# RF Test Report

Test in accordance with
Federal Communications Commission(FCC)
CFR TITLE 47, Parts 2, 22, 24,27
&
Industry Canada (IC), RSS-GEN, 130,132,133,139

Product Name : ELS61-US

Model No. : ELS61-US

FCC ID: QIPELS61-US

IC ID: 7830A-ELS61US

Applicant : Gemalto M2M GmbH
Address : Siemensdamm 50, 13629 Berlin, Germany

Date of Receipt : 11-02-2015

Test Date : 11-17-2015~11-28-2015

Issued Date : 01-21-2016

Report No. : UL05420151102FCC/IC042-2

Report Version : V1.0

# Test Report Certification

Issued Date : 01-21-2016
Report No. : UL05420151102FCC/IC042-2

| | |
|---|---|
| Product Name : | ELS61-US |
| Applicant : | Gemalto M2M GmbH |
| Address : | Siemensdamm 50, 13629 Berlin, Germany |
| Manufacturer : | Gemalto M2M GmbH |
| Address : | Siemensdamm 50, 13629 Berlin, Germany |
| Model No. : | ELS61-US |
| EUT Voltage : | MIN: 3.0V, NOR: 3.8V, MAX: 4.5V |
| Brand Name : | GEMALTO |
| FCC ID: | QIPELS61-US |
| IC ID: | 7830A-ELS61US |
| Applicable Standard : | ANSI/TIA-603-D-2010; FCC KDB 971168 D01 Power Meas License Digital Systems v02r02; FCC CFR Title 47 Part 2; FCC CFR Title 47 Part 22 Subpart H;FCC CFR Title 47 Part24 Subpart E; FCC CFR Title 47 Part27 Subpart C; RSS 130 Issue 1, RSS 132 Issue 3; RSS 133 Issue 6; RSS 139 Issue 3; RSS-GEN Issue 4; ANSI C63.4-2014 |
| Test Result : | Complied |
| Performed Location : | Unilab (Shanghai) Co., Ltd.<br>FCC 2.948 register number is 714465<br>IC register number is 11025A-1<br>No. 1350, Lianxi Rd. Pudong New District, Shanghai, China<br>TEL: +86-21-50275125 FAX: +86-21-50277862 |

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# SUMMARY OF TEST RESULT

| Report Section | SPECIFICATION | | Description | Limit | Result |
|---|---|---|---|---|---|
| | FCC CFR 47 | IC | | | |
| 3 | part2.1046 | RSS GEN 6.12 | Conducted Output Power | N/A | PASS |
| 3 | part 22.913(a)(2)<br>part 24.232(b)(c)<br>part 27.50(d)(4)<br>part 27.50(c)(10) | RSS-130, 4.4<br>RSS-132, 5.4<br>RSS-133, 6.4 | Effective Radiated Power<br>Equivalent Isotropic Radiated Power | <7 Watts<br><2 Watts<br><1 Watt<br><3 Watts | PASS |
| 4 | part 2.1046 | RSS-130, 4.1<br>RSS-132, 5.2<br>RSS-133, 6.2<br>RSS-139, 6.2 | Modulation Characteristic | N/A | PASS |
| 4 | part 2.1049<br>part 22.917(a)<br>part 24.238(a)<br>part 27.53 (g)(h) | RSS-GEN, 6.6 | Occupied Bandwidth | N/A | PASS |
| 5 | part 2.1051<br>part 22.917(a)<br>part 24.238(a)<br>part 27.53(g)(h) | RSS-132, 5.5<br>RSS-133, 6.5<br>RSS-139, 6.5 | Band Edge Measurement | <43+10lg(P[Watts]) | PASS |
| 6 | part 2.1051<br>part 22.917(a)<br>part 24.238(a)<br>part 24.50(d)<br>part 27.53 (g)(h) | RSS-GEN, 4.9<br>RSS-132, 5.5<br>RSS-133, 6.5<br>RSS-139, 6.5 | Conducted Spurious Emission | <43+10lg(P[Watts]) | PASS |
| 6 | part 2.1053<br>part 22.917(a)<br>part 24.238(a)<br>part 27.53(g)(h) | RSS-GEN, 4.9<br>RSS-130, 4.6<br>RSS-132, 5.5<br>RSS-133, 6.5<br>RSS-139, 6.5 | Field Strength of Spurious Radiation | <43+10lg(P[Watts]) | PASS |
| 7 | part 2.1055<br>part 22.355<br>part 24.235<br>part 27.54 | RSS-130, 4.3<br>RSS-132, 5.3<br>RSS-133, 6.3<br>RSS-139, 6.3 | Frequency Stability for Temperature &Voltage | <2.5 ppm | PASS |
| 8 | part 24.232(d)<br>part 27.50(d)(5) | RSS 132,5.4<br>RSS-133,6.4 | Peak-to-Average | <13dB | PASS |
| 9 | / | RSS-130,5.6<br>RSS-132,5.6<br>RSS-133,6.6 | Receiver Spurious Emission | 30~88MHz: 40 dBμV/m<br>88~216MHz: 43.5 dBμV/m<br>216~960MHz: 46 dBμV/m<br>Above 960MHz: 54 dBμV/m | PASS |

# 1.General Information

## 1.1. EUT Description

| | |
|---|---|
| Product Name: | ELS61-US |
| Model Name: | ELS61-US |
| Hardware Version: | 00.301 |
| Software Version: | B2 |
| RF Exposure Environment: | Uncontrolled |
| **LTE** | |
| Support Band: | LTE Band II |
| Tx Frequency Range: | LTE Band II:1850MHz ~1910MHz |
| Rx Frequency Range: | LTE Band II:1930MHz ~1990MHz |
| Type of modulation: | LTE: QPSK,16-QAM |
| Antenna Type: | Connector |
| Antenna Peak Gain: | LTE Band II: 2.15dBi |
| Support Band: | LTE Band IV |
| Tx Frequency Range: | LTE Band IV:1710MHz ~1755MHz |
| Rx Frequency Range: | LTE Band IV:2110MHz ~2155MHz |
| Type of modulation: | LTE: QPSK,16-QAM |
| Antenna Type: | Connector |
| Antenna Peak Gain: | LTE Band IV: 2.15dBi |
| Support Band: | LTE Band V |
| Tx Frequency Range: | LTE Band V: 824MHz ~849MHz |
| Rx Frequency Range: | LTE Band V: 869MHz ~894MHz |
| Type of modulation: | LTE: QPSK,16-QAM |
| Antenna Type: | Connector |
| Antenna Peak Gain: | LTE Band V: 2.15dBi |
| Support Band: | LTE Band XII |
| Tx Frequency Range: | LTE Band XII: 698MHz ~716MHz |
| Rx Frequency Range: | LTE Band XII: 728MHz ~746MHz |
| Type of modulation: | LTE: QPSK,16-QAM |
| Antenna Type: | Connector |
| Antenna Peak Gain: | LTE Band XII: 2.15dBi |

## 1.2. Mode of Operation

Unilab has verified the construction and function in typical operation. EUT is in link mode with base station emulator at maximum power level. All the test modes were carried out with the EUT in normal operation, which was shown in this test report is the worst test mode and defined as:

| Mode | Band Width (MHz) | QPSK | | 16-QAM | |
|---|---|---|---|---|---|
| | | RB Size | RB Offset | RB Size | RB Offset |
| LTE Band 2 | 1.4 | 1 | 0 | 1 | 0 |
| | 3 | 1 | 0 | 1 | 0 |
| | 5 | 1 | 0 | 1 | 0 |
| | 10 | 1 | 0 | 1 | 0 |
| | 15 | 1 | 0 | 1 | 0 |
| | 20 | 1 | 0 | 1 | 0 |
| LTE Band 4 | 1.4 | 1 | 0 | 1 | 0 |
| | 3 | 1 | 0 | 1 | 0 |
| | 5 | 1 | 0 | 1 | 0 |
| | 10 | 1 | 0 | 1 | 0 |
| | 15 | 1 | 0 | 1 | 0 |
| | 20 | 1 | 0 | 1 | 0 |
| LTE Band 5 | 1.4 | 1 | 0 | 1 | 0 |
| | 3 | 1 | 0 | 1 | 0 |
| | 5 | 1 | 0 | 1 | 0 |
| | 10 | 1 | 0 | 1 | 0 |
| LTE Band 12 | 1.4 | 1 | 0 | 1 | 0 |
| | 3 | 1 | 0 | 1 | 0 |
| | 5 | 8 | 17 | 1 | 0 |
| | 10 | 1 | 0 | 1 | 0 |

**Note:**
1. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. For the ERP/EIRP and radiated emission test, every axis (X, Y, Z) was verified, and show the worst (Z axis) result on this report.
3. For conducted test, both two Modulations (QPSK and 16-QAM) are tested. For RSE, only the maximum RF output power level are chosen.

**The conducted power table is as follows:**

| Mode | Band Width | Channel | Frequency (MHz) | Modulation | RB Configuration | | Average Power (dBm) | Average Power (Watts) |
|---|---|---|---|---|---|---|---|---|
| | | | | | RB Size | RB Offset | | |
| LTE Band 2 | 1.4 MHz | 18607 | 1850.7 | QPSK | **1** | **0** | **21.35** | **0.14** |
| | | | | | 1 | 5 | 21.29 | 0.13 |
| | | | | | 5 | 1 | 21.24 | 0.13 |
| | | | | | 6 | 0 | 21.34 | 0.14 |
| | | | | 16-QAM | **1** | **0** | **20.47** | **0.11** |
| | | | | | 1 | 5 | 20.42 | 0.11 |
| | | | | | 5 | 1 | 20.28 | 0.11 |
| | | | | | 6 | 0 | 19.48 | 0.09 |
| | | 18900 | 1880.0 | QPSK | **1** | **0** | **21.30** | **0.13** |
| | | | | | 1 | 5 | 21.23 | 0.13 |
| | | | | | 5 | 1 | 21.24 | 0.13 |
| | | | | | 6 | 0 | 21.20 | 0.13 |
| | | | | 16-QAM | **1** | **0** | **20.39** | **0.11** |
| | | | | | 1 | 5 | 20.31 | 0.11 |
| | | | | | 5 | 1 | 20.24 | 0.11 |
| | | | | | 6 | 0 | 19.39 | 0.09 |
| | | 19193 | 1909.3 | QPSK | **1** | **0** | **21.02** | **0.13** |
| | | | | | 1 | 5 | 21.00 | 0.13 |
| | | | | | 5 | 1 | 20.94 | 0.12 |
| | | | | | 6 | 0 | 19.97 | 0.10 |
| | | | | 16-QAM | **1** | **0** | **20.15** | **0.10** |
| | | | | | 1 | 5 | 20.13 | 0.10 |
| | | | | | 5 | 1 | 20.00 | 0.10 |
| | | | | | 6 | 0 | 19.01 | 0.08 |
| | 3MHz | 18615 | 1851.5 | QPSK | **1** | **0** | **21.22** | **0.13** |
| | | | | | 1 | 14 | 21.17 | 0.13 |
| | | | | | 6 | 9 | 20.20 | 0.10 |
| | | | | | 15 | 0 | 20.24 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **20.46** | **0.11** |
| | | | | | 1 | 14 | 20.33 | 0.11 |
| | | | | | 6 | 9 | 19.40 | 0.09 |
| | | | | | 15 | 0 | 19.30 | 0.09 |
| | | 18900 | 1880.0 | QPSK | **1** | **0** | **21.24** | **0.13** |
| | | | | | 1 | 14 | 21.19 | 0.13 |
| | | | | | 6 | 9 | 20.27 | 0.11 |
| | | | | | 15 | 0 | 20.22 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **20.38** | **0.11** |
| | | | | | 1 | 14 | 20.24 | 0.11 |
| | | | | | 6 | 9 | 19.37 | 0.09 |
| | | | | | 15 | 0 | 19.33 | 0.09 |
| | | 19185 | 1908.5 | QPSK | **1** | **0** | **20.98** | **0.13** |
| | | | | | 1 | 14 | 20.87 | 0.12 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| LTE Band 2 | | 19185 | 1908.5 | QPSK | 6 | 9 | 19.95 | 0.10 |
| | | | | | 15 | 0 | 19.97 | 0.10 |
| | | | | 16-QAM | **1** | **0** | **20.49** | **0.11** |
| | | | | | 1 | 14 | 20.30 | 0.11 |
| | | | | | 6 | 9 | 19.08 | 0.08 |
| | | | | | 15 | 0 | 19.12 | 0.08 |
| | 5MHz | 18625 | 1852.5 | QPSK | **1** | **0** | **21.26** | **0.13** |
| | | | | | 1 | 24 | 21.10 | 0.13 |
| | | | | | 8 | 17 | 21.20 | 0.13 |
| | | | | | 25 | 0 | 21.21 | 0.13 |
| | | | | 16-QAM | 1 | 0 | 20.35 | 0.11 |
| | | | | | 1 | 24 | 20.25 | 0.11 |
| | | | | | **8** | **17** | **20.38** | **0.11** |
| | | | | | 25 | 0 | 19.38 | 0.09 |
| | | 18900 | 1880.0 | QPSK | 1 | 0 | 21.21 | 0.13 |
| | | | | | 1 | 24 | 21.09 | 0.13 |
| | | | | | **8** | **17** | **21.22** | **0.13** |
| | | | | | 25 | 0 | 20.20 | 0.10 |
| | | | | 16-QAM | **1** | **0** | **20.57** | **0.11** |
| | | | | | 1 | 24 | 20.51 | 0.11 |
| | | | | | 8 | 17 | 20.24 | 0.11 |
| | | | | | 25 | 0 | 19.24 | 0.08 |
| | | 19175 | 1907.5 | QPSK | **1** | **0** | **21.05** | **0.13** |
| | | | | | 1 | 24 | 20.85 | 0.12 |
| | | | | | 8 | 17 | 20.93 | 0.12 |
| | | | | | 25 | 0 | 20.03 | 0.10 |
| | | | | 16-QAM | **1** | **0** | **20.19** | **0.10** |
| | | | | | 1 | 24 | 20.05 | 0.10 |
| | | | | | 8 | 17 | 20.07 | 0.10 |
| | | | | | 25 | 0 | 19.15 | 0.08 |
| | 10MHz | 18650 | 1855.0 | QPSK | **1** | **0** | **21.44** | **0.14** |
| | | | | | 1 | 49 | 21.11 | 0.13 |
| | | | | | 16 | 34 | 20.20 | 0.10 |
| | | | | | 50 | 0 | 20.24 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **20.65** | **0.12** |
| | | | | | 1 | 49 | 20.31 | 0.11 |
| | | | | | 16 | 34 | 19.32 | 0.09 |
| | | | | | 50 | 0 | 19.33 | 0.09 |
| | | 18900 | 1880.0 | QPSK | **1** | **0** | **21.53** | **0.14** |
| | | | | | 1 | 49 | 21.18 | 0.13 |
| | | | | | 16 | 34 | 20.18 | 0.10 |
| | | | | | 50 | 0 | 20.22 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **20.56** | **0.11** |
| | | | | | 1 | 49 | 20.27 | 0.11 |
| | | | | | 16 | 34 | 19.40 | 0.09 |
| | | | | | 50 | 0 | 19.39 | 0.09 |
| | | 19150 | 1905.0 | QPSK | **1** | **0** | **21.35** | **0.14** |
| | | | | | 1 | 49 | 20.88 | 0.12 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| LTE Band 2 | | | | | 16 | 34 | 19.97 | 0.10 |
| | | | | | 50 | 0 | 20.05 | 0.10 |
| | | | | 16-QAM | **1** | **0** | **20.83** | **0.12** |
| | | | | | 1 | 49 | 20.37 | 0.11 |
| | | | | | 16 | 34 | 19.14 | 0.08 |
| | | | | | 50 | 0 | 19.21 | 0.08 |
| | 15MHz | 18675 | 1857.5 | QPSK | **1** | **0** | **21.64** | **0.15** |
| | | | | | 1 | 74 | 21.13 | 0.13 |
| | | | | | 24 | 51 | 20.15 | 0.10 |
| | | | | | 75 | 0 | 20.31 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **21.16** | **0.13** |
| | | | | | 1 | 74 | 20.62 | 0.12 |
| | | | | | 24 | 51 | 19.34 | 0.09 |
| | | | | | 75 | 0 | 19.37 | 0.09 |
| | | 18900 | 1880.0 | QPSK | **1** | **0** | **21.62** | **0.15** |
| | | | | | 1 | 74 | 21.24 | 0.13 |
| | | | | | 24 | 51 | 20.30 | 0.11 |
| | | | | | 75 | 0 | 20.34 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **20.85** | **0.12** |
| | | | | | 1 | 74 | 20.65 | 0.12 |
| | | | | | 24 | 51 | 19.36 | 0.09 |
| | | | | | 75 | 0 | 19.40 | 0.09 |
| | | 19125 | 1902.5 | QPSK | **1** | **0** | **21.61** | **0.14** |
| | | | | | 1 | 74 | 20.95 | 0.12 |
| | | | | | 24 | 51 | 20.00 | 0.10 |
| | | | | | 75 | 0 | 20.19 | 0.10 |
| | | | | 16-QAM | **1** | **0** | **20.75** | **0.12** |
| | | | | | 1 | 74 | 20.12 | 0.10 |
| | | | | | 24 | 51 | 19.13 | 0.08 |
| | | | | | 75 | 0 | 19.25 | 0.08 |
| | 20MHz | 18700 | 1860.0 | QPSK | **1** | **0** | **21.66** | **0.15** |
| | | | | | 1 | 99 | 20.95 | 0.12 |
| | | | | | 24 | 76 | 20.12 | 0.10 |
| | | | | | 100 | 0 | 20.22 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **20.83** | **0.12** |
| | | | | | 1 | 99 | 20.18 | 0.10 |
| | | | | | 24 | 76 | 19.18 | 0.08 |
| | | | | | 100 | 0 | 19.32 | 0.09 |
| | | 18900 | 1880.0 | QPSK | **1** | **0** | **21.49** | **0.14** |
| | | | | | 1 | 99 | 21.09 | 0.13 |
| | | | | | 24 | 76 | 20.24 | 0.11 |
| | | | | | 100 | 0 | 20.28 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **20.85** | **0.12** |
| | | | | | 1 | 99 | 20.26 | 0.11 |
| | | | | | 24 | 76 | 19.26 | 0.08 |
| | | | | | 100 | 0 | 19.42 | 0.09 |
| | | 19100 | 1900.0 | QPSK | **1** | **0** | **21.49** | **0.14** |
| | | | | | 1 | 99 | 20.65 | 0.12 |
| | | | | | 24 | 76 | 19.95 | 0.10 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| LTE Band 2 | | | | | 100 | 0 | 20.22 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **20.51** | **0.11** |
| | | | | | 1 | 99 | 19.71 | 0.09 |
| | | | | | 24 | 76 | 19.02 | 0.08 |
| | | | | | 100 | 0 | 19.32 | 0.09 |

| **Mode** | **Band Width** | **Channel** | **Frequeny (MHz)** | **Modulation** | **RB Configuration** | | **Average Power (dBm)** | **Average Power (Watts)** |
|---|---|---|---|---|---|---|---|---|
| | | | | | RB Size | RB Offset | | |
| LTE Band 4 | 1.4 MHz | 19957 | 1710.7 | QPSK | **1** | **0** | **21.60** | **0.14** |
| | | | | | 1 | 5 | 21.54 | 0.14 |
| | | | | | 5 | 1 | 21.53 | 0.14 |
| | | | | | 6 | 0 | 21.55 | 0.14 |
| | | | | 16-QAM | **1** | **0** | **20.65** | **0.12** |
| | | | | | 1 | 5 | 20.59 | 0.11 |
| | | | | | 5 | 1 | 20.52 | 0.11 |
| | | | | | 6 | 0 | 19.54 | 0.09 |
| | | 20175 | 1732.5 | QPSK | **1** | **0** | **21.40** | **0.14** |
| | | | | | 1 | 5 | 21.39 | 0.14 |
| | | | | | 5 | 1 | 21.36 | 0.14 |
| | | | | | 6 | 0 | 20.37 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **20.57** | **0.11** |
| | | | | | 1 | 5 | 20.55 | 0.11 |
| | | | | | 5 | 1 | 20.47 | 0.11 |
| | | | | | 6 | 0 | 19.34 | 0.09 |
| | | 20393 | 1754.3 | QPSK | 1 | 0 | 21.31 | 0.14 |
| | | | | | 1 | 5 | 21.34 | 0.14 |
| | | | | | **5** | **1** | **21.40** | **0.14** |
| | | | | | 6 | 0 | 20.37 | 0.11 |
| | | | | 16-QAM | 1 | 0 | 20.52 | 0.11 |
| | | | | | **1** | **5** | **20.56** | **0.11** |
| | | | | | 5 | 1 | 20.45 | 0.11 |
| | | | | | 6 | 0 | 19.43 | 0.09 |
| | 3MHz | 19965 | 1711.5 | QPSK | **1** | **0** | **21.57** | **0.14** |
| | | | | | 1 | 14 | 21.52 | 0.14 |
| | | | | | 6 | 9 | 21.50 | 0.14 |
| | | | | | 15 | 0 | 21.55 | 0.14 |
| | | | | 16-QAM | **1** | **0** | **21.08** | **0.13** |
| | | | | | 1 | 14 | 20.95 | 0.12 |
| | | | | | 6 | 9 | 19.64 | 0.09 |
| | | | | | 15 | 0 | 19.70 | 0.09 |
| | | 20175 | 1732.5 | QPSK | **1** | **0** | **21.47** | **0.14** |
| | | | | | 1 | 14 | 21.40 | 0.14 |
| | | | | | 6 | 9 | 20.43 | 0.11 |
| | | | | | 15 | 0 | 20.49 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **20.68** | **0.12** |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| LTE Band 4 | | | | | 1 | 14 | 20.56 | 0.11 |
| | | | | | 6 | 9 | 19.57 | 0.09 |
| | | | | | 15 | 0 | 19.51 | 0.09 |
| | | 20385 | 1753.5 | QPSK | **1** | **0** | **21.50** | **0.14** |
| | | | | | 1 | 14 | 21.33 | 0.14 |
| | | | | | 6 | 9 | 20.48 | 0.11 |
| | | | | | 15 | 0 | 20.42 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **20.53** | **0.11** |
| | | | | | 1 | 14 | 20.45 | 0.11 |
| | | | | | 6 | 9 | 19.51 | 0.09 |
| | | | | | 15 | 0 | 19.52 | 0.09 |
| | 5MHz | 19975 | 1712.5 | QPSK | **1** | **0** | **21.58** | **0.14** |
| | | | | | 1 | 24 | 21.43 | 0.14 |
| | | | | | 8 | 17 | 21.51 | 0.14 |
| | | | | | 25 | 0 | 20.50 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **20.96** | **0.12** |
| | | | | | 1 | 24 | 20.86 | 0.12 |
| | | | | | 8 | 17 | 20.60 | 0.11 |
| | | | | | 25 | 0 | 19.58 | 0.09 |
| | | 20175 | 1732.5 | QPSK | **1** | **0** | **21.51** | **0.14** |
| | | | | | 1 | 24 | 21.38 | 0.14 |
| | | | | | 8 | 17 | 21.43 | 0.14 |
| | | | | | 25 | 0 | 20.45 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **20.86** | **0.12** |
| | | | | | 1 | 24 | 20.70 | 0.12 |
| | | | | | 8 | 17 | 20.50 | 0.11 |
| | | | | | 25 | 0 | 19.44 | 0.09 |
| | | 20375 | 1752.5 | QPSK | **1** | **0** | **21.43** | **0.14** |
| | | | | | 1 | 24 | 21.33 | 0.14 |
| | | | | | 8 | 17 | 21.42 | 0.14 |
| | | | | | 25 | 0 | 20.43 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **20.52** | **0.11** |
| | | | | | 1 | 24 | 20.46 | 0.11 |
| | | | | | 8 | 17 | 20.49 | 0.11 |
| | | | | | 25 | 0 | 19.55 | 0.09 |
| | 10MHz | 20000 | 1715.0 | QPSK | **1** | **0** | **21.40** | **0.14** |
| | | | | | 1 | 49 | 21.12 | 0.13 |
| | | | | | 16 | 34 | 20.24 | 0.11 |
| | | | | | 50 | 0 | 20.33 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **20.87** | **0.12** |
| | | | | | 1 | 49 | 20.61 | 0.12 |
| | | | | | 16 | 34 | 19.30 | 0.09 |
| | | | | | 50 | 0 | 19.34 | 0.09 |
| | | 20175 | 1732.5 | QPSK | **1** | **0** | **21.46** | **0.14** |
| | | | | | 1 | 49 | 21.19 | 0.13 |
| | | | | | 16 | 34 | 20.28 | 0.11 |
| | | | | | 50 | 0 | 20.30 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **20.68** | **0.12** |
| | | | | | 1 | 49 | 20.42 | 0.11 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| LTE Band 4 | | | | | 16 | 34 | 19.39 | 0.09 |
| | | | | | 50 | 0 | 19.42 | 0.09 |
| | | 20350 | 1750.0 | QPSK | **1** | **0** | **21.42** | **0.14** |
| | | | | | 1 | 49 | 21.19 | 0.13 |
| | | | | | 16 | 34 | 20.25 | 0.11 |
| | | | | | 50 | 0 | 20.34 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **20.59** | **0.11** |
| | | | | | 1 | 49 | 20.34 | 0.11 |
| | | | | | 16 | 34 | 19.42 | 0.09 |
| | | | | | 50 | 0 | 19.38 | 0.09 |
| | 15MHz | 20025 | 1717.5 | QPSK | **1** | **0** | **21.66** | **0.15** |
| | | | | | 1 | 74 | 21.17 | 0.13 |
| | | | | | 24 | 51 | 20.33 | 0.11 |
| | | | | | 75 | 0 | 20.34 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **21.23** | **0.13** |
| | | | | | 1 | 74 | 20.78 | 0.12 |
| | | | | | 24 | 51 | 19.41 | 0.09 |
| | | | | | 75 | 0 | 19.51 | 0.09 |
| | | 20175 | 1732.5 | QPSK | **1** | **0** | **21.70** | **0.15** |
| | | | | | 1 | 74 | 21.20 | 0.13 |
| | | | | | 24 | 51 | 20.48 | 0.11 |
| | | | | | 75 | 0 | 20.42 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **21.24** | **0.13** |
| | | | | | 1 | 74 | 20.80 | 0.12 |
| | | | | | 24 | 51 | 19.40 | 0.09 |
| | | | | | 75 | 0 | 19.46 | 0.09 |
| | | 20325 | 1747.5 | QPSK | **1** | **0** | **21.50** | **0.14** |
| | | | | | 1 | 74 | 21.21 | 0.13 |
| | | | | | 24 | 51 | 20.30 | 0.11 |
| | | | | | 75 | 0 | 20.32 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **20.84** | **0.12** |
| | | | | | 1 | 74 | 20.46 | 0.11 |
| | | | | | 24 | 51 | 19.40 | 0.09 |
| | | | | | 75 | 0 | 19.39 | 0.09 |
| | 20MHz | 20050 | 1720.0 | QPSK | **1** | **0** | **21.32** | **0.14** |
| | | | | | 1 | 99 | 20.71 | 0.12 |
| | | | | | 24 | 76 | 20.04 | 0.10 |
| | | | | | 100 | 0 | 20.24 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **20.58** | **0.11** |
| | | | | | 1 | 99 | 20.00 | 0.10 |
| | | | | | 24 | 76 | 19.00 | 0.08 |
| | | | | | 100 | 0 | 19.23 | 0.08 |
| | | 20175 | 1732.5 | QPSK | **1** | **0** | **21.63** | **0.15** |
| | | | | | 1 | 99 | 21.02 | 0.13 |
| | | | | | 24 | 76 | 20.20 | 0.10 |
| | | | | | 100 | 0 | 20.28 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **20.88** | **0.12** |
| | | | | | 1 | 99 | 20.34 | 0.11 |
| | | | | | 24 | 76 | 19.32 | 0.09 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| LTE Band 4 | | | | | 100 | 0 | 19.41 | 0.09 |
| | | 20300 | 1745.0 | QPSK | **1** | **0** | **21.54** | **0.14** |
| | | | | | 1 | 99 | 20.98 | 0.13 |
| | | | | | 24 | 76 | 20.33 | 0.11 |
| | | | | | 100 | 0 | 20.34 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **21.07** | **0.13** |
| | | | | | 1 | 99 | 20.53 | 0.11 |
| | | | | | 24 | 76 | 19.20 | 0.08 |
| | | | | | 100 | 0 | 19.35 | 0.09 |

| Mode | Band Width | Channel | Frequeny (MHz) | Modulation | RB Configuration | | Average Power (dBm) | Average Power (Watts) |
|---|---|---|---|---|---|---|---|---|
| | | | | | RB Size | RB Offset | | |
| LTE Band 5 | 1.4 MHz | 20407 | 824.7 | QPSK | **1** | **0** | **22.22** | **0.17** |
| | | | | | 1 | 5 | 22.18 | 0.17 |
| | | | | | 5 | 1 | 22.20 | 0.17 |
| | | | | | 6 | 0 | 21.17 | 0.13 |
| | | | | 16-QAM | **1** | **0** | **21.33** | **0.14** |
| | | | | | 1 | 5 | 21.28 | 0.13 |
| | | | | | 5 | 1 | 21.17 | 0.13 |
| | | | | | 6 | 0 | 20.32 | 0.11 |
| | | 20525 | 836.5 | QPSK | **1** | **0** | **21.88** | **0.15** |
| | | | | | 1 | 5 | 21.86 | 0.15 |
| | | | | | 5 | 1 | 21.86 | 0.15 |
| | | | | | 6 | 0 | 20.92 | 0.12 |
| | | | | 16-QAM | **1** | **0** | **21.16** | **0.13** |
| | | | | | 1 | 5 | 21.14 | 0.13 |
| | | | | | 5 | 1 | 20.95 | 0.12 |
| | | | | | 6 | 0 | 20.07 | 0.10 |
| | | 20643 | 848.3 | QPSK | 1 | 0 | 21.86 | 0.15 |
| | | | | | **1** | **5** | **21.87** | **0.15** |
| | | | | | 5 | 1 | 21.81 | 0.15 |
| | | | | | 6 | 0 | 20.80 | 0.12 |
| | | | | 16-QAM | 1 | 0 | 20.96 | 0.12 |
| | | | | | **1** | **5** | **20.98** | **0.13** |
| | | | | | 5 | 1 | 20.81 | 0.12 |
| | | | | | 6 | 0 | 20.02 | 0.10 |
| | 3MHz | 20415 | 825.5 | QPSK | **1** | **0** | **22.10** | **0.16** |
| | | | | | 1 | 14 | 22.08 | 0.16 |
| | | | | | 6 | 9 | 21.14 | 0.13 |
| | | | | | 15 | 0 | 21.16 | 0.13 |
| | | | | 16-QAM | **1** | **0** | **21.30** | **0.13** |
| | | | | | 1 | 14 | 21.29 | 0.13 |
| | | | | | 6 | 9 | 20.30 | 0.11 |
| | | | | | 15 | 0 | 20.28 | 0.11 |
| | | 20525 | 836.5 | QPSK | **1** | **0** | **21.93** | **0.16** |
| | | | | | 1 | 14 | 21.83 | 0.15 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| LTE Band 5 | | | | | 6 | 9 | 20.86 | 0.12 |
| | | | | | 15 | 0 | 20.89 | 0.12 |
| | | | | 16-QAM | **1** | **0** | **21.00** | **0.13** |
| | | | | | 1 | 14 | 20.95 | 0.12 |
| | | | | | 6 | 9 | 20.09 | 0.10 |
| | | | | | 15 | 0 | 20.05 | 0.10 |
| | | 20635 | 847.5 | QPSK | **1** | **0** | **21.78** | **0.15** |
| | | | | | 1 | 14 | 21.76 | 0.15 |
| | | | | | 6 | 9 | 20.78 | 0.12 |
| | | | | | 15 | 0 | 20.82 | 0.12 |
| | | | | 16-QAM | **1** | **0** | **21.85** | **0.15** |
| | | | | | 1 | 14 | 21.78 | 0.15 |
| | | | | | 6 | 9 | 20.79 | 0.12 |
| | | | | | 15 | 0 | 20.02 | 0.10 |
| | 5MHz | 20425 | 826.5 | QPSK | **1** | **0** | **22.09** | **0.16** |
| | | | | | 1 | 24 | 21.94 | 0.16 |
| | | | | | 8 | 17 | 22.11 | 0.16 |
| | | | | | 25 | 0 | 21.1 | 0.13 |
| | | | | 16-QAM | **1** | **0** | **21.54** | **0.14** |
| | | | | | 1 | 24 | 21.42 | 0.14 |
| | | | | | 8 | 17 | 21.08 | 0.13 |
| | | | | | 25 | 0 | 20.23 | 0.11 |
| | | 20525 | 836.5 | QPSK | **1** | **0** | **21.91** | **0.16** |
| | | | | | 1 | 24 | 21.88 | 0.15 |
| | | | | | 8 | 17 | 21.87 | 0.15 |
| | | | | | 25 | 0 | 20.90 | 0.12 |
| | | | | 16-QAM | **1** | **0** | **21.16** | **0.13** |
| | | | | | 1 | 24 | 21.10 | 0.13 |
| | | | | | 8 | 17 | 20.95 | 0.12 |
| | | | | | 25 | 0 | 20.02 | 0.10 |
| | | 20625 | 846.5 | QPSK | 1 | 0 | 21.69 | 0.15 |
| | | | | | 1 | 24 | 21.63 | 0.15 |
| | | | | | **8** | **17** | **21.78** | **0.15** |
| | | | | | 25 | 0 | 20.78 | 0.12 |
| | | | | 16-QAM | 1 | 0 | 20.85 | 0.12 |
| | | | | | 1 | 24 | 20.81 | 0.12 |
| | | | | | **8** | **17** | **20.90** | **0.12** |
| | | | | | 25 | 0 | 19.98 | 0.10 |
| | 10MHz | 20450 | 829 | QPSK | **1** | **0** | **22.17** | **0.16** |
| | | | | | 1 | 49 | 21.85 | 0.15 |
| | | | | | 16 | 34 | 21.93 | 0.16 |
| | | | | | 50 | 0 | 21.10 | 0.13 |
| | | | | 16-QAM | **1** | **0** | **21.67** | **0.15** |
| | | | | | 1 | 49 | 21.34 | 0.14 |
| | | | | | 16 | 34 | 20.15 | 0.10 |
| | | | | | 50 | 0 | 20.20 | 0.10 |
| | | 20525 | 836.5 | QPSK | **1** | **0** | **21.92** | **0.16** |
| | | | | | 1 | 49 | 21.60 | 0.14 |
| | | | | | 16 | 34 | 20.82 | 0.12 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| LTE Band 5 | | | | | 50 | 0 | 20.85 | 0.12 |
| | | | | 16-QAM | **1** | **0** | **21.14** | **0.13** |
| | | | | | 1 | 49 | 20.78 | 0.12 |
| | | | | | 16 | 34 | 19.92 | 0.10 |
| | | | | | 50 | 0 | 19.98 | 0.10 |
| | | 20600 | 844 | QPSK | **1** | **0** | **21.77** | **0.15** |
| | | | | | 1 | 49 | 21.63 | 0.15 |
| | | | | | 16 | 34 | 20.75 | 0.12 |
| | | | | | 50 | 0 | 20.80 | 0.12 |
| | | | | 16-QAM | **1** | **0** | **20.90** | **0.12** |
| | | | | | 1 | 49 | 20.80 | 0.12 |
| | | | | | 16 | 34 | 19.95 | 0.10 |
| | | | | | 50 | 0 | 19.93 | 0.10 |

| Mode | Band Width | Channel | Frequeny (MHz) | Modulation | RB Configuration | | Average Power (dBm) | Average Power (Watts) |
|---|---|---|---|---|---|---|---|---|
| | | | | | RB Size | RB Offset | | |
| LTE Band 12 | 1.4 MHz | 23017 | 699.7 | QPSK | **1** | **0** | **22.12** | **0.16** |
| | | | | | 1 | 5 | 21.99 | 0.16 |
| | | | | | 5 | 1 | 22.00 | 0.16 |
| | | | | | 6 | 0 | 21.03 | 0.13 |
| | | | | 16-QAM | **1** | **0** | **21.15** | **0.13** |
| | | | | | 1 | 5 | 21.13 | 0.13 |
| | | | | | 5 | 1 | 21.01 | 0.13 |
| | | | | | 6 | 0 | 20.11 | 0.10 |
| | | 23095 | 707.5 | QPSK | 1 | 0 | 21.93 | 0.16 |
| | | | | | **1** | **5** | **21.97** | **0.16** |
| | | | | | 5 | 1 | 21.87 | 0.15 |
| | | | | | 6 | 0 | 20.88 | 0.12 |
| | | | | 16-QAM | 1 | 0 | 21.06 | 0.13 |
| | | | | | **1** | **5** | **21.10** | **0.13** |
| | | | | | 5 | 1 | 20.96 | 0.12 |
| | | | | | 6 | 0 | 19.88 | 0.10 |
| | | 23173 | 715.3 | QPSK | 1 | 0 | 21.88 | 0.15 |
| | | | | | 1 | 5 | 21.88 | 0.15 |
| | | | | | **5** | **1** | **21.93** | **0.16** |
| | | | | | 6 | 0 | 20.56 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **20.86** | **0.12** |
| | | | | | 1 | 5 | 20.80 | 0.12 |
| | | | | | 5 | 1 | 20.57 | 0.11 |
| | | | | | 6 | 0 | 19.73 | 0.09 |
| | 3MHz | 23025 | 700.5 | QPSK | **1** | **0** | **21.79** | **0.15** |
| | | | | | 1 | 14 | 21.74 | 0.15 |
| | | | | | 6 | 9 | 20.66 | 0.12 |
| | | | | | 15 | 0 | 20.76 | 0.12 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | 16-QAM | **1** | **0** | **20.82** | **0.12** |
| | | | | | 1 | 14 | 20.80 | 0.12 |
| | | | | | 6 | 9 | 19.78 | 0.10 |
| | | | | | 15 | 0 | 19.77 | 0.09 |
| | | 23095 | 707.5 | QPSK | **1** | **0** | **21.56** | **0.14** |
| | | | | | 1 | 14 | 21.49 | 0.14 |
| | | | | | 6 | 9 | 20.50 | 0.11 |
| | | | | | 15 | 0 | 20.47 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **20.58** | **0.11** |
| | | | | | 1 | 14 | 20.48 | 0.11 |
| | | | | | 6 | 9 | 19.56 | 0.09 |
| | | | | | 15 | 0 | 19.53 | 0.09 |
| | | 23165 | 714.5 | QPSK | 1 | 0 | 21.47 | 0.14 |
| | | | | | **1** | **14** | **21.48** | **0.14** |
| | | | | | 6 | 9 | 20.41 | 0.11 |
| | | | | | 15 | 0 | 20.45 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **20.90** | **0.12** |
| | | | | | 1 | 14 | 20.84 | 0.84 |
| | | | | | 6 | 9 | 19.60 | 0.09 |
| | | | | | 15 | 0 | 19.64 | 0.09 |
| LTE Band 12 | 5MHz | 23035 | 701.5 | QPSK | **1** | **0** | **21.69** | **0.15** |
| | | | | | 1 | 24 | 21.60 | 0.14 |
| | | | | | 8 | 17 | 21.66 | 0.15 |
| | | | | | 25 | 0 | 20.63 | 0.12 |
| | | | | 16-QAM | **1** | **0** | **20.82** | **0.12** |
| | | | | | 1 | 24 | 20.63 | 0.12 |
| | | | | | 8 | 17 | 20.75 | 0.12 |
| | | | | | 25 | 0 | 19.72 | 0.09 |
| | | 23095 | 707.5 | QPSK | **1** | **0** | **21.80** | **0.15** |
| | | | | | 1 | 24 | 21.63 | 0.15 |
| | | | | | 8 | 17 | 21.44 | 0.14 |
| | | | | | 25 | 0 | 20.40 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **21.26** | **0.13** |
| | | | | | 1 | 24 | 21.05 | 0.13 |
| | | | | | 8 | 17 | 20.83 | 0.12 |
| | | | | | 25 | 0 | 19.88 | 0.10 |
| | | 23155 | 713.5 | QPSK | 1 | 0 | 21.81 | 0.15 |
| | | | | | 1 | 24 | 21.79 | 0.15 |
| | | | | | **8** | **17** | **21.85** | **0.15** |
| | | | | | 25 | 0 | 20.71 | 0.12 |
| | | | | 16-QAM | 1 | 0 | 20.98 | 0.13 |
| | | | | | **1** | **24** | **21.04** | **0.13** |
| | | | | | 8 | 17 | 20.82 | 0.12 |
| | | | | | 25 | 0 | 19.79 | 0.10 |
| | 10MHz | 23060 | 704 | QPSK | **1** | **0** | **21.90** | **0.15** |
| | | | | | 1 | 49 | 21.57 | 0.14 |
| | | | | | 16 | 34 | 20.66 | 0.12 |
| | | | | | 50 | 0 | 20.78 | 0.12 |
| | | | | 16-QAM | **1** | **0** | **21.06** | **0.13** |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | 1 | 49 | 20.80 | 0.12 |
| | | | | | 16 | 34 | 19.87 | 0.10 |
| | | | | | 50 | 0 | 19.82 | 0.10 |
| | | 23095 | 707.5 | QPSK | **1** | **0** | **22.05** | **0.16** |
| | | | | | 1 | 49 | 21.72 | 0.15 |
| | | | | | 16 | 34 | 20.74 | 0.12 |
| | | | | | 50 | 0 | 20.85 | 0.12 |
| LTE Band 12 | | | | 16-QAM | **1** | **0** | **21.06** | **0.13** |
| | | | | | 1 | 49 | 20.91 | 0.12 |
| | | | | | 16 | 34 | 19.92 | 0.10 |
| | | | | | 50 | 0 | 19.95 | 0.10 |
| | | 23130 | 711 | QPSK | **1** | **0** | **21.51** | **0.14** |
| | | | | | 1 | 49 | 21.40 | 0.14 |
| | | | | | 16 | 34 | 20.40 | 0.11 |
| | | | | | 50 | 0 | 20.43 | 0.11 |
| | | | | 16-QAM | **1** | **0** | **20.95** | **0.12** |
| | | | | | 1 | 49 | 20.80 | 0.12 |
| | | | | | 16 | 34 | 19.51 | 0.09 |
| | | | | | 50 | 0 | 19.54 | 0.09 |

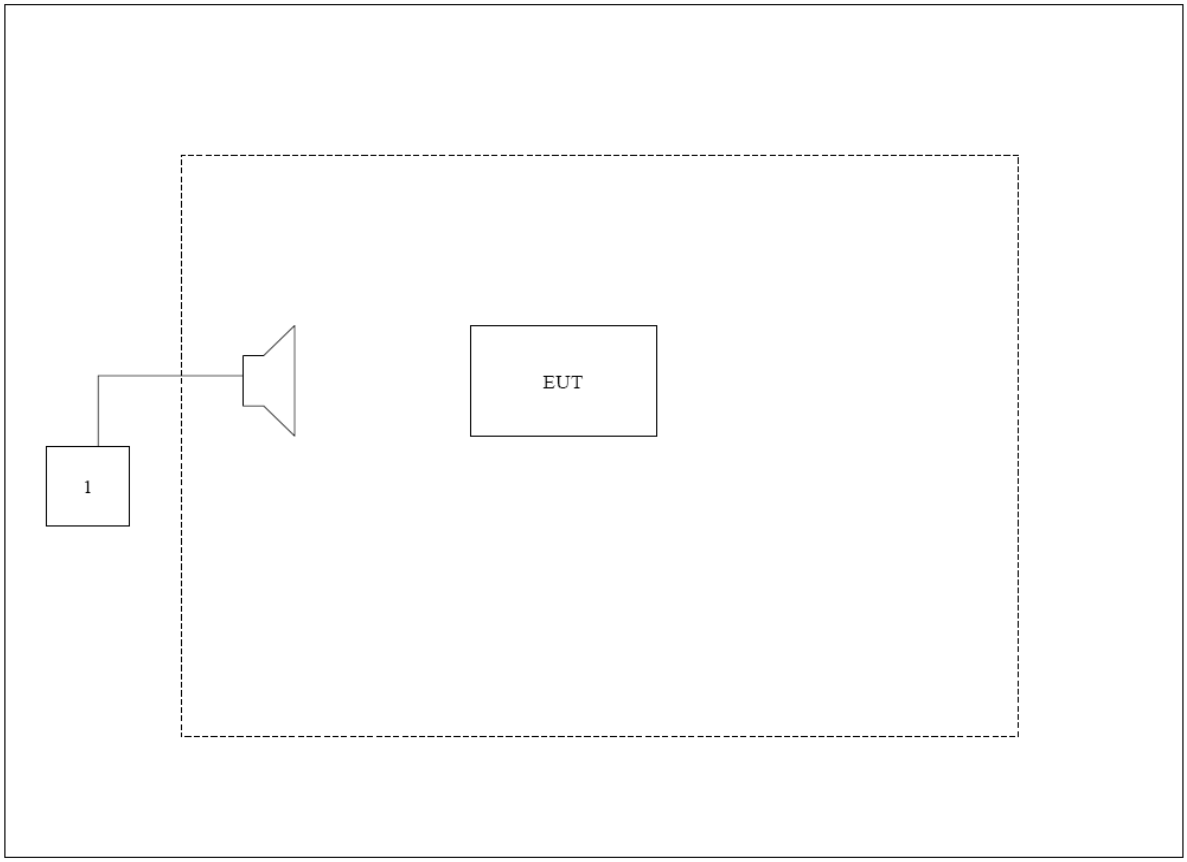
## 1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

| Product | Manufacturer | Model | Serial No. | Power Cord |
|---|---|---|---|---|
| Radio Communication Tester | R&S | CMW500 | 147483 | N/A |

## 1.4. Configuration of Tested System

Connection Diagram




## 1.5. EUT Exercise Software

| | |
|---|---|
| 1 | Setup the EUT and simulators as shown on above. |
| 2 | Turn on the power of all equipment. |
| 3 | EUT Communicate with CMW500, then select channel to test. |

# 2. Technical Test

## 2.1. Test Environment

| Items | Required (IEC 68-1) | Actual |
|---|---|---|
| Temperature (℃) | 15-35 | 22 |
| Humidity (%RH) | 25-75 | 53 |
| Barometric pressure (mbar) | 860-1060 | 950-1000 |

# 3. Peak Output Power

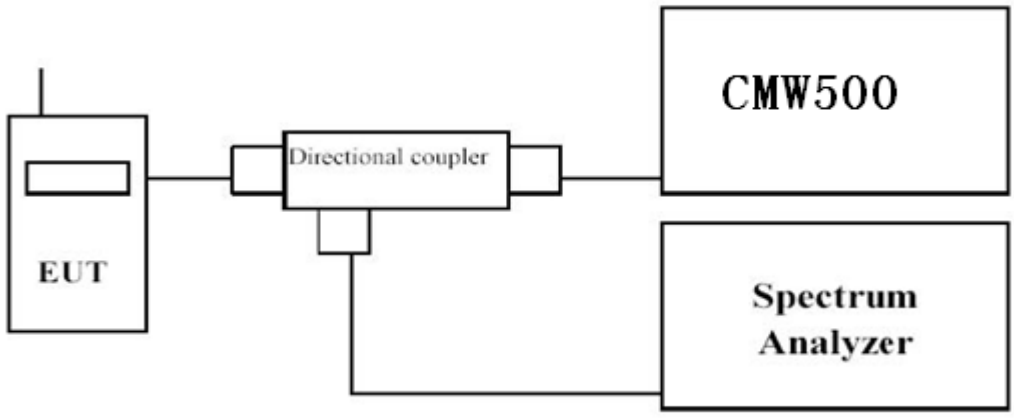
## 3.1. Test Equipment

| Instrument | Manufacturer | Model | Serial No. | Cali. Due Date |
|---|---|---|---|---|
| Spectrum Analyzer | Agilent | N9038A | MY51210142 | 11/05/2016 |
| Radio Communication Tester | R&S | CMW500 | 147483 | 11/08/2016 |
| Signal Generator | Agilent | N5183A | MY50140938 | 01/04/2016 |
| Preamplifier | CEM | EM30180 | 3008A0245 | 02/27/2016 |
| DC Power Supply | Agilent | 6612C | MY43002989 | 03/02/2016 |
| Bilog Antenna | Schwarzbeck | VULB9160 | 9160-3316 | 09/19/2016 |
| VHF-UHF-Biconical Antenna | Schwarzbeck | VUBA9117 | 9117-263 | 09/19/2016 |
| Broad-Band Horn Antenna | Schwarzbeck | BBHA9120D | 9120D-942 | 09/19/2016 |
| Broad-Band Horn Antenna | Schwarzbeck | BBHA9120D | 9120D-943 | 09/19/2016 |

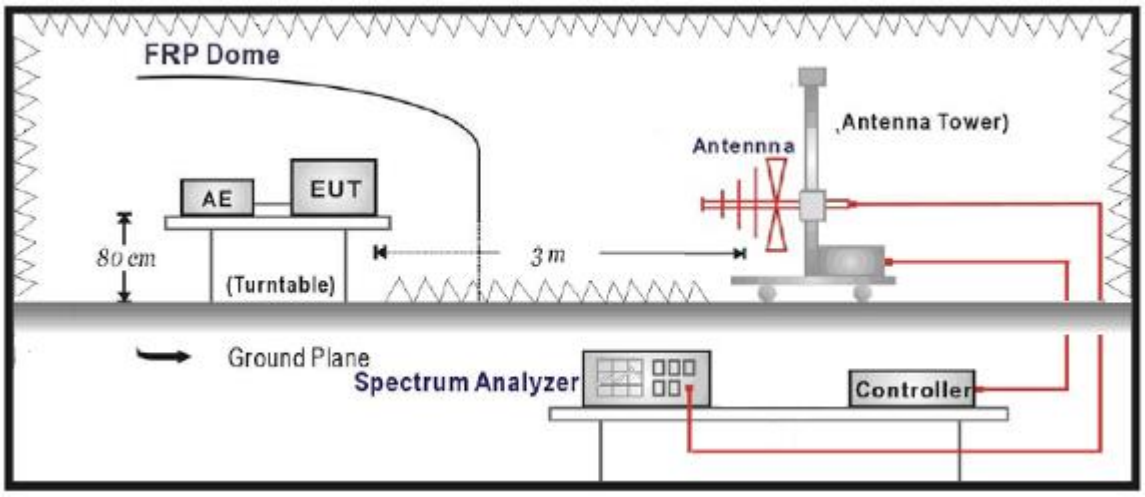
The measure equipment had been calibrated once a year.

## 3.2. Test Setup

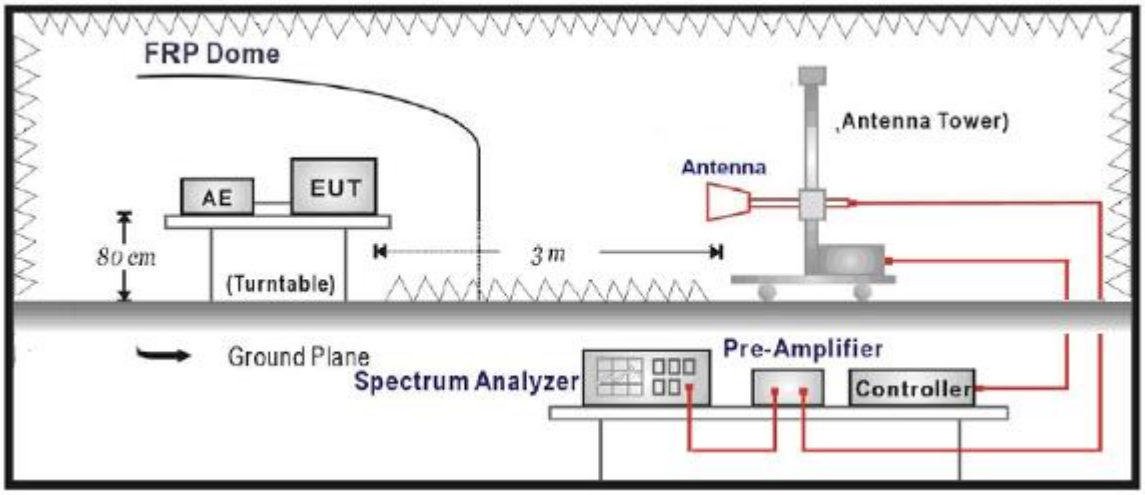
Conducted Power Measurement:



Radiated Spurious Measurement: below 1GHz




Radiated Spurious Measurement: above 1GHz




## 3.3. Limit

**For FCC Part 22.913(a)(2):**
The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

**For FCC Part 24.232(c):**
The EIRP of mobile transmitters and auxiliary test transmitters must not exceed 2 Watts.

**For FCC Part 27.50(d):**
The EIRP of mobile transmitters and auxiliary test transmitters must not exceed 1 Watt.

**For FCC Part 27.50(c):**
The ERP of mobile transmitters and auxiliary test transmitters must not exceed 3 Watts.

# 3.4. Test Procedure

**Conducted Power Measurement:**
a. Place the EUT on a bench and set it in transmitting mode.
b. Connect a low loss RF cable from the antenna port to a spectrum analyzer and CMW500 by a Directional Couple.
c. EUT Communicate with CMW500, then selects a channel for testing.
d. Add a correction factor to the display of spectrum, and then test.

**Radiated Power Measurement:**
a. The EUT shall be placed at the specified height on a support, and in the position closest to normal use as declared by provider.
b. The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter
c. The output of the test antenna shall be connected to the measuring receiver.
d. The transmitter shall be switched on and the measuring receiver shall be tuned to the frequency of the transmitter under test.
e. The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
f. The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
g. The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.
h. The maximum signal level detected by the measuring receiver shall be noted.
i. The transmitter shall be replaced by a substitution antenna.
j. The substitution antenna shall be orientated for vertical polarization and the length of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.
k. The substitution antenna shall be connected to a calibrated signal generator.
l. If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
m. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
n. The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
o. The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.
p. The measure of the effective radiated power is the larger of the two levels recorded at the input to the substitution antenna, corrected for gain of the substitution antenna if necessary.
q. Test site anechoic chamber refer to ANSI C63.4: 2014.

# 3.5. Uncertainty

The measurement uncertainty is defined as for Conducted Power Measurement±1.1 dB,
for Radiated Power Measurement±3.1 dB

## 3.6. Test Result

The following table shows the conducted power measured:

| Mode | Band Width | Channel | Frequeny (MHz) | Modulation | RB Configuration | | Average Power (dBm) | Average Power (Watts) |
|---|---|---|---|---|---|---|---|---|
| | | | | | RB Size | RB Offset | | |
| LTE Band 2 | 1.4 MHz | 18607 | 1850.7 | QPSK | **1** | **0** | **21.35** | **0.14** |
| | | | | 16-QAM | **1** | **0** | **20.47** | **0.11** |
| | | 18900 | 1880.0 | QPSK | 1 | 0 | 21.30 | 0.13 |
| | | | | 16-QAM | 1 | 0 | 20.39 | 0.11 |
| | | 19193 | 1909.3 | QPSK | 1 | 0 | 21.02 | 0.13 |
| | | | | 16-QAM | 1 | 0 | 20.15 | 0.10 |
| | 3MHz | 18615 | 1851.5 | QPSK | 1 | 0 | 21.22 | 0.13 |
| | | | | 16-QAM | 1 | 0 | 20.46 | 0.11 |
| | | 18900 | 1880.0 | QPSK | **1** | **0** | **21.24** | **0.13** |
| | | | | 16-QAM | 1 | 0 | 20.38 | 0.11 |
| | | 19185 | 1908.5 | QPSK | 1 | 0 | 20.98 | 0.13 |
| | | | | 16-QAM | **1** | **0** | **20.49** | **0.11** |
| | 5MHz | 18625 | 1852.5 | QPSK | **1** | **0** | **21.26** | **0.13** |
| | | | | 16-QAM | 8 | 17 | 20.38 | 0.11 |
| | | 18900 | 1880.0 | QPSK | 8 | 17 | 21.22 | 0.13 |
| | | | | 16-QAM | **1** | **0** | **20.57** | **0.11** |
| | | 19175 | 1907.5 | QPSK | 1 | 0 | 21.05 | 0.13 |
| | | | | 16-QAM | 1 | 0 | 20.19 | 0.10 |
| | 10MHz | 18650 | 1855.0 | QPSK | 1 | 0 | 21.44 | 0.14 |
| | | | | 16-QAM | 1 | 0 | 20.65 | 0.12 |
| | | 18900 | 1880.0 | QPSK | **1** | **0** | **21.53** | **0.14** |
| | | | | 16-QAM | 1 | 0 | 20.56 | 0.11 |
| | | 19150 | 1905.0 | QPSK | 1 | 0 | 21.35 | 0.14 |
| | | | | 16-QAM | **1** | **0** | **20.83** | **0.12** |
| | 15MHz | 18675 | 1857.5 | QPSK | **1** | **0** | **21.64** | **0.15** |
| | | | | 16-QAM | **1** | **0** | **21.16** | **0.13** |
| | | 18900 | 1880.0 | QPSK | 1 | 0 | 21.62 | 0.15 |
| | | | | 16-QAM | 1 | 0 | 20.85 | 0.12 |
| | | 19125 | 1902.5 | QPSK | 1 | 0 | 21.61 | 0.14 |
| | | | | 16-QAM | 1 | 0 | 20.75 | 0.12 |
| | 20MHz | 18700 | 1860.0 | QPSK | **1** | **0** | **21.66** | **0.15** |
| | | | | 16-QAM | 1 | 0 | 20.83 | 0.12 |
| | | 18900 | 1880.0 | QPSK | 1 | 0 | 21.49 | 0.14 |
| | | | | 16-QAM | **1** | **0** | **20.85** | **0.12** |
| | | 19100 | 1900.0 | QPSK | 1 | 0 | 21.49 | 0.14 |
| | | | | 16-QAM | 1 | 0 | 20.51 | 0.11 |

| Mode | Band Width | Channel | Frequeny (MHz) | Modulation | RB Configuration | | Average Power (dBm) | Average Power (Watts) |
|---|---|---|---|---|---|---|---|---|
| | | | | | RB Size | RB Offset | | |
| LTE Band 4 | 1.4 MHz | 19957 | 1710.7 | **QPSK** | **1** | **0** | **21.60** | **0.14** |
| | | | | **16-QAM** | **1** | **0** | **20.65** | **0.12** |
| | | 20175 | 1732.5 | QPSK | 1 | 0 | 21.40 | 0.14 |
| | | | | 16-QAM | 1 | 0 | 20.57 | 0.11 |
| | | 20393 | 1754.3 | QPSK | 5 | 1 | 21.40 | 0.14 |
| | | | | 16-QAM | 1 | 5 | 20.56 | 0.11 |
| | 3MHz | 19965 | 1711.5 | **QPSK** | **1** | **0** | **21.57** | **0.14** |
| | | | | **16-QAM** | **1** | **0** | **21.08** | **0.13** |
| | | 20175 | 1732.5 | QPSK | 1 | 0 | 21.47 | 0.14 |
| | | | | 16-QAM | 1 | 0 | 20.68 | 0.12 |
| | | 20385 | 1753.5 | QPSK | 1 | 0 | 21.50 | 0.14 |
| | | | | 16-QAM | 1 | 0 | 20.53 | 0.11 |
| | 5MHz | 19975 | 1712.5 | **QPSK** | **1** | **0** | **21.58** | **0.14** |
| | | | | **16-QAM** | **1** | **0** | **20.96** | **0.12** |
| | | 20175 | 1732.5 | QPSK | 1 | 0 | 21.51 | 0.14 |
| | | | | 16-QAM | 1 | 0 | 20.86 | 0.12 |
| | | 20375 | 1752.5 | QPSK | 1 | 0 | 21.43 | 0.14 |
| | | | | 16-QAM | 1 | 0 | 20.52 | 0.11 |
| | 10MHz | 20000 | 1715.0 | QPSK | 1 | 0 | 21.40 | 0.14 |
| | | | | **16-QAM** | **1** | **0** | **20.87** | **0.12** |
| | | 20175 | 1732.5 | **QPSK** | **1** | **0** | **21.46** | **0.14** |
| | | | | 16-QAM | 1 | 0 | 20.68 | 0.12 |
| | | 20350 | 1750.0 | QPSK | 1 | 0 | 21.42 | 0.14 |
| | | | | 16-QAM | 1 | 0 | 20.59 | 0.11 |
| | 15MHz | 20025 | 1717.5 | QPSK | 1 | 0 | 21.66 | 0.15 |
| | | | | 16-QAM | 1 | 0 | 21.23 | 0.13 |
| | | 20175 | 1732.5 | **QPSK** | **1** | **0** | **21.70** | **0.15** |
| | | | | **16-QAM** | **1** | **0** | **21.24** | **0.13** |
| | | 20325 | 1747.5 | QPSK | 1 | 0 | 21.50 | 0.14 |
| | | | | 16-QAM | 1 | 0 | 20.84 | 0.12 |
| | 20MHz | 20050 | 1720.0 | QPSK | 1 | 0 | 21.32 | 0.14 |
| | | | | 16-QAM | 1 | 0 | 20.58 | 0.11 |
| | | 20175 | 1732.5 | **QPSK** | **1** | **0** | **21.63** | **0.15** |
| | | | | 16-QAM | 1 | 0 | 20.88 | 0.12 |
| | | 20300 | 1745.0 | QPSK | 1 | 0 | 21.54 | 0.14 |
| | | | | **16-QAM** | **1** | **0** | **21.07** | **0.13** |

| Mode | Band Width | Channel | Frequeny (MHz) | Modulation | RB Configuration | | Average Power (dBm) | Average Power (Watts) |
|---|---|---|---|---|---|---|---|---|
| | | | | | RB Size | RB Offset | | |
| LTE Band 5 | 1.4 MHz | 20407 | 824.7 | **QPSK** | **1** | **0** | **22.22** | **0.17** |
| | | | | **16-QAM** | **1** | **0** | **21.33** | **0.14** |
| | | 20525 | 836.5 | QPSK | 1 | 0 | 21.88 | 0.15 |
| | | | | 16-QAM | 1 | 0 | 21.16 | 0.13 |
| | | 20643 | 848.3 | QPSK | 1 | 5 | 21.87 | 0.15 |
| | | | | 16-QAM | 1 | 5 | 20.98 | 0.13 |
| | 3MHz | 20415 | 825.5 | **QPSK** | **1** | **0** | **22.10** | **0.16** |
| | | | | 16-QAM | 1 | 0 | 21.30 | 0.13 |
| | | 20525 | 836.5 | QPSK | 1 | 0 | 21.93 | 0.16 |
| | | | | 16-QAM | 1 | 0 | 21.00 | 0.13 |
| | | 20635 | 847.5 | QPSK | 1 | 0 | 21.78 | 0.15 |
| | | | | **16-QAM** | **1** | **0** | **21.85** | **0.15** |
| | 5MHz | 20425 | 826.5 | **QPSK** | **1** | **0** | **22.09** | **0.16** |
| | | | | **16-QAM** | **1** | **0** | **21.54** | **0.14** |
| | | 20525 | 836.5 | QPSK | 1 | 0 | 21.91 | 0.16 |
| | | | | 16-QAM | 1 | 0 | 21.16 | 0.13 |
| | | 20625 | 846.5 | QPSK | 8 | 17 | 21.78 | 0.15 |
| | | | | 16-QAM | 8 | 17 | 20.90 | 0.12 |
| | 10MHz | 20450 | 829 | **QPSK** | **1** | **0** | **22.17** | **0.16** |
| | | | | **16-QAM** | **1** | **0** | **21.67** | **0.15** |
| | | 20525 | 836.5 | QPSK | 1 | 0 | 21.92 | 0.16 |
| | | | | 16-QAM | 1 | 0 | 21.14 | 0.13 |
| | | 20600 | 844 | QPSK | 1 | 0 | 21.77 | 0.15 |
| | | | | 16-QAM | 1 | 0 | 20.90 | 0.12 |

| Mode | Band Width | Channel | Frequeny (MHz) | Modulation | RB Configuration | | Average Power (dBm) | Average Power (Watts) |
|---|---|---|---|---|---|---|---|---|
| | | | | | RB Size | RB Offset | | |
| LTE Band 12 | 1.4 MHz | 23017 | 699.7 | **QPSK** | **1** | **0** | **22.12** | **0.16** |
| | | | | **16-QAM** | **1** | **0** | **21.15** | **0.13** |
| | | 23095 | 707.5 | QPSK | 1 | 5 | 21.97 | 0.16 |
| | | | | 16-QAM | 1 | 5 | 21.10 | 0.13 |
| | | 23173 | 715.3 | QPSK | 5 | 1 | 21.93 | 0.16 |
| | | | | 16-QAM | 1 | 0 | 20.86 | 0.12 |
| | 3MHz | 23025 | 700.5 | **QPSK** | **1** | **0** | **21.79** | **0.15** |
| | | | | 16-QAM | 1 | 0 | 20.82 | 0.12 |
| | | 23095 | 707.5 | QPSK | 1 | 0 | 21.56 | 0.14 |
| | | | | 16-QAM | 1 | 0 | 20.58 | 0.11 |
| | | 23165 | 714.5 | QPSK | 1 | 14 | 21.48 | 0.14 |
| | | | | **16-QAM** | **1** | **0** | **20.90** | **0.12** |
| | 5MHz | 23035 | 701.5 | QPSK | 1 | 0 | 21.69 | 0.15 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | 16-QAM | 1 | 0 | 20.82 | 0.12 |
| | | 23095 | 707.5 | QPSK | 1 | 0 | 21.80 | 0.15 |
| | | | | **16-QAM** | **1** | **0** | **21.26** | **0.13** |
| | | 23155 | 713.5 | **QPSK** | **8** | **17** | **21.85** | **0.15** |
| | | | | 16-QAM | 1 | 24 | 21.04 | 0.13 |
| | 10MHz | 23060 | 704 | QPSK | 1 | 0 | 21.90 | 0.15 |
| | | | | 16-QAM | 1 | 0 | 21.06 | 0.13 |
| | | 23095 | 707.5 | **QPSK** | **1** | **0** | **22.05** | **0.16** |
| | | | | **16-QAM** | **1** | **0** | **21.06** | **0.13** |
| | | 23130 | 711 | QPSK | 1 | 0 | 21.51 | 0.14 |
| | | | | 16-QAM | 1 | 0 | 20.95 | 0.12 |

The following table shows the Radiated power measured :

**LTE Band 2 (QPSK, Band Width 1.4MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP (dBm) | EIRP (W) |
|---|---|---|---|---|---|---|
| Low Channel 18607(1850.7MHz) | | | | | | |
| 1850.7 | H | 18.81 | 6.26 | 10.40 | 22.95 | 0.20 |
| 1850.7 | V | 18.05 | 6.26 | 10.40 | 22.19 | 0.17 |
| Middle Channel 18900 (1880.0MHz) | | | | | | |
| 1880.0 | H | 18.76 | 6.19 | 10.43 | 23.00 | 0.20 |
| 1880.0 | V | 17.81 | 6.19 | 10.43 | 22.05 | 0.16 |
| High Channel 19193 (1909.3MHz) | | | | | | |
| 1909.3 | H | 18.66 | 6.15 | 10.44 | 22.95 | 0.20 |
| 1909.3 | V | 17.87 | 6.15 | 10.44 | 22.16 | 0.16 |

**LTE Band 2 (16-QAM, Band Width 1.4MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP (dBm) | EIRP (W) |
|---|---|---|---|---|---|---|
| Low Channel 18607(1850.7MHz) | | | | | | |
| 1850.7 | H | 18.02 | 6.26 | 10.40 | 22.16 | 0.16 |
| 1850.7 | V | 17.46 | 6.26 | 10.40 | 21.60 | 0.14 |
| Middle Channel 18900 (1880.0MHz) | | | | | | |
| 1880.0 | H | 18.28 | 6.19 | 10.43 | 22.52 | 0.18 |
| 1880.0 | V | 17.95 | 6.19 | 10.43 | 22.19 | 0.17 |
| High Channel 19193 (1909.3MHz) | | | | | | |
| 1909.3 | H | 18.18 | 6.15 | 10.44 | 22.47 | 0.18 |
| 1909.3 | V | 17.65 | 6.15 | 10.44 | 21.94 | 0.16 |

**LTE Band 2 (QPSK, Band Width 3MHz ,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP (dBm) | EIRP (W) |
|---|---|---|---|---|---|---|
| Low Channel 18615(1851.5MHz) | | | | | | |
| 1851.5 | H | 18.58 | 6.26 | 10.40 | 22.72 | 0.19 |
| 1851.5 | V | 17.93 | 6.26 | 10.40 | 22.07 | 0.16 |
| Middle Channel 18900 (1880.0MHz) | | | | | | |
| 1880.0 | H | 18.86 | 6.19 | 10.43 | 23.10 | 0.20 |
| 1880.0 | V | 18.02 | 6.19 | 10.43 | 22.26 | 0.17 |
| High Channel 19185 (1908.5MHz) | | | | | | |
| 1908.5 | H | 18.59 | 6.15 | 10.44 | 22.88 | 0.19 |
| 1908.5 | V | 17.65 | 6.15 | 10.44 | 21.94 | 0.16 |

**LTE Band 2 (16-QAM, Band Width 3MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP (dBm) | EIRP (W) |
|---|---|---|---|---|---|---|
| Low Channel 18615(1851.5MHz) | | | | | | |
| 1851.5 | H | 18.31 | 6.26 | 10.40 | 22.45 | 0.18 |
| 1851.5 | V | 17.56 | 6.26 | 10.40 | 21.70 | 0.15 |
| Middle Channel 18900 (1880.0MHz) | | | | | | |
| 1880.0 | H | 18.17 | 6.19 | 10.43 | 22.41 | 0.17 |
| 1880.0 | V | 17.80 | 6.19 | 10.43 | 22.04 | 0.16 |
| High Channel 19185 (1908.5MHz) | | | | | | |
| 1908.5 | H | 18.14 | 6.15 | 10.44 | 22.43 | 0.18 |
| 1908.5 | V | 17.61 | 6.15 | 10.44 | 21.90 | 0.15 |

**LTE Band 2 (QPSK, Band Width 5MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP (dBm) | EIRP (W) |
|---|---|---|---|---|---|---|
| Low Channel 18625(1852.5MHz) | | | | | | |
| 1852.5 | H | 18.61 | 6.26 | 10.40 | 22.75 | 0.19 |
| 1852.5 | V | 18.08 | 6.26 | 10.40 | 22.22 | 0.17 |
| Middle Channel 18900 (1880.0MHz) | | | | | | |
| 1880.0 | H | 18.83 | 6.19 | 10.43 | 23.07 | 0.20 |
| 1880.0 | V | 17.75 | 6.19 | 10.43 | 21.99 | 0.16 |
| High Channel 19175 (1907.5MHz) | | | | | | |
| 1907.5 | H | 18.62 | 6.15 | 10.44 | 22.91 | 0.20 |
| 1907.5 | V | 17.65 | 6.15 | 10.44 | 21.94 | 0.16 |

**LTE Band 2 (16-QAM, Band Width 5MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP (dBm) | EIRP (W) |
|---|---|---|---|---|---|---|
| Low Channel 18625(1852.5MHz) | | | | | | |
| 1852.5 | H | 18.02 | 6.26 | 10.40 | 22.16 | 0.16 |
| 1852.5 | V | 17.39 | 6.26 | 10.40 | 21.53 | 0.14 |
| Middle Channel 18900 (1880.0MHz) | | | | | | |
| 1880.0 | H | 17.95 | 6.19 | 10.43 | 22.19 | 0.17 |
| 1880.0 | V | 17.63 | 6.19 | 10.43 | 21.87 | 0.15 |
| High Channel 19175 (1907.5MHz) | | | | | | |
| 1907.5 | H | 18.10 | 6.15 | 10.44 | 22.39 | 0.17 |
| 1907.5 | V | 17.50 | 6.15 | 10.44 | 21.79 | 0.15 |

**LTE Band 2 (QPSK, Band Width 10MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP (dBm) | EIRP (W) |
|---|---|---|---|---|---|---|
| Low Channel 18650(1855.0MHz) | | | | | | |
| 1855.0 | H | 18.54 | 6.26 | 10.40 | 22.68 | 0.19 |
| 1855.0 | V | 17.99 | 6.26 | 10.40 | 22.13 | 0.16 |
| Middle Channel 18900 (1880.0MHz) | | | | | | |
| 1880.0 | H | 18.85 | 6.19 | 10.43 | 23.09 | 0.20 |
| 1880.0 | V | 18.03 | 6.19 | 10.43 | 22.27 | 0.17 |
| High Channel 19150 (1905.0MHz) | | | | | | |
| 1905.0 | H | 18.49 | 6.15 | 10.44 | 22.78 | 0.19 |
| 1905.0 | V | 17.76 | 6.15 | 10.44 | 22.05 | 0.16 |

**LTE Band 2 (16-QAM, Band Width 10MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP (dBm) | EIRP (W) |
|---|---|---|---|---|---|---|
| Low Channel 18650(1855.0MHz) | | | | | | |
| 1855.0 | H | 18.23 | 6.26 | 10.40 | 22.37 | 0.17 |
| 1855.0 | V | 17.54 | 6.26 | 10.40 | 21.68 | 0.15 |
| Middle Channel 18900 (1880.0MHz) | | | | | | |
| 1880.0 | H | 18.02 | 6.19 | 10.43 | 22.26 | 0.17 |
| 1880.0 | V | 17.76 | 6.19 | 10.43 | 22.00 | 0.16 |
| High Channel 19150 (1905.0MHz) | | | | | | |
| 1905.0 | H | 18.38 | 6.15 | 10.44 | 22.67 | 0.18 |
| 1905.0 | V | 17.62 | 6.15 | 10.44 | 21.91 | 0.16 |

**LTE Band 2 (QPSK, Band Width 15MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP (dBm) | EIRP (W) |
|---|---|---|---|---|---|---|
| Low Channel 18675(1857.5MHz) | | | | | | |
| 1857.5 | H | 18.80 | 6.26 | 10.40 | 22.94 | 0.20 |
| 1857.5 | V | 17.86 | 6.26 | 10.40 | 22.00 | 0.16 |
| Middle Channel 18900 (1880.0MHz) | | | | | | |
| 1880.0 | H | 18.76 | 6.19 | 10.43 | 23.00 | 0.20 |
| 1880.0 | V | 18.08 | 6.19 | 10.43 | 22.32 | 0.17 |
| High Channel 19125 (1902.5MHz) | | | | | | |
| 1902.5 | H | 18.46 | 6.15 | 10.44 | 22.75 | 0.19 |
| 1902.5 | V | 17.70 | 6.15 | 10.44 | 21.99 | 0.16 |

**LTE Band 2 (16-QAM, Band Width 15MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP (dBm) | EIRP (W) |
|---|---|---|---|---|---|---|
| Low Channel 18675(1857.5MHz) | | | | | | |
| 1857.5 | H | 18.25 | 6.26 | 10.40 | 22.39 | 0.17 |
| 1857.5 | V | 17.35 | 6.26 | 10.40 | 21.49 | 0.14 |
| Middle Channel 18900 (1880.0MHz) | | | | | | |
| 1880.0 | H | 18.15 | 6.19 | 10.43 | 22.39 | 0.17 |
| 1880.0 | V | 17.71 | 6.19 | 10.43 | 21.95 | 0.16 |
| High Channel 19125 (1902.5MHz) | | | | | | |
| 1902.5 | H | 18.39 | 6.15 | 10.44 | 22.68 | 0.19 |
| 1902.5 | V | 17.62 | 6.15 | 10.44 | 21.91 | 0.16 |

**LTE Band 2 (QPSK, Band Width 20MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP (dBm) | EIRP (W) |
|---|---|---|---|---|---|---|
| Low Channel 18700(1860.0MHz) | | | | | | |
| 1860.0 | H | 18.83 | 6.26 | 10.40 | 22.97 | 0.20 |
| 1860.0 | V | 17.99 | 6.26 | 10.40 | 22.13 | 0.16 |
| Middle Channel 18900 (1880.0MHz) | | | | | | |
| 1880.0 | H | 18.75 | 6.19 | 10.43 | 22.99 | 0.20 |
| 1880.0 | V | 17.69 | 6.19 | 10.43 | 21.93 | 0.16 |
| High Channel 19100 (1900.0MHz) | | | | | | |
| 1900.0 | H | 18.53 | 6.15 | 10.44 | 22.82 | 0.19 |
| 1900.0 | V | 17.72 | 6.15 | 10.44 | 22.01 | 0.16 |

**LTE Band 2 (16-QAM, Band Width 20MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP (dBm) | EIRP (W) |
|---|---|---|---|---|---|---|
| Low Channel 18700(1860.0MHz) | | | | | | |
| 1860.0 | H | 18.27 | 6.26 | 10.40 | 22.41 | 0.17 |
| 1860.0 | V | 17.52 | 6.26 | 10.40 | 21.66 | 0.15 |
| Middle Channel 18900 (1880.0MHz) | | | | | | |
| 1880.0 | H | 18.28 | 6.19 | 10.43 | 22.52 | 0.18 |
| 1880.0 | V | 17.68 | 6.19 | 10.43 | 21.92 | 0.16 |
| High Channel 19100 (1900.0MHz) | | | | | | |
| 1900.0 | H | 18.31 | 6.15 | 10.44 | 22.60 | 0.18 |
| 1900.0 | V | 17.56 | 6.15 | 10.44 | 21.85 | 0.15 |

**LTE Band 4 (QPSK, Band Width 1.4MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP (dBm) | EIRP (W) |
|---|---|---|---|---|---|---|
| Low Channel 19957(1710.7MHz) | | | | | | |
| 1710.7 | H | 19.28 | 6.15 | 9.42 | 22.55 | 0.18 |
| 1710.7 | V | 18.58 | 6.15 | 9.42 | 21.85 | 0.15 |
| Middle Channel 20175 (1732.5MHz) | | | | | | |
| 1732.5 | H | 19.68 | 6.19 | 9.44 | 22.93 | 0.20 |
| 1732.5 | V | 18.34 | 6.19 | 9.44 | 21.59 | 0.14 |
| High Channel 20393 (1754.3MHz) | | | | | | |
| 1754.3 | H | 19.29 | 6.2 | 9.47 | 22.56 | 0.18 |
| 1754.3 | V | 18.38 | 6.2 | 9.47 | 21.65 | 0.15 |

**LTE Band 4 (16-QAM, Band Width 1.4MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP (dBm) | EIRP (W) |
|---|---|---|---|---|---|---|
| Low Channel 19957(1710.7MHz) | | | | | | |
| 1710.7 | H | 19.13 | 6.15 | 9.42 | 22.40 | 0.17 |
| 1710.7 | V | 18.36 | 6.15 | 9.42 | 21.63 | 0.15 |
| Middle Channel 20175 (1732.5MHz) | | | | | | |
| 1732.5 | H | 18.96 | 6.19 | 9.44 | 22.21 | 0.17 |
| 1732.5 | V | 18.03 | 6.19 | 9.44 | 21.28 | 0.13 |
| High Channel 20393 (1754.3MHz) | | | | | | |
| 1754.3 | H | 19.21 | 6.2 | 9.47 | 22.48 | 0.18 |
| 1754.3 | V | 18.31 | 6.2 | 9.47 | 21.58 | 0.14 |

**LTE Band 4 (QPSK, Band Width 3MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP (dBm) | EIRP (W) |
|---|---|---|---|---|---|---|
| Low Channel 19965(1711.5MHz) | | | | | | |
| 1711.5 | H | 19.60 | 6.15 | 9.42 | 22.87 | 0.19 |
| 1711.5 | V | 18.40 | 6.15 | 9.42 | 21.67 | 0.15 |
| Middle Channel 20175 (1732.5MHz) | | | | | | |
| 1732.5 | H | 19.70 | 6.19 | 9.44 | 22.95 | 0.20 |
| 1732.5 | V | 18.33 | 6.19 | 9.44 | 21.58 | 0.14 |
| High Channel 20385 (1753.5MHz) | | | | | | |
| 1753.5 | H | 19.80 | 6.2 | 9.47 | 23.07 | 0.20 |
| 1753.5 | V | 18.59 | 6.2 | 9.47 | 21.86 | 0.15 |

**LTE Band 4 (16-QAM, Band Width 3MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP (dBm) | EIRP (W) |
|---|---|---|---|---|---|---|
| Low Channel 19965(1711.5MHz) | | | | | | |
| 1711.5 | H | 18.99 | 6.15 | 9.42 | 22.26 | 0.17 |
| 1711.5 | V | 18.40 | 6.15 | 9.42 | 21.67 | 0.15 |
| Middle Channel 20175 (1732.5MHz) | | | | | | |
| 1732.5 | H | 19.26 | 6.19 | 9.44 | 22.51 | 0.18 |
| 1732.5 | V | 18.09 | 6.19 | 9.44 | 21.34 | 0.14 |
| High Channel 20385 (1753.5MHz) | | | | | | |
| 1753.5 | H | 18.95 | 6.2 | 9.47 | 22.22 | 0.17 |
| 1753.5 | V | 18.33 | 6.2 | 9.47 | 21.60 | 0.14 |

**LTE Band 4 (QPSK, Band Width 5MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP (dBm) | EIRP (W) |
|---|---|---|---|---|---|---|
| Low Channel 19975(1712.5MHz) | | | | | | |
| 1712.5 | H | 19.51 | 6.15 | 9.42 | 22.78 | 0.19 |
| 1712.5 | V | 18.62 | 6.15 | 9.42 | 21.89 | 0.15 |
| Middle Channel 20175 (1732.5MHz) | | | | | | |
| 1732.5 | H | 19.75 | 6.19 | 9.44 | 23.00 | 0.20 |
| 1732.5 | V | 18.38 | 6.19 | 9.44 | 21.63 | 0.15 |
| High Channel 20375 (1752.5MHz) | | | | | | |
| 1752.5 | H | 19.56 | 6.2 | 9.47 | 22.83 | 0.19 |
| 1752.5 | V | 18.28 | 6.2 | 9.47 | 21.55 | 0.14 |

**LTE Band 4 (16-QAM, Band Width 5MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP (dBm) | EIRP (W) |
|---|---|---|---|---|---|---|
| Low Channel 19975(1712.5MHz) | | | | | | |
| 1712.5 | H | 19.09 | 6.15 | 9.42 | 22.36 | 0.17 |
| 1712.5 | V | 18.09 | 6.15 | 9.42 | 21.36 | 0.14 |
| Middle Channel 20175 (1732.5MHz) | | | | | | |
| 1732.5 | H | 19.07 | 6.19 | 9.44 | 22.32 | 0.17 |
| 1732.5 | V | 18.33 | 6.19 | 9.44 | 21.58 | 0.14 |
| High Channel 20375 (1752.5MHz) | | | | | | |
| 1752.5 | H | 19.24 | 6.2 | 9.47 | 22.51 | 0.18 |
| 1752.5 | V | 18.05 | 6.2 | 9.47 | 21.32 | 0.14 |

**LTE Band 4 (QPSK, Band Width 10MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP (dBm) | EIRP (W) |
|---|---|---|---|---|---|---|
| Low Channel 20000(1715.0MHz) | | | | | | |
| 1715.0 | H | 19.68 | 6.15 | 9.42 | 22.95 | 0.20 |
| 1715.0 | V | 18.41 | 6.15 | 9.42 | 21.68 | 0.15 |
| Middle Channel 20175 (1732.5MHz) | | | | | | |
| 1732.5 | H | 19.59 | 6.19 | 9.44 | 22.84 | 0.19 |
| 1732.5 | V | 18.48 | 6.19 | 9.44 | 21.73 | 0.15 |
| High Channel 20350 (1750.0MHz) | | | | | | |
| 1750.0 | H | 19.62 | 6.2 | 9.47 | 22.89 | 0.19 |
| 1750.0 | V | 18.48 | 6.2 | 9.47 | 21.75 | 0.15 |

**LTE Band 4 (16-QAM, Band Width 10MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP (dBm) | EIRP (W) |
|---|---|---|---|---|---|---|
| Low Channel 20000(1715.0MHz) | | | | | | |
| 1715.0 | H | 19.17 | 6.15 | 9.42 | 22.44 | 0.18 |
| 1715.0 | V | 18.27 | 6.15 | 9.42 | 21.54 | 0.14 |
| Middle Channel 20175 (1732.5MHz) | | | | | | |
| 1732.5 | H | 19.17 | 6.19 | 9.44 | 22.42 | 0.17 |
| 1732.5 | V | 18.35 | 6.19 | 9.44 | 21.60 | 0.14 |
| High Channel 20350 (1750.0MHz) | | | | | | |
| 1750.0 | H | 19.06 | 6.2 | 9.47 | 22.33 | 0.17 |
| 1750.0 | V | 18.14 | 6.2 | 9.47 | 21.41 | 0.14 |

**LTE Band 4 (QPSK, Band Width 15MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP (dBm) | EIRP (W) |
|---|---|---|---|---|---|---|
| Low Channel 20025(1717.5MHz) | | | | | | |
| 1717.5 | H | 19.84 | 6.15 | 9.42 | 23.11 | 0.20 |
| 1717.5 | V | 18.28 | 6.15 | 9.42 | 21.55 | 0.14 |
| Middle Channel 20175 (1732.5MHz) | | | | | | |
| 1732.5 | H | 19.77 | 6.19 | 9.44 | 23.02 | 0.20 |
| 1732.5 | V | 18.61 | 6.19 | 9.44 | 21.86 | 0.15 |
| High Channel 20325 (1747.5MHz) | | | | | | |
| 1747.5 | H | 19.84 | 6.2 | 9.47 | 23.11 | 0.20 |
| 1747.5 | V | 18.61 | 6.2 | 9.47 | 21.88 | 0.15 |

**LTE Band 4 (16-QAM, Band Width 15MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP (dBm) | EIRP (W) |
|---|---|---|---|---|---|---|
| Low Channel 20025(1717.5MHz) | | | | | | |
| 1717.5 | H | 18.98 | 6.15 | 9.42 | 22.25 | 0.17 |
| 1717.5 | V | 18.02 | 6.15 | 9.42 | 21.29 | 0.13 |
| Middle Channel 20175 (1732.5MHz) | | | | | | |
| 1732.5 | H | 19.14 | 6.19 | 9.44 | 22.39 | 0.17 |
| 1732.5 | V | 18.07 | 6.19 | 9.44 | 21.32 | 0.14 |
| High Channel 20325 (1747.5MHz) | | | | | | |
| 1747.5 | H | 18.98 | 6.2 | 9.47 | 22.25 | 0.17 |
| 1747.5 | V | 18.19 | 6.2 | 9.47 | 21.46 | 0.14 |

**LTE Band 4 (QPSK, Band Width 20MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP (dBm) | EIRP (W) |
|---|---|---|---|---|---|---|
| Low Channel 20050(1720.0MHz) | | | | | | |
| 1720.0 | H | 19.74 | 6.15 | 9.42 | 23.01 | 0.20 |
| 1720.0 | V | 18.50 | 6.15 | 9.42 | 21.77 | 0.15 |
| Middle Channel 20175 (1732.5MHz) | | | | | | |
| 1732.5 | H | 19.35 | 6.19 | 9.44 | 22.60 | 0.18 |
| 1732.5 | V | 18.38 | 6.19 | 9.44 | 21.63 | 0.15 |
| High Channel 20300 (1745.0MHz) | | | | | | |
| 1745.0 | H | 19.37 | 6.2 | 9.47 | 22.64 | 0.18 |
| 1745.0 | V | 18.55 | 6.2 | 9.47 | 21.82 | 0.15 |

**LTE Band 4 (16-QAM, Band Width 20MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP (dBm) | EIRP (W) |
|---|---|---|---|---|---|---|
| Low Channel 20050(1720.0MHz) | | | | | | |
| 1720.0 | H | 19.19 | 6.15 | 9.42 | 22.46 | 0.18 |
| 1720.0 | V | 18.09 | 6.15 | 9.42 | 21.36 | 0.14 |
| Middle Channel 20175 (1732.5MHz) | | | | | | |
| 1732.5 | H | 19.07 | 6.19 | 9.44 | 22.32 | 0.17 |
| 1732.5 | V | 18.09 | 6.19 | 9.44 | 21.34 | 0.14 |
| High Channel 20300 (1745.0MHz) | | | | | | |
| 1745.0 | H | 18.97 | 6.2 | 9.47 | 22.24 | 0.17 |
| 1745.0 | V | 18.18 | 6.2 | 9.47 | 21.45 | 0.14 |

**LTE Band 5 (QPSK, Band Width 1.4MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBd) | ERP (dBm) | ERP (W) |
|---|---|---|---|---|---|---|
| Low Channel 20407(824.7MHz) | | | | | | |
| 824.7 | H | 29.76 | 3.83 | -2.99 | 22.94 | 0.20 |
| 824.7 | V | 29.14 | 3.83 | -2.99 | 22.32 | 0.17 |
| Middle Channel 20525 (836.5MHz) | | | | | | |
| 836.5 | H | 30.03 | 3.96 | -3.04 | 23.03 | 0.20 |
| 836.5 | V | 29.18 | 3.96 | -3.04 | 22.18 | 0.17 |
| High Channel 20643 (848.3MHz) | | | | | | |
| 848.3 | H | 30.05 | 3.97 | -3.1 | 22.98 | 0.20 |
| 848.3 | V | 29.09 | 3.97 | -3.1 | 22.02 | 0.16 |

**LTE Band 5 (16-QAM, Band Width 1.4MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBd) | ERP (dBm) | ERP (W) |
|---|---|---|---|---|---|---|
| Low Channel 20407(824.7MHz) | | | | | | |
| 824.7 | H | 29.28 | 3.83 | -2.99 | 22.46 | 0.18 |
| 824.7 | V | 29.03 | 3.83 | -2.99 | 22.21 | 0.17 |
| Middle Channel 20525 (836.5MHz) | | | | | | |
| 836.5 | H | 29.43 | 3.96 | -3.04 | 22.43 | 0.17 |
| 836.5 | V | 28.92 | 3.96 | -3.04 | 21.92 | 0.16 |
| High Channel 20643 (848.3MHz) | | | | | | |
| 848.3 | H | 29.33 | 3.97 | -3.1 | 22.26 | 0.17 |
| 848.3 | V | 28.63 | 3.97 | -3.1 | 21.56 | 0.14 |

**LTE Band 5 (QPSK, Band Width 3MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBd) | ERP (dBm) | ERP (W) |
|---|---|---|---|---|---|---|
| Low Channel 20415(825.5MHz) | | | | | | |
| 825.5 | H | 29.86 | 3.83 | -2.99 | 23.04 | 0.20 |
| 825.5 | V | 29.07 | 3.83 | -2.99 | 22.25 | 0.17 |
| Middle Channel 20525 (836.5MHz) | | | | | | |
| 836.5 | H | 29.73 | 3.96 | -3.04 | 22.73 | 0.19 |
| 836.5 | V | 29.26 | 3.96 | -3.04 | 22.26 | 0.17 |
| High Channel 20635 (847.5MHz) | | | | | | |
| 847.5 | H | 29.75 | 3.97 | -3.1 | 22.68 | 0.19 |
| 847.5 | V | 29.32 | 3.97 | -3.1 | 22.25 | 0.17 |

**LTE Band 5 (16-QAM, Band Width 3MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBd) | ERP (dBm) | ERP (W) |
|---|---|---|---|---|---|---|
| Low Channel 20415(825.5MHz) | | | | | | |
| 825.5 | H | 29.38 | 3.83 | -2.99 | 22.56 | 0.18 |
| 825.5 | V | 28.81 | 3.83 | -2.99 | 21.99 | 0.16 |
| Middle Channel 20525 (836.5MHz) | | | | | | |
| 836.5 | H | 29.49 | 3.96 | -3.04 | 22.49 | 0.18 |
| 836.5 | V | 28.84 | 3.96 | -3.04 | 21.84 | 0.15 |
| High Channel 20635 (847.5MHz) | | | | | | |
| 847.5 | H | 29.22 | 3.97 | -3.1 | 22.15 | 0.16 |
| 847.5 | V | 28.55 | 3.97 | -3.1 | 21.48 | 0.14 |

**LTE Band 5 (QPSK, Band Width 5MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBd) | ERP (dBm) | ERP (W) |
|---|---|---|---|---|---|---|
| Low Channel 20425(826.5MHz) | | | | | | |
| 826.5 | H | 29.94 | 3.83 | -2.99 | 23.12 | 0.20 |
| 826.5 | V | 29.24 | 3.83 | -2.99 | 22.42 | 0.17 |
| Middle Channel 20525 (836.5MHz) | | | | | | |
| 836.5 | H | 29.92 | 3.96 | -3.04 | 22.92 | 0.20 |
| 836.5 | V | 29.54 | 3.96 | -3.04 | 22.54 | 0.18 |
| High Channel 20625 (846.5MHz) | | | | | | |
| 846.5 | H | 30.00 | 3.97 | -3.1 | 22.93 | 0.20 |
| 846.5 | V | 29.20 | 3.97 | -3.1 | 22.13 | 0.16 |

**LTE Band 5 (16-QAM, Band Width 5MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBd) | ERP (dBm) | ERP (W) |
|---|---|---|---|---|---|---|
| Low Channel 20425(826.5MHz) | | | | | | |
| 826.5 | H | 29.61 | 3.83 | -2.99 | 22.79 | 0.19 |
| 826.5 | V | 28.93 | 3.83 | -2.99 | 22.11 | 0.16 |
| Middle Channel 20525 (836.5MHz) | | | | | | |
| 836.5 | H | 29.49 | 3.96 | -3.04 | 22.49 | 0.18 |
| 836.5 | V | 28.71 | 3.96 | -3.04 | 21.71 | 0.15 |
| High Channel 20625 (846.5MHz) | | | | | | |
| 846.5 | H | 29.24 | 3.97 | -3.1 | 22.17 | 0.16 |
| 846.5 | V | 28.65 | 3.97 | -3.1 | 21.58 | 0.14 |

**LTE Band 5 (QPSK, Band Width 10MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBd) | ERP (dBm) | ERP (W) |
|---|---|---|---|---|---|---|
| Low Channel 20450(829.0MHz) | | | | | | |
| 829.0 | H | 29.80 | 3.83 | -2.99 | 22.98 | 0.20 |
| 829.0 | V | 29.11 | 3.83 | -2.99 | 22.29 | 0.17 |
| Middle Channel 20525 (836.5MHz) | | | | | | |
| 836.5 | H | 29.84 | 3.96 | -3.04 | 22.84 | 0.19 |
| 836.5 | V | 29.50 | 3.96 | -3.04 | 22.50 | 0.18 |
| High Channel 20600 (844.0MHz) | | | | | | |
| 844.0 | H | 29.88 | 3.97 | -3.1 | 22.81 | 0.19 |
| 844.0 | V | 29.19 | 3.97 | -3.1 | 22.12 | 0.16 |

**LTE Band 5 (16-QAM, Band Width 10MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBd) | ERP (dBm) | ERP (W) |
|---|---|---|---|---|---|---|
| Low Channel 20450(829.0MHz) | | | | | | |
| 829.0 | H | 29.41 | 3.83 | -2.99 | 22.59 | 0.18 |
| 829.0 | V | 28.71 | 3.83 | -2.99 | 21.89 | 0.15 |
| Middle Channel 20525 (836.5MHz) | | | | | | |
| 836.5 | H | 29.52 | 3.96 | -3.04 | 22.52 | 0.18 |
| 836.5 | V | 28.81 | 3.96 | -3.04 | 21.81 | 0.15 |
| High Channel 20600 (844.0MHz) | | | | | | |
| 844.0 | H | 29.43 | 3.97 | -3.1 | 22.36 | 0.17 |
| 844.0 | V | 28.55 | 3.97 | -3.1 | 21.48 | 0.14 |

**LTE Band 12 (QPSK, Band Width 1.4MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBd) | ERP (dBm) | ERP (W) |
|---|---|---|---|---|---|---|
| Low Channel 23017(699.7MHz) | | | | | | |
| 699.7 | H | 29.30 | 3.53 | -2.67 | 23.10 | 0.20 |
| 699.7 | V | 28.77 | 3.53 | -2.67 | 22.57 | 0.18 |
| Middle Channel 23095 (707.5MHz) | | | | | | |
| 707.5 | H | 29.18 | 3.54 | -2.64 | 23.00 | 0.20 |
| 707.5 | V | 28.96 | 3.54 | -2.64 | 22.78 | 0.19 |
| High Channel 23137 (715.3MHz) | | | | | | |
| 715.3 | H | 29.19 | 3.55 | -2.63 | 23.01 | 0.20 |
| 715.3 | V | 28.76 | 3.55 | -2.63 | 22.58 | 0.18 |

**LTE Band 12 (16-QAM, Band Width 1.4MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBd) | ERP (dBm) | ERP (W) |
|---|---|---|---|---|---|---|
| Low Channel 23017(699.7MHz) | | | | | | |
| 699.7 | H | 29.06 | 3.53 | -2.67 | 22.86 | 0.19 |
| 699.7 | V | 28.38 | 3.53 | -2.67 | 22.18 | 0.17 |
| Middle Channel 23095 (707.5MHz) | | | | | | |
| 707.5 | H | 28.88 | 3.54 | -2.64 | 22.70 | 0.19 |
| 707.5 | V | 28.63 | 3.54 | -2.64 | 22.45 | 0.18 |
| High Channel 23137 (715.3MHz) | | | | | | |
| 715.3 | H | 29.00 | 3.55 | -2.63 | 22.82 | 0.19 |
| 715.3 | V | 28.38 | 3.55 | -2.63 | 22.20 | 0.17 |

**LTE Band 12 (QPSK, Band Width 3MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBd) | ERP (dBm) | ERP (W) |
|---|---|---|---|---|---|---|
| Low Channel 23025(700.5MHz) | | | | | | |
| 700.5 | H | 29.47 | 3.53 | -2.67 | 23.27 | 0.21 |
| 700.5 | V | 28.89 | 3.53 | -2.67 | 22.69 | 0.19 |
| Middle Channel 23095 (707.5MHz) | | | | | | |
| 707.5 | H | 29.10 | 3.54 | -2.64 | 22.92 | 0.20 |
| 707.5 | V | 28.85 | 3.54 | -2.64 | 22.67 | 0.19 |
| High Channel 23165 (714.5MHz) | | | | | | |
| 714.5 | H | 29.25 | 3.55 | -2.63 | 23.07 | 0.20 |
| 714.5 | V | 28.85 | 3.55 | -2.63 | 22.67 | 0.18 |

**LTE Band 12 (16-QAM, Band Width 3MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBd) | ERP (dBm) | ERP (W) |
|---|---|---|---|---|---|---|
| Low Channel 23025(700.5MHz) | | | | | | |
| 700.5 | H | 28.99 | 3.53 | -2.67 | 22.79 | 0.19 |
| 700.5 | V | 28.28 | 3.53 | -2.67 | 22.08 | 0.16 |
| Middle Channel 23095 (707.5MHz) | | | | | | |
| 707.5 | H | 28.70 | 3.54 | -2.64 | 22.52 | 0.18 |
| 707.5 | V | 28.56 | 3.54 | -2.64 | 22.38 | 0.17 |
| High Channel 23165 (714.5MHz) | | | | | | |
| 714.5 | H | 28.79 | 3.55 | -2.63 | 22.61 | 0.18 |
| 714.5 | V | 28.44 | 3.55 | -2.63 | 22.26 | 0.17 |

**LTE Band 12 (QPSK, Band Width 5MHz,RB Size 8,RB Offset 17)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBd) | ERP (dBm) | ERP (W) |
|---|---|---|---|---|---|---|
| Low Channel 23035(701.5MHz) | | | | | | |
| 701.5 | H | 29.34 | 3.53 | -2.67 | 23.14 | 0.21 |
| 701.5 | V | 28.65 | 3.53 | -2.67 | 22.45 | 0.18 |
| Middle Channel 23095 (707.5MHz) | | | | | | |
| 707.5 | H | 29.16 | 3.54 | -2.64 | 22.98 | 0.20 |
| 707.5 | V | 28.86 | 3.54 | -2.64 | 22.68 | 0.19 |
| High Channel 23155 (713.5MHz) | | | | | | |
| 713.5 | H | 29.44 | 3.55 | -2.63 | 23.26 | 0.21 |
| 713.5 | V | 28.76 | 3.55 | -2.63 | 22.58 | 0.18 |

**LTE Band 12 (16-QAM, Band Width 5MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBd) | ERP (dBm) | ERP (W) |
|---|---|---|---|---|---|---|
| Low Channel 23035(701.5MHz) | | | | | | |
| 701.5 | H | 29.09 | 3.53 | -2.67 | 22.89 | 0.19 |
| 701.5 | V | 28.41 | 3.53 | -2.67 | 22.21 | 0.17 |
| Middle Channel 23095 (707.5MHz) | | | | | | |
| 707.5 | H | 28.95 | 3.54 | -2.64 | 22.77 | 0.19 |
| 707.5 | V | 28.48 | 3.54 | -2.64 | 22.30 | 0.17 |
| High Channel 23155 (713.5MHz) | | | | | | |
| 713.5 | H | 29.01 | 3.55 | -2.63 | 22.83 | 0.19 |
| 713.5 | V | 28.37 | 3.55 | -2.63 | 22.19 | 0.17 |

**LTE Band 12 (QPSK, Band Width 10MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBd) | ERP (dBm) | ERP (W) |
|---|---|---|---|---|---|---|
| Low Channel 23060(704MHz) | | | | | | |
| 704 | H | 29.27 | 3.53 | -2.67 | 23.07 | 0.20 |
| 704 | V | 28.85 | 3.53 | -2.67 | 22.65 | 0.18 |
| Middle Channel 23095 (707.5MHz) | | | | | | |
| 707.5 | H | 29.13 | 3.54 | -2.64 | 22.95 | 0.20 |
| 707.5 | V | 28.71 | 3.54 | -2.64 | 22.53 | 0.18 |
| High Channel 23130 (711MHz) | | | | | | |
| 711 | H | 29.25 | 3.55 | -2.63 | 23.07 | 0.20 |
| 711 | V | 28.94 | 3.55 | -2.63 | 22.76 | 0.19 |

**LTE Band 12 (16-QAM, Band Width 10MHz,RB Size 1,RB Offset 0)**

| Frequency (MHz) | Ant. Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBd) | ERP (dBm) | ERP (W) |
|---|---|---|---|---|---|---|
| Low Channel 23060(704MHz) | | | | | | |
| 704 | H | 28.72 | 3.53 | -2.67 | 22.52 | 0.18 |
| 704 | V | 28.34 | 3.53 | -2.67 | 22.14 | 0.16 |
| Middle Channel 23095 (707.5MHz) | | | | | | |
| 707.5 | H | 28.77 | 3.54 | -2.64 | 22.59 | 0.18 |
| 707.5 | V | 28.47 | 3.54 | -2.64 | 22.29 | 0.17 |
| High Channel 23130 (711MHz) | | | | | | |
| 711 | H | 28.87 | 3.55 | -2.63 | 22.69 | 0.19 |
| 711 | V | 28.68 | 3.55 | -2.63 | 22.50 | 0.18 |

# 4. Occupied Bandwidth

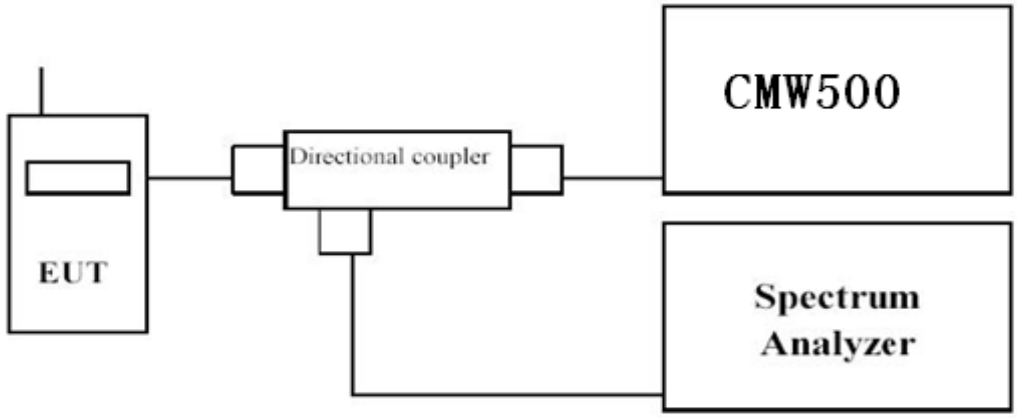
## 4.1. Test Equipment

Occupied Bandwidth

| Instrument | Manufacturer | Model | Serial No | Cal. Date |
|---|---|---|---|---|
| Radio Communication Tester | R&S | CMW500 | 147483 | 11/08/2016 |
| Spectrum Analyzer | Agilent | N9038A | MY51210142 | 11/05/2016 |
| DC Power Supply | Agilent | 6612C | MY43002989 | 03/02/2016 |

The measure equipment had been calibrated once a year.

## 4.2. Test Setup




## 4.3. Limit

N/A

## 4.4. Test Procedure

1. The testing follows FCC KDB 971168 v02v02 Section 4.2;
2. Using Occupied Bandwidth measurement function of spectrum analyzer. In the Occupied Bandwidth measurement a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

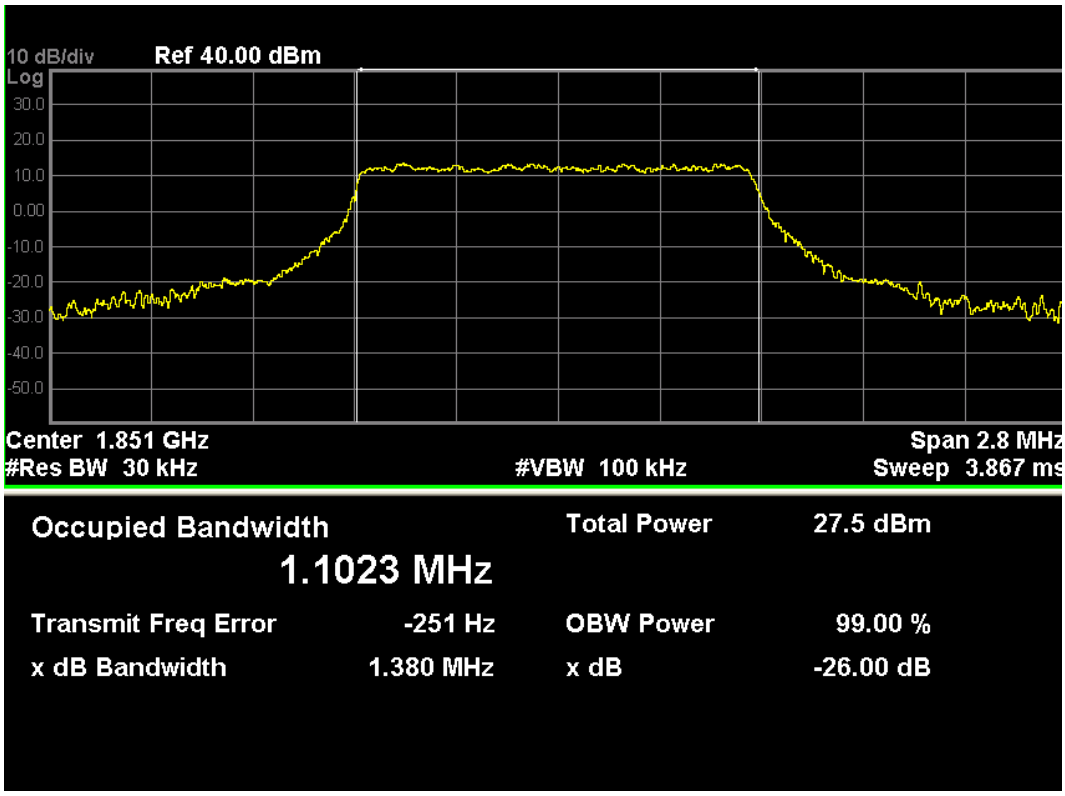
## 4.5. Uncertainty

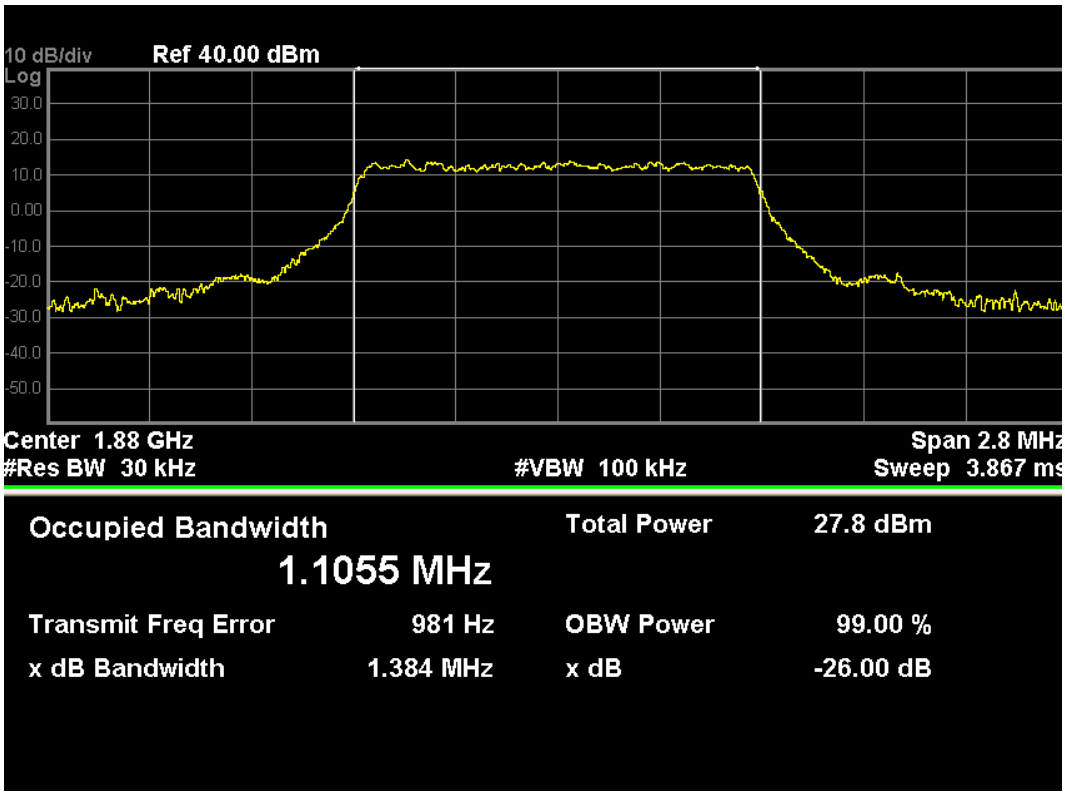
The measurement uncertainty is defined as ± 10 Hz

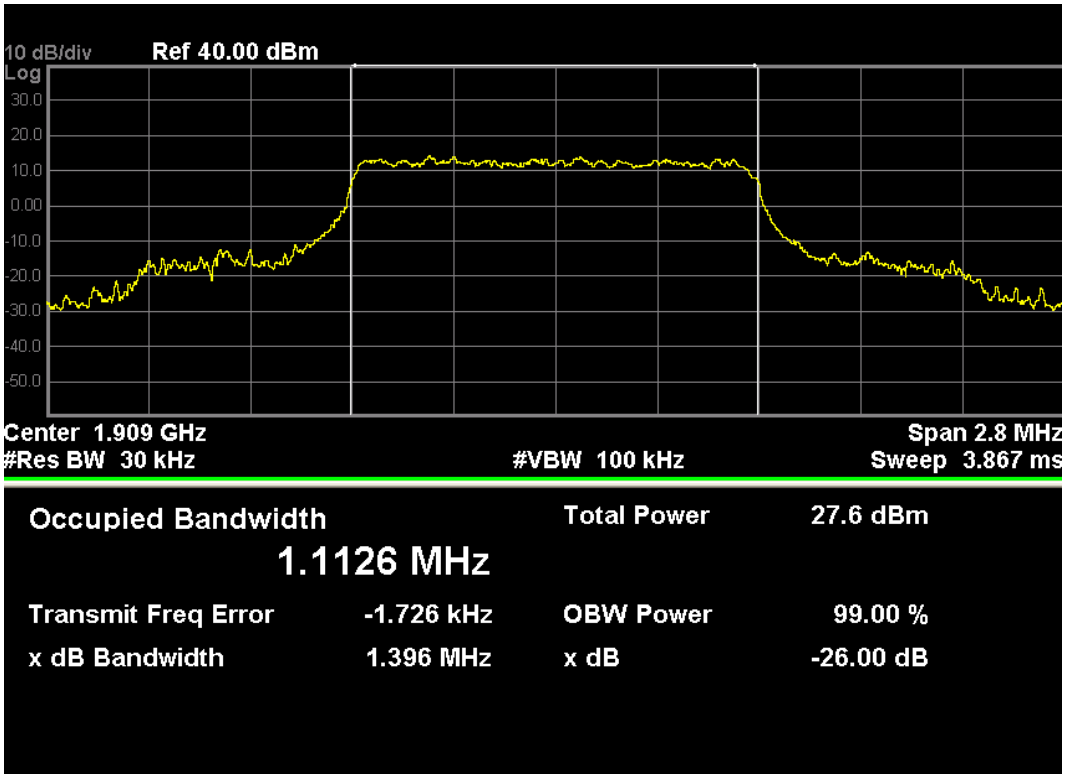
## 4.6. Test Result

**LTE Band 2 (QPSK, Band Width 1.4MHz,RB Size 6,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 18607 | 1850.7 | 1.380 | 1.1023 |
| 18900 | 1880.0 | 1.384 | 1.1055 |
| 19193 | 1909.3 | 1.396 | 1.1126 |

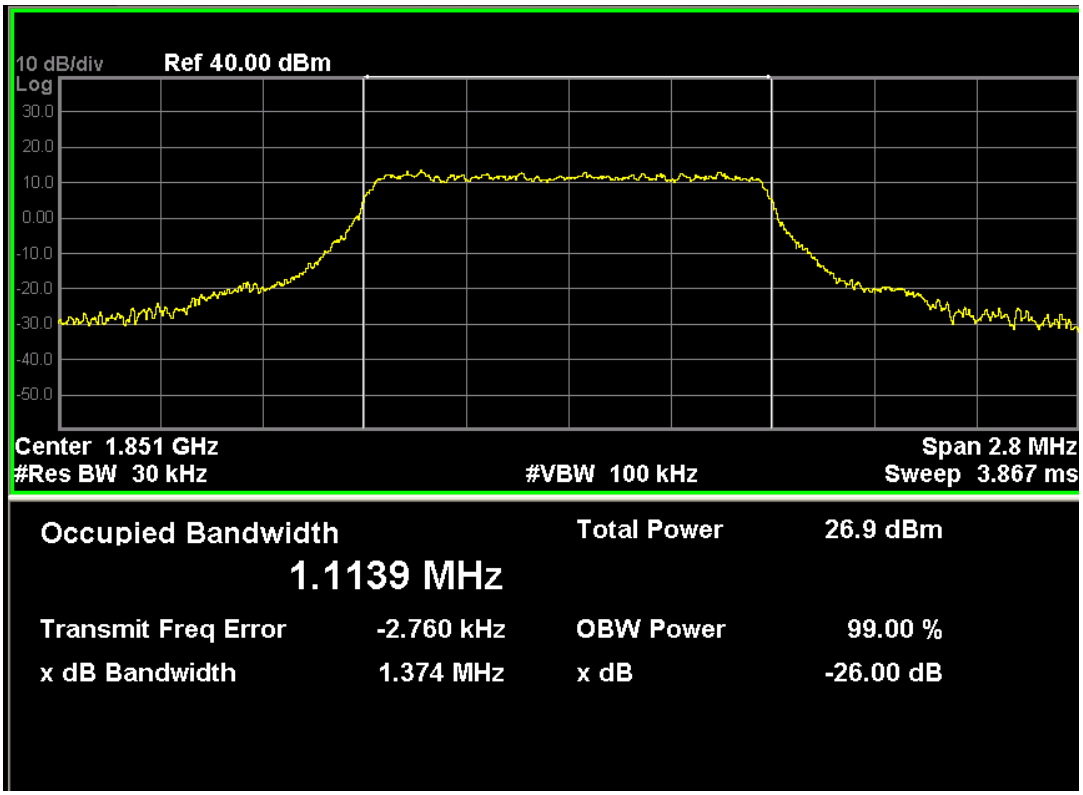


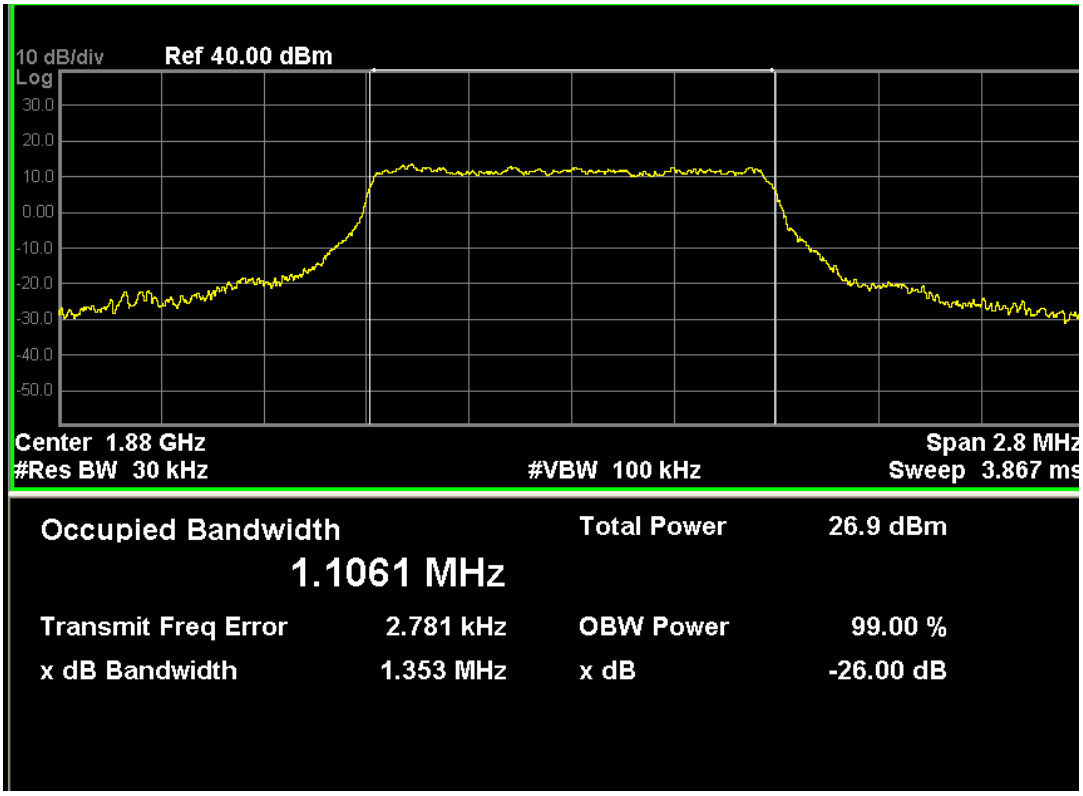

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.88 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.1055 MHz
Total Power 27.8 dBm
Transmit Freq Error 981 Hz
OBW Power 99.00 %
x dB Bandwidth 1.384 MHz
x dB -26.00 dB

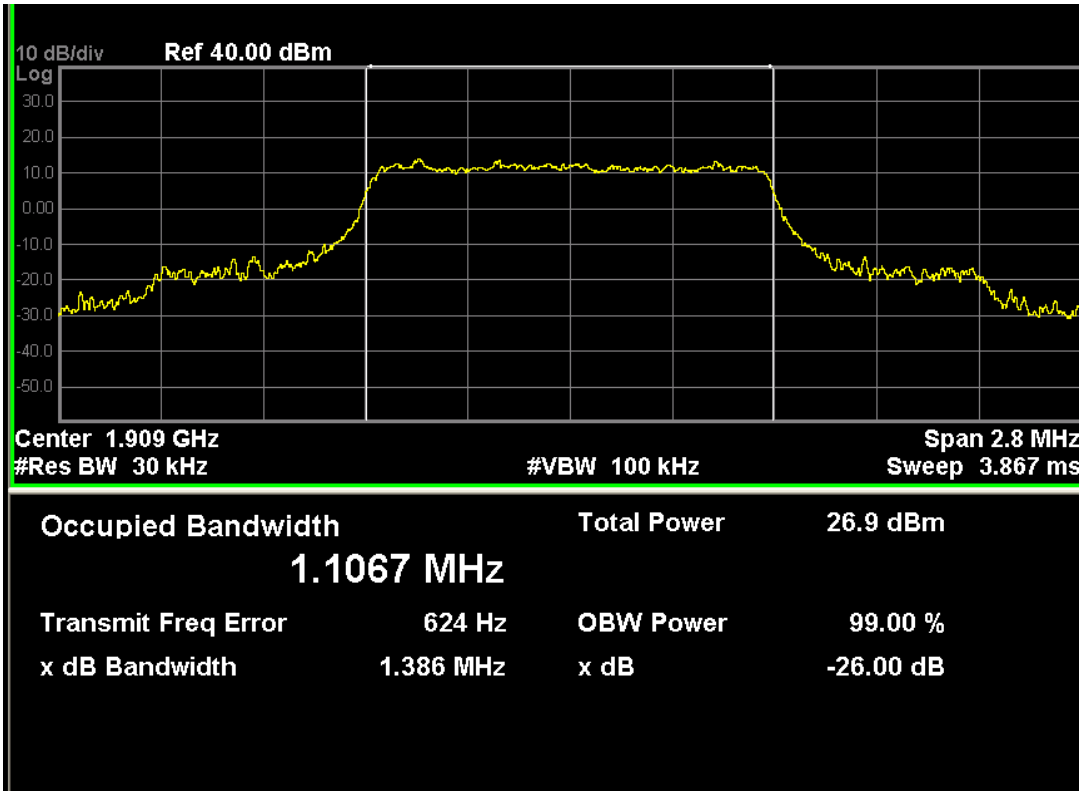

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.909 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.1126 MHz
Total Power 27.6 dBm
Transmit Freq Error -1.726 kHz
OBW Power 99.00 %
x dB Bandwidth 1.396 MHz
x dB -26.00 dB

**LTE Band 2 (16-QAM, Band Width 1.4MHz,RB Size 6,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 18607 | 1850.7 | 1.374 | 1.1139 |
| 18900 | 1880.0 | 1.353 | 1.1061 |
| 19193 | 1909.3 | 1.386 | 1.1067 |

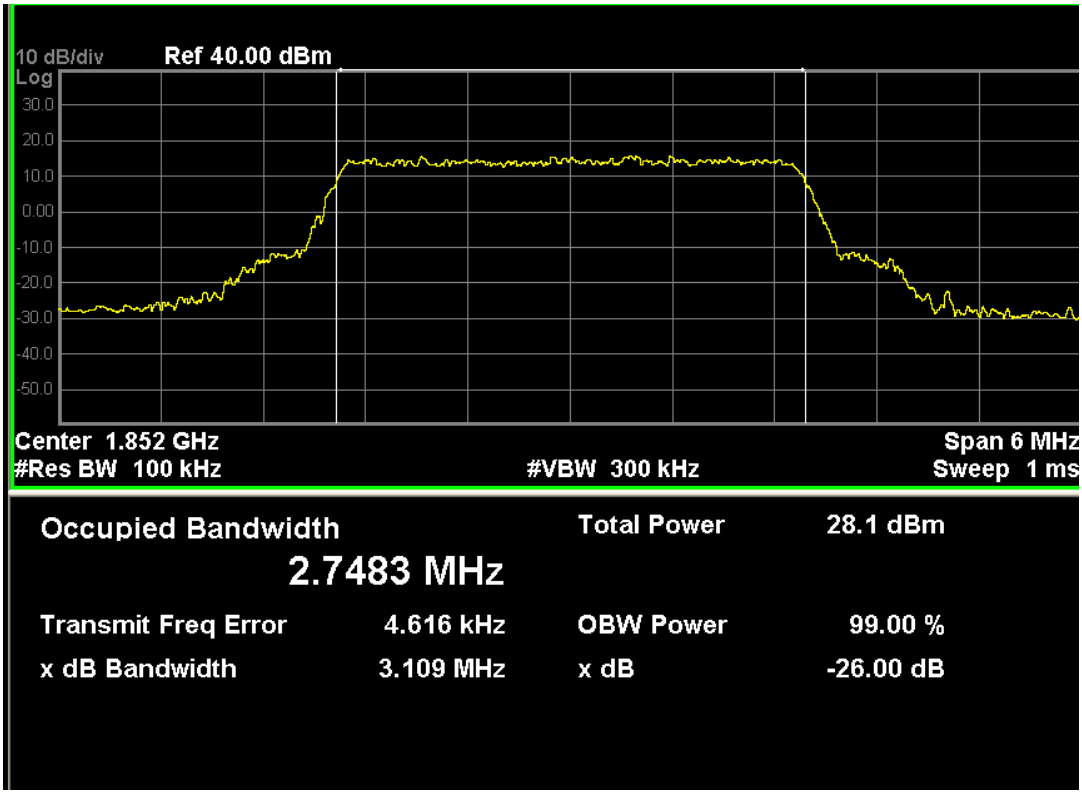


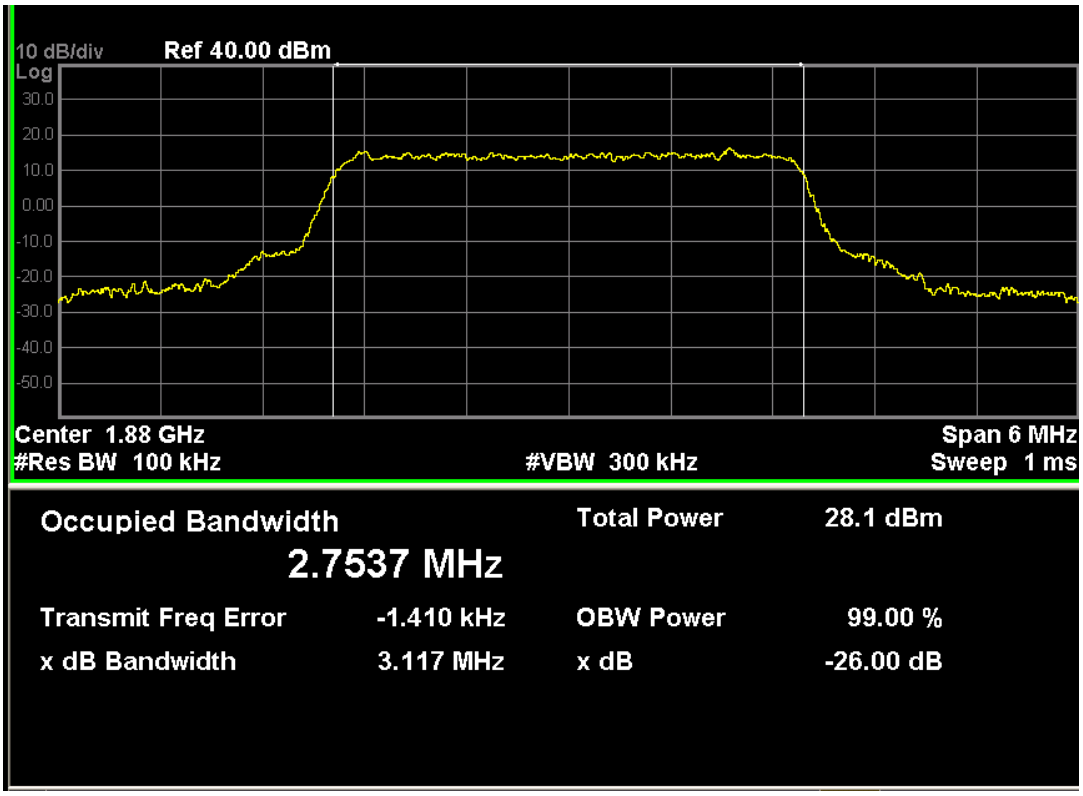

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.88 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.1061 MHz
Total Power 26.9 dBm
Transmit Freq Error 2.781 kHz
OBW Power 99.00 %
x dB Bandwidth 1.353 MHz
x dB -26.00 dB

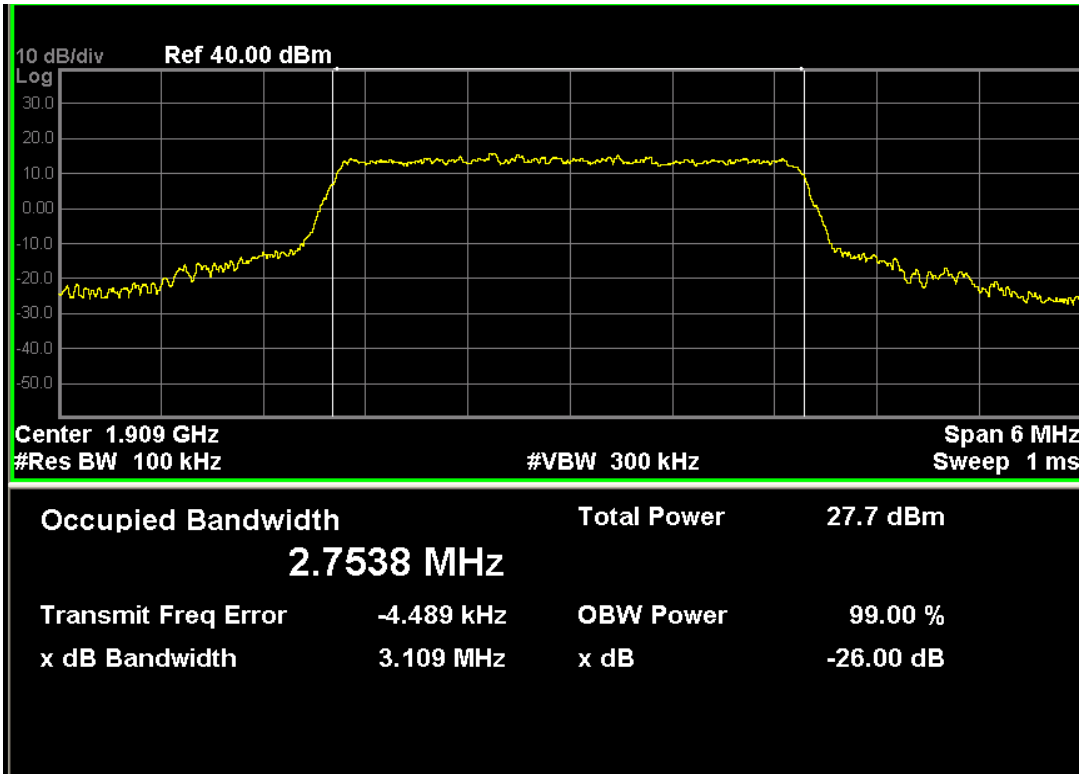

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.909 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.1067 MHz
Total Power 26.9 dBm
Transmit Freq Error 624 Hz
OBW Power 99.00 %
x dB Bandwidth 1.386 MHz
x dB -26.00 dB

**LTE Band 2 (QPSK, Band Width 3MHz,RB Size 15,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 18615 | 1851.5 | 3.109 | 2.7483 |
| 18900 | 1880.0 | 3.117 | 2.7537 |
| 19185 | 1908.5 | 3.109 | 2.7538 |

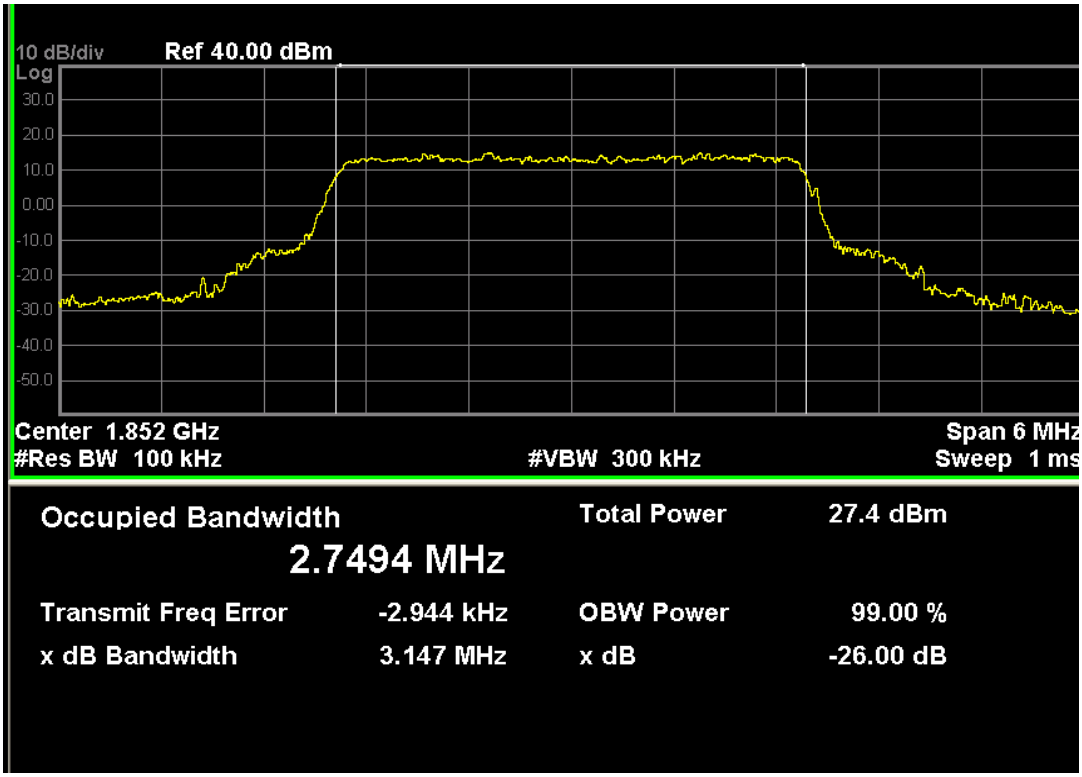


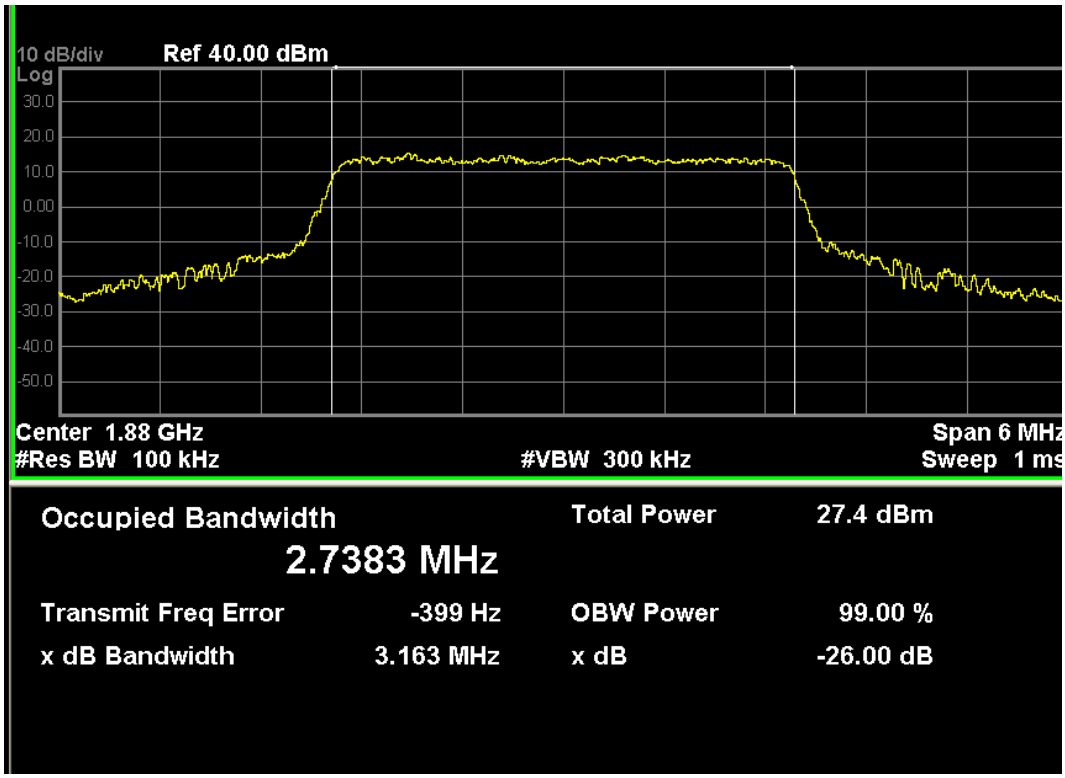

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.88 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 6 MHz
Sweep 1 ms
Occupied Bandwidth
2.7537 MHz
Total Power 28.1 dBm
Transmit Freq Error -1.410 kHz
OBW Power 99.00 %
x dB Bandwidth 3.117 MHz
x dB -26.00 dB

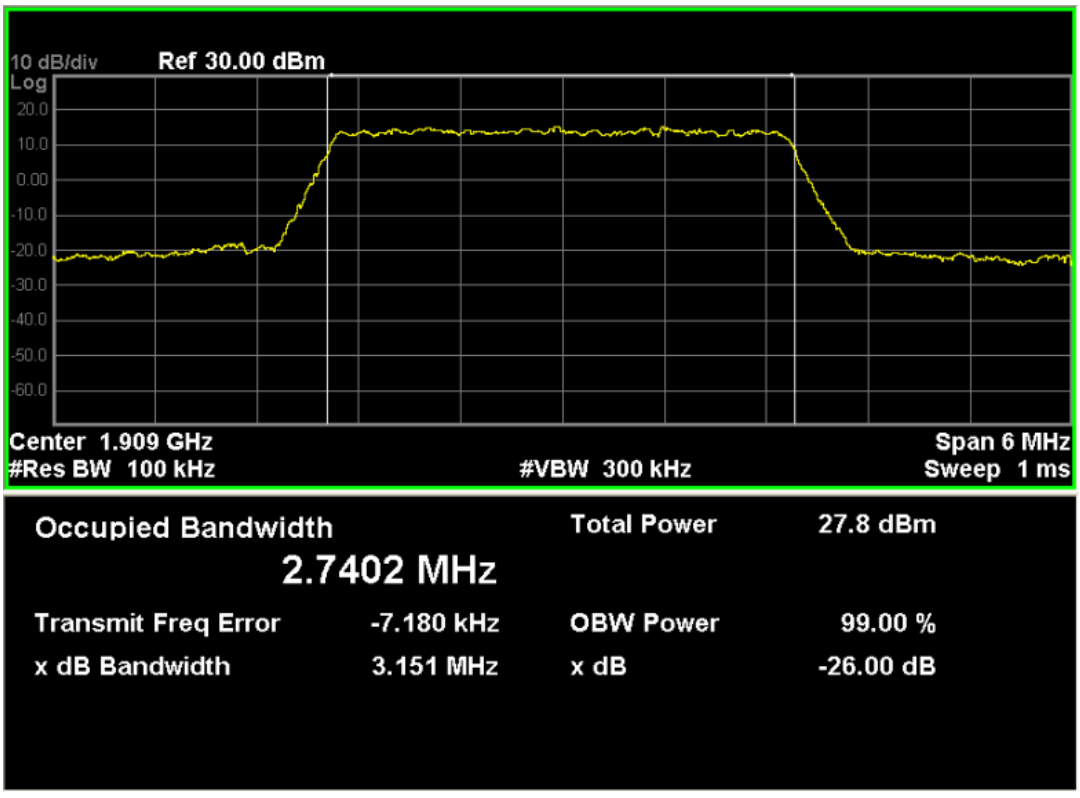

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.909 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 6 MHz
Sweep 1 ms
Occupied Bandwidth
2.7538 MHz
Total Power 27.7 dBm
Transmit Freq Error -4.489 kHz
OBW Power 99.00 %
x dB Bandwidth 3.109 MHz
x dB -26.00 dB

**LTE Band 2 (16-QAM, Band Width 3MHz,RB Size 15,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 18615 | 1851.5 | 3.147 | 2.7494 |
| 18900 | 1880.0 | 3.163 | 2.7383 |
| 19185 | 1908.5 | 3.151 | 2.7402 |

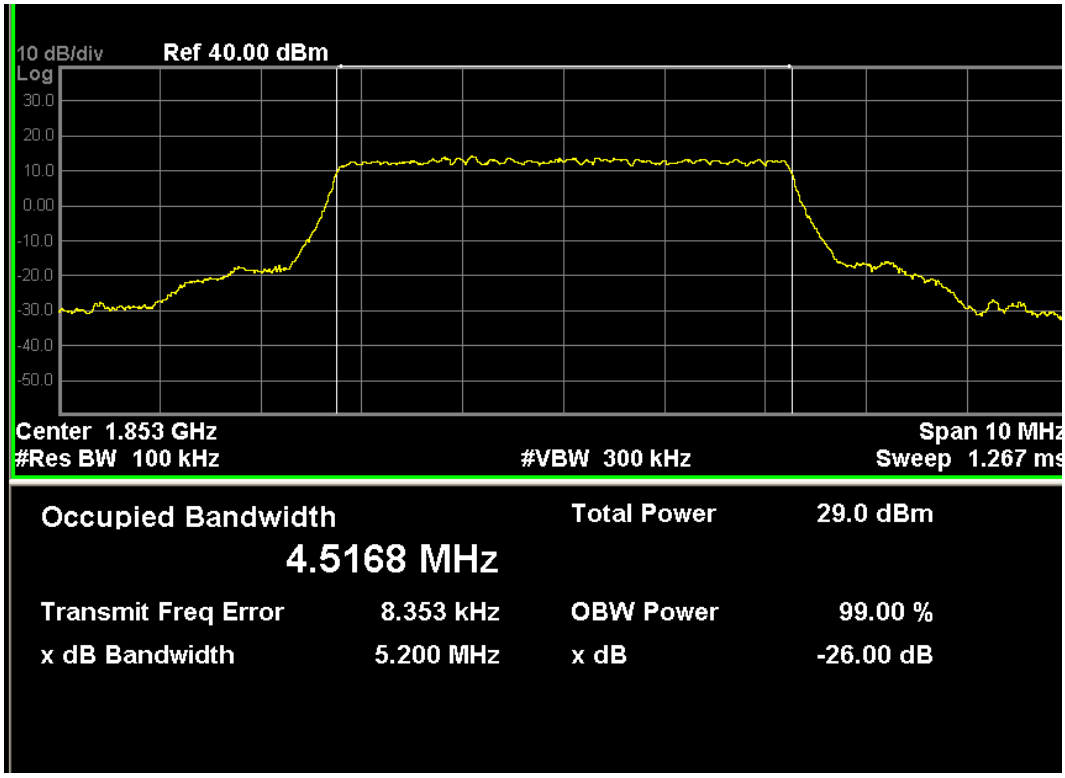


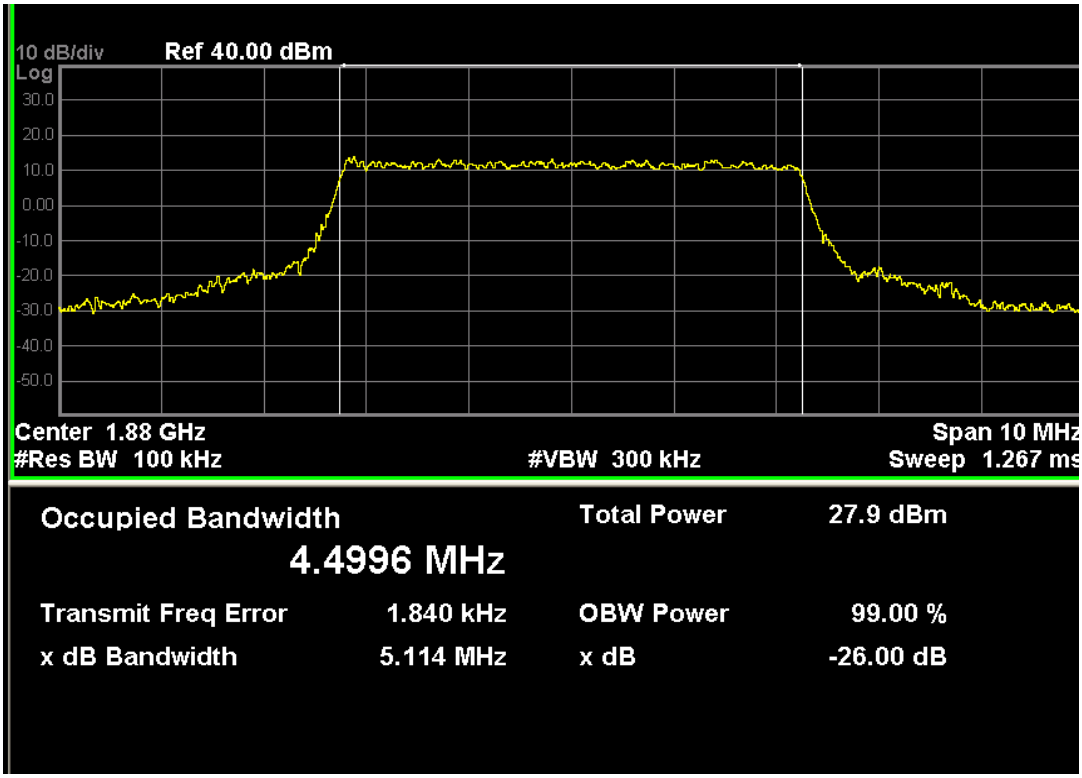

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.88 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 6 MHz
Sweep 1 ms
Occupied Bandwidth
2.7383 MHz
Total Power 27.4 dBm
Transmit Freq Error -399 Hz
OBW Power 99.00 %
x dB Bandwidth 3.163 MHz
x dB -26.00 dB

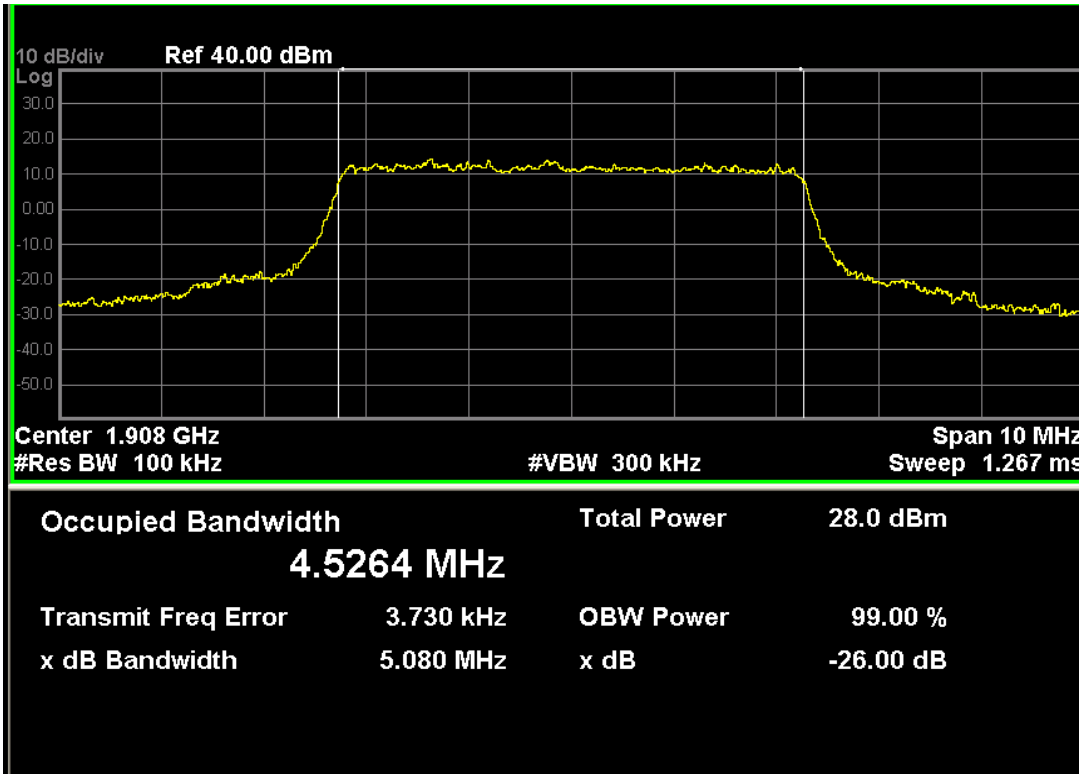

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.909 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 6 MHz
Sweep 1 ms
Occupied Bandwidth
2.7402 MHz
Total Power 27.8 dBm
Transmit Freq Error -7.180 kHz
OBW Power 99.00 %
x dB Bandwidth 3.151 MHz
x dB -26.00 dB

**LTE Band 2 (QPSK, Band Width 5MHz,RB Size 25,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 18625 | 1852.5 | 5.200 | 4.5168 |
| 18900 | 1880.0 | 5.114 | 4.4996 |
| 19175 | 1907.5 | 5.080 | 4.5264 |

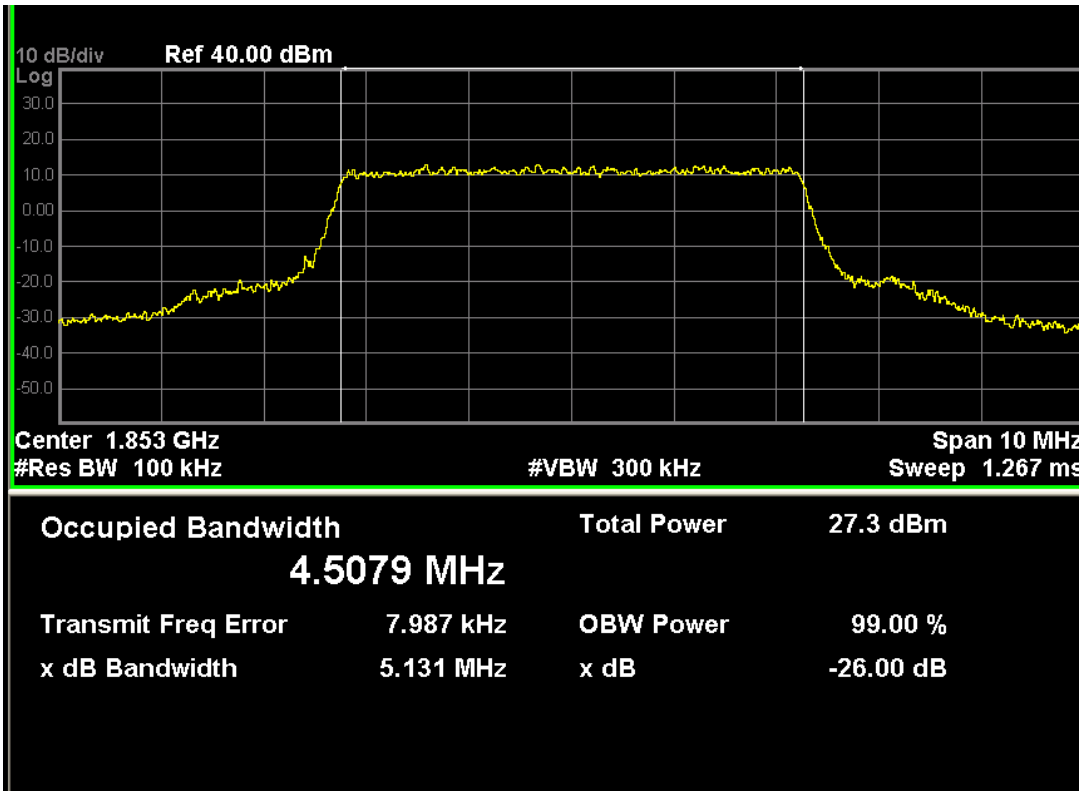


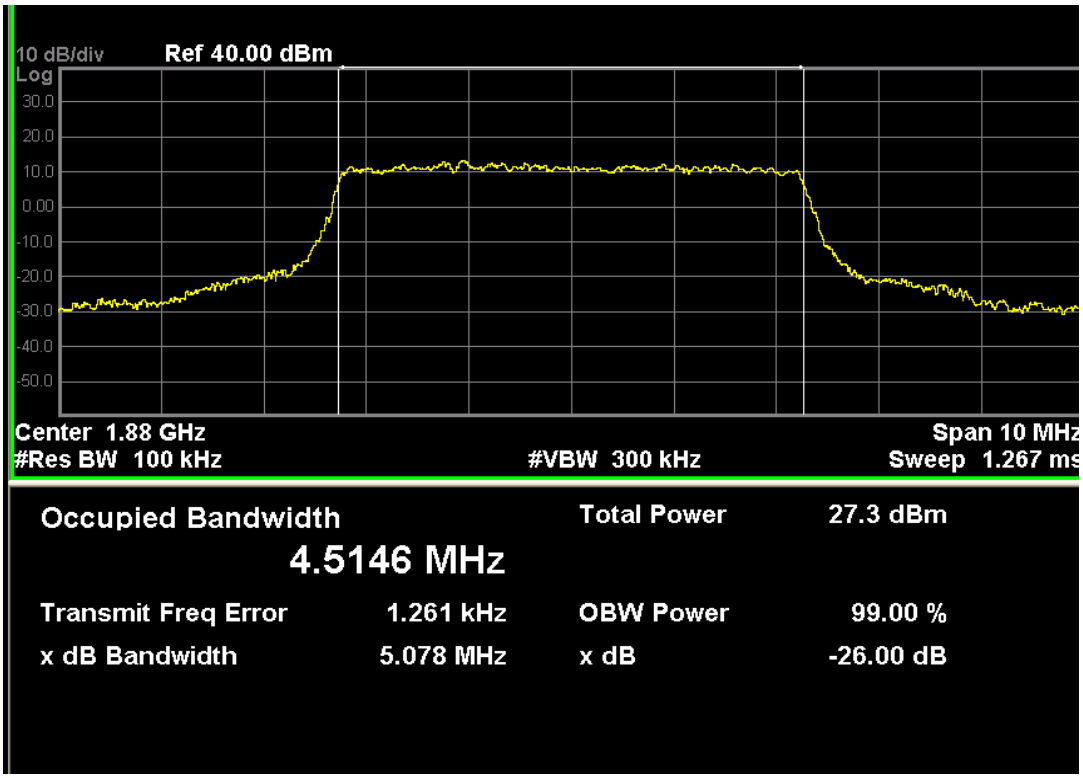

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.88 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.4996 MHz
Total Power 27.9 dBm
Transmit Freq Error 1.840 kHz
OBW Power 99.00 %
x dB Bandwidth 5.114 MHz
x dB -26.00 dB

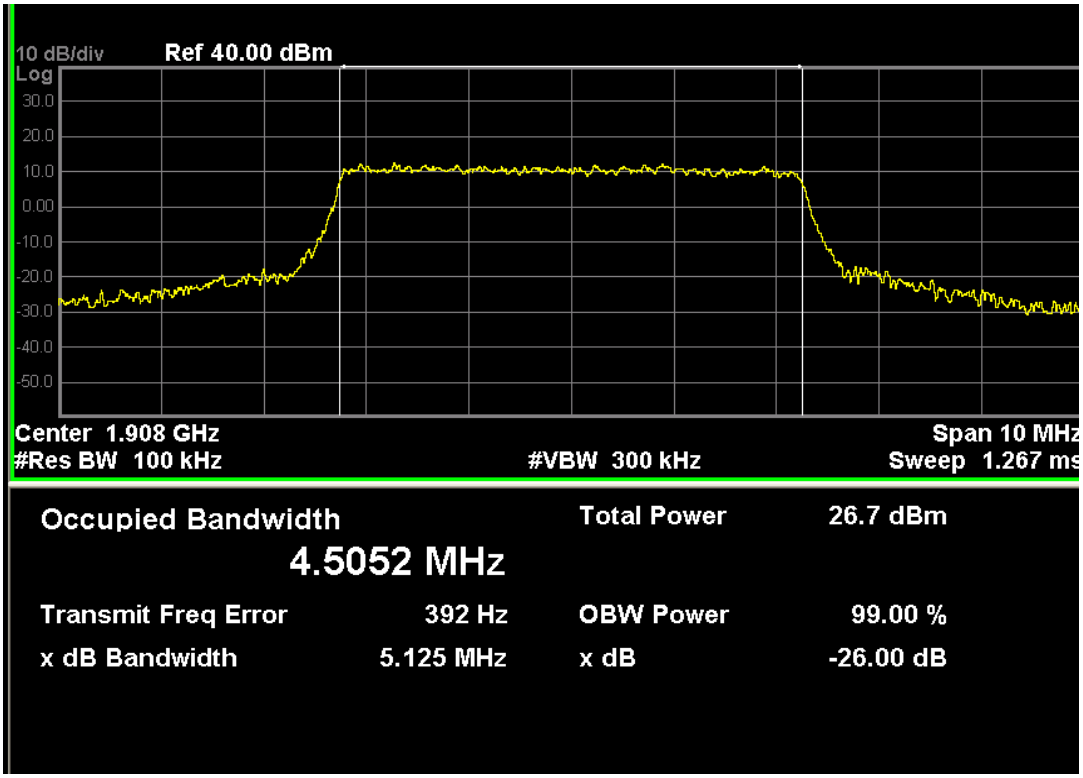

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.908 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.5264 MHz
Total Power 28.0 dBm
Transmit Freq Error 3.730 kHz
OBW Power 99.00 %
x dB Bandwidth 5.080 MHz
x dB -26.00 dB

**LTE Band 2 (16-QAM, Band Width 5MHz,RB Size 25,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 18625 | 1852.5 | 5.131 | 4.5079 |
| 18900 | 1880.0 | 5.078 | 4.5146 |
| 19175 | 1907.5 | 5.125 | 4.5052 |

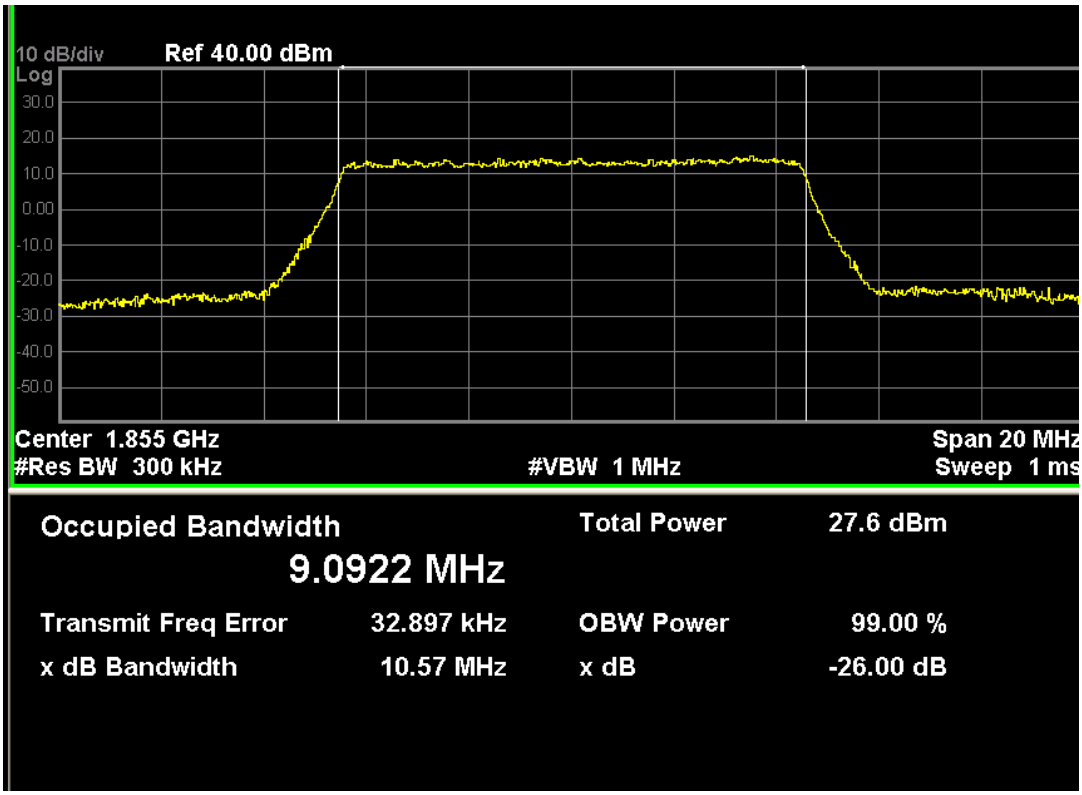


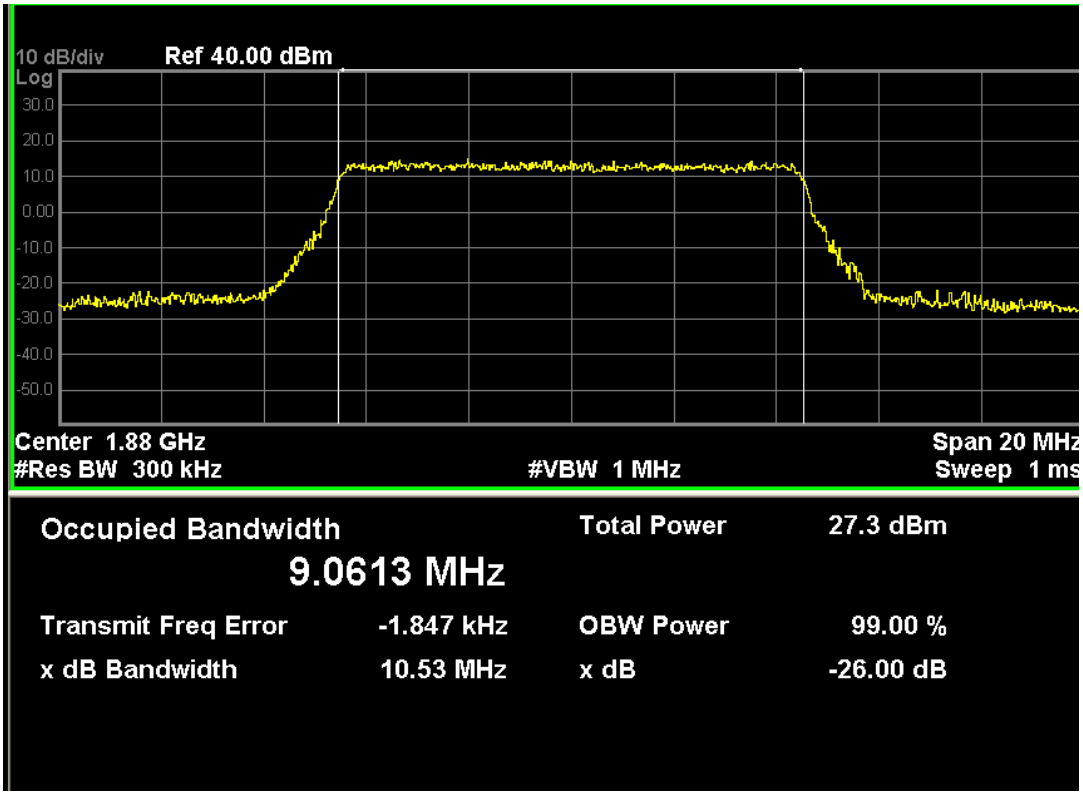

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.88 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.5146 MHz
Total Power 27.3 dBm
Transmit Freq Error 1.261 kHz
OBW Power 99.00 %
x dB Bandwidth 5.078 MHz
x dB -26.00 dB

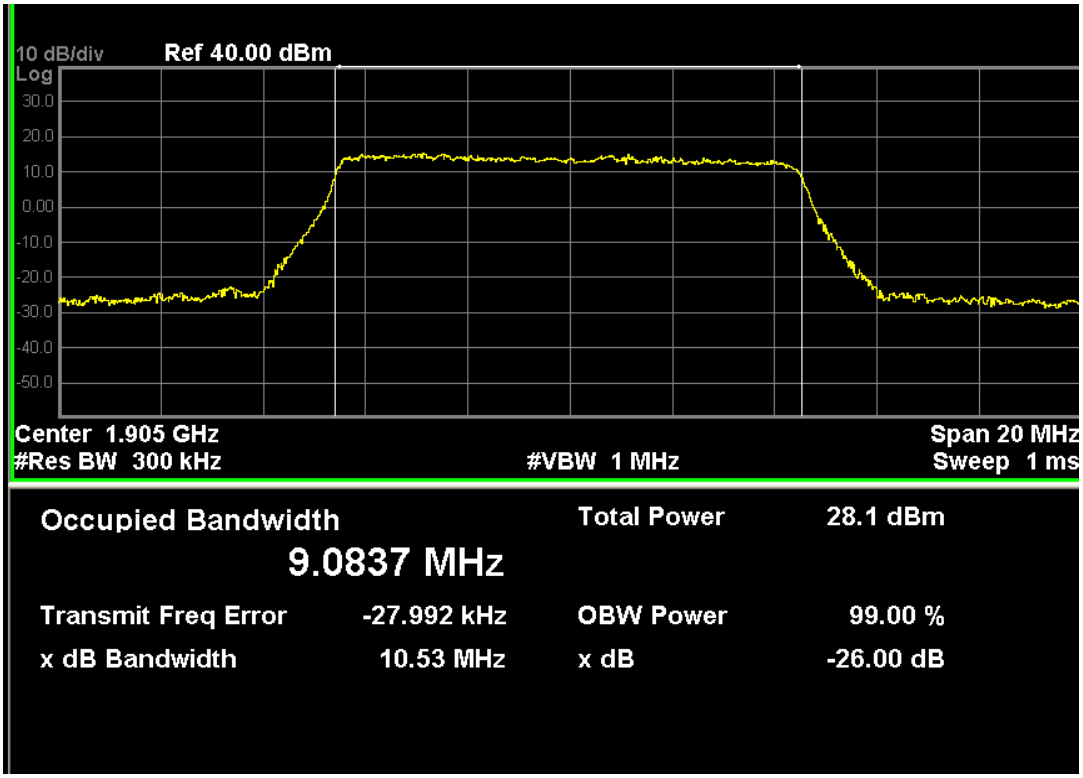

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.908 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.5052 MHz
Total Power 26.7 dBm
Transmit Freq Error 392 Hz
OBW Power 99.00 %
x dB Bandwidth 5.125 MHz
x dB -26.00 dB

**LTE Band 2 (QPSK, Band Width 10MHz,RB Size 50,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 18650 | 1855.0 | 10.57 | 9.0922 |
| 18900 | 1880.0 | 10.53 | 9.0613 |
| 19150 | 1905.0 | 10.53 | 9.0837 |

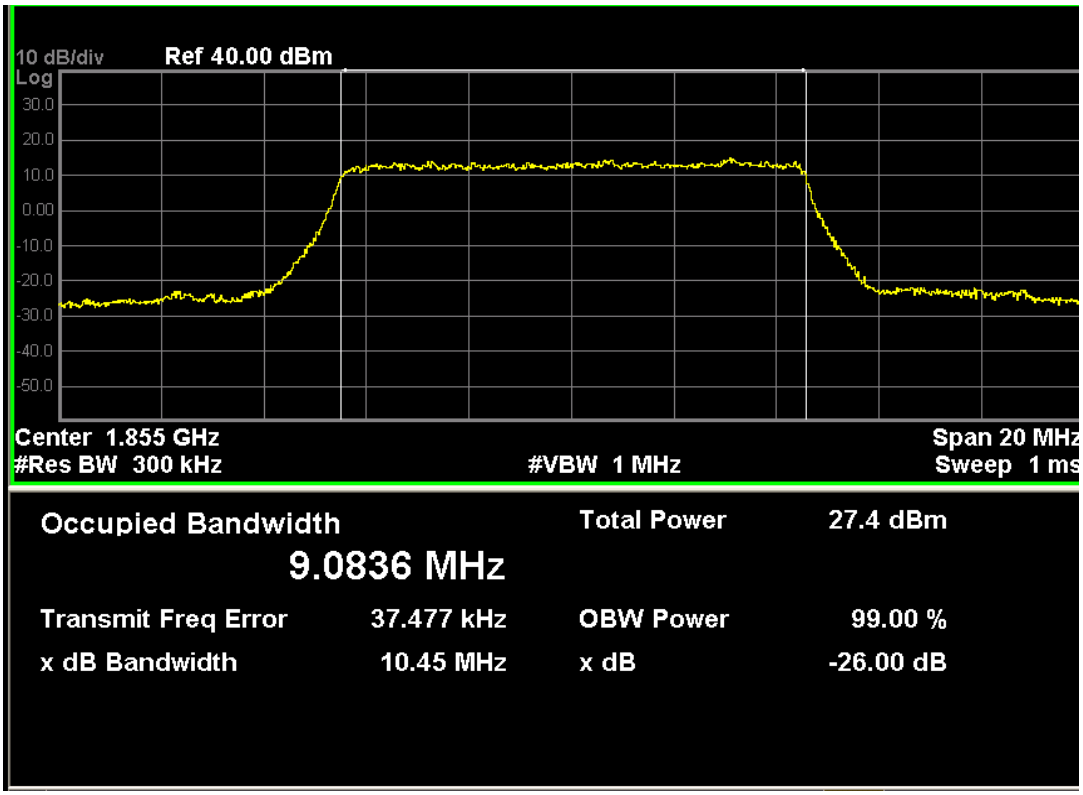


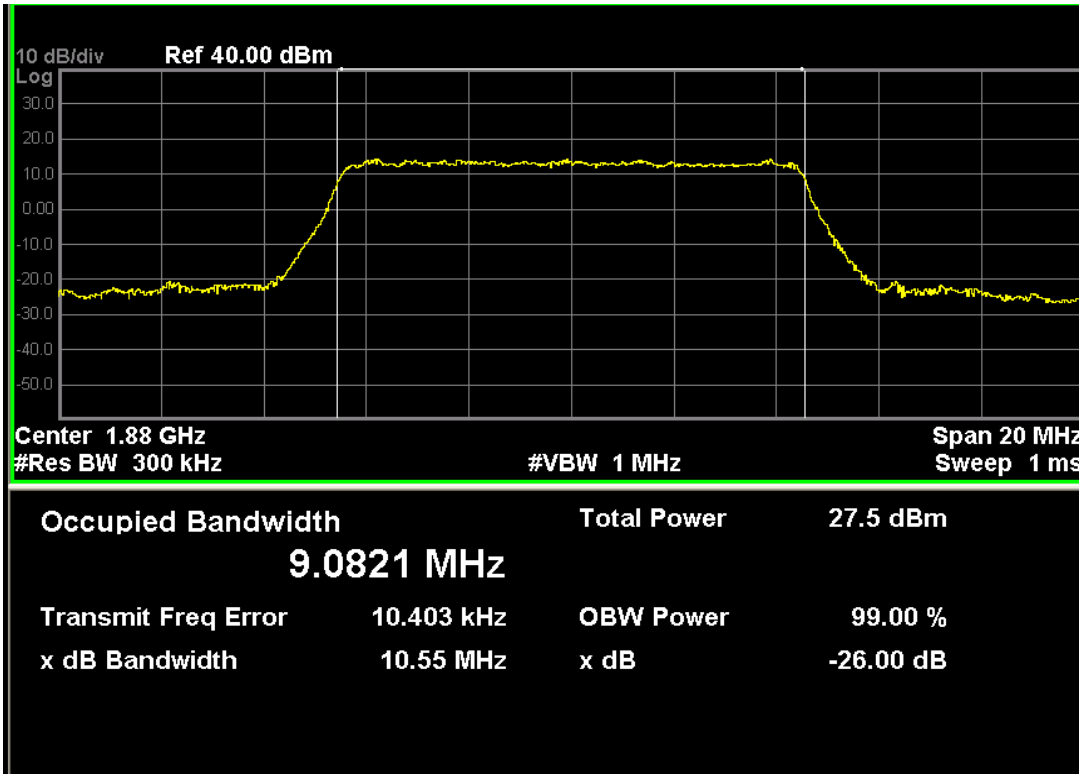

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.88 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.0613 MHz
Total Power 27.3 dBm
Transmit Freq Error -1.847 kHz
OBW Power 99.00 %
x dB Bandwidth 10.53 MHz
x dB -26.00 dB

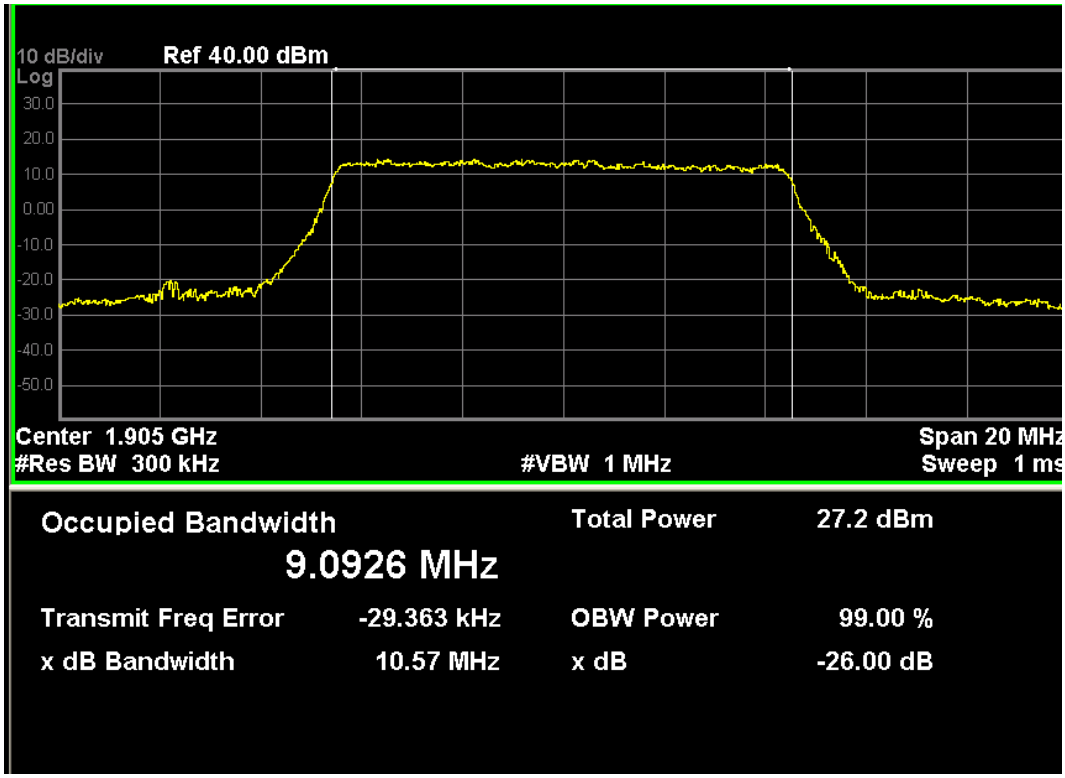

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.905 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.0837 MHz
Total Power 28.1 dBm
Transmit Freq Error -27.992 kHz
OBW Power 99.00 %
x dB Bandwidth 10.53 MHz
x dB -26.00 dB

**LTE Band 2 (16-QAM, Band Width 10MHz,RB Size 50,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 18650 | 1855.0 | 10.45 | 9.0836 |
| 18900 | 1880.0 | 10.55 | 9.0821 |
| 19150 | 1905.0 | 10.57 | 9.0926 |

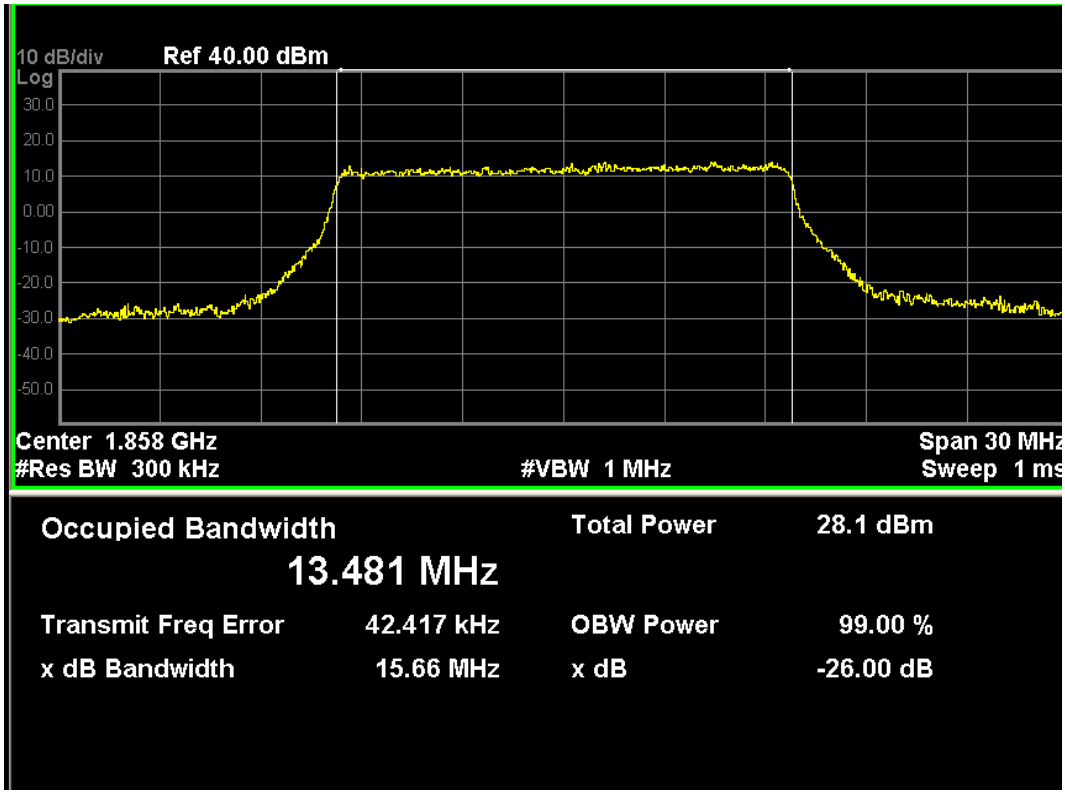


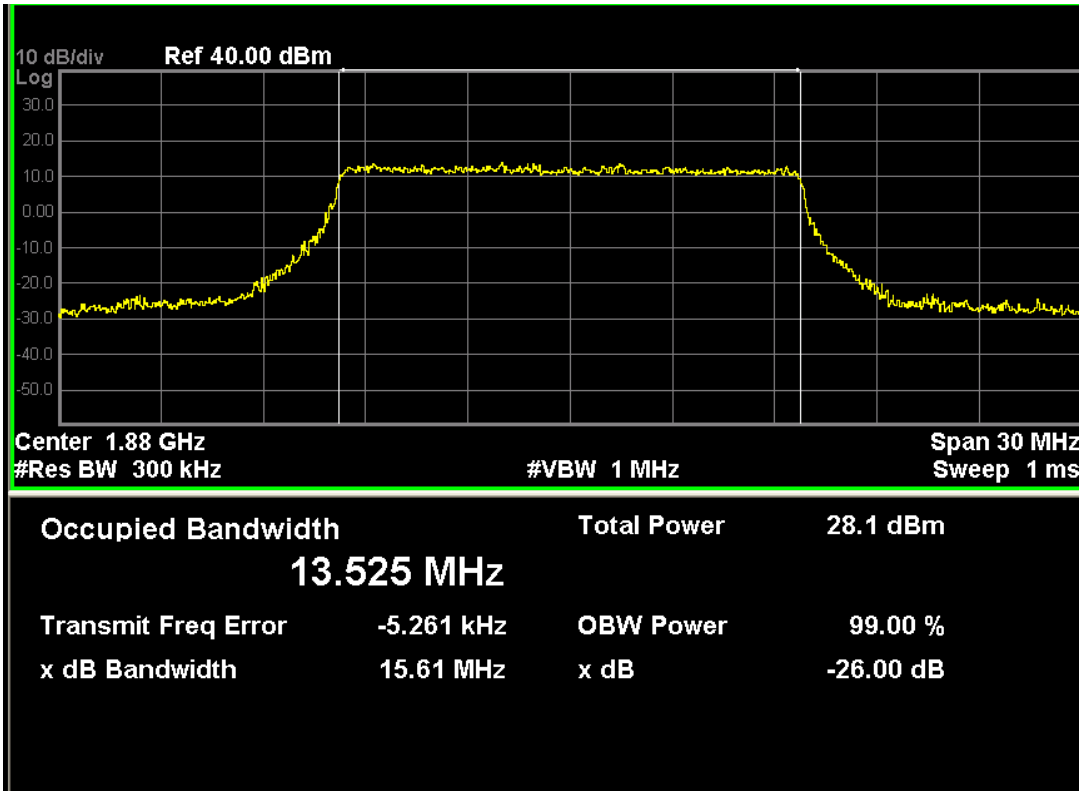

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.88 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.0821 MHz
Total Power 27.5 dBm
Transmit Freq Error 10.403 kHz
OBW Power 99.00 %
x dB Bandwidth 10.55 MHz
x dB -26.00 dB

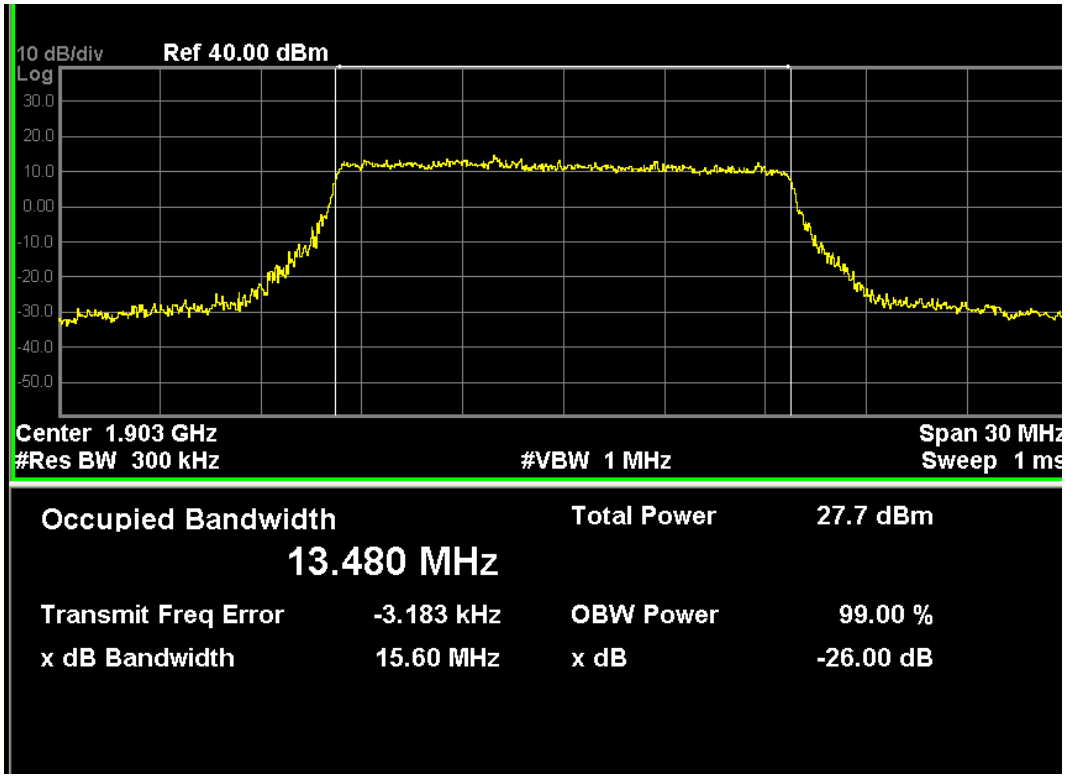

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.905 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.0926 MHz
Total Power 27.2 dBm
Transmit Freq Error -29.363 kHz
OBW Power 99.00 %
x dB Bandwidth 10.57 MHz
x dB -26.00 dB

**LTE Band 2 (QPSK, Band Width 15MHz,RB Size 75,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 18675 | 1857.5 | 15.66 | 13.481 |
| 18900 | 1880.0 | 15.61 | 13.525 |
| 19125 | 1902.5 | 15.60 | 13.480 |

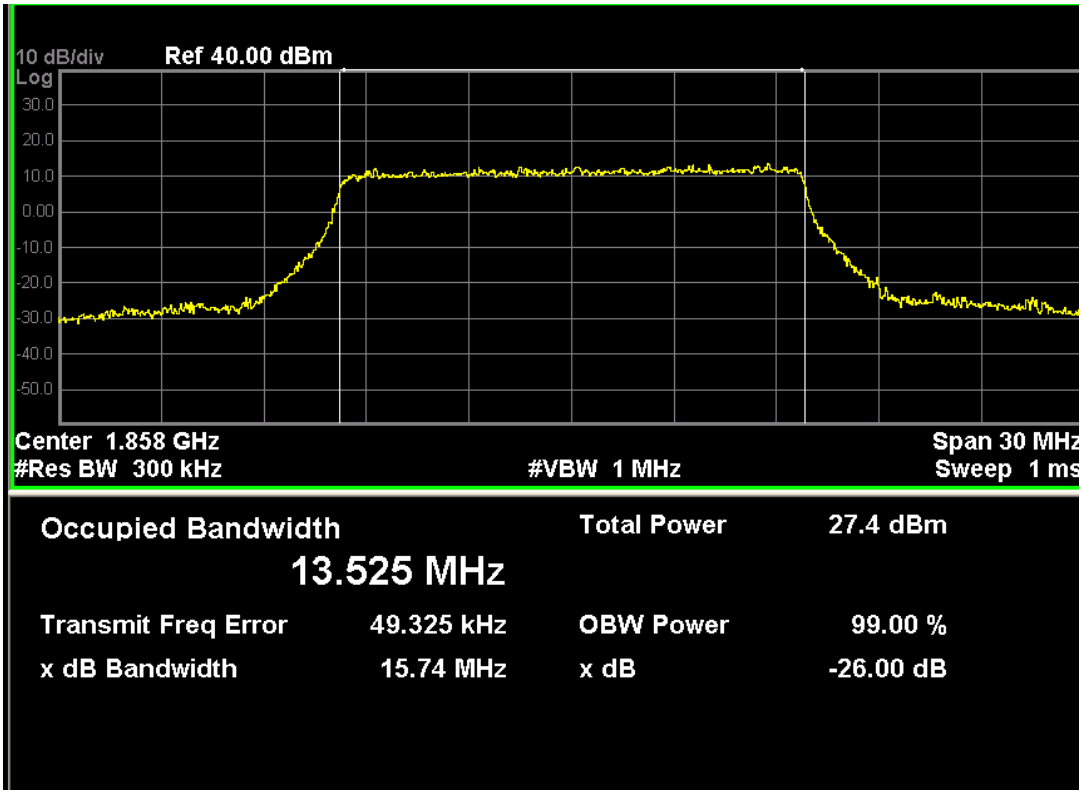


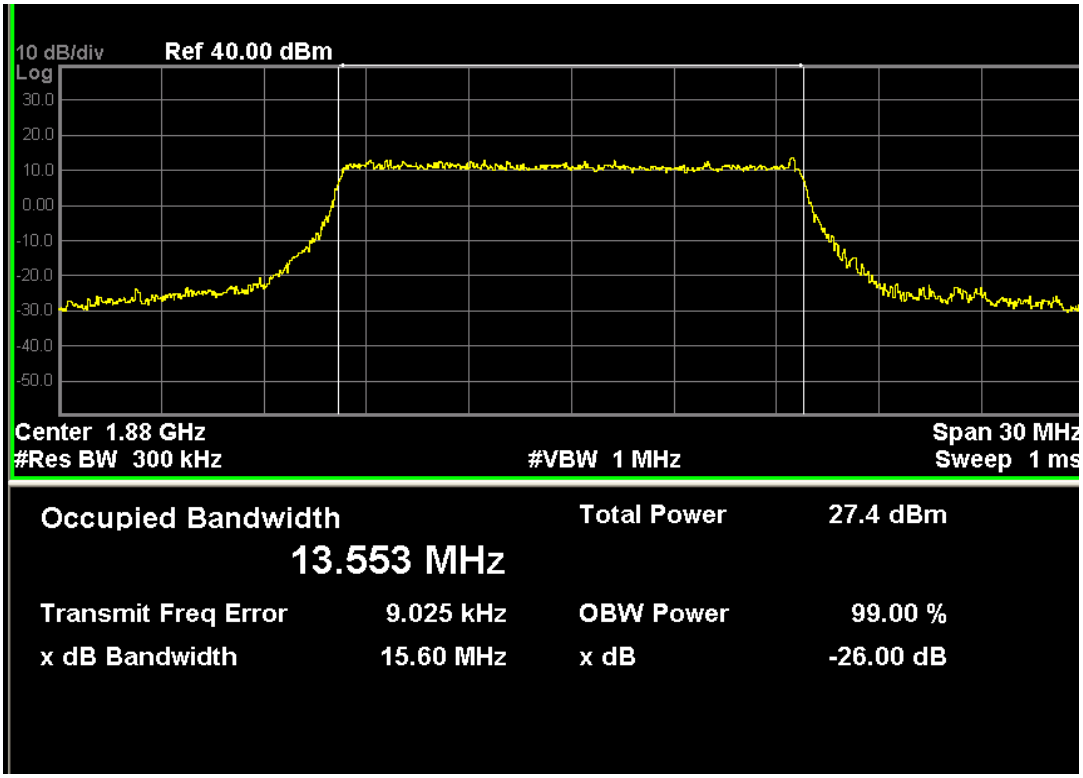

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.88 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 30 MHz
Sweep 1 ms
Occupied Bandwidth
13.525 MHz
Total Power 28.1 dBm
Transmit Freq Error -5.261 kHz
OBW Power 99.00 %
x dB Bandwidth 15.61 MHz
x dB -26.00 dB

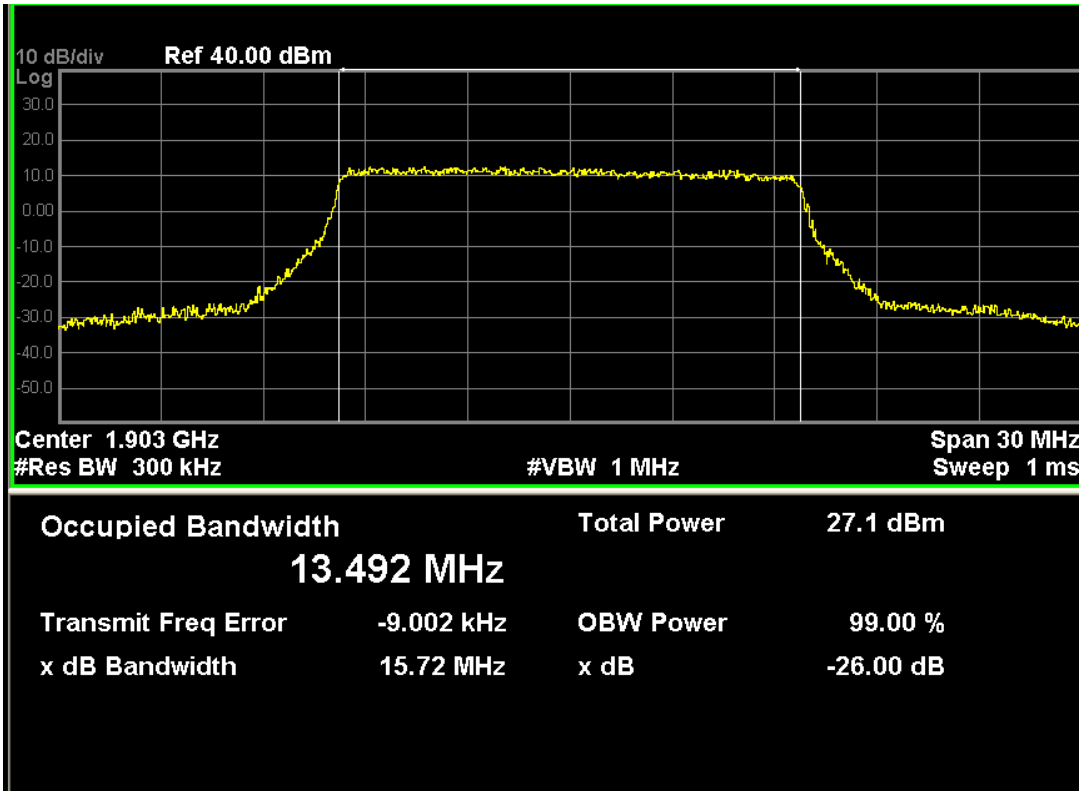

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.903 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 30 MHz
Sweep 1 ms
Occupied Bandwidth
13.480 MHz
Total Power 27.7 dBm
Transmit Freq Error -3.183 kHz
OBW Power 99.00 %
x dB Bandwidth 15.60 MHz
x dB -26.00 dB

**LTE Band 2 (16-QAM, Band Width 15MHz,RB Size 75,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 18675 | 1857.5 | 15.74 | 13.525 |
| 18900 | 1880.0 | 15.60 | 13.553 |
| 19125 | 1902.5 | 15.72 | 13.192 |

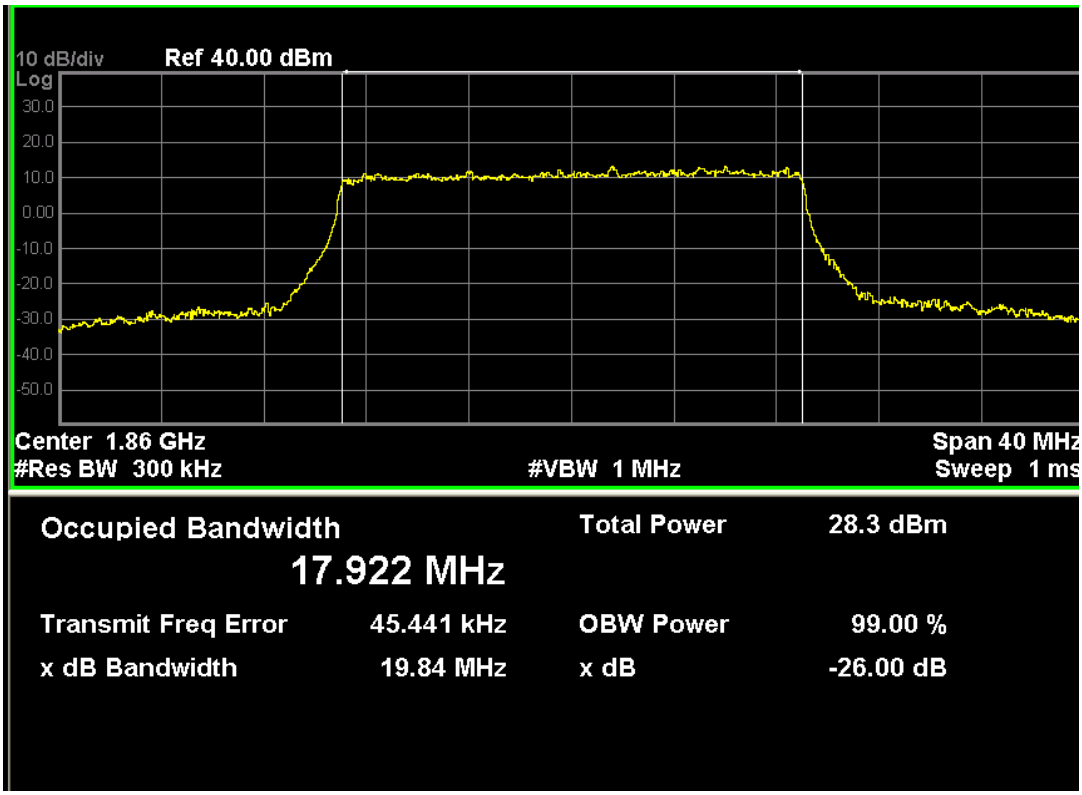


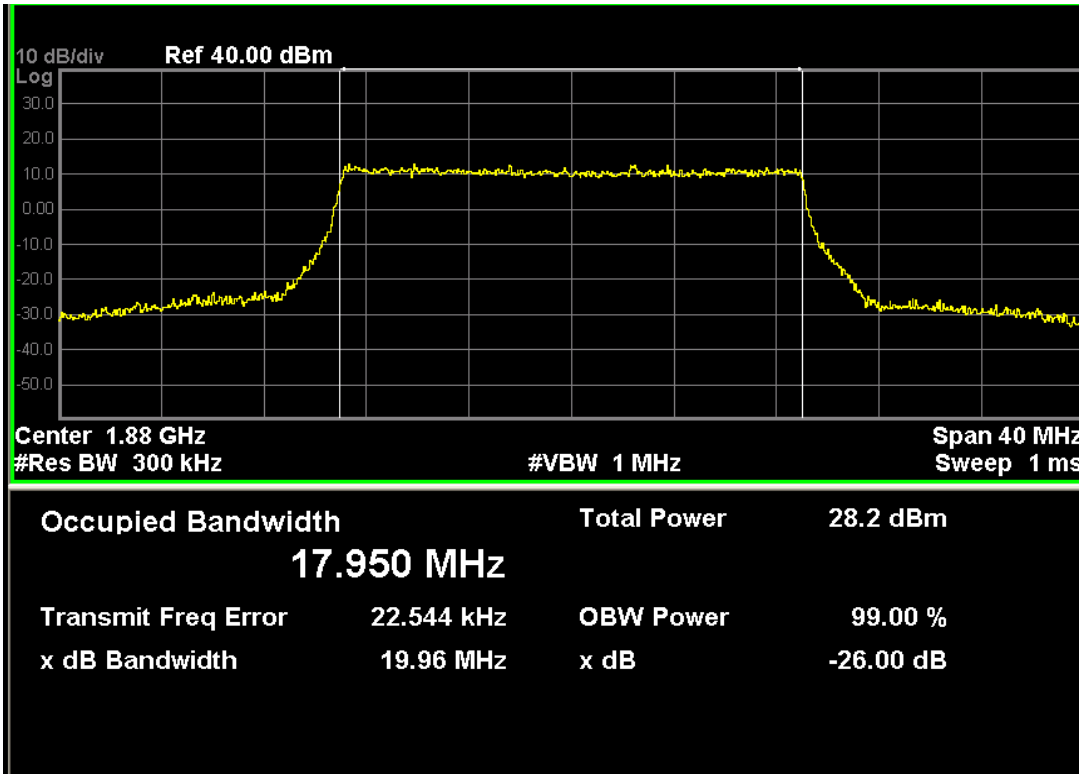

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.88 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 30 MHz
Sweep 1 ms
Occupied Bandwidth
13.553 MHz
Total Power 27.4 dBm
Transmit Freq Error 9.025 kHz
OBW Power 99.00 %
x dB Bandwidth 15.60 MHz
x dB -26.00 dB

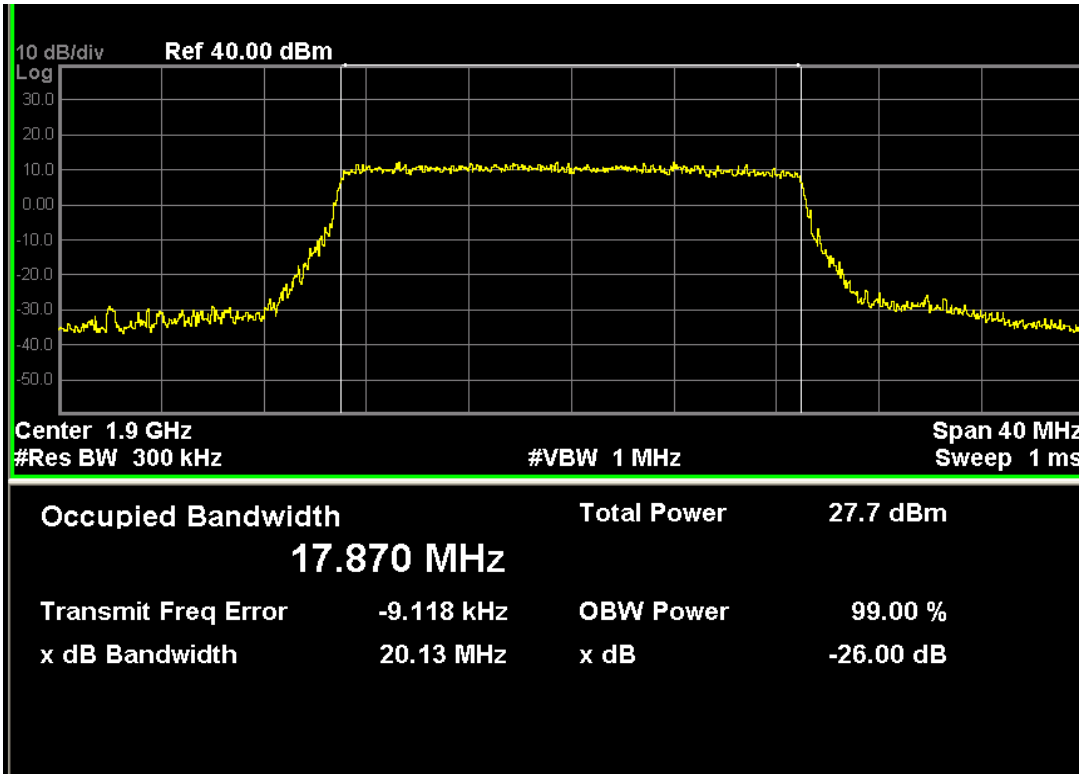

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.903 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 30 MHz
Sweep 1 ms
Occupied Bandwidth
13.492 MHz
Total Power 27.1 dBm
Transmit Freq Error -9.002 kHz
OBW Power 99.00 %
x dB Bandwidth 15.72 MHz
x dB -26.00 dB

**LTE Band 2 (QPSK, Band Width 20MHz,RB Size 100,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 18700 | 1860.0 | 19.84 | 17.922 |
| 18900 | 1880.0 | 19.96 | 17.950 |
| 19100 | 1900.0 | 20.13 | 17.870 |

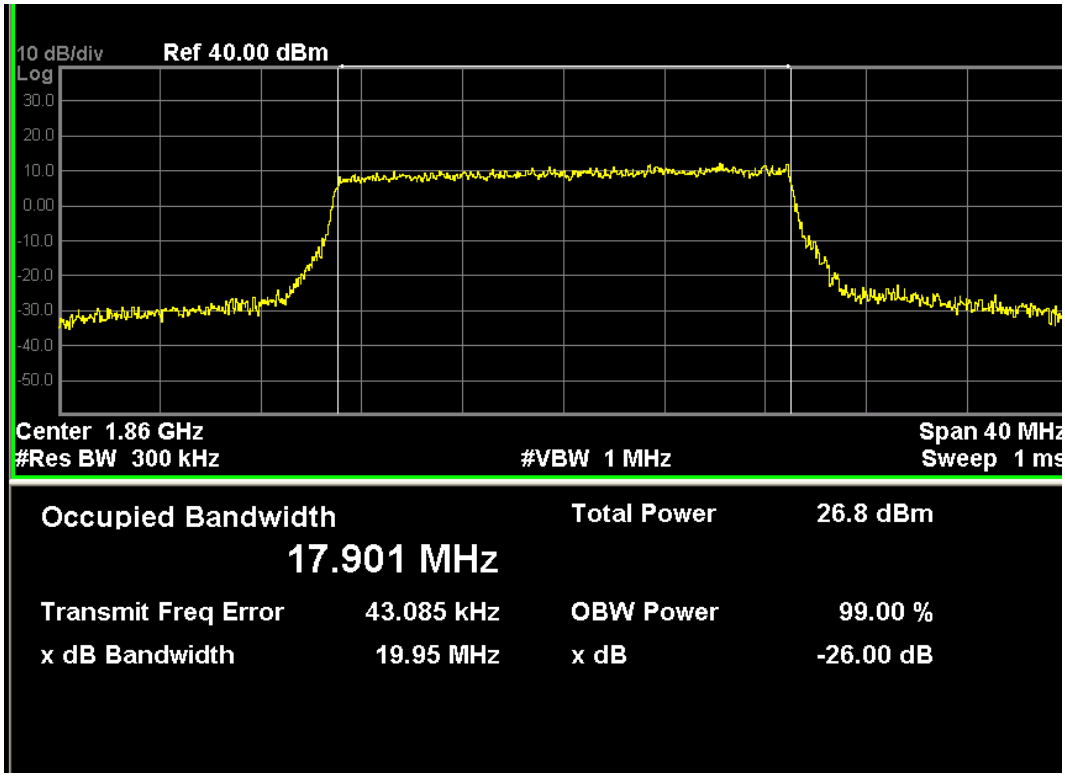


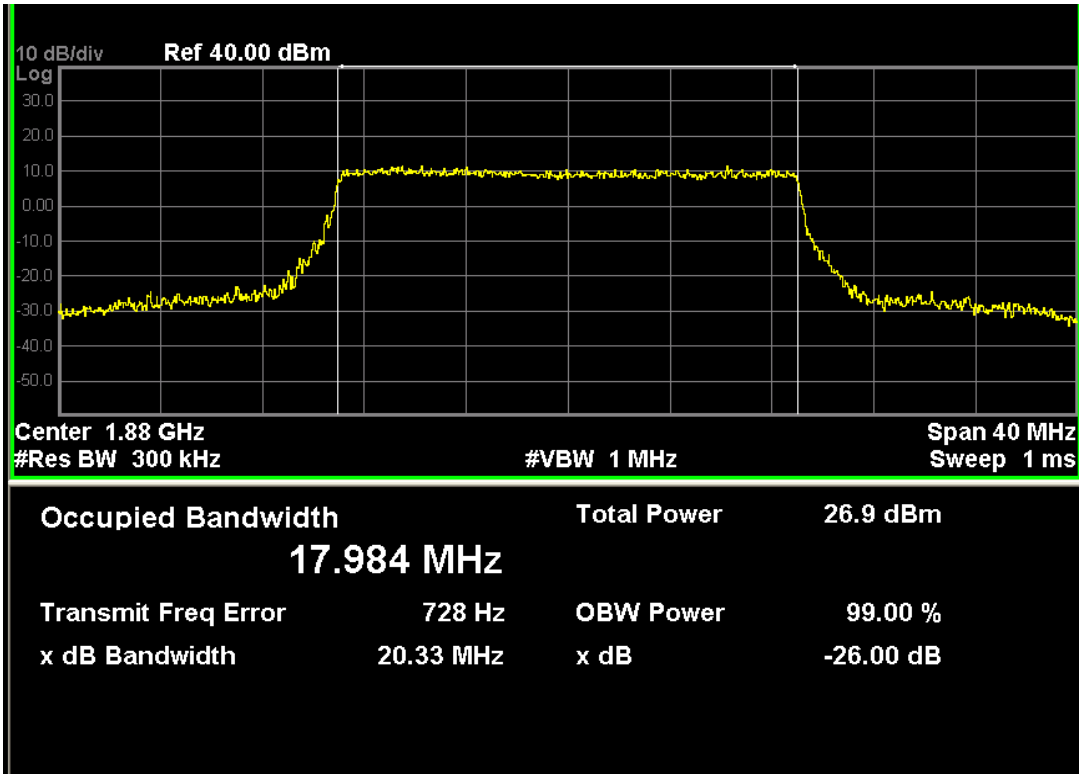

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.88 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
17.950 MHz
Total Power 28.2 dBm
Transmit Freq Error 22.544 kHz
OBW Power 99.00 %
x dB Bandwidth 19.96 MHz
x dB -26.00 dB

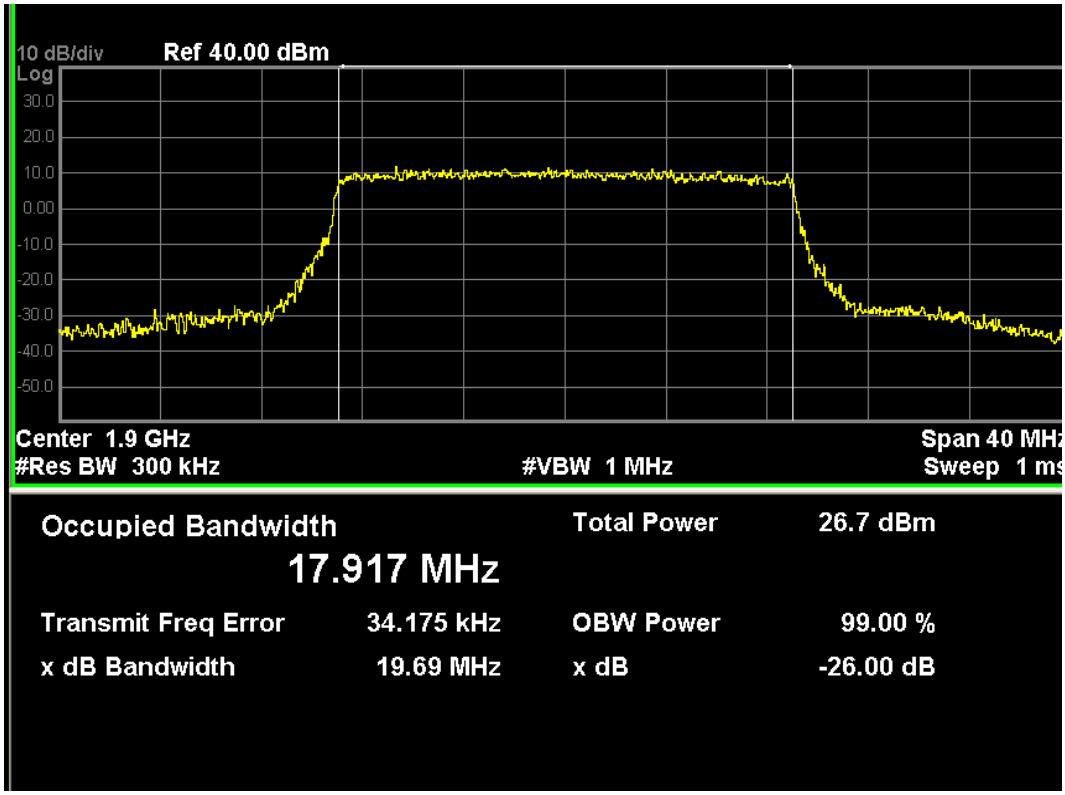

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.9 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
17.870 MHz
Total Power 27.7 dBm
Transmit Freq Error -9.118 kHz
OBW Power 99.00 %
x dB Bandwidth 20.13 MHz
x dB -26.00 dB

**LTE Band 2 (16-QAM, Band Width 20MHz,RB Size 100,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 18700 | 1860.0 | 19.95 | 17.901 |
| 18900 | 1880.0 | 20.33 | 17.984 |
| 19100 | 1900.0 | 19.69 | 17.917 |

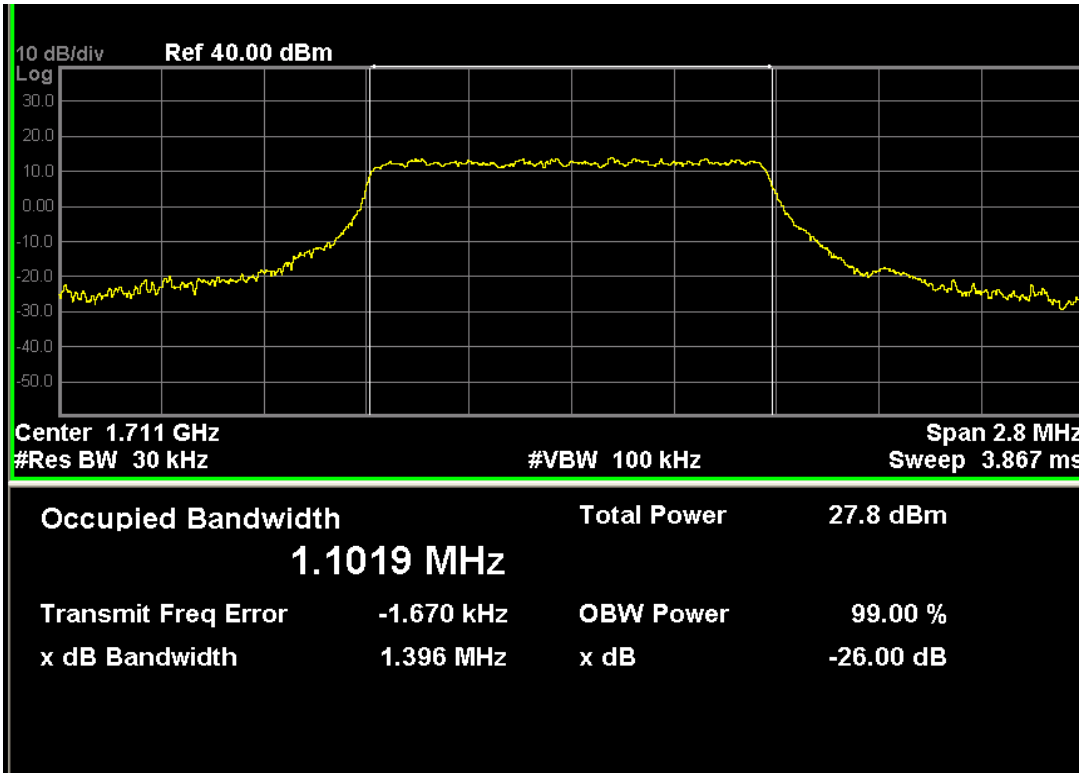


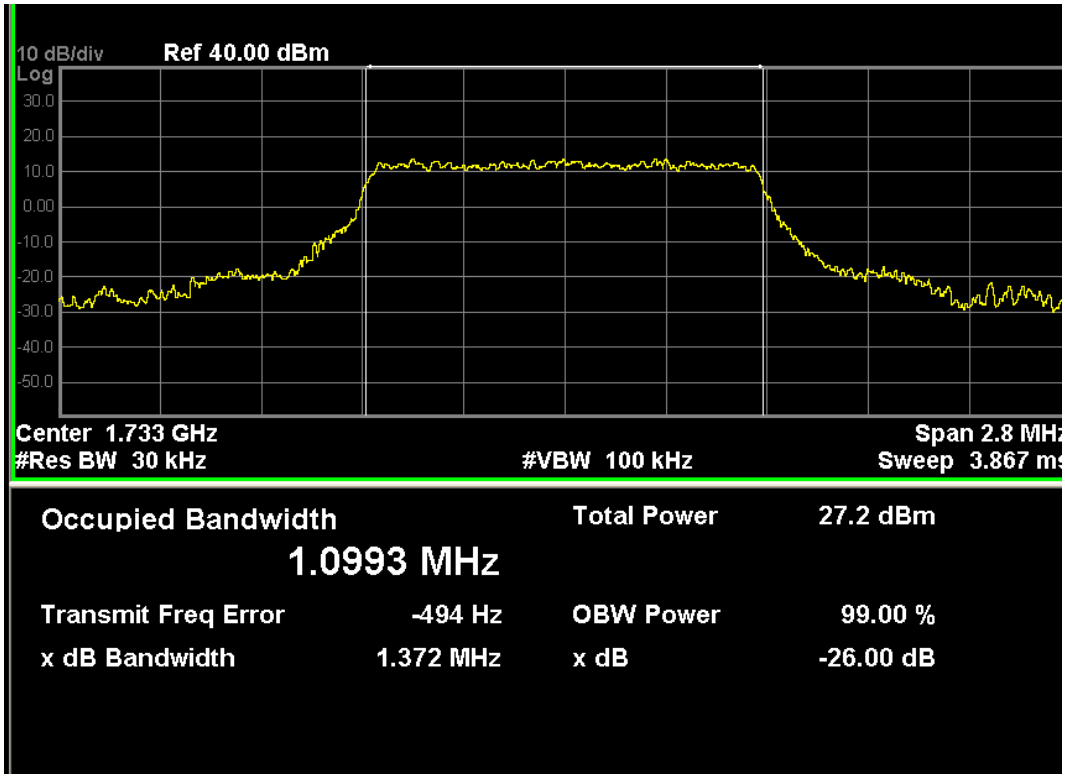

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.88 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
17.984 MHz
Total Power 26.9 dBm
Transmit Freq Error 728 Hz
OBW Power 99.00 %
x dB Bandwidth 20.33 MHz
x dB -26.00 dB

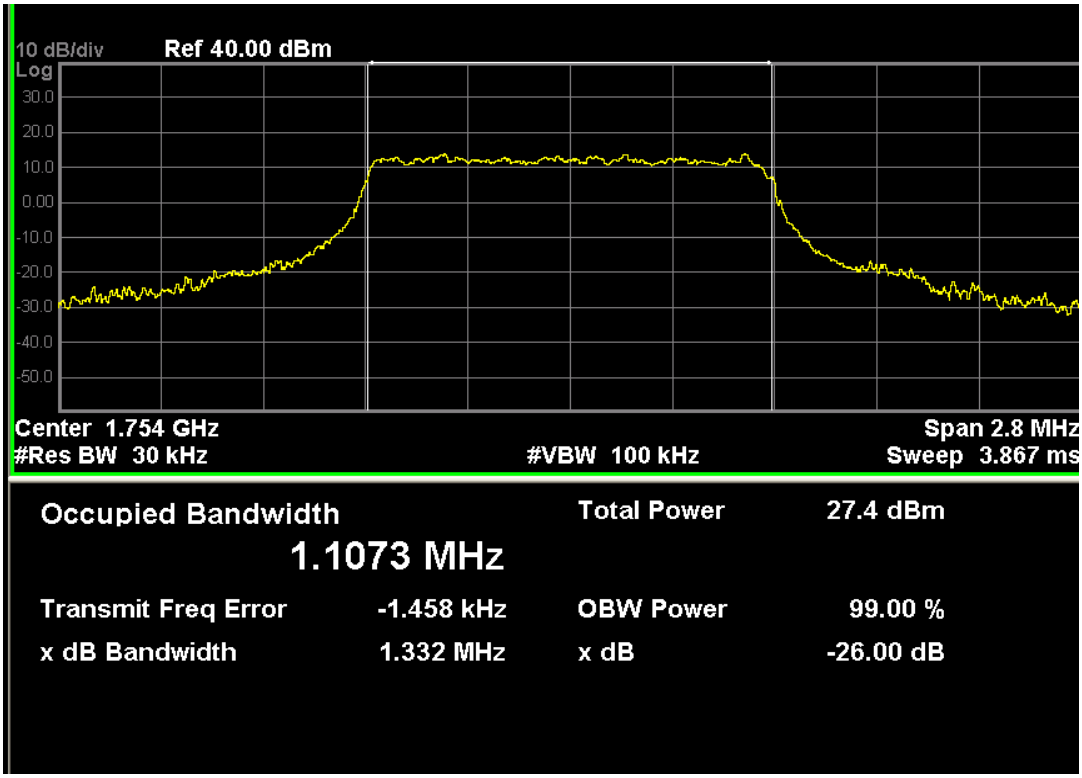

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.9 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
17.917 MHz
Total Power 26.7 dBm
Transmit Freq Error 34.175 kHz
OBW Power 99.00 %
x dB Bandwidth 19.69 MHz
x dB -26.00 dB

**LTE Band 4 (QPSK, Band Width 1.4MHz,RB Size 6,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 19957 | 1710.7 | 1.396 | 1.1019 |
| 20175 | 1732.5 | 1.372 | 1.0993 |
| 20393 | 1754.3 | 1.332 | 1.1073 |

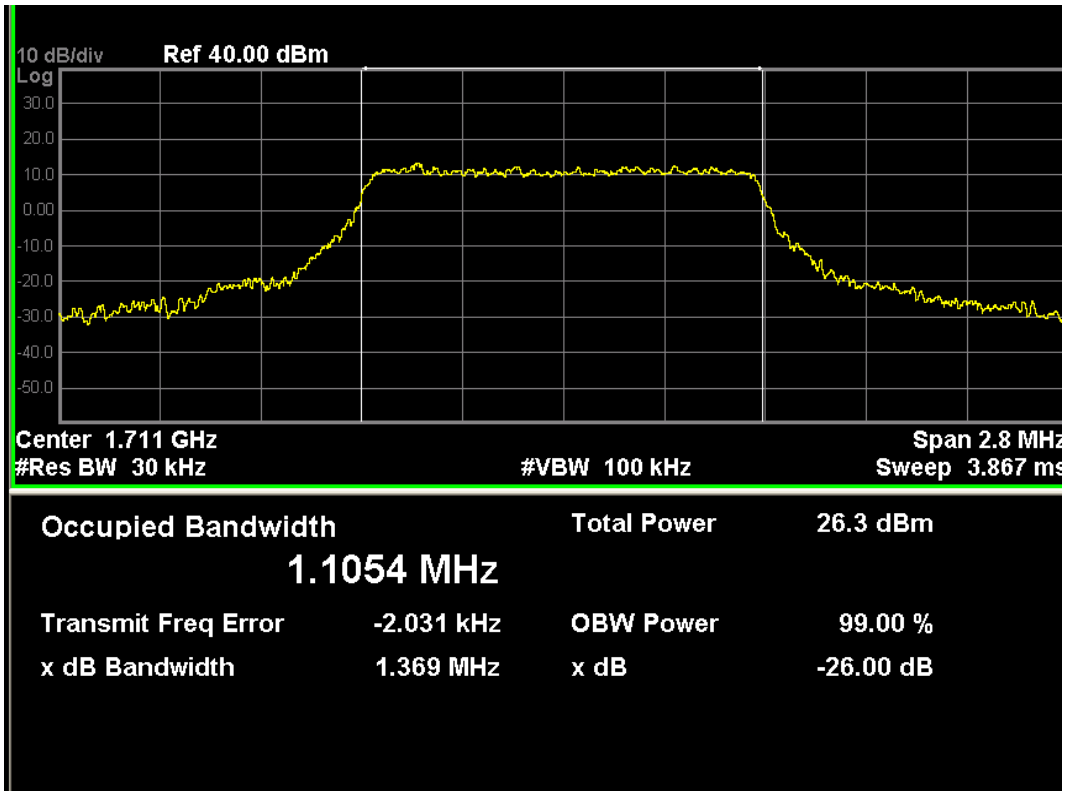


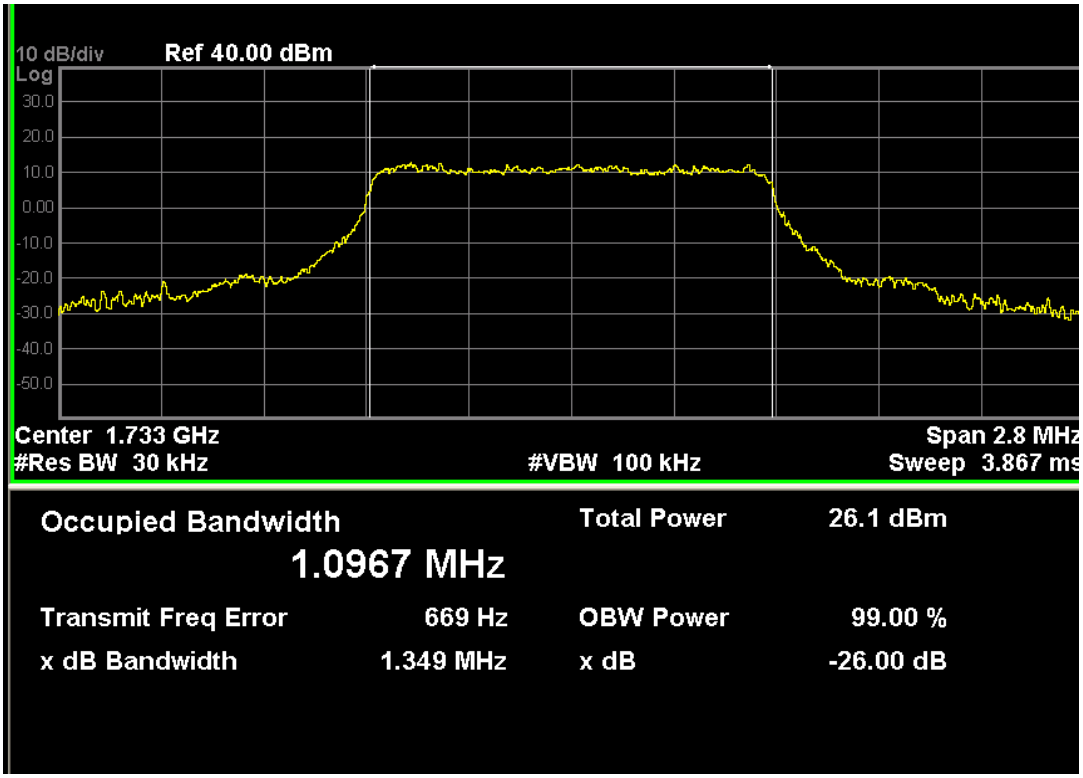

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.733 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.0993 MHz
Total Power 27.2 dBm
Transmit Freq Error -494 Hz
OBW Power 99.00 %
x dB Bandwidth 1.372 MHz
x dB -26.00 dB

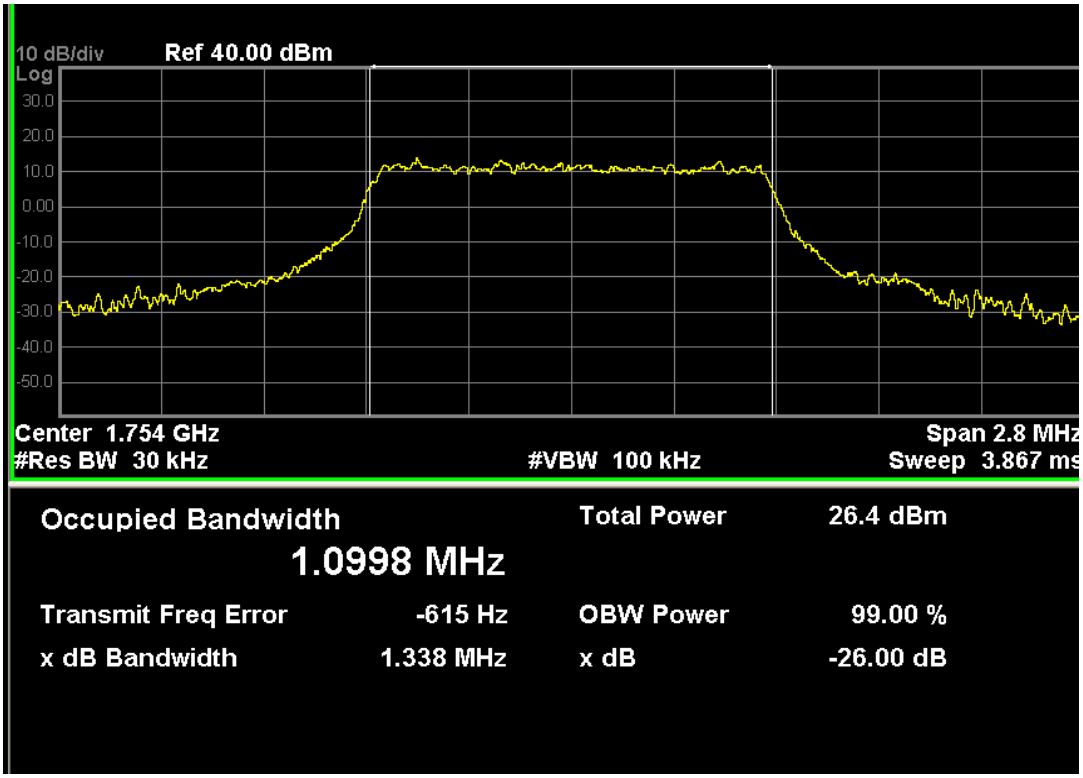

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.754 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.1073 MHz
Total Power 27.4 dBm
Transmit Freq Error -1.458 kHz
OBW Power 99.00 %
x dB Bandwidth 1.332 MHz
x dB -26.00 dB

**LTE Band 4 (16-QAM, Band Width 1.4MHz,RB Size 6,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 19957 | 1710.7 | 1.369 | 1.1054 |
| 20175 | 1732.5 | 1.349 | 1.0967 |
| 20393 | 1754.3 | 1.338 | 1.0998 |

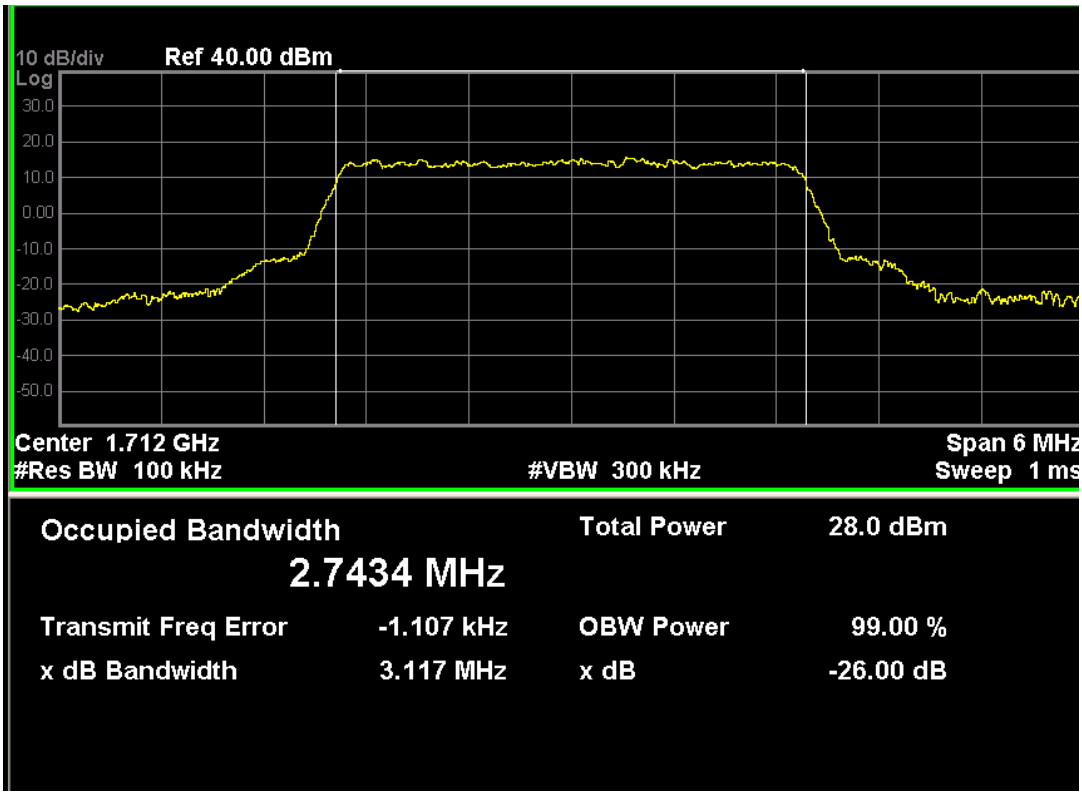


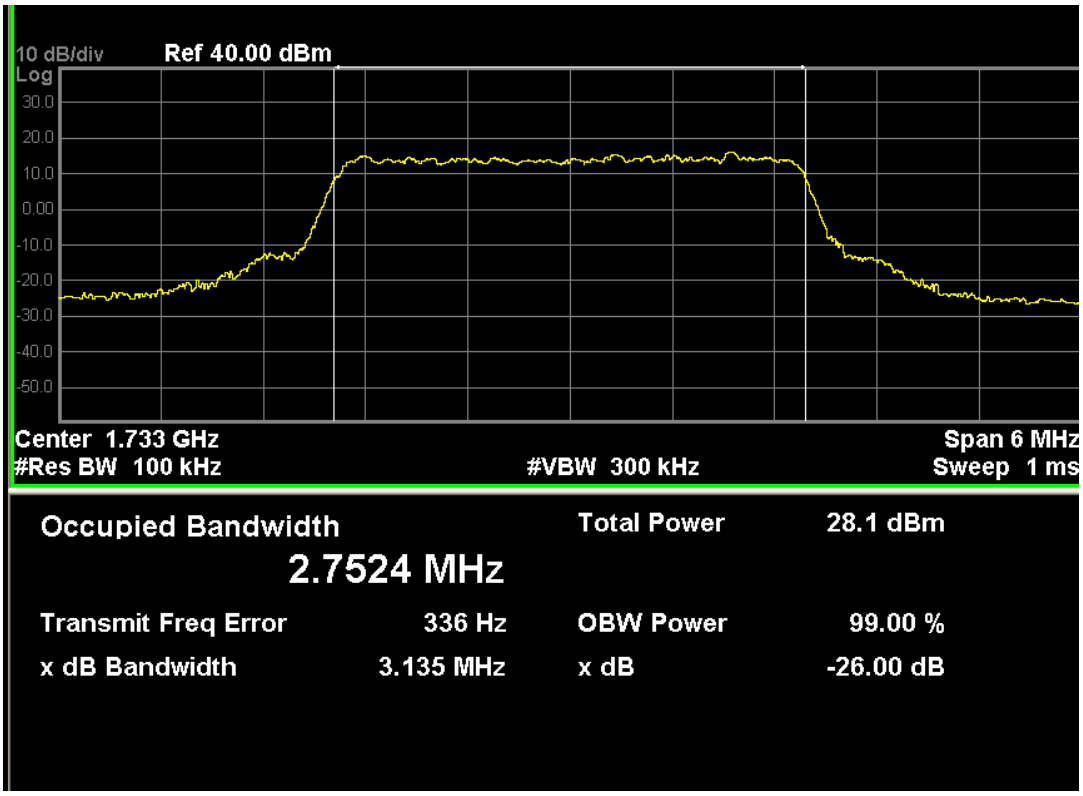

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.733 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.0967 MHz
Total Power 26.1 dBm
Transmit Freq Error 669 Hz
OBW Power 99.00 %
x dB Bandwidth 1.349 MHz
x dB -26.00 dB

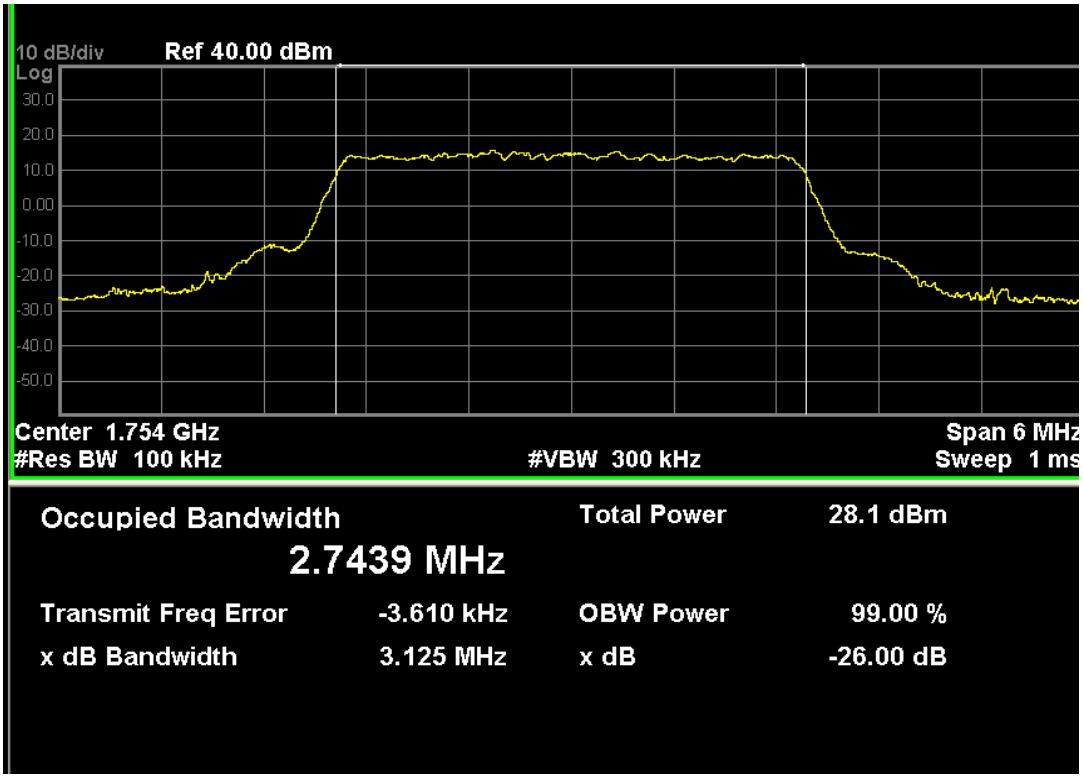

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.754 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.0998 MHz
Total Power 26.4 dBm
Transmit Freq Error -615 Hz
OBW Power 99.00 %
x dB Bandwidth 1.338 MHz
x dB -26.00 dB

**LTE Band 4 (QPSK, Band Width 3MHz,RB Size 15,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 19965 | 1711.5 | 3.117 | 2.7434 |
| 20175 | 1732.5 | 3.135 | 2.7524 |
| 20385 | 1753.5 | 3.125 | 2.7439 |

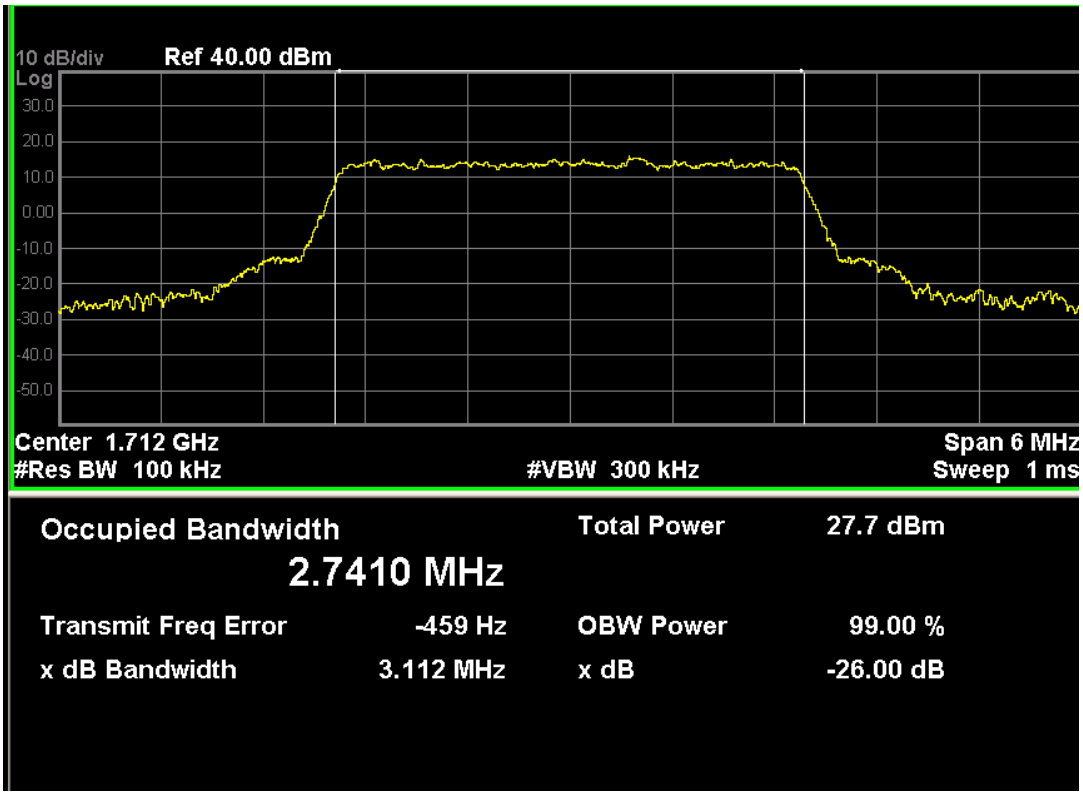


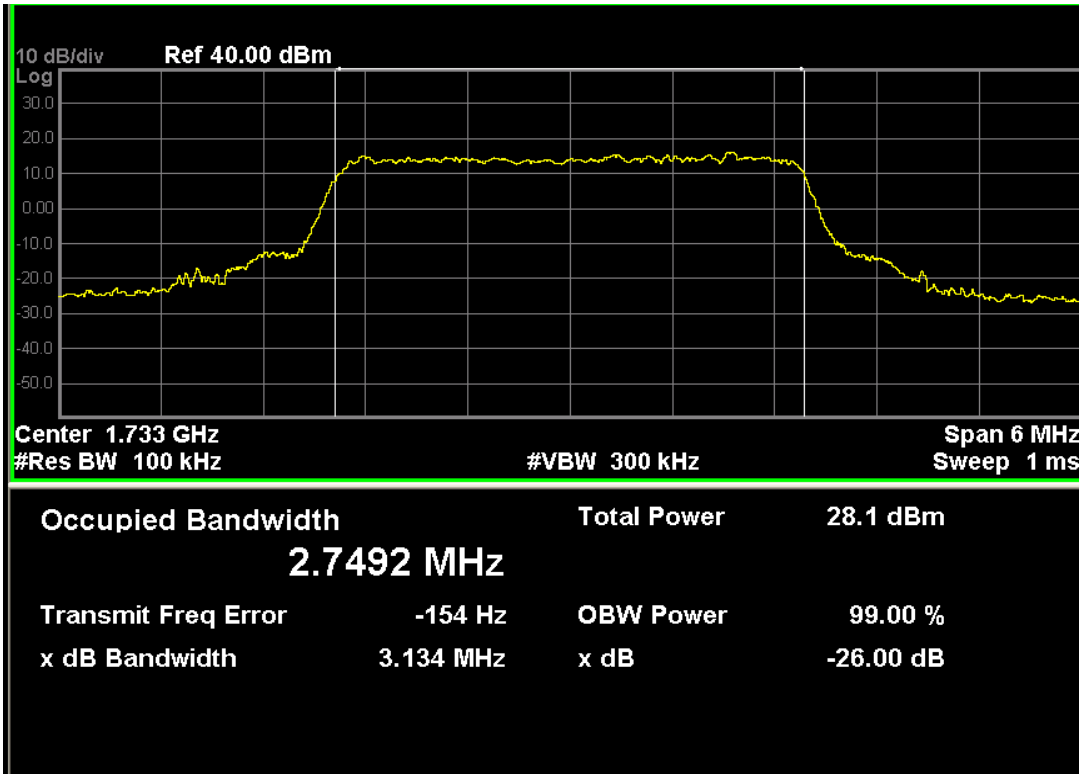

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.733 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 6 MHz
Sweep 1 ms
Occupied Bandwidth
2.7524 MHz
Total Power 28.1 dBm
Transmit Freq Error 336 Hz
OBW Power 99.00 %
x dB Bandwidth 3.135 MHz
x dB -26.00 dB

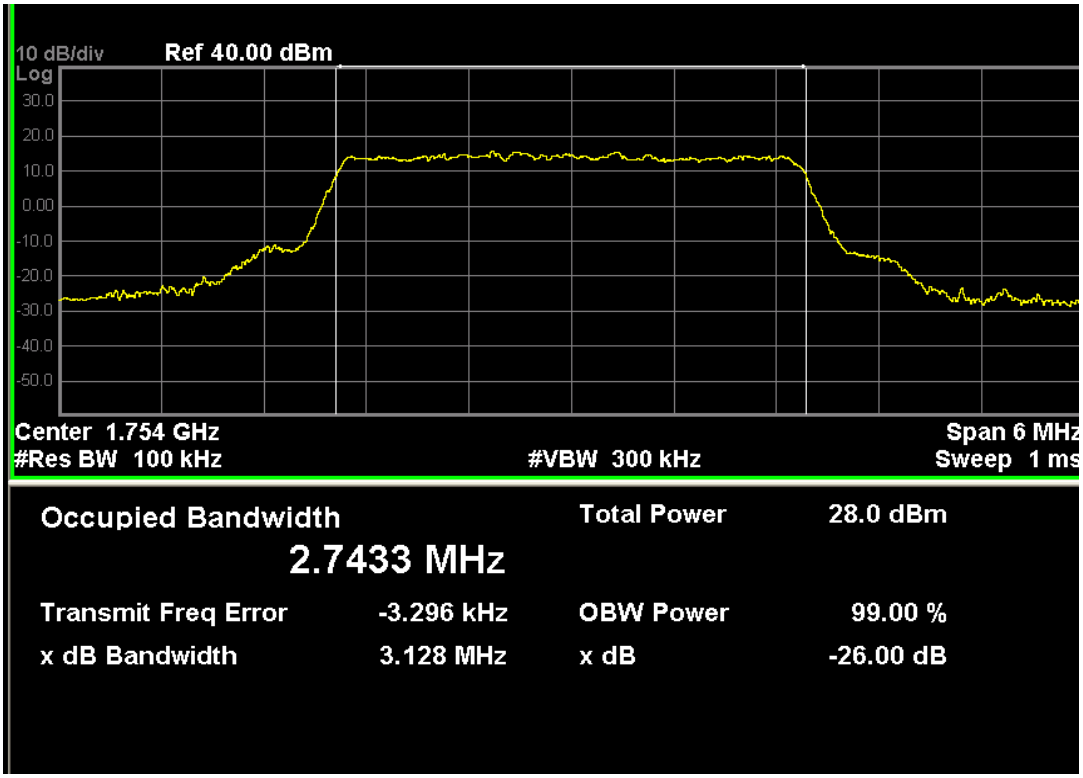

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.754 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 6 MHz
Sweep 1 ms
Occupied Bandwidth
2.7439 MHz
Total Power 28.1 dBm
Transmit Freq Error -3.610 kHz
OBW Power 99.00 %
x dB Bandwidth 3.125 MHz
x dB -26.00 dB

**LTE Band 4 (16-QAM, Band Width 3MHz,RB Size 15,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 19965 | 1711.5 | 3.112 | 2.7410 |
| 20175 | 1732.5 | 3.134 | 2.7492 |
| 20385 | 1753.5 | 3.128 | 2.7433 |

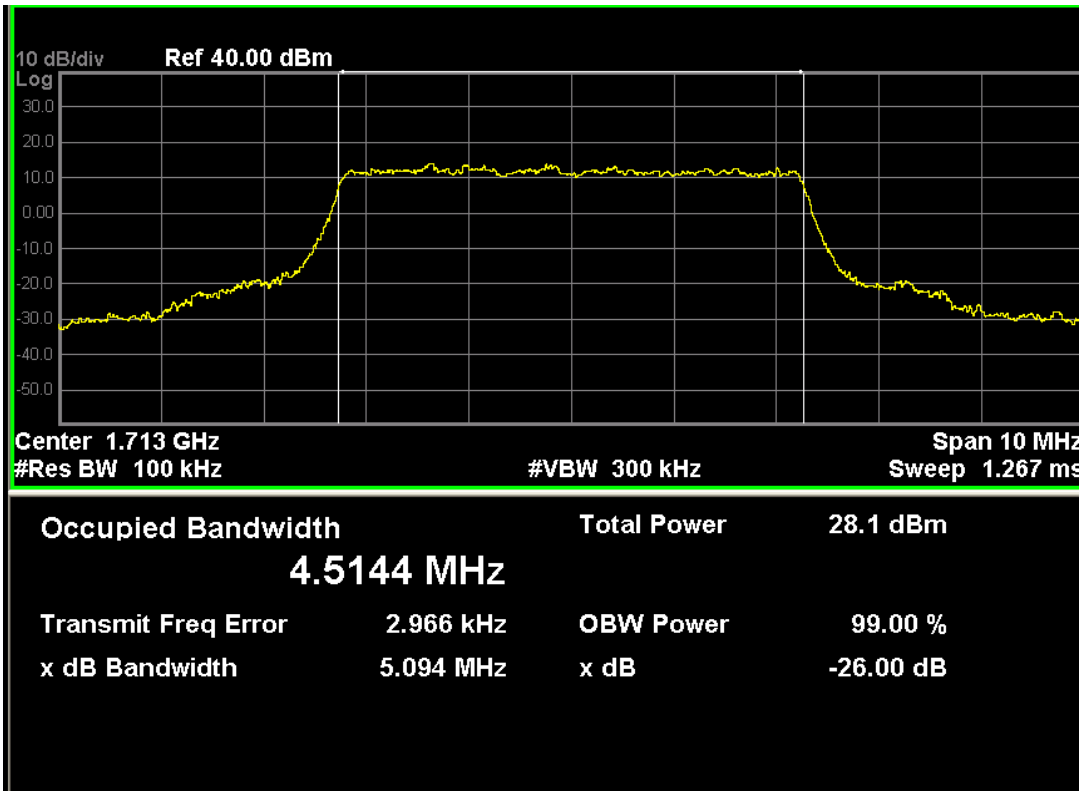


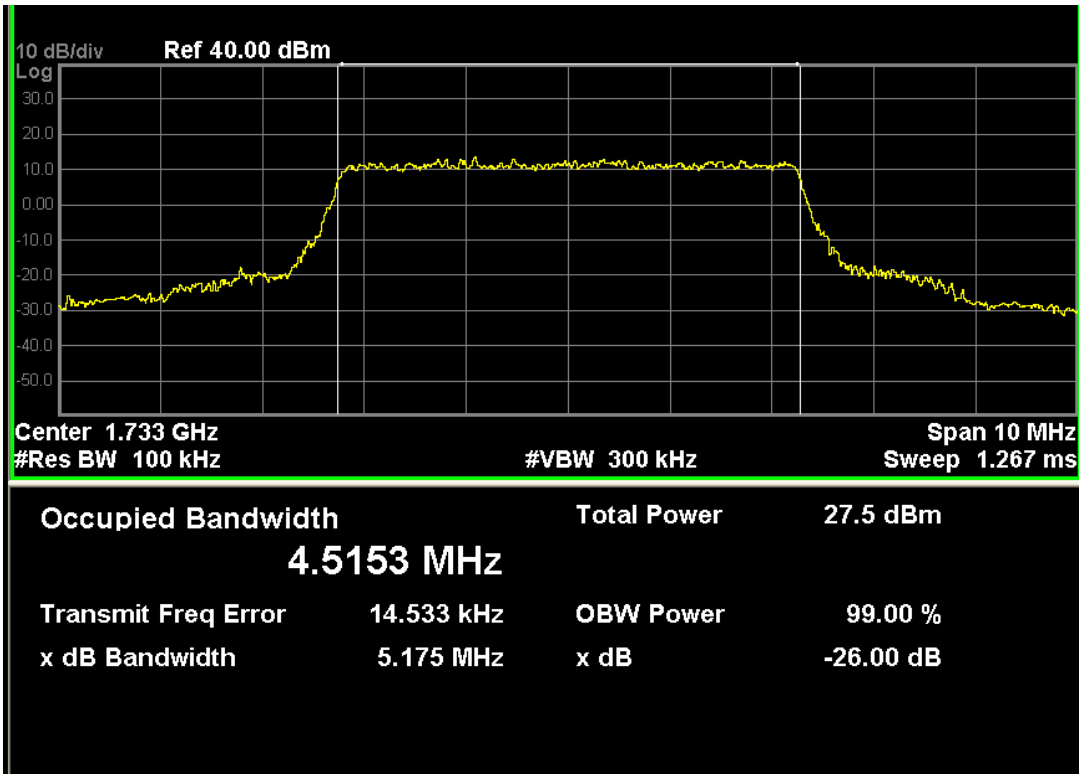

10 dB/div
Log
Ref 40.00 dBm
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.733 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 6 MHz
Sweep 1 ms
Occupied Bandwidth
2.7492 MHz
Total Power 28.1 dBm
Transmit Freq Error -154 Hz
OBW Power 99.00 %
x dB Bandwidth 3.134 MHz
x dB -26.00 dB

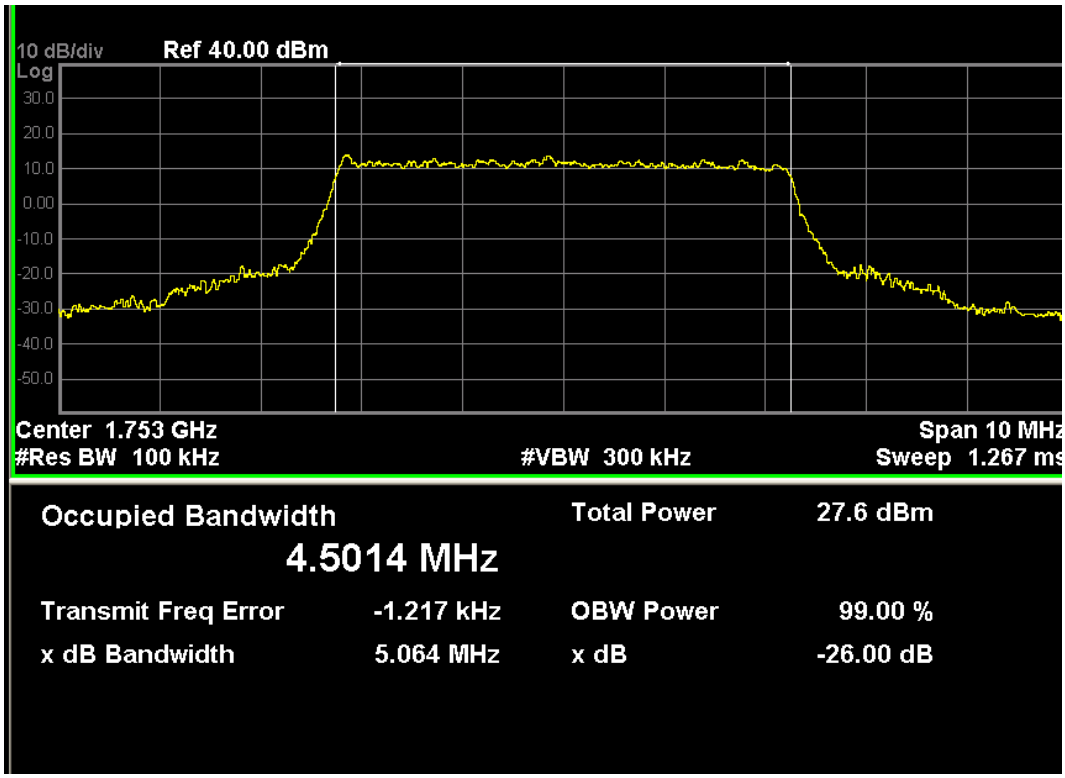

10 dB/div
Log
Ref 40.00 dBm
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.754 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 6 MHz
Sweep 1 ms
Occupied Bandwidth
2.7433 MHz
Total Power 28.0 dBm
Transmit Freq Error -3.296 kHz
OBW Power 99.00 %
x dB Bandwidth 3.128 MHz
x dB -26.00 dB

**LTE Band 4 (QPSK, Band Width 5MHz,RB Size 25,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 19975 | 1712.5 | 5.094 | 4.5144 |
| 20175 | 1732.5 | 5.175 | 4.5153 |
| 20375 | 1752.5 | 5.064 | 4.5014 |

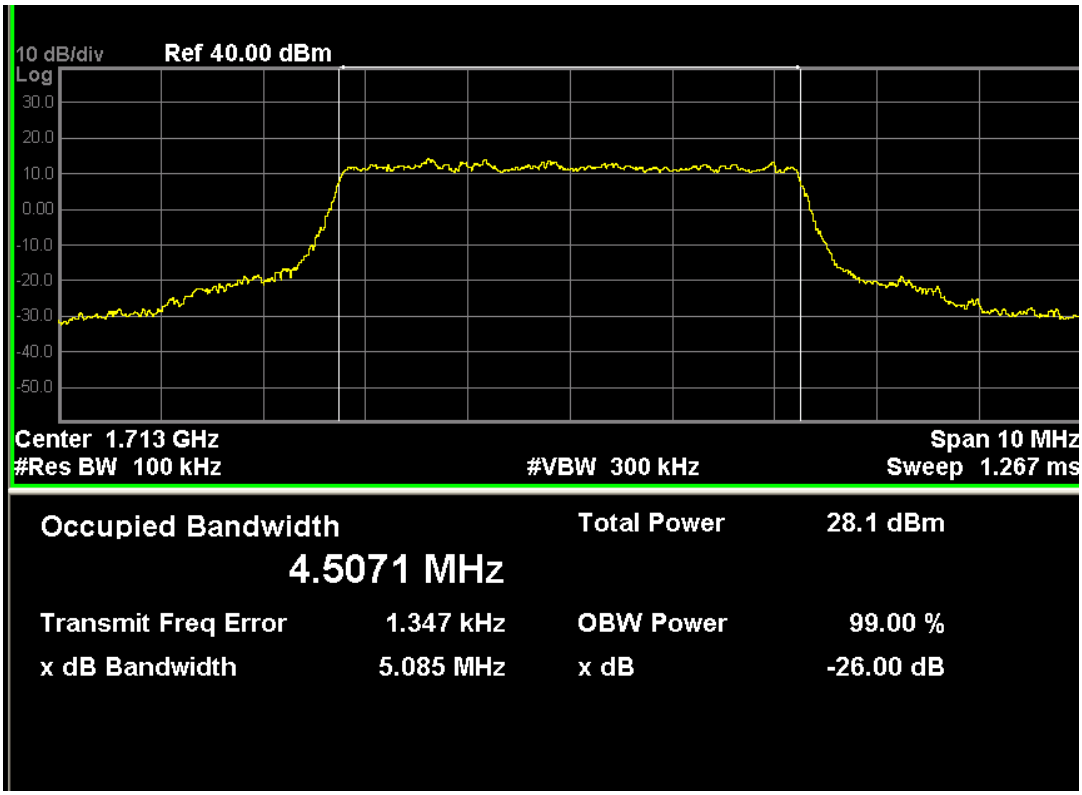


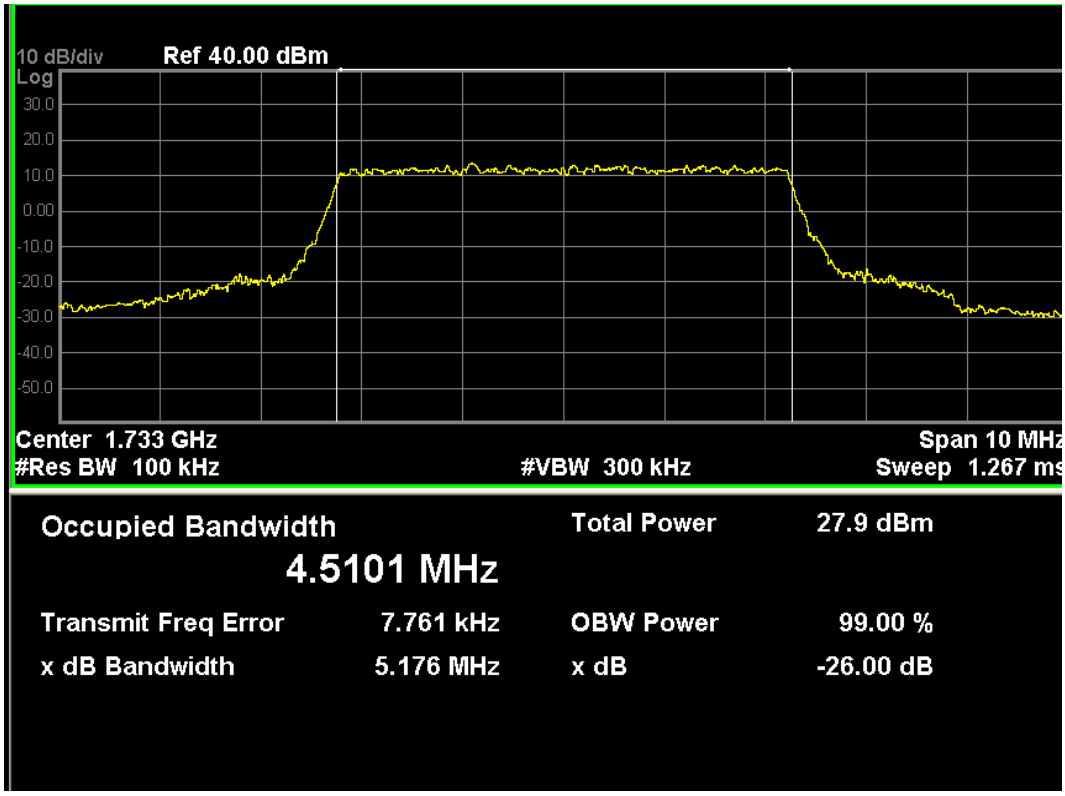

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.733 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.5153 MHz
Total Power 27.5 dBm
Transmit Freq Error 14.533 kHz
OBW Power 99.00 %
x dB Bandwidth 5.175 MHz
x dB -26.00 dB

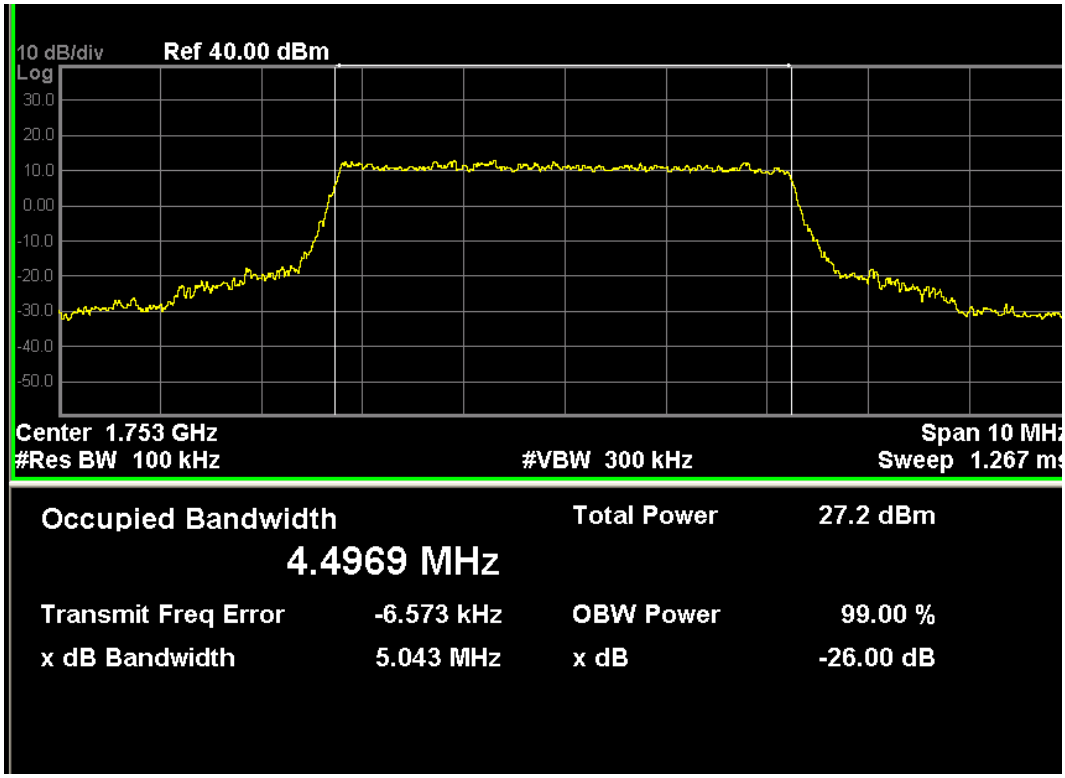

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.753 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.5014 MHz
Total Power 27.6 dBm
Transmit Freq Error -1.217 kHz
OBW Power 99.00 %
x dB Bandwidth 5.064 MHz
x dB -26.00 dB

**LTE Band 4 (16-QAM, Band Width 5MHz,RB Size 25,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 19975 | 1712.5 | 5.085 | 4.5071 |
| 20175 | 1732.5 | 5.176 | 4.5101 |
| 20375 | 1752.5 | 5.043 | 4.4969 |

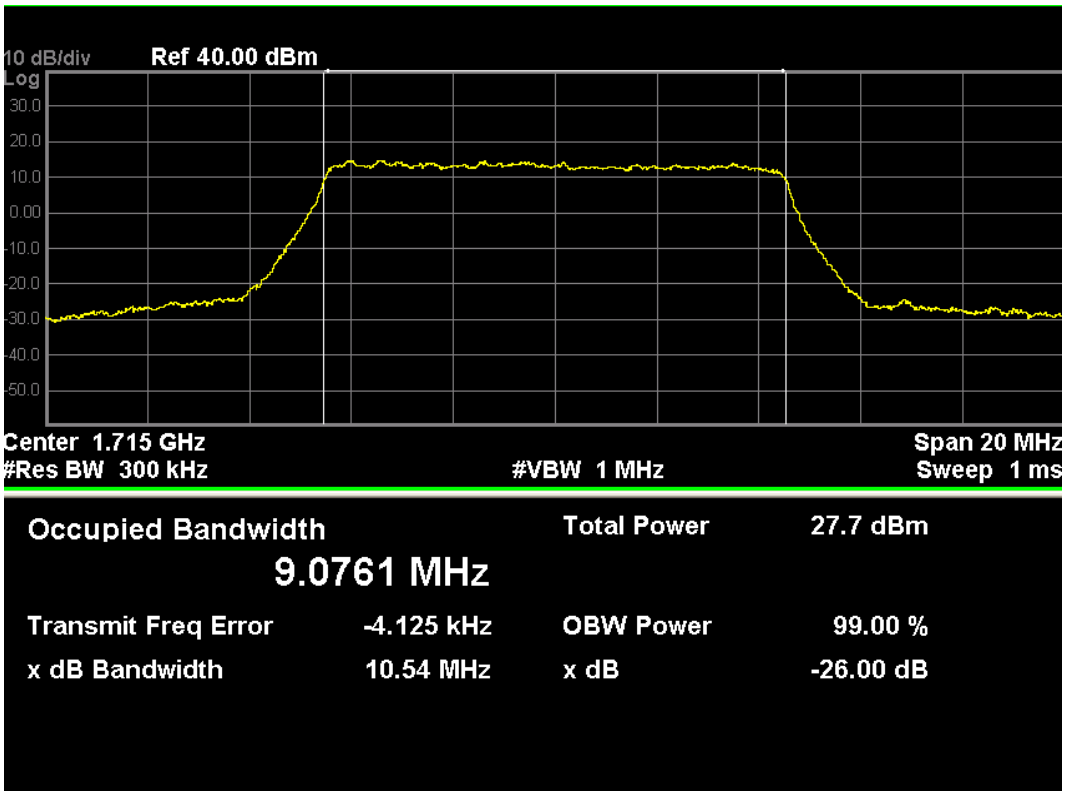


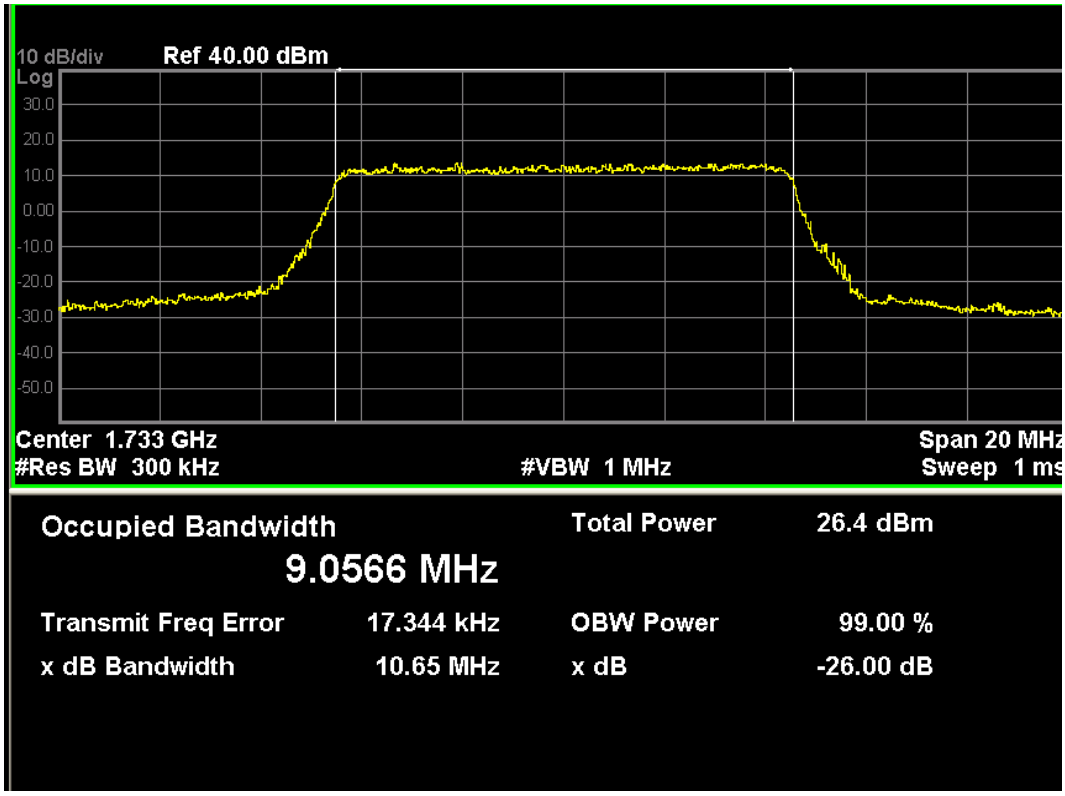

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.733 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.5101 MHz
Total Power 27.9 dBm
Transmit Freq Error 7.761 kHz
OBW Power 99.00 %
x dB Bandwidth 5.176 MHz
x dB -26.00 dB

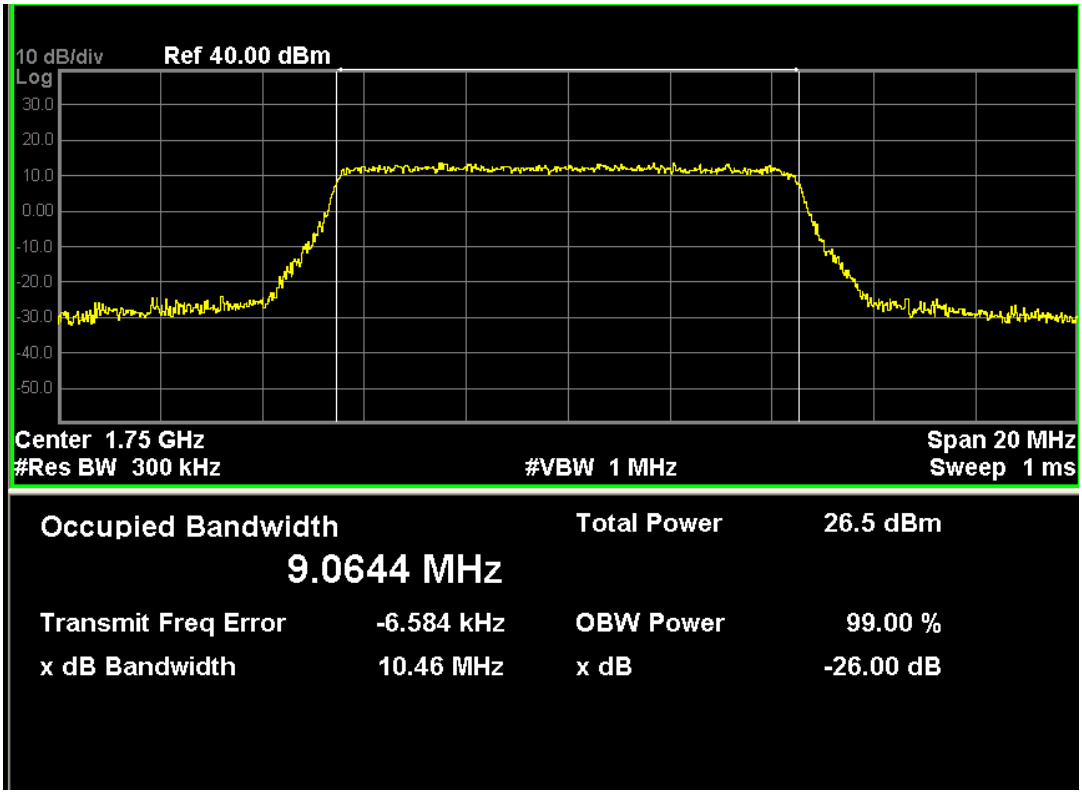

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.753 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.4969 MHz
Total Power 27.2 dBm
Transmit Freq Error -6.573 kHz
OBW Power 99.00 %
x dB Bandwidth 5.043 MHz
x dB -26.00 dB

**LTE Band 4 (QPSK, Band Width 10MHz,RB Size 50,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 20000 | 1715.0 | 10.54 | 9.0761 |
| 20175 | 1732.5 | 10.65 | 9.0566 |
| 20350 | 1750.0 | 10.46 | 9.0644 |

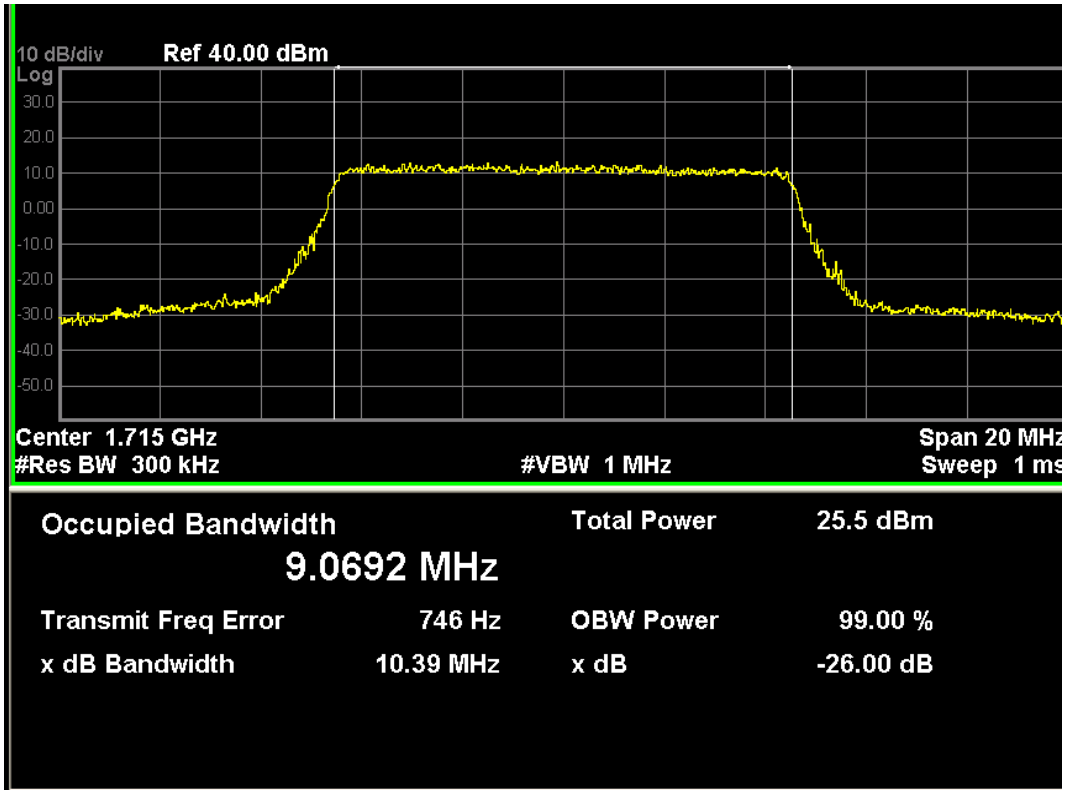


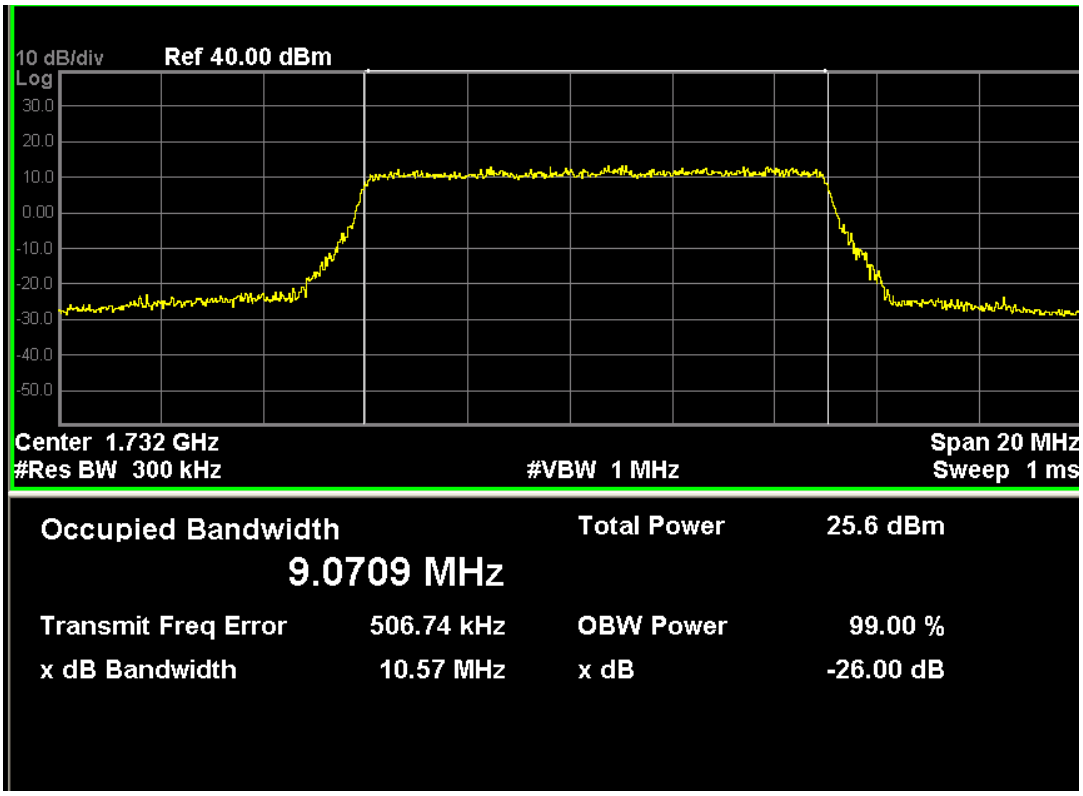

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.733 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.0566 MHz
Total Power 26.4 dBm
Transmit Freq Error 17.344 kHz
OBW Power 99.00 %
x dB Bandwidth 10.65 MHz
x dB -26.00 dB

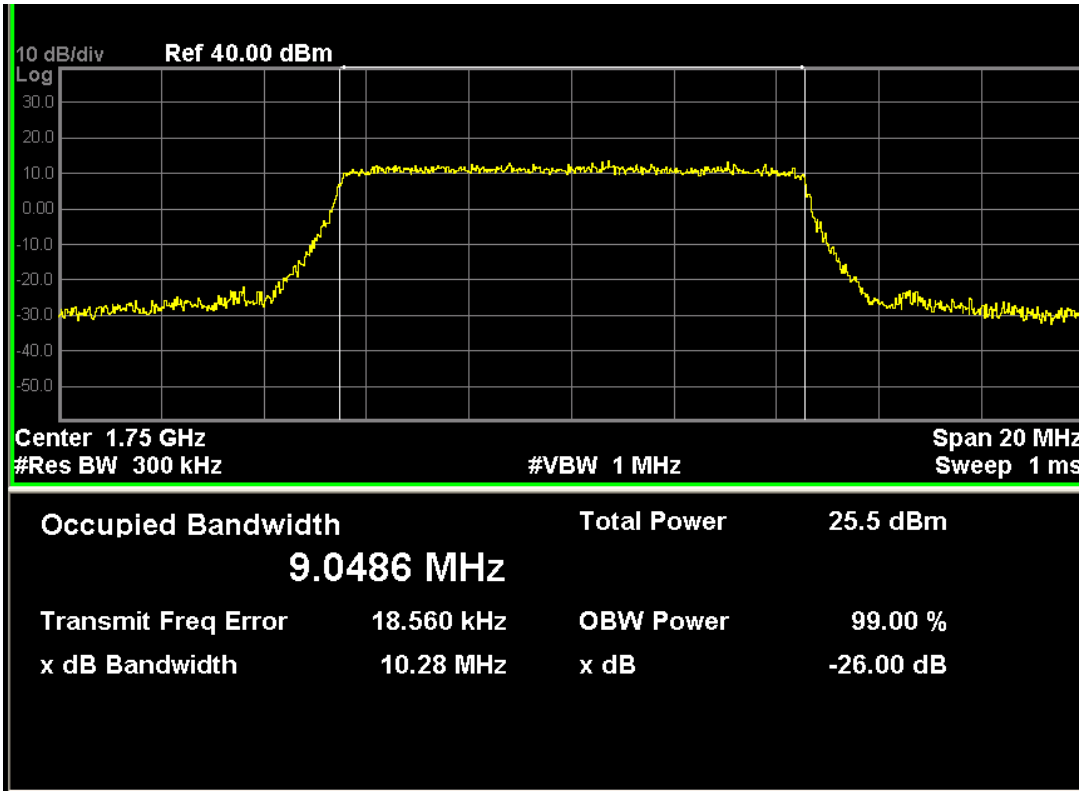

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.75 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.0644 MHz
Total Power 26.5 dBm
Transmit Freq Error -6.584 kHz
OBW Power 99.00 %
x dB Bandwidth 10.46 MHz
x dB -26.00 dB

**LTE Band 4 (16-QAM, Band Width 10MHz,RB Size 50,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 20000 | 1715.0 | 10.39 | 9.0692 |
| 20175 | 1732.5 | 10.57 | 9.0709 |
| 20350 | 1750.0 | 10.28 | 9.0486 |

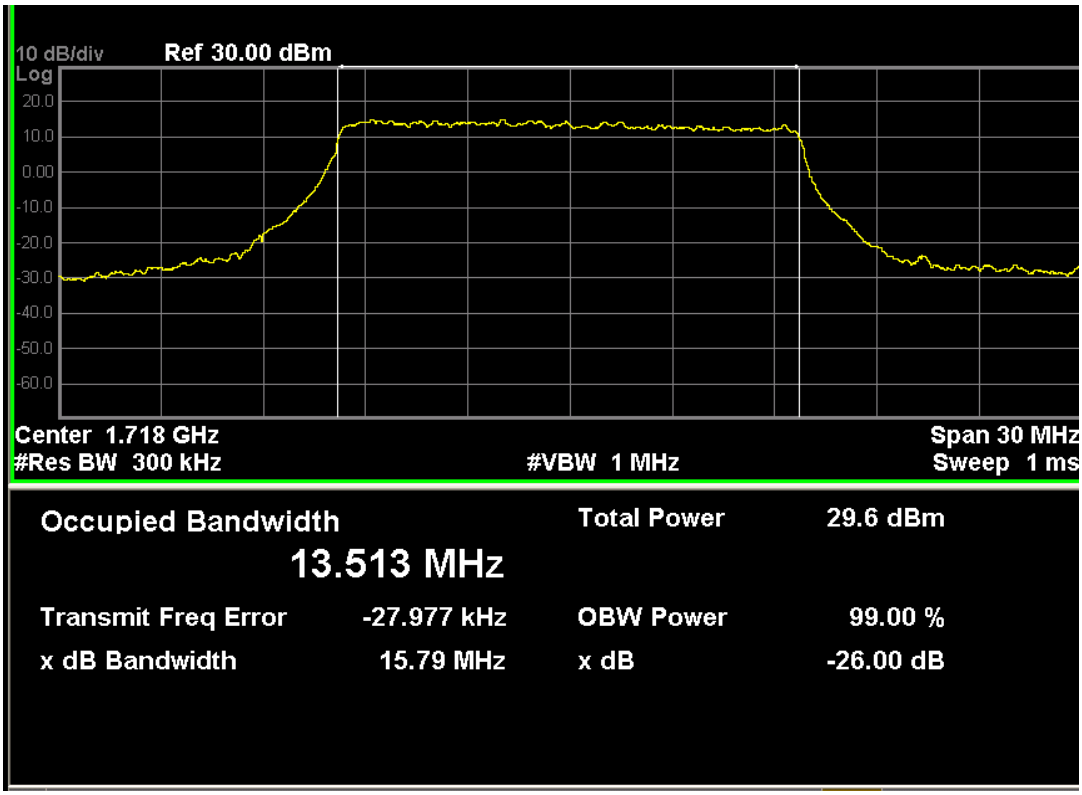


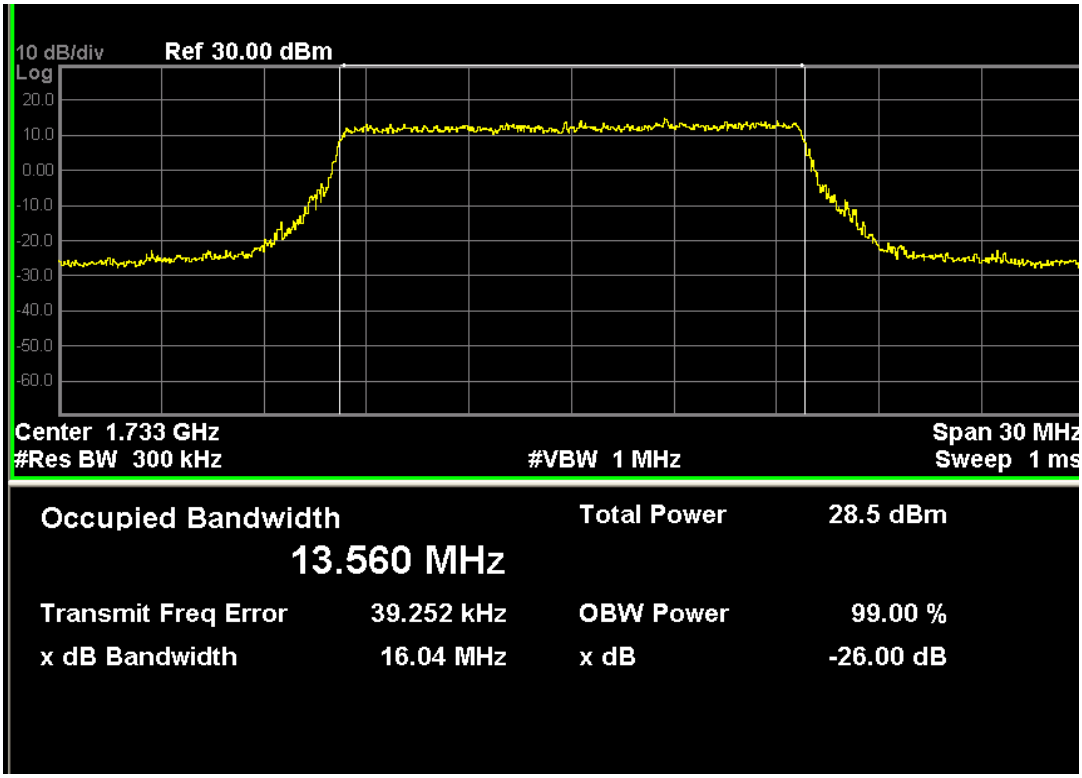

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.732 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.0709 MHz
Total Power 25.6 dBm
Transmit Freq Error 506.74 kHz
OBW Power 99.00 %
x dB Bandwidth 10.57 MHz
x dB -26.00 dB

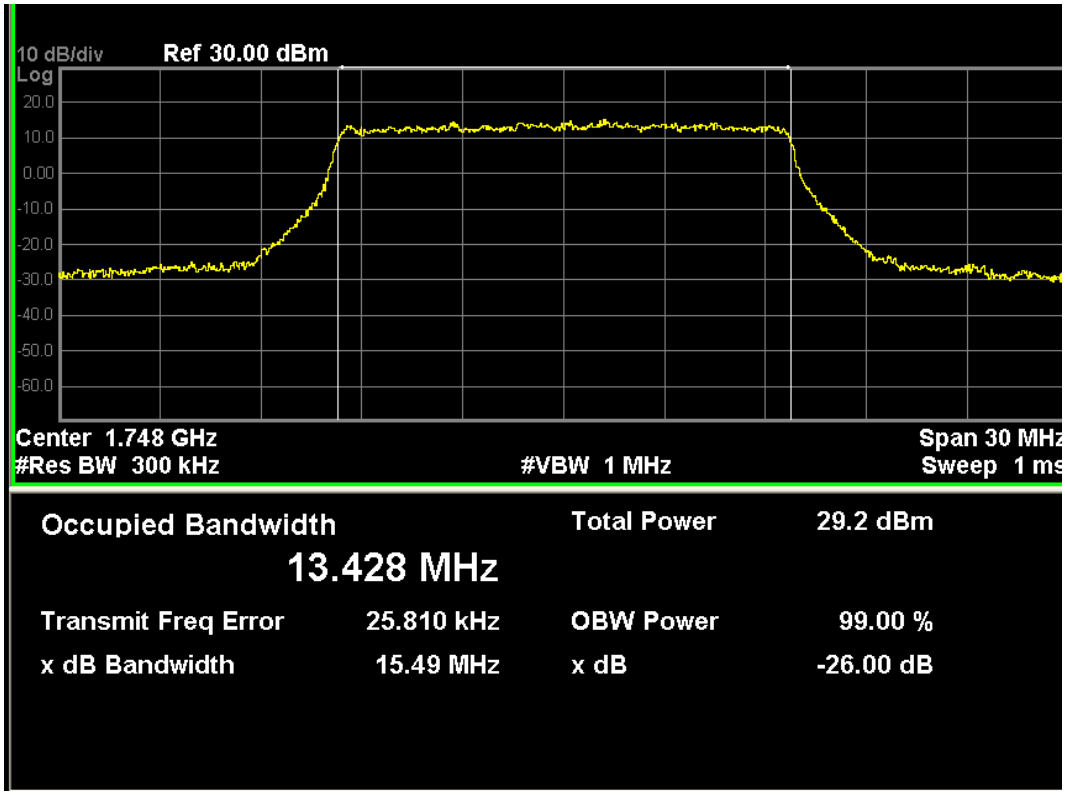

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 1.75 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.0486 MHz
Total Power 25.5 dBm
Transmit Freq Error 18.560 kHz
OBW Power 99.00 %
x dB Bandwidth 10.28 MHz
x dB -26.00 dB

**LTE Band 4 (QPSK, Band Width 15MHz,RB Size 75,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 20025 | 1717.5 | 15.79 | 13.513 |
| 20175 | 1732.5 | 16.04 | 13.560 |
| 20325 | 1747.5 | 15.49 | 13.428 |

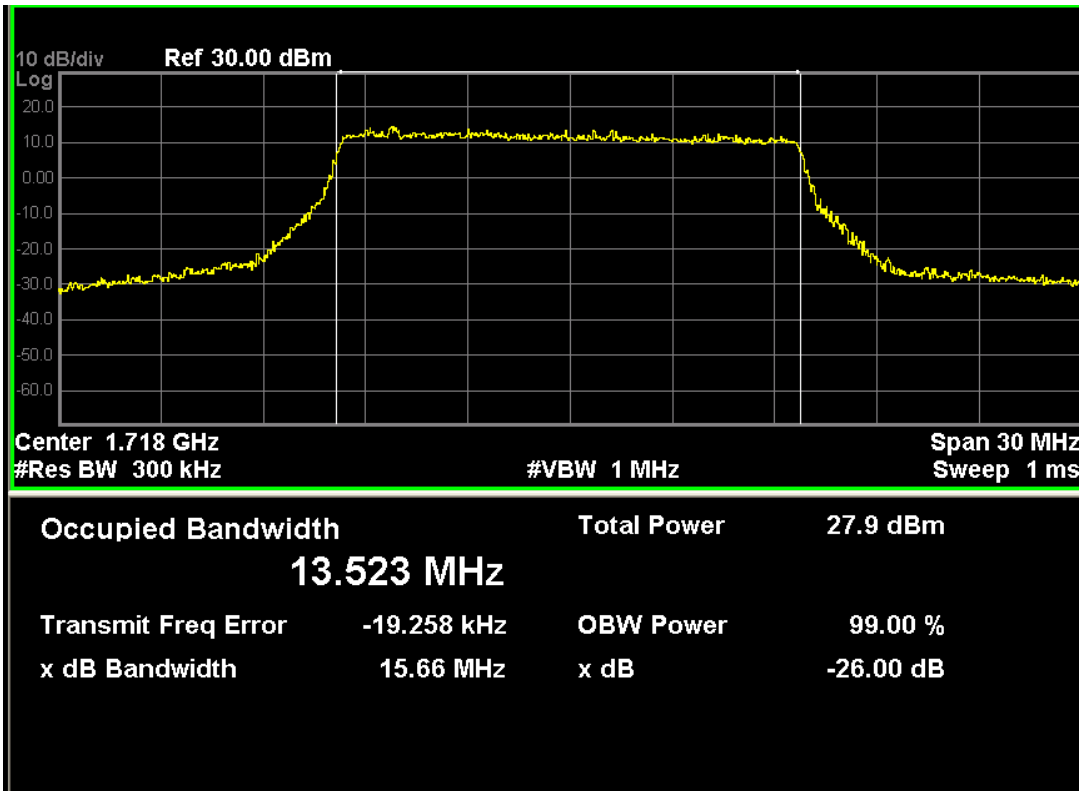


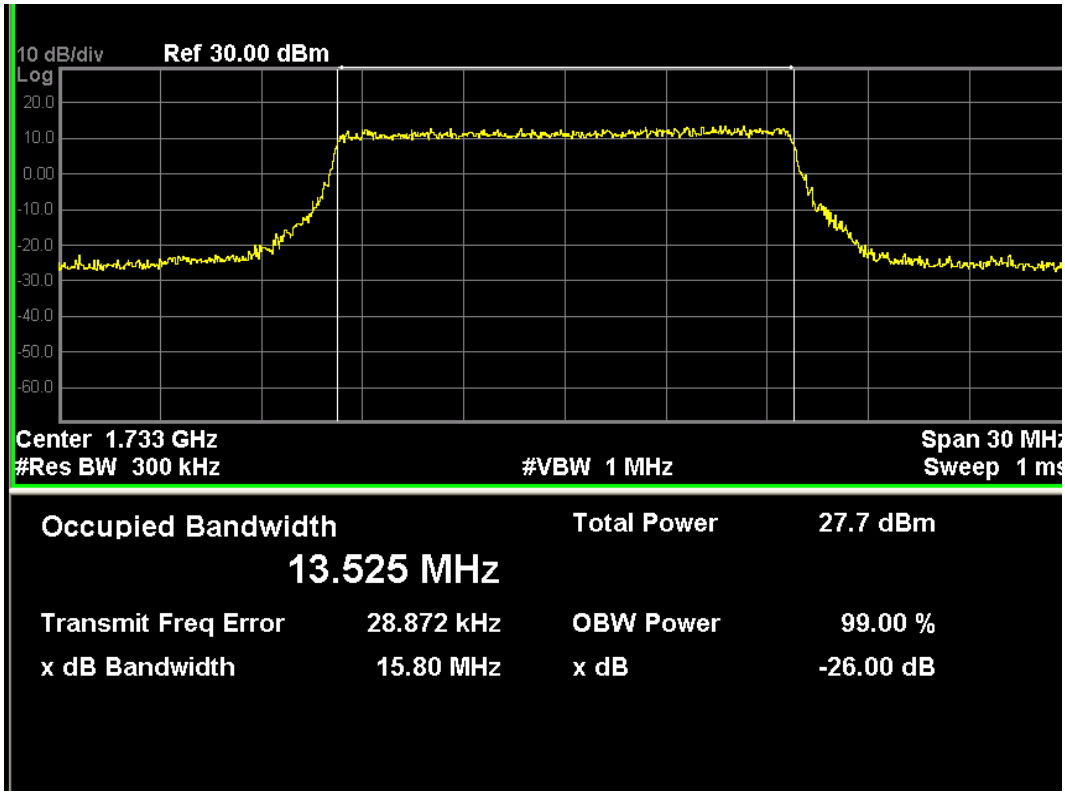

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.733 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 30 MHz
Sweep 1 ms
Occupied Bandwidth
13.560 MHz
Total Power 28.5 dBm
Transmit Freq Error 39.252 kHz
OBW Power 99.00 %
x dB Bandwidth 16.04 MHz
x dB -26.00 dB

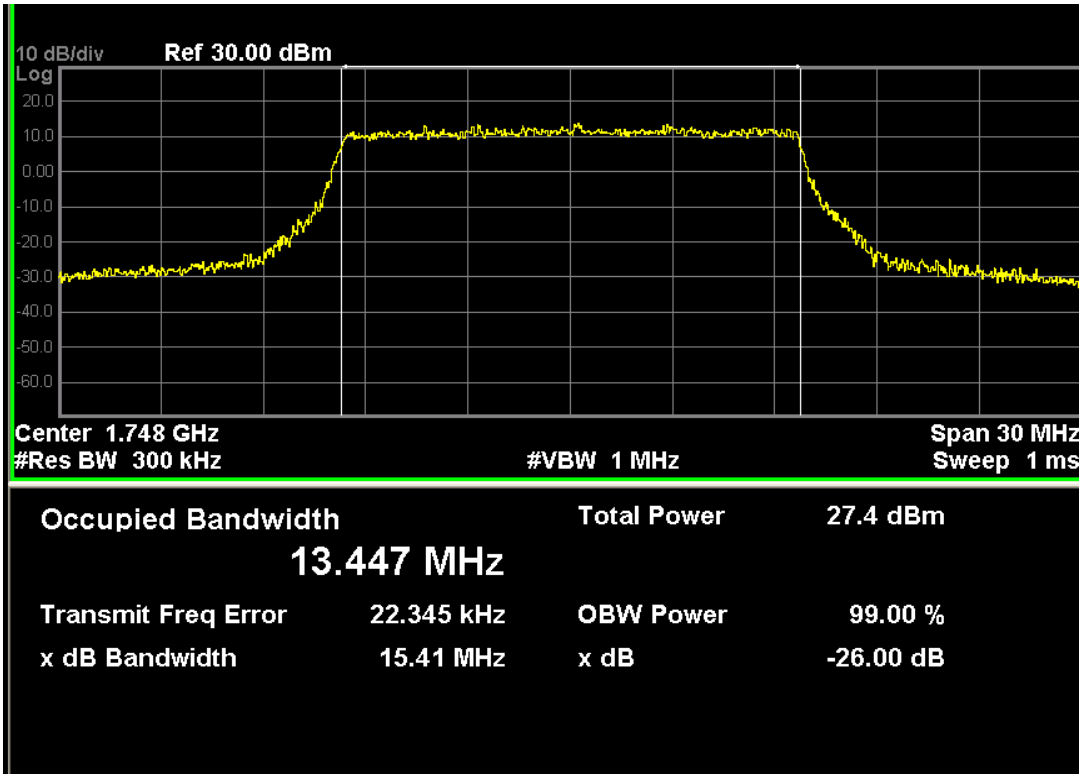

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.748 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 30 MHz
Sweep 1 ms
Occupied Bandwidth
13.428 MHz
Total Power 29.2 dBm
Transmit Freq Error 25.810 kHz
OBW Power 99.00 %
x dB Bandwidth 15.49 MHz
x dB -26.00 dB

**LTE Band 4 (16-QAM, Band Width 15MHz,RB Size 75,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 20025 | 1717.5 | 15.66 | 13.523 |
| 20175 | 1732.5 | 15.80 | 13.525 |
| 20325 | 1747.5 | 15.41 | 13.447 |

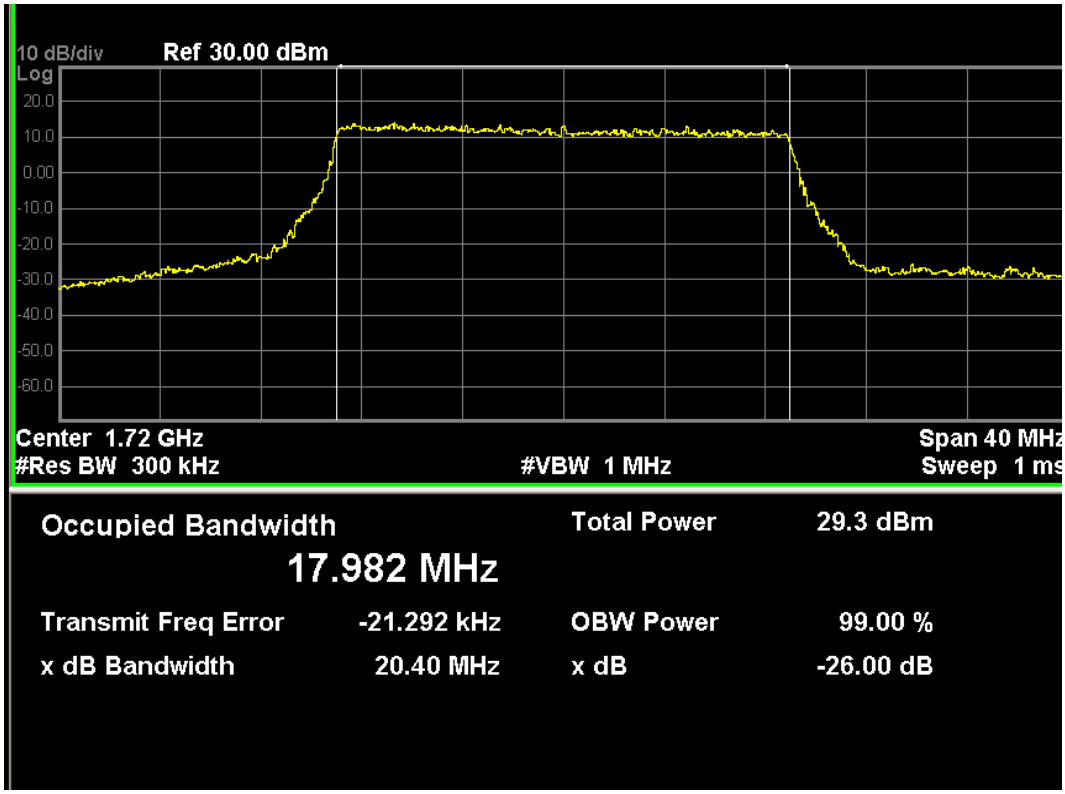


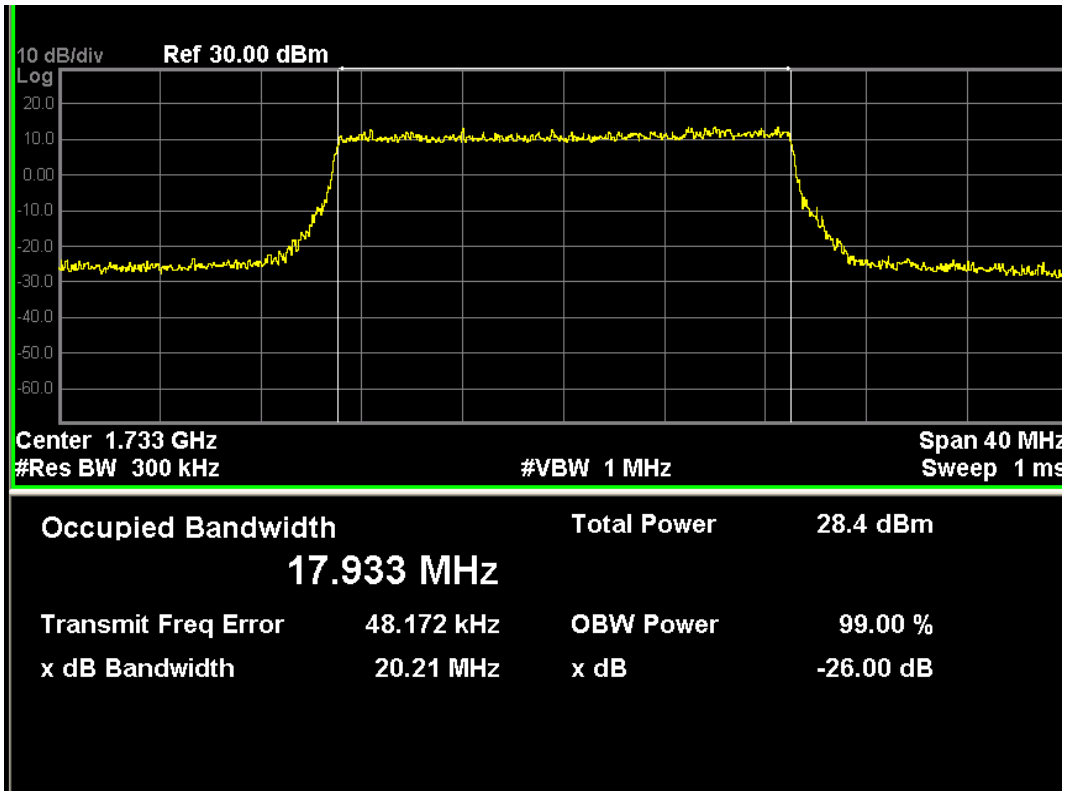

10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.733 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 30 MHz
Sweep 1 ms
Occupied Bandwidth
13.525 MHz
Total Power 27.7 dBm
Transmit Freq Error 28.872 kHz
OBW Power 99.00 %
x dB Bandwidth 15.80 MHz
x dB -26.00 dB

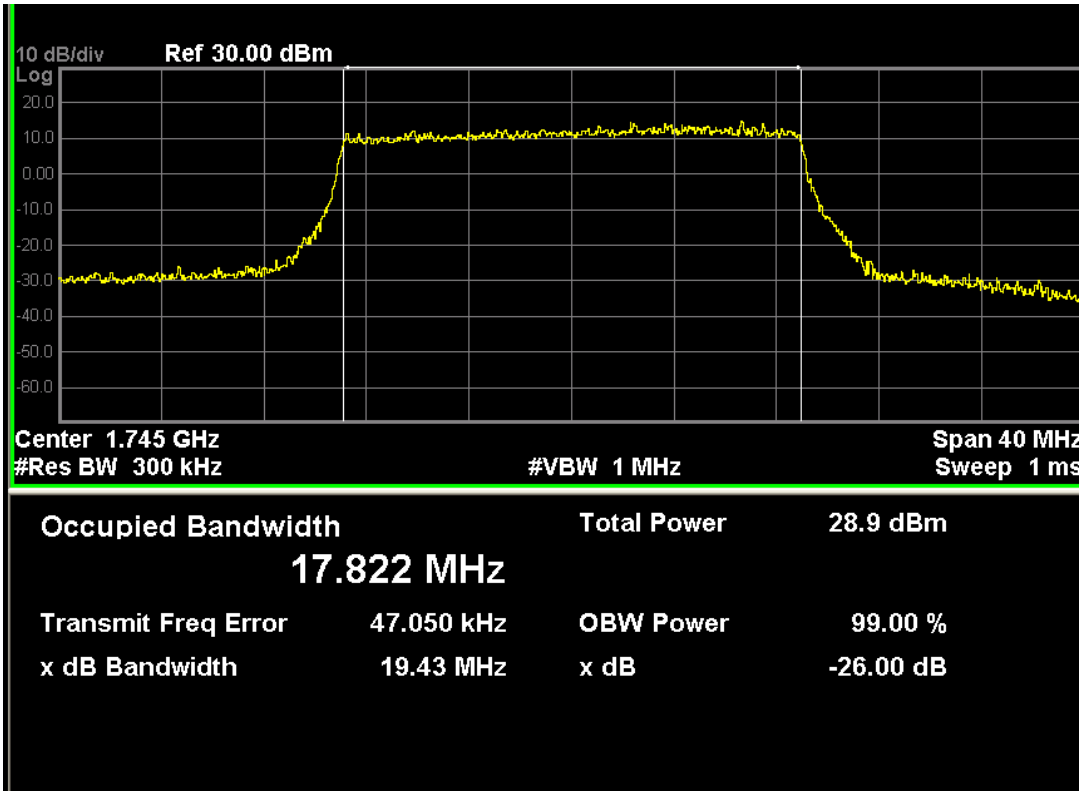

10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.748 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 30 MHz
Sweep 1 ms
Occupied Bandwidth
13.447 MHz
Total Power 27.4 dBm
Transmit Freq Error 22.345 kHz
OBW Power 99.00 %
x dB Bandwidth 15.41 MHz
x dB -26.00 dB

**LTE Band 4 (QPSK, Band Width 20MHz,RB Size 100,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 20050 | 1720.0 | 20.40 | 17.982 |
| 20175 | 1732.5 | 20.21 | 17.933 |
| 20300 | 1745.0 | 19.43 | 17.822 |

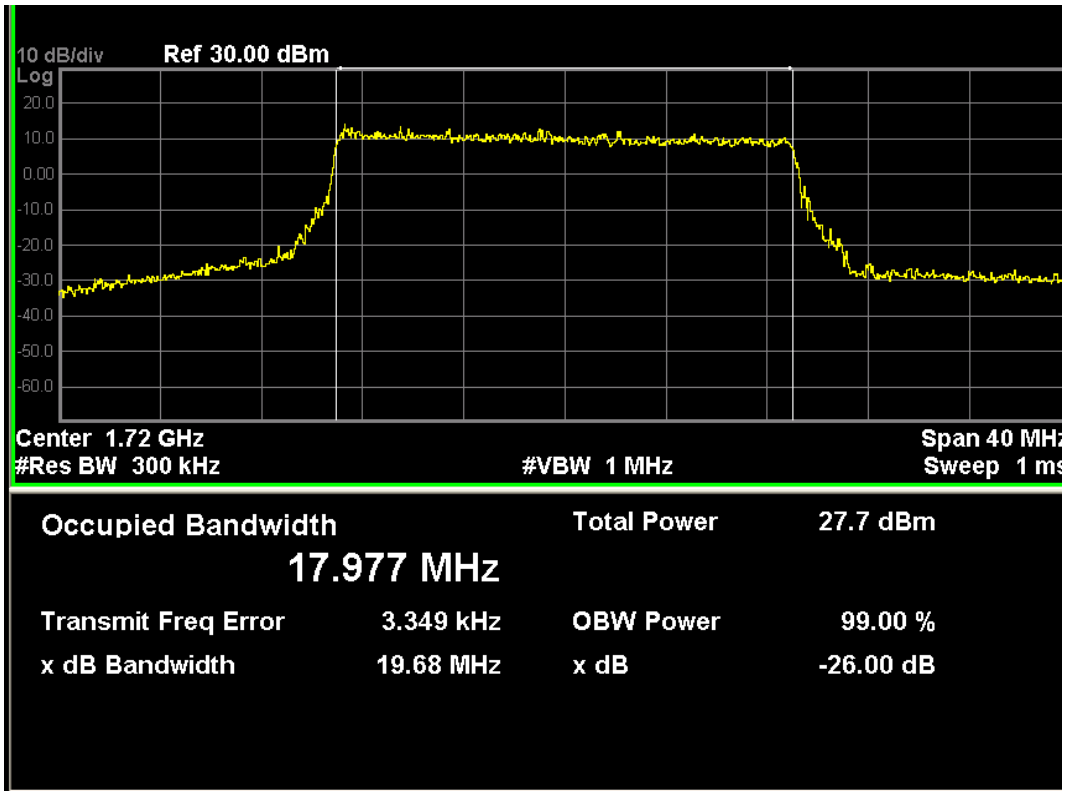


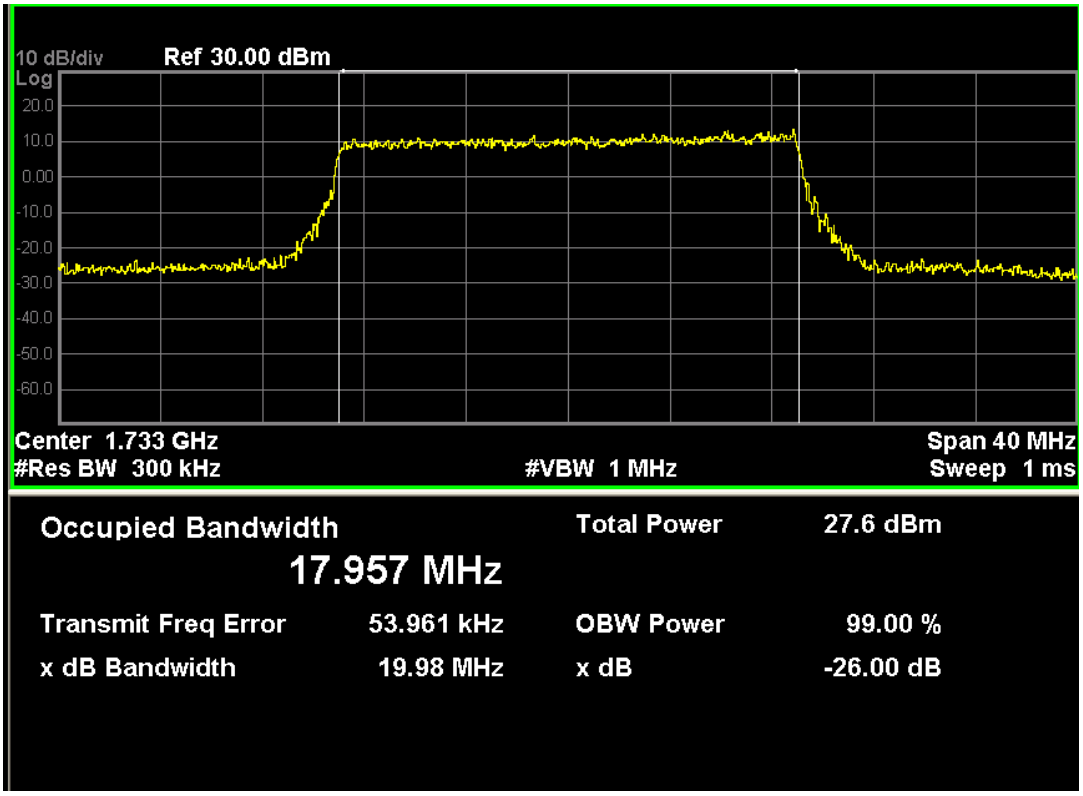

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.733 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
17.933 MHz
Total Power 28.4 dBm
Transmit Freq Error 48.172 kHz
OBW Power 99.00 %
x dB Bandwidth 20.21 MHz
x dB -26.00 dB

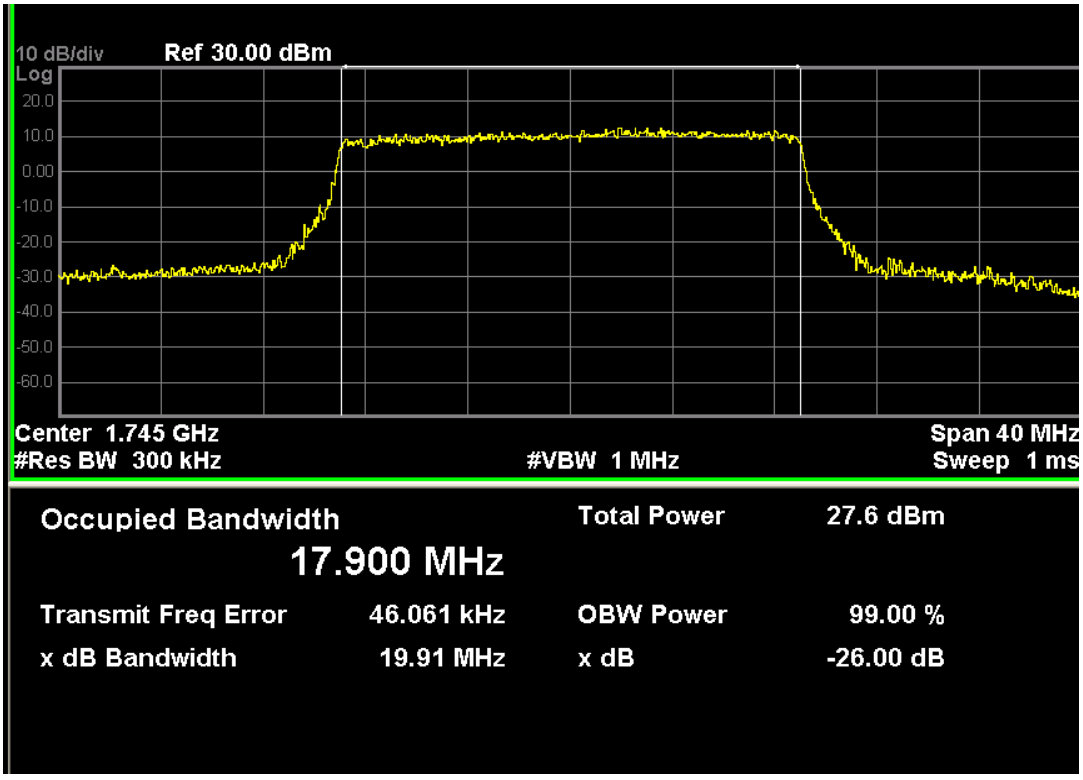

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.745 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
17.822 MHz
Total Power 28.9 dBm
Transmit Freq Error 47.050 kHz
OBW Power 99.00 %
x dB Bandwidth 19.43 MHz
x dB -26.00 dB

**LTE Band 4 (16-QAM, Band Width 20MHz,RB Size 100,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 20050 | 1720.0 | 19.68 | 17.977 |
| 20175 | 1732.5 | 19.98 | 17.957 |
| 20300 | 1745.0 | 19.91 | 17.900 |

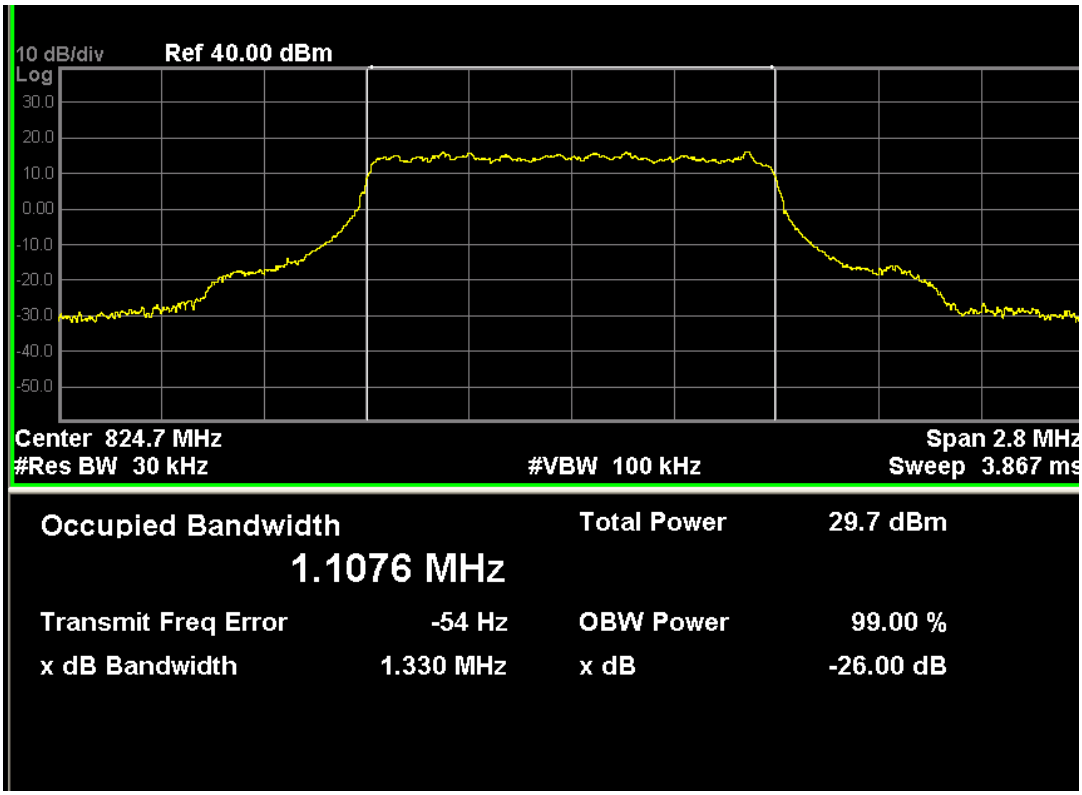


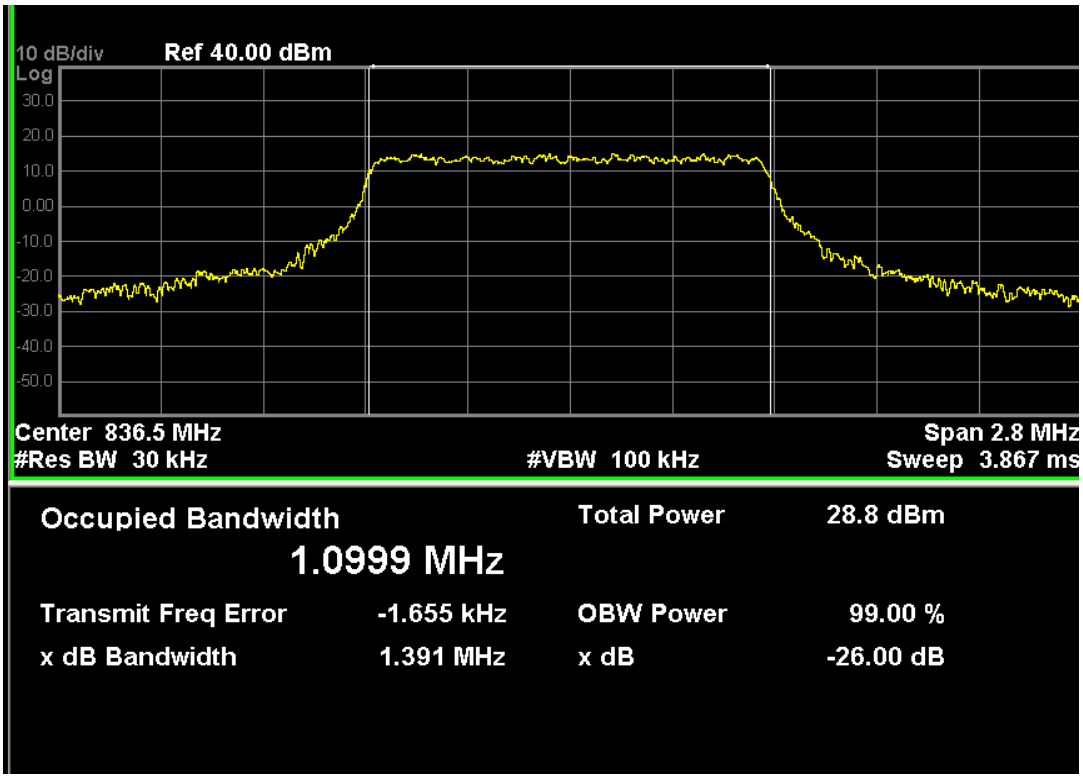

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.733 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
17.957 MHz
Total Power 27.6 dBm
Transmit Freq Error 53.961 kHz
OBW Power 99.00 %
x dB Bandwidth 19.98 MHz
x dB -26.00 dB

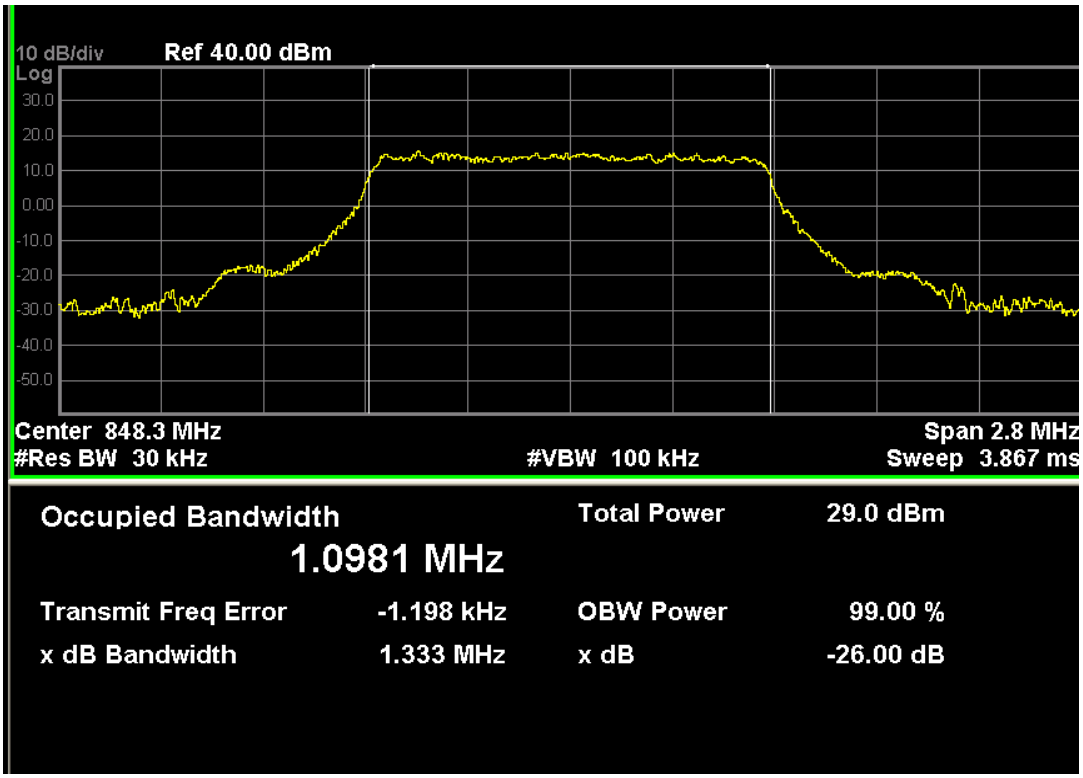

10 dB/div
Ref 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 1.745 GHz
#Res BW 300 kHz
#VBW 1 MHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
17.900 MHz
Total Power 27.6 dBm
Transmit Freq Error 46.061 kHz
OBW Power 99.00 %
x dB Bandwidth 19.91 MHz
x dB -26.00 dB

**LTE Band 5 (QPSK, Band Width 1.4MHz,RB Size 6,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 20407 | 824.7 | 1.330 | 1.1076 |
| 20525 | 836.5 | 1.391 | 1.0999 |
| 20643 | 848.3 | 1.333 | 1.0981 |

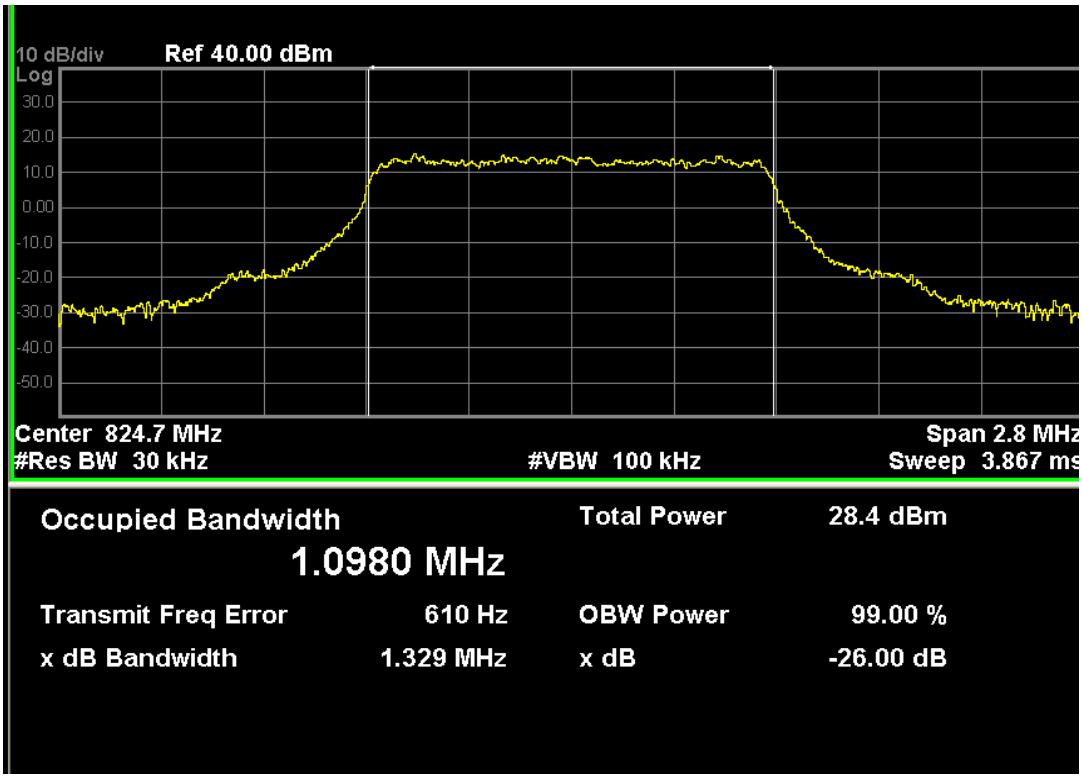


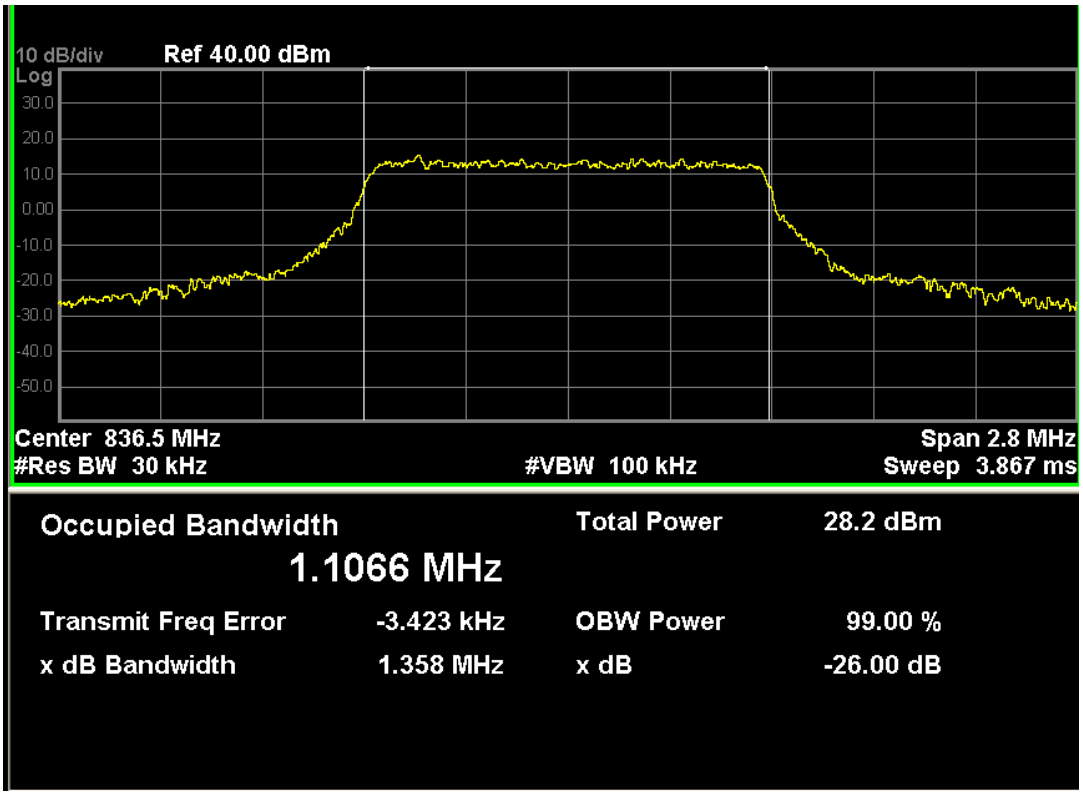

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 836.5 MHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.0999 MHz
Total Power 28.8 dBm
Transmit Freq Error -1.655 kHz
OBW Power 99.00 %
x dB Bandwidth 1.391 MHz
x dB -26.00 dB

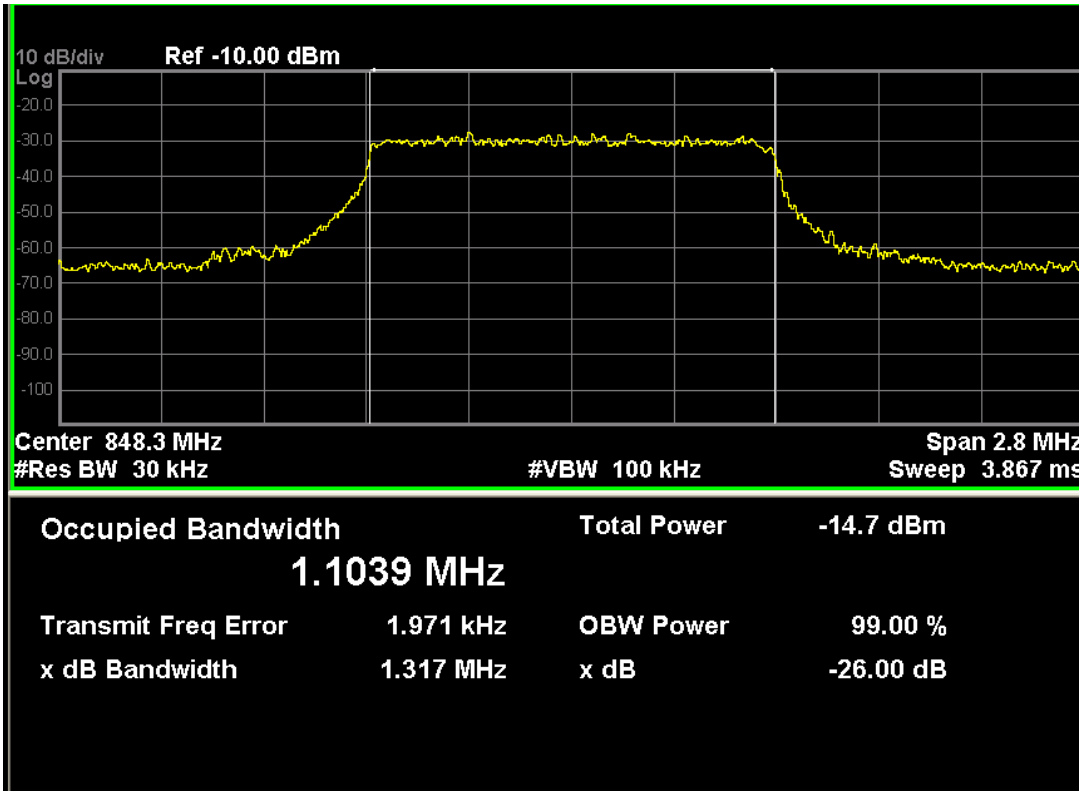

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 848.3 MHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.0981 MHz
Total Power 29.0 dBm
Transmit Freq Error -1.198 kHz
OBW Power 99.00 %
x dB Bandwidth 1.333 MHz
x dB -26.00 dB

**LTE Band 5 (16-QAM, Band Width 1.4MHz,RB Size 6,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 20407 | 824.7 | 1.329 | 1.0980 |
| 20525 | 836.5 | 1.358 | 1.1066 |
| 20643 | 848.3 | 1.317 | 1.1039 |

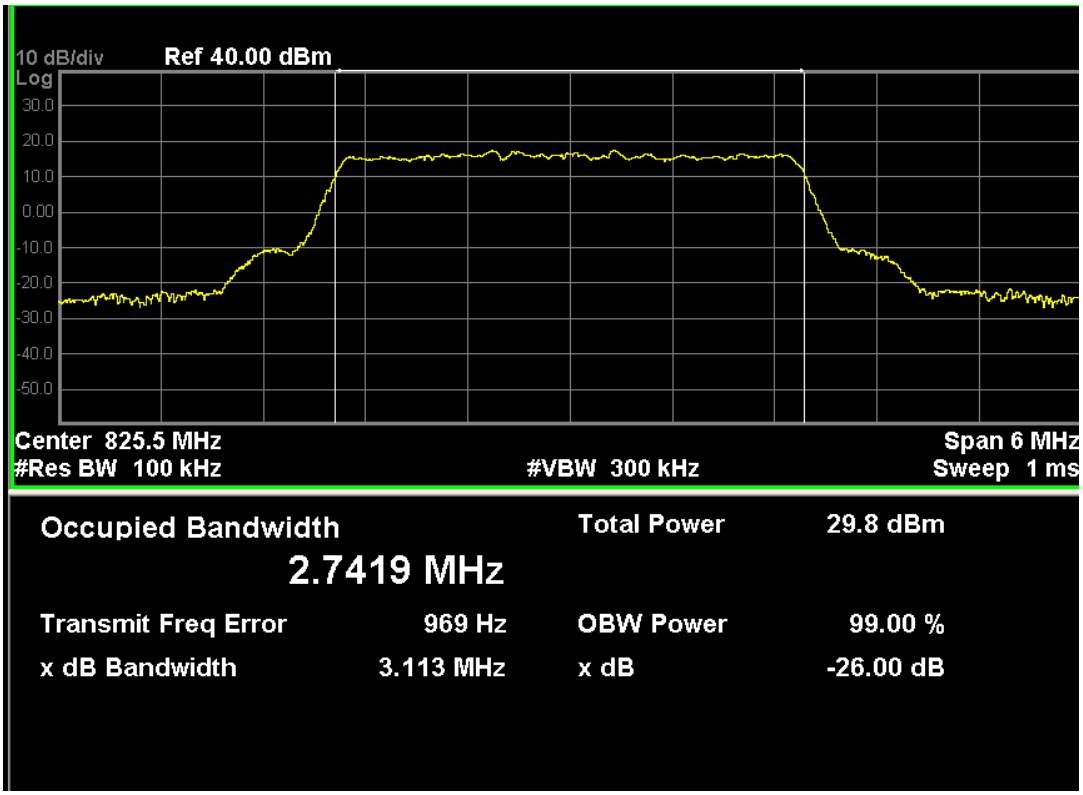


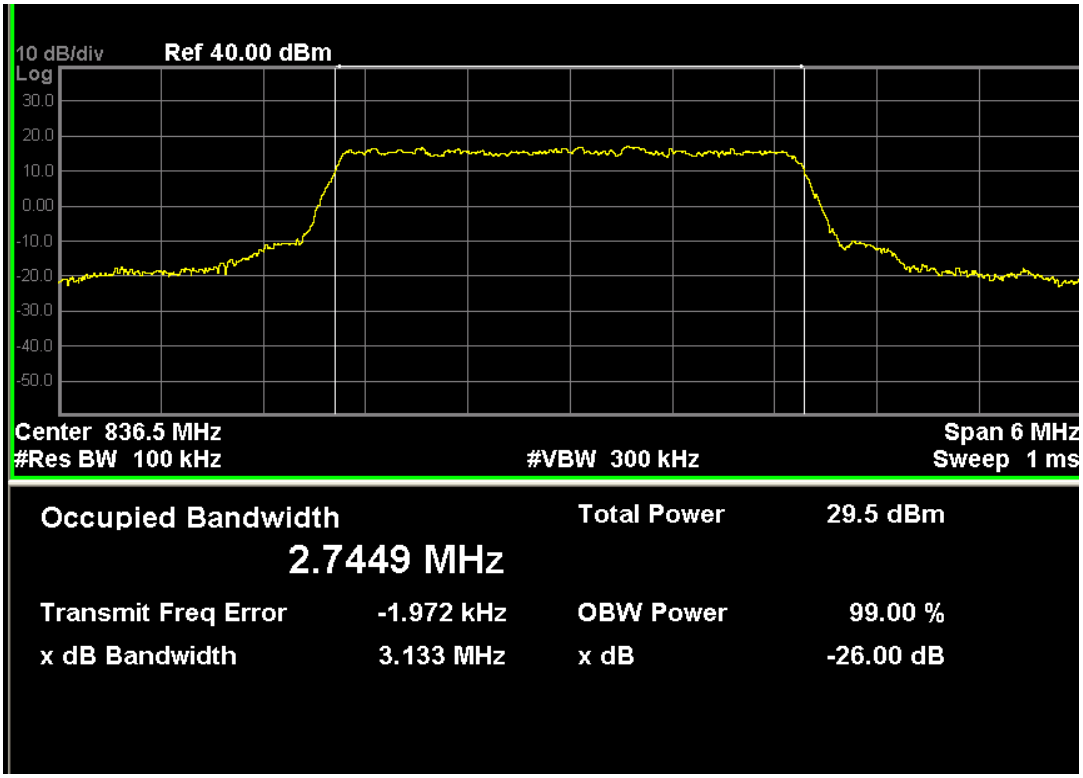

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 836.5 MHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.1066 MHz
Total Power 28.2 dBm
Transmit Freq Error -3.423 kHz
OBW Power 99.00 %
x dB Bandwidth 1.358 MHz
x dB -26.00 dB

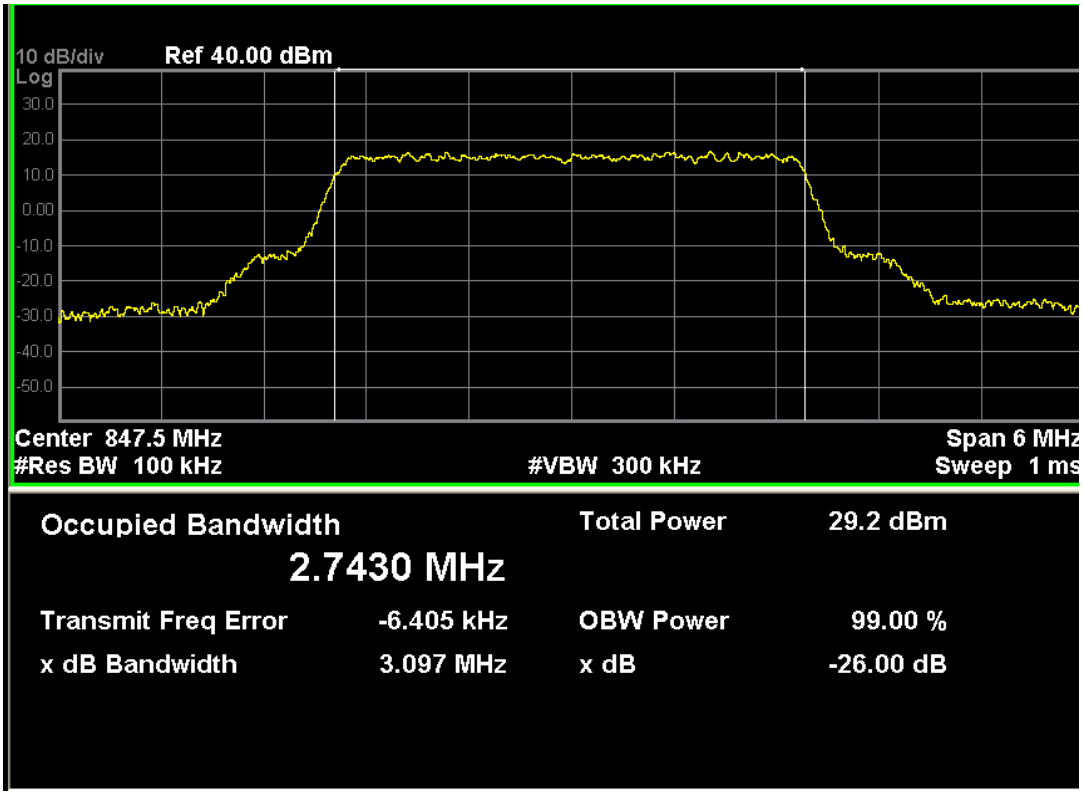

10 dB/div
Ref -10.00 dBm
Log
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-100
Center 848.3 MHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.1039 MHz
Total Power -14.7 dBm
Transmit Freq Error 1.971 kHz
OBW Power 99.00 %
x dB Bandwidth 1.317 MHz
x dB -26.00 dB

**LTE Band 5 (QPSK, Band Width 3MHz,RB Size 15,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 20415 | 825.5 | 3.113 | 2.7419 |
| 20525 | 836.5 | 3.133 | 2.7449 |
| 20635 | 847.5 | 3.097 | 2.7430 |

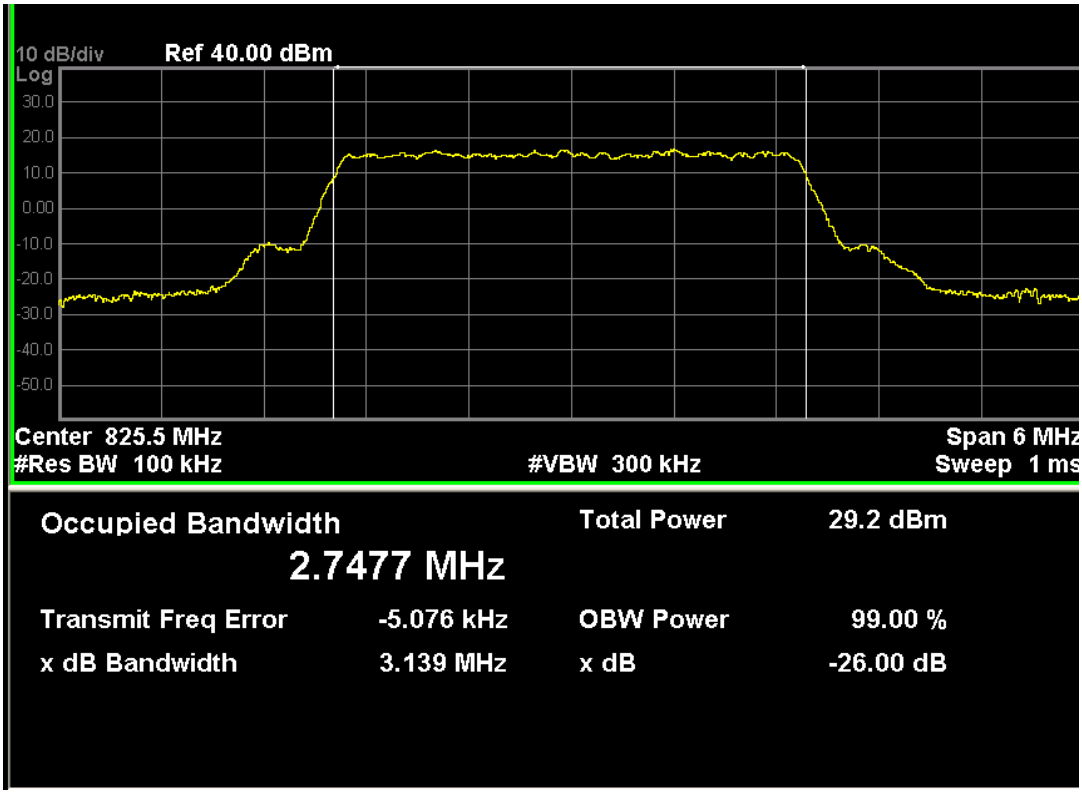


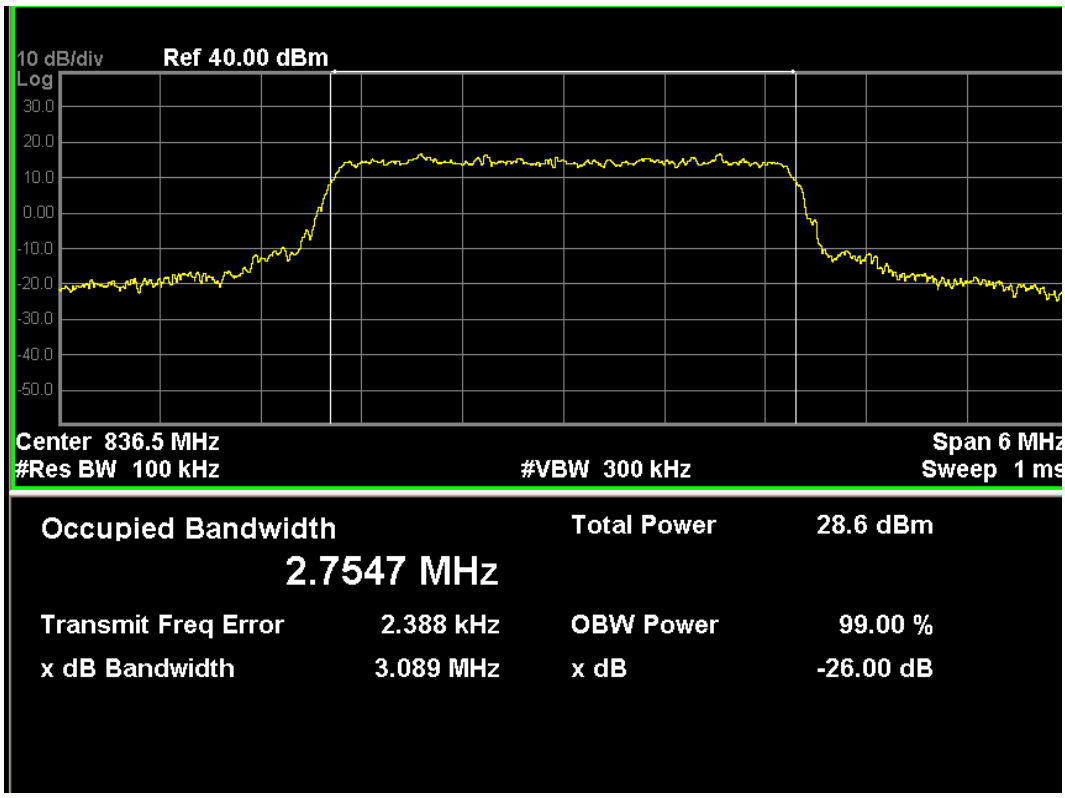

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 836.5 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 6 MHz
Sweep 1 ms
Occupied Bandwidth
2.7449 MHz
Total Power 29.5 dBm
Transmit Freq Error -1.972 kHz
OBW Power 99.00 %
x dB Bandwidth 3.133 MHz
x dB -26.00 dB

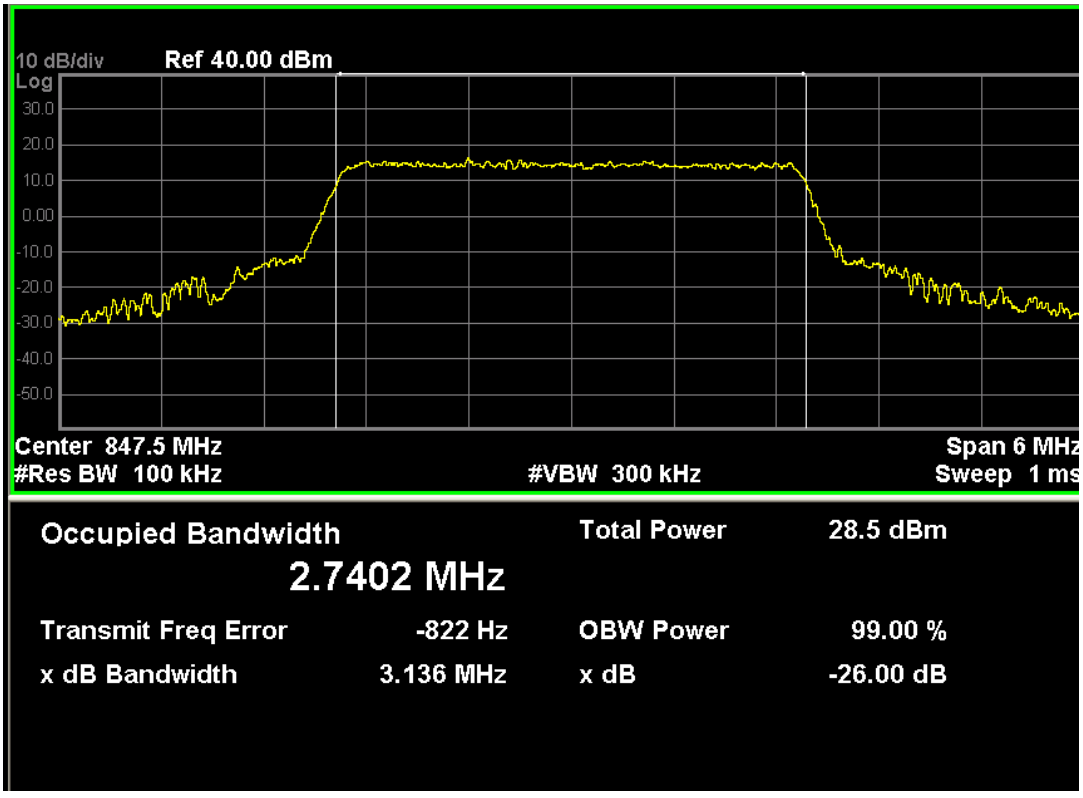

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 847.5 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 6 MHz
Sweep 1 ms
Occupied Bandwidth
2.7430 MHz
Total Power 29.2 dBm
Transmit Freq Error -6.405 kHz
OBW Power 99.00 %
x dB Bandwidth 3.097 MHz
x dB -26.00 dB

**LTE Band 5 (16-QAM, Band Width 3MHz,RB Size 15,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 20415 | 825.5 | 3.139 | 2.7477 |
| 20525 | 836.5 | 3.089 | 2.7547 |
| 20635 | 847.5 | 3.136 | 2.7402 |

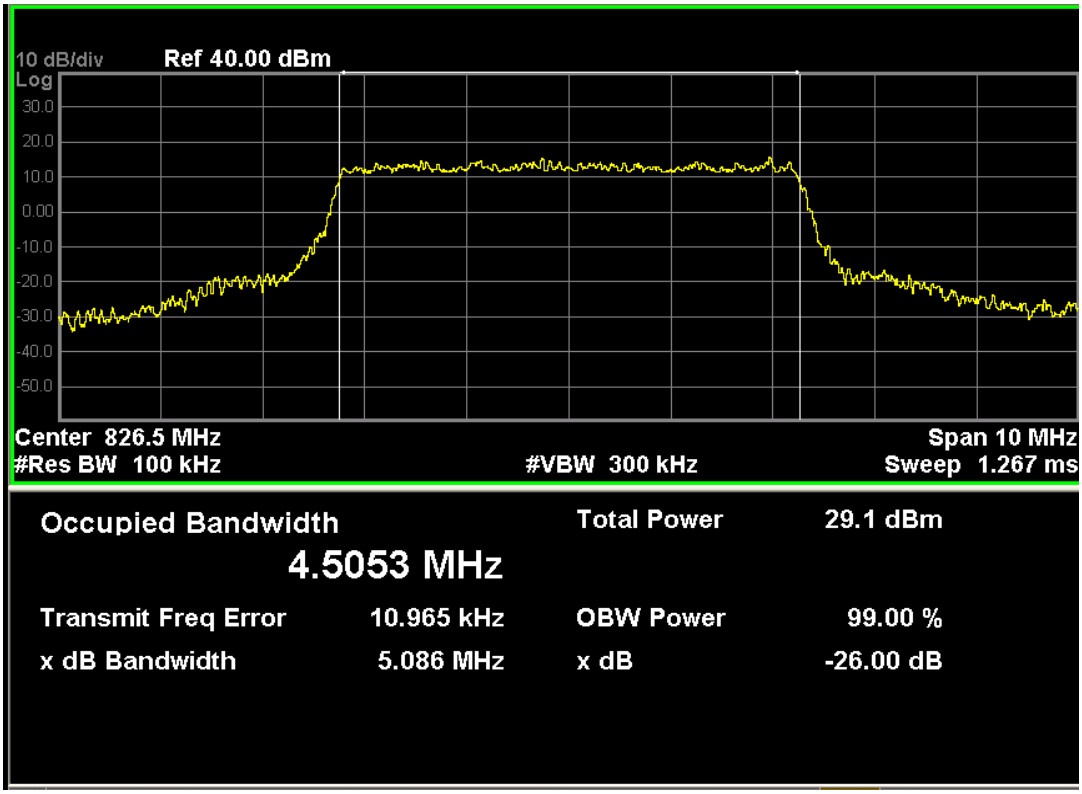


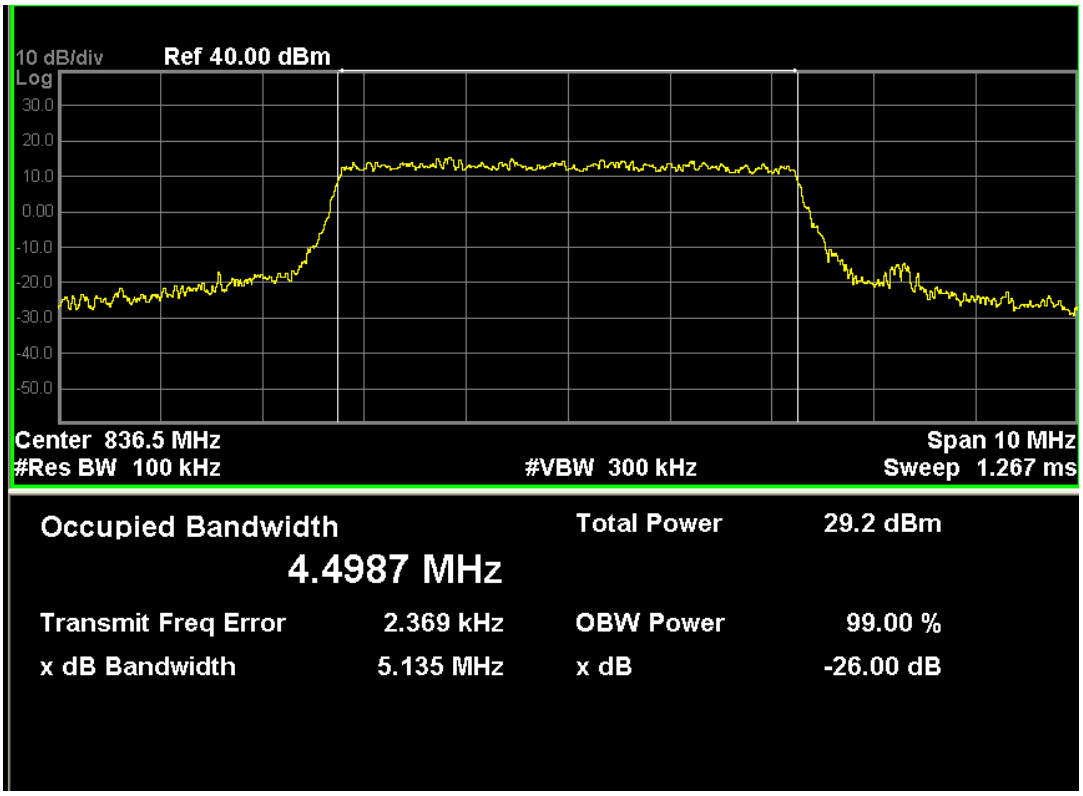

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 836.5 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 6 MHz
Sweep 1 ms
Occupied Bandwidth
2.7547 MHz
Total Power 28.6 dBm
Transmit Freq Error 2.388 kHz
OBW Power 99.00 %
x dB Bandwidth 3.089 MHz
x dB -26.00 dB

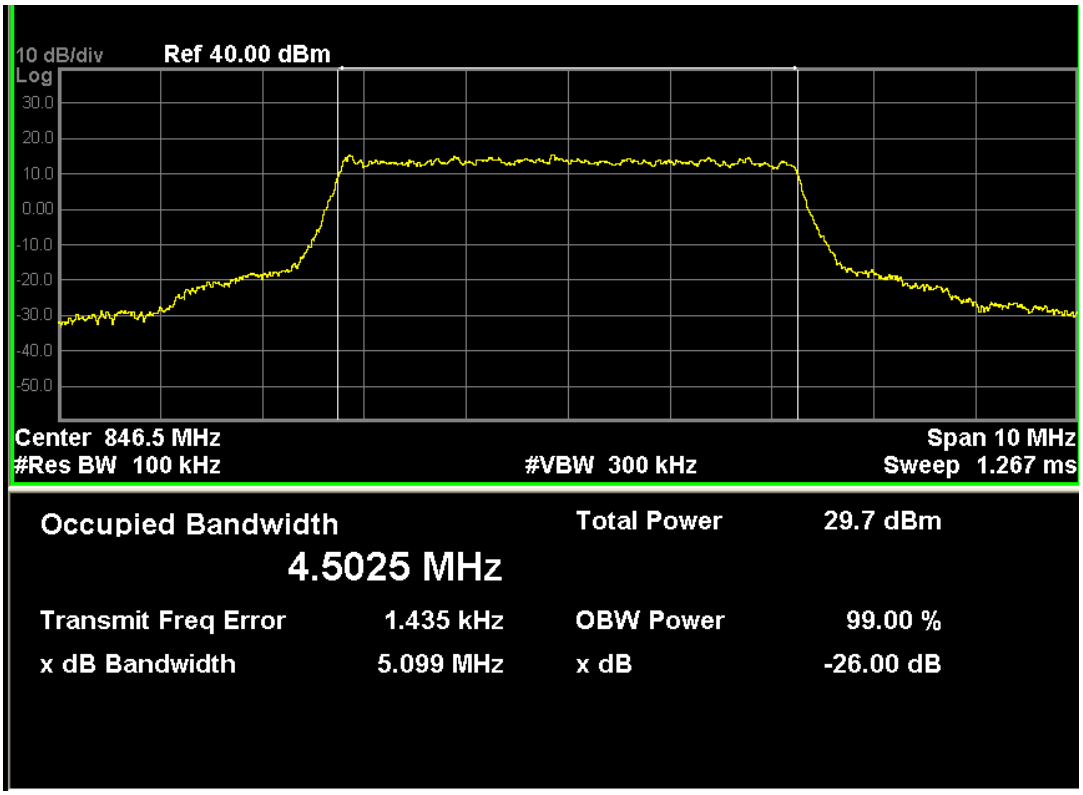

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 847.5 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 6 MHz
Sweep 1 ms
Occupied Bandwidth
2.7402 MHz
Total Power 28.5 dBm
Transmit Freq Error -822 Hz
OBW Power 99.00 %
x dB Bandwidth 3.136 MHz
x dB -26.00 dB

**LTE Band 5 (QPSK, Band Width 5MHz,RB Size 25,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 20425 | 826.5 | 5.086 | 4.5053 |
| 20525 | 836.5 | 5.135 | 4.4987 |
| 20625 | 846.5 | 5.099 | 4.5025 |

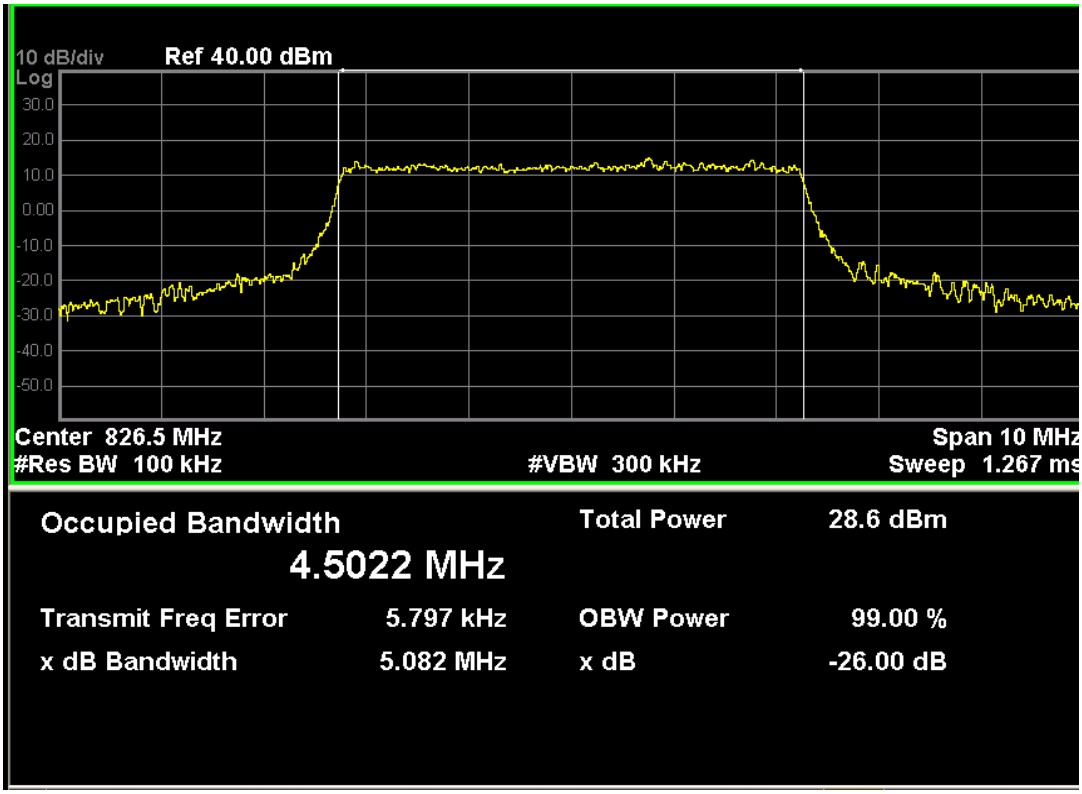


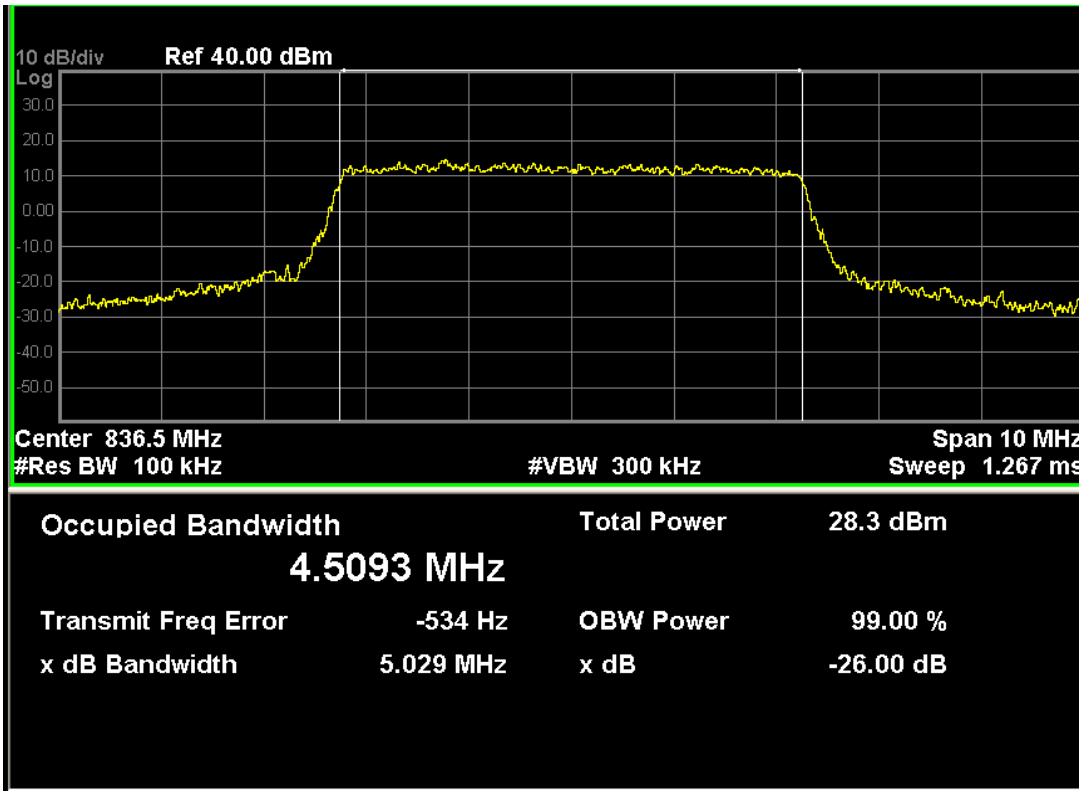

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 836.5 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.4987 MHz
Total Power 29.2 dBm
Transmit Freq Error 2.369 kHz
OBW Power 99.00 %
x dB Bandwidth 5.135 MHz
x dB -26.00 dB

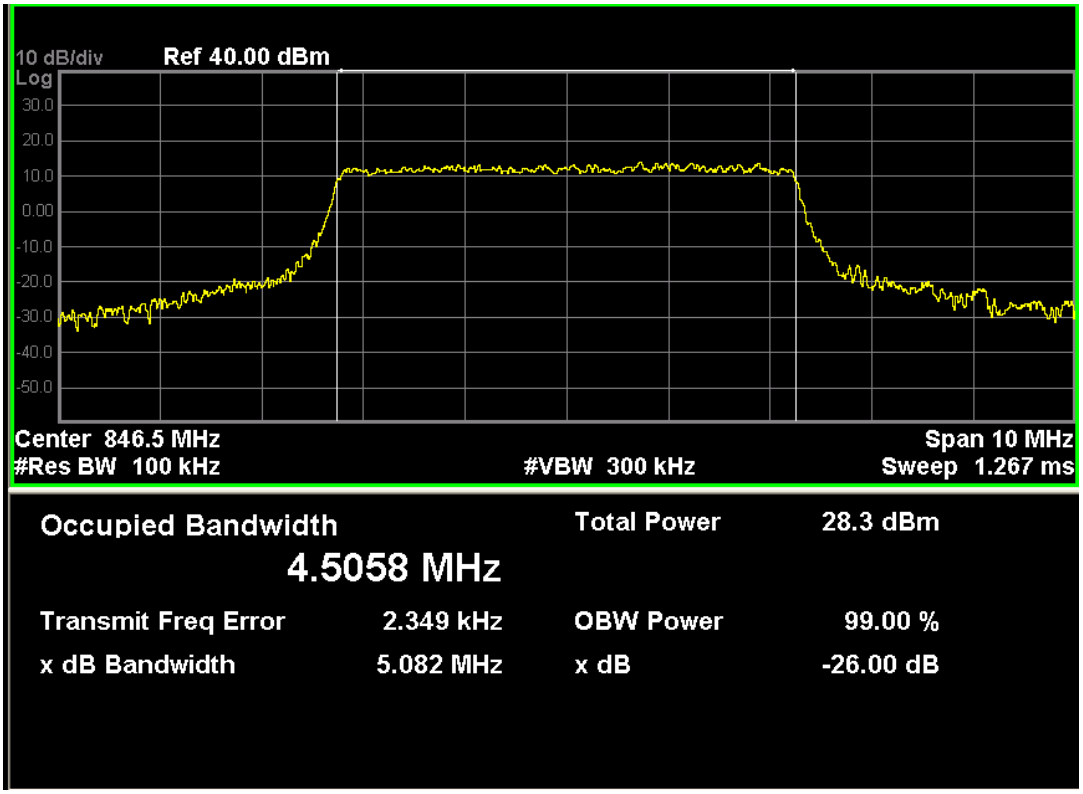

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 846.5 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.5025 MHz
Total Power 29.7 dBm
Transmit Freq Error 1.435 kHz
OBW Power 99.00 %
x dB Bandwidth 5.099 MHz
x dB -26.00 dB

**LTE Band 5 (16-QAM, Band Width 5MHz,RB Size 25,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 20425 | 826.5 | 5.082 | 4.5022 |
| 20525 | 836.5 | 5.029 | 4.5093 |
| 20625 | 846.5 | 5.082 | 4.5058 |

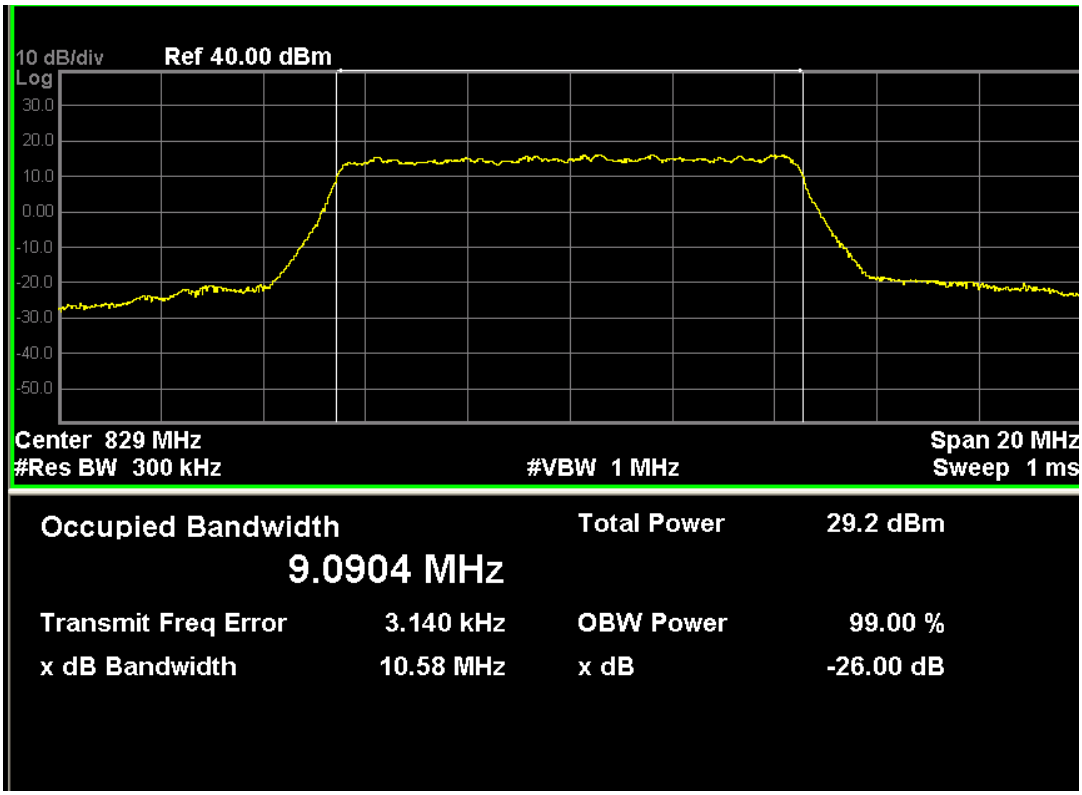


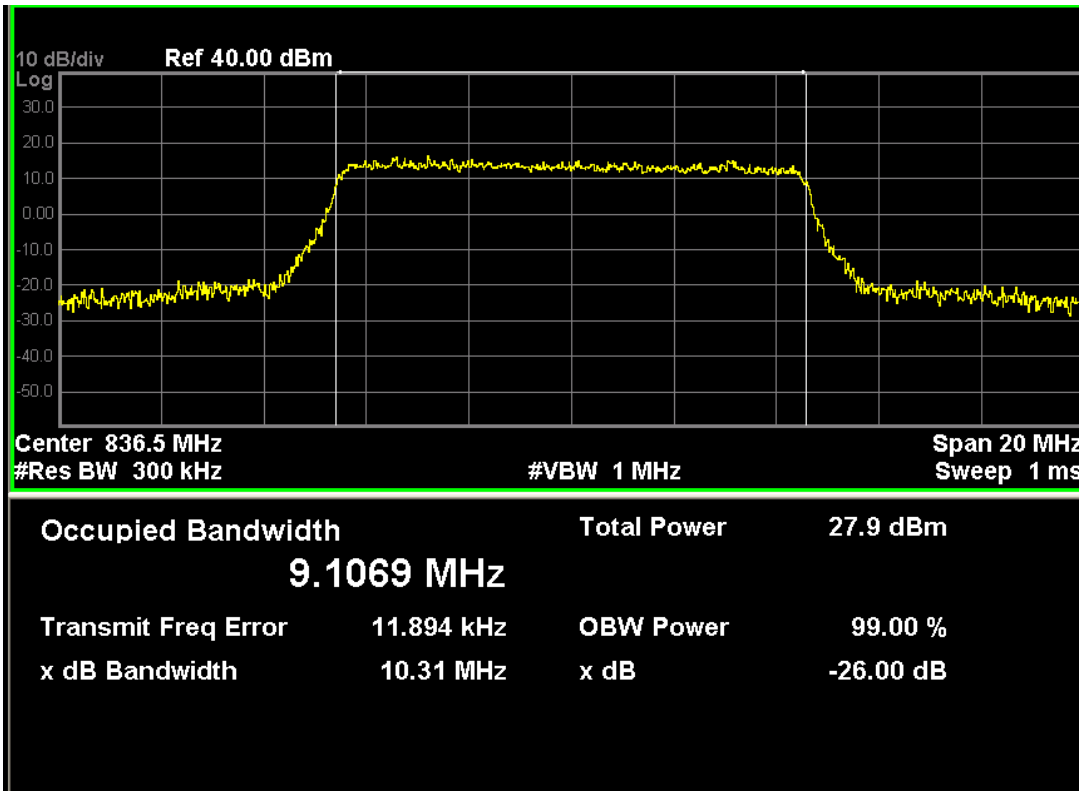

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 836.5 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.5093 MHz
Total Power 28.3 dBm
Transmit Freq Error -534 Hz
OBW Power 99.00 %
x dB Bandwidth 5.029 MHz
x dB -26.00 dB

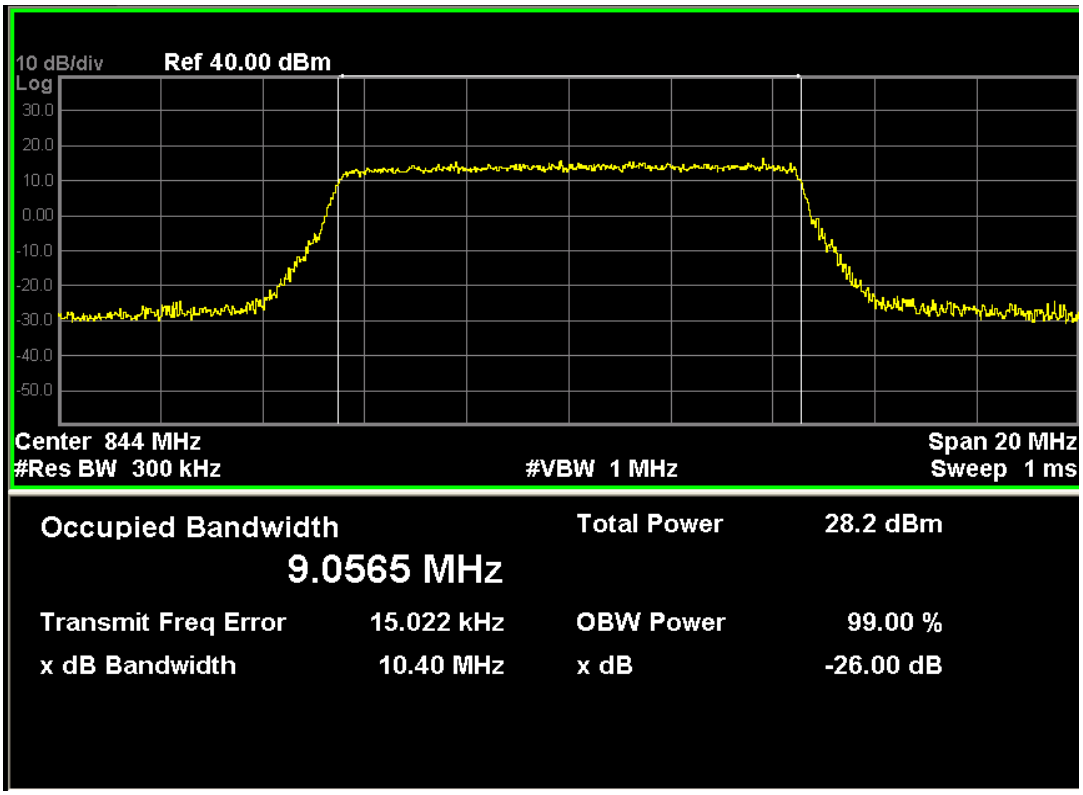

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 846.5 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
Sweep 1.267 ms
Occupied Bandwidth
4.5058 MHz
Total Power 28.3 dBm
Transmit Freq Error 2.349 kHz
OBW Power 99.00 %
x dB Bandwidth 5.082 MHz
x dB -26.00 dB

**LTE Band 5 (QPSK, Band Width 10MHz,RB Size 50,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 20450 | 829.0 | 10.58 | 9.0904 |
| 20525 | 836.5 | 10.31 | 9.1069 |
| 20600 | 844.0 | 10.40 | 9.0565 |

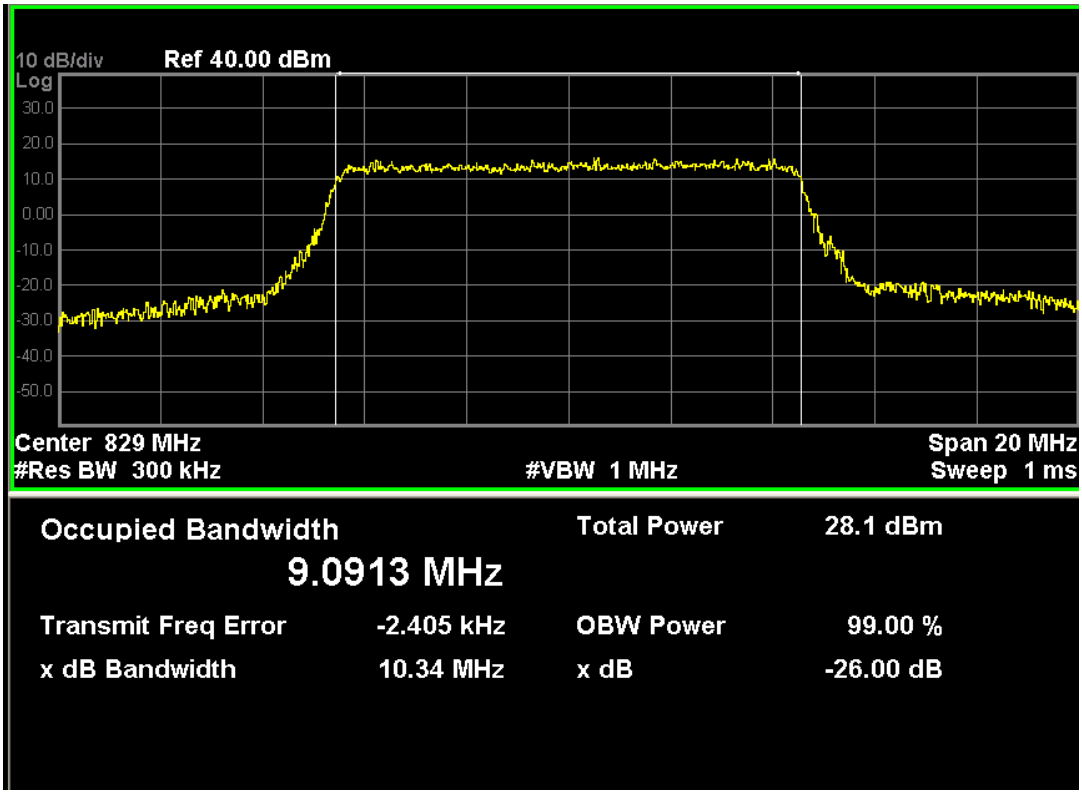


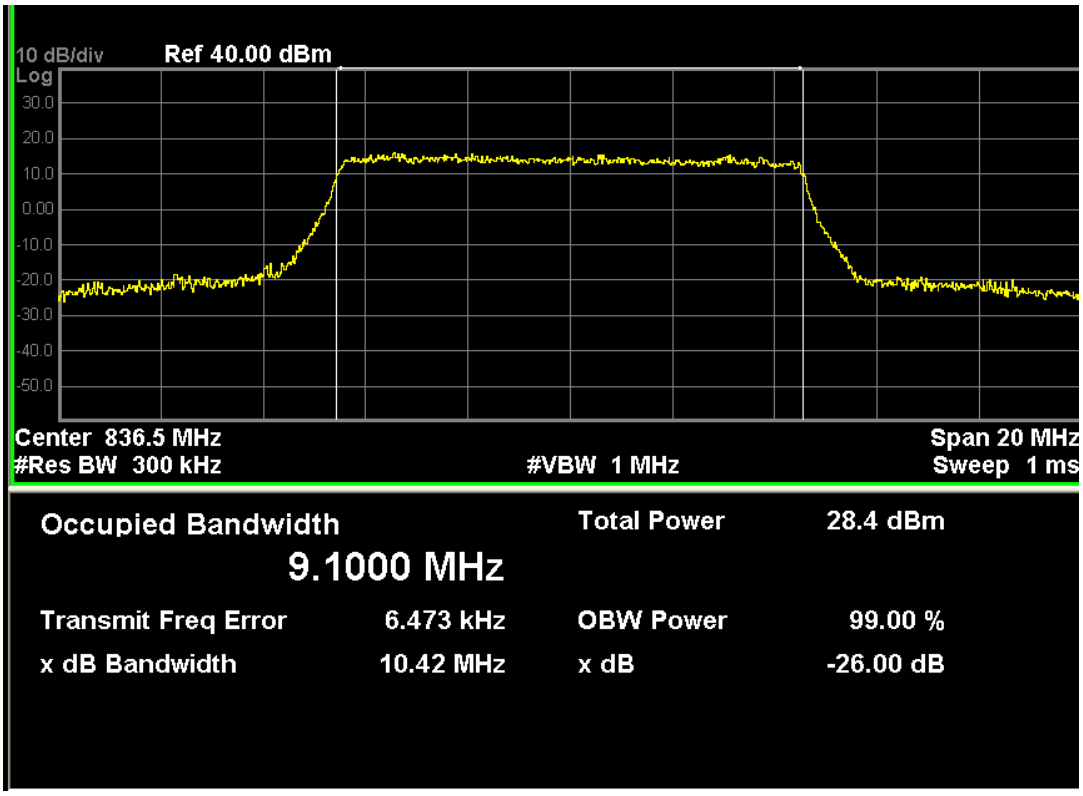

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 836.5 MHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.1069 MHz
Total Power 27.9 dBm
Transmit Freq Error 11.894 kHz
OBW Power 99.00 %
x dB Bandwidth 10.31 MHz
x dB -26.00 dB

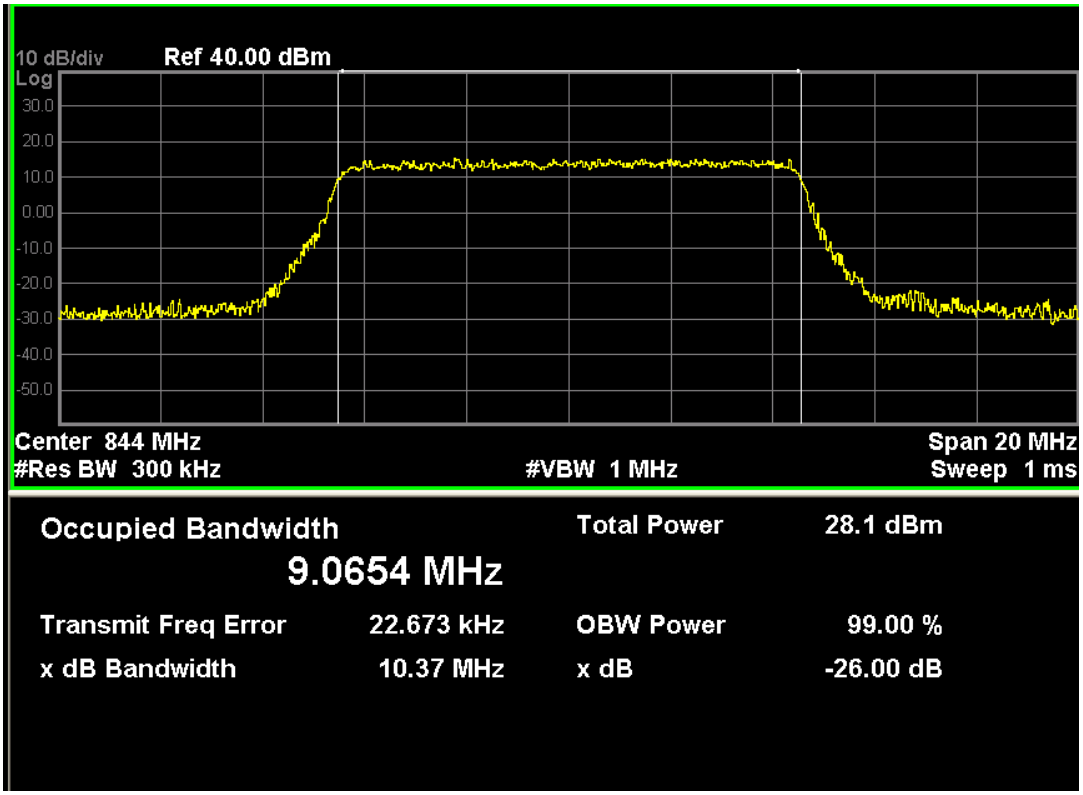

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 844 MHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.0565 MHz
Total Power 28.2 dBm
Transmit Freq Error 15.022 kHz
OBW Power 99.00 %
x dB Bandwidth 10.40 MHz
x dB -26.00 dB

**LTE Band 5 (16-QAM, Band Width 10MHz,RB Size 50,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 20450 | 829.0 | 10.34 | 9.0913 |
| 20525 | 836.5 | 10.42 | 9.1000 |
| 20600 | 844.0 | 10.37 | 9.0654 |

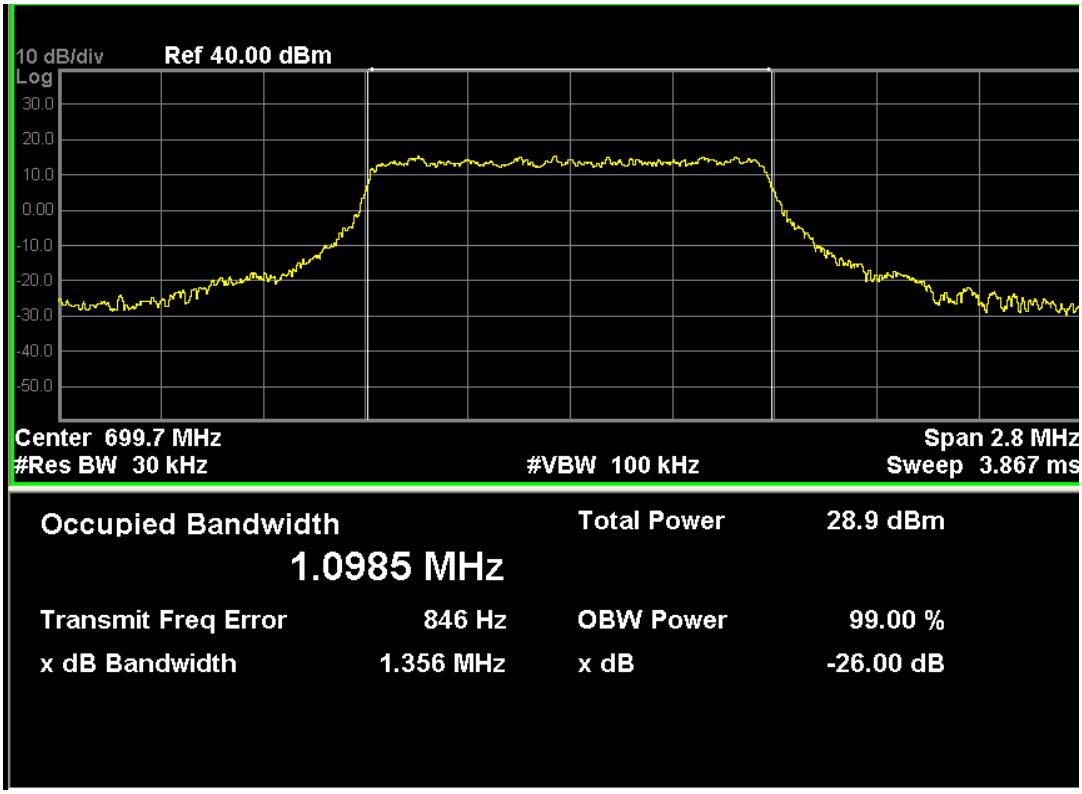


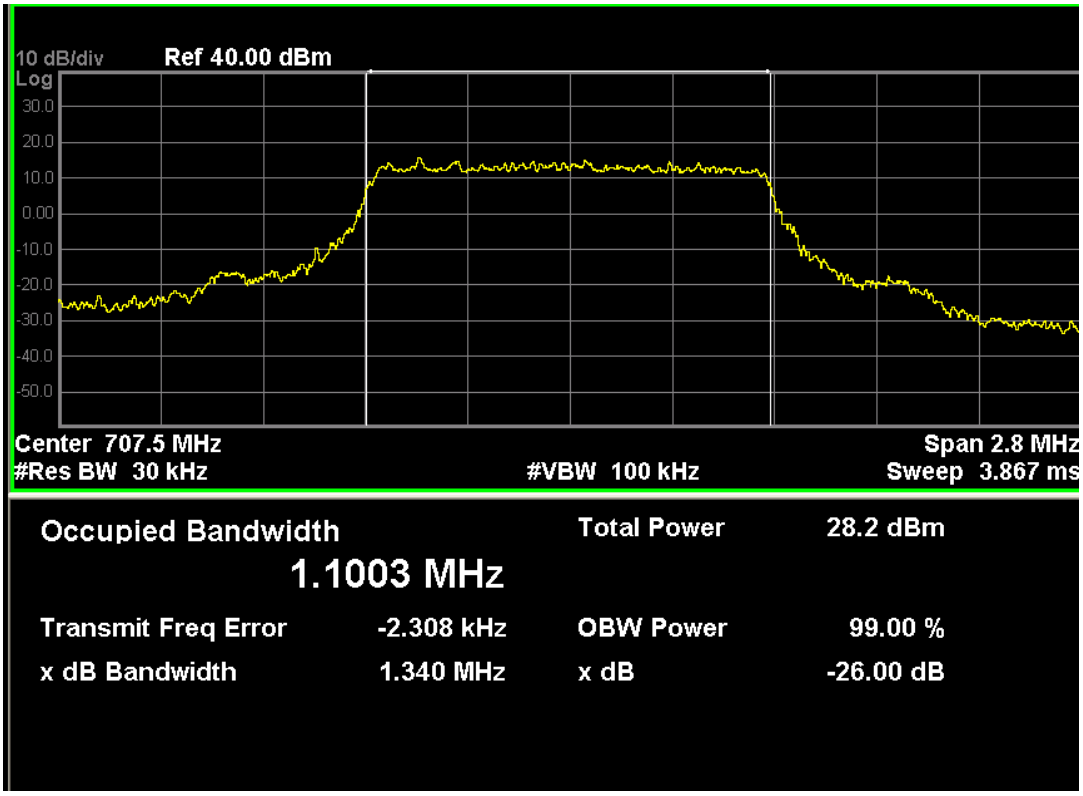

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 836.5 MHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.1000 MHz
Total Power 28.4 dBm
Transmit Freq Error 6.473 kHz
OBW Power 99.00 %
x dB Bandwidth 10.42 MHz
x dB -26.00 dB

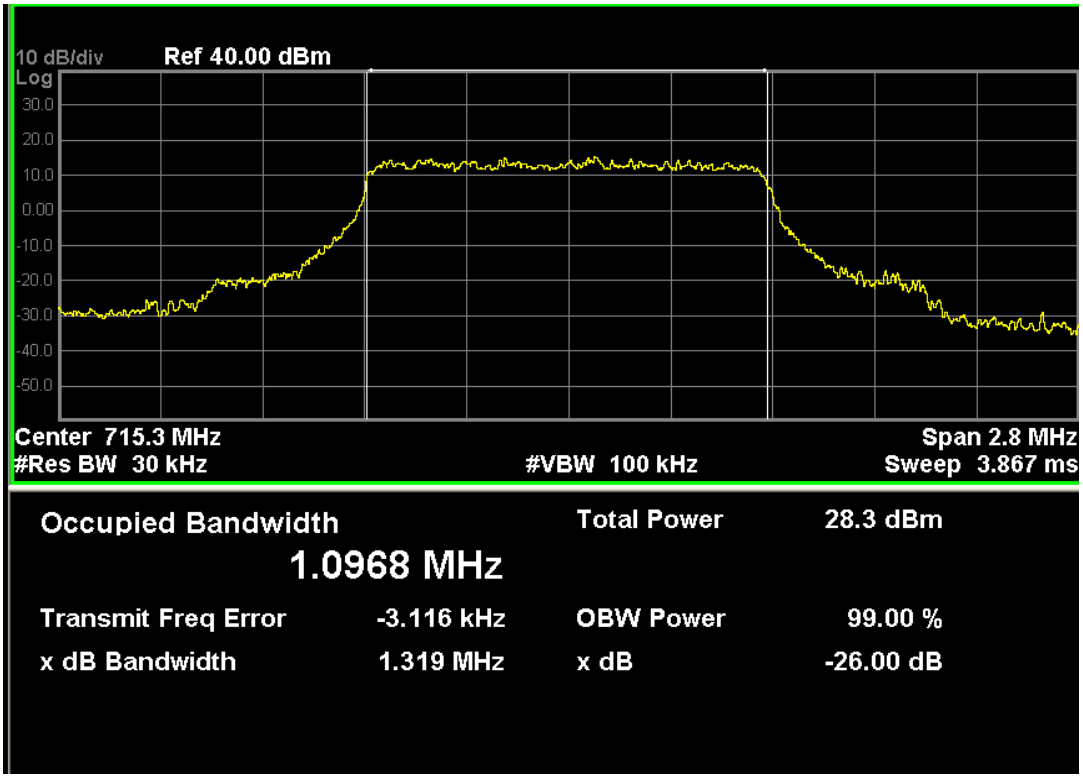

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 844 MHz
#Res BW 300 kHz
#VBW 1 MHz
Span 20 MHz
Sweep 1 ms
Occupied Bandwidth
9.0654 MHz
Total Power 28.1 dBm
Transmit Freq Error 22.673 kHz
OBW Power 99.00 %
x dB Bandwidth 10.37 MHz
x dB -26.00 dB

**LTE Band 12 (QPSK, Band Width 1.4MHz,RB Size 6,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 23017 | 699.7 | 1.356 | 1.0985 |
| 23095 | 707.5 | 1.340 | 1.1003 |
| 23173 | 715.3 | 1.319 | 1.0968 |

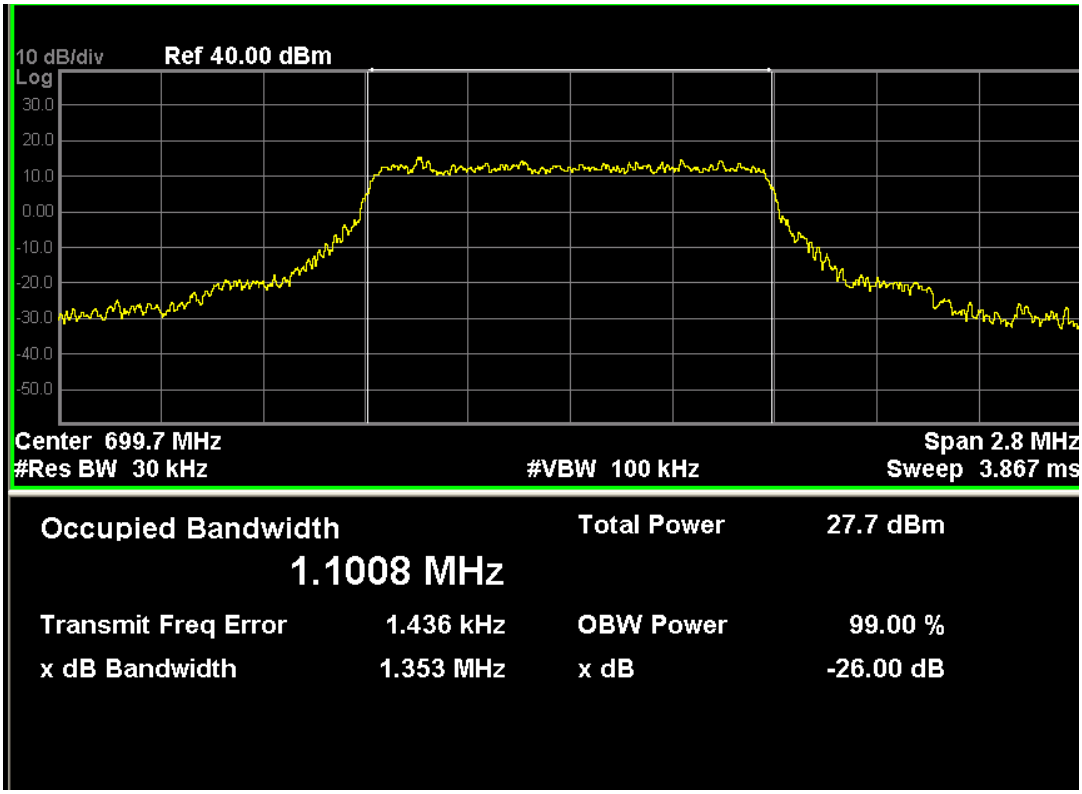


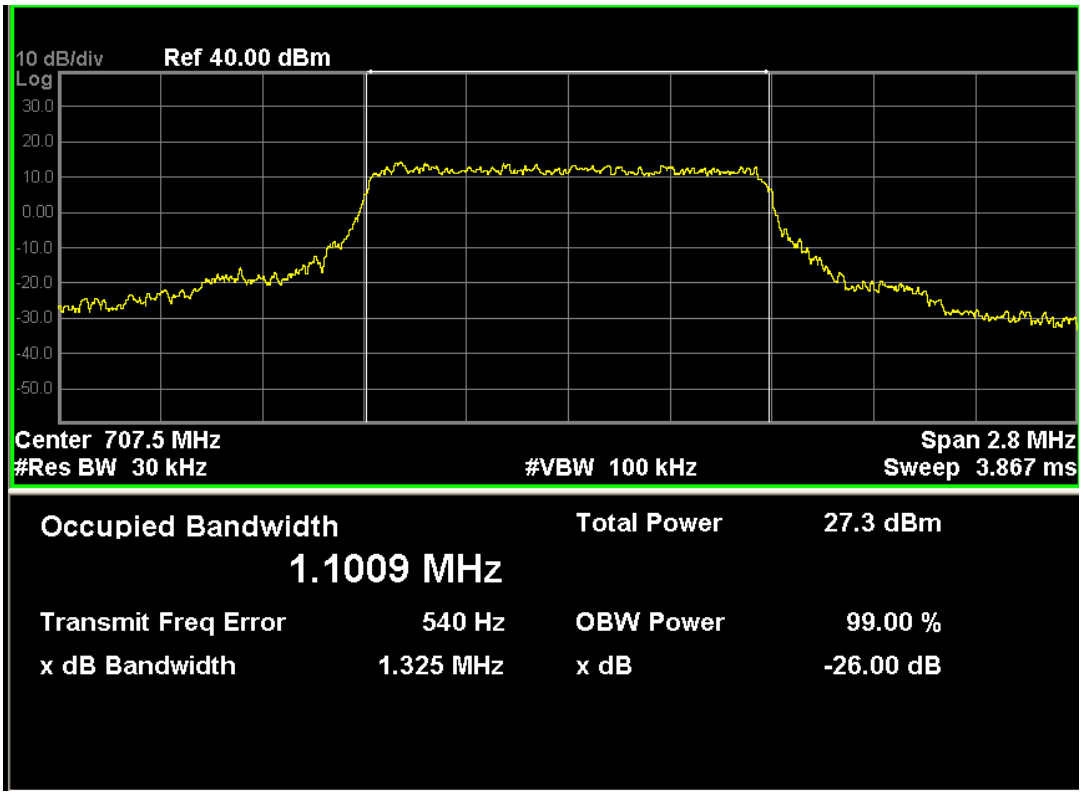

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 707.5 MHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.1003 MHz
Total Power 28.2 dBm
Transmit Freq Error -2.308 kHz
OBW Power 99.00 %
x dB Bandwidth 1.340 MHz
x dB -26.00 dB

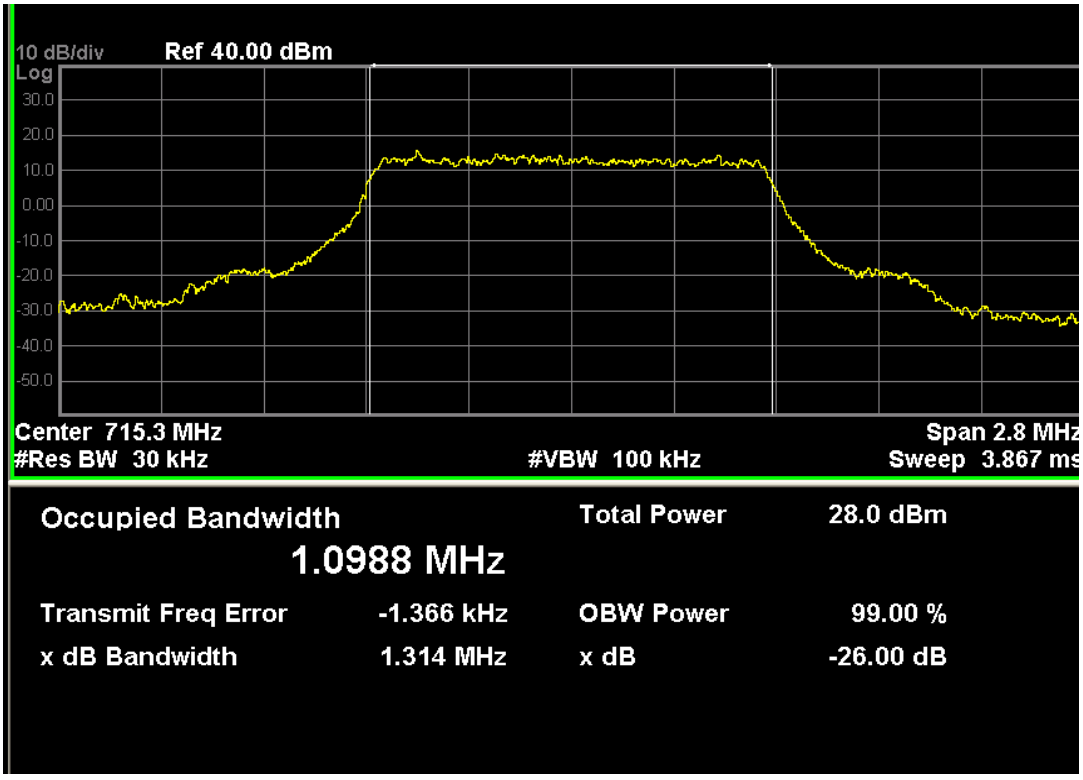

10 dB/div
Ref 40.00 dBm
Log
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 715.3 MHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.0968 MHz
Total Power 28.3 dBm
Transmit Freq Error -3.116 kHz
OBW Power 99.00 %
x dB Bandwidth 1.319 MHz
x dB -26.00 dB

**LTE Band 12 (16-QAM, Band Width 1.4MHz,RB Size 6,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 23017 | 699.7 | 1.353 | 1.1008 |
| 23095 | 707.5 | 1.325 | 1.1009 |
| 23173 | 715.3 | 1.314 | 1.0998 |

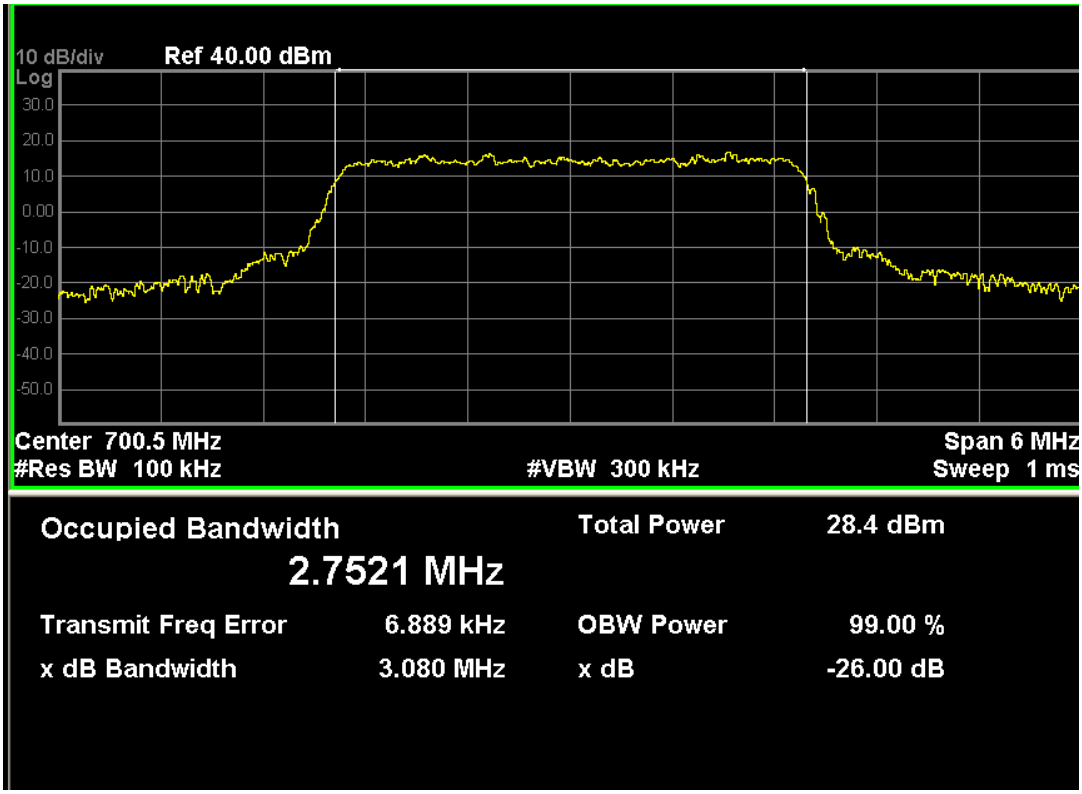


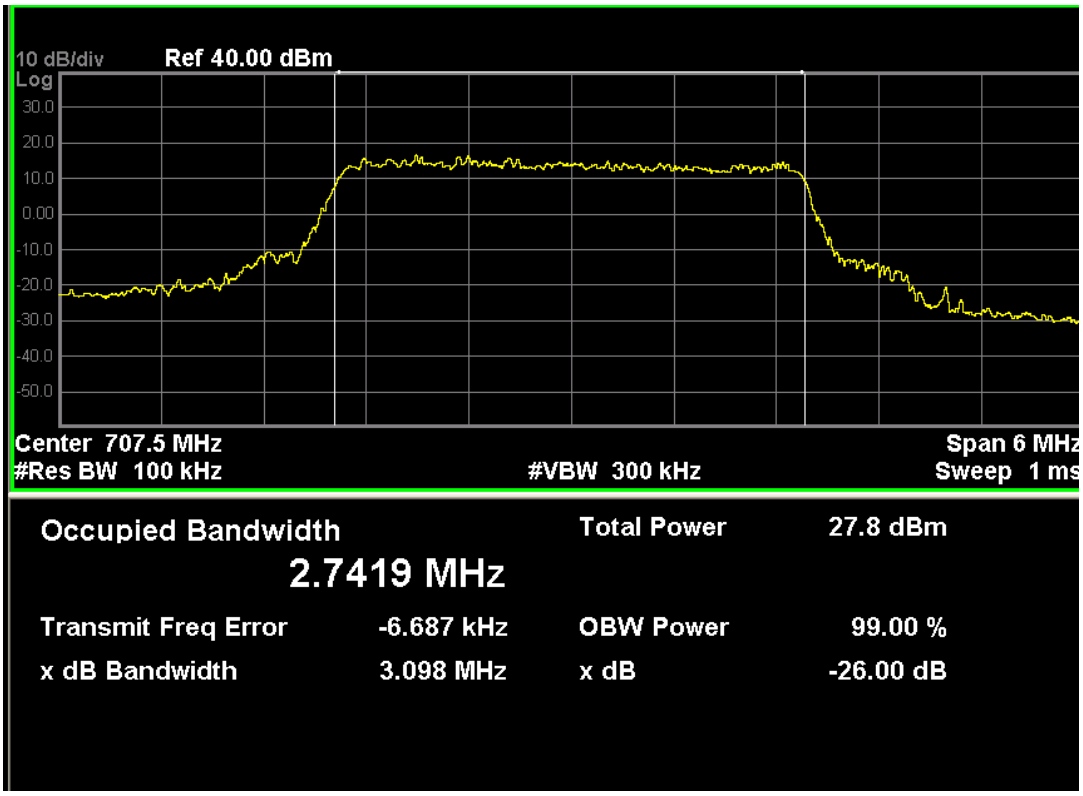

10 dB/div
Log
Ref 40.00 dBm
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 707.5 MHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.1009 MHz
Total Power 27.3 dBm
Transmit Freq Error 540 Hz
OBW Power 99.00 %
x dB Bandwidth 1.325 MHz
x dB -26.00 dB

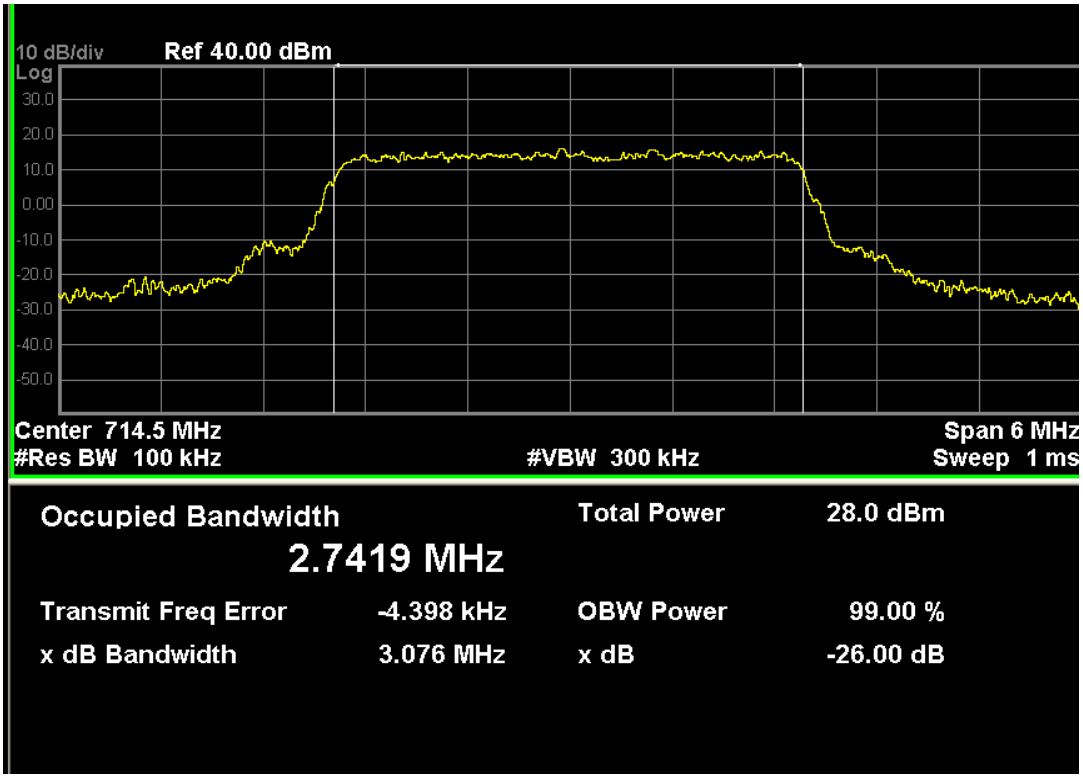

10 dB/div
Log
Ref 40.00 dBm
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 715.3 MHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2.8 MHz
Sweep 3.867 ms
Occupied Bandwidth
1.0988 MHz
Total Power 28.0 dBm
Transmit Freq Error -1.366 kHz
OBW Power 99.00 %
x dB Bandwidth 1.314 MHz
x dB -26.00 dB

**LTE Band 12 (QPSK, Band Width 3MHz,RB Size 15,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 23025 | 700.5 | 3.080 | 2.7521 |
| 23095 | 707.5 | 3.098 | 2.7419 |
| 23165 | 714.5 | 3.076 | 2.7419 |




10 dB/div
Log
Ref 40.00 dBm
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 707.5 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 6 MHz
Sweep 1 ms
Occupied Bandwidth
2.7419 MHz
Total Power 27.8 dBm
Transmit Freq Error -6.687 kHz
OBW Power 99.00 %
x dB Bandwidth 3.098 MHz
x dB -26.00 dB


10 dB/div
Log
Ref 40.00 dBm
30.0
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
Center 714.5 MHz
#Res BW 100 kHz
#VBW 300 kHz
Span 6 MHz
Sweep 1 ms
Occupied Bandwidth
2.7419 MHz
Total Power 28.0 dBm
Transmit Freq Error -4.398 kHz
OBW Power 99.00 %
x dB Bandwidth 3.076 MHz
x dB -26.00 dB

**LTE Band 12 (16-QAM, Band Width 3MHz,RB Size 15,RB Offset 0)**

| Channel No. | Frequency (MHz) | -26dB Occupied Bandwidth (MHz) | 99% Occupied Bandwidth (MHz) |
|---|---|---|---|
| 23025 | 700.5 | 3.145 | 2.7439 |
| 23095 | 707.5 | 3.387 | 2.7440 |
| 23165 | 714.5 | 3.091 | 2.7403 |