

# TEST REPORT

**Reference No.**..... : WTS16S0961925-4E V1  
**FCC ID** ..... : 2AJZT-K3  
**Applicant**..... : Shenzhen Jin Yu Electronic Technology Co., Ltd  
**Address**..... : 21A, Haowei Technology Building, Keji South 8th Road, Nanshan District, Shenzhen, China  
**Manufacturer** ..... : Shenzhen Jin Yu Electronic Technology Co., Ltd  
**Address**..... : 21A, Haowei Technology Building, Keji South 8th Road, Nanshan District, Shenzhen, China  
**Product Name**..... : Smart Phone  
**Model No.**..... : K3  
**Brand**..... : Kodak  
**Standards**..... : FCC CFR47 Part 24 Subpart E: 2015  
FCC CFR47 Part 27: 2015  
**Date of Receipt sample** .... : Sep. 29, 2016  
**Date of Test** ..... : Sep. 30 – Oct. 25, 2016  
**Date of Issue**..... : Nov. 03, 2016  
**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.

**Prepared By:**

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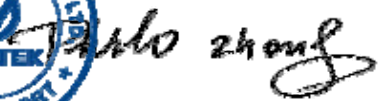
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Compiled by:



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Approved by:



Philo Zhong / Manager

## 2 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<br>(SAR)  | 1.1307<br>2.1093                             | PASS   |

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## 4 Report Revision History

| Report No.          | Report Version | Description | Issue Date    |
|---------------------|----------------|-------------|---------------|
| WTS16S0961925-4E    | NONE           | Original    | Oct. 26, 2016 |
| WTS16S0961925-4E V1 | V1             | Version 1   | Nov. 03, 2016 |

## 5 General Information

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

|                     |                                                                       |
|---------------------|-----------------------------------------------------------------------|
| Product Name        | : Smart Phone                                                         |
| Model No.           | : K3                                                                  |
| Model Description   | : N/A                                                                 |
| GSM Band(s)         | : GSM 850/900/1800/1900MHz                                            |
| GPRS/EGPRS Class    | : 12                                                                  |
| WCDMA Band(s)       | : FDD Band II/V                                                       |
| LTE Bnad(s)         | : LTE Band 2/4                                                        |
| Wi-Fi Specification | : 2.4G: 802.11b/g/n HT20 HT40                                         |
| Bluetooth Version   | : Bluetooth v4.0 with BLE                                             |
| GPS                 | : Support                                                             |
| NFC                 | : N/A                                                                 |
| Hardware Version    | : Q808-MB-V0.8                                                        |
| Software Version    | :Q808_YKQ_CN_BT_WIFI_FM_GPS_GS_ALSPS_6753_LWG_EMMC_25624_V01_09251910 |
| Storage Location    | : Internal Storage                                                    |

### 5.2 Details of E.U.T.

|                      |                                                                                                                                                                                                                                                                                              |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operation Frequency  | : GSM/GPRS/EGPRS 850: 824~849MHz<br>PCS/GPRS/EGPRS 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>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: 32.50dBm<br>PCS1900: 29.67dBm<br>WCDMA Band II: 22.76dBm<br>WCDMA Band V: 22.56dBm<br>LTE Band 2: 24.28dBm<br>LTE Band 4: 24.64dBm<br>WiFi(2.4G): 9.55dBm<br>Bluetooth: 4.96dBm                                                                                                   |
| Type of Modulation   | : GSM,GPRS: GMSK<br>EDGE: GMSK, 8PSK<br>WCDMA: BPSK                                                                                                                                                                                                                                          |

|                      |                                                                                                                                                                              |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                      | LTE: QPSK, 16QAM                                                                                                                                                             |
|                      | WiFi: CCK, OFDM                                                                                                                                                              |
|                      | Bluetooth: GFSK, Pi/4 DQPSK, 8DPSK                                                                                                                                           |
| Antenna installation | : GSM/WCDMA/LTE: internal permanent antenna<br>WiFi/Bluetooth: internal permanent antenna                                                                                    |
| Antenna Gain         | : GSM 850: 1.2dBi<br>PCS1900: 1.3dBi<br>WCDMA Band II: 1.3dBi<br>WCDMA Band V: 1.2dBi<br>LTE Band 2: 1.3dBi<br>LTE Band 4: 1.3dBi<br>WiFi(2.4G): 0.8dBi<br>Bluetooth: 0.8dBi |
| Technical Data       | : Battery DC 3.7V, 2300mAh<br>DC 5V, 1.0A, charging from adapter<br>(Adapter Input: 100-240V~50/60Hz 0.2A)                                                                   |
| Adapter              |                                                                                                                                                                              |

### 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 |
|  |    | 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 Equipment Used during Test

### 6.1 Equipments List

| RF Conducted Test                               |                                            |                         |                   |            |                       |                      |
|-------------------------------------------------|--------------------------------------------|-------------------------|-------------------|------------|-----------------------|----------------------|
| Item                                            | Equipment                                  | Manufacturer            | Model No.         | Serial No. | Last Calibration Date | Calibration Due Date |
| 1.                                              | EMC Analyzer<br>(9k~26.5GHz)               | Agilent                 | E7405A            | MY45114943 | Apr.09,2016           | Apr.08,2017          |
| 2.                                              | Spectrum Analyzer<br>(9k-6GHz)             | R&S                     | FSL6              | 100959     | Apr.09,2016           | Apr.08,2017          |
| 3.                                              | Humidity Chamber                           | GF                      | GTH-225-40-1P     | IAA061213  | Apr.09,2016           | Apr.08,2017          |
| 4.                                              | Universal Radio<br>Communication<br>Tester | R&S                     | CMU 200           | 112461     | Apr.10,2016           | Apr.09,2017          |
| 3m Semi-anechoic Chamber for Radiated Emissions |                                            |                         |                   |            |                       |                      |
| Item                                            | Equipment                                  | Manufacturer            | Model No.         | Serial No. | Last Calibration Date | Calibration Due Date |
| 1                                               | EMC Analyzer                               | Agilent                 | E7405A            | MY45114943 | Apr.09,2016           | Apr.08,2017          |
| 2                                               | Active Loop Antenna                        | Beijing Dazhi           | ZN30900A          | -          | Apr.09,2016           | Apr.08,2017          |
| 3                                               | Trilog Broadband<br>Antenna                | SCHWARZBECK             | VULB9163          | 336        | Apr.18,2016           | Apr.17,2017          |
| 4                                               | Coaxial Cable<br>(below 1GHz)              | Top                     | TYPE16(13M)       | -          | Apr.09,2016           | Apr.08,2017          |
| 5                                               | Broad-band Horn<br>Antenna                 | SCHWARZBECK             | BBHA 9120 D       | 667        | Apr.18,2016           | Apr.17,2017          |
| 6                                               | Broad-band Horn<br>Antenna                 | SCHWARZBECK             | BBHA 9120 D       | 669        | Apr.18,2016           | Apr.17,2017          |
| 7                                               | Broadband<br>Preamplifier                  | COMPLIANCE<br>DIRECTION | PAP-1G18          | 2004       | Mar.17,2016           | Mar.16,2017          |
| 8                                               | Coaxial Cable<br>(above 1GHz)              | Top                     | 1000MHZ-<br>25GHz | EW02014-7  | Apr.09,2016           | Apr.08,2017          |
| 9                                               | Broad-band Horn<br>Antenna                 | SCHWARZBECK             | BBHA 9170         | 335        | Apr.09,2016           | Apr.08,2017          |
| 10                                              | Universal Radio<br>Communication<br>Tester | R&S                     | CMU 200           | 112461     | Apr.10,2016           | Apr.09,2017          |
| 11                                              | Signal Generator                           | R&S                     | SMR20             | 100046     | Apr.09,2016           | Apr.08,2017          |
| 12                                              | Smart Antenna                              | SCHWARZBECK             | HA08              | -          | Apr.18,2016           | Apr.17,2017          |

## 6.2 Measurement Uncertainty

| Parameter                         | Uncertainty                                 |
|-----------------------------------|---------------------------------------------|
| Radio Frequency                   | $\pm 1 \times 10^{-6}$                      |
| RF Power                          | $\pm 1.0$ dB                                |
| RF Power Density                  | $\pm 2.2$ dB                                |
| Radiated Spurious Emissions test  | $\pm 5.03$ dB (Bilog antenna 30M~1000MHz)   |
|                                   | $\pm 5.47$ dB (Horn antenna 1000M~25000MHz) |
| Conducted Spurious Emissions test | $\pm 3.64$ dB (AC mains 150KHz~30MHz)       |

## 6.3 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.

## **7 RF OUTPUT POWER**

|                   |                                               |
|-------------------|-----------------------------------------------|
| Test Requirement: | FCC Part 2.1046, 24.232 (c) 27.50(c),27.50(d) |
| Test Method:      | TIA/EIA-603-D:2010                            |
| Test Mode:        | Transmitting                                  |

### **7.1 EUT Operation**

|                         |         |
|-------------------------|---------|
| Operating Environment : |         |
| Temperature:            | 22.5 °C |
| Humidit                 |         |

### **7.3 Test Result**

**LTE Band 2**

**Conducted Power**

| 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            | 23.19               | 23.0±1               | 0.5      |
|         |       |           |       | 1                | 8            | 23.28               | 23.0±1               | 0.5      |
|         |       |           |       | 1                | 14           | 23.57               | 23.0±1               | 0.5      |
|         |       |           |       | 8                | 0            | 22.25               | 22.0±1               | 1.5      |
|         |       |           |       | 8                | 4            | 22.39               | 22.0±1               | 1.5      |
|         |       |           |       | 8                | 9            | 22.54               | 22.0±1               | 1.5      |
|         |       |           |       | 15               | 0            | 22.37               | 22.0±1               | 1.5      |
|         |       |           | 16QAM | 1                | 0            | 21.86               | 22.0±1               | 1.5      |
|         |       |           |       | 1                | 8            | 22.08               | 22.0±1               | 1.5      |
|         |       |           |       | 1                | 14           | 22.45               | 22.0±1               | 1.5      |
|         |       |           |       | 8                | 0            | 21.35               | 22.0±1               | 1.5      |
|         |       |           |       | 8                | 4            | 21.52               | 22.0±1               | 1.5      |
|         |       |           |       | 8                | 9            | 21.67               | 22.0±1               | 1.5      |
|         |       |           |       | 15               | 0            | 21.42               | 22.0±1               | 1.5      |
|         | 18900 | 1880      | QPSK  | 1                | 0            | 22.74               | 22.0±1               | 1.5      |
|         |       |           |       | 1                | 8            | 22.64               | 22.0±1               | 1.5      |
|         |       |           |       | 1                | 14           | 22.96               | 22.0±1               | 1.5      |
|         |       |           |       | 8                | 0            | 21.73               | 22.0±1               | 1.5      |
|         |       |           |       | 8                | 4            | 21.77               | 22.0±1               | 1.5      |
|         |       |           |       | 8                | 9            | 21.9                | 22.0±1               | 1.5      |
|         |       |           |       | 15               | 0            | 21.75               | 22.0±1               | 1.5      |
|         |       |           | 16QAM | 1                | 0            | 21.98               | 22.0±1               | 1.5      |
|         |       |           |       | 1                | 8            | 21.93               | 22.0±1               | 1.5      |
|         |       |           |       | 1                | 14           | 22.33               | 22.0±1               | 1.5      |
|         |       |           |       | 8                | 0            | 21.14               | 22.0±1               | 1.5      |
|         |       |           |       | 8                | 4            | 21.29               | 22.0±1               | 1.5      |
|         |       |           |       | 8                | 9            | 21.01               | 22.0±1               | 1.5      |
|         |       |           |       | 15               | 0            | 21.07               | 22.0±1               | 1.5      |
|         | 19185 | 1908.5    | QPSK  | 1                | 0            | 23.75               | 23.0±1               | 0.5      |
|         |       |           |       | 1                | 8            | 23.67               | 23.0±1               | 0.5      |
|         |       |           |       | 1                | 14           | 23.61               | 23.0±1               | 0.5      |
|         |       |           |       | 8                | 0            | 23.04               | 23.0±1               | 0.5      |
|         |       |           |       | 8                | 4            | 23.07               | 23.0±1               | 0.5      |
|         |       |           |       | 8                | 9            | 23.05               | 23.0±1               | 0.5      |
|         |       |           |       | 15               | 0            | 23.01               | 23.0±1               | 0.5      |
|         |       |           | 16QAM | 1                | 0            | 22.7                | 22.0±1               | 2.0      |
|         |       |           |       | 1                | 8            | 22.71               | 22.0±1               | 1.5      |
|         |       |           |       | 1                | 14           | 22.71               | 22.0±1               | 1.5      |
|         |       |           |       | 8                | 0            | 22.1                | 22.0±1               | 1.5      |
|         |       |           |       | 8                | 4            | 22.18               | 22.0±1               | 1.5      |
|         |       |           |       | 8                | 9            | 22.17               | 22.0±1               | 1.5      |
|         |       |           |       | 15               | 0            | 22.08               | 22.0±1               | 1.5      |

| 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            | 22.75               | 22.0±1               | 1.5      |
|         |       |           |       | 1                | 12           | 22.82               | 22.0±1               | 1.5      |
|         |       |           |       | 1                | 24           | 22.63               | 22.0±1               | 1.5      |
|         |       |           |       | 12               | 0            | 21.6                | 22.0±1               | 1.5      |
|         |       |           |       | 12               | 6            | 21.91               | 22.0±1               | 1.5      |
|         |       |           |       | 12               | 11           | 22.32               | 22.0±1               | 1.5      |
|         |       |           |       | 25               | 0            | 21.9                | 22.0±1               | 1.5      |
|         |       |           | 16QAM | 1                | 0            | 21.64               | 21.5±1               | 2.0      |
|         |       |           |       | 1                | 12           | 21.79               | 21.5±1               | 2.0      |
|         |       |           |       | 1                | 24           | 21.66               | 21.5±1               | 2.0      |
|         |       |           |       | 12               | 0            | 20.66               | 21.5±1               | 2.0      |
|         |       |           |       | 12               | 6            | 20.93               | 21.5±1               | 2.0      |
|         |       |           |       | 12               | 11           | 21.39               | 21.5±1               | 2.0      |
|         |       |           |       | 25               | 0            | 21.06               | 21.5±1               | 2.0      |
|         | 18900 | 1880      | QPSK  | 1                | 0            | 22.3                | 22.0±1               | 1.5      |
|         |       |           |       | 1                | 12           | 21.92               | 22.0±1               | 1.5      |
|         |       |           |       | 1                | 24           | 22.83               | 22.0±1               | 1.5      |
|         |       |           |       | 12               | 0            | 21.49               | 22.0±1               | 1.5      |
|         |       |           |       | 12               | 6            | 21.01               | 22.0±1               | 1.5      |
|         |       |           |       | 12               | 11           | 21.39               | 22.0±1               | 1.5      |
|         |       |           |       | 25               | 0            | 21.1                | 22.0±1               | 1.5      |
|         |       |           | 16QAM | 1                | 0            | 21.46               | 21.5±1               | 2.0      |
|         |       |           |       | 1                | 12           | 21.18               | 21.5±1               | 2.0      |
|         |       |           |       | 1                | 24           | 22.13               | 21.5±1               | 2.0      |
|         |       |           |       | 12               | 0            | 20.72               | 21.5±1               | 2.0      |
|         |       |           |       | 12               | 6            | 20.63               | 21.5±1               | 2.0      |
|         |       |           |       | 12               | 11           | 20.56               | 21.5±1               | 2.0      |
|         |       |           |       | 25               | 0            | 20.51               | 21.5±1               | 2.0      |
|         | 19175 | 1907.5    | QPSK  | 1                | 0            | 23.02               | 22.5±1               | 1.0      |
|         |       |           |       | 1                | 12           | 23.1                | 22.5±1               | 1.0      |
|         |       |           |       | 1                | 24           | 23.35               | 22.5±1               | 1.0      |
|         |       |           |       | 12               | 0            | 22.04               | 22.0±1               | 1.5      |
|         |       |           |       | 12               | 6            | 22.26               | 22.0±1               | 1.5      |
|         |       |           |       | 12               | 11           | 22.48               | 22.0±1               | 1.5      |
|         |       |           |       | 25               | 0            | 22.23               | 22.0±1               | 1.5      |
|         |       |           | 16QAM | 1                | 0            | 22.65               | 22.0±1               | 1.5      |
|         |       |           |       | 1                | 12           | 22.79               | 22.0±1               | 1.5      |
|         |       |           |       | 1                | 24           | 22.97               | 22.0±1               | 1.5      |
|         |       |           |       | 12               | 0            | 21.12               | 21.5±1               | 2.0      |
|         |       |           |       | 12               | 6            | 21.35               | 21.5±1               | 2.0      |
|         |       |           |       | 12               | 11           | 21.59               | 21.5±1               | 2.0      |
|         |       |           |       | 25               | 0            | 21.26               | 21.5±1               | 2.0      |

| 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            | 22.21               | 23.0±1               | 0.5      |
|         |       |           |       | 1                | 24           | 23.37               | 23.0±1               | 0.5      |
|         |       |           |       | 1                | 49           | 23.91               | 23.0±1               | 0.5      |
|         |       |           |       | 25               | 0            | 21.84               | 22.0±1               | 1.5      |
|         |       |           |       | 25               | 12           | 22.49               | 22.0±1               | 1.5      |
|         |       |           |       | 25               | 24           | 22.95               | 22.0±1               | 1.5      |
|         |       |           |       | 50               | 0            | 22.41               | 22.0±1               | 1.5      |
|         |       |           | 16QAM | 1                | 0            | 21.98               | 22.0±1               | 1.5      |
|         |       |           |       | 1                | 24           | 22.23               | 22.0±1               | 1.5      |
|         |       |           |       | 1                | 49           | 22.77               | 22.0±1               | 1.5      |
|         |       |           |       | 25               | 0            | 20.88               | 21.5±1               | 2.0      |
|         |       |           |       | 25               | 12           | 21.56               | 21.5±1               | 2.0      |
|         |       |           |       | 25               | 24           | 22.04               | 21.5±1               | 2.0      |
|         |       |           |       | 50               | 0            | 21.47               | 21.5±1               | 0.5      |
|         | 18900 | 1880      | QPSK  | 1                | 0            | 21.58               | 21.5±1               | 2.0      |
|         |       |           |       | 1                | 24           | 21.69               | 21.5±1               | 2.0      |
|         |       |           |       | 1                | 49           | 21.7                | 21.5±1               | 2.0      |
|         |       |           |       | 25               | 0            | 20.63               | 21.5±1               | 2.0      |
|         |       |           |       | 25               | 12           | 20.88               | 21.5±1               | 2.0      |
|         |       |           |       | 25               | 24           | 21.43               | 21.5±1               | 2.0      |
|         |       |           |       | 50               | 0            | 21.03               | 21.5±1               | 2.0      |
|         |       |           | 16QAM | 1                | 0            | 20.78               | 21.5±1               | 2.0      |
|         |       |           |       | 1                | 24           | 21                  | 21.5±1               | 2.0      |
|         |       |           |       | 1                | 49           | 22.06               | 21.5±1               | 2.0      |
|         |       |           |       | 25               | 0            | 20.72               | 21.5±1               | 2.0      |
|         |       |           |       | 25               | 12           | 20.77               | 21.5±1               | 2.0      |
|         |       |           |       | 25               | 24           | 20.53               | 21.5±1               | 2.0      |
|         |       |           |       | 50               | 0            | 20.66               | 21.5±1               | 2.0      |
|         | 19150 | 1905      | QPSK  | 1                | 0            | 22.22               | 22.0±1               | 1.5      |
|         |       |           |       | 1                | 24           | 22.24               | 22.0±1               | 1.5      |
|         |       |           |       | 1                | 49           | 22.81               | 22.0±1               | 1.5      |
|         |       |           |       | 25               | 0            | 21.08               | 21.5±1               | 2.0      |
|         |       |           |       | 25               | 12           | 21.41               | 21.5±1               | 2.0      |
|         |       |           |       | 25               | 24           | 21.97               | 21.5±1               | 2.0      |
|         |       |           | 16QAM | 50               | 0            | 21.52               | 21.5±1               | 2.0      |
|         |       |           |       | 1                | 0            | 21.13               | 21.5±1               | 2.0      |
|         |       |           |       | 1                | 24           | 21.29               | 21.5±1               | 2.0      |
|         |       |           |       | 1                | 49           | 21.91               | 21.5±1               | 2.0      |
|         |       |           |       | 25               | 0            | 20.71               | 21.5±1               | 2.0      |
|         |       |           |       | 25               | 12           | 20.57               | 21.5±1               | 2.0      |
|         |       |           |       | 25               | 24           | 21.16               | 21.5±1               | 2.0      |
|         |       |           |       | 50               | 0            | 20.7                | 21.5±1               | 2.0      |

| 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            | 22.36               | 23.0±1               | 0.5      |
|         |       |           |       | 1                | 37           | 23.77               | 23.0±1               | 0.5      |
|         |       |           |       | 1                | 74           | 23.5                | 23.0±1               | 0.5      |
|         |       |           |       | 36               | 0            | 22.17               | 22.0±1               | 1.5      |
|         |       |           |       | 36               | 16           | 22.84               | 22.0±1               | 1.5      |
|         |       |           |       | 36               | 35           | 22.97               | 22.0±1               | 1.5      |
|         |       |           |       | 75               | 0            | 22.52               | 22.0±1               | 1.5      |
|         |       |           | 16QAM | 1                | 0            | 21.13               | 22.0±1               | 1.5      |
|         |       |           |       | 1                | 37           | 22.66               | 22.0±1               | 1.5      |
|         |       |           |       | 1                | 74           | 22.36               | 22.0±1               | 1.5      |
|         |       |           |       | 36               | 0            | 21.14               | 21.5±1               | 2.0      |
|         |       |           |       | 36               | 16           | 21.87               | 21.5±1               | 2.0      |
|         |       |           |       | 36               | 35           | 22.01               | 21.5±1               | 2.0      |
|         |       |           |       | 75               | 0            | 21.58               | 21.5±1               | 2.0      |
|         | 18900 | 1880      | QPSK  | 1                | 0            | 22.72               | 23.0±1               | 0.5      |
|         |       |           |       | 1                | 37           | 22.49               | 23.0±1               | 0.5      |
|         |       |           |       | 1                | 74           | 23.33               | 23.0±1               | 0.5      |
|         |       |           |       | 36               | 0            | 21.75               | 21.5±1               | 2.0      |
|         |       |           |       | 36               | 16           | 21.73               | 21.5±1               | 2.0      |
|         |       |           |       | 36               | 35           | 21.63               | 21.5±1               | 2.0      |
|         |       |           |       | 75               | 0            | 21.02               | 21.5±1               | 2.0      |
|         |       |           | 16QAM | 1                | 0            | 22.92               | 22.0±1               | 1.5      |
|         |       |           |       | 1                | 37           | 22.8                | 22.0±1               | 1.5      |
|         |       |           |       | 1                | 74           | 22.69               | 22.0±1               | 1.5      |
|         |       |           |       | 36               | 0            | 21.55               | 21.5±1               | 2.0      |
|         |       |           |       | 36               | 16           | 21.89               | 21.5±1               | 2.0      |
|         |       |           |       | 36               | 35           | 21.77               | 21.5±1               | 2.0      |
|         |       |           |       | 75               | 0            | 21.56               | 21.5±1               | 2.0      |
|         | 19125 | 1902.5    | QPSK  | 1                | 0            | 23.32               | 23.0±1               | 0.5      |
|         |       |           |       | 1                | 37           | 22.73               | 23.0±1               | 0.5      |
|         |       |           |       | 1                | 74           | 22.95               | 23.0±1               | 0.5      |
|         |       |           |       | 36               | 0            | 21.44               | 21.5±1               | 2.0      |
|         |       |           |       | 36               | 16           | 21.96               | 21.5±1               | 2.0      |
|         |       |           |       | 36               | 35           | 21.5                | 21.5±1               | 2.0      |
|         |       |           |       | 75               | 0            | 21.39               | 21.5±1               | 2.0      |
|         |       |           | 16QAM | 1                | 0            | 22.49               | 22.0±1               | 1.5      |
|         |       |           |       | 1                | 37           | 21.1                | 22.0±1               | 1.5      |
|         |       |           |       | 1                | 74           | 22.2                | 22.0±1               | 1.5      |
|         |       |           |       | 36               | 0            | 21.62               | 21.5±1               | 2.0      |
|         |       |           |       | 36               | 16           | 21.93               | 21.5±1               | 2.0      |
|         |       |           |       | 36               | 35           | 21.59               | 21.5±1               | 2.0      |
|         |       |           |       | 75               | 0            | 21.55               | 21.5±1               | 2.0      |

| 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            | 23.27               | 23.0±1               | 0.5      |
|         |       |           |       | 1                | 49           | 23.68               | 23.0±1               | 0.5      |
|         |       |           |       | 1                | 99           | 23.86               | 23.0±1               | 0.5      |
|         |       |           |       | 50               | 0            | 22.29               | 22.0±1               | 1.5      |
|         |       |           |       | 50               | 24           | 22.7                | 22.0±1               | 1.5      |
|         |       |           |       | 50               | 49           | 22.1                | 22.0±1               | 1.5      |
|         |       |           |       | 100              | 0            | 22.19               | 22.0±1               | 1.5      |
|         |       |           | 16QAM | 1                | 0            | 22.67               | 22.5±1               | 1.0      |
|         |       |           |       | 1                | 49           | 23.19               | 22.5±1               | 1.0      |
|         |       |           |       | 1                | 99           | 22.36               | 22.5±1               | 1.0      |
|         |       |           |       | 50               | 0            | 22.35               | 22.0±1               | 1.5      |
|         |       |           |       | 50               | 24           | 22.74               | 22.0±1               | 1.5      |
|         |       |           |       | 50               | 49           | 22.15               | 22.0±1               | 1.5      |
|         |       |           |       | 100              | 0            | 22.31               | 22.0±1               | 1.5      |
|         | 18900 | 1880      | QPSK  | 1                | 0            | 23.84               | 23.5±1               | 0        |
|         |       |           |       | 1                | 49           | 24.18               | 23.5±1               | 0        |
|         |       |           |       | 1                | 99           | 23.59               | 23.5±1               | 0        |
|         |       |           |       | 50               | 0            | 23.33               | 23.0±1               | 0.5      |
|         |       |           |       | 50               | 24           | 23.66               | 23.0±1               | 0.5      |
|         |       |           |       | 50               | 49           | 23.74               | 23.0±1               | 0.5      |
|         |       |           |       | 100              | 0            | 22.87               | 23.0±1               | 0.5      |
|         |       |           | 16QAM | 1                | 0            | 23.14               | 23.0±1               | 0.5      |
|         |       |           |       | 1                | 49           | 22.71               | 23.0±1               | 0.5      |
|         |       |           |       | 1                | 99           | 22.98               | 23.0±1               | 0.5      |
|         |       |           |       | 50               | 0            | 22.42               | 22.0±1               | 1.5      |
|         |       |           |       | 50               | 24           | 22.75               | 22.0±1               | 1.5      |
|         |       |           |       | 50               | 49           | 22.87               | 22.0±1               | 1.5      |
|         |       |           |       | 100              | 0            | 22.18               | 22.0±1               | 1.5      |
|         | 19100 | 1900      | QPSK  | 1                | 0            | 23.97               | 23.0±1               | 0.5      |
|         |       |           |       | 1                | 49           | 23.84               | 23.0±1               | 0.5      |
|         |       |           |       | 1                | 99           | 23.77               | 23.0±1               | 0.5      |
|         |       |           |       | 50               | 0            | 23.13               | 23.0±1               | 0.5      |
|         |       |           |       | 50               | 24           | 23.11               | 23.0±1               | 0.5      |
|         |       |           |       | 50               | 49           | 23.19               | 23.0±1               | 0.5      |
|         |       |           |       | 100              | 0            | 23.64               | 23.0±1               | 0.5      |
|         |       |           | 16QAM | 1                | 0            | 23.22               | 23.0±1               | 0.5      |
|         |       |           |       | 1                | 49           | 23.24               | 23.0±1               | 0.5      |
|         |       |           |       | 1                | 99           | 22.17               | 23.0±1               | 0.5      |
|         |       |           |       | 50               | 0            | 22.15               | 22.0±1               | 1.5      |
|         |       |           |       | 50               | 24           | 22.13               | 22.0±1               | 1.5      |
|         |       |           |       | 50               | 49           | 22.26               | 22.0±1               | 1.5      |
|         |       |           |       | 100              | 0            | 21.76               | 22.0±1               | 1.5      |

## **LTE Band 4**

| 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            | 24.62               | 24.0±1               | 0        |
|         |       |           |       | 1                | 8            | 24.58               | 24.0±1               | 0        |
|         |       |           |       | 1                | 14           | 24.54               | 24.0±1               | 0        |
|         |       |           |       | 8                | 0            | 23.81               | 23.0±1               | 1.0      |
|         |       |           |       | 8                | 4            | 23.82               | 23.0±1               | 1.0      |
|         |       |           |       | 8                | 9            | 23.84               | 23.0±1               | 1.0      |
|         |       |           |       | 15               | 0            | 23.74               | 23.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 23.44               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 8            | 23.48               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 14           | 23.42               | 23.0±1               | 1.0      |
|         |       |           |       | 8                | 0            | 22.8                | 22.0±1               | 2.0      |
|         |       |           |       | 8                | 4            | 22.82               | 22.0±1               | 2.0      |
|         |       |           |       | 8                | 9            | 22.8                | 22.0±1               | 2.0      |
|         |       |           |       | 15               | 0            | 22.7                | 22.0±1               | 2.0      |
|         | 20175 | 1732.5    | QPSK  | 1                | 0            | 23.83               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 8            | 23.69               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 14           | 23.73               | 23.0±1               | 1.0      |
|         |       |           |       | 8                | 0            | 22.87               | 22.0±1               | 2.0      |
|         |       |           |       | 8                | 4            | 22.96               | 22.0±1               | 2.0      |
|         |       |           |       | 8                | 9            | 22.12               | 22.0±1               | 2.0      |
|         |       |           |       | 15               | 0            | 21.92               | 22.0±1               | 2.0      |
|         |       |           | 16QAM | 1                | 0            | 22.27               | 22.0±1               | 2.0      |
|         |       |           |       | 1                | 8            | 22.29               | 22.0±1               | 2.0      |
|         |       |           |       | 1                | 14           | 22.59               | 22.0±1               | 2.0      |
|         |       |           |       | 8                | 0            | 21.98               | 22.0±1               | 2.0      |
|         |       |           |       | 8                | 4            | 21.86               | 22.0±1               | 2.0      |
|         |       |           |       | 8                | 9            | 21.22               | 22.0±1               | 2.0      |
|         |       |           |       | 15               | 0            | 21.02               | 22.0±1               | 2.0      |
|         | 20385 | 1753.5    | QPSK  | 1                | 0            | 23.89               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 8            | 23.07               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 14           | 23.5                | 23.0±1               | 1.0      |
|         |       |           |       | 8                | 0            | 22.64               | 22.0±1               | 2.0      |
|         |       |           |       | 8                | 4            | 22.28               | 22.0±1               | 2.0      |
|         |       |           |       | 8                | 9            | 22.02               | 22.0±1               | 2.0      |
|         |       |           |       | 15               | 0            | 22.29               | 22.0±1               | 2.0      |
|         |       |           | 16QAM | 1                | 0            | 22.83               | 22.0±1               | 2.0      |
|         |       |           |       | 1                | 8            | 22.1                | 22.0±1               | 2.0      |
|         |       |           |       | 1                | 14           | 21.58               | 22.0±1               | 2.0      |
|         |       |           |       | 8                | 0            | 21.73               | 22.0±1               | 2.0      |
|         |       |           |       | 8                | 4            | 21.39               | 22.0±1               | 2.0      |
|         |       |           |       | 8                | 9            | 21.14               | 22.0±1               | 2.0      |
|         |       |           |       | 15               | 0            | 21.34               | 22.0±1               | 2.0      |

| 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            | 24.58               | 24.0±1               | 0        |
|         |       |           |       | 1                | 49           | 24.21               | 24.0±1               | 0        |
|         |       |           |       | 1                | 99           | 24.12               | 24.0±1               | 0        |
|         |       |           |       | 12               | 0            | 23.65               | 23.0±1               | 1.0      |
|         |       |           |       | 12               | 24           | 23.33               | 23.0±1               | 1.0      |
|         |       |           |       | 12               | 49           | 23.19               | 23.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 23.33               | 23.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 23.61               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 23.08               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 23.04               | 23.0±1               | 1.0      |
|         |       |           |       | 12               | 0            | 22.59               | 22.0±1               | 2.0      |
|         |       |           |       | 12               | 24           | 22.32               | 22.0±1               | 2.0      |
|         |       |           |       | 12               | 49           | 22.19               | 22.0±1               | 2.0      |
|         |       |           |       | 25               | 0            | 22.44               | 22.0±1               | 2.0      |
|         | 20175 | 1732.5    | QPSK  | 1                | 0            | 23.65               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 23.31               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 23.1                | 23.0±1               | 1.0      |
|         |       |           |       | 12               | 0            | 22.15               | 22.0±1               | 2.0      |
|         |       |           |       | 12               | 24           | 22.22               | 22.0±1               | 2.0      |
|         |       |           |       | 12               | 49           | 22.55               | 22.0±1               | 2.0      |
|         |       |           |       | 25               | 0            | 22.27               | 22.0±1               | 2.0      |
|         |       |           | 16QAM | 1                | 0            | 22.75               | 22.0±1               | 2.0      |
|         |       |           |       | 1                | 49           | 22.5                | 22.0±1               | 2.0      |
|         |       |           |       | 1                | 99           | 22.84               | 22.0±1               | 2.0      |
|         |       |           |       | 12               | 0            | 22.25               | 22.0±1               | 2.0      |
|         |       |           |       | 12               | 24           | 22.33               | 22.0±1               | 2.0      |
|         |       |           |       | 12               | 49           | 22.28               | 22.0±1               | 2.0      |
|         |       |           |       | 25               | 0            | 22.14               | 22.0±1               | 2.0      |
|         | 20375 | 1752.5    | QPSK  | 1                | 0            | 23.68               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 23.86               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 23.56               | 23.0±1               | 1.0      |
|         |       |           |       | 12               | 0            | 22.61               | 22.0±1               | 2.0      |
|         |       |           |       | 12               | 24           | 22.39               | 22.0±1               | 2.0      |
|         |       |           |       | 12               | 49           | 22.53               | 22.0±1               | 2.0      |
|         |       |           | 16QAM | 25               | 0            | 22.05               | 22.0±1               | 2.0      |
|         |       |           |       | 1                | 0            | 22.75               | 22.0±1               | 2.0      |
|         |       |           |       | 1                | 49           | 22.53               | 22.0±1               | 2.0      |
|         |       |           |       | 1                | 99           | 22.88               | 22.0±1               | 2.0      |
|         |       |           |       | 12               | 0            | 22.65               | 22.0±1               | 2.0      |
|         |       |           |       | 12               | 24           | 22.06               | 22.0±1               | 2.0      |
|         |       |           |       | 12               | 49           | 22.66               | 22.0±1               | 2.0      |
|         |       |           |       | 25               | 0            | 22.07               | 22.0±1               | 2.0      |

| 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            | 24.45               | 24.0±1               | 0        |
|         |       |           |       | 1                | 49           | 24.23               | 24.0±1               | 0        |
|         |       |           |       | 1                | 99           | 24.17               | 24.0±1               | 0        |
|         |       |           |       | 25               | 0            | 23.57               | 23.0±1               | 1.0      |
|         |       |           |       | 25               | 24           | 23.6                | 23.0±1               | 1.0      |
|         |       |           |       | 25               | 49           | 23.45               | 23.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 22.55               | 23.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 23.11               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 23.38               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 23                  | 23.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 22.66               | 22.0±1               | 2.0      |
|         |       |           |       | 25               | 24           | 22.71               | 22.0±1               | 2.0      |
|         |       |           |       | 25               | 49           | 22.58               | 22.0±1               | 2.0      |
|         |       |           |       | 50               | 0            | 22.15               | 22.0±1               | 2.0      |
|         | 20175 | 1732.5    | QPSK  | 1                | 0            | 23.54               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 23.18               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 23.85               | 23.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 22.72               | 22.0±1               | 2.0      |
|         |       |           |       | 25               | 24           | 22.11               | 22.0±1               | 2.0      |
|         |       |           |       | 25               | 49           | 22.47               | 22.0±1               | 2.0      |
|         |       |           |       | 50               | 0            | 22.1                | 22.0±1               | 2.0      |
|         |       |           | 16QAM | 1                | 0            | 22.63               | 22.0±1               | 2.0      |
|         |       |           |       | 1                | 49           | 22.69               | 22.0±1               | 2.0      |
|         |       |           |       | 1                | 99           | 22.88               | 22.0±1               | 2.0      |
|         |       |           |       | 25               | 0            | 22.05               | 22.0±1               | 2.0      |
|         |       |           |       | 25               | 24           | 22.15               | 22.0±1               | 2.0      |
|         |       |           |       | 25               | 49           | 22.21               | 22.0±1               | 2.0      |
|         |       |           |       | 50               | 0            | 22.16               | 22.0±1               | 2.0      |
|         | 20350 | 1750      | QPSK  | 1                | 0            | 23.05               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 23.47               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 23.44               | 23.0±1               | 1.0      |
|         |       |           |       | 25               | 0            | 22.71               | 22.0±1               | 2.0      |
|         |       |           |       | 25               | 24           | 22.58               | 22.0±1               | 2.0      |
|         |       |           |       | 25               | 49           | 22.78               | 22.0±1               | 2.0      |
|         |       |           | 16QAM | 50               | 0            | 22.43               | 22.0±1               | 2.0      |
|         |       |           |       | 1                | 0            | 22.98               | 22.0±1               | 2.0      |
|         |       |           |       | 1                | 49           | 22.45               | 22.0±1               | 2.0      |
|         |       |           |       | 1                | 99           | 22.46               | 22.0±1               | 2.0      |
|         |       |           |       | 25               | 0            | 22.2                | 22.0±1               | 2.0      |
|         |       |           |       | 25               | 24           | 21.69               | 22.0±1               | 2.0      |
|         |       |           |       | 25               | 49           | 21.92               | 22.0±1               | 2.0      |
|         |       |           |       | 50               | 0            | 21.53               | 22.0±1               | 2.0      |

| 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            | 24.33               | 24.0±1               | 0        |
|         |       |           |       | 1                | 49           | 24.6                | 24.0±1               | 0        |
|         |       |           |       | 1                | 99           | 24.36               | 24.0±1               | 0        |
|         |       |           |       | 36               | 0            | 23.71               | 23.0±1               | 1.0      |
|         |       |           |       | 36               | 24           | 23.69               | 23.0±1               | 1.0      |
|         |       |           |       | 36               | 49           | 23.87               | 23.0±1               | 1.0      |
|         |       |           |       | 75               | 0            | 22.76               | 23.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 23.12               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 23.52               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 23.36               | 23.0±1               | 1.0      |
|         |       |           |       | 36               | 0            | 22.79               | 22.0±1               | 2.0      |
|         |       |           |       | 36               | 24           | 22.79               | 22.0±1               | 2.0      |
|         |       |           |       | 36               | 49           | 22.45               | 22.0±1               | 2.0      |
|         |       |           |       | 75               | 0            | 21.9                | 22.0±1               | 2.0      |
|         | 20175 | 1732.5    | QPSK  | 1                | 0            | 24.52               | 24.0±1               | 0        |
|         |       |           |       | 1                | 49           | 24                  | 24.0±1               | 0        |
|         |       |           |       | 1                | 99           | 24.3                | 24.0±1               | 0        |
|         |       |           |       | 36               | 0            | 23.42               | 23.0±1               | 1.0      |
|         |       |           |       | 36               | 24           | 22.94               | 23.0±1               | 1.0      |
|         |       |           |       | 36               | 49           | 23.31               | 23.0±1               | 1.0      |
|         |       |           |       | 75               | 0            | 22.97               | 23.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 23.1                | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 23.21               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 22.84               | 23.0±1               | 1.0      |
|         |       |           |       | 36               | 0            | 22.56               | 22.0±1               | 2.0      |
|         |       |           |       | 36               | 24           | 22.69               | 22.0±1               | 2.0      |
|         |       |           |       | 36               | 49           | 22.67               | 22.0±1               | 2.0      |
|         |       |           |       | 75               | 0            | 22.03               | 22.0±1               | 2.0      |
|         | 20325 | 1747.5    | QPSK  | 1                | 0            | 23.89               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 23.74               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 23.54               | 23.0±1               | 1.0      |
|         |       |           |       | 36               | 0            | 22.51               | 22.0±1               | 2.0      |
|         |       |           |       | 36               | 24           | 22.77               | 22.0±1               | 2.0      |
|         |       |           |       | 36               | 49           | 22.44               | 22.0±1               | 2.0      |
|         |       |           |       | 75               | 0            | 22.18               | 22.0±1               | 2.0      |
|         |       |           | 16QAM | 1                | 0            | 23.03               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 23.22               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 23.14               | 23.0±1               | 1.0      |
|         |       |           |       | 36               | 0            | 22.51               | 22.0±1               | 2.0      |
|         |       |           |       | 36               | 24           | 22.76               | 22.0±1               | 2.0      |
|         |       |           |       | 36               | 49           | 22.96               | 22.0±1               | 2.0      |
|         |       |           |       | 75               | 0            | 22.49               | 22.0±1               | 2.0      |

| 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            | 24.18               | 24.0±1               | 0        |
|         |       |           |       | 1                | 49           | 24.38               | 24.0±1               | 0        |
|         |       |           |       | 1                | 99           | 24.42               | 24.0±1               | 0        |
|         |       |           |       | 50               | 0            | 23.81               | 23.0±1               | 1.0      |
|         |       |           |       | 50               | 24           | 23.96               | 23.0±1               | 1.0      |
|         |       |           |       | 50               | 49           | 23.82               | 23.0±1               | 1.0      |
|         |       |           |       | 100              | 0            | 23.2                | 23.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 23.63               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 23.34               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 23.72               | 23.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 22.83               | 22.0±1               | 2.0      |
|         |       |           |       | 50               | 24           | 22.65               | 22.0±1               | 2.0      |
|         |       |           |       | 50               | 49           | 22.94               | 22.0±1               | 2.0      |
|         |       |           |       | 100              | 0            | 22.18               | 22.0±1               | 2.0      |
|         | 20175 | 1732.5    | QPSK  | 1                | 0            | 24.27               | 24.0±1               | 0        |
|         |       |           |       | 1                | 49           | 24.39               | 24.0±1               | 0        |
|         |       |           |       | 1                | 99           | 24.48               | 24.0±1               | 0        |
|         |       |           |       | 50               | 0            | 23.19               | 23.0±1               | 1.0      |
|         |       |           |       | 50               | 24           | 23.76               | 23.0±1               | 1.0      |
|         |       |           |       | 50               | 49           | 23.68               | 23.0±1               | 1.0      |
|         |       |           |       | 100              | 0            | 22.89               | 23.0±1               | 1.0      |
|         |       |           | 16QAM | 1                | 0            | 23.54               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 23.38               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 23.58               | 23.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 22.43               | 22.0±1               | 2.0      |
|         |       |           |       | 50               | 24           | 22.79               | 22.0±1               | 2.0      |
|         |       |           |       | 50               | 49           | 22.75               | 22.0±1               | 2.0      |
|         |       |           |       | 100              | 0            | 22.15               | 22.0±1               | 2.0      |
|         | 20300 | 1745      | QPSK  | 1                | 0            | 23.8                | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 23.93               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 23.88               | 23.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 22.47               | 22.0±1               | 2.0      |
|         |       |           |       | 50               | 24           | 22.75               | 22.0±1               | 2.0      |
|         |       |           |       | 50               | 49           | 22.19               | 22.0±1               | 2.0      |
|         |       |           |       | 100              | 0            | 22.33               | 22.0±1               | 2.0      |
|         |       |           | 16QAM | 1                | 0            | 23.1                | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 49           | 23.03               | 23.0±1               | 1.0      |
|         |       |           |       | 1                | 99           | 23.19               | 23.0±1               | 1.0      |
|         |       |           |       | 50               | 0            | 22.45               | 22.0±1               | 2.0      |
|         |       |           |       | 50               | 24           | 22.75               | 22.0±1               | 2.0      |
|         |       |           |       | 50               | 49           | 22.17               | 22.0±1               | 2.0      |
|         |       |           |       | 100              | 0            | 22.38               | 22.0±1               | 2.0      |

**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                                   | 77.34            | 7                | 2.5        | H     | 3.37        | 0.31  | 10.40        | 13.46          | 33       | -19.54 |
| 1850.70                                   | 84.01            | 171              | 2.5        | V     | 10.73       | 0.31  | 10.40        | 20.82          | 33       | -12.18 |
| LTE Band 2 Channel 18900 – 1.4MHz – QPSK  |                  |                  |            |       |             |       |              |                |          |        |
| 1880.00                                   | 76.60            | 45               | 2.4        | H     | 2.75        | 0.31  | 10.40        | 12.84          | 33       | -20.16 |
| 1880.00                                   | 84.20            | 245              | 1.2        | V     | 11.08       | 0.31  | 10.40        | 21.17          | 33       | -11.83 |
| LTE Band 2 Channel 19193 – 1.4MHz – QPSK  |                  |                  |            |       |             |       |              |                |          |        |
| 1909.30                                   | 79.98            | 14               | 2.0        | H     | 6.25        | 0.32  | 10.40        | 16.33          | 33       | -16.67 |
| 1909.30                                   | 84.95            | 356              | 2.5        | V     | 11.99       | 0.32  | 10.40        | 22.07          | 33       | -10.93 |
| LTE Band 2 Channel 18607 – 1.4MHz – 16QAM |                  |                  |            |       |             |       |              |                |          |        |
| 1850.70                                   | 79.79            | 218              | 2.5        | H     | 5.82        | 0.31  | 10.40        | 15.91          | 33       | -17.09 |
| 1850.70                                   | 84.52            | 140              | 1.8        | V     | 11.24       | 0.31  | 10.40        | 21.33          | 33       | -11.67 |
| LTE Band 2 Channel 18900 – 1.4MHz – 16QAM |                  |                  |            |       |             |       |              |                |          |        |
| 1880.00                                   | 78.82            | 42               | 1.1        | H     | 4.97        | 0.31  | 10.40        | 15.06          | 33       | -17.94 |
| 1880.00                                   | 84.65            | 23               | 1.5        | V     | 11.53       | 0.31  | 10.40        | 21.62          | 33       | -11.38 |
| LTE Band 2 Channel 19193 – 1.4MHz – 16QAM |                  |                  |            |       |             |       |              |                |          |        |
| 1909.30                                   | 77.29            | 249              | 1.7        | H     | 3.56        | 0.32  | 10.40        | 13.64          | 33       | -19.36 |
| 1909.30                                   | 84.37            | 213              | 2.3        | V     | 11.41       | 0.32  | 10.40        | 21.49          | 33       | -11.51 |
| LTE Band 2 Channel 18615 – 3MHz – QPSK    |                  |                  |            |       |             |       |              |                |          |        |
| 1850.70                                   | 76.14            | 68               | 2.2        | H     | 2.17        | 0.31  | 10.40        | 12.26          | 33       | -20.74 |
| 1850.70                                   | 84.39            | 38               | 2.2        | V     | 11.11       | 0.31  | 10.40        | 21.20          | 33       | -11.80 |
| LTE Band 2 Channel 18900 – 3MHz – QPSK    |                  |                  |            |       |             |       |              |                |          |        |
| 1880.00                                   | 79.16            | 142              | 1.9        | H     | 5.31        | 0.31  | 10.40        | 15.40          | 33       | -17.60 |
| 1880.00                                   | 84.60            | 265              | 2.2        | V     | 11.48       | 0.31  | 10.40        | 21.57          | 33       | -11.43 |
| LTE Band 2 Channel 19185 – 3MHz – QPSK    |                  |                  |            |       |             |       |              |                |          |        |
| 1909.30                                   | 76.74            | 252              | 1.5        | H     | 3.01        | 0.32  | 10.40        | 13.09          | 33       | -19.91 |
| 1909.30                                   | 84.68            | 279              | 1.6        | V     | 11.72       | 0.32  | 10.40        | 21.80          | 33       | -11.20 |
| LTE Band 2 Channel 18615 – 3MHz – 16QAM   |                  |                  |            |       |             |       |              |                |          |        |
| 1850.70                                   | 79.08            | 65               | 2.1        | H     | 5.11        | 0.31  | 10.40        | 15.20          | 33       | -17.80 |
| 1850.70                                   | 84.85            | 21               | 1.5        | V     | 11.57       | 0.31  | 10.40        | 21.66          | 33       | -11.34 |
| LTE Band 2 Channel 18900 – 3MHz – 16QAM   |                  |                  |            |       |             |       |              |                |          |        |
| 1880.00                                   | 76.59            | 6                | 1.1        | H     | 2.74        | 0.31  | 10.40        | 12.83          | 33       | -20.17 |
| 1880.00                                   | 84.10            | 303              | 1.1        | V     | 10.98       | 0.31  | 10.40        | 21.07          | 33       | -11.93 |
| LTE Band 2 Channel 19185 – 3MHz – 16QAM   |                  |                  |            |       |             |       |              |                |          |        |
| 1909.30                                   | 79.15            | 258              | 2.0        | H     | 5.42        | 0.32  | 10.40        | 15.50          | 33       | -17.50 |
| 1909.30                                   | 84.42            | 199              | 2.0        | V     | 11.46       | 0.32  | 10.40        | 21.54          | 33       | -11.46 |
| LTE Band 2 Channel 18625 – 5MHz – QPSK    |                  |                  |            |       |             |       |              |                |          |        |
| 1850.70                                   | 77.92            | 156              | 1.6        | H     | 3.95        | 0.31  | 10.40        | 14.04          | 33       | -18.96 |
| 1850.70                                   | 84.13            | 150              | 2.4        | V     | 10.85       | 0.31  | 10.40        | 20.94          | 33       | -12.06 |
| 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   |       |     |     |   |       |      |       |              |    |        |
| 1909.30                                  | 77.63 | 250 | 1.1 | H | 3.90  | 0.32 | 10.40 | 13.98        | 33 | -19.02 |
| 1909.30                                  | 84.97 | 82  | 1.5 | V | 12.01 | 0.32 | 10.40 | <b>22.09</b> | 33 | -10.91 |
| LTE Band 2 Channel 18625 – 5MHz – 16QAM  |       |     |     |   |       |      |       |              |    |        |
| 1850.70                                  | 79.61 | 108 | 1.1 | H | 5.64  | 0.31 | 10.40 | 15.73        | 33 | -17.27 |
| 1850.70                                  | 84.37 | 271 | 1.2 | V | 11.09 | 0.31 | 10.40 | 21.18        | 33 | -11.82 |
| 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  |       |     |     |   |       |      |       |              |    |        |
| 1909.30                                  | 76.46 | 177 | 1.4 | H | 2.73  | 0.32 | 10.40 | 12.81        | 33 | -20.19 |
| 1909.30                                  | 84.40 | 151 | 1.5 | V | 11.44 | 0.32 | 10.40 | 21.52        | 33 | -11.48 |
| LTE Band 2 Channel 18650 – 10MHz – QPSK  |       |     |     |   |       |      |       |              |    |        |
| 1850.70                                  | 78.29 | 277 | 1.1 | H | 4.32  | 0.31 | 10.40 | 14.41        | 33 | -18.59 |
| 1850.70                                  | 84.29 | 246 | 1.3 | V | 11.01 | 0.31 | 10.40 | 21.10        | 33 | -11.90 |
| 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  |       |     |     |   |       |      |       |              |    |        |
| 1909.30                                  | 78.69 | 359 | 1.9 | H | 4.96  | 0.32 | 10.40 | 15.04        | 33 | -17.96 |
| 1909.30                                  | 84.91 | 323 | 2.2 | V | 11.95 | 0.32 | 10.40 | 22.03        | 33 | -10.97 |
| LTE Band 2 Channel 18650 – 10MHz – 16QAM |       |     |     |   |       |      |       |              |    |        |
| 1850.70                                  | 78.85 | 132 | 1.3 | H | 4.88  | 0.31 | 10.40 | 14.97        | 33 | -18.03 |
| 1850.70                                  | 84.67 | 16  | 2.1 | V | 11.39 | 0.31 | 10.40 | 21.48        | 33 | -11.52 |
| 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 |       |     |     |   |       |      |       |              |    |        |
| 1909.30                                  | 77.95 | 268 | 1.7 | H | 4.22  | 0.32 | 10.40 | 14.30        | 33 | -18.70 |
| 1909.30                                  | 84.18 | 91  | 2.0 | V | 11.22 | 0.32 | 10.40 | 21.30        | 33 | -11.70 |
| LTE Band 2 Channel 18675 – 15MHz – QPSK  |       |     |     |   |       |      |       |              |    |        |
| 1850.70                                  | 78.05 | 85  | 2.0 | H | 4.08  | 0.31 | 10.40 | 14.17        | 33 | -18.83 |
| 1850.70                                  | 84.79 | 140 | 1.7 | V | 11.51 | 0.31 | 10.40 | 21.60        | 33 | -11.40 |
| LTE Band 2 Channel 18900 – 15MHz – 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 19125 – 15MHz – QPSK  |       |     |     |   |       |      |       |              |    |        |
| 1909.30                                  | 77.46 | 55  | 1.2 | H | 3.73  | 0.32 | 10.40 | 13.81        | 33 | -19.19 |
| 1909.30                                  | 84.50 | 283 | 1.6 | V | 11.54 | 0.32 | 10.40 | 21.62        | 33 | -11.38 |
| LTE Band 2 Channel 18675 – 15MHz – 16QAM |       |     |     |   |       |      |       |              |    |        |
| 1850.70                                  | 77.91 | 225 | 1.8 | H | 3.94  | 0.31 | 10.40 | 14.03        | 33 | -18.97 |
| 1850.70                                  | 84.34 | 254 | 1.4 | V | 11.06 | 0.31 | 10.40 | 21.15        | 33 | -11.85 |
| 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 |       |     |     |   |       |      |       |              |    |        |
| 1909.30                                  | 77.06 | 121 | 1.1 | H | 3.33  | 0.32 | 10.40 | 13.41        | 33 | -19.59 |

|                                          |       |     |     |   |       |      |       |              |    |        |
|------------------------------------------|-------|-----|-----|---|-------|------|-------|--------------|----|--------|
| 1909.30                                  | 84.85 | 297 | 2.2 | V | 11.89 | 0.32 | 10.40 | <b>21.97</b> | 33 | -11.03 |
| LTE Band 2 Channel 18700 – 20MHz – QPSK  |       |     |     |   |       |      |       |              |    |        |
| 1850.70                                  | 78.12 | 216 | 1.2 | H | 4.15  | 0.31 | 10.40 | 14.24        | 33 | -18.76 |
| 1850.70                                  | 84.80 | 309 | 1.8 | V | 11.52 | 0.31 | 10.40 | 21.61        | 33 | -11.39 |
| LTE Band 2 Channel 18900 – 20MHz – QPSK  |       |     |     |   |       |      |       |              |    |        |
| 1880.00                                  | 76.09 | 335 | 1.3 | H | 2.24  | 0.31 | 10.40 | 12.33        | 33 | -20.67 |
| 1880.00                                  | 84.57 | 61  | 2.3 | V | 11.45 | 0.31 | 10.40 | 21.54        | 33 | -11.46 |
| LTE Band 2 Channel 19100 – 20MHz – QPSK  |       |     |     |   |       |      |       |              |    |        |
| 1909.30                                  | 79.38 | 45  | 1.0 | H | 5.65  | 0.32 | 10.40 | 15.73        | 33 | -17.27 |
| 1909.30                                  | 84.86 | 246 | 1.7 | V | 11.90 | 0.32 | 10.40 | <b>21.98</b> | 33 | -11.02 |
| LTE Band 2 Channel 18670 – 20MHz – 16QAM |       |     |     |   |       |      |       |              |    |        |
| 1850.70                                  | 79.61 | 18  | 1.2 | H | 5.64  | 0.31 | 10.40 | 15.73        | 33 | -17.27 |
| 1850.70                                  | 84.28 | 40  | 2.2 | V | 11.00 | 0.31 | 10.40 | 21.09        | 33 | -11.91 |
| LTE Band 2 Channel 18900 – 20MHz – 16QAM |       |     |     |   |       |      |       |              |    |        |
| 1880.00                                  | 78.20 | 74  | 2.5 | H | 4.35  | 0.31 | 10.40 | 14.44        | 33 | -18.56 |
| 1880.00                                  | 84.16 | 93  | 2.1 | V | 11.04 | 0.31 | 10.40 | 21.13        | 33 | -11.87 |
| LTE Band 2 Channel 19100 – 20MHz – 16QAM |       |     |     |   |       |      |       |              |    |        |
| 1909.30                                  | 79.11 | 138 | 1.4 | H | 5.38  | 0.32 | 10.40 | 15.46        | 33 | -17.54 |
| 1909.30                                  | 84.17 | 273 | 1.9 | V | 11.21 | 0.32 | 10.40 | <b>21.29</b> | 33 | -11.71 |

**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                                   | 77.84            | 325              | 2.3        | H     | 3.73        | 0.30  | 9.40         | 12.83          | 30      | -17.17 |
| 1710.70                                   | 84.58            | 17               | 2.3        | V     | 11.05       | 0.30  | 9.40         | 20.15          | 30      | -9.85  |
| LTE Band 4 Channel 20175 – 1.4MHz – QPSK  |                  |                  |            |       |             |       |              |                |         |        |
| 1710.70                                   | 77.29            | 117              | 1.6        | H     | 3.18        | 0.30  | 9.40         | 12.28          | 30      | -17.72 |
| 1710.70                                   | 84.99            | 21               | 1.3        | V     | 11.46       | 0.30  | 9.40         | 20.56          | 30      | -9.44  |
| LTE Band 4 Channel 20393 – 1.4MHz – QPSK  |                  |                  |            |       |             |       |              |                |         |        |
| 1732.50                                   | 76.76            | 167              | 1.7        | H     | 2.65        | 0.30  | 9.40         | 11.75          | 30      | -18.25 |
| 1732.50                                   | 84.75            | 62               | 1.4        | V     | 11.22       | 0.30  | 9.40         | 20.32          | 30      | -9.68  |
| LTE Band 4 Channel 19957 – 1.4MHz – 16QAM |                  |                  |            |       |             |       |              |                |         |        |
| 1754.30                                   | 78.34            | 183              | 1.0        | H     | 4.23        | 0.30  | 9.40         | 13.33          | 30      | -16.67 |
| 1754.30                                   | 84.74            | 175              | 2.3        | V     | 11.21       | 0.30  | 9.40         | 20.31          | 30      | -9.69  |
| LTE Band 4 Channel 20175 – 1.4MHz – 16QAM |                  |                  |            |       |             |       |              |                |         |        |
| 1710.70                                   | 77.02            | 292              | 1.7        | H     | 2.91        | 0.30  | 9.40         | 12.01          | 30      | -17.99 |
| 1710.70                                   | 84.91            | 152              | 2.0        | V     | 11.38       | 0.30  | 9.40         | 20.48          | 30      | -9.52  |
| LTE Band 4 Channel 20393 – 1.4MHz – 16QAM |                  |                  |            |       |             |       |              |                |         |        |
| 1732.50                                   | 79.99            | 294              | 2.3        | H     | 5.88        | 0.30  | 9.40         | 14.98          | 30      | -15.02 |
| 1732.50                                   | 84.06            | 73               | 2.0        | V     | 10.53       | 0.30  | 9.40         | 19.63          | 30      | -10.37 |
| LTE Band 4 Channel 19965 – 3MHz – QPSK    |                  |                  |            |       |             |       |              |                |         |        |
| 1754.30                                   | 76.39            | 286              | 1.7        | H     | 2.28        | 0.30  | 9.40         | 11.38          | 30      | -18.62 |
| 1754.30                                   | 84.83            | 263              | 1.4        | V     | 11.30       | 0.30  | 9.40         | 20.40          | 30      | -9.60  |
| LTE Band 4 Channel 20175 – 3MHz – QPSK    |                  |                  |            |       |             |       |              |                |         |        |
| 1710.70                                   | 79.54            | 65               | 1.5        | H     | 5.43        | 0.30  | 9.40         | 14.53          | 30      | -15.47 |

|                                          |       |     |     |   |       |      |       |              |    |        |
|------------------------------------------|-------|-----|-----|---|-------|------|-------|--------------|----|--------|
| 1710.70                                  | 84.71 | 36  | 1.4 | V | 11.18 | 0.30 | 9.40  | 20.28        | 30 | -9.72  |
| LTE Band 4 Channel 20385 – 3MHz – QPSK   |       |     |     |   |       |      |       |              |    |        |
| 1732.50                                  | 77.13 | 208 | 1.3 | H | 3.02  | 0.30 | 9.40  | 12.12        | 30 | -17.88 |
| 1732.50                                  | 84.55 | 85  | 2.0 | V | 11.02 | 0.30 | 9.40  | 20.12        | 30 | -9.88  |
| LTE Band 4 Channel 19965 – 3MHz – 16QAM  |       |     |     |   |       |      |       |              |    |        |
| 1754.30                                  | 79.94 | 342 | 1.3 | H | 5.83  | 0.30 | 9.40  | 14.93        | 30 | -15.07 |
| 1754.30                                  | 84.62 | 49  | 2.1 | V | 11.09 | 0.30 | 9.40  | 20.19        | 30 | -9.81  |
| LTE Band 4 Channel 20175 – 3MHz – 16QAM  |       |     |     |   |       |      |       |              |    |        |
| 1710.70                                  | 79.85 | 84  | 1.2 | H | 5.74  | 0.30 | 9.40  | 14.84        | 30 | -15.16 |
| 1710.70                                  | 84.67 | 232 | 1.1 | V | 11.14 | 0.30 | 9.40  | 20.24        | 30 | -9.76  |
| LTE Band 4 Channel 20385 – 3MHz – 16QAM  |       |     |     |   |       |      |       |              |    |        |
| 1732.50                                  | 78.24 | 84  | 1.0 | H | 4.13  | 0.30 | 9.40  | 13.23        | 30 | -16.77 |
| 1732.50                                  | 84.91 | 105 | 1.1 | V | 11.38 | 0.30 | 9.40  | 20.48        | 30 | -9.52  |
| LTE Band 4 Channel 19975 – 5MHz – QPSK   |       |     |     |   |       |      |       |              |    |        |
| 1754.30                                  | 78.64 | 133 | 2.2 | H | 4.53  | 0.30 | 9.40  | 13.63        | 30 | -16.37 |
| 1754.30                                  | 84.68 | 81  | 2.3 | V | 11.15 | 0.30 | 9.40  | 20.25        | 30 | -9.75  |
| LTE Band 4 Channel 20175 – 5MHz – QPSK   |       |     |     |   |       |      |       |              |    |        |
| 1732.50                                  | 77.69 | 315 | 1.4 | H | 3.58  | 0.31 | 10.40 | 13.67        | 30 | -16.33 |
| 1732.50                                  | 84.37 | 340 | 2.3 | V | 10.84 | 0.31 | 10.40 | 20.93        | 30 | -9.07  |
| LTE Band 4 Channel 20375 – 5MHz – QPSK   |       |     |     |   |       |      |       |              |    |        |
| 1752.50                                  | 79.15 | 5   | 2.0 | H | 5.04  | 0.32 | 10.40 | 15.12        | 30 | -14.88 |
| 1752.50                                  | 84.32 | 180 | 1.2 | V | 10.79 | 0.32 | 10.40 | 20.87        | 30 | -9.13  |
| LTE Band 4 Channel 19975 – 5MHz – 16QAM  |       |     |     |   |       |      |       |              |    |        |
| 1712.50                                  | 78.01 | 283 | 1.7 | H | 3.90  | 0.31 | 10.40 | 13.99        | 30 | -16.01 |
| 1712.50                                  | 84.50 | 180 | 1.8 | V | 10.97 | 0.31 | 10.40 | 21.06        | 30 | -8.94  |
| LTE Band 4 Channel 20175 – 5MHz – 16QAM  |       |     |     |   |       |      |       |              |    |        |
| 1732.50                                  | 79.41 | 237 | 1.2 | H | 5.30  | 0.31 | 10.40 | 15.39        | 30 | -14.61 |
| 1732.50                                  | 84.59 | 145 | 2.1 | V | 11.06 | 0.31 | 10.40 | 21.15        | 30 | -8.85  |
| LTE Band 4 Channel 20375 – 5MHz – 16QAM  |       |     |     |   |       |      |       |              |    |        |
| 1752.50                                  | 76.13 | 343 | 1.8 | H | 2.02  | 0.32 | 10.40 | 12.10        | 30 | -17.90 |
| 1752.50                                  | 84.49 | 20  | 1.8 | V | 10.96 | 0.32 | 10.40 | 21.04        | 30 | -8.96  |
| LTE Band 4 Channel 20000 – 10MHz – QPSK  |       |     |     |   |       |      |       |              |    |        |
| 1715.00                                  | 76.71 | 183 | 1.6 | H | 2.60  | 0.31 | 10.40 | 12.69        | 30 | -17.31 |
| 1715.00                                  | 84.22 | 66  | 2.2 | V | 10.69 | 0.31 | 10.40 | 20.78        | 30 | -9.22  |
| 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                                  | 78.24 | 115 | 2.4 | H | 4.13  | 0.32 | 10.40 | 14.21        | 30 | -15.79 |
| 1750.00                                  | 84.21 | 159 | 2.1 | V | 10.68 | 0.32 | 10.40 | 20.76        | 30 | -9.24  |
| LTE Band 4 Channel 20000 – 10MHz – 16QAM |       |     |     |   |       |      |       |              |    |        |
| 1715.00                                  | 76.49 | 92  | 1.2 | H | 2.38  | 0.31 | 10.40 | 12.47        | 30 | -17.53 |
| 1715.00                                  | 84.68 | 133 | 2.0 | V | 11.15 | 0.31 | 10.40 | 21.24        | 30 | -8.76  |
| LTE Band 4 Channel 20175 – 10MHz – 16QAM |       |     |     |   |       |      |       |              |    |        |
| 1732.50                                  | 78.92 | 245 | 1.2 | H | 4.81  | 0.31 | 10.40 | 14.90        | 30 | -15.10 |
| 1732.50                                  | 84.83 | 170 | 2.2 | V | 11.30 | 0.31 | 10.40 | <b>21.39</b> | 30 | -8.61  |
| LTE Band 4 Channel 20350 – 10MHz – 16QAM |       |     |     |   |       |      |       |              |    |        |
| 1750.00                                  | 77.70 | 166 | 1.1 | H | 3.59  | 0.32 | 10.40 | 13.67        | 30 | -16.33 |

|                                          |       |     |     |   |       |      |       |              |    |        |
|------------------------------------------|-------|-----|-----|---|-------|------|-------|--------------|----|--------|
| 1750.00                                  | 84.64 | 103 | 2.1 | V | 11.11 | 0.32 | 10.40 | 21.19        | 30 | -8.81  |
| 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                                  | 78.48 | 229 | 1.5 | H | 4.37  | 0.31 | 10.40 | 14.46        | 30 | -15.54 |
| 1717.50                                  | 84.63 | 3   | 1.3 | V | 11.10 | 0.31 | 10.40 | 21.19        | 30 | -8.81  |
| 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 | <b>21.50</b> | 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 | <b>21.13</b> | 30 | -8.87  |

## 8 Peak-to-Average Ratio

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

Test Method: N/A

Test Mode: Transmitting

### 8.1 EUT Operation

Operating Environment :

Temperature: 22.5 °C

Humidit

## 9 BANDWIDTH

|                   |                                   |
|-------------------|-----------------------------------|
| Test Requirement: | FCC Part 2.1049, 24.238, 27.53(a) |
| Test Method:      | TIA/EIA-603-D:2010                |
| Test Mode:        | Transmitting                      |

### 9.1 EUT Operation

|                         |         |
|-------------------------|---------|
| Operating Environment : |         |
| Temperature:            | 22.5 °C |
| Humidit                 |         |

### 9.3 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       | 1.15                         | 1.33                  |
|         |         |                 | 16QAM      | 1.15                         | 1.33                  |
| 1.4     | 18900   | 1880            | QPSK       | 1.15                         | 1.33                  |
|         |         |                 | 16QAM      | 1.16                         | 1.33                  |
| 1.4     | 19193   | 1909.3          | QPSK       | 1.16                         | 1.34                  |
|         |         |                 | 16QAM      | 1.15                         | 1.34                  |
| 3       | 18615   | 1851.5          | QPSK       | 2.72                         | 2.95                  |
|         |         |                 | 16QAM      | 2.72                         | 2.95                  |
| 3       | 18900   | 1880            | QPSK       | 2.73                         | 2.96                  |
|         |         |                 | 16QAM      | 2.72                         | 2.96                  |
| 3       | 19185   | 1908.5          | QPSK       | 2.73                         | 2.96                  |
|         |         |                 | 16QAM      | 2.72                         | 2.96                  |
| 5       | 18625   | 1852.5          | QPSK       | 4.5                          | 4.83                  |
|         |         |                 | 16QAM      | 4.5                          | 4.82                  |
| 5       | 18900   | 1880            | QPSK       | 4.5                          | 4.84                  |
|         |         |                 | 16QAM      | 4.49                         | 4.83                  |
| 5       | 19175   | 1907.5          | QPSK       | 4.49                         | 4.82                  |
|         |         |                 | 16QAM      | 4.49                         | 4.82                  |
| 10      | 18650   | 1855            | QPSK       | 8.92                         | 9.35                  |
|         |         |                 | 16QAM      | 8.91                         | 9.33                  |
| 10      | 18900   | 1880            | QPSK       | 8.91                         | 9.33                  |
|         |         |                 | 16QAM      | 8.92                         | 9.32                  |
| 10      | 19150   | 1905            | QPSK       | 8.92                         | 9.36                  |
|         |         |                 | 16QAM      | 8.91                         | 9.33                  |
| 15      | 18675   | 1857.5          | QPSK       | 13.35                        | 13.94                 |
|         |         |                 | 16QAM      | 13.35                        | 13.91                 |
| 15      | 18900   | 1880            | QPSK       | 13.38                        | 13.88                 |
|         |         |                 | 16QAM      | 13.37                        | 13.90                 |

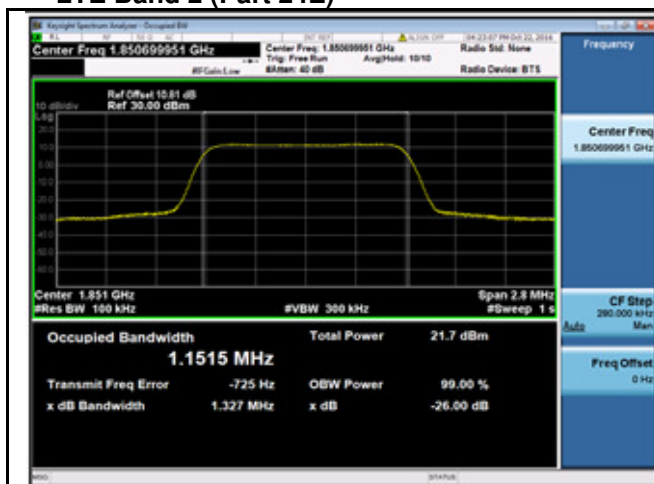
|    |       |        |       |       |       |
|----|-------|--------|-------|-------|-------|
| 15 | 19125 | 1902.5 | QPSK  | 13.38 | 13.95 |
|    |       |        | 16QAM | 13.39 | 13.94 |
| 20 | 18700 | 1860   | QPSK  | 17.80 | 18.36 |
|    |       |        | 16QAM | 17.79 | 18.37 |
| 20 | 18900 | 1880   | QPSK  | 17.84 | 18.39 |
|    |       |        | 16QAM | 17.83 | 18.39 |
| 20 | 19100 | 1900   | QPSK  | 17.85 | 18.45 |
|    |       |        | 16QAM | 17.86 | 18.47 |

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

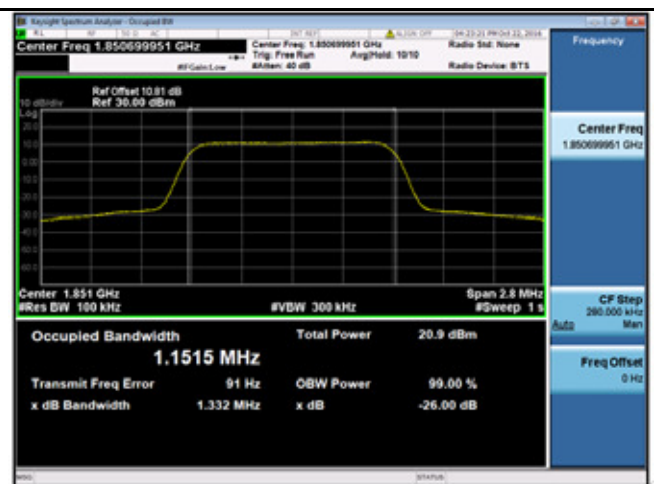
| BW(MHz) | Channel | Frequency (MHz) | Modulation | 99% Occupied Bandwidth (MHz) | 26 dB Bandwidth (MHz) |
|---------|---------|-----------------|------------|------------------------------|-----------------------|
| 1.4     | 19957   | 1710.7          | QPSK       | 1.16                         | 1.35                  |
|         |         |                 | 16QAM      | 1.15                         | 1.34                  |
| 1.4     | 20175   | 1732.5          | QPSK       | 1.15                         | 1.34                  |
|         |         |                 | 16QAM      | 1.15                         | 1.34                  |
| 1.4     | 20393   | 1754.3          | QPSK       | 1.16                         | 1.34                  |
|         |         |                 | 16QAM      | 1.15                         | 1.34                  |
| 3       | 19965   | 1711.5          | QPSK       | 2.72                         | 2.99                  |
|         |         |                 | 16QAM      | 2.72                         | 2.97                  |
| 3       | 20175   | 1732.5          | QPSK       | 2.73                         | 2.96                  |
|         |         |                 | 16QAM      | 2.73                         | 2.96                  |
| 3       | 20385   | 1753.5          | QPSK       | 2.72                         | 2.96                  |
|         |         |                 | 16QAM      | 2.72                         | 2.96                  |
| 5       | 19975   | 1712.5          | QPSK       | 4.5                          | 4.87                  |
|         |         |                 | 16QAM      | 4.5                          | 4.85                  |
| 5       | 20175   | 1732.5          | QPSK       | 4.5                          | 4.85                  |
|         |         |                 | 16QAM      | 4.49                         | 4.85                  |
| 5       | 20375   | 1752.5          | QPSK       | 4.49                         | 4.81                  |
|         |         |                 | 16QAM      | 4.49                         | 4.82                  |
| 10      | 20000   | 1715            | QPSK       | 8.92                         | 9.40                  |
|         |         |                 | 16QAM      | 8.91                         | 9.38                  |

|    |       |        |       |       |       |
|----|-------|--------|-------|-------|-------|
| 10 | 20175 | 1732.5 | QPSK  | 8.91  | 9.38  |
|    |       |        | 16QAM | 8.92  | 9.35  |
| 10 | 20350 | 1750   | QPSK  | 8.91  | 9.34  |
|    |       |        | 16QAM | 8.90  | 9.35  |
| 15 | 20025 | 1717.5 | QPSK  | 13.37 | 13.95 |
|    |       |        | 16QAM | 13.36 | 13.92 |
| 15 | 20175 | 1732.5 | QPSK  | 13.39 | 13.91 |
|    |       |        | 16QAM | 13.38 | 13.92 |
| 15 | 20325 | 1747.5 | QPSK  | 13.35 | 13.94 |
|    |       |        | 16QAM | 13.36 | 13.88 |
| 20 | 20050 | 1720   | QPSK  | 17.83 | 18.37 |
|    |       |        | 16QAM | 17.82 | 18.43 |
| 20 | 20175 | 1732.5 | QPSK  | 17.86 | 18.48 |
|    |       |        | 16QAM | 17.85 | 18.46 |
| 20 | 20300 | 1745   | QPSK  | 17.81 | 18.44 |
|    |       |        | 16QAM | 17.81 | 18.46 |

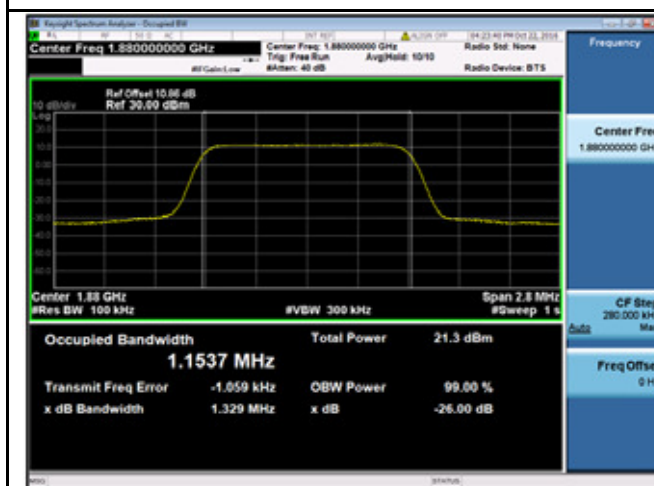
### Test Plots LTE Band 2 (Part 24E)



LTE band 2 - Low CH QPSK-1.4



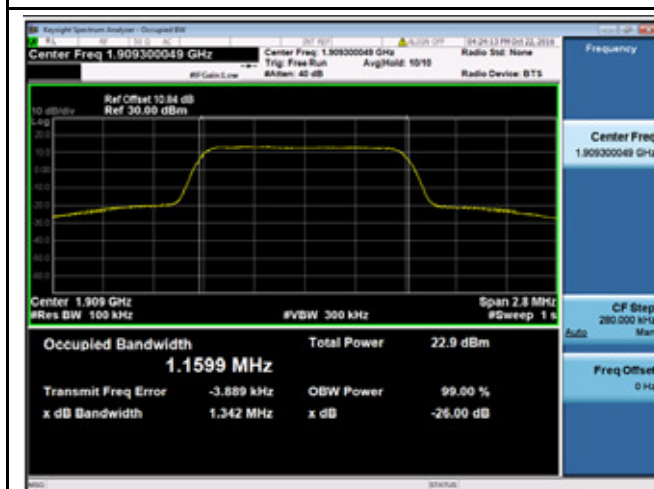
LTE band 2 - Low CH 16QAM-1.4



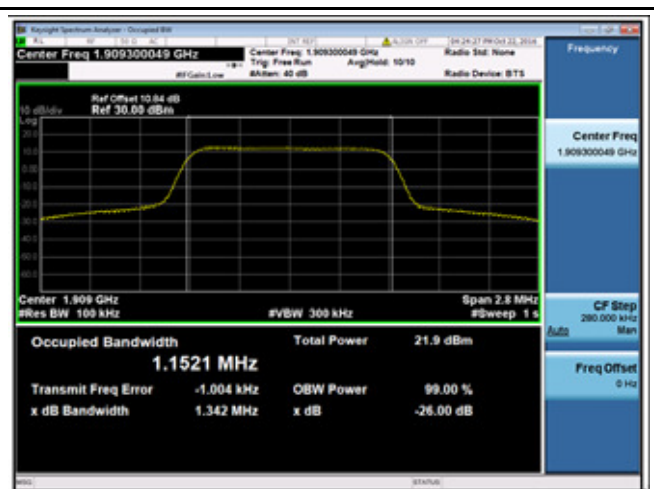
LTE band 2 - Middle CH QPSK-1.4



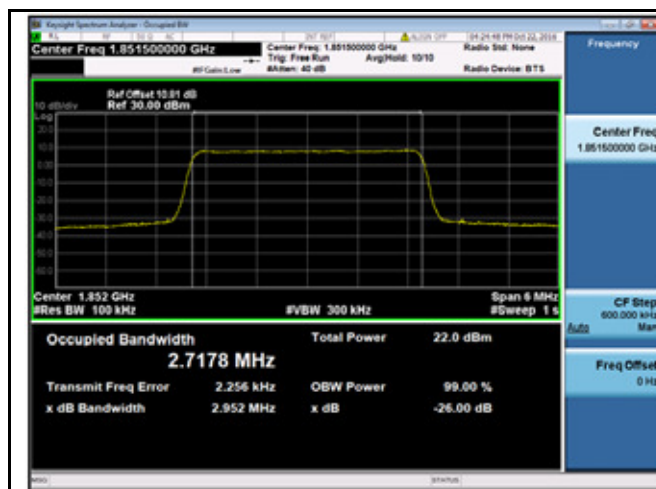
LTE band 2 - Middle CH 16QAM-1.4



LTE band 2 - High CH QPSK-1.4



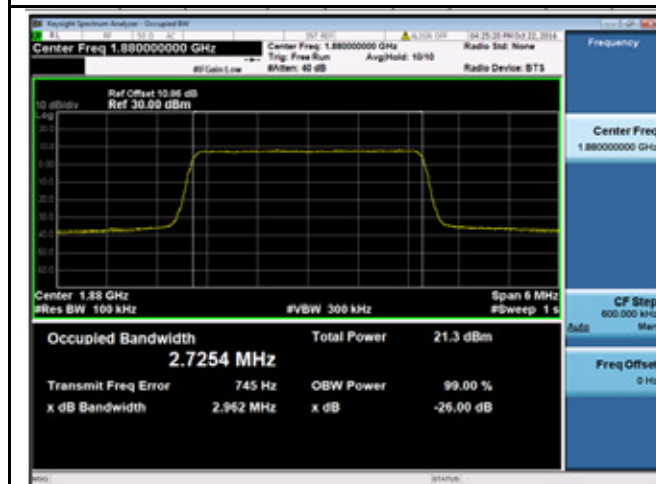
LTE band 2 - High CH 16QAM-1.4



LTE band 2 - Low CH QPSK-3



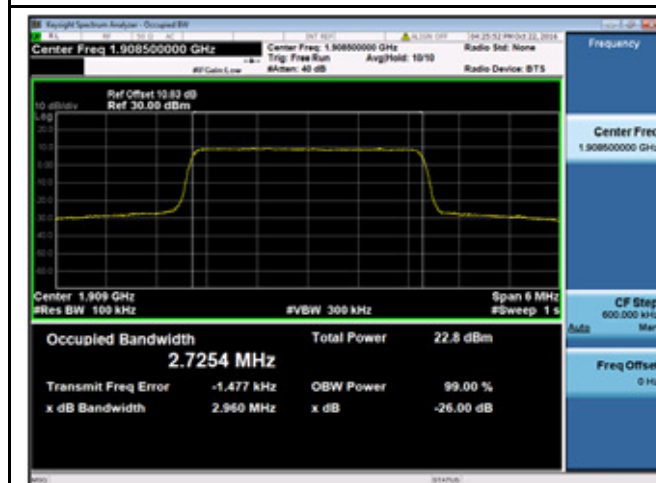
LTE band 2 - Low CH 16QAM-3



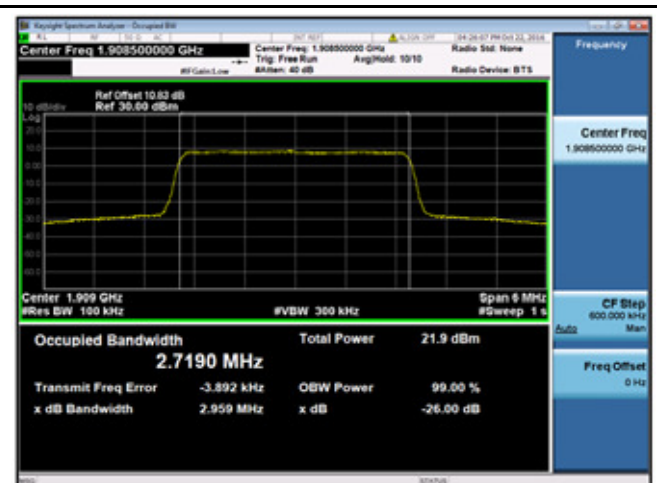
LTE band 2 - Middle CH QPSK-3



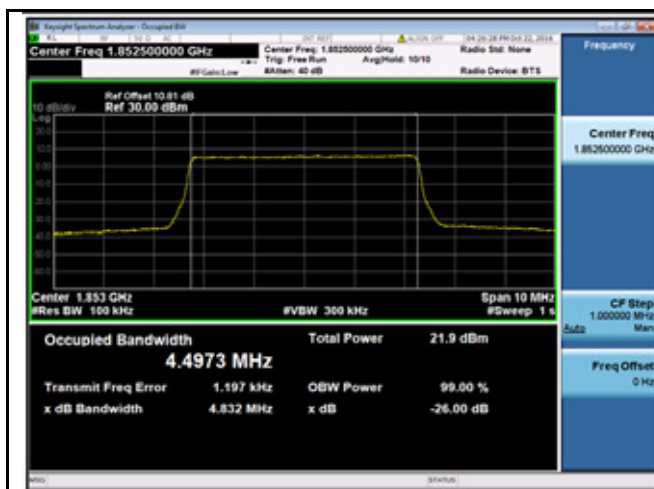
LTE band 2 - Middle CH 16QAM-3



LTE band 2 - High CH QPSK-3



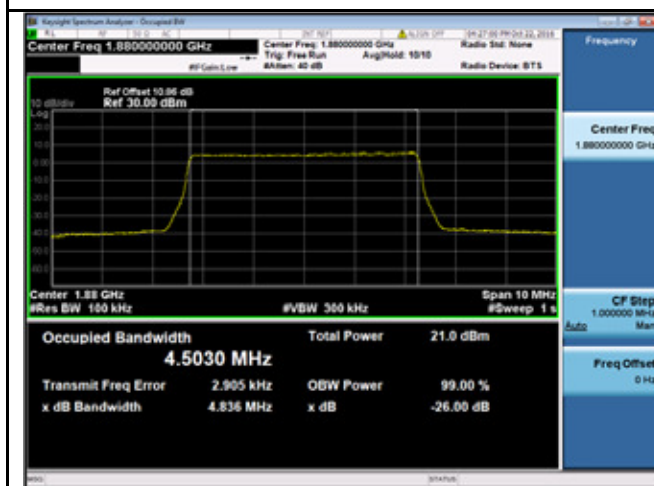
LTE band 2 - High CH 16QAM-3



LTE band 2 - Low CH QPSK-5



LTE band 2 - Low CH 16QAM-5



LTE band 2 - Middle CH QPSK-5



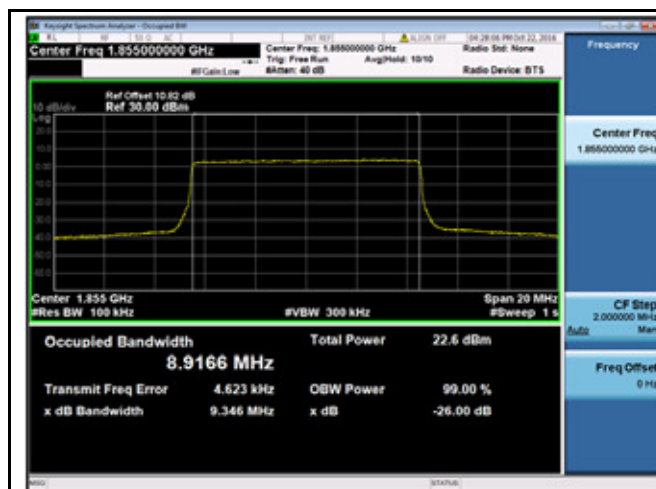
LTE band 2 - Middle CH 16QAM-5



LTE band 2 - High CH QPSK-5



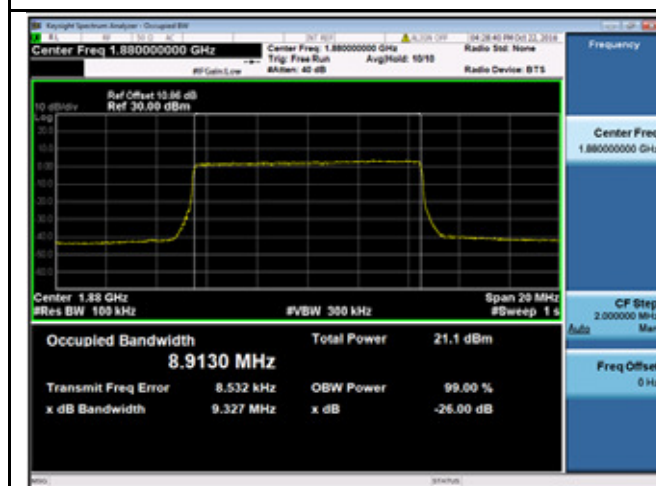
LTE band 2 - High CH 16QAM-5



LTE band 2 - Low CH QPSK-10



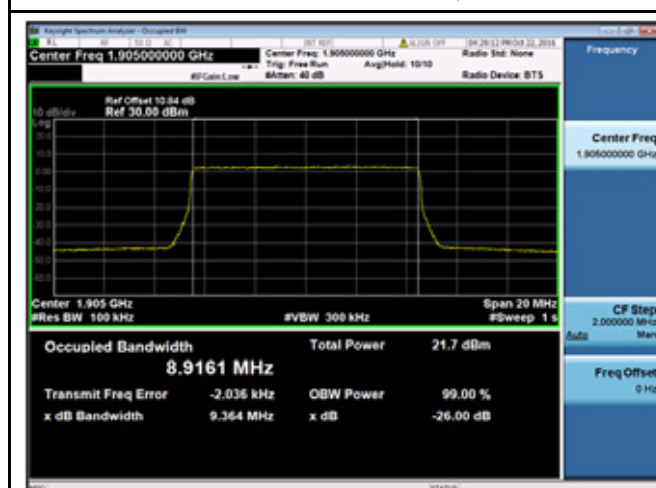
LTE band 2 - Low CH 16QAM-10



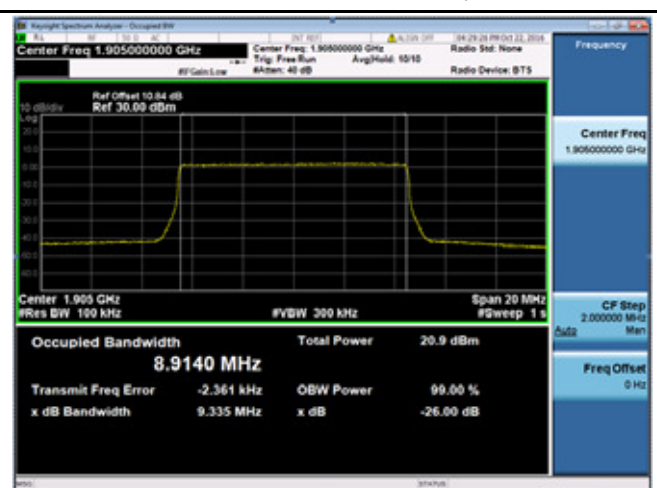
LTE band 2 - Middle CH QPSK-10



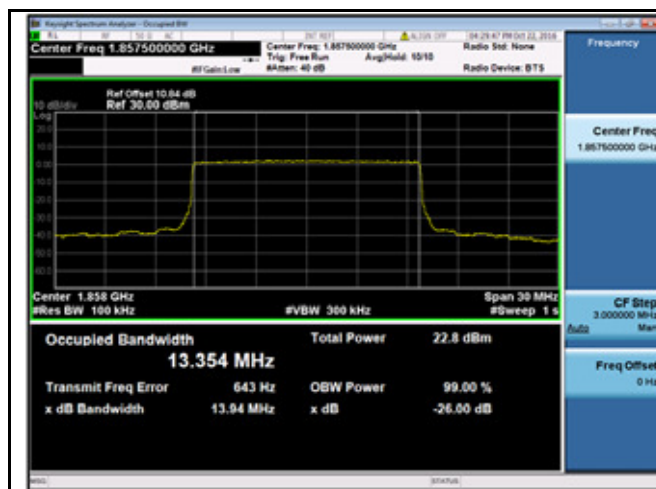
LTE band 2 - Middle CH 16QAM-10



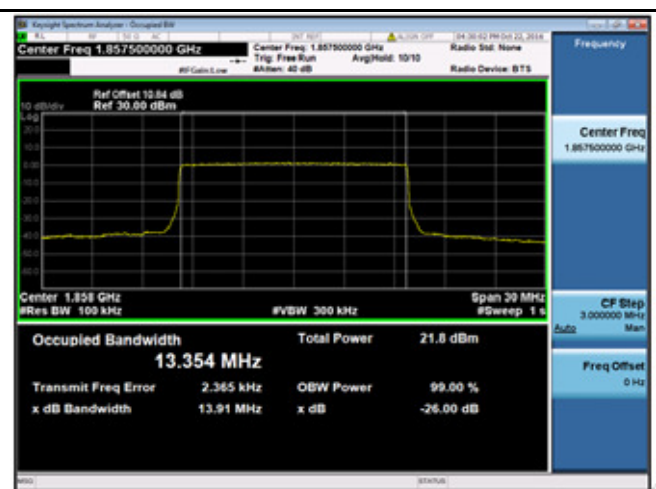
LTE band 2 - High CH QPSK-10



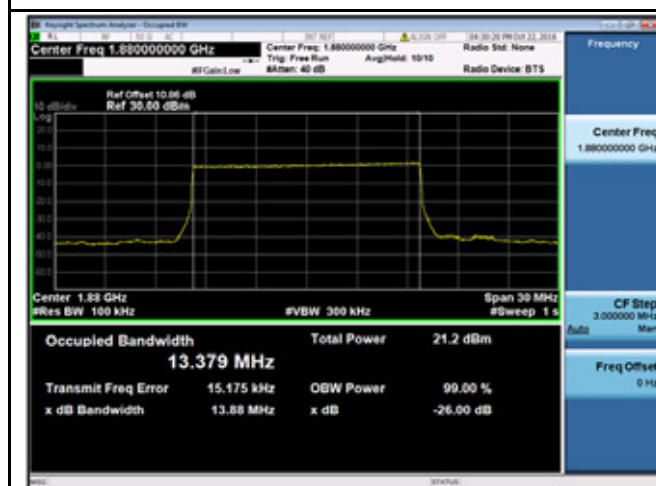
LTE band 2 - High CH 16QAM-10



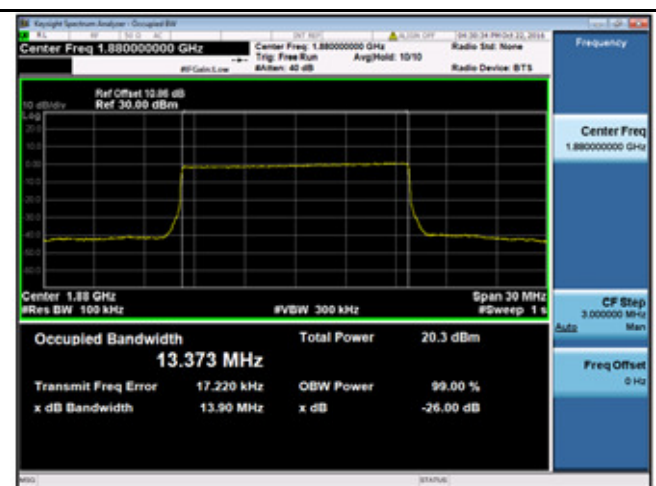
LTE band 2 - Low CH QPSK-15



LTE band 2 - Low CH 16QAM-15



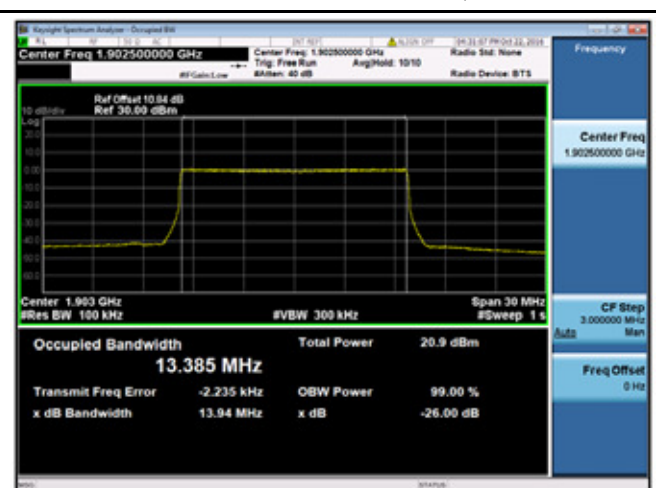
LTE band 2 - Middle CH QPSK-15



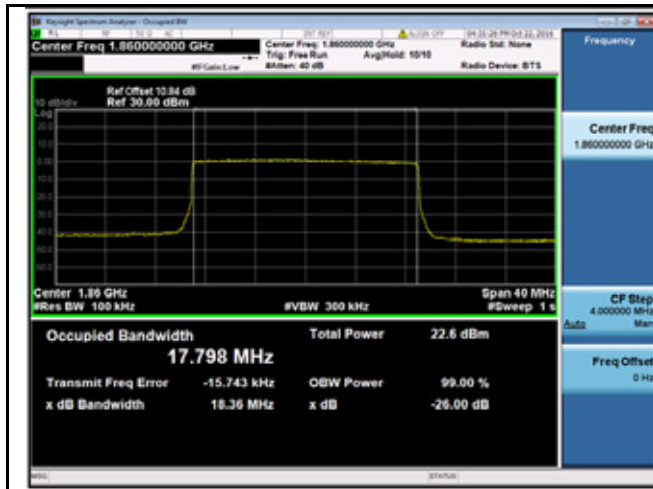
LTE band 2 - Middle CH 16QAM-15



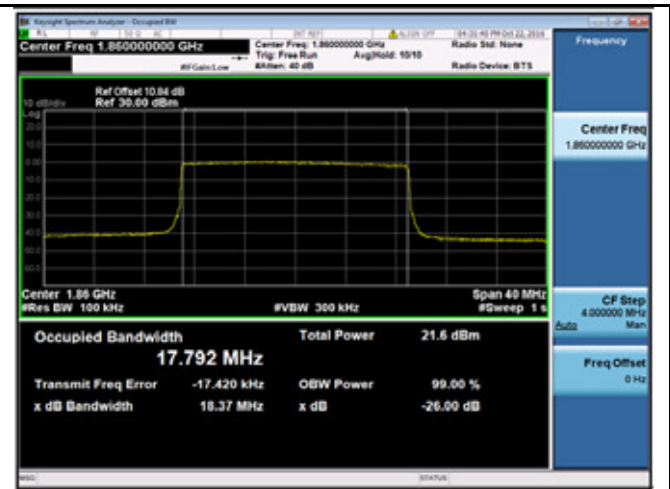
LTE band 2 - High CH QPSK-15



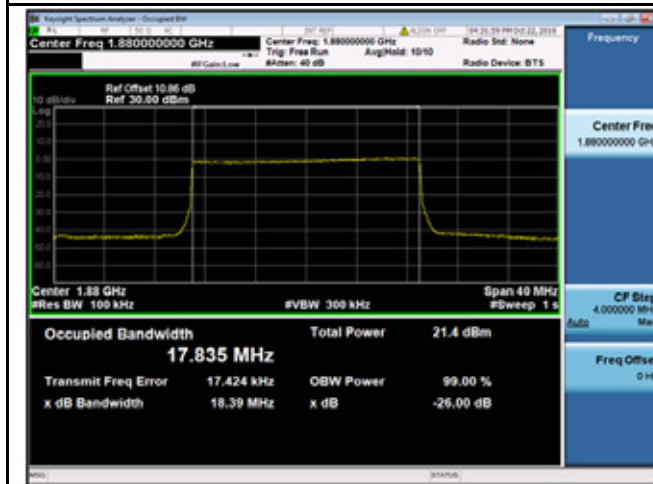
LTE band 2 - High CH 16QAM-15



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

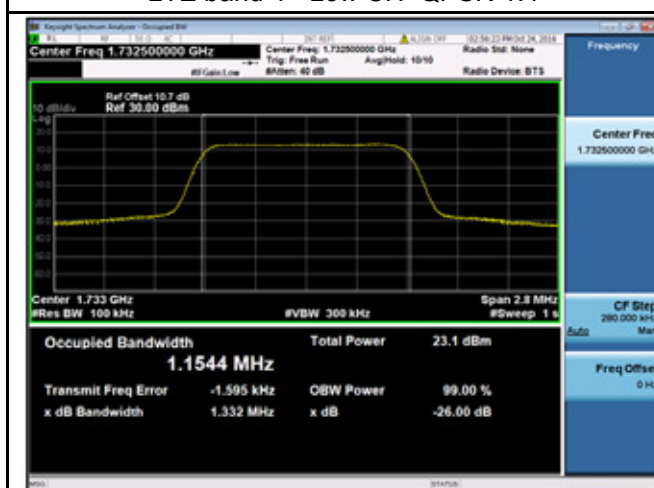


LTE band 2 - High CH 16QAM-20

## 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

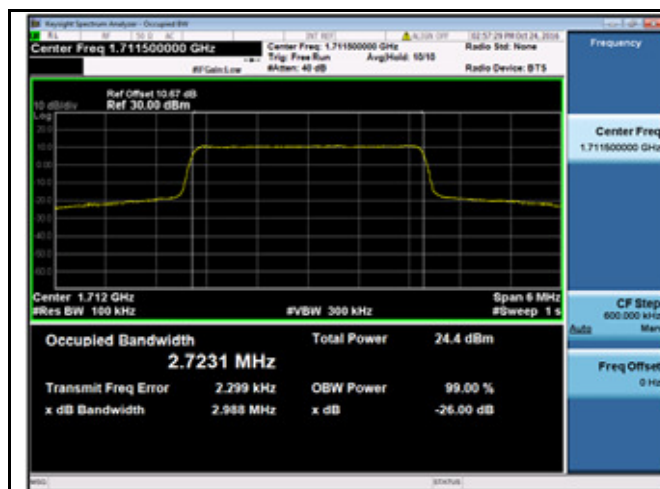


## LTE band 4 - High CH QPSK-1.4

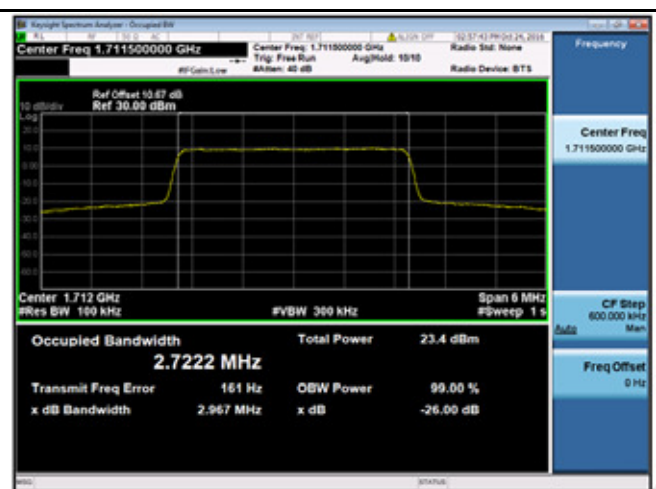


## LTE band 4 - High CH 16QAM-1.4

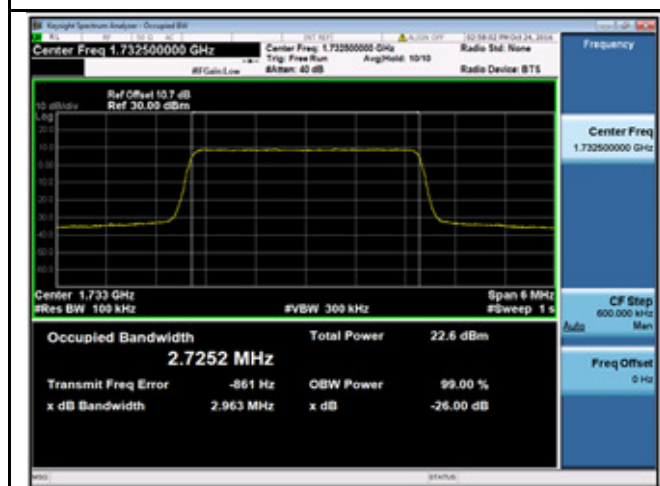




LTE band 4 - Low CH QPSK-3



LTE band 4 - Low CH 16QAM-3



LTE band 4 - Middle CH QPSK-3



LTE band 4 - Middle CH 16QAM-3



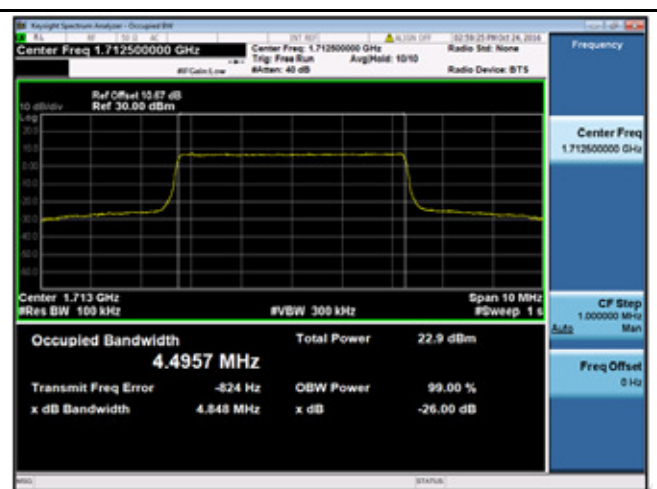
LTE band 4 - High CH QPSK-3



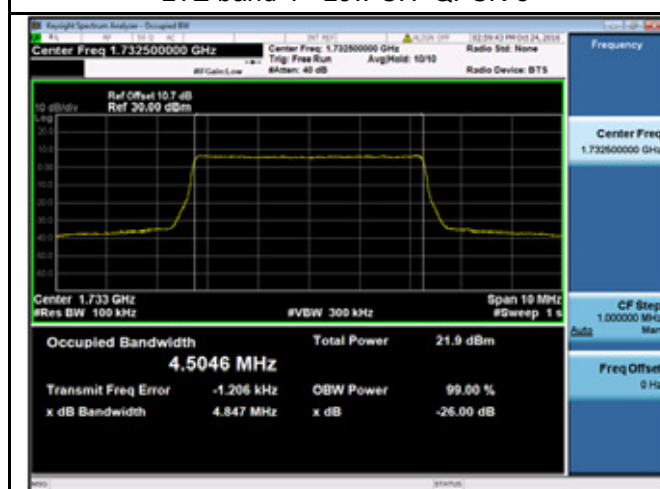
LTE band 4 - High CH 16QAM-3



LTE band 4 - Low CH QPSK-5



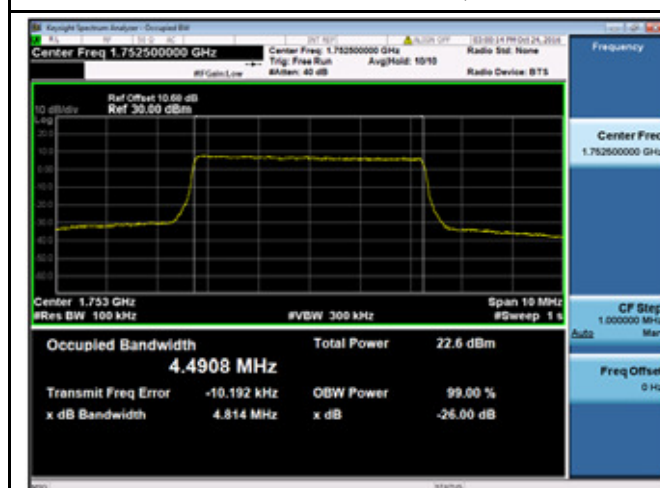
LTE band 4 - Low CH 16QAM-5



LTE band 4 - Middle CH QPSK-5



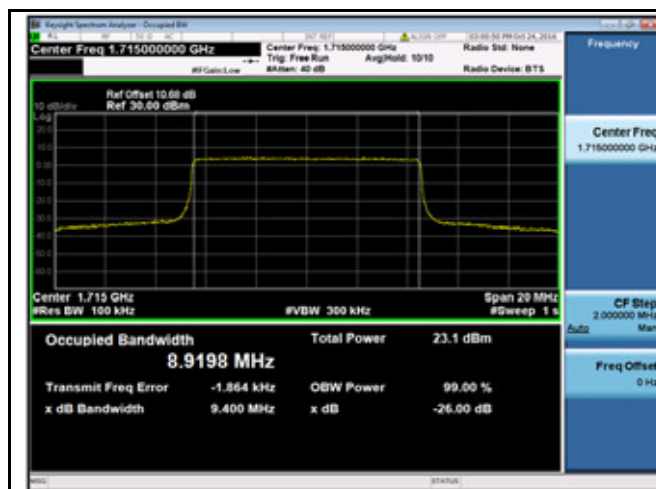
LTE band 4 - Middle CH 16QAM-5



LTE band 4 - High CH QPSK-5



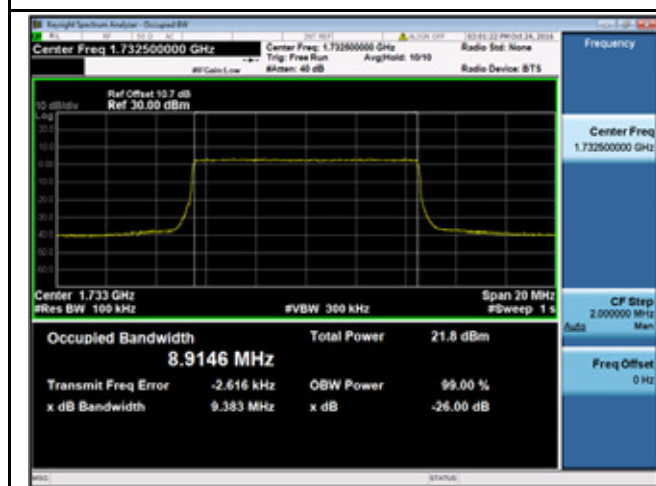
LTE band 4 - High CH 16QAM-5



LTE band 4 - Low CH QPSK-10



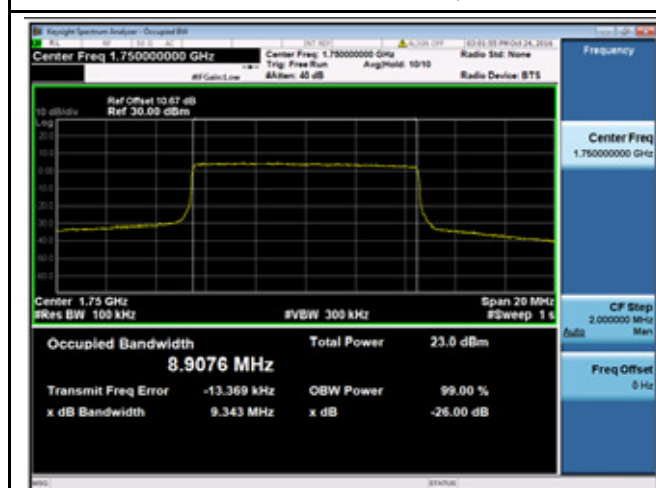
LTE band 4 - Low CH 16QAM-10



LTE band 4 - Middle CH QPSK-10



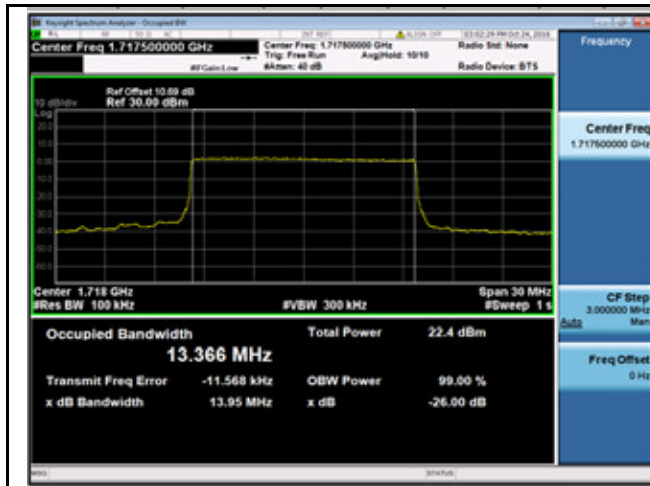
LTE band 4 - Middle CH 16QAM-10



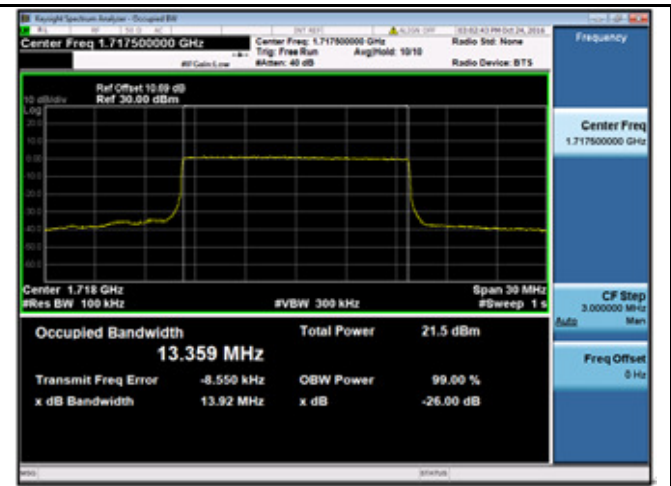
LTE band 4 - High CH QPSK-10



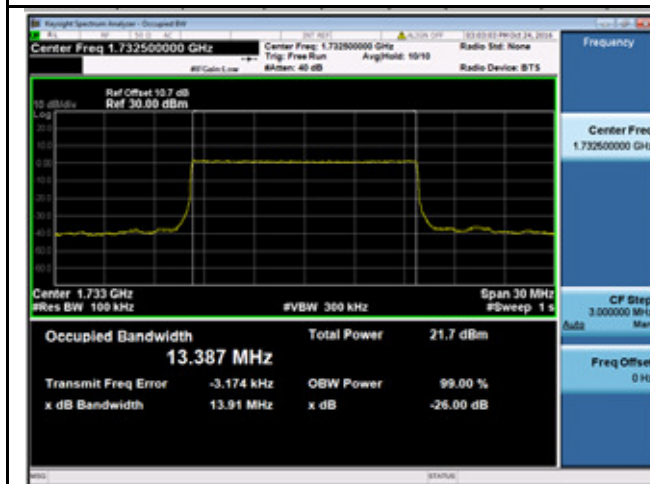
LTE band 4 - High CH 16QAM-10



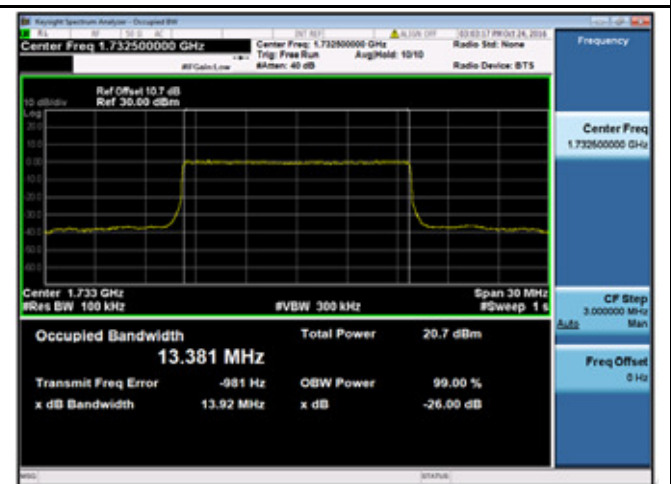
LTE band 4 - Low CH QPSK-15



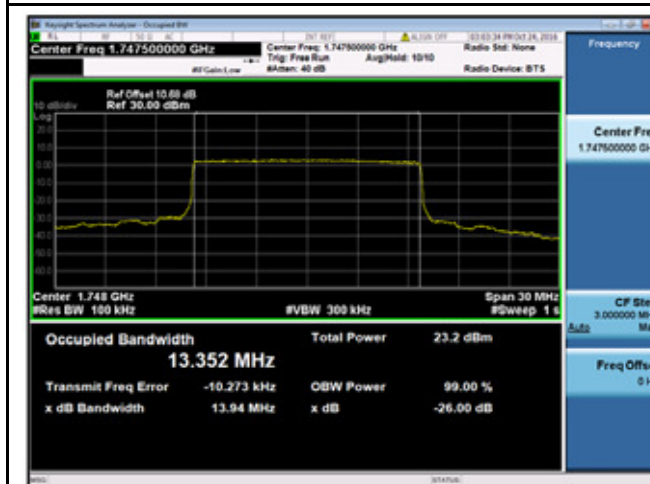
LTE band 4 - Low CH 16QAM-15



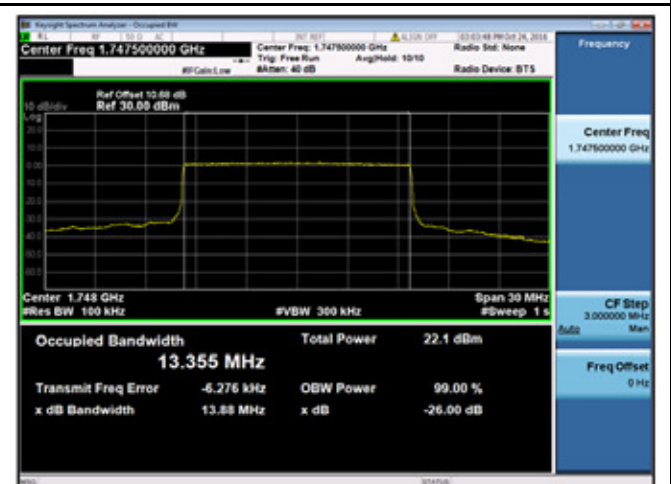
LTE band 4 - Middle CH QPSK-15



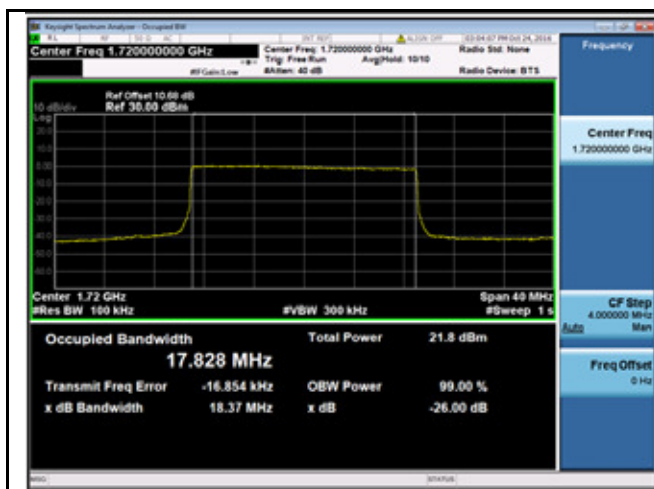
LTE band 4 - Middle CH 16QAM-15



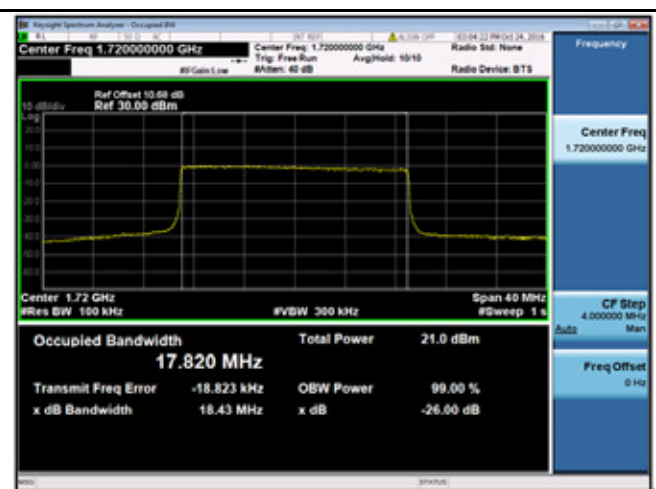
LTE band 4 - High CH QPSK-15



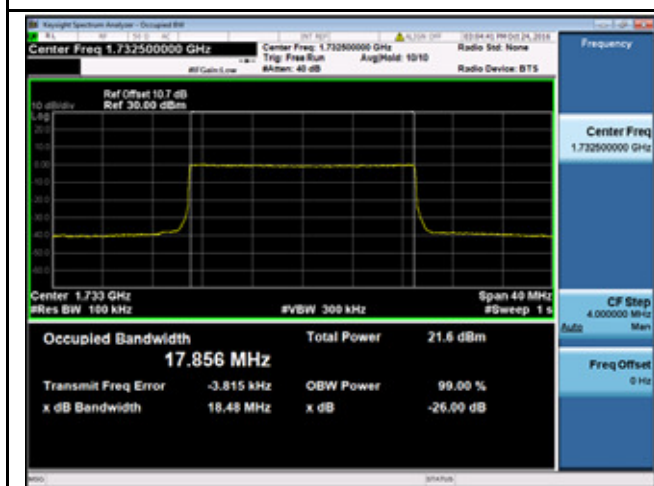
LTE band 4 - High CH 16QAM-15



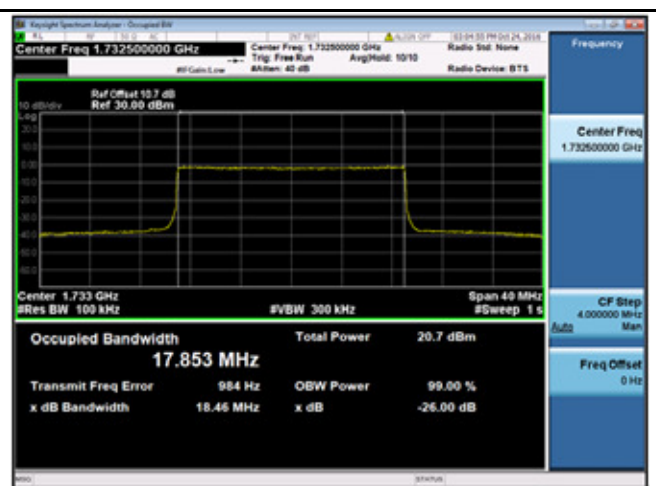
LTE band 4 - Low CH QPSK-20



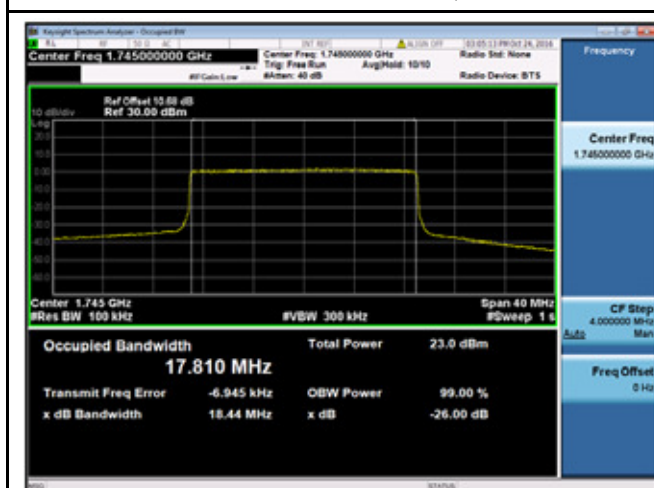
LTE band 4 - Low CH 16QAM-20



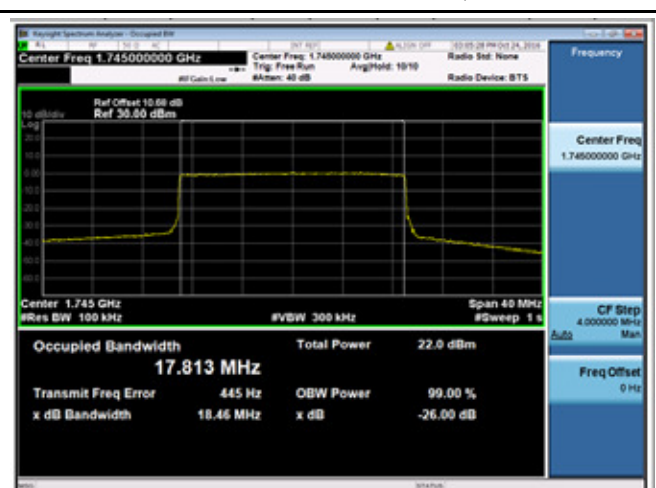
LTE band 4 - Middle CH QPSK-20



LTE band 4 - Middle CH 16QAM-20



LTE band 4 - High CH QPSK-20



LTE band 4 - High CH 16QAM-20

## 10 SPURIOUS EMISSIONS AT ANTENNA TERMINALS

|                   |                                      |
|-------------------|--------------------------------------|
| Test Requirement: | FCC Part 2.1051, 24.238(a), 27.53(h) |
| Test Method:      | TIA/EIA-603-D:2010                   |
| Test Mode:        | Transmitting                         |

### 10.1 EUT Operation

|                         |         |
|-------------------------|---------|
| Operating Environment : |         |
| Temperature:            | 23.5 °C |
| Humidit                 |         |

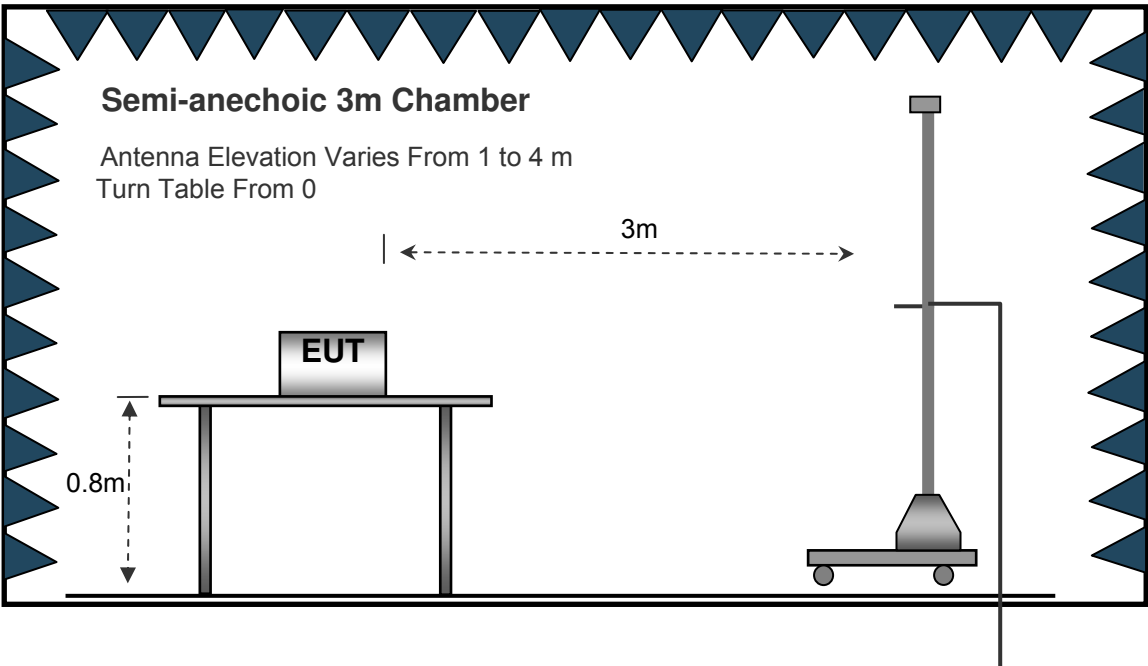
## 11 SPURIOUS RADIATED EMISSIONS

|                   |                                  |
|-------------------|----------------------------------|
| Test Requirement: | FCC Part 2.1053,24.238, 27.53(h) |
| Test Method:      | TIA/EIA-603-D:2010               |
| Test Mode:        | Transmitting                     |

### 11.1 EUT Operation

|                         |         |
|-------------------------|---------|
| Operating Environment : |         |
| Temperature:            | 23.5 °C |
| Humidit                 |         |

The test setup for emission measurement above 1 GHz.



11.3 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

## 11.4 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 X position. So the data shown was the X 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 =  $10 \lg (\text{TXpwr in Watts}/0.001)$  – the absolute level  
Spurious attenuation limit in dB =  $43 + 10 \lg (\text{power out in Watts})$
8. Repeat above procedures until the measurements for all frequencies are completed.

## 11.5 Summary of Test Results

Remark: Test performed from 30MHz to 10<sup>th</sup> 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                   | 45.51            | 83               | 1.2        | H     | -65.00      | 0.15  | 0.00         | -65.15         | -13.00 | -52.15 |
| 199.38                   | 38.18            | 26               | 1.5        | V     | -69.41      | 0.15  | 0.00         | -69.56         | -13.00 | -56.56 |
| 3701.40                  | 65.95            | 266              | 2.1        | H     | -45.59      | 2.37  | 12.50        | -35.46         | -13.00 | -22.46 |
| 3701.40                  | 59.98            | 224              | 2.1        | V     | -49.83      | 2.37  | 12.50        | -39.70         | -13.00 | -26.70 |
| 5552.10                  | 53.58            | 70               | 1.0        | H     | -56.03      | 2.86  | 12.90        | -45.99         | -13.00 | -32.99 |
| 5552.10                  | 44.73            | 26               | 1.7        | V     | -64.15      | 2.86  | 12.90        | -54.11         | -13.00 | -41.11 |
| LTE BAND 2 Channel 18900 |                  |                  |            |       |             |       |              |                |        |        |
| 199.38                   | 45.12            | 219              | 2.1        | H     | -65.39      | 0.15  | 0.00         | -65.54         | -13.00 | -52.54 |
| 199.38                   | 38.76            | 213              | 1.6        | V     | -68.83      | 0.15  | 0.00         | -68.98         | -13.00 | -55.98 |
| 3760.00                  | 58.82            | 172              | 1.0        | H     | -52.72      | 2.37  | 12.50        | -42.59         | -13.00 | -29.59 |
| 3760.00                  | 52.63            | 181              | 1.2        | V     | -57.18      | 2.37  | 12.50        | -47.05         | -13.00 | -34.05 |
| 5640.00                  | 47.28            | 33               | 1.8        | H     | -62.33      | 2.86  | 12.90        | -52.29         | -13.00 | -39.29 |
| 5640.00                  | 36.89            | 128              | 1.5        | V     | -71.99      | 2.86  | 12.90        | -61.95         | -13.00 | -48.95 |
| LTE BAND 2 Channel 19193 |                  |                  |            |       |             |       |              |                |        |        |
| 199.38                   | 44.80            | 94               | 1.0        | H     | -65.71      | 0.15  | 0.00         | -65.86         | -13.00 | -52.86 |
| 199.38                   | 38.27            | 29               | 1.7        | V     | -69.32      | 0.15  | 0.00         | -69.47         | -13.00 | -56.47 |
| 3818.60                  | 51.96            | 56               | 1.7        | H     | -58.89      | 2.37  | 12.60        | -48.66         | -13.00 | -35.66 |
| 3818.60                  | 45.66            | 23               | 1.7        | V     | -63.65      | 2.37  | 12.60        | -53.42         | -13.00 | -40.42 |
| 5727.90                  | 41.15            | 213              | 1.0        | H     | -68.20      | 2.86  | 12.90        | -58.16         | -13.00 | -45.16 |
| 5727.90                  | 29.07            | 181              | 1.4        | V     | -79.43      | 2.86  | 12.90        | -69.39         | -13.00 | -56.39 |

## 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                   | 41.34            | 177              | 1.4        | H     | -69.17      | 0.15  | 0.00         | -69.32         | -13.00 | -56.32 |
| 199.38                   | 29.93            | 216              | 2.1        | V     | -77.66      | 0.15  | 0.00         | -77.81         | -13.00 | -64.81 |
| 3421.40                  | 65.95            | 221              | 1.7        | H     | -47.10      | 2.34  | 12.40        | -37.04         | -13.00 | -24.04 |
| 3421.40                  | 59.98            | 243              | 1.4        | V     | -51.17      | 2.34  | 12.40        | -41.11         | -13.00 | -28.11 |
| 5132.10                  | 53.58            | 95               | 1.4        | H     | -55.83      | 2.79  | 12.70        | -45.92         | -13.00 | -32.92 |
| 5132.10                  | 44.73            | 302              | 1.0        | V     | -64.04      | 2.79  | 12.70        | -54.13         | -13.00 | -41.13 |
| LTE BAND 4 Channel 20175 |                  |                  |            |       |             |       |              |                |        |        |
| 199.38                   | 41.11            | 169              | 1.8        | H     | -69.40      | 0.15  | 0.00         | -69.55         | -13.00 | -56.55 |
| 199.38                   | 30.88            | 216              | 1.6        | V     | -76.71      | 0.15  | 0.00         | -76.86         | -13.00 | -63.86 |
| 3465.00                  | 58.54            | 134              | 2.0        | H     | -54.51      | 2.37  | 12.50        | -44.38         | -13.00 | -31.38 |
| 3465.00                  | 53.28            | 58               | 1.9        | V     | -57.87      | 2.37  | 12.50        | -47.74         | -13.00 | -34.74 |
| 5197.50                  | 46.62            | 233              | 1.9        | H     | -62.79      | 2.79  | 12.70        | -52.88         | -13.00 | -39.88 |
| 5197.50                  | 38.33            | 103              | 1.0        | V     | -70.44      | 2.79  | 12.70        | -60.53         | -13.00 | -47.53 |
| LTE BAND 4 Channel 20393 |                  |                  |            |       |             |       |              |                |        |        |
| 199.38                   | 41.26            | 95               | 2.2        | H     | -69.25      | 0.15  | 0.00         | -69.40         | -13.00 | -56.40 |
| 199.38                   | 30.68            | 251              | 1.4        | V     | -76.91      | 0.15  | 0.00         | -77.06         | -13.00 | -64.06 |
| 3508.60                  | 52.00            | 31               | 2.0        | H     | -60.64      | 2.37  | 12.50        | -50.51         | -13.00 | -37.51 |
| 3508.60                  | 47.05            | 311              | 1.9        | V     | -63.68      | 2.37  | 12.50        | -53.55         | -13.00 | -40.55 |
| 5262.90                  | 38.98            | 276              | 2.1        | H     | -70.60      | 2.81  | 12.80        | -60.61         | -13.00 | -47.61 |
| 5262.90                  | 31.56            | 199              | 2.0        | V     | -77.24      | 2.81  | 12.80        | -67.25         | -13.00 | -54.25 |

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

2) Margin = Limit- Absolute Level

## 12 Band Edge Measurement

|                   |                                      |
|-------------------|--------------------------------------|
| Test Requirement: | FCC Part 2.1051, 24.238(a), 27.53(h) |
| Test Method:      | TIA/EIA-603-D:2010                   |
| Test Mode:        | Transmitting                         |

### 12.1 EUT Operation

|                         |         |
|-------------------------|---------|
| Operating Environment : |         |
| Temperature:            | 23.5 °C |
| Humidity:               |         |

## 13 FREQUENCY STABILITY

|                   |                                        |
|-------------------|----------------------------------------|
| Test Requirement: | FCC Part 2.1055, 24.235, 27.5(h),27.54 |
| Test Method:      | TIA/EIA-603-D:2010                     |
| Test Mode:        | Transmitting                           |

### 13.1 EUT Operation

|                         |         |
|-------------------------|---------|
| Operating Environment : |         |
| Temperature:            | 22.9 °C |
| Humidit                 |         |

13.3 Test Result

|                                      |  |
|--------------------------------------|--|
| LTE Band 2                           |  |
| Test Frequency:1880.0MHz QPSK 1.4MHz |  |
| Temperature                          |  |
| (                                    |  |

|                                    |  |
|------------------------------------|--|
| LTE Band 2                         |  |
| Test Frequency:1880.0MHz QPSK 3MHz |  |
| Temperature                        |  |
| (                                  |  |

|                                    |  |
|------------------------------------|--|
| LTE Band 2                         |  |
| Test Frequency:1880.0MHz QPSK 5MHz |  |
| Temperature                        |  |
| (                                  |  |

| LTE Band 2  |                                     |
|-------------|-------------------------------------|
|             | Test Frequency:1880.0MHz QPSK 10MHz |
| Temperature |                                     |
| (           |                                     |

| LTE Band 2  |                                     |
|-------------|-------------------------------------|
|             | Test Frequency:1880.0MHz QPSK 15MHz |
| Temperature |                                     |
| (           |                                     |

| LTE Band 2                          |  |
|-------------------------------------|--|
| Test Frequency:1880.0MHz QPSK 20MHz |  |
| Temperature                         |  |
| (                                   |  |

| LTE Band 4  |                                      |
|-------------|--------------------------------------|
|             | Test Frequency:1732.5MHz QPSK 1.4MHz |
| Temperature |                                      |
| (           |                                      |

| LTE Band 4                         |  |
|------------------------------------|--|
| Test Frequency:1732.5MHz QPSK 3MHz |  |
| Temperature                        |  |
| (                                  |  |

|                                    |  |
|------------------------------------|--|
| LTE Band 4                         |  |
| Test Frequency:1732.5MHz QPSK 5MHz |  |
| Temperature                        |  |
| (                                  |  |

LTE Band 4

Test Frequency: 1732.5MHz QPSK 10MHz

Temperature  
(

| LTE Band 4  |                                     |
|-------------|-------------------------------------|
|             | Test Frequency:1732.5MHz QPSK 15MHz |
| Temperature |                                     |
| (           |                                     |

| LTE Band 4  |                                     |
|-------------|-------------------------------------|
|             | Test Frequency:1732.5MHz QPSK 20MHz |
| Temperature |                                     |
| (           |                                     |

## 14 RF Exposure

Remark: refer to SAR test report: WTS16S0857820E

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