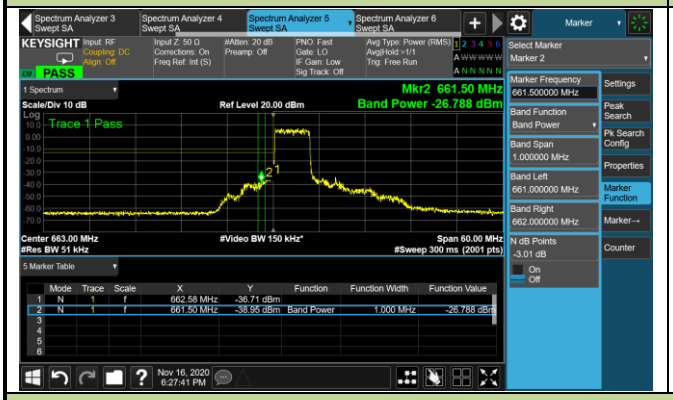
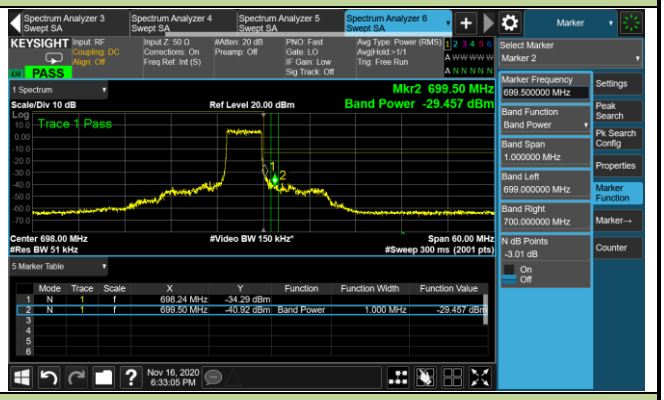
5MHz Channel Bandwidth - Full RB

Lower Band Edge

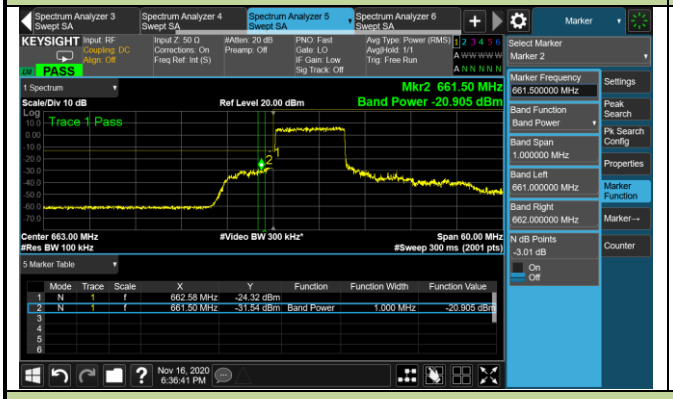


Upper Band Edge

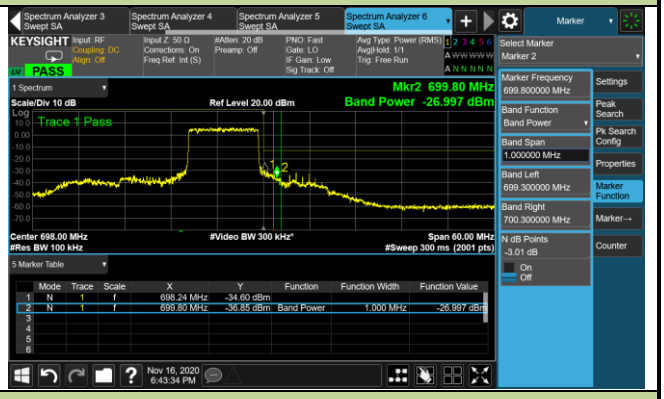


10MHz Channel Bandwidth - Full RB

Lower Band Edge

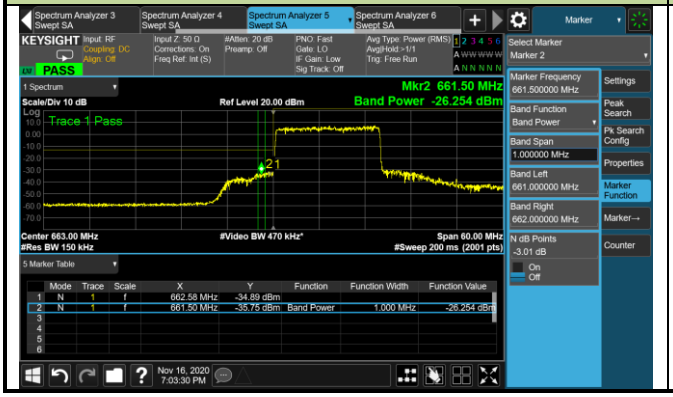


Upper Band Edge

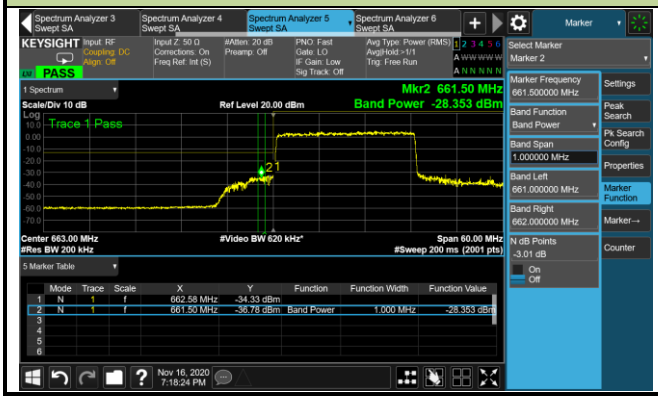
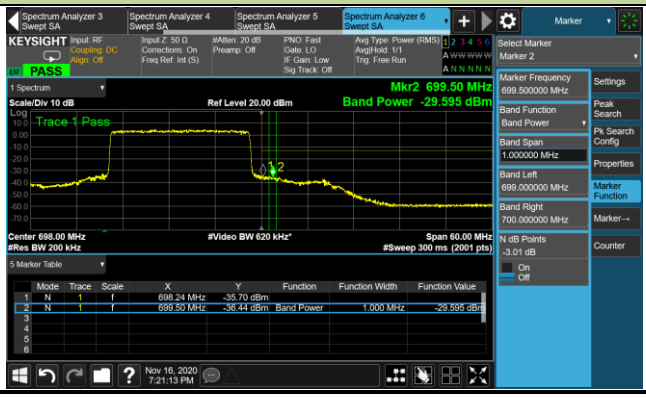


15MHz Channel Bandwidth - Full RB

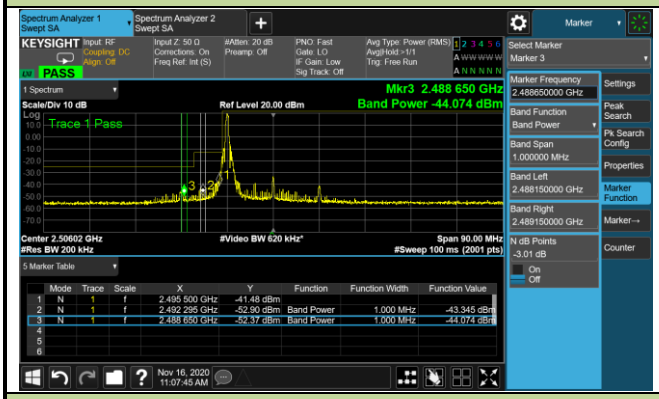
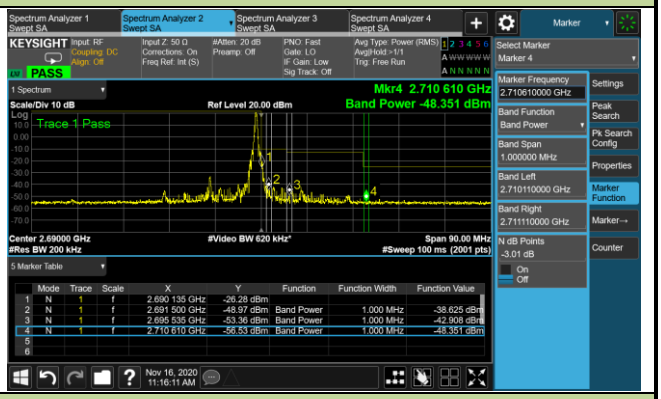
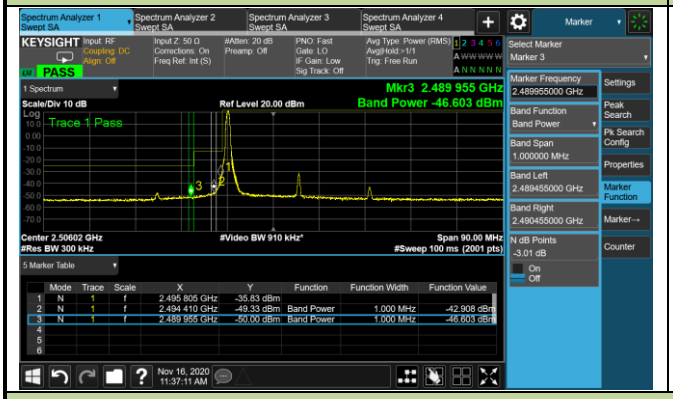
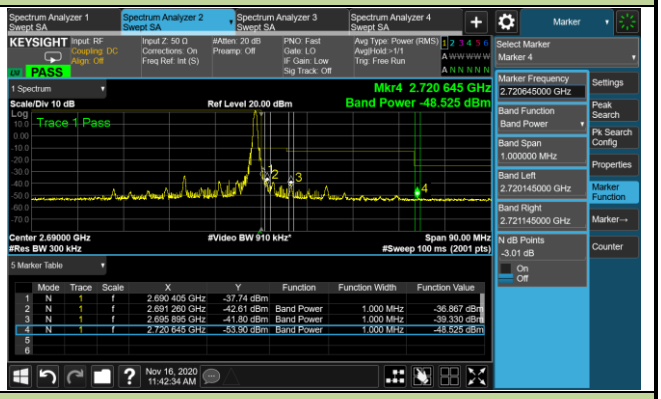
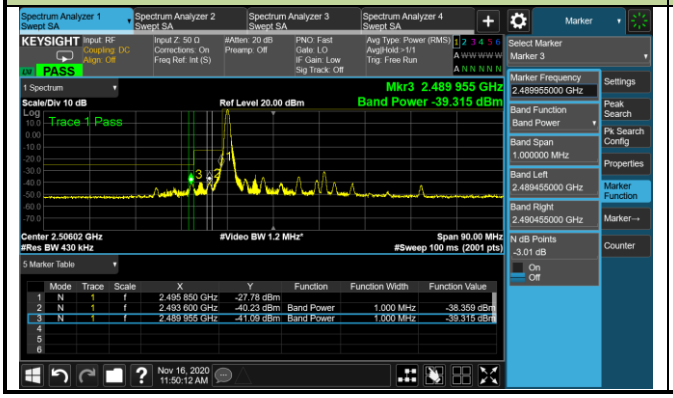
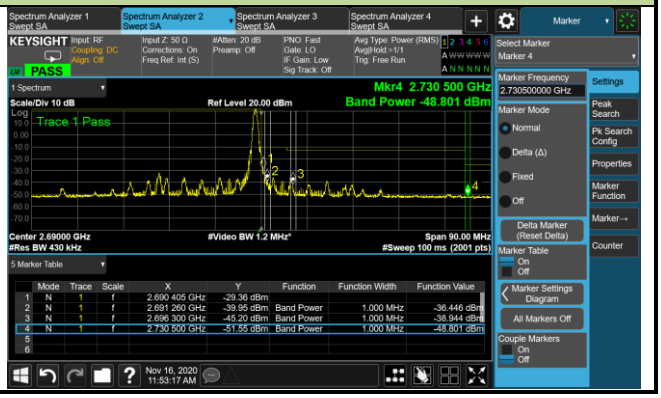
Lower Band Edge

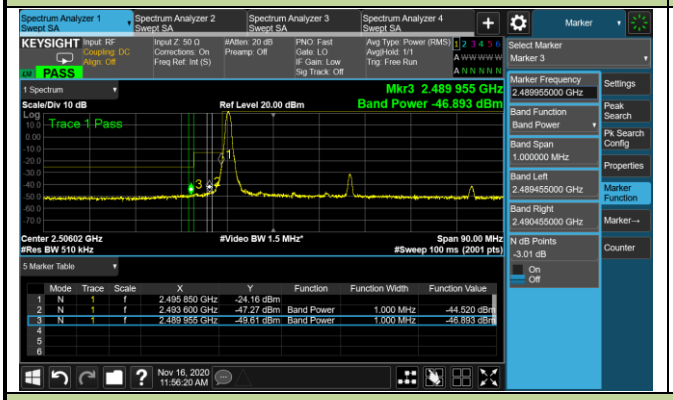
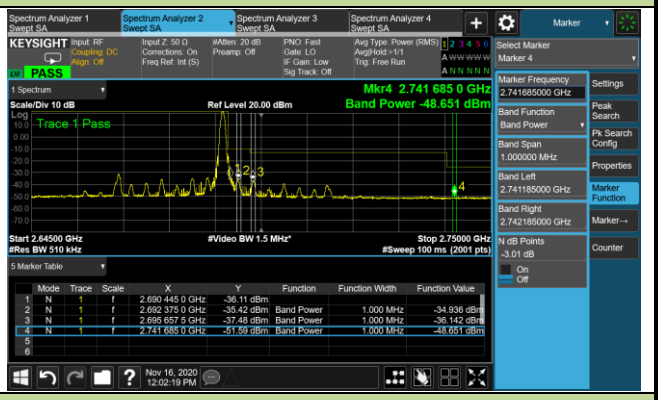
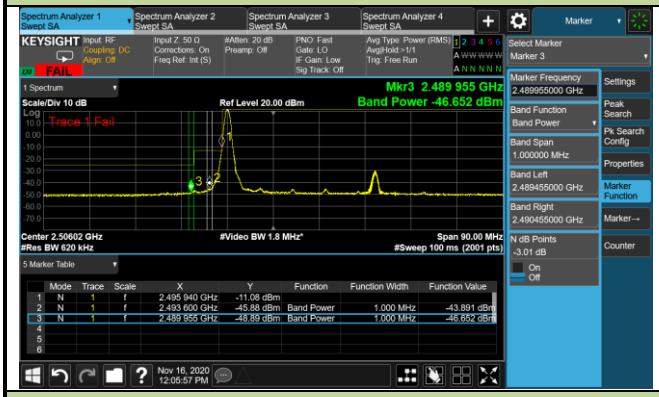
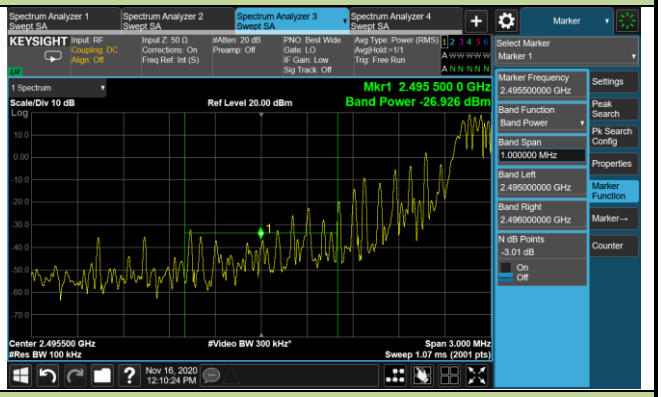
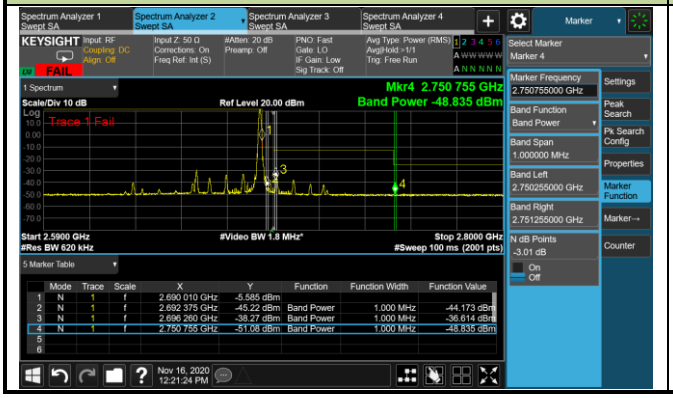
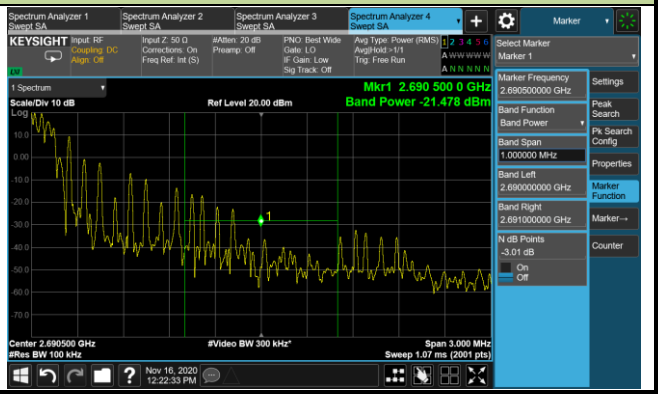


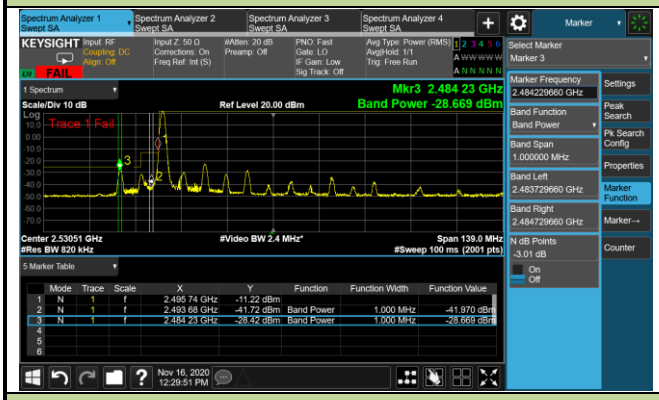
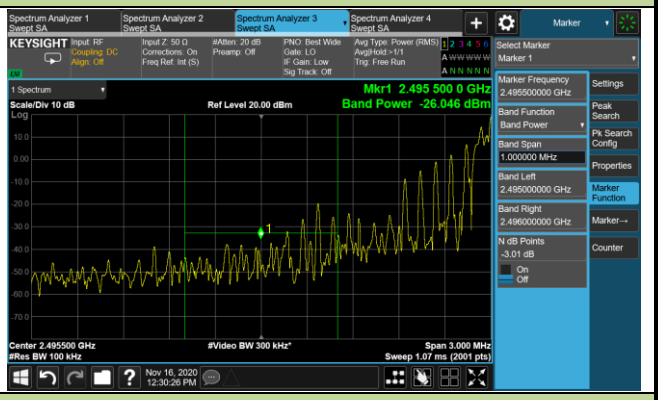
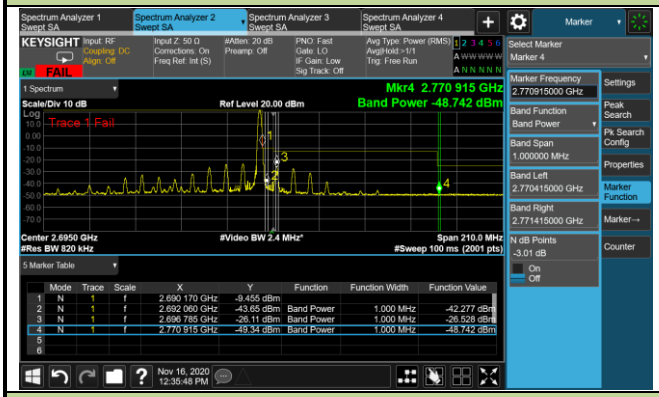
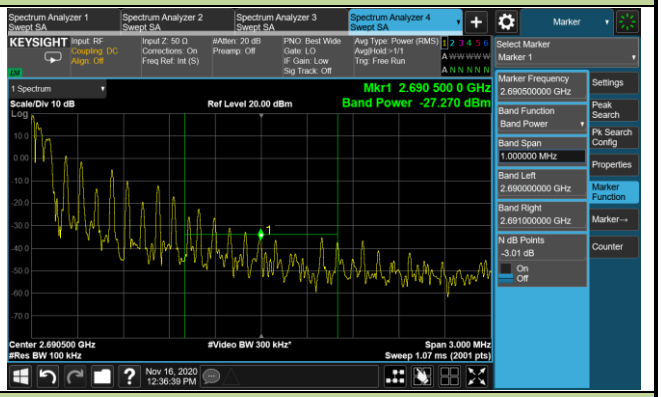
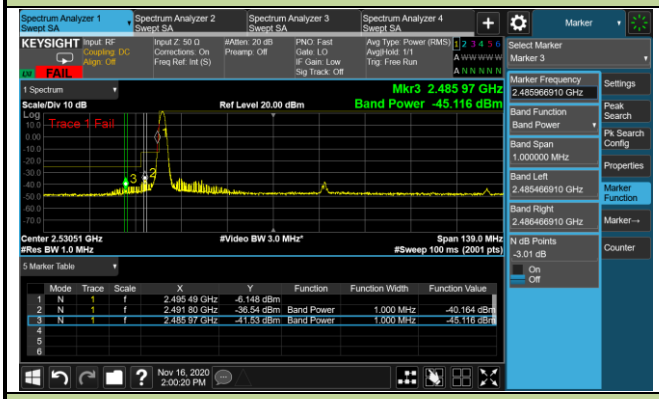
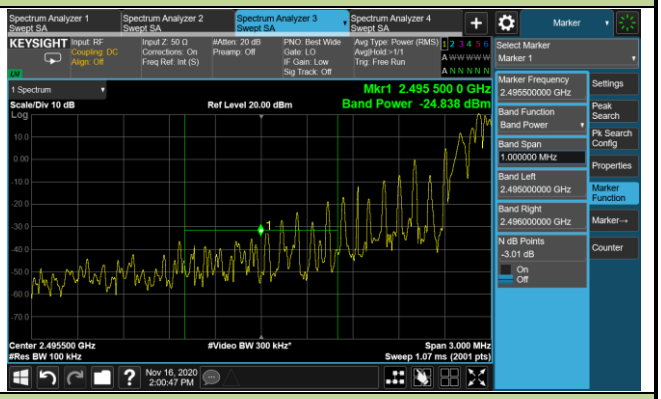
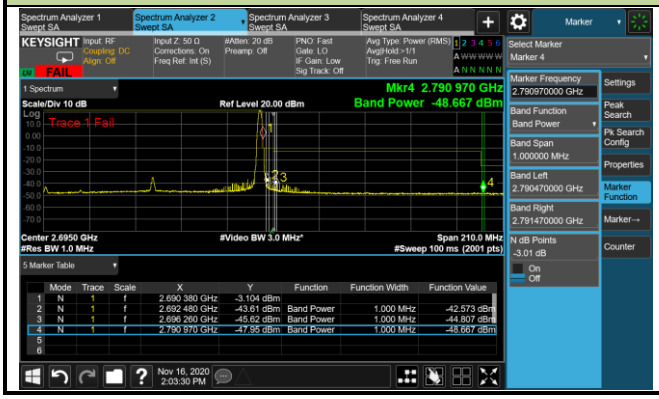
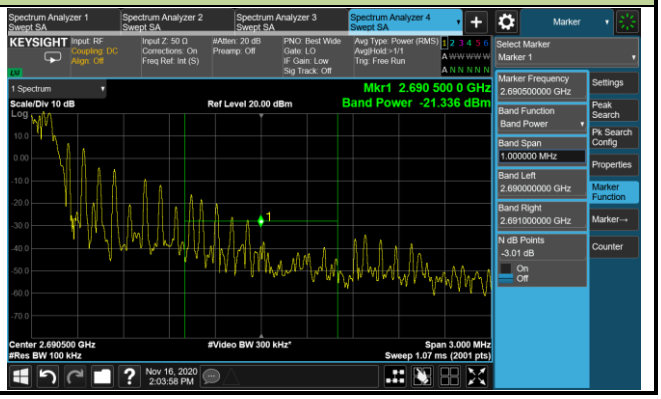
Upper Band Edge

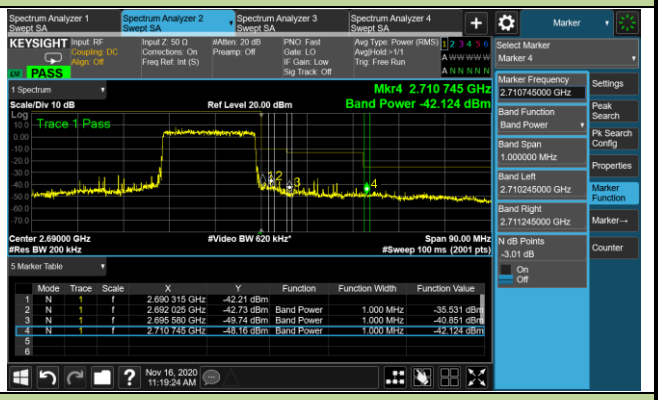
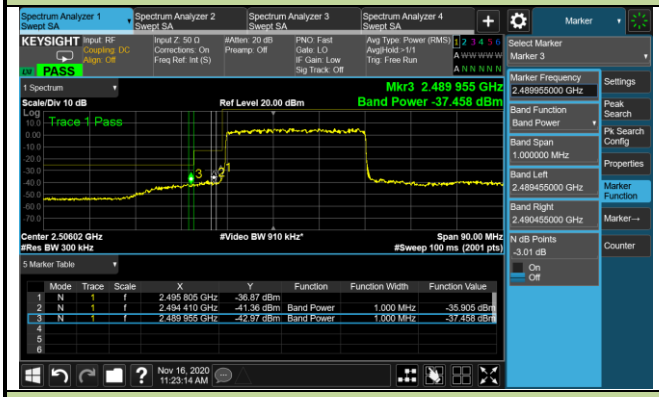
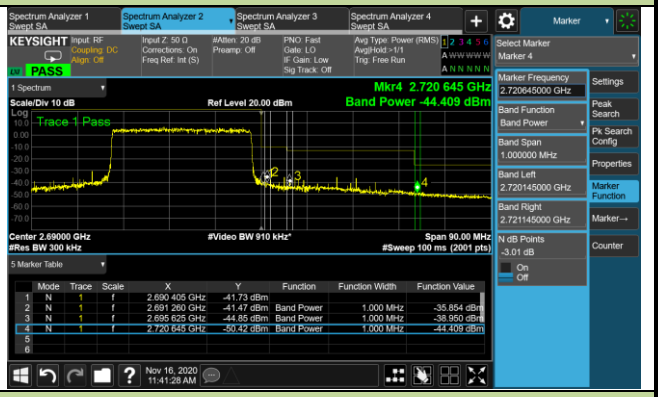
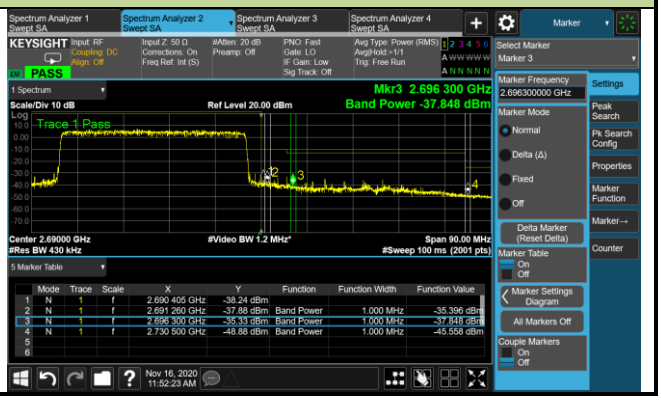
20MHz Channel Bandwidth - Full RB	
Lower Band Edge	Upper Band Edge
	

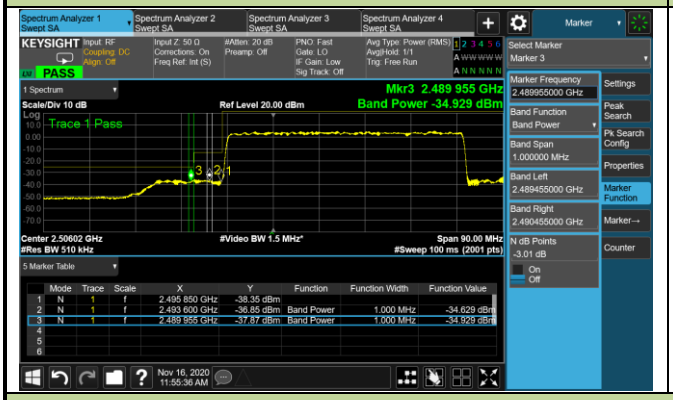
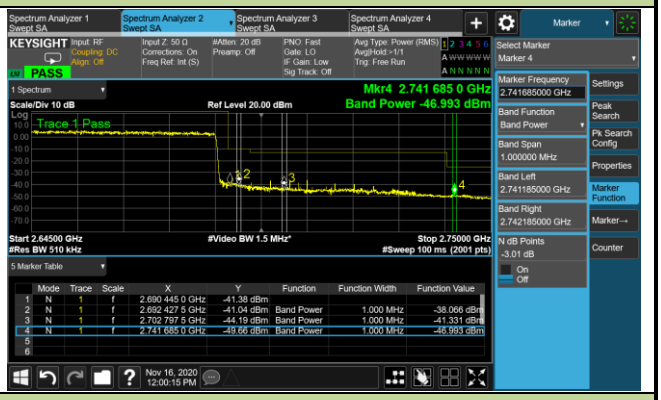
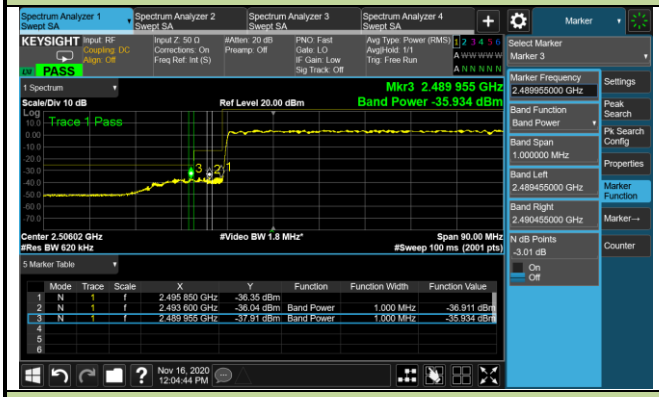
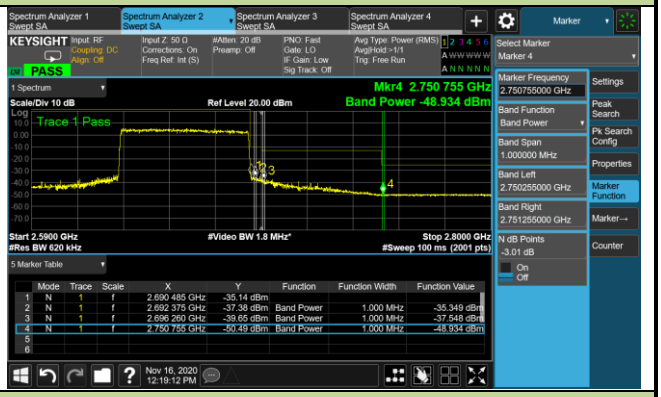
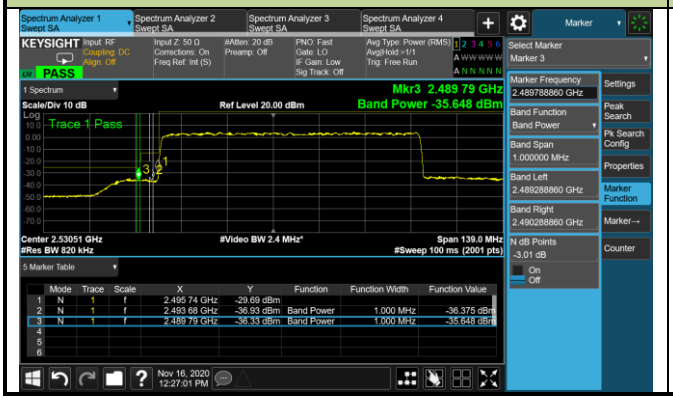
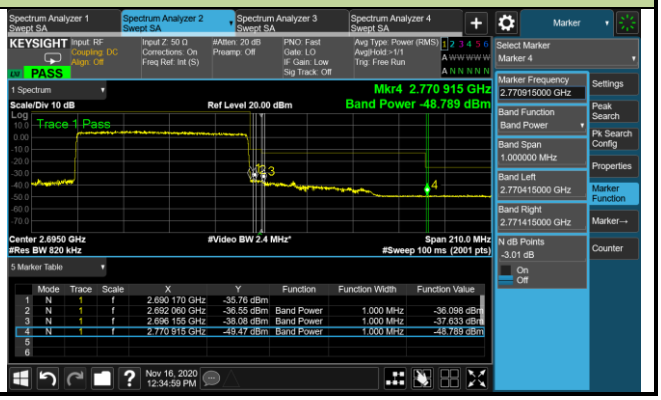
Product	5G Sub-6 GHz M.2 Module	Test Site	WZ-SR6
Test Engineer	Eric Xu	Test Date	2020/11/16
Test Band	n41_EN-DC	Test Result	Pass

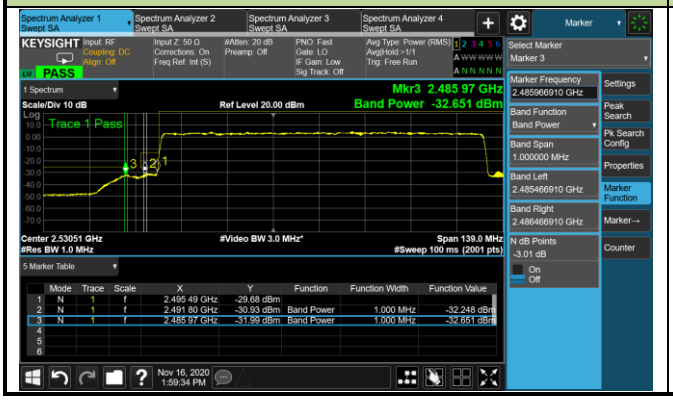
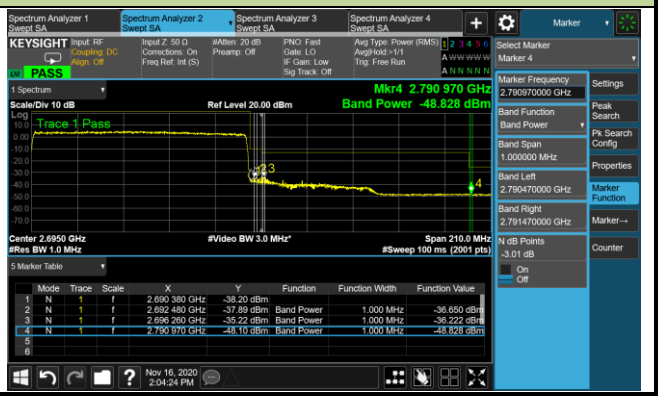
20MHz Channel Bandwidth - 1RB	
Lower Band Edge	Upper Band Edge
	
30MHz Channel Bandwidth - 1RB	
Lower Band Edge	Upper Band Edge
	
40MHz Channel Bandwidth - 1RB	
Lower Band Edge	Upper Band Edge
	

50MHz Channel Bandwidth - 1RB	
Lower Band Edge	Upper Band Edge
	
60MHz Channel Bandwidth - 1RB	
Lower Band Edge*	Channel Power < 13dBm Pass
	
Upper Band Edge*	Channel Power < 13dBm Pass
	

80MHz Channel Bandwidth - 1RB	
Lower Band Edge*	Channel Power < 13dBm Pass
	
Upper Band Edge*	Channel Power < 13dBm Pass
	
100MHz Channel Bandwidth - 1RB	
Lower Band Edge*	Channel Power < 13dBm Pass
	
Upper Band Edge*	Channel Power < 13dBm Pass
	

20MHz Channel Bandwidth - Full RB	
Lower Band Edge	Upper Band Edge
	
30MHz 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
	

100MHz Channel Bandwidth - Full RB	
Lower Band Edge	Upper Band Edge
	

Note: "*" means that the fail frequency has been verified by the plot of "Channel Power < 13dBm Pass"

5.6. Peak to Average Ratio

5.6.1.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.

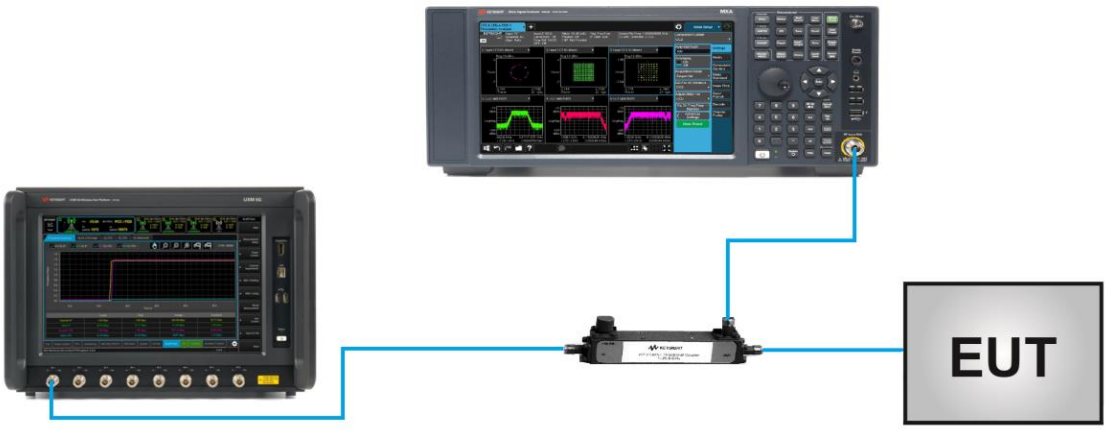
5.6.2.Test Procedure Used

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

5.6.3.Test Setting

1. Set the resolution / measurement bandwidth ≥ 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%

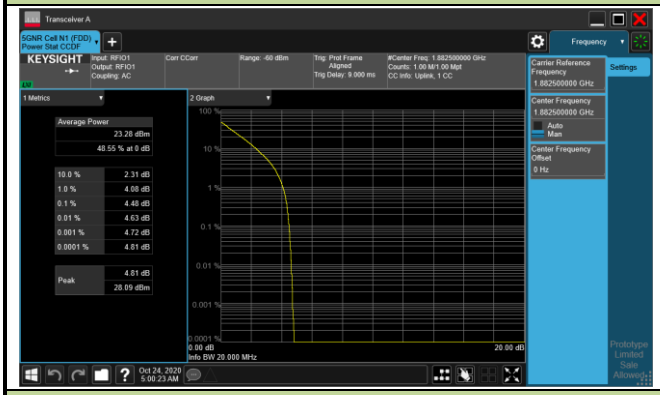
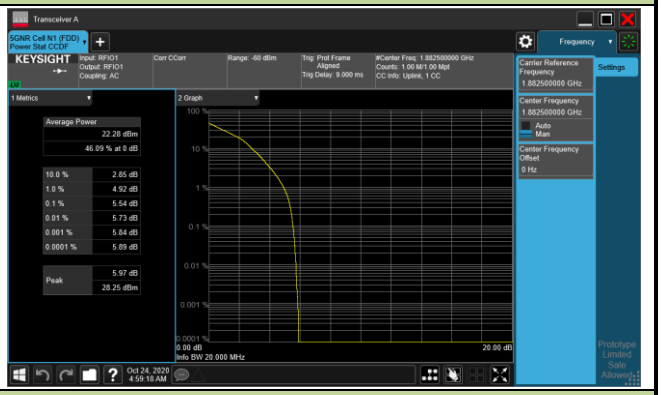
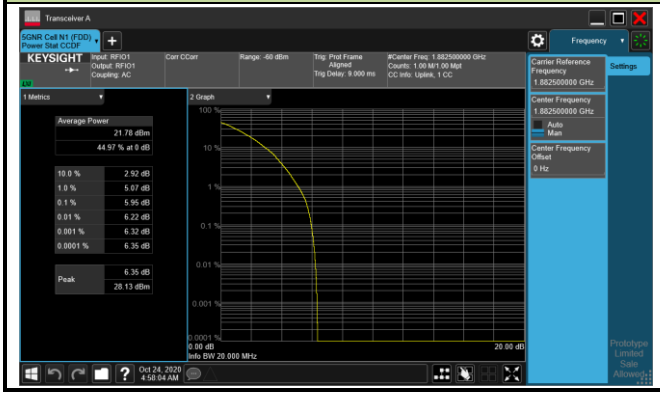
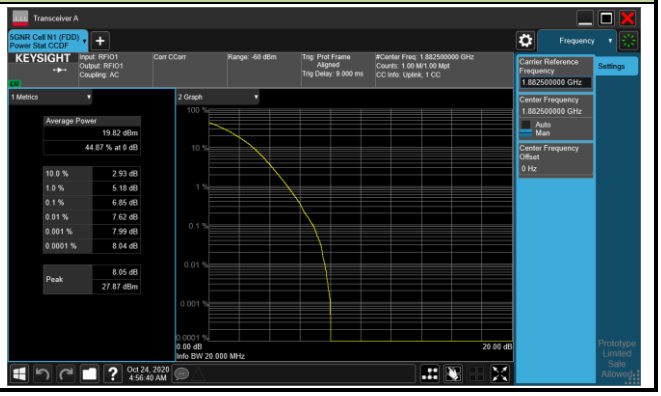
5.6.4.Test Setup



5.6.5.Test Result

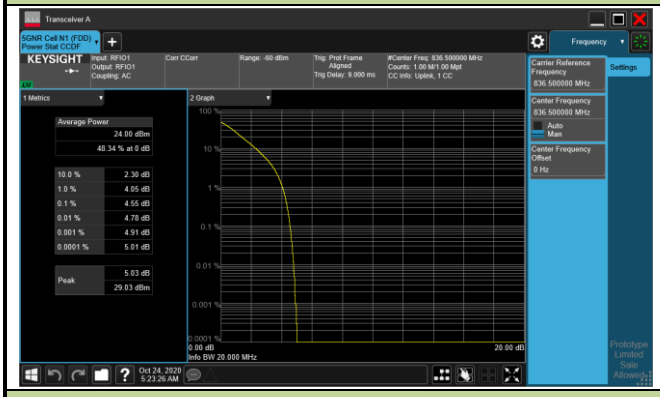
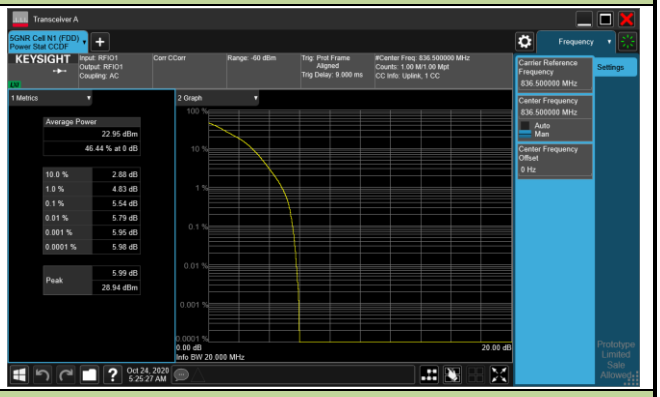
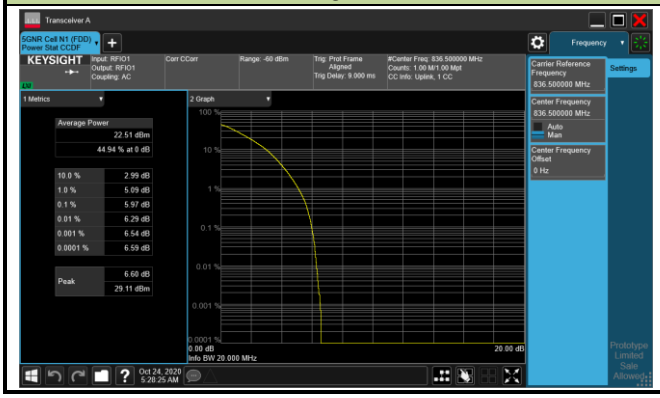
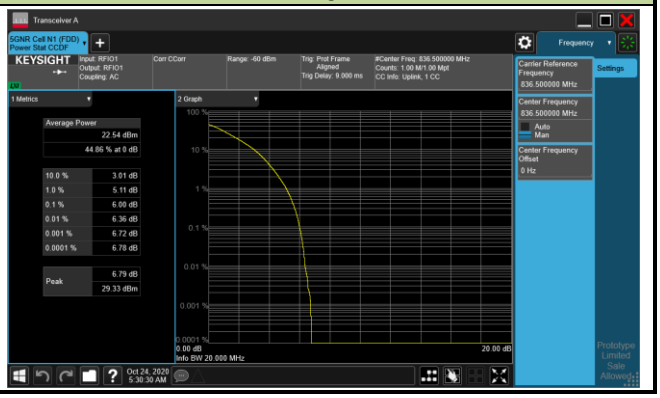
Product	5G Sub-6 GHz M.2 Module	Test Site	WZ-SR6
Test Engineer	Eric Xu	Test Date	2020/10/24
Test Band	n2/25_SA	Test Result	Pass

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
QPSK					
376500	1882.5	20	4.48	≤ 13.00	Pass
16QAM					
376500	1882.5	20	5.54	≤ 13.00	Pass
64QAM					
376500	1882.5	20	5.95	≤ 13.00	Pass
256QAM					
376500	1882.5	20	6.85	≤ 13.00	Pass

QPSK	16QAM
	
64QAM	256QAM
	

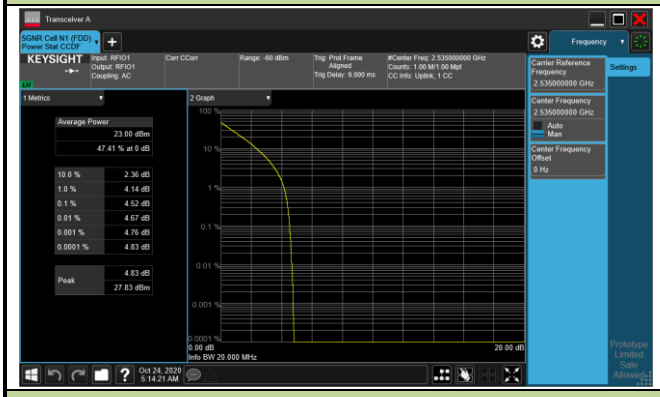
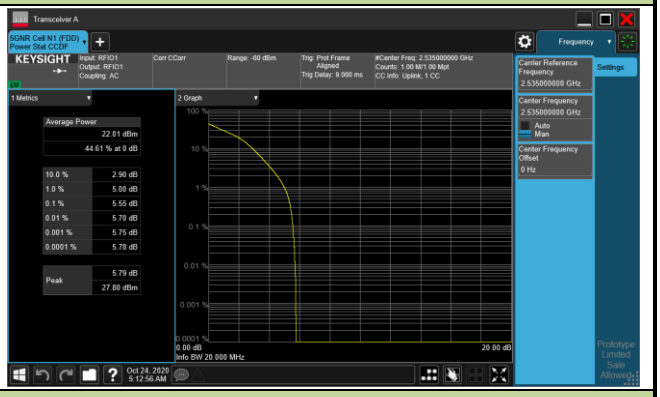
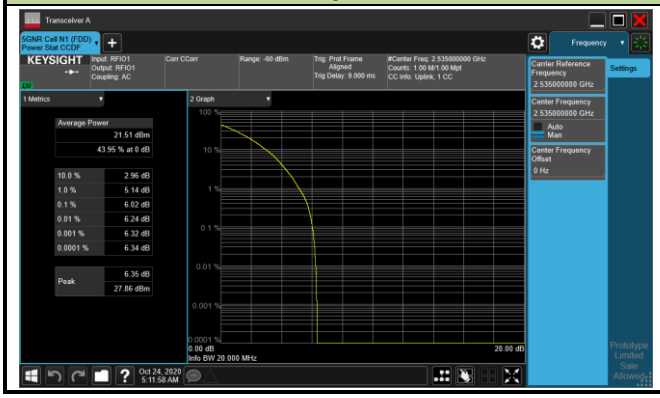
Product	5G Sub-6 GHz M.2 Module	Test Site	WZ-SR6
Test Engineer	Eric Xu	Test Date	2020/10/24
Test Band	n5_SA	Test Result	Pass

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
QPSK					
167300	836.5	20	4.55	≤ 13.00	Pass
16QAM					
167300	836.5	20	5.54	≤ 13.00	Pass
64QAM					
167300	836.5	20	5.97	≤ 13.00	Pass
256QAM					
167300	836.5	20	6.00	≤ 13.00	Pass

QPSK	16QAM
	
64QAM	**256QAM**
	

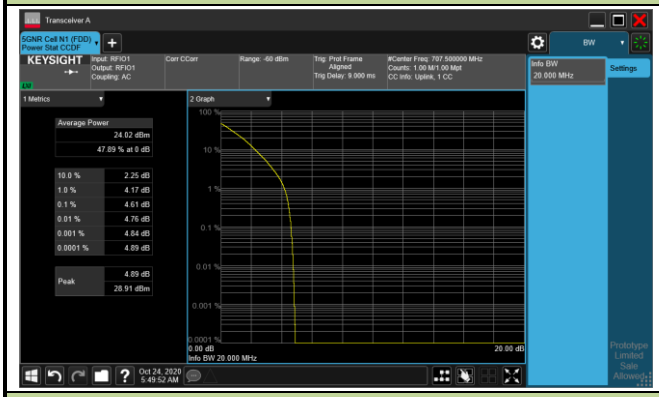
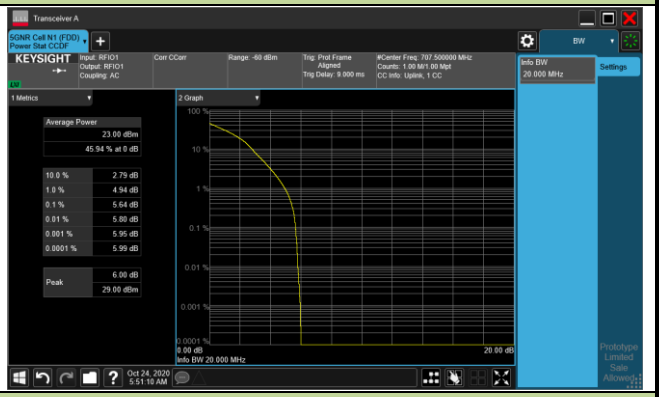
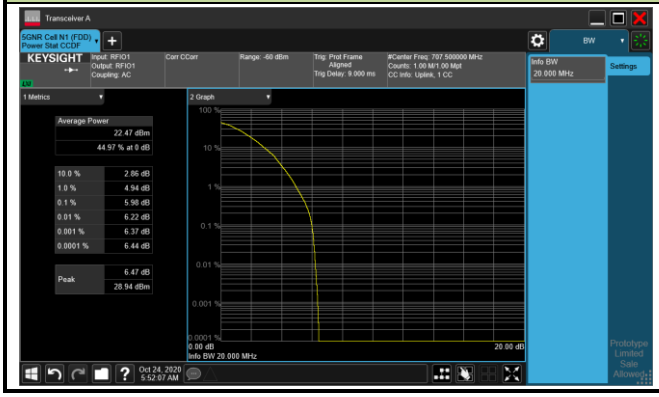
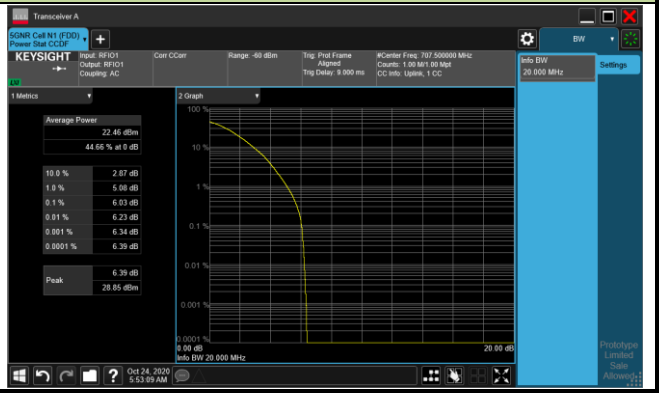
Product	5G Sub-6 GHz M.2 Module	Test Site	WZ-SR6
Test Engineer	Eric Xu	Test Date	2020/10/24
Test Band	n7_SA	Test Result	Pass

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
QPSK					
507000	2535.0	20	4.52	≤ 13.00	Pass
16QAM					
507000	2535.0	20	5.55	≤ 13.00	Pass
64QAM					
507000	2535.0	20	6.02	≤ 13.00	Pass
256QAM					
507000	2535.0	20	6.92	≤ 13.00	Pass

QPSK	16QAM
	
64QAM	256QAM
	

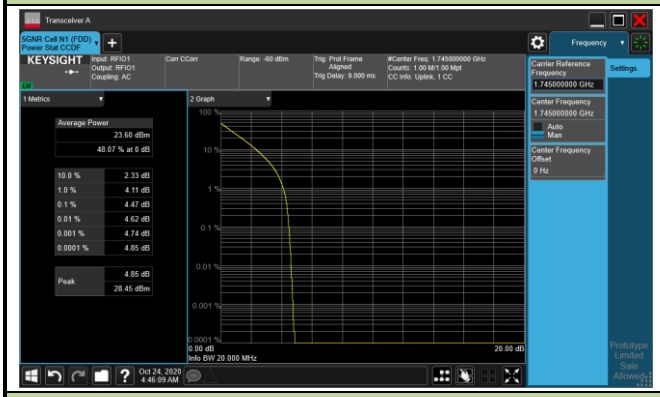
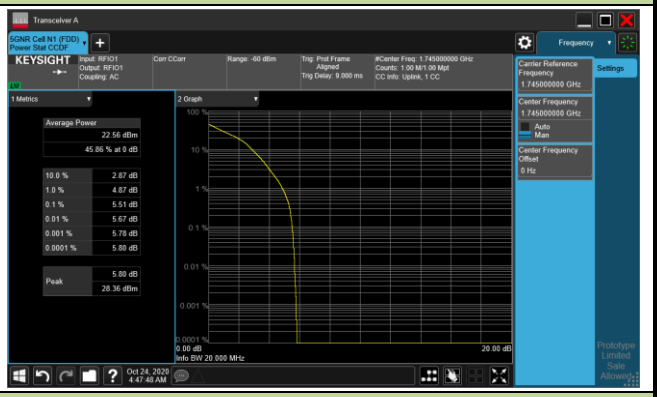
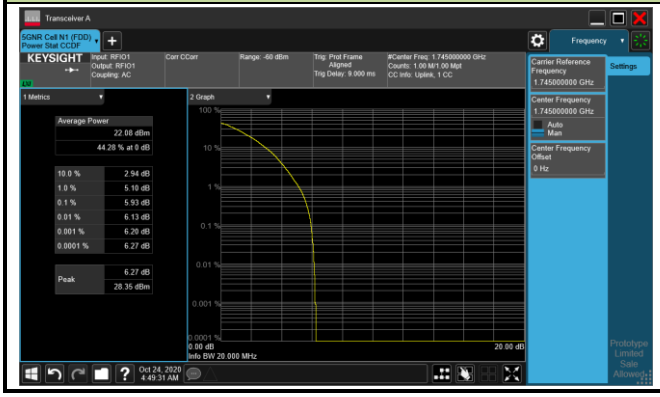
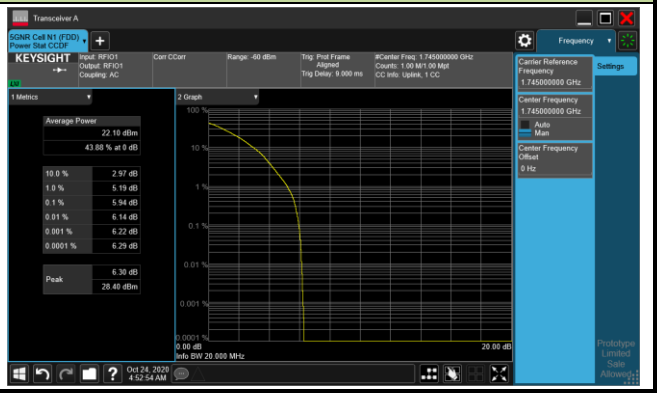
Product	5G Sub-6 GHz M.2 Module	Test Site	WZ-SR6
Test Engineer	Eric Xu	Test Date	2020/10/24
Test Band	n12_SA	Test Result	Pass

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
QPSK					
141500	707.5	15	4.61	≤ 13.00	Pass
16QAM					
141500	707.5	15	5.64	≤ 13.00	Pass
64QAM					
141500	707.5	15	5.98	≤ 13.00	Pass
256QAM					
141500	707.5	15	6.03	≤ 13.00	Pass

QPSK	16QAM
	
64QAM	256QAM
	

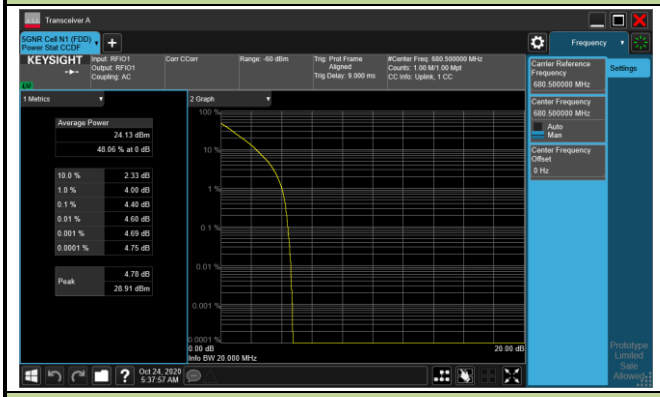
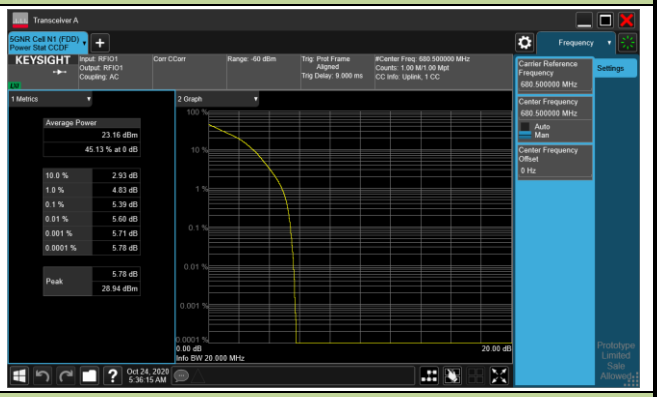
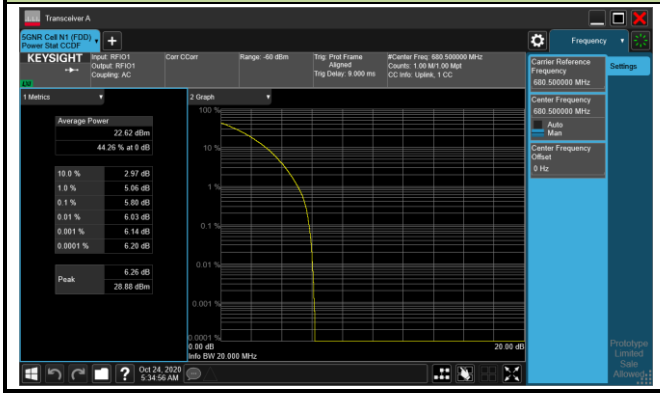
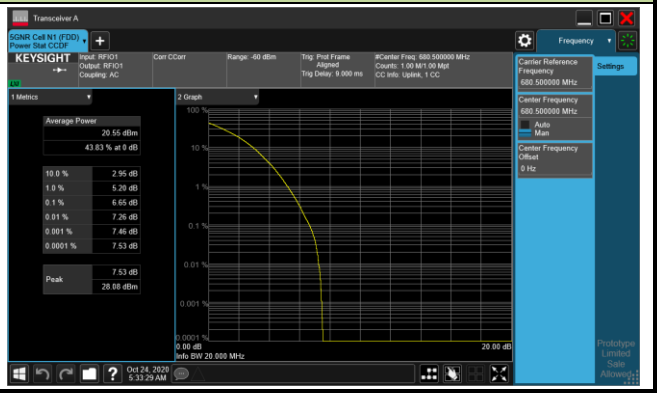
Product	5G Sub-6 GHz M.2 Module	Test Site	WZ-SR6
Test Engineer	Eric Xu	Test Date	2020/10/24
Test Band	n66_SA	Test Result	Pass

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
QPSK					
349000	1745.0	20	4.47	≤ 13.00	Pass
16QAM					
349000	1745.0	20	5.51	≤ 13.00	Pass
64QAM					
349000	1745.0	20	5.93	≤ 13.00	Pass
256QAM					
349000	1745.0	20	5.94	≤ 13.00	Pass

QPSK	16QAM
	
64QAM	256QAM
	

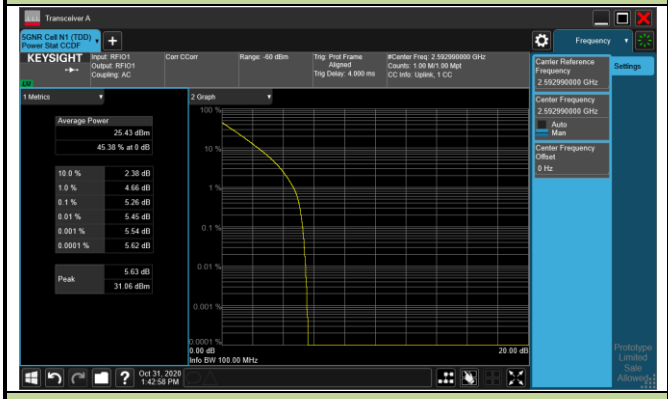
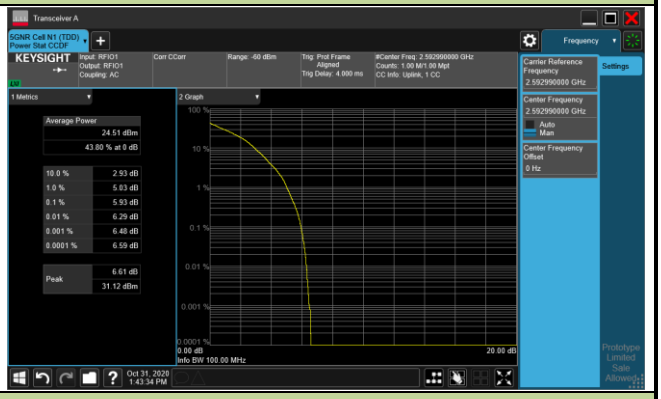
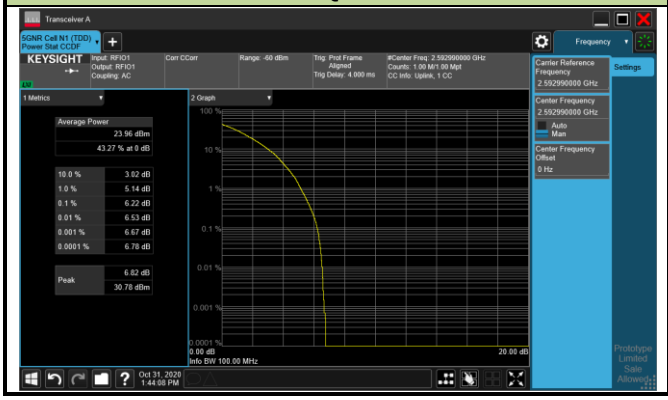
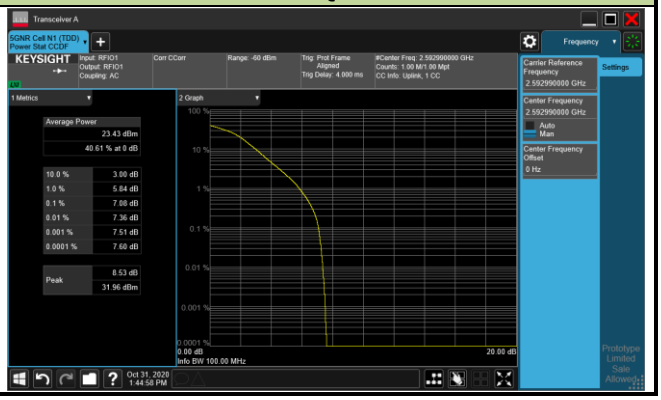
Product	5G Sub-6 GHz M.2 Module	Test Site	WZ-SR6
Test Engineer	Eric Xu	Test Date	2020/10/24
Test Band	n71_SA	Test Result	Pass

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
QPSK					
136100	680.5	20	4.40	≤ 13.00	Pass
16QAM					
136100	680.5	20	5.39	≤ 13.00	Pass
64QAM					
136100	680.5	20	5.80	≤ 13.00	Pass
256QAM					
136100	680.5	20	6.65	≤ 13.00	Pass

QPSK	16QAM
	
64QAM	**256QAM**
	

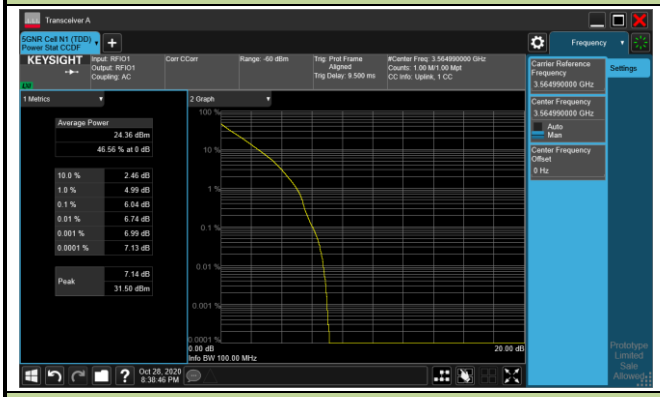
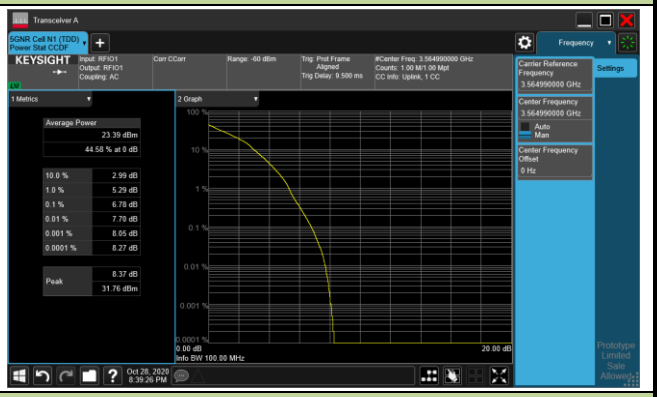
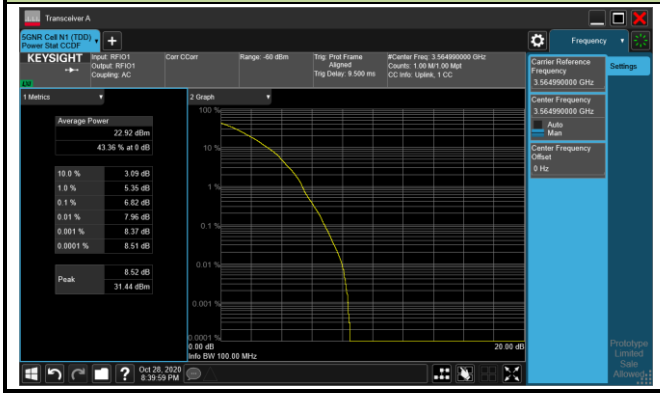
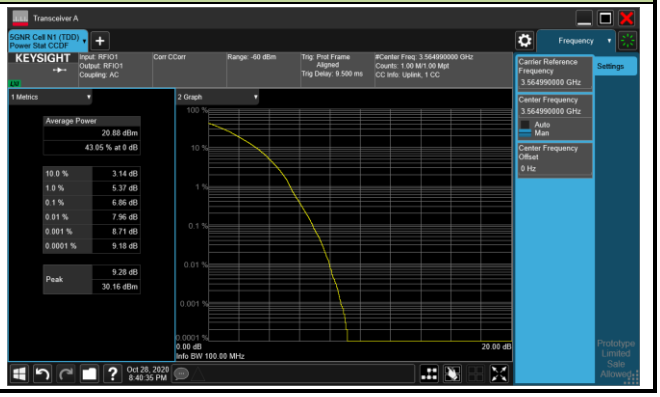
Product	5G Sub-6 GHz M.2 Module	Test Site	WZ-SR6
Test Engineer	Eric Xu	Test Date	2020/10/31
Test Band	n41_SA_HPUE	Test Result	Pass

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
QPSK					
518598	2592.99	100	5.26	≤ 13.00	Pass
16QAM					
518598	2592.99	100	5.93	≤ 13.00	Pass
64QAM					
518598	2592.99	100	6.22	≤ 13.00	Pass
256QAM					
518598	2592.99	100	7.08	≤ 13.00	Pass

QPSK	16QAM
	
64QAM	256QAM
	

Product	5G Sub-6 GHz M.2 Module	Test Site	WZ-SR6
Test Engineer	Eric Xu	Test Date	2020/10/28
Test Band	n77_SA_HPUE	Test Result	Pass

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
QPSK					
772998	3864.99	100	6.04	≤ 13.00	Pass
16QAM					
772998	3864.99	100	6.78	≤ 13.00	Pass
64QAM					
772998	3864.99	100	6.82	≤ 13.00	Pass
256QAM					
772998	3864.99	100	6.86	≤ 13.00	Pass

QPSK	16QAM
	
64QAM	**256QAM**
	

5.7. Conducted Spurious Emissions

5.7.1.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 10th 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.

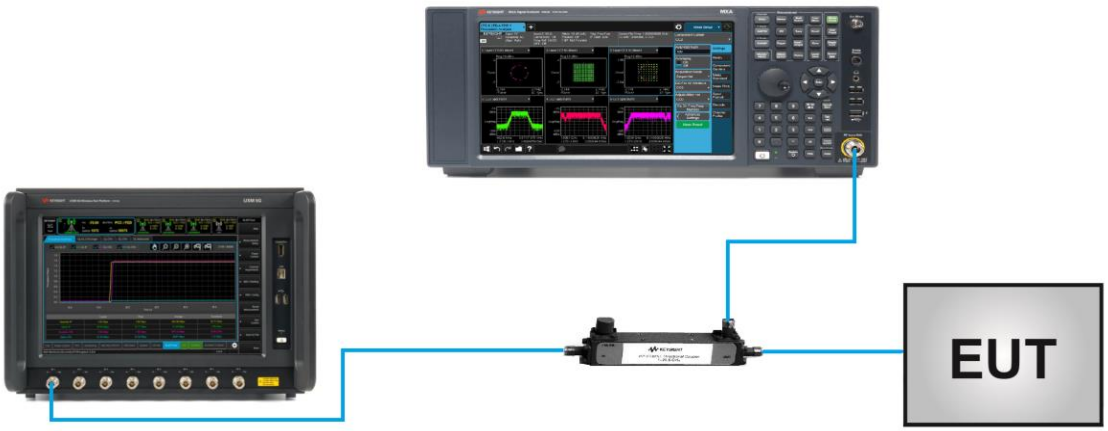
5.7.2.Test Procedure Used

ANSI C63.26-2015 - Section 5.7

5.7.3.Test Setting

1. Set the analyzer frequency to low, mid, high channel.
2. RBW = 1MHz
3. VBW ≥ 3*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.

5.7.4.Test Setup



5.7.5.Test Result

Product	5G Sub-6 GHz M.2 Module	Test Site	WZ-SR6
Test Engineer	Cloud Guo	Test Date	2020/10/22
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	-24.14	≤ -13.00	Pass
376500	1882.5	5	30 ~ 20000	-27.35	≤ -13.00	Pass
382500	1912.5	5	30 ~ 20000	-26.43	≤ -13.00	Pass
371000	1855.0	10	30 ~ 20000	-26.96	≤ -13.00	Pass
376500	1882.5	10	30 ~ 20000	-27.44	≤ -13.00	Pass
382000	1910.0	10	30 ~ 20000	-27.59	≤ -13.00	Pass
371500	1857.5	15	30 ~ 20000	-27.13	≤ -13.00	Pass
376500	1882.5	15	30 ~ 20000	-26.97	≤ -13.00	Pass
381500	1907.5	15	30 ~ 20000	-27.59	≤ -13.00	Pass
372000	1860.0	20	30 ~ 20000	-27.92	≤ -13.00	Pass
376500	1882.5	20	30 ~ 20000	-27.21	≤ -13.00	Pass
381000	1905.0	20	30 ~ 20000	-27.15	≤ -13.00	Pass