MEASUREMENT REPORT

FCC PART 2 & 22 & 24 & 27

FCC ID:	XMR2021RM502QGL
Application:	Quectel Wireless Solutions Company Limited
Application Type:	Certification
Product:	5G Sub-6 GHz M.2 Module
Model No.:	RM502Q-GL
Brand Name:	Quectel
FCC Rule Part(s):	Part 2, 22 (H), 24 (E), 27
Test Date:	February 05 ~ May 18, 2021

Reviewed By: Sunny Sun
(Sunny Sun)

Approved By: Robin Wu
(Robin Wu)

Revision History

Report No.	Version	Description	Issue Date	Note
2101RSU049-U6	Rev. 01	Initial Report	05-19-2021	Valid

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Description Page

1. GENERAL INFORMATION

1.1. Applicant

Quectel Wireless Solutions Company Limited
Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China 200233

1.2. Manufacturer

Quectel Wireless Solutions Company Limited
Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China 200233

1.3. Testing Facility

☒	**Test Site - MRT Suzhou Laboratory**	
	Laboratory Location (Suzhou - Wuzhong)	
	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China	
	Laboratory Location (Suzhou - SIP)	
	4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China	
	Laboratory Accreditations	
	A2LA: 3628.01	CNAS: L10551
	FCC: CN1166	ISED: CN0001
	VCCI: R-20025, G-20034, C-20020, T-20020	
☐	**Test Site - MRT Shenzhen Laboratory**	
	Laboratory Location (Shenzhen)	
	1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China	
	Laboratory Accreditations	
	A2LA: 3628.02	CNAS: L10551
	FCC: CN1284	ISED: CN0105
☐	**Test Site - MRT Taiwan Laboratory**	
	Laboratory Location (Taiwan)	
	No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)	
	Laboratory Accreditations	
	TAF: L3261-190725	
	FCC: 291082, TW3261	ISED: TW3261

1.4. Product Information

Product Name	5G Sub-6 GHz M.2 Module
Model No.	RM502Q-GL
Brand Name	Quectel
IMEI	Conducted Measurement: 355878110939501 Radiated Measurement: 865776040001173
Operating Temperature	-30 ~ 70 °C
Power Type	3.135 ~ 4.4Vdc, typical 3.7Vdc
UMTS Specification	
Single Band	Band 2, 4, 5
Modulation	Uplink up to 16QAM, Downlink up to 64QAM
E-UTRA Specification	
Single Band	Band 2, 4, 5, 7, 12, 13, 14, 17, 25, 26, 30, 38, 41, 48, 66, 71
Intra-Band	CA_2C, CA_5B, CA_7C, CA_38C, CA_41C, CA_48C, CA_66C
HPUE Band	Band 41
Modulation	UL & DL up to 256QAM
5G NR Specification	
SA Band	n2, n7, n5, n12, n25, n41, n66, n71, n77
SA UL MIMO Band	n41, n77
EN-DC Band	DC_25A_n41A, DC_26A_n41A, DC_2A_n41A, DC_66A_n41A DC_4A_n41A, DC_2A_n77A, DC_7A_n77A, DC_12A_n77A, DC_41A_n77A, DC_66A_n77A
HPUE Band	n41, n77 (SA & UL MIMO)
SCS for NR cell	FDD Band: 15kHz; TDD Band: 30kHz
Modulation	UL & DL up to 256QAM

1.5. Radio Specification under Test

FDD T_X Frequency Range:	n2: 1850 ~ 1910 MHz; n5: 824 ~ 849 MHz n7: 2500 ~ 2570 MHz; n12: 699 ~ 716 MHz n25: 1850 ~ 1915 MHz; n66: 1710 ~ 1780 MHz n71: 663 ~ 698MHz
FDD R_X Frequency Range:	n2: 1930 ~ 1990 MHz; n5: 869 ~ 894 MHz n7: 2620 ~ 2690 MHz; n12: 729 ~ 746 MHz n25: 1930 ~ 1995 MHz; n66: 2110 ~ 2200 MHz n71: 617 ~ 652 MHz
TDD Frequency Range:	n41: 2496 ~ 2690 MHz; n77: 3700 ~ 3980MHz
Support Bandwidth:	n2, n5, n7, n25, n71: 5, 10, 15, 20MHz n12: 5, 10, 15MHz n66: 5, 10, 15, 20, 30, 40MHz n41: 20, 30, 40, 50, 60, 80, 90, 100MHz n77: 20, 40, 50, 60, 80, 90,100MHz

Note 1: For other features of this EUT, test report will be issued separately.

Note 2: The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

1.6. Description of Available Antennas

Technology	Frequency Range (MHz)	Antenna Type	Max Peak Gain (dBi)
n2	1850 ~ 1910	Dipole	0.25
n5	824 ~ 849		2.68
n7	2500 ~ 2570		0.78
n12	699 ~ 716		-0.20
n25	1850 ~ 1915		0.25
n41	2496 ~ 2690		0.78
n66	1710 ~ 1780		1.47
n71	663 ~ 698		1.22
n77	3700 ~ 3980		-4.11

Note: All antenna information (Antenna type and Peak Gain) is provided by the manufacturer.

1.7. Test Methodology

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ANSI C63.26:2015
- FCC CFR 47 Part 2, Part 22, Part 24, Part 27
- FCC KDB 971168 D01 v03r01: Power Meas License Digital Systems
- FCC KDB 971168 D02 v02r01: Misc Rev Approv License Devices
- FCC KDB 662911 D01 v02r01: Multiple Transmitter Output

1.8. Device Capabilities

This device contains 5G NR SA & EN-DC the following capabilities:
Working on NR Band n2, n5, n7, n12, n25, n41, n66, n71, n77.

n25 (1850 ~ 1915 MHz) overlaps the entire frequency range of n2 (1850 ~ 1910 MHz). Therefore, test data provided in this report covers n2 as well as n25.

PI/2 BPSK modulation applied for 5G NR band frequencies and has the same tune up power as QPSK modulations.

The DFT-s-OFDM and CP-OFDM waveforms were investigated, and DFT-s-OFDM was found to be the worst case.

UL MIMO mode only support CP-OFDM.

The worst-case scenario for all measurements is based on an engineering evaluation and QPSK was observed as the worst one and set for all conducted and radiated. Output power measurements were measured on PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM, and BPSK modulations.

For EN-DC mode, 5G NR FR1 bands are tested in this report (Ouput Power, Conducted Band Edge, Radiated Spurious Emissions), all the other RF bands are tested in the other reports separately.

1.9. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

1.10. Maximum Power, Frequency Tolerance, and Emission Designator

n2_SA		PI/2 BPSK			QPSK		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
5	1852.5 ~ 1907.5	4M50F9W	--	0.2193	4M47G7D	--	0.2234
10	1855.0 ~ 1905.0	8M96F9W	--	0.2178	8M97G7D	--	0.2188
15	1857.5 ~ 1902.5	13M5F9W	--	0.2228	13M5G7D	--	0.2228
20	1860.0 ~ 1900.0	18M0F9W	--	0.2239	18M0G7D	0.6170	0.2275
n2_SA		16QAM			64QAM		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
5	1852.5 ~ 1907.5	4M48W7D	--	0.1770	4M49W7D	--	0.1334
10	1855.0 ~ 1905.0	8M97W7D	--	0.1754	8M97W7D	--	0.1306
15	1857.5 ~ 1902.5	13M5W7D	--	0.1742	13M5W7D	--	0.1285
20	1860.0 ~ 1900.0	18M0W7D	--	0.1832	18M0W7D	--	0.1318
n2_SA		256QAM					
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)			
5	1852.5 ~ 1907.5	4M48W7D	--	0.0776			
10	1855.0 ~ 1905.0	8M95W7D	--	0.0752			
15	1857.5 ~ 1902.5	13M5W7D	--	0.0778			
20	1860.0 ~ 1900.0	18M0W7D	--	0.0794			
n7_SA		PI/2 BPSK			QPSK		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
5	2502.5 ~ 2567.5	4M29F9W	--	0.2113	4M34G7D	--	0.2123
10	2505.0 ~ 2565.0	8M91F9W	--	0.2143	9M01G7D	--	0.2128
15	2507.5 ~ 2562.5	13M5F9W	--	0.2128	13M5G7D	--	0.2080
20	2510.0 ~ 2560.0	18M1F9W	--	0.2080	18M1G7D	0.200	0.2099
n7_SA		16QAM			64QAM		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
5	2502.5 ~ 2567.5	4M28W7D	--	0.2158	4M24W7D	--	0.1567
10	2505.0 ~ 2565.0	8M95W7D	--	0.2173	8M97W7D	--	0.1585
15	2507.5 ~ 2562.5	13M6W7D	--	0.2075	13M6W7D	--	0.1560
20	2510.0 ~ 2560.0	18M0W7D	--	0.2118	18M0W7D	--	0.1567

N7_SA		256QAM					
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)			
5	2502.5 ~ 2567.5	4M24W7D	--	0.0942			
10	2505.0 ~ 2565.0	8M94W7D	--	0.0938			
15	2507.5 ~ 2562.5	13M6W7D	--	0.0927			
20	2510.0 ~ 2560.0	18M0W7D	--	0.0925			
n25_SA		PI/2 BPSK			QPSK		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
5	1852.5 ~ 1912.5	4M50F9W	--	0.2193	4M47G7D	--	0.2234
10	1855.0 ~ 1910.0	8M96F9W	--	0.2178	8M97G7D	--	0.2188
15	1857.5 ~ 1907.5	13M5F9W	--	0.2228	13M5G7D	--	0.2228
20	1860.0 ~ 1905.0	18M0F9W	--	0.2239	18M0G7D	0.6170	0.2275
n25_SA		16QAM			64QAM		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
5	1852.5 ~ 1912.5	4M48W7D	--	0.1770	4M49W7D	--	0.1334
10	1855.0 ~ 1910.0	8M97W7D	--	0.1754	8M97W7D	--	0.1306
15	1857.5 ~ 1907.5	13M5W7D	--	0.1742	13M5W7D	--	0.1285
20	1860.0 ~ 1905.0	18M0W7D	--	0.1832	18M0W7D	--	0.1318
n25_SA		256QAM					
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)			
5	1852.5 ~ 1912.5	4M48W7D	--	0.0776			
10	1855.0 ~ 1910.0	8M95W7D	--	0.0752			
15	1857.5 ~ 1907.5	13M5W7D	--	0.0778			
20	1860.0 ~ 1905.0	18M0W7D	--	0.0794			
n41_SA		PI/2 BPSK			QPSK		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
20	2506.0 ~ 2680.0	17M8F9W	--	0.4797	17M8G7D	--	0.4732
30	2511.0 ~ 2675.0	26M8F9W	--	0.4943	26M8G7D	--	0.5012
40	2516.0 ~ 2670.0	35M7F9W	--	0.4920	35M7G7D	--	0.5000
50	2521.0 ~ 2665.0	45M6F9W	--	0.4140	45M8G7D	--	0.4742
60	2526.0 ~ 2660.0	57M7F9W	--	0.4742	57M7G7D	--	0.4742
80	2536.0 ~ 2650.0	76M9F9W	--	0.4808	76M8G7D	--	0.4875
90	2541.0 ~ 2645.0	86M6F9W		0.3802	86M5G7D		0.3707
100	2546.0 ~ 2640.0	96M2F9W	--	0.4920	96M2G7D	0.1720	0.4786

n41_SA		16QAM			64QAM		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
20	2506.0 ~ 2680.0	17M9W7D	--	0.3811	17M9W7D	--	0.2735
30	2511.0 ~ 2675.0	26M8W7D	--	0.3981	26M8W7D	--	0.2951
40	2516.0 ~ 2670.0	35M7W7D	--	0.4027	35M6W7D	--	0.2979
50	2521.0 ~ 2665.0	45M7W7D	--	0.3793	45M6W7D	--	0.2773
60	2526.0 ~ 2660.0	57M6W7D	--	0.3776	57M7W7D	--	0.2729
80	2536.0 ~ 2650.0	76M9W7D	--	0.3811	76M8W7D	--	0.2818
90	2541.0 ~ 2645.0	86M6W7D		0.2944	86M6W7D		0.2228
100	2546.0 ~ 2640.0	96M2W7D	--	0.3855	95M9W7D	--	0.2742

n41_SA		256QAM		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)
20	2506.0 ~ 2680.0	17M9W7D	--	0.1690
30	2511.0 ~ 2675.0	26M8W7D	--	0.1858
40	2516.0 ~ 2670.0	35M8W7D	--	0.1866
50	2521.0 ~ 2665.0	45M6W7D	--	0.1660
60	2526.0 ~ 2660.0	57M7W7D	--	0.1679
80	2536.0 ~ 2650.0	76M8W7D	--	0.1734
90	2541.0 ~ 2645.0	86M5W7D		0.2133
100	2546.0 ~ 2640.0	95M9W7D	--	0.1690

n5_SA		PI/2 BPSK			QPSK		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
5	826.6 ~ 846.5	4M47F9W	--	0.2371	4M49G7D	--	0.2382
10	829.0 ~ 844.0	8M97F9W	--	0.2339	8M97G7D	--	0.2328
15	831.5 ~ 841.5	13M5F9W	--	0.2355	13M5G7D	--	0.2432
20	834.0 ~ 839.0	18M0F9W	--	0.2360	18M0G7D	0.4410	0.2399
n5_SA		16QAM			64QAM		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
5	826.6 ~ 846.5	4M48W7D	--	0.1919	4M49W7D	--	0.1409
10	829.0 ~ 844.0	8M97W7D	--	0.1871	8M97W7D	--	0.1384
15	831.5 ~ 841.5	13M5W7D	--	0.1910	13M5W7D	--	0.1384
20	834.0 ~ 839.0	17M9W7D	--	0.1986	17M9W7D	--	0.1377
n5_SA		256QAM					
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)			
5	826.6 ~ 846.5	4M48W7D	--	0.0815			
10	829.0 ~ 844.0	8M95W7D	--	0.0811			
15	831.5 ~ 841.5	13M5W7D	--	0.0832			
20	834.0 ~ 839.0	18M0W7D	--	0.0836			
n12_SA		PI/2 BPSK			QPSK		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
5	701.5 ~ 713.5	4M50F9W	--	0.2559	4M48G7D	--	0.2594
10	704.0 ~ 711.0	8M98F9W	--	0.2553	8M96G7D	--	0.2576
15	706.5 ~ 709.5	13M5F9W	--	0.2655	13M5G7D	-0.1240	0.2630
n12_SA		16QAM			64QAM		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
5	701.5 ~ 713.5	4M47W7D	--	0.2070	4M48W7D	--	0.1496
10	704.0 ~ 711.0	8M97W7D	--	0.2118	8M98W7D	--	0.1531
15	706.5 ~ 709.5	13M5W7D	--	0.2143	13M5W7D	--	0.1570
n12_SA		256QAM					
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)			
5	701.5 ~ 713.5	4M48W7D	--	0.0908			
10	704.0 ~ 711.0	8M96W7D	--	0.1528			
15	706.5 ~ 709.5	13M5W7D	--	0.0920			

n66_SA		PI/2 BPSK			QPSK		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
5	1712.5 ~ 1777.5	4M45F9W	--	0.2366	4M45G7D	--	0.2143
10	1715.0 ~ 1775.0	9M22F9W	--	0.2254	9M18G7D	--	0.2259
15	1717.5 ~ 1772.5	14M0F9W	--	0.2275	14M0G7D	--	0.2339
20	1720.0 ~ 1770.0	18M7F9W	--	0.2307	18M7G7D	--	0.2350
30	1725.0 ~ 1765.0	28M8F9W	--	0.2716	28M8G7D	--	0.2761
40	1730.0 ~ 1760.0	37M6F9W	--	0.2723	38M0G7D	0.3220	0.2735
n66_SA		16QAM			64QAM		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
5	1712.5 ~ 1777.5	4M47W7D	--	0.1675	4M45W7D	--	0.1337
10	1715.0 ~ 1775.0	9M21W7D	--	0.1803	9M15W7D	--	0.1349
15	1717.5 ~ 1772.5	14M0W7D	--	0.1858	14M0W7D	--	0.1306
20	1720.0 ~ 1770.0	18M6W7D	--	0.1841	18M6W7D	--	0.1340
30	1725.0 ~ 1765.0	28M8W7D	--	0.2234	28M7W7D	--	0.1556
40	1730.0 ~ 1760.0	38M7W7D	--	0.2173	38M3W7D	--	0.1574
n66_SA		256QAM					
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)			
5	1712.5 ~ 1777.5	4M45W7D	--	0.0841			
10	1715.0 ~ 1775.0	9M23W7D	--	0.0782			
15	1717.5 ~ 1772.5	13M9W7D	--	0.0813			
20	1720.0 ~ 1770.0	18M7W7D	--	0.0815			
30	1725.0 ~ 1765.0	28M8W7D	--	0.1589			
40	1730.0 ~ 1760.0	38M2W7D	--	0.1556			

n71_SA		PI/2 BPSK			QPSK		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
5	619.5 ~ 649.5	4M45F9W	--	0.2729	4M44G7D	--	0.2729
10	622.0 ~ 647.0	9M21F9W	--	0.2685	9M17G7D	--	0.2723
15	624.5 ~ 644.5	14M0F9W	--	0.2786	13M9G7D	--	0.2673
20	627.0 ~ 642.0	18M6F9W	--	0.2748	18M5G7D	-0.3120	0.2799
n71_SA		16QAM			64QAM		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
5	619.5 ~ 649.5	4M47W7D	--	0.2218	4M45W7D	--	0.1542
10	622.0 ~ 647.0	9M21W7D	--	0.2183	9M18W7D	--	0.1600
15	624.5 ~ 644.5	14M0W7D	--	0.2138	14M0W7D	--	0.1596
20	627.0 ~ 642.0	18M5W7D	--	0.2270	18M5W7D	--	0.1585
n71_SA		256QAM					
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)			
5	619.5 ~ 649.5	4M45W7D	--	0.0993			
10	622.0 ~ 647.0	9M23W7D	--	0.0964			
15	624.5 ~ 644.5	13M9W7D	--	0.0989			
20	627.0 ~ 642.0	18M5W7D	--	0.0993			

n77_SA		PI/2 BPSK			QPSK		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
20	3710.0 ~ 3970.0	18M0F9W	--	0.4819	18M6G7D	--	0.4764
40	3720.0 ~ 3960.0	35M7F9W	--	0.5188	35M6G7D	--	0.5236
50	3725.0 ~ 3955.0	45M6F9W	--	0.5260	45M7G7D	--	0.5224
60	3730.0 ~ 3950.0	57M8F9W	--	0.3990	57M8G7D	--	0.3981
80	3740.0 ~ 3940.0	76M9F9W	--	0.4064	76M9G7D	--	0.4140
90	3745.0 ~ 3935.0	86M7F9W	--	0.4246	86M7G7D	--	0.4188
100	3750.0 ~ 3930.0	96M1F9W	--	0.5728	96M2G7D	0.3180	0.5821
n77_SA		16QAM			64QAM		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
20	3710.0 ~ 3970.0	17M8W7D	--	0.3793	17M9W7D	--	0.3532
40	3720.0 ~ 3960.0	35M7W7D	--	0.4169	35M7W7D	--	0.3597
50	3725.0 ~ 3955.0	45M7W7D	--	0.4121	45M8W7D	--	0.3170
60	3730.0 ~ 3950.0	57M7W7D	--	0.3105	57M8W7D	--	0.2312
80	3740.0 ~ 3940.0	76M9W7D	--	0.3273	77M0W7D	--	0.2455
90	3745.0 ~ 3935.0	86M8W7D	--	0.3258	86M8W7D	--	0.2512
100	3750.0 ~ 3930.0	96M2W7D	--	0.4550	96M2W7D	--	0.3396
n77_SA		256QAM					
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)			
20	3710.0 ~ 3970.0	17M8W7D	--	0.2123			
40	3720.0 ~ 3960.0	35M8W7D	--	0.2218			
50	3725.0 ~ 3955.0	45M6W7D	--	0.2075			
60	3730.0 ~ 3950.0	57M7W7D	--	0.1435			
80	3740.0 ~ 3940.0	76M9W7D	--	0.1429			
90	3745.0 ~ 3935.0	86M6W7D	--	0.1419			
100	3750.0 ~ 3930.0	96M1W7D	--	0.2070			

n41_EN-DC		PI/2 BPSK			QPSK		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
20	2506.0 ~ 2680.0	17M8F9W	--	0.1671	17M8G7D	--	0.1622
30	2511.0 ~ 2675.0	26M8F9W	--	0.2099	26M8G7D	--	0.2153
40	2516.0 ~ 2670.0	35M7F9W	--	0.2094	35M7G7D	--	0.2113
50	2521.0 ~ 2665.0	45M6F9W	--	0.2037	45M8G7D	--	0.1879
60	2526.0 ~ 2660.0	57M7F9W	--	0.2009	57M7G7D	--	0.1986
80	2536.0 ~ 2650.0	76M9F9W	--	0.2004	76M8G7D	--	0.2009
90	2541.0 ~ 2645.0	86M6F9W	--	0.1914	86M5G7D	--	0.1888
100	2546.0 ~ 2640.0	96M2F9W	--	0.2000	96M2G7D	--	0.1995
n41_EN-DC		16QAM			64QAM		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
20	2506.0 ~ 2680.0	17M9W7D	--	0.1671	17M9W7D	--	0.1694
30	2511.0 ~ 2675.0	26M8W7D	--	0.2163	26M8W7D	--	0.2075
40	2516.0 ~ 2670.0	35M7W7D	--	0.2123	35M6W7D	--	0.2080
50	2521.0 ~ 2665.0	45M7W7D	--	0.2018	45M6W7D	--	0.2089
60	2526.0 ~ 2660.0	57M6W7D	--	0.1968	57M7W7D	--	0.1986
80	2536.0 ~ 2650.0	76M9W7D	--	0.2023	76M8W7D	--	0.2163
90	2541.0 ~ 2645.0	86M6W7D	--	0.1892	86M6W7D	--	0.1995
100	2546.0 ~ 2640.0	96M2W7D	--	0.1991	95M9W7D	--	0.1995
n41_EN-DC		256QAM					
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)			
20	2506.0 ~ 2680.0	17M9W7D	--	0.1199			
30	2511.0 ~ 2675.0	26M8W7D	--	0.1472			
40	2516.0 ~ 2670.0	35M8W7D	--	0.1429			
50	2521.0 ~ 2665.0	45M6W7D	--	0.1687			
60	2526.0 ~ 2660.0	57M7W7D	--	0.1422			
80	2536.0 ~ 2650.0	76M8W7D	--	0.1521			
90	2541.0 ~ 2645.0	86M5W7D	--	0.1315			
100	2546.0 ~ 2640.0	95M9W7D	--	0.1416			

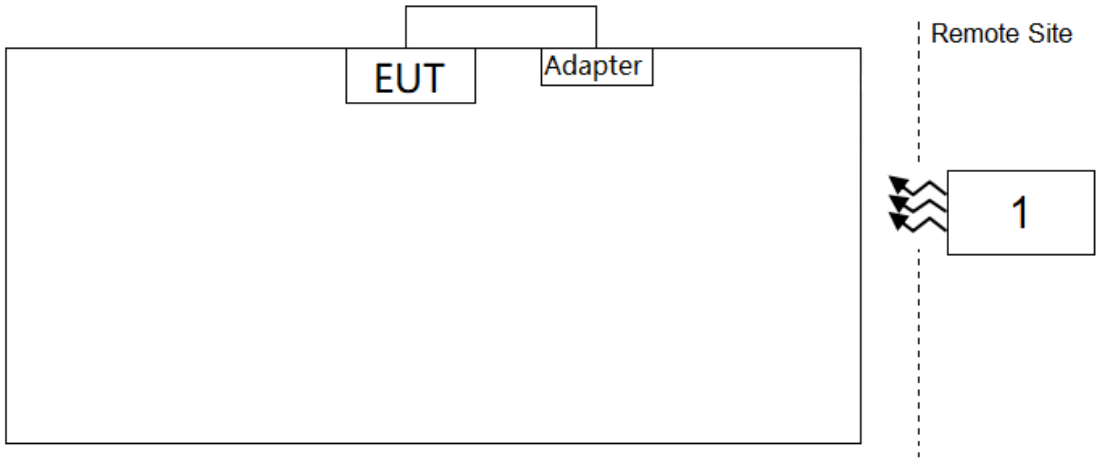
n77_EN-DC		PI/2 BPSK			QPSK		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
20	3710.0 ~ 3970.0	18M0F9W	--	0.2032	18M6G7D	--	0.2061
40	3720.0 ~ 3960.0	35M7F9W	--	0.2084	35M6G7D	--	0.2099
50	3725.0 ~ 3955.0	45M6F9W	--	0.1923	45M7G7D	--	0.1910
60	3730.0 ~ 3950.0	57M8F9W	--	0.1828	57M8G7D	--	0.1824
80	3740.0 ~ 3940.0	76M9F9W	--	0.1799	76M9G7D	--	0.1786
90	3745.0 ~ 3935.0	86M7F9W	--	0.1811	86M7G7D	--	0.1791
100	3750.0 ~ 3930.0	96M1F9W	--	0.1778	96M2G7D	0.3180	0.1774
n77_EN-DC		16QAM			64QAM		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
20	3710.0 ~ 3970.0	17M8W7D	--	0.2163	17M9W7D	--	0.2051
40	3720.0 ~ 3960.0	35M7W7D	--	0.2094	35M7W7D	--	0.2094
50	3725.0 ~ 3955.0	45M7W7D	--	0.1866	45M8W7D	--	0.1862
60	3730.0 ~ 3950.0	57M7W7D	--	0.1816	57M8W7D	--	0.1786
80	3740.0 ~ 3940.0	76M9W7D	--	0.1901	77M0W7D	--	0.1892
90	3745.0 ~ 3935.0	86M8W7D	--	0.1811	86M8W7D	--	0.1866
100	3750.0 ~ 3930.0	96M2W7D	--	0.1892	96M2W7D	--	0.1936
n77_EN-DC		256QAM					
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)			
20	3710.0 ~ 3970.0	17M8W7D	--	0.1472			
40	3720.0 ~ 3960.0	35M8W7D	--	0.1462			
50	3725.0 ~ 3955.0	45M6W7D	--	0.1324			
60	3730.0 ~ 3950.0	57M7W7D	--	0.1256			
80	3740.0 ~ 3940.0	76M9W7D	--	0.1312			
90	3745.0 ~ 3935.0	86M6W7D	--	0.1303			
100	3750.0 ~ 3930.0	96M1W7D	--	0.1256			

1.11. Test Mode

Test Item	Test Channel	Channel Bandwidth (MHz)	Modulation Type	RB#
n2, n5, n7, n25, n66, n71				
Output Power & EIRP	L, M, H	5, 10, 15, 20	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	1/Half/Full RB
Peak to Average Ratio	L, M, H	20	QPSK, 16QAM, 64QAM, 256QAM	Full RB
Emission Bandwidth	L, M, H	5, 10, 15, 20	QPSK, 16QAM, 64QAM, 256QAM	Full RB
Frequency Stability	M	20	QPSK	Full RB
Band Edge Measurements	L, H	5, 10, 15, 20	QPSK	1 RB/Full RB
Conducted Spurious Emissions	L, M, H	5, 10, 15, 20	QPSK	1 RB
Radiated Spurious Emissions	L, M, H	5	QPSK	1 RB
n12				
Output Power & EIRP	L, M, H	5, 10, 15	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	1/Half/Full RB
Peak to Average Ratio	L, M, H	15	QPSK, 16QAM, 64QAM, 256QAM	Full RB
Emission Bandwidth	L, M, H	5, 10, 15	QPSK, 16QAM, 64QAM, 256QAM	Full RB
Frequency Stability	M	15	QPSK	Full RB
Band Edge Measurements	L, H	5, 10, 15	QPSK	1 RB/Full RB
Conducted Spurious Emissions	L, M, H	5, 10, 15	QPSK	1 RB
Radiated Spurious Emissions	L, M, H	5	QPSK	1 RB
n41				
Output Power & EIRP	L, M, H	20, 30, 40, 50, 60, 80, 90, 100	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	1/Half/Full RB
Peak to Average Ratio	L, M, H	100	QPSK, 16QAM, 64QAM, 256QAM	Full RB
Emission Bandwidth	L, M, H	20, 30, 40, 50, 60, 80, 90, 100	QPSK, 16QAM, 64QAM, 256QAM	Full RB
Frequency Stability	M	100	QPSK	Full RB
Band Edge Measurements	L, H	20, 30, 40, 50, 60, 80, 90, 100	QPSK	1 RB/Full RB
Conducted Spurious Emissions	L, M, H	20, 30, 40, 50, 60, 80, 90, 100	QPSK	1 RB
Radiated Spurious Emissions	L, M, H	20	QPSK	1 RB

n66				
Output Power & EIRP	L, M, H	5, 10, 15, 20, 30, 40	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	1/Half/Full RB
Peak to Average Ratio	L, M, H	20	QPSK, 16QAM, 64QAM, 256QAM	Full RB
Emission Bandwidth	L, M, H	5, 10, 15, 20, 30, 40	QPSK, 16QAM, 64QAM, 256QAM	Full RB
Frequency Stability	M	20	QPSK	Full RB
Band Edge Measurements	L, H	5, 10, 15, 20, 30, 40	QPSK	1 RB/Full RB
Conducted Spurious Emissions	L, M, H	5, 10, 15, 20, 30, 40	QPSK	1 RB
Radiated Spurious Emissions	L, M, H	5	QPSK	1 RB
n77				
Output Power & EIRP	L, M, H	20, 40, 50, 60, 80, 90, 100	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	1/Half/Full RB
Peak to Average Ratio	L, M, H	100	QPSK, 16QAM, 64QAM, 256QAM	Full RB
Emission Bandwidth	L, M, H	20, 40, 50, 60, 80, 90, 100	QPSK, 16QAM, 64QAM, 256QAM	Full RB
Frequency Stability	M	100	QPSK	Full RB
Band Edge Measurements	L, H	20, 40, 50, 60, 80, 90, 100	QPSK	1 RB/Full RB
Conducted Spurious Emissions	L, M, H	20, 40, 50, 60, 80, 90, 100	QPSK	1 RB
Radiated Spurious Emissions	L, M, H	20	QPSK	1 RB

1.12. Configuration of Tested System



Product		Manufacturer	Model No.
1	UXM 5G Wireless Test Platform	Keysight	E7515B

1.13. Test Environment Condition

Ambient Temperature	15 ~ 35°C
Relative Humidity	20 ~ 75%RH

2. TEST EQUIPMENT CALIBRATION DATE

Radiated Emission - AC1 (WZ)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2021/08/01
UXM 5G Wireless Test Platform	Keysight	E7515B	MRTSUE06869	1 year	2021/05/25
PXA Signal Analyzer	Keysight	9030B	MRTSUE06395	1 year	2021/09/03
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/11/10
Bilog Period Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2022/03/30
Broad Band Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06023	1 year	2021/10/13
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06597	1 year	2022/02/22
Microwave System Amplifier	Agilent	83017A	MRTSUE06076	1 year	2021/11/15
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2021/06/11
EMC Cable	HUBER+SUHNER	SF126	MRTSUE06883	1 year	2022/04/10
Thermohygrometer	Testo	608-H1	MRTSUE06403	1 year	2021/08/08
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06212	1 year	2022/04/29

Radiated Emission - AC2 (WZ)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Keysight	N9038A	MRTSUE06125	1 year	2021/08/01
UXM 5G Wireless Test Platform	Keysight	E7515B	MRTSUE06869	1 year	2021/05/25
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/11/10
Bilog Period Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2021/10/13
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06171	1 year	2021/10/27
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06597	1 year	2022/02/22
Broadband Coaxial Preamplifier	Schwarzbeck	BBV 9718	MRTSUE06176	1 year	2021/11/15
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2021/06/11
EMC Cable	HUBER+SUHNER	SF126	MRTSUE06733	1 year	2022/04/10
Temperature/Humidity Meter	Minggao	ETH529	MRTSUE06170	1 year	2021/12/14
Anechoic Chamber	RIKEN	Chamber-AC2	MRTSUE06213	1 year	2022/04/29

Conducted Test Equipment - SR6 (WZ)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2021/05/14
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06452	1 year	2021/07/11
Signal Analyzer	R&S	FSV40	MRTSUE06218	1 year	2022/05/14
Power Meter	Agilent	U2021XA	MRTSUE06030	1 year	2021/11/18
DC Power Supply	GWINSTEK	DPS-3303C	MRTSUE06064	N/A	N/A
True RMS Clamp Meter	Fluke	319	MRTSUE06080	1 year	2022/05/05
Directional Coupler	Agilent	87301D	MRTSUE06082	1 year	2022/03/24
Attenuator	MVE	6dB	MRTSUE06534	1 year	2021/12/11
Attenuator	MVE	10dB	MRTSUE06543	1 year	2021/12/11
Temperature & Humidity Chamber	BAOYT	BYH-150CL	MRTSUE06051	1 year	2021/11/07
Thermohygrometer	testo	608-H1	MRTSUE06401	1 year	2021/08/08

Software	Version	Function
EMI Software	V3	EMI Test Software

3. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Radiated Spurious Emissions
Measurement Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): Horizontal: 9kHz ~ 300MHz: 5.04dB 300MHz ~ 1GHz: 4.95dB 1GHz ~ 40GHz: 6.40dB Vertical: 9kHz ~ 300MHz: 5.24dB 300MHz ~ 1GHz: 6.03dB 1GHz ~ 40GHz: 6.40dB
Conducted Spurious Emissions
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 0.78dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 1.13dB
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 0.28%
Frequency Stability
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 76.2Hz

4. TEST RESULT

4.1. Summary

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
2.1049	Occupied Bandwidth	N/A	Conducted	Pass	Section 5.2
2.1055, 22.355 24.235, 27.54	Frequency Stability	< 2.5 ppm		Pass	Section 5.3
22.913(a)(5)	Equivalent Radiated Power (n5)	< 7 Watts Max ERP		Pass	Section 5.4
27.50(c)(10)	Equivalent Radiated Power (n12, n71)	< 3 Watts Max ERP			
24.232(c) 27.50(h)(2)	Equivalent Isotropic Radiated Power (n2/25, n7, n41)	< 2 Watts Max EIRP			
27.50(d)(4) 27.50(j)(3)	Equivalent Isotropic Radiated Power (n66, n77)	< 1 Watts Max EIRP			
2.1051, 22.917(a) 24.238(a), 27.53(g), (h), (l)(2), (m)	Band Edge	Refer to section 5.5		Pass	Section 5.5
24.232(d), 27.50(d)(5)	Peak to Average Ratio	< 13dB		Pass	Section 5.6
2.1051, 22.917(a) 24.238(a), 27.53(g), (h), (l)(2), (m)	Spurious Emission	Refer to section 5.7		Pass	Section 5.7
2.1051, 22.917(a) 24.238(a), 27.53(g), (h), (l)(2), (m)	Spurious Emission	Refer to section 5.8	Radiated	Pass	Section 5.8

Notes:

1) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
2) All supported modulation types were evaluated. The worst-case emission of modulation was selected. Therefore, the Frequency Stability, Channel Band Edge, Conducted & Radiated Spurious Emission were presented worst-case in the test report.

4.2. Occupied Bandwidth Measurement

4.2.1.Test Limit

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured.

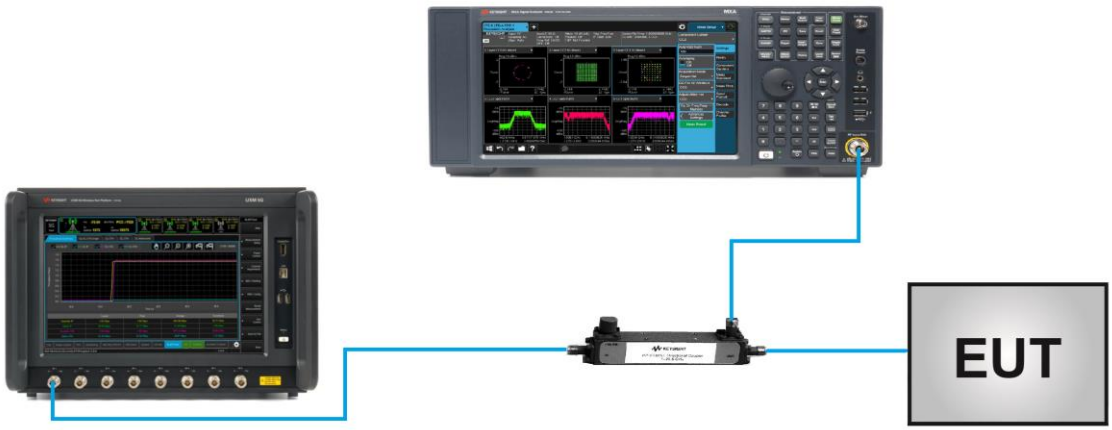
4.2.2.Test Procedure

ANSI C63.26-2015 - Section 5.4

4.2.3.Test Setting

1. Set center frequency to the nominal EUT channel center frequency
2. RBW = The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW
3. VBW ≥ 3 × RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. Allow the trace to stabilize
8. Use the 99% power bandwidth function of the instrument and report the measured bandwidth.

4.2.4.Test Setup



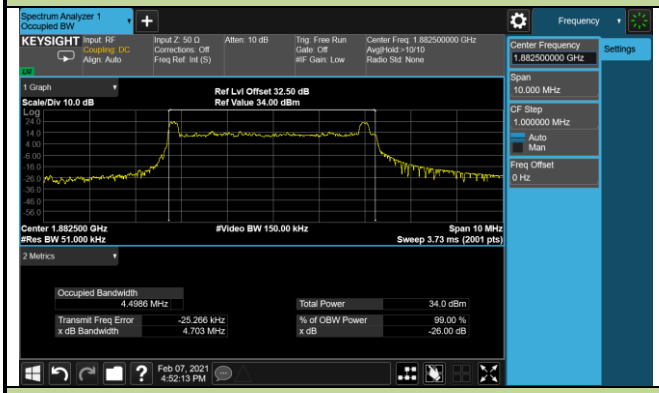
4.2.5.Test Result

Product	5G Sub-6 GHz M.2 Module	Test Site	SIP-SR5
Test Engineer	Gordon Qi	Test Date	2021/02/07
Test Band	n2/25		

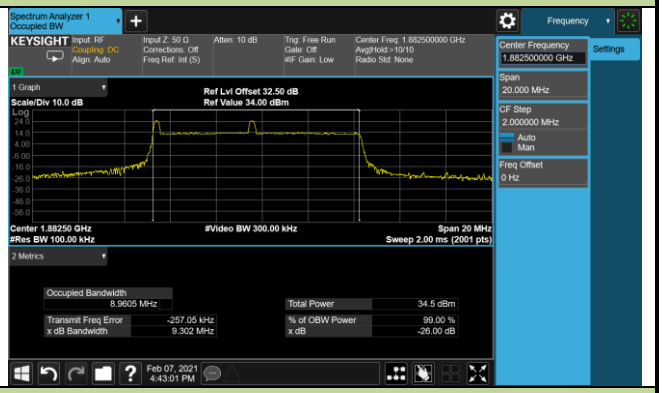
Channel	Frequency (MHz)	Bandwidth (MHz)	99% Bandwidth (MHz)
PI/2 BPSK			
376500	1882.5	5	4.50
376500	1882.5	10	8.96
376500	1882.5	15	13.50
376500	1882.5	20	18.02
QPSK			
376500	1882.5	5	4.47
376500	1882.5	10	8.97
376500	1882.5	15	13.50
376500	1882.5	20	18.00
16QAM			
376500	1882.5	5	4.48
376500	1882.5	10	8.97
376500	1882.5	15	13.47
376500	1882.5	20	18.01
64QAM			
376500	1882.5	5	4.49
376500	1882.5	10	8.97
376500	1882.5	15	13.47
376500	1882.5	20	17.97
256QAM			
376500	1882.5	5	4.48
376500	1882.5	10	8.95
376500	1882.5	15	13.46
376500	1882.5	20	17.99

99% Bandwidth - PI/2 BPSK

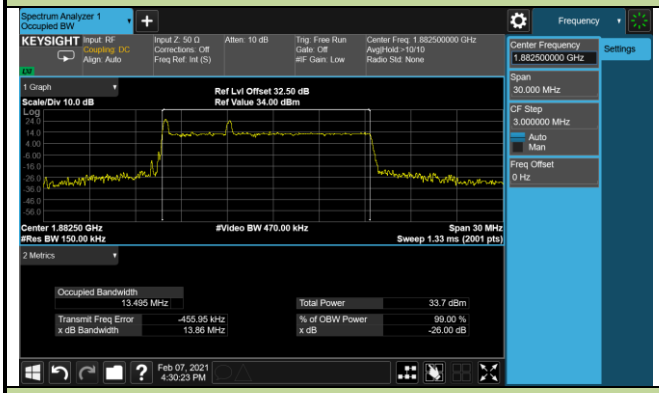
5MHz Channel Bandwidth



10MHz Channel Bandwidth



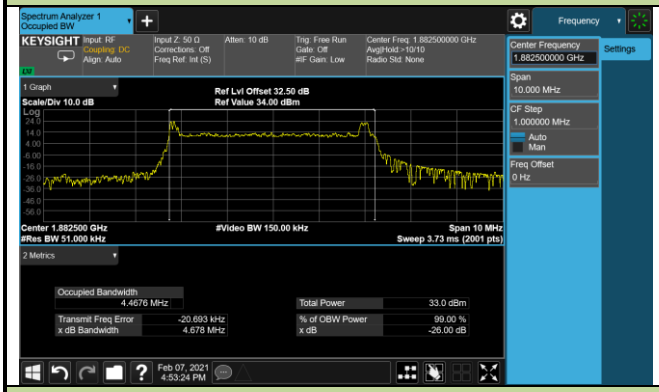
15MHz Channel Bandwidth



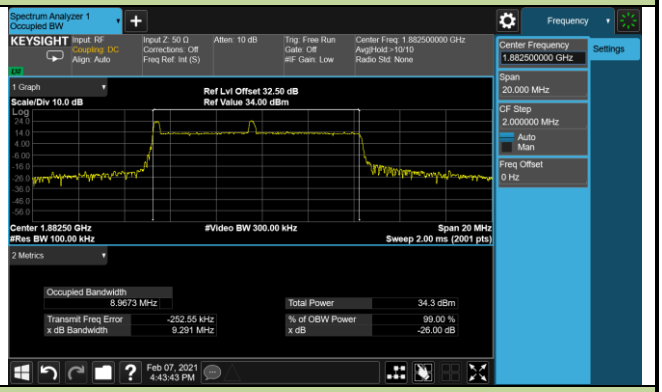
20MHz Channel Bandwidth

99% Bandwidth - QPSK

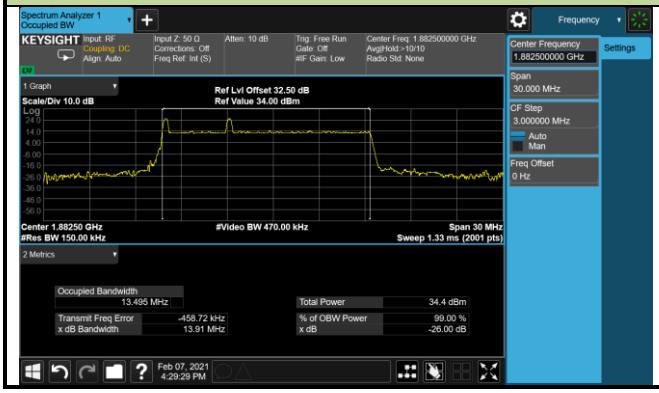
5MHz Channel Bandwidth



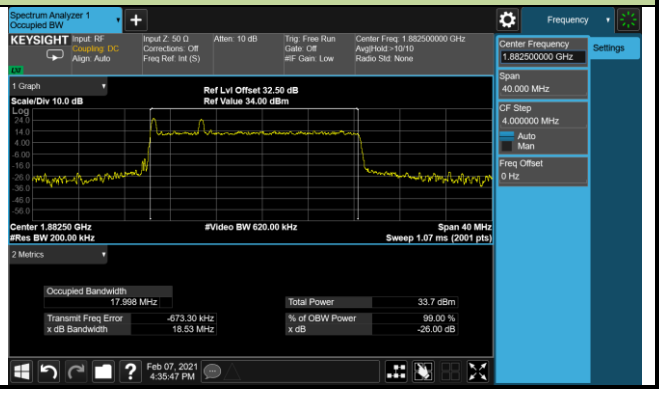
10MHz Channel Bandwidth



15MHz Channel Bandwidth



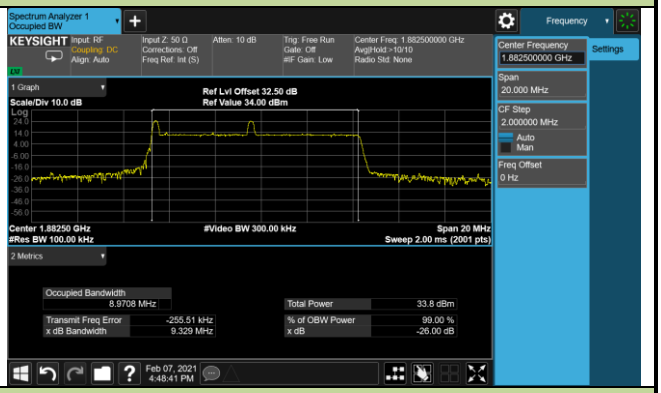
20MHz Channel Bandwidth



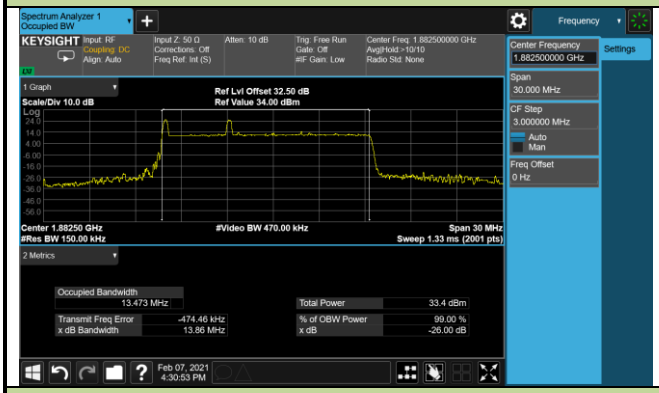
99% Bandwidth - 16QAM

5MHz Channel Bandwidth

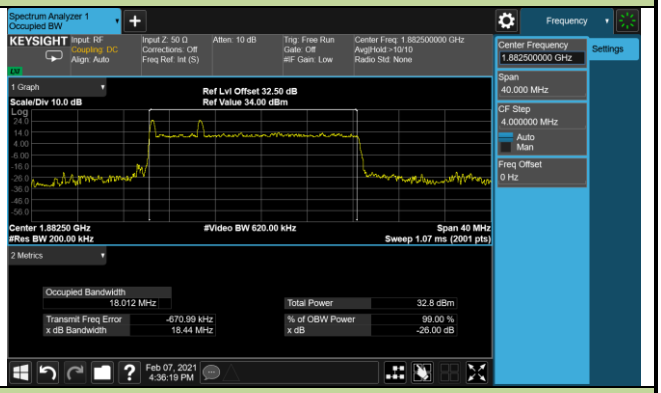
10MHz Channel Bandwidth



15MHz Channel Bandwidth

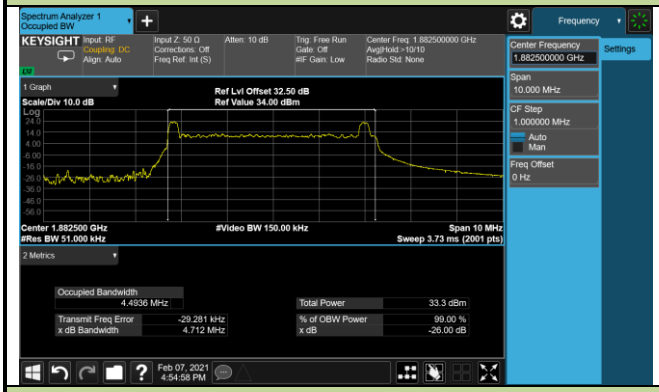


20MHz Channel Bandwidth

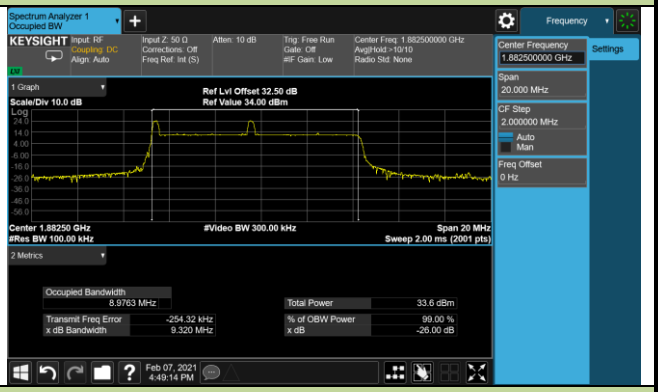


99% Bandwidth - 64QAM

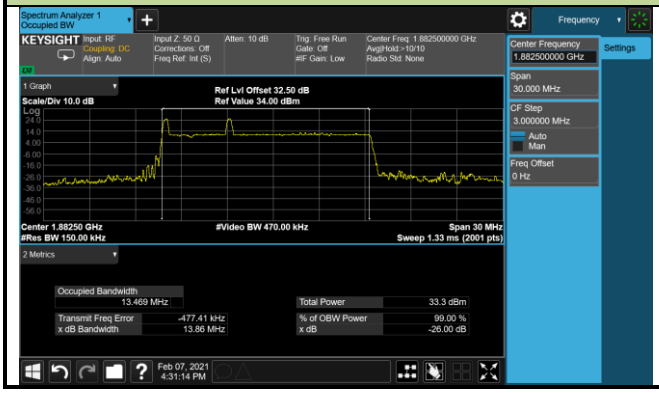
5MHz Channel Bandwidth



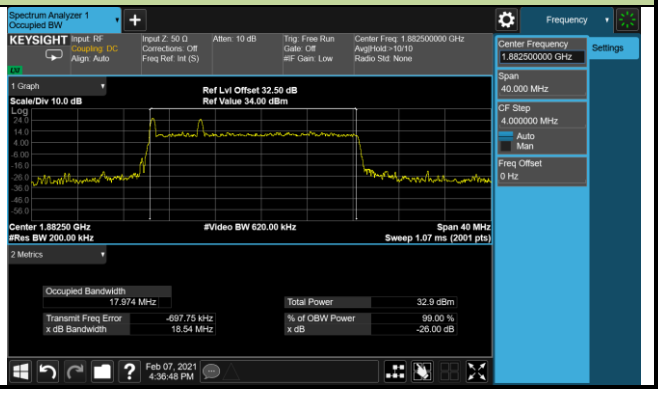
10MHz Channel Bandwidth

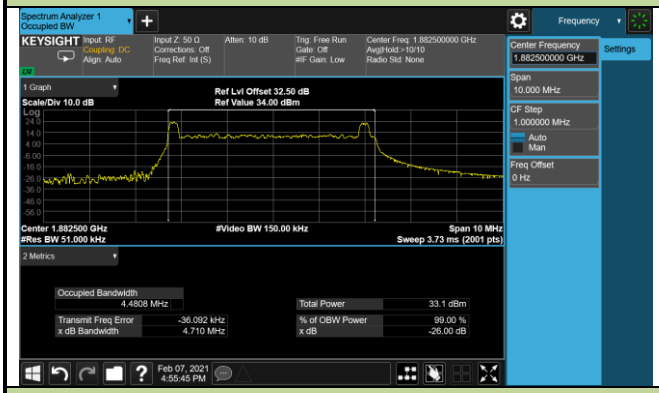
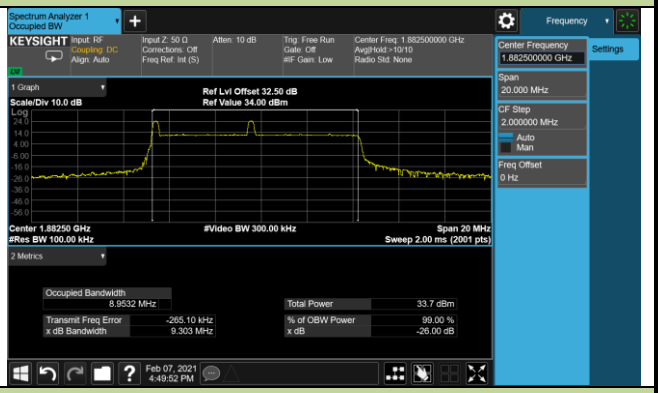
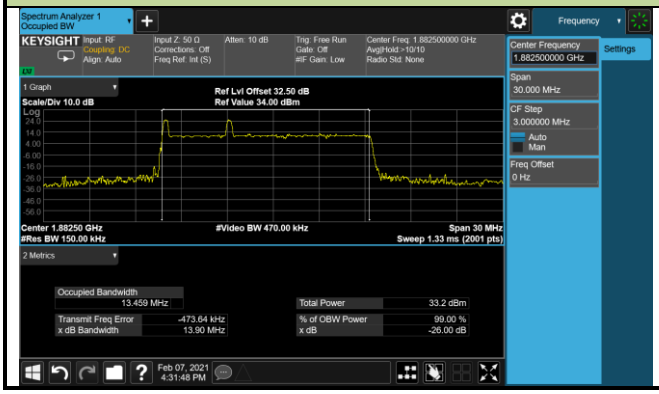
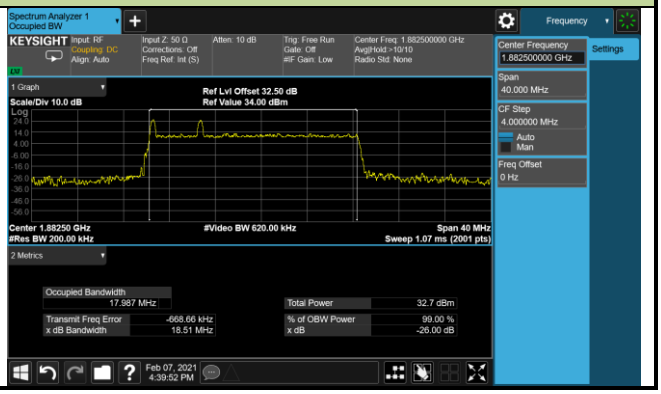


15MHz Channel Bandwidth



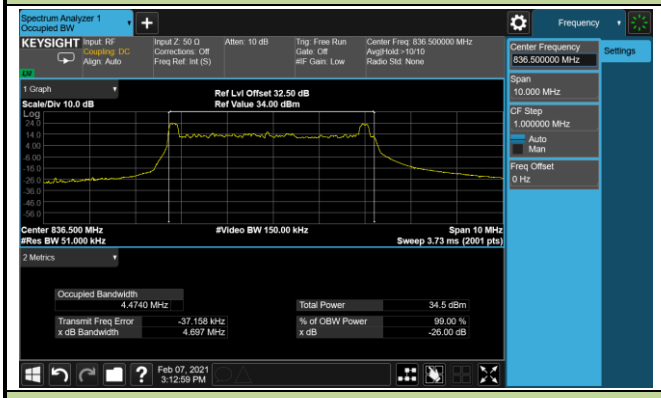
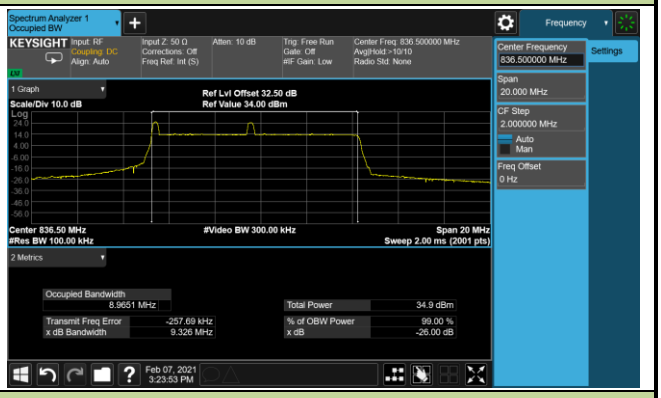
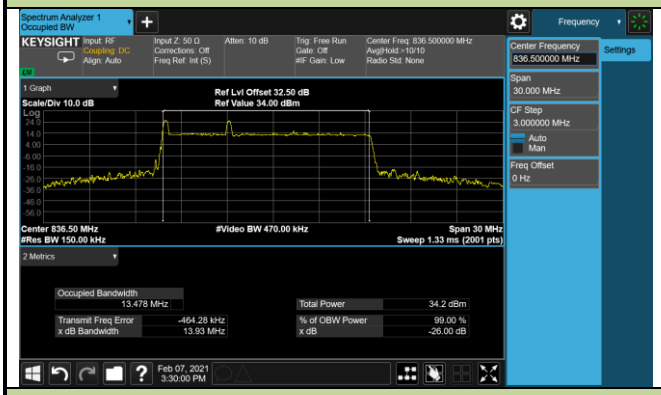
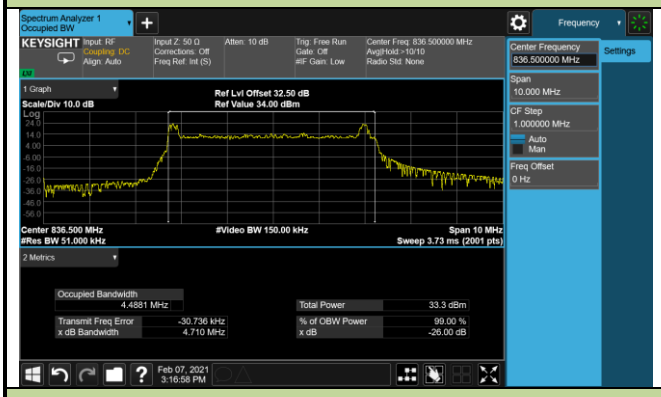
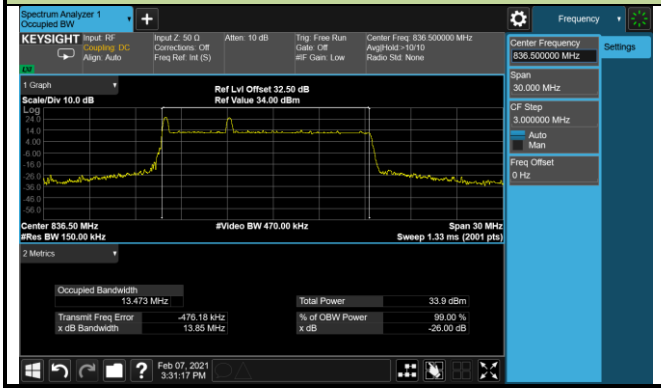
20MHz Channel Bandwidth

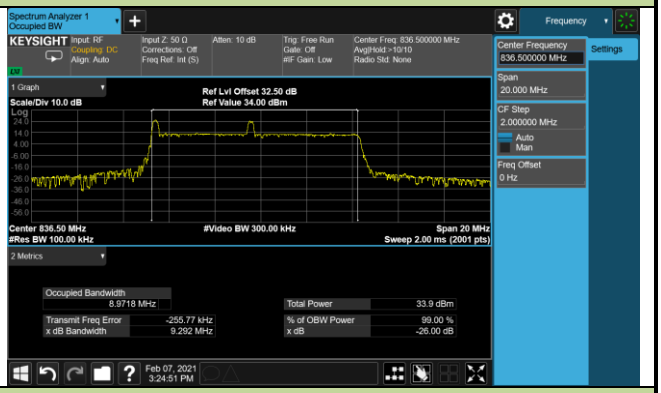
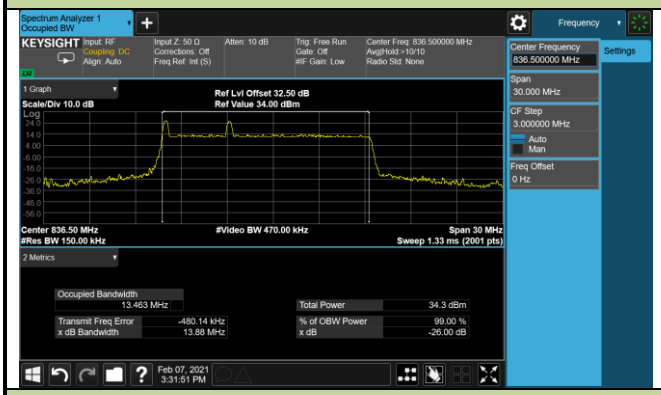
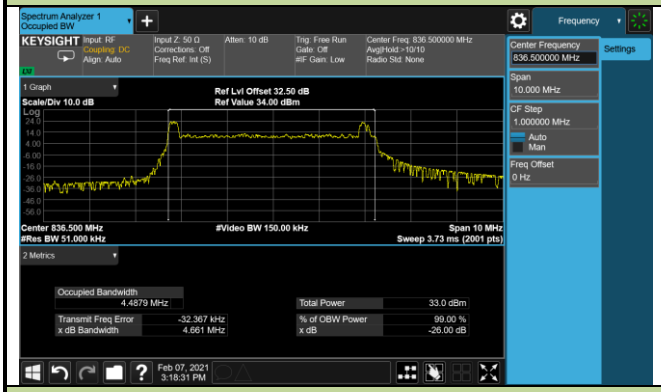
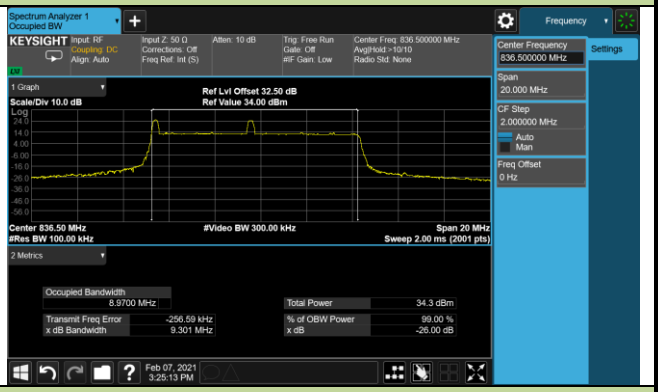
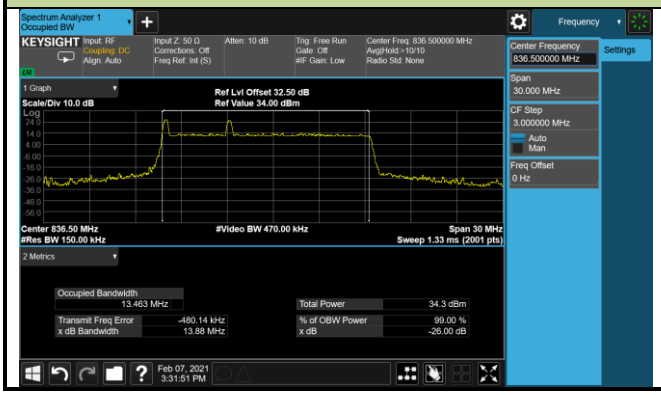


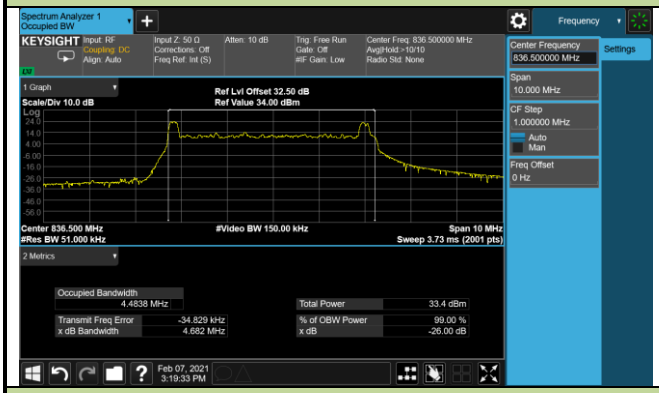
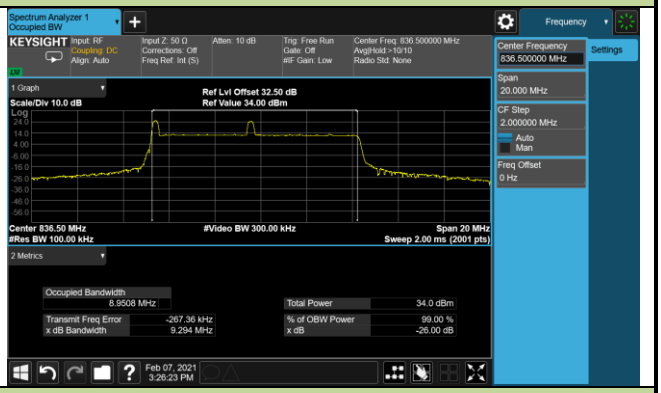
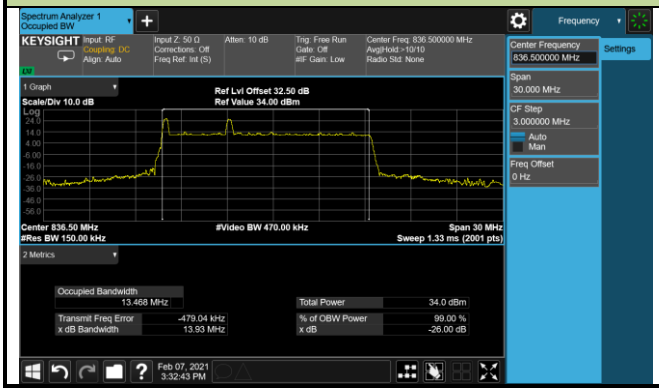
99% Bandwidth - 256QAM	
5MHz Channel Bandwidth	10MHz Channel Bandwidth
	
15MHz Channel Bandwidth	20MHz Channel Bandwidth
	

Product	5G Sub-6 GHz M.2 Module	Test Site	SIP-SR5
Test Engineer	Gordon Qi	Test Date	2021/02/07
Test Band	n5		

Channel	Frequency (MHz)	Bandwidth (MHz)	99% Bandwidth (MHz)
PI/2 BPSK			
167300	836.5	5	4.47
167300	836.5	10	8.97
167300	836.5	15	13.48
167300	836.5	20	18.00
QPSK			
167300	836.5	5	4.49
167300	836.5	10	8.97
167300	836.5	15	13.47
167300	836.5	20	18.00
16QAM			
167300	836.5	5	4.48
167300	836.5	10	8.97
167300	836.5	15	13.46
167300	836.5	20	17.94
64QAM			
167300	836.5	5	4.49
167300	836.5	10	8.97
167300	836.5	15	13.46
167300	836.5	20	17.92
256QAM			
167300	836.5	5	4.48
167300	836.5	10	8.95
167300	836.5	15	13.47
167300	836.5	20	17.98

99% Bandwidth - PI/2 BPSK	
5MHz Channel Bandwidth	10MHz Channel Bandwidth
	
15MHz Channel Bandwidth	20MHz Channel Bandwidth
	
99% Bandwidth - QPSK	
5MHz Channel Bandwidth	10MHz Channel Bandwidth
	
15MHz Channel Bandwidth	20MHz Channel Bandwidth
	

99% Bandwidth - 16QAM	
5MHz Channel Bandwidth	10MHz Channel Bandwidth
	
15MHz Channel Bandwidth	20MHz Channel Bandwidth
	
99% Bandwidth - 64QAM	
5MHz Channel Bandwidth	10MHz Channel Bandwidth
	
15MHz Channel Bandwidth	20MHz Channel Bandwidth
	

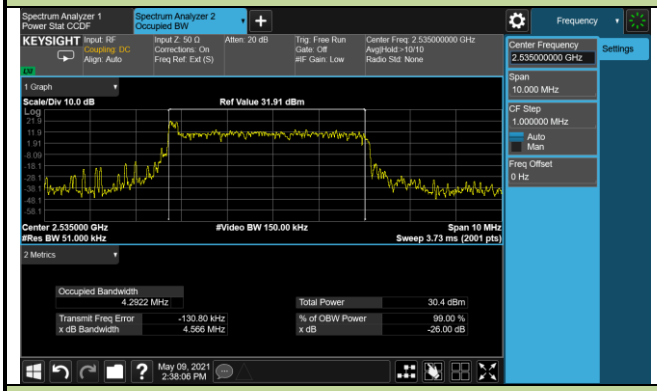
99% Bandwidth - 256QAM	
5MHz Channel Bandwidth	10MHz Channel Bandwidth
	
15MHz Channel Bandwidth	20MHz Channel Bandwidth
	

Product	5G Sub-6 GHz M.2 Module	Test Site	SIP-SR5
Test Engineer	Candy Luo	Test Date	2021/02/07
Test Band	n7		

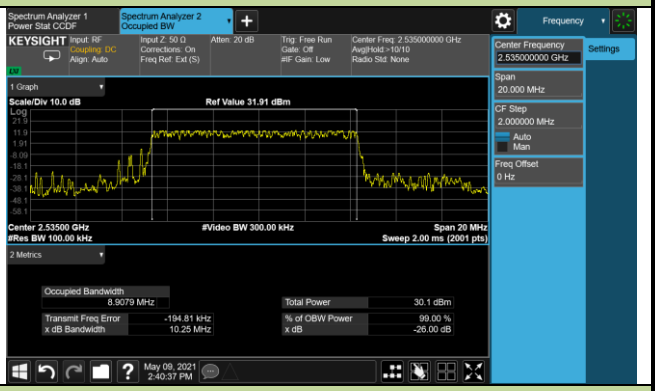
Channel	Frequency (MHz)	Bandwidth (MHz)	99% Bandwidth (MHz)
PI/2 BPSK			
507000	2535.0	5	4.29
507000	2535.0	10	8.91
507000	2535.0	15	13.54
507000	2535.0	20	18.06
QPSK			
507000	2535.0	5	4.34
507000	2535.0	10	9.01
507000	2535.0	15	13.50
507000	2535.0	20	18.05
16QAM			
507000	2535.0	5	4.28
507000	2535.0	10	8.95
507000	2535.0	15	13.52
507000	2535.0	20	18.02
64QAM			
507000	2535.0	5	4.29
507000	2535.0	10	9.04
507000	2535.0	15	13.56
507000	2535.0	20	17.98
256QAM			
507000	2535.0	5	4.24
507000	2535.0	10	8.94
507000	2535.0	15	13.34
507000	2535.0	20	18.01

99% Bandwidth - PI/2 BPSK

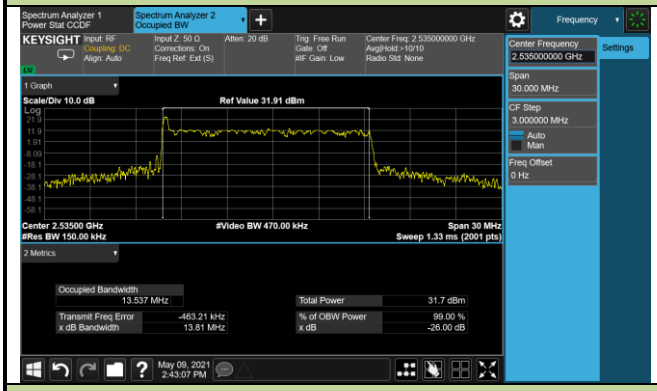
5MHz Channel Bandwidth



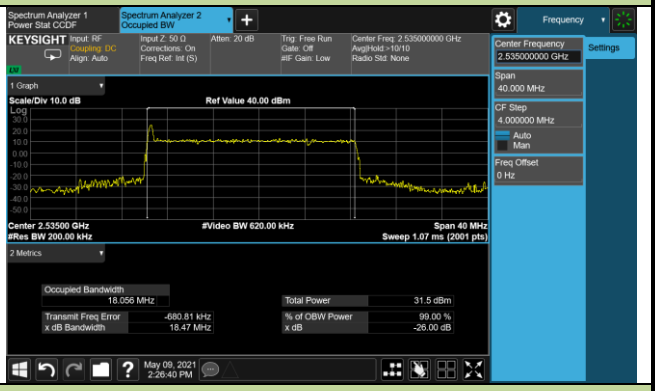
10MHz Channel Bandwidth



15MHz Channel Bandwidth

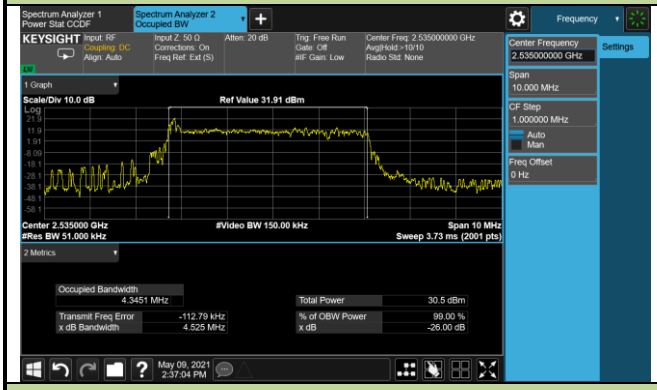


20MHz Channel Bandwidth

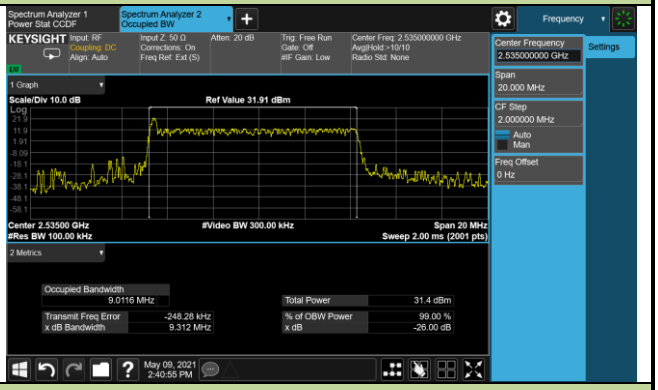


99% Bandwidth - QPSK

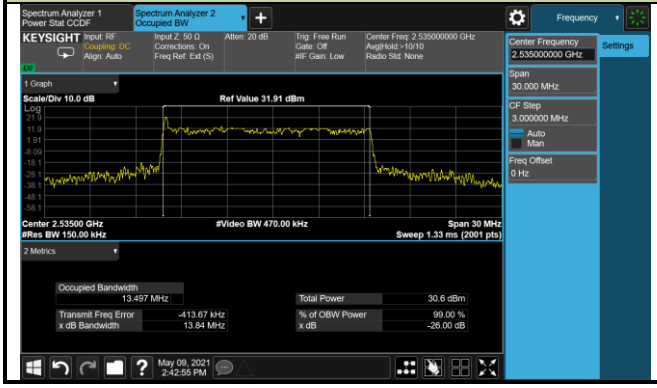
5MHz Channel Bandwidth



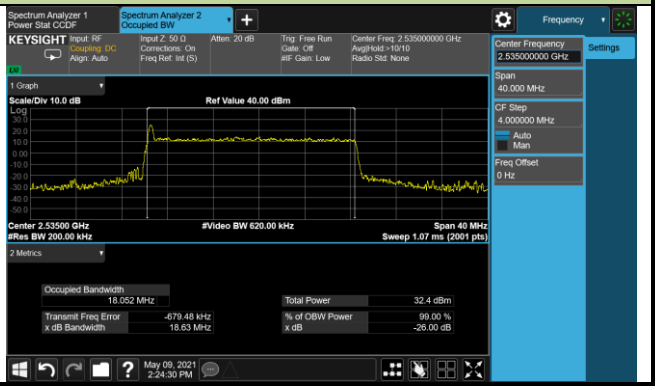
10MHz Channel Bandwidth



15MHz Channel Bandwidth

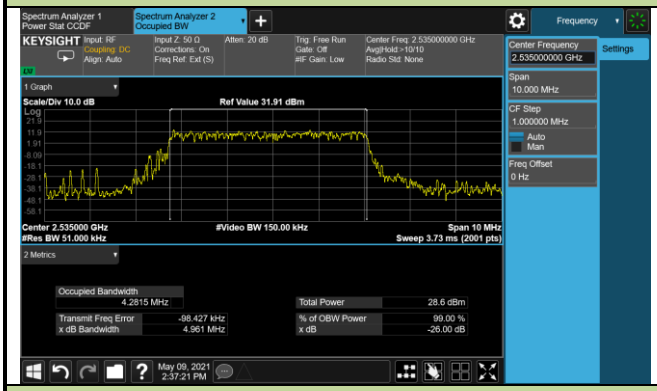


20MHz Channel Bandwidth

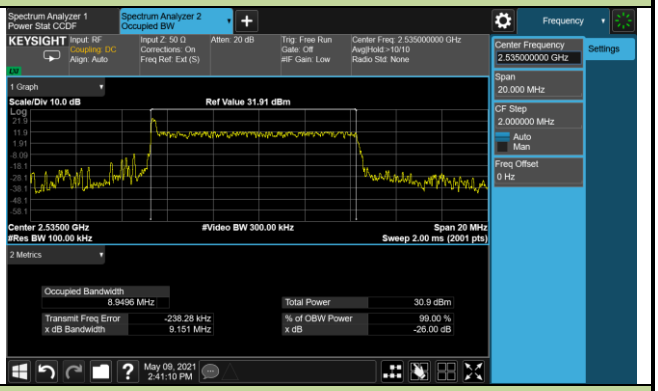


99% Bandwidth - 16QAM

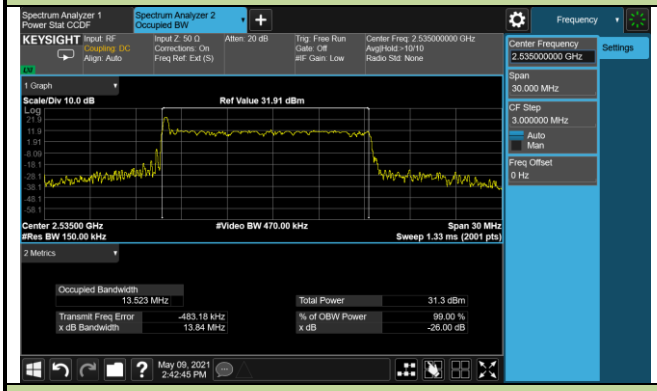
5MHz Channel Bandwidth



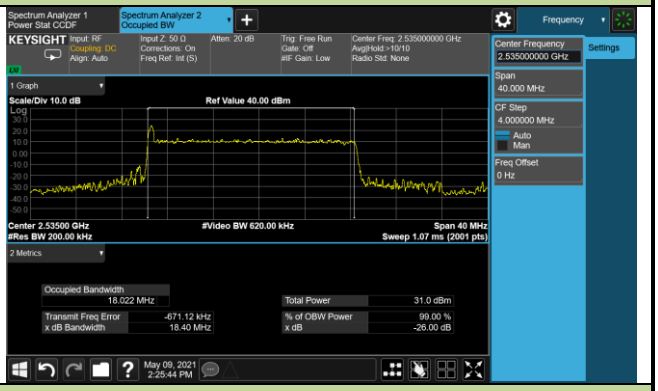
10MHz Channel Bandwidth



15MHz Channel Bandwidth

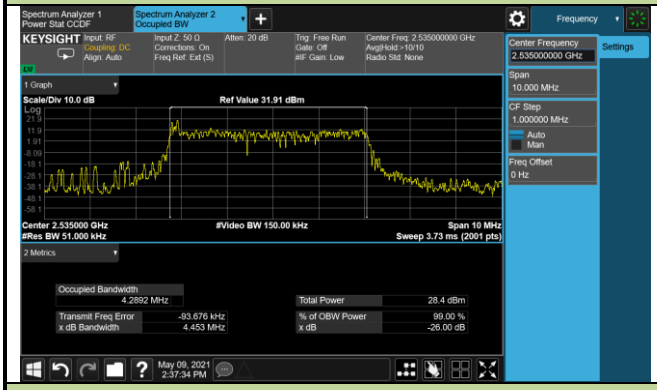


20MHz Channel Bandwidth

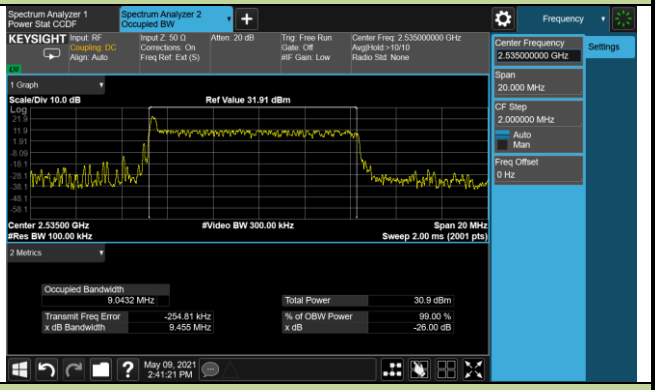


99% Bandwidth - 64QAM

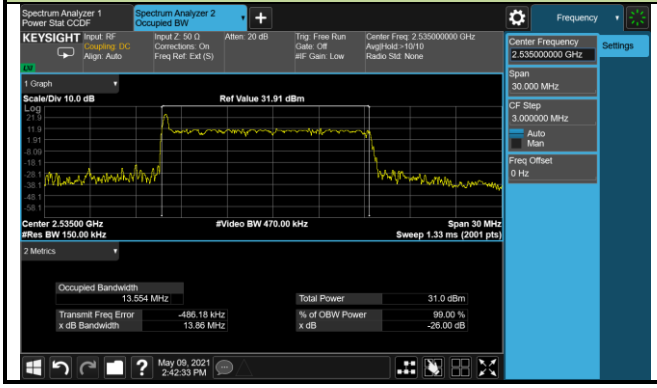
5MHz Channel Bandwidth



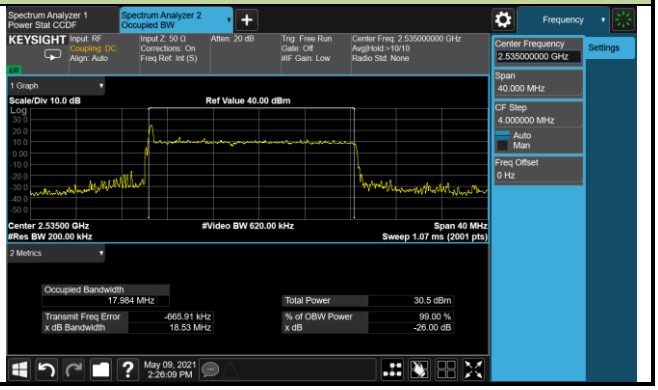
10MHz Channel Bandwidth

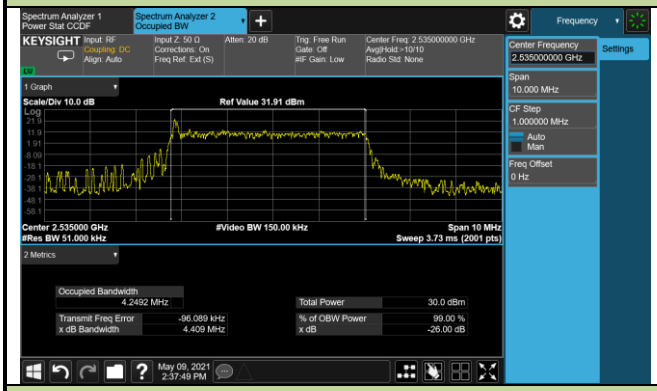
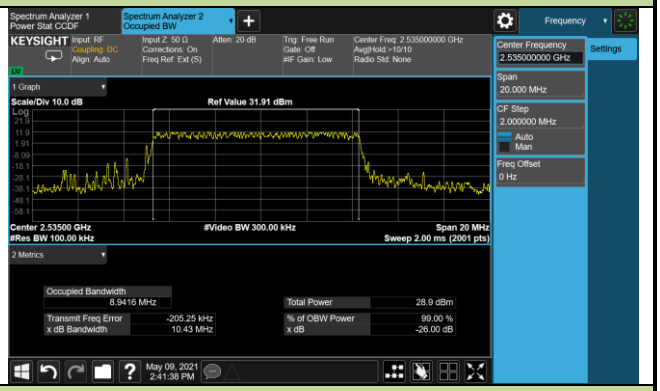
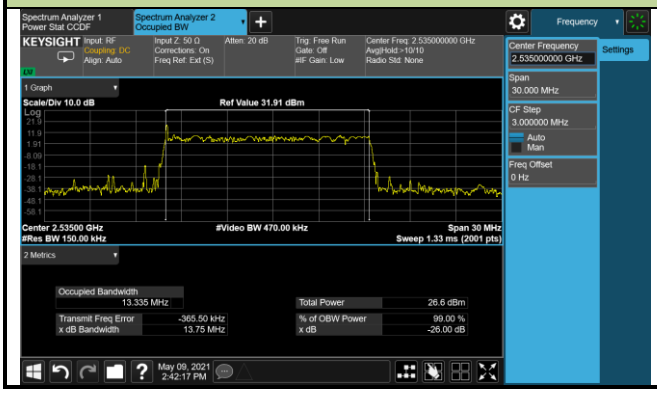
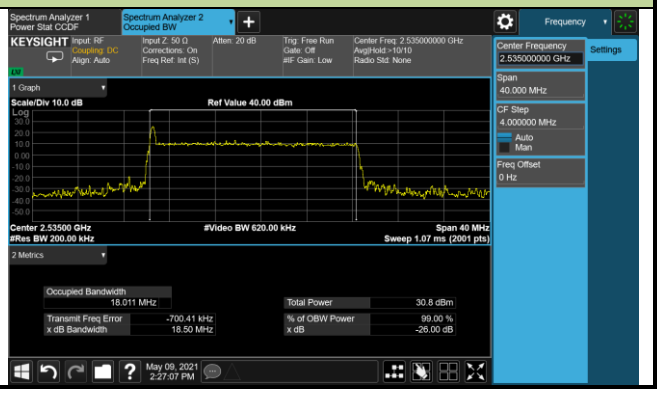


15MHz Channel Bandwidth



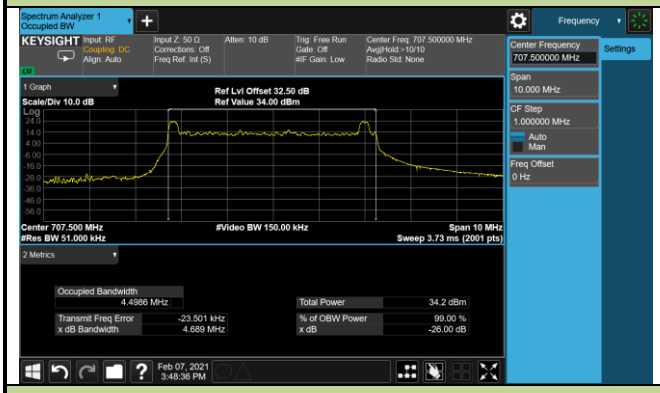
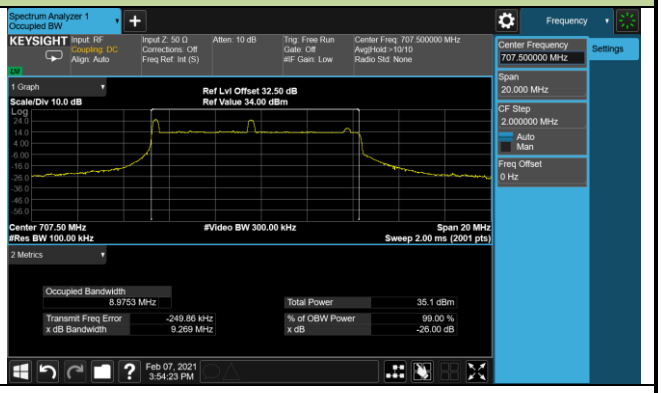
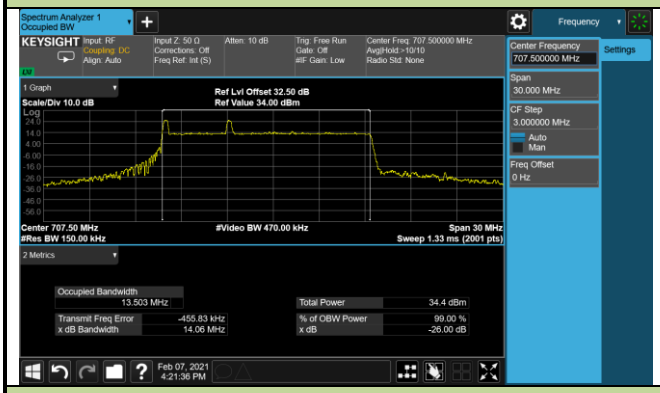
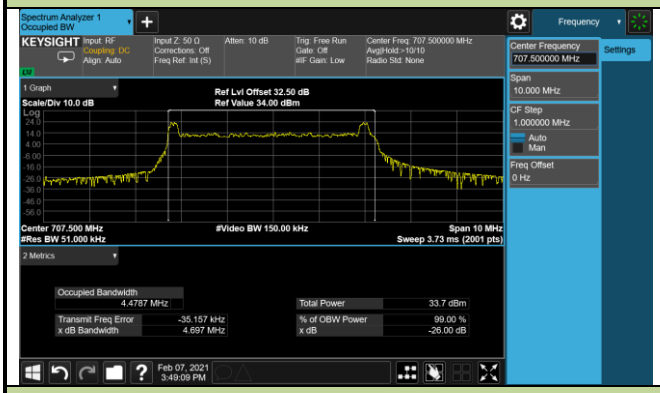
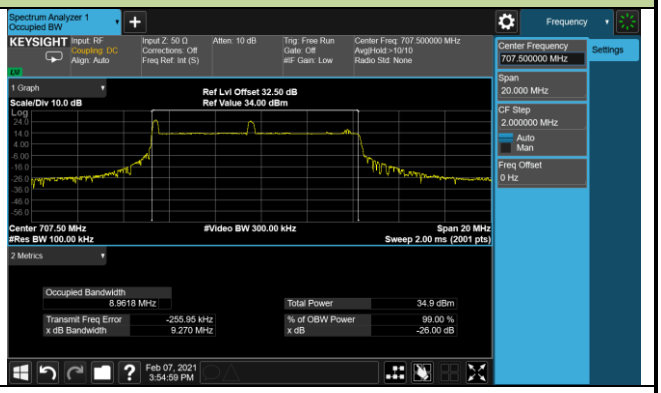
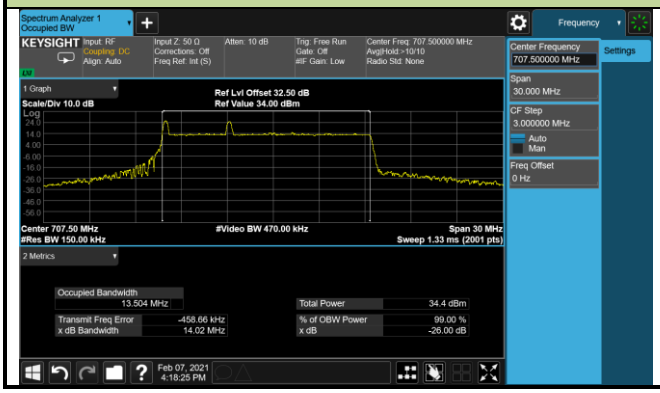
20MHz Channel Bandwidth



99% Bandwidth - 256QAM	
5MHz Channel Bandwidth	10MHz Channel Bandwidth
	
15MHz Channel Bandwidth	20MHz Channel Bandwidth
	

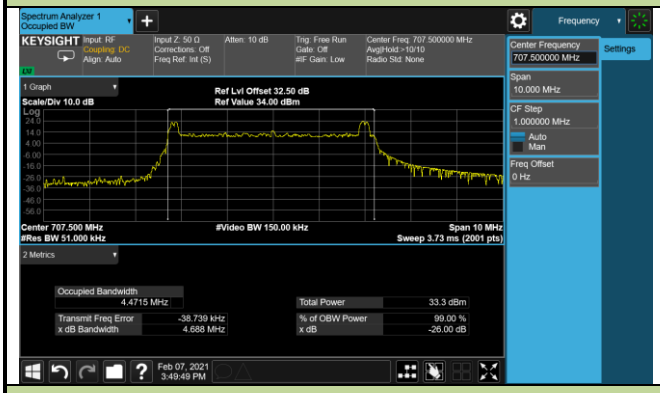
Product	5G Sub-6 GHz M.2 Module	Test Site	SIP-SR5
Test Engineer	Gordon Qi	Test Date	2021/05/09
Test Band	n12		

Channel	Frequency (MHz)	Bandwidth (MHz)	99% Bandwidth (MHz)
PI/2 BPSK			
141500	707.5	5	4.50
141500	707.5	10	8.98
141500	707.5	15	13.50
QPSK			
141500	707.5	5	4.48
141500	707.5	10	8.96
141500	707.5	15	13.50
16QAM			
141500	707.5	5	4.47
141500	707.5	10	8.97
141500	707.5	15	13.48
64QAM			
141500	707.5	5	4.48
141500	707.5	10	8.98
141500	707.5	15	13.48
256QAM			
141500	707.5	5	4.48
141500	707.5	10	8.96
141500	707.5	15	13.48

99% Bandwidth - PI/2 BPSK	
5MHz Channel Bandwidth	10MHz Channel Bandwidth
	
15MHz Channel Bandwidth	
	
99% Bandwidth - QPSK	
5MHz Channel Bandwidth	10MHz Channel Bandwidth
	
15MHz Channel Bandwidth	
	

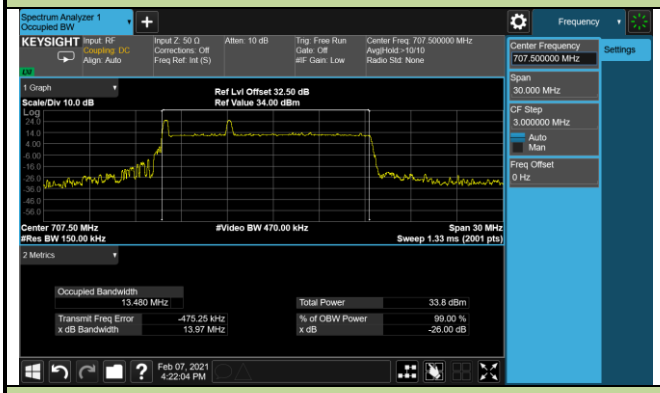
99% Bandwidth - 16QAM

5MHz Channel Bandwidth



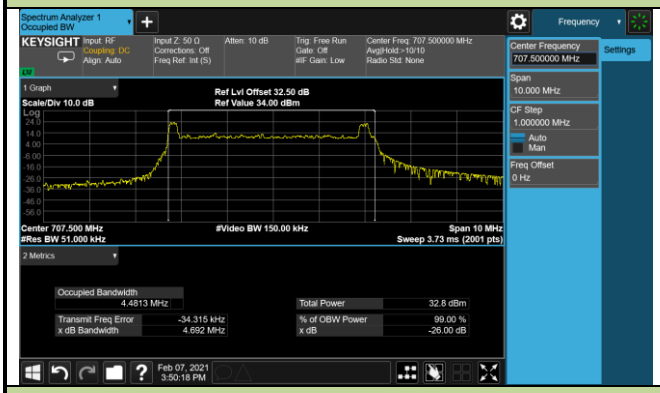
10MHz Channel Bandwidth

15MHz Channel Bandwidth



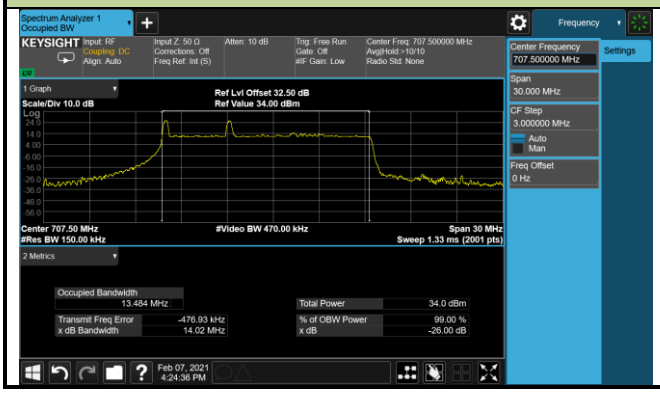
99% Bandwidth - 64QAM

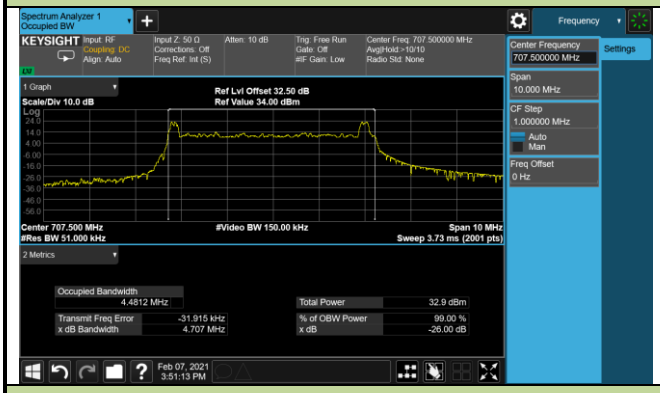
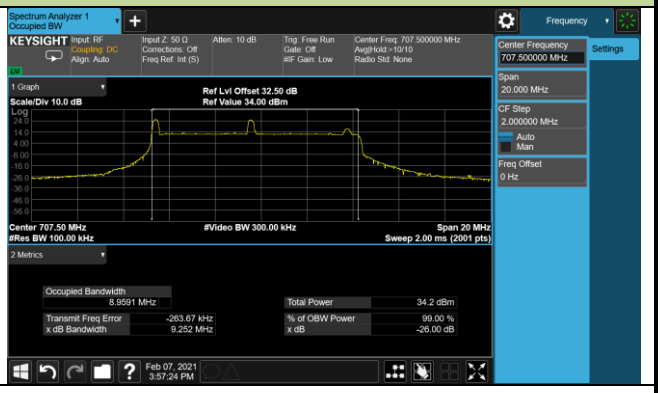
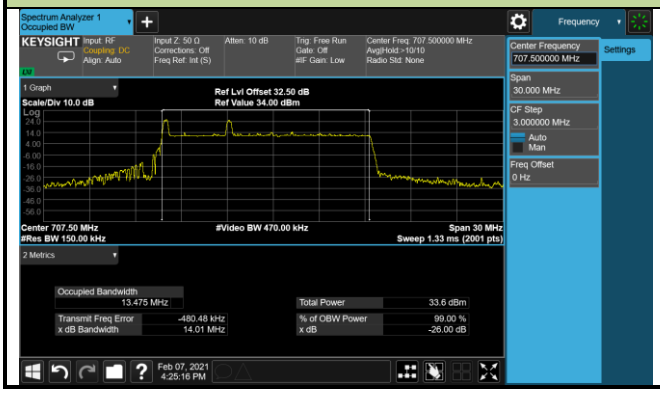
5MHz Channel Bandwidth



10MHz Channel Bandwidth

15MHz Channel Bandwidth

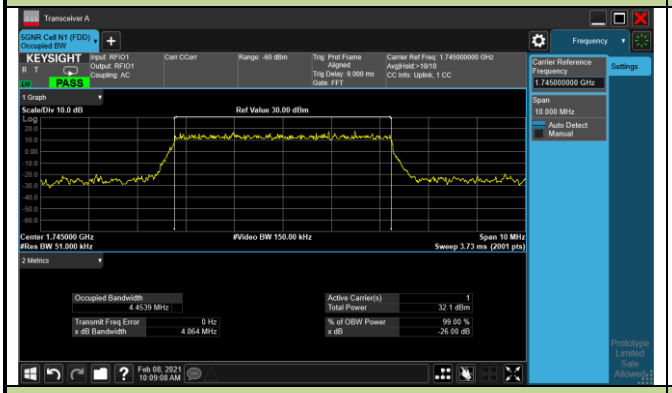
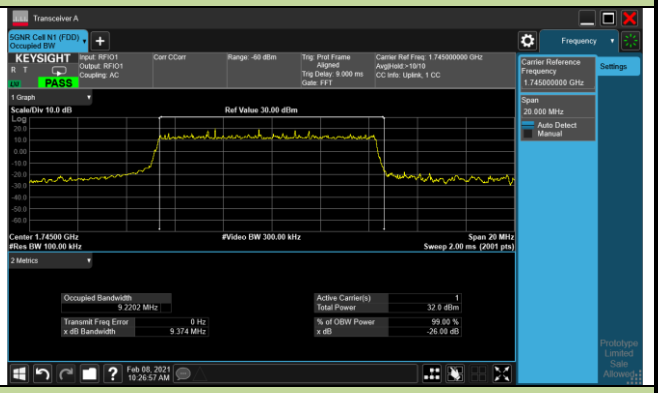
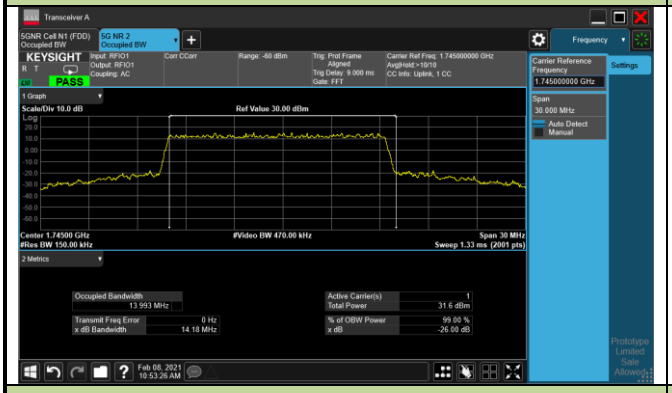
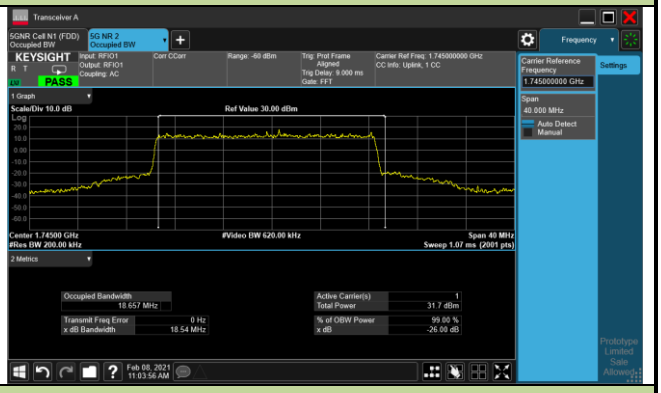


99% Bandwidth - 256QAM	
5MHz Channel Bandwidth	10MHz Channel Bandwidth
	
15MHz Channel Bandwidth	
	

Product	5G Sub-6 GHz M.2 Module	Test Site	SIP-SR5
Test Engineer	Gordon Qi	Test Date	2021/02/08 ~ 2021/05/07
Test Band	n66		

Channel	Frequency (MHz)	Bandwidth (MHz)	99% Bandwidth (MHz)
PI/2 BPSK			
349000	1745.0	5	4.45
349000	1745.0	10	9.22
349000	1745.0	15	13.99
349000	1745.0	20	18.66
349000	1745.0	30	28.78
349000	1745.0	40	37.57
QPSK			
349000	1745.0	5	4.45
349000	1745.0	10	9.18
349000	1745.0	15	13.95
349000	1745.0	20	18.68
349000	1745.0	30	28.78
349000	1745.0	40	38.72
16QAM			
349000	1745.0	5	4.47
349000	1745.0	10	9.21
349000	1745.0	15	13.96
349000	1745.0	20	18.61
349000	1745.0	30	28.79
349000	1745.0	40	38.17
64QAM			
349000	1745.0	5	4.45
349000	1745.0	10	9.15
349000	1745.0	15	13.95
349000	1745.0	20	18.61
349000	1745.0	30	28.75
349000	1745.0	40	38.00

256QAM			
349000	1745.0	5	4.45
349000	1745.0	10	9.23
349000	1745.0	15	13.93
349000	1745.0	20	18.69
349000	1745.0	30	28.71
349000	1745.0	40	38.34

99% Bandwidth - PI/2 BPSK	
5MHz Channel Bandwidth	10MHz Channel Bandwidth
	
15MHz Channel Bandwidth	20MHz Channel Bandwidth
	
30MHz Channel Bandwidth	40MHz Channel Bandwidth