

MEASUREMENT REPORT

FCC PART 22 & 24 & 27

FCC ID: 2A2TS2021IG830

Application: Honglink Wireless Solutions Co., Ltd.

Application Type: Certification

Product: LTE USB MODEM

Model No.: IG830

Brand Name: DJI

FCC Rule Part(s): Part 2, 22 (H), 24 (E), 27

Test Procedure(s): ANSI C63.26: 2015

Test Date: June 3 ~ October 18, 2021

Reviewed By:

Sunny Sun

Approved By:

Robin Wu



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.26-2015. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2106RSU002-U2	Rev. 01	Initial Report	10-26-2021	Valid

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1. GENERAL INFORMATION

1.1. Applicant

Honglink Wireless Solutions Co., Ltd.

Room 611-390, R&D Center Building, China (Hefei) International Intelligent Voice Industrial Park,
No.3333 Xiyou Road, High-tech Zone, Hefei

1.2. Manufacturer

Honglink Wireless Solutions Co., Ltd.

Room 611-390, R&D Center Building, China (Hefei) International Intelligent Voice Industrial Park,
No.3333 Xiyou Road, High-tech Zone, Hefei

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 ☐ R-20141 ☐ G-20134 ☐ C-20103 ☐ T-20104
☐	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	LTE USB MODEM
Model No.	IG830
Brand Name	DJI
IMEI	Conducted Measurement: 867914050003858 Radiated Measurement: 867914050004567
Operating Temperature	-20 ~ 55 °C
Supply Voltage	4.5 ~ 5.5Vdc, typical 5Vdc
GSM Band (s)	GSM 850, DCS 1900
UMTS Band	Band 2, 4, 5
E-UTRA Band	FDD Band: 2, 4, 5, 7, 12, 13, 25, 26, 66, 71 TDD Band: 38, 41
Antenna Information	Refer to section 1.6
Remark: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.	

1.5. Radio Specification under Test

FDD T _x Frequency Range	Band 2: 1850 ~ 1910 MHz; Band 4: 1710 ~ 1755 MHz Band 5: 824 ~ 849 MHz; Band 7: 2500 ~ 2570 MHz Band 12: 699 ~ 716 MHz; Band 13: 777 ~ 787 MHz Band 25: 1850 ~ 1915 MHz; Band 26: 824 ~ 849 MHz Band 66: 1710 ~ 1780 MHz; Band 71: 663 ~ 698 MHz
FDD R _x Frequency Range	Band 2: 1930 ~ 1990 MHz; Band 4: 2110 ~ 2155 MHz Band 5: 869 ~ 894 MHz; Band 7: 2620 ~ 2690 MHz Band 12: 729 ~ 746 MHz; Band 13: 746 ~ 756 MHz Band 25: 1930 ~ 1995 MHz; Band 26: 869 ~ 894 MHz Band 66: 2110 ~ 2200 MHz; Band 71: 617 ~ 652 MHz
TDD T _x & R _x Frequency Range	Band 38: 2570 ~ 2620 MHz; Band 41: 2496 ~ 2690 MHz

Note 3: LTE band 26 transmit frequency for part 90 rule is 814 ~ 824MHz and part 22 rule is 824 ~ 849MHz. ERP over 15MHz bandwidth complies the ERP limit line of part 22 rule, therefore ERP of the partial frequency spectrum which falls within part 22 also complies.

1.6. Description of Available Antennas

Technology	Frequency Range (MHz)	Antenna Type	MaxPeak Gain (dBi)
LTE Band 2	1850 ~ 1910	PIFA	1.01
LTE Band 4	1710 ~ 1755		1.36
LTE Band 5	824 ~ 849		-0.11
LTE Band 7	2500 ~ 2570		0.90
LTE Band 12	699 ~ 716		-1.50
LTE Band 13	777 ~ 787		-1.50
LTE Band 25	1850 ~ 1915		1.01
LTE Band 26	814~849		-0.11
LTE Band 38	2570 ~ 2620		0.90
LTE Band 41	2496 ~ 2690		0.90
LTE Band 66	1710 ~ 1780		1.36
LTE Band 71	663 ~ 698		-0.10

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 412172 D01 v01r01: Determining ERP and EIRP

1.8. Device Capabilities

This device contains the following capabilities:

Working on LTE Band 2, 4, 5, 7, 12, 13, 25, 26, 38, 41, 66, 71.

LTE Band 66 (1710 ~ 1780 MHz) overlaps the entire frequency range of LTE Band 4 (1710 ~ 1755 MHz). Therefore, test data provided in this report covers Band 4 as well as Band 66.

LTE Band 25 (1850 ~ 1915 MHz) overlaps the entire frequency range of LTE Band 2 (1850 ~ 1910 MHz). Therefore, test data provided in this report covers Band 2 as well as Band 25.

LTE Band 26 (814 ~ 849 MHz) overlaps the entire frequency range of LTE Band 5 (824 ~ 849 MHz). Therefore, test data provided in this report covers Band 5 as well as Band 26.

LTE Band 41 (2496 ~ 2690 MHz) overlaps the entire frequency range of LTE Band 38 (2570 ~ 2620 MHz). Therefore, test data provided in this report covers Band 38 as well as Band 41.

1.9. EMI Suppression Device(s)/Modifications

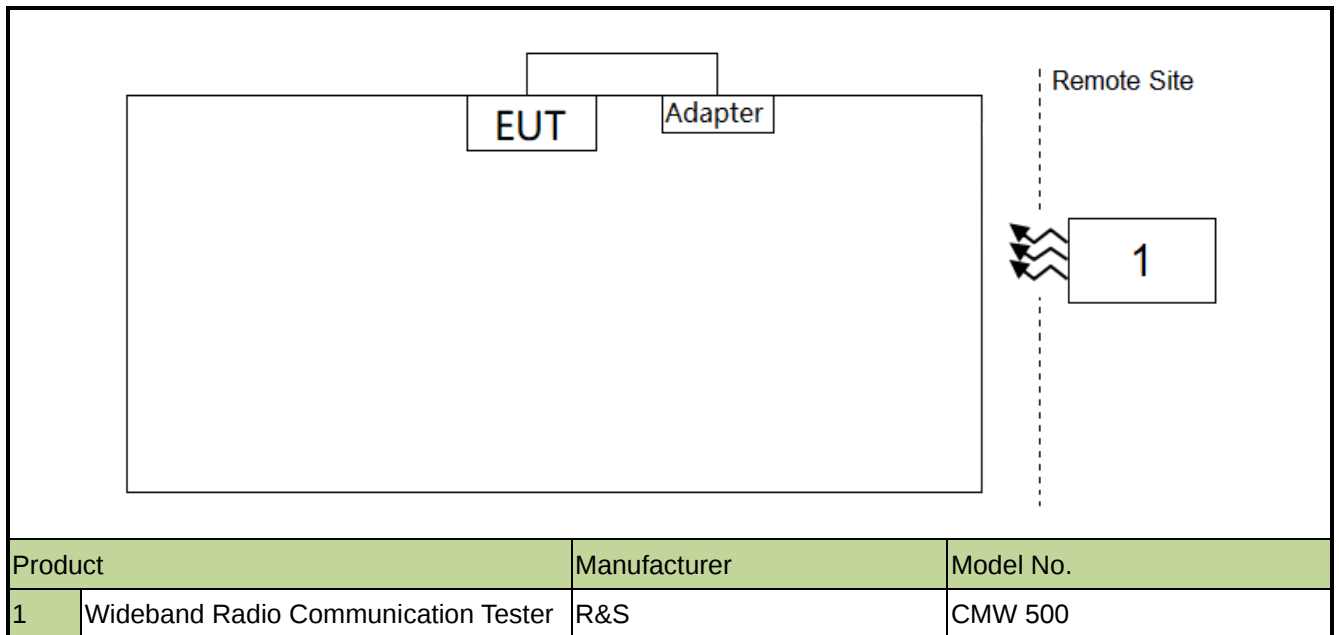
No EMI suppression device(s) were added and/or no modifications were made during testing.

1.10. Maximum Power, Frequency Tolerance, and Emission Designator

LTE Band 2/25		QPSK			16QAM		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
1.4	1850.7 ~ 1909.3	1M08G7D	-	0.1256	1M08W7D	-	0.0982
3	1851.5 ~ 1908.5	2M69G7D	-	0.1303	2M68W7D	-	0.1035
5	1852.5 ~ 1907.5	4M49G7D	-	0.1265	4M47W7D	-	0.0935
10	1855.0 ~ 1905.0	8M95G7D	-	0.1303	8M93W7D	-	0.1016
15	1857.5 ~ 1902.5	13M4G7D	-	0.1361	13M4W7D	-	0.1062
20	1860.0 ~ 1900.0	17M8G7D	-0.0035	0.1225	17M9W7D	-	0.0951
LTE Band 4/66		QPSK			16QAM		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
1.4	1710.7 ~ 1754.3	1M08G7D	-	0.1112	1M08W7D	-	0.0942
3	1711.5 ~ 1753.5	2M69G7D	-	0.1143	2M69W7D	-	0.0951
5	1712.5 ~ 1752.5	4M49G7D	-	0.1119	4M48W7D	-	0.0895
10	1715.0 ~ 1750.0	8M95G7D	-	0.1202	8M94W7D	-	0.1033
15	1717.5 ~ 1747.5	13M4G7D	-	0.1205	13M4W7D	-	0.1009
20	1720.0 ~ 1745.0	17M9G7D	0.0057	0.1219	17M9W7D	-	0.0975

LTE Band 5/26		QPSK			16QAM		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
1.4	824.7 ~ 848.3	1M08G7D	-	0.1291	1M08W7D	-	0.1019
3	825.5 ~ 847.5	2M68G7D	-	0.1324	2M68W7D	-	0.1038
5	826.5 ~ 846.5	4M49G7D	-	0.1315	4M47W7D	-	0.0993
10	829.0 ~ 844.0	8M94G7D	-0.0066	0.1393	8M94W7D	-	0.1114
LTE Band 7		QPSK			16QAM		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
5	2502.5 ~ 2567.5	4M49G7D	-	0.2500	4M46W7D	-	0.2000
10	2505.0 ~ 2565.0	8M94G7D	-	0.2655	8M93W7D	-	0.2128
15	2507.5 ~ 2562.5	13M4G7D	-	0.2582	13M4W7D	-	0.2037
20	2510.0 ~ 2560.0	17M8G7D	-0.0040	0.2559	17M8W7D	-	0.1941
LTE Band 12		QPSK			16QAM		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
1.4	699.7 ~ 715.3	1M08G7D	-	0.0942	1M08W7D	-	0.0798
3	700.5 ~ 714.5	2M68G7D	-	0.1000	2M68W7D	-	0.0800
5	701.5 ~ 713.5	4M46G7D	-	0.0977	4M46W7D	-	0.0741
10	704.0 ~ 711.0	8M92G7D	-0.0049	0.0984	8M93W7D	-	0.0771
LTE Band 13		QPSK			16QAM		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
5	779.5 ~ 784.5	4M49G7D	-	0.1052	4M46W7D	-	0.0849
10	782.0	8M94G7D	0.0052	0.1035	8M93W7D	-	0.0830
LTE Band 38/41		QPSK			16QAM		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max EIRP (W)	Designator	Tolerance (ppm)	Max EIRP (W)
5	2572.5 ~ 2617.5	4M47G7D	-	0.2541	4M48W7D	-	0.2123
10	2575.0 ~ 2615.0	8M94G7D	-	0.2594	8M93W7D	-	0.2061
15	2577.5 ~ 2612.5	13M4G7D	-	0.2455	13M4W7D	-	0.2148
20	2580.0 ~ 2610.0	17M8G7D	-0.0047	0.2460	17M9W7D	-	0.1871
LTE Band 71		QPSK			16QAM		
BW (MHz)	Feq. (MHz)	Designator	Tolerance (ppm)	Max Power (W)	Designator	Tolerance (ppm)	Max Power (W)
5	665.0 ~ 695.5	4M48G7D	-	0.1409	4M47W7D	-	0.1081
10	668.0 ~ 693.0	8M92G7D	-	0.1346	8M91W7D	-	0.1127
15	670.5 ~ 690.5	13M4G7D	-	0.1452	13M4W7D	-	0.1262
20	673.0 ~ 688.0	17M8G7D	-0.0061	0.1199	17M8W7D	-	0.1023

1.11. Configuration of Tested System



1.12. Test Environment Condition

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

2. TEST EQUIPMENT CALIBRATION DATE

Radiated Emission (WZ-AC1)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2022/01/04
Wideband Radio Communication Tester	R&S	CMW 500	MRTSUE06243	1 year	2021/10/20
PXA Signal Analyzer	Keysight	9030B	MRTSUE06395	1 year	2022/08/29
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/11/08
Bilog Period Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2022/08/08
Broad Band Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06023	1 year	2022/09/26
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06597	1 year	2022/12/14
Microwave System Amplifier	Agilent	83017A	MRTSUE06076	1 year	2021/11/14
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2022/06/10
Thermohygrometer	Testo	608-H1	MRTSUE06403	1 year	2022/07/25
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06212	1 year	2022/04/29

Radiated Emission (WZ-AC2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Keysight	N9038A	MRTSUE06125	1 year	2022/06/24
Wideband Radio Communication Tester	R&S	CMW 500	MRTSUE06243	1 year	2021/10/20
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/11/08
Bilog Period Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2022/05/24
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06171	1 year	2021/10/25
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06597	1 year	2022/12/14
Broad Band Coaxial Preamplifier	Schwarzbeck	BBV 9718	MRTSUE06176	1 year	2021/11/24
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2022/06/10
Temperature/Humidity Meter	Minggao	ETH529	MRTSUE06170	1 year	2021/12/08
Anechoic Chamber	RIKEN	Chamber-AC2	MRTSUE06213	1 year	2022/04/29

Conducted Test Equipment (WZ-SR6, WZ-TR3, SIP-SR1)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2022/04/13
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06457	1 year	2022/06/24
Signal Analyzer	R&S	FSV40	MRTSUE06218	1 year	2022/04/13
Wideband Radio Communication Tester	R&S	CMW 500	MRTSUE06243	1 year	2021/10/20
Power Meter	Agilent	U2021XA	MRTSUE06030	1 year	2021/10/22
DC Power Supply	GWINSTEK	DPS-3303C	MRTSUE06064	N/A	N/A
True RMS Clamp Meter	Fluke	319	MRTSUE06947	1 year	2022/05/05
Directional Coupler	Agilent	87301D	MRTSUE06082	1 year	2022/03/08
Dual Directional Coupler	Agilent	7778D	MRTSUE06083	1 year	2022/03/24
Attenuator	MVE	6dB	MRTSUE06534	N/A	N/A
Attenuator	MVE	10dB	MRTSUE06543	N/A	N/A
Temperature & Humidity Chamber	BAOYT	BYH-150CL	MRTSUE06051	1 year	2021/10/22
Thermohygrometer	testo	608-H1	MRTSUE06401	1 year	2022/07/25
Temperature Chamber	BAOYT	BYG-408CS	MRTSUE06847	1 year	2022/02/23

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% ($U=2U_c(y)$): 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% ($U=2U_c(y)$): 0.78dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 1.13dB
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 0.28%
Frequency Stability
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 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 4.2
2.1055, 22.355 24.235, 27.54	Frequency Stability	< 2.5 ppm		Pass	Section 4.3
22.913(a)(5)	Equivalent Radiated Power (Band 5/26)	< 7 Watts Max ERP		Pass	Section 4.4
27.50(b)(9) 27.50(c)(9)	Equivalent Radiated Power (Band 12, 13, 17)	< 30 Watts Max ERP			
27.50(c)(10)	Equivalent Radiated Power (Band 71)	< 3 Watts Max ERP			
24.232(c) 27.50(h)(2)	Equivalent Isotropic Radiated Power (Band 2/25, 7, 38/41)	< 2 Watts Max EIRP			
27.50(d)(4) 27.50(j)(3)	Equivalent Isotropic Radiated Power (Band 4/66)	< 1 Watts Max EIRP			
2.1051, 22.917(a) 24.238(a), 27.53(c), (g), (h), (l)(2), (m)	Band Edge	Refer to section 4.5		Pass	Section 4.5
24.232(d), 27.50(d)(5)	Peak to Average Ratio	< 13dB		Pass	Section 4.6
2.1051, 22.917(a) 24.238(a), 27.53(c), (g), (h), (l)(2), (m)	Spurious Emission	Refer to section 4.7		Pass	Section 4.7
2.1051, 22.917(a) 24.238(a), 27.53(c), (g), (h), (l)(2), (m)	Spurious Emission	Refer to section 4.8	Radiated	Pass	Section 4.8

Notes:

- 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.
- All supported modulation types were evaluated. The worst-case emission of modulation was selected. Therefore, the Frequency Stability, Channel Band Edge, Conducted Spurious Emission, Radiated Spurious Emission were presented the 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.

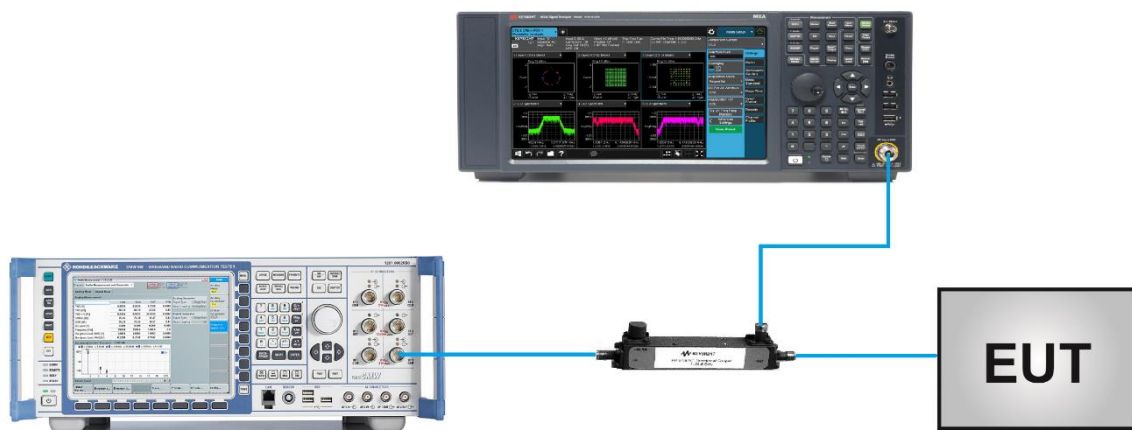
4.2.2. Test Procedure

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 $\geq 3 \times$ 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



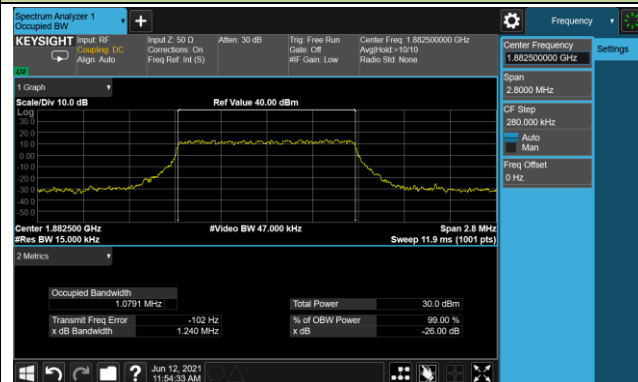
4.2.5. Test Result

Product	LTE USB MODEM	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/06/02 ~ 2021/06/12
Test Band	Band 2/25		

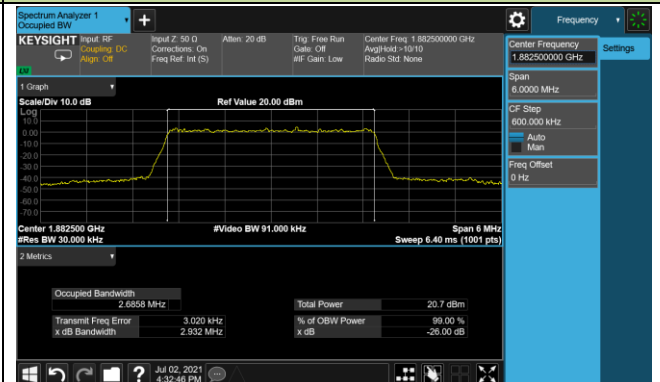
Channel	Frequency (MHz)	Bandwidth (MHz)	99% Bandwidth (MHz)
QPSK			
26365	1882.5	1.4	1.08
		3	2.69
		5	4.49
		10	8.95
		15	13.42
		20	17.83
16QAM			
26365	1882.5	1.4	1.08
		3	2.68
		5	4.47
		10	8.93
		15	13.41
		20	17.88

99% Bandwidth - QPSK

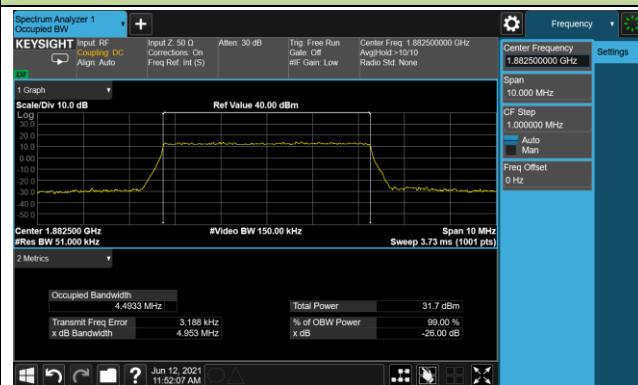
1.4MHz Channel Bandwidth



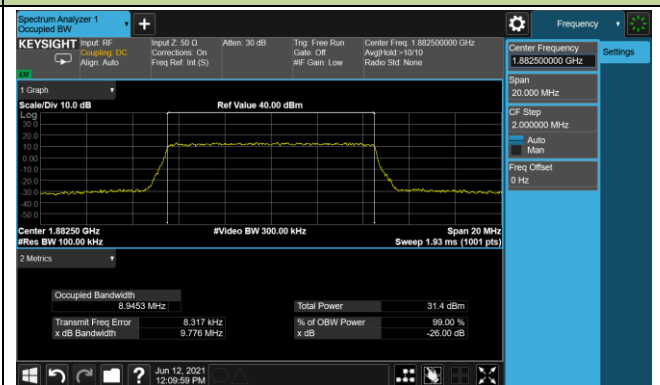
3MHz Channel Bandwidth



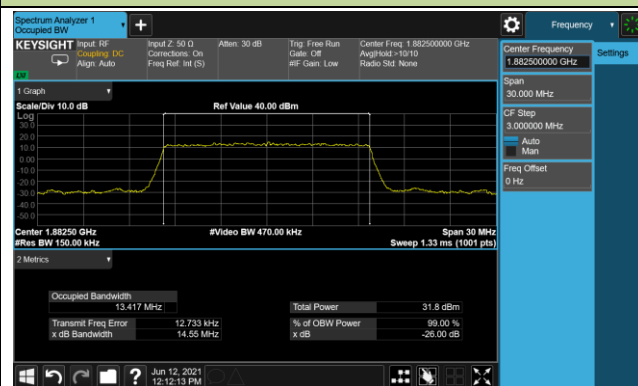
5MHz Channel Bandwidth



10MHz Channel Bandwidth



15MHz Channel Bandwidth

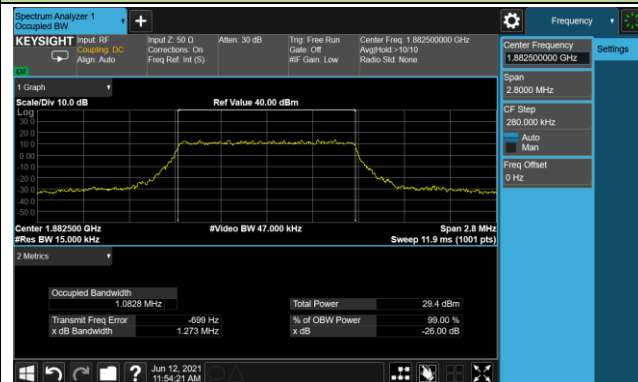


20MHz Channel Bandwidth



99% Bandwidth - 16QAM

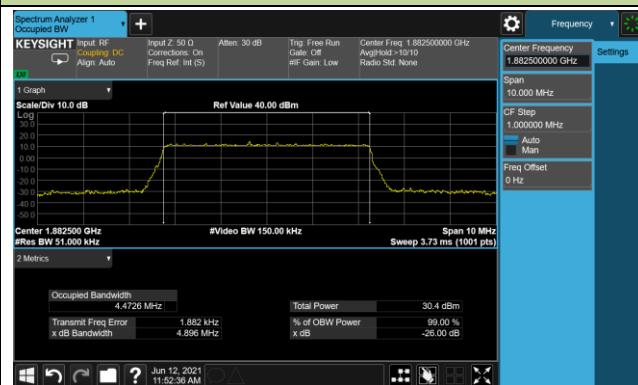
1.4MHz Channel Bandwidth



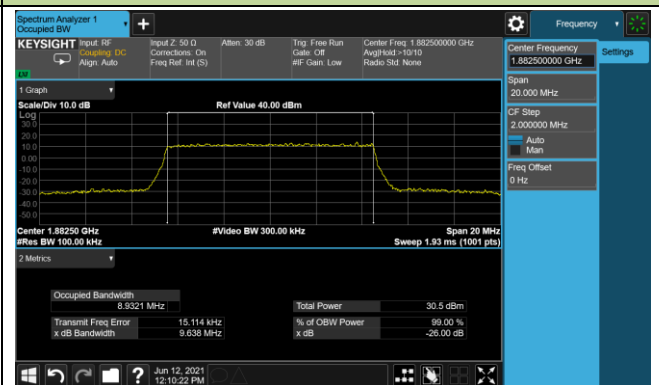
3MHz Channel Bandwidth



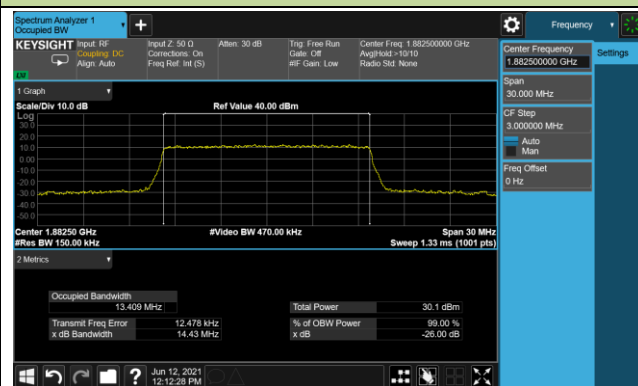
5MHz Channel Bandwidth



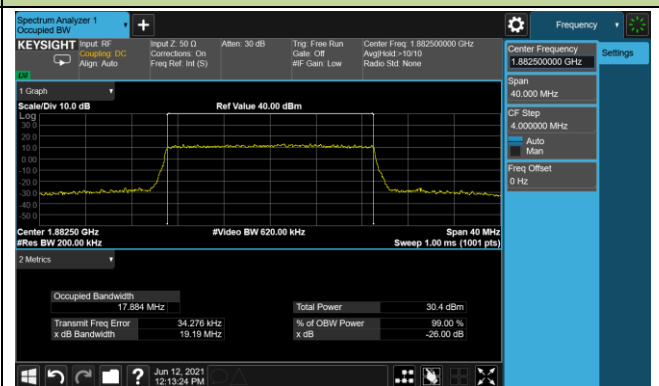
10MHz Channel Bandwidth



15MHz Channel Bandwidth



20MHz Channel Bandwidth

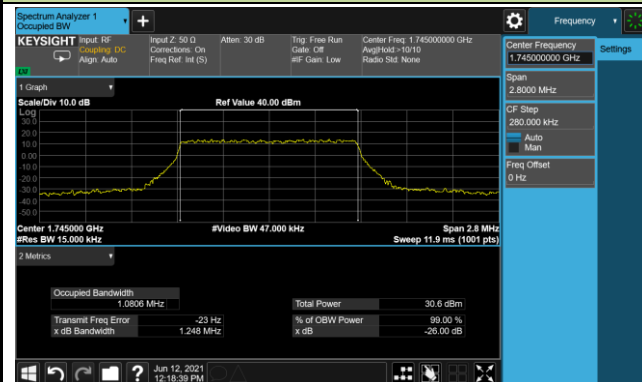


Product	LTE USB MODEM	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/06/12
Test Band	Band 4/66		

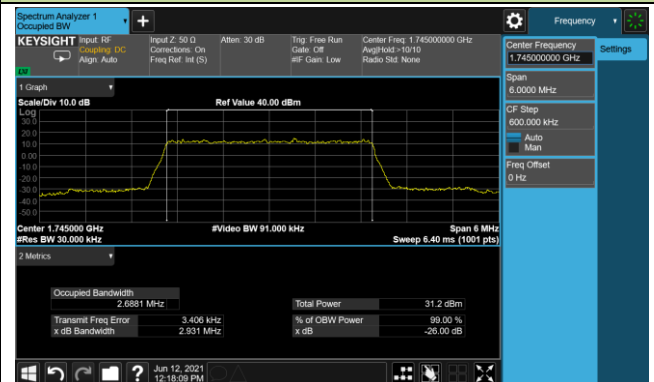
Channel	Frequency (MHz)	Bandwidth (MHz)	99% Bandwidth (MHz)
QPSK			
20300	1745.0	1.4	1.08
		3	2.69
		5	4.49
		10	8.95
		15	13.41
		20	17.87
16QAM			
20300	1745.0	1.4	1.08
		3	2.69
		5	4.48
		10	8.94
		15	13.43
		20	17.91

99% Bandwidth - QPSK

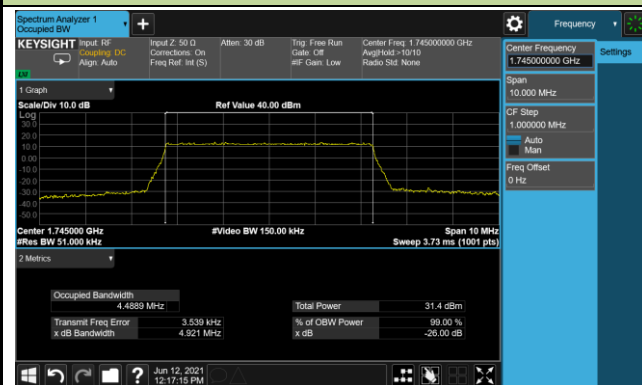
1.4MHz Channel Bandwidth



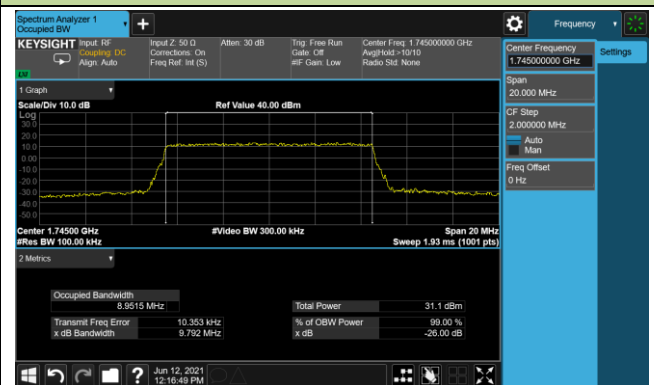
3MHz Channel Bandwidth



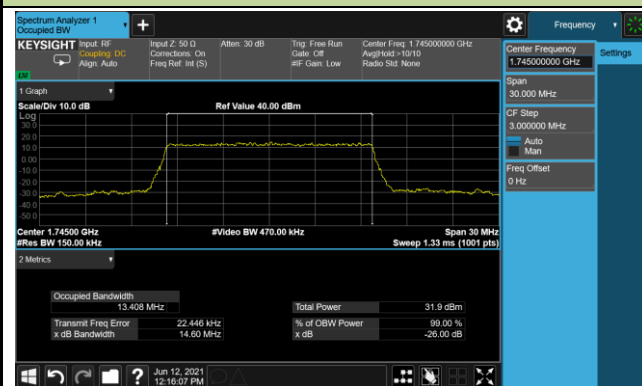
5MHz Channel Bandwidth



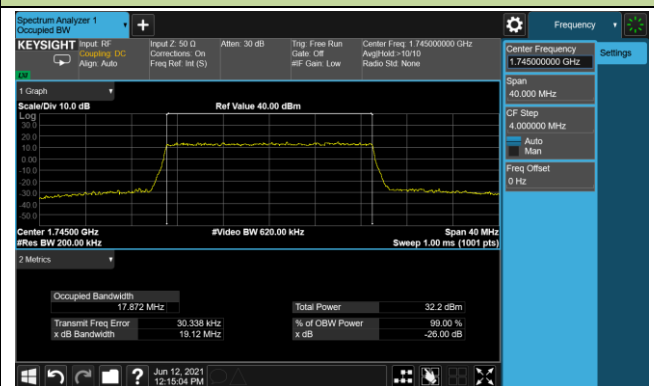
10MHz Channel Bandwidth



15MHz Channel Bandwidth

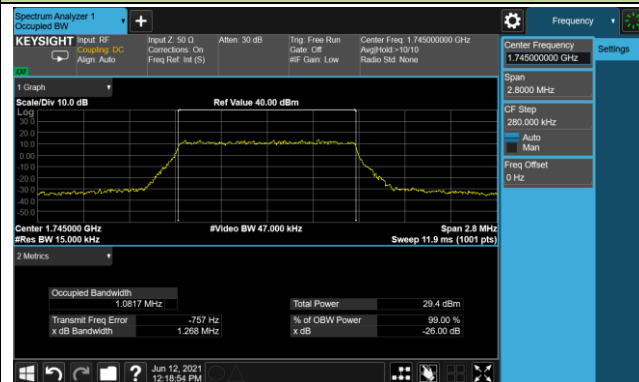


20MHz Channel Bandwidth

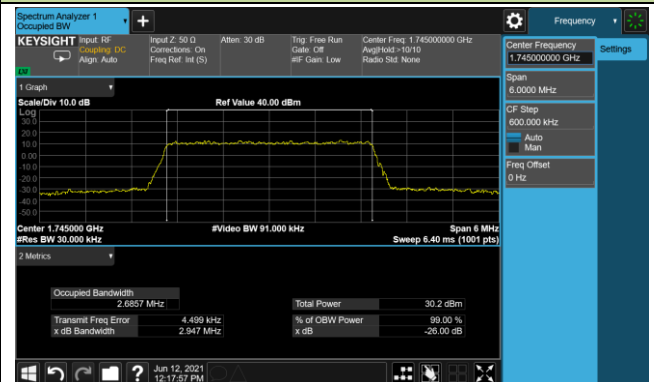


99% Bandwidth - 16QAM

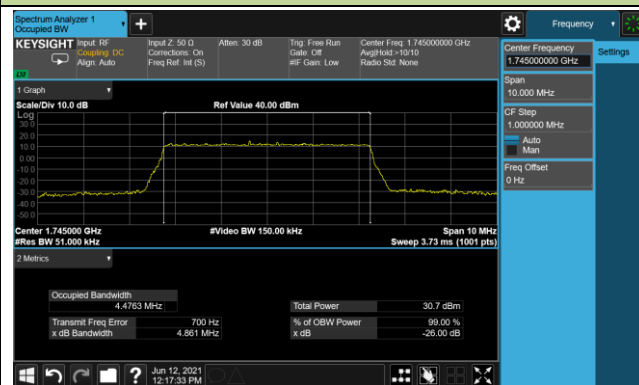
1.4MHz Channel Bandwidth



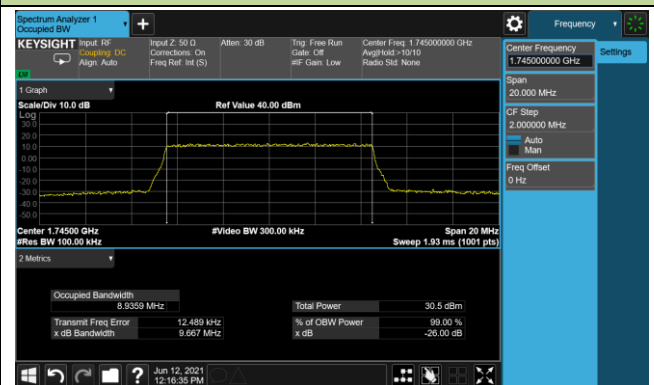
3MHz Channel Bandwidth



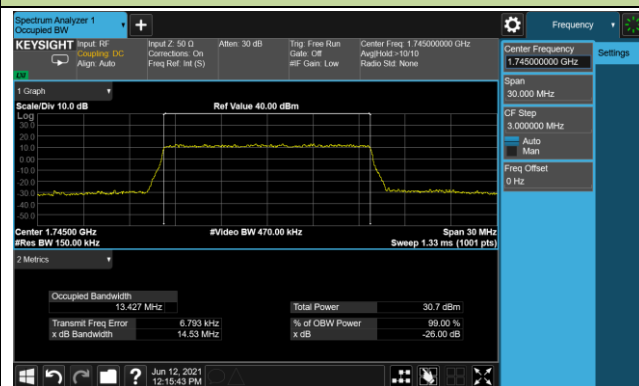
5MHz Channel Bandwidth



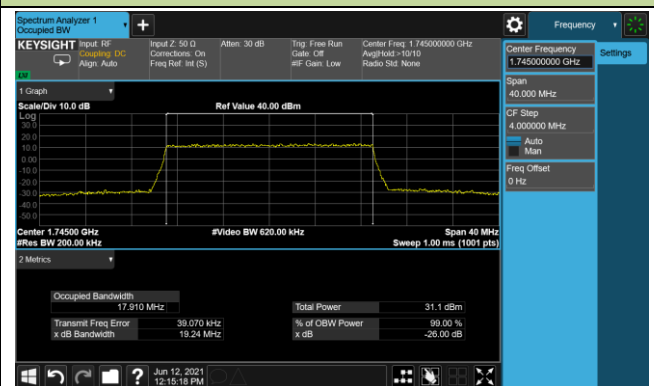
10MHz Channel Bandwidth



15MHz Channel Bandwidth



20MHz Channel Bandwidth

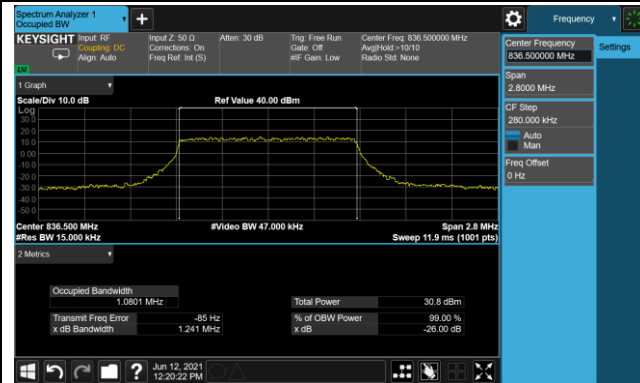


Product	LTE USB MODEM	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/06/12
Test Band	LTE Band 5/26		

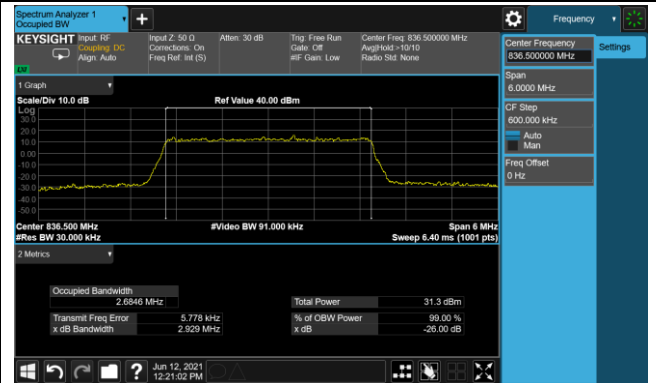
Channel	Frequency (MHz)	Bandwidth (MHz)	99% Bandwidth (MHz)
QPSK			
20525	836.5	1.4	1.08
		3	2.68
		5	4.49
		10	8.94
		15	13.38
27185	821.5	15	13.40
16QAM			
20525	836.5	1.4	1.08
		3	2.68
		5	4.47
		10	8.94
		15	13.39
27185	821.5	15	13.37

99% Bandwidth - QPSK

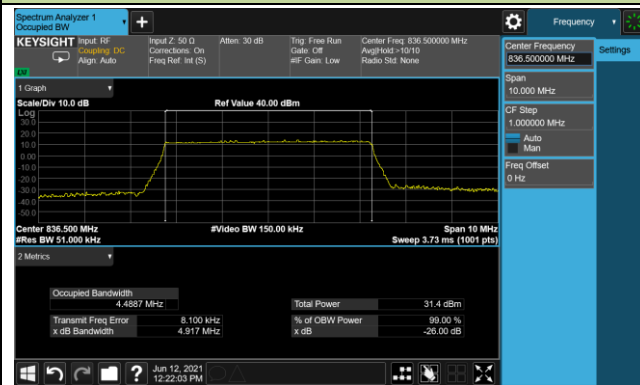
1.4MHz Channel Bandwidth



3MHz Channel Bandwidth



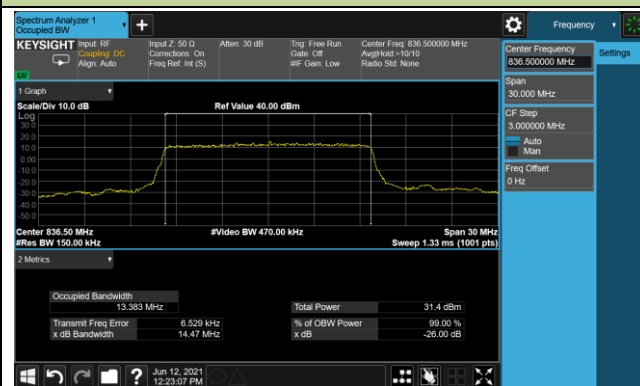
5MHz Channel Bandwidth



10MHz Channel Bandwidth



15MHz Channel Bandwidth

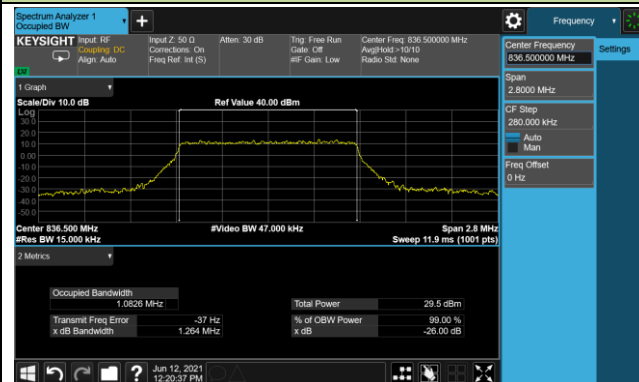


821.5MHz



99% Bandwidth - 16QAM

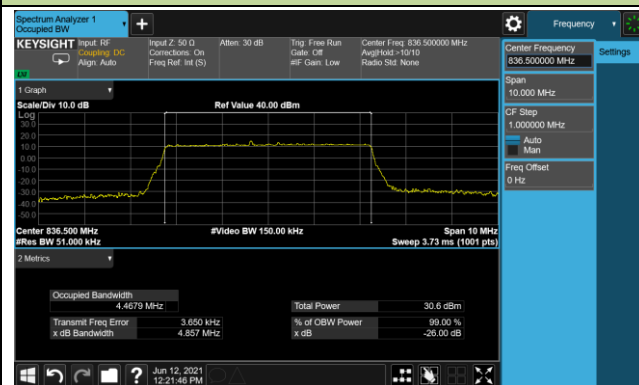
1.4MHz Channel Bandwidth



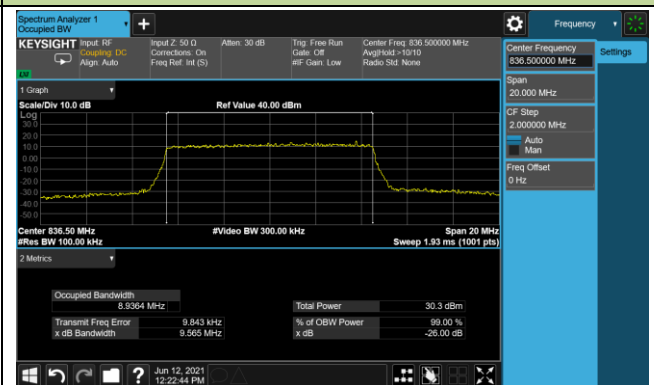
3MHz Channel Bandwidth



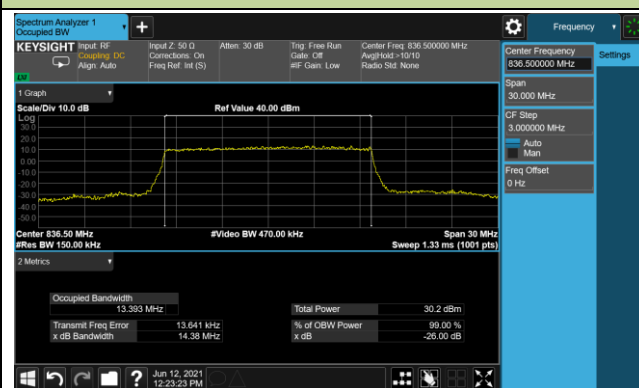
5MHz Channel Bandwidth



10MHz Channel Bandwidth



15MHz Channel Bandwidth



821.5MHz

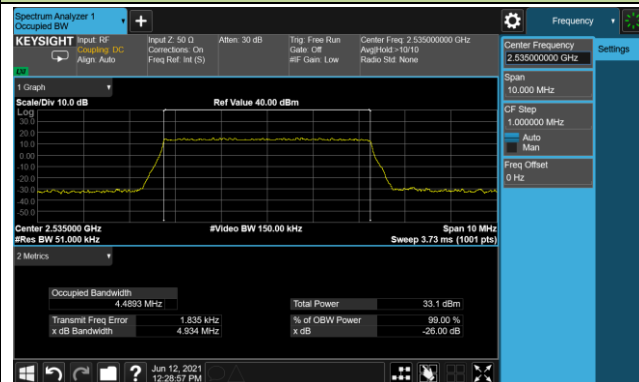


Product	LTE USB MODEM	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/06/12
Test Band	LTE Band 7		

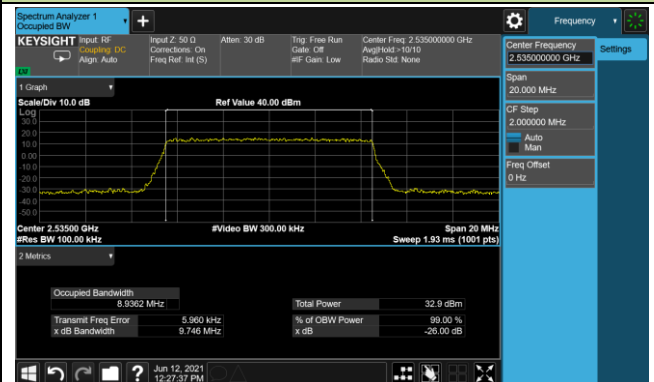
Channel	Frequency (MHz)	Bandwidth (MHz)	99% Bandwidth (MHz)
QPSK			
21100	2535.0	5	4.49
		10	8.94
		15	13.40
		20	17.83
16QAM			
21100	2535.0	5	4.46
		10	8.93
		15	13.41
		20	17.82

99% Bandwidth - QPSK

5MHz Channel Bandwidth



10MHz Channel Bandwidth



15MHz Channel Bandwidth

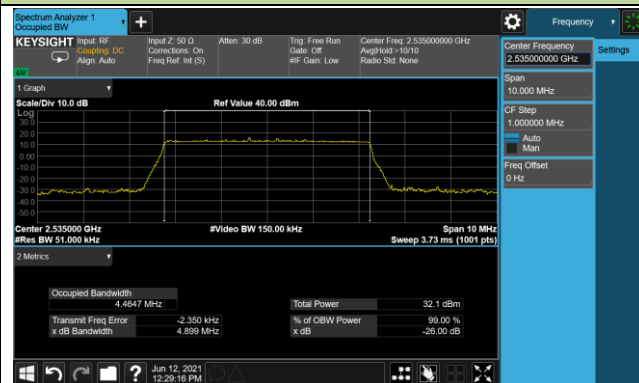


20MHz Channel Bandwidth

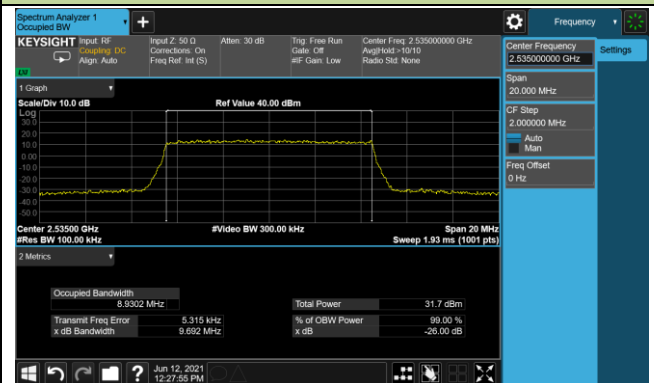


99% Bandwidth - 16QAM

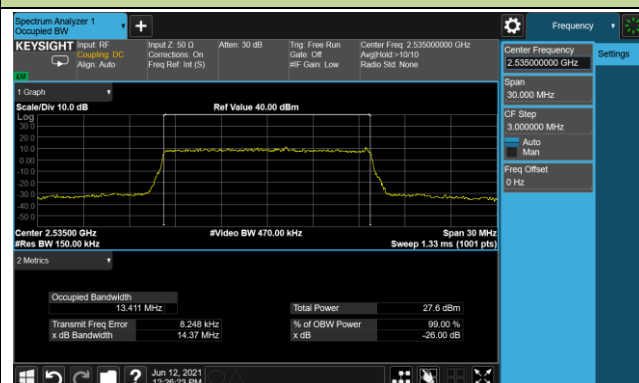
5MHz Channel Bandwidth



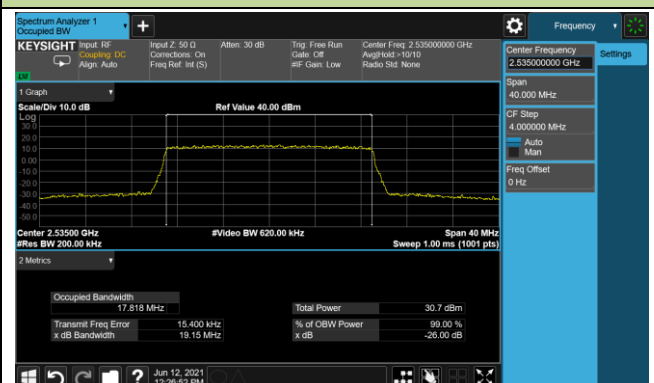
10MHz Channel Bandwidth



15MHz Channel Bandwidth



20MHz Channel Bandwidth

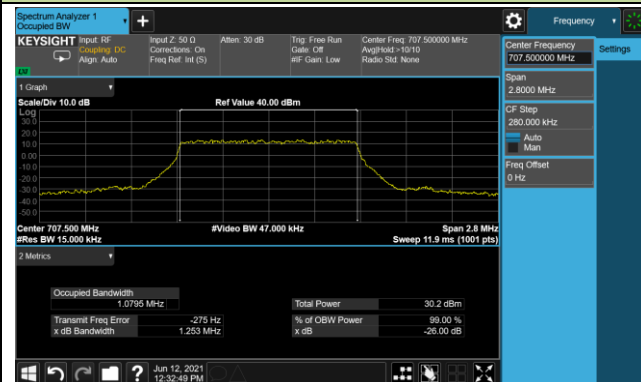


Product	LTE USB MODEM	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/06/02 ~ 2021/06/12
Test Band	LTE Band 12		

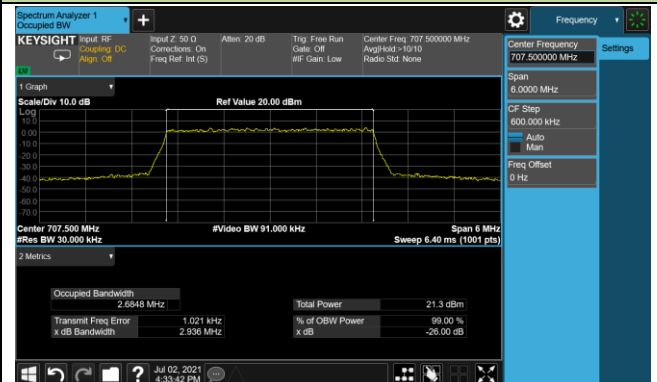
Channel	Frequency (MHz)	Bandwidth (MHz)	99% Bandwidth (MHz)
QPSK			
23095	707.5	1.4	1.08
		3	2.68
		5	4.46
		10	8.92
16QAM			
23095	707.5	1.4	1.08
		3	2.68
		5	4.46
		10	8.93

99% Bandwidth - QPSK

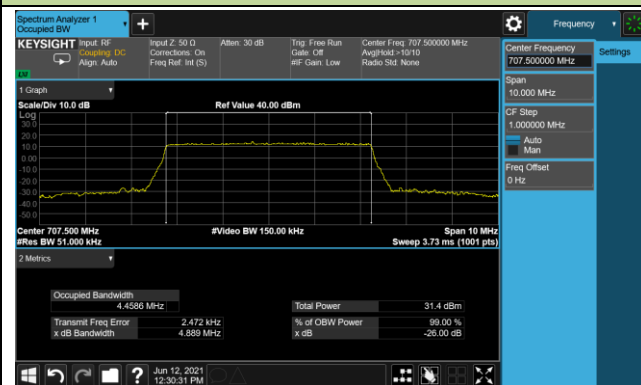
1.4MHz Channel Bandwidth



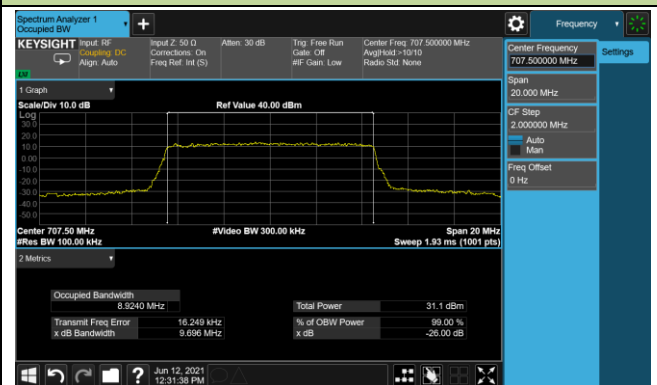
3MHz Channel Bandwidth



5MHz Channel Bandwidth

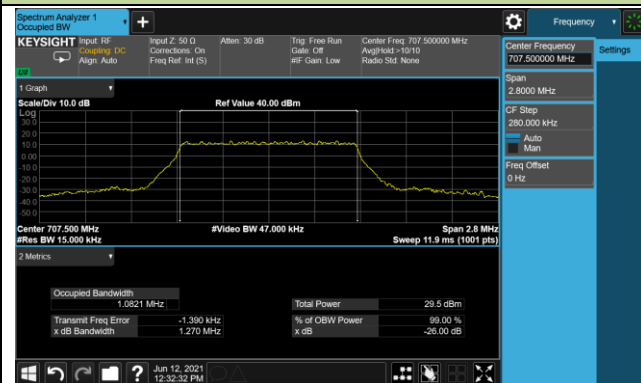


10MHz Channel Bandwidth

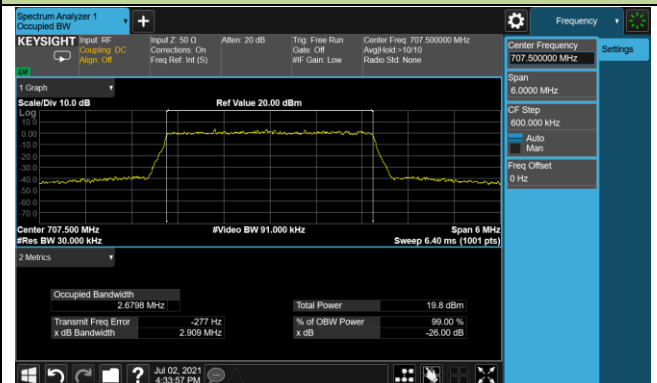


99% Bandwidth - 16QAM

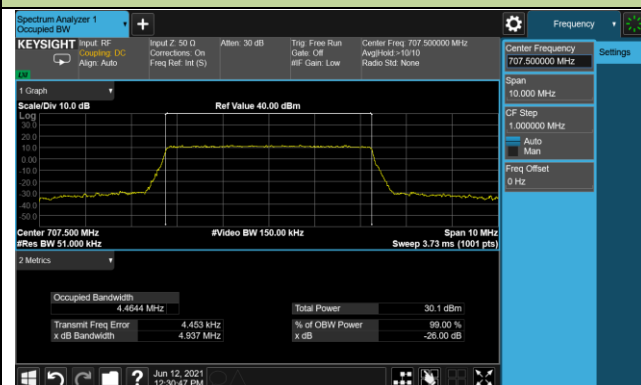
1.4MHz Channel Bandwidth



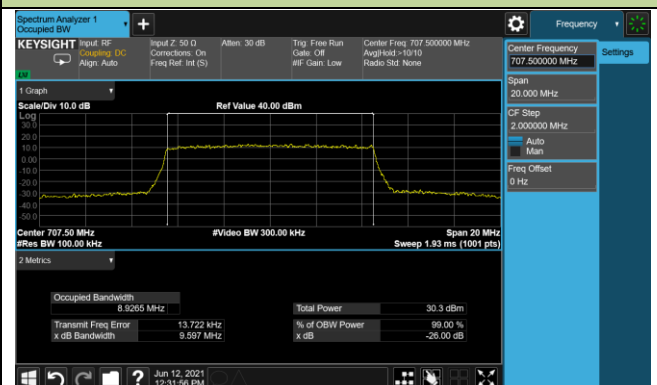
3MHz Channel Bandwidth



5MHz Channel Bandwidth



10MHz Channel Bandwidth

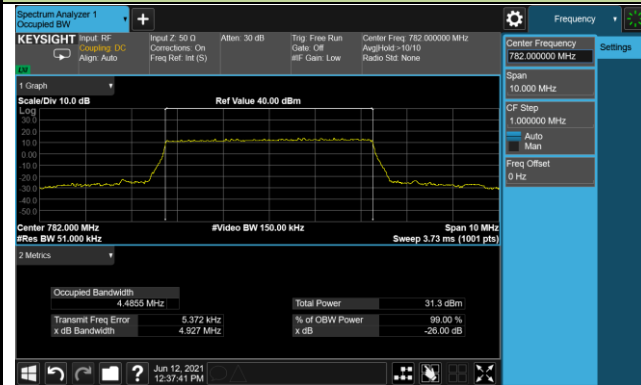


Product	LTE USB MODEM	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/06/12
Test Band	LTE Band 13		

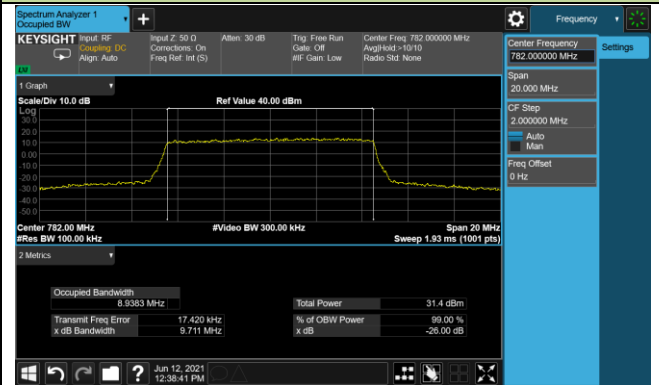
Channel	Frequency (MHz)	Bandwidth (MHz)	99% Bandwidth (MHz)
QPSK			
23230	782.0	5	4.49
		10	8.94
16QAM			
23230	782.0	5	4.46
		10	8.93

99% Bandwidth - QPSK

5MHz Channel Bandwidth

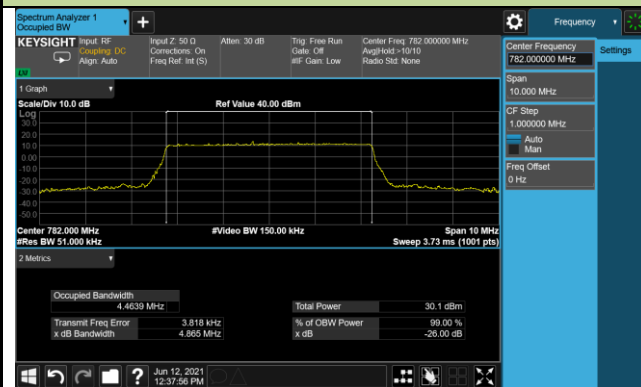


10MHz Channel Bandwidth

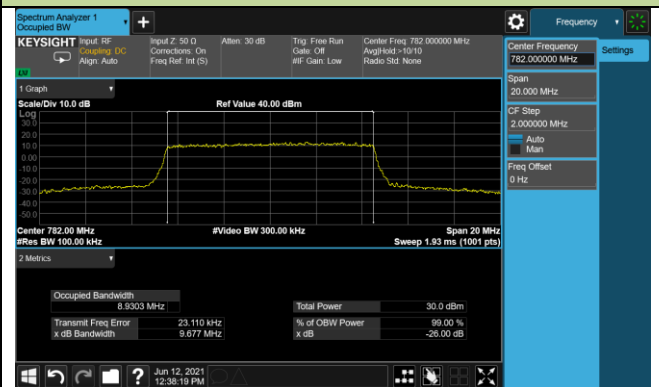


99% Bandwidth - 16QAM

5MHz Channel Bandwidth



10MHz Channel Bandwidth

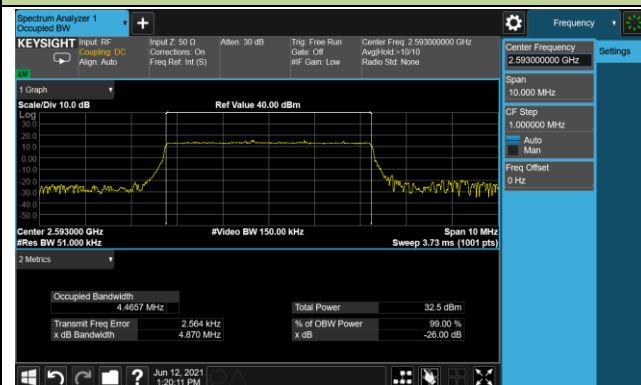


Product	LTE USB MODEM	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/06/12
Test Band	LTE Band 38/41		

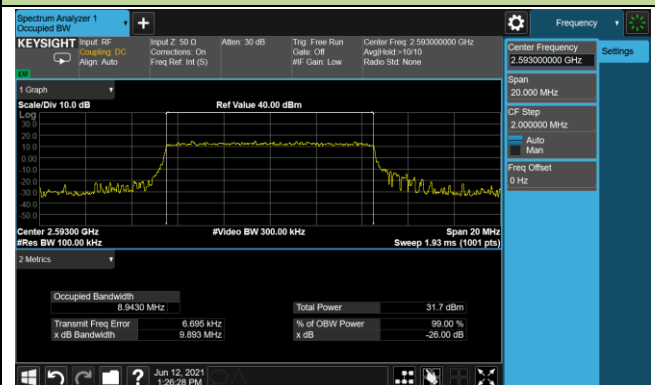
Channel	Frequency (MHz)	Bandwidth (MHz)	99% Bandwidth (MHz)
QPSK			
37980	2593.0	5	4.47
		10	8.94
		15	13.39
		20	17.82
16QAM			
37980	2593.0	5	4.48
		10	8.93
		15	13.40
		20	17.85

99% Bandwidth - QPSK

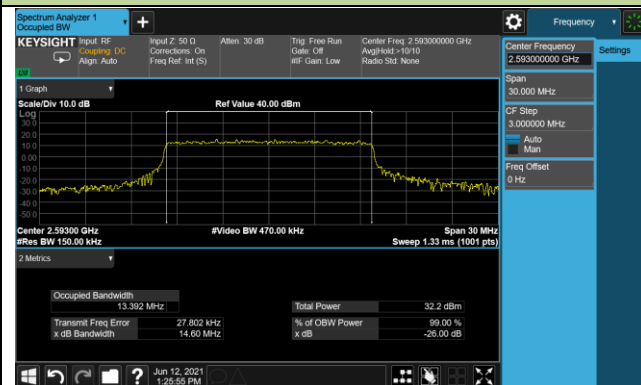
5MHz Channel Bandwidth



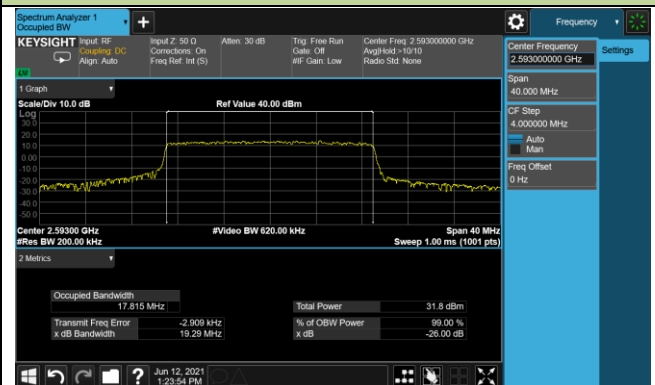
10MHz Channel Bandwidth



15MHz Channel Bandwidth

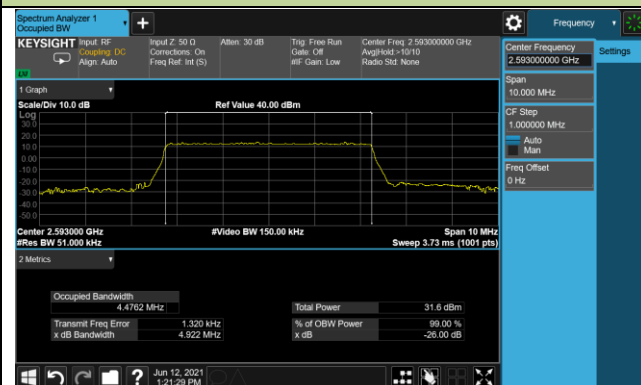


20MHz Channel Bandwidth

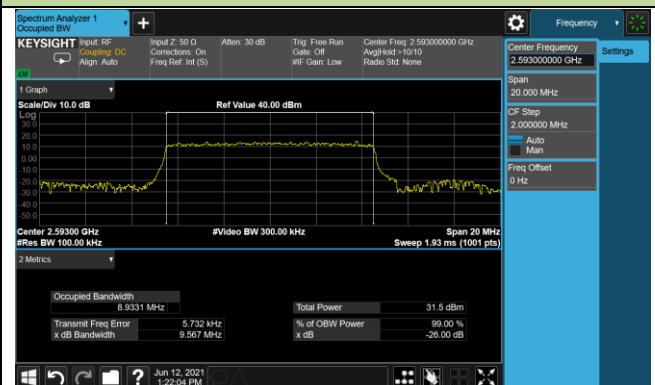


99% Bandwidth - 16QAM

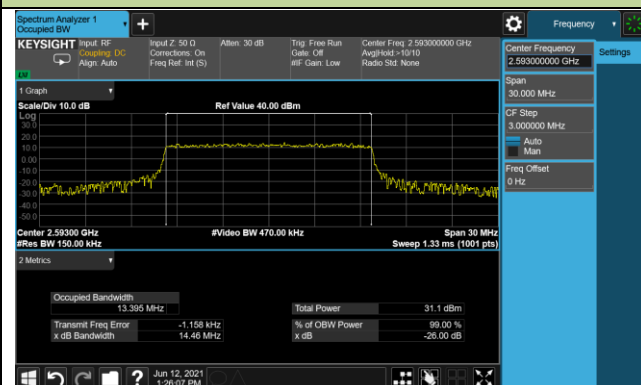
5MHz Channel Bandwidth



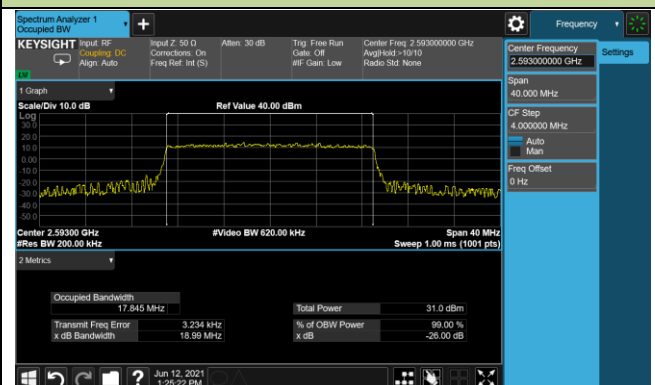
10MHz Channel Bandwidth



15MHz Channel Bandwidth



20MHz Channel Bandwidth

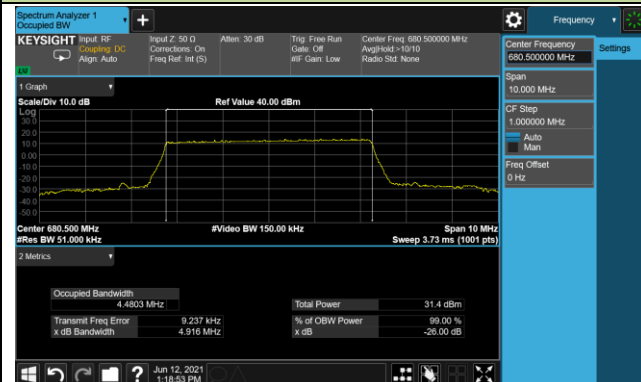


Product	LTE USB MODEM	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/06/12
Test Band	LTE Band 71		

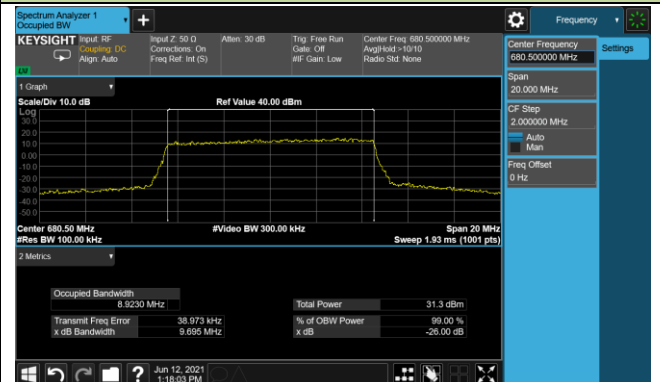
Channel	Frequency (MHz)	Bandwidth (MHz)	99% Bandwidth (MHz)
QPSK			
133297	680.5	5	4.48
		10	8.92
		15	13.37
		20	17.78
16QAM			
133297	680.5	5	4.47
		10	8.91
		15	13.36
		20	17.78

99% Bandwidth - QPSK

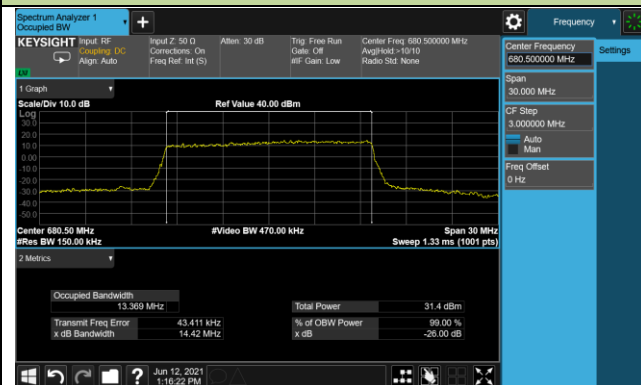
5MHz Channel Bandwidth



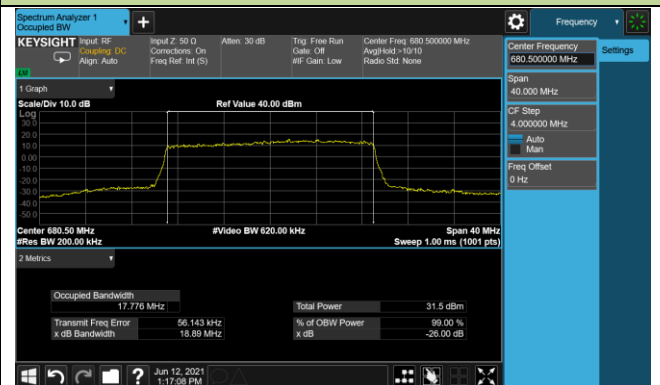
10MHz Channel Bandwidth



15MHz Channel Bandwidth

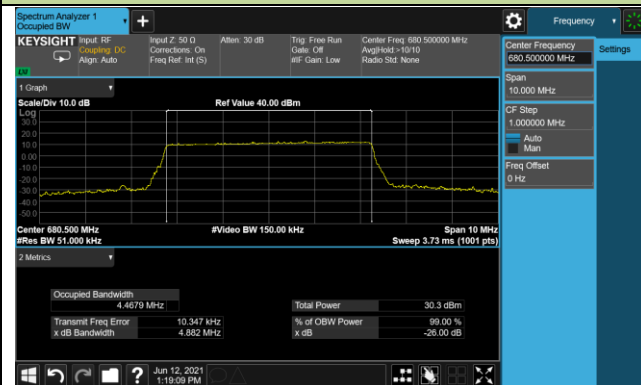


20MHz Channel Bandwidth



99% Bandwidth - 16QAM

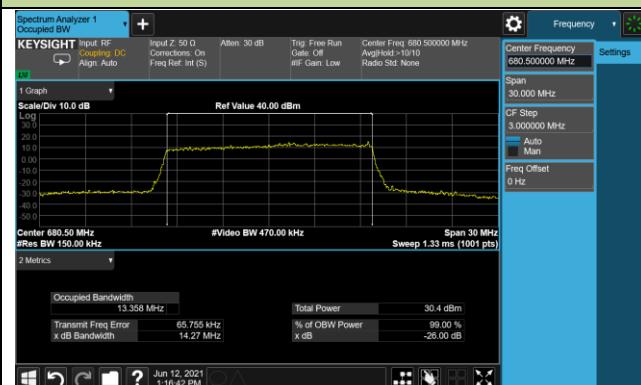
5MHz Channel Bandwidth



10MHz Channel Bandwidth



15MHz Channel Bandwidth



20MHz Channel Bandwidth



4.3. Frequency Stability Measurement

4.3.1. Test Limit

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ ($\pm 2.5\text{ppm}$) of the center frequency.

4.3.2. Test Procedure

ANSI C63.26-2015 - Section 5.6

4.3.3. Test Setting

Frequency Stability Under Temperature Variations:

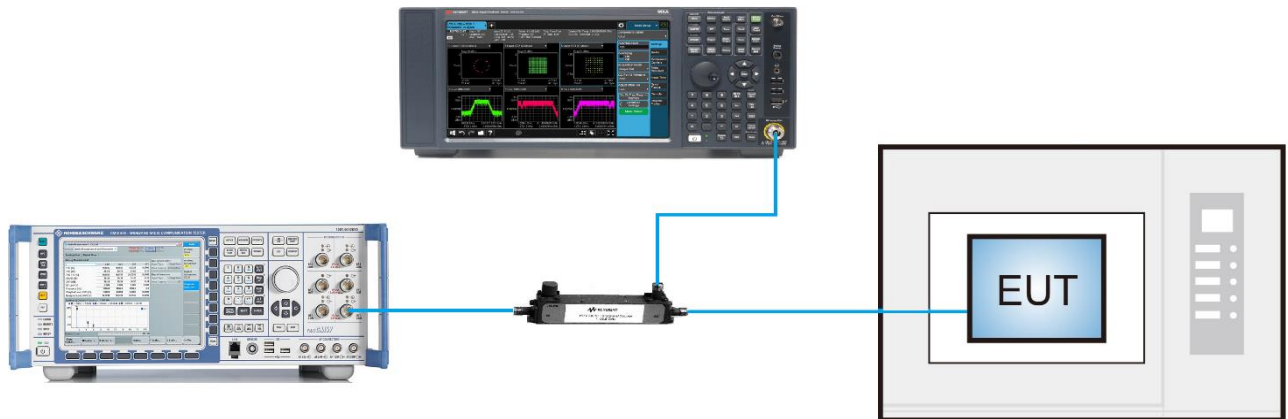
The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to highest. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C decreased per stage until the lowest temperature reached.

Frequency Stability Under Voltage Variations:

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation ($\pm 15\%$) and endpoint, record the maximum frequency change.

4.3.4. Test Setup



4.3.5. Test Result

Product	LTE USB MODEM	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/06/11
Test Band	LTE Band 2/25		

Power (Vdc)	Temp (°C)	Frequency Tolerance (ppm)
5	- 30	-0.0013
	- 20	-0.0008
	- 10	-0.0027
	0	-0.0037
	+ 10	0.0016
	+ 20	-0.0035
	+ 30	-0.0032
	+ 40	-0.0030
	+ 50	-0.0034
5.75	+ 20	-0.0005
4.25	+ 20	-0.0005

Product	LTE USB MODEM	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/06/11
Test Band	LTE Band 4/66		

Power (Vdc)	Temp (°C)	Frequency Tolerance (ppm)
5	- 30	0.0057
	- 20	-0.0018
	- 10	-0.0010
	0	-0.0016
	+ 10	0.0005
	+ 20	0.0013
	+ 30	-0.0011
	+ 40	-0.0009
	+ 50	-0.0026
5.75	+ 20	0.0032
4.25	+ 20	0.0028

Product	LTE USB MODEM	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/06/11
Test Band	LTE Band 5/26		

Power (Vdc)	Temp (°C)	Frequency Tolerance (ppm)
5	- 30	0.0052
	- 20	0.0041
	- 10	0.0018
	0	0.0018
	+ 10	0.0000
	+ 20	-0.0066
	+ 30	-0.0058
	+ 40	0.0025
	+ 50	0.0020
5.75	+ 20	0.0031
4.25	+ 20	0.0031

Product	LTE USB MODEM	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/06/11
Test Band	LTE Band 7		

Power (Vdc)	Temp (°C)	Frequency Tolerance (ppm)
5	- 30	-0.0018
	- 20	-0.0021
	- 10	-0.0014
	0	-0.0016
	+ 10	-0.0025
	+ 20	-0.0006
	+ 30	-0.0022
	+ 40	-0.0010
	+ 50	0.0002
5.75	+ 20	-0.0040
4.25	+ 20	-0.0040

Product	LTE USB MODEM	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/06/11
Test Band	LTE Band 12		

Power (Vdc)	Temp (°C)	Frequency Tolerance (ppm)
5	- 30	-0.0031
	- 20	-0.0018
	- 10	-0.0002
	0	0.0005
	+ 10	0.0006
	+ 20	0.0006
	+ 30	-0.0049
	+ 40	-0.0014
	+ 50	-0.0019
5.75	+ 20	0.0007
4.25	+ 20	0.0019

Product	LTE USB MODEM	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/06/11
Test Band	LTE Band 13		

Power (Vdc)	Temp (°C)	Frequency Tolerance (ppm)
5	- 30	-0.0005
	- 20	0.0022
	- 10	-0.0013
	0	-0.0012
	+ 10	-0.0011
	+ 20	0.0022
	+ 30	-0.0027
	+ 40	0.0052
	+ 50	-0.0121
5.75	+ 20	-0.0003
4.25	+ 20	0.0021

Product	LTE USB MODEM	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/06/11
Test Band	LTE Band 38/41		

Power (Vdc)	Temp (°C)	Frequency Tolerance (ppm)
5	- 30	-0.0047
	- 20	0.0024
	- 10	-0.0026
	0	0.0008
	+ 10	0.0019
	+ 20	0.0008
	+ 30	-0.0037
	+ 40	0.0017
	+ 50	0.0002
5.75	+ 20	0.0007
4.25	+ 20	0.0014

Product	LTE USB MODEM	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/06/11
Test Band	LTE Band 71		

Power (Vdc)	Temp (°C)	Frequency Tolerance (ppm)
5	- 30	-0.0006
	- 20	-0.0048
	- 10	-0.0061
	0	0.0008
	+ 10	-0.0003
	+ 20	-0.0039
	+ 30	-0.0008
	+ 40	-0.0037
	+ 50	0.0011
5.75	+ 20	-0.0025
4.25	+ 20	-0.0044

4.4. Equivalent Isotropically Radiated Power Measurement

4.4.1. Test Limit

Band 5/26:

The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

Band 12, 13

Control stations and mobile stations transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 30 watts ERP.

Control and mobile stations in the 698-746 MHz band are limited to 30 watts ERP.

Band 71

Fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

Band 2/25, 7, 38/41:

Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

Band 4/66:

Fixed, mobile stations operating in the 1710-1755 MHz band and mobile in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

4.4.2. Test Procedure

ANSI C63.26-2015 - Section 5.2

4.4.3. Test Setting

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation (1) as follows:

$$\text{ERP or EIRP} = P_{\text{Meas}} + G_T$$

where

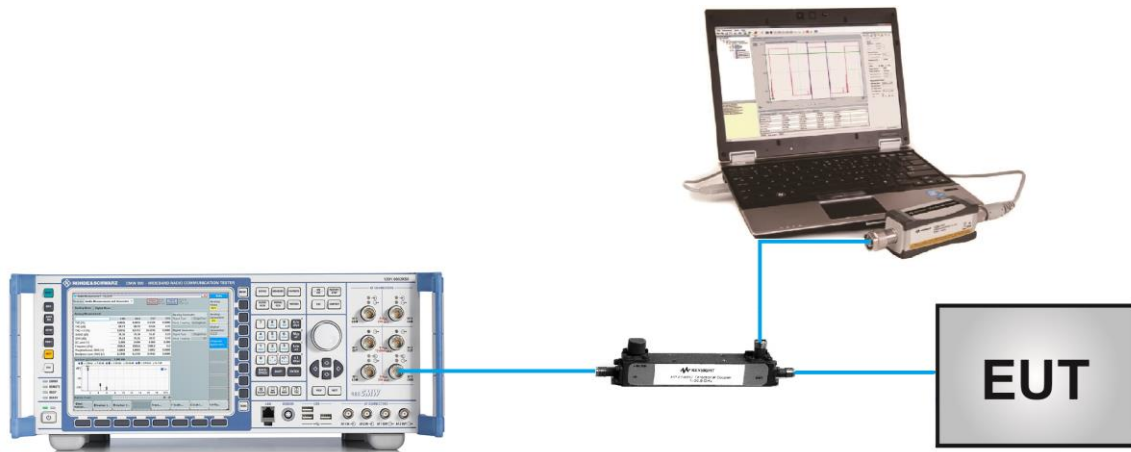
ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as P_{Meas} , e.g., dBm or dBW)

P_{Meas} measured transmitter output power or PSD, in dBm or dBW

G_T gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

ERP = EIRP -2.15

4.4.4.Test Setup



4.4.5. Test Result

Product	LTE USB MODEM	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/06/09 ~ 2021/06/12
Test Band	LTE Band 2/25		

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
QPSK							
26047	1850.70	1.4	1	0	19.84	20.85	< 33.01
26365	1882.50				19.72	20.73	< 33.01
26683	1914.30				19.72	20.73	< 33.01
26047	1850.70	1.4	1	2	19.87	20.88	< 33.01
26365	1882.50				19.74	20.75	< 33.01
26683	1914.30				19.88	20.89	< 33.01
26047	1850.70	1.4	1	5	19.98	20.99	< 33.01
26365	1882.50				19.82	20.83	< 33.01
26683	1914.30				19.87	20.88	< 33.01
26047	1850.70	1.4	6	0	18.83	19.84	< 33.01
26365	1882.50				18.74	19.75	< 33.01
26683	1914.30				18.82	19.83	< 33.01
26055	1851.50	3	1	0	19.87	20.88	< 33.01
26365	1882.50				19.85	20.86	< 33.01
26675	1913.50				19.87	20.88	< 33.01
26055	1851.50	3	1	7	20.14	21.15	< 33.01
26365	1882.50				19.85	20.86	< 33.01
26675	1913.50				19.94	20.95	< 33.01
26055	1851.50	3	1	14	20.07	21.08	< 33.01
26365	1882.50				19.73	20.74	< 33.01
26675	1913.50				19.80	20.81	< 33.01
26055	1851.50	3	15	0	18.99	20.00	< 33.01
26365	1882.50				18.82	19.83	< 33.01
26675	1913.50				18.83	19.84	< 33.01
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)							

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
QPSK							
26065	1852.50	5	1	0	20.01	21.02	< 33.01
26365	1882.50				19.66	20.67	< 33.01
26665	1912.50				19.77	20.78	< 33.01
26065	1852.50	5	1	12	19.84	20.85	< 33.01
26365	1882.50				19.72	20.73	< 33.01
26665	1912.50				19.87	20.88	< 33.01
26065	1852.50	5	1	24	19.63	20.64	< 33.01
26365	1882.50				19.64	20.65	< 33.01
26665	1912.50				19.97	20.98	< 33.01
26065	1852.50	5	25	0	18.92	19.93	< 33.01
26365	1882.50				18.82	19.83	< 33.01
26665	1912.50				18.84	19.85	< 33.01
16390	1855.00	10	1	0	20.09	21.10	< 33.01
26365	1882.50				19.93	20.94	< 33.01
26640	1910.00				19.90	20.91	< 33.01
16390	1855.00	10	1	24	19.98	20.99	< 33.01
26365	1882.50				19.96	20.97	< 33.01
26640	1910.00				20.03	21.04	< 33.01
16390	1855.00	10	1	49	19.95	20.96	< 33.01
26365	1882.50				19.92	20.93	< 33.01
26640	1910.00				20.14	21.15	< 33.01
16390	1855.00	10	50	0	18.97	19.98	< 33.01
26365	1882.50				18.96	19.97	< 33.01
26640	1910.00				18.87	19.88	< 33.01
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)							

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
QPSK							
26115	1857.50	15	1	0	19.82	20.83	< 33.01
26365	1882.50				19.81	20.82	< 33.01
26615	1907.50				20.13	21.14	< 33.01
26115	1857.50	15	1	37	19.75	20.76	< 33.01
26365	1882.50				19.96	20.97	< 33.01
26615	1907.50				20.04	21.05	< 33.01
26115	1857.50	15	1	74	19.78	20.79	< 33.01
26365	1882.50				19.94	20.95	< 33.01
26615	1907.50				20.33	21.34	< 33.01
26115	1857.50	15	75	0	18.92	19.93	< 33.01
26365	1882.50				18.81	19.82	< 33.01
26615	1907.50				18.97	19.98	< 33.01
26140	1860.00	20	1	0	19.61	20.62	< 33.01
26365	1882.50				19.87	20.88	< 33.01
26590	1905.00				19.26	20.27	< 33.01
26140	1860.00	20	1	49	19.27	20.28	< 33.01
26365	1882.50				19.73	20.74	< 33.01
26590	1905.00				19.37	20.38	< 33.01
26140	1860.00	20	1	99	19.17	20.18	< 33.01
26365	1882.50				19.69	20.70	< 33.01
26590	1905.00				19.31	20.32	< 33.01
26140	1860.00	20	100	0	18.82	19.83	< 33.01
26365	1882.50				18.60	19.61	< 33.01
26590	1905.00				18.70	19.71	< 33.01
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)							

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
16QAM							
26047	1850.70	1.4	1	0	18.47	19.48	< 33.01
26365	1882.50				18.74	19.75	< 33.01
26683	1914.30				18.59	19.60	< 33.01
26047	1850.70	1.4	1	2	18.70	19.71	< 33.01
26365	1882.50				18.86	19.87	< 33.01
26683	1914.30				18.59	19.60	< 33.01
26047	1850.70	1.4	1	5	18.91	19.92	< 33.01
26365	1882.50				18.78	19.79	< 33.01
26683	1914.30				18.65	19.66	< 33.01
26047	1850.70	1.4	6	0	17.33	18.34	< 33.01
26365	1882.50				17.38	18.39	< 33.01
26683	1914.30				17.23	18.24	< 33.01
26055	1851.50	3	1	0	18.87	19.88	< 33.01
26365	1882.50				18.38	19.39	< 33.01
26675	1913.50				18.82	19.83	< 33.01
26055	1851.50	3	1	7	19.14	20.15	< 33.01
26365	1882.50				18.91	19.92	< 33.01
26675	1913.50				18.97	19.98	< 33.01
26055	1851.50	3	1	14	18.91	19.92	< 33.01
26365	1882.50				18.76	19.77	< 33.01
26675	1913.50				18.77	19.78	< 33.01
26055	1851.50	3	15	0	17.69	18.70	< 33.01
26365	1882.50				17.34	18.35	< 33.01
26675	1913.50				17.46	18.47	< 33.01
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)							

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
16QAM							
26065	1852.50	5	1	0	18.63	19.64	< 33.01
26365	1882.50				18.01	19.02	< 33.01
26665	1912.50				18.55	19.56	< 33.01
26065	1852.50	5	1	12	18.70	19.71	< 33.01
26365	1882.50				18.48	19.49	< 33.01
26665	1912.50				18.51	19.52	< 33.01
26065	1852.50	5	1	24	18.51	19.52	< 33.01
26365	1882.50				17.69	18.70	< 33.01
26665	1912.50				18.54	19.55	< 33.01
26065	1852.50	5	25	0	17.77	18.78	< 33.01
26365	1882.50				17.44	18.45	< 33.01
26665	1912.50				17.49	18.50	< 33.01
16390	1855.00	10	1	0	18.93	19.94	< 33.01
26365	1882.50				18.96	19.97	< 33.01
26640	1910.00				18.36	19.37	< 33.01
16390	1855.00	10	1	24	18.82	19.83	< 33.01
26365	1882.50				19.00	20.01	< 33.01
26640	1910.00				18.96	19.97	< 33.01
16390	1855.00	10	1	49	18.30	19.31	< 33.01
26365	1882.50				19.03	20.04	< 33.01
26640	1910.00				19.06	20.07	< 33.01
16390	1855.00	10	50	0	17.57	18.58	< 33.01
26365	1882.50				17.65	18.66	< 33.01
26640	1910.00				17.66	18.67	< 33.01
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)							

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
16QAM							
26115	1857.50	15	1	0	18.73	19.74	< 33.01
26365	1882.50				19.08	20.09	< 33.01
26615	1907.50				18.65	19.66	< 33.01
26115	1857.50	15	1	37	18.80	19.81	< 33.01
26365	1882.50				18.97	19.98	< 33.01
26615	1907.50				19.25	20.26	< 33.01
26115	1857.50	15	1	74	18.80	19.81	< 33.01
26365	1882.50				19.18	20.19	< 33.01
26615	1907.50				18.69	19.70	< 33.01
26115	1857.50	15	75	0	17.65	18.66	< 33.01
26365	1882.50				17.55	18.56	< 33.01
26615	1907.50				17.74	18.75	< 33.01
26140	1860.00	20	1	0	18.77	19.78	< 33.01
26365	1882.50				18.57	19.58	< 33.01
26590	1905.00				18.38	19.39	< 33.01
26140	1860.00	20	1	49	18.43	19.44	< 33.01
26365	1882.50				18.24	19.25	< 33.01
26590	1905.00				18.53	19.54	< 33.01
26140	1860.00	20	1	99	18.43	19.44	< 33.01
26365	1882.50				18.09	19.10	< 33.01
26590	1905.00				18.48	19.49	< 33.01
26140	1860.00	20	100	0	17.49	18.50	< 33.01
26365	1882.50				17.41	18.42	< 33.01
26590	1905.00				17.48	18.49	< 33.01
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)							

Product	LTE USB MODEM	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/06/09 ~ 2021/06/12
Test Band	LTE Band 4/66		

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
QPSK							
131979	1710.70	1.4	1	0	18.90	20.26	< 30.00
132322	1745.00				18.88	20.24	< 30.00
132665	1779.30				18.69	20.05	< 30.00
131979	1710.70	1.4	1	2	18.06	19.42	< 30.00
132322	1745.00				19.10	20.46	< 30.00
132665	1779.30				18.98	20.34	< 30.00
131979	1710.70	1.4	1	5	19.03	20.39	< 30.00
132322	1745.00				18.93	20.29	< 30.00
132665	1779.30				19.03	20.39	< 30.00
131979	1710.70	1.4	6	0	18.13	19.49	< 30.00
132322	1745.00				17.90	19.26	< 30.00
132665	1779.30				17.98	19.34	< 30.00
131987	1711.50	3	1	0	18.95	20.31	< 30.00
132322	1745.00				19.00	20.36	< 30.00
132657	1778.50				18.69	20.05	< 30.00
131987	1711.50	3	1	7	19.12	20.48	< 30.00
132322	1745.00				19.22	20.58	< 30.00
132657	1778.50				19.11	20.47	< 30.00
131987	1711.50	3	1	14	19.10	20.46	< 30.00
132322	1745.00				18.97	20.33	< 30.00
132657	1778.50				19.04	20.40	< 30.00
131987	1711.50	3	15	0	18.09	19.45	< 30.00
132322	1745.00				17.96	19.32	< 30.00
132657	1778.50				17.88	19.24	< 30.00
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)							

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
QPSK							
131997	1712.50	5	1	0	18.92	20.28	< 30.00
132322	1745.00				18.90	20.26	< 30.00
132647	1777.50				18.99	20.35	< 30.00
131997	1712.50	5	1	12	18.88	20.24	< 30.00
132322	1745.00				19.04	20.40	< 30.00
132647	1777.50				19.00	20.36	< 30.00
131997	1712.50	5	1	24	19.04	20.40	< 30.00
132322	1745.00				18.87	20.23	< 30.00
132647	1777.50				19.13	20.49	< 30.00
131997	1712.50	5	25	0	18.11	19.47	< 30.00
132322	1745.00				17.95	19.31	< 30.00
132647	1777.50				17.95	19.31	< 30.00
132022	1715.00	10	1	0	19.05	20.41	< 30.00
132322	1745.00				18.91	20.27	< 30.00
132622	1775.00				19.00	20.36	< 30.00
132022	1715.00	10	1	24	19.14	20.50	< 30.00
132322	1745.00				19.25	20.61	< 30.00
132622	1775.00				19.44	20.80	< 30.00
132022	1715.00	10	1	49	19.03	20.39	< 30.00
132322	1745.00				18.85	20.21	< 30.00
132622	1775.00				19.25	20.61	< 30.00
132022	1715.00	10	50	0	18.07	19.43	< 30.00
132322	1745.00				18.00	19.36	< 30.00
132622	1775.00				17.87	19.23	< 30.00
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)							

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
QPSK							
132047	1717.50	15	1	0	19.12	20.48	< 30.00
132322	1745.00				19.06	20.42	< 30.00
132597	1772.50				18.93	20.29	< 30.00
132047	1717.50	15	1	37	19.45	20.81	< 30.00
132322	1745.00				19.26	20.62	< 30.00
132597	1772.50				19.04	20.40	< 30.00
132047	1717.50	15	1	74	19.32	20.68	< 30.00
132322	1745.00				18.94	20.30	< 30.00
132597	1772.50				19.07	20.43	< 30.00
132047	1717.50	15	75	0	18.10	19.46	< 30.00
132322	1745.00				17.89	19.25	< 30.00
132597	1772.50				17.87	19.23	< 30.00
132072	1720.00	20	1	0	19.0	20.36	< 30.00
132322	1745.00				19.0	20.36	< 30.00
132572	1770.00				19.5	20.86	< 30.00
132072	1720.00	20	1	49	18.5	19.86	< 30.00
132322	1745.00				19.0	20.36	< 30.00
132572	1770.00				19.0	20.36	< 30.00
132072	1720.00	20	1	99	19.0	20.36	< 30.00
132322	1745.00				19.0	20.36	< 30.00
132572	1770.00				19.5	20.86	< 30.00
132072	1720.00	20	100	0	18.5	19.86	< 30.00
132322	1745.00				18.0	19.36	< 30.00
132572	1770.00				18.5	19.86	< 30.00
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)							

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
16QAM							
131979	1710.70	1.4	1	0	18.09	19.45	< 30.00
132322	1745.00				18.13	19.49	< 30.00
132665	1779.30				18.03	19.39	< 30.00
131979	1710.70	1.4	1	2	18.07	19.43	< 30.00
132322	1745.00				18.38	19.74	< 30.00
132665	1779.30				18.02	19.38	< 30.00
131979	1710.70	1.4	1	5	18.26	19.62	< 30.00
132322	1745.00				18.22	19.58	< 30.00
132665	1779.30				18.01	19.37	< 30.00
131979	1710.70	1.4	6	0	17.04	18.40	< 30.00
132322	1745.00				17.13	18.49	< 30.00
132665	1779.30				17.14	18.50	< 30.00
131987	1711.50	3	1	0	18.18	19.54	< 30.00
132322	1745.00				18.32	19.68	< 30.00
132657	1778.50				18.03	19.39	< 30.00
131987	1711.50	3	1	7	18.06	19.42	< 30.00
132322	1745.00				18.42	19.78	< 30.00
132657	1778.50				18.28	19.64	< 30.00
131987	1711.50	3	1	14	18.19	19.55	< 30.00
132322	1745.00				18.18	19.54	< 30.00
132657	1778.50				18.18	19.54	< 30.00
131987	1711.50	3	15	0	17.13	18.49	< 30.00
132322	1745.00				16.98	18.34	< 30.00
132657	1778.50				16.92	18.28	< 30.00
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)							

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
16QAM							
131997	1712.50	5	1	0	18.02	19.38	< 30.00
132322	1745.00				18.16	19.52	< 30.00
132647	1777.50				17.80	19.16	< 30.00
131997	1712.50	5	1	12	17.95	19.31	< 30.00
132322	1745.00				18.10	19.46	< 30.00
132647	1777.50				17.93	19.29	< 30.00
131997	1712.50	5	1	24	17.99	19.35	< 30.00
132322	1745.00				17.58	18.94	< 30.00
132647	1777.50				17.98	19.34	< 30.00
131997	1712.50	5	25	0	17.29	18.65	< 30.00
132322	1745.00				16.98	18.34	< 30.00
132647	1777.50				17.11	18.47	< 30.00
132022	1715.00	10	1	0	18.43	19.79	< 30.00
132322	1745.00				18.38	19.74	< 30.00
132622	1775.00				18.19	19.55	< 30.00
132022	1715.00	10	1	24	18.42	19.78	< 30.00
132322	1745.00				18.71	20.07	< 30.00
132622	1775.00				18.71	20.07	< 30.00
132022	1715.00	10	1	49	18.32	19.68	< 30.00
132322	1745.00				18.25	19.61	< 30.00
132622	1775.00				18.78	20.14	< 30.00
132022	1715.00	10	50	0	17.04	18.40	< 30.00
132322	1745.00				16.86	18.22	< 30.00
132622	1775.00				16.88	18.24	< 30.00
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)							

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
16QAM							
132047	1717.50	15	1	0	18.11	19.47	< 30.00
132322	1745.00				18.07	19.43	< 30.00
132597	1772.50				18.01	19.37	< 30.00
132047	1717.50	15	1	37	18.68	20.04	< 30.00
132322	1745.00				18.51	19.87	< 30.00
132597	1772.50				18.51	19.87	< 30.00
132047	1717.50	15	1	74	18.11	19.47	< 30.00
132322	1745.00				17.41	18.77	< 30.00
132597	1772.50				17.99	19.35	< 30.00
132047	1717.50	15	75	0	17.22	18.58	< 30.00
132322	1745.00				16.88	18.24	< 30.00
132597	1772.50				17.03	18.39	< 30.00
132072	1720.00	20	1	0	17.83	19.19	< 30.00
132322	1745.00				18.07	19.43	< 30.00
132572	1770.00				18.53	19.89	< 30.00
132072	1720.00	20	1	49	17.47	18.83	< 30.00
132322	1745.00				17.95	19.31	< 30.00
132572	1770.00				17.94	19.30	< 30.00
132072	1720.00	20	1	99	18.03	19.39	< 30.00
132322	1745.00				17.47	18.83	< 30.00
132572	1770.00				18.51	19.87	< 30.00
132072	1720.00	20	100	0	17.05	18.41	< 30.00
132322	1745.00				16.90	18.26	< 30.00
132572	1770.00				16.98	18.34	< 30.00
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)							

Product	LTE USB MODEM	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/06/09 ~ 2021/06/12
Test Band	LTE Band 5/26		

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
QPSK							
26797	824.70	1.4	1	0	23.15	20.89	< 38.45
26915	836.50				23.15	20.89	< 38.45
27033	848.30				23.08	20.82	< 38.45
26797	824.70	1.4	1	2	23.26	21.00	< 38.45
26915	836.50				23.20	20.94	< 38.45
27033	848.30				23.37	21.11	< 38.45
26797	824.70	1.4	1	5	23.21	20.95	< 38.45
26915	836.50				23.15	20.89	< 38.45
27033	848.30				23.17	20.91	< 38.45
26797	824.70	1.4	6	0	22.20	19.94	< 38.45
26915	836.50				22.14	19.88	< 38.45
27033	848.30				22.31	20.05	< 38.45
26805	825.50	3	1	0	23.27	21.01	< 38.45
26915	836.50				23.24	20.98	< 38.45
27015	846.50				23.10	20.84	< 38.45
26805	825.50	3	1	7	23.48	21.22	< 38.45
26915	836.50				23.38	21.12	< 38.45
27015	846.50				23.28	21.02	< 38.45
26805	825.50	3	1	14	23.18	20.92	< 38.45
26915	836.50				23.24	20.98	< 38.45
27015	846.50				23.24	20.98	< 38.45
26805	825.50	3	15	0	22.03	19.77	< 38.45
26915	836.50				22.31	20.05	< 38.45
27015	846.50				22.22	19.96	< 38.45
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15							

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
QPSK							
26815	826.50	5	1	0	23.06	20.80	< 38.45
26915	836.50				23.29	21.03	< 38.45
27015	846.50				23.22	20.96	< 38.45
26815	826.50	5	1	12	23.40	21.14	< 38.45
26915	836.50				23.26	21.00	< 38.45
27015	846.50				23.45	21.19	< 38.45
26815	826.50	5	1	24	23.04	20.78	< 38.45
26915	836.50				23.13	20.87	< 38.45
27015	846.50				23.11	20.85	< 38.45
26815	826.50	5	25	0	22.18	19.92	< 38.45
26915	836.50				22.23	19.97	< 38.45
27015	846.50				22.24	19.98	< 38.45
26840	829.00	10	1	0	23.17	20.91	< 38.45
26915	836.50				23.42	21.16	< 38.45
26990	844.00				23.08	20.82	< 38.45
26840	829.00	10	1	24	23.70	21.44	< 38.45
26915	836.50				23.51	21.25	< 38.45
26990	844.00				23.46	21.20	< 38.45
26840	829.00	10	1	49	23.36	21.10	< 38.45
26915	836.50				23.26	21.00	< 38.45
26990	844.00				23.22	20.96	< 38.45
26840	829.00	10	50	0	22.25	19.99	< 38.45
26915	836.50				22.22	19.96	< 38.45
26990	844.00				22.21	19.95	< 38.45
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15							

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
16QAM							
26797	824.70	1.4	1	0	22.17	19.91	< 38.45
26915	836.50				22.24	19.98	< 38.45
27033	848.30				22.07	19.81	< 38.45
26797	824.70	1.4	1	2	21.82	19.56	< 38.45
26915	836.50				22.18	19.92	< 38.45
27033	848.30				22.19	19.93	< 38.45
26797	824.70	1.4	1	5	22.17	19.91	< 38.45
26915	836.50				22.34	20.08	< 38.45
27033	848.30				22.06	19.80	< 38.45
26797	824.70	1.4	6	0	20.81	18.55	< 38.45
26915	836.50				21.05	18.79	< 38.45
27033	848.30				21.00	18.74	< 38.45
26805	825.50	3	1	0	22.14	19.88	< 38.45
26915	836.50				22.33	20.07	< 38.45
27015	846.50				21.43	19.17	< 38.45
26805	825.50	3	1	7	22.42	20.16	< 38.45
26915	836.50				22.30	20.04	< 38.45
27015	846.50				22.14	19.88	< 38.45
26805	825.50	3	1	14	21.94	19.68	< 38.45
26915	836.50				22.15	19.89	< 38.45
27015	846.50				22.15	19.89	< 38.45
26805	825.50	3	15	0	20.63	18.37	< 38.45
26915	836.50				21.04	18.78	< 38.45
27015	846.50				21.02	18.76	< 38.45
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15							

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
16QAM							
26815	826.50	5	1	0	21.78	19.52	< 38.45
26915	836.50				22.23	19.97	< 38.45
27015	846.50				21.45	19.19	< 38.45
26815	826.50	5	1	12	22.00	19.74	< 38.45
26915	836.50				21.93	19.67	< 38.45
27015	846.50				22.06	19.80	< 38.45
26815	826.50	5	1	24	21.77	19.51	< 38.45
26915	836.50				22.12	19.86	< 38.45
27015	846.50				21.72	19.46	< 38.45
26815	826.50	5	25	0	20.99	18.73	< 38.45
26915	836.50				21.00	18.74	< 38.45
27015	846.50				21.19	18.93	< 38.45
26840	829.00	10	1	0	22.27	20.01	< 38.45
26915	836.50				22.00	19.74	< 38.45
26990	844.00				22.27	20.01	< 38.45
26840	829.00	10	1	24	22.73	20.47	< 38.45
26915	836.50				22.21	19.95	< 38.45
26990	844.00				22.48	20.22	< 38.45
26840	829.00	10	1	49	22.55	20.29	< 38.45
26915	836.50				21.73	19.47	< 38.45
26990	844.00				22.38	20.12	< 38.45
26840	829.00	10	50	0	21.10	18.84	< 38.45
26915	836.50				20.89	18.63	< 38.45
26990	844.00				21.01	18.75	< 38.45
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15							

Product	LTE USB MODEM	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/06/09 ~ 2021/06/12
Test Band	LTE Band 7		

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
QPSK							
20775	2502.50	5	1	0	22.72	23.62	< 33.01
21100	2535.00				22.76	23.66	< 33.01
21425	2567.50				22.77	23.67	< 33.01
20775	2502.50	5	1	12	23.08	23.98	< 33.01
21100	2535.00				22.97	23.87	< 33.01
21425	2567.50				23.05	23.95	< 33.01
20775	2502.50	5	1	24	22.85	23.75	< 33.01
21100	2535.00				22.59	23.49	< 33.01
21425	2567.50				22.87	23.77	< 33.01
20775	2502.50	5	25	0	21.89	22.79	< 33.01
21100	2535.00				21.75	22.65	< 33.01
21425	2567.50				21.92	22.82	< 33.01
20800	2505.00	10	1	0	22.70	23.60	< 33.01
21100	2535.00				22.63	23.53	< 33.01
21400	2565.00				22.72	23.62	< 33.01
20800	2505.00	10	1	24	23.29	24.19	< 33.01
21100	2535.00				23.13	24.03	< 33.01
21400	2565.00				23.34	24.24	< 33.01
20800	2505.00	10	1	49	22.56	23.46	< 33.01
21100	2535.00				22.54	23.44	< 33.01
21400	2565.00				22.71	23.61	< 33.01
20800	2505.00	10	50	0	21.88	22.78	< 33.01
21100	2535.00				21.75	22.65	< 33.01
21400	2565.00				21.94	22.84	< 33.01
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)							

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
QPSK							
20825	2507.50	15	1	0	22.97	23.87	< 33.01
21100	2535.00				22.62	23.52	< 33.01
21375	2562.50				23.06	23.96	< 33.01
20825	2507.50	15	1	37	23.16	24.06	< 33.01
21100	2535.00				23.11	24.01	< 33.01
21375	2562.50				23.22	24.12	< 33.01
20825	2507.50	15	1	74	22.77	23.67	< 33.01
21100	2535.00				22.68	23.58	< 33.01
21375	2562.50				22.74	23.64	< 33.01
20825	2507.50	15	75	0	21.79	22.69	< 33.01
21100	2535.00				21.78	22.68	< 33.01
21375	2562.50				22.01	22.91	< 33.01
20850	2510.00	20	1	0	22.60	23.50	< 33.01
21100	2535.00				22.58	23.48	< 33.01
21350	2560.00				22.73	23.63	< 33.01
20850	2510.00	20	1	49	23.10	24.00	< 33.01
21100	2535.00				23.18	24.08	< 33.01
21350	2560.00				22.98	23.88	< 33.01
20850	2510.00	20	1	99	22.36	23.26	< 33.01
21100	2535.00				22.38	23.28	< 33.01
21350	2560.00				22.55	23.45	< 33.01
20850	2510.00	20	100	0	21.70	22.60	< 33.01
21100	2535.00				21.69	22.59	< 33.01
21350	2560.00				21.90	22.80	< 33.01
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)							

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
16QAM							
20775	2502.50	5	1	0	21.79	22.69	< 33.01
21100	2535.00				21.77	22.67	< 33.01
21425	2567.50				21.89	22.79	< 33.01
20775	2502.50	5	1	12	21.97	22.87	< 33.01
21100	2535.00				22.09	22.99	< 33.01
21425	2567.50				21.88	22.78	< 33.01
20775	2502.50	5	1	24	22.11	23.01	< 33.01
21100	2535.00				21.63	22.53	< 33.01
21425	2567.50				21.86	22.76	< 33.01
20775	2502.50	5	25	0	20.80	21.70	< 33.01
21100	2535.00				20.68	21.58	< 33.01
21425	2567.50				21.18	22.08	< 33.01
20800	2505.00	10	1	0	21.50	22.40	< 33.01
21100	2535.00				22.00	22.90	< 33.01
21400	2565.00				21.83	22.73	< 33.01
20800	2505.00	10	1	24	22.27	23.17	< 33.01
21100	2535.00				22.36	23.26	< 33.01
21400	2565.00				22.38	23.28	< 33.01
20800	2505.00	10	1	49	21.43	22.33	< 33.01
21100	2535.00				21.71	22.61	< 33.01
21400	2565.00				21.84	22.74	< 33.01
20800	2505.00	10	50	0	21.04	21.94	< 33.01
21100	2535.00				21.08	21.98	< 33.01
21400	2565.00				20.85	21.75	< 33.01
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)							

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
16QAM							
20825	2507.50	15	1	0	21.98	22.88	< 33.01
21100	2535.00				21.63	22.53	< 33.01
21375	2562.50				21.98	22.88	< 33.01
20825	2507.50	15	1	37	21.88	22.78	< 33.01
21100	2535.00				22.08	22.98	< 33.01
21375	2562.50				22.19	23.09	< 33.01
20825	2507.50	15	1	74	21.71	22.61	< 33.01
21100	2535.00				21.58	22.48	< 33.01
21375	2562.50				21.76	22.66	< 33.01
20825	2507.50	15	75	0	20.71	21.61	< 33.01
21100	2535.00				20.85	21.75	< 33.01
21375	2562.50				20.98	21.88	< 33.01
20850	2510.00	20	1	0	21.80	22.70	< 33.01
21100	2535.00				21.60	22.50	< 33.01
21350	2560.00				21.85	22.75	< 33.01
20850	2510.00	20	1	49	21.98	22.88	< 33.01
21100	2535.00				21.93	22.83	< 33.01
21350	2560.00				21.95	22.85	< 33.01
20850	2510.00	20	1	99	21.43	22.33	< 33.01
21100	2535.00				21.45	22.35	< 33.01
21350	2560.00				21.58	22.48	< 33.01
20850	2510.00	20	100	0	20.85	21.75	< 33.01
21100	2535.00				20.68	21.58	< 33.01
21350	2560.00				20.88	21.78	< 33.01
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)							

Product	LTE USB MODEM	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/06/09 ~ 2021/06/12
Test Band	LTE Band 12		

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
QPSK							
23017	699.7	1.4	1	0	23.2	19.55	< 44.77
23095	707.5				23.3	19.65	< 44.77
23173	715.3				23.19	19.54	< 44.77
23017	699.7	1.4	1	2	23.32	19.67	< 44.77
23095	707.5				23.39	19.74	< 44.77
23173	715.3				23.2	19.55	< 44.77
23017	699.7	1.4	1	5	23.3	19.65	< 44.77
23095	707.5				23.28	19.63	< 44.77
23173	715.3				23.12	19.47	< 44.77
23017	699.7	1.4	6	0	22.38	18.73	< 44.77
23095	707.5				22.35	18.70	< 44.77
23173	715.3				22.36	18.71	< 44.77
23025	700.5	3	1	0	23.09	19.44	< 44.77
23095	707.5				23.12	19.47	< 44.77
23165	714.5				23.1	19.45	< 44.77
23025	700.5	3	1	7	23.65	20.00	< 44.77
23095	707.5				23.27	19.62	< 44.77
23165	714.5				23.11	19.46	< 44.77
23025	700.5	3	1	14	23.1	19.45	< 44.77
23095	707.5				23.09	19.44	< 44.77
23165	714.5				23.11	19.46	< 44.77
23025	700.5	3	15	0	22.3	18.65	< 44.77
23095	707.5				22.32	18.67	< 44.77
23165	714.5				22.29	18.64	< 44.77
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15							

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
QPSK							
23035	701.5	5	1	0	23.03	19.38	< 44.77
23095	707.5				23.29	19.64	< 44.77
23155	713.5				22.76	19.11	< 44.77
23035	701.5	5	1	12	23.55	19.90	< 44.77
23095	707.5				23.38	19.73	< 44.77
23155	713.5				23.18	19.53	< 44.77
23035	701.5	5	1	24	23.34	19.69	< 44.77
23095	707.5				23.01	19.36	< 44.77
23155	713.5				23.04	19.39	< 44.77
23035	701.5	5	25	0	22.34	18.69	< 44.77
23095	707.5				22.34	18.69	< 44.77
23155	713.5				22.22	18.57	< 44.77
23060	704.0	10	1	0	23.25	19.60	< 44.77
23095	707.5				23.04	19.39	< 44.77
23130	711.0				23.11	19.46	< 44.77
23060	704.0	10	1	24	23.58	19.93	< 44.77
23095	707.5				23.43	19.78	< 44.77
23130	711.0				23.48	19.83	< 44.77
23060	704.0	10	1	49	23.04	19.39	< 44.77
23095	707.5				22.85	19.20	< 44.77
23130	711.0				22.99	19.34	< 44.77
23060	704.0	10	50	0	22.32	18.67	< 44.77
23095	707.5				22.33	18.68	< 44.77
23130	711.0				22.41	18.76	< 44.77
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15							

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
16QAM							
23017	699.7	1.4	1	0	22.04	18.39	< 44.77
23095	707.5				22.67	19.02	< 44.77
23173	715.3				22.31	18.66	< 44.77
23017	699.7	1.4	1	2	22.53	18.88	< 44.77
23095	707.5				22.65	19.00	< 44.77
23173	715.3				22.41	18.76	< 44.77
23017	699.7	1.4	1	5	22.59	18.94	< 44.77
23095	707.5				22.43	18.78	< 44.77
23173	715.3				22.40	18.75	< 44.77
23017	699.7	1.4	6	0	20.99	17.34	< 44.77
23095	707.5				21.21	17.56	< 44.77
23173	715.3				21.31	17.66	< 44.77
23025	700.5	3	1	0	22.18	18.53	< 44.77
23095	707.5				22.45	18.80	< 44.77
23165	714.5				22.33	18.68	< 44.77
23025	700.5	3	1	7	22.40	18.75	< 44.77
23095	707.5				22.49	18.84	< 44.77
23165	714.5				22.68	19.03	< 44.77
23025	700.5	3	1	14	22.45	18.80	< 44.77
23095	707.5				22.45	18.80	< 44.77
23165	714.5				22.53	18.88	< 44.77
23025	700.5	3	15	0	21.31	17.66	< 44.77
23095	707.5				21.23	17.58	< 44.77
23165	714.5				21.23	17.58	< 44.77
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15							

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
16QAM							
23035	701.5	5	1	0	22.13	18.48	< 44.77
23095	707.5				22.33	18.68	< 44.77
23155	713.5				21.95	18.30	< 44.77
23035	701.5	5	1	12	22.33	18.68	< 44.77
23095	707.5				22.35	18.70	< 44.77
23155	713.5				22.09	18.44	< 44.77
23035	701.5	5	1	24	21.90	18.25	< 44.77
23095	707.5				22.09	18.44	< 44.77
23155	713.5				21.95	18.30	< 44.77
23035	701.5	5	25	0	21.04	17.39	< 44.77
23095	707.5				21.21	17.56	< 44.77
23155	713.5				21.29	17.64	< 44.77
23060	704.0	10	1	0	22.44	18.79	< 44.77
23095	707.5				22.34	18.69	< 44.77
23130	711.0				22.03	18.38	< 44.77
23060	704.0	10	1	24	22.47	18.82	< 44.77
23095	707.5				22.39	18.74	< 44.77
23130	711.0				22.52	18.87	< 44.77
23060	704.0	10	1	49	21.90	18.25	< 44.77
23095	707.5				22.19	18.54	< 44.77
23130	711.0				21.93	18.28	< 44.77
23060	704.0	10	50	0	20.99	17.34	< 44.77
23095	707.5				21.02	17.37	< 44.77
23130	711.0				21.24	17.59	< 44.77
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15							

Product	LTE USB MODEM	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/06/09 ~ 2021/06/12
Test Band	LTE Band 13		

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
QPSK							
23205	779.5	5	1	0	23.22	19.57	< 44.77
23230	782.0				23.24	19.59	< 44.77
23255	784.5				23.18	19.53	< 44.77
23205	779.5	5	1	12	23.87	20.22	< 44.77
23230	782.0				23.52	19.87	< 44.77
23255	784.5				23.26	19.61	< 44.77
23205	779.5	5	1	24	23.57	19.92	< 44.77
23230	782.0				23.23	19.58	< 44.77
23255	784.5				23.15	19.50	< 44.77
23205	779.5	5	25	0	22.48	18.83	< 44.77
23230	782.0				22.42	18.77	< 44.77
23255	784.5				22.37	18.72	< 44.77
23230	782.0	10	1	0	23.12	19.47	< 44.77
23230	782.0		1	24	23.80	20.15	< 44.77
23230	782.0		1	49	23.22	19.57	< 44.77
23230	782.0		50	0	22.46	18.81	< 44.77
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15							

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
16QAM							
23205	779.5	5	1	0	22.28	18.63	< 44.77
23230	782.0				22.68	19.03	< 44.77
23255	784.5				22.38	18.73	< 44.77
23205	779.5	5	1	12	22.71	19.06	< 44.77
23230	782.0				22.94	19.29	< 44.77
23255	784.5				22.38	18.73	< 44.77
23205	779.5	5	1	24	22.40	18.75	< 44.77
23230	782.0				22.56	18.91	< 44.77
23255	784.5				22.24	18.59	< 44.77
23205	779.5	5	25	0	21.88	18.23	< 44.77
23230	782.0				21.74	18.09	< 44.77
23255	784.5				21.76	18.11	< 44.77
23230	782.0	10	1	0	22.80	19.15	< 44.77
23230	782.0		1	24	22.84	19.19	< 44.77
23230	782.0		1	49	22.44	18.79	< 44.77
23230	782.0		50	0	21.62	17.97	< 44.77
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15							

Product	LTE USB MODEM	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/06/09 ~ 2021/06/12
Test Band	LTE Band 38/41		

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
QPSK							
39675	2498.50	5	1	0	22.93	23.83	< 33.01
40620	2593.00				22.84	23.74	< 33.01
40565	2687.50				22.55	23.45	< 33.01
39675	2498.50	5	1	12	23.08	23.98	< 33.01
40620	2593.00				23.15	24.05	< 33.01
40565	2687.50				22.84	23.74	< 33.01
39675	2498.50	5	1	24	22.90	23.80	< 33.01
40620	2593.00				22.86	23.76	< 33.01
40565	2687.50				22.58	23.48	< 33.01
39675	2498.50	5	25	0	21.92	22.82	< 33.01
40620	2593.00				21.76	22.66	< 33.01
40565	2687.50				21.70	22.60	< 33.01
39700	2501.00	10	1	0	23.04	23.94	< 33.01
40620	2593.00				22.91	23.81	< 33.01
41540	2685.00				22.72	23.62	< 33.01
39700	2501.00	10	1	24	23.05	23.95	< 33.01
40620	2593.00				23.24	24.14	< 33.01
41540	2685.00				22.74	23.64	< 33.01
39700	2501.00	10	1	49	23.05	23.95	< 33.01
40620	2593.00				22.88	23.78	< 33.01
41540	2685.00				22.61	23.51	< 33.01
39700	2501.00	10	50	0	21.87	22.77	< 33.01
40620	2593.00				21.85	22.75	< 33.01
41540	2685.00				21.71	22.61	< 33.01
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)							

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
QPSK							
39725	2503.50	15	1	0	22.70	23.60	< 33.01
40620	2593.00				22.89	23.79	< 33.01
41515	2682.50				22.72	23.62	< 33.01
39725	2503.50	15	1	37	22.73	23.63	< 33.01
40620	2593.00				23.00	23.90	< 33.01
41515	2682.50				22.79	23.69	< 33.01
39725	2503.50	15	1	74	22.64	23.54	< 33.01
40620	2593.00				22.79	23.69	< 33.01
41515	2682.50				22.74	23.64	< 33.01
39725	2503.50	15	75	0	21.82	22.72	< 33.01
40620	2593.00				21.83	22.73	< 33.01
41515	2682.50				21.63	22.53	< 33.01
39750	2506.00	20	1	0	22.43	23.33	< 33.01
40620	2593.00				22.98	23.88	< 33.01
41490	2680.00				22.42	23.32	< 33.01
39750	2506.00	20	1	49	23.01	23.91	< 33.01
40620	2593.00				22.94	23.84	< 33.01
41490	2680.00				22.61	23.51	< 33.01
39750	2506.00	20	1	99	22.55	23.45	< 33.01
40620	2593.00				22.75	23.65	< 33.01
41490	2680.00				22.38	23.28	< 33.01
39750	2506.00	20	100	0	21.73	22.63	< 33.01
40620	2593.00				21.85	22.75	< 33.01
41490	2680.00				21.61	22.51	< 33.01
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)							

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
16QAM							
39675	2498.50	5	1	0	22.26	23.16	< 33.01
40620	2593.00				21.51	22.41	< 33.01
40565	2687.50				21.42	22.32	< 33.01
39675	2498.50	5	1	12	22.37	23.27	< 33.01
40620	2593.00				21.66	22.56	< 33.01
40565	2687.50				21.49	22.39	< 33.01
39675	2498.50	5	1	24	22.27	23.17	< 33.01
40620	2593.00				21.53	22.43	< 33.01
40565	2687.50				21.26	22.16	< 33.01
39675	2498.50	5	25	0	20.87	21.77	< 33.01
40620	2593.00				20.78	21.68	< 33.01
40565	2687.50				20.64	21.54	< 33.01
39700	2501.00	10	1	0	22.21	23.11	< 33.01
40620	2593.00				21.49	22.39	< 33.01
41540	2685.00				22.11	23.01	< 33.01
39700	2501.00	10	1	24	21.96	22.86	< 33.01
40620	2593.00				21.52	22.42	< 33.01
41540	2685.00				22.08	22.98	< 33.01
39700	2501.00	10	1	49	22.24	23.14	< 33.01
40620	2593.00				21.49	22.39	< 33.01
41540	2685.00				22.06	22.96	< 33.01
39700	2501.00	10	50	0	20.94	21.84	< 33.01
40620	2593.00				20.73	21.63	< 33.01
41540	2685.00				20.57	21.47	< 33.01
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)							

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
16QAM							
39725	2503.50	15	1	0	20.99	21.89	< 33.01
40620	2593.00				22.26	23.16	< 33.01
41515	2682.50				22.25	23.15	< 33.01
39725	2503.50	15	1	37	21.26	22.16	< 33.01
40620	2593.00				22.42	23.32	< 33.01
41515	2682.50				22.23	23.13	< 33.01
39725	2503.50	15	1	74	20.98	21.88	< 33.01
40620	2593.00				22.24	23.14	< 33.01
41515	2682.50				22.18	23.08	< 33.01
39725	2503.50	15	75	0	20.86	21.76	< 33.01
40620	2593.00				21.02	21.92	< 33.01
41515	2682.50				20.69	21.59	< 33.01
39750	2506.00	20	1	0	21.49	22.39	< 33.01
40620	2593.00				20.78	21.68	< 33.01
41490	2680.00				21.22	22.12	< 33.01
39750	2506.00	20	1	49	21.82	22.72	< 33.01
40620	2593.00				20.95	21.85	< 33.01
41490	2680.00				21.51	22.41	< 33.01
39750	2506.00	20	1	99	21.81	22.71	< 33.01
40620	2593.00				21.04	21.94	< 33.01
41490	2680.00				21.32	22.22	< 33.01
39750	2506.00	20	100	0	20.68	21.58	< 33.01
40620	2593.00				20.81	21.71	< 33.01
41490	2680.00				20.59	21.49	< 33.01
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)							

Product	LTE USB MODEM	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/06/09 ~ 2021/06/12
Test Band	LTE Band 71		

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
QPSK							
133147	665.5	5	1	0	22.97	20.72	< 34.77
133297	680.5				23.15	20.90	< 34.77
133447	695.5				23.06	20.81	< 34.77
133147	665.5	5	1	12	23.74	21.49	< 34.77
133297	680.5				23.41	21.16	< 34.77
133447	695.5				23.43	21.18	< 34.77
133147	665.5	5	1	24	23.54	21.29	< 34.77
133297	680.5				23.24	20.99	< 34.77
133447	695.5				23.46	21.21	< 34.77
133147	665.5	5	25	0	22.49	20.24	< 34.77
133297	680.5				22.44	20.19	< 34.77
133447	695.5				22.60	20.35	< 34.77
133172	668.0	10	1	0	23.03	20.78	< 34.77
133297	680.5				23.20	20.95	< 34.77
133422	693.0				23.11	20.86	< 34.77
133172	668.0	10	1	24	23.42	21.17	< 34.77
133297	680.5				23.53	21.28	< 34.77
133422	693.0				23.54	21.29	< 34.77
133172	668.0	10	1	49	22.99	20.74	< 34.77
133297	680.5				23.00	20.75	< 34.77
133422	693.0				23.30	21.05	< 34.77
133172	668.0	10	50	0	22.45	20.20	< 34.77
133297	680.5				22.38	20.13	< 34.77
133422	693.0				22.45	20.20	< 34.77
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15							

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
QPSK							
133197	670.5	15	1	0	23.16	20.91	< 34.77
133297	680.5				23.22	20.97	< 34.77
133397	690.5				23.87	21.62	< 34.77
133197	670.5	15	1	37	23.47	21.22	< 34.77
133297	680.5				23.58	21.33	< 34.77
133397	690.5				23.84	21.59	< 34.77
133197	670.5	15	1	74	23.40	21.15	< 34.77
133297	680.5				23.44	21.19	< 34.77
133397	690.5				23.60	21.35	< 34.77
133197	670.5	15	75	0	22.36	20.11	< 34.77
133297	680.5				22.40	20.15	< 34.77
133397	690.5				22.51	20.26	< 34.77
133222	673.0	20	1	0	22.40	20.15	< 34.77
133322	683.0				22.52	20.27	< 34.77
133372	688.0				22.34	20.09	< 34.77
133222	673.0	20	1	49	22.90	20.65	< 34.77
133322	683.0				22.98	20.73	< 34.77
133372	688.0				23.04	20.79	< 34.77
133222	673.0	20	1	99	22.28	20.03	< 34.77
133322	683.0				22.65	20.40	< 34.77
133372	688.0				22.66	20.41	< 34.77
133222	673.0	20	100	0	22.21	19.96	< 34.77
133322	683.0				22.16	19.91	< 34.77
133372	688.0				22.19	19.94	< 34.77
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15							

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
16QAM							
133147	665.5	5	1	0	21.85	19.60	< 34.77
133297	680.5				22.10	19.85	< 34.77
133447	695.5				22.04	19.79	< 34.77
133147	665.5	5	1	12	22.15	19.90	< 34.77
133297	680.5				22.54	20.29	< 34.77
133447	695.5				22.36	20.11	< 34.77
133147	665.5	5	1	24	22.26	20.01	< 34.77
133297	680.5				22.28	20.03	< 34.77
133447	695.5				22.59	20.34	< 34.77
133147	665.5	5	25	0	21.51	19.26	< 34.77
133297	680.5				21.48	19.23	< 34.77
133447	695.5				21.74	19.49	< 34.77
133172	668.0	10	1	0	22.07	19.82	< 34.77
133297	680.5				22.51	20.26	< 34.77
133422	693.0				22.35	20.10	< 34.77
133172	668.0	10	1	24	22.33	20.08	< 34.77
133297	680.5				22.73	20.48	< 34.77
133422	693.0				22.77	20.52	< 34.77
133172	668.0	10	1	49	22.36	20.11	< 34.77
133297	680.5				22.43	20.18	< 34.77
133422	693.0				22.27	20.02	< 34.77
133172	668.0	10	50	0	21.50	19.25	< 34.77
133297	680.5				21.60	19.35	< 34.77
133422	693.0				21.46	19.21	< 34.77
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15							

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
16QAM							
133197	670.5	15	1	0	21.80	19.55	< 34.77
133297	680.5				22.72	20.47	< 34.77
133397	690.5				22.64	20.39	< 34.77
133197	670.5	15	1	37	22.95	20.70	< 34.77
133297	680.5				23.26	21.01	< 34.77
133397	690.5				22.56	20.31	< 34.77
133197	670.5	15	1	74	22.55	20.30	< 34.77
133297	680.5				23.11	20.86	< 34.77
133397	690.5				22.30	20.05	< 34.77
133197	670.5	15	75	0	21.66	19.41	< 34.77
133297	680.5				21.64	19.39	< 34.77
133397	690.5				21.58	19.33	< 34.77
133222	673.0	20	1	0	21.38	19.13	< 34.77
133322	683.0				21.21	18.96	< 34.77
133372	688.0				21.67	19.42	< 34.77
133222	673.0	20	1	49	21.89	19.64	< 34.77
133322	683.0				22.35	20.10	< 34.77
133372	688.0				22.16	19.91	< 34.77
133222	673.0	20	1	99	21.65	19.40	< 34.77
133322	683.0				21.84	19.59	< 34.77
133372	688.0				21.22	18.97	< 34.77
133222	673.0	20	100	0	21.75	19.50	< 34.77
133322	683.0				21.60	19.35	< 34.77
133372	688.0				21.57	19.32	< 34.77
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15							

4.5. Band Edge Measurement

4.5.1. Test Limit

22.917(a), 24.238 (a), 27.53 (g) (h)

For operations in the 824 ~ 849 MHz, 1850 ~ 1910 MHz, 1930 ~ 1990 MHz, 600MHz & 698 ~ 746 MHz and 1710 ~ 1755 MHz, the FCC limit is $43 + 10\log_{10}(P_{\text{Watts}})$ dB below the transmitter power $P(\text{Watts})$ in a 1 MHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

27.53 (c)

For operations in the 776-788 MHz band, the FCC limit is $43 + 10\log_{10}(P_{\text{Watts}})$ dB below the transmitter power $P(\text{Watts})$ in a 100 kHz bandwidth. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed. In addition, the power of any unwanted emissions in any 6.25 kHz bandwidth for all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power, P (dBW), by at least $65 + 10 \log_{10} (P_{\text{Watts}})$, dB, for mobile and portable equipment.

27.53(m)(4)

For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

4.5.2. Test Procedure

ANSI C63.26-2015 - Section 5.7

4.5.3. Test Setting

1. Set the analyzer frequency to low or high channel
2. $RBW \geq$ The nominal RBW shall be in the range of 1% of the anticipated OBW (in the 1MHz band immediately outside and adjacent to the band edge). For improvement of the accuracy in the measurement of the average power of a noise-like emission, a RBW narrower than the specified reference bandwidth can be used (generally limited to no less than 1% of the OBW), provided that a subsequent integration is performed over the full required measurement bandwidth. This integration should be performed using the spectrum analyzer's band power functions.
3. $VBW \geq 3 \cdot RBW$
4. Sweep time = auto
5. Detector = power averaging (rms)
6. Set sweep trigger to "free run."
7. User gate triggered such that the analyzer only sweeps when the device is transmitting at full power
8. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple.
To accurately determine the average power over the on and off time of the transmitter, it can be necessary to increase the number of traces to be averaged above 100, or if using a manually configured sweep time, increase the sweep time.

4.5.4. Test Setup

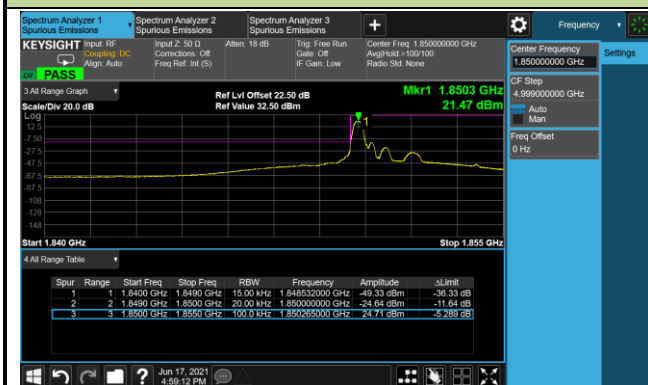


4.5.5. Test Result

Product	LTE USB MODEM	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/06/17
Test Band	LTE Band 2/25		

1.4MHz Channel Bandwidth - 1RB

Lower Band Edge

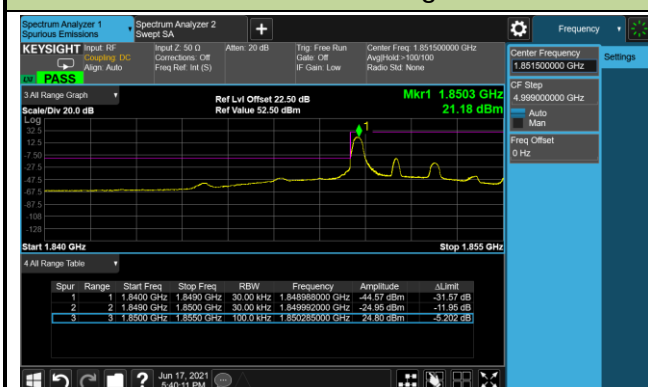


Lower Extended Band Edge

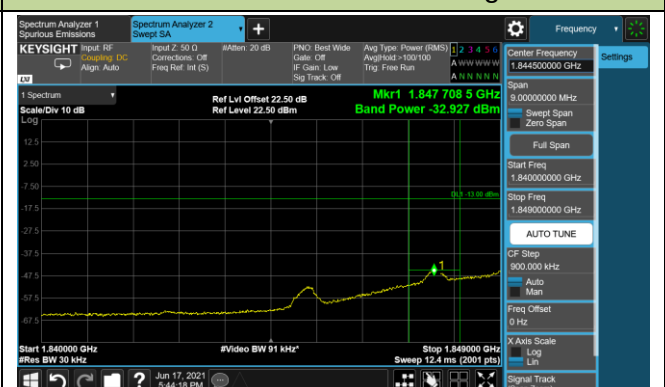


3MHz Channel Bandwidth - 1RB

Lower Band Edge

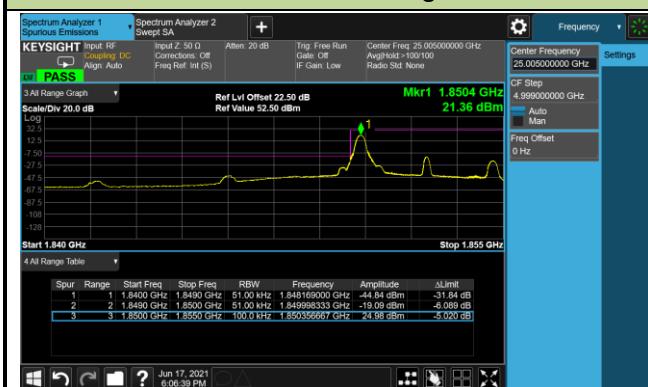


Lower Extended Band Edge



5MHz Channel Bandwidth - 1RB

Lower Band Edge



Lower Extended Band Edge

