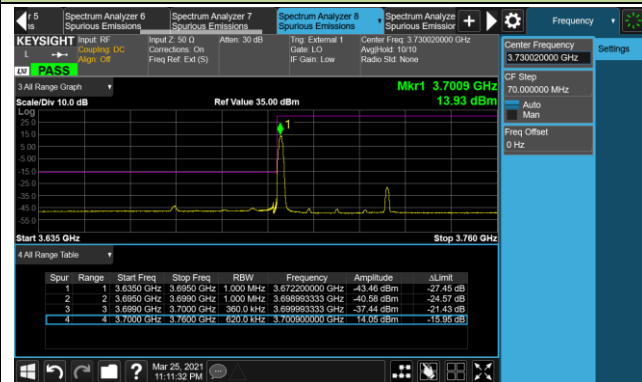
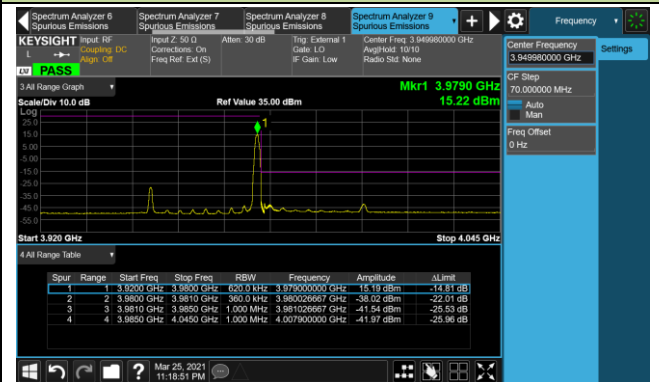


## 60MHz Channel Bandwidth - 1RB

## Lower Band Edge

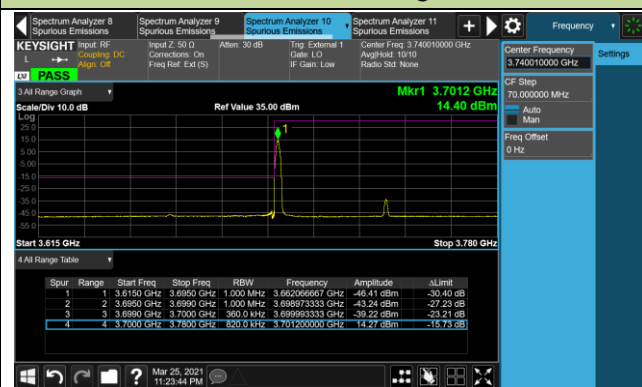


## Upper Band Edge

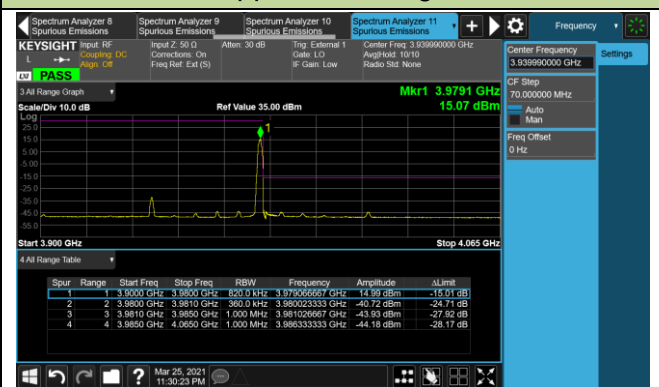


## 80MHz Channel Bandwidth - 1RB

## Lower Band Edge

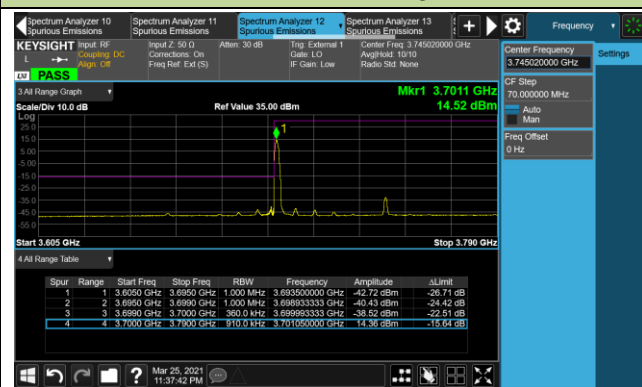


## Upper Band Edge

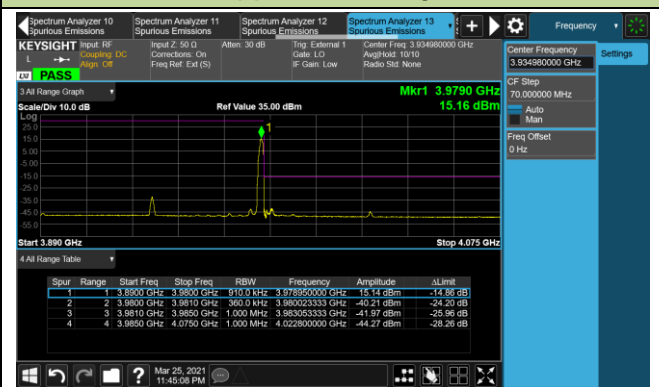


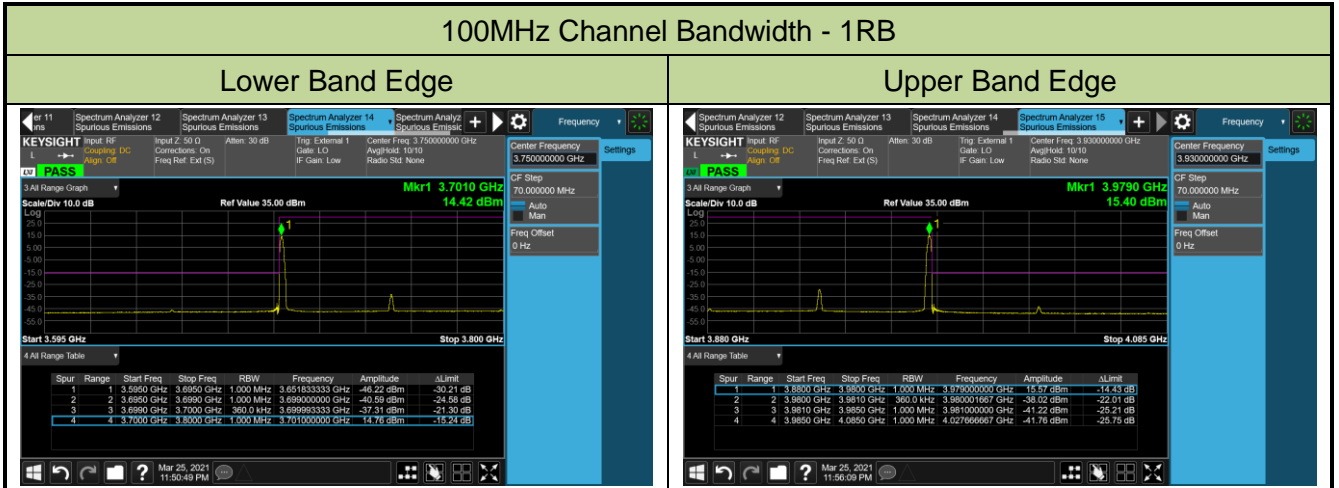
## 90MHz Channel Bandwidth - 1RB

## Lower Band Edge



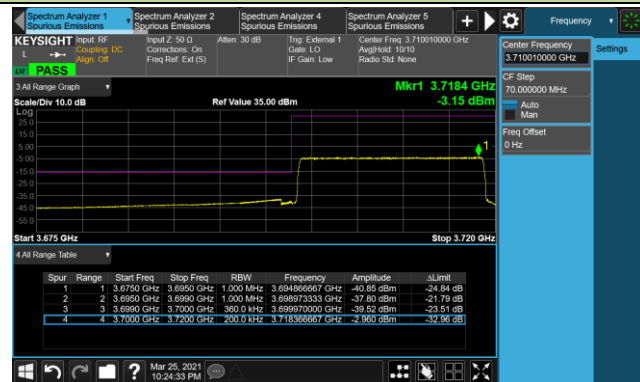
## Upper Band Edge



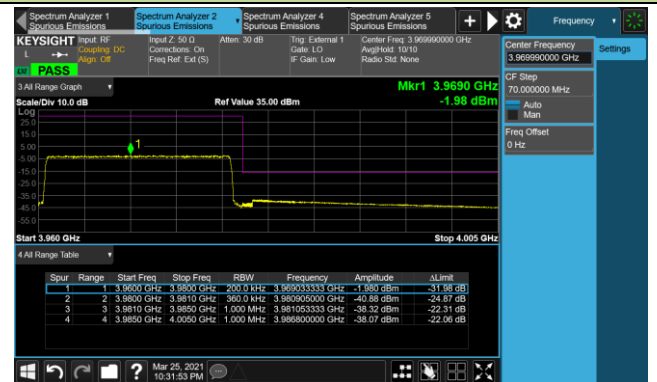


## 20MHz Channel Bandwidth - Full RB

## Lower Band Edge

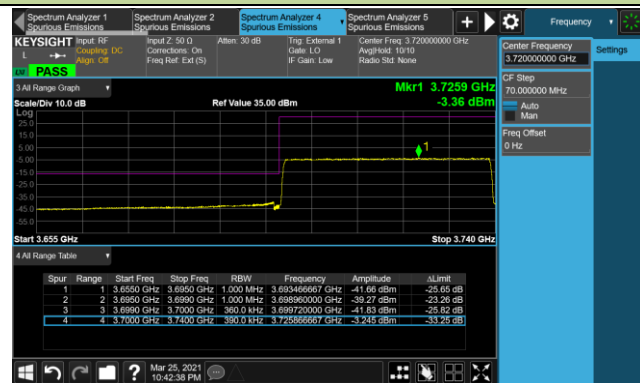


## Upper Band Edge

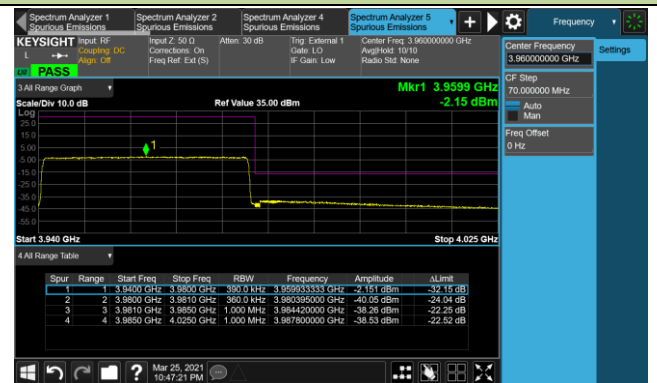


## 40MHz Channel Bandwidth - Full RB

## Lower Band Edge

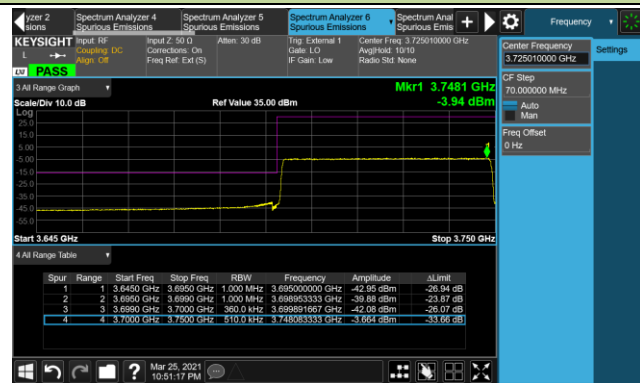


## Upper Band Edge

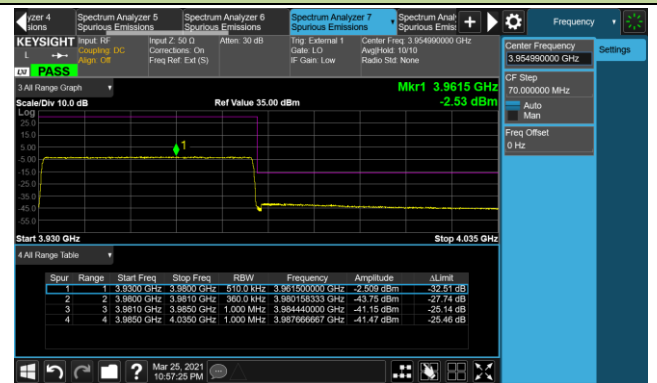


## 50MHz Channel Bandwidth - Full RB

## Lower Band Edge

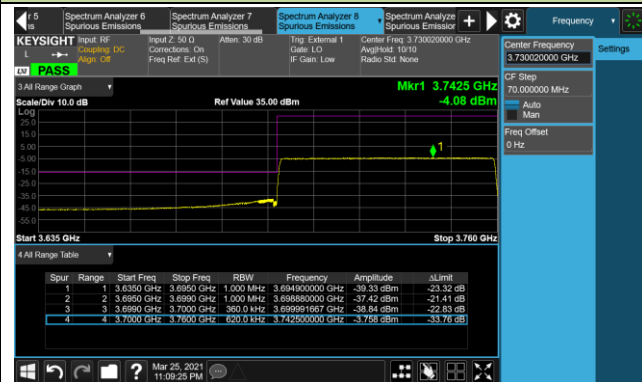


## Upper Band Edge

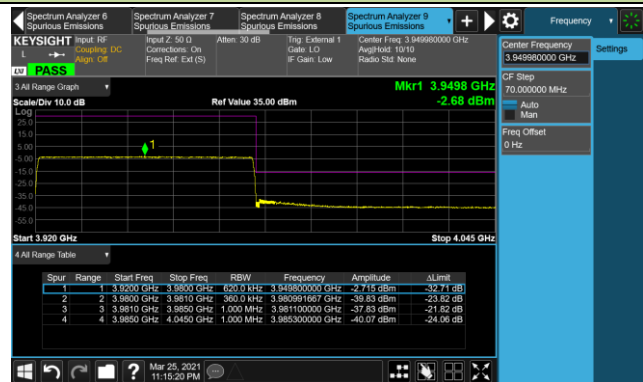


### 60MHz Channel Bandwidth - Full RB

#### Lower Band Edge

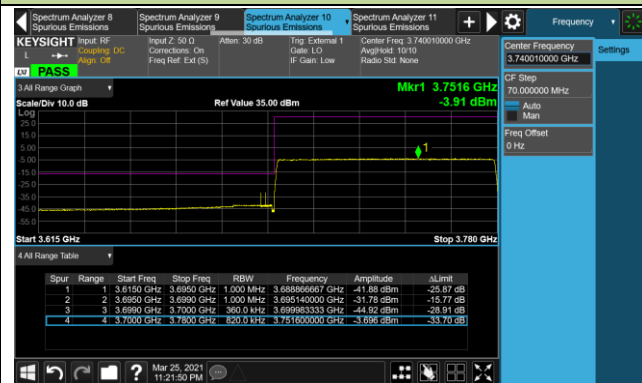


#### Upper Band Edge

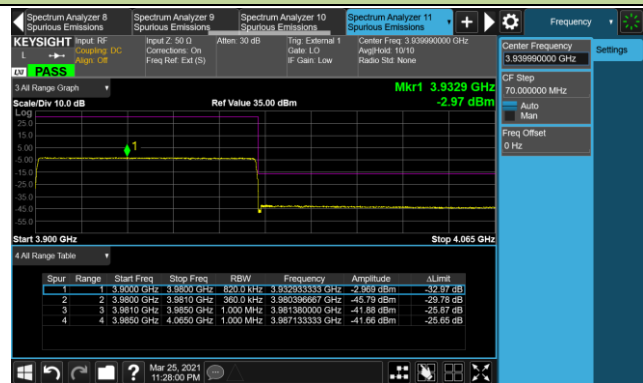


### 80MHz Channel Bandwidth - Full RB

#### Lower Band Edge

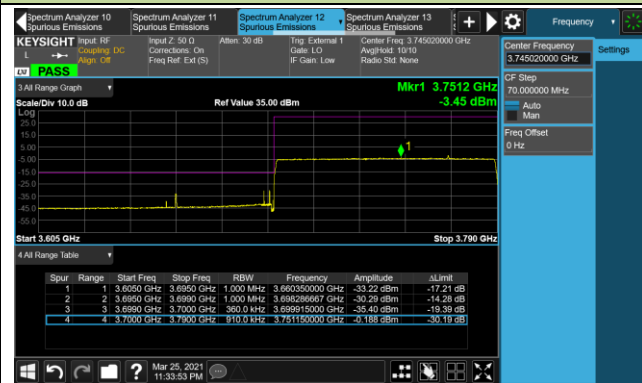


#### Upper Band Edge

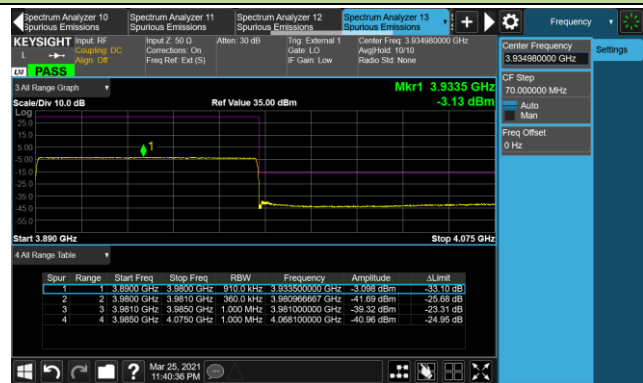


### 90MHz Channel Bandwidth - Full RB

#### Lower Band Edge

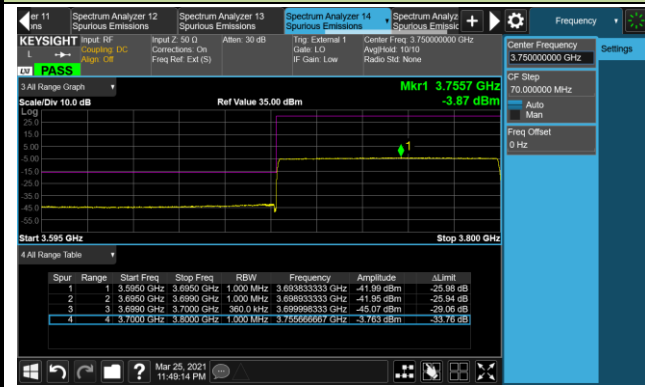


#### Upper Band Edge

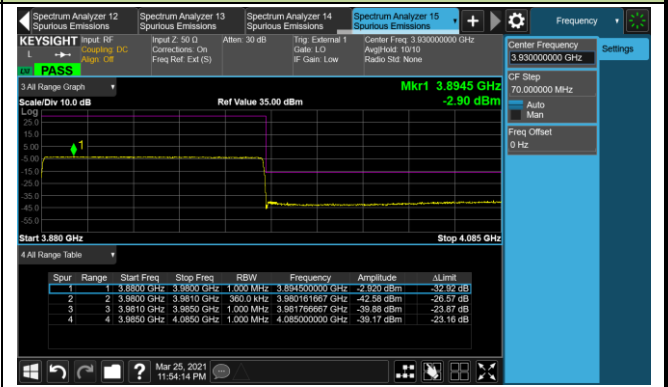


### 100MHz Channel Bandwidth - Full RB

#### Lower Band Edge

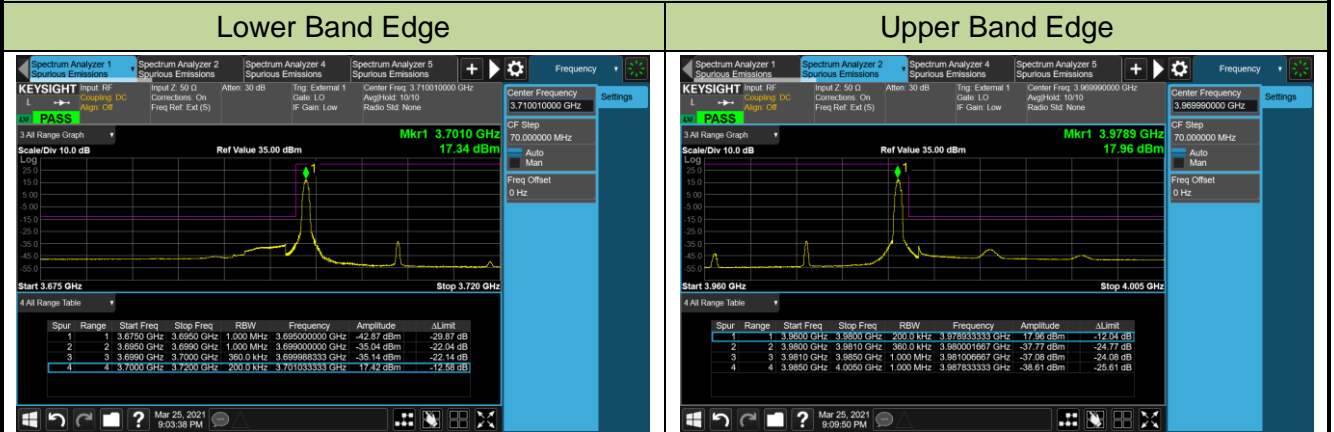


#### Upper Band Edge

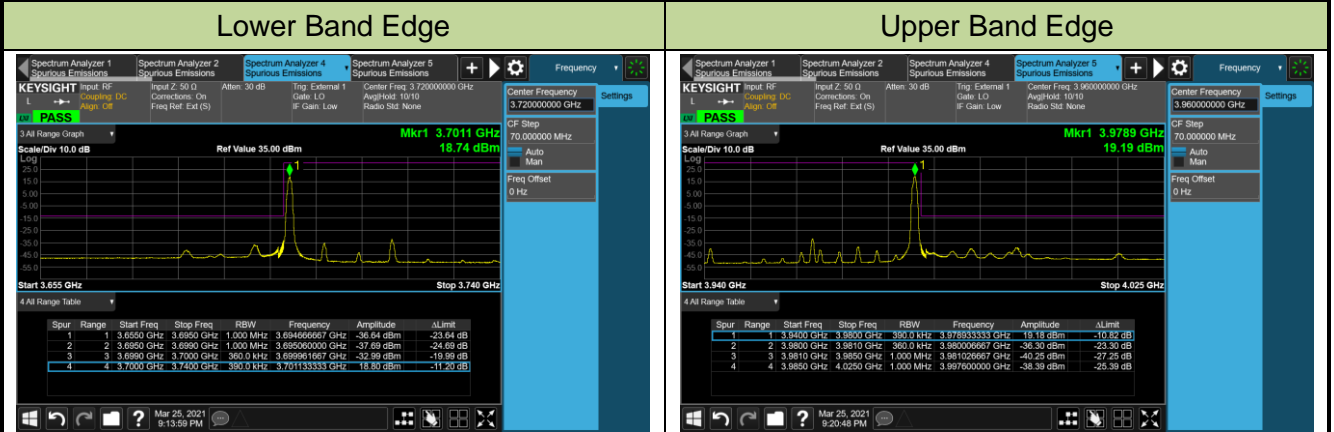


Product	5G Sub-6 GHz M.2 Module	Test Site	SIP-SR5
Test Engineer	Edgar Ma	Test Date	2021/03/25
Test Band	n77_EN-DC		

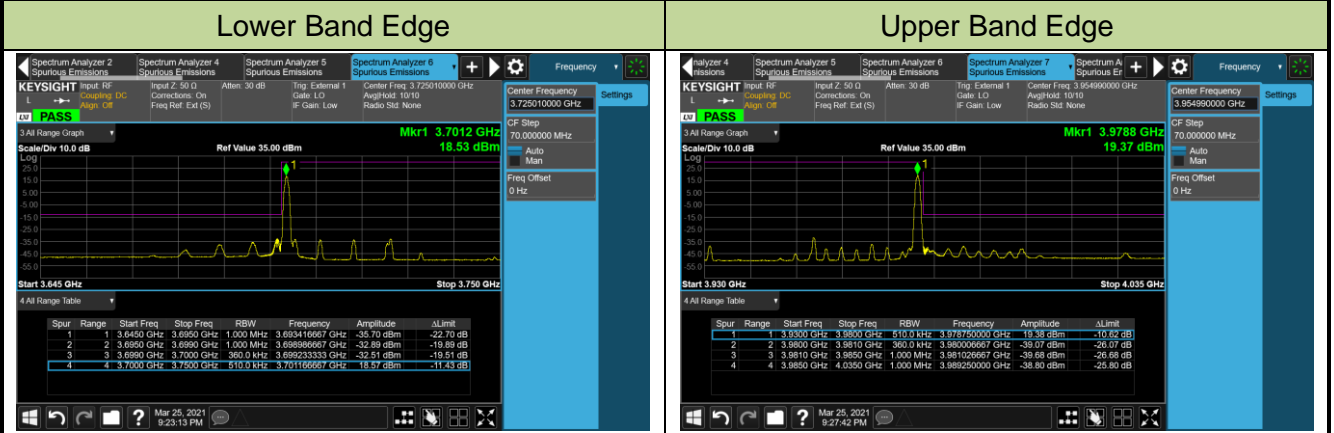
### 20MHz Channel Bandwidth - 1RB



### 40MHz Channel Bandwidth - 1RB

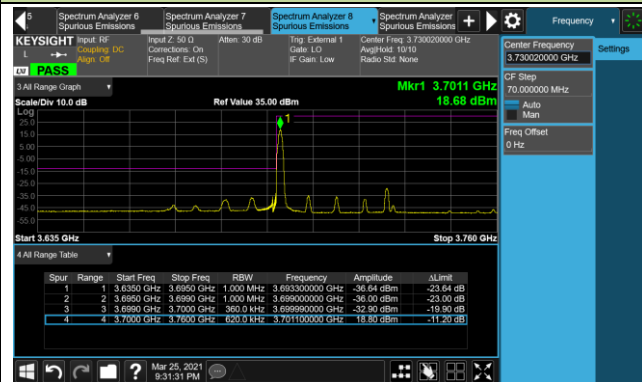


### 50MHz Channel Bandwidth - 1RB

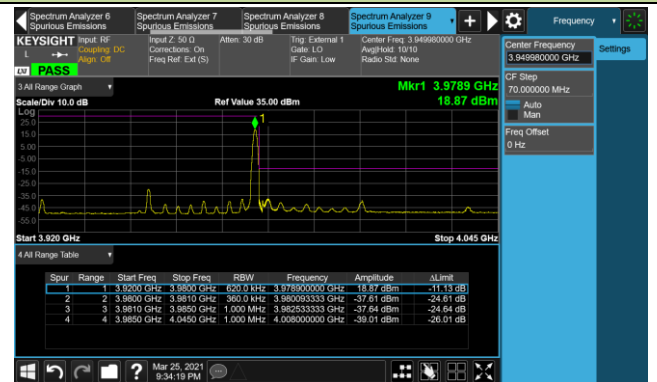


## 60MHz Channel Bandwidth - 1RB

## Lower Band Edge

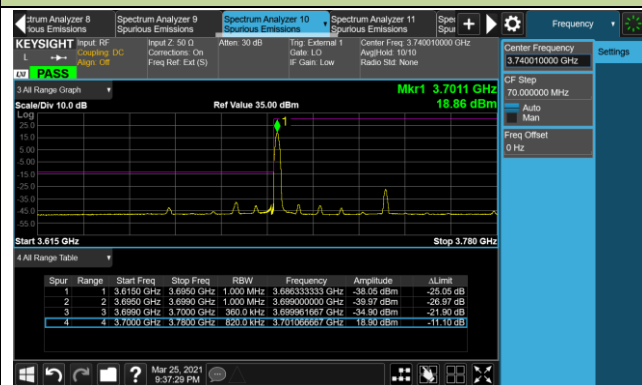


## Upper Band Edge

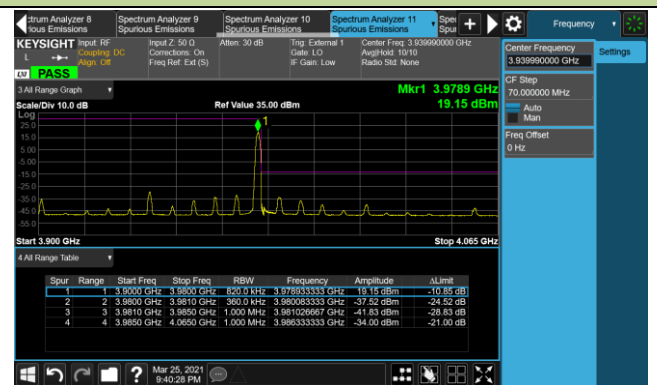


## 80MHz Channel Bandwidth - 1RB

## Lower Band Edge

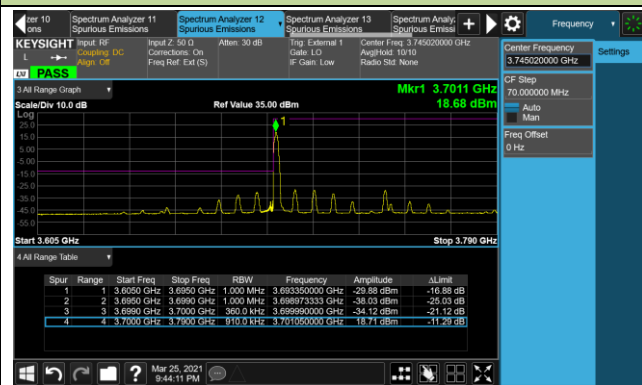


## Upper Band Edge

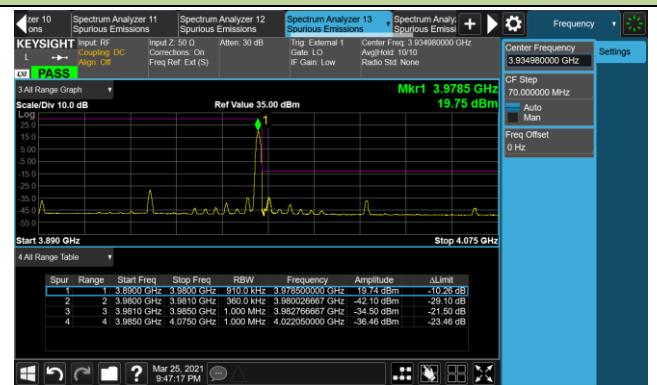


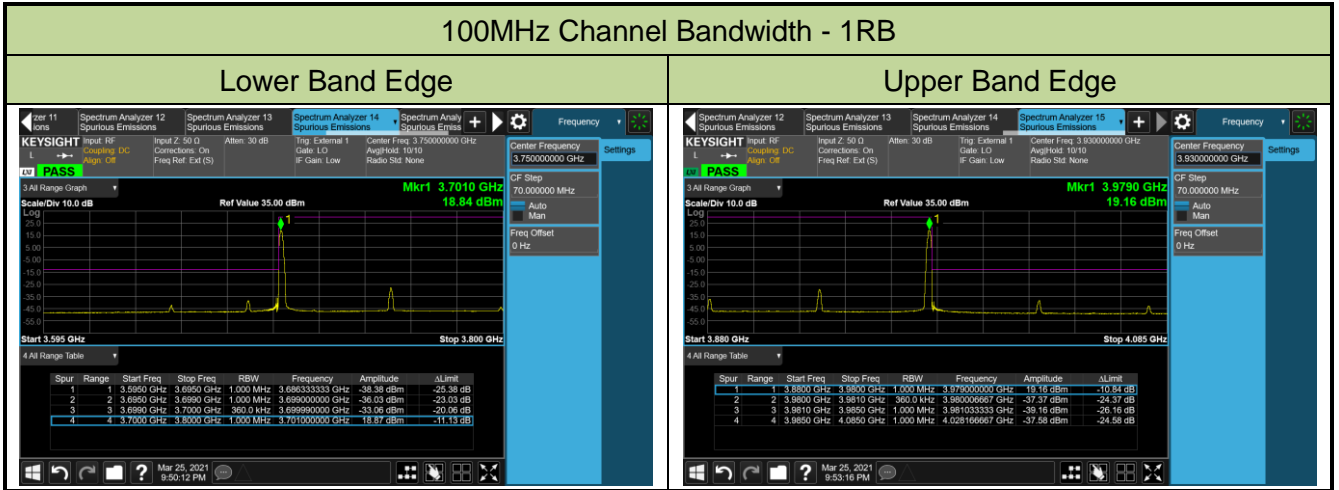
## 90MHz Channel Bandwidth - 1RB

## Lower Band Edge



## Upper Band Edge

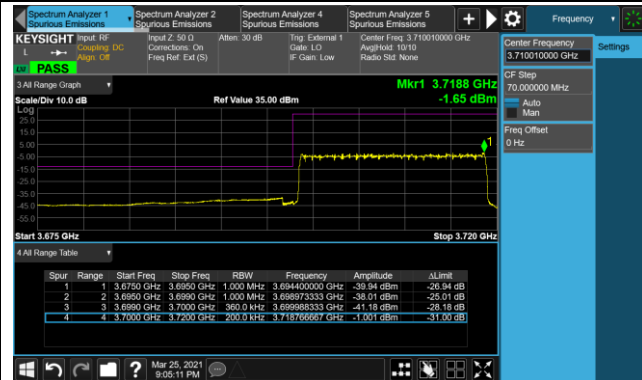




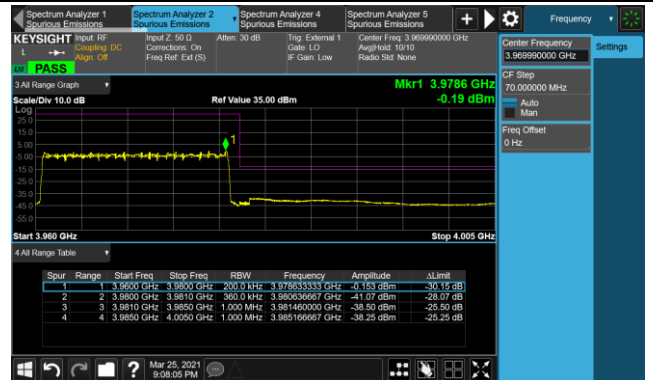


### 20MHz Channel Bandwidth - Full RB

#### Lower Band Edge

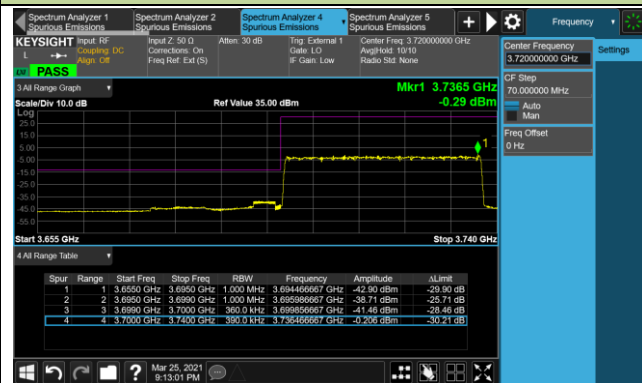


#### Upper Band Edge

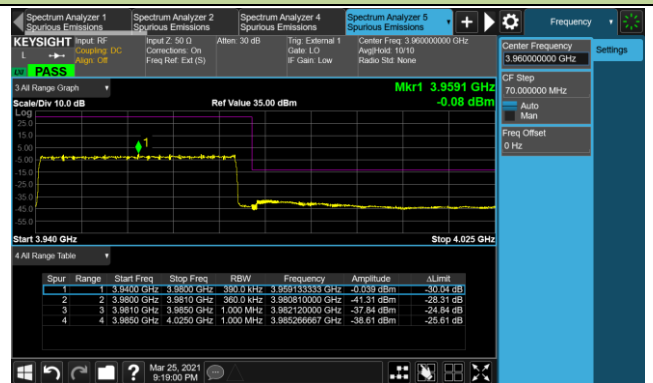


### 40MHz Channel Bandwidth - Full RB

#### Lower Band Edge

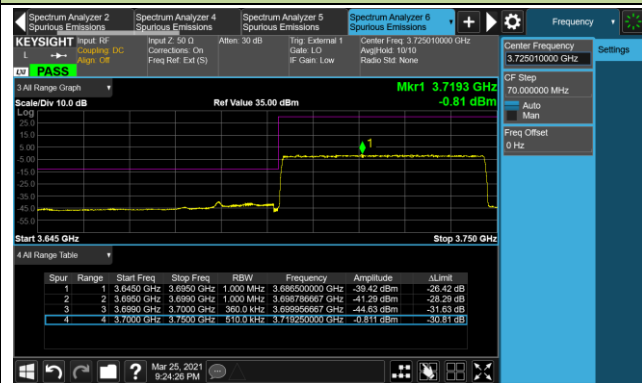


#### Upper Band Edge

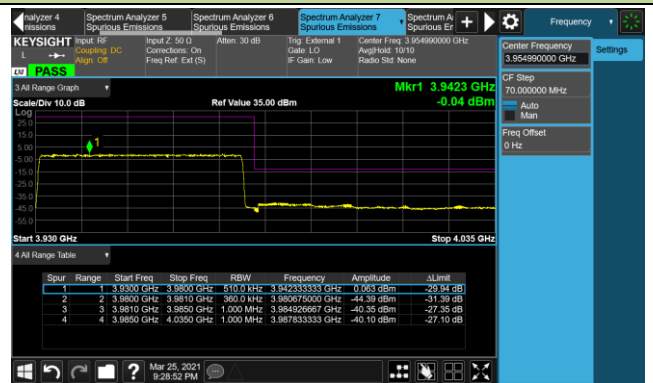


### 50MHz Channel Bandwidth - Full RB

#### Lower Band Edge

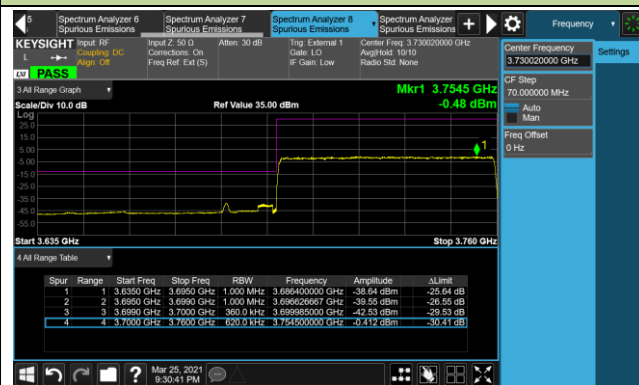


#### Upper Band Edge

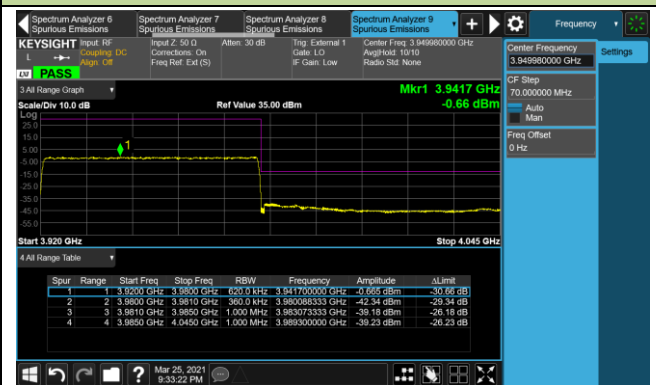


### 60MHz Channel Bandwidth - Full RB

#### Lower Band Edge

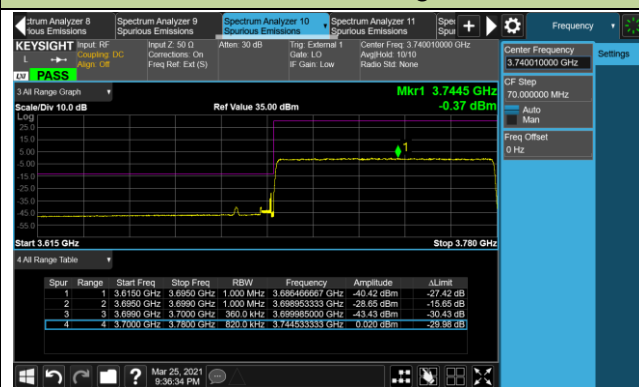


#### Upper Band Edge

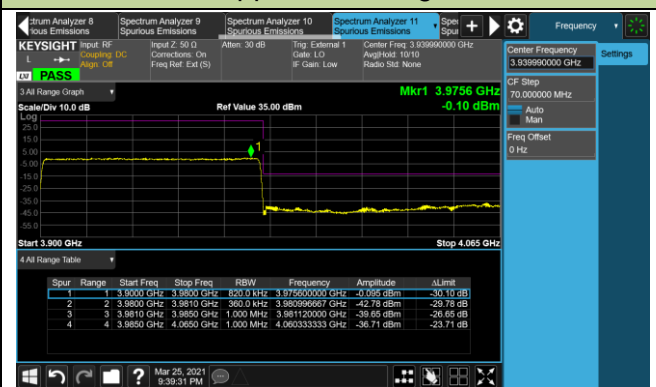


### 80MHz Channel Bandwidth - Full RB

#### Lower Band Edge

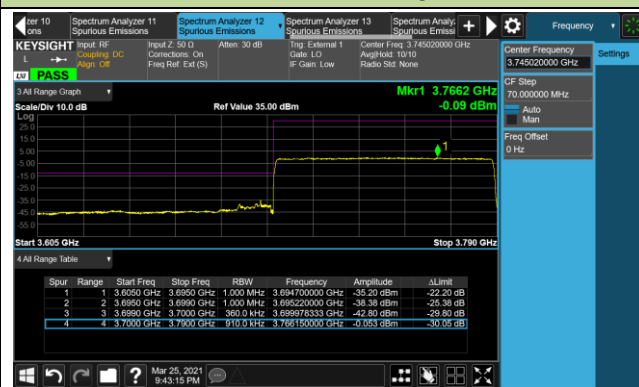


#### Upper Band Edge

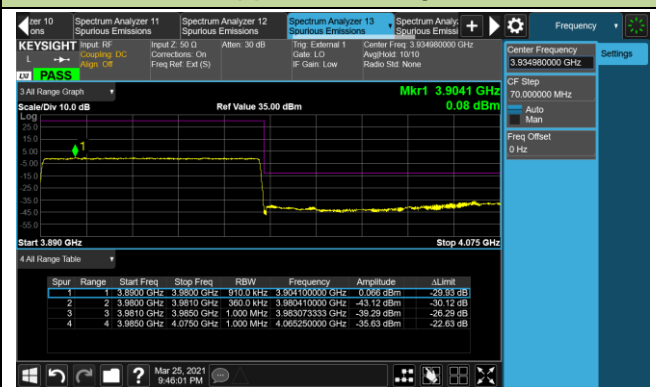


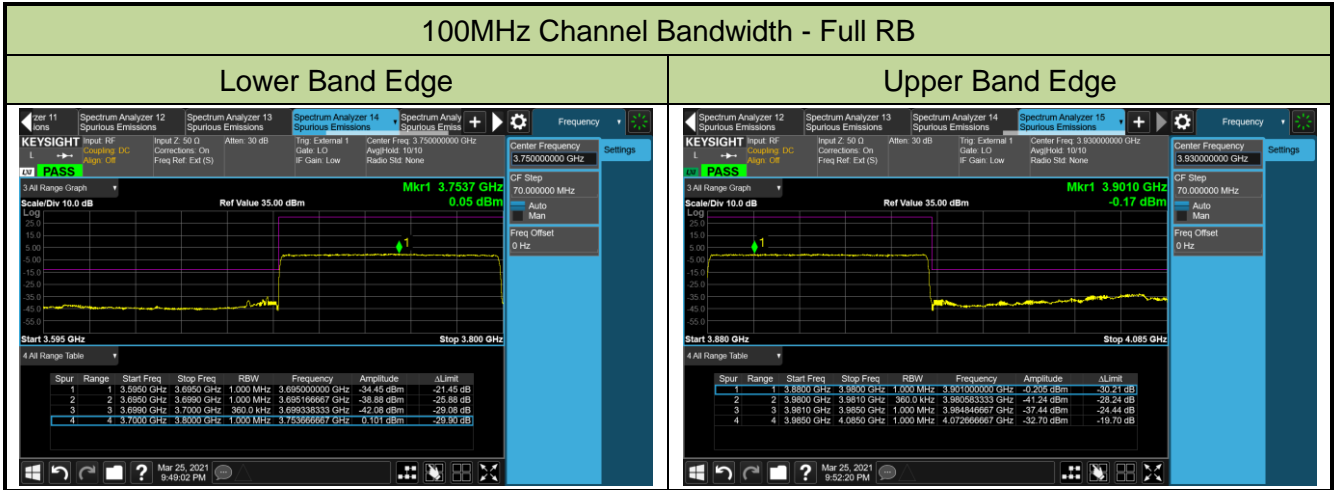
### 90MHz Channel Bandwidth - Full RB

#### Lower Band Edge



#### Upper Band Edge





## 4.6. Peak to Average Ratio Measurement

### 4.6.1. Test Limit

A peak to average ratio measurement is performed at the conducted port of the EUT. The spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level.

### 4.6.2. Test Procedure

ANSI C63.26-2015 - Section 5.2.3.4 (CCDF).

### 4.6.3. Test Setting

1. Set the resolution / measurement bandwidth  $\geq$  signal's occupied bandwidth
2. Set the number of counts to a value that stabilizes the measured CCDF curve
3. Record the maximum PARR level associated with a probability of 0.1%

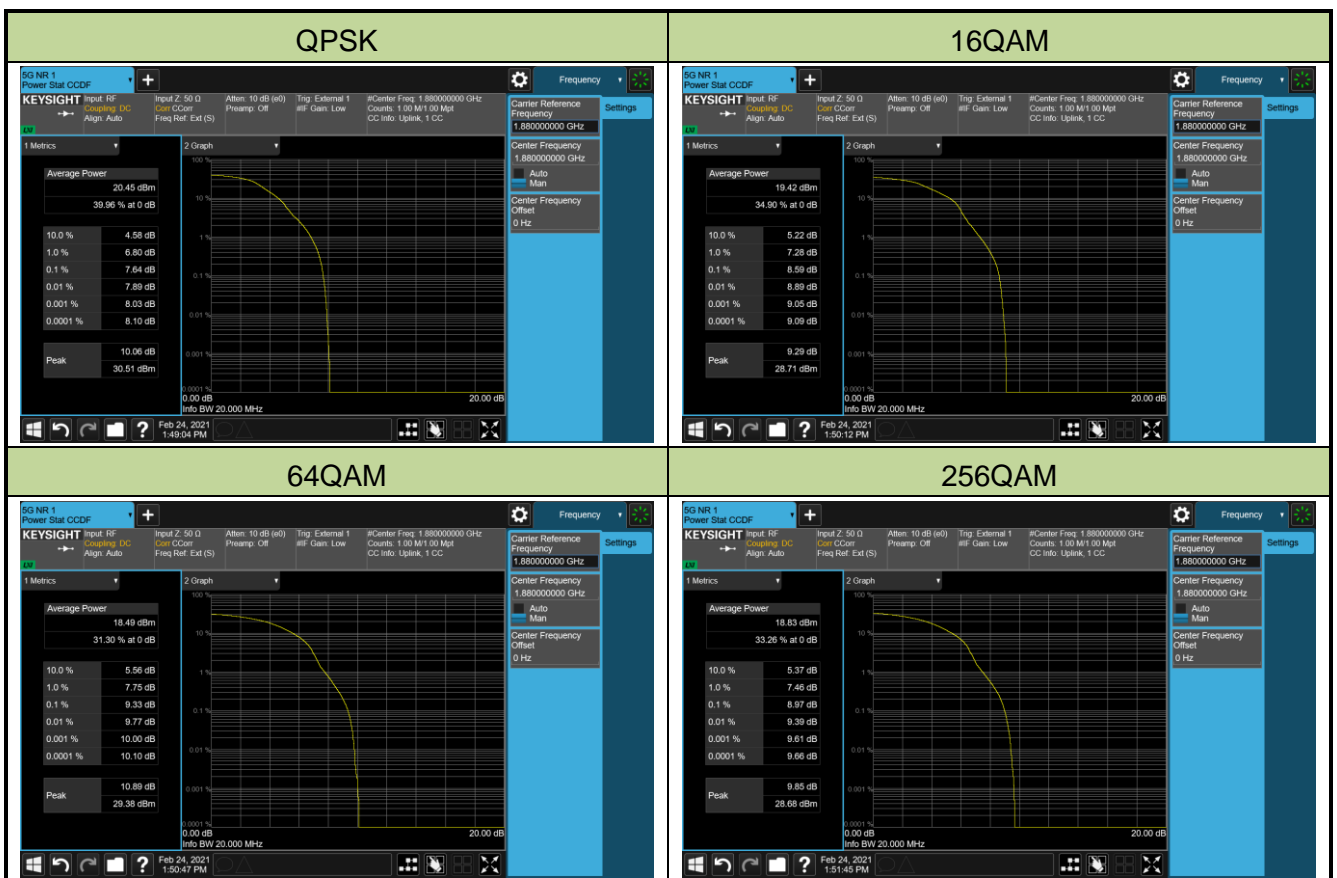
### 4.6.4. Test Setup



### 4.6.5. Test Result

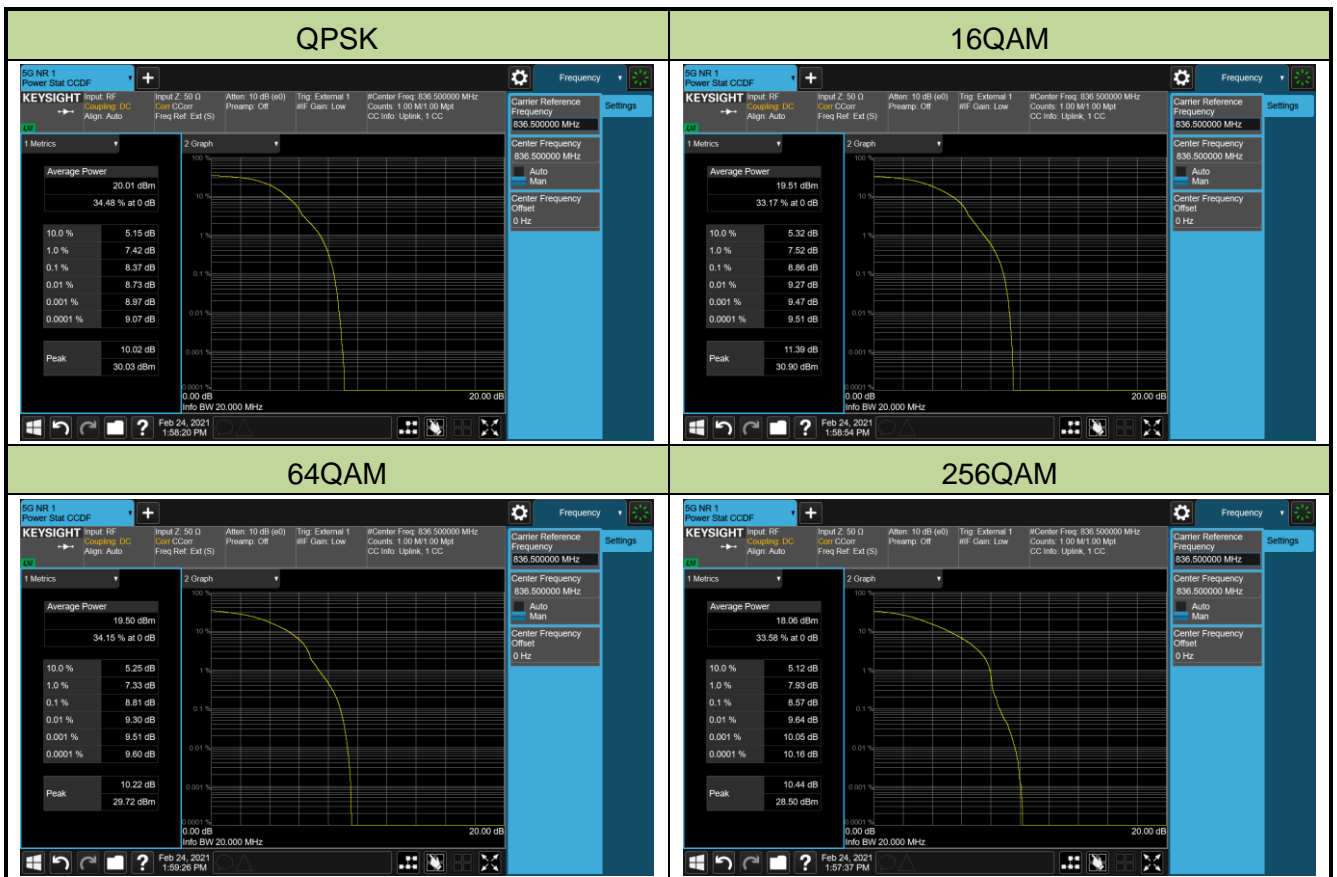
Product	5G Sub-6 GHz M.2 Module	Test Site	SIP-SR5
Test Engineer	Gordon Qi	Test Date	2021/02/24
Test Band	n2/25_SA		

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
<b>QPSK</b>					
376500	1882.5	20	7.64	≤ 13.00	Pass
<b>16QAM</b>					
376500	1882.5	20	8.59	≤ 13.00	Pass
<b>64QAM</b>					
376500	1882.5	20	9.33	≤ 13.00	Pass
<b>256QAM</b>					
376500	1882.5	20	8.97	≤ 13.00	Pass



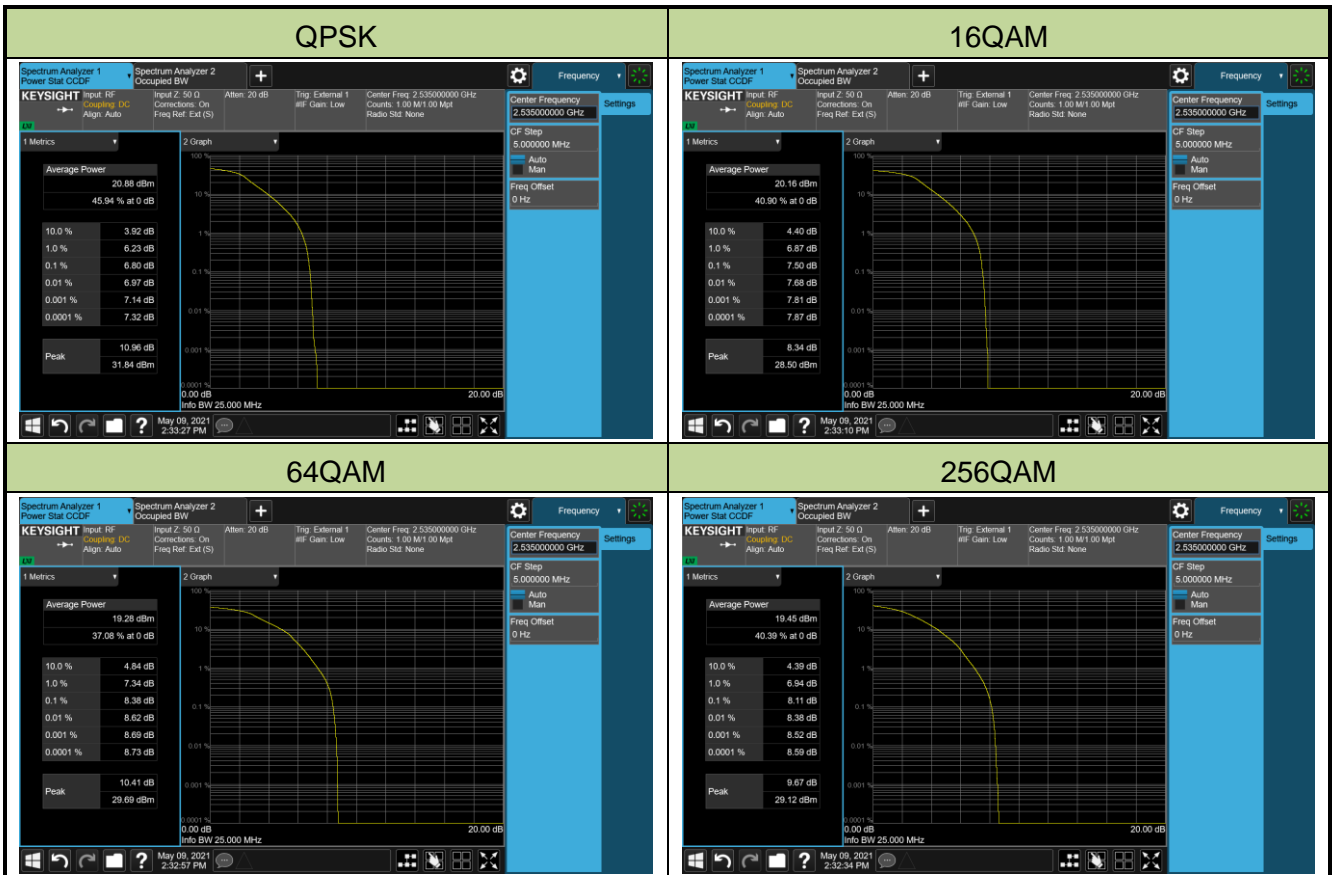
Product	5G Sub-6 GHz M.2 Module	Test Site	SIP-SR5
Test Engineer	Gordon Qi	Test Date	2021/02/24
Test Band	n5_SA		

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
<b>QPSK</b>					
167300	836.5	20	8.37	≤ 13.00	Pass
<b>16QAM</b>					
167300	836.5	20	8.86	≤ 13.00	Pass
<b>64QAM</b>					
167300	836.5	20	8.81	≤ 13.00	Pass
<b>256QAM</b>					
167300	836.5	20	8.57	≤ 13.00	Pass



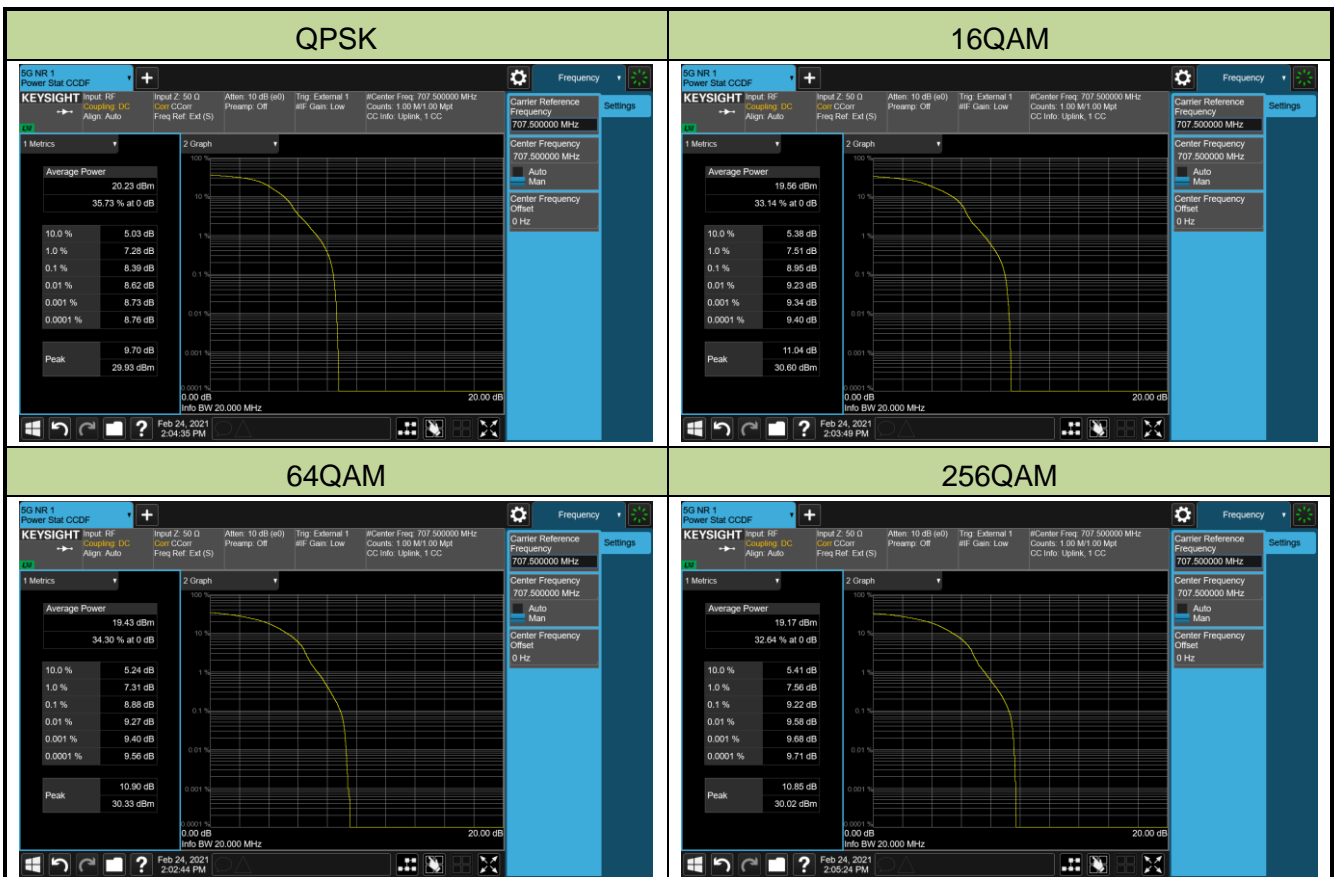
Product	5G Sub-6 GHz M.2 Module	Test Site	SIP-SR5
Test Engineer	Candy Luo	Test Date	2021/05/09
Test Band	n7_SA		

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
<b>QPSK</b>					
507000	2535.0	20	6.80	≤ 13.00	Pass
<b>16QAM</b>					
507000	2535.0	20	7.50	≤ 13.00	Pass
<b>64QAM</b>					
507000	2535.0	20	8.38	≤ 13.00	Pass
<b>256QAM</b>					
507000	2535.0	20	8.38	≤ 13.00	Pass



Product	5G Sub-6 GHz M.2 Module	Test Site	SIP-SR5
Test Engineer	Gordon Qi	Test Date	2021/02/24
Test Band	n12_SA		

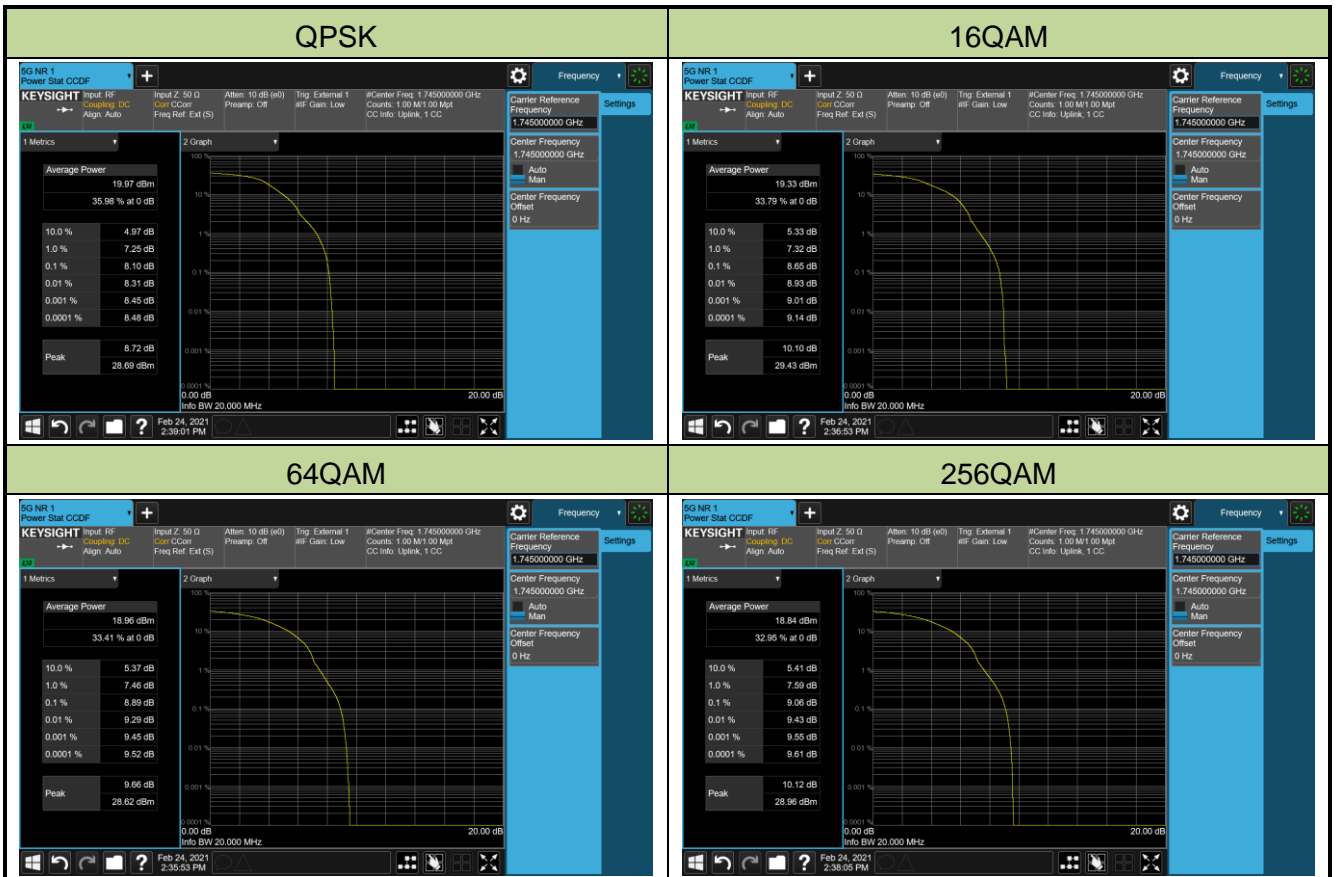
Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
<b>QPSK</b>					
141500	707.5	15	8.39	≤ 13.00	Pass
<b>16QAM</b>					
141500	707.5	15	8.95	≤ 13.00	Pass
<b>64QAM</b>					
141500	707.5	15	8.88	≤ 13.00	Pass
<b>256QAM</b>					
141500	707.5	15	9.22	≤ 13.00	Pass





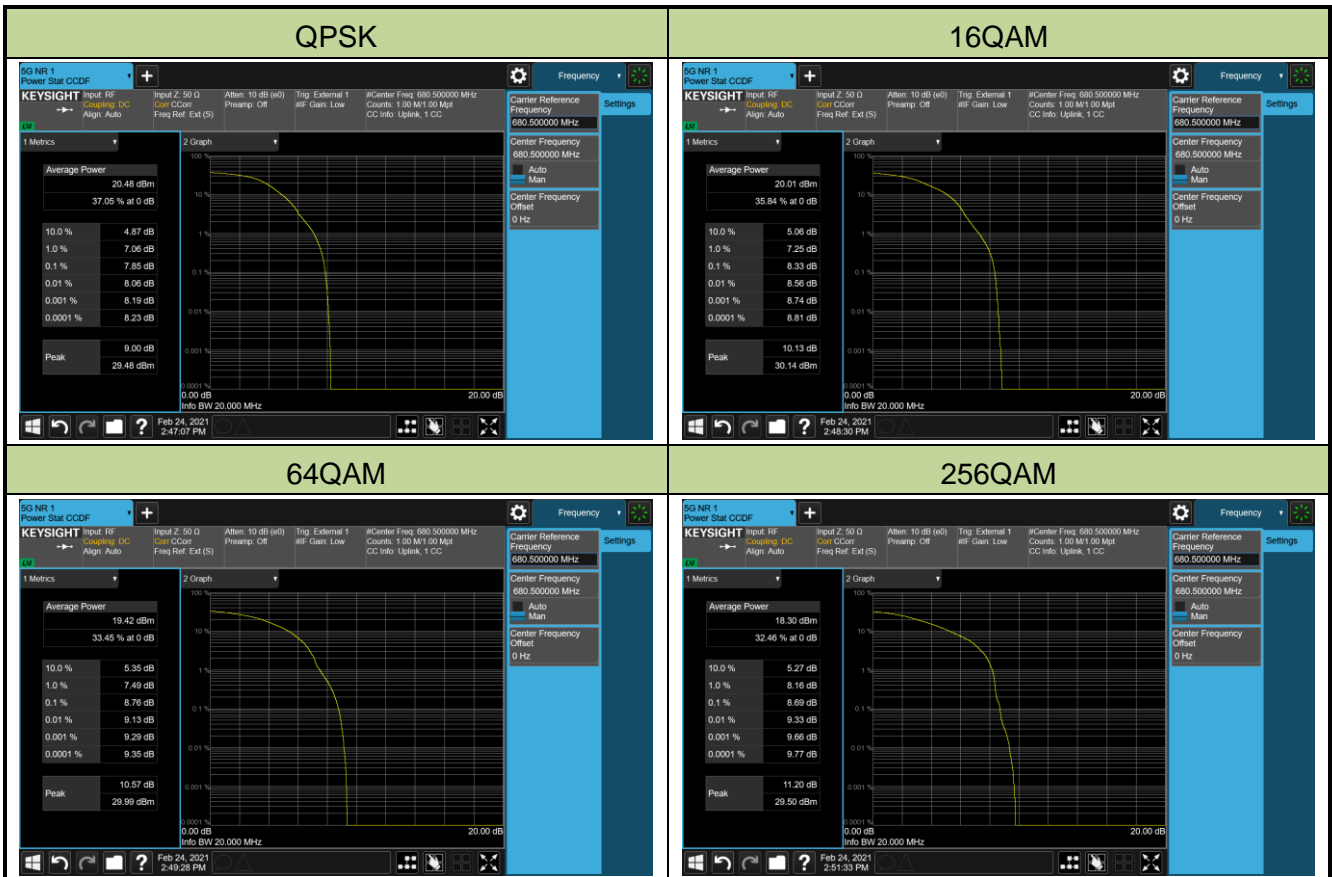
Product	5G Sub-6 GHz M.2 Module	Test Site	SIP-SR5
Test Engineer	Gordon Qi	Test Date	2021/02/24
Test Band	n66_SA		

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
<b>QPSK</b>					
349000	1745.0	40	8.10	≤ 13.00	Pass
<b>16QAM</b>					
349000	1745.0	40	8.65	≤ 13.00	Pass
<b>64QAM</b>					
349000	1745.0	40	8.89	≤ 13.00	Pass
<b>256QAM</b>					
349000	1745.0	40	9.06	≤ 13.00	Pass



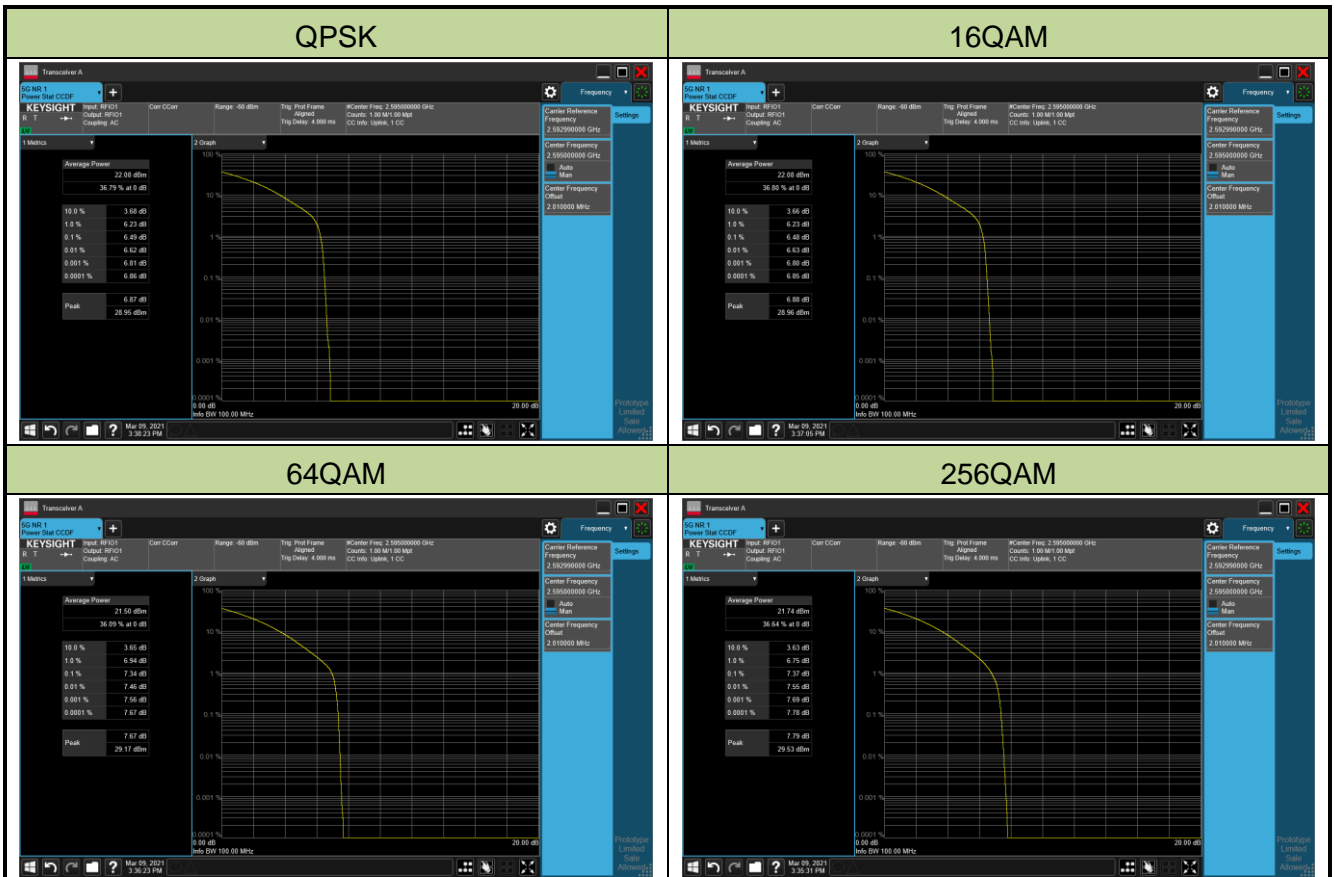
Product	5G Sub-6 GHz M.2 Module	Test Site	SIP-SR5
Test Engineer	Gordon Qi	Test Date	2021/02/24
Test Band	n71_SA		

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
<b>QPSK</b>					
136100	680.5	20	7.85	≤ 13.00	Pass
<b>16QAM</b>					
136100	680.5	20	8.33	≤ 13.00	Pass
<b>64QAM</b>					
136100	680.5	20	8.76	≤ 13.00	Pass
<b>256QAM</b>					
136100	680.5	20	8.69	≤ 13.00	Pass



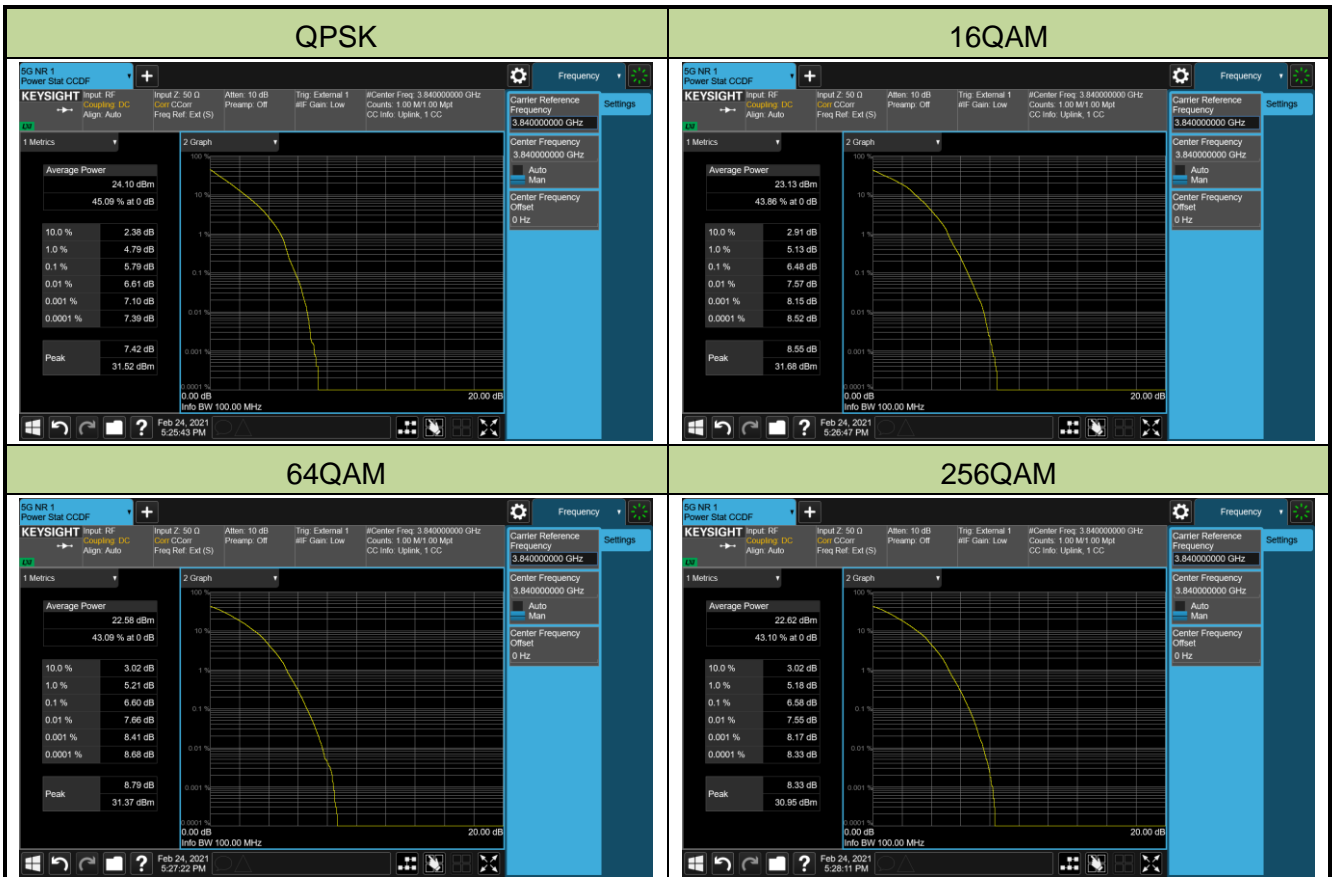
Product	5G Sub-6 GHz M.2 Module	Test Site	SIP-SR5
Test Engineer	Gordon Qi	Test Date	2021/02/24
Test Band	n41_SA_HPUE		

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
<b>QPSK</b>					
518598	2592.99	100	6.49	≤ 13.00	Pass
<b>16QAM</b>					
518598	2592.99	100	6.48	≤ 13.00	Pass
<b>64QAM</b>					
518598	2592.99	100	7.34	≤ 13.00	Pass
<b>256QAM</b>					
518598	2592.99	100	7.37	≤ 13.00	Pass



Product	5G Sub-6 GHz M.2 Module	Test Site	SIP-SR5
Test Engineer	Gordon Qi	Test Date	2021/02/24
Test Band	n77_SA_HPUE		

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
<b>QPSK</b>					
656000	3840.00	100	5.79	≤ 13.00	Pass
<b>16QAM</b>					
656000	3840.00	100	6.48	≤ 13.00	Pass
<b>64QAM</b>					
656000	3840.00	100	6.60	≤ 13.00	Pass
<b>256QAM</b>					
656000	3840.00	100	6.58	≤ 13.00	Pass



## **4.7. Conducted Spurious Emission Measurement**

### **4.7.1. Test Limit**

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10<sup>th</sup> harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst-case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.

The 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.

For n7, n41 the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $55 + 10 \log(P)$  dB.

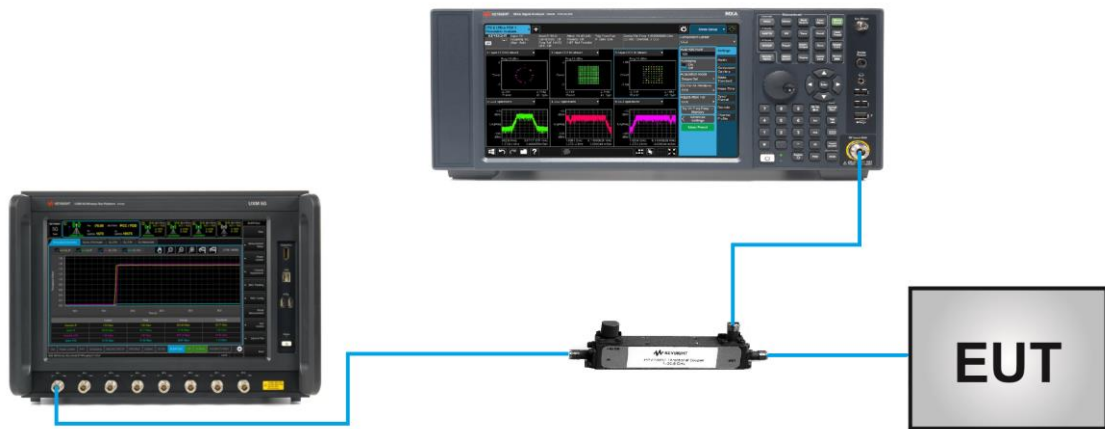
### **4.7.2. Test Procedure**

ANSI C63.26-2015 - Section 5.7

### **4.7.3. Test Setting**

1. Set the analyzer frequency to low, mid, high channel.
2. RBW = 1MHz
3. VBW  $\geq 3 \cdot$ RBW
4. Sweep time = auto
5. Detector = power averaging (rms)
6. Set sweep trigger to "free run."
7. User gate triggered such that the analyzer only sweeps when the device is transmitting at full power.
8. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over the on and off time of the transmitter, it can be necessary to increase the number of traces to be averaged above 100, or if using a manually configured sweep time, increase the sweep time.

#### 4.7.4. Test Setup



#### 4.7.5. Test Result

Product	5G Sub-6 GHz M.2 Module	Test Site	SIP-SR5
Test Engineer	Gordon Qi	Test Date	2021/02/23
Test Band	n2/25_SA		

Channel	Frequency (MHz)	Channel Bandwidth (MHz)	Frequency Range (MHz)	Max Spurious Emissions (dBm)	Limit (dBm)	Result
370500	1852.5	5	30 ~ 20000	-34.51	≤ -13.00	Pass
376500	1882.5	5	30 ~ 20000	-33.97	≤ -13.00	Pass
382500	1912.5	5	30 ~ 20000	-35.17	≤ -13.00	Pass
371000	1855.0	10	30 ~ 20000	-36.13	≤ -13.00	Pass
376500	1882.5	10	30 ~ 20000	-34.85	≤ -13.00	Pass
382000	1910.0	10	30 ~ 20000	-35.86	≤ -13.00	Pass
371500	1857.5	15	30 ~ 20000	-32.31	≤ -13.00	Pass
376500	1882.5	15	30 ~ 20000	-33.80	≤ -13.00	Pass
381500	1907.5	15	30 ~ 20000	-33.84	≤ -13.00	Pass
372000	1860.0	20	30 ~ 20000	-34.90	≤ -13.00	Pass
376500	1882.5	20	30 ~ 20000	-33.52	≤ -13.00	Pass
381000	1905.0	20	30 ~ 20000	-33.50	≤ -13.00	Pass