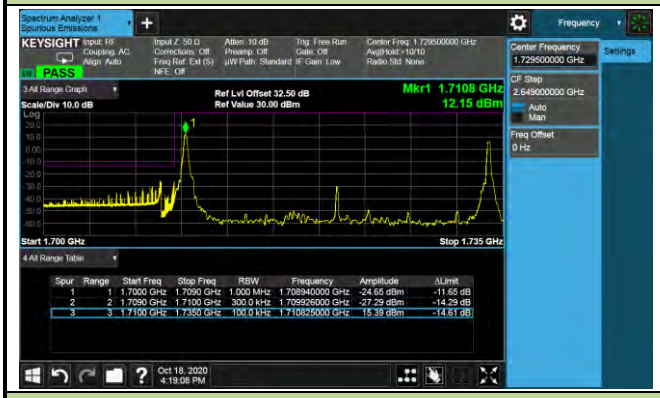
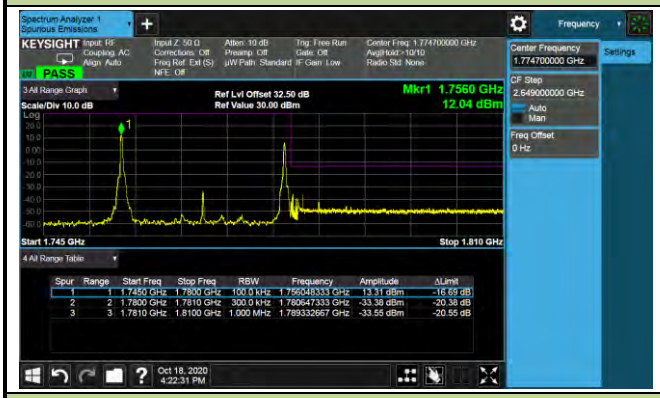
15+10MHz Channel Bandwidth

Lower Band Edge RB = 0 & 49

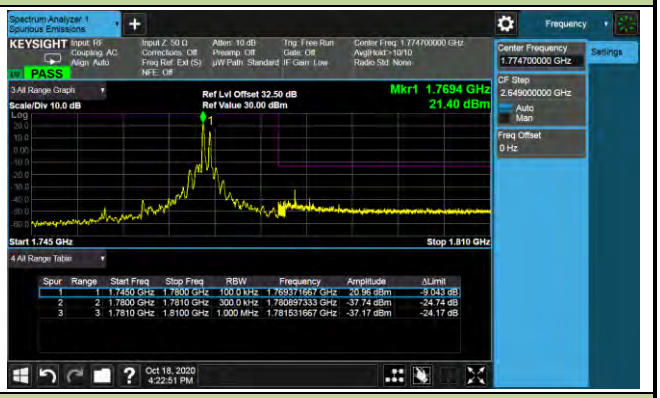


Lower Band Edge RB = 74 & 0

Upper Band Edge RB = 0 & 49

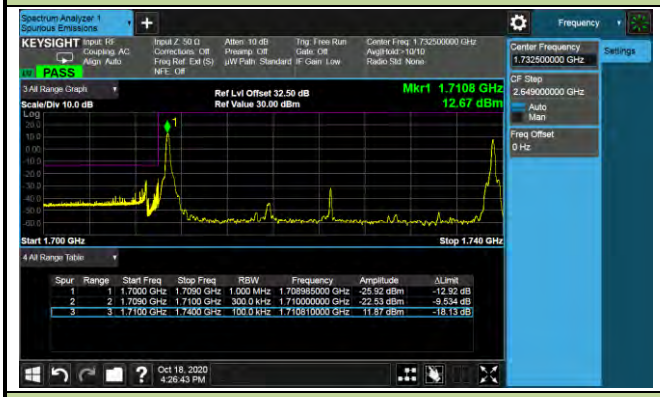


Upper Band Edge RB = 74 & 0

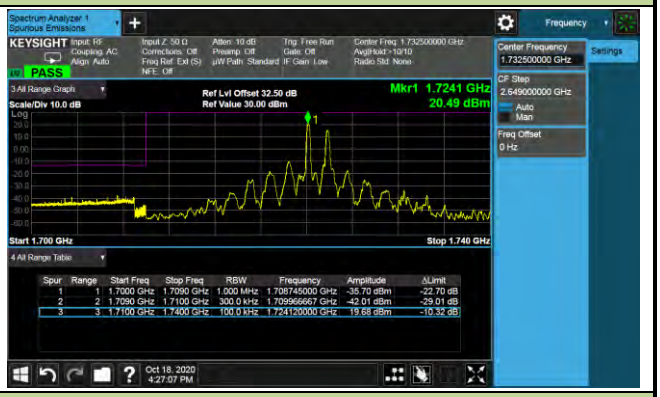


15+15MHz Channel Bandwidth

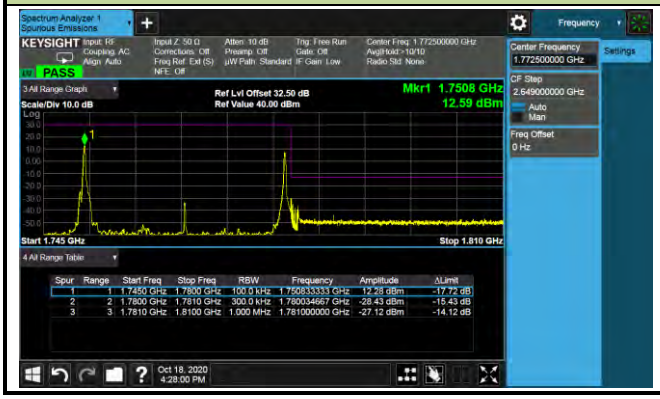
Lower Band Edge RB = 0 & 74



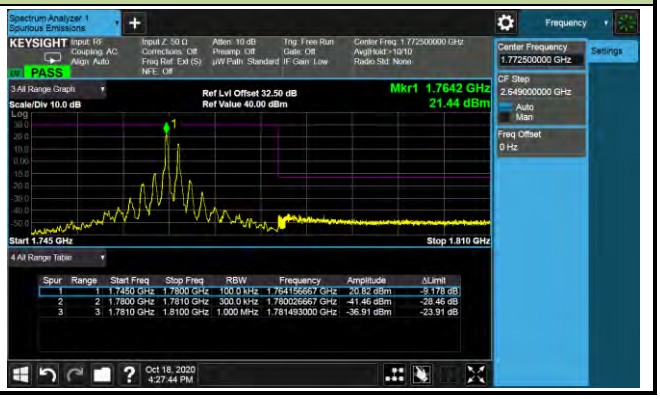
Lower Band Edge RB = 74 & 0



Upper Band Edge RB = 0 & 74

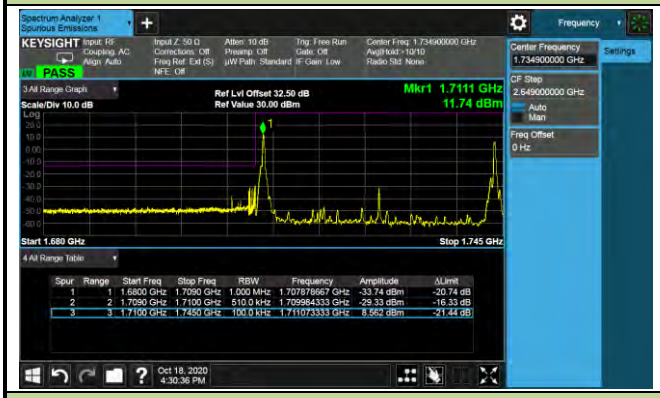


Upper Band Edge RB = 74 & 0

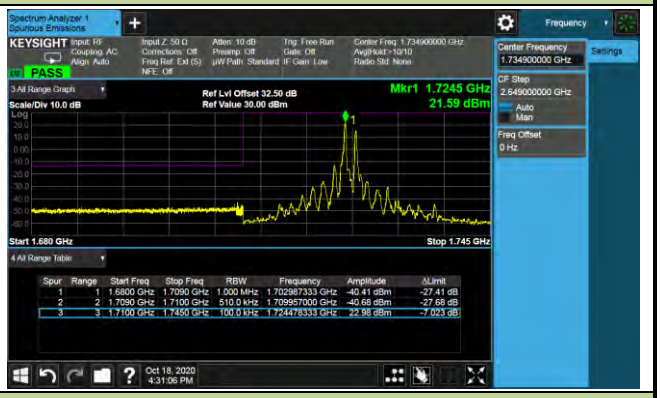


15+20MHz Channel Bandwidth

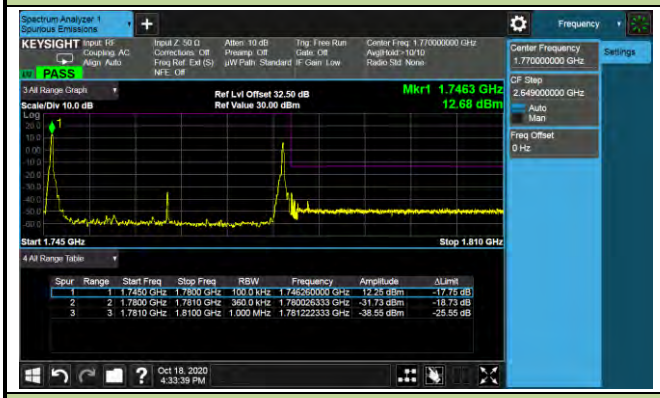
Lower Band Edge RB = 0 & 99



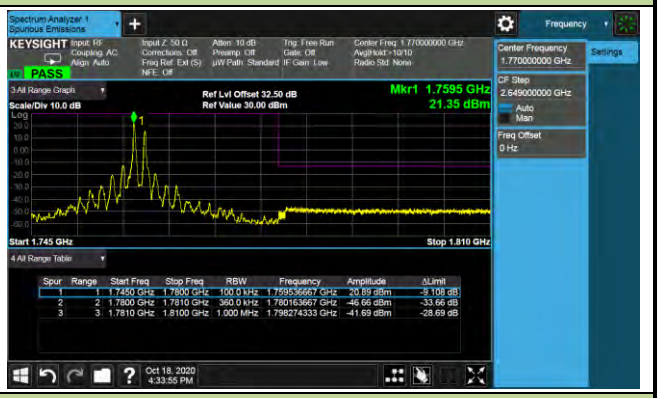
Lower Band Edge RB = 74 & 0



Upper Band Edge RB = 0 & 99

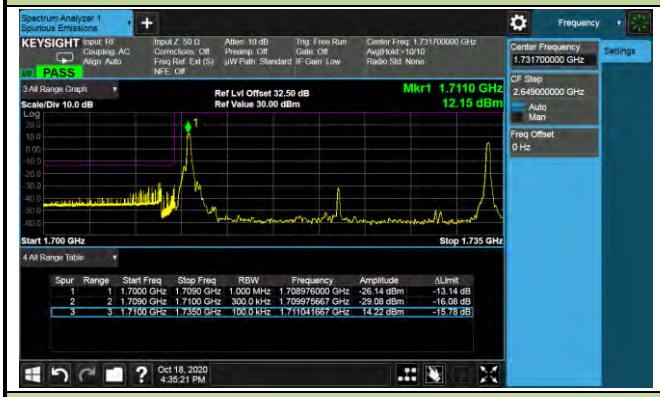


Upper Band Edge RB = 74 & 0



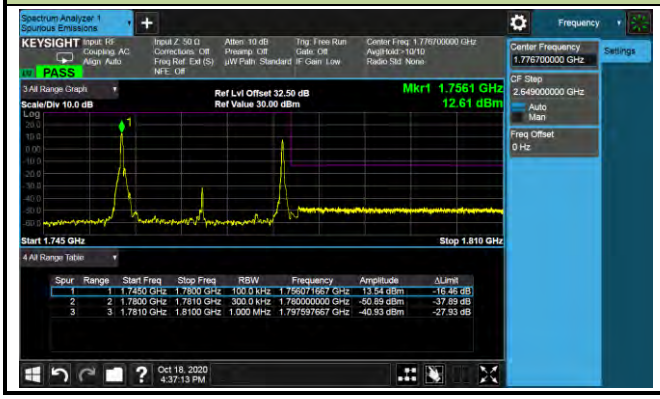
20+5MHz Channel Bandwidth

Lower Band Edge RB = 0 & 24

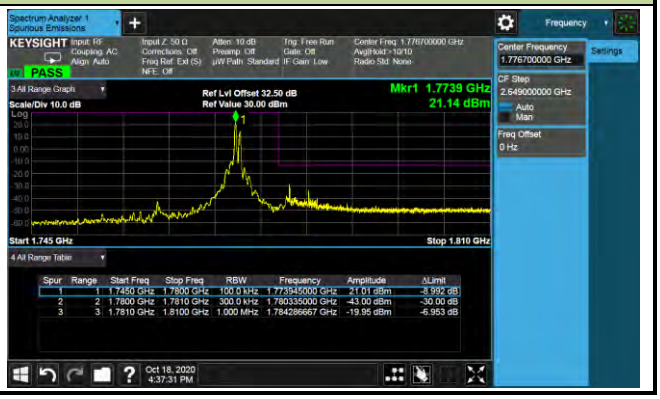


Lower Band Edge RB = 99 & 0

Upper Band Edge RB = 0 & 24

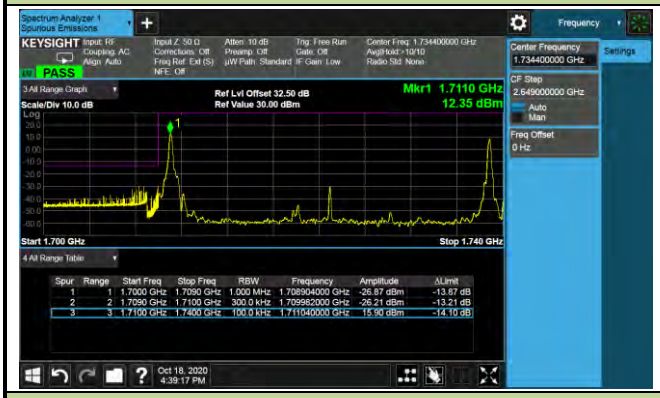


Upper Band Edge RB = 99 & 0

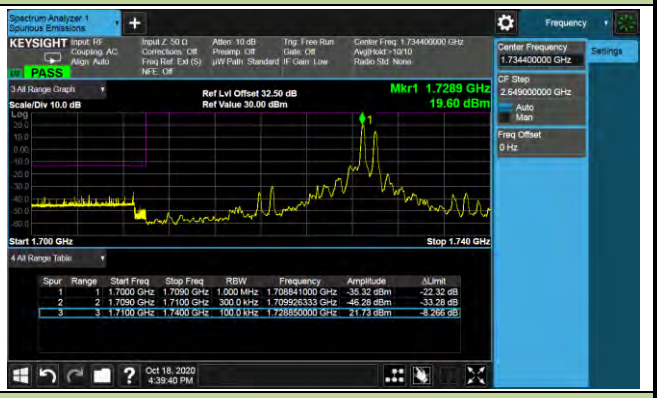


20+10MHz Channel Bandwidth

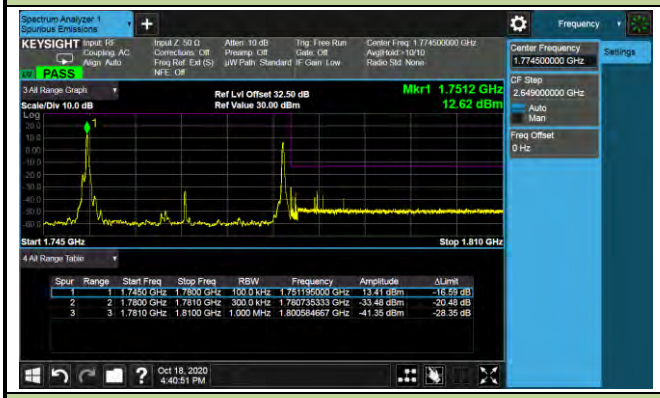
Lower Band Edge RB = 0 & 49



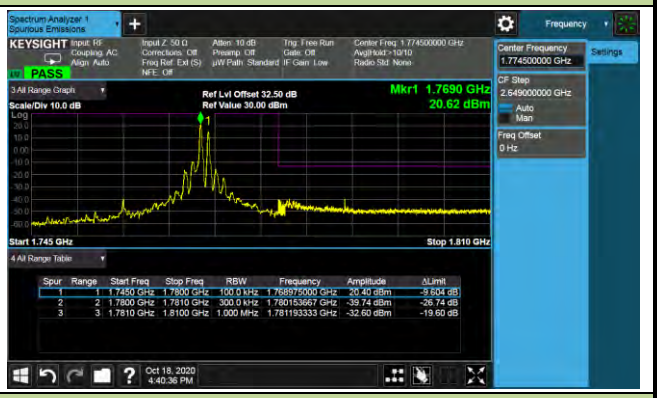
Lower Band Edge RB = 99 & 0



Upper Band Edge RB = 0 & 49

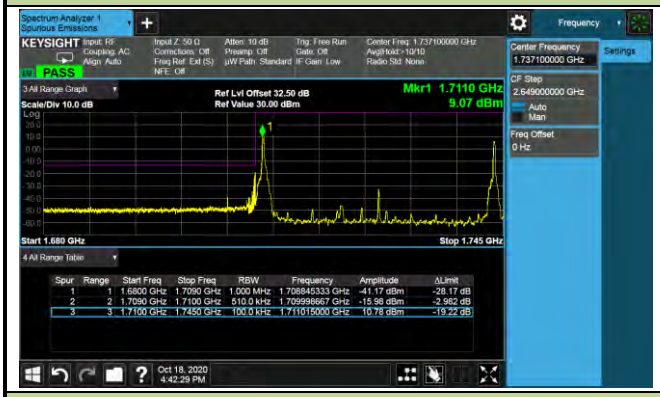


Upper Band Edge RB = 99 & 0

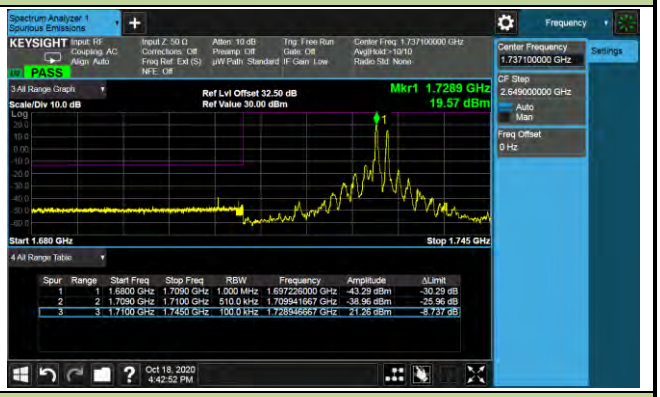


20+15MHz Channel Bandwidth

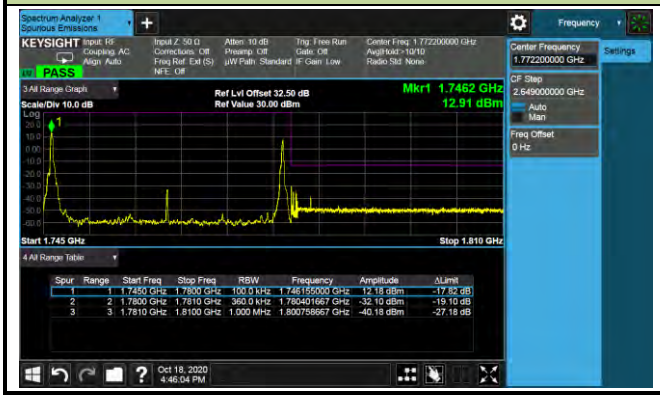
Lower Band Edge RB = 0 & 74



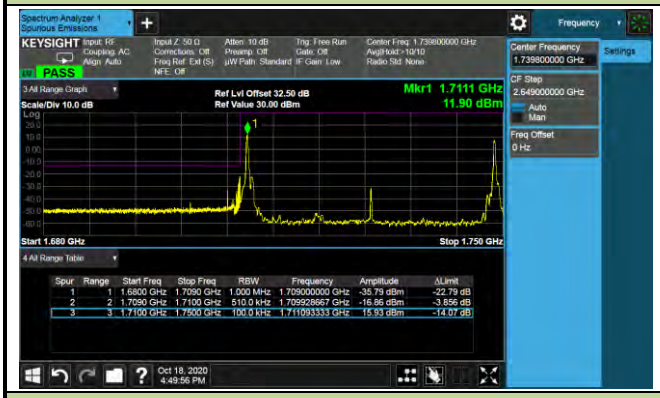
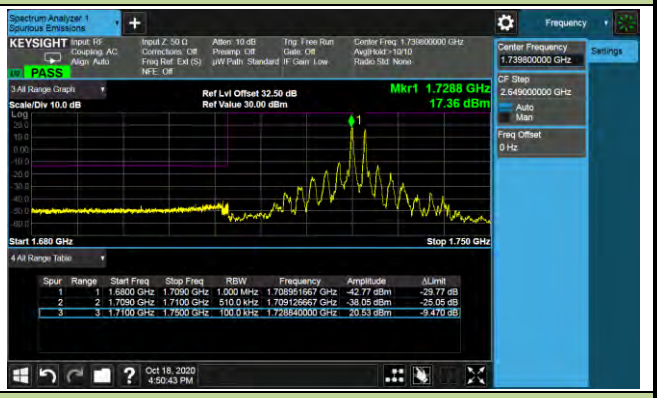
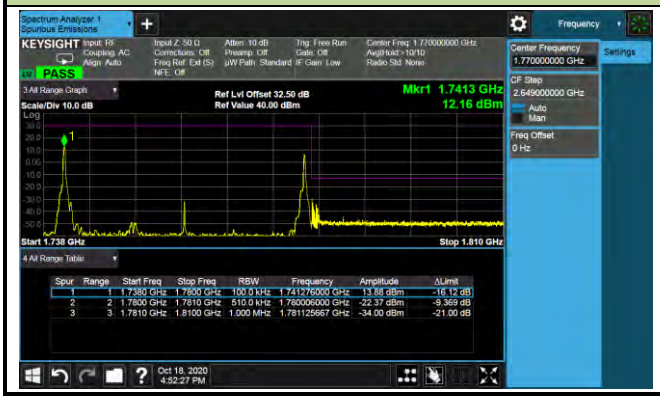
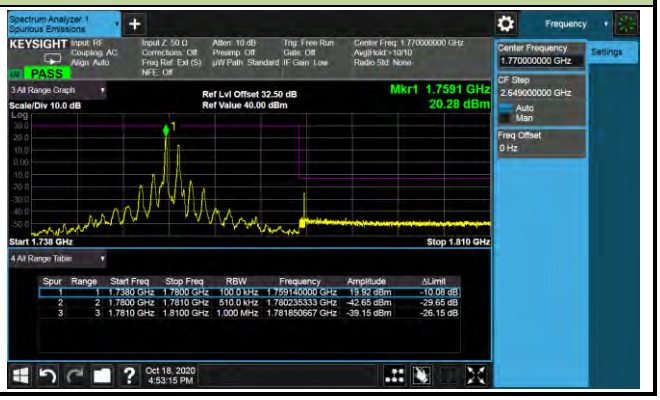
Lower Band Edge RB = 99 & 0

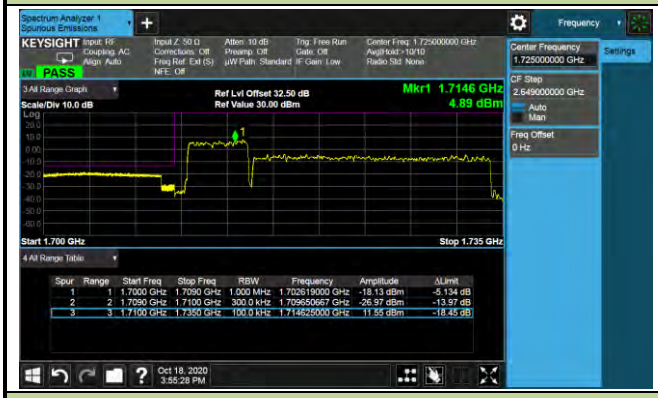
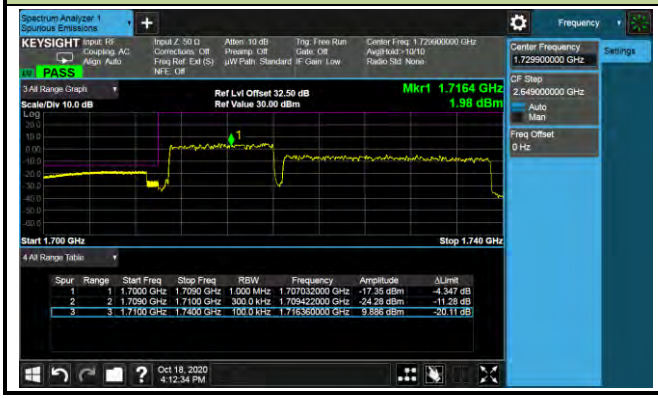
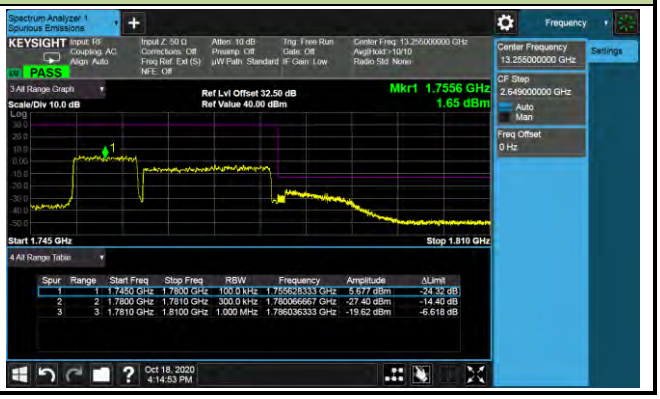


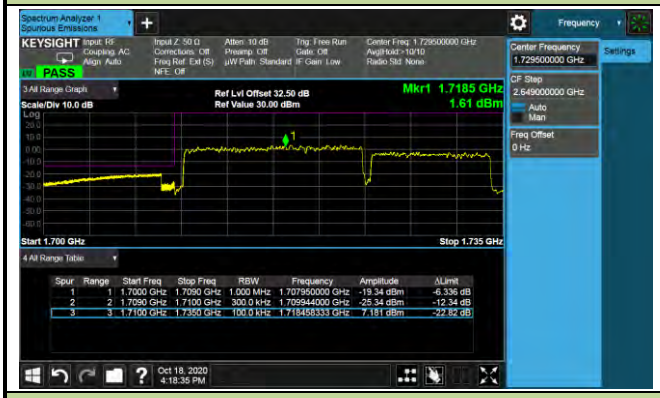
Upper Band Edge RB = 0 & 74

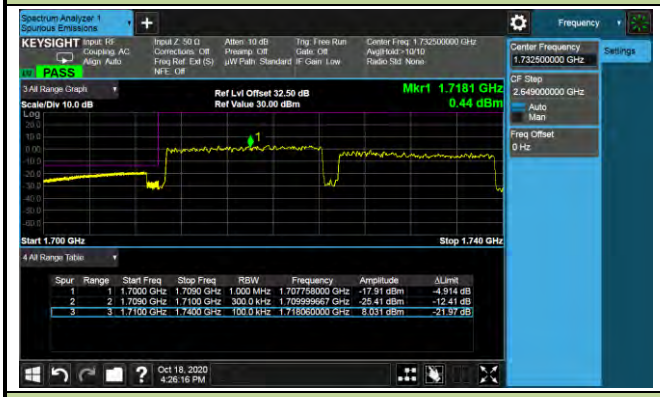


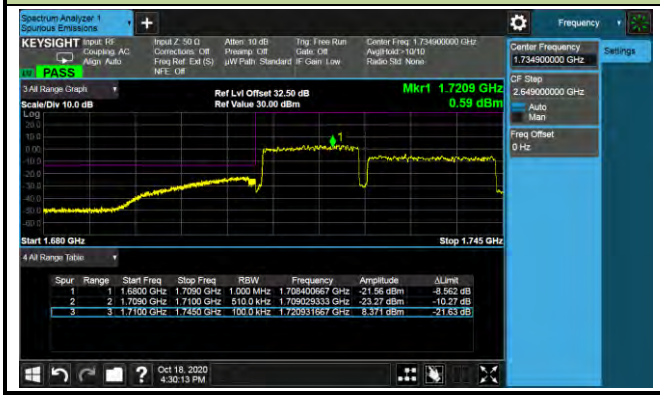
Upper Band Edge RB = 99 & 0

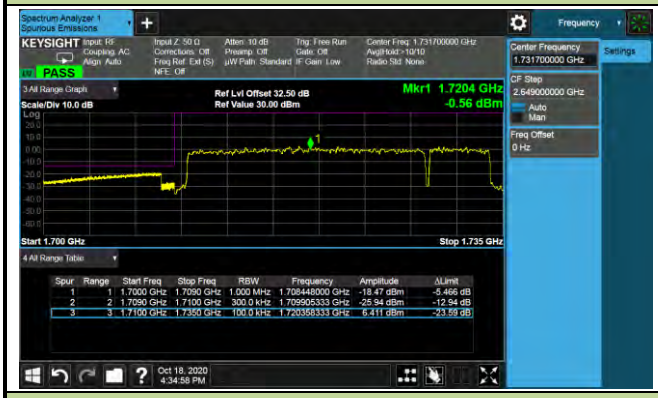
20+20MHz Channel Bandwidth	
Lower Band Edge RB = 0 & 99	Lower Band Edge RB = 99 & 0
	
Upper Band Edge RB = 0 & 99	Upper Band Edge RB = 99 & 0
	

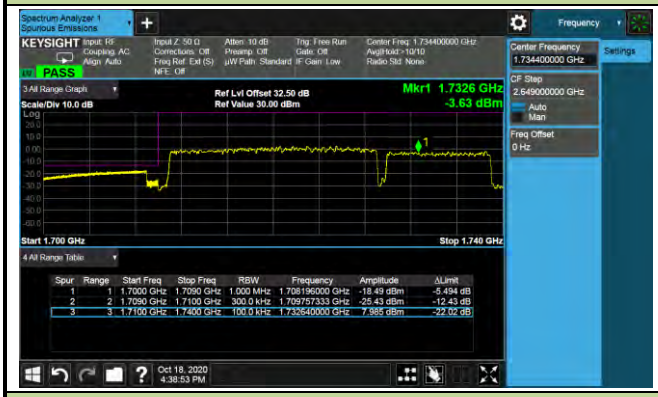
5+20MHz Channel Bandwidth Full RB	
Lower Band Edge	Upper Band Edge
	
10+15MHz Channel Bandwidth Full RB	
Lower Band Edge	Upper Band Edge
10+20MHz Channel Bandwidth Full RB	
Lower Band Edge	Upper Band Edge
	

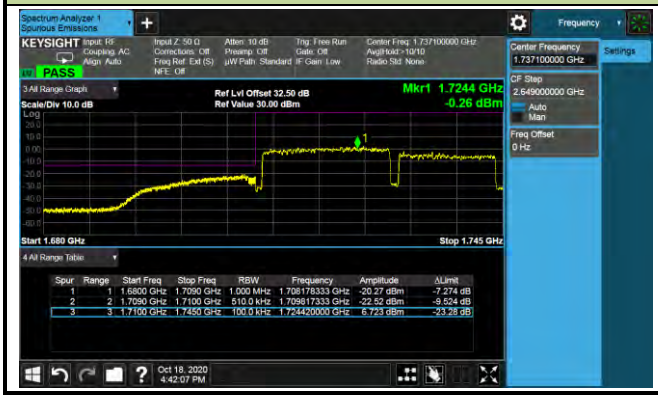
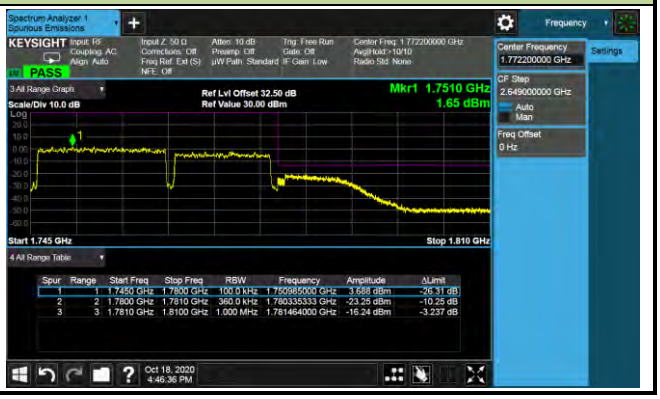
15+10MHz Channel Bandwidth Full RB	
Lower Band Edge	Upper Band Edge
	

15+15MHz Channel Bandwidth Full RB	
Lower Band Edge	Upper Band Edge
	

15+20MHz Channel Bandwidth Full RB	
Lower Band Edge	Upper Band Edge
	

20+5MHz Channel Bandwidth Full RB	
Lower Band Edge	Upper Band Edge
	

20+10MHz Channel Bandwidth Full RB	
Lower Band Edge	Upper Band Edge
	

20+15MHz Channel Bandwidth Full RB	
Lower Band Edge	Upper Band Edge
	

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

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.

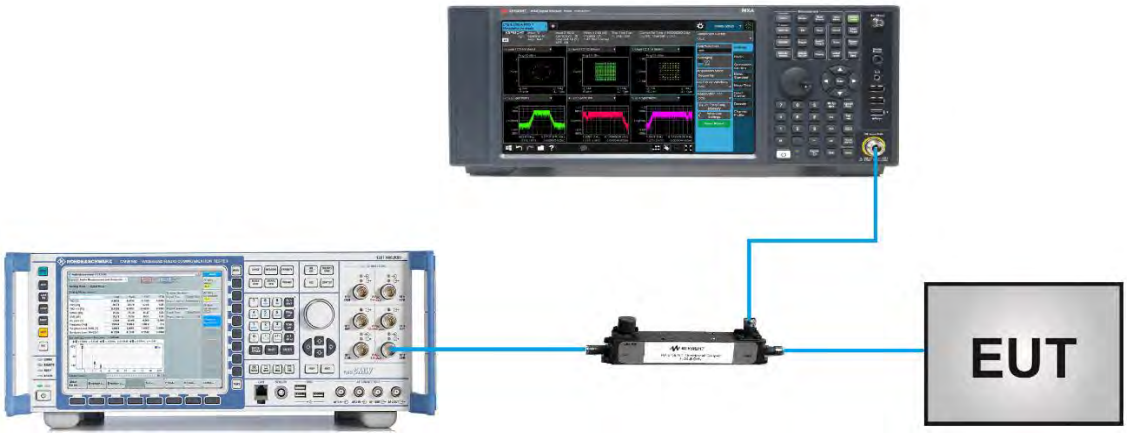
5.6.2.Test Procedure Used

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

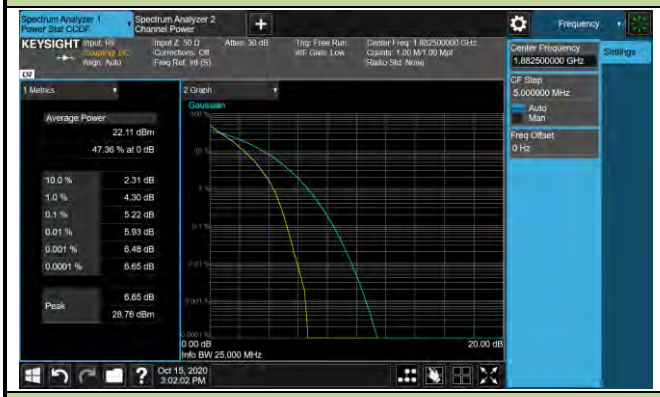


5.6.5.Test Result

Product	5G Sub-6 GHz M.2 Module	Test Site	WZ-SR6
Test Engineer	Candy Luo	Test Date	2020/10/15 ~ 2020/11/15
Test Band	Band 2/25		

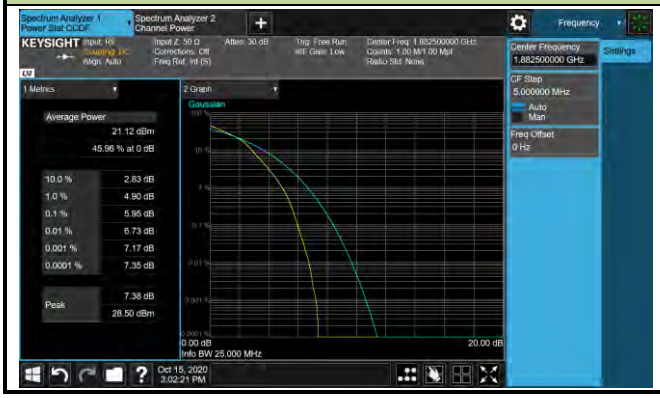
Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
QPSK					
26365	1882.5	20	5.22	≤ 13.00	Pass
16QAM					
26365	1882.5	20	5.98	≤ 13.00	Pass
64QAM					
26365	1882.5	20	5.95	≤ 13.00	Pass
256QAM					
26365	1882.5	20	6.60	≤ 13.00	Pass

QPSK



16QAM

64QAM

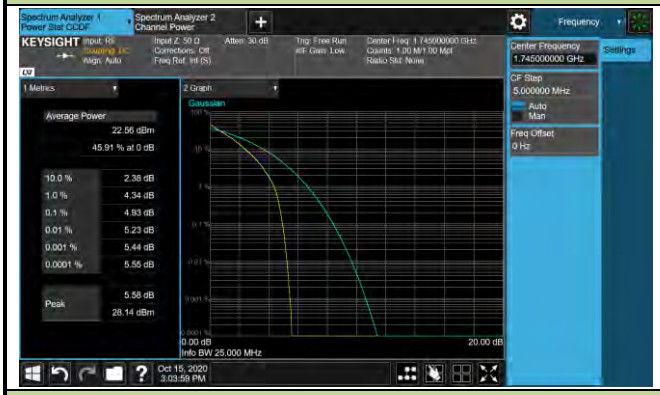


256QAM

Product	5G Sub-6 GHz M.2 Module	Test Site	WZ-SR6
Test Engineer	Candy Luo	Test Date	2020/10/15 ~ 2020/11/15
Test Band	Band 4/66		

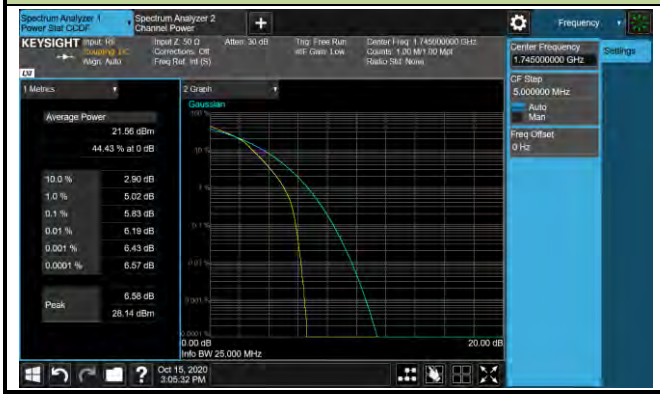
Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
QPSK					
132322	1745.0	20	4.93	≤ 13.00	Pass
16QAM					
132322	1745.0	20	5.83	≤ 13.00	Pass
64QAM					
132322	1745.0	20	5.83	≤ 13.00	Pass
256QAM					
132322	1745.0	20	6.56	≤ 13.00	Pass

QPSK



16QAM

64QAM



256QAM

Product	5G Sub-6 GHz M.2 Module	Test Site	WZ-SR6
Test Engineer	Candy Luo	Test Date	2020/10/15 ~ 2020/11/15
Test Band	Band 5/26		

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
QPSK					
20525	836.5	10	4.74	≤ 13.00	Pass
16QAM					
20525	836.5	10	5.60	≤ 13.00	Pass
64QAM					
20525	836.5	10	5.63	≤ 13.00	Pass
256QAM					
20525	836.5	10	6.39	≤ 13.00	Pass

QPSK

16QAM

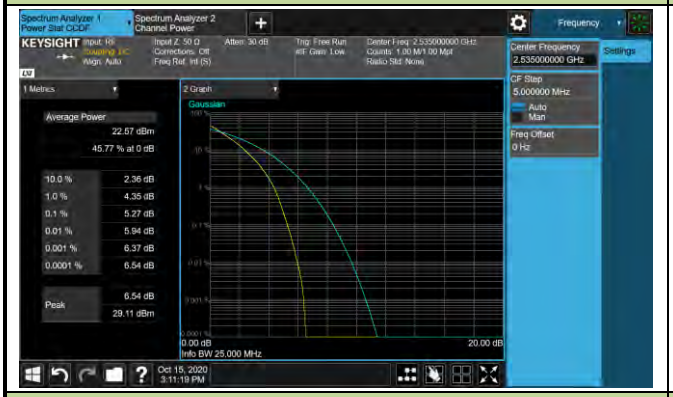
64QAM

256QAM

Product	5G Sub-6 GHz M.2 Module	Test Site	WZ-SR6
Test Engineer	Candy Luo	Test Date	2020/10/15 ~ 2020/11/15
Test Band	LTE Band 7		

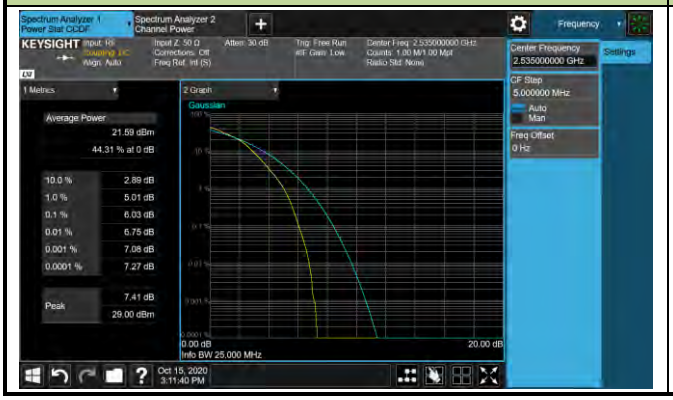
Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
QPSK					
21100	2535.0	20	5.27	≤ 13.00	Pass
16QAM					
21100	2535.0	20	6.03	≤ 13.00	Pass
64QAM					
21100	2535.0	20	6.03	≤ 13.00	Pass
256QAM					
21100	2535.0	20	6.72	≤ 13.00	Pass

QPSK



16QAM

64QAM

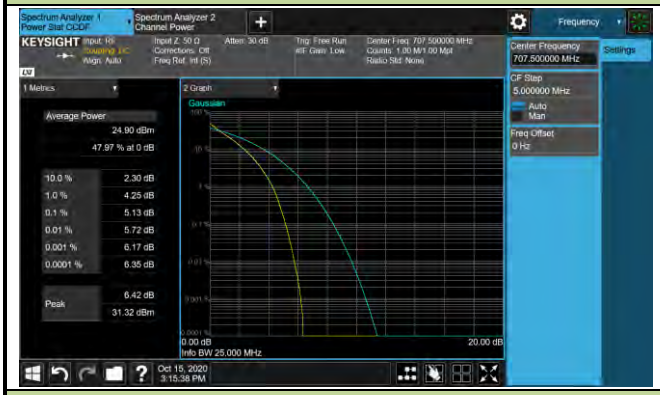


256QAM

Product	5G Sub-6 GHz M.2 Module	Test Site	WZ-SR6
Test Engineer	Candy Luo	Test Date	2020/10/15 ~ 2020/11/15
Test Band	LTE Band 12		

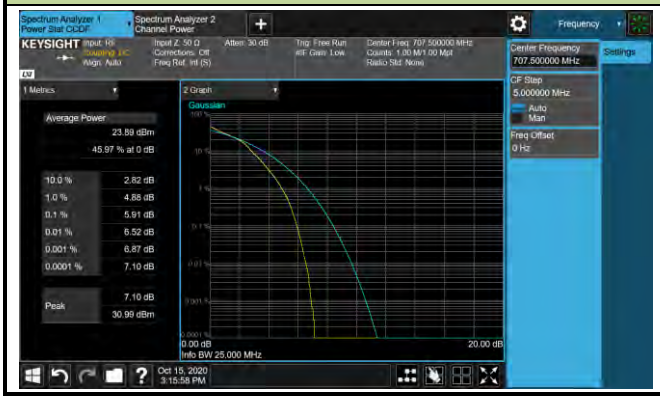
Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
QPSK					
26365	707.5	10	5.13	≤ 13.00	Pass
16QAM					
26365	707.5	10	5.87	≤ 13.00	Pass
64QAM					
26365	707.5	10	5.91	≤ 13.00	Pass
256QAM					
26365	707.5	10	6.48	≤ 13.00	Pass

QPSK



16QAM

64QAM

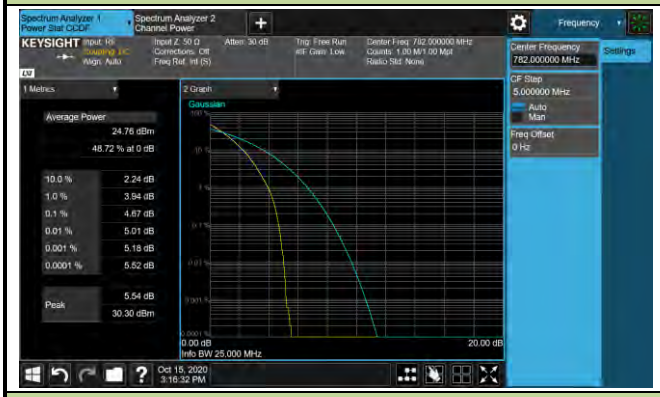


256QAM

Product	5G Sub-6 GHz M.2 Module	Test Site	WZ-SR6
Test Engineer	Candy Luo	Test Date	2020/10/15 ~ 2020/11/15
Test Band	LTE Band 13		

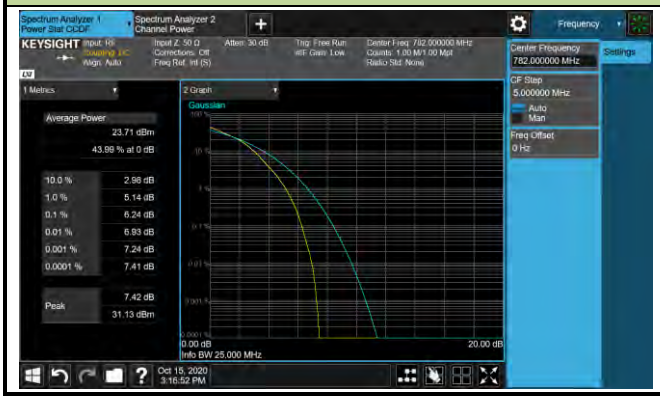
Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
QPSK					
132322	782	10	4.67	≤ 13.00	Pass
16QAM					
132322	782	10	5.87	≤ 13.00	Pass
64QAM					
132322	782	10	6.24	≤ 13.00	Pass
256QAM					
132322	782	10	6.64	≤ 13.00	Pass

QPSK



16QAM

64QAM

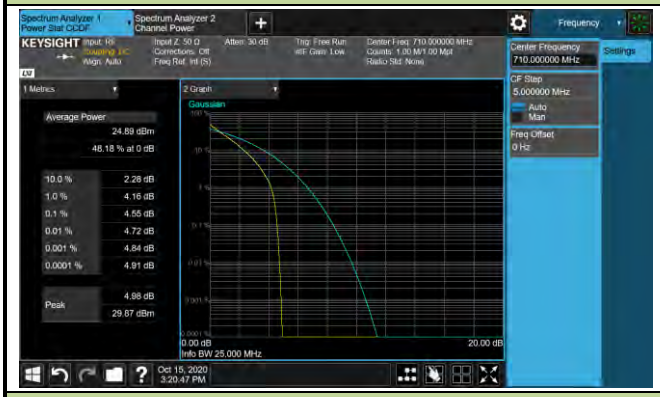


256QAM

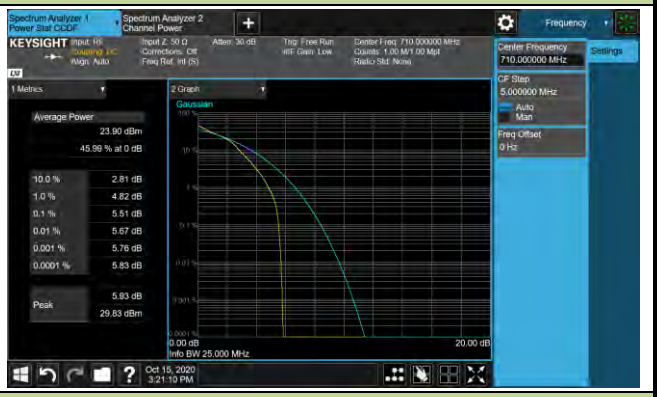
Product	5G Sub-6 GHz M.2 Module	Test Site	WZ-SR6
Test Engineer	Candy Luo	Test Date	2020/10/15 ~ 2020/11/15
Test Band	LTE Band 17		

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
QPSK					
23790	710.0	10	4.55	≤ 13.00	Pass
16QAM					
23790	710.0	10	5.51	≤ 13.00	Pass
64QAM					
23790	710.0	10	5.52	≤ 13.00	Pass
256QAM					
23790	710.0	10	6.38	≤ 13.00	Pass

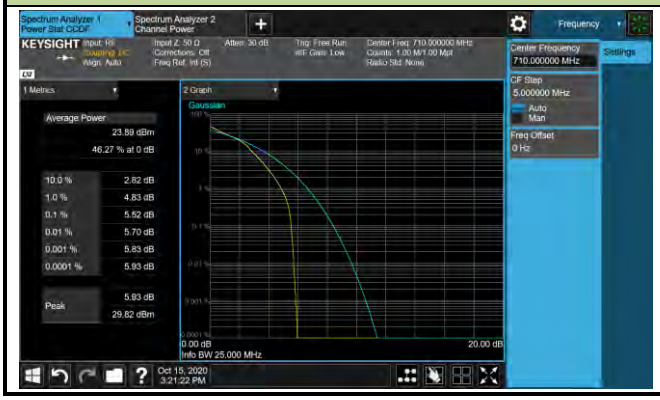
QPSK



16QAM



64QAM



256QAM

Product	5G Sub-6 GHz M.2 Module	Test Site	WZ-SR6
Test Engineer	Candy Luo	Test Date	2020/10/22 ~ 2020/11/15
Test Band	LTE Band 38/41_HPUE		

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
QPSK					
40620	2593.0	20	9.97	≤ 13.00	Pass
16QAM					
40620	2593.0	20	9.15	≤ 13.00	Pass
64QAM					
40620	2593.0	20	9.15	≤ 13.00	Pass
256QAM					
40620	2593.0	20	10.44	≤ 13.00	Pass

QPSK

16QAM

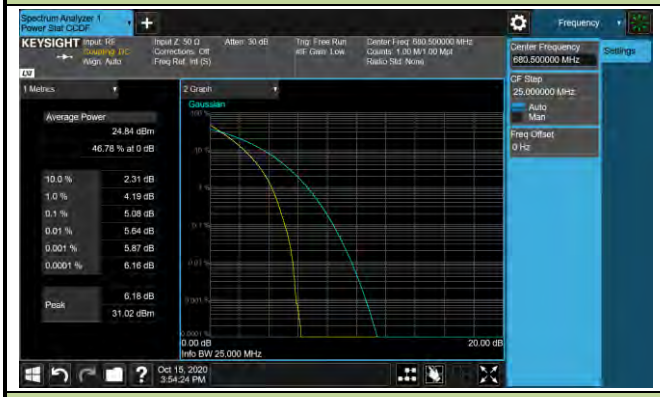
64QAM

256QAM

Product	5G Sub-6 GHz M.2 Module	Test Site	WZ-SR6
Test Engineer	Candy Luo	Test Date	2020/10/15 ~ 2020/11/15
Test Band	LTE Band 71		

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
QPSK					
133297	680.5	20	5.08	≤ 13.00	Pass
16QAM					
133297	680.5	20	5.84	≤ 13.00	Pass
64QAM					
133297	680.5	20	5.83	≤ 13.00	Pass
256QAM					
133297	680.5	20	6.58	≤ 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 Band 7, 38/41 the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 55 + 10 log(P) dB.

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

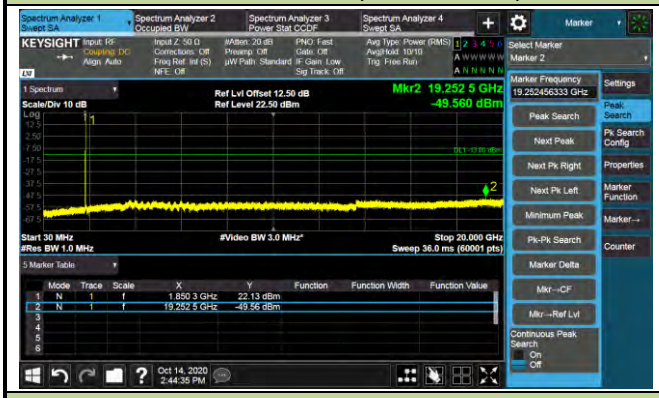
5.7.5.Test Result

Product	5G Sub-6 GHz M.2 Module	Test Site	WZ-SR6
Test Engineer	Candy Luo	Test Date	2020/10/14
Test Band	LTE Band 2/25, 1RB, QPSK		

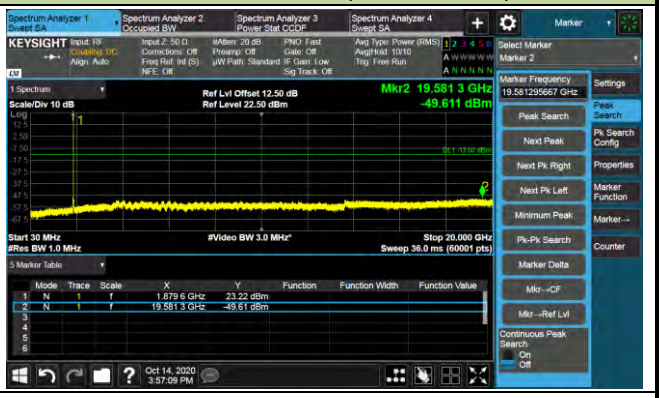
Channel	Frequency (MHz)	Channel Bandwidth (MHz)	Frequency Range (MHz)	Max Spurious Emissions (dBm)	Limit (dBm)	Result
26047	1850.7	1.4	30 ~ 20000	-49.56	≤ -13.00	Pass
26365	1882.5	1.4	30 ~ 20000	-49.61	≤ -13.00	Pass
26683	1914.3	1.4	30 ~ 20000	-49.75	≤ -13.00	Pass
26055	1851.5	3	30 ~ 20000	-50.07	≤ -13.00	Pass
26365	1882.5	3	30 ~ 20000	-49.08	≤ -13.00	Pass
26675	1913.5	3	30 ~ 20000	-49.97	≤ -13.00	Pass
26065	1852.5	5	30 ~ 20000	-50.17	≤ -13.00	Pass
26365	1882.5	5	30 ~ 20000	-50.11	≤ -13.00	Pass
26665	1912.5	5	30 ~ 20000	-49.84	≤ -13.00	Pass
16390	1855.0	10	30 ~ 20000	-50.11	≤ -13.00	Pass
26365	1882.5	10	30 ~ 20000	-48.96	≤ -13.00	Pass
26640	1910.0	10	30 ~ 20000	-50.10	≤ -13.00	Pass
26115	1857.5	15	30 ~ 20000	-50.03	≤ -13.00	Pass
26365	1882.5	15	30 ~ 20000	-49.64	≤ -13.00	Pass
26615	1907.5	15	30 ~ 20000	-49.95	≤ -13.00	Pass
26140	1860.0	20	30 ~ 20000	-50.05	≤ -13.00	Pass
26365	1882.5	20	30 ~ 20000	-49.29	≤ -13.00	Pass
26590	1905.0	20	30 ~ 20000	-50.18	≤ -13.00	Pass

1.4MHz Channel Bandwidth

Channel 26047 (1850.7MHz)



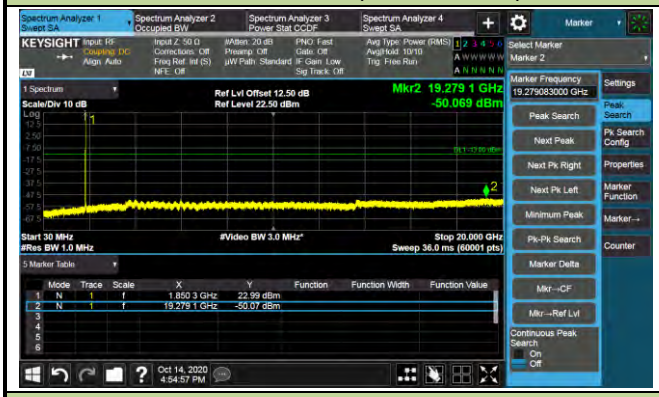
Channel 26365 (1882.5MHz)



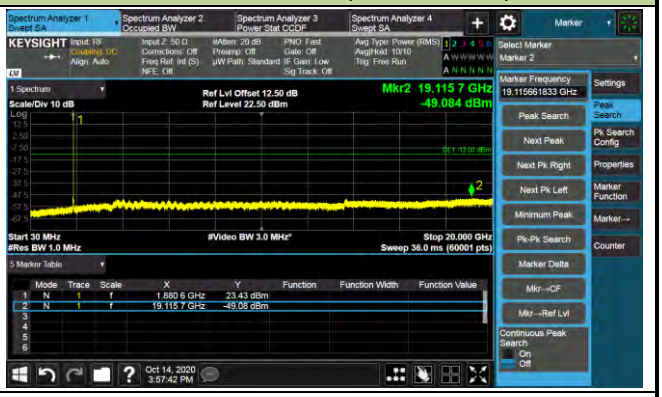
Channel 26683 (1914.3MHz)

3MHz Channel Bandwidth

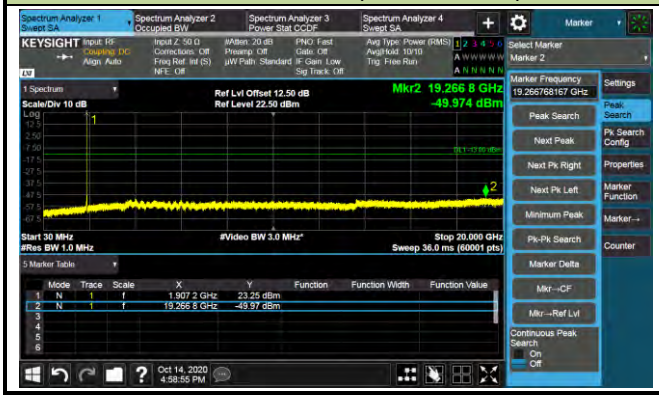
Channel 26055 (1851.5MHz)



Channel 26365 (1882.5MHz)

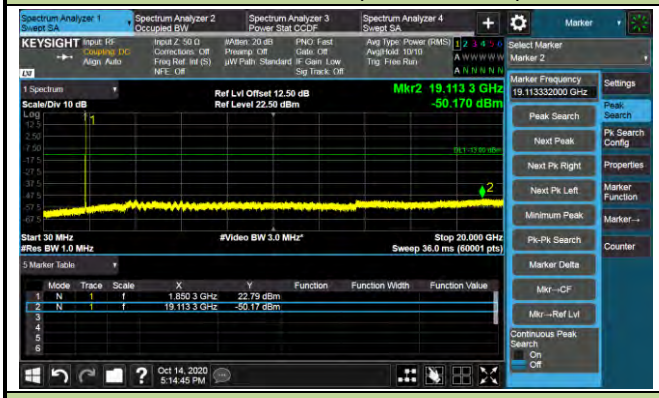


Channel 26675 (1913.5MHz)

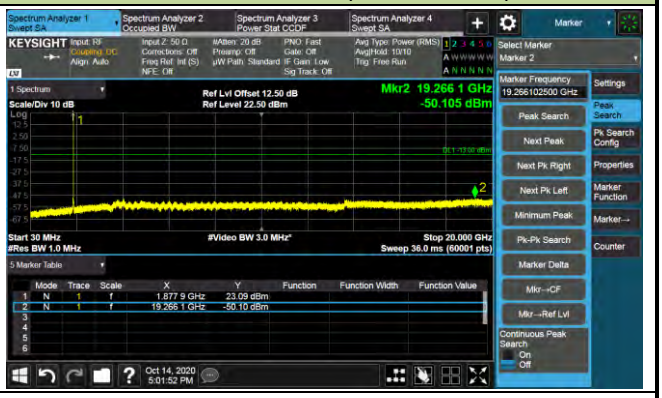


5MHz Channel Bandwidth

Channel 26065 (1852.5MHz)



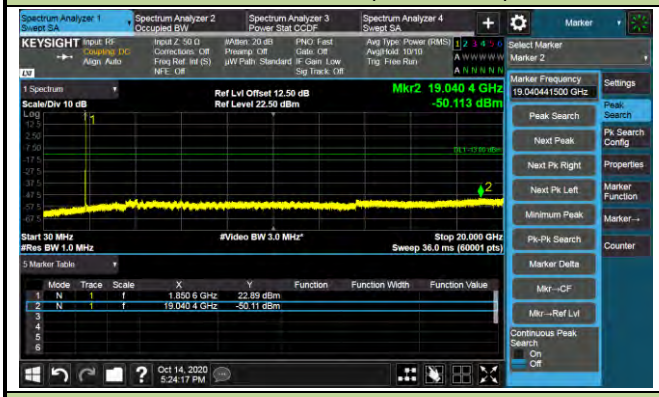
Channel 26365 (1882.5MHz)



Channel 26665 (1912.5MHz)

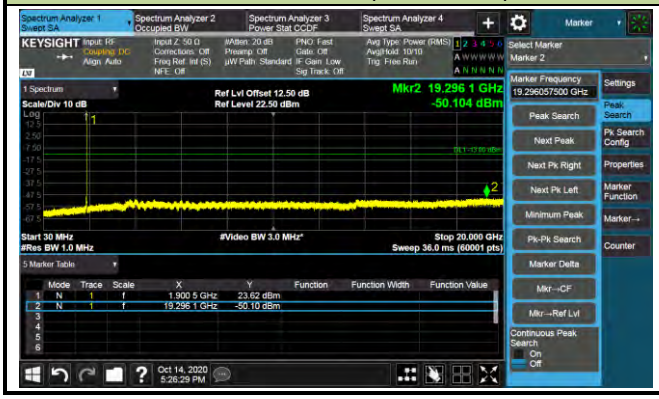
10MHz Channel Bandwidth

Channel 16390 (1855MHz)



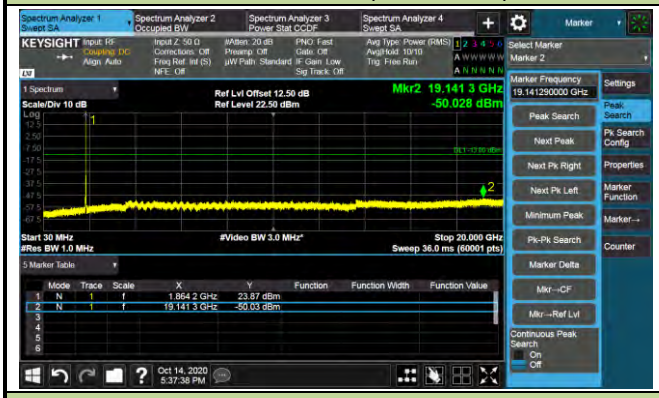
Channel 26365 (1882.5MHz)

Channel 26640 (1910MHz)

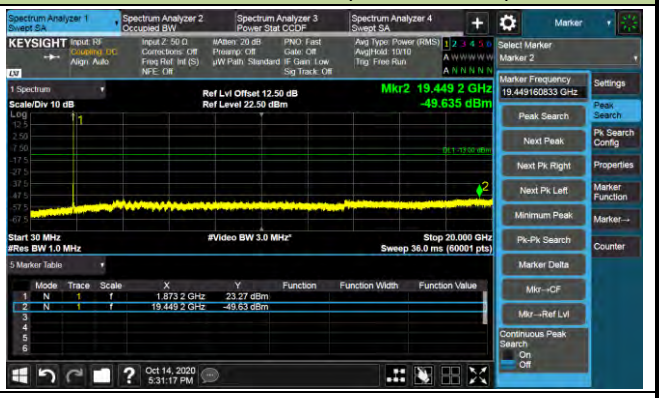


15MHz Channel Bandwidth

Channel 26115 (1857MHz)



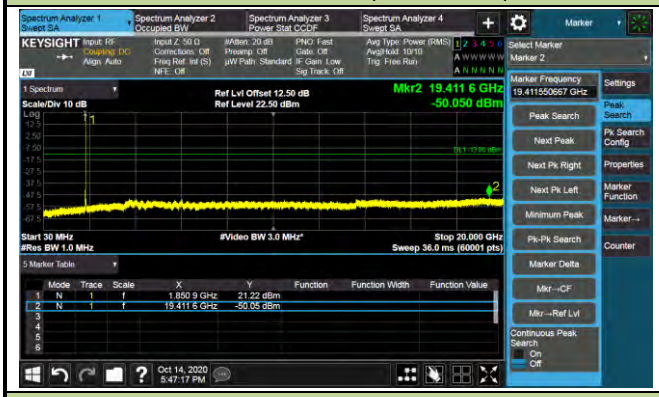
Channel 26365 (1882.5MHz)



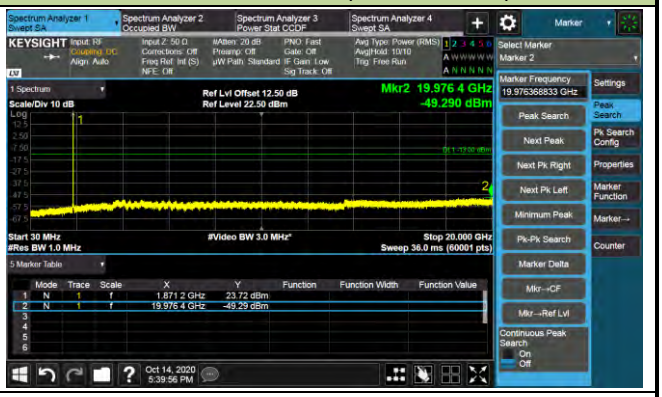
Channel 26615 (1907.5MHz)

20MHz Channel Bandwidth

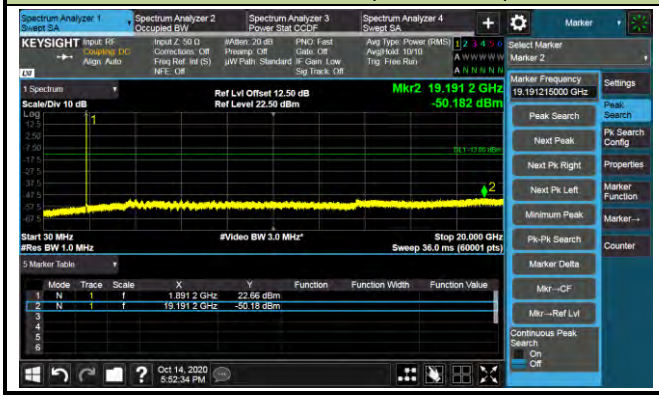
Channel 26140 (1860MHz)



Channel 26365 (1882.5MHz)



Channel 26590 (1905MHz)



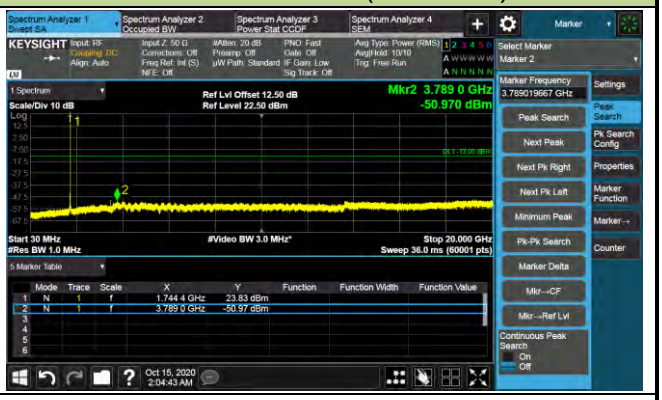
Product	5G Sub-6 GHz M.2 Module	Test Site	WZ-SR6
Test Engineer	Candy Luo	Test Date	2020/10/15
Test Band	LTE Band 4/66, 1RB, QPSK		

Channel	Frequency (MHz)	Channel Bandwidth (MHz)	Frequency Range (MHz)	Max Spurious Emissions (dBm)	Limit (dBm)	Result
131979	1710.7	1.4	30 ~ 20000	-52.09	≤ -13.00	Pass
132322	1745.0	1.4	30 ~ 20000	-50.97	≤ -13.00	Pass
132665	1779.3	1.4	30 ~ 20000	-52.46	≤ -13.00	Pass
131987	1711.5	3	30 ~ 20000	-50.32	≤ -13.00	Pass
132322	1745.0	3	30 ~ 20000	-47.08	≤ -13.00	Pass
132657	1778.5	3	30 ~ 20000	-50.00	≤ -13.00	Pass
131997	1712.5	5	30 ~ 20000	-50.28	≤ -13.00	Pass
132322	1745.0	5	30 ~ 20000	-50.11	≤ -13.00	Pass
132647	1777.5	5	30 ~ 20000	-49.81	≤ -13.00	Pass
132022	1715.0	10	30 ~ 20000	-40.19	≤ -13.00	Pass
132322	1745.0	10	30 ~ 20000	-49.57	≤ -13.00	Pass
132622	1775.0	10	30 ~ 20000	-40.35	≤ -13.00	Pass
132047	1717.5	15	30 ~ 20000	-40.87	≤ -13.00	Pass
132322	1745.0	15	30 ~ 20000	-39.73	≤ -13.00	Pass
132597	1772.5	15	30 ~ 20000	-39.86	≤ -13.00	Pass
132072	1720.0	20	30 ~ 20000	-39.76	≤ -13.00	Pass
132322	1745.0	20	30 ~ 20000	-39.74	≤ -13.00	Pass
132572	1770.0	20	30 ~ 20000	-39.76	≤ -13.00	Pass

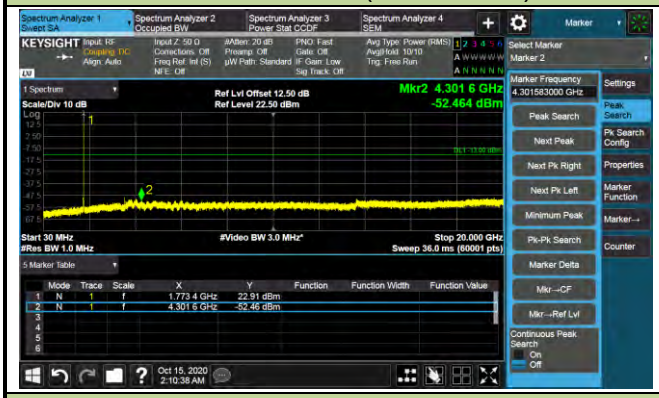
1.4MHz Channel Bandwidth

Channel 131979 (1710.7MHz)

Channel 132322 (1745MHz)

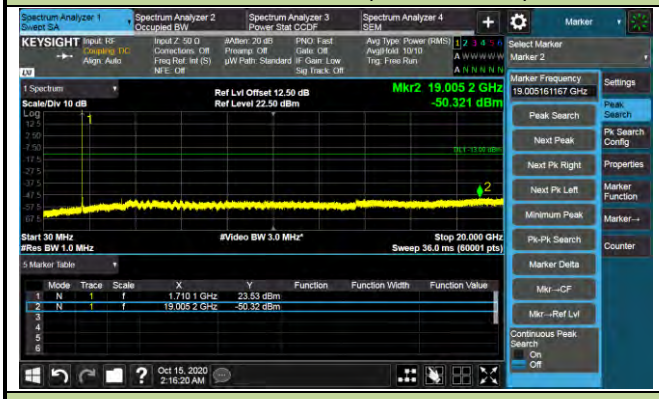


Channel 132665 (1779.3MHz)

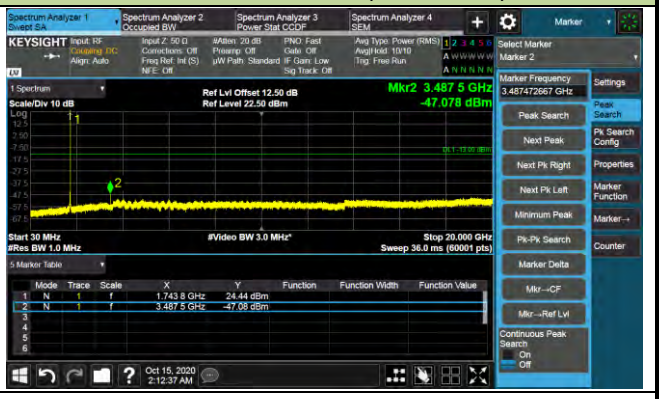


3MHz Channel Bandwidth

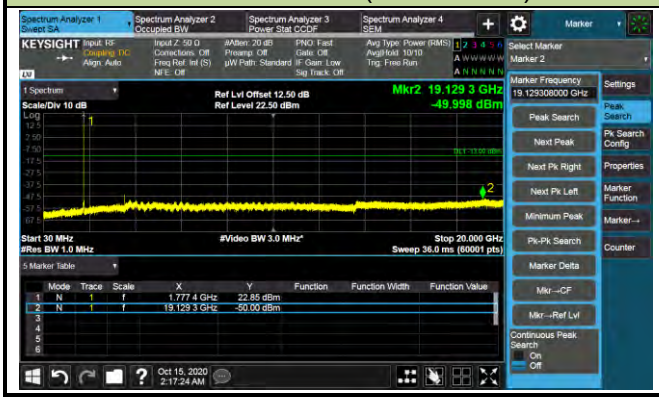
Channel 131987 (1711.5MHz)



Channel 132322 (1745MHz)



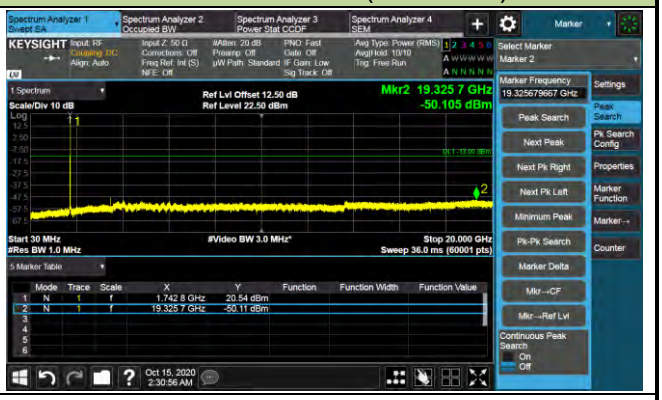
Channel 132657 (1778.5MHz)



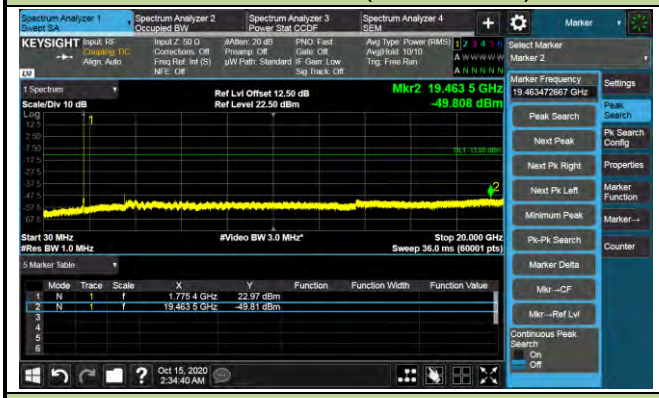
5MHz Channel Bandwidth

Channel 131997 (1712.5MHz)

Channel 132322 (1745MHz)

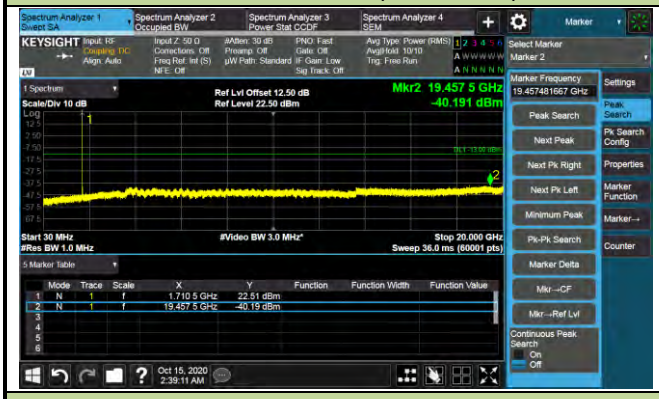


Channel 132647 (1777.5MHz)

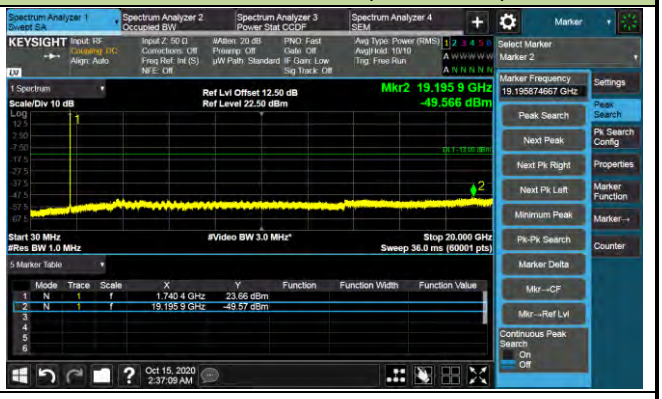


10MHz Channel Bandwidth

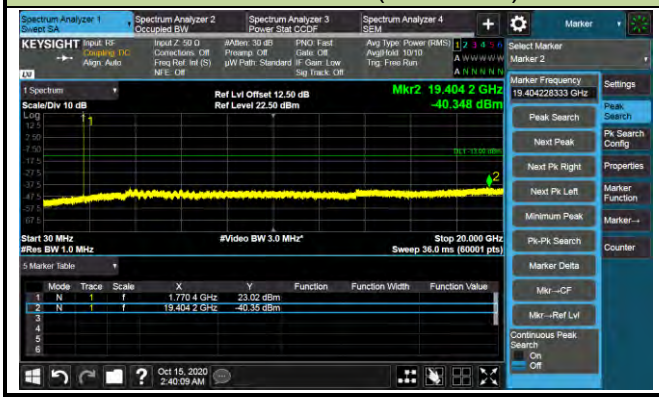
Channel 132022 (1715MHz)



Channel 132322 (1745MHz)

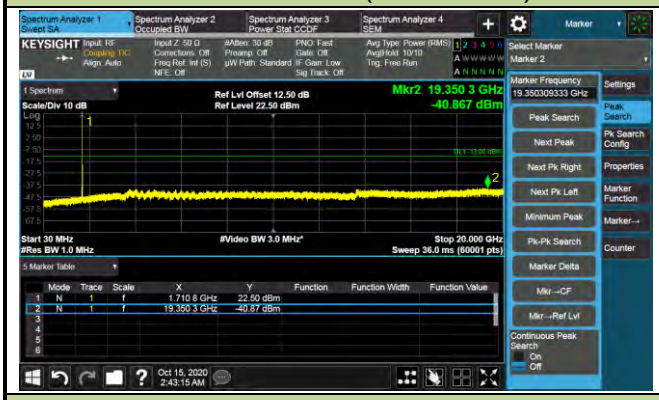


Channel 132622 (1775MHz)

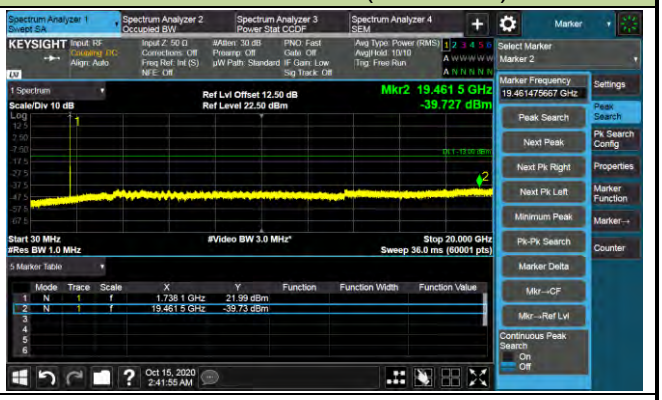


15MHz Channel Bandwidth

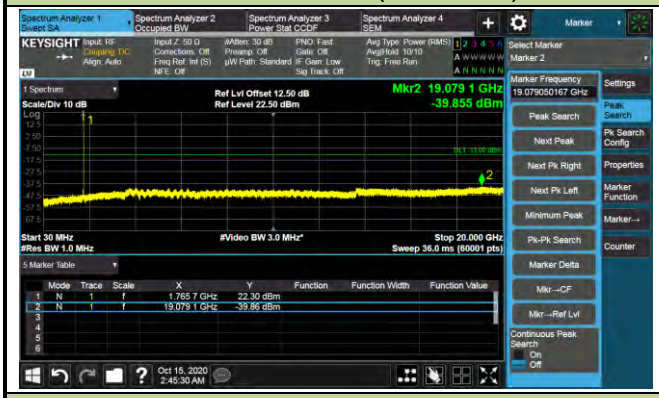
Channel 132047 (1717.5MHz)



Channel 132322 (1745MHz)

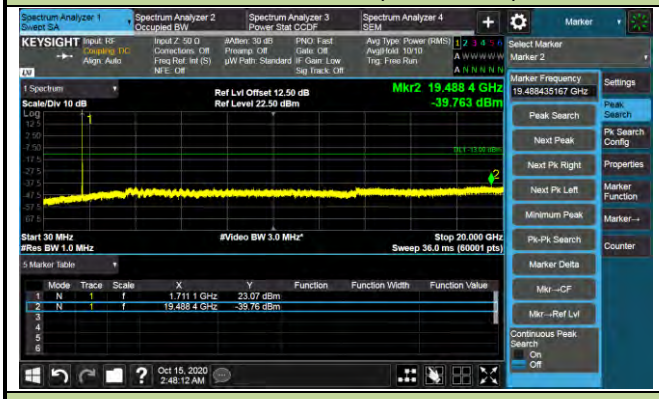


Channel 132597 (1772.5Hz)

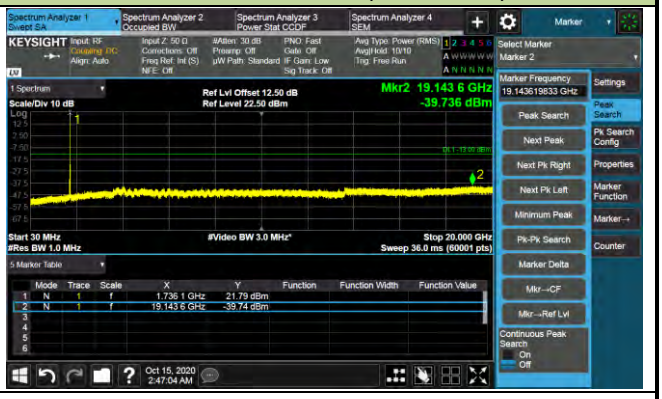


20MHz Channel Bandwidth

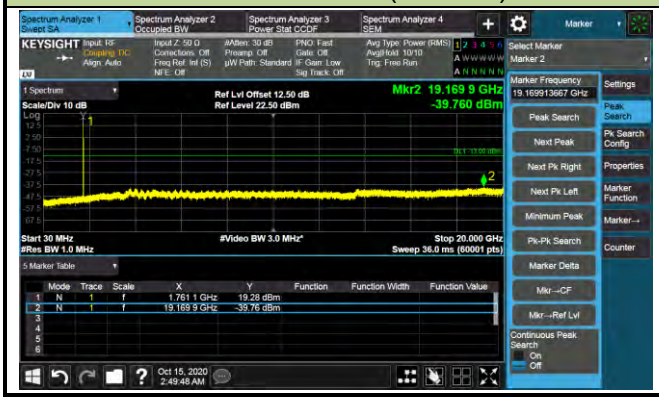
Channel 132072 (1720MHz)



Channel 132322 (1745MHz)



Channel 132572 (1770Hz)

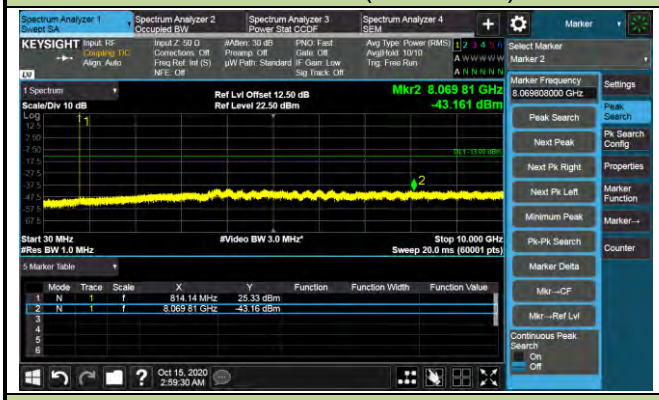


Product	5G Sub-6 GHz M.2 Module	Test Site	WZ-SR6
Test Engineer	Candy Luo	Test Date	2020/10/15
Test Band	LTE Band 5/26, 1RB, QPSK		

Channel	Frequency (MHz)	Channel Bandwidth (MHz)	Frequency Range (MHz)	Max Spurious Emissions (dBm)	Limit (dBm)	Result
26797	824.7	1.4	30 ~ 10000	-43.16	≤ -13.00	Pass
26915	836.5	1.4	30 ~ 10000	-41.64	≤ -13.00	Pass
27033	848.3	1.4	30 ~ 10000	-43.87	≤ -13.00	Pass
26805	825.5	3	30 ~ 10000	-42.18	≤ -13.00	Pass
26915	836.5	3	30 ~ 10000	-42.22	≤ -13.00	Pass
27025	847.5	3	30 ~ 10000	-42.41	≤ -13.00	Pass
26815	826.5	5	30 ~ 10000	-43.82	≤ -13.00	Pass
26915	836.5	5	30 ~ 10000	-42.06	≤ -13.00	Pass
27015	846.5	5	30 ~ 10000	-43.75	≤ -13.00	Pass
26840	829.0	10	30 ~ 10000	-42.72	≤ -13.00	Pass
26915	836.5	10	30 ~ 10000	-43.33	≤ -13.00	Pass
26990	844.0	10	30 ~ 10000	-43.20	≤ -13.00	Pass

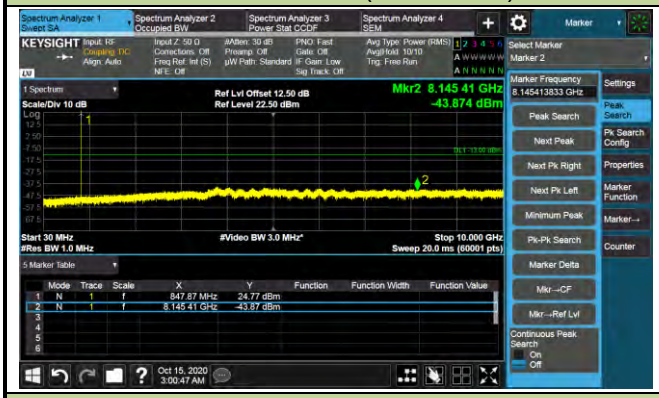
1.4MHz Channel Bandwidth

Channel 26697 (814.7MHz)



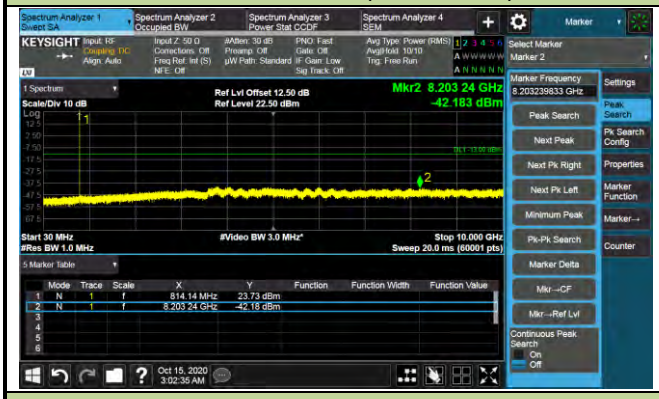
Channel 25865 (831.5MHz)

Channel 27033 (848.3MHz)

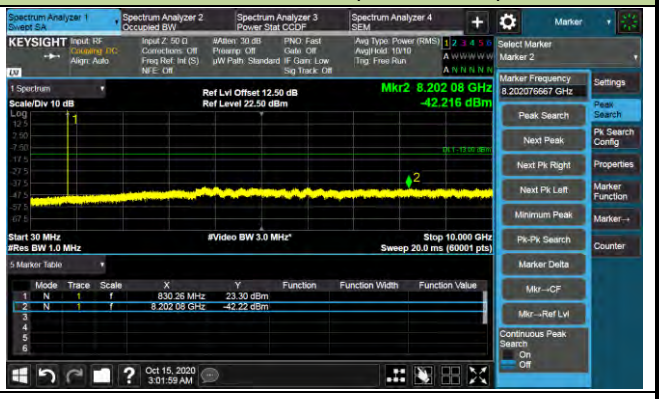


3MHz Channel Bandwidth

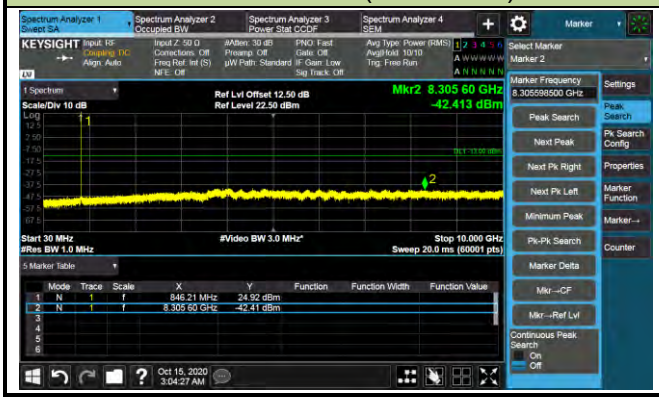
Channel 26705 (815.5MHz)



Channel 26865 (831.5MHz)

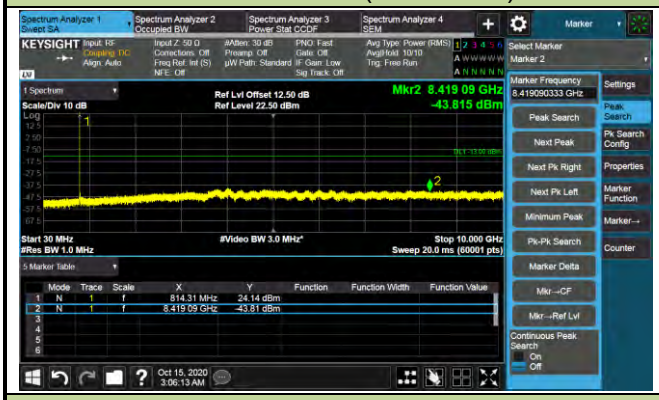


Channel 27025 (847.5MHz)

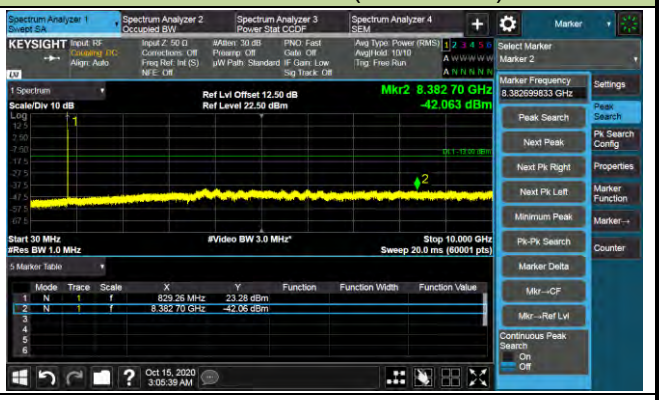


5MHz Channel Bandwidth

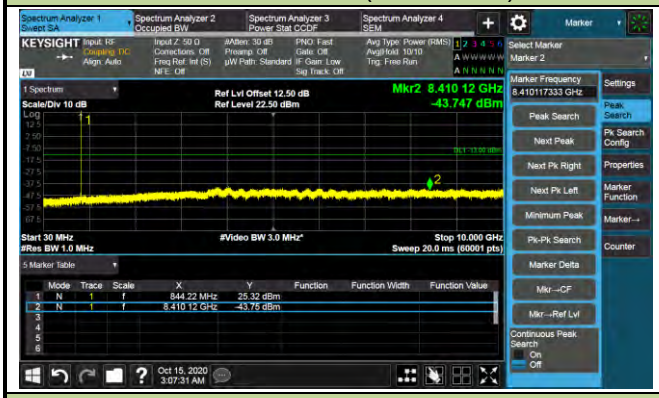
Channel 26715 (816.5MHz)



Channel 26865 (831.5MHz)

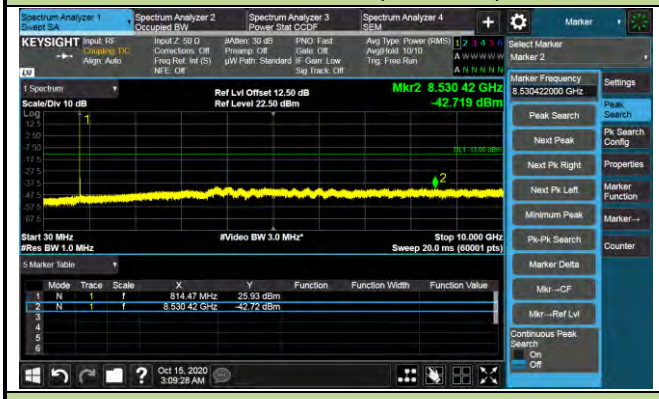


Channel 27015 (846.5MHz)

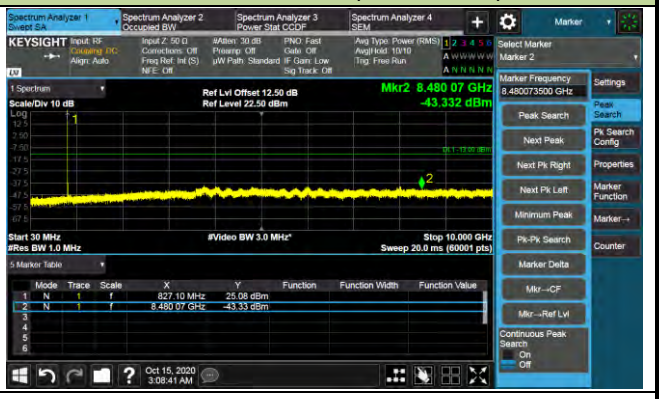


10MHz Channel Bandwidth

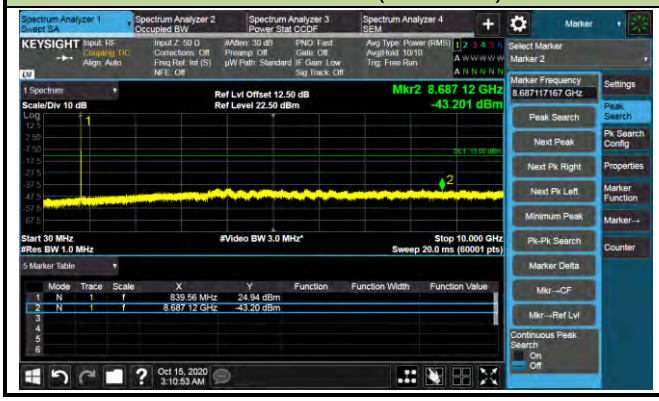
Channel 26740 (819MHz)



Channel 26865 (831.5MHz)



Channel 26990 (844MHz)



Product	5G Sub-6 GHz M.2 Module	Test Site	WZ-SR6
Test Engineer	Candy Luo	Test Date	2020/10/15
Test Band	LTE Band 7, 1RB, QPSK		

Channel	Frequency (MHz)	Channel Bandwidth (MHz)	Frequency Range (MHz)	Max Spurious Emissions (dBm)	Limit (dBm)	Result
20775	2502.5	5	30 ~ 26000	-40.45	≤ -25.00	Pass
21100	2535.0	5	30 ~ 26000	-41.51	≤ -25.00	Pass
21425	2567.5	5	30 ~ 26000	-42.04	≤ -25.00	Pass
20800	2505.0	10	30 ~ 26000	-39.86	≤ -25.00	Pass
21100	2535.0	10	30 ~ 26000	-39.66	≤ -25.00	Pass
21400	2565.0	10	30 ~ 26000	-40.06	≤ -25.00	Pass
20825	2507.5	15	30 ~ 26000	-40.53	≤ -25.00	Pass
21100	2535.0	15	30 ~ 26000	-39.82	≤ -25.00	Pass
21375	2562.5	15	30 ~ 26000	-39.38	≤ -25.00	Pass
20850	2510.0	20	30 ~ 26000	-40.64	≤ -25.00	Pass
21100	2535.0	20	30 ~ 26000	-46.23	≤ -25.00	Pass
21350	2560.0	20	30 ~ 26000	-39.69	≤ -25.00	Pass

5MHz Channel Bandwidth

Channel 20775 (2502.5MHz)/

Channel 21100 (2535MHz)

Channel 21425 (2567.5MHz)

10MHz Channel Bandwidth

Channel 20800 (2505MHz)

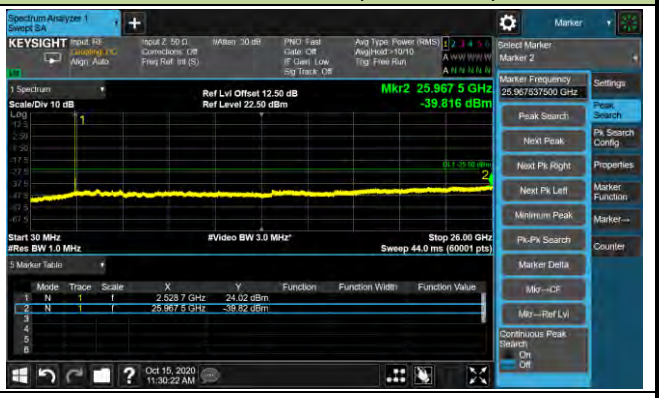
Channel 21100 (2535MHz)

Channel 21400 (2565MHz)

15MHz Channel Bandwidth

Channel 20825 (2507.5MHz)

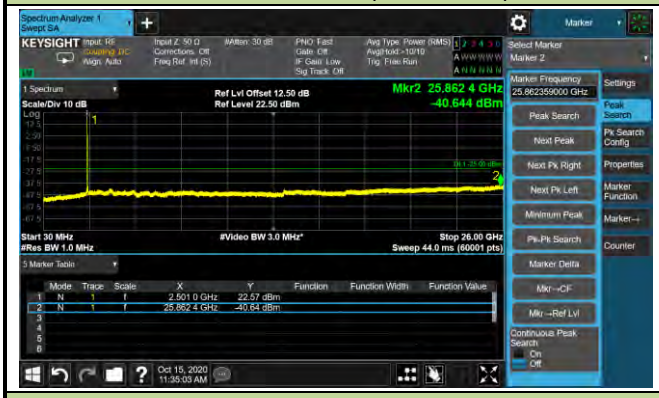
Channel 21100 (2535MHz)



Channel 21375 (2562.5MHz)

20MHz Channel Bandwidth

Channel 20850 (2510MHz)



Channel 21100 (2535MHz)

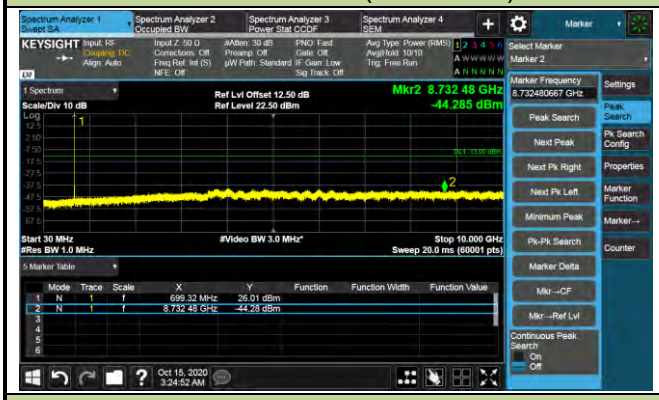
Channel 21350 (2560MHz)

Product	5G Sub-6 GHz M.2 Module	Test Site	WZ-SR6
Test Engineer	Candy Luo	Test Date	2020/10/15
Test Band	LTE Band 12, 1RB, QPSK		

Channel	Frequency (MHz)	Channel Bandwidth (MHz)	Frequency Range (MHz)	Max Spurious Emissions (dBm)	Limit (dBm)	Result
23017	699.7	1.4	30 ~ 10000	-44.29	≤ -13.00	Pass
23095	707.5	1.4	30 ~ 10000	-44.12	≤ -13.00	Pass
23173	715.3	1.4	30 ~ 10000	-43.05	≤ -13.00	Pass
23025	700.5	3	30 ~ 10000	-42.38	≤ -13.00	Pass
23095	707.5	3	30 ~ 10000	-42.78	≤ -13.00	Pass
23165	714.5	3	30 ~ 10000	-42.40	≤ -13.00	Pass
23035	701.5	5	30 ~ 10000	-42.14	≤ -13.00	Pass
23095	707.5	5	30 ~ 10000	-43.09	≤ -13.00	Pass
23155	713.5	5	30 ~ 10000	-42.27	≤ -13.00	Pass
23060	704.0	10	30 ~ 10000	-42.23	≤ -13.00	Pass
23095	707.5	10	30 ~ 10000	-43.66	≤ -13.00	Pass
23130	711.0	10	30 ~ 10000	-42.27	≤ -13.00	Pass

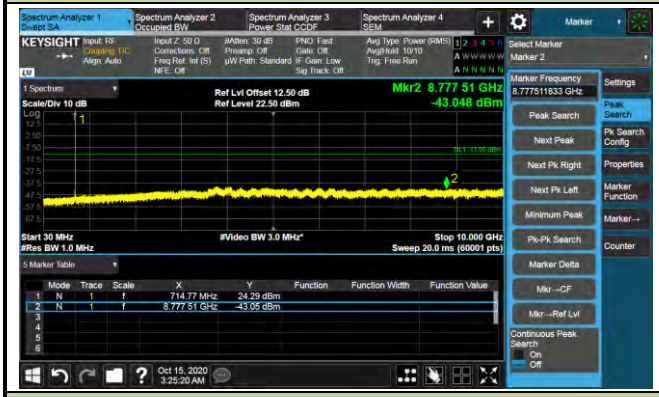
1.4MHz Channel Bandwidth

Channel 23017 (699.7MHz)



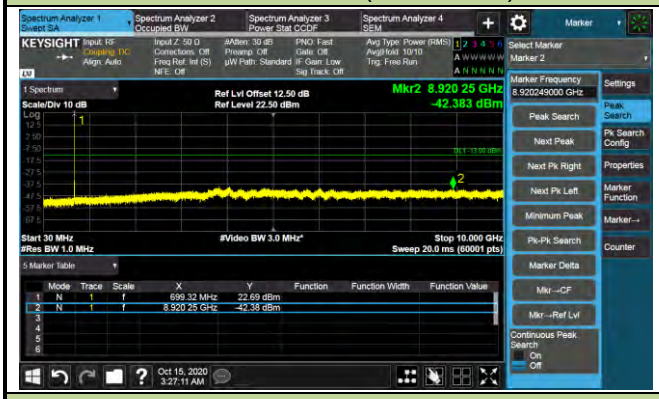
Channel 23095 (707.5MHz)

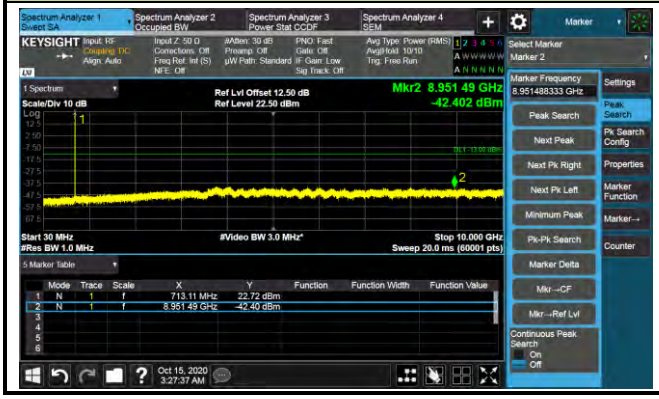
Channel 23173 (715.3MHz)



3MHz Channel Bandwidth

Channel 23025 (700.5MHz)



Channel 23095 (707.5MHz)

Channel 23165 (714.5MHz)