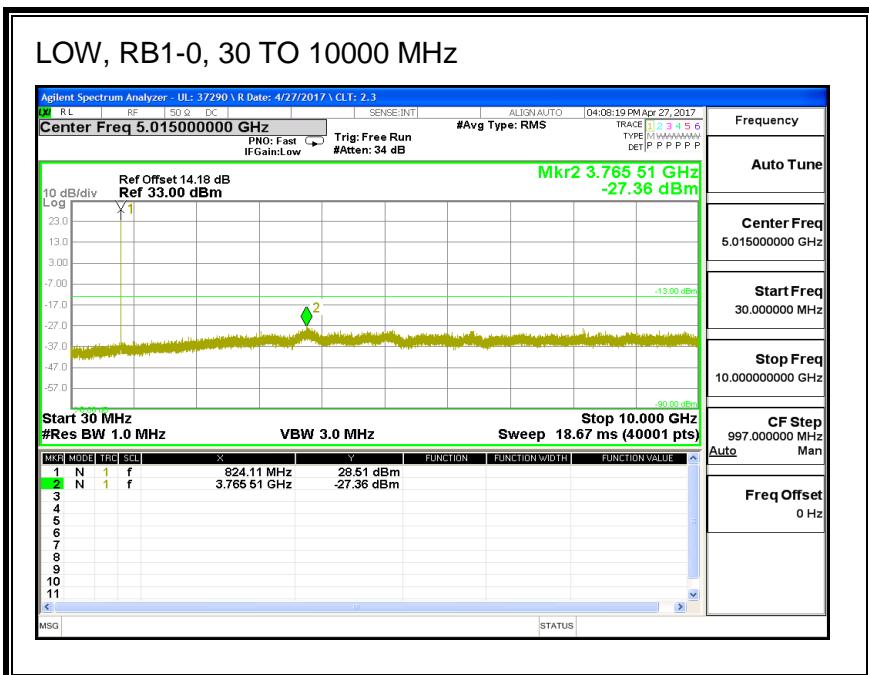
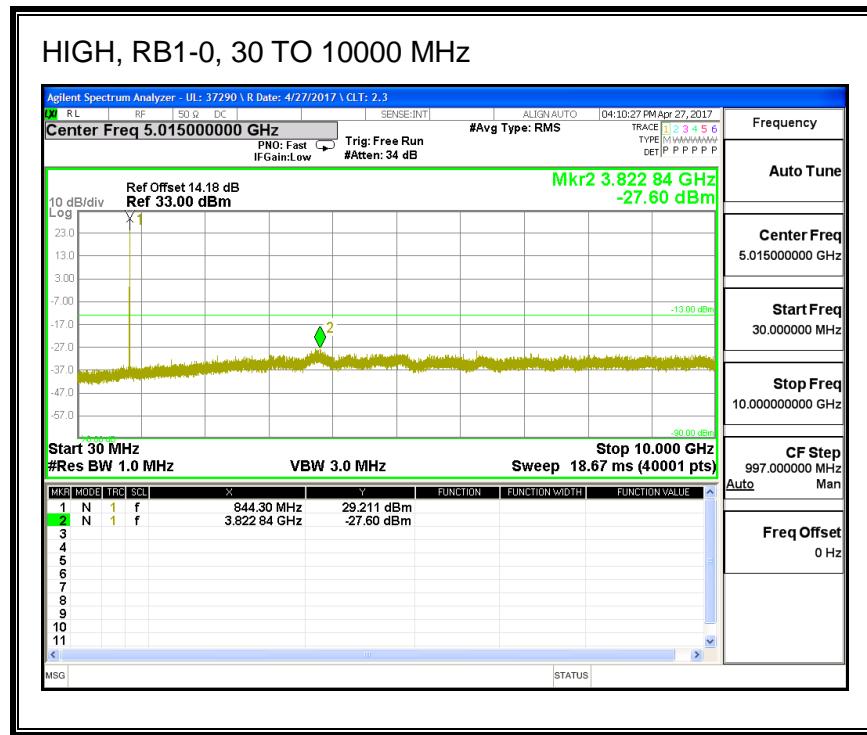
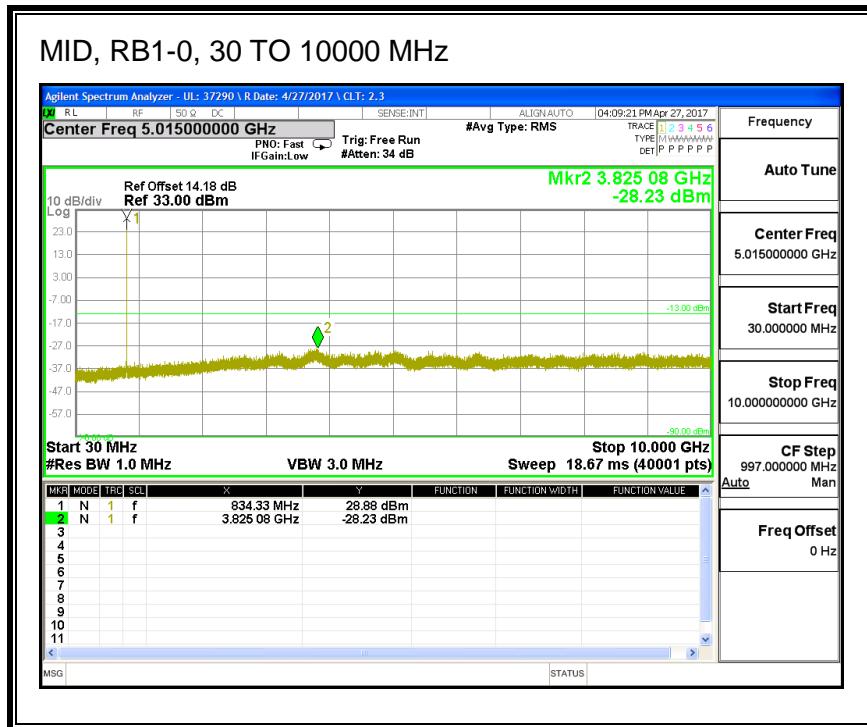
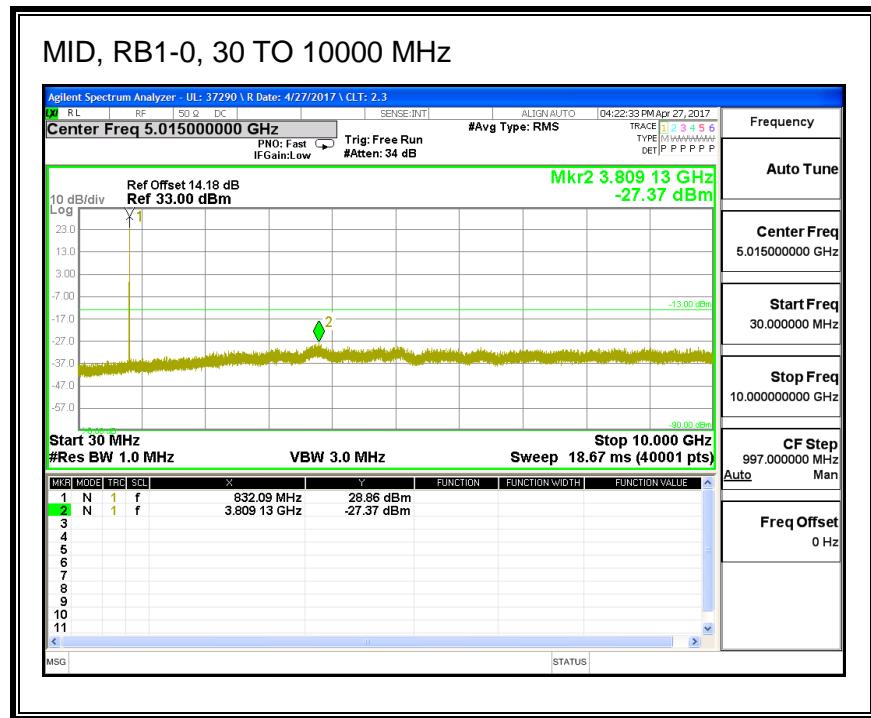
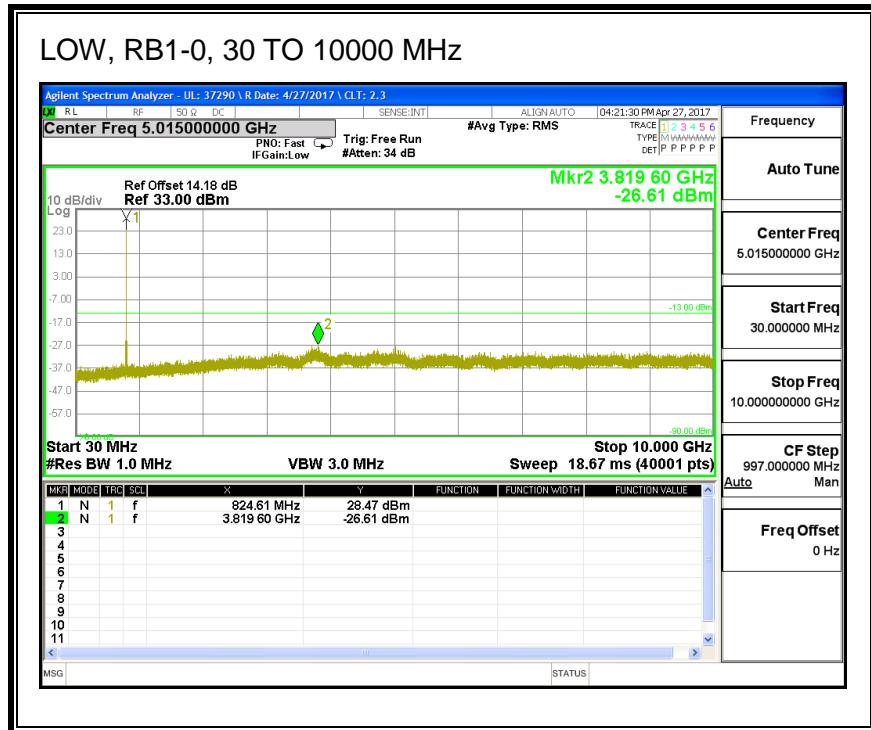


**16QAM, (5.0 MHz BAND WIDTH)**

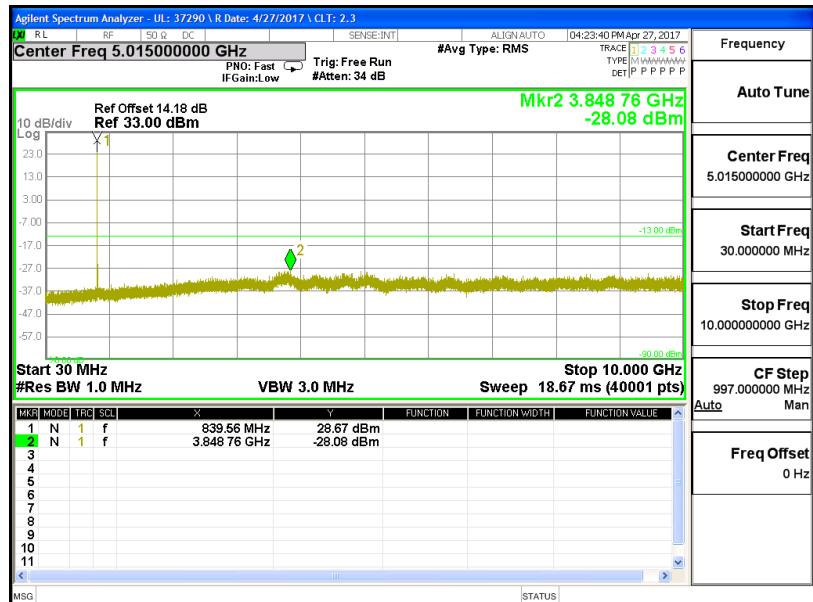




**QPSK, (10.0 MHz BAND WIDTH)**

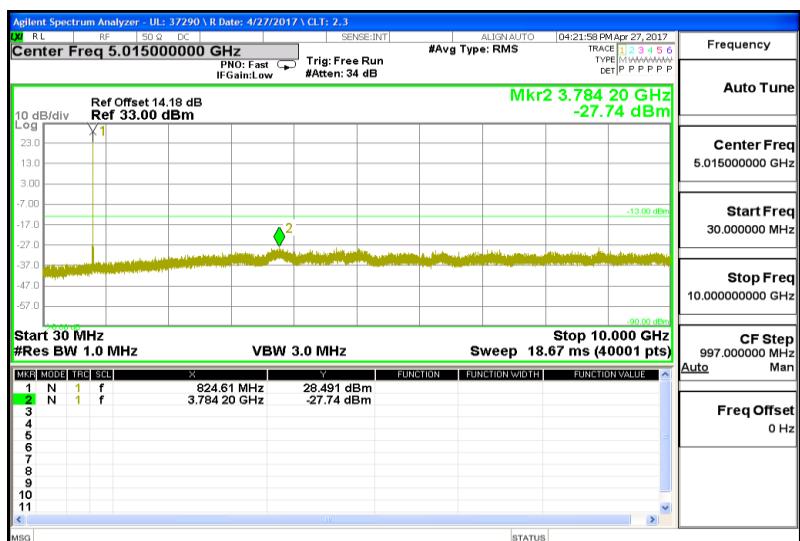


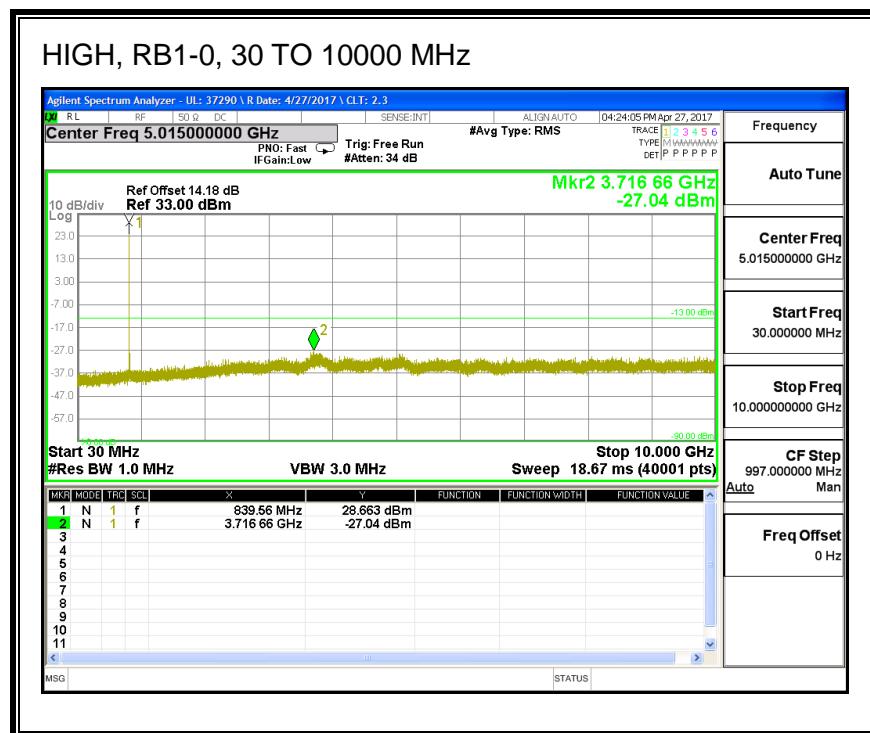
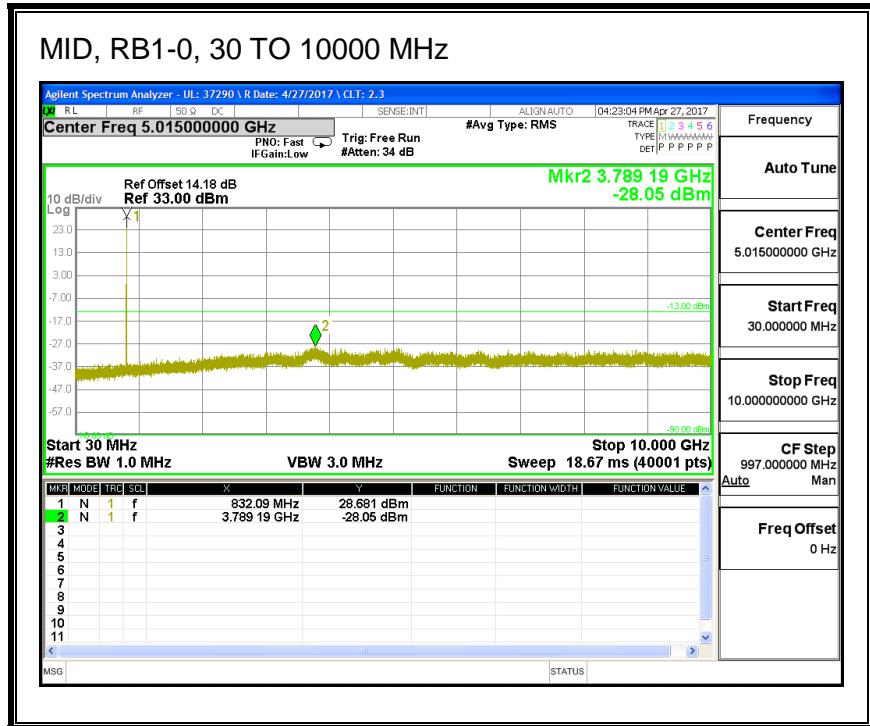
**HIGH, RB1-0, 30 TO 10000 MHz**



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

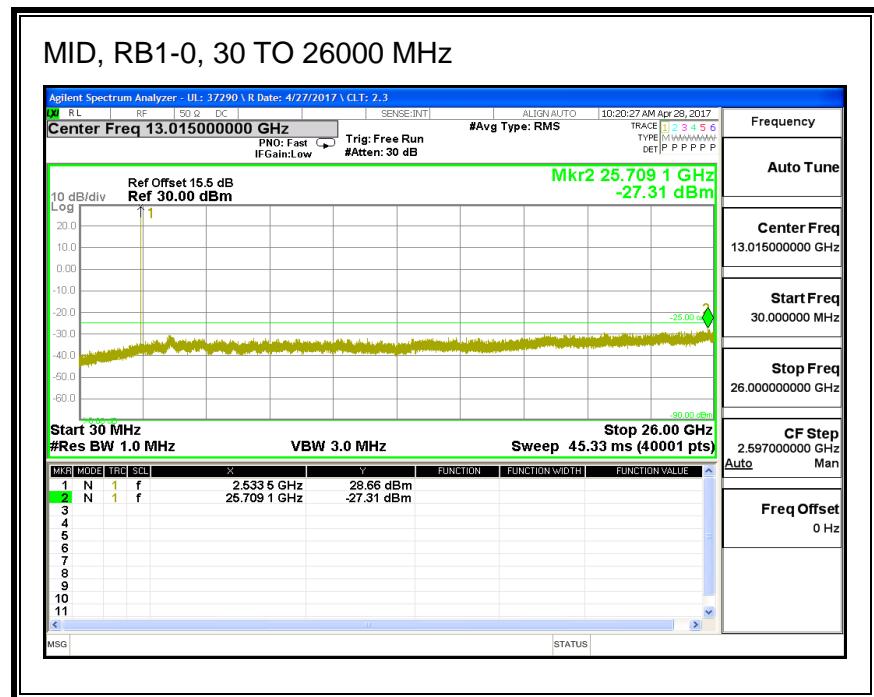
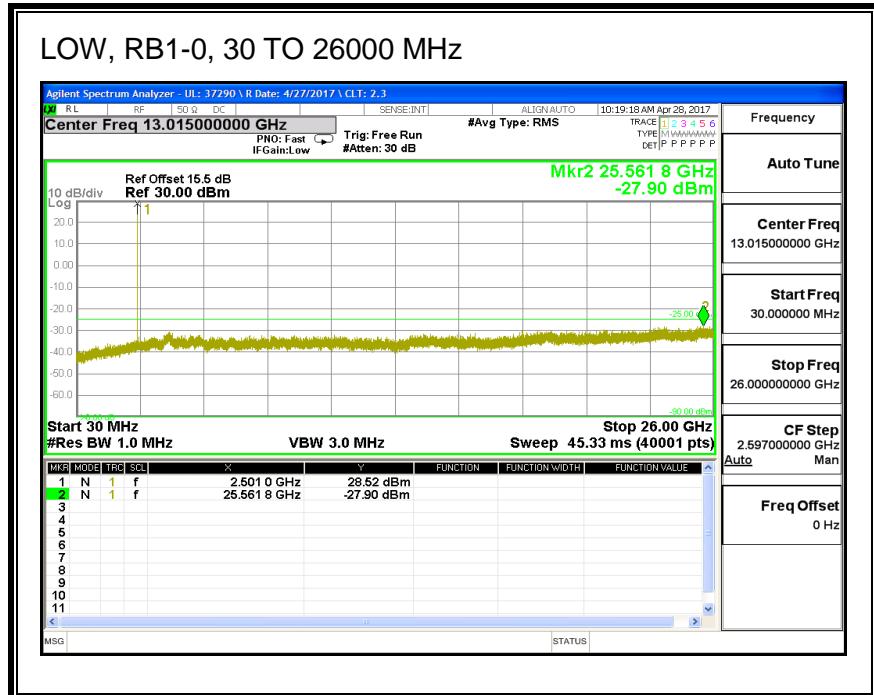
**LOW, RB1-0, 30 TO 10000 MHz**

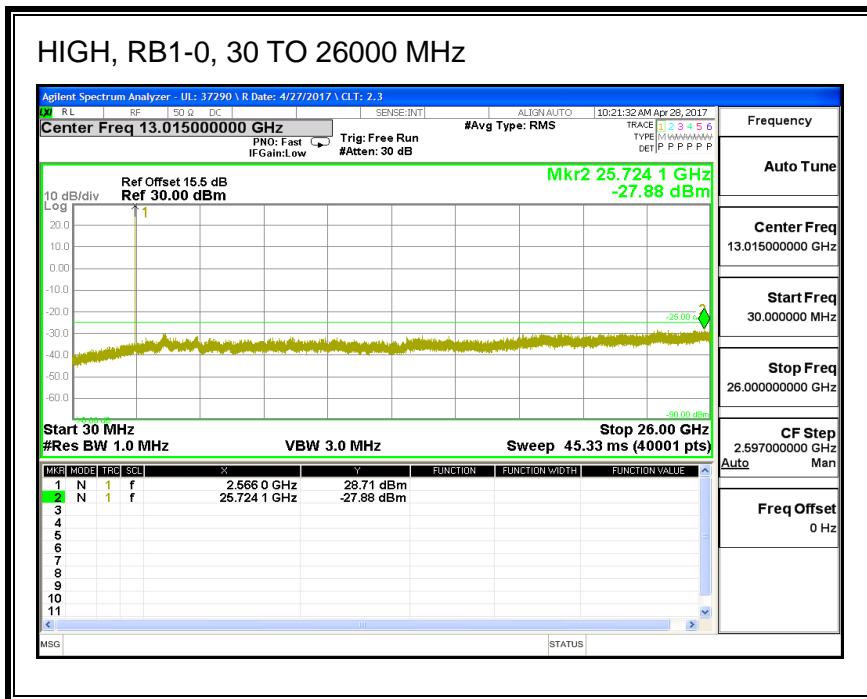




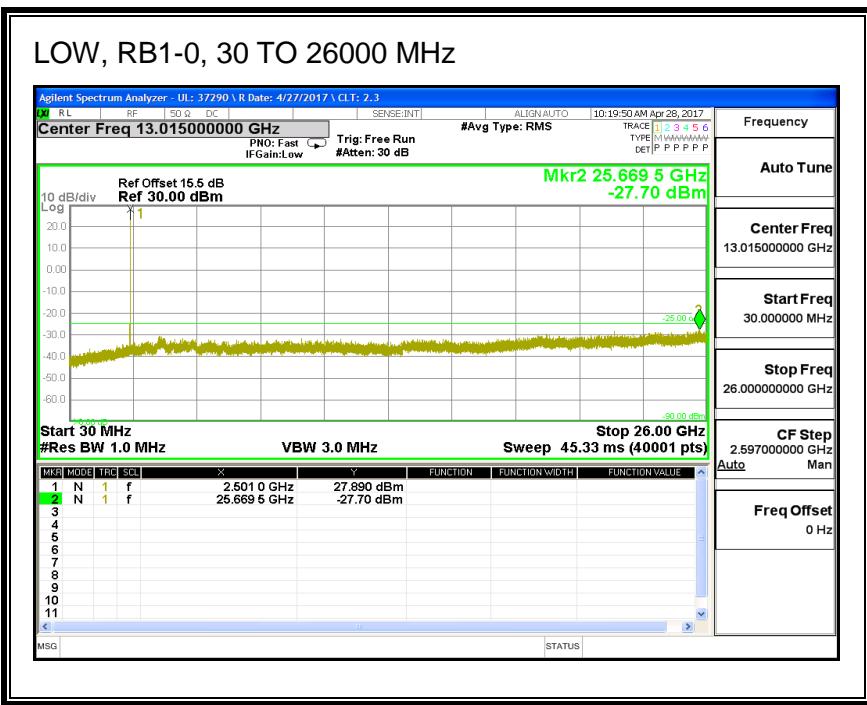
### 8.3.4. LTE BAND 7

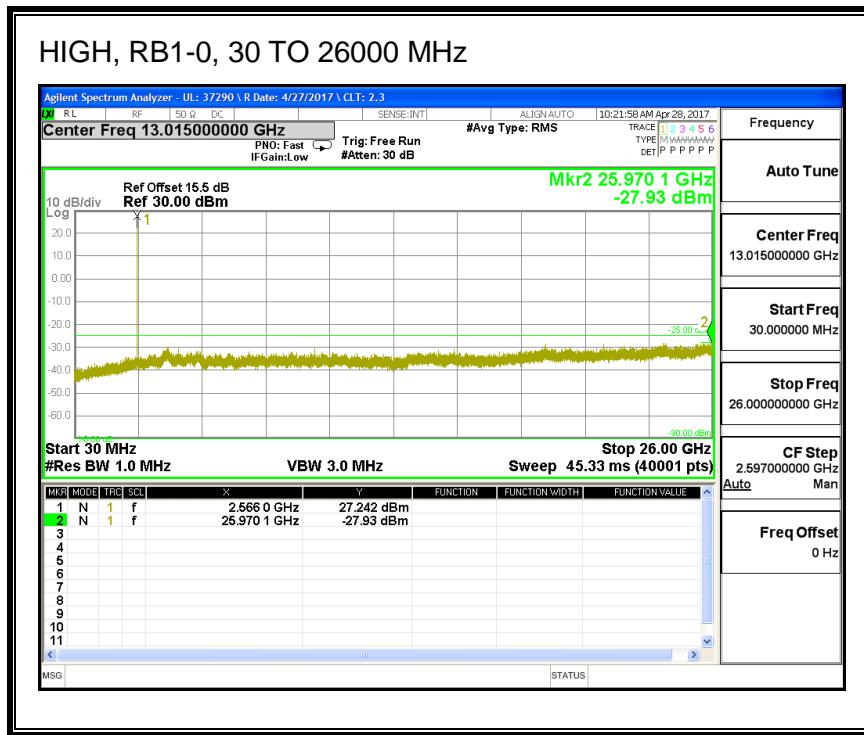
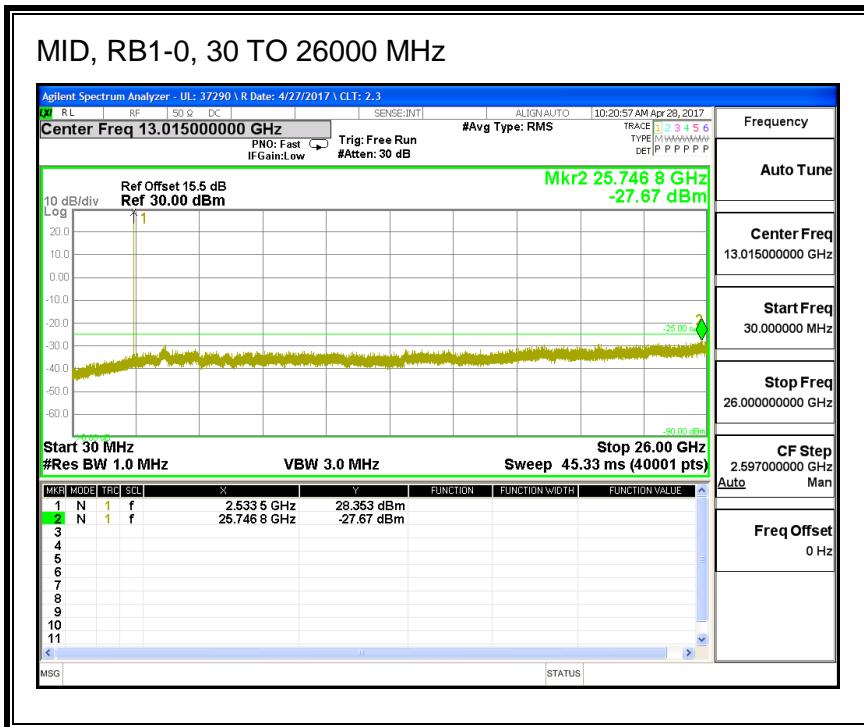
#### QPSK, (5.0 MHz BAND WIDTH)



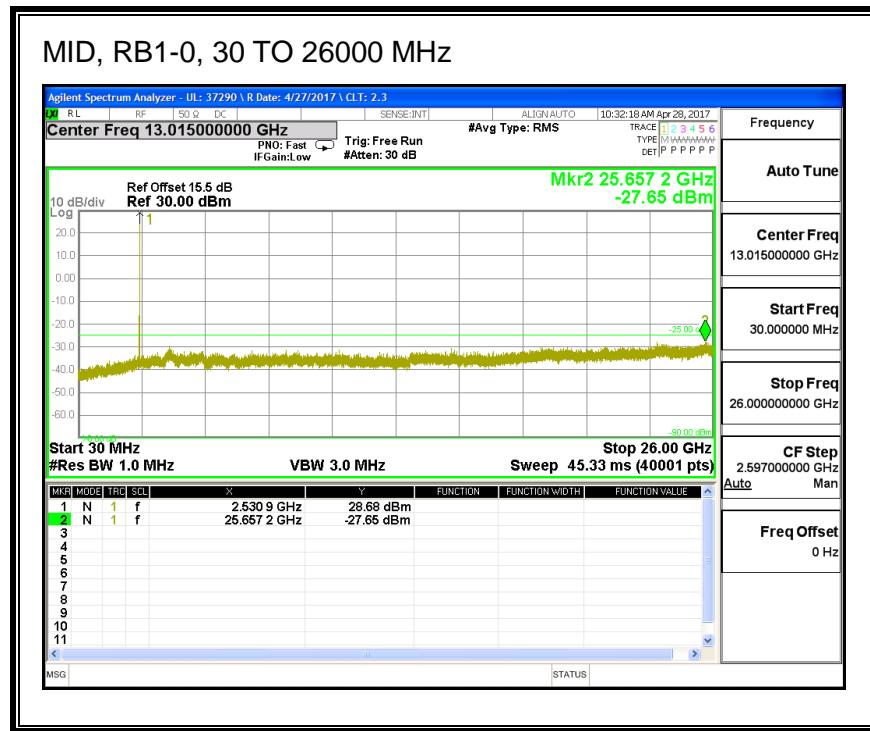
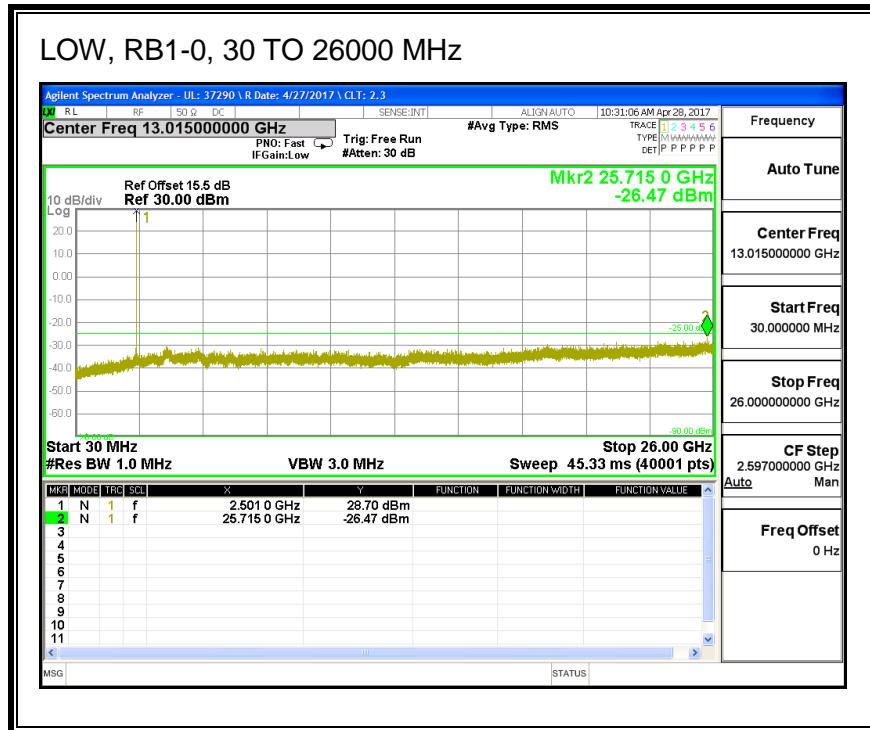


**16QAM, (5.0 MHz BAND WIDTH)**

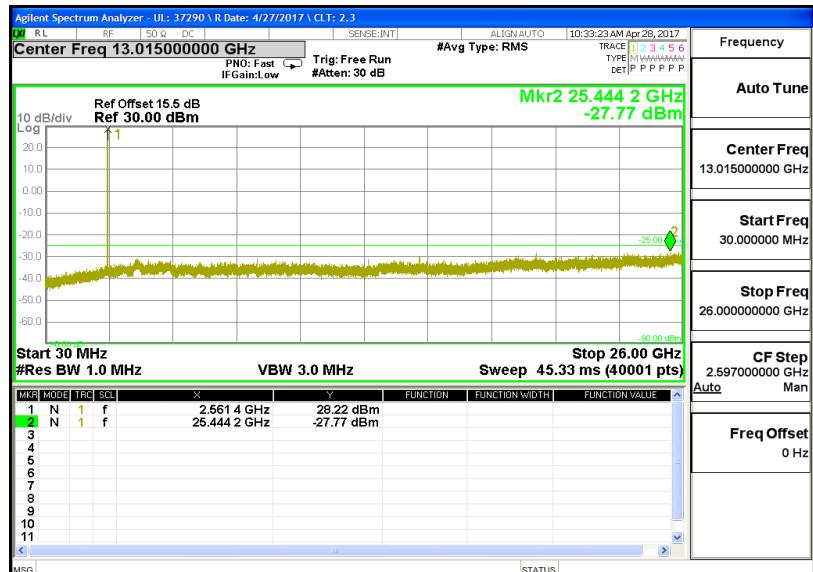




**QPSK, (10.0 MHz BAND WIDTH)**

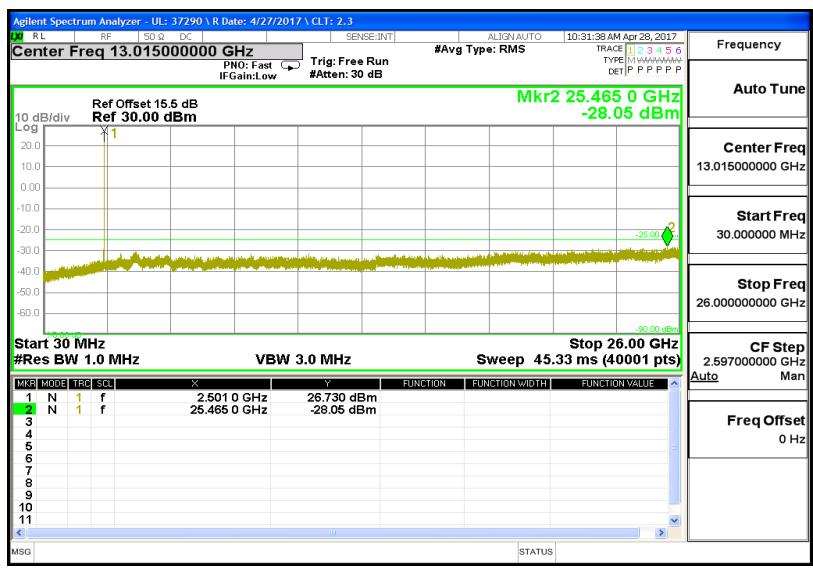


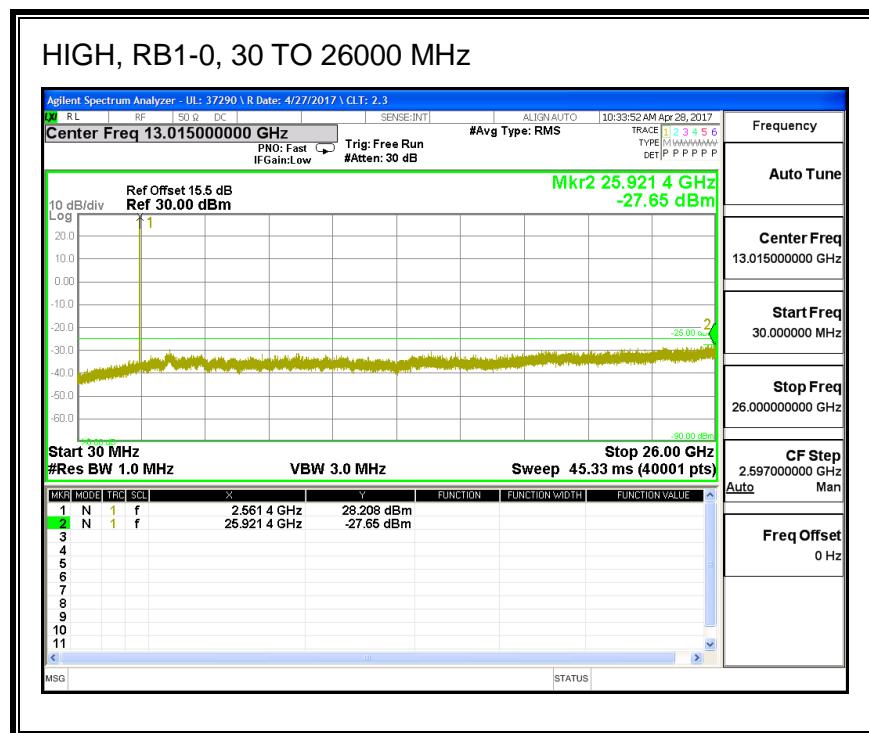
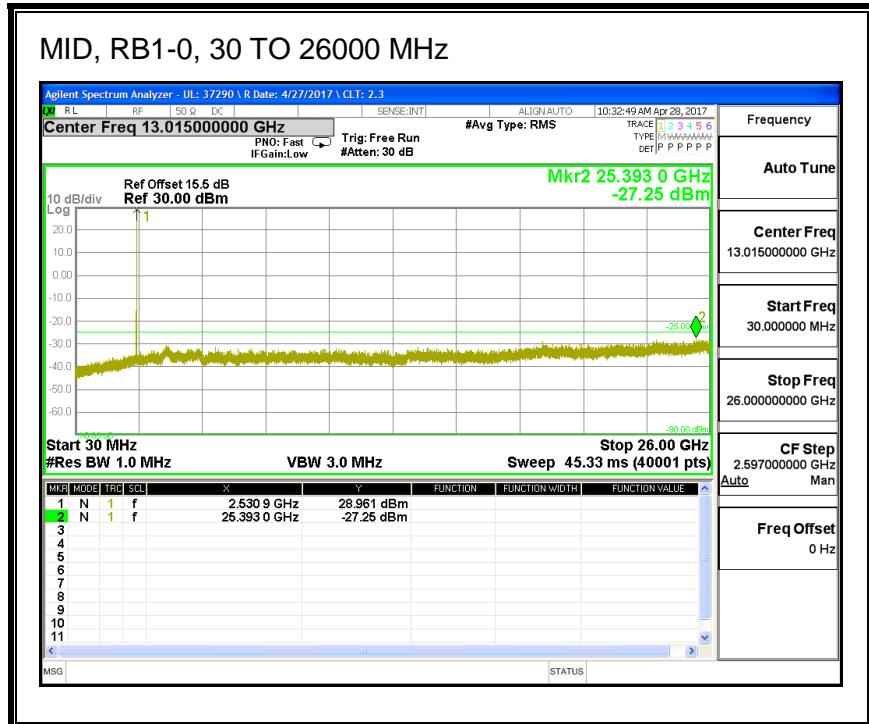
HIGH, RB1-0, 30 TO 26000 MHz



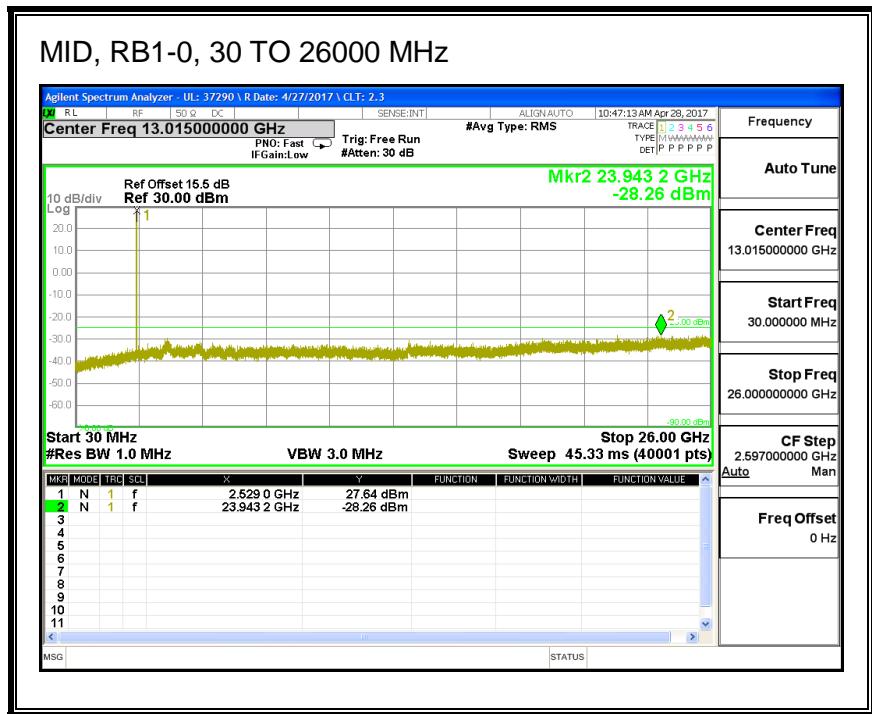
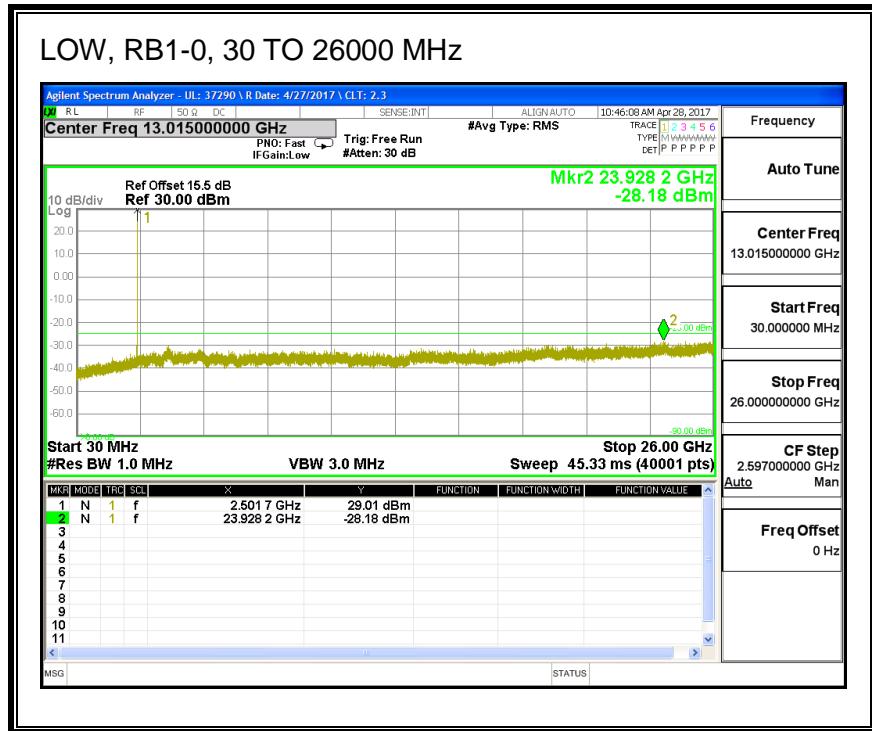
16QAM, (10.0 MHz BAND WIDTH)

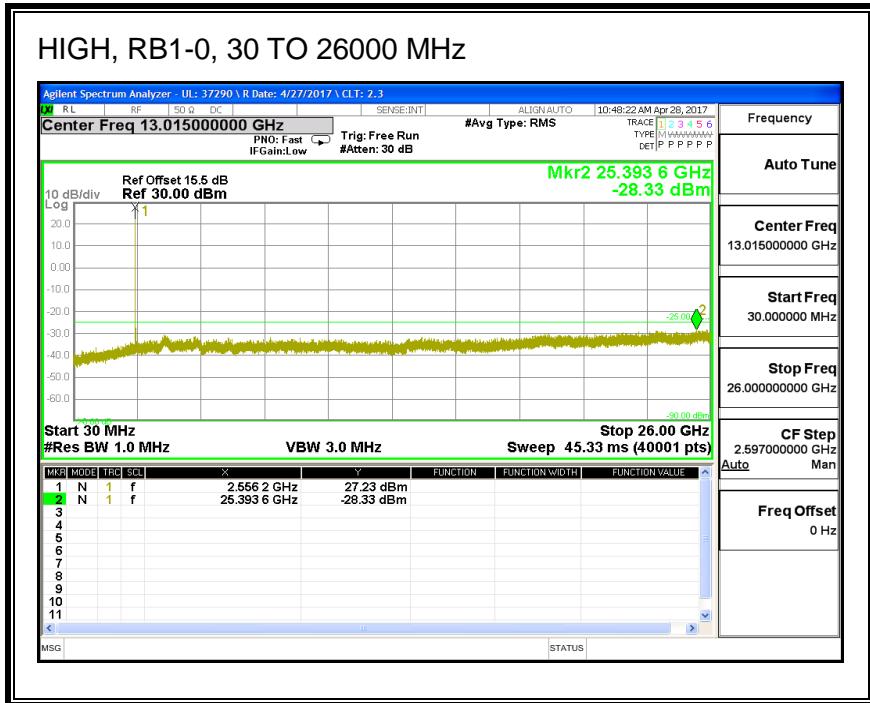
LOW, RB1-0, 30 TO 26000 MHz



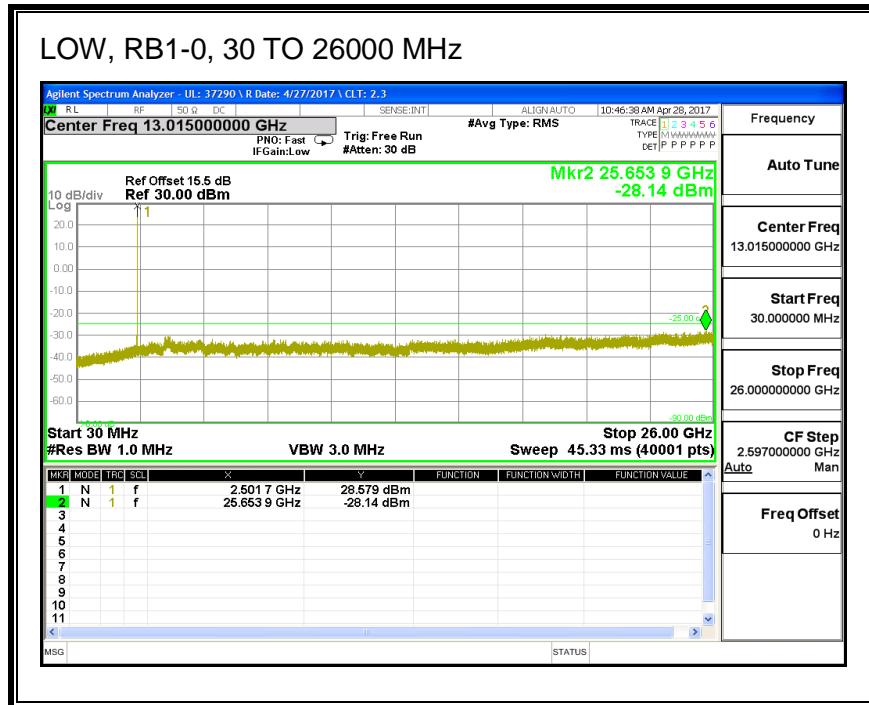


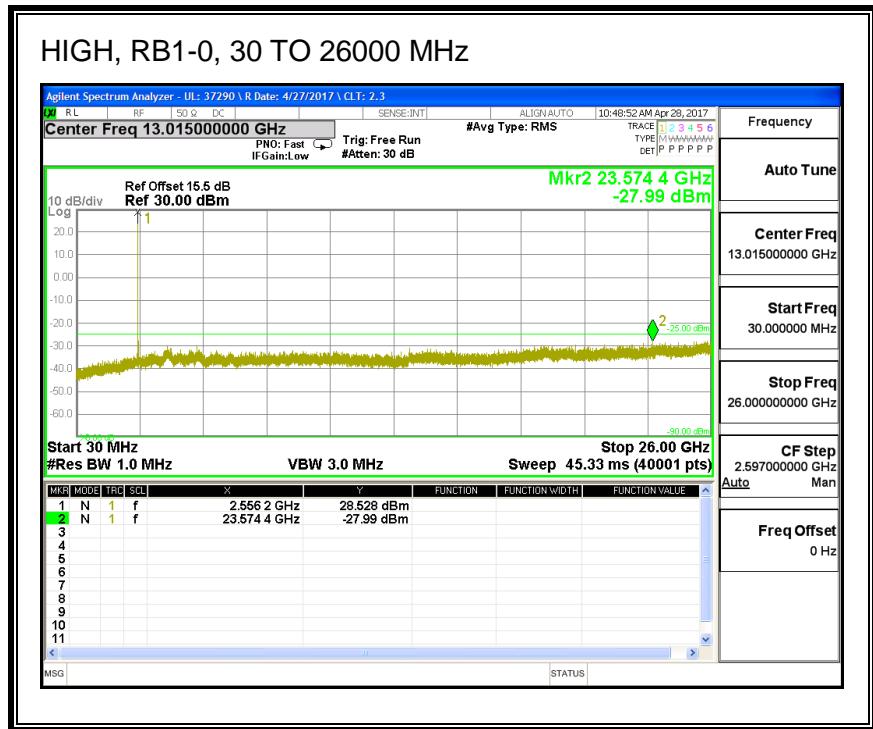
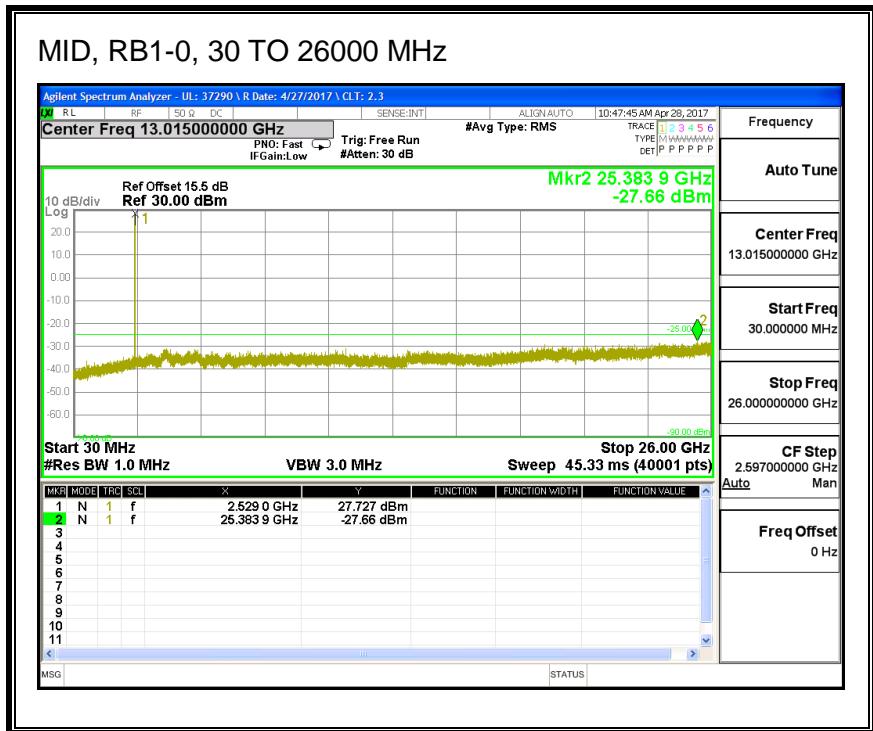
**QPSK, (15.0 MHz BAND WIDTH)**



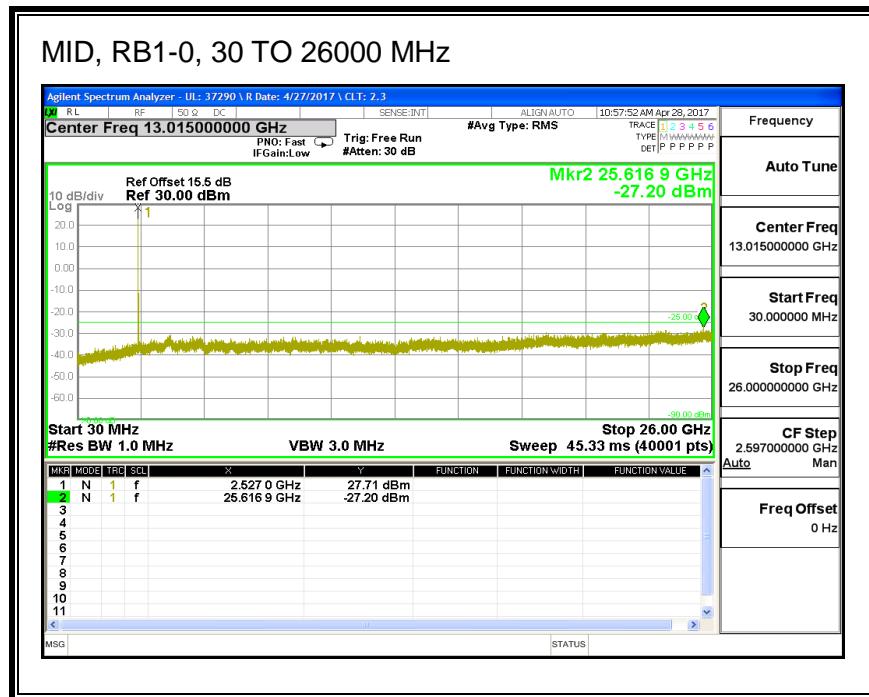
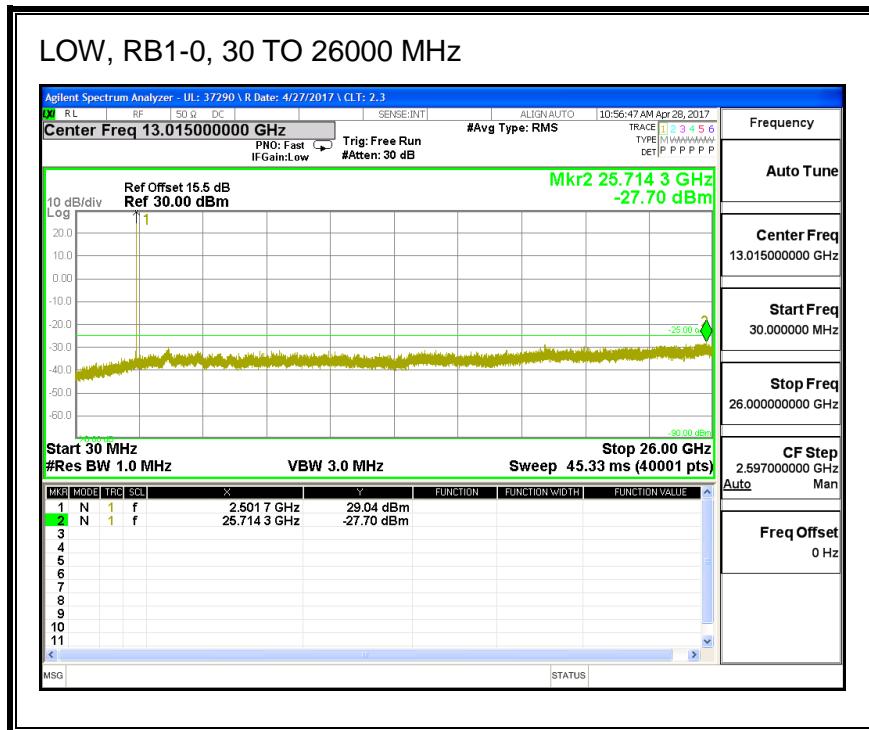


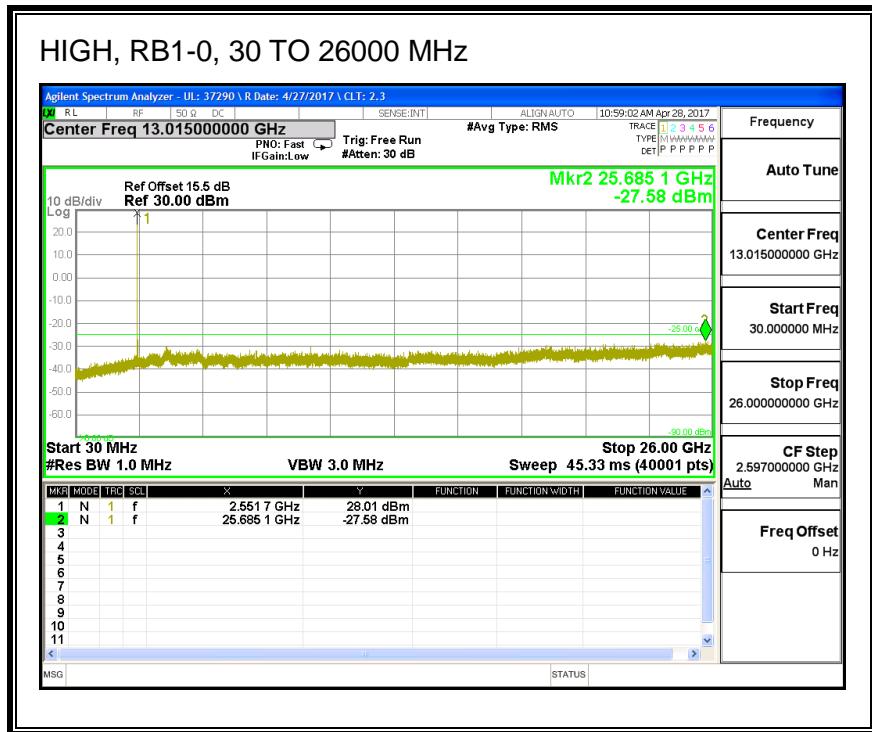
**16QAM, (15.0 MHz BAND WIDTH)**



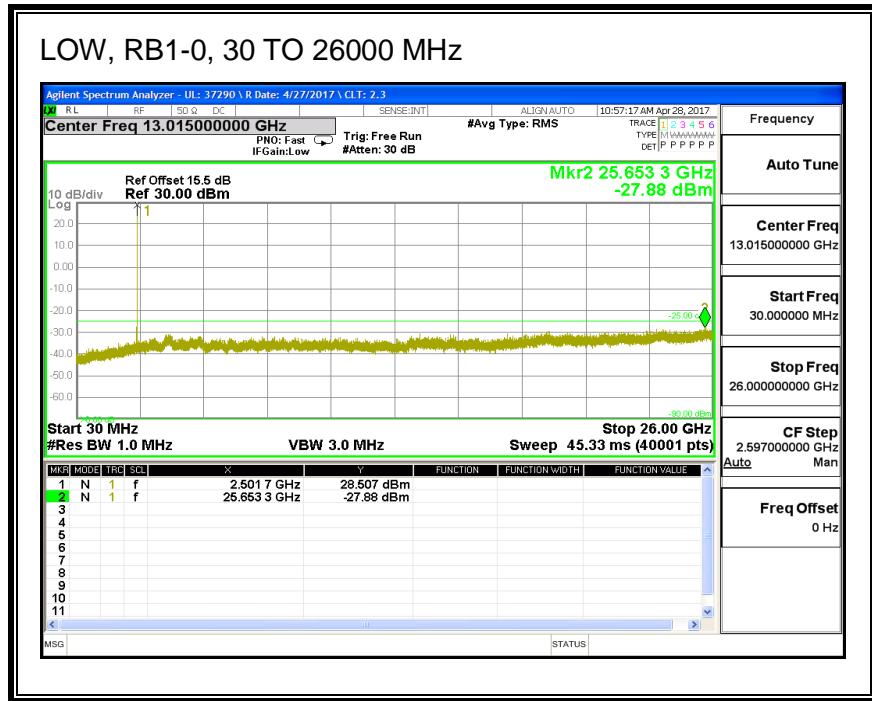


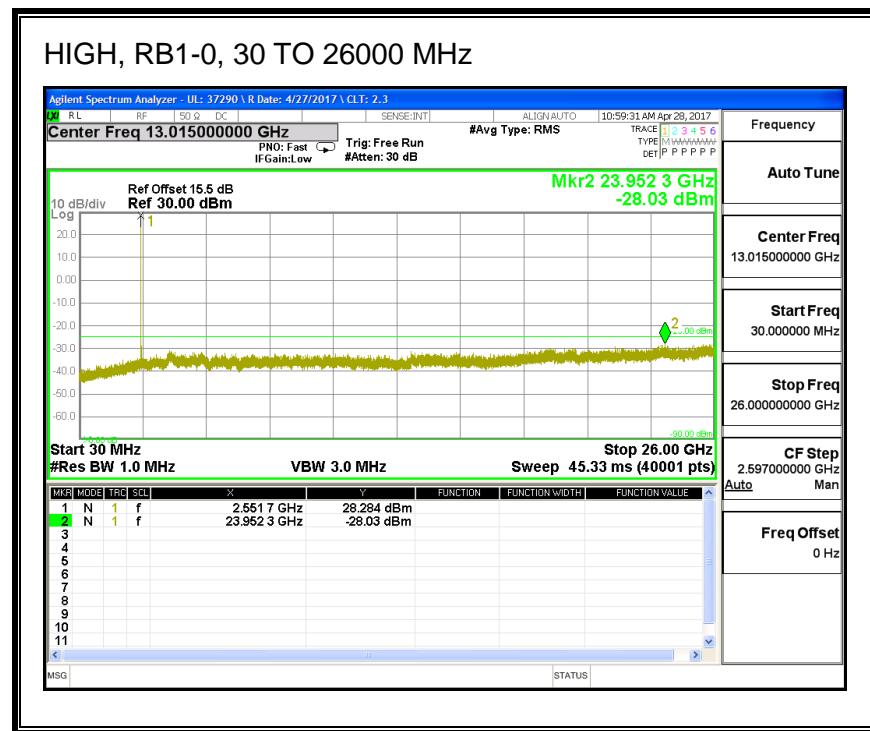
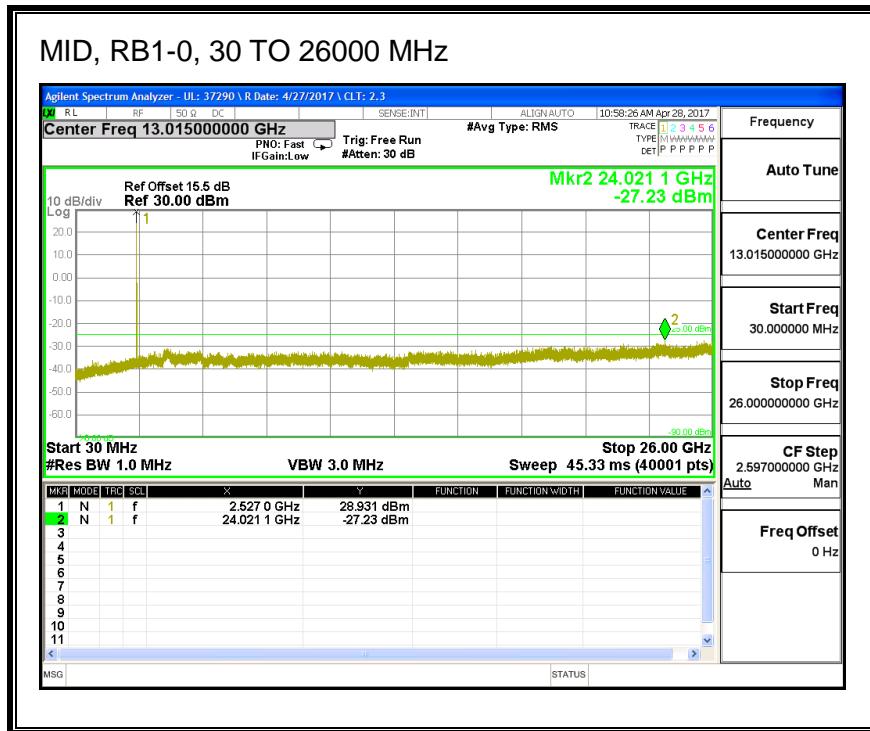
**QPSK, (20.0 MHz BAND WIDTH)**





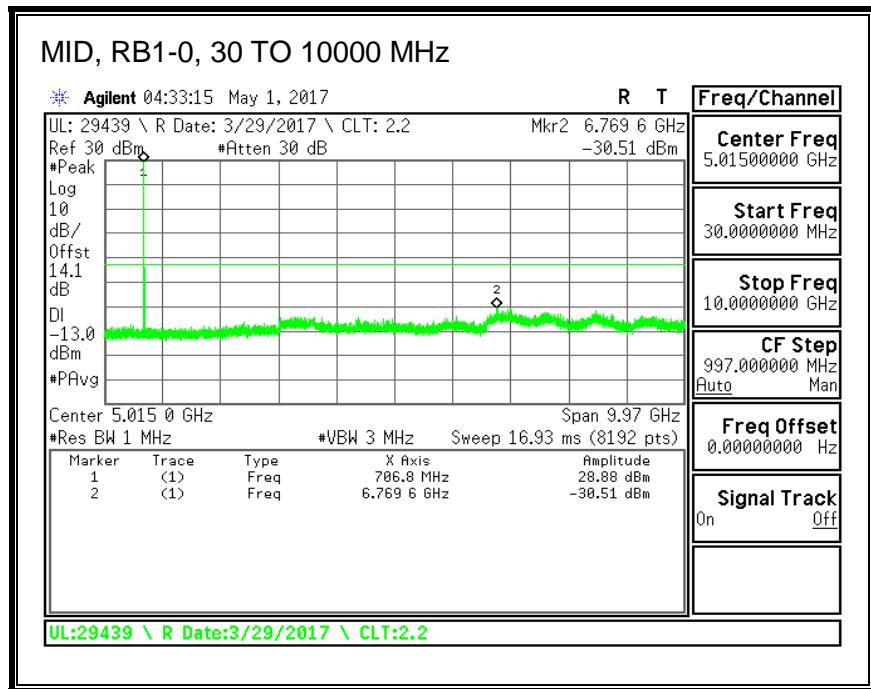
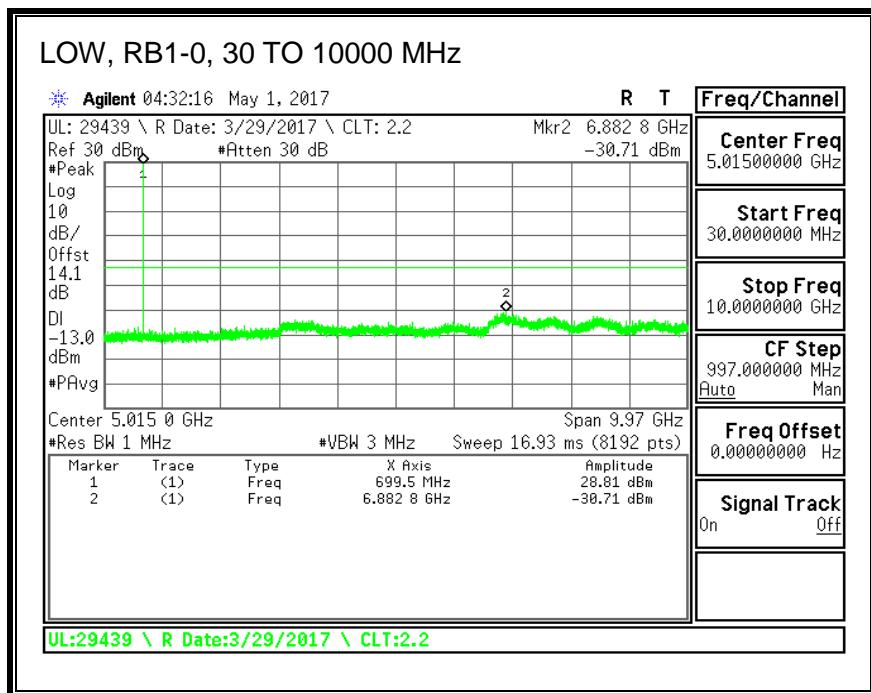
**16QAM, (20.0 MHz BAND WIDTH)**

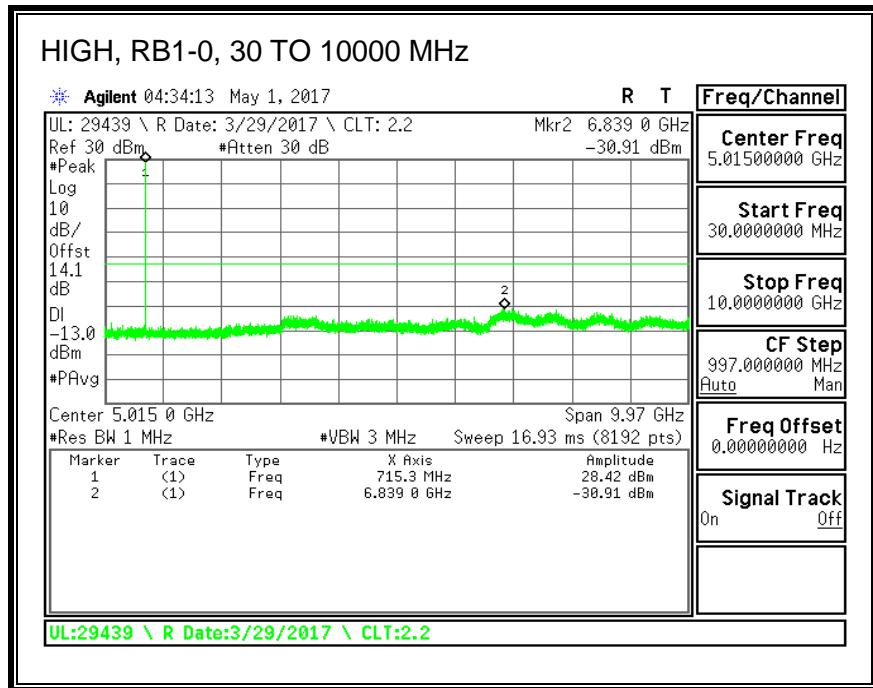




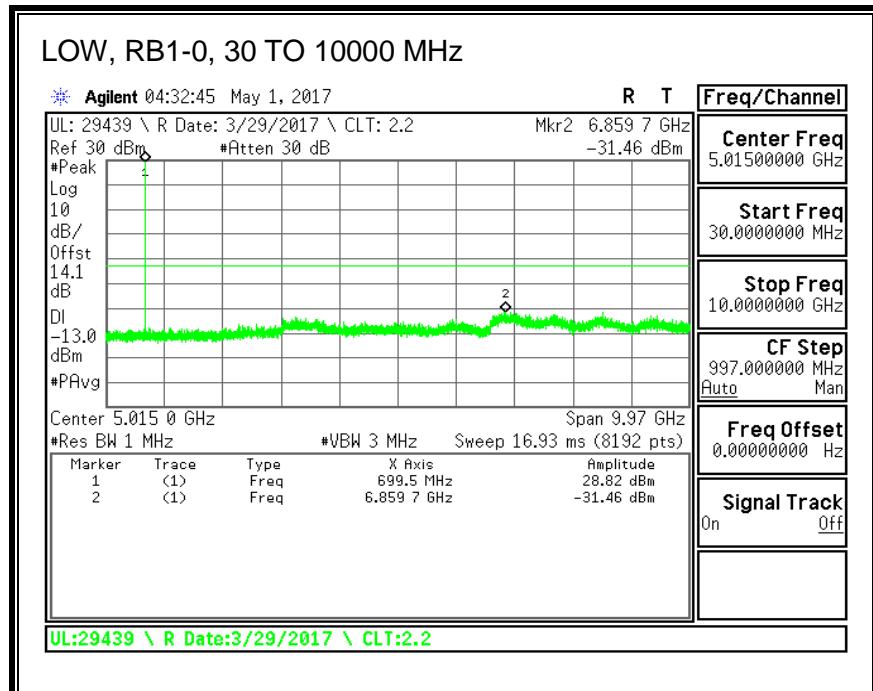
### 8.3.5. LTE BAND 12

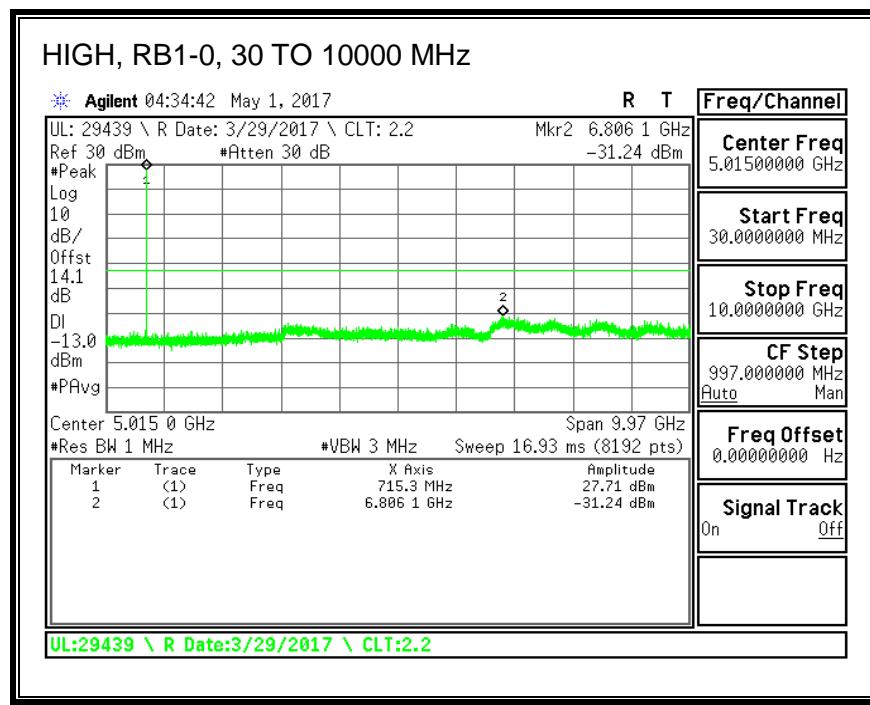
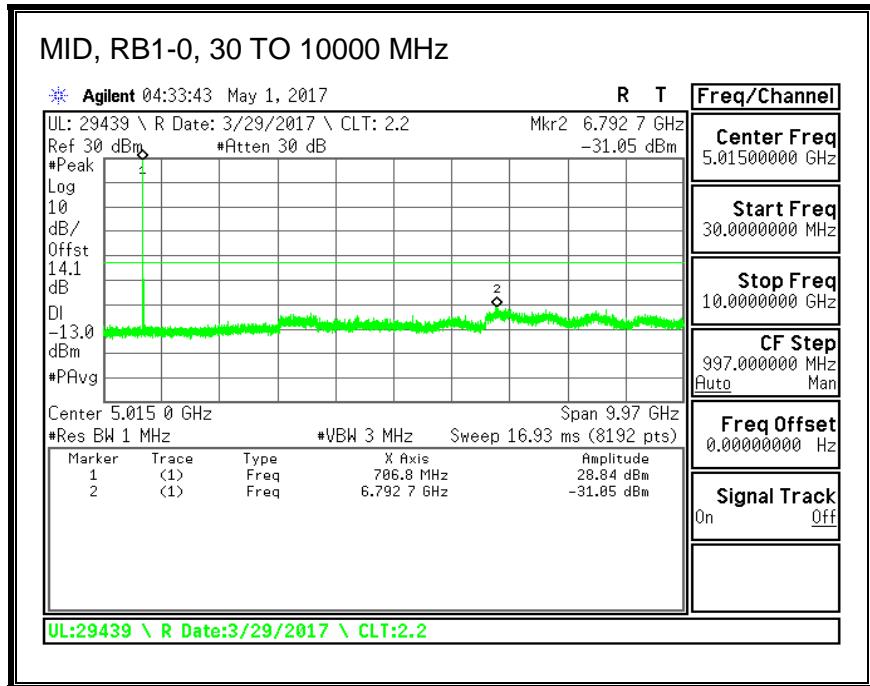
#### QPSK, (1.4 MHz BAND WIDTH)



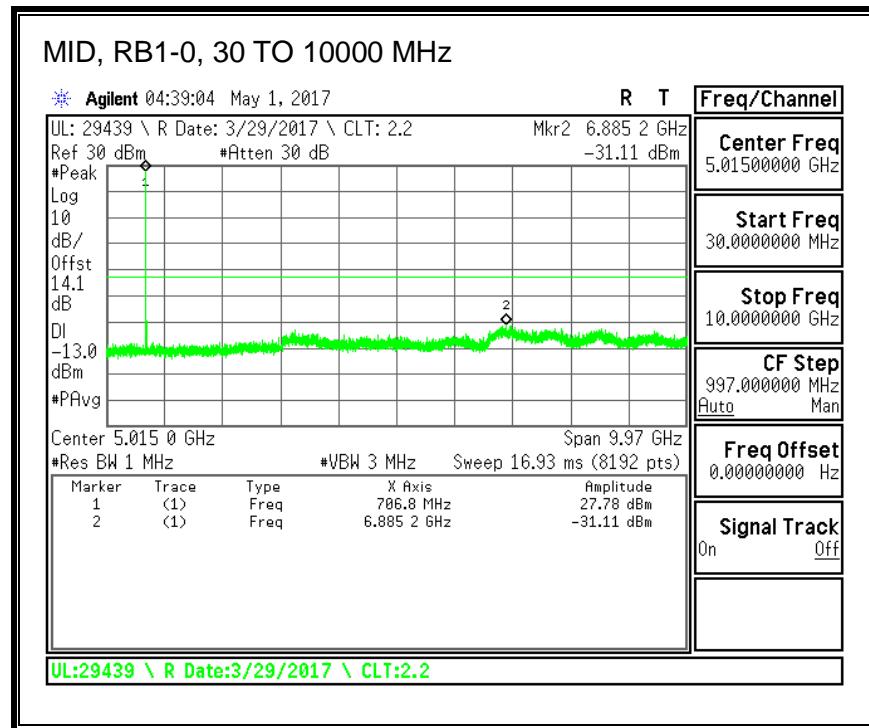
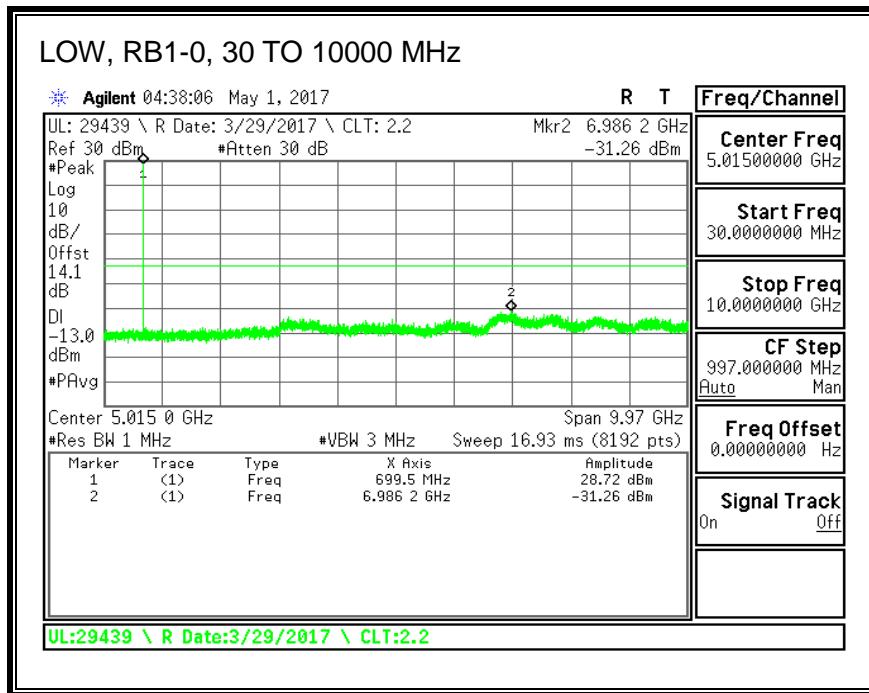


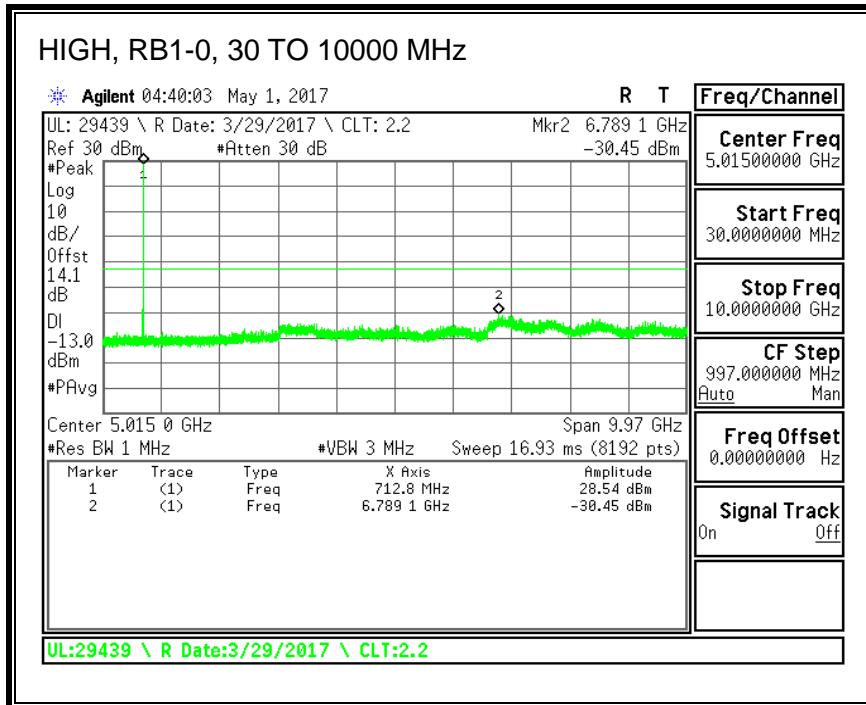
**16QAM, (1.4 MHz BAND WIDTH)**



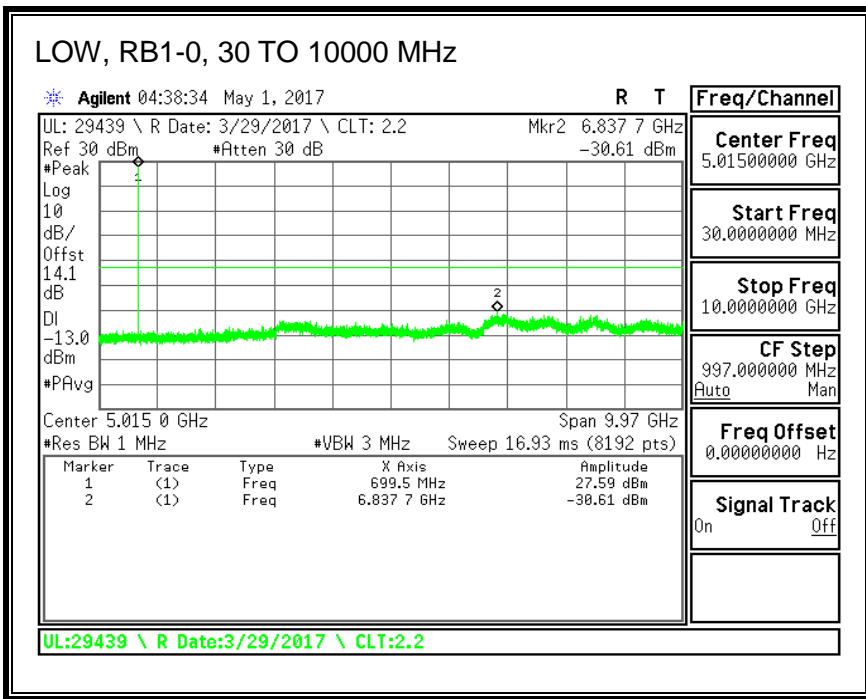


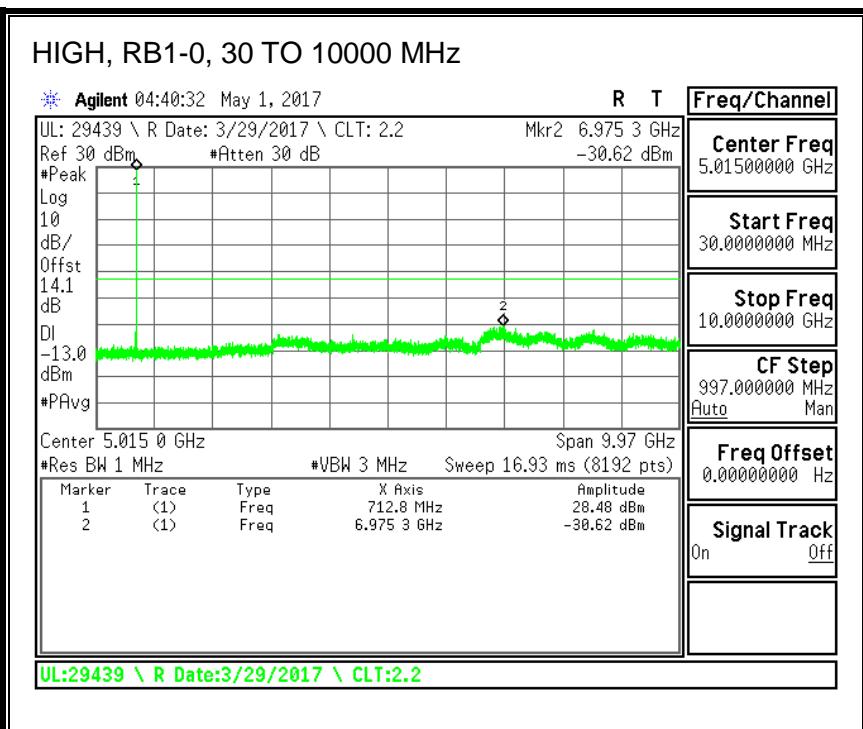
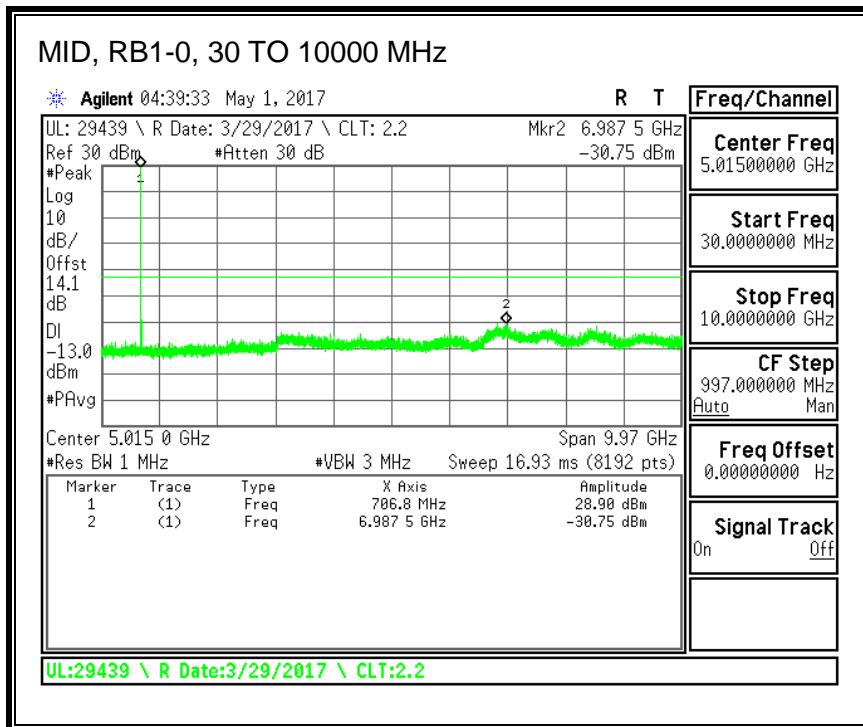
**QPSK, (3.0 MHz BAND WIDTH)**



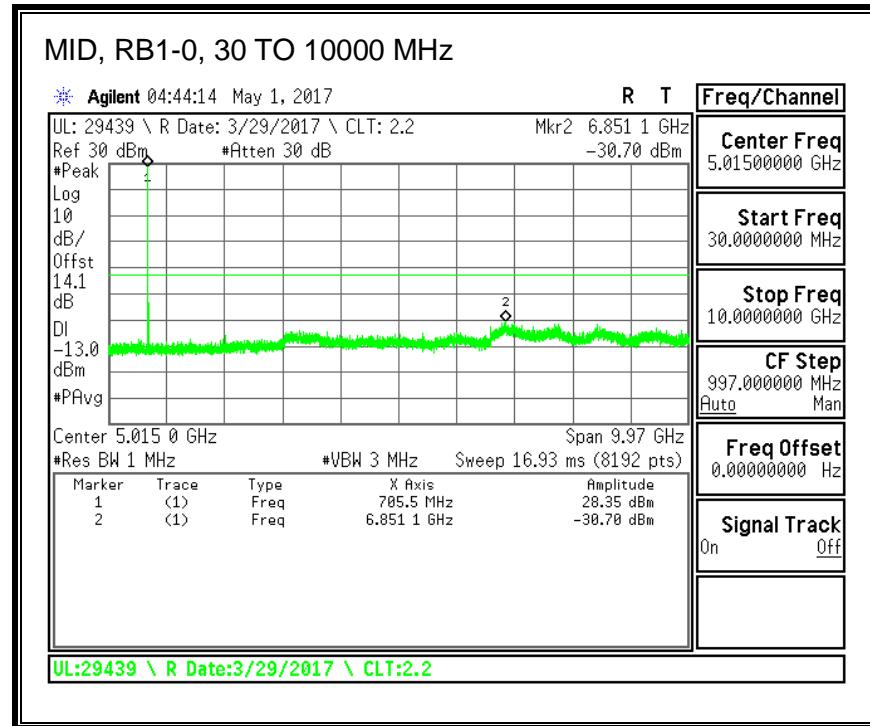
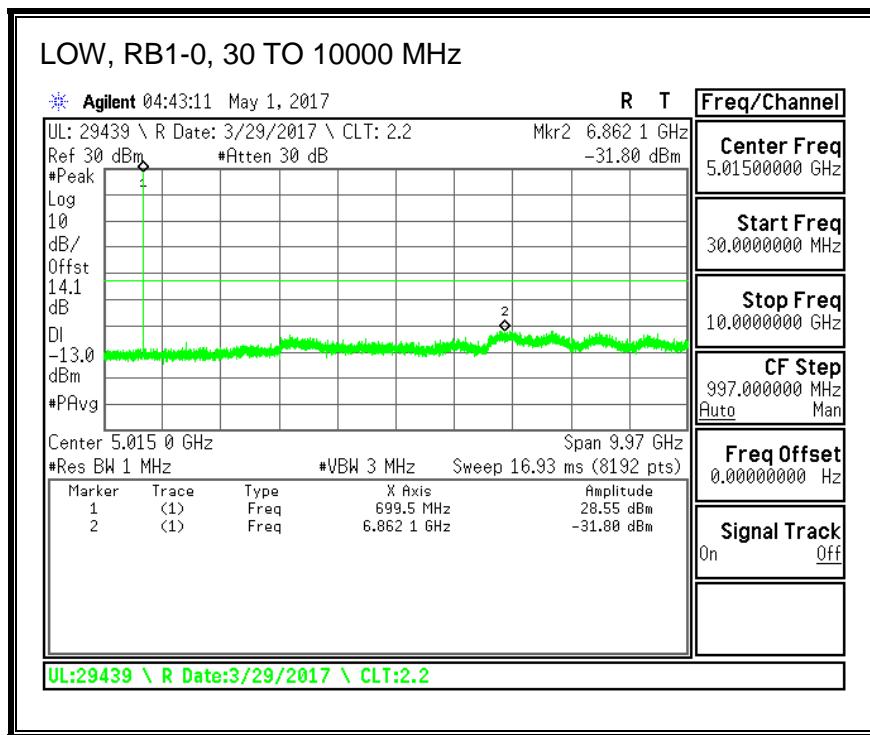


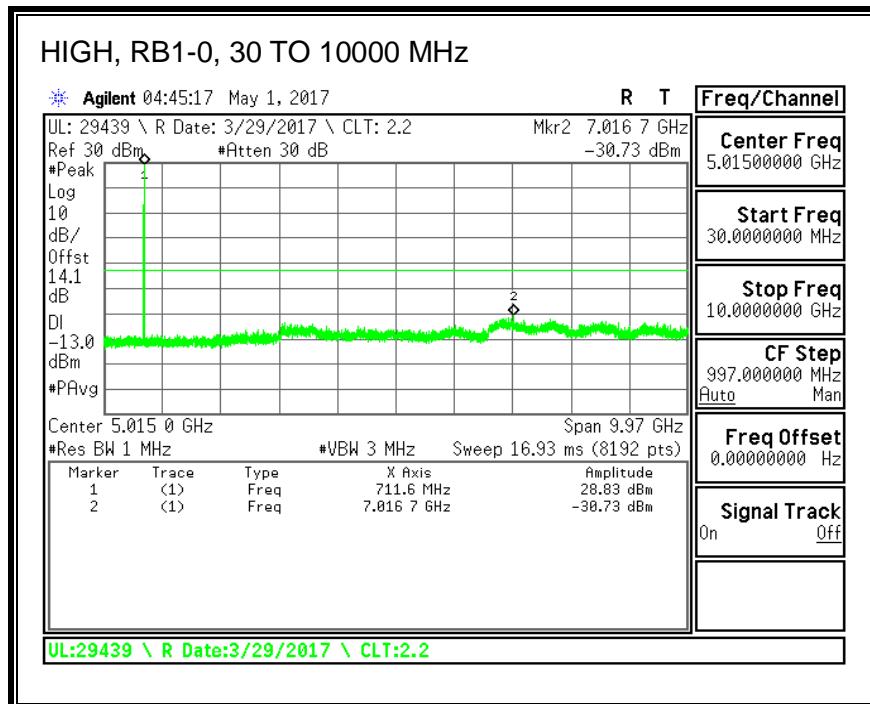
**16QAM, (3.0 MHz BAND WIDTH)**



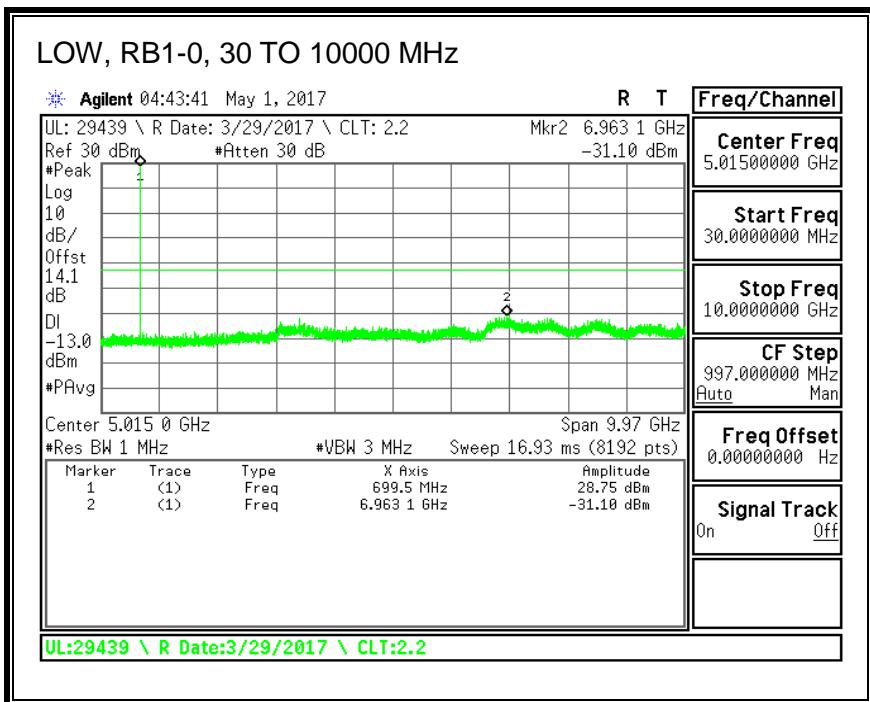


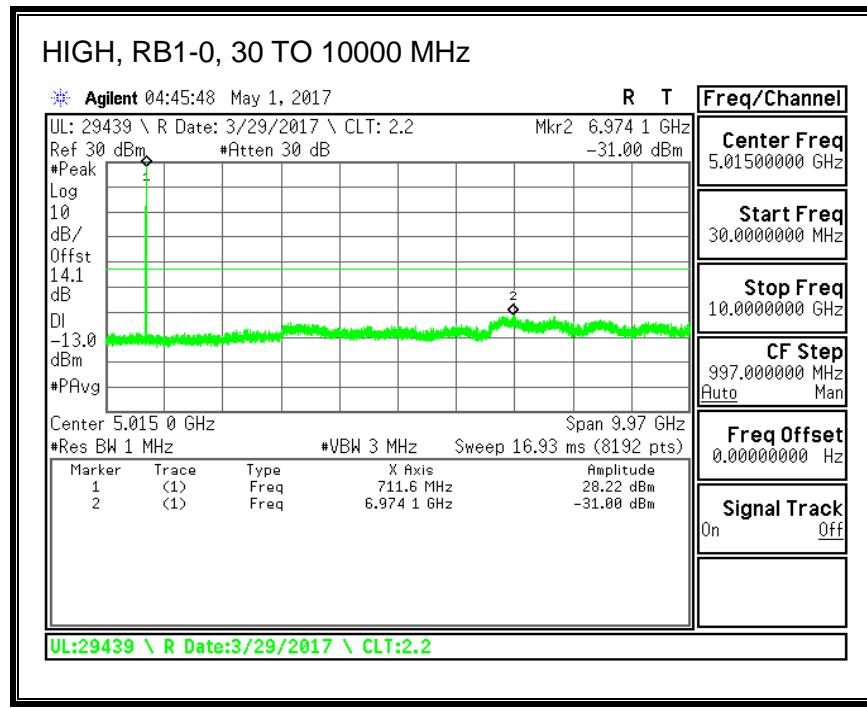
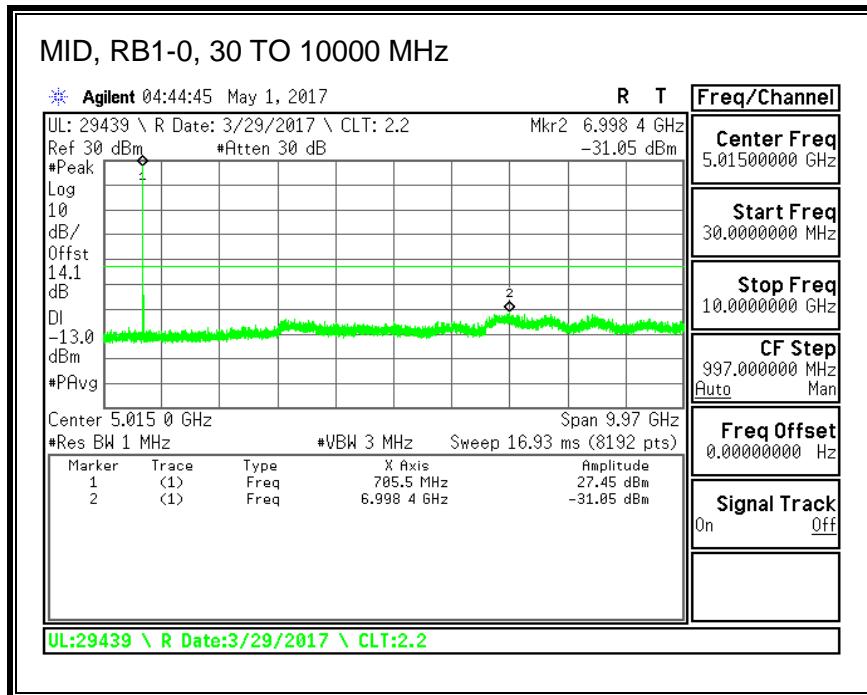
**QPSK, (5.0 MHz BAND WIDTH)**



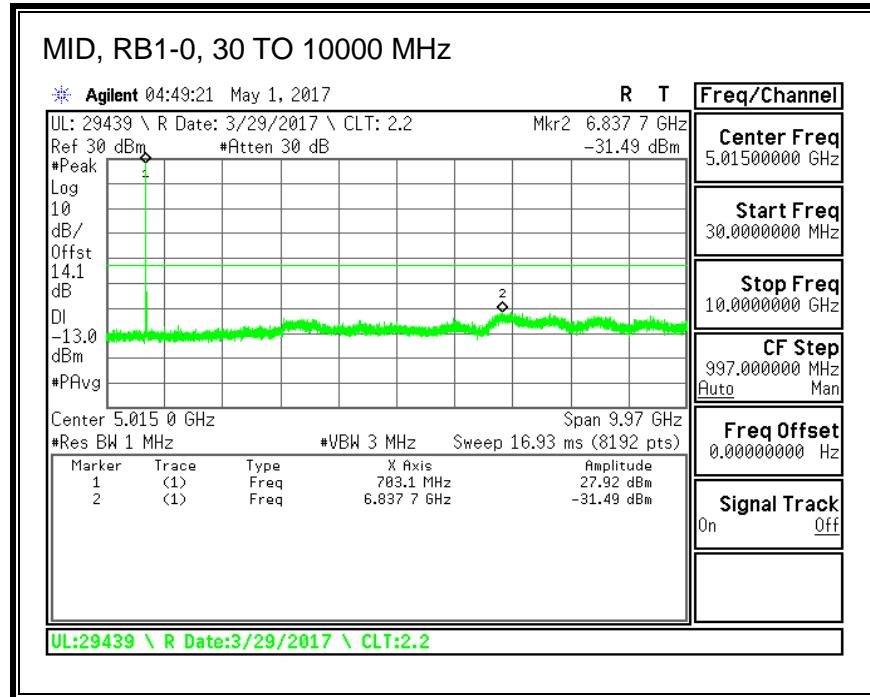
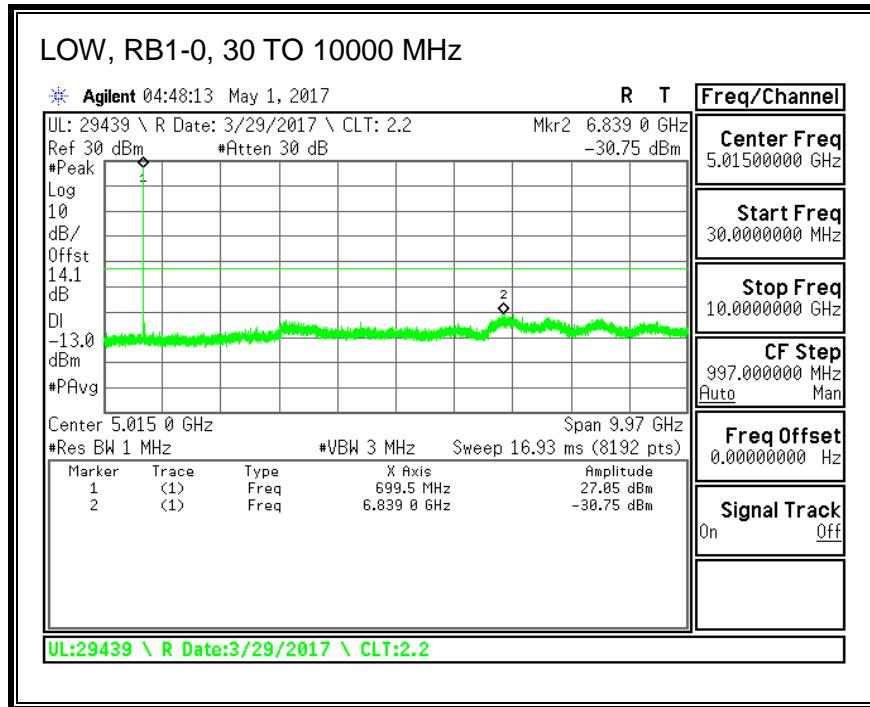


**16QAM, (5.0 MHz BAND WIDTH)**

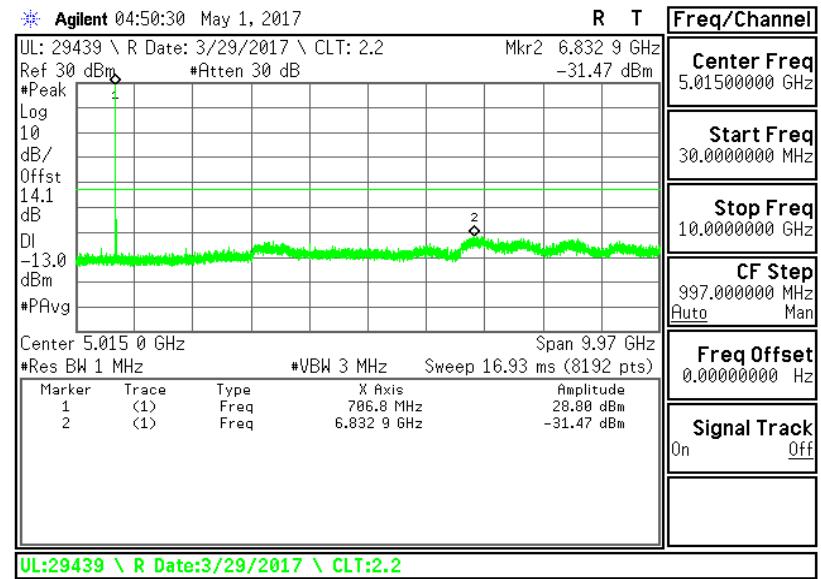




**QPSK, (10.0 MHz BAND WIDTH)**

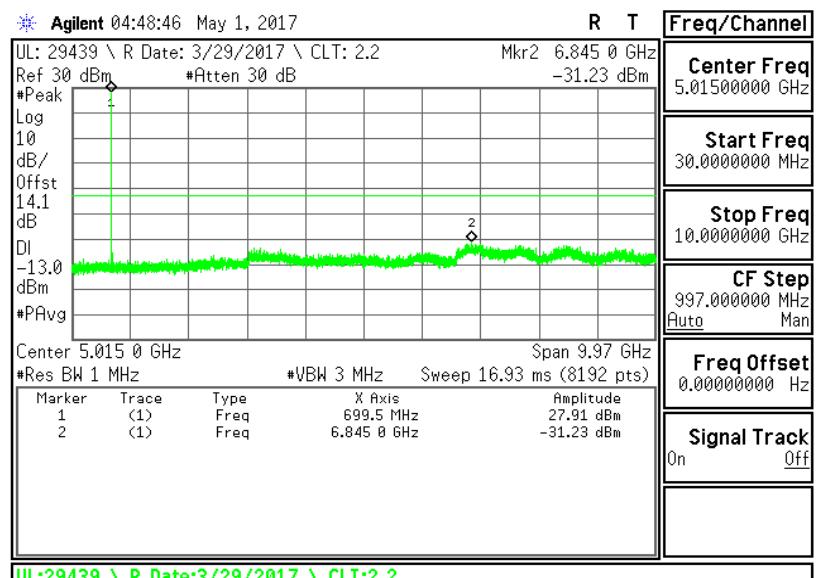


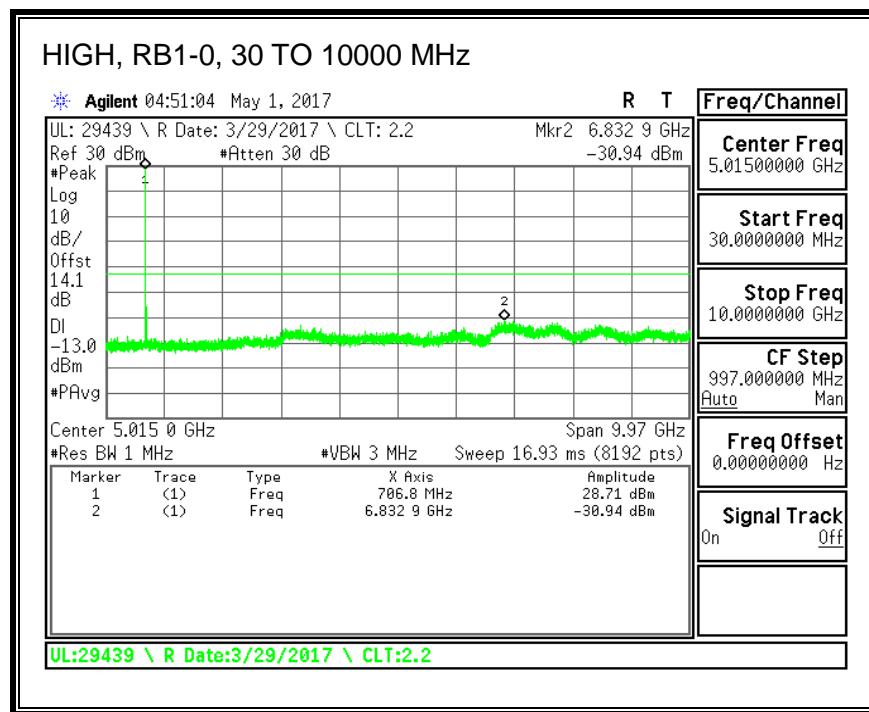
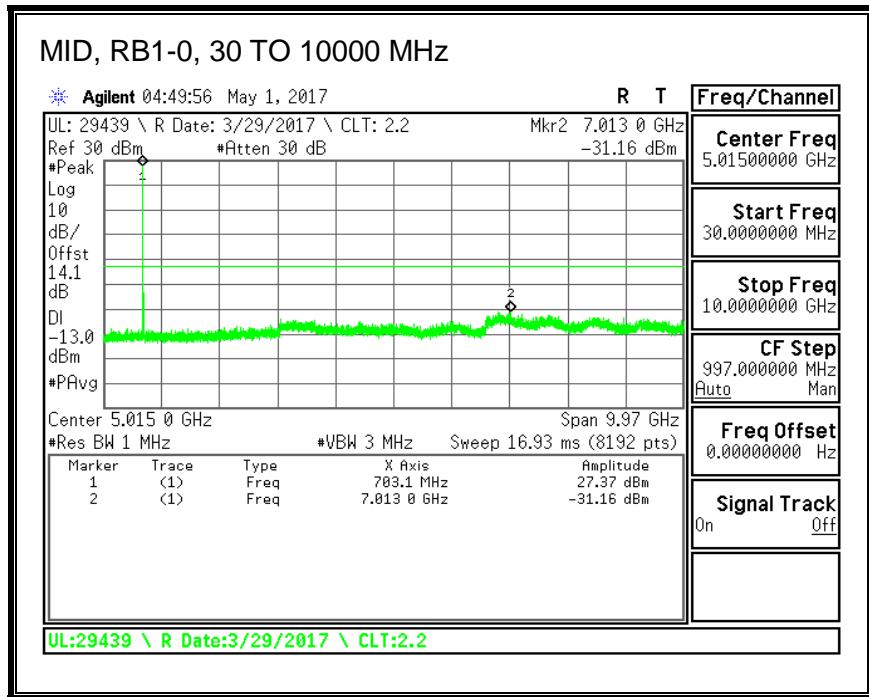
### HIGH, RB1-0, 30 TO 10000 MHz



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

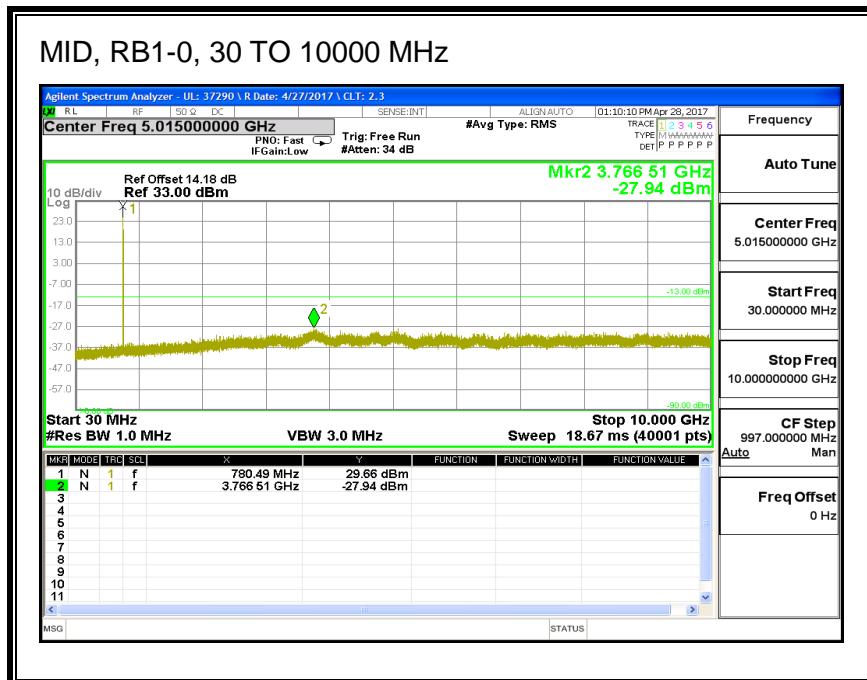
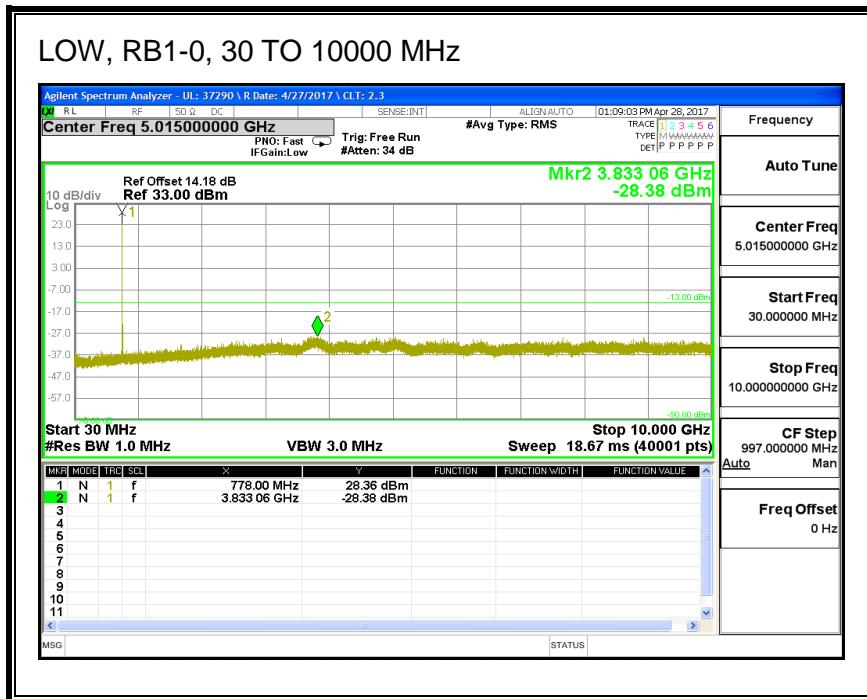
### LOW, RB1-0, 30 TO 10000 MHz

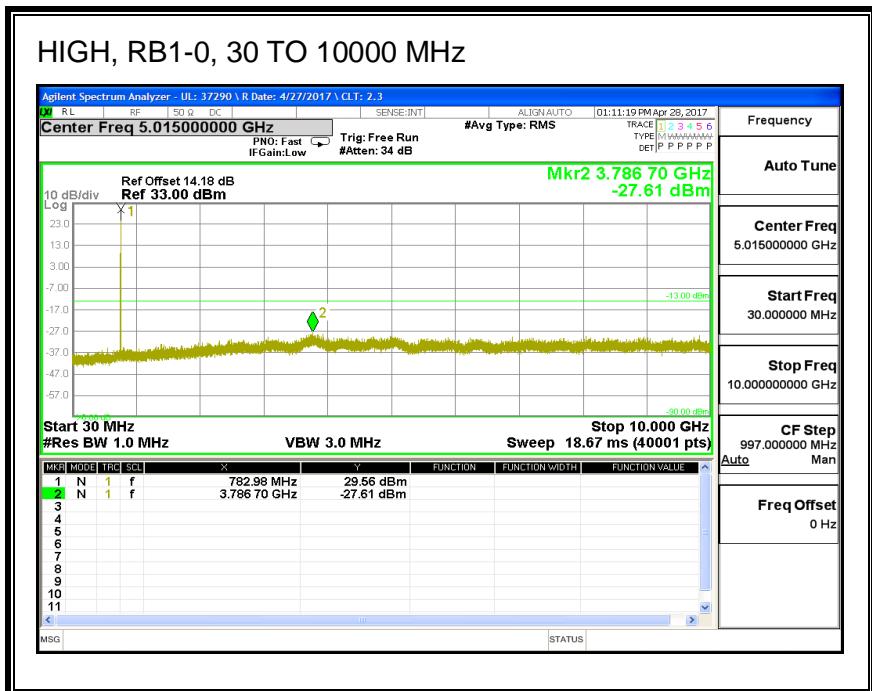




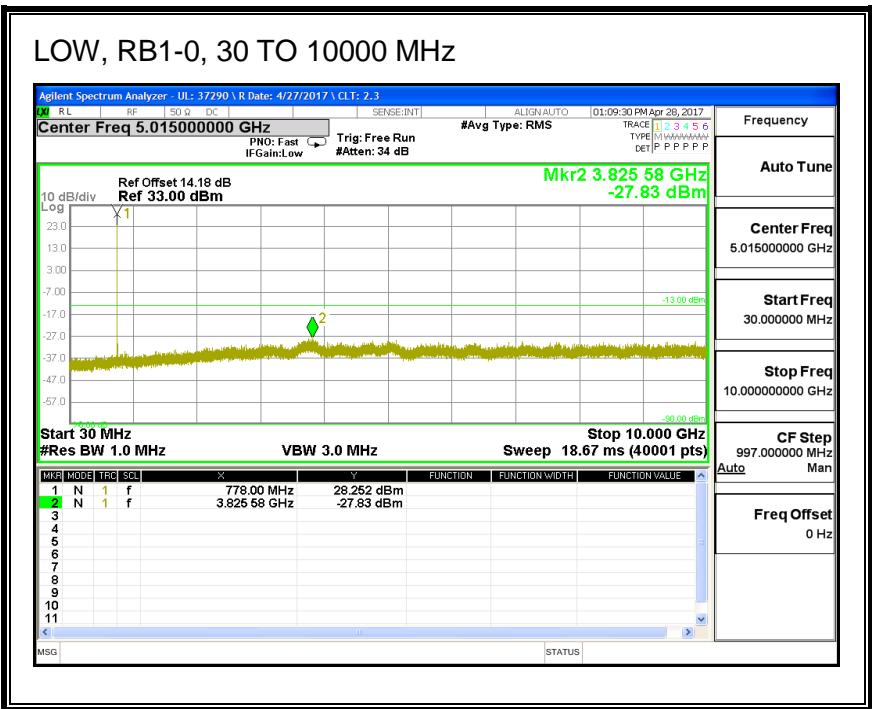
### 8.3.6. LTE BAND 13

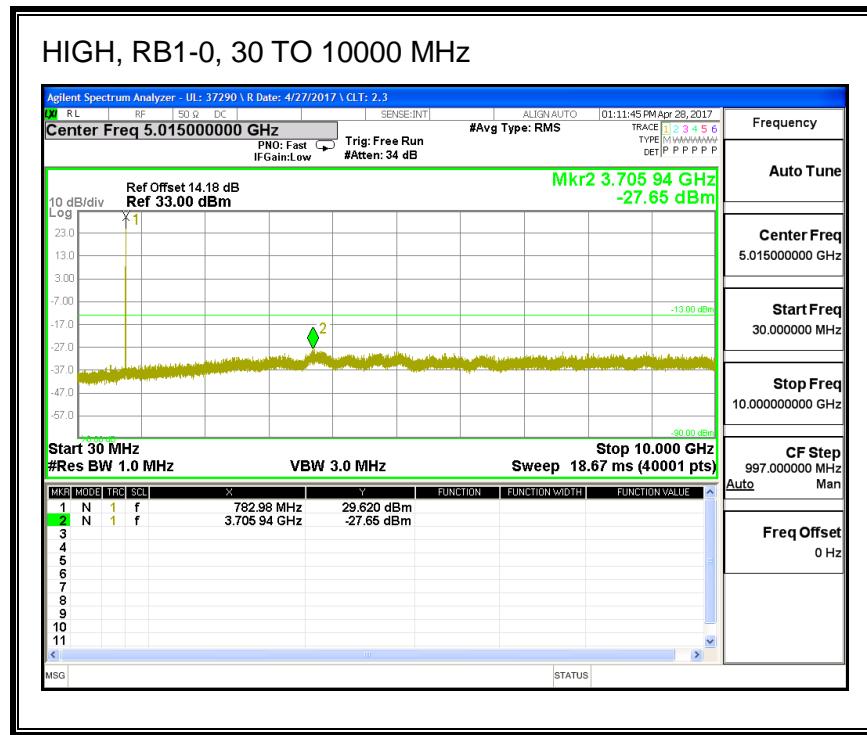
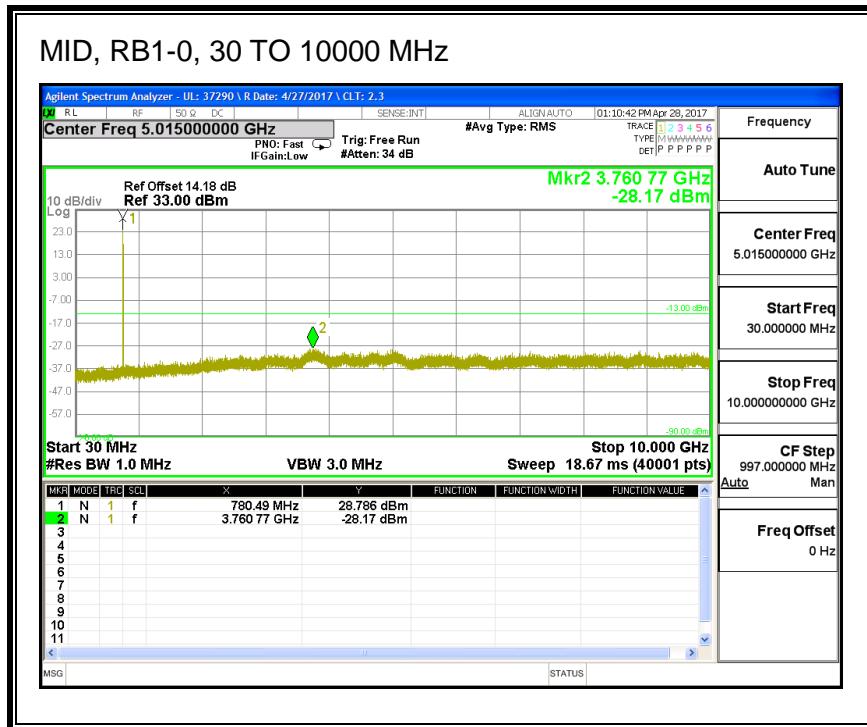
#### QPSK, (5.0 MHz BAND WIDTH)



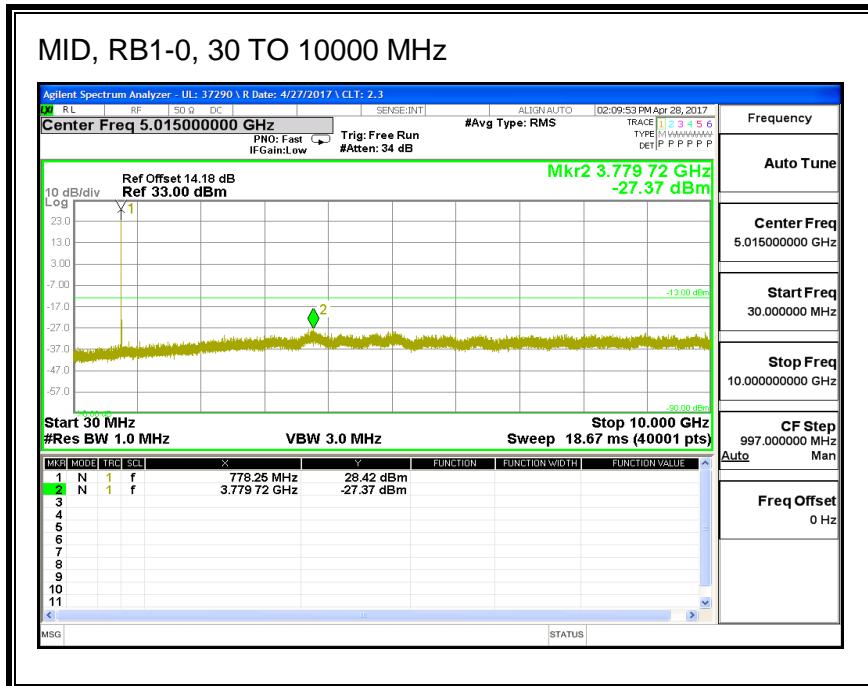


### 16QAM, (5.0 MHz BAND WIDTH)

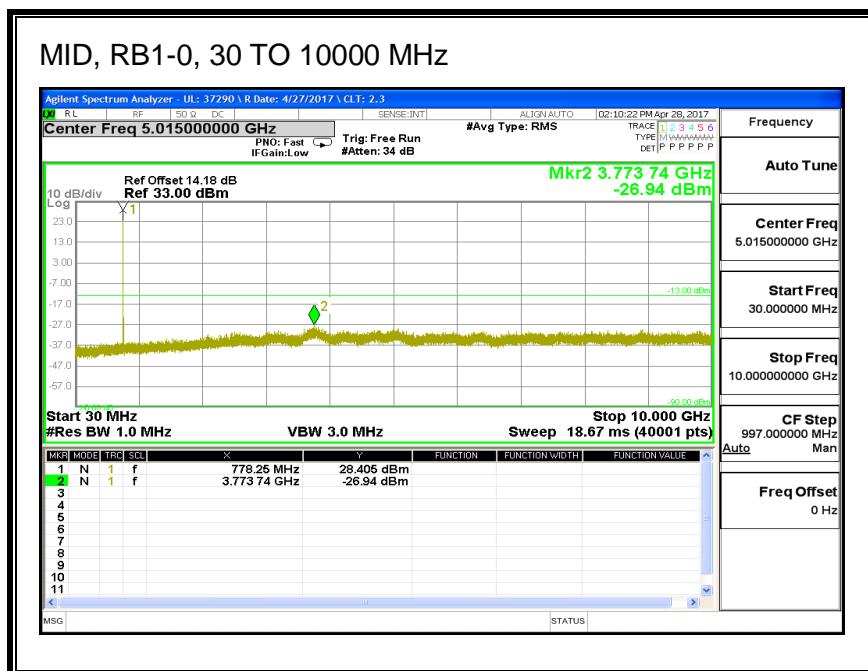




**QPSK, (10.0 MHz BAND WIDTH)**

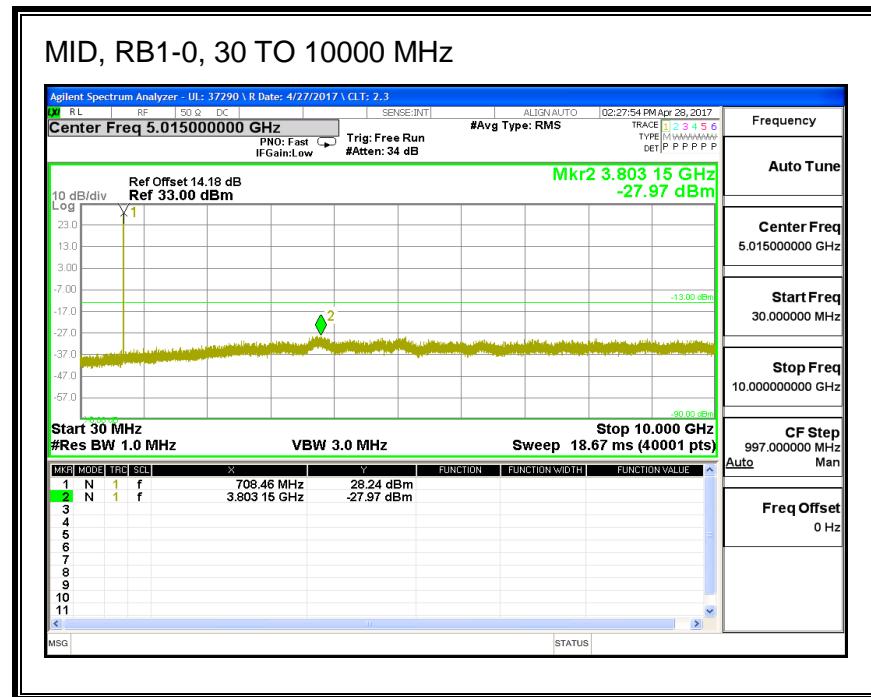
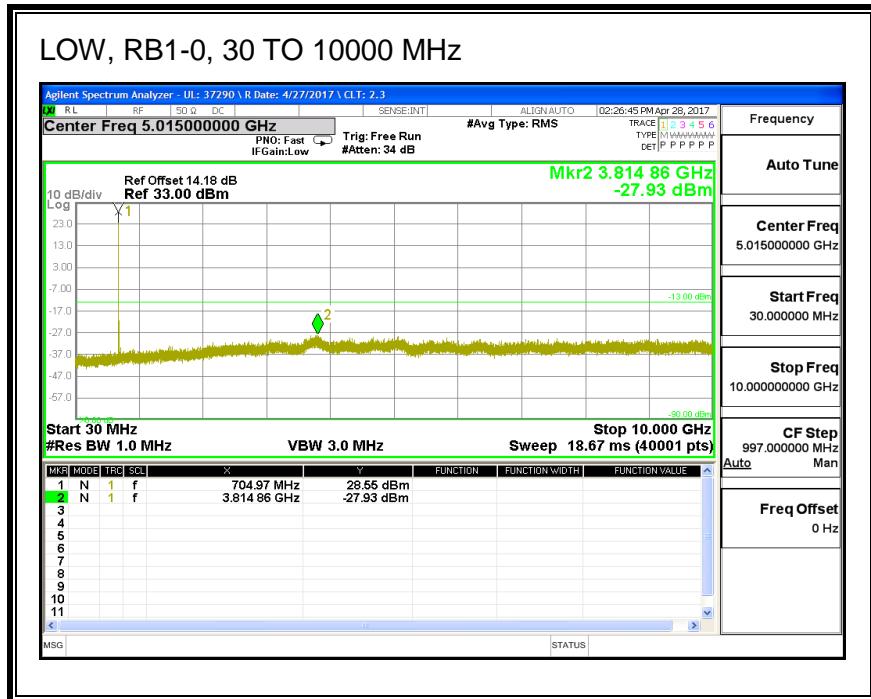


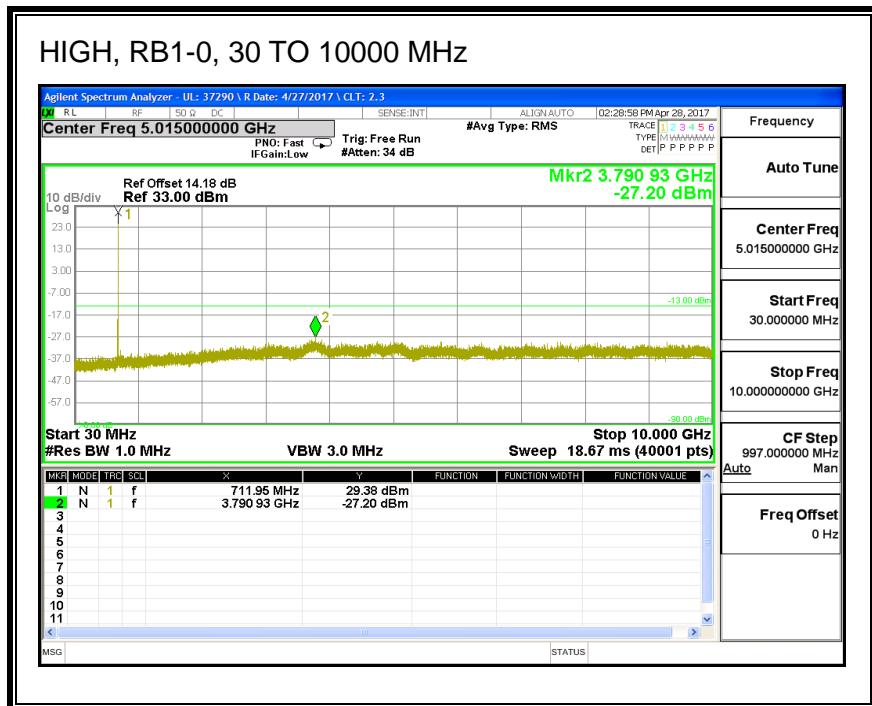
**16QAM, (10.0 MHz BAND WIDTH)**



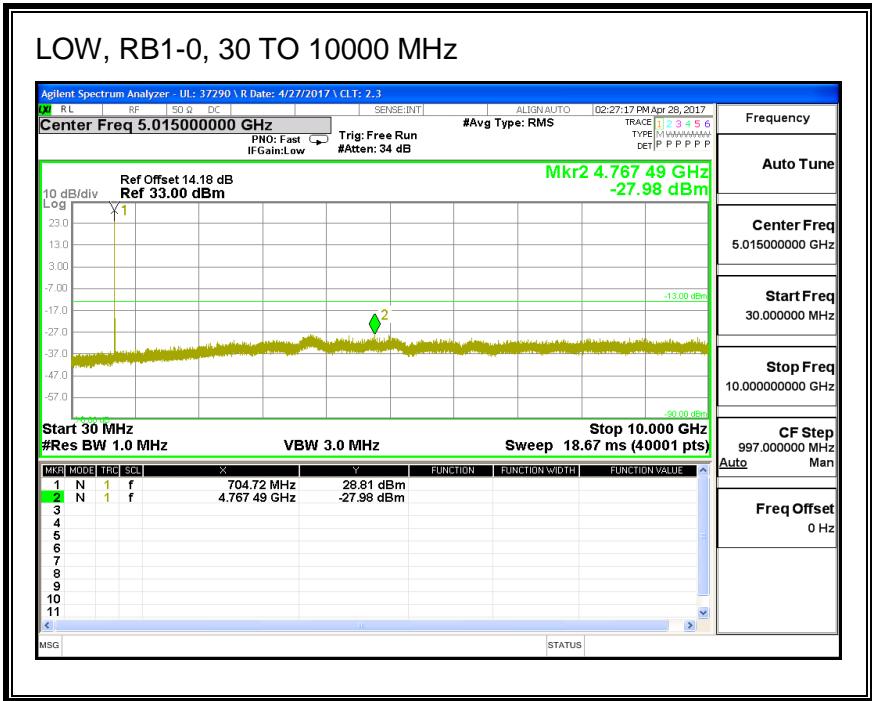
### 8.3.7. LTE BAND 17

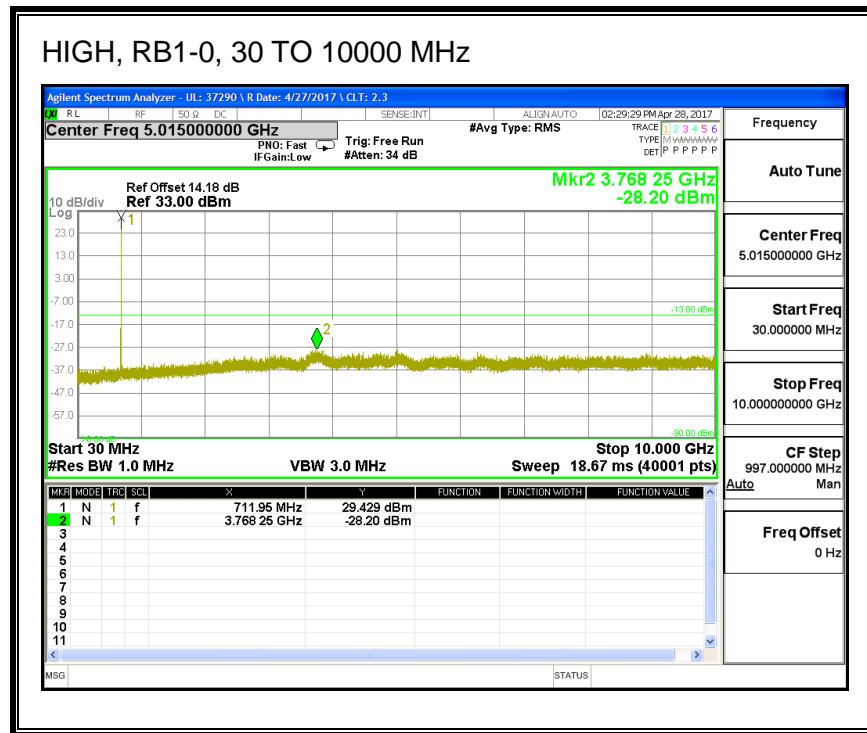
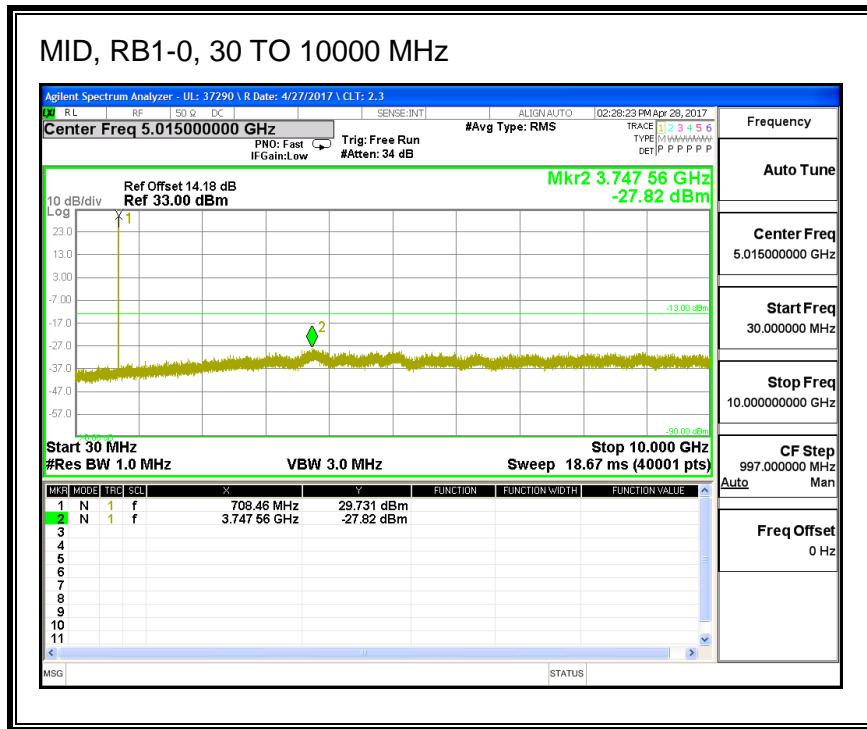
#### QPSK, (5.0 MHz BAND WIDTH)



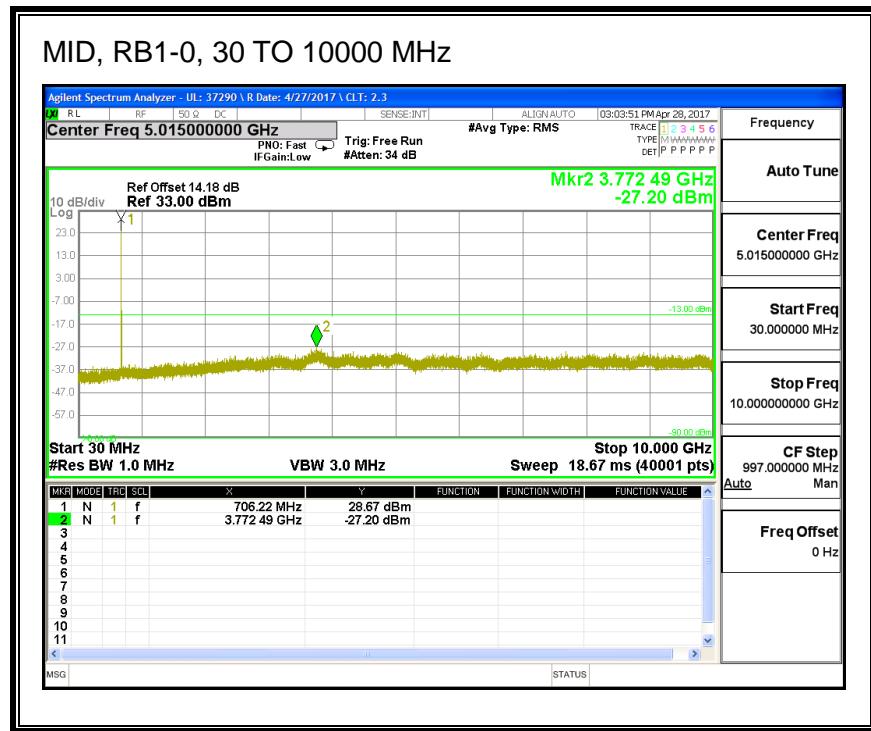
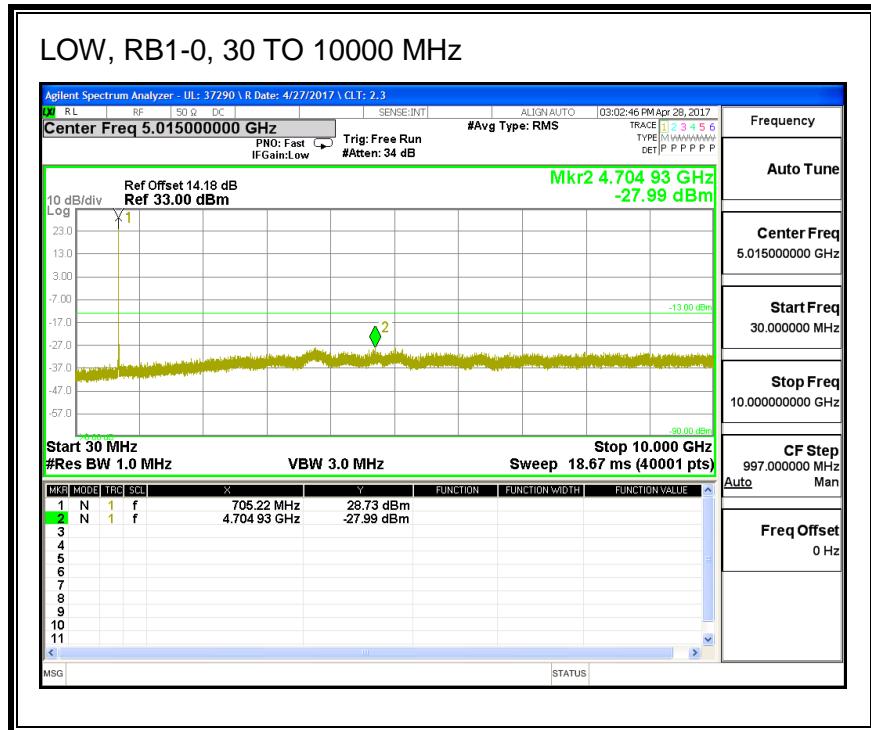


**16QAM, (5.0 MHz BAND WIDTH)**

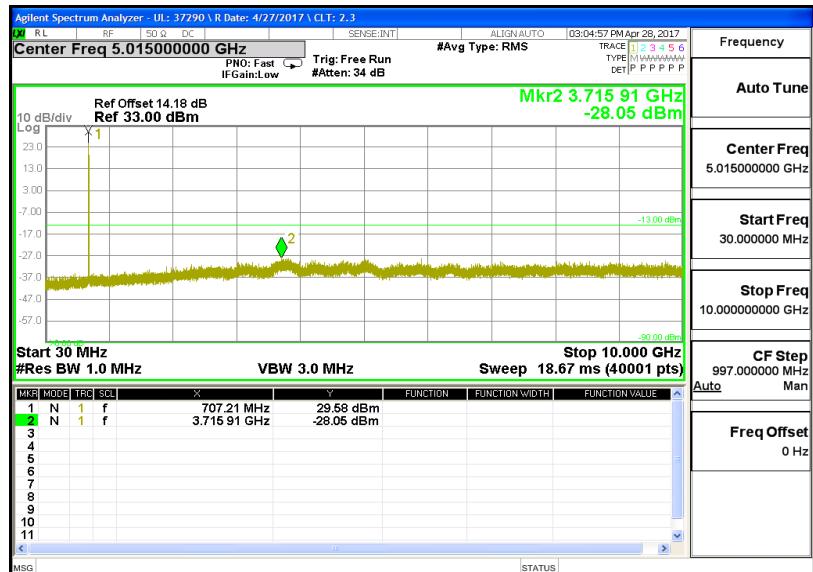




**QPSK, (10.0 MHz BAND WIDTH)**

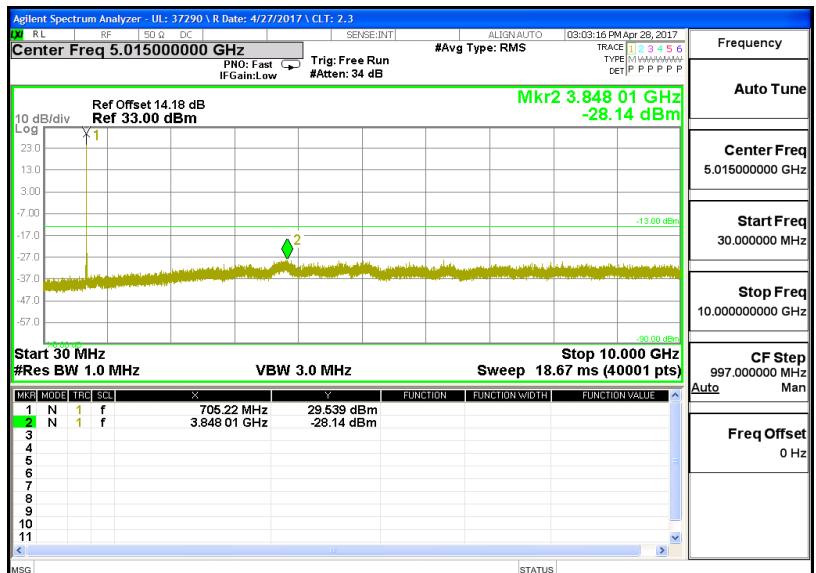


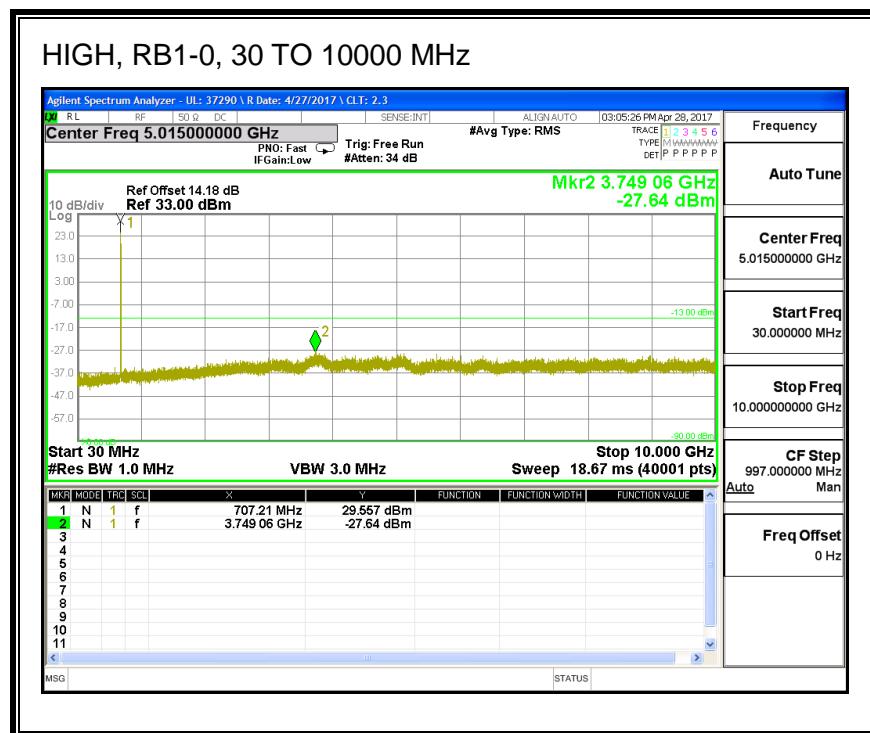
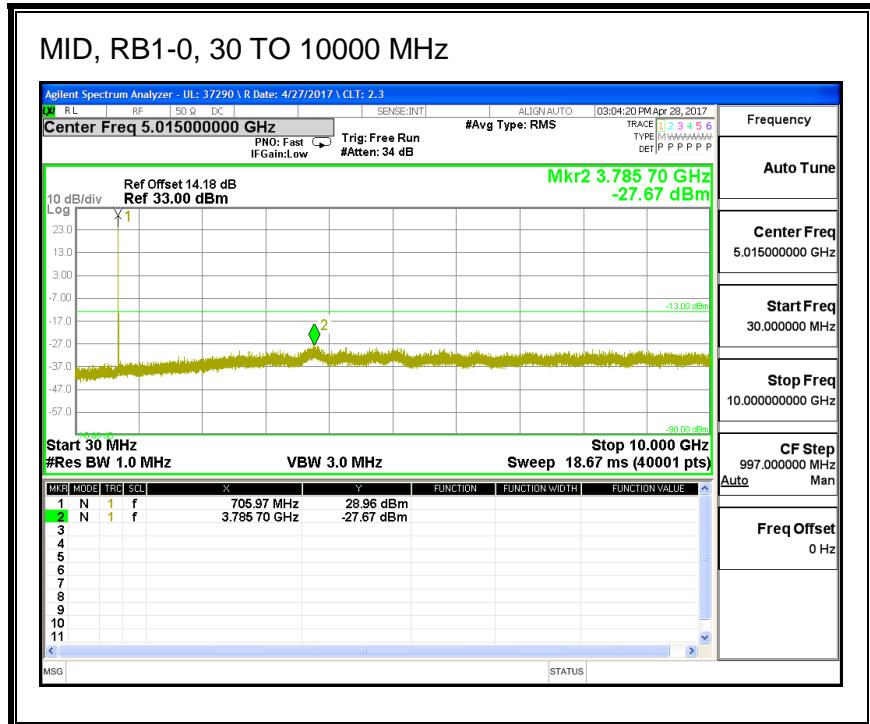
**HIGH, RB1-0, 30 TO 10000 MHz**



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

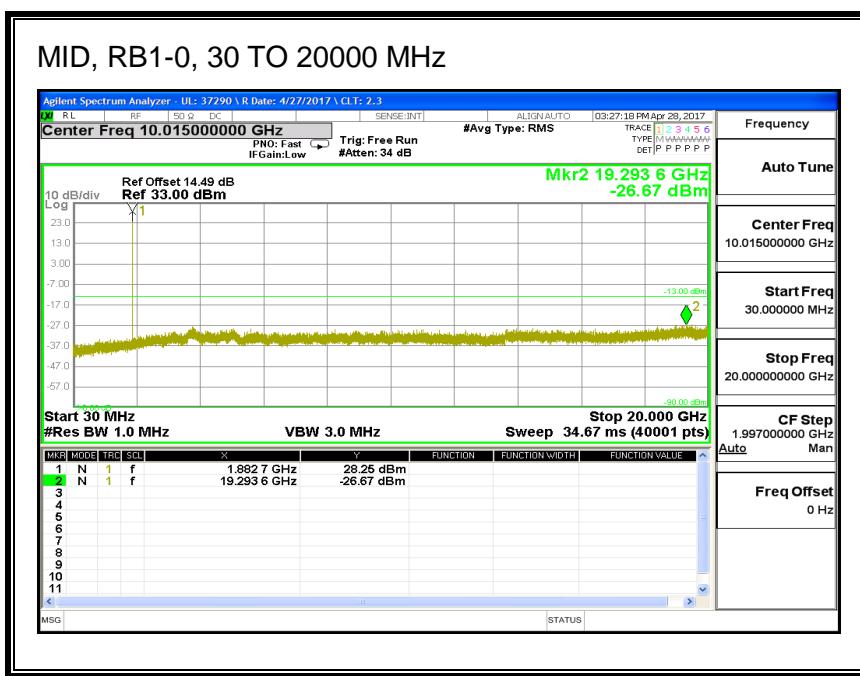
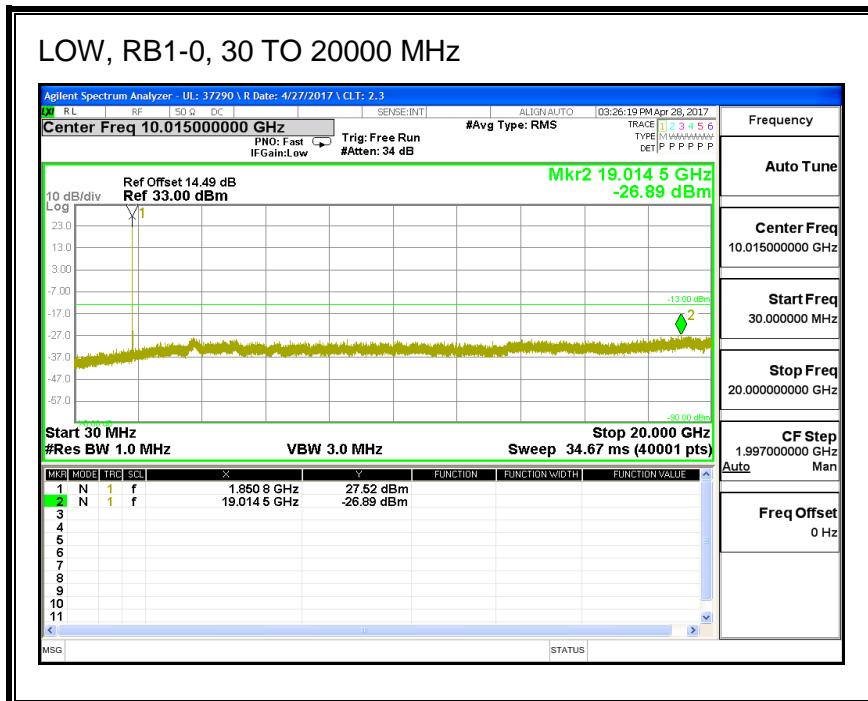
**LOW, RB1-0, 30 TO 10000 MHz**

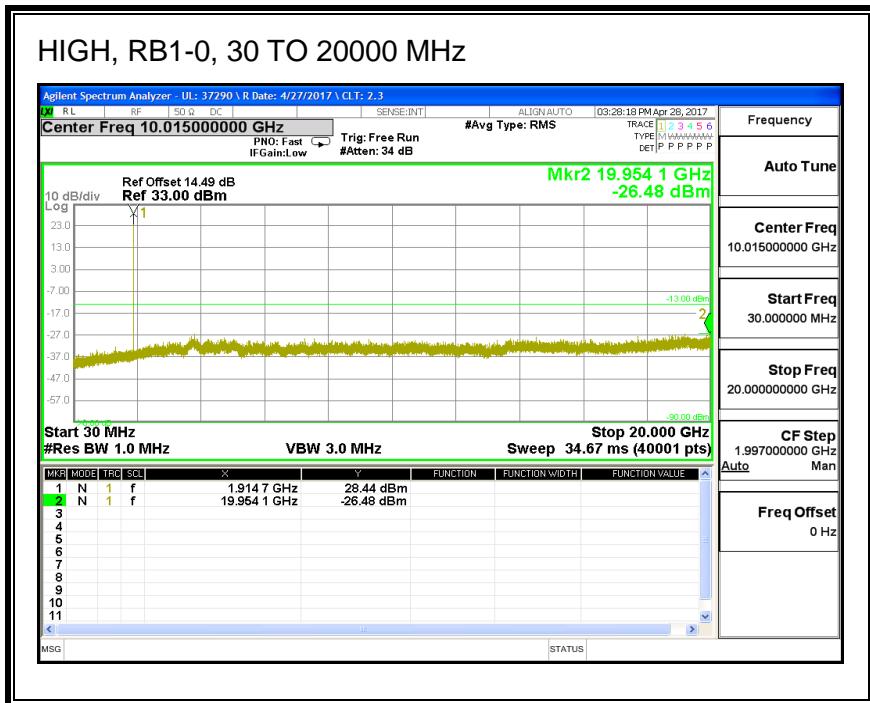




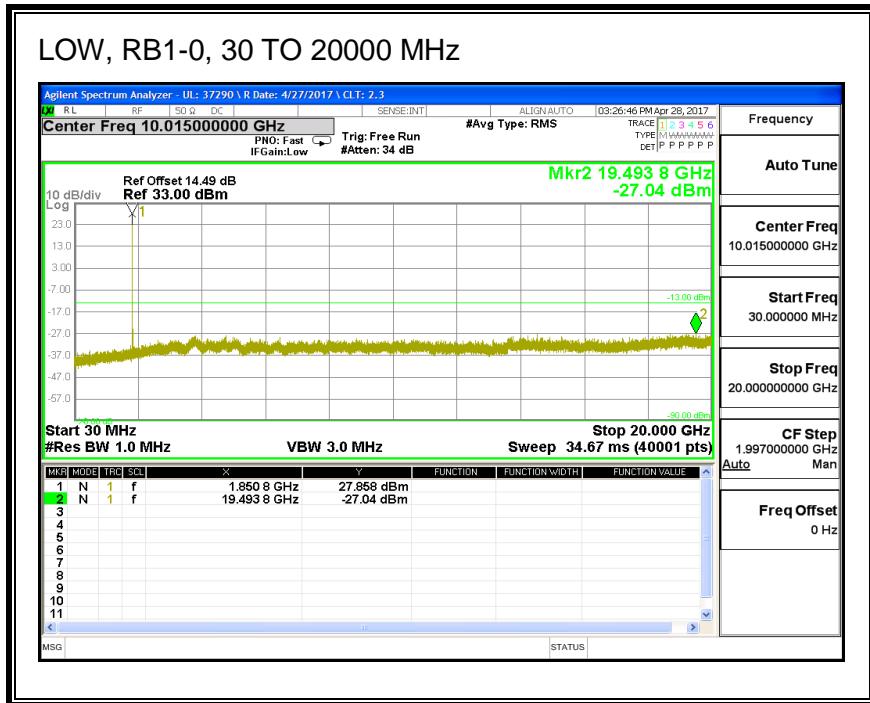
### 8.3.8. LTE BAND 25

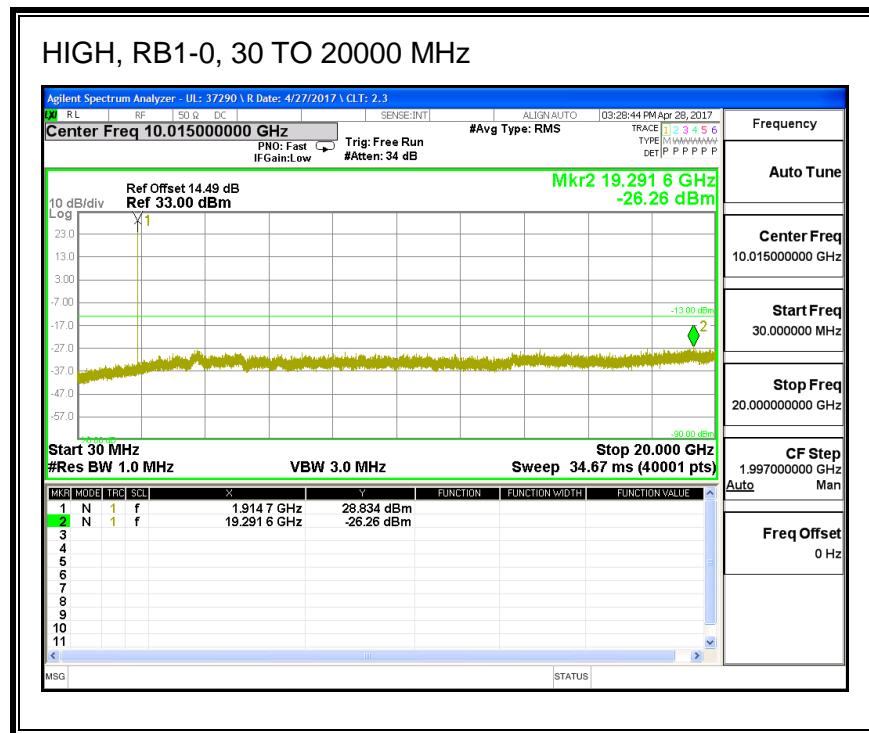
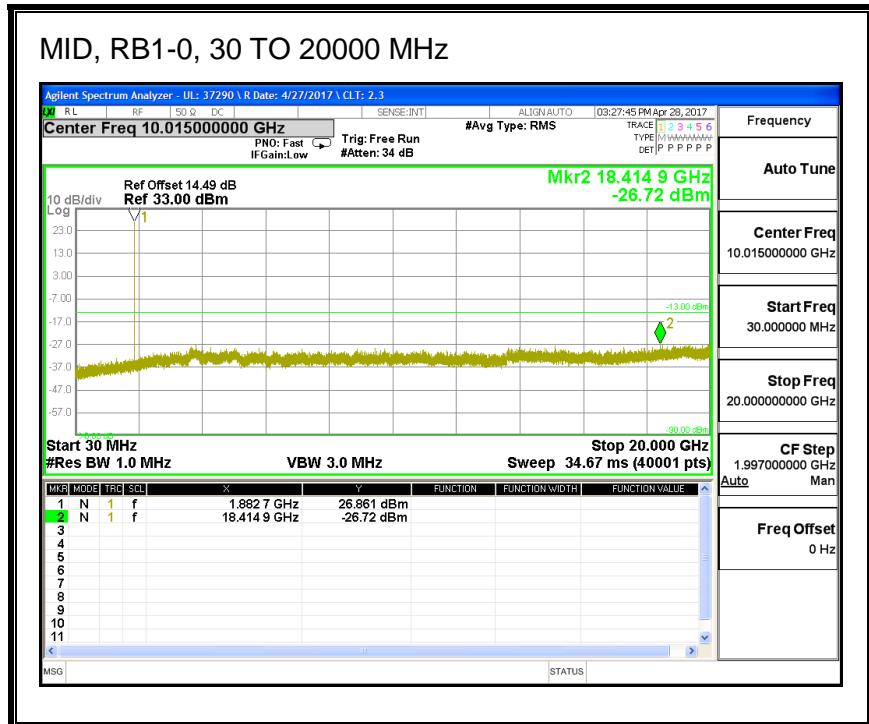
#### QPSK, (1.4 MHz BAND WIDTH)



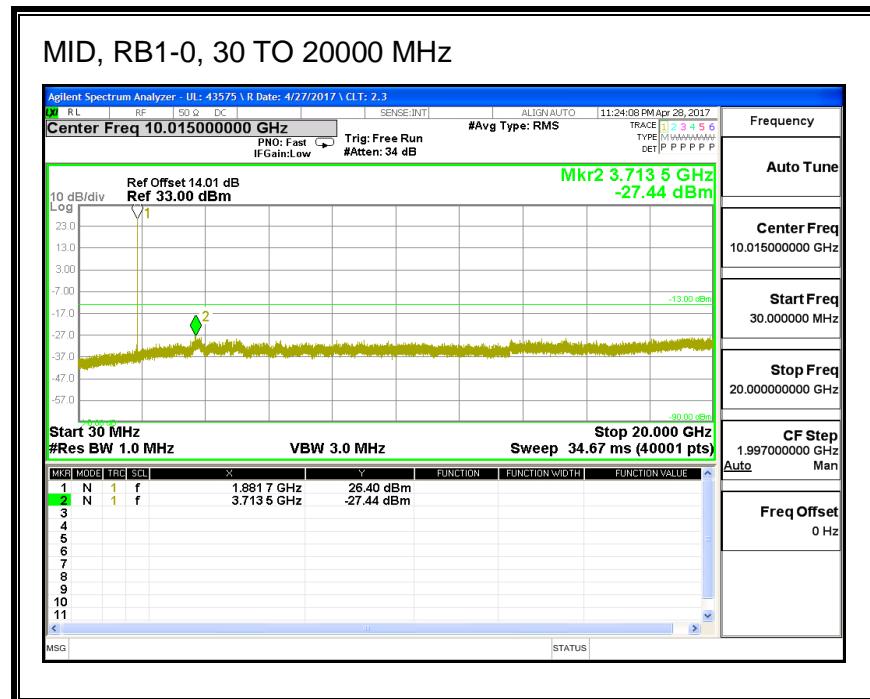
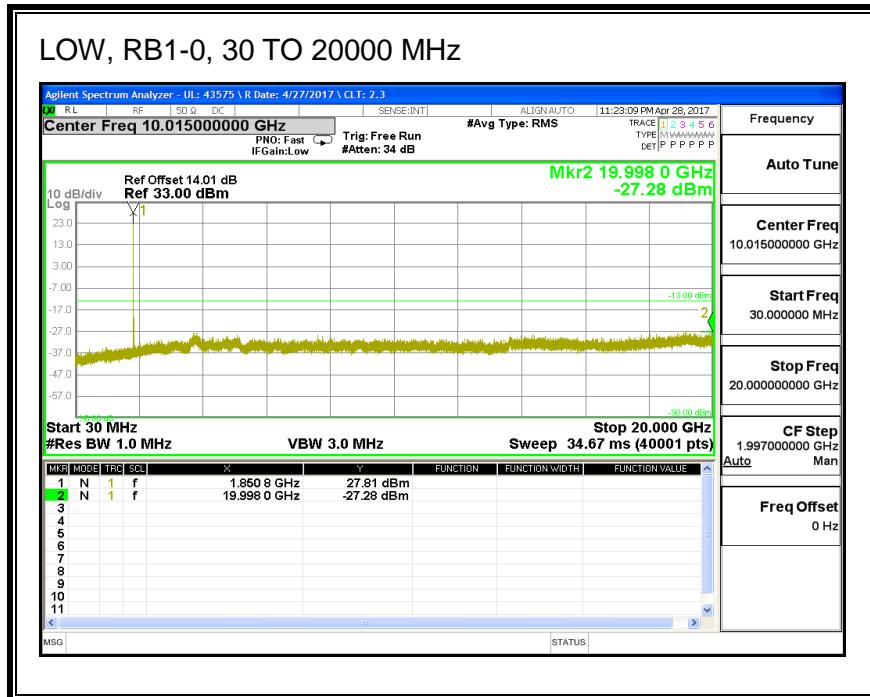


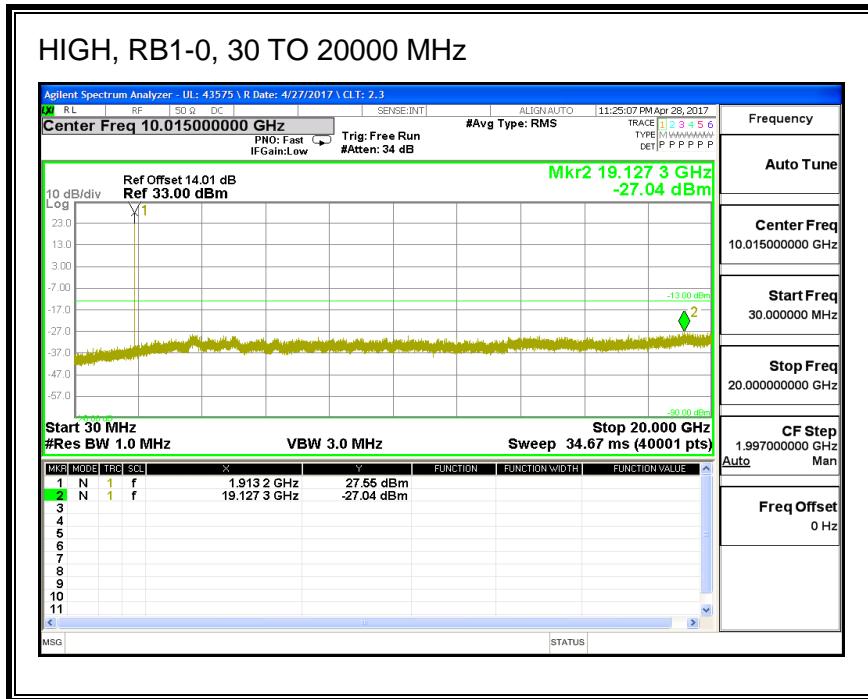
**16QAM, (1.4 MHz BAND WIDTH)**



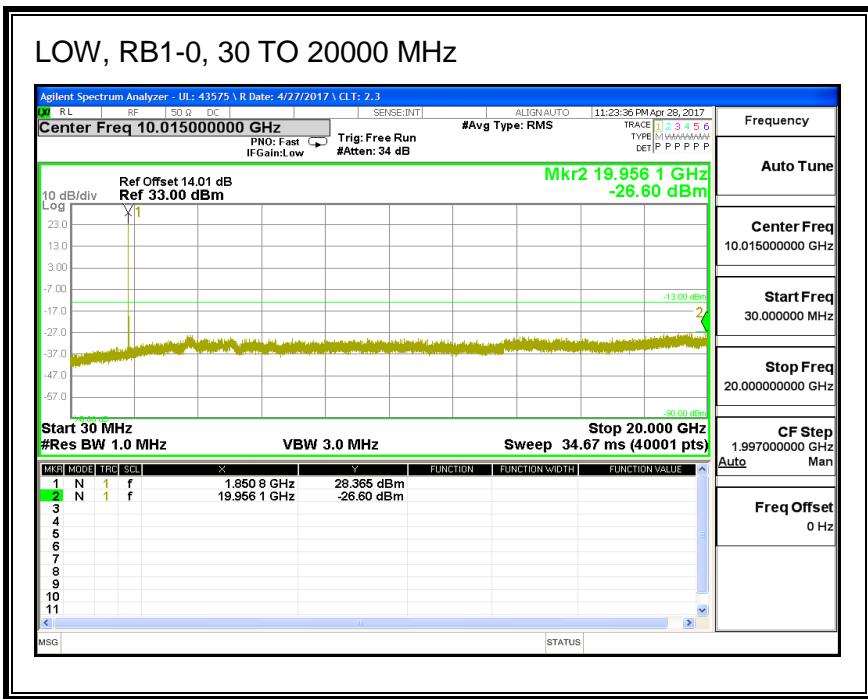


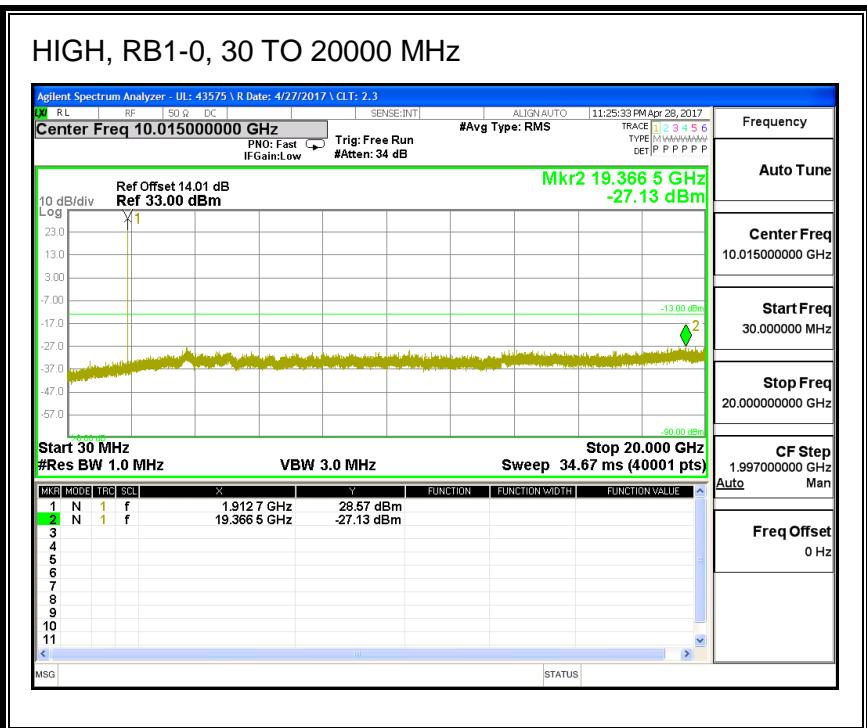
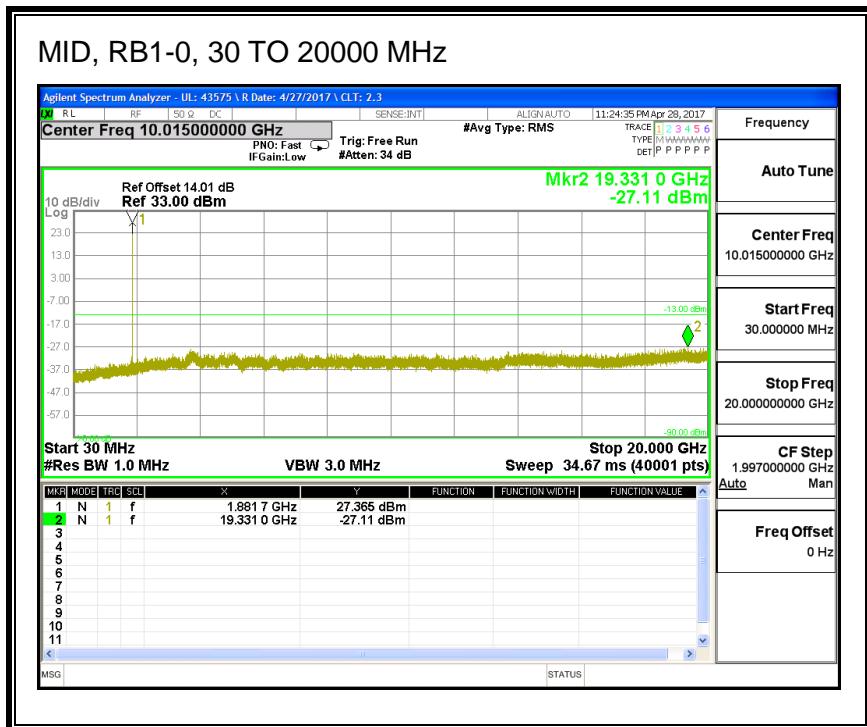
**QPSK, (3.0 MHz BAND WIDTH)**



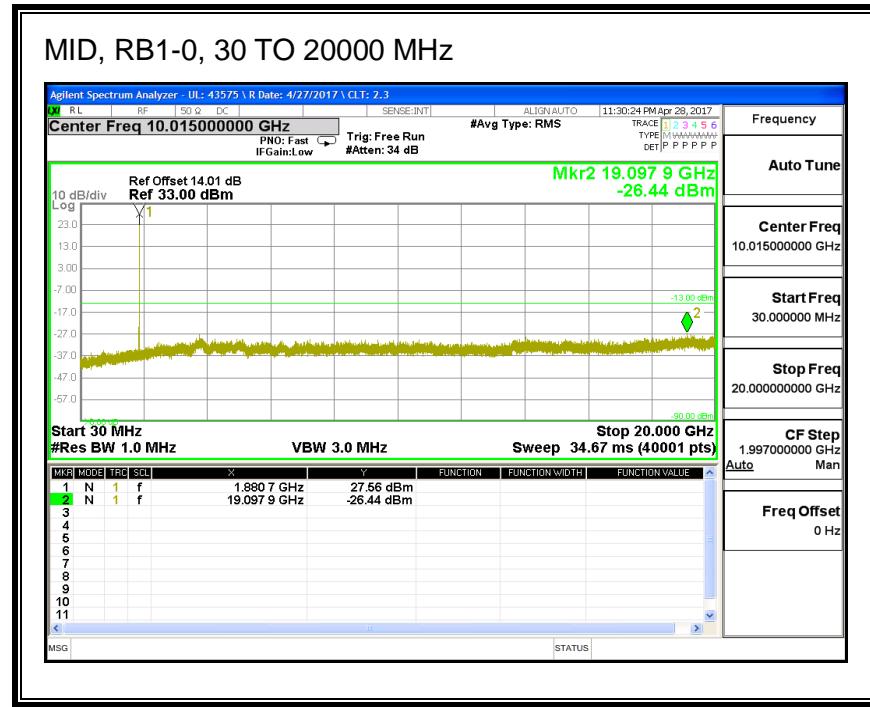
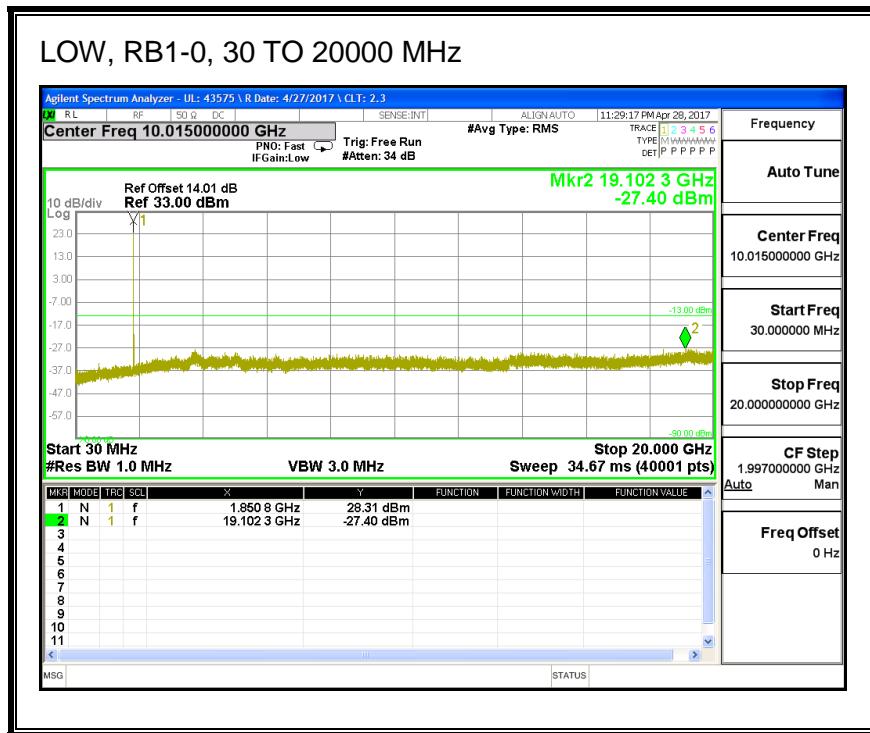


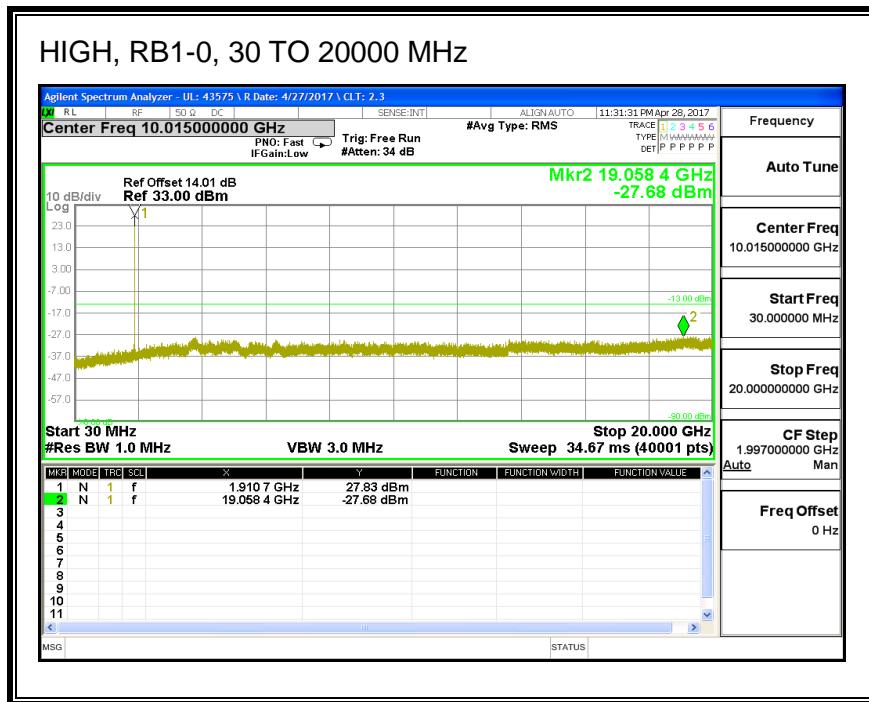
**16QAM, (3.0 MHz BAND WIDTH)**



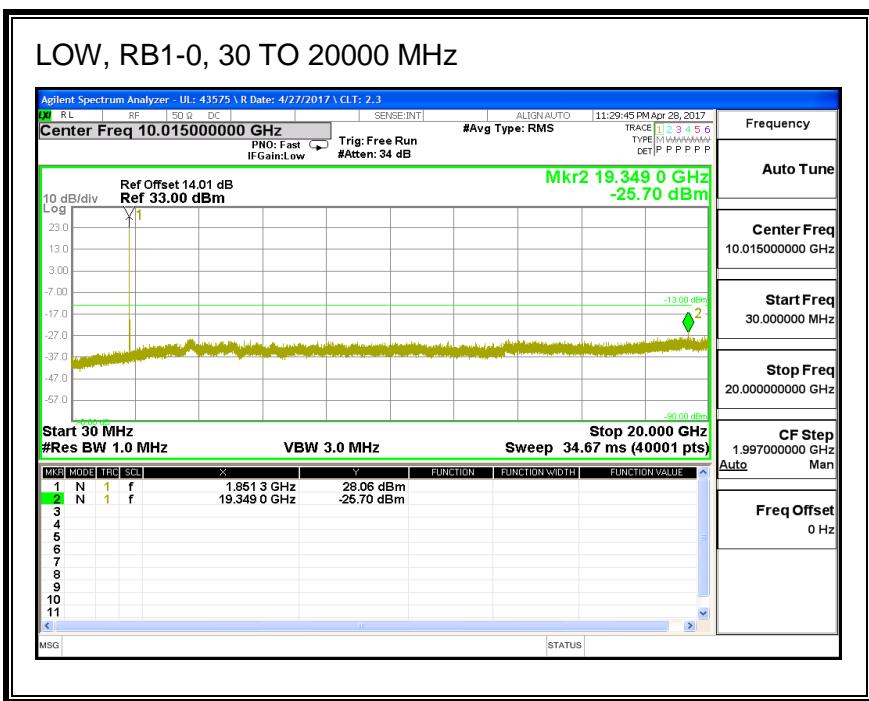


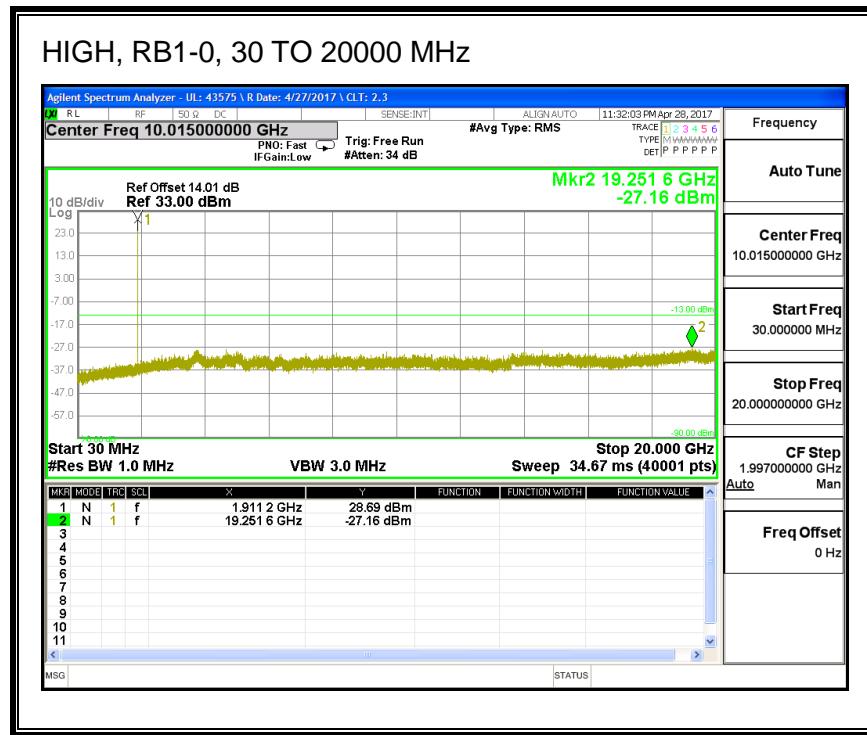
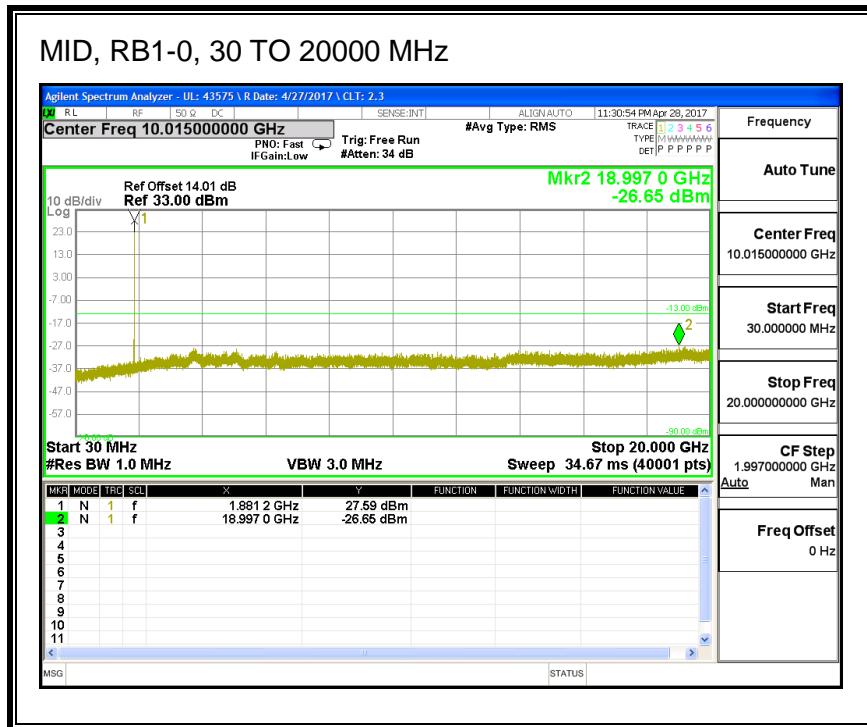
**QPSK, (5.0 MHz BAND WIDTH)**



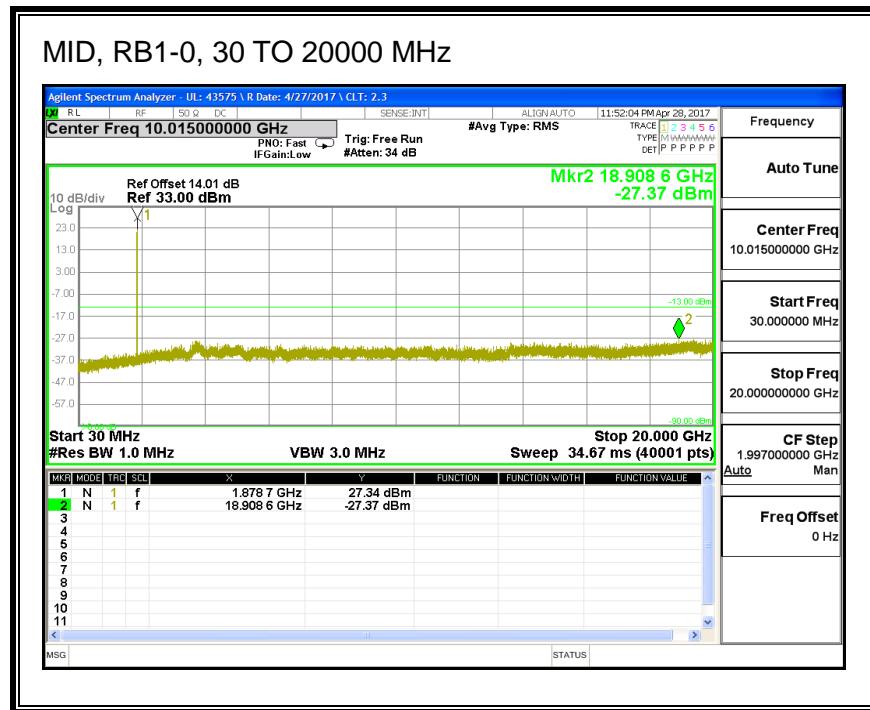
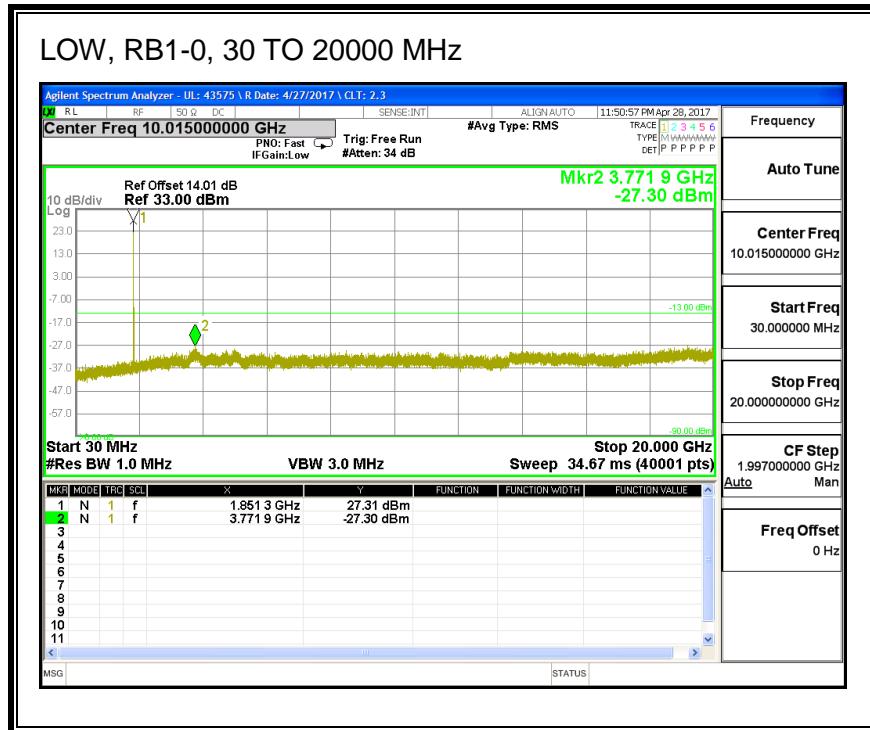


### 16QAM, (5.0 MHz BAND WIDTH)

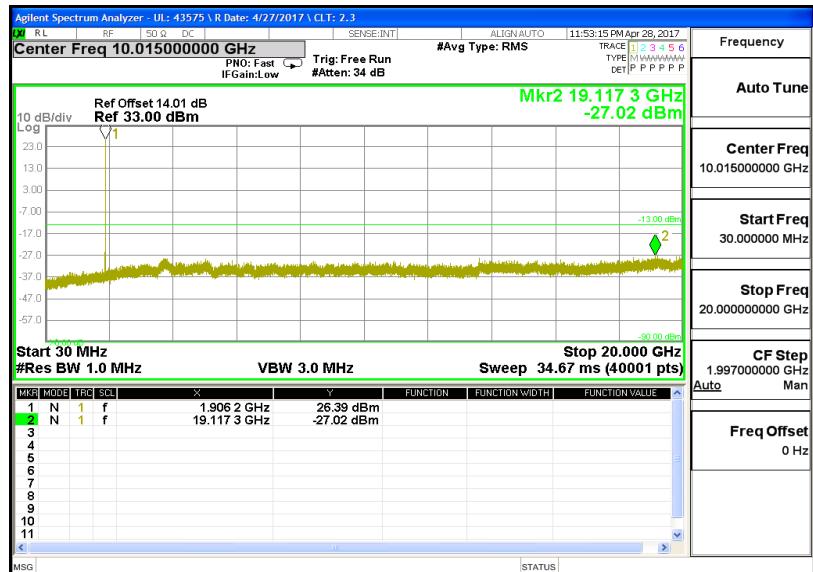




**QPSK, (10.0 MHz BAND WIDTH)**

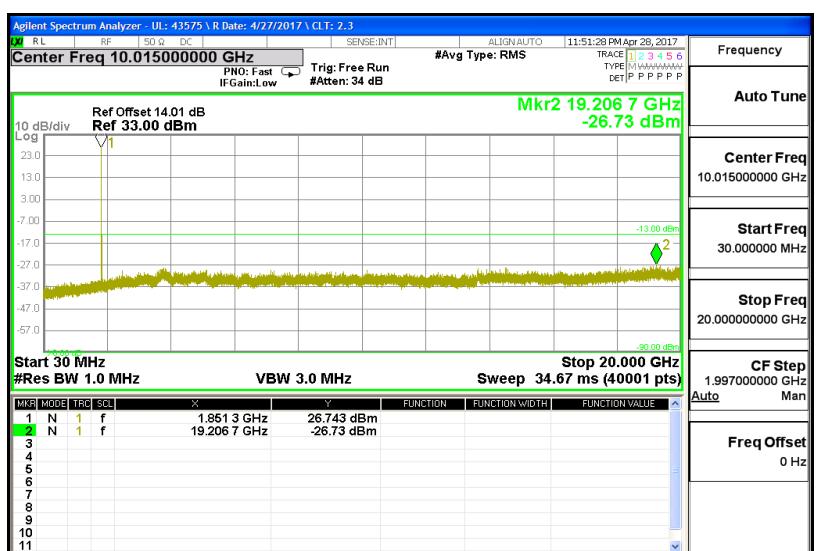


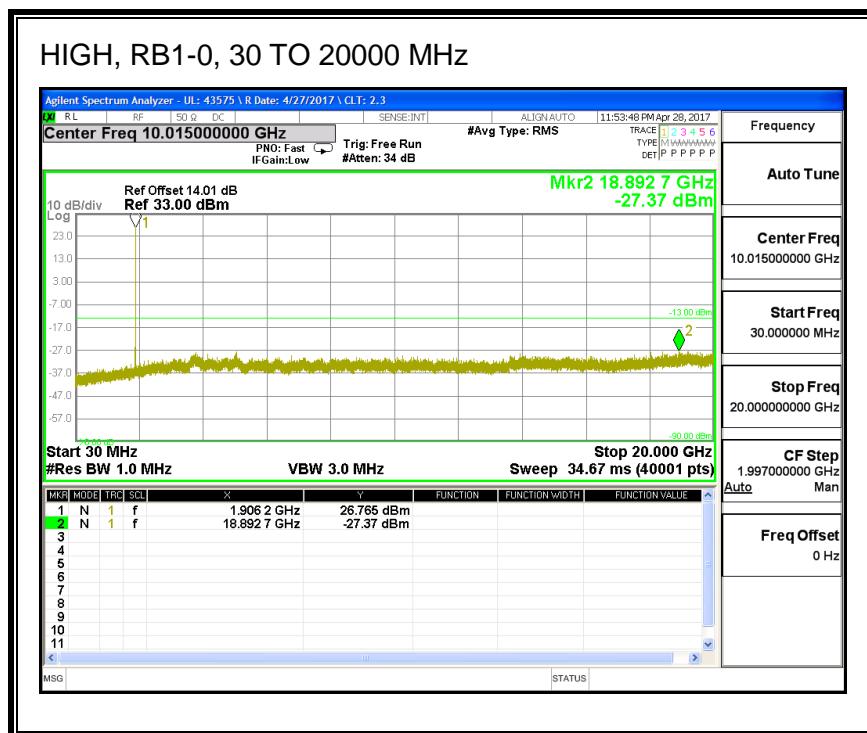
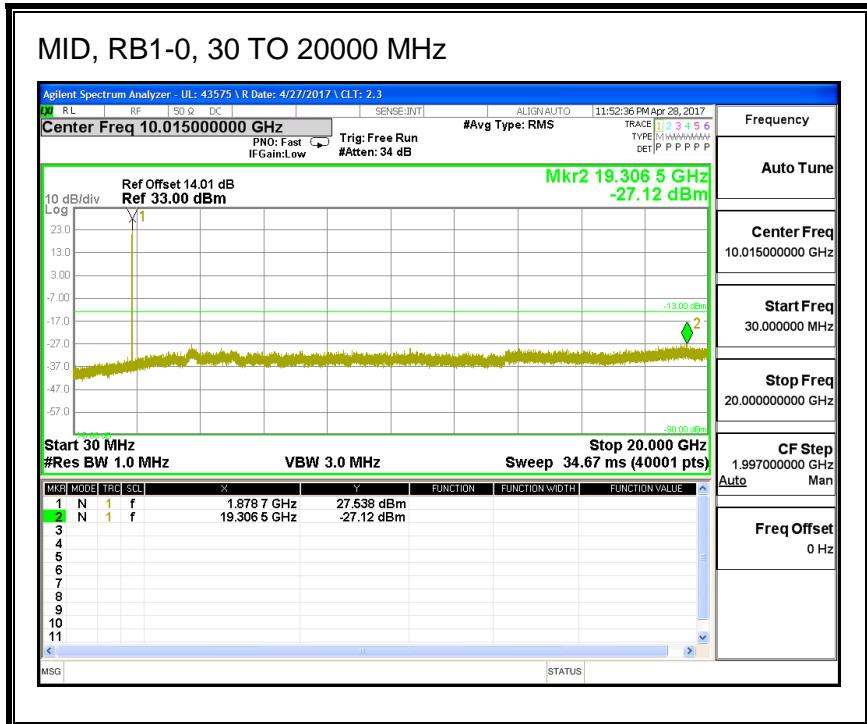
**HIGH, RB1-0, 30 TO 20000 MHz**



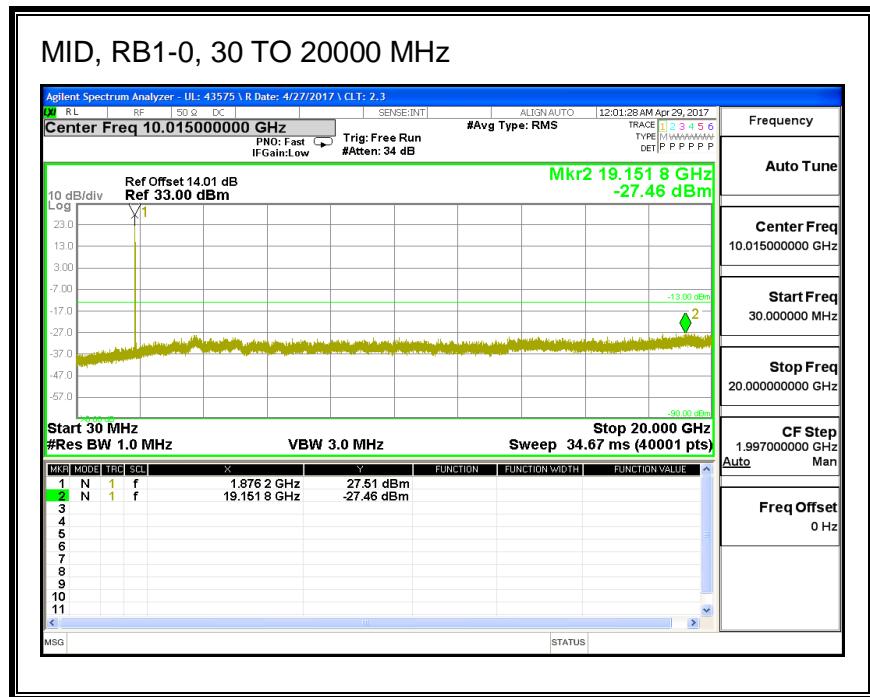
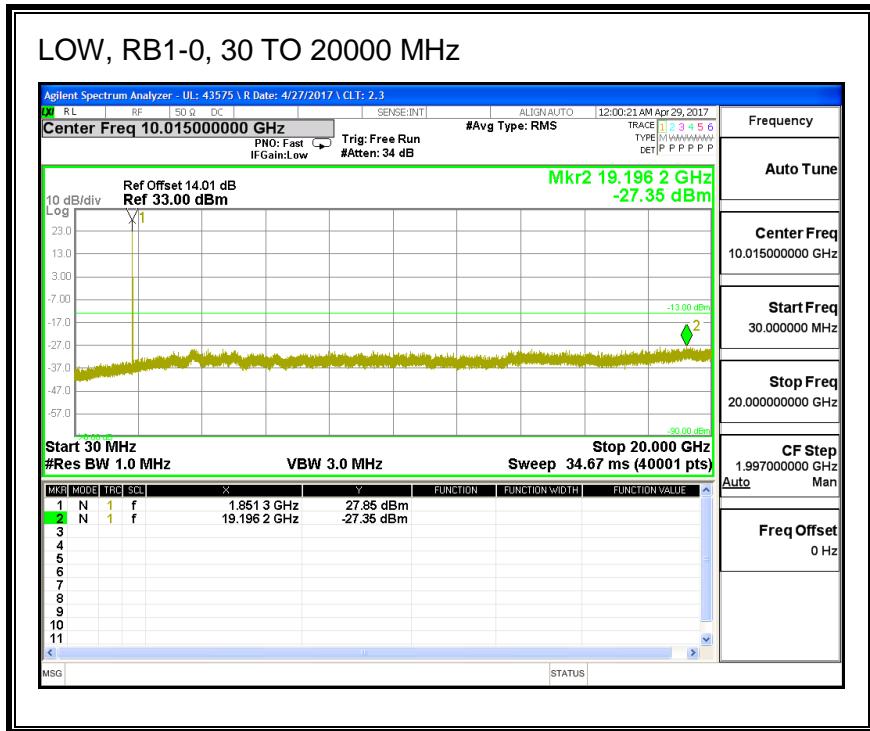
**16QAM, (10.0 MHz BAND WIDTH)**

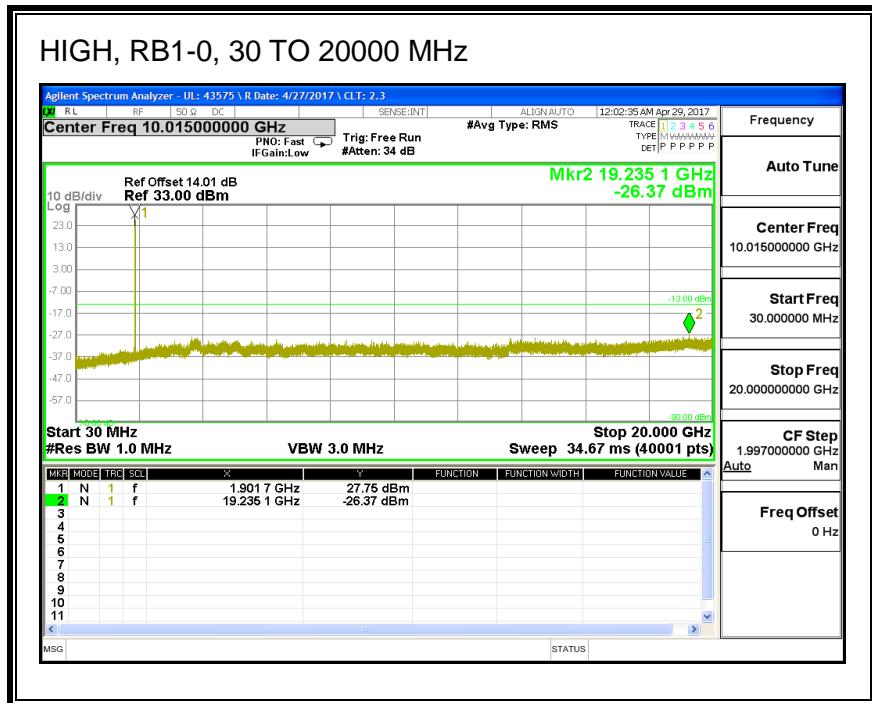
**LOW, RB1-0, 30 TO 20000 MHz**



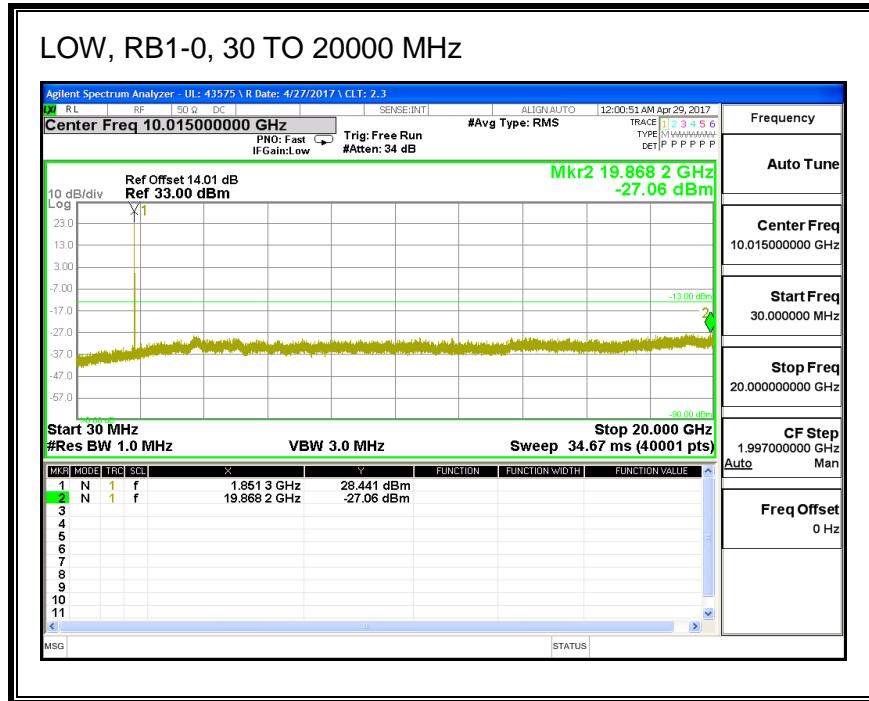


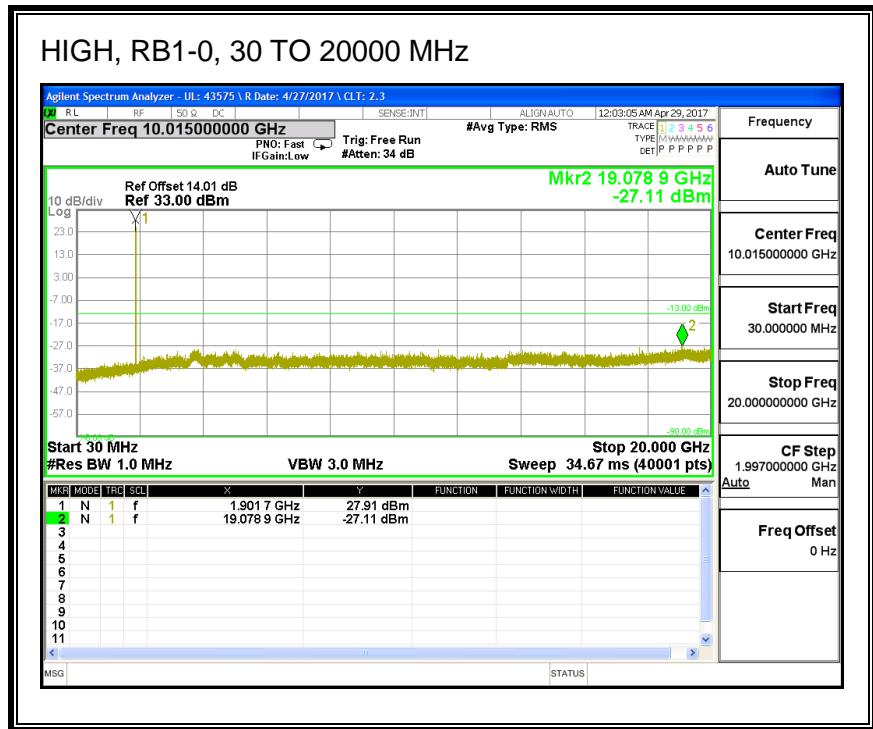
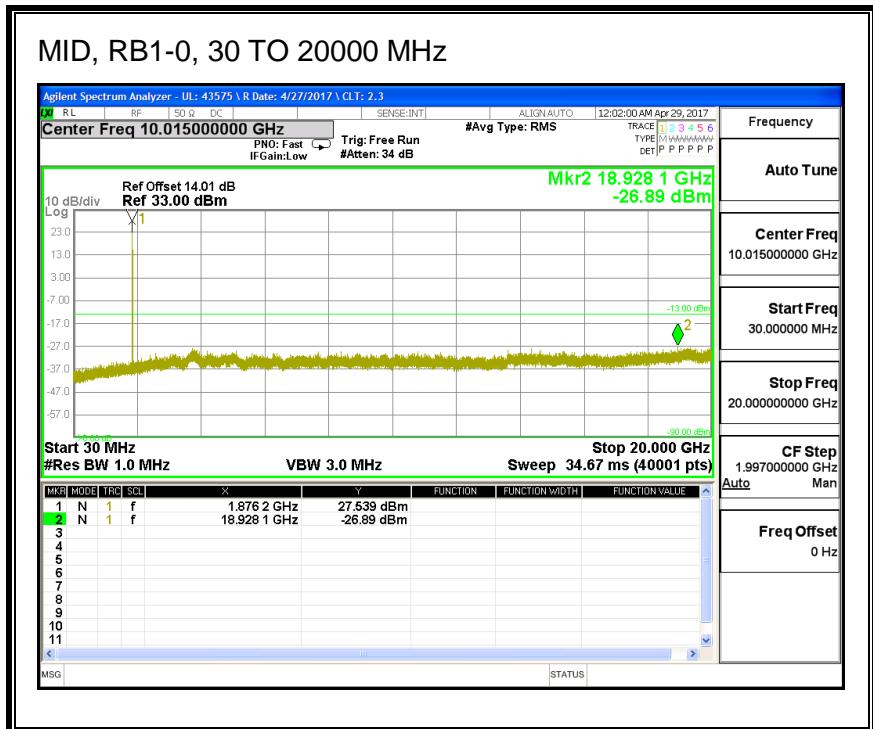
**QPSK, (15.0 MHz BAND WIDTH)**



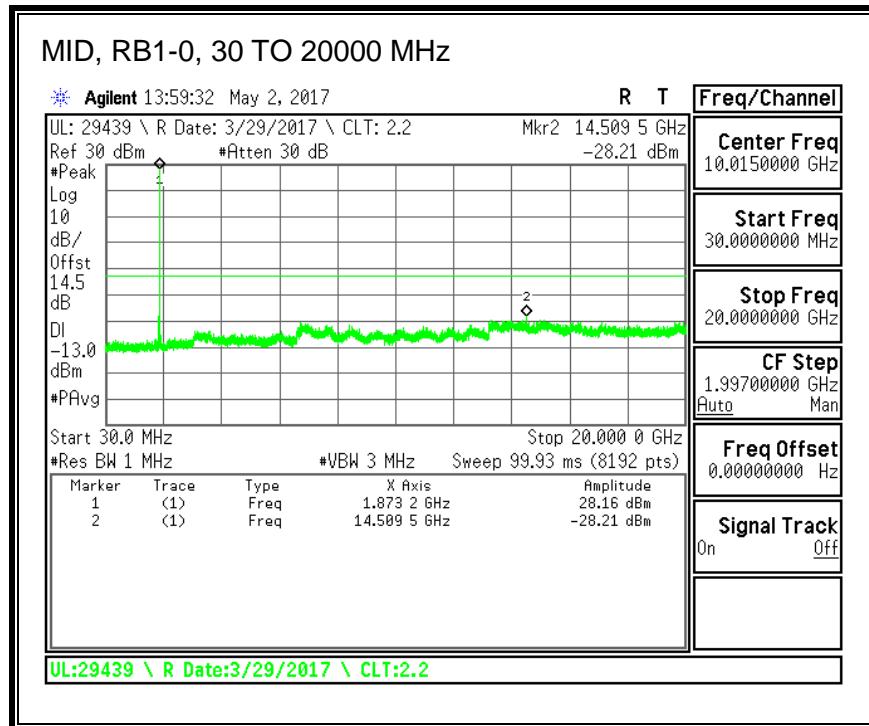
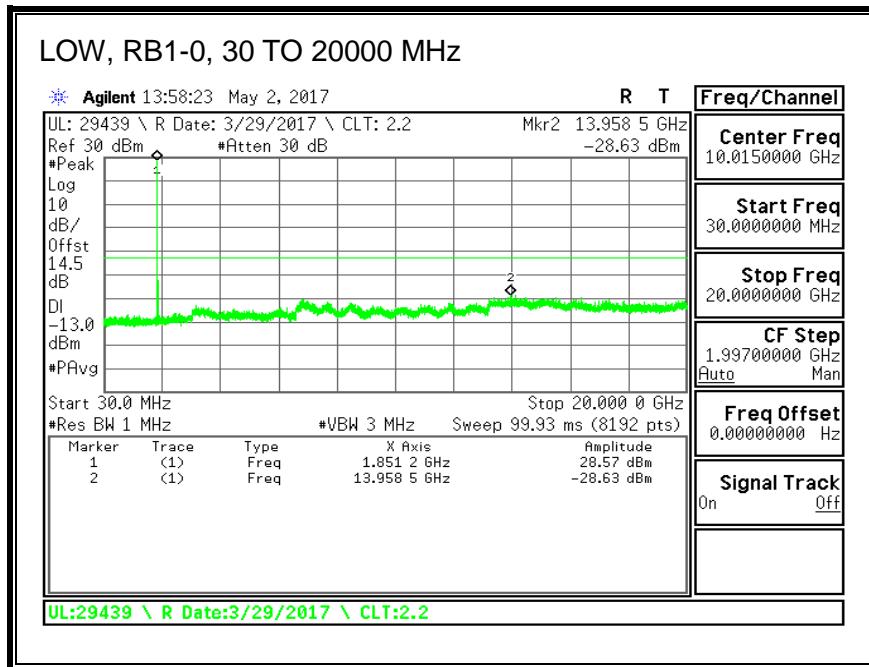


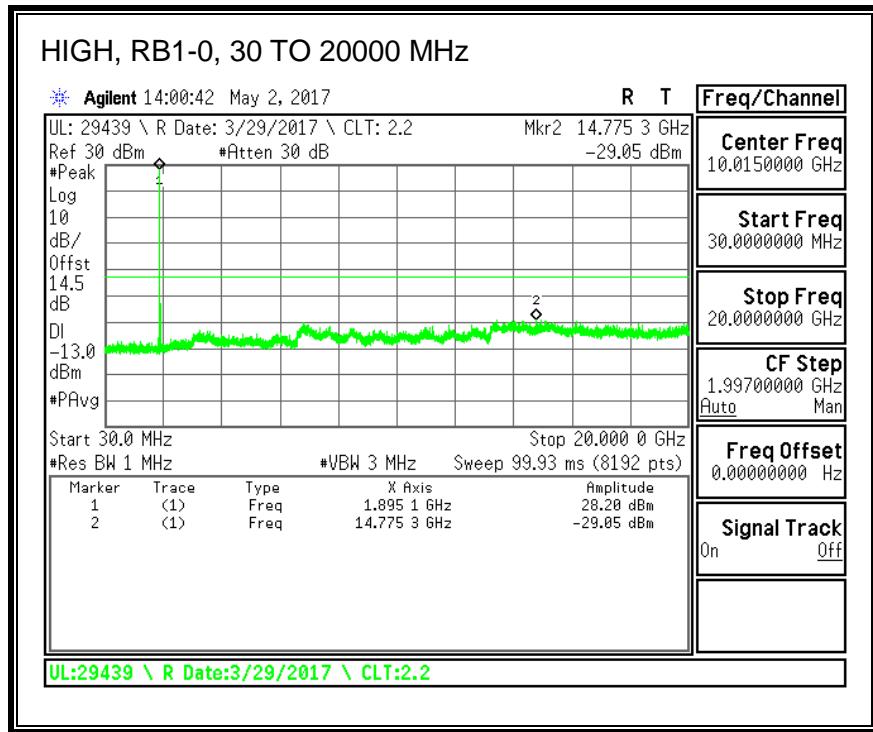
**16QAM, (15.0 MHz BAND WIDTH)**



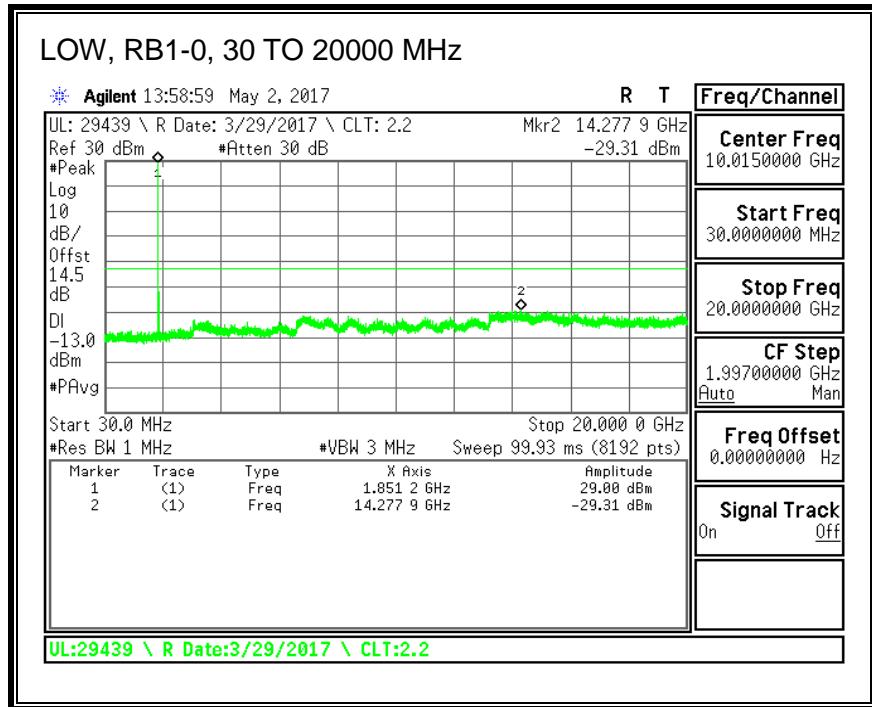


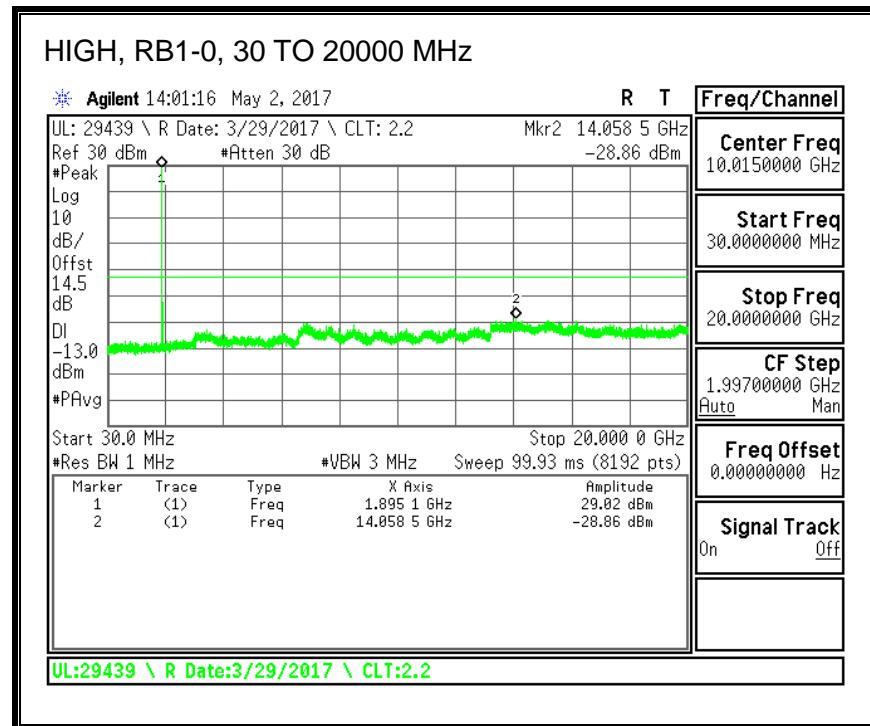
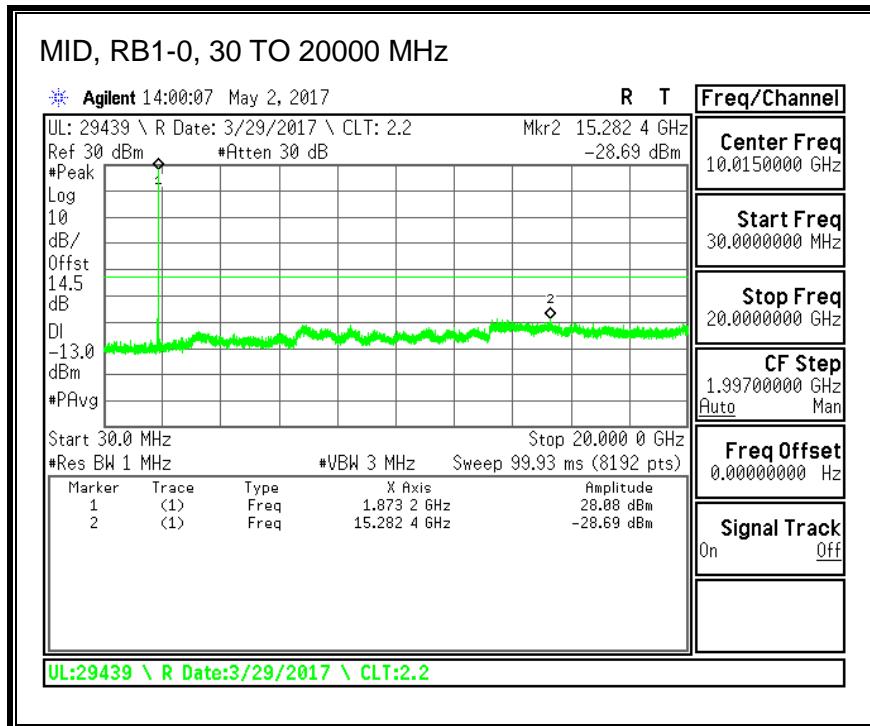
**QPSK, (20.0 MHz BAND WIDTH)**





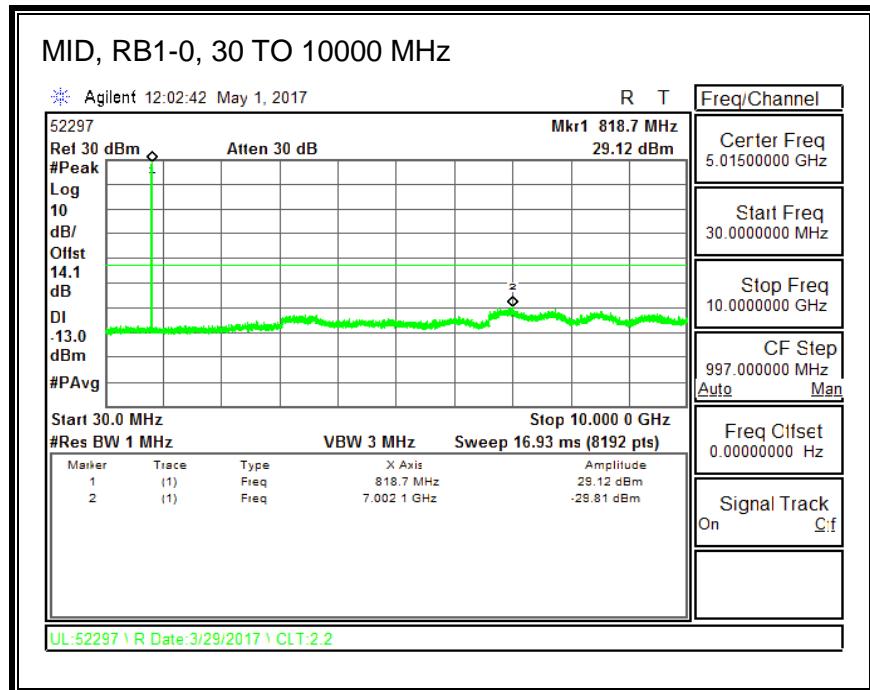
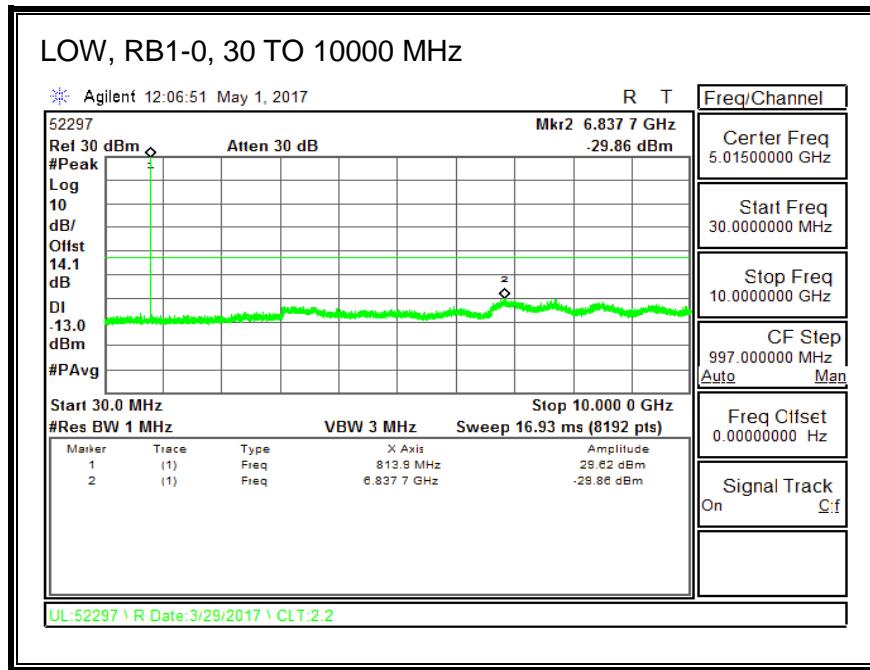
**16QAM, (20.0 MHz BAND WIDTH)**

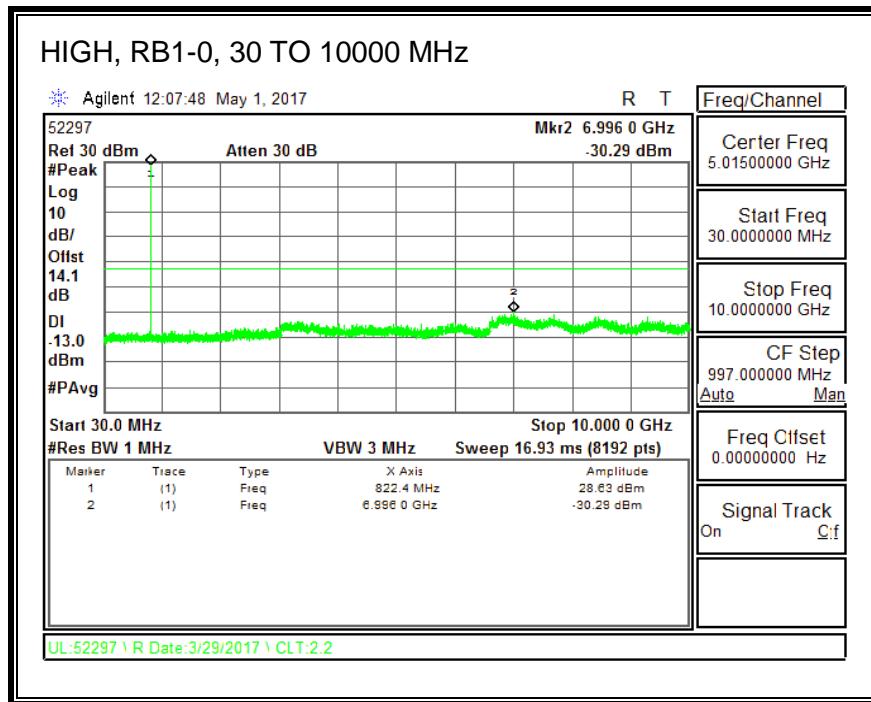




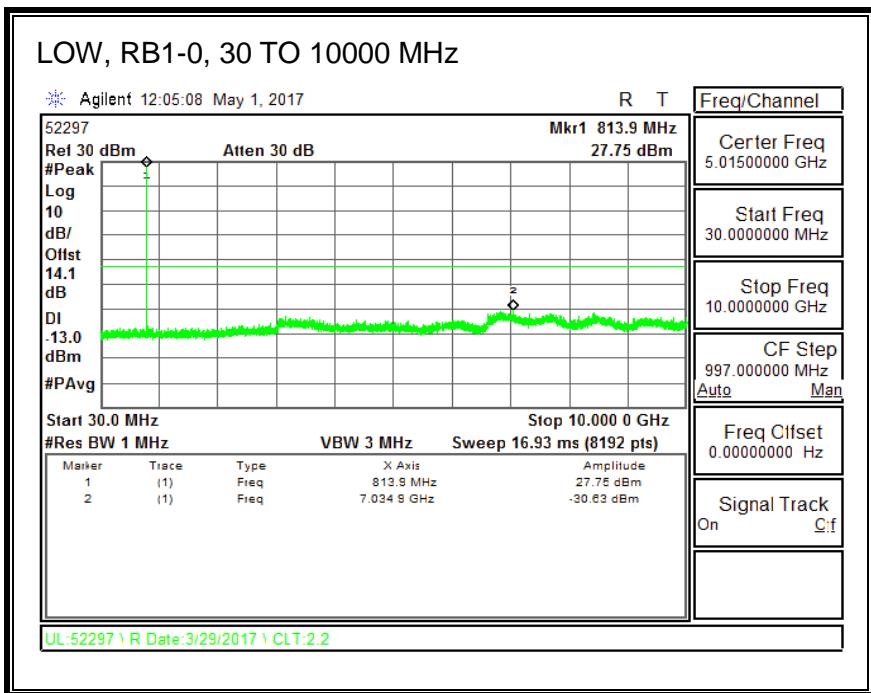
### 8.3.9. LTE BAND 26

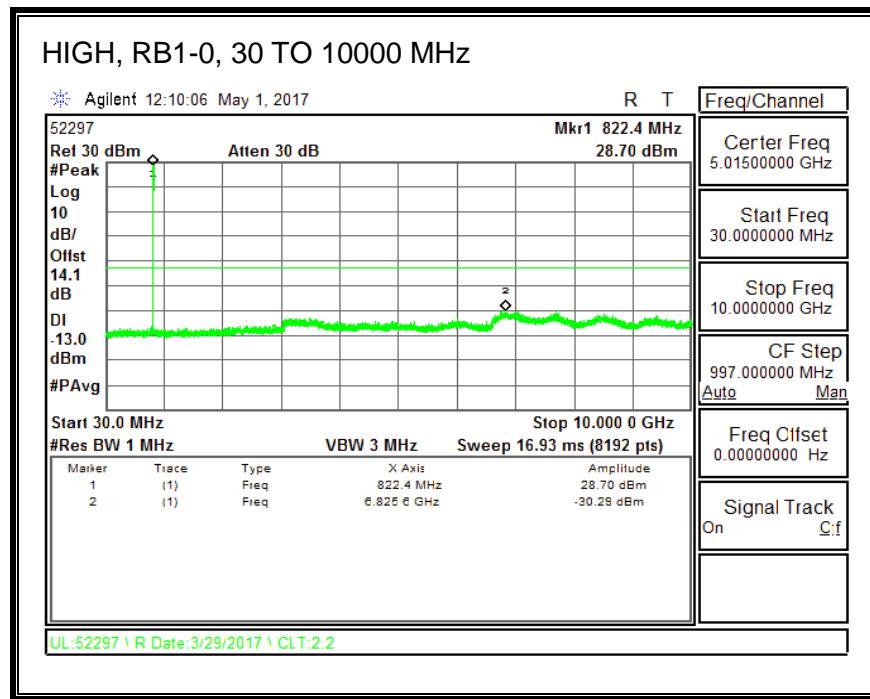
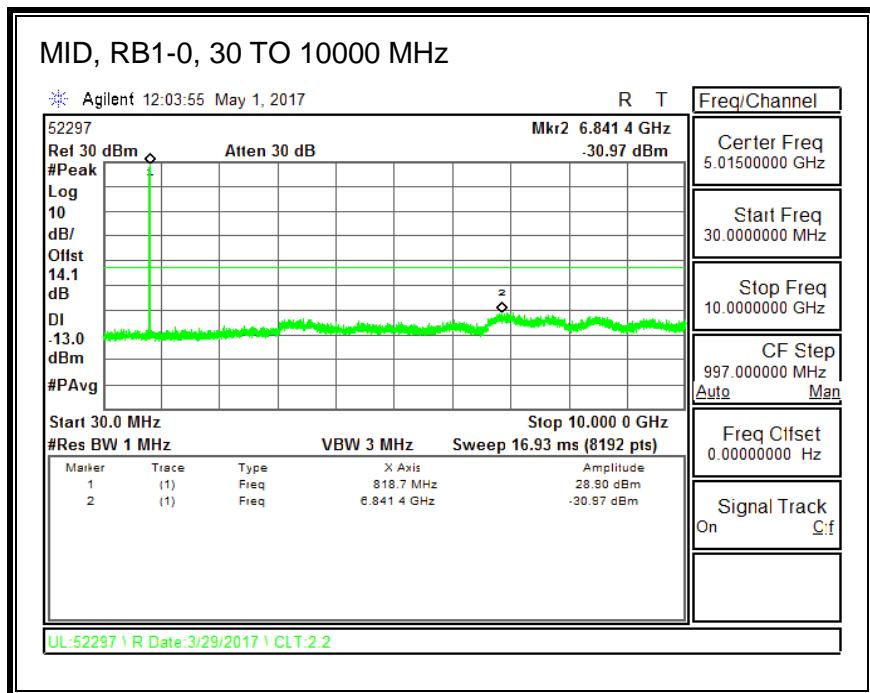
#### QPSK, (1.4 MHz BAND WIDTH)



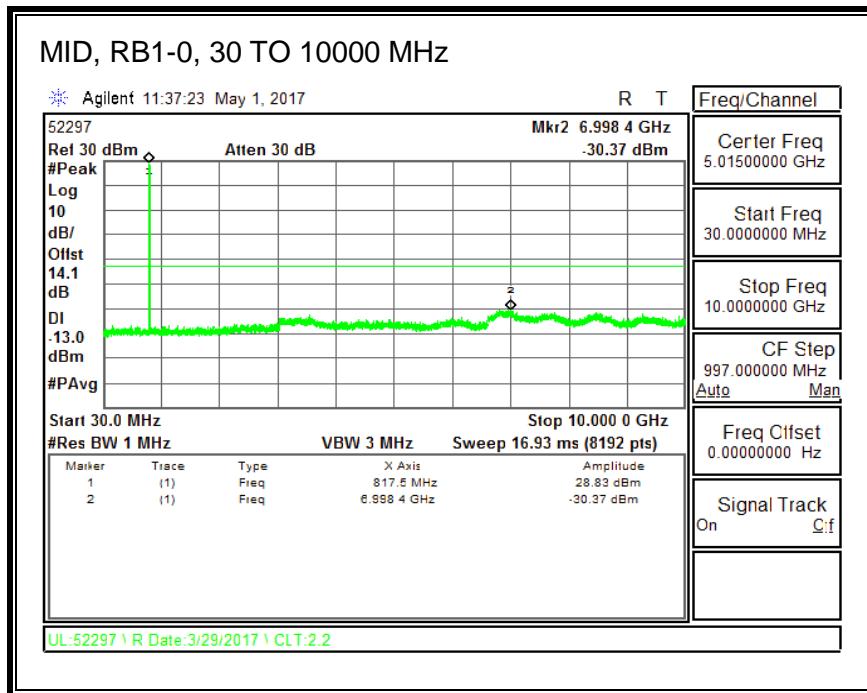
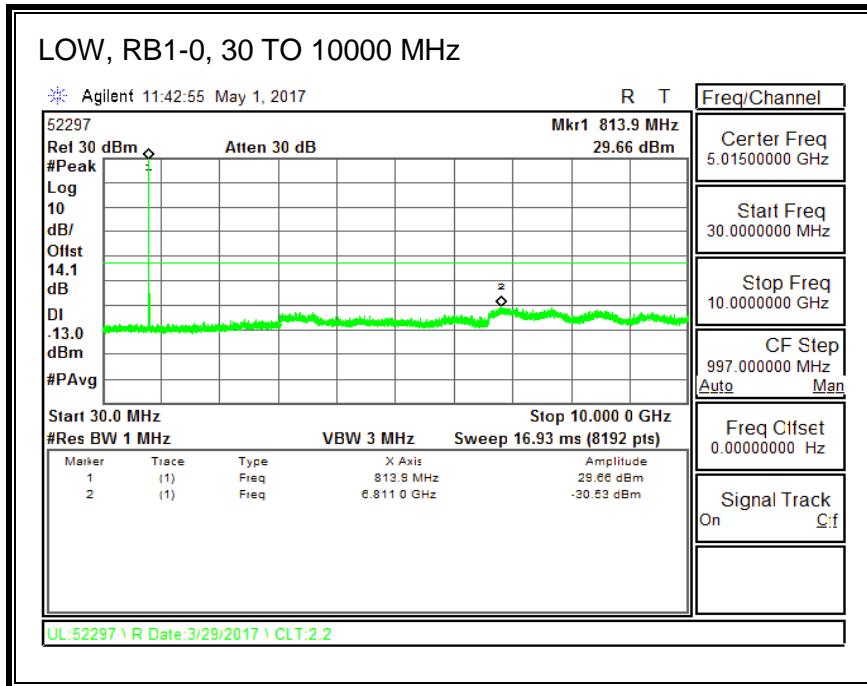


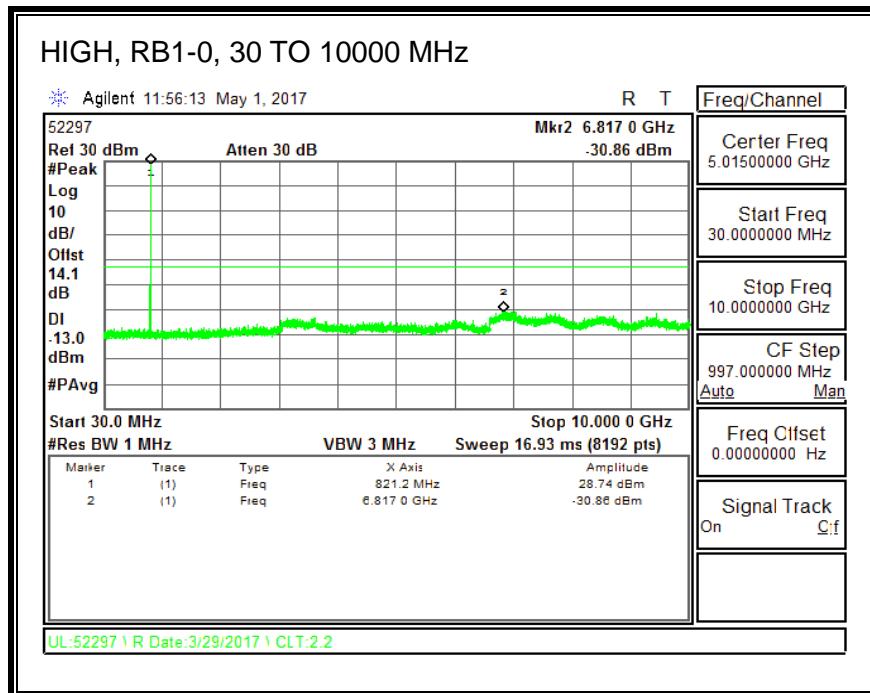
**16QAM, (1.4 MHz BAND WIDTH)**



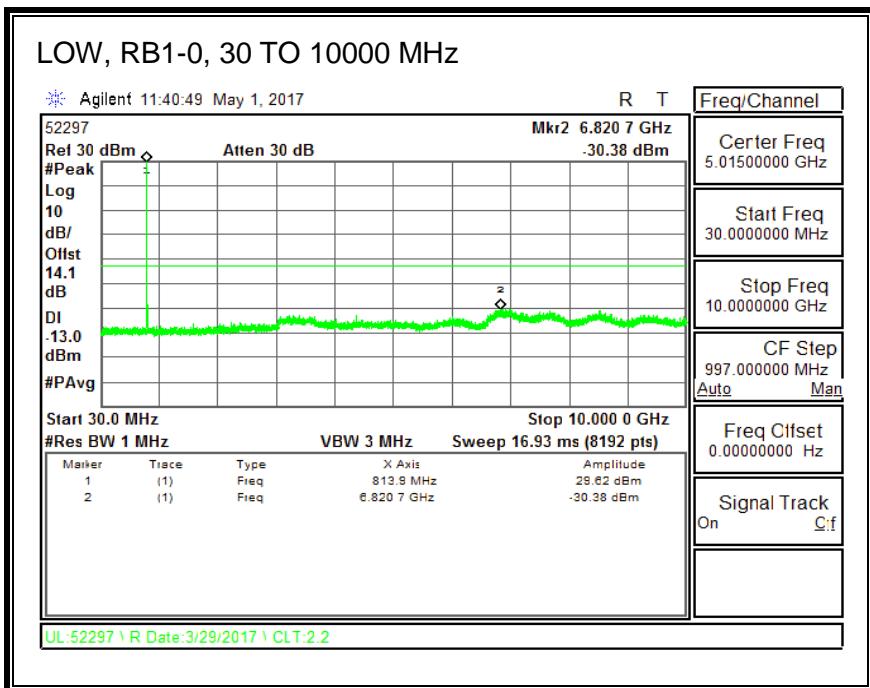


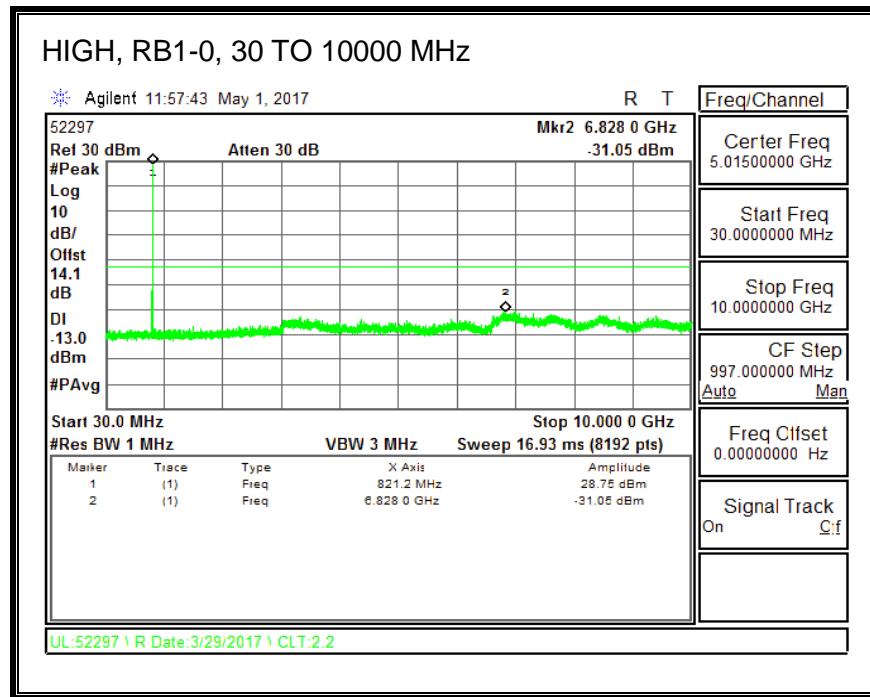
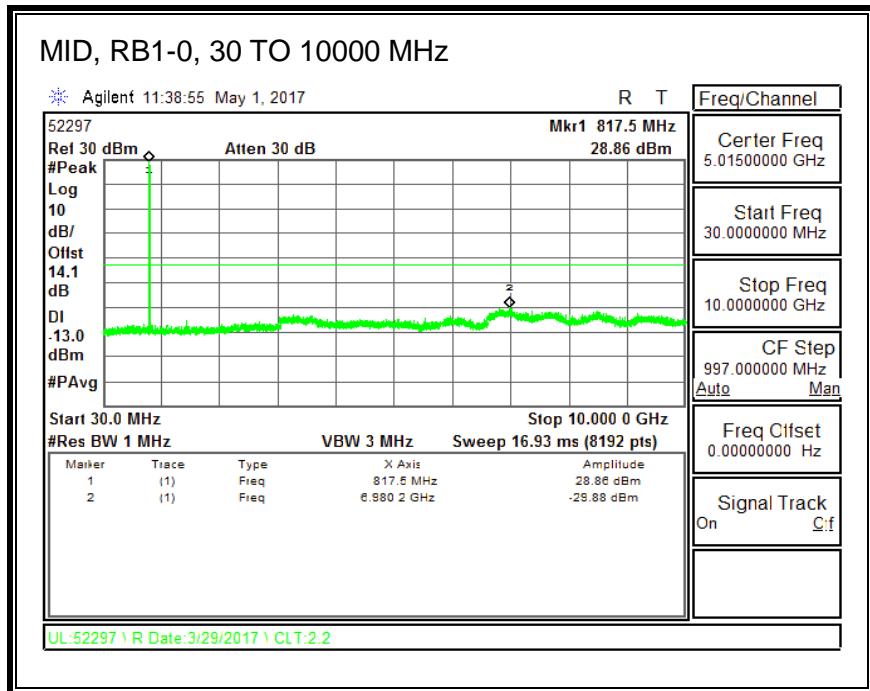
**QPSK, (3.0 MHz BAND WIDTH)**



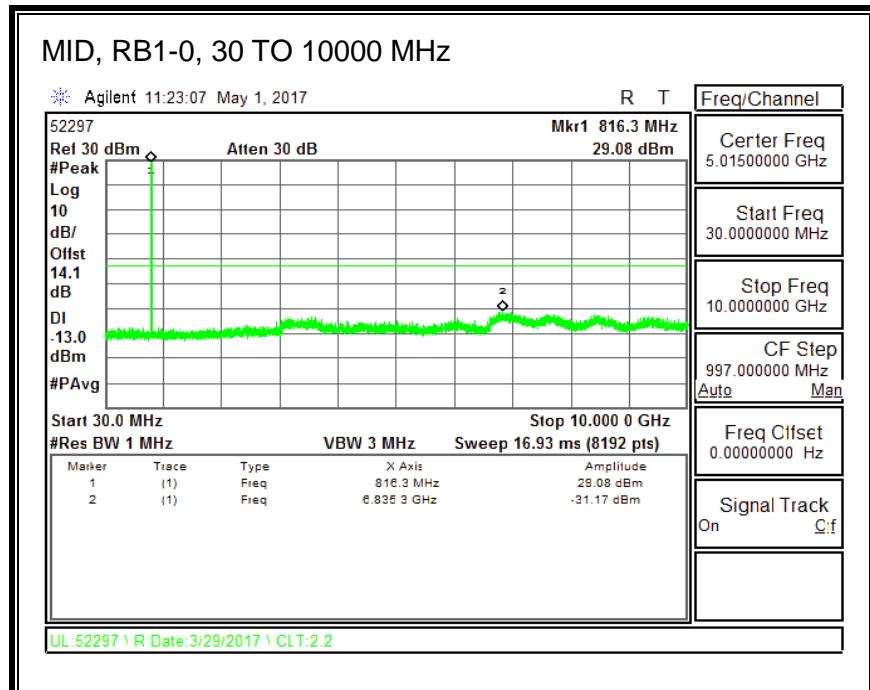
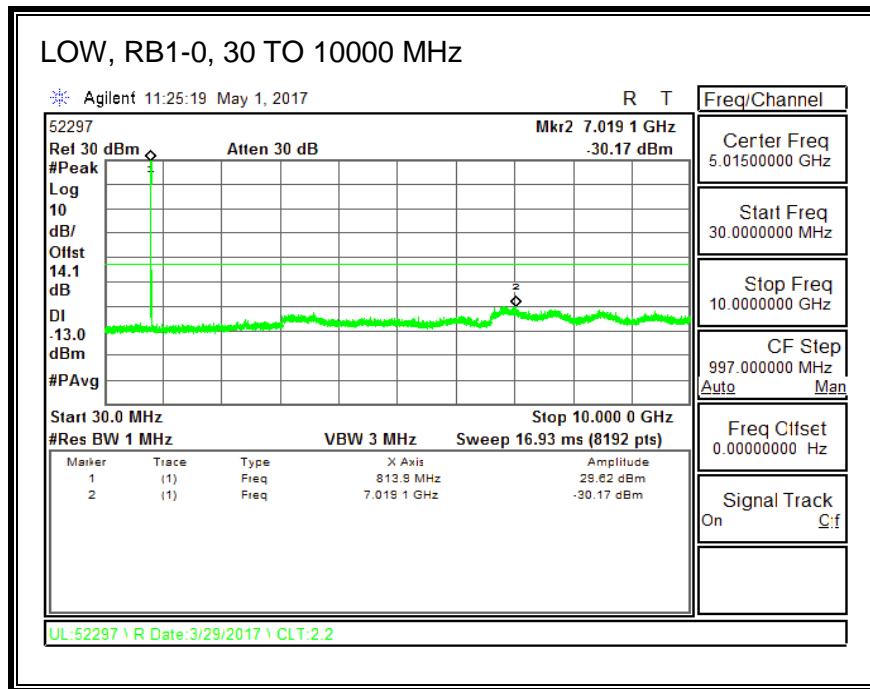


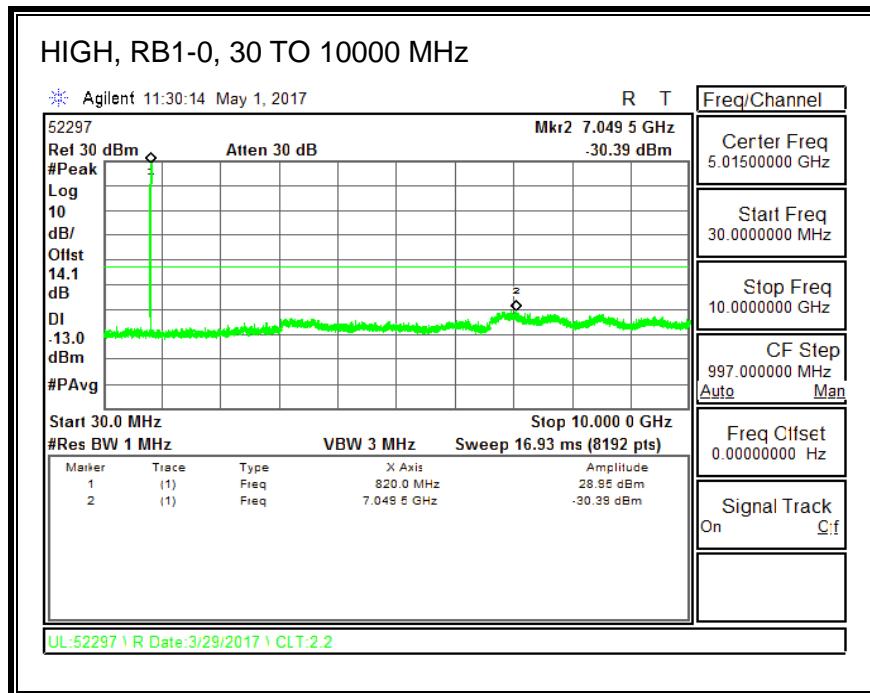
**16QAM, (3.0 MHz BAND WIDTH)**



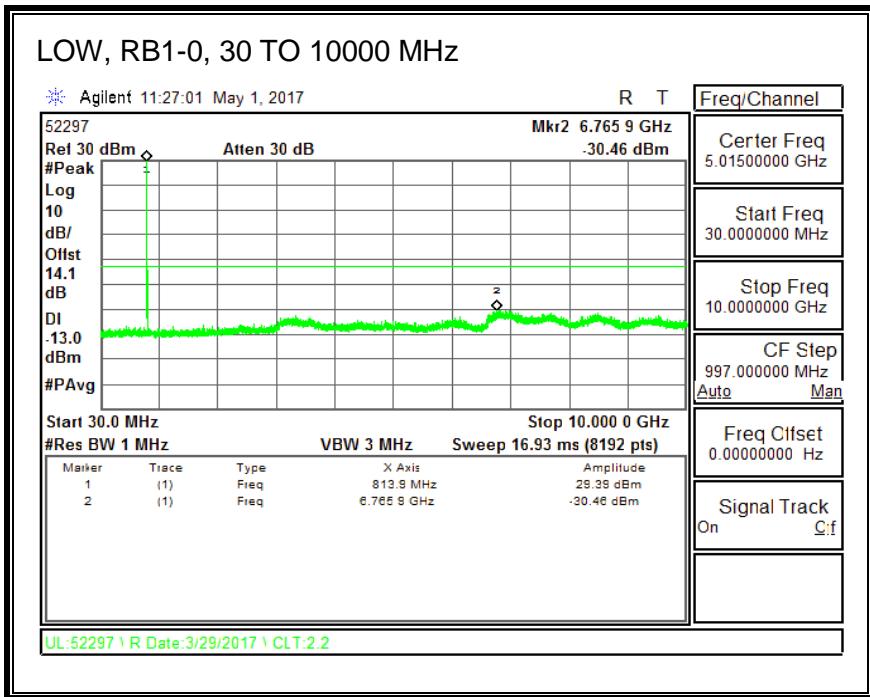


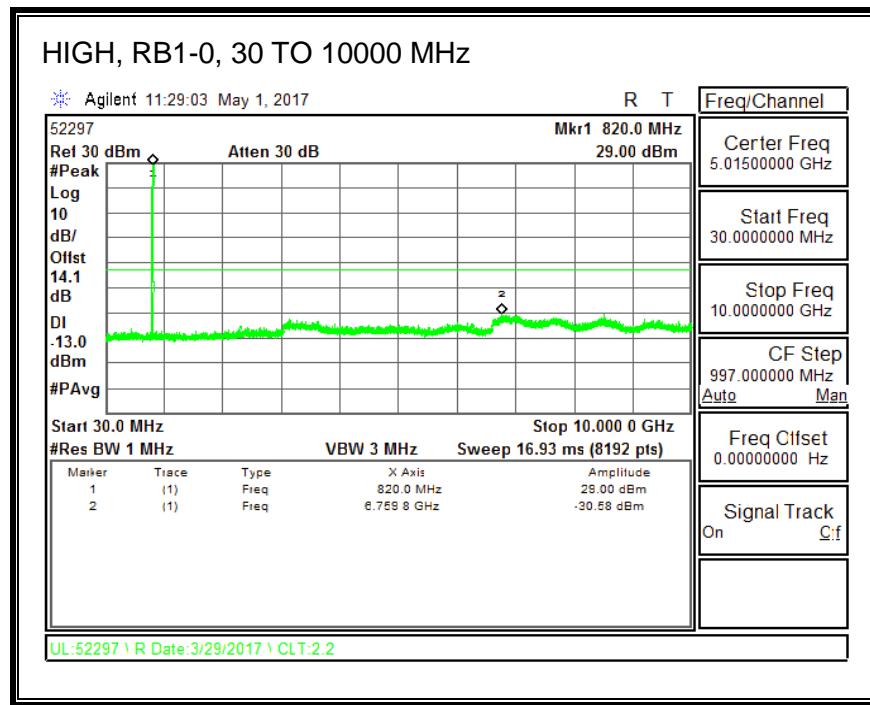
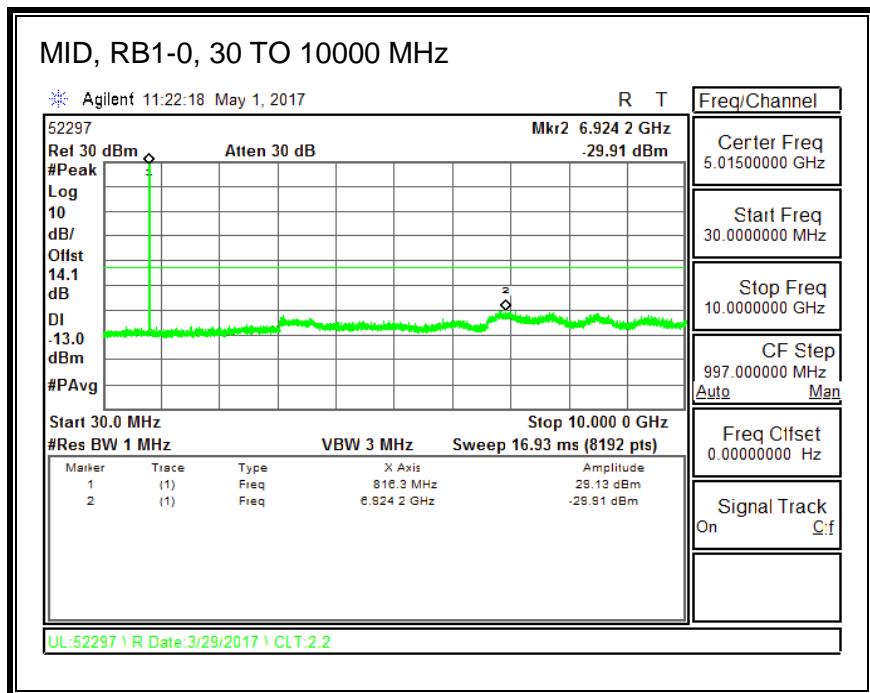
**QPSK, (5.0 MHz BAND WIDTH)**



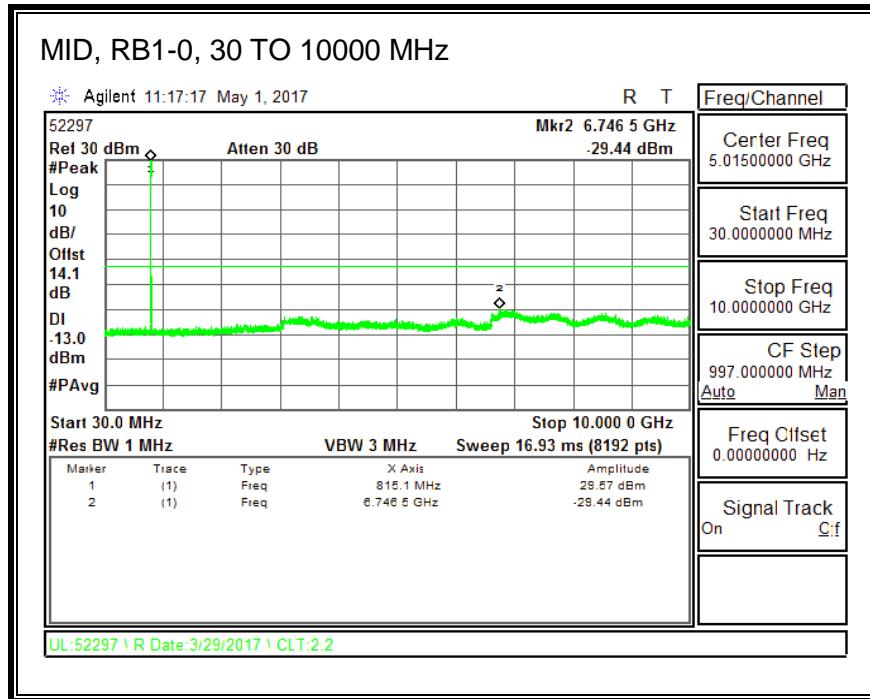


**16QAM, (5.0 MHz BAND WIDTH)**

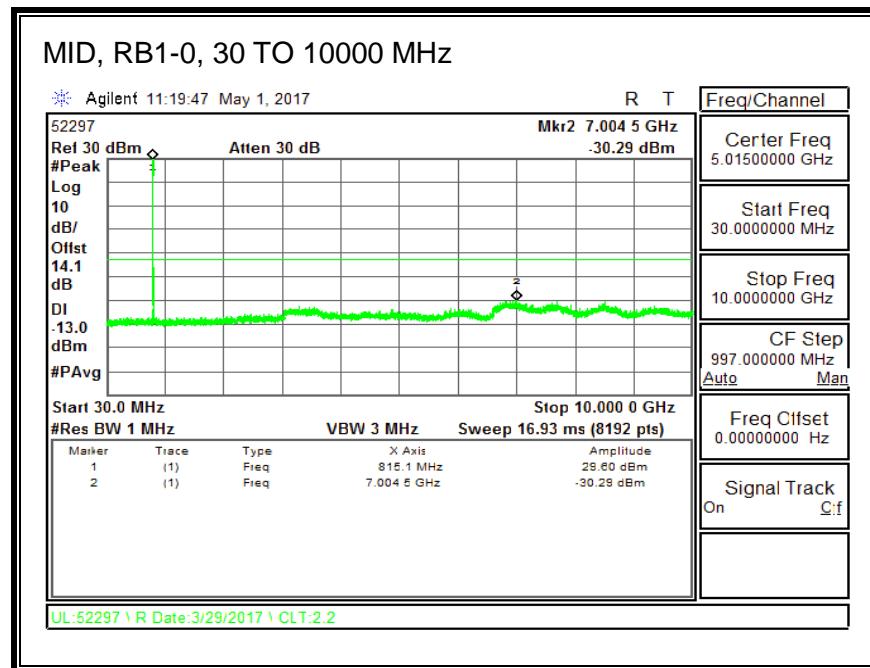




**QPSK, (10.0 MHz BAND WIDTH)**

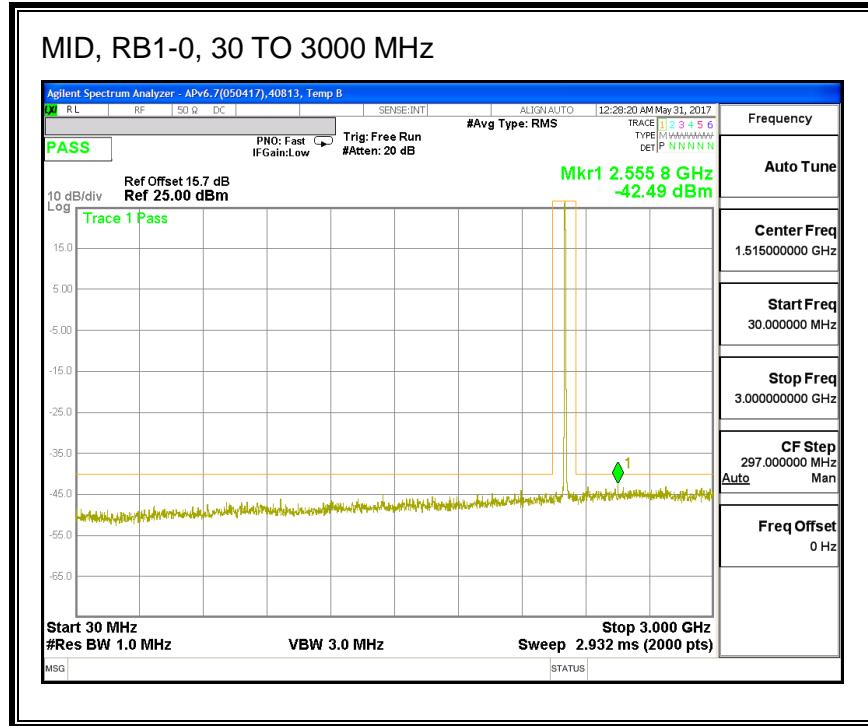
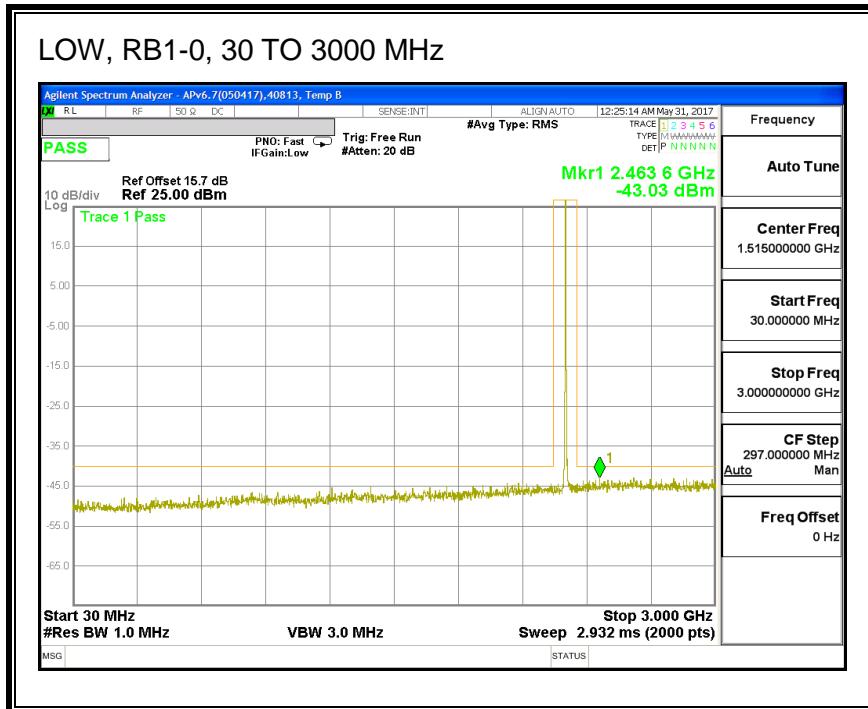


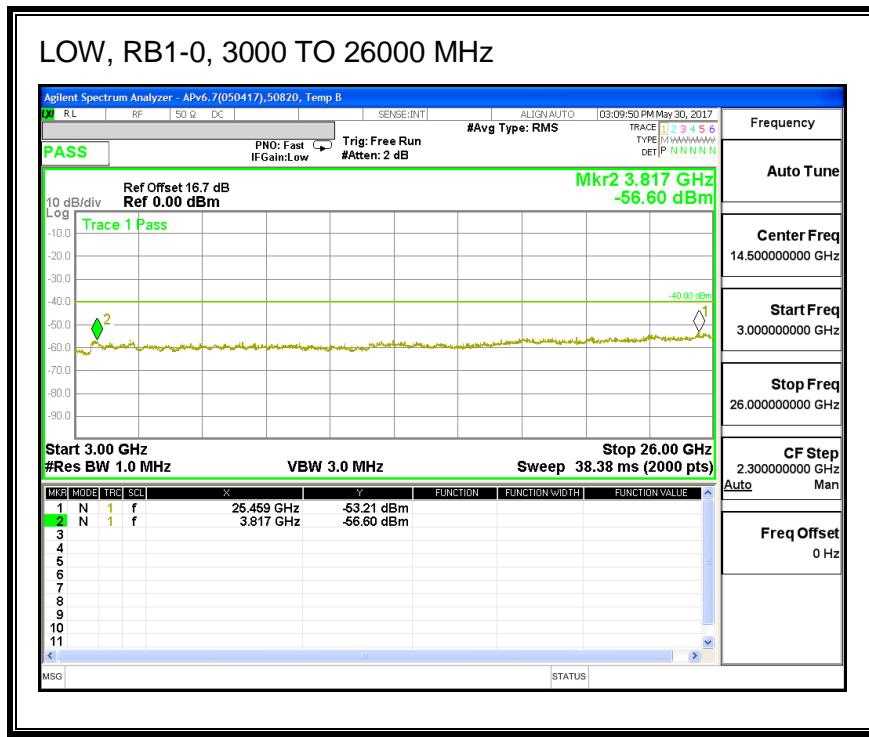
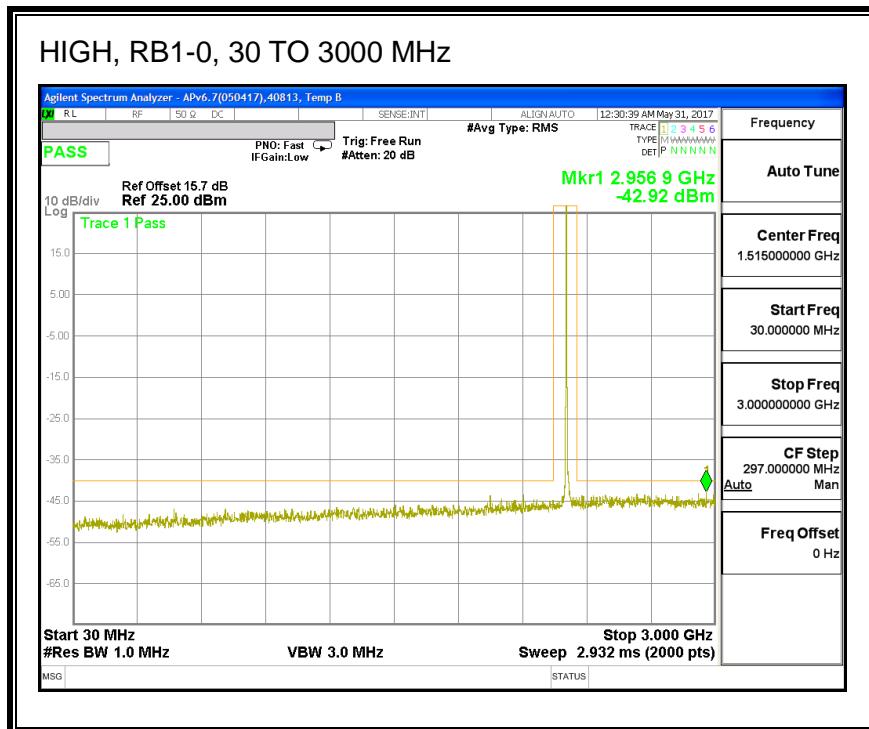
**16QAM, (10.0 MHz BAND WIDTH)**

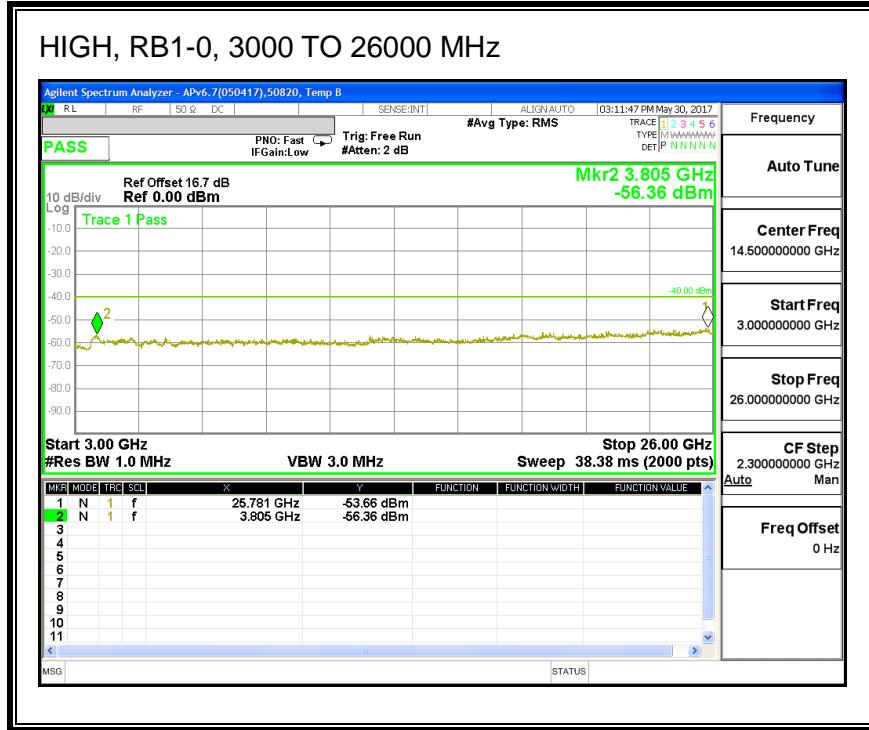
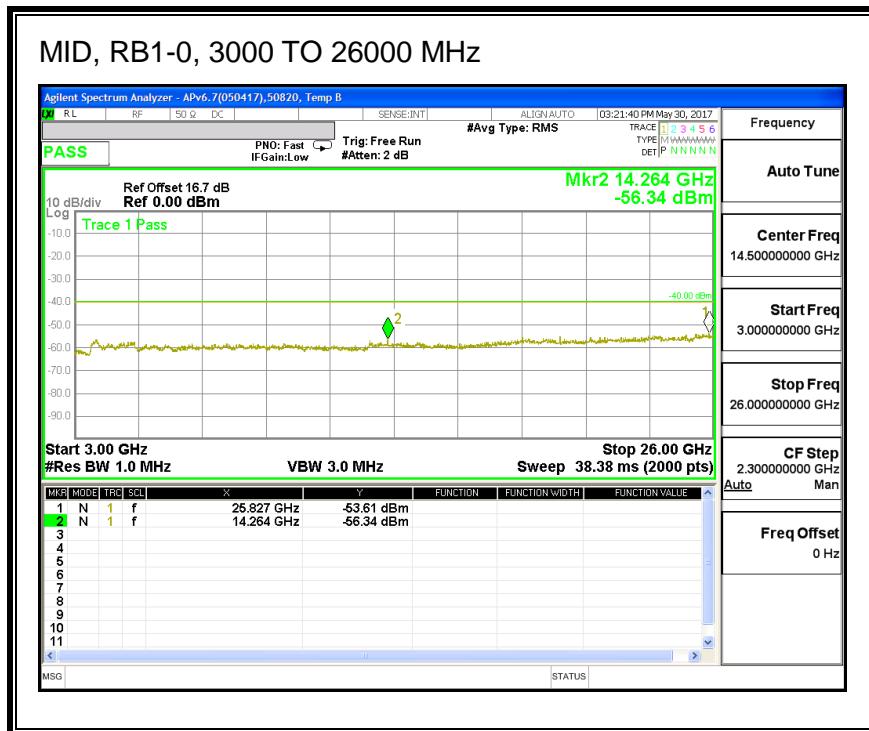


### 8.3.10. LTE BAND 30

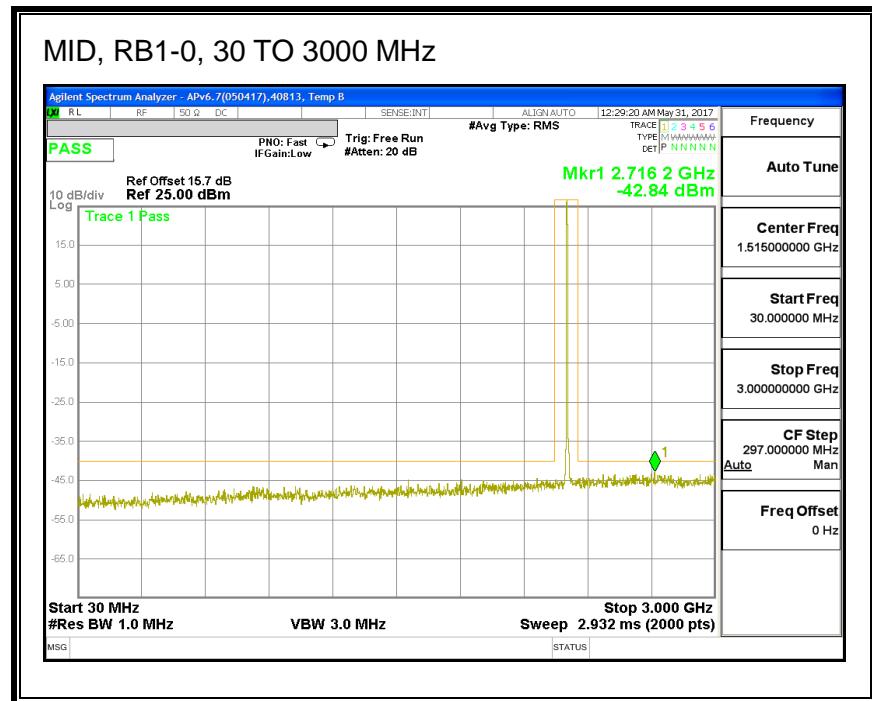
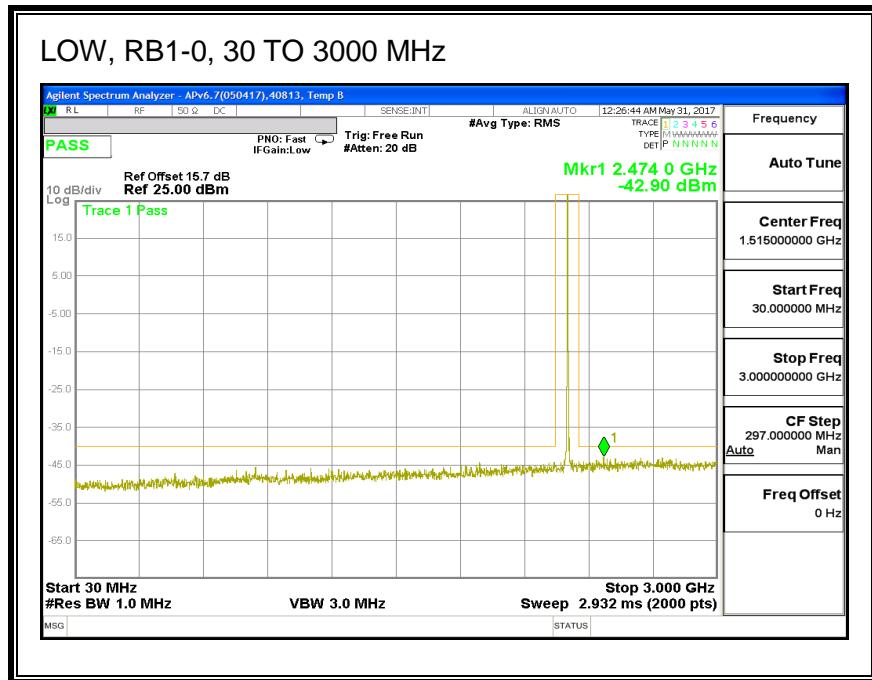
#### QPSK, (5.0 MHz BAND WIDTH)

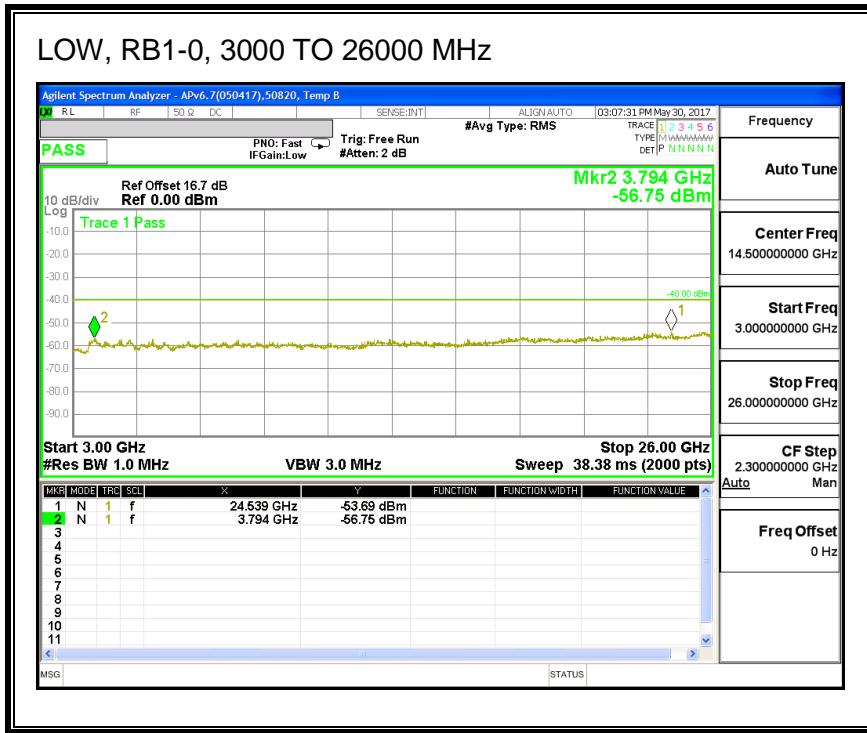
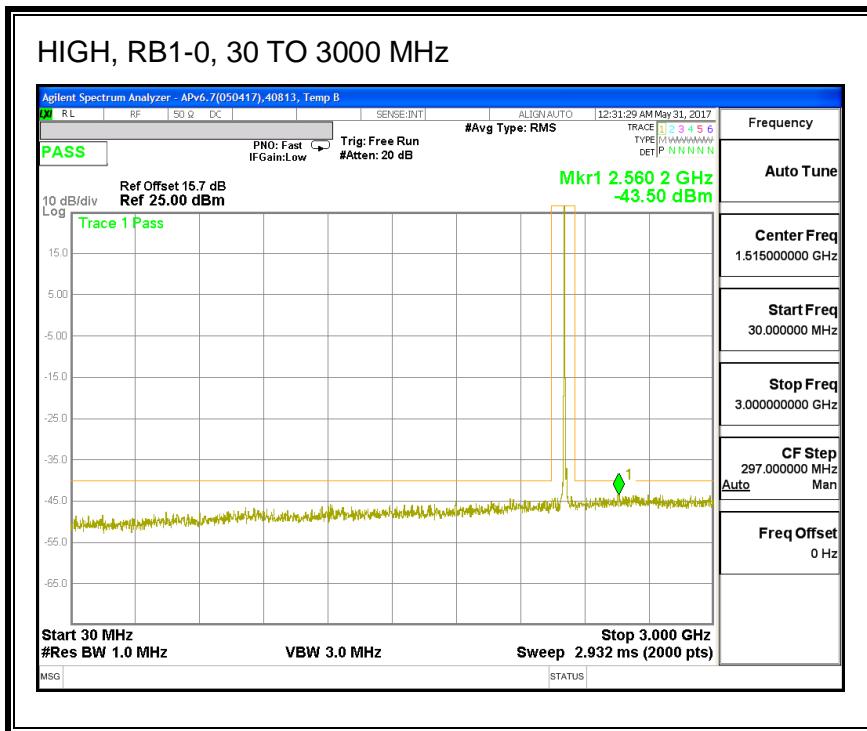


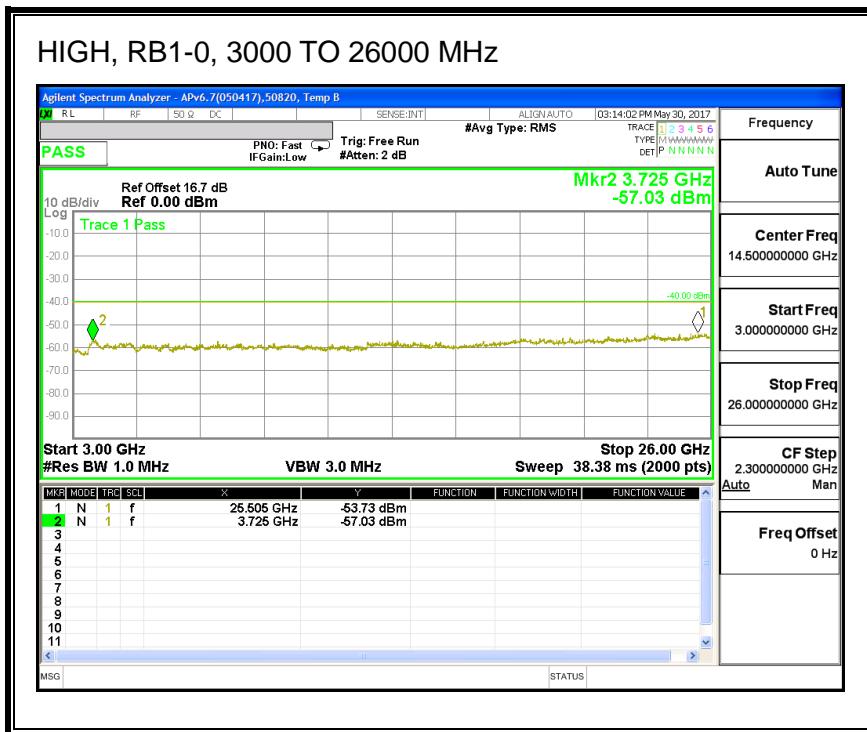
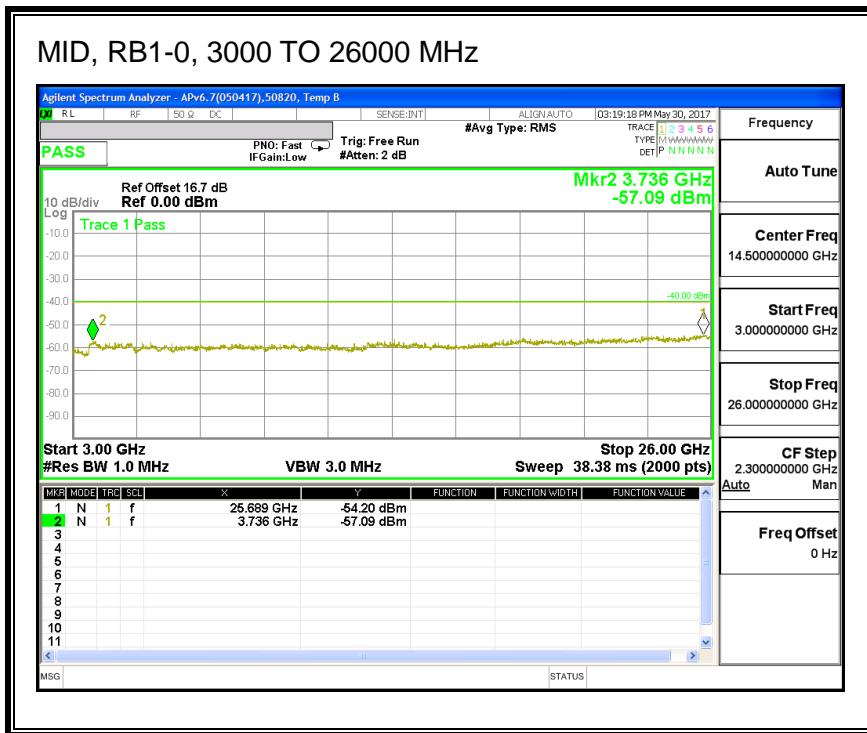




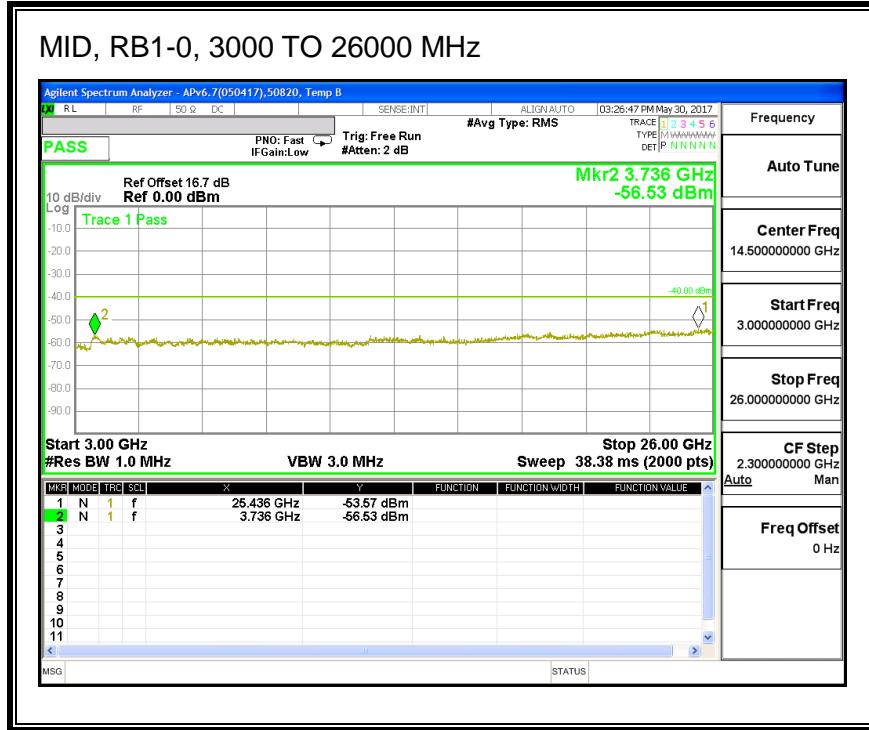
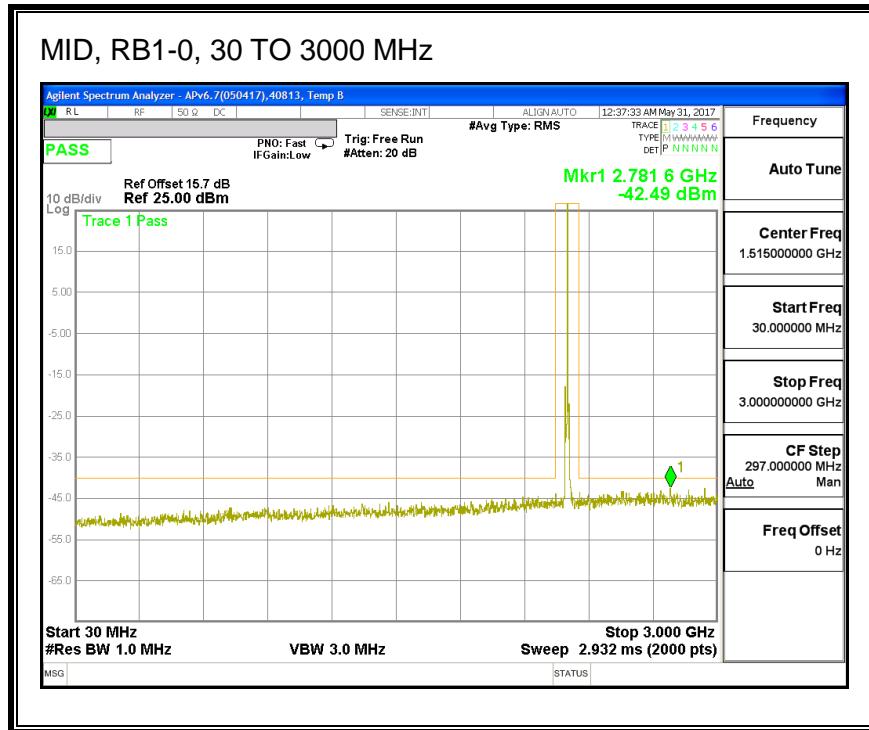
**16QAM, (5.0 MHz BAND WIDTH)**



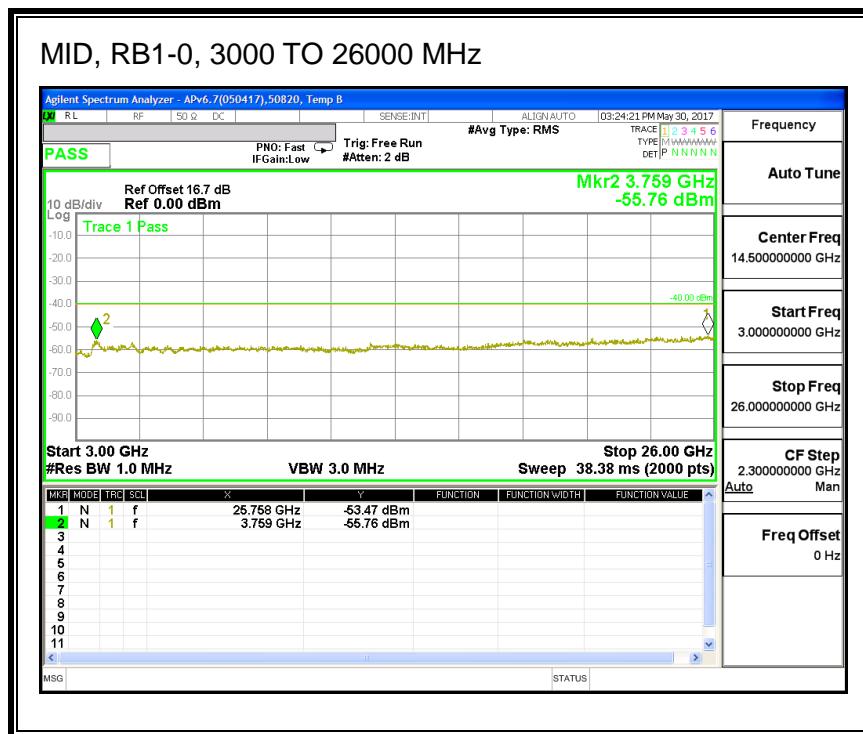
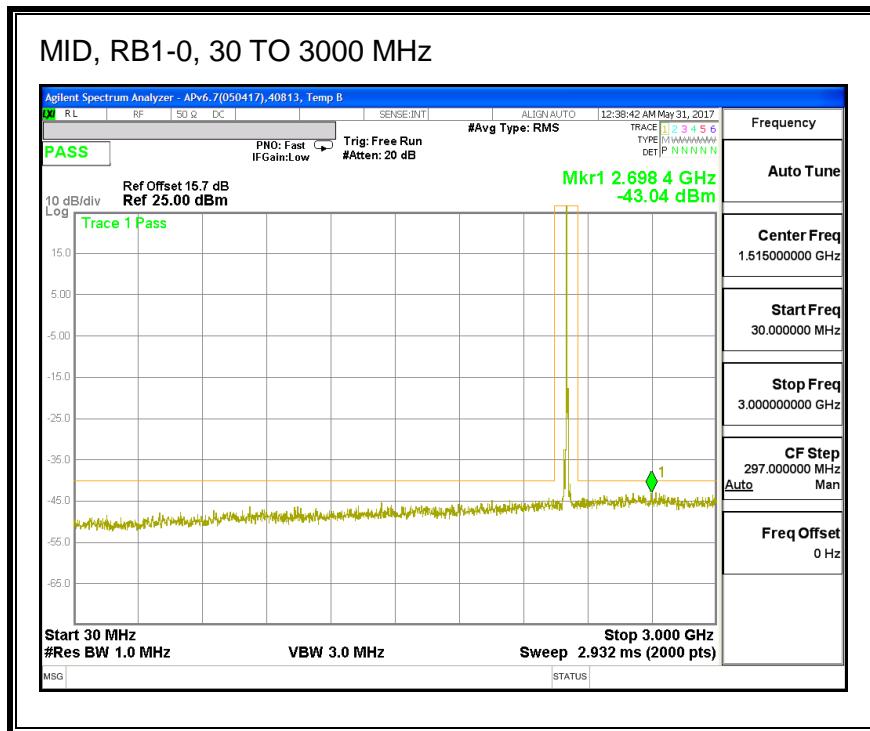




**QPSK, (10.0 MHz BAND WIDTH)**

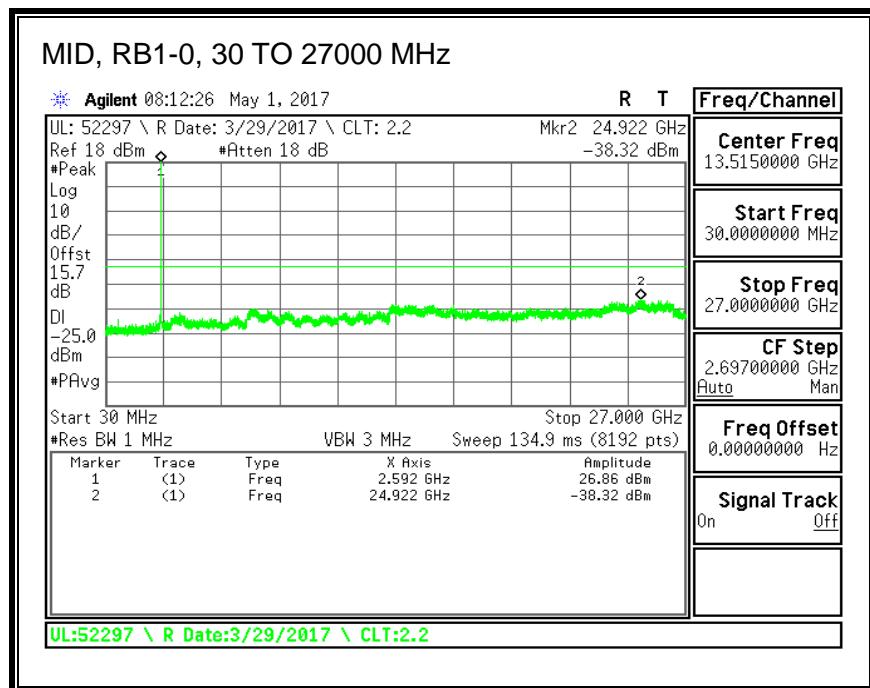
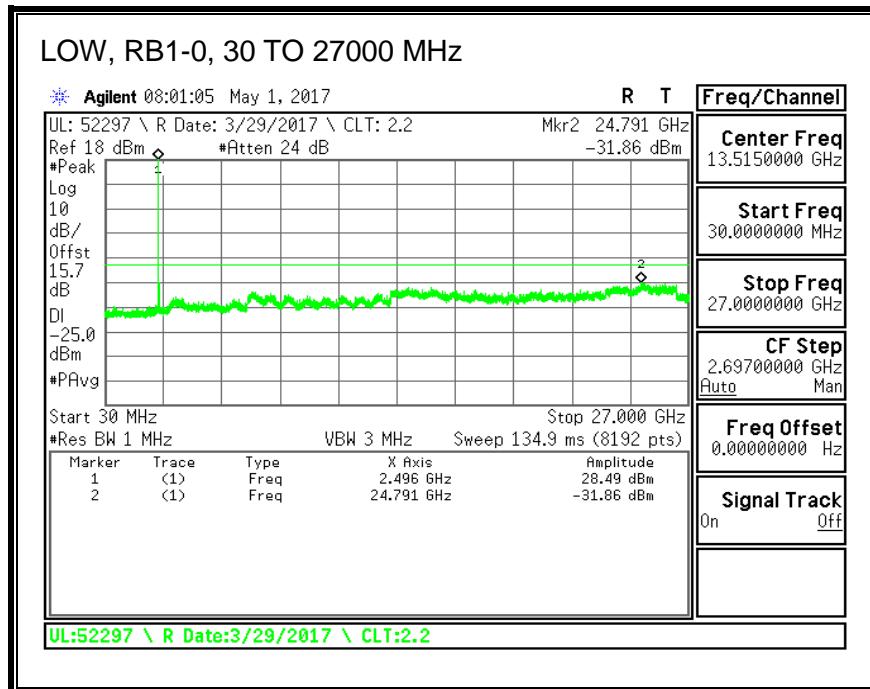


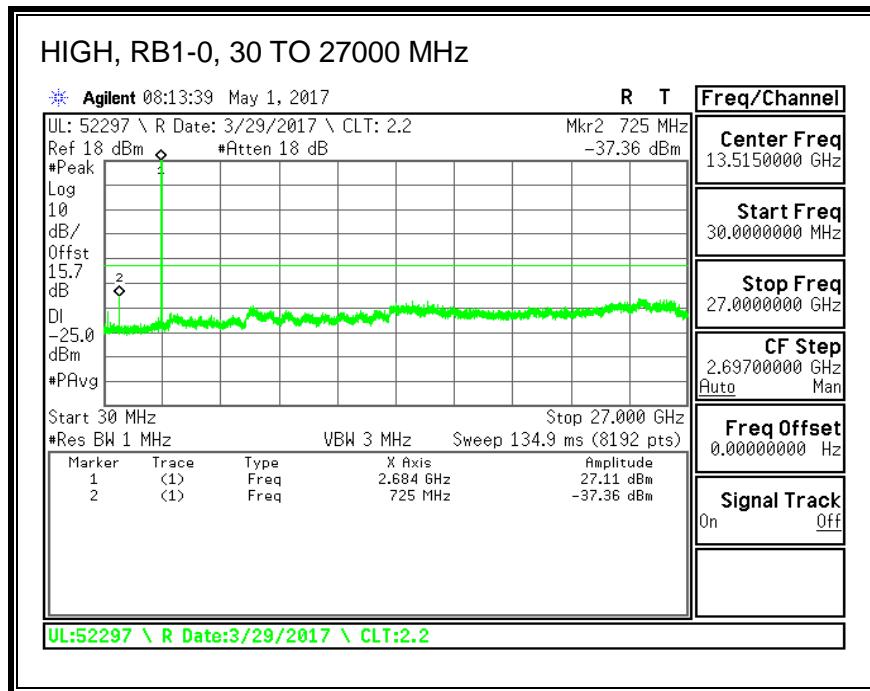
**16QAM, (10.0 MHz BAND WIDTH)**



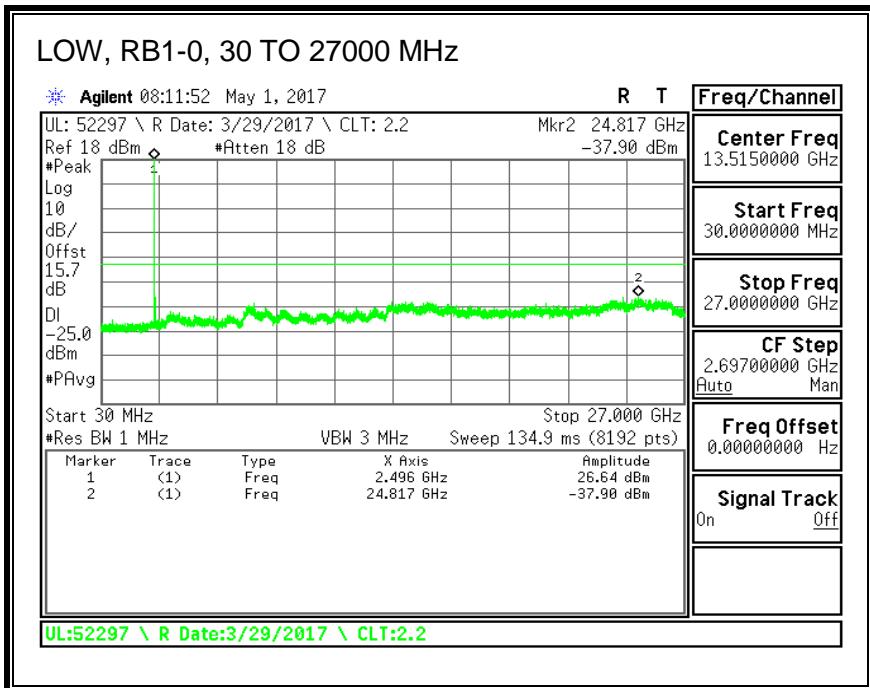
### 8.3.11. LTE BAND 41

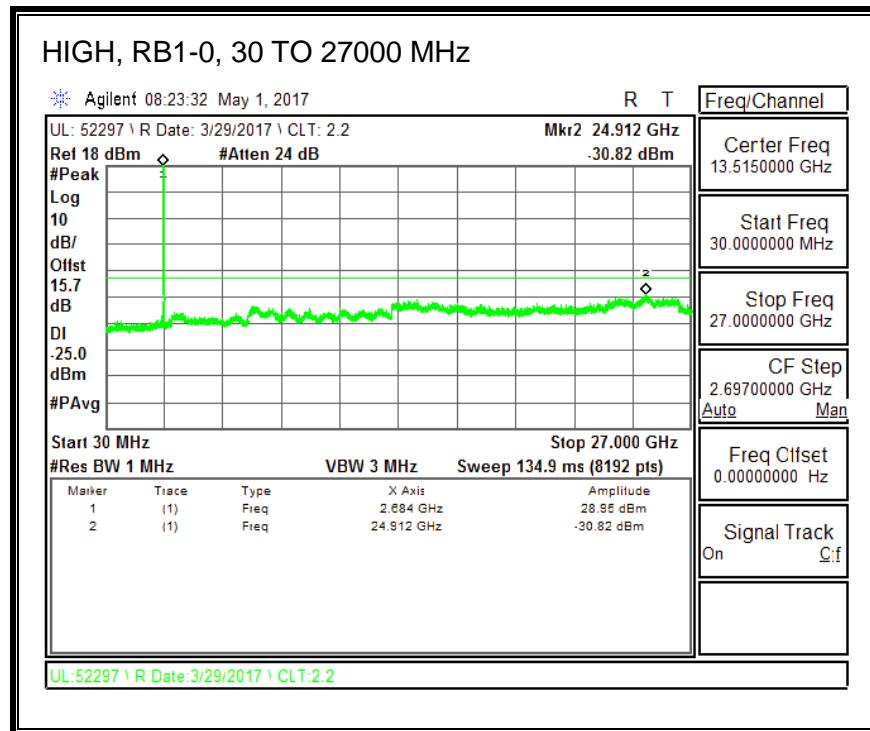
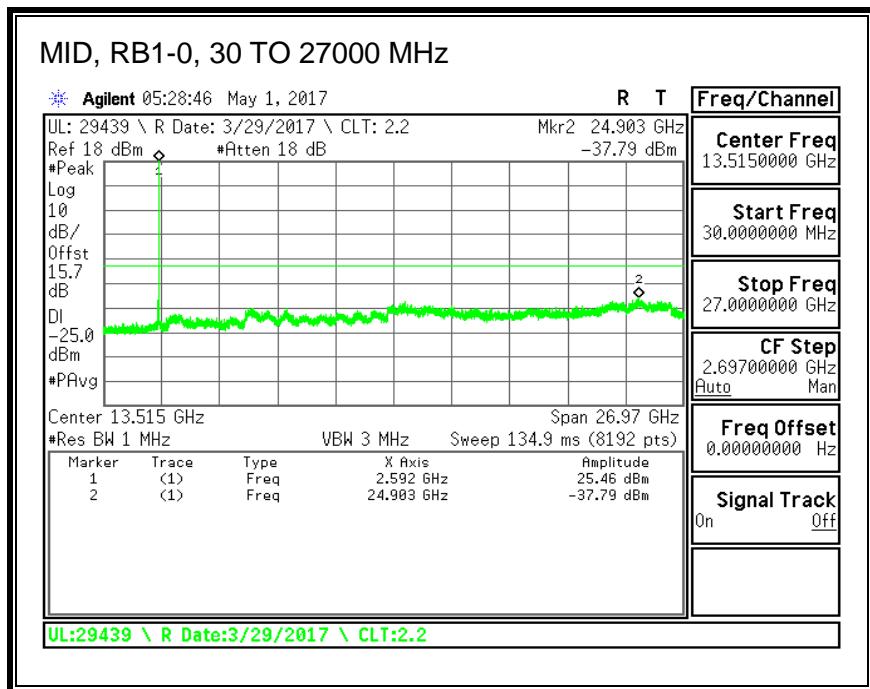
#### QPSK, (5.0 MHz BAND WIDTH)



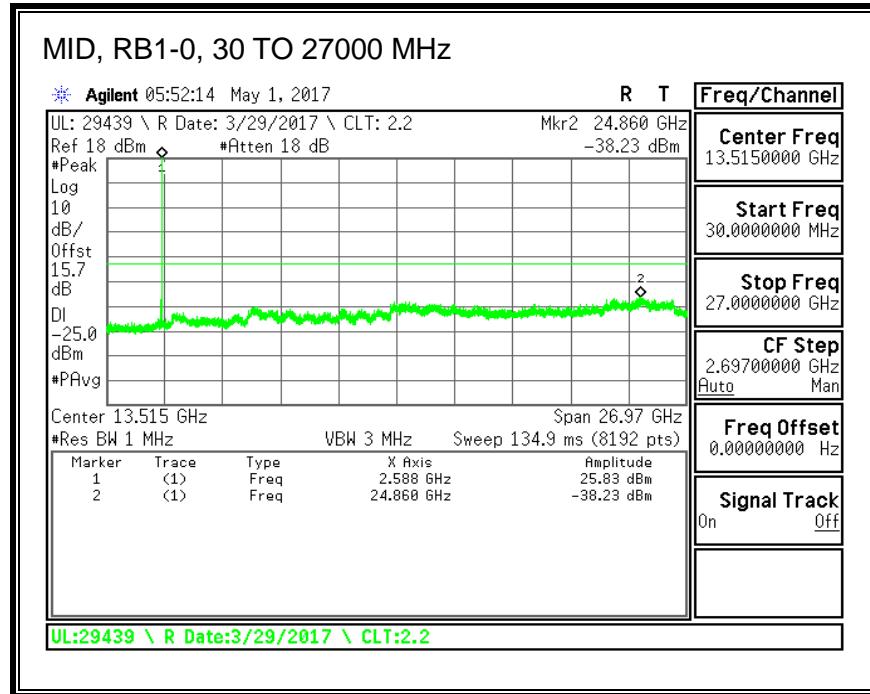
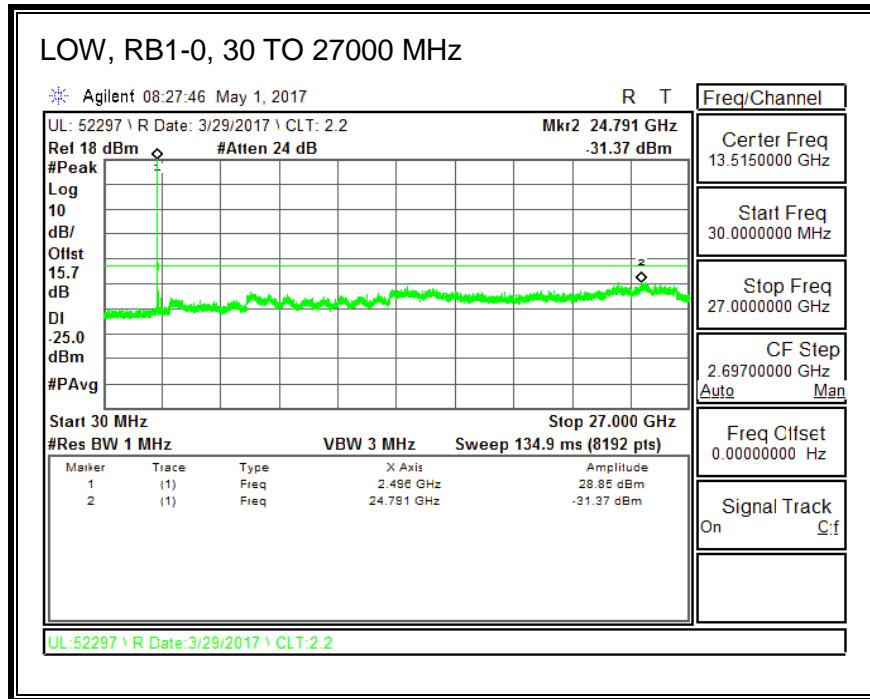


**16QAM, (5.0 MHz BAND WIDTH)**

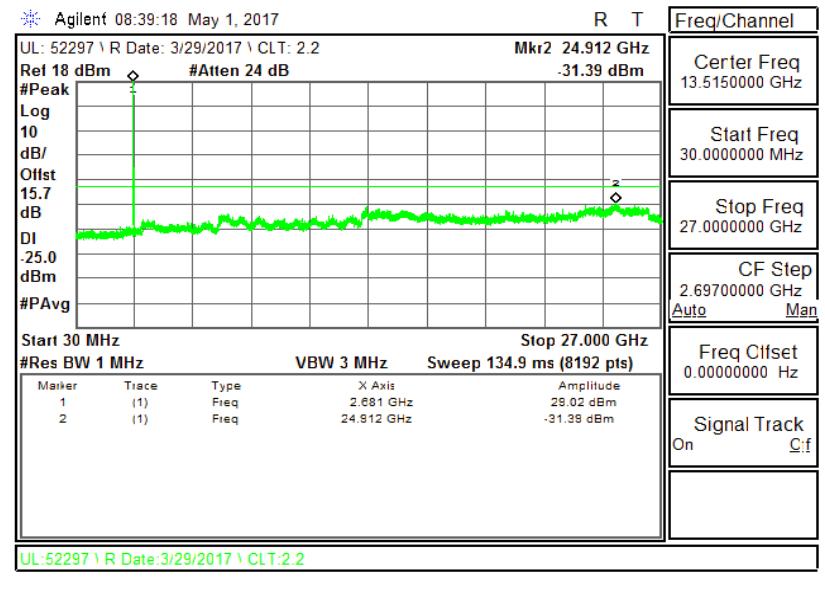




**QPSK, (10.0 MHz BAND WIDTH)**

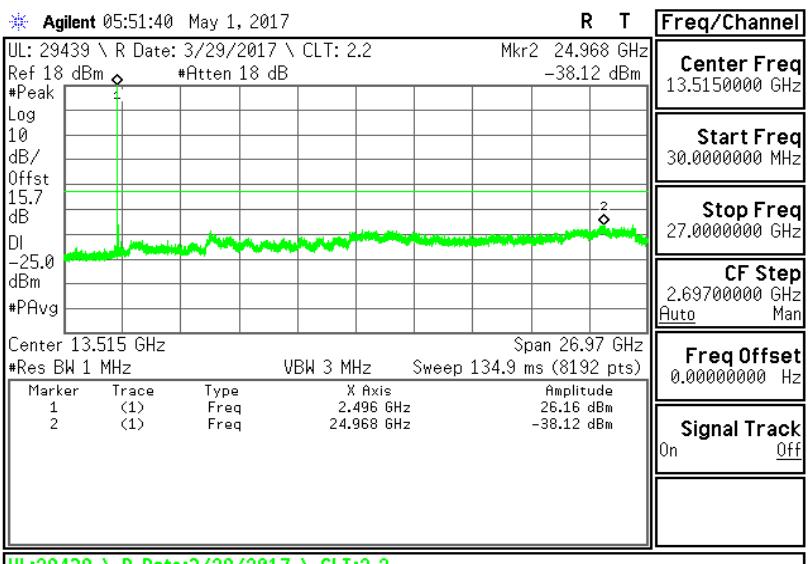


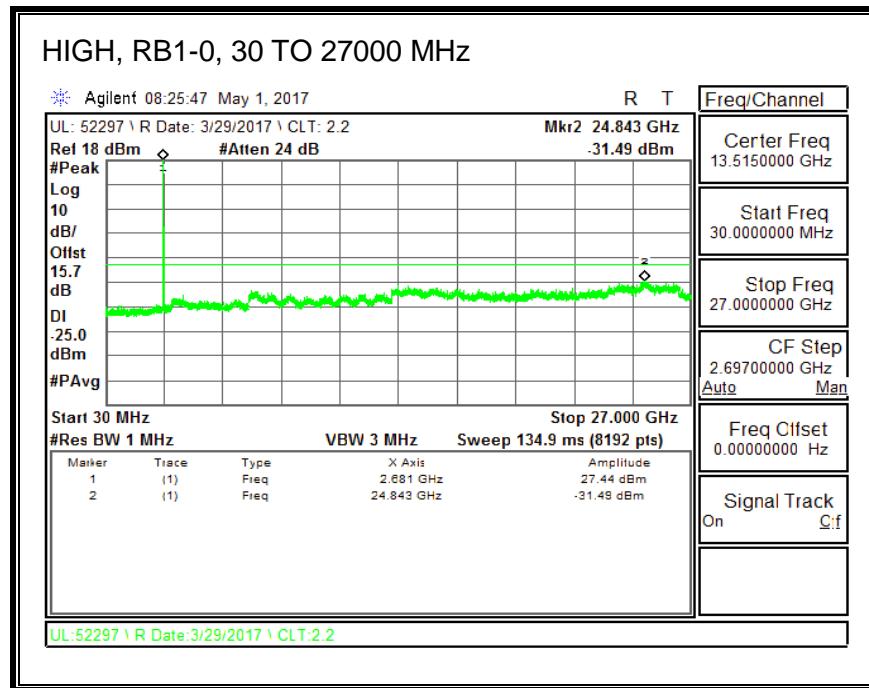
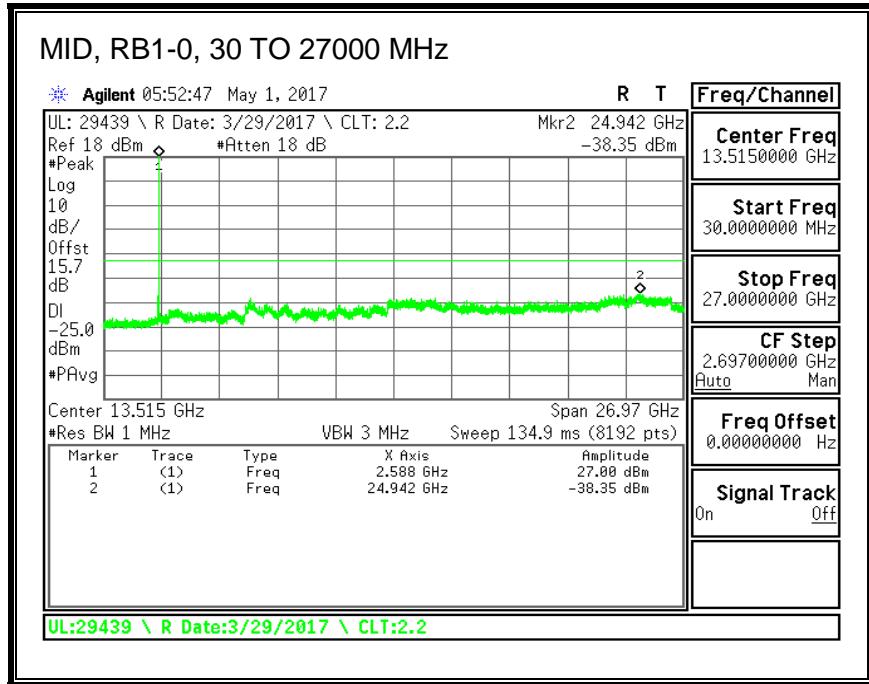
**HIGH, RB1-0, 30 TO 27000 MHz**



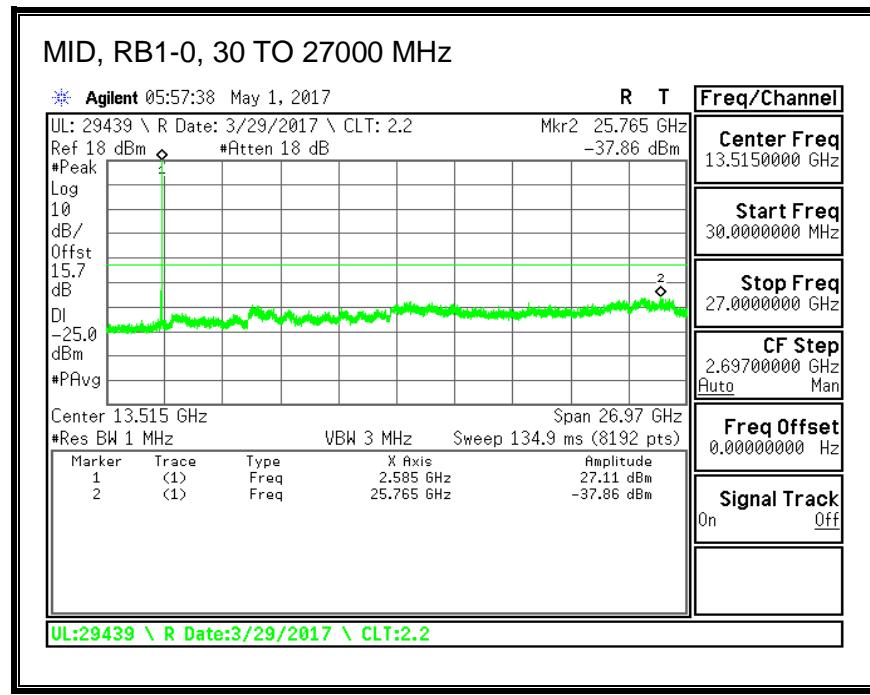
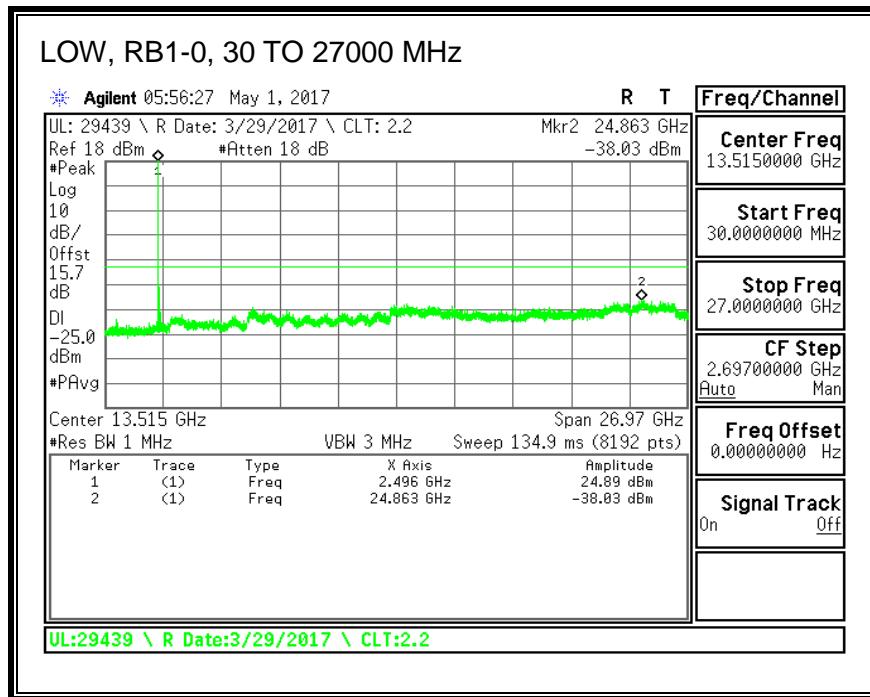
**16QAM, (10.0 MHz BAND WIDTH)**

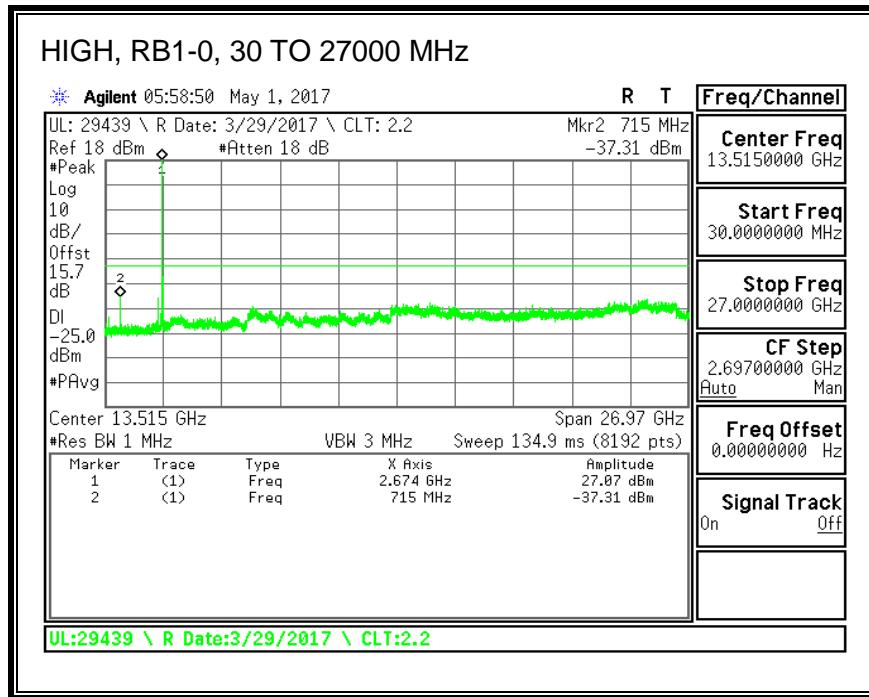
**LOW, RB1-0, 30 TO 27000 MHz**



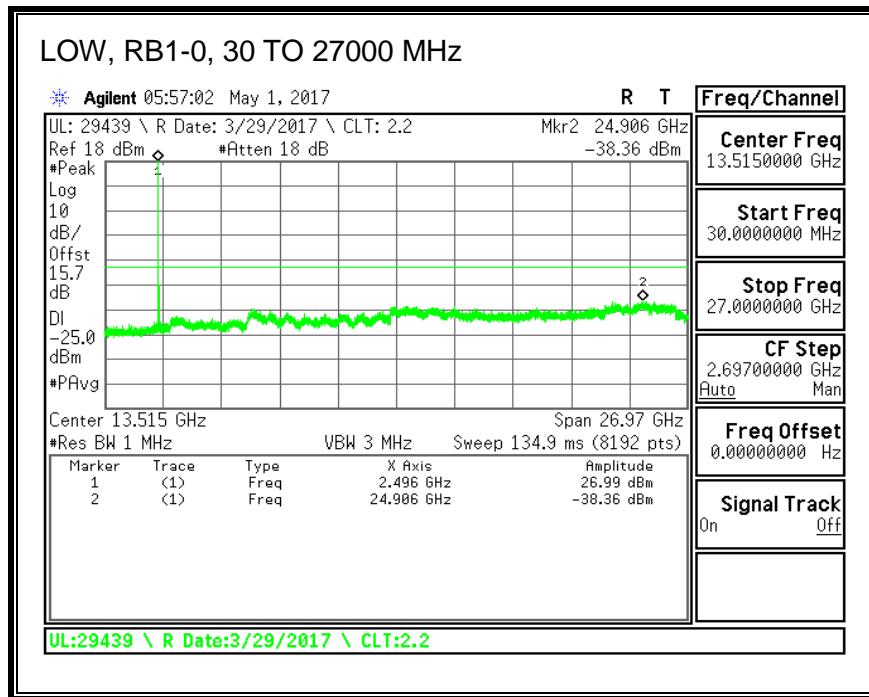


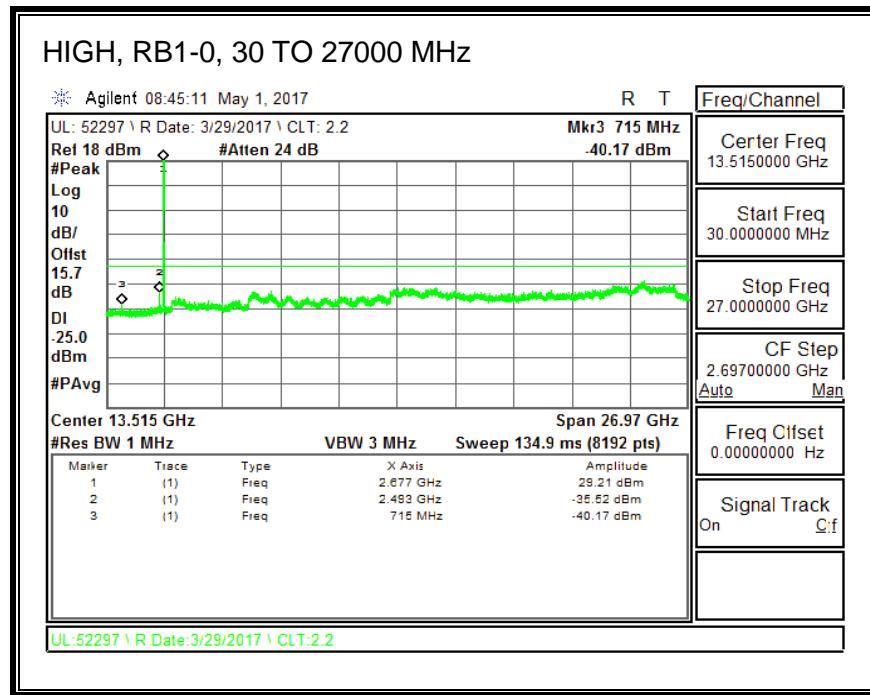
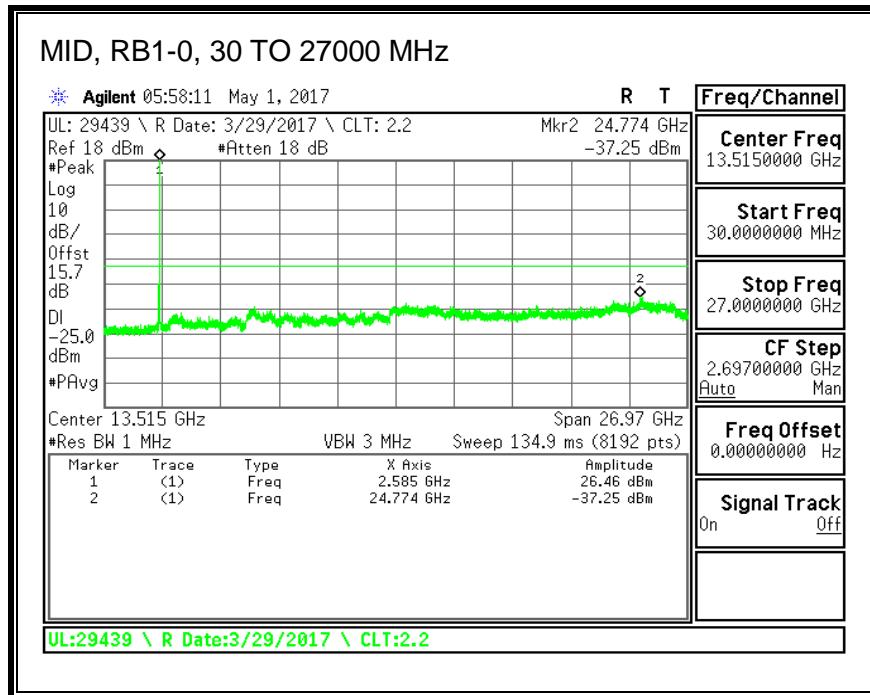
**QPSK, (15.0 MHz BAND WIDTH)**



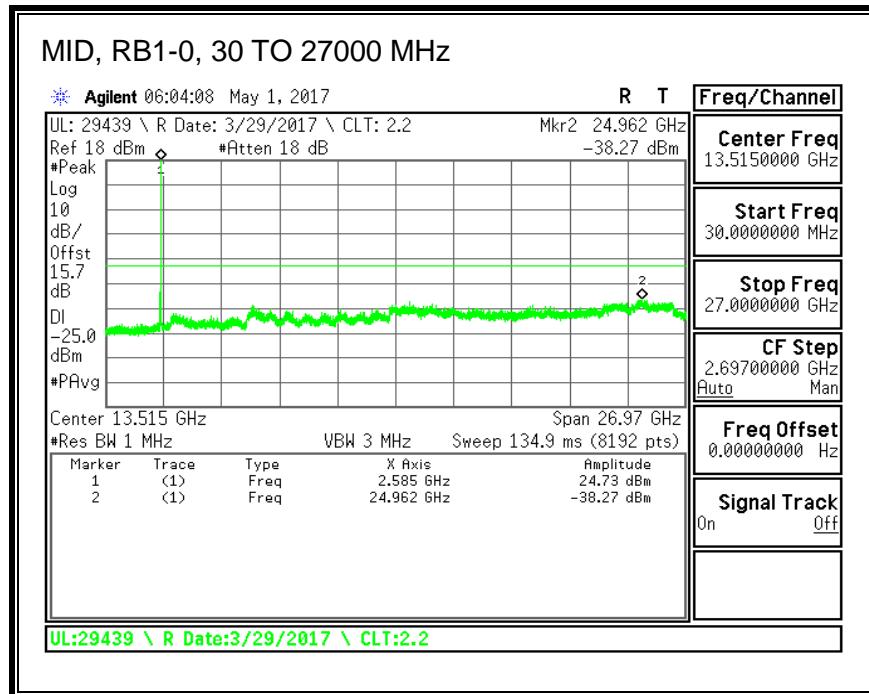
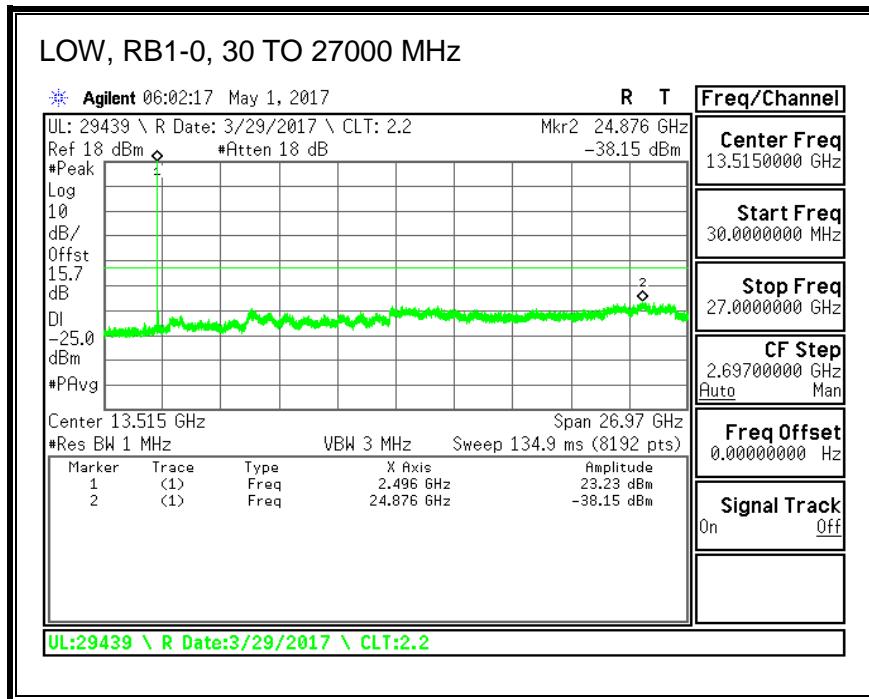


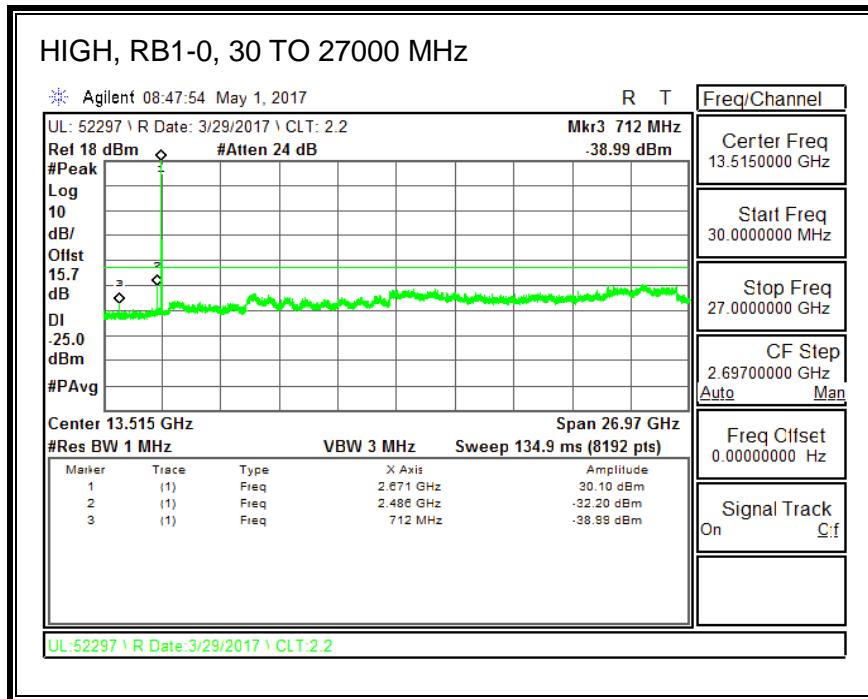
**16QAM, (15.0 MHz BAND WIDTH)**



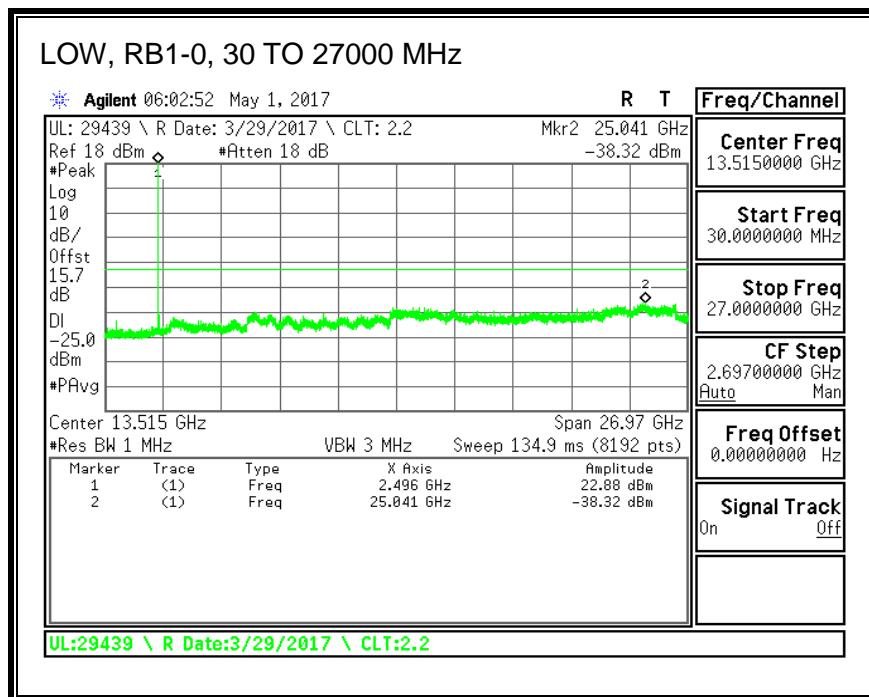


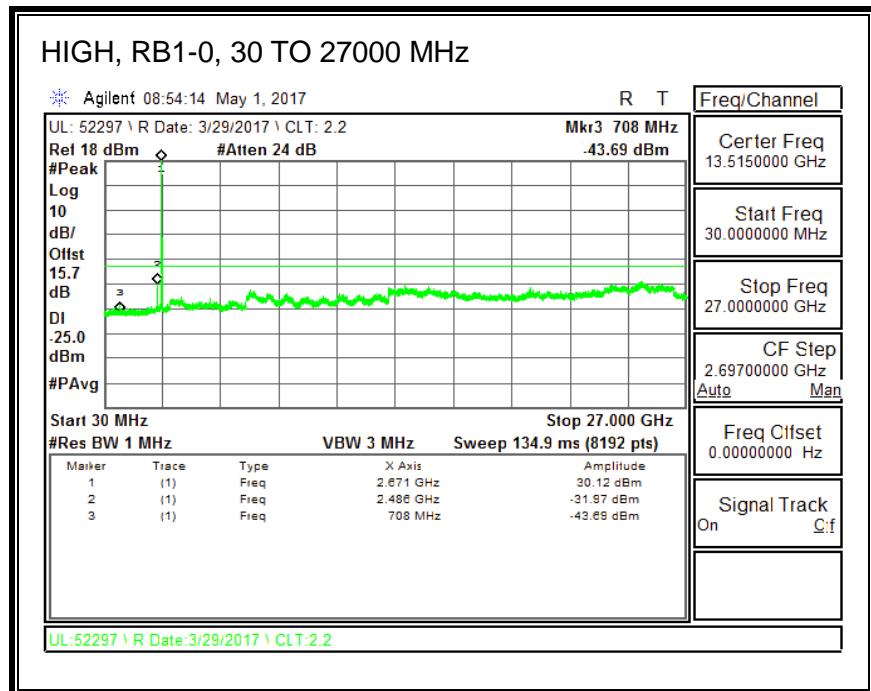
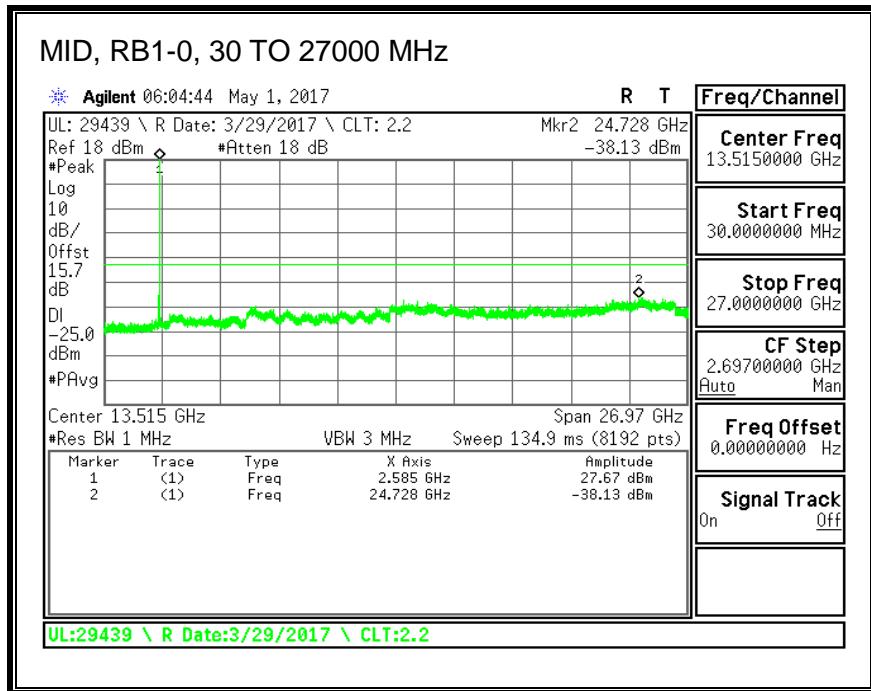
**QPSK, (20.0 MHz BAND WIDTH)**





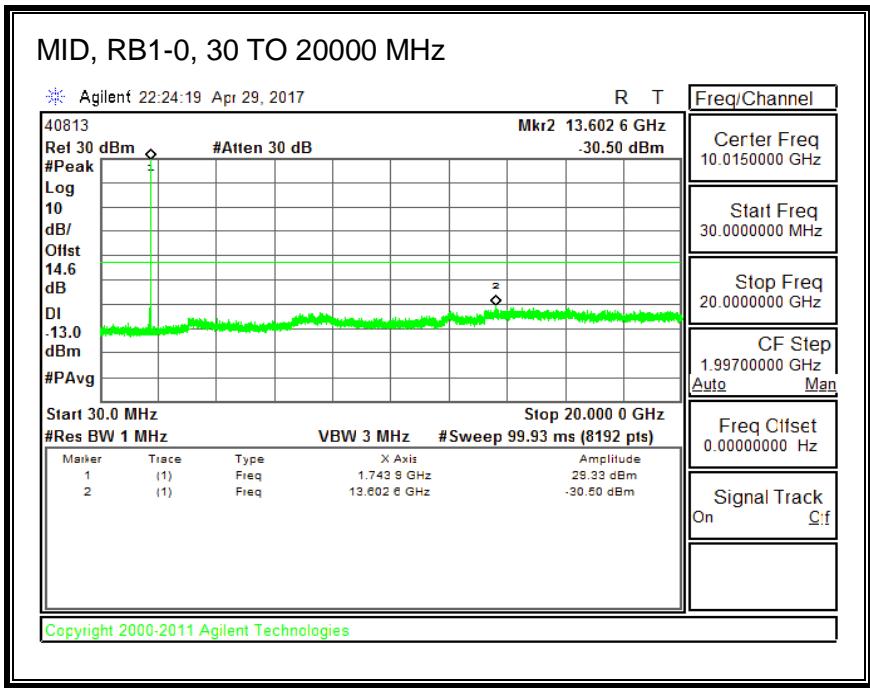
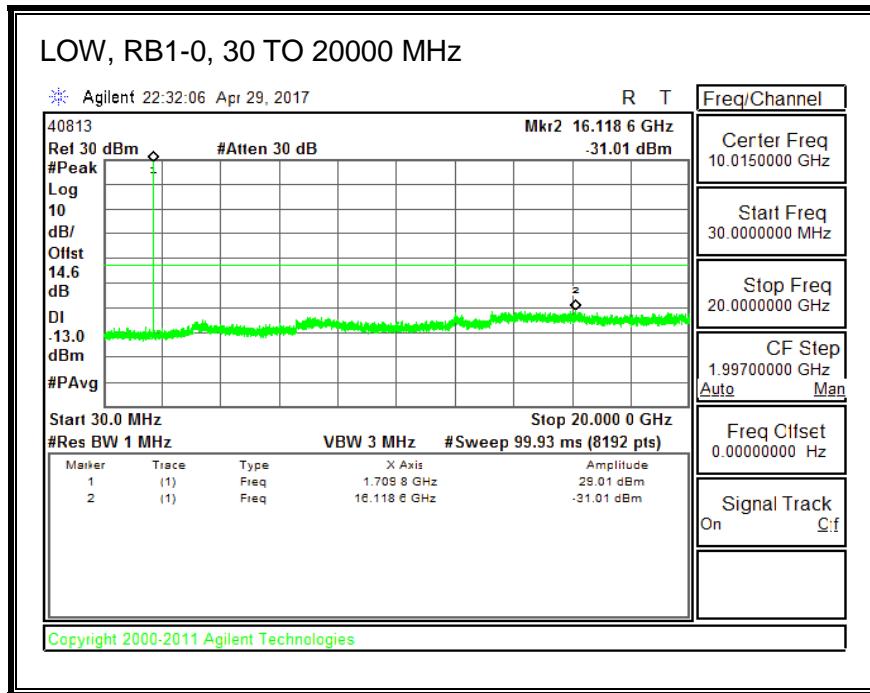
**16QAM, (20.0 MHz BAND WIDTH)**

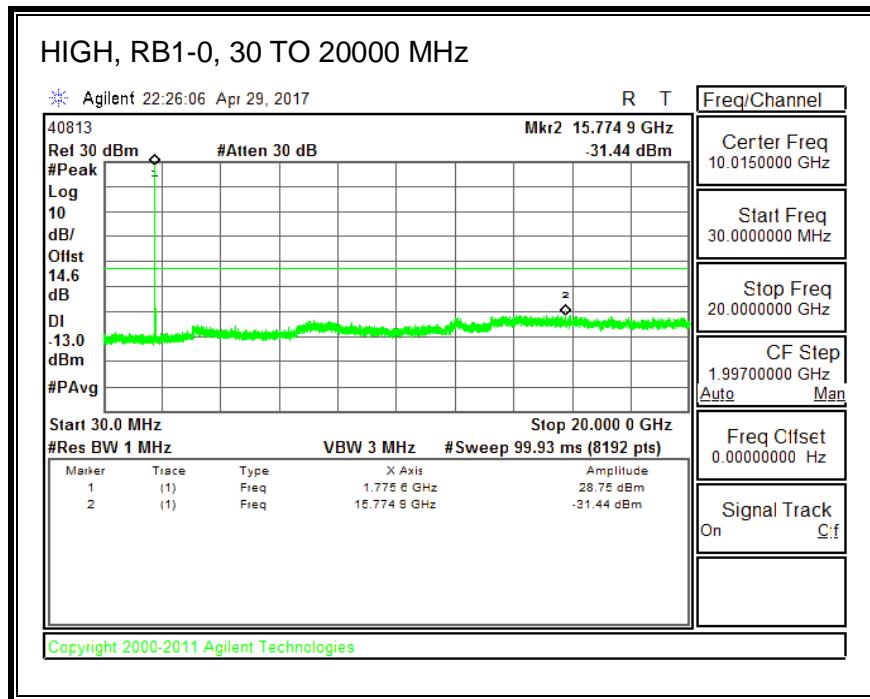




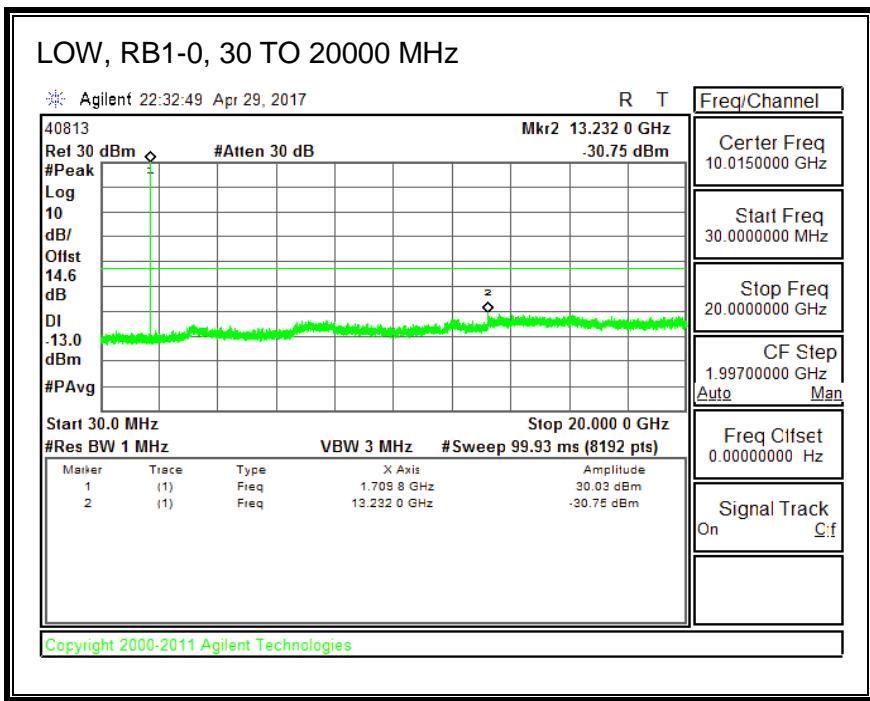
### 8.3.12. LTE BAND 66

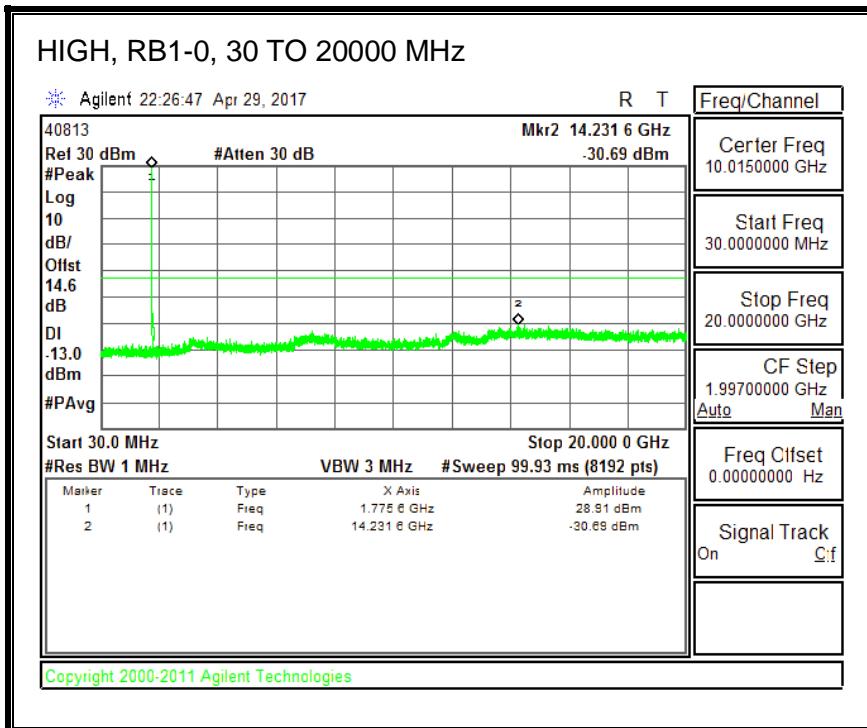
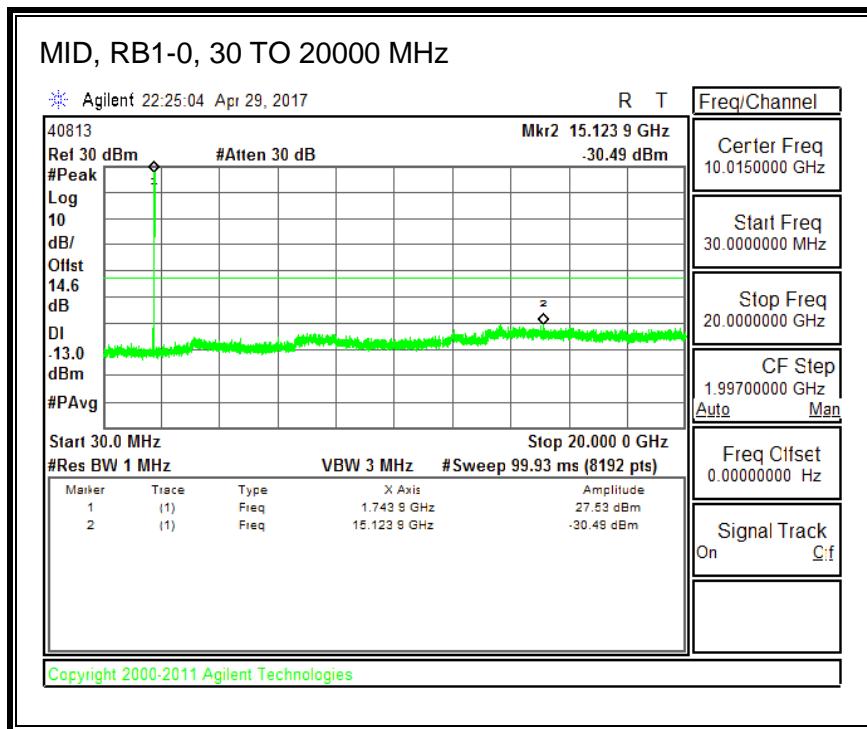
#### QPSK, (5.0 MHz BAND WIDTH)



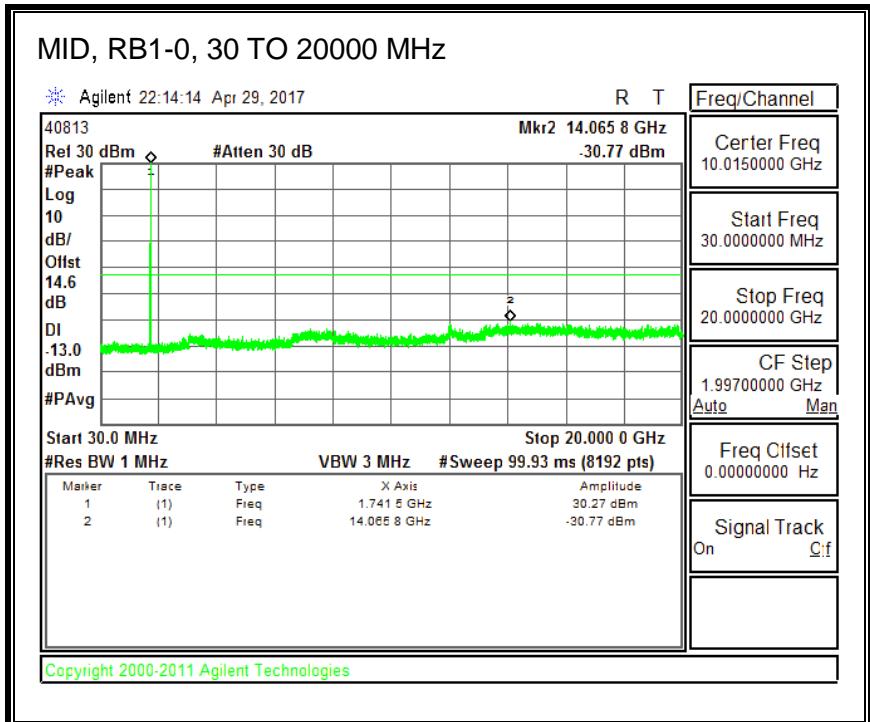
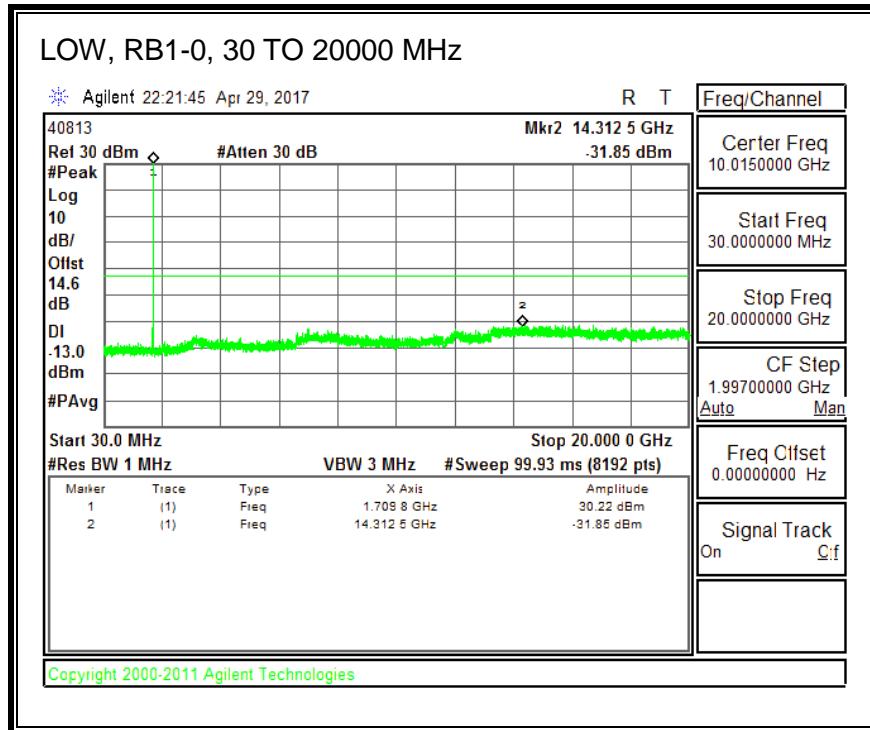


**16QAM, (5.0 MHz BAND WIDTH)**

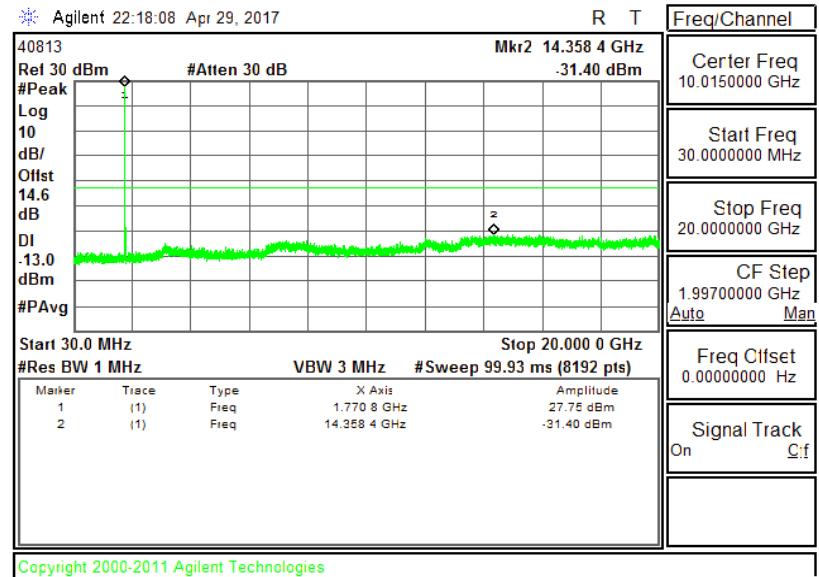




**QPSK, (10.0 MHz BAND WIDTH)**

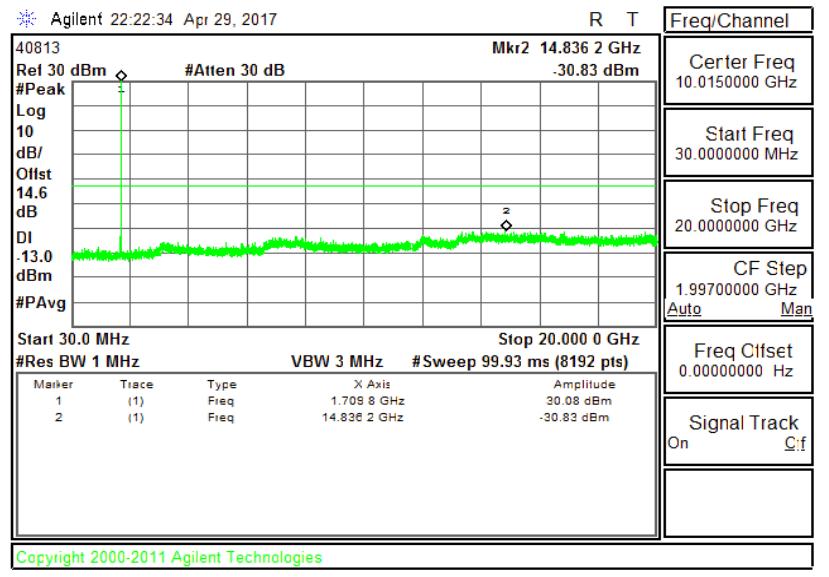


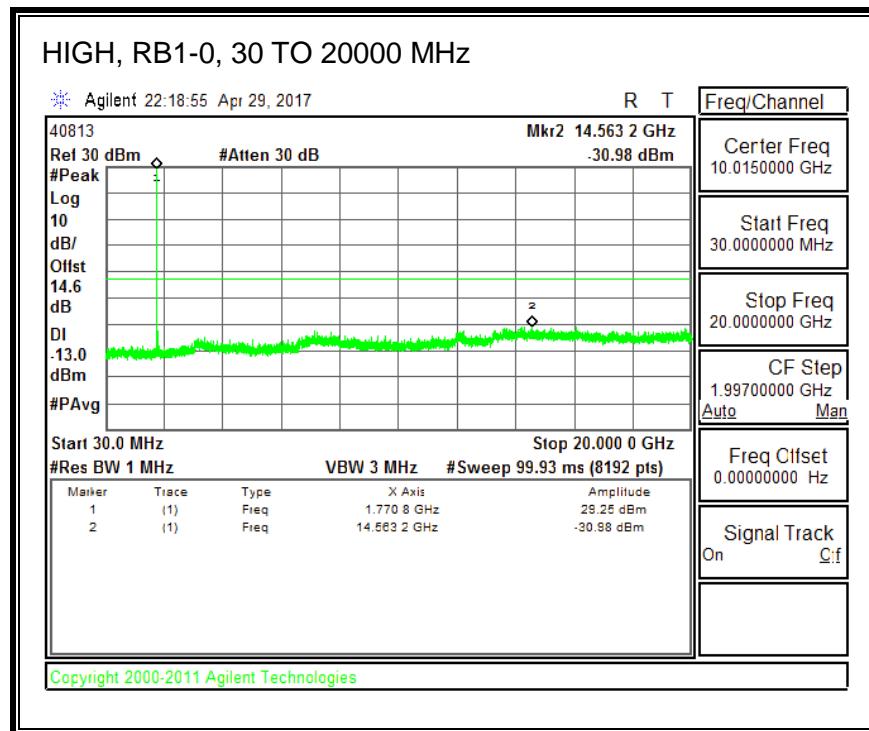
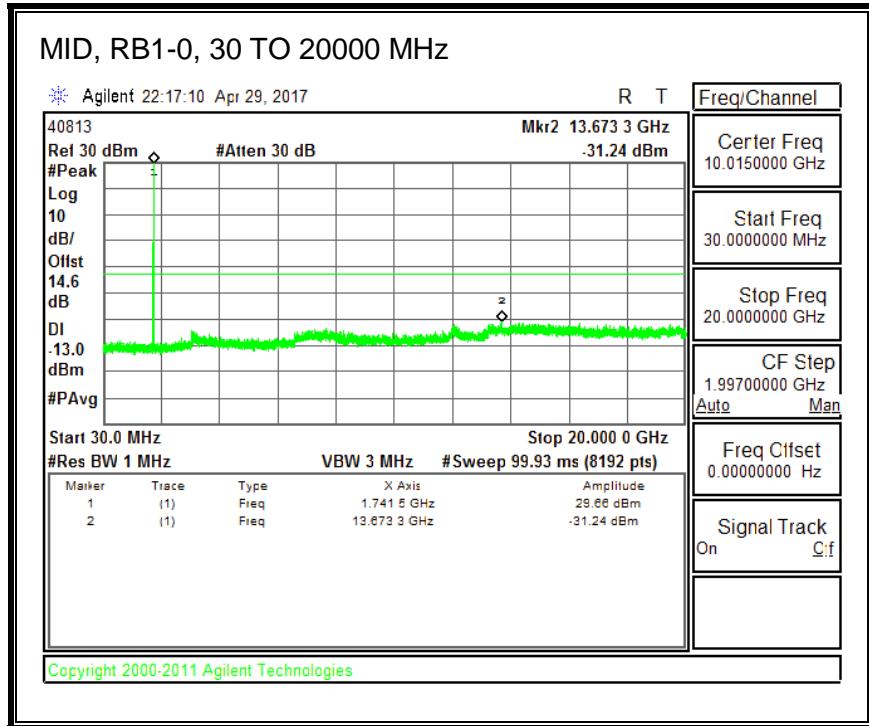
### HIGH, RB1-0, 30 TO 20000 MHz



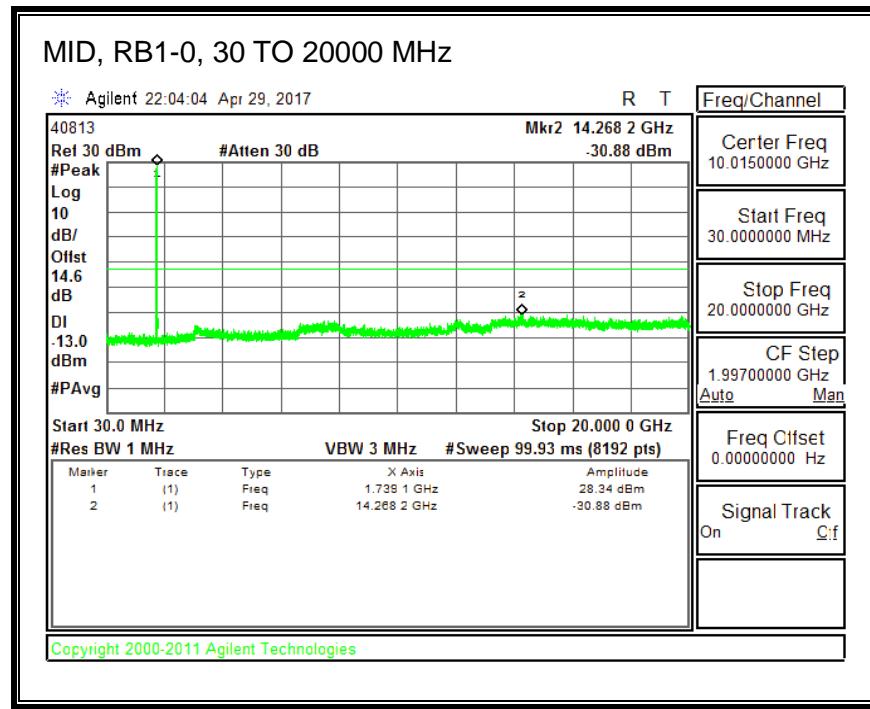
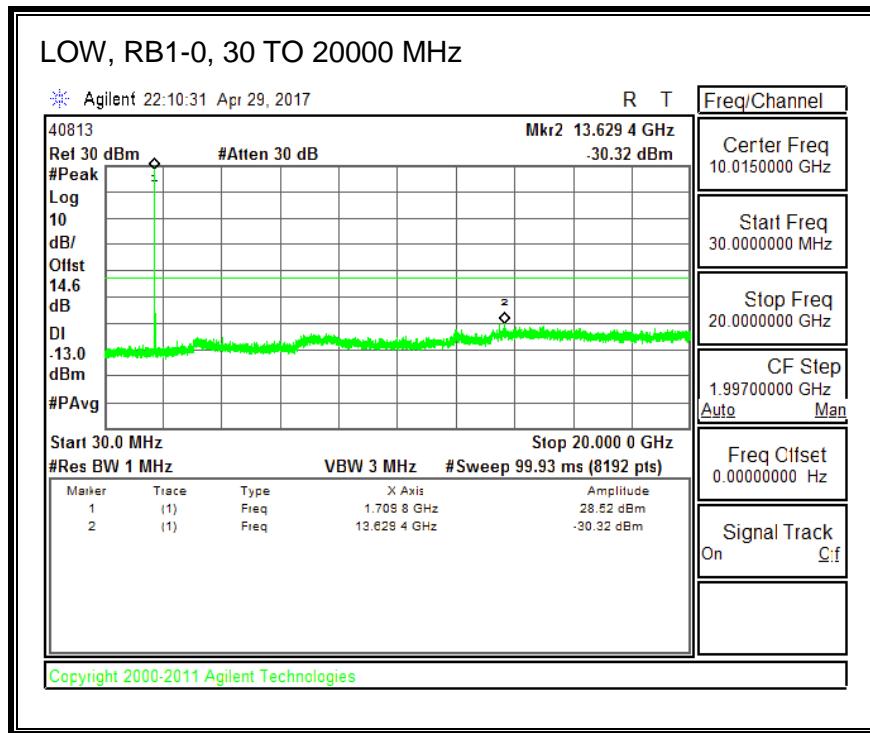
### 16QAM, (10.0 MHz BAND WIDTH)

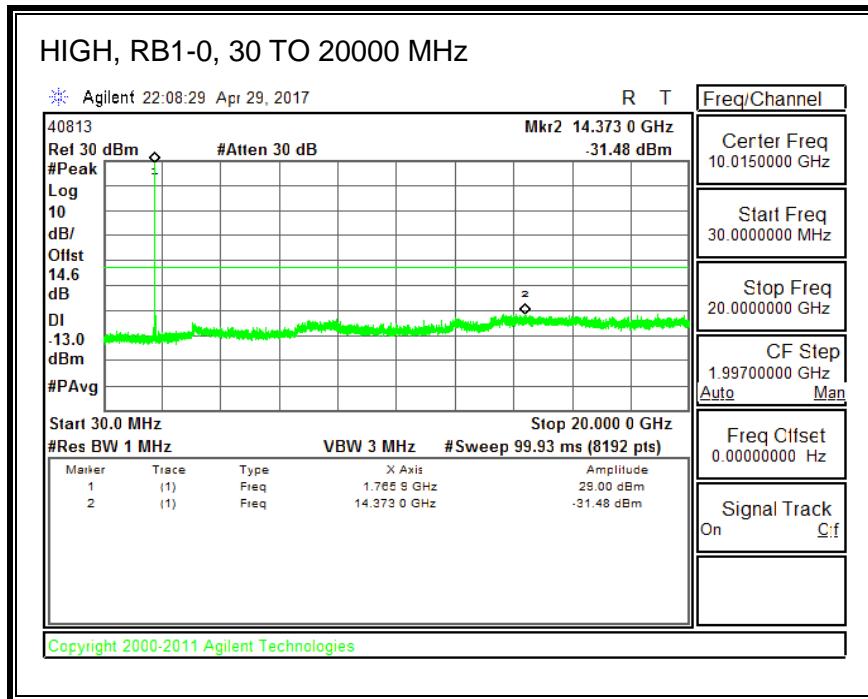
### LOW, RB1-0, 30 TO 20000 MHz



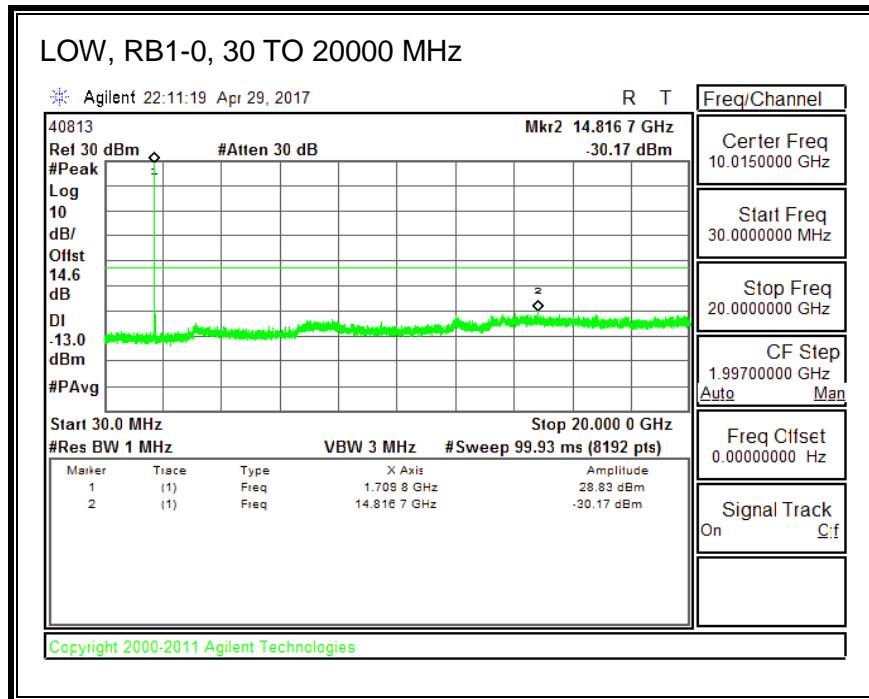


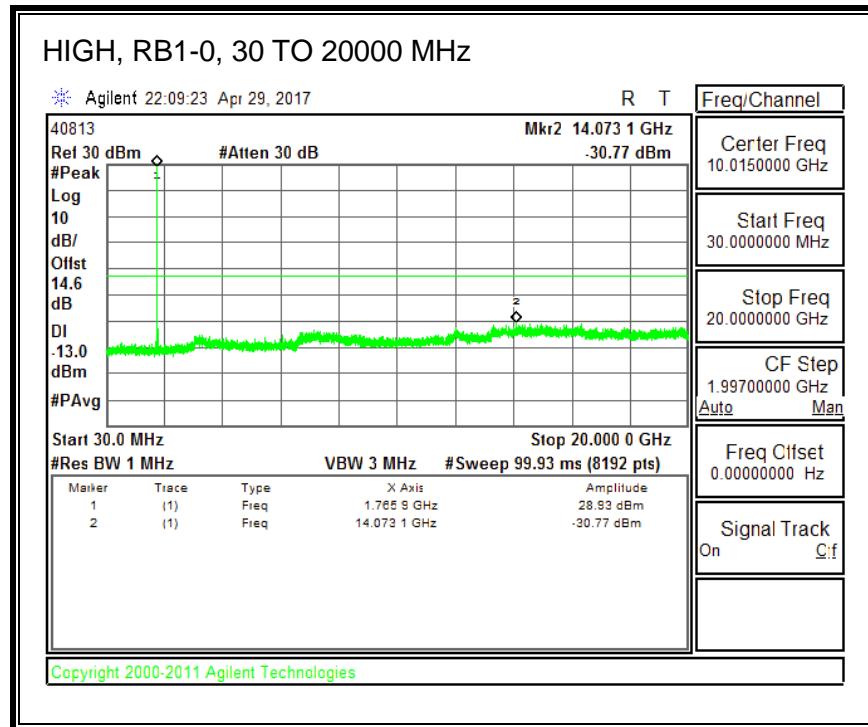
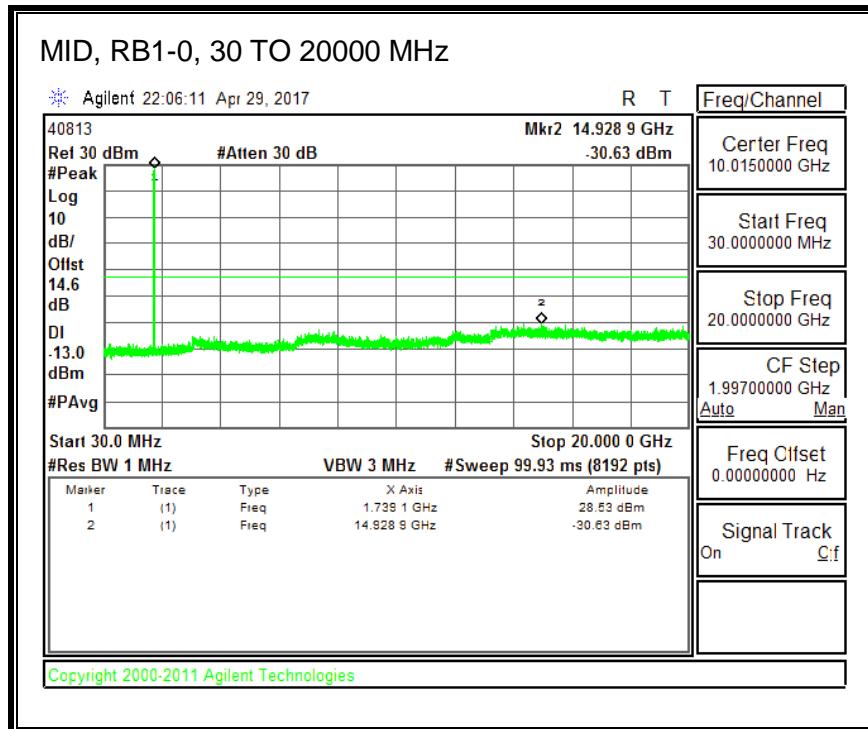
**QPSK, (15.0 MHz BAND WIDTH)**



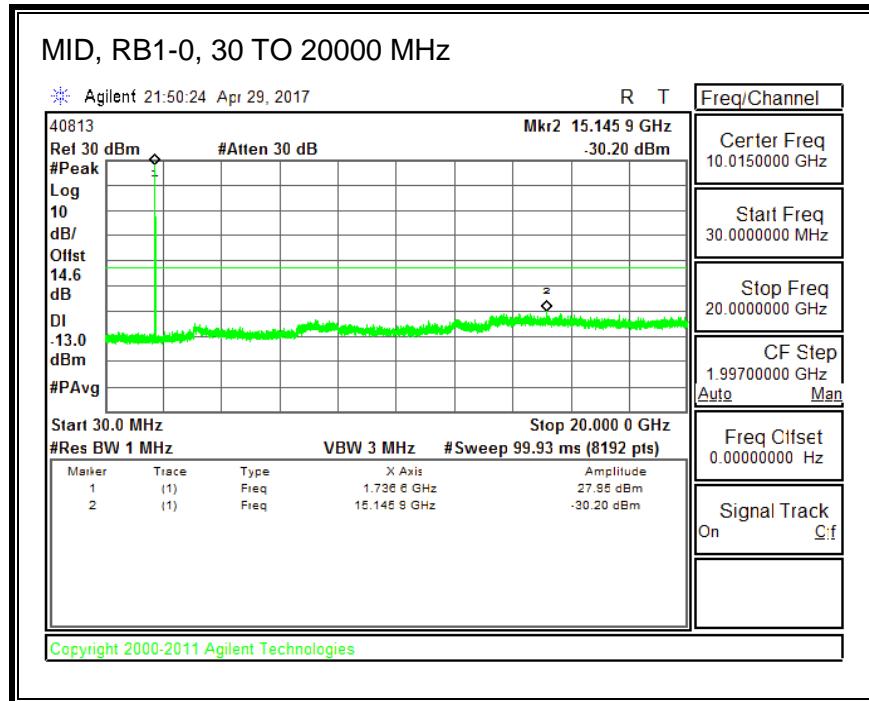
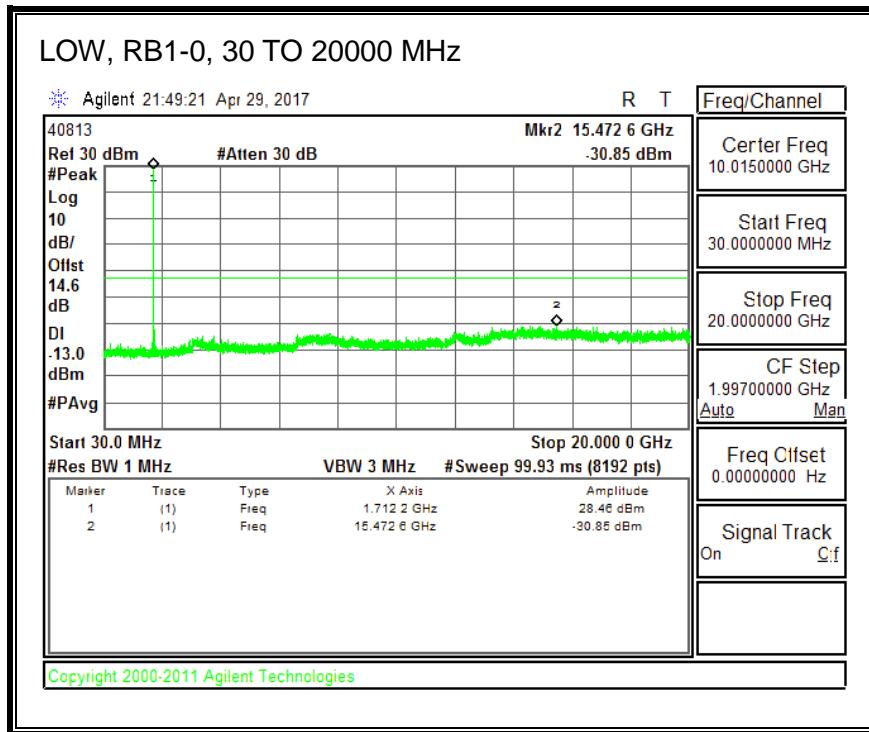


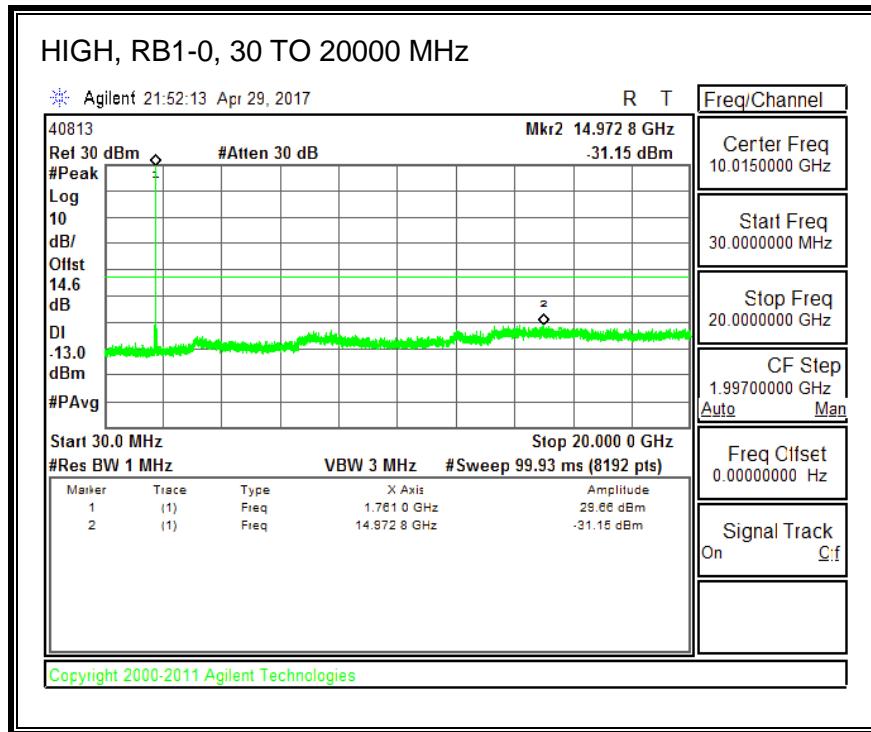
### 16QAM, (15.0 MHz BAND WIDTH)



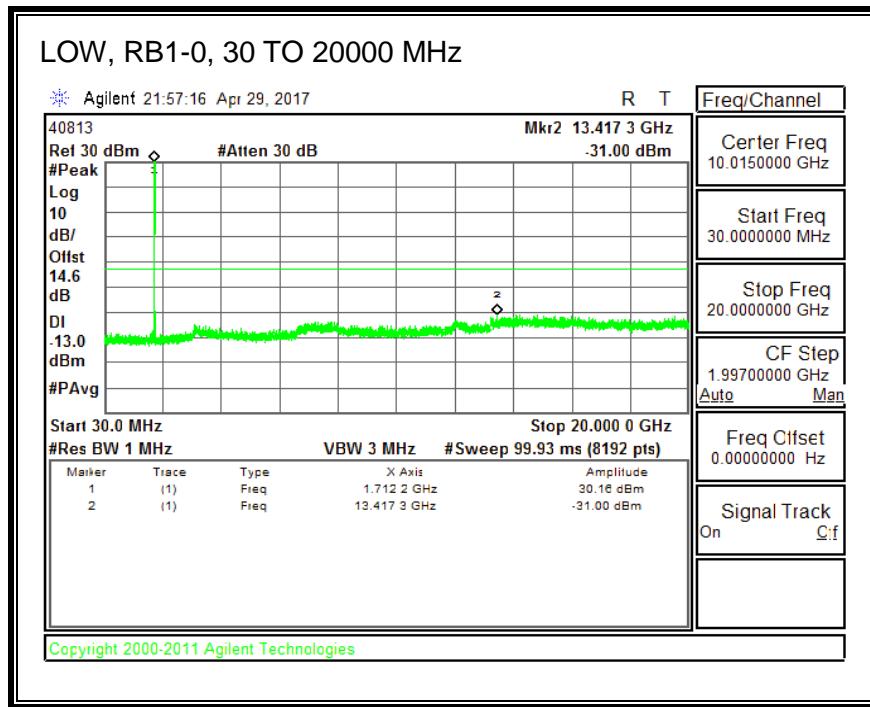


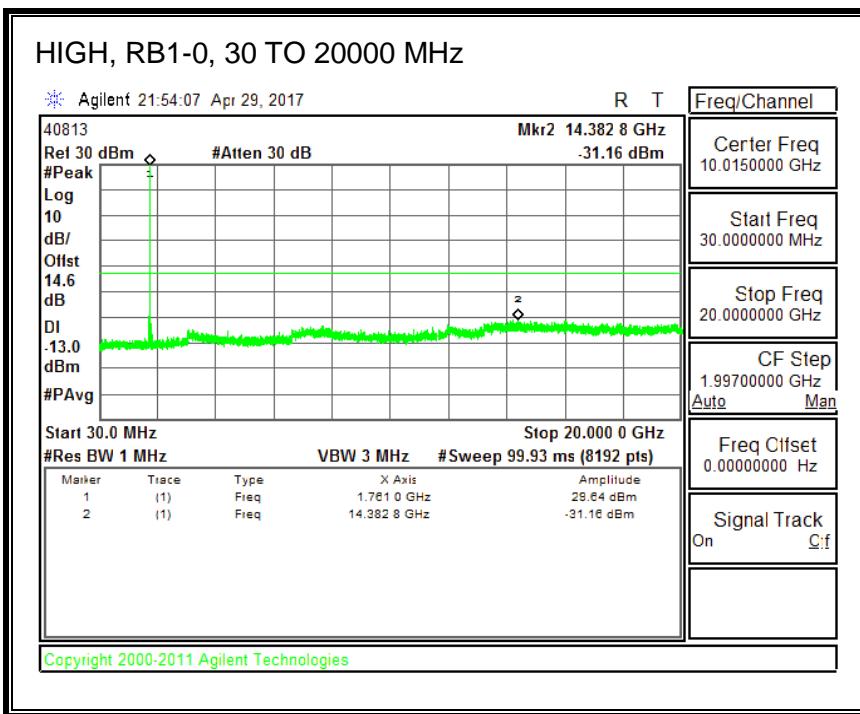
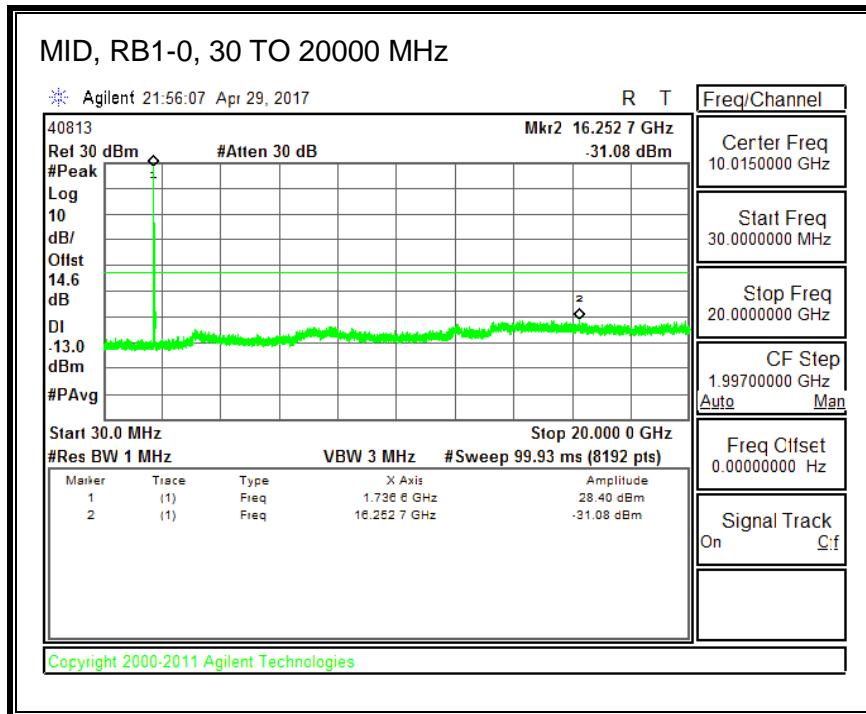
**QPSK, (20.0 MHz BAND WIDTH)**





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





## 8.4. FREQUENCY STABILITY

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

FCC: §2.1055, §22.355, §24.235, §27.54 and §90.213

### **LIMITS**

FCC: §22.355

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

FCC: §24.235 & §27.54

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

FCC: §90.213

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

### **TEST PROCEDURE**

Use CMW 500 with Frequency Error measurement capability.

- Temp. =  $-30^{\circ}$  to  $+50^{\circ}\text{C}$
- Voltage = (85% - 115%)

Low voltage, 3.23VDC, Normal, 3.8VDC and High voltage, 4.37VDC.  
End Voltage, 3.2VDC.

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

The EUT is place 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
- LTE Band 66

### **RESULTS**

See the following pages.