# TEST REPORT

| | | |
|---|---|---|
| **Reference No.** | : | WTS17S0169748-4E V1 |
| **FCC ID** | : | 2AEE8LAVAA3MINI |
| **Applicant** | : | LAVA INTERNATIONAL (H.K) LIMITED |
| **Address** | : | UNIT L 1/F MAU LAM COMM BLDG 16-18 MAU LAM ST, JORDAN KL, HK |
| **Manufacturer** | : | The same as above |
| **Address** | : | The same as above |
| **Product Name** | : | Mobile Phone |
| **Model No.** | : | A3 mini |
| **Brand** | : | LAVA |
| **Standards** | : | FCC CFR47 Part 24 Subpart E: 2016<br>FCC CFR47 Part 27 Subpart L: 2016 |
| **Date of Receipt sample** | : | Jan. 17, 2017 |
| **Date of Test** | : | Jan. 18 ~ Feb. 14, 2017 |
| **Date of Issue** | : | Feb. 15, 2017 |
| **Test Result** | : | **Pass** |

Remarks:
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.


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# 2 Laboratories Introduction

**Waltek Services Test Group Ltd** is a professional third-party testing and certification organization with multi-year product testing and certification experience, established strictly in accordance with ISO/IEC 17025 requirements, and accredited by CNAS (China National Accreditation Service for Conformity Assessment) AQSIQ, CMA and IECEE for CBTL. Meanwhile, Waltek has got recognition as registration and accreditation laboratory from EMSD (Electrical and Mechanical Services Department), and American Energy star, FCC(The Federal Communications Commission), CPSC(Consumer Product Safety Commission), CEC(California energy efficiency), IC(Industry Canada) and ELI(Efficient Lighting Initiative). It's the strategic partner and data recognition laboratory of international authoritative organizations, such as UL, Intertek(ETL-SEMKO), CSA, TÜV Rheinland, TÜV SÜD, etc.


**Waltek Services Test Group Ltd.** is one of the largest and the most comprehensive third party testing organizations in China, our headquarter located in Shenzhen and have branches in Foshan, Dongguan, Zhongshan, Suzhou,Ningbo and Hong Kong, Our test capability covered four large fields: safety test. ElectroMagnetic Compatibility(EMC), reliablity and energy performance, Chemical test. As a professional, comprehensive, justice international test organization, we still keep the scientific and rigorous work attitude to help each client satisfy the international standards and assist their product enter into globe market smoothly.

# 3 Contents

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# 4 Revision History

| Test report No. | Date of Receipt sample | Date of Test | Date of Issue | Purpose | Comment | Approved |
|---|---|---|---|---|---|---|
| WTS17S0169748-4E | Jan. 17, 2017 | Jan. 18 ~ Feb. 14, 2017 | Feb. 15, 2017 | original | - | Replaced |
| WTS17S0169748-4E V1 | WTS17S0169748-4E V1 | WTS17S0169748-4E V1 | Feb. 22, 2017 | Version 1 | Updated | Valid |

# 5 General Information

## 5.1 General Description of E.U.T.

| | |
|---|---|
| Product Name: | Mobile Phone |
| Model No.: | A3 mini |
| Model Description: | The same model has a number of different colors. |
| GSM Band(s): | GSM 850/900/1900MHz |
| GPRS/EGPRS Class: | 12 |
| WCDMA Band(s): | FDD Band I/II/V |
| LTE Band(s): | FDD Band 2/4/7 |
| Wi-Fi Specification: | 2.4G-802.11b/g/n HT20/n HT40 |
| Bluetooth Version: | Bluetooth v4.0 with BLE |
| GPS: | Support |
| NFC: | N/A |
| Hardware Version: | SP508_MB |
| Software Version: | LAVA_A3mini_MX_S330_20170112 |
| Highest frequency (Exclude Radio): | 1.5GHz |
| Storage Location: | Internal Storage |
| Note: | This EUT has two SIM card slots, and use same one RF module. We found that RF parameters are the same, when we insert the card 1 and card 2. So we usually performed the test under main card slot 1. |

## 5.2 Details of E.U.T.

| | |
|---|---|
| Operation Frequency: | GSM/GPRS/EDGE 850: 824~849MHz<br>PCS/GPRS/EDGE 1900: 1850~1910MHz<br>WCDMA Band II: 1850~1910MHz<br>WCDMA Band V: 824~849MHz<br>LTE Band 2: 1850~1910MHz<br>LTE Band 4: 1710~1755MHz<br>LTE Band 7: 2500-2570MHz<br>WiFi:<br>802.11b/g/n HT20: 2412~2462MHz<br>802.11n HT40: 2422~2452MHz<br>Bluetooth: 2402~2480MHz |
| Max. RF output power: | GSM 850: 32.95dBm<br>PCS1900: 30.02dBm<br>WCDMA Band II: 22.62dBm<br>WCDMA Band V: 22.38dBm<br>LTE Band 2: 22.99dBm |

| | |
|---|---|
| | LTE Band 4: 23.48dBm |
| | LTE Band 7: 23.46dBm |
| | WiFi(2.4G): 25.27dBm |
| | Bluetooth: 7.05dBm |
| Type of Modulation: | GSM,GPRS: GMSK |
| | EDGE: GMSK, 8PSK |
| | WCDMA: BPSK |
| | LTE: QPSK, 16QAM |
| | WiFi: CCK, OFDM |
| | Bluetooth: GFSK, Pi/4 DQPSK, 8DPSK |
| Antenna installation: | GSM/WCDMA/LTE: internal permanent antenna |
| | WiFi/Bluetooth: internal permanent antenna |
| Antenna Gain: | GSM 850: 0.5dBi |
| | PCS1900: 0.7dBi |
| | WCDMA Band II: 0.7dBi |
| | WCDMA Band V: 0.5dBi |
| | LTE Band 2: 0.7dBi |
| | LTE Band 4: 0.7dBi |
| | LTE Band 7: 0.7dBi |
| | WiFi(2.4G): 0.7dBi |
| | Bluetooth: 0.7dBi |
| Technical Data: | Battery DC 3.8V, 2700mAh |
| | DC 5V, 2.0A, charging from adapter<br>(Adapter Input: 100-240V~50/60Hz 0.3A) |
| Adapter: | Manufacture: SHENZHEN TIANYIN ELECTRONICS.CO.,LTD |
| | Model No.: CLV-21 |
| Type of Emission: | LTE Band 2 1.4MHz: 1M09G7D(QPSK), 1M09W7D(16QAM) |
| | LTE Band 2 3MHz: 2M72G7D(QPSK), 2M72W7D(16QAM) |
| | LTE Band 2 5MHz: 4M50G7D(QPSK), 4M50W7D(16QAM) |
| | LTE Band 2 10 MHz: 8M92G7D(QPSK), 8M91W7D(16QAM) |
| | LTE Band 2 15MHz: 13M5G7D(QPSK), 13M4W7D(16QAM) |
| | LTE Band 2 20MHz: 17M9G7D(QPSK), 17M9W7D(16QAM) |
| | LTE Band 4 1.4MHz: 1M09G7D(QPSK), 1M09W7D(16QAM) |
| | LTE Band 4 3MHz: 2M73G7D(QPSK), 2M73W7D(16QAM) |
| | LTE Band 4 5MHz: 4M50G7D(QPSK), 4M50W7D(16QAM) |
| | LTE Band 4 10 MHz: 8M93G7D(QPSK), 8M92W7D(16QAM) |
| | LTE Band 4 15MHz: 13M5G7D(QPSK), 13M5W7D(16QAM) |
| | LTE Band 4 20MHz: 17M9G7D(QPSK), 17M9W7D(16QAM) |
| | LTE Band 7 5MHz: 4M50G7D(QPSK), 4M50W7D(16QAM) |
| | LTE Band 7 10 MHz: 8M93G7D(QPSK), 8M92W7D(16QAM) |
| | LTE Band 7 15MHz: 13M5G7D(QPSK), 13M5W7D(16QAM) |

LTE Band 7 20MHz: 17M9G7D(QPSK), 17M9W7D(16QAM)

## 5.3 Test Mode

All test mode(s) and condition(s) mentioned were considered and evaluated respectively by performing full tests, the worst data were recorded and reported.

| Support Band | Test Mode BW(MHz) | Channel Frequency | Channel Number |
|---|---|---|---|
| LTE Band 2 | 1.4 | 1850.7 MHz | 18607 |
| | | 1880.0 MHz | 18900 |
| | | 1909.3 MHz | 19193 |
| | 3 | 1851.5 MHz | 18615 |
| | | 1880.0 MHz | 18900 |
| | | 1908.5 MHz | 19185 |
| | 5 | 1852.5 MHz | 18625 |
| | | 1880.0 MHz | 18900 |
| | | 1907.5 MHz | 19175 |
| | 10 | 1855.0 MHz | 18650 |
| | | 1880.0 MHz | 18900 |
| | | 1905.0 MHz | 19150 |
| | 15 | 1857.5 MHz | 18675 |
| | | 1880.0 MHz | 18900 |
| | | 1902.5 MHz | 19125 |
| | 20 | 1860.0 MHz | 18700 |
| | | 1880.0 MHz | 18900 |
| | | 1900.0 MHz | 19100 |
| LTE Band 4 | 1.4 | 1710.7 MHz | 19957 |
| | | 1732.5 MHz | 20175 |
| | | 1754.3 MHz | 20393 |
| | 3 | 1711.5 MHz | 19965 |
| | | 1732.5 MHz | 20175 |
| | | 1753.5 MHz | 20385 |
| | 5 | 1712.5 MHz | 19975 |
| | | 1732.5 MHz | 20175 |
| | | 1752.5 MHz | 20375 |
| | 10 | 1715.0 MHz | 20000 |
| | | 1732.5 MHz | 20175 |
| | | 1750.0 MHz | 20350 |
| | 15 | 1717.5 MHz | 20025 |
| | | 1732.5 MHz | 20175 |
| | | 1747.5 MHz | 20325 |
| | 20 | 1720.0 MHz | 20050 |
| | | 1732.5 MHz | 20175 |
| | | 1745.0 MHz | 20300 |
| LTE Band 7 | 5 | 2502.5 MHz | 20775 |
| | | 2535 MHz | 21100 |

| | | | |
|---|---|---|---|
| | | 2567.5 MHz | 21425 |
| | 10 | 2505.0 MHz | 20800 |
| | | 2535 MHz | 21100 |
| | | 2565.0 MHz | 21400 |
| | 15 | 2507.5 MHz | 20825 |
| | | 2535 MHz | 21100 |
| | | 2562.5 MHz | 21375 |
| | 20 | 2510.0 MHz | 20850 |
| | | 2535 MHz | 21100 |
| | | 2560.0 MHz | 21350 |
| Remark: All mode(s) were tested and the worst data was recorded. | | | |

## 5.4 Test Facility

The test facility has a test site registered with the following organizations:

- **IC – Registration No.: 7760A**

  Waltek Services(Shenzhen) Co., Ltd. Has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration number 7760A, October 15, 2015.

- **FCC Test Site 1#– Registration No.: 880581**

  Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory `has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 880581, April 29, 2014.

- **FCC Test Site 2#– Registration No.: 328995**

  Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory `has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 328995, December 3, 2014.

# 6 Test Summary

| Test Items | Test Requirement | Result |
|---|---|---|
| RF Output Power | 2.1046<br>24.232 (c)<br>27.50(c)<br>27.50(d) | PASS |
| Peak-to-Average Ratio | 24.232 (d)<br>27.50(d) | PASS |
| Bandwidth | 2.1049<br>24.238<br>27.53(a) | PASS |
| Spurious Emissions at Antenna Terminal | 2.1051<br>24.238 (a)<br>27.53(h) | PASS |
| Field Strength of Spurious Radiation | 2.1053<br>24.238 (a)<br>27.53(h) | PASS |
| Out of band emission | 24.238 (a)<br>27.53(h) | PASS |
| Frequency Stability | 2.1055<br>24.235<br>27.5(h)<br>27.54 | PASS |
| Maximum Permissible Exposure (SAR) | 1.1307<br>2.1093 | PASS |

# 7 Equipment Used during Test

## 7.1 Equipments List

| Conducted Emissions Test Site 1# | | | | | | |
|---|---|---|---|---|---|---|
| **Item** | **Equipment** | **Manufacturer** | **Model No.** | **Serial No.** | **Last Calibration Date** | **Calibration Due Date** |
| 1. | EMI Test Receiver | R&S | ESCI | 100947 | Sep.12,2016 | Sep.11,2017 |
| 2. | LISN | R&S | ENV216 | 101215 | Sep.12,2016 | Sep.11,2017 |
| 3. | Cable | Top | TYPE16(3.5M) | - | Sep.12,2016 | Sep.11,2017 |
| **Conducted Emissions Test Site 2#** | | | | | | |
| **Item** | **Equipment** | **Manufacturer** | **Model No.** | **Serial No.** | **Last Calibration Date** | **Calibration Due Date** |
| 1. | EMI Test Receiver | R&S | ESCI | 101155 | Sep.12,2016 | Sep.11,2017 |
| 2. | LISN | SCHWARZBECK | NSLK 8128 | 8128-289 | Sep.12,2016 | Sep.11,2017 |
| 3. | Limiter | York | MTS-IMP-136 | 261115-001-0024 | Sep.12,2016 | Sep.11,2017 |
| 4. | Cable | LARGE | RF300 | - | Sep.12,2016 | Sep.11,2017 |
| **3m Semi-anechoic Chamber for Radiation Emissions Test site 1#** | | | | | | |
| **Item** | **Equipment** | **Manufacturer** | **Model No.** | **Serial No.** | **Last Calibration Date** | **Calibration Due Date** |
| 1 | Spectrum Analyzer | R&S | FSP | 100091 | Apr.29, 2016 | Apr.28, 2017 |
| 2 | Active Loop Antenna | Beijing Dazhi | ZN30900A | - | Apr.09,2016 | Apr.08,2017 |
| 3 | Trilog Broadband Antenna | SCHWARZBECK | VULB9163 | 336 | Apr.09,2016 | Apr.08,2017 |
| 4 | Coaxial Cable (below 1GHz) | Top | TYPE16(13M) | - | Sep.12,2016 | Sep.11,2017 |
| 5 | Broad-band Horn Antenna | SCHWARZBECK | BBHA 9120 D | 667 | Apr.09,2016 | Apr.08,2017 |
| 6 | Broad-band Horn Antenna | SCHWARZBECK | BBHA 9170 | 335 | Apr.09,2016 | Apr.08,2017 |
| 7 | Broadband Preamplifier | COMPLIANCE DIRECTION | PAP-1G18 | 2004 | Apr.13,2016 | Apr.12,2017 |
| 8 | Coaxial Cable (above 1GHz) | Top | 1GHz-25GHz | EW02014-7 | Apr.13,2016 | Apr.12,2017 |
| 9 | Universal Radio Communication Tester | R&S | CMU 200 | 112461 | Apr.13,2016 | Apr.12,2017 |
| 10 | Signal Generator | R&S | SMR20 | 100046 | Sep.12,2016 | Sep.11,2017 |
| 11 | Smart Antenna | SCHWARZBECK | HA08 | - | Apr.09,2016 | Apr.08,2017 |
| **3m Semi-anechoic Chamber for Radiation Emissions Test site 2#** | | | | | | |
| **Item** | **Equipment** | **Manufacturer** | **Model No.** | **Serial No** | **Last Calibration Date** | **Calibration Due Date** |

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | Test Receiver | R&S | ESCI | 101296 | Apr.13,2016 | Apr.12,2017 |
| 2 | Trilog Broadband Antenna | SCHWARZBECK | VULB9160 | 9160-3325 | Apr.09,2016 | Apr.08,2017 |
| 3 | Amplifier | Compliance pirection systems inc | PAP-0203 | 22024 | Apr.13,2016 | Apr.12,2017 |
| 4 | Cable | HUBER+SUHNER | CBL2 | 525178 | Apr.13,2016 | Apr.12,2017 |
| **RF Conducted Testing** | | | | | | |
| **Item** | **Equipment** | **Manufacturer** | **Model No.** | **Serial No.** | **Last Calibration Date** | **Calibration Due Date** |
| 1. | EMC Analyzer (9k~26.5GHz) | Agilent | E7405A | MY45114943 | Sep.12,2016 | Sep.11,2017 |
| 2. | Spectrum Analyzer | Agilent | N9020A | MY49100060 | Sep.12,2016 | Sep.11,2017 |
| 3. | Universal Radio Communication Tester | R&S | CMW 500 | 127818 | Apr.13,2016 | Apr.12,2017 |
| 4 | Signal Analyzer (9k~26.5GHz) | Agilent | N9010A | MY50520207 | Sep.12,2016 | Sep.11,2017 |

## 7.2 Measurement Uncertainty

| Parameter | Uncertainty |
|---|---|
| Radio Frequency | ± 1 x $10^{-6}$ |
| RF Power | ± 1.0 dB |
| RF Power Density | ± 2.2 dB |
| Radiated Spurious Emissions test | ± 5.03 dB (Bilog antenna 30M~1000MHz) |
| | ± 5.47 dB (Horn antenna 1000M~25000MHz) |
| Conducted Spurious Emissions test | ± 3.64 dB (AC mains 150KHz~30MHz) |
| Confidence interval：95%. Confidence factor:k=2 | |

## 7.3 Test Equipment Calibration

All the test equipments used are valid and calibrated by CEPREI Certification Body that address is No.110 Dongguan Zhuang RD. Guangzhou, P.R.China.

# 8 RF OUTPUT POWER

| | |
|---|---|
| Test Requirement: | FCC Part 2.1046, 24.232 (c), 27.50(h.2); 27.50(d.4) |
| Test Method: | TIA/EIA-603-D:2010 |
| | KDB971168 D01 v02r02 |
| Test Mode: | TX transmitting |

## 8.1 EUT Operation

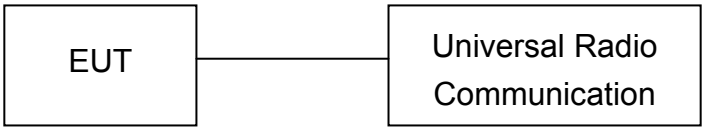
Operating Environment **:**

| | |
|---|---|
| Temperature: | 22.5 °C |
| Humidity: | 52.1 % RH |
| Atmospheric Pressure: | 101.2kPa |

## 8.2 Test Procedure

Conducted method:

The RF output of the transmitter was connected to the wireless test set and the spectrum analyzer through sufficient attenuation.




Radiated method:

1. The setup of EUT is according with per TIA/EIA Standard 603D:2010.
2. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.
3. The frequency range up to tenth harmonic of the fundamental frequency was investigated.
4. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

## 8.3 Test Result

**Conducted Power**

**LTE Band 2：**

| BW(MHz) | Ch | Freq(MHz) | Mode | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---|---|---|---|---|---|---|---|---|
| 1.4MHz | 18607 | 1850.7 | QPSK | 1 | 0 | 22.28 | 22.0±1 | / |
| | | | | 1 | 2 | 22.34 | 22.0±1 | / |
| | | | | 1 | 5 | 22.31 | 22.0±1 | / |
| | | | | 3 | 0 | 21.73 | 21.0±1 | / |
| | | | | 3 | 1 | 21.80 | 21.0±1 | / |
| | | | | 3 | 2 | 21.88 | 21.0±1 | / |
| | | | | 6 | 0 | 21.25 | 21.0±1 | 1.0 |
| | | | 16QAM | 1 | 0 | 21.33 | 21.0±1 | 1.0 |
| | | | | 1 | 2 | 21.37 | 21.0±1 | 1.0 |
| | | | | 1 | 5 | 21.33 | 21.0±1 | 1.0 |
| | | | | 3 | 0 | 21.3 | 21.0±1 | 1.0 |
| | | | | 3 | 1 | 21.3 | 21.0±1 | 1.0 |
| | | | | 3 | 2 | 21.31 | 21.0±1 | 1.0 |
| | | | | 6 | 0 | 20.45 | 21.0±1 | 1.0 |
| | 18900 | 1880 | QPSK | 1 | 0 | 22.92 | 22.0±1 | / |
| | | | | 1 | 2 | 22.97 | 22.0±1 | / |
| | | | | 1 | 5 | 22.94 | 22.0±1 | / |
| | | | | 3 | 0 | 21.60 | 21.0±1 | / |
| | | | | 3 | 1 | 21.52 | 21.0±1 | / |
| | | | | 3 | 2 | 21.75 | 21.0±1 | / |
| | | | | 6 | 0 | 21.22 | 21.0±1 | 1.0 |
| | | | 16QAM | 1 | 0 | 21.28 | 21.0±1 | 1.0 |
| | | | | 1 | 2 | 21.33 | 21.0±1 | 1.0 |
| | | | | 1 | 5 | 21.26 | 21.0±1 | 1.0 |
| | | | | 3 | 0 | 21.15 | 21.0±1 | 1.0 |
| | | | | 3 | 1 | 21.11 | 21.0±1 | 1.0 |
| | | | | 3 | 2 | 21.14 | 21.0±1 | 1.0 |
| | | | | 6 | 0 | 20.9 | 21.0±1 | 1.0 |
| | 19193 | 1909.3 | QPSK | 1 | 0 | 22.43 | 22.0±1 | / |
| | | | | 1 | 2 | 22.29 | 22.0±1 | / |
| | | | | 1 | 5 | 22.22 | 22.0±1 | / |
| | | | | 3 | 0 | 21.63 | 21.0±1 | / |
| | | | | 3 | 1 | 21.42 | 21.0±1 | / |
| | | | | 3 | 2 | 21.36 | 21.0±1 | / |
| | | | | 6 | 0 | 21.03 | 21.0±1 | 1.0 |
| | | | 16QAM | 1 | 0 | 21.04 | 21.0±1 | 1.0 |
| | | | | 1 | 2 | 21.07 | 21.0±1 | 1.0 |
| | | | | 1 | 5 | 21.04 | 21.0±1 | 1.0 |
| | | | | 3 | 0 | 21.25 | 21.0±1 | 1.0 |
| | | | | 3 | 1 | 21.2 | 21.0±1 | 1.0 |
| | | | | 3 | 2 | 21.2 | 21.0±1 | 1.0 |
| | | | | 6 | 0 | 20.17 | 21.0±1 | 1.0 |

| BW(MHz) | Ch | Freq(MHz) | Mode | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---|---|---|---|---|---|---|---|---|
| 3MHz | 18615 | 1851.5 | QPSK | 1 | 0 | 22.24 | 22.0±1 | / |
| | | | | 1 | 8 | 22.32 | 22.0±1 | / |
| | | | | 1 | 14 | 22.23 | 22.0±1 | / |
| | | | | 6 | 0 | 21.3 | 21.0±1 | 1.0 |
| | | | | 6 | 4 | 21.3 | 21.0±1 | 1.0 |
| | | | | 6 | 9 | 21.3 | 21.0±1 | 1.0 |
| | | | | 15 | 0 | 21.27 | 21.0±1 | 1.0 |
| | | | 16QAM | 1 | 0 | 21.09 | 21.0±1 | 1.0 |
| | | | | 1 | 8 | 21.13 | 21.0±1 | 1.0 |
| | | | | 1 | 14 | 21.07 | 21.0±1 | 1.0 |
| | | | | 6 | 0 | 20.43 | 21.0±1 | 1.0 |
| | | | | 6 | 4 | 20.42 | 21.0±1 | 1.0 |
| | | | | 6 | 9 | 20.43 | 21.0±1 | 1.0 |
| | | | | 15 | 0 | 20.32 | 21.0±1 | 1.0 |
| | 18900 | 1880 | QPSK | 1 | 0 | 22.82 | 22.0±1 | / |
| | | | | 1 | 8 | 22.91 | 22.0±1 | / |
| | | | | 1 | 14 | 22.81 | 22.0±1 | / |
| | | | | 6 | 0 | 21.92 | 21.0±1 | 1.0 |
| | | | | 6 | 4 | 21.91 | 21.0±1 | 1.0 |
| | | | | 6 | 9 | 21.91 | 21.0±1 | 1.0 |
| | | | | 15 | 0 | 21.86 | 21.0±1 | 1.0 |
| | | | 16QAM | 1 | 0 | 21.86 | 21.0±1 | 1.0 |
| | | | | 1 | 8 | 21.73 | 21.0±1 | 1.0 |
| | | | | 1 | 14 | 21.76 | 21.0±1 | 1.0 |
| | | | | 6 | 0 | 21.05 | 21.0±1 | 1.0 |
| | | | | 6 | 4 | 21.06 | 21.0±1 | 1.0 |
| | | | | 6 | 9 | 21.04 | 21.0±1 | 1.0 |
| | | | | 15 | 0 | 20.96 | 21.0±1 | 1.0 |
| | 19185 | 1908.5 | QPSK | 1 | 0 | 21.95 | 22.0±1 | / |
| | | | | 1 | 8 | 21.94 | 22.0±1 | / |
| | | | | 1 | 14 | 21.86 | 22.0±1 | / |
| | | | | 6 | 0 | 21.13 | 21.0±1 | 1.0 |
| | | | | 6 | 4 | 21.11 | 21.0±1 | 1.0 |
| | | | | 6 | 9 | 21.1 | 21.0±1 | 1.0 |
| | | | | 15 | 0 | 21.06 | 21.0±1 | 1.0 |
| | | | 16QAM | 1 | 0 | 21.06 | 21.0±1 | 1.0 |
| | | | | 1 | 8 | 21.04 | 21.0±1 | 1.0 |
| | | | | 1 | 14 | 20.96 | 21.0±1 | 1.0 |
| | | | | 6 | 0 | 20.34 | 21.0±1 | 1.0 |
| | | | | 6 | 4 | 20.2 | 21.0±1 | 1.0 |
| | | | | 6 | 9 | 20.21 | 21.0±1 | 1.0 |
| | | | | 15 | 0 | 20.08 | 21.0±1 | 1.0 |

| BW(MHz) | Ch | Freq(MHz) | Mode | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---|---|---|---|---|---|---|---|---|
| 5MHz | 18625 | 1852.5 | QPSK | 1 | 0 | 22.3 | 22.0±1 | / |
| | | | | 1 | 12 | 22.31 | 22.0±1 | / |
| | | | | 1 | 24 | 22.3 | 22.0±1 | / |
| | | | | 12 | 0 | 21.3 | 21.0±1 | 1.0 |
| | | | | 12 | 6 | 21.31 | 21.0±1 | 1.0 |
| | | | | 12 | 11 | 21.3 | 21.0±1 | 1.0 |
| | | | | 25 | 0 | 21.23 | 21.0±1 | 1.0 |
| | | | 16QAM | 1 | 0 | 21.22 | 21.0±1 | 1.0 |
| | | | | 1 | 12 | 21.25 | 21.0±1 | 1.0 |
| | | | | 1 | 24 | 21.25 | 21.0±1 | 1.0 |
| | | | | 12 | 0 | 20.35 | 21.0±1 | 1.0 |
| | | | | 12 | 6 | 20.35 | 21.0±1 | 1.0 |
| | | | | 12 | 11 | 20.35 | 21.0±1 | 1.0 |
| | | | | 25 | 0 | 20.38 | 21.0±1 | 1.0 |
| | 18900 | 1880 | QPSK | 1 | 0 | 22.89 | 22.0±1 | / |
| | | | | 1 | 12 | 22.96 | 22.0±1 | / |
| | | | | 1 | 24 | 22.81 | 22.0±1 | / |
| | | | | 12 | 0 | 21.88 | 21.0±1 | 1.0 |
| | | | | 12 | 6 | 21.93 | 21.0±1 | 1.0 |
| | | | | 12 | 11 | 21.88 | 21.0±1 | 1.0 |
| | | | | 25 | 0 | 21.83 | 21.0±1 | 1.0 |
| | | | 16QAM | 1 | 0 | 21.91 | 21.0±1 | 1.0 |
| | | | | 1 | 12 | 21.72 | 21.0±1 | 1.0 |
| | | | | 1 | 24 | 21.78 | 21.0±1 | 1.0 |
| | | | | 12 | 0 | 21.04 | 21.0±1 | 1.0 |
| | | | | 12 | 6 | 21.07 | 21.0±1 | 1.0 |
| | | | | 12 | 11 | 21.02 | 21.0±1 | 1.0 |
| | | | | 25 | 0 | 20.92 | 21.0±1 | 1.0 |
| | 19175 | 1907.5 | QPSK | 1 | 0 | 22.06 | 22.0±1 | / |
| | | | | 1 | 12 | 22.02 | 22.0±1 | / |
| | | | | 1 | 24 | 21.91 | 22.0±1 | / |
| | | | | 12 | 0 | 21.16 | 21.0±1 | 1.0 |
| | | | | 12 | 6 | 21.11 | 21.0±1 | 1.0 |
| | | | | 12 | 11 | 21.08 | 21.0±1 | 1.0 |
| | | | | 25 | 0 | 21.09 | 21.0±1 | 1.0 |
| | | | 16QAM | 1 | 0 | 21.81 | 21.0±1 | 1.0 |
| | | | | 1 | 12 | 21.8 | 21.0±1 | 1.0 |
| | | | | 1 | 24 | 21.71 | 21.0±1 | 1.0 |
| | | | | 12 | 0 | 20.16 | 21.0±1 | 1.0 |
| | | | | 12 | 6 | 20.12 | 21.0±1 | 1.0 |
| | | | | 12 | 11 | 20.06 | 21.0±1 | 1.0 |
| | | | | 25 | 0 | 20.01 | 21.0±1 | 1.0 |

| BW(MHz) | Ch | Freq(MHz) | Mode | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---|---|---|---|---|---|---|---|---|
| 10MHz | 18650 | 1855 | QPSK | 1 | 0 | 22.42 | 22.0±1 | / |
| | | | | 1 | 24 | 22.45 | 22.0±1 | / |
| | | | | 1 | 49 | 22.51 | 22.0±1 | / |
| | | | | 25 | 0 | 21.31 | 21.0±1 | 1.0 |
| | | | | 25 | 12 | 21.34 | 21.0±1 | 1.0 |
| | | | | 25 | 24 | 21.38 | 21.0±1 | 1.0 |
| | | | | 50 | 0 | 21.37 | 21.0±1 | 1.0 |
| | | | 16QAM | 1 | 0 | 21.25 | 21.0±1 | 1.0 |
| | | | | 1 | 24 | 21.25 | 21.0±1 | 1.0 |
| | | | | 1 | 49 | 21.3 | 21.0±1 | 1.0 |
| | | | | 25 | 0 | 20.38 | 21.0±1 | 1.0 |
| | | | | 25 | 12 | 20.4 | 21.0±1 | 1.0 |
| | | | | 25 | 24 | 20.45 | 21.0±1 | 1.0 |
| | | | | 50 | 0 | 20.38 | 21.0±1 | 1.0 |
| | 18900 | 1880 | QPSK | 1 | 0 | 22.86 | 22.0±1 | / |
| | | | | 1 | 24 | 22.92 | 22.0±1 | / |
| | | | | 1 | 49 | 22.78 | 22.0±1 | / |
| | | | | 25 | 0 | 21.88 | 21.0±1 | 1.0 |
| | | | | 25 | 12 | 21.91 | 21.0±1 | 1.0 |
| | | | | 25 | 24 | 21.84 | 21.0±1 | 1.0 |
| | | | | 50 | 0 | 21.89 | 21.0±1 | 1.0 |
| | | | 16QAM | 1 | 0 | 21.85 | 21.0±1 | 1.0 |
| | | | | 1 | 24 | 21.54 | 21.0±1 | 1.0 |
| | | | | 1 | 49 | 21.73 | 21.0±1 | 1.0 |
| | | | | 25 | 0 | 20.96 | 21.0±1 | 1.0 |
| | | | | 25 | 12 | 21.01 | 21.0±1 | 1.0 |
| | | | | 25 | 24 | 20.95 | 21.0±1 | 1.0 |
| | | | | 50 | 0 | 20.95 | 21.0±1 | 1.0 |
| | 19150 | 1905 | QPSK | 1 | 0 | 22.22 | 22.0±1 | / |
| | | | | 1 | 24 | 22.12 | 22.0±1 | / |
| | | | | 1 | 49 | 21.94 | 22.0±1 | / |
| | | | | 25 | 0 | 21.17 | 21.0±1 | 1.0 |
| | | | | 25 | 12 | 21.08 | 21.0±1 | 1.0 |
| | | | | 25 | 24 | 21.11 | 21.0±1 | 1.0 |
| | | | | 50 | 0 | 21.1 | 21.0±1 | 1.0 |
| | | | 16QAM | 1 | 0 | 21.22 | 21.0±1 | 1.0 |
| | | | | 1 | 24 | 21.08 | 21.0±1 | 1.0 |
| | | | | 1 | 49 | 21.03 | 21.0±1 | 1.0 |
| | | | | 25 | 0 | 20.29 | 21.0±1 | 1.0 |
| | | | | 25 | 12 | 20.2 | 21.0±1 | 1.0 |
| | | | | 25 | 24 | 20.14 | 21.0±1 | 1.0 |
| | | | | 50 | 0 | 20.17 | 21.0±1 | 1.0 |

| BW(MHz) | Ch | Freq(MHz) | Mode | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---|---|---|---|---|---|---|---|---|
| 15MHz | 18675 | 1857.5 | QPSK | 1 | 0 | 22.43 | 22.0±1 | / |
| | | | | 1 | 37 | 22.51 | 22.0±1 | / |
| | | | | 1 | 74 | 22.65 | 22.0±1 | / |
| | | | | 36 | 0 | 21.5 | 21.0±1 | 1.0 |
| | | | | 36 | 16 | 21.55 | 21.0±1 | 1.0 |
| | | | | 36 | 35 | 21.63 | 21.0±1 | 1.0 |
| | | | | 75 | 0 | 21.58 | 21.0±1 | 1.0 |
| | | | 16QAM | 1 | 0 | 21.3 | 21.0±1 | 1.0 |
| | | | | 1 | 37 | 21.37 | 21.0±1 | 1.0 |
| | | | | 1 | 74 | 21.5 | 21.0±1 | 1.0 |
| | | | | 36 | 0 | 20.54 | 21.0±1 | 1.0 |
| | | | | 36 | 16 | 20.57 | 21.0±1 | 1.0 |
| | | | | 36 | 35 | 20.65 | 21.0±1 | 1.0 |
| | | | | 75 | 0 | 20.59 | 21.0±1 | 1.0 |
| | 18900 | 1880 | QPSK | 1 | 0 | 22.78 | 22.0±1 | / |
| | | | | 1 | 37 | 22.99 | 22.0±1 | / |
| | | | | 1 | 74 | 22.67 | 22.0±1 | / |
| | | | | 36 | 0 | 21.85 | 21.0±1 | 1.0 |
| | | | | 36 | 16 | 21.93 | 21.0±1 | 1.0 |
| | | | | 36 | 35 | 21.79 | 21.0±1 | 1.0 |
| | | | | 75 | 0 | 21.89 | 21.0±1 | 1.0 |
| | | | 16QAM | 1 | 0 | 21.69 | 21.0±1 | 1.0 |
| | | | | 1 | 37 | 21.42 | 21.0±1 | 1.0 |
| | | | | 1 | 74 | 21.51 | 21.0±1 | 1.0 |
| | | | | 36 | 0 | 20.94 | 21.0±1 | 1.0 |
| | | | | 36 | 16 | 21.01 | 21.0±1 | 1.0 |
| | | | | 36 | 35 | 20.88 | 21.0±1 | 1.0 |
| | | | | 75 | 0 | 20.92 | 21.0±1 | 1.0 |
| | 19125 | 1902.5 | QPSK | 1 | 0 | 22.78 | 22.0±1 | / |
| | | | | 1 | 37 | 22.63 | 22.0±1 | / |
| | | | | 1 | 74 | 22.42 | 22.0±1 | / |
| | | | | 36 | 0 | 21.64 | 21.0±1 | 1.0 |
| | | | | 36 | 16 | 21.59 | 21.0±1 | 1.0 |
| | | | | 36 | 35 | 21.54 | 21.0±1 | 1.0 |
| | | | | 75 | 0 | 21.63 | 21.0±1 | 1.0 |
| | | | 16QAM | 1 | 0 | 21.86 | 21.0±1 | 1.0 |
| | | | | 1 | 37 | 21.91 | 21.0±1 | 1.0 |
| | | | | 1 | 74 | 21.67 | 21.0±1 | 1.0 |
| | | | | 36 | 0 | 20.67 | 21.0±1 | 1.0 |
| | | | | 36 | 16 | 20.57 | 21.0±1 | 1.0 |
| | | | | 36 | 35 | 20.5 | 21.0±1 | 1.0 |
| | | | | 75 | 0 | 20.61 | 21.0±1 | 1.0 |

| BW(MHz) | Ch | Freq(MHz) | Mode | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---|---|---|---|---|---|---|---|---|
| 20MHz | 18700 | 1860 | QPSK | 1 | 0 | 22.44 | 22.0±1 | / |
| | | | | 1 | 49 | 22.54 | 22.0±1 | / |
| | | | | 1 | 99 | 22.63 | 22.0±1 | / |
| | | | | 50 | 0 | 21.44 | 21.0±1 | 1.0 |
| | | | | 50 | 24 | 21.48 | 21.0±1 | 1.0 |
| | | | | 50 | 49 | 21.58 | 21.0±1 | 1.0 |
| | | | | 100 | 0 | 21.5 | 21.0±1 | 1.0 |
| | | | 16QAM | 1 | 0 | 21.93 | 21.0±1 | 1.0 |
| | | | | 1 | 49 | 21.73 | 21.0±1 | 1.0 |
| | | | | 1 | 99 | 21.90 | 21.0±1 | 1.0 |
| | | | | 50 | 0 | 20.52 | 21.0±1 | 1.0 |
| | | | | 50 | 24 | 20.55 | 21.0±1 | 1.0 |
| | | | | 50 | 49 | 20.66 | 21.0±1 | 1.0 |
| | | | | 100 | 0 | 20.57 | 21.0±1 | 1.0 |
| | 18900 | 1880 | QPSK | 1 | 0 | 22.81 | 22.0±1 | / |
| | | | | 1 | 49 | 22.69 | 22.0±1 | / |
| | | | | 1 | 99 | 22.6 | 22.0±1 | / |
| | | | | 50 | 0 | 21.84 | 21.0±1 | 1.0 |
| | | | | 50 | 24 | 21.92 | 21.0±1 | 1.0 |
| | | | | 50 | 49 | 21.78 | 21.0±1 | 1.0 |
| | | | | 100 | 0 | 21.79 | 21.0±1 | 1.0 |
| | | | 16QAM | 1 | 0 | 22.19 | 21.0±1 | 1.0 |
| | | | | 1 | 49 | 22.4 | 21.0±1 | 1.0 |
| | | | | 1 | 99 | 22.08 | 21.0±1 | 1.0 |
| | | | | 50 | 0 | 20.92 | 21.0±1 | 1.0 |
| | | | | 50 | 24 | 20.94 | 21.0±1 | 1.0 |
| | | | | 50 | 49 | 20.84 | 21.0±1 | 1.0 |
| | | | | 100 | 0 | 20.85 | 21.0±1 | 1.0 |
| | 19100 | 1900 | QPSK | 1 | 0 | 22.71 | 22.0±1 | / |
| | | | | 1 | 49 | 22.6 | 22.0±1 | / |
| | | | | 1 | 99 | 22.42 | 22.0±1 | / |
| | | | | 50 | 0 | 21.74 | 21.0±1 | 1.0 |
| | | | | 50 | 24 | 21.56 | 21.0±1 | 1.0 |
| | | | | 50 | 49 | 21.48 | 21.0±1 | 1.0 |
| | | | | 100 | 0 | 21.61 | 21.0±1 | 1.0 |
| | | | 16QAM | 1 | 0 | 21.4 | 21.0±1 | 1.0 |
| | | | | 1 | 49 | 21.95 | 21.0±1 | 1.0 |
| | | | | 1 | 99 | 21.74 | 21.0±1 | 1.0 |
| | | | | 50 | 0 | 20.79 | 21.0±1 | 1.0 |
| | | | | 50 | 24 | 20.61 | 21.0±1 | 1.0 |
| | | | | 50 | 49 | 20.54 | 21.0±1 | 1.0 |
| | | | | 100 | 0 | 20.68 | 21.0±1 | 1.0 |

**LTE Band 4：**

| BW(MHz) | Ch | Freq(MHz) | Mode | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---|---|---|---|---|---|---|---|---|
| 1.4MHz | 19957 | 1710.7 | QPSK | 1 | 0 | 23.39 | 22.5±1 | / |
| | | | | 1 | 2 | 23.39 | 22.5±1 | / |
| | | | | 1 | 5 | 23.36 | 22.5±1 | / |
| | | | | 3 | 0 | 22.84 | 22.0±1 | 0.5 |
| | | | | 3 | 1 | 22.76 | 22.0±1 | 0.5 |
| | | | | 3 | 2 | 22.77 | 22.0±1 | 0.5 |
| | | | | 6 | 0 | 22.33 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 22.41 | 22.0±1 | 0.5 |
| | | | | 1 | 2 | 22.45 | 22.0±1 | 0.5 |
| | | | | 1 | 5 | 22.39 | 22.0±1 | 0.5 |
| | | | | 3 | 0 | 22.39 | 21.5±1 | 1.0 |
| | | | | 3 | 1 | 22.37 | 21.5±1 | 1.0 |
| | | | | 3 | 2 | 22.39 | 21.5±1 | 1.0 |
| | | | | 6 | 0 | 21.52 | 21.5±1 | 1.0 |
| | 20175 | 1732.5 | QPSK | 1 | 0 | 23.16 | 22.5±1 | / |
| | | | | 1 | 2 | 23.08 | 22.5±1 | / |
| | | | | 1 | 5 | 22.93 | 22.5±1 | / |
| | | | | 3 | 0 | 22.88 | 22.0±1 | 0.5 |
| | | | | 3 | 1 | 22.89 | 22.0±1 | 0.5 |
| | | | | 3 | 2 | 22.86 | 22.0±1 | 0.5 |
| | | | | 6 | 0 | 21.81 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 22.14 | 22.0±1 | 0.5 |
| | | | | 1 | 2 | 22.15 | 22.0±1 | 0.5 |
| | | | | 1 | 5 | 22.11 | 22.0±1 | 0.5 |
| | | | | 3 | 0 | 22 | 21.5±1 | 1.0 |
| | | | | 3 | 1 | 21.98 | 21.5±1 | 1.0 |
| | | | | 3 | 2 | 21.97 | 21.5±1 | 1.0 |
| | | | | 6 | 0 | 20.73 | 21.5±1 | 1.0 |
| | 20393 | 1754.3 | QPSK | 1 | 0 | 22.83 | 22.5±1 | / |
| | | | | 1 | 2 | 22.85 | 22.5±1 | / |
| | | | | 1 | 5 | 22.76 | 22.5±1 | / |
| | | | | 3 | 0 | 22.49 | 22.0±1 | 0.5 |
| | | | | 3 | 1 | 22.5 | 22.0±1 | 0.5 |
| | | | | 3 | 2 | 22.51 | 22.0±1 | 0.5 |
| | | | | 6 | 0 | 21.48 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 21.42 | 22.0±1 | 0.5 |
| | | | | 1 | 2 | 21.46 | 22.0±1 | 0.5 |
| | | | | 1 | 5 | 21.44 | 22.0±1 | 0.5 |
| | | | | 3 | 0 | 21.62 | 21.5±1 | 1.0 |
| | | | | 3 | 1 | 21.61 | 21.5±1 | 1.0 |
| | | | | 3 | 2 | 21.61 | 21.5±1 | 1.0 |
| | | | | 6 | 0 | 20.67 | 21.5±1 | 1.0 |

| BW(MHz) | Ch | Freq(MHz) | Mode | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---|---|---|---|---|---|---|---|---|
| 3MHz | 19965 | 1711.5 | QPSK | 1 | 0 | 23.34 | 22.5±1 | / |
| | | | | 1 | 8 | 23.35 | 22.5±1 | / |
| | | | | 1 | 14 | 23.28 | 22.5±1 | / |
| | | | | 6 | 0 | 22.38 | 22.0±1 | 0.5 |
| | | | | 6 | 4 | 22.37 | 22.0±1 | 0.5 |
| | | | | 6 | 9 | 22.36 | 22.0±1 | 0.5 |
| | | | | 15 | 0 | 22.32 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 22.18 | 22.0±1 | 0.5 |
| | | | | 1 | 8 | 22.18 | 22.0±1 | 0.5 |
| | | | | 1 | 14 | 22.08 | 22.0±1 | 0.5 |
| | | | | 8 | 0 | 21.54 | 21.5±1 | 1.0 |
| | | | | 8 | 4 | 21.53 | 21.5±1 | 1.0 |
| | | | | 8 | 9 | 21.5 | 21.5±1 | 1.0 |
| | | | | 15 | 0 | 21.39 | 21.5±1 | 1.0 |
| | 20175 | 1732.5 | QPSK | 1 | 0 | 23.22 | 22.5±1 | / |
| | | | | 1 | 8 | 22.86 | 22.5±1 | / |
| | | | | 1 | 14 | 23.05 | 22.5±1 | / |
| | | | | 6 | 0 | 22.66 | 22.0±1 | 0.5 |
| | | | | 6 | 4 | 22.74 | 22.0±1 | 0.5 |
| | | | | 6 | 9 | 22.63 | 22.0±1 | 0.5 |
| | | | | 15 | 0 | 21.77 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 22.08 | 22.0±1 | 0.5 |
| | | | | 1 | 8 | 22.14 | 22.0±1 | 0.5 |
| | | | | 1 | 14 | 22.01 | 22.0±1 | 0.5 |
| | | | | 6 | 0 | 20.97 | 21.5±1 | 1.0 |
| | | | | 6 | 4 | 20.97 | 21.5±1 | 1.0 |
| | | | | 6 | 9 | 20.93 | 21.5±1 | 1.0 |
| | | | | 15 | 0 | 20.86 | 21.5±1 | 1.0 |
| | 20385 | 1753.5 | QPSK | 1 | 0 | 22.83 | 22.5±1 | / |
| | | | | 1 | 8 | 22.56 | 22.5±1 | / |
| | | | | 1 | 14 | 22.81 | 22.5±1 | / |
| | | | | 6 | 0 | 22.22 | 22.0±1 | 0.5 |
| | | | | 6 | 4 | 22.13 | 22.0±1 | 0.5 |
| | | | | 6 | 9 | 22.31 | 22.0±1 | 0.5 |
| | | | | 15 | 0 | 21.45 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 21.43 | 22.0±1 | 0.5 |
| | | | | 1 | 8 | 21.43 | 22.0±1 | 0.5 |
| | | | | 1 | 14 | 21.38 | 22.0±1 | 0.5 |
| | | | | 8 | 0 | 20.76 | 21.5±1 | 1.0 |
| | | | | 8 | 4 | 20.88 | 21.5±1 | 1.0 |
| | | | | 8 | 9 | 20.86 | 21.5±1 | 1.0 |
| | | | | 15 | 0 | 20.64 | 21.5±1 | 1.0 |

| BW(MHz) | Ch | Freq(MHz) | Mode | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---|---|---|---|---|---|---|---|---|
| 5MHz | 19975 | 1712.5 | QPSK | 1 | 0 | 23.43 | 22.5±1 | / |
| | | | | 1 | 49 | 23.35 | 22.5±1 | / |
| | | | | 1 | 99 | 23.25 | 22.5±1 | / |
| | | | | 12 | 0 | 22.36 | 22.0±1 | 0.5 |
| | | | | 12 | 24 | 22.33 | 22.0±1 | 0.5 |
| | | | | 12 | 49 | 22.31 | 22.0±1 | 0.5 |
| | | | | 25 | 0 | 22.3 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 22.38 | 22.0±1 | 0.5 |
| | | | | 1 | 49 | 22.31 | 22.0±1 | 0.5 |
| | | | | 1 | 99 | 22.21 | 22.0±1 | 0.5 |
| | | | | 12 | 0 | 21.43 | 21.5±1 | 1.0 |
| | | | | 12 | 24 | 21.39 | 21.5±1 | 1.0 |
| | | | | 12 | 49 | 21.35 | 21.5±1 | 1.0 |
| | | | | 25 | 0 | 21.44 | 21.5±1 | 1.0 |
| | 20175 | 1732.5 | QPSK | 1 | 0 | 22.86 | 22.5±1 | / |
| | | | | 1 | 49 | 23.07 | 22.5±1 | / |
| | | | | 1 | 99 | 22.89 | 22.5±1 | / |
| | | | | 12 | 0 | 22.52 | 22.0±1 | 0.5 |
| | | | | 12 | 24 | 22.83 | 22.0±1 | 0.5 |
| | | | | 12 | 49 | 22.66 | 22.0±1 | 0.5 |
| | | | | 25 | 0 | 21.76 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 22.03 | 22.0±1 | 0.5 |
| | | | | 1 | 49 | 22.07 | 22.0±1 | 0.5 |
| | | | | 1 | 99 | 21.88 | 22.0±1 | 0.5 |
| | | | | 12 | 0 | 20.95 | 21.5±1 | 1.0 |
| | | | | 12 | 24 | 20.95 | 21.5±1 | 1.0 |
| | | | | 12 | 49 | 20.89 | 21.5±1 | 1.0 |
| | | | | 25 | 0 | 20.8 | 21.5±1 | 1.0 |
| | 20375 | 1752.5 | QPSK | 1 | 0 | 22.52 | 22.5±1 | / |
| | | | | 1 | 49 | 22.53 | 22.5±1 | / |
| | | | | 1 | 99 | 22.47 | 22.5±1 | / |
| | | | | 12 | 0 | 22.51 | 22.0±1 | 0.5 |
| | | | | 12 | 24 | 22.51 | 22.0±1 | 0.5 |
| | | | | 12 | 49 | 22.52 | 22.0±1 | 0.5 |
| | | | | 25 | 0 | 21.76 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 22.26 | 22.0±1 | 0.5 |
| | | | | 1 | 49 | 22.23 | 22.0±1 | 0.5 |
| | | | | 1 | 99 | 22.15 | 22.0±1 | 0.5 |
| | | | | 12 | 0 | 20.57 | 21.5±1 | 1.0 |
| | | | | 12 | 24 | 20.56 | 21.5±1 | 1.0 |
| | | | | 12 | 49 | 20.56 | 21.5±1 | 1.0 |
| | | | | 25 | 0 | 20.72 | 21.5±1 | 1.0 |

| BW(MHz) | Ch | Freq(MHz) | Mode | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---|---|---|---|---|---|---|---|---|
| 10MHz | 20000 | 1715 | QPSK | 1 | 0 | 23.48 | 22.5±1 | / |
| | | | | 1 | 49 | 23.36 | 22.5±1 | / |
| | | | | 1 | 99 | 23.19 | 22.5±1 | / |
| | | | | 25 | 0 | 22.33 | 22.0±1 | 0.5 |
| | | | | 25 | 24 | 22.27 | 22.0±1 | 0.5 |
| | | | | 25 | 49 | 22.2 | 22.0±1 | 0.5 |
| | | | | 50 | 0 | 22.27 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 22.32 | 22.0±1 | 0.5 |
| | | | | 1 | 49 | 22.18 | 22.0±1 | 0.5 |
| | | | | 1 | 99 | 21.99 | 22.0±1 | 0.5 |
| | | | | 25 | 0 | 21.41 | 21.5±1 | 1.0 |
| | | | | 25 | 24 | 21.34 | 21.5±1 | 1.0 |
| | | | | 25 | 49 | 21.25 | 21.5±1 | 1.0 |
| | | | | 50 | 0 | 21.3 | 21.5±1 | 1.0 |
| | 20175 | 1732.5 | QPSK | 1 | 0 | 23.22 | 22.5±1 | / |
| | | | | 1 | 49 | 23.13 | 22.5±1 | / |
| | | | | 1 | 99 | 23.15 | 22.5±1 | / |
| | | | | 25 | 0 | 22.75 | 22.0±1 | 0.5 |
| | | | | 25 | 24 | 22.76 | 22.0±1 | 0.5 |
| | | | | 25 | 49 | 22.64 | 22.0±1 | 0.5 |
| | | | | 50 | 0 | 22.11 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 22.05 | 22.0±1 | 0.5 |
| | | | | 1 | 49 | 22.17 | 22.0±1 | 0.5 |
| | | | | 1 | 99 | 21.82 | 22.0±1 | 0.5 |
| | | | | 25 | 0 | 20.85 | 21.5±1 | 1.0 |
| | | | | 25 | 24 | 20.83 | 21.5±1 | 1.0 |
| | | | | 25 | 49 | 20.73 | 21.5±1 | 1.0 |
| | | | | 50 | 0 | 20.77 | 21.5±1 | 1.0 |
| | 20350 | 1750 | QPSK | 1 | 0 | 22.48 | 22.5±1 | / |
| | | | | 1 | 49 | 22.48 | 22.5±1 | / |
| | | | | 1 | 99 | 22.43 | 22.5±1 | / |
| | | | | 25 | 0 | 21.44 | 22.0±1 | 0.5 |
| | | | | 25 | 24 | 21.45 | 22.0±1 | 0.5 |
| | | | | 25 | 49 | 21.42 | 22.0±1 | 0.5 |
| | | | | 50 | 0 | 21.44 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 21.47 | 22.0±1 | 0.5 |
| | | | | 1 | 49 | 21.46 | 22.0±1 | 0.5 |
| | | | | 1 | 99 | 21.38 | 22.0±1 | 0.5 |
| | | | | 25 | 0 | 20.57 | 21.5±1 | 1.0 |
| | | | | 25 | 24 | 20.57 | 21.5±1 | 1.0 |
| | | | | 25 | 49 | 20.56 | 21.5±1 | 1.0 |
| | | | | 50 | 0 | 20.51 | 21.5±1 | 1.0 |

| BW(MHz) | Ch | Freq(MHz) | Mode | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---|---|---|---|---|---|---|---|---|
| 15MHz | 20025 | 1717.5 | QPSK | 1 | 0 | 23.45 | 22.5±1 | / |
| | | | | 1 | 49 | 23.24 | 22.5±1 | / |
| | | | | 1 | 99 | 22.98 | 22.5±1 | / |
| | | | | 36 | 0 | 22.39 | 22.0±1 | 0.5 |
| | | | | 36 | 24 | 22.28 | 22.0±1 | 0.5 |
| | | | | 36 | 49 | 22.18 | 22.0±1 | 0.5 |
| | | | | 75 | 0 | 22.28 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 22.3 | 22.0±1 | 0.5 |
| | | | | 1 | 49 | 22.09 | 22.0±1 | 0.5 |
| | | | | 1 | 99 | 21.79 | 22.0±1 | 0.5 |
| | | | | 36 | 0 | 21.42 | 21.5±1 | 1.0 |
| | | | | 36 | 24 | 21.28 | 21.5±1 | 1.0 |
| | | | | 36 | 49 | 21.17 | 21.5±1 | 1.0 |
| | | | | 75 | 0 | 21.29 | 21.5±1 | 1.0 |
| | 20175 | 1732.5 | QPSK | 1 | 0 | 23.22 | 22.5±1 | / |
| | | | | 1 | 49 | 23.30 | 22.5±1 | / |
| | | | | 1 | 99 | 23.13 | 22.5±1 | / |
| | | | | 36 | 0 | 22.55 | 22.0±1 | 0.5 |
| | | | | 36 | 24 | 22.63 | 22.0±1 | 0.5 |
| | | | | 36 | 49 | 22.44 | 22.0±1 | 0.5 |
| | | | | 75 | 0 | 21.76 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 22.16 | 22.0±1 | 0.5 |
| | | | | 1 | 49 | 22.18 | 22.0±1 | 0.5 |
| | | | | 1 | 99 | 21.77 | 22.0±1 | 0.5 |
| | | | | 36 | 0 | 20.93 | 21.5±1 | 1.0 |
| | | | | 36 | 24 | 20.91 | 21.5±1 | 1.0 |
| | | | | 36 | 49 | 20.72 | 21.5±1 | 1.0 |
| | | | | 75 | 0 | 20.8 | 21.5±1 | 1.0 |
| | 20325 | 1747.5 | QPSK | 1 | 0 | 22.56 | 22.5±1 | / |
| | | | | 1 | 49 | 22.53 | 22.5±1 | / |
| | | | | 1 | 99 | 22.54 | 22.5±1 | / |
| | | | | 36 | 0 | 21.53 | 22.0±1 | 0.5 |
| | | | | 36 | 24 | 21.52 | 22.0±1 | 0.5 |
| | | | | 36 | 49 | 21.52 | 22.0±1 | 0.5 |
| | | | | 75 | 0 | 21.54 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 21.92 | 22.0±1 | 0.5 |
| | | | | 1 | 49 | 21.85 | 22.0±1 | 0.5 |
| | | | | 1 | 99 | 21.77 | 22.0±1 | 0.5 |
| | | | | 36 | 0 | 20.53 | 21.5±1 | 1.0 |
| | | | | 36 | 24 | 20.52 | 21.5±1 | 1.0 |
| | | | | 36 | 49 | 20.52 | 21.5±1 | 1.0 |
| | | | | 75 | 0 | 20.55 | 21.5±1 | 1.0 |

| BW(MHz) | Ch | Freq(MHz) | Mode | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---|---|---|---|---|---|---|---|---|
| 20MHz | 20050 | 1720 | QPSK | 1 | 0 | 23.44 | 22.5±1 | / |
| | | | | 1 | 49 | 23.12 | 22.5±1 | / |
| | | | | 1 | 99 | 22.83 | 22.5±1 | / |
| | | | | 50 | 0 | 22.27 | 22.0±1 | 0.5 |
| | | | | 50 | 24 | 22.09 | 22.0±1 | 0.5 |
| | | | | 50 | 49 | 21.9 | 22.0±1 | 0.5 |
| | | | | 100 | 0 | 22.08 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 22.95 | 22.0±1 | 0.5 |
| | | | | 1 | 49 | 22.61 | 22.0±1 | 0.5 |
| | | | | 1 | 99 | 22.31 | 22.0±1 | 0.5 |
| | | | | 50 | 0 | 21.37 | 21.5±1 | 1.0 |
| | | | | 50 | 24 | 21.16 | 21.5±1 | 1.0 |
| | | | | 50 | 49 | 20.99 | 21.5±1 | 1.0 |
| | | | | 100 | 0 | 21.16 | 21.5±1 | 1.0 |
| | 20175 | 1732.5 | QPSK | 1 | 0 | 23.28 | 22.5±1 | / |
| | | | | 1 | 49 | 23.31 | 22.5±1 | / |
| | | | | 1 | 99 | 23.22 | 22.5±1 | / |
| | | | | 50 | 0 | 22.69 | 22.0±1 | 0.5 |
| | | | | 50 | 24 | 22.71 | 22.0±1 | 0.5 |
| | | | | 50 | 49 | 22.53 | 22.0±1 | 0.5 |
| | | | | 100 | 0 | 21.65 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 22.34 | 22.0±1 | 0.5 |
| | | | | 1 | 49 | 22.23 | 22.0±1 | 0.5 |
| | | | | 1 | 99 | 21.86 | 22.0±1 | 0.5 |
| | | | | 50 | 0 | 20.86 | 21.5±1 | 1.0 |
| | | | | 50 | 24 | 20.79 | 21.5±1 | 1.0 |
| | | | | 50 | 49 | 20.63 | 21.5±1 | 1.0 |
| | | | | 100 | 0 | 20.71 | 21.5±1 | 1.0 |
| | 20300 | 1745 | QPSK | 1 | 0 | 22.86 | 22.5±1 | / |
| | | | | 1 | 49 | 23.16 | 22.5±1 | / |
| | | | | 1 | 99 | 22.85 | 22.5±1 | / |
| | | | | 50 | 0 | 21.86 | 22.0±1 | 0.5 |
| | | | | 50 | 24 | 21.74 | 22.0±1 | 0.5 |
| | | | | 50 | 49 | 21.39 | 22.0±1 | 0.5 |
| | | | | 100 | 0 | 21.43 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 21.99 | 22.0±1 | 0.5 |
| | | | | 1 | 49 | 21.8 | 22.0±1 | 0.5 |
| | | | | 1 | 99 | 21.75 | 22.0±1 | 0.5 |
| | | | | 50 | 0 | 20.69 | 21.5±1 | 1.0 |
| | | | | 50 | 24 | 20.51 | 21.5±1 | 1.0 |
| | | | | 50 | 49 | 20.53 | 21.5±1 | 1.0 |
| | | | | 100 | 0 | 20.59 | 21.5±1 | 1.0 |

**LTE Band 7：**

| BW(MHz) | Ch | Freq(MHz) | Mode | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---|---|---|---|---|---|---|---|---|
| 5MHz | 20775 | 2502.5 | QPSK | 1 | 0 | 23.04 | 22.5±1 | / |
| | | | | 1 | 49 | 23.39 | 22.5±1 | / |
| | | | | 1 | 99 | 22.98 | 22.5±1 | / |
| | | | | 12 | 0 | 22.51 | 22.0±1 | 0.5 |
| | | | | 12 | 24 | 22.32 | 22.0±1 | 0.5 |
| | | | | 12 | 49 | 22.14 | 22.0±1 | 0.5 |
| | | | | 25 | 0 | 22.29 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 22.81 | 22.0±1 | 0.5 |
| | | | | 1 | 49 | 22.49 | 22.0±1 | 0.5 |
| | | | | 1 | 99 | 22.16 | 22.0±1 | 0.5 |
| | | | | 12 | 0 | 21.55 | 21.5±1 | 1.0 |
| | | | | 12 | 24 | 21.36 | 21.5±1 | 1.0 |
| | | | | 12 | 49 | 21.21 | 21.5±1 | 1.0 |
| | | | | 25 | 0 | 21.25 | 21.5±1 | 1.0 |
| | 21100 | 2535 | QPSK | 1 | 0 | 22.92 | 22.5±1 | / |
| | | | | 1 | 49 | 23.05 | 22.5±1 | / |
| | | | | 1 | 99 | 23.15 | 22.5±1 | / |
| | | | | 12 | 0 | 22.34 | 22.0±1 | 0.5 |
| | | | | 12 | 24 | 22.51 | 22.0±1 | 0.5 |
| | | | | 12 | 49 | 22.28 | 22.0±1 | 0.5 |
| | | | | 25 | 0 | 22.04 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 22.67 | 22.0±1 | 0.5 |
| | | | | 1 | 49 | 22.78 | 22.0±1 | 0.5 |
| | | | | 1 | 99 | 22.86 | 22.0±1 | 0.5 |
| | | | | 12 | 0 | 21.04 | 21.5±1 | 1.0 |
| | | | | 12 | 24 | 21.1 | 21.5±1 | 1.0 |
| | | | | 12 | 49 | 21.18 | 21.5±1 | 1.0 |
| | | | | 25 | 0 | 20.95 | 21.5±1 | 1.0 |
| | 21425 | 2567.5 | QPSK | 1 | 0 | 23.43 | 22.5±1 | / |
| | | | | 1 | 49 | 23.21 | 22.5±1 | / |
| | | | | 1 | 99 | 23.15 | 22.5±1 | / |
| | | | | 12 | 0 | 22.46 | 22.0±1 | 0.5 |
| | | | | 12 | 24 | 22.32 | 22.0±1 | 0.5 |
| | | | | 12 | 49 | 22.21 | 22.0±1 | 0.5 |
| | | | | 25 | 0 | 22.16 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 22.26 | 22.0±1 | 0.5 |
| | | | | 1 | 49 | 22.39 | 22.0±1 | 0.5 |
| | | | | 1 | 99 | 22.34 | 22.0±1 | 0.5 |
| | | | | 12 | 0 | 21.8 | 21.5±1 | 1.0 |
| | | | | 12 | 24 | 21.67 | 21.5±1 | 1.0 |
| | | | | 12 | 49 | 21.63 | 21.5±1 | 1.0 |
| | | | | 25 | 0 | 21.2 | 21.5±1 | 1.0 |

| BW(MHz) | Ch | Freq(MHz) | Mode | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---|---|---|---|---|---|---|---|---|
| 10MHz | 20800 | 2505 | QPSK | 1 | 0 | 23.44 | 22.5±1 | / |
| | | | | 1 | 49 | 23.27 | 22.5±1 | / |
| | | | | 1 | 99 | 23.18 | 22.5±1 | / |
| | | | | 25 | 0 | 22.29 | 22.0±1 | 0.5 |
| | | | | 25 | 24 | 22 | 22.0±1 | 0.5 |
| | | | | 25 | 49 | 21.87 | 22.0±1 | 0.5 |
| | | | | 50 | 0 | 22.1 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 22.5 | 22.0±1 | 0.5 |
| | | | | 1 | 49 | 21.86 | 22.0±1 | 0.5 |
| | | | | 1 | 99 | 21.67 | 22.0±1 | 0.5 |
| | | | | 25 | 0 | 21.3 | 21.5±1 | 1.0 |
| | | | | 25 | 24 | 21.01 | 21.5±1 | 1.0 |
| | | | | 25 | 49 | 20.89 | 21.5±1 | 1.0 |
| | | | | 50 | 0 | 21.06 | 21.5±1 | 1.0 |
| | 21100 | 2535 | QPSK | 1 | 0 | 22.92 | 22.5±1 | / |
| | | | | 1 | 49 | 23.14 | 22.5±1 | / |
| | | | | 1 | 99 | 23.38 | 22.5±1 | / |
| | | | | 25 | 0 | 22.35 | 22.0±1 | 0.5 |
| | | | | 25 | 24 | 22.57 | 22.0±1 | 0.5 |
| | | | | 25 | 49 | 22.24 | 22.0±1 | 0.5 |
| | | | | 50 | 0 | 22.09 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 22.24 | 22.0±1 | 0.5 |
| | | | | 1 | 49 | 22.4 | 22.0±1 | 0.5 |
| | | | | 1 | 99 | 22.67 | 22.0±1 | 0.5 |
| | | | | 25 | 0 | 20.96 | 21.5±1 | 1.0 |
| | | | | 25 | 24 | 21.08 | 21.5±1 | 1.0 |
| | | | | 25 | 49 | 21.23 | 21.5±1 | 1.0 |
| | | | | 50 | 0 | 21.08 | 21.5±1 | 1.0 |
| | 21400 | 2565 | QPSK | 1 | 0 | 23.35 | 22.5±1 | / |
| | | | | 1 | 49 | 23.33 | 22.5±1 | / |
| | | | | 1 | 99 | 23.21 | 22.5±1 | / |
| | | | | 25 | 0 | 22.61 | 22.0±1 | 0.5 |
| | | | | 25 | 24 | 22.42 | 22.0±1 | 0.5 |
| | | | | 25 | 49 | 22.48 | 22.0±1 | 0.5 |
| | | | | 50 | 0 | 22.24 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 22.32 | 22.0±1 | 0.5 |
| | | | | 1 | 49 | 22.15 | 22.0±1 | 0.5 |
| | | | | 1 | 99 | 22.05 | 22.0±1 | 0.5 |
| | | | | 25 | 0 | 21.42 | 21.5±1 | 1.0 |
| | | | | 25 | 24 | 21.32 | 21.5±1 | 1.0 |
| | | | | 25 | 49 | 21.28 | 21.5±1 | 1.0 |
| | | | | 50 | 0 | 21.29 | 21.5±1 | 1.0 |

| BW(MHz) | Ch | Freq(MHz) | Mode | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---|---|---|---|---|---|---|---|---|
| 15MHz | 20825 | 2507.5 | QPSK | 1 | 0 | 23.33 | 22.5±1 | / |
| | | | | 1 | 49 | 23.32 | 22.5±1 | / |
| | | | | 1 | 99 | 22.95 | 22.5±1 | / |
| | | | | 36 | 0 | 22.2 | 22.0±1 | 0.5 |
| | | | | 36 | 24 | 21.84 | 22.0±1 | 0.5 |
| | | | | 36 | 49 | 21.66 | 22.0±1 | 0.5 |
| | | | | 75 | 0 | 21.94 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 22.37 | 22.0±1 | 0.5 |
| | | | | 1 | 49 | 21.63 | 22.0±1 | 0.5 |
| | | | | 1 | 99 | 21.43 | 22.0±1 | 0.5 |
| | | | | 36 | 0 | 21.1 | 21.5±1 | 1.0 |
| | | | | 36 | 24 | 20.78 | 21.5±1 | 1.0 |
| | | | | 36 | 49 | 20.62 | 21.5±1 | 1.0 |
| | | | | 75 | 0 | 20.88 | 21.5±1 | 1.0 |
| | 21100 | 2535 | QPSK | 1 | 0 | 22.92 | 22.5±1 | / |
| | | | | 1 | 49 | 23.14 | 22.5±1 | / |
| | | | | 1 | 99 | 23.28 | 22.5±1 | / |
| | | | | 36 | 0 | 22.03 | 22.0±1 | 0.5 |
| | | | | 36 | 24 | 22.23 | 22.0±1 | 0.5 |
| | | | | 36 | 49 | 22.45 | 22.0±1 | 0.5 |
| | | | | 75 | 0 | 22.26 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 22.16 | 22.0±1 | 0.5 |
| | | | | 1 | 49 | 22.41 | 22.0±1 | 0.5 |
| | | | | 1 | 99 | 22.85 | 22.0±1 | 0.5 |
| | | | | 36 | 0 | 21.02 | 21.5±1 | 1.0 |
| | | | | 36 | 24 | 21.21 | 21.5±1 | 1.0 |
| | | | | 36 | 49 | 21.4 | 21.5±1 | 1.0 |
| | | | | 75 | 0 | 21.2 | 21.5±1 | 1.0 |
| | 21375 | 2562.5 | QPSK | 1 | 0 | 23.46 | 22.5±1 | / |
| | | | | 1 | 49 | 23.42 | 22.5±1 | / |
| | | | | 1 | 99 | 23.31 | 22.5±1 | / |
| | | | | 36 | 0 | 22.57 | 22.0±1 | 0.5 |
| | | | | 36 | 24 | 22.4 | 22.0±1 | 0.5 |
| | | | | 36 | 49 | 22.43 | 22.0±1 | 0.5 |
| | | | | 75 | 0 | 22.48 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 22.69 | 22.0±1 | 0.5 |
| | | | | 1 | 49 | 22.44 | 22.0±1 | 0.5 |
| | | | | 1 | 99 | 22.36 | 22.0±1 | 0.5 |
| | | | | 36 | 0 | 22.04 | 21.5±1 | 1.0 |
| | | | | 36 | 24 | 22.18 | 21.5±1 | 1.0 |
| | | | | 36 | 49 | 22.22 | 21.5±1 | 1.0 |
| | | | | 75 | 0 | 21.83 | 21.5±1 | 1.0 |

| BW(MHz) | Ch | Freq(MHz) | Mode | UL RB Allocation | UL RB Offset | Average Power (dbm) | Tune up limited(dBm) | MPR (dB) |
|---|---|---|---|---|---|---|---|---|
| 20MHz | 20850 | 2510 | QPSK | 1 | 0 | 23.36 | 22.5±1 | / |
| | | | | 1 | 49 | 23.21 | 22.5±1 | / |
| | | | | 1 | 99 | 23.35 | 22.5±1 | / |
| | | | | 50 | 0 | 22.78 | 22.0±1 | 0.5 |
| | | | | 50 | 24 | 22.68 | 22.0±1 | 0.5 |
| | | | | 50 | 49 | 22.56 | 22.0±1 | 0.5 |
| | | | | 100 | 0 | 22.16 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 22.99 | 22.0±1 | 0.5 |
| | | | | 1 | 49 | 22.21 | 22.0±1 | 0.5 |
| | | | | 1 | 99 | 22.07 | 22.0±1 | 0.5 |
| | | | | 50 | 0 | 21 | 21.5±1 | 1.0 |
| | | | | 50 | 24 | 20.7 | 21.5±1 | 1.0 |
| | | | | 50 | 49 | 20.57 | 21.5±1 | 1.0 |
| | | | | 100 | 0 | 20.79 | 21.5±1 | 1.0 |
| | 21100 | 2535 | QPSK | 1 | 0 | 23.02 | 22.5±1 | / |
| | | | | 1 | 49 | 23.25 | 22.5±1 | / |
| | | | | 1 | 99 | 23.36 | 22.5±1 | / |
| | | | | 50 | 0 | 22.84 | 22.0±1 | 0.5 |
| | | | | 50 | 24 | 22.74 | 22.0±1 | 0.5 |
| | | | | 50 | 49 | 22.55 | 22.0±1 | 0.5 |
| | | | | 100 | 0 | 22.17 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 22.2 | 22.0±1 | 0.5 |
| | | | | 1 | 49 | 22.47 | 22.0±1 | 0.5 |
| | | | | 1 | 99 | 22.67 | 22.0±1 | 0.5 |
| | | | | 50 | 0 | 20.94 | 21.5±1 | 1.0 |
| | | | | 50 | 24 | 21.12 | 21.5±1 | 1.0 |
| | | | | 50 | 49 | 21.44 | 21.5±1 | 1.0 |
| | | | | 100 | 0 | 21.15 | 21.5±1 | 1.0 |
| | 21350 | 2560 | QPSK | 1 | 0 | 23.46 | 22.5±1 | / |
| | | | | 1 | 49 | 23.23 | 22.5±1 | / |
| | | | | 1 | 99 | 23.17 | 22.5±1 | / |
| | | | | 50 | 0 | 22.53 | 22.0±1 | 0.5 |
| | | | | 50 | 24 | 22.69 | 22.0±1 | 0.5 |
| | | | | 50 | 49 | 22.29 | 22.0±1 | 0.5 |
| | | | | 100 | 0 | 21.85 | 22.0±1 | 0.5 |
| | | | 16QAM | 1 | 0 | 22.38 | 22.0±1 | 0.5 |
| | | | | 1 | 49 | 22.35 | 22.0±1 | 0.5 |
| | | | | 1 | 99 | 22.31 | 22.0±1 | 0.5 |
| | | | | 50 | 0 | 22.37 | 21.5±1 | 1.0 |
| | | | | 50 | 24 | 22.19 | 21.5±1 | 1.0 |
| | | | | 50 | 49 | 22.21 | 21.5±1 | 1.0 |
| | | | | 100 | 0 | 22.3 | 21.5±1 | 1.0 |

**ERP and EIRP**

**LTE Band 2**

| Frequency | Receiver Reading | Turn table Angle | RX Antenna | | Substituted | | | Absolute Level | Part 24E | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Height | Polar | SG Level | Cable | Antenna Gain | | Limit | Margin |
| (MHz) | (dBμV) | Degree | (m) | (H/V) | (dBm) | (dB) | (dB) | (dBm) | (dBm) | (dB) |
| LTE Band 2 Channel 18607 – 1.4MHz – QPSK | | | | | | | | | | |
| 1850.70 | 77.39 | 86 | 1.7 | H | 3.42 | 0.31 | 10.40 | 13.51 | 33 | -19.49 |
| 1850.70 | 84.24 | 133 | 1.6 | V | 10.96 | 0.31 | 10.40 | 21.05 | 33 | -11.95 |
| LTE Band 2 Channel 18900 – 1.4MHz – QPSK | | | | | | | | | | |
| 1880.00 | 78.65 | 292 | 2.4 | H | 4.80 | 0.31 | 10.40 | 14.89 | 33 | -18.11 |
| 1880.00 | 84.72 | 250 | 2.2 | V | 11.60 | 0.31 | 10.40 | 21.69 | 33 | -11.31 |
| LTE Band 2 Channel 19193 – 1.4MHz – QPSK | | | | | | | | | | |
| 1909.30 | 77.90 | 3 | 2.4 | H | 4.17 | 0.32 | 10.40 | 14.25 | 33 | -18.75 |
| 1909.30 | 84.28 | 238 | 1.8 | V | 11.32 | 0.32 | 10.40 | 21.40 | 33 | -11.60 |
| LTE Band 2 Channel 18607 – 1.4MHz – 16QAM | | | | | | | | | | |
| 1850.70 | 79.06 | 228 | 1.1 | H | 5.09 | 0.31 | 10.40 | 15.18 | 33 | -17.82 |
| 1850.70 | 84.18 | 177 | 1.2 | V | 10.90 | 0.31 | 10.40 | 20.99 | 33 | -12.01 |
| LTE Band 2 Channel 18900 – 1.4MHz – 16QAM | | | | | | | | | | |
| 1880.00 | 77.94 | 269 | 2.0 | H | 4.09 | 0.31 | 10.40 | 14.18 | 33 | -18.82 |
| 1880.00 | 84.10 | 253 | 1.1 | V | 10.98 | 0.31 | 10.40 | 21.07 | 33 | -11.93 |
| LTE Band 2 Channel 19193 – 1.4MHz – 16QAM | | | | | | | | | | |
| 1909.30 | 78.56 | 157 | 1.8 | H | 4.83 | 0.32 | 10.40 | 14.91 | 33 | -18.09 |
| 1909.30 | 84.34 | 201 | 1.7 | V | 11.38 | 0.32 | 10.40 | 21.46 | 33 | -11.54 |
| LTE Band 2 Channel 18615 – 3MHz – QPSK | | | | | | | | | | |
| 1851.50 | 79.20 | 91 | 1.5 | H | 5.23 | 0.31 | 10.40 | 15.32 | 33 | -17.68 |
| 1851.50 | 84.94 | 144 | 2.2 | V | 11.66 | 0.31 | 10.40 | 21.75 | 33 | -11.25 |
| LTE Band 2 Channel 18900 – 3MHz – QPSK | | | | | | | | | | |
| 1880.00 | 77.95 | 244 | 2.3 | H | 4.10 | 0.31 | 10.40 | 14.19 | 33 | -18.81 |
| 1880.00 | 84.44 | 10 | 1.5 | V | 11.32 | 0.31 | 10.40 | 21.41 | 33 | -11.59 |
| LTE Band 2 Channel 19185 – 3MHz – QPSK | | | | | | | | | | |
| 1908.50 | 78.71 | 335 | 1.3 | H | 4.98 | 0.32 | 10.40 | 15.06 | 33 | -17.94 |
| 1908.50 | 84.65 | 199 | 1.1 | V | 11.69 | 0.32 | 10.40 | 21.77 | 33 | -11.23 |
| LTE Band 2 Channel 18615 – 3MHz – 16QAM | | | | | | | | | | |
| 1851.50 | 77.80 | 103 | 1.3 | H | 3.83 | 0.31 | 10.40 | 13.92 | 33 | -19.08 |
| 1851.50 | 84.28 | 321 | 2.1 | V | 11.00 | 0.31 | 10.40 | 21.09 | 33 | -11.91 |
| LTE Band 2 Channel 18900 – 3MHz – 16QAM | | | | | | | | | | |
| 1880.00 | 76.52 | 51 | 1.5 | H | 2.67 | 0.31 | 10.40 | 12.76 | 33 | -20.24 |
| 1880.00 | 84.59 | 139 | 2.3 | V | 11.47 | 0.31 | 10.40 | 21.56 | 33 | -11.44 |
| LTE Band 2 Channel 19185 – 3MHz – 16QAM | | | | | | | | | | |
| 1908.50 | 78.53 | 207 | 2.1 | H | 4.80 | 0.32 | 10.40 | 14.88 | 33 | -18.12 |
| 1908.50 | 84.18 | 77 | 2.2 | V | 11.22 | 0.32 | 10.40 | 21.30 | 33 | -11.70 |
| LTE Band 2 Channel 18625 – 5MHz – QPSK | | | | | | | | | | |
| 1852.50 | 79.44 | 356 | 1.7 | H | 5.47 | 0.31 | 10.40 | 15.56 | 33 | -17.44 |
| 1852.50 | 84.14 | 218 | 1.3 | V | 10.86 | 0.31 | 10.40 | 20.95 | 33 | -12.05 |
| LTE Band 2 Channel 18900 – 5MHz – QPSK | | | | | | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1880.00 | 78.87 | 304 | 2.1 | H | 5.02 | 0.31 | 10.40 | 15.11 | 33 | -17.89 |
| 1880.00 | 84.28 | 143 | 2.5 | V | 11.16 | 0.31 | 10.40 | 21.25 | 33 | -11.75 |
| LTE Band 2 Channel 19175 – 5MHz – QPSK | | | | | | | | | | |
| 1907.50 | 79.52 | 113 | 1.5 | H | 5.79 | 0.32 | 10.40 | 15.87 | 33 | -17.13 |
| 1907.50 | 84.53 | 333 | 1.5 | V | 11.57 | 0.32 | 10.40 | 21.65 | 33 | -11.35 |
| LTE Band 2 Channel 18625 – 5MHz – 16QAM | | | | | | | | | | |
| 1852.50 | 77.04 | 7 | 2.3 | H | 3.07 | 0.31 | 10.40 | 13.16 | 33 | -19.84 |
| 1852.50 | 84.79 | 172 | 2.2 | V | 11.51 | 0.31 | 10.40 | 21.60 | 33 | -11.40 |
| LTE Band 2 Channel 18900 – 5MHz – 16QAM | | | | | | | | | | |
| 1880.00 | 76.15 | 222 | 1.7 | H | 2.30 | 0.31 | 10.40 | 12.39 | 33 | -20.61 |
| 1880.00 | 84.01 | 357 | 2.2 | V | 10.89 | 0.31 | 10.40 | 20.98 | 33 | -12.02 |
| LTE Band 2 Channel 19175 – 5MHz – 16QAM | | | | | | | | | | |
| 1907.50 | 76.57 | 67 | 1.7 | H | 2.84 | 0.32 | 10.40 | 12.92 | 33 | -20.08 |
| 1907.50 | 84.18 | 28 | 1.1 | V | 11.22 | 0.32 | 10.40 | 21.30 | 33 | -11.70 |
| LTE Band 2 Channel 18650 – 10MHz – QPSK | | | | | | | | | | |
| 1855.00 | 76.66 | 212 | 1.8 | H | 2.69 | 0.31 | 10.40 | 12.78 | 33 | -20.22 |
| 1855.00 | 84.39 | 47 | 2.1 | V | 11.11 | 0.31 | 10.40 | 21.20 | 33 | -11.80 |
| LTE Band 2 Channel 18900 – 10MHz – QPSK | | | | | | | | | | |
| 1880.00 | 79.76 | 3 | 1.3 | H | 5.91 | 0.31 | 10.40 | 16.00 | 33 | -17.00 |
| 1880.00 | 84.09 | 333 | 2.3 | V | 10.97 | 0.31 | 10.40 | 21.06 | 33 | -11.94 |
| LTE Band 2 Channel 19150 – 10MHz – QPSK | | | | | | | | | | |
| 1905.00 | 77.80 | 290 | 1.5 | H | 4.07 | 0.32 | 10.40 | 14.15 | 33 | -18.85 |
| 1905.00 | 84.55 | 157 | 1.8 | V | 11.59 | 0.32 | 10.40 | 21.67 | 33 | -11.33 |
| LTE Band 2 Channel 18650 – 10MHz – 16QAM | | | | | | | | | | |
| 1855.00 | 77.06 | 142 | 1.7 | H | 3.09 | 0.31 | 10.40 | 13.18 | 33 | -19.82 |
| 1855.00 | 84.76 | 296 | 1.2 | V | 11.48 | 0.31 | 10.40 | 21.57 | 33 | -11.43 |
| LTE Band 2 Channel 18900 – 10MHz – 16QAM | | | | | | | | | | |
| 1880.00 | 78.79 | 290 | 1.8 | H | 4.94 | 0.31 | 10.40 | 15.03 | 33 | -17.97 |
| 1880.00 | 84.08 | 278 | 1.4 | V | 10.96 | 0.31 | 10.40 | 21.05 | 33 | -11.95 |
| LTE Band 2 Channel 19150 – 10MHz – 16QAM | | | | | | | | | | |
| 1905.00 | 78.04 | 326 | 1.3 | H | 4.31 | 0.32 | 10.40 | 14.39 | 33 | -18.61 |
| 1905.00 | 84.32 | 160 | 1.8 | V | 11.36 | 0.32 | 10.40 | 21.44 | 33 | -11.56 |
| LTE Band 2 Channel 18675 – 15MHz – QPSK | | | | | | | | | | |
| 1857.50 | 78.47 | 232 | 1.5 | H | 4.50 | 0.31 | 10.40 | 14.59 | 33 | -18.41 |
| 1857.50 | 84.19 | 92 | 1.5 | V | 10.91 | 0.31 | 10.40 | 21.00 | 33 | -12.00 |
| LTE Band 2 Channel 18900 – 15MHz – QPSK | | | | | | | | | | |
| 1880.00 | 76.11 | 15 | 1.9 | H | 2.26 | 0.31 | 10.40 | 12.35 | 33 | -20.65 |
| 1880.00 | 84.40 | 201 | 2.1 | V | 11.28 | 0.31 | 10.40 | 21.37 | 33 | -11.63 |
| LTE Band 2 Channel 19125 – 15MHz – QPSK | | | | | | | | | | |
| 1902.50 | 78.83 | 344 | 1.1 | H | 5.10 | 0.32 | 10.40 | 15.18 | 33 | -17.82 |
| 1902.50 | 84.14 | 83 | 2.3 | V | 11.18 | 0.32 | 10.40 | 21.26 | 33 | -11.74 |
| LTE Band 2 Channel 18675 – 15MHz – 16QAM | | | | | | | | | | |
| 1857.50 | 79.15 | 179 | 1.2 | H | 5.18 | 0.31 | 10.40 | 15.27 | 33 | -17.73 |
| 1857.50 | 84.08 | 49 | 1.6 | V | 10.80 | 0.31 | 10.40 | 20.89 | 33 | -12.11 |
| LTE Band 2 Channel 18900 – 15MHz – 16QAM | | | | | | | | | | |
| 1880.00 | 77.44 | 314 | 1.5 | H | 3.59 | 0.31 | 10.40 | 13.68 | 33 | -19.32 |
| 1880.00 | 84.44 | 19 | 2.1 | V | 11.32 | 0.31 | 10.40 | 21.41 | 33 | -11.59 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| LTE Band 2 Channel 19125 – 15MHz – 16QAM | | | | | | | | | | |
| 1902.50 | 76.86 | 151 | 1.8 | H | 3.13 | 0.32 | 10.40 | 13.21 | 33 | -19.79 |
| 1902.50 | 84.68 | 126 | 1.8 | V | 11.72 | 0.32 | 10.40 | 21.80 | 33 | -11.20 |
| LTE Band 2 Channel 18700 – 20MHz – QPSK | | | | | | | | | | |
| 1860.00 | 78.12 | 360 | 2.1 | H | 4.15 | 0.31 | 10.40 | 14.24 | 33 | -18.76 |
| 1860.00 | 84.62 | 231 | 1.7 | V | 11.34 | 0.31 | 10.40 | 21.43 | 33 | -11.57 |
| LTE Band 2 Channel 18900 – 20MHz – QPSK | | | | | | | | | | |
| 1880.00 | 77.78 | 243 | 2.0 | H | 3.93 | 0.31 | 10.40 | 14.02 | 33 | -18.98 |
| 1880.00 | 84.91 | 154 | 2.4 | V | 11.79 | 0.31 | 10.40 | **21.88** | 33 | -11.12 |
| LTE Band 2 Channel 19100 – 20MHz – QPSK | | | | | | | | | | |
| 1900.00 | 77.66 | 32 | 1.3 | H | 3.93 | 0.32 | 10.40 | 14.01 | 33 | -18.99 |
| 1900.00 | 84.43 | 174 | 2.1 | V | 11.47 | 0.32 | 10.40 | 21.55 | 33 | -11.45 |
| LTE Band 2 Channel 18670 – 20MHz – 16QAM | | | | | | | | | | |
| 1860.00 | 76.41 | 155 | 1.9 | H | 2.44 | 0.31 | 10.40 | 12.53 | 33 | -20.47 |
| 1860.00 | 84.65 | 14 | 1.7 | V | 11.37 | 0.31 | 10.40 | 21.46 | 33 | -11.54 |
| LTE Band 2 Channel 18900 – 20MHz – 16QAM | | | | | | | | | | |
| 1880.00 | 77.95 | 202 | 1.5 | H | 4.10 | 0.31 | 10.40 | 14.19 | 33 | -18.81 |
| 1880.00 | 84.79 | 107 | 2.0 | V | 11.67 | 0.31 | 10.40 | **21.76** | 33 | -11.24 |
| LTE Band 2 Channel 19100 – 20MHz – 16QAM | | | | | | | | | | |
| 1900.00 | 78.62 | 6 | 1.8 | H | 4.89 | 0.32 | 10.40 | 14.97 | 33 | -18.03 |
| 1900.00 | 84.38 | 192 | 1.6 | V | 11.42 | 0.32 | 10.40 | 21.50 | 33 | -11.50 |

**LTE Band 4**

| Frequency | Receiver Reading | Turn table Angle | RX Antenna | | Substituted | | | Absolute Level | Part 27 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Height | Polar | SG Level | Cable | Antenna Gain | | Limit | Margin |
| (MHz) | (dBμV) | Degree | (m) | (H/V) | (dBm) | (dB) | (dB) | (dBm) | (dBm) | (dB) |
| LTE Band 4 Channel 19957 – 1.4MHz – QPSK | | | | | | | | | | |
| 1710.70 | 78.09 | 102 | 2.5 | H | 3.98 | 0.30 | 9.40 | 13.08 | 30 | -16.92 |
| 1710.70 | 84.45 | 84 | 2.2 | V | 10.92 | 0.30 | 9.40 | 20.02 | 30 | -9.98 |
| LTE Band 4 Channel 20175 – 1.4MHz – QPSK | | | | | | | | | | |
| 1732.50 | 76.07 | 311 | 1.7 | H | 1.96 | 0.30 | 9.40 | 11.06 | 30 | -18.94 |
| 1732.50 | 84.56 | 30 | 2.3 | V | 11.03 | 0.30 | 9.40 | 20.13 | 30 | -9.87 |
| LTE Band 4 Channel 20393 – 1.4MHz – QPSK | | | | | | | | | | |
| 1754.30 | 76.54 | 97 | 1.0 | H | 2.43 | 0.30 | 9.40 | 11.53 | 30 | -18.47 |
| 1754.30 | 84.25 | 283 | 2.4 | V | 10.72 | 0.30 | 9.40 | 19.82 | 30 | -10.18 |
| LTE Band 4 Channel 19957 – 1.4MHz – 16QAM | | | | | | | | | | |
| 1710.70 | 77.56 | 190 | 1.9 | H | 3.45 | 0.30 | 9.40 | 12.55 | 30 | -17.45 |
| 1710.70 | 84.75 | 42 | 1.1 | V | 11.22 | 0.30 | 9.40 | 20.32 | 30 | -9.68 |
| LTE Band 4 Channel 20175 – 1.4MHz – 16QAM | | | | | | | | | | |
| 1732.50 | 76.75 | 322 | 2.4 | H | 2.64 | 0.30 | 9.40 | 11.74 | 30 | -18.26 |
| 1732.50 | 84.51 | 228 | 2.3 | V | 10.98 | 0.30 | 9.40 | 20.08 | 30 | -9.92 |
| LTE Band 4 Channel 20393 – 1.4MHz – 16QAM | | | | | | | | | | |
| 1754.30 | 77.43 | 342 | 1.7 | H | 3.32 | 0.30 | 9.40 | 12.42 | 30 | -17.58 |
| 1754.30 | 84.78 | 199 | 1.2 | V | 11.25 | 0.30 | 9.40 | 20.35 | 30 | -9.65 |
| LTE Band 4 Channel 19965 – 3MHz – QPSK | | | | | | | | | | |
| 1711.50 | 78.19 | 123 | 1.6 | H | 4.08 | 0.30 | 9.40 | 13.18 | 30 | -16.82 |

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|---|---|---|---|---|---|---|---|---|---|---|
| 1711.50 | 84.94 | 216 | 1.5 | V | 11.41 | 0.30 | 9.40 | 20.51 | 30 | -9.49 |
| LTE Band 4 Channel 20175 – 3MHz – QPSK | | | | | | | | | | |
| 1732.50 | 78.00 | 112 | 2.0 | H | 3.89 | 0.30 | 9.40 | 12.99 | 30 | -17.01 |
| 1732.50 | 84.09 | 54 | 2.0 | V | 10.56 | 0.30 | 9.40 | 19.66 | 30 | -10.34 |
| LTE Band 4 Channel 20385 – 3MHz – QPSK | | | | | | | | | | |
| 1753.50 | 76.33 | 124 | 1.5 | H | 2.22 | 0.30 | 9.40 | 11.32 | 30 | -18.68 |
| 1753.50 | 84.68 | 94 | 1.1 | V | 11.15 | 0.30 | 9.40 | 20.25 | 30 | -9.75 |
| LTE Band 4 Channel 19965 – 3MHz – 16QAM | | | | | | | | | | |
| 1711.50 | 76.19 | 203 | 2.0 | H | 2.08 | 0.30 | 9.40 | 11.18 | 30 | -18.82 |
| 1711.50 | 84.25 | 62 | 2.3 | V | 10.72 | 0.30 | 9.40 | 19.82 | 30 | -10.18 |
| LTE Band 4 Channel 20175 – 3MHz – 16QAM | | | | | | | | | | |
| 1732.50 | 76.43 | 196 | 2.5 | H | 2.32 | 0.30 | 9.40 | 11.42 | 30 | -18.58 |
| 1732.50 | 84.69 | 222 | 1.6 | V | 11.16 | 0.30 | 9.40 | 20.26 | 30 | -9.74 |
| LTE Band 4 Channel 20385 – 3MHz – 16QAM | | | | | | | | | | |
| 1753.50 | 79.58 | 209 | 1.2 | H | 5.47 | 0.30 | 9.40 | 14.57 | 30 | -15.43 |
| 1753.50 | 84.74 | 143 | 1.1 | V | 11.21 | 0.30 | 9.40 | 20.31 | 30 | -9.69 |
| LTE Band 4 Channel 19975 – 5MHz – QPSK | | | | | | | | | | |
| 1712.50 | 76.46 | 254 | 2.3 | H | 2.35 | 0.30 | 9.40 | 11.45 | 30 | -18.55 |
| 1712.50 | 84.37 | 275 | 1.4 | V | 10.84 | 0.30 | 9.40 | 19.94 | 30 | -10.06 |
| LTE Band 4 Channel 20175 – 5MHz – QPSK | | | | | | | | | | |
| 1732.50 | 79.40 | 336 | 1.7 | H | 5.29 | 0.30 | 9.40 | 14.39 | 30 | -15.61 |
| 1732.50 | 84.48 | 128 | 1.4 | V | 10.95 | 0.30 | 9.40 | 20.05 | 30 | -9.95 |
| LTE Band 4 Channel 20375 – 5MHz – QPSK | | | | | | | | | | |
| 1752.50 | 78.40 | 186 | 1.9 | H | 4.29 | 0.30 | 9.40 | 13.39 | 30 | -16.61 |
| 1752.50 | 84.23 | 9 | 1.3 | V | 10.70 | 0.30 | 9.40 | 19.80 | 30 | -10.20 |
| LTE Band 4 Channel 19975 – 5MHz – 16QAM | | | | | | | | | | |
| 1712.50 | 78.10 | 56 | 1.2 | H | 3.99 | 0.30 | 9.40 | 13.09 | 30 | -16.91 |
| 1712.50 | 84.84 | 148 | 2.0 | V | 11.31 | 0.30 | 9.40 | 20.41 | 30 | -9.59 |
| LTE Band 4 Channel 20175 – 5MHz – 16QAM | | | | | | | | | | |
| 1732.50 | 76.43 | 196 | 2.5 | H | 2.32 | 0.30 | 9.40 | 11.42 | 30 | -18.58 |
| 1732.50 | 84.69 | 222 | 1.6 | V | 11.16 | 0.30 | 9.40 | 20.26 | 30 | -9.74 |
| LTE Band 4 Channel 20375 – 5MHz – 16QAM | | | | | | | | | | |
| 1752.50 | 78.11 | 324 | 2.5 | H | 4.00 | 0.30 | 9.40 | 13.10 | 30 | -16.90 |
| 1752.50 | 84.80 | 200 | 2.2 | V | 11.27 | 0.30 | 9.40 | 20.37 | 30 | -9.63 |
| LTE Band 4 Channel 20000 – 10MHz – QPSK | | | | | | | | | | |
| 1715.00 | 76.26 | 244 | 2.0 | H | 2.15 | 0.30 | 9.40 | 11.25 | 30 | -18.75 |
| 1715.00 | 84.03 | 236 | 2.0 | V | 10.50 | 0.30 | 9.40 | 19.60 | 30 | -10.40 |
| LTE Band 4 Channel 20175 – 10MHz – QPSK | | | | | | | | | | |
| 1732.50 | 76.14 | 245 | 2.0 | H | 2.03 | 0.31 | 10.40 | 12.12 | 30 | -17.88 |
| 1732.50 | 84.24 | 277 | 1.3 | V | 10.71 | 0.31 | 10.40 | 20.80 | 30 | -9.20 |
| LTE Band 4 Channel 20350 – 10MHz – QPSK | | | | | | | | | | |
| 1750.00 | 77.91 | 343 | 1.6 | H | 3.80 | 0.30 | 9.40 | 12.90 | 30 | -17.10 |
| 1750.00 | 84.77 | 67 | 1.5 | V | 11.24 | 0.30 | 9.40 | 20.34 | 30 | -9.66 |
| LTE Band 4 Channel 20000 – 10MHz – 16QAM | | | | | | | | | | |
| 1715.00 | 76.43 | 176 | 1.7 | H | 2.32 | 0.30 | 9.40 | 11.42 | 30 | -18.58 |
| 1715.00 | 84.88 | 210 | 2.1 | V | 11.35 | 0.30 | 9.40 | 20.45 | 30 | -9.55 |
| LTE Band 4 Channel 20175 – 10MHz – 16QAM | | | | | | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1732.50 | 79.40 | 336 | 1.7 | H | 5.29 | 0.30 | 9.40 | 14.39 | 30 | -15.61 |
| 1732.50 | 84.48 | 128 | 1.4 | V | 10.95 | 0.30 | 9.40 | 20.05 | 30 | -9.95 |
| LTE Band 4 Channel 20350 – 10MHz – 16QAM | | | | | | | | | | |
| 1750.00 | 78.58 | 3 | 1.6 | H | 4.47 | 0.30 | 9.40 | 13.57 | 30 | -16.43 |
| 1750.00 | 84.96 | 349 | 1.3 | V | 11.43 | 0.30 | 9.40 | 20.53 | 30 | -9.47 |
| LTE Band 4 Channel 20025 – 15MHz – QPSK | | | | | | | | | | |
| 1717.50 | 77.23 | 229 | 1.3 | H | 3.12 | 0.31 | 10.40 | 13.21 | 30 | -16.79 |
| 1717.50 | 84.68 | 194 | 1.3 | V | 11.15 | 0.31 | 10.40 | 21.24 | 30 | -8.76 |
| LTE Band 4 Channel 20175 – 15MHz – QPSK | | | | | | | | | | |
| 1732.50 | 77.02 | 136 | 1.6 | H | 2.91 | 0.31 | 10.40 | 13.00 | 30 | -17.00 |
| 1732.50 | 84.06 | 67 | 2.3 | V | 10.53 | 0.31 | 10.40 | 20.62 | 30 | -9.38 |
| LTE Band 4 Channel 20325 – 15MHz – QPSK | | | | | | | | | | |
| 1747.50 | 77.82 | 340 | 1.8 | H | 3.71 | 0.32 | 10.40 | 13.79 | 30 | -16.21 |
| 1747.50 | 84.36 | 323 | 2.1 | V | 10.83 | 0.32 | 10.40 | 20.91 | 30 | -9.09 |
| LTE Band 4 Channel 20025 – 15MHz – 16QAM | | | | | | | | | | |
| 1717.50 | 78.10 | 56 | 1.2 | H | 3.99 | 0.30 | 9.40 | 13.09 | 30 | -16.91 |
| 1717.50 | 84.84 | 148 | 2.0 | V | 11.31 | 0.30 | 9.40 | 20.41 | 30 | -9.59 |
| LTE Band 4 Channel 20175 – 15MHz – 16QAM | | | | | | | | | | |
| 1732.50 | 79.47 | 120 | 1.6 | H | 5.36 | 0.31 | 10.40 | 15.45 | 30 | -14.55 |
| 1732.50 | 84.37 | 224 | 2.1 | V | 10.84 | 0.31 | 10.40 | 20.93 | 30 | -9.07 |
| LTE Band 4 Channel 20325 – 15MHz – 16QAM | | | | | | | | | | |
| 1747.50 | 78.53 | 192 | 2.1 | H | 4.42 | 0.32 | 10.40 | 14.50 | 30 | -15.50 |
| 1747.50 | 84.07 | 111 | 1.1 | V | 10.54 | 0.32 | 10.40 | 20.62 | 30 | -9.38 |
| LTE Band 4 Channel 20050 – 20MHz – QPSK | | | | | | | | | | |
| 1720.00 | 78.03 | 247 | 1.9 | H | 3.92 | 0.31 | 10.40 | 14.01 | 30 | -15.99 |
| 1720.00 | 84.94 | 75 | 1.3 | V | 11.41 | 0.31 | 10.40 | **21.50** | 30 | -8.50 |
| LTE Band 4 Channel 20175 – 20MHz – QPSK | | | | | | | | | | |
| 1732.50 | 78.03 | 317 | 1.6 | H | 3.92 | 0.31 | 10.40 | 14.01 | 30 | -15.99 |
| 1732.50 | 84.13 | 175 | 1.8 | V | 10.60 | 0.31 | 10.40 | 20.69 | 30 | -9.31 |
| LTE Band 4 Channel 20300 – 20MHz – QPSK | | | | | | | | | | |
| 1745.00 | 76.77 | 265 | 2.2 | H | 2.66 | 0.32 | 10.40 | 12.74 | 30 | -17.26 |
| 1745.00 | 84.23 | 342 | 1.5 | V | 10.70 | 0.32 | 10.40 | 20.78 | 30 | -9.22 |
| LTE Band 4 Channel 20050 – 20MHz – 16QAM | | | | | | | | | | |
| 1720.00 | 76.65 | 347 | 1.6 | H | 2.54 | 0.31 | 10.40 | 12.63 | 30 | -17.37 |
| 1720.00 | 84.44 | 349 | 2.1 | V | 10.91 | 0.31 | 10.40 | 21.00 | 30 | -9.00 |
| LTE Band 4 Channel 20175 – 20MHz – 16QAM | | | | | | | | | | |
| 1732.50 | 77.33 | 304 | 1.0 | H | 3.22 | 0.31 | 10.40 | 13.31 | 30 | -16.69 |
| 1732.50 | 84.09 | 260 | 1.8 | V | 10.56 | 0.31 | 10.40 | 20.65 | 30 | -9.35 |
| LTE Band 4 Channel 20300 – 20MHz – 16QAM | | | | | | | | | | |
| 1745.00 | 77.98 | 171 | 2.0 | H | 3.87 | 0.32 | 10.40 | 13.95 | 30 | -16.05 |
| 1745.00 | 84.58 | 209 | 2.1 | V | 11.05 | 0.32 | 10.40 | **21.13** | 30 | -8.87 |

**LTE Band 7**

| Frequency | Receiver Reading | Turn table Angle | RX Antenna | | Substituted | | | Absolute Level | Part 27 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Height | Polar | SG Level | Cable | Antenna Gain | | Limit | Margin |
| (MHz) | (dBμV) | Degree | (m) | (H/V) | (dBm) | (dB) | (dB) | (dBm) | (dBm) | (dB) |
| LTE Band 7 Channel 20775 – 5MHz – QPSK | | | | | | | | | | |
| 2502.50 | 77.05 | 270 | 1.4 | H | 3.05 | 0.43 | 10.60 | 13.22 | 33 | -19.78 |
| 2502.50 | 81.60 | 273 | 1.4 | V | 11.32 | 0.43 | 10.60 | 21.49 | 33 | -11.51 |
| LTE Band 7 Channel 21100 – 5MHz – QPSK | | | | | | | | | | |
| 2535.00 | 77.12 | 216 | 2.3 | H | 3.12 | 0.43 | 10.60 | 13.29 | 33 | -19.71 |
| 2535.00 | 81.13 | 309 | 1.1 | V | 10.85 | 0.43 | 10.60 | 21.02 | 33 | -11.98 |
| LTE Band 7 Channel 21425 – 5MHz – QPSK | | | | | | | | | | |
| 2567.50 | 77.50 | 142 | 2.2 | H | 3.39 | 0.43 | 10.60 | 13.56 | 33 | -19.44 |
| 2567.50 | 81.41 | 162 | 2.1 | V | 11.22 | 0.43 | 10.60 | 21.39 | 33 | -11.61 |
| LTE Band 7 Channel 20775 – 5MHz – 16QAM | | | | | | | | | | |
| 2502.50 | 76.29 | 110 | 1.8 | H | 2.29 | 0.31 | 10.40 | 12.38 | 33 | -20.62 |
| 2502.50 | 81.55 | 353 | 1.6 | V | 11.27 | 0.31 | 10.40 | 21.36 | 33 | -11.64 |
| LTE Band 7 Channel 21100 – 5MHz – 16QAM | | | | | | | | | | |
| 2535.00 | 76.61 | 26 | 1.6 | H | 2.61 | 0.31 | 10.40 | 12.70 | 33 | -2030 |
| 2535.00 | 81.64 | 72 | 2.4 | V | 11.36 | 0.31 | 10.40 | 21.45 | 33 | -11.55 |
| LTE Band 7 Channel 21425 – 5MHz – 16QAM | | | | | | | | | | |
| 2567.50 | 77.57 | 280 | 1.3 | H | 3.46 | 0.32 | 10.40 | 13.54 | 33 | -19.46 |
| 2567.50 | 81.46 | 296 | 2.4 | V | 11.27 | 0.32 | 10.40 | 21.35 | 33 | -11.65 |
| LTE Band 7 Channel 20800 – 10MHz – QPSK | | | | | | | | | | |
| 2505.00 | 76.40 | 116 | 1.3 | H | 2.40 | 0.31 | 10.40 | 12.49 | 33 | -20.51 |
| 2505.00 | 81.54 | 303 | 1.3 | V | 11.26 | 0.31 | 10.40 | 21.35 | 33 | -11.65 |
| LTE Band 7 Channel 21100 – 10MHz – QPSK | | | | | | | | | | |
| 2535.00 | 76.71 | 118 | 1.6 | H | 2.71 | 0.31 | 10.40 | 12.80 | 33 | -20.20 |
| 2535.00 | 81.68 | 107 | 2.3 | V | 11.40 | 0.31 | 10.40 | 21.49 | 33 | -11.51 |
| LTE Band 7 Channel 21400 – 10MHz – QPSK | | | | | | | | | | |
| 2565.00 | 79.11 | 73 | 1.3 | H | 5.00 | 0.32 | 10.40 | 15.08 | 33 | -17.92 |
| 2565.00 | 81.14 | 54 | 2.3 | V | 10.95 | 0.32 | 10.40 | 21.03 | 33 | -11.97 |
| LTE Band 7 Channel 20800 – 10MHz – 16QAM | | | | | | | | | | |
| 2505.00 | 78.80 | 289 | 1.7 | H | 4.80 | 0.31 | 10.40 | 14.89 | 33 | -18.11 |
| 2505.00 | 81.02 | 192 | 1.5 | V | 10.74 | 0.31 | 10.40 | 20.83 | 33 | -12.17 |
| LTE Band 7 Channel 21100 – 10MHz – 16QAM | | | | | | | | | | |
| 2535.00 | 76.89 | 92 | 1.2 | H | 2.89 | 0.31 | 10.40 | 12.98 | 33 | -20.02 |
| 2535.00 | 81.02 | 35 | 1.2 | V | 10.74 | 0.31 | 10.40 | 20.83 | 33 | -12.17 |
| LTE Band 7 Channel 21400 – 10MHz – 16QAM | | | | | | | | | | |
| 2565.00 | 78.89 | 86 | 1.3 | H | 4.78 | 0.32 | 10.40 | 14.86 | 33 | -18.14 |
| 2565.00 | 81.36 | 168 | 1.7 | V | 11.17 | 0.32 | 10.40 | 21.25 | 33 | -11.75 |
| LTE Band 7 Channel 20825 – 15MHz – QPSK | | | | | | | | | | |
| 2507.50 | 77.48 | 201 | 1.4 | H | 3.48 | 0.31 | 10.40 | 13.57 | 33 | -19.43 |
| 2507.50 | 81.11 | 141 | 2.3 | V | 10.83 | 0.31 | 10.40 | 20.92 | 33 | -12.08 |
| LTE Band 7 Channel 21100 – 15MHz – QPSK | | | | | | | | | | |
| 2535.00 | 78.50 | 128 | 2.0 | H | 4.50 | 0.31 | 10.40 | 14.59 | 33 | -18.41 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 2535.00 | 81.83 | 5 | 2.3 | V | 11.55 | 0.31 | 10.40 | 21.64 | 33 | -11.36 |
| LTE Band 7 Channel 21375 – 15MHz – QPSK | | | | | | | | | | |
| 2562.50 | 77.09 | 229 | 2.5 | H | 2.98 | 0.32 | 10.40 | 13.06 | 33 | -19.94 |
| 2562.50 | 81.18 | 148 | 2.3 | V | 10.99 | 0.32 | 10.40 | 21.07 | 33 | -11.93 |
| LTE Band 7 Channel 20825 – 15MHz – 16QAM | | | | | | | | | | |
| 2507.50 | 78.88 | 209 | 1.2 | H | 4.88 | 0.31 | 10.40 | 14.97 | 33 | -18.03 |
| 2507.50 | 81.04 | 56 | 1.9 | V | 10.76 | 0.31 | 10.40 | 20.85 | 33 | -12.15 |
| LTE Band 7 Channel 21100 – 15MHz – 16QAM | | | | | | | | | | |
| 2535.00 | 78.68 | 196 | 1.7 | H | 4.68 | 0.31 | 10.40 | 14.77 | 33 | -18.23 |
| 2535.00 | 81.43 | 355 | 1.6 | V | 11.15 | 0.31 | 10.40 | 21.24 | 33 | -11.76 |
| LTE Band 7 Channel 21375 – 15MHz – 16QAM | | | | | | | | | | |
| 2562.50 | 76.54 | 277 | 1.9 | H | 2.43 | 0.32 | 10.40 | 12.51 | 33 | -20.49 |
| 2562.50 | 81.42 | 177 | 1.6 | V | 11.23 | 0.32 | 10.40 | 21.31 | 33 | -11.69 |
| LTE Band 7 Channel 20850 – 20MHz – QPSK | | | | | | | | | | |
| 2510.00 | 79.83 | 190 | 2.0 | H | 5.83 | 0.31 | 10.40 | 15.92 | 33 | -17.08 |
| 2510.00 | 81.90 | 39 | 1.5 | V | 11.62 | 0.31 | 10.40 | 21.71 | 33 | -11.29 |
| LTE Band 7 Channel 21100 – 20MHz – QPSK | | | | | | | | | | |
| 2535.00 | 79.67 | 142 | 1.2 | H | 5.67 | 0.31 | 10.40 | 15.76 | 33 | -17.24 |
| 2535.00 | 81.37 | 196 | 1.2 | V | 11.09 | 0.31 | 10.40 | 21.18 | 33 | -1182 |
| LTE Band 7 Channel 21350 – 20MHz – QPSK | | | | | | | | | | |
| 2560.00 | 78.16 | 67 | 2.4 | H | 4.05 | 0.32 | 10.40 | 14.13 | 33 | -18.87 |
| 2560.00 | 81.93 | 331 | 2.2 | V | 11.74 | 0.32 | 10.40 | **21.82** | 33 | -11.18 |
| LTE Band 7 Channel 20850 – 20MHz – 16QAM | | | | | | | | | | |
| 2510.00 | 78.98 | 239 | 1.1 | H | 4.98 | 0.43 | 10.60 | 15.15 | 33 | -17.85 |
| 2510.00 | 81.08 | 297 | 2.0 | V | 10.80 | 0.43 | 10.60 | 20.97 | 33 | -12.03 |
| LTE Band 7 Channel 21100 – 20MHz – 16QAM | | | | | | | | | | |
| 2535.00 | 76.40 | 40 | 1.8 | H | 2.40 | 0.43 | 10.60 | 12.57 | 33 | -20.43 |
| 2535.00 | 81.76 | 229 | 1.3 | V | 11.48 | 0.43 | 10.60 | **21.65** | 33 | -11.35 |
| LTE Band 7 Channel 21350 – 20MHz – 16QAM | | | | | | | | | | |
| 2560.00 | 77.72 | 82 | 2.0 | H | 3.61 | 0.43 | 10.60 | 13.78 | 33 | -19.22 |
| 2560.00 | 81.41 | 270 | 1.4 | V | 11.22 | 0.43 | 10.60 | 21.39 | 33 | -11.61 |

# 9 Peak-to-Average Ratio

Test Requirement: 24.232 (d), 27.50(d)

Test Method: N/A

Test Mode: TX transmitting

## 9.1 EUT Operation

Operating Environment **:**

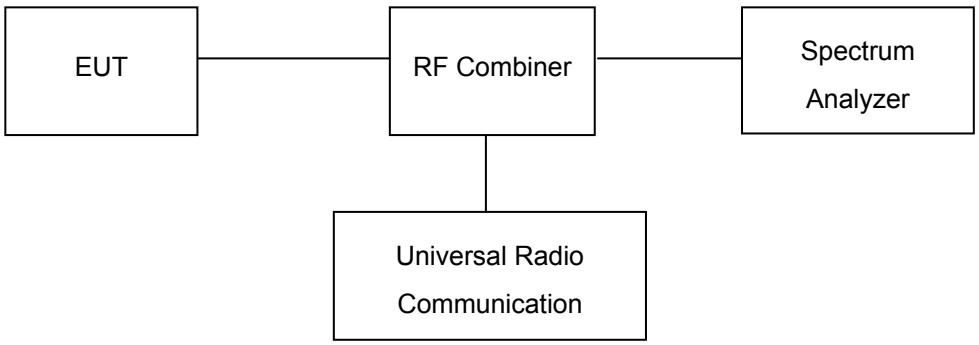
Temperature: 22.5 °C

Humidity: 52.3% RH

Atmospheric Pressure: 101.2kPa

## 9.2 Test Procedure

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. Set EUT to transmit at maximum output power.
3. When the duty cycle is less than 98%, then signal gating will be implemented on the spectrum analyzer by triggering from the system simulator.
4. Set the CCDF (Complementary Cumulative Distribution Function) option of the spectrum analyzer. Record the maximum PAPR level associated with a probability of 0.1%.




## 9.3 Test Result

PASS

**LTE Band**

Please refer to the Appendix Band 2/4//7 LTE Peak to Average Ratio.

# 10 BANDWIDTH

| | |
|---|---|
| Test Requirement: | FCC Part 2.1049, 24.238, 27.53(a) |
| Test Method: | TIA/EIA-603-D:2010 |
| | KDB971168 D01 v02r02 |
| Test Mode: | TX transmitting |

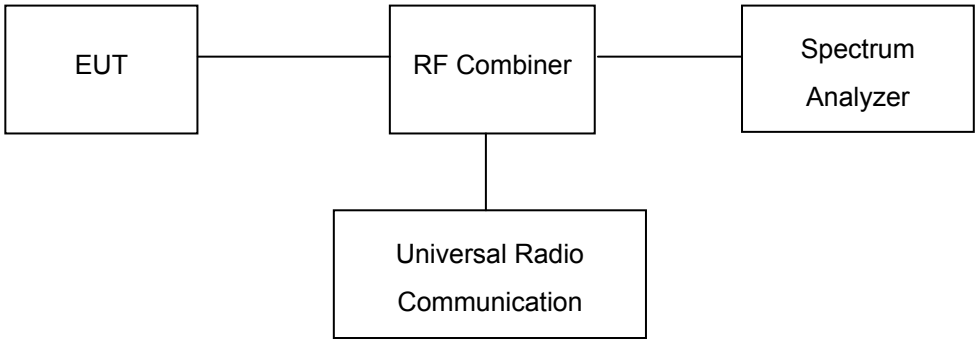
## 10.1 EUT Operation

Operating Environment **:**

| | |
|---|---|
| Temperature: | 22.5 °C |
| Humidity: | 52.3% RH |
| Atmospheric Pressure: | 101.2kPa |

## 10.2 Test Procedure

The RF output of the transmitter was connected to the wireless test set and the spectrum analyzer through sufficient attenuation.
The resolution bandwidth of the spectrum analyzer was set in the range of 1 to 5 % of the anticipated OBW and the 26 dB & 99%bandwidth was recorded.



## 10.3 Test Result

**LTE Band 2 (Part 24E):**

| BW(MHz) | Channel | Frequency (MHz) | Modulation | 99% Occupied Bandwidth (MHz) | 26 dB Bandwidth (MHz) |
|---|---|---|---|---|---|
| 1.4 | 18607 | 1850.7 | QPSK | 1.09 | 1.23 |
| | | | 16QAM | 1.09 | 1.25 |
| 1.4 | 18900 | 1880 | QPSK | 1.09 | 1.20 |
| | | | 16QAM | 1.09 | 1.18 |
| 1.4 | 19193 | 1909.3 | QPSK | 1.09 | 1.24 |
| | | | 16QAM | 1.09 | 1.24 |
| 3 | 18615 | 1851.5 | QPSK | 2.72 | 2.95 |
| | | | 16QAM | 2.72 | 2.95 |
| 3 | 18900 | 1880 | QPSK | 2.72 | 2.96 |
| | | | 16QAM | 2.72 | 2.96 |
| 3 | 19185 | 1908.5 | QPSK | 2.72 | 2.96 |
| | | | 16QAM | 2.72 | 2.96 |
| 5 | 18625 | 1852.5 | QPSK | 4.5 | 4.84 |
| | | | 16QAM | 4.5 | 4.82 |
| 5 | 18900 | 1880 | QPSK | 4.5 | 4.84 |
| | | | 16QAM | 4.49 | 4.84 |
| 5 | 19175 | 1907.5 | QPSK | 4.49 | 4.81 |
| | | | 16QAM | 4.49 | 4.81 |
| 10 | 18650 | 1855 | QPSK | 8.92 | 9.34 |
| | | | 16QAM | 8.91 | 9.37 |
| 10 | 18900 | 1880 | QPSK | 8.91 | 9.35 |
| | | | 16QAM | 8.91 | 9.31 |
| 10 | 19150 | 1905 | QPSK | 8.91 | 9.33 |
| | | | 16QAM | 8.9 | 9.33 |
| 15 | 18675 | 1857.5 | QPSK | 13.44 | 14.24 |
| | | | 16QAM | 13.44 | 14.23 |
| 15 | 18900 | 1880 | QPSK | 13.46 | 14.23 |
| | | | 16QAM | 13.44 | 14.23 |

| | | | | | |
|---|---|---|---|---|---|
| 15 | 19125 | 1902.5 | QPSK | 13.42 | 14.22 |
| | | | 16QAM | 13.43 | 14.23 |
| 20 | 18700 | 1860 | QPSK | 17.86 | 18.73 |
| | | | 16QAM | 17.85 | 18.74 |
| 20 | 18900 | 1880 | QPSK | 17.88 | 18.72 |
| | | | 16QAM | 17.87 | 18.74 |
| 20 | 19100 | 1900 | QPSK | 17.86 | 18.74 |
| | | | 16QAM | 17.87 | 18.75 |

**LTE Band 4 (Part 27):**

| BW(MHz) | Channel | Frequency (MHz) | Modulation | 99% Occupied Bandwidth (MHz) | 26 dB Bandwidth (MHz) |
|---|---|---|---|---|---|
| 1.4 | 19957 | 1710.7 | QPSK | 1.09 | 1.23 |
| | | | 16QAM | 1.09 | 1.25 |
| 1.4 | 2.175 | 1732.5 | QPSK | 1.09 | 1.24 |
| | | | 16QAM | 1.09 | 1.23 |
| 1.4 | 20393 | 1754.3 | QPSK | 1.09 | 1.24 |
| | | | 16QAM | 1.09 | 1.25 |
| 3 | 19965 | 1711.5 | QPSK | 2.72 | 2.96 |
| | | | 16QAM | 2.72 | 2.96 |
| 3 | 2.175 | 1732.5 | QPSK | 2.72 | 2.96 |
| | | | 16QAM | 2.73 | 2.96 |
| 3 | 2.385 | 1753.5 | QPSK | 2.73 | 2.96 |
| | | | 16QAM | 2.72 | 2.96 |
| 5 | 19975 | 1712.5 | QPSK | 4.5 | 4.85 |
| | | | 16QAM | 4.5 | 4.84 |
| 5 | 20175 | 1732.5 | QPSK | 4.5 | 4.85 |
| | | | 16QAM | 4.49 | 4.86 |
| 5 | 20375 | 1752.5 | QPSK | 4.5 | 4.82 |
| | | | 16QAM | 4.5 | 4.82 |
| 10 | 2000 | 1715 | QPSK | 8.93 | 9.34 |
| | | | 16QAM | 8.92 | 9.38 |

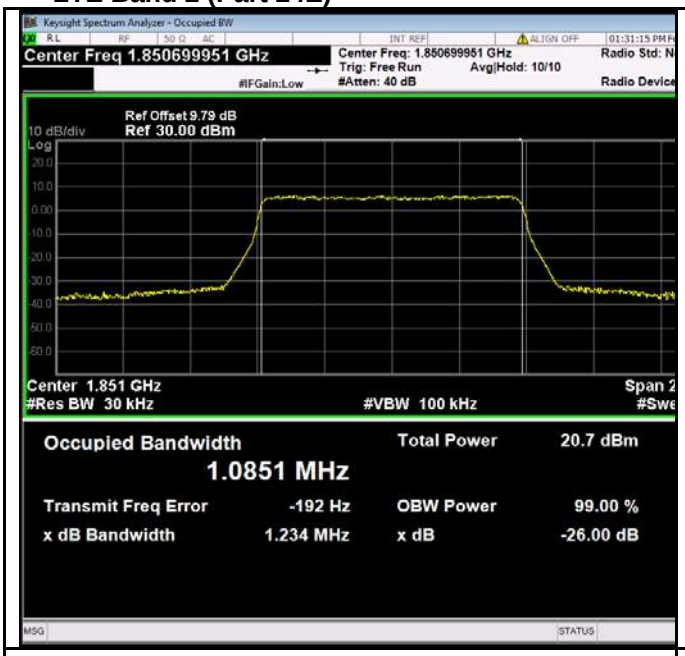
| | | | | | |
|---|---|---|---|---|---|
| 10 | 20175 | 1732.5 | QPSK | 8.92 | 9.37 |
| | | | 16QAM | 8.91 | 9.33 |
| 10 | 20350 | 1750 | QPSK | 8.93 | 9.35 |
| | | | 16QAM | 8.92 | 9.38 |
| 15 | 20025 | 1717.5 | QPSK | 13.47 | 14.25 |
| | | | 16QAM | 13.47 | 14.26 |
| 15 | 20175 | 1732.5 | QPSK | 13.45 | 14.24 |
| | | | 16QAM | 13.44 | 14.25 |
| 15 | 20325 | 1747.5 | QPSK | 13.47 | 14.26 |
| | | | 16QAM | 13.48 | 14.26 |
| 20 | 20050 | 1720 | QPSK | 17.90 | 18.75 |
| | | | 16QAM | 17.89 | 18.75 |
| 20 | 20175 | 1732.5 | QPSK | 17.86 | 18.75 |
| | | | 16QAM | 17.86 | 18.75 |
| 20 | 20300 | 1745 | QPSK | 17.91 | 18.76 |
| | | | 16QAM | 17.92 | 18.77 |

**LTE Band 7 (Part 27):**

| BW(MHz) | Channel | Frequency (MHz) | Modulation | 99% Occupied Bandwidth (MHz) | 26 dB Bandwidth (MHz) |
|---|---|---|---|---|---|
| 5 | 20775 | 2502.5 | QPSK | 4.5 | 4.86 |
| | | | 16QAM | 4.5 | 4.84 |
| 5 | 21100 | 2535 | QPSK | 4.51 | 4.84 |
| | | | 16QAM | 4.49 | 4.84 |
| 5 | 21425 | 2567.5 | QPSK | 4.5 | 4.83 |
| | | | 16QAM | 4.5 | 4.95 |
| 10 | 20850 | 2510 | QPSK | 8.93 | 9.4 |
| | | | 16QAM | 8.92 | 9.39 |
| 10 | 21100 | 2535 | QPSK | 8.92 | 9.38 |
| | | | 16QAM | 8.91 | 9.33 |
| 10 | 21400 | 2565 | QPSK | 8.93 | 9.49 |
| | | | 16QAM | 8.92 | 9.39 |

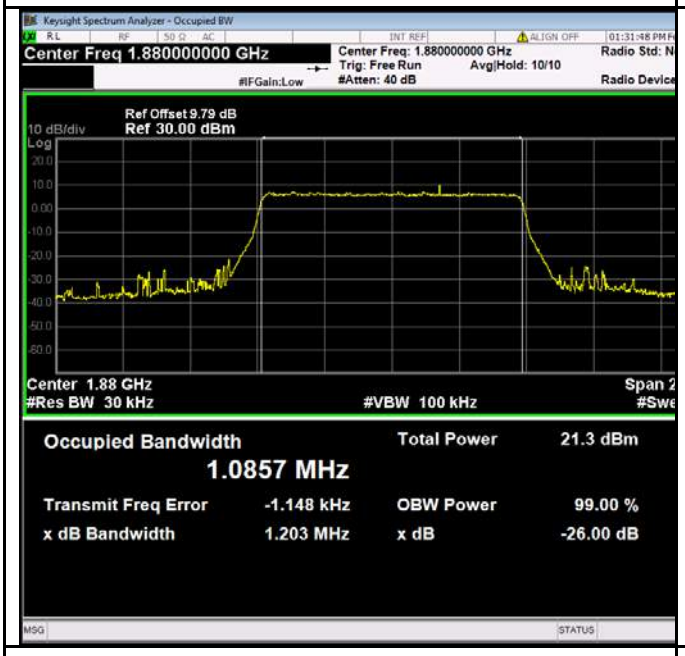
| | | | | | |
|---|---|---|---|---|---|
| 15 | 20800 | 2505 | QPSK | 13.44 | 14.26 |
| | | | 16QAM | 13.45 | 14.26 |
| 15 | 21100 | 2535 | QPSK | 13.46 | 14.24 |
| | | | 16QAM | 13.44 | 14.25 |
| 15 | 21375 | 2562.5 | QPSK | 13.45 | 14.27 |
| | | | 16QAM | 13.45 | 14.26 |
| 20 | 20825 | 2507.5 | QPSK | 17.89 | 18.75 |
| | | | 16QAM | 17.88 | 18.77 |
| 20 | 21100 | 2535 | QPSK | 17.88 | 18.76 |
| | | | 16QAM | 17.88 | 18.76 |
| 20 | 21350 | 2560 | QPSK | 17.89 | 18.79 |
| | | | 16QAM | 17.90 | 18.78 |

**Test Plots**
**LTE Band 2 (Part 24E)**

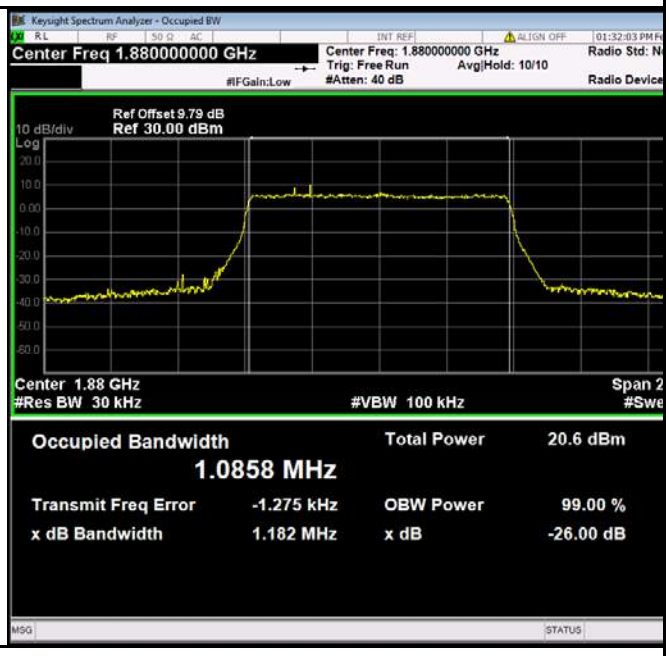



LTE band 2 - Low CH QPSK-1.4

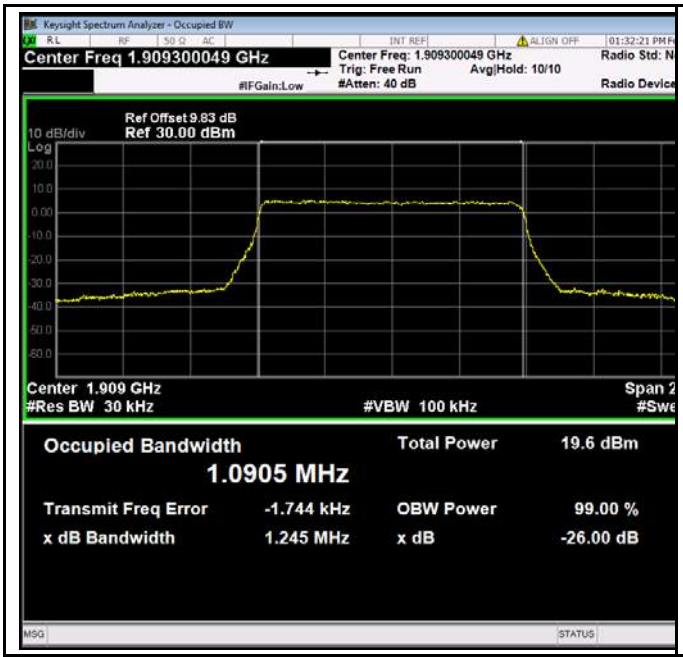

LTE band 2 - Low CH 16QAM-1.4




LTE band 2 - Middle CH QPSK-1.4

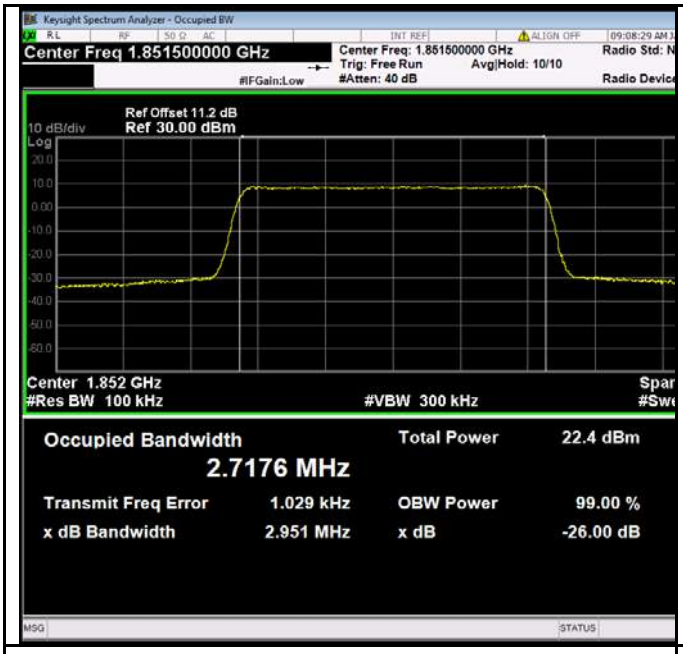



LTE band 2 - Middle CH 16QAM-1.4



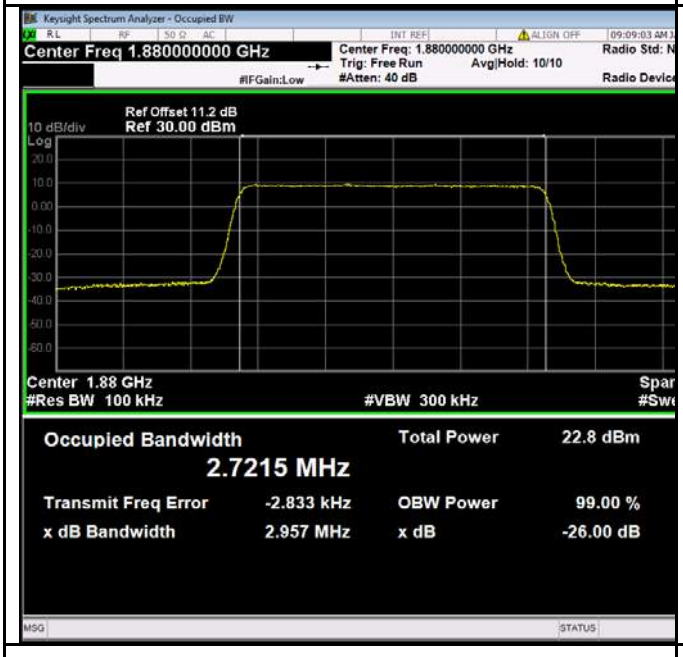

LTE band 2 - High CH QPSK-1.4


LTE band 2 - High CH 16QAM-1.4

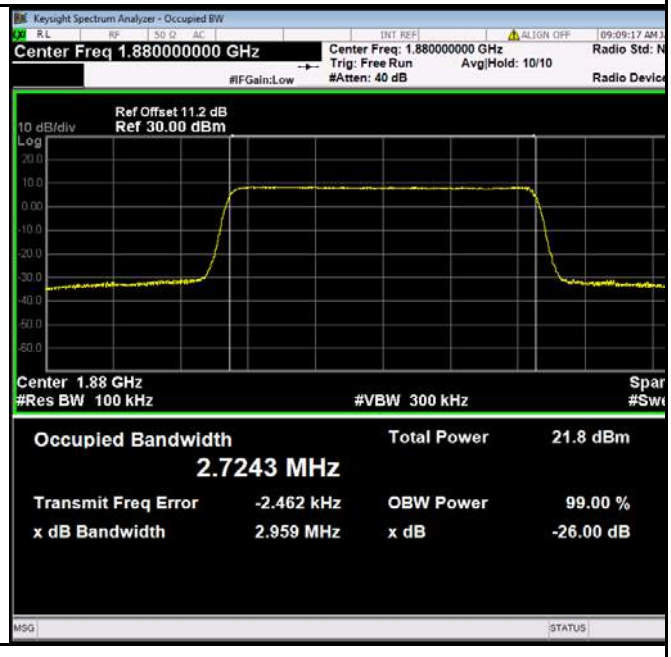



LTE band 2 - Low CH QPSK-3

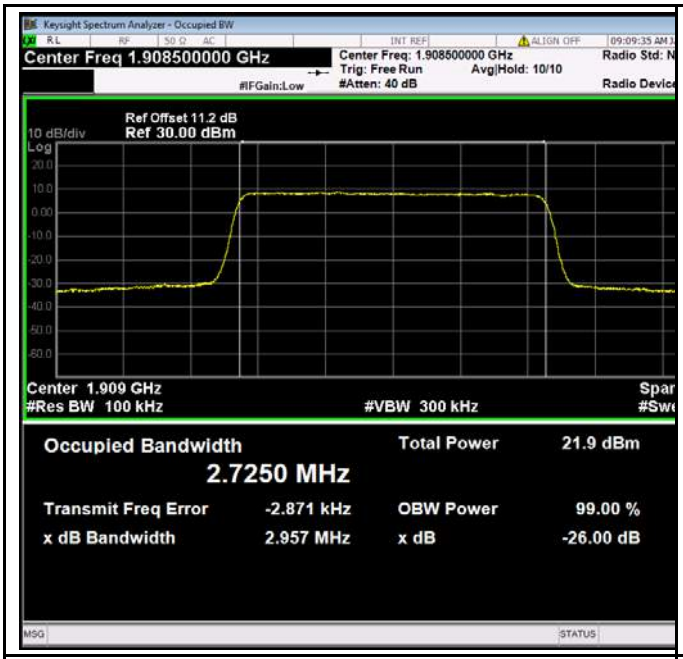
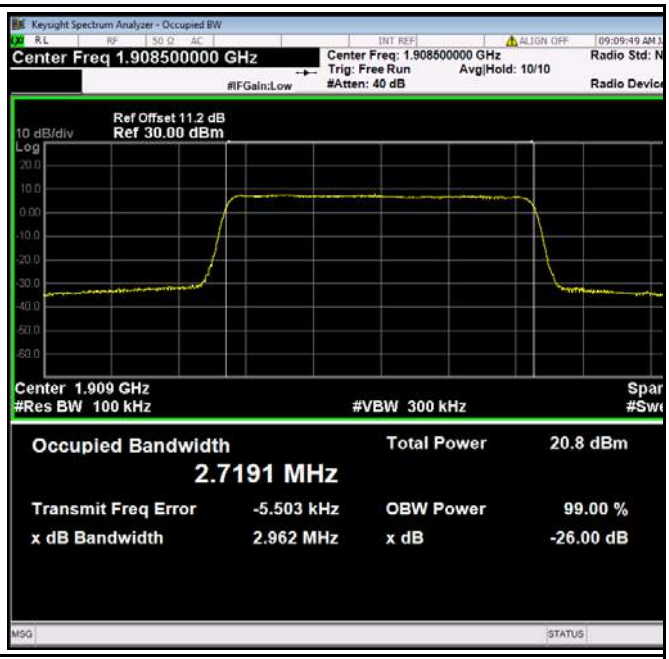

LTE band 2 - Low CH 16QAM-3

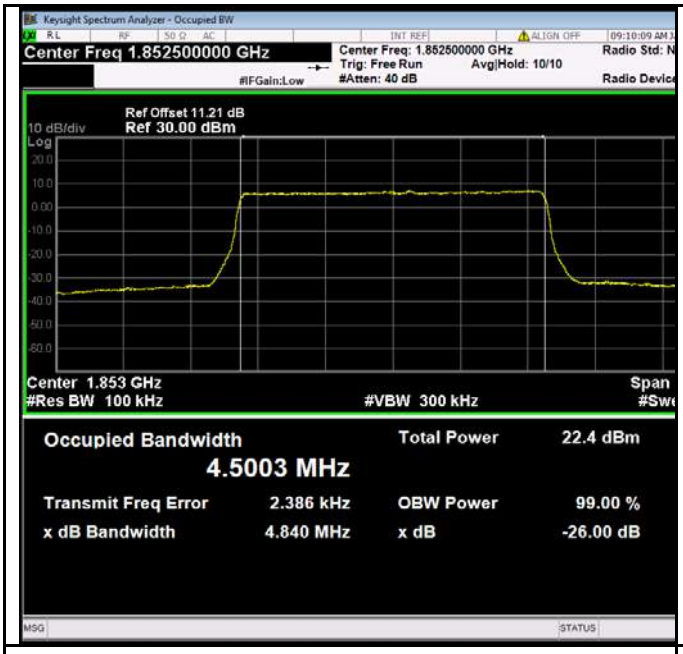



LTE band 2 - Middle CH QPSK-3



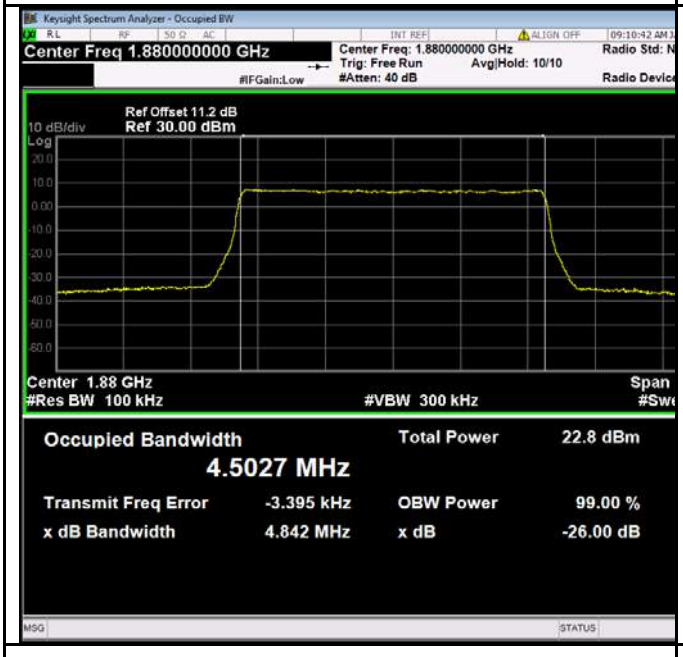

LTE band 2 - Middle CH 16QAM-3

| | |
|---|---|
|  |  |
| LTE band 2 - High CH QPSK-3 | LTE band 2 - High CH 16QAM-3 |

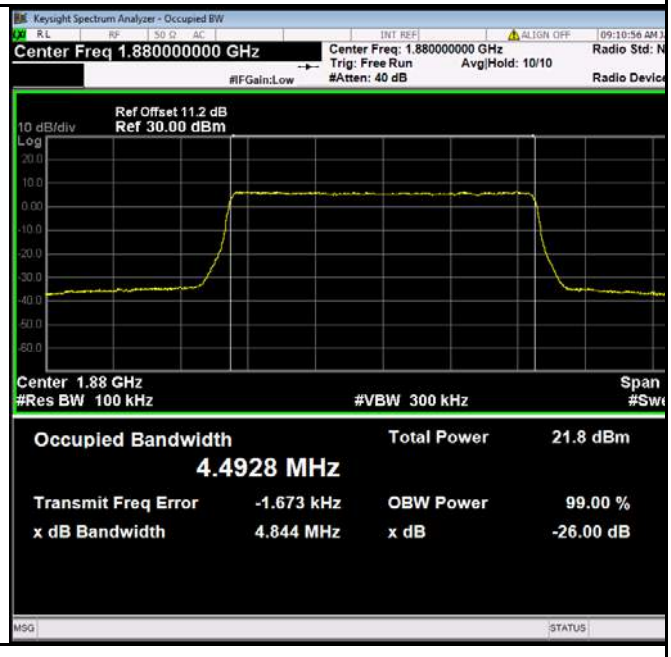



LTE band 2 - Low CH QPSK-5

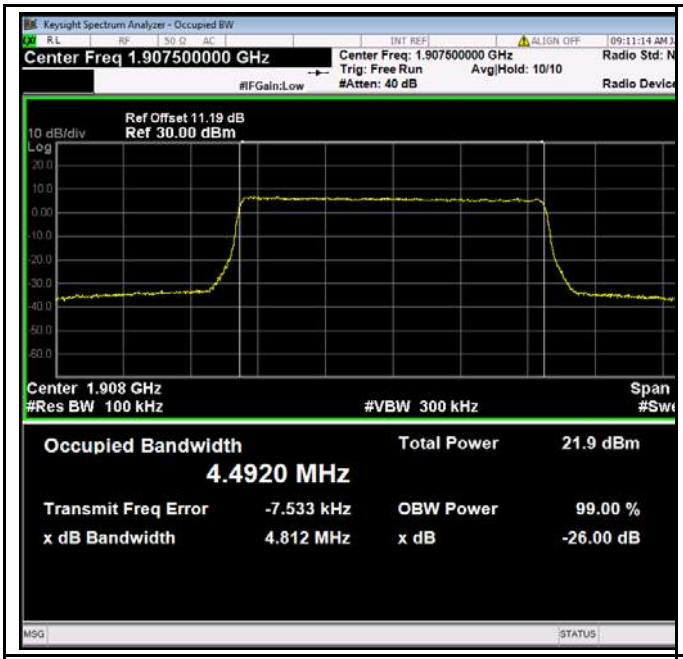

LTE band 2 - Low CH 16QAM-5

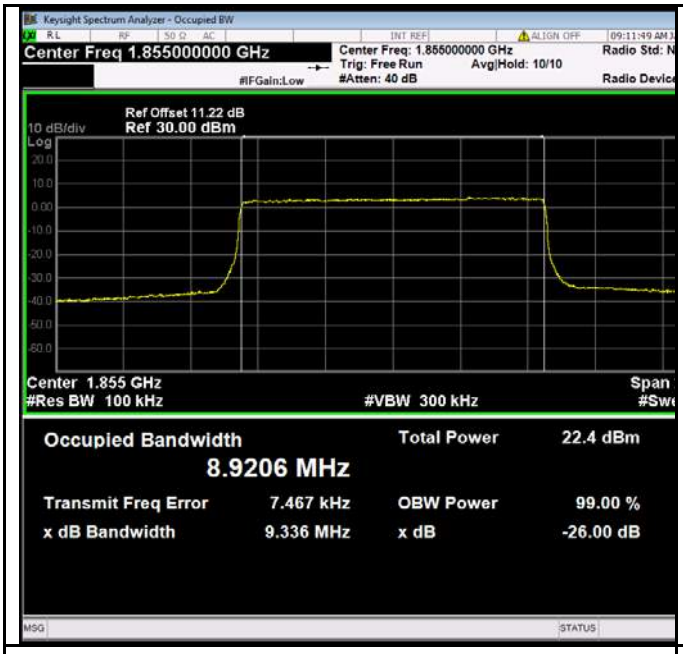



LTE band 2 - Middle CH QPSK-5




LTE band 2 - Middle CH 16QAM-5

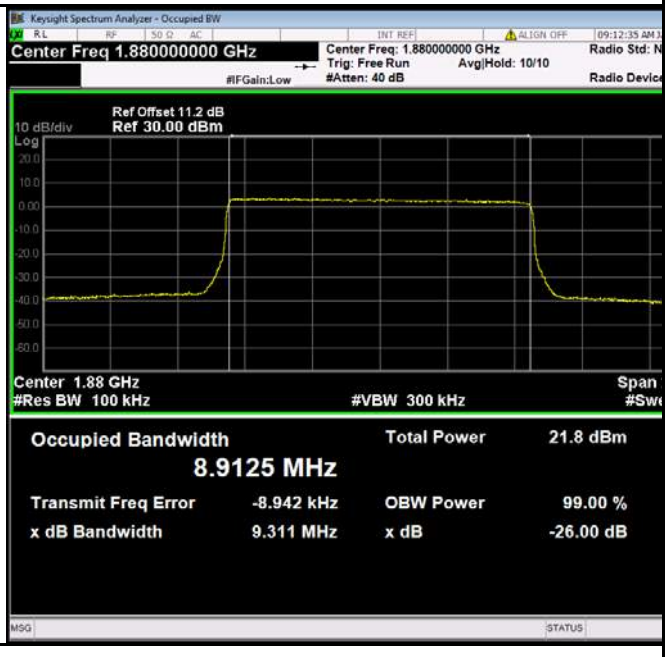
| | |
|---|---|
|  |  |
| LTE band 2 - High CH QPSK-5 | LTE band 2 - High CH 16QAM-5 |




LTE band 2 - Low CH QPSK-10

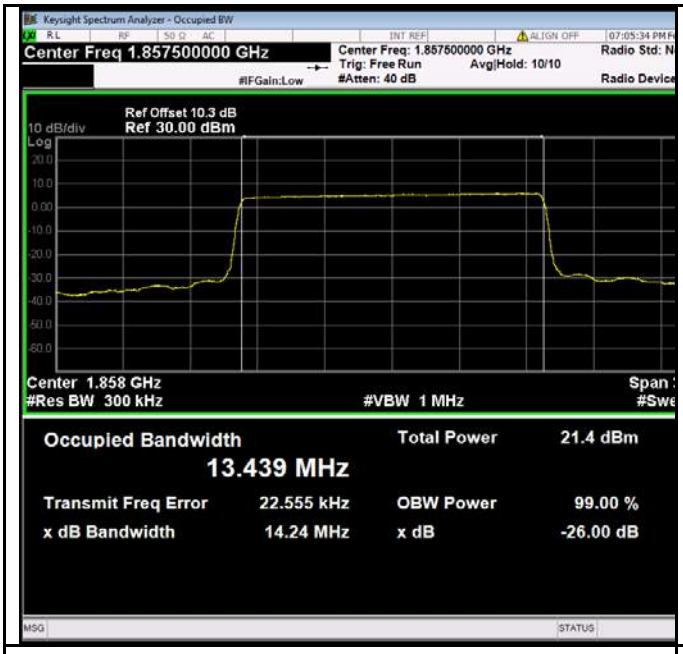

LTE band 2 - Low CH 16QAM-10


LTE band 2 - Middle CH QPSK-10



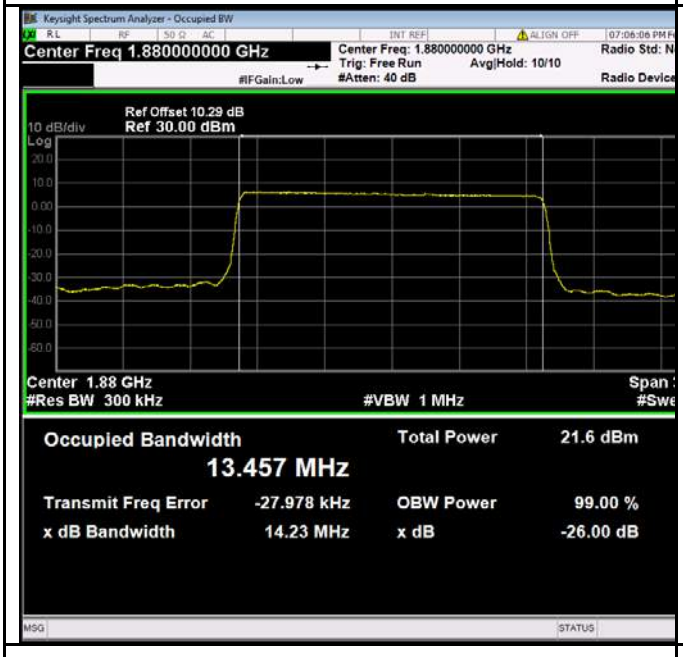

LTE band 2 - Middle CH 16QAM-10

| | |
|---|---|
|  |  |
| LTE band 2 - High CH QPSK-10 | LTE band 2 - High CH 16QAM-10 |

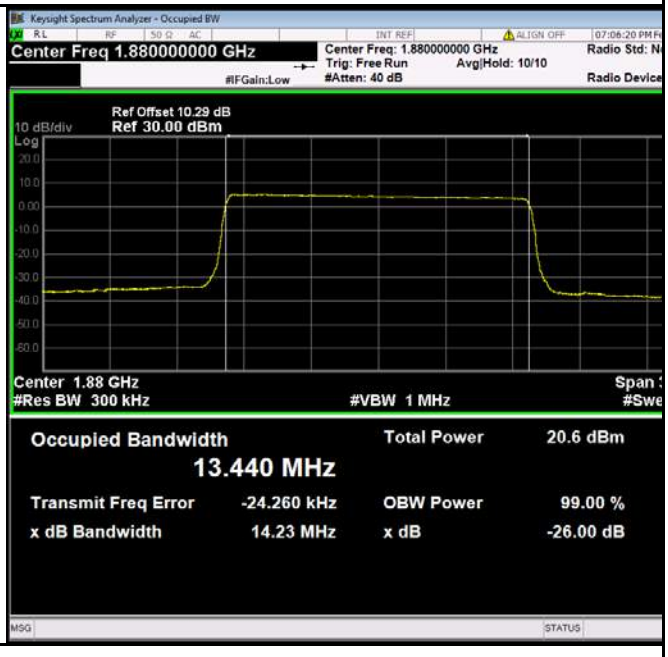



LTE band 2 - Low CH QPSK-15


LTE band 2 - Low CH 16QAM-15

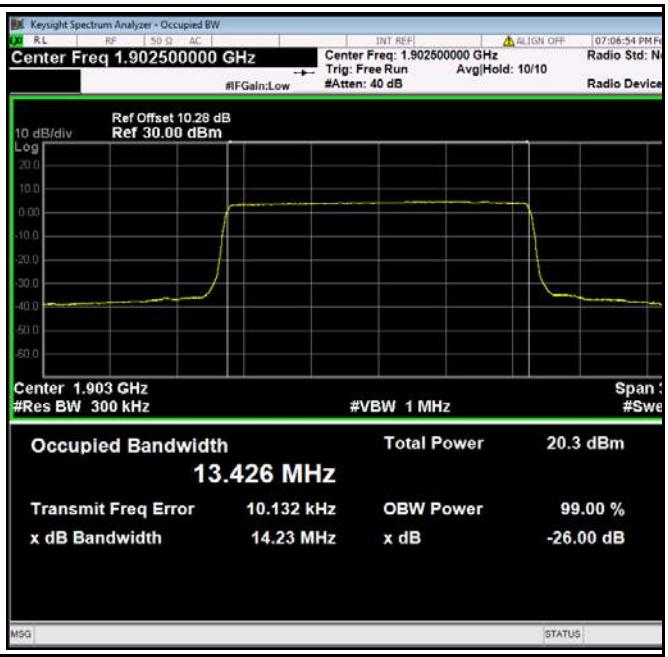



LTE band 2 - Middle CH QPSK-15

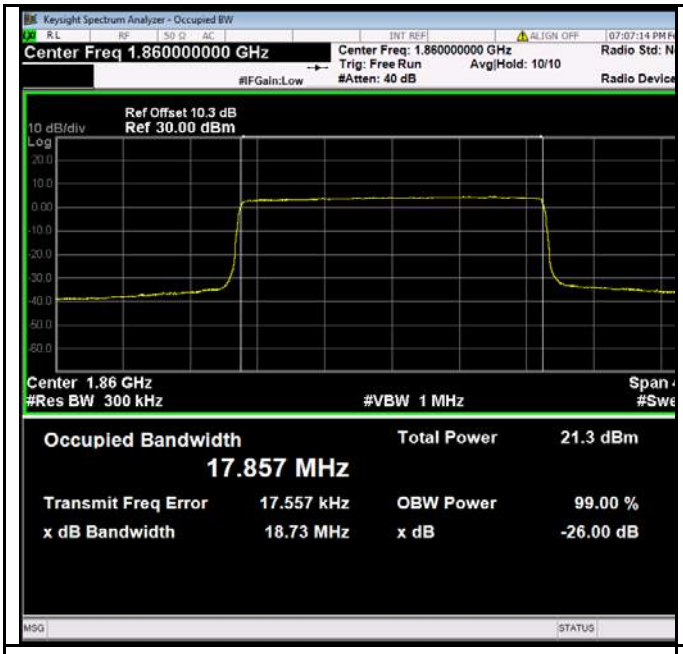



LTE band 2 - Middle CH 16QAM-15


LTE band 2 - High CH QPSK-15

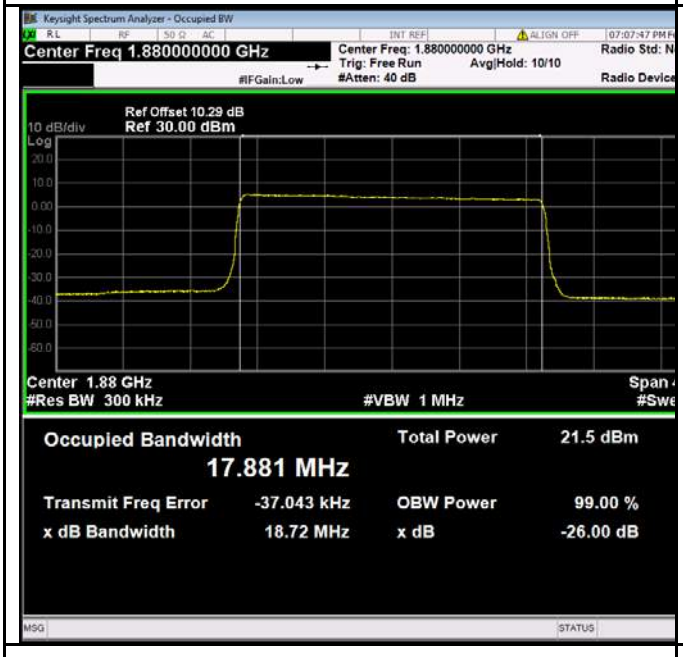



LTE band 2 - High CH 16QAM-15




LTE band 2 - Low CH QPSK-20


LTE band 2 - Low CH 16QAM-20

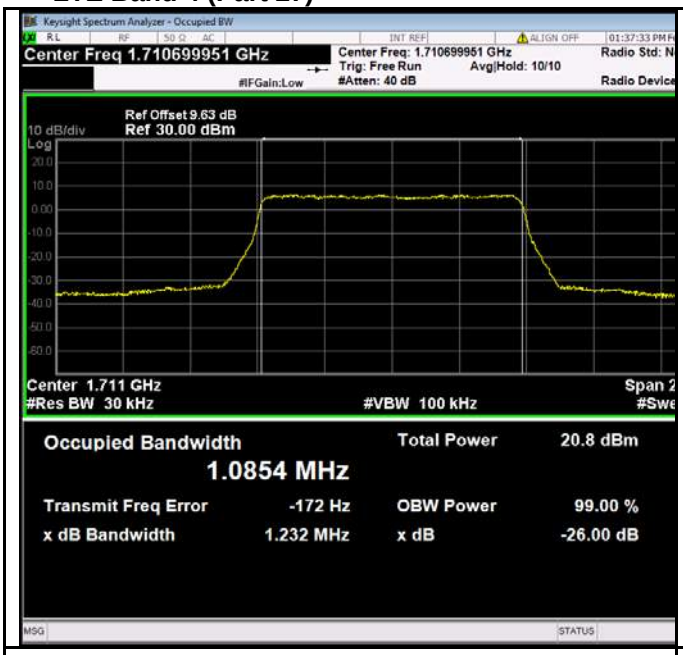



LTE band 2 - Middle CH QPSK-20

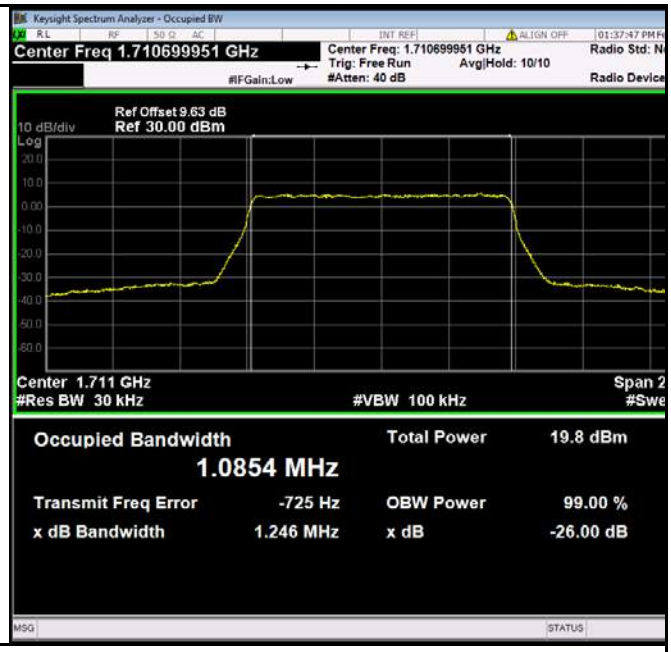

LTE band 2 - Middle CH 16QAM-20

| | |
|---|---|
|  |  |
| LTE band 2 - High CH QPSK-20 | LTE band 2 - High CH 16QAM-20 |

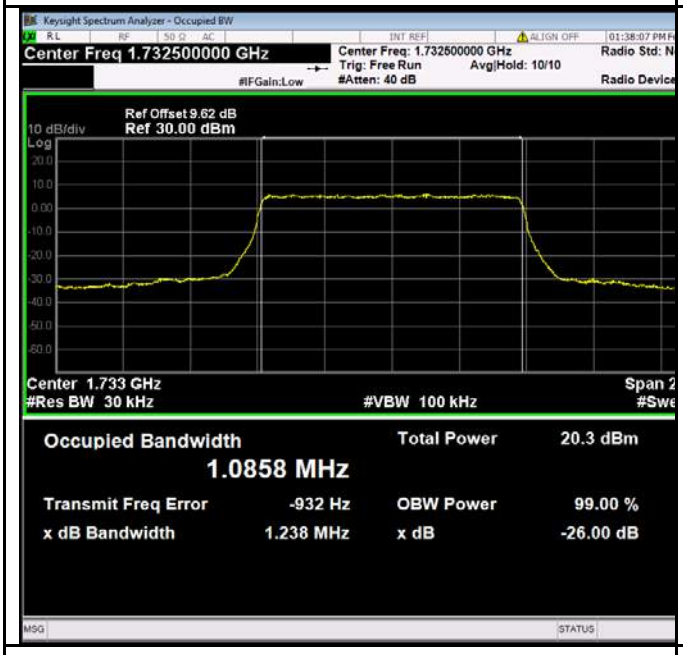
**LTE Band 4 (Part 27)**



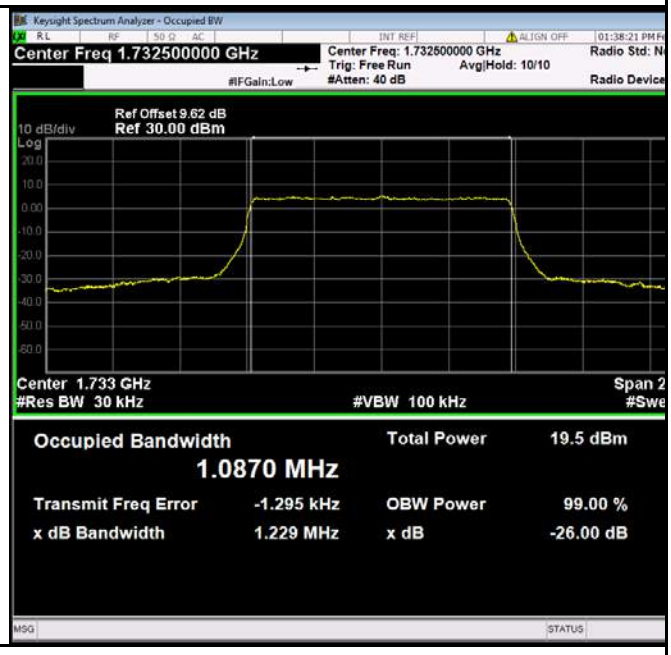

LTE band 4 - Low CH QPSK-1.4



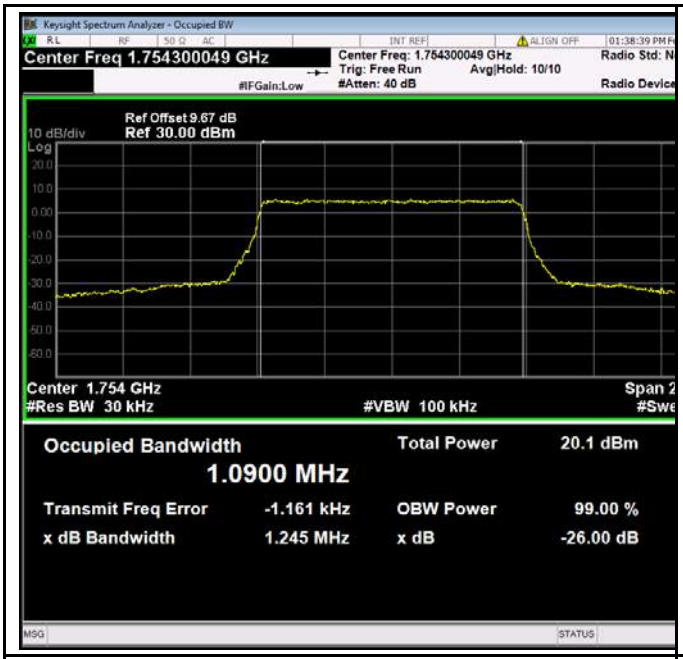

LTE band 4 - Low CH 16QAM-1.4

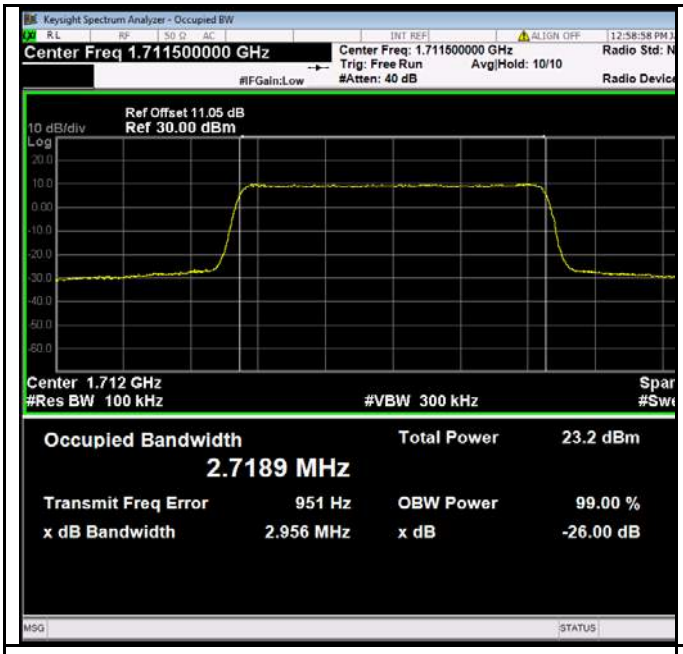



LTE band 4 - Middle CH QPSK-1.4

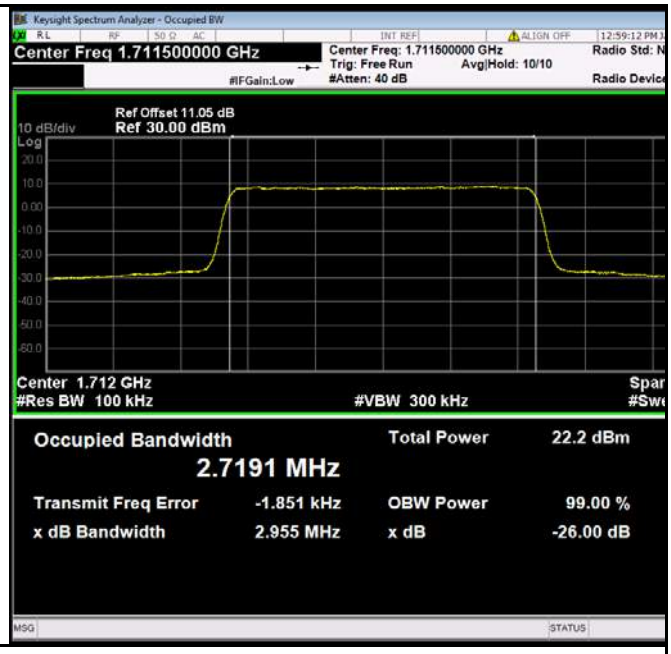



LTE band 4 - Middle CH 16QAM-1.4

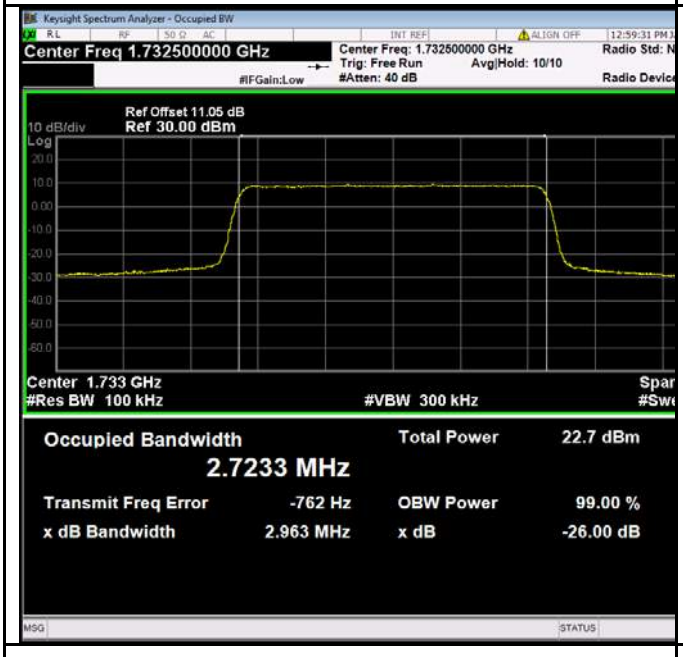
| | |
|---|---|
|  |  |
| LTE band 4 - High CH QPSK-1.4 | LTE band 4 - High CH 16QAM-1.4 |



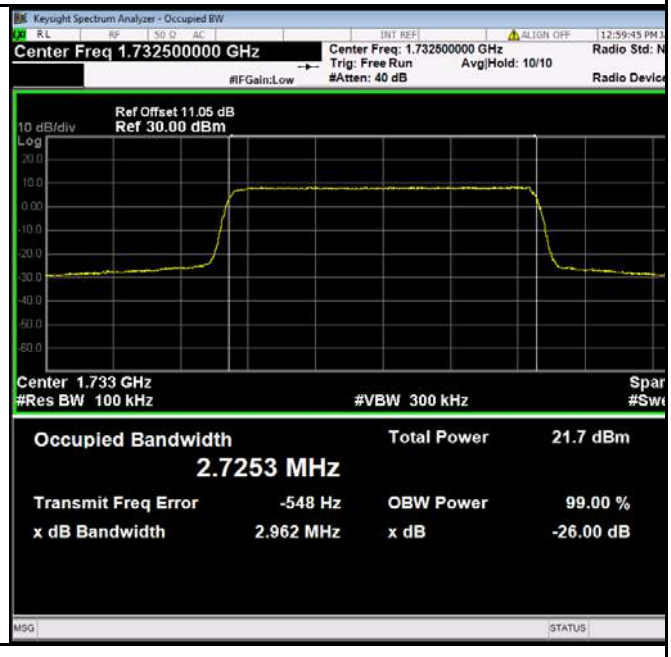

LTE band 4 - Low CH QPSK-3



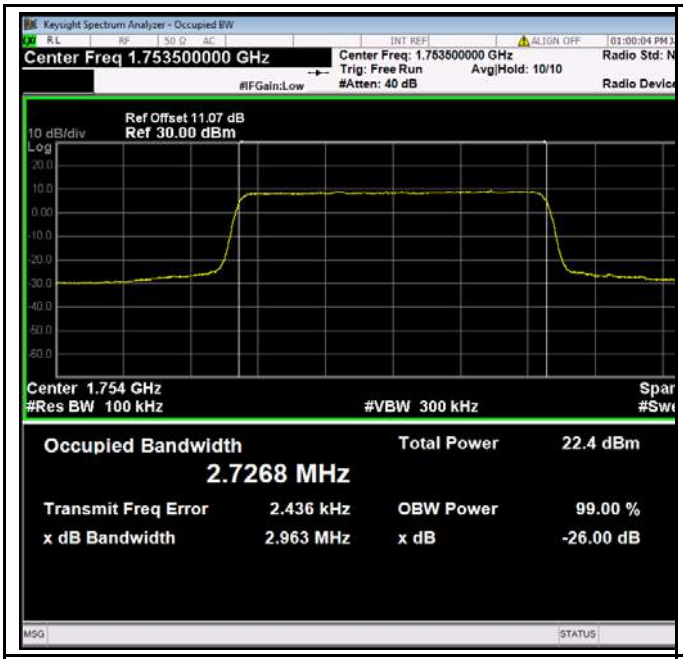
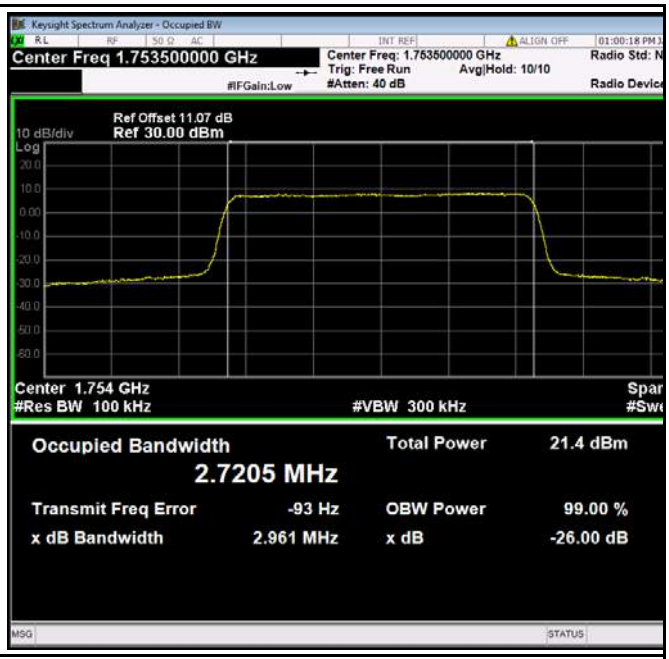

LTE band 4 - Low CH 16QAM-3

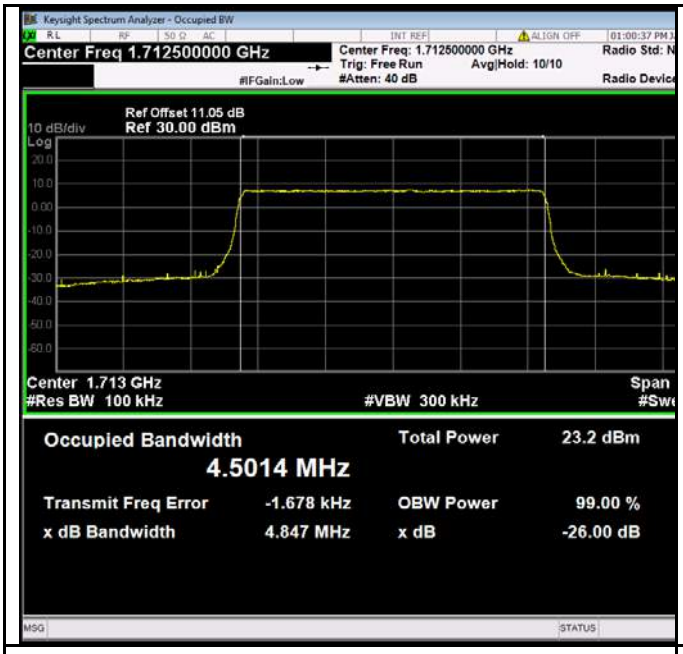



LTE band 4 - Middle CH QPSK-3



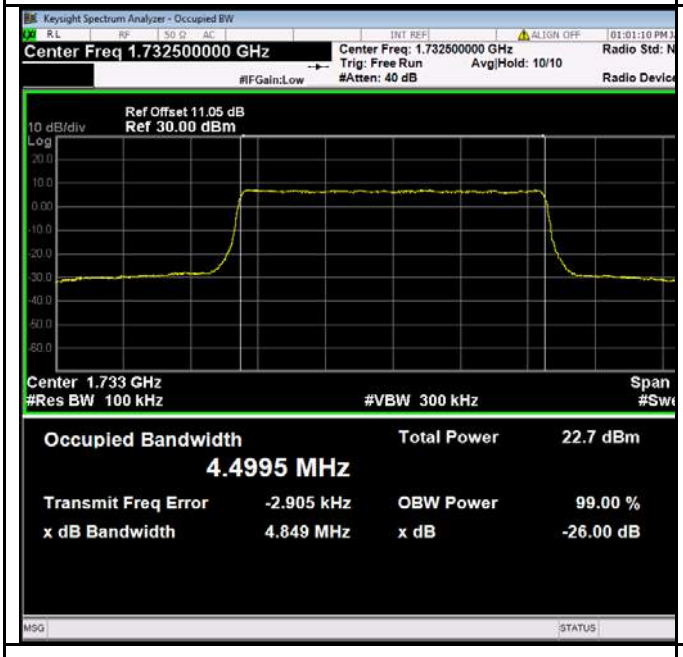

LTE band 4 - Middle CH 16QAM-3

| | |
|---|---|
|  |  |
| LTE band 4 - High CH QPSK-3 | LTE band 4 - High CH 16QAM-3 |

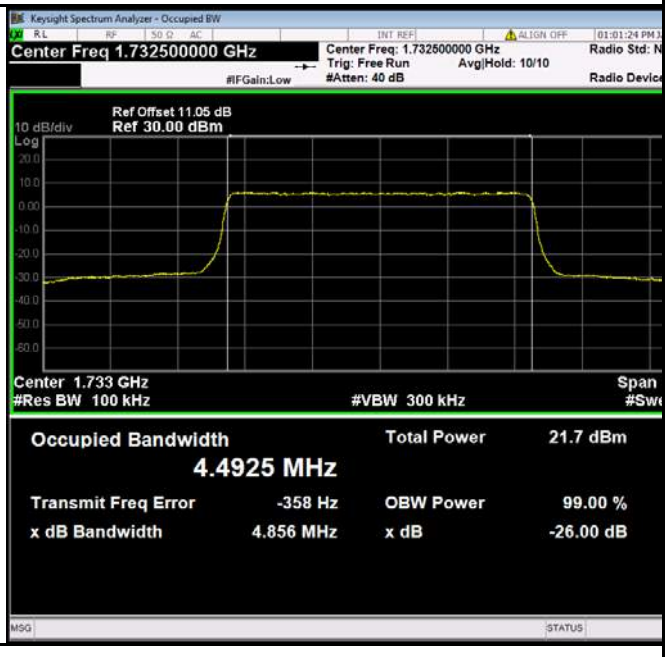



LTE band 4 - Low CH QPSK-5

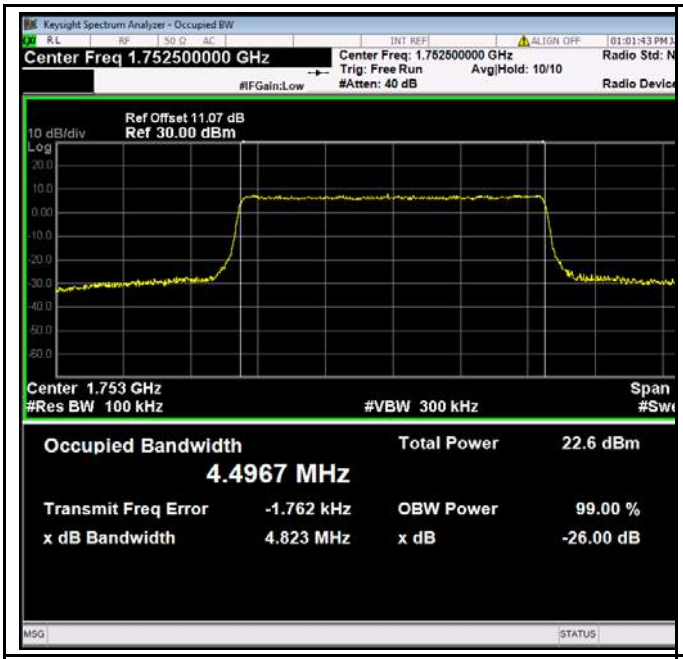
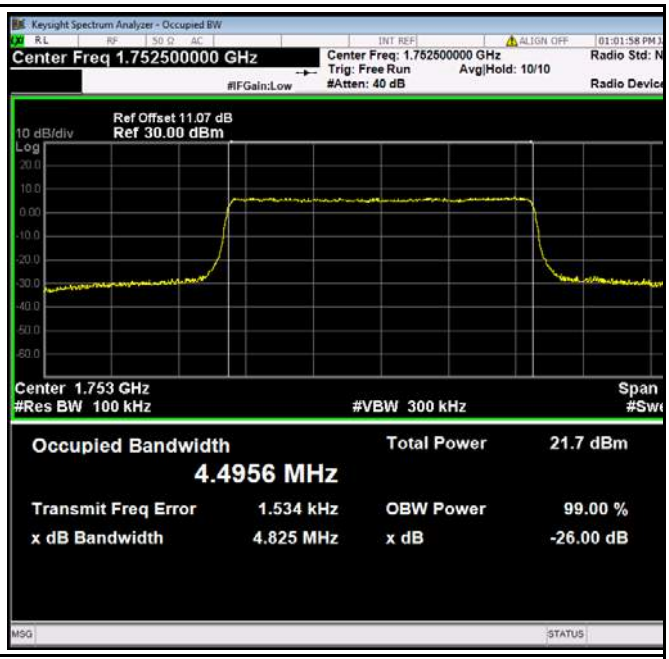

LTE band 4 - Low CH 16QAM-5

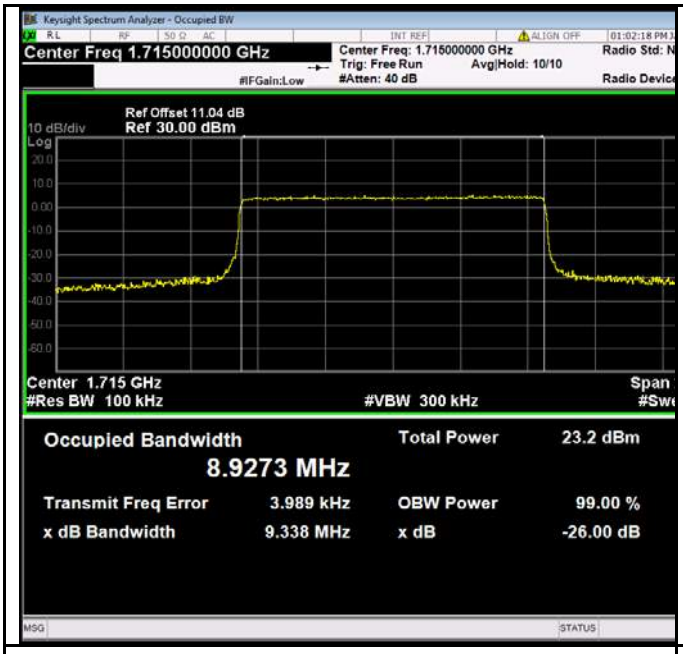



LTE band 4 - Middle CH QPSK-5




LTE band 4 - Middle CH 16QAM-5

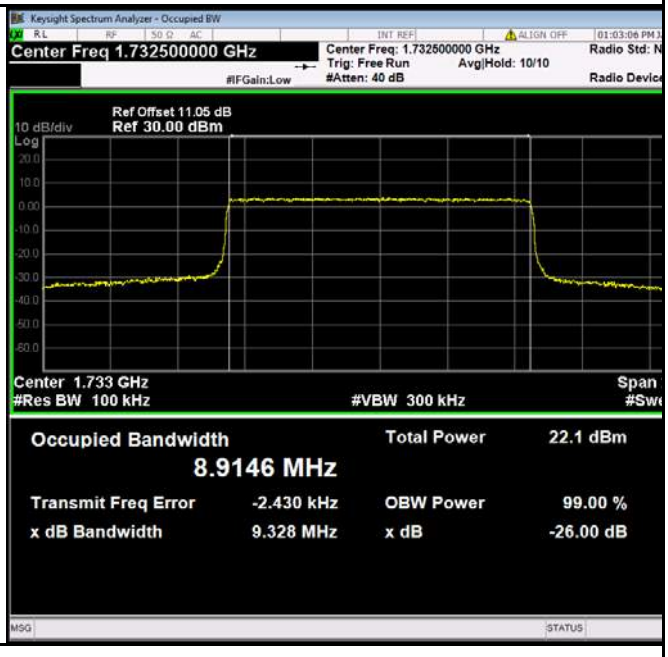
| | |
|---|---|
|  |  |
| LTE band 4 - High CH QPSK-5 | LTE band 4 - High CH 16QAM-5 |



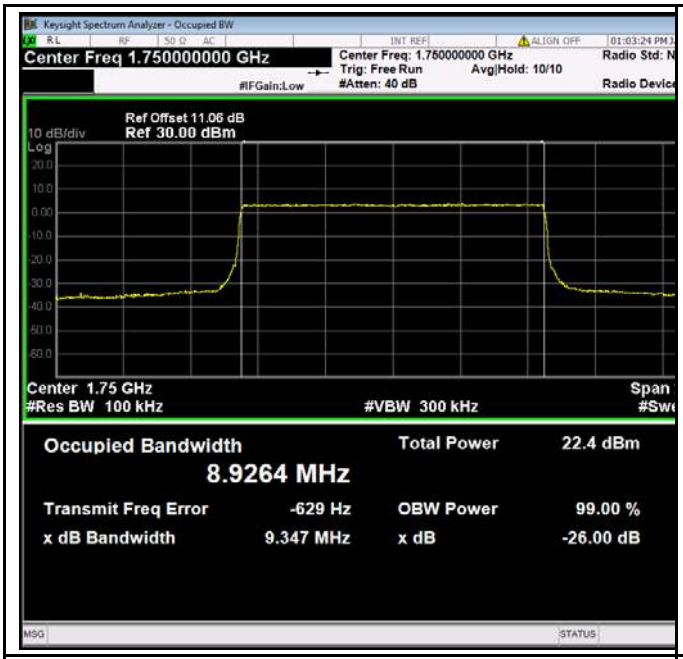
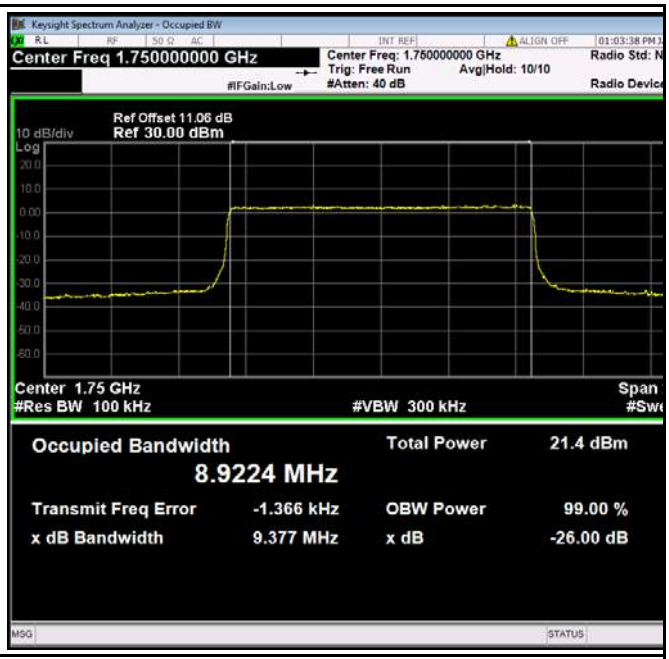

LTE band 4 - Low CH QPSK-10

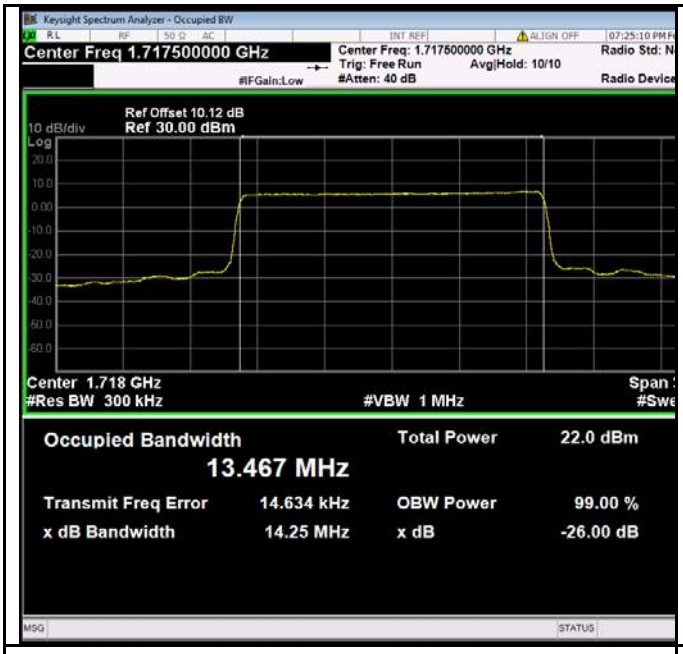

LTE band 4 - Low CH 16QAM-10


LTE band 4 - Middle CH QPSK-10



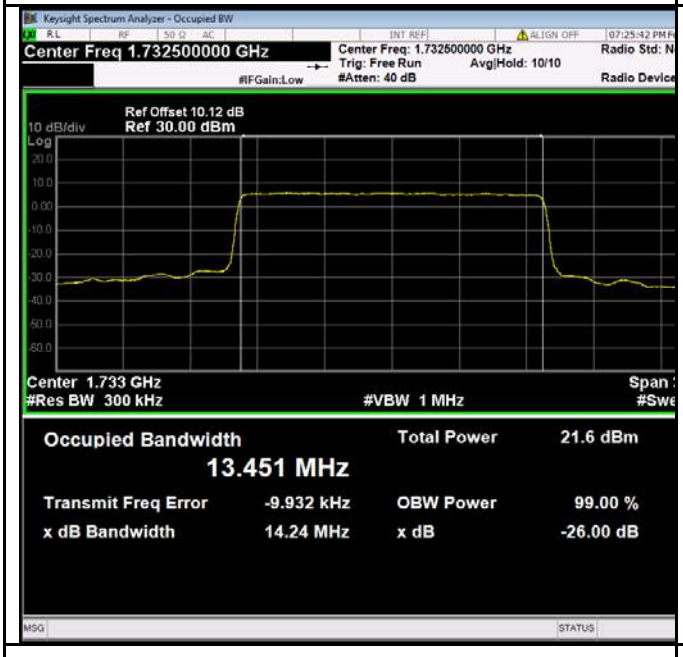

LTE band 4 - Middle CH 16QAM-10

| | |
|---|---|
|  |  |
| LTE band 4 - High CH QPSK-10 | LTE band 4 - High CH 16QAM-10 |

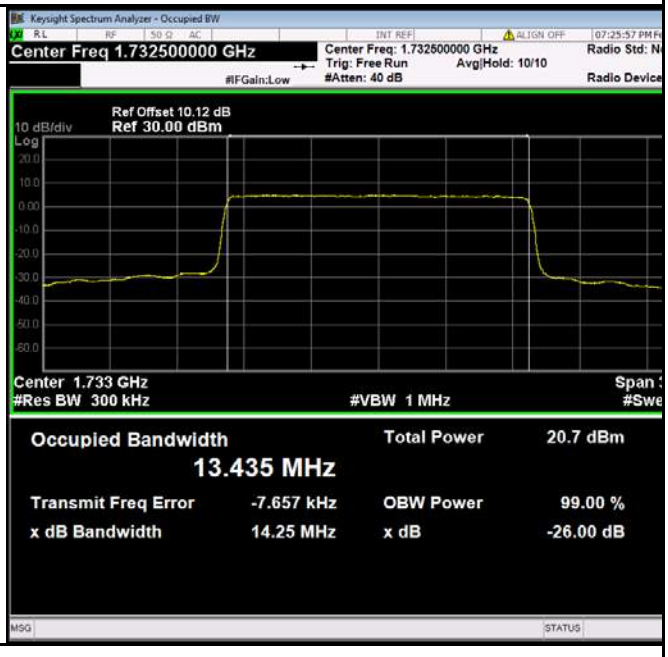



LTE band 4 - Low CH QPSK-15

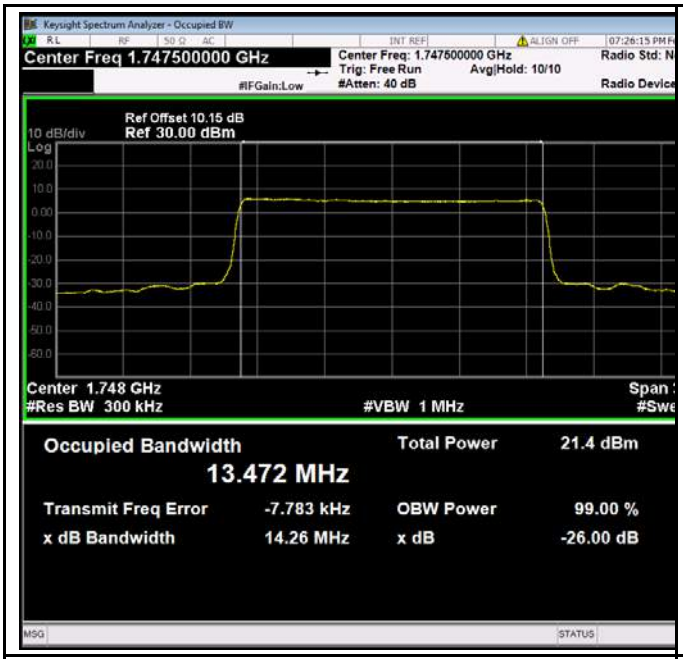

LTE band 4 - Low CH 16QAM-15

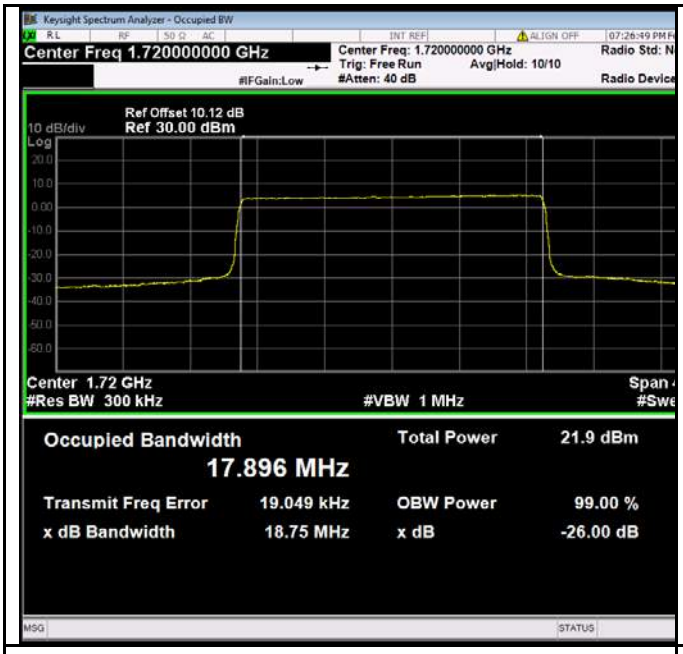



LTE band 4 - Middle CH QPSK-15

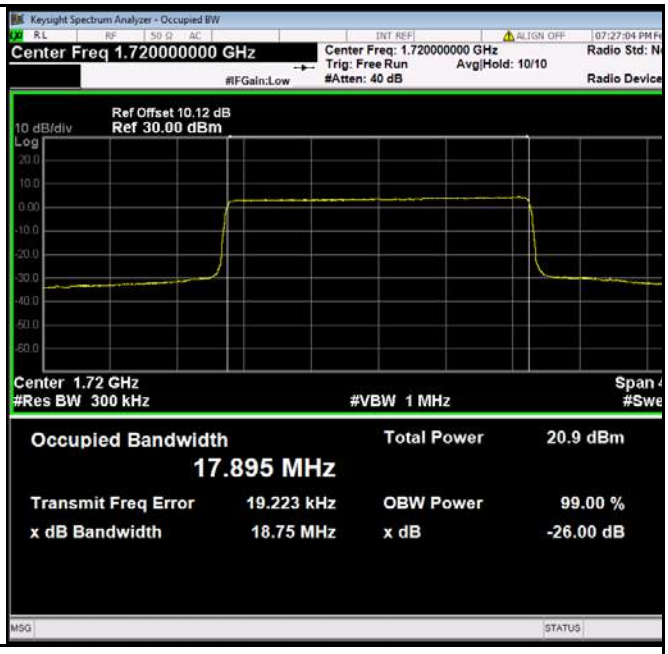



LTE band 4 - Middle CH 16QAM-15

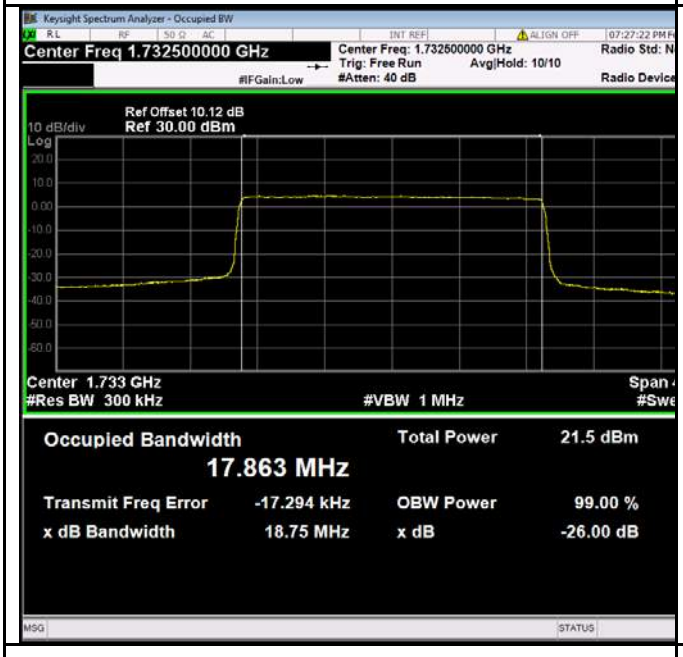
| | |
|---|---|
|  |  |
| LTE band 4 - High CH QPSK-15 | LTE band 4 - High CH 16QAM-15 |



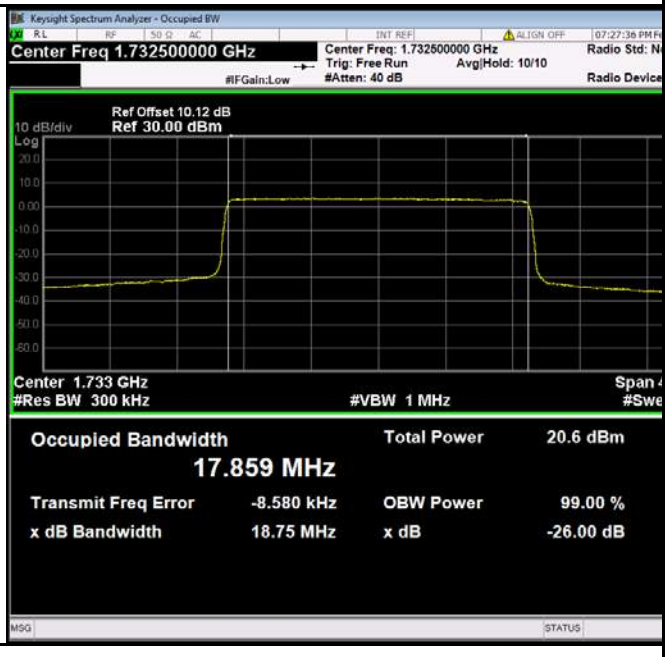

LTE band 4 - Low CH QPSK-20



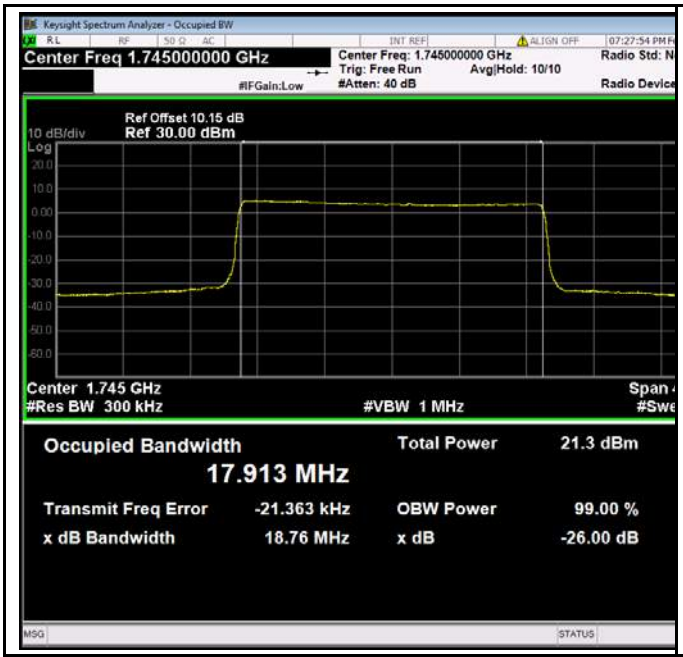

LTE band 4 - Low CH 16QAM-20



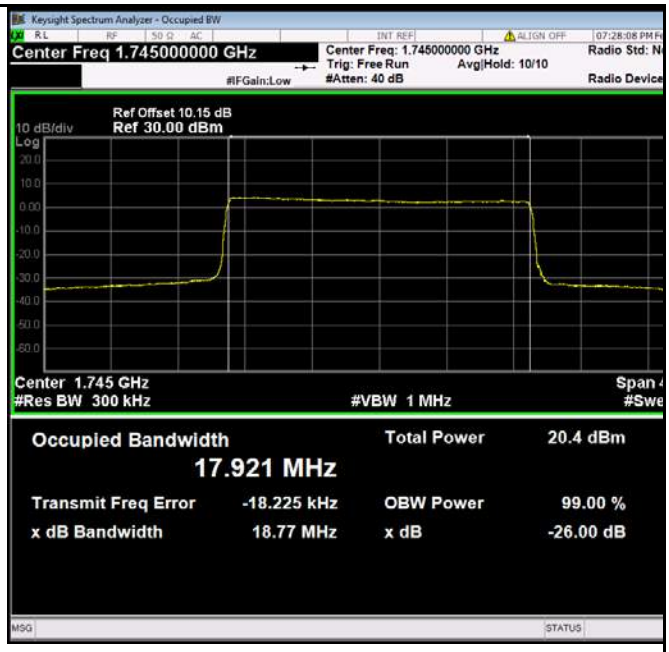

LTE band 4 - Middle CH QPSK-20




LTE band 4 - Middle CH 16QAM-20

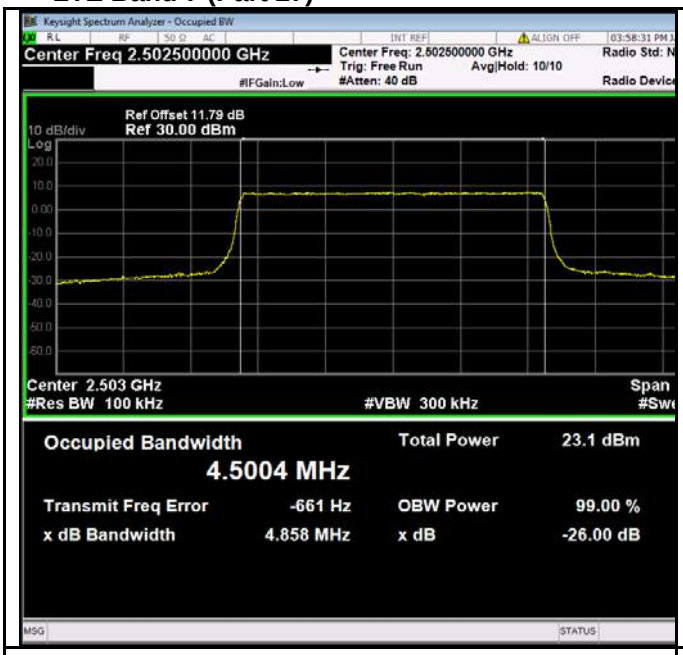



LTE band 4 - High CH QPSK-20

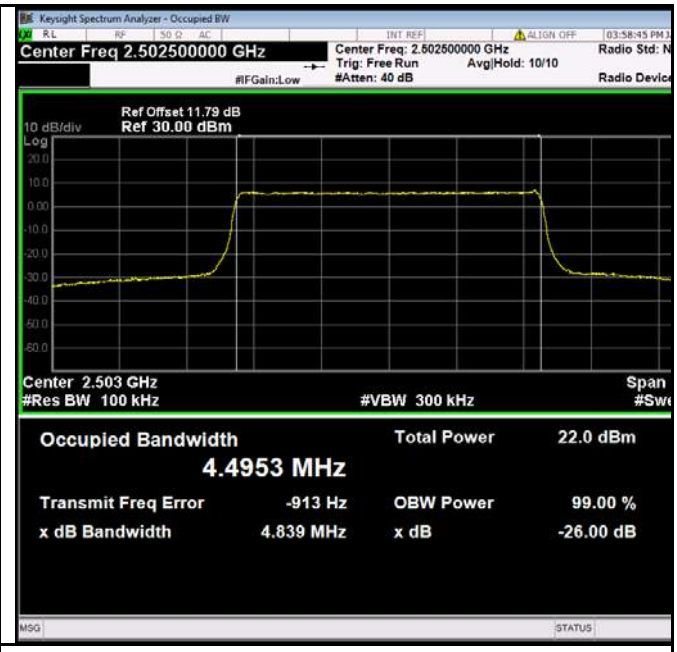



LTE band 4 - High CH 16QAM-20

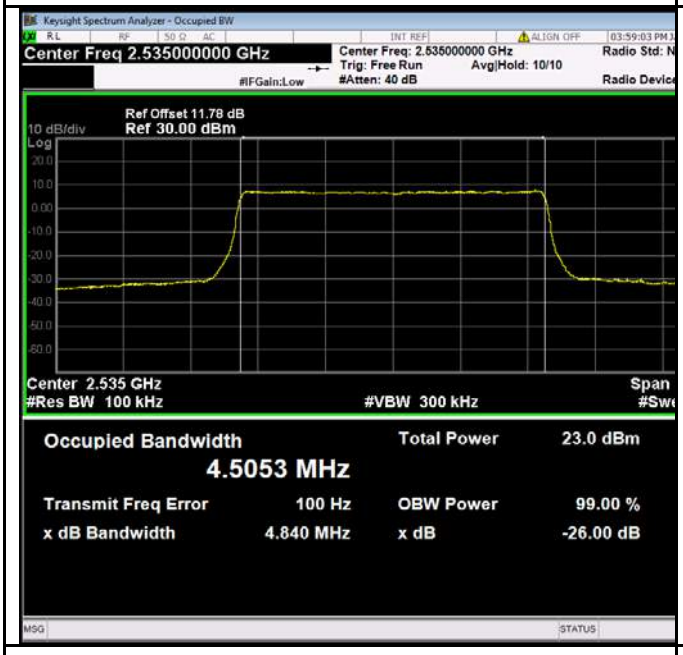
**LTE Band 7 (Part 27)**




LTE band 7 - Low CH QPSK-5

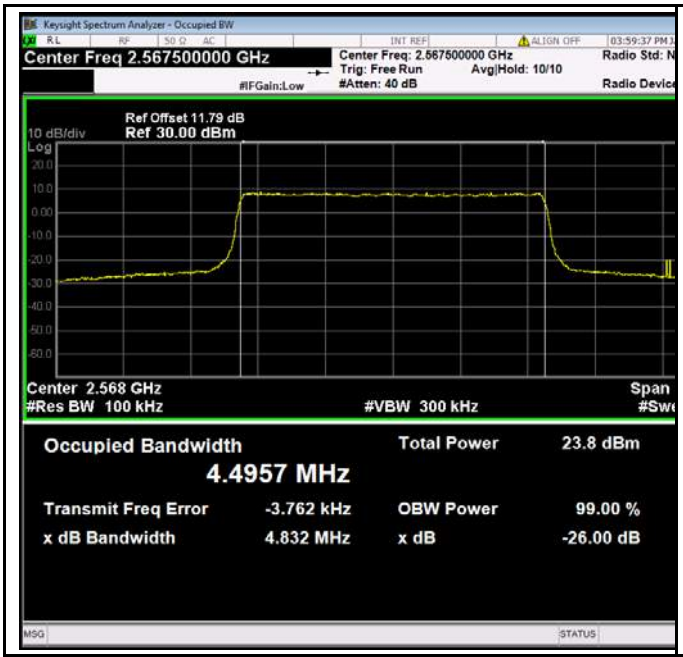
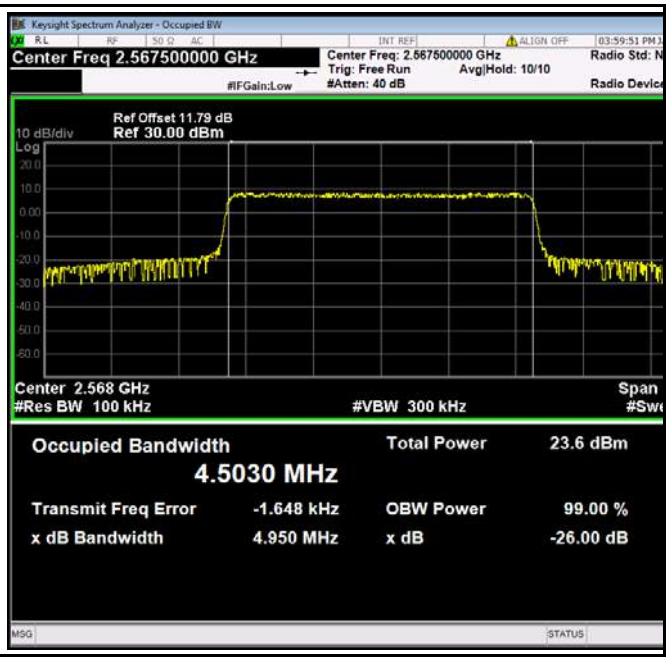



LTE band 7 - Low CH 16QAM-5



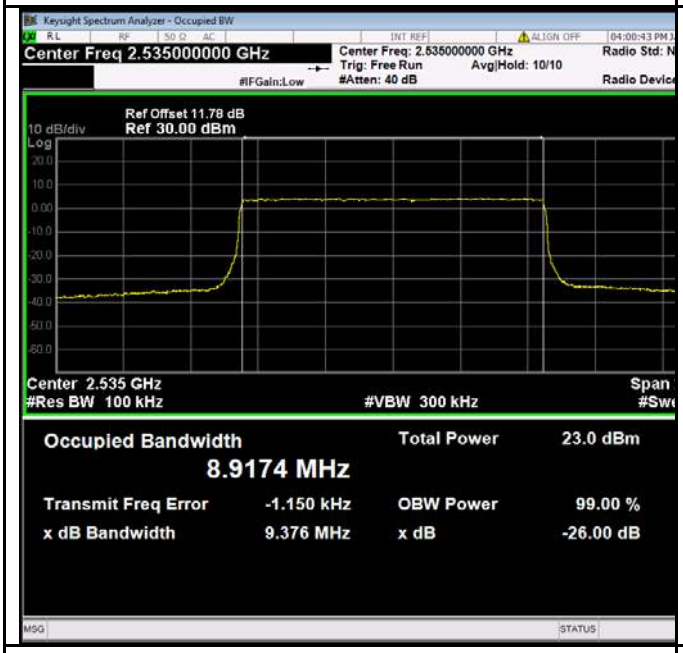

LTE band 7 - Middle CH QPSK-5


LTE band 7 - Middle CH 16QAM-5

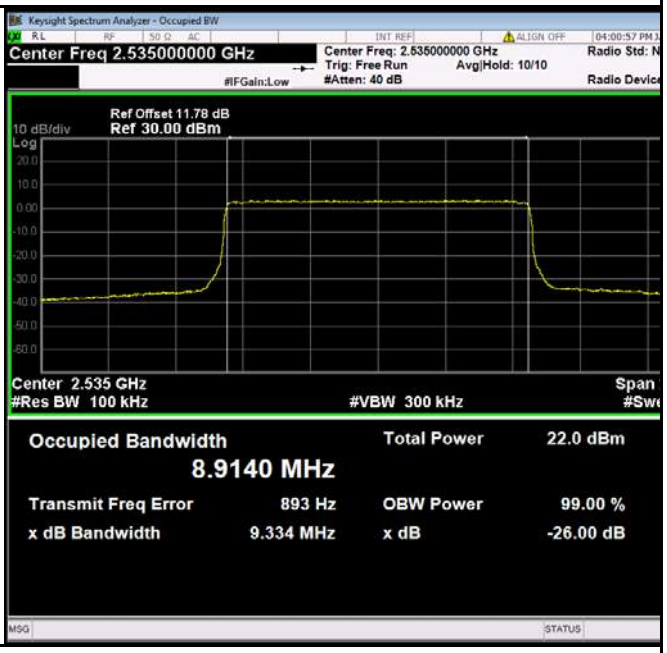
| | |
|---|---|
|  |  |
| LTE band 7 - High CH QPSK-5 | LTE band 7 - High CH 16QAM-5 |


LTE band 7 - Low CH QPSK-10

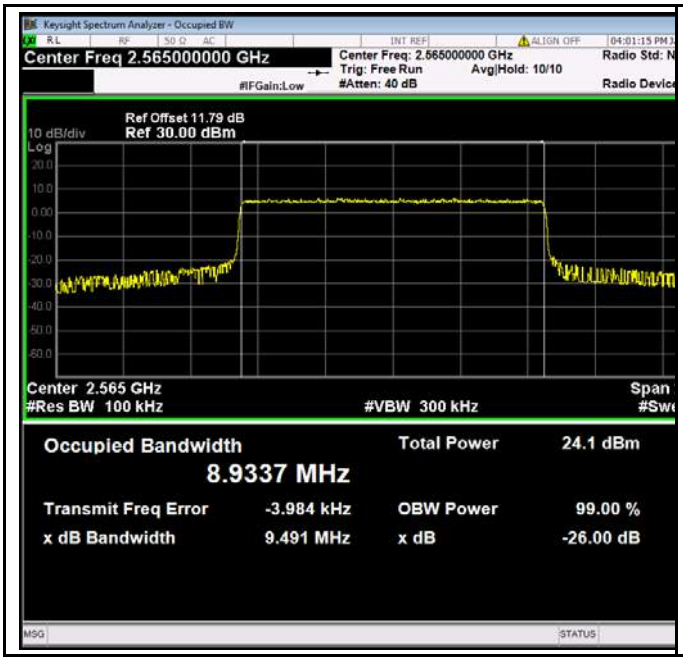

LTE band 7 - Low CH 16QAM-10

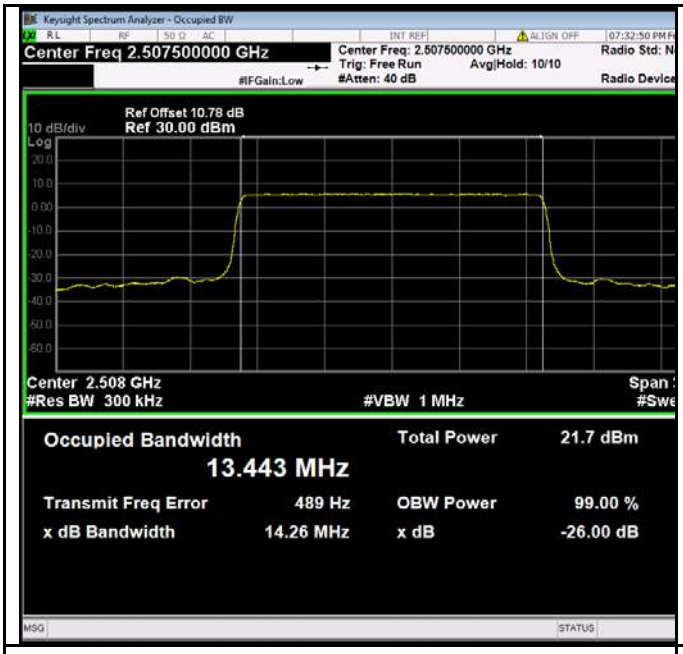



LTE band 7 - Middle CH QPSK-10



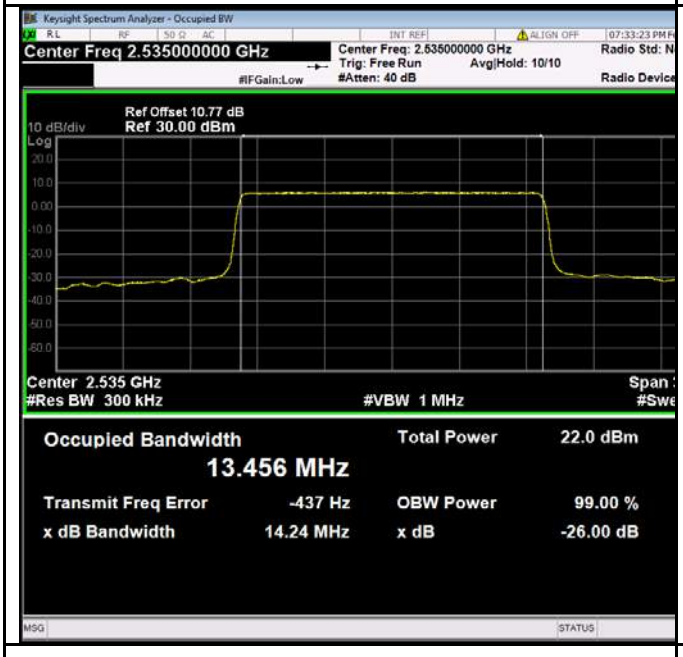

LTE band 7 - Middle CH 16QAM-10

| | |
|---|---|
|  |  |
| LTE band 7 - High CH QPSK-10 | LTE band 7 - High CH 16QAM-10 |

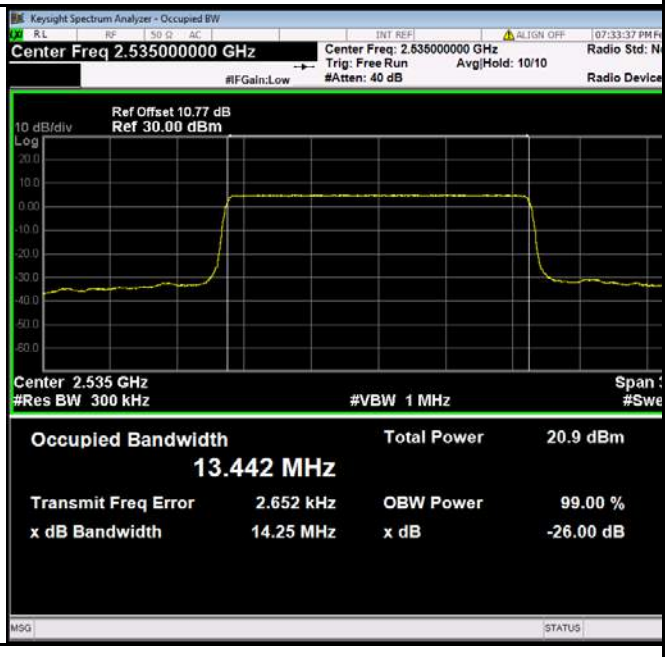



LTE band 7 - Low CH QPSK-15

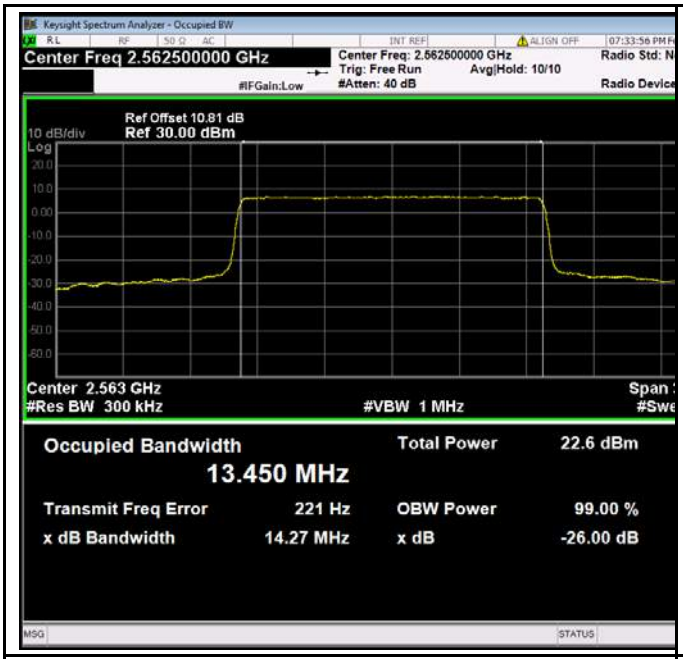

LTE band 7 - Low CH 16QAM-15



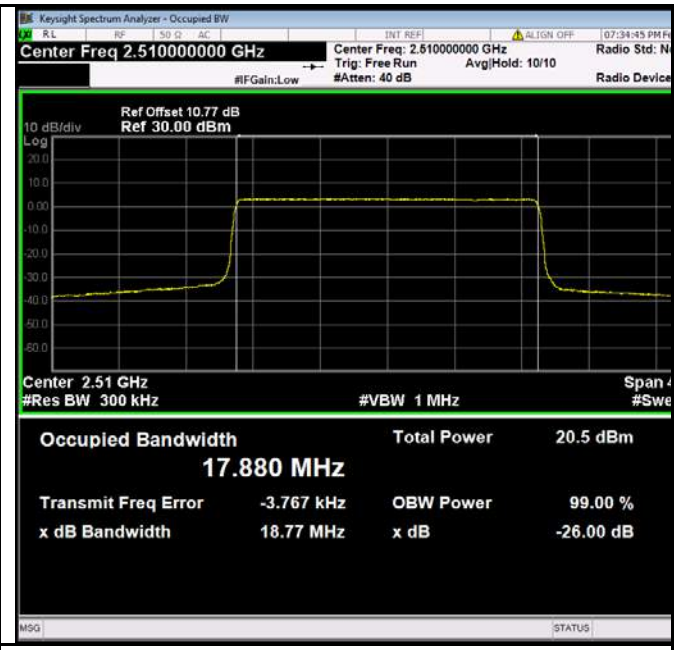

LTE band 7 - Middle CH QPSK-15



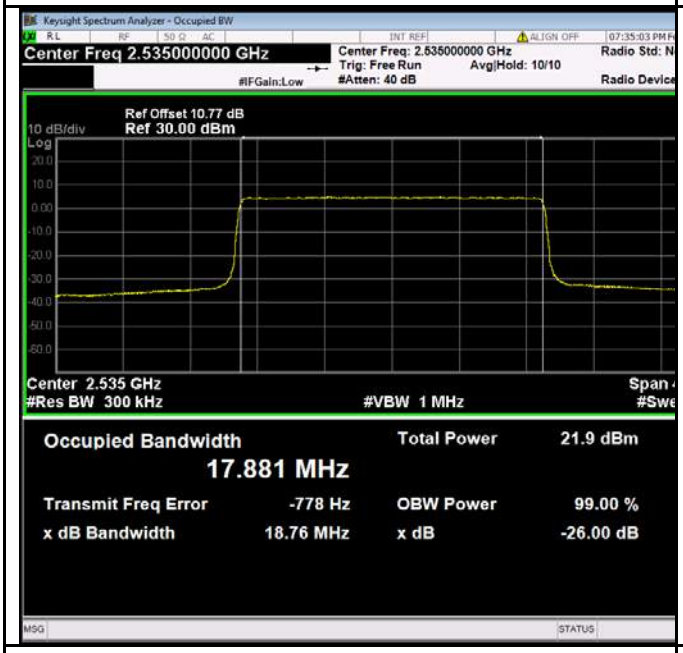

LTE band 7 - Middle CH 16QAM-15

| | |
|---|---|
|  |  |
| LTE band 7 - High CH QPSK-15 | LTE band 7 - High CH 16QAM-15 |

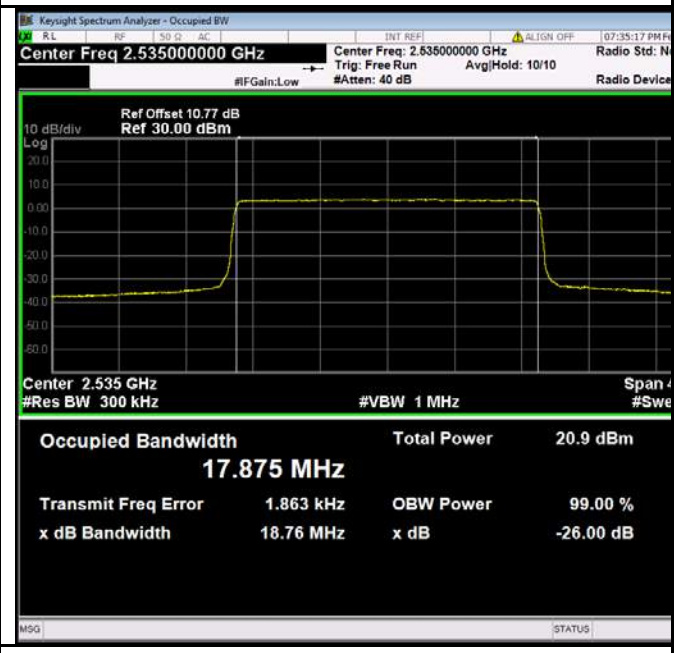

LTE band 7 - Low CH QPSK-20



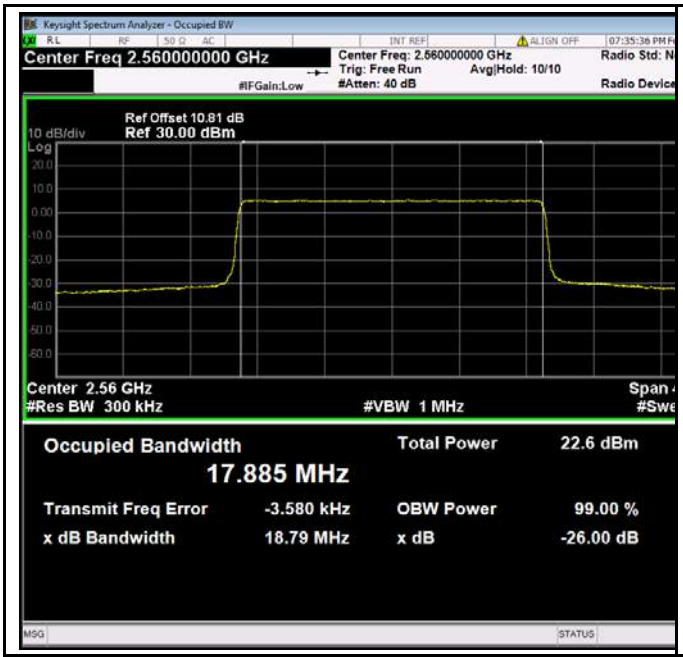

LTE band 7 - Low CH 16QAM-20



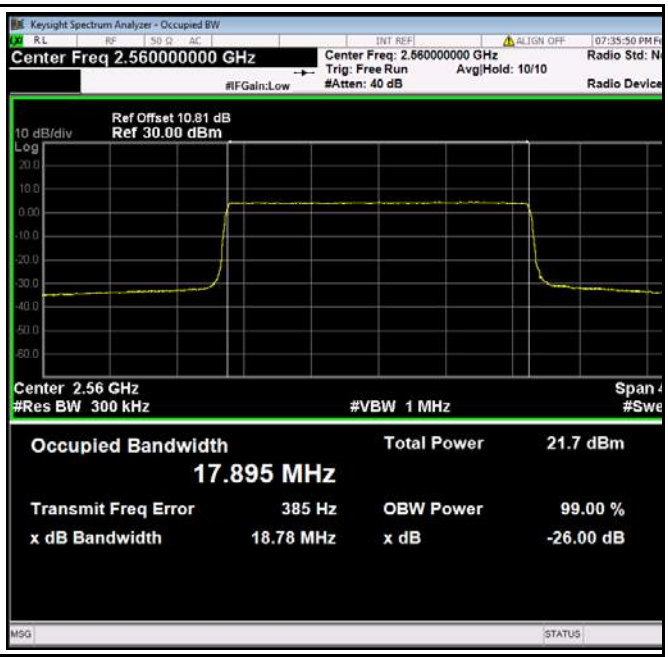

LTE band 7 - Middle CH QPSK-20




LTE band 7 - Middle CH 16QAM-20




LTE band 7 - High CH QPSK-20




LTE band 7 - High CH 16QAM-20

# 11 SPURIOUS EMISSIONS AT ANTENNA TERMINALS

| | |
|---|---|
| Test Requirement: | FCC Part 2.1051, 24.238(a), 27.53(m)(4) |
| Test Method: | TIA/EIA-603-D:2010 |
| | KDB971168 D01 v02r02 |
| Test Mode: | TX transmitting |

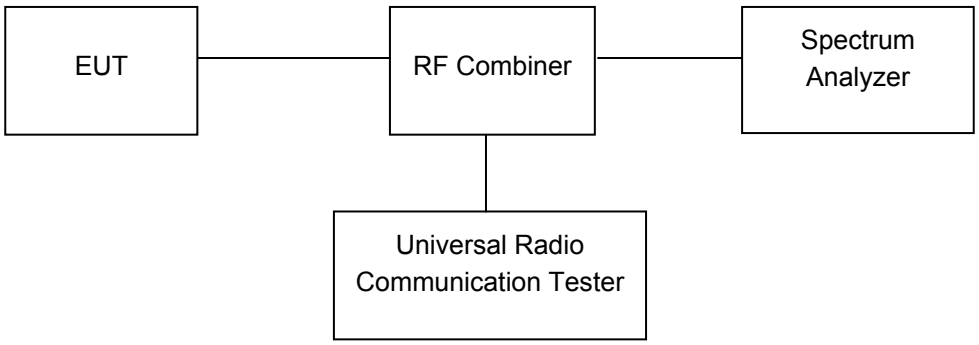
## 11.1 EUT Operation

Operating Environment **:**

| | |
|---|---|
| Temperature: | 23.5 °C |
| Humidity: | 52.1 % RH |
| Atmospheric Pressure: | 101.3kPa |

## 11.2 Test Procedure

The RF output of the transceiver was connected to a spectrum analyzer and simulator through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz. Sufficient scans were taken to show any out of band emissions up to 10th harmonics.




## 11.3 Test Result

PASS

**LTE Band**

Please refer to the Appendix Band 2/4/7LTE Transmitter Spurious Emissions.

# 12 SPURIOUS RADIATED EMISSIONS

| | |
|---|---|
| Test Requirement: | FCC Part 2.1053, 24.238, 27.53(m)(4) |
| Test Method: | TIA/EIA-603-D:2010 |
| | KDB971168 D01 v02r02 |
| Test Mode: | TX transmitting |

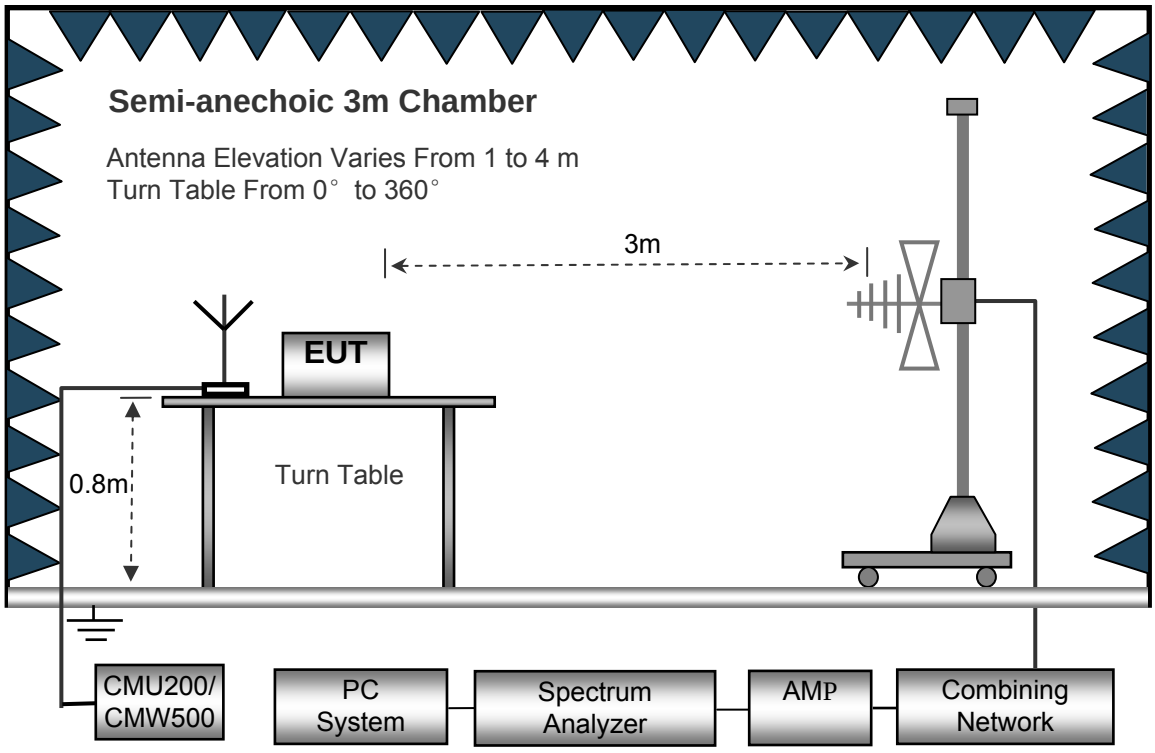
## 12.1 EUT Operation

Operating Environment **:**

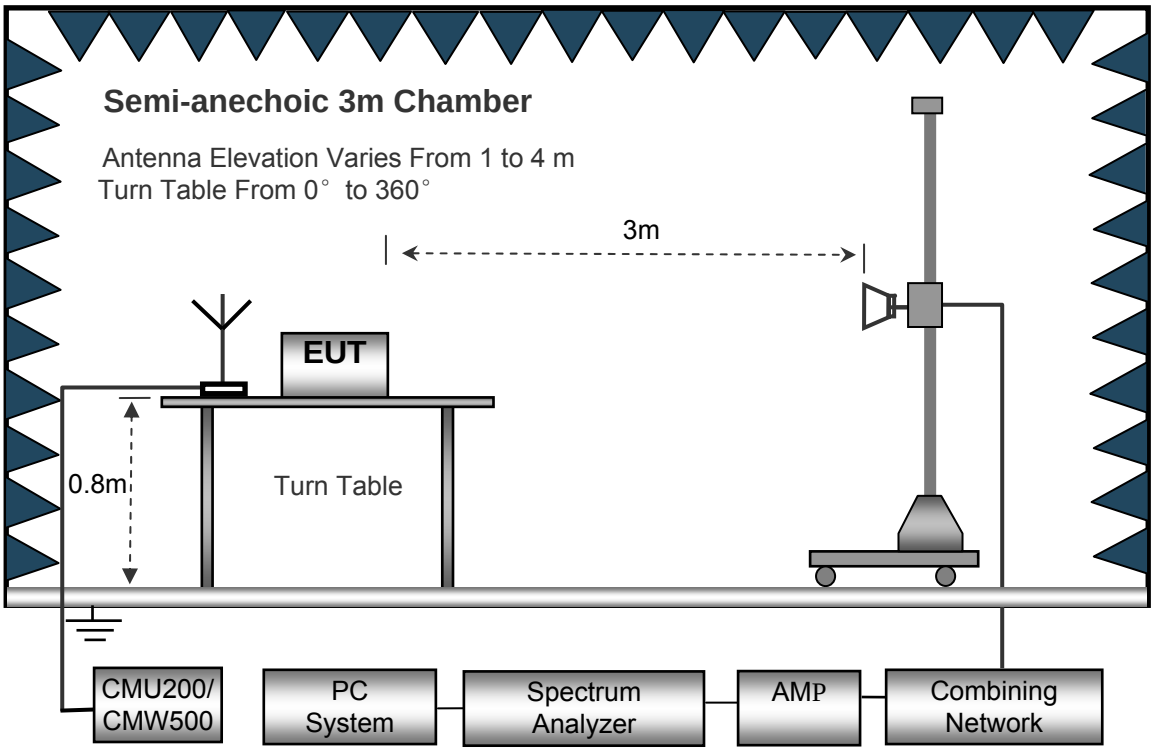
| | |
|---|---|
| Temperature: | 23.5 °C |
| Humidity: | 52.1 % RH |
| Atmospheric Pressure: | 101.2kPa |

## 12.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site. The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz.




## 12.3 Spectrum Analyzer Setup

30MHz ~ 1GHz

| | |
|---|---|
| Sweep Speed | Auto |
| Detector | PK |
| Resolution Bandwidth | 100kHz |
| Video Bandwidth | 300kHz |

Above 1GHz

| | |
|---|---|
| Sweep Speed | Auto |
| Detector | PK |
| Resolution Bandwidth | 1MHz |
| Video Bandwidth | 3MHz |
| Detector | Ave. |
| Resolution Bandwidth | 1MHz |
| Video Bandwidth | 10Hz |

## 12.4 Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions. The spectrum was investigated from 30MHz up to the tenth harmonic of the highest fundamental frequency.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. The radiation measurements are tested under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the Z position. So the data shown was the Z position only.
7. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.
   Spurious emissions in dB = 10 lg (TXpwr in Watts/0.001) – the absolute level
   Spurious attenuation limit in dB = 43 + 10 Log10 (power out in Watts)
8. Repeat above procedures until the measurements for all frequencies are completed.

## 12.5 Summary of Test Results

Remark: Test performed from 30MHz to 10th harmonics with low/middle/high channels, only the worst data were recorded.

**LTE Band 2**

| Frequency | Receiver Reading | Turn table Angle | RX Antenna | | Substituted | | | Absolute Level | Result | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Height | Polar | SG Level | Cable | Antenna Gain | | Limit | Margin |
| (MHz) | (dBμV) | Degree | (m) | (H/V) | (dBm) | (dB) | (dB) | (dBm) | (dBm) | (dB) |
| LTE BAND 2 Channel 18607 | | | | | | | | | | |
| 199.38 | 45.69 | 96 | 2.0 | H | -64.82 | 0.15 | 0.00 | -64.97 | -13.00 | -51.97 |
| 199.38 | 38.47 | 94 | 1.6 | V | -69.12 | 0.15 | 0.00 | -69.27 | -13.00 | -56.27 |
| 3701.40 | 65.95 | 319 | 1.6 | H | -45.59 | 2.37 | 12.50 | -35.46 | -13.00 | -22.46 |
| 3701.40 | 59.98 | 253 | 1.1 | V | -49.83 | 2.37 | 12.50 | -39.70 | -13.00 | -26.70 |
| 5552.10 | 53.58 | 320 | 1.6 | H | -56.03 | 2.86 | 12.90 | -45.99 | -13.00 | -32.99 |
| 5552.10 | 44.73 | 144 | 2.0 | V | -64.15 | 2.86 | 12.90 | -54.11 | -13.00 | -41.11 |
| LTE BAND 2 Channel 18900 | | | | | | | | | | |
| 199.38 | 44.75 | 280 | 1.2 | H | -65.76 | 0.15 | 0.00 | -65.91 | -13.00 | -52.91 |
| 199.38 | 37.87 | 29 | 1.0 | V | -69.72 | 0.15 | 0.00 | -69.87 | -13.00 | -56.87 |
| 3760.00 | 59.18 | 95 | 1.5 | H | -52.36 | 2.37 | 12.50 | -42.23 | -13.00 | -29.23 |
| 3760.00 | 52.34 | 319 | 1.7 | V | -57.47 | 2.37 | 12.50 | -47.34 | -13.00 | -34.34 |
| 5640.00 | 46.12 | 57 | 1.9 | H | -63.49 | 2.86 | 12.90 | -53.45 | -13.00 | -40.45 |
| 5640.00 | 38.13 | 37 | 1.6 | V | -70.75 | 2.86 | 12.90 | -60.71 | -13.00 | -47.71 |
| LTE BAND 2 Channel 19193 | | | | | | | | | | |
| 199.38 | 45.12 | 320 | 1.0 | H | -65.39 | 0.15 | 0.00 | -65.54 | -13.00 | -52.54 |
| 199.38 | 37.63 | 129 | 1.1 | V | -69.96 | 0.15 | 0.00 | -70.11 | -13.00 | -57.11 |
| 3818.60 | 53.10 | 312 | 2.0 | H | -57.75 | 2.37 | 12.60 | -47.52 | -13.00 | -34.52 |
| 3818.60 | 44.52 | 334 | 1.4 | V | -64.79 | 2.37 | 12.60 | -54.56 | -13.00 | -41.56 |
| 5727.90 | 39.07 | 10 | 1.6 | H | -70.28 | 2.86 | 12.90 | -60.24 | -13.00 | -47.24 |
| 5727.90 | 30.67 | 210 | 1.5 | V | -77.83 | 2.86 | 12.90 | -67.79 | -13.00 | -54.79 |

**LTE Band 4**

| Frequency | Receiver Reading | Turn table Angle | RX Antenna | | Substituted | | | Absolute Level | Result | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Height | Polar | SG Level | Cable | Antenna Gain | | Limit | Margin |
| (MHz) | (dBμV) | Degree | (m) | (H/V) | (dBm) | (dB) | (dB) | (dBm) | (dBm) | (dB) |
| LTE BAND 4 Channel 19957 | | | | | | | | | | |
| 199.38 | 40.01 | 334 | 1.2 | H | -70.50 | 0.15 | 0.00 | -70.65 | -13.00 | -57.65 |
| 199.38 | 30.63 | 331 | 1.2 | V | -76.96 | 0.15 | 0.00 | -77.11 | -13.00 | -64.11 |
| 3421.40 | 65.95 | 174 | 1.6 | H | -47.10 | 2.34 | 12.40 | -37.04 | -13.00 | -24.04 |
| 3421.40 | 59.98 | 262 | 1.9 | V | -51.17 | 2.34 | 12.40 | -41.11 | -13.00 | -28.11 |
| 5132.10 | 53.58 | 324 | 1.4 | H | -55.83 | 2.79 | 12.70 | -45.92 | -13.00 | -32.92 |
| 5132.10 | 44.73 | 244 | 1.5 | V | -64.04 | 2.79 | 12.70 | -54.13 | -13.00 | -41.13 |
| LTE BAND 4 Channel 20175 | | | | | | | | | | |
| 199.38 | 39.34 | 332 | 1.0 | H | -71.17 | 0.15 | 0.00 | -71.32 | -13.00 | -58.32 |
| 199.38 | 30.65 | 145 | 1.4 | V | -76.94 | 0.15 | 0.00 | -77.09 | -13.00 | -64.09 |
| 3465.00 | 58.53 | 213 | 1.7 | H | -54.52 | 2.37 | 12.50 | -44.39 | -13.00 | -31.39 |
| 3465.00 | 52.22 | 16 | 1.5 | V | -58.93 | 2.37 | 12.50 | -48.80 | -13.00 | -35.80 |
| 5197.50 | 46.56 | 87 | 1.2 | H | -62.85 | 2.79 | 12.70 | -52.94 | -13.00 | -39.94 |
| 5197.50 | 37.02 | 284 | 1.1 | V | -71.75 | 2.79 | 12.70 | -61.84 | -13.00 | -48.84 |
| LTE BAND 4 Channel 20393 | | | | | | | | | | |
| 199.38 | 39.28 | 21 | 2.1 | H | -71.23 | 0.15 | 0.00 | -71.38 | -13.00 | -58.38 |
| 199.38 | 30.65 | 213 | 1.1 | V | -76.94 | 0.15 | 0.00 | -77.09 | -13.00 | -64.09 |
| 3508.60 | 52.42 | 120 | 2.2 | H | -60.22 | 2.37 | 12.50 | -50.09 | -13.00 | -37.09 |
| 3508.60 | 45.00 | 234 | 2.0 | V | -65.73 | 2.37 | 12.50 | -55.60 | -13.00 | -42.60 |
| 5262.90 | 38.84 | 330 | 1.2 | H | -70.74 | 2.81 | 12.80 | -60.75 | -13.00 | -47.75 |
| 5262.90 | 29.65 | 164 | 2.0 | V | -79.15 | 2.81 | 12.80 | -69.16 | -13.00 | -56.16 |

**LTE Band 7**

| Frequency | Receiver Reading | Turn table Angle | RX Antenna | | Substituted | | | Absolute Level | Result | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Height | Polar | SG Level | Cable | Antenna Gain | | Limit | Margin |
| (MHz) | (dBμV) | Degree | (m) | (H/V) | (dBm) | (dB) | (dB) | (dBm) | (dBm) | (dB) |
| LTE BAND 7 Channel 20775 | | | | | | | | | | |
| 199.38 | 38.80 | 100 | 1.5 | H | -71.71 | 0.15 | 0.00 | -71.86 | -25.00 | -46.86 |
| 199.38 | 30.00 | 75 | 1.7 | V | -77.59 | 0.15 | 0.00 | -77.74 | -25.00 | -52.74 |
| 5005.00 | 65.95 | 81 | 1.2 | H | -43.29 | 2.79 | 12.70 | -33.38 | -25.00 | -8.38 |
| 5005.00 | 59.98 | 196 | 1.4 | V | -48.79 | 2.79 | 12.70 | -38.88 | -25.00 | -13.88 |
| 7507.50 | 53.58 | 310 | 1.7 | H | -52.96 | 3.12 | 11.50 | -44.58 | -25.00 | -19.58 |
| 7507.50 | 44.73 | 338 | 1.9 | V | -60.70 | 3.12 | 11.50 | -52.32 | -25.00 | -27.32 |
| LTE BAND 7 Channel 21100 | | | | | | | | | | |
| 199.38 | 38.58 | 50 | 1.0 | H | -71.93 | 0.15 | 0.00 | -72.08 | -25.00 | -47.08 |
| 199.38 | 29.94 | 190 | 1.9 | V | -77.65 | 0.15 | 0.00 | -77.80 | -25.00 | -52.80 |
| 5070.00 | 59.13 | 229 | 2.1 | H | -50.11 | 2.37 | 12.50 | -39.98 | -25.00 | -14.98 |
| 5070.00 | 53.31 | 117 | 1.1 | V | -55.46 | 2.37 | 12.50 | -45.33 | -25.00 | -20.33 |
| 7605.00 | 47.18 | 219 | 1.2 | H | -59.36 | 3.12 | 11.50 | -50.98 | -25.00 | -25.98 |
| 7605.00 | 36.95 | 122 | 1.8 | V | -68.48 | 3.12 | 11.50 | -60.10 | -25.00 | -35.10 |
| LTE BAND 7 Channel 21425 | | | | | | | | | | |
| 199.38 | 38.90 | 227 | 1.8 | H | -71.61 | 0.15 | 0.00 | -71.76 | -25.00 | -46.76 |
| 199.38 | 30.61 | 30 | 1.6 | V | -76.98 | 0.15 | 0.00 | -77.13 | -25.00 | -52.13 |
| 5135.00 | 52.68 | 345 | 2.1 | H | -56.73 | 2.37 | 12.50 | -46.60 | -25.00 | -21.60 |
| 5135.00 | 45.94 | 94 | 1.1 | V | -62.83 | 2.37 | 12.50 | -52.70 | -25.00 | -27.70 |
| 7702.50 | 41.15 | 354 | 1.2 | H | -64.08 | 3.12 | 11.50 | -55.70 | -25.00 | -30.70 |
| 7702.50 | 30.36 | 304 | 1.4 | V | -74.53 | 3.12 | 11.50 | -66.15 | -25.00 | -41.15 |

Note: 1) Absolute Level = SG Level - Cable loss + Antenna Gain

2) Margin = Limit- Absolute Level

# 13 Band Edge Measurement

| | |
|---|---|
| Test Requirement: | FCC Part 2.1051, 24.238(a), 27.53(h)，27.53(m)(4) |
| Test Method: | TIA/EIA-603-D:2010 |
| | KDB971168 D01 v02r02 |
| Test Mode: | TX transmitting |

## 13.1 EUT Operation

Operating Environment **:**

| | |
|---|---|
| Temperature: | 23.5 °C |
| Humidity: | 52.3 % RH |
| Atmospheric Pressure: | 101.3kPa |

## 13.2 Test Procedure

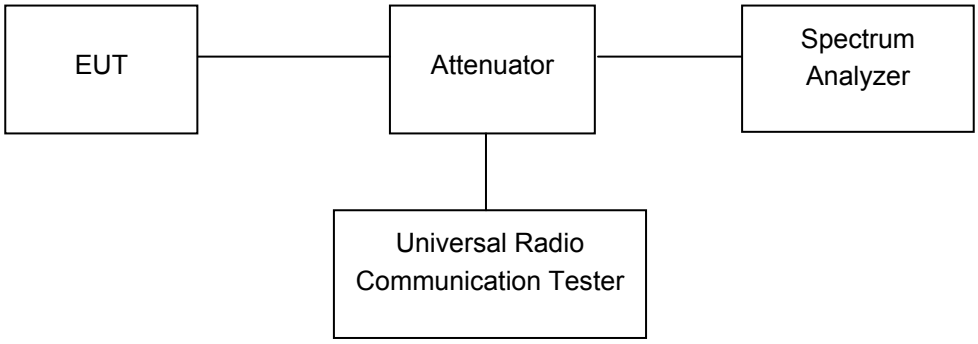
The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

According to FCC Part 27.53(h), Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10} (P)$ dB.

According to FCC Part 24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the TX transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

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

The center of the spectrum analyzer was set to block edge frequency




## 13.3 Test Result

PASS

**LTE Band**

Please refer to the Appendix Band 2/4/7 LTE Band Edge.

# 14 FREQUENCY STABILITY

| | |
|---|---|
| Test Requirement: | FCC Part 2.1055, 24.235, 27.5(h),27.54 |
| Test Method: | TIA/EIA-603-D:2010 |
| | KDB971168 D01 v02r02 |
| Test Mode: | TX transmitting |

## 14.1 EUT Operation

Operating Environment **:**

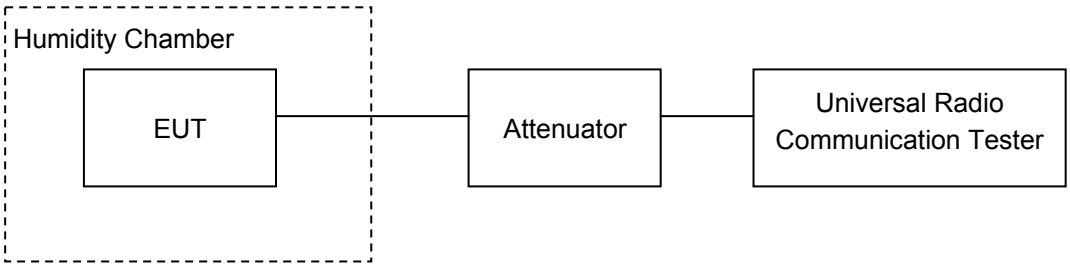
| | |
|---|---|
| Temperature: | 22.9 °C |
| Humidity: | 52.0 % RH |
| Atmospheric Pressure: | 101.3kPa |

## 14.2 Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the communication test set.

Frequency Stability vs. Voltage: For hand carried, battery powered equipment; reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.



## 14.3 Test Result

LTE Band 2

| Test Frequency:1880.0MHz QPSK 1.4MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | -6 | -0.0032 | 2.5 |
| 40 | | -1 | -0.0005 | 2.5 |
| 30 | | 7 | 0.0037 | 2.5 |
| 20 | | 1 | 0.0005 | 2.5 |
| 10 | | -1 | -0.0005 | 2.5 |
| 0 | | 3 | 0.0016 | 2.5 |
| -10 | | 9 | 0.0048 | 2.5 |
| -20 | | -8 | -0.0043 | 2.5 |
| -30 | | -6 | -0.0032 | 2.5 |
| 20 | 3.3 | -3 | -0.0016 | 2.5 |
| 20 | 4.2 | 0 | 0.0000 | 2.5 |

| T Test Frequency:1880.0MHz 16QAM 1.4MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | 3 | 0.0016 | 2.5 |
| 40 | | 11 | 0.0059 | 2.5 |
| 30 | | 3 | 0.0016 | 2.5 |
| 20 | | 7 | 0.0037 | 2.5 |
| 10 | | 5 | 0.0027 | 2.5 |
| 0 | | 8 | 0.0043 | 2.5 |
| -10 | | 3 | 0.0016 | 2.5 |
| -20 | | 11 | 0.0059 | 2.5 |
| -30 | | 14 | 0.0074 | 2.5 |
| 20 | 3.3 | 0 | 0.0000 | 2.5 |
| 20 | 4.2 | 0 | 0.0000 | 2.5 |

LTE Band 2

| Test Frequency:1880.0MHz QPSK 3MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | 1 | 0.0005 | 2.5 |
| 40 | | -1 | -0.0005 | 2.5 |
| 30 | | 0 | 0.0000 | 2.5 |
| 20 | | -4 | -0.0021 | 2.5 |
| 10 | | -1 | -0.0005 | 2.5 |
| 0 | | -10 | -0.0053 | 2.5 |
| -10 | | -11 | -0.0059 | 2.5 |
| -20 | | -13 | -0.0069 | 2.5 |
| -30 | | 3 | 0.0016 | 2.5 |
| 20 | 3.3 | 1 | 0.0005 | 2.5 |
| 20 | 4.2 | -7 | -0.0037 | 2.5 |

| Test Frequency:1880.0MHz 16QAM 3MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | 10 | 0.0053 | 2.5 |
| 40 | | -4 | -0.0021 | 2.5 |
| 30 | | 5 | 0.0027 | 2.5 |
| 20 | | 2 | 0.0011 | 2.5 |
| 10 | | 4 | 0.0021 | 2.5 |
| 0 | | 11 | 0.0059 | 2.5 |
| -10 | | 10 | 0.0053 | 2.5 |
| -20 | | 1 | 0.0005 | 2.5 |
| -30 | | 2 | 0.0011 | 2.5 |
| 20 | 3.3 | 9 | 0.0048 | 2.5 |
| 20 | 4.2 | 2 | 0.0011 | 2.5 |

LTE Band 2

| Test Frequency:1880.0MHz QPSK 5MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | 5 | 0.0027 | 2.5 |
| 40 | | 9 | 0.0048 | 2.5 |
| 30 | | 9 | 0.0048 | 2.5 |
| 20 | | 8 | 0.0037 | 2.5 |
| 10 | | 10 | 0.0053 | 2.5 |
| 0 | | 1 | 0.0005 | 2.5 |
| -10 | | -2 | -0.0011 | 2.5 |
| -20 | | 2 | 0.0011 | 2.5 |
| -30 | | 14 | 0.0074 | 2.5 |
| 20 | 3.3 | -1 | -0.0005 | 2.5 |
| 20 | 4.2 | 1 | 0.0005 | 2.5 |

| Test Frequency:1880.0MHz 16QAM 5MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | 3 | 0.0016 | 2.5 |
| 40 | | -4 | -0.0021 | 2.5 |
| 30 | | -1 | -0.0005 | 2.5 |
| 20 | | -3 | -0.0021 | 2.5 |
| 10 | | 1 | 0.0005 | 2.5 |
| 0 | | -4 | -0.0021 | 2.5 |
| -10 | | -6 | -0.0032 | 2.5 |
| -20 | | 4 | 0.0021 | 2.5 |
| -30 | | 1 | 0.0005 | 2.5 |
| 20 | 3.3 | -12 | -0.0064 | 2.5 |
| 20 | 4.2 | 5 | 0.0027 | 2.5 |

LTE Band 2

| Test Frequency:1880.0MHz QPSK 10MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | 4 | 0.0021 | 2.5 |
| 40 | | -6 | -0.0032 | 2.5 |
| 30 | | 0 | 0.0000 | 2.5 |
| 20 | | 4 | 0.0011 | 2.5 |
| 10 | | 10 | 0.0053 | 2.5 |
| 0 | | -4 | -0.0021 | 2.5 |
| -10 | | 5 | 0.0027 | 2.5 |
| -20 | | 2 | 0.0011 | 2.5 |
| -30 | | 8 | 0.0043 | 2.5 |
| 20 | 3.3 | -4 | -0.0021 | 2.5 |
| 20 | 4.2 | 4 | 0.0021 | 2.5 |

| Test Frequency:1880.0MHz 16QAM 10MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | 15 | 0.0080 | 2.5 |
| 40 | | 9 | 0.0048 | 2.5 |
| 30 | | 3 | 0.0016 | 2.5 |
| 20 | | 7 | 0.0037 | 2.5 |
| 10 | | -1 | -0.0005 | 2.5 |
| 0 | | -2 | -0.0011 | 2.5 |
| -10 | | 4 | 0.0021 | 2.5 |
| -20 | | 10 | 0.0053 | 2.5 |
| -30 | | 0 | 0.0000 | 2.5 |
| 20 | 3.3 | 0 | 0.0000 | 2.5 |
| 20 | 4.2 | 6 | 0.0032 | 2.5 |

LTE Band 2

| Test Frequency:1880.0MHz QPSK 15MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | 9 | 0.0048 | 2.5 |
| 40 | | -2 | -0.0011 | 2.5 |
| 30 | | 3 | 0.0016 | 2.5 |
| 20 | | 2 | 0.0011 | 2.5 |
| 10 | | -3 | -0.0016 | 2.5 |
| 0 | | 10 | 0.0053 | 2.5 |
| -10 | | 2 | 0.0011 | 2.5 |
| -20 | | 4 | 0.0021 | 2.5 |
| -30 | | 5 | 0.0027 | 2.5 |
| 20 | 3.3 | 4 | 0.0021 | 2.5 |
| 20 | 4.2 | -4 | -0.0021 | 2.5 |

| Test Frequency:1880.0MHz 16QAM 15MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | -7 | -0.0037 | 2.5 |
| 40 | | -1 | -0.0005 | 2.5 |
| 30 | | -4 | -0.0021 | 2.5 |
| 20 | | 1 | 0.0005 | 2.5 |
| 10 | | -3 | -0.0016 | 2.5 |
| 0 | | 3 | 0.0016 | 2.5 |
| -10 | | 0 | 0.0000 | 2.5 |
| -20 | | -6 | -0.0032 | 2.5 |
| -30 | | -3 | -0.0016 | 2.5 |
| 20 | 3.3 | 6 | 0.0032 | 2.5 |
| 20 | 4.2 | -8 | -0.0043 | 2.5 |

LTE Band 2

| Test Frequency:1880.0MHz QPSK 20MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | 0 | 0.0000 | 2.5 |
| 40 | | -2 | -0.0011 | 2.5 |
| 30 | | -6 | -0.0032 | 2.5 |
| 20 | | 1 | 0.0005 | 2.5 |
| 10 | | 3 | 0.0016 | 2.5 |
| 0 | | -4 | -0.0021 | 2.5 |
| -10 | | 7 | 0.0037 | 2.5 |
| -20 | | -1 | -0.0005 | 2.5 |
| -30 | | 1 | 0.0005 | 2.5 |
| 20 | 3.3 | 2 | 0.0011 | 2.5 |
| 20 | 4.2 | 9 | 0.0048 | 2.5 |

| Test Frequency:1880.0MHz 16QAM 20MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | 7 | 0.0037 | 2.5 |
| 40 | | -3 | -0.0016 | 2.5 |
| 30 | | 7 | 0.0037 | 2.5 |
| 20 | | 0 | 0.0000 | 2.5 |
| 10 | | 5 | 0.0027 | 2.5 |
| 0 | | -4 | -0.0021 | 2.5 |
| -10 | | -3 | -0.0016 | 2.5 |
| -20 | | 8 | 0.0043 | 2.5 |
| -30 | | 1 | 0.0005 | 2.5 |
| 20 | 3.3 | 8 | 0.0043 | 2.5 |
| 20 | 4.2 | 5 | 0.0027 | 2.5 |

LTE Band 4

| Test Frequency:1732.5MHz QPSK 1.4MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | 8 | 0.0046 | 2.5 |
| 40 | | -3 | -0.0017 | 2.5 |
| 30 | | 3 | 0.0017 | 2.5 |
| 20 | | 2 | 0.0010 | 2.5 |
| 10 | | 7 | 0.0040 | 2.5 |
| 0 | | -7 | -0.0040 | 2.5 |
| -10 | | 3 | 0.0017 | 2.5 |
| -20 | | 4 | 0.0023 | 2.5 |
| -30 | | 3 | 0.0017 | 2.5 |
| 20 | 3.3 | -5 | -0.0029 | 2.5 |
| 20 | 4.2 | -7 | -0.0040 | 2.5 |

| Test Frequency:1732.5MHz 16QAM 1.4MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | -7 | -0.0040 | 2.5 |
| 40 | | -1 | -0.0006 | 2.5 |
| 30 | | -6 | -0.0035 | 2.5 |
| 20 | | 2 | 0.0010 | 2.5 |
| 10 | | 2 | 0.0012 | 2.5 |
| 0 | | 2 | 0.0012 | 2.5 |
| -10 | | 5 | 0.0029 | 2.5 |
| -20 | | -3 | -0.0017 | 2.5 |
| -30 | | 0 | 0.0000 | 2.5 |
| 20 | 3.3 | 8 | 0.0046 | 2.5 |
| 20 | 4.2 | -1 | -0.0006 | 2.5 |

LTE Band 4

| Test Frequency:1732.5MHz QPSK 3MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | 6 | 0.0035 | 2.5 |
| 40 | | -5 | -0.0029 | 2.5 |
| 30 | | 0 | 0.0000 | 2.5 |
| 20 | | 2 | 0.0010 | 2.5 |
| 10 | | 1 | 0.0006 | 2.5 |
| 0 | | 2 | 0.0012 | 2.5 |
| -10 | | -6 | -0.0035 | 2.5 |
| -20 | | 10 | 0.0058 | 2.5 |
| -30 | | -5 | -0.0029 | 2.5 |
| 20 | 3.3 | -4 | -0.0023 | 2.5 |
| 20 | 4.2 | -3 | -0.0017 | 2.5 |

| Test Frequency:1732.5MHz 16QAM 3MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | 9 | 0.0052 | 2.5 |
| 40 | | 9 | 0.0052 | 2.5 |
| 30 | | -6 | -0.0035 | 2.5 |
| 20 | | 2 | 0.0012 | 2.5 |
| 10 | | 4 | 0.0023 | 2.5 |
| 0 | | 11 | 0.0063 | 2.5 |
| -10 | | 0 | 0.0000 | 2.5 |
| -20 | | 9 | 0.0052 | 2.5 |
| -30 | | -2 | -0.0012 | 2.5 |
| 20 | 3.3 | 3 | 0.0017 | 2.5 |
| 20 | 4.2 | 2 | 0.0012 | 2.5 |

LTE Band 4

| Test Frequency:1732.5MHz QPSK 5MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | -3 | -0.0017 | 2.5 |
| 40 | | -7 | -0.0040 | 2.5 |
| 30 | | 2 | 0.0012 | 2.5 |
| 20 | | 2 | 0.0012 | 2.5 |
| 10 | | -6 | -0.0035 | 2.5 |
| 0 | | -6 | -0.0035 | 2.5 |
| -10 | | -7 | -0.0040 | 2.5 |
| -20 | | -2 | -0.0012 | 2.5 |
| -30 | | -2 | -0.0012 | 2.5 |
| 20 | 3.3 | 5 | 0.0029 | 2.5 |
| 20 | 4.2 | 10 | 0.0058 | 2.5 |

| Test Frequency:1732.5MHz 16QAM 5MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | 0 | 0.0000 | 2.5 |
| 40 | | 9 | 0.0052 | 2.5 |
| 30 | | 9 | 0.0052 | 2.5 |
| 20 | | 5 | 0.0029 | 2.5 |
| 10 | | 4 | 0.0023 | 2.5 |
| 0 | | 6 | 0.0035 | 2.5 |
| -10 | | 6 | 0.0035 | 2.5 |
| -20 | | 5 | 0.0029 | 2.5 |
| -30 | | 9 | 0.0052 | 2.5 |
| 20 | 3.3 | -2 | -0.0012 | 2.5 |
| 20 | 4.2 | 12 | 0.0069 | 2.5 |

LTE Band 4

| Test Frequency:1732.5MHz QPSK 10MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | -6 | -0.0035 | 2.5 |
| 40 | | -3 | -0.0017 | 2.5 |
| 30 | | -4 | -0.0023 | 2.5 |
| 20 | | 3 | 0.0017 | 2.5 |
| 10 | | 7 | 0.0040 | 2.5 |
| 0 | | -2 | -0.0012 | 2.5 |
| -10 | | 3 | 0.0017 | 2.5 |
| -20 | | -2 | -0.0012 | 2.5 |
| -30 | | 5 | 0.0029 | 2.5 |
| 20 | 3.3 | -1 | -0.0006 | 2.5 |
| 20 | 4.2 | 0 | 0.0000 | 2.5 |

| Test Frequency:1732.5MHz 16QAM 10MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | 11 | 0.0063 | 2.5 |
| 40 | | 2 | 0.0012 | 2.5 |
| 30 | | 11 | 0.0063 | 2.5 |
| 20 | | 3 | 0.0017 | 2.5 |
| 10 | | 2 | 0.0012 | 2.5 |
| 0 | | -1 | -0.0006 | 2.5 |
| -10 | | 12 | 0.0069 | 2.5 |
| -20 | | -5 | -0.0029 | 2.5 |
| -30 | | 11 | 0.0063 | 2.5 |
| 20 | 3.3 | -4 | -0.0023 | 2.5 |
| 20 | 4.2 | 8 | 0.0046 | 2.5 |

LTE Band 4

| Test Frequency:1732.5MHz QPSK 15MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | 1 | 0.0006 | 2.5 |
| 40 | | 7 | 0.0040 | 2.5 |
| 30 | | 1 | 0.0006 | 2.5 |
| 20 | | 1 | 0.0006 | 2.5 |
| 10 | | -5 | -0.0029 | 2.5 |
| 0 | | 0 | 0.0000 | 2.5 |
| -10 | | 6 | 0.0035 | 2.5 |
| -20 | | -2 | -0.0012 | 2.5 |
| -30 | | 0 | 0.0000 | 2.5 |
| 20 | 3.3 | 4 | 0.0023 | 2.5 |
| 20 | 4.2 | -4 | -0.0023 | 2.5 |

| Test Frequency:1732.5MHz 16QAM 15MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | 9 | 0.0052 | 2.5 |
| 40 | | 6 | 0.0035 | 2.5 |
| 30 | | 2 | 0.0012 | 2.5 |
| 20 | | 4 | 0.0023 | 2.5 |
| 10 | | -3 | -0.0017 | 2.5 |
| 0 | | 13 | 0.0075 | 2.5 |
| -10 | | 10 | 0.0058 | 2.5 |
| -20 | | 7 | 0.0040 | 2.5 |
| -30 | | 1 | 0.0006 | 2.5 |
| 20 | 3.3 | 11 | 0.0063 | 2.5 |
| 20 | 4.2 | -5 | -0.0029 | 2.5 |

LTE Band 4

| Test Frequency:1732.5MHz QPSK 20MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | 5 | 0.0029 | 2.5 |
| 40 | | 8 | 0.0046 | 2.5 |
| 30 | | 3 | 0.0017 | 2.5 |
| 20 | | 2 | 0.0010 | 2.5 |
| 10 | | 8 | 0.0046 | 2.5 |
| 0 | | 4 | 0.0023 | 2.5 |
| -10 | | -2 | -0.0012 | 2.5 |
| -20 | | -4 | -0.0023 | 2.5 |
| -30 | | -7 | -0.0040 | 2.5 |
| 20 | 3.3 | 1 | 0.0006 | 2.5 |
| 20 | 4.2 | -2 | -0.0012 | 2.5 |

| Test Frequency:1732.5MHz 16QAM 20MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | 3 | 0.0017 | 2.5 |
| 40 | | 3 | 0.0017 | 2.5 |
| 30 | | -10 | -0.0058 | 2.5 |
| 20 | | -4 | -0.0023 | 2.5 |
| 10 | | -9 | -0.0052 | 2.5 |
| 0 | | 4 | 0.0023 | 2.5 |
| -10 | | -4 | -0.0023 | 2.5 |
| -20 | | -3 | -0.0017 | 2.5 |
| -30 | | -13 | -0.0075 | 2.5 |
| 20 | 3.3 | -12 | -0.0069 | 2.5 |
| 20 | 4.2 | -3 | -0.0017 | 2.5 |

LTE Band 7

| Test Frequency:2535MHz QPSK 5MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | -5 | -0.0020 | 2.5 |
| 40 | | -2 | -0.0008 | 2.5 |
| 30 | | -3 | -0.0012 | 2.5 |
| 20 | | 3 | 0.0012 | 2.5 |
| 10 | | -1 | -0.0004 | 2.5 |
| 0 | | -3 | -0.0012 | 2.5 |
| -10 | | 12 | 0.0047 | 2.5 |
| -20 | | 2 | 0.0008 | 2.5 |
| -30 | | 9 | 0.0036 | 2.5 |
| 20 | 3.3 | 0 | 0.0000 | 2.5 |
| 20 | 4.2 | -1 | -0.0004 | 2.5 |

| Test Frequency:2535MHz 16QAM 5MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | 6 | 0.0024 | 2.5 |
| 40 | | 2 | 0.0008 | 2.5 |
| 30 | | 11 | 0.0043 | 2.5 |
| 20 | | 3 | 0.0012 | 2.5 |
| 10 | | 8 | 0.0032 | 2.5 |
| 0 | | -4 | -0.0016 | 2.5 |
| -10 | | -2 | -0.0008 | 2.5 |
| -20 | | -2 | -0.0008 | 2.5 |
| -30 | | 8 | 0.0032 | 2.5 |
| 20 | 3.3 | -6 | -0.0024 | 2.5 |
| 20 | 4.2 | 11 | 0.0043 | 2.5 |

LTE Band 7

| Test Frequency:2535MHz QPSK 10MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | 1 | 0.0004 | 2.5 |
| 40 | | 7 | 0.0028 | 2.5 |
| 30 | | 10 | 0.0039 | 2.5 |
| 20 | | 1 | 0.0004 | 2.5 |
| 10 | | 7 | 0.0028 | 2.5 |
| 0 | | 7 | 0.0028 | 2.5 |
| -10 | | 5 | 0.0020 | 2.5 |
| -20 | | -8 | -0.0032 | 2.5 |
| -30 | | -4 | -0.0016 | 2.5 |
| 20 | 3.3 | 7 | 0.0028 | 2.5 |
| 20 | 4.2 | -4 | -0.0016 | 2.5 |

| Test Frequency:2535MHz 16QAM 10MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | 6 | 0.0024 | 2.5 |
| 40 | | 3 | 0.0012 | 2.5 |
| 30 | | 6 | 0.0024 | 2.5 |
| 20 | | 3 | 0.0012 | 2.5 |
| 10 | | 9 | 0.0036 | 2.5 |
| 0 | | 4 | 0.0016 | 2.5 |
| -10 | | 7 | 0.0028 | 2.5 |
| -20 | | 1 | 0.0004 | 2.5 |
| -30 | | 2 | 0.0008 | 2.5 |
| 20 | 3.3 | -5 | -0.0020 | 2.5 |
| 20 | 4.2 | 9 | 0.0036 | 2.5 |

LTE Band 7

| Test Frequency:2535MHz QPSK 15MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | 4 | 0.0016 | 2.5 |
| 40 | | 4 | 0.0016 | 2.5 |
| 30 | | 0 | 0.0000 | 2.5 |
| 20 | | 3 | 0.0012 | 2.5 |
| 10 | | 4 | 0.0016 | 2.5 |
| 0 | | 6 | 0.0024 | 2.5 |
| -10 | | 7 | 0.0028 | 2.5 |
| -20 | | 1 | 0.0004 | 2.5 |
| -30 | | 6 | 0.0024 | 2.5 |
| 20 | 3.3 | -5 | -0.0020 | 2.5 |
| 20 | 4.2 | 9 | 0.0036 | 2.5 |

| Test Frequency:2535MHz 16QAM 15MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | 3 | 0.0012 | 2.5 |
| 40 | | 8 | 0.0032 | 2.5 |
| 30 | | 5 | 0.0020 | 2.5 |
| 20 | | 6 | 0.0024 | 2.5 |
| 10 | | -1 | -0.0004 | 2.5 |
| 0 | | 13 | 0.0051 | 2.5 |
| -10 | | 6 | 0.0024 | 2.5 |
| -20 | | -1 | -0.0004 | 2.5 |
| -30 | | 12 | 0.0047 | 2.5 |
| 20 | 3.3 | 5 | 0.0020 | 2.5 |
| 20 | 4.2 | 14 | 0.0055 | 2.5 |

LTE Band 7

| Test Frequency:2535MHz QPSK 20MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | 10 | 0.0039 | 2.5 |
| 40 | | -6 | -0.0024 | 2.5 |
| 30 | | 11 | 0.0043 | 2.5 |
| 20 | | 3 | 0.0012 | 2.5 |
| 10 | | 6 | 0.0024 | 2.5 |
| 0 | | -2 | -0.0008 | 2.5 |
| -10 | | 12 | 0.0047 | 2.5 |
| -20 | | 9 | 0.0036 | 2.5 |
| -30 | | 4 | 0.0016 | 2.5 |
| 20 | 3.3 | -5 | -0.0020 | 2.5 |
| 20 | 4.2 | 10 | 0.0039 | 2.5 |

| Test Frequency:2535MHz 16QAM 20MHz | | | | |
|---|---|---|---|---|
| Temperature (℃) | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) | Limit (ppm) |
| 50 | 3.8 | 6 | 0.0024 | 2.5 |
| 40 | | -5 | -0.0020 | 2.5 |
| 30 | | -7 | -0.0028 | 2.5 |
| 20 | | -2 | -0.0008 | 2.5 |
| 10 | | 0 | 0.0000 | 2.5 |
| 0 | | -1 | -0.0004 | 2.5 |
| -10 | | -3 | -0.0012 | 2.5 |
| -20 | | 0 | 0.0000 | 2.5 |
| -30 | | 0 | 0.0000 | 2.5 |
| 20 | 3.3 | -10 | -0.0039 | 2.5 |
| 20 | 4.2 | -1 | -0.0004 | 2.5 |

# 15 RF Exposure

Remark: refer to SAR test report: WTS17S0169747E.

# 16 Photographs of test setup and EUT.

Note: Please refer to appendix: WTS17S0169748E_Photo.

====== End of Report ======