



## RF TEST REPORT

**Applicant** Huawei Technologies Co., Ltd.  
**FCC ID** QISMAR-LX1AM  
**Product** Smart Phone  
**Model** MAR-LX1Am  
**Report No.** R1905H0093-R3  
**Issue Date** May 20, 2019

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2 (2018)/ FCC CFR47 Part 27C (2018)**. 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: Kai Xu*

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## Summary of Measurement Results

| Number                                                                                                                                                          | Test Case                               | Clause in FCC rules         | Verdict |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-----------------------------|---------|
| 1                                                                                                                                                               | RF power output                         | 2.1046                      | PASS    |
| 2                                                                                                                                                               | Effective Isotropic Radiated power      | 27.50(d)(4)/27.50(h)(2)     | PASS    |
| 3                                                                                                                                                               | Occupied Bandwidth                      | 2.1049                      | PASS    |
| 4                                                                                                                                                               | Band Edge Compliance                    | 27.53(h)/27.53(m)           | PASS    |
| 5                                                                                                                                                               | Peak-to-Average Power Ratio             | 27.50(d)/KDB971168 D01(5.7) | PASS    |
| 6                                                                                                                                                               | Frequency Stability                     | 2.1055 / 27.54              | PASS    |
| 7                                                                                                                                                               | Spurious Emissions at Antenna Terminals | 2.1051/27.53(h)/27.53(m)    | PASS    |
| 8                                                                                                                                                               | Radiates Spurious Emission              | 2.1051/27.53(h)/27.53(m)    | PASS    |
| 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. |                                         |                             |         |
| Date of Testing: May 7, 2019 ~ May 20, 2019                                                                                                                     |                                         |                             |         |

# **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**

### **CNAS (accreditation number: L2264)**

TA Technology (Shanghai) Co., Ltd. has obtained the accreditation of China National Accreditation Service for Conformity Assessment (CNAS).

### **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 electromagnetic emissions measurements.

### **IC (recognition number is 8510A)**

TA Technology (Shanghai) Co., Ltd. has been listed by industry Canada to perform electromagnetic emission measurement.

### **VCCI (recognition number is C-4595, T-2154, R-4113, G-10766)**

TA Technology (Shanghai) Co., Ltd. has been listed by industry Japan to perform electromagnetic emission measurement.

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

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

### 1.3 Testing Location

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

### Client Information

|                             |                                                                                                                              |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------|
| <b>Applicant</b>            | Huawei Technologies Co., Ltd.                                                                                                |
| <b>Applicant address</b>    | Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District Shenzhen 518129 P.R.China |
| <b>Manufacturer</b>         | Huawei Technologies Co., Ltd.                                                                                                |
| <b>Manufacturer address</b> | Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District Shenzhen 518129 P.R.China |

### General information

| EUT Description              |                                                                                          |             |             |
|------------------------------|------------------------------------------------------------------------------------------|-------------|-------------|
| Model                        | MAR-LX1Am                                                                                |             |             |
| SN                           | 76YDU19415000080                                                                         |             |             |
| Hardware Version             | HL4MARLM                                                                                 |             |             |
| Software Version             | 9.0.1.152(SP2C900E140R1P6)                                                               |             |             |
| Power Supply                 | Battery/AC adapter                                                                       |             |             |
| Antenna Type                 | Internal Antenna                                                                         |             |             |
| Antenna Gain                 | WCDMA Band IV:-1.00dBi<br>LTE Band 4: -1dBi<br>LTE Band 7: 0.9dBi<br>LTE Band 38: 0.9dBi |             |             |
| Test Mode(s)                 | WCDMA Band IV;<br>LTE Band 4; LTE Band 7, LTE Band 38;                                   |             |             |
| Test Modulation              | (WCDMA) BPSK, QPSK,16QAM<br>(LTE)QPSK 16QAM 64QAM;                                       |             |             |
| HSDPA UE Category            | 24                                                                                       |             |             |
| HSUPA UE Category            | 6                                                                                        |             |             |
| LTE Rel                      | 12                                                                                       |             |             |
| Maximum E.I.R.P./ E.R.P.     | WCDMA Band IV:                                                                           | 18.17dBm    |             |
|                              | LTE Band 4:                                                                              | 19.13dBm    |             |
|                              | LTE Band 7:                                                                              | 19.46dBm    |             |
|                              | LTE Band 38:                                                                             | 20.46dBm    |             |
| Rated Power Supply Voltage:  | 3.8V                                                                                     |             |             |
| Extreme Voltage              | Minimum: 3.6V     Maximum: 4.35V                                                         |             |             |
| Extreme Temperature          | Lowest: 0°C     Highest: +35°C                                                           |             |             |
| Operating Frequency 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 38                                                                                               | 2570 ~2620 | 2570 ~2620 |
|---------------|-----------------------------------------------------------------------------------------------------------|------------|------------|
| EUT Accessory |                                                                                                           |            |            |
| Adapter 1     | Manufacturer: Huawei Technologies Co., Ltd.<br>Model: HW-090200EH0                                        |            |            |
| Adapter 2     | Manufacturer: Huawei Technologies Co., Ltd.<br>Model: HW-090200BH0                                        |            |            |
| Adapter 3     | Manufacturer: Huawei Technologies Co., Ltd.<br>Model: HW-090200AH0                                        |            |            |
| Adapter 4     | Manufacturer: Huawei Technologies Co., Ltd.<br>Model: HW-090200UH0                                        |            |            |
| Adapter 5     | Manufacturer: Huawei Technologies Co., Ltd.<br>Model: HW-059200EHQ                                        |            |            |
| Adapter 6     | Manufacturer: Huawei Technologies Co., Ltd.<br>Model: HW-090200UH1                                        |            |            |
| Adapter 7     | Manufacturer: Huawei Technologies Co., Ltd.<br>Model: HW-090200IH0                                        |            |            |
| Battery 1     | Manufacturer: Huawei Technologies Co., Ltd.<br>(Sunwoda Electronic CO., LTD)<br>Model: HB356687ECW        |            |            |
| Battery 2     | Manufacturer: Huawei Technologies Co., Ltd.<br>(Huizhou Desay Battcry Co., Ltd)<br>Model: HB356687ECW     |            |            |
| Battery 3     | Manufacturer: Huawei Technologies Co., Ltd.<br>(SCUD (FUJIAN) Electronics Co., Ltd)<br>Model: HB356687ECW |            |            |
| Earphone 1    | Manufacturer: Jiangxi Lianchuang Hongsheng Electronic Co., LTD.<br>Model: MEND1532B528A02                 |            |            |
| Earphone 2    | Manufacturer: Boluo County Quancheng Electronic Co., Ltd.<br>Model: 1293-3283-3.5mm-322                   |            |            |
| Earphone 3    | Manufacturer: FOXCONN INTERCONNECT TECHNOLOGY LIMITED<br>Model: EPAB542-2WH05-DH                          |            |            |
| Earphone 4    | Manufacturer: Jiangxi Lianchuang Hongsheng Electronic Co., LTD.<br>Model: MEND1532B528B00                 |            |            |
| Earphone 5    | Manufacturer: Boluo County Quancheng Electronic Co., Ltd.<br>Model: 1293-3283-3.5mm-336                   |            |            |
| Earphone 6    | Manufacturer: Hong Fu Jin Precision Industry (Shenzhen) Co., LTD.<br>Model: EPAB542-2WH06-DH              |            |            |
| USB Cable 1   | Manufacturer: HUIZHOU DEHONG TECHNOLOGY CO.,LTD.<br>Model: 330-50507                                      |            |            |
| USB Cable 2   | Manufacturer: FOXCONN INTERCONNECT TECHNOLOGY                                                             |            |            |



|                                                                                                                                                                                                                                                                                                                                                          |                                                                                           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                          | LIMITED<br>Model: CUDU01B-HC295-EH                                                        |
| USB Cable 3                                                                                                                                                                                                                                                                                                                                              | Manufacturer: NingBo Broad Telecommunication Co.,Ltd.<br>Model: WA0020                    |
| USB Cable 4                                                                                                                                                                                                                                                                                                                                              | Manufacturer: LUXSHARE Precision Industry Co., Ltd.<br>Model: L99UC131-CS-H               |
| USB Cable 5                                                                                                                                                                                                                                                                                                                                              | Manufacturer: Freeport Resources Enterprises (Jiangxi) Co.,Ltd<br>Model: 18-93C2CHO-001HF |
| USB Cable 6                                                                                                                                                                                                                                                                                                                                              | Manufacturer: Dongguan Mingji Electronics Technology Group Co.,Ltd<br>Model: 203-1572-0   |
| <p>Note: 1. The information of the EUT is declared by the manufacturer.</p> <p>2. There is more than one Adapter, one USB cable, one Battery and Earphone, each one should be applied throughout the compliance test respectively, and however, only the worst case (Adapter 1, USB cable 3/ Battery 1/ Earphone 2) will be recorded in this report.</p> |                                                                                           |





### 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 2 (2018)

FCC CFR47 Part 27C (2018)

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, horizontal polarization) 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 for WCDMA Band IV:

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



Test modes are chosen to be reported as the worst case configuration below for LTE Band 4/7/38:

| Test items                              | Modes                                                                                                                                 | Bandwidth (MHz) |   |   |    |    |    | Modulation |       |       | RB |     |      | Test Channel |   |   |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-----------------|---|---|----|----|----|------------|-------|-------|----|-----|------|--------------|---|---|
|                                         |                                                                                                                                       | 1.4             | 3 | 5 | 10 | 15 | 20 | QPSK       | 16QAM | 64QAM | 1  | 50% | 100% | L            | M | H |
| RF power output                         | LTE 4                                                                                                                                 | O               | 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 | O |
|                                         | LTE 38                                                                                                                                | -               | - | O | O  | O  | O  | O          | O     | O     | O  | O   | O    | O            | O | O |
| Effective Isotropic Radiated power      | LTE 4                                                                                                                                 | O               | 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 | O |
|                                         | LTE 38                                                                                                                                | -               | - | 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 | O |
|                                         | LTE 7                                                                                                                                 | -               | - | O | O  | O  | O  | O          | O     | O     | -  | -   | O    | O            | O | O |
|                                         | LTE 38                                                                                                                                | -               | - | 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            | - | O |
|                                         | LTE 7                                                                                                                                 | -               | - | O | O  | O  | O  | O          | O     | O     | O  | -   | O    | O            | - | O |
|                                         | LTE 38                                                                                                                                | -               | - | 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 | O |
|                                         | LTE 7                                                                                                                                 | -               | - | O | O  | O  | O  | O          | O     | O     | -  | -   | O    | O            | O | O |
|                                         | LTE 38                                                                                                                                | -               | - | 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  | O   | O    | O            | O | O |
|                                         | LTE 7                                                                                                                                 | -               | - | O | O  | O  | O  | O          | O     | O     | O  | O   | O    | O            | O | O |
|                                         | LTE 38                                                                                                                                | -               | - | O | O  | O  | 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 38                                                                                                                                | -               | - | O | O  | O  | O  | O          | -     | -     | O  | -   | -    | O            | O | O |
| Radiates Spurious Emission              | LTE 4                                                                                                                                 | O               | - | O | -  | -  | O  | O          | -     | -     | O  | -   | -    | -            | O | - |
|                                         | LTE 7                                                                                                                                 | -               | - | O | -  | -  | O  | O          | -     | -     | O  | -   | -    | -            | O | - |
|                                         | LTE 38                                                                                                                                | -               | - | 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 Results

### 5.1 RF Power Output

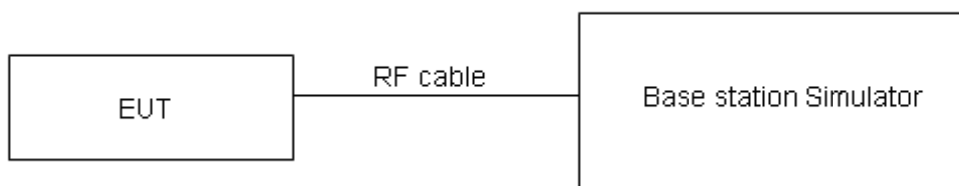
#### Ambient condition

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

#### Methods of Measurement

During the process of the testing, The EUT is controlled by the Base Station Simulator to ensure max power transmission and proper modulation.

#### Test Setup



The loss between RF output port of the EUT and the input port of the tester has been taken into consideration.

#### Limits

No specific RF power output requirements in part 2.1046.

#### 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

| WCDMA Band IV |              | Conducted Power(dBm) |              |              |
|---------------|--------------|----------------------|--------------|--------------|
|               |              | Channel 1312         | Channel 1413 | Channel 1513 |
|               |              | 1712.4 (MHz)         | 1732.6 (MHz) | 1752.6(MHz)  |
| RMC           |              | 22.65                | 22.53        | 22.44        |
| HSDPA         | Sub - Test 1 | 22.07                | 21.95        | 21.86        |
|               | Sub - Test 2 | 22.06                | 21.94        | 21.85        |
|               | Sub - Test 3 | 21.55                | 21.43        | 21.34        |
|               | Sub - Test 4 | 21.54                | 21.42        | 21.33        |
| HSUPA         | Sub - Test 1 | 21.15                | 21.06        | 21.04        |
|               | Sub - Test 2 | 21.02                | 20.90        | 20.81        |
|               | Sub - Test 3 | 21.50                | 21.39        | 21.30        |
|               | Sub - Test 4 | 20.99                | 20.88        | 20.79        |
|               | Sub - Test 5 | 21.98                | 21.87        | 21.78        |
| DC-HSDPA      | Sub - Test 1 | 21.79                | 21.69        | 21.58        |
|               | Sub - Test 2 | 21.78                | 21.68        | 21.57        |
|               | Sub - Test 3 | 21.36                | 21.17        | 21.08        |
|               | Sub - Test 4 | 21.35                | 21.16        | 21.07        |

| LTE Band 4 |            |         |           | Conducted Power(dBm)    |              |              |
|------------|------------|---------|-----------|-------------------------|--------------|--------------|
| Bandwidth  | Modulation | RB size | RB offset | Channel/Frequency (MHz) |              |              |
|            |            |         |           | 19957/1710.7            | 20175/1732.5 | 20393/1754.3 |
| 1.4MHz     | QPSK       | 1       | 0         | 22.62                   | 22.61        | 22.78        |
|            |            | 1       | 2         | 22.45                   | 22.56        | 22.44        |
|            |            | 1       | 5         | 22.50                   | 22.57        | 22.60        |
|            |            | 3       | 0         | 21.81                   | 21.75        | 21.74        |
|            |            | 3       | 2         | 21.76                   | 21.79        | 21.74        |
|            |            | 3       | 3         | 21.63                   | 21.72        | 21.70        |
|            |            | 6       | 0         | 21.67                   | 21.85        | 21.77        |
|            | 16QAM      | 1       | 0         | 22.03                   | 22.13        | 22.13        |
|            |            | 1       | 2         | 21.86                   | 21.90        | 21.87        |
|            |            | 1       | 5         | 21.93                   | 21.88        | 21.94        |
|            |            | 3       | 0         | 20.77                   | 20.78        | 20.78        |
|            |            | 3       | 2         | 20.77                   | 20.68        | 20.70        |
|            |            | 3       | 3         | 20.76                   | 20.77        | 20.69        |
|            |            | 6       | 0         | 20.66                   | 20.53        | 20.66        |
|            | 64QAM      | 1       | 0         | 20.70                   | 20.76        | 20.78        |
|            |            | 1       | 2         | 20.59                   | 20.67        | 20.64        |
|            |            | 1       | 5         | 20.63                   | 20.79        | 20.71        |
|            |            | 3       | 0         | 19.48                   | 19.57        | 19.53        |
|            |            | 3       | 2         | 19.44                   | 19.54        | 19.58        |
|            |            | 3       | 3         | 19.39                   | 19.46        | 19.40        |
|            |            | 6       | 0         | 19.33                   | 19.43        | 19.46        |
| Bandwidth  | Modulation | RB size | RB offset | Channel/Frequency (MHz) |              |              |
|            |            |         |           | 19965/1711.5            | 20175/1732.5 | 20385/1753.5 |
| 3MHz       | QPSK       | 1       | 0         | 22.64                   | 22.65        | 22.81        |
|            |            | 1       | 7         | 22.48                   | 22.61        | 22.48        |
|            |            | 1       | 14        | 22.53                   | 22.62        | 22.64        |
|            |            | 8       | 0         | 21.89                   | 21.85        | 21.85        |
|            |            | 8       | 4         | 21.86                   | 21.87        | 21.84        |
|            |            | 8       | 7         | 21.71                   | 21.81        | 21.78        |
|            |            | 15      | 0         | 21.70                   | 21.89        | 21.80        |
|            | 16QAM      | 1       | 0         | 22.06                   | 22.15        | 22.16        |
|            |            | 1       | 7         | 21.89                   | 21.95        | 21.91        |
|            |            | 1       | 14        | 21.95                   | 21.92        | 21.97        |
|            |            | 8       | 0         | 20.86                   | 20.89        | 20.88        |
|            |            | 8       | 4         | 20.86                   | 20.79        | 20.80        |
|            |            | 8       | 7         | 20.84                   | 20.87        | 20.80        |
|            |            | 15      | 0         | 20.69                   | 20.57        | 20.69        |
|            | 64QAM      | 1       | 0         | 20.73                   | 20.78        | 20.81        |
|            |            | 1       | 7         | 20.62                   | 20.72        | 20.68        |



|           |            | 1       | 14        | 20.65                   | 20.83        | 20.74        |
|-----------|------------|---------|-----------|-------------------------|--------------|--------------|
|           |            | 8       | 0         | 19.57                   | 19.68        | 19.63        |
|           |            | 8       | 4         | 19.53                   | 19.65        | 19.68        |
|           |            | 8       | 7         | 19.47                   | 19.56        | 19.51        |
|           |            | 15      | 0         | 19.36                   | 19.47        | 19.49        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency (MHz) |              |              |
|           |            |         |           | 19975/1712.5            | 20175/1732.5 | 20375/1752.5 |
| 5MHz      | QPSK       | 1       | 0         | 22.61                   | 22.63        | 22.77        |
|           |            | 1       | 13        | 22.46                   | 22.57        | 22.45        |
|           |            | 1       | 24        | 22.50                   | 22.57        | 22.60        |
|           |            | 12      | 0         | 21.86                   | 21.80        | 21.81        |
|           |            | 12      | 6         | 21.84                   | 21.83        | 21.79        |
|           |            | 12      | 13        | 21.69                   | 21.79        | 21.74        |
|           |            | 25      | 0         | 21.68                   | 21.88        | 21.78        |
|           | 16QAM      | 1       | 0         | 22.03                   | 22.11        | 22.13        |
|           |            | 1       | 13        | 21.86                   | 21.93        | 21.88        |
|           |            | 1       | 24        | 21.92                   | 21.90        | 21.93        |
|           |            | 12      | 0         | 20.84                   | 20.85        | 20.85        |
|           |            | 12      | 6         | 20.83                   | 20.74        | 20.76        |
|           |            | 12      | 13        | 20.81                   | 20.82        | 20.76        |
|           |            | 25      | 0         | 20.67                   | 20.53        | 20.64        |
|           | 64QAM      | 1       | 0         | 20.70                   | 20.74        | 20.78        |
|           |            | 1       | 13        | 20.59                   | 20.70        | 20.65        |
|           |            | 1       | 24        | 20.62                   | 20.81        | 20.70        |
|           |            | 12      | 0         | 19.55                   | 19.64        | 19.60        |
|           |            | 12      | 6         | 19.50                   | 19.60        | 19.64        |
|           |            | 12      | 13        | 19.44                   | 19.51        | 19.47        |
|           |            | 25      | 0         | 19.34                   | 19.43        | 19.44        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency (MHz) |              |              |
|           |            |         |           | 20000/1715              | 20175/1732.5 | 20350/1750   |
| 10MHz     | QPSK       | 1       | 0         | 22.63                   | 22.64        | 22.80        |
|           |            | 1       | 25        | 22.49                   | 22.62        | 22.49        |
|           |            | 1       | 49        | 22.52                   | 22.61        | 22.63        |
|           |            | 25      | 0         | 21.89                   | 21.85        | 21.85        |
|           |            | 25      | 13        | 21.87                   | 21.88        | 21.83        |
|           |            | 25      | 25        | 21.71                   | 21.83        | 21.79        |
|           |            | 50      | 0         | 21.76                   | 21.90        | 21.82        |
|           | 16QAM      | 1       | 0         | 22.05                   | 22.14        | 22.15        |
|           |            | 1       | 25        | 21.89                   | 21.97        | 21.91        |
|           |            | 1       | 49        | 21.95                   | 21.92        | 21.96        |
|           |            | 25      | 0         | 20.87                   | 20.90        | 20.89        |
|           |            | 25      | 13        | 20.85                   | 20.78        | 20.79        |
|           |            | 25      | 25        | 20.84                   | 20.87        | 20.80        |



|           | 64QAM      | 50      | 0         | 20.70                   | 20.58        | 20.68        |
|-----------|------------|---------|-----------|-------------------------|--------------|--------------|
|           |            | 1       | 0         | 20.72                   | 20.77        | 20.80        |
|           |            | 1       | 25        | 20.62                   | 20.74        | 20.68        |
|           |            | 1       | 49        | 20.65                   | 20.83        | 20.73        |
|           |            | 25      | 0         | 19.58                   | 19.69        | 19.64        |
|           |            | 25      | 13        | 19.52                   | 19.64        | 19.67        |
|           |            | 25      | 25        | 19.47                   | 19.56        | 19.51        |
|           |            | 50      | 0         | 19.37                   | 19.48        | 19.48        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency (MHz) |              |              |
|           |            |         |           | 20025/1717.5            | 20175/1732.5 | 20325/1747.5 |
| 15MHz     | QPSK       | 1       | 0         | 22.62                   | 22.60        | 22.78        |
|           |            | 1       | 38        | 22.47                   | 22.61        | 22.46        |
|           |            | 1       | 74        | 22.49                   | 22.56        | 22.59        |
|           |            | 36      | 0         | 21.87                   | 21.81        | 21.82        |
|           |            | 36      | 18        | 21.84                   | 21.83        | 21.79        |
|           |            | 36      | 39        | 21.68                   | 21.80        | 21.75        |
|           |            | 75      | 0         | 21.74                   | 21.86        | 21.77        |
|           |            | 75      | 0         | 21.74                   | 21.86        | 21.77        |
|           | 16QAM      | 1       | 0         | 22.00                   | 22.12        | 22.13        |
|           |            | 1       | 38        | 21.87                   | 21.94        | 21.89        |
|           |            | 1       | 74        | 21.92                   | 21.88        | 21.93        |
|           |            | 36      | 0         | 20.84                   | 20.88        | 20.86        |
|           |            | 36      | 18        | 20.82                   | 20.73        | 20.75        |
|           |            | 36      | 39        | 20.82                   | 20.83        | 20.77        |
|           |            | 75      | 0         | 20.67                   | 20.53        | 20.64        |
|           |            | 75      | 0         | 20.67                   | 20.53        | 20.64        |
|           | 64QAM      | 1       | 0         | 20.67                   | 20.75        | 20.78        |
|           |            | 1       | 38        | 20.60                   | 20.71        | 20.66        |
|           |            | 1       | 74        | 20.62                   | 20.79        | 20.70        |
|           |            | 36      | 0         | 19.55                   | 19.67        | 19.61        |
|           |            | 36      | 18        | 19.49                   | 19.59        | 19.63        |
|           |            | 36      | 39        | 19.45                   | 19.52        | 19.48        |
|           |            | 75      | 0         | 19.34                   | 19.43        | 19.44        |
|           |            | 75      | 0         | 19.34                   | 19.43        | 19.44        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency (MHz) |              |              |
|           |            |         |           | 20050/1720              | 20175/1732.5 | 20300/1745   |
| 20MHz     | QPSK       | 1       | 0         | 22.59                   | 22.56        | 22.75        |
|           |            | 1       | 50        | 22.46                   | 22.57        | 22.44        |
|           |            | 1       | 99        | 22.47                   | 22.55        | 22.56        |
|           |            | 50      | 0         | 21.84                   | 21.76        | 21.78        |
|           |            | 50      | 25        | 21.82                   | 21.79        | 21.76        |
|           |            | 50      | 50        | 21.65                   | 21.75        | 21.71        |
|           |            | 100     | 0         | 21.71                   | 21.81        | 21.73        |
|           |            | 100     | 0         | 21.71                   | 21.81        | 21.73        |
|           | 16QAM      | 1       | 0         | 21.98                   | 22.08        | 22.08        |
|           |            | 1       | 50        | 21.83                   | 21.92        | 21.85        |
|           |            | 1       | 99        | 21.90                   | 21.85        | 21.91        |





|  |       |     |    |       |       |       |
|--|-------|-----|----|-------|-------|-------|
|  |       | 50  | 0  | 20.81 | 20.84 | 20.83 |
|  |       | 50  | 25 | 20.79 | 20.71 | 20.72 |
|  |       | 50  | 50 | 20.79 | 20.78 | 20.73 |
|  |       | 100 | 0  | 20.65 | 20.49 | 20.61 |
|  | 64QAM | 1   | 0  | 20.65 | 20.71 | 20.73 |
|  |       | 1   | 50 | 20.56 | 20.69 | 20.62 |
|  |       | 1   | 99 | 20.60 | 20.76 | 20.68 |
|  |       | 50  | 0  | 19.52 | 19.63 | 19.58 |
|  |       | 50  | 25 | 19.46 | 19.57 | 19.60 |
|  |       | 50  | 50 | 19.42 | 19.47 | 19.44 |
|  |       | 100 | 0  | 19.32 | 19.39 | 19.41 |

| LTE Band 7 |            |         |           | Conducted Power(dBm)    |            |              |
|------------|------------|---------|-----------|-------------------------|------------|--------------|
| Bandwidth  | Modulation | RB size | RB offset | Channel/Frequency (MHz) |            |              |
|            |            |         |           | 20775/2502.5            | 21100/2535 | 21425/2567.5 |
| 5MHz       | QPSK       | 1       | 0         | 23.53                   | 23.56      | 23.54        |
|            |            | 1       | 13        | 23.66                   | 23.61      | 23.58        |
|            |            | 1       | 24        | 23.58                   | 23.48      | 23.58        |
|            |            | 12      | 0         | 22.89                   | 22.99      | 22.82        |
|            |            | 12      | 6         | 22.86                   | 23.01      | 22.74        |
|            |            | 12      | 13        | 22.97                   | 23.00      | 22.81        |
|            |            | 25      | 0         | 22.88                   | 23.04      | 22.80        |
|            | 16QAM      | 1       | 0         | 22.77                   | 22.84      | 22.82        |
|            |            | 1       | 13        | 22.90                   | 22.85      | 22.81        |
|            |            | 1       | 24        | 22.74                   | 22.91      | 22.85        |
|            |            | 12      | 0         | 21.95                   | 21.97      | 21.93        |
|            |            | 12      | 6         | 21.92                   | 21.96      | 21.82        |
|            |            | 12      | 13        | 21.89                   | 21.99      | 21.85        |
|            |            | 25      | 0         | 21.86                   | 21.98      | 21.88        |
|            | 64QAM      | 1       | 0         | 21.92                   | 22.74      | 22.77        |
|            |            | 1       | 13        | 22.69                   | 22.63      | 22.67        |
|            |            | 1       | 24        | 22.65                   | 22.70      | 22.64        |
|            |            | 12      | 0         | 20.69                   | 20.55      | 20.54        |
|            |            | 12      | 6         | 20.67                   | 20.48      | 20.65        |
|            |            | 12      | 13        | 20.67                   | 20.42      | 20.59        |
|            |            | 25      | 0         | 20.69                   | 20.57      | 20.58        |
| Bandwidth  | Modulation | RB size | RB offset | Channel/Frequency (MHz) |            |              |
|            |            |         |           | 20800/2505              | 21100/2535 | 21400/2565   |
| 10MHz      | QPSK       | 1       | 0         | 23.55                   | 23.57      | 23.57        |
|            |            | 1       | 25        | 23.69                   | 23.66      | 23.62        |
|            |            | 1       | 49        | 23.60                   | 23.52      | 23.61        |
|            |            | 25      | 0         | 22.92                   | 23.04      | 22.86        |



|           |            | 25      | 13        | 22.89                   | 23.06      | 22.78        |
|-----------|------------|---------|-----------|-------------------------|------------|--------------|
|           |            | 25      | 25        | 22.99                   | 23.04      | 22.86        |
|           |            | 50      | 0         | 22.96                   | 23.06      | 22.84        |
|           | 16QAM      | 1       | 0         | 22.79                   | 22.87      | 22.84        |
|           |            | 1       | 25        | 22.93                   | 22.89      | 22.84        |
|           |            | 1       | 49        | 22.77                   | 22.93      | 22.88        |
|           |            | 25      | 0         | 21.98                   | 22.02      | 21.97        |
|           |            | 25      | 13        | 21.94                   | 22.00      | 21.85        |
|           |            | 25      | 25        | 21.92                   | 22.04      | 21.89        |
|           |            | 50      | 0         | 21.89                   | 22.03      | 21.92        |
|           | 64QAM      | 1       | 0         | 21.94                   | 22.77      | 22.79        |
|           |            | 1       | 25        | 22.72                   | 22.67      | 22.70        |
|           |            | 1       | 49        | 22.68                   | 22.72      | 22.67        |
|           |            | 25      | 0         | 20.72                   | 20.60      | 20.58        |
|           |            | 25      | 13        | 20.69                   | 20.52      | 20.68        |
|           |            | 25      | 25        | 20.70                   | 20.47      | 20.63        |
|           |            | 50      | 0         | 20.72                   | 20.62      | 20.62        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency (MHz) |            |              |
|           |            |         |           | 20825/2507.5            | 21100/2535 | 21375/2562.5 |
| 15MHz     | QPSK       | 1       | 0         | 23.54                   | 23.53      | 23.55        |
|           |            | 1       | 38        | 23.67                   | 23.65      | 23.59        |
|           |            | 1       | 74        | 23.57                   | 23.47      | 23.57        |
|           |            | 36      | 0         | 22.90                   | 23.00      | 22.83        |
|           |            | 36      | 18        | 22.86                   | 23.01      | 22.74        |
|           |            | 36      | 39        | 22.96                   | 23.01      | 22.82        |
|           |            | 75      | 0         | 22.94                   | 23.02      | 22.79        |
|           | 16QAM      | 1       | 0         | 22.74                   | 22.85      | 22.82        |
|           |            | 1       | 38        | 22.91                   | 22.86      | 22.82        |
|           |            | 1       | 74        | 22.74                   | 22.89      | 22.85        |
|           |            | 36      | 0         | 21.95                   | 22.00      | 21.94        |
|           |            | 36      | 18        | 21.91                   | 21.95      | 21.81        |
|           |            | 36      | 39        | 21.90                   | 22.00      | 21.86        |
|           |            | 75      | 0         | 21.86                   | 21.98      | 21.88        |
|           | 64QAM      | 1       | 0         | 21.89                   | 22.75      | 22.77        |
|           |            | 1       | 38        | 22.70                   | 22.64      | 22.68        |
|           |            | 1       | 74        | 22.65                   | 22.68      | 22.64        |
|           |            | 36      | 0         | 20.69                   | 20.58      | 20.55        |
|           |            | 36      | 18        | 20.66                   | 20.47      | 20.64        |
|           |            | 36      | 39        | 20.68                   | 20.43      | 20.60        |
|           |            | 75      | 0         | 20.69                   | 20.57      | 20.58        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency (MHz) |            |              |
|           |            |         |           | 20850/2510              | 21100/2535 | 21350/2560   |
| 20MHz     | QPSK       | 1       | 0         | 23.51                   | 23.49      | 23.52        |



|  |       |     |    |       |       |       |
|--|-------|-----|----|-------|-------|-------|
|  |       | 1   | 50 | 23.66 | 23.61 | 23.57 |
|  |       | 1   | 99 | 23.55 | 23.46 | 23.54 |
|  |       | 50  | 0  | 22.87 | 22.95 | 22.79 |
|  |       | 50  | 25 | 22.84 | 22.97 | 22.71 |
|  |       | 50  | 50 | 22.93 | 22.96 | 22.78 |
|  |       | 100 | 0  | 22.91 | 22.97 | 22.75 |
|  | 16QAM | 1   | 0  | 22.72 | 22.81 | 22.77 |
|  |       | 1   | 50 | 22.87 | 22.84 | 22.78 |
|  |       | 1   | 99 | 22.72 | 22.86 | 22.83 |
|  |       | 50  | 0  | 21.92 | 21.96 | 21.91 |
|  |       | 50  | 25 | 21.88 | 21.93 | 21.78 |
|  |       | 50  | 50 | 21.87 | 21.95 | 21.82 |
|  |       | 100 | 0  | 21.84 | 21.94 | 21.85 |
|  | 64QAM | 1   | 0  | 21.87 | 22.71 | 22.72 |
|  |       | 1   | 50 | 22.66 | 22.62 | 22.64 |
|  |       | 1   | 99 | 22.63 | 22.65 | 22.62 |
|  |       | 50  | 0  | 20.66 | 20.54 | 20.52 |
|  |       | 50  | 25 | 20.63 | 20.45 | 20.61 |
|  |       | 50  | 50 | 20.65 | 20.38 | 20.56 |
|  |       | 100 | 0  | 20.67 | 20.53 | 20.55 |

| LTE Band 38 |            |         |           | Conducted Power(dBm)    |            |              |
|-------------|------------|---------|-----------|-------------------------|------------|--------------|
| Bandwidth   | Modulation | RB size | RB offset | Channel/Frequency (MHz) |            |              |
|             |            |         |           | 37775/2572.5            | 38000/2595 | 38225/2617.5 |
| 5MHz        | QPSK       | 1       | 0         | 23.26                   | 23.46      | 23.31        |
|             |            | 1       | 13        | 23.07                   | 23.16      | 23.13        |
|             |            | 1       | 24        | 23.35                   | 23.40      | 23.35        |
|             |            | 12      | 0         | 22.31                   | 22.37      | 22.32        |
|             |            | 12      | 6         | 22.20                   | 22.43      | 22.27        |
|             |            | 12      | 13        | 22.25                   | 22.41      | 22.30        |
|             |            | 25      | 0         | 22.23                   | 22.38      | 22.30        |
|             | 16QAM      | 1       | 0         | 22.53                   | 22.50      | 22.67        |
|             |            | 1       | 13        | 22.43                   | 22.55      | 22.57        |
|             |            | 1       | 24        | 22.48                   | 22.57      | 22.59        |
|             |            | 12      | 0         | 21.31                   | 21.36      | 21.25        |
|             |            | 12      | 6         | 21.31                   | 21.32      | 21.25        |
|             |            | 12      | 13        | 21.31                   | 21.38      | 21.27        |
|             |            | 25      | 0         | 21.20                   | 21.33      | 21.24        |
|             | 64QAM      | 1       | 0         | 21.25                   | 21.29      | 21.32        |
|             |            | 1       | 13        | 21.28                   | 21.23      | 21.27        |
|             |            | 1       | 24        | 21.25                   | 21.28      | 21.23        |
|             |            | 12      | 0         | 20.24                   | 20.25      | 20.19        |
|             |            | 12      | 6         | 20.20                   | 20.22      | 20.16        |



|           |            | 12      | 13        | 20.14                   | 20.19      | 20.18        |
|-----------|------------|---------|-----------|-------------------------|------------|--------------|
|           |            | 25      | 0         | 20.06                   | 20.14      | 20.16        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency (MHz) |            |              |
|           |            |         |           | 37800/2575              | 38000/2595 | 38200/2615   |
| 10MHz     | QPSK       | 1       | 0         | 23.28                   | 23.47      | 23.34        |
|           |            | 1       | 25        | 23.10                   | 23.21      | 23.17        |
|           |            | 1       | 49        | 23.37                   | 23.44      | 23.38        |
|           |            | 25      | 0         | 22.34                   | 22.42      | 22.36        |
|           |            | 25      | 13        | 22.23                   | 22.48      | 22.31        |
|           |            | 25      | 25        | 22.27                   | 22.45      | 22.35        |
|           |            | 50      | 0         | 22.31                   | 22.40      | 22.34        |
|           | 16QAM      | 1       | 0         | 22.55                   | 22.53      | 22.69        |
|           |            | 1       | 25        | 22.46                   | 22.59      | 22.60        |
|           |            | 1       | 49        | 22.51                   | 22.59      | 22.62        |
|           |            | 25      | 0         | 21.34                   | 21.41      | 21.29        |
|           |            | 25      | 13        | 21.33                   | 21.36      | 21.28        |
|           |            | 25      | 25        | 21.34                   | 21.43      | 21.31        |
|           |            | 50      | 0         | 21.23                   | 21.38      | 21.28        |
|           | 64QAM      | 1       | 0         | 21.27                   | 21.32      | 21.34        |
|           |            | 1       | 25        | 21.31                   | 21.27      | 21.30        |
|           |            | 1       | 49        | 21.28                   | 21.30      | 21.26        |
|           |            | 25      | 0         | 20.27                   | 20.30      | 20.23        |
|           |            | 25      | 13        | 20.22                   | 20.26      | 20.19        |
|           |            | 25      | 25        | 20.17                   | 20.24      | 20.22        |
|           |            | 50      | 0         | 20.09                   | 20.19      | 20.20        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency (MHz) |            |              |
|           |            |         |           | 37825/2577.5            | 38000/2595 | 38175/2612.5 |
| 15MHz     | QPSK       | 1       | 0         | 23.27                   | 23.43      | 23.32        |
|           |            | 1       | 38        | 23.08                   | 23.20      | 23.14        |
|           |            | 1       | 74        | 23.34                   | 23.39      | 23.34        |
|           |            | 36      | 0         | 22.32                   | 22.38      | 22.33        |
|           |            | 36      | 18        | 22.20                   | 22.43      | 22.27        |
|           |            | 36      | 39        | 22.24                   | 22.42      | 22.31        |
|           |            | 75      | 0         | 22.29                   | 22.36      | 22.29        |
|           | 16QAM      | 1       | 0         | 22.50                   | 22.51      | 22.67        |
|           |            | 1       | 38        | 22.44                   | 22.56      | 22.58        |
|           |            | 1       | 74        | 22.48                   | 22.55      | 22.59        |
|           |            | 36      | 0         | 21.31                   | 21.39      | 21.26        |
|           |            | 36      | 18        | 21.30                   | 21.31      | 21.24        |
|           |            | 36      | 39        | 21.32                   | 21.39      | 21.28        |
|           |            | 75      | 0         | 21.20                   | 21.33      | 21.24        |
|           | 64QAM      | 1       | 0         | 21.22                   | 21.30      | 21.32        |
|           |            | 1       | 38        | 21.29                   | 21.24      | 21.28        |



|           |            | 1       | 74        | 21.25                   | 21.26      | 21.23      |
|-----------|------------|---------|-----------|-------------------------|------------|------------|
|           |            | 36      | 0         | 20.24                   | 20.28      | 20.20      |
|           |            | 36      | 18        | 20.19                   | 20.21      | 20.15      |
|           |            | 36      | 39        | 20.15                   | 20.20      | 20.19      |
|           |            | 75      | 0         | 20.06                   | 20.14      | 20.16      |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency (MHz) |            |            |
|           |            |         |           | 37850/2580              | 38000/2595 | 38150/2610 |
| 20MHz     | QPSK       | 1       | 0         | 23.24                   | 23.39      | 23.29      |
|           |            | 1       | 50        | 23.07                   | 23.16      | 23.12      |
|           |            | 1       | 99        | 23.32                   | 23.38      | 23.31      |
|           |            | 50      | 0         | 22.29                   | 22.33      | 22.29      |
|           |            | 50      | 25        | 22.18                   | 22.39      | 22.24      |
|           |            | 50      | 50        | 22.21                   | 22.37      | 22.27      |
|           |            | 100     | 0         | 22.26                   | 22.31      | 22.25      |
|           | 16QAM      | 1       | 0         | 22.48                   | 22.47      | 22.62      |
|           |            | 1       | 50        | 22.40                   | 22.54      | 22.54      |
|           |            | 1       | 99        | 22.46                   | 22.52      | 22.57      |
|           |            | 50      | 0         | 21.28                   | 21.35      | 21.23      |
|           |            | 50      | 25        | 21.27                   | 21.29      | 21.21      |
|           |            | 50      | 50        | 21.29                   | 21.34      | 21.24      |
|           |            | 100     | 0         | 21.18                   | 21.29      | 21.21      |
|           | 64QAM      | 1       | 0         | 21.20                   | 21.26      | 21.27      |
|           |            | 1       | 50        | 21.25                   | 21.22      | 21.24      |
|           |            | 1       | 99        | 21.23                   | 21.23      | 21.21      |
|           |            | 50      | 0         | 20.21                   | 20.24      | 20.17      |
|           |            | 50      | 25        | 20.16                   | 20.19      | 20.12      |
|           |            | 50      | 50        | 20.12                   | 20.15      | 20.15      |
|           |            | 100     | 0         | 20.04                   | 20.10      | 20.13      |

## 5.2 Effective Isotropic Radiated Power

### Ambient condition

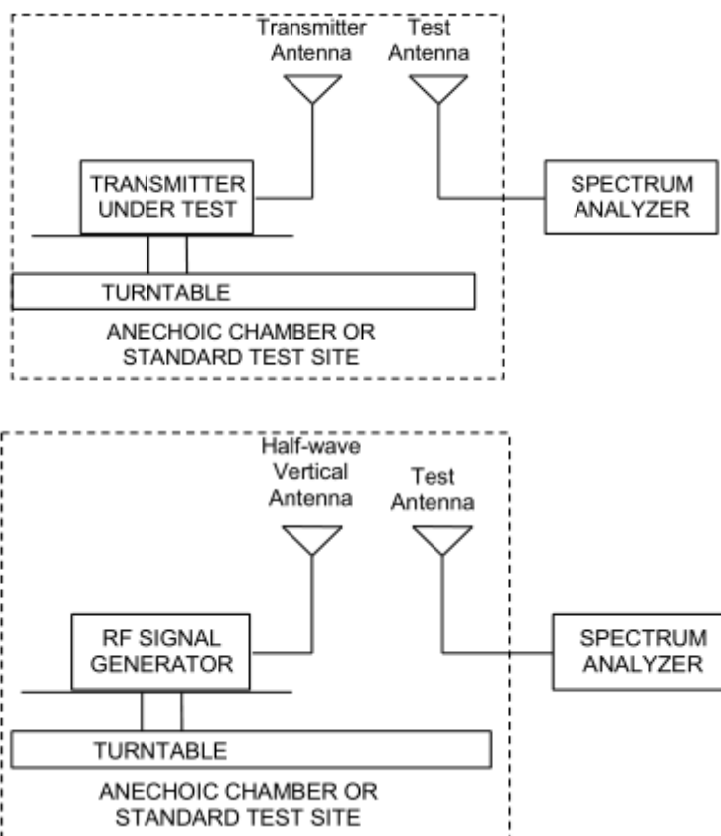
| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 23°C ~25°C  | 45%~50%           | 101.5kPa |

### Methods of Measurement

1. The testing follows FCC KDB 971168 D01 v03r01 Section 5.8 and ANSI C63.26 (2015).
  - a) Connect the equipment as illustrated. Mount the equipment with the manufacturer specified antenna in a vertical orientation on a manufacturer specified mounting surface located on a non-conducting rotating platform of a RF anechoic chamber (preferred) or a standard radiation site.
  - b) Key the transmitter, then rotate the EUT 360° azimuthally and record spectrum analyzer power level (LVL) measurements at angular increments that are sufficiently small to permit resolution of all peaks. If a standard radiation test site is used, raise and lower the test antenna to obtain a maximum reading at each angular increment. (Note: several batteries may be needed to offset the effect of battery voltage droop, which should not exceed 5% of the manufactured specified battery voltage during transmission).
  - c) Replace the transmitter under test with a vertically polarized half-wave dipole (or an antenna whose gain is known relative to an ideal half-wave dipole). The center of the antenna should be at the same location as the center of the antenna under test.
  - d) Connect the antenna to a signal generator with a known output power and record the path loss (in dB) as LOSS. If a standard radiation test site is used, raise and lower the test antenna to obtain a maximum reading.  $LOSS = \text{Generator Output Power (dBm)} - \text{Analyzer reading (dBm)}$
  - e) Determine the effective radiated output power at each angular position from the readings in steps b) and d) using the following equation:  $ERP \text{ (dBm)} = LVL \text{ (dBm)} + LOSS \text{ (dB)}$
  - f) The maximum ERP is the maximum value determined in the preceding step.
  - g) When calculating ERP, in addition to knowing the antenna radiation and matching characteristics, it is necessary to know the loss values of all elements (e.g. transmission line attenuation, mismatches, filters, combiners) interposed between the point where transmitter output power is measured, and the point where power is applied to the antenna. ERP can then be calculated as follows:  
 $EIRP \text{ (dBm)} = \text{Output Power (dBm)} - \text{Losses (dB)} + \text{Antenna Gain (dBi)}$   
 where: dBd refers to gain relative to an ideal dipole.  
 $EIRP \text{ (dBm)} = ERP \text{ (dBm)} + 2.15 \text{ (dB.)}$

The RB allocation refers to section 5.1, using the maximum output power configuration.

## Test setup



Note: Area side:2.4mX3.6m

The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the worst case was recorded.

**Limits**

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(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  $k = 2$ ,  $U = 1.19$  dB



**Test Results**

The measurement is performed for both of horizontal and vertical antenna Polarization, and only the data of worst mode is recorded in this report.

| Mode                 | Channel | Frequency (MHz) | Polarization | EIRP (dBm) | Limit (dBm) | Conclusion |
|----------------------|---------|-----------------|--------------|------------|-------------|------------|
| <b>WCDMA Band IV</b> | Low     | 1712.4          | Horizontal   | 18.17      | 30          | Pass       |
|                      | Mid     | 1732.6          | Horizontal   | 18.15      | 30          | Pass       |
|                      | High    | 1752.6          | Horizontal   | 18.07      | 30          | Pass       |

| <b>LTE Band 4</b>      |         |                 |              |            |             |            |
|------------------------|---------|-----------------|--------------|------------|-------------|------------|
| Bandwidth              | Channel | Frequency (MHz) | Polarization | EIRP (dBm) | Limit (dBm) | Conclusion |
| <b>1.4 MHz (QPSK)</b>  | Low     | 1710.7          | Horizontal   | 18.98      | 30          | Pass       |
|                        | Mid     | 1732.5          | Horizontal   | 18.87      | 30          | Pass       |
|                        | High    | 1754.3          | Horizontal   | 18.91      | 30          | Pass       |
| <b>3 MHz (QPSK)</b>    | Low     | 1711.5          | Horizontal   | 18.65      | 30          | Pass       |
|                        | Mid     | 1732.5          | Horizontal   | 18.76      | 30          | Pass       |
|                        | High    | 1753.5          | Horizontal   | 18.89      | 30          | Pass       |
| <b>5 MHz (QPSK)</b>    | Low     | 1712.5          | Horizontal   | 18.87      | 30          | Pass       |
|                        | Mid     | 1732.5          | Horizontal   | 18.65      | 30          | Pass       |
|                        | High    | 1752.5          | Horizontal   | 19.02      | 30          | Pass       |
| <b>10 MHz (QPSK)</b>   | Low     | 1715            | Horizontal   | 18.73      | 30          | Pass       |
|                        | Mid     | 1732.5          | Horizontal   | 18.70      | 30          | Pass       |
|                        | High    | 1750            | Horizontal   | 19.08      | 30          | Pass       |
| <b>15 MHz (QPSK)</b>   | Low     | 1717.5          | Horizontal   | 18.65      | 30          | Pass       |
|                        | Mid     | 1732.5          | Horizontal   | 18.86      | 30          | Pass       |
|                        | High    | 1747.5          | Horizontal   | 19.13      | 30          | Pass       |
| <b>20 MHz (QPSK)</b>   | Low     | 1720            | Horizontal   | 19.02      | 30          | Pass       |
|                        | Mid     | 1732.5          | Horizontal   | 19.13      | 30          | Pass       |
|                        | High    | 1745            | Horizontal   | 19.11      | 30          | Pass       |
| <b>1.4 MHz (16QAM)</b> | Low     | 1710.7          | Horizontal   | 18.35      | 30          | Pass       |
|                        | Mid     | 1732.5          | Horizontal   | 18.42      | 30          | Pass       |
|                        | High    | 1754.3          | Horizontal   | 18.51      | 30          | Pass       |
| <b>3 MHz (16QAM)</b>   | Low     | 1711.5          | Horizontal   | 18.24      | 30          | Pass       |
|                        | Mid     | 1732.5          | Horizontal   | 18.16      | 30          | Pass       |
|                        | High    | 1753.5          | Horizontal   | 18.37      | 30          | Pass       |
| <b>5 MHz (16QAM)</b>   | Low     | 1712.5          | Horizontal   | 18.19      | 30          | Pass       |
|                        | Mid     | 1732.5          | Horizontal   | 17.98      | 30          | Pass       |
|                        | High    | 1752.5          | Horizontal   | 18.43      | 30          | Pass       |
| <b>10 MHz (16QAM)</b>  | Low     | 1715            | Horizontal   | 18.17      | 30          | Pass       |
|                        | Mid     | 1732.5          | Horizontal   | 18.24      | 30          | Pass       |
|                        | High    | 1750            | Horizontal   | 18.53      | 30          | Pass       |



|                    |      |        |            |       |    |      |
|--------------------|------|--------|------------|-------|----|------|
| 15 MHz<br>(16QAM)  | Low  | 1717.5 | Horizontal | 18.02 | 30 | Pass |
|                    | Mid  | 1732.5 | Horizontal | 18.17 | 30 | Pass |
|                    | High | 1747.5 | Horizontal | 18.73 | 30 | Pass |
| 20 MHz<br>(16QAM)  | Low  | 1720   | Horizontal | 18.42 | 30 | Pass |
|                    | Mid  | 1732.5 | Horizontal | 18.39 | 30 | Pass |
|                    | High | 1745   | Horizontal | 18.25 | 30 | Pass |
| 1.4 MHz<br>(64QAM) | Low  | 1710.7 | Horizontal | 17.67 | 30 | Pass |
|                    | Mid  | 1732.5 | Horizontal | 17.86 | 30 | Pass |
|                    | High | 1754.3 | Horizontal | 17.97 | 30 | Pass |
| 3 MHz<br>(64QAM)   | Low  | 1711.5 | Horizontal | 17.57 | 30 | Pass |
|                    | Mid  | 1732.5 | Horizontal | 17.54 | 30 | Pass |
|                    | High | 1753.5 | Horizontal | 17.86 | 30 | Pass |
| 5 MHz<br>(64QAM)   | Low  | 1712.5 | Horizontal | 17.70 | 30 | Pass |
|                    | Mid  | 1732.5 | Horizontal | 17.36 | 30 | Pass |
|                    | High | 1752.5 | Horizontal | 17.98 | 30 | Pass |
| 10 MHz<br>(64QAM)  | Low  | 1715   | Horizontal | 17.59 | 30 | Pass |
|                    | Mid  | 1732.5 | Horizontal | 17.74 | 30 | Pass |
|                    | High | 1750   | Horizontal | 17.91 | 30 | Pass |
| 15 MHz<br>(64QAM)  | Low  | 1717.5 | Horizontal | 17.59 | 30 | Pass |
|                    | Mid  | 1732.5 | Horizontal | 17.69 | 30 | Pass |
|                    | High | 1747.5 | Horizontal | 18.16 | 30 | Pass |
| 20 MHz<br>(64QAM)  | Low  | 1720   | Horizontal | 17.95 | 30 | Pass |
|                    | Mid  | 1732.5 | Horizontal | 17.88 | 30 | Pass |
|                    | High | 1745   | Horizontal | 17.63 | 30 | Pass |

| LTE Band 7       |         |                 |              |            |             |            |
|------------------|---------|-----------------|--------------|------------|-------------|------------|
| Band width       | Channel | Frequency (MHz) | Polarization | EIRP (dBm) | Limit (dBm) | Conclusion |
| 5 MHz<br>(QPSK)  | Low     | 2502.5          | Horizontal   | 19.13      | 33          | Pass       |
|                  | Mid     | 2535            | Horizontal   | 18.43      | 33          | Pass       |
|                  | High    | 2567.5          | Horizontal   | 18.69      | 33          | Pass       |
| 10 MHz<br>(QPSK) | Low     | 2505            | Horizontal   | 19.46      | 33          | Pass       |
|                  | Mid     | 2535            | Horizontal   | 18.20      | 33          | Pass       |
|                  | High    | 2565            | Horizontal   | 18.78      | 33          | Pass       |
| 15 MHz<br>(QPSK) | Low     | 2507.5          | Horizontal   | 18.67      | 33          | Pass       |
|                  | Mid     | 2535            | Horizontal   | 18.58      | 33          | Pass       |
|                  | High    | 2562.5          | Horizontal   | 18.76      | 33          | Pass       |
| 20 MHz<br>(QPSK) | Low     | 2510            | Horizontal   | 18.89      | 33          | Pass       |
|                  | Mid     | 2535            | Horizontal   | 18.67      | 33          | Pass       |
|                  | High    | 2560            | Horizontal   | 18.35      | 33          | Pass       |
| 5 MHz<br>(16QAM) | Low     | 2502.5          | Horizontal   | 18.51      | 33          | Pass       |
|                  | Mid     | 2535            | Horizontal   | 17.92      | 33          | Pass       |



|                   |      |        |            |       |    |      |
|-------------------|------|--------|------------|-------|----|------|
|                   | High | 2567.5 | Horizontal | 18.20 | 33 | Pass |
| 10 MHz<br>(16QAM) | Low  | 2505   | Horizontal | 18.84 | 33 | Pass |
|                   | Mid  | 2535   | Horizontal | 17.75 | 33 | Pass |
|                   | High | 2565   | Horizontal | 18.20 | 33 | Pass |
| 15 MHz<br>(16QAM) | Low  | 2507.5 | Horizontal | 18.17 | 33 | Pass |
|                   | Mid  | 2535   | Horizontal | 17.96 | 33 | Pass |
|                   | High | 2562.5 | Horizontal | 18.33 | 33 | Pass |
| 20 MHz<br>(16QAM) | Low  | 2510   | Horizontal | 18.41 | 33 | Pass |
|                   | Mid  | 2535   | Horizontal | 18.10 | 33 | Pass |
|                   | High | 2560   | Horizontal | 17.88 | 33 | Pass |
| 5 MHz<br>(64QAM)  | Low  | 2502.5 | Horizontal | 17.93 | 33 | Pass |
|                   | Mid  | 2535   | Horizontal | 17.21 | 33 | Pass |
|                   | High | 2567.5 | Horizontal | 17.66 | 33 | Pass |
| 10 MHz<br>(64QAM) | Low  | 2505   | Horizontal | 18.17 | 33 | Pass |
|                   | Mid  | 2535   | Horizontal | 17.16 | 33 | Pass |
|                   | High | 2565   | Horizontal | 17.49 | 33 | Pass |
| 15 MHz<br>(64QAM) | Low  | 2507.5 | Horizontal | 17.65 | 33 | Pass |
|                   | Mid  | 2535   | Horizontal | 17.39 | 33 | Pass |
|                   | High | 2562.5 | Horizontal | 17.67 | 33 | Pass |
| 20 MHz<br>(64QAM) | Low  | 2510   | Horizontal | 17.85 | 33 | Pass |
|                   | Mid  | 2535   | Horizontal | 17.50 | 33 | Pass |
|                   | High | 2560   | Horizontal | 17.17 | 33 | Pass |

| LTE Band 38       |         |                 |              |            |             |            |
|-------------------|---------|-----------------|--------------|------------|-------------|------------|
| Band width        | Channel | Frequency (MHz) | Polarization | EIRP (dBm) | Limit (dBm) | Conclusion |
| 5 MHz<br>(QPSK)   | Low     | 2572.5          | Horizontal   | 20.16      | 33          | Pass       |
|                   | Mid     | 2595            | Horizontal   | 20.25      | 33          | Pass       |
|                   | High    | 2617.5          | Horizontal   | 20.34      | 33          | Pass       |
| 10 MHz<br>(QPSK)  | Low     | 2575            | Horizontal   | 20.32      | 33          | Pass       |
|                   | Mid     | 2595            | Horizontal   | 20.13      | 33          | Pass       |
|                   | High    | 2615            | Horizontal   | 20.35      | 33          | Pass       |
| 15 MHz<br>(QPSK)  | Low     | 2577.5          | Horizontal   | 20.27      | 33          | Pass       |
|                   | Mid     | 2595            | Horizontal   | 20.35      | 33          | Pass       |
|                   | High    | 2612.5          | Horizontal   | 20.24      | 33          | Pass       |
| 20 MHz<br>(QPSK)  | Low     | 2580            | Horizontal   | 20.37      | 33          | Pass       |
|                   | Mid     | 2595            | Horizontal   | 20.44      | 33          | Pass       |
|                   | High    | 2610            | Horizontal   | 20.46      | 33          | Pass       |
| 5 MHz<br>(16QAM)  | Low     | 2572.5          | Horizontal   | 19.39      | 33          | Pass       |
|                   | Mid     | 2595            | Horizontal   | 19.60      | 33          | Pass       |
|                   | High    | 2617.5          | Horizontal   | 19.71      | 33          | Pass       |
| 10 MHz<br>(16QAM) | Low     | 2575            | Horizontal   | 19.56      | 33          | Pass       |
|                   | Mid     | 2595            | Horizontal   | 19.42      | 33          | Pass       |



|                           |      |        |            |       |    |      |
|---------------------------|------|--------|------------|-------|----|------|
|                           | High | 2615   | Horizontal | 19.75 | 33 | Pass |
| <b>15 MHz<br/>(16QAM)</b> | Low  | 2577.5 | Horizontal | 19.69 | 33 | Pass |
|                           | Mid  | 2595   | Horizontal | 19.64 | 33 | Pass |
|                           | High | 2612.5 | Horizontal | 19.70 | 33 | Pass |
| <b>20 MHz<br/>(16QAM)</b> | Low  | 2580   | Horizontal | 19.70 | 33 | Pass |
|                           | Mid  | 2595   | Horizontal | 19.85 | 33 | Pass |
|                           | High | 2610   | Horizontal | 19.75 | 33 | Pass |
| <b>5 MHz<br/>(64QAM)</b>  | Low  | 2572.5 | Horizontal | 18.90 | 33 | Pass |
|                           | Mid  | 2595   | Horizontal | 18.98 | 33 | Pass |
|                           | High | 2617.5 | Horizontal | 19.26 | 33 | Pass |
| <b>10 MHz<br/>(64QAM)</b> | Low  | 2575   | Horizontal | 18.98 | 33 | Pass |
|                           | Mid  | 2595   | Horizontal | 18.92 | 33 | Pass |
|                           | High | 2615   | Horizontal | 19.13 | 33 | Pass |
| <b>15 MHz<br/>(64QAM)</b> | Low  | 2577.5 | Horizontal | 19.26 | 33 | Pass |
|                           | Mid  | 2595   | Horizontal | 19.16 | 33 | Pass |
|                           | High | 2612.5 | Horizontal | 19.13 | 33 | Pass |
| <b>20 MHz<br/>(64QAM)</b> | Low  | 2580   | Horizontal | 19.23 | 33 | Pass |
|                           | Mid  | 2595   | Horizontal | 19.34 | 33 | Pass |
|                           | High | 2610   | Horizontal | 19.13 | 33 | Pass |

Note: 1. EIRP= E.R.P+2.15

## 5.3 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 51 kHz, VBW is set to 160 kHz for WCDMA Band IV.

RBW is set to 51 kHz, VBW is set to 160 kHz for LTE Band 4 (1.4MHz).

RBW is set to 100 kHz, VBW is set to 300 kHz for LTE Band 4 (3MHz).

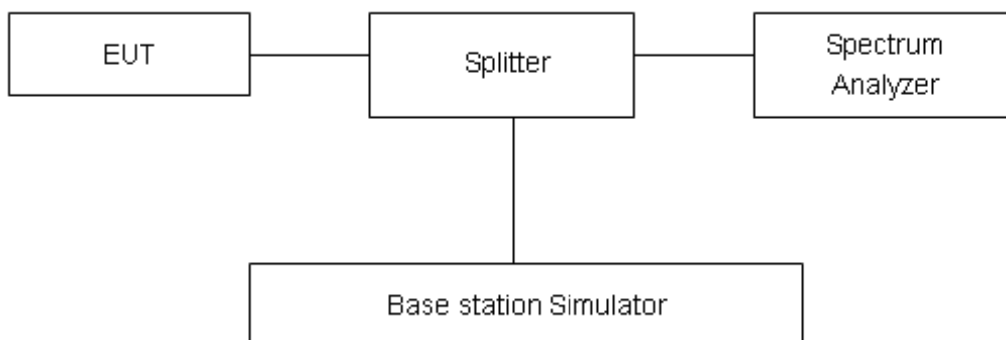
RBW is set to 100 kHz, VBW is set to 300 kHz for LTE Band 4/7/38 (5MHz).

RBW is set to 300 kHz, VBW is set to 1MHz for LTE Band 4/7/38 (10MHz).

RBW is set to 300 kHz, VBW is set to 1MHz for LTE Band 4/7/38(15MHz/20MHz).

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 Result**

| Mode                | Channel | Frequency (MHz) | 99% Power Bandwidth(MHz) | -26dBc Bandwidth(MHz) |
|---------------------|---------|-----------------|--------------------------|-----------------------|
| WCDMA Band IV (RMC) | 1312    | 1712.4          | 4.1659                   | 4.703                 |
|                     | 1413    | 1732.6          | 4.1936                   | 4.723                 |
|                     | 1513    | 1752.6          | 4.1793                   | 4.686                 |

| LTE Band 4 |            |                 |         |                 |                          |                       |
|------------|------------|-----------------|---------|-----------------|--------------------------|-----------------------|
| RB         | Modulation | Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Power Bandwidth(MHz) | -26dBc Bandwidth(MHz) |
| 100%       | QPSK       | 1.4             | 19957   | 1710.7          | 1.1202                   | 1.296                 |
|            |            |                 | 20175   | 1732.5          | 1.1212                   | 1.287                 |
|            |            |                 | 20393   | 1754.3          | 1.1303                   | 1.288                 |
|            |            | 3               | 19965   | 1711.5          | 2.7410                   | 3.045                 |
|            |            |                 | 20175   | 1732.5          | 2.7394                   | 3.052                 |
|            |            |                 | 20385   | 1753.5          | 2.7479                   | 3.045                 |
|            |            | 5               | 19975   | 1712.5          | 4.5360                   | 5.028                 |
|            |            |                 | 20175   | 1732.5          | 4.5281                   | 5.002                 |
|            |            |                 | 20375   | 1752.5          | 4.5234                   | 4.982                 |
|            |            | 10              | 20000   | 1715            | 9.0970                   | 10.090                |
|            |            |                 | 20175   | 1732.5          | 9.1084                   | 10.020                |
|            |            |                 | 20350   | 1750            | 9.0599                   | 9.973                 |
|            |            | 15              | 20025   | 1717.5          | 13.5060                  | 14.950                |
|            |            |                 | 20175   | 1732.5          | 13.5240                  | 14.940                |
|            |            |                 | 20325   | 1747.5          | 13.5840                  | 15.020                |
|            |            | 20              | 20050   | 1720            | 17.9280                  | 19.640                |
|            |            |                 | 20175   | 1732.5          | 17.9950                  | 19.660                |
|            |            |                 | 20300   | 1745            | 17.9570                  | 19.660                |
|            | 16QAM      | 1.4             | 19957   | 1710.7          | 1.1242                   | 1.285                 |
|            |            |                 | 20175   | 1732.5          | 1.1227                   | 1.279                 |
|            |            |                 | 20393   | 1754.3          | 1.1078                   | 1.275                 |
|            |            | 3               | 19965   | 1711.5          | 2.7496                   | 3.072                 |
|            |            |                 | 20175   | 1732.5          | 2.7456                   | 3.015                 |
|            |            |                 | 20385   | 1753.5          | 2.7378                   | 3.032                 |
|            |            | 5               | 19975   | 1712.5          | 4.5218                   | 4.971                 |
|            |            |                 | 20175   | 1732.5          | 4.5379                   | 5.016                 |
|            |            |                 | 20375   | 1752.5          | 4.5229                   | 4.964                 |
|            |            | 10              | 20000   | 1715            | 9.0484                   | 9.982                 |
|            |            |                 | 20175   | 1732.5          | 9.1008                   | 10.040                |



|  |       |     |       |        |         |        |
|--|-------|-----|-------|--------|---------|--------|
|  |       | 15  | 20350 | 1750   | 9.0672  | 9.978  |
|  |       |     | 20025 | 1717.5 | 13.4910 | 14.860 |
|  |       |     | 20175 | 1732.5 | 13.5540 | 14.960 |
|  |       |     | 20325 | 1747.5 | 13.5510 | 14.920 |
|  |       | 20  | 20050 | 1720   | 17.9870 | 19.620 |
|  |       |     | 20175 | 1732.5 | 17.9690 | 19.490 |
|  |       |     | 20300 | 1745   | 17.9870 | 19.620 |
|  | 64QAM | 1.4 | 19957 | 1710.7 | 1.1307  | 1.272  |
|  |       |     | 20175 | 1732.5 | 1.1244  | 1.291  |
|  |       |     | 20393 | 1754.3 | 1.1238  | 1.284  |
|  |       | 3   | 19965 | 1711.5 | 2.7350  | 3.054  |
|  |       |     | 20175 | 1732.5 | 2.7518  | 3.050  |
|  |       |     | 20385 | 1753.5 | 2.7386  | 3.021  |
|  |       | 5   | 19975 | 1712.5 | 4.5164  | 4.981  |
|  |       |     | 20175 | 1732.5 | 4.5287  | 4.950  |
|  |       |     | 20375 | 1752.5 | 4.5255  | 4.995  |
|  |       | 10  | 20000 | 1715   | 9.0585  | 10.030 |
|  |       |     | 20175 | 1732.5 | 9.0810  | 10.010 |
|  |       |     | 20350 | 1750   | 9.0610  | 10.070 |
|  |       | 15  | 20025 | 1717.5 | 13.5260 | 14.950 |
|  |       |     | 20175 | 1732.5 | 13.5220 | 15.070 |
|  |       |     | 20325 | 1747.5 | 13.5080 | 15.030 |
|  |       | 20  | 20050 | 1720   | 17.9100 | 19.710 |
|  |       |     | 20175 | 1732.5 | 17.9760 | 19.750 |
|  |       |     | 20300 | 1745   | 17.9590 | 19.640 |

| LTE Band 7 |            |                 |         |                 |                          |                       |
|------------|------------|-----------------|---------|-----------------|--------------------------|-----------------------|
| RB         | Modulation | Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Power Bandwidth(MHz) | -26dBc Bandwidth(MHz) |
| 100%       | QPSK       | 5               | 20775   | 2502.5          | 4.5359                   | 4.965                 |
|            |            |                 | 21100   | 2535            | 4.5337                   | 5.004                 |
|            |            |                 | 21425   | 2567.5          | 4.5184                   | 4.969                 |
|            |            | 10              | 20800   | 2505            | 9.0466                   | 9.990                 |
|            |            |                 | 21100   | 2535            | 9.0634                   | 9.994                 |
|            |            |                 | 21400   | 2565            | 9.0548                   | 10.040                |
|            |            | 15              | 20825   | 2507.5          | 13.5160                  | 14.920                |
|            |            |                 | 21100   | 2535            | 13.5440                  | 14.980                |
|            |            |                 | 21375   | 2562.5          | 13.5160                  | 14.870                |
|            |            | 20              | 20850   | 2510            | 17.9710                  | 19.580                |
|            |            |                 | 21100   | 2535            | 17.9680                  | 19.640                |



|  |       |    |       |        |         |        |
|--|-------|----|-------|--------|---------|--------|
|  | 16QAM | 5  | 21350 | 2560   | 17.9540 | 19.620 |
|  |       |    | 20775 | 2502.5 | 4.5296  | 5.011  |
|  |       |    | 21100 | 2535   | 4.5163  | 4.967  |
|  |       | 10 | 21425 | 2567.5 | 4.5182  | 4.968  |
|  |       |    | 20800 | 2505   | 9.0459  | 9.992  |
|  |       |    | 21100 | 2535   | 9.0498  | 10.020 |
|  |       | 15 | 21400 | 2565   | 9.0539  | 9.987  |
|  |       |    | 20825 | 2507.5 | 13.5260 | 15.000 |
|  |       |    | 21100 | 2535   | 13.5140 | 14.940 |
|  |       | 20 | 21375 | 2562.5 | 13.4650 | 14.740 |
|  |       |    | 20850 | 2510   | 17.9440 | 19.580 |
|  |       |    | 21100 | 2535   | 17.9310 | 19.570 |
|  | 64QAM | 5  | 21350 | 2560   | 17.9600 | 19.680 |
|  |       |    | 20775 | 2502.5 | 4.5288  | 4.985  |
|  |       |    | 21100 | 2535   | 4.5131  | 4.959  |
|  |       | 10 | 21425 | 2567.5 | 4.5363  | 4.976  |
|  |       |    | 20800 | 2505   | 9.0528  | 10.030 |
|  |       |    | 21100 | 2535   | 9.0485  | 9.993  |
|  |       | 15 | 21400 | 2565   | 9.0686  | 10.090 |
|  |       |    | 20825 | 2507.5 | 13.5040 | 14.890 |
|  |       |    | 21100 | 2535   | 13.5650 | 14.930 |
|  |       | 20 | 21375 | 2562.5 | 13.4900 | 14.950 |
|  |       |    | 20850 | 2510   | 17.9270 | 19.670 |
|  |       |    | 21100 | 2535   | 17.9530 | 19.640 |
|  |       |    | 21350 | 2560   | 17.9700 | 19.570 |

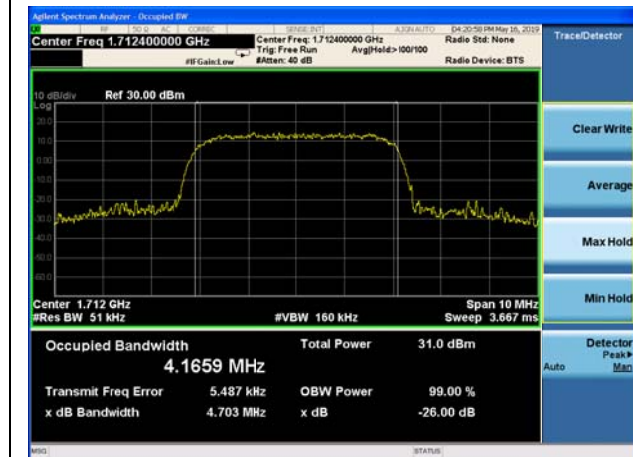
| LTE Band 38 |            |                 |         |                 |                          |                       |
|-------------|------------|-----------------|---------|-----------------|--------------------------|-----------------------|
| RB          | Modulation | Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Power Bandwidth(MHz) | -26dBc Bandwidth(MHz) |
| 100%        | QPSK       | 5               | 37775   | 2572.5          | 4.5162                   | 5.048                 |
|             |            |                 | 38000   | 2595            | 4.5096                   | 4.925                 |
|             |            |                 | 38225   | 2617.5          | 4.5152                   | 5.027                 |
|             |            | 10              | 37800   | 2575            | 9.1105                   | 10.220                |
|             |            |                 | 38000   | 2595            | 9.0464                   | 9.912                 |
|             |            |                 | 38200   | 2615            | 9.0961                   | 10.070                |
|             |            | 15              | 37825   | 2577.5          | 13.5040                  | 14.850                |
|             |            |                 | 38000   | 2595            | 13.4770                  | 14.960                |
|             |            |                 | 38175   | 2612.5          | 13.4920                  | 14.820                |
|             |            | 20              | 37850   | 2580            | 17.9690                  | 19.630                |
|             |            |                 | 38000   | 2595            | 17.9190                  | 19.520                |



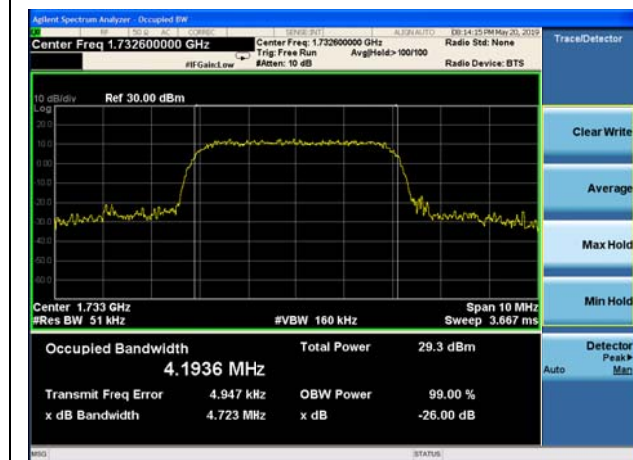


|  |       |    |       |        |         |        |
|--|-------|----|-------|--------|---------|--------|
|  | 16QAM | 5  | 38150 | 2610   | 18.0120 | 19.360 |
|  |       |    | 37775 | 2572.5 | 4.5183  | 4.961  |
|  |       |    | 38000 | 2595   | 4.5160  | 5.046  |
|  |       | 10 | 38225 | 2617.5 | 4.5197  | 4.941  |
|  |       |    | 37800 | 2575   | 9.0213  | 10.190 |
|  |       |    | 38000 | 2595   | 9.0535  | 10.000 |
|  |       | 15 | 38200 | 2615   | 9.0479  | 9.921  |
|  |       |    | 37825 | 2577.5 | 13.4570 | 14.830 |
|  |       |    | 38000 | 2595   | 13.5150 | 14.600 |
|  |       | 20 | 38175 | 2612.5 | 13.4880 | 14.700 |
|  |       |    | 37850 | 2580   | 17.9720 | 19.660 |
|  |       |    | 38000 | 2595   | 17.9170 | 19.330 |
|  | 64QAM | 5  | 38150 | 2610   | 17.9190 | 19.570 |
|  |       |    | 37775 | 2572.5 | 4.5118  | 4.975  |
|  |       |    | 38000 | 2595   | 4.5118  | 4.967  |
|  |       | 10 | 38225 | 2617.5 | 4.5371  | 4.949  |
|  |       |    | 37800 | 2575   | 9.0595  | 10.050 |
|  |       |    | 38000 | 2595   | 9.0464  | 9.956  |
|  |       | 15 | 38200 | 2615   | 9.0860  | 10.000 |
|  |       |    | 37825 | 2577.5 | 13.5240 | 15.150 |
|  |       |    | 38000 | 2595   | 13.4900 | 14.740 |
|  |       | 20 | 38175 | 2612.5 | 13.4820 | 14.760 |
|  |       |    | 37850 | 2580   | 17.9810 | 19.500 |
|  |       |    | 38000 | 2595   | 17.9340 | 19.750 |
|  |       |    | 38150 | 2610   | 17.9740 | 19.570 |

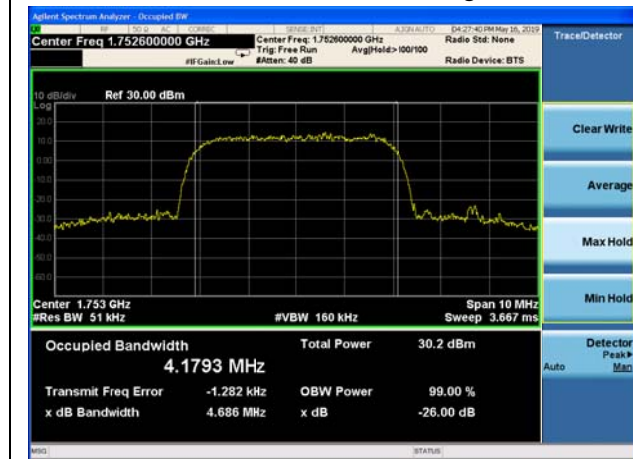
### WCDMA Band IV CH-Low



### WCDMA Band IV CH Middle

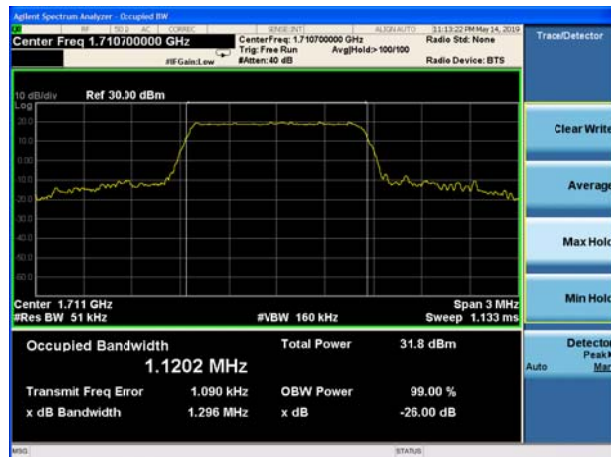


### WCDMA Band IV CH High

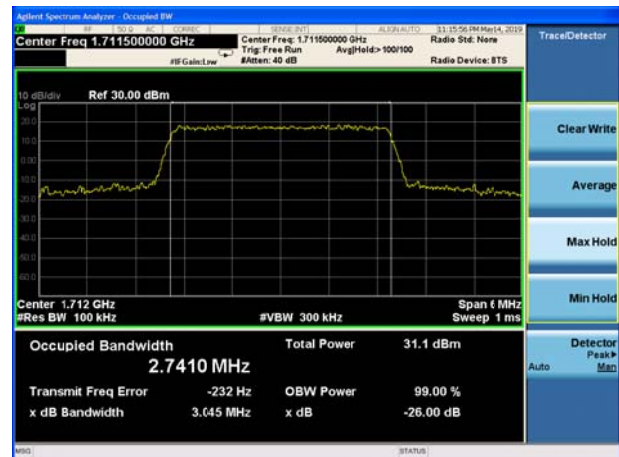




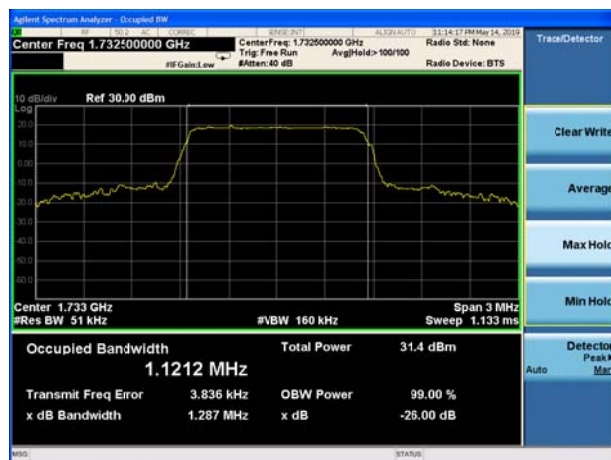
## LTE Band 4 QPSK 1.4MHz CH-Low



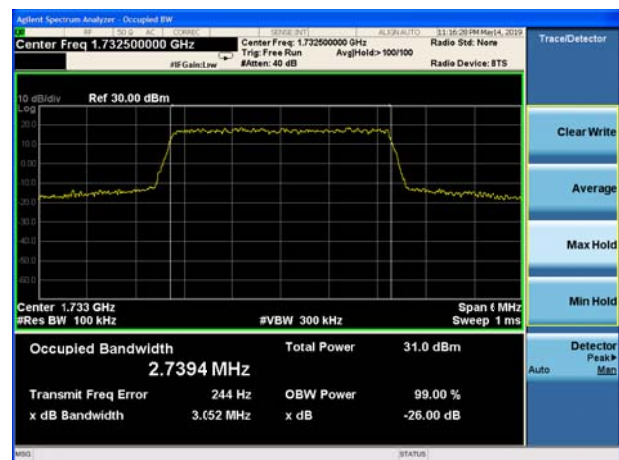
## LTE Band 4 QPSK 3MHz CH-Low



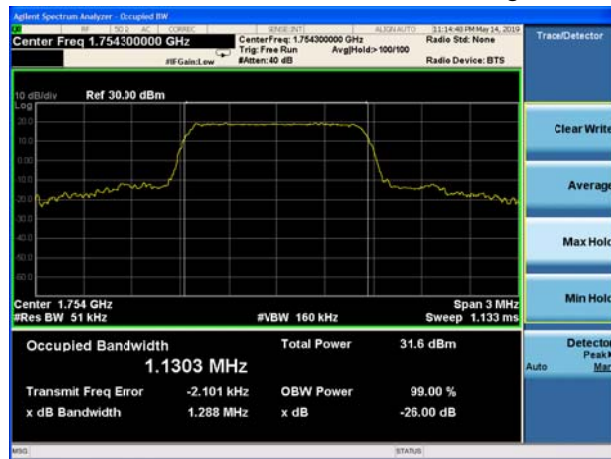
## LTE Band 4 QPSK 1.4MHz CH-Middle



## LTE Band 4 QPSK 3MHz CH-Middle



## LTE Band 4 QPSK 1.4MHz CH-High

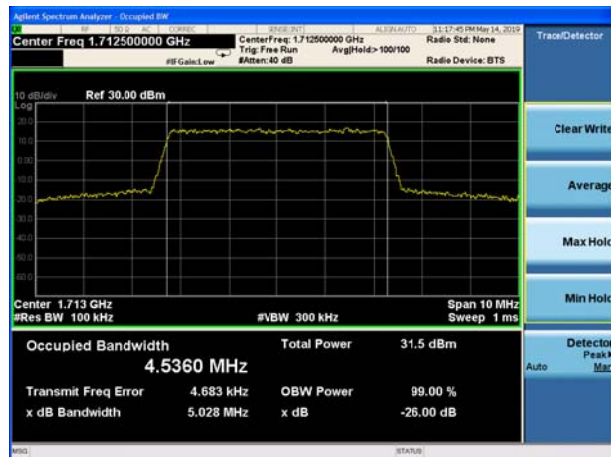


## LTE Band 4 QPSK 3MHz CH-High





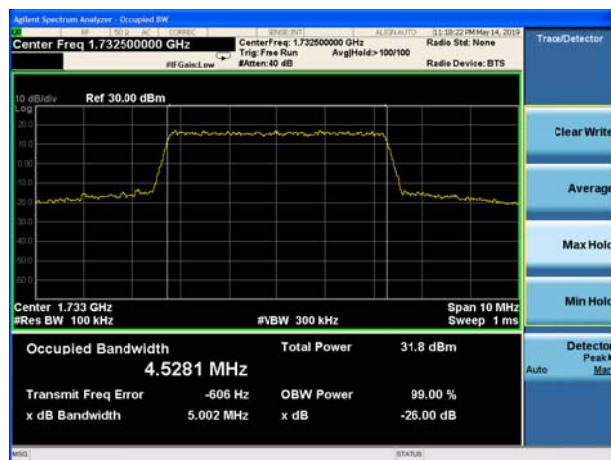
## LTE Band 4 QPSK 5MHz CH-Low



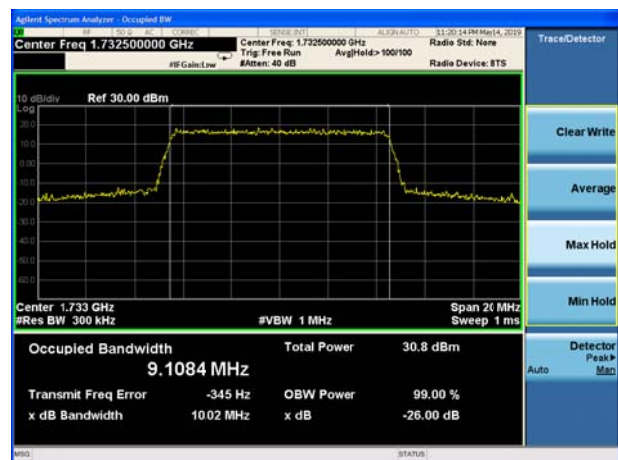
## LTE Band 4 QPSK 10MHz CH-Low



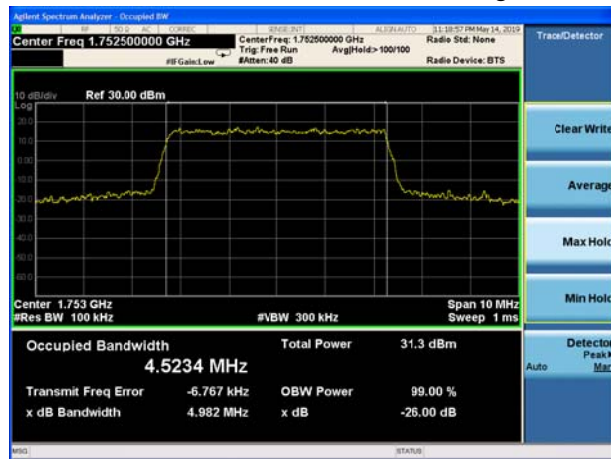
## LTE Band 4 QPSK 5MHz CH-Middle



## LTE Band 4 QPSK 10MHz CH-Middle



## LTE Band 4 QPSK 5MHz CH-High



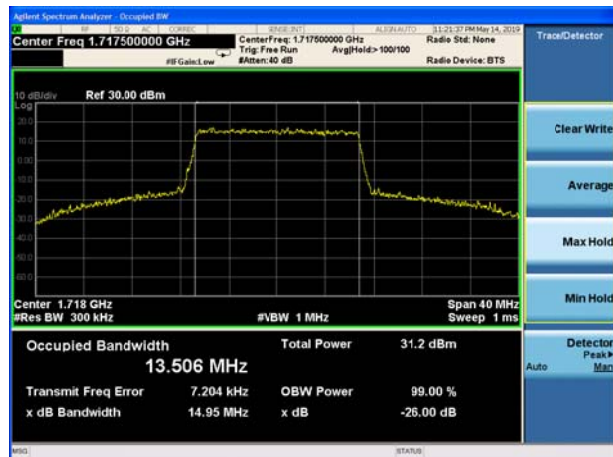
## LTE Band 4 QPSK 10MHz CH-High



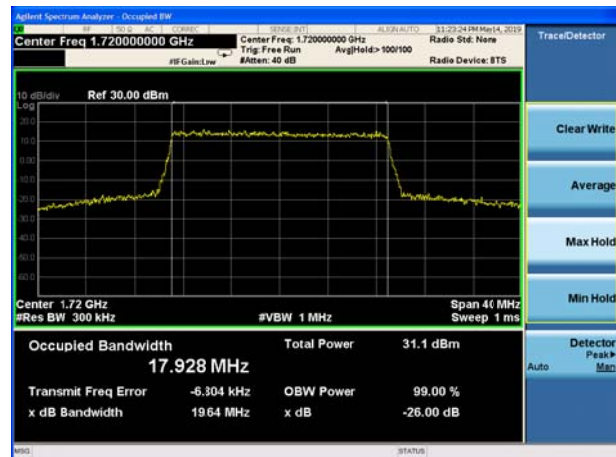




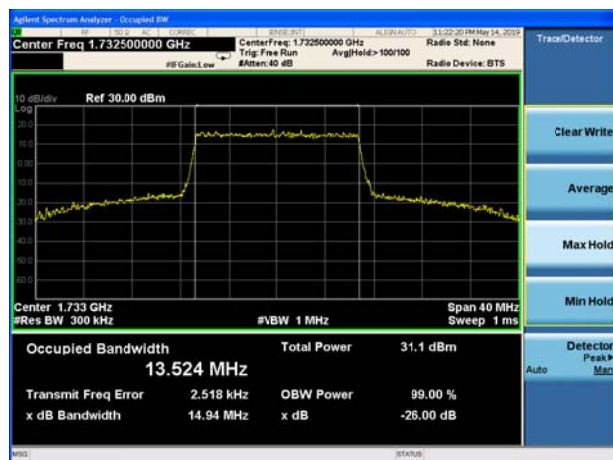
## LTE Band 4 QPSK 15MHz CH-Low



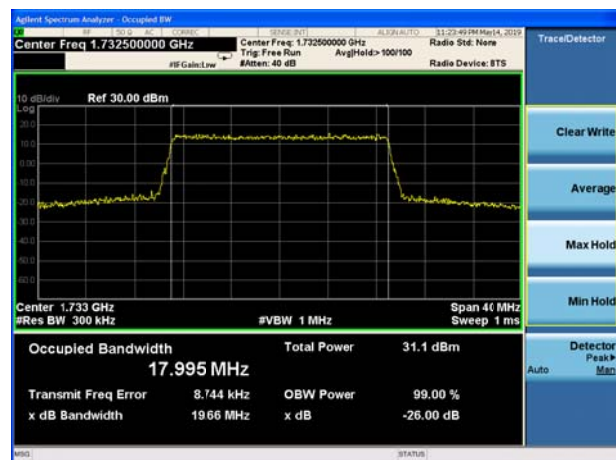
## LTE Band 4 QPSK 20MHz CH-Low



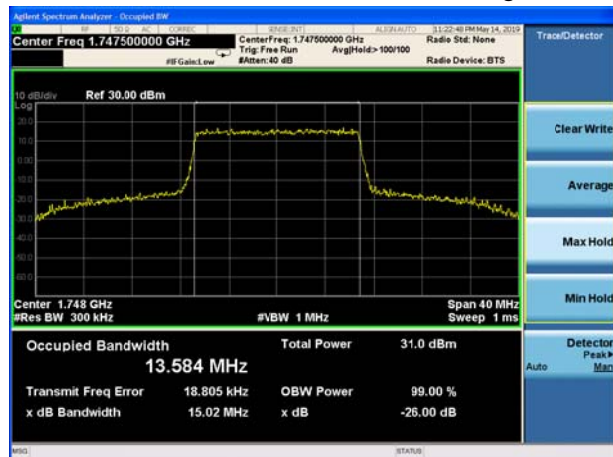
## LTE Band 4 QPSK 15MHz CH-Middle



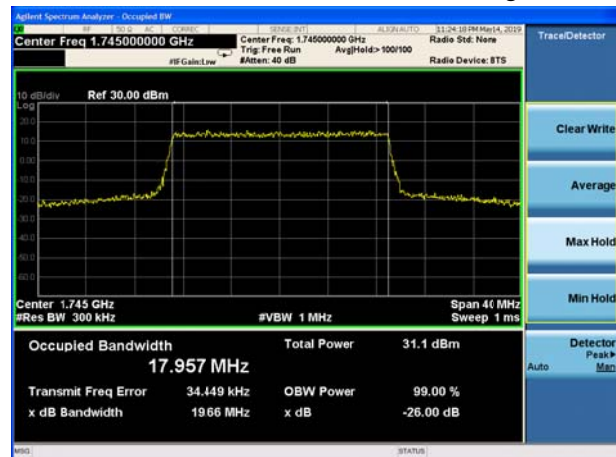
## LTE Band 4 QPSK 20MHz CH-Middle



## LTE Band 4 QPSK 15MHz CH-High

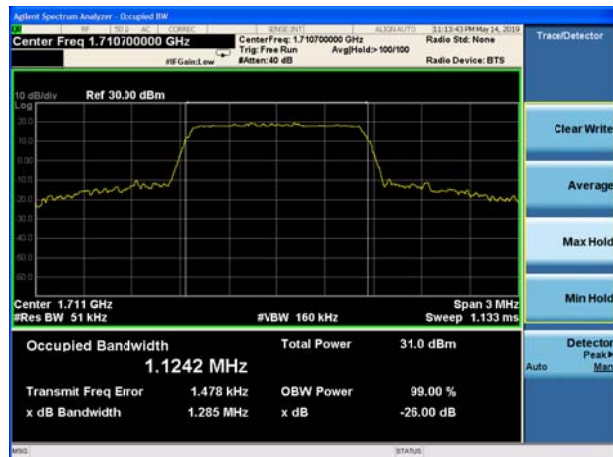


## LTE Band 4 QPSK 20MHz CH-High





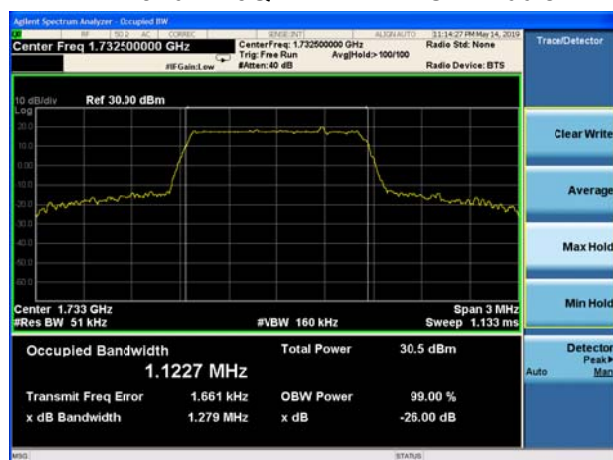
## LTE Band 4 16QAM 1.4MHz CH-Low



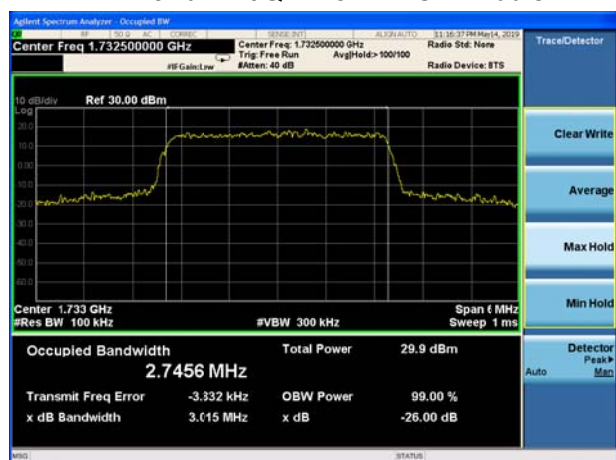
## LTE Band 4 16QAM 3MHz CH-Low



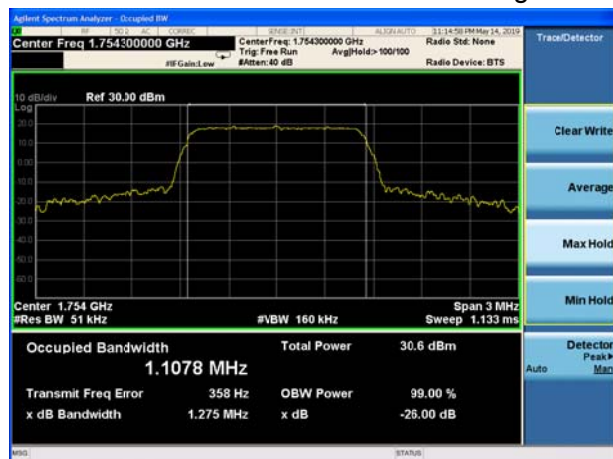
## LTE Band 4 16QAM 1.4MHz CH-Middle



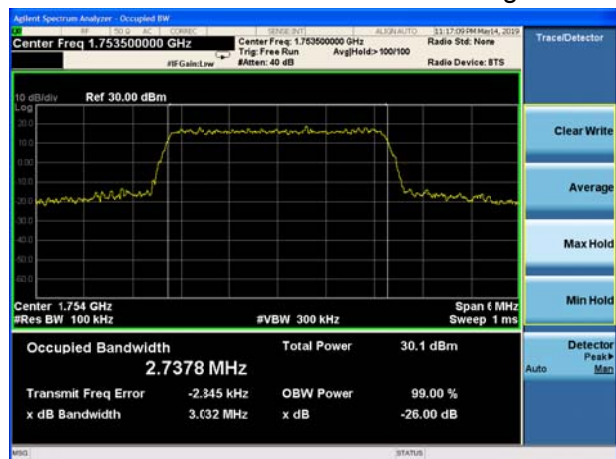
## LTE Band 4 16QAM 3MHz CH-Middle



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

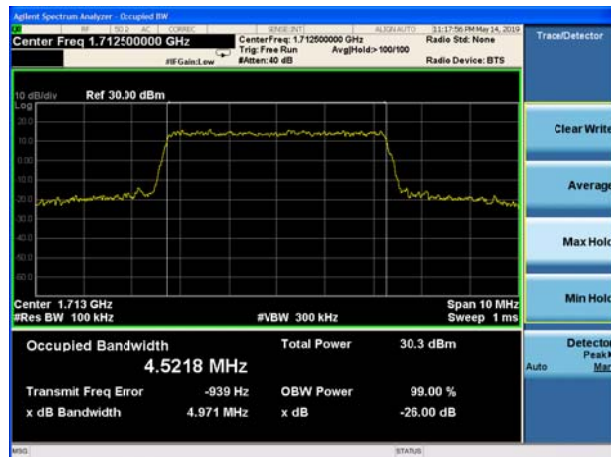


## LTE Band 4 16QAM 3MHz CH-High





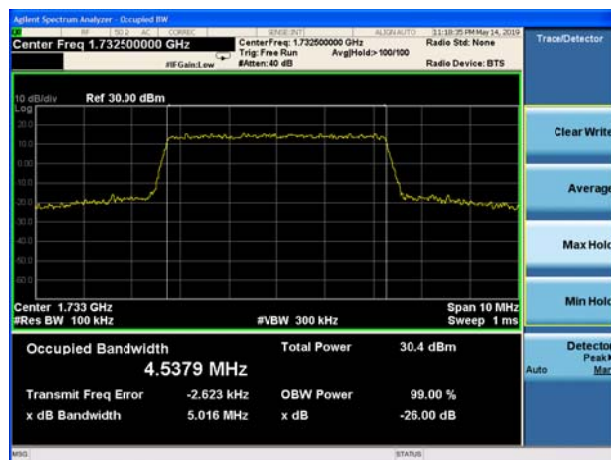
## LTE Band 4 16QAM 5MHz CH-Low



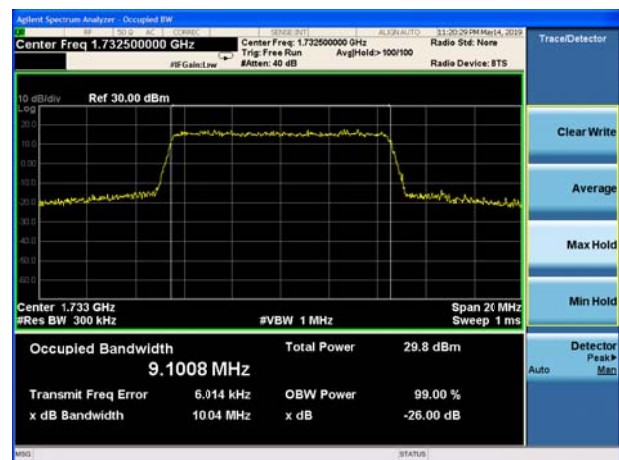
## LTE Band 4 16QAM 10MHz CH-Low



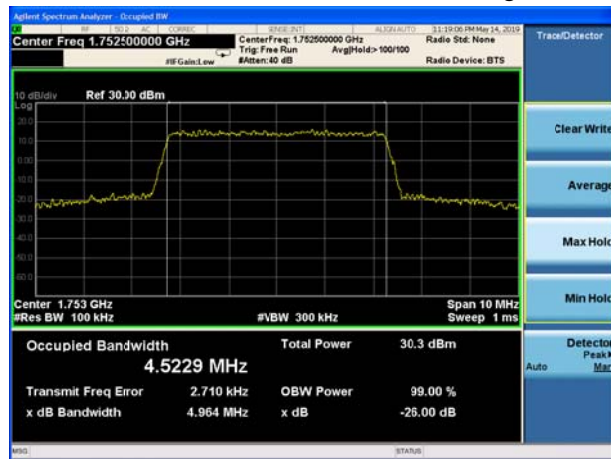
## LTE Band 4 16QAM 5MHz CH-Middle



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



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



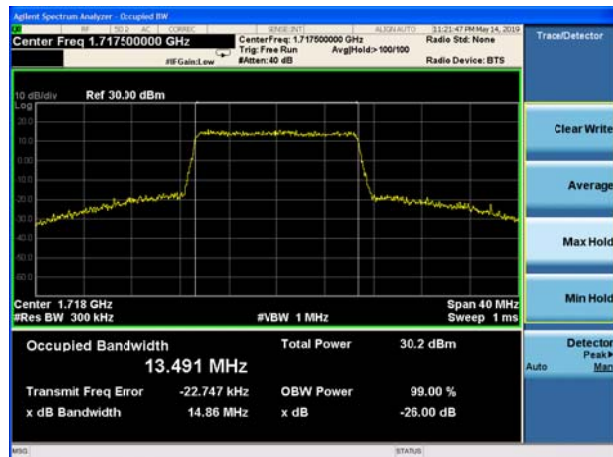
## LTE Band 4 16QAM 10MHz CH-High



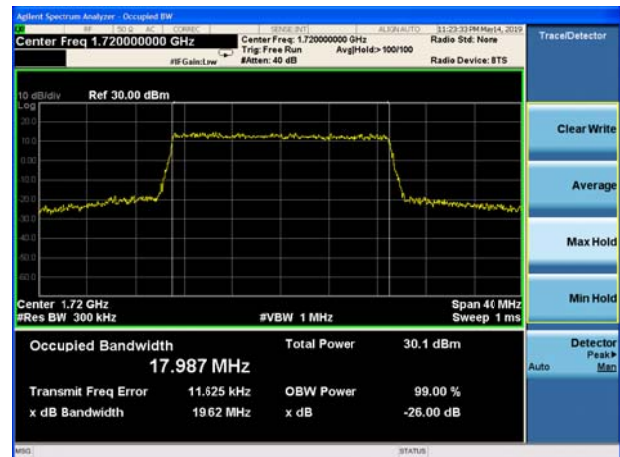




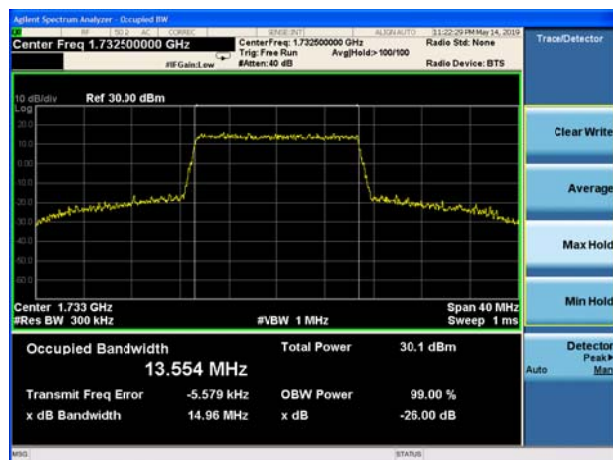
## LTE Band 4 16QAM 15MHz CH-Low



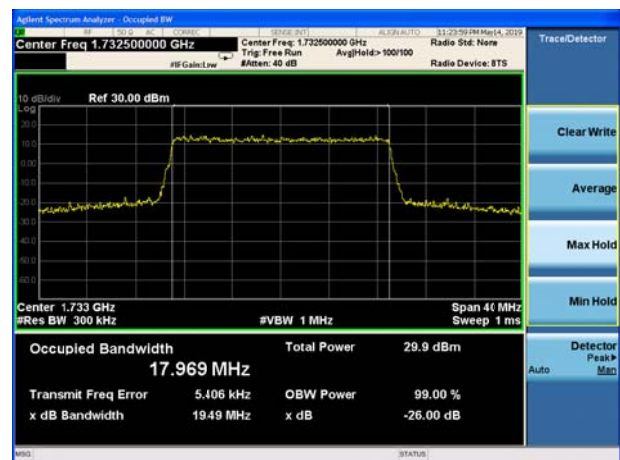
## LTE Band 4 16QAM 20MHz CH-Low



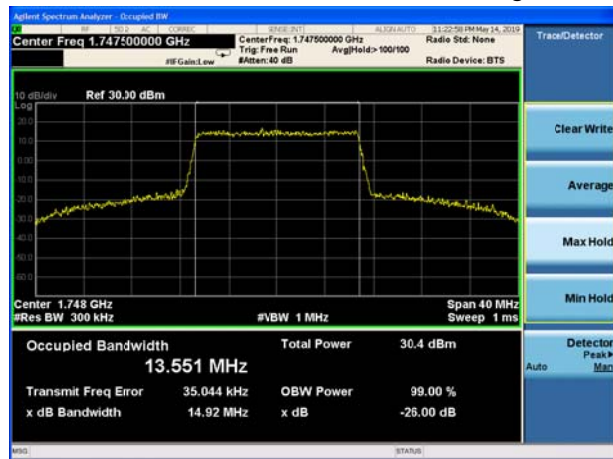
## LTE Band 4 16QAM 15MHz CH-Middle



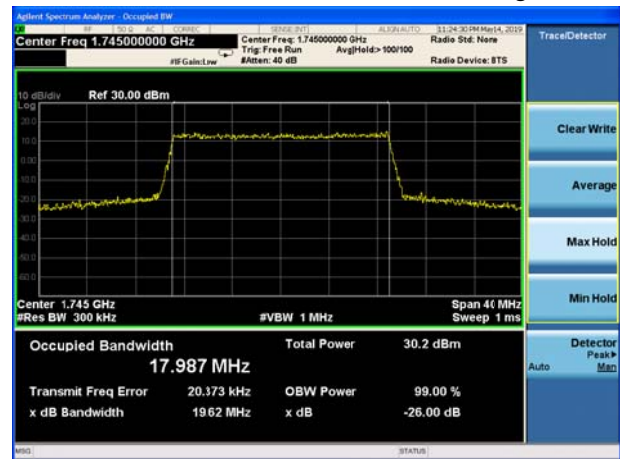
## LTE Band 4 16QAM 20MHz CH-Middle



## LTE Band 4 16QAM 15MHz CH-High



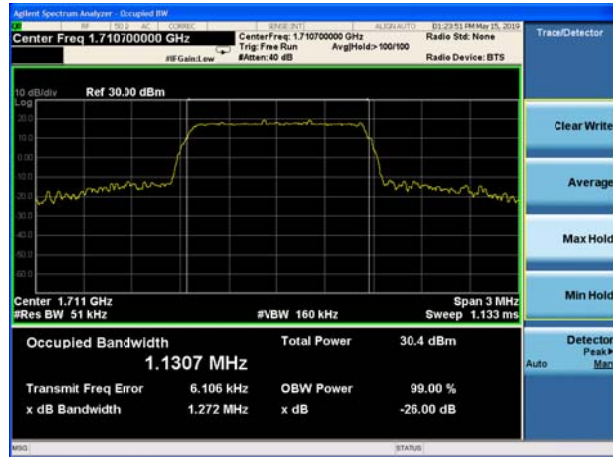
## LTE Band 4 16QAM 20MHz CH-High



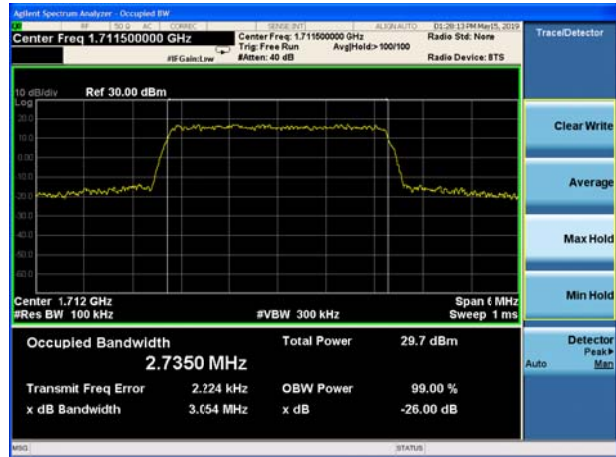




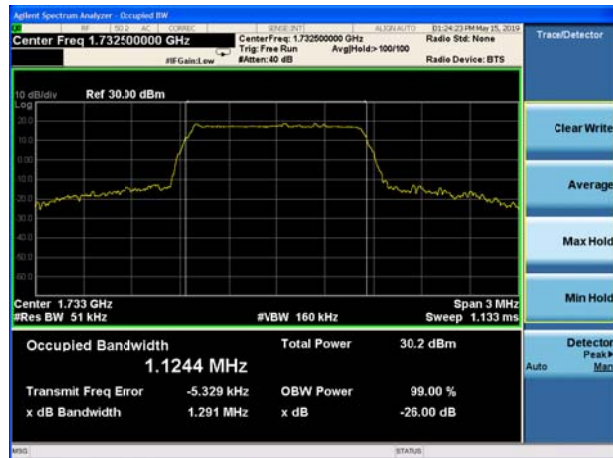
## LTE Band 4 64QAM 1.4MHz CH-Low



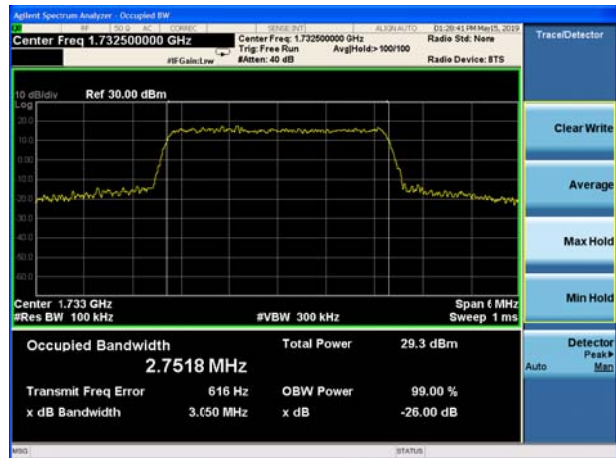
## LTE Band 4 64QAM 3MHz CH-Low



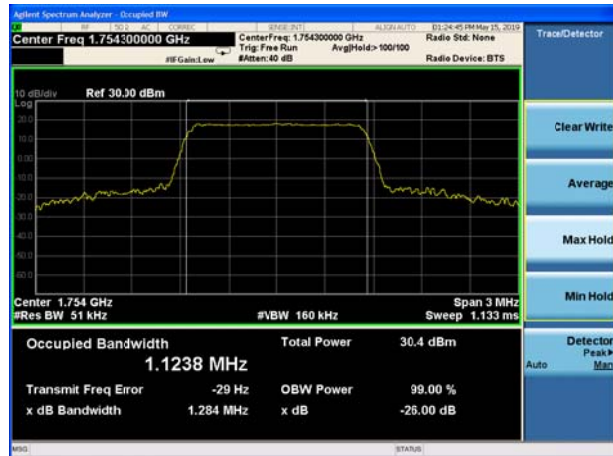
## LTE Band 4 64QAM 1.4MHz CH-Middle



## LTE Band 4 64QAM 3MHz CH-Middle



## LTE Band 4 64QAM 1.4MHz CH-High

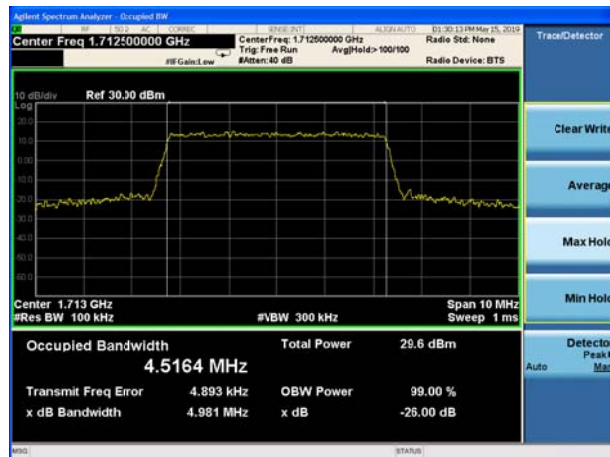


## LTE Band 4 64QAM 3MHz CH-High

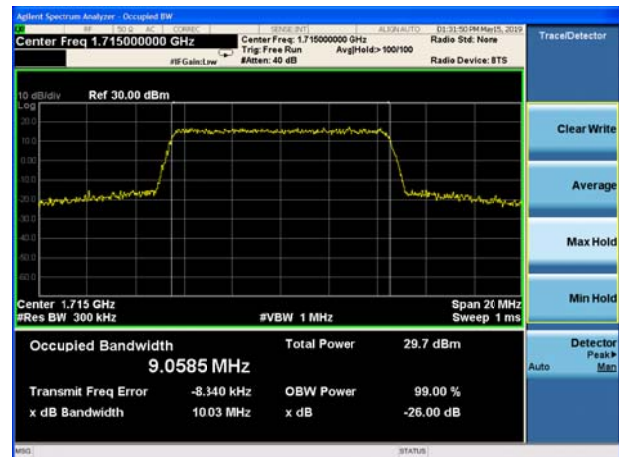




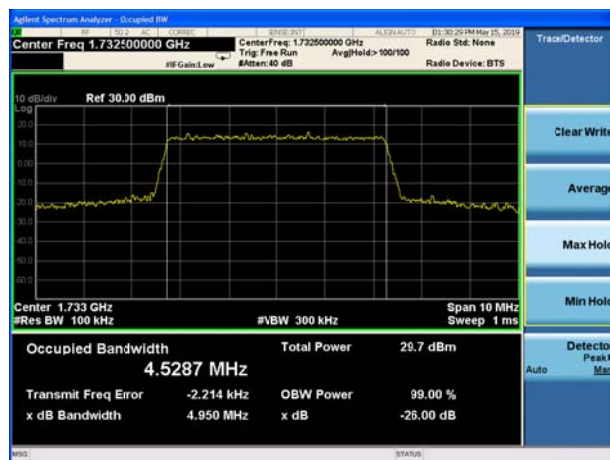
## LTE Band 4 64QAM 5MHz CH-Low



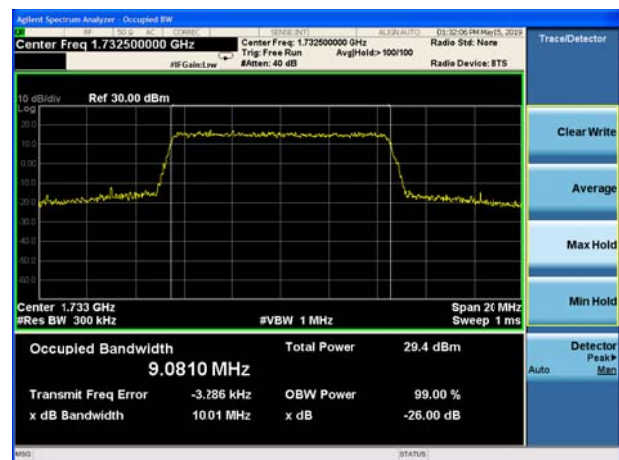
## LTE Band 4 64QAM 10MHz CH-Low



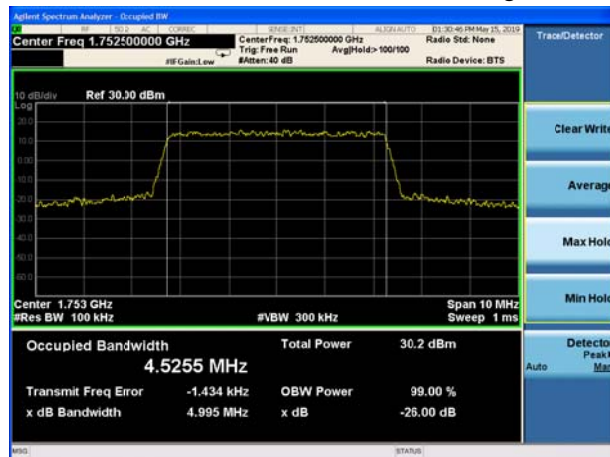
## LTE Band 4 64QAM 5MHz CH-Middle



## LTE Band 4 64QAM 10MHz CH-Middle



## LTE Band 4 64QAM 5MHz CH-High

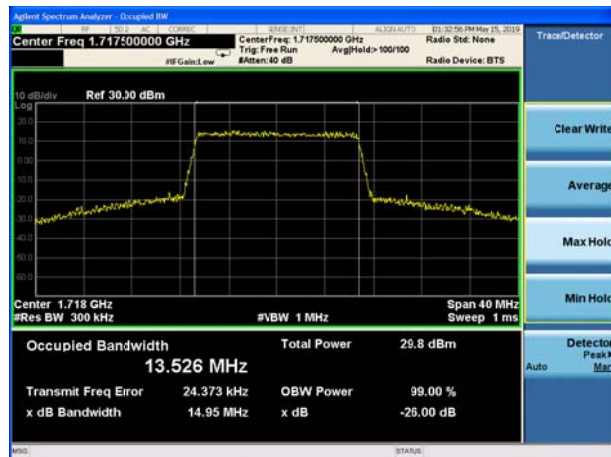


## LTE Band 4 64QAM 10MHz CH-High

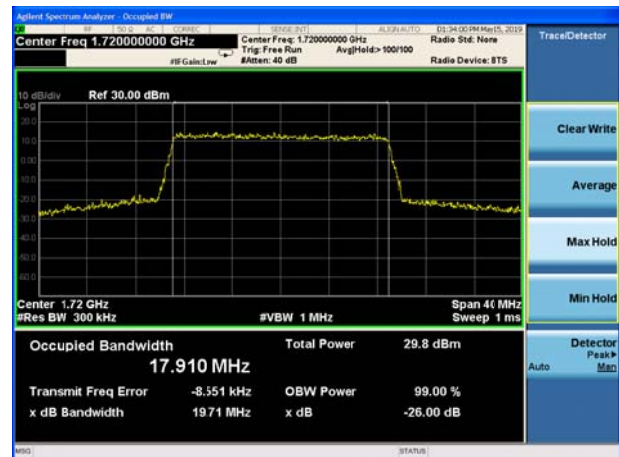




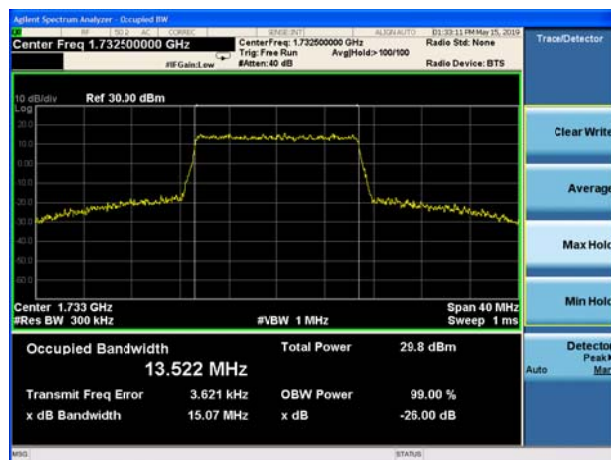
## LTE Band 4 64QAM 15MHz CH-Low



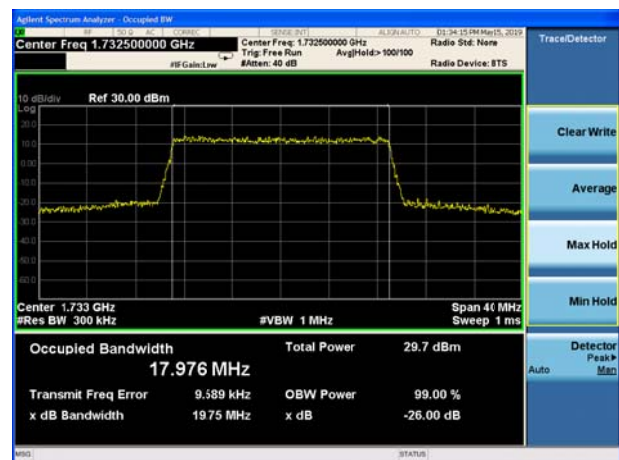
## LTE Band 4 64QAM 20MHz CH-Low



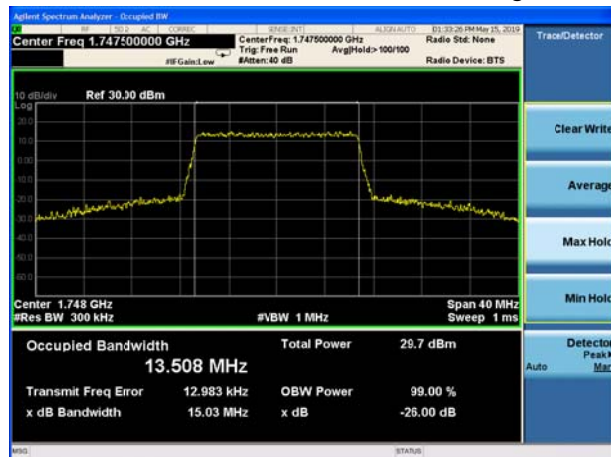
## LTE Band 4 64QAM 15MHz CH-Middle



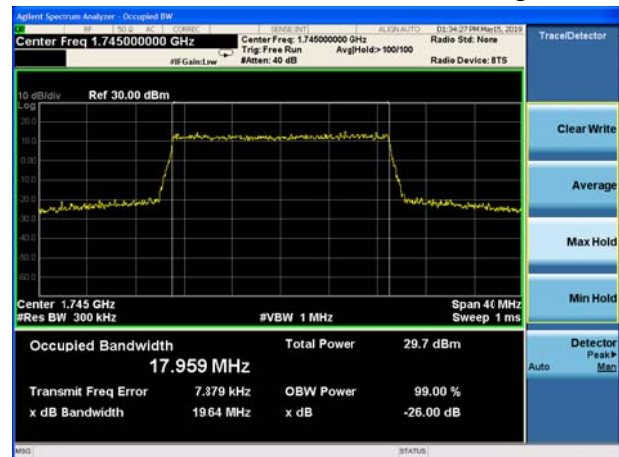
## LTE Band 4 64QAM 20MHz CH-Middle



## LTE Band 4 64QAM 15MHz CH-High



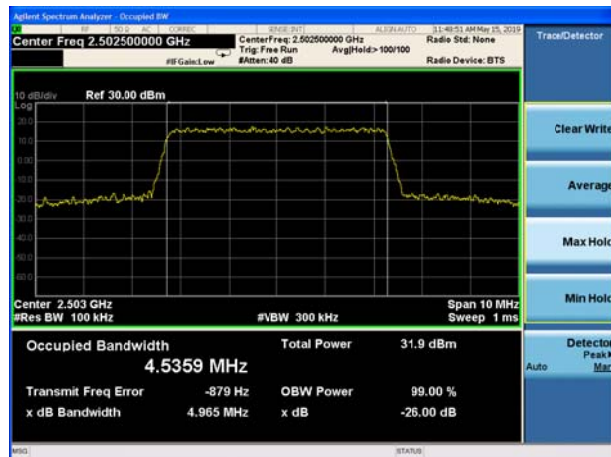
## LTE Band 4 64QAM 20MHz CH-High



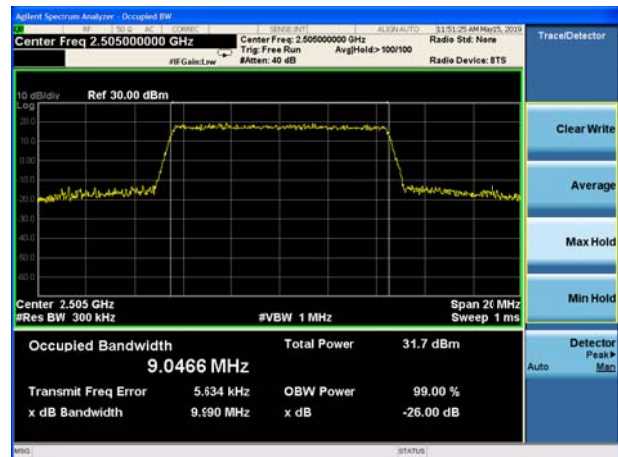




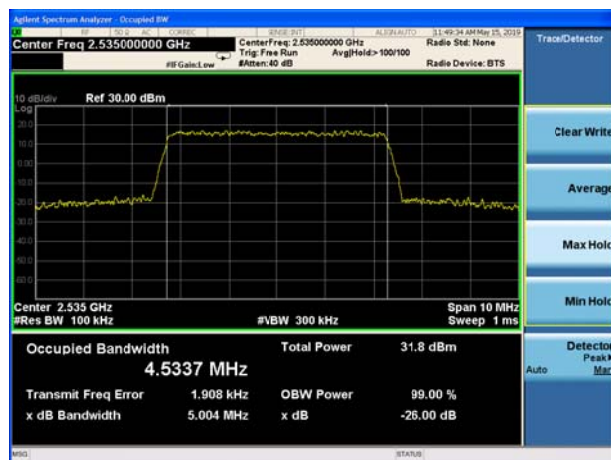
## LTE Band 7 QPSK 5MHz CH-Low



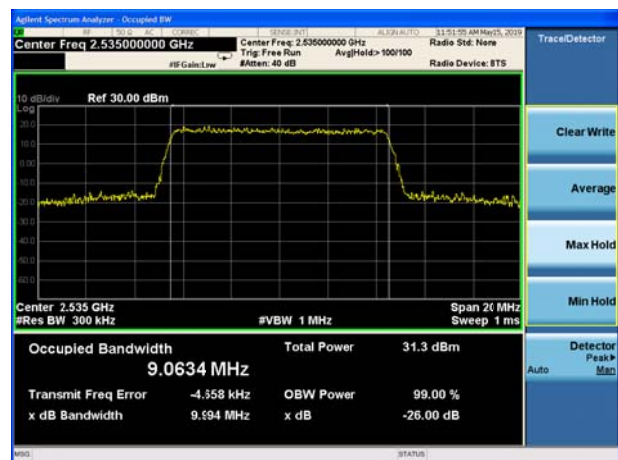
## LTE Band 7 QPSK 10MHz CH-Low



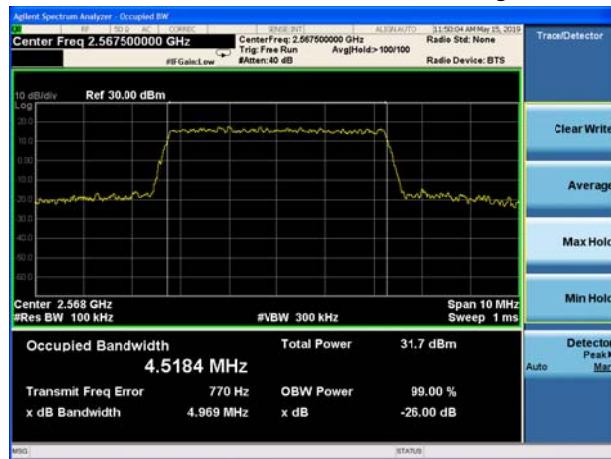
## LTE Band 7 QPSK 5MHz CH-Middle



## LTE Band 7 QPSK 10MHz CH-Middle



## LTE Band 7 QPSK 5MHz CH-High

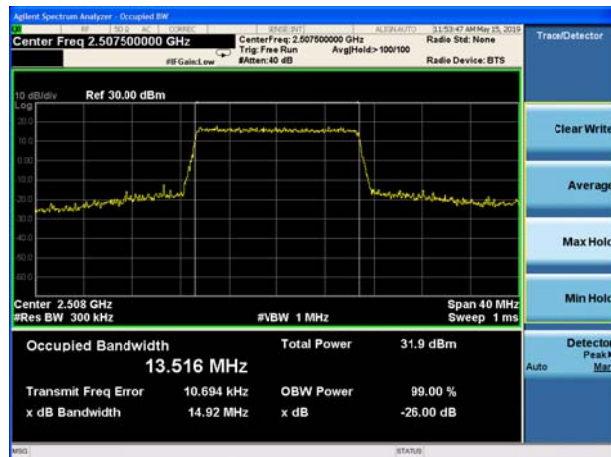


## LTE Band 7 QPSK 10MHz CH-High

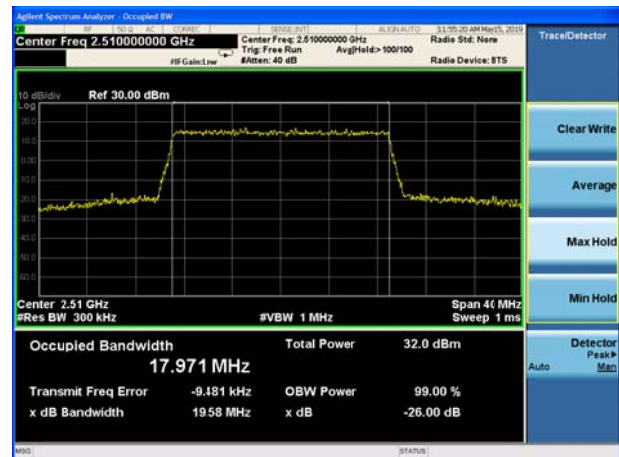




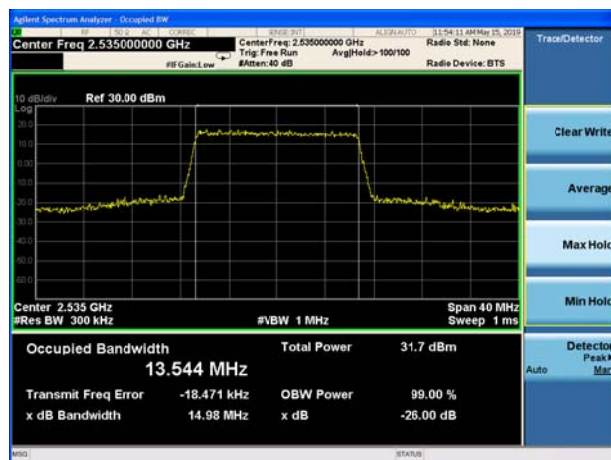
## LTE Band 7 QPSK 15MHz CH-Low



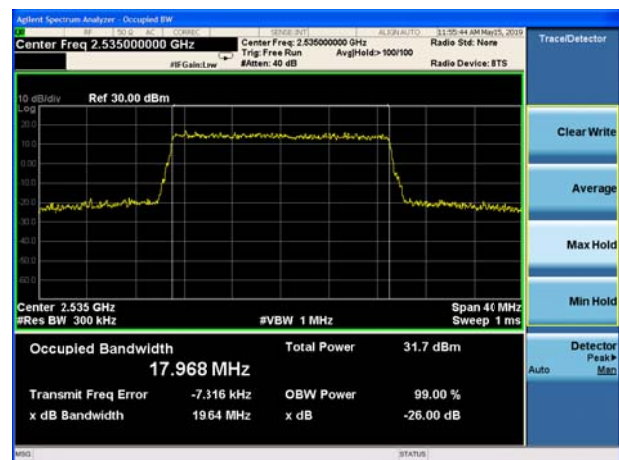
## LTE Band 7 QPSK 20MHz CH-Low



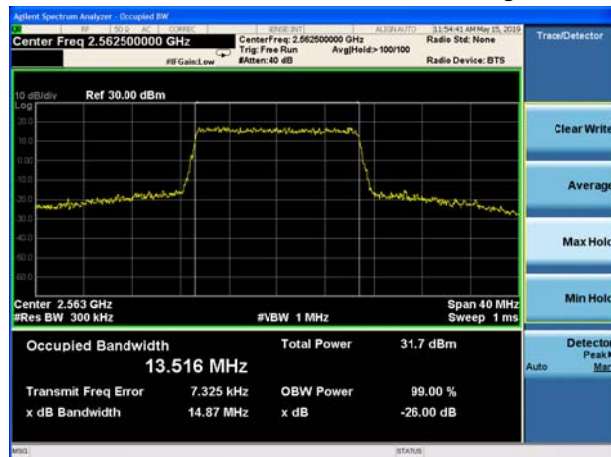
## LTE Band 7 QPSK 15MHz CH-Middle



## LTE Band 7 QPSK 20MHz CH-Middle



## LTE Band 7 QPSK 15MHz CH-High

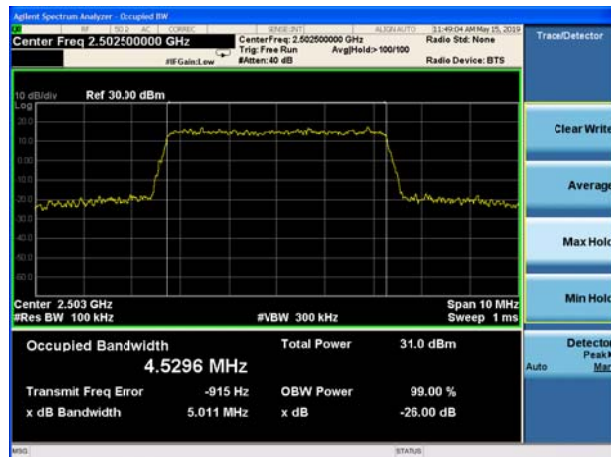


## LTE Band 7 QPSK 20MHz CH-High

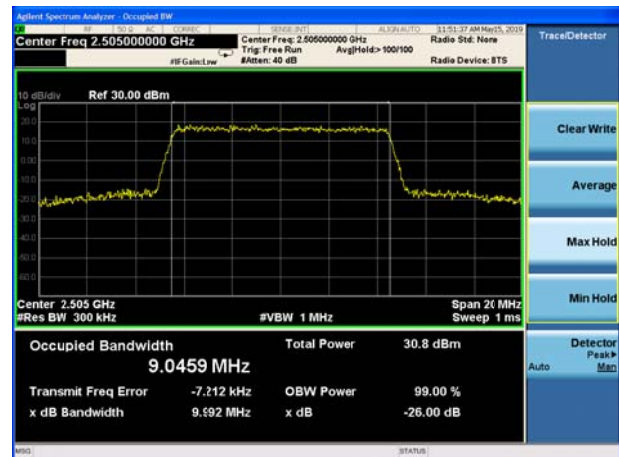




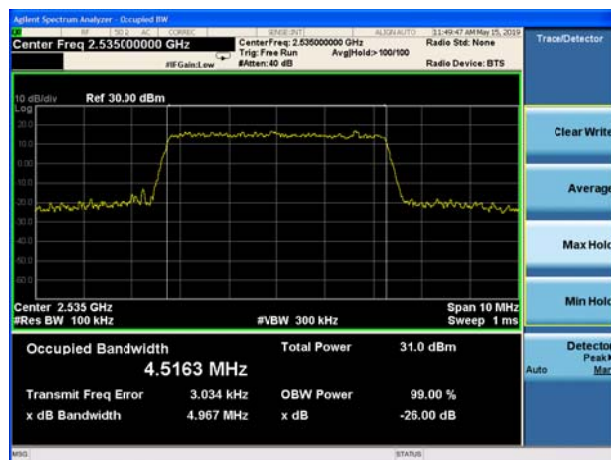
## LTE Band 7 16QAM 5MHz CH-Low



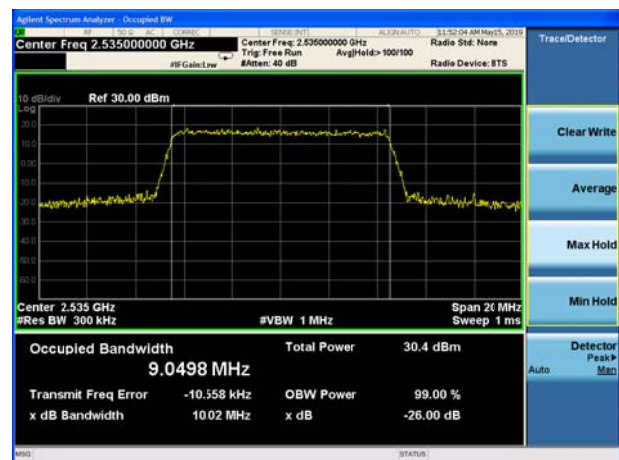
## LTE Band 7 16QAM 10MHz CH-Low



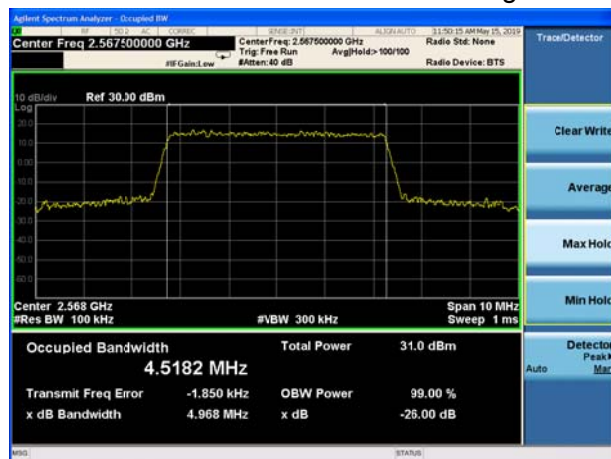
## LTE Band 7 16QAM 5MHz CH-Middle



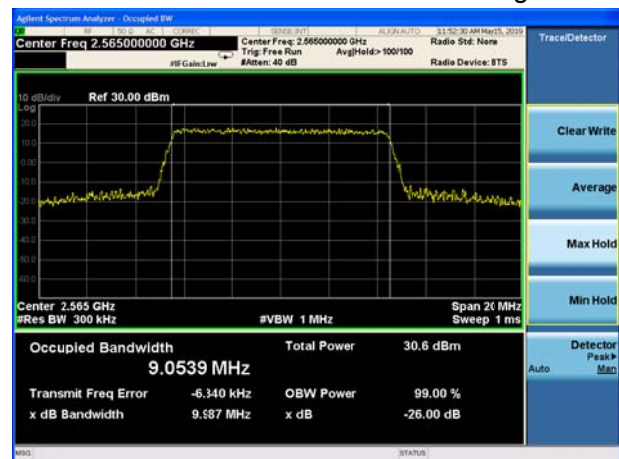
## LTE Band 7 16QAM 10MHz CH-Middle



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



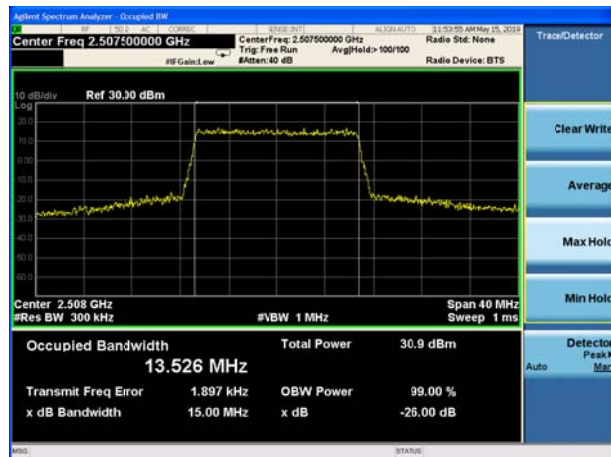
## LTE Band 7 16QAM 10MHz CH-High



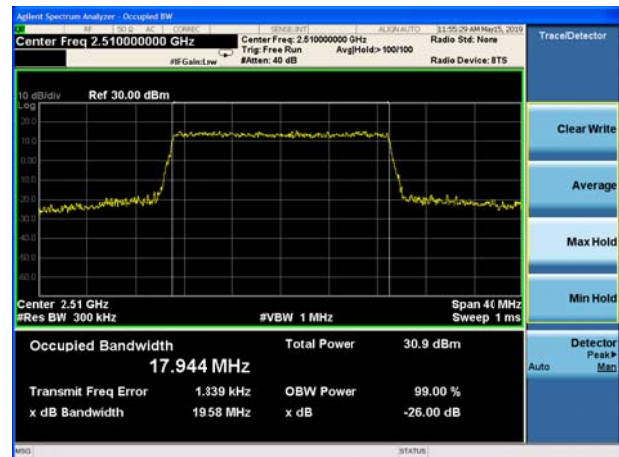




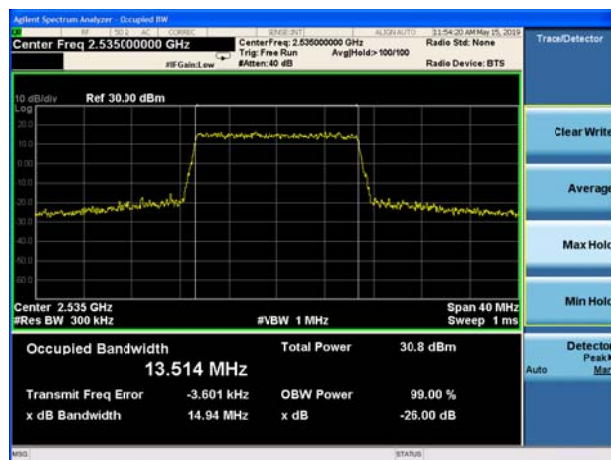
## LTE Band 7 16QAM 15MHz CH-Low



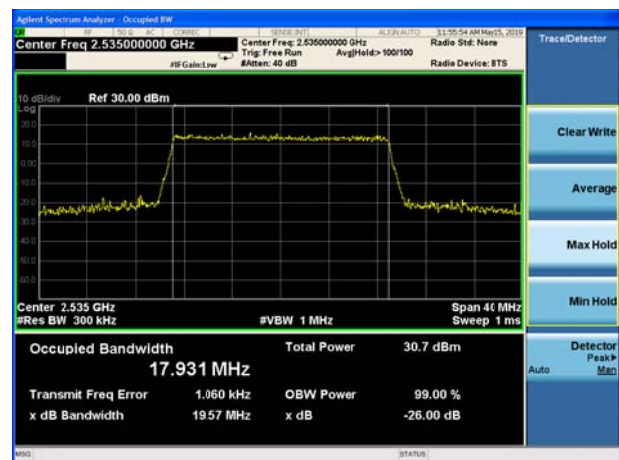
## LTE Band 7 16QAM 20MHz CH-Low



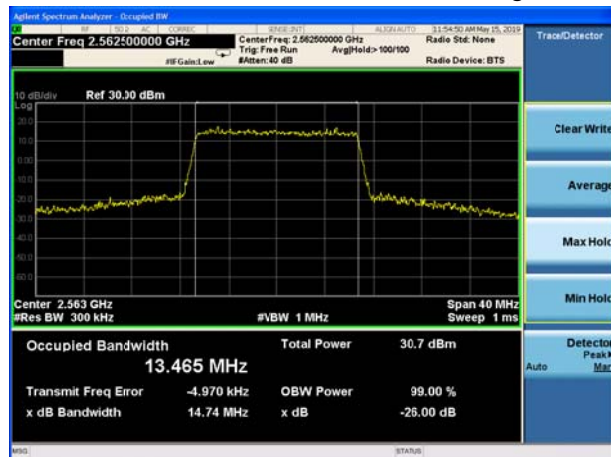
## LTE Band 7 16QAM 15MHz CH-Middle



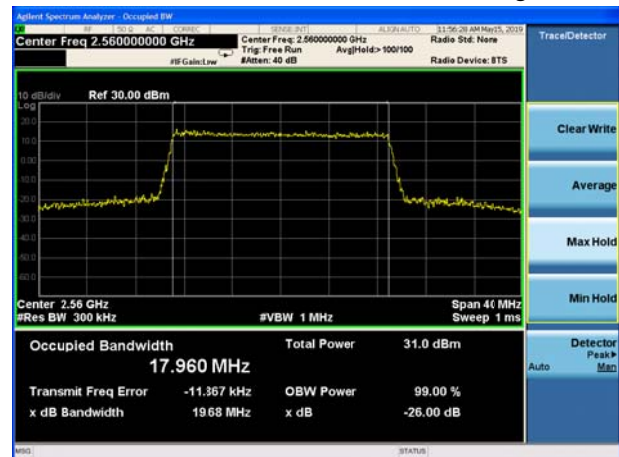
## LTE Band 7 16QAM 20MHz CH-Middle



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

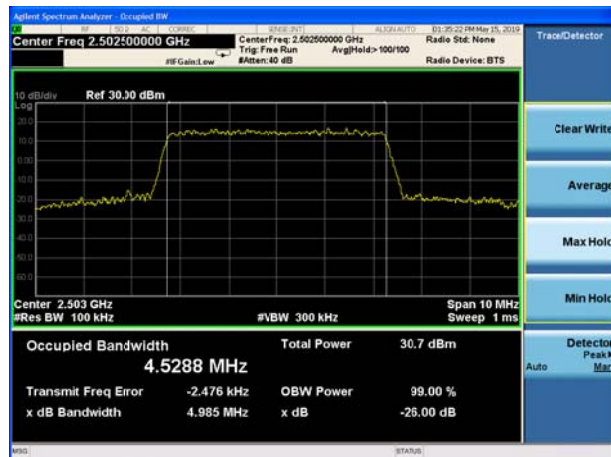


## LTE Band 7 16QAM 20MHz CH-High





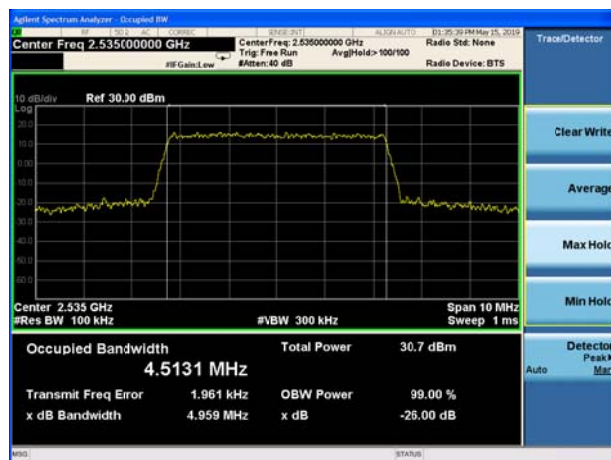
## LTE Band 7 64QAM 5MHz CH-Low



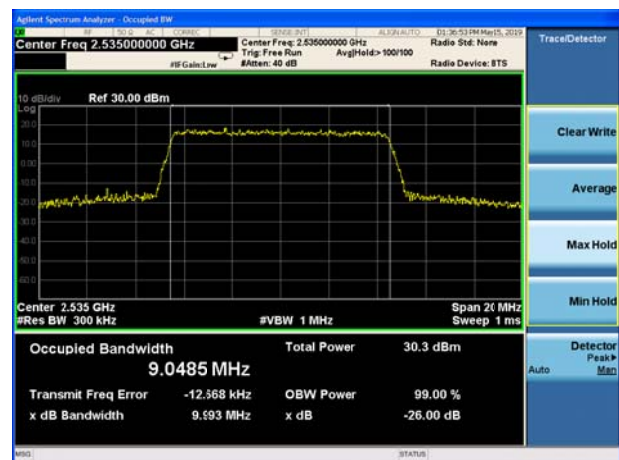
## LTE Band 7 64QAM 10MHz CH-Low



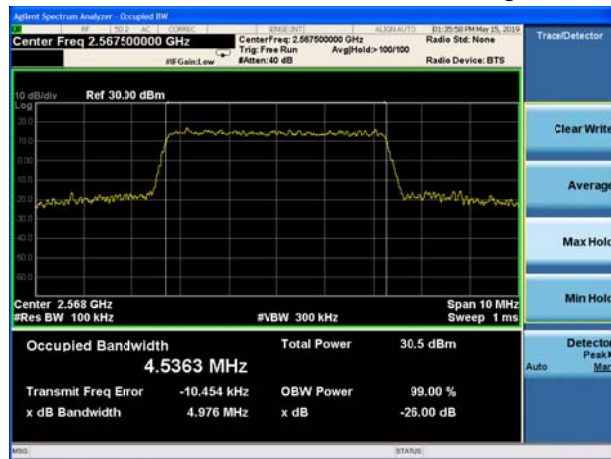
## LTE Band 7 64QAM 5MHz CH-Middle



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



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



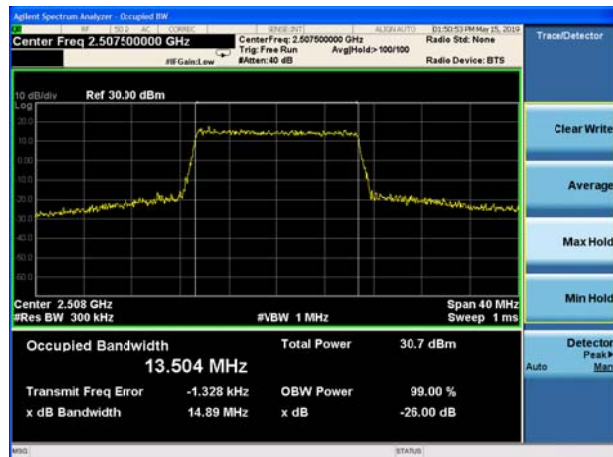
## LTE Band 7 64QAM 10MHz CH-High



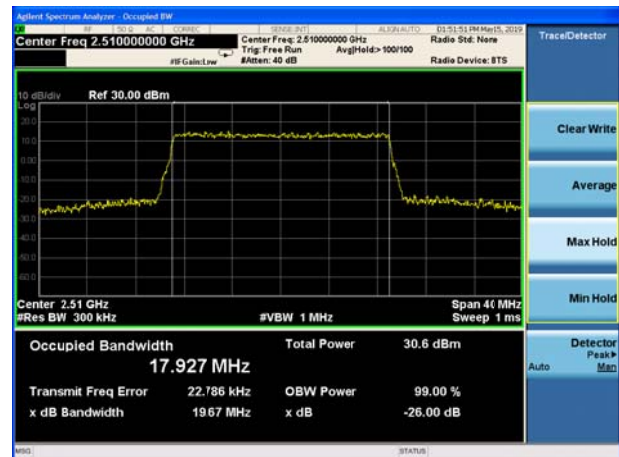




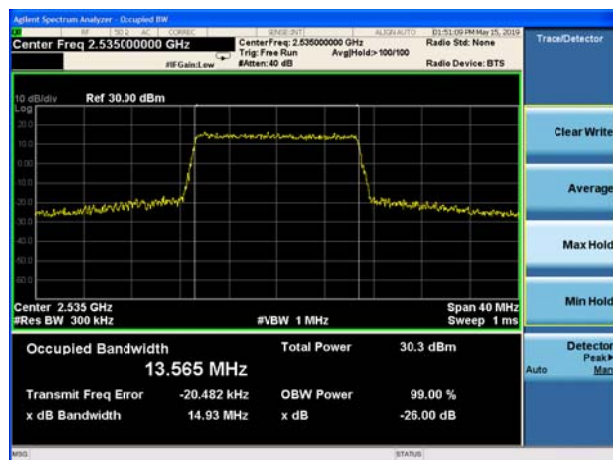
## LTE Band 7 64QAM 15MHz CH-Low



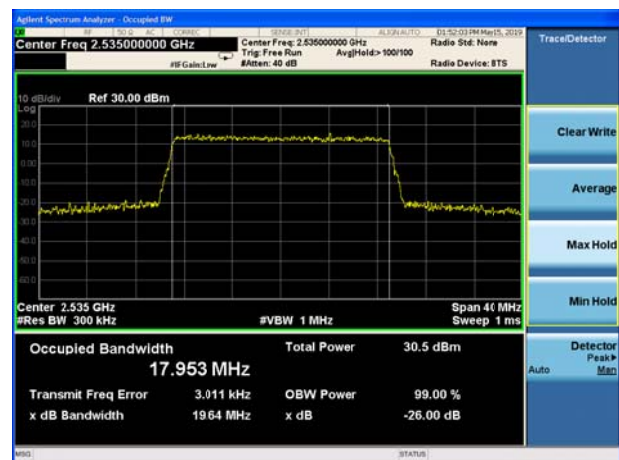
## LTE Band 7 64QAM 20MHz CH-Low



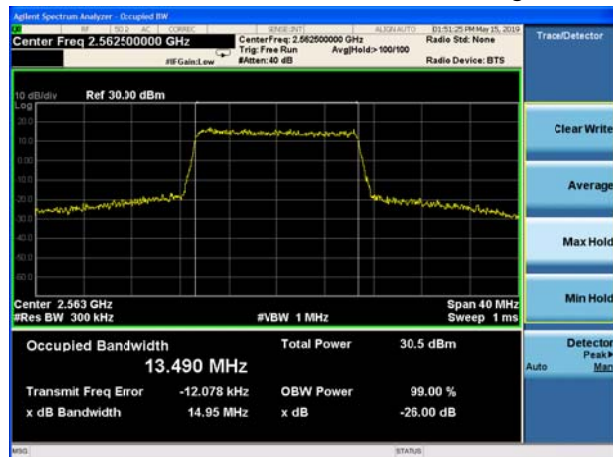
## LTE Band 7 64QAM 15MHz CH-Middle



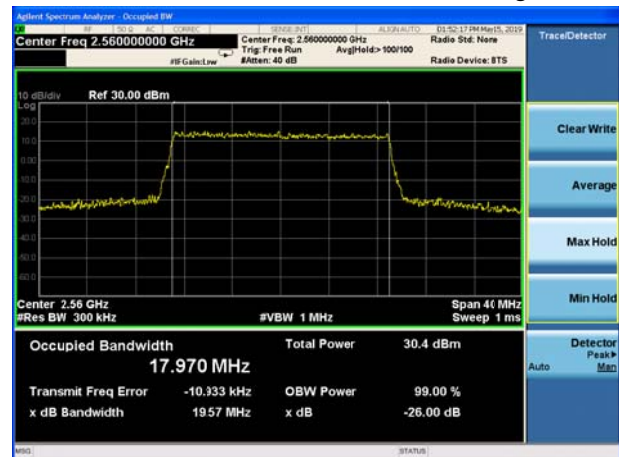
## LTE Band 7 64QAM 20MHz CH-Middle



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

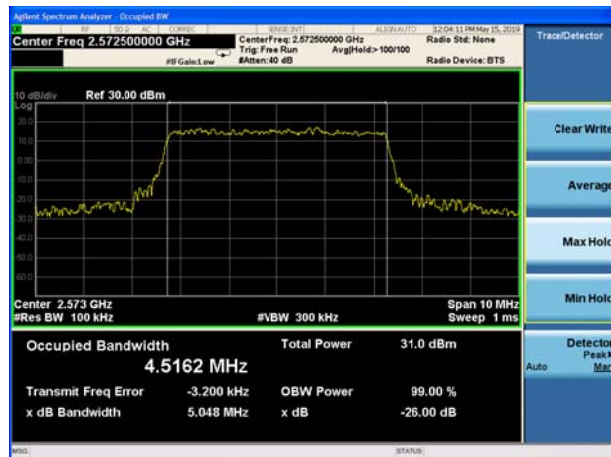


## LTE Band 7 64QAM 20MHz CH-High

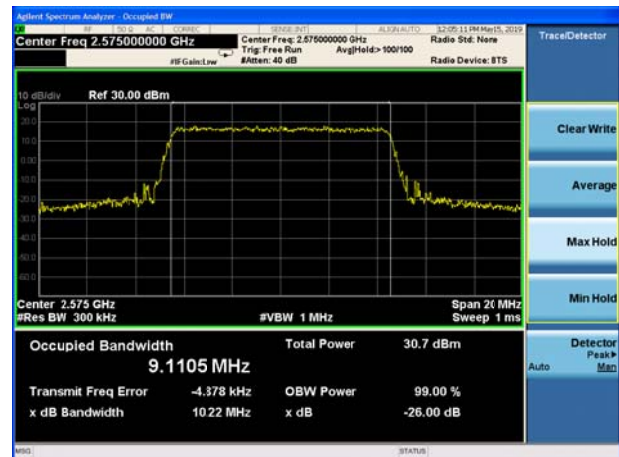




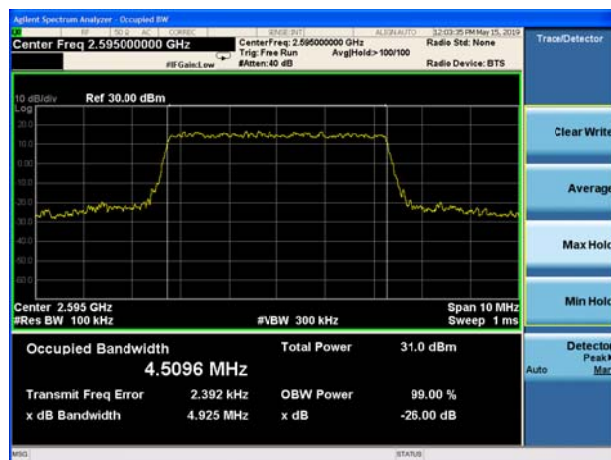
## LTE Band 38 QPSK 5MHz CH-Low



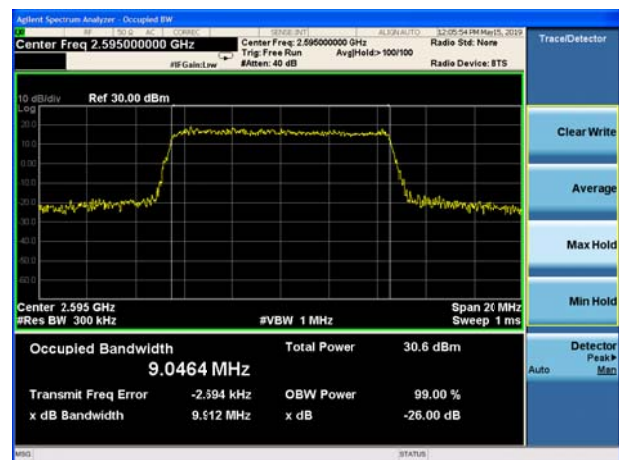
## LTE Band 38 QPSK 10MHz CH-Low



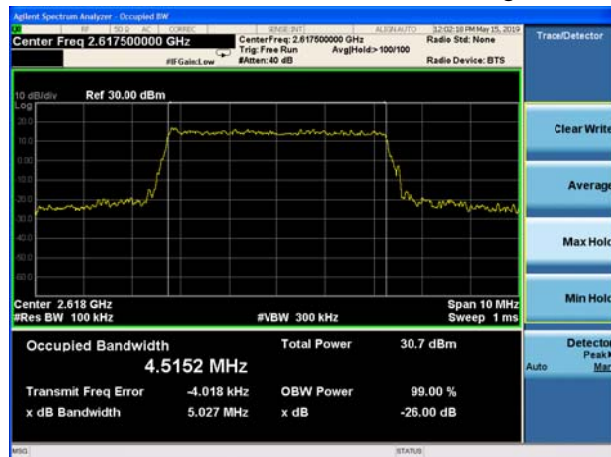
## LTE Band 38 QPSK 5MHz CH-Middle



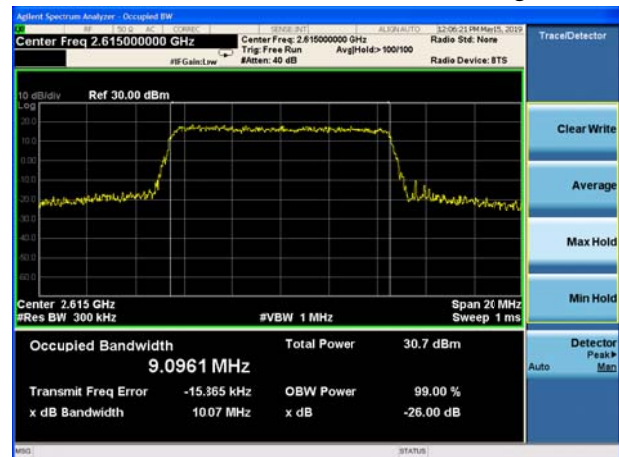
## LTE Band 38 QPSK 10MHz CH-Middle



## LTE Band 38 QPSK 5MHz CH-High

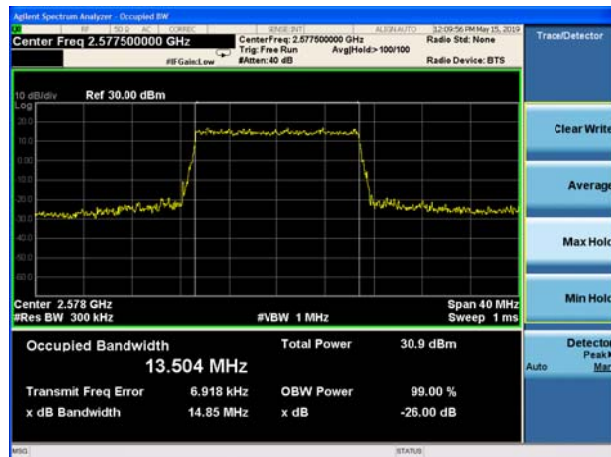


## LTE Band 38 QPSK 10MHz CH-High

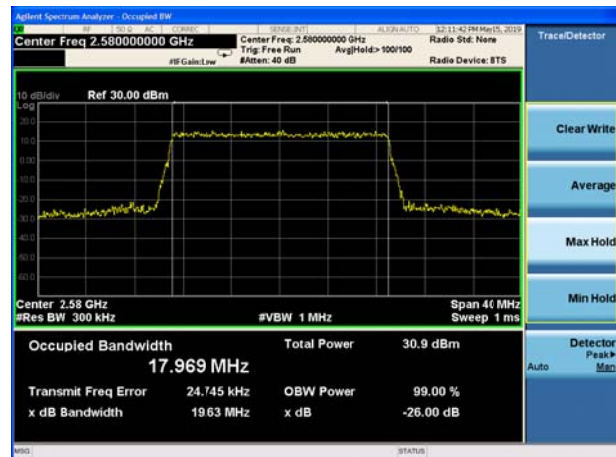




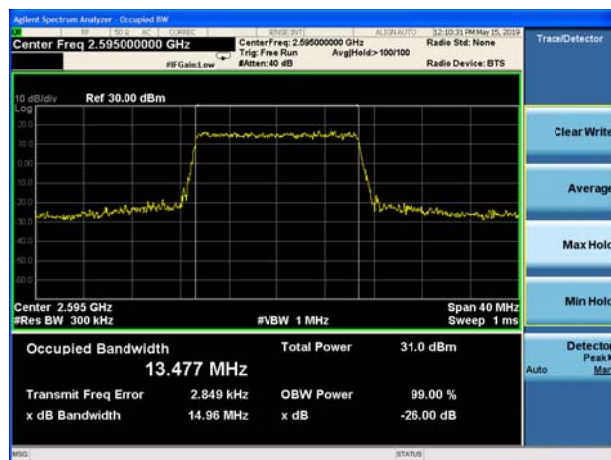
## LTE Band 38 QPSK 15MHz CH-Low



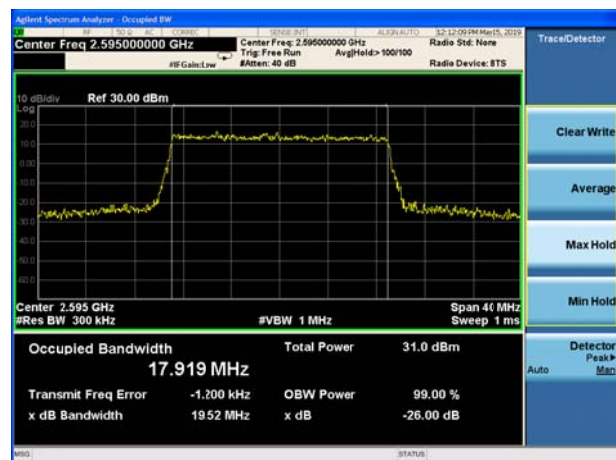
## LTE Band 38 QPSK 20MHz CH-Low



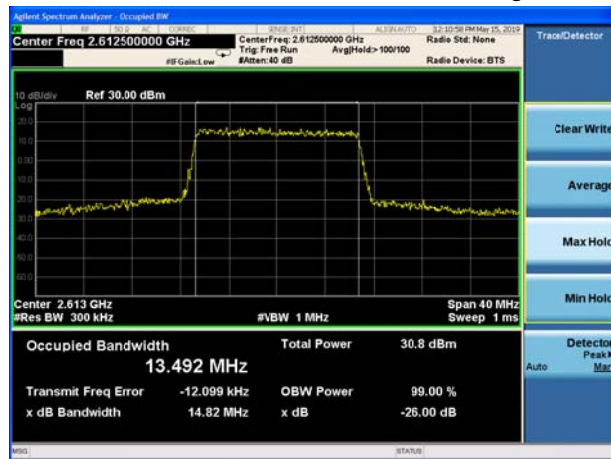
## LTE Band 38 QPSK 15MHz CH-Middle



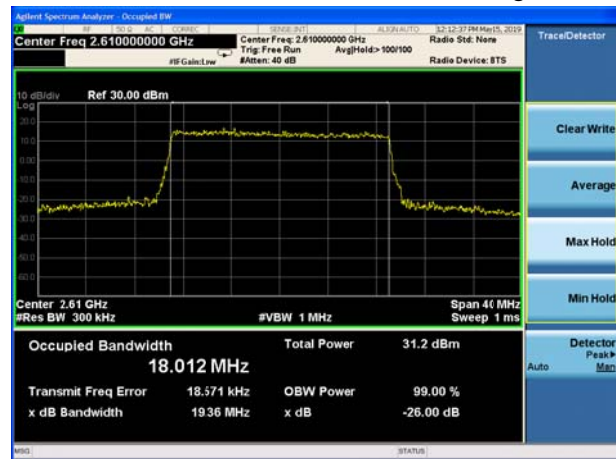
## LTE Band 38 QPSK 20MHz CH-Middle



## LTE Band 38 QPSK 15MHz CH-High



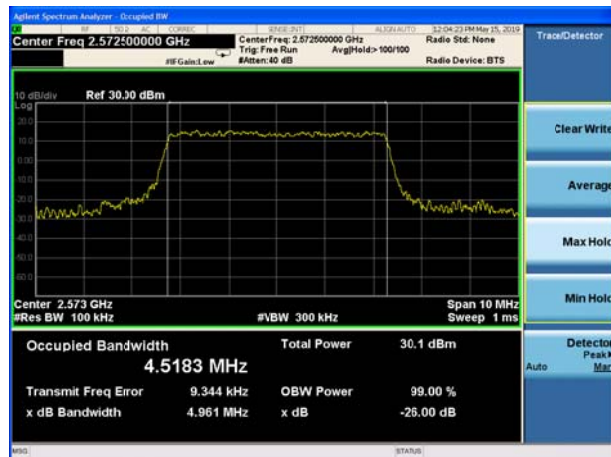
## LTE Band 38 QPSK 20MHz CH-High



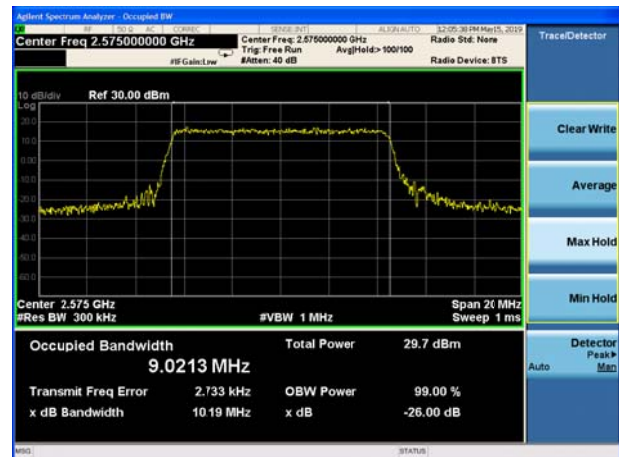




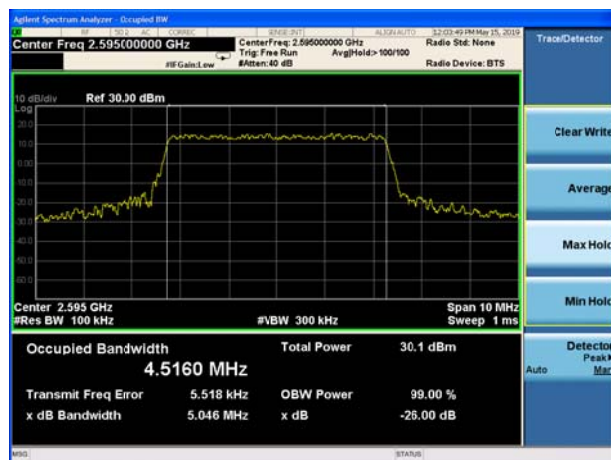
## LTE Band 38 16QAM 5MHz CH-Low



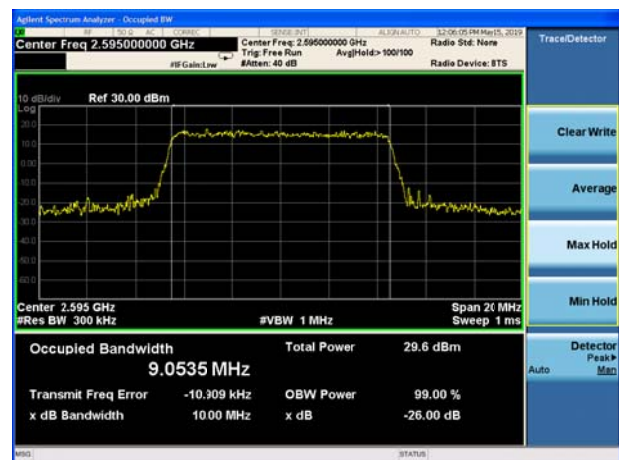
## LTE Band 38 16QAM 10MHz CH-Low



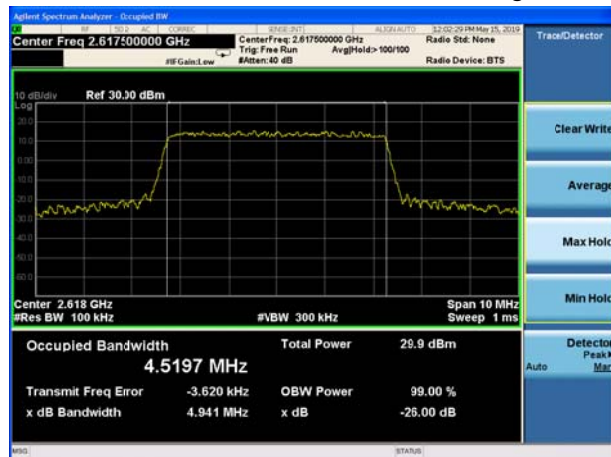
## LTE Band 38 16QAM 5MHz CH-Middle



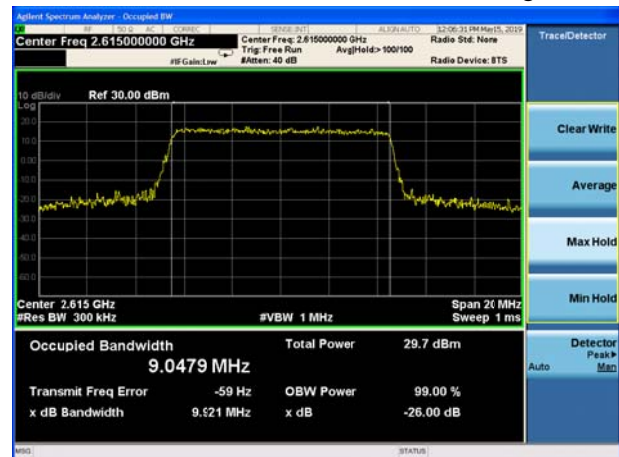
## LTE Band 38 16QAM 10MHz CH-Middle



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

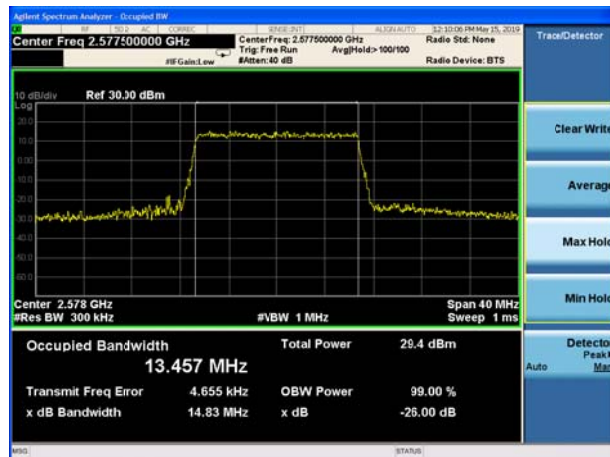


## LTE Band 38 16QAM 10MHz CH-High

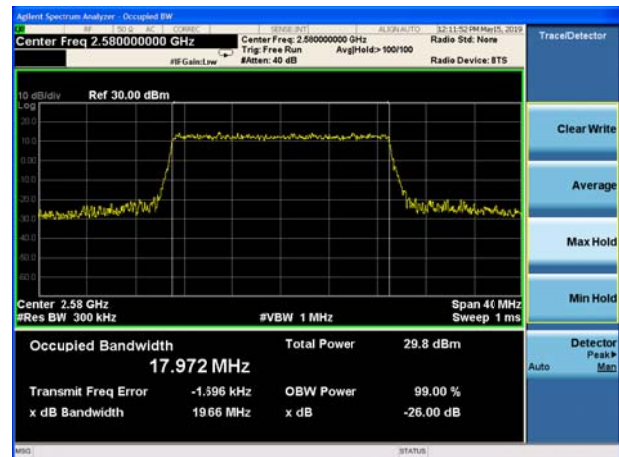




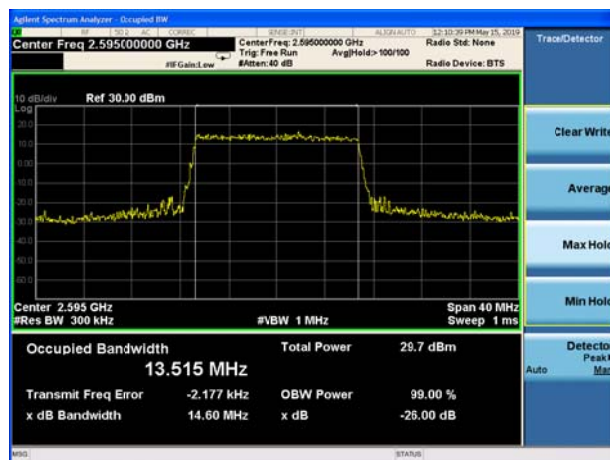
## LTE Band 38 16QAM 15MHz CH-Low



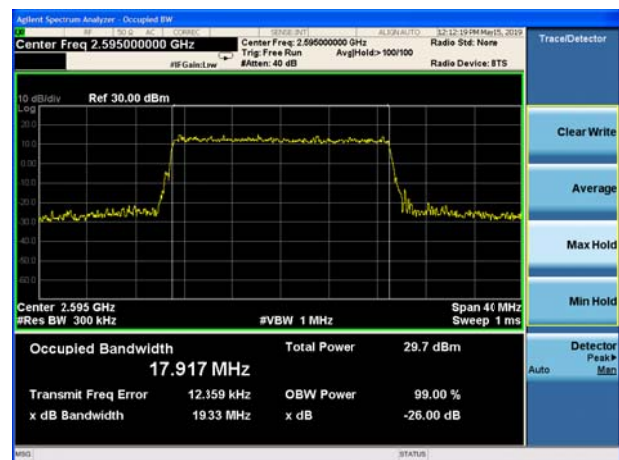
## LTE Band 38 16QAM 20MHz CH-Low



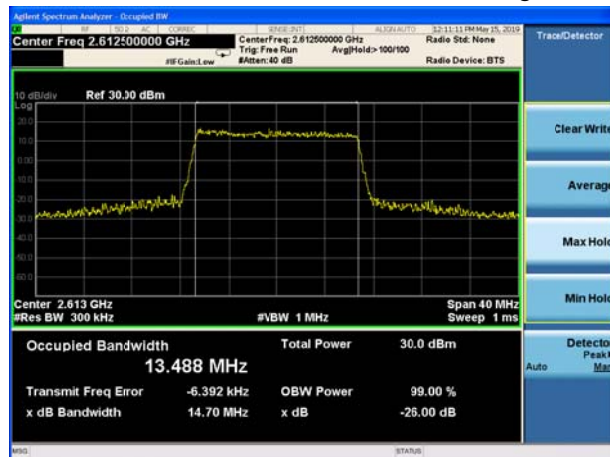
## LTE Band 38 16QAM 15MHz CH-Middle



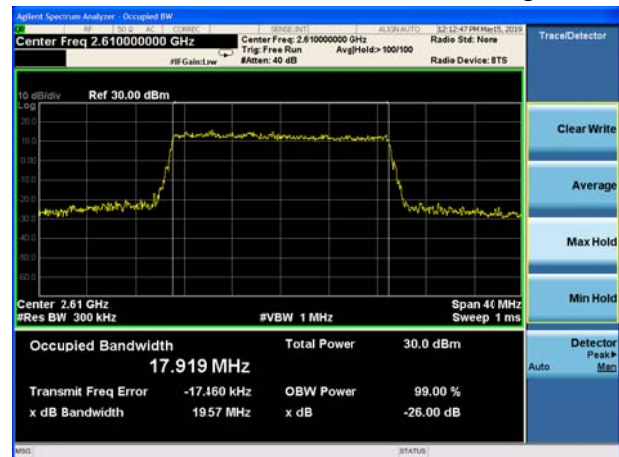
## LTE Band 38 16QAM 20MHz CH-Middle



## LTE Band 38 16QAM 15MHz CH-High

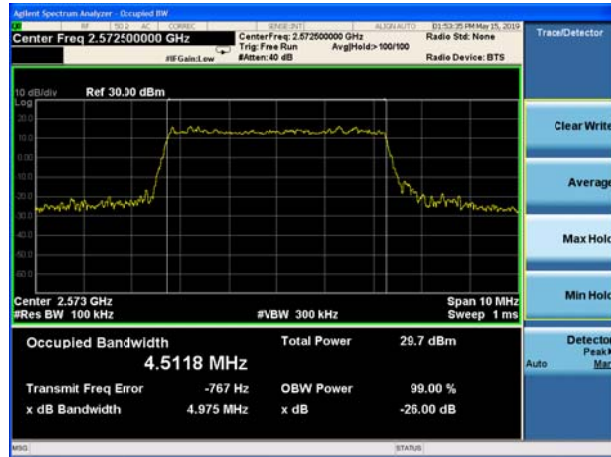


## LTE Band 38 16QAM 20MHz CH-High

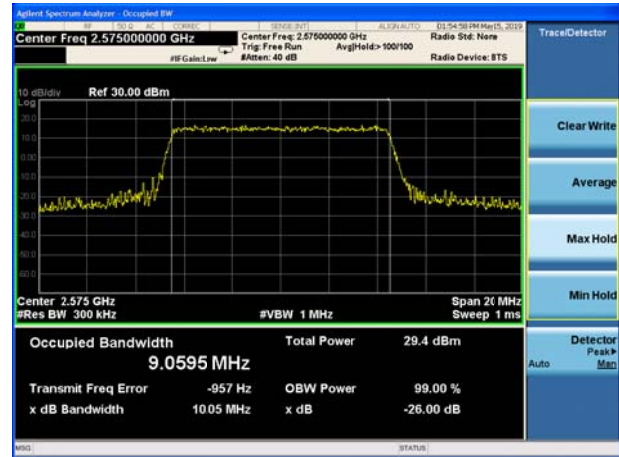




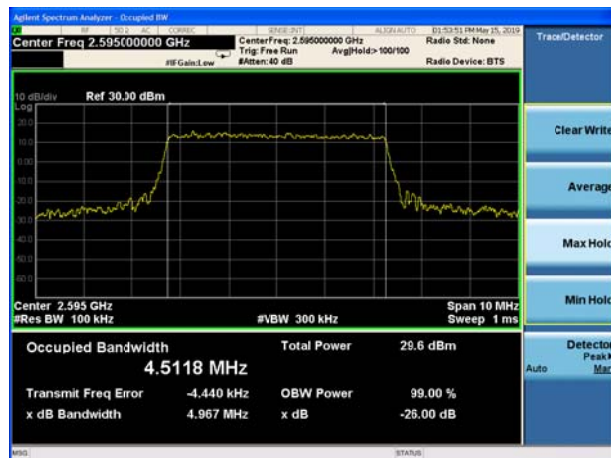
## LTE Band 38 64QAM 5MHz CH-Low



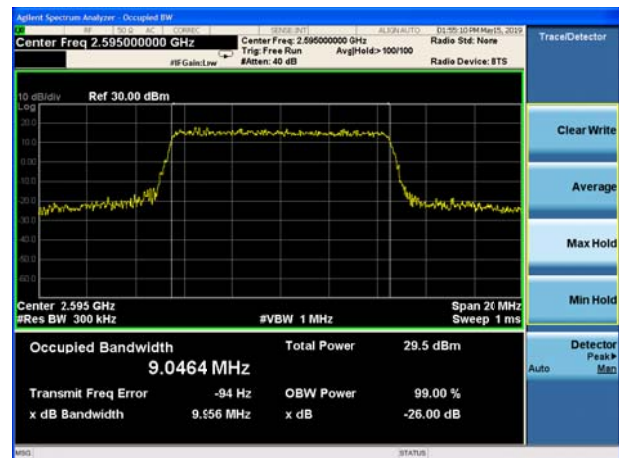
## LTE Band 38 64QAM 10MHz CH-Low



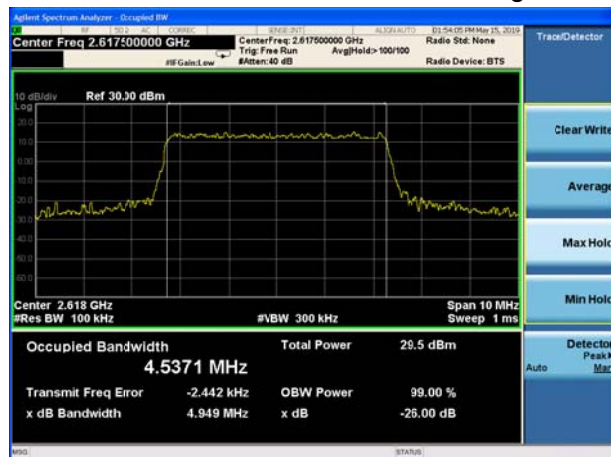
## LTE Band 38 64QAM 5MHz CH-Middle



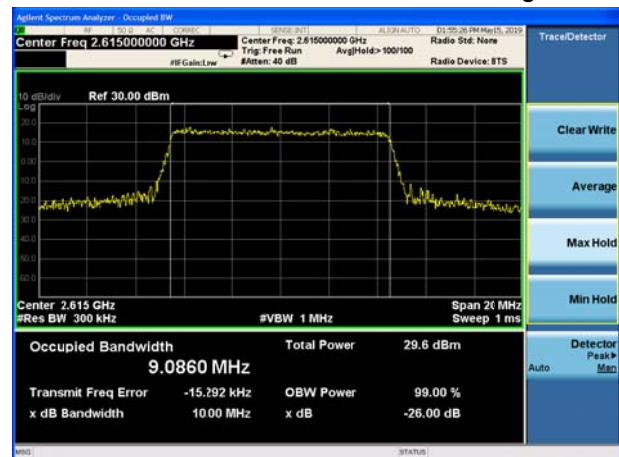
## LTE Band 38 64QAM 10MHz CH-Middle



## LTE Band 38 64QAM 5MHz CH-High



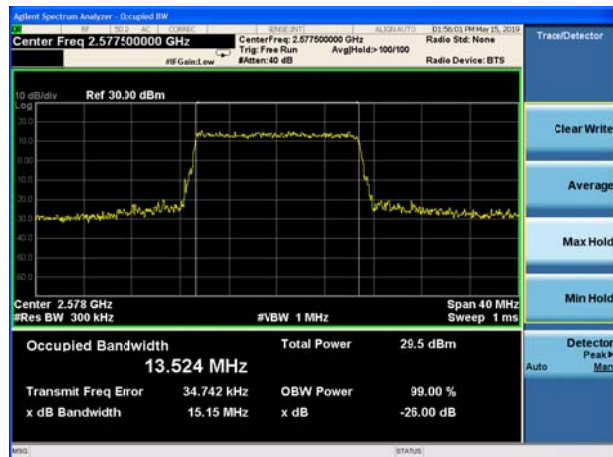
## LTE Band 38 64QAM 10MHz CH-High



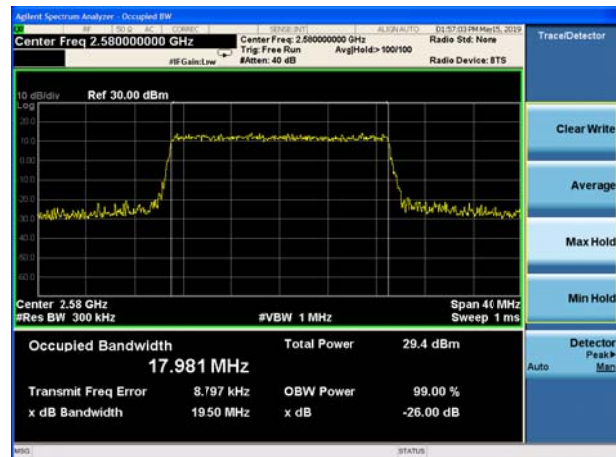




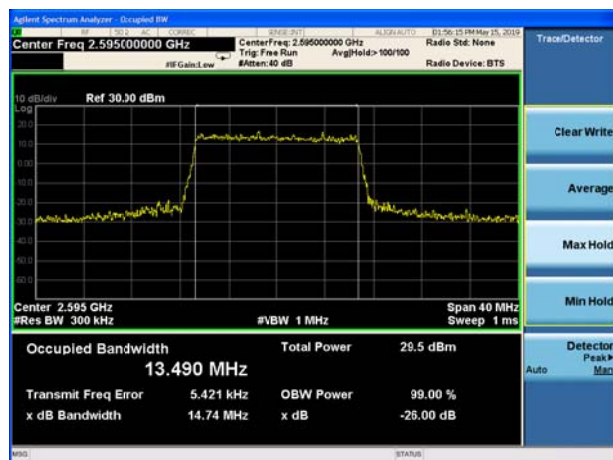
## LTE Band 38 64QAM 15MHz CH-Low



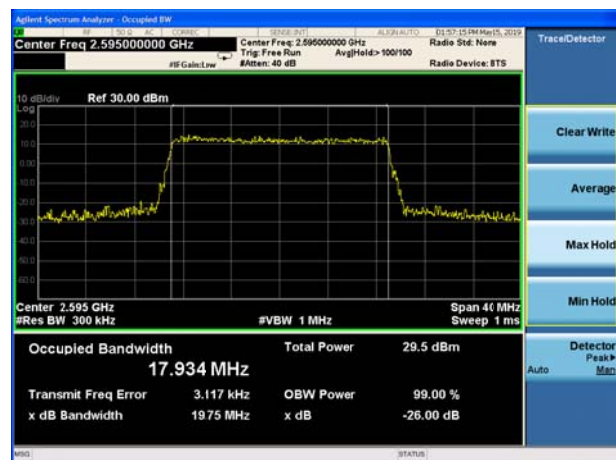
## LTE Band 38 64QAM 20MHz CH-Low



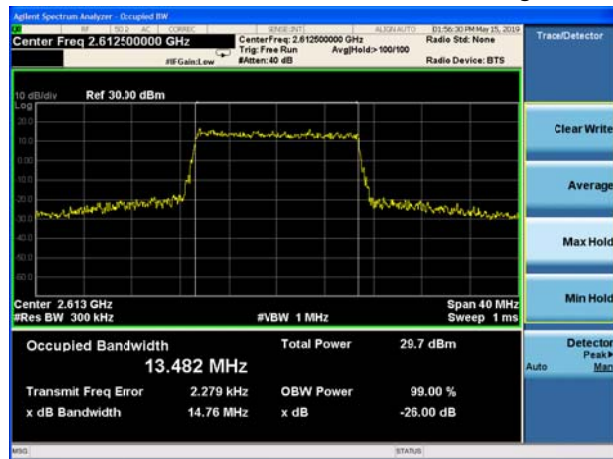
## LTE Band 38 64QAM 15MHz CH-Middle



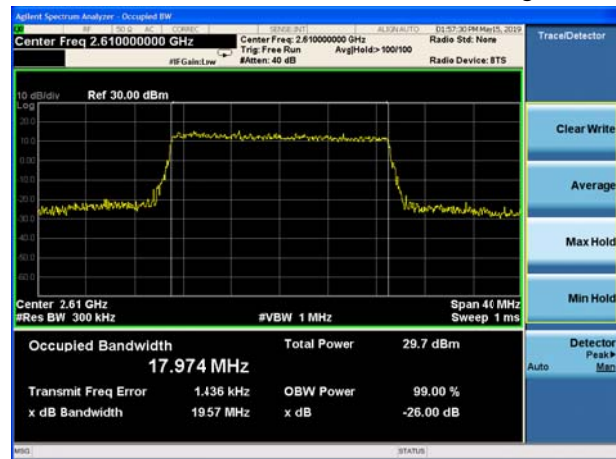
## LTE Band 38 64QAM 20MHz CH-Middle



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



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



## 5.4 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 D01 v03r01 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.

RBW is set to 51 kHz, VBW is set to 160 kHz for WCDMA Band IV.

RBW is set to 15 kHz, VBW is set to 51 kHz for LTE Band 4 (1.4MHz).

RBW is set to 30 kHz, VBW is set to 100 kHz for LTE Band 4 (3MHz).

RBW is set to 51 kHz, VBW is set to 160 kHz for LTE Band 4 (5MHz).

RBW is set to 100 kHz, VBW is set to 300kHz for LTE Band 4 (10MHz).

RBW is set to 150 kHz, VBW is set to 510 kHz for LTE Band 4 (15MHz).

RBW is set to 200 kHz, VBW is set to 620 kHz for LTE Band 4 (20MHz)

RBW is set to 50 kHz, VBW is set to 200 kHz for LTE Band 7/38 (5MHz).

RBW is set to 100 kHz, VBW is set to 300kHz for LTE Band 7/38 (10MHz).

RBW is set to 200 kHz, VBW is set to 1MHz for LTE Band 7/38 (15MHz/20MHz).

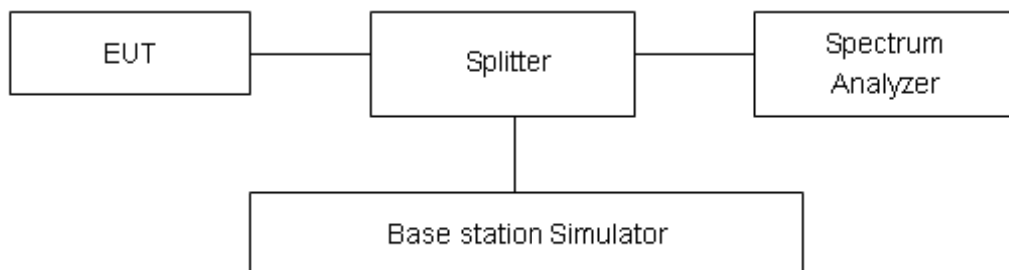
on spectrum analyzer.

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(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)

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

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

## Measurement Uncertainty

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



## Test Result

All the test traces in the plots shows the test results clearly.

