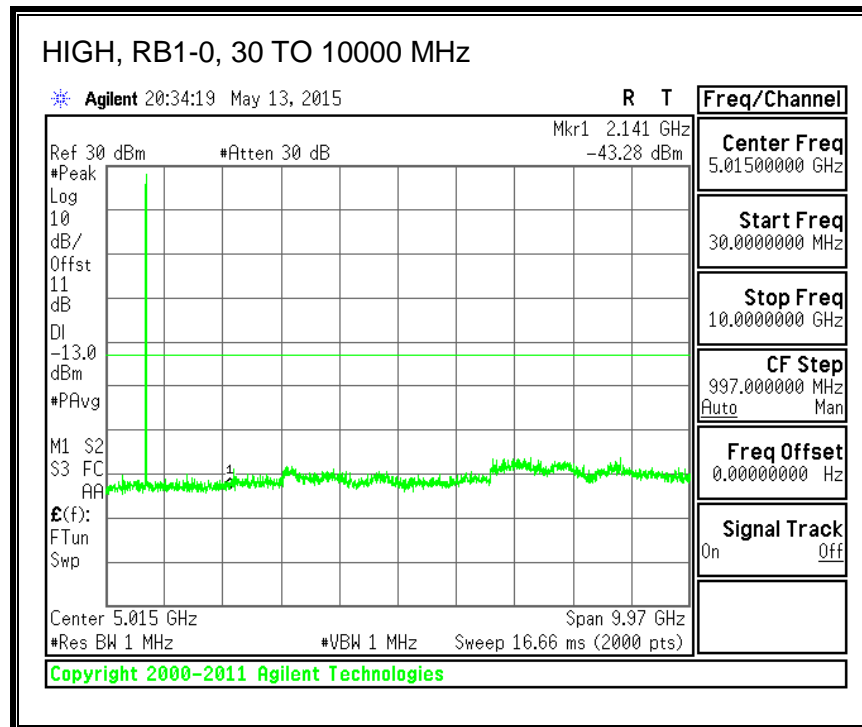
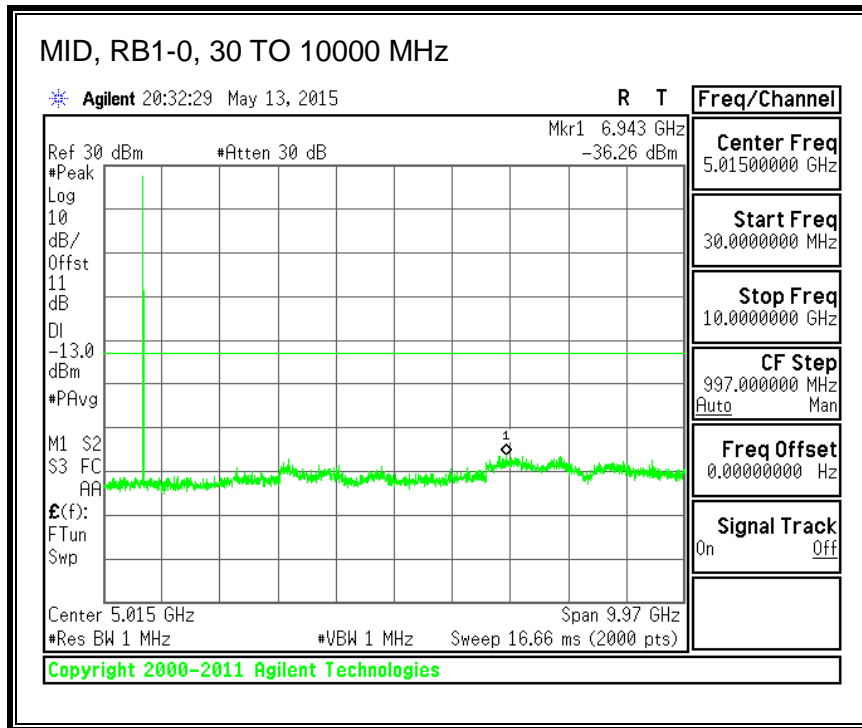
#### QPSK, (5.0 MHz BAND WIDTH)



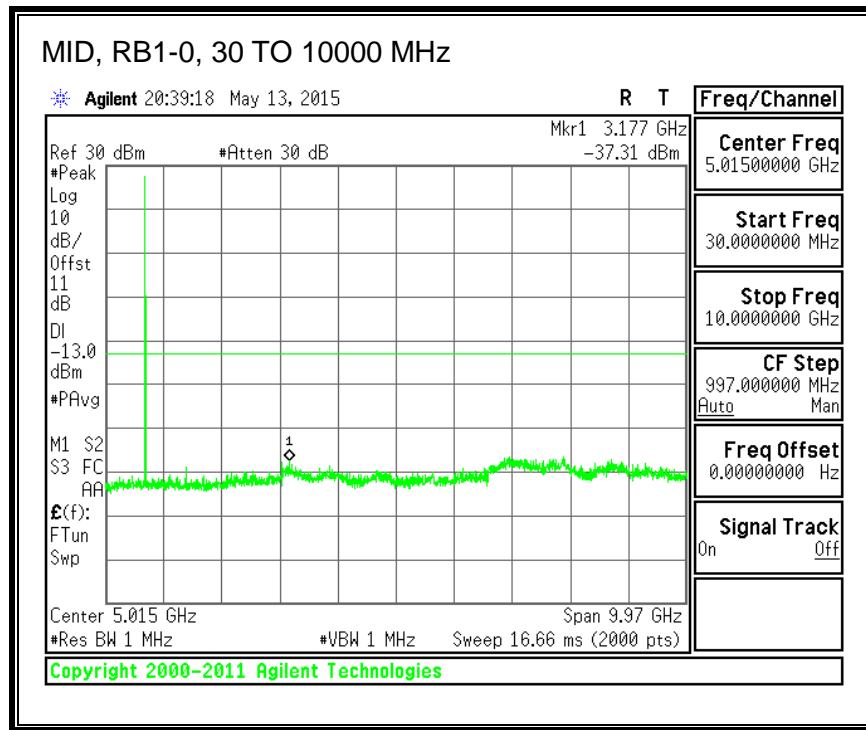
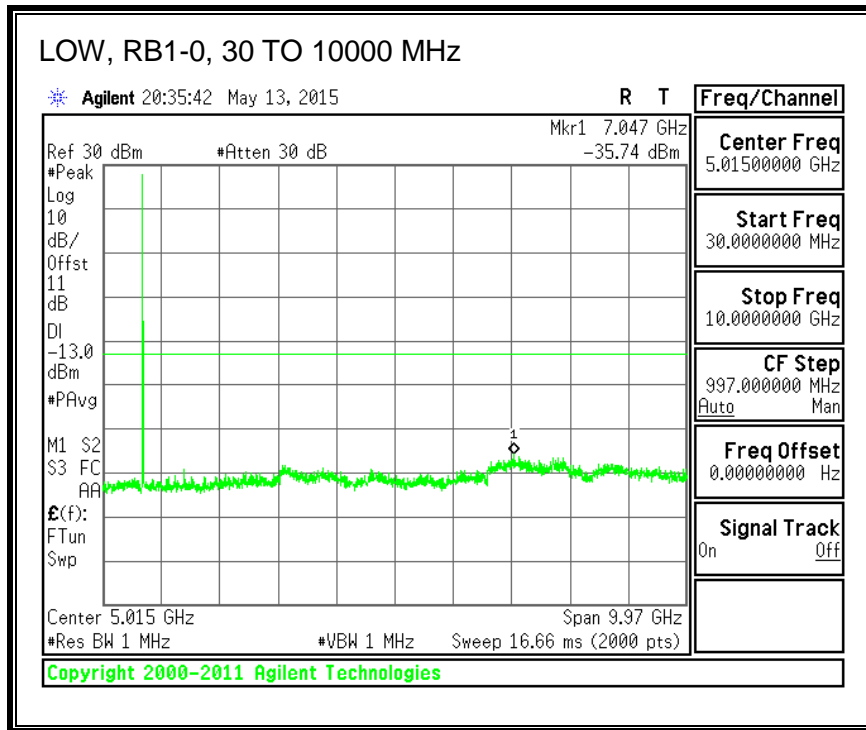


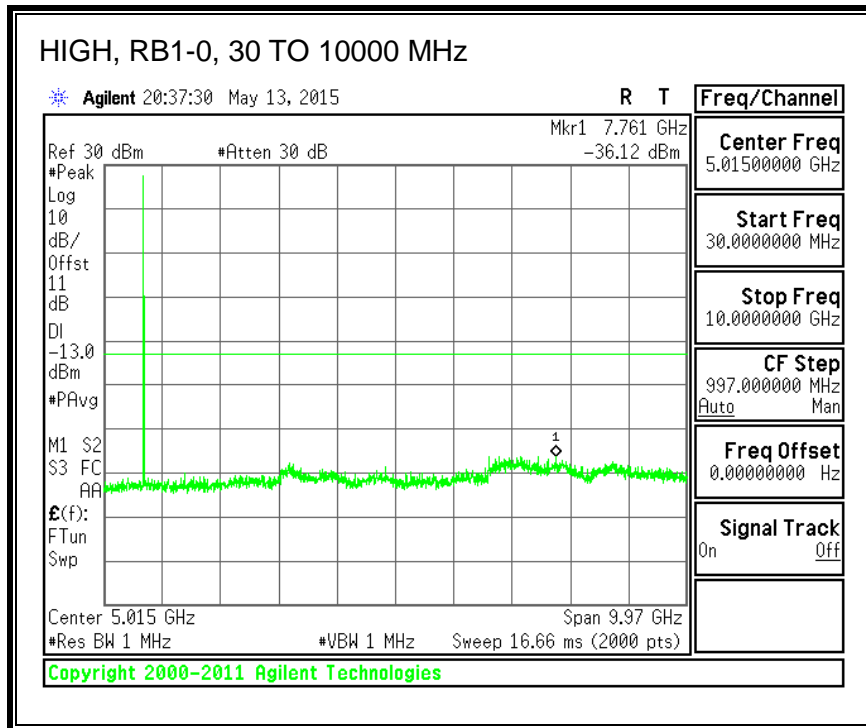
**16QAM, (5.0 MHz BAND WIDTH)**



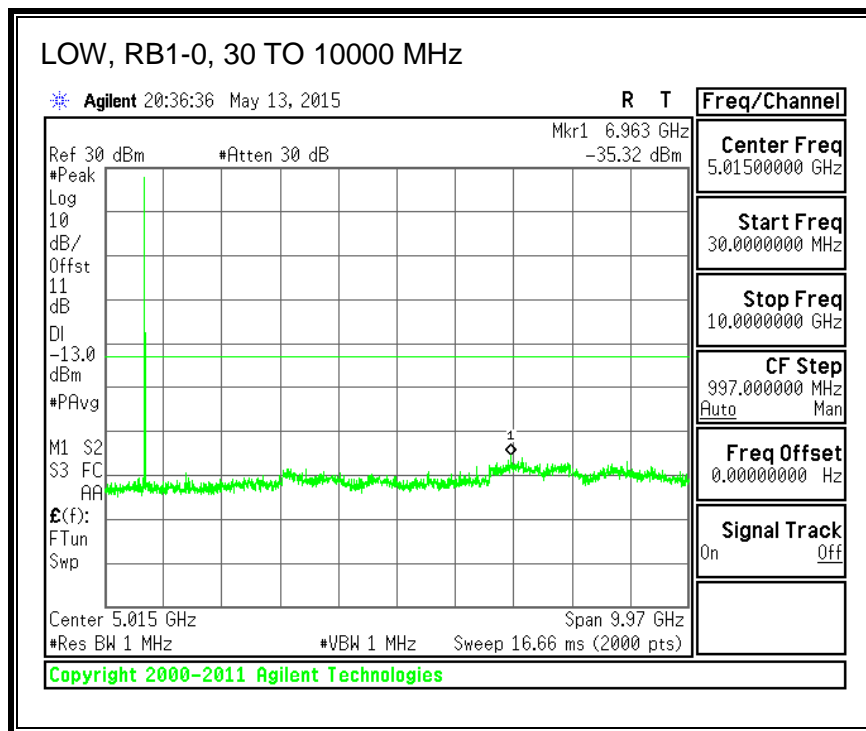


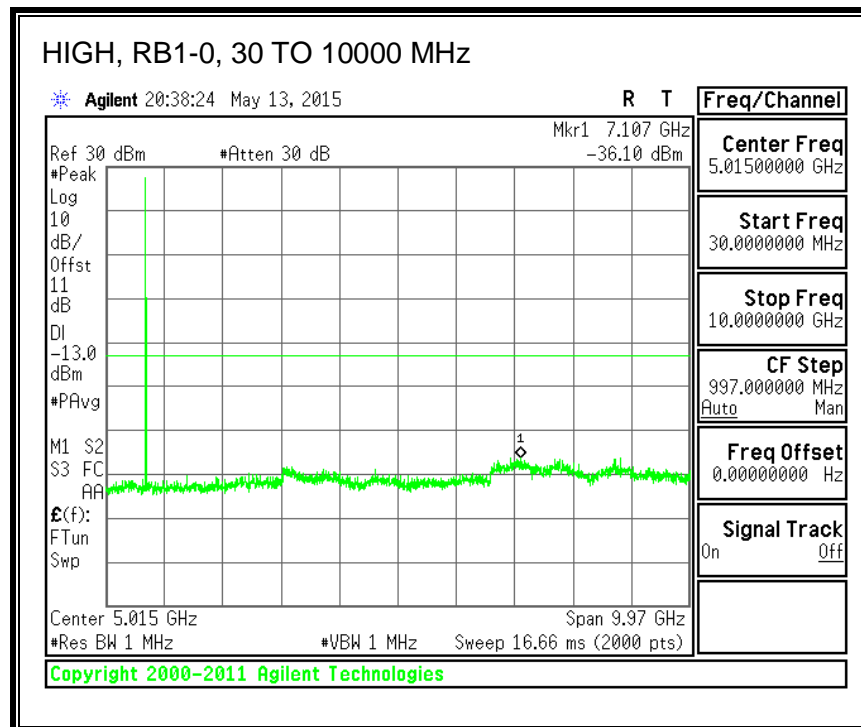
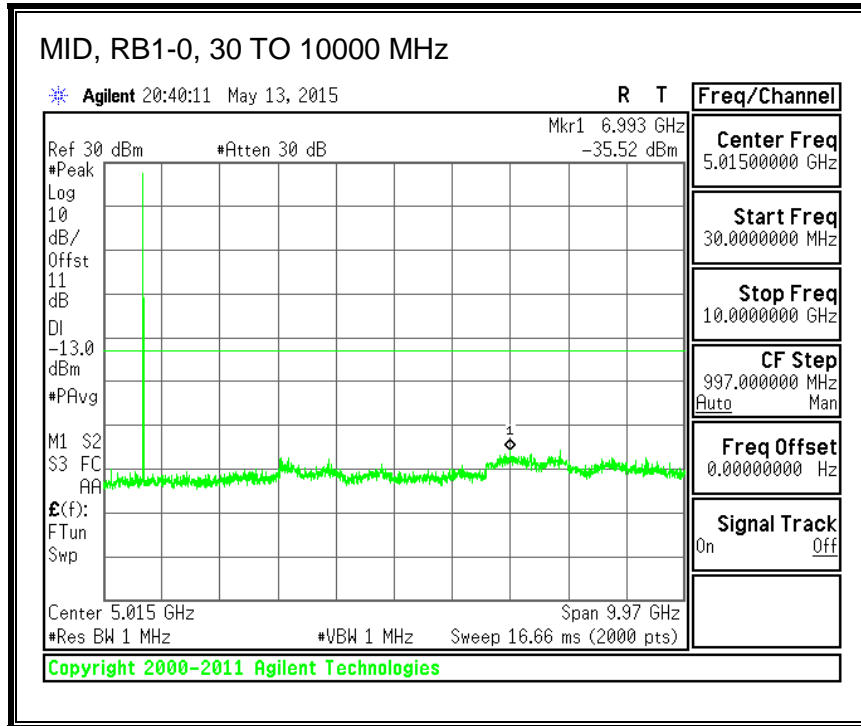
**QPSK, (10.0 MHz BAND WIDTH)**





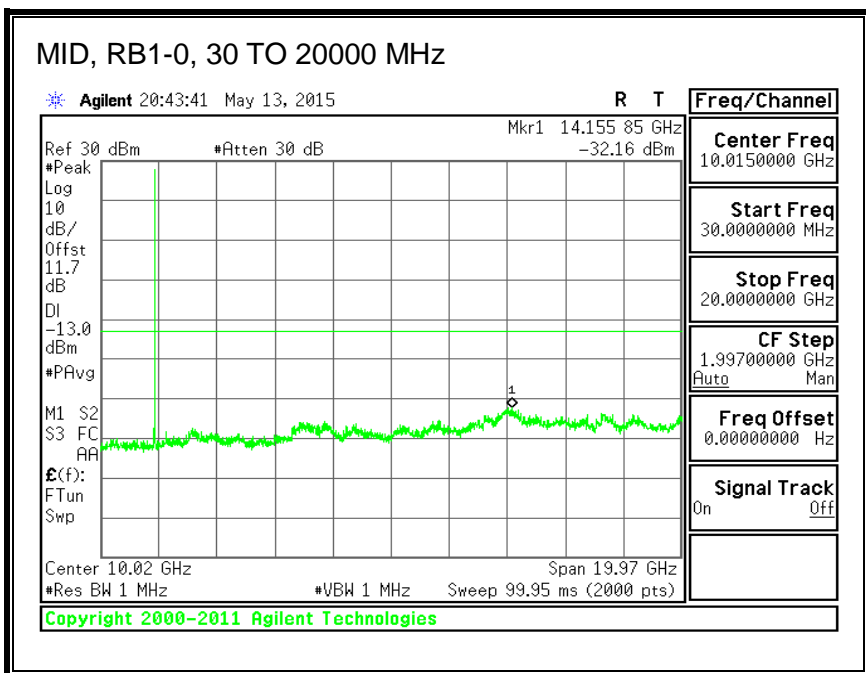
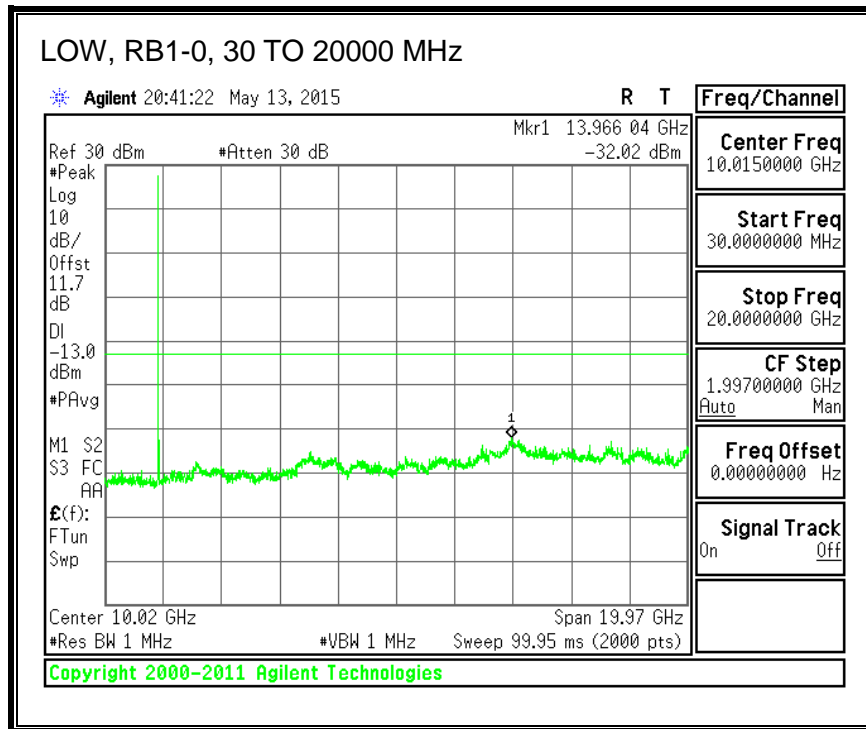
**16QAM, (10.0 MHz BAND WIDTH)**

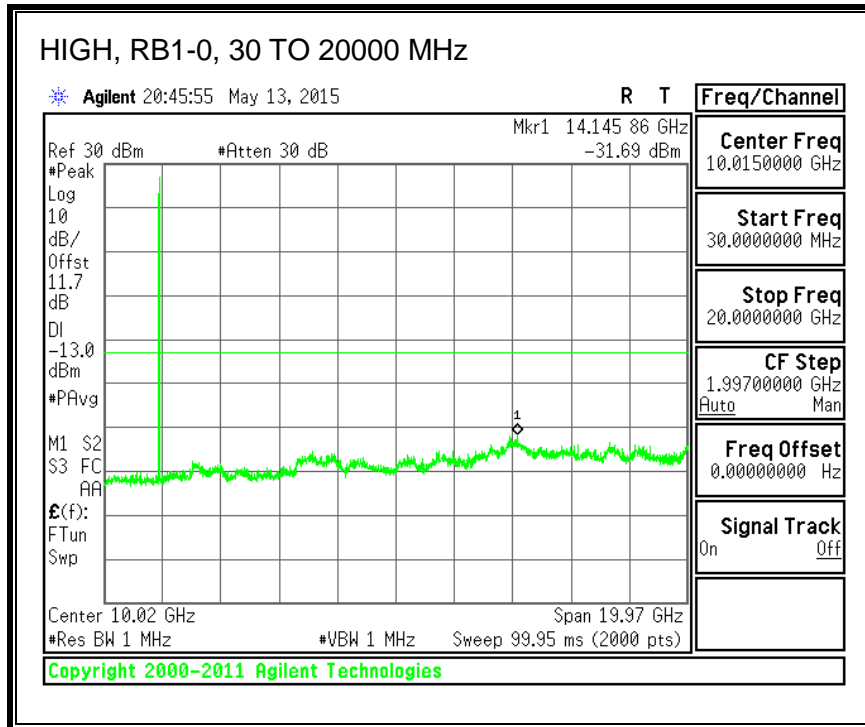




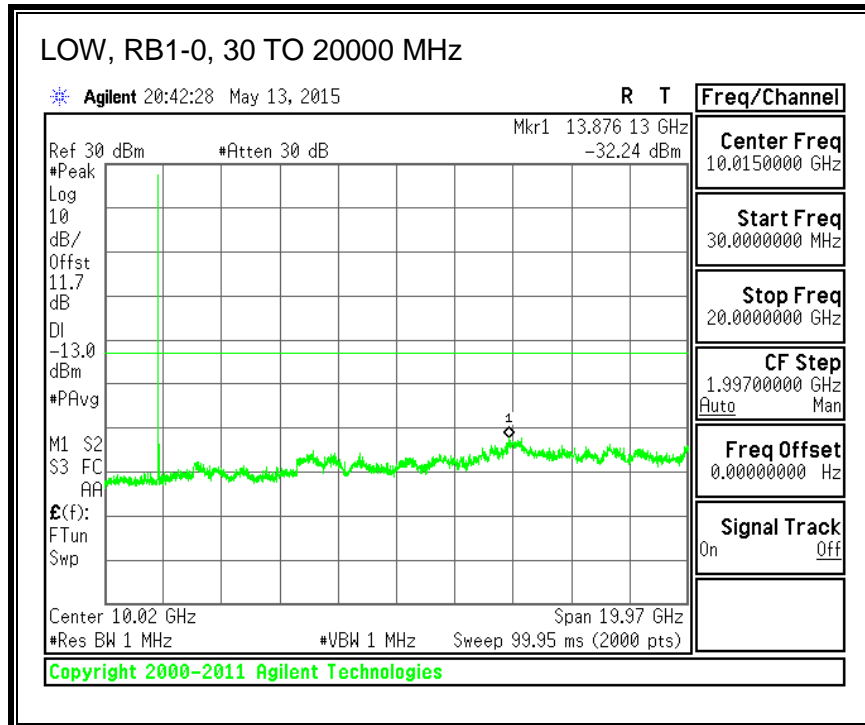
### 8.6.8. LTE BAND 25

#### QPSK, (1.4 MHz BAND WIDTH)

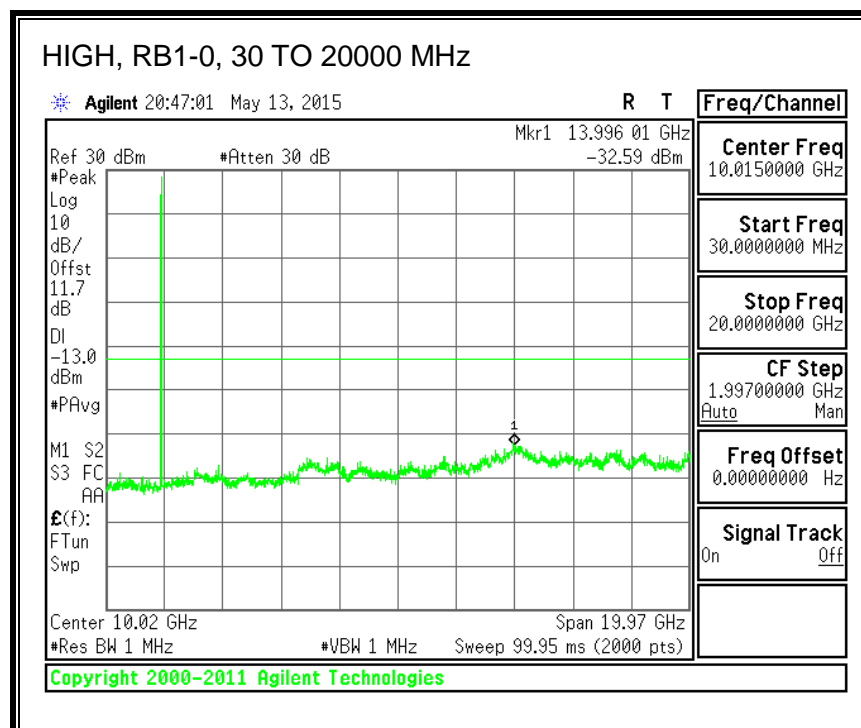
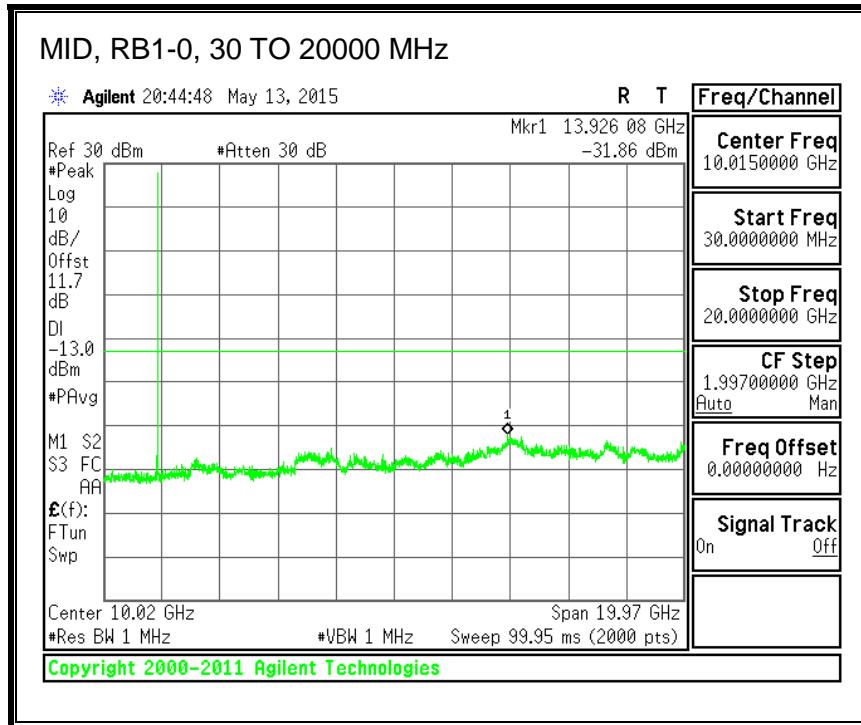




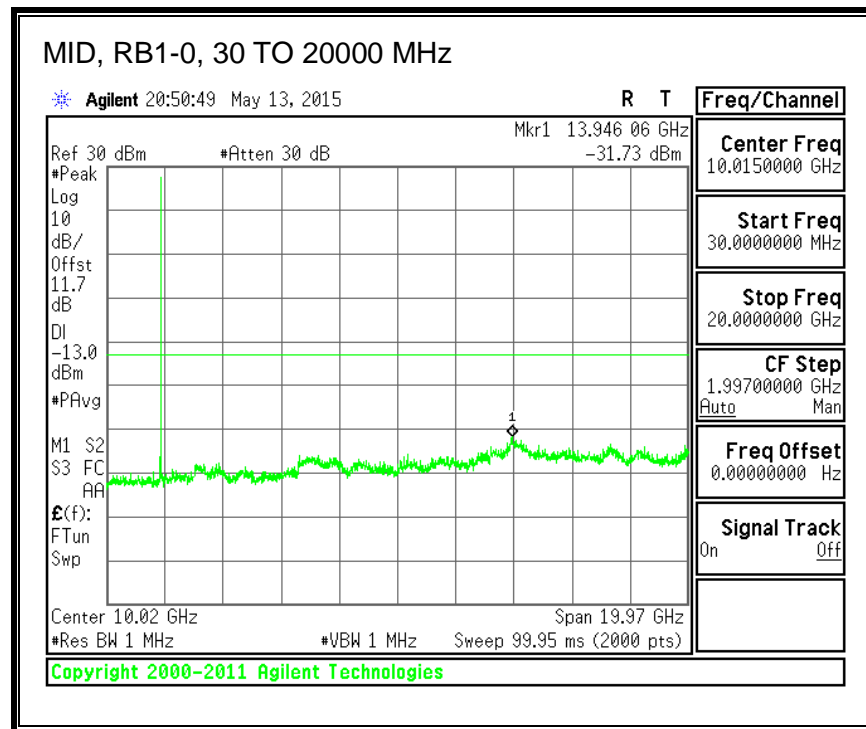
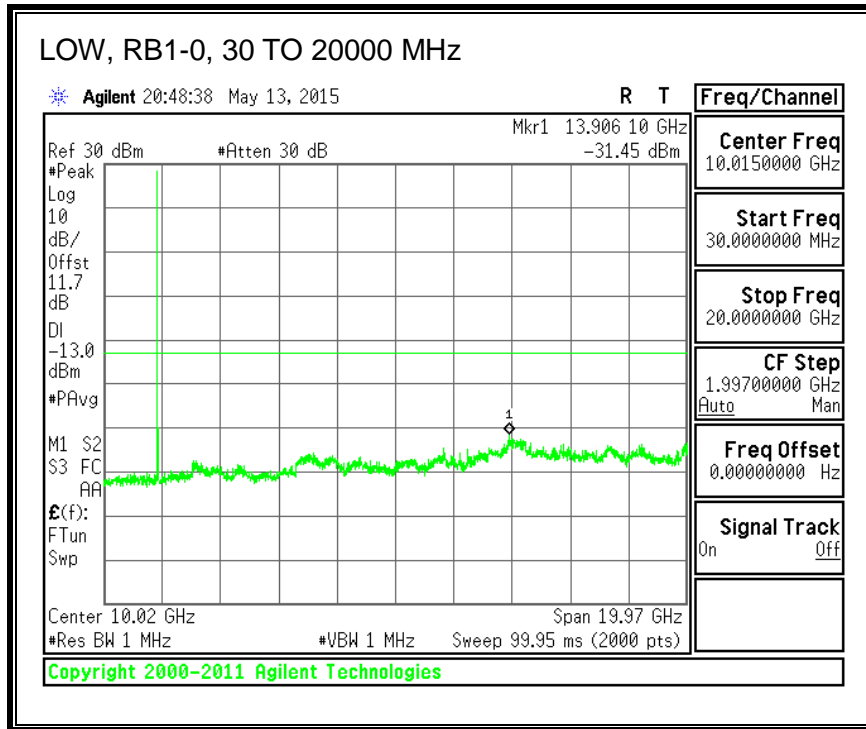
**16QAM, (1.4 MHz BAND WIDTH)**

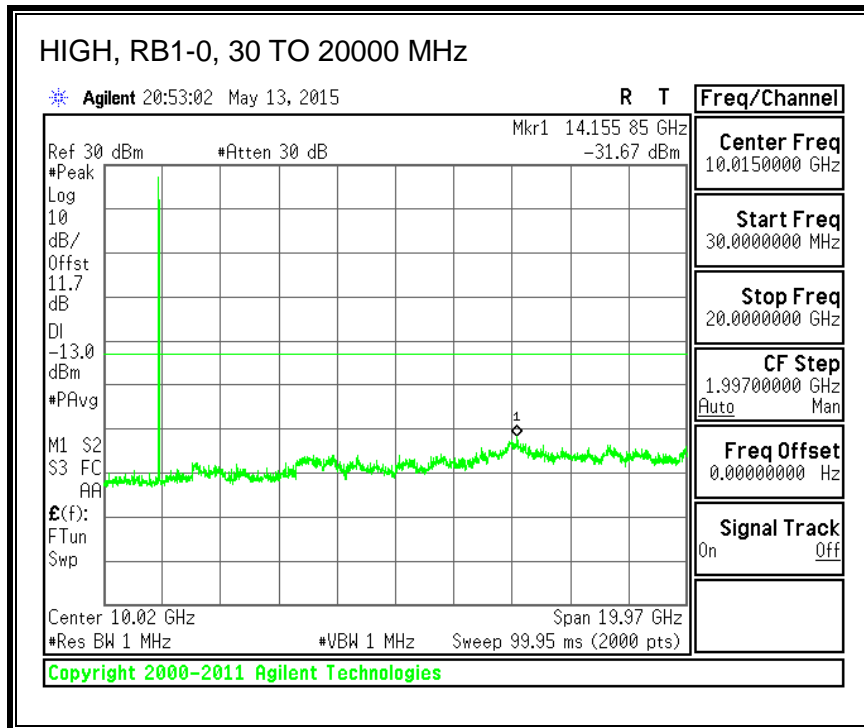




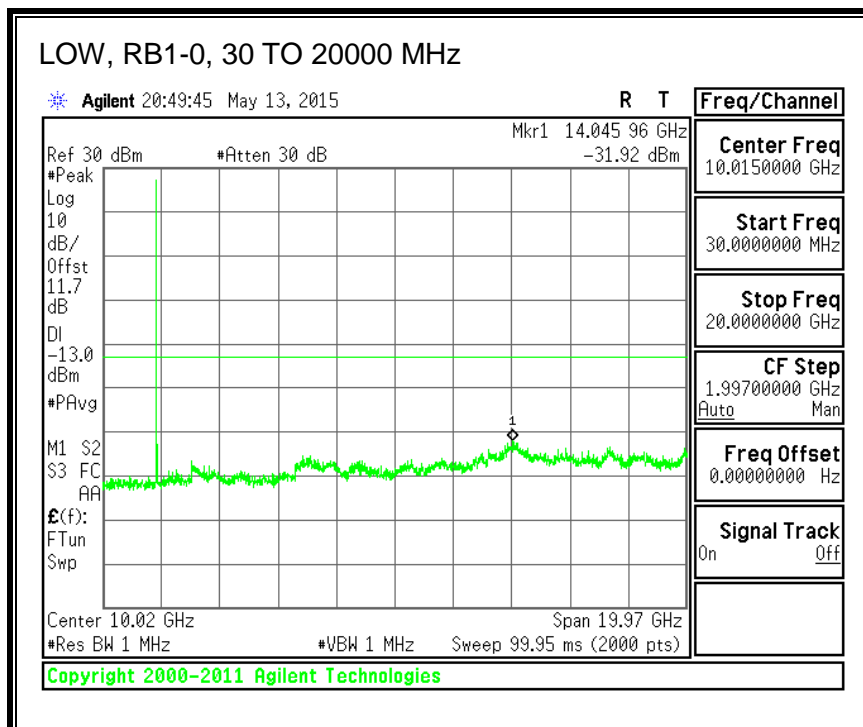


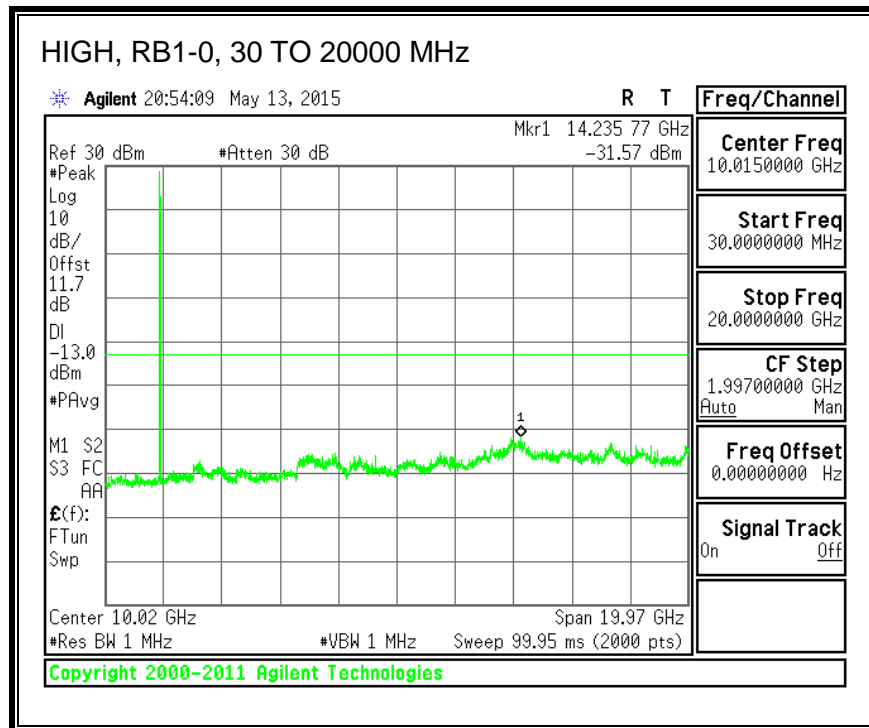
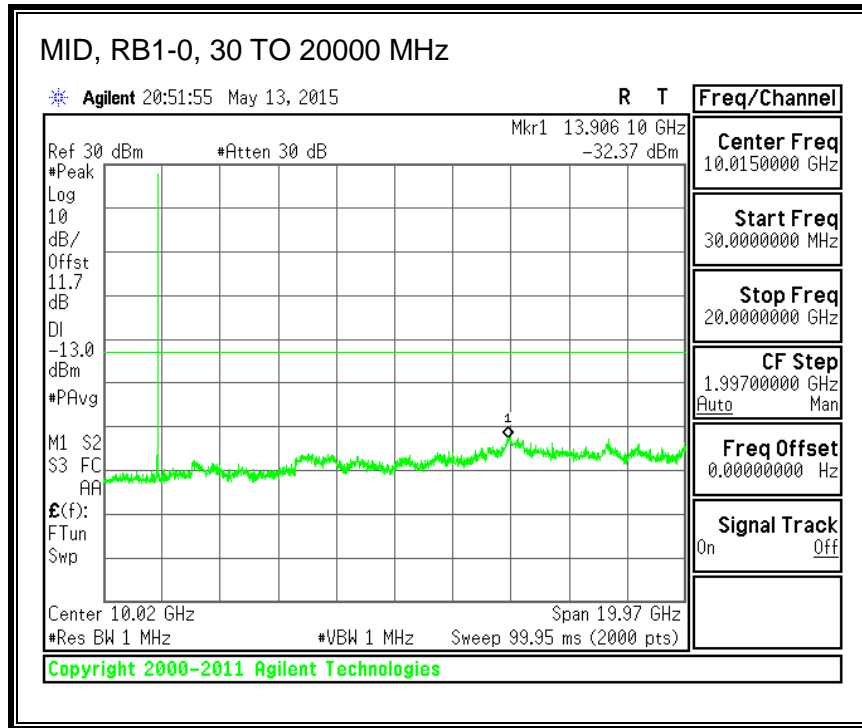
**QPSK, (3.0 MHz BAND WIDTH)**



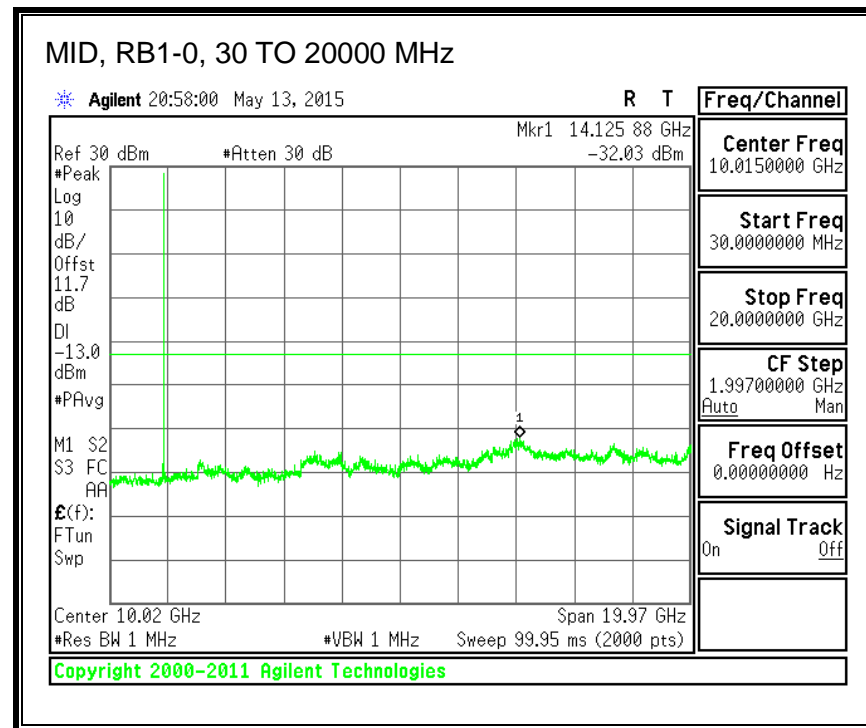
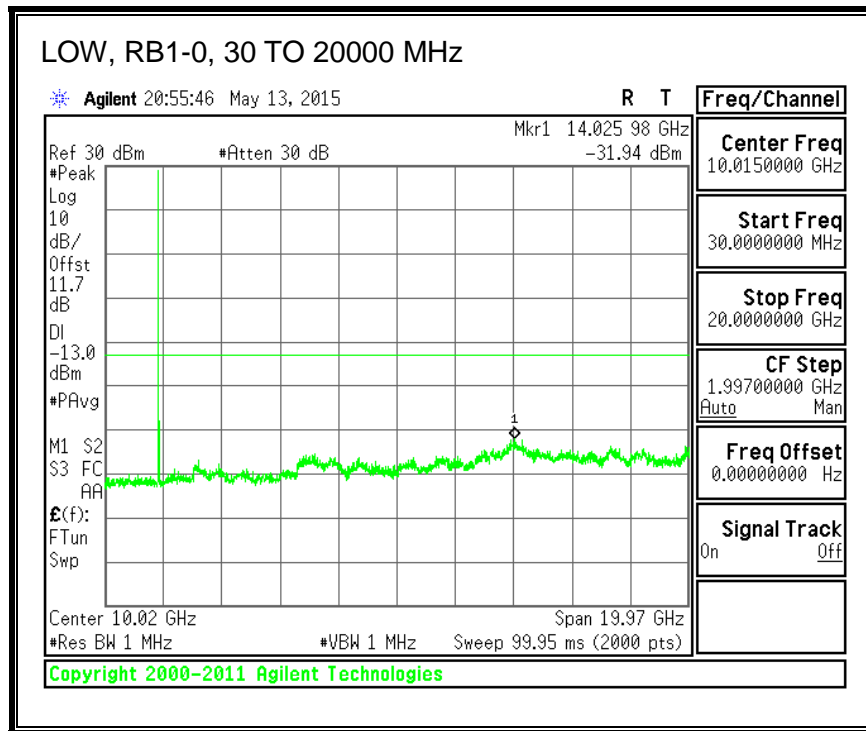


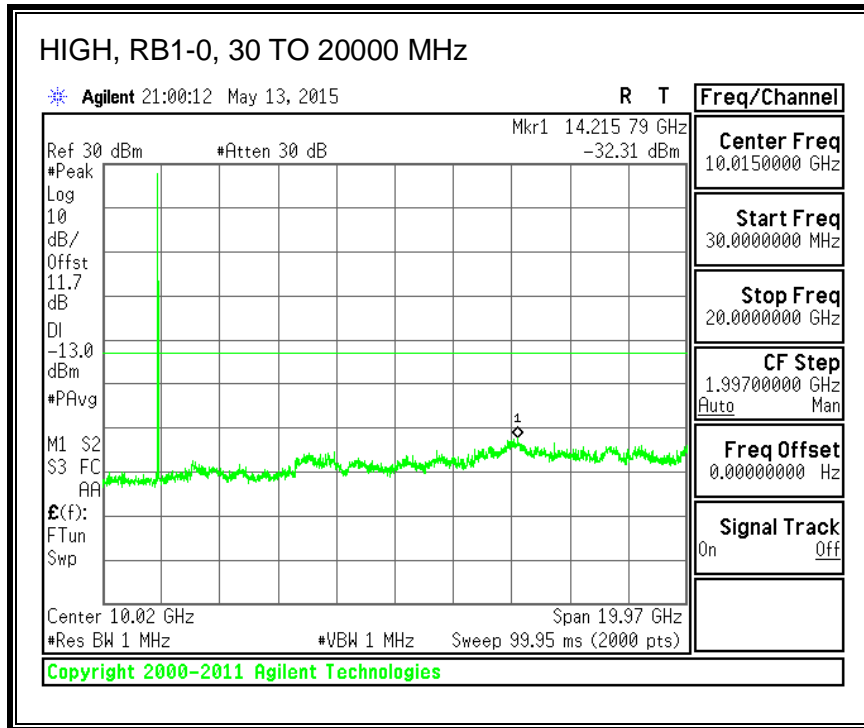
**16QAM, (3.0 MHz BAND WIDTH)**



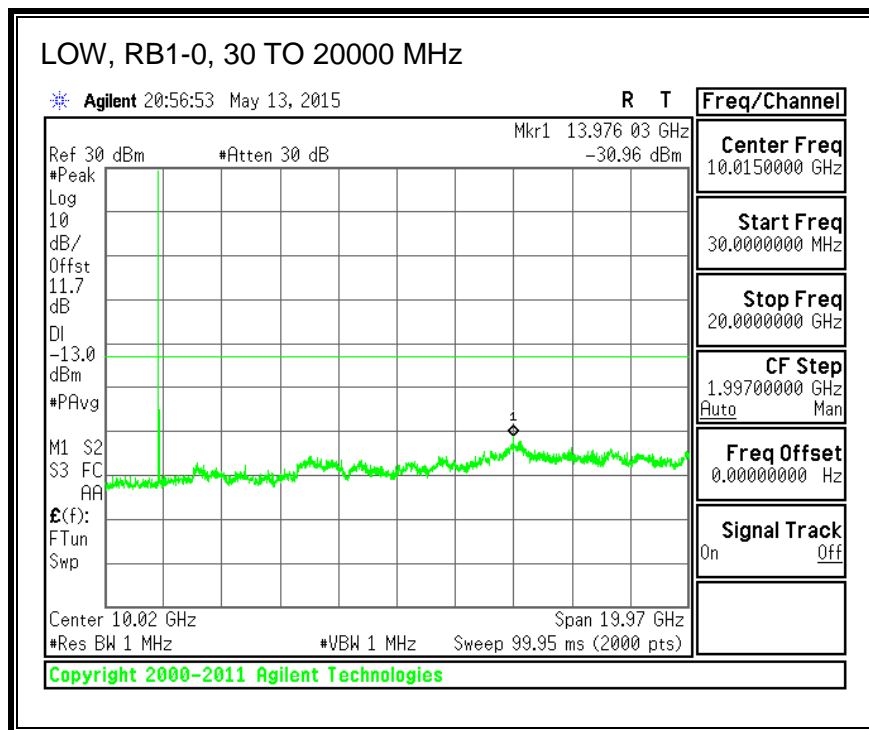


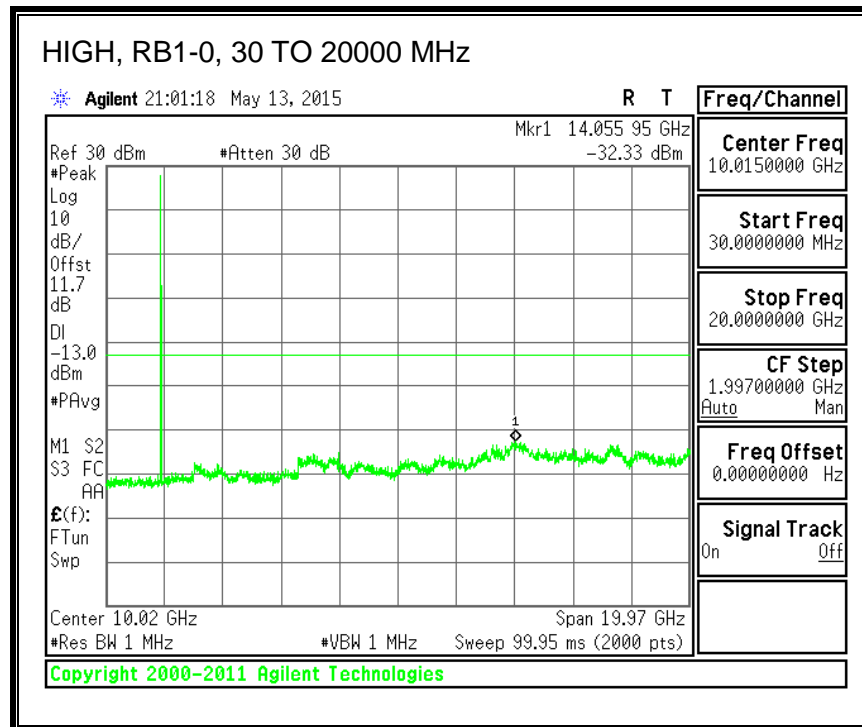
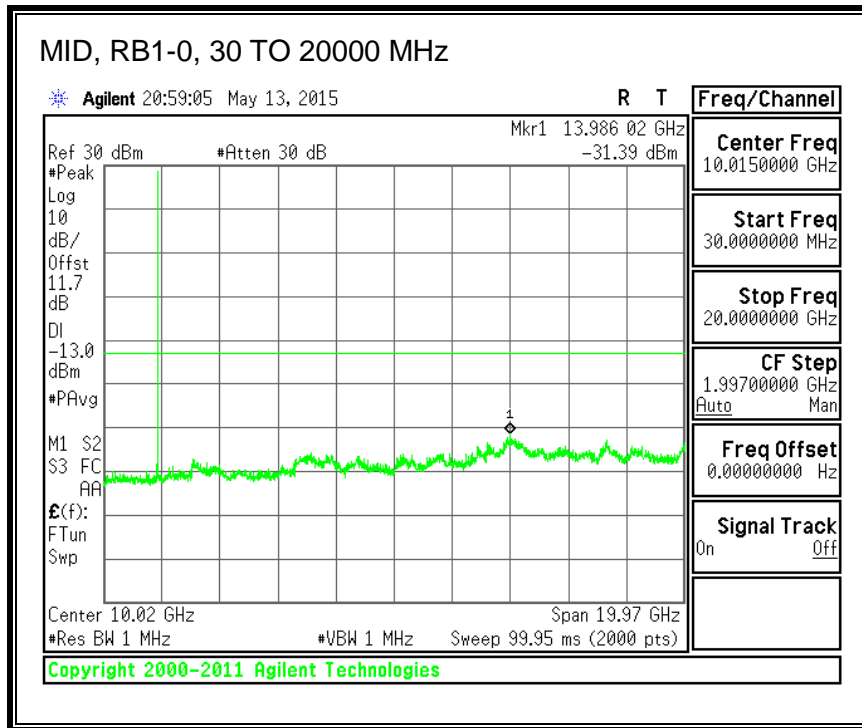
**QPSK, (5.0 MHz BAND WIDTH)**



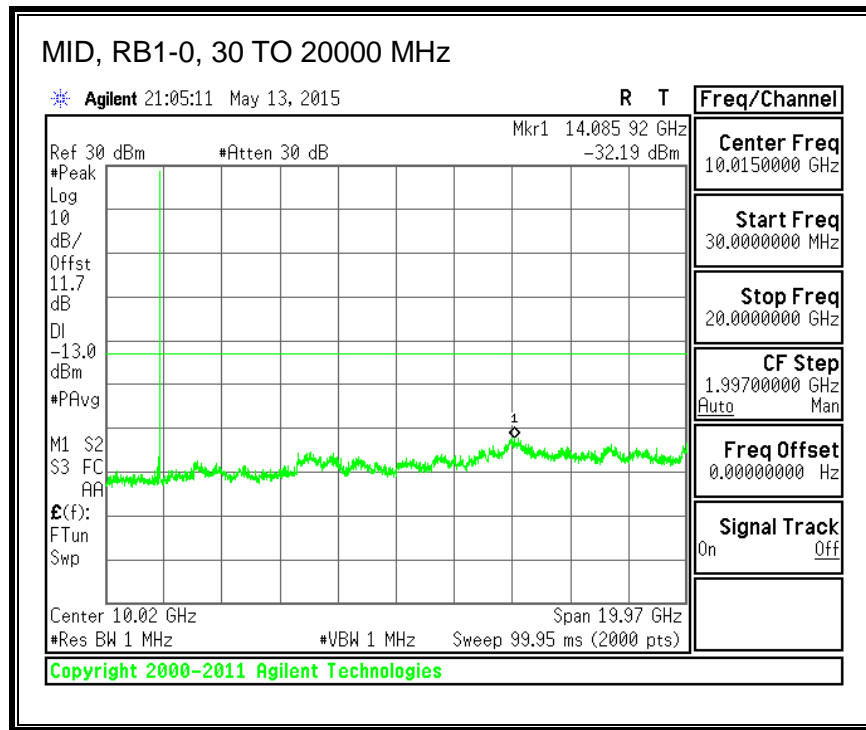
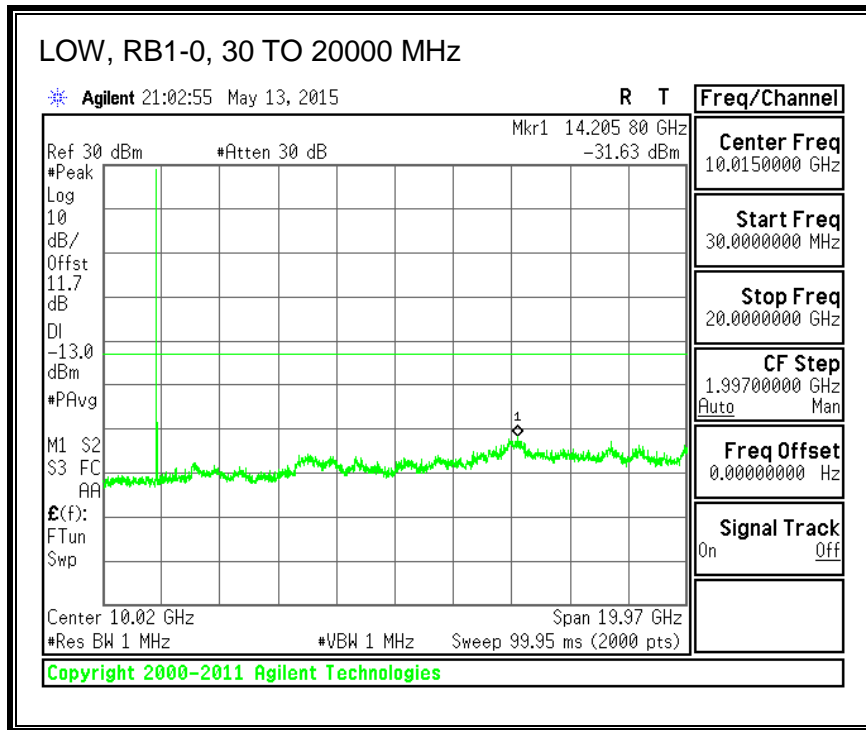


**16QAM, (5.0 MHz BAND WIDTH)**

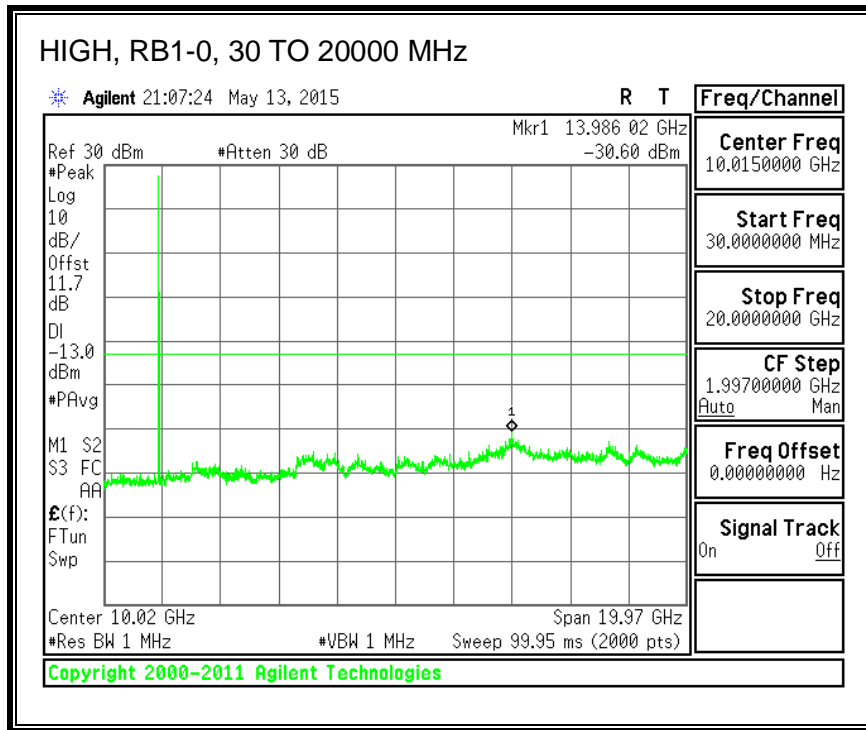




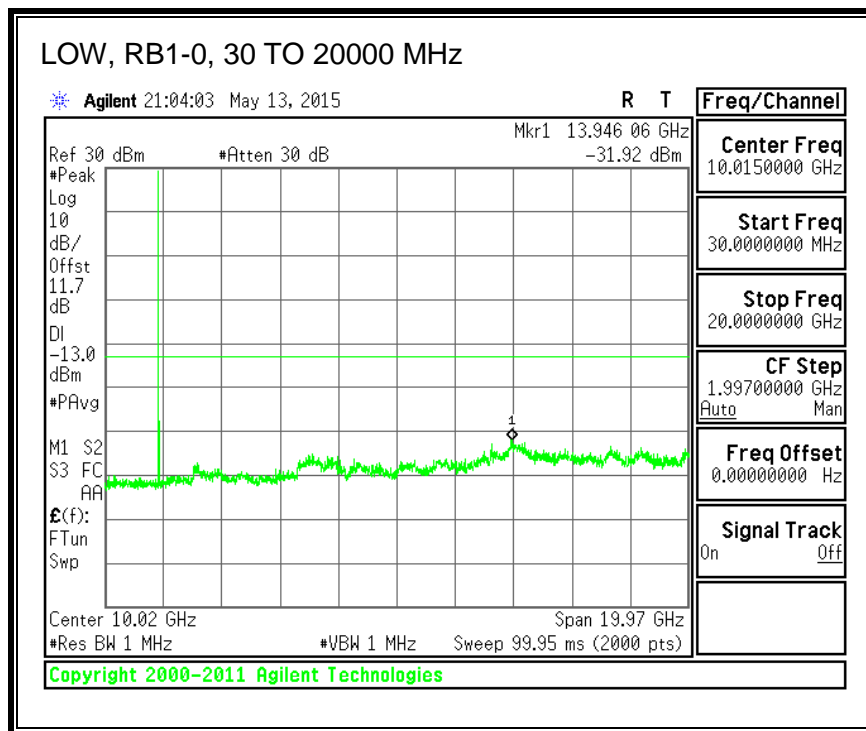
**QPSK, (10.0 MHz BAND WIDTH)**

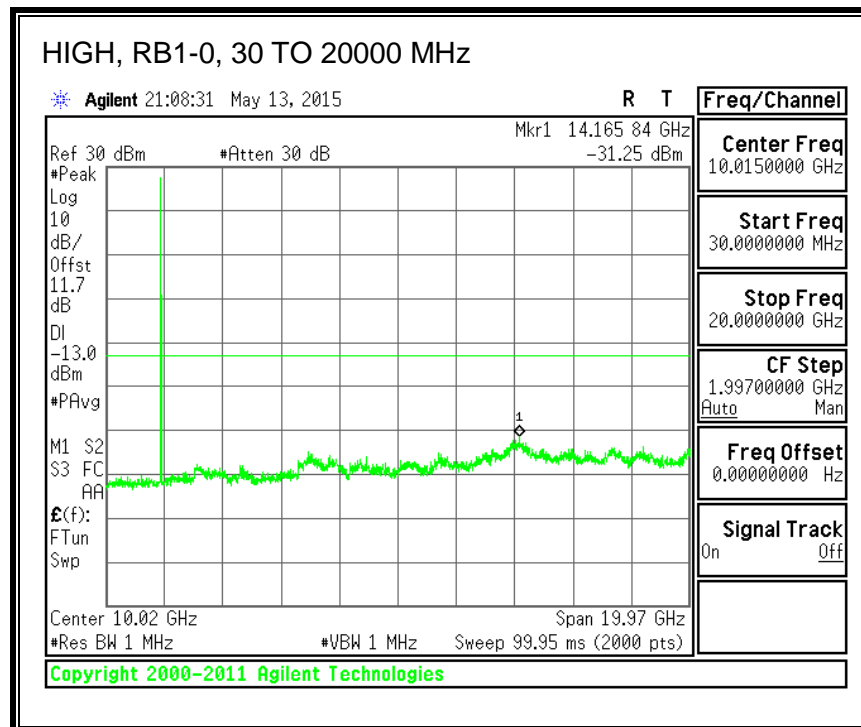
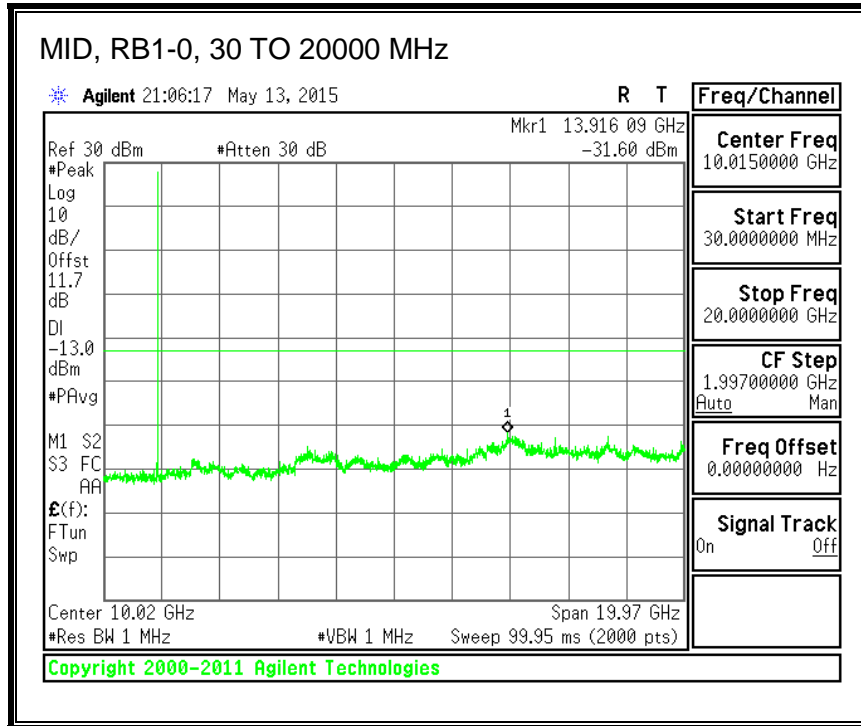




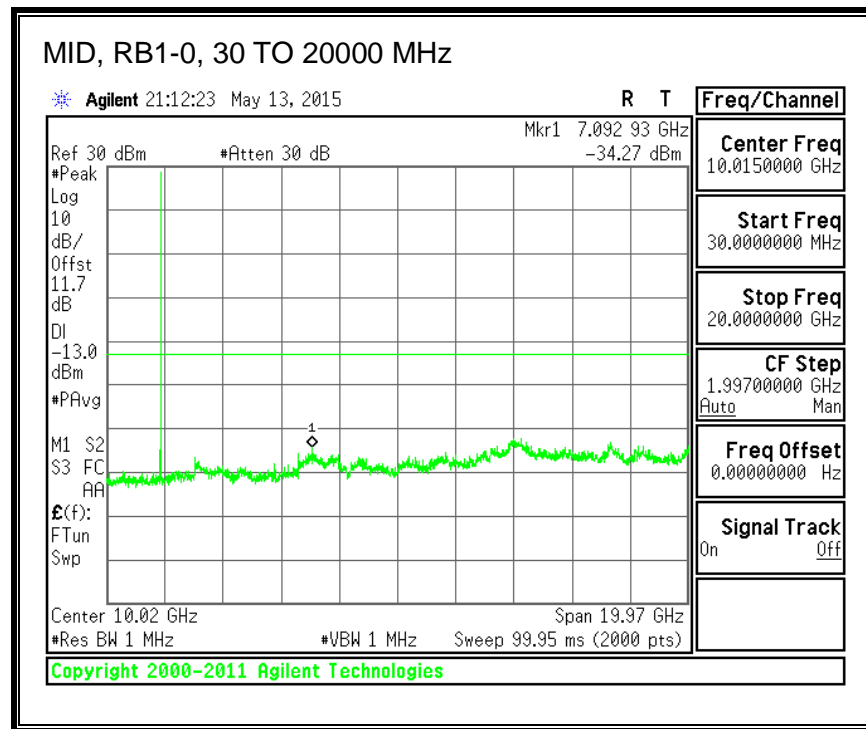
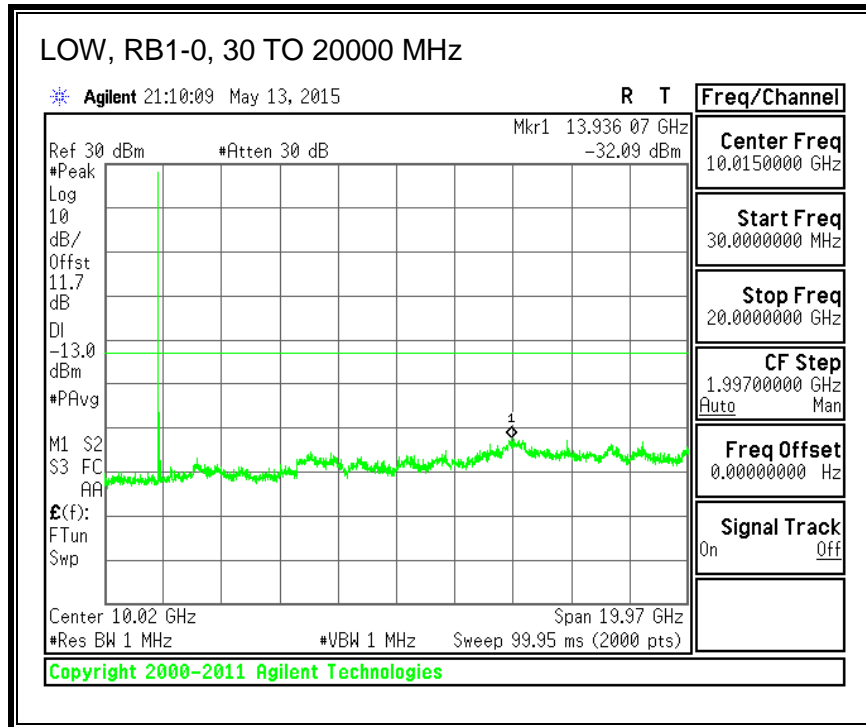


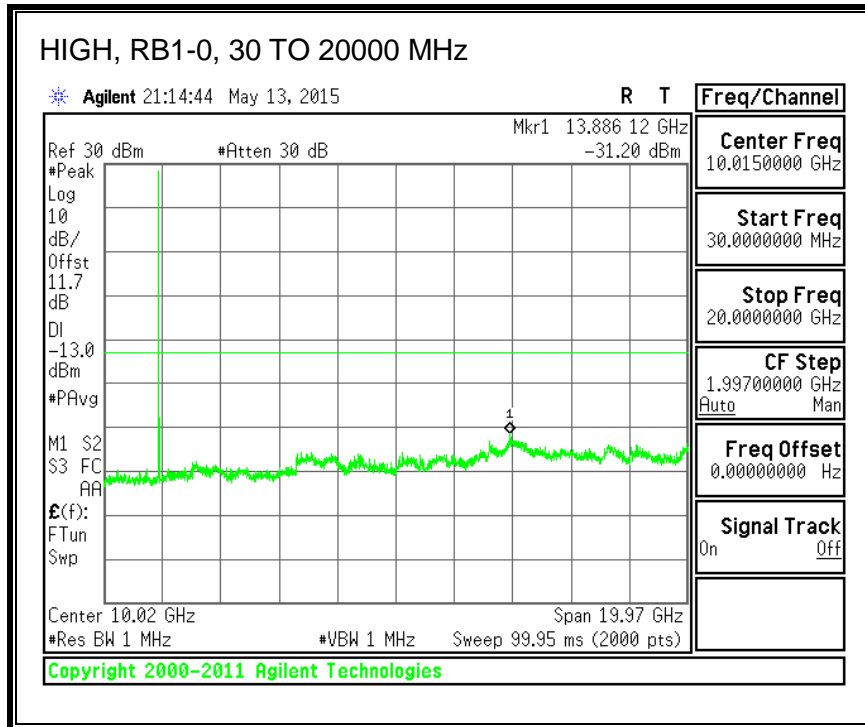
**16QAM, (10.0 MHz BAND WIDTH)**



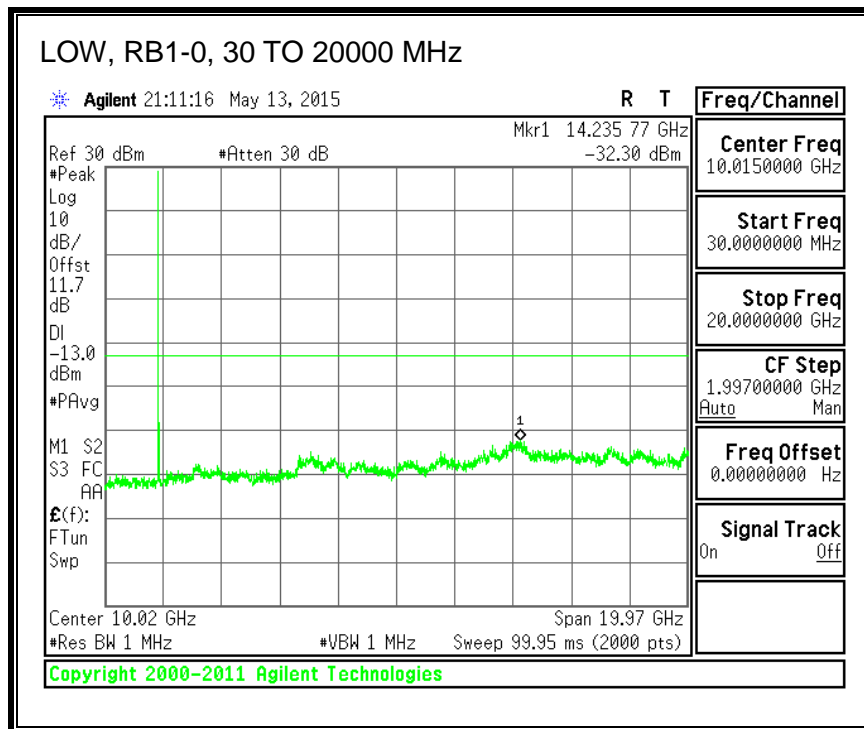


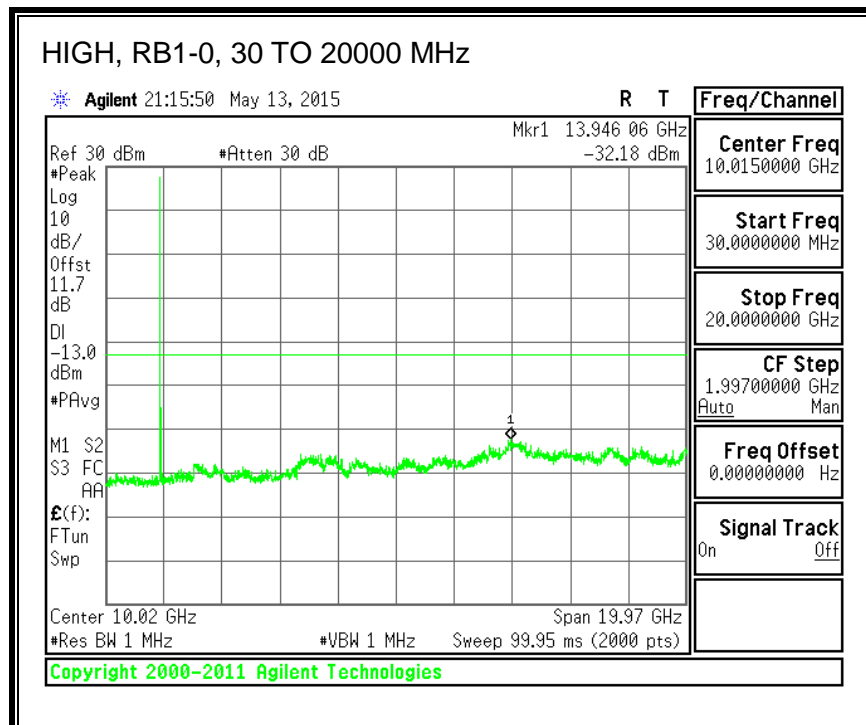
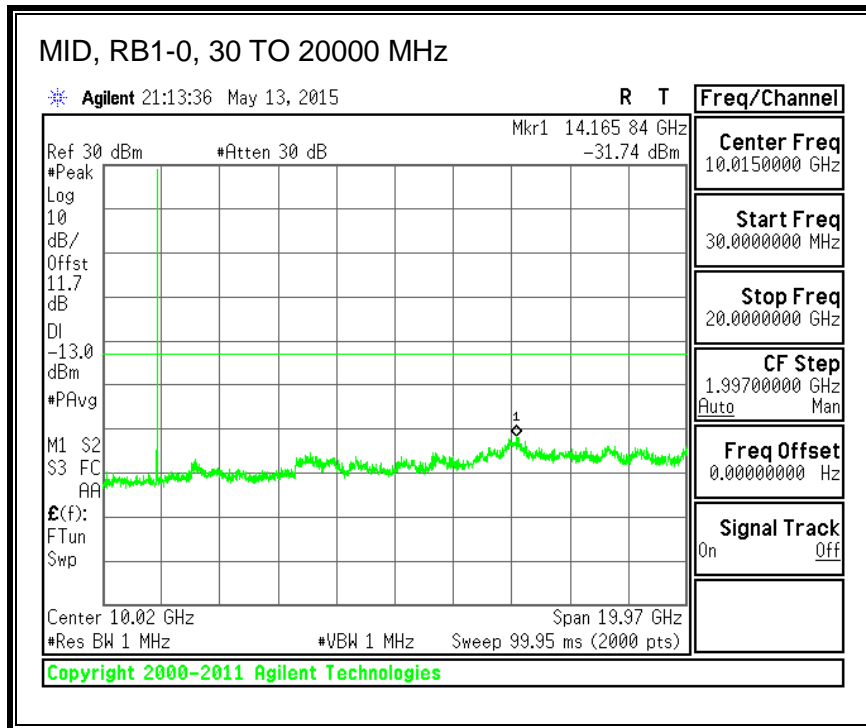
**QPSK, (15.0 MHz BAND WIDTH)**



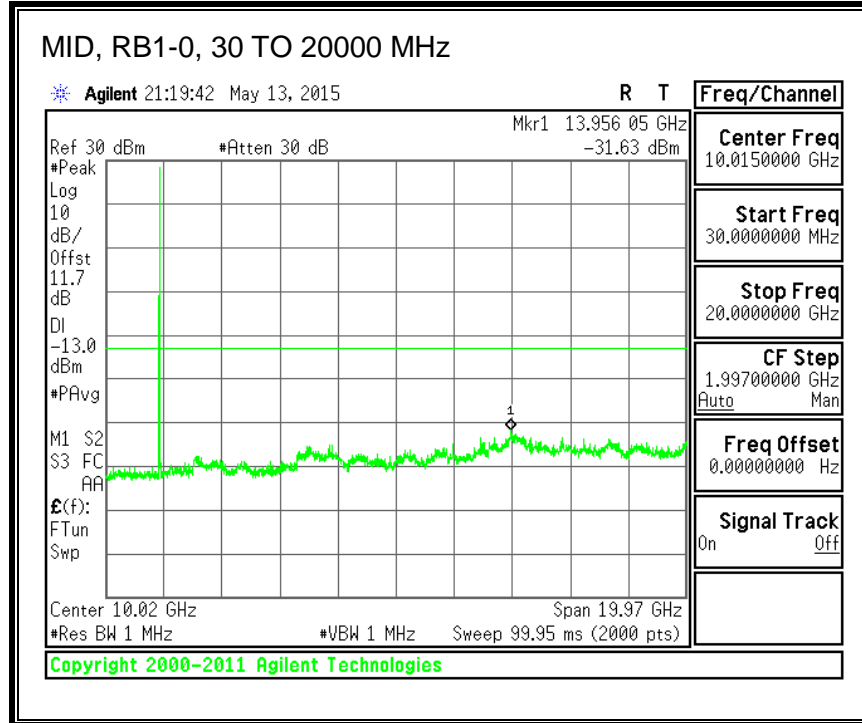
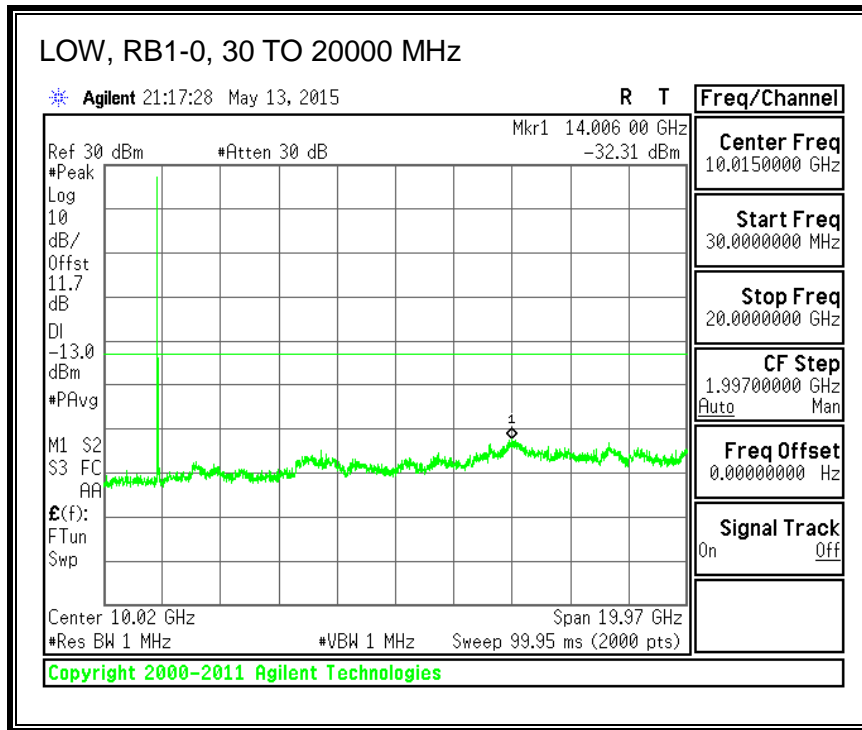


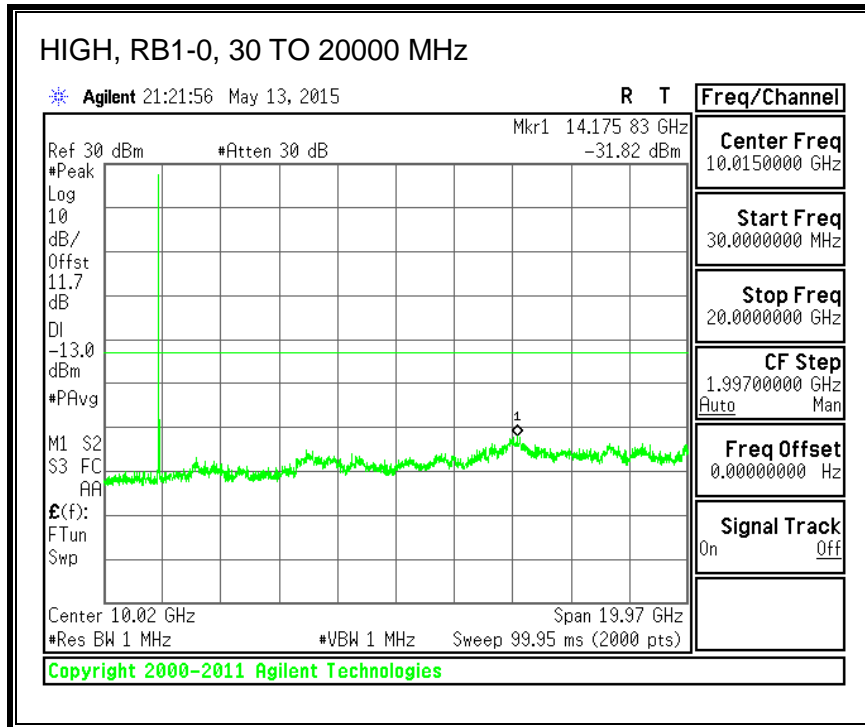
**16QAM, (15.0 MHz BAND WIDTH)**



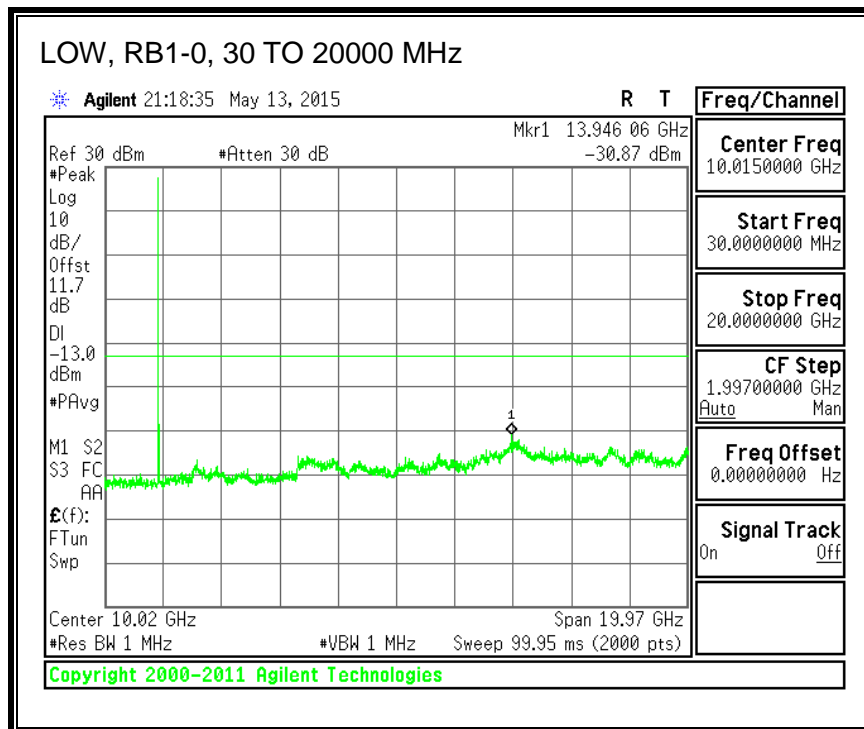


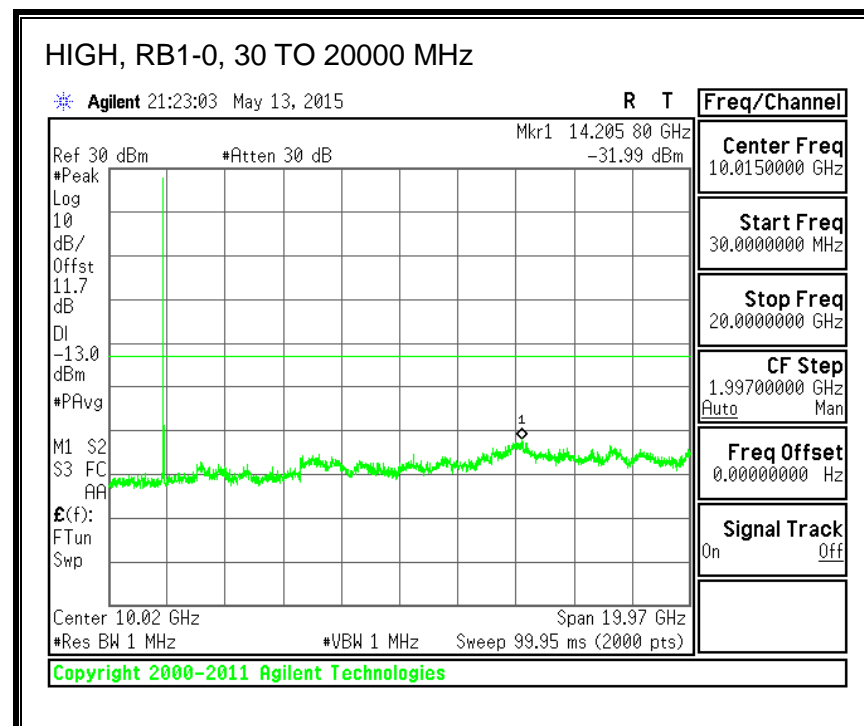
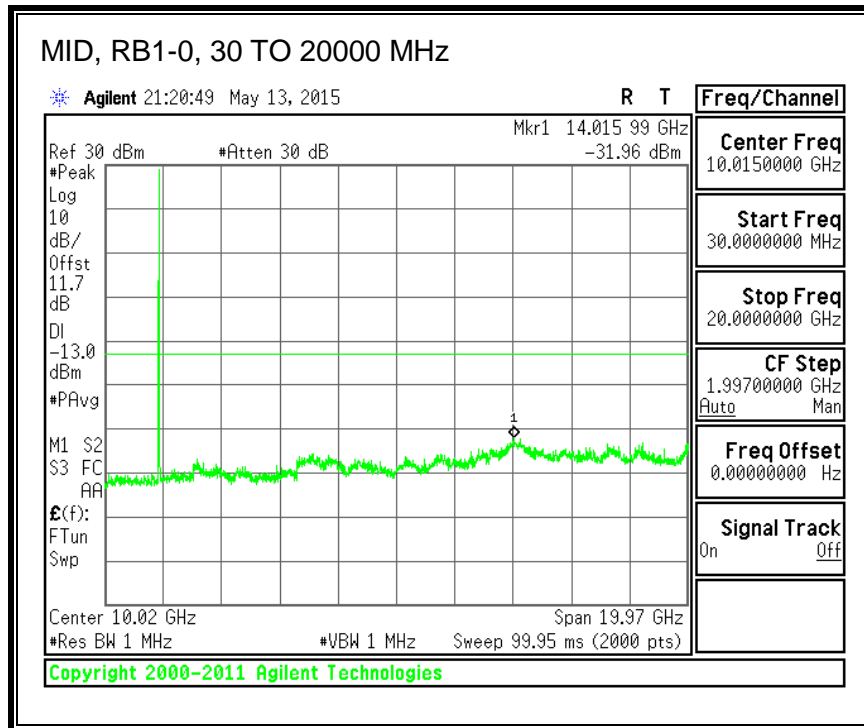
**QPSK, (20.0 MHz BAND WIDTH)**





**16QAM, (20.0 MHz BAND WIDTH)**

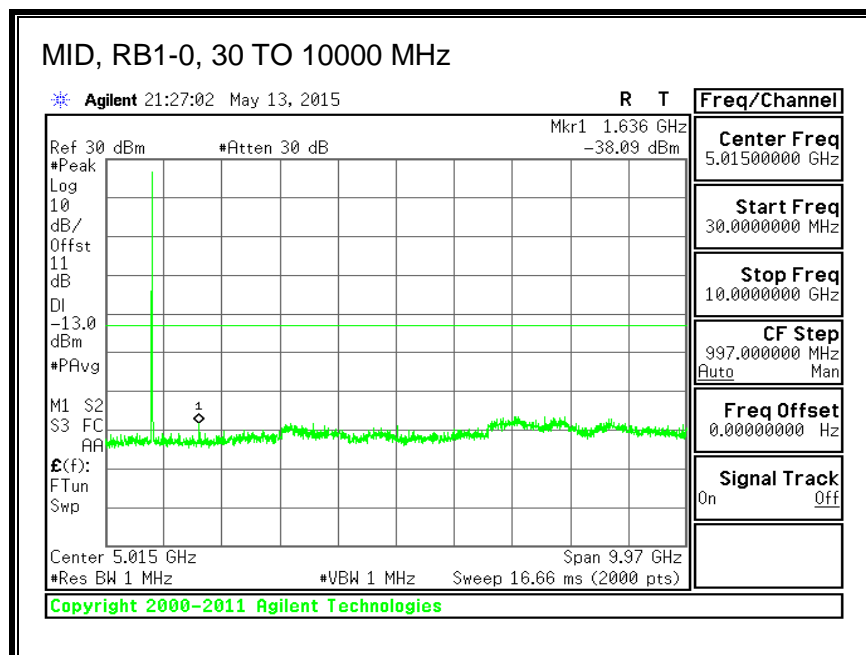
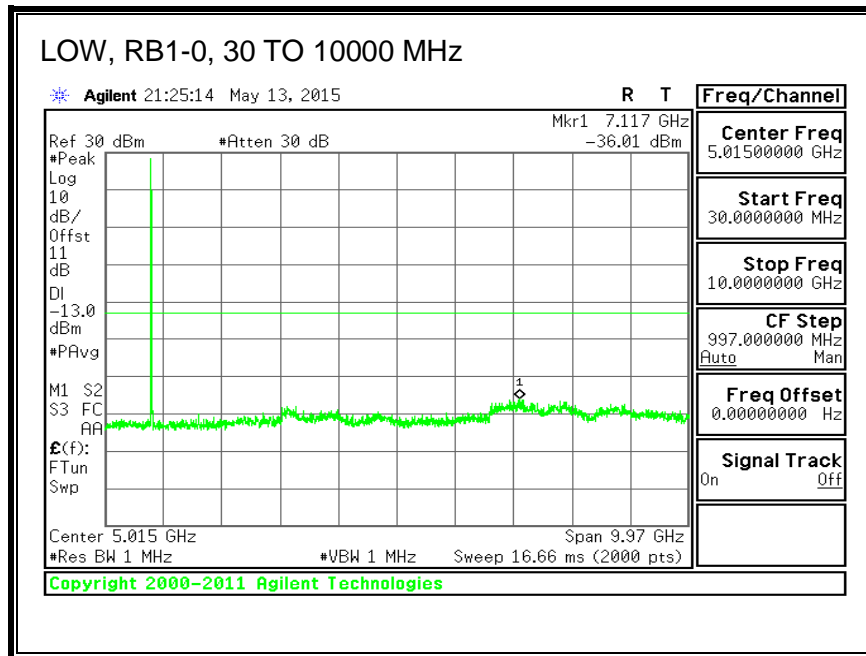


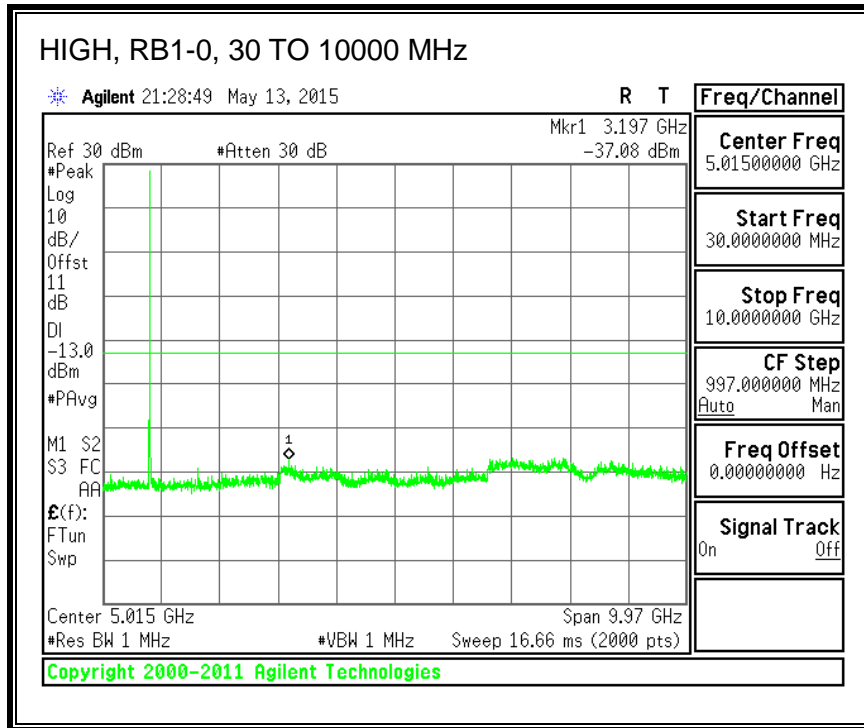




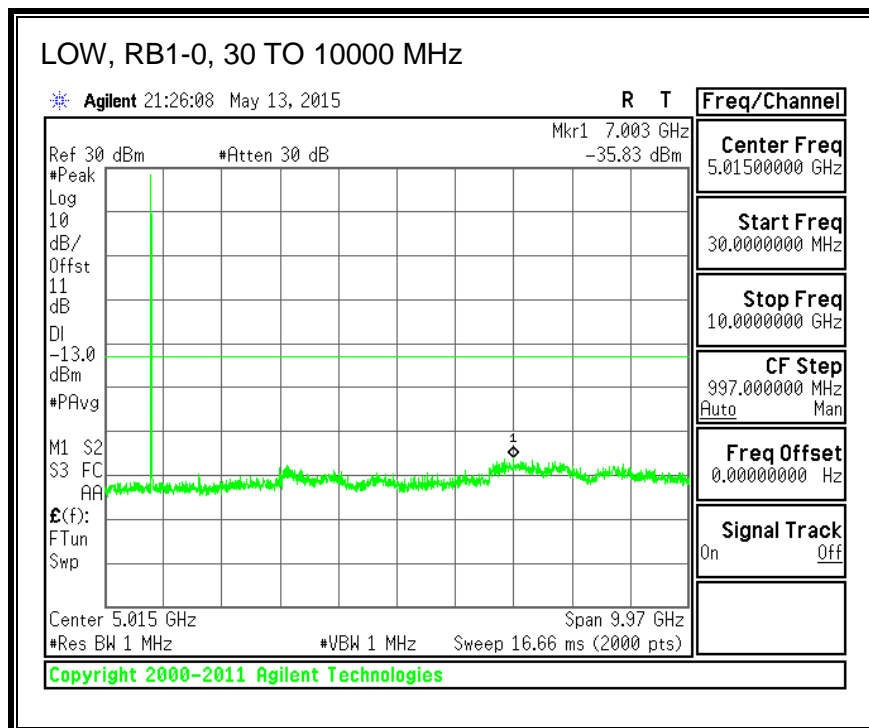
### 8.6.9. LTE BAND 26

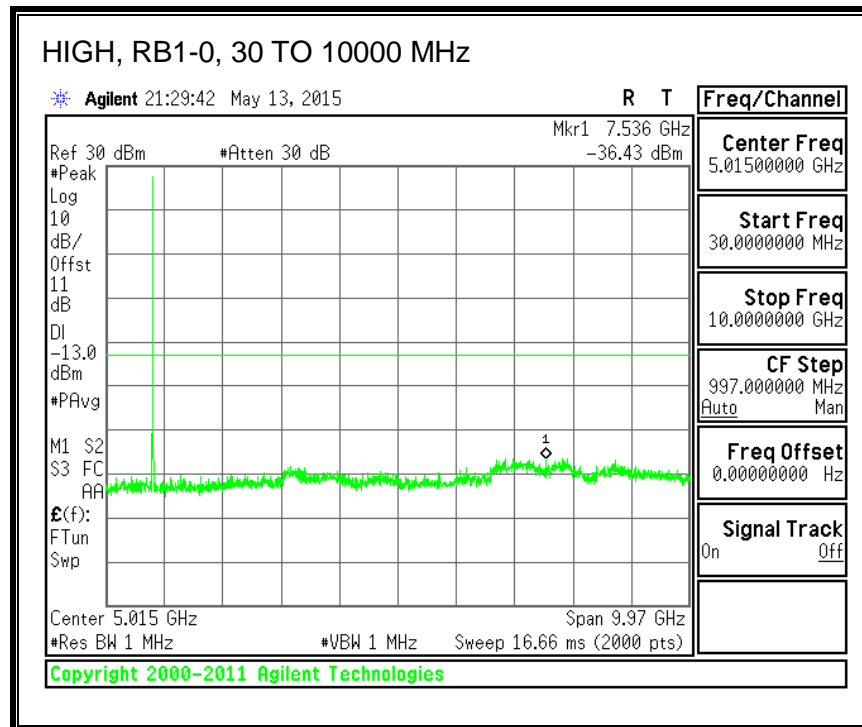
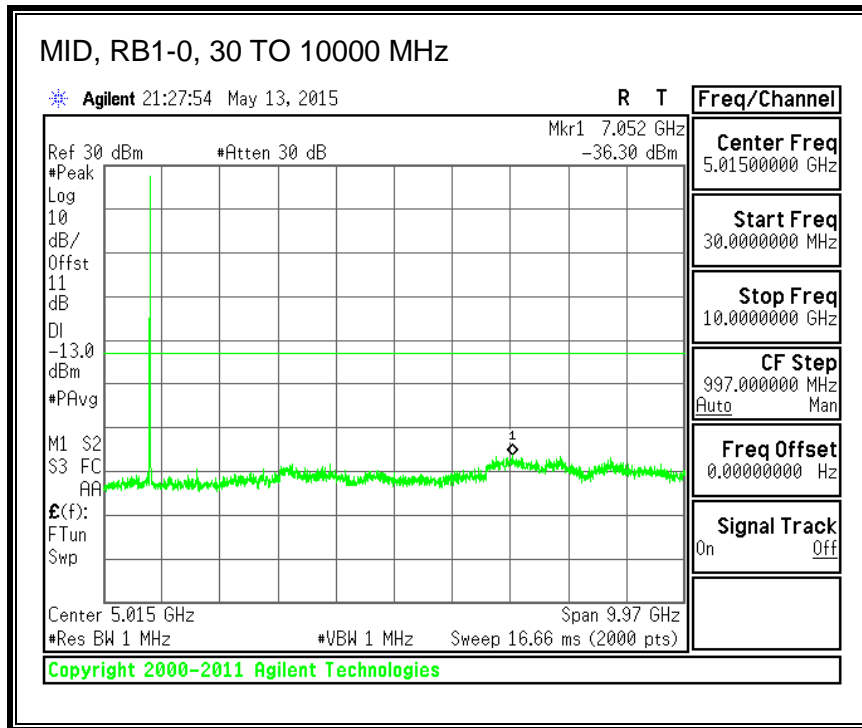
#### QPSK, (1.4 MHz BAND WIDTH)



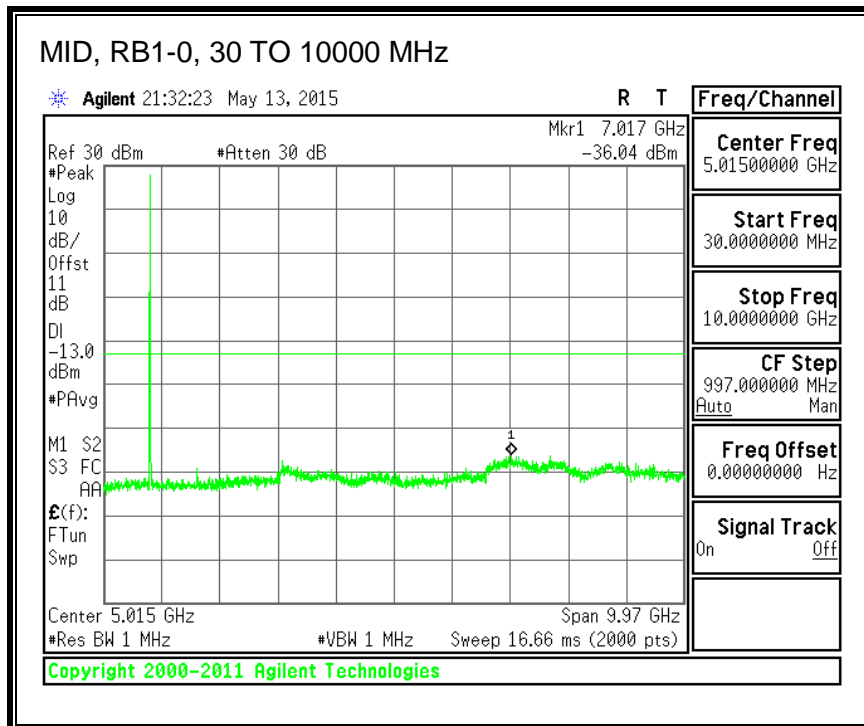
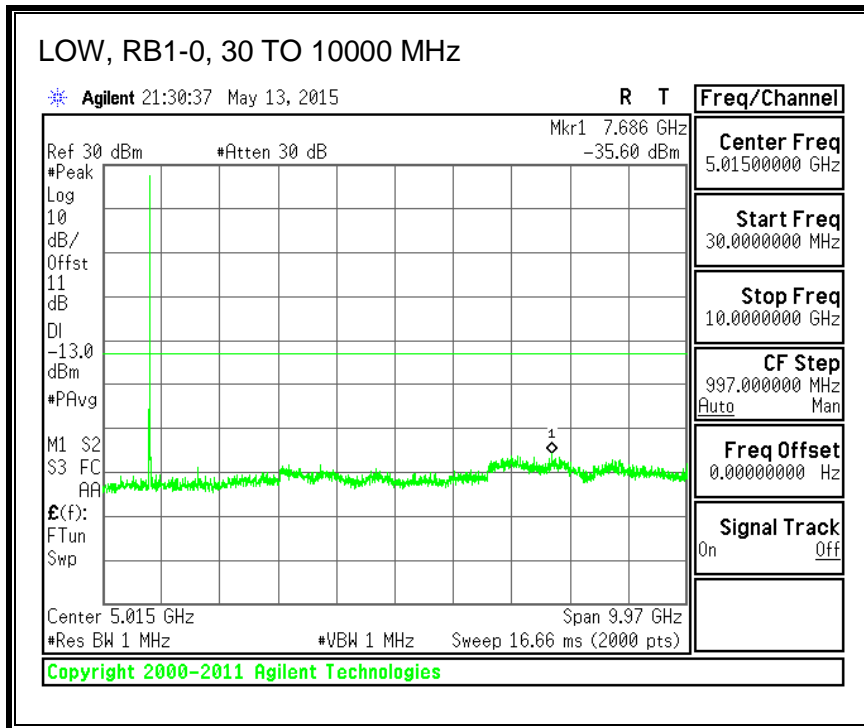


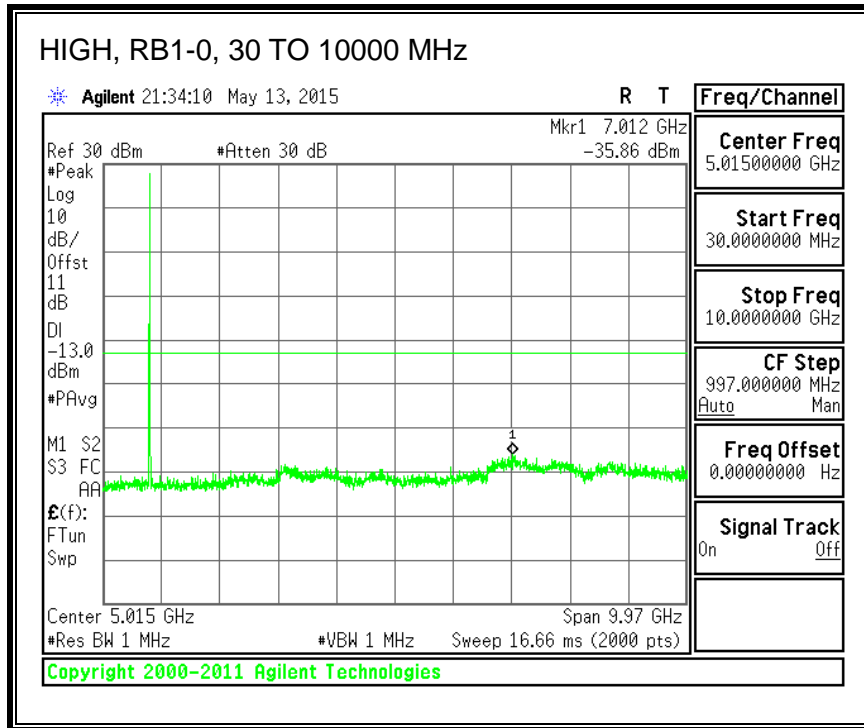
**16QAM, (1.4 MHz BAND WIDTH)**



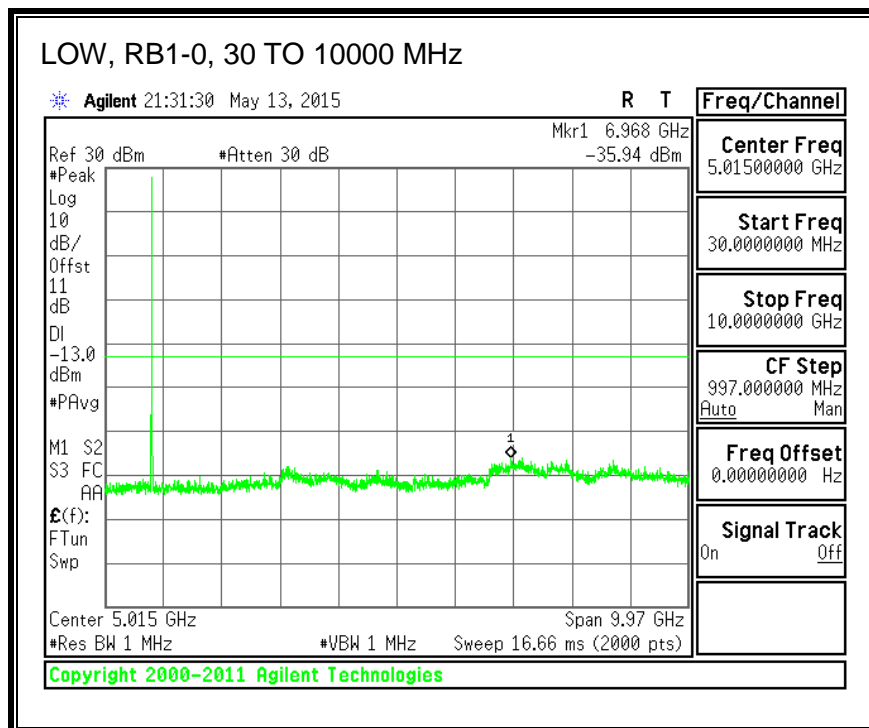


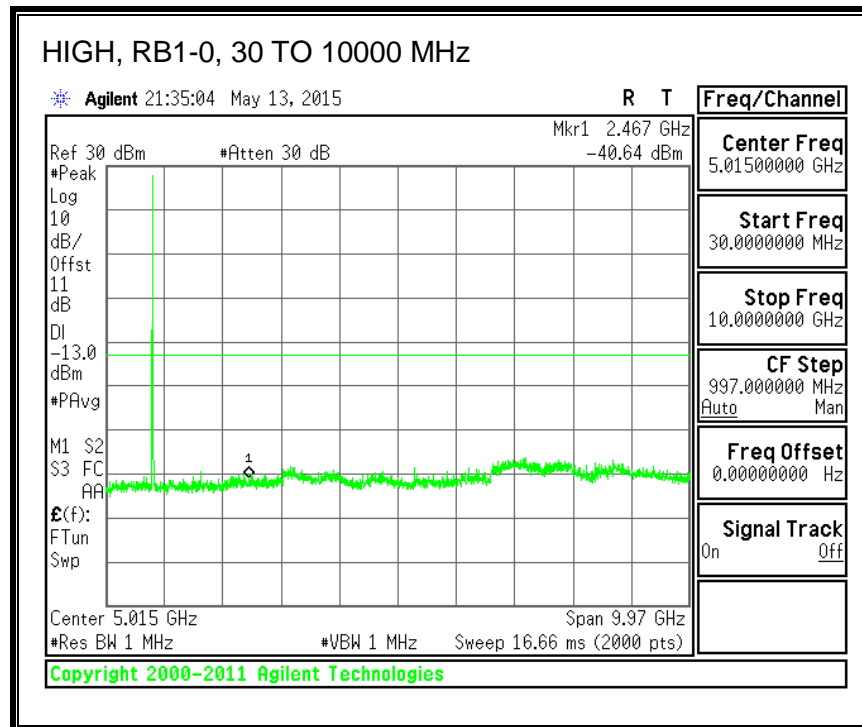
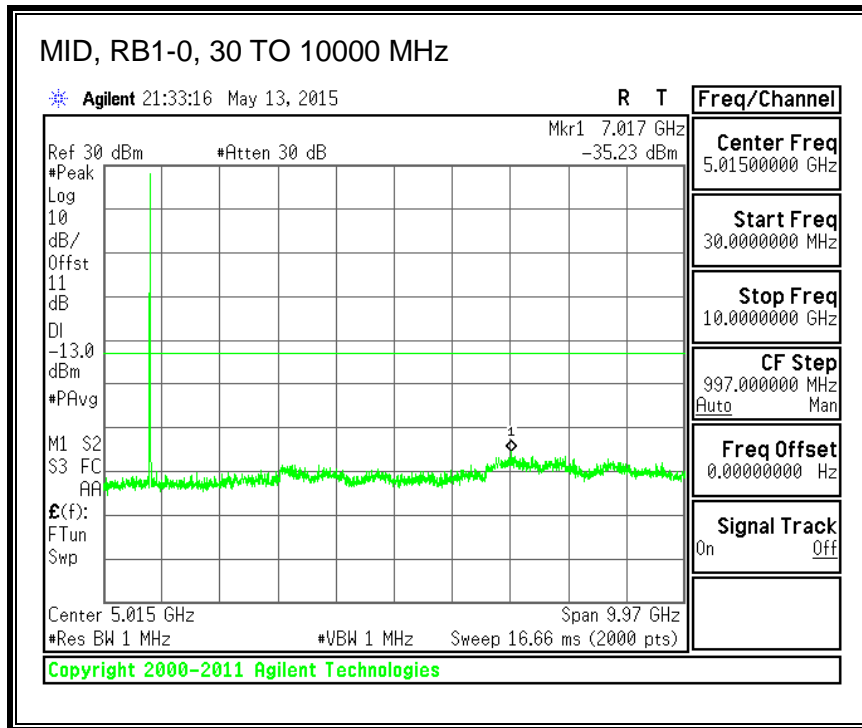
**QPSK, (3.0 MHz BAND WIDTH)**



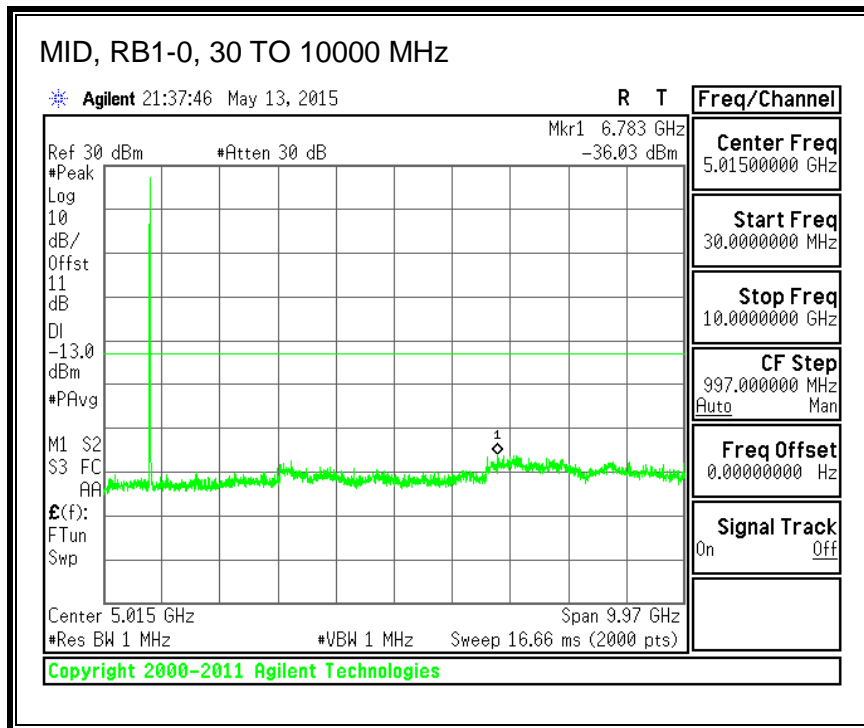
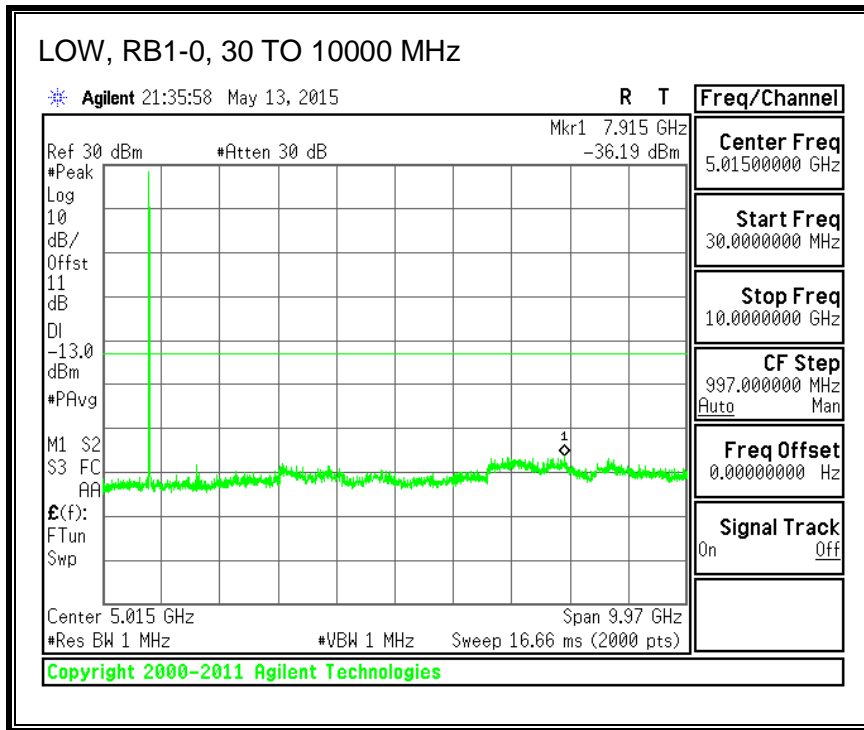


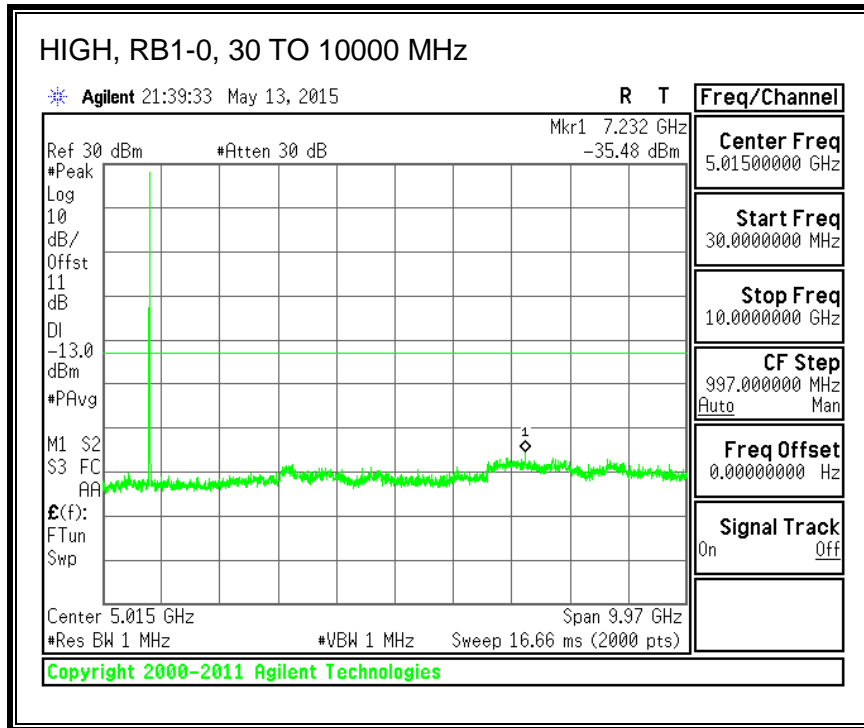
**16QAM, (3.0 MHz BAND WIDTH)**



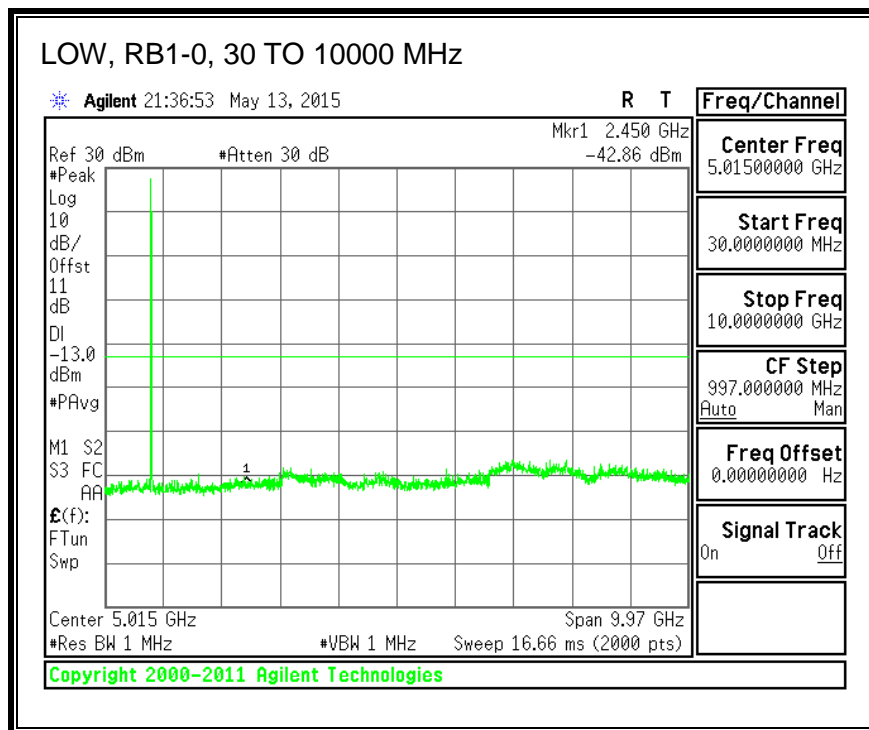


**QPSK, (5.0 MHz BAND WIDTH)**

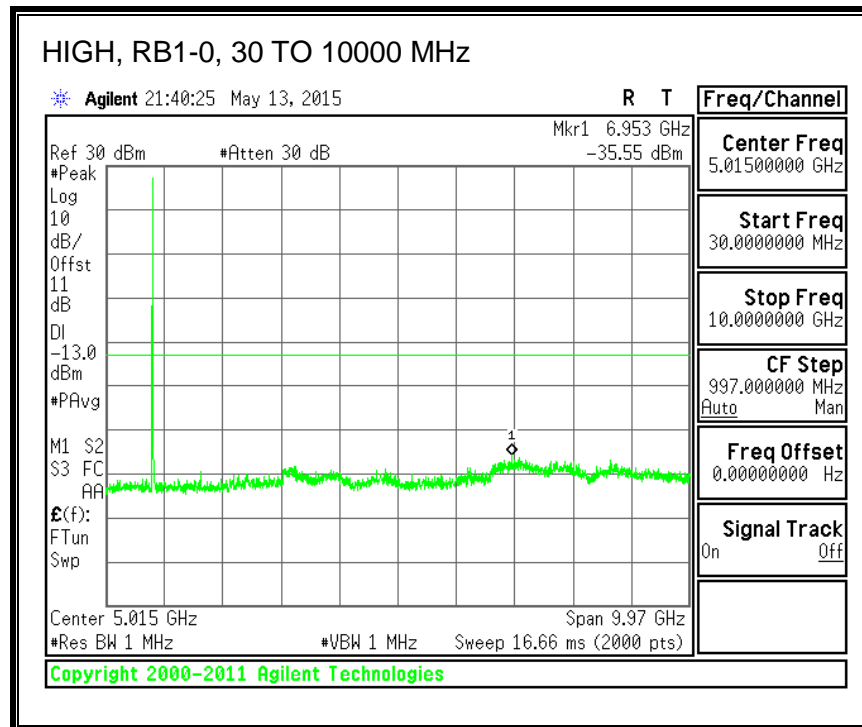
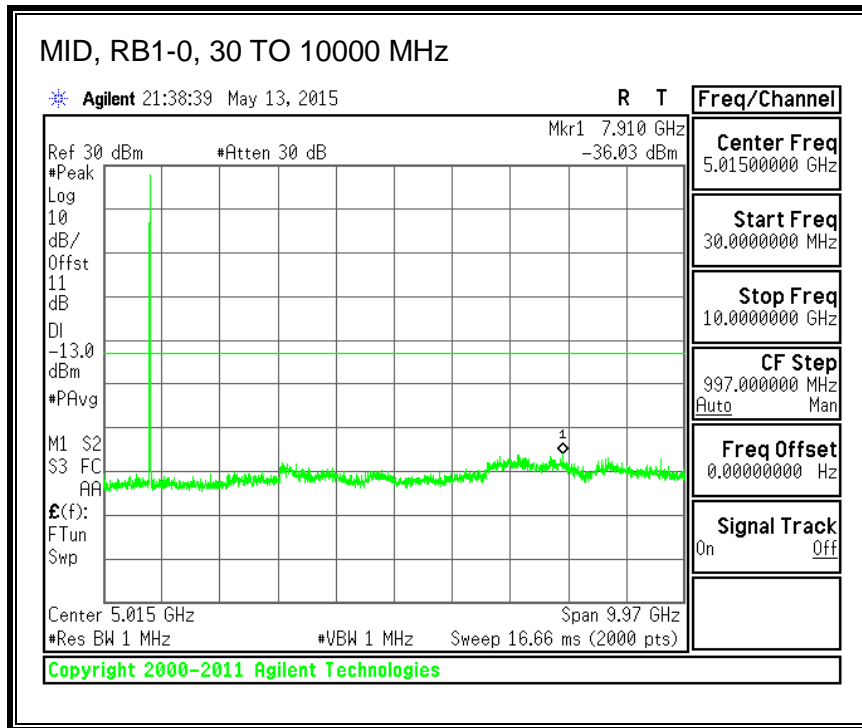




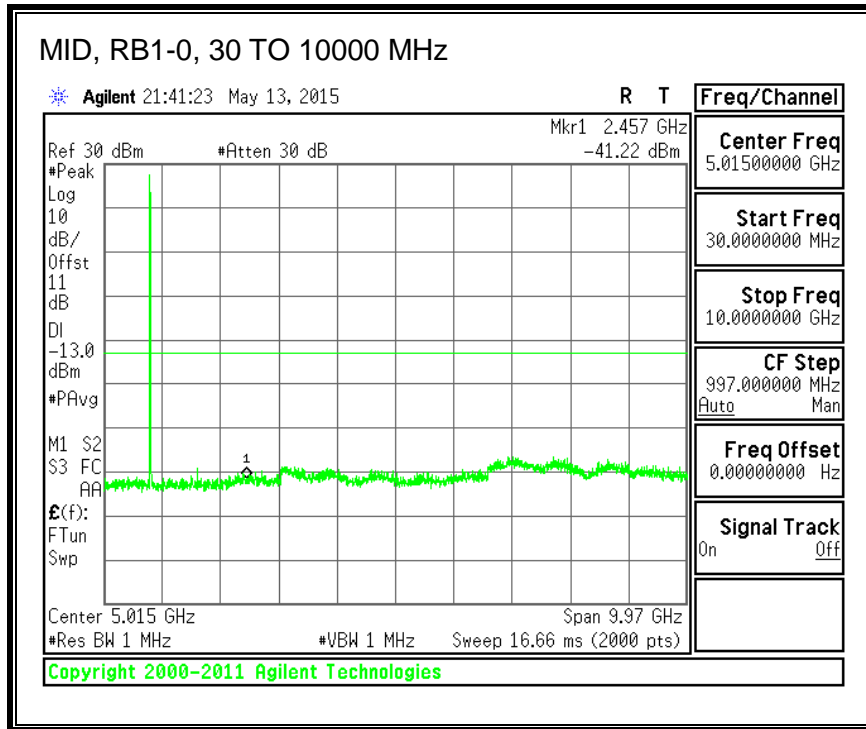
**16QAM, (5.0 MHz BAND WIDTH)**



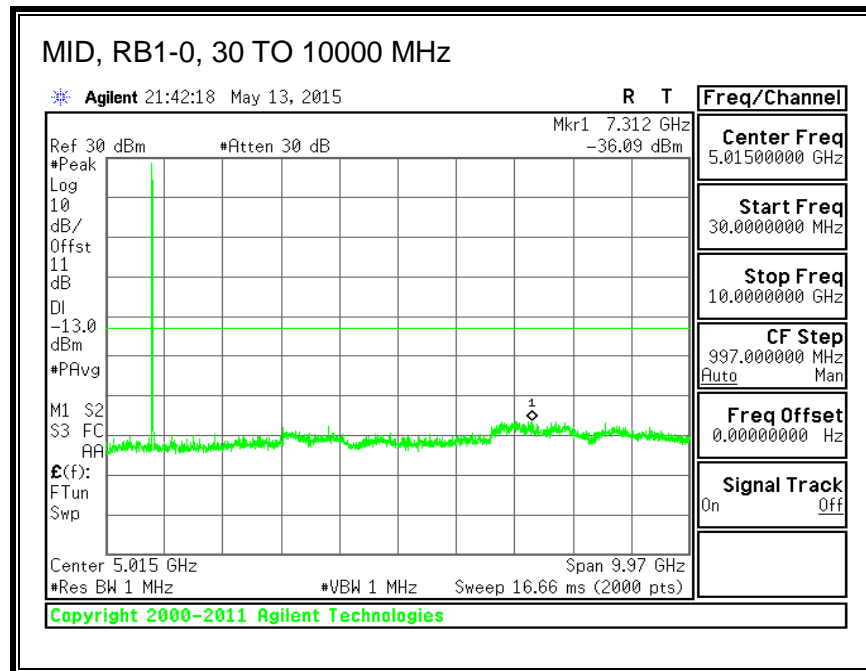




**QPSK, (10.0 MHz BAND WIDTH)**

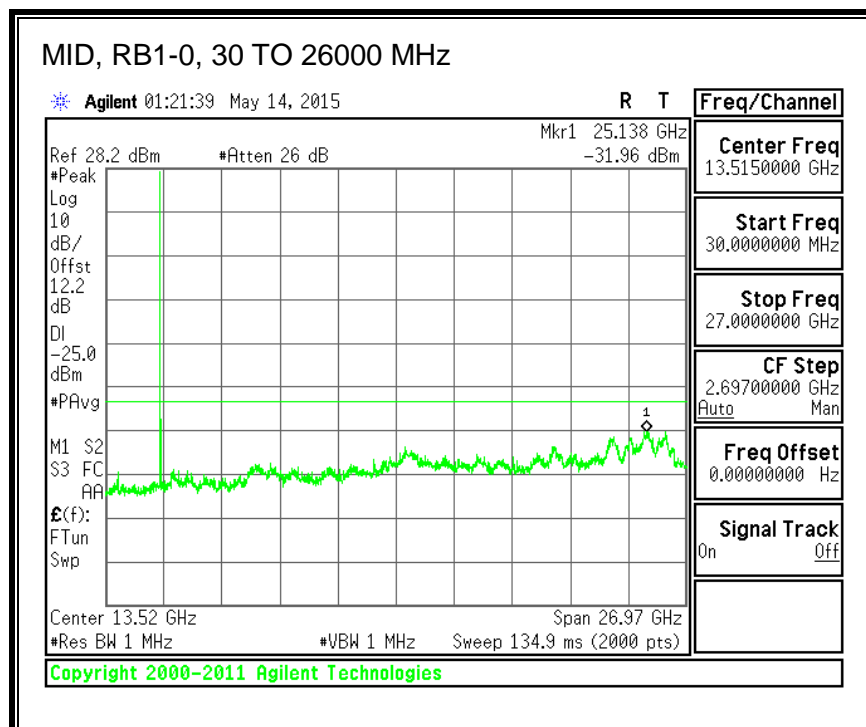
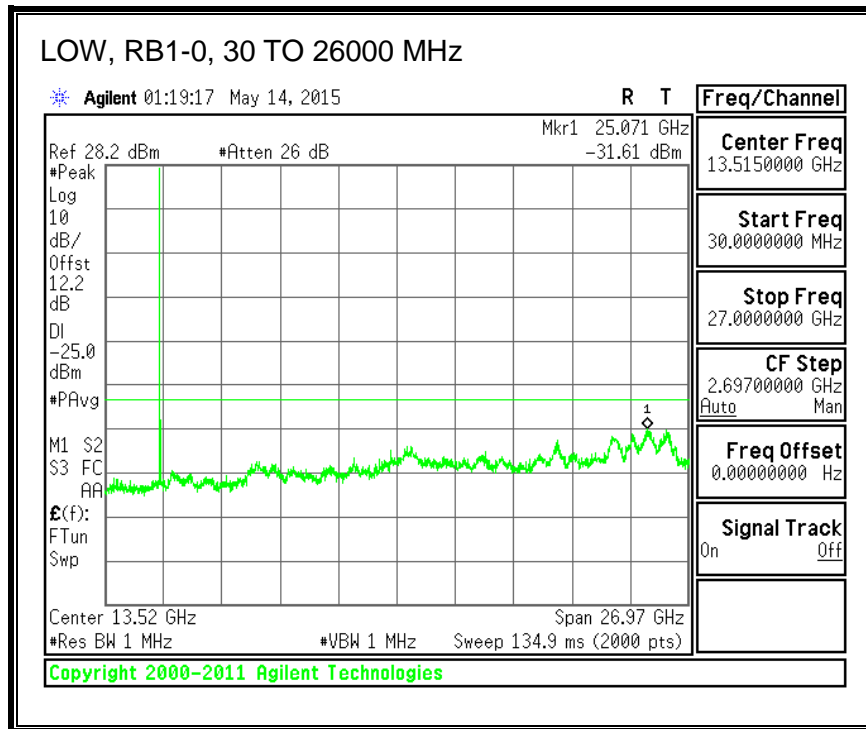


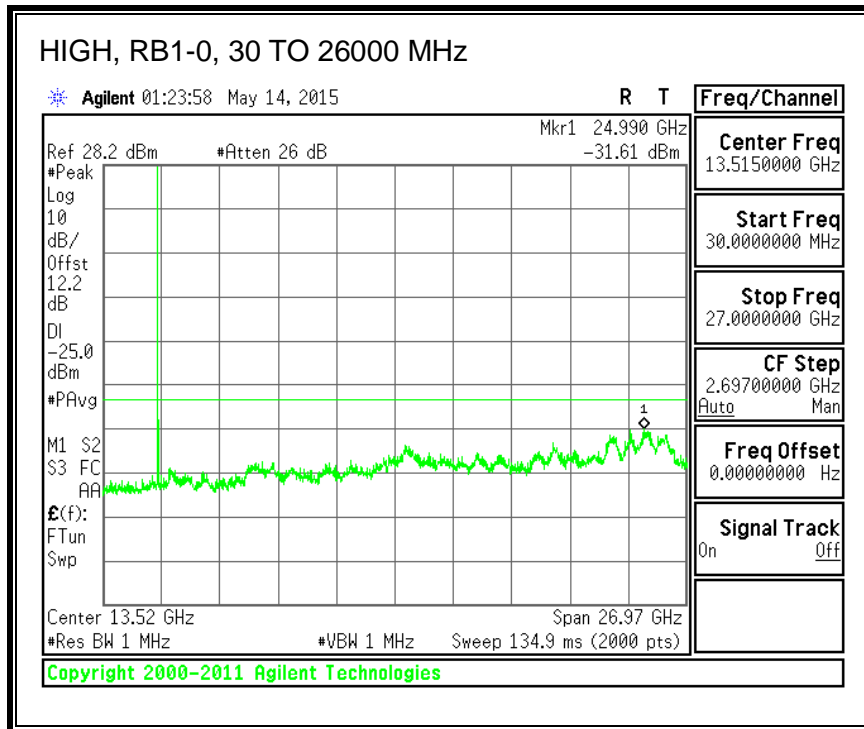
**16QAM, (10.0 MHz BAND WIDTH)**



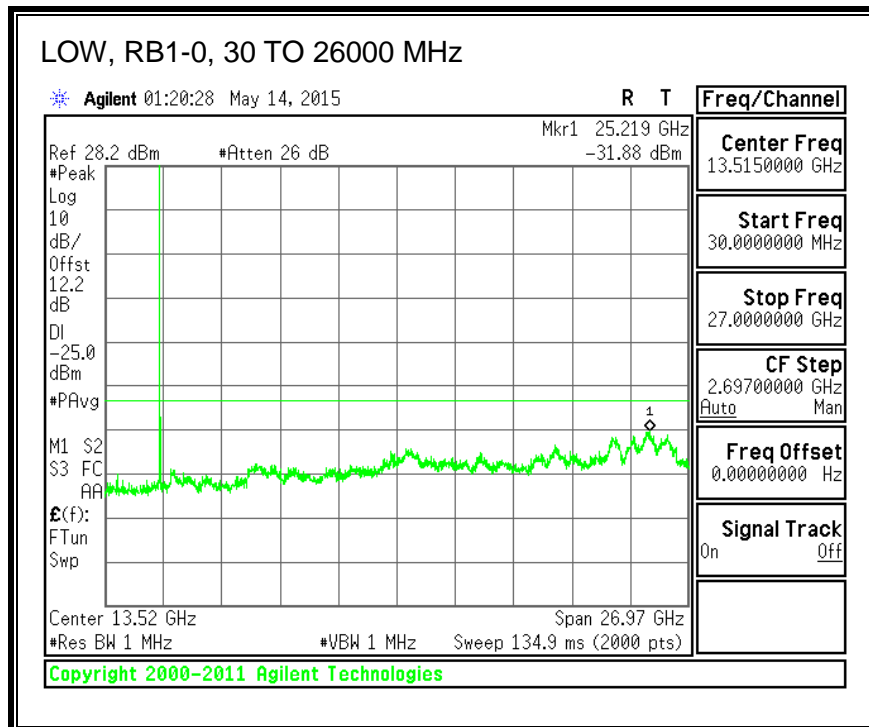
**8.6.10. LTE BAND 41**

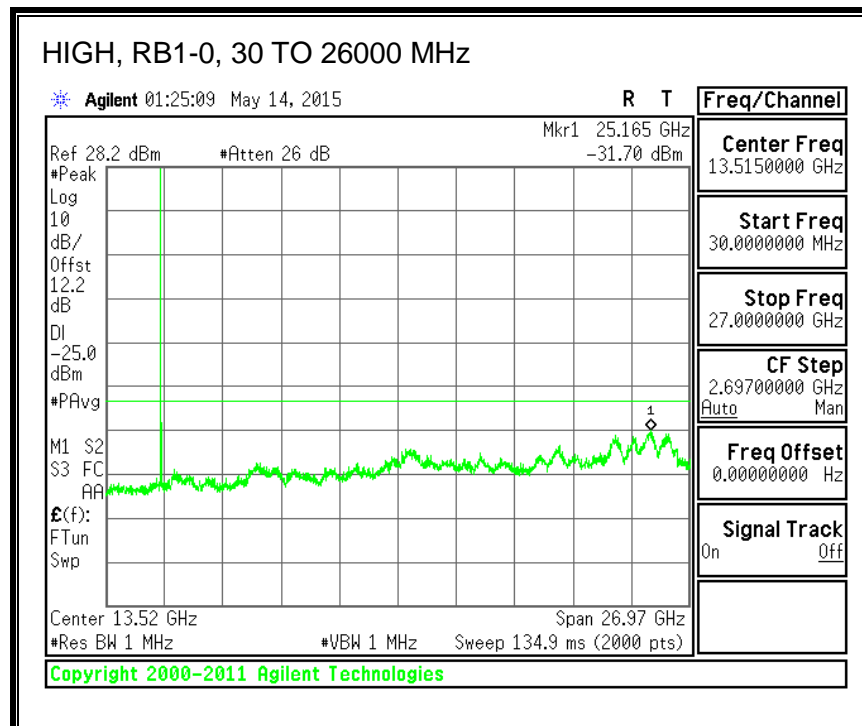
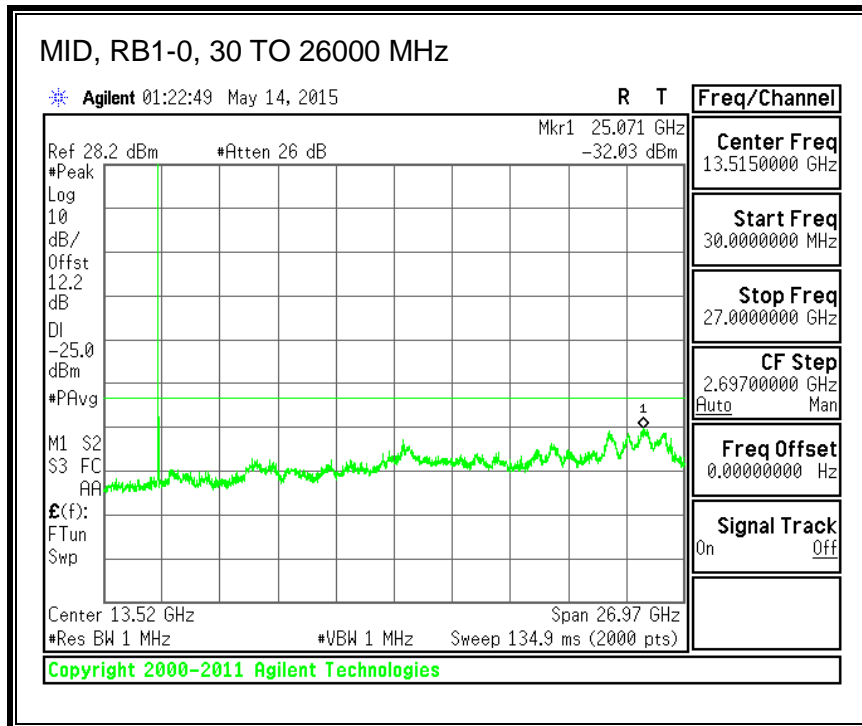
**QPSK, (5.0 MHz BAND WIDTH)**



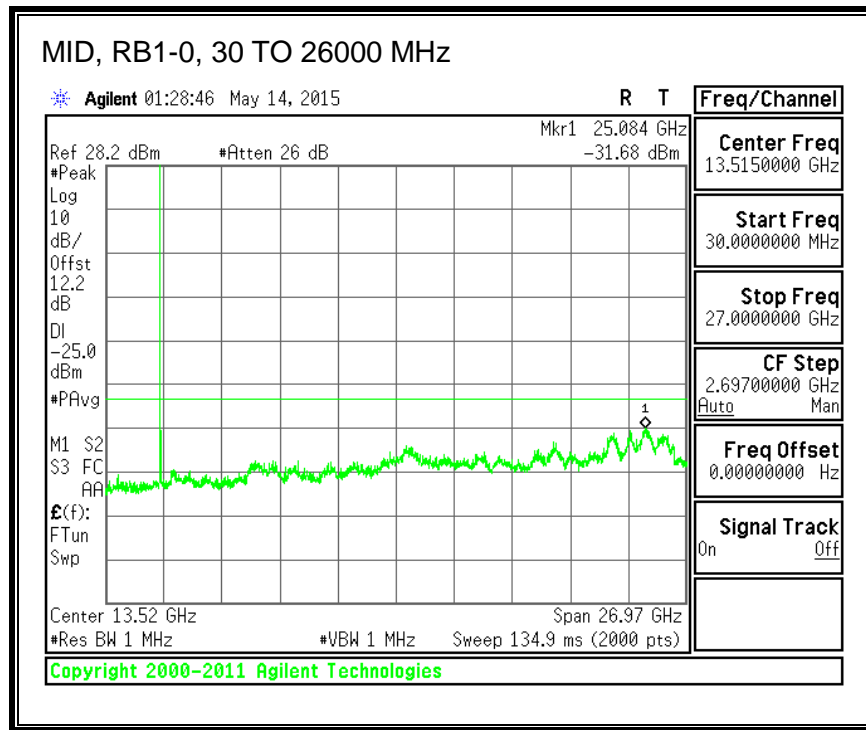
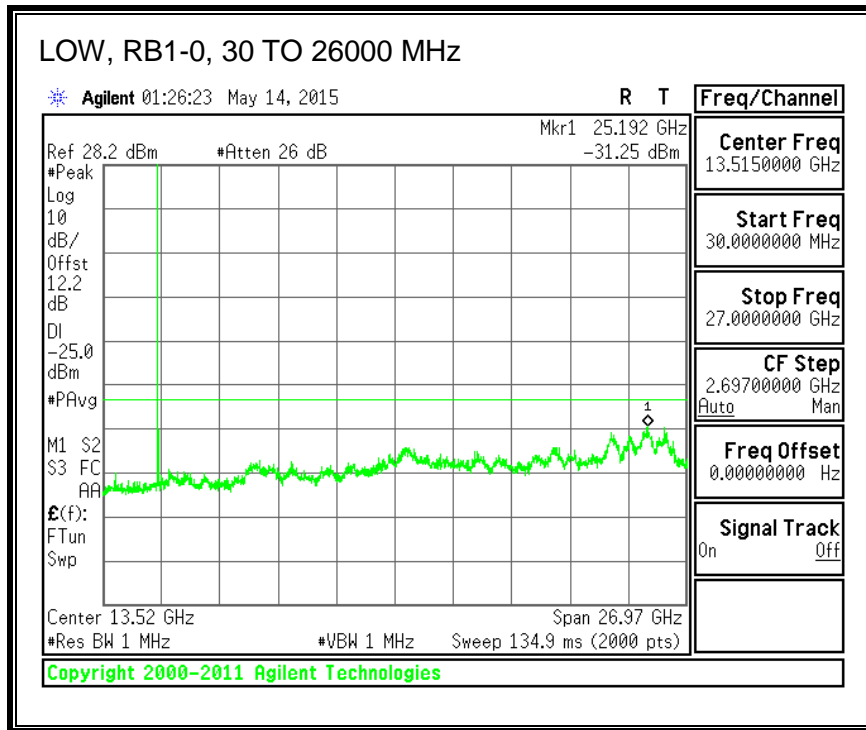


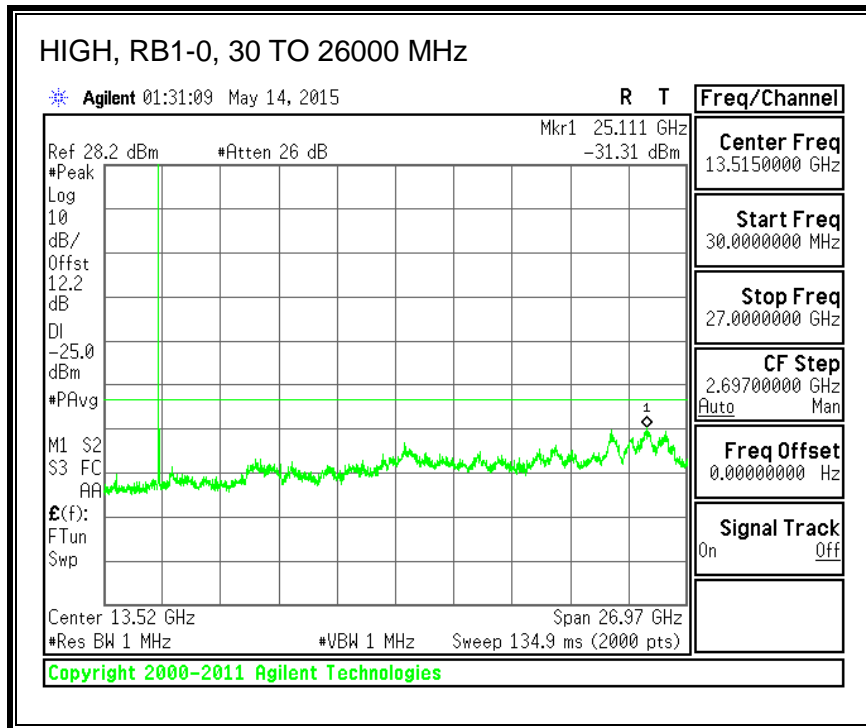
**16QAM, (5.0 MHz BAND WIDTH)**



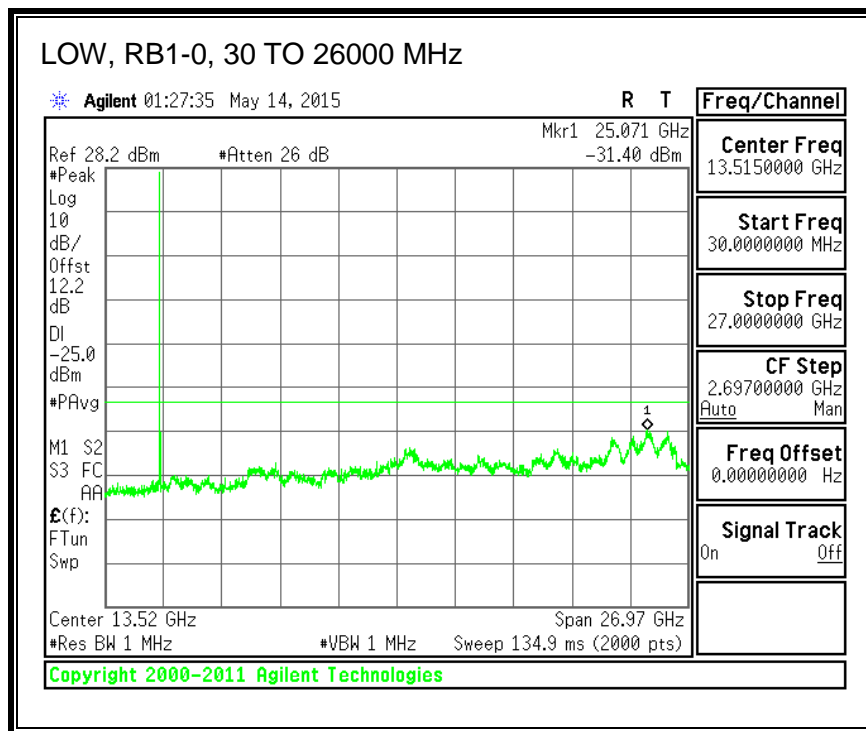


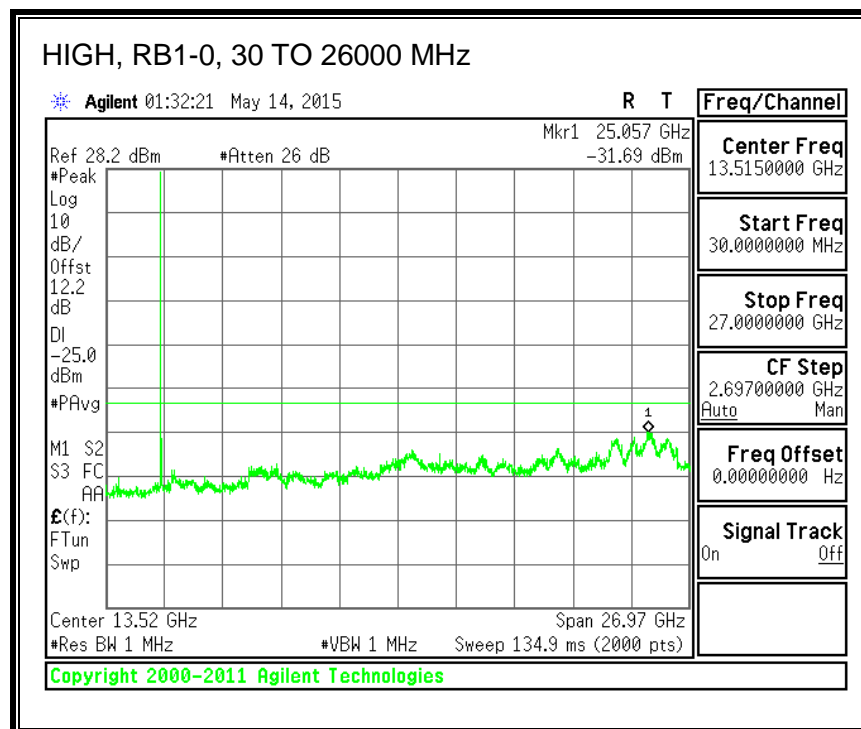
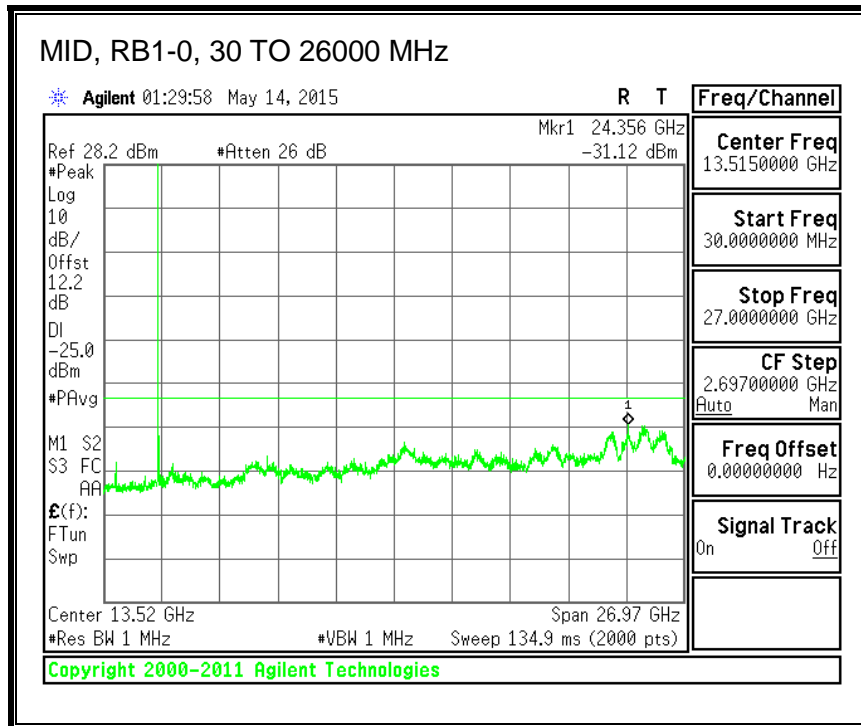
**QPSK, (10.0 MHz BAND WIDTH)**





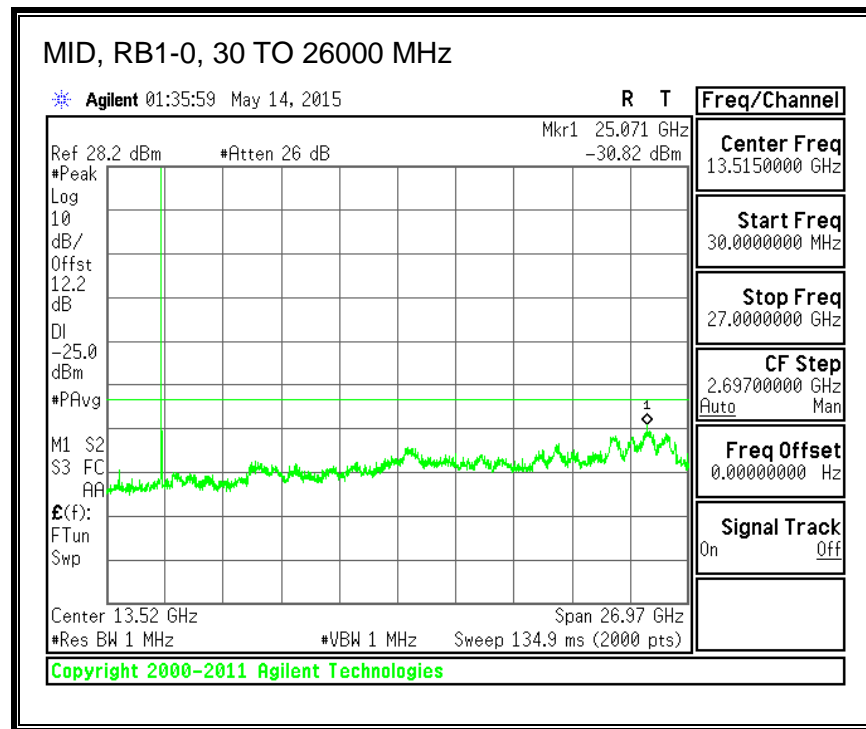
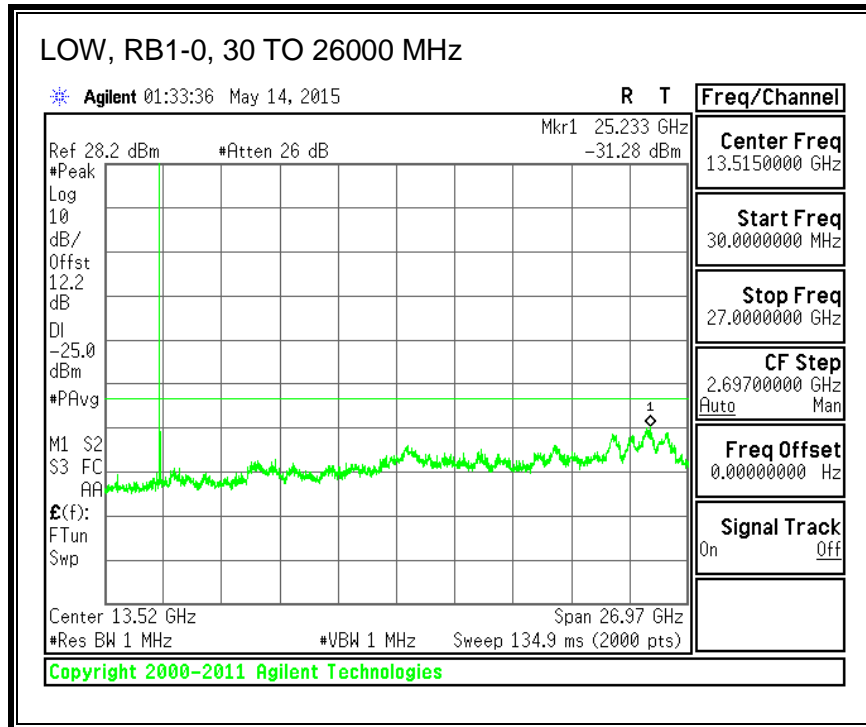
**16QAM, (10.0 MHz BAND WIDTH)**

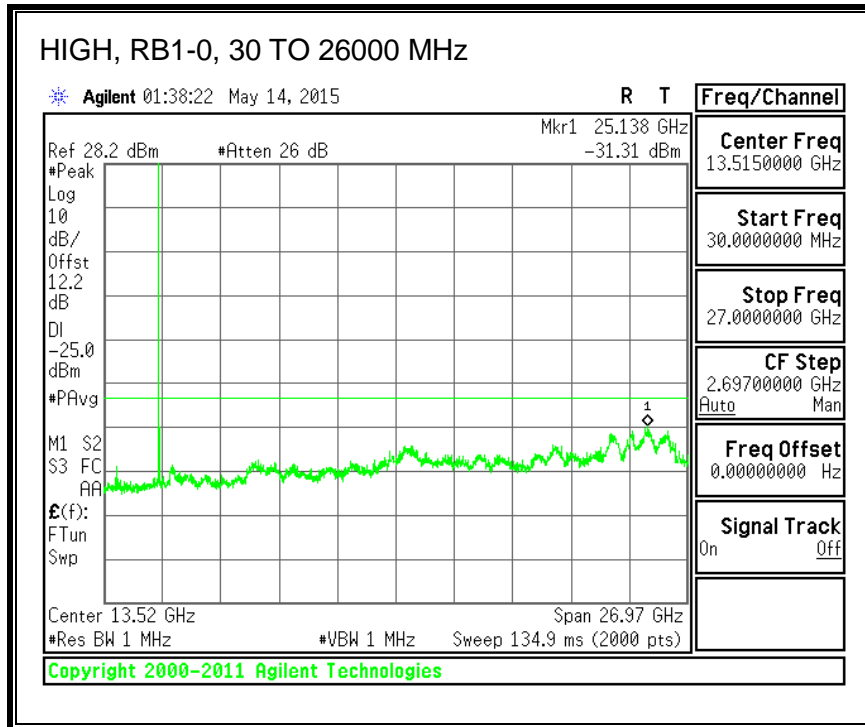




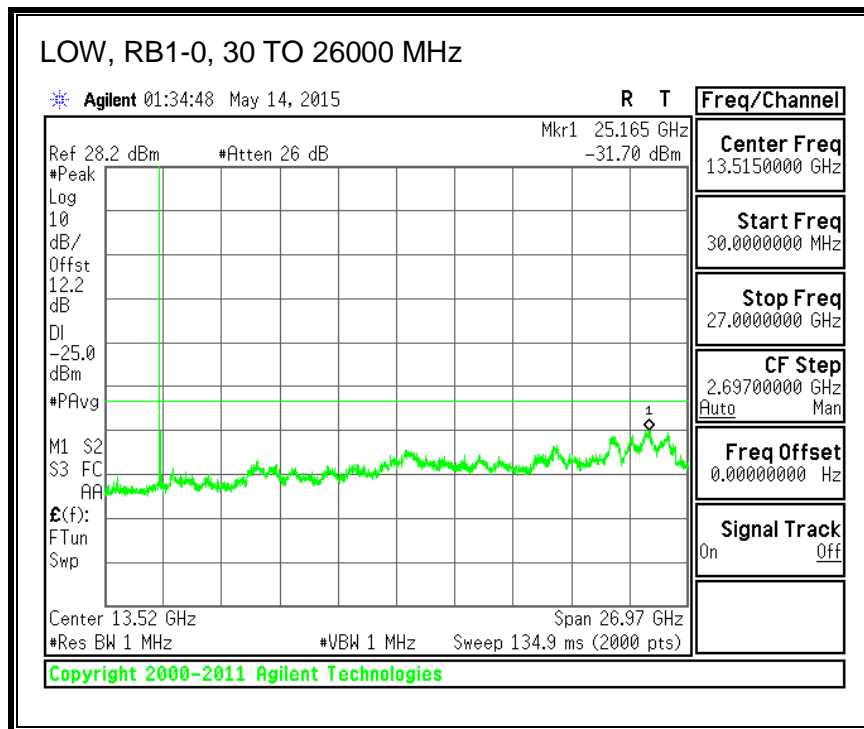


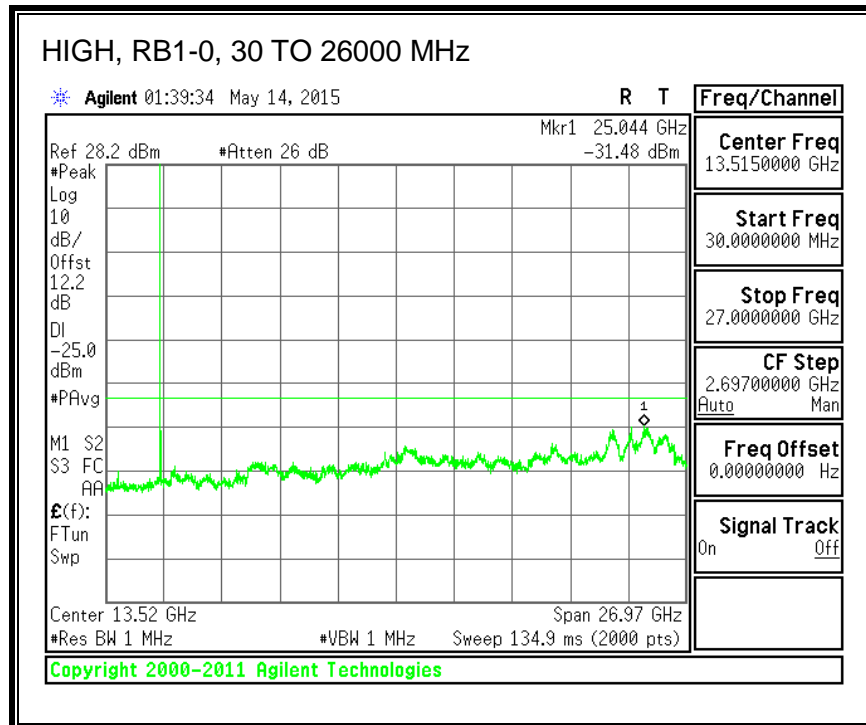
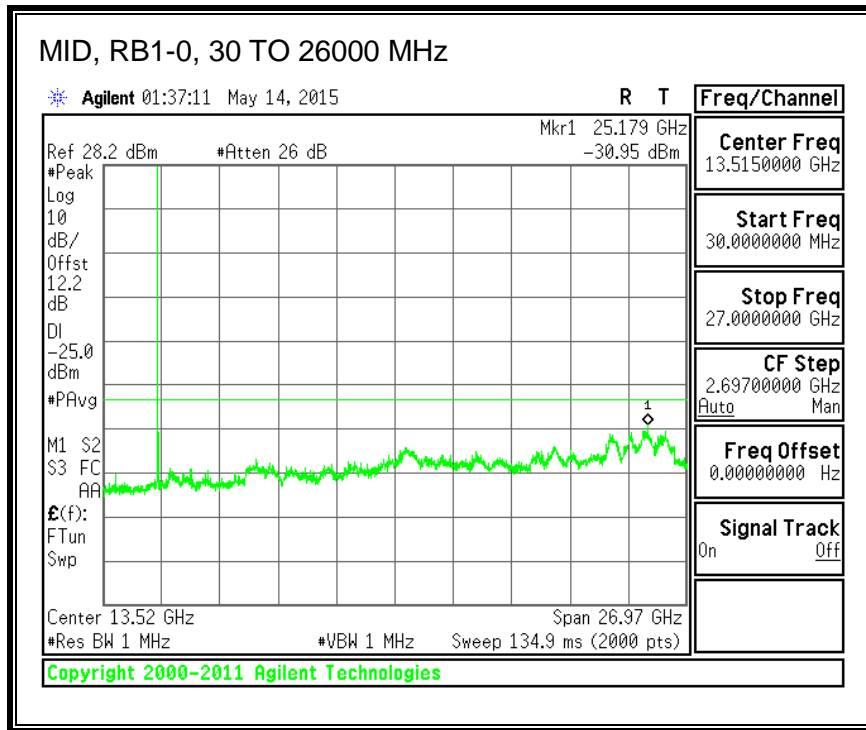
**QPSK, (15.0 MHz BAND WIDTH)**



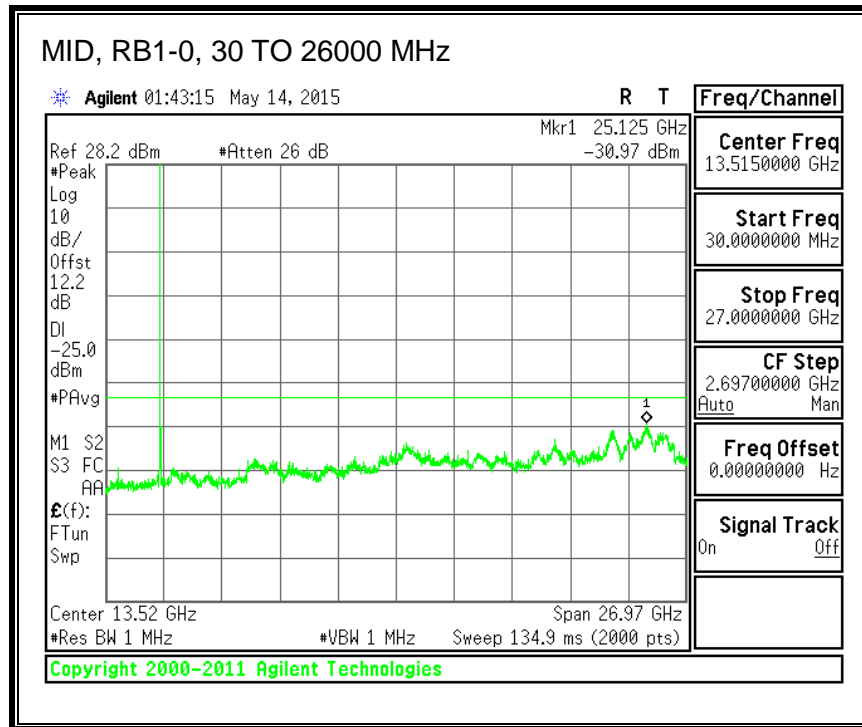
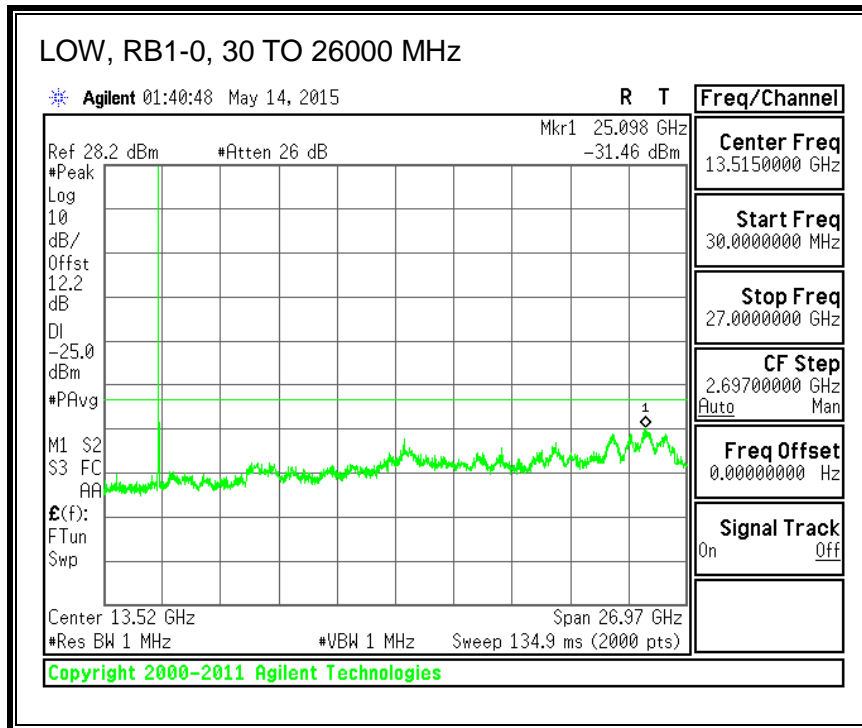


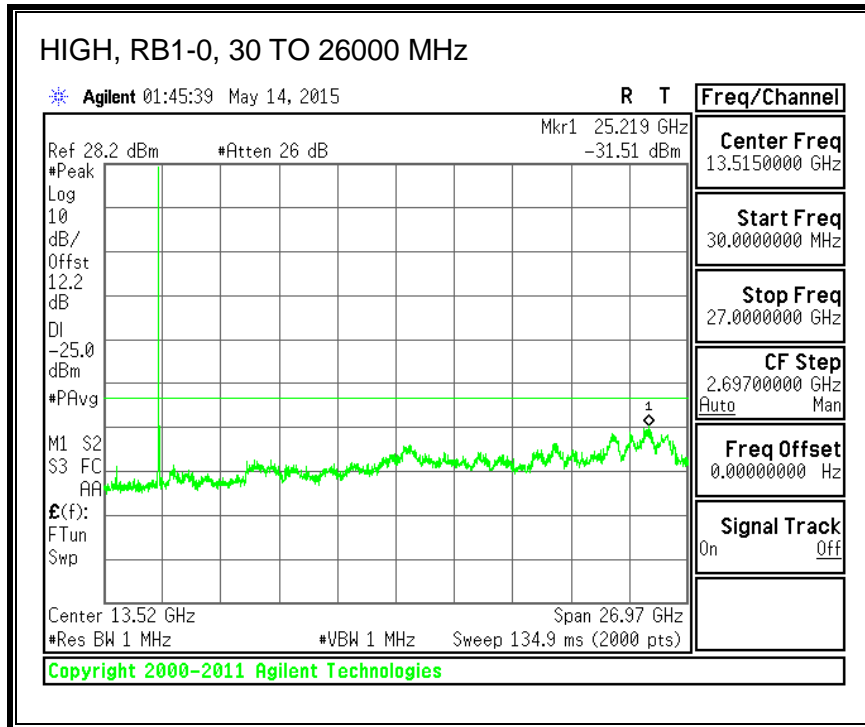
**16QAM, (15.0 MHz BAND WIDTH)**



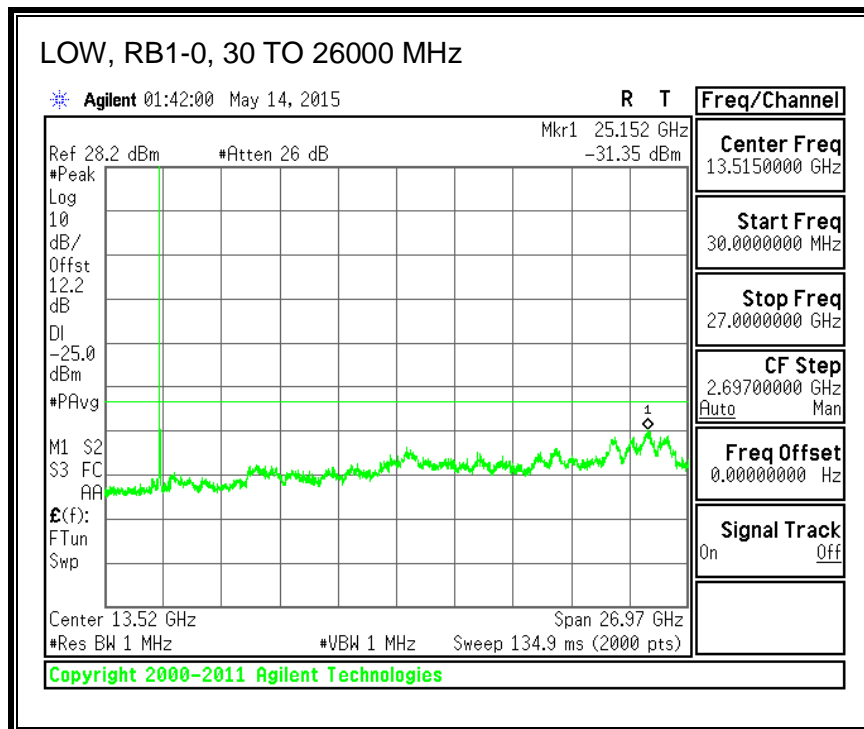


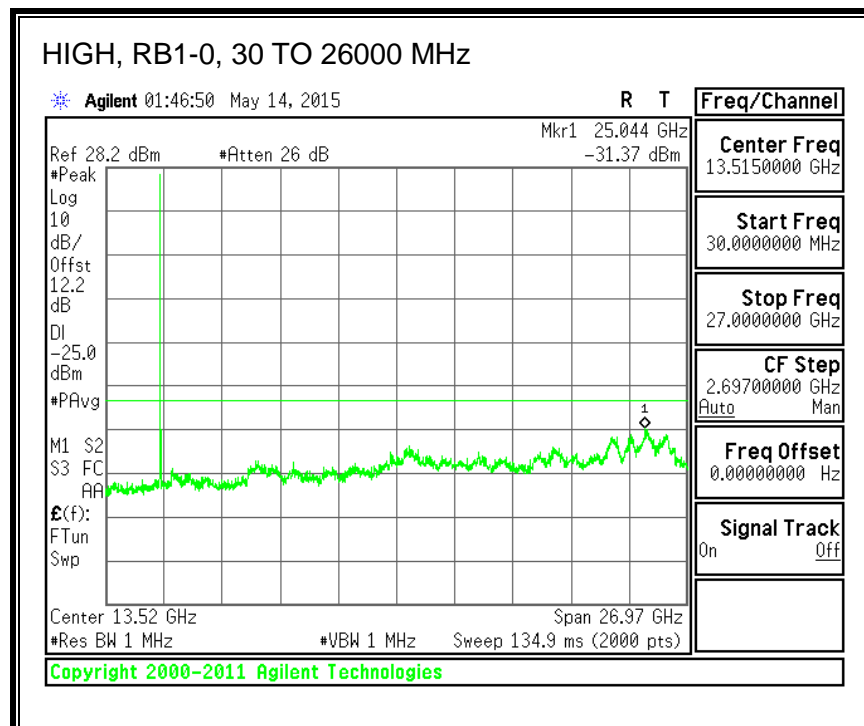
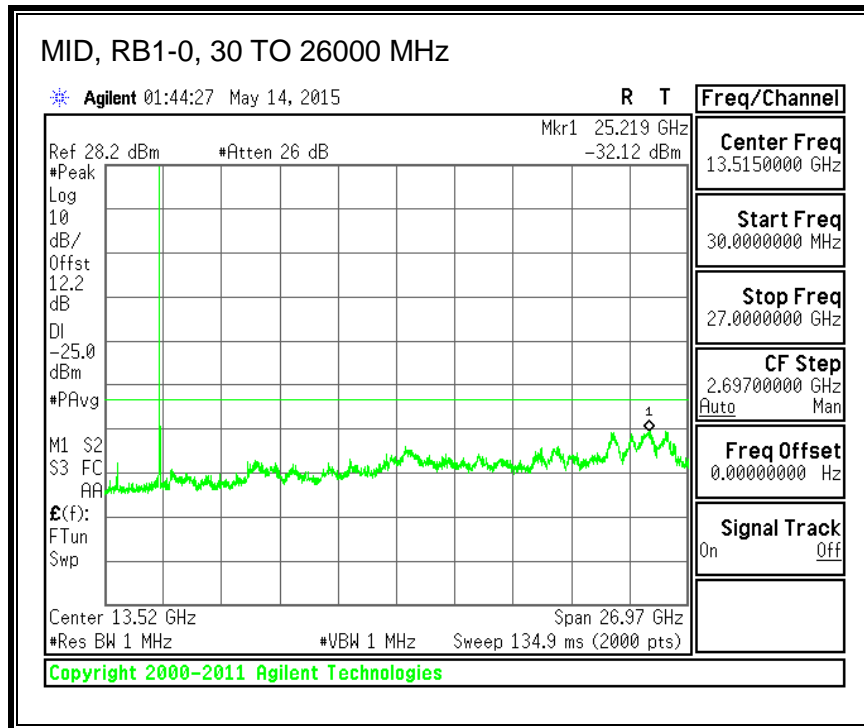
**QPSK, (20.0 MHz BAND WIDTH)**





**16QAM, (20.0 MHz BAND WIDTH)**





## 9. FREQUENCY STABILITY

FCC: §2.1055, §22.355, §24.235, §27.54

### LIMITS

§22.355

The carrier frequency shall not depart from the reference frequency in excess of  $\pm 2.5$  ppm for mobile stations.

§24.235 & §27.54

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

### TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- Temp. =  $-30^{\circ}$  to  $+50^{\circ}\text{C}$
- Voltage = low voltage, 3.4VDC, Normal, 3.8VDC and High voltage, 4.3VDC.

#### **Frequency Stability vs Temperature:**

The EUT is placed inside a temperature chamber. The temperature is set to  $20^{\circ}\text{C}$  and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until  $+50^{\circ}\text{C}$  is reached.

#### **Frequency Stability vs Voltage:**

The peak frequency error is recorded (worst-case).

### MODES TESTED

- LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 17
- LTE Band 25
- LTE Band 26
- LTE Band 30
- LTE Band 41

### RESULTS

**9.1. MODEL: A1633**

**9.1.1. LTE BAND 2**

**QPSK, (20MHz BANDWIDTH)**

Limit		1850	1910	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (25C)	Normal	1851.0205	1908.9979		
Extreme (50C)		1851.0205	1908.9979	0.7	0.000
Extreme (40C)		1851.0205	1908.9979	-7.5	-0.004
Extreme (30C)		1851.0205	1908.9979	-4.0	-0.002
Extreme (10C)		1851.0205	1908.9979	-3.1	-0.002
Extreme (0C)		1851.0205	1908.9979	-1.5	-0.001
Extreme (-10C)		1851.0205	1908.9979	0.9	0.000
Extreme (-20C)		1851.0205	1908.9979	0.9	0.001
Extreme (-30C)		1851.0205	1908.9979	-4.7	-0.002
25C	10%	1851.0205	1908.9979	-2.8	-0.001
	-10%	1851.0205	1908.9979	-3.1	-0.002
	End Point	1851.0205	1908.9979	-3.2	-0.002

**16QAM, (20MHz BANDWIDTH)**

Limit		1850	1910	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (25C)	Normal	1851.0163	1908.9878		
Extreme (50C)		1851.0163	1908.9878	0.9	0.000
Extreme (40C)		1851.0163	1908.9878	-7.2	-0.004
Extreme (30C)		1851.0163	1908.9878	-3.2	-0.002
Extreme (10C)		1851.0163	1908.9878	-2.9	-0.002
Extreme (0C)		1851.0163	1908.9878	-2.6	-0.001
Extreme (-10C)		1851.0163	1908.9878	-0.1	0.000
Extreme (-20C)		1851.0163	1908.9878	0.0	0.000
Extreme (-30C)		1851.0163	1908.9878	-5.8	-0.003
25C	10%	1851.0163	1908.9878	-3.6	-0.002
	-10%	1851.0163	1908.9878	-4.2	-0.002
	End Point	1851.0163	1908.9878	-4.1	-0.002