TEST REPORT

CERTIFICATE OF CONFORMITY

Standard:	**47 CFR FCC Part 22**
	47 CFR FCC Part 24
	47 CFR FCC Part 27
	47 CFR FCC Part 2
Report No.:	RFBCMA-WTW-P24070713-2
FCC ID:	RAXXC46BE
Product:	Dragon
Brand:	Verizon
Model No.:	XC46BE
Received Date:	2024/9/27
Test Date:	2024/10/15 ~ 2024/11/4
Issued Date:	2024/11/19
Applicant:	Arcadyan Technology Corporation
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FCC Registration /	788550 / TW0003 for Test Location(1)
Designation Number:	281270 / TW0032 for Test Location(2)

Approved by: Jeremy Lin , **Date:** 2024/11/19

Jeremy Lin / Project Engineer

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Prepared by : Polly Chien / Specialist

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Release Control Record

Issue No.	Description	Date Issued
RFBCMA-WTW-P24070713-2	Original release.	2024/11/19

1 Certificate

Product:	Dragon
Brand:	Verizon
Test Model:	XC46BE
Sample Status:	Engineering sample
Applicant:	Arcadyan Technology Corporation
Test Date:	2024/10/15 ~ 2024/11/4
Standard:	47 CFR FCC Part 22 47 CFR FCC Part 24 47 CFR FCC Part 27 47 CFR FCC Part 2
Measurement procedure:	ANSI/TIA/EIA-603-E 2016 ANSI C63.26-2015 KDB 971168 D01 Power Meas License Digital Systems v03r01 KDB 971168 D02 Misc Rev Approv License Devices v02r02

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

2 Summary of Test Results

Standard / Clause	Test Item	Result	Remark
Part 2.1046 Part 22.913 (a) Part 24.232 (c) Part 27.50(d) Part 27.50(b)	Effective Radiated Power and Equivalent Isotropically Radiated Power	Pass	Meet the requirement of limit.
Part 2.1047	Modulation Characteristics	Pass	Meet the requirement of limit.
Part 22.913 (d) Part 24.232 (d) Part 27.50(d)	Peak to Average Ratio	Pass	Meet the requirement of limit.
Part 2.1049	Bandwidth	Pass	Meet the requirement of limit.
Part 2.1051 Part 22.917 Part 24.238 Part 27.53(h) Part 27.53(c)(f)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
Part 2.1053 Part 22.917 Part 24.238 Part 27.53(h) Part 27.53(c)(f)	Radiated Spurious Emissions below 1GHz	Pass	Minimum passing margin is -28.18 dB at 177.44 MHz
Part 2.1053 Part 22.917 Part 24.238 Part 27.53(h) Part 27.53(c)(f)	Radiated Spurious Emissions above 1GHz	Pass	Minimum passing margin is -1.60 dB at 1564.00 MHz
Part 2.1055 Part 22.355 Part 24.235 Part 27.54	Frequency Stability	Pass	Meet the requirement of limit.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Parameter	Specification	Uncertainty (±)
Effective Radiated Power and Equivalent Isotropically Radiated Power	-	1.371 dB
Peak to Average Ratio	-	0.920 dB
Bandwidth	-	960 Hz
Conducted Spurious Emissions	-	2.12 dB
Radiated Spurious Emissions below 1GHz	9 kHz ~ 30 MHz	3 dB
	30 MHz ~ 1 GHz	2.92 dB
Radiated Spurious Emissions above 1GHz	1 GHz ~ 18 GHz	1.76 dB
	18 GHz ~ 40 GHz	1.77 dB
Frequency Stability	-	0.176 ppm

The other instruments specified are routine verified to remain within the calibrated levels, no measurement uncertainty is required to be calculated.

2.2 Supplementary Information

There is not any deviation from the test standards for the test method, and no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Dragon
Brand	Verizon
Test Model	XC46BE
Status of EUT	Engineering sample
Power Supply Rating	12.0Vdc from adapter 7.2 Vdc from battery

Note:

1. EUT Overview

LTE Band 2

Bandwidth	TX Frequency Range (MHz)	Modulation	Max. EIRP (W)	Max. EIRP (dBm)	Emission Designator
1.4 MHz	1850.7 ~ 1909.3	QPSK	0.492	26.92	1M09G7D
		16QAM	0.4	26.02	1M09D7W
		64QAM	0.311	24.93	1M09D7W
		256QAM	0.194	22.88	1M09D7W
3 MHz	1851.5 ~ 1908.5	QPSK	0.492	26.92	2M70G7D
		16QAM	0.397	25.99	2M70D7W
		64QAM	0.316	24.99	2M70D7W
		256QAM	0.198	22.97	2M70D7W
5 MHz	1852.5 ~ 1907.5	QPSK	0.498	26.97	4M50G7D
		16QAM	0.401	26.03	4M50D7W
		64QAM	0.313	24.96	4M50D7W
		256QAM	0.2	23	4M49D7W
10 MHz	1855 ~ 1905	QPSK	0.511	27.08	9M00G7D
		16QAM	0.411	26.14	8M99D7W
		64QAM	0.322	25.08	9M00D7W
		256QAM	0.199	22.98	8M99D7W
15 MHz	1857.5 ~ 1902.5	QPSK	0.512	27.09	13M5G7D
		16QAM	0.413	26.16	13M5D7W
		64QAM	0.326	25.13	13M5D7W
		256QAM	0.203	23.08	13M5D7W
20 MHz	1860 ~ 1900	QPSK	0.514	27.11	18M0G7D
		16QAM	0.417	26.2	18M0D7W
		64QAM	0.324	25.11	18M0D7W
		256QAM	0.201	23.04	18M0D7W

LTE Band 5

Bandwidth	TX Frequency Range (MHz)	Modulation	Max. ERP (W)	Max. ERP (dBm)	Emission Designator
1.4 MHz	824.7 ~ 848.3	QPSK	0.396	25.98	1M09G7D
		16QAM	0.329	25.17	1M09D7W
		64QAM	0.258	24.11	1M09D7W
		256QAM	0.155	21.9	1M09D7W
3 MHz	825.5 ~ 847.5	QPSK	0.395	25.97	2M70G7D
		16QAM	0.329	25.17	2M70D7W
		64QAM	0.259	24.14	2M70D7W
		256QAM	0.154	21.87	2M70D7W
5 MHz	826.5 ~ 846.5	QPSK	0.395	25.97	4M50G7D
		16QAM	0.329	25.17	4M49D7W
		64QAM	0.254	24.05	4M50D7W
		256QAM	0.152	21.82	4M49D7W
10 MHz	829 ~ 844	QPSK	0.405	26.07	8M98G7D
		16QAM	0.335	25.25	8M98D7W
		64QAM	0.257	24.1	8M98D7W
		256QAM	0.153	21.86	8M98D7W

LTE Band 13

Bandwidth	TX Frequency Range (MHz)	Modulation	Max. ERP (W)	Max. ERP (dBm)	Emission Designator
5 MHz	779.5 ~ 784.5	QPSK	0.359	25.55	4M50G7D
		16QAM	0.284	24.54	4M49D7W
		64QAM	0.225	23.53	4M50D7W
		256QAM	0.127	21.03	4M49D7W
10 MHz	782	QPSK	0.361	25.57	8M95G7D
		16QAM	0.286	24.57	8M96D7W
		64QAM	0.225	23.52	8M96D7W
		256QAM	0.126	21.02	8M95D7W

LTE Band 66

Bandwidth	TX Frequency Range (MHz)	Modulation	Max. EIRP (W)	Max. EIRP (dBm)	Emission Designator
1.4 MHz	1710.7 ~ 1779.3	QPSK	0.515	27.12	1M09G7D
		16QAM	0.407	26.1	1M09D7W
		64QAM	0.318	25.03	1M09D7W
		256QAM	0.179	22.53	1M09D7W
3 MHz	1711.5 ~ 1778.5	QPSK	0.513	27.1	2M70G7D
		16QAM	0.406	26.09	2M70D7W
		64QAM	0.32	25.05	2M70D7W
		256QAM	0.18	22.55	2M70D7W
5 MHz	1712.5 ~ 1777.5	QPSK	0.513	27.1	4M50G7D
		16QAM	0.406	26.08	4M50D7W
		64QAM	0.316	24.99	4M50D7W
		256QAM	0.177	22.49	4M49D7W
10 MHz	1715 ~ 1775	QPSK	0.516	27.13	8M99G7D
		16QAM	0.404	26.06	8M99D7W
		64QAM	0.318	25.02	8M99D7W
		256QAM	0.179	22.52	8M98D7W
15 MHz	1717.5 ~ 1772.5	QPSK	0.518	27.14	13M5G7D
		16QAM	0.407	26.1	13M5D7W
		64QAM	0.321	25.07	13M5D7W
		256QAM	0.181	22.57	13M5D7W
20 MHz	1720 ~ 1770	QPSK	0.522	27.18	18M0G7D
		16QAM	0.409	26.12	18M0D7W
		64QAM	0.319	25.04	18M0D7W
		256QAM	0.179	22.54	18M0D7W

2. The EUT uses following accessories.

Adapter	
Brand	verizon
Model	1A105-1235
Input Power	105-125 Vac, 60Hz, 1.2A
Output Power	12.0Vdc, 3.5A, 42.0W
DC Output Cable	1.8meter unshielded cable, w/o ferrite core

Battery	
Brand	Atemitech
Model	XC46BE224T-F100
Power Rating	7.2Vdc, 9800mAh (70.56Wh)

3. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

3.2 Antenna Description of EUT

1. The antenna information is listed as below.

Antenna NO.	TX/RX	Antenna Net Gain(dBi)	Frequency range	Antenna Type	Connector Type
Ant.1	TX1/RX	2.86	FDD B2/n2: 1850 -1910 MHz	Dipole	SMA
	TX1/RX	2.77	FDD B5/n5: 824-849 MHz		
	TX0/RX	3.35	FDD B13: 777-787 MHz		
	TX0/RX	0.57	TDD B48/n48: 3550-3700 MHz		
	TX1/RX	2.54	FDD B66/n66: 1710-1780 MHz		
	TX0/RX	0.57	TDD n77: 3300-4200 MHz		
Ant.2	RX	2.82	FDD B2/n2: 1850 -1910 MHz	Dipole	SMA
		1.84	FDD B5/n5: 824-849 MHz		
		2.59	FDD B13: 777-787 MHz		
		0.91	TDD B48/n48: 3550-3700 MHz		
		2.83	FDD B66/n66: 1710-1780 MHz		
		0.91	TDD n77: 3300-4200 MHz		
Ant.3	RX	2.93	FDD B2/n2: 1850 -1910 MHz	Dipole	SMA
		2.7	FDD B5/n5: 824-849 MHz		
		2.18	FDD B13: 777-787 MHz		
		-0.13	TDD B48/n48: 3550-3700 MHz		
		3.08	FDD B66/n66: 1710-1780 MHz		
		0.78	TDD n77: 3300-4200 MHz		
Ant.4	TX0/RX	3.52	FDD B2/n2: 1850 -1910 MHz	Dipole	SMA
	TX0/RX	3.92	FDD B5/n5: 824-849 MHz		
	RX	4.23	FDD B13: 777-787 MHz		
	TX1/RX	0.33	TDD B48/n48: 3550-3700 MHz		
	TX0/RX	2.9	FDD B66/n66: 1710-1780 MHz		
	TX1/RX	0.74	TDD n77: 3300-4200 MHz		

*During SISO mode, FDD Band2/n2, FDD Band5/n5 & FDD Band66/n66 were fixed on Ant.4 and FDD Band13, TDD Band48/n48 & TDD n77 were fixed on Ant.1.

*For MIMO mode:

1. FDD:n2/n66 & TDD: n48/n77 were fixed on Ant.1 + Ant.4.
2. The MIMO mode signal was uncorrelated signal.
3. Regarding EIRP calculation that we will use the maximum antenna gain/frequency band as calculation parameters. Directional gain = 10 log[($10^{G1/10}$ + $10^{G2/10}$ + ... + $10^{GN/10}$)/2] dBi.

*The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan:	1. For Unwanted Emission (below 1GHz) items: Battery/ POE/ AC Adapter. Pre-scan these modes and find the worst case as a representative test condition. 2. Pre-Scan has been conducted to determine the worst-case from all possible combinations of TX/RX condition, channel, bandwidth, modulation and RB mode. See below table(s) for details.
Worst Case:	1. For Unwanted Emission (below 1GHz) items worst condition: AC Adapter, frequency stability items worst condition: Battery and others test item the worst condition: AC Adapter. 2. EUT only operate on the specific X-axis for tested.

3.3.1 LTE Band 2

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Equivalent Isotropically Radiated Power	18607(1850.70 MHz) 18900(1880.00 MHz) 19193(1909.30 MHz)	1.4 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
	18615(1851.50 MHz) 18900(1880.00 MHz) 19185(1908.50 MHz)	3 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
	18625(1852.50 MHz) 18900(1880.00 MHz) 19175(1907.50 MHz)	5 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
	18650(1855.00 MHz) 18900(1880.00 MHz) 19150(1905.00 MHz)	10 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
	18675(1857.50 MHz) 18900(1880.00 MHz) 19125(1902.50 MHz)	15 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
	18700(1860.00 MHz) 18900(1880.00 MHz) 19100(1900.00 MHz)	20 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
Modulation Characteristics	18900(1880.00 MHz)	20 MHz	QPSK / 16QAM / 64QAM / 256QAM	Full RB
Peak to Average Ratio	18607(1850.70 MHz) 18900(1880.00 MHz) 19193(1909.30 MHz)	1.4 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB
	18615(1851.50 MHz) 18900(1880.00 MHz) 19185(1908.50 MHz)	3 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB
	18625(1852.50 MHz) 18900(1880.00 MHz) 19175(1907.50 MHz)	5 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB
	18650(1855.00 MHz) 18900(1880.00 MHz) 19150(1905.00 MHz)	10 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB
	18675(1857.50 MHz) 18900(1880.00 MHz) 19125(1902.50 MHz)	15 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB
	18700(1860.00 MHz) 18900(1880.00 MHz) 19100(1900.00 MHz)	20 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Bandwidth	18607(1850.70 MHz) 18900(1880.00 MHz) 19193(1909.30 MHz)	1.4 MHz	QPSK / 16QAM / 64QAM / 256QAM	Full RB
	18615(1851.50 MHz) 18900(1880.00 MHz) 19185(1908.50 MHz)	3 MHz	QPSK / 16QAM / 64QAM / 256QAM	Full RB
	18625(1852.50 MHz) 18900(1880.00 MHz) 19175(1907.50 MHz)	5 MHz	QPSK / 16QAM / 64QAM / 256QAM	Full RB
	18650(1855.00 MHz) 18900(1880.00 MHz) 19150(1905.00 MHz)	10 MHz	QPSK / 16QAM / 64QAM / 256QAM	Full RB
	18675(1857.50 MHz) 18900(1880.00 MHz) 19125(1902.50 MHz)	15 MHz	QPSK / 16QAM / 64QAM / 256QAM	Full RB
	18700(1860.00 MHz) 18900(1880.00 MHz) 19100(1900.00 MHz)	20 MHz	QPSK / 16QAM / 64QAM / 256QAM	Full RB
Conducted Spurious Emissions	18607(1850.70 MHz) 18900(1880.00 MHz) 19193(1909.30 MHz)	1.4 MHz	QPSK	1 RB Full RB
	18615(1851.50 MHz) 18900(1880.00 MHz) 19185(1908.50 MHz)	3 MHz	QPSK	1 RB Full RB
	18625(1852.50 MHz) 18900(1880.00 MHz) 19175(1907.50 MHz)	5 MHz	QPSK	1 RB Full RB
	18650(1855.00 MHz) 18900(1880.00 MHz) 19150(1905.00 MHz)	10 MHz	QPSK	1 RB Full RB
	18675(1857.50 MHz) 18900(1880.00 MHz) 19125(1902.50 MHz)	15 MHz	QPSK	1 RB Full RB
	18700(1860.00 MHz) 18900(1880.00 MHz) 19100(1900.00 MHz)	20 MHz	QPSK	1 RB Full RB
Radiated Spurious Emissions below 1GHz	19100(1900.00 MHz)	20 MHz	QPSK	1 RB
Radiated Spurious Emissions above 1GHz	18607(1850.70 MHz) 18900(1880.00 MHz) 19193(1909.30 MHz)	1.4 MHz	QPSK	1 RB
	18625(1852.50 MHz) 18900(1880.00 MHz) 19175(1907.50 MHz)	5 MHz	QPSK	1 RB
	18700(1860.00 MHz) 18900(1880.00 MHz) 19100(1900.00 MHz)	20 MHz	QPSK	1 RB

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Frequency Stability (Frequency range: 1850 MHz to 1910 MHz)	18607(1850.70 MHz) 19193(1909.30 MHz)	1.4 MHz	QPSK	Full RB
	18615(1851.50 MHz) 19185(1908.50 MHz)	3 MHz	QPSK	Full RB
	18625(1852.50 MHz) 19175(1907.50 MHz)	5 MHz	QPSK	Full RB
	18650(1855.00 MHz) 19150(1905.00 MHz)	10 MHz	QPSK	Full RB
	18675(1857.50 MHz) 19125(1902.50 MHz)	15 MHz	QPSK	Full RB
	18700(1860.00 MHz) 19100(1900.00 MHz)	20 MHz	QPSK	Full RB

3.3.2 LTE Band 5

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Effective Radiated Power	20407(824.70 MHz) 20525(836.50 MHz) 20643(848.30 MHz)	1.4 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
	20415(825.50 MHz) 20525(836.50 MHz) 20635(847.50 MHz)	3 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
	20425(826.50 MHz) 20525(836.50 MHz) 20625(846.50 MHz)	5 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
	20450(829.00 MHz) 20525(836.50 MHz) 20600(844.00 MHz)	10 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
Modulation Characteristics	20525(836.50 MHz)	10 MHz	QPSK / 16QAM / 64QAM / 256QAM	Full RB
Peak to Average Ratio	20407(824.70 MHz) 20525(836.50 MHz) 20643(848.30 MHz)	1.4 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB
	20415(825.50 MHz) 20525(836.50 MHz) 20635(847.50 MHz)	3 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB
	20425(826.50 MHz) 20525(836.50 MHz) 20625(846.50 MHz)	5 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB
	20450(829.00 MHz) 20525(836.50 MHz) 20600(844.00 MHz)	10 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB
Bandwidth	20407(824.70 MHz) 20525(836.50 MHz) 20643(848.30 MHz)	1.4 MHz	QPSK / 16QAM / 64QAM / 256QAM	Full RB
	20415(825.50 MHz) 20525(836.50 MHz) 20635(847.50 MHz)	3 MHz	QPSK / 16QAM / 64QAM / 256QAM	Full RB
	20425(826.50 MHz) 20525(836.50 MHz) 20625(846.50 MHz)	5 MHz	QPSK / 16QAM / 64QAM / 256QAM	Full RB
	20450(829.00 MHz) 20525(836.50 MHz) 20600(844.00 MHz)	10 MHz	QPSK / 16QAM / 64QAM / 256QAM	Full RB
Conducted Spurious Emissions	20407(824.70 MHz) 20525(836.50 MHz) 20643(848.30 MHz)	1.4 MHz	QPSK	1 RB Full RB
	20415(825.50 MHz) 20525(836.50 MHz) 20635(847.50 MHz)	3 MHz	QPSK	1 RB Full RB
	20425(826.50 MHz) 20525(836.50 MHz) 20625(846.50 MHz)	5 MHz	QPSK	1 RB Full RB
	20450(829.00 MHz) 20525(836.50 MHz) 20600(844.00 MHz)	10 MHz	QPSK	1 RB Full RB

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Radiated Spurious Emissions below 1GHz	20643(848.30 MHz)	1.4 MHz	QPSK	1 RB
Radiated Spurious Emissions above 1GHz	20407(824.70 MHz) 20525(836.50 MHz) 20643(848.30 MHz)	1.4 MHz	QPSK	1 RB
	20425(826.50 MHz) 20525(836.50 MHz) 20625(846.50 MHz)	5 MHz	QPSK	1 RB
	20450(829.00 MHz) 20525(836.50 MHz) 20600(844.00 MHz)	10 MHz	QPSK	1 RB
Frequency Stability (Frequency range: 824 MHz to 849 MHz)	20407(824.70 MHz) 20643(848.30 MHz)	1.4 MHz	QPSK	Full RB
	20415(825.50 MHz) 20635(847.50 MHz)	3 MHz	QPSK	Full RB
	20425(826.50 MHz) 20625(846.50 MHz)	5 MHz	QPSK	Full RB
	20450(829.00 MHz) 20600(844.00 MHz)	10 MHz	QPSK	Full RB

3.3.3 LTE Band 13

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Effective Radiated Power	23205(779.50 MHz) 23230(782.00 MHz) 23255(784.50 MHz)	5 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
	23230(782.00 MHz)	10 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
Modulation Characteristics	23230(782.00 MHz)	10 MHz	QPSK / 16QAM / 64QAM / 256QAM	Full RB
Peak to Average Ratio	23205(779.50 MHz) 23230(782.00 MHz) 23255(784.50 MHz)	5 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB
	23230(782.00 MHz)	10 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB
Bandwidth	23205(779.50 MHz) 23230(782.00 MHz) 23255(784.50 MHz)	5 MHz	QPSK / 16QAM / 64QAM / 256QAM	Full RB
	23230(782.00 MHz)	10 MHz	QPSK / 16QAM / 64QAM / 256QAM	Full RB
Conducted Spurious Emissions	23205(779.50 MHz) 23230(782.00 MHz) 23255(784.50 MHz)	5 MHz	QPSK	1 RB Full RB
	23230(782.00 MHz)	10 MHz	QPSK	1 RB Full RB
Radiated Spurious Emissions below 1GHz	23230(782.00 MHz)	10 MHz	QPSK	1 RB
Radiated Spurious Emissions above 1GHz	23205(779.50 MHz) 23230(782.00 MHz) 23255(784.50 MHz)	5 MHz	QPSK	1 RB
	23230(782.00 MHz)	10 MHz	QPSK	1 RB
Frequency Stability (Frequency range: 777 MHz to 787 MHz)	23205(779.50 MHz) 23255(784.50 MHz)	5 MHz	QPSK	Full RB
	23230(782.00 MHz)	10 MHz	QPSK	Full RB

3.3.4 LTE Band 66

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Equivalent Isotropically Radiated Power	131979(1710.70 MHz) 132322(1745.00 MHz) 132665(1779.30 MHz)	1.4 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
	131987(1711.50 MHz) 132322(1745.00 MHz) 132657(1778.50 MHz)	3 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
	131997(1712.50 MHz) 132322(1745.00 MHz) 132647(1777.50 MHz)	5 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
	132022(1715.00 MHz) 132322(1745.00 MHz) 132622(1775.00 MHz)	10 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
	132047(1717.50 MHz) 132322(1745.00 MHz) 132597(1772.50 MHz)	15 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
	132072(1720.00 MHz) 132322(1745.00 MHz) 132572(1770.00 MHz)	20 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
Modulation Characteristics	132322(1745.00 MHz)	20 MHz	QPSK / 16QAM / 64QAM / 256QAM	Full RB
Peak to Average Ratio	131979(1710.70 MHz) 132322(1745.00 MHz) 132665(1779.30 MHz)	1.4 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB
	131987(1711.50 MHz) 132322(1745.00 MHz) 132657(1778.50 MHz)	3 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB
	131997(1712.50 MHz) 132322(1745.00 MHz) 132647(1777.50 MHz)	5 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB
	132022(1715.00 MHz) 132322(1745.00 MHz) 132622(1775.00 MHz)	10 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB
	132047(1717.50 MHz) 132322(1745.00 MHz) 132597(1772.50 MHz)	15 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB
	132072(1720.00 MHz) 132322(1745.00 MHz) 132572(1770.00 MHz)	20 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB

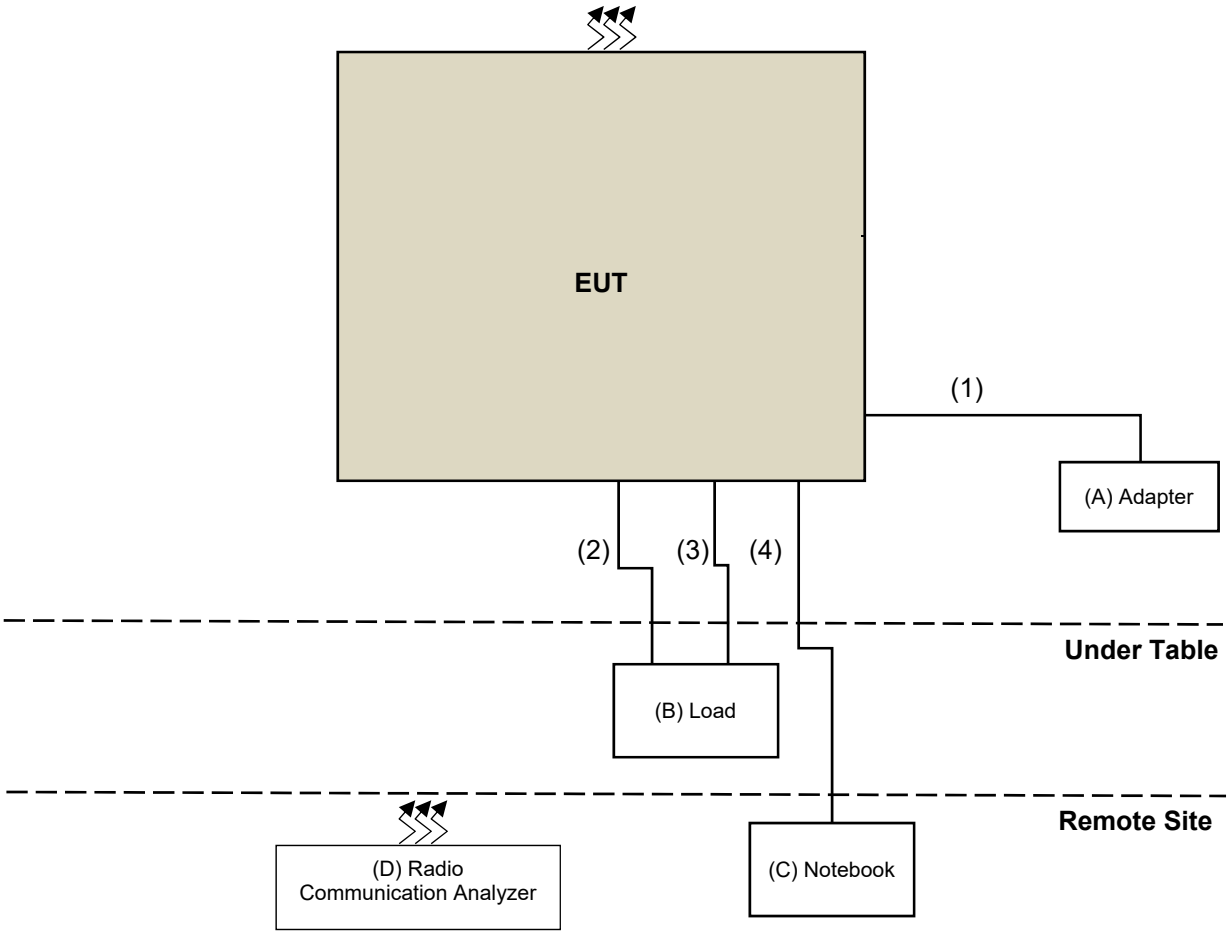
Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Bandwidth	131979(1710.70 MHz) 132322(1745.00 MHz) 132665(1779.30 MHz)	1.4 MHz	QPSK / 16QAM / 64QAM / 256QAM	Full RB
	131987(1711.50 MHz) 132322(1745.00 MHz) 132657(1778.50 MHz)	3 MHz	QPSK / 16QAM / 64QAM / 256QAM	Full RB
	131997(1712.50 MHz) 132322(1745.00 MHz) 132647(1777.50 MHz)	5 MHz	QPSK / 16QAM / 64QAM / 256QAM	Full RB
	132022(1715.00 MHz) 132322(1745.00 MHz) 132622(1775.00 MHz)	10 MHz	QPSK / 16QAM / 64QAM / 256QAM	Full RB
	132047(1717.50 MHz) 132322(1745.00 MHz) 132597(1772.50 MHz)	15 MHz	QPSK / 16QAM / 64QAM / 256QAM	Full RB
	132072(1720.00 MHz) 132322(1745.00 MHz) 132572(1770.00 MHz)	20 MHz	QPSK / 16QAM / 64QAM / 256QAM	Full RB
Conducted Spurious Emissions	131979(1710.70 MHz) 132322(1745.00 MHz) 132665(1779.30 MHz)	1.4 MHz	QPSK	1 RB Full RB
	131987(1711.50 MHz) 132322(1745.00 MHz) 132657(1778.50 MHz)	3 MHz	QPSK	1 RB Full RB
	131997(1712.50 MHz) 132322(1745.00 MHz) 132647(1777.50 MHz)	5 MHz	QPSK	1 RB Full RB
	132022(1715.00 MHz) 132322(1745.00 MHz) 132622(1775.00 MHz)	10 MHz	QPSK	1 RB Full RB
	132047(1717.50 MHz) 132322(1745.00 MHz) 132597(1772.50 MHz)	15 MHz	QPSK	1 RB Full RB
	132072(1720.00 MHz) 132322(1745.00 MHz) 132572(1770.00 MHz)	20 MHz	QPSK	1 RB Full RB
Radiated Spurious Emissions below 1GHz	132072(1720.00 MHz)	20 MHz	QPSK	1 RB
Radiated Spurious Emissions above 1GHz	131979(1710.70 MHz) 132322(1745.00 MHz) 132665(1779.30 MHz)	1.4 MHz	QPSK	1 RB
	131997(1712.50 MHz) 132322(1745.00 MHz) 132647(1777.50 MHz)	5 MHz	QPSK	1 RB
	132072(1720.00 MHz) 132322(1745.00 MHz) 132572(1770.00 MHz)	20 MHz	QPSK	1 RB

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Frequency Stability (Frequency range: 1710 MHz to 1780 MHz)	131979(1710.70 MHz) 132665(1779.30 MHz)	1.4 MHz	QPSK	Full RB
	131987(1711.50 MHz) 132657(1778.50 MHz)	3 MHz	QPSK	Full RB
	131997(1712.50 MHz) 132647(1777.50 MHz)	5 MHz	QPSK	Full RB
	132022(1715.00 MHz) 132622(1775.00 MHz)	10 MHz	QPSK	Full RB
	132047(1717.50 MHz) 132597(1772.50 MHz)	15 MHz	QPSK	Full RB
	132072(1720.00 MHz) 132572(1770.00 MHz)	20 MHz	QPSK	Full RB

3.4 Test Program Used and Operation Descriptions

There is no need to controlling software during the test, and the EUT can be paired with the Radio Communication Analyzer to test the connection when it is powered on.

3.5 Connection Diagram of EUT and Peripheral Devices



3.6 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Adapter	verizon	1A105-1235	N/A	N/A	Supplied by applicant
B	Load	NA	NA	N/A	N/A	Provided by Lab
C	Notebook	Lenovo	20J4 MD A003TW	N/A	N/A	Provided by Lab
D	Radio Communication Analyzer	Anritsu	MT8821C	6201462755	N/A	Provided by Lab

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	DC Output Cable	1	1.8	No	0	Supplied by applicant
2	LAN cable	1	1.5	No	0	Provided by Lab
3	LAN cable	1	1.5	No	0	Provided by Lab
4	LAN cable	1	10	No	0	Provided by Lab

4 Test Instruments

The calibration interval of the all test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.1 Effective Radiated Power and Equivalent Isotropically Radiated Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
PXA Signal Analyzer Keysight	N9030B	MY57140938	2024/3/20	2025/3/19
Radio Communication Analyzer Anritsu	MT8821C	6261806803	2024/2/15	2025/2/14
Software BV	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2024/10/15 ~ 2024/11/4

4.2 Modulation Characteristics

Refer to section 4.1 to get the tested date and information of the instruments.

4.3 Peak to Average Ratio

Refer to section 4.1 to get the tested date and information of the instruments.

4.4 Bandwidth

Refer to section 4.1 to get the tested date and information of the instruments.

4.5 Conducted Spurious Emissions

Refer to section 4.1 to get the tested date and information of the instruments.

4.6 Radiated Spurious Emissions below 1GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower KaiTuo	N/A	N/A	N/A	N/A
Antenna Tower Controller KaiTuo	KT-2000	N/A	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-995	2024/10/9	2025/10/8
Loop Antenna TESEQ	HLA 6121	45745	2024/8/21	2025/8/20
MXE EMI Receiver Agilent	N9038A	MY52260177	2024/9/19	2025/9/18
Preamplifier EMCI	EMC330N	980783	2024/1/15	2025/1/14
	EMC001340	980201	2024/9/24	2025/9/23
PXA Signal Analyzer Keysight	N9030B	MY57140488	2024/3/6	2025/3/5
RF Coaxial Cable EMCI	EMCCFD400-NM-NM-500	201245	2024/1/15	2025/1/14
	EMCCFD400-NM-NM-3000	201250	2024/1/15	2025/1/14
	EMCCFD400-NM-NM-9000	201252(with PAD)	2024/1/15	2025/1/14
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table Max-Full	MFT-151SS-0.5T	N/A	N/A	N/A
Turn Table Controller Max-Full	MF-7802BS	MF780208675	N/A	N/A

Notes:

1. The test was performed in WM - 966 chamber 7.
2. Tested Date: 2024/11/3

4.7 Radiated Spurious Emissions above 1GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower KaiTuo	N/A	N/A	N/A	N/A
Antenna Tower Controller KaiTuo	KT-2000	N/A	N/A	N/A
Horn Antenna RFSPIN	DRH18-E	210104A18E	2023/11/12	2024/11/11
Horn Antenna Schwarzbeck	BBHA 9170	9170-1048	2023/11/12	2024/11/11
MXE EMI Receiver Agilent	N9038A	MY52260177	2024/9/19	2025/9/18
Preamplifier EMCI	EMC118A45SE	980810	2023/12/28	2024/12/27
	EMC184045SE	980787	2024/1/15	2025/1/14
PXA Signal Analyzer Keysight	N9030B	MY57140488	2024/3/6	2025/3/5
RF Coaxial Cable EMCI	EMC101G-KM-KM-2000	201254	2024/1/15	2025/1/14
	EMC101G-KM-KM-3000	201258	2024/1/15	2025/1/14
	EMC101G-KM-KM-5000	201261	2024/1/15	2025/1/14
	EMC104-SM-SM-1000	210101	2024/1/15	2025/1/14
	EMC104-SM-SM-3000	201242	2024/1/15	2025/1/14
	EMC104-SM-SM-9000	201230	2024/1/15	2025/1/14
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table Max-Full	MFT-151SS-0.5T	N/A	N/A	N/A
Turn Table Controller Max-Full	MF-7802BS	MF780208675	N/A	N/A

Notes:

1. The test was performed in WM - 966 chamber 7.
2. Tested Date: 2024/10/21 ~ 2024/10/22

4.8 Frequency Stability

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
3-channel DC power supply JIN YIH Technology	ODP3033	ODP30332128138	N/A	N/A
Digital Multimeter Fluke	8050A	4660081	2024/6/14	2025/6/13
PXA Signal Analyzer Keysight	N9030B	MY57140938	2024/3/20	2025/3/19
Radio Communication Analyzer Anritsu	MT8821C	6261806803	2024/2/15	2025/2/14
Software BV	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A
Temperature & Humidity Chamber Terchy	HRM-120RF	931022	2023/12/19	2024/12/18

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2024/11/1

5 Limits of Test Items

5.1 Effective Radiated Power and Equivalent Isotropically Radiated Power

For LTE Band 2:

Mobile and portable stations are limited to 2 watts EIRP.

For LTE Band 5:

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

For LTE Band 13:

Control stations and mobile stations transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands and fixed stations transmitting in the 787-788 MHz and 805-806 MHz bands are limited to 30 watts ERP.

For LTE Band 66:

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

5.2 Modulation Characteristics

A curve or equivalent data which shows that the equipment will meet the modulation requirements of the rules under which the equipment is to be licensed.

5.3 Peak to Average Ratio

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

5.4 Bandwidth

According to FCC 47 CFR part 2.1049, 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% of the total mean power radiated by a given emission.

5.5 Conducted Spurious Emissions

For LTE Band 2, LTE Band 5:

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit equal to –13 dBm.

For LTE Band 13:

According to FCC 47 CFR part 27.53(c)(2), for on any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.
According to FCC 47 CFR part 27.53(c)(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations.
For operations in the 775-788 MHz, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz (EIRP). The limit of emissions is equal to -40 dBm.

For LTE Band 66:

According to FCC 47 CFR part 27.53(h), for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log (P) dB. However, in the 1 megahertz 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.

5.6 Radiated Spurious Emissions below 1GHz

For LTE Band 2, LTE Band 5:

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit equal to –13 dBm.

For LTE Band 13:

According to FCC 47 CFR part 27.53(c)(2), for on any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB. The limit of emissions is equal to -13 dBm.

For LTE Band 66:

According to FCC 47 CFR part 27.53(h), for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log (P) dB. The limit of emission is equal to -13 dBm.

5.7 Radiated Spurious Emissions above 1GHz

For LTE Band 2, LTE Band 5:

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit equal to –13 dBm.

For LTE Band 13:

According to FCC 47 CFR part 27.53(c)(2), for on any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB. The limit of emissions is equal to -13 dBm.
For operations in the 775-788 MHz, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz (EIRP). The limit of emissions is equal to -40 dBm.

For LTE Band 66:

According to FCC 47 CFR part 27.53(h), for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log (P) dB. The limit of emission is equal to -13 dBm.

5.8 Frequency Stability

For LTE Band 5:

1.5 ppm is for base and fixed station. 2.5 ppm is for mobile station.

For LTE Band 2, LTE Band 13, LTE Band 66:

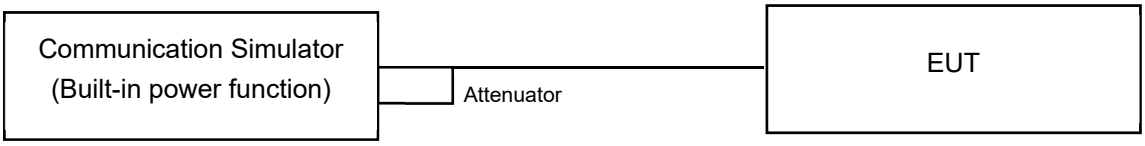
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation (authorized frequency block).

6 Test Arrangements

6.1 Effective Radiated Power and Equivalent Isotropically Radiated Power

6.1.1 Test Setup

Conducted Power Measurement:



6.1.2 Test Procedure

Conducted Power Measurement:

The EUT is configured by emulator to set data modulation and maximum power using WWAN technology. The average (rms) power measurement was performed on emulator and power value was measured from power function on emulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

Maximum EIRP / ERP

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

$EIRP = P_{Meas} + G_T$

$ERP = P_{Meas} + G_T - 2.15$

where

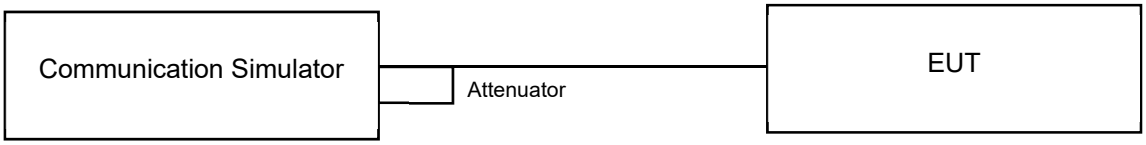
ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as P_{Meas}, e.g., dBm or dBW)

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)

6.2 Modulation Characteristics

6.2.1 Test Setup

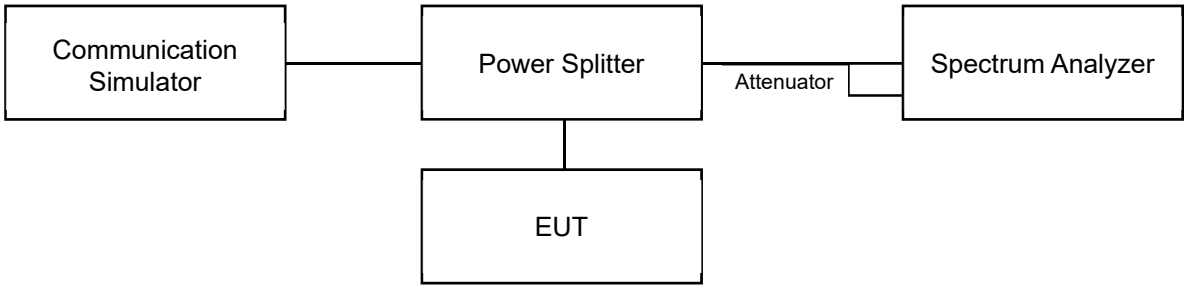


6.2.2 Test Procedure

Connect the EUT to Communication Simulator via the antenna connector, the frequency band is set as EUT supported Modulation and Channels, the EUT output is matched with 50 ohm load, the waveform quality and constellation of the EUT was tested.

6.3 Peak to Average Ratio

6.3.1 Test Setup

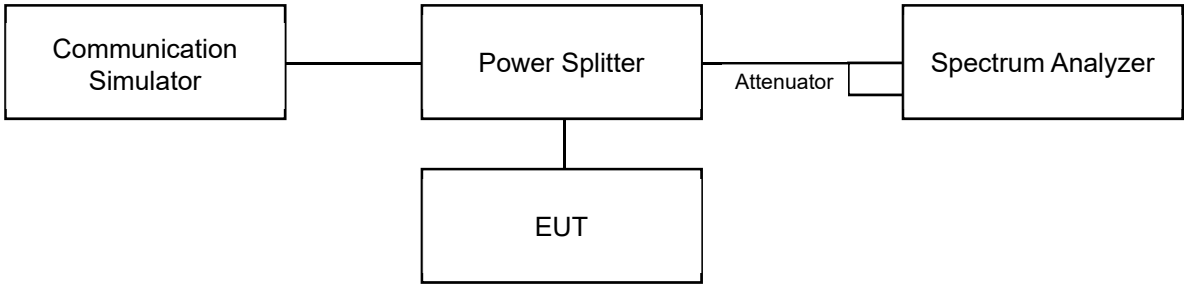


6.3.2 Test Procedure

a. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
b. Set the number of counts to a value that stabilizes the measured CCDF curve;
c. Record the maximum PAPR level associated with a probability of 0.1%.

6.4 Bandwidth

6.4.1 Test Setup



6.4.2 Test Procedure

For the 26 dBc bandwidth measurement method, please refer to section 5.4.3 of ANSI C63.26.

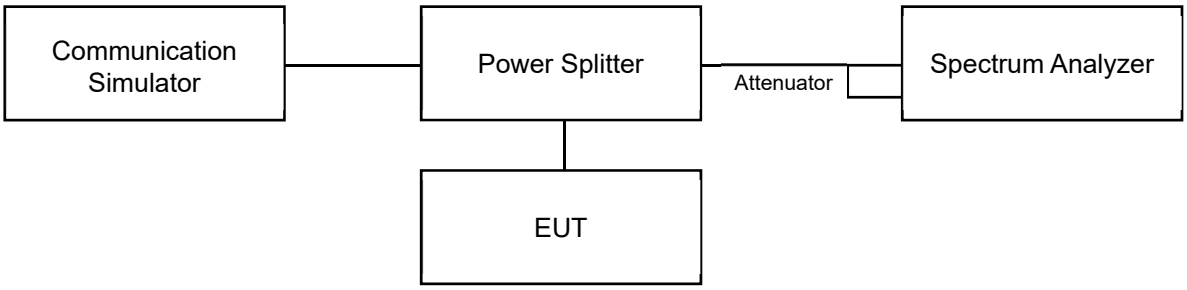
a. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be wide enough to see sufficient roll off of the signal to make the measurement.
b. The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set ≥ 3 × RBW.
c. Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation. See guidance provided in 4.2.3.
d. The dynamic range of the spectrum analyzer at the selected RBW shall be more than 10 dB below the target "−X dB" requirement, i.e., if the requirement calls for measuring the −26 dB OBW, the spectrum analyzer noise floor at the selected RBW shall be at least 36 dB below the reference level.
e. Set spectrum analyzer detection mode to peak, and the trace mode to max hold.
f. Determine the following reference values: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value).
g. Determine the "−X dB amplitude" as equal to (Reference Value − X). Alternatively, this calculation can be performed on the spectrum analyzer using the delta-marker measurement function.
h. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the "−X dB amplitude" determined in step f). If a marker is below this "−X dB amplitude" value it should be as close as possible to this value. The OBW is the positive frequency difference between the two markers.
i. The OBW shall be reported by providing plot(s) of the measuring instrument display, to include markers depicting the relevant frequency and amplitude information (e.g., marker table). The frequency and amplitude axis and scale shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

For the occupied bandwidth measurement method, please refer to section 5.4.4 of ANSI C63.26.

a. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be wide enough to see sufficient roll off of the signal to make the measurement.
b. The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set ≥ 3 × RBW.
c. Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation. See guidance provided in 4.2.3.
d. The dynamic range of the spectrum analyzer at the selected RBW shall be more than 10 dB below the target "−X dB" requirement, i.e., if the requirement calls for measuring the −26 dB OBW, the spectrum analyzer noise floor at the selected RBW shall be at least 36 dB below the reference level.
e. Set spectrum analyzer detection mode to peak, and the trace mode to max hold.
f. Determine the reference value by either of the following:
g. 1) Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value).
h. 2) Set the EUT to transmit an unmodulated carrier. Set the spectrum analyzer marker to the level of the carrier.
i. Determine the "−X dB amplitude" as equal to (Reference Value − X). Alternatively, this calculation can be performed on the spectrum analyzer using the delta-marker measurement function.
j. If the reference value was determined using an unmodulated carrier, turn the EUT modulation on, then either clear the existing trace or start a new trace on the spectrum analyzer and allow the new trace to stabilize. Otherwise the trace from step f) shall be used for step i).
k. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the "−X dB amplitude" determined in step f). If a marker is below this "−X dB amplitude" value it should be as close as possible to this value. The OBW is the positive frequency difference between the two markers. The spectral envelope can cross the "−X dB amplitude" at multiple points. The lowest or highest frequency shall be selected as the frequencies that are the farthest away from the center frequency at which the spectral envelope crosses the "−X dB amplitude."
l. The OBW shall be reported by providing plot(s) of the measuring instrument display, to include markers depicting the relevant frequency and amplitude information (e.g., marker table). The frequency and amplitude axis and scale shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

6.5 Conducted Spurious Emissions

6.5.1 Test Setup



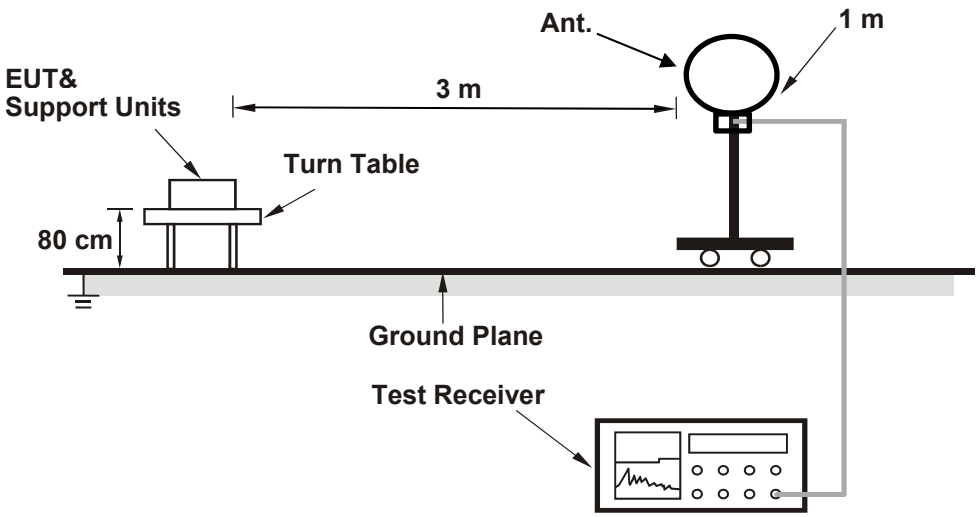
6.5.2 Test Procedure

a. Measurement refer to ANSI C63.26 section 5.7.
b. All measurements were done at 3 channels: low, middle and high operational frequency range.
c. Measuring frequency range is from 9 kHz up to the tenth harmonic of the hightest fundamental frequency or to 40 GHz, whichever is lower. 20 dB attenuation pad is connected with spectrum.
d. The fundamental frequency above 1 GHz, the spectrum set RBW = 1 MHz, VBW = 3 MHz, Detector = Average.
e. The fundamental frequency below 1 GHz, the spectrum set RBW ≥ 100 kHz, VBW ≥ 3 x RBW, Detector = Average.
f. Measuring frequency band edge, narrow RBW (no less than 1% of the OBW) is used for conducted emission measurement.
g. For the emissions measurement method, certain channel BW modes demonstrate compliance by integrating with the smaller RBW allowed by the rule.
For example: Where Reference RBW = 1 MHz and a smaller RBW = 100 kHz is used, worst-case integrated BW power = [Max Measured Value (dBm) with RBW = 100 kHz] + 10* log(1000/100). To compensate for this integration before comparison to the value, the adjusted reference level offset was increase by 10 dB accordingly.
a. Record the maximum power value test plot.

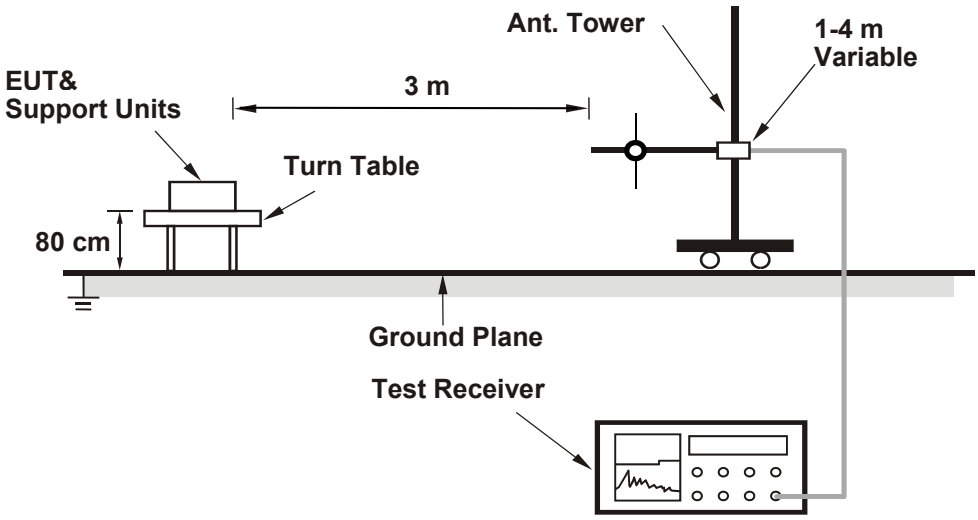
6.6 Radiated Spurious Emissions below 1GHz

6.6.1 Test Setup

For Radiated emission below 30 MHz



For Radiated emission above 30 MHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.6.2 Test Procedure

The EUT is configured to set data modulation and maximum power using WWAN technology.

a. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) height of turn table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.

b. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

c. Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP/ERP level.

d. Following ANSI C63.26 section 5.5 and 5.2.7

e. EIRP (dBm) = E (dBμV/m) + 20log(D) - 104.8; where D is the measurement distance (in the far field region) in m.

f. ERP (dBm) = E (dBμV/m) + 20log(D) - 104.8 - 2.15; where D is the measurement distance (in the far field region) in m.

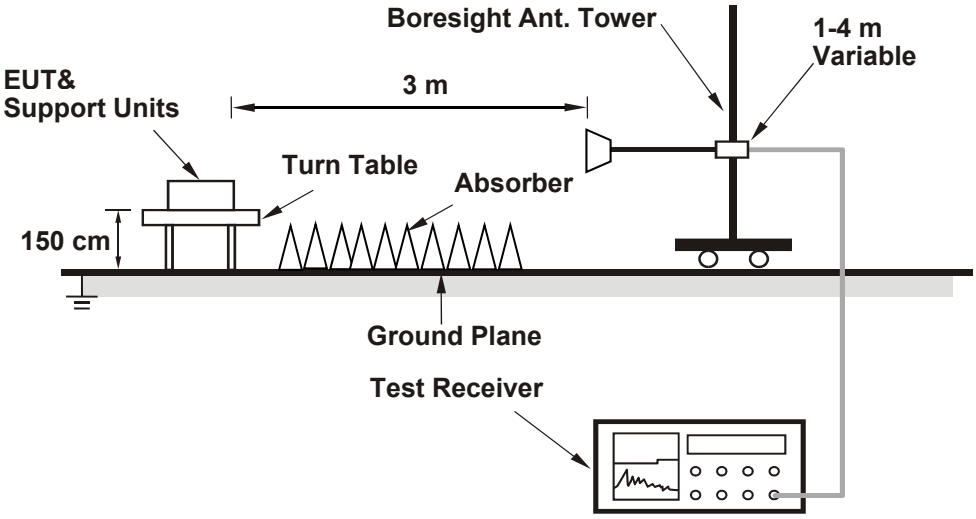
Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz. Set detector = average.
2. The amplitude of spurious emissions in the range 9 kHz to 30 MHz which are attenuated more than 20 dB below the permissible value need not be reported.

6.7 Radiated Spurious Emissions above 1GHz

6.7.1 Test Setup

For radiated emission above 1 GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.7.2 Test Procedure

The EUT is configured to set data modulation and maximum power using WWAN technology.

a. In the semi-anechoic chamber, EUT placed on the 1.5 m height of turn table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.

b. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

c. Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP/ERP level.

d. Following ANSI C63.26 section 5.5 and 5.2.7

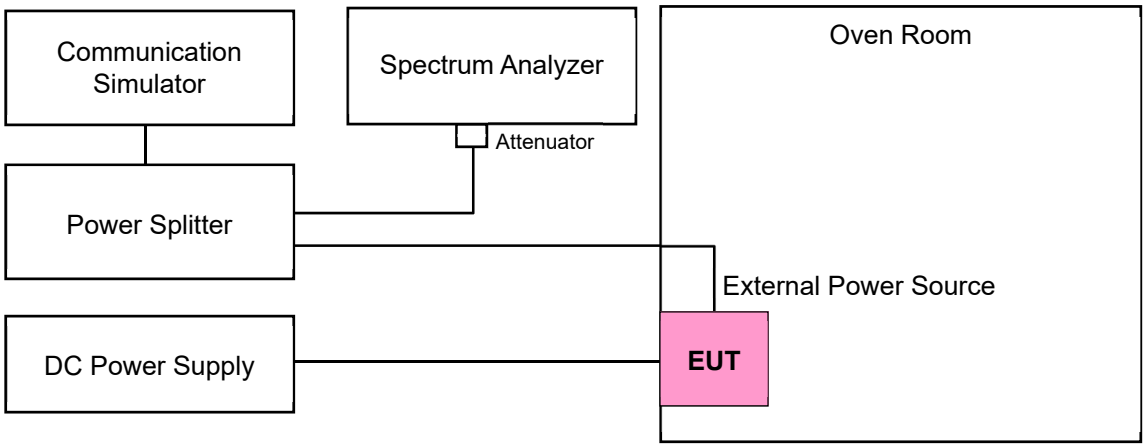
e. EIRP (dBm) = E (dBμV/m) + 20log(D) - 104.8; where D is the measurement distance (in the far field region) in m.

f. ERP (dBm) = E (dBμV/m) + 20log(D) - 104.8 - 2.15; where D is the measurement distance (in the far field region) in m.

Note: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz. Set detector = average.

6.8 Frequency Stability

6.8.1 Test Setup



6.8.2 Test Procedure

The EUT is configured by emulator to set data modulation and maximum power using WWAN technology.

a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.

b. EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.

c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ±0.5℃ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

Note: The frequency error was recorded frequency error from the communication simulator.

7 Test Results of Test Item

7.1 Effective Radiated Power and Equivalent Isotropically Radiated Power

Input Power:	7.2 Vdc	Environmental Conditions:	22°C, 68% RH	Tested By:	Noah Chang

7.1.1 LTE Band 2

LTE Band 2, Channel Bandwidth: 1.4 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 18607	CH 18900	CH 19193
			1850.7 MHz	1880 MHz	1909.3 MHz
QPSK	1	0	23.29	23.30	23.28
	1	2	23.27	23.32	23.31
	1	5	23.39	23.40	23.37
	3	0	23.33	23.35	23.30
	3	1	23.32	23.36	23.34
	3	3	23.29	23.35	23.32
	6	0	22.32	22.35	22.29
16QAM	1	0	22.35	22.37	22.37
	1	2	22.36	22.38	22.38
	1	5	22.47	22.50	22.44
	3	0	22.39	22.41	22.38
	3	1	22.41	22.43	22.44
	3	3	22.39	22.41	22.41
	6	0	21.39	21.45	21.35
64QAM	1	0	21.25	21.31	21.35
	1	2	21.21	21.30	21.35
	1	5	21.31	21.38	21.36
	3	0	21.39	21.28	21.29
	3	1	21.26	21.34	21.29
	3	3	21.20	21.41	21.41
	6	0	20.22	20.38	20.22
256QAM	1	0	19.25	19.27	19.27
	1	2	19.03	19.27	19.16
	1	5	19.29	19.30	19.26
	3	0	19.22	19.15	19.16
	3	1	19.18	19.20	19.20
	3	3	19.09	19.36	19.30
	6	0	19.18	19.25	19.06

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	22.29	23.4	25.81	26.92	33.01
16QAM	21.35	22.5	24.87	26.02	33.01
64QAM	20.22	21.41	23.74	24.93	33.01
256QAM	19.03	19.36	22.55	22.88	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Band 2, Channel Bandwidth: 3 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 18615	CH 18900	CH 19185
			1851.5 MHz	1880 MHz	1908.5 MHz
QPSK	1	0	23.32	23.33	23.29
	1	7	23.32	23.35	23.34
	1	14	23.36	23.40	23.37
	8	0	22.38	22.44	22.43
	8	3	22.38	22.39	22.35
	8	7	22.39	22.45	22.44
	15	0	22.31	22.35	22.33
16QAM	1	0	22.42	22.42	22.38
	1	7	22.40	22.45	22.43
	1	14	22.46	22.47	22.43
	8	0	21.45	21.51	21.52
	8	3	21.47	21.46	21.44
	8	7	21.46	21.54	21.52
	15	0	21.41	21.43	21.40
64QAM	1	0	21.36	21.28	21.19
	1	7	21.31	21.36	21.33
	1	14	21.46	21.47	21.43
	8	0	20.30	20.36	20.50
	8	3	20.31	20.36	20.32
	8	7	20.33	20.54	20.35
	15	0	20.31	20.42	20.26
256QAM	1	0	19.34	19.14	19.14
	1	7	19.31	19.27	19.20
	1	14	19.32	19.34	19.36
	8	0	19.24	19.30	19.31
	8	3	19.23	19.39	19.45
	8	7	19.29	19.18	19.24
	15	0	19.19	19.28	19.13

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	22.31	23.4	25.83	26.92	33.01
16QAM	21.4	22.47	24.92	25.99	33.01
64QAM	20.26	21.47	23.78	24.99	33.01
256QAM	19.13	19.45	22.65	22.97	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Band 2, Channel Bandwidth: 5 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 18625	CH 18900	CH 19175
			1852.5 MHz	1880 MHz	1907.5 MHz
QPSK	1	0	23.37	23.41	23.39
	1	12	23.41	23.45	23.43
	1	24	23.38	23.39	23.37
	12	0	22.40	22.44	22.43
	12	6	22.35	22.40	22.39
	12	13	22.30	22.31	22.28
	25	0	22.42	22.47	22.43
16QAM	1	0	22.43	22.48	22.47
	1	12	22.47	22.51	22.50
	1	24	22.46	22.48	22.46
	12	0	21.46	21.50	21.49
	12	6	21.42	21.47	21.49
	12	13	21.39	21.40	21.37
	25	0	21.49	21.53	21.51
64QAM	1	0	21.29	21.44	21.38
	1	12	21.38	21.40	21.34
	1	24	21.39	21.35	21.38
	12	0	20.46	20.34	20.37
	12	6	20.33	20.38	20.35
	12	13	20.35	20.25	20.18
	25	0	20.45	20.41	20.40
256QAM	1	0	19.13	19.35	19.20
	1	12	19.26	19.33	19.19
	1	24	19.31	19.33	19.36
	12	0	19.28	19.40	19.28
	12	6	19.10	19.28	19.28
	12	13	19.03	19.16	19.13
	25	0	19.45	19.30	19.48

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	22.28	23.45	25.8	26.97	33.01
16QAM	21.37	22.51	24.89	26.03	33.01
64QAM	20.18	21.44	23.7	24.96	33.01
256QAM	19.03	19.48	22.55	23	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Band 2, Channel Bandwidth: 10 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 18650	CH 18900	CH 19150
			1855 MHz	1880 MHz	1905 MHz
QPSK	1	0	23.21	23.27	23.21
	1	24	23.55	23.56	23.55
	1	49	23.23	23.25	23.19
	25	0	23.40	23.46	23.41
	25	12	23.34	23.37	23.36
	25	25	23.34	23.40	23.38
	50	0	23.36	23.37	23.36
16QAM	1	0	22.29	22.33	22.27
	1	24	22.61	22.62	22.62
	1	49	22.29	22.35	22.27
	25	0	22.47	22.56	22.51
	25	12	22.43	22.45	22.42
	25	25	22.44	22.46	22.44
	50	0	22.46	22.45	22.45
64QAM	1	0	21.14	21.26	21.25
	1	24	21.56	21.55	21.51
	1	49	21.14	21.17	21.23
	25	0	21.35	21.49	21.45
	25	12	21.37	21.40	21.26
	25	25	21.34	21.45	21.33
	50	0	21.38	21.31	21.36
256QAM	1	0	18.96	19.11	19.13
	1	24	19.41	19.46	19.35
	1	49	19.00	18.99	19.12
	25	0	19.29	19.41	19.37
	25	12	19.33	19.23	19.25
	25	25	19.27	19.42	19.15
	50	0	19.21	19.20	19.35

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	23.19	23.56	26.71	27.08	33.01
16QAM	22.27	22.62	25.79	26.14	33.01
64QAM	21.14	21.56	24.66	25.08	33.01
256QAM	18.96	19.46	22.48	22.98	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Band 2, Channel Bandwidth: 15 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 18675	CH 18900	CH 19125
			1857.5 MHz	1880 MHz	1902.5 MHz
QPSK	1	0	23.25	23.29	23.26
	1	37	23.55	23.57	23.54
	1	74	23.25	23.26	23.20
	36	0	23.43	23.47	23.42
	36	19	23.36	23.38	23.35
	36	39	23.37	23.43	23.38
	75	0	23.38	23.40	23.34
16QAM	1	0	22.31	22.37	22.34
	1	37	22.64	22.64	22.63
	1	74	22.35	22.34	22.26
	36	0	22.50	22.56	22.49
	36	19	22.46	22.47	22.43
	36	39	22.46	22.49	22.45
	75	0	22.44	22.49	22.43
64QAM	1	0	21.28	21.22	21.16
	1	37	21.57	21.60	21.61
	1	74	21.33	21.32	21.25
	36	0	21.32	21.53	21.40
	36	19	21.41	21.41	21.29
	36	39	21.35	21.45	21.26
	75	0	21.32	21.36	21.29
256QAM	1	0	19.16	19.22	19.08
	1	37	19.56	19.41	19.46
	1	74	19.17	19.20	19.18
	36	0	19.27	19.48	19.31
	36	19	19.40	19.36	19.10
	36	39	19.29	19.34	19.09
	75	0	19.23	19.36	19.29

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	23.2	23.57	26.72	27.09	33.01
16QAM	22.26	22.64	25.78	26.16	33.01
64QAM	21.16	21.61	24.68	25.13	33.01
256QAM	19.08	19.56	22.6	23.08	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Band 2, Channel Bandwidth: 20 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 18700	CH 18900	CH 19100
			1860 MHz	1880 MHz	1900 MHz
QPSK	1	0	23.26	23.32	23.29
	1	50	23.53	23.59	23.58
	1	99	23.27	23.29	23.27
	50	0	23.49	23.50	23.49
	50	25	23.35	23.41	23.38
	50	50	23.38	23.44	23.38
	100	0	23.38	23.41	23.40
16QAM	1	0	22.34	22.42	22.35
	1	50	22.61	22.65	22.68
	1	99	22.34	22.37	22.34
	50	0	22.58	22.57	22.59
	50	25	22.44	22.50	22.45
	50	50	22.47	22.50	22.47
	100	0	22.44	22.48	22.46
64QAM	1	0	21.16	21.35	21.22
	1	50	21.59	21.51	21.52
	1	99	21.31	21.18	21.32
	50	0	21.57	21.44	21.50
	50	25	21.26	21.39	21.41
	50	50	21.28	21.34	21.41
	100	0	21.32	21.29	21.42
256QAM	1	0	19.13	19.27	19.11
	1	50	19.52	19.44	19.49
	1	99	19.29	19.10	19.19
	50	0	19.43	19.28	19.34
	50	25	19.13	19.25	19.22
	50	50	19.19	19.30	19.30
	100	0	19.31	19.13	19.34

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	23.26	23.59	26.78	27.11	33.01
16QAM	22.34	22.68	25.86	26.2	33.01
64QAM	21.16	21.59	24.68	25.11	33.01
256QAM	19.1	19.52	22.62	23.04	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

7.1.2 LTE Band 5

LTE Band 5, Channel Bandwidth: 1.4 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 20407	CH 20525	CH 20643
			824.7 MHz	836.5 MHz	848.3 MHz
QPSK	1	0	24.14	24.19	24.17
	1	2	24.20	24.21	24.15
	1	5	24.16	24.20	24.19
	3	0	24.04	24.10	24.05
	3	1	24.11	24.15	24.14
	3	3	24.01	24.06	24.03
	6	0	23.65	23.70	23.67
16QAM	1	0	23.34	23.37	23.35
	1	2	23.38	23.40	23.35
	1	5	23.34	23.39	23.37
	3	0	23.22	23.30	23.25
	3	1	23.31	23.33	23.33
	3	3	23.20	23.24	23.21
	6	0	22.85	22.89	22.86
64QAM	1	0	22.24	22.28	22.27
	1	2	22.20	22.25	22.23
	1	5	22.27	22.34	22.28
	3	0	22.10	22.23	22.12
	3	1	22.19	22.26	22.27
	3	3	22.08	22.10	22.13
	6	0	21.76	21.83	21.86
256QAM	1	0	19.95	20.01	20.01
	1	2	19.93	20.01	19.98
	1	5	20.01	20.13	20.06
	3	0	19.89	19.98	19.86
	3	1	19.94	20.06	20.07
	3	3	19.84	19.84	19.87
	6	0	19.55	19.63	19.57

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
QPSK	23.65	24.21	25.42	25.98	38.45
16QAM	22.85	23.4	24.62	25.17	38.45
64QAM	21.76	22.34	23.53	24.11	38.45
256QAM	19.55	20.13	21.32	21.9	38.45

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)
ERP (dBm) = EIRP (dBm) - 2.15

LTE Band 5, Channel Bandwidth: 3 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 20415	CH 20525	CH 20635
			825.5 MHz	836.5 MHz	847.5 MHz
QPSK	1	0	24.11	24.15	24.13
	1	7	24.16	24.20	24.15
	1	14	24.09	24.11	24.05
	8	0	23.62	23.67	23.61
	8	3	23.69	23.71	23.65
	8	7	23.70	23.72	23.68
	15	0	23.68	23.70	23.67
16QAM	1	0	23.29	23.34	23.32
	1	7	23.35	23.40	23.35
	1	14	23.27	23.29	23.24
	8	0	22.82	22.86	22.79
	8	3	22.86	22.91	22.83
	8	7	22.88	22.90	22.87
	15	0	22.86	22.89	22.86
64QAM	1	0	22.10	22.30	22.14
	1	7	22.33	22.37	22.31
	1	14	22.09	22.20	22.17
	8	0	21.82	21.79	21.78
	8	3	21.80	21.90	21.66
	8	7	21.78	21.81	21.84
	15	0	21.79	21.81	21.81
256QAM	1	0	19.83	20.04	19.86
	1	7	20.08	20.10	20.08
	1	14	19.83	19.94	19.92
	8	0	19.61	19.59	19.56
	8	3	19.56	19.63	19.44
	8	7	19.51	19.55	19.61
	15	0	19.53	19.55	19.59

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
QPSK	23.61	24.2	25.38	25.97	38.45
16QAM	22.79	23.4	24.56	25.17	38.45
64QAM	21.66	22.37	23.43	24.14	38.45
256QAM	19.44	20.1	21.21	21.87	38.45

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)
ERP (dBm) = EIRP (dBm) - 2.15

LTE Band 5, Channel Bandwidth: 5 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 20425	CH 20525	CH 20625
			826.5 MHz	836.5 MHz	846.5 MHz
QPSK	1	0	24.14	24.19	24.14
	1	12	24.19	24.20	24.16
	1	24	24.10	24.11	24.10
	12	0	23.70	23.71	23.70
	12	6	23.67	23.69	23.66
	12	13	23.62	23.64	23.58
	25	0	23.68	23.72	23.67
16QAM	1	0	23.34	23.39	23.33
	1	12	23.39	23.40	23.34
	1	24	23.29	23.31	23.29
	12	0	22.88	22.91	22.89
	12	6	22.85	22.89	22.86
	12	13	22.81	22.84	22.77
	25	0	22.86	22.91	22.87
64QAM	1	0	22.24	22.22	22.16
	1	12	22.28	22.21	22.18
	1	24	22.28	22.12	22.12
	12	0	21.82	21.76	21.83
	12	6	21.76	21.89	21.76
	12	13	21.77	21.71	21.62
	25	0	21.75	21.82	21.75
256QAM	1	0	19.98	19.98	19.89
	1	12	20.04	19.96	19.97
	1	24	20.05	19.91	19.88
	12	0	19.54	19.51	19.55
	12	6	19.50	19.62	19.49
	12	13	19.49	19.44	19.38
	25	0	19.52	19.58	19.50

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
QPSK	23.58	24.2	25.35	25.97	38.45
16QAM	22.77	23.4	24.54	25.17	38.45
64QAM	21.62	22.28	23.39	24.05	38.45
256QAM	19.38	20.05	21.15	21.82	38.45

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)
ERP (dBm) = EIRP (dBm) - 2.15

LTE Band 5, Channel Bandwidth: 10 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 20450	CH 20525	CH 20600
			829 MHz	836.5 MHz	844 MHz
QPSK	1	0	24.19	24.21	24.19
	1	24	24.27	24.30	24.25
	1	49	24.22	24.23	24.18
	25	0	23.70	23.73	23.72
	25	12	23.64	23.70	23.67
	25	25	23.70	23.71	23.66
	50	0	23.70	23.74	23.71
16QAM	1	0	23.39	23.38	23.37
	1	24	23.46	23.48	23.44
	1	49	23.42	23.42	23.38
	25	0	22.90	22.92	22.92
	25	12	22.82	22.89	22.87
	25	25	22.90	22.89	22.85
	50	0	22.90	22.93	22.90
64QAM	1	0	22.22	22.27	22.19
	1	24	22.27	22.30	22.33
	1	49	22.27	22.33	22.23
	25	0	21.82	21.73	21.88
	25	12	21.82	21.82	21.78
	25	25	21.77	21.82	21.83
	50	0	21.89	21.75	21.82
256QAM	1	0	19.94	20.07	19.98
	1	24	20.06	20.09	20.05
	1	49	20.04	20.07	19.95
	25	0	19.62	19.45	19.63
	25	12	19.54	19.58	19.53
	25	25	19.57	19.54	19.55
	50	0	19.67	19.48	19.62

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
QPSK	23.64	24.3	25.41	26.07	38.45
16QAM	22.82	23.48	24.59	25.25	38.45
64QAM	21.73	22.33	23.5	24.1	38.45
256QAM	19.45	20.09	21.22	21.86	38.45

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)
ERP (dBm) = EIRP (dBm) - 2.15

7.1.3 LTE Band 13

LTE Band 13, Channel Bandwidth: 5 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 23205	CH 23230	CH 23255
			779.5 MHz	782 MHz	784.5 MHz
QPSK	1	0	24.30	24.35	24.31
	1	12	24.21	24.22	24.21
	1	24	24.14	24.18	24.16
	12	0	23.01	23.02	23.00
	12	6	23.07	23.09	23.03
	12	13	23.08	23.09	23.08
	25	0	23.07	23.13	23.08
16QAM	1	0	23.21	23.34	23.24
	1	12	23.19	23.13	23.12
	1	24	23.09	23.17	23.07
	12	0	21.93	22.01	21.91
	12	6	21.99	22.05	22.00
	12	13	22.06	22.05	22.05
	25	0	22.07	22.04	22.00
64QAM	1	0	22.16	22.33	22.17
	1	12	22.13	22.13	22.08
	1	24	22.05	22.14	22.07
	12	0	20.89	20.95	20.89
	12	6	20.96	21.05	20.97
	12	13	21.02	21.03	21.04
	25	0	21.00	21.00	20.92
256QAM	1	0	19.66	19.83	19.67
	1	12	19.63	19.63	19.58
	1	24	19.55	19.64	19.57
	12	0	18.89	18.95	18.89
	12	6	18.96	19.05	18.97
	12	13	19.02	19.03	19.04
	25	0	19.00	19.00	18.92

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
QPSK	23	24.35	24.2	25.55	44.77
16QAM	21.91	23.34	23.11	24.54	44.77
64QAM	20.89	22.33	22.09	23.53	44.77
256QAM	18.89	19.83	20.09	21.03	44.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)
ERP (dBm) = EIRP (dBm) - 2.15

LTE Band 13, Channel Bandwidth: 10 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)
			CH 23230
			782 MHz
QPSK	1	0	24.37
	1	24	24.24
	1	49	24.21
	25	0	23.05
	25	12	23.1
	25	25	23.11
	50	0	23.14
16QAM	1	0	23.37
	1	24	23.22
	1	49	23.13
	25	0	22.03
	25	12	22.10
	25	25	22.05
	50	0	22.05
64QAM	1	0	22.32
	1	24	22.13
	1	49	22.11
	25	0	20.98
	25	12	21.02
	25	25	21.01
	50	0	20.98
256QAM	1	0	19.82
	1	24	19.63
	1	49	19.61
	25	0	18.98
	25	12	19.02
	25	25	19.01
	50	0	18.98

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
QPSK	23.05	24.37	24.25	25.57	44.77
16QAM	22.03	23.37	23.23	24.57	44.77
64QAM	20.98	22.32	22.18	23.52	44.77
256QAM	18.98	19.82	20.18	21.02	44.77

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)
ERP (dBm) = EIRP (dBm) - 2.15

7.1.4 LTE Band 66

LTE Band 66, Channel Bandwidth: 1.4 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 131979	CH 132322	CH 132665
			1710.7 MHz	1745 MHz	1779.3 MHz
QPSK	1	0	24.15	24.22	24.14
	1	2	24.12	24.17	24.10
	1	5	24.06	24.10	24.02
	3	0	24.12	24.20	24.14
	3	1	24.14	24.19	24.12
	3	3	24.05	24.11	24.07
	6	0	23.13	23.20	23.15
16QAM	1	0	23.09	23.20	23.09
	1	2	23.03	23.12	23.01
	1	5	22.99	23.08	22.98
	3	0	23.10	23.11	23.07
	3	1	23.13	23.10	23.09
	3	3	22.98	23.03	23.07
	6	0	22.04	22.15	22.14
64QAM	1	0	22.09	22.12	22.04
	1	2	21.99	22.11	22.00
	1	5	21.97	21.99	21.93
	3	0	22.09	22.05	22.03
	3	1	22.13	22.01	22.04
	3	3	21.95	22.01	22.01
	6	0	20.99	21.14	21.05
256QAM	1	0	19.59	19.62	19.54
	1	2	19.49	19.61	19.50
	1	5	19.47	19.49	19.43
	3	0	19.59	19.55	19.53
	3	1	19.63	19.51	19.54
	3	3	19.45	19.51	19.51
	6	0	18.99	19.14	19.05

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	23.13	24.22	26.03	27.12	30.00
16QAM	22.04	23.2	24.94	26.1	30.00
64QAM	20.99	22.13	23.89	25.03	30.00
256QAM	18.99	19.63	21.89	22.53	30.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Band 66, Channel Bandwidth: 3 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 131987	CH 132322	CH 132657
			1711.5 MHz	1745 MHz	1778.5 MHz
QPSK	1	0	24.08	24.16	24.10
	1	7	24.13	24.20	24.12
	1	14	24.10	24.15	24.07
	8	0	23.15	23.19	23.12
	8	3	23.21	23.26	23.20
	8	7	23.17	23.21	23.15
	15	0	23.24	23.28	23.22
16QAM	1	0	23.02	23.13	23.07
	1	7	23.11	23.19	23.04
	1	14	23.10	23.08	22.98
	8	0	22.06	22.10	22.09
	8	3	22.20	22.25	22.14
	8	7	22.09	22.12	22.07
	15	0	22.23	22.27	22.22
64QAM	1	0	22.02	22.12	22.00
	1	7	22.09	22.15	22.04
	1	14	22.05	22.02	21.90
	8	0	21.01	21.02	21.01
	8	3	21.18	21.17	21.06
	8	7	21.08	21.07	21.05
	15	0	21.20	21.20	21.20
256QAM	1	0	19.52	19.62	19.50
	1	7	19.59	19.65	19.54
	1	14	19.55	19.51	19.40
	8	0	19.01	19.02	19.01
	8	3	19.18	19.17	19.06
	8	7	19.08	19.07	19.05
	15	0	19.20	19.20	19.20

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	23.12	24.2	26.02	27.1	30.00
16QAM	22.06	23.19	24.96	26.09	30.00
64QAM	21.01	22.15	23.91	25.05	30.00
256QAM	19.01	19.65	21.91	22.55	30.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Band 66, Channel Bandwidth: 5 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 131997	CH 132322	CH 132647
			1712.5 MHz	1745 MHz	1777.5 MHz
QPSK	1	0	24.15	24.19	24.14
	1	12	24.04	24.11	24.07
	1	24	24.14	24.20	24.12
	12	0	23.22	23.26	23.18
	12	6	23.23	23.28	23.24
	12	13	23.30	23.35	23.27
	25	0	23.24	23.30	23.25
16QAM	1	0	23.12	23.12	23.08
	1	12	23.00	23.08	22.98
	1	24	23.11	23.18	23.12
	12	0	22.19	22.26	22.18
	12	6	22.17	22.23	22.18
	12	13	22.24	22.27	22.25
	25	0	22.16	22.27	22.23
64QAM	1	0	22.09	22.09	22.03
	1	12	22.00	22.01	21.95
	1	24	22.08	22.09	22.05
	12	0	21.15	21.17	21.11
	12	6	21.16	21.20	21.11
	12	13	21.20	21.20	21.20
	25	0	21.13	21.27	21.20
256QAM	1	0	19.59	19.59	19.53
	1	12	19.50	19.51	19.45
	1	24	19.58	19.59	19.55
	12	0	19.15	19.17	19.11
	12	6	19.16	19.20	19.11
	12	13	19.20	19.20	19.20
	25	0	19.13	19.27	19.20

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	23.18	24.2	26.08	27.1	30.00
16QAM	22.16	23.18	25.06	26.08	30.00
64QAM	21.11	22.09	24.01	24.99	30.00
256QAM	19.11	19.59	22.01	22.49	30.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Band 66, Channel Bandwidth: 10 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 132022	CH 132322	CH 132622
			1715 MHz	1745 MHz	1775 MHz
QPSK	1	0	24.15	24.21	24.16
	1	24	24.11	24.19	24.14
	1	49	24.17	24.23	24.15
	25	0	23.26	23.31	23.26
	25	12	23.35	23.39	23.31
	25	25	23.22	23.29	23.24
	50	0	23.24	23.30	23.25
16QAM	1	0	23.15	23.14	23.08
	1	24	23.04	23.13	23.12
	1	49	23.16	23.14	23.12
	25	0	22.23	22.29	22.23
	25	12	22.34	22.36	22.25
	25	25	22.17	22.21	22.24
	50	0	22.22	22.30	22.17
64QAM	1	0	22.12	22.11	22.02
	1	24	22.01	22.04	22.06
	1	49	22.12	22.07	22.08
	25	0	21.20	21.24	21.20
	25	12	21.30	21.35	21.22
	25	25	21.09	21.13	21.24
	50	0	21.19	21.28	21.09
256QAM	1	0	19.62	19.61	19.52
	1	24	19.51	19.54	19.56
	1	49	19.62	19.57	19.58
	25	0	19.20	19.24	19.20
	25	12	19.30	19.35	19.22
	25	25	19.09	19.13	19.24
	50	0	19.19	19.28	19.09

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	23.22	24.23	26.12	27.13	30.00
16QAM	22.17	23.16	25.07	26.06	30.00
64QAM	21.09	22.12	23.99	25.02	30.00
256QAM	19.09	19.62	21.99	22.52	30.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Band 66, Channel Bandwidth: 15 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 132047	CH 132322	CH 132597
			1717.5 MHz	1745 MHz	1772.5 MHz
QPSK	1	0	24.19	24.24	24.20
	1	37	24.12	24.19	24.15
	1	74	24.13	24.20	24.14
	36	0	23.17	23.21	23.14
	36	19	23.13	23.20	23.13
	36	39	23.27	23.31	23.23
	75	0	23.27	23.35	23.28
16QAM	1	0	23.11	23.15	23.20
	1	37	23.03	23.11	23.09
	1	74	23.07	23.20	23.13
	36	0	22.13	22.17	22.14
	36	19	22.10	22.17	22.07
	36	39	22.21	22.28	22.18
	75	0	22.25	22.32	22.19
64QAM	1	0	22.05	22.11	22.14
	1	37	21.95	22.06	22.09
	1	74	22.05	22.17	22.09
	36	0	21.05	21.08	21.10
	36	19	21.05	21.11	21.02
	36	39	21.17	21.19	21.10
	75	0	21.25	21.27	21.18
256QAM	1	0	19.55	19.61	19.64
	1	37	19.45	19.56	19.59
	1	74	19.55	19.67	19.59
	36	0	19.05	19.08	19.10
	36	19	19.05	19.11	19.02
	36	39	19.17	19.19	19.10
	75	0	19.25	19.27	19.18

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	23.13	24.24	26.03	27.14	30.00
16QAM	22.07	23.2	24.97	26.1	30.00
64QAM	21.02	22.17	23.92	25.07	30.00
256QAM	19.02	19.67	21.92	22.57	30.00

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Band 66, Channel Bandwidth: 20 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 132072	CH 132322	CH 132572
			1720 MHz	1745 MHz	1770 MHz
QPSK	1	0	24.16	24.20	24.16
	1	50	24.21	24.28	24.23
	1	99	24.11	24.19	24.15
	50	0	23.30	23.34	23.26
	50	25	23.25	23.33	23.26
	50	50	23.25	23.29	23.23
	100	0	23.40	23.45	23.39
16QAM	1	0	23.16	23.17	23.09
	1	50	23.16	23.19	23.22
	1	99	23.10	23.18	23.10
	50	0	22.29	22.26	22.17
	50	25	22.21	22.26	22.26
	50	50	22.18	22.23	22.14
	100	0	22.31	22.43	22.38
64QAM	1	0	22.14	22.13	22.02
	1	50	22.11	22.11	22.14
	1	99	22.02	22.14	22.02
	50	0	21.23	21.23	21.16
	50	25	21.12	21.22	21.22
	50	50	21.12	21.20	21.08
	100	0	21.29	21.42	21.30
256QAM	1	0	19.64	19.63	19.52
	1	50	19.61	19.61	19.64
	1	99	19.52	19.64	19.52
	50	0	19.23	19.23	19.16
	50	25	19.12	19.22	19.22
	50	50	19.12	19.20	19.08
	100	0	19.29	19.42	19.30

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	23.23	24.28	26.13	27.18	30.00
16QAM	22.14	23.22	25.04	26.12	30.00
64QAM	21.08	22.14	23.98	25.04	30.00
256QAM	19.08	19.64	21.98	22.54	30.00

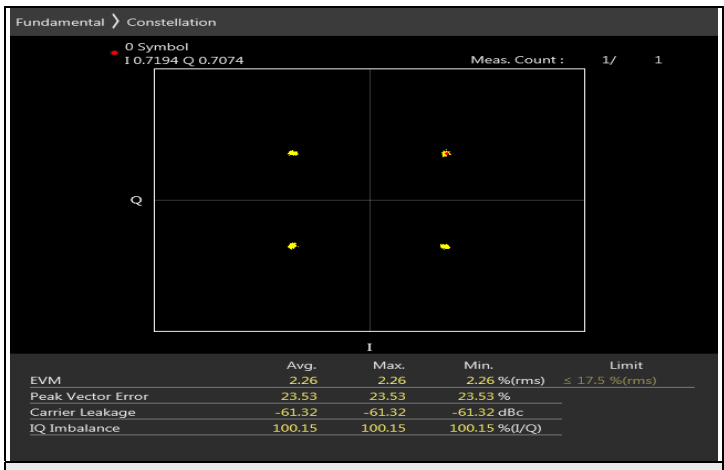
Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

7.2 Modulation Characteristics

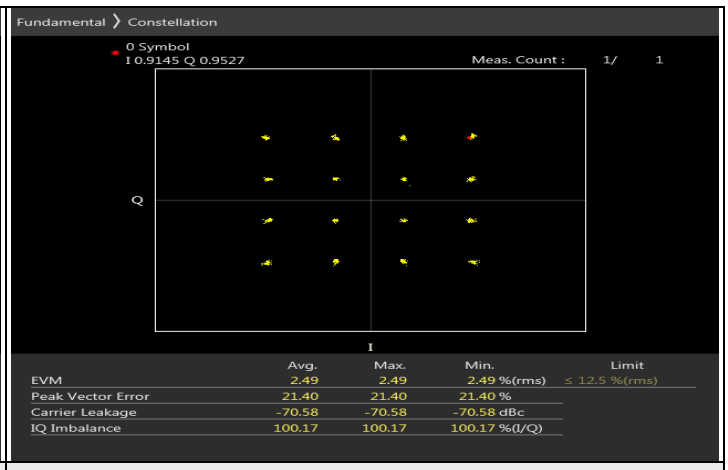
Input Power:	7.2 Vdc	Environmental Conditions:	25°C, 68% RH	Tested By:	Noah Chang

7.2.1 LTE Band 2

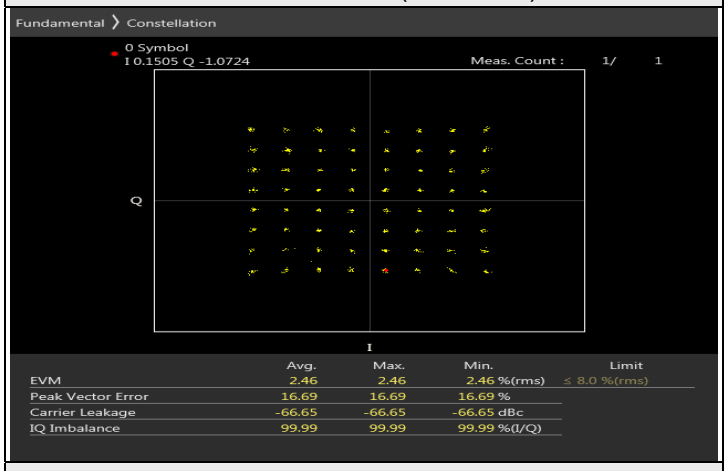
LTE Band 2, Channel Bandwidth: 20 MHz



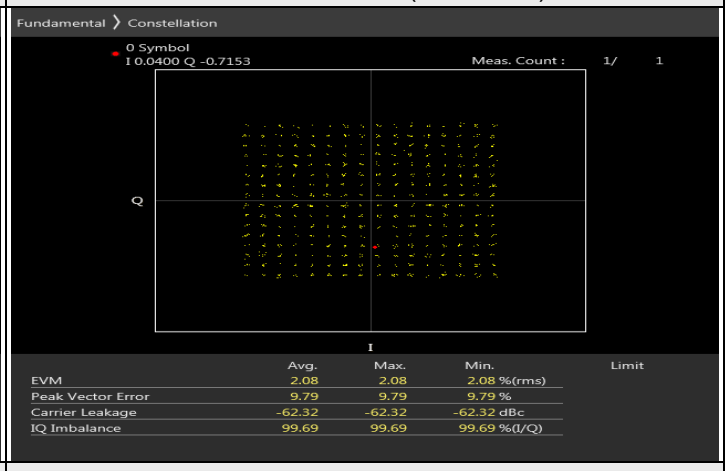
QPSK CH 18900 (1880 MHz)



16QAM CH 18900 (1880 MHz)



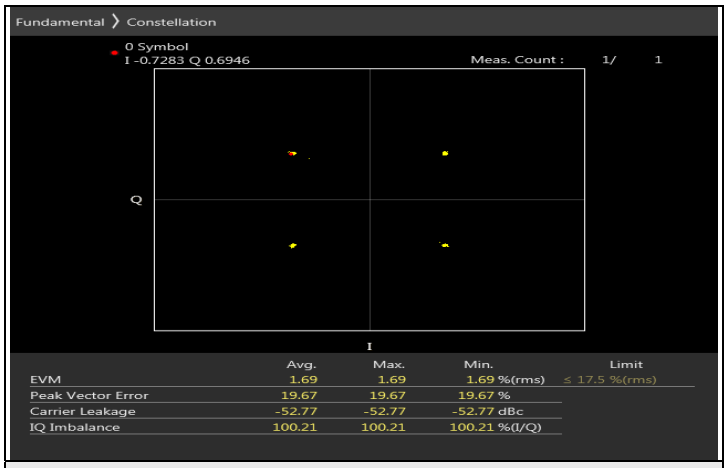
64QAM CH 18900 (1880 MHz)



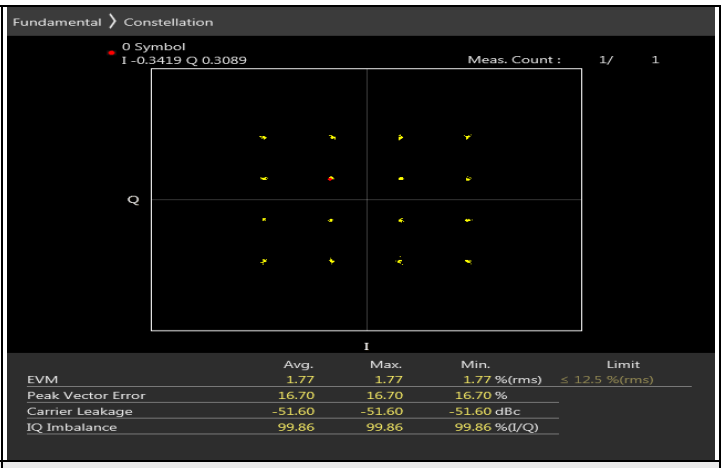
256QAM CH 18900 (1880 MHz)

7.2.2 LTE Band 5

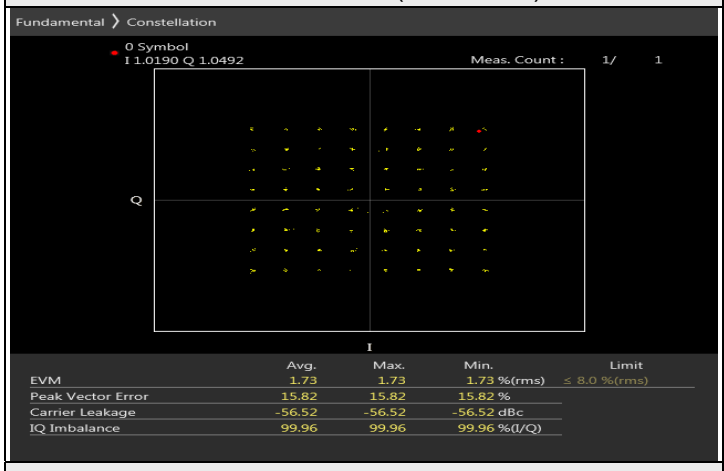
LTE Band 5, Channel Bandwidth: 10 MHz



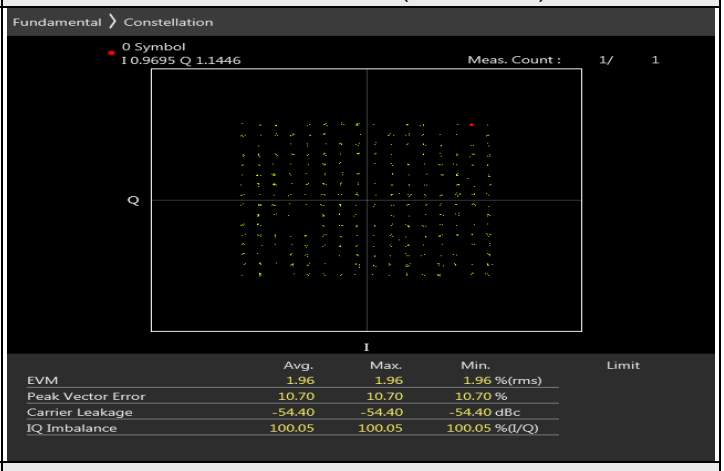
QPSK CH 20525 (836.5 MHz)



16QAM CH 20525 (836.5 MHz)



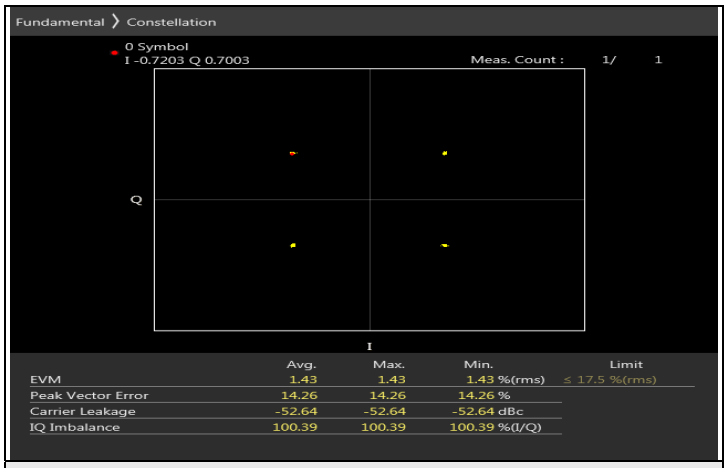
64QAM CH 20525 (836.5 MHz)



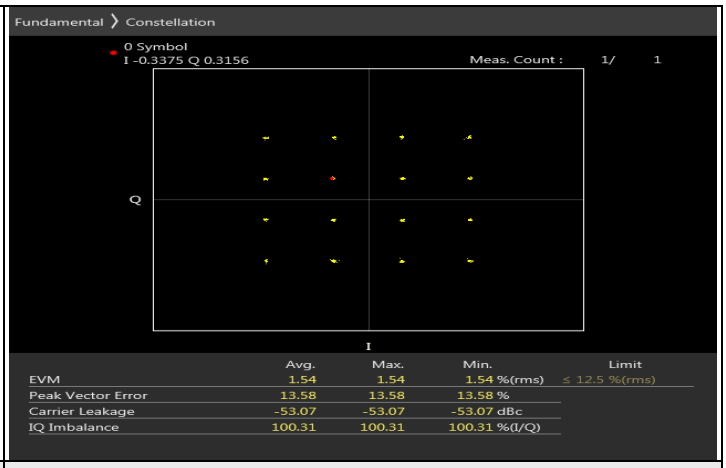
256QAM CH 20525 (836.5 MHz)

7.2.3 LTE Band 13

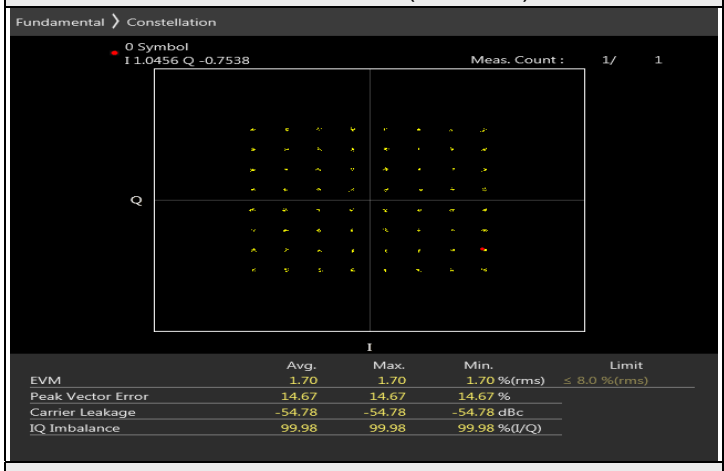
LTE Band 13, Channel Bandwidth: 10 MHz



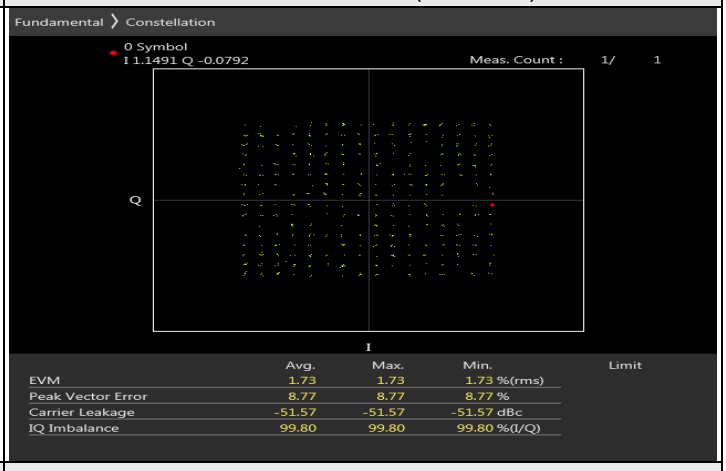
QPSK CH 23230 (782 MHz)



16QAM CH 23230 (782 MHz)



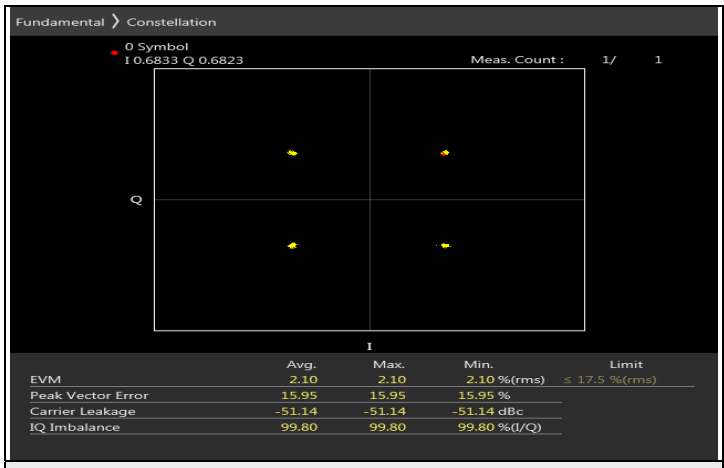
64QAM CH 23230 (782 MHz)



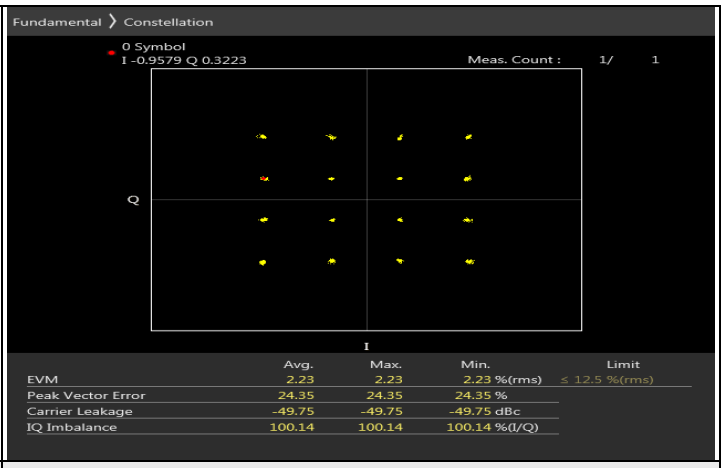
256QAM CH 23230 (782 MHz)

7.2.4 LTE Band 66

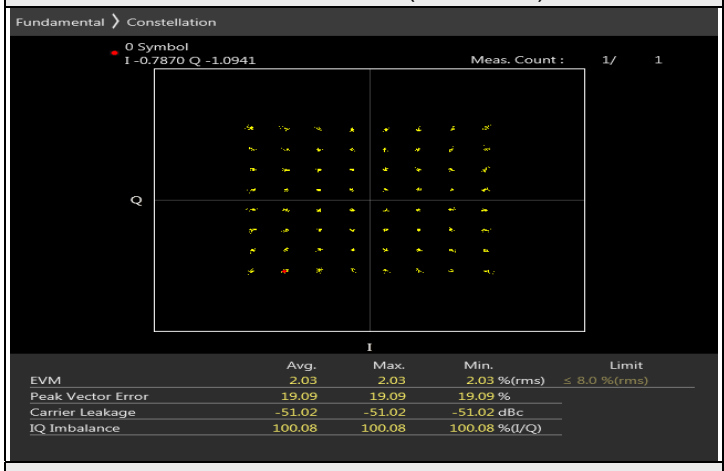
LTE Band 66, Channel Bandwidth: 20 MHz



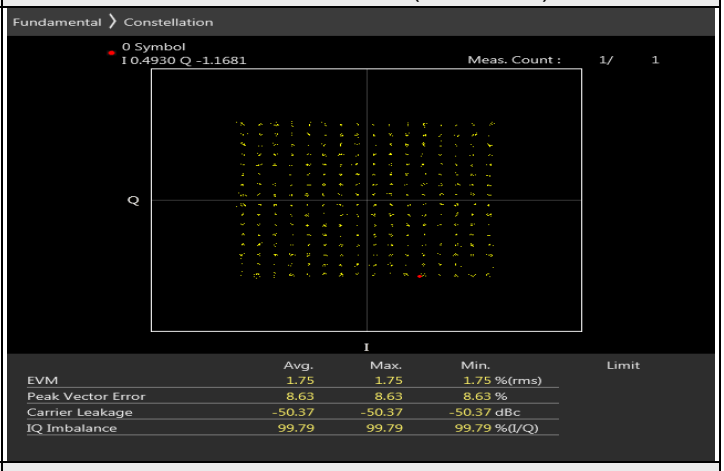
QPSK CH 132322 (1745 MHz)



16QAM CH 132322 (1745 MHz)



64QAM CH 132322 (1745 MHz)



256QAM CH 132322 (1745 MHz)

7.3 Peak to Average Ratio

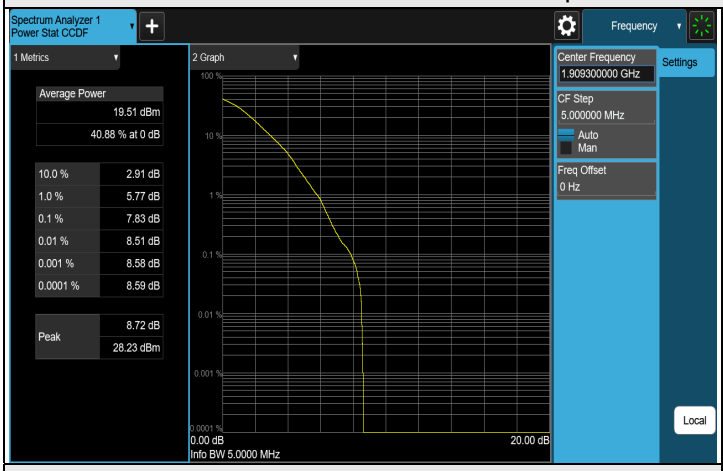
Input Power:	7.2 Vdc	Environmental Conditions:	25°C, 68% RH	Tested By:	Noah Chang

7.3.1 LTE Band 2

LTE Band 2, Channel Bandwidth: 1.4 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	18607	1850.7	5.54	13	PASS
QPSK	18900	1880	5.73	13	PASS
QPSK	19193	1909.3	5.79	13	PASS
16QAM	18607	1850.7	6.80	13	PASS
16QAM	18900	1880	6.82	13	PASS
16QAM	19193	1909.3	7.17	13	PASS
64QAM	18607	1850.7	7.07	13	PASS
64QAM	18900	1880	7.06	13	PASS
64QAM	19193	1909.3	7.22	13	PASS
256QAM	18607	1850.7	7.52	13	PASS
256QAM	18900	1880	7.55	13	PASS
256QAM	19193	1909.3	7.83	13	PASS

Spectrum Plot of Worst Value

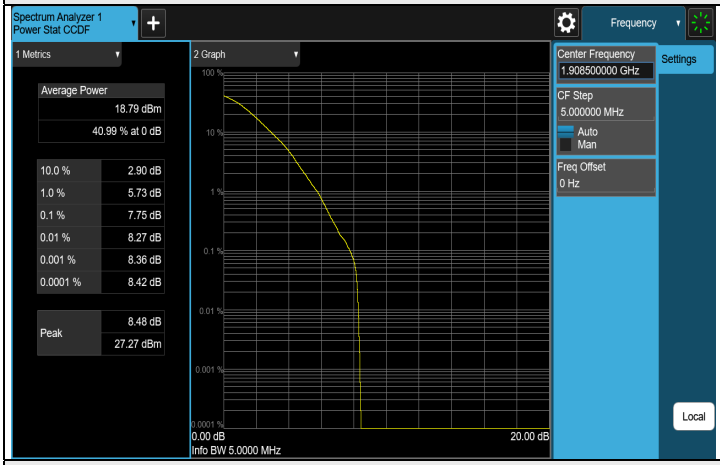


256QAM CH 19193 (1909.3 MHz)

LTE Band 2, Channel Bandwidth: 3 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	18615	1851.5	5.62	13	PASS
QPSK	18900	1880	5.72	13	PASS
QPSK	19185	1908.5	5.62	13	PASS
16QAM	18615	1851.5	6.68	13	PASS
16QAM	18900	1880	6.81	13	PASS
16QAM	19185	1908.5	6.66	13	PASS
64QAM	18615	1851.5	6.69	13	PASS
64QAM	18900	1880	6.84	13	PASS
64QAM	19185	1908.5	7.07	13	PASS
256QAM	18615	1851.5	7.33	13	PASS
256QAM	18900	1880	7.36	13	PASS
256QAM	19185	1908.5	7.75	13	PASS

Spectrum Plot of Worst Value

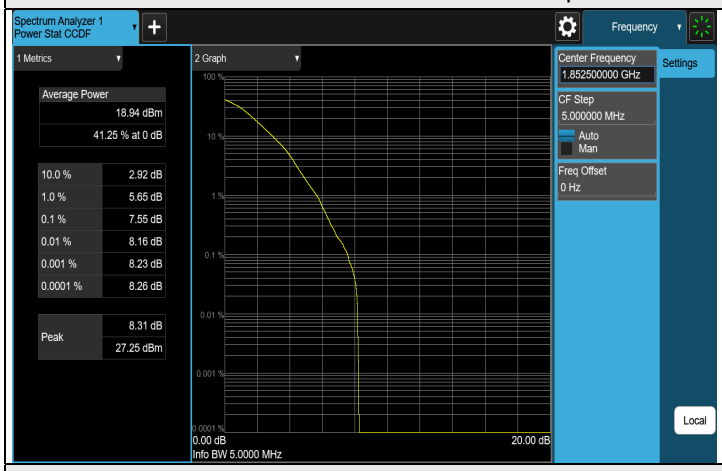


256QAM CH 19185 (1908.5 MHz)

LTE Band 2, Channel Bandwidth: 5 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	18625	1852.5	5.65	13	PASS
QPSK	18900	1880	5.68	13	PASS
QPSK	19175	1907.5	5.59	13	PASS
16QAM	18625	1852.5	6.81	13	PASS
16QAM	18900	1880	6.78	13	PASS
16QAM	19175	1907.5	6.63	13	PASS
64QAM	18625	1852.5	7.08	13	PASS
64QAM	18900	1880	7.01	13	PASS
64QAM	19175	1907.5	6.99	13	PASS
256QAM	18625	1852.5	7.55	13	PASS
256QAM	18900	1880	7.53	13	PASS
256QAM	19175	1907.5	7.43	13	PASS

Spectrum Plot of Worst Value

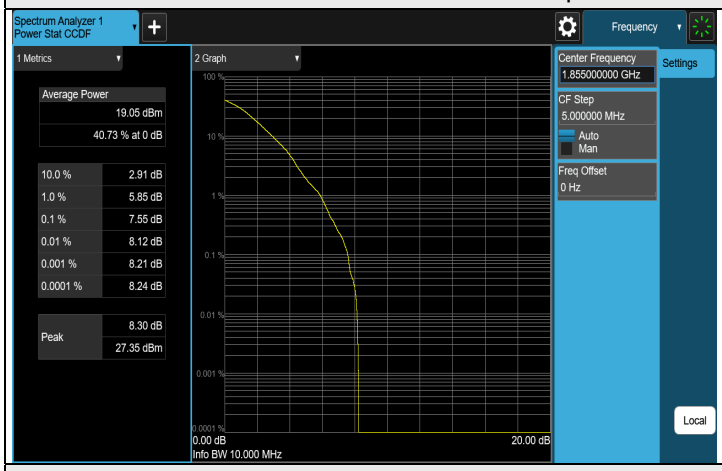


256QAM CH 18625 (1852.5 MHz)

LTE Band 2, Channel Bandwidth: 10 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	18650	1855	5.64	13	PASS
QPSK	18900	1880	5.65	13	PASS
QPSK	19150	1905	5.47	13	PASS
16QAM	18650	1855	6.75	13	PASS
16QAM	18900	1880	6.79	13	PASS
16QAM	19150	1905	6.61	13	PASS
64QAM	18650	1855	7.01	13	PASS
64QAM	18900	1880	7.02	13	PASS
64QAM	19150	1905	6.79	13	PASS
256QAM	18650	1855	7.55	13	PASS
256QAM	18900	1880	7.43	13	PASS
256QAM	19150	1905	7.19	13	PASS

Spectrum Plot of Worst Value

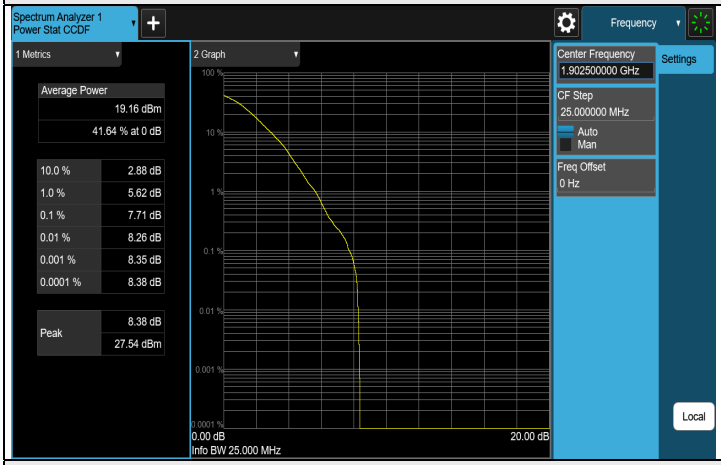


256QAM CH 18650 (1855 MHz)

LTE Band 2, Channel Bandwidth: 15 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	18675	1857.5	5.61	13	PASS
QPSK	18900	1880	5.61	13	PASS
QPSK	19125	1902.5	5.85	13	PASS
16QAM	18675	1857.5	6.92	13	PASS
16QAM	18900	1880	6.72	13	PASS
16QAM	19125	1902.5	7.00	13	PASS
64QAM	18675	1857.5	6.96	13	PASS
64QAM	18900	1880	6.95	13	PASS
64QAM	19125	1902.5	7.08	13	PASS
256QAM	18675	1857.5	7.53	13	PASS
256QAM	18900	1880	7.20	13	PASS
256QAM	19125	1902.5	7.71	13	PASS

Spectrum Plot of Worst Value

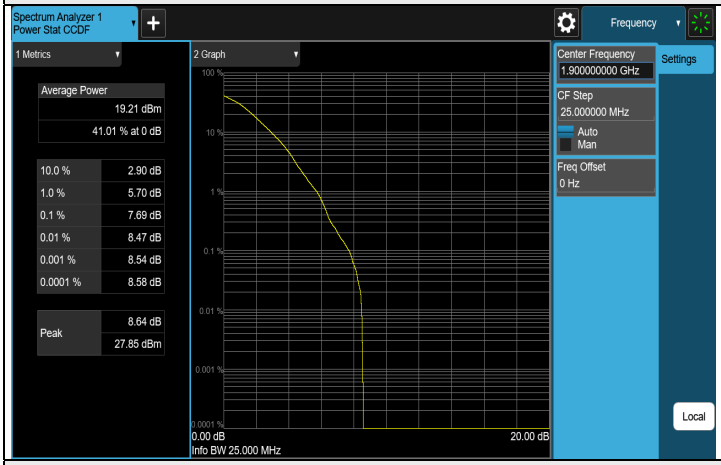


256QAM CH 19125 (1902.5 MHz)

LTE Band 2, Channel Bandwidth: 20 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	18700	1860	5.61	13	PASS
QPSK	18900	1880	5.57	13	PASS
QPSK	19100	1900	6.08	13	PASS
16QAM	18700	1860	6.77	13	PASS
16QAM	18900	1880	6.75	13	PASS
16QAM	19100	1900	7.03	13	PASS
64QAM	18700	1860	7.07	13	PASS
64QAM	18900	1880	6.89	13	PASS
64QAM	19100	1900	7.39	13	PASS
256QAM	18700	1860	7.30	13	PASS
256QAM	18900	1880	6.77	13	PASS
256QAM	19100	1900	7.69	13	PASS

Spectrum Plot of Worst Value



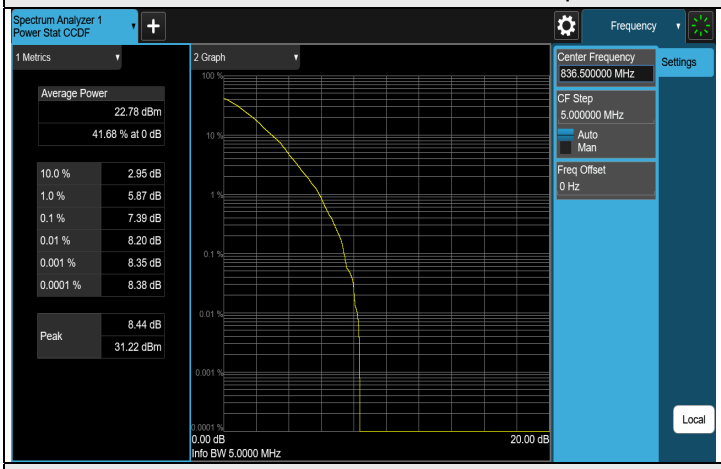
256QAM CH 19100 (1900 MHz)

7.3.2 LTE Band 5

LTE Band 5, Channel Bandwidth: 1.4 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	20407	824.7	5.79	13	PASS
QPSK	20525	836.5	6.05	13	PASS
QPSK	20643	848.3	5.65	13	PASS
16QAM	20407	824.7	6.78	13	PASS
16QAM	20525	836.5	7.06	13	PASS
16QAM	20643	848.3	6.64	13	PASS
64QAM	20407	824.7	7.02	13	PASS
64QAM	20525	836.5	7.39	13	PASS
64QAM	20643	848.3	7.16	13	PASS
256QAM	20407	824.7	7.17	13	PASS
256QAM	20525	836.5	7.37	13	PASS
256QAM	20643	848.3	7.15	13	PASS

Spectrum Plot of Worst Value

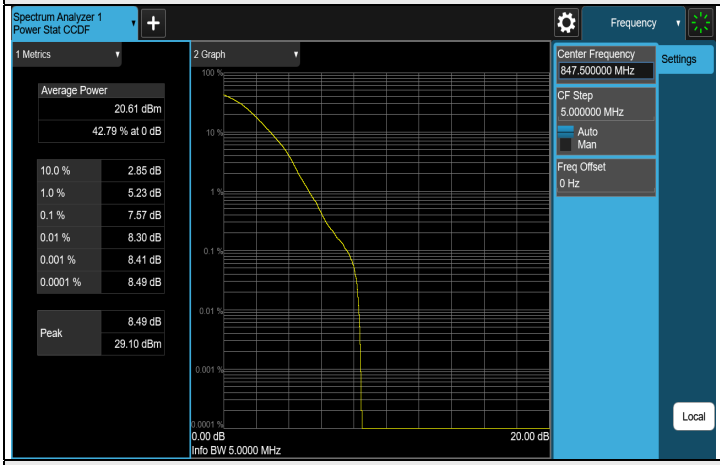


64QAM CH 20525 (836.5 MHz)

LTE Band 5, Channel Bandwidth: 3 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	20415	825.5	5.75	13	PASS
QPSK	20525	836.5	6.04	13	PASS
QPSK	20635	847.5	5.79	13	PASS
16QAM	20415	825.5	6.81	13	PASS
16QAM	20525	836.5	7.06	13	PASS
16QAM	20635	847.5	6.86	13	PASS
64QAM	20415	825.5	7.00	13	PASS
64QAM	20525	836.5	7.31	13	PASS
64QAM	20635	847.5	7.16	13	PASS
256QAM	20415	825.5	7.06	13	PASS
256QAM	20525	836.5	7.35	13	PASS
256QAM	20635	847.5	7.57	13	PASS

Spectrum Plot of Worst Value

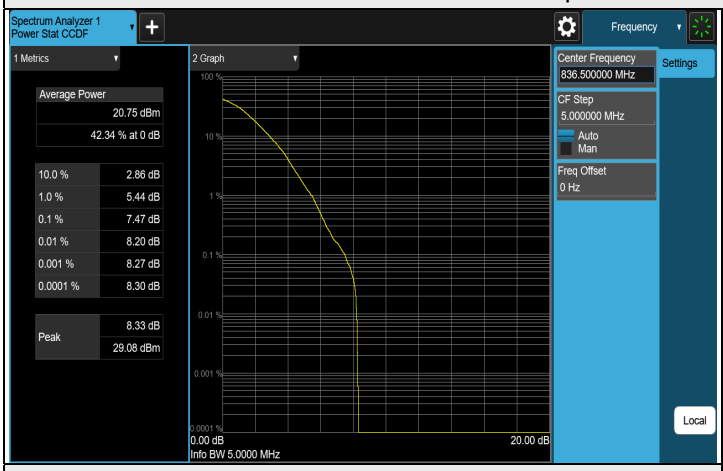


256QAM CH 20635 (847.5 MHz)

LTE Band 5, Channel Bandwidth: 5 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	20425	826.5	5.71	13	PASS
QPSK	20525	836.5	5.86	13	PASS
QPSK	20625	846.5	5.71	13	PASS
16QAM	20425	826.5	6.71	13	PASS
16QAM	20525	836.5	6.92	13	PASS
16QAM	20625	846.5	6.76	13	PASS
64QAM	20425	826.5	6.98	13	PASS
64QAM	20525	836.5	7.23	13	PASS
64QAM	20625	846.5	7.08	13	PASS
256QAM	20425	826.5	7.17	13	PASS
256QAM	20525	836.5	7.47	13	PASS
256QAM	20625	846.5	7.43	13	PASS

Spectrum Plot of Worst Value

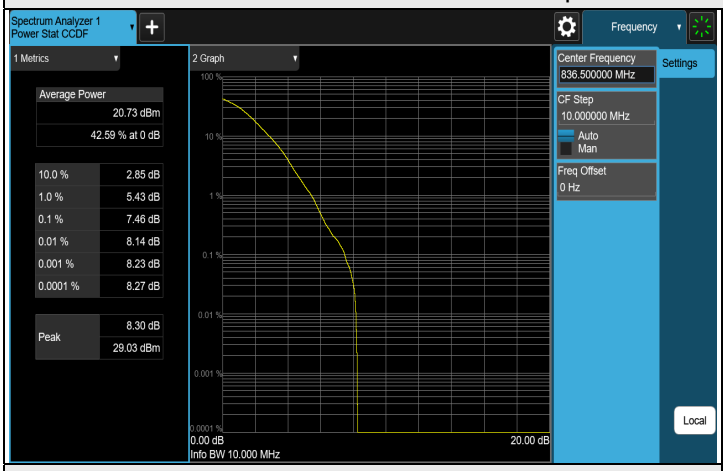


256QAM CH 20525 (836.5 MHz)

LTE Band 5, Channel Bandwidth: 10 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	20450	829	5.71	13	PASS
QPSK	20525	836.5	5.90	13	PASS
QPSK	20600	844	5.89	13	PASS
16QAM	20450	829	6.67	13	PASS
16QAM	20525	836.5	6.97	13	PASS
16QAM	20600	844	6.89	13	PASS
64QAM	20450	829	7.04	13	PASS
64QAM	20525	836.5	7.29	13	PASS
64QAM	20600	844	7.20	13	PASS
256QAM	20450	829	7.12	13	PASS
256QAM	20525	836.5	7.46	13	PASS
256QAM	20600	844	7.30	13	PASS

Spectrum Plot of Worst Value



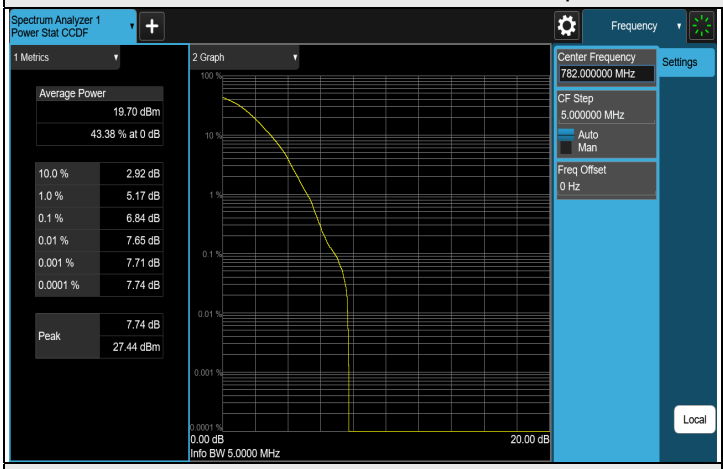
256QAM CH 20525 (836.5 MHz)

7.3.3 LTE Band 13

LTE Band 13, Channel Bandwidth: 5 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	23205	779.5	4.34	13	PASS
QPSK	23230	782	5.44	13	PASS
QPSK	23255	784.5	5.18	13	PASS
16QAM	23205	779.5	5.30	13	PASS
16QAM	23230	782	6.48	13	PASS
16QAM	23255	784.5	6.18	13	PASS
64QAM	23205	779.5	5.95	13	PASS
64QAM	23230	782	6.78	13	PASS
64QAM	23255	784.5	6.60	13	PASS
256QAM	23205	779.5	6.53	13	PASS
256QAM	23230	782	6.84	13	PASS
256QAM	23255	784.5	6.82	13	PASS

Spectrum Plot of Worst Value

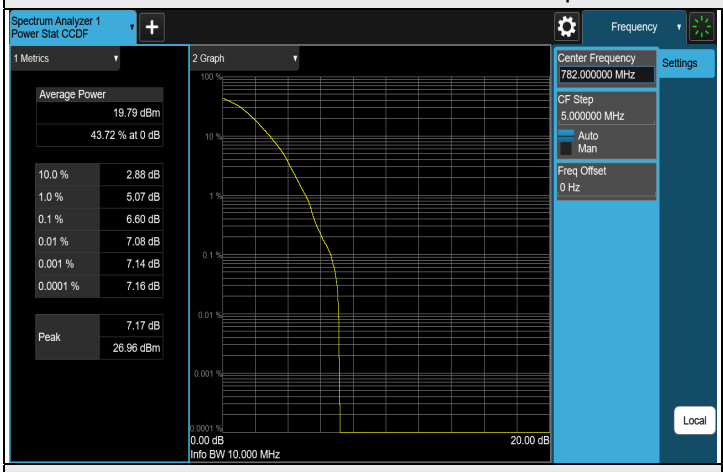


256QAM CH 23230 (782 MHz)

LTE Band 13, Channel Bandwidth: 10 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	23230	782	4.96	13	PASS
16QAM	23230	782	5.85	13	PASS
64QAM	23230	782	6.29	13	PASS
256QAM	23230	782	6.60	13	PASS

Spectrum Plot of Worst Value



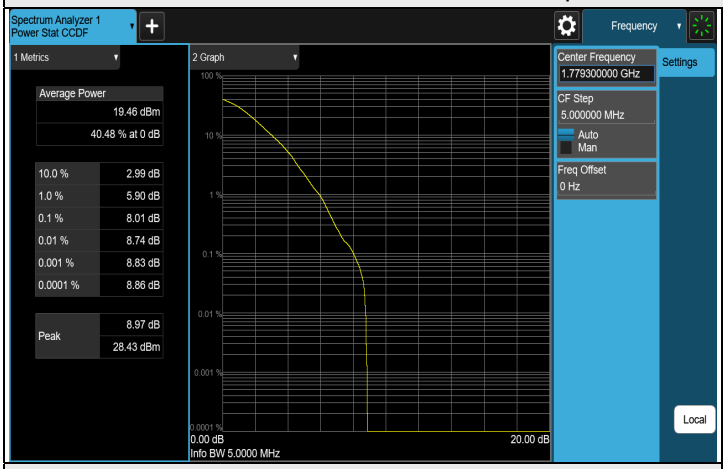
256QAM CH 23230 (782 MHz)

7.3.4 LTE Band 66

LTE Band 66, Channel Bandwidth: 1.4 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	131979	1710.7	5.72	13	PASS
QPSK	132322	1745	5.82	13	PASS
QPSK	132665	1779.3	5.88	13	PASS
16QAM	131979	1710.7	7.07	13	PASS
16QAM	132322	1745	6.96	13	PASS
16QAM	132665	1779.3	6.95	13	PASS
64QAM	131979	1710.7	7.16	13	PASS
64QAM	132322	1745	7.12	13	PASS
64QAM	132665	1779.3	7.37	13	PASS
256QAM	131979	1710.7	7.32	13	PASS
256QAM	132322	1745	7.54	13	PASS
256QAM	132665	1779.3	8.01	13	PASS

Spectrum Plot of Worst Value

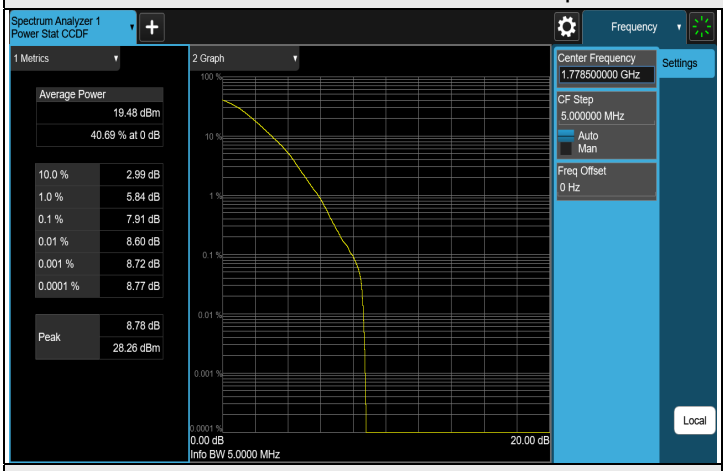


256QAM CH 132665 (1779.3 MHz)

LTE Band 66, Channel Bandwidth: 3 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	131987	1711.5	5.87	13	PASS
QPSK	132322	1745	5.77	13	PASS
QPSK	132657	1778.5	5.93	13	PASS
16QAM	131987	1711.5	6.93	13	PASS
16QAM	132322	1745	6.83	13	PASS
16QAM	132657	1778.5	6.98	13	PASS
64QAM	131987	1711.5	6.84	13	PASS
64QAM	132322	1745	7.07	13	PASS
64QAM	132657	1778.5	7.05	13	PASS
256QAM	131987	1711.5	7.52	13	PASS
256QAM	132322	1745	7.45	13	PASS
256QAM	132657	1778.5	7.91	13	PASS

Spectrum Plot of Worst Value

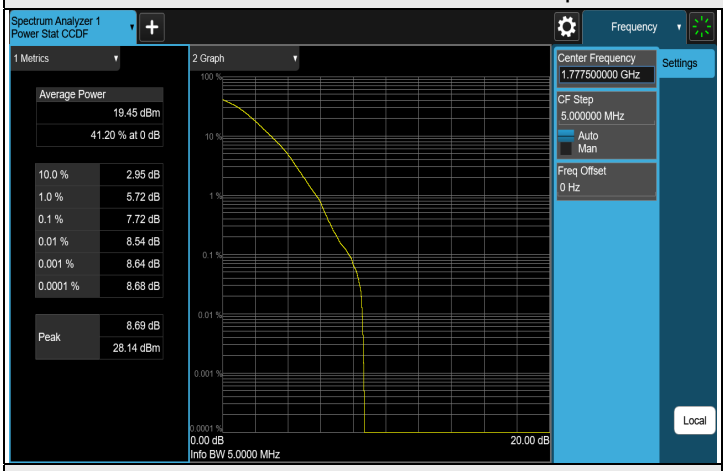


256QAM CH 132657 (1778.5 MHz)

LTE Band 66, Channel Bandwidth: 5 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	131997	1712.5	5.89	13	PASS
QPSK	132322	1745	5.70	13	PASS
QPSK	132647	1777.5	5.87	13	PASS
16QAM	131997	1712.5	7.12	13	PASS
16QAM	132322	1745	6.78	13	PASS
16QAM	132647	1777.5	6.99	13	PASS
64QAM	131997	1712.5	7.18	13	PASS
64QAM	132322	1745	7.08	13	PASS
64QAM	132647	1777.5	7.28	13	PASS
256QAM	131997	1712.5	7.28	13	PASS
256QAM	132322	1745	7.55	13	PASS
256QAM	132647	1777.5	7.72	13	PASS

Spectrum Plot of Worst Value

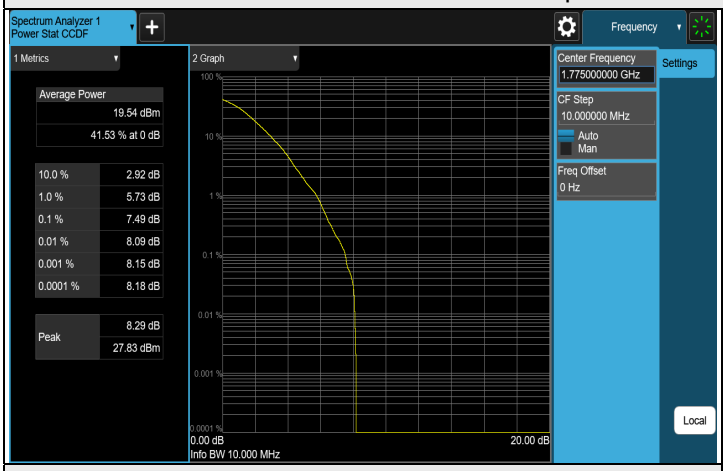


256QAM CH 132647 (1777.5 MHz)

LTE Band 66, Channel Bandwidth: 10 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	132022	1715	5.88	13	PASS
QPSK	132322	1745	5.61	13	PASS
QPSK	132622	1775	5.42	13	PASS
16QAM	132022	1715	7.19	13	PASS
16QAM	132322	1745	6.57	13	PASS
16QAM	132622	1775	6.56	13	PASS
64QAM	132022	1715	6.94	13	PASS
64QAM	132322	1745	6.91	13	PASS
64QAM	132622	1775	6.82	13	PASS
256QAM	132022	1715	7.40	13	PASS
256QAM	132322	1745	6.98	13	PASS
256QAM	132622	1775	7.49	13	PASS

Spectrum Plot of Worst Value

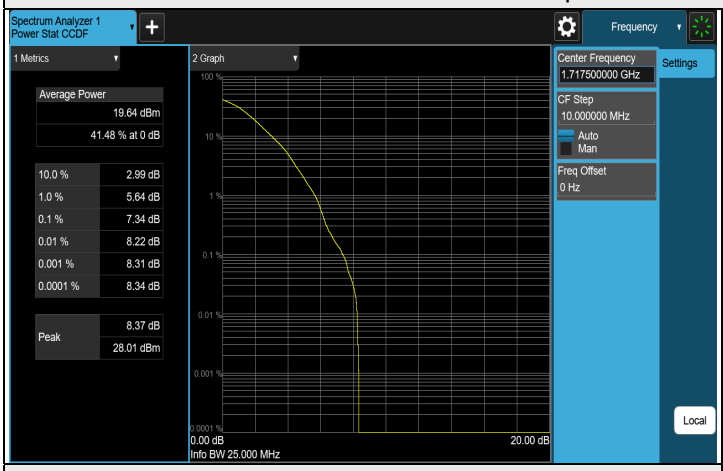


256QAM CH 132622 (1775 MHz)

LTE Band 66, Channel Bandwidth: 15 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	132047	1717.5	5.90	13	PASS
QPSK	132322	1745	5.49	13	PASS
QPSK	132597	1772.5	5.37	13	PASS
16QAM	132047	1717.5	6.77	13	PASS
16QAM	132322	1745	6.59	13	PASS
16QAM	132597	1772.5	6.41	13	PASS
64QAM	132047	1717.5	7.13	13	PASS
64QAM	132322	1745	6.75	13	PASS
64QAM	132597	1772.5	6.85	13	PASS
256QAM	132047	1717.5	7.34	13	PASS
256QAM	132322	1745	7.34	13	PASS
256QAM	132597	1772.5	7.25	13	PASS

Spectrum Plot of Worst Value

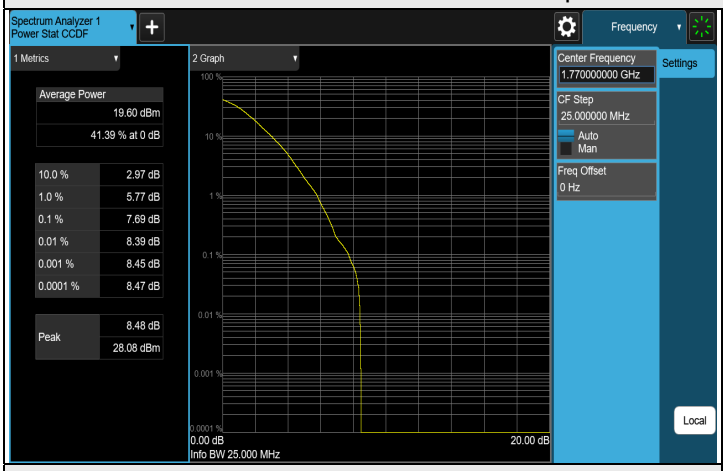


256QAM CH 132047 (1717.5 MHz)

LTE Band 66, Channel Bandwidth: 20 MHz

Modulation	Channel	Frequency (MHz)	Measurement Value(dB)	Limit (dB)	Result
QPSK	132072	1720	5.84	13	PASS
QPSK	132322	1745	5.40	13	PASS
QPSK	132572	1770	5.94	13	PASS
16QAM	132072	1720	6.76	13	PASS
16QAM	132322	1745	6.43	13	PASS
16QAM	132572	1770	7.01	13	PASS
64QAM	132072	1720	7.28	13	PASS
64QAM	132322	1745	6.76	13	PASS
64QAM	132572	1770	7.15	13	PASS
256QAM	132072	1720	7.49	13	PASS
256QAM	132322	1745	6.90	13	PASS
256QAM	132572	1770	7.69	13	PASS

Spectrum Plot of Worst Value



256QAM CH 132572 (1770 MHz)

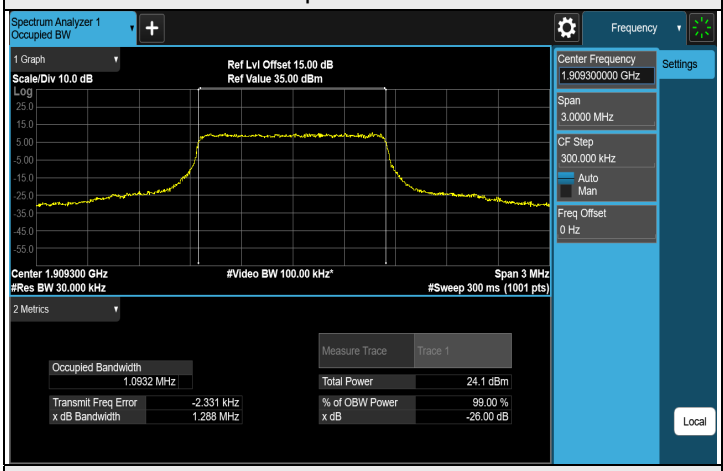
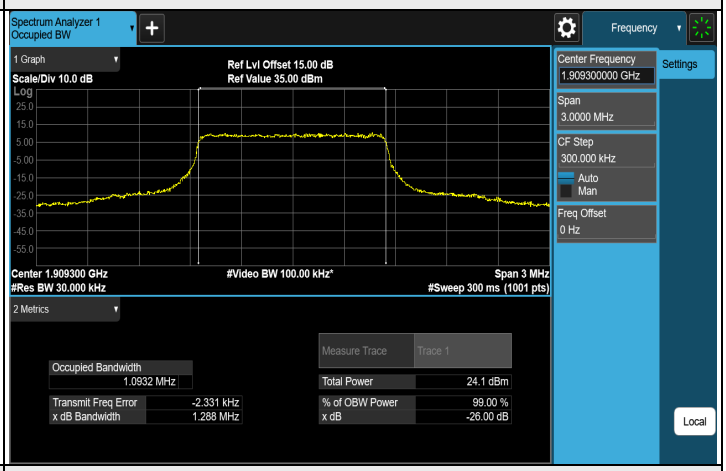
7.4 Bandwidth

Input Power:	7.2 Vdc	Environmental Conditions:	25°C, 68% RH	Tested By:	Noah Chang

7.4.1 LTE Band 2

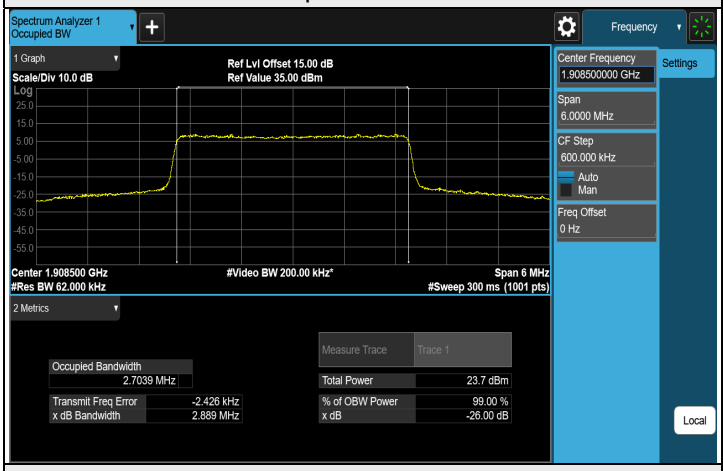
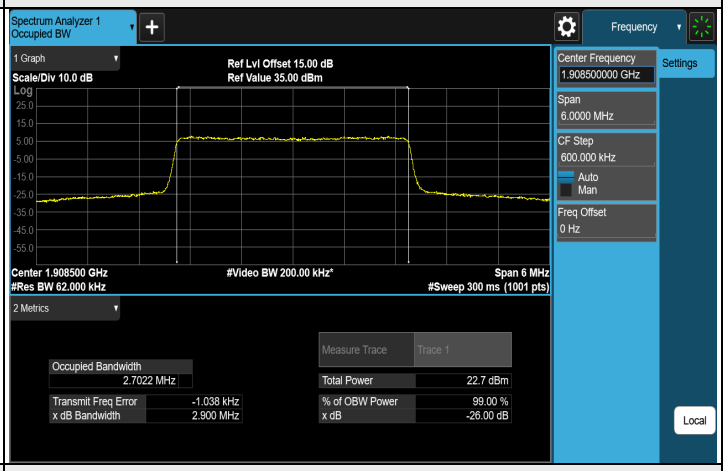
LTE Band 2, Channel Bandwidth: 1.4 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	18607	1850.7	1.0893	1.255
QPSK	18900	1880	1.0926	1.279
QPSK	19193	1909.3	1.0932	1.288
16QAM	18607	1850.7	1.0896	1.248
16QAM	18900	1880	1.0892	1.247
16QAM	19193	1909.3	1.0905	1.263
64QAM	18607	1850.7	1.0900	1.252
64QAM	18900	1880	1.0894	1.258
64QAM	19193	1909.3	1.0888	1.257
256QAM	18607	1850.7	1.0852	1.231
256QAM	18900	1880	1.0864	1.236
256QAM	19193	1909.3	1.0863	1.235

Spectrum Plot of Worst Value	
Occupied bandwidth	26 dB Bandwidth
	
QPSK CH 19193 (1909.3 MHz)	QPSK CH 19193 (1909.3 MHz)

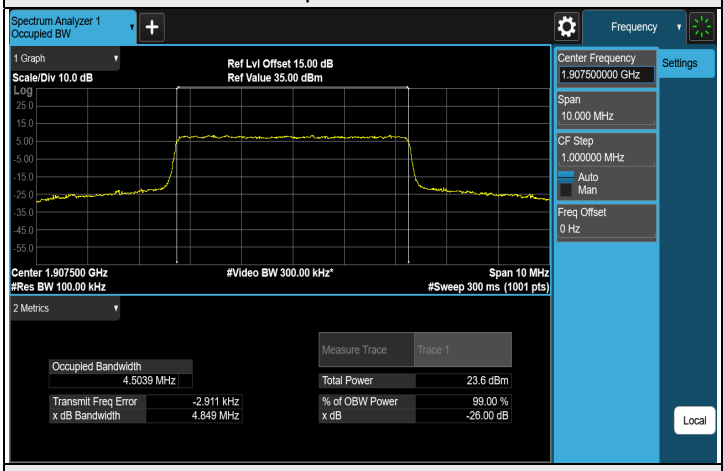
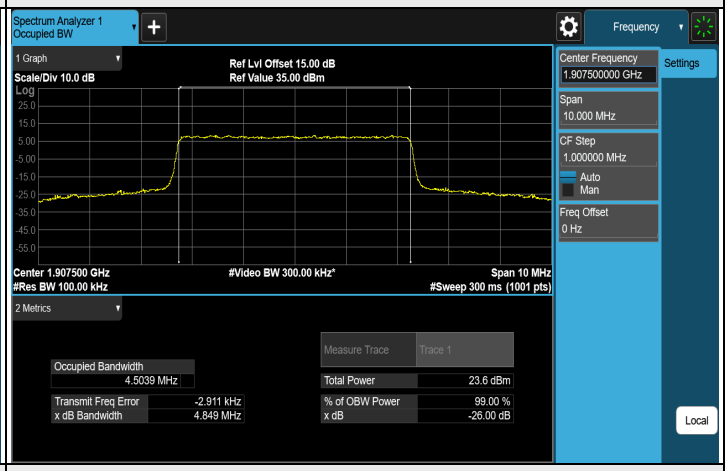
LTE Band 2, Channel Bandwidth: 3 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	18615	1851.5	2.6988	2.884
QPSK	18900	1880	2.7008	2.882
QPSK	19185	1908.5	2.7039	2.889
16QAM	18615	1851.5	2.7014	2.898
16QAM	18900	1880	2.6985	2.894
16QAM	19185	1908.5	2.7022	2.900
64QAM	18615	1851.5	2.6981	2.880
64QAM	18900	1880	2.6991	2.882
64QAM	19185	1908.5	2.7035	2.887
256QAM	18615	1851.5	2.6983	2.884
256QAM	18900	1880	2.6986	2.877
256QAM	19185	1908.5	2.7003	2.881

Spectrum Plot of Worst Value	
Occupied bandwidth	26 dB Bandwidth
	
QPSK CH 19185 (1908.5 MHz)	16QAM CH 19185 (1908.5 MHz)

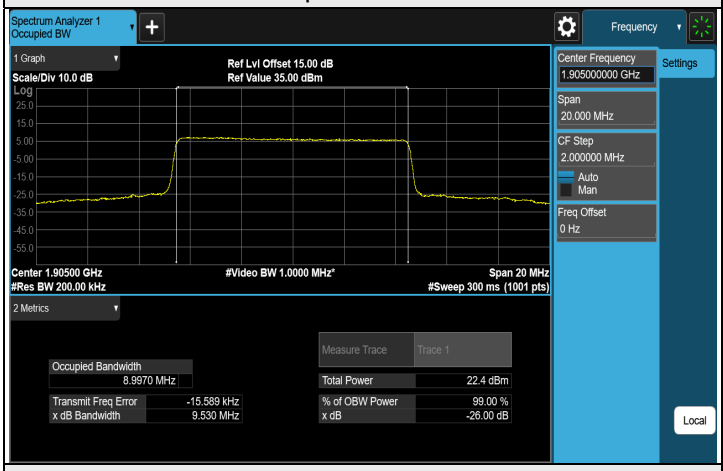
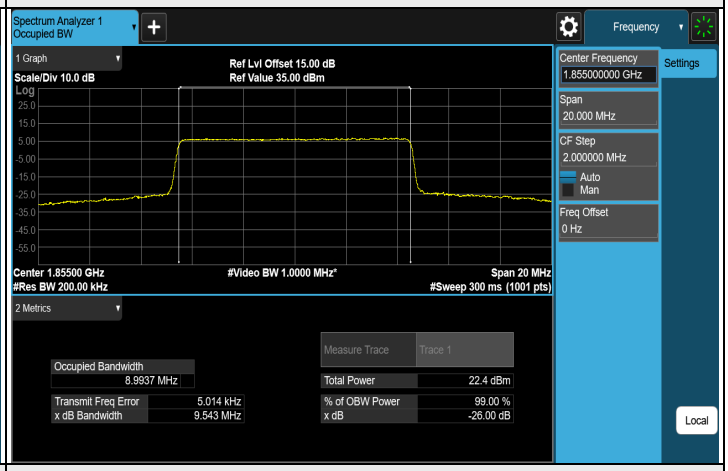
LTE Band 2, Channel Bandwidth: 5 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	18625	1852.5	4.4979	4.813
QPSK	18900	1880	4.4953	4.786
QPSK	19175	1907.5	4.5039	4.849
16QAM	18625	1852.5	4.4930	4.788
16QAM	18900	1880	4.4903	4.775
16QAM	19175	1907.5	4.4992	4.799
64QAM	18625	1852.5	4.4987	4.805
64QAM	18900	1880	4.4954	4.788
64QAM	19175	1907.5	4.5005	4.830
256QAM	18625	1852.5	4.4875	4.800
256QAM	18900	1880	4.4880	4.786
256QAM	19175	1907.5	4.4922	4.793

Spectrum Plot of Worst Value	
Occupied bandwidth	26 dB Bandwidth
	
QPSK CH 19175 (1907.5 MHz)	QPSK CH 19175 (1907.5 MHz)

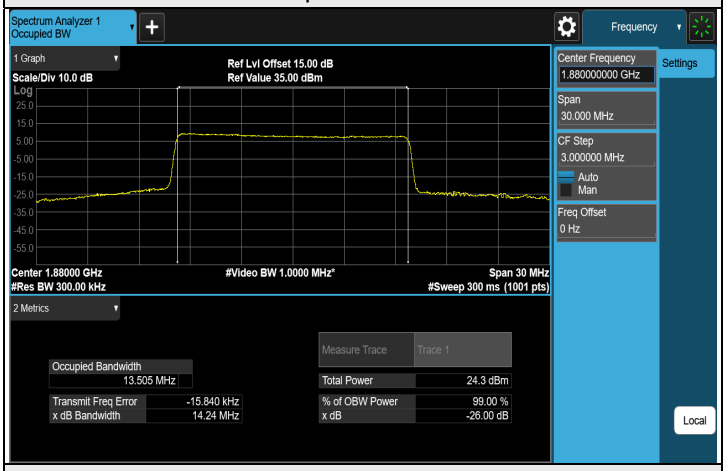
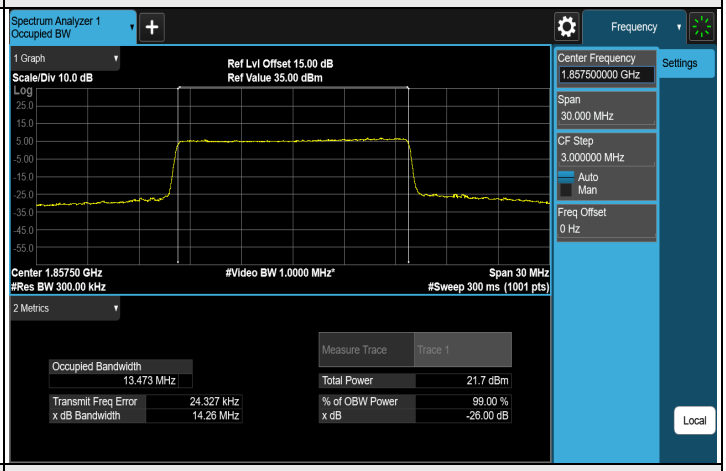
LTE Band 2, Channel Bandwidth: 10 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	18650	1855	8.9967	9.538
QPSK	18900	1880	8.9870	9.521
QPSK	19150	1905	8.9967	9.519
16QAM	18650	1855	8.9948	9.523
16QAM	18900	1880	8.9895	9.513
16QAM	19150	1905	8.9881	9.513
64QAM	18650	1855	8.9937	9.543
64QAM	18900	1880	8.9918	9.531
64QAM	19150	1905	8.9970	9.530
256QAM	18650	1855	8.9868	9.515
256QAM	18900	1880	8.9784	9.514
256QAM	19150	1905	8.9895	9.518

Spectrum Plot of Worst Value	
Occupied bandwidth	26 dB Bandwidth
	
64QAM CH 19150 (1905 MHz)	64QAM CH 18650 (1855 MHz)

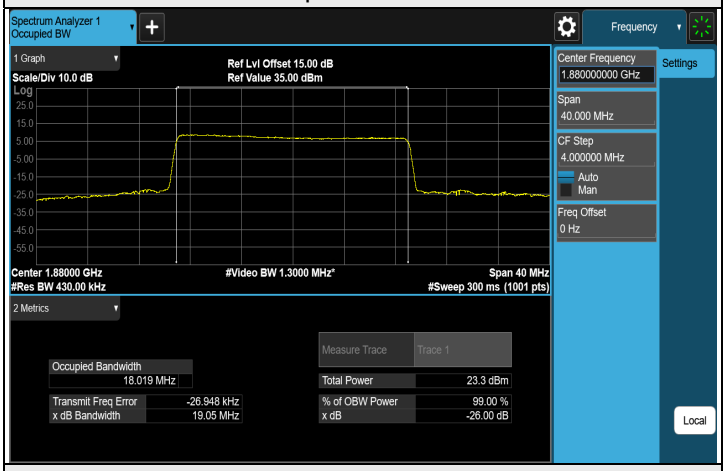
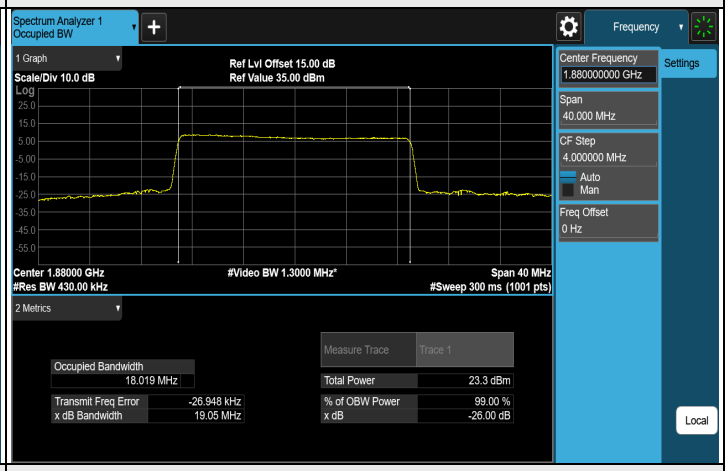
LTE Band 2, Channel Bandwidth: 15 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	18675	1857.5	13.4962	14.259
QPSK	18900	1880	13.5046	14.244
QPSK	19125	1902.5	13.4717	14.237
16QAM	18675	1857.5	13.4810	14.243
16QAM	18900	1880	13.4795	14.239
16QAM	19125	1902.5	13.4706	14.240
64QAM	18675	1857.5	13.4734	14.263
64QAM	18900	1880	13.4745	14.233
64QAM	19125	1902.5	13.4575	14.219
256QAM	18675	1857.5	13.4815	14.242
256QAM	18900	1880	13.4770	14.250
256QAM	19125	1902.5	13.4645	14.252

Spectrum Plot of Worst Value	
Occupied bandwidth	26 dB Bandwidth
	
QPSK CH 18900 (1880 MHz)	64QAM CH 18675 (1857.5 MHz)

LTE Band 2, Channel Bandwidth: 20 MHz

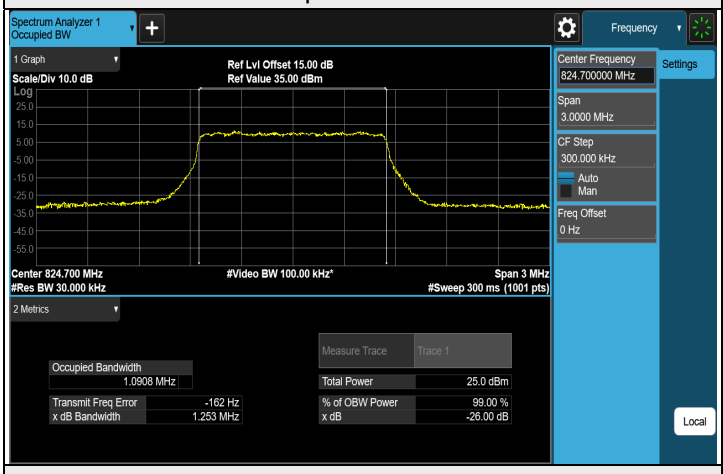
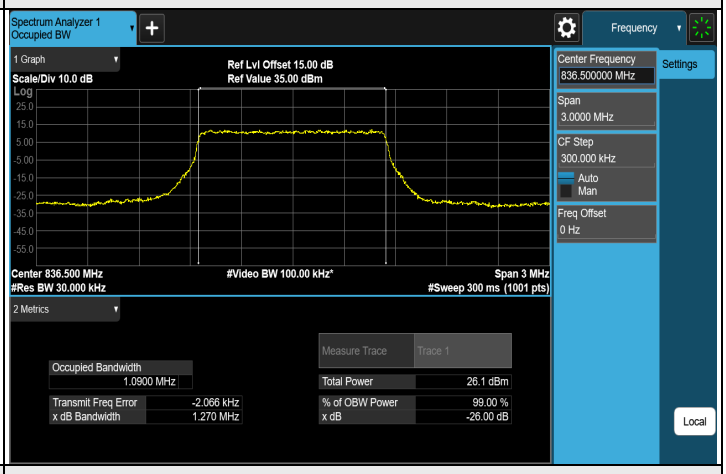
Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	18700	1860	17.9779	19.047
QPSK	18900	1880	18.0096	19.044
QPSK	19100	1900	17.9359	19.036
16QAM	18700	1860	17.9873	19.019
16QAM	18900	1880	18.0188	19.052
16QAM	19100	1900	17.9505	19.028
64QAM	18700	1860	17.9781	19.030
64QAM	18900	1880	18.0056	19.039
64QAM	19100	1900	17.9328	19.016
256QAM	18700	1860	17.9750	19.009
256QAM	18900	1880	17.9981	19.028
256QAM	19100	1900	17.9195	19.010

Spectrum Plot of Worst Value	
Occupied bandwidth	26 dB Bandwidth
	
16QAM CH 18900 (1880 MHz)	16QAM CH 18900 (1880 MHz)

7.4.2 LTE Band 5

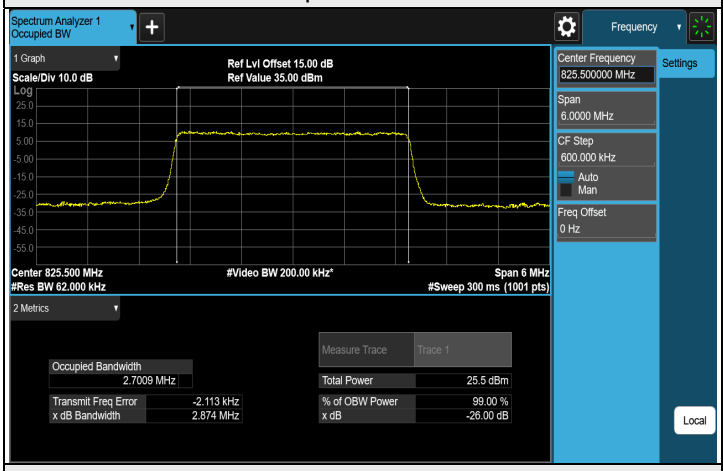
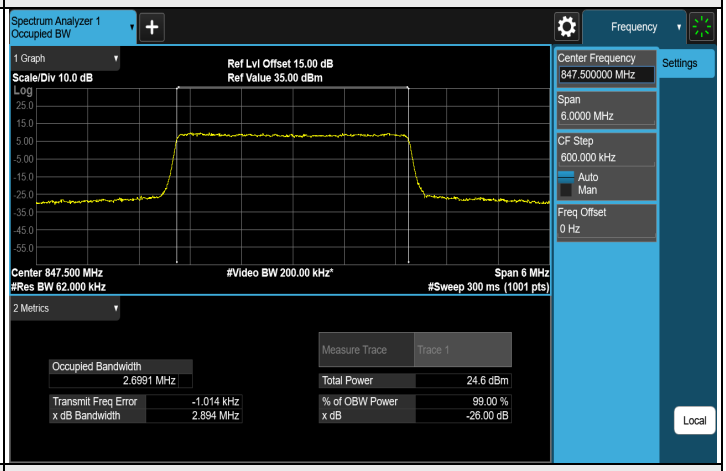
LTE Band 5, Channel Bandwidth: 1.4 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	20407	824.7	1.0839	1.237
QPSK	20525	836.5	1.0900	1.270
QPSK	20643	848.3	1.0907	1.249
16QAM	20407	824.7	1.0908	1.253
16QAM	20525	836.5	1.0890	1.254
16QAM	20643	848.3	1.0894	1.254
64QAM	20407	824.7	1.0883	1.261
64QAM	20525	836.5	1.0889	1.259
64QAM	20643	848.3	1.0897	1.253
256QAM	20407	824.7	1.0856	1.249
256QAM	20525	836.5	1.0859	1.242
256QAM	20643	848.3	1.0855	1.237

Spectrum Plot of Worst Value	
Occupied bandwidth	26 dB Bandwidth
	
16QAM CH 20407 (824.7 MHz)	QPSK CH 20525 (836.5 MHz)

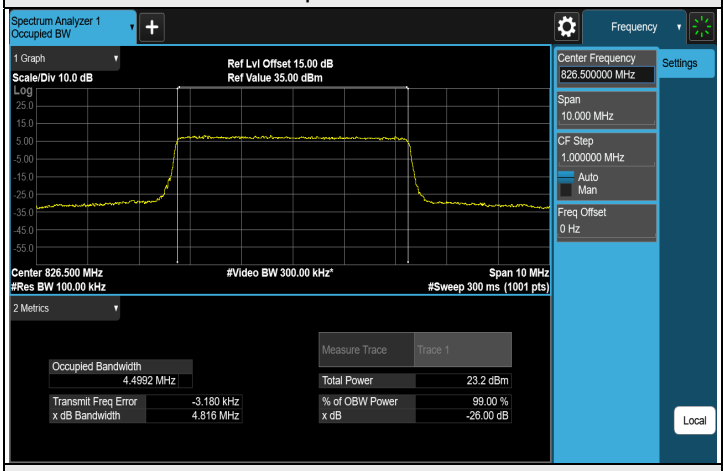
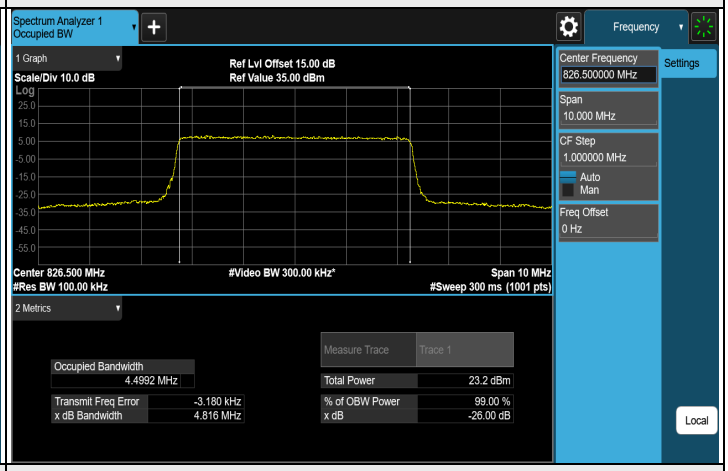
LTE Band 5, Channel Bandwidth: 3 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	20415	825.5	2.7009	2.874
QPSK	20525	836.5	2.6980	2.883
QPSK	20635	847.5	2.6960	2.883
16QAM	20415	825.5	2.6977	2.888
16QAM	20525	836.5	2.6981	2.892
16QAM	20635	847.5	2.6991	2.894
64QAM	20415	825.5	2.6979	2.877
64QAM	20525	836.5	2.7004	2.871
64QAM	20635	847.5	2.6988	2.873
256QAM	20415	825.5	2.6987	2.882
256QAM	20525	836.5	2.6997	2.880
256QAM	20635	847.5	2.6962	2.876

Spectrum Plot of Worst Value	
Occupied bandwidth	26 dB Bandwidth
	
QPSK CH 20415 (825.5 MHz)	16QAM CH 20635 (847.5 MHz)

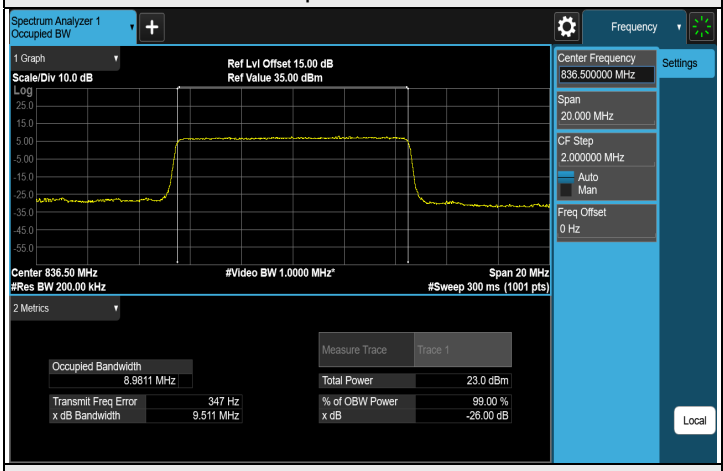
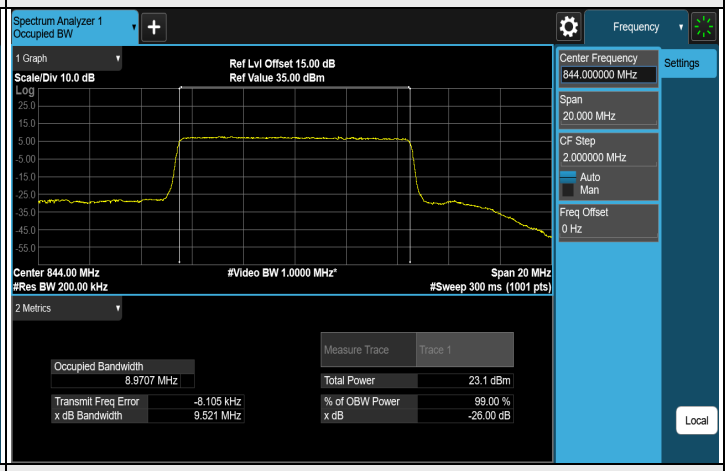
LTE Band 5, Channel Bandwidth: 5 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	20425	826.5	4.4871	4.783
QPSK	20525	836.5	4.4954	4.804
QPSK	20625	846.5	4.4975	4.794
16QAM	20425	826.5	4.4929	4.786
16QAM	20525	836.5	4.4914	4.789
16QAM	20625	846.5	4.4918	4.776
64QAM	20425	826.5	4.4992	4.816
64QAM	20525	836.5	4.4963	4.787
64QAM	20625	846.5	4.4944	4.787
256QAM	20425	826.5	4.4814	4.783
256QAM	20525	836.5	4.4850	4.776
256QAM	20625	846.5	4.4854	4.784

Spectrum Plot of Worst Value	
Occupied bandwidth	26 dB Bandwidth
	
64QAM CH 20425 (826.5 MHz)	64QAM CH 20425 (826.5 MHz)

LTE Band 5, Channel Bandwidth: 10 MHz

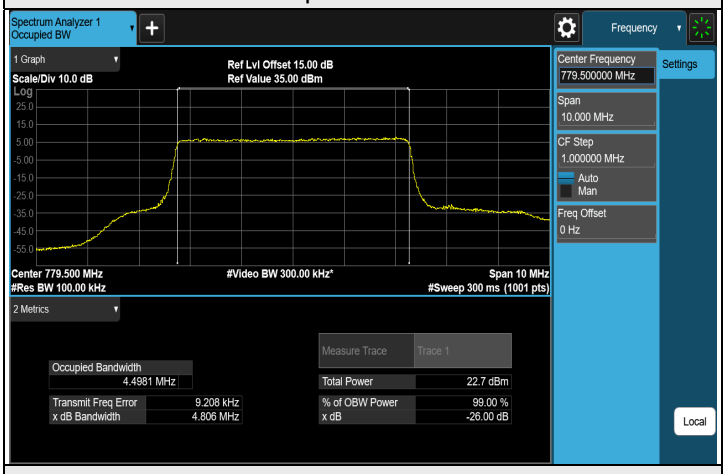
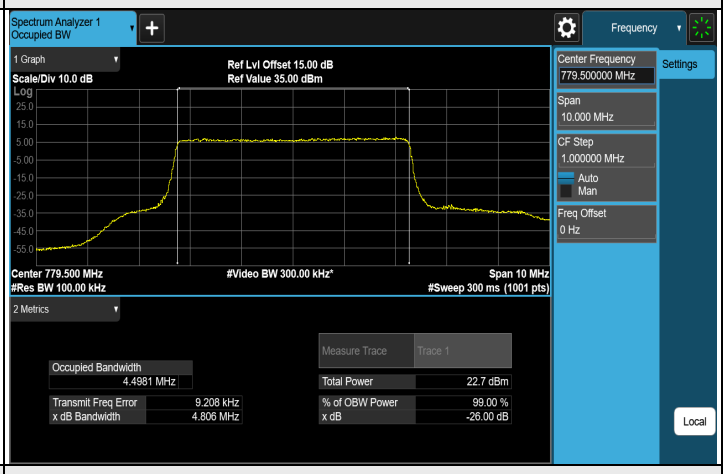
Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	20450	829	8.9777	9.518
QPSK	20525	836.5	8.9805	9.520
QPSK	20600	844	8.9732	9.506
16QAM	20450	829	8.9808	9.518
16QAM	20525	836.5	8.9776	9.503
16QAM	20600	844	8.9768	9.505
64QAM	20450	829	8.9804	9.515
64QAM	20525	836.5	8.9811	9.511
64QAM	20600	844	8.9707	9.521
256QAM	20450	829	8.9747	9.520
256QAM	20525	836.5	8.9754	9.512
256QAM	20600	844	8.9682	9.510

Spectrum Plot of Worst Value	
Occupied bandwidth	26 dB Bandwidth
	
64QAM CH 20525 (836.5 MHz)	64QAM CH 20600 (844 MHz)

7.4.3 LTE Band 13

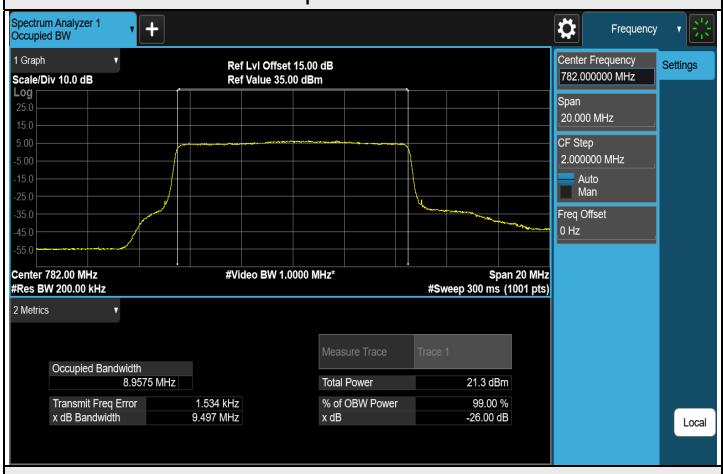
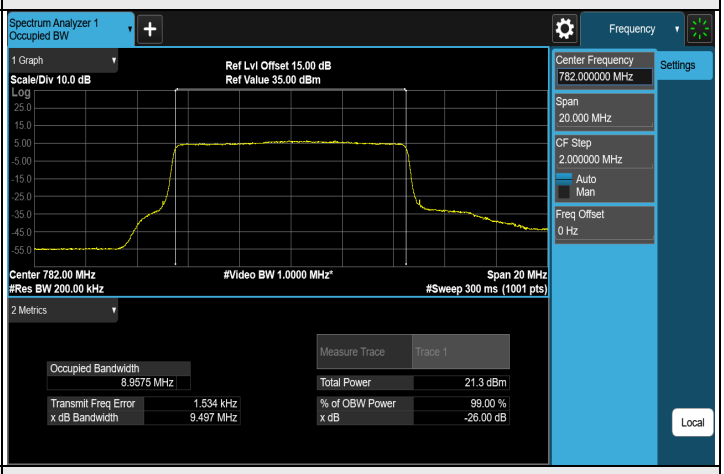
LTE Band 13, Channel Bandwidth: 5 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	23205	779.5	4.4959	4.771
QPSK	23230	782	4.4802	4.773
QPSK	23255	784.5	4.4954	4.791
16QAM	23205	779.5	4.4937	4.778
16QAM	23230	782	4.4797	4.763
16QAM	23255	784.5	4.4937	4.765
64QAM	23205	779.5	4.4981	4.806
64QAM	23230	782	4.4843	4.770
64QAM	23255	784.5	4.4979	4.785
256QAM	23205	779.5	4.4893	4.777
256QAM	23230	782	4.4752	4.770
256QAM	23255	784.5	4.4895	4.770

Spectrum Plot of Worst Value	
Occupied bandwidth	26 dB Bandwidth
	
64QAM CH 23205 (779.5 MHz)	64QAM CH 23205 (779.5 MHz)

LTE Band 13, Channel Bandwidth: 10 MHz

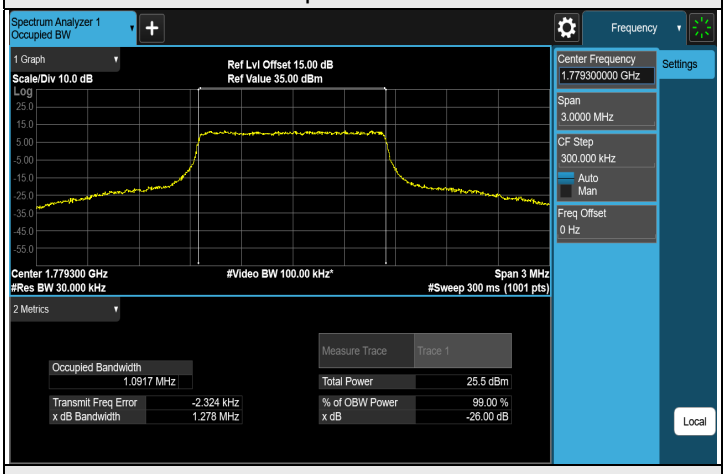
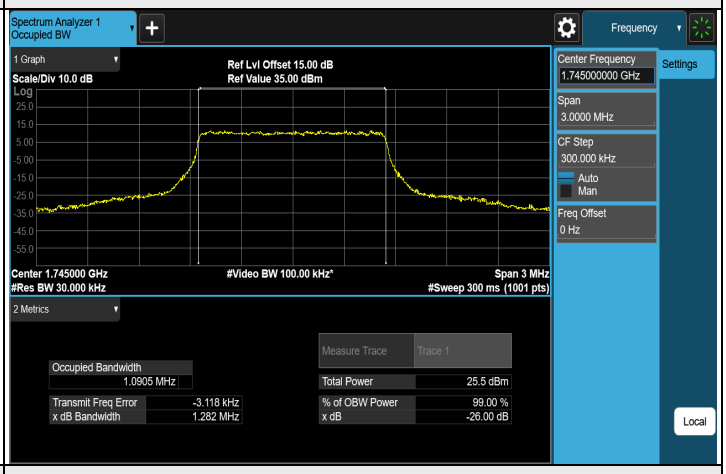
Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	23230	782	8.9538	9.480
16QAM	23230	782	8.9558	9.492
64QAM	23230	782	8.9575	9.497
256QAM	23230	782	8.9479	9.478

Spectrum Plot of Worst Value	
Occupied bandwidth	26 dB Bandwidth
	
64QAM CH 23230 (782 MHz)	64QAM CH 23230 (782 MHz)

7.4.4 LTE Band 66

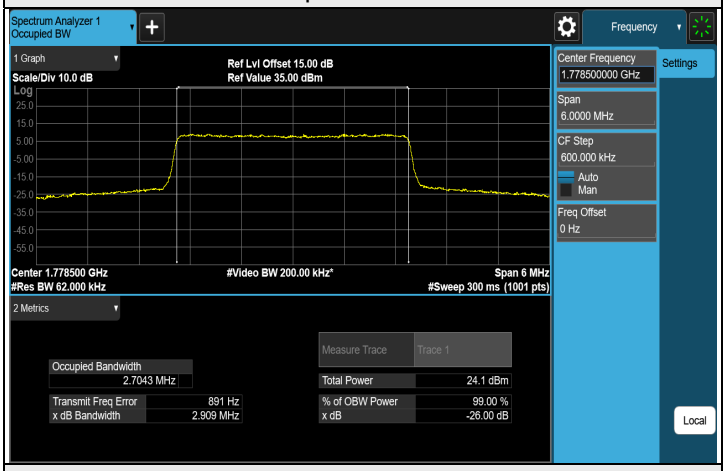
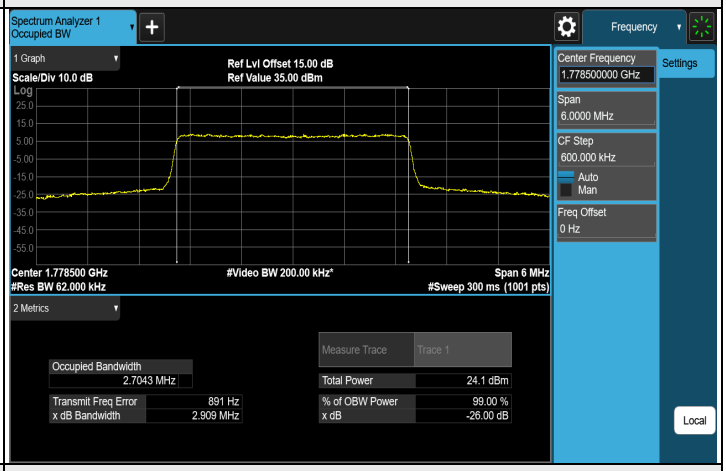
LTE Band 66, Channel Bandwidth: 1.4 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	131979	1710.7	1.0885	1.256
QPSK	132322	1745	1.0905	1.282
QPSK	132665	1779.3	1.0917	1.278
16QAM	131979	1710.7	1.0903	1.249
16QAM	132322	1745	1.0892	1.258
16QAM	132665	1779.3	1.0908	1.256
64QAM	131979	1710.7	1.0888	1.257
64QAM	132322	1745	1.0882	1.257
64QAM	132665	1779.3	1.0903	1.266
256QAM	131979	1710.7	1.0853	1.237
256QAM	132322	1745	1.0853	1.229
256QAM	132665	1779.3	1.0858	1.238

Spectrum Plot of Worst Value	
Occupied bandwidth	26 dB Bandwidth
	
QPSK CH 132665 (1779.3 MHz)	QPSK CH 132322 (1745 MHz)

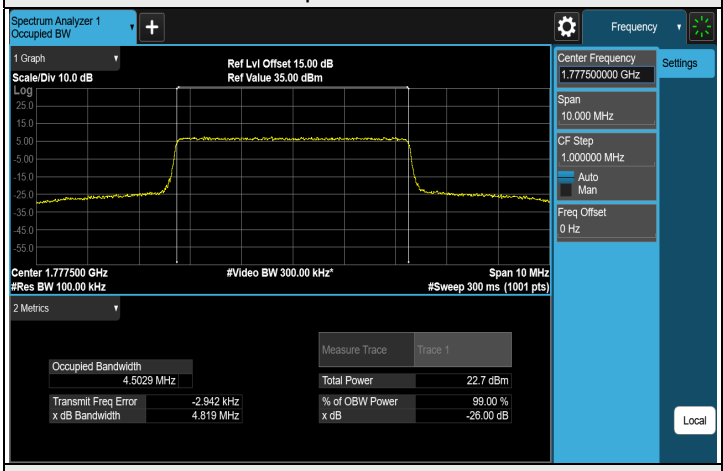
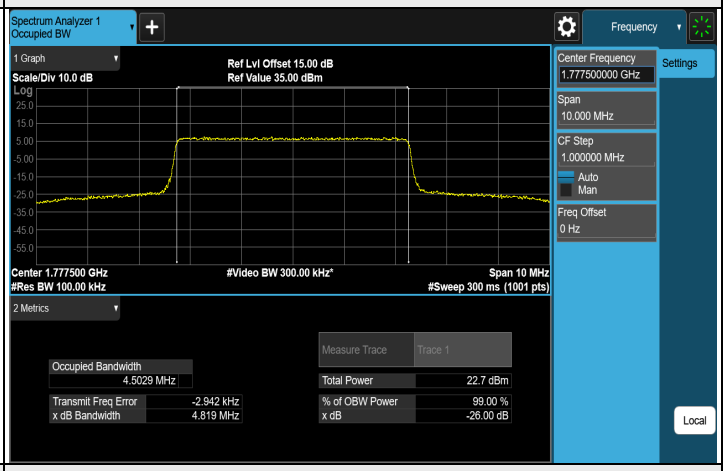
LTE Band 66, Channel Bandwidth: 3 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	131987	1711.5	2.6975	2.879
QPSK	132322	1745	2.6996	2.878
QPSK	132657	1778.5	2.7032	2.895
16QAM	131987	1711.5	2.6985	2.896
16QAM	132322	1745	2.7010	2.891
16QAM	132657	1778.5	2.7043	2.909
64QAM	131987	1711.5	2.7000	2.882
64QAM	132322	1745	2.7005	2.876
64QAM	132657	1778.5	2.7016	2.896
256QAM	131987	1711.5	2.6988	2.882
256QAM	132322	1745	2.6990	2.874
256QAM	132657	1778.5	2.6986	2.886

Spectrum Plot of Worst Value	
Occupied bandwidth	26 dB Bandwidth
	
16QAM CH 132657 (1778.5 MHz)	16QAM CH 132657 (1778.5 MHz)

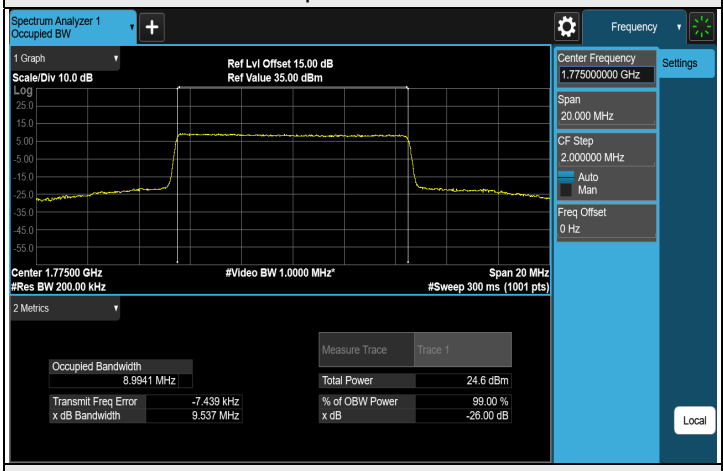
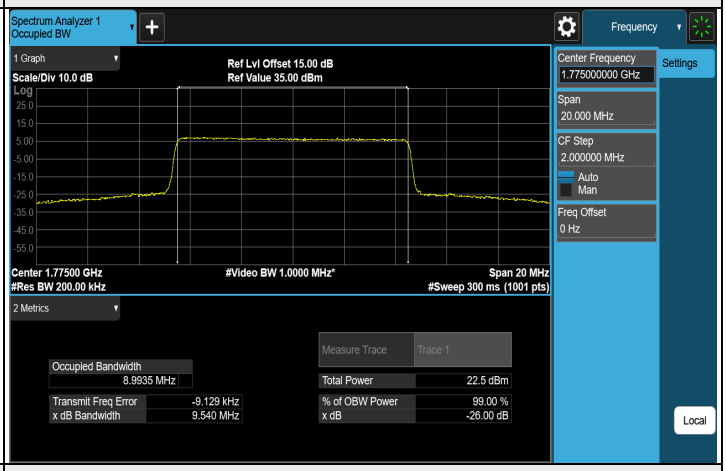
LTE Band 66, Channel Bandwidth: 5 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	131997	1712.5	4.4916	4.803
QPSK	132322	1745	4.4950	4.795
QPSK	132647	1777.5	4.5004	4.812
16QAM	131997	1712.5	4.4925	4.787
16QAM	132322	1745	4.4916	4.782
16QAM	132647	1777.5	4.4976	4.810
64QAM	131997	1712.5	4.4951	4.782
64QAM	132322	1745	4.4962	4.795
64QAM	132647	1777.5	4.5029	4.819
256QAM	131997	1712.5	4.4874	4.781
256QAM	132322	1745	4.4870	4.778
256QAM	132647	1777.5	4.4896	4.804

Spectrum Plot of Worst Value	
Occupied bandwidth	26 dB Bandwidth
	
64QAM CH 132647 (1777.5 MHz)	64QAM CH 132647 (1777.5 MHz)

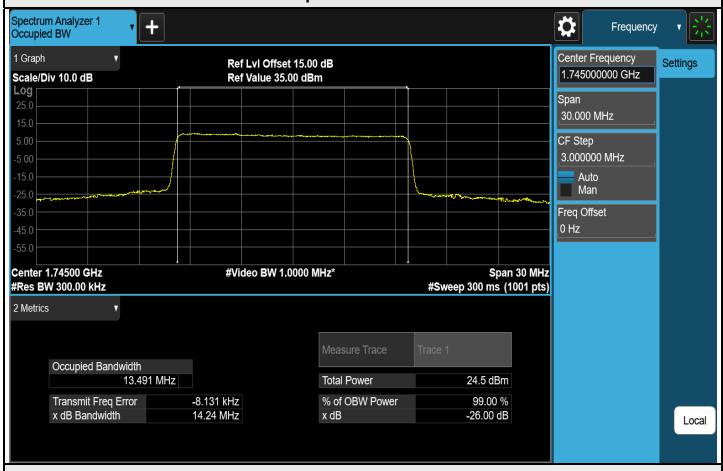
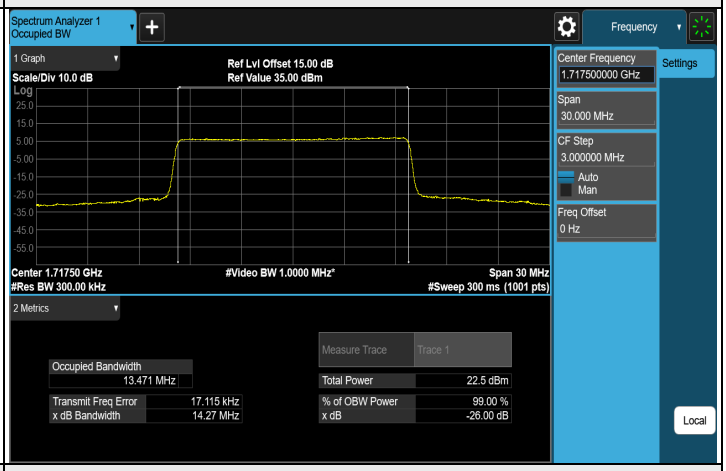
LTE Band 66, Channel Bandwidth: 10 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	132022	1715	8.9877	9.524
QPSK	132322	1745	8.9799	9.490
QPSK	132622	1775	8.9941	9.537
16QAM	132022	1715	8.9880	9.527
16QAM	132322	1745	8.9845	9.514
16QAM	132622	1775	8.9918	9.508
64QAM	132022	1715	8.9863	9.516
64QAM	132322	1745	8.9795	9.509
64QAM	132622	1775	8.9935	9.540
256QAM	132022	1715	8.9727	9.517
256QAM	132322	1745	8.9751	9.506
256QAM	132622	1775	8.9848	9.513

Spectrum Plot of Worst Value	
Occupied bandwidth	26 dB Bandwidth
	
QPSK CH 132622 (1775 MHz)	64QAM CH 132622 (1775 MHz)

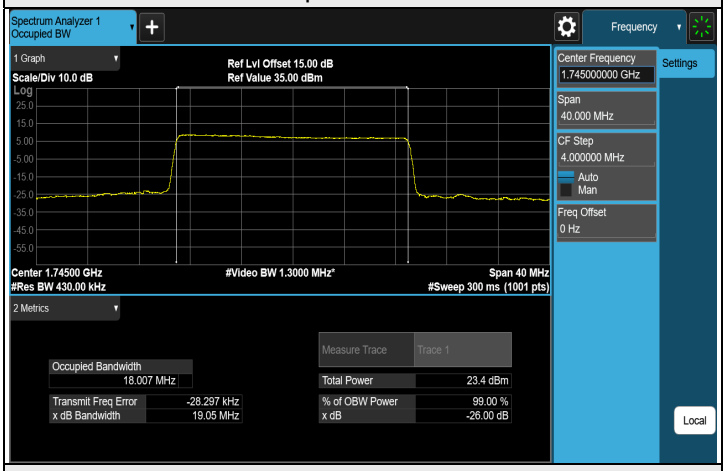
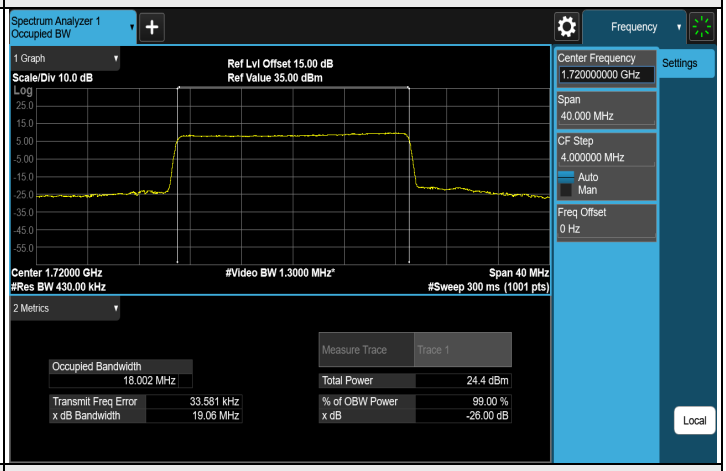
LTE Band 66, Channel Bandwidth: 15 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	132047	1717.5	13.4845	14.255
QPSK	132322	1745	13.4912	14.239
QPSK	132597	1772.5	13.4819	14.239
16QAM	132047	1717.5	13.4820	14.251
16QAM	132322	1745	13.4719	14.248
16QAM	132597	1772.5	13.4701	14.226
64QAM	132047	1717.5	13.4715	14.267
64QAM	132322	1745	13.4623	14.238
64QAM	132597	1772.5	13.4663	14.242
256QAM	132047	1717.5	13.4735	14.228
256QAM	132322	1745	13.4693	14.243
256QAM	132597	1772.5	13.4665	14.243

Spectrum Plot of Worst Value	
Occupied bandwidth	26 dB Bandwidth
	
QPSK CH 132322 (1745 MHz)	64QAM CH 132047 (1717.5 MHz)

LTE Band 66, Channel Bandwidth: 20 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	132072	1720	18.0015	19.063
QPSK	132322	1745	17.9948	19.031
QPSK	132572	1770	17.9728	19.039
16QAM	132072	1720	18.0039	19.044
16QAM	132322	1745	18.0073	19.045
16QAM	132572	1770	17.9697	19.022
64QAM	132072	1720	17.9935	19.032
64QAM	132322	1745	17.9942	19.031
64QAM	132572	1770	17.9551	19.022
256QAM	132072	1720	17.9879	19.017
256QAM	132322	1745	17.9910	19.027
256QAM	132572	1770	17.9563	19.022

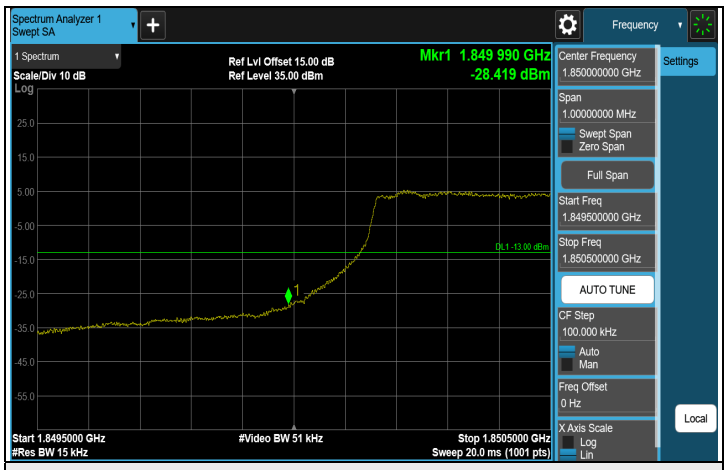
Spectrum Plot of Worst Value	
Occupied bandwidth	26 dB Bandwidth
	
16QAM CH 132322 (1745 MHz)	QPSK CH 132072 (1720 MHz)

7.5 Conducted Spurious Emissions

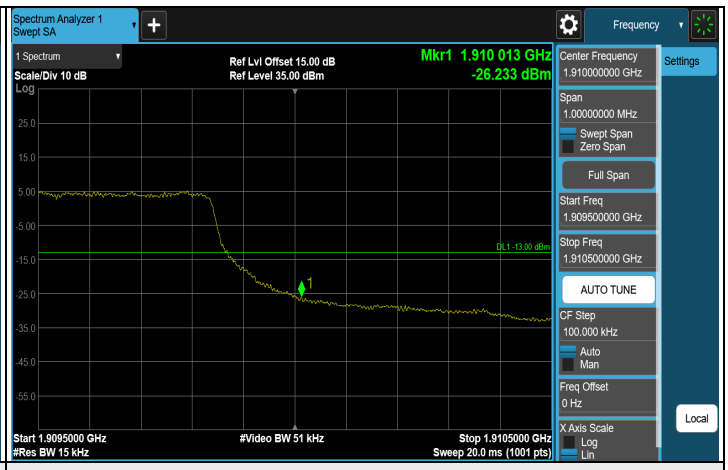
Input Power:	7.2 Vdc	Environmental Conditions:	25°C, 68% RH	Tested By:	Noah Chang

7.5.1 LTE Band 2

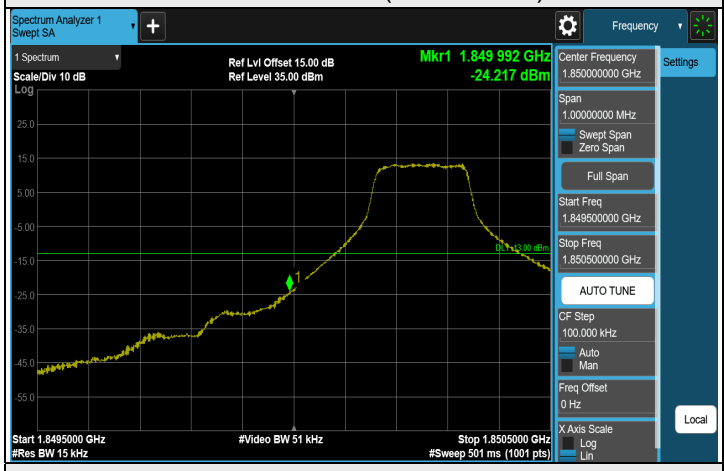
LTE Band 2, Channel Bandwidth: 1.4 MHz



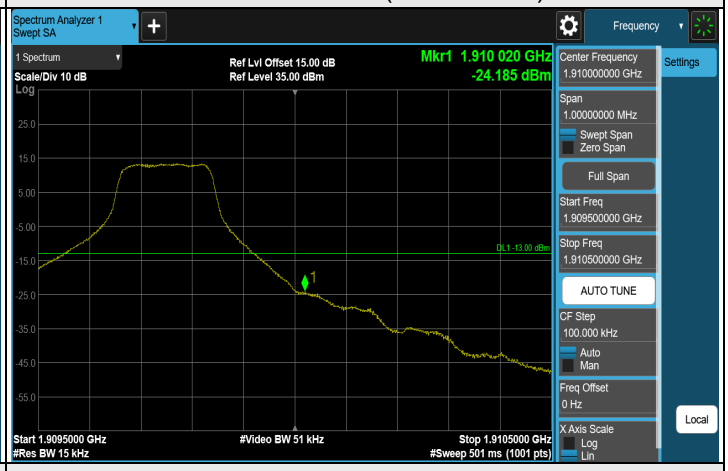
FULL CH 18607 (1850.7 MHz)



FULL CH 19193 (1909.3 MHz)

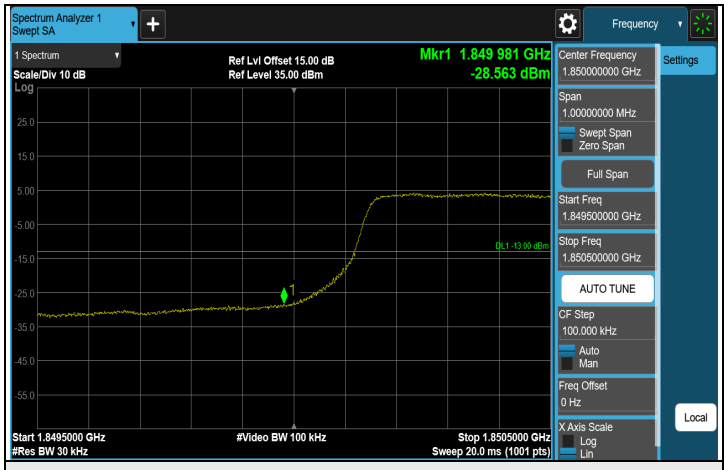


1RB CH 18607 (1850.7 MHz)

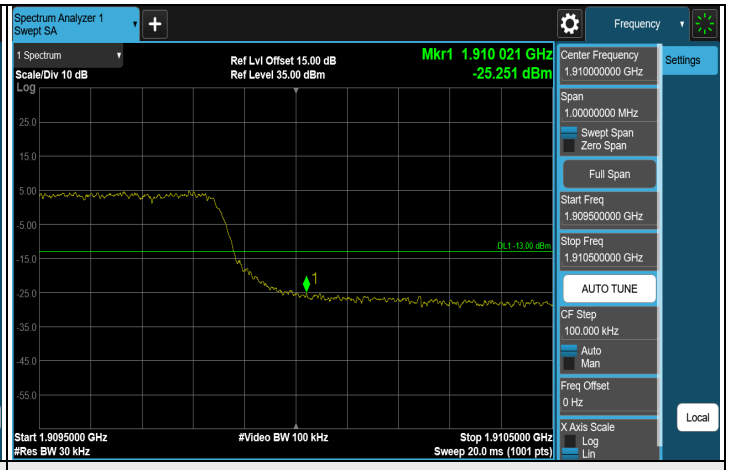


1RB CH 19193 (1909.3 MHz)

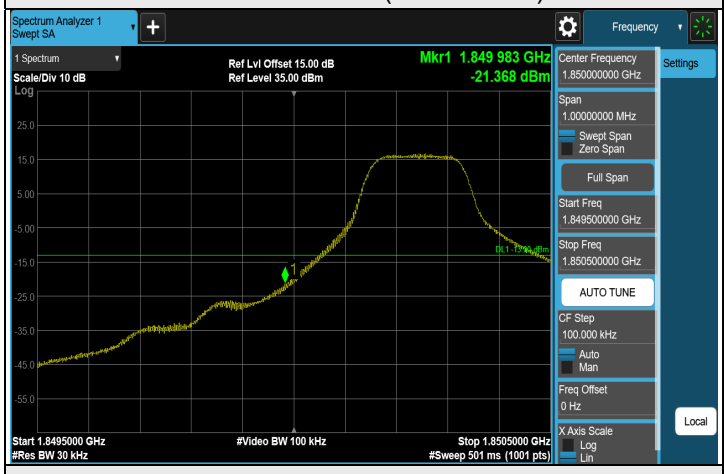
LTE Band 2, Channel Bandwidth: 3 MHz



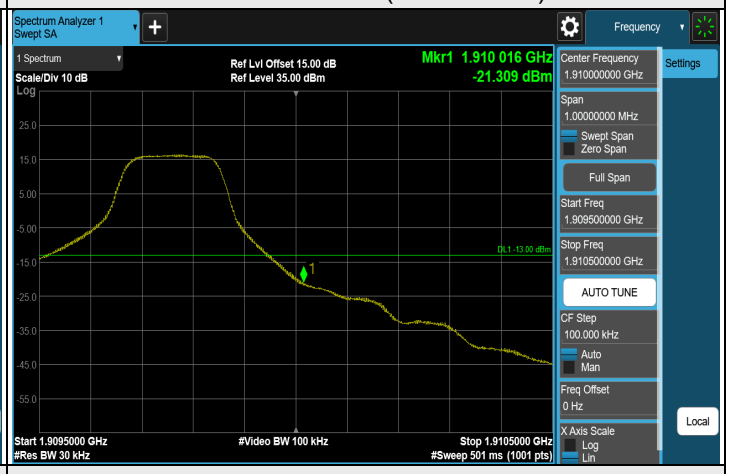
FULL CH 18615 (1851.5 MHz)



FULL CH 19185 (1908.5 MHz)

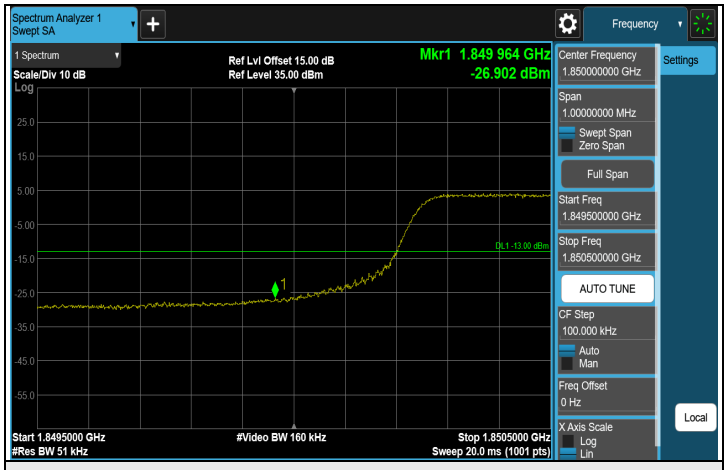


1RB CH 18615 (1851.5 MHz)

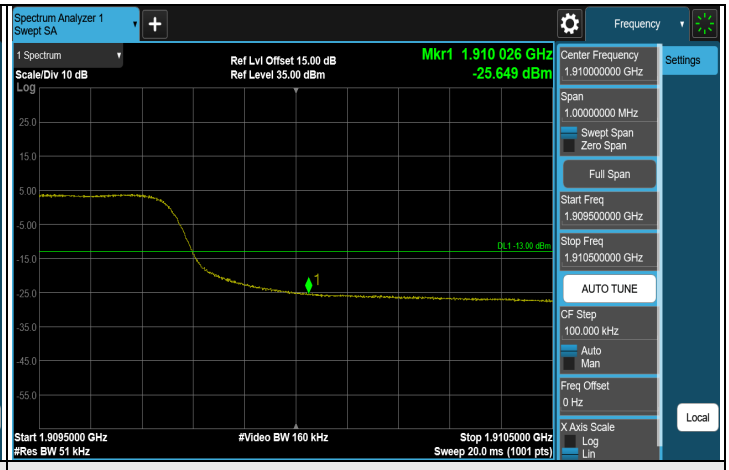


1RB CH 19185 (1908.5 MHz)

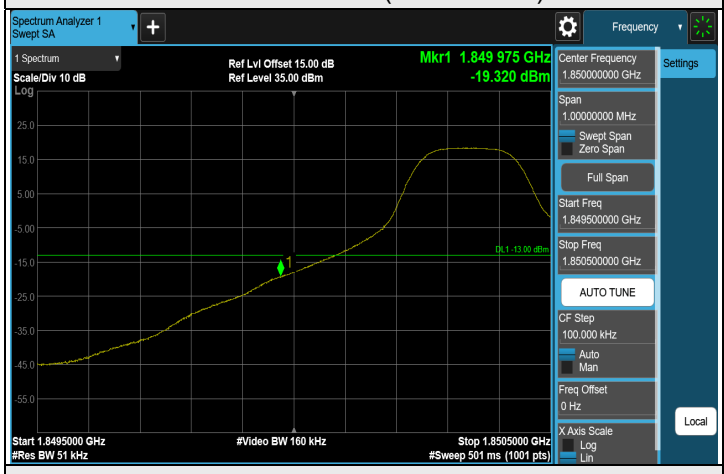
LTE Band 2, Channel Bandwidth: 5 MHz



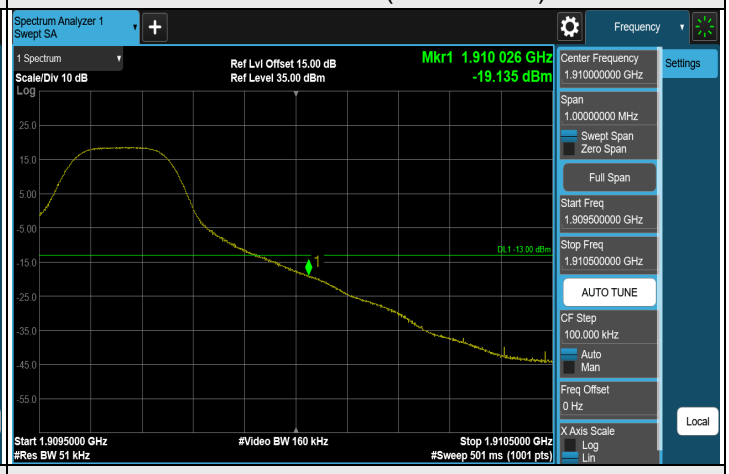
FULL CH 18625 (1852.5 MHz)



FULL CH 19175 (1907.5 MHz)

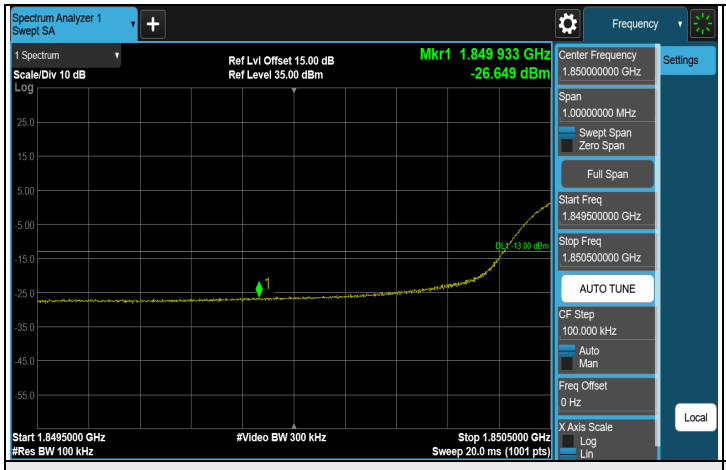


1RB CH 18625 (1852.5 MHz)

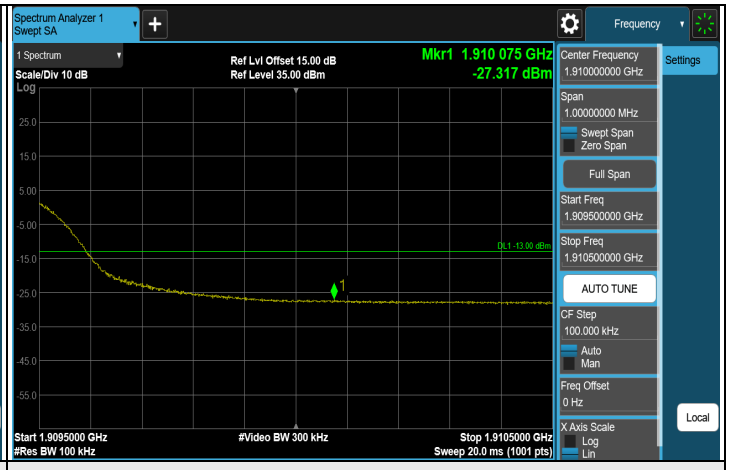


1RB CH 19175 (1907.5 MHz)

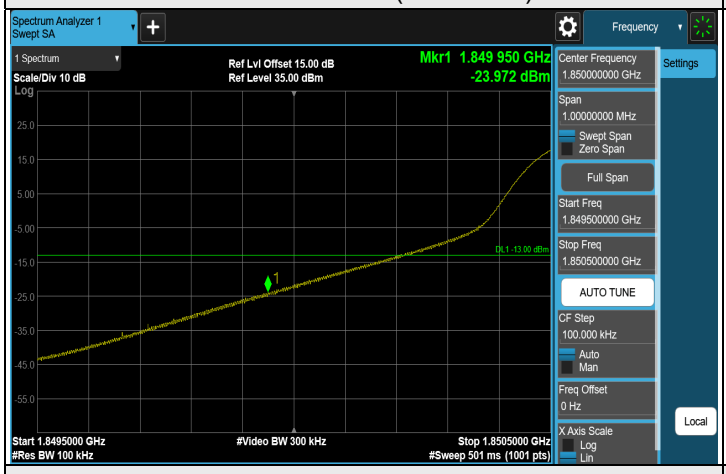
LTE Band 2, Channel Bandwidth: 10 MHz



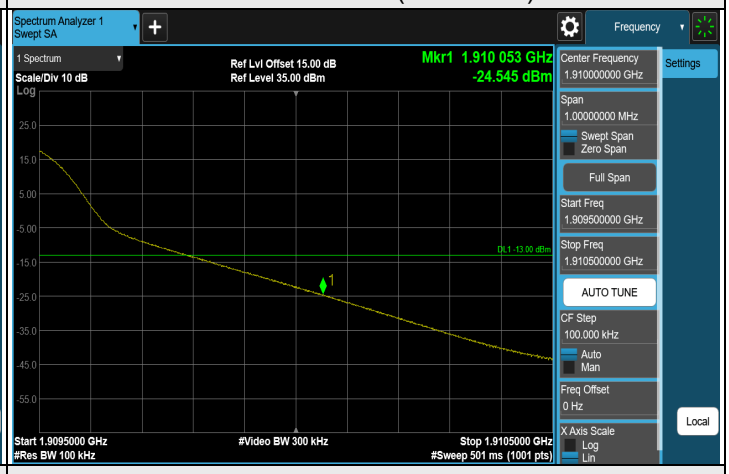
FULL CH 18650 (1855 MHz)



FULL CH 19150 (1905 MHz)

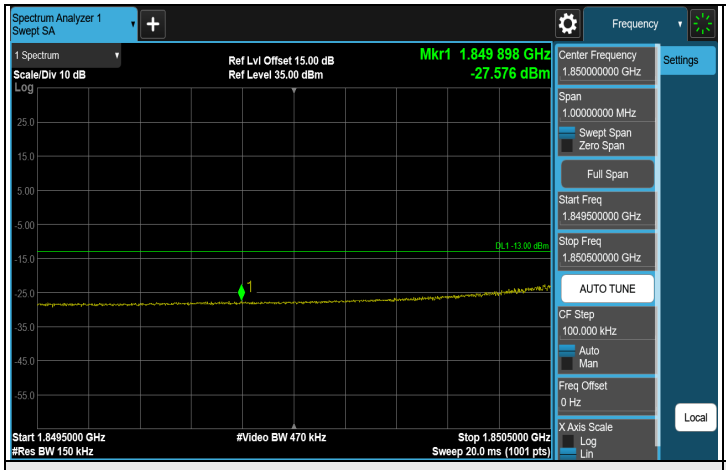


1RB CH 18650 (1855 MHz)

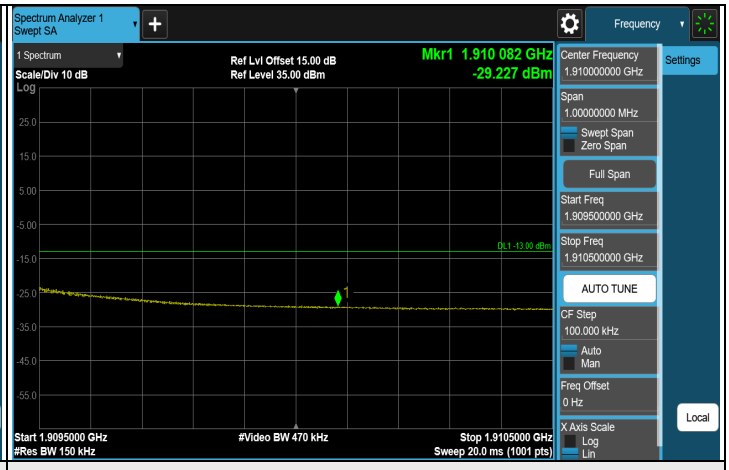


1RB CH 19150 (1905 MHz)

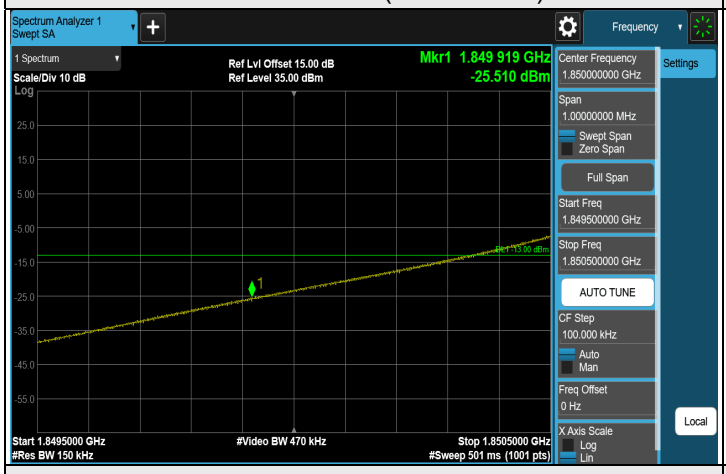
LTE Band 2, Channel Bandwidth: 15 MHz



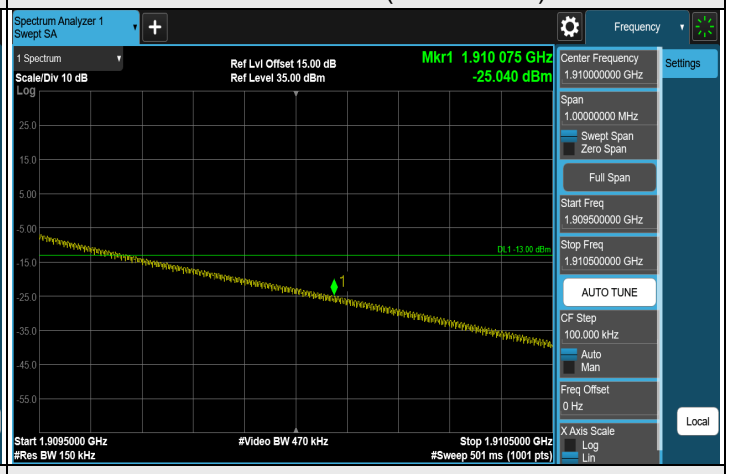
FULL CH 18675 (1857.5 MHz)



FULL CH 19125 (1902.5 MHz)

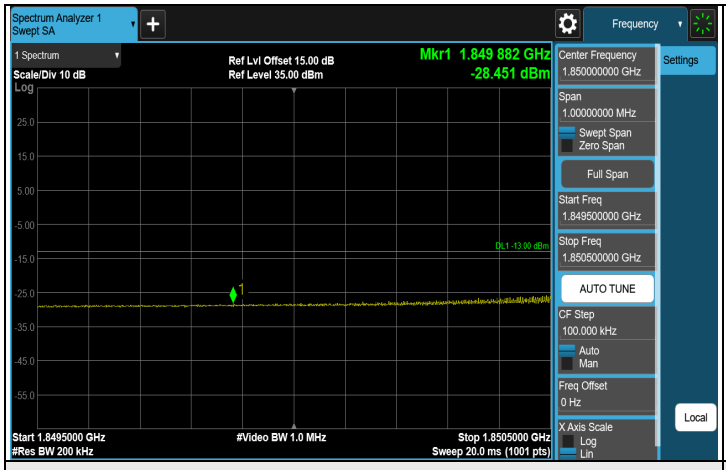


1RB CH 18675 (1857.5 MHz)

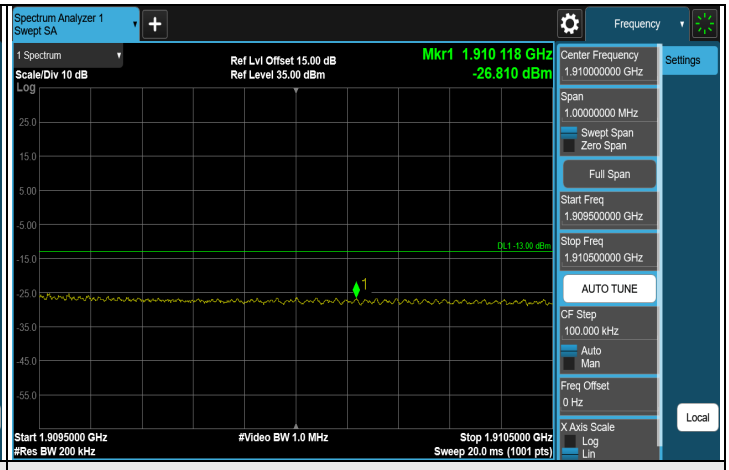


1RB CH 19125 (1902.5 MHz)

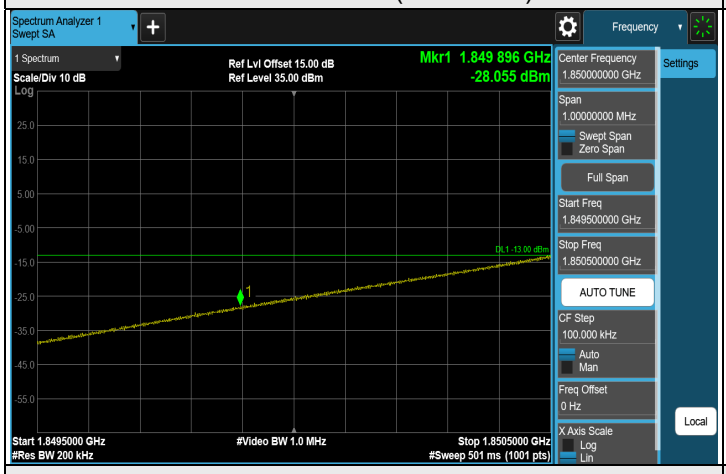
LTE Band 2, Channel Bandwidth: 20 MHz



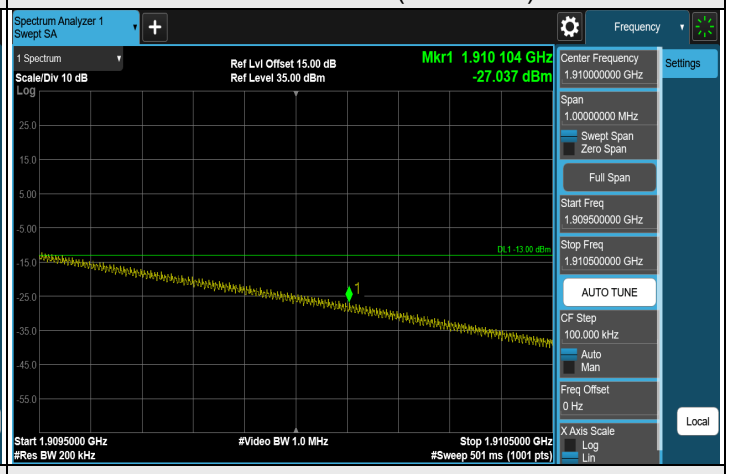
FULL CH 18700 (1860 MHz)



FULL CH 19100 (1900 MHz)

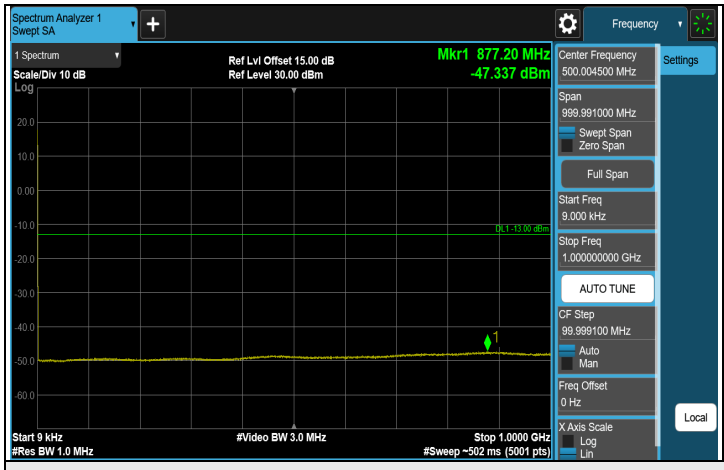


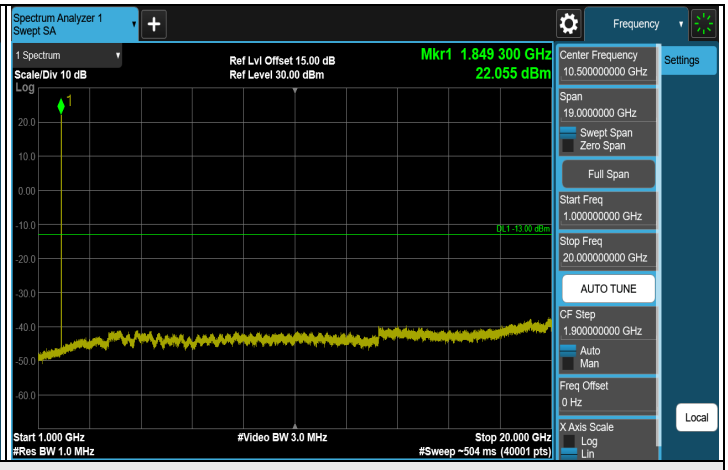
1RB CH 18700 (1860 MHz)



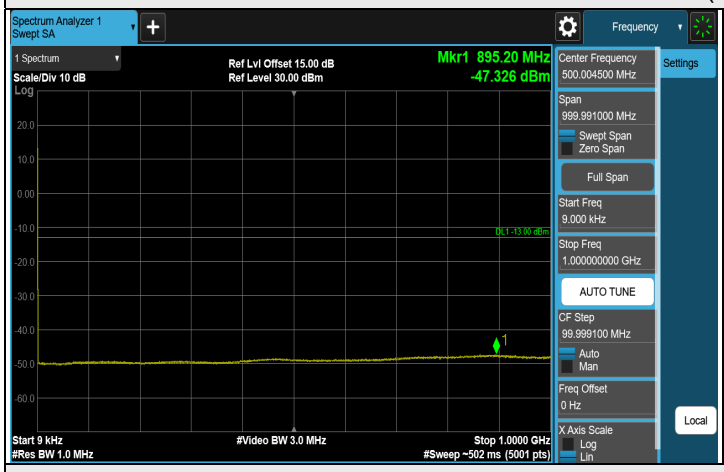
1RB CH 19100 (1900 MHz)

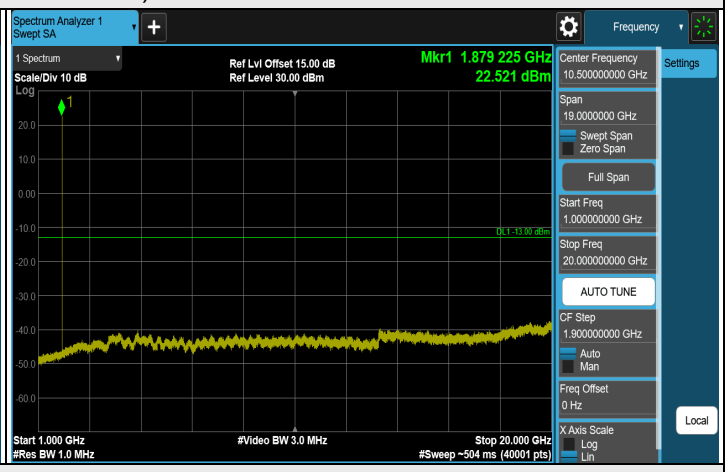
LTE Band 2, Channel Bandwidth: 1.4 MHz



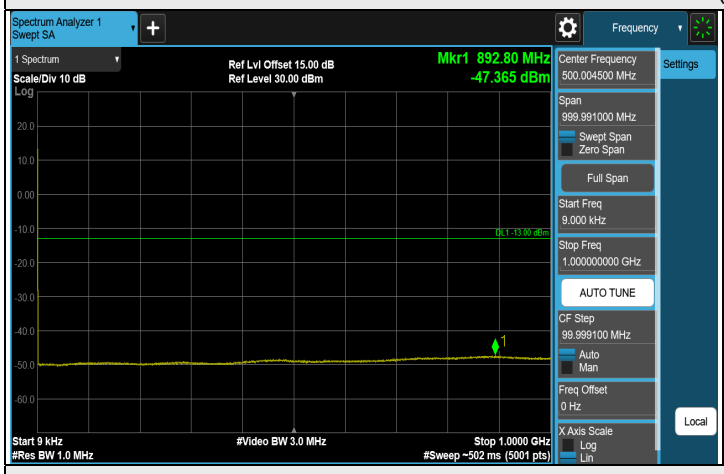


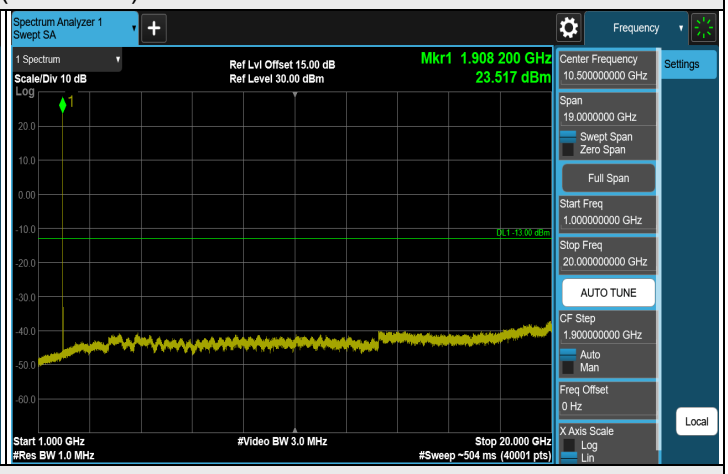
CH 18607 (1850.7 MHz)





CH 18900 (1880 MHz)





CH 19193 (1909.3 MHz)

Note: The signal at 9 kHz is IF signal from spectrum analyzer.