



# RF TEST REPORT

**Applicant**      Xiaomi Communications Co., Ltd.  
**FCC ID**          2AFZZNC4L  
**Product**        Mobile Phone  
**Brand**            Redmi  
**Model**           2212ARNC4L  
**Report No.**      R2209A0813-R3V1  
**Issue Date**      November 18, 2022

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2 (2021)/ FCC CFR47 Part 27C (2021)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

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Approved by: Xu Kai

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| Version                                                                                                                                                                                                                       | Revision description     | Issue Date        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-------------------|
| Rev.0                                                                                                                                                                                                                         | Initial issue of report. | November 14, 2022 |
| Rev.1                                                                                                                                                                                                                         | Update description.      | November 18, 2022 |
| Note: This revised report (Report No. R2209A0813-R3V1) supersedes and replaces the previously issued report (Report No. R2209A0813-R3). Please discard or destroy the previously issued report and dispose of it accordingly. |                          |                   |



## Summary of Measurement Results

| Number                                                                                                                                                                                                                                                                                                                                                                                                                                             | Test Case                                              | Clause in FCC rules                                     | Verdict |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|---------------------------------------------------------|---------|
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                  | RF Power Output and Effective Isotropic Radiated Power | 2.1046<br>/27.50(d)(4)<br>/27.50(b)(10)<br>/27.50(h)(2) | PASS    |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Occupied Bandwidth                                     | 2.1049                                                  | PASS    |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Band Edge Compliance                                   | 27.53(h)<br>/27.53(f) /27.53(c)<br>/27.53(m)            | PASS    |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Peak-to-Average Power Ratio                            | 27.50(d)/KDB971168 D01(5.7)                             | PASS    |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Frequency Stability                                    | 2.1055 / 27.54                                          | PASS    |
| 6                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Spurious Emissions at Antenna Terminals                | 2.1051<br>/27.53(h)<br>/27.53(f) /27.53(c)<br>/27.53(m) | PASS    |
| 7                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Radiated Spurious Emission                             | 2.1053<br>/27.53(h)<br>/27.53(f) /27.53(c)<br>/27.53(m) | PASS    |
| Date of Testing: October 11, 2022 ~ October 24, 2022                                                                                                                                                                                                                                                                                                                                                                                               |                                                        |                                                         |         |
| Date of Sample Received: October 8, 2022                                                                                                                                                                                                                                                                                                                                                                                                           |                                                        |                                                         |         |
| Note: PASS: The EUT complies with the essential requirements in the standard.<br>FAIL: The EUT does not comply with the essential requirements in the standard.<br>All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. |                                                        |                                                         |         |



# 1 Test Laboratory

## 1.1 Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **TA Technology (Shanghai) Co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

## 1.2. Test facility

### **FCC (Designation number: CN1179, Test Firm Registration Number: 446626)**

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform measurements.

### **A2LA(Certificate Number: 3857.01)**

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform measurement.

## 1.3 Testing Location

Company: TA Technology (Shanghai) Co., Ltd.  
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## 2 General Description of Equipment under Test

### 2.1 Applicant and Manufacturer Information

|                      |                                                                                               |
|----------------------|-----------------------------------------------------------------------------------------------|
| Applicant            | Xiaomi Communications Co., Ltd.                                                               |
| Applicant address    | #019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085 |
| Manufacturer         | Xiaomi Communications Co., Ltd.                                                               |
| Manufacturer address | #019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085 |

### 2.2 General information

| EUT Description          |                                                         |             |               |
|--------------------------|---------------------------------------------------------|-------------|---------------|
| Model                    | 2212ARNC4L                                              |             |               |
| IMEI                     | IMEI1:861591060034168<br>IMEI2:861591060034176          |             |               |
| Hardware Version         | P1.1                                                    |             |               |
| Software Version         | MIUI 13                                                 |             |               |
| Antenna Type             | PIFA Antenna                                            |             |               |
| Antenna Gain             | Band                                                    | Low Antenna | Upper Antenna |
|                          | WCDMA Band IV:                                          | 0.8 dBi     | -2.5 dBi      |
|                          | LTE Band 4                                              | 0.8 dBi     | -2.5 dBi      |
|                          | LTE Band 7                                              | -0.4 dBi    | -1.7 dBi      |
|                          | LTE Band 13                                             | -5.9 dBi    | -3.6 dBi      |
|                          | LTE Band 38                                             | -1.0 dBi    | -1.4 dBi      |
|                          | LTE Band 41                                             | -0.8dBi     | -1.7 dBi      |
|                          | LTE Band 66                                             | 0.7 dBi     | -3.2 dBi      |
| Test Mode(s)             | WCDMA Band IV; LTE Band 4/7/13/38/41/66;                |             |               |
| Test Modulation          | (WCDMA) BPSK, QPSK, 16QAM;<br>(LTE) QPSK, 16QAM, 64QAM; |             |               |
| HSDPA UE Category        | 4                                                       |             |               |
| HSUPA UE Category        | 5                                                       |             |               |
| LTE Category             | 5                                                       |             |               |
| Maximum E.I.R.P./ E.R.P. | WCDMA Band IV:                                          | 24.24dBm    |               |
|                          | LTE Band 4:                                             | 24.25 dBm   |               |
|                          | LTE Band 7:                                             | 23.10 dBm   |               |
|                          | LTE Band 13:                                            | 17.45 dBm   |               |
|                          | LTE Band 38:                                            | 22.41 dBm   |               |
|                          | LTE Band 41:                                            | 22.75 dBm   |               |



RF Test Report

Report No. R202306015 Rev.1

|                             |                                  |             |             |
|-----------------------------|----------------------------------|-------------|-------------|
|                             | LTE Band 66:                     | 24.14 dBm   |             |
| Rated Power Supply Voltage  | 3.85V                            |             |             |
| Operating Voltage           | Minimum: 3.65V     Maximum: 4.2V |             |             |
| Operating Temperature       | Lowest: 0°C     Highest: +40°C   |             |             |
| Testing Temperature         | Lowest: -30°C     Highest: +50°C |             |             |
| OperatingFrequency Range(s) | Mode                             | Tx (MHz)    | Rx (MHz)    |
|                             | WCDMA Band IV                    | 1710 ~ 1755 | 2110 ~ 2155 |
|                             | LTE Band 4                       | 1710 ~1755  | 2110~2155   |
|                             | LTE Band 7                       | 2500 ~ 2570 | 2620 ~ 2690 |
|                             | LTE Band 13                      | 777 ~ 787   | 746 ~ 756   |
|                             | LTE Band 38                      | 2570 ~ 2620 | 2570 ~ 2620 |
|                             | LTE Band 41                      | 2496 ~ 2690 | 2496 ~ 2690 |
|                             | LTE Band 66                      | 1710 ~ 1780 | 2110 ~ 2180 |

Note:

1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant.

2. Low antenna and Upperantenna can't transmit simultaneously.



### 3 Applied Standards

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

**Test standards:**

**FCC CFR47 Part 27C(2021)**

**FCC CFR47 Part 2 (2021)**

**Reference standard:**

**ANSI C63.26-2015**

**KDB 971168 D01 Power Meas License Digital Systems v03r01**

## 4 Test Configuration

There is more than one SIM card slot, each one should be applied throughout the compliance test respectively, and however, only the worst case (SIM 1) will be recorded in this report

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes. EUT stand-up position (Z axis), lie-down position (X, Y axis). Receiver antenna polarization (horizontal and vertical), the worst emission was found in position (X axis, vertical polarization for Upper Antenna WCDMA/LTE Band; X axis, horizontal polarization for Low Antenna WCDMA Band; X axis, vertical polarization for Low Antenna LTE Band) and the worst case was recorded.

All mode and data rates and positions and RB size and modulations were investigated.

Subsequently, only the worst case emissions are reported.

The following testing in WCDMA/LTE is set based on the maximum RF Output Power.

The following testing in different Bandwidth is set to detail in the following table:

Test modes are chosen to be reported as the worst case configuration below:

| Test items                                             | Modes/Modulation                   |
|--------------------------------------------------------|------------------------------------|
|                                                        | WCDMA Band IV                      |
| RF Power Output and Effective Isotropic Radiated Power | RMC/AMR<br>HSDPA/HSUPA<br>DC-HSDPA |
| Occupied Bandwidth                                     | RMC                                |
| Band Edge Compliance                                   | RMC                                |
| Peak-to-Average Power Ratio                            | RMC                                |
| Frequency Stability                                    | RMC                                |
| Spurious Emissions at Antenna Terminals                | RMC                                |
| Radiated Spurious Emission                             | RMC                                |



Test modes are chosen to be reported as the worst case configuration below for LTE Band

4/7/13/38/41/66:

| Test items                                             | Modes  | Bandwidth (MHz) |   |   |    |    |    | Modulation |                 | RB |     |      | Test Channel |   |   |
|--------------------------------------------------------|--------|-----------------|---|---|----|----|----|------------|-----------------|----|-----|------|--------------|---|---|
|                                                        |        | 1.4             | 3 | 5 | 10 | 15 | 20 | QPSK       | 16QAM/<br>64QAM | 1  | 50% | 100% | L            | M | H |
| RF Power Output and Effective Isotropic Radiated Power | LTE 4  | O               | O | O | O  | O  | O  | O          | O               | O  | O   | O    | O            | O | O |
|                                                        | LTE 7  | -               | - | O | O  | O  | O  | O          | O               | O  | O   | O    | O            | O | O |
|                                                        | LTE 13 | -               | - | O | O  | -  | -  | O          | O               | O  | O   | O    | O            | O | O |
|                                                        | LTE 38 | -               | - | O | O  | O  | O  | O          | O               | O  | O   | O    | O            | O | O |
|                                                        | LTE 41 | -               | - | O | O  | O  | O  | O          | O               | O  | O   | O    | O            | O | O |
|                                                        | LTE 66 | O               | O | O | O  | O  | O  | O          | O               | O  | O   | O    | O            | O | O |
| Occupied Bandwidth                                     | LTE 4  | O               | O | O | O  | O  | O  | O          | O               | -  | -   | O    | O            | O | O |
|                                                        | LTE 7  | -               | - | O | O  | O  | O  | O          | O               | -  | -   | O    | O            | O | O |
|                                                        | LTE 13 | -               | - | O | O  | -  | -  | O          | O               | -  | -   | O    | O            | O | O |
|                                                        | LTE 38 | -               | - | O | O  | O  | O  | O          | O               | -  | -   | O    | O            | O | O |
|                                                        | LTE 41 | -               | - | O | O  | O  | O  | O          | O               | -  | -   | O    | O            | O | O |
|                                                        | LTE 66 | O               | O | O | O  | O  | O  | O          | O               | O  | O   | O    | O            | O | O |
| Band Edge Compliance                                   | LTE 4  | O               | O | O | O  | O  | O  | O          | O               | O  | -   | O    | O            | - | O |
|                                                        | LTE 7  | -               | - | O | O  | O  | O  | O          | O               | O  | -   | O    | O            | - | O |
|                                                        | LTE 13 | -               | - | O | O  | -  | -  | O          | O               | O  | -   | O    | O            | - | O |
|                                                        | LTE 38 | -               | - | O | O  | O  | O  | O          | O               | O  | -   | O    | O            | - | O |
|                                                        | LTE 41 | -               | - | O | O  | O  | O  | O          | O               | O  | -   | O    | O            | - | O |
|                                                        | LTE 66 | O               | O | O | O  | O  | O  | O          | O               | O  | -   | O    | O            | O | O |
| Peak-to-Average Power Ratio                            | LTE 4  | O               | O | O | O  | O  | O  | O          | O               | -  | -   | O    | O            | O | O |
|                                                        | LTE 7  | -               | - | O | O  | O  | O  | O          | O               | -  | -   | O    | O            | O | O |
|                                                        | LTE 13 | -               | - | O | O  | -  | -  | O          | O               | -  | -   | O    | O            | O | O |
|                                                        | LTE 38 | -               | - | O | O  | O  | O  | O          | O               | -  | -   | O    | O            | O | O |
|                                                        | LTE 41 | -               | - | O | O  | O  | O  | O          | O               | -  | -   | O    | O            | O | O |
|                                                        | LTE 66 | O               | O | O | O  | O  | O  | O          | O               | -  | -   | O    | O            | O | O |
| Frequency Stability                                    | LTE 4  | O               | O | O | O  | O  | O  | O          | O               | O  | -   | -    | -            | O | - |
|                                                        | LTE 7  | -               | - | O | O  | O  | O  | O          | O               | O  | -   | -    | -            | O | - |
|                                                        | LTE 13 | -               | - | O | O  | -  | -  | O          | O               | O  | -   | -    | -            | O | - |
|                                                        | LTE 38 | -               | - | O | O  | O  | O  | O          | O               | O  | -   | -    | -            | O | - |
|                                                        | LTE 41 | -               | - | O | O  | O  | O  | O          | O               | O  | -   | -    | -            | O | - |
|                                                        | LTE 66 | O               | O | O | O  | O  | O  | O          | O               | O  | -   | -    | -            | O | - |
| Spurious Emissions at Antenna Terminals                | LTE 4  | O               | O | O | O  | O  | O  | O          | -               | O  | -   | -    | O            | O | O |
|                                                        | LTE 7  | -               | - | O | O  | O  | O  | O          | -               | O  | -   | -    | O            | O | O |
|                                                        | LTE 13 | -               | - | O | O  | -  | -  | O          | -               | O  | -   | -    | O            | O | O |
|                                                        | LTE 38 | -               | - | O | O  | O  | O  | O          | -               | O  | -   | -    | O            | O | O |
|                                                        | LTE 41 | -               | - | O | O  | O  | O  | O          | -               | O  | -   | -    | O            | O | O |



|                                  |                                                                                                                                       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|                                  | LTE 66                                                                                                                                | O | O | O | O | O | O | O | O | O | - | - | O | O | O |
| Radiated<br>Spurious<br>Emission | LTE 4                                                                                                                                 | O | - | O | - | - | O | O | - | O | - | - | - | O | - |
|                                  | LTE 7                                                                                                                                 | - | - | O | - | - | O | O | - | O | - | - | - | O | - |
|                                  | LTE 13                                                                                                                                | - | - | O | O | - | - | O | - | O | - | - | - | O | - |
|                                  | LTE 38                                                                                                                                | - | - | O | - | - | O | O | - | O | - | - | - | O | - |
|                                  | LTE 41                                                                                                                                | - | - | O | - | - | O | O | - | O | - | - | - | O | - |
|                                  | LTE 66                                                                                                                                | O | - | O | - | - | O | O | - | O | - | - | - | O | - |
| Note                             | 1. The mark "O" means that this configuration is chosen for testing.<br>2. The mark "-" means that this configuration is not testing. |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

## 5 Test Case

### 5.1 RF Power Output and Effective Isotropic Radiated Power

#### Ambient condition

| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 23°C ~25°C  | 45%~50%           | 101.5kPa |

#### Methods of Measurement

During the process of the testing, The EUT was connected to the Base Station Simulator with a known loss. The EUT is controlled by the Base Station Simulator test set to ensure max power transmission with proper modulation.

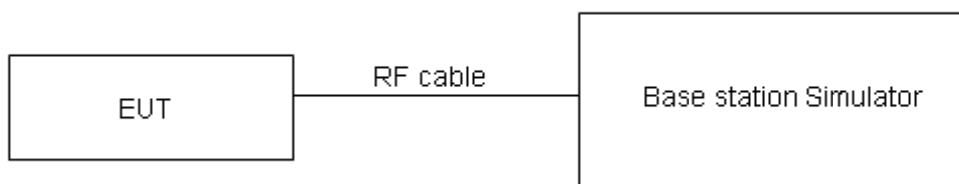
ERP can then be calculated as follows:

$EIRP \text{ (dBm)} = \text{Output Power (dBm)} + \text{Antenna Gain (dBi)}$

where:dBd refers to gain relative to an ideal dipole.

$EIRP \text{ (dBm)} = ERP \text{ (dBm)} + 2.15 \text{ (dB.)}$

#### Test Setup



#### Limits

No specific RF power output requirements in part 2.1046.

Rule Part 27.50(b) (10) specifies that “Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP”

Rule Part 27.50(d) (4) specifies that “Fixed, mobile and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP”

Rule Part 27.50(h) (2) specifies that “Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.”



|                        |                        |
|------------------------|------------------------|
| Part 27.50(b)(10)Limit | $\leq$ 3 W (34.77 dBm) |
| Part 27.50(d)(4)Limit  | $\leq$ 1 W (30 dBm)    |
| Part 27.50(h)(2) Limit | $\leq$ 2 W (33 dBm)    |

### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 2$ ,  $U=0.4$  dB for RF power output,  $k = 2$ ,  $U= 1.19$  dB for ERP/EIRP.

### Test Results

Refer to the section 6.1 of this report for test data.

## 5.2 Occupied Bandwidth

### Ambient condition

| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 23°C ~25°C  | 45%~50%           | 101.5kPa |

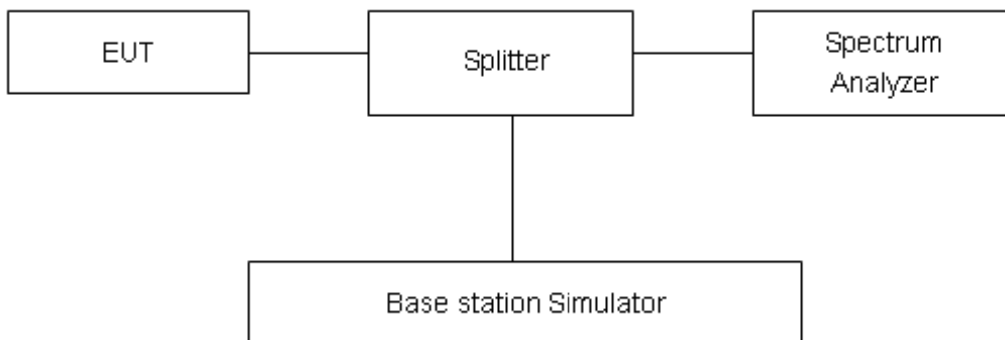
### Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The occupied bandwidth is measured using spectrum analyzer.

RBW is set to  $\geq 1\%$ EBW, VBW is set to 3x RBW.

99% power and -26dBc occupied bandwidths are recorded. Spectrum analyzer plots are included on the following pages.

### Test Setup



### Limits

No specific occupied bandwidth requirements in part 2.1049.

### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 2$ ,  $U=624\text{Hz}$ .

### Test Results

Refer to the section 6.2 of this report for test data.

### 5.3 Band Edge Compliance

#### Ambient condition

| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 23°C ~25°C  | 45%~50%           | 101.5kPa |

#### Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The band edge of the lowest and highest channels were measured.

The testing follows KDB 971168 D01v03r01 Section 6.0

The EUT was connected to spectrum analyzer and system simulator via a power divider.

The band edges of low and high channels for the highest RF powers were measured.

For LTE Band 7/38 set RBW  $\geq$  1% EBW in the 1MHz band immediately outside and adjacent to the band edge.Beyond the 1 MHz band from the band edge, RBW=1MHz was used.

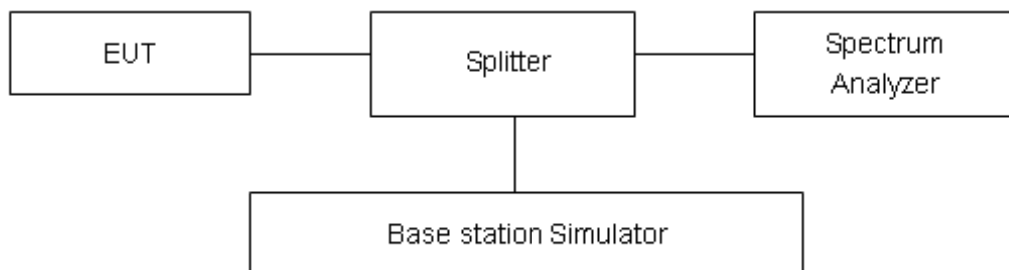
For LTE Band 41 the middle channel, high channel set RBW  $\geq$  1% EBW in the 1MHz band immediately outside and adjacent to the band edge.Beyond the 1 MHz band from the band edge, RBW=1MHz was used; Low channel set RBW  $\geq$  2% EBW in the 1MHz band immediately outside and adjacent to the band edge.Beyond the 1 MHz band from the band edge, RBW=1MHz was used. RBW is set to  $\geq$ 1%EBW, VBW is set to 3x RBW on spectrum analyzer.

Set spectrum analyzer with RMS detector.

The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

Checked that all the results comply with the emission limit line.

#### Test Setup



#### Limits

Rule Part 27.53(i) By a factor of not less than  $43 + 10 \log (P)$  dB on all frequencies between 2305 and 2320 MHz.

Rule Part 27.53(h) specifies that “ 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 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  $43 + 10 \log_{10} (P)$  dB”



Rule Part 27.53(m) (4) specifies that “for BRS and EBS stations. For mobile digital stations, the attenuation factor shall be not less than  $40 + 10 \log (P)$  dB on all frequencies between the channel edge and 5 megahertz from the channel edge,  $43 + 10 \log (P)$  dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and  $55 + 10 \log (P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(4) of this section. In addition, the attenuation factor shall not be less than  $43 + 10 \log (P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log (P)$  dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Example:

The limit line is derived from  $43 + 10 \log (P)$  dB below the transmitter power P(Watts)

$$= P(W) - [43 + 10 \log (P)] \text{ (dB)}$$

$$= [30 + 10 \log (P)] \text{ (dBm)} - [43 + 10 \log (P)] \text{ (dB)} = -13 \text{ dBm.}$$

Rule Part 27.53(f) For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to  $-70$  dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and  $-80$  dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

Rule Part 27.53 (c) For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

- (1) On any frequency outside the 746-758 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;
- (2) 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;
- (3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than  $76 + 10 \log (P)$  dB in a 6.25 kHz band segment, for base and fixed stations;
- (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;
- (5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;



### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 1.96$ ,  $U=0.684\text{dB}$ .

### Test Results

Refer to the section 6.3 of this report for test data.

## 5.4 Peak-to-Average Power Ratio (PAPR)

### Ambient condition

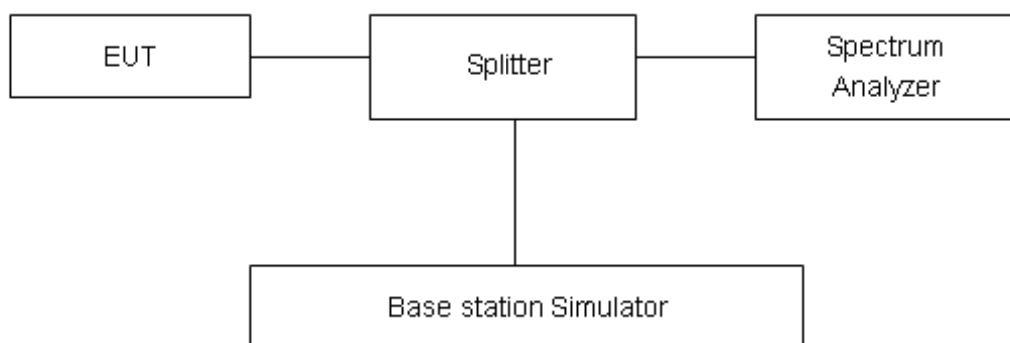
| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 23°C ~25°C  | 45%~50%           | 101.5kPa |

### Methods of Measurement

Measure the total peak power and record as PPk. And measure the total average power and record as PAvg. Both the peak and average power levels must be expressed in the same logarithmic units (e.g., dBm). Determine the PAPR from:

$$\text{PAPR (dB)} = \text{PPk (dBm)} - \text{PAvg (dBm)}.$$

### Test Setup



### Limits

Rule Part 27.50(d)(5) Equipment employed must be authorized in accordance with the provisions of 24.51. Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (d)(6) of this section. 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.

### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 2$ ,  $U = 0.4$  dB.

### Test Results

Refer to the section 6.4 of this report for test data.

## 5.5 Frequency Stability

### Ambient condition

| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 23°C ~25°C  | 45%~50%           | 101.5kPa |

### Method of Measurement

#### Frequency Stability (Temperature Variation)

The temperature inside the climate chamber is varied from -30°C to +50°C in 10°C step size.

- (1)With all power removed, the temperature was decreased to -10°C and permitted to stabilize for three hours.
- (2)Measure the carrier frequency with the test equipment in a “call mode”. These measurements should be made within 1 minute of powering up the mobile station, to prevent significant self warming.
- (3) Repeat the above measurements at 10°C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

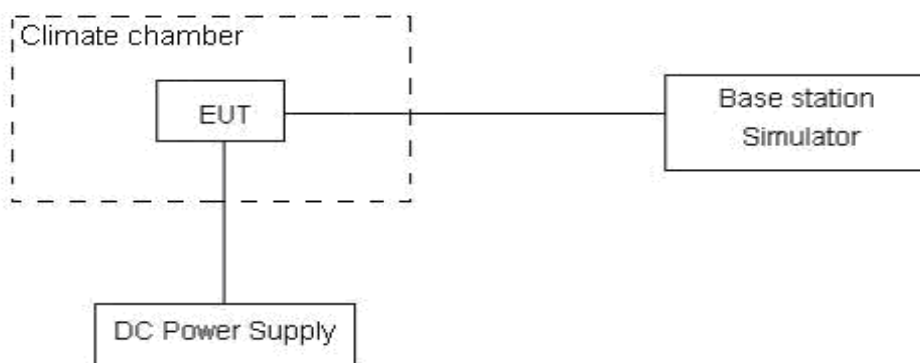
#### Frequency Stability (Voltage Variation)

The frequency stability shall be measured with variation of primary supply voltage as follows:

**Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

This transceiver is specified to operate with an input voltage of between 3.65 V and 4.20 V, with a nominal voltage of 3.85V.

### Test setup



### Limits

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

### Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor  $k = 3$ ,  $U = 0.01\text{ppm}$ .

### Test Results

Refer to the section 6.5 of this report for test data.

## 5.6 Spurious Emissions at Antenna Terminals

### Ambient condition

| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 23°C ~25°C  | 45%~50%           | 101.5kPa |

### Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 9 kHz to the 10th harmonic of the carrier. The peak detector is used.

RBW is set to 1 kHz (0.009 MHz ~ 0.15 MHz),

RBW is set to 10 kHz (0.15 MHz ~ 30 MHz)

RBW is set to 100 kHz (30 MHz ~ 1000 MHz)

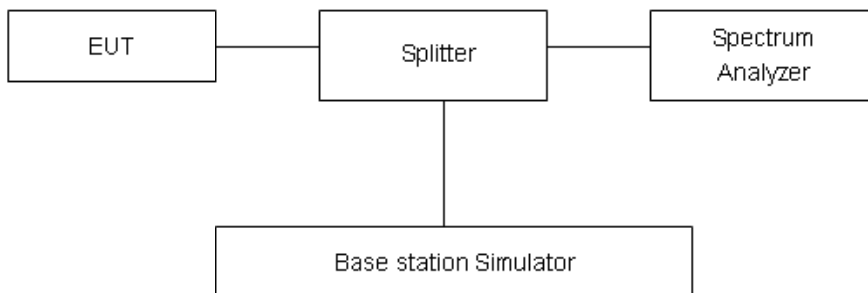
RBW is set to 1000 kHz (above 1000 MHz)

Sweep is set to ATUO.

Of those disturbances below (limit – 20 dB), the mark is not required for the EUT.

The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

### Test setup



### Limits

Rule Part 27.53(h) specifies that “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 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  $43 + 10 \log_{10}(P)$  dB.”

Rule Part 27.53(f) For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to –70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and –80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

Rule Part 27.53(m)  $55 + 10 \log(P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(4) of this section.

Part 27.53 (c) For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

- (1) On any frequency outside the 746-758 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;
- (2) 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;
- (3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than  $76 + 10 \log (P)$  dB in a 6.25 kHz band segment, for base and fixed stations;
- (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;
- (5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;

|                     |                                     |         |
|---------------------|-------------------------------------|---------|
| Part 27.53(h) Limit |                                     | -13 dBm |
| Part 27.53(f) Limit | Limit out of the band 1559-1610 MHz | -13 dBm |
|                     | Limit in the band 1559-1610 MHz     | -40 dBm |
| Part 27.53(m) Limit |                                     | -25 dBm |

## Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor  $k = 1.96$ .

| Frequency  | Uncertainty |
|------------|-------------|
| 9kHz-1GHz  | 0.684 dB    |
| 1GHz-30GHz | 1.407 dB    |

## Test Results

Refer to the section 6.6 of this report for test data.



## 5.7 Radiated Spurious Emission

### Ambient condition

| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 23°C ~25°C  | 45%~50%           | 101.5kPa |

### Method of Measurement

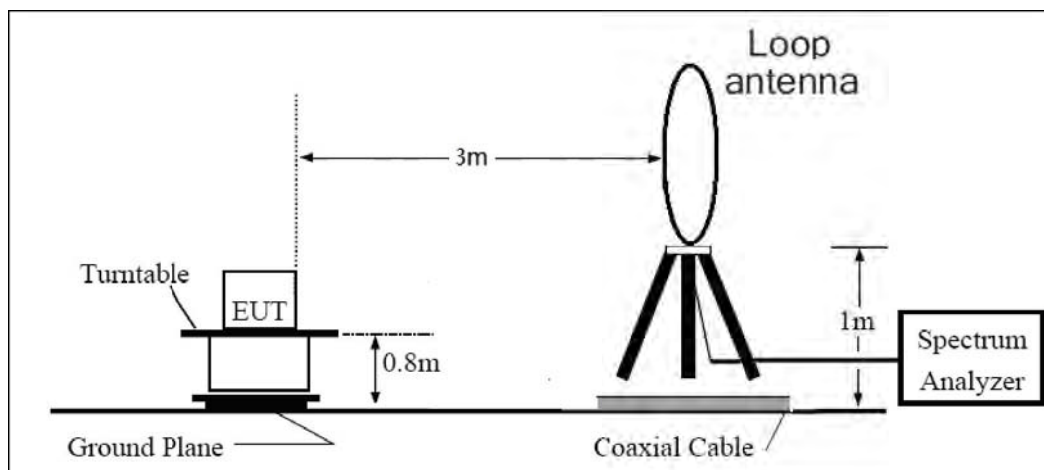
1. The testing follows FCC KDB 971168 D01 v03r01 Section 5.8 and ANSI C63.26-2015.
2. Below 1GHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H). Above 1GHz: (Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.) The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).
3. A loop antenna, A log-periodic antenna or horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
4. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=100kHz, VBW=300kHz for 30MHz to 1GHz and RBW=1MHz, VBW=3MHz for above 1GHz, and the maximum value of the receiver should be recorded as (Pr).
5. The EUT shall be replaced by a substitution antenna. In the chamber, a substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
6. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl), the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
7. The measurement results are obtained as described below:  
$$\text{Power(EIRP)} = \text{PMea} - \text{PAg} - \text{Pcl} + \text{Ga}$$
  
The measurement results are amend as described below:  
$$\text{Power(EIRP)} = \text{PMea} - \text{Pcl} + \text{Ga}$$
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dB) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole,  $\text{ERP} =$

EIRP-2.15dB.

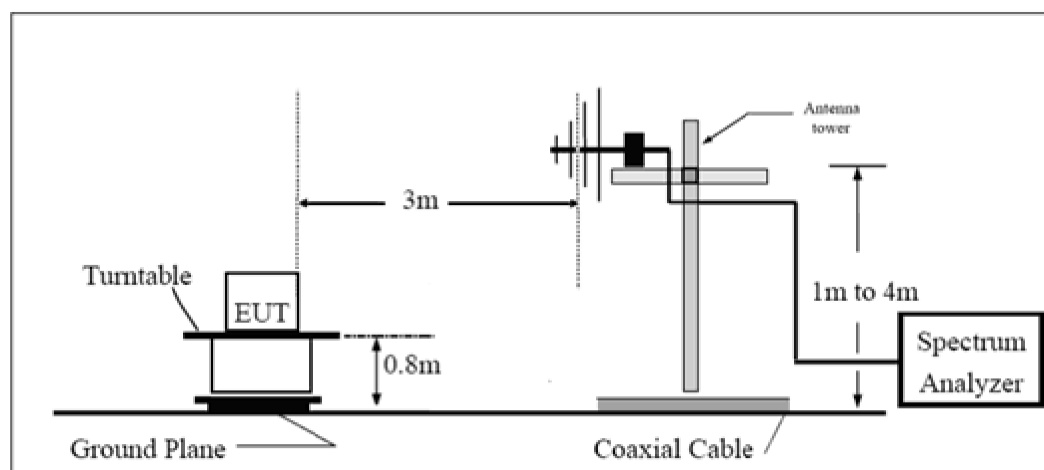
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

### Test setup

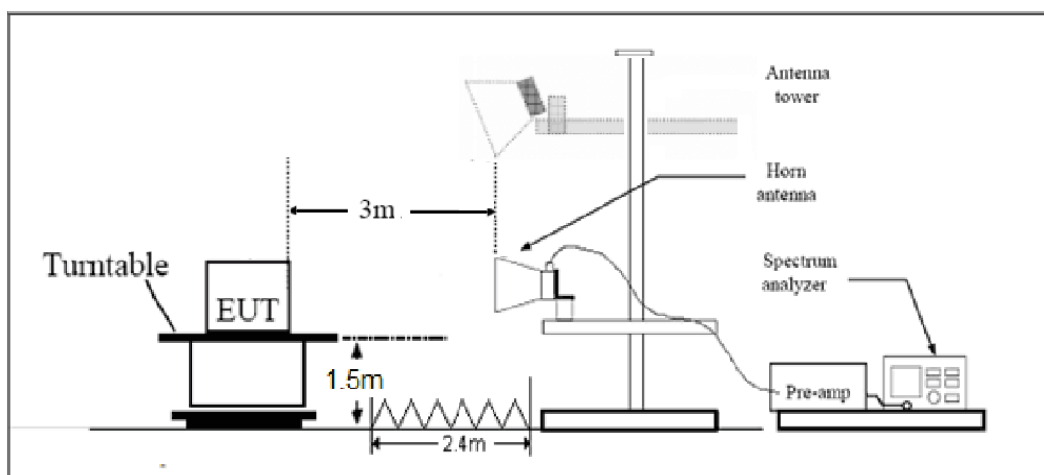
9KHz~ 30MHz



30MHz~ 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m



## Limits

Rule Part 27.53(h) specifies that “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 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  $43 + 10 \log_{10}(P)$  dB.”

Rule Part 27.53(m)  $55 + 10 \log(P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(4) of this section.

Rule Part 27.53(f) For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to  $-70$  dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and  $-80$  dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

Part 27.53 (c) For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

- (1) On any frequency outside the 746-758 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;
- (2) 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;
- (3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than  $76 + 10 \log(P)$  dB in a 6.25 kHz band segment, for base and fixed stations;
- (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;
- (5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;

|                          |                                     |         |
|--------------------------|-------------------------------------|---------|
| Part 27.53 (h)/(g) Limit |                                     | -13 dBm |
| Part 27.53(f) Limit      | Limit out of the band 1559-1610 MHz | -13 dBm |
|                          | Limit in the band 1559-1610 MHz     | -40 dBm |
| Part 27.53(m) Limit      |                                     | -25 dBm |

## Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = \pm 1.96$ ,  $U = \pm 3.55$  dB.

## Test Results

Refer to the section 6.7 of this report for test data.



## 6 Test Results

### 6.1 RF Power Output and Effective Isotropic Radiated Power

| WCDMA Band IV<br>Low Antenna |           | Maximum Output Power (dBm) |             |             | EIRP (dBm)             |             |             |
|------------------------------|-----------|----------------------------|-------------|-------------|------------------------|-------------|-------------|
|                              |           | Channel/Frequency(MHz)     |             |             | Channel/Frequency(MHz) |             |             |
|                              |           | 1312/1712.4                | 1413/1732.6 | 1513/1752.6 | 1312/1712.4            | 1413/1732.6 | 1513/1752.6 |
| RMC                          | 12.2k     | 23.30                      | 23.40       | 23.31       | 24.00                  | 24.10       | 24.01       |
| AMR                          | 12.2k     | 23.36                      | 23.54       | 23.15       | 24.06                  | 24.24       | 23.85       |
| HSDPA                        | Subtest 1 | 22.18                      | 22.50       | 22.23       | 22.88                  | 23.20       | 22.93       |
|                              | Subtest 2 | 22.38                      | 22.56       | 22.27       | 23.08                  | 23.26       | 22.97       |
|                              | Subtest 3 | 21.76                      | 21.98       | 21.69       | 22.46                  | 22.68       | 22.39       |
|                              | Subtest 4 | 21.84                      | 22.00       | 21.85       | 22.54                  | 22.70       | 22.55       |
| HSUPA                        | Subtest 1 | 20.72                      | 20.86       | 20.69       | 21.42                  | 21.56       | 21.39       |
|                              | Subtest 2 | 20.20                      | 20.48       | 20.29       | 20.90                  | 21.18       | 20.99       |
|                              | Subtest 3 | 20.66                      | 20.74       | 20.71       | 21.36                  | 21.44       | 21.41       |
|                              | Subtest 4 | 19.80                      | 19.80       | 19.81       | 20.50                  | 20.50       | 20.51       |
|                              | Subtest 5 | 21.18                      | 21.50       | 21.43       | 21.88                  | 22.20       | 22.13       |
| DC-HSDPA                     | Subtest 1 | 22.28                      | 22.50       | 22.33       | 22.98                  | 23.20       | 23.03       |
|                              | Subtest 2 | 22.36                      | 22.40       | 22.45       | 23.06                  | 23.10       | 23.15       |
|                              | Subtest 3 | 21.92                      | 21.76       | 21.71       | 22.62                  | 22.46       | 22.41       |
|                              | Subtest 4 | 21.66                      | 21.80       | 21.75       | 22.36                  | 22.50       | 22.45       |

| WCDMA Band IV<br>Upper Antenna |           | Maximum Output Power (dBm) |              |             | EIRP (dBm)             |             |             |
|--------------------------------|-----------|----------------------------|--------------|-------------|------------------------|-------------|-------------|
|                                |           | Channel/Frequency(MHz)     |              |             | Channel/Frequency(MHz) |             |             |
|                                |           | 1312/1712.4                | 1413/1732.6  | 1513/1752.6 | 1312/1712.4            | 1413/1732.6 | 1513/1752.6 |
| RMC                            | 12.2k     | 23.37                      | <b>23.47</b> | 23.36       | 20.17                  | 20.27       | 20.16       |
| AMR                            | 12.2k     | 23.29                      | 23.55        | 23.36       | 20.09                  | 20.35       | 20.16       |
| HSDPA                          | Subtest 1 | 22.35                      | 22.45        | 22.36       | 19.15                  | 19.25       | 19.16       |
|                                | Subtest 2 | 22.35                      | 22.45        | 22.22       | 19.15                  | 19.25       | 19.02       |
|                                | Subtest 3 | 21.83                      | 21.85        | 21.88       | 18.63                  | 18.65       | 18.68       |
|                                | Subtest 4 | 21.89                      | 21.81        | 21.98       | 18.69                  | 18.61       | 18.78       |
| HSUPA                          | Subtest 1 | 20.87                      | 21.13        | 20.98       | 17.67                  | 17.93       | 17.78       |
|                                | Subtest 2 | 20.35                      | 20.33        | 20.32       | 17.15                  | 17.13       | 17.12       |
|                                | Subtest 3 | 20.77                      | 21.05        | 20.74       | 17.57                  | 17.85       | 17.54       |
|                                | Subtest 4 | 19.77                      | 19.89        | 19.86       | 16.57                  | 16.69       | 16.66       |
|                                | Subtest 5 | 21.37                      | 21.47        | 21.50       | 18.17                  | 18.27       | 18.30       |
| DC-HSDPA                       | Subtest 1 | 22.21                      | 22.49        | 22.24       | 19.01                  | 19.29       | 19.04       |
|                                | Subtest 2 | 22.35                      | 22.33        | 22.36       | 19.15                  | 19.13       | 19.16       |
|                                | Subtest 3 | 21.91                      | 22.03        | 21.94       | 18.71                  | 18.83       | 18.74       |
|                                | Subtest 4 | 22.03                      | 22.13        | 21.80       | 18.83                  | 18.93       | 18.60       |



| LTE Band 4Low Antenna |            |               |               | Maximum Output Power (dBm) |                        |               | EIRP (dBm)             |                        |               |               |
|-----------------------|------------|---------------|---------------|----------------------------|------------------------|---------------|------------------------|------------------------|---------------|---------------|
| Bandwidth             | Modulation | RB allocation | offset        | Channel/Frequency(MHz)     |                        |               | Channel/Frequency(MHz) |                        |               |               |
|                       |            |               |               | 19957 /1710.7              | 20175/ 1732.5          | 20393/ 1754.3 | 19957/ 1710.7          | 20175/ 1732.5          | 20393/ 1754.3 |               |
| 1.4MHz                | QPSK       | 1             | 0             | 23.23                      | 23.29                  | 23.23         | 24.03                  | 24.09                  | 24.03         |               |
|                       |            | 1             | 2             | 23.44                      | 23.40                  | 23.40         | 24.24                  | 24.20                  | 24.20         |               |
|                       |            | 1             | 5             | 23.06                      | 23.08                  | 23.13         | 23.86                  | 23.88                  | 23.93         |               |
|                       |            | 3             | 0             | 23.29                      | 23.32                  | 23.39         | 24.09                  | 24.12                  | 24.19         |               |
|                       |            | 3             | 2             | 23.32                      | 23.34                  | 23.36         | 24.12                  | 24.14                  | 24.16         |               |
|                       |            | 3             | 3             | 23.31                      | 23.19                  | 23.24         | 24.11                  | 23.99                  | 24.04         |               |
|                       |            | 6             | 0             | 22.38                      | 22.35                  | 22.39         | 23.18                  | 23.15                  | 23.19         |               |
|                       | 16QAM      | 1             | 0             | 22.66                      | 22.64                  | 22.62         | 23.46                  | 23.44                  | 23.42         |               |
|                       |            | 1             | 2             | 22.89                      | 22.80                  | 22.76         | 23.69                  | 23.60                  | 23.56         |               |
|                       |            | 1             | 5             | 22.46                      | 22.42                  | 22.47         | 23.26                  | 23.22                  | 23.27         |               |
|                       |            | 3             | 0             | 22.29                      | 22.30                  | 22.36         | 23.09                  | 23.10                  | 23.16         |               |
|                       |            | 3             | 2             | 22.41                      | 22.34                  | 22.38         | 23.21                  | 23.14                  | 23.18         |               |
|                       |            | 3             | 3             | 22.29                      | 22.23                  | 22.20         | 23.09                  | 23.03                  | 23.00         |               |
|                       |            | 6             | 0             | 21.38                      | 21.36                  | 21.38         | 22.18                  | 22.16                  | 22.18         |               |
|                       | 64QAM      | 1             | 0             | 21.53                      | 21.45                  | 21.56         | 22.33                  | 22.25                  | 22.36         |               |
|                       |            | 1             | 2             | 21.71                      | 21.60                  | 21.67         | 22.51                  | 22.40                  | 22.47         |               |
|                       |            | 1             | 5             | 21.22                      | 21.30                  | 21.39         | 22.02                  | 22.10                  | 22.19         |               |
|                       |            | 3             | 0             | 21.24                      | 21.29                  | 21.39         | 22.04                  | 22.09                  | 22.19         |               |
|                       |            | 3             | 2             | 21.37                      | 21.32                  | 21.37         | 22.17                  | 22.12                  | 22.17         |               |
|                       |            | 3             | 3             | 21.27                      | 21.23                  | 21.22         | 22.07                  | 22.03                  | 22.02         |               |
|                       |            | 6             | 0             | 20.36                      | 20.32                  | 20.37         | 21.16                  | 21.12                  | 21.17         |               |
|                       | Bandwidth  | Modulation    | RB allocation | offset                     | Channel/Frequency(MHz) |               |                        | Channel/Frequency(MHz) |               |               |
|                       |            |               |               |                            | 19965/ 1711.5          | 20175/ 1732.5 | 20385/ 1753.5          | 19965/ 1711.5          | 20175/ 1732.5 | 20385/ 1753.5 |
|                       | 3MHz       | QPSK          | 1             | 0                          | 23.25                  | 23.33         | 23.26                  | 24.05                  | 24.13         | 24.06         |
| 1                     |            |               | 7             | 23.42                      | 23.43                  | 23.44         | 24.22                  | 24.23                  | 24.24         |               |
| 1                     |            |               | 14            | 23.09                      | 23.13                  | 23.17         | 23.89                  | 23.93                  | 23.97         |               |
| 8                     |            |               | 0             | 22.39                      | 22.44                  | 22.52         | 23.19                  | 23.24                  | 23.32         |               |
| 8                     |            |               | 4             | 22.44                      | 22.44                  | 22.48         | 23.24                  | 23.24                  | 23.28         |               |
| 8                     |            |               | 7             | 22.41                      | 22.30                  | 22.34         | 23.21                  | 23.10                  | 23.14         |               |
| 15                    |            |               | 0             | 22.38                      | 22.39                  | 22.42         | 23.18                  | 23.19                  | 23.22         |               |
| 16QAM                 |            | 1             | 0             | 22.66                      | 22.66                  | 22.65         | 23.46                  | 23.46                  | 23.45         |               |
|                       |            | 1             | 7             | 22.89                      | 22.80                  | 22.80         | 23.69                  | 23.60                  | 23.60         |               |
|                       |            | 1             | 14            | 22.48                      | 22.46                  | 22.50         | 23.28                  | 23.26                  | 23.30         |               |
|                       |            | 8             | 0             | 21.40                      | 21.43                  | 21.48         | 22.20                  | 22.23                  | 22.28         |               |
|                       |            | 8             | 4             | 21.52                      | 21.47                  | 21.50         | 22.32                  | 22.27                  | 22.30         |               |
|                       |            | 8             | 7             | 21.39                      | 21.35                  | 21.33         | 22.19                  | 22.15                  | 22.13         |               |
|                       |            | 15            | 0             | 21.41                      | 21.40                  | 21.41         | 22.21                  | 22.20                  | 22.21         |               |



|           | 64QAM      | 1             | 0      | 21.56                  | 21.47            | 21.59            | 22.36                  | 22.27            | 22.39            |
|-----------|------------|---------------|--------|------------------------|------------------|------------------|------------------------|------------------|------------------|
|           |            | 1             | 7      | 21.74                  | 21.60            | 21.69            | 22.54                  | 22.40            | 22.49            |
|           |            | 1             | 14     | 21.24                  | 21.29            | 21.42            | 22.04                  | 22.09            | 22.22            |
|           |            | 8             | 0      | 20.35                  | 20.42            | 20.51            | 21.15                  | 21.22            | 21.31            |
|           |            | 8             | 4      | 20.48                  | 20.45            | 20.49            | 21.28                  | 21.25            | 21.29            |
|           |            | 8             | 7      | 20.37                  | 20.35            | 20.35            | 21.17                  | 21.15            | 21.15            |
|           |            | 15            | 0      | 20.39                  | 20.36            | 20.40            | 21.19                  | 21.16            | 21.20            |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                  |                  | Channel/Frequency(MHz) |                  |                  |
|           |            |               |        | 19975/<br>1712.5       | 20175/<br>1732.5 | 20375/<br>1752.5 | 19975/<br>1712.5       | 20175/<br>1732.5 | 20375/<br>1752.5 |
| 5MHz      | QPSK       | 1             | 0      | 23.22                  | 23.31            | 23.22            | 24.02                  | 24.11            | 24.02            |
|           |            | 1             | 13     | 23.40                  | 23.39            | 23.41            | 24.20                  | 24.19            | 24.21            |
|           |            | 1             | 24     | 23.06                  | 23.08            | 23.13            | 23.86                  | 23.88            | 23.93            |
|           |            | 12            | 0      | 22.36                  | 22.39            | 22.48            | 23.16                  | 23.19            | 23.28            |
|           |            | 12            | 6      | 22.42                  | 22.40            | 22.43            | 23.22                  | 23.20            | 23.23            |
|           |            | 12            | 13     | 22.39                  | 22.28            | 22.30            | 23.19                  | 23.08            | 23.10            |
|           |            | 25            | 0      | 22.38                  | 22.38            | 22.40            | 23.18                  | 23.18            | 23.20            |
|           | 16QAM      | 1             | 0      | 22.66                  | 22.62            | 22.62            | 23.46                  | 23.42            | 23.42            |
|           |            | 1             | 13     | 22.89                  | 22.78            | 22.77            | 23.69                  | 23.58            | 23.57            |
|           |            | 1             | 24     | 22.45                  | 22.44            | 22.46            | 23.25                  | 23.24            | 23.26            |
|           |            | 12            | 0      | 21.38                  | 21.39            | 21.45            | 22.18                  | 22.19            | 22.25            |
|           |            | 12            | 6      | 21.49                  | 21.42            | 21.46            | 22.29                  | 22.22            | 22.26            |
|           |            | 12            | 13     | 21.36                  | 21.30            | 21.29            | 22.16                  | 22.10            | 22.09            |
|           |            | 25            | 0      | 21.39                  | 21.36            | 21.36            | 22.19                  | 22.16            | 22.16            |
|           | 64QAM      | 1             | 0      | 21.53                  | 21.47            | 21.56            | 22.33                  | 22.27            | 22.36            |
|           |            | 1             | 13     | 21.71                  | 21.62            | 21.66            | 22.51                  | 22.42            | 22.46            |
|           |            | 1             | 24     | 21.25                  | 21.27            | 21.38            | 22.05                  | 22.07            | 22.18            |
|           |            | 12            | 0      | 20.33                  | 20.38            | 20.52            | 21.13                  | 21.18            | 21.32            |
|           |            | 12            | 6      | 20.45                  | 20.40            | 20.45            | 21.25                  | 21.20            | 21.25            |
|           |            | 12            | 13     | 20.34                  | 20.30            | 20.31            | 21.14                  | 21.10            | 21.11            |
|           |            | 25            | 0      | 20.37                  | 20.32            | 20.35            | 21.17                  | 21.12            | 21.15            |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                  |                  | Channel/Frequency(MHz) |                  |                  |
|           |            |               |        | 20000/<br>1715         | 20175/<br>1732.5 | 20350/<br>1750   | 20000/<br>1715         | 20175/<br>1732.5 | 20350/<br>1750   |
| 10MHz     | QPSK       | 1             | 0      | 23.24                  | 23.32            | 23.25            | 24.04                  | 24.12            | 24.05            |
|           |            | 1             | 25     | 23.43                  | 23.44            | 23.45            | 24.23                  | 24.24            | 24.25            |
|           |            | 1             | 49     | 23.08                  | 23.12            | 23.16            | 23.88                  | 23.92            | 23.96            |
|           |            | 25            | 0      | 22.39                  | 22.44            | 22.52            | 23.19                  | 23.24            | 23.32            |
|           |            | 25            | 13     | 22.45                  | 22.45            | 22.47            | 23.25                  | 23.25            | 23.27            |
|           |            | 25            | 25     | 22.41                  | 22.32            | 22.35            | 23.21                  | 23.12            | 23.15            |
|           |            | 50            | 0      | 22.42                  | 22.40            | 22.44            | 23.22                  | 23.20            | 23.24            |
|           | 16QAM      | 1             | 0      | 22.70                  | 22.65            | 22.64            | 23.50                  | 23.45            | 23.44            |
|           |            | 1             | 25     | 22.93                  | 22.82            | 22.80            | 23.73                  | 23.62            | 23.60            |



|           |            | 1             | 49     | 22.48                  | 22.46            | 22.49            | 23.28                  | 23.26            | 23.29            |
|-----------|------------|---------------|--------|------------------------|------------------|------------------|------------------------|------------------|------------------|
|           |            | 25            | 0      | 21.41                  | 21.44            | 21.49            | 22.21                  | 22.24            | 22.29            |
|           |            | 25            | 13     | 21.51                  | 21.46            | 21.49            | 22.31                  | 22.26            | 22.29            |
|           |            | 25            | 25     | 21.39                  | 21.35            | 21.33            | 22.19                  | 22.15            | 22.13            |
|           |            | 50            | 0      | 21.42                  | 21.41            | 21.40            | 22.22                  | 22.21            | 22.20            |
|           | 64QAM      | 1             | 0      | 21.55                  | 21.46            | 21.58            | 22.35                  | 22.26            | 22.38            |
|           |            | 1             | 25     | 21.74                  | 21.62            | 21.69            | 22.54                  | 22.42            | 22.49            |
|           |            | 1             | 49     | 21.24                  | 21.29            | 21.41            | 22.04                  | 22.09            | 22.21            |
|           |            | 25            | 0      | 20.36                  | 20.43            | 20.52            | 21.16                  | 21.23            | 21.32            |
|           |            | 25            | 13     | 20.47                  | 20.44            | 20.48            | 21.27                  | 21.24            | 21.28            |
|           |            | 25            | 25     | 20.37                  | 20.35            | 20.35            | 21.17                  | 21.15            | 21.15            |
|           |            | 50            | 0      | 20.40                  | 20.37            | 20.39            | 21.20                  | 21.17            | 21.19            |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                  |                  | Channel/Frequency(MHz) |                  |                  |
|           |            |               |        | 20025/<br>1717.5       | 20175/<br>1732.5 | 20325/<br>1747.5 | 20025/<br>1717.5       | 20175/<br>1732.5 | 20325/<br>1747.5 |
| 15MHz     | QPSK       | 1             | 0      | 23.23                  | 23.28            | 23.23            | 24.03                  | 24.08            | 24.03            |
|           |            | 1             | 38     | 23.41                  | 23.43            | 23.42            | 24.21                  | 24.23            | 24.22            |
|           |            | 1             | 74     | 23.05                  | 23.07            | 23.12            | 23.85                  | 23.87            | 23.92            |
|           |            | 36            | 0      | 22.37                  | 22.40            | 22.49            | 23.17                  | 23.20            | 23.29            |
|           |            | 36            | 18     | 22.42                  | 22.40            | 22.43            | 23.22                  | 23.20            | 23.23            |
|           |            | 36            | 39     | 22.38                  | 22.29            | 22.31            | 23.18                  | 23.09            | 23.11            |
|           |            | 75            | 0      | 22.40                  | 22.36            | 22.39            | 23.20                  | 23.16            | 23.19            |
|           | 16QAM      | 1             | 0      | 22.68                  | 22.63            | 22.62            | 23.48                  | 23.43            | 23.42            |
|           |            | 1             | 38     | 22.91                  | 22.79            | 22.78            | 23.71                  | 23.59            | 23.58            |
|           |            | 1             | 74     | 22.46                  | 22.42            | 22.46            | 23.26                  | 23.22            | 23.26            |
|           |            | 36            | 0      | 21.38                  | 21.42            | 21.46            | 22.18                  | 22.22            | 22.26            |
|           |            | 36            | 18     | 21.48                  | 21.41            | 21.45            | 22.28                  | 22.21            | 22.25            |
|           |            | 36            | 39     | 21.37                  | 21.31            | 21.30            | 22.17                  | 22.11            | 22.10            |
|           |            | 75            | 0      | 21.39                  | 21.36            | 21.36            | 22.19                  | 22.16            | 22.16            |
|           | 64QAM      | 1             | 0      | 21.50                  | 21.44            | 21.56            | 22.30                  | 22.24            | 22.36            |
|           |            | 1             | 38     | 21.72                  | 21.59            | 21.67            | 22.52                  | 22.39            | 22.47            |
|           |            | 1             | 74     | 21.25                  | 21.28            | 21.42            | 22.05                  | 22.08            | 22.22            |
|           |            | 36            | 0      | 20.35                  | 20.45            | 20.53            | 21.15                  | 21.25            | 21.33            |
|           |            | 36            | 18     | 20.45                  | 20.41            | 20.47            | 21.25                  | 21.21            | 21.27            |
|           |            | 36            | 39     | 20.35                  | 20.31            | 20.32            | 21.15                  | 21.11            | 21.12            |
|           |            | 75            | 0      | 20.37                  | 20.32            | 20.35            | 21.17                  | 21.12            | 21.15            |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                  |                  | Channel/Frequency(MHz) |                  |                  |
|           |            |               |        | 20050/<br>1720         | 20175/<br>1732.5 | 20300/<br>1745   | 20050/<br>1720         | 20175/<br>1732.5 | 20300/<br>1745   |
| 20MHz     | QPSK       | 1             | 0      | 23.20                  | 23.24            | 23.20            | 24.00                  | 24.04            | 24.00            |
|           |            | 1             | 50     | 23.40                  | 23.39            | 23.40            | 24.20                  | 24.19            | 24.20            |
|           |            | 1             | 99     | 23.03                  | 23.06            | 23.09            | 23.83                  | 23.86            | 23.89            |
|           |            | 50            | 0      | 22.34                  | 22.35            | 22.45            | 23.14                  | 23.15            | 23.25            |



|  |       |     |    |       |       |       |       |       |       |
|--|-------|-----|----|-------|-------|-------|-------|-------|-------|
|  |       | 50  | 25 | 22.40 | 22.36 | 22.40 | 23.20 | 23.16 | 23.20 |
|  |       | 50  | 50 | 22.35 | 22.24 | 22.27 | 23.15 | 23.04 | 23.07 |
|  |       | 100 | 0  | 22.37 | 22.31 | 22.35 | 23.17 | 23.11 | 23.15 |
|  | 16QAM | 1   | 0  | 22.65 | 22.59 | 22.57 | 23.45 | 23.39 | 23.37 |
|  |       | 1   | 50 | 22.88 | 22.77 | 22.74 | 23.68 | 23.57 | 23.54 |
|  |       | 1   | 99 | 22.43 | 22.39 | 22.44 | 23.23 | 23.19 | 23.24 |
|  |       | 50  | 0  | 21.35 | 21.38 | 21.43 | 22.15 | 22.18 | 22.23 |
|  |       | 50  | 25 | 21.45 | 21.39 | 21.42 | 22.25 | 22.19 | 22.22 |
|  |       | 50  | 50 | 21.34 | 21.26 | 21.26 | 22.14 | 22.06 | 22.06 |
|  |       | 100 | 0  | 21.37 | 21.32 | 21.33 | 22.17 | 22.12 | 22.13 |
|  | 64QAM | 1   | 0  | 21.48 | 21.40 | 21.51 | 22.28 | 22.20 | 22.31 |
|  |       | 1   | 50 | 21.68 | 21.57 | 21.63 | 22.48 | 22.37 | 22.43 |
|  |       | 1   | 99 | 21.19 | 21.22 | 21.36 | 21.99 | 22.02 | 22.16 |
|  |       | 50  | 0  | 20.30 | 20.37 | 20.46 | 21.10 | 21.17 | 21.26 |
|  |       | 50  | 25 | 20.41 | 20.37 | 20.41 | 21.21 | 21.17 | 21.21 |
|  |       | 50  | 50 | 20.32 | 20.26 | 20.28 | 21.12 | 21.06 | 21.08 |
|  |       | 100 | 0  | 20.35 | 20.28 | 20.32 | 21.15 | 21.08 | 21.12 |

| LTE Band 4Upper Antenna |            |               |        | Maximum Output Power (dBm) |                  |                  | EIRP (dBm)             |                  |                  |
|-------------------------|------------|---------------|--------|----------------------------|------------------|------------------|------------------------|------------------|------------------|
| Bandwidth               | Modulation | RB allocation | offset | Channel/Frequency(MHz)     |                  |                  | Channel/Frequency(MHz) |                  |                  |
|                         |            |               |        | 19957/<br>1710.7           | 20175/<br>1732.5 | 20393/<br>1754.3 | 19957/<br>1710.7       | 20175/<br>1732.5 | 20393/<br>1754.3 |
| 1.4MHz                  | QPSK       | 1             | 0      | 23.37                      | 23.38            | 23.36            | 20.87                  | 20.88            | 20.86            |
|                         |            | 1             | 2      | 23.60                      | 23.53            | 23.49            | 21.10                  | 21.03            | 20.99            |
|                         |            | 1             | 5      | 23.23                      | 23.21            | 23.22            | 20.73                  | 20.71            | 20.72            |
|                         |            | 3             | 0      | 23.38                      | 23.52            | 23.51            | 20.88                  | 21.02            | 21.01            |
|                         |            | 3             | 2      | 23.48                      | 23.51            | 23.51            | 20.98                  | 21.01            | 21.01            |
|                         |            | 3             | 3      | 23.45                      | 23.36            | 23.34            | 20.95                  | 20.86            | 20.84            |
|                         |            | 6             | 0      | 22.47                      | 22.52            | 22.51            | 19.97                  | 20.02            | 20.01            |
|                         | 16QAM      | 1             | 0      | 22.76                      | 22.83            | 22.80            | 20.26                  | 20.33            | 20.30            |
|                         |            | 1             | 2      | 22.92                      | 22.90            | 22.89            | 20.42                  | 20.40            | 20.39            |
|                         |            | 1             | 5      | 22.59                      | 22.61            | 22.51            | 20.09                  | 20.11            | 20.01            |
|                         |            | 3             | 0      | 22.39                      | 22.47            | 22.49            | 19.89                  | 19.97            | 19.99            |
|                         |            | 3             | 2      | 22.53                      | 22.51            | 22.50            | 20.03                  | 20.01            | 20.00            |
|                         |            | 3             | 3      | 22.45                      | 22.35            | 22.34            | 19.95                  | 19.85            | 19.84            |
|                         |            | 6             | 0      | 21.50                      | 21.51            | 21.54            | 19.00                  | 19.01            | 19.04            |
|                         | 64QAM      | 1             | 0      | 21.55                      | 21.65            | 21.70            | 19.05                  | 19.15            | 19.20            |
|                         |            | 1             | 2      | 21.73                      | 21.77            | 21.90            | 19.23                  | 19.27            | 19.40            |
|                         |            | 1             | 5      | 21.39                      | 21.53            | 21.48            | 18.89                  | 19.03            | 18.98            |
|                         |            | 3             | 0      | 21.40                      | 21.44            | 21.47            | 18.90                  | 18.94            | 18.97            |
|                         |            | 3             | 2      | 21.53                      | 21.49            | 21.47            | 19.03                  | 18.99            | 18.97            |
|                         |            | 3             | 3      | 21.41                      | 21.34            | 21.34            | 18.91                  | 18.84            | 18.84            |
|                         |            | 6             | 0      | 20.50                      | 20.50            | 20.51            | 18.00                  | 18.00            | 18.01            |



| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                  |                  | Channel/Frequency(MHz) |                  |                  |
|-----------|------------|---------------|--------|------------------------|------------------|------------------|------------------------|------------------|------------------|
|           |            |               |        | 19965/<br>1711.5       | 20175/<br>1732.5 | 20385/<br>1753.5 | 19965/<br>1711.5       | 20175/<br>1732.5 | 20385/<br>1753.5 |
| 3MHz      | QPSK       | 1             | 0      | 23.39                  | 23.42            | 23.39            | 20.89                  | 20.92            | 20.89            |
|           |            | 1             | 7      | 23.58                  | 23.56            | 23.53            | 21.08                  | 21.06            | 21.03            |
|           |            | 1             | 14     | 23.26                  | 23.26            | 23.26            | 20.76                  | 20.76            | 20.76            |
|           |            | 8             | 0      | 22.48                  | 22.64            | 22.64            | 19.98                  | 20.14            | 20.14            |
|           |            | 8             | 4      | 22.60                  | 22.61            | 22.63            | 20.10                  | 20.11            | 20.13            |
|           |            | 8             | 7      | 22.55                  | 22.47            | 22.44            | 20.05                  | 19.97            | 19.94            |
|           |            | 15            | 0      | 22.47                  | 22.56            | 22.54            | 19.97                  | 20.06            | 20.04            |
|           | 16QAM      | 1             | 0      | 22.76                  | 22.85            | 22.83            | 20.26                  | 20.35            | 20.33            |
|           |            | 1             | 7      | 22.92                  | 22.90            | 22.93            | 20.42                  | 20.40            | 20.43            |
|           |            | 1             | 14     | 22.61                  | 22.65            | 22.54            | 20.11                  | 20.15            | 20.04            |
|           |            | 8             | 0      | 21.50                  | 21.60            | 21.61            | 19.00                  | 19.10            | 19.11            |
|           |            | 8             | 4      | 21.64                  | 21.64            | 21.62            | 19.14                  | 19.14            | 19.12            |
|           |            | 8             | 7      | 21.55                  | 21.47            | 21.47            | 19.05                  | 18.97            | 18.97            |
|           |            | 15            | 0      | 21.53                  | 21.55            | 21.57            | 19.03                  | 19.05            | 19.07            |
|           | 64QAM      | 1             | 0      | 21.58                  | 21.67            | 21.73            | 19.08                  | 19.17            | 19.23            |
|           |            | 1             | 7      | 21.76                  | 21.77            | 21.92            | 19.26                  | 19.27            | 19.42            |
|           |            | 1             | 14     | 21.41                  | 21.52            | 21.51            | 18.91                  | 19.02            | 19.01            |
|           |            | 8             | 0      | 20.51                  | 20.57            | 20.59            | 18.01                  | 18.07            | 18.09            |
|           |            | 8             | 4      | 20.64                  | 20.62            | 20.59            | 18.14                  | 18.12            | 18.09            |
|           |            | 8             | 7      | 20.51                  | 20.46            | 20.47            | 18.01                  | 17.96            | 17.97            |
|           |            | 15            | 0      | 20.53                  | 20.54            | 20.54            | 18.03                  | 18.04            | 18.04            |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                  |                  | Channel/Frequency(MHz) |                  |                  |
|           |            |               |        | 19975/<br>1712.5       | 20175/<br>1732.5 | 20375/<br>1752.5 | 19975/<br>1712.5       | 20175/<br>1732.5 | 20375/<br>1752.5 |
| 5MHz      | QPSK       | 1             | 0      | 23.36                  | 23.40            | 23.35            | 20.86                  | 20.90            | 20.85            |
|           |            | 1             | 13     | 23.56                  | 23.52            | 23.50            | 21.06                  | 21.02            | 21.00            |
|           |            | 1             | 24     | 23.23                  | 23.21            | 23.22            | 20.73                  | 20.71            | 20.72            |
|           |            | 12            | 0      | 22.45                  | 22.59            | 22.60            | 19.95                  | 20.09            | 20.10            |
|           |            | 12            | 6      | 22.58                  | 22.57            | 22.58            | 20.08                  | 20.07            | 20.08            |
|           |            | 12            | 13     | 22.53                  | 22.45            | 22.40            | 20.03                  | 19.95            | 19.90            |
|           |            | 25            | 0      | 22.47                  | 22.55            | 22.52            | 19.97                  | 20.05            | 20.02            |
|           | 16QAM      | 1             | 0      | 22.76                  | 22.81            | 22.80            | 20.26                  | 20.31            | 20.30            |
|           |            | 1             | 13     | 22.92                  | 22.88            | 22.90            | 20.42                  | 20.38            | 20.40            |
|           |            | 1             | 24     | 22.58                  | 22.63            | 22.50            | 20.08                  | 20.13            | 20.00            |
|           |            | 12            | 0      | 21.48                  | 21.56            | 21.58            | 18.98                  | 19.06            | 19.08            |
|           |            | 12            | 6      | 21.61                  | 21.59            | 21.58            | 19.11                  | 19.09            | 19.08            |
|           |            | 12            | 13     | 21.52                  | 21.42            | 21.43            | 19.02                  | 18.92            | 18.93            |
|           |            | 25            | 0      | 21.51                  | 21.51            | 21.52            | 19.01                  | 19.01            | 19.02            |
|           | 64QAM      | 1             | 0      | 21.55                  | 21.67            | 21.70            | 19.05                  | 19.17            | 19.20            |
|           |            | 1             | 13     | 21.73                  | 21.79            | 21.89            | 19.23                  | 19.29            | 19.39            |



|           |            | 1             | 24     | 21.42                  | 21.50            | 21.47            | 18.92                  | 19.00            | 18.97            |
|-----------|------------|---------------|--------|------------------------|------------------|------------------|------------------------|------------------|------------------|
|           |            | 12            | 0      | 20.49                  | 20.53            | 20.60            | 17.99                  | 18.03            | 18.10            |
|           |            | 12            | 6      | 20.61                  | 20.57            | 20.55            | 18.11                  | 18.07            | 18.05            |
|           |            | 12            | 13     | 20.48                  | 20.41            | 20.43            | 17.98                  | 17.91            | 17.93            |
|           |            | 25            | 0      | 20.51                  | 20.50            | 20.49            | 18.01                  | 18.00            | 17.99            |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                  |                  | Channel/Frequency(MHz) |                  |                  |
|           |            |               |        | 20000/<br>1715         | 20175/<br>1732.5 | 20350/<br>1750   | 20000/<br>1715         | 20175/<br>1732.5 | 20350/<br>1750   |
| 10MHz     | QPSK       | 1             | 0      | 23.38                  | 23.41            | 23.38            | 20.88                  | 20.91            | 20.88            |
|           |            | 1             | 25     | 23.59                  | 23.57            | 23.54            | 21.09                  | 21.07            | 21.04            |
|           |            | 1             | 49     | 23.25                  | 23.25            | 23.25            | 20.75                  | 20.75            | 20.75            |
|           |            | 25            | 0      | 22.48                  | 22.64            | 22.64            | 19.98                  | 20.14            | 20.14            |
|           |            | 25            | 13     | 22.61                  | 22.62            | 22.62            | 20.11                  | 20.12            | 20.12            |
|           |            | 25            | 25     | 22.55                  | 22.49            | 22.45            | 20.05                  | 19.99            | 19.95            |
|           |            | 50            | 0      | 22.51                  | 22.57            | 22.56            | 20.01                  | 20.07            | 20.06            |
|           | 16QAM      | 1             | 0      | 22.80                  | 22.84            | 22.82            | 20.30                  | 20.34            | 20.32            |
|           |            | 1             | 25     | 22.96                  | 22.92            | 22.93            | 20.46                  | 20.42            | 20.43            |
|           |            | 1             | 49     | 22.61                  | 22.65            | 22.53            | 20.11                  | 20.15            | 20.03            |
|           |            | 25            | 0      | 21.51                  | 21.61            | 21.62            | 19.01                  | 19.11            | 19.12            |
|           |            | 25            | 13     | 21.63                  | 21.63            | 21.61            | 19.13                  | 19.13            | 19.11            |
|           |            | 25            | 25     | 21.55                  | 21.47            | 21.47            | 19.05                  | 18.97            | 18.97            |
|           |            | 50            | 0      | 21.54                  | 21.56            | 21.56            | 19.04                  | 19.06            | 19.06            |
|           | 64QAM      | 1             | 0      | 21.57                  | 21.66            | 21.72            | 19.07                  | 19.16            | 19.22            |
|           |            | 1             | 25     | 21.76                  | 21.79            | 21.92            | 19.26                  | 19.29            | 19.42            |
|           |            | 1             | 49     | 21.41                  | 21.52            | 21.50            | 18.91                  | 19.02            | 19.00            |
|           |            | 25            | 0      | 20.52                  | 20.58            | 20.60            | 18.02                  | 18.08            | 18.10            |
|           |            | 25            | 13     | 20.63                  | 20.61            | 20.58            | 18.13                  | 18.11            | 18.08            |
|           |            | 25            | 25     | 20.51                  | 20.46            | 20.47            | 18.01                  | 17.96            | 17.97            |
|           |            | 50            | 0      | 20.54                  | 20.55            | 20.53            | 18.04                  | 18.05            | 18.03            |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                  |                  | Channel/Frequency(MHz) |                  |                  |
|           |            |               |        | 20025/<br>1717.5       | 20175/<br>1732.5 | 20325/<br>1747.5 | 20025/<br>1717.5       | 20175/<br>1732.5 | 20325/<br>1747.5 |
| 15MHz     | QPSK       | 1             | 0      | 23.37                  | 23.37            | 23.36            | 20.87                  | 20.87            | 20.86            |
|           |            | 1             | 38     | 23.57                  | 23.56            | 23.51            | 21.07                  | 21.06            | 21.01            |
|           |            | 1             | 74     | 23.22                  | 23.20            | 23.21            | 20.72                  | 20.70            | 20.71            |
|           |            | 36            | 0      | 22.46                  | 22.60            | 22.61            | 19.96                  | 20.10            | 20.11            |
|           |            | 36            | 18     | 22.58                  | 22.57            | 22.58            | 20.08                  | 20.07            | 20.08            |
|           |            | 36            | 39     | 22.52                  | 22.46            | 22.41            | 20.02                  | 19.96            | 19.91            |
|           |            | 75            | 0      | 22.49                  | 22.53            | 22.51            | 19.99                  | 20.03            | 20.01            |
|           | 16QAM      | 1             | 0      | 22.78                  | 22.82            | 22.80            | 20.28                  | 20.32            | 20.30            |
|           |            | 1             | 38     | 22.94                  | 22.89            | 22.91            | 20.44                  | 20.39            | 20.41            |
|           |            | 1             | 74     | 22.59                  | 22.61            | 22.50            | 20.09                  | 20.11            | 20.00            |
|           |            | 36            | 0      | 21.48                  | 21.59            | 21.59            | 18.98                  | 19.09            | 19.09            |



|           |            | 36            | 18     | 21.60                  | 21.58            | 21.57          | 19.10                  | 19.08            | 19.07          |
|-----------|------------|---------------|--------|------------------------|------------------|----------------|------------------------|------------------|----------------|
|           |            | 36            | 39     | 21.53                  | 21.43            | 21.44          | 19.03                  | 18.93            | 18.94          |
|           |            | 75            | 0      | 21.51                  | 21.51            | 21.52          | 19.01                  | 19.01            | 19.02          |
|           | 64QAM      | 1             | 0      | 21.52                  | 21.64            | 21.70          | 19.02                  | 19.14            | 19.20          |
|           |            | 1             | 38     | 21.74                  | 21.76            | 21.90          | 19.24                  | 19.26            | 19.40          |
|           |            | 1             | 74     | 21.42                  | 21.51            | 21.51          | 18.92                  | 19.01            | 19.01          |
|           |            | 36            | 0      | 20.51                  | 20.60            | 20.61          | 18.01                  | 18.10            | 18.11          |
|           |            | 36            | 18     | 20.61                  | 20.58            | 20.57          | 18.11                  | 18.08            | 18.07          |
|           |            | 36            | 39     | 20.49                  | 20.42            | 20.44          | 17.99                  | 17.92            | 17.94          |
|           |            | 75            | 0      | 20.51                  | 20.50            | 20.49          | 18.01                  | 18.00            | 17.99          |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                  |                | Channel/Frequency(MHz) |                  |                |
|           |            |               |        | 20050/<br>1720         | 20175/<br>1732.5 | 20300/<br>1745 | 20050/<br>1720         | 20175/<br>1732.5 | 20300/<br>1745 |
| 20MHz     | QPSK       | 1             | 0      | 23.34                  | 23.33            | 23.33          | 20.84                  | 20.83            | 20.83          |
|           |            | 1             | 50     | 23.56                  | 23.52            | 23.49          | 21.06                  | 21.02            | 20.99          |
|           |            | 1             | 99     | 23.20                  | 23.19            | 23.18          | 20.70                  | 20.69            | 20.68          |
|           |            | 50            | 0      | 22.43                  | 22.55            | 22.57          | 19.93                  | 20.05            | 20.07          |
|           |            | 50            | 25     | 22.56                  | 22.53            | 22.55          | 20.06                  | 20.03            | 20.05          |
|           |            | 50            | 50     | 22.49                  | 22.41            | 22.37          | 19.99                  | 19.91            | 19.87          |
|           |            | 100           | 0      | 22.46                  | 22.48            | 22.47          | 19.96                  | 19.98            | 19.97          |
|           | 16QAM      | 1             | 0      | 22.75                  | 22.78            | 22.75          | 20.25                  | 20.28            | 20.25          |
|           |            | 1             | 50     | 22.91                  | 22.87            | 22.87          | 20.41                  | 20.37            | 20.37          |
|           |            | 1             | 99     | 22.56                  | 22.58            | 22.48          | 20.06                  | 20.08            | 19.98          |
|           |            | 50            | 0      | 21.45                  | 21.55            | 21.56          | 18.95                  | 19.05            | 19.06          |
|           |            | 50            | 25     | 21.57                  | 21.56            | 21.54          | 19.07                  | 19.06            | 19.04          |
|           |            | 50            | 50     | 21.50                  | 21.38            | 21.40          | 19.00                  | 18.88            | 18.90          |
|           |            | 100           | 0      | 21.49                  | 21.47            | 21.49          | 18.99                  | 18.97            | 18.99          |
|           | 64QAM      | 1             | 0      | 21.50                  | 21.60            | 21.65          | 19.00                  | 19.10            | 19.15          |
|           |            | 1             | 50     | 21.70                  | 21.74            | 21.86          | 19.20                  | 19.24            | 19.36          |
|           |            | 1             | 99     | 21.36                  | 21.45            | 21.45          | 18.86                  | 18.95            | 18.95          |
|           |            | 50            | 0      | 20.46                  | 20.52            | 20.54          | 17.96                  | 18.02            | 18.04          |
|           |            | 50            | 25     | 20.57                  | 20.54            | 20.51          | 18.07                  | 18.04            | 18.01          |
|           |            | 50            | 50     | 20.46                  | 20.37            | 20.40          | 17.96                  | 17.87            | 17.90          |
|           |            | 100           | 0      | 20.49                  | 20.46            | 20.46          | 17.99                  | 17.96            | 17.96          |



| LTE Band 7Low Antenna |            |               |        | Maximum Output Power (dBm) |                |                  | EIRP (dBm)             |                |                  |
|-----------------------|------------|---------------|--------|----------------------------|----------------|------------------|------------------------|----------------|------------------|
| Bandwidth             | Modulation | RB allocation | offset | Channel/Frequency(MHz)     |                |                  | Channel/Frequency(MHz) |                |                  |
|                       |            |               |        | 20775/<br>2502.5           | 21100/<br>2535 | 21425/<br>2567.5 | 20775/<br>2502.5       | 21100/<br>2535 | 21425/<br>2567.5 |
| 5MHz                  | QPSK       | 1             | 0      | 23.08                      | 23.19          | 23.25            | 22.68                  | 22.79          | 22.85            |
|                       |            | 1             | 13     | 23.34                      | 23.47          | 23.49            | 22.94                  | 23.07          | 23.09            |
|                       |            | 1             | 24     | 23.27                      | 23.33          | 23.33            | 22.87                  | 22.93          | 22.93            |
|                       |            | 12            | 0      | 22.29                      | 22.59          | 22.47            | 21.89                  | 22.19          | 22.07            |
|                       |            | 12            | 6      | 22.38                      | 22.55          | 22.57            | 21.98                  | 22.15          | 22.17            |
|                       |            | 12            | 13     | 22.48                      | 22.51          | 22.45            | 22.08                  | 22.11          | 22.05            |
|                       |            | 25            | 0      | 22.35                      | 22.55          | 22.48            | 21.95                  | 22.15          | 22.08            |
|                       | 16QAM      | 1             | 0      | 22.45                      | 22.56          | 22.63            | 22.05                  | 22.16          | 22.23            |
|                       |            | 1             | 13     | 22.72                      | 22.75          | 22.82            | 22.32                  | 22.35          | 22.42            |
|                       |            | 1             | 24     | 22.59                      | 22.60          | 22.63            | 22.19                  | 22.20          | 22.23            |
|                       |            | 12            | 0      | 21.27                      | 21.53          | 21.44            | 20.87                  | 21.13          | 21.04            |
|                       |            | 12            | 6      | 21.41                      | 21.55          | 21.55            | 21.01                  | 21.15          | 21.15            |
|                       |            | 12            | 13     | 21.44                      | 21.54          | 21.45            | 21.04                  | 21.14          | 21.05            |
|                       |            | 25            | 0      | 21.32                      | 21.54          | 21.46            | 20.92                  | 21.14          | 21.06            |
|                       | 64QAM      | 1             | 0      | 21.40                      | 21.51          | 21.50            | 21.00                  | 21.11          | 21.10            |
|                       |            | 1             | 13     | 21.72                      | 21.72          | 21.75            | 21.32                  | 21.32          | 21.35            |
|                       |            | 1             | 24     | 21.53                      | 21.59          | 21.55            | 21.13                  | 21.19          | 21.15            |
|                       |            | 12            | 0      | 20.26                      | 20.52          | 20.43            | 19.86                  | 20.12          | 20.03            |
|                       |            | 12            | 6      | 20.42                      | 20.53          | 20.54            | 20.02                  | 20.13          | 20.14            |
|                       |            | 12            | 13     | 20.43                      | 20.52          | 20.43            | 20.03                  | 20.12          | 20.03            |
|                       |            | 25            | 0      | 20.34                      | 20.52          | 20.45            | 19.94                  | 20.12          | 20.05            |
| Bandwidth             | Modulation | RB allocation | offset | Channel/Frequency(MHz)     |                |                  | Channel/Frequency(MHz) |                |                  |
|                       |            |               |        | 20800/<br>2505             | 21100/<br>2535 | 21400/<br>2565   | 20800/<br>2505         | 21100/<br>2535 | 21400/<br>2565   |
| 10MHz                 | QPSK       | 1             | 0      | 23.07                      | 23.18          | 23.24            | 22.67                  | 22.78          | 22.84            |
|                       |            | 1             | 25     | 23.35                      | 23.48          | 23.50            | 22.95                  | 23.08          | 23.10            |
|                       |            | 1             | 49     | 23.26                      | 23.32          | 23.32            | 22.86                  | 22.92          | 22.92            |
|                       |            | 25            | 0      | 22.29                      | 22.59          | 22.47            | 21.89                  | 22.19          | 22.07            |
|                       |            | 25            | 13     | 22.39                      | 22.56          | 22.56            | 21.99                  | 22.16          | 22.16            |
|                       |            | 25            | 25     | 22.48                      | 22.53          | 22.46            | 22.08                  | 22.13          | 22.06            |
|                       |            | 50            | 0      | 22.39                      | 22.56          | 22.50            | 21.99                  | 22.16          | 22.10            |
|                       | 16QAM      | 1             | 0      | 22.49                      | 22.55          | 22.62            | 22.09                  | 22.15          | 22.22            |
|                       |            | 1             | 25     | 22.76                      | 22.77          | 22.82            | 22.36                  | 22.37          | 22.42            |
|                       |            | 1             | 49     | 22.59                      | 22.60          | 22.62            | 22.19                  | 22.20          | 22.22            |
|                       |            | 25            | 0      | 21.28                      | 21.54          | 21.45            | 20.88                  | 21.14          | 21.05            |
|                       |            | 25            | 13     | 21.40                      | 21.54          | 21.54            | 21.00                  | 21.14          | 21.14            |
|                       |            | 25            | 25     | 21.44                      | 21.54          | 21.45            | 21.04                  | 21.14          | 21.05            |
|                       |            | 50            | 0      | 21.33                      | 21.55          | 21.45            | 20.93                  | 21.15          | 21.05            |



|           | 64QAM      | 1             | 0      | 21.39                  | 21.50      | 21.49        | 20.99                  | 21.10      | 21.09        |
|-----------|------------|---------------|--------|------------------------|------------|--------------|------------------------|------------|--------------|
|           |            | 1             | 25     | 21.72                  | 21.74      | 21.75        | 21.32                  | 21.34      | 21.35        |
|           |            | 1             | 49     | 21.53                  | 21.59      | 21.54        | 21.13                  | 21.19      | 21.14        |
|           |            | 25            | 0      | 20.27                  | 20.53      | 20.44        | 19.87                  | 20.13      | 20.04        |
|           |            | 25            | 13     | 20.41                  | 20.52      | 20.53        | 20.01                  | 20.12      | 20.13        |
|           |            | 25            | 25     | 20.43                  | 20.52      | 20.43        | 20.03                  | 20.12      | 20.03        |
|           |            | 50            | 0      | 20.35                  | 20.53      | 20.44        | 19.95                  | 20.13      | 20.04        |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |            |              | Channel/Frequency(MHz) |            |              |
|           |            |               |        | 20825/2507.5           | 21100/2535 | 21375/2562.5 | 20825/2507.5           | 21100/2535 | 21375/2562.5 |
| 15MHz     | QPSK       | 1             | 0      | 23.06                  | 23.14      | 23.22        | 22.66                  | 22.74      | 22.82        |
|           |            | 1             | 38     | 23.33                  | 23.47      | 23.47        | 22.93                  | 23.07      | 23.07        |
|           |            | 1             | 74     | 23.23                  | 23.27      | 23.28        | 22.83                  | 22.87      | 22.88        |
|           |            | 36            | 0      | 22.27                  | 22.55      | 22.44        | 21.87                  | 22.15      | 22.04        |
|           |            | 36            | 18     | 22.36                  | 22.51      | 22.52        | 21.96                  | 22.11      | 22.12        |
|           |            | 36            | 39     | 22.45                  | 22.50      | 22.42        | 22.05                  | 22.10      | 22.02        |
|           |            | 75            | 0      | 22.37                  | 22.52      | 22.45        | 21.97                  | 22.12      | 22.05        |
|           | 16QAM      | 1             | 0      | 22.47                  | 22.53      | 22.60        | 22.07                  | 22.13      | 22.20        |
|           |            | 1             | 38     | 22.74                  | 22.74      | 22.80        | 22.34                  | 22.34      | 22.40        |
|           |            | 1             | 74     | 22.57                  | 22.56      | 22.59        | 22.17                  | 22.16      | 22.19        |
|           |            | 36            | 0      | 21.25                  | 21.52      | 21.42        | 20.85                  | 21.12      | 21.02        |
|           |            | 36            | 18     | 21.37                  | 21.49      | 21.50        | 20.97                  | 21.09      | 21.10        |
|           |            | 36            | 39     | 21.42                  | 21.50      | 21.42        | 21.02                  | 21.10      | 21.02        |
|           |            | 75            | 0      | 21.30                  | 21.50      | 21.41        | 20.90                  | 21.10      | 21.01        |
|           | 64QAM      | 1             | 0      | 21.34                  | 21.48      | 21.47        | 20.94                  | 21.08      | 21.07        |
|           |            | 1             | 38     | 21.70                  | 21.71      | 21.73        | 21.30                  | 21.31      | 21.33        |
|           |            | 1             | 74     | 21.54                  | 21.58      | 21.55        | 21.14                  | 21.18      | 21.15        |
|           |            | 36            | 0      | 20.26                  | 20.55      | 20.45        | 19.86                  | 20.15      | 20.05        |
|           |            | 36            | 18     | 20.39                  | 20.49      | 20.52        | 19.99                  | 20.09      | 20.12        |
|           |            | 36            | 39     | 20.41                  | 20.48      | 20.40        | 20.01                  | 20.08      | 20.00        |
|           |            | 75            | 0      | 20.32                  | 20.48      | 20.40        | 19.92                  | 20.08      | 20.00        |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |            |              | Channel/Frequency(MHz) |            |              |
|           |            |               |        | 20850/2510             | 21100/2535 | 21350/2560   | 20850/2510             | 21100/2535 | 21350/2560   |
| 20MHz     | QPSK       | 1             | 0      | 23.03                  | 23.10      | 23.19        | 22.63                  | 22.70      | 22.79        |
|           |            | 1             | 50     | 23.32                  | 23.43      | 23.45        | 22.92                  | 23.03      | 23.05        |
|           |            | 1             | 99     | 23.21                  | 23.26      | 23.25        | 22.81                  | 22.86      | 22.85        |
|           |            | 50            | 0      | 22.24                  | 22.50      | 22.40        | 21.84                  | 22.10      | 22.00        |
|           |            | 50            | 25     | 22.34                  | 22.47      | 22.49        | 21.94                  | 22.07      | 22.09        |
|           |            | 50            | 50     | 22.42                  | 22.45      | 22.38        | 22.02                  | 22.05      | 21.98        |
|           |            | 100           | 0      | 22.34                  | 22.47      | 22.41        | 21.94                  | 22.07      | 22.01        |
|           | 16QAM      | 1             | 0      | 22.44                  | 22.49      | 22.55        | 22.04                  | 22.09      | 22.15        |
|           |            | 1             | 50     | 22.71                  | 22.72      | 22.76        | 22.31                  | 22.32      | 22.36        |



|  |       |     |    |       |       |       |       |       |       |
|--|-------|-----|----|-------|-------|-------|-------|-------|-------|
|  |       | 1   | 99 | 22.54 | 22.53 | 22.57 | 22.14 | 22.13 | 22.17 |
|  |       | 50  | 0  | 21.22 | 21.48 | 21.39 | 20.82 | 21.08 | 20.99 |
|  |       | 50  | 25 | 21.34 | 21.47 | 21.47 | 20.94 | 21.07 | 21.07 |
|  |       | 50  | 50 | 21.39 | 21.45 | 21.38 | 20.99 | 21.05 | 20.98 |
|  |       | 100 | 0  | 21.28 | 21.46 | 21.38 | 20.88 | 21.06 | 20.98 |
|  | 64QAM | 1   | 0  | 21.32 | 21.44 | 21.42 | 20.92 | 21.04 | 21.02 |
|  |       | 1   | 50 | 21.66 | 21.69 | 21.69 | 21.26 | 21.29 | 21.29 |
|  |       | 1   | 99 | 21.48 | 21.52 | 21.49 | 21.08 | 21.12 | 21.09 |
|  |       | 50  | 0  | 20.21 | 20.47 | 20.38 | 19.81 | 20.07 | 19.98 |
|  |       | 50  | 25 | 20.35 | 20.45 | 20.46 | 19.95 | 20.05 | 20.06 |
|  |       | 50  | 50 | 20.38 | 20.43 | 20.36 | 19.98 | 20.03 | 19.96 |
|  |       | 100 | 0  | 20.30 | 20.44 | 20.37 | 19.90 | 20.04 | 19.97 |

| LTE Band 7Upper Antenna |            |               |        | Maximum Output Power (dBm) |            |              | EIRP (dBm)             |            |              |
|-------------------------|------------|---------------|--------|----------------------------|------------|--------------|------------------------|------------|--------------|
| Bandwidth               | Modulation | RB allocation | offset | Channel/Frequency(MHz)     |            |              | Channel/Frequency(MHz) |            |              |
|                         |            |               |        | 20775/2502.5               | 21100/2535 | 21425/2567.5 | 20775/2502.5           | 21100/2535 | 21425/2567.5 |
| 5MHz                    | QPSK       | 1             | 0      | 23.23                      | 23.29      | 23.11        | 21.53                  | 21.59      | 21.41        |
|                         |            | 1             | 13     | 23.45                      | 23.45      | 23.32        | 21.75                  | 21.75      | 21.62        |
|                         |            | 1             | 24     | 23.30                      | 23.23      | 23.13        | 21.60                  | 21.53      | 21.43        |
|                         |            | 12            | 0      | 22.37                      | 22.52      | 22.37        | 20.67                  | 20.82      | 20.67        |
|                         |            | 12            | 6      | 22.49                      | 22.51      | 22.41        | 20.79                  | 20.81      | 20.71        |
|                         |            | 12            | 13     | 22.52                      | 22.48      | 22.31        | 20.82                  | 20.78      | 20.61        |
|                         |            | 25            | 0      | 22.41                      | 22.55      | 22.36        | 20.71                  | 20.85      | 20.66        |
|                         | 16QAM      | 1             | 0      | 22.55                      | 22.51      | 22.49        | 20.85                  | 20.81      | 20.79        |
|                         |            | 1             | 13     | 22.81                      | 22.70      | 22.73        | 21.11                  | 21.00      | 21.03        |
|                         |            | 1             | 24     | 22.60                      | 22.57      | 22.44        | 20.90                  | 20.87      | 20.74        |
|                         |            | 12            | 0      | 21.35                      | 21.48      | 21.36        | 19.65                  | 19.78      | 19.66        |
|                         |            | 12            | 6      | 21.51                      | 21.47      | 21.42        | 19.81                  | 19.77      | 19.72        |
|                         |            | 12            | 13     | 21.46                      | 21.51      | 21.29        | 19.76                  | 19.81      | 19.59        |
|                         |            | 25            | 0      | 21.43                      | 21.48      | 21.29        | 19.73                  | 19.78      | 19.59        |
|                         | 64QAM      | 1             | 0      | 21.56                      | 21.54      | 21.39        | 19.86                  | 19.84      | 19.69        |
|                         |            | 1             | 13     | 21.75                      | 21.72      | 21.60        | 20.05                  | 20.02      | 19.90        |
|                         |            | 1             | 24     | 21.56                      | 21.53      | 21.33        | 19.86                  | 19.83      | 19.63        |
|                         |            | 12            | 0      | 20.35                      | 20.45      | 20.33        | 18.65                  | 18.75      | 18.63        |
|                         |            | 12            | 6      | 20.51                      | 20.47      | 20.38        | 18.81                  | 18.77      | 18.68        |
|                         |            | 12            | 13     | 20.47                      | 20.47      | 20.29        | 18.77                  | 18.77      | 18.59        |
|                         |            | 25            | 0      | 20.40                      | 20.48      | 20.31        | 18.70                  | 18.78      | 18.61        |



| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |            |              | Channel/Frequency(MHz) |            |              |
|-----------|------------|---------------|--------|------------------------|------------|--------------|------------------------|------------|--------------|
|           |            |               |        | 20800/2505             | 21100/2535 | 21400/2565   | 20800/2505             | 21100/2535 | 21400/2565   |
| 10MHz     | QPSK       | 1             | 0      | 23.25                  | 23.30      | 23.14        | 21.55                  | 21.60      | 21.44        |
|           |            | 1             | 25     | 23.48                  | 23.50      | 23.36        | 21.78                  | 21.80      | 21.66        |
|           |            | 1             | 49     | 23.32                  | 23.27      | 23.16        | 21.62                  | 21.57      | 21.46        |
|           |            | 25            | 0      | 22.40                  | 22.57      | 22.41        | 20.70                  | 20.87      | 20.71        |
|           |            | 25            | 13     | 22.52                  | 22.56      | 22.45        | 20.82                  | 20.86      | 20.75        |
|           |            | 25            | 25     | 22.54                  | 22.52      | 22.36        | 20.84                  | 20.82      | 20.66        |
|           |            | 50            | 0      | 22.45                  | 22.57      | 22.40        | 20.75                  | 20.87      | 20.70        |
|           | 16QAM      | 1             | 0      | 22.59                  | 22.54      | 22.51        | 20.89                  | 20.84      | 20.81        |
|           |            | 1             | 25     | 22.85                  | 22.74      | 22.76        | 21.15                  | 21.04      | 21.06        |
|           |            | 1             | 49     | 22.63                  | 22.59      | 22.47        | 20.93                  | 20.89      | 20.77        |
|           |            | 25            | 0      | 21.38                  | 21.53      | 21.40        | 19.68                  | 19.83      | 19.70        |
|           |            | 25            | 13     | 21.53                  | 21.51      | 21.45        | 19.83                  | 19.81      | 19.75        |
|           |            | 25            | 25     | 21.49                  | 21.56      | 21.33        | 19.79                  | 19.86      | 19.63        |
|           |            | 50            | 0      | 21.46                  | 21.53      | 21.33        | 19.76                  | 19.83      | 19.63        |
|           | 64QAM      | 1             | 0      | 21.58                  | 21.53      | 21.41        | 19.88                  | 19.83      | 19.71        |
|           |            | 1             | 25     | 21.78                  | 21.72      | 21.63        | 20.08                  | 20.02      | 19.93        |
|           |            | 1             | 49     | 21.55                  | 21.55      | 21.36        | 19.85                  | 19.85      | 19.66        |
|           |            | 25            | 0      | 20.38                  | 20.50      | 20.33        | 18.68                  | 18.80      | 18.63        |
|           |            | 25            | 13     | 20.53                  | 20.51      | 20.41        | 18.83                  | 18.81      | 18.71        |
|           |            | 25            | 25     | 20.50                  | 20.52      | 20.33        | 18.80                  | 18.82      | 18.63        |
|           |            | 50            | 0      | 20.43                  | 20.53      | 20.35        | 18.73                  | 18.83      | 18.65        |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |            |              | Channel/Frequency(MHz) |            |              |
|           |            |               |        | 20825/2507.5           | 21100/2535 | 21375/2562.5 | 20825/2507.5           | 21100/2535 | 21375/2562.5 |
| 15MHz     | QPSK       | 1             | 0      | 23.24                  | 23.26      | 23.12        | 21.54                  | 21.56      | 21.42        |
|           |            | 1             | 38     | 23.46                  | 23.49      | 23.33        | 21.76                  | 21.79      | 21.63        |
|           |            | 1             | 74     | 23.29                  | 23.22      | 23.12        | 21.59                  | 21.52      | 21.42        |
|           |            | 36            | 0      | 22.38                  | 22.53      | 22.38        | 20.68                  | 20.83      | 20.68        |
|           |            | 36            | 18     | 22.49                  | 22.51      | 22.41        | 20.79                  | 20.81      | 20.71        |
|           |            | 36            | 39     | 22.51                  | 22.49      | 22.32        | 20.81                  | 20.79      | 20.62        |
|           |            | 75            | 0      | 22.43                  | 22.53      | 22.35        | 20.73                  | 20.83      | 20.65        |
|           | 16QAM      | 1             | 0      | 22.57                  | 22.52      | 22.49        | 20.87                  | 20.82      | 20.79        |
|           |            | 1             | 38     | 22.83                  | 22.71      | 22.74        | 21.13                  | 21.01      | 21.04        |
|           |            | 1             | 74     | 22.61                  | 22.55      | 22.44        | 20.91                  | 20.85      | 20.74        |
|           |            | 36            | 0      | 21.35                  | 21.51      | 21.37        | 19.65                  | 19.81      | 19.67        |
|           |            | 36            | 18     | 21.50                  | 21.46      | 21.41        | 19.80                  | 19.76      | 19.71        |
|           |            | 36            | 39     | 21.47                  | 21.52      | 21.30        | 19.77                  | 19.82      | 19.60        |
|           |            | 75            | 0      | 21.43                  | 21.48      | 21.29        | 19.73                  | 19.78      | 19.59        |
|           | 64QAM      | 1             | 0      | 21.53                  | 21.51      | 21.39        | 19.83                  | 19.81      | 19.69        |
|           |            | 1             | 38     | 21.76                  | 21.69      | 21.61        | 20.06                  | 19.99      | 19.91        |



|           |            | 1             | 74     | 21.56                  | 21.54      | 21.37      | 19.86                  | 19.84      | 19.67      |
|-----------|------------|---------------|--------|------------------------|------------|------------|------------------------|------------|------------|
|           |            | 36            | 0      | 20.37                  | 20.52      | 20.34      | 18.67                  | 18.82      | 18.64      |
|           |            | 36            | 18     | 20.51                  | 20.48      | 20.40      | 18.81                  | 18.78      | 18.70      |
|           |            | 36            | 39     | 20.48                  | 20.48      | 20.30      | 18.78                  | 18.78      | 18.60      |
|           |            | 75            | 0      | 20.40                  | 20.48      | 20.31      | 18.70                  | 18.78      | 18.61      |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |            |            | Channel/Frequency(MHz) |            |            |
|           |            |               |        | 20850/2510             | 21100/2535 | 21350/2560 | 20850/2510             | 21100/2535 | 21350/2560 |
| 20MHz     | QPSK       | 1             | 0      | 23.21                  | 23.22      | 23.09      | 21.51                  | 21.52      | 21.39      |
|           |            | 1             | 50     | 23.45                  | 23.41      | 23.31      | 21.75                  | 21.71      | 21.61      |
|           |            | 1             | 99     | 23.27                  | 23.21      | 23.09      | 21.57                  | 21.51      | 21.39      |
|           |            | 50            | 0      | 22.35                  | 22.48      | 22.34      | 20.65                  | 20.78      | 20.64      |
|           |            | 50            | 25     | 22.47                  | 22.47      | 22.38      | 20.77                  | 20.77      | 20.68      |
|           |            | 50            | 50     | 22.48                  | 22.44      | 22.28      | 20.78                  | 20.74      | 20.58      |
|           |            | 100           | 0      | 22.40                  | 22.48      | 22.31      | 20.70                  | 20.78      | 20.61      |
|           | 16QAM      | 1             | 0      | 22.54                  | 22.48      | 22.44      | 20.84                  | 20.78      | 20.74      |
|           |            | 1             | 50     | 22.80                  | 22.69      | 22.70      | 21.10                  | 20.99      | 21.00      |
|           |            | 1             | 99     | 22.58                  | 22.52      | 22.42      | 20.88                  | 20.82      | 20.72      |
|           |            | 50            | 0      | 21.32                  | 21.47      | 21.34      | 19.62                  | 19.77      | 19.64      |
|           |            | 50            | 25     | 21.47                  | 21.44      | 21.38      | 19.77                  | 19.74      | 19.68      |
|           |            | 50            | 50     | 21.44                  | 21.47      | 21.26      | 19.74                  | 19.77      | 19.56      |
|           |            | 100           | 0      | 21.41                  | 21.44      | 21.26      | 19.71                  | 19.74      | 19.56      |
|           | 64QAM      | 1             | 0      | 21.51                  | 21.47      | 21.34      | 19.81                  | 19.77      | 19.64      |
|           |            | 1             | 50     | 21.72                  | 21.67      | 21.57      | 20.02                  | 19.97      | 19.87      |
|           |            | 1             | 99     | 21.50                  | 21.48      | 21.31      | 19.80                  | 19.78      | 19.61      |
|           |            | 50            | 0      | 20.32                  | 20.44      | 20.27      | 18.62                  | 18.74      | 18.57      |
|           |            | 50            | 25     | 20.47                  | 20.44      | 20.34      | 18.77                  | 18.74      | 18.64      |
|           |            | 50            | 50     | 20.45                  | 20.43      | 20.26      | 18.75                  | 18.73      | 18.56      |
|           |            | 100           | 0      | 20.38                  | 20.44      | 20.28      | 18.68                  | 18.74      | 18.58      |

| LTE Band 13Low Antenna |            |               |        | Maximum Output Power (dBm) |           |             | ERP (dBm)              |           |            |
|------------------------|------------|---------------|--------|----------------------------|-----------|-------------|------------------------|-----------|------------|
| Bandwidth              | Modulation | RB allocation | offset | Channel/Frequency(MHz)     |           |             | Channel/Frequency(MHz) |           |            |
|                        |            |               |        | 23205/779.5                | 23230/782 | 23255/784.5 | 23205/779.5            | 23230/782 | 2325/784.5 |
| 5MHz                   | QPSK       | 1             | 0      | 23.43                      | 23.44     | 23.43       | 15.38                  | 15.39     | 15.38      |
|                        |            | 1             | 13     | 23.57                      | 23.60     | 23.58       | 15.52                  | 15.55     | 15.53      |
|                        |            | 1             | 24     | 23.51                      | 23.50     | 23.52       | 15.46                  | 15.45     | 15.47      |
|                        |            | 12            | 0      | 22.56                      | 22.58     | 22.57       | 14.51                  | 14.53     | 14.52      |
|                        |            | 12            | 6      | 22.58                      | 22.60     | 22.59       | 14.53                  | 14.55     | 14.54      |
|                        |            | 12            | 13     | 22.48                      | 22.50     | 22.49       | 14.43                  | 14.45     | 14.44      |
|                        |            | 25            | 0      | 22.53                      | 22.55     | 22.54       | 14.48                  | 14.5      | 14.49      |
|                        | 16QAM      | 1             | 0      | 22.69                      | 22.70     | 22.71       | 14.64                  | 14.65     | 14.66      |
|                        |            | 1             | 13     | 22.88                      | 22.87     | 22.89       | 14.83                  | 14.82     | 14.84      |



|           |            | 1             | 24     | 22.81                  | 22.81      | 22.80 | 14.76                  | 14.76      | 14.75 |
|-----------|------------|---------------|--------|------------------------|------------|-------|------------------------|------------|-------|
|           |            | 12            | 0      | 21.53                  | 21.54      | 21.53 | 13.48                  | 13.49      | 13.48 |
|           |            | 12            | 6      | 21.55                  | 21.54      | 21.55 | 13.50                  | 13.49      | 13.50 |
|           |            | 12            | 13     | 21.49                  | 21.51      | 21.50 | 13.44                  | 13.46      | 13.45 |
|           |            | 25            | 0      | 21.52                  | 21.54      | 21.53 | 13.47                  | 13.49      | 13.48 |
|           | 64QAM      | 1             | 0      | 21.56                  | 21.58      | 21.59 | 13.51                  | 13.53      | 13.54 |
|           |            | 1             | 13     | 21.80                  | 21.78      | 21.80 | 13.75                  | 13.73      | 13.75 |
|           |            | 1             | 24     | 21.68                  | 21.68      | 21.68 | 13.63                  | 13.63      | 13.63 |
|           |            | 12            | 0      | 20.59                  | 20.62      | 20.61 | 12.54                  | 12.57      | 12.56 |
|           |            | 12            | 6      | 20.60                  | 20.60      | 20.62 | 12.55                  | 12.55      | 12.57 |
|           |            | 12            | 13     | 20.52                  | 20.54      | 20.53 | 12.47                  | 12.49      | 12.48 |
|           |            | 25            | 0      | 20.54                  | 20.56      | 20.55 | 12.49                  | 12.51      | 12.50 |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |            |       | Channel/Frequency(MHz) |            |       |
|           |            |               |        | /                      | 23230 /782 | /     | /                      | 23230 /782 | /     |
| 10MHz     | QPSK       | 1             | 0      | /                      | 23.40      | /     | /                      | 15.35      | /     |
|           |            | 1             | 25     | /                      | 23.56      | /     | /                      | 15.51      | /     |
|           |            | 1             | 49     | /                      | 23.49      | /     | /                      | 15.44      | /     |
|           |            | 25            | 0      | /                      | 22.53      | /     | /                      | 14.48      | /     |
|           |            | 25            | 13     | /                      | 22.56      | /     | /                      | 14.51      | /     |
|           |            | 25            | 25     | /                      | 22.45      | /     | /                      | 14.40      | /     |
|           |            | 50            | 0      | /                      | 22.50      | /     | /                      | 14.45      | /     |
|           | 16QAM      | 1             | 0      | /                      | 22.66      | /     | /                      | 14.61      | /     |
|           |            | 1             | 25     | /                      | 22.85      | /     | /                      | 14.80      | /     |
|           |            | 1             | 49     | /                      | 22.78      | /     | /                      | 14.73      | /     |
|           |            | 25            | 0      | /                      | 21.50      | /     | /                      | 13.45      | /     |
|           |            | 25            | 13     | /                      | 21.52      | /     | /                      | 13.47      | /     |
|           |            | 25            | 25     | /                      | 21.46      | /     | /                      | 13.41      | /     |
|           |            | 50            | 0      | /                      | 21.50      | /     | /                      | 13.45      | /     |
|           | 64QAM      | 1             | 0      | /                      | 21.54      | /     | /                      | 13.49      | /     |
|           |            | 1             | 25     | /                      | 21.76      | /     | /                      | 13.71      | /     |
|           |            | 1             | 49     | /                      | 21.62      | /     | /                      | 13.57      | /     |
|           |            | 25            | 0      | /                      | 20.54      | /     | /                      | 12.49      | /     |
|           |            | 25            | 13     | /                      | 20.56      | /     | /                      | 12.51      | /     |
|           |            | 25            | 25     | /                      | 20.49      | /     | /                      | 12.44      | /     |
|           |            | 50            | 0      | /                      | 20.52      | /     | /                      | 12.47      | /     |



| LTE Band 13Upper Antenna |            |               |        | Maximum Output Power (dBm) |               |                 | ERP (dBm)              |               |                 |
|--------------------------|------------|---------------|--------|----------------------------|---------------|-----------------|------------------------|---------------|-----------------|
| Bandwidth                | Modulation | RB allocation | offset | Channel/Frequency(MHz)     |               |                 | Channel/Frequency(MHz) |               |                 |
|                          |            |               |        | 23205/<br>779.5            | 23230/<br>782 | 23255/<br>784.5 | 23205/<br>779.5        | 23230/<br>782 | 23255/<br>784.5 |
| 5MHz                     | QPSK       | 1             | 0      | 23.09                      | 23.10         | 23.09           | 17.34                  | 17.35         | 17.34           |
|                          |            | 1             | 13     | 23.17                      | 23.20         | 23.18           | 17.42                  | 17.45         | 17.43           |
|                          |            | 1             | 24     | 23.06                      | 23.05         | 23.07           | 17.31                  | 17.30         | 17.32           |
|                          |            | 12            | 0      | 22.12                      | 22.14         | 22.13           | 16.37                  | 16.39         | 16.38           |
|                          |            | 12            | 6      | 22.13                      | 22.15         | 22.14           | 16.38                  | 16.40         | 16.39           |
|                          |            | 12            | 13     | 22.14                      | 22.16         | 22.15           | 16.39                  | 16.41         | 16.40           |
|                          |            | 25            | 0      | 22.11                      | 22.13         | 22.12           | 16.36                  | 16.38         | 16.37           |
|                          | 16QAM      | 1             | 0      | 22.20                      | 22.21         | 22.22           | 16.45                  | 16.46         | 16.47           |
|                          |            | 1             | 13     | 22.41                      | 22.40         | 22.42           | 16.66                  | 16.65         | 16.67           |
|                          |            | 1             | 24     | 22.29                      | 22.29         | 22.28           | 16.54                  | 16.54         | 16.53           |
|                          |            | 12            | 0      | 21.11                      | 21.12         | 21.11           | 15.36                  | 15.37         | 15.36           |
|                          |            | 12            | 6      | 21.13                      | 21.12         | 21.13           | 15.38                  | 15.37         | 15.38           |
|                          |            | 12            | 13     | 21.14                      | 21.16         | 21.15           | 15.39                  | 15.41         | 15.40           |
|                          |            | 25            | 0      | 21.09                      | 21.11         | 21.10           | 15.34                  | 15.36         | 15.35           |
|                          | 64QAM      | 1             | 0      | 21.10                      | 21.12         | 21.13           | 15.35                  | 15.37         | 15.38           |
|                          |            | 1             | 13     | 21.34                      | 21.32         | 21.34           | 15.59                  | 15.57         | 15.59           |
|                          |            | 1             | 24     | 21.24                      | 21.24         | 21.24           | 15.49                  | 15.49         | 15.49           |
|                          |            | 12            | 0      | 20.18                      | 20.21         | 20.20           | 14.43                  | 14.46         | 14.45           |
|                          |            | 12            | 6      | 20.21                      | 20.21         | 20.23           | 14.46                  | 14.46         | 14.48           |
|                          |            | 12            | 13     | 20.18                      | 20.20         | 20.19           | 14.43                  | 14.45         | 14.44           |
|                          |            | 25            | 0      | 20.12                      | 20.14         | 20.13           | 14.37                  | 14.39         | 14.38           |
| Bandwidth                | Modulation | RB allocation | offset | Channel/Frequency(MHz)     |               |                 | Channel/Frequency(MHz) |               |                 |
|                          |            |               |        | /                          | 23230/<br>782 | /               | /                      | 23230/<br>782 | /               |
| 10MHz                    | QPSK       | 1             | 0      | /                          | 23.06         | /               | /                      | 17.31         | /               |
|                          |            | 1             | 25     | /                          | 23.16         | /               | /                      | 17.41         | /               |
|                          |            | 1             | 49     | /                          | 23.04         | /               | /                      | 17.29         | /               |
|                          |            | 25            | 0      | /                          | 22.09         | /               | /                      | 16.34         | /               |
|                          |            | 25            | 13     | /                          | 22.11         | /               | /                      | 16.36         | /               |
|                          |            | 25            | 25     | /                          | 22.11         | /               | /                      | 16.36         | /               |
|                          |            | 50            | 0      | /                          | 22.08         | /               | /                      | 16.33         | /               |
|                          | 16QAM      | 1             | 0      | /                          | 22.17         | /               | /                      | 16.42         | /               |
|                          |            | 1             | 25     | /                          | 22.38         | /               | /                      | 16.63         | /               |
|                          |            | 1             | 49     | /                          | 22.26         | /               | /                      | 16.51         | /               |
|                          |            | 25            | 0      | /                          | 21.08         | /               | /                      | 15.33         | /               |
|                          |            | 25            | 13     | /                          | 21.10         | /               | /                      | 15.35         | /               |
|                          |            | 25            | 25     | /                          | 21.11         | /               | /                      | 15.36         | /               |
|                          |            | 50            | 0      | /                          | 21.07         | /               | /                      | 15.32         | /               |



|  |       |    |    |   |       |   |   |       |   |
|--|-------|----|----|---|-------|---|---|-------|---|
|  | 64QAM | 1  | 0  | / | 21.08 | / | / | 15.33 | / |
|  |       | 1  | 25 | / | 21.30 | / | / | 15.55 | / |
|  |       | 1  | 49 | / | 21.18 | / | / | 15.43 | / |
|  |       | 25 | 0  | / | 20.13 | / | / | 14.38 | / |
|  |       | 25 | 13 | / | 20.17 | / | / | 14.42 | / |
|  |       | 25 | 25 | / | 20.15 | / | / | 14.40 | / |
|  |       | 50 | 0  | / | 20.10 | / | / | 14.35 | / |

| LTE Band 38Low Antenna |            |               |        | Maximum Output Power (dBm) |                |                  | EIRP (dBm)             |                |                  |
|------------------------|------------|---------------|--------|----------------------------|----------------|------------------|------------------------|----------------|------------------|
| Bandwidth              | Modulation | RB allocation | offset | Channel/Frequency(MHz)     |                |                  | Channel/Frequency(MHz) |                |                  |
|                        |            |               |        | 37775/<br>2572.5           | 38000/<br>2595 | 38225/<br>2617.5 | 37775/<br>2572.5       | 38000/<br>2595 | 38225/<br>2617.5 |
| 5MHz                   | QPSK       | 1             | 0      | 23.12                      | 23.15          | 23.11            | 22.12                  | 22.15          | 22.11            |
|                        |            | 1             | 13     | 23.34                      | 23.34          | 23.37            | 22.34                  | 22.34          | 22.37            |
|                        |            | 1             | 24     | 23.16                      | 23.17          | 23.16            | 22.16                  | 22.17          | 22.16            |
|                        |            | 12            | 0      | 22.22                      | 22.21          | 22.25            | 21.22                  | 21.21          | 21.25            |
|                        |            | 12            | 6      | 22.31                      | 22.28          | 22.31            | 21.31                  | 21.28          | 21.31            |
|                        |            | 12            | 13     | 22.31                      | 22.27          | 22.25            | 21.31                  | 21.27          | 21.25            |
|                        |            | 25            | 0      | 22.26                      | 22.27          | 22.30            | 21.26                  | 21.27          | 21.30            |
|                        | 16QAM      | 1             | 0      | 22.35                      | 22.27          | 22.32            | 21.35                  | 21.27          | 21.32            |
|                        |            | 1             | 13     | 22.59                      | 22.55          | 22.59            | 21.59                  | 21.55          | 21.59            |
|                        |            | 1             | 24     | 22.34                      | 22.34          | 22.33            | 21.34                  | 21.34          | 21.33            |
|                        |            | 12            | 0      | 21.27                      | 21.22          | 21.27            | 20.27                  | 20.22          | 20.27            |
|                        |            | 12            | 6      | 21.40                      | 21.33          | 21.35            | 20.40                  | 20.33          | 20.35            |
|                        |            | 12            | 13     | 21.33                      | 21.31          | 21.30            | 20.33                  | 20.31          | 20.30            |
|                        |            | 25            | 0      | 21.29                      | 21.26          | 21.28            | 20.29                  | 20.26          | 20.28            |
|                        | 64QAM      | 1             | 0      | 21.21                      | 21.18          | 21.19            | 20.21                  | 20.18          | 20.19            |
|                        |            | 1             | 13     | 21.47                      | 21.43          | 21.43            | 20.47                  | 20.43          | 20.43            |
|                        |            | 1             | 24     | 21.23                      | 21.21          | 21.17            | 20.23                  | 20.21          | 20.17            |
|                        |            | 12            | 0      | 20.25                      | 20.25          | 20.30            | 19.25                  | 19.25          | 19.30            |
|                        |            | 12            | 6      | 20.33                      | 20.28          | 20.37            | 19.33                  | 19.28          | 19.37            |
|                        |            | 12            | 13     | 20.27                      | 20.29          | 20.26            | 19.27                  | 19.29          | 19.26            |
|                        |            | 25            | 0      | 20.27                      | 20.28          | 20.28            | 19.27                  | 19.28          | 19.28            |
| Bandwidth              | Modulation | RB allocation | offset | Channel/Frequency(MHz)     |                |                  | Channel/Frequency(MHz) |                |                  |
|                        |            |               |        | 37800/<br>2575             | 38000/<br>2595 | 38200/<br>2615   | 37800/<br>2575         | 38000/<br>2595 | 38200/<br>2615   |
| 10MHz                  | QPSK       | 1             | 0      | 23.14                      | 23.16          | 23.14            | 22.14                  | 22.16          | 22.14            |
|                        |            | 1             | 25     | 23.37                      | 23.39          | 23.41            | 22.37                  | 22.39          | 22.41            |
|                        |            | 1             | 49     | 23.18                      | 23.21          | 23.19            | 22.18                  | 22.21          | 22.19            |
|                        |            | 25            | 0      | 22.25                      | 22.26          | 22.29            | 21.25                  | 21.26          | 21.29            |
|                        |            | 25            | 13     | 22.34                      | 22.33          | 22.35            | 21.34                  | 21.33          | 21.35            |
|                        |            | 25            | 25     | 22.33                      | 22.31          | 22.30            | 21.33                  | 21.31          | 21.30            |
|                        |            | 50            | 0      | 22.30                      | 22.29          | 22.34            | 21.30                  | 21.29          | 21.34            |



|           | 16QAM      | 1             | 0      | 22.39                  | 22.30          | 22.34            | 21.39                  | 21.30          | 21.34            |
|-----------|------------|---------------|--------|------------------------|----------------|------------------|------------------------|----------------|------------------|
|           |            | 1             | 25     | 22.63                  | 22.59          | 22.62            | 21.63                  | 21.59          | 21.62            |
|           |            | 1             | 49     | 22.37                  | 22.36          | 22.36            | 21.37                  | 21.36          | 21.36            |
|           |            | 25            | 0      | 21.30                  | 21.27          | 21.31            | 20.30                  | 20.27          | 20.31            |
|           |            | 25            | 13     | 21.42                  | 21.37          | 21.38            | 20.42                  | 20.37          | 20.38            |
|           |            | 25            | 25     | 21.36                  | 21.36          | 21.34            | 20.36                  | 20.36          | 20.34            |
|           |            | 50            | 0      | 21.32                  | 21.31          | 21.32            | 20.32                  | 20.31          | 20.32            |
|           | 64QAM      | 1             | 0      | 21.23                  | 21.17          | 21.21            | 20.23                  | 20.17          | 20.21            |
|           |            | 1             | 25     | 21.50                  | 21.43          | 21.46            | 20.50                  | 20.43          | 20.46            |
|           |            | 1             | 49     | 21.22                  | 21.23          | 21.20            | 20.22                  | 20.23          | 20.20            |
|           |            | 25            | 0      | 20.28                  | 20.30          | 20.30            | 19.28                  | 19.30          | 19.30            |
|           |            | 25            | 13     | 20.35                  | 20.32          | 20.40            | 19.35                  | 19.32          | 19.40            |
|           |            | 25            | 25     | 20.30                  | 20.34          | 20.30            | 19.30                  | 19.34          | 19.30            |
|           |            | 50            | 0      | 20.30                  | 20.33          | 20.32            | 19.30                  | 19.33          | 19.32            |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                |                  | Channel/Frequency(MHz) |                |                  |
|           |            |               |        | 37825/<br>2577.5       | 38000/<br>2595 | 38175/<br>2612.5 | 37825/<br>2577.5       | 38000/<br>2595 | 38175/<br>2612.5 |
| 15MHz     | QPSK       | 1             | 0      | 23.13                  | 23.12          | 23.12            | 22.13                  | 22.12          | 22.12            |
|           |            | 1             | 38     | 23.35                  | 23.38          | 23.38            | 22.35                  | 22.38          | 22.38            |
|           |            | 1             | 74     | 23.15                  | 23.16          | 23.15            | 22.15                  | 22.16          | 22.15            |
|           |            | 36            | 0      | 22.23                  | 22.22          | 22.26            | 21.23                  | 21.22          | 21.26            |
|           |            | 36            | 18     | 22.31                  | 22.28          | 22.31            | 21.31                  | 21.28          | 21.31            |
|           |            | 36            | 39     | 22.30                  | 22.28          | 22.26            | 21.30                  | 21.28          | 21.26            |
|           |            | 75            | 0      | 22.28                  | 22.25          | 22.29            | 21.28                  | 21.25          | 21.29            |
|           | 16QAM      | 1             | 0      | 22.37                  | 22.28          | 22.32            | 21.37                  | 21.28          | 21.32            |
|           |            | 1             | 38     | 22.61                  | 22.56          | 22.60            | 21.61                  | 21.56          | 21.60            |
|           |            | 1             | 74     | 22.35                  | 22.32          | 22.33            | 21.35                  | 21.32          | 21.33            |
|           |            | 36            | 0      | 21.27                  | 21.25          | 21.28            | 20.27                  | 20.25          | 20.28            |
|           |            | 36            | 18     | 21.39                  | 21.32          | 21.34            | 20.39                  | 20.32          | 20.34            |
|           |            | 36            | 39     | 21.34                  | 21.32          | 21.31            | 20.34                  | 20.32          | 20.31            |
|           |            | 75            | 0      | 21.29                  | 21.26          | 21.28            | 20.29                  | 20.26          | 20.28            |
|           | 64QAM      | 1             | 0      | 21.18                  | 21.15          | 21.19            | 20.18                  | 20.15          | 20.19            |
|           |            | 1             | 38     | 21.48                  | 21.40          | 21.44            | 20.48                  | 20.40          | 20.44            |
|           |            | 1             | 74     | 21.23                  | 21.22          | 21.21            | 20.23                  | 20.22          | 20.21            |
|           |            | 36            | 0      | 20.27                  | 20.32          | 20.31            | 19.27                  | 19.32          | 19.31            |
|           |            | 36            | 18     | 20.33                  | 20.29          | 20.39            | 19.33                  | 19.29          | 19.39            |
|           |            | 36            | 39     | 20.28                  | 20.30          | 20.27            | 19.28                  | 19.30          | 19.27            |
|           |            | 75            | 0      | 20.27                  | 20.28          | 20.28            | 19.27                  | 19.28          | 19.28            |



| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                |                | Channel/Frequency(MHz) |                |                |
|-----------|------------|---------------|--------|------------------------|----------------|----------------|------------------------|----------------|----------------|
|           |            |               |        | 37850/<br>2580         | 38000/<br>2595 | 38150/<br>2610 | 37850/<br>2580         | 38000/<br>2595 | 38150/<br>2610 |
| 20MHz     | QPSK       | 1             | 0      | 23.10                  | 23.08          | 23.09          | 22.10                  | 22.08          | 22.09          |
|           |            | 1             | 50     | 23.34                  | 23.34          | 23.36          | 22.34                  | 22.34          | 22.36          |
|           |            | 1             | 99     | 23.13                  | 23.15          | 23.12          | 22.13                  | 22.15          | 22.12          |
|           |            | 50            | 0      | 22.20                  | 22.17          | 22.22          | 21.20                  | 21.17          | 21.22          |
|           |            | 50            | 25     | 22.29                  | 22.24          | 22.28          | 21.29                  | 21.24          | 21.28          |
|           |            | 50            | 50     | 22.27                  | 22.23          | 22.22          | 21.27                  | 21.23          | 21.22          |
|           |            | 100           | 0      | 22.25                  | 22.20          | 22.25          | 21.25                  | 21.20          | 21.25          |
|           | 16QAM      | 1             | 0      | 22.34                  | 22.24          | 22.27          | 21.34                  | 21.24          | 21.27          |
|           |            | 1             | 50     | 22.58                  | 22.54          | 22.56          | 21.58                  | 21.54          | 21.56          |
|           |            | 1             | 99     | 22.32                  | 22.29          | 22.31          | 21.32                  | 21.29          | 21.31          |
|           |            | 50            | 0      | 21.24                  | 21.21          | 21.25          | 20.24                  | 20.21          | 20.25          |
|           |            | 50            | 25     | 21.36                  | 21.30          | 21.31          | 20.36                  | 20.30          | 20.31          |
|           |            | 50            | 50     | 21.31                  | 21.27          | 21.27          | 20.31                  | 20.27          | 20.27          |
|           |            | 100           | 0      | 21.27                  | 21.22          | 21.25          | 20.27                  | 20.22          | 20.25          |
|           | 64QAM      | 1             | 0      | 21.16                  | 21.11          | 21.14          | 20.16                  | 20.11          | 20.14          |
|           |            | 1             | 50     | 21.44                  | 21.38          | 21.40          | 20.44                  | 20.38          | 20.40          |
|           |            | 1             | 99     | 21.17                  | 21.16          | 21.15          | 20.17                  | 20.16          | 20.15          |
|           |            | 50            | 0      | 20.22                  | 20.24          | 20.24          | 19.22                  | 19.24          | 19.24          |
|           |            | 50            | 25     | 20.29                  | 20.25          | 20.33          | 19.29                  | 19.25          | 19.33          |
|           |            | 50            | 50     | 20.25                  | 20.25          | 20.23          | 19.25                  | 19.25          | 19.23          |
|           |            | 100           | 0      | 20.25                  | 20.24          | 20.25          | 19.25                  | 19.24          | 19.25          |

| LTE Band 38Upper Antenna |            |               |        | Maximum Output Power (dBm) |                |                  | EIRP (dBm)             |                |                  |
|--------------------------|------------|---------------|--------|----------------------------|----------------|------------------|------------------------|----------------|------------------|
| Bandwidth                | Modulation | RB allocation | offset | Channel/Frequency(MHz)     |                |                  | Channel/Frequency(MHz) |                |                  |
|                          |            |               |        | 37775/<br>2572.5           | 38000/<br>2595 | 38225/<br>2617.5 | 37775/<br>2572.5       | 38000/<br>2595 | 38225/<br>2617.5 |
| 5MHz                     | QPSK       | 1             | 0      | 23.05                      | 23.12          | 23.06            | 21.65                  | 21.72          | 21.66            |
|                          |            | 1             | 13     | 23.25                      | 23.22          | 23.26            | 21.85                  | 21.82          | 21.86            |
|                          |            | 1             | 24     | 23.05                      | 23.05          | 23.07            | 21.65                  | 21.65          | 21.67            |
|                          |            | 12            | 0      | 22.14                      | 22.12          | 22.12            | 20.74                  | 20.72          | 20.72            |
|                          |            | 12            | 6      | 22.23                      | 22.19          | 22.18            | 20.83                  | 20.79          | 20.78            |
|                          |            | 12            | 13     | 22.24                      | 22.17          | 22.15            | 20.84                  | 20.77          | 20.75            |
|                          |            | 25            | 0      | 22.16                      | 22.19          | 22.20            | 20.76                  | 20.79          | 20.80            |
|                          | 16QAM      | 1             | 0      | 22.28                      | 22.22          | 22.26            | 20.88                  | 20.82          | 20.86            |
|                          |            | 1             | 13     | 22.49                      | 22.44          | 22.48            | 21.09                  | 21.04          | 21.08            |
|                          |            | 1             | 24     | 22.28                      | 22.27          | 22.21            | 20.88                  | 20.87          | 20.81            |
|                          |            | 12            | 0      | 21.21                      | 21.13          | 21.16            | 19.81                  | 19.73          | 19.76            |
|                          |            | 12            | 6      | 21.27                      | 21.22          | 21.25            | 19.87                  | 19.82          | 19.85            |
|                          |            | 12            | 13     | 21.25                      | 21.21          | 21.17            | 19.85                  | 19.81          | 19.77            |
|                          |            | 25            | 0      | 21.20                      | 21.20          | 21.20            | 19.80                  | 19.80          | 19.80            |



|           | 64QAM      | 1             | 0      | 21.19                  | 21.11          | 21.06            | 19.79                  | 19.71          | 19.66            |
|-----------|------------|---------------|--------|------------------------|----------------|------------------|------------------------|----------------|------------------|
|           |            | 1             | 13     | 21.40                  | 21.37          | 21.33            | 20.00                  | 19.97          | 19.93            |
|           |            | 1             | 24     | 21.13                  | 21.09          | 21.11            | 19.73                  | 19.69          | 19.71            |
|           |            | 12            | 0      | 20.17                  | 20.13          | 20.19            | 18.77                  | 18.73          | 18.79            |
|           |            | 12            | 6      | 20.22                  | 20.19          | 20.25            | 18.82                  | 18.79          | 18.85            |
|           |            | 12            | 13     | 20.21                  | 20.18          | 20.19            | 18.81                  | 18.78          | 18.79            |
|           |            | 25            | 0      | 20.16                  | 20.17          | 20.17            | 18.76                  | 18.77          | 18.77            |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                |                  | Channel/Frequency(MHz) |                |                  |
|           |            |               |        | 37800/<br>2575         | 38000/<br>2595 | 38200/<br>2615   | 37800/<br>2575         | 38000/<br>2595 | 38200/<br>2615   |
| 10MHz     | QPSK       | 1             | 0      | 23.08                  | 23.14          | 23.10            | 21.68                  | 21.74          | 21.70            |
|           |            | 1             | 25     | 23.27                  | 23.26          | 23.29            | 21.87                  | 21.86          | 21.89            |
|           |            | 1             | 49     | 23.08                  | 23.10          | 23.11            | 21.68                  | 21.70          | 21.71            |
|           |            | 25            | 0      | 22.17                  | 22.17          | 22.16            | 20.77                  | 20.77          | 20.76            |
|           |            | 25            | 13     | 22.25                  | 22.23          | 22.23            | 20.85                  | 20.83          | 20.83            |
|           |            | 25            | 25     | 22.26                  | 22.19          | 22.19            | 20.86                  | 20.79          | 20.79            |
|           |            | 50            | 0      | 22.16                  | 22.20          | 22.22            | 20.76                  | 20.80          | 20.82            |
|           | 16QAM      | 1             | 0      | 22.28                  | 22.26          | 22.29            | 20.88                  | 20.86          | 20.89            |
|           |            | 1             | 25     | 22.49                  | 22.46          | 22.51            | 21.09                  | 21.06          | 21.11            |
|           |            | 1             | 49     | 22.31                  | 22.29          | 22.25            | 20.91                  | 20.89          | 20.85            |
|           |            | 25            | 0      | 21.23                  | 21.17          | 21.19            | 19.83                  | 19.77          | 19.79            |
|           |            | 25            | 13     | 21.30                  | 21.27          | 21.29            | 19.90                  | 19.87          | 19.89            |
|           |            | 25            | 25     | 21.28                  | 21.26          | 21.21            | 19.88                  | 19.86          | 19.81            |
|           |            | 50            | 0      | 21.22                  | 21.24          | 21.25            | 19.82                  | 19.84          | 19.85            |
|           | 64QAM      | 1             | 0      | 21.22                  | 21.11          | 21.09            | 19.82                  | 19.71          | 19.69            |
|           |            | 1             | 25     | 21.43                  | 21.35          | 21.36            | 20.03                  | 19.95          | 19.96            |
|           |            | 1             | 49     | 21.12                  | 21.11          | 21.15            | 19.72                  | 19.71          | 19.75            |
|           |            | 25            | 0      | 20.19                  | 20.17          | 20.18            | 18.79                  | 18.77          | 18.78            |
|           |            | 25            | 13     | 20.25                  | 20.24          | 20.29            | 18.85                  | 18.84          | 18.89            |
|           |            | 25            | 25     | 20.24                  | 20.23          | 20.23            | 18.84                  | 18.83          | 18.83            |
|           |            | 50            | 0      | 20.18                  | 20.21          | 20.22            | 18.78                  | 18.81          | 18.82            |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                |                  | Channel/Frequency(MHz) |                |                  |
|           |            |               |        | 37825/<br>2577.5       | 38000/<br>2595 | 38175/<br>2612.5 | 37825/<br>2577.5       | 38000/<br>2595 | 38175/<br>2612.5 |
| 15MHz     | QPSK       | 1             | 0      | 23.06                  | 23.09          | 23.07            | 21.66                  | 21.69          | 21.67            |
|           |            | 1             | 38     | 23.26                  | 23.26          | 23.27            | 21.86                  | 21.86          | 21.87            |
|           |            | 1             | 74     | 23.04                  | 23.04          | 23.06            | 21.64                  | 21.64          | 21.66            |
|           |            | 36            | 0      | 22.15                  | 22.13          | 22.13            | 20.75                  | 20.73          | 20.73            |
|           |            | 36            | 18     | 22.23                  | 22.19          | 22.18            | 20.83                  | 20.79          | 20.78            |
|           |            | 36            | 39     | 22.23                  | 22.18          | 22.16            | 20.83                  | 20.78          | 20.76            |
|           |            | 75            | 0      | 22.18                  | 22.17          | 22.19            | 20.78                  | 20.77          | 20.79            |
|           | 16QAM      | 1             | 0      | 22.30                  | 22.23          | 22.26            | 20.90                  | 20.83          | 20.86            |
|           |            | 1             | 38     | 22.51                  | 22.45          | 22.49            | 21.11                  | 21.05          | 21.09            |



|           |            | 1             | 74     | 22.29                  | 22.25          | 22.21          | 20.89                  | 20.85          | 20.81          |
|-----------|------------|---------------|--------|------------------------|----------------|----------------|------------------------|----------------|----------------|
|           |            | 36            | 0      | 21.21                  | 21.16          | 21.17          | 19.81                  | 19.76          | 19.77          |
|           |            | 36            | 18     | 21.26                  | 21.21          | 21.24          | 19.86                  | 19.81          | 19.84          |
|           |            | 36            | 39     | 21.26                  | 21.22          | 21.18          | 19.86                  | 19.82          | 19.78          |
|           |            | 75            | 0      | 21.20                  | 21.20          | 21.20          | 19.80                  | 19.80          | 19.80          |
|           | 64QAM      | 1             | 0      | 21.16                  | 21.08          | 21.06          | 19.76                  | 19.68          | 19.66          |
|           |            | 1             | 38     | 21.41                  | 21.34          | 21.34          | 20.01                  | 19.94          | 19.94          |
|           |            | 1             | 74     | 21.13                  | 21.10          | 21.15          | 19.73                  | 19.70          | 19.75          |
|           |            | 36            | 0      | 20.19                  | 20.20          | 20.20          | 18.79                  | 18.80          | 18.80          |
|           |            | 36            | 18     | 20.22                  | 20.20          | 20.27          | 18.82                  | 18.80          | 18.87          |
|           |            | 36            | 39     | 20.22                  | 20.19          | 20.20          | 18.82                  | 18.79          | 18.80          |
|           |            | 75            | 0      | 20.16                  | 20.17          | 20.17          | 18.76                  | 18.77          | 18.77          |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                |                | Channel/Frequency(MHz) |                |                |
|           |            |               |        | 37850/<br>2580         | 38000/<br>2595 | 38150/<br>2610 | 37850/<br>2580         | 38000/<br>2595 | 38150/<br>2610 |
| 20MHz     | QPSK       | 1             | 0      | 23.03                  | 23.05          | 23.04          | 21.63                  | 21.65          | 21.64          |
|           |            | 1             | 50     | 23.25                  | 23.22          | 23.25          | 21.85                  | 21.82          | 21.85          |
|           |            | 1             | 99     | 23.02                  | 23.03          | 23.03          | 21.62                  | 21.63          | 21.63          |
|           |            | 50            | 0      | 22.12                  | 22.08          | 22.09          | 20.72                  | 20.68          | 20.69          |
|           |            | 50            | 25     | 22.21                  | 22.15          | 22.15          | 20.81                  | 20.75          | 20.75          |
|           |            | 50            | 50     | 22.20                  | 22.13          | 22.12          | 20.80                  | 20.73          | 20.72          |
|           |            | 100           | 0      | 22.15                  | 22.12          | 22.15          | 20.75                  | 20.72          | 20.75          |
|           | 16QAM      | 1             | 0      | 22.27                  | 22.19          | 22.21          | 20.87                  | 20.79          | 20.81          |
|           |            | 1             | 50     | 22.48                  | 22.43          | 22.45          | 21.08                  | 21.03          | 21.05          |
|           |            | 1             | 99     | 22.26                  | 22.22          | 22.19          | 20.86                  | 20.82          | 20.79          |
|           |            | 50            | 0      | 21.18                  | 21.12          | 21.14          | 19.78                  | 19.72          | 19.74          |
|           |            | 50            | 25     | 21.23                  | 21.19          | 21.21          | 19.83                  | 19.79          | 19.81          |
|           |            | 50            | 50     | 21.23                  | 21.17          | 21.14          | 19.83                  | 19.77          | 19.74          |
|           |            | 100           | 0      | 21.18                  | 21.16          | 21.17          | 19.78                  | 19.76          | 19.77          |
|           | 64QAM      | 1             | 0      | 21.14                  | 21.04          | 21.01          | 19.74                  | 19.64          | 19.61          |
|           |            | 1             | 50     | 21.37                  | 21.32          | 21.30          | 19.97                  | 19.92          | 19.90          |
|           |            | 1             | 99     | 21.07                  | 21.04          | 21.09          | 19.67                  | 19.64          | 19.69          |
|           |            | 50            | 0      | 20.14                  | 20.12          | 20.13          | 18.74                  | 18.72          | 18.73          |
|           |            | 50            | 25     | 20.18                  | 20.16          | 20.21          | 18.78                  | 18.76          | 18.81          |
|           |            | 50            | 50     | 20.19                  | 20.14          | 20.16          | 18.79                  | 18.74          | 18.76          |
|           |            | 100           | 0      | 20.14                  | 20.13          | 20.14          | 18.74                  | 18.73          | 18.74          |



| LTE Band 41 Low Antenna |            |               |        | Maximum Output Power (dBm) |                |                  | EIRP (dBm)             |                |                  |
|-------------------------|------------|---------------|--------|----------------------------|----------------|------------------|------------------------|----------------|------------------|
| Bandwidth               | Modulation | RB allocation | offset | Channel/Frequency(MHz)     |                |                  | Channel/Frequency(MHz) |                |                  |
|                         |            |               |        | 39675/<br>2498.5           | 40620/<br>2593 | 41565/<br>2687.5 | 39675/<br>2498.5       | 40620/<br>2593 | 41565/<br>2687.5 |
| 5MHz                    | QPSK       | 1             | 0      | 23.25                      | 23.09          | 23.10            | 22.45                  | 22.29          | 22.30            |
|                         |            | 1             | 13     | 23.52                      | 23.42          | 23.34            | 22.72                  | 22.62          | 22.54            |
|                         |            | 1             | 24     | 23.28                      | 23.17          | 23.07            | 22.48                  | 22.37          | 22.27            |
|                         |            | 12            | 0      | 22.37                      | 22.26          | 22.28            | 21.57                  | 21.46          | 21.48            |
|                         |            | 12            | 6      | 22.48                      | 22.35          | 22.35            | 21.68                  | 21.55          | 21.55            |
|                         |            | 12            | 13     | 22.47                      | 22.30          | 22.31            | 21.67                  | 21.50          | 21.51            |
|                         |            | 25            | 0      | 22.40                      | 22.32          | 22.32            | 21.60                  | 21.52          | 21.52            |
|                         | 16QAM      | 1             | 0      | 22.41                      | 22.34          | 22.29            | 21.61                  | 21.54          | 21.49            |
|                         |            | 1             | 13     | 22.73                      | 22.61          | 22.58            | 21.93                  | 21.81          | 21.78            |
|                         |            | 1             | 24     | 22.43                      | 22.35          | 22.34            | 21.63                  | 21.55          | 21.54            |
|                         |            | 12            | 0      | 21.41                      | 21.28          | 21.28            | 20.61                  | 20.48          | 20.48            |
|                         |            | 12            | 6      | 21.49                      | 21.36          | 21.40            | 20.69                  | 20.56          | 20.60            |
|                         |            | 12            | 13     | 21.44                      | 21.33          | 21.33            | 20.64                  | 20.53          | 20.53            |
|                         |            | 25            | 0      | 21.41                      | 21.32          | 21.32            | 20.61                  | 20.52          | 20.52            |
|                         | 64QAM      | 1             | 0      | 21.35                      | 21.19          | 21.21            | 20.55                  | 20.39          | 20.41            |
|                         |            | 1             | 13     | 21.61                      | 21.47          | 21.51            | 20.81                  | 20.67          | 20.71            |
|                         |            | 1             | 24     | 21.34                      | 21.22          | 21.22            | 20.54                  | 20.42          | 20.42            |
|                         |            | 12            | 0      | 20.40                      | 20.32          | 20.24            | 19.60                  | 19.52          | 19.44            |
|                         |            | 12            | 6      | 20.49                      | 20.36          | 20.33            | 19.69                  | 19.56          | 19.53            |
|                         |            | 12            | 13     | 20.46                      | 20.37          | 20.31            | 19.66                  | 19.57          | 19.51            |
|                         |            | 25            | 0      | 20.38                      | 20.33          | 20.27            | 19.58                  | 19.53          | 19.47            |
| Bandwidth               | Modulation | RB allocation | offset | Channel/Frequency(MHz)     |                |                  | Channel/Frequency(MHz) |                |                  |
|                         |            |               |        | 39700/<br>2501             | 40620/<br>2593 | 41540/<br>2685   | 39700/<br>2501         | 40620/<br>2593 | 41540/<br>2685   |
| 10MHz                   | QPSK       | 1             | 0      | 23.27                      | 23.12          | 23.11            | 22.47                  | 22.32          | 22.31            |
|                         |            | 1             | 25     | 23.55                      | 23.46          | 23.39            | 22.75                  | 22.66          | 22.59            |
|                         |            | 1             | 49     | 23.30                      | 23.20          | 23.11            | 22.50                  | 22.40          | 22.31            |
|                         |            | 25            | 0      | 22.40                      | 22.30          | 22.33            | 21.60                  | 21.50          | 21.53            |
|                         |            | 25            | 13     | 22.51                      | 22.39          | 22.40            | 21.71                  | 21.59          | 21.60            |
|                         |            | 25            | 25     | 22.49                      | 22.35          | 22.35            | 21.69                  | 21.55          | 21.55            |
|                         |            | 50            | 0      | 22.44                      | 22.36          | 22.34            | 21.64                  | 21.56          | 21.54            |
|                         | 16QAM      | 1             | 0      | 22.45                      | 22.36          | 22.32            | 21.65                  | 21.56          | 21.52            |
|                         |            | 1             | 25     | 22.77                      | 22.64          | 22.62            | 21.97                  | 21.84          | 21.82            |
|                         |            | 1             | 49     | 22.46                      | 22.38          | 22.36            | 21.66                  | 21.58          | 21.56            |
|                         |            | 25            | 0      | 21.44                      | 21.32          | 21.33            | 20.64                  | 20.52          | 20.53            |
|                         |            | 25            | 13     | 21.51                      | 21.39          | 21.44            | 20.71                  | 20.59          | 20.64            |
|                         |            | 25            | 25     | 21.47                      | 21.37          | 21.38            | 20.67                  | 20.57          | 20.58            |
|                         |            | 50            | 0      | 21.44                      | 21.36          | 21.37            | 20.64                  | 20.56          | 20.57            |



|           | 64QAM      | 1             | 0      | 21.37                  | 21.21          | 21.20            | 20.57                  | 20.41          | 20.40            |
|-----------|------------|---------------|--------|------------------------|----------------|------------------|------------------------|----------------|------------------|
|           |            | 1             | 25     | 21.64                  | 21.50          | 21.51            | 20.84                  | 20.70          | 20.71            |
|           |            | 1             | 49     | 21.33                  | 21.25          | 21.24            | 20.53                  | 20.45          | 20.44            |
|           |            | 25            | 0      | 20.43                  | 20.32          | 20.29            | 19.63                  | 19.52          | 19.49            |
|           |            | 25            | 13     | 20.51                  | 20.39          | 20.37            | 19.71                  | 19.59          | 19.57            |
|           |            | 25            | 25     | 20.49                  | 20.41          | 20.36            | 19.69                  | 19.61          | 19.56            |
|           |            | 50            | 0      | 20.41                  | 20.37          | 20.32            | 19.61                  | 19.57          | 19.52            |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                |                  | Channel/Frequency(MHz) |                |                  |
|           |            |               |        | 39725/<br>2503.5       | 40620/<br>2593 | 41515/<br>2682.5 | 39725/<br>2503.5       | 40620/<br>2593 | 41515/<br>2682.5 |
| 15MHz     | QPSK       | 1             | 0      | 23.26                  | 23.10          | 23.07            | 22.46                  | 22.30          | 22.27            |
|           |            | 1             | 38     | 23.53                  | 23.43          | 23.38            | 22.73                  | 22.63          | 22.58            |
|           |            | 1             | 74     | 23.27                  | 23.16          | 23.06            | 22.47                  | 22.36          | 22.26            |
|           |            | 36            | 0      | 22.38                  | 22.27          | 22.29            | 21.58                  | 21.47          | 21.49            |
|           |            | 36            | 18     | 22.48                  | 22.35          | 22.35            | 21.68                  | 21.55          | 21.55            |
|           |            | 36            | 39     | 22.46                  | 22.31          | 22.32            | 21.66                  | 21.51          | 21.52            |
|           |            | 75            | 0      | 22.42                  | 22.31          | 22.30            | 21.62                  | 21.51          | 21.50            |
|           | 16QAM      | 1             | 0      | 22.43                  | 22.34          | 22.30            | 21.63                  | 21.54          | 21.50            |
|           |            | 1             | 38     | 22.75                  | 22.62          | 22.59            | 21.95                  | 21.82          | 21.79            |
|           |            | 1             | 74     | 22.44                  | 22.35          | 22.32            | 21.64                  | 21.55          | 21.52            |
|           |            | 36            | 0      | 21.41                  | 21.29          | 21.31            | 20.61                  | 20.49          | 20.51            |
|           |            | 36            | 18     | 21.48                  | 21.35          | 21.39            | 20.68                  | 20.55          | 20.59            |
|           |            | 36            | 39     | 21.45                  | 21.34          | 21.34            | 20.65                  | 20.54          | 20.54            |
|           |            | 75            | 0      | 21.41                  | 21.32          | 21.32            | 20.61                  | 20.52          | 20.52            |
|           | 64QAM      | 1             | 0      | 21.32                  | 21.19          | 21.18            | 20.52                  | 20.39          | 20.38            |
|           |            | 1             | 38     | 21.62                  | 21.48          | 21.48            | 20.82                  | 20.68          | 20.68            |
|           |            | 1             | 74     | 21.34                  | 21.26          | 21.23            | 20.54                  | 20.46          | 20.43            |
|           |            | 36            | 0      | 20.42                  | 20.33          | 20.31            | 19.62                  | 19.53          | 19.51            |
|           |            | 36            | 18     | 20.49                  | 20.38          | 20.34            | 19.69                  | 19.58          | 19.54            |
|           |            | 36            | 39     | 20.47                  | 20.38          | 20.32            | 19.67                  | 19.58          | 19.52            |
|           |            | 75            | 0      | 20.38                  | 20.33          | 20.27            | 19.58                  | 19.53          | 19.47            |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                |                  | Channel/Frequency(MHz) |                |                  |
|           |            |               |        | 39750/<br>2506         | 40620/<br>2593 | 41490/<br>2680   | 39750/<br>2506         | 40620/<br>2593 | 41490/<br>2680   |
| 20MHz     | QPSK       | 1             | 0      | 23.23                  | 23.07          | 23.03            | 22.43                  | 22.27          | 22.23            |
|           |            | 1             | 50     | 23.52                  | 23.41          | 23.34            | 22.72                  | 22.61          | 22.54            |
|           |            | 1             | 99     | 23.25                  | 23.13          | 23.05            | 22.45                  | 22.33          | 22.25            |
|           |            | 50            | 0      | 22.35                  | 22.23          | 22.24            | 21.55                  | 21.43          | 21.44            |
|           |            | 50            | 25     | 22.46                  | 22.32          | 22.31            | 21.66                  | 21.52          | 21.51            |
|           |            | 50            | 50     | 22.43                  | 22.27          | 22.27            | 21.63                  | 21.47          | 21.47            |
|           |            | 100           | 0      | 22.39                  | 22.27          | 22.25            | 21.59                  | 21.47          | 21.45            |
|           | 16QAM      | 1             | 0      | 22.40                  | 22.29          | 22.26            | 21.60                  | 21.49          | 21.46            |
|           |            | 1             | 50     | 22.72                  | 22.58          | 22.57            | 21.92                  | 21.78          | 21.77            |



|  |       |     |    |       |       |       |       |       |       |
|--|-------|-----|----|-------|-------|-------|-------|-------|-------|
|  |       | 1   | 99 | 22.41 | 22.33 | 22.29 | 21.61 | 21.53 | 21.49 |
|  |       | 50  | 0  | 21.38 | 21.26 | 21.27 | 20.58 | 20.46 | 20.47 |
|  |       | 50  | 25 | 21.45 | 21.32 | 21.37 | 20.65 | 20.52 | 20.57 |
|  |       | 50  | 50 | 21.42 | 21.30 | 21.29 | 20.62 | 20.50 | 20.49 |
|  |       | 100 | 0  | 21.39 | 21.29 | 21.28 | 20.59 | 20.49 | 20.48 |
|  | 64QAM | 1   | 0  | 21.30 | 21.14 | 21.14 | 20.50 | 20.34 | 20.34 |
|  |       | 1   | 50 | 21.58 | 21.44 | 21.46 | 20.78 | 20.64 | 20.66 |
|  |       | 1   | 99 | 21.28 | 21.20 | 21.17 | 20.48 | 20.40 | 20.37 |
|  |       | 50  | 0  | 20.37 | 20.26 | 20.23 | 19.57 | 19.46 | 19.43 |
|  |       | 50  | 25 | 20.45 | 20.32 | 20.30 | 19.65 | 19.52 | 19.50 |
|  |       | 50  | 50 | 20.44 | 20.34 | 20.27 | 19.64 | 19.54 | 19.47 |
|  |       | 100 | 0  | 20.36 | 20.30 | 20.23 | 19.56 | 19.50 | 19.43 |

| LTE Band 41Upper Antenna |            |               |        | Maximum Output Power (dBm) |                |                  | EIRP (dBm)             |                |                  |
|--------------------------|------------|---------------|--------|----------------------------|----------------|------------------|------------------------|----------------|------------------|
| Bandwidth                | Modulation | RB allocation | offset | Channel/Frequency(MHz)     |                |                  | Channel/Frequency(MHz) |                |                  |
|                          |            |               |        | 39675/<br>2498.5           | 40620/<br>2593 | 41565/<br>2687.5 | 39675/<br>2498.5       | 40620/<br>2593 | 41565/<br>2687.5 |
| 5MHz                     | QPSK       | 1             | 0      | 23.29                      | 23.04          | 23.15            | 21.59                  | 21.34          | 21.45            |
|                          |            | 1             | 13     | 23.50                      | 23.31          | 23.45            | 21.80                  | 21.61          | 21.75            |
|                          |            | 1             | 24     | 23.29                      | 23.05          | 23.19            | 21.59                  | 21.35          | 21.49            |
|                          |            | 12            | 0      | 22.43                      | 22.11          | 22.41            | 20.73                  | 20.41          | 20.71            |
|                          |            | 12            | 6      | 22.51                      | 22.21          | 22.47            | 20.81                  | 20.51          | 20.77            |
|                          |            | 12            | 13     | 22.39                      | 22.17          | 22.43            | 20.69                  | 20.47          | 20.73            |
|                          |            | 25            | 0      | 22.46                      | 22.17          | 22.48            | 20.76                  | 20.47          | 20.78            |
|                          | 16QAM      | 1             | 0      | 22.49                      | 22.19          | 22.43            | 20.79                  | 20.49          | 20.73            |
|                          |            | 1             | 13     | 22.72                      | 22.48          | 22.73            | 21.02                  | 20.78          | 21.03            |
|                          |            | 1             | 24     | 22.46                      | 22.23          | 22.45            | 20.76                  | 20.53          | 20.75            |
|                          |            | 12            | 0      | 21.41                      | 21.12          | 21.45            | 19.71                  | 19.42          | 19.75            |
|                          |            | 12            | 6      | 21.54                      | 21.22          | 21.54            | 19.84                  | 19.52          | 19.84            |
|                          |            | 12            | 13     | 21.48                      | 21.20          | 21.47            | 19.78                  | 19.50          | 19.77            |
|                          |            | 25            | 0      | 21.56                      | 21.14          | 21.47            | 19.86                  | 19.44          | 19.77            |
|                          | 64QAM      | 1             | 0      | 21.35                      | 21.07          | 21.28            | 19.65                  | 19.37          | 19.58            |
|                          |            | 1             | 13     | 21.65                      | 21.35          | 21.61            | 19.95                  | 19.65          | 19.91            |
|                          |            | 1             | 24     | 21.35                      | 21.04          | 21.30            | 19.65                  | 19.34          | 19.60            |
|                          |            | 12            | 0      | 20.42                      | 20.17          | 20.42            | 18.72                  | 18.47          | 18.72            |
|                          |            | 12            | 6      | 20.52                      | 20.21          | 20.47            | 18.82                  | 18.51          | 18.77            |
|                          |            | 12            | 13     | 20.46                      | 20.19          | 20.45            | 18.76                  | 18.49          | 18.75            |
|                          |            | 25            | 0      | 20.43                      | 20.15          | 20.41            | 18.73                  | 18.45          | 18.71            |



| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                |                  | Channel/Frequency(MHz) |                |                  |
|-----------|------------|---------------|--------|------------------------|----------------|------------------|------------------------|----------------|------------------|
|           |            |               |        | 39700/<br>2501         | 40620/<br>2593 | 41540/<br>2685   | 39700/<br>2501         | 40620/<br>2593 | 41540/<br>2685   |
| 10MHz     | QPSK       | 1             | 0      | 23.31                  | 23.07          | 23.18            | 21.61                  | 21.37          | 21.48            |
|           |            | 1             | 25     | 23.53                  | 23.35          | 23.49            | 21.83                  | 21.65          | 21.79            |
|           |            | 1             | 49     | 23.31                  | 23.08          | 23.22            | 21.61                  | 21.38          | 21.52            |
|           |            | 25            | 0      | 22.46                  | 22.15          | 22.45            | 20.76                  | 20.45          | 20.75            |
|           |            | 25            | 13     | 22.54                  | 22.25          | 22.51            | 20.84                  | 20.55          | 20.81            |
|           |            | 25            | 25     | 22.41                  | 22.22          | 22.48            | 20.71                  | 20.52          | 20.78            |
|           |            | 50            | 0      | 22.50                  | 22.21          | 22.52            | 20.80                  | 20.51          | 20.82            |
|           | 16QAM      | 1             | 0      | 22.53                  | 22.21          | 22.45            | 20.83                  | 20.51          | 20.75            |
|           |            | 1             | 25     | 22.76                  | 22.51          | 22.76            | 21.06                  | 20.81          | 21.06            |
|           |            | 1             | 49     | 22.49                  | 22.26          | 22.48            | 20.79                  | 20.56          | 20.78            |
|           |            | 25            | 0      | 21.44                  | 21.16          | 21.49            | 19.74                  | 19.46          | 19.79            |
|           |            | 25            | 13     | 21.56                  | 21.25          | 21.57            | 19.86                  | 19.55          | 19.87            |
|           |            | 25            | 25     | 21.51                  | 21.24          | 21.51            | 19.81                  | 19.54          | 19.81            |
|           |            | 50            | 0      | 21.59                  | 21.18          | 21.51            | 19.89                  | 19.48          | 19.81            |
|           | 64QAM      | 1             | 0      | 21.37                  | 21.09          | 21.30            | 19.67                  | 19.39          | 19.60            |
|           |            | 1             | 25     | 21.68                  | 21.38          | 21.64            | 19.98                  | 19.68          | 19.94            |
|           |            | 1             | 49     | 21.34                  | 21.07          | 21.33            | 19.64                  | 19.37          | 19.63            |
|           |            | 25            | 0      | 20.45                  | 20.17          | 20.42            | 18.75                  | 18.47          | 18.72            |
|           |            | 25            | 13     | 20.54                  | 20.24          | 20.50            | 18.84                  | 18.54          | 18.80            |
|           |            | 25            | 25     | 20.49                  | 20.23          | 20.49            | 18.79                  | 18.53          | 18.79            |
|           |            | 50            | 0      | 20.46                  | 20.19          | 20.45            | 18.76                  | 18.49          | 18.75            |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                |                  | Channel/Frequency(MHz) |                |                  |
|           |            |               |        | 39725/<br>2503.5       | 40620/<br>2593 | 41515/<br>2682.5 | 39725/<br>2503.5       | 40620/<br>2593 | 41515/<br>2682.5 |
| 15MHz     | QPSK       | 1             | 0      | 23.30                  | 23.05          | 23.16            | 21.60                  | 21.35          | 21.46            |
|           |            | 1             | 38     | 23.51                  | 23.32          | 23.46            | 21.81                  | 21.62          | 21.76            |
|           |            | 1             | 74     | 23.28                  | 23.04          | 23.18            | 21.58                  | 21.34          | 21.48            |
|           |            | 36            | 0      | 22.44                  | 22.12          | 22.42            | 20.74                  | 20.42          | 20.72            |
|           |            | 36            | 18     | 22.51                  | 22.21          | 22.47            | 20.81                  | 20.51          | 20.77            |
|           |            | 36            | 39     | 22.38                  | 22.18          | 22.44            | 20.68                  | 20.48          | 20.74            |
|           |            | 75            | 0      | 22.48                  | 22.16          | 22.47            | 20.78                  | 20.46          | 20.77            |
|           | 16QAM      | 1             | 0      | 22.51                  | 22.19          | 22.43            | 20.81                  | 20.49          | 20.73            |
|           |            | 1             | 38     | 22.74                  | 22.49          | 22.74            | 21.04                  | 20.79          | 21.04            |
|           |            | 1             | 74     | 22.47                  | 22.23          | 22.45            | 20.77                  | 20.53          | 20.75            |
|           |            | 36            | 0      | 21.41                  | 21.13          | 21.46            | 19.71                  | 19.43          | 19.76            |
|           |            | 36            | 18     | 21.53                  | 21.21          | 21.53            | 19.83                  | 19.51          | 19.83            |
|           |            | 36            | 39     | 21.49                  | 21.21          | 21.48            | 19.79                  | 19.51          | 19.78            |
|           |            | 75            | 0      | 21.56                  | 21.14          | 21.47            | 19.86                  | 19.44          | 19.77            |
|           | 64QAM      | 1             | 0      | 21.32                  | 21.07          | 21.28            | 19.62                  | 19.37          | 19.58            |
|           |            | 1             | 38     | 21.66                  | 21.36          | 21.62            | 19.96                  | 19.66          | 19.92            |



|           |            | 1             | 74     | 21.35                  | 21.08          | 21.34          | 19.65                  | 19.38          | 19.64          |
|-----------|------------|---------------|--------|------------------------|----------------|----------------|------------------------|----------------|----------------|
|           |            | 36            | 0      | 20.44                  | 20.18          | 20.43          | 18.74                  | 18.48          | 18.73          |
|           |            | 36            | 18     | 20.52                  | 20.23          | 20.49          | 18.82                  | 18.53          | 18.79          |
|           |            | 36            | 39     | 20.47                  | 20.20          | 20.46          | 18.77                  | 18.50          | 18.76          |
|           |            | 75            | 0      | 20.43                  | 20.15          | 20.41          | 18.73                  | 18.45          | 18.71          |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                |                | Channel/Frequency(MHz) |                |                |
|           |            |               |        | 39750/<br>2506         | 40620/<br>2593 | 41490/<br>2680 | 39750/<br>2506         | 40620/<br>2593 | 41490/<br>2680 |
| 20MHz     | QPSK       | 1             | 0      | 23.27                  | 23.02          | 23.13          | 21.57                  | 21.32          | 21.43          |
|           |            | 1             | 50     | 23.50                  | 23.30          | 23.44          | 21.80                  | 21.60          | 21.74          |
|           |            | 1             | 99     | 23.26                  | 23.01          | 23.15          | 21.56                  | 21.31          | 21.45          |
|           |            | 50            | 0      | 22.41                  | 22.08          | 22.38          | 20.71                  | 20.38          | 20.68          |
|           |            | 50            | 25     | 22.49                  | 22.18          | 22.44          | 20.79                  | 20.48          | 20.74          |
|           |            | 50            | 50     | 22.35                  | 22.14          | 22.40          | 20.65                  | 20.44          | 20.70          |
|           |            | 100           | 0      | 22.45                  | 22.12          | 22.43          | 20.75                  | 20.42          | 20.73          |
|           | 16QAM      | 1             | 0      | 22.48                  | 22.14          | 22.38          | 20.78                  | 20.44          | 20.68          |
|           |            | 1             | 50     | 22.71                  | 22.45          | 22.70          | 21.01                  | 20.75          | 21.00          |
|           |            | 1             | 99     | 22.44                  | 22.21          | 22.43          | 20.74                  | 20.51          | 20.73          |
|           |            | 50            | 0      | 21.38                  | 21.10          | 21.43          | 19.68                  | 19.40          | 19.73          |
|           |            | 50            | 25     | 21.50                  | 21.18          | 21.50          | 19.80                  | 19.48          | 19.80          |
|           |            | 50            | 50     | 21.46                  | 21.17          | 21.44          | 19.76                  | 19.47          | 19.74          |
|           |            | 100           | 0      | 21.54                  | 21.11          | 21.44          | 19.84                  | 19.41          | 19.74          |
|           | 64QAM      | 1             | 0      | 21.30                  | 21.02          | 21.23          | 19.60                  | 19.32          | 19.53          |
|           |            | 1             | 50     | 21.62                  | 21.32          | 21.58          | 19.92                  | 19.62          | 19.88          |
|           |            | 1             | 99     | 21.29                  | 21.02          | 21.28          | 19.59                  | 19.32          | 19.58          |
|           |            | 50            | 0      | 20.39                  | 20.11          | 20.36          | 18.69                  | 18.41          | 18.66          |
|           |            | 50            | 25     | 20.48                  | 20.17          | 20.43          | 18.78                  | 18.47          | 18.73          |
|           |            | 50            | 50     | 20.44                  | 20.16          | 20.42          | 18.74                  | 18.46          | 18.72          |
|           |            | 100           | 0      | 20.41                  | 20.12          | 20.38          | 18.71                  | 18.42          | 18.68          |

| LTE Band 66Low Antenna |            |               |        | Maximum Output Power (dBm) |                 |                   | EIRP (dBm)             |                 |                   |
|------------------------|------------|---------------|--------|----------------------------|-----------------|-------------------|------------------------|-----------------|-------------------|
| Bandwidth              | Modulation | RB allocation | offset | Channel/Frequency(MHz)     |                 |                   | Channel/Frequency(MHz) |                 |                   |
|                        |            |               |        | 131979/<br>1710.7          | 132322/<br>1745 | 132665/<br>1779.3 | 131979/<br>1710.7      | 132322/<br>1745 | 132665/<br>1779.3 |
| 1.4MHz                 | QPSK       | 1             | 0      | 23.22                      | 23.25           | 23.24             | 23.92                  | 23.95           | 23.94             |
|                        |            | 1             | 2      | 23.38                      | 23.40           | 23.38             | 24.08                  | 24.10           | 24.08             |
|                        |            | 1             | 5      | 23.04                      | 23.11           | 23.15             | 23.74                  | 23.81           | 23.85             |
|                        |            | 3             | 0      | 23.24                      | 23.38           | 23.34             | 23.94                  | 24.08           | 24.04             |
|                        |            | 3             | 2      | 23.29                      | 23.36           | 23.38             | 23.99                  | 24.06           | 24.08             |
|                        |            | 3             | 3      | 23.29                      | 23.22           | 23.21             | 23.99                  | 23.92           | 23.91             |
|                        |            | 6             | 0      | 22.28                      | 22.38           | 22.38             | 22.98                  | 23.08           | 23.08             |
|                        | 16QAM      | 1             | 0      | 22.64                      | 22.62           | 22.62             | 23.34                  | 23.32           | 23.32             |
|                        |            | 1             | 2      | 22.79                      | 22.72           | 22.73             | 23.49                  | 23.42           | 23.43             |



|           |            | 1             | 5      | 22.52                  | 22.47           | 22.35             | 23.22                  | 23.17           | 23.05             |
|-----------|------------|---------------|--------|------------------------|-----------------|-------------------|------------------------|-----------------|-------------------|
|           |            | 3             | 0      | 22.25                  | 22.34           | 22.35             | 22.95                  | 23.04           | 23.05             |
|           |            | 3             | 2      | 22.37                  | 22.36           | 22.39             | 23.07                  | 23.06           | 23.09             |
|           |            | 3             | 3      | 22.32                  | 22.23           | 22.25             | 23.02                  | 22.93           | 22.95             |
|           |            | 6             | 0      | 21.34                  | 21.38           | 21.38             | 22.04                  | 22.08           | 22.08             |
|           | 64QAM      | 1             | 0      | 21.49                  | 21.43           | 21.57             | 22.19                  | 22.13           | 22.27             |
|           |            | 1             | 2      | 21.66                  | 21.56           | 21.63             | 22.36                  | 22.26           | 22.33             |
|           |            | 1             | 5      | 21.30                  | 21.32           | 21.40             | 22.00                  | 22.02           | 22.10             |
|           |            | 3             | 0      | 21.22                  | 21.33           | 21.30             | 21.92                  | 22.03           | 22.00             |
|           |            | 3             | 2      | 21.31                  | 21.35           | 21.38             | 22.01                  | 22.05           | 22.08             |
|           |            | 3             | 3      | 21.23                  | 21.23           | 21.15             | 21.93                  | 21.93           | 21.85             |
|           |            | 6             | 0      | 20.29                  | 20.38           | 20.35             | 20.99                  | 21.08           | 21.05             |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                 |                   | Channel/Frequency(MHz) |                 |                   |
|           |            |               |        | 131987/<br>1711.5      | 132322/<br>1745 | 132657/<br>1778.5 | 131987/<br>1711.50     | 132322/<br>1745 | 132657/<br>1778.5 |
| 3MHz      | QPSK       | 1             | 0      | 23.24                  | 23.29           | 23.27             | 23.94                  | 23.99           | 23.97             |
|           |            | 1             | 7      | 23.36                  | 23.43           | 23.42             | 24.06                  | 24.13           | 24.12             |
|           |            | 1             | 14     | 23.07                  | 23.16           | 23.19             | 23.77                  | 23.86           | 23.89             |
|           |            | 8             | 0      | 22.34                  | 22.50           | 22.47             | 23.04                  | 23.20           | 23.17             |
|           |            | 8             | 4      | 22.41                  | 22.46           | 22.50             | 23.11                  | 23.16           | 23.20             |
|           |            | 8             | 7      | 22.39                  | 22.33           | 22.31             | 23.09                  | 23.03           | 23.01             |
|           |            | 15            | 0      | 22.28                  | 22.42           | 22.41             | 22.98                  | 23.12           | 23.11             |
|           | 16QAM      | 1             | 0      | 22.64                  | 22.64           | 22.65             | 23.34                  | 23.34           | 23.35             |
|           |            | 1             | 7      | 22.79                  | 22.72           | 22.77             | 23.49                  | 23.42           | 23.47             |
|           |            | 1             | 14     | 22.54                  | 22.51           | 22.38             | 23.24                  | 23.21           | 23.08             |
|           |            | 8             | 0      | 21.36                  | 21.47           | 21.47             | 22.06                  | 22.17           | 22.17             |
|           |            | 8             | 4      | 21.48                  | 21.49           | 21.51             | 22.18                  | 22.19           | 22.21             |
|           |            | 8             | 7      | 21.42                  | 21.35           | 21.38             | 22.12                  | 22.05           | 22.08             |
|           |            | 15            | 0      | 21.37                  | 21.42           | 21.41             | 22.07                  | 22.12           | 22.11             |
|           | 64QAM      | 1             | 0      | 21.52                  | 21.45           | 21.60             | 22.22                  | 22.15           | 22.30             |
|           |            | 1             | 7      | 21.69                  | 21.56           | 21.65             | 22.39                  | 22.26           | 22.35             |
|           |            | 1             | 14     | 21.32                  | 21.31           | 21.43             | 22.02                  | 22.01           | 22.13             |
|           |            | 8             | 0      | 20.33                  | 20.46           | 20.42             | 21.03                  | 21.16           | 21.12             |
|           |            | 8             | 4      | 20.42                  | 20.48           | 20.50             | 21.12                  | 21.18           | 21.20             |
|           |            | 8             | 7      | 20.33                  | 20.35           | 20.28             | 21.03                  | 21.05           | 20.98             |
|           |            | 15            | 0      | 20.32                  | 20.42           | 20.38             | 21.02                  | 21.12           | 21.08             |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                 |                   | Channel/Frequency(MHz) |                 |                   |
|           |            |               |        | 131997/<br>1712.5      | 132322/<br>1745 | 132647/<br>1777.5 | 131997/<br>1712.5      | 132322/<br>1745 | 132647/<br>1777.5 |
| 5MHz      | QPSK       | 1             | 0      | 23.21                  | 23.27           | 23.23             | 23.91                  | 23.97           | 23.93             |
|           |            | 1             | 13     | 23.34                  | 23.39           | 23.39             | 24.04                  | 24.09           | 24.09             |
|           |            | 1             | 24     | 23.04                  | 23.11           | 23.15             | 23.74                  | 23.81           | 23.85             |
|           |            | 12            | 0      | 22.31                  | 22.45           | 22.43             | 23.01                  | 23.15           | 23.13             |



|           |            | 12            | 6      | 22.39                  | 22.42           | 22.45           | 23.09                  | 23.12           | 23.15           |
|-----------|------------|---------------|--------|------------------------|-----------------|-----------------|------------------------|-----------------|-----------------|
|           |            | 12            | 13     | 22.37                  | 22.31           | 22.27           | 23.07                  | 23.01           | 22.97           |
|           |            | 25            | 0      | 22.28                  | 22.41           | 22.39           | 22.98                  | 23.11           | 23.09           |
|           | 16QAM      | 1             | 0      | 22.64                  | 22.60           | 22.62           | 23.34                  | 23.30           | 23.32           |
|           |            | 1             | 13     | 22.79                  | 22.70           | 22.74           | 23.49                  | 23.40           | 23.44           |
|           |            | 1             | 24     | 22.51                  | 22.49           | 22.34           | 23.21                  | 23.19           | 23.04           |
|           |            | 12            | 0      | 21.34                  | 21.43           | 21.44           | 22.04                  | 22.13           | 22.14           |
|           |            | 12            | 6      | 21.45                  | 21.44           | 21.47           | 22.15                  | 22.14           | 22.17           |
|           |            | 12            | 13     | 21.39                  | 21.30           | 21.34           | 22.09                  | 22.00           | 22.04           |
|           |            | 25            | 0      | 21.35                  | 21.38           | 21.36           | 22.05                  | 22.08           | 22.06           |
|           | 64QAM      | 1             | 0      | 21.49                  | 21.45           | 21.57           | 22.19                  | 22.15           | 22.27           |
|           |            | 1             | 13     | 21.66                  | 21.58           | 21.62           | 22.36                  | 22.28           | 22.32           |
|           |            | 1             | 24     | 21.33                  | 21.29           | 21.39           | 22.03                  | 21.99           | 22.09           |
|           |            | 12            | 0      | 20.31                  | 20.42           | 20.43           | 21.01                  | 21.12           | 21.13           |
|           |            | 12            | 6      | 20.39                  | 20.43           | 20.46           | 21.09                  | 21.13           | 21.16           |
|           |            | 12            | 13     | 20.30                  | 20.30           | 20.24           | 21.00                  | 21.00           | 20.94           |
|           |            | 25            | 0      | 20.30                  | 20.38           | 20.33           | 21.00                  | 21.08           | 21.03           |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                 |                 | Channel/Frequency(MHz) |                 |                 |
|           |            |               |        | 132022/<br>1715        | 132322/<br>1745 | 132622/<br>1775 | 132022/<br>1715        | 132322/<br>1745 | 132622/<br>1775 |
| 10MHz     | QPSK       | 1             | 0      | 23.23                  | 23.28           | 23.26           | 23.93                  | 23.98           | 23.96           |
|           |            | 1             | 25     | 23.37                  | 23.44           | 23.43           | 24.07                  | 24.14           | 24.13           |
|           |            | 1             | 49     | 23.06                  | 23.15           | 23.18           | 23.76                  | 23.85           | 23.88           |
|           |            | 25            | 0      | 22.34                  | 22.50           | 22.47           | 23.04                  | 23.20           | 23.17           |
|           |            | 25            | 13     | 22.42                  | 22.47           | 22.49           | 23.12                  | 23.17           | 23.19           |
|           |            | 25            | 25     | 22.39                  | 22.35           | 22.32           | 23.09                  | 23.05           | 23.02           |
|           |            | 50            | 0      | 22.32                  | 22.43           | 22.43           | 23.02                  | 23.13           | 23.13           |
|           | 16QAM      | 1             | 0      | 22.68                  | 22.63           | 22.64           | 23.38                  | 23.33           | 23.34           |
|           |            | 1             | 25     | 22.83                  | 22.74           | 22.77           | 23.53                  | 23.44           | 23.47           |
|           |            | 1             | 49     | 22.54                  | 22.51           | 22.37           | 23.24                  | 23.21           | 23.07           |
|           |            | 25            | 0      | 21.37                  | 21.48           | 21.48           | 22.07                  | 22.18           | 22.18           |
|           |            | 25            | 13     | 21.47                  | 21.48           | 21.50           | 22.17                  | 22.18           | 22.20           |
|           |            | 25            | 25     | 21.42                  | 21.35           | 21.38           | 22.12                  | 22.05           | 22.08           |
|           |            | 50            | 0      | 21.38                  | 21.43           | 21.40           | 22.08                  | 22.13           | 22.10           |
|           | 64QAM      | 1             | 0      | 21.51                  | 21.44           | 21.59           | 22.21                  | 22.14           | 22.29           |
|           |            | 1             | 25     | 21.69                  | 21.58           | 21.65           | 22.39                  | 22.28           | 22.35           |
|           |            | 1             | 49     | 21.32                  | 21.31           | 21.42           | 22.02                  | 22.01           | 22.12           |
|           |            | 25            | 0      | 20.34                  | 20.47           | 20.43           | 21.04                  | 21.17           | 21.13           |
|           |            | 25            | 13     | 20.41                  | 20.47           | 20.49           | 21.11                  | 21.17           | 21.19           |
|           |            | 25            | 25     | 20.33                  | 20.35           | 20.28           | 21.03                  | 21.05           | 20.98           |
|           |            | 50            | 0      | 20.33                  | 20.43           | 20.37           | 21.03                  | 21.13           | 21.07           |



| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                 |                   | Channel/Frequency(MHz) |                 |                   |
|-----------|------------|---------------|--------|------------------------|-----------------|-------------------|------------------------|-----------------|-------------------|
|           |            |               |        | 132047/<br>1717.5      | 132322/<br>1745 | 132597/<br>1772.5 | 132047/<br>1717.5      | 132322/<br>1745 | 132597/<br>1772.5 |
| 15MHz     | QPSK       | 1             | 0      | 23.22                  | 23.24           | 23.24             | 23.92                  | 23.94           | 23.94             |
|           |            | 1             | 38     | 23.35                  | 23.43           | 23.40             | 24.05                  | 24.13           | 24.10             |
|           |            | 1             | 74     | 23.03                  | 23.10           | 23.14             | 23.73                  | 23.80           | 23.84             |
|           |            | 36            | 0      | 22.32                  | 22.46           | 22.44             | 23.02                  | 23.16           | 23.14             |
|           |            | 36            | 18     | 22.39                  | 22.42           | 22.45             | 23.09                  | 23.12           | 23.15             |
|           |            | 36            | 39     | 22.36                  | 22.32           | 22.28             | 23.06                  | 23.02           | 22.98             |
|           |            | 75            | 0      | 22.30                  | 22.39           | 22.38             | 23.00                  | 23.09           | 23.08             |
|           | 16QAM      | 1             | 0      | 22.66                  | 22.61           | 22.62             | 23.36                  | 23.31           | 23.32             |
|           |            | 1             | 38     | 22.81                  | 22.71           | 22.75             | 23.51                  | 23.41           | 23.45             |
|           |            | 1             | 74     | 22.52                  | 22.47           | 22.34             | 23.22                  | 23.17           | 23.04             |
|           |            | 36            | 0      | 21.34                  | 21.46           | 21.45             | 22.04                  | 22.16           | 22.15             |
|           |            | 36            | 18     | 21.44                  | 21.43           | 21.46             | 22.14                  | 22.13           | 22.16             |
|           |            | 36            | 39     | 21.40                  | 21.31           | 21.35             | 22.10                  | 22.01           | 22.05             |
|           |            | 75            | 0      | 21.35                  | 21.38           | 21.36             | 22.05                  | 22.08           | 22.06             |
|           | 64QAM      | 1             | 0      | 21.46                  | 21.42           | 21.57             | 22.16                  | 22.12           | 22.27             |
|           |            | 1             | 38     | 21.67                  | 21.55           | 21.63             | 22.37                  | 22.25           | 22.33             |
|           |            | 1             | 74     | 21.33                  | 21.30           | 21.43             | 22.03                  | 22.00           | 22.13             |
|           |            | 36            | 0      | 20.33                  | 20.49           | 20.44             | 21.03                  | 21.19           | 21.14             |
|           |            | 36            | 18     | 20.39                  | 20.44           | 20.48             | 21.09                  | 21.14           | 21.18             |
|           |            | 36            | 39     | 20.31                  | 20.31           | 20.25             | 21.01                  | 21.01           | 20.95             |
|           |            | 75            | 0      | 20.30                  | 20.38           | 20.33             | 21.00                  | 21.08           | 21.03             |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                 |                   | Channel/Frequency(MHz) |                 |                   |
|           |            |               |        | 132072/<br>1720        | 132322/<br>1745 | 132572/<br>1770   | 132072/<br>1720        | 132322/<br>1745 | 132572/<br>1770   |
| 20MHz     | QPSK       | 1             | 0      | 23.19                  | 23.20           | 23.21             | 23.89                  | 23.90           | 23.91             |
|           |            | 1             | 50     | 23.34                  | 23.39           | 23.38             | 24.04                  | 24.09           | 24.08             |
|           |            | 1             | 99     | 23.01                  | 23.09           | 23.11             | 23.71                  | 23.79           | 23.81             |
|           |            | 50            | 0      | 22.29                  | 22.41           | 22.40             | 22.99                  | 23.11           | 23.10             |
|           |            | 50            | 25     | 22.37                  | 22.38           | 22.42             | 23.07                  | 23.08           | 23.12             |
|           |            | 50            | 50     | 22.33                  | 22.27           | 22.24             | 23.03                  | 22.97           | 22.94             |
|           |            | 100           | 0      | 22.27                  | 22.34           | 22.34             | 22.97                  | 23.04           | 23.04             |
|           | 16QAM      | 1             | 0      | 22.63                  | 22.57           | 22.57             | 23.33                  | 23.27           | 23.27             |
|           |            | 1             | 50     | 22.78                  | 22.69           | 22.71             | 23.48                  | 23.39           | 23.41             |
|           |            | 1             | 99     | 22.49                  | 22.44           | 22.32             | 23.19                  | 23.14           | 23.02             |
|           |            | 50            | 0      | 21.31                  | 21.42           | 21.42             | 22.01                  | 22.12           | 22.12             |
|           |            | 50            | 25     | 21.41                  | 21.41           | 21.43             | 22.11                  | 22.11           | 22.13             |
|           |            | 50            | 50     | 21.37                  | 21.26           | 21.31             | 22.07                  | 21.96           | 22.01             |
|           |            | 100           | 0      | 21.33                  | 21.34           | 21.33             | 22.03                  | 22.04           | 22.03             |
|           | 64QAM      | 1             | 0      | 21.44                  | 21.38           | 21.52             | 22.14                  | 22.08           | 22.22             |
|           |            | 1             | 50     | 21.63                  | 21.53           | 21.59             | 22.33                  | 22.23           | 22.29             |



|  |  |     |    |       |       |       |       |       |       |
|--|--|-----|----|-------|-------|-------|-------|-------|-------|
|  |  | 1   | 99 | 21.27 | 21.24 | 21.37 | 21.97 | 21.94 | 22.07 |
|  |  | 50  | 0  | 20.28 | 20.41 | 20.37 | 20.98 | 21.11 | 21.07 |
|  |  | 50  | 25 | 20.35 | 20.40 | 20.42 | 21.05 | 21.10 | 21.12 |
|  |  | 50  | 50 | 20.28 | 20.26 | 20.21 | 20.98 | 20.96 | 20.91 |
|  |  | 100 | 0  | 20.28 | 20.34 | 20.30 | 20.98 | 21.04 | 21.00 |

| LTE Band 66Upper Antenna |            |                  |        | Maximum Output Power<br>(dBm) |                 |                   | EIRP (dBm)             |                 |                   |
|--------------------------|------------|------------------|--------|-------------------------------|-----------------|-------------------|------------------------|-----------------|-------------------|
| Bandwidth                | Modulation | RB<br>allocation | offset | Channel/Frequency(MHz)        |                 |                   | Channel/Frequency(MHz) |                 |                   |
|                          |            |                  |        | 131979/<br>1710.7             | 132322/<br>1745 | 132665/<br>1779.3 | 131979/<br>1710.7      | 132322/<br>1745 | 132665/<br>1779.3 |
| 1.4MHz                   | QPSK       | 1                | 0      | 23.33                         | 23.39           | 23.33             | 20.13                  | 20.19           | 20.13             |
|                          |            | 1                | 2      | 23.57                         | 23.52           | 23.39             | 20.37                  | 20.32           | 20.19             |
|                          |            | 1                | 5      | 23.25                         | 23.17           | 23.13             | 20.05                  | 19.97           | 19.93             |
|                          |            | 3                | 0      | 23.39                         | 23.52           | 23.44             | 20.19                  | 20.32           | 20.24             |
|                          |            | 3                | 2      | 23.45                         | 23.50           | 23.45             | 20.25                  | 20.30           | 20.25             |
|                          |            | 3                | 3      | 23.40                         | 23.36           | 23.27             | 20.20                  | 20.16           | 20.07             |
|                          |            | 6                | 0      | 22.42                         | 22.48           | 22.45             | 19.22                  | 19.28           | 19.25             |
|                          | 16QAM      | 1                | 0      | 22.77                         | 22.75           | 22.73             | 19.57                  | 19.55           | 19.53             |
|                          |            | 1                | 2      | 22.95                         | 22.86           | 22.77             | 19.75                  | 19.66           | 19.57             |
|                          |            | 1                | 5      | 22.61                         | 22.55           | 22.49             | 19.41                  | 19.35           | 19.29             |
|                          |            | 3                | 0      | 22.38                         | 22.50           | 22.44             | 19.18                  | 19.30           | 19.24             |
|                          |            | 3                | 2      | 22.51                         | 22.50           | 22.48             | 19.31                  | 19.30           | 19.28             |
|                          |            | 3                | 3      | 22.42                         | 22.41           | 22.26             | 19.22                  | 19.21           | 19.06             |
|                          |            | 6                | 0      | 21.47                         | 21.53           | 21.45             | 18.27                  | 18.33           | 18.25             |
|                          | 64QAM      | 1                | 0      | 21.70                         | 21.57           | 21.51             | 18.50                  | 18.37           | 18.31             |
|                          |            | 1                | 2      | 21.82                         | 21.86           | 21.74             | 18.62                  | 18.66           | 18.54             |
|                          |            | 1                | 5      | 21.49                         | 21.56           | 21.46             | 18.29                  | 18.36           | 18.26             |
|                          |            | 3                | 0      | 21.36                         | 21.46           | 21.40             | 18.16                  | 18.26           | 18.20             |
|                          |            | 3                | 2      | 21.49                         | 21.48           | 21.43             | 18.29                  | 18.28           | 18.23             |
|                          |            | 3                | 3      | 21.42                         | 21.37           | 21.24             | 18.22                  | 18.17           | 18.04             |
|                          |            | 6                | 0      | 20.45                         | 20.52           | 20.43             | 17.25                  | 17.32           | 17.23             |
| Bandwidth                | Modulation | RB<br>allocation | offset | Channel/Frequency(MHz)        |                 |                   | Channel/Frequency(MHz) |                 |                   |
|                          |            |                  |        | 131987/<br>1711.5             | 132322/<br>1745 | 132657/<br>1778.5 | 131987/<br>1711.5      | 132322/<br>1745 | 132657/<br>1778.5 |
| 3MHz                     | QPSK       | 1                | 0      | 23.35                         | 23.43           | 23.36             | 20.15                  | 20.23           | 20.16             |
|                          |            | 1                | 7      | 23.55                         | 23.55           | 23.43             | 20.35                  | 20.35           | 20.23             |
|                          |            | 1                | 14     | 23.28                         | 23.22           | 23.17             | 20.08                  | 20.02           | 19.97             |
|                          |            | 8                | 0      | 22.49                         | 22.64           | 22.57             | 19.29                  | 19.44           | 19.37             |
|                          |            | 8                | 4      | 22.57                         | 22.60           | 22.57             | 19.37                  | 19.40           | 19.37             |
|                          |            | 8                | 7      | 22.50                         | 22.47           | 22.37             | 19.30                  | 19.27           | 19.17             |
|                          |            | 15               | 0      | 22.42                         | 22.52           | 22.48             | 19.22                  | 19.32           | 19.28             |
|                          | 16QAM      | 1                | 0      | 22.77                         | 22.77           | 22.76             | 19.57                  | 19.57           | 19.56             |



|           |            | 1             | 7      | 22.95                  | 22.86           | 22.81             | 19.75                  | 19.66           | 19.61             |
|-----------|------------|---------------|--------|------------------------|-----------------|-------------------|------------------------|-----------------|-------------------|
|           |            | 1             | 14     | 22.63                  | 22.59           | 22.52             | 19.43                  | 19.39           | 19.32             |
|           |            | 8             | 0      | 21.49                  | 21.63           | 21.56             | 18.29                  | 18.43           | 18.36             |
|           |            | 8             | 4      | 21.62                  | 21.63           | 21.60             | 18.42                  | 18.43           | 18.40             |
|           |            | 8             | 7      | 21.52                  | 21.53           | 21.39             | 18.32                  | 18.33           | 18.19             |
|           |            | 15            | 0      | 21.50                  | 21.57           | 21.48             | 18.30                  | 18.37           | 18.28             |
|           | 64QAM      | 1             | 0      | 21.73                  | 21.59           | 21.54             | 18.53                  | 18.39           | 18.34             |
|           |            | 1             | 7      | 21.85                  | 21.86           | 21.76             | 18.65                  | 18.66           | 18.56             |
|           |            | 1             | 14     | 21.51                  | 21.55           | 21.49             | 18.31                  | 18.35           | 18.29             |
|           |            | 8             | 0      | 20.47                  | 20.59           | 20.52             | 17.27                  | 17.39           | 17.32             |
|           |            | 8             | 4      | 20.60                  | 20.61           | 20.55             | 17.40                  | 17.41           | 17.35             |
|           |            | 8             | 7      | 20.52                  | 20.49           | 20.37             | 17.32                  | 17.29           | 17.17             |
|           |            | 15            | 0      | 20.48                  | 20.56           | 20.46             | 17.28                  | 17.36           | 17.26             |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                 |                   | Channel/Frequency(MHz) |                 |                   |
|           |            |               |        | 131997/<br>1712.5      | 132322/<br>1745 | 132647/<br>1777.5 | 131997/<br>1712.5      | 132322/<br>1745 | 132647/<br>1777.5 |
| 5MHz      | QPSK       | 1             | 0      | 23.32                  | 23.41           | 23.32             | 20.12                  | 20.21           | 20.12             |
|           |            | 1             | 13     | 23.53                  | 23.51           | 23.40             | 20.33                  | 20.31           | 20.20             |
|           |            | 1             | 24     | 23.25                  | 23.17           | 23.13             | 20.05                  | 19.97           | 19.93             |
|           |            | 12            | 0      | 22.46                  | 22.59           | 22.53             | 19.26                  | 19.39           | 19.33             |
|           |            | 12            | 6      | 22.55                  | 22.56           | 22.52             | 19.35                  | 19.36           | 19.32             |
|           |            | 12            | 13     | 22.48                  | 22.45           | 22.33             | 19.28                  | 19.25           | 19.13             |
|           |            | 25            | 0      | 22.42                  | 22.51           | 22.46             | 19.22                  | 19.31           | 19.26             |
|           | 16QAM      | 1             | 0      | 22.77                  | 22.73           | 22.73             | 19.57                  | 19.53           | 19.53             |
|           |            | 1             | 13     | 22.95                  | 22.84           | 22.78             | 19.75                  | 19.64           | 19.58             |
|           |            | 1             | 24     | 22.60                  | 22.57           | 22.48             | 19.40                  | 19.37           | 19.28             |
|           |            | 12            | 0      | 21.47                  | 21.59           | 21.53             | 18.27                  | 18.39           | 18.33             |
|           |            | 12            | 6      | 21.59                  | 21.58           | 21.56             | 18.39                  | 18.38           | 18.36             |
|           |            | 12            | 13     | 21.49                  | 21.48           | 21.35             | 18.29                  | 18.28           | 18.15             |
|           |            | 25            | 0      | 21.48                  | 21.53           | 21.43             | 18.28                  | 18.33           | 18.23             |
|           | 64QAM      | 1             | 0      | 21.70                  | 21.59           | 21.51             | 18.50                  | 18.39           | 18.31             |
|           |            | 1             | 13     | 21.82                  | 21.88           | 21.73             | 18.62                  | 18.68           | 18.53             |
|           |            | 1             | 24     | 21.52                  | 21.53           | 21.45             | 18.32                  | 18.33           | 18.25             |
|           |            | 12            | 0      | 20.45                  | 20.55           | 20.53             | 17.25                  | 17.35           | 17.33             |
|           |            | 12            | 6      | 20.57                  | 20.56           | 20.51             | 17.37                  | 17.36           | 17.31             |
|           |            | 12            | 13     | 20.49                  | 20.44           | 20.33             | 17.29                  | 17.24           | 17.13             |
|           |            | 25            | 0      | 20.46                  | 20.52           | 20.41             | 17.26                  | 17.32           | 17.21             |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                 |                   | Channel/Frequency(MHz) |                 |                   |
|           |            |               |        | 132022/<br>1715        | 132322/<br>1745 | 132622/<br>1775   | 132022/<br>1715        | 132322/<br>1745 | 132622/<br>1775   |
| 10MHz     | QPSK       | 1             | 0      | 23.34                  | 23.42           | 23.35             | 20.14                  | 20.22           | 20.15             |
|           |            | 1             | 25     | 23.56                  | 23.56           | 23.44             | 20.36                  | 20.36           | 20.24             |
|           |            | 1             | 49     | 23.27                  | 23.21           | 23.16             | 20.07                  | 20.01           | 19.96             |



|           |            | 25            | 0      | 22.49                  | 22.64           | 22.57             | 19.29                  | 19.44           | 19.37             |
|-----------|------------|---------------|--------|------------------------|-----------------|-------------------|------------------------|-----------------|-------------------|
|           |            | 25            | 13     | 22.58                  | 22.61           | 22.56             | 19.38                  | 19.41           | 19.36             |
|           |            | 25            | 25     | 22.50                  | 22.49           | 22.38             | 19.30                  | 19.29           | 19.18             |
|           |            | 50            | 0      | 22.46                  | 22.53           | 22.50             | 19.26                  | 19.33           | 19.30             |
|           | 16QAM      | 1             | 0      | 22.81                  | 22.76           | 22.75             | 19.61                  | 19.56           | 19.55             |
|           |            | 1             | 25     | 22.99                  | 22.88           | 22.81             | 19.79                  | 19.68           | 19.61             |
|           |            | 1             | 49     | 22.63                  | 22.59           | 22.51             | 19.43                  | 19.39           | 19.31             |
|           |            | 25            | 0      | 21.50                  | 21.64           | 21.57             | 18.30                  | 18.44           | 18.37             |
|           |            | 25            | 13     | 21.61                  | 21.62           | 21.59             | 18.41                  | 18.42           | 18.39             |
|           |            | 25            | 25     | 21.52                  | 21.53           | 21.39             | 18.32                  | 18.33           | 18.19             |
|           |            | 50            | 0      | 21.51                  | 21.58           | 21.47             | 18.31                  | 18.38           | 18.27             |
|           | 64QAM      | 1             | 0      | 21.72                  | 21.58           | 21.53             | 18.52                  | 18.38           | 18.33             |
|           |            | 1             | 25     | 21.85                  | 21.88           | 21.76             | 18.65                  | 18.68           | 18.56             |
|           |            | 1             | 49     | 21.51                  | 21.55           | 21.48             | 18.31                  | 18.35           | 18.28             |
|           |            | 25            | 0      | 20.48                  | 20.60           | 20.53             | 17.28                  | 17.40           | 17.33             |
|           |            | 25            | 13     | 20.59                  | 20.60           | 20.54             | 17.39                  | 17.40           | 17.34             |
|           |            | 25            | 25     | 20.52                  | 20.49           | 20.37             | 17.32                  | 17.29           | 17.17             |
|           |            | 50            | 0      | 20.49                  | 20.57           | 20.45             | 17.29                  | 17.37           | 17.25             |
| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                 |                   | Channel/Frequency(MHz) |                 |                   |
|           |            |               |        | 132047/<br>1717.5      | 132322/<br>1745 | 132597/<br>1772.5 | 132047/<br>1717.5      | 132322/<br>1745 | 132597/<br>1772.5 |
| 15MHz     | QPSK       | 1             | 0      | 23.33                  | 23.38           | 23.33             | 20.13                  | 20.18           | 20.13             |
|           |            | 1             | 38     | 23.54                  | 23.55           | 23.41             | 20.34                  | 20.35           | 20.21             |
|           |            | 1             | 74     | 23.24                  | 23.16           | 23.12             | 20.04                  | 19.96           | 19.92             |
|           |            | 36            | 0      | 22.47                  | 22.60           | 22.54             | 19.27                  | 19.40           | 19.34             |
|           |            | 36            | 18     | 22.55                  | 22.56           | 22.52             | 19.35                  | 19.36           | 19.32             |
|           |            | 36            | 39     | 22.47                  | 22.46           | 22.34             | 19.27                  | 19.26           | 19.14             |
|           |            | 75            | 0      | 22.44                  | 22.49           | 22.45             | 19.24                  | 19.29           | 19.25             |
|           | 16QAM      | 1             | 0      | 22.79                  | 22.74           | 22.73             | 19.59                  | 19.54           | 19.53             |
|           |            | 1             | 38     | 22.97                  | 22.85           | 22.79             | 19.77                  | 19.65           | 19.59             |
|           |            | 1             | 74     | 22.61                  | 22.55           | 22.48             | 19.41                  | 19.35           | 19.28             |
|           |            | 36            | 0      | 21.47                  | 21.62           | 21.54             | 18.27                  | 18.42           | 18.34             |
|           |            | 36            | 18     | 21.58                  | 21.57           | 21.55             | 18.38                  | 18.37           | 18.35             |
|           |            | 36            | 39     | 21.50                  | 21.49           | 21.36             | 18.30                  | 18.29           | 18.16             |
|           |            | 75            | 0      | 21.48                  | 21.53           | 21.43             | 18.28                  | 18.33           | 18.23             |
|           | 64QAM      | 1             | 0      | 21.67                  | 21.56           | 21.51             | 18.47                  | 18.36           | 18.31             |
|           |            | 1             | 38     | 21.83                  | 21.85           | 21.74             | 18.63                  | 18.65           | 18.54             |
|           |            | 1             | 74     | 21.52                  | 21.54           | 21.49             | 18.32                  | 18.34           | 18.29             |
|           |            | 36            | 0      | 20.47                  | 20.62           | 20.54             | 17.27                  | 17.42           | 17.34             |
|           |            | 36            | 18     | 20.57                  | 20.57           | 20.53             | 17.37                  | 17.37           | 17.33             |
|           |            | 36            | 39     | 20.50                  | 20.45           | 20.34             | 17.30                  | 17.25           | 17.14             |
|           |            | 75            | 0      | 20.46                  | 20.52           | 20.41             | 17.26                  | 17.32           | 17.21             |



| Bandwidth | Modulation | RB allocation | offset | Channel/Frequency(MHz) |                 |                 | Channel/Frequency(MHz) |                 |                 |
|-----------|------------|---------------|--------|------------------------|-----------------|-----------------|------------------------|-----------------|-----------------|
|           |            |               |        | 132072/<br>1720        | 132322/<br>1745 | 132572/<br>1770 | 132072/<br>1720        | 132322/<br>1745 | 132572/<br>1770 |
| 20MHz     | QPSK       | 1             | 0      | 23.30                  | 23.34           | 23.30           | 20.10                  | 20.14           | 20.10           |
|           |            | 1             | 50     | 23.53                  | 23.51           | 23.39           | 20.33                  | 20.31           | 20.19           |
|           |            | 1             | 99     | 23.22                  | 23.15           | 23.09           | 20.02                  | 19.95           | 19.89           |
|           |            | 50            | 0      | 22.44                  | 22.55           | 22.50           | 19.24                  | 19.35           | 19.30           |
|           |            | 50            | 25     | 22.53                  | 22.52           | 22.49           | 19.33                  | 19.32           | 19.29           |
|           |            | 50            | 50     | 22.44                  | 22.41           | 22.30           | 19.24                  | 19.21           | 19.10           |
|           |            | 100           | 0      | 22.41                  | 22.44           | 22.41           | 19.21                  | 19.24           | 19.21           |
|           | 16QAM      | 1             | 0      | 22.76                  | 22.70           | 22.68           | 19.56                  | 19.50           | 19.48           |
|           |            | 1             | 50     | 22.94                  | 22.83           | 22.75           | 19.74                  | 19.63           | 19.55           |
|           |            | 1             | 99     | 22.58                  | 22.52           | 22.46           | 19.38                  | 19.32           | 19.26           |
|           |            | 50            | 0      | 21.44                  | 21.58           | 21.51           | 18.24                  | 18.38           | 18.31           |
|           |            | 50            | 25     | 21.55                  | 21.55           | 21.52           | 18.35                  | 18.35           | 18.32           |
|           |            | 50            | 50     | 21.47                  | 21.44           | 21.32           | 18.27                  | 18.24           | 18.12           |
|           |            | 100           | 0      | 21.46                  | 21.49           | 21.40           | 18.26                  | 18.29           | 18.20           |
|           | 64QAM      | 1             | 0      | 21.65                  | 21.52           | 21.46           | 18.45                  | 18.32           | 18.26           |
|           |            | 1             | 50     | 21.79                  | 21.83           | 21.70           | 18.59                  | 18.63           | 18.50           |
|           |            | 1             | 99     | 21.46                  | 21.48           | 21.43           | 18.26                  | 18.28           | 18.23           |
|           |            | 50            | 0      | 20.42                  | 20.54           | 20.47           | 17.22                  | 17.34           | 17.27           |
|           |            | 50            | 25     | 20.53                  | 20.53           | 20.47           | 17.33                  | 17.33           | 17.27           |
|           |            | 50            | 50     | 20.47                  | 20.40           | 20.30           | 17.27                  | 17.20           | 17.10           |
|           |            | 100           | 0      | 20.44                  | 20.48           | 20.38           | 17.24                  | 17.28           | 17.18           |



## 6.2 Occupied Bandwidth

| Mode                | Channel | Frequency (MHz) | 99% Power Bandwidth(MHz) | -26dBc Bandwidth(MHz) |
|---------------------|---------|-----------------|--------------------------|-----------------------|
| WCDMA Band IV (RMC) | 1312    | 1712.4          | 4.1669                   | 4.6950                |
|                     | 1413    | 1732.6          | 4.1676                   | 4.6790                |
|                     | 1513    | 1752.6          | 4.1768                   | 4.6800                |

| LTE Band 4 |            |                 |         |                 |                          |                       |
|------------|------------|-----------------|---------|-----------------|--------------------------|-----------------------|
| RB         | Modulation | Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Power Bandwidth(MHz) | -26dBc Bandwidth(MHz) |
| 100%       | QPSK       | 1.4             | 19957   | 1710.7          | 1.1009                   | 1.2820                |
|            |            |                 | 20175   | 1732.5          | 1.0889                   | 1.2800                |
|            |            |                 | 20393   | 1754.3          | 1.0947                   | 1.2880                |
|            |            | 3               | 19965   | 1711.5          | 2.6865                   | 2.9130                |
|            |            |                 | 20175   | 1732.5          | 2.6923                   | 2.9210                |
|            |            |                 | 20385   | 1753.5          | 2.6957                   | 2.9330                |
|            |            | 5               | 19975   | 1712.5          | 4.5171                   | 4.9050                |
|            |            |                 | 20175   | 1732.5          | 4.4946                   | 4.9040                |
|            |            |                 | 20375   | 1752.5          | 4.5017                   | 4.8730                |
|            |            | 10              | 20000   | 1715            | 8.9831                   | 9.8460                |
|            |            |                 | 20175   | 1732.5          | 8.9865                   | 9.5700                |
|            |            |                 | 20350   | 1750            | 8.9805                   | 9.7500                |
|            |            | 15              | 20025   | 1717.5          | 13.4810                  | 15.2860               |
|            |            |                 | 20175   | 1732.5          | 13.4480                  | 14.5680               |
|            |            |                 | 20325   | 1747.5          | 13.4570                  | 14.4220               |
|            |            | 20              | 20050   | 1720            | 17.9550                  | 19.3590               |
|            |            |                 | 20175   | 1732.5          | 17.9950                  | 19.4190               |
|            |            |                 | 20300   | 1745            | 17.9150                  | 19.2490               |
|            | 16QAM      | 1.4             | 19957   | 1710.7          | 1.0957                   | 1.2920                |
|            |            |                 | 20175   | 1732.5          | 1.1025                   | 1.2810                |
|            |            |                 | 20393   | 1754.3          | 1.0905                   | 1.2790                |
|            |            | 3               | 19965   | 1711.5          | 2.7005                   | 2.9170                |
|            |            |                 | 20175   | 1732.5          | 2.6929                   | 2.9210                |
|            |            |                 | 20385   | 1753.5          | 2.6867                   | 2.9230                |
|            |            | 5               | 19975   | 1712.5          | 4.5067                   | 5.0280                |
|            |            |                 | 20175   | 1732.5          | 4.5092                   | 4.9120                |
|            |            |                 | 20375   | 1752.5          | 4.5028                   | 4.9190                |
|            |            | 10              | 20000   | 1715            | 8.9897                   | 9.6830                |



|  |       |     |       |        |         |         |
|--|-------|-----|-------|--------|---------|---------|
|  |       |     | 20175 | 1732.5 | 8.9634  | 9.6440  |
|  |       |     | 20350 | 1750   | 8.9798  | 9.5980  |
|  |       | 15  | 20025 | 1717.5 | 13.5310 | 14.4460 |
|  |       |     | 20175 | 1732.5 | 13.4820 | 14.5380 |
|  |       |     | 20325 | 1747.5 | 13.4910 | 14.4430 |
|  |       | 20  | 20050 | 1720   | 17.9130 | 19.2810 |
|  |       |     | 20175 | 1732.5 | 17.9580 | 19.4760 |
|  |       |     | 20300 | 1745   | 17.9510 | 19.1310 |
|  | 64QAM | 1.4 | 19957 | 1710.7 | 1.0927  | 1.2730  |
|  |       |     | 20175 | 1732.5 | 1.0973  | 1.3050  |
|  |       |     | 20393 | 1754.3 | 1.0886  | 1.2660  |
|  |       | 3   | 19965 | 1711.5 | 2.6859  | 2.8970  |
|  |       |     | 20175 | 1732.5 | 2.6981  | 2.9210  |
|  |       |     | 20385 | 1753.5 | 2.6870  | 2.9270  |
|  |       | 5   | 19975 | 1712.5 | 4.4967  | 4.8670  |
|  |       |     | 20175 | 1732.5 | 4.5030  | 4.9150  |
|  |       |     | 20375 | 1752.5 | 4.5123  | 4.9290  |
|  |       | 10  | 20000 | 1715   | 8.9718  | 9.7410  |
|  |       |     | 20175 | 1732.5 | 8.9938  | 9.6240  |
|  |       |     | 20350 | 1750   | 8.9873  | 9.7500  |
|  |       | 15  | 20025 | 1717.5 | 13.4160 | 14.3910 |
|  |       |     | 20175 | 1732.5 | 13.4660 | 14.3380 |
|  |       |     | 20325 | 1747.5 | 13.4750 | 14.5270 |
|  |       | 20  | 20050 | 1720   | 17.9220 | 19.3280 |
|  |       |     | 20175 | 1732.5 | 17.9130 | 19.4690 |
|  |       |     | 20300 | 1745   | 17.9410 | 19.3140 |

| LTE Band 7 |            |                 |         |                 |                          |                       |
|------------|------------|-----------------|---------|-----------------|--------------------------|-----------------------|
| RB         | Modulation | Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Power Bandwidth(MHz) | -26dBc Bandwidth(MHz) |
| 100%       | QPSK       | 5               | 20775   | 2502.5          | 4.5066                   | 4.8860                |
|            |            |                 | 21100   | 2535            | 4.5226                   | 4.8650                |
|            |            |                 | 21425   | 2567.5          | 4.4969                   | 4.9300                |
|            |            | 10              | 20800   | 2505            | 8.9989                   | 9.6740                |
|            |            |                 | 21100   | 2535            | 8.9936                   | 9.7770                |
|            |            |                 | 21400   | 2565            | 8.9848                   | 9.6930                |
|            |            | 15              | 20825   | 2507.5          | 13.4610                  | 14.4620               |
|            |            |                 | 21100   | 2535            | 13.4760                  | 14.6200               |
|            |            |                 | 21375   | 2562.5          | 13.5020                  | 14.4820               |
|            |            | 20              | 20850   | 2510            | 17.9480                  | 19.2400               |



|  |       |    |       |        |         |         |
|--|-------|----|-------|--------|---------|---------|
|  |       |    | 21100 | 2535   | 17.9450 | 19.3310 |
|  |       |    | 21350 | 2560   | 17.9500 | 19.4490 |
|  | 16QAM | 5  | 20775 | 2502.5 | 4.5068  | 4.9370  |
|  |       |    | 21100 | 2535   | 4.4972  | 4.9170  |
|  |       |    | 21425 | 2567.5 | 4.5112  | 4.9320  |
|  |       | 10 | 20800 | 2505   | 8.9730  | 9.6610  |
|  |       |    | 21100 | 2535   | 8.9816  | 9.7570  |
|  |       |    | 21400 | 2565   | 8.9847  | 9.7540  |
|  |       | 15 | 20825 | 2507.5 | 13.4570 | 14.4970 |
|  |       |    | 21100 | 2535   | 13.4660 | 14.5150 |
|  |       |    | 21375 | 2562.5 | 13.4450 | 14.4160 |
|  |       | 20 | 20850 | 2510   | 17.9720 | 19.2390 |
|  |       |    | 21100 | 2535   | 17.9340 | 19.2310 |
|  |       |    | 21350 | 2560   | 17.9990 | 19.2870 |
|  | 64QAM | 5  | 20775 | 2502.5 | 4.5142  | 4.9190  |
|  |       |    | 21100 | 2535   | 4.4872  | 4.8910  |
|  |       |    | 21425 | 2567.5 | 4.5129  | 4.8900  |
|  |       | 10 | 20800 | 2505   | 8.9681  | 9.7230  |
|  |       |    | 21100 | 2535   | 8.9933  | 9.6660  |
|  |       |    | 21400 | 2565   | 8.9986  | 9.6570  |
|  |       | 15 | 20825 | 2507.5 | 13.4520 | 14.5120 |
|  |       |    | 21100 | 2535   | 13.4840 | 14.5020 |
|  |       |    | 21375 | 2562.5 | 13.4690 | 14.4670 |
|  |       | 20 | 20850 | 2510   | 17.9060 | 19.3820 |
|  |       |    | 21100 | 2535   | 17.9840 | 19.2750 |
|  |       |    | 21350 | 2560   | 18.0000 | 19.3400 |

| LTE Band 13 |            |                 |         |                 |                          |                       |
|-------------|------------|-----------------|---------|-----------------|--------------------------|-----------------------|
| RB          | Modulation | Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Power Bandwidth(MHz) | -26dBc Bandwidth(MHz) |
| 100%        | QPSK       | 5               | 23205   | 779.5           | 4.5113                   | 5.0560                |
|             |            |                 | 23230   | 782             | 4.5485                   | 5.1930                |
|             |            |                 | 23255   | 784.5           | 4.5247                   | 5.1110                |
|             | 16QAM      | 10              | 23230   | 782             | 8.9838                   | 10.0210               |
|             |            |                 | 23205   | 779.5           | 4.5060                   | 5.1150                |
|             |            | 5               | 23230   | 782             | 4.5114                   | 5.1010                |
|             |            |                 | 23255   | 784.5           | 4.5327                   | 5.1300                |
|             |            |                 | 23230   | 782             | 8.9801                   | 10.0720               |
|             | 64QAM      | 5               | 23205   | 779.5           | 4.5178                   | 5.1220                |
|             |            |                 | 23230   | 782             | 4.5058                   | 4.9790                |



|  |    |       |       |        |         |
|--|----|-------|-------|--------|---------|
|  |    | 23255 | 784.5 | 4.5338 | 5.1410  |
|  | 10 | 23230 | 782   | 8.9865 | 10.0380 |

| LTE Band 38 |            |                 |         |                 |                          |                       |
|-------------|------------|-----------------|---------|-----------------|--------------------------|-----------------------|
| RB          | Modulation | Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Power Bandwidth(MHz) | -26dBc Bandwidth(MHz) |
| 100%        | QPSK       | 5               | 37775   | 2572.5          | 4.5025                   | 5.0570                |
|             |            |                 | 38000   | 2595            | 4.4919                   | 4.9230                |
|             |            |                 | 38225   | 2617.5          | 4.5240                   | 4.9720                |
|             |            | 10              | 37800   | 2575            | 8.9959                   | 9.8760                |
|             |            |                 | 38000   | 2595            | 8.9958                   | 9.8290                |
|             |            |                 | 38200   | 2615            | 8.9725                   | 10.0810               |
|             |            | 15              | 37825   | 2577.5          | 13.4540                  | 15.5070               |
|             |            |                 | 38000   | 2595            | 13.4730                  | 14.5740               |
|             |            |                 | 38175   | 2612.5          | 13.4150                  | 14.2960               |
|             |            | 20              | 37850   | 2580            | 17.9740                  | 19.1620               |
|             |            |                 | 38000   | 2595            | 17.9120                  | 19.4250               |
|             |            |                 | 38150   | 2610            | 17.9460                  | 19.3870               |
|             | 16QAM      | 5               | 37775   | 2572.5          | 4.5156                   | 4.8440                |
|             |            |                 | 38000   | 2595            | 4.5046                   | 4.9800                |
|             |            |                 | 38225   | 2617.5          | 4.4895                   | 4.9750                |
|             |            | 10              | 37800   | 2575            | 9.0198                   | 9.9190                |
|             |            |                 | 38000   | 2595            | 8.9737                   | 9.5390                |
|             |            |                 | 38200   | 2615            | 8.9798                   | 9.6980                |
|             |            | 15              | 37825   | 2577.5          | 13.4460                  | 14.4250               |
|             |            |                 | 38000   | 2595            | 13.4140                  | 15.5490               |
|             |            |                 | 38175   | 2612.5          | 13.4570                  | 15.5410               |
|             |            | 20              | 37850   | 2580            | 17.9260                  | 19.2340               |
|             |            |                 | 38000   | 2595            | 17.9940                  | 19.1790               |
|             |            |                 | 38150   | 2610            | 17.9390                  | 19.2200               |
|             | 64QAM      | 5               | 37775   | 2572.5          | 4.5023                   | 4.8990                |
|             |            |                 | 38000   | 2595            | 4.5037                   | 4.8990                |
|             |            |                 | 38225   | 2617.5          | 4.4853                   | 4.8990                |
|             |            | 10              | 37800   | 2575            | 8.9830                   | 9.7800                |
|             |            |                 | 38000   | 2595            | 8.9950                   | 9.8420                |
|             |            |                 | 38200   | 2615            | 8.9614                   | 9.9800                |
|             |            | 15              | 37825   | 2577.5          | 13.4780                  | 14.5510               |
|             |            |                 | 38000   | 2595            | 13.4780                  | 15.5920               |
|             |            |                 | 38175   | 2612.5          | 13.4960                  | 15.2250               |
|             |            | 20              | 37850   | 2580            | 17.9690                  | 19.4000               |



|  |  |  |       |      |         |         |
|--|--|--|-------|------|---------|---------|
|  |  |  | 38000 | 2595 | 17.9390 | 19.2270 |
|  |  |  | 38150 | 2610 | 17.9120 | 19.1190 |

| LTE Band 41 |            |                 |         |                 |                          |                       |
|-------------|------------|-----------------|---------|-----------------|--------------------------|-----------------------|
| RB          | Modulation | Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Power Bandwidth(MHz) | -26dBc Bandwidth(MHz) |
| 100%        | QPSK       | 5               | 39675   | 2498.5          | 4.5091                   | 5.0250                |
|             |            |                 | 40620   | 2593            | 4.5054                   | 4.9750                |
|             |            |                 | 41565   | 2687.5          | 4.5101                   | 4.8210                |
|             |            | 10              | 39700   | 2501            | 8.9940                   | 9.8160                |
|             |            |                 | 40620   | 2593            | 9.0087                   | 10.1140               |
|             |            |                 | 41540   | 2685            | 9.0011                   | 9.9190                |
|             |            | 15              | 39725   | 2503.5          | 13.4840                  | 14.4360               |
|             |            |                 | 40620   | 2593            | 13.4710                  | 14.6030               |
|             |            |                 | 41515   | 2682.5          | 13.4770                  | 14.4530               |
|             |            | 20              | 39750   | 2506            | 17.9030                  | 19.3400               |
|             |            |                 | 40620   | 2593            | 17.9850                  | 19.1630               |
|             |            |                 | 41490   | 2680            | 17.9130                  | 19.1250               |
|             | 16QAM      | 5               | 39675   | 2498.5          | 4.5005                   | 4.8570                |
|             |            |                 | 40620   | 2593            | 4.5013                   | 4.9400                |
|             |            |                 | 41565   | 2687.5          | 4.4777                   | 5.1000                |
|             |            | 10              | 39700   | 2501            | 8.9676                   | 9.8390                |
|             |            |                 | 40620   | 2593            | 8.9895                   | 9.5880                |
|             |            |                 | 41540   | 2685            | 8.9923                   | 9.6600                |
|             |            | 15              | 39725   | 2503.5          | 13.5230                  | 15.2150               |
|             |            |                 | 40620   | 2593            | 13.4590                  | 14.4820               |
|             |            |                 | 41515   | 2682.5          | 13.4870                  | 15.6910               |
|             |            | 20              | 39750   | 2506            | 17.9510                  | 19.5310               |
|             |            |                 | 40620   | 2593            | 17.9070                  | 19.0780               |
|             |            |                 | 41490   | 2680            | 17.9090                  | 19.2070               |
|             | 64QAM      | 5               | 39675   | 2498.5          | 4.5030                   | 4.8150                |
|             |            |                 | 40620   | 2593            | 4.4960                   | 4.8540                |
|             |            |                 | 41565   | 2687.5          | 4.5020                   | 4.8540                |
|             |            | 10              | 39700   | 2501            | 9.0010                   | 9.9750                |
|             |            |                 | 40620   | 2593            | 9.0050                   | 9.8290                |
|             |            |                 | 41540   | 2685            | 8.9850                   | 10.3270               |
|             |            | 15              | 39725   | 2503.5          | 13.4930                  | 14.4330               |
|             |            |                 | 40620   | 2593            | 13.4930                  | 14.8690               |
|             |            |                 | 41515   | 2682.5          | 13.4410                  | 15.4400               |
|             |            | 20              | 39750   | 2506            | 17.8750                  | 20.3950               |



|  |  |  |       |      |         |         |
|--|--|--|-------|------|---------|---------|
|  |  |  | 40620 | 2593 | 17.9390 | 19.0100 |
|  |  |  | 41490 | 2680 | 17.9240 | 19.1600 |

| LTE Band 66 |            |                 |         |                 |                          |                       |
|-------------|------------|-----------------|---------|-----------------|--------------------------|-----------------------|
| RB          | Modulation | Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Power Bandwidth(MHz) | -26dBc Bandwidth(MHz) |
| 100%        | QPSK       | 1.4             | 131979  | 1710.7          | 1.0952                   | 1.2760                |
|             |            |                 | 132322  | 1745            | 1.0900                   | 1.2640                |
|             |            |                 | 132665  | 1779.3          | 1.0930                   | 1.2890                |
|             |            | 3               | 131987  | 1711.5          | 2.6821                   | 2.8870                |
|             |            |                 | 132322  | 1745            | 2.6883                   | 2.9020                |
|             |            |                 | 132657  | 1778.5          | 2.6866                   | 2.9170                |
|             |            | 5               | 131997  | 1712.5          | 4.5192                   | 5.1370                |
|             |            |                 | 132322  | 1745            | 4.5325                   | 5.0470                |
|             |            |                 | 132647  | 1777.5          | 4.5250                   | 5.1130                |
|             |            | 10              | 132022  | 1715            | 8.9806                   | 9.9900                |
|             |            |                 | 132322  | 1745            | 8.9927                   | 9.8810                |
|             |            |                 | 132622  | 1775            | 9.0213                   | 9.9570                |
|             |            | 15              | 132047  | 1717.5          | 13.5060                  | 16.5040               |
|             |            |                 | 132322  | 1745            | 13.5130                  | 14.6440               |
|             |            |                 | 132597  | 1772.5          | 13.4700                  | 14.7770               |
|             |            | 20              | 132072  | 1720            | 18.0050                  | 19.6480               |
|             |            |                 | 132322  | 1745            | 17.9810                  | 19.5420               |
|             |            |                 | 132572  | 1770            | 17.9540                  | 19.6830               |
|             | 16QAM      | 1.4             | 131979  | 1710.7          | 1.0941                   | 1.2950                |
|             |            |                 | 132322  | 1745            | 1.0926                   | 1.3080                |
|             |            |                 | 132665  | 1779.3          | 1.0872                   | 1.2710                |
|             |            | 3               | 131987  | 1711.5          | 2.6963                   | 2.9150                |
|             |            |                 | 132322  | 1745            | 2.6915                   | 2.9330                |
|             |            |                 | 132657  | 1778.5          | 2.6839                   | 2.8930                |
|             |            | 5               | 131997  | 1712.5          | 4.5401                   | 5.1260                |
|             |            |                 | 132322  | 1745            | 4.5115                   | 5.1990                |
|             |            |                 | 132647  | 1777.5          | 4.5242                   | 5.0990                |
|             |            | 10              | 132022  | 1715            | 9.0065                   | 9.9320                |
|             |            |                 | 132322  | 1745            | 8.9901                   | 9.9520                |
|             |            |                 | 132622  | 1775            | 9.0266                   | 10.0150               |
|             |            | 15              | 132047  | 1717.5          | 13.4780                  | 14.8730               |
|             |            |                 | 132322  | 1745            | 13.4970                  | 14.7720               |
|             |            |                 | 132597  | 1772.5          | 13.4910                  | 14.7310               |
|             |            | 20              | 132072  | 1720            | 18.0030                  | 19.4690               |



|  |       |     |        |        |         |         |
|--|-------|-----|--------|--------|---------|---------|
|  |       |     | 132322 | 1745   | 17.9860 | 19.4460 |
|  |       |     | 132572 | 1770   | 17.9620 | 19.6480 |
|  | 64QAM | 1.4 | 131979 | 1710.7 | 1.0958  | 1.2850  |
|  |       |     | 132322 | 1745   | 1.0962  | 1.3050  |
|  |       |     | 132665 | 1779.3 | 1.0898  | 1.2740  |
|  |       | 3   | 131987 | 1711.5 | 2.6947  | 2.9060  |
|  |       |     | 132322 | 1745   | 2.6889  | 2.9220  |
|  |       |     | 132657 | 1778.5 | 2.6873  | 2.9310  |
|  |       | 5   | 131997 | 1712.5 | 4.5092  | 5.0680  |
|  |       |     | 132322 | 1745   | 4.5208  | 5.1340  |
|  |       |     | 132647 | 1777.5 | 4.5299  | 5.1340  |
|  |       | 10  | 132022 | 1715   | 9.0007  | 9.8960  |
|  |       |     | 132322 | 1745   | 8.9927  | 9.9850  |
|  |       |     | 132622 | 1775   | 8.9919  | 9.8660  |
|  |       | 15  | 132047 | 1717.5 | 13.4940 | 14.6550 |
|  |       |     | 132322 | 1745   | 13.4450 | 15.0280 |
|  |       |     | 132597 | 1772.5 | 13.4740 | 14.7910 |
|  |       | 20  | 132072 | 1720   | 17.9780 | 19.5080 |
|  |       |     | 132322 | 1745   | 17.9450 | 19.5550 |
|  |       |     | 132572 | 1770   | 18.0000 | 19.5200 |



## WCDMA Band IV CH-Low



## WCDMA Band IV CH Middle

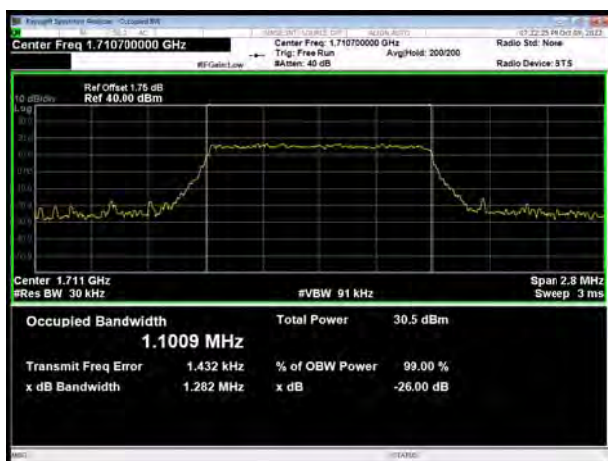


## WCDMA Band IV CH High

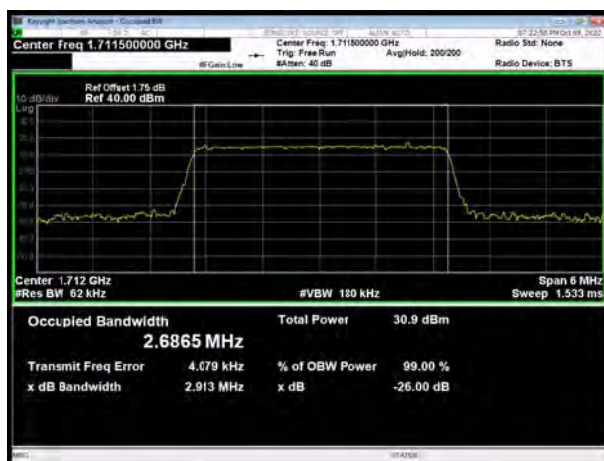




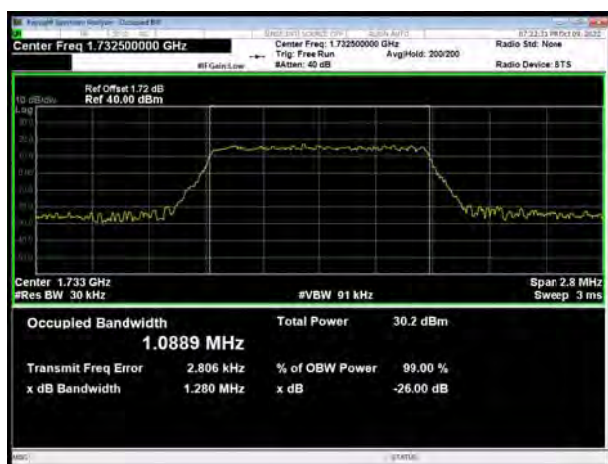
## LTE Band 4 QPSK 1.4MHz CH-Low



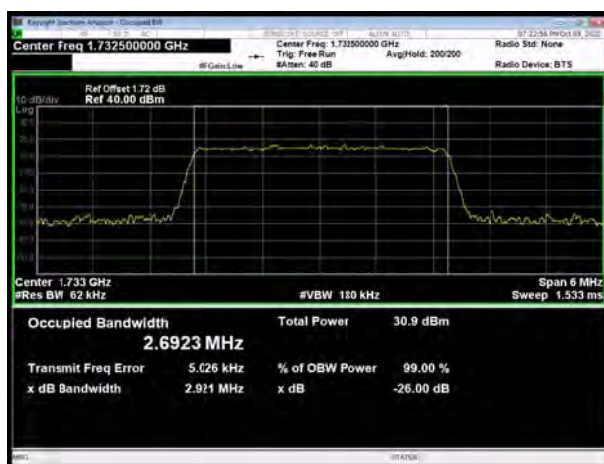
## LTE Band 4 QPSK 3MHz CH-Low



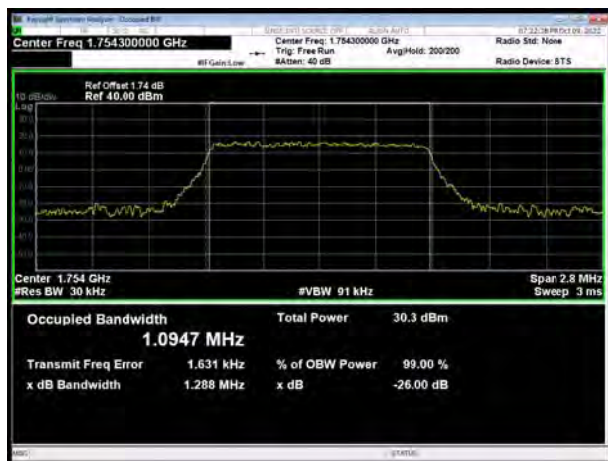
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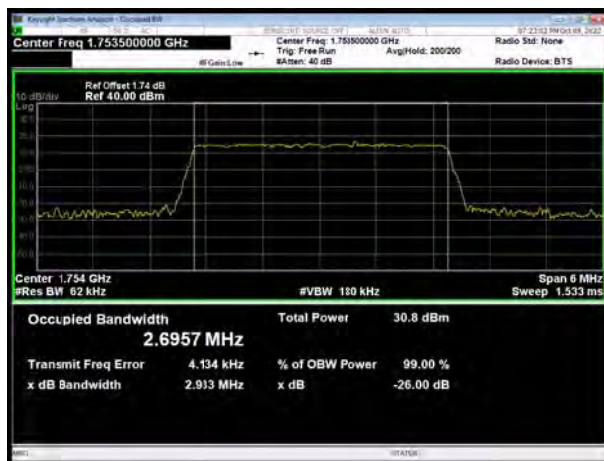
## LTE Band 4 QPSK 3MHz CH-Middle



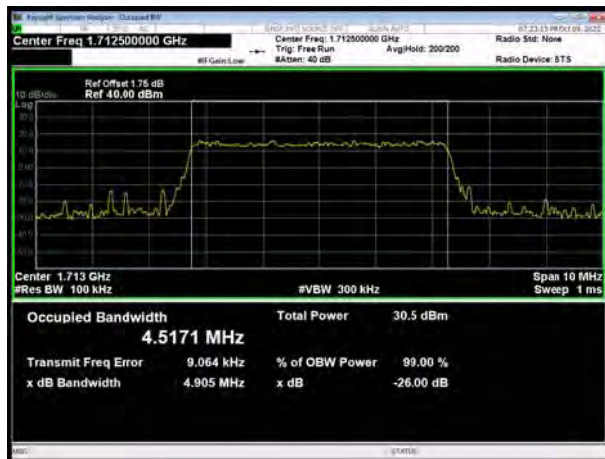
## LTE Band 4 QPSK 1.4MHz CH-High



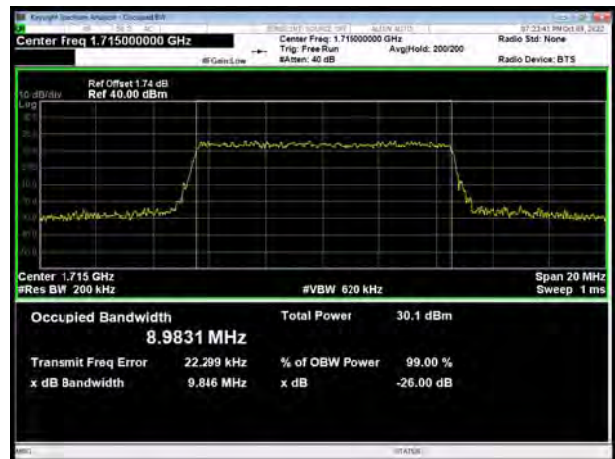
## LTE Band 4 QPSK 3MHz CH-High



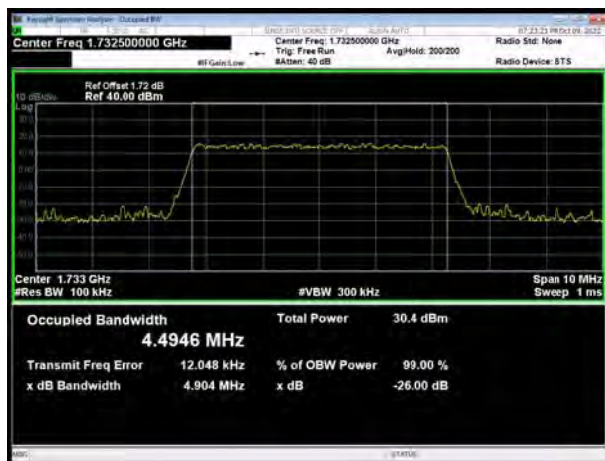
## LTE Band 4 QPSK 5MHz CH-Low



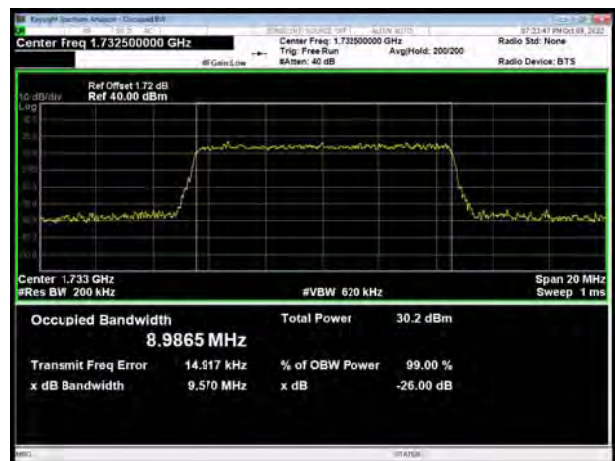
## LTE Band 4 QPSK 10MHz CH-Low



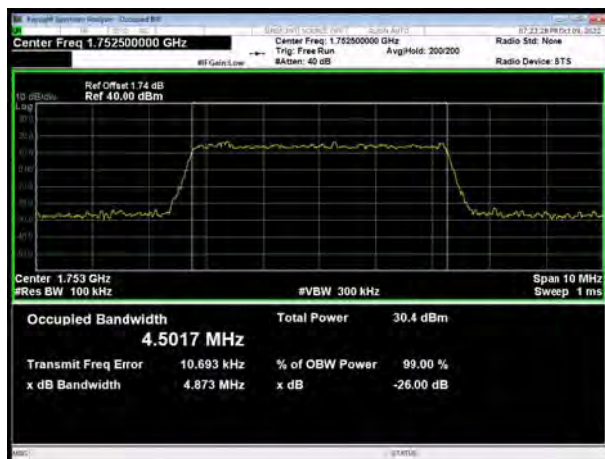
## LTE Band 4 QPSK 5MHz CH-Middle



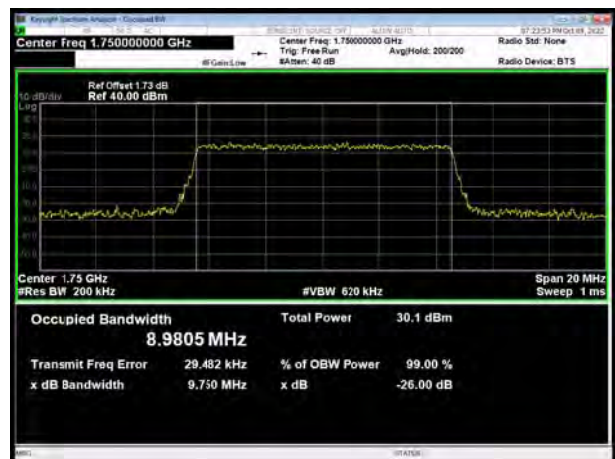
## LTE Band 4 QPSK 10MHz CH-Middle



## LTE Band 4 QPSK 5MHz CH-High

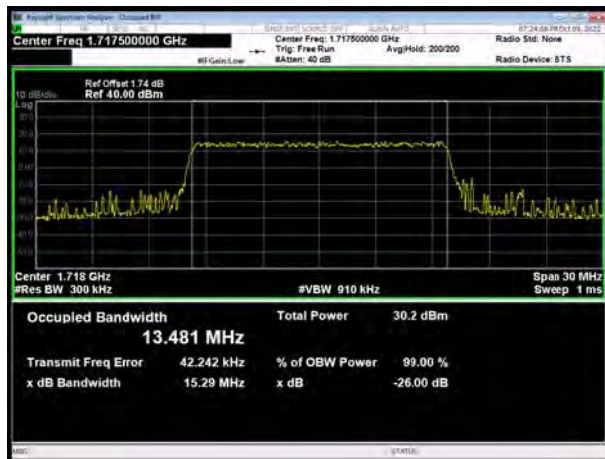


## LTE Band 4 QPSK 10MHz CH-High

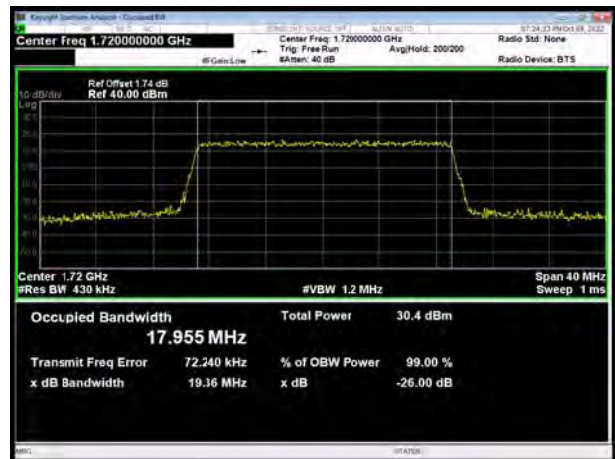




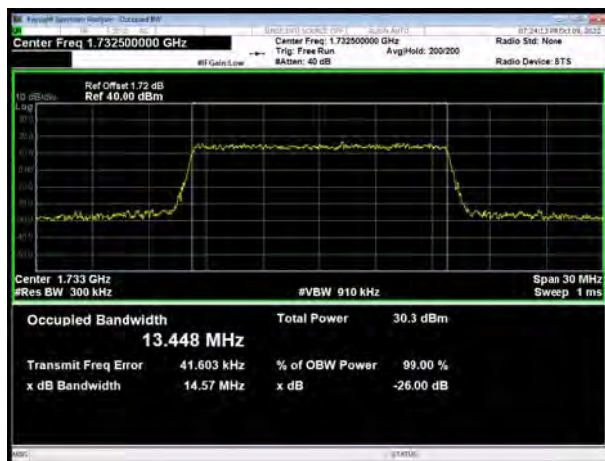
## LTE Band 4 QPSK 15MHz CH-Low



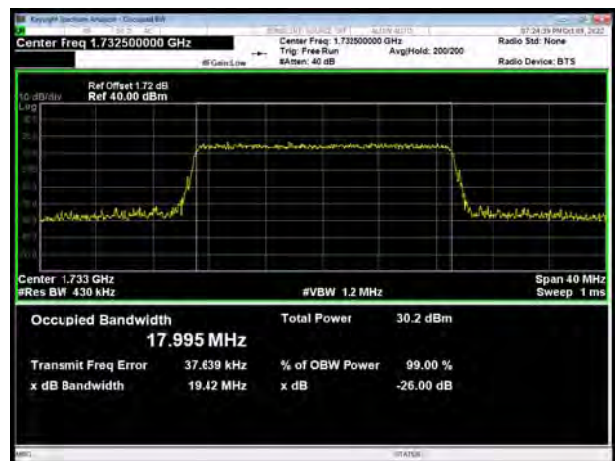
## LTE Band 4 QPSK 20MHz CH-Low



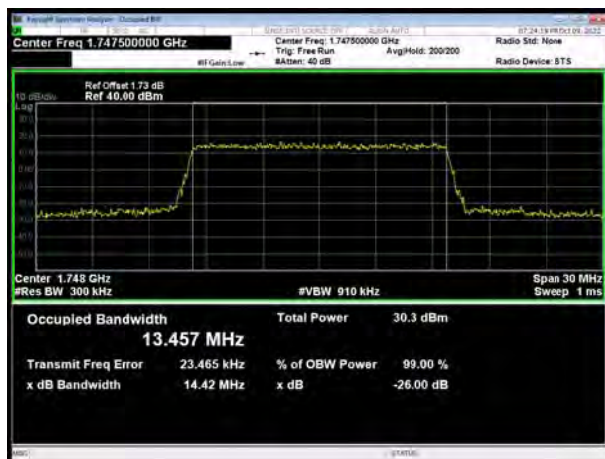
## LTE Band 4 QPSK 15MHz CH-Middle



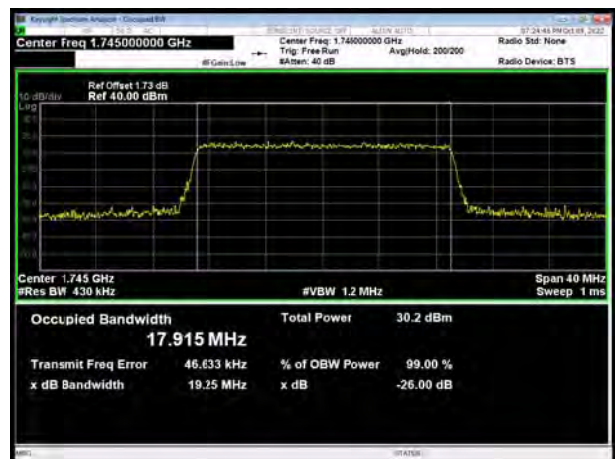
## LTE Band 4 QPSK 20MHz CH-Middle



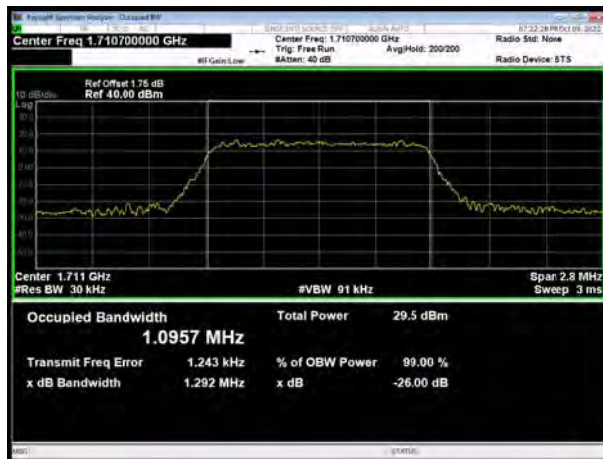
## LTE Band 4 QPSK 15MHz CH-High



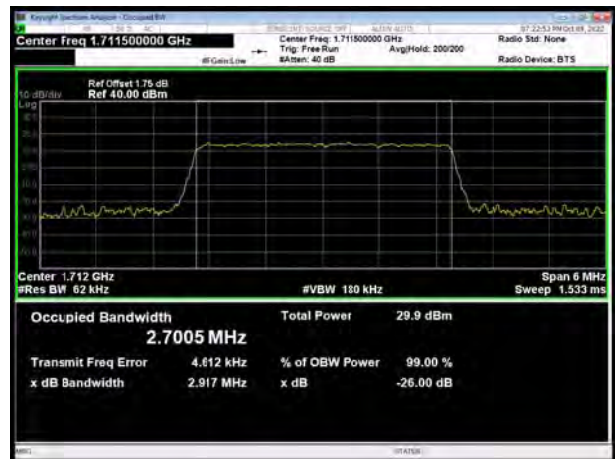
## LTE Band 4 QPSK 20MHz CH-High



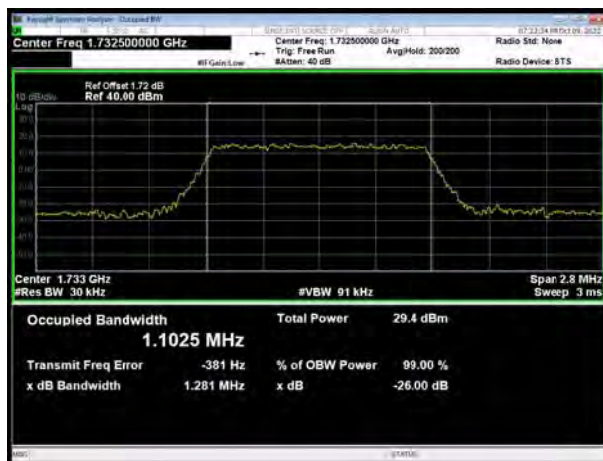
## LTE Band 4 16QAM 1.4MHz CH-Low



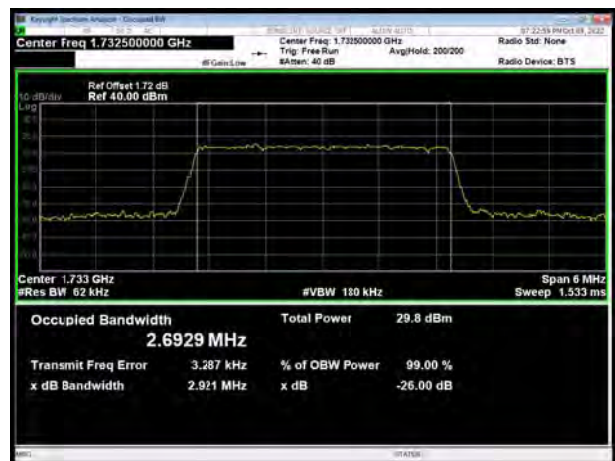
## LTE Band 4 16QAM 3MHz CH-Low



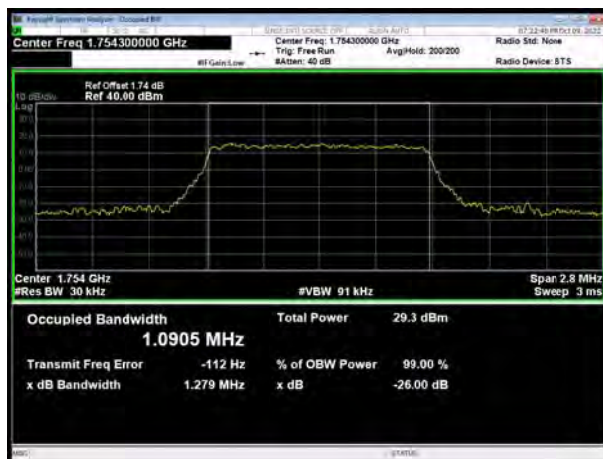
## LTE Band 4 16QAM 1.4MHz CH-Middle



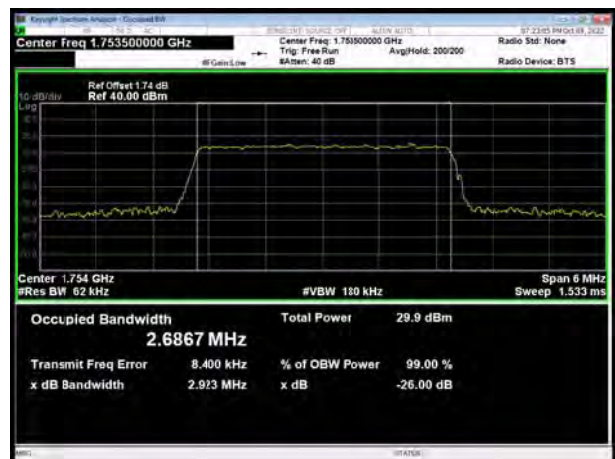
## LTE Band 4 16QAM 3MHz CH-Middle



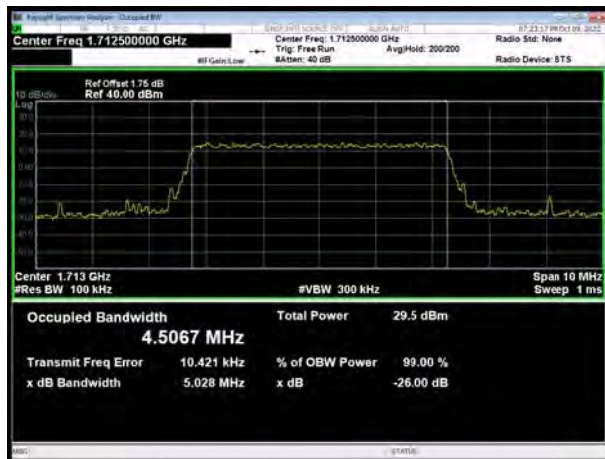
## LTE Band 4 16QAM 1.4MHz CH-High



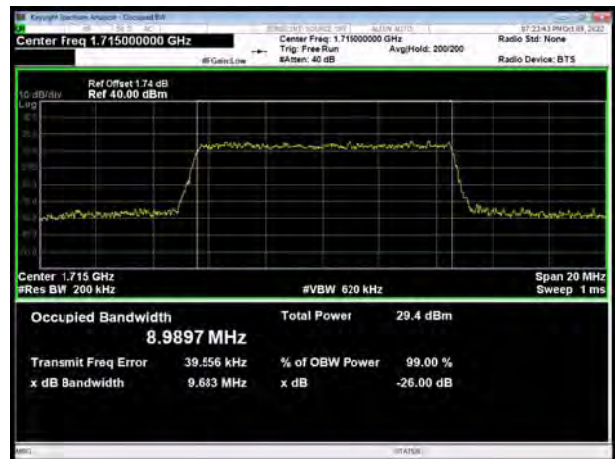
## LTE Band 4 16QAM 3MHz CH-High



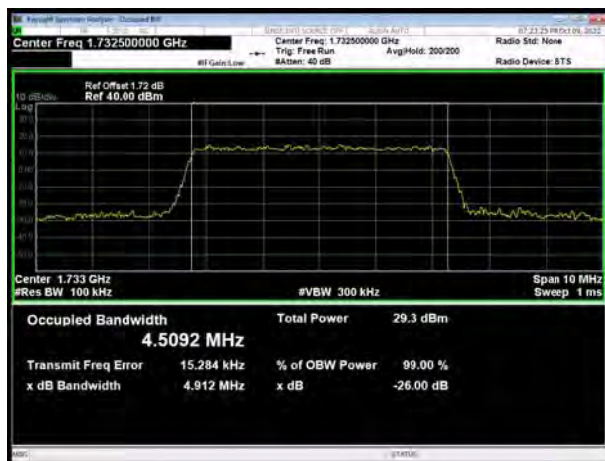
## LTE Band 4 16QAM 5MHz CH-Low



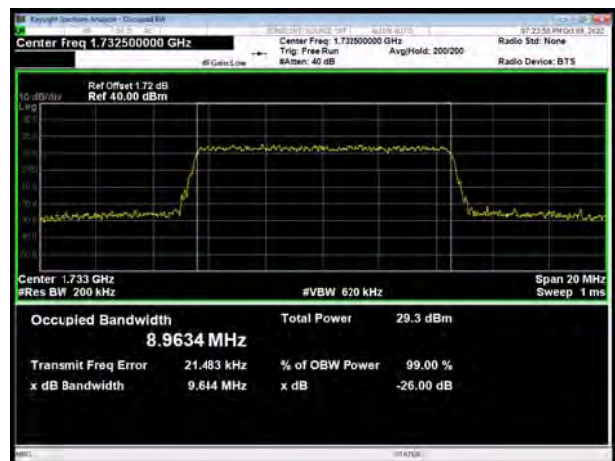
## LTE Band 4 16QAM 10MHz CH-Low



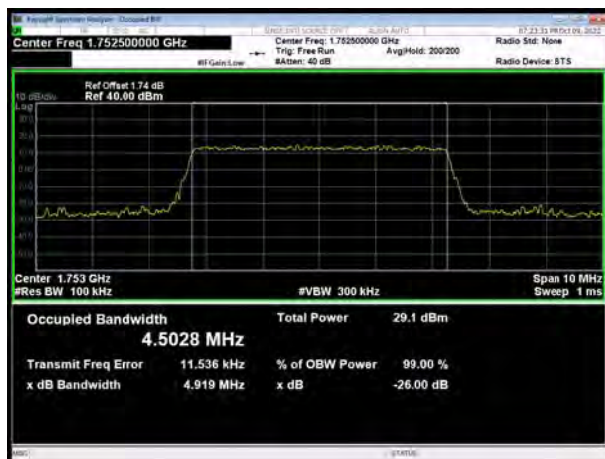
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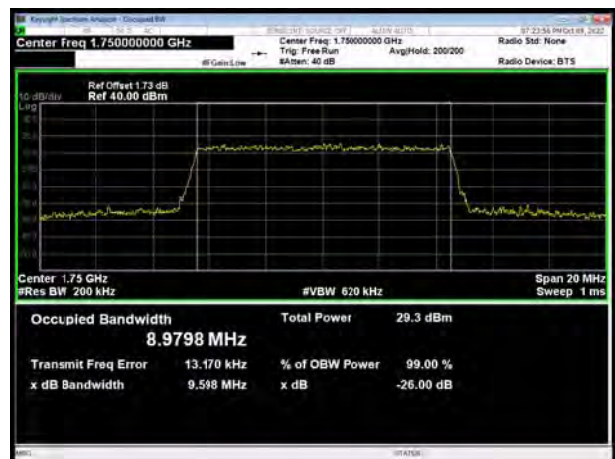
## LTE Band 4 16QAM 10MHz CH-Middle



## LTE Band 4 16QAM 5MHz CH-High

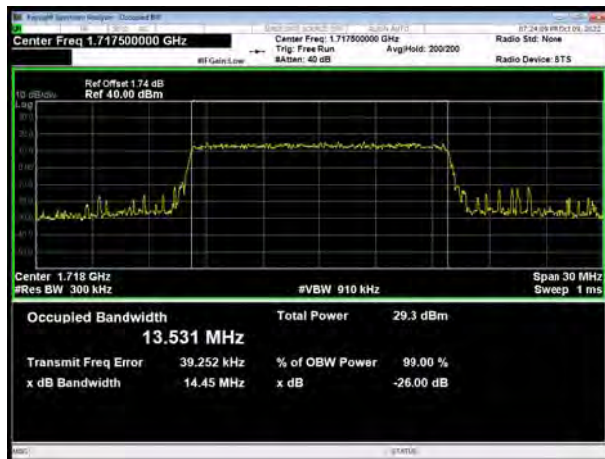


## LTE Band 4 16QAM 10MHz CH-High

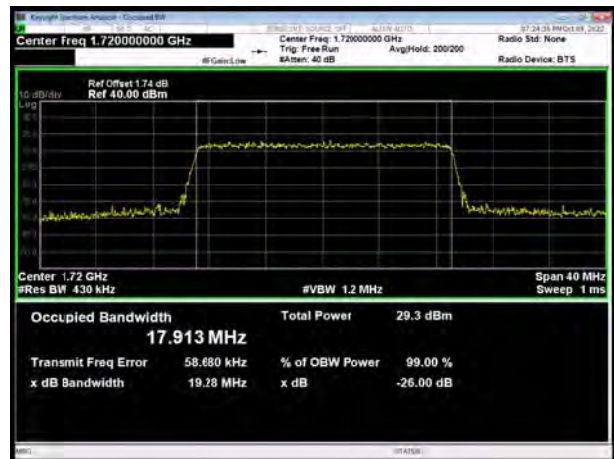




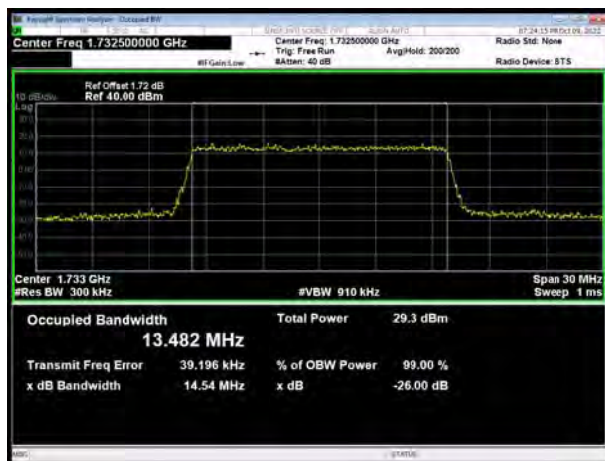
LTE Band 4 16QAM 15MHz CH-Low



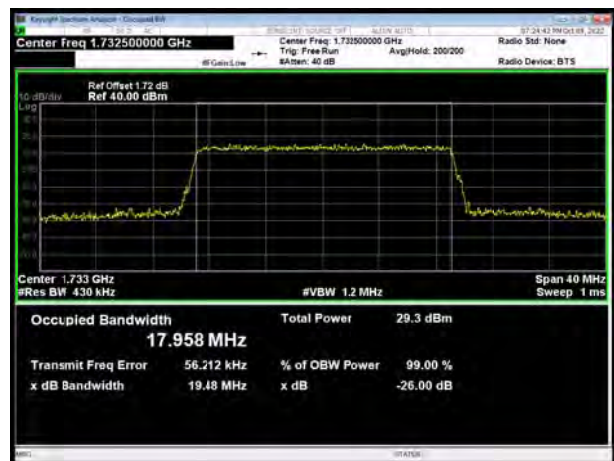
LTE Band 4 16QAM 20MHz CH-Low



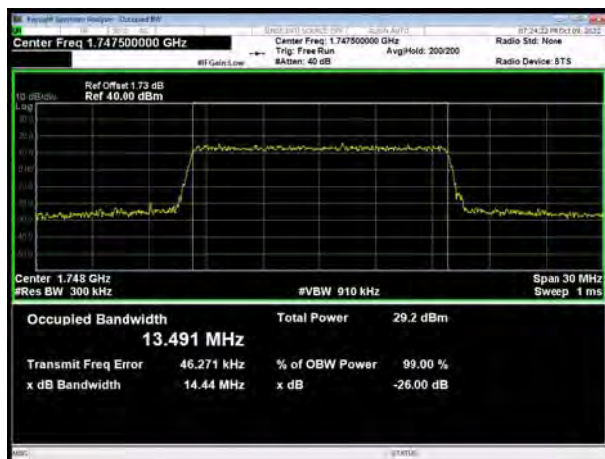
LTE Band 4 16QAM 15MHz CH-Middle



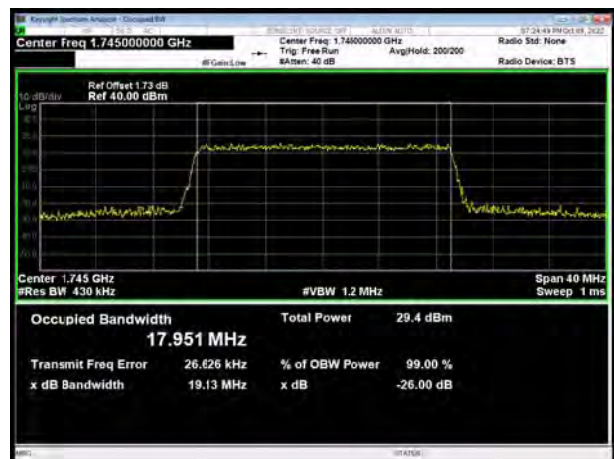
LTE Band 4 16QAM 20MHz CH-Middle



LTE Band 4 16QAM 15MHz CH-High

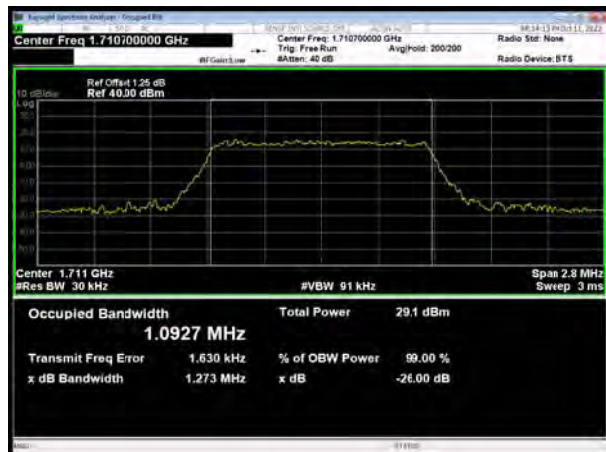


LTE Band 4 16QAM 20MHz CH-High

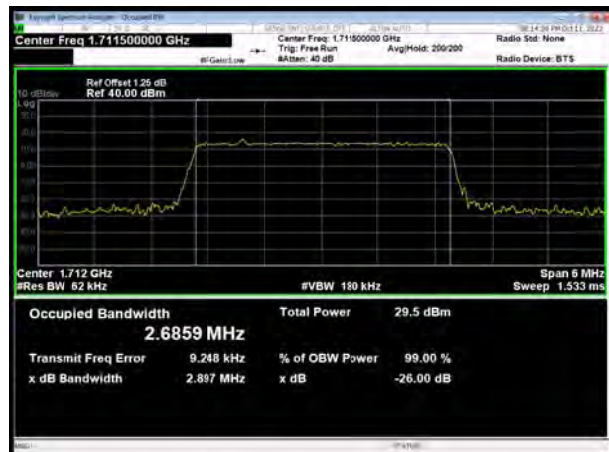




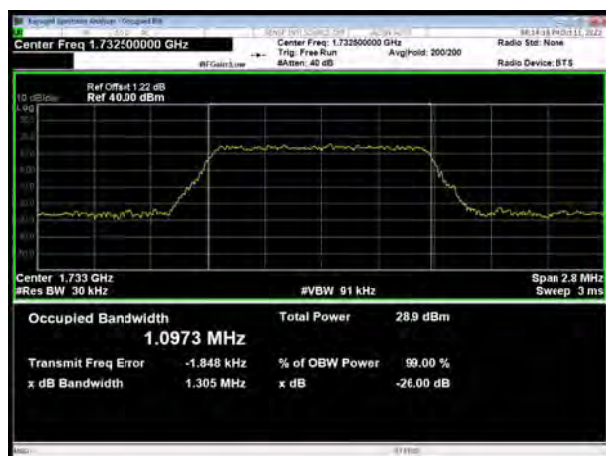
LTE Band 4 1.4MHz64QAMCH-Low



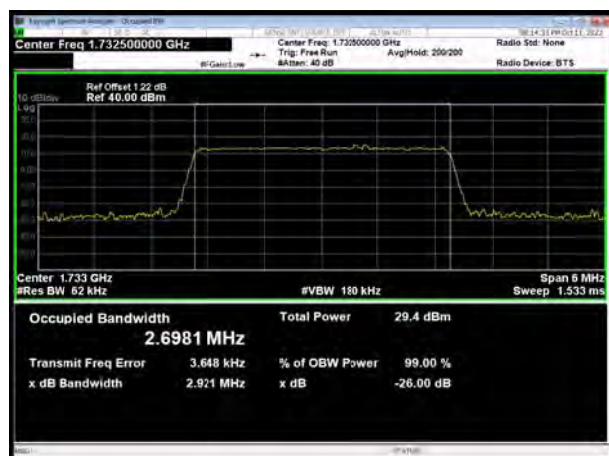
LTE Band 43MHz64QAMCH-Low



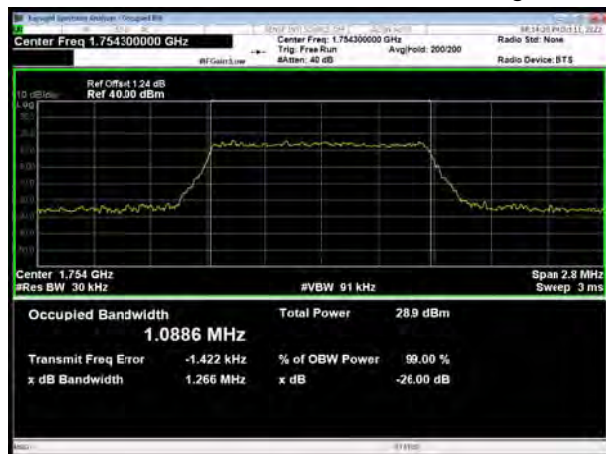
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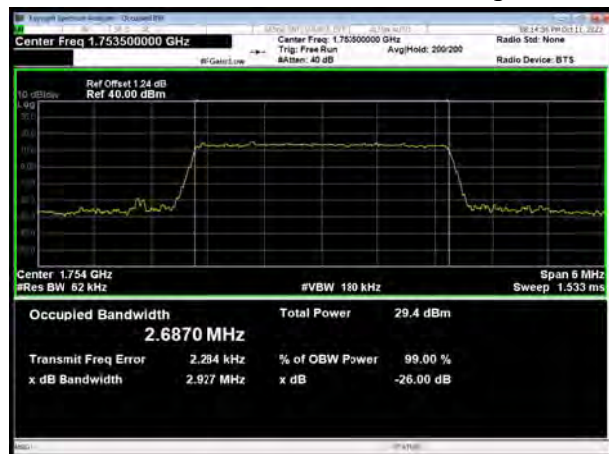
LTE Band 43MHz64QAMCH-Middle



LTE Band 4 1.4MHz64QAM CH-High

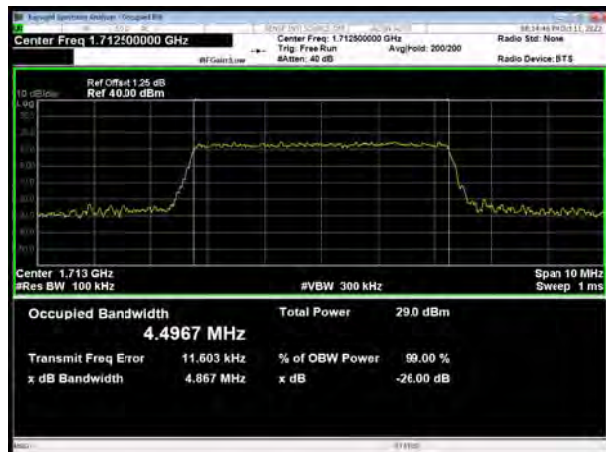


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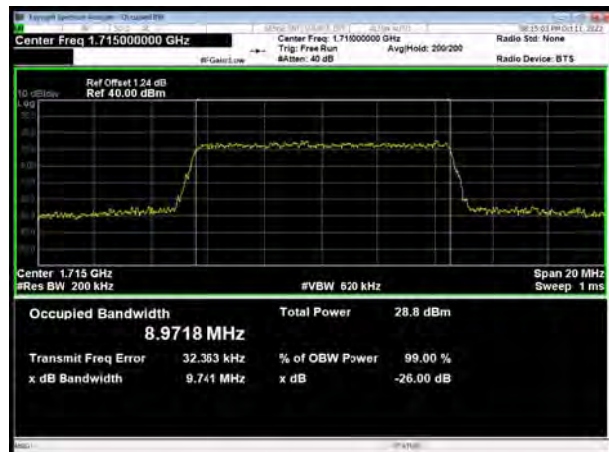




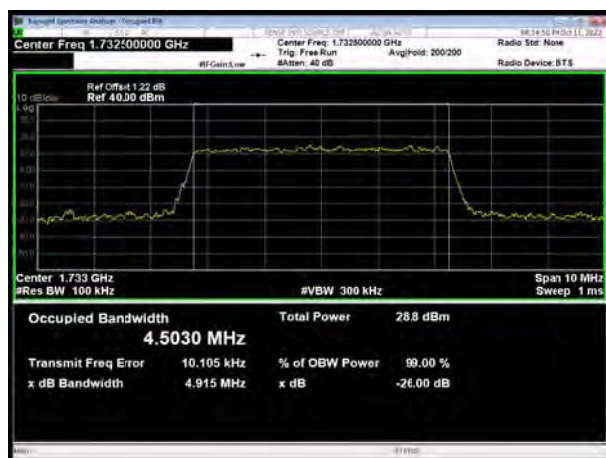
LTE Band 45MHz64QAMCH-Low



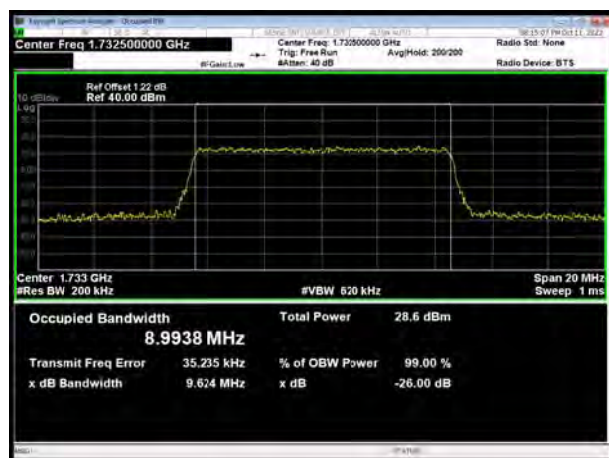
LTE Band 410MHz64QAMCH-Low



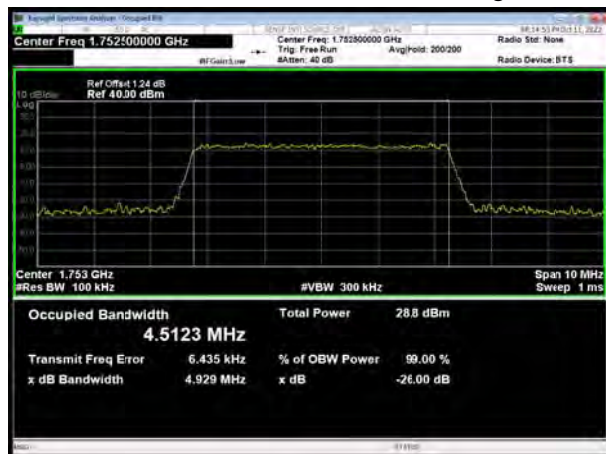
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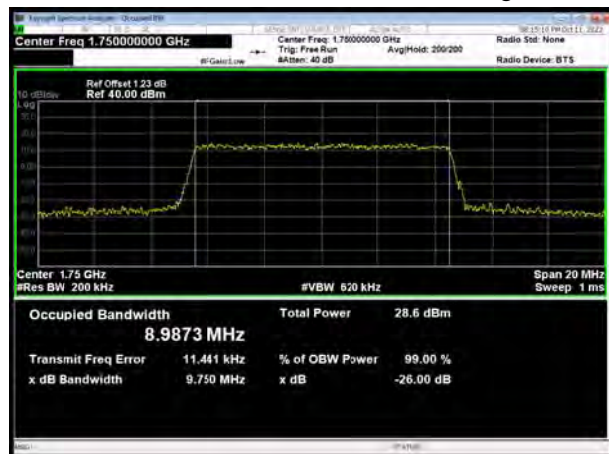
LTE Band 410MHz64QAMCH-Middle



LTE Band 45MHz64QAMCH-High

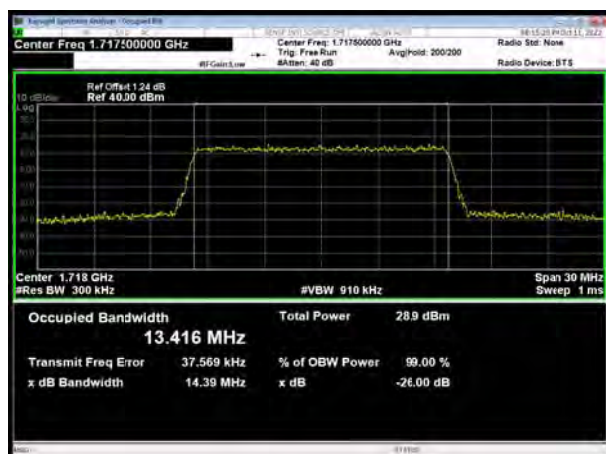


LTE Band 410MHz64QAMCH-High

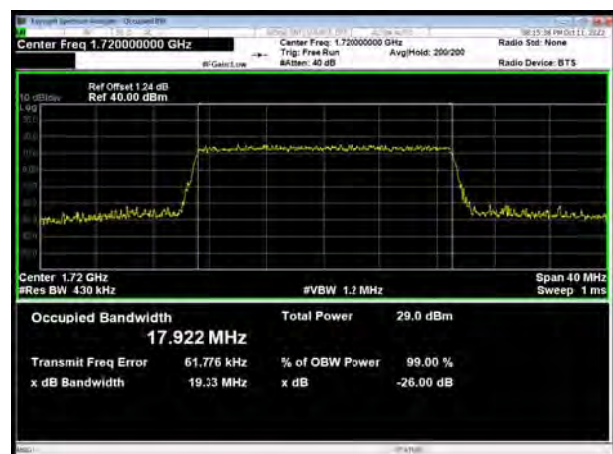




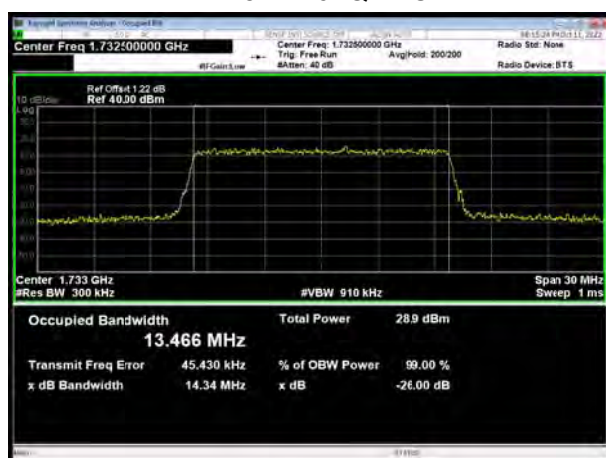
LTE Band 415MHz64QAMCH-Low



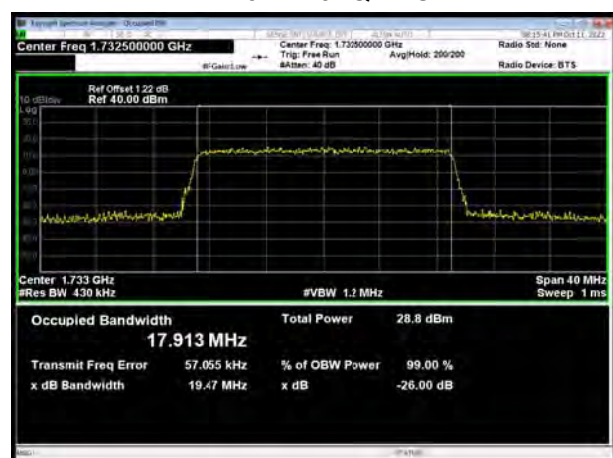
LTE Band 420MHz64QAMCH-Low



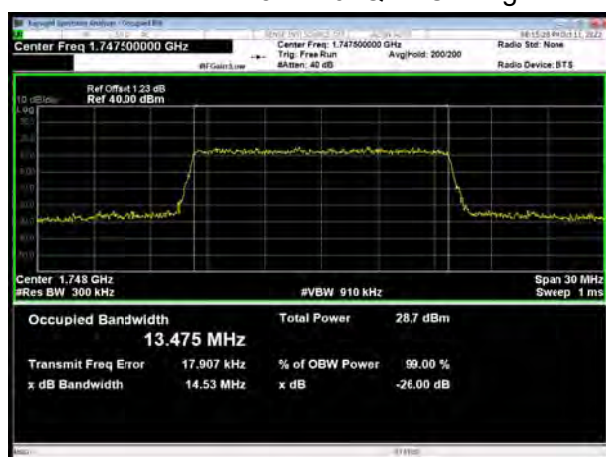
LTE Band 415MHz64QAMCH-Middle



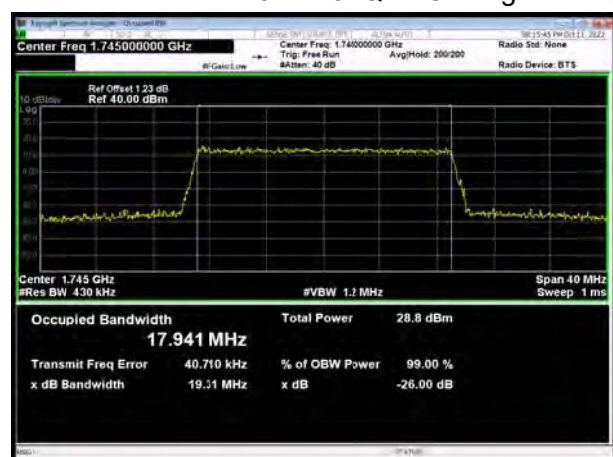
LTE Band 420MHz64QAMCH-Middle



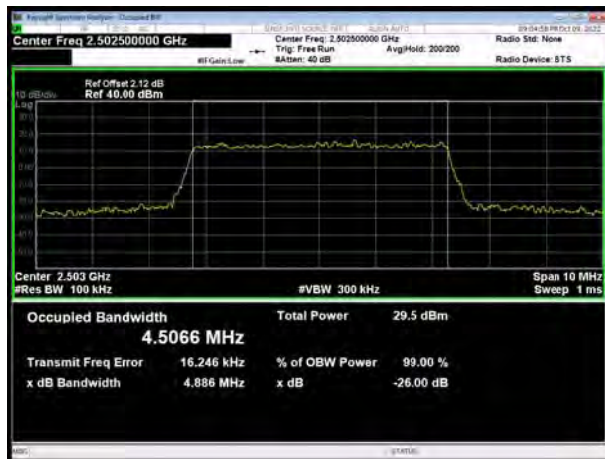
LTE Band 4 15MHz64QAMCH-High



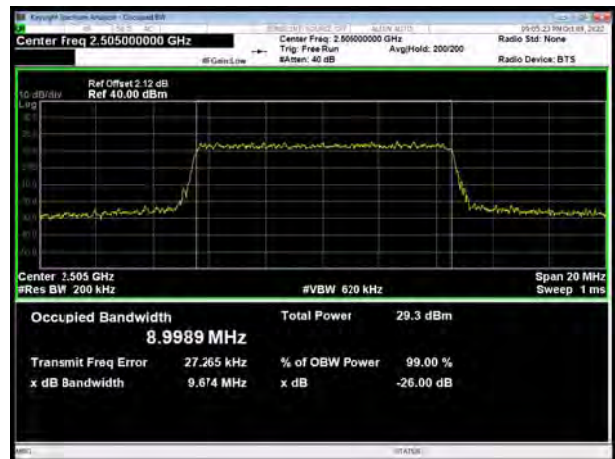
LTE Band 420MHz64QAMCH-High



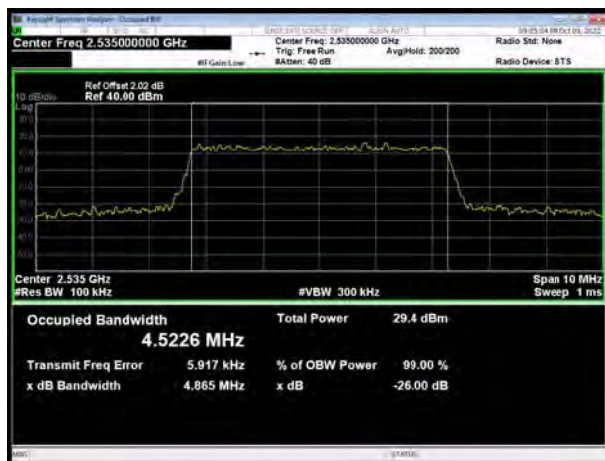
## LTE Band 7 QPSK 5MHz CH-Low



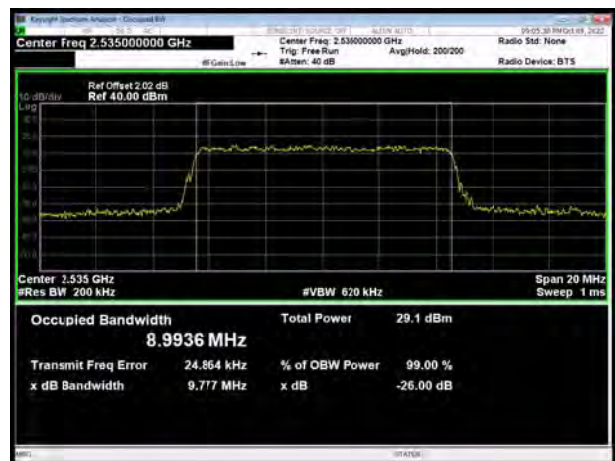
## LTE Band 7 QPSK 10MHz CH-Low



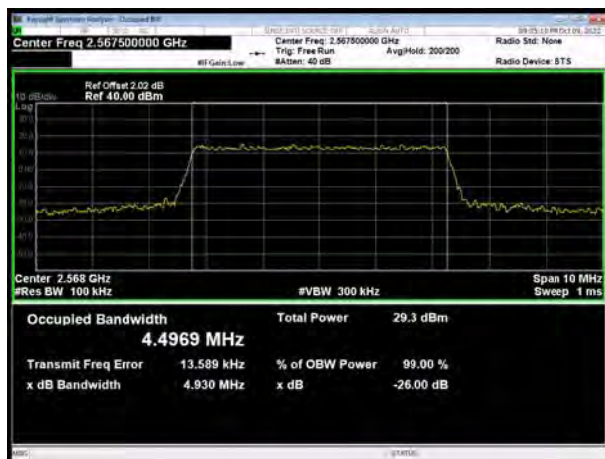
## LTE Band 7 QPSK 5MHz CH-Middle



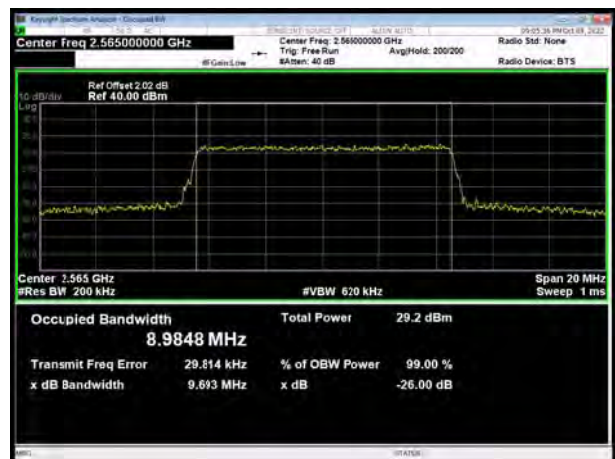
## LTE Band 7 QPSK 10MHz CH-Middle



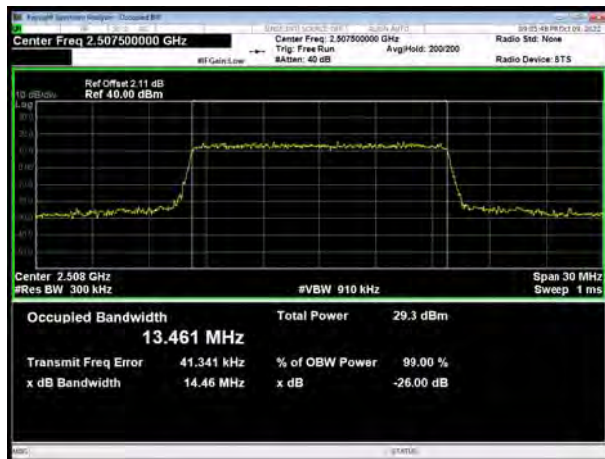
## LTE Band 7 QPSK 5MHz CH-High



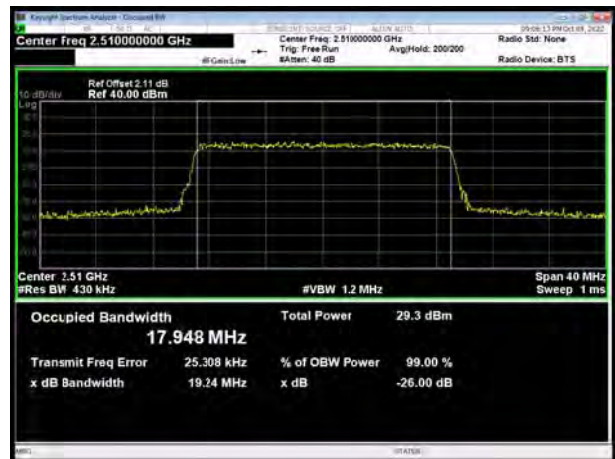
## LTE Band 7 QPSK 10MHz CH-High



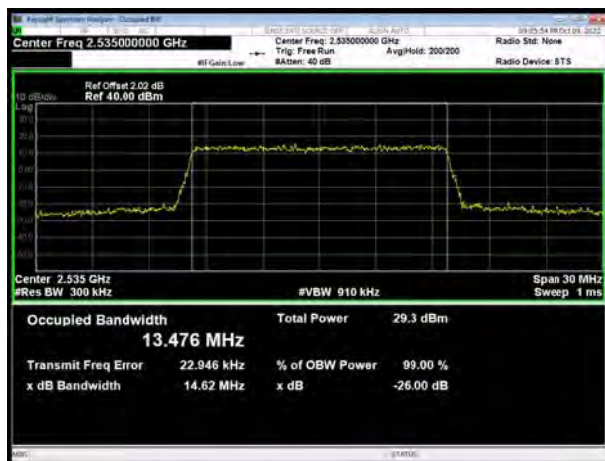
## LTE Band 7 QPSK 15MHz CH-Low



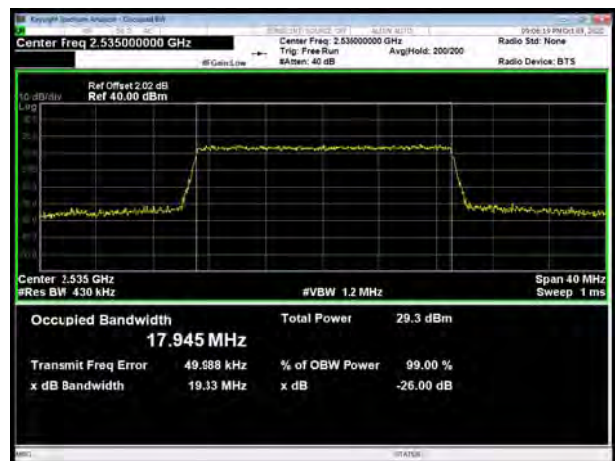
## LTE Band 7 QPSK 20MHz CH-Low



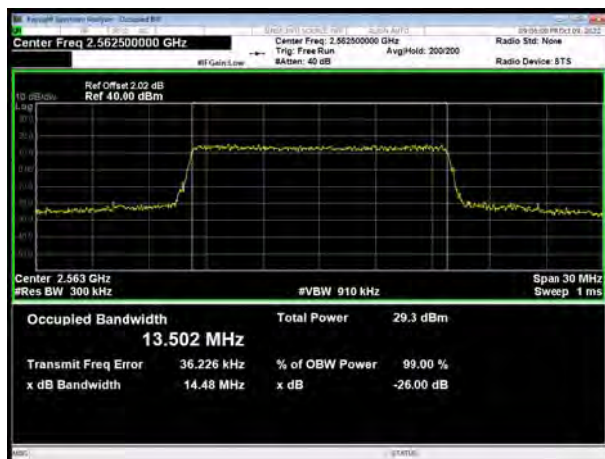
## LTE Band 7 QPSK 15MHz CH-Middle



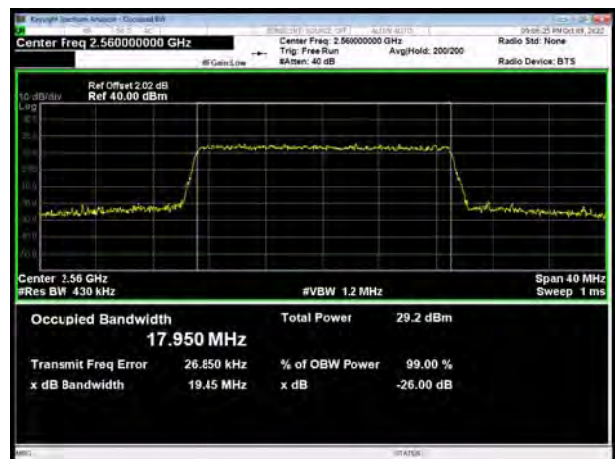
## LTE Band 7 QPSK 20MHz CH-Middle



## LTE Band 7 QPSK 15MHz CH-High

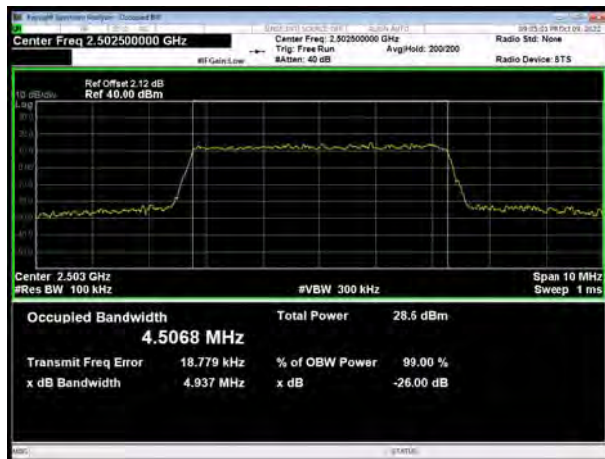


## LTE Band 7 QPSK 20MHz CH-High

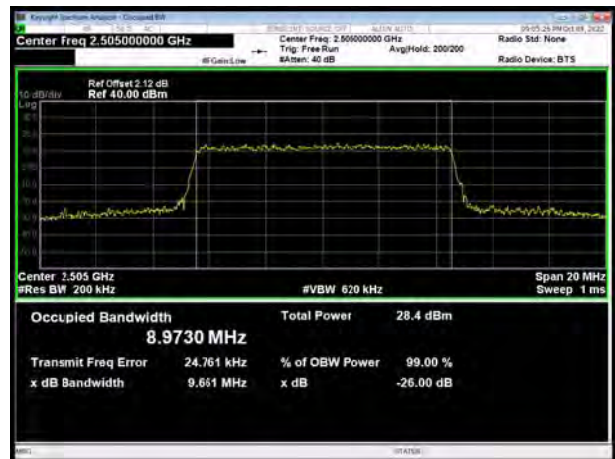




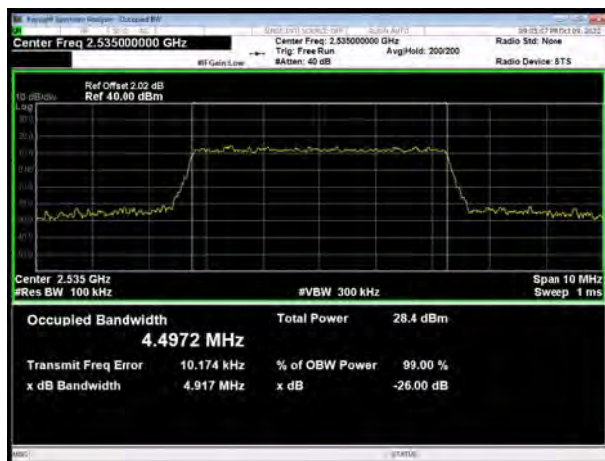
## LTE Band 7 16QAM 5MHz CH-Low



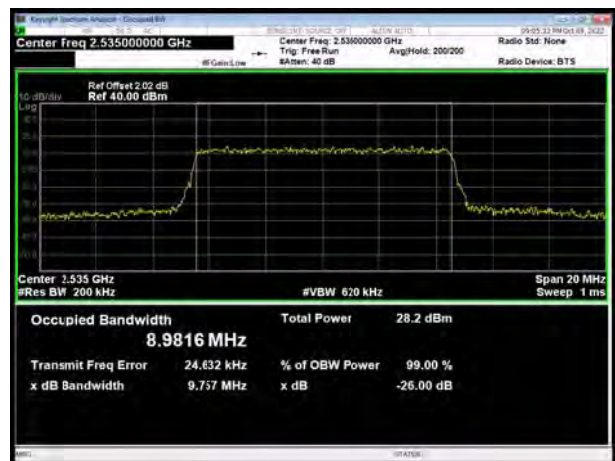
## LTE Band 7 16QAM 10MHz CH-Low



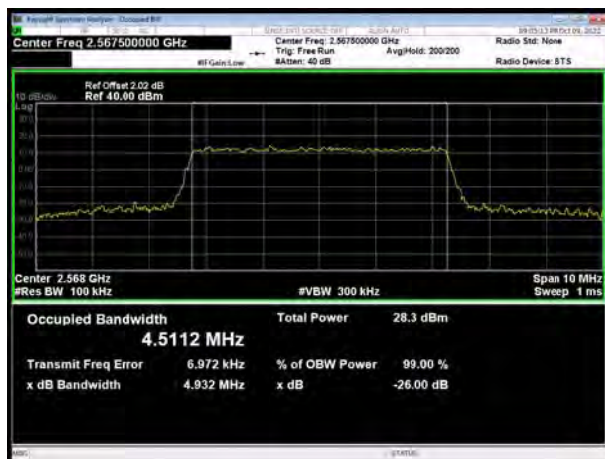
## LTE Band 7 16QAM 5MHz CH-Middle



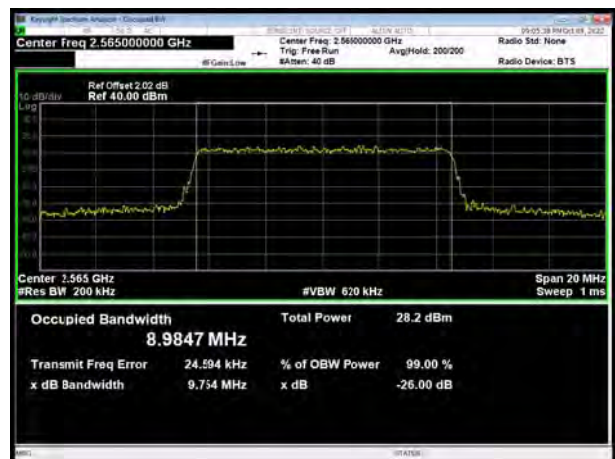
## LTE Band 7 16QAM 10MHz CH-Middle



## LTE Band 7 16QAM 5MHz CH-High

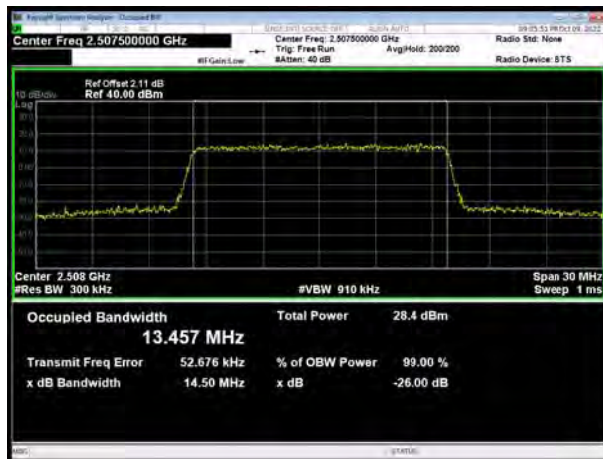


## LTE Band 7 16QAM 10MHz CH-High

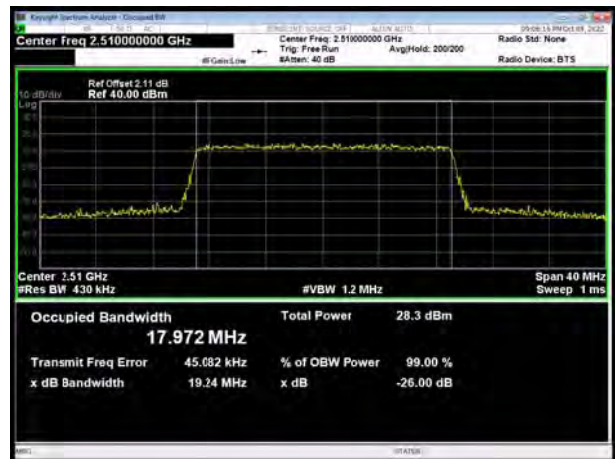




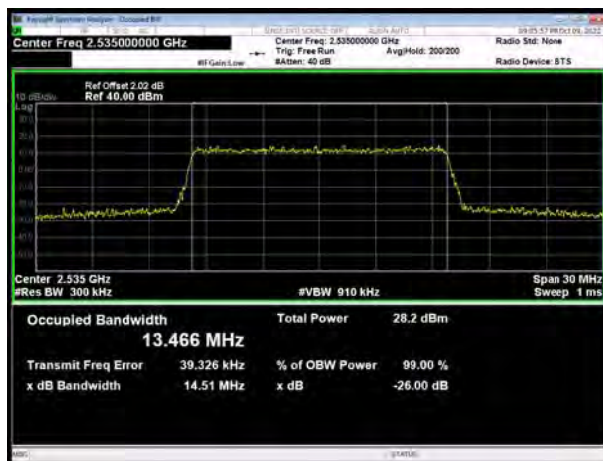
## LTE Band 7 16QAM 15MHz CH-Low



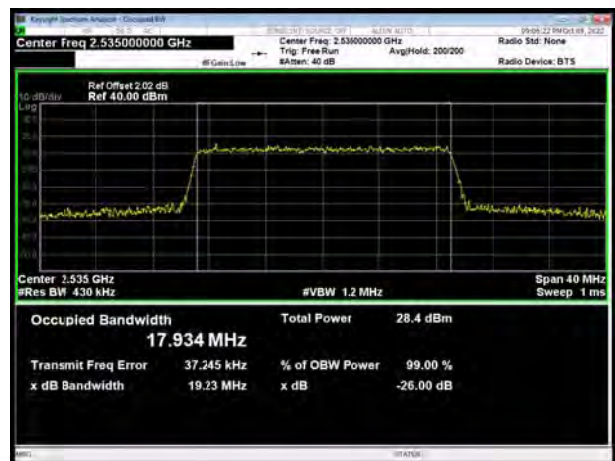
## LTE Band 7 16QAM 20MHz CH-Low



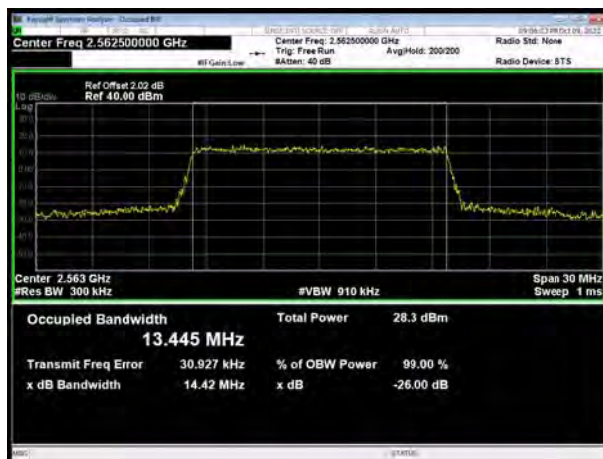
## LTE Band 7 16QAM 15MHz CH-Middle



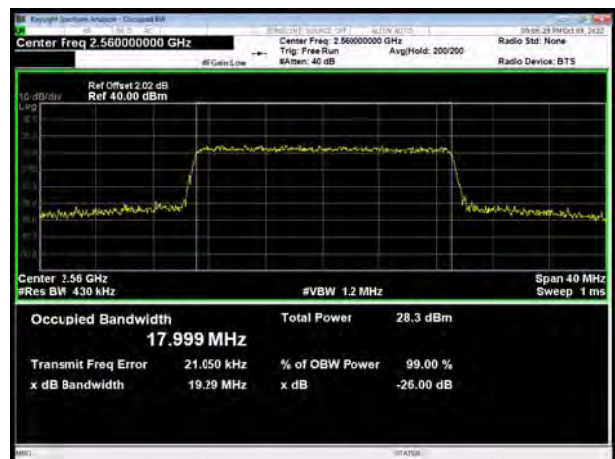
## LTE Band 7 16QAM 20MHz CH-Middle



## LTE Band 7 16QAM 15MHz CH-High

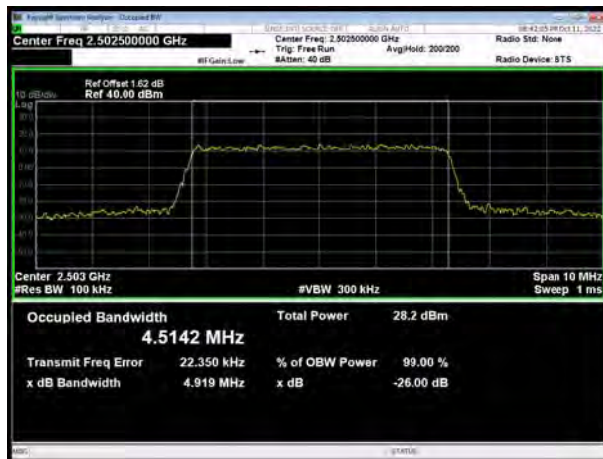


## LTE Band 7 16QAM 20MHz CH-High

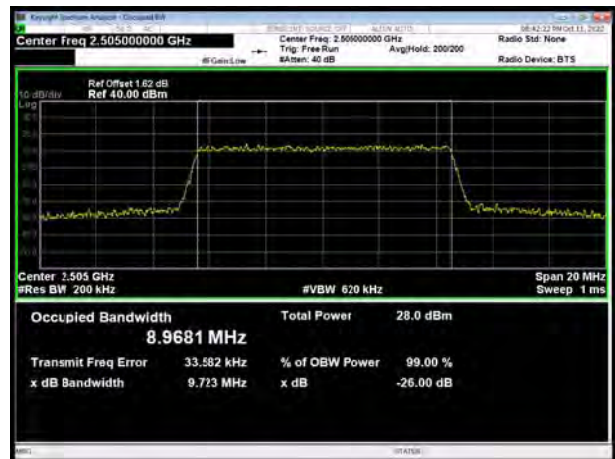




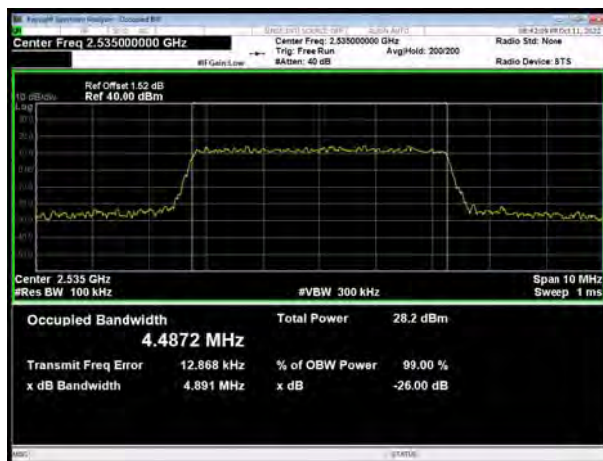
## LTE Band 7 64QAM 5MHz CH-Low



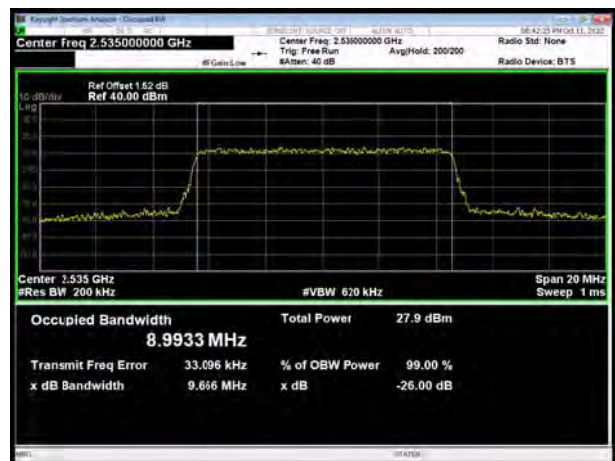
## LTE Band 7 64QAM 10MHz CH-Low



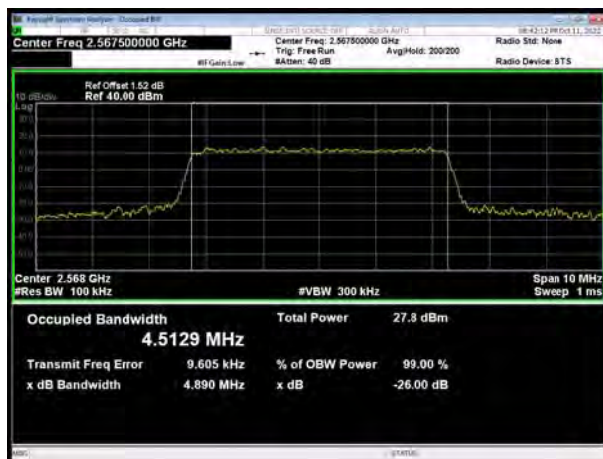
## LTE Band 7 64QAM 5MHz CH-Middle



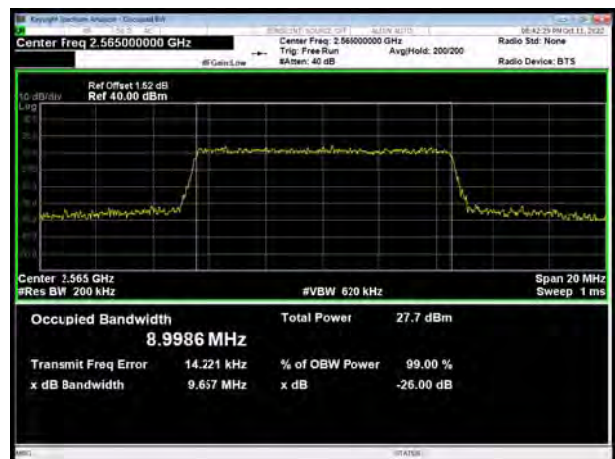
## LTE Band 7 64QAM 10MHz CH-Middle



## LTE Band 7 64QAM 5MHz CH-High

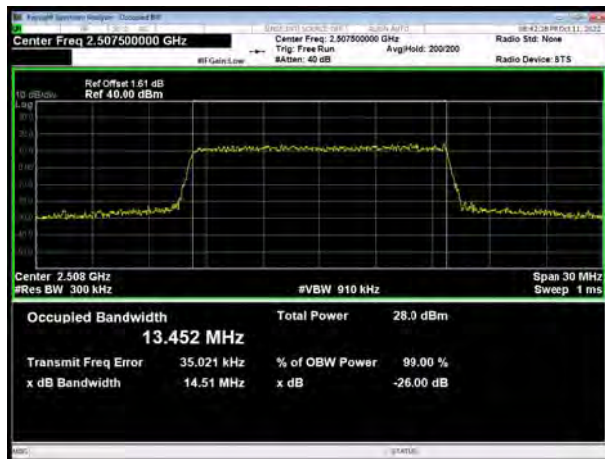


## LTE Band 7 64QAM 10MHz CH-High

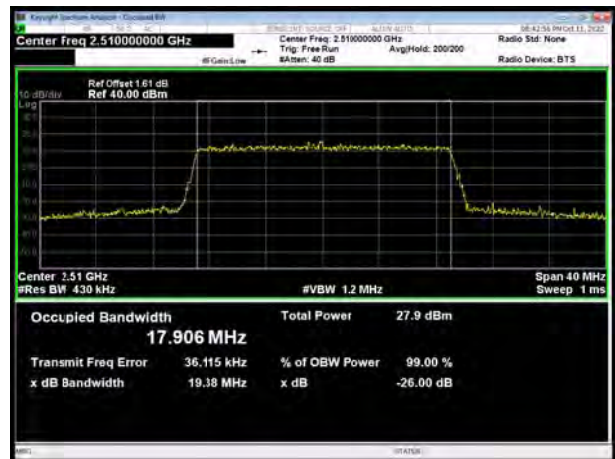




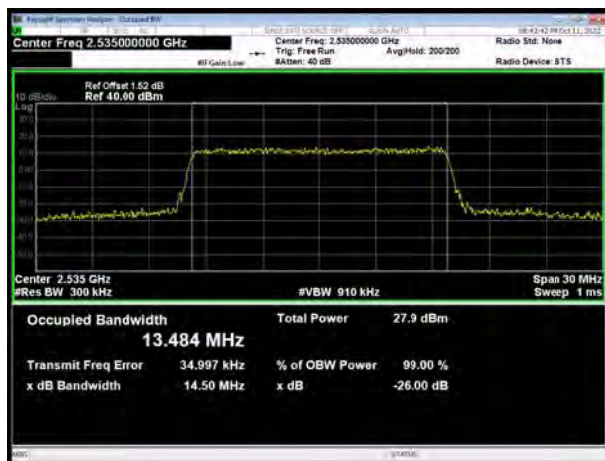
## LTE Band 7 64QAM 15MHz CH-Low



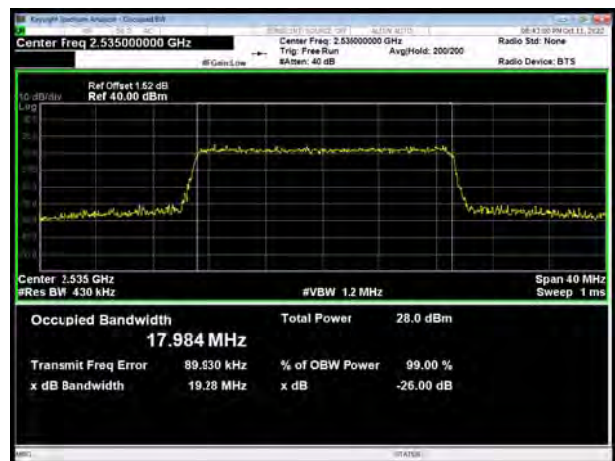
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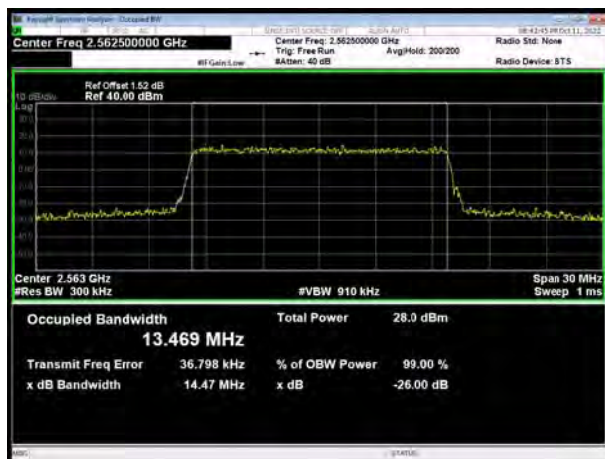
## LTE Band 7 64QAM 15MHz CH-Middle



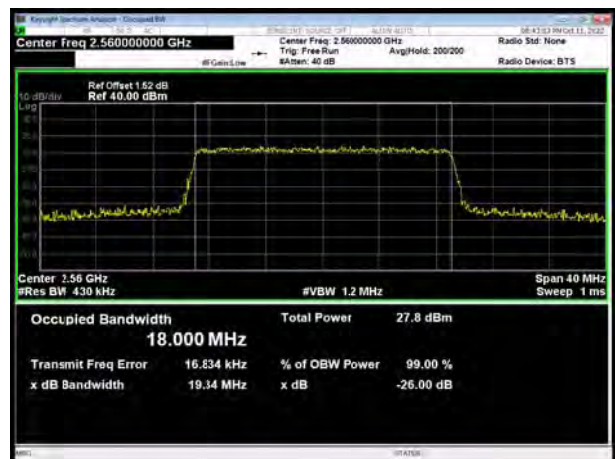
## LTE Band 7 64QAM 20MHz CH-Middle



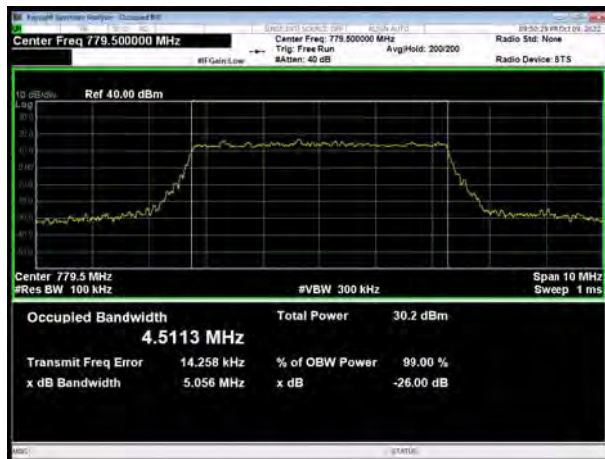
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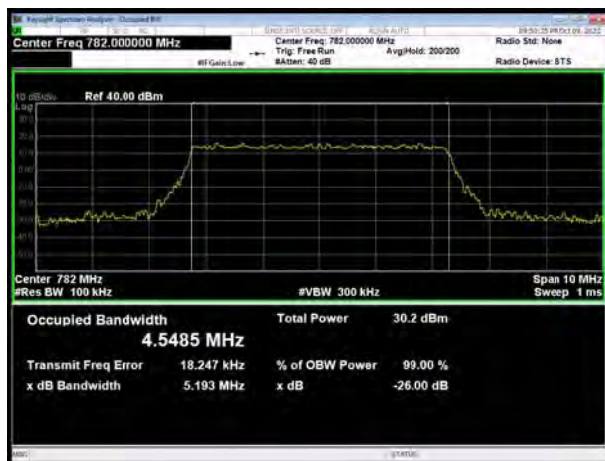
## LTE Band 7 64QAM 20MHz CH-High



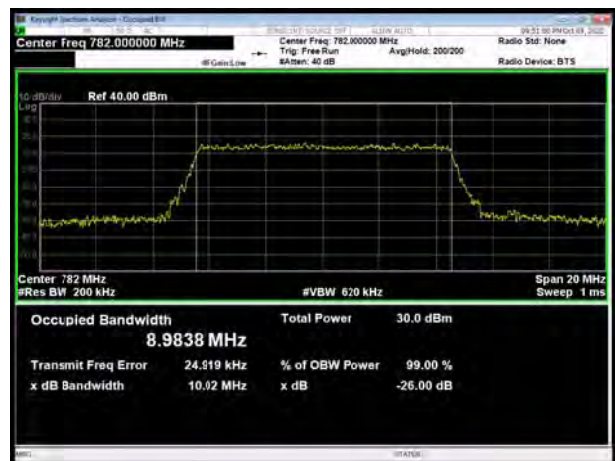
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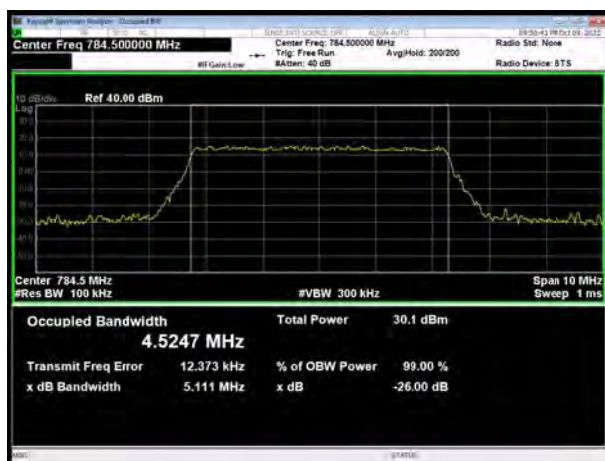
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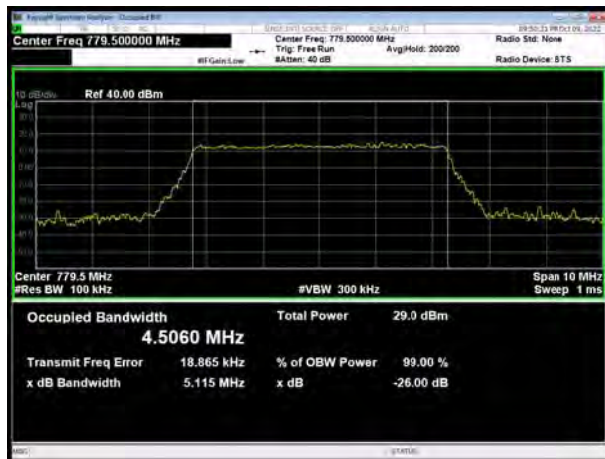
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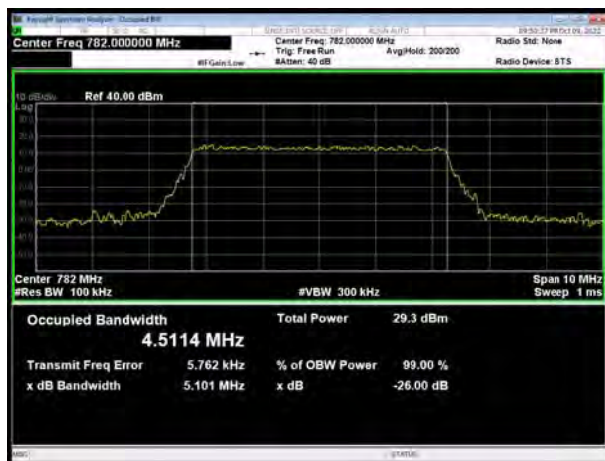
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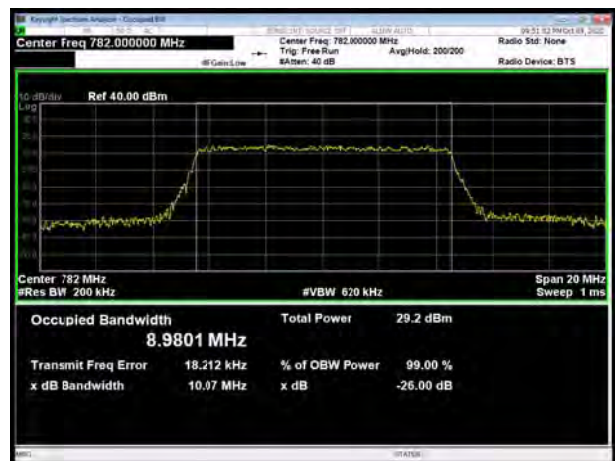
### LTE Band 13 16QAM 5MHz CH-Low



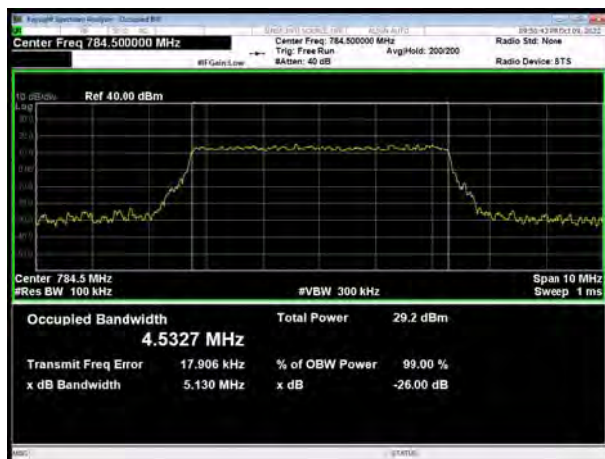
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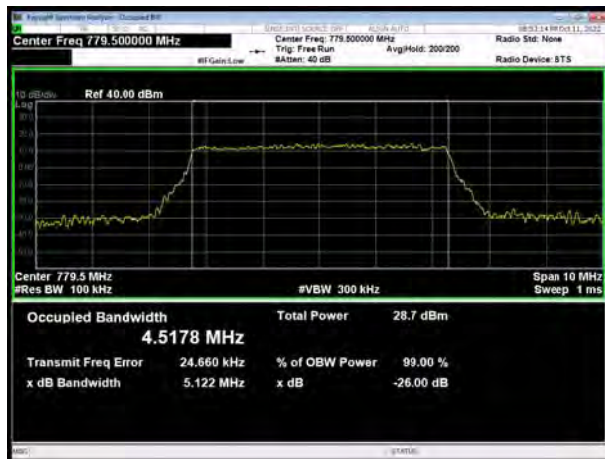
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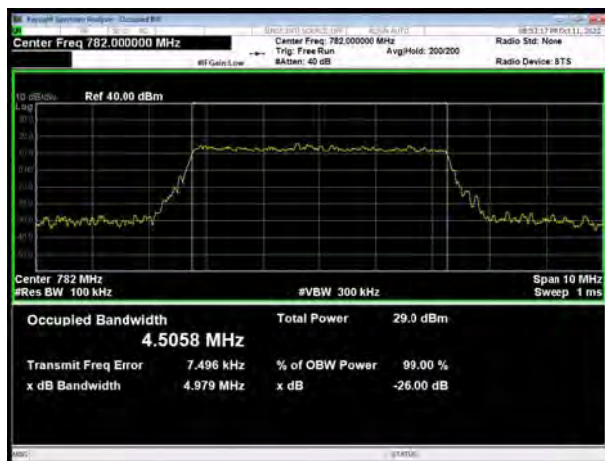
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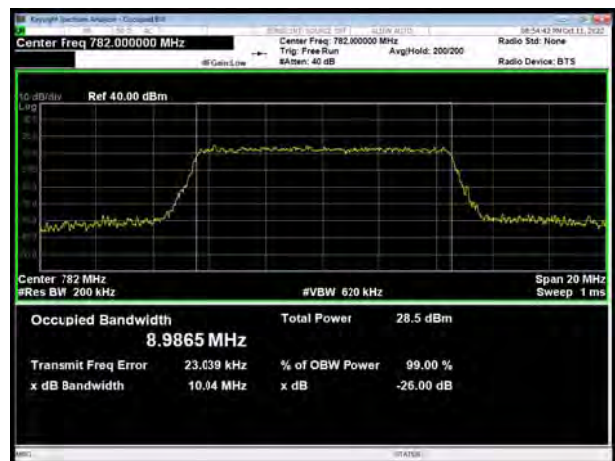
### LTE Band 13 64QAM 5MHz CH-Low



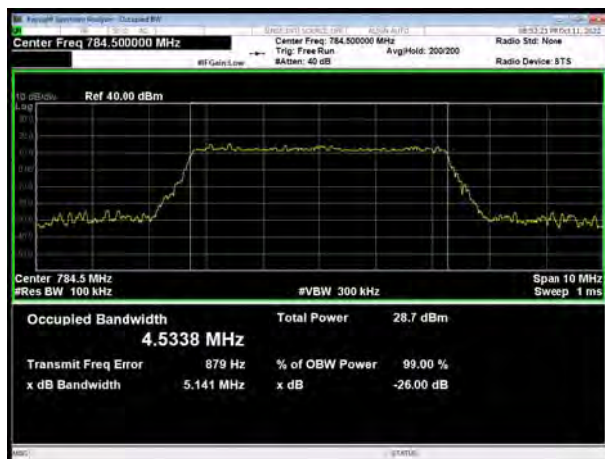
### LTE Band 13 64QAM 5MHz CH-Middle



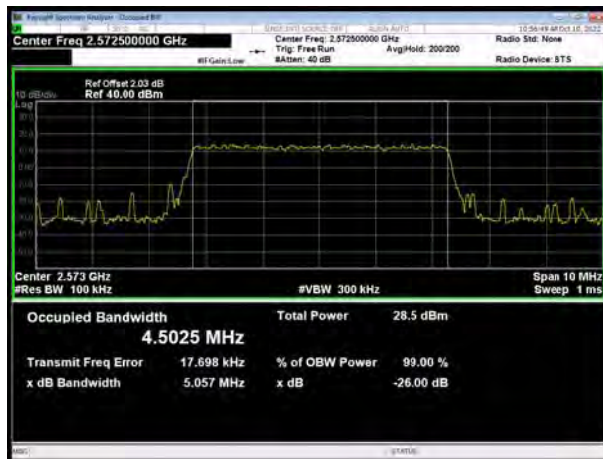
### LTE Band 13 64QAM 10MHz CH-Middle



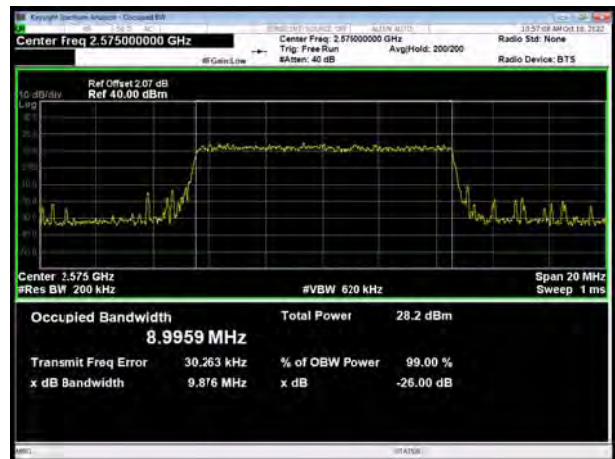
### LTE Band 13 64QAM 5MHz CH-High



## LTE Band 38 QPSK 5MHz CH-Low



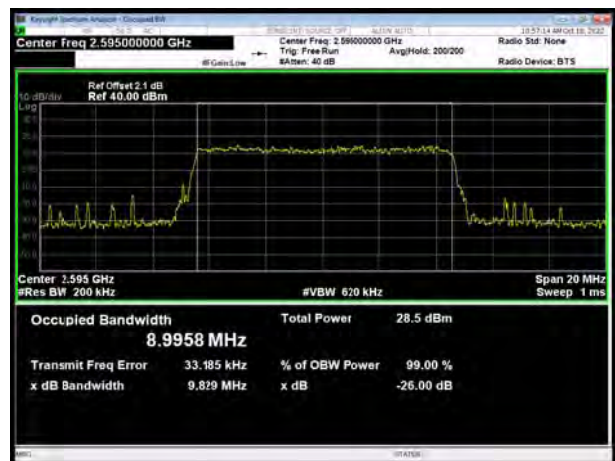
## LTE Band 38 QPSK 10MHz CH-Low



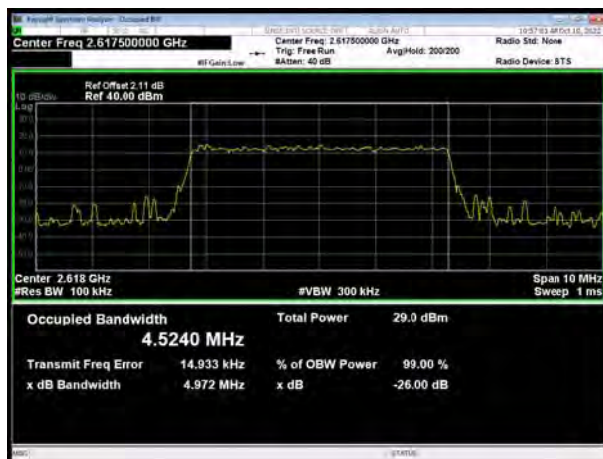
## LTE Band 38 QPSK 5MHz CH-Middle



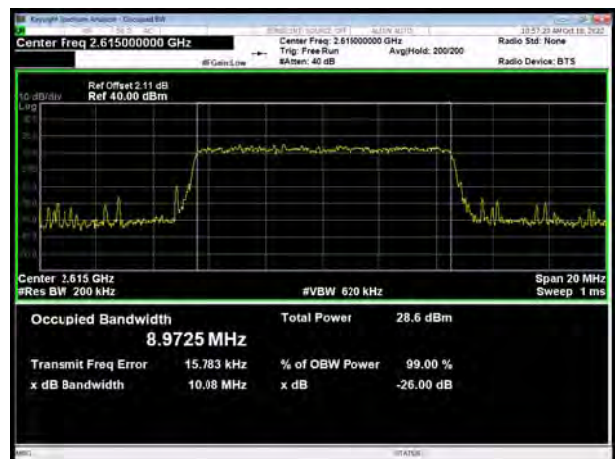
## LTE Band 38 QPSK 10MHz CH-Middle



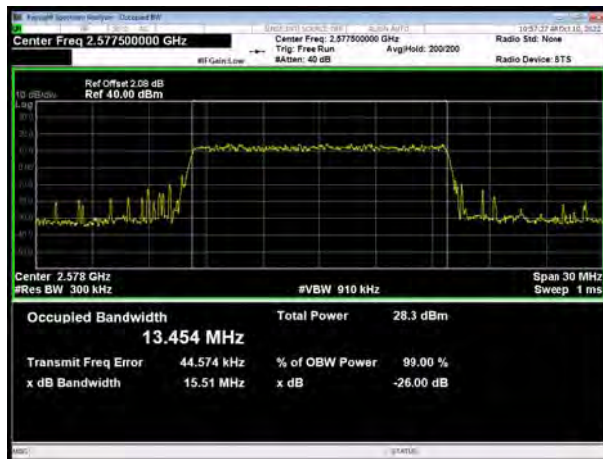
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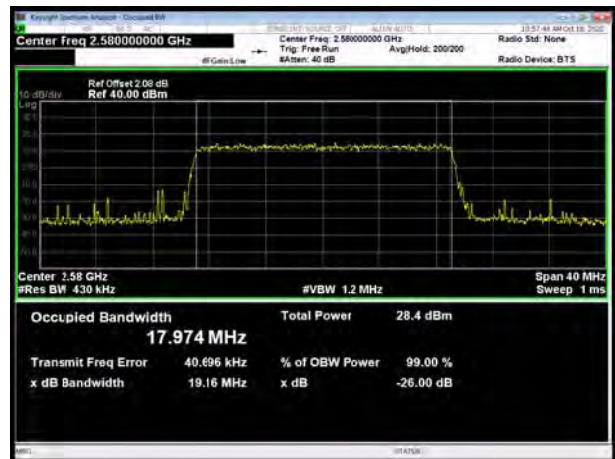
## LTE Band 38 QPSK 10MHz CH-High



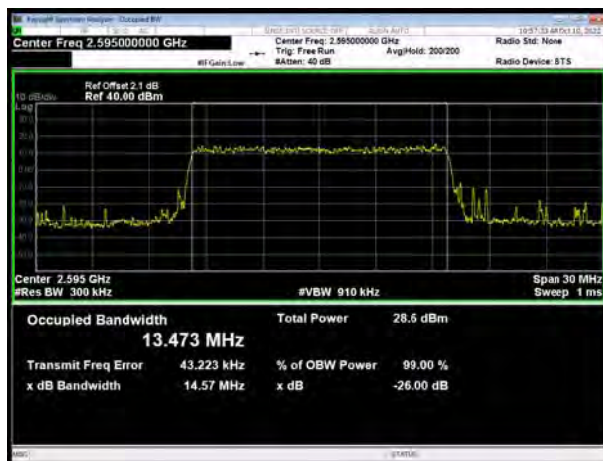
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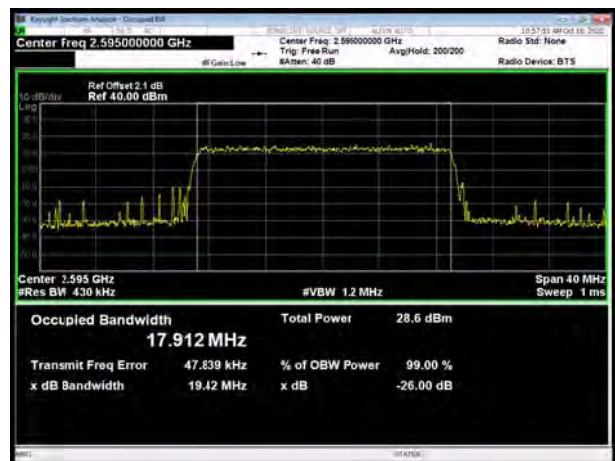
## LTE Band 38 QPSK 20MHz CH-Low



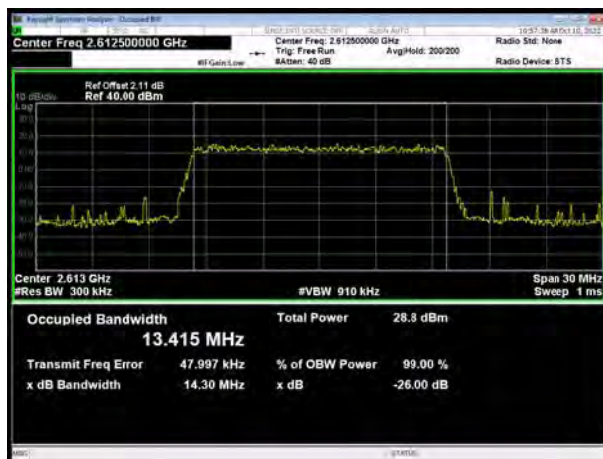
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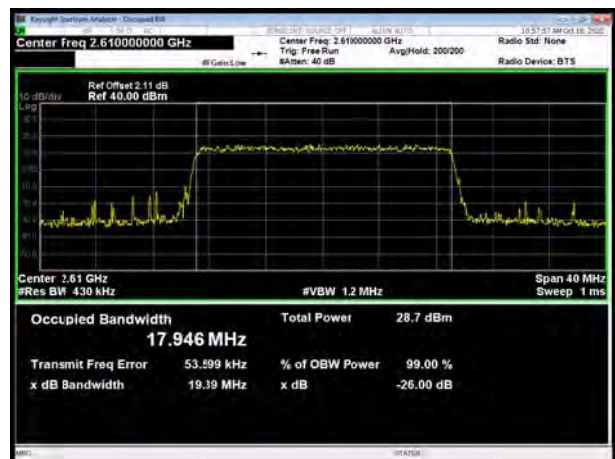
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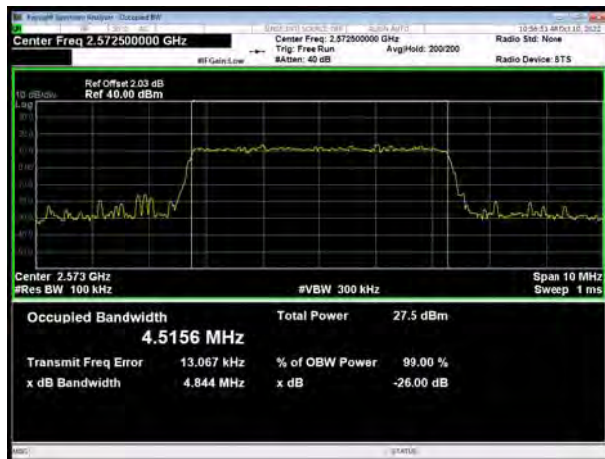
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## LTE Band 38 QPSK 20MHz CH-High



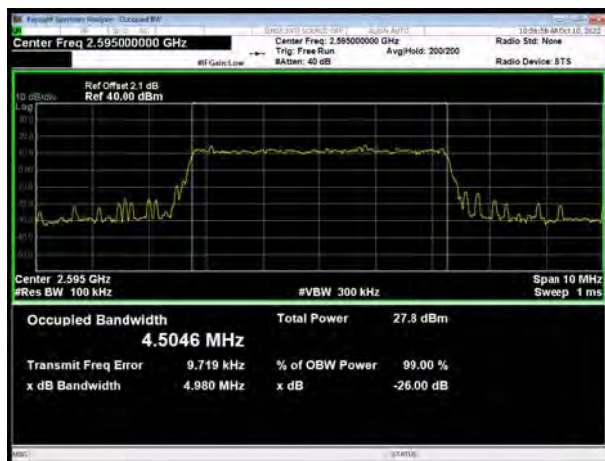
## LTE Band 38 16QAM 5MHz CH-Low



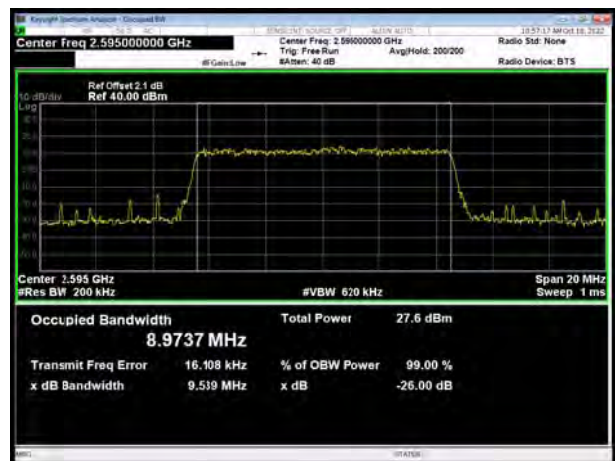
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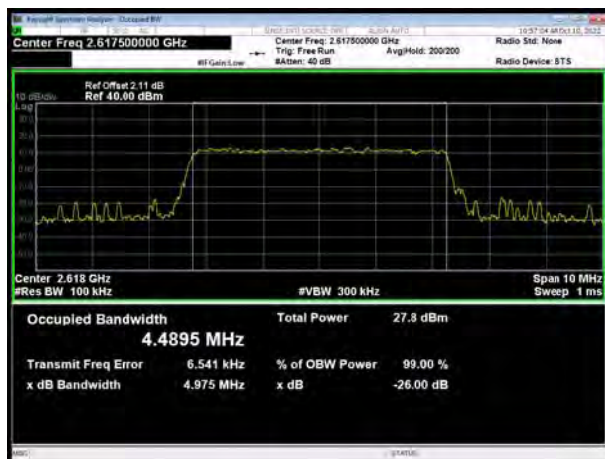
## LTE Band 38 16QAM 5MHz CH-Middle



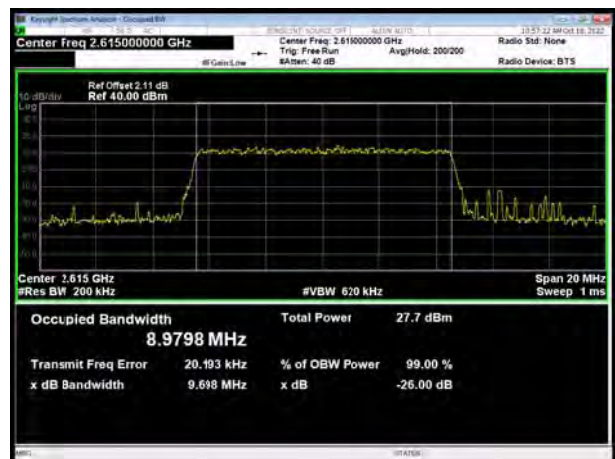
## LTE Band 38 16QAM 10MHz CH-Middle



## LTE Band 38 16QAM 5MHz CH-High

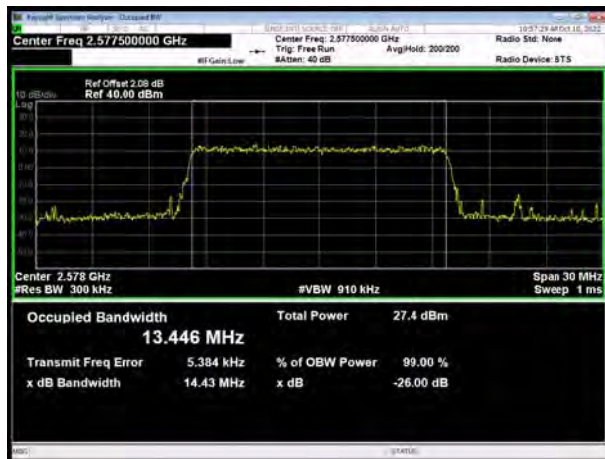


## LTE Band 38 16QAM 10MHz CH-High

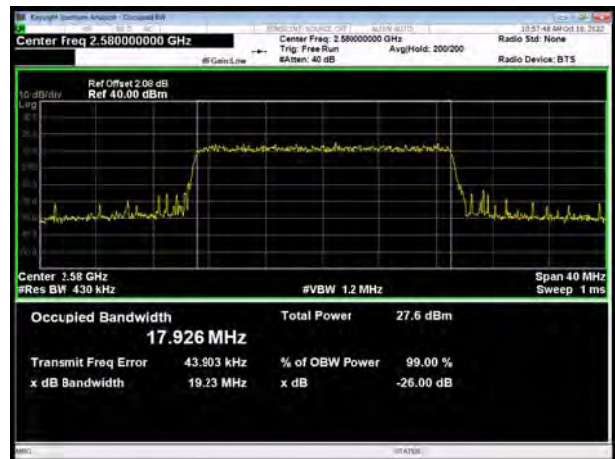




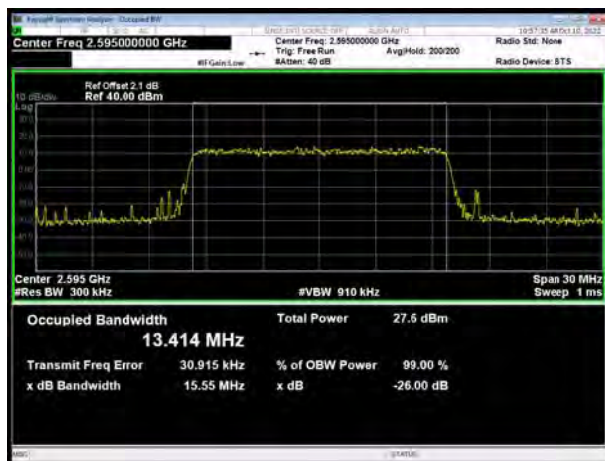
LTE Band 38 16QAM 15MHz CH-Low



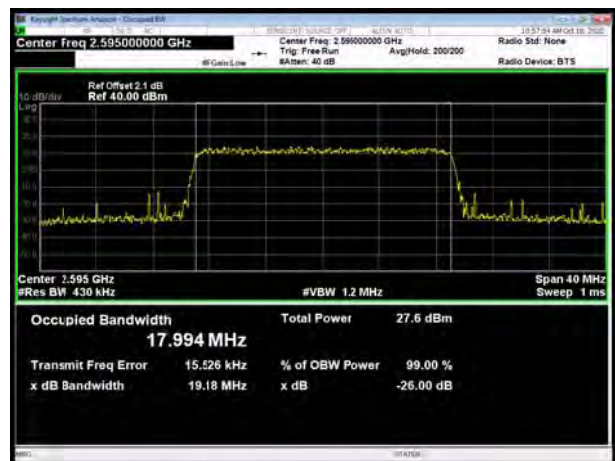
LTE Band 38 16QAM 20MHz CH-Low



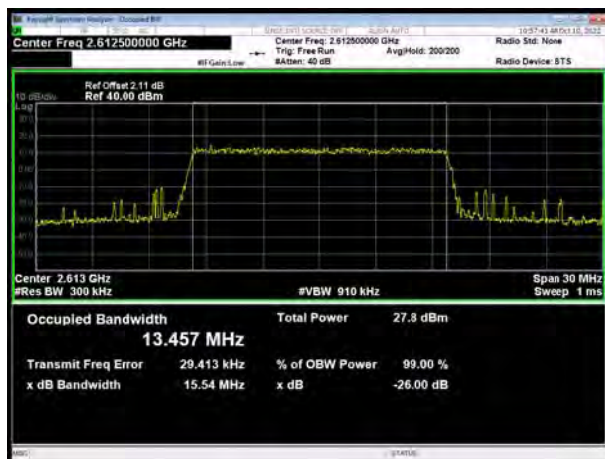
LTE Band 38 16QAM 15MHz CH-Middle



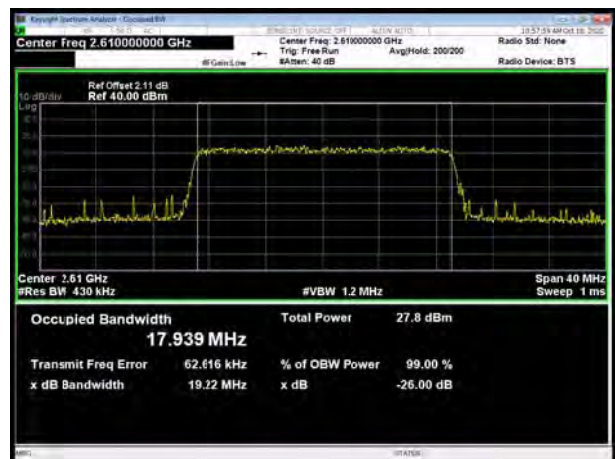
LTE Band 38 16QAM 20MHz CH-Middle



LTE Band 38 16QAM 15MHz CH-High

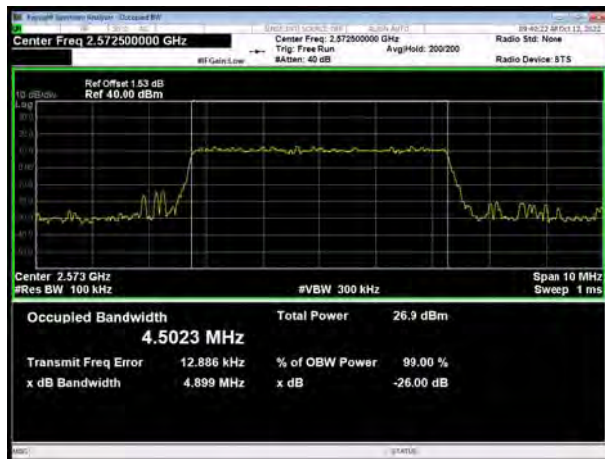


LTE Band 38 16QAM 20MHz CH-High

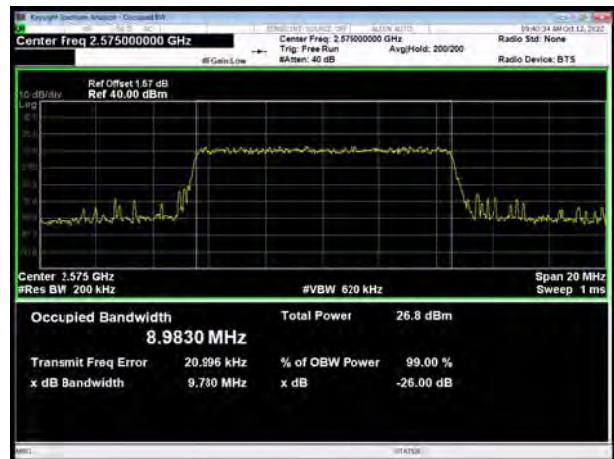




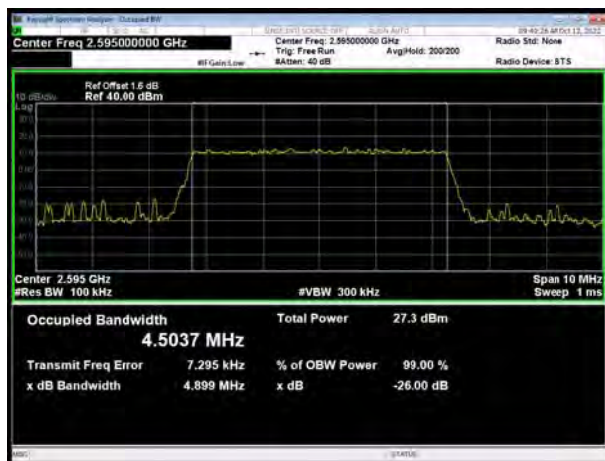
LTE Band 38 64QAM 5MHz CH-Low



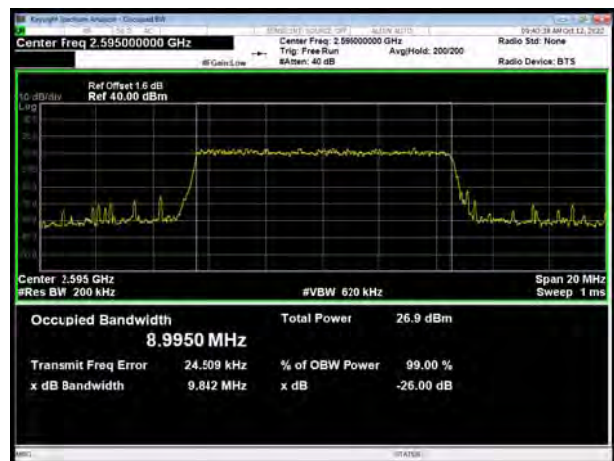
LTE Band 38 64QAM 10MHz CH-Low



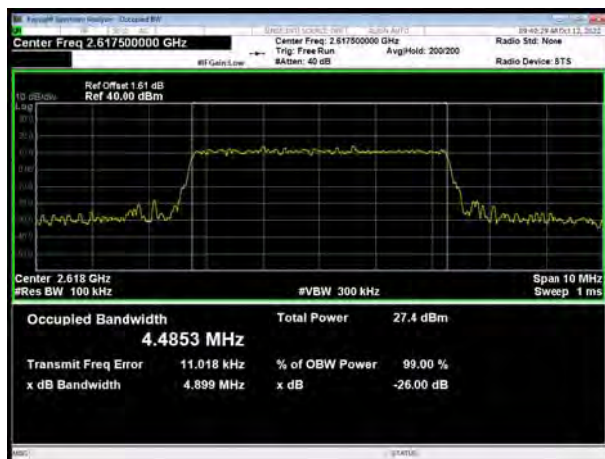
LTE Band 38 64QAM 5MHz CH-Middle



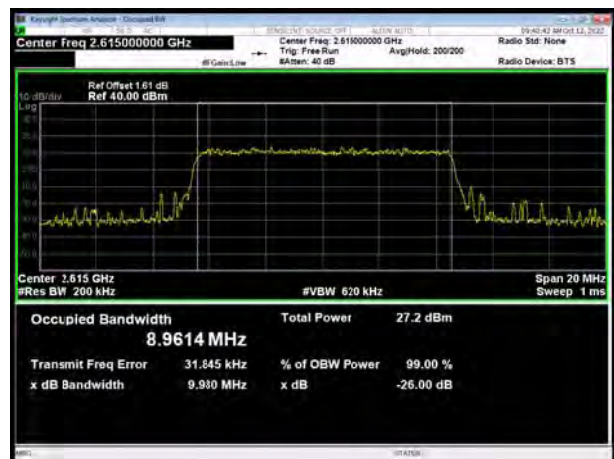
LTE Band 38 64QAM 10MHz CH-Middle



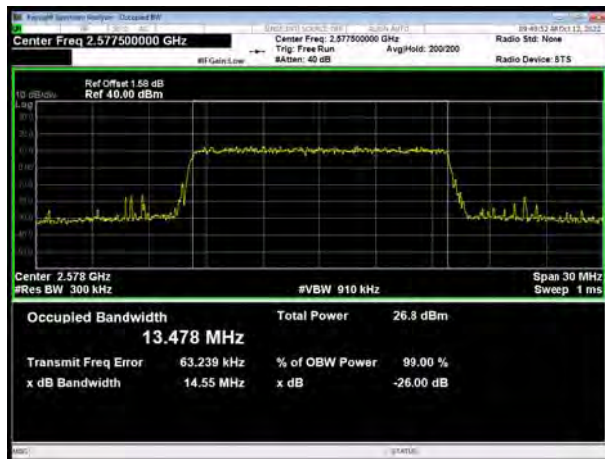
LTE Band 38 64QAM 5MHz CH-High



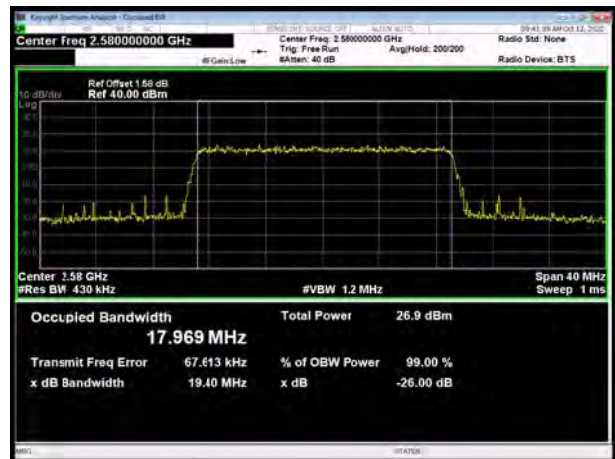
LTE Band 38 64QAM 10MHz CH-High



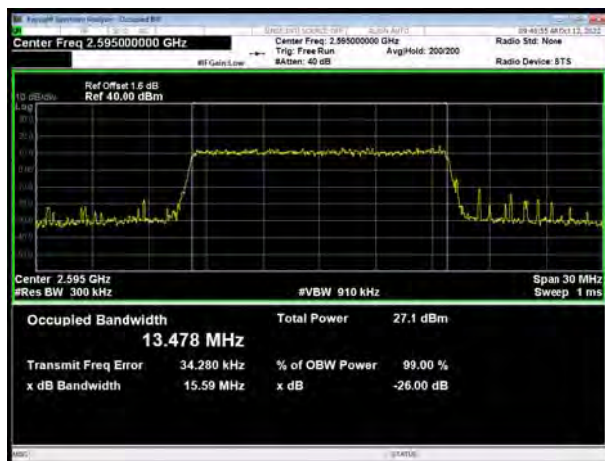
## LTE Band 38 64QAM 15MHz CH-Low



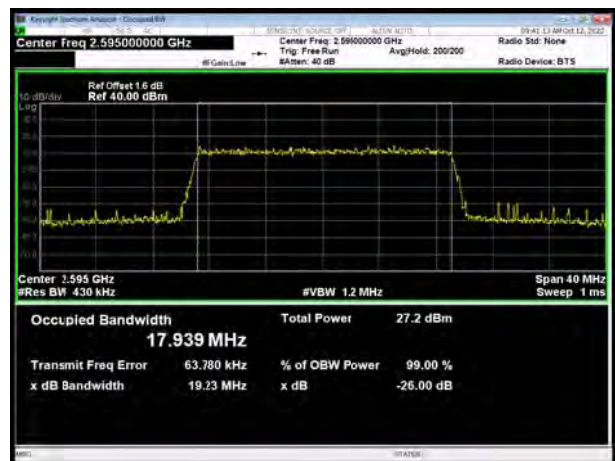
## LTE Band 38 64QAM 20MHz CH-Low



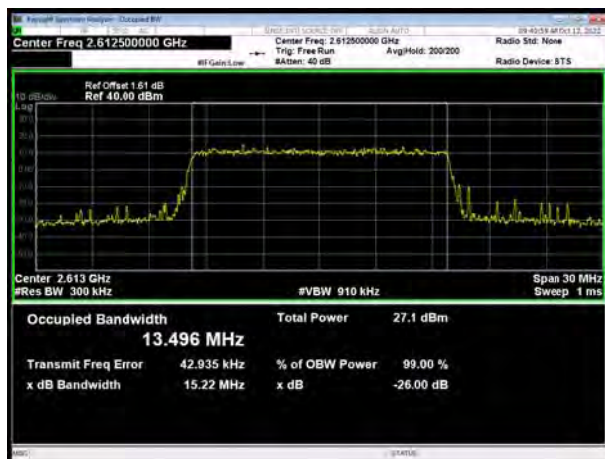
## LTE Band 38 64QAM 15MHz CH-Middle



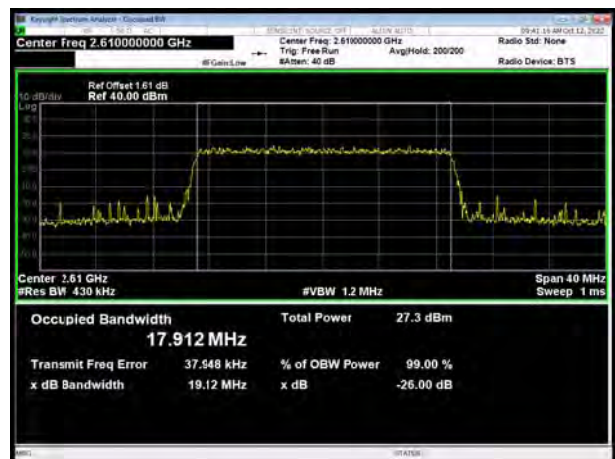
## LTE Band 38 64QAM 20MHz CH-Middle



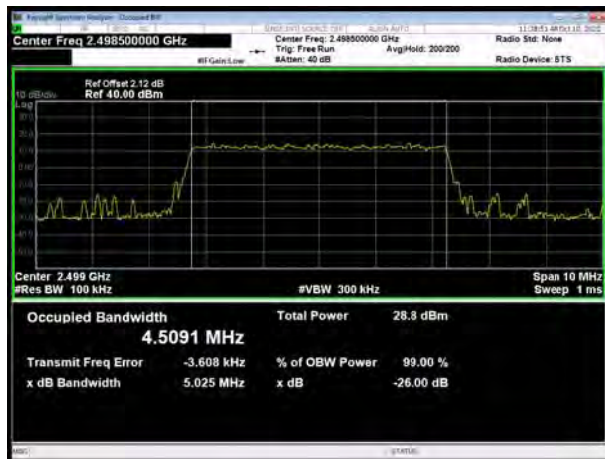
## LTE Band 38 64QAM 15MHz CH-High



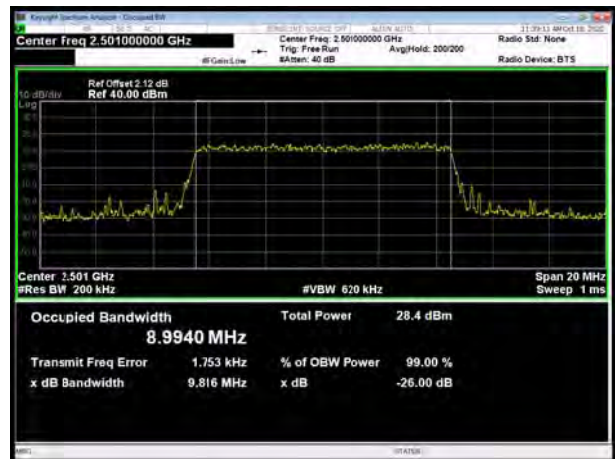
## LTE Band 38 64QAM 20MHz CH-High



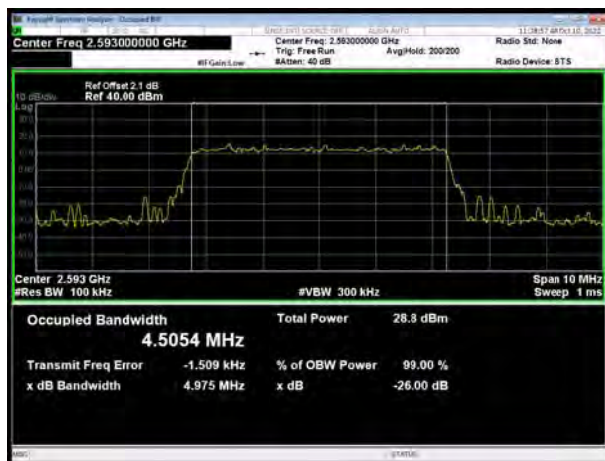
## LTE Band 41 QPSK 5MHz CH-Low



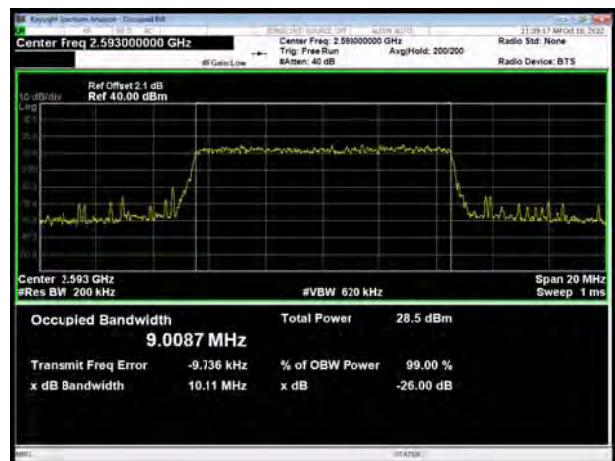
## LTE Band 41 QPSK 10MHz CH-Low



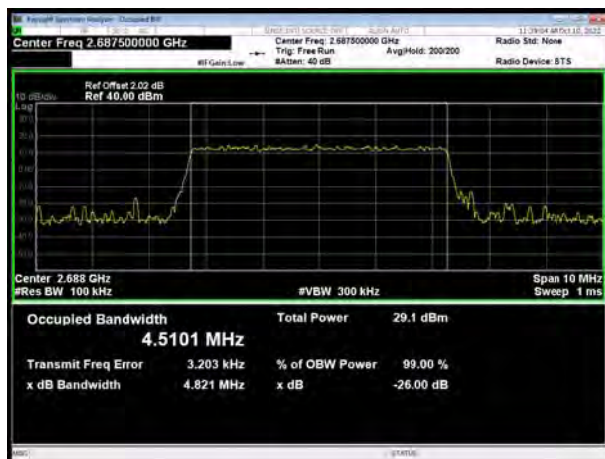
## LTE Band 41 QPSK 5MHz CH-Middle



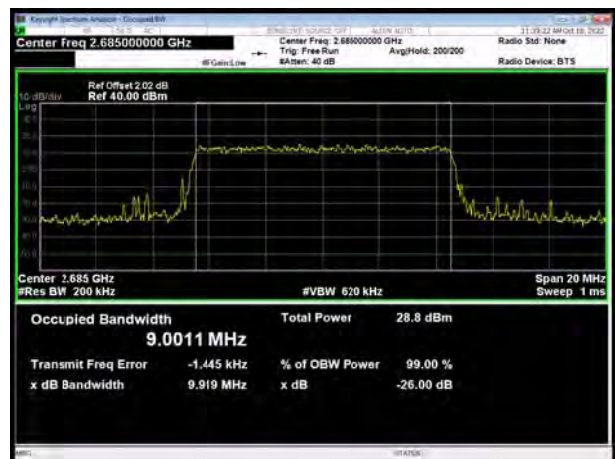
## LTE Band 41 QPSK 10MHz CH-Middle



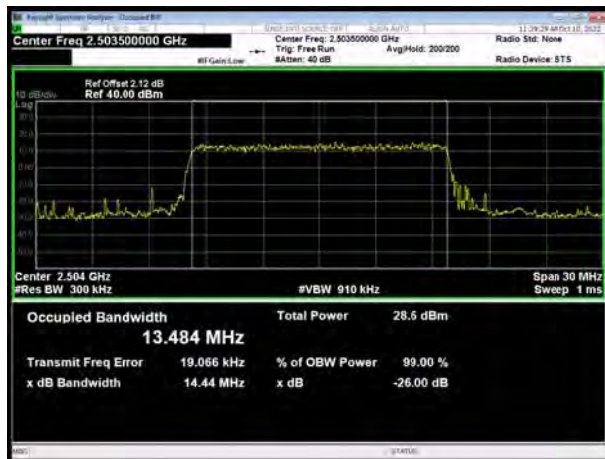
## LTE Band 41 QPSK 5MHz CH-High



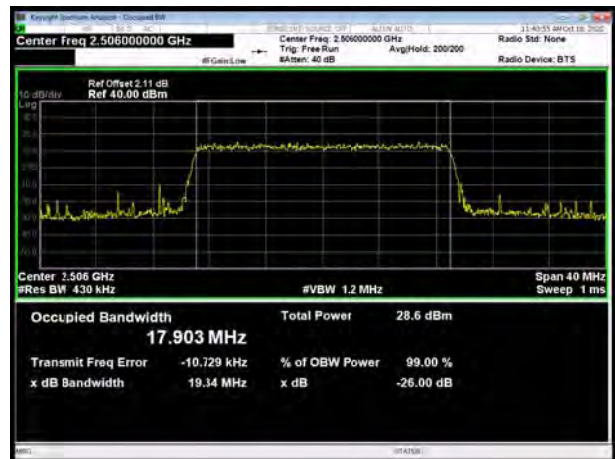
## LTE Band 41 QPSK 10MHz CH-High



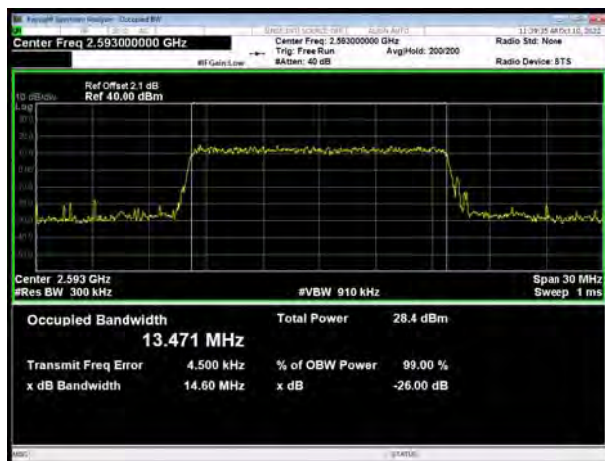
## LTE Band 41 QPSK 15MHz CH-Low



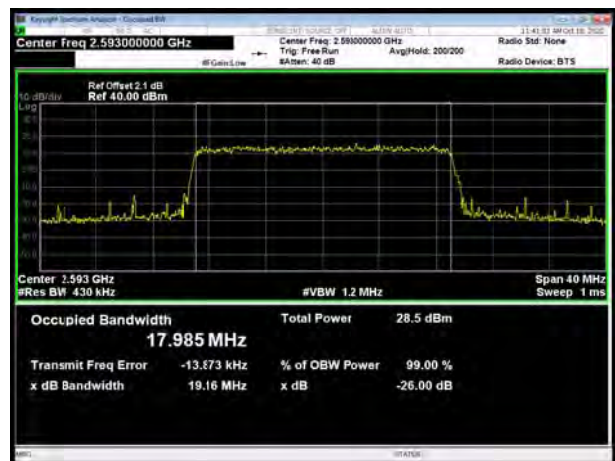
## LTE Band 41 QPSK 20MHz CH-Low



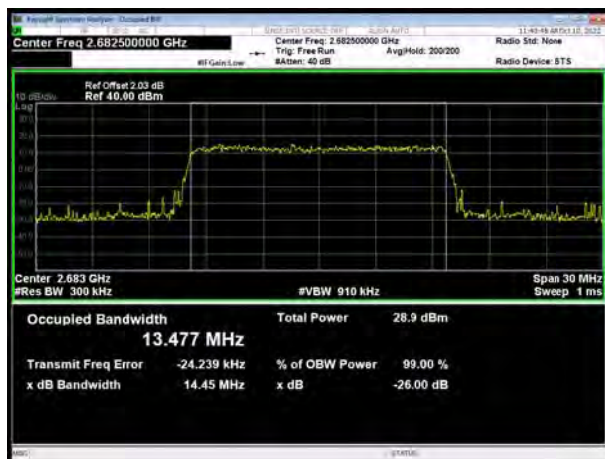
## LTE Band 41 QPSK 15MHz CH-Middle



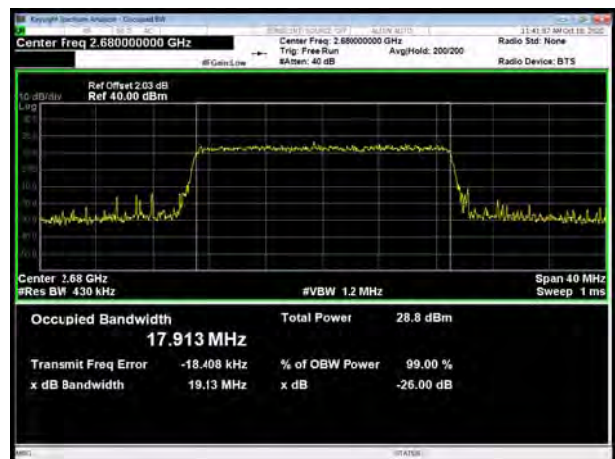
## LTE Band 41 QPSK 20MHz CH-Middle



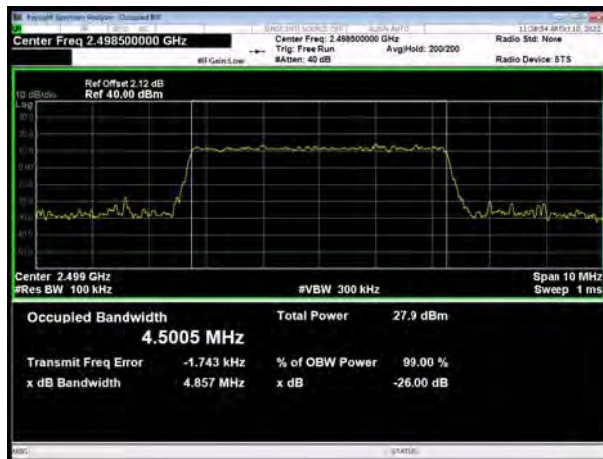
## LTE Band 41 QPSK 15MHz CH-High



## LTE Band 41 QPSK 20MHz CH-High



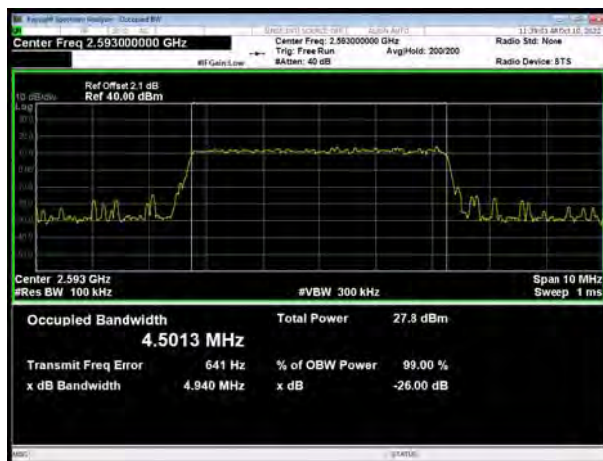
## LTE Band 41 16QAM 5MHz CH-Low



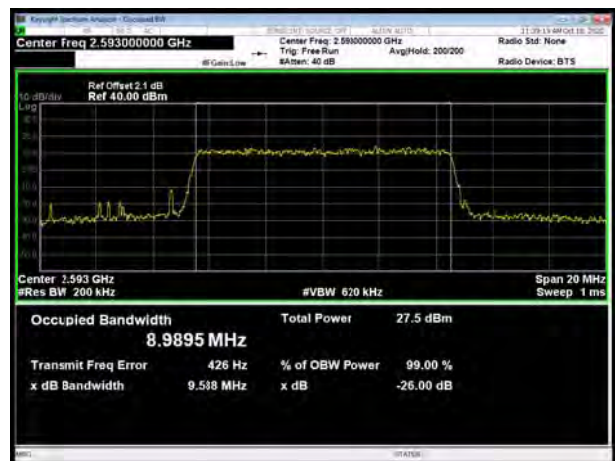
## LTE Band 41 16QAM 10MHz CH-Low



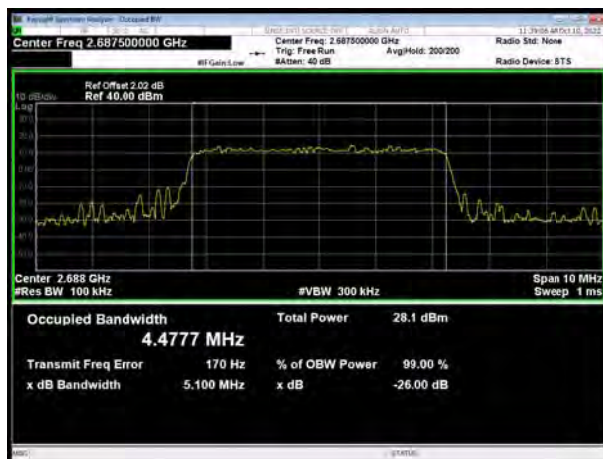
## LTE Band 41 16QAM 5MHz CH-Middle



## LTE Band 41 16QAM 10MHz CH-Middle



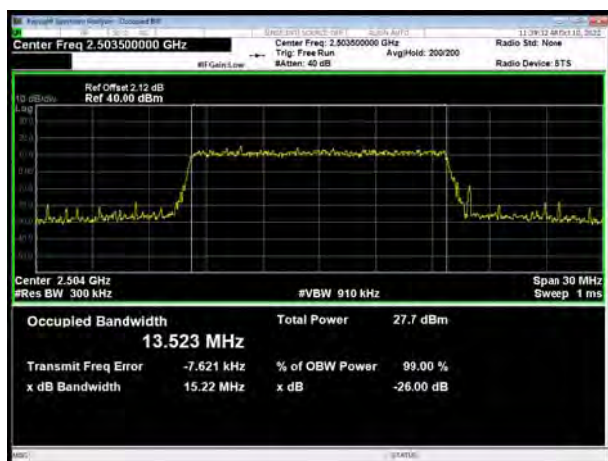
## LTE Band 41 16QAM 5MHz CH-High



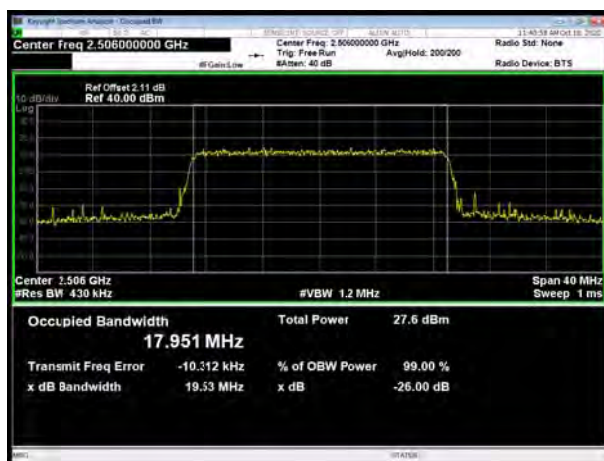
## LTE Band 41 16QAM 10MHz CH-High



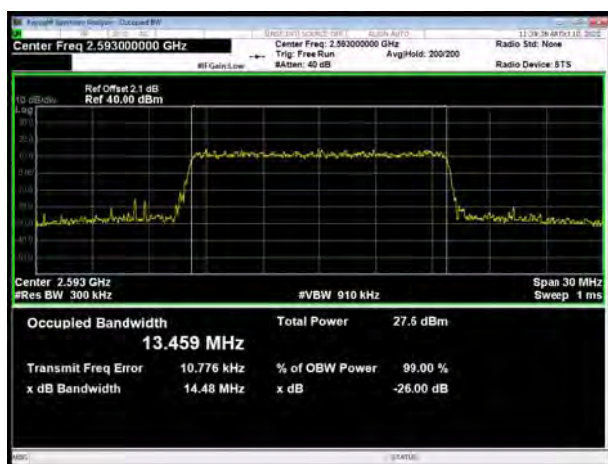
## LTE Band 41 16QAM 15MHz CH-Low



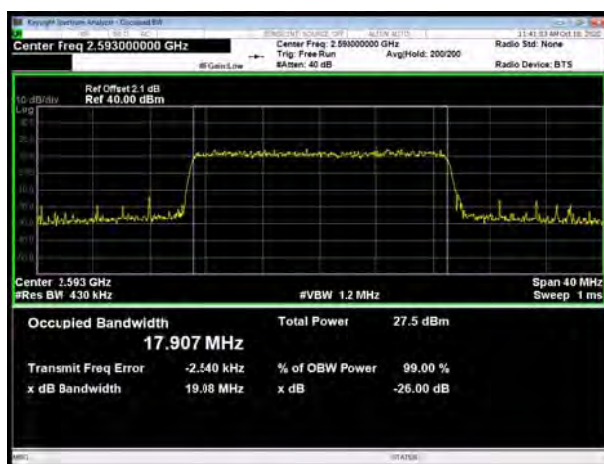
## LTE Band 41 16QAM 20MHz CH-Low



## LTE Band 41 16QAM 15MHz CH-Middle



## LTE Band 41 16QAM 20MHz CH-Middle



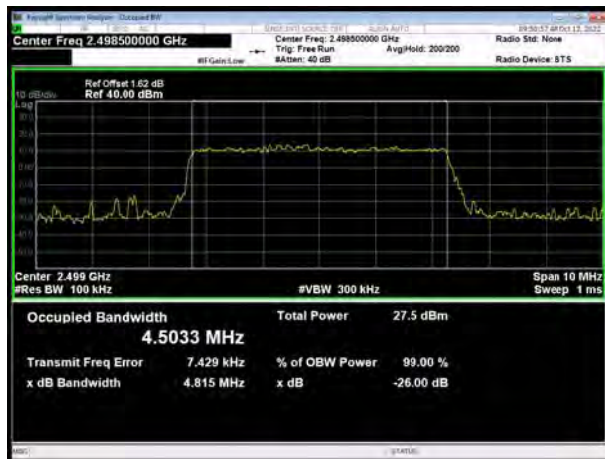
## LTE Band 41 16QAM 15MHz CH-High



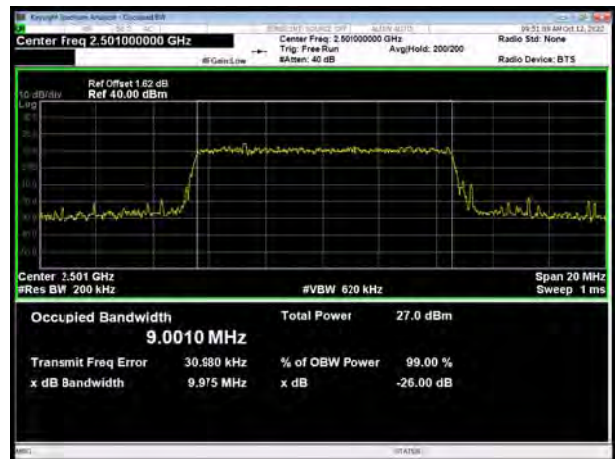
## LTE Band 41 16QAM 20MHz CH-High



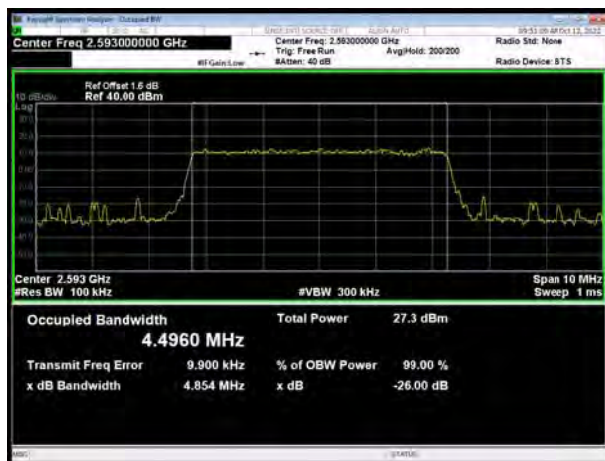
## LTE Band 41 64QAM 5MHz CH-Low



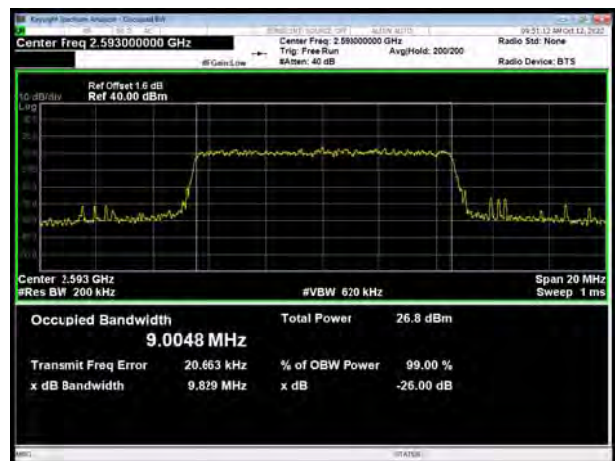
## LTE Band 41 64QAM 10MHz CH-Low



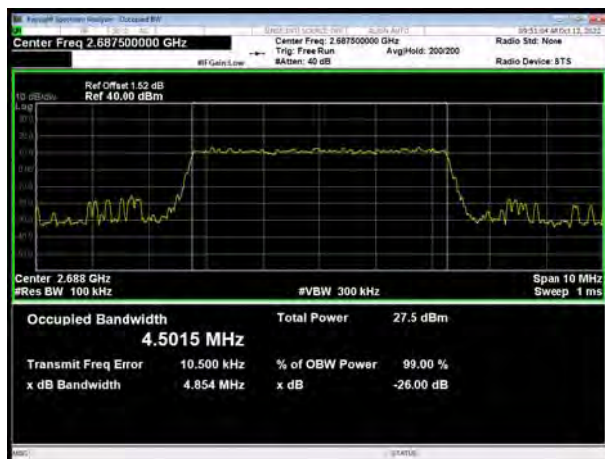
## LTE Band 41 64QAM 5MHz CH-Middle



## LTE Band 41 64QAM 10MHz CH-Middle



## LTE Band 41 64QAM 5MHz CH-High

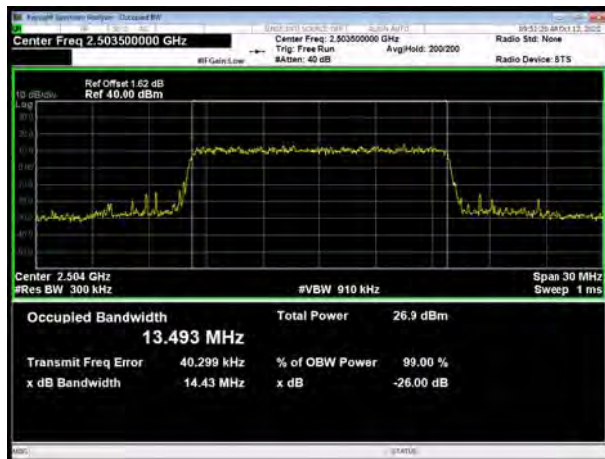


## LTE Band 41 64QAM 10MHz CH-High

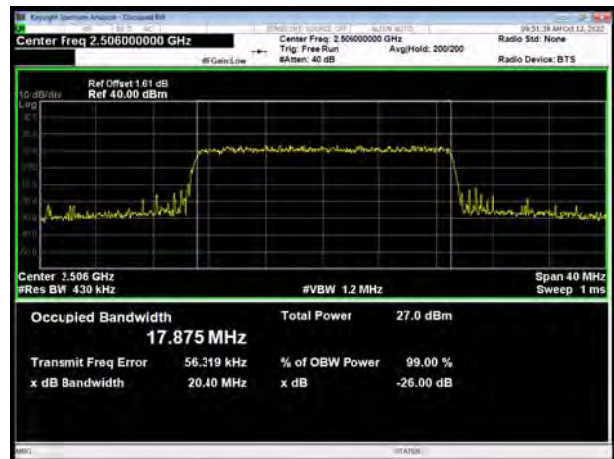




LTE Band 41 64QAM 15MHz CH-Low



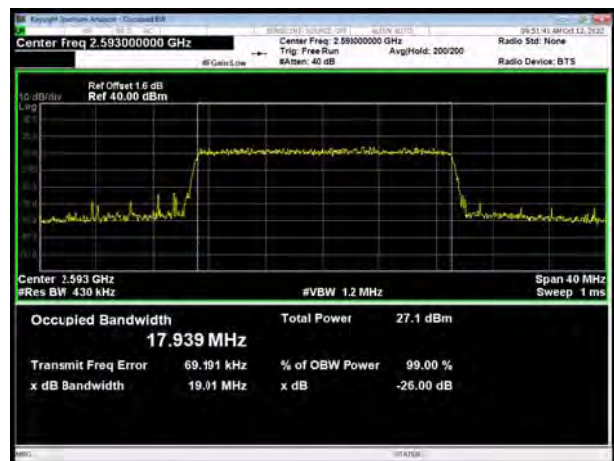
LTE Band 41 64QAM 20MHz CH-Low



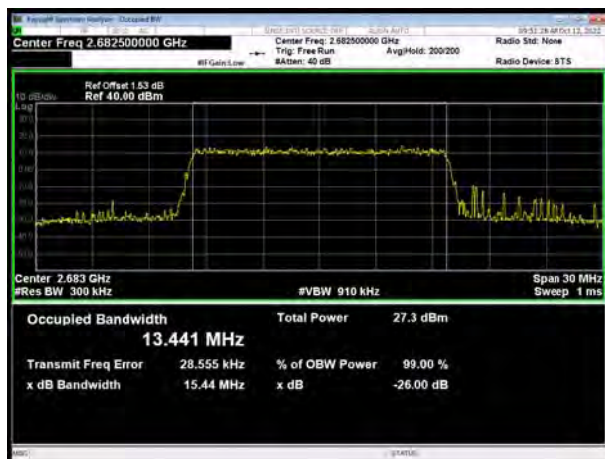
LTE Band 41 64QAM 15MHz CH-Middle



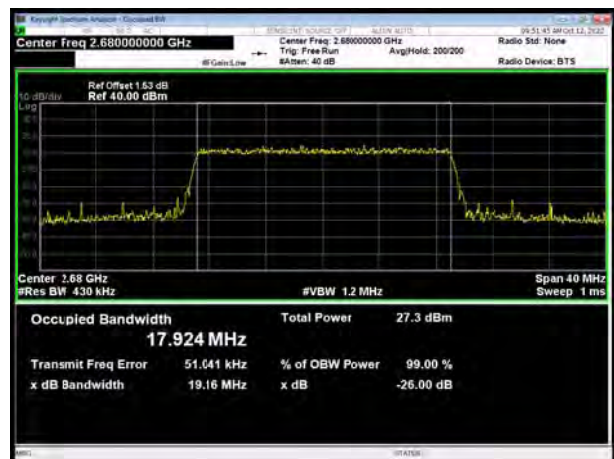
LTE Band 41 64QAM 20MHz CH-Middle



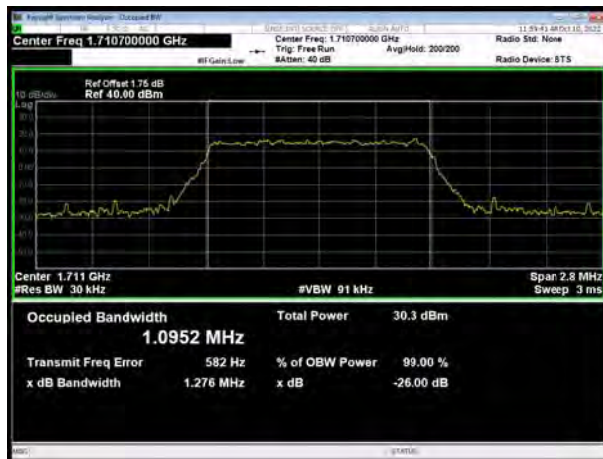
LTE Band 41 64QAM 15MHz CH-High



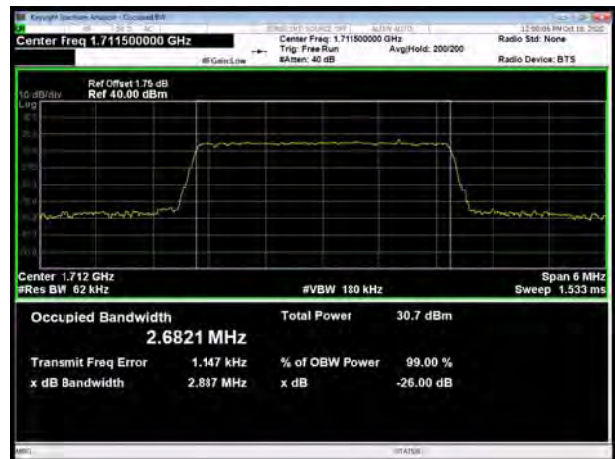
LTE Band 41 64QAM 20MHz CH-High



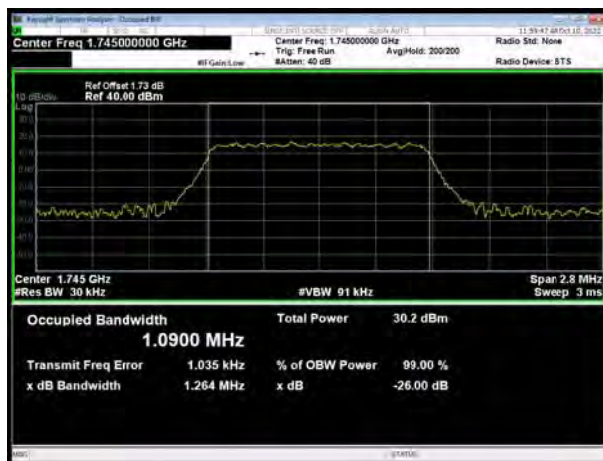
## LTE Band 66 QPSK 1.4MHz CH-Low



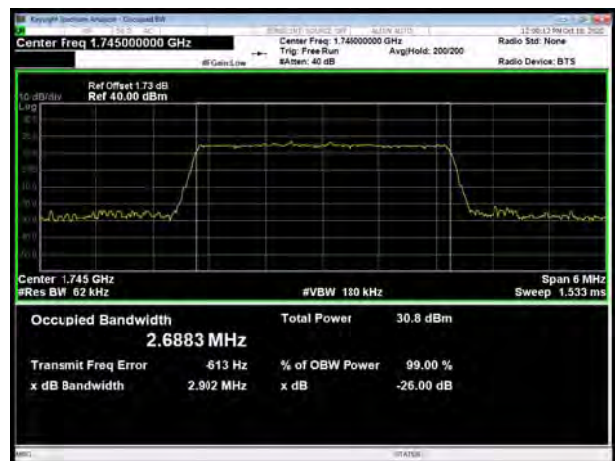
## LTE Band 66 QPSK 3MHz CH-Low



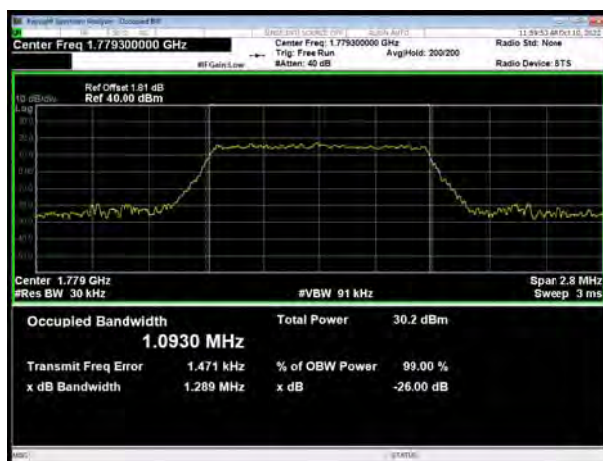
## LTE Band 66 QPSK 1.4MHz CH-Middle



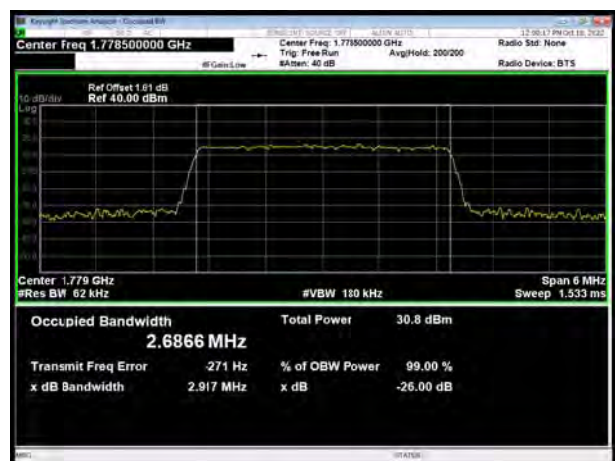
## LTE Band 66 QPSK 3MHz CH-Middle



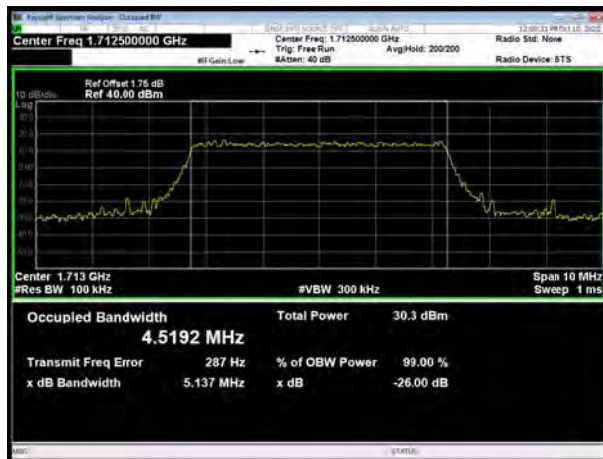
## LTE Band 66 QPSK 1.4MHz CH-High



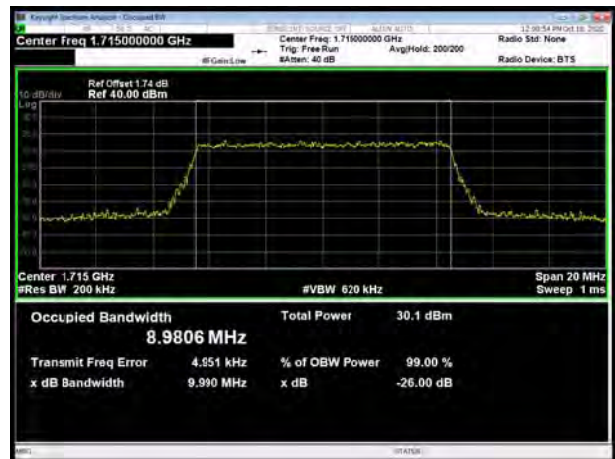
## LTE Band 66 QPSK 3MHz CH-High



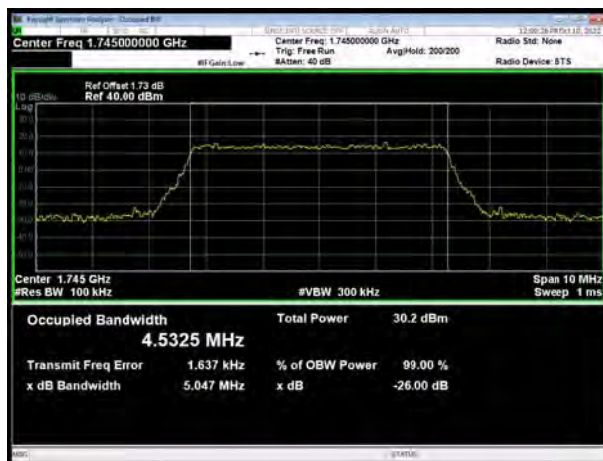
## LTE Band 66 QPSK 5MHz CH-Low



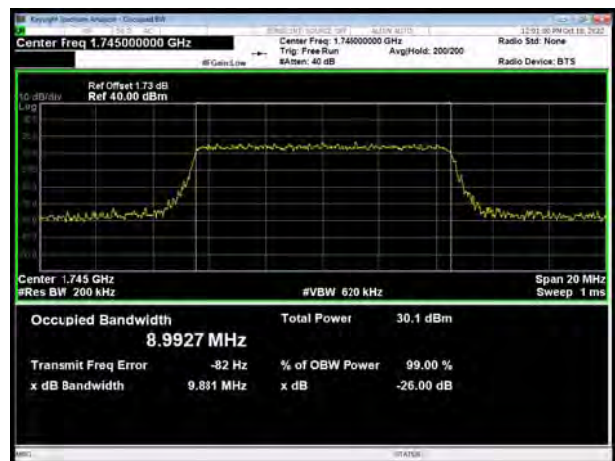
## LTE Band 66 QPSK 10MHz CH-Low



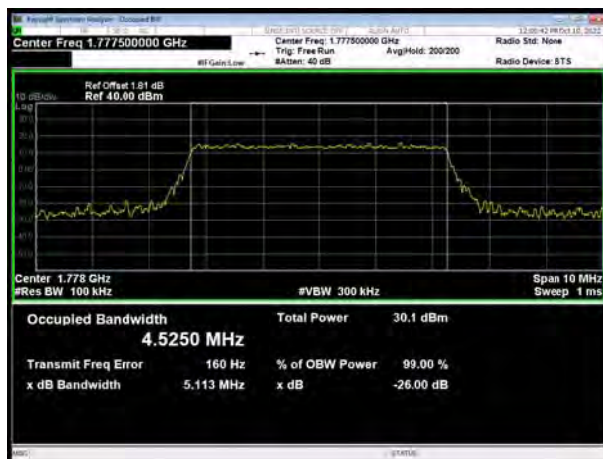
## LTE Band 66 QPSK 5MHz CH-Middle



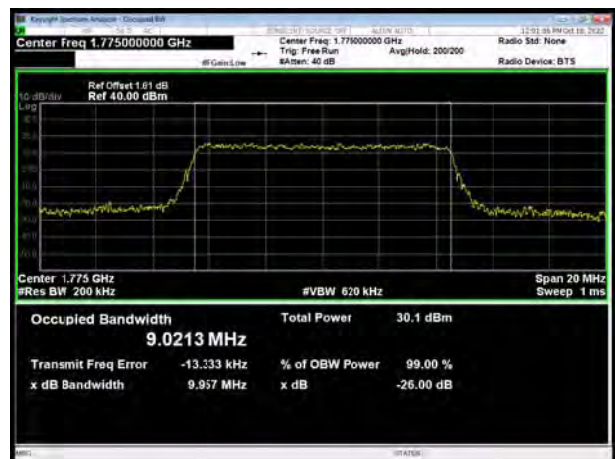
## LTE Band 66 QPSK 10MHz CH-Middle



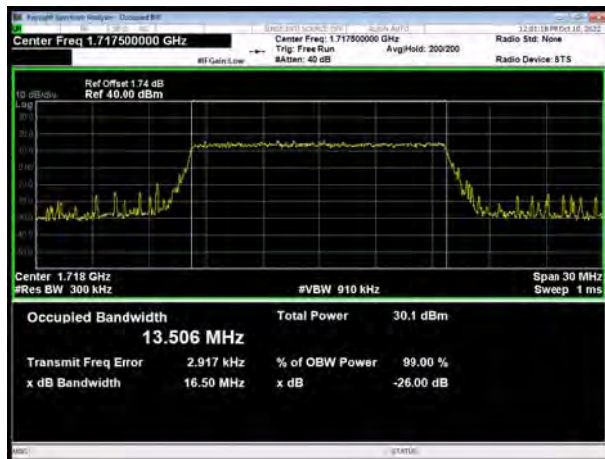
## LTE Band 66 QPSK 5MHz CH-High



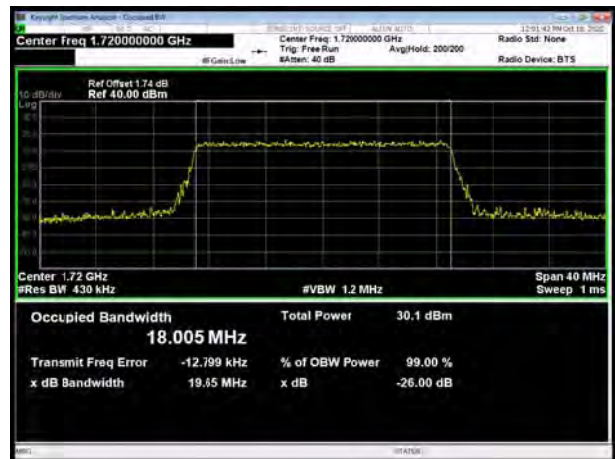
## LTE Band 66 QPSK 10MHz CH-High



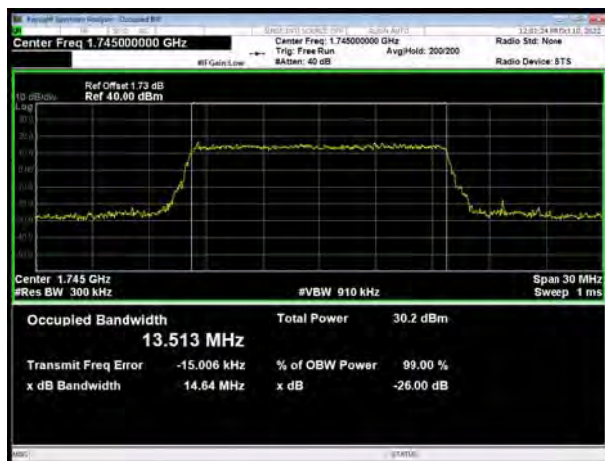
## LTE Band 66 QPSK 15MHz CH-Low



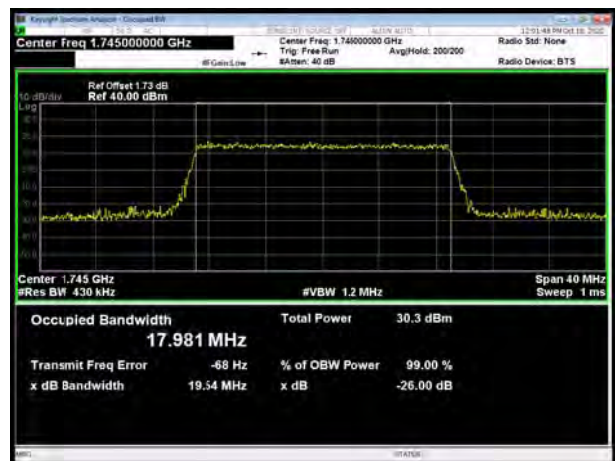
## LTE Band 66 QPSK 20MHz CH-Low



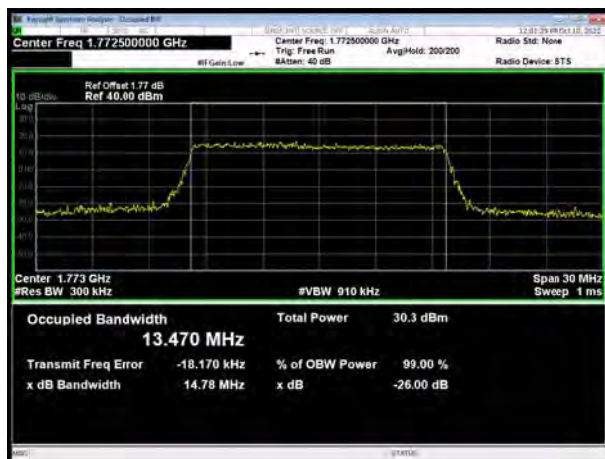
## LTE Band 66 QPSK 15MHz CH-Middle



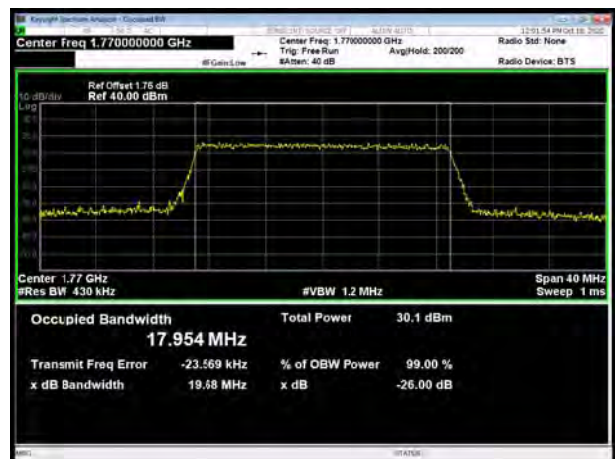
## LTE Band 66 QPSK 20MHz CH-Middle



## LTE Band 66 QPSK 15MHz CH-High

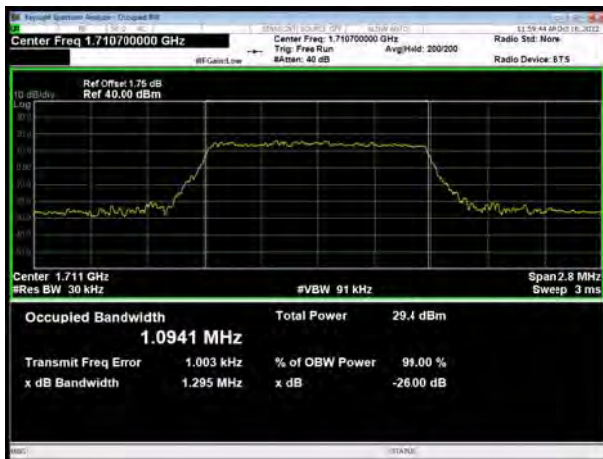


## LTE Band 66 QPSK 20MHz CH-High

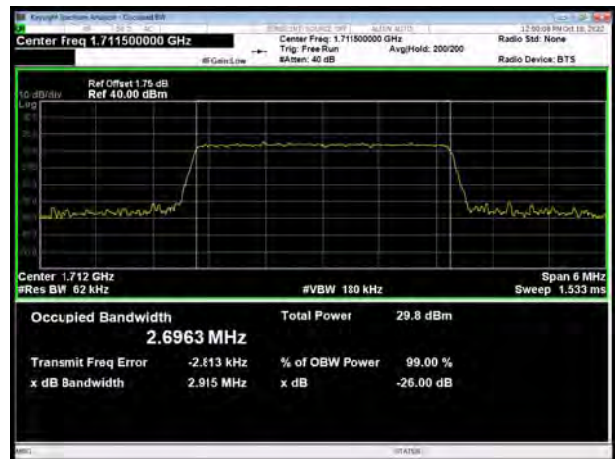




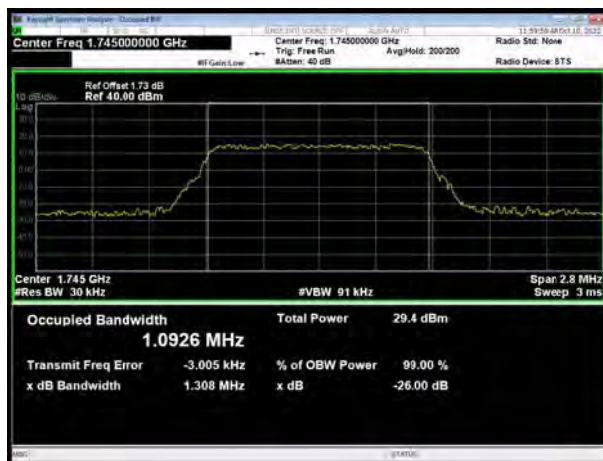
## LTE Band 66 16QAM 1.4MHz CH-Low



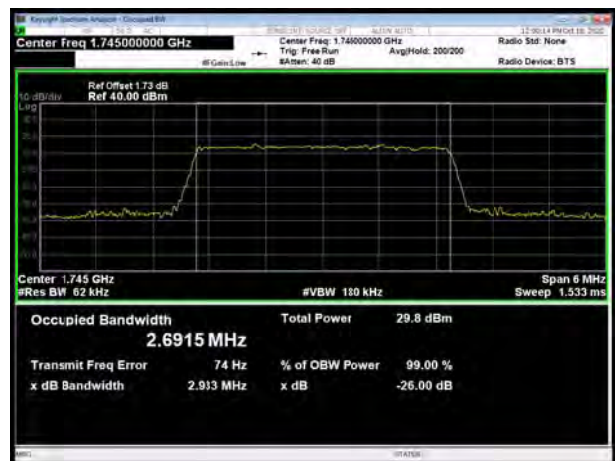
## LTE Band 66 16QAM 3MHz CH-Low



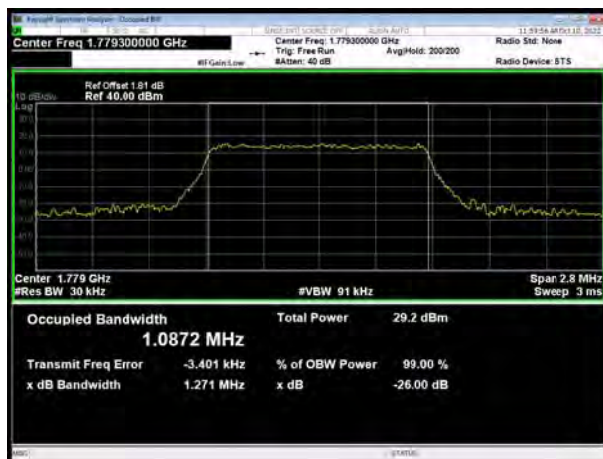
## LTE Band 66 16QAM 1.4MHz CH-Middle



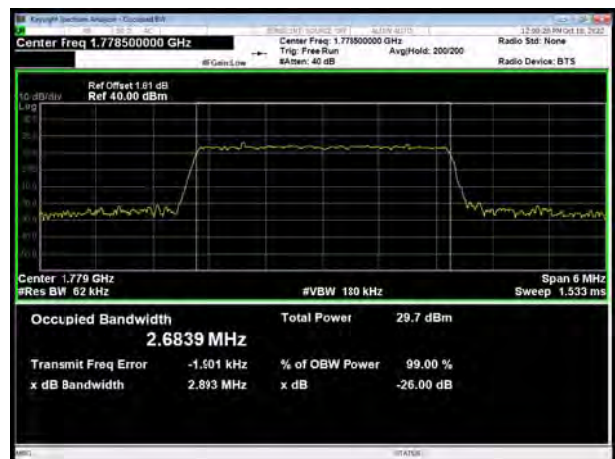
## LTE Band 66 16QAM 3MHz CH-Middle



## LTE Band 66 16QAM 1.4MHz CH-High

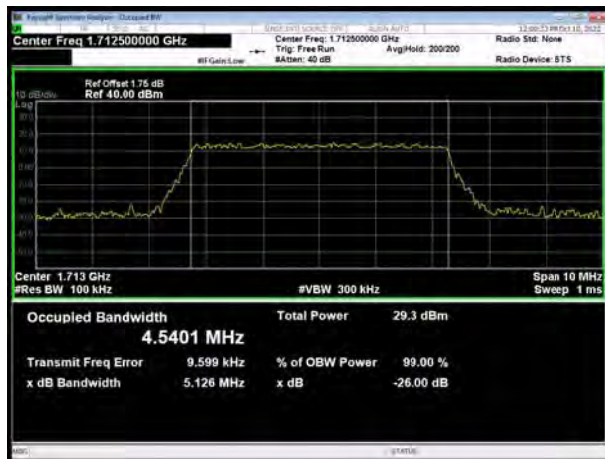


## LTE Band 66 16QAM 3MHz CH-High

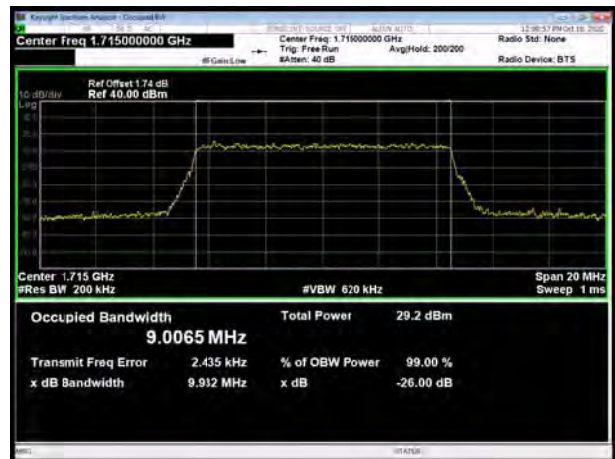




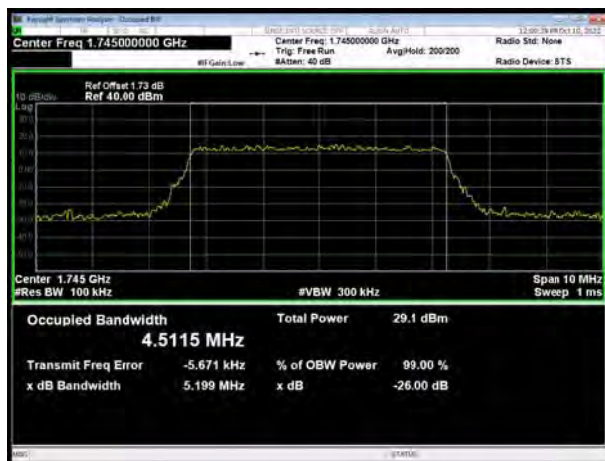
## LTE Band 66 16QAM 5MHz CH-Low



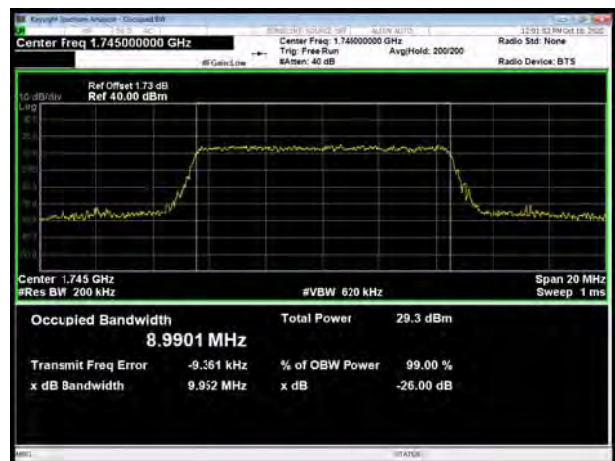
## LTE Band 66 16QAM 10MHz CH-Low



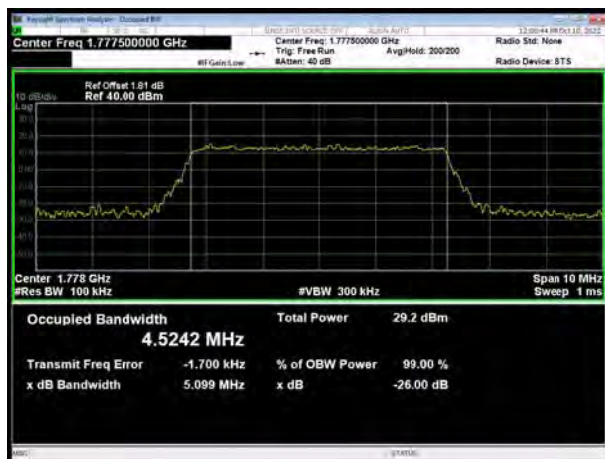
## LTE Band 66 16QAM 5MHz CH-Middle



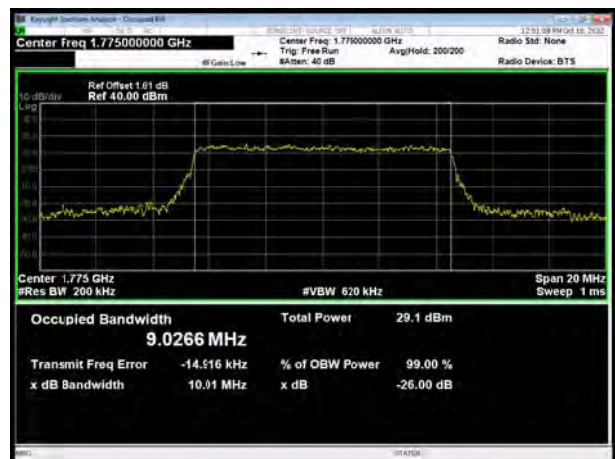
## LTE Band 66 16QAM 10MHz CH-Middle



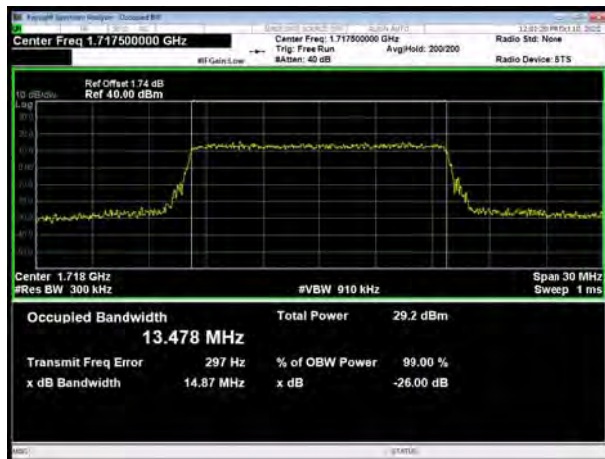
## LTE Band 66 16QAM 5MHz CH-High



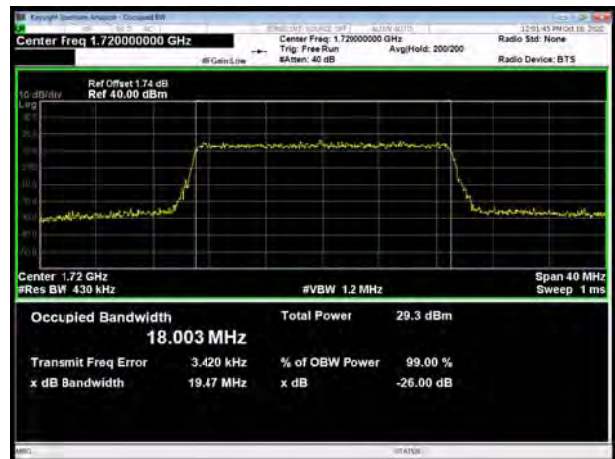
## LTE Band 66 16QAM 10MHz CH-High



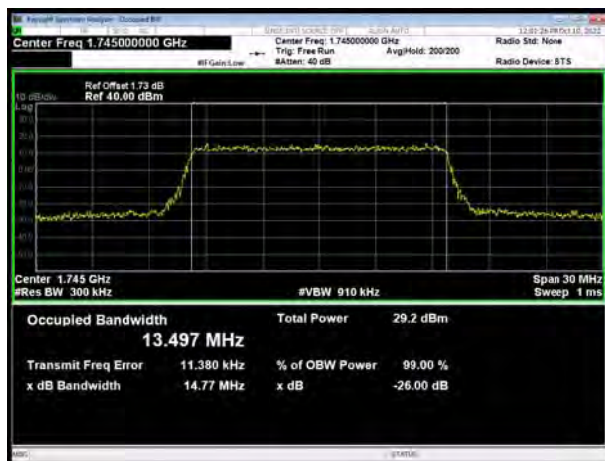
LTE Band 66 16QAM 15MHz CH-Low



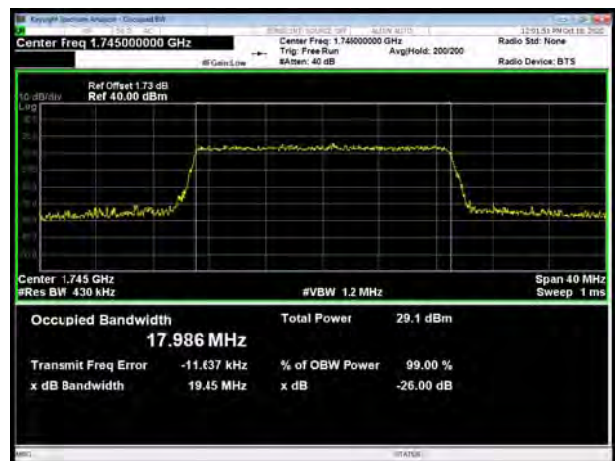
LTE Band 66 16QAM 20MHz CH-Low



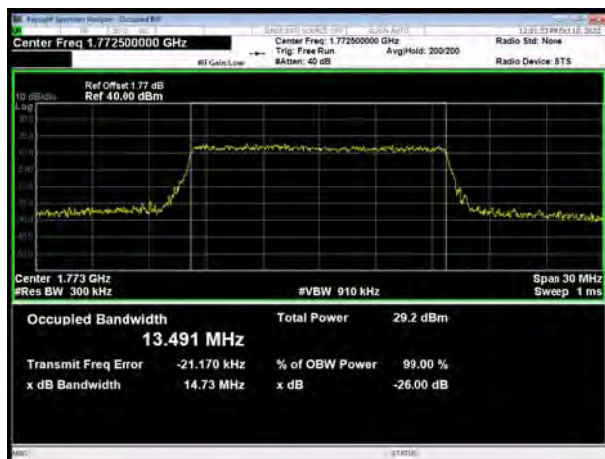
LTE Band 66 16QAM 15MHz CH-Middle



LTE Band 66 16QAM 20MHz CH-Middle



LTE Band 66 16QAM 15MHz CH-High



LTE Band 66 16QAM 20MHz CH-High

